

PUMP COMPONENTS

CHASSIS

The chassis provides a stiff platform upon which the complete pumping unit is mounted. It also doubles as an integral fuel tank capable of holding enough fuel to run the unit at full power for 24 hours. The chassis features a balanced lifting bail designed to support the weight of the fully loaded pump. The lifting bail is the only attachment point suitable to lift the pump. For the users convenience clean-out plugs and d-rings are located on all four corners of the chassis. The clean-out plugs allow for easier rinsing of the fuel tank. The d-rings provide appropriate tie-down points.

ENGINE

The units come standard with an adequately powered diesel engine or electric motor rigidly mounted to the chassis. To protect the engine, safety cut-off protection is provided against low oil pressure and high coolant temperature. Should either of these situations exist the engine will automatically shut down. Do not restart the engine without first identifying the source of the problem. The control panel also includes a tachometer and hour meter. The tachometer allows the user to define the pump's power setting. The hour meter permits the user to schedule routine maintenance. The pump also features an engine mounted air compressor, which is used to power the priming system. The compressor is driven directly by the engine and is plumbed into both the engine's lubrication and coolant systems thus maximizing the reliability of the priming system. The 4TAP models are not available with engine driven compressors, rather incorporate a belt driven compressor lubricated and cooled via the engine.

PUMP END

The pump end is a centrifugal pump specifically designed for municipal and industrial applications. The impeller is a two-vane enclosed geometry with the ability to handle 3" diameter solids. To further increase the dependability of the unit, the pump is coupled to the engine through a torsional damper. The damper, designed to isolate vibrations between the pump and engine, minimizes the effects of shock loading.

A distinctive feature of the pump is that it has been designed for ease of use and maintenance. The pump is primed by the Global automatic priming system and is supplied, as standard, with a mechanical seal and positive oil feed. The mechanical seal and oil bath allow the pump to be run dry for prolonged periods. The back pull-out design allows the bearing housing and impeller to be removed without disturbing either the suction or discharge piping. Both the impeller and suction cover are fitted with cast iron renewable, axial clearance wear-rings. The drive shaft, which is supported by two sets of grease lubricated bearings, is fitted with a replaceable shaft sleeve.

PRIMING SYSTEM

The priming system produces a vacuum which is used to draw fluid up through the suction hose and into the pump, once the pump is fully flooded it is completely primed. The vacuum is created by accelerating compressed air through a venturi. When the compressed air flows through the narrowest portion of the venturi it reaches its highest speed. At this point it also has its lowest pressure. Side drillings positioned at this point in the main duct of the venturi are connected to the pump casing via a ball valve and a series of chambers. The air is evacuated from the pump casing and suction hose by drawing it through the chambers and side drillings of the venturi into the venturi's main duct where it exhausted to the atmosphere through the environmental box. The environmental box is an air/fluid separator which assures no contaminants are released during the pump's operation.

Using this method of priming the pump has three main advantages over alternative automatic priming systems. The vacuum is created indirectly and so there is no risk that contaminants in the pumping fluid, which could potentially damage a vacuum pump or any other direct method, will be passed into the air compressor. Secondly, with the exception of the air compressor that utilizes the large reserves of the engine's lubrication and coolant systems to maximize its reliability, this arrangement has no moving parts. Finally, the components of the priming system are adequately corrosion proofed. The venturi is made from bronze. The collars used to mount the venturi and the braided steel air line are made from stainless steel. All the other fittings of the priming system are made with a zinc-chromate finish.