The Zimbabwe “B” type Bush Pump
Raising and lowering pipes and rods

Peter Morgan 2011
Zimbabwe Bush Pump – raising and lowering pipes and rods

Bush Pump pipes (50mm GI) are heavy and it is best and usually essential to lift the pipes (and internal rods) with a tripod and block and tackle. Special tools are also required to lift parts of the pump. These include a tripod and block and tackle, pipe clamp and pipe holder. Wrench spanners, open ended spanners and a 16mm thread making tool for the rods are also required.
These photos show a situation where the rods have separated from the piston and the rods are extracted first from within the rising main. In order to extract the rods the floating washer housing must be taken apart. This involves unscrewing the floating washer housing bolts, lifting the rods, clamping the raised rods with wrench spanners, unscrewing the U bracket and removing, removing the floating washer plates and washers. Once the upper part of the floating washer housing has been removed the U bracket can be attached again and used to raise the rods. The hook of the block and tackle equipment is hooked under a short length of 16mm rod placed through the U bracket bolt holes. Each rod is raised and the rod socket unscrewed. The rods are held up with a special tool which is placed under the rod socket.

The rod is raised by attaching the hook of the block and tackle equipment to a short length of rod passed through the U bracket bolt holes. The raised rod is held up by two wrench spanners.

The U bracket lock nut is unscrewed. The U bracket and rubber buffer are removed.

A rod socket can be attached to the main rod to hold it up using a special rod holding clamp. The floating washer housing bolts are then removed. Using the rod holding clamp, the rod is lifted and held again by the wrench spanners. The floating washer plates and floating washers are removed.
The upper parts of the floating washer housing and floating washers have been removed. The rods can now be removed one by one.

At each joint the rod clamp is used to hold up the rod whilst the upper lock nut is loosened and rod socket is removed from the upper rod. The rod is held up by the rod socket held against the clamp. Each rod can be lifted by re-attaching the U bracket and lifting with block and tackle as shown. In a case where the rods have separated from the piston, all the rods can be removed in this way.

LIFTING THE RISINGMAIN (50mm Galvanised iron pipe)

If the rods are all linked together and attached to the piston and a standard seal replacement is required, the rods will still be held inside the pipes. In this case the pipes and rods will be lifted together. The hook of the block and tackle is attached to a rope held around the water discharge unit as shown. The pipe is lifted together with the water discharge unit until the first pipe socket is revealed. A pipe clamp is then attached around the pipe under the pipe socket and tightened.
The pipe clamped. The uppermost pipe can be removed together with the water discharge unit. Pipes lower down are attached to the pipe lifting device and lifted out.

Where the rods and pipes are lifted together (which will be the standard case), the lower pipe is held by the clamp, whilst the upper pipe is unscrewed from the pipe socket and raised. The rods inside are then separated. The uppermost pipe and rod are then removed together. All the rods and pipes are removed in the same way to gain access to the cylinder and piston. Maintenance work is then carried out on the piston, foot valve and cylinder (see other manual). This will normally include replacement of leather piston seals and inspecting and cleaning all the parts.

The foot valve, cylinder and piston are then put together tightly attached to the lowest pipe and rod and the rising main assembly is reassembled. At each pipe joint a pipe joining compound like “plumbers paste” should be used. This makes a letter water seal, prolongs the life of the thread and also makes unscrewing the pipes easier next time. All the parts are re-assembled using the various tools and equipment described above.