

USDA FOREST SERVICE

APPARATUS PLATFORM BODY ONLY

SPECIFICATION

TYPE 6 FIRE APPARATUS

MODEL 643P

MARCH 2010

GENERAL

The utility body described in this specification shall be mounted on Government furnished cab and chassis. Government furnished cab and chassis shall be picked up by the apparatus manufacturer at designated locations. The apparatus manufacturer shall be liable for all loss and damage to Government furnished cab and chassis until completion and final acceptance of work and returned to the Government.

The completed apparatus described in this specification shall be compliant with the requirements of NFPA 1906, latest edition, except where noted.

TILT TEST

The apparatus shall be tilted to 30° minimum before lifting a tire or tire set when tested at the estimated in-service weight in accordance with NFPA 1906.

CHASSIS ELECTRICAL REQUIREMENTS

CHASSIS ELECTRICAL ADDITIONAL EQUIPMENT AND MODIFICATIONS

The apparatus chassis shall be equipped with a heavy-duty 12 volt direct current (VDC) negative ground electrical system. The electrical system shall include all parts, components, switches, relays, wiring, and other devices required to assure complete, consistent and proper operation of the completed apparatus. Wiring shall be routed and/or protected to eliminate exposure to moving parts or debris.

All lights required are to comply with Federal Government Codes for vehicles of this size and design shall be provided and installed. These lights shall include headlamps and front turn signals with hazard switch, cab marker and clearance lights, back up lights, stop-turn-tail and license plate lights.

All switches for the warning lights and other electrical equipment shall be mounted on a separate switch panel located in the cab on a master electrical console mounted between the two front seats. The switches shall be functionally laid out, properly identified, and shall be located within easy reach of both the driver and the officer. The warning light system shall have a "master" switch, which shall allow for the pre-selection of all warning lights. All switches shall be of a heavy duty design.

The following additional electrical equipment shall be installed on, and modifications performed to, the specified cab and chassis by the apparatus builder:

MULTIPLEX SYSTEM

A Class 1 ES-Key, or equivalent, multiplexed solid state management system for controlling the electrical system devices shall be provided. The system shall be fully programmable, and capable of performing load management functions, system monitoring and reporting. All electrical circuits and wiring shall be rated at 125% of the maximum load being imposed.

BATTERY MASTER SWITCH

One (1) battery cutoff switch shall be provided in the cab. The switch shall be a Cole Hersee brand, Model #M-2484-16, with Model #82065 switch plate "Off/On" label, or equivalent. The switch shall be rated for 175 amps continuous duty and 800 amps intermittent duty. The switch shall be located on the floorboard to the left side of the driver's seat and placed as far aft as possible to prevent accidental actuation.

BATTERY ON INDICATOR LIGHT

One (1) "Battery On" indicator light, with a green lens, shall be provided on the center console, located forward on the left side. This light shall illuminate when the battery switch is turned to the "ON" position.

JUNCTION BOX

An electrical junction box for all apparatus modules, connections, relays, circuit breakers, etc. shall be located on the aft wall of the cab behind the driver and passenger seats. All connection points shall be labeled according to function. The junction box shall be constructed from black powder coated stainless steel with a hinged door and a spring loaded push-button style latch.

BULKHEAD CONNECTIONS

All apparatus body wiring either entering or exiting the cab shall be in a harness configuration and pass through a centralized location as close to the interior electrical junction box as possible. The harness(s) shall terminate at the point of the cab entry/exit with Pacific Aerospace and Electronics (PA&E) hermetic bulkhead connector(s) or equivalent, designed to facilitate in the separation of the cab/chassis/apparatus body.

PERIMETER LIGHTING

The perimeter lighting shall be wired to a switch located in the cab center console. The perimeter lighting shall be activated when the vehicle is placed in "blocking mode" upon setting of the parking brake.

Two (2) 4" clear LED lights shall be provided under the apparatus front bumper.

Two (2) 4" clear LED lights shall be provided facing forward on bulkhead of body, one (1) on each side.

Four (4) 4" clear LED lights shall be provided under the apparatus body, one (1) forward and one (1) aft of the rear wheel wells, both sides of the body. The lights shall be housed within an enclosure sufficient to protect from damage

Two (2) 4" clear LED lights shall be provided under the tail board protected from impact and debris.

BACK UP ALARM

One (1) solid state back up alarm shall be provided at the rear of the apparatus protected from impact and debris. The back up alarm shall be wired to the reverse circuit of the transmission, and shall provide an audible alarm to the rear of the apparatus when reverse gear is selected. The alarm shall have a volume of 87 to 112 dBA while in operation.

MAP LIGHT

One (1) flexible goose neck map light shall be provided on the officer's side of the cab center console. The switch for the map light shall be located on the light and shall include a diffuser to prevent glare at night.

ANTENNA

One (1) antenna base shall be supplied and mounted on the cab roof as specified. The antenna cable shall be routed to the cab interior, terminating at location of radio mounting bracket.

USFS INSTALLED RADIO PRE-WIRE

The chassis cab interior shall be wired with battery power, battery ground, switched power, and radio rebroadcast wires to the siren or PA, and labeled to simplify USFS radio installation. The radio shall occupy the second forward, angled, position in the cab center console.

TRAFFIC WARNING SYSTEMS

The following traffic warning systems shall be provided and installed on the completed apparatus by the apparatus builder:

SIREN AMPLIFIER

One (1) Whelen brand, 100/200 Watt, or equivalent, full function siren amplifier with microphone shall be provided. The control head shall be mounted in the rearward position of the center console.

SIREN SPEAKER

One (1) Federal Signal brand, Model MS100, or equivalent, 100 watt siren speaker shall be provided and installed in a protected forward facing location. The wiring for the speaker shall be routed to the amplifier.

FORWARD UPPER ZONE A/B/D LIGHT BAR

One (1) Whelen brand, Edge Ultra Freedom LED light bar, or equivalent, shall be provided and installed on the forward leading edge of the rear cab protection rack, facing forward. The light bar shall be 60" wide, and shall contain the following modules:

Two (2) corner position, forward facing, red flashing modules with clear lens

Four (4) outboard position, forward facing, red flashing modules with red lens

Two (2) inboard position, forward facing, red steady burn modules with red lens

Two (2) center position, forward facing, white "takedown" flashing strobe modules with clear lens

Two (2) corner position, rear facing, red flashing modules with clear lens

Two (2) outboard position, rear facing, red flashing modules with red lens

The light bar shall be wired to a switch located on the cab center console. The two (2) forward facing "takedown" modules shall be interlocked with the application of the emergency brake, placing the apparatus in blocking mode and disabling the modules as such.

FORWARD LOWER ZONE A WARNING LIGHTS

Two (2) Whelen brand, 500 Series, or equivalent, red LED flashers, with mounting flanges, shall be provided at on the front of the apparatus, forward facing, one (1) per side, in the brush guard. The lights shall be wired to a switch located on the cab center console.

FORWARD ZONE B/D WARNING LIGHTS

Two (2) Whelen brand, 400 Series, or equivalent, red LED flashers, with mounting flanges, shall be provided on the front corners of the apparatus chassis, side facing, one (1) per side, for use as "intersection" lights. The lights shall be programmed in a triple flash mode. The lights shall be wired to a switch located on the cab center console.

AFT LOWER ZONE C WARNING LIGHTS

Two (2) Whelen brand, 700 Series, or equivalent, amber LED flashers, with mounting flanges, shall be provided on the lower rear of the apparatus, rear facing, one (1) each side. The lights shall be located in the bottom position of a four-position bezel at the rear of the body with the DOT lights. The lights shall be wired to a switch located on the cab center console.

AVIATION LIGHT

One (1) Whelen brand, Model 508, or equivalent, green halogen lamp with dual bulbs shall be added to the light bar facing upward for viewing from above.

CHASSIS ADDITIONS AND MODIFICATIONS

The following additional equipment shall be installed on, and modifications performed to, the specified cab and chassis by the apparatus manufacturer:

APPARATUS FLUID TYPES AND QUANTITIES

A permanently-mounted label, showing the recommended fluid types and quantities for the apparatus chassis and associated components, shall be provided in the apparatus cab interior near the driver's seating position.

This label shall list the recommended fluid types and quantities for the following components:

Chassis Engine Lubricant
Chassis Engine Coolant
Chassis Power Steering Fluid
Chassis Transmission Fluid
Chassis Transfer Case Lubricant
Chassis Drive Axle Lubricant
Pump Gearbox Lubricant
Chassis Brake Fluid

SEATING CAPACITY

The completed apparatus shall be designed to have a fully enclosed seat with an approved seat belt for each occupant. The term "fully enclosed" shall mean four sides, a top and a bottom, with an appropriate door for easy entrance to and exit from the seating position.

A warning label, listing the seating capacity of the completed apparatus, shall be provided in the apparatus cab interior. This label shall be located so that it is visible from all seating positions.

This apparatus shall have a seating capacity of two (2) personnel in front, and three (3) personnel in the rear for a total seating capacity of five (5).

SEATING

The center portion of the 40/20/40 split bench seat shall be removed to accommodate the installation of the console.

SEAT BELT WARNING

A warning label, stating: "**DANGER- Personnel Must Be Seated And Seat Belts Must Be Fastened While Vehicle Is In Motion Or DEATH OR SERIOUS INJURY MAY RESULT,**" shall be provided in the apparatus cab interior. This label shall be located so that it is visible from all seating positions.

VEHICLE HEIGHT WARNING

A warning label, listing the overall height, length and GVWR of the completed apparatus, shall be provided in the apparatus cab interior. This label shall be located so that it is visible from the driver's seating position.

FINAL STAGE MANUFACTURER VEHICLE CERTIFICATION

A Final Stage Manufacturer vehicle certification label shall be provided and installed in the apparatus cab driver's door jamb.

NOISE HAZARD WARNING

A warning label, stating: “**WARNING: Noise Hazards Occur During Siren Operation,**” shall be provided and installed in the apparatus cab interior. This label shall be located so that it is visible from all seating positions.

AIR FILTER EMBER PROTECTION SCREEN WARNING

A warning label, stating: “**This apparatus is equipped with an air filter ember protection screen; routine inspection is required,**” shall be provided and installed in the apparatus cab interior. This label shall be located so that it is visible from the driver’s seating position.

CAB CONSOLE

The cab shall be equipped with an angled, form-fitted control console located between the front driver's and officer's seats. This console shall be sized to accommodate the installation of a switch panel for the control of the emergency and general illumination lighting, siren controller, and customer-mounted radios. The switch panel shall consist of an eight (8) switch multiplex module with lighted switches. The switch module shall have back lighted identification plates on a non-glare panel surface. The panel shall be illuminated whenever the master switch is in the “On” position. The console shall be fabricated from steel, and painted with a powder-coated black finish.

The console shall contain the following controls and switches:

- One (1) Whelen brand, or equivalent, 100/200 Watt electronic siren controller
- One (1) Whelen brand, or equivalent, traffic advisor control head
- One (1) bracket and pre-wiring for customer-mounted radio
- One (1) flexible map light
- One (1) 4 position 12V power outlet
- One (1) 2 position cup holder
- Two (2) mic clip brackets
- One (1) lockable storage compartment

The switch panel shall contain a total of eight (8) switches with pilot lights, numbered and function labeled, configured from left to right as follows:

- 1- EMERGENCY MASTER
- 2- HIGH IDLE
- 3- PERIMETER LIGHTING
- 4- COMPARTMENT LIGHTING
- 5- LEFT SCENE LIGHT
- 6- REAR SCENE LIGHTS
- 7- RIGHT SCENE LIGHT
- 8- BLANK (Future Use)

FRONT BUMPER AND BRUSH GUARD

A heavy duty black powder coated finish bumper and brush guard assembly shall be provided and installed on the front of the apparatus. The complete assembly shall follow the chassis body lines and encompass the perimeter of the chassis front. The complete assembly shall be of such design that the guard will not vibrate, and shall provide solid mounting area for warning lights, speakers, or other specified equipment.

MOBILE ATTACK LINE BRACKET

One (1) Zico brand VM-7, or equivalent, tool holder shall be provided and installed on the upper loop of the front brush guard, 3” from the curved radius, facing up. The tool holder shall be secured to a mounting bracket that shall allow for easy removal of the tool holder. The tool holder shall be secured

with a tethered cotter pin, or equivalent.

MUD FLAPS

One (1) pair of flexible rubber mud flaps shall be provided on both sides of the apparatus body behind the rear wheels. The mud flaps shall not bear company logos.

The mud flaps shall extend down far enough to be effective but shall not allow the flaps to become entangled with the rear tires when the apparatus is backing up.

EXHAUST SYSTEM

The exhaust system shall remain unmodified and as received from the chassis manufacturer. The exhaust system shall be mounted in a horizontal configuration under the passenger's side of the cab.

FUEL HOSE AND ELECTRICAL HARNESS PROTECTION

If applicable, any fuel lines or electrical harnesses below the chassis frame rails shall be protected with a fire proof sleeve designed specifically for such purpose.

UNDER CHASSIS SHIELDING

The chassis shall be equipped with expanded aluminum lower radiator shielding (if applicable) and a solid plate guard mounted on the aft of the front bumper. This shield and guard shall be designed to prevent entry of sticks and other small debris which may pose a hazard to the cooling system.

CHASSIS AIR INTAKE EMBER GUARD

The chassis air intake shall be protected by an ember guard of 18 Mesh, 0.017 inch wire diameter, and a maximum mesh opening of 0.039 inches. The ember guard shall be sized to fit and located at the intake opening. The screen shall be readily accessible for inspection and maintenance.

CABIN AIR EMBER GUARD

The cabin air filter shall be protected by an ember guard with a maximum mesh opening of 0.039 inches. The screen shall be located at the point of intake and easily accessible for inspection and maintenance.

APPARATUS BODY DESCRIPTION

PLATFORM BODY

All materials, parts and assemblies shall be new and of current manufacture. Workmanship, fabrication, assembly, and finished appearance shall be of the highest quality and in conformance with standard manufacturing practices. Examples of poor workmanship that will, not be accepted are grinding marks or gouges on the outer rail, floors that are not flush with the outer rail, joints that are not flush or square, unfilled joints, and warped or uneven floors.

Platform shall be of marine grade T6 aluminum alloy construction. Structural connections shall be made by welding or minimum Grade 5 bolts and self locking nuts.

There shall be no drilling, grinding, or welding on chassis frame flanges ahead of the rear most spring hanger.

The understructure shall have no lips or pockets that will trap water and mud.

DIMENSIONS

- Length for platform shall be 114 inches plus or minus 1 inch.
- Width for platform shall be 96 inches plus or minus ½ inch.
- Bodies shall be flat plus or minus 1/8 inch over their entire length or width.
- Bodies shall be square with 1/8 inch or less offset from the opposite parallel side.

WELDING

Welds shall meet American Welding Society Standards (AWS). Welds on the top and outer sides of the body and miscellaneous equipment shall be ground flush.

INSTALLATION

The body(s) shall be mounted in compliance with FMVSS 301-75 standards. Body(s) shall be mounted as low as possible without limiting tire clearance or restricting the ability to fuel the truck. The minimum distance from the top of the tire to the bottom of the floor shall be equal to maximum suspension travel plus 2 inches. Maximum suspension travel is the distance between the axle and the rubber bumper that limits suspension travel plus 1 inch.

PLATFORM MOUNTING

A spring-loaded body mounting system shall be used to mount the platform to the chassis. This system shall be designed to allow independent movement between the platform frame and the chassis frame protecting the module from the stresses and twisting rendered by the flexing of the chassis frame. As such, the platform frame shall not rest on the chassis frame at any point. The mounts shall be pre-engineered for their intended use.

All of the mounting hardware (nuts, bolts, washers) required for complete body installation shall be Grade 8 for sizes ½" and smaller, and Grade 5 for sizes larger than ½". All nuts shall be self-locking style. All mounting brackets shall be painted black.

The platform front shall be mounted utilizing springer type mounts. The rear platform mounts shall be affixed via solid mounts to the chassis frame. The center mount shall consist of an 18" long polyurethane spacer mounted mid-length allowing the body frame to rest in a neutral position under full load.

CROSS SILLS

Cross sills on bodies shall be rectangular aluminum alloy channel 6 inches tall X 2 inches wide minimum .1875 wall thickness material.

Cross sills shall be located on maximum 12-inch centers. All bodies shall have 1/8 x 6 x 6 inch gussets at the connection of cross sills to the long sills.

Cross sill to long sill welds shall be at least 100% of the length of the contact edges on two opposing sides of the long sill. Cross sill to outer rail welds shall be 100% of the length of both vertical sides of the cross sill.

LONG SILLS

Two long sills shall run full length in alignment with and perpendicular to the chassis frame rails.

Long sills on bodies shall be rectangular tube aluminum alloy 6 inches tall X 2 inches wide minimum .1875 inch wall thickness material. The ends of the long sills shall be capped and perimeter welded.

OUTER RAIL

Unless specified otherwise, the outer rail shall be either 6" preformed body side rail, or 6 inch .1875 inch wall thickness I-beam.

The outer rail shall form the complete bed perimeter without any open or off set seams.

The outer rail shall consist of square rear corners.

PLATFORM DECK

Decking on the platform shall be .125 inch marine grade aluminum diamond plate. Decking shall be perimeter welded to the outer rail, and 6-12" intermittently along the cross sills.

REAR CAB PROTECTION

One (1) headboard shall be fabricated and installed at the forward end of the apparatus body, directly behind the cab. The frame perimeter shall be fabricated from 4" aluminum alloy channel and conform to the shape of the chassis cab. The interior frame shall consist of two uprights in alignment with the chassis frame rails and one horizontal cross-member located at approximately 1/3 the height. The frame shall be constructed of aluminum alloy 2 x 4 x .1875 inch wall thickness boxed material. 1/8" Aluminum diamond treadplate shall be perimeter welded with the treadplate surface forward to the rearward side of the framework.

Gusseted, heavy duty brackets shall be provided on the leading edge for mounting of the lightbar.

TAILBOARD

The completed tailboard assembly shall serve as the vehicle bumper and meet all associated requirements. The tailboard shall consist of a framed tail apron integral in design with the platform. The apron frame shall consist of either 4 inch channel with the flat surface facing the inside of the frame or 4 x 2 x .1875 wall thickness box material. The interior flat surface of the apron shall consist of 1/8" aluminum diamond plate with the smooth surface to the inside. The tailboard shall finish with the outside edge of the apron frame even with the corners of the platform. The apron shall house all referenced lighting, steps, and draft tube storage. The apron shall be sufficient in design to support 300 lbs static load on the rear steps. The completed tailboard assembly shall meet the requirements of NFPA 1906 for angle of departure.

GRAB HANDLES

Two (2) NFPA-compliant chrome-plated grab handles shall be provided and mounted at the rear, location determined by customer. Two (2) NFPA-compliant chrome-plated 24" long grab handles shall be provided and mounted horizontally on top of each of the upper compartments, parallel to the outboard edges of the body.

REAR STEPS

Two (2) NFPA-compliant fold down steps shall be provided and installed at the rear of the apparatus on the rear tail board of the body. The steps shall be fabricated from heavy duty cast aluminum with spring assisted folded hinges. The top of the steps shall be an integral diamond point skid resistant surface that allows water to flow off the step without ice formation in cold weather use. Sufficient backing shall be provided to support 300lb load without any distortion to the body surface.

A warning plate shall be affixed to the rear of the apparatus in a conspicuous place. The warning plate shall read: **"WARNING: DO NOT RIDE ON REAR STEP WHILE VEHICLE IS IN MOTION. DEATH OR SERIOUS INJURY MAY RESULT"**.

FUEL TANK FILLER

The fuel filler and urea filler bezels shall be incorporated into the headboard channel. If not feasible with chassis design, they may be located into the channel of the outer rail. Fuel cap shall not protrude past outer rail. The fuel tank filler shall be mounted in accordance with FMVSS 301. The fuel filler hose shall not touch any rough or sharp surfaces, and have no kinks or restrictions. Hose shall be supported on no more than 16-inch centers, have at least 6 inches clearance from the rear tire with any amount of suspension travel, and if closer than 12 inches to the tires, have a shield to protect it from objects that may be thrown from the tires.

DRAFT LINE STORAGE

Three (3) draft hose tubes shall be mounted under the platform, between the frame rails of the truck. The draft tubes shall be a minimum of 5 inches in diameter and covered at the opening with cast aluminum covers.

SPARE TIRE MOUNT

Mount shall be a stationary horizontal cradle attached to the underside of the body, on the passenger side, ahead of the rear axle. The cradle shall not extend beyond the side of the body. 114 inch beds shall have the mount constructed of 2 inch by 3/8-inch steel or aluminum and sized to fit the stock tires.

The mount shall be welded or bolted to the body side rail and/or understructure. Spare tire shall not extend past the outer rail. Attachment points shall be gusseted. A folding hasp or 5/16-inch chain, secured with a padlock, shall act as a spare tire lock.

COMPARTMENTATION

All storage compartment walls shall be constructed from .125 inch aluminum diamond plate unless specified. All internal framework shall be constructed of 10 gauge or greater, formed aluminum structural members. All compartment interiors shall be free of exposed electrical harnesses or plumbing components. All compartments shall be as large as possible, as determined by the design of the apparatus. Compartment configuration and approximate sizes required are listed below:

DRIVER'S SIDE COMPARTMENTS

The driver's side of the apparatus body shall have approximate dimensions of 84" L X 24" H x 23" D and contain two (2) compartments. Each compartment shall have a "flow through" vent provided to supply air

flow and minimize moisture unless designated as fuel storage. Independent from the body shall be one (1) compartment mounted on top of the apparatus body.

One (1) compartment shall be provided forward of the rear wheels, with approximate inside dimensions of 30" W X 24" H X 23" D. The door shall be vertically hinged as to have the hinge be toward the front of the apparatus and shall have a weather tight seal. The door shall be provided with one (1) "D-Handle" door latch.

One (1) compartment shall be provided above the rear wheels, with approximate inside dimensions of 54" W X 24" H X 23" D. The door shall be a horizontally hinged, lift up door with a gas strut to maintain open. The door shall be provided with two (2) "D-Handle" door latches.

One (1) independent upper storage compartment shall be provided and installed above the two compartments, with approximate dimensions of 84" W X 14" H X 23" D. The door shall be a horizontally hinged, overhead lift-up door, with a gas strut to remain open, and have a clear door opening of approximately 80" W X 12" H. Dimensions shall be +/- 1/4 inch. The door shall be provided with two (2) "D-Handle" door latches.

DRIP TORCH TRAY

One (1) aluminum drip tray shall be provided on the driver's side rear deck of the apparatus. The tray shall be approximately 3" deep with a mounting plate to mount two (2) vendor supplied drip torch retaining brackets.

FUEL STORAGE AREA

One (1) well ventilated compartment shall be mounted under the platform body, forward of the rear wheels, equipped with a door that opens to the driver's side of the apparatus with the hinge being toward the front of the apparatus. The storage compartment shall have approximate dimensions of 22" W X 18" H X 23" D. This storage area shall be supplied with the ability to secure fuel containers.

PASSENGER'S SIDE COMPARTMENTS

The passenger's side of the apparatus body shall have approximate dimensions of 84" L X 24" H x 23" D and contain one (1) compartment. The compartment shall have a "flow through" vent provided to supply air flow and minimize moisture unless designated as fuel storage. Independent from the body shall be one (1) compartment and one (1) flow through storage rack mounted on top of the apparatus body.

One (1) compartment shall be provided over the rear wheels, with approximate inside dimensions of 84" W X 24" H X 23" D. The door shall be horizontally hinged overhead lift up door and shall have a weather tight seal. The door shall be provided with two (2) "D-Handle" door latches.

One (1) independent upper storage compartment shall be provided and installed above the compartment, with approximate dimensions of 24" W X 14" H X 23" D. The door shall be a horizontally hinged, overhead lift-up door, and have a clear door opening of approximately 22" W X 12" H. Dimensions shall be +/- 1/4 inch. The door shall be provided with one (1) "D-Handle" door latch.

One (1) storage cage shall be provided and installed above the storage compartment and aft of the upper storage compartment, with approximate dimensions of 60" W X 14" H X 23"D. The storage cage shall be constructed of 1/8 inch aluminum open mesh material as to allow free air flow, and shall be open at the top. The passenger side segment of the storage cage shall be constructed with a continuous hinge that allows the top 10" to function as a drop-down door that shall open flat to the surface of the bottom storage compartment. The drop-down door shall be held shut by two (2) lockable stainless latches (Hasp Style).

One (1) independent storage compartment, constructed from .125 inch or better aluminum alloy, shall be provided and installed on the rear portion of the platform. The storage compartment shall be mounted aft of the storage compartment so to allow the 1-1/2" pressurized discharge to be mounted at the rear of the

platform deck. Approximate dimension for the storage compartment shall be 23" W X 8" H X 22" D. The door shall be a horizontally hinged, drop-down door. The storage compartment shall have:

- Internal, compartmentalized, drawer with full-extension ball bearing slides with a 100 lb. load capacity.
- Drawer will have 9 to 12 compartments that are separated by metal dividers.

The required hose reel shall be mounted to the top of this storage compartment. The storage compartment shall have the capacity to withstand the weight of the hose reel loaded with hose and full of water.

COMPARTMENT DOORS

All compartment doors shall be integral in design and recessed into the apparatus body sides, sized to provide easy access to all interior areas of the compartment. All doors shall be consistent in fit and finish with the apparatus body. All doors shall be weatherproof and maintain contact with all points of the weather stripping. Weather stripping shall be bulb type, attached to the opening flange of the compartment opening.

DOOR LATCHES AND HARDWARE

Unless where noted, all compartment door latch assemblies shall be installed with threaded fasteners, shall not be welded, and shall be easily removable for servicing or replacement. All door latch assemblies shall be of a flush-mount, "D-Handle" design, with all external components fabricated from polished stainless steel. All latches shall be of a two step slam-type design, with a single point latching operation. Matching striker bolts shall be utilized with all latch assemblies. All striker bolts shall have slotted mounting holes, and shall be attached with bolts to captive steel plates in the body structure for strength and ease of adjustment. Welded striker bolts or plates shall not be acceptable.

All hardware shall be corrosion resistant and suitable for its intended use. All nuts and bolts shall be stainless steel. Stainless steel nuts shall be the self-locking type. All latch assemblies shall be keyed alike to 1250. Ten spare keys shall be provided.

DOOR HOLD OPEN DEVICES

All vertically-hinged, outward-opening compartment doors shall be provided with an over center door check to hold the door in the desired position. The door check shall be attached to the top of the door and fastened to a stainless steel plate bolted into the body and door.

All vertically-hinged, outward opening compartment doors shall be capable of being closed with one hand, allowing a free hand to hold equipment or supplies.

All horizontally-hinged, drop-down, outward-opening compartment doors shall open flat to the surface below.

All horizontally-hinged, overhead lift-up, outward opening compartment doors shall be provided with two (2) extending, gas cylinder type hold open devices, one (1) mounted vertically on each side of the compartment door opening. The pressure rating of the gas cylinders shall be carefully matched to the size and weight of the compartment door, and shall hold the compartment door securely open to a greater than 90° angle without additional support. The gas cylinder hold openers shall dampen the upward movement of the compartment door while opening, and shall permit the closing of the compartment door without the need to release any type of manual locking devices.

All horizontally-hinged, overhead lift-up compartment doors shall be capable of being closed with one hand, allowing a free hand to hold equipment or supplies.

ADJUSTABLE SHELF CHANNELS

Vertically-mounted aluminum Unistrut channels shall be provided and installed in all enclosed body compartments, for the current or future installation of infinitely-adjustable shelving, slide out trays or equipment brackets.

COMPARTMENT SHELVES

Six (6) adjustable shelves shall be provided and installed in the completed body compartments. The shelving system shall be mounted on a track to allow the change of elevation. The shelves shall be 18" in depth, constructed of metal and be capable of supporting 250 lbs. of live load without being damaged or permanently distorted.

The shelf locations shall be as follows:

Two (2) in the driver's side compartment forward of the rear wheels

Four (3) in the driver's side aft compartment

One (1) in the passenger's side upper rear compartment above the rear wheels. The shelf shall run the entire length of the compartment, approximately 6-1/2" from the top of the compartment. The shelf shall be designed for the storage of long handled tools.

COMPARTMENT VENTING

The driver's side under the bed compartment shall be vented at the upper door face and at the compartment lower rear wall. This will allow air circulation to aid in the reduction of fumes caused by fuel storage, and chain saws.

The passenger's side rear compartment shall be vented in the door and back wall to aide in air circulation, and reduce fumes caused by fuel storage.

Vents shall compliment fit and finish of the body and not impede door function.

COMPARTMENT LINING

All enclosed side body compartments shall be coated inside with spray on polyurethane bed liner, black or graphite in color covering all exposed surfaces. Surfaces shall be coated to a depth of 1/8 " to 1/4".

TOOL BRACKET MOUNTING

Two (2) Zico brand QM-CSM-L, or equivalent, chainsaw mounts shall be provided, but not installed

COOLER STORAGE AREA

A slide out rack will be mounted under the platform body behind the rear wheel on the driver's side. This slide out tray will securely hold a 40 quart cooler with approximate dimensions of 26" L X14" W X16" D.

VERTICAL SURFACES

The vertical surfaces at the front and outboard rear of the body shall be covered with a minimum 1/8 inch thick polyurethane bed liner, black in color.

SLIP-ON PACKAGE

The following specifications are for a complete slip-on fire fighting unit, consisting of tank, control panel, engine and pump that shall be permanently mounted on the platform style body. The slip-on package shall have maximum dimensions of 107" L X 46" W.

COMPONENTS

All fasteners and adjustable plumbing brackets used shall be stainless steel. All tubing shall use metal fittings, rated to 500 PSI and requiring no special tools. No underside nuts or bolts shall be used. Non-slit corrugated loom shall cover all water and foam auxiliary lines.

PUMP AND PLUMBING

The following pump, plumbing, controls, gauges, and accessories shall be provided as indicated below. The plumbing requirements outlined below shall be considered a minimum standard, and shall be followed by the apparatus manufacturer without exception:

All plumbing components shall be fabricated from stainless steel with the exception of the tank-to-pump and tank fill, which will be brass and flex hose.

All pump compartment components, including wiring, gauges, pump panel rear surfaces, high pressure hoses, and small diameter tubing, shall be left unpainted for rapid identification and ease of repair.

PUMP AND PLUMBING COVER

A cover shall be provided over the area at the rear of the body where the engine-driven pump and plumbing are located. The cover framework shall be fabricated from tubular aluminum, with the top of the framework being the same height as the side body compartments. The cover framework shall be painted to match the exterior of the body.

The top horizontal surface of the cover shall be overlaid with a panel fabricated from .125" aluminum tread plate, reinforced as required. This panel shall be hinged for access into the pump and plumbing area from above, and shall be held in the closed position by two (2) pushbutton compression latches. The entire pump cover assembly shall be fully removable for major repairs to the pump, engine or plumbing.

A warning plate shall be permanently affixed to the top of the pump cover that shall read, "**WARNING: NOT A STEP.**"

PUMP PANEL LIGHTS

Two (2) Whelen brand 500 Series, or equivalent, facing downward, LED scene lights shall be provided to illuminate the rear pump operator's panel. One (1) Whelen brand 700 Series, or equivalent, LED scene light shall be provided to illuminate the valve area. This light shall be located in the vicinity of the control valves adjacent to the pump operator's panel. These lights shall be controlled by a manual switch on the pump operator's panel.

TRUCK IDENTIFICATION PLATE

A durable truck identification plate, fabricated from corrosion resistant metal, shall be provided and installed on the pump operator's panel. The plate shall state the name and address of the apparatus manufacturer, the serial number of the unit and the pump performance test results.

PUMP OPERATING INSTRUCTION PLATE

An identification plate shall be provided on the pump operator's panel with step-by-step operating instructions.

TEST GAUGE CONNECTIONS

The plumbing system shall be provided with two (2) test ports on the pump panel exterior; one (1) plumbed to the intake side and one (1) plumbed to the discharge side of the water pump. These test ports shall be installed to provide a means for connecting certified test gauges when testing the pump's performance.

WINTERIZATION PORT

A capped air inlet shall be provided at the pump panel, allowing pressurization of the plumbing system for efficient winterization.

PUMP PANEL LABELING

All controls, discharges, intakes, ports, drains, and other pump panel components that are not provided with a pre-printed legend or trim plate shall be labeled as required for ease of operation. Valves shall be labeled as outlined under "Valve Numbering System" in NWCG (National Wildfire Coordinating Group) Fire Equipment Working Team's "Water Handling Equipment Guide," latest edition. This labeling shall be accomplished through the use of color-coded identification tags. The tags shall be self adhesive, and shall be installed on the pump control panel with chrome plated bezels. The tags shall be placed adjacent to the components in such a way as to clearly distinguish the item that they are identifying.

PUMP COOLER/BY-PASS

A pump cooler/by-pass line, labeled #17, shall be plumbed from the discharge side of the pump to the water tank to help cool the pump when it is engaged and water is not being discharged. This line shall be plumbed through a pump control panel-mounted valve that is designed to bypass water when the valve is open, allowing the water inside the pump to be maintained at a safe temperature. Water flow shall be between 1 and 2 GPM at 150 PSI pump pressure. A check valve shall be included in the line to facilitate priming.

PRIMING PUMP

One (1) positive displacement, oil less, rotary vane, electric motor-driven priming pump, conforming to the NFPA requirements, shall be provided and installed on the cross member just aft of the cab body. The primer pump body shall be fabricated from heat-treated anodized aluminum for wear and corrosion resistance.

The primer pump electric motor shall be of a 12 VDC totally enclosed design. The priming pump shall not require lubrication from an external source. The priming pump shall be operated by a single push-pull control valve mounted on the pump operator's panel. The control valve shall be of all bronze construction.

STAINLESS INTAKE STRAINER

The pump intake shall be equipped with a stainless steel Y strainer with 3/16" mesh to filter out foreign material and keep debris from entering the pump. The strainer will be removable and have a screw-off cap to allow easy cleaning of the filter element in the field. The plumbing shall also have a 4 bolt quick disconnect flange and one Victaulic coupling between the strainer and the pump for ease of service on the pump.

BOOSTER HOSE REEL

One (1) Hannay brand, Model #SBEPF-24-23-24, or equivalent, booster hose reel, with a 70 amp breaker, and a capacity of 100 ft. of 1" booster hose, shall be provided and installed at the rear passenger's side of the platform deck, on top of the storage compartment as required. The hose reel frame and drum shall be fabricated of polished aluminum, with the sprocket being chrome plated to minimize maintenance. The hose reel inlet connection shall be a 1" inline quarter turn valve and 1"

flexible wire-reinforced hose. The hose reel outlet connection shall be 1" NPSH thread. The control shall be located on the rear-mounted pump operator's panel.

The reel shall be provided with a 2/3 HP, 12 Volt electric motor for rewinding the hose on to the reel. This motor shall be controlled with one (1) Cole Hersee M-612, or equivalent, push button switch located on the pump control panel. The booster reel shall have provisions for manual rewind. The pinion shaft for the manual rewind gear shall have an adjustable tension brake, controlled at the reel.

One (1) FH3 captive roller assembly, or equivalent, shall be provided.

FOAM PROPORTIONING SYSTEM

The pump system shall be provided with a Foam Pro Model 1601 foam injection system, plumbed to the specified discharges. This product shall be an automatic foam proportioning system, with electronically controlled, direct concentrate injection occurring on the discharge, or pressure, side of the water pump. The system shall reliably and accurately meter Class A fire suppressant foam concentrates. These foam concentrates are typically proportioned at ratios of 0.2% - 0.5% of foam concentrate in solution. The proportional injection system shall ensure that only the specified amount of foam concentrate is used. The system shall be simple to operate, and shall cause no pressure loss in the water system. A microprocessor control device shall be provided which incorporates a closed-loop feedback signal for more accurate proportioning in variable flow conditions.

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

A paddlewheel type flow meter shall be installed in the discharge specified to be "foam capable."

The proportioner shall maintain accurate foam concentrate proportioning and injection rates over water discharge flows of 5 to 200 GPM, and shall maintain accurate proportioning and injection rates throughout a range of 0 to 400 PSI. The system shall provide flexibility in operation by maintaining a constant concentration of foam solution over a variable range of water stream flow rates and pressures. The proportioning rate shall be adjustable from 0.1% to 1.0% of the corresponding water discharge flow within the accuracy parameters recommended by NFPA.

The system shall be compatible with nozzle aspirating systems, where nozzle flow volumes must be adjustable on demand, while maintaining a constant quality foam solution.

Foam concentrate shall be provided from the onboard foam concentrate storage tank.

A lubrication port "zerk" shall be provided on the outside of the pump panel for foam pump lubrication and labeled "**Lubricate every 8 hours of operation.**"

PUMP PERFORMANCE TEST AND CERTIFICATION

Upon completion, the apparatus shall undergo a complete pumping test that conforms to the requirements of NFPA Standard 1906 (latest edition) for the size and type of pump provided. The test shall consist of a continuous one-half hour test pumping at rated capacity and rated net pump pressure, a vacuum test of the primer system and plumbing, a tank discharge flow test and a pressure test of the apparatus piping. The chassis engine and transmission, the pump and other components of the apparatus shall show no undue heating, leaks, or other defect. The results of the test shall be documented to establish the performance of the apparatus and to further insure that the unit shall perform satisfactorily when placed into service. The test results shall be certified in writing, with the certification provided to the purchaser for their records at the time of delivery of the completed apparatus.

As installed in the engine, the pump shall be capable of delivering 50 GPM minimum at 250 PSI output pressure from a 5 ft. lift through 24 ft. of 2-1/2" suction hose with a strainer and also from the apparatus water tank when installed on the apparatus. This shall be measured through both the #19 and #3 rear discharges.

AUXILIARY PUMP

A Darley 1-1/2 AGE 34 BS fire pump, powered by a Briggs and Stratton Model DM, 34 HP, 3 cylinder, four-cycle, turbo-charged, water cooled diesel engine shall be provided and fixed mounted in the rear compartment. The pump shall be equipped with a 12V gear driven electric starter that is controlled from the pump operator's panel.

The pump engine shall be equipped with a low oil pressure/high water temperature shutdown system. This system will automatically stop the engine if oil pressure drops too low, or the coolant temperature goes too high. This system shall have an override button to allow the engine to be easily started.

PUMP SPECIFICATIONS

The pump shall be capable of delivering 50 GPM minimum at 250 PSI output pressure from a 5 ft. lift through 24 ft. of 2-1/2" suction hose with a strainer and also from the apparatus water tank when installed on the apparatus.

The pump manufacturer shall certify that the pump can deliver the following capacities as measured at the pump head and at net pump pressure from draft under test conditions listed:

- 150 GPM @ 150 PSI net pump pressure
- 80 GPM @ 250 PSI net pump pressure
- 50 GPM @ 300 PSI net pump pressure
- 10 GPM @ 320 PSI net pump pressure

Tested under the following conditions:

- (1) An elevation of not more than 2000 ft. above sea level
- (2) Through a single intake with 20 ft. of 3" suction hose equipped with a suction hose strainer
- (3) With a lift of 5 ft.
- (4) At 29.9" Hg atmospheric pressure (corrected to sea level)
- (5) At a water temperature of 60° F

REAR MOUNTED PUMP OPERATOR'S PANEL

A brushed stainless steel pump operator's control panel shall be located at the rear of the apparatus body. It shall contain all controls necessary to operate the pump and foam systems. The panel shall be appropriately sized with the controls positioned in a methodical, user-friendly format. The panel shall be fully enclosed and have a hinged front for access. The edges of the panel shall be smooth radius to prevent the snagging of clothing or injury. The panel shall have an extended top to assist in weather protection and to house the panel lights.

Controls shall be provided on the operator's panel as follows:

- Pump engine ignition/start/stop controls
- Tachometer, ammeter, pump engine oil pressure and coolant gauges
- Throttle control
- Primer control
- Master discharge pressure gauge
- Low water pressure override switch (protected toggle type)
- Low oil pressure override switch (momentary push button type)
- Operator's panel light switch

MAIN PUMP DISCHARGE AND INTAKE PLUMBING

The discharge and intake valves specified shall be either of a direct-actuated quarter turn design or shall be provided with control rods that are directly connected from the valve handle to the rear mounted pump panel.

All discharges and intakes shall have NST thread brass chrome rocker lug style caps with chains, unless designed to be preconnected, or otherwise specified.

All valves shall be Akron 8800 series swing-out style. All valves shall be designed to operate under normal conditions up to 500 PSI and shall have dual seats to work in both pressure and vacuum environments.

All valves and controls shall be easily accessible for service, repair or replacement.

Where vibration or chassis flexing may damage or loosen piping, the piping shall be equipped with victaulic couplings.

The main suction and discharge plumbing shall be welded stainless steel pipe or high pressure flexible hose with appropriate fittings designed to withstand the normal operating pressures of the pump. All high pressure hose shall be installed with a swivel or victaulic coupling on at least one end of the hose. The nominal sizes of all of the plumbing supplying the pump and discharges shall be as follows:

Main suction – 2-1/2 inch
Discharges – 2-1/2 inch, 1-1/2 inch
Hose reel – 1 inch

A master drain valve shall be plumbed to the pump, suction plumbing and discharge plumbing as required to fully drain the piping and pump to prevent damage from freezing. The drain valve and associated plumbing will be designed to withstand pressures of 400 psi.

DISCHARGE PRESSURE GAUGE

One (1) discharge pressure gauge shall be provided on the operator's panel, located in a vertical pattern on the right side of the operator's panel. The gauge shall be a Noshok brand, or equivalent, graduated from 0-400 PSI, with a minimum diameter of 4". The gauge shall have a diaphragm installed at the pressure inlet to prevent water from entering the body of the valve. The gauge shall be illuminated by the standard panel lighting.

GAUGE DRAIN

The discharge pressure gauge shall be plumbed to the # 11 pump and plumbing drain.

DISCHARGE LOCATIONS

One (1) 2-1/2" water-only discharge, labeled #19, shall be provided at the rear of the apparatus. The plumbing design shall prevent the backflow of foam contaminated water into the #19 water-only discharge. The discharge shall be plumbed with stainless steel pipe and/or 2-1/2" flexible high pressure hose, and shall terminate with 2-1/2" NSTM threads. The discharge valve shall be controlled at the valve with a TSC style handle.

One (1) 2-1/2" discharge, labeled #3, shall be plumbed to the on-board foam system, shall be provided at the rear of the apparatus. The discharge shall be plumbed with stainless steel pipe or 2-1/2" flexible high pressure hose, and shall terminate with 2-1/2" NSTM threads. The discharge valve shall be controlled at the valve with a TSC style handle.

One (1) 1-1/2" discharge, labeled "Engine Protection," shall be provided, plumbed to the on-board foam system, shall be provided at the rear of the apparatus. The discharge shall be plumbed with stainless steel pipe or 1-1/2" flexible high pressure hose, and shall terminate with 1-1/2" NSTM threads with a 1-1/2" NSTF brass cap and chain. Discharge to the rear passenger side deck. The discharge valve shall be controlled at the valve with a TSC style handle.

INTAKE LOCATION

One (1) 2-1/2" intake, labeled #8, shall be provided at the rear of the apparatus body, plumbed with 2-1/2" piping to the intake side of the pump terminating with a NSTM fitting. A removable screen shall be installed in the intake to prevent debris from entering the pump.

TANK FILL

One (1) 1-1/2" Akron, or equivalent, tank refill, or recirculation line, labeled #2, with a 1-1/2" quarter turn inline valve, shall be provided to allow the water tank to be refilled through the pump.

TANK TO PUMP LINE

One (1) Akron, or equivalent, 2-1/2" tank to pump inline valve, labeled #1, shall be installed between the water tank outlet and the pump inlet. The valve shall have a T-handle control at the rear of the apparatus.

OPTION

AUXILIARY PUMP – BB4

A Wildfire BB-4-VG23 fire pump, powered by a Briggs and Stratton Vanguard, 23 HP, 2 cylinder, four-cycle, air cooled gasoline engine shall be provided and mounted on the rear Platform. The pump shall be equipped with a 12 volt gear driven electric starter that is controlled from the pump operator's panel, and a USFS qualified spark arrester.

PUMP SPECIFICATIONS

The pump shall be rated and certified by the pump manufacturer at 50 GPM at 250 PSI when rated under NFPA requirements of:

- (1) An elevation of 2000 ft above sea level
- (2) Through a single intake with 20 ft of 2-in. suction hose and equipped with a suction hose strainer
- (3) With a lift of 10 ft
- (4) At 29.9 in. Hg atmospheric pressure (corrected to sea level)
- (5) At a water temperature of 60 °F

The performance of the specified pump shall also be 50 GPM at 250 PSI when installed on the apparatus both when tested with 24 ft. of 2" suction hose and a suction hose strainer at a lift of 5 ft. and out of the apparatus tank with the water temperature between 35°F and 90°F and the air temperature between 0°F and 110°F with a barometric pressure of 29 in. Hg or more corrected to sea level.

REAR MOUNTED PUMP OPERATOR'S PANEL

A brushed stainless steel or powder coated aluminum, pump operator's control panel shall be located at the rear of the apparatus body. It shall contain all controls necessary to operate the pump and foam systems. The panel shall be sized appropriately with controls positioned in a methodical, user friendly method. The panel shall be fully enclosed and have a hinged front for access. The edges of the panel shall be smooth radius to prevent the snagging of clothing or injury. The panel shall have an extended top to assist in weather protection and to house the panel light.

Controls shall be provided on the operator's panel as follows:

- Pump engine ignition/start/stop controls
- Throttle control
- Primer control
- Master discharge pressure gauge

Operator's panel light switch

MAIN PUMP DISCHARGE AND INTAKE PLUMBING

The discharge and intake valves specified shall be either of a direct-actuated quarter turn design or shall be provided with control rods that are directly connected from the valve handle to the rear mounted pump panel.

All discharges and intakes shall have NST thread brass chrome rocker lug style caps with chains, unless designed to be pre-connected, or otherwise specified.

All valves shall be Akron 8800 series swing-out style. All valves shall be designed to operate under normal conditions up to 500 PSI and shall have dual seats to work in both pressure and vacuum environments.

All valves and controls shall be easily accessible for service, repair or replacement.

Where vibration or chassis flexing may damage or loosen piping, the piping shall be equipped with victaulic couplings.

The main suction and discharge plumbing shall be 2" welded stainless steel pipe or high pressure flexible hose with appropriate fittings designed to withstand the normal operating pressures of the pump. All high pressure hose shall be installed with a swivel or victaulic coupling on at least one end of the hose. The nominal sizes of all of the plumbing supplying the pump and discharges shall be as follows:

Main suction- 2 inch
Discharges – 1-1/2 inch
Hose reel - 1 inch

A master drain valve shall be plumbed to the pump, suction plumbing and discharge plumbing as required to fully drain the piping and pump to prevent damage from freezing. The drain valve and associated plumbing will be designed to withstand pressures of 400 psi.

DISCHARGE PRESSURE GAUGE

One (1) discharge pressure gauge shall be provided on the operator's panel, located in a vertical pattern on the right side of the operator's panel with the intake pressure gauge. The gauge shall be a Noshok brand, or equivalent, graduated from 0-400 PSI, with a minimum diameter of 4". The gauge shall have a diaphragm installed at the pressure inlet to prevent water from entering the body of the valve. The gauge shall be illuminated by the standard panel lighting.

GAUGE DRAIN

The discharge pressure gauge shall be plumbed to the # 11 pump and plumbing drain.

DISCHARGE LOCATIONS

One (1) 1-1/2" water-only discharge, labeled #19, shall be provided at the rear of the apparatus. The plumbing design shall prevent the backflow of foam contaminated water into the #19 water-only discharge. The discharge shall be plumbed with stainless steel pipe and/or 1-1/2" flexible high pressure hose, and shall terminate with 1-1/2" NSTM threads. The discharge valve shall be controlled at the valve with a TSC style handle.

One (1) 1-1/2" discharge, labeled #3, plumbed to the on-board foam system, shall be provided at the rear of the apparatus. The discharge shall be plumbed with stainless steel pipe or 1-1/2" flexible high pressure hose, and shall terminate with 1-1/2" NSTM threads. The discharge valve shall be controlled at the valve with a TSC style handle.

One (1) 1-1/2" discharge, labeled "Engine Protection," shall be provided, plumbed to the on-board foam system, shall be provided at the rear of the apparatus. The discharge shall be plumbed with stainless steel pipe or 1-1/2" flexible high pressure hose, and shall terminate with 1-1/2" NSTM threads. Discharge to the rear passenger side deck. The discharge valve shall be controlled at the valve with a TSC style handle.

INTAKE LOCATION

One (1) 2" intake, labeled #8, shall be provided at the rear of the apparatus body, plumbed with 2" piping to the intake side of the pump terminating with a NSTM fitting. A removable screen shall be installed in the intake to prevent debris from entering the pump.

TANK FILL

One (1) 1-1/2" Akron, or equivalent, tank refill, or recirculation line, labeled #2, with a 1-1/2" quarter turn inline valve, shall be provided to allow the water tank to be refilled through the pump.

TANK TO PUMP LINE

One (1) Akron, or equivalent, 2" inline valve, labeled #1, shall be installed between the water tank outlet and the pump inlet. The valve shall have a T-handle control at the rear of the apparatus.

FUEL TANK (Gas Pump engines only)

The fuel tank shall be manufactured from corrosion resistant metal or poly urethane materials. Tank shall be mounted under the pump engine and insulated from direct contact with the aluminum bed, Fuel tank shall be able to contain 4 -6 gallons of fuel and be accessed to fill easily from the rear of the chassis. The fuel tank shall meet EPA, DOT and CARB standards.

WATER TANK

CONSTRUCTION

The water tank shall be fabricated from 1/2" thick, non-corrosive stress relieved polypropylene, natural black in color and U.V. stabilized for maximum protection. Materials used shall be compatible with fire fighting foams, retardants and wetting agents.

All joints and seams shall be extrusion double welded and tested for maximum strength and integrity. The transverse baffle partitions shall be manufactured of the same material as the main body and extend from the floor of the tank to the cover to allow for positive welding and maximum integrity. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. All baffle partitions shall interlock with one another and be welded to each other, as well as to the walls of the tank.

The tank shall be designed to be completely independent of the platform structure and compartments, and shall be equipped with removable lifting eyes to facilitate ease of removal. Tank must have a removable top to access interior of tank for cleaning and maintenance. All joints and seams shall be nitrogen-welded inside and out. All exposed edges on the tank and fill tower shall be rounded off to a 1/4" radius.

The end wall of the tank, closest to the pump mount location shall have a vertical translucent panel sight gauge.

The tank shall have a manual fill tower with a basket strainer for both the water tank and foam tank. The fill tower shall be constructed of same material as the rest of the tank and shall have a minimum dimension of 8 inch x 8 inch outer perimeter. The tower shall have a 0.25 inch thick, removable polypropylene screen installed in the throat of the fill tower. A combination vent and overflow pipe shall be fastened inside the fill tower, approximately 1.5 inch down from the top.

All internal piping shall be constructed of schedule 80 polypropylene pipe. The tank shall have a vent over-flow pipe that extends through the tank and exits under the vehicle. The tank sump shall have a plate welded approximately 2" above the sump to prevent water swirl. There shall be piping inside the tank with a suction tube to the sump. The suction tube shall extend down through the anti-swirl plate and baffles. All fittings in the tank shall be heavy duty polypropylene and shall be welded inside and outside using industry acceptable practices. Tank inlets shall have flow deflectors inside the tank. All hardware including fasteners, hinges, etc. shall be constructed of stainless steel.

The bottom of the tank sump shall be equipped with a 3" NPTF clean out fitting, equipped with a 3" NPTM PVC pipe plug. A 1" quarter turn drain valve shall be located at the tank sump for drainage and labeled "Tank Drain."

TANK CAPACITY

The water tank shall have a usable capacity of 300 gallons.

FOAM TANK

An integral 12-gallon internal foam cell shall be constructed of the same material as the rest of the water tank. The foam reservoirs shall not reduce the rated capacity of the water tank. The foam cell shall have a separate fill tower and screen, constructed in the same manner as the water tank fill tower. The cover for the foam cell shall have a positive acting latch and a vent to seal the foam from the atmosphere but allow air to enter cell as foam concentrate is removed. Foam cell shall also have a vertical translucent strip foam level gauge in the tank rear wall. Any hardware shall be of corrosion resistance metal.

BODY ELECTRICAL REQUIREMENTS

All apparatus body electrical components shall be served by independent circuits which shall be separate and distinct from the apparatus cab and chassis electrical circuits. All wiring supplied and installed by the apparatus manufacturer shall be installed in flexible split convoluted loom and shall be color coded and function labeled at 6" intervals. All wiring supplied and installed by the apparatus manufacturer shall be grease, oil and moisture resistant; and shall be securely fastened with insulated metal clamps and nylon wire ties. Solderless insulated connectors shall be utilized at all splice joints and shall be enclosed with heat shrink tubing for extra corrosion protection. Automatic reset type circuit breakers shall be provided wherever possible. The following electrical components shall be provided and installed on the completed apparatus by the apparatus builder:

LIGHTING

All Lighting shall meet Federal Motor Vehicle Safety Standards. It is acceptable to utilize the existing light fixtures furnished with the cab and chassis. Clearance and identification lights shall be easily changed rubber-mounted, shock proof LED and meet FMVSS 108 requirements.

BACK UP LIGHTS

A pair of Whelen brand, 700 Series, or equivalent, clear LED back up lights shall be provided at the rear of the body, one (1) each side, above the rear step. The back up lights shall be wired so that they illuminate when the chassis is placed in reverse gear and/or when the rear flood light switch is activated in the cab.

The above DOT lighting shall be provided with a vertical cast aluminum four (4) position frame at the rear of the body, one (1) each side. The frames shall have a polished aluminum finish, and shall also contain the lower Zone "C" warning lights.

TAIL LIGHTS, BRAKE LIGHTS

A pair of Whelen brand, 700 Series, or equivalent, red LED combination tail/brake lights shall be provided at the rear of the body, one (1) each side, above the rear step.

TURN SIGNAL LIGHTS

A pair of Whelen brand, 700 Series, or equivalent, amber LED arrow style turn signal lights shall be provided at the rear of the body, one (1) each side, above the rear step.

BACK UP LIGHTS

A pair of Whelen brand, 700 Series, or equivalent, clear high intensity LED back up lights shall be provided at the rear of the body, one (1) each side, above the rear step. The back up lights shall be wired so that they illuminate when the chassis is placed in reverse gear and/or when the rear flood light switch is activated in the cab.

The above DOT lighting shall be provided with a vertical cast aluminum four (4) position frame at the rear of the body, one (1) each side. The frames shall have a polished aluminum finish, and shall also contain the lower Zone "C" warning lights.

LICENSE PLATE BRACKET AND LIGHT

One (1) Weldon brand, Model #9186-23882-30, or equivalent, clear light fixture, with license plate mounting bracket, shall be provided at the rear of the body.

CLUSTER/CLEARANCE LIGHTS AND REFLECTORS

Three (3) round ICC LED clearance lights shall be located at the rear of the apparatus above the bumper.

Additional lighting shall be provided to conform to DOT, Federal and NHTSA specifications for vehicles of 80" wide. All lighting shall be compatible with the 12V chassis electrical system. Lighting shall be located according to ICC regulations.

REAR DIRECTIONAL LIGHT BAR

One (1) Whelen model, TA Series, or equivalent, directional light bar shall be provided at the rear of the apparatus body. The control head shall be mounted in the cab console and shall offer control of the flash pattern for the traffic directing signal. The control head shall indicate the current directing signal in use. The directional light bar shall have eight (8) LED lights in rectangular aluminum housing.

FLOOD LIGHTS

Two (2) Betts Model 305003, par 36, or equivalent, sealed beam incandescent flood lights, with toggle switch, shall be provided and installed, one each side of the apparatus on the rear cab protection rack. The mounting bracket shall enable full 360° rotation both in the horizontal and vertical axis. The flood lights shall be mounted on the upper outboard edge of the cab protection rack and shall not block the view of the light bar. The lights shall be painted to match the apparatus body. Each light shall be wired to an individual switch on the cab center console.

COMPARTMENT LIGHTS

All compartments shall be equipped with plastic encapsulated, shock resistant, continuous LED light strips. The LED strip lights shall be attached securely at the sides and top of each compartment opening. The LED lights within the strip shall be spaced no greater than 2-1/2" apart. Each compartment shall have a door switch installed to activate compartment lighting when any door is opened.

ELECTRICAL SYSTEM PERFORMANCE TEST, LOW-VOLTAGE

The fire apparatus low voltage electrical system shall be tested as required by this section and the test results shall be certified by the apparatus manufacturer. The certification shall be delivered to the purchaser with the documentation for the completed apparatus. The tests shall be performed when the air temperature is between 0°F and 110°F (18°C and 43°C).

TEST SEQUENCE

The three (3) tests defined below shall be performed in the order in which they appear. Before each test, the chassis batteries shall be fully charged until the voltage stabilizes at the voltage regulator set point and the lowest charge current is maintained for 10 minutes. The failure of any of these tests shall require a repeat of the test sequence.

RESERVE CAPACITY TEST

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

ALTERNATOR PERFORMANCE TEST AT IDLE

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

ALTERNATOR PERFORMANCE TEST AT FULL LOAD

The total continuous electrical load shall be applied with the chassis engine running up to the engine manufacturer's governed speed. The test duration shall be a minimum of two (2) hours. The activation of the electrical system load management system shall be permitted during this test. The activation of an alarm due to excessive chassis battery discharge, as detected by the system required by NFPA (current edition), or an electrical system voltage of less than 11.8 VDC for a 12 VDC nominal system, for more than 120 seconds, shall be considered a failure of this test.

LOW VOLTAGE ALARM TEST

Following the completion of the tests described above, the chassis engine shall be turned off. With the chassis engine turned off, the total continuous electrical load shall be applied and shall continue to be applied until the excessive battery discharge alarm activates. The chassis battery voltage shall be measured at the battery terminals.

The test shall be considered to be a failure if the low voltage alarm has not yet sounded 140 seconds after the voltage drops to 11.70VDC for a 12 VDC nominal system. The chassis battery system shall then be able to restart the chassis engine. The failure of the chassis battery system to restart the chassis engine shall be considered a failure of this test.

DOCUMENTATION

The apparatus manufacturer shall provide the results of the low-voltage electrical system performance test, certified in writing, with the documentation provided to the purchaser at the time of delivery of the completed apparatus.

The test results shall consist of the following documents:

- (1) Documentation of the electrical system performance tests.
- (2) A written electrical load analysis, including the following:
 - (a) The nameplate rating of the alternator.
 - (b) The alternator rating under the conditions specified in NFPA 1906 (current edition).
 - (c) Each of the component loads specified that make up the minimum continuous electrical load.
 - (d) Additional electrical loads that, when added to the minimum continuous electrical load, determine the total continuous electrical load.
 - (e) Each individual intermittent electrical load.

APPARATUS FINISH

APPARATUS BODY COLOR

The apparatus body shall be painted to match the color of the chassis cab exterior. The chassis cab shall not be repainted.

STRIPING AND LETTERING

The color of the chassis cab exterior and body shall be No. 14260 of Federal Standard No. 595 (Forest Service Green).

STRIPING

A 4" wide white retro-reflective stripe shall be provided and installed horizontally on both the chassis cab and body. The stripe shall be placed as high as possible on the vertical surfaces on the sides of the chassis tilt hood and shall run the full length of the apparatus at that height. Two (2) breaks shall be provided in the stripping on either side of the apparatus body. One (1) approximately over front wheel center line and the other $\frac{3}{4}$ aft on the rear of the body. The ends of the stripe shall be sloped on a forward slant at approximately 45 degrees on either side of the break.

CAB AND BODY LETTERING AND STRIPING

Block style lettering, fabricated from retro-reflective material, shall be provided and installed on the apparatus as follows:

The unit designator (example NC-NCF), in 8" tall letters, shall be provided on the forward and center compartment door(s), above the 4" stripe, on each side of the apparatus body.

The word "FIRE", in 4" tall white letters, shall be applied on both sides, centered in the 45 degree angled break of the 4" white reflective stripe on the compartment doors, $\frac{3}{4}$ aft of the rear of the apparatus body.

The equipment designator (example: E632), in 8" tall white letters shall be provided centered on the rear cab door, both sides of the apparatus body, below the horizontal stripe.

The unit designator, in 4" tall letters, shall be provided centered on the swept back portion of the front bumper on the passenger's side, and the equipment designator, in 4" tall letters, shall be provided centered on the swept back portion of the front bumper on the driver's side.

The equipment designator, in 18" tall black letters, shall be provided on the cab roof, aft of the light bar.

The apparatus manufacturer shall install Government-supplied door decals (shield and vehicle numbers) on the front cab doors, below the reflective striping.

independent body module compartment

EQUIPMENT

The following equipment shall be provided with the completed apparatus. The equipment shall be new and unused, and shall meet all current NFPA, OSHA and other applicable safety regulations.

MANUALS AND DRAWINGS

The following specified materials shall be provided with the completed apparatus:

One (1) complete set of standard chassis operation, parts and service manuals.

One (1) apparatus manufacturer's operation and service manual, to include:

- Manufacturer's Record of Construction
- Warranty Registration and Information
- Operator Safety Information
- Pump Operation and Troubleshooting Instructions
- Foam System Operation Instructions
- Vehicle Exterior Maintenance Instructions
- Maintenance and Lubrication Information & Charts
- Complete Electrical Diagrams
- Component Literature (ie: siren, hose reel, etc.)
- Pump Test Certificate, Weight Certificate, Service Parts Replacement List

ROAD KIT

The completed apparatus shall be equipped with a road kit containing the following items:

One (1) 2-1/2 lb. Class B/C fire extinguisher with vehicle mounting bracket, shipped loose

One (1) set of warning triangle reflectors, containing three (3) folding reflectors in a plastic storage case

One (1) 12 ton hydraulic jack with handle

WHEEL CHOCKS

Two (2) Zephyr brand wheel chocks shall be provided with the completed apparatus, one (1) each side. The chocks shall be yellow in color and shall be mounted horizontally in a quick release mounting bracket located under the platform body, behind the rear wheels.

HYDRANT WRENCH HOLDER

One (1) national Firefighter brand, FEQ 148, or equivalent, three position captive latching type/hydrant/spanner wrench holder shall be permanently affixed on the driver's side, under the platform body behind the rear wheel.

NOZZLE CLIP

One (1) Zico Brand, Model VM-7, or equivalent, tool holder shall be provided and installed on the rear horizontal surface of the platform body just below the booster reel.

WARRANTY PROVISIONS

ONE (1) YEAR APPARATUS WARRANTY

All materials and workmanship herein specified, including all equipment furnished, shall be guaranteed for a period of one (1) year after the acceptance date of the apparatus, unless otherwise noted, with the exception of any normal maintenance services or adjustments which shall be required.

Under this warranty, the apparatus manufacturer shall be responsible for the costs of repairs to the apparatus that have been caused by defective workmanship or materials during this period.

This warranty shall not apply to the following:

- Any component parts or trade accessories such as chassis, engines, tires, pumps, valves, signaling devices, batteries, electric lights, bulbs, alternators, and all other installed equipment and accessories, in as much as they are usually warranted separately by their respective manufacturers, or are subject to normal wear and tear.
- Failures resulting from the apparatus being operated in a manner or for a purpose not recommended by the apparatus manufacturer.
- Loss of time or use of the apparatus, inconvenience or other incidental expenses.
- Any apparatus which has been repaired or altered outside of the apparatus manufacturer's factory in any way that affects its stability, or which has been subject to misuse, negligence, or accident.

WATER TANK WARRANTY

The polypropylene water tank that is specified to be supplied with this apparatus shall be warranted by the water tank manufacturer for a "lifetime" period from the date that the apparatus is put into service. The manufacturer shall repair, at no cost to the purchaser, any problems caused by defective materials and/or workmanship. The warranty shall cover the reasonable costs of removing the water tank from the apparatus and reinstalling it after the completion of the covered warranty repairs, but shall not cover any liability for the loss of service or downtime costs of the apparatus.