



### Ford Cab & Chassis

Unit is to be installed on a Ford F550, Crew Cab, 4 x 4.

GVWR : 18,000 lb  
Front Axle : 7,000 lbs  
Rear Axle : 13,500 lbs  
Std Ford scuff plates  
Rear and Front Stabilizer suspension bar  
Ambulance Prep. Package  
Tow Command System with Trailer Brake Controller

The power train should consist of the following :  
Ford Power stroke V8, 6.7 L Turbo Diesel Motor  
5 Speed TorqShift Automatic transmission  
Power Steering  
Part-time four wheel drive  
Dual Alternators with combined output of 320 AMPS

Interior requirements are as follows (XL Value Package) :  
Black floor mats in place of carpeting  
Upfitter switches (4)  
40/Console/40 Heavy duty vinyl seats  
Air conditioning with high output fresh air heater  
Am/Fm Stereo, CD with digital clock  
Cruise Control  
Power equipment - Driver window, door locks & windows w/backlit switches & accessory delay.  
Keyless Entry



ACCEPT ONLY THE BEST™

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A CENTURY OF ENGINEERING FOR THE BRAVEST

Exterior requirements are as follows (XL Value Package):

The chassis shall be painted by the chassis manufacturer according to the chassis manufacturer's factory standards. The body builder shall not repaint the chassis. Cab to be Ford Fire Red (F1) with clear coat.

Chromed front bumper

New design front lights

Black grill

Dual front tow hooks

Powered Mirrors, manually telescoping trailer tow with power glass and two-way fold

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

The tires should be a maximum traction mud tire

The wheel base should be 176" wheelbase (W.B.) with a 60" Cab to Axle (C.A.)

Wheels to be primed grey

Major Standard Features :

Two (2) front tow hooks

Axle – Front Monobeam with coil spring suspension

Battery – 750 CCA 78-AH

Brakes – Anti-lock System (ABS)

Engine hour meter

Engine Block Heater

Exterior cargo light – Back of cab

Front and rear stabilizer bars

Fuel tank – 40 gallon capacity

Grab handles – Driver and front passenger

Manual transfer case and hubs (4 x 4)

Power steering

Roof clearance lights

Solar tinted glass

Steering damper

Windshield wipers – interval

Safety & Security :

Airbag – Driver and front passenger

Belt-Minder safety belt reminder

BlockerBeam – includes valance air dam

Passenger airbag deactivation switch

Ford Warranty :

3 years 36,000 miles bumper to bumper

5 years 60,000 miles Transmission

5 years 100,000 miles motor

The Fire Apparatus shall meet all the requirements of the NFPA 1906 standard while stationary on a grade of 10 percent in any direction.

A permanent plate or label, stating the maximum number of personnel allowed to ride on the apparatus, shall be provided and installed in clear view of the driver.



### Winch (9,500#) & Brush Guard

There shall be a 9500 lbs. WARN 9.5ti Thermometric removable electric winch. As per NFPA 1906 (13.2.2), the winch shall have a minimum wire rope length of 125 ft (38m) with a large latched hook. The wire rope will be 5/16" in diameter and shall be constructed of aircraft wire rope and galvanized to help resist corrosion.

Feature of the winch will include a 3 stage planetary gear system for fast line speed, cam action clutch disengages planetary gear system for free spooling and automatic load holding brake for strength and reliability.

There shall be a winch carrier to mount the winch with a Warn 2" front receiver mounted directly on cab & chassis frame without drilling. A rear mounted Class III trailer hitch shall be securely attached to the chassis frame and shall include the 7-pin wiring trailer harness. Front and Rear Warn Quick Connectors and battery power leads to connect the winch shall be run to each of these locations for mounting of the winch. Dust Cover to be installed front and rear.

A remote with 25' (7.6m) of cable shall be supplied (NFPA 1906, 13.3.1.1 requirement).

In addition, this system includes a Warn Trans4mer Black Coated grille/brush guards which wraps to the outside of the headlights.

### Outer wheel inserts

The front and rear wheels shall be dressed with polished, stainless steel wheel liners, hub covers and lug nut covers. Brand to be Realwheels.

### Stainless Steel Side Step Bars

One (1) set of 3" diameter stainless steel side step bars. Steps to be marine grade 304 prime stainless steel polished to a mirror finish with moulded plastic step pad. Step area is compressed, rather than a cut out hole, to enhance strength and prevents interior corrosion. Lifetime Limited Warranty

In addition, to meet NFPA 1901 standard, plastic step pad shall be covered with a Stainless Steel non-slip texture cover. Brand to be RealWheels model #RW420-2.

### Lettering & Stripping

The finished apparatus shall be lettered to match the existing apparatus, the door logo shall be provided by the Fire Department. The Apparatus number shall be applied to each side of the chassis hood. 6" Reflective 3M stripping shall be applied on the Cab & the truck bed as per NFPA.

At least 50 percent of the cab and body length on each side, at least 50 percent of the width of the rear, and at least 25 percent of the width of the front of the apparatus shall have the reflective material affixed to it.

Stripping to be applied at the direction of the Fire Department. \$750.00 maximum allowance given for the lettering and stripping.

### Rear Chevron

6" Rear reflective chevron to be applied at rear of apparatus covering the entire area. Chevron to be Red & Yellow 3M stripes.

### Inside Doors Reflective

All driving and crew compartment doors shall have at least 96 in2 of reflective material affixed to the inside of each door.



## Engine Speed Control Device

An automatic engine speed control device shall be installed to allow an increase in the engine speed when the apparatus is parked. (NFPA 1906, 5.2.1.4 requirement)

An interlock shall prevent the operation of this engine speed control device unless the parking brake is fully engaged and the transmission is in neutral or park, or unless the engine speed control device is used with chassis engine driven components, in which case it shall be interlocked with the engagement of those components.

## PolyBody

The body shall consist of a left and right side module with doors. In addition, there shall be a formed metal header panel, threshold panel and floor panel. These components shall be assembled to form the modular body and shall be supported by a steel sub frame weldment. All components of the body shall be bolted together to allow for easy replacement. Threaded inserts shall be installed into all blind mounting holes. All other fasteners shall be stainless steel.

Body shall be manufactured in the factory of the bidder (no exception).

## Standard Features

- Rust and corrosion free body module
- Lightweight material allows for increased payload
- Compartments constructed with ½" high impact resistant copolymer sheet
- Modular construction offers easy replacement or repair of side packs
- 3 years warranty against defects in material and workmanship
- Continuous automotive bulb door gasket for leak proof seal

## Material

The material used to construct the body side modules and doors shall be extruded copolymer polypropylene made from PolymarCo-PP™ resin.

Materials that deteriorate when exposed to sunlight, extreme weather or operational conditions shall not be used or shall have a means of protection against such conditions that will not prevent compliance with performance standards. Protective coatings that chip, crack, or scale with age or extremes of climatic conditions or by exposure to heat or cold shall not be used

## Body & Compartments mounting

All compartments shall be ventilated through an integrated positive pressure vent system allowing for movement of air between compartments. Vent outlet at the front of the side compartment modules shall provide a water resistant entry and exit for air.

The compartment floors shall be of sweep out design for easy cleaning and have provision for drainage of moisture.

All compartment floors will be covered with Plastic Tiles. The tiles shall be black with yellow angled leading edges.

An angle of approach and an angle of departure of at least 8 degrees shall be maintained at the front and the rear of the vehicle when it is loaded to its GVWR.

The rear wheel wells shall be radius cut with polished aluminum fenderette installed at well opening.

A bright, anodized aluminum rub rail extrusion shall be bolted on both sides of the body below the compartment to protect the body from minor scrapes.



### Compartment doors

Compartment doors shall be equipped with Amdor brand roll-up doors or equivalent complete with the following features: door ajar switch, two (2) LED Lumabar lights, aluminum double wall slats with continuous ball & socket hinge joint and recessed slat seal, double wall reinforced bottom panel with stainless steel lift bar latching system, reusable slat shoes with positive snap-in securement, one-piece aluminum door track / side frame, top gutter with non-marring seal, non-marring side seals, bottom seal, with all wear component material to be Type 6 Nylon. Roll-up doors to be anodized gray.

### Left (Driver) side body module

There shall be a multi-compartment body module constructed from ½" polypropylene provided to form 3 compartments on the left (driver) side of the body. There shall be a single door compartment ahead of the rear wheels, a single door compartment over the rear wheels and a single door compartment behind the rear wheels.

Compartment dimensions shall be as follows

	Width	Depth	Height
Compartment ahead rear wheels	35"	21-1/2"	52"
Compartment behind rear wheels	22-1/2"	21-1/2"	50"
Compartment over rear wheel	45"	21-1/2"	36"

Rear wheel compartment corners to be notched to match the body left rear angles.

### Fuel Fill Bezel

The fuel tank fill will be protected by a cast aluminum fuel fill guard with polished flanges. This fuel fill guard will have a breakaway safety collar feature incorporated into its construction.

### Right (Passenger) side body module

There shall be a multi-compartment body module constructed from ½" polypropylene provided to form 3 compartments on the curb side of the body. There shall be a single door compartment ahead of the rear wheels, a single door compartment over the rear wheels and a single door compartment behind the rear wheels.

Compartment dimensions shall be as follows

	Width	Depth	Height
Compartment ahead rear wheels	35"	21-1/2"	52"
Compartment behind rear wheels	22-1/2"	21-1/2"	50"
Compartment over rear wheel	45"	21-1/2"	36"

Three (3) SCBA brackets shall be installed in the passenger side compartment over the rear wheels. SCBA brackets shall be provided and shipped to CET Fire Pumps from Albert Lea Fire Department.

Rear wheel compartment corners to be notched to match the body right rear angles.



## Rear Storage Compartment

One (1) integrated to the platform compartment approximately 5" high x 22" wide x 103" long for suction hose storage and folding ladders or pike poles. A flip down horizontally hinges door is furnished at the rear. The interior compartments is made from polished 3003-H14 alloy smooth plate. Steel frame underneath Drop-In-Unit shall not be acceptable.

## Adjustable shelf tracking

Each compartment shall have four (4) aluminum tracks fastened to the interior sidewalls to provide an adjustable mounting surface for shelving.

## Adjustable shelving

There shall be adjustable shelving formed from .125" thick smooth aluminum sheet. Each shelf shall be fastened to the tracking using four (4) adjustable shelf clips and stainless steel hardware.

Compartment Location	Number of shelves
To be determined w / Fire Dept.	6

## Shelf Location:

Drivers Side Front Compartment shall have two (2) adjustable shelves  
Drivers Side Center Compartment over Rear Wheels shall have one (1) adjustable shelf.  
Drivers Side Rear Compartment shall have one (1) adjustable shelf  
Passenger Side Front Compartment shall have one (1) adjustable shelf  
Passenger Side Center Compartment over Rear Wheels shall have no shelf (SCBA Brackets)  
Passenger Side Rear Compartment shall have one (1) adjustable shelf.

## Upper section of the body

Passenger side shall have one (1) pre-connect hose compartment tray to hold a minimum of 1-3/4" x 750' of hose. There shall be one (1) 1.5" valve piped from the discharge manifold to the hose tray. The valve shall be an Industrial, quarter turn swing out valve with a handle and be connected to the hose tray by high pressure flexible plumbing. The Hose tray shall have one (1) 1-1/2" Pre-Connect elbow. Red canvas with snaps shall be installed on top of the Storage Tray along with rear or side protective net.

A Storage Tray made from aluminum diamond plate shall be supplied and installed on top of the driver side body compartments. Dimension of the Storage Tray to be full length and width of the top compartments with an maximum height of 8". Red canvas with snaps shall be installed on top of the Storage Tray along with rear or side protective net.

All area shall be designed to prevent the accumulation of water and allow for ventilation to aid in drying hose in the storage area. Black Turtle Tiles to be installed and bolted on the floor.

Upper section will be made from .125" high bright aluminum diamond plate.

## Subframe

A steel subframe weldment shall be fabricated from tubing and formed sheet metal to provide a mounting platform for the body side modules and the floor. There shall be outriggers extending out and down from the sub frame to provide support to the side pack floors. There shall be a minimum of four (4) outriggers supporting each side module. There shall be common attachment points along the length of the sub frame for mounting it to the truck chassis. The finish on the subframe shall be painted black.

## Body header panel

A formed .125" high bright aluminum diamond plate panel shall be provided at the front of the body and shall extend the full width and height of the body to provide full frontal protection to the body side modules. The header panel shall be fastened to both body side modules. Steel cross members shall be installed at front.



### Body threshold panel

Rear body side modules shall be joint with a middle bottom welded polypropylene sheet reinforced with an heavy duty inner steel tube.

### Rear Configuration

Rear step mounted in the receiver hitch shall be supplied and installed. Step to have an integrated red LED light strip that acts as an additional brake light. Step to be made from a tubular steel construction with a black plastic step pad.

Stepping height from the ground to the first step shall not exceed 24 in. All steps, platforms shall be designed and installed to sustain a minimum static load of 500 lb without deformation.

Two (2) access handrails shall be provided, one (1) located at the rear left top side of the body module and one (1) located at the rear right top side of the body module. Handrails shall be constructed of or covered with a slip-resistant, non corrosive material. Handrails shall be between 1in. and 1-5/8 in. in diameter and have a minimum clearance between the handrails and any surface of at least 2 in.

The rear of the flat bed shall have six (6) non-skid rear steps for access to pump and controls. The rear steps shall be made so it can be folded up for use in rough terrain. All steps shall sustain a minimum static load of 500 lb (227 kg) without deformation (NFPA 1906 & 1901 compliant). Stepping height from the ground to the first step shall not exceed 24".

### Others

The exhaust piping and discharge outlet shall be located or shielded so as not to expose any portion of the apparatus or equipment to excessive heating. Exhaust pipe discharge shall be directed away from the pump operator's position.

Tow hooks or tow eyes shall be attached directly to the frame structure to provide a means to allow recovery from the front and rear. Hardware shall have a clear and unobstructed access.

Medium Kochek Wheel Chocks with storage bracket.

### Electrical components

A 12 volt electrical system is supply. The built in emergency light switch panel have a master switch plus individual switches for selective control. The switch panel is located in the cab on the driver's side to allow for easy access. The switches on the dashboard is lighted rocker type.

The wiring is secured in place, readily accessible and protected against heat, water and physical damage.

Electrical harness lines shall be mechanically attached to the frame or body structure of the apparatus.

All wiring will be run in heat and moisture resistant plastic convoluted split loom.

Electrical harness lines shall be furnished with protective looms, grommets, or other devices at each point where they pass through body panels or structural members or wherever they lie against a sharp metal edge. A through-the-frame connector shall be permitted to be used in place of metal protective looms or grommets.

Switches, relays, terminals, and connectors shall have a direct current (dc) rating of 125 percent of maximum current for which the circuit is protected.

Conductor insulation will conform to S.A.E. requirements. All circuit are protected by automatic reset circuit breakers.



All wiring furnished will conform to the national Electric Code.

All circuits will be wired in conformance with S.A.E. J1292, Automobile wiring standard.

All wiring will be function worded schematically.

A set (2) of electric diagram will be remit upon delivery.

One (1) back-up alarm that meets the type D (87 dBa) requirements of SAEJ994 shall be provided at the rear of the apparatus. It will activate when the transmission is placed in reverse.

### DOT lighting

Clearance, marker, license plate lights and reflectors will be furnished per D.O.T.

LED Signal, brake and reverse lights will be High Quality Grote Automotive lights recessed mount into rear aluminum skirt area of body per FMVSS 108 and CMVSS 108 requirements. Light to be LED Oval with chromed housing.

Two (2) LED Amber marker/clearance lights with chrome housing and clear lens will be installed on the front side of the bed, one (1) each side. Two (2) LED Red marker/clearance lights with chrome housing and clear lens will be installed on the rear side of the bed, one (1) each side. Three (3) LED Red marker/clearance lights with chrome housing and clear lens will be installed at the rear center of the bed. Amber & Red reflectors shall be installed around the perimeter of the bed as per DOT requirement.

License plate light shall be an Eon light with SS polish case that has a light output equivalent to a 10 watt halogen lamp. Eon light to have a 50,000 hr LED life.

### Ground lights

Two (2) ground lights shall be installed at the entry of the cab, one (1) on each side.

Lighting designed to provide illumination on areas under the driver and crew riding area exits shall be switchable but activated automatically when the exit doors are opened.

Two (2) ground lights shall be installed below the front bed, one (1) on each side.

Two (2) ground lights shall be installed below the rear steps, one (1) on each side.

These ground lights will be illuminated at any time the chassis parking brake is activated.

Lights to be white oval LED w/28 diodes ea. with bracket.  
to have a 50,000 hr LED life.

### Scene lights

Two (2) 150 Watts telescoping 12v Scene Lights mounted at rear of the body. The light shall be single head design. Lights will increase visibility around the apparatus during night or light operations.

Lights to be High Intensity Discharge (HID). Unlike the halogen incandescent bulbs, the HID bulb does not contain a filament. Instead, it creates light from an electrical discharge between two electrodes. This technology provides a brighter and crisper white light that is superior to halogen source because it most resembles natural daylight and is very efficient.

Model is to be Fire Research Optimum lamp heads with side mount, push up telescopic pole, #OPA512-H15. A switchbox is provided underneath each lamp head. Scene lights shall be wired.



## Emergency lighting

One (1) 54" LED Whelen Lightbar, Liberty model # SLN2VLED. Lightbar to be mounted on the front top body with clear lens.

- 4 x SUPER LED Corners (2 red on passenger side & 2 blue on driver side)
- 2 x SUPER LED Inner (1 red on passenger side & 1 blue on driver side)
- 2 x White SUPER LED Inner
- 2 x Front Facing Takedown lamps
- 2 x Side Alley lamps, one (1) each side

For Blocking Right-of-Way Mode of operation, white Super LED Inner lightbar lights (2) shall be turned off when parking brake is applied.

Mounted on front Ford grill, Two (2) Whelen M4 series Linear Super LED, Drivers Side red with clear lens, and Passenger Side Blue with clear lens each with a chrome flange.

Mounted each side of the chassis, Two (2) Whelen M4 series Linear Super LED, one (1) each side, red with clear lens with a chrome flange,

Mounted each side of the body, Two (2) Whelen M4 series Linear Super LED, one (1) each side, red with clear lens with a chrome flange,

Mounted in the rear lower section of the body Two (2) Whelen M4 series Linear Super LED, 1 red on Drivers side & 1 blue on Passenger side, with clear lens, each with a chrome flange.

Mounted in the rear upper section of the body Two (2) Whelen M4 series Linear Super LED, 1 Red on Drivers Side and 1 Blue on Passenger side, with clear lens, each with a chrome flange.

## Traffic Advisor Split Arrow Stick

There shall be one (1) Whelen Model #TA4437L LED traffic advisor mounted on the rear upper section of the apparatus body, the split design of the traffic advisor shall allow for one (1) piece to be mounted on the left side of the body and one (1) piece to be mounted on the right side of the body and be controlled in the cab center console.

## Siren & Speaker

One (1) Whelen, model # 295LSA1, 100 watts electronic siren amplifier with PA and switch control center to be provided and installed. Siren shall have wail, hyper-yelp and air horn tones as well as public address and shall be capable of radio rebroadcast.

One (1) Whelen, model # SA315P, 100 watt speaker, to be provided and mounted on the front bumper with SAK1 universal mounting bracket.

## Compartment Lights switches

One (1) switch per compartment shall be installed so the compartment light(s) shall come on only when compartment door is open.

## Door Ajar

One (1) door ajar warning light shall be provided and installed in the consol to indicate an open body compartment door. The light shall be properly marked with a sign "Warning Door Ajar".



## Battery charger

One (1) Auto Charger Kit, dual system, 20 amps, 12 volts. Location of the installation is to be determined by the fire dept.. The Auto Charge kits include the Automatic battery charger, circuit breaker & ground fault protected outlet to power accessories on the vehicle and Super Auto Eject with water proof cover. Brand to be Kussmaul.

One 120 Volt wire shall be ran from the Kussmaul Charger to center console for Fire Department to Install electrical outlet upon delivery.

Kussmaul Auto Eject shall be installed on the Rear Drivers Side of the Body as high as manageable.

## Console

One CET aluminum fire application custom consol installed between seats with rocker switch. To be quickly identified and visible to the driver and passenger while seated, the rocker switches shall be installed on the top face of the console designed with a 40 deg. angle. This area shall be able to hold at least two rows of rocker switch. All switches shall be rocker style internally lighted and appropriately identified by panel mounted legends.

The first lighted rocker switch to be a red Master Optical Warning switch. A master body disconnect automatic switch, normally open contacts, shall be provided to disconnect all electrical loads not provided by the chassis manufacturer. The starter solenoids shall be connected directly to the batteries.

All rocker switch to have a green "On" indicator that is visible from the driver's position shall be provided.

Map Light, 12" gooseneck Halogen, Havis Shield, model C-MAP-T-LED, side mounted on the cab console.

A voltmeter shall be mounted on the console to allow direct observation of the system voltage.

The consol will have an area to accommodate department map books, clipboards etc..

The console also have an area for radio head & Siren installation.

All electrical components like breaker, relays, wiring etc. will be installed inside this customized consol and protected with an aluminum box. This consol will be design to easily gain access to those breaker, relays, wiring, etc.

Controls and switches that are expected to be operated by the driver while the apparatus is in motion shall be within convenient reach for the driver.

Console to be painted black scratch free Herculiner finish.

## Paint

The paint or coating, including any primer, shall be applied in accordance with the paint or coating manufacturer's recommendation.

Body Modules shall be thoroughly washed with grease cutting solvents prior to any sanding. After the body has been sanded and the minor imperfections corrected, the body shall be washed again with a solution to remove any contaminants on the surface. The first coating to be applied is a universal plastics adhesion promoter followed with three coats of primer. The primer coat is to be hand sanded with 320 grit sandpaper to insure maximum gloss of the paint. Application of at least three coats of Concept Acrylic Urethane paint shall be applied with the final addition of a clear coat process.

The commercial body paint will have to match the Cab & Chassis color.

All exposed ferrous metal surfaces that are not plated or stainless steel shall be cleaned and prepared and shall be painted or coated.

The interior of the body compartments shall be left in their natural color of white.



## CET Fire Pumps Mfg Drop-In-Unit

### Water Tank

The water tank shall be constructed of 1/2" thick polypropylene sheet stock with PolymerCo-PP™ resin. Water tank shall be welded with Heavy Duty extruded joint. The material shall be of a certified, high quality, non-corrosive, stress relieved thermo plastic, black in colour with a textured finish, and UV stabilized for maximum protection. The skid type water tank shall be of a standard configuration and shall be so designed to have complete modular slide in capability. The unit shall incorporate transverse partitions manufactured for 3/8" PT2E polypropylene which shall interlock with a series of longitudinal partitions constructed of 3/8" PT2E polypropylene. All swash partitions shall be so designed to allow for maximum water and air flow between compartments and are fully welded to each other as well as to the inside of the tank.

The passenger side rear wall of the tank shall have a standard built in sight gauge 3" in width, and 70% transparent.

The tank shall be equipped with a combination vent/overflow and manual fill tower. The fill tower shall have a 8" x 8" x 8" square drop-on type cover. The cover shall be fastened to the tower with a teather to prevent loss. The tower shall be located in the right rear corner of the tank. There shall be a vent / overflow installed inside and to the extreme rear of the tower approximately 2" down from the top. This vent / overflow shall be of a standard schedule 40 polypropylene pipe with minimum ID of 3". The vent / overflow shall be piped internally toward the front and exit out the front tank wall with a 1/2" extension past the front tank wall. The tank cover shall be constructed of 1/2" thick PT2E polypropylene, black in color, UV stabilized.

Tank will be baffles in accordance with NFPA bulletin 1901 requirements, latest version.

### Tank Capacity

The tank shall have a capacity of 300 U.S. gallons of water. The tank shall be covered by the ALL OUT No Fault Life Time Warranty.

In addition, a 10 gallon Drop-in integrated foam cell will be included. A label that reads "Foam" shall be placed at any foam concentrate tank fill opening.

### Sump

The floor of the tank shall be manufactured from 3/4" PT2E polypropylene. There shall be one (1) sump as standard per tank. The sump shall be integral to the tank floor and be a minimum of 3/8" deep recessed into the floor. The sump shall not be visible from or protrude through the bottom of the tank.

### Tank Outlets

There shall be two standard tank outlets located in the same vertical plane on the driver side rear wall of the tank. One (1) 2-1/2" female NPT tank to pump suction fitting and one (1) 1-1/2" female NPT tank fill fitting with flow deflector.

### 1" Tank Drain

There shall be a 1" tank drain to the rear side of the tank with a brass plug.

### Tank Mounting Blocks

The cover shall incorporate two (2) booster reel mounting blocks that shall be to accommodate two (2) each sliding nut fasteners. These 4" large mounting blocks shall be welded to the covers running from the rear edge of the tank forward.



## Skid Base

There shall be a full width skid base manufactured of 3/4" PT2E polypropylene welded to the tank. This base shall be 48" wide by 96" long and shall extend 34" past the tank in the rear to allow for pump mounting. The pump mounting area shall be supported by 1/2" PT2E polypropylene gussets 15" high by 32" long. The gussets shall be equipped with 2" holes to assist in lifting the unit. The mounts shall allow for the truck to be secured directly to a truck bed without the need for any skid frame work underneath.

## Mounting

The Drop-In-Unit shall be mounted in a manner that allows access to the engine, pump, and auxiliary systems for routine maintenance. The Drop-In-Unit shall not be welded or otherwise permanently secured to other components

## CET Pump, PFP-20hpKHL-MR

The pump shall be a CET PFP-20hpKHL-MR single stage centrifugal pump, bolted directly to the engine, with a 2.5" NPT suction inlet, and a 1.5" NPT discharge outlet. The volute and pump head shall be a lightweight, high strength, seawater resistant, aluminum alloy. The impeller shall be a bronze enclosed type for maximum efficiency, fully machined and balanced. The engine crankshaft shall serve as the pump shaft, with the impeller mounted directly on the crankshaft. The shaft seal shall be self-adjusting, self lubricating, mechanical type. The pump shall be equipped with a brass drain cock.

The pump engine shall be equipped with an quieter exhaust venturi type primer capable of 15' – 20' lift for fast positive priming. The control for the primer shall be capable of being operated by a person operating controls at the primary pump operator's position.

The pump shall be capable of a maximum discharge volume, directly at the pump casing outlet, of 250 g.p.m. at 50 psi, and a maximum discharge pressure of 200 psi while pumping 25 g.p.m. In the center of the performance curve, the pump shall be capable of pumping 160 g.p.m. at 100 psi and 100 g.p.m. at 150 psi.

## Engine

The pump shall be driven by a 2 cylinder, gasoline engine powered, KOHLER 20 horsepower V-twin overhead valve engine. The engine shall be air cooled, 12 volt electric start.

An external fuel tank shall be provided for the pump motor. It will be large enough to run the pump motor for one (1) hour at its rated capacity and pressure as per NFPA 1906, 8.10.1. Tank will be mounted with ease of filling in mind.

The engine shall be connected to the main battery of the truck.

## Pump Controls

A control panel shall be supplied and installed on the pump. The controls shall consist of a start button, 2.5" diameter discharge pressure gauge and one work light. The Throttle lever, choke control and a low oil level shut down are part of the engine configuration.

The performances are base on a maximum altitude of 500ft and any higher elevation will lower the pump performance. The standard engine performance drop are 3% for every 1000 ft

Centerline of any control shall be no more than 72 in. vertically above the ground or platform that is designed to serve as the operator's standing position.

## Scotty Foam System

There shall be a Scotty model 4071 around the pump foam eductor / mixer installed integral to the pump. The eductor shall be plumbed from the foam cell with 1/2" flexible reinforced tubing to throughout he eductor to a suction fitting on the pump impeller housing. The eductor shall be calibrated to educt foam concentrate at variable percentage into a discharge manifold flowing 15, 30, 50 and 70 gallons per min. The eductor shall be capable of a discharge of a 1% foam solution at specified flows.



### One (1) 12v Electric Rewind Low Profile Booster Reel

One (1) Hannay 12v electric rewind Low Profile booster reels capable of handling 150' of 1" diameter booster hose each. Booster hose not supplied. Booster reel to be installed on the left side of the pump at the rear of the truck bed. The reel shall have a push button rewind control and a backup geared crank rewind handle. The reel shall be equipped with a 1" NPT 90 degree swivel inlet, and a 1" NST outlet riser. The reel shall be manufactured of steel and shall be primed and painted red.

Reel to be installed on top of the front passenger side compartment.

150' of 1" Booster hose shall be supplied and installed for the reel.

One high mounted roller and spool assemblies shall be furnished and installed facing passenger side of the truck.

3 Hose Reel Buttons to be supplied. Installation to be determined with Fire Department.

## Plumbing and Valves

### Suction Piping

All piping shall be steel piping, painted red. The suction piping shall consist of a 2.5" tank to pump line with a 2.5" flexible rubber hump hose to minimize flex and vibration between the pump and the tank. RIGID PIPING SHALL NOT BE ACCEPTABLE. Between the tank and the pump there shall be a 2.0" Industrial, quarter turn swing out valve with a handle. This valve shall remain open to pump from the tank. This pipe shall have a tee into the suction side of the pump, and shall continue to the rear of the truck for overboard suction.

The overboard suction connection shall have a 2.5" NST male adapter w/cap with retaining cable. To draft, the tank to pump valve shall be closed, a suction hose connected to the overboard suction connection and placed in a static water supply, and the primer activated.

### Discharge Piping

All piping shall be steel piping, painted red or high pressure flexible hose. A 2.5" X 2.5" square steel manifold shall be piped directly to the discharge outlet of the pump. Attached to this discharge manifold, by means of welded steel pipe nipples, shall be all the discharge valves. All piping shall be painted red to match the pump.

### Tank Fill

There shall be a 1" valve piped from the discharge manifold as a means for refilling the tank. The valve shall be an industrial, quarter turn valve handle and 1" NPT threads, and shall be connected to the tank fill port by 1" high pressure flexible hose.

### Discharge to Booster Reel

There shall be a 1" valve piped from the discharge manifold for each booster reel. Each valve shall be an industrial, quarter turn valve handle and 1" NPT threads, and shall be connected to each reel by 1" high pressure flexible hose.

### 1.5" Discharge To Rear

There shall be one (1) 1.5" valves piped from the discharge manifold to the rear of the truck for connection of forestry hose. Valve shall be an 1.5" Fire Type, quarter turn swing out valve with a handle 1-1/2" NST threads. Valve shall be furnished with a 1-1/2" NST cap and chain.



### 1" Tank Drain

There shall be a 1" valve piped from the tank drain fitting to the rear of the truck bed. The valve shall be an industrial, quarter turn valve with a handle and 1" NPT female threads.

### Suction Intake Soft Hose Storage Tray

There shall be One (1) poly storage tray 4" Wide X 30" Long X 12" High and capable of holding 25' X 2.5" Soft Suction Hose.

### Testing

The pump shall be tested after the pump and all its associated piping and equipment have been installed on the fire apparatus. The tests shall be conducted at the manufacturer's approved facility.

The testing shall include at least the pumping tests, the priming device test, the vacuum test. The water tank-to-pump flow test, and the piping integrity test.

### Manufacturer's discretion

Materials, parts, or procedures used are subject to change at manufacturer's discretion at any time to provide equal or better products.



