BB-4-18 Vehicle Mount Vertical Drive Pump Specification

Pump Performance and Rating:

The pump/engine shall perform to the standards of ISO 9 and NFPA 1906 medium pressure rating of 50 GPM. Typical pump performance from 5 foot draft under standard NFPA conditions shall be 50 GPM @ 350 PSI, 80 GPM @ 250 PSI, 100 GPM @ 150 PSI, and 100 GPM @ 100 PSI.

The pump shall provide a maximum pressure of 440 PSI and a maximum flow of 104 GPM. It shall be capable of operating to a maximum pressure of 600 PSI and be capable of passing a hydrostatic test of 550 PSI for 10 minutes per NFPA 1906 specifications – NO EXCEPTIONS.

Pump Suction/Discharge Ports:

The pump intake shall be a 2" Male NPSH hose thread and be an integral part of the pump intake cover. The pump discharge shall be a 1-1/2" Male NPSH hose thread and be an integral part of the pump body. The pump intake and discharge shall be in locations where applicable hose thread adapters can be installed without interference.

Pump:

The pump shall be a 4-stage centrifugal pump with the pump body, diffusers, and impellers made of an anodized corrosive resistance aluminum. The impeller must be aluminum to match the pump body and diffusers in order to prevent galvanic corrosion from taking place between pump components – NO EXCEPTIONS. The impellers shall be 3.67 inches in diameter.

The pump shaft shall be stainless steel supported by two maintenance free bearings and shall not be co-linear to the engine's drive shaft. A sealed roller bearing shall be located externally from the pump and a sintered bronze bushing shall be located within the pump cover. In addition, the pump seal shall be a mechanical rotary seal, shall be externally pressurized and shall incorporate a blister-resistant carbon seal face, silicon carbide seat, and fully integrated drive bushing – NO EXCEPTIONS.

A 1-1/2 NPSH priming port shall be located on the top side of the pump near the intake cover.

The pump shall be coupled to a vertical belt driven speed increaser with a quick release clamp capable of being removed by hand and without any additional tools – NO EXCEPTIONS. The quick release clamp system shall allow for the entire pump assembly, pump body with all its internal and external components, to be removable and capable of being service at a location away from the gasoline engine and fire apparatus upon which it was part of. It shall also allow for the swapping out of the same or different performance pump assemblies within a minute's time – NO EXCEPTIONS.

The vertical belt driven speed increaser shall be a low maintenance timing belt and pulley system – NO EXCEPTIONS. The belt shall be a high quality timing belt and the drive pulley shall mount directly on the engine drive shaft through a means of a keyed tapered locking device. The increaser shall be a 1 to 1.88 ratio. In addition, a dampening device shall be provided between the pump shaft and pump shaft pulley.

Both the pump and vertical speed increaser shall be painted red.

Engine:

The engine shall be a 4-cycle Briggs and Stratton horizontal drive Vanguard series V-twin overhead cam air cooled gasoline engine. The engine rating shall be 18 HP at 4000 RPM with a maximum torque of 26.9 lb-ft at 2800 rpm. The engine shall have a 2.83 bore, 2.76 inches of stroke, and a displacement of 34.78 cubic inches. The engine shall meet current EPA and CARB emission standards.

The electrical system of the engine shall be 12 VDC. It shall have an electric starting system with a recoil backup. It shall also have a 16 amp regulating alternator and be pre-wired with a 3 feet engine harness to allow it to connect to a mating control harness via an 8-pin industrial sealed quick-connect connector – NO EXCEPTIONS.

Muffler:

The engine muffler system shall be dual low tone mufflers if a hand or electric primer is provided or a single vertical side mounted muffler if an exhaust primer is provided. The muffler system shall be equipped with a forestry approved spark arrestor.

Fuel Tank:

The unit shall have the ability of offering a fuel tank with a manual shut off valve that is an integral part of the pump/engine unit and meet current EPA evaporative emission standards. The integral fuel tank shall have a 7 quart fuel capacity.

Priming:

The pump shall provide the following pump priming options: a guzzler type hand primer, an exhaust venturi primer, or a 12VDC electric primer.

The guzzler hand primer shall have a composite body with aluminum handle and reinforced buna-n diaphragm and flapper valves. It shall have a lift of 12 feet with the capability of approximately 16 feet when a foot valve is used on the pump suction hose. The hand primer shall be capable of handling a maximum pressure of 15 PSI and weigh 1.7 pounds. It shall ship loose with the unit with all the essential hardware items and hose needed to connect it to the pump up to 6 feet away.

The exhaust primer shall be an integral part of the muffler and shall be capable of pulling a minimum of 17 in-Hg vacuum. The venturi primer shall be of complete brass construction and pressurized via a push/pull cable operated exhaust valve located on the opposite side of the muffler. The exhaust valve must be constructed of a corrosive resistant aluminum body with stainless shaft and disc.

The electric primer shall be a 12 VDC piston type vacuum pump with 3/8 female NPT intake and discharge ports – NO EXCEPTIONS. The body of the electric primer shall be a corrosive resistant aluminum with bronze sleeves and a composite piston. It shall pull a maximum current of 105 amps and have a vacuum of 22 in-Hg. The electric primer shall weigh 8.1 pounds. It shall ship loose with the unit with all the essential hardware items and hose needed to connect it to the pump up to 6 feet away.

Any priming system offered must be connected to the pump through a ¼ turn ball type shut-off valve to prevent the priming system from being pressurized when the pump is attached to a pressurized water source.

Mounting Base:

The pump/engine unit shall be mounted on a black base plate with tubular horizontal legs. The base shall be provided with four industrial stud type isolators – NO EXCEPTIONS.

Control Panel:

The pump shall have the capability of being supplied with any of 3 types of remote control panel options using a quick-connect 8-pin industrial sealed connector. The panel 8-pin industrial seal connector must mate directly to the 8-pin industrial sealed connector supplied on the engine harness – NO EXCEPTIONS. The three options shall be a MCP (Mini-control panel), a PMSCP (panel mount standard control panel), and a WCP (WATERAX control panel).

1. The MCP panel shall be a channel shaped remote panel containing the following features and controls: chrome On/Off toggle, push button start, chrome toggle low water pressure override switch, red LED low oil pressure warning light, liquid filled dual unit 0-600 PSI/0-4000 kilopascals pump discharge pressure gauge, vernier throttle with red emergency throttle idle push button, and push/pull engine choke cable. The panel shall be wired and the wiring shall terminate with an 8-pin female industrial sealed connector. All panel wiring shall be color coded or labeled to directly correspond to the mating engine or extension harness. All electrical components shall be weather resistant.
2. The PMSCP panel shall be a flush mount flat panel with the following features and controls: chrome On/Off toggle, push button start, red LED low oil pressure warning light, liquid filled dual unit 0-600 PSI/0-4000 kilopascals pump discharge pressure gauge, vernier throttle with red emergency throttle idle push button, push/pull engine choke cable, and a cut out for either the mounting of an exhaust remote control priming cable or an electric primer chrome momentary toggle switch. The panel shall be wired and the wiring shall terminate with an 8-pin female industrial sealed connector. All panel wiring shall be color coded or labeled to directly correspond to the mating engine or extension harness. All electrical components shall be weather resistant.
3. The WCP panel shall be a vertical stainless steel (skid) panel with a base flange for mounting. It shall have the following features and controls: chrome On/Off toggle with red flip cover, engine stop chrome toggle switch, push button start, chrome toggle low water pressure override switch, red LED low oil pressure warning light, liquid filled 0-600 PSI pump discharge pressure gauge, two 12 VDC waterproof 0.5 Watt high powered LEDs, a 12 VDC digital tach/hour meter, 15 amp breaker, vernier throttle with red emergency throttle idle push button, push/pull engine choke cable, and a cut out for either the mounting of the exhaust remote control priming cable or an electric primer chrome momentary toggle switch. The panel shall be wired and the wiring shall terminate with an 8-pin female panel mount industrial sealed connector. All panel wiring shall be color coded or labeled to directly correspond to the mating engine or extension harness. All electrical components shall be weather resistant. The panel shall offer customization for items such as foam and/or water level gauges, and/or a work light switch capable of operating a 100 Watt work light.

Pumping Unit Remote Panel Wiring:

The wiring of the engine and control panel shall incorporate a pre-mounted engine wiring harness and a panel to pump 3 feet extension harness option. The extension harness shall be capable of interconnecting for accommodating installation lengths longer than 3 feet. In addition, the system shall provide a quick an easy method for quickly connecting all components of the unit. No additional wiring or technical labor shall be required. All wiring shall meet NFPA 1901 specifications and terminate with industrial grade sealed connectors.