

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

**Specifications for 150-Gallon Short Rear Mount Wildland Fire Skid Unit**

The following specifications are for a self-contained, modular, rear mount, slip-on wildland firefighting unit consisting of tank, hose reel with hose, engine, pump and control panel that can be easily mounted or removed from a truck bed. Overall length of the unit shall be 76". Engine, pump, and control panel to be accessible from the rear of the unit.

**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 in accordance with National Fire Protection Association (NFPA) Standard 1906: Standard for Wildland Fire Apparatus. Tank shall have a lifetime factory warranty. The tank itself shall be no longer than 40" and no wider than 48". 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 hinged lid.
2. One (1) White Poly Level Sight Gauge, visible from the rear of the tank.
3. Two (2) top mounting tracks for the hose reel running the entire length of the tank for future add on accessories such as a hose tray.
4. One (1) 2" female National Pipe Tapered thread (NPT) suction port on the bottom rear of the tank.
5. One (1) 1½" female NPT fill port on the top of the tank routed the rear of the truck for direct fill.
6. One (1) 2" female NPT diameter drain port with plug on the driver's side, bottom rear of the tank.
7. ¾" drain port with ¼-turn brass ball valve on the passenger's side, bottom, rear with 4 feet of hose and a ¾" valve with brass quick disconnect that fits directly into bladder bags.
8. One (1) 1" Diameter fill port Female NPT.
9. One (1) access point 12" X 12" to access the inside of the tank directly over the suction.
10. One (1) each mounting flanges on the bottom front and bottom rear of the tank. Rear flange shall be ¾" thick black polypropylene and will serve as a mounting point for the engine, pump, and control panel.
11. All corners reinforced.
12. Three (3) 4" X 4" X 76" Polypropylene 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 shall be appropriately sized to store suction hose.

## **ENGINE**

1. Must be a minimum of 18 HP, 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 and primer bulb. Mounted to top of tank beside the hose reel.
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 upward direction with flappers to prevent water from entering exhaust. (like Briggs & Stratton 807799)
7. Must include low oil 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
6. Pump drain

## **HOSE REEL**

1. Hannay stainless steel electric hose reel, mounted on top of the tank, as close to the rear as possible.
2. Capacity of 100' of 1" inch Boostlite (or equivalent) light weight hose.
3. 1" NPSH riser
4. One (1) chrome, high style outrigger, with 4-sided rollers having the main direction of pull toward the rear.
5. Must have manual rewind option with manual rewind handle mounted to the unit via a bracket.

## **BOOSTER HOSE**

1. 100' of 3/4" diameter Garden Hose Thread (GHT) Boostlite Hose (or equivalent) light weight hose with 1" NPSH field-repairable couplings.

## **PLUMBING**

All valves to 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 rigid plumbing is to be stainless steel. All plumbing is to be rated at 500 PSI. A check valve shall be installed on the discharge side. Pump shall draft through a Gruklok brand or equivalent anti-vibration coupling.

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

- 1) Two (2) 2" ¼ turn ball valves, one for tank draft and one for overboard draft.
- 2) Adaptor, cap and chain in 2" male NPSH thread
- 3) 1½" ball valve with female National Hose (NH) swivel adapter shall be mounted to item #5 of tank section of these specifications.

The discharge side of the pump shall be plumbed to the rear of the unit via a 1½" diameter high-pressure hose rated at 500 PSI into a vertically mounted 3" X 3" square stainless-steel manifold. Discharges on the manifold shall point downward at a 15° 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 the rear flange of the unit so that it is accessible from the rear 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 located at mini 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 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, accessible from the rear 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 primer body to prevent freeze damage. Primer should be mounted on 3/8" aluminum bent above the primer, so it serves as a weather protector and strong enough to be used for a step.
2. Unit shall incorporate an air-operated winterization system with Schrader valve capable of removing all water from plumbing system for winterization.
3. Two (2) 75" and one (1) 69" 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.