

Rosenbauer/Central States

One (1)
00-GA-87

CAB AND CHASSIS

The cab and chassis shall be a Spartan Chassis, Inc. Flat Floor Gladiator, model GA40H, extended long four door, aluminum tilt cab, built specifically for the fire service by a publicly held U.S. parent company, specializing in chassis design for all fire service applications. The cab and chassis shall meet the requirements of the National Fire Protection Association Standard 1901, (2003 edition or latest edition).

One (1)
17-EL-00

FLAT FLOOR ELFD TILT CAB

The cab shall be a Spartan Chassis, Inc. Flat Floor, ELFD (extended long four door), aluminum tilt cab, capable of seating ten (10) firefighters.

The cab shall be of the Eurospace interior design allowing for easy communication inside the cab. The cab overall length shall be 150.38" with 74.00" from the centerline of the front axle to the back of the cab.

The rear cab wall shall be .090" thick aluminum. The rear floor to the headliner shall be 55.00" high.

The cab front skin and floor shall be .190" thick aluminum. The inside width shall be 90.00" and the front floor to headliner shall be 58.00" high.

All glass used in the cab shall be automotive tint. The windshield shall have a maximum of 2890 sq.in. area and be of the wraparound design 52.88" wide and 27.88" height for maximum visibility. Left and right windshield shall use the same interchangeable glass.

A molded rubber 11" grab handle shall be provided on the hinge post inside the cab at both the driver and officer door for entering and exiting the cab.

The driver and officer seats shall have an 8.25" high x 12.69" wide x 15.13" deep compartment in the seat box beneath them. The compartment shall have a hinged door with an opening of 6.00" high x 12.50" wide.

Intermittent electric wipers with a single motor and electric powered "wet arm" type windshield washers shall be provided. Access to the wiper motor shall be through the driver's side headlamp module located on the front cab fascia.

One (1)
18-05-76

CAB DOORS

The cab doors shall be flush, full length type with hidden .375" stainless steel door hinges. All doors shall be equipped with exterior pull handles, suitable for use with firefighter mittens, and keyed alike locks that are designed to prevent accidental lockout.

The interior latches shall be black flush paddle type, which are incorporated into an upper door panel.

The front doors shall measure 43.00" wide x 77.00" high with .13" thick aluminum skins. The steps shall be a two (2) step configuration with the lower step constructed of an open

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grate material and the intermediate step shall be covered with embossed, NFPA compliant aluminum tread plate.

The following measurements shall apply:
First step: 11.44" deep x 31.13" wide
Intermediate step: 8.75" deep x 33.00" wide
Ground to first step: approximately 21.00"
First step to intermediate step: 11.00"
Intermediate step to floor: 11.00"

The rear doors shall measure 34.00" wide x 77.00" high with .13" thick aluminum skins. The rear steps shall be a two (2) step configuration with the lower step constructed of an open grate material and the intermediate step covered with embossed, NFPA compliant aluminum tread plate.

The following measurements shall apply:
First step: 12.13" deep x 20.44" wide
Intermediate step: 10.50" deep x 23.00" wide
Ground to first step: approximately 21.00"
First step to intermediate step: 12.50"
Intermediate step to floor: 12.50"

One (1)
18-09-05

DOOR HANDLES EXTERIOR - CHROME

The cab door exterior pull handles (4) shall be extruded aluminum with a polished chrome plated finish.

Each handle shall include an aluminum scuff plate with a polished chrome finish. The scuff plate shall be 6.25" tall x 10.50" wide.

One (1)
18-09-09

STAINLESS TRIM

A stainless steel trim band, 10" high with upper and lower trim affixed without holes and fasteners shall be installed on the lower exterior sides of the cab and doors.

One (1)
18-06-4P

FRONT AND REAR POWER DOOR WINDOWS

The front doors shall have a full power window 27.00" x 26.00" with a total glass area of 702 square inch each.

The rear doors shall have a power window 27.50" x 26.00" with a total glass area of 715 square inch each.

The driver shall be able to control all windows. The officer and crew area windows shall have individual controls.

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One (1)
20-25-13

FABRIC COVERED SEATS - DURABLE BALLISTIC POLYESTER

The seats shall be covered with a high strength, wear resistant fabric of durable ballistic polyester. A PVC coating is bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids.

Include red Rosenbauer "R" logo on all seats.

One (1)
20-25-30

GRAY SEAT COLOR

All seats supplied on the chassis shall be gray in color.

One (1)
20-25-52

ROLLTEK ROLLOVER OCCUPANT PROTECTION SYSTEM

An RollTek Rollover Occupant Protection System shall be installed in the chassis. In a side roll event, the system shall secure occupants, increase survivable space, and protect head/neck.

Using a microprocessor-controlled, solid-state sensing device, the system detects a side roll, and then provides instantaneous occupant protection (less than 0.3 seconds from trigger to total deployment).

The RollTek Rollover Occupant Protection System automatically initiates the following sequence:

1. Tightens the seat belt around the occupant.
2. Pulls the air suspension seat down to its lowest position, locking the seat, and placing the occupant in a zone providing more survivable space and minimizing head contact with the interior roof (only on air suspension seats).
3. Deploys an inflatable curtain airbag across the driver's and passenger's side windows - a side curtain airbag - that protects and cushions the head and neck to reduce movement and the chance of head contact with the roof.

System Components Include:

IRS - Integrated Roll Sensor - detects imminent rollover, activates protective devices and records crash events.

IBP - Integrated Belt Pretensioner (not on air suspension seats) - tightens belt around occupant, secures occupant in seat and positions occupant for contact with integrated head cushion.

S4S - Seat Pull-down System (air suspension seats only) - locks seat to lowest position, increases survivable space, tightens belt around occupant, secures occupant in seat and positions occupant for contact with integrated head cushion.

IHC - Inflatable Head Cushion (driver, officer and outer crew seats only) - protects head/neck and shields occupant from dangerous surfaces. Remains inflated for 8-10 seconds.

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One (1)
20-25-61

ROLLTEK ROLLOVER OCCUPANT PROTECTION SYSTEM

The driver seat shall be equipped with an RollTek Rollover Occupant Protection System.

One (1)
20-25-66

ROLLTEK ROLLOVER OCCUPANT PROTECTION SYSTEM

The officer seat shall be equipped with an RollTek Rollover Occupant Protection System.

One (1)
20-25-72

ROLLTEK ROLLOVER OCCUPANT PROTECTION SYSTEM

The outboard seats shall be equipped with an RollTek Rollover Occupant Protection System.

One (1)
20-25-81

ROLLTEK ROLLOVER OCCUPANT PROTECTION SYSTEM

The inboard seat shall be equipped with an RollTek Rollover Occupant Protection System.

One (1)
20-30-00

DRIVER SEAT

The driver's seat shall be a four-way air suspended type Seats Inc. 911 "Universal" high back seat with air control valve located at lower front of seat. The suspension mechanism shall be enclosed by a rubber bellows.

The seat shall be equipped with an adjustable lumbar support, adjustable titling seat back and "knee rake" bottom cushion adjustment.

The seat shall be equipped with a red three-point shoulder harness with lap belt and an automatic retractor attached to the cab.

One (1)
20-35-00

OFFICER SEAT

The officer's seat shall be a four-way air suspended type Seats Inc. 911 "Universal" SCBA high back seat with air control valve located at lower front of seat. The suspension mechanism shall be enclosed by a rubber bellows.

The seat back shall include a vertically split hinged headrest and ZICO "ULL" bracket with LLS strap. A removable padded cover shall be supplied over the SCBA cavity.

The seat shall be equipped with a red three-point shoulder harness with lap belt and an automatic retractor attached to the cab.

One (1)
21-60-61

FORWARD FACING FULL WIDTH SEAT BOX

A seat box 87-3/8" wide x 12" high x 25-1/4" deep shall be installed against the rear wall for seat mounting. The seat box shall be made from smooth aluminum and welded to the

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cab structure for seat mounting integrity. The seat box will be painted the cab interior color.

The front of the seat box shall have two (2) hinged doors with latches and openings 18" wide x 8-5/8" high to allow access for storage in the seat box.

One (1)
23-16-05

ELFD COMPARTMENT

The cab shall contain an exterior compartment on each side of the cab behind the rear doors. The compartment opening shall be 16.25" wide x 21.19" high. The compartment size shall be 17.84" wide x 21.19" high x 21.19" deep. The compartment shall have a 17.13" wide, 32.00" high and 1.50" thick hinged box pan style flush mount door with a locking bent D-ring slam latch with door switch to activate open compartment warning light in cab.

One (1)
00-XX-06

CAB CRASH TEST ECE-29

Spartan Chassis, Inc. has successfully submitted their extruded flat floor cab to the International crash test ECE-29, Addendum 28, revision 1. As part of the ECE regulation 29 test, the frontal area of the cab is struck by a 3,700 pound pendulum weight. The weight is brought back to a sixty degree angle and then the weight is released and allowed to swing forward, imparting some 32,600 lb.ft. of force to the cab front face. The cab must be so constructed that after the test, there will be minimal intrusion of cab structure into the passenger area. Note: After the test the Spartan cab doors remained usable for both entry or exit. Also, as part of the test the cab roof must withstand a static load bearing test. The Spartan cab withstood a weight of over 60,000 pounds without permanent damage or collapse. The above tests were witnessed by and attested to by an independent third party. The test results were recorded on/by cameras, high speed imagers, accelerometers and strain gauges. Notarized copies of the letters verifying the test results and videos of said test are available upon request.

One (1)
00-XX-10

ONE YEAR CHASSIS WARRANTY

The chassis manufacturer shall warrant to the original purchaser the custom fire truck chassis for a period of twelve (12) months with the exception of the actual fire apparatus chassis frame which carries a lifetime warranty. The warranty period shall begin on the date the vehicle is delivered to the original purchaser. The warranty may include conditional items, which shall be listed in the detailed warranty document that shall be provided upon request.

One (1)
00-XX-20

CAB WARRANTY

The cab shall be warranted for a period of ten (10) years. Warranty conditions may apply and shall be listed in the detailed warranty document that shall be provided upon request.

One (1)
01-10-40

PAINT FRAME AND CHASSIS UNDER CARRIAGE

The chassis under carriage consisting of frame, axles, driveline running gear, battery boxes, air tanks and other assorted chassis mounted components shall be painted with

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standard black paint. Paint shall be applied before airlines and electrical wiring is installed.

One (1)
01-15-09

CHASSIS WHEELBASE

The chassis wheelbase shall be over 199" and water tank shall be more than 1000 gallons.

Actual wheelbase will be 260".
Actual A/E will be 113".

One (1)
01-10-20

FRAME

The frame side rails shall be black powder coated "C" channel type 10.25" x 3.5" x .38" with an inner channel 9.44" x 3.13" x .38", in addition to the main frame and liner a third rail, 8.625" x 3.875" x .25" shall be added, it shall extend from the rear of the cab to the front rear spring hanger. All rails shall be 110,000 psi high strength steel. The combined RBM shall be 4,140,354 in. lbs. with a section modulus of 37.64 cu.in.

A minimum of seven (7) fully gusseted bolted assembly cross members shall be installed using grade 8 flanged head bolts and flanged lock nuts.

The area between the axle suspension hangers shall be free of any holes or fasteners in the flanges. No welding shall be incorporated in attachment of components. All frame dimensional cutting shall be by a plasma cutter. All relief areas shall be cut with a 2" radius at intersection points of cutouts with edges ground smooth to prevent a stress focal point.

The frame and cross members shall carry a lifetime warranty to the original purchaser.

One (1)
02-10-10

FUEL TANK

The fuel tank shall have a minimum capacity of sixty-eight (68) gallons. The baffled tank shall be made of 14 gauge aluminized steel. The tank exterior is painted with a primer and top coat. This results in a tank which offers the internal and external corrosion resistance and surface characteristics of aluminum with the strength, durability and economy of steel.

The fuel tank shall be mounted under the frame, behind the rear axle on strap hangers with a "U" strap bolted front and rear so the tank can be easily dropped and removed. Tank shall have vent port to facilitate rapid filling without "blow-back". A roll over ball check vent shall be installed.

Dual draw tubes and dual sender ports shall be installed. A 2" NPT fill ports shall be available for right or left hand fill. A 1/2" NPT drain plug shall be centered in the bottom of the tank.

The standard fuel line for ISC and ISL engines will be nylon material rated for diesel fuel. All other engines will be steel wire braid reinforced rubber.

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One (1)
03-10-20

FRONT BUMPER

A one piece, two (2) rib wrap-around style, polished stainless steel front bumper shall be provided. The material shall be 10 gauge 304 stainless steel, 12" high and 101" wide.

The bumper shall be extended 21" ahead of the cab.

One (1)
03-30-25

AIR HORNS

Dual Grover Stuttertone 24" air horns shall be recessed in the front bumper, one (1) each on the driver and officer inboard mounting positions. A 3/8" airline "teed" equal distance from each horn shall be installed.

One (1)
11-40-21

ADDITIONAL AIR RESERVOIR

An additional 1200 cubic inch air reservoir shall be installed and isolated to prevent depletion of the air to the air brake system and to act as a supply tank for operating air equipment. It shall be plumbed with a 90 psi pressure protection valve on the reservoir supply side.

One (1)
16-31-08

INTERSECTOR LIGHTS

Two (2) Weldon 4x6 LED red warning lights shall be installed, one on each bumper tail to act as intersector lights.

One (1)
03-20-20

APRON WITH HOSEWELL

A 3/16" bright embossed aluminum tread plate apron with an open top hose well built into the center shall be installed between the bumper and the face of the cab. The hose well shall be as large as possible depending on the bumper extension and the accessories mounted in the bumper.

One (1)
03-25-16

CHROME PLATED TOW EYES

Two (2) chrome plated tow eyes shall be installed below the bumper. The eyes shall be fabricated from 3/4" thick #1020 ASMT-A36 hot rolled steel. The inside diameter of the eye shall be 2.00" and have a chamfered edge.

One (1)
03-35-18

AIR HORN ACTUATION

Air horns actuation shall be accomplished by a dual lanyard cable, one each side of AC plenum.

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One (1)
03-35-40

HORN SELECTOR SWITCH

A rocker switch shall be installed in the switch panel between the driver and officer to allow control to either the siren or electric horn from the steering wheel horn button. Electric horn will sound by default when selector switch is in either position (FMVSS requirement).

One (1)
03-40-14

SPEAKERS CPI

Two (2) Cast Products Inc. bright aluminum 100 watt speakers shall be recessed in the front bumper, one each outboard on the driver's and officer's side.

The speakers shall be bolted to bumper by means of a polished aluminum trim ring on the front face of the bumper.

One (1)
03-40-55

SIREN 10" ELECTRIC

A Federal Q2B 10" electric siren shall be pedestal mounted on the treadplate apron.

Siren shall be activated through the horn ring button and a push button on the officer's rocker switch panel. A horn/siren switch and siren-brake switch shall be installed in the switch panel.

One (1)
05-21-22

FRONT AXLE

The front axle shall be an ArvinMeritor MFS-23 with a 3.74" drop and a 71.50" KPI.

It shall have a capacity of 23,000 pounds GAWR.

Suspension

The springs shall be a taper type, three (3) leaf, 54" long and 4" wide with a Berlin wrapped front eye. Both spring eyes shall have a case hardened threaded bushing installed with lubrication counter bore and lubrication land off cross bore with grease fitting. The spring capacity shall meet or exceed the capacity of the front axle.

Steering

The hydraulic power assist steering gear shall be a TRW TAS-65 with a hydraulic power assist cylinder. The steering ratio shall be 20.4:1 and have 5.4 turns stop to stop.

One (1)
06-50-22

FRONT WHEELS ALCOA ALUMINUM

The front wheels shall be Alcoa hub piloted, 12.25" x 22.5" polished aluminum wheels.

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One (1)
06-50-30

FRONT WHEEL BEARINGS OIL LUBRICATED

The front axle wheel bearings shall be oil lubricated and come equipped with an oil level visual inspection window.

One (1)
06-50-35

FRONT SHOCK ABSORBERS

Two (2) Bilstein monotubular design, nitrogen gas charged shock absorbers shall be part of the front axle suspension. Bilstein shall warranty the shock for a period of five (5) years.

One (1)
06-60-17

FRONT DISC BRAKES

The front axle shall have Meritor EX225 Disc Plus disc brakes with 17" vented rotors and internal automatic brake adjustment.

One (1)
05-30-50

CHASSIS ALIGNMENT

The chassis frame rails shall be cross checked for length and squareness. Front and rear axles shall be laser aligned. Tires and wheels shall be aligned and toe-in set on the front tires at the chassis manufacturer's facility.

The completed apparatus should be rechecked for proper alignment after the chassis has been fully loaded.

One (1)
06-42-08

FRONT TIRES

The front tires shall be Michelin 425/65R 22.5 20PR "L" tubeless radial XZY3 highway tread with 22.5 x 12.25 ten stud disc wheels.

The tires and wheels shall be rated a maximum of 23,000 pounds when inflated to 120 psi and vehicle is speed is limited to 65 mph or less.

One (1)
06-50-45

STEERING COLUMN AND WHEEL

The Douglas Autotech steering column shall be a seven (7) position tilt and 2.25" telescopic type with an 18" steering wheel. The steering wheel shall be covered with black absorbite padding.

The steering column shall contain a horn button, self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch.

One (1)
07-58-30

TANDEM REAR AXLE

The tandem rear axle shall be an ArvinMeritor model RT-58-185 with single reduction gearing and have a rated capacity of 60,000 pounds GAWR.

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One (1)
07-32-02

TOP SPEED

The top speed of the vehicle shall be approximately 65 MPH +/-2 MPH at governed engine RPM.

One (1)
07-60-12

TANDEM INTER-AXLE DIFFERENTIAL LOCK

The tandem axle chassis shall include an inter-axle differential lock, which will allow both axles to be engaged as drive axles. A lighted, locking rocker switch shall be located on the rocker switch panel.

One (1)
07-65-10

REAR BRAKES

The rear brakes shall be 16.5" x 7" "S" cam type with automatic slack adjusters.

One (1)
07-70-15

ABS & ATC SYSTEM

A Meritor Wabco six sensor four modulator anti-lock braking system shall be installed on the front and rear ArvinMeritor axles for safer vehicle control during braking and reduced stopping distance in skid conditions.

The electronic monitoring system shall incorporate diagonal circuitry to monitor wheel speed during braking through a sensor and tone ring on each wheel.

A dash mounted ABS lamp shall be provided to notify the driver of a system malfunction. A momentary test switch shall be installed to test the system for diagnostic codes.

The ABS system shall automatically disengage the auxiliary braking system device when required.

The Meritor Wabco ABS system shall have a three (3) year or 300,000 mile warranty provided by Meritor Wabco Vehicle Control Systems.

Automatic traction control shall be installed on the tandem rear axle. The traction control system shall apply the ABS brakes on slipping drive wheels and droop electronic engine throttle back to prevent wheel spin while accelerating on a slippery surface.

A Mud & Snow switch shall be provided. When the switch is in the "ON" position it will allow momentary wheel slip to obtain traction under mud and snow conditions.

One (1)
11-10-21

ROLL STABILITY CONTROL

The RSC monitors the vehicle's rollover threshold and activates a computerized device to slow the vehicle when the threshold is exceeded.

Normal vehicle operation resumes once problematic conditions cease.

RSC is integrated into the ABS and ATC systems.

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One (1)
08-50-30

OIL LUBRICATED REAR WHEEL BEARINGS

The rear axle shall have oil lubricated wheel bearings.

One (1)
08-60-74

REAR TIRES

The rear tires shall be Michelin 315/80R 22.5 20PR "L" tubeless radial XDN2 Grip all-weather tread with 22.5 x 9.00, ten (10) stud disc wheels. Tires and wheels shall be rated at 60,480 pounds at 130 psi.

One (1)
08-65-18

REAR WHEELS ALCOA ALUMINUM

The tandem rear axle wheels shall be Alcoa hub piloted, 9.00" x 22.5" polished aluminum wheels.

One (1)
09-59-15

TANDEM AXLE SUSPENSION

The tandem rear axle suspension shall be a Raydan Air-Link AL-600. Air-Link's unique air ride and walking beam suspension design combines a super smooth ride with durability. The suspension only has two (2) moving parts; to provide long wear and low maintenance cost in one package.

The suspension comes complete with rubber bumper stops and is fully mobile for safe operation even in the event of air loss. All the operator must do is expel the remainder of the air from the air suspension system and continue on. Vehicle operation without air, only changes ride height by 2" in lieu of the 6" to 8" difference on conventional air ride suspensions.

Dual air height control valves are to be installed to ensure equal frame height on both sides of the vehicle regardless of load and to increase roll stability. The valves shall be of the one way type to isolate the system from the chassis air brake system.

The suspension shall have 56" axle centers, and be rated from 54,000 pounds to 60,000 pounds to match the intended tandem axle capacity.

One (1)
11-10-10

AIR BRAKE SYSTEM - TANDEM AXLE

A rapid build-up air brake system shall be provided. It shall include a three (3) air tank, four (4) air reservoir system with a total of 6220 cubic inch of air capacity.

A Meritor-Wabco floor mounted treadle valve shall be mounted in the cab for graduated control of applying and releasing brakes.

A Meritor-Wabco inversion valve shall be installed to provide a service brake application with no primary air supply.

A Meritor-Wabco yellow hand control push-pull valve shall operate the parking brake system.

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The rear axle spring brakes are to automatically apply in case of air pressure drop below 60 psi with a mechanical means for releasing the spring brake chambers.

One (1)
11-15-90

PARKING BRAKE ACTUATION VALVE

The parking brake actuation valve shall be mounted on the LH dash within easy reach of the driver.

One (1)
09-75-05

AXLE COVER KIT STAINLESS STEEL (ALL WHEELS)

The front and rear wheels shall have stainless steel lug nut covers. The front axles shall be covered with stainless steel baby moons with hole to view oil seal window. The rear axles shall be covered with foam mounted stainless steel high hats.

The lug nut covers, baby moons and high hats shall be American made Real Wheels brand mirror finish, 304L grade, non-corrosive stainless steel meeting D.O.T. certification standards. All stainless steel baby moons and high hats shall carry a lifetime warranty.

One (1)
11-20-10

AIR DRYER

A Meritor Wabco system saver 1200 spin-on desiccant air dryer with a 12-volt, 100-watt automatic heated moisture ejector shall be installed in the air brake system.

The air dryer incorporates an internal turbo cutoff valve that closes the path between the air compressor and air dryer purge valve during the compressor "unload" cycle. The turbo cutoff valve allows purging of moisture and contaminants without the loss of turbo boost pressure.

The Meritor Wabco air dryer shall come with a three (3) year or 300,000 mile warranty provided by Meritor Wabco Vehicle Control Systems.

One (1)
11-30-05

MANUAL DRAINS ON AIR TANKS

Manual drains shall be installed on all reservoirs of the air brake system.

One (1)
11-40-05

NYLON AIR LINE TUBING

A dual air system plumbed with color coded reinforced nylon tubing air lines shall be installed. The primary (rear) brake line shall be green, the secondary (front) brake line red, the parking brake line orange and the auxiliary (outlet) will be blue.

Brass compression type fittings shall be used on the nylon tubing. All drop hoses shall be fiber reinforced neoprene covered hoses.

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One (1)
12-12-20

ENGINE

A Cummins ISM-500, turbocharged, charge air cooled engine shall be provided.

TYPE:
In-Line six (6) cylinder, 4 cycle

HORSEPOWER:
500 @ 2000 rpm / Governed at 2100 rpm

TORQUE:
1550 lb.ft. @ 1300 rpm

DISPLACEMENT:
661 cu.in.

GOVERNOR:
Electronic

A wiring harness shall be supplied with a drop out at the back of the cab. The harness shall include a connector to allow an optional harness for the pump panel to be plugged into it. Circuits shall be provided for multiplexed gauges, hand throttle, high idle and PSG system. A circuit for J1939 data link shall also be provided at the drop out.

A spin on engine coolant filter with shut-off valve shall be provided.

An engine mounted combination full flow/by-pass oil filter with replaceable spin on cartridge shall be part of the engine's lubrication system.

One (1)
06-50-43

POWER STEERING PUMP

The hydraulic power steering pump shall be a Vickers 20V and shall be gear driven from the engine. The pump shall be a fixed displacement vane type.

One (1)
11-50-10

AIR COMPRESSOR

The air compressor on the engine shall be a Wabco capable of producing a minimum of 18.7 cfm at 1250 engine rpm. It shall be gear driven, engine oil pressure lubricated and cooled by the engine cooling system. The air compressor shall have a 5-year warranty.

One (1)
12-22-10

ENGINE WARRANTY

The Cummins engine shall be warranted for a period of five (5) years or 100,000 miles, whichever occurs first.

One (1)
12-25-10

FUEL FILTER - CUMMINS ENGINE

A Fleetguard fuel filter shall be installed on the Cummins engine.

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One (1)
12-30-06

JACOBS ENGINE BRAKE-CUMMINS ISM

A Jacobs engine compression brake, for the six (6) cylinder Cummins ISM engine, with brake light actuation and cutout relay when in pump mode shall be installed. The engine brake will activate upon release of accelerator when in operation mode. A dash mounted Off/Low/High switch shall be installed.

One (1)
12-50-15

EXHAUST SYSTEM

The exhaust system shall be installed under the frame with the discharge to the right side forward of the rear tires.

A muffler and .065 wall aluminized steel exhaust tubing supported by bolted on frame brackets shall be installed.

Stainless steel flex tubing is to be installed between exhaust pipe and muffler. System joints shall be connected with lapping band clamps.

RH Outboard exhaust

One (1)
13-10-02

COOLING SYSTEM

The cooling system shall have sufficient capacity to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system shall be designed and tested to meet or exceed the engine and transmission manufacturer and EPA requirements. The complete cooling system shall be mounted in a manner to isolate the system from vibration and stress. The individual cores shall be mounted in a manner to allow expansion and contraction at various rates without inducing stress into the adjoining core(s).

Radiator

The radiator shall be a cross-flow design constructed completely of aluminum with welded side tanks. The radiator shall have a minimum of a 800 sq. in. core and be bolted to the bottom of the charge air cooler to allow a single depth core, thus allowing a more efficient and serviceable cooling system. The radiator shall be equipped with a drain cock to drain the coolant for serviceability.

Surge Tank

The cooling system shall be equipped with a surge tank that is capable of being filled and removing entrained air from the system. The surge tank shall be equipped with a low coolant probe and sight glass to monitor the level of the coolant. The surge tank shall have a cap that meets the engine manufactures pressure requirements as well as the system design requirements.

Coolant

The cooling package shall have Extended Life Coolant (ELC) installed. The use of supplemental coolant additives (SCA) will not be allowed, as this is part of the extended

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life coolant makeup. The use of ELC provides longer life and change intervals providing improved performance. The coolant shall contain ethylene glycol and deionized water to keep the coolant from freezing to a temperature of -34 degrees F.

Hoses/Clamps

All radiator tubes shall be formed from aluminized steel tubing and installed with silicone hoses with stainless steel constant torque clamps.

Recirculation Shields

Recirculation shields shall be installed where required to prevent heated air from reentering the cooling package and affecting the performance.

Charge Air Cooler

The charge air cooler shall be a cross-flow design constructed completely of aluminum with welded side tanks. The charge air cooler shall have a minimum of a 487 sq. in. core and be bolted to the top of the radiator to allow a single depth core, thus allowing a more efficient and serviceable cooling system.

Hoses/Clamps

All charge air cooler tubes shall be formed from aluminized steel tubing and installed with silicone hump hoses and stainless steel "T" style clamps meeting the engine manufactures requirements.

One (1)
13-10-10

COOLING SYSTEM FAN

The engine cooling system shall incorporate a heavy-duty composite fan, belt driven on the engine. A shroud and recirculation shield system shall be used to ensure air that has passed through the radiator is not drawn through it again.

One (1)
13-20-11

COOLANT FILTER

An engine coolant filter with a shut-off valve shall be installed on the engine. The location of the filter shall allow for easy maintenance.

One (1)
13-20-30

ENGINE PUMP HEAT EXCHANGER

A single bundle type coolant to water heat exchanger shall be installed between the engine and the radiator without a shutoff valve. The heat exchanger is designed so that water from the pump does not come in contact with the engine coolant to allow the use of water from the discharge side of the pump for assisting in cooling the engine coolant.

One (1)
14-20-EV

TRANSMISSION

The transmission shall be an Allison 4000 EVS automatic with electronic controls. The transmission will have two (2) 10-bolt PTO pads.

Rosenbauer/Central States

The transmission shall be equipped with an air to oil transmission cooler located below the radiator allowing a single depth core and efficient cooling package. The transmission cooler shall be mounted in a manner to allow maximum approach angle by not protruding below the frame more than an inch. The transmission cooler shall be constructed completely of aluminum with welded side tanks. The transmission shall have two (2) internal oil filters.

Fourth gear hold-in range may be accomplished through wiring for a pumping application.

The transmission gear ratios shall be:

1st	3.51:1
2nd	1.91:1
3rd	1.43:1
4th	1.00:1
5th	0.74:1
6th	0.64:1 (if applicable)
Rev	4.80

One (1)
13-10-35

TRANSMISSION COOLING SYSTEM

Transmission Cooler

The transmission cooler shall be a cross flow air to oil design constructed completely of aluminum with welded side tanks. The transmission cooler shall be bolted to the bottom of the radiator to allow a single depth core, allowing a more efficient and serviceable cooling system. The transmission cooler shall be mounted in such a manner as not to extend below the chassis frame by more than 1", allowing greater approach angles and ground clearance.

Transmission Heat Exchanger

The transmission oil to water heat exchanger shall be installed to aid in cold climate conditions maintaining the transmission temperature at the operational level.

One (1)
14-20-91

SYNTHETIC TRANSMISSION FLUID

Castrol "Transynd" or an equivalent synthetic TES 295 transmission fluid shall be utilized to fill the 4000 EVS transmission.

One (1)
14-25-10

TRANSMISSION MODE

The transmission, upon start-up, will select four (4) speed operation. By pressing the "mode" switch on the shift pad (mode on) provides five (5) speed overdrive.

One (1)
14-50-21

TRANSMISSION WARRANTY

The Allison 4000 EVS series transmission shall be warranted for a period of five (5) years with unlimited mileage. Parts and labor shall be included in the warranty.

The transmission must be filled with transynd synthetic fluid or approved equal.

Rosenbauer/Central States

One (1)
15-20-22

ALTERNATOR

A 320 amp Leece Neville 12 volt alternator model #4890JB with internal regulator and #10 screw AC terminals shall be installed.

One (1)
12-23-01

ENGINE OIL LEVEL CHECK

A low engine oil level switch shall be provided that will indicate when the engine oil is approximately four (4) quarts or more low. The switch shall light a red "LOW OIL LEVEL" indicator light in the dash. The indicator shall only function while the ignition switch is on and the engine is not running.

One (1)
12-25-30

ELECTRIC FUEL PRIMER PUMP

A Facet electric fuel primer pump shall be provided and have a fuel primer momentary switch located on a panel under the dash to activate primer pump. A check valve and by-pass system shall be installed for normal draw of fuel for the engine fuel pump.

One (1)
12-50-30

AIR CLEANER

The air cleaner shall be Farr #62891-001 dry type with a replaceable element, it shall have an outside air intake with an ember separator filter and an indicator light in the warning light cluster to show when the air cleaner element requires replacement.

One (1)
13-50-45

STOP, TAIL, TURN AND BACK-UP LIGHT WIRING

Individual wires shall be run to the rear of the chassis for the stop light, turn signal, tail light and back-up lights.

One (1)
14-25-03

TRANSMISSION TOUCH PAD

An Allison pressure sensitive range selector touch pad shall be provided and located to the right of the driver within clear view and reach.

One (1)
14-30-15

DRIVELINES

All drivelines on the tandem rear axle chassis shall be 1810 heavy duty series with "glide coat" splines on all slip shafts.

One (1)
15-05-06

MULTIPLEX ELECTRICAL SYSTEM WITH COLOR DISPLAY

A Weldon multiplex electrical system shall be supplied. The system shall be a single starting type, installed per NFPA 1901. The electrical system shall be 12 volt, suppressed per SAE J551 with six (6) Harris CTX31S-9 950 CCA batteries with 210 minute reserve capacity and 3/0 welding type dual path starter cables per SAE J541.

Rosenbauer/Central States

The Multiplexed wiring system shall include the following:

- * Dash or engine tunnel mounted information center with approximately 4"H (92mm) x approximately 6"W (159mm) color LCD screen.
- * Systems Diagnostic Menu and controls.
- * Solid state switching.
- * Complete Peer to Peer network architecture.
- * Weatherproof Nodes and sealed Deutsch connectors.
- * Sequences and sheds electrical loads.

The Vista III Display Node shall include the following features:

- * Automatic climate control when an air conditioning system is ordered.
- * Outside temperature display.
- * A real time clock with display.
- * Three (3) programmable video inputs.
- * A useable temperature range from -40 degrees to 185 degrees F.
- * Unlimited virtual switches.
- * Selectable font sizes, types and colors for optimum user efficiency.
- * Selectable color buttons and screen backgrounds.

All wiring to be appropriate gauge cross link with 311 degree F. insulation. All wires in the chassis shall be circuit numbered and function coded, in addition the SAE wiring will be color coded. The wiring shall be protected by 275 degree F. minimum high temperature flame retardant loom as required.

The starting system shall be supplied with the following:

- One (1) Cole-Hersee #2484 master battery switch.
- One (1) Cole-Hersee #EX26654A ignition switch.
- One (1) starter button.
- One (1) green LED indicator for battery "on".
- One (1) green LED indicator for ignition "on"

Includes 4 rocker switches on driver's dash:

1. Secondary Braking On/Off switch.
2. Secondary Braking Variance Control (High/Low) or (High/Med/Low).
3. Spare (if not replaced by customer requested options).
4. Spare (if not replaced by customer requested options).

Features included with the Multiplex system include:

Back-up Alarm Disable Switch

A back-up alarm disable switch shall be installed in the cab dash within reach of the driver. The switch will allow the driver to turn the back-up alarm off. The back-up alarm shall automatically reset to sound the next time the transmission is placed in reverse.

Incandescent Ground Lighting Below Each Door

The cab shall be equipped with Trucklite model #40003 sealed bulb, incandescent lighting under each cab door. The lights will be activated by either a single switch on the dash or each respective door switch.

Alternating Headlights

An alternating high beam headlamp flashing system shall be installed into the high beam headlamp system that will allow the high beams to flash alternately from left to right.

Rosenbauer/Central States

The completed system shall be capable of using high beam to override flashing function and will flash high beams only when the low beam headlamps are selected.

Audible Alarm for Open Door Light

An audible alarm shall be wired to the open door light, which will sound when a door is open and the air brake is off with the vehicle in gear.

One (1)
15-10-52

ROCKER SWITCH CONSOLE

A three (3) section, double row switch console shall be provided with easy switch access to both the driver and officer. The console will consist of an angled driver's side panel, center main and angled officer's side panel.

One (1)
15-10-46

OFFICER ROCKER SWITCH PANEL

The officer's side switch panel shall be equipped with a color Mux Vista display.

One (1)
15-10-47

DRIVER ROCKER SWITCH PANEL

The color Mux Vista display will be mounted in the right hand side of the panel. The driver's side panel shall include a rocker type headlight switch with instrument lamp slide dimmer, intermittent windshield wiper/washer switch and secondary braking device rocker switches.

One (1)
15-10-44

CENTER ROCKER SWITCH PANEL

The center main rocker switch panel shall include six (6) LED backlit and labeled rocker switches mounted in the left hand side of the panel. The single row of switches shall be located across the top left of the panel. The right hand section of the panel shall be left free to accommodate flush mounted equipment.

One (1)
15-05-30

BATTERY JUMPER STUDS

Battery jumper studs shall be provided in the driver's step area. The studs allow the vehicle to be jump started or cab to be raised in an emergency due to battery failure.

One (1)
15-10-05

INSTRUMENTATION

An ergonomically designed instrument panel shall be provided. The gauges shall be backlit with red LED lamps. All gauges shall be driven by stepper motor movements. The instrumentation system shall be multiplexed and shall receive engine and transmission information over the J1587 data bus to reduce the number of redundant sensors.

The instrument panel shall contain the following gauges:

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One (1) electronic tachometer with integral digital hour meter. The scale on the tachometer shall read from 0 to 3000 RPM. The hour meter shall display engine hours of operation.

One (1) electronic speedometer with integral digital odometer/trip odometer. The speedometer shall have a dual scale with miles per hour (MPH) as the dominant scale and kilometers per hour (KPH) on the minor scale. The speedometer scale shall read from 5 to 85 MPH (5 to 140 KPH). The odometer shall display miles.

One (1) three function gauge with primary air pressure, secondary air pressure and fuel level. The scale on the air pressure gauges shall read from 0 to 140 pounds per square inch (PSI). The air pressure scales shall be non-linear to expand the scales in the region of normal operation. The scale on the fuel level gauge shall read from empty to full.

One (1) four function gauge with engine oil pressure, coolant temperature, transmission oil temperature and a voltmeter. The scale on the engine oil pressure gauge shall read from 0 to 140 pounds per square inch (PSI). The engine oil pressure scale shall be non-linear to expand the scale in the region of normal operation. The scale on the coolant temperature gauge shall read from 100 to 250 degrees Fahrenheit (F). The scale on the transmission oil temperature gauge shall read from 100 to 300 degrees Fahrenheit (F). The scale on the voltmeter shall read from 8 to 16 volts.

The instrument panel shall contain an Annunciator Module that contains the following indicator lights. All indicator lights shall contain LED lamps.

RED LAMPS

Stop Engine - indicates critical engine fault.

Park Brake - indicates park brake is set.

Low Fuel - indicates low fuel.

Cab Ajar - indicates tilt cab is not locked down. (1)

Volts - indicates high or low system voltage.

Low Oil Press - indicates low engine oil pressure.

High Coolant Temp - indicates excessive engine coolant temperature.

High Trans Temp - indicates excessive transmission oil temperature.

Low Air - indicates low air pressure in either system one or system two.

Low Coolant Level - indicates low engine coolant level. (1)

Low Oil Level - indicates low engine oil level. (1)

Air Filter - indicates excessive engine air intake restriction.

YELLOW LAMPS

Check Engine - indicates non-critical engine fault.

Check Trans - indicates transmission fault.

Wait to Start - indicates active engine air preheat cycle. (2)

ABS - indicates anti-lock brake system fault.

Water in Fuel - indicates presence of water in fuel filter. (1)

Engine Maint - indicates engine maintenance is required. (1)

GREEN LAMPS

Left and Right turn signal indicators.

Aux Brake Active - indicates secondary braking device is active. (1)

High Idle - indicates engine high idle is active. (1)

Low Trac - indicates low wheel traction for automatic traction control (ATC) equipped vehicles, also indicates mud/snow mode is active for ATC system. (1)

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BLUE LAMP

High beam indicator.

The instrumentation system shall provide a constant audible alarm for the following situations:

- Low air pressure.
- Low engine oil pressure.
- High engine coolant temperature.
- High transmission oil temperature.
- Low coolant level. (1)
- High or low system voltage
- Critical engine fault (Stop Engine).

The instrumentation system will provide a three second alarm every three minutes for the following situations:

- Low fuel.
- Water in fuel. (1)

- (1) Feature only available when optionally equipped.
- (2) Feature only available on engines with preheat capability.

One (1)
15-10-38

WHELEN ELECTRONIC SIREN

A Whelen WS-295HFS2 electronic siren head shall be provided and installed in the center main switch lower panel.

To be mounted in the upper right of the center rocker switch panel.

One (1)
15-15-14

POWER AND GROUND STUDS - BATTERY DIRECT

Power and grounding studs shall be provided and installed behind the electrical center cover with a breaker. The studs shall be #10 and capable of carrying up to a 40 amp battery direct load.

One (1)
16-05-23

MARKER LAMPS

Five (5) I.C.C. DOT approved Weldon model #9186-1500-20 Light Emitting Diode (LED) cab marker lamps shall be installed on the face of the cab above the windshield.

One (1)
17-FF-04

CLASSIC FRONT FASCIA

The front cab fascia shall be constructed of aluminum, which will attach to the front cab skin and act as a fascia only.

The front fascia will cover the front aluminum cab structure from the bottom of the windshield down to the bottom of the cab. The front cab fascia shall have provisions for four (Hi/Low Beam) headlamps, turn signal lamps and up to four warning lamps.

The front fascia shall allow access to check and fill the engine oil and wiper washer fluid. Access is also provided for servicing the windshield wiper motor and linkage, ember

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separator, headlamps, electrical bulkhead connectors, transmission ECU and the multiplex V-Mux control.

One (1)
16-32-23

WARNING LIGHTS -INBOARD

Two (2) Weldon 4x6 LED red warning lights shall be installed on the cab fascia above the headlamps in the inboard position.

One (1)
16-37-11

HEADLIGHTS

Four (4) rectangular halogen headlamps with a separate high and low beams in bright bezels shall be provided. The headlamps shall be equipped with a "Daytime Running" light feature, which will illuminate the headlamps to 80% brilliance when the master switch is in the "On" position and the parking brake is released.

Two (2) round LED side turn signal/marker lights shall be provided on the front cab corners.

One (1)
16-37-09

TURN SIGNALS - AMBER LED

Two (2) Whelen 4x6 amber LED programmable turn signals shall be installed outboard of the warning lights in matching bezels located above the headlamps.

One (1)
23-10-30

FRONT GRILLE RAISED - GLADIATOR CLASSIC

A two (2) piece, hinged stainless steel raised front grille 39"W x 33.50"H x 1.50"D, with a minimum free air intake of 632.9 square inches shall be installed on the front of the cab. The upper portion of the grille will be hinged and will have two (2) flush push button latches that allow access to the front fluid fills of the cab.

One (1)
25-20-40

CAB MIRRORS

Two (2) Ramco model CRM-310-1750-THCHR bus style mirrors heads shall be mounted on the cab doors. The heated full face flat glass shall be remote controlled with switches on the dash and the heated CAS800 convex mirrors mounted on top of the mirror heads shall be manually controlled. The mirrors shall be attached to chrome plated cast aluminum arms. The mirror head backs are chrome plated injection molded ABS composite.

One (1)
18-08-03

DOOR WARNING - CHEVRON

Four (4) Chevron reflective signs shall be installed on the lowest portion of the inner door panels, one (1) on each door. A stripe of reflective tape shall be installed at the outer edge of each door.

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One (1)
19-15-25

FULL WIDTH CREW CAB DOOR ASSIST RAILS

Black powder coated cast aluminum assist rails shall be provided and installed on the inside of the rear crew doors the full width of the window glass. The rails shall assist personnel in exiting and entering the cab. The rails shall be located at the retracted door window glass level and will protect the exposed window glass area.

One (1)
19-40-05

INTERIOR LIGHTING

The cab interior lighting shall consist of the following:

A red/white dome lamp shall be located over each door. The white lamp shall be activated by its respective door when opened and both activated by an individual switch on the light.

A red/white dome lamp with individual switches shall be located in the headliner, over the engine tunnel to serve as a tunnel surface light.

One (1)
19-40-07

FLASHING DOOR AJAR LIGHT

A red flashing door ajar light shall be located in the headliner, centered in the cab. The light shall be 6.00" long x 2.50" wide x 1.75" high and labeled "Do Not Move Apparatus". The light shall be wired to indicate an open door on the cab when the parking brake is released.

One (1)
19-40-15

ENGINE TUNNEL LIGHT

A Trucklite 4" diameter clear work light shall be provided and installed under the engine tunnel.

One (1)
19-50-40

WEATHER BAND AM/FM RADIO WITH COMPACT DISC PLAYER

A heavy duty Panasonic Weather Band AM/FM stereo radio with compact disc player and four (4) speakers shall be installed in the cab. The radio shall be installed above the driver. Two (2) speakers shall be installed overhead front with the other two (2) speakers in the upper rear corners of the cab.

One (1)
19-50-45

12 VOLT RECEPTACLE

A 12 volt cigarette lighter type receptacle shall be provided in the cab dash on the officer's side to act as a power source.

Place power point in the lower right corner of the center rocker switch panel.

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One (1)
19-50-50

12 VOLT RECEPTACLE

A 12 volt cigarette lighter type receptacle shall be provided in the cab dash on the driver's side to act as a power source.

Place power point in the lower left corner of the center rocker switch panel.

One (1)
19-50-63

CAMERA DUAL REARVIEW WITH DISPLAY ON BOTH VISTA SCREENS

An ASA audiovox rearview camera shall be supplied for viewing through the color Vista display panels. One camera will be mounted in a location, as to afford the driver a clear view of the blind spot on the officer side of the vehicle. A second camera will be shipped to the OEM for installation in the body to afford the driver a clear view of the rear of the vehicle.

One (1)
19-50-64

CAMERA REARVIEW

A third camera shall be supplied and installed on the driver's side of the cab. The camera shall be so wired that the driver can select which of two (2) camera's he wants to view.

Same as SO #59354

One (1)
21-58-16

FORWARD FACING SEATS

Three (3) forward facing crew area Seats Inc. 911 "Universal" SCBA high back individual seats shall be installed in the rear of the cab spaced equal distance apart.

Each "Universal" high back seat shall include a tapered and padded seat cushion and back.

Each seat back shall include a vertically split hinged headrest and Zico "ULL" bracket with LLS strap. A removable padded cover shall be supplied over the SCBA cavity.

The seats shall be an ABTS (All Belts to Seat) type integrated red three-point shoulder harness with lap belt and an automatic retractor built into the seat assembly. The female seat belt clasp shall extend up from the seat base ~ 14" to be within easy reach of the occupant. The ABTS feature is an engineering break through where the passenger restraint harness is built into the seat module and meets the twenty "G" load test.

One (1)
22-06-02

DASH AND HEADER TRIM XTREME DUTY

The cab interior dash trim shall consist of a two (2) piece vacuum formed ABS composite driver, a high impact aluminum officer panel and a high impact aluminum center assembly. The center dash shall incorporate the integral rocker switch console and incorporate a latching electrical component access cover to allow complete access to the underside of the switch panel assembly and electrical harness and components.

Rosenbauer/Central States

The "A" pillar and center windshield post trim shall consist of a vacuum formed ABS composite driver, officer and center cover.

One (1)
18-07-06

The header trim shall consist of a vacuum formed ABS composite driver, officer and a two (2) piece center HVAC cover. Mounted to the trim panels shall be two (2) 5.75" x 22.50" vinyl sun visors.

INNER DOOR PANELS ZOLATONE PAINTED

The inner door panels shall be a Zolatone painted aluminum panel. A "Fireman Friendly" cast steel pull handle shall be included with the front door panel.

One (1)
22-05-19

PAINT INNER DOOR PANELS

The inner door panel surfaces shall be painted with a Zolatone #20-06 black texture finish.

One (1)
19-10-04

ENGINE COVER

The fixed type engine cover shall be a maximum of 23.00" high x 41.50" wide. The cover shall be an integral part of the cab and made of 0.19" thick aluminum.

The interior cab side shall be covered with a multi-layer mat consisting of; .25" thick sound absorbing closed-cell foam, a heavy weight sound barrier, a .06" thick non-slip vinyl wear surface with a pebble grain finish, and held in place by a pressure sensitive adhesive and aluminum cornering trim. All exposed seams are sealed to reduce moisture contamination and debris build up.

The engine side of the cover shall be heavily insulated with multi-layer insulating materials, consisting of foam, a 1.0 lbs per sq ft sound barrier with a facing that resists heat transfer, and held in place by adhesive, aluminum stick pins and retention caps. All exposed insulation seams and edges are sealed to reduce moisture contamination and debris build up.

One (1)
19-15-26

MOBILE DATA TERMINAL PROVISION W/GLOVE COMPARTMENT - XTREME DUTY

The cab interior dash trim officer panel shall consist of a high impact resistant aluminum module, which contains a glove compartment with a hinged non-locking door. The compartment size shall be 14.00" wide x 6.00" high x 6.00" deep.

A Mobile Data Terminal (MDT) provision shall be provided above the glove compartment. The MDT provision shall be recessed 3.00" below the surface of the dash. The surface area of the MDT provision shall be 16.00" wide x 14.00" deep.

A 20 amp 12AWG clean power and ground circuit will be provided to the MDT area.

One (1)
22-05-11

PAINT INTERIOR

The interior metal surfaces shall be painted with a Zolatone #20-06 black texture finish.

Rosenbauer/Central States

One (1)
22-10-20

INTERIOR TRIM COLOR AND FLOOR MAT GRAY/GRAY/BLACK

The cab interior soft vinyl trim surfaces shall be gray in color.

The cab interior vacuum formed ABS composite trim surfaces shall be gray in color.

The cab interior floor mat shall be black in color.

The interior cab floor, engine tunnel sides and front seat risers shall be covered with a multi-layer mat consisting of; .25" thick sound absorbing closed-cell foam, a heavy weight sound barrier, a .06" thick non-slip vinyl wear surface with a pebble grain finish, and held in place by a pressure sensitive adhesive and aluminum cornering trim. All exposed seams are sealed to reduce moisture contamination and debris build up.

One (1)
22-20-13

HVAC SYSTEM

The cab shall be equipped with a ceiling mounted HVAC system. The system shall consist of an overhead heater/defroster/air-conditioning unit mounted above the engine tunnel in a central location with dash mounted controls.

The ceiling mounted HVAC system includes sixteen (16) adjustable louvers. Six (6) forward facing louvers for windshield, 45,000 Btu's of heat at 460 cfm for defrosting. Six (6) rearward facing louvers to direct air for crew comfort and four (4) for driver and officer comfort. In "Cabin Mode" the system is designed to produce 60,000 Btu's of heat and 32,000 Btu's of cooling. The system shall be capable of lowering the cab interior temperature from 100 degrees to 70 degrees within thirty minutes, with a relative humidity of sixty percent.

The air-conditioning compressor will be an engine driven Seltec TM-21 and utilize R-134A refrigerant.

The A/C lines will be a mixture of custom bent zinc coated steel fittings and Aeroquip flexible hose with E-Z clip fittings.

All heater system hoses, including auxiliary units shall be silicone with stainless steel constant torque clamps approved for use with silicone hose.

One (1)
22-20-40

DELUXE INSULATION PACKAGE

Additional insulation in the cab shall be installed to improve air-conditioning and/or heating in extreme weather climates as well as reducing road noise. The sides, roof and rear wall of the cab shall contain 1" thick multilayered insulation.

One (1)
23-05-10

CAB TILT ACTUATION

The entire cab shall tilt 45 degrees to allow for easy maintenance of the engine and transmission.

Rosenbauer/Central States

The cab tilt actuation shall be with an electric over hydraulic lift pump with a control box on a pendant for safe visual operation.

The lift system shall have an ignition interlock and red lock down indicator lamp, which shall illuminate when holding "down" switch to indicate safe road operation. It shall be necessary to activate the master battery switch with the park brake set in order to tilt the cab.

Two cab tilt cylinders shall be provided with velocity fuses in each cylinder port. The cab pivots shall be 1.90" ball and be anchored to frame brackets with 1.25" diameter studs.

Two spring loaded hydraulic hold down hooks outboard of the frame shall be installed for holding the cab securely to the frame.

A steel safety assembly shall be installed on the right side cab lift cylinder to prevent accidental cab lowering. The safety assembly shall fall over the lift cylinder when the cab is in the "up" position. A cable release system shall also be provided to clear the safety assembly from the lift cylinder when lowering the cab.

One (1)
23-15-70

EMS COMPARTMENTS

Two (2) EMS compartments 17"W x 43"H x 23"D shall be installed in the left and right of the cab behind the driver's and officer's seat. The compartments shall be accessible from outside the cab by a painted, hinged lockable door. The compartments shall also have rear facing roll up doors that are at least 16" wide on the inside of the cab. Each compartment shall have an adjustable shelf and compartment light. All EMS compartment doors shall have automatic compartment light switches and be wired to the door ajar circuit.

One (1)
23-20-10

Each compartment shall be lighted and have an adjustable shelf.

WHEEL WELL LINERS

Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning. The two-piece liners shall consist of an inner liner 16" wide made of vacuum formed ABS composite and a outer fenderette 3.50" wide made of 14 gauge 304 polished stainless steel.

One (1)
24-10-05

EXTERIOR CAB ASSIST HANDLES

Four (4) 18" knurled anti-slip one-piece exterior assist handles shall be installed, one (1) behind each cab door. The assist handle shall be made of 14 gauge 304 stainless steel and be 1.25" diameter to enable easy grabbing with the gloved hand.

One (1)
27-10-10

TWO TONE PAINT

The cab shall be painted two tone with a finished break line 1.5" below the cab side windows and down to the top of the grill on the cab front fascia.

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All cab painting must be completed prior to the installation of glass accessories or any other cab trim to assure complete paint coverage and maximum corrosion protection.

The entire cab must be disc ground to remove any surface oxidation or surface debris that may hinder the paint adhesion. After the surface is machine finished a high quality acid etching base primer shall be applied. Upon the application of required body fillers and their preparation, the cab shall be primed with a coating designed for corrosion resistance and surface paint adhesion. The entire cab then shall be coated with an intermediate solids or epoxy surfacer that is designed to fill minor surface defects, provide an adhesive bond between the primer and the paint and improve the color and gloss retention of the color coats.

The cab shall be finish sanded with 360 grit paper, seams sealed with SEM seal sealer and painted with two (2) to four (4) coats of an acrylic urethane type system designed not only for color retention, but to resist acid rain and most atmospheric chemicals found on the fire ground or emergency scene.

The maximum overall film thickness of the top coat shall not exceed five (5) mils.

A .5" (1/2") black pinstripe shall be applied on the break line between the two different colored surfaces.

The standard PPG (FBCH) paint shall be warranted for ten (10) years against cracking, checking or peeling and loss of gloss caused by chalking or fading, other paint warranties will vary by manufacturer (for example, Sikkens FLNA or Dupont Imron 6000).

Cab underside and doors shall be rust proofed with a ten (10) year or 100,000 mile warranty certificate against perforation issued in the Fire Department's name.

Brand: PPG
Upper Color: White FBCH 8000
Lower Color: Red FBCH 911638

One (1)
27-10-30

HAND SAND AND BUFF FINISH

The base coat clear coat finish shall be power sanded and machine finished to achieve a flat finish on all "A" visual surfaces.

One (1)
28-10-05

OPERATORS MANUAL AND PARTS LIST

A chassis operator's manual and parts list with wiring and air plumbing diagrams shall be provided. The wiring and plumbing diagrams shall be of the chassis model.

One (1)
28-10-18

ENGINE AND TRANSMISSION OPERATION MANUAL

One (1) engine operation and maintenance manual and one (1) transmission operation manual shall be included in the Spartan operator's manual.

Rosenbauer/Central States

One (1)
28-20-05

FIRE EXTINGUISHER

A 2.5 pound BC D.O.T approved fire extinguisher shall be shipped loose with the cab.

Rosenbauer/Central States

One (1)
01-16-0150

BUMPER TO BUMPER WARRANTY

We warrant each new motorized fire apparatus manufactured by ROSENBAUER AMERICA, LLC 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 ROSENBAUER AMERICA, LLC, 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 ROSENBAUER AMERICA, LLC.

One (1)
01-33-3250

COMPLETE COMPACT DISC MANUAL (OPTION)

The manufacturer shall provide with the vehicle upon delivery, one (1) complete delivery manual. These manuals shall be on a computer generated compact disc (CD), with reference guide for each section of the vehicle. Within each section shall be:

1. Individual component manufacturer instruction and parts manual
2. Warranty forms for body
3. Warranty forms for all major components
4. Warranty instructions and format to be used in compliance with warranty obligations
5. Wiring diagrams
6. Installation instructions and drawings of major parts
7. Visual graphics and electronic photos of the installations of major parts
8. Necessary normal routine service forms, publications and components of body portion of apparatus
9. Technical publications on training and instructions for major body components
10. Warning and safety related notices for personnel protection
11. Cab and chassis manuals on parts, service and maintenance shall be provided

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One (1)
10-00-0000

CHASSIS MODIFICATIONS

One (1)
10-02-1100

FLUID DATA PLAQUE

One (1) fluid data plaque containing required information shall be provided based on the applicable components for this apparatus, compliant with NFPA Standards:

1. Engine oil
2. Engine coolant
3. Chassis transmission fluid
4. Drive axle lubricant
5. Power steering fluid
6. Pump transmission lubrication fluid
7. Paint manufacturer and color numbers
8. Other NFPA applicable fluid levels or data as required

Location shall be in the driver's compartment or on driver's door.

One (1)
10-02-1200

APPARATUS DIMENSION DATA

One (1) highly visible label indicating the overall height, length, width and weight of the vehicle shall be installed in the cab dash area.

One (1)
10-02-1300

NO RIDE LABEL

One (1) "NO RIDERS" label shall be applied on the vehicle at the rear step area or other applicable areas. The label shall warn personnel that riding in or on these areas, while the vehicle is in motion is prohibited.

One (1)
10-02-2100

CAB SEATING POSITION LIMITS

One (1) label shall be installed in the cab to indicate seating positions for firefighters. A weight allowance of 250 pounds for each shall be factored into the gross vehicle weight rating of the chassis.

One (1)
10-03-3100

TOW HOOKS

The front tow hooks shall be supplied with the chassis.

One (1)
10-03-6000

REAR TOWING PROVISIONS

The rear of the apparatus shall have steel plates attached to a steel body framework assembly. The entire assembly shall be securely bolted to the chassis frame rails.

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One (1)
10-04-2110

BUMPER EXTENSION

The front bumper extension shall be supplied with the chassis.

One (1)
10-04-2310

FRONT BUMPER GRAVELSHIELD

The front bumper gravel shield shall be supplied with the chassis.

One (1)
10-04-2520

BUMPER COMPARTMENTS

The bumper compartments shall be constructed by the Chassis builder.

One (1)
10-04-2940

COMPARTMENT MATTING

One (1) bumper compartment floor shall be fitted with removable vinyl Turtle Tile matting. The matting shall be interlocking units, 12 x 12 square by 3/4" thick. This material shall be resistant to temperature, ultra-violet radiation, mechanical impacts, chemical actions and corrosion free.

One (1)
10-04-3150

BUMPER COMPARTMENT DOOR

One (1) aluminum tread plate door for the front bumper compartment shall be supplied. The flat door shall have a stainless steel hinge at the rear and a latch to secure the compartment.

One (1)
10-07-1200

EXHAUST SYSTEM

The chassis exhaust shall be modified and redirected to the right side of the apparatus and will exit ahead of the rear wheel.

One (1)
10-08-1300

FRONT MUD FLAPS

One (1) pair of black mud flaps shall be installed behind the front wheels.

One (1)
10-08-2100

REAR MUD FLAPS

One (1) pair of black mud flaps shall be installed behind the rear wheels.

One (1)
10-13-4100

CAB REFERENCE MATERIAL AND BINDER STORAGE MODULE

There shall be one (1) binder/map storage box installed in the cab between the driver and officer seats. The storage box shall be made of 1/8" smooth aluminum and consist of four (4) slots approximately 2" x 12.5" x 8" deep. The storage slots shall be vertically oriented

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to help retain the contents while driving. The storage box shall have a "DA'd" sanded finish for a pleasing appearance.

One (1)
10-13-5500

REAR CAB WORK SURFACE

An aluminum work surface shall be installed in the rear of the cab. The work surface shall extend from the back of the engine tunnel and span from the sides of the EMS compartments on each side of the cab. The height of the work surface shall be equal to the top of the engine tunnel. The rear edge of the work surface shall end at the rear face of the EMS compartments. The rear edge of the work surface shall have a 2" lip to help stop materials from sliding off the surface. A center vertical partition shall be provided from front to rear of the cab under the work surface separating the space under the surface into two equal sections and to provide additional support.

The work surface shall have a "DA'd sanded finish for a pleasing appearance.

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PUMP AND PLUMBING

One (1)
20-22-0000

WATEROUS MIDSHIP FIRE PUMP

One (1)
20-23-3200

WATEROUS CSUC10 SINGLE STAGE PUMP

A Waterous model CSUC10, single stage centrifugal pump shall be designed to mount on the chassis frame rails and shall be split-drive shaft driven. The pump casing shall be of high-tensile, close-grained gray iron. Pump body shall be horizontally split in two (2) sections, for easy removal of impeller assembly including wear rings and bearings from beneath the pump without disturbing the mounting or piping.

Impeller

A matched bronze impeller specifically designed for the fire service will be provided. It will be accurately balanced both mechanically and hydraulically, for vibration-free operation. Stainless steel heat-treated and precisely ground to size. It shall be supported on both ends by oil or grease lubricated ball bearings.

Replaceable wear rings, bronze, reverse-flow, labyrinth-type shall be provided. Three (3) deep groove ball bearings shall be located outside the pump to give rugged support and proper alignment to the impeller shaft. The bearings shall be oil or grease lubricated. All bearings shall be completely separated from the water being pumped.

Pump Transmission

The housing shall be constructed of high tensile aluminum and be of three (3) piece, horizontally split design. The transmission driveline shafts shall be made from alloy steel forging, hardened and ground to size. The drive and driven sprockets shall be made of steel and shall be carbonized and hardened. The drive chain shall be Morse HV involute form chain. The lubrication system shall be an impeller shaft driven oil pump to deliver oil to an integral spray header, to completely pressure lubricate the drive chain.

Pump Grease Fitting

A pump bearing grease fitting shall be provided in the pump enclosure. Fitting shall have a protective dust cap and shall be properly labeled.

Pump Mounting

The pump shall be bolted to steel angles in pump module, using grade 8 bolts.

Drive Line

Hollow-tube drivelines and universals shall be properly matched to the engine and transmission output torque ratings.

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One (1)
20-23-3130

2000 GPM FIRE PUMP SPECIFICATIONS

The centrifugal type fire pump shall be a Waterous model CSUC10 midship mounted with a rated capacity of 2000 GPM. The pump shall meet NFPA 1901 requirements.

The pump shall be certified to meet the following deliveries:

- 2000 GPM @ 150 PSI
- 2000 GPM @ 165 PSI
- 1400 GPM @ 200 PSI
- 1000 GPM @ 250 PSI

One (1)
01-17-0750

PUMP WARRANTY

Waterous warrants, to the original buyer only, that products and parts manufactured by Waterous will be free from defects in material and workmanship under normal use and service for a period of five (5) years from the date the product is first placed in service, or five and one half 5-1/2 years from the date of shipment by Waterous, whichever period will be the first to expire; provided the buyer notifies Waterous in writing, of the defect in said product within the warranty period, and said product is found by Waterous to be conforming with the aforesaid warranty.

When required in writing by Waterous, defective products must be promptly returned by the buyer to the Waterous Company at Waterous' plant at South St. Paul, Minnesota, or at such other place as may be specified by Waterous with transportation and other charges prepaid. A returned materials authorization (RMA) is required for all products and parts and may be requested by phone, fax or mail. The previously mentioned warranty excludes any responsibility or liability of Waterous for:

- A. Damages or defects due to accident, abuse, misuse, abnormal operating conditions, negligence, accidental causes or improper maintenance, or attributable to written specifications or instructions furnished by buyer;
- B. Defects in products manufactured by others and furnished by Waterous hereunder, it being understood and agreed by the parties that the only warranty provided for such products shall be the warranty provided by the manufacturer thereof which, if assignable, Waterous will assign to the buyer, if requested by Buyer;
- C. Any product or part, altered, modified, serviced or repaired other than by Waterous, without its prior written consent.
- D. The cost of dismantling, removing, transporting, storing, or insuring the defective product or part and the cost of reinstallation.
- E. Normal wear items (packing, strainers, filters, light bulbs, anodes, intake screens, etc.)

This warranty is subject to Waterous' conditions of sale (Waterous Company form number F-2190 as currently in effect all of which are herein incorporated and by this reference made a part hereof.

All other warranties are excluded, whether expressed or implied by operation of law or otherwise, including all implied warranties of merchantability or fitness for purpose. Waterous shall not be liable for consequential or incidental damages directly or indirectly

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arising or resulting from breach of any of the terms of this limited warranty or from the sale, handling, or use of any other product or part. Waterous' liability hereunder, either for breach of warranty or for negligence, is expressly limited at Waterous' option:

A. To the replacement at the agreed point of delivery of any product or part, which upon inspection by Waterous or its duly authorized representative, is found not to conform to the limited warranty set forth above, or

B. To the repair of such product or part, or

C. To the refund or crediting to buyer of the net sales price of the defective product or part.

Buyer's remedies contained herein are exclusive of any other remedy otherwise available to the buyer.

One (1)
20-26-2200

FIRE PUMP MECHANICAL SHAFT SEAL

The Waterous fire 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.

One (1)
20-26-2400

IMPELLER HUBS

The Waterous fire pump impeller hubs shall 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)
20-26-3200

FIRE PUMP SHIFT

The Waterous fire pump shall be equipped with an air operated pump shift, pneumatically controlled using a power-shifting cylinder. The air shift control valve shall be mounted in the cab. The system shall also include a manual override on the pump panel.

The fire pump-shift system shall be equipped with a means to prevent unintentional movement of the control device from its set position. The system shall include a nameplate indicating the chassis transmission shift selector position to be used for pumping and located so that it can be easily read from the driver's position.

The system shall include the applicable NFPA standard interlocks, pump shift and OK TO PUMP indicator lights in the cab and pump panel. The fire pump system shall be equipped with an interlock system shall be provided to ensure that the pump drive system components are properly engaged in the pumping mode of operation so that the pumping system can be safely operated from the pump operator's position.

If applicable, the secondary braking device shall be automatically disengaged for pumping operations.

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One (1)
20-30-3100

FIRE PUMP SPLIT SHAFT DRIVESHAFTS AND INSTALLATION

The mid-ship split shaft fire pump shall be installed and shall include installation of the fire pump, modification and/or fabrication of new drivelines and all pump-mounting brackets. The drive shaft(s) shall be spin balanced prior to final installation.

One (1)
21-00-0250

STAINLESS STEEL PUMP PLUMBING

One (1)
21-00-3200

PUMP PLUMBING SYSTEM

The fire pump plumbing system shall be of rigid or flexible piping with stainless steel fittings. Victaulic couplings shall be installed to permit flexing of the plumbing system and allow for quick removal of piping or valves for service. Flexible hose couplings shall be threaded stainless steel or Victaulic connections.

The fire pump and plumbing shall be hydrostatically tested in compliance to applicable sections of NFPA standards, with test results submit with the delivery documentation.

One (1)
01-17-1100

STAINLESS STEEL PLUMBING WARRANTY

Subject to the provisions, limitations and conditions set forth in this warranty, Rosenbauer America, LLC (hereby referred to as "seller"), hereby warrants to each original purchaser only that stainless steel plumbing components and ancillary brass fittings used in the construction of the water/foam plumbing system shall be warranted for a period of ten (10) years. This covers structural failures caused by defective design or workmanship, or perforation caused by corrosion, provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original purchaser for a period of ten years from the date of the delivery and shall terminate upon the transfer of possession or ownership by original purchaser.

This warranty is conditioned upon normal use and reasonable maintenance of such plumbing; prompt written notice of all defects to seller or one of the seller's then authorized dealers in the area; no repair or additions there to except by seller or authorized by it; said defect not resulting from misuse, negligence, accident, remount, overloading beyond applicable weight rating by customer or third parties. If any such conditions are not complied with, this warranty shall become void and unenforceable.

Should repairs become necessary under the terms or the warranty, the extent of that repair shall be determined solely by the seller and shall be performed solely at Rosenbauer America, LLC or a repair facility designated by the seller. The expense of any transportation to or from such repair facility shall be that of the purchaser and is not an item covered by this warranty.

Seller reserves the unrestricted right at any time from time to time to make changes in the design of and/or improvements on its products without thereby imposing any obligation on itself to make corresponding changes or improvements in or on its products theretofore manufactured.

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EXCLUSIONS AND LIMITATIONS: THIS MANUFACTURER'S WARRANTY IS PROVIDED IN PLACE OF ANY AND ALL OTHER REPRESENTATIONS OR IMPLIED WARRANTIES. NO PERSON IS AUTHORIZED TO MAKE ANY REPRESENTATIONS OR WARRANTY ON BEHALF OF ROSENBAUER AMERICA, LLC OR ANY OF ITS DISTRIBUTORS OTHER THAN SET FORTH IN THIS MANUFACTURER'S WARRANTY. YOUR RIGHT TO SERVICE AND REPLACEMENT OF PARTS ON THE TERMS EXPRESSLY SET FORTH HERIN ARE YOUR EXCLUSIVE REMEDIES AND NEITHER THE MANUFACTURER NOR ANY OF ITS DISTRIBUTORS SHALL BE LIABLE FOR DAMAGES, WHETHER ORDINARY, INCIDENTAL OR CONSEQUENTIAL.

One (1)
21-01-0200

FIRE PUMP MASTER DRAIN

The fire pump plumbing system and fire pump shall be piped to a single pump panel mounted push-pull type master pump drain assembly.

ADDITIONAL LOW POINT DRAINS

The plumbing system shall be equipped with additional low point manually operated drain valves to allow total draining of the fire pump plumbing system. These valves shall be accessible from the side of the vehicle and labeled.

One (1)
21-01-7100

PLUMBING SYSTEM

The fire pump and plumbing system shall be painted by the fire apparatus manufacturer on completion of piping of the apparatus and prior to the installation on the apparatus chassis. The color shall be: metallic silver.

One (1)
21-01-8100

HOSE THREADS

The hose threads shall be National Standard Thread (NST) on all base threads on the apparatus intakes and discharges.

One (1)
22-03-1600

LEFT SIDE -- 6" UNGATED INTAKE

One (1) 6" ungated suction intake shall be installed on the left side pump panel to supply the fire pump from an external water supply. The threads shall be 6" NST. The intake shall be provided with a removable screen.

One (1)
22-41-5700

One (1) 6" chrome plated cap shall be provided. The threads shall be NST and the cap shall be equipped long handles.

One (1)
22-03-1699

TFT PISTON INTAKE VALVE

There shall be a TFT piston intake valve provided and installed on the drivers side 6" steamer. Model # AB1ST-NX.

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One (1)
22-03-2600

RIGHT SIDE -- 6" UNGATED INTAKE

One (1) 6" ungated suction intake shall be installed on the right side pump panel to supply the fire pump from an external water supply. The intake shall be provided with a removable screen.

One (1)
22-41-5700

One (1) 6" chrome plated cap shall be provided. The threads shall be NST and the cap shall be equipped long handles.

One (1)
22-51-7000

WATER TANK TO PUMP LINE

One (1) 3-1/2" water tank to fire pump line shall be provided with a full flow quarter turn ball Waterous valve, 3" piping, and with flex hose and stainless steel hose clamps. The tank to pump line shall be equipped with a check valve to prevent pressurization of the water tank.

The line shall be flow tested during the fire pump testing and shall meet applicable requirements of NFPA standards.

One (1)
23-02-1300

FIRE PUMP TO WATER TANK FILL LINE

One (1) 2" fire pump to water tank refill and pump bypass cooler line shall be provided. The valve shall be a full flow quarter turn ball valve with 2" piping and flex hose to tank. The valve control handle shall have a nameplate located near the valve control.

One (1)
24-50-1100

One (1) manually operated pull rod, with quarter turn valve, with locking feature shall be provided on the specified discharge. The handle shall be equipped with color coded engraved type name plate.

One (1)
24-61-1200

The specified valve shall be an Akron 8800 Series two-inch (2") valve with a stainless ball.

One (1)
20-26-2600

FIRE PUMP ANODE SYSTEM

The Waterous fire pump plumbing system shall be provided with anode system to reduce corrosion within the piping. The unit shall be a intake strainers on suction barrels, bolt-in or screw-in type and easily replaceable.

Anodes shall be provided on both the discharge and intake side of the pump.

One (1)
20-26-4400

FIRE PUMP PRIMING SYSTEM

A Waterous model number VPOS electrically driven, positive displacement, rotary vane type 'oil less' priming pump shall be installed. The system shall be activated with a push button type control.

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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. The priming system shall comply to applicable sections of the NFPA standards.

One (1)
27-10-3200

PRESSURE GOVERNOR AND ENGINE-PUMP MONITORING

One (1) Fire Research In-Control model TGA100-A00 pressure governor and monitoring display kit shall be provided on the pump panel. The kit shall include a control panel, intake pressure sensor, discharge pressure sensor, audible alarm buzzer, and cables. The control panel case shall be waterproof and have dimensions not to exceed 4 3/4" high by 9 3/4" wide by 2 3/4" deep. The panel shall have LEDs to indicate PSI mode, RPM mode, OK TO PUMP, and IDLE RPM.

The following continuous displays shall be provided:

- 1) Pump discharge; shown with four daylight bright LED digits more than 1/2" high
- 2) Pump Intake; shown with four daylight bright LED digits more than 1/2" high
- 3) PSI/RPM setting; shown on an LED bar graph display
- 4) Engine RPM; shown with four daylight bright LED digits more than 1/2" high, updated in 10 RPM increments
- 5) Oil pressure; shown on an LED bar graph display
- 6) Engine coolant temperature; shown on an LED bar graph display
- 7) Battery voltage; shown on an LED bar graph display.

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

There shall be two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between pressure and RPM modes. When the pump engaged interlock signal is recognized an OK TO PUMP LED will light to indicate throttle ready and the governor shall be in pressure mode with the engine RPM set to idle. In pressure mode the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi.

The program features shall be accessed via push buttons located on the front of the control panel. The program shall support manual control of pump discharge pressure and RPM settings, field programmable presets, and diagnostic capabilities. Safety features shall include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.

One (1)
20-31-3200

INTAKE RELIEF/DUMP VALVE

One (1) Elkhart Model 40, 2-1/2" intake relief/dump 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.

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

One (1)
20-31-4100

FIRE PUMP COOLING

The fire pump shall be equipped with 3/8" cooling line from the pump to the water tank. This re-circulation line shall be controlled by a pump panel control valve with nameplate label noting it as the "fire pump bypass cooler".

One (1)
20-31-5200

CHASSIS ENGINE HEAT EXCHANGER COOLING SYSTEM

The apparatus shall be equipped with a heat exchanger for supplementary chassis engine cooling during fire pump operations. A manually opened valve, mounted at the operator's panel, shall direct water from the fire pump to the heat exchanger that is mounted in the engine radiator cooling hose. The system shall provide cooling water from the fire pump to circulate around the engine radiator coolant without mixing or coming in direct contact with the engine coolant. The complete installation shall be done by the fire apparatus manufacturer.

A nameplate label shall be installed on the pump panel noting "engine cooling system" with "on-off" opening directions noted.

One (1)
22-11-0000

INTAKES

One (1)
22-12-1100

LEFT SIDE -- 2-1/2" GATED INTAKE

One (1) 2-1/2" gated suction intake shall be installed on left side pump panel to supply the fire pump from an external water supply. The control valve shall be a quarter turn ball valve and shall have 2-1/2" NST female thread of brass, chrome plated brass, or stainless steel material.

The intake shall be equipped with a 3/4" drain and bleeder valve, controlled at the base of the pump panel. A nameplate label and removable screen shall be installed.

One (1)
22-41-1100

One (1) 2-1/2" chrome plated plug shall be provided. The threads shall be NST and the plug shall be equipped rocker lugs and chain or cable securement.

One (1)
22-55-2100

The specified intake valve shall be equipped with one (1) manually operated swing type manual control located adjacent the intake. The control handle shall be equipped with quarter turn locking feature. The valve shall be equipped color coded engraved type name plate.

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One (1)
22-12-3100

RIGHT SIDE -- 2-1/2" GATED INTAKE

One (1) 2-1/2" gated suction intake shall be installed on right side pump panel to supply the fire pump from an external water supply. The control valve shall be a quarter turn ball valve and shall have 2-1/2" NST female thread of brass, chrome plated brass, or stainless steel material.

The intake shall be equipped with a 3/4" drain and bleeder valve, controlled at the base of the pump panel. A nameplate and removable screen shall be installed.

One (1)
22-41-1100

One (1) 2-1/2" chrome plated plug shall be provided. The threads shall be NST and the plug shall be equipped rocker lugs and chain or cable securement.

One (1)
22-55-2100

The specified intake valve shall be equipped with one (1) manually operated swing type manual control located adjacent the intake. The control handle shall be equipped with quarter turn locking feature. The valve shall be equipped color coded engraved type name plate.

One (1)
23-00-0000

DISCHARGES

One (1)
23-05-2300

1-1/2" DISCHARGE FRONT RIGHT SIDE BUMPER

One (1) 1-1/2" quarter turn ball valve discharge shall be installed at front right side bumper area with stainless steel or brass swivel outlet with 1-1/2" NST male threads. The valve control shall be on pump panel and a nameplate label provided at valve control area.

The plumbing shall be flexible hose with abrasion resistant support mountings. Auxiliary low point drains and Class 1 automatic 3/4" drain valve shall be provided on the discharge line.

One (1)
24-02-1100

One (1) chrome plated elbow with rocker lugs shall be provided with 1-1/2" NST swivel female x 1-1/2" NST male hose threads.

One (1)
24-50-1100

One (1) manually operated pull rod, with quarter turn valve, with locking feature shall be provided on the specified discharge. The handle shall be equipped with color coded engraved type name plate.

One (1)
24-61-1150

The specified valve shall be an Akron 8800 Series one and one half-inch (1-1/2") valve with a stainless ball.

One (1)
27-02-1400

One (1) 2-1/2" Class 1 pressure gauge rated at 0-400 PSI shall be provided. The gauge shall include a color coded label and be installed on the pump instrument panel. The gauge shall be LED back lighted.

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One (1)
27-37-3200

The color of the LED lighting shall be green.

FRONT BUMPER DISCHARGE AIR BLOWOUT

One (1) air blow out shall be provided for the front bumper discharge. The air blow out system shall be connected to the chassis air brake system. There shall be a check valve furnished between the chassis system and the front bumper discharge blow out system. There shall be a manual control valve furnished on the pump operator's panel for the air blow out system.

One (1)
23-05-9100

Note: the hose connection for the front discharge shall be swivel type located inside the front bumper hose well.

One (1)
23-06-2200

TWO (2) 2" CROSSLAY DISCHARGES

Two (2) pre-connect 2" hose crosslays shall be installed over pump enclosure, with quarter turn 2" diameter ball valves. The outlets shall be a 2" NPT female Chicksan swivel x 1-1/2" male NST hose threads. Class 1 automatic 3/4" bleeder valves shall be installed.

The crosslay hose beds shall have smooth aluminum sides. The hose bed decking shall be constructed with removable slat material.

Each hose bed shall provide for a minimum capacity of 200 feet of 1-3/4" diameter double jacket hose with nozzle, for hose provided by the fire department.

Two (2)
21-01-2200

Two (2) Class 1 automatic type 3/4" bleeder valve shall be installed on gated intakes and discharges larger than 1-1/2" in size.

Two (2)
24-50-1100

Two (2) manually operated pull rod, with quarter turn valve, with locking feature shall be provided on the specified discharge. The handle shall be equipped with color coded engraved type name plate.

Two (2)
24-61-1200

The specified valve shall be an Akron 8800 Series two-inch (2") valve with a stainless ball.

Two (2)
27-02-1400

Two (2) 2-1/2" Class 1 pressure gauge rated at 0-400 PSI shall be provided. The gauge shall include a color coded label and be installed on the pump instrument panel. The gauge shall be LED back lighted.

The color of the LED lighting shall be green.

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One (1)
23-08-4100

STAINLESS FOR CROSSLAY HOSE BED

The crosslay hose bed shall be equipped with wrapped stainless steel to prevent hose damage.

One (1)
23-08-3700

HYPALON CROSSLAY COVERS

The crosslay hose bed shall be equipped with a hypalon cover with end flaps and shall be secured with VELCRO fasteners.

The crosslay cover shall extend over the two (2) 1-3/4" crosslay hose beds and the one (1) 3" deadlay hose bed.

The color of the hose bed cover shall be red.

One (1)
23-08-4100

ROLLERS FOR CROSSLAY HOSE BED

The crosslay hose bed shall be equipped stainless steel "U" shaped roller system, one on each end of the hose bed.

One (1)
23-07-1100

CROSSLAY HOSE BED

One (1) dead hose bed crosslay shall be installed over pump enclosure (no piping or valve provided to the hose bed). The hose bed decking shall be constructed with a removable slat material.

The hose bed shall provide for three (3) lays of 300 feet of 3" diameter double jacket hose with hose and nozzle provided by fire department.

Two (2)
23-09-4100

LEFT SIDE PUMP PANEL -- 2-1/2" DISCHARGE

Two (2) 2-1/2" discharge shall be installed on the left side pump panel area and shall be controlled by a quarter turn ball valve. The discharge shall have 2-1/2" NST male hose threads and 3/4" bleeder valve installed. A chrome plated elbow with rocker lugs shall be provided with 2-1/2" NST swivel female x 2-1/2" NST male hose threads. A color coded nameplate label shall be provided adjacent the control handle.

Two (2)
21-01-2100

Two (2) 3/4" quarter turn bleeder valves shall be installed on gated intakes and discharges larger than 1-1/2" in size.

Two (2)
24-02-1200

Two (2) chrome plated elbow with rocker lugs shall be provided with 2-1/2" NST swivel female x 2-1/2" NST male hose threads.

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Two (2)
24-03-1400

Two (2) 2-1/2" NST rocker lug chrome plated vented cap and cable or chain securement shall be provided.

Two (2)
24-51-1000

Two (2) manually operated swing type valve with control located adjacent the valve, shall be supplied on the specified discharge. The control handle shall be equipped with quarter turn locking feature. The valve shall be equipped color coded engraved type name plate.

Two (2)
24-61-1250

The specified valve shall be an Akron 8800 Series two and one half-inch (2-1/2") valve with a stainless ball.

Two (2)
27-02-1400

Two (2) 2-1/2" Class 1 pressure gauge rated at 0-400 PSI shall be provided. The gauge shall include a color coded label and be installed on the pump instrument panel. The gauge shall be LED back lighted.

The color of the LED lighting shall be red.

Two (2)
23-10-4100

RIGHT SIDE PUMP PANEL -- 2-1/2" DISCHARGE

Two (2) 2-1/2" discharge shall be installed on the right side pump panel area and shall be controlled by a quarter turn ball valve. The outlet shall have 2-1/2" NH male hose threads and a 3/4" bleeder valve shall be installed. A chrome plated elbow with rocker lugs shall be provided with 2-1/2" NST swivel female x 2-1/2" NH male hose threads. A color coded nameplate label shall be provided adjacent the control handle.

Two (2)
21-01-2100

Two (2) 3/4" quarter turn bleeder valves shall be installed on gated intakes and discharges larger than 1-1/2" in size.

Two (2)
24-02-1200

Two (2) chrome plated elbow with rocker lugs shall be provided with 2-1/2" NST swivel female x 2-1/2" NST male hose threads.

Two (2)
24-03-1400

Two (2) 2-1/2" NST rocker lug chrome plated vented cap and cable or chain securement shall be provided.

Two (2)
24-50-1100

Two (2) manually operated pull rod, with quarter turn valve, with locking feature shall be provided on the specified discharge. The handle shall be equipped with color coded engraved type name plate.

Two (2)
24-61-1250

The specified valve shall be an Akron 8800 Series two and one half-inch (2-1/2") valve with a stainless ball.

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Two (2)
27-02-1400

Two (2) 2-1/2" Class 1 pressure gauge rated at 0-400 PSI shall be provided. The gauge shall include a color coded label and be installed on the pump instrument panel. The gauge shall be LED back lighted.

The color of the LED lighting shall be red.

One (1)
23-10-5100

RIGHT SIDE PUMP PANEL -- 3" DISCHARGE

One (1) 3" discharge shall be installed on the right side pump panel area and shall be controlled by a quarter turn ball valve. The discharge shall have 3" NST male hose threads. A color coded nameplate label shall be provided adjacent the control handle.

One (1)
21-01-2100

A 3/4" quarter turn bleeder valves shall be installed on gated intakes and discharges larger than 1-1/2" in size.

One (1)
24-02-1400

One (1) chrome plated elbow with rocker lugs shall be provided with 3" NST swivel female x 3" NST male hose threads.

One (1)
24-03-1500

One (1) 3" NST rocker lug chrome plated vented cap and cable or chain securement shall be provided.

One (1)
24-53-3200

One (1) Akron valve equipped with an Akron #9303 12 volt electric motor actuator shall be provided on the specified 3" discharge. The valve control shall be push button type with position indicator lights provided. A color coded engraved type name plate installed over the valve control.

One (1)
24-61-1300

The specified valve shall be an Akron 8800 Series three-inch (3") valve with a stainless ball.

One (1)
27-02-1400

One (1) 2-1/2" Class 1 pressure gauge rated at 0-400 PSI shall be provided. The gauge shall include a color coded label and be installed on the pump instrument panel. The gauge shall be LED back lighted.

The color of the LED lighting shall be red.

One (1)
24-10-1300

REAR AERIAL INLET AND DISCHARGE

One (1) 4" fire pump discharge shall be piped to the rear of the apparatus with 4" Stainless Steel pipe and controlled with a slow close valve on the pump panel. The 4" rear inlet connection shall provide a dual supply to the aerial device. The rear inlet shall have 4" NST male threads and a 4" NST rocker lug cap with cable or chain securement shall be provided.

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There shall be a 1-1/2" drain installed in the rear aerial supply line with control on the rear of the apparatus body. There shall also be an adjustable relief valve installed in the aerial supply line.

One (1)
21-01-2200

A 3/4" automatic drain valve shall be installed on the plumbing from the pump. A color coded nameplate labels shall be provided at rear and on the pump panel control handle.

One (1)
24-02-2600

One (1) Class 1 automatic type 3/4" bleeder valve shall be installed on gated intakes and discharges larger than 1-1/2" in size.

One (1)
24-03-2200

One (1) lightweight aluminum elbow with 30 degree slant and bright finish shall be provided. Threads shall be 5" Storz with lugs and manual locks x 4" female swivel NST with rocker lugs.

One (1)
24-53-3300

One (1) 5" lightweight aluminum Storz cap with cable or chain securement shall be provided.

Two (2)
27-02-1400

One (1) Akron valve equipped with an Akron #9303 12 volt electric motor actuator shall be provided on the specified 4" discharge. The valve control shall be push button type with position indicator lights provided. A color coded engraved type name plate installed over the valve control.

Two (2) 2-1/2" Class 1 pressure gauge rated at 0-400 PSI shall be provided. The gauge shall include a color coded label and be installed on the pump instrument panel. The gauge shall be LED back lighted.

The color of the LED lighting shall be red.

One (1) gauge shall be located on the pump panel for reading discharge pressure from the pump. One (1) gauge shall be located at the rear of the body for reading inlet pressure from the rear of the truck.

One (1)
20-31-1250

UNDERWRITERS LABORATORIES FIRE PUMP TEST

The pump shall undergo an Underwriters Laboratories Incorporated test per applicable sections of NFPA standards, prior to delivery of the completed apparatus.

The UL acceptance certificate shall be furnished with the apparatus on delivery.

One (1)
20-31-1500

FIRE PUMP TEST LABEL

A fire pump performance and rating label shall be installed on the fire apparatus pump panel. The label shall denote levels of pump performance and testing completed at factory. These shall include GPM at net pump pressure, RPM at such level, and other pertinent data as required by applicable NFPA standards. In addition, the pressure control device, tank to pump flow tests, and other required testing shall be completed.

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In addition, the entire pump, suction and discharge passages shall be hydrostatically tested to a pressure as required by applicable NFPA standards. The pump shall be fully tested at the pump manufacturer's factory to the performance specifications as outlined by applicable NFPA standards. Pump shall be free from objectionable pulsation and vibration.

If applicable, the fire 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% or rated capacity at 165 pounds net pressure.

One (1)
26-00-0004

SIDE MOUNT PUMP ENCLOSURE - PUMP PANELS - DUNNAGE

One (1)
26-02-2600

SIDE MOUNT PUMP ENCLOSURE

The side mount pump enclosure shall be removable and supported from the chassis frame rails. This enclosure will allow independent flexing of the pump enclosure from the body and allow for quick removal. The support structure shall be constructed of extruded aluminum tubing and angle.

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. The fire pump, valves and controls shall be accessible for service and maintenance as required by applicable sections of NFPA standards.

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.

The following controls and equipment shall be provided on the pump panel or within the pump enclosure:

- 1) Electric primer.
- 2) Pump and plumbing area service lights.
- 3) Pressure control device and throttle control.
- 4) Fire pump and engine instruments.
- 5) Pump intakes and discharge controls.
- 6) Master intake and discharge gauges.
- 7) Tank fill control.
- 8) Tank suction control.
- 9) Water tank level gauge.
- 10) Pump panel lights.

Crosslay Installation

The dunnage area atop the pump enclosure shall be notched for the installation of a crosslay hose bed. The hose bed shall have smooth sides and removable grating under

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the hose area. Provisions shall be provided to secure hose and equipment per requirements of applicable NFPA standards.

One (1)
26-10-0000

DUNNAGE COMPARTMENTS / FORWARD TRANSVERSE COMPARTMENTS

One (1)
26-10-2100

DUNNAGE COMPARTMENT -- FRONT OF GENERATOR

There shall be a dunnage location in front of the hydraulic generator (the generator will be located in front of the turntable). This will be accomplished by adding a bulkhead in front of the generator. The dunnage compartment shall house 10 FD supplied air bottles. A vinyl cover shall be provided and cover the top of the dunnage area, color to be red.

Four (4)
45-01-1050

ADJUSTABLE SHELVING TRACKS

The compartments shall be equipped with two (2) aluminum adjustable tracks, vertically mounted, that are bolted in place for adjustable shelving and equipment mounting.

Unistrut shall be installed on all 4 sides of the dunnage compartment for SCBA brackets.

One (1)
26-30-1300

RUNNING BOARDS -- SIDE MOUNT PANEL

The right and left side mount pump panels shall be equipped with side running boards. The running boards will extend along the width of the pump enclosure from the forward end of the body module to behind the chassis cab.

The running boards shall be constructed of a very aggressive slip-resistance material, bolted in place with stainless steel fasteners. The step surfaces shall be in compliance to applicable sections of NFPA requirements.

One (1)
26-31-3300

PUMP ENCLOSURE ACCESS DOOR -- LEFT SIDE UPPER

A pump panel access door shall be provided on the upper left side of the side mount pump enclosure. The door shall be constructed of black thermoplastic covered aluminum with push button type latches.

One (1)
26-31-3340

PUMP ENCLOSURE ACCESS DOOR -- RIGHT SIDE UPPER

A pump panel access door shall be provided on the upper right side of the side mount pump enclosure. The door shall be constructed of black thermoplastic covered aluminum with push button type latches.

One (1)
26-35-1100

LEFT SIDE PUMP PANEL -- BOLTED

A pump panel shall be installed on the on the left hand side of the pump enclosure. The panel shall be fastened to the pump enclosure with 1/4" stainless steel bolts and nutserts.

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One (1)
26-35-1200

RIGHT SIDE PUMP PANEL -- BOLTED

A pump panel shall be installed on the on the right hand side of the pump enclosure. The panel shall be fastened to the pump enclosure with 1/4" stainless steel bolts and nutserts.

One (1)
26-35-5100

PUMP PANEL -- SIDE MOUNT

The left hand and right hand pump panels shall be constructed of black thermoplastic coating aluminum material and be fastened to the pump enclosure with 1/4" stainless steel bolts and nutserts.

The instrument area shall have a stainless steel continuous hinge that shall swing for easy access to gauges.

One (1)
26-36-5100

PUMP PANEL TRIM -- STAINLESS STEEL

Stainless steel trim plates shall be provided for each of the suction and discharge outlets on the apparatus.

One (1)
26-55-1100

LABELS

Safety, information, data, and instruction labels for apparatus shall be provided and installed at the operator's instrument panel.

The labels shall include rated capacities, pressure ratings, and engine speeds as determined by the certification tests. The no-load governed speed of the engine, as stated by the engine manufacturer, shall also be included.

The labels shall be provided with all information and be attached to the apparatus prior to delivery.

One (1)
26-55-2050

COLOR CODED PUMP PANEL LABELLING AND NAMEPLATES

Discharge and intake valve controls shall be color coded in compliance to guidelines of applicable sections of NFPA standards.

Permanent type nameplates and instruction panels shall be installed on the pump panel for safe operation of the pumping equipment and controls.

One (1)
26-56-1100

MIDSHIP PUMP PANEL LIGHTS -- LEFT SIDE

Three (3) Weldon #2025 or equal lights with clear lenses shall be installed under an instrument panel light hood on the left side pump panel. The lights shall be controlled by a switch located on the operators instrument panel.

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One (1)
26-56-1200

MIDSHIP PUMP PANEL LIGHTS -- RIGHT SIDE

Three (3) Weldon #2025 or equal lights with clear lenses shall be installed under an instrument panel light hood on the right side pump panel. The lights shall be controlled by a switch located on the operator's instrument panel.

One (1)
26-56-2000

PUMP PANEL LIGHTS

One (1) pump panel light shall be illuminated at the time the fire pump is engaged into operation. The remaining lights shall be controlled by a switch located on the operators instrument panel.

One (1)
27-01-4100

TEST TAPS

Test taps for pump intake and pump pressure shall be provided on the pump instrument panel and be properly labeled.

One (1)
27-35-1100

WATER TANK GAUGE

One (1) Fire Research TankVision model WLA200-A00 tank indicator kit shall be installed on the pump panel. The kit shall include an electronic indicator module, a pressure sensor, and a 10' sensor cable. The indicator shall show the volume of water in the tank on nine (9) easy to see super bright LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of aluminum, and have a distinctive blue label.

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

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

One (1)
27-38-2000

HEADSET JACK

One (1) external jack shall be provided for the headset on the pump operators panel.

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One (1)
28-00-0030

WATER TANK - TANK FILLS

One (1)
28-30-1100

WATER TANK - 300 GALLON

The apparatus shall be equipped with a three-hundred (300) gallon polypropylene water tank. The tank shall be equipped with a three-inch (3") overflow pipe. The tank body and end bulkheads shall be constructed of .5" thick, polypropylene, nitrogen-welded and tested inside and out. Tank construction shall conform to applicable NFPA standards. The tank shall carry a lifetime warranty.

The transverse and longitudinal .375" thick swash partitions shall be interlocked and welded to each other as well as to the walls of the tank. The partitions shall be designed and equipped with vent holes to permit air and liquid movement between compartments.

The .5" thick cover shall be recessed .375" from the top of the side walls. Hold down dowels shall extend through and be welded to both the covers and the transverse partitions, providing rigidity during fast fill operations. Drilled and tapped holes for lifting eyes shall be provided in the top area of the booster tank.

The water fill tower shall be provided at front of the tank. The 0.5" thick polypropylene fill and overflow tower shall be equipped with a hinged lid and a removable polypropylene screen. The overflow tube shall be installed in fill tower and piped with schedule 40 PVC pipe through the tank.

The water tank sump shall be a minimum of 10" x 10" x 3" deep and located in the forward area of the tank. There will be a schedule 40 polypropylene tank suction pipe from the front of the tank to the tank sump. The tank drain and clean out shall be a 3.0" IPT schedule 80 female flange with plug, located in the bottom of the tank sump.

The pump to tank refill connection shall be sized to mate with tank fill discharge line. A deflector shield inside the tank will also be provided.

The water tank manufacturer shall certify the capacity of the water tank prior to delivery of the apparatus. This capacity shall be recorded on the manufacturer's record of construction and the certification shall be provided to the purchaser when the apparatus is delivered.

One (1)
28-40-1100

The apparatus shall be equipped with a polypropylene water tank. The tank body and end bulkheads shall be constructed of .5" thick, polypropylene, nitrogen-welded and tested inside and out. Tank construction shall conform to applicable NFPA standards. The tank shall carry a lifetime warranty.

The transverse and longitudinal .375" thick swash partitions shall be interlocked and welded to each other as well as to the walls of the tank. The partitions shall be designed and equipped with vent holes to permit air and liquid movement between compartments.

The .5" thick cover shall be recessed .375" from the top of the side walls. Hold down dowels shall extend through and be welded to both the covers and the transverse partitions, providing rigidity during fast fill operations. Drilled and tapped holes for lifting eyes shall be provided in the top area of the booster tank.

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The water fill tower shall be provided at front of the tank. The 0.5" thick polypropylene fill and overflow tower shall be equipped with a hinged lid and a removable polypropylene screen. The overflow tube shall be installed in fill tower and piped with schedule 40 PVC pipe through the tank.

The water tank sump shall be a minimum of 10" x 10" x 3" deep and located in the forward area of the tank. There will be a schedule 40 polypropylene tank suction pipe from the front of the tank to the tank sump. The tank drain and clean out shall be a 3.0" IPT schedule 80 female flange with plug, located in the bottom of the tank sump.

The pump to tank refill connection shall be a sized to mate with tank fill discharge line. A deflector shield inside the tank will also be provided.

The water tank manufacturer shall certify the capacity of the water tank prior to delivery of the apparatus. This capacity shall be recorded on the manufacturer's record of construction and the certification shall be provided to the purchaser when the apparatus is delivered.

One (1)
28-40-1200

The apparatus shall be equipped with a water tank manufactured by United Plastic Fabricating.

One (1)
01-18-0450

WATER TANK WARRANTY

UNITED PLASTIC FABRICATION INC. Warrants each UPF POLY-TANK IIE Booster/Foam tank to be free from manufacturing defects in material and workmanship for the service life of the vehicle (vehicle must be actively used in fire suppression). The UPF POLY-TANK IIE must be installed in accordance with the United Plastic Fabricating installation manual. Every UPF POLY-TANK IIE is thoroughly inspected and tested for leaks before leaving our facility. Should any problems develop with your UPF POLY-TANK IIE booster/foam tank and will not meet performance criteria during the service life of the vehicle, notify UPF in writing or call our TOLL FREE SERVICE HOT LINE 1-800-USA-POLY. Provide UPF with the serial number and a description of the problem. If the tank problem would render the truck out of service, UPF will dispatch a service technician WITHIN 48 HOURS (2 DAYS) to repair the tank. (This time period is for North America only). If the vehicle can remain in service, UPF will dispatch a service technician within a mutually agreed upon time period.

We will repair, or at our option, replace the tank with a new UPF POLY-Tank IIE. UPF will cover customary and reasonable costs to remove and install the UPF POLY-TANK IIE. This warranty will not cover tanks that have been improperly installed, misused or abused, and the serial number must not have, been altered, defaced or removed. UPF will not cover any unauthorized third party repairs or alterations. Any of these actions may void the warranty.

THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION OF THE FACE HEREOF. THERE IS NO EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR A WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. ADDITIONALLY, THIS WARRANTY IS IN LIEU OF ALL OTHER OBLIGATIONS OR LIABILITIES ON THE PART OF UNITED PLASTIC FABRICATION, INC.

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This warranty contains the entire warranty. It is the sole warranty and price agreements or representation, whether oral or written, are either merged herein or expressly cancelled. UNITED PLASTIC FABRICATION, INC. Neither assumes, nor authorizes any person supposing to act on its behalf, to change, nor assume for it, any warranty or liability concerning its product.

IN NO EVENT WILL UNITED PLASTIC FABRICATION, INC BE LIABLE FOR AN AMOUNT IN EXCESS OF THE PRESENT RETAIL, PURCHASE PRICE PLUS INSTALLATION AND REMOVAL COST OF THE BOOSTER TANK, FOR ANY LOSS OR DAMAGE, WHETHER DIRECT OR INDIRECT, INCIDENTAL, CONSEQUENTIAL, OR OTHERWISE ARISING OUT OF FAILURE OF ITS PRODUCT.

This warranty gives you specific legal rights, and you may have other rights, which vary from state to state. Some states do not allow exclusion or limitation of incidental or consequential damage, so the above limitation or exclusion may not apply to you. Some states do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply to you.

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One (1)
30-00-4000

AERIAL BODY

One (1)
40-00-0800

TANDEM AXLE REAR MOUNT AERIAL/PLATFORM BODY

A tandem axle rear mount aerial/platform body shall be provided and constructed as follows:

One (1)
00-01-6000

CHASSIS REQUIREMENTS FOR AERIAL APPARATUS

The following items shall be included with the chassis to operate the aerial device:

- Truck chassis with a selectable high idle system. High idle to be set at 1,200 R.P.M.
- A red warning light installed in the driving compartment and visible to the driver to indicate if any outrigger is not in the stowed position.
- There shall be a (hot shift) PTO system mounted to the chassis transmission. The PTO assembly shall supply power to the hydraulic pump for all aerial operations. Electrical safety wiring shall be installed that requires the transmission be in neutral, or the fire pump engaged and the parking brake set before the PTO will operate.
- A PTO engaged indicator light shall be installed in the cab of the apparatus.

One (1)
00-01-6100

BODY BUILDER REQUIREMENTS FOR AERIAL APPARATUS

The following items shall be installed by the body builder for the aerial device:

- Auxiliary outrigger plates, 2 ft. X 2 ft. for each outrigger. Outrigger plates to be installed on heavy aluminum brackets and installed adjacent to each outrigger.
- A preset relief valve capable of protecting the waterway system by relieving pressure through the dumping of water to the environment. Relief valve shall be plumbed to dump excess water below chassis frame.
- A 1-1/2 inch minimum drain valve shall be installed at the low point of the waterway inlet system. Handle to operate drain valve shall be extended to rear of body.
- Reflective striping shall be installed on all stabilizers that protrude beyond the body of the apparatus.
- Warning signs for the aerial and outriggers shall be installed to meet the aerial manufacturer recommendations.
- A leveling bubble shall be installed on the rear of the truck, for side to side leveling.
- There shall be a ladder alignment indicator provided on the turntable to indicate when the ladder is aligned with the travel support and may be lowered into it.

One (1)
30-01-1900

3/16" ALUMINUM BODY

The body shall be fabricated of aluminum extrusions, smooth aluminum sheet and aluminum treadplate.

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The aluminum extrusion alloy shall be 6061 with a temper rating of T6, and have a tensile strength of 45,000 PSI and yield strength of 40,000 pounds. The aluminum extrusions shall 3" x 3" aluminum tubing, 1-3/4" x 3" aluminum tubing and 3" x 3" aluminum angle and specially designed extrusions, up to .250" wall thickness where applicable.

The smooth aluminum sheet material alloy shall be 5052 with a temper rating of H32, and have a tensile strength of 33,000 PSI and yield strength of 28,000 pounds.

The aluminum treadplate alloy shall be 3003 with a temper rating of H22, and have a tensile strength of 30,000 PSI and yield strength of 28,000 pounds.

The extrusions shall be designed as structural-framing members with the smooth aluminum and treadplate fabricated to form compartments, hose beds, and floors. All aluminum material shall be welded together using the latest mig spray pulse arc welding system.

Compartments to be sweep out design and to be water and dust proof. All compartments shall be made to the maximum practical dimensions to provide maximum storage capacity. To ensure maximum storage space, the apparatus shall be constructed without any void spaces between the body and the compartment walls. Double wall construction does not meet this requirement.

All exterior compartments shall have polished aluminum drip moldings installed above the doors where necessary to prevent water from entering the compartments.

Wheel well panels shall be formed aluminum that is welded in place. There shall be no visible bolt heads, retention nuts or fasteners on the exterior surface of the panel. To fully protect the wheel well area from road debris and to aid in cleaning, a full depth radius wheel well liner shall be provided. The frame side of the wheel well area on each side of the opening shall be attached to the frame side of the front and rear compartments. All seams on the frame side of the body shall be welded and caulked to prevent moisture from entering the compartments.

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 stainless steel fasteners.

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)
01-19-0350

ALUMINUM BODY WARRANTY - TEN YEAR

Rosenbauer America, LLC warrants to the original purchaser only, that the all aluminum body, fabricated by Rosenbauer America, LLC, under normal use and with reasonable

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maintenance, be structurally sound and will remain free from corrosion perforation for a period of TEN (10) 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.

ROSENBAUER AMERICA, LLC MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, WITH RESPECT TO THE ALUMINUM BODY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND HEREBY DISCLAIMED.

Rosenbauer America, LLC 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 Rosenbauer America, LLC elects to repair this body, the extent of such repair shall be determined solely by Rosenbauer America, LLC, and shall be performed solely at the Rosenbauer America, LLC 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.

Rosenbauer America, LLC will not be liable for 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.

Rosenbauer America, LLC 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.

Note: Surety bond, if required, will cover standard one year warranty period only and will not cover any extended warranties allowed by seller or other component manufacturers.

One (1)
30-02-1100

HINGED COMPARTMENT FLUSH 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 tread plate compartment tops into an extended drip edge and on the bottom by the rub rail.

Doors shall be a minimum 2" thick, fabricated of a minimum of 1/8" smooth aluminum. Full panel inner compartment door liners shall be provided and constructed from smooth aluminum. 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.

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When horizontally hinged lift-up doors are specified, they shall be equipped with heavy-duty gas filled dampeners to hold the doors in the open position. All other hinged doors shall be equipped with spring loaded hold open devices 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)
30-10-1100

GALVANIZED WATER TANK SUB-FRAME

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

Two full frame lengths, three-inch (3") 3.4 pound per foot longitudinal steel channels shall form the sides of the body sub frame and sides of the water tank cradle. Sub frame cross members shall be fabricated with three inch (3") 3.4 pound per foot heavy steel channel cross members welded to the longitudinal body sub frame 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 sub frame and rest on top of the chassis frame rails for proper frame weight distribution.

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

The rear sub frame and lower body platform support members shall be of the "two piece" design, fabricated of 3.4 lb. Per foot heavy channel and welded to the full length sub frame channel liners at the rear.

A minimum of two rear platform support channels shall be provided and constructed of 3.4 lb. Per foot heavy steel material. Each support channel shall have welded in gusset where the support meets the rear sub frame rails.

After fabrication the entire sub frame assembly shall be hot dip galvanized to prevent corrosion. The hot dip galvanized sub frame shall have a lifetime warranty against failure due to corrosion.

This steel sub frame shall carry the weight of the apparatus body, tank, water and equipment. This method of apparatus construction gives an excellent strength/weight ratio.

One (1)
01-19-2800

GALVANIZED SUBFRAME WARRANTY

Subject to the provisions, limitations and conditions set forth in this warranty, Rosenbauer America, LLC (hereby referred to as "seller"), hereby warrants to each original purchaser only that each new hot dip galvanized body sub frame (exclusive of paint finish and hardware) is structurally sound and free of all structural defects of both material and

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workmanship and further warrants that it will maintain such structural integrity for the duration of ownership by the original purchaser. This warranty terminates upon transfer of possession or ownership by original purchaser.

This warranty is conditioned upon normal use and reasonable maintenance of such sub frame; prompt written notice of all defects to seller or one of the seller's then authorized dealers in the area; no repair or additions there to except by seller or authorized by it; said defect not resulting from misuse, negligence, accident, remount, overloading beyond applicable weight rating by customer or third parties. If any such conditions are not complied with, this warranty shall become void and unenforceable.

Should repairs become necessary under the terms or the warranty, the extent of that repair shall be determined solely by the seller and shall be performed solely at Rosenbauer America, LLC or a repair facility designated by the seller. The expense of any transportation to or from such repair facility shall be that of the purchaser and is not an item covered by this warranty.

Seller reserves the unrestricted right at any time from time to time to make changes in the design of and/or improvements on its products without thereby imposing any obligation on itself to make corresponding changes or improvements in or on its products theretofore manufactured.

EXCLUSIONS AND LIMITATIONS: THIS MANUFACTURER'S WARRANTY IS PROVIDED IN PLACE OF ANY AND ALL OTHER REPRESENTATIONS OR IMPLIED WARRANTIES. NO PERSON IS AUTHORIZED TO MAKE ANY REPRESENTATIONS OR WARRANTY ON BEHALF OF ROSENBAUER AMERICA, LLC OR ANY OF ITS DISTRIBUTORS OTHER THAN SET FORTH IN THIS MANUFACTURER'S WARRANTY. YOUR RIGHT TO SERVICE AND REPLACEMENT OF PARTS ON THE TERMS EXPRESSLY SET FORTH HERIN ARE YOUR EXCLUSIVE REMEDIES AND NEITHER THE MANUFACTURER NOR ANY OF ITS DISTRIBUTORS SHALL BE LIABLE FOR DAMAGES, WHETHER ORDINARY, INCIDENTAL OR CONSEQUENTIAL.

One (1)
44-06-3100

TANDEM AXLE 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 aluminum 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)
40-01-3400

BODY WIDTH

The overall width of the platform body shall not exceed 102".

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One (1)
40-01-6300

COMPARTMENT DEPTH

The lower portion of the side compartments on the aerial body shall be 26" deep.

One (1)
40-01-6600

COMPARTMENT DEPTH

The upper portion of the side compartments on the aerial body shall be 13" deep.

One (1)
41-39-1100

AERIAL HOSEBED

There shall be a modified side stack hose bed 10"W x 30"H x 187"L; in depth to the jamb between R2 & R3 compartments. The compartments forward of this hose bed to be full depth. Add a vinyl cover over the hose bed, color to be red.

One (1)
41-39-2100

ALUMINUM HOSEBED GRATING

The hose bed compartment deck shall be constructed entirely from maintenance-free, extruded aluminum slats. The slats shall have an anodized, radiused ribbed top surface. The slats shall be of widths approximately 3/4" high x 7.5" wide and shall be welded into a one-piece grid system to prevent the accumulation of water and allow ventilation to assist in drying hose.

One (1)
41-39-5100

ALUMINUM HOSEBED DIVIDER

One (1) adjustable hose bed divider constructed of .250" aluminum shall be installed on the apparatus.

One (1)
41-40-1100

The hose bed cover shall be secured utilizing a Velcro fastening system at the front and sides of the hose bed body.

One (1)
41-40-1100

The hose bed cover shall be secured utilizing a Velcro fastening system at the front and sides of the hose bed body.

One (1)
40-10-0900

LEFT SIDE BODY COMPARTMENTS

The left side body compartmentation shall be as follows:

One (1)
40-10-1010

LEFT FRONT COMPARTMENT – L1

There shall be one (1) compartment located above the front outrigger. The compartment shall be equipped with a single hinged lift up door.

The compartment shall be equipped with the following:

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One (1)
45-30-1700

COMPARTMENT MATTING

The floor areas for the front of the body shall be fitted with removable vinyl Turtle Tile matting. The matting shall be interlocking modules approximately 12" square by 9/16" thick. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

The color of the floor matting shall be black.

One (1)
55-02-1100

COMPARTMENT LIGHTS

One (1) incandescent light fixture shall be installed on the ceiling of the exterior compartments of the apparatus. The light shall have a clear lens.

One (1)
55-06-1100

COMPARTMENT LIGHT SWITCH

The exterior compartment lights will be controlled by an automatic "On-Off" switch located on each compartment door.

One (1)
40-10-2010

LEFT FRONT COMPARTMENT – L2

There shall be one (1) full height compartment located ahead of the rear wheels. The compartment shall be equipped with a full height double hinged doors.

The compartment shall be equipped with the following:

One (1)
45-01-1050

ADJUSTABLE SHELVING TRACKS

The compartments shall be equipped with two (2) aluminum adjustable tracks, vertically mounted, that are bolted in place for adjustable shelving and equipment mounting.

Two (2)
45-02-1200

ADJUSTABLE SHELF

Two (2) adjustable shelf up shall be constructed of .125" thick smooth aluminum plate and be mounted in a compartment with bolt on aluminum shelf brackets.

One (1)
45-06-1100

500# ROLLOUT TRAY

One (1) rollout equipment tray shall be installed in a standard depth compartment. The 500# rated tracks shall have roller bearings. The tray shall be constructed of .188" smooth aluminum plate, fabricated with four 3" sides.

The unit shall roll fully out of the compartment, with a gas operator to hold tray in both the "in and out" positions.

The slide out tray shall be floor mounted.

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Three (3)
45-30-1125

COMPARTMENT MATTING

Shelves and trays in the lower exterior compartments shall be fitted with removable vinyl Turtle Tile matting. The matting shall be interlocking modules approximately 12" square by 9/16" thick. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

The color of the floor matting shall be black.

One (1)
45-30-1700

COMPARTMENT MATTING

The floor areas for the front of the body shall be fitted with removable vinyl Turtle Tile matting. The matting shall be interlocking modules approximately 12" square by 9/16" thick. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

The color of the floor matting shall be black.

One (1)
55-02-1100

COMPARTMENT LIGHTS

One (1) incandescent light fixture shall be installed on the ceiling of the exterior compartments of the apparatus. The light shall have a clear lens.

One (1)
55-06-1100

COMPARTMENT LIGHT SWITCH

The exterior compartment lights will be controlled by an automatic "On-Off" switch located on each compartment door.

Two (2)
55-05-1100

ADDITIONAL COMPARTMENT LIGHT

Two (2) additional sealed light shall be provided and installed for compartments with shelves, as directed by the Fire Department. The additional lights shall be mounted to a bracket attached to the unistrut shelf standard. Lights mounted to the shelf brackets shall have additional wire to allow the light to be adjusted with the shelf. Lights shall be wired to switch on and off with the automatic door jamb switch.

One (1)
40-10-4000

LEFT OVERWHEEL COMPARTMENT – L3 & L4

There shall be two (2) compartment above the rear wheels. Each compartment shall be equipped with a single hinged lift up door.

The compartment shall be equipped with the following:

A vertical divider shall be installed between the two compartments over the rear wheels.

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Two (2)
45-01-1050

ADJUSTABLE SHELVING TRACKS

The compartments shall be equipped with two (2) aluminum adjustable tracks, vertically mounted, that are bolted in place for adjustable shelving and equipment mounting.

One (1)
45-06-1100

500# ROLLOUT TRAY

One (1) rollout equipment tray shall be installed in a standard depth compartment. The 500# rated tracks shall have roller bearings. The tray shall be constructed of .188" smooth aluminum plate, fabricated with four 3" sides.

The unit shall roll fully out of the compartment, with a gas operator to hold tray in both the "in and out" positions.

The tray shall be located in the L4 compartment and be floor mounted.

Two (2)
45-10-1100

PULL-OUT AND DROP-DOWN

Two (2) 250 pound capacity rollout and drop-down tray shall be installed in a the specified compartment. The tray shall be constructed of aluminum with 3" edges on each side. The tray shall be equipped with roller bearing wheels.

The track assembly allows the tray to roll out of compartment while dropping downward at approximately a 30 degree angle.

One (1) tray shall be mounted in each of the L3 and L4 compartments.

Three (3)
45-30-1125

COMPARTMENT MATTING

Shelves and trays in the lower exterior compartments shall be fitted with removable vinyl Turtle Tile matting. The matting shall be interlocking modules approximately 12" square by 9/16" thick. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

The color of the floor matting shall be black.

Two (2)
45-30-1700

COMPARTMENT MATTING

The floor areas for the front of the body shall be fitted with removable vinyl Turtle Tile matting. The matting shall be interlocking modules approximately 12" square by 9/16" thick. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

The color of the floor matting shall be black.

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Two (2)
55-02-1100

COMPARTMENT LIGHTS

Two (2) incandescent light fixture shall be installed on the ceiling of the exterior compartments of the apparatus. The light shall have a clear lens.

Two (2)
55-06-1100

COMPARTMENT LIGHT SWITCH

The exterior compartment lights will be controlled by an automatic "On-Off" switch located on each compartment door.

The additional compartment lights shall be located below the pull-out, drop-down trays, one each in the L3 and L4 compartments.

Two (2)
55-05-1100

ADDITIONAL COMPARTMENT LIGHT

Two (2) additional sealed light shall be provided and installed for compartments with shelves, as directed by the Fire Department. The additional lights shall be mounted to a bracket attached to the unistrut shelf standard. Lights mounted to the shelf brackets shall have additional wire to allow the light to be adjusted with the shelf. Lights shall be wired to switch on and off with the automatic door jamb switch.

One (1)
40-10-5000

LEFT REAR COMPARTMENT – L5

There shall be one (1) full height compartment located behind the rear wheels. The compartment shall be equipped with a single full height hinged door.

The compartment shall be equipped with the following:

Two (2)
45-02-1200

ADJUSTABLE SHELF

Two (2) adjustable shelf up shall be constructed of .125" thick smooth aluminum plate and be mounted in a compartment with bolt on aluminum shelf brackets.

One (1)
45-06-1100

500# ROLLOUT TRAY

One (1) rollout equipment tray shall be installed in a standard depth compartment. The 500# rated tracks shall have roller bearings. The tray shall be constructed of .188" smooth aluminum plate, fabricated with four 3" sides.

The unit shall roll fully out of the compartment, with a gas operator to hold tray in both the "in and out" positions.

The slide out tray shall be floor mounted.

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Three (3)
45-30-1125

COMPARTMENT MATTING

Shelves and trays in the lower exterior compartments shall be fitted with removable vinyl Turtle Tile matting. The matting shall be interlocking modules approximately 12" square by 9/16" thick. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

One (1)
45-30-1700

COMPARTMENT MATTING

The floor areas for the front of the body shall be fitted with removable vinyl Turtle Tile matting. The matting shall be interlocking modules approximately 12" square by 9/16" thick. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

One (1)
55-02-1100

COMPARTMENT LIGHTS

One (1) incandescent light fixture shall be installed on the ceiling of the exterior compartments of the apparatus. The light shall have a clear lens.

One (1)
55-06-1100

COMPARTMENT LIGHT SWITCH

The exterior compartment lights will be controlled by an automatic "On-Off" switch located on each compartment door.

Two (2)
55-05-1100

ADDITIONAL COMPARTMENT LIGHT

Two (2) additional sealed light shall be provided and installed for compartments with shelves, as directed by the Fire Department. The additional lights shall be mounted to a bracket attached to the unistrut shelf standard. Lights mounted to the shelf brackets shall have additional wire to allow the light to be adjusted with the shelf. Lights shall be wired to switch on and off with the automatic door jamb switch.

One (1)
40-10-6010

LEFT REAR COMPARTMENT – L6

There shall be one (1) compartment located above the rear outrigger. The compartment shall be equipped with a single hinged lift up door.

The compartment shall be equipped with the following:

One (1)
45-30-1700

COMPARTMENT MATTING

The floor areas for the front of the body shall be fitted with removable vinyl Turtle Tile matting. The matting shall be interlocking modules approximately 12" square by 9/16" thick. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

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One (1)
55-02-1100

The color of the floor matting shall be black.

COMPARTMENT LIGHTS

One (1) incandescent light fixture shall be installed on the ceiling of the exterior compartments of the apparatus. The light shall have a clear lens.

One (1)
55-06-1100

COMPARTMENT LIGHT SWITCH

The exterior compartment lights will be controlled by an automatic "On-Off" switch located on each compartment door.

One (1)
40-96-1600

ACCESS LADDER

There shall be a swing out and down access ladder supplied and installed on the left side apparatus, for accessing the aerial turntable. It shall be of an all aluminum design and shall incorporate treads six (6") inches deep and no more than eighteen (18") inches apart. The ground to the first step dimension, on level ground, shall be no more than eighteen (18") inches. When in the deployed position the ladder shall have an angle of approximately 75-degrees to facilitate ascending and descending the ladder. The ladder shall be retained in the stowed and deployed position by two (2) gas cylinders and shall not require the use of lathes to hold it in position.

One (1)
40-12-0900

RIGHT SIDE BODY COMPARTMENTS

The right side body compartmentation shall be as follows:

One (1)
40-12-1010

RIGHT FRONT COMPARTMENT – R1

There shall be one (1) compartment located above the front outrigger. The compartment shall be equipped with a single hinged lift up door.

The compartment shall be equipped with the following:

One (1)
45-30-1700

COMPARTMENT MATTING

The floor areas for the front of the body shall be fitted with removable vinyl Turtle Tile matting. The matting shall be interlocking modules approximately 12" square by 9/16" thick. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

The color of the floor matting shall be black.

One (1)
55-02-1100

COMPARTMENT LIGHTS

One (1) incandescent light fixture shall be installed on the ceiling of the exterior compartments of the apparatus. The light shall have a clear lens.

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One (1)
55-06-1100

COMPARTMENT LIGHT SWITCH

The exterior compartment lights will be controlled by an automatic "On-Off" switch located on each compartment door.

One (1)
40-12-2010

RIGHT FRONT COMPARTMENT – R2

There shall be one (1) full height compartment located ahead of the rear wheels. The compartment shall be equipped with a full height hinged double doors.

The compartment shall be equipped with the following:

One (1)
45-01-1050

ADJUSTABLE SHELVING TRACKS

The compartments shall be equipped with two (2) aluminum adjustable tracks, vertically mounted, that are bolted in place for adjustable shelving and equipment mounting.

Two (2)
45-02-1200

ADJUSTABLE SHELF

Two (2) adjustable shelf up shall be constructed of .125" thick smooth aluminum plate and be mounted in a compartment with bolt on aluminum shelf brackets.

One (1)
45-06-1100

500# ROLLOUT TRAY

One (1) rollout equipment tray shall be installed in a standard depth compartment. The 500# rated tracks shall have roller bearings. The tray shall be constructed of .188" smooth aluminum plate, fabricated with four 3" sides.

The unit shall roll fully out of the compartment, with a gas operator to hold tray in both the "in and out" positions.

The slide out tray shall be floor mounted.

Three (3)
45-30-1125

COMPARTMENT MATTING

Shelves and trays in the lower exterior compartments shall be fitted with removable vinyl Turtle Tile matting. The matting shall be interlocking modules approximately 12" square by 9/16" thick. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

The color of the floor matting shall be black.

One (1)
45-30-1700

COMPARTMENT MATTING

The floor areas for the front of the body shall be fitted with removable vinyl Turtle Tile matting. The matting shall be interlocking modules approximately 12" square by 9/16"

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thick. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

The color of the floor matting shall be black.

One (1)
55-02-1100

COMPARTMENT LIGHTS

One (1) incandescent light fixture shall be installed on the ceiling of the exterior compartments of the apparatus. The light shall have a clear lens.

One (1)
55-06-1100

COMPARTMENT LIGHT SWITCH

The exterior compartment lights will be controlled by an automatic "On-Off" switch located on each compartment door.

Two (2)
55-05-1100

ADDITIONAL COMPARTMENT LIGHT

Two (2) additional sealed light shall be provided and installed for compartments with shelves, as directed by the Fire Department. The additional lights shall be mounted to a bracket attached to the unistrut shelf standard. Lights mounted to the shelf brackets shall have additional wire to allow the light to be adjusted with the shelf. Lights shall be wired to switch on and off with the automatic door jamb switch.

One (1)
40-12-4005

RIGHT OVERWHEEL COMPARTMENT – R3 & R4

There shall be two (2) compartment above the rear wheels. Each compartment shall be equipped with a single hinged lift up door.

The compartment shall be equipped with the following:

A vertical divider shall be installed between the two compartments over the rear wheels.

Two (2)
45-30-1700

COMPARTMENT MATTING

The floor areas for the front of the body shall be fitted with removable vinyl Turtle Tile matting. The matting shall be interlocking modules approximately 12" square by 9/16" thick. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

The color of the floor matting shall be black.

Two (2)
55-02-1100

COMPARTMENT LIGHTS

Two (2) incandescent light fixture shall be installed on the ceiling of the exterior compartments of the apparatus. The light shall have a clear lens.

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Two (2)
55-06-1100

COMPARTMENT LIGHT SWITCH

The exterior compartment lights will be controlled by an automatic "On-Off" switch located on each compartment door.

One (1)
40-12-5000

RIGHT REAR COMPARTMENT – R5

There shall be one (1) full height compartment located behind the rear wheels. The compartment shall be equipped with a single full height hinged door.

The compartment shall be equipped with the following:

The slide out tray shall be floor mounted.

One (1)
45-01-1050

ADJUSTABLE SHELVING TRACKS

The compartments shall be equipped with two (2) aluminum adjustable tracks, vertically mounted, that are bolted in place for adjustable shelving and equipment mounting.

One (1)
45-02-1200

ADJUSTABLE SHELF

One (1) adjustable shelf up shall be constructed of .125" thick smooth aluminum plate and be mounted in a compartment with bolt on aluminum shelf brackets.

The shelf shall be located in the upper, shallow portion of the compartment.

One (1)
45-06-1100

500# ROLLOUT TRAY

One (1) rollout equipment tray shall be installed in a standard depth compartment. The 500# rated tracks shall have roller bearings. The tray shall be constructed of .188" smooth aluminum plate, fabricated with four 3" sides.

The unit shall roll fully out of the compartment, with a gas operator to hold tray in both the "in and out" positions.

Two (2)
45-30-1125

COMPARTMENT MATTING

Shelves and trays in the lower exterior compartments shall be fitted with removable vinyl Turtle Tile matting. The matting shall be interlocking modules approximately 12" square by 9/16" thick. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

The color of the floor matting shall be black.

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One (1)
45-30-1700

COMPARTMENT MATTING

The floor areas for the front of the body shall be fitted with removable vinyl Turtle Tile matting. The matting shall be interlocking modules approximately 12" square by 9/16" thick. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

The color of the floor matting shall be black.

One (1)
55-02-1100

COMPARTMENT LIGHTS

One (1) incandescent light fixture shall be installed on the ceiling of the exterior compartments of the apparatus. The light shall have a clear lens.

One (1)
55-06-1100

COMPARTMENT LIGHT SWITCH

The exterior compartment lights will be controlled by an automatic "On-Off" switch located on each compartment door.

One (1)
55-05-1100

ADDITIONAL COMPARTMENT LIGHT

One (1) additional sealed light shall be provided and installed for compartments with shelves, as directed by the Fire Department. The additional lights shall be mounted to a bracket attached to the unistrut shelf standard. Lights mounted to the shelf brackets shall have additional wire to allow the light to be adjusted with the shelf. Lights shall be wired to switch on and off with the automatic door jamb switch.

One (1)
40-12-6010

RIGHT FRONT COMPARTMENT – R6

There shall be one (1) compartment located above the rear outrigger. The compartment shall be equipped with a single hinged lift up door.

The compartment shall be equipped with the following:

One (1)
45-30-1700

COMPARTMENT MATTING

The floor areas for the front of the body shall be fitted with removable vinyl Turtle Tile matting. The matting shall be interlocking modules approximately 12" square by 9/16" thick. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

The color of the floor matting shall be black.

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One (1)
55-02-1100

COMPARTMENT LIGHTS

One (1) incandescent light fixture shall be installed on the ceiling of the exterior compartments of the apparatus. The light shall have a clear lens.

One (1)
55-06-1100

COMPARTMENT LIGHT SWITCH

The exterior compartment lights will be controlled by an automatic "On-Off" switch located on each compartment door.

One (1)
40-12-8030

RIGHT REAR COMPARTMENT – R7

There shall be one (1) full height compartment located behind the rear outrigger. The compartment shall be equipped with a single full height hinged door.

The compartment shall be equipped with the following:

The slide out tray shall be floor mounted.

One (1)
45-01-1050

ADJUSTABLE SHELVING TRACKS

The compartments shall be equipped with two (2) aluminum adjustable tracks, vertically mounted, that are bolted in place for adjustable shelving and equipment mounting.

Two (2)
45-02-1200

ADJUSTABLE SHELF

Two (2) adjustable shelf up shall be constructed of .125" thick smooth aluminum plate and be mounted in a compartment with bolt on aluminum shelf brackets.

One shelf shall be located in the upper, shallow portion of the compartment and the 2nd shelf shall be mounted in the lower, deeper portion.

One (1)
45-06-1100

500# ROLLOUT TRAY

One (1) rollout equipment tray shall be installed in a standard depth compartment. The 500# rated tracks shall have roller bearings. The tray shall be constructed of .188" smooth aluminum plate, fabricated with four 3" sides.

The unit shall roll fully out of the compartment, with a gas operator to hold tray in both the "in and out" positions.

Three (3)
45-30-1125

COMPARTMENT MATTING

Shelves and trays in the lower exterior compartments shall be fitted with removable vinyl Turtle Tile matting. The matting shall be interlocking modules approximately 12" square

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by 9/16" thick. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

The color of the floor matting shall be black.

One (1)
45-30-1700

COMPARTMENT MATTING

The floor areas for the front of the body shall be fitted with removable vinyl Turtle Tile matting. The matting shall be interlocking modules approximately 12" square by 9/16" thick. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant.

The color of the floor matting shall be black.

One (1)
55-01-1900

COMPARTMENT LIGHT

One (1) incandescent light fixture shall be installed in each compartment. The compartment light shall have a clear lens.

One (1)
55-06-1100

COMPARTMENT LIGHT SWITCH

The exterior compartment lights will be controlled by an automatic "On-Off" switch located on each compartment door.

Two (2)
55-05-1100

ADDITIONAL COMPARTMENT LIGHT

Two (2) additional sealed light shall be provided and installed for compartments with shelves, as directed by the Fire Department. The additional lights shall be mounted to a bracket attached to the unistrut shelf standard. Lights mounted to the shelf brackets shall have additional wire to allow the light to be adjusted with the shelf. Lights shall be wired to switch on and off with the automatic door jamb switch.

One (1)
40-95-3000

REAR COMPARTMENT – LADDER STORAGE

There shall be one (1) compartment located behind the rear wheels. The compartment shall be located within the aerial torque box to accommodate the specified ladders and pike poles. The compartment shall be equipped with a natural finish roll up door.

One (1)
55-01-1900

COMPARTMENT LIGHT

One (1) incandescent light fixture shall be installed in each compartment. The compartment light shall have a clear lens.

One (1)
55-06-1100

COMPARTMENT LIGHT SWITCH

The exterior compartment lights will be controlled by an automatic "On-Off" switch located on each compartment door.

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One (1)
41-39-2100

ALUMINUM HOSEBED GRATING

The hose bed compartment deck shall be constructed entirely from maintenance-free, extruded aluminum slats. The slats shall have an anodized, radiused ribbed top surface. The slats shall be of widths approximately 3/4" high x 7.5" wide and shall be welded into a one-piece grid system to prevent the accumulation of water and allow ventilation to assist in drying hose.

One (1)
41-39-3500

The hose bed shall be designed to have storage capacity for 5" LDH Single Jacket rubber fire.

One (1)
41-39-4200

Hose lengths shall be coupled in one hundred foot lengths.

One (1)
41-41-1100

AERIAL REAR BUMPER

A 4" rear bumper shall be provided at the rear of the apparatus body, recessed in place and easily removable for replacement or repair. The rear bumper shall be constructed of .188" aluminum diamond plate or equal non-slip surface in compliance with NFPA #1901 standards.

One (1)
41-43-1200

RUNNING BOARD STEP

A running board step shall be provided and bolted on the left side of the apparatus. The exterior edge of the running boards shall be a full double channel type reinforced break, constructed of a minimum thickness of .125" aluminum diamond plate or equal non-slip surface in compliance with NFPA #1901 standards.

One (1)
41-43-1300

RUNNING BOARD STEP

A running board step shall be provided and bolted on the right side of the apparatus. The exterior edge of the running boards shall be a full double channel type reinforced break, constructed of a minimum thickness of .125" aluminum diamond plate or equal non-slip surface in compliance with NFPA #1901 standards.

One (1)
41-43-3200

RUNNING BOARD ROLL OUT STEP

A roll out step assembly shall be installed on the left side of the apparatus using 500# roller bearing extruded aluminum tracks. The step shall be fabricated of .125" aluminum diamond plate or equal non-slip NFPA compliant grating and shall extend out approximately 18".

The step shall be enclosed within the running board step and shall lock in both the in and out positions when in use.

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The pull out step shall be the integrated type and be incorporated into the main running board.

Three (3)
41-44-1100

FOLDING STEP LEFT SIDE FRONT

An 8" square folding step of die cast aluminum with stainless steel springs shall be provided. The step shall comply to NFPA #1901 non-slip standards and shall be installed on the left side front body face.

Three (3)
41-44-1400

FOLDING STEP RIGHT SIDE FRONT

An 8" square folding step of die cast aluminum with stainless steel springs shall be provided. The step shall comply to NFPA #1901 non-slip standards and shall be installed on the right side front body face.

One (1)
41-45-1100

HANDRAIL REAR STEP

One (1) extruded aluminum non-slip handrail shall be provided and mounted on the rear of the apparatus.

One (1)
41-45-1400

HANDRAIL REAR STEP

Two (2) extruded aluminum non-slip handrails, approximately 48" in length, shall be provided and mounted on the rear of the apparatus, one (1) on each side of the body.

One (1)
41-45-4300

HANDRAIL SIDE PUMP PANEL

An extruded aluminum non-slip handrail shall be provided and horizontally mounted on the side pump panel.

One (1)
41-45-4400

HANDRAIL SIDE PUMP PANEL

Two (2) extruded aluminum non-slip handrails, approximately 12" in length, shall be provided and horizontally mounted, one (1) each side on the side pump panel.

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One (1)
44-00-0000

COMMON BODY COMPONENTS

One (1)
44-02-1100

EXTRUDED ALUMINUM RUB RAILS

Full body length polished aluminum rub rails shall be bolted in place on the lower right and left body sides. The side rub rails shall be a heavy extruded aluminum "C" channel.

One (1)
44-07-1300

FUEL FILL DOOR

A brushed aluminum fuel fill enclosure door shall be installed in the left side rear wheel well. A brass screw on fuel cap with retention chain shall be provided. A label indicating DIESEL FUEL ONLY shall be applied.

Four (4)
44-10-1100

AIR CYLINDER COMPARTMENT IN WHEELWELL

Four (4) breathing air cylinder storage compartment shall be provided and located in the rear wheel well of the apparatus body.

The cylinder storage compartment shall be constructed entirely of aluminum. The door assemblies shall be provided with a gasket between door and body side, bolted in-place and removable for repair or replacement.

Compartment shall be provided with SCBA cylinder scuff protection. A brushed aluminum door with push button trigger latch shall be provided.

Department provided bottles are 7-3/4"D x 25"H.

Two (2)
44-10-2100

DUAL AIR CYLINDER COMPARTMENT IN WHEELWELL

Two (2) breathing air cylinder storage compartment for two (2) SCBA cylinders (not supplied) shall be provided and located in the rear wheel well of the apparatus body.

The cylinder storage compartment shall be constructed entirely of aluminum. The door assemblies shall be provided with a gasket between door and body side, bolted in-place and removable for repair or replacement.

The compartment shall be provided with SCBA cylinder scuff protection. An aluminum tread plate door shall be provided.

Department provided bottles are 7-3/4"D x 25"H.

One (1)
44-11-5100

WHEEL WELL COMPARTMENT LOCATION

One (1) wheel well compartment shall be located on the left side in ahead of the rear wheel well panel.

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Two (2)
44-11-5200

WHEEL WELL COMPARTMENT LOCATION

Two (2) wheel well compartment shall be located on the left side between the tandem wheel well panel.

One (1)
44-11-5300

WHEEL WELL COMPARTMENT LOCATION

One (1) wheel well compartment shall be located on the left side behind the wheel well panel.

One (1)
44-11-5500

WHEEL WELL COMPARTMENT LOCATION

One (1) wheel well compartment shall be located on the right side in ahead of the rear wheel well panel.

Two (2)
44-11-5600

WHEEL WELL COMPARTMENT LOCATION

Two (2) wheel well compartment shall be located on the right side between the tandem wheel well panel.

One (1)
44-11-5700

WHEEL WELL COMPARTMENT LOCATION

One (1) wheel well compartment shall be located on the right side behind the wheel well panel.

Thirteen (13)
44-40-1100

COMPARTMENT LOUVER

Thirteen (13) louver with filter shall be installed on the back wall of the specified compartments.

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One (1)
50-00-0100

12-VOLT ELECTRICAL SYSTEM

One (1)
50-02-2000

LOW VOLTAGE ELECTRICAL SYSTEM SPECIFICATIONS

The electrical system shall include all panels, electrical components, switches and relays, wiring harnesses and other electrical components. The electrical equipment installed by the apparatus manufacturer shall conform to current automotive electrical system standards, the latest Federal DOT standards, and the requirements of the applicable NFPA standards.

All wiring shall be stranded copper or copper alloy conductors of a gauge rated to carry 125 percent of the maximum current for the protected circuit. Voltage drops in all wiring from the power source to the using device shall not exceed 10 percent. The wiring and wiring harness and insulation shall be in conformance to applicable SAE and NFPA standards. The wiring harness shall conform to SAE J-1128 with GXL temperature properties. All exposed wiring shall be protected in a loom with a minimum 289 degree Fahrenheit rating. All wiring looms shall be properly supported and attached to body members. The electrical conductors shall be constructed in accordance with applicable SAE standards, except when good engineering practice requires special construction.

The wiring connections and terminations shall use a method that provides a positive mechanical and electrical connection and shall be installed in accordance with the device manufacturer's instructions. Electrical connections shall be with mechanical type fasteners and large rubber grommets where wiring passes through metal panels.

The wiring between the cab and body shall be joined using Deutsche type connectors or an enclosed in a terminal junction panel area. This system will permit body removal with minimal impact on the apparatus electrical system. All connections shall be crimp-type with insulated shanks to resist moisture and foreign debris such as grease and road grime. Weather-resistant connectors shall be provided throughout to ensure the integrity of the electrical system.

Any electrical junction or terminal boxes shall be weather resistant and located away from water spray conditions. In addition, the main body junction panel shall house the automatic reset breakers and relays where required.

There shall be no exposed electrical cabling, harnesses, or terminal connections located in compartments, unless they are enclosed in a junction box or covered with a removable electrical panel. The wiring shall be secured in place and protected against heat, liquid contaminants and damage. Wiring shall be uniquely identified at least every two feet (2') by color coding or permanent marking with a circuit function code and identified on a reference chart or electrical wiring schematic per requirements of applicable NFPA #1901 standards.

The electrical circuits shall be provided with low voltage over current protective devices. Such devices shall be accessible and located in required terminal connection locations or weather resistant enclosures. The over current protection shall be suitable for electrical equipment and shall be automatic reset type and meet SAE standards. All electrical equipment, switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of maximum current for which the circuit is protected. The system shall

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have electro-magnetic interference suppression provided as required in applicable SAE standards.

The electrical system shall include the following:

- a) Electrical terminals in weather exposed areas shall have a non-conductive grease or spray applied. A corrosion preventative compound shall be applicable to all terminal plugs located outside of the cab or body.
- b) The electrical wiring shall be harnessed or be placed in a protective loom.
- c) Holes made in the roof shall be caulked with silicone. Large fender washers shall be used when fastening equipment to the underside of the cab roof.
- d) Any electrical component that is installed in an exposed area shall be mounted in a manner that will not allow moisture to accumulate in it.
- e) A coil of wire must be provided behind an electrical appliance to allow them to be pulled away from mounting area for inspection and service work.
- f) All lights that have their sockets in a weather exposed area shall have corrosion preventative compound added to the socket terminal area.

The warning lights shall be switched in the chassis cab with labeled switches in an accessible location. Individual rocker switches shall be provided only for warning lights provided over the minimum level of warning lights in either the stationary or moving modes. All electrical equipment switches shall be mounted on a switch panel mounted in the cab convenient to the operator. The warning light switches shall be of the rocker type. For easy nighttime operation, an integral indicator light shall be provided to indicate when the circuit is energized. All switches shall be appropriately identified as to their function.

A single warning light switch shall activate all required warning lights. This switch will allow the vehicle to respond to an emergency and "call for the right of way". When the parking brake is applied, a "blocking right of way" system shall automatically activate per requirements of the applicable NFPA standards. All "clear" warning lights shall be automatically turned off upon application of the parking brake.

NFPA REQUIRED TESTING OF ELECTRICAL SYSTEM

The apparatus shall be electrically tested upon completion of the vehicle and prior to delivery. The electrical testing, certifications, and test results shall be submitted with delivery documentation per requirements of the applicable NFPA standards. The following minimum testing shall be completed by the apparatus manufacturer:

1. Reserve capacity test:

The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged. The engine shall be shut off and the minimum continuous electrical load shall be activated for ten (10) minutes. All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a failed test.

2. Alternator performance test at idle:

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The minimum continuous electrical load shall be activated with the engine running at idle speed. The engine temperature shall be stabilized at normal operating temperature. The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.

3. Alternator performance test at full load:

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed. The test duration shall be a minimum of two (2) hours. Activation of the load management system is permitted during this test. However, if an alarm sounds due to excessive battery discharge, as detected by the system requirements in the NFPA standards, or a system voltage of less than 11.7 volts dc for more than 120 seconds is present, the test has failed.

4. Low voltage alarm test:

Following the completion of the above tests, the engine shall be shut off. The total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates. The battery voltage shall be measured at the battery terminals. With the load still applied, a reading of less than 11.7 volts dc for a 12 volt system shall be considered a test failure. The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

NFPA REQUIRED DOCUMENTATION

The following documentation shall be provided on delivery of the apparatus:

- a. Documentation of the electrical system performance tests required above.
- b. A written load analysis, including:
 1. The nameplate rating of the alternator.
 2. The alternator rating under the conditions.
 3. Each specified component load.
 4. Individual intermittent loads.

One (1)
50-10-1750

LOAD MANAGER 2

One (1) Kussmaul model #091-79-12 load manager shall be installed on the apparatus. The device is designed to meet and exceed all the requirements of the NFPA 1901 standard. Up to eight (8) loads are sequenced. Load shedding is accomplished in two zones. One zone for lights that may be shed when on the road and the other for lights that may be shed at the scene. Selection of shedding modes is through the parking brake switch or the neutral safety switch.

Whenever the vehicle parking brake is set and "high idle" is selected, a low voltage will produce a high idle output before shedding any loads. High idle will continue for 2 minutes after the voltage rises to eliminate engine speed cycling. High idle is immediately reset when the high idle switch is turned off or the parking brake released.

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A high voltage alarm is provided to detect when the sensed voltage exceeds 15 volts. High voltage, low voltage and load shedding set points are individually field adjustable. Load shedding priority is determined by the wiring connections to the Load Manager. External relays, not provided with this Load Manager, are required to switch the loads.

One (1)
50-12-2100

ROCKER SWITCH PANEL

One (1) switch panel with individual rocker switches to control various electrical equipment and emergency lighting shall be provided and installed in the cab dash area of the custom chassis.

One (1)
50-15-1100

BATTERY SYSTEM

The chassis shall be provided with 12 volt Group 31, 650 CCA maintenance free batteries. The batteries shall be wired into the system to form a "single" battery system.

One (1)
50-15-3100

MASTER ELECTRIC SWITCH

One (1) chassis provided battery disconnect switch shall be located conveniently to the driver of the apparatus. The switch shall disconnect the 12 volt power supply from the battery system.

One (1)
50-15-7800

BATTERY CHARGER AND AIR COMPRESSOR

One (1) Kussmaul Auto Charge 1200 model #091-53-12-B1 battery charger and air compressor system shall be installed. The 120 volt compressor system shall be designed to maintain the air pressure in the chassis brake system whenever the pressure drops below a predetermined level.

The battery charger shall be supplied from the 120 volt shore power receptacle and be a fully automatic high output charging system. The unit shall be mounted in a clean dry area and will be accessible for service and/or maintenance.

One (1)
50-20-1900

SHORE POWER RECEPTACLE

One (1) chassis supplied Kussmaul 30 amp "super auto-eject" shore power receptacle shall be provided on the apparatus. The shore power plug shall be "ejected" when the chassis's engine starter is engaged. The receptacle shall be wired to any 120 volt A/C equipment that requires shore power. An aluminum enclosure shall be provided with the receptacle for protection from road dirt and damage. A hinged weatherproof cover shall be provided.

The first choice for the location of the receptacle is above the front wheel on the driver's side if room permits and the EMS compartment is not in the way.

The second choice for the location of the receptacle is the driver's side of the front bumper extension.

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One (1)
50-30-1100

ALTERNATOR

The alternator shall be supplied the chassis manufacturer.

One (1)
50-40-1100

AIR HORNS

Two (2) air horns shall be supplied with the chassis.

One (1)
50-43-1100

AIR HORN CONTROL

The air horn control shall be supplied with the chassis.

One (1)
51-05-6100

ENGINE COMPARTMENT LIGHT

One (1) 12 volt incandescent light with switch shall be mounted in the engine enclosure.

One (1)
51-05-6300

PUMP ENCLOSURE LIGHTS

One (1) incandescent work light shall be provided in the pump enclosure. The control switch shall be near the light or on the pump panel.

One (1)
52-01-1200

BACK-UP ALARM

One (1) Ecco model #SA-907 "Smart Alarm" automatic electric back-up alarm shall be wired to the back-up light circuit, and mounted under the rear of the apparatus body.

One (1)
52-10-3100

VEHICLE COMMUNICATION SYSTEM

A Fire Com intercom system shall be provided and installed. The system shall consist of a model # 3010 base with a mobile radio interface, two (2) #UH-10 under helmet headsets (radio transmit), three (3) #UH-20 under helmet headsets (intercom only), five (5) #HM-10 interior headset modules, three (3) #PP-20 exterior headset modules, and one (1) #HE-150 fifteen foot coiled extension cord.

HEAD SET JACKS SHALL BE LOCATED AS FOLLOWS

There shall be a headset jack located in the cab above and to the right of the driver's seat, one above and to the left of the officer's seat, three located in the crew area above the crew seats and a waterproof jack shall be located on the pump panel.

One (1)
52-15-1200

RADIO ANTENNA

One (1) radio antenna shall be supplied and installed on the apparatus. The location shall be determined by the customer.

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One (1)
52-15-1700

RADIO

A Kenwood model TK 790 radio shall be furnished and installed in the apparatus. The radio shall be wired through the intercom system. Programming of the radio will be the responsibility of the fire department after delivery of the vehicle.

The radio shall recessed mounted in the center portion of the dash accessible to the officer's seat.

One (1)
53-01-1200

MARKER LIGHTS

LED marker lights shall be installed on the vehicle in conformance to the Department of Transportation requirements.

One (1)
53-02-1100

LICENSE PLATE BRACKET

One (1) license plate bracket shall be provided at the rear bumper. The bracket shall have a light and shall be chrome plated.

One (1)
53-03-2600

TAIL LIGHTS

Two (2) Whelen LED tail/brake lights shall be provided. The rectangular 4"x6" light shall be red.

One (1)
53-04-2600

TURN SIGNALS

Two (2) Whelen turn signals shall be provided. The rectangular LED light shall be 4" x 6" in dimension.

One (1)
53-06-3500

BACKUP LIGHTS

Two (2) Whelen Series 600 LED backup lights shall be installed on the rear of the apparatus body. The dimensions shall be 4" x 6" and the lens color shall be clear.

One (1)
53-05-1600

TURN SIGNALS

Two (2) Whelen turn signals shall be provided. The rectangular LED lights shall be 4" x 6" in dimension. The location of the turn lights shall be at mid-body near the rear wheel axle.

One (1)
53-07-1200

FOUR LIGHT BEZEL

Two (2) tail light cluster bezels shall be supplied. Each bezel shall be designed to hold the specified rear lights located at the lower rear corners of the body.

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One (1)
54-02-1100

CAB GROUND LIGHTS

Two (2) ground lights shall be supplied with the cab chassis.

One (1)
54-03-1100

PUMP PANEL GROUND LIGHTS

Two (2) incandescent ground lights shall be installed under the pump panel running boards. One (1) light shall be located on the driver's side and one (1) light located on the officer's side of the apparatus.

One (1)
54-04-1999

GROUND LIGHT SWITCH

One (1) ground light switch shall be installed and wired to the parking light. The ground lights shall automatically activate when the parking brake is applied.

One (1)
54-03-1500

MID BODY GROUND LIGHTS

Two (2) incandescent ground lights shall be installed under rear step of the apparatus.

One (1)
54-04-1999

GROUND LIGHT SWITCH

One (1) ground light switch shall be installed and wired to the parking light. The ground lights shall automatically activate when the parking brake is applied.

Two (2)
54-10-1400

STEP LIGHT

Two (2) incandescent step light with clear lens shall be installed on the rear step of the apparatus body.

Thirty Six (36)
55-01-1900

COMPARTMENT LIGHT

Thirty Six (36) incandescent light fixture shall be installed in each compartment. The compartment light shall have a clear lens.

Compartment lights shall be in addition to the standard light and be located on the unistrut extrusions, two (2) each side of the compartments.

One (1)
55-11-1100

DOOR OPEN LIGHT

A red door open light shall be supplied with the chassis.

One (1)
56-01-1100

ELECTRIC SIREN

One (1) electronic siren shall be supplied with the chassis.

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One (1)
56-02-1100

SPEAKER

One (1) siren speaker shall be supplied with the chassis.

One (1)
56-06-0100

FEDERAL MECHANICAL SIREN

One (1) Federal Signal Q2B mechanical siren shall be supplied with the chassis. The siren control switch shall be installed in the cab.

One (1)
56-07-1500

SIREN CONTROL

One (1) push button switch shall be installed on the officer's side of the cab dash to activate the Federal Signal Q2B siren.

The switch shall be located on the side of the dog house.

One (1)
56-07-1600

SIREN CONTROL

One (1) siren control to activate the Federal Signal Q2B siren shall be provided on the driver's horn.

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One (1)
56-90-9000

EMERGENCY LIGHTING PACKAGES

One (1)
57-02-4600

LIGHTBAR

Two (2) Whelen Edge Ultra Freedom light bars, model FNMINI, shall be installed. The light bars shall each house two (2) front corner red linear LEDs, one (1) front white linear LED and one (1) side red linear LED. The outer lenses shall be clear.

The light bars shall be mounted to match the photos of the Pendleton, OR truck.

One (1)
58-71-1800

UPPER REAR WARNING LIGHTS

Two (2) Whelen model #RB6T Rota-Beam warning lights shall be installed on the upper corners of the rear body. The unit shall have dual rotators with total dimensions of 7" high x 8" deep and shall have one red lens and one amber lens.

One (1)
58-74-5100

REAR WARNING LIGHT MOUNTING

The upper rear lights shall be mounted on cast aluminum stanchions attached to the apparatus body, one on each side.

One (1)
58-03-1090

LOWER FRONT WARNING LIGHTS

Two (2) warning lights shall be supplied with the chassis.

One (1)
58-09-1520

INTERSECTION WARNING LIGHTS

Two (2) Whelen model #600 red Super LED warning lights shall be installed on the side of the front bumper. The dimensions of the lights shall be 4" x 6".

One (1)
58-01-1100

CHROME BEZELS

There shall be chrome bezels supplied and installed on the warning lights.

One (1)
58-26-1520

LOWER MID-BODY WARNING LIGHTS

Two (2) Whelen model #600 red Super LED warning lights shall be installed on the side of the mid-body. The dimensions of the lights shall be 4" x 6".

One (1)
58-01-1100

CHROME BEZELS

There shall be chrome bezels supplied and installed on the warning lights.

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One (1)
58-36-1520

LOWER REAR SIDE WARNING LIGHTS

Two (2) Whelen model #600 red Super LED warning lights shall be installed on the lower side of the rear body. The dimensions of the lights shall be 4" x 6".

One (1)
58-01-1100

CHROME BEZELS

There shall be chrome bezels supplied and installed on the warning lights.

One (1)
58-81-1500

LOWER REAR WARNING LIGHTS

One (1) pair of Whelen model #600 red LED warning lights shall be installed on the lower corners of the rear body. The dimensions of the lights shall be 4" x 6".

The rear lower warning light to be mounted in the specified 4 hole taillight bezel.

One (1)
58-90-0000

DIRECTIONAL WARNING LIGHTBARS

One (1)
58-91-1200

TRAFFIC ARROW LIGHT

One (1) Whelen Model #TAL65 Traffic Advisor shall be installed. The light shall be equipped with six (6) LED lights measuring 36" in length. The unit shall be mounted at the rear of the apparatus body. The Traffic Advisor control head shall be mounted inside the cab and be accessible by the driver and officer.

One (1)
58-95-1200

TRAFFIC ARROW LIGHT MOUNTING

The traffic arrow light shall be recessed mounted at the rear of the apparatus body.

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One (1)
60-00-0000

120 / 240 VOLT ELECTRICAL SYSTEM

One (1)
60-15-0000

HYDRAULIC GENERATORS

One (1)
60-15-3700

10,000 WATT HYDRAULIC GENERATOR

The generator system shall be a Harrison brand with the following ratings:

1. 10,000 Watt
2. 120/240 Volts
3. 80/40 amps
4. Single phase, 60 hertz.

The system shall be designed and assembled by a company with no less than 10 years experience in the manufacture of hydraulic driven generator systems.

The generator shall be installed per the manufacturer recommendations and shall be capable of supplying full power at engine high idle.

The motor/generator shall be placed in a tray frame assembly that affords protection to the components and provides a unitized mounting module containing motor/generator, reservoir, oil cooler, filtration system, and a manifold containing a cross-port check valve plus system relief valve. The generator shall be a commercial type with a heavy-duty bearing and of brushless design to ensure low maintenance. No brushes or slip rings will be allowed. The hydraulic reservoir shall include an sight gauge for the oil level, oil temperature gauge, fill cap, oil filter, fill strainer, and a boost unit to provide a positive pressure to the pump suction port. The generator and hydraulic motor shall be close coupled and permanently aligned using a Morse taper with a through bolt to secure the motor to the generator. No two bearing generators or shaft coupling devices are allowed.

The system shall be driven by a "HOT SHIFT" PTO, and be capable of producing the rated full-load power when driven from the vehicle PTO from high idle to maximum engine speed.

The hydraulic motor and pump shall be of axial piston design to provide low internal leakage and a high degree of frequency stability. No gear pumps or gear motors are allowed. The pump will match to the system with the proper orifice, pressure compensator and load sensing to provide a stable output over the rated speed range of the pump and with electrical loads from no load to full load.

Data Label

A permanent data label indicating the following information shall be applied:

- a) Rated voltage
- b) Phase
- c) Frequency
- d) Amperage
- e) Continuous power in watts
- f) Engine RPM

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One (1)
60-20-1400

GENERATOR MOUNTING LOCATION

The generator shall be installed in the front section of the turntable.

One (1)
60-20-3400

DRIVE TRAIN

The generator shall be mounted on a heavily reinforced steel frame in the chassis frame rail area providing adequate road clearance, and service accessibility. The generator shall be protected from direct road spray with underside aluminum or stainless steel bolt-on protection guard.

The generator shall be driven from a 10 bolt power-take-off from the automatic transmission. A "PTO control" shall be located at driver's position. Generator shall be equipped with a means to prevent the unintended movement of the control device from its set position. An interlock shall prevent PTO engagement unless the parking brake is engaged. An interlock shall be installed to prevent engine speed control from any other source while the generator is operating. A nameplate indicating the chassis transmission shift selector position to be used for generator operation shall be provided in the driving compartment and located so that it can easily be read from the driver's position.

A green indicator light shall be located in the driving compartment. The light shall be energized when the PTO drive has been engaged and shall be marked "GENERATOR PTO ENGAGED." A second green light shall be energized when generation is engaged, transmission is in neutral, and parking brake is set and marked "OK TO OPERATE GENERATOR". A green indicator light shall be located on the operator's panel. The green light shall be energized when both the PTO drive has been engaged, chassis transmission is in neutral, and parking brake engaged. The green light shall be marked "GENERATOR PTO ENGAGED."

Electrical System Installation

The line voltage electrical system shall comply with the applicable NFPA standards and shall also comply to applicable sections of the National Electric Code #70 standards. Line voltage carrying equipment down stream of the power source shall be "listed" (where available) and installed in accordance with manufacturers instructions. The electrical equipment installed shall be suitable for intended use and type locations (wet, dry, or underbody and chassis).

The grounding and bonding shall comply to applicable sections of NFPA standards. The chassis frame rail, body sheet metal, and cab sheet metal shall be properly bonded per NFPA schematic. The bonding copper conductor shall be rated at 115 % of current rating of power source.

Over-Current Protection Panel

Manually resettable over current devices shall be installed to protect the line voltage electrical system components. A main over current protection device shall be provided that is either incorporated in the power source or is connected to the power source by a power supply assembly. The size of the main over current protection device shall not exceed 100 percent of the nameplate amperage rating on the power source specification

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label or the rating of the next larger available size over current protection device where so recommended by the power source manufacturer.

The conductor used in the power supply assembly between the output terminals of the power source and the main over current protection device shall not exceed 144 inches in length. Over this length, a master circuit breaker shall be provided near the generator in accessible location.

Over current protection devices shall be provided for each individual circuit and shall be sized at not less than 15 amps in accordance with NEC. Each over current protection device shall be marked to identify the function of the circuit it protects. The circuit breaker panel and instruments shall be located so that all circuit breakers are readily visible under normal operating conditions. The panel shall be readily visible and located so that there is unimpeded access to the panel board controls.

The chassis engine shall have a governor capable of maintaining engine speed within the limits required by the generator to meet frequency control.

Labeling Of Equipment

All circuit breakers shall be labeled. All interior and exterior outlets shall be provided with labels indicating output amperage, voltage and phase.

Instruction Label

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

One (1)
60-20-4150

CIRCUIT BREAKER BOX

One (1) circuit breaker box for single phase voltage equipment shall be provided capable of holding twelve (12) breakers.

One (1)
60-20-5100

CIRCUIT BREAKER BOX LOCATION

The circuit breaker box shall be installed in an outside body compartment.

The first choice for the mounting of the circuit breaker panel is in the L1 compartment over the front outrigger on the driver's side along with the generator instrument panel and cable reel.

The second choice is as high as possible in the L2 compartment on the forward wall with the generator instrument panel.

One (1)
60-20-6100

GENERATOR INSTRUMENTS

The generator instrument panel shall include an instrument panel that includes the following:

1. Amperage-L1

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2. Amperage
3. Voltage
4. Frequency meter

The panel shall be located next to circuit breaker panel.

One (1)
60-20-7100

GENERATOR INSTRUMENT PANEL LOCATION

The instrument panel for the generator shall be installed in a side body compartment.

The panel shall be located on the left or right side of the body in compartment #

The first choice for the mounting of the generator instrument panel is in the L1 compartment over the front outrigger on the driver's side along with the load center and cable reel.

The second choice is as high as possible in the L2 compartment on the forward wall with the load center.

One (1)
60-20-8100

LINE VOLTAGE WIRING INSTALLATION

Line voltage wiring in the apparatus shall be with Type SO or approved cable suitable for mobile applications. The flexible electrical cable shall have 600-volt insulation rated for at least 194 degrees F. All junction boxes shall conform to the National Electric Code and shall be fully accessible for service and not be hidden in walls or ceiling.

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

Electrical cable shall not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring and shall be separated by a minimum of 12 inches from exhaust piping or properly shielded and separated from fuel lines by a minimum of 6 inches distance.

All wiring connections and terminations shall provide a positive mechanical and electrical connection. Connectors shall be installed in accordance with the manufacturer's instructions. Wire nuts or insulation displacement and insulation piercing connectors shall not be used.

Four (4)
60-25-1100

120V ELECTRIC RECEPTACLE -- STRAIGHT BLADE

Four (4) single 120-volt 15 amp straight blade, 3-prong receptacle with spring loaded weatherproof cover shall be provided with wiring to the circuit breaker panel.

The receptacles shall be located as follows:

Two (2) on the front face of the compartments, one (1) each side,

Two (2) on the wheel well areas, one (1) each side.

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One (1)
60-30-2000

ELECTRIC RECEPTACLE LOCATION -- FRONT EXTERIOR BODY

The electric receptacle shall be located on the front left side of the exterior body.

One (1)
60-30-2100

ELECTRIC RECEPTACLE LOCATION -- FRONT EXTERIOR BODY

The electric receptacle shall be located on the front right side of the exterior body.

One (1)
60-30-2600

ELECTRIC RECEPTACLE LOCATION -- LEFT SIDE WHEEL WELL

The electric receptacle shall be located near the left side wheel well.

One (1)
60-30-2700

ELECTRIC RECEPTACLE LOCATION -- RIGHT SIDE WHEEL WELL

The electric receptacle shall be located near the right side wheel well.

One (1)
60-25-1200

120V ELECTRIC RECEPTACLE -- STRAIGHT BLADE

One (1) single 120-volt 20 amp straight blade, 3-prong receptacle with spring loaded weatherproof cover shall be provided with wiring to the circuit breaker panel.

Two (2)
60-30-5400

ELECTRIC RECEPTACLE LOCATION -- AT CAB INTERIOR

The electric receptacle shall be located inside the front portion of the cab.

One located behind drivers seat, 1 located behind officers seat.

Two (2)
61-01-3100

ELECTRIC CABLE REEL

Two (2) Hannay ECR-1600 series electric cable reel with an electric and manual rewind shall be installed on the vehicle. The reel shall be designed for use with 120 volt, three (3) wire cable. The duty rating of the cable reel shall be for continuous usage. The reel shall be installed so that it is easily accessible for cord access and maintenance. A 12-volt motor controlled by a push button switch located in a convenient position and properly labeled shall perform the electric rewind function.

The installation of the cable reel shall meet applicable sections of the NFPA standards.

Reel Capacity

The reel shall be sized to hold 110 percent of the capacity needed for the specified cable length. The wire size shall be in accordance with the National Electric Code.

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Labeling

An information label shall be installed in a location visible adjacent to any permanently connected reel with the following data:

1. Voltage
2. Phase
3. Current type
4. Current rating
5. Total cable length

Electrical Supply Wiring To Reel

The wiring shall end in a sealed conduit box at the reel with mechanical connectors to allow removal of the reel. Appropriately, sized wire and circuit breakers shall be utilized.

One (1)
61-02-1400

ELECTRIC CABLE REEL - SIDE COMPT

The electric cable reel shall be installed in a left side body compartment.

One (1) cable reel shall be installed in the L1 compartment over the front outrigger on the driver's side.

One (1)
61-02-1500

ELECTRIC CABLE REEL - SIDE CMPT

The electric cable reel shall be installed in a left side body compartment.

One (1) cable reel shall be installed in the R1 compartment over the front outrigger on the passenger's side.

Two (2)
61-03-2300

ELECTRIC CABLE - 120 VOLT

Two (2) one hundred fifty foot (150') length of 12/3 yellow electric cable shall be installed with specified plugs. The cable shall be type SEO-WA with a 20 amp, 120 volt rating.

Two (2)
61-04-7200

CABLE ELECTRIC RECEPTACLE - 120 VOLT TWIST LOCK

The electric cable shall be configured with a 120-volt, three prong, twist lock female receptacle.

Two (2)
61-04-8100

ELECTRIC REEL CABLE ROLLER

Two (2) four-sided nylon roller unit for the electric cable shall be installed on specified reels. The roller unit shall be mounted in the specified location to permit the cable to feed directly off the reel.

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Two (2)
61-04-9100

ELECTRIC CABLE BALL STOP

Two (2) ball stop shall be attached to the electric cable to prevent total re-wind and to allow the cable to remain at a reachable position. The ball shall positively attach to the cable and be bright orange in color for high visibility.

Two (2)
61-05-2000

JUNCTION BOX

Two (2) Circle-D model PF51G electrical junction box with 12" pigtail and plug shall be provided. The unit shall have an integral pilot light to indicate electrical current.

The unit shall be equipped with four (4) 120 volt 20 amp NEMA (L5-15) straight blade receptacles, each with a hinged, weatherproof cover.

Two (2)
61-05-4000

JUNCTION BOX STORAGE BRACKET

Two (2) aluminum storage bracket designed to hold an electric junction box shall be supplied. The holder shall be mounted in the same compartment as the specified cable reel.

The junction boxes shall be located with each cable reel. If there is no room in this compartment, twist lock pigtails shall be provided to the junction boxes.

Two (2)
62-03-2200

TELESCOPIC TRIPOD 750 WATT FLOODLIGHT

Two (2) Fire Research Focus side mounted, top raise telescoping scene lights shall be installed on the apparatus body. The light poles shall have a friction type lock to hold the pole in the extended position. The lights shall be model FCA542-M10.

The telescoping tripod lights shall be mounted on the back of the cab, one each side.

Switches for the telescoping lights shall be on the light heads.

A brushed stainless steel protector shall be installed behind each light head to protect the surface behind the lights from being scratched.

Two (2)
62-03-7200

PORTABLE 750 WATT FLOODLIGHT

Two (2) Fire Research Optimum model OPA700-S75 portable light shall be provided. The base shall be cast aluminum with three legs for stability. Wiring shall extend from the side of the base with a specified receptacle.

The lamp head shall have one (1) quartz halogen 750 watt 120 volt bulb. The bulb will draw 6.3 amps and generate 19,600 lumens. The bulb shall be accessible through the front. The lamp head shall incorporate a vacuum deposit polished reflector and two optimizing mirrors to produce a uniform beam that lights up an area 100° vertically by 150° horizontally. The lamp head shall have a heat dissipating curved front lens. The curve of the lens shall have a radius of 5.16 inches to optimize light emission. The lamp

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head shall be no more than 4 3/4" deep by 5 1/8" high by 8 3/4" wide. Lamp head and brackets shall be powder coated white.

Two (2)
63-14-1500

FLOODLIGHT LOCATION - BODY SIDE

The mounting location of the floodlight(s) shall be on the side of the apparatus body.

The lights shall be centered on the catwalk, one each side.

Two (2)
63-15-3500

FLOODLIGHT SWITCH - ON LAMP HEAD

The on/off switch for the floodlight shall be located on the base of the lamp housing.

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One (1)
80-00-0040

BODY PAINT - CAB PAINT - LETTERING - STRIPING

One (1)
80-01-1050

CHASSIS PAINT

The commercial chassis shall be painted by the chassis supplier.

One (1)
80-05-2000

BODY PAINT PROCESS

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 seam shall be caulked both inside and along the exterior edges with a urethane automotive sealant to prevent moisture from entering between any body panel.

The body and all parts shall be thoroughly washed with a grease cutting solvent (PPG DX330) prior to any sanding. After the body has been sanded and the weld marks and minor imperfections are filled and sanded, the body shall be washed again with (PPG DX330) to remove any contaminants on the surface.

The first coating to be applied is a pre-treat self etching primer (PPG DX1787) (.5 to 1.0 dry film build) for maximum adhesion to the body material. The next two to four coats (depending on need) shall be an acrylic urethane primer surfacer (PPG K38). The film shall build to be 4-6 mils dry. The primer surfacer coat, after appropriate dry time, shall be sanded with 320-600 grit sandpaper to ensure maximum gloss of the paint. The last step is the application of at least three coats of PPG Concept acrylic urethane two-component color (single stage). The film build being 2-3 mils dry. The single stage acrylic urethane, when mixed with component (PPG DCX61) catalyst shall provide a UV barrier to prevent fading and chaulking.

All products and technicians are certified by PPG every two (2) years.

One (1)
01-20-0250

PAINT WARRANTY FIVE YEAR

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 Rosenbauer America. LLC:

1. Peeling or delaminating of the topcoat and/or other layers of paint.
2. Cracking or checking.

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3. Loss of gloss caused by cracking, checking, or hazing.
4. 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.

Note: Surety bond, if required, will cover standard one year warranty period only and will not cover any extended warranties allowed by seller or other component manufacturers.

One (1)
80-34-1400

INTERIOR COMPARTMENT FINISH

The compartment interiors shall be thoroughly sanded and washed with solvent. Tacked free of any dust particles, the doors shall be individually sprayed using the following minimum procedure and materials:

1. One (1) coat of self etching primer
2. Two (2) coats of urethane primer
3. Two (2) color coats of the specified color
4. Three (3) coats of clear urethane

The interior compartment walls shall be coated with a heavy spray on lining material. The lining material shall dry to form an impervious one piece covering to protect the compartment interiors from damage. The lining material shall be gray in color and applied on twelve (12) compartments.

One (1)
80-40-1100

ALUMINUM WHEELS

The vehicle shall have polished aluminum wheels supplied with the chassis. The one-piece wheels shall be forged from corrosion resistant aluminum alloy.

Two (2)
80-42-1100

TOUCH-UP PAINT

One (1) pint of touch-up paint shall be furnished with the completed truck at final delivery.

One (1) pint shall be provided for each color, one red and the other white.

One (1)
01-21-0150

LETTERING WARRANTY

Rosenbauer America, LLC warrants to the original purchaser only, that the lettering and striping, installed by Rosenbauer America, LLC, will remain free from defects for a period of one (1) year under normal use.

Rosenbauer America, LLC 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 Rosenbauer America, LLC elects to repair this item, the extent of such repair shall be determined solely by Rosenbauer America, LLC, and shall be performed solely at the Rosenbauer

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America, LLC 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.

One (1)
80-50-1800

SIMULATED GOLD LEAF LETTERING

The lettering shall be applied in simulated gold leaf material, shaded in black and encapsulated in clear Mylar.

A quantity of seventy-five (75), four (4) inch letters are to be placed on the cab and on the body as directed by fire department.

Pictures of the lettering requirements are located in the production file.

One (1)
80-71-1600

REFLECTIVE STRIPING

A 1" x 7" x 1" wide 3M brand Scotchlite reflective multi-stripe shall be affixed to the perimeter of the vehicle. There shall be a 1" gap between each of the stripes. Striping shall conform to applicable NFPA requirements. At least 50% of the perimeter length of each side and width of the rear, and at least 25% of the perimeter width of the front of the vehicle shall have reflective striping.

The striping shall be applied in a large "Z" pattern.

Pictures of the striping shall be provided by the fire department and are located in the production file.

One (1)
80-72-1400

REFLECTIVE TAPE ON OUTRIGGERS

The outriggers that extend beyond the side of the body shall have white reflective tape applied to both the front and rear facing sides.

One (1)
80-75-1600

COLOR OF STRIPING MATERIAL

The color of the 3M brand striping material shall be white.

One (1)
80-80-1200

AERIAL INSTRUCTION LABELS

Safety and instructional labels shall be applied at all necessary areas on the aerial device to identify points critical to the safe operation and maintenance of the aerial.

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ADDITIONAL EQUIPMENT

The following equipment shall be provided with the apparatus.

One (1)
90-01-0300

EQUIPMENT PAYLOAD WEIGHT ALLOWANCE

In compliance with NFPA #1901 standards, the apparatus shall be engineered to provide an allowance of 2000 pounds of fire department provided loose equipment.

One (1)
90-01-5500

FOLDING WHEEL CHOCKS

Two (2) Zico model SAC-44, aluminum folding wheel chocks shall be provided.

Both wheel chocks shall be mounted under the pump panel area on the passenger's side.

One (1)
90-03-3300

ROOF LADDER

One (1) Duo Safety Model 775-A, 14 foot aluminum roof ladder with folding steel roof hooks on one end and steel spikes on the other end shall be provided on the apparatus. The ladder shall meet or exceed all latest NFPA Standards.

The roof ladder shall be stored on the aerial.

One (1)
90-03-3400

ROOF LADDER

One (1) Duo Safety Model 875-A, 16 foot aluminum roof ladder with folding steel roof hooks on one end and steel spikes on the other end shall be provided on the apparatus. The ladder shall meet or exceed all latest NFPA Standards.

One (1)
90-06-4300

EXTENSION LADDER

One (1) Duo-Safety Model 1000-A, 14 foot two (2) section aluminum extension ladder shall be provided on the apparatus. The ladder shall meet or exceed all the latest NFPA standards.

One (1)
90-06-4600

EXTENSION LADDER

One (1) Duo-Safety Model 900-A, 24 foot two (2) section aluminum extension ladder shall be provided on the apparatus. The ladder shall meet or exceed all the latest NFPA standards.

One (1)
90-07-4300

EXTENSION LADDER

One (1) Duo-Safety Model 1225-A, 35 foot three (3) section aluminum extension ladder shall be provided on the apparatus. The ladder shall meet or exceed all the latest NFPA standards.

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One (1)
90-08-2600

FOLDING LADDER

One (1) Duo Safety Model 585-A, 10 foot folding aluminum ladder shall be provided on the apparatus. The ladder shall meet or exceed all the latest NFPA Standards.

Two (2)
90-16-2200

PIKE POLE

Two (2) 4' pike pole with "D" handle shall be provided. The pike pole shall be of fiberglass construction.

Two (2)
90-16-2300

PIKE POLE

Two (2) 6' pike pole with round handle shall be provided. The pike pole shall be of fiberglass construction.

Two (2)
90-16-2600

PIKE POLE

Two (2) 8' pike pole with round handle shall be provided. The pike pole shall be of fiberglass construction.

Two (2)
90-16-2800

PIKE POLE

Two (2) 10' pike pole with round handle shall be provided. The pike pole shall be of fiberglass construction.

A third 6' pike pole shall be mounted in the fly section of the ladder and be provided by the ladder manufacturer.

Two (2)
90-16-3000

PIKE POLE

Two (2) 12' pike pole with round handle shall be provided. The pike pole shall be of fiberglass construction.

Ten (10)
90-21-1100

SCBA MOUNTING BRACKET

Ten (10) Zico 30 minute SCBA air pack mounting shall be installed in the specified compartment. The mounting shall have a spring tension bracket and safety strap included.

All 10 shall be mounted around the perimeter of the dunnage compartment behind the tank.

The brackets to fit 7-3/4"Dia. x 25"H bottles.

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One (1)
90-47-0100

MISCELLANEOUS HARDWARE

Miscellaneous loose hardware consisting of bolts, nuts, washers, and screws shall be supplied with the apparatus at time of delivery.

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One (1)

104' 4 SECTION REAR MOUNT PLATFORM SPECIFICATIONS

One (1)

00-09-1200

OVERALL AERIAL WARRANTY

The aerial manufacturer shall provide a one (1) year or 100,000 miles overall parts and labor warranty as follows:

The aerial manufacturer shall warrant to the purchaser that the complete aerial device and system was manufactured to comply with the manufacturer's bid specifications and free in all respects from any defects in materials or workmanship.

The warranty shall expire one (1) year or 100,000 miles from the date of delivery and acceptance of the apparatus. This warranty shall include all parts and labor. The cost of transportation of vehicle to the warranty location shall be provided by purchaser.

The obligations of the aerial manufacturer, pursuant to the foregoing warranty, with respect to aerial shall be limited to the cost of bringing such aerial into compliance with the specifications or of removing any defects in materials or workmanship.

Any work or alterations on or misuse of the aerial performed by any one other than the aerial manufacturer's designated personnel, either before or after delivery to the purchaser, shall not be warranted by the manufacturer and shall cause to make this warranty invalid.

One (1)

00-10-1100

TESTING CRITERIA

The aerial ladder shall be inspected and tested by Underwriters Laboratories, Inc. The inspection shall be "Type One" system testing. A non-destructive test shall be performed on each unit at a rate of 100% inspection by the Underwriters Laboratories inspector, exceeding the requirements applicable section of NFPA #1901 for new apparatus. All non-destructive procedures shall be fully documented and meet or exceed the requirements of applicable sections of NFPA #1901.

One (1)

45-03-1010

MOUNTING PLATE FOR AXE AND PIKE POLE -- FLY SECTION

A welded-in mounting plate shall be installed for the axe handle brackets on the right side and pike pole brackets located on the left side of the fly section.

One (1)

10-05-1200

AERIAL TRAVEL SUPPORT

A heavy duty ladder rest shall be provided for support of the aerial in the travel position.

On the base section of the aerial device, a stainless steel scuff plate shall be installed where the aerial comes in contact with the travel support.

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One (1)
10-06-1200

AERIAL SIGN BRACKETS

The aerial manufacturer shall supply aerial sign brackets welded to the base section of the aerial. These brackets shall be located on both sides of the base section.

One (1)
70-03-1300

RELIEF VALVE -- WATERWAY SYSTEM

A 2-1/2" preset relief valve shall be placed in the aerial waterway system and shall be capable of the dumping of water to the environment to protect the waterway system.

One (1)
70-04-1100

DRAIN VALVE -- WATERWAY

One (1) 1-1/2" quarter turn drain valve shall be installed at the low point of the waterway plumbing system.

One (1)
90-04-1600

HYDRAULIC SYSTEM -- ELEVATION SYSTEM

The hydraulic elevation system shall have two (2) 7" inside diameter cylinders that have 4.50" diameter rods and a 42" stroke. The elevation system shall elevate the aerial from -12 degrees to +75 degrees. Each cylinder shall have lock valves connected directly to the barrel of the cylinder.

The hydraulic elevation system shall have a load gauge giving a continuous reading of the "dead load" and "live load" of the aerial from -12 degrees to a +75 degrees elevation. The load gauge shall activate an alarm when the aerial has been overloaded by 10% of the rated load.

The -12 degree below horizontal operating range shall be dependent upon outrigger set up, which could allow up to -15 degrees below horizontal. The horizontal operating range shall be required for below grade operations such as in ditches and water rescues. The below horizontal capability shall be required for platform basket operations, when coming to ground level in rescue operations, so rescue personnel can exit the basket and the platform can return to rescue others.

The hydraulic elevation system shall automatically slow at 70 degrees; this system shall bring the platform to a "feather stop" at a 75 degrees elevation. A pressure-reducing valve shall limit the force of the aerial when lowering and the system pressure limits the force when elevating the aerial.

All hydraulic cylinders utilized in the aerial elevation and extension system shall be commercially available and shall be of standard sizes and lengths rather than special sizes or of proprietary manufacture. This requirement is important since it assures quicker parts availability, shorter down time, and less costly replacement parts for cylinders.

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One (1)
90-06-1100

HYDRAULIC PUMP DRIVE SYSTEM

An electrical start-stop "hot shift" PTO shall be mounted to the transmission. The PTO shall be connected to the hydraulic pump and shall supply power for all aerial and outrigger operations. Electrical safety wiring shall require that the vehicle be in neutral and the parking brake set before the PTO will operate. A "PTO Engaged" indicator light is installed in the cab of the apparatus.

One (1)
90-07-1100

EMERGENCY HYDRAULIC SYSTEM -- 12VOLT

An emergency hydraulic system shall be provided for capability for limited ladder functions and to stow the ladder and outriggers in case of prime mover failure.

The emergency system shall be powered from the 12-volt electrical system from the apparatus battery system and shall not be load managed.

One (1)
90-20-1100

AERIAL DEVICE PAINTING

Before assembly, in preparation for the final painting, the aerial ladder sections and turntable shall be thoroughly cleaned and prepared to conform to good painting practices. The aerial ladder sections and turntable shall be primed with two (2) coats of PPG or equal lead free primer. Ladder sections and turntable shall then be sprayed with one (1) coat of color using PPG 2185 paint.

The color of the ladder sections shall be white.

One (1)
90-20-0000

AERIAL PAINTING AND CORROSION PROTECTION

One (1)
90-21-2200

PLATFORM BASKET

The outside of the platform basket will be smooth aluminum and painted white. There shall be a 12" band of aluminum diamond plate around the bottom perimeter of the platform.

One (1)
90-22-1100

GALVANIZED OUTRIGGERS AND STABILIZERS

The aerial stabilizer assemblies, outriggers assemblies, beam, outer jack tube, inner jack tube and jack pad shall be galvanized.

The outriggers and stabilizers shall be galvanized inside and out. The process shall eliminate the rusting, scratching or paint chips on the outriggers. The galvanizing process shall permeate the metal and shall not be an "over-coating only" on outside surfaces. The galvanized components shall lessen the potential for corrosion and eliminates the requirement for finish paint. The process shall negate any later requirement for touch-up paint or total repaint of the outriggers/stabilizer assemblies.

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The galvanizing shall provide the steel outriggers with both barrier and cathodic protection from corrosion. The galvanizing process shall immerse the complete outrigger and stabilizer components in molten zinc. The galvanizing diffusion process shall allow the zinc to bond to the steel, at the molecular level. The galvanized zinc coating shall provide a barrier that shields the steel from the environment.

One (1)
90-25-5050

TORQUE BOX PAINTING

The torque box shall be properly cleaned and prepared for final painting process. The torque box shall be painted with two (2) coats of black PPG water base industrial automotive undercoat.

One (1)
10-02-1200 50

AERIAL LADDER RUNG SPECIFICATIONS

The ladder rungs shall be equally spaced on a maximum 14" centers and minimum 11.75" centers and shall have a skid-resistant surface or covering.

The rung covering shall not twist and shall cover at least 60 percent of the length of each rung.

Round rungs shall be provided and shall have a minimum outside diameter of 1-1/4", including the skid-resistant surface or covering.

The minimum design load for each rung shall be 500 lb distributed over a 3-1/2" wide area at the center of the length of the rung with the rung oriented in its weakest position.

There shall be a minimum of 18" in width inside the aerial ladder between the rails measured at the narrowest point, excluding any mounted equipment.

AERIAL LADDER RUBBER RUNG COVERINGS

Each aerial rung shall be covered with a two (2) pieces of ribbed rubber rung cover. The cover shall be installed with a stainless steel clips. Rubber rung covers installed using screws shall not be an acceptable substitute.

One (1)
10-06-1400

AERIAL SIGN PLATES

The base section of the aerial device shall include sign plates, 12" high x 120" long, one on each side of the aerial. The sign plates shall be painted to match the aerial ladder

One (1)
10-06-2250

EXTENSION MARKINGS

The base section of the ladder shall include markings on the outside of the left handrail and the inside of the right handrail to indicate extension position of the ladder in operation. The markings will be red numbers starting at 60' and continuing every 10 feet with a hash mark between the numbers.

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One (1)
10-07-6400

STOKES BASKET

A Junkin Model #724200 or approved equal plastic rescue basket shall be installed with appropriate mountings on the outside of the platform base section.

One (1)
10-08-3300

PLATFORM BREATHING AIR SYSTEM

A breathing air system shall be provided from the base section of the platform to the tip of the platform basket. The system shall be installed to comply with all applicable sections of NFPA #1901 standards. The cylinders shall be shipped fully pressurized with breathing air.

The breathing air system service and operation shall be covered in the manuals provided with the apparatus on delivery. In addition, the manufacturer shall supply a certificate on air quality on delivery of the apparatus.

The installation shall include the following equipment:

1. Two (2) 6000 PSI 509 cubic foot DOT air cylinders
2. Two (2) pressure gauges on the cylinders
3. One (1) air pressure regulator with downstream pressure gauge
4. One (1) low pressure alarm system
5. One (1) Grade D air filter
6. Two (2) air outlets in platform basket.

Per the request of the Fire Department the Breathing Air tanks are to be painted white.

One (1)
10-08-7550

BREATHING AIR LOW WARNING SYSTEM

Fire Research Air-Master model AM low air warning system shall be installed. The system shall include two (2) panel mounted alarm units (located at turntable and platform basket) and a pressure switch for air system.

Each alarm unit shall include a warning buzzer, warning light, temporary alarm silence button, and test button. Alarm unit dimensions shall not to exceed 2 3/8" in diameter and 4" deep.

The low air warning system shall monitor the air volume and provide audible and visual warnings when the air volume is at or below 20 percent.

One (1)
45-02-2400

ROOF LADDER -- FLY SECTION

A Duo Safety Model 875A, 16 foot aluminum roof ladder with folding steel roof hooks on one end and steel spikes on the other end shall be provided on the apparatus. The ladder shall meet or exceed applicable NFPA standards.

Mounting brackets shall be installed on the right inside of the fly section of the aerial device for the specified ground ladder.

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One (1)
45-03-1500

AXE AND MOUNTING BRACKETS

One (1) 6# pick head fire axe with fiberglass handle shall be provided.

Brackets for axe head and handle shall be installed on the welded in mounting plates located on the back right wall of the platform.

One (1)
45-03-3700

PIKE POLE AND MOUNTING BRACKETS

One (1) 6' long fiberglass pike pole shall be provided. Brackets for the pike pole shall be mounted on the left side tip of fly section.

One (1)
49-05-1000

PLATFORM LEVELING

The platform leveling system shall be provided and so designed that the platform can be supported and maintained level relative to the turntable, regardless of elevation.

The platform leveling system shall be electric over hydraulic powered cylinders, with manual override. Leveling of the platform shall be maintained with two (2) hydraulic cylinders located at the platform basket. The system shall not require a slave cylinder and shall provide a simpler, more reliable system.

The system shall provide the capability to manually tilt the basket and hold this position for better access to the work area.

One (1)
49-05-2100

PLATFORM BASKET -- EXTENDING ARMS FOR ROOF LADDER

The platform basket shall have extending arms to permit connection of a roof ladder and rescue basket to the platform basket. The arms have a retainer pin that assures that the repelling arms do not come out. These arms can be positioned inward when they are not in use.

One (1)
49-05-3000

PLATFORM OPENING -- MANSAYER BAR

One (1) Fire Research ManSaver -24 aerial safety bar shall be installed. The safety bar shall open either upward or inward, and be spring loaded to automatically return to the horizontal closed position. The safety bar assembly shall be made of aluminum and stainless steel.

The length of bar shall be: 24". Location of safety bar shall be installed at the platform basket opening from the aerial fly section to the platform basket.

One (1)
49-05-5000

PLATFORM BUMPERS

A heavy extruded rubber bumper strip fastened the outside of the platform step to protect the platform edge. The bottom of the platform will have rubber attached to the bottom of the platform.

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One (1)
50-00-0000

AERIAL ROTATION SYSTEM

One (1)
50-01-1300

PLATFORM TURNTABLE AND CONTROL CONSOLE

The platform turntable walking area shall be covered with NFPA #1901 compliant skid resistant aluminum tread plate material, with a 2-1/2" lip.

Platform Turntable Handrails

Three (3) 42" high handrails, covered in black material, capable of withstanding a 225 pound force applied from any direction shall be installed on the turntable.

Center cross bars shall be installed to each hand rail.

Soft-Touch Platform Aerial Controls

The platform aerial shall be equipped with "Soft Touch" controls.

The platform aerial "Soft Touch" controls shall include the following features:

1. Ramping up and ramping down of all platform functions, including ramping down the extension/retraction ladder sections, 2' from the end of full extension/retraction of the section traveled to operate extension and retraction at a reduced speed.
2. Elevation shall ramp to a reduced speed at 70-degrees and ramp to off at full elevation.
3. Lowering shall ramp to a reduced speed at 3-degrees and ramp to off at -12 degrees.
4. All platform controls operate at high (full speed) or low (reduced speed).
5. Each platform "Soft Touch" control handle shall lock in the neutral position.
6. A red warning light at the outrigger and platform operator's control consoles shall warn the operator that one (1) or more outriggers have been "short set". In the event the vehicle has been set up with one (1) or more of the outriggers "short set", any rotation of the turntable by 5-degrees to the short set side shall automatically ramp the rotation of the turntable to a feather-soft stop and shall allow the operator to return to safe operating parameters.

The ramping down to slow speeds on extension/retraction and elevation/lowering as described above shall be an important feature and design in this aerial apparatus. The 'soft touch' system must be supplied, since it is automatic and does not rely on operator judgment. To prevent inadvertent or accidental movement of the aerial device, the 'soft touch' controls shall be locked when placed in the neutral position and are inoperative for rescue operations and prolonged turret nozzle operations

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Platform Aerial Turntable Control Console

The turntable control console shall have a toggle switch to energize the hydraulic system for the platform aerial functions. The switch shall have three (3) functions, "high speed", "low speed", and "off".

The platform aerial control functions shall increase the engine speed to 1,200 RPM and energize the hydraulic system when in the operating position, while being used and for five (5) seconds after the controls are used.

The emergency stop button shall be used for emergency stopping and shall return the system to the "off" position, the engine speed to return to normal idle speed and the hydraulic system de-energized.

If the platform is overloaded the extension and lowering ability of the device is disabled until the weight can be removed or shifted.

The turntable shall have the control console mounted on the left side with the following items on the panel:

- One (1) panel light switch
- One (1) tip light switch
- One (1) tracking light switch
- One (1) rung alignment light
- One (1) emergency pump switch
- One (1) system pressure gauge, 0-5,000 psi minimum
- One (1) aerial "Load-Minder" system display
- One (1) emergency stop button
- One (1) red light to indicate when outriggers are not fully extended
- One (1) amber light to indicate when the aerial is aligned with the ladder bed
- One (1) switch to lock all aerial functions
- Three (3) remote nozzle switches
- Three (3) handles for operation of the aerial for raise/lower, extension/retraction, and swing left/right functions

The system shall be capable of performing simultaneous outrigger functions or simultaneous platform aerial functions.

Platform Turntable Console Cover and Lighting

A hinged cover shall be provided on the turntable control console with one (1) courtesy light located in the cover.

Three (3) turntable work lights shall be provided on the turntable for added operator visibility and safety.

Platform Aerial Load Gauge

An platform aerial load gauge shall give a continuous reading of the load on the device. This gauge shall have a bar graph showing the tip load on the ladder as a percentage of the aerial's rated load at any angle of elevation.

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The gauge shall begin to flash at the point where rated load capacity is reached. Additionally, there shall be a pulsating warning horn that shall sound if the ladder is overloaded by 0% to 10% of its rated capacity. A horn shall emit a constant sound when rated capacity is exceeded by more than 10%.

The ladder meets the 2:1 safety factor requirement for material based on the weight of the ladder plus a 1,000 pound live load at the platform, or a 500 pound live load at the platform and flowing 1500 gallons of water at 90 degrees to the side of the platform at zero degrees elevation.

One (1)
50-00-1400

PLATFORM ROTATION SYSTEM

Two hydraulic motors to operate two planetary gearboxes, capable of field adjustment, to rotate the aerial platform activating the rotation system.

A 48" diameter external tooth bearing shall be provided for 360 degree continuous rotation in either direction. As turntable bearing bolts are required to be checked and re-torqued at regular intervals, to make this task relatively simple, the ability to re-torque all bolts from the top of the turntable is mandatory.

The bearing is bolted to the bearing base plate using thirty (30) 1.00" SAE Grade 8 bolts. The bearing is bolted to the turntable using thirty (30) 1.00" SAE Grade 8 bolts.

Two hydraulic release/spring brakes provide a positive lock for the rotation.

Two (2) pressure reducing valves control the force of the rotation to protect the side load of the aerial platform.

One (1)
50-02-1300

SPEED CONTROL -- SOFT TOUCH

The turntable control console shall energize the engine to 1200 to 1300 RPM for the hydraulic system for the ladder functions when the ladder control handle is activated and maintain that RPM for 5 seconds after returning to the neutral position.

Should it be necessary to stop the high idle engine speed quickly, there is an emergency stop button located on the turntable control console to return to normal idle speed and the hydraulic system is de-energized.

One (1)
50-11-1100

AERIAL TURNTABLE CONSOLE

The aerial control console will be covered with aluminum tread plate.

One (1)
50-12-3050

AERIAL WATERWAY FLOW METER

One (1) Class 1 single display water flow meter will be provided with the display located on the aerial control console.

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One (1)
50-16-1200

CAB AND BODY COLLISION PROTECTION

Cab and body collision protection shall limit the lowering and rotation of the aerial device toward the cab and body to prevent the possibility of cab or body damage.

Three (3) lights shall be installed as follows:

1. "Left Rotation Disabled"
2. "Lower Disabled"
3. "Right Rotation Disabled" on the turntable control station shall warn the operator when entering the danger zone.

The three (3) lights shall turn on in the proper danger zone and shall ramp the aerial to a slow, soft stop. The operator shall be able to rotate out of the danger zone without the use of any extra switches or controls. This design shall allow the aerial to be lowered into the ladder bed only when the "Lower Disabled" light is not on.

An "Auto Bedding" system shall be included. When the elevation of the aerial is below a pre-set level, the automatic alignment location feature will stop rotation of the aerial, and only allow the aerial to be lowered into the bed. In order to continue rotation, it shall be necessary to elevate the aerial slightly before rotating.

A manual override valve shall allow operation of all aerial controls, located inside the turntable control stand. This valve shall override all cab and body collision protection.

When short jacking is in use and when the aerial is 8-degrees to the short jacked side of the truck, the aerial shall come to a slow, soft stop. Two (2) operators shall be able to bring the aerial back to safe operating position.

One (1)
65-01-1100

AERIAL OUTRIGGERS AND STABILIZER SPECIFICATIONS

The aerial device outriggers and stabilizers shall be designed to function with the standard hydraulic components. Each Outrigger shall have a pad that pivots left-to-right and front-to-rear.

Aerial Set-Up Requirements

1. With the stabilizers set, the aerial device shall be capable of being raised from the bedded position to maximum elevation and extension and rotated 90 degrees.
2. Two or more of these functions shall be permitted to be performed simultaneously.
3. The functions shall be accomplished within 120 seconds

Extension Beams

The extension beams shall entirely enclose the extension cylinders to prevent damage to the rods and hoses. Each outrigger shall be controlled independently with one (1) joystick controller, which can extend and lower the outrigger at the same time or raise and retract the outrigger at the same time.

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A double box design shall enclose the jack cylinders completely to protect the rods from damage that could result from exterior circumstances.

Jack Cylinders

The jack cylinders shall have pilot operated check valves for both the raised and lowered positions. Each jack tube shall be drilled for mechanical pin locks for a safety backup.

The outrigger jack cylinders shall be so mounted that they can be reached for service or removal from the top of the jack rather than from the bottom. Since the bottom design is more difficult and time consuming and also requires special placement for service shall not be an acceptable design.

Outrigger Deployment Alarm and Warning System

The outrigger deployment alarm shall sound at all times while the outrigger master switch is in the "on", position and stops sounding only when the outrigger switch is turned off. The audible alarm shall warn personnel that outrigger movement is possible at any time the switch is on.

A red LED flashing light shall be mounted to the inside of the vertical outrigger jack beam. The aerial master switch shall activate the lights.

An amber indicator light shall be located on the outrigger control panel for each outrigger to indicate when the outrigger jack is supporting enough load to be in firm contact with the ground.

Safety Features

The outrigger system provides the following safety features:

1. The outrigger interlock system shall prevent raising of the aerial ladder prior to all outriggers being in firm contact with the ground.
2. Amber indicator lights at the outrigger control station shall indicate circuit completion to show that the unit is ready for aerial operation.
3. Red warning lights at the outrigger and aerial operator's control consoles shall warn the operator that one (1) or more outriggers has been "short set." In the event the vehicle has been set up with one or more of the outriggers "short set," any rotation of the turntable by 10 degrees to the short set side shall activate an aerial short jacking system.
4. An aerial cradle/outrigger interlock system shall be provided to prevent the lifting of the aerial from the nested position until the operator places all jacks in the load supporting configuration. A limit switch at the ladder rest prevents operation of the outriggers once the aerial has been elevated from the nested position.
5. Ground illumination lights shall be provided to illuminate the area directly under the outriggers for each extending outrigger.
6. Outriggers shall be wired with outrigger stowed switches with a light in the cab.

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Outrigger and Stabilizer Specifications

The specified outriggers and torque box system shall provide a 1-1/2 to 1 stability safety factor when the aerial is in any operating position.

The stability requirements shall be met by the apparatus on which the aerial device is mounted when that apparatus is in a service-ready condition but with all normally removable items such as water, hose, ground ladders, and loose equipment removed.

The aerial device shall be capable of sustaining a static load 1-1/3 times its rated capacity in every position in which the aerial device can be placed when the apparatus is on a slope of 5 degrees downward in the direction most likely to cause overturning.

An audible alarm, of not less than 87 DBA measured at any position the stabilizer can be in, shall sound when a stabilizer is moving.

The ground contact area for each stabilizer shall be such that a unit pressure of not greater than 75 psi will be exerted over the ground contact area when the apparatus is loaded to its maximum in-service weight and the aerial device is carrying its rated capacity in every position permitted by the manufacturer. This requirement shall be outrigger or stabilizer pads in conjunction with the permanently mounted shoes to meet the loading requirement of 75 psi or less.

The outrigger and stabilizer shoes shall be capable of positioning the shoe front to back and side to side on an eight degree slope.

All outriggers and stabilizers that protrude beyond the body of the apparatus shall be striped or painted with reflective material so as to indicate a hazard or obstruction. All outriggers and stabilizers that protrude beyond the body of the apparatus shall be provided with one or more red warning lights located either on the stabilizer or in the body panel above the stabilizer visible on the side of the apparatus where the stabilizer is located.

One (1)
65-09-1300

OUTRIGGER STOWED LIGHT

A red warning light shall be installed in the driving compartment and visible to the driver to indicate that one or more outriggers are not stowed.

One (1)
65-03-1100

SHORT JACKING -- TWO OPERATORS

The aerial device shall be provided with a short-jacking system. The operation of the short jacking system shall be as follows:

1. Once all movement of the aerial is shut down due to a short jacked outrigger, it will be necessary to override this condition.
2. This operation requires two (2) operators, one (1) stationed at the aerial control panel and one (1) at the outrigger control panel.

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One (1)
70-01-1600

TELESCOPING WATERWAY -- PLATFORM

A aerial waterway shall be provided from the base of the aerial device to the tip of the fly section. The waterway shall provide 1,500 gallons of water per minute from the swivel on the turntable to the end of the fly section.

Waterway Construction

The aerial telescoping aluminum waterway shall be fabricated of aluminum and shall have four (4) telescoping tubes as follows:

1. 5" outside diameter at the base section
2. 4-1/2" outside diameter at the lower mid-section,
3. 4" outside diameter at the upper mid-section
4. 3.5" outside diameter at the fly section

Monitor Installation

A three-function electronic controlled monitor with nozzle is mounted to the platform. Monitor controls are located at the platform and on the turntable control console.

Monitor control functions shall be as follows:

1. Operation to "Raise and Lower" the stream
2. Operate the monitor to the "Left and Right"
3. To control the shape of the stream pattern

Butterfly Valve

One (1) hand wheel controlled 4" butterfly valve shall be installed before the monitor at the end of the waterway.

One (1)
70-00-1300

PLATFORM CAPABILITIES -- 1500GPM

The following are aerial platform and water capabilities for the operation of this unit in the unsupported configuration with the truck level, the outriggers fully extended and lowered to relieve the chassis weight from the axles. The capabilities are based upon 360-degree continuous rotation and up to full extension.

Platform Operations With Waterway Dry

-12 Degrees to 30 Degrees	1,000 pounds in the platform basket or 1,250 pounds evenly distributed
30 Degrees to 45 Degrees	1,000 pounds in the platform basket or 1,500 pounds evenly distributed

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45 Degrees to 60 Degrees 1,000 pounds in the platform basket
or 2,000 pounds evenly distributed

60 Degrees to 75 Degrees 1,000 pounds in the platform basket
or 2,500 pounds evenly distributed

Platform Operations With 1500 GPM Water Flowing 90-degree to the side and 45 degrees up and 45 degrees down

The following capabilities are based upon continuous 360-degree rotation and up to full extension.

<u>Elevation</u>	<u>Platform Weight Capacity</u>
-12 Degrees to 45 Degrees	500 pounds in the platform basket or 750 pounds evenly distributed
45 Degrees to 60 Degrees	500 pounds in the platform basket or 1,500 pounds evenly distributed
60 Degrees to 75 Degrees	500 pounds in the platform basket or 2,000 pounds evenly distributed

The above ratings shall be based on average weight of personnel on the ladder at 250 pounds each.

The ladder meets the 2:1 safety factor requirement for material based on the weight of the ladder plus a 1,000 pound live load at the platform or a 500 pound live load at the platform and flowing 1,500 GPM of water at 90 degrees to the side of the platform at zero degrees elevation.

One (1)
80-01-1600

COMMUNICATION SYSTEM -- PLATFORM TURNTABLE

An aerial communication system shall be provided with master station installed at the platform turntable. The intercom shall include the following:

1. Master station
2. Remote Platform station
3. Interconnecting cables and wiring

The master station shall have a volume control and a push-to-talk button. The remote station shall operate "hands free" and constantly transmit to the master station and speaker, unless the master station push-to-talk button is pressed.

The intercom shall be designed for exterior aerial application. Each station shall have a weather resistant and protective housing and water resistant speakers.

The power requirements for the intercom shall be 12 volt with a minimum output power shall be 16 watts.

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One (1)
80-01-2600

The two station intercom communication system shall have the master station at the platform aerial turntable and secondary intercom and speaker at the platform basket area.

One (1)
80-01-4200

INTERCOM

The Firecom panther CCS is a digital intercom designed for use in rugged, physical conditions and challenging acoustic environments. The durable construction, with recessed controls, is ideal for use on fire apparatus, emergency vehicles or any other mobile command equipment. The panther CCS provides high volume, clear audio communication. And for extreme noise environments, headsets may be added to the intercom system for additional hearing protection.

The digital, two-wire system is designed to provide clear communication for all personnel with minimum connections. Multiple panther CCS units may be installed "in series" to service a large network of stations without any loss of signal.

The remote unit, typically installed at the ladder tip, continuously transmits to the base stations. Base station units include a Push-to-Talk (PTT) button to transmit to other intercom positions. Both the remote unit and base station are equipped with two headset jacks. With the addition of headsets, all personnel will have full two-way intercom communication, radio transmit and receive, as well as 24 db noise reduction to meet NFPA 1500 standards. Complete radio communication for all positions is also available when the analog interface unit is added.

- _ Provides clear communication
- _ Access to radio communication
- _ Easy to operate
- _ Reduces wire count for connecting units
- _ Installs in demanding wiring situations including collector rings
- _ Easy to install
- _ Durable and ideal for harsh environment installation

The intercom will be compatible and wired to operate with the Fire Com intercom system located in the cab.

One (1)
90-05-1350

HYDRAULIC ELEVATION SYSTEM -- SOFT TOUCH CONTROLS

The hydraulic elevation system shall ramp to a reduced speed at 70-degrees and ramp to off at full elevation. Lowering shall ramp to a reduced speed at 8-degrees and ramp to off at -12 degrees. The slow down linkage shall be connected directly to the elevation control handle.

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One (1)
50-06-2600

TURNTABLE SHAPE

The turntable shall be two sided, 78" wide x 83" deep, with the right side cut off to allow for hose bed.

Center cross bars shall be installed to each hand rail.

One (1)
50-08-1200

MANSAVER BARS -- TURNTABLE OPENINGS

Two (2) Fire Research ManSaver model MS40-24 aerial safety bars shall be installed. The safety bars shall mount on the left, open either upward or inward, and be spring loaded to automatically return to the horizontal closed position. The aerial bar shall have a 10" U-shaped loop under the bar. The safety bar assembly shall be made of aluminum and stainless steel.

The length of bar shall be: 24" and the loop size shall be: 10". Location of safety bar shall be installed between the openings on the covered handrails on the turntable.

One (1)
50-15-1100

RUNG ALIGNMENT LIGHT

A rung alignment light shall be installed at the turntable and platform control console.

One (1)
60-01-1400

TORQUE BOX

The torque box connecting the turntable to the outriggers shall provide the rigidity needed for the aerial to be operated at -12 degrees to + 75 degrees of elevation and full extension.

The torque box shall have approximate dimensions of:

1. 43" inside width
2. 26" inside height
3. 247" long (plus or minus 12") the back shall be open for ground ladder storage.

One (1)
60-02-1200

LADDER STORAGE RACK -- INSIDE TORQUE BOX

A slide in ladder rack shall be installed inside the torque box to allow the storage of the following 115' feet of ground ladders, which shall be supplied with the apparatus by the final OEM:

1. One (1) Duo Safety Model 775-A 14 aluminum roof ladder
2. One (1) Duo Safety 875-A 16" aluminum roof ladder
3. One (1) Duo Safety 900-A 14 two section aluminum extension ladder
4. One (1) Duo Safety 900-A 24 two section aluminum extension ladder
5. One (1) Duo Safety 1225-A 35 three section aluminum extension ladder
6. One (1) Duo Safety 585-A 10 folding aluminum attic ladder

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Pike Poles

1. Two (2) 4 pike poles with "D" handles
2. Two (2) 6 pike poles with round handles
3. Two (2) 8 pike poles with round handles
4. Two (2) 10 pike poles with round handles
5. Two (2) 12 pike poles with round handles

One (1)
60-03-1400

DUAL WATERWAY SUPPLY PLUMBING

Plumbing shall be installed from the fire pump to the aerial swivel area to supply water directly to the waterway. The 4" plumbing shall be installed with a flange or Victaulic connection below the swivel.

A water supply inlet shall be provided at the rear of the apparatus with 4" plumbing, with a flange or Victaulic connection below the swivel. The plumbing shall be used for an water supply inlet to supply the aerial waterway.

One (1)
65-02-1900

FRONT AND REAR OUTRIGGERS

Two (2) front and two (2) rear out and down H-style outriggers shall be provided on the apparatus. The rear outriggers shall be located directly behind the rear axle and the front outriggers shall be located front of the torque box connected to the frame.

The outrigger assemblies shall consist of the following components:

1. A 2" inside diameter cylinder with a 1.125" outside diameter rod shall extend and retract the outrigger 48".
2. A 5" inside diameter cylinder with a 3" outside diameter rod shall raise and lower each jack tube a distance of 28".

Outrigger Spread

The total width from the center of pivot pin to center of pivot pin when the outriggers are fully extended shall be: 15' 6".

One (1)
65-04-1100

OUTRIGGER CONTROL PANEL

The outrigger control panel shall have a switch to energize the hydraulic system for outrigger functions. The switch shall increase the engine speed to 1,200 RPM when in the "ON" position. In the "OFF" position, the engine speed shall return to normal idle speed and the hydraulic system shall be de-energized.

Control Panel

The control panel shall include the following:

1. Manual override system to override the outrigger-aerial interlock system
2. One (1) switch to start and stop all aerial and outrigger operations.

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3. One (1) switch for the emergency power unit.
4. Amber indicating lights shall signal when the outriggers are supporting sufficient load.
5. A pulsing beeper shall be activated when the outrigger system is in use.
6. One (1) red light shall be provided to indicate if outriggers have been short set.
7. One (1) aerial hour meter connected to the PTO shall be installed at the outrigger control station.

One (1)
65-04-1200

MANUAL OUTRIGGER CONTROL VALVES

The aerial shall be equipped with two (2) sets of manual outrigger control valves, located at the rear and to the outside of the chassis. This location shall give the operator full view and control of each outrigger.

One (1)
65-05-1300

SIDE TO SIDE AND FRONT TO REAR LEVELING GAUGES

A leveling gauge shall be installed on the rear to show when the apparatus is level from side to side. A second gauge shall be provided and placed on the outrigger control box to indicate when the vehicle is level from front to back. The approximate size of the leveling gauges shall be 3" x 1-1/2".

One (1)
65-07-1150

OUTRIGGER AUXILIARY PLATES

Four (4) auxiliary outrigger plates shall be provided. The units shall be 2' x 2' in size., one for each outrigger made from 1/2" aluminum with a handle for easy movement. The mounting for the plates shall be provided by the body manufacturer.

One (1)
65-08-1100

OUTRIGGER SHIELD LIGHTS

Warning lights shall be located on the outside of the outrigger shield. The lights will be wired to the aerial master switch located in the cab.

One (1)
65-11-1100

OUTRIGGER ACCESS PANELS -- EXTENSION PANELS

Outrigger access panels shall be located on the body of the aerial to allow easy access to the outrigger extension cylinders. These panels shall be located beside the outrigger jack cylinder.

One (1)
65-11-1200

OUTRIGGER WARNING SIGNS

The outrigger shields shall have warning signs installed to warn of dangers in operation of the outrigger system.

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One (1)
70-02-1200

WATERWAY QUARTER-TURN VALVE -- BELOW WATER SWIVEL

One (1) 4" quarter-turn butterfly valve for the waterway system shall be installed. The valve shall be air operated shall be mounted directly below the water swivel.

The air operated butterfly valve control shall be on the pump panel.

One (1)
70-03-1200

WATERWAY RELIEF VALVE

One (1) 3/4" relief valve shall be installed above the butterfly valve.

One (1)
70-12-1600

2-1/2" DISCHARGES -- PLATFORM BASKET

Two 4" hand wheel operated butterfly valves installed between the end of the waterway and the monitor to direct flow to the monitor and discharges. Two (2) 2-1/2" gated discharges with 2-1/2" NH male threads mounted front and rear of the platform. The front 2-1/2" discharge shall point to the front of the platform and the rear 2-1/2" discharge shall point to the rear of the platform.

One (1)
70-17-1450

REMOTE CONTROLLED MONITORS

Two Akron Model #3578 electric monitors, capable of flowing 2000 GPM, shall be provided on the end of the waterway.

Two control boxes shall be located on the monitor shall control the vertical and horizontal electric motors for stream patterns, up and down functions, and right and left functions.

The monitors shall be compatible for use with an Akron #5178 electrically controlled 1250 GPM nozzle that shall directly connect to the relay box. The base of the monitor shall have a 4" 150# ANSI mounting flange with a 2-1/2" NST male outlet and painted urethane enamel.

Both nozzles will be able to rotate 90 degrees from centerline of ladder outward.

Note: The above specifications may be confusing to the department. There are two (2) Akron electric monitors provided with electric nozzles. One electric nozzle has a wireless remote control, the other does not.

One (1)
80-01-5150

SPECIAL COMMUNICATION WIRING

The aerial device shall be equipped with additional intercom wiring and equipment as follows:

1. One (1) eight conductor wire connecting turntable to the tip of the fly section or at the platform. This wire shall be marked at the tip of the fly section and at the turntable.

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2. There shall be a total of eight (8) wires in the aerial swivel for the communication system.

One (1)
80-10-1100

FLOODLIGHTS -- 12 VOLT BASE SECTION

Two (2) Collins model #FX-12 floodlights shall be installed at the lower end of the base section ahead of the lift cylinders of the ladder. The floodlights shall have one (1) spot and one (1) flood type bulbs.

One (1)
80-14-1200

FLOODLIGHTS ON BED-CRADLE TRAVEL SUPPORT

Two (2) Arrow 12 volt lights shall be located on the aerial travel support. The lights shall be turned on by the aerial master switch.

One (1)
82-49-4300

TELESCOPIC FLOODLIGHT -- PLATFORM BASKET

Two (2) Fire Research Optimum model OPA510 top mount pull up telescopic light shall be installed one each side of the platform basket. The light poles shall be anodized aluminum and have a knurled twist lock mechanism to secure the extension pole in position. The extension pole shall extend and rotate 360 degrees. A round mounting flange shall be provided. Wiring shall extend from the pole bottom with a retractile cord.

Each lamp head shall have one (1) quartz halogen 750 watt 120 volt bulb. The bulb shall be accessible through the front. The lamp head shall incorporate a vacuum deposit polished reflector and two optimizing mirrors to produce a uniform beam that lights up an area 100° vertically by 150° horizontally. The lamp head shall have a heat dissipating curved front lens. The curve of the lens shall have a radius of 5.16 inches to optimize light emission. Lamp head and brackets shall be powder coated white.

The telescoping lights shall be located one each side at the back corner of the platform basket.

One (1)
85-49-1200

120 VOLT RECEPTACLES -- PLATFORM BASKET

One (1) 120-volt AC circuit shall be run through the collector ring swivel, with two (2) 20 amp receptacles mounted one each side of the platform basket.

One (1)
85-50-1100

STRIGHT BLADE RECEPTACLE

The receptacle(s) shall be 120 volt 20 amp straight blade type.

One (1)
86-45-2700

MARKER LIGHTS -- PLATFORM BASKET

Four (4) Whelen flashing lights, model number 50R02ZRR, are installed one each side of the platform basket and two on the front. The warning flashing lights shall be actuated by the cab warning lights.

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One (1)
86-45-5100

The warning lights shall be "red" in color.

One (1)
87-10-2000 20

LADDER RUNG LIGHTING

The ladder rungs of each aerial section shall be equipped with 12-volt LED lights. There shall be four (4) lights in each section, with equal spacing in the climbing area. The lights shall be activated with a switch on the turntable.

One (1)
87-10-3100

The ladder rung lights shall be "amber" in color.

One (1)
88-01-1300

OVERLOAD WARNING LIGHTS

Two (2) Tomar "amber" overload warning light shall be installed, one each side of the left side of the base section to warn of aerial overload.

One (1)
88-00-0000

SAFETY CONTROLS AND INTERLOCKS

One (1)
90-00-0000

AERIAL HYDRAULIC SYSTEM

One (1)
90-01-2200

HYDRAULIC HIGH PRESSURE OIL FILTER

The hydraulic system shall be equipped with a 'high pressure' hydraulic oil filter between the pump and the control valve designed to meet the flow requirements of the system. The high pressure filter will have a dirty element switch for the convenience of the mechanic. An indicating light on the TeleTower control panel to indicate a dirty filter element.

One (1)
90-04-0000

AERIAL ELEVATION SYSTEM

One (1)
90-06-1300

HYDRAULIC PUMP DRIVE SYSTEM -- AERIAL AND GENERATOR

The transmission mounted power-take-off shall drive both aerial hydraulic system and line voltage hydraulic generator installation. The dual pumps shall be "piggy backed" together on the power-take-off.

An electrical start-stop "hot shift" PTO shall be mounted to the transmission. The PTO shall be connected to the hydraulic pump and shall supply power for all aerial and outrigger operations. Electrical safety wiring shall require that the vehicle be in neutral and the parking brake set before the PTO will operate. A "PTO Engaged" indicator light is installed in the cab of the apparatus.

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One (1)
90-10-1300

SPECIAL PLATFORM TOOLS

The special aerial platform tools shall be provided on delivery of the apparatus. The following special tools shall be supplied:

1. One (1) 1-1/2" deep socket wrench, 3/4" drive, 3/4" x 6" socket extension
2. One (1) set of fold-up Allen wrenches
3. One (1) 9/16" combination wrench
4. One (1) tool box
5. One (1) 1/2" 250# torque wrench with 6 to 1 multiplier and case
6. One (1) 9/16" box wrench

One (1)
10-07-6700

STOKES BASKET MOUNTINGS

Mountings shall be installed for a plastic rescue basket on the outside of the ladder base section. This mounting will be an aluminum box mounted on the side of the base section of the aerial ladder for storage of a stokes basket. The box shall have a hinged cover with latches to secure the cover. The basket will be located behind the aerial lettering panel on the passenger's side of the aerial.

One (1)
45-03-3500

PIKE POLE AND MOUNTING BRACKETS

One (1) 4' long fiberglass pike pole with D-type handle shall be provided.

Brackets for a pike pole shall be mounted on the mounting plate on the left side tip of fly section.

One (1)
49-05-0100

PLATFORM FLOOR LIGHTING

The platform LED floor lighting will be a flexilight [rope light] mounted in the platform basket. These lights are activated by the aerial power switch.

One (1)
49-05-1500

PLATFORM OUTSIDE STEP

The platform sides shall be extended 7" beyond the platform basket frame with a rubber bumper along the outside edge.

One (1)
49-05-4110

HOSE EQUIPMENT STORAGE BOX

Two aluminum storage boxes, approximately 20" long x 9.5" deep x 30" full height requested, height may be changed to what will fit, shall be mounted on the platform

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basket rear for 100' of 1.5" hose and / or platform extending arms and breathing air masks.

One (1)
50-09-1100

ANGLE ELEVATION INCLINOMETER

An angle elevation inclinometer shall be mounted to the base section of the aerial, on the control stand side of the aerial.

One (1)
70-17-1410

REMOTE CONTROLLED MONITOR

An Akron Model #3578 electric monitor, capable of flowing 2000 GPM, shall be provided on the end of the waterway.

A control box shall be located on the monitor shall control the vertical and horizontal electric motors for stream patterns, up and down functions, and right and left functions.

The monitor shall be compatible for use with an Akron #5178 controlled wireless 1500 GPM nozzle. The base of the monitor shall have a 4" 150# ANSI mounting flange with a 2-1/2" NST male outlet and painted urethane enamel.

One (1)
70-18-1500

STRAIGHT BORE TIPS

One (1) set of Akron #3499 straight bore tips shall be provided for the monitor as follows:

- One (1) 2-3/4"
- One (1) 2-1/2"
- One (1) 2-1/4"
- One (1) 2"
- One (1) 3-1/2" female to 2-1/2" male NH adapter
- One (1) 3-1/2" NH male threaded base mounting bracket.

One (1)
81-46-1200

FLOODLIGHT -- 120VOLT FLY SECTION

One (1) Fire Research Optimum model OPA100 floodlight shall be provided at the front center of the platform. The lamp head mounting arm shall terminate in 3/4" NPT threads. Wiring shall extend from the lamp head mounting arm bottom.

The lamp head shall have one (1) quartz halogen 750 watt 120 volt bulb.

The bulb shall be accessible through the front. The lamp head shall incorporate a vacuum deposit polished reflector and two optimizing mirrors to produce a uniform beam that lights up an area 100° vertically by 150° horizontally. The lamp head shall have a heat dissipating curved front lens. The curve of the lens shall have a radius of 5.16 inches to optimize light emission. Lamp head and brackets shall be powder coated white.

One (1)
82-49-3125

FLOODLIGHTS -- 120 VOLT UNDER PLATFORM BASKET

Two (2) Fire Research model FCA200 floodlights shall be under the platform basket. The lamp head mounting arm shall terminate in 3/4" NPT threads.

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Two [2] Fire Research Focus model FCA200-S75 recessed lights shall be installed. The housing shall incorporate internal heat-dissipating fins and have cutout dimensions not to exceed 2" deep by 4 1/4" high by 11" wide. The lamp head shall protrude no more than 1 1/2" from the housing flange. Wiring shall extend from the bottom of the recessed housing.

The lamp head shall have one (1) quartz halogen 750 watt 120 volt bulb. The bulb will draw 6.3 amps and generate 19,600 lumens. The bulb shall be accessible through the front. The lamp head shall direct 50 percent of the light onto the action area while providing 50 percent to illuminate the working area. Lamp head and housing shall be powder coated white. The floodlight shall be UL listed as a scene light for fire service use.

One (1)
90-00-1300

HYDRAULIC SYSTEM

The hydraulic system shall have a load sensing, variable gallonage, hydraulic piston pump with a 12-volt pressure reducing system. To reduce the normal time for aerial set up, the hydraulic pump shall be of the load sensing design. The hydraulic system shall have sufficient oil flow to provide the capability of performing multiple functions simultaneously without reducing operating speeds of the selected functions.

The hydraulic oil for the aerial shall be directed through a hydraulic swivel with 360 degrees continuous rotation. Enclosed in the hydraulic swivel shall be a minimum of twenty (20) electrical collector rings with 360-degree continuous rotation. There shall be a 4" waterway through the hydraulic swivel.

The hydraulic pump shall be large enough to provide oil to meet all of the requirements needed for aerial and outrigger operation standards.

A pressure reducing valve set at 500 PSI above the system pressure shall be connected to the hydraulic pump. This pressure reducing valve shall be a safety device for hydraulic pump failure. The hydraulic oil shall be directed through high pressure hydraulic hose and tubing.

The hydraulic system shall be designed to direct oil to the outriggers only while the ladder is in the bedded position. The oil can be directed to the aerial operation only when all of the outriggers are supporting sufficient load. This operation is made available through the use of electrical diverter valves with a manual override system for safety backup.

The hydraulic system shall be supplied by a 40 gallon oil tank with a 10 micron filter on the return line and a 200 mesh filter on the pump inlet side.

Hydraulic System Installation

The non-sealing moving parts of all hydraulic components, whose failure results in motion of the aerial device, shall have a minimum bursting strength of four times the maximum operating pressure to which the component is subjected.

Dynamic sealing parts of all hydraulic components, whose failure results in motion of the aerial device, shall not begin to extrude or otherwise fail at pressures at or below two times the maximum operating pressure to which the component is subjected.

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Static sealing parts of all hydraulic components, whose failure results in motion of the aerial device, shall have a minimum bursting strength of four times the maximum operating pressure to which the component is subjected.

All hydraulic hose, tubing, and fittings shall have a minimum bursting strength of at least three times the maximum operating pressure to which the components are subjected.

All other hydraulic components shall have a minimum bursting strength of at least two times the maximum operating pressure to which the components are subjected.

The hydraulic system shall be provided with an oil pressure gauge at the control station position.

Hydraulic Reservoir

The hydraulic system shall be supplied by a 40 gallon oil tank with a 10 micron filter on the return line and a 200 mesh filter on the pump inlet side.

A means for checking and filling the hydraulic reservoir shall be readily accessible.

The fill location shall be conspicuously marked with a label that reads "Hydraulic Oil Only."

Instructions for checking and filling the hydraulic reservoir shall be provided.

The hydraulic system components shall be capable of maintaining, under all operating conditions, oil cleanliness and temperature that comply with the component manufacturer's recommendations.

One (1)
90-01-1100

THREE PORT HYDRAULIC SWIVEL SPECIFICATIONS

The hydraulic oil for the aerial shall be directed through a three-port hydraulic swivel with 360 degrees continuous rotation. Enclosed in the hydraulic swivel shall be a minimum of twenty [20] electrical collector rings with 360-degrees continuous rotation. There shall be a 4" waterway through the hydraulic swivel.

One (1)
90-01-1400

HYDRAULIC DRAIN LINE

One (1) quarter turn gated drain line and gated valve shall be supplied to shut-off the flow of the hydraulic oil from the hydraulic tank.

One (1)
90-01-1450

HYDRAULIC OIL VALVE CONTROL

One (1) quarter turn gated valve and suction line shall be provided to stop the flow of oil between the hydraulic reservoir and the hydraulic pump.