

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF CONSERVATION & NATURAL RESOURCES
BUREAU OF FORESTRY
DIVISION OF FOREST FIRE PROTECTION

Specifications for 150-Gallon Top Mount Wildland Fire Skid Unit

The following specifications are for a self-contained, modular, top mount, slip-on wildland firefighting skid unit consisting of tank, hose reel with hose, engine, pump and control panel that can be easily mounted or removed from a truck bed.

TANK

The tank shall be constructed of ½" thick, black, ultra-violet resistant, polypropylene material and have a 150-gallon capacity. Tank shall be baffled with 3/8" thick transverse and longitudinal baffles to meet National Fire Protection Association (NFPA) Standard 1906: Standard for Wildland Fire Apparatus. Tank shall have a lifetime factory warranty. The tank itself shall be 58" long X 48" wide X 15" high. The tank shall meet the following:

1. One (1) 8" x 8" x 8" water fill tower with screen and a 2" overflow pipe routed toward the front. Water tower must have a hinged lid.
2. One (1) White Poly Level Sight Gauge visible from the rear of the truck.
3. Four (4) top mounting tracks for the pump and hose reel.
4. One (1) 2" female National Pipe Tapered thread (NPT) suction port on the top of the tank.
5. One (1) 1½" female NPT fill port on the top of the tank routed to the rear for direct fill.
6. One (1) 2" female NPT diameter drain port with plug on driver's side, bottom, rear.
7. ¾" drain port with ¼-turn brass ball valve on passenger's side, bottom, rear with 8 feet of hose and a ¾" valve with brass quick disconnect that fits directly into bladder bags.
8. One (1) 1" female NPT fill port.
9. One (1) access point 12" X 12" to access the inside of the tank directly above the suction.
10. One (1) each mounting flanges on the bottom front and bottom rear of the tank.
11. All corners reinforced.
12. Three (3) 4" X 4" polypropylene or aluminum risers on the bottom of the tank, extending full length of the unit. Risers are to be spaced equally with two (2) at the sides and one (1) in the middle. Risers must be sized to provide storage for suction hose.

ENGINE

1. Must be a minimum of 18 horsepower, 4-Stroke, air-cooled.
2. Electric start with recoil start back-up.
3. One (1) ½" diameter, 12" long oil drain hose with ½" diameter brass ¼-turn ball valve NPT.
4. 4-gallon, fuel tank in fabricated aluminum, with quick disconnect fuel line.
5. Exhaust must be shielded to prevent booster line from contacting muffler.

6. Muffler shall be super low tone muffler and must have stacks mounted in an upward direction with flappers to prevent water from entering exhaust. (equivalent to Briggs & Stratton 807799)
7. Must include low-oil pressure shutoff switch.

PUMP

1. 4-Stage detachable high-pressure pump head with sealed bearing (Wicks 4200, Waterax BB4, or equivalent that is interchangeable)
2. 2" National Pipe Straight Hose (NPSH) suction.
3. 1½" NPSH discharge
4. Quick detachable pump end via stainless steel band clamp.
5. Belt driven

HOSE REEL

1. Low Profile Hannay Stainless Steel Electric Hose Reel.
2. One (1) electric rewind switch in weather-proof box mounted to be accessible from the driver's side of the unit within reach of the hose reel.
3. Capacity of 100' of 1" inch Boostlite (or equivalent) hose.
4. 1" NPSH riser
5. Two (2) chrome, high-style outriggers, one each on the passenger and driver sides of the truck, main direction of pull will be to the passenger's side.
6. Must have manual rewind option accessible from top or rear with manual rewind handle mounted to the hose reel via a bracket.

BOOSTER HOSE

1. 100' of ¾" diameter Garden Hose Thread (GHT) Boostlite (or equivalent) light weight hose with 1" NPSH field-repairable couplings.
2. Hose must have a 1" NPSH coupling on the end that connects to the booster reel and a ¾" male GHT on the discharge (nozzle) end.

PLUMBING

All valves must be full-port, ¼-turn, brass ball valves rated to 500 pounds per square inch (PSI). All valves must be labeled per valve labelling standards outlined in the National Wildfire Coordinating Group (NWCG) *Water Handling Equipment Guide (PMS-447-1, NFES 1275, October 2003)*. All plumbing is to be rated at 500 PSI. A check valve shall be installed on the discharge side. Pump shall draft through a Gruvlok brand or equivalent anti-vibration coupling.

The pump shall be pre-plumbed as follows on the suction side:

1. 2" three-way valve extending to the passenger side of the pump platform for drafting and/or tank to pump
2. Adaptor, cap, and chain in 2" male NPSH thread

3. 1½" ball valve with female National Hose (NH) thread swivel adapter shall be mounted to item #5 under tank section of these specifications.

The discharge side of the pump shall be plumbed to the passenger's side of the unit via a 1½" diameter high-pressure hose rated at 500 PSI into a horizontally mounted 3" X 3" square stainless-steel manifold. Discharges on the manifold shall point downward at a 10° angle. The manifold will feature the following:

1. 1" port with valve plumbed for tank circulation, shall be connected to item #7 under the tank section of these specifications
2. 1" port with valve connected to the hose reel
3. 1½" NH discharge with valve and cap and chain, minimum pressure of 300 PSI and minimum flow of 20 gallons per minute (GPM)
4. Two (2) 1" NPSH discharges with valves and caps and chains, minimum pressure of 300 PSI and a minimum flow of 20 GPM
5. ¼" drain petcock mounted at the lowest portion of the manifold
6. Manifold will be Scotty Foam capable so the eductor can added in the future.
7. Pressure relief valve

CONTROL PANEL

Pump panel will be mounted on top of the unit so that it is accessible from the passenger's side when unit is mounted in a truck. Panel shall be a manufactured enclosure and not custom fabricated. Wick 4200, Waterax WCP control panel, or equivalent.

All pump and engine functions to be clearly labelled and located on a control panel consisting of the following:

1. Pump engine ignition switch (on/off switch)
2. Pump engine starter button
3. Choke
4. Vernier-style, adjustable throttle control
5. High RPM cut-out switch
6. Low water pressure cut-out switch at 15 PSI
7. Illuminated, liquid-filled pressure gauge (0 to 600 PSI) with drain piped out the back of the panel
8. Hobbs meter
9. Hose reel rewind button
10. Circuit breaker
11. LED Panel work light with on/off toggle switch
12. Low oil indicator warning light/switch
13. Toggle switch for scene light

SCENE LIGHT

One (1) sealed beam, swivel mount LED scene light like the Whelen Pioneer Micro Series Super-LED Work/Scene Light, Model MPBB, shall be installed in the rear of the apparatus to illuminate the plumbing and surround area off the back of the unit. The light switch shall be wired to the control panel.

OTHER ITEMS

1. An aluminum, guzzler-style, hand primer must be attached to the discharge side of the pump, located on the passenger side of the unit, with a spring-loaded shut off valve. Hand primer must be mounted perpendicular to pump platform so that water will drain out of unit to prevent freeze damage. Primer should be mounted on 3/8" aluminum bent above the primer, so it serves as a weather protector.
2. Unit shall contain an air-operated winterization system with Schrader valve capable of removing all water from plumbing for winterization.
3. Three (3) 6' sections of 2" NPSH lightweight, Draftlight (or equivalent) suction hose with one (1) lightweight metal foot valve/strainer
4. Unit shall be wired with 25' of 6-gauge wire in loom, including a 40-amp circuit breaker with quick disconnect plug on the skid unit to connect it to the existing 12-volt power in the engine compartment of the vehicle.
5. All determinations of equivalent equipment shall be made by the Commonwealth.
6. The vendor shall meet with representatives of the Commonwealth for a preconstruction meeting to determine the mounting location of all the items.
7. Drawings depicting multiple views must be submitted for review by the Commonwealth prior to awarding the bid. Drawings should be attached and submitted with bid.