

Pump Piston Seal
Replacement On Manual
Hydraulic Presses P/N's 15011/25011



Instruction Manual

Pump Piston Seal Replacement On Manual Hydraulic Presses

Instruction Manual

Pump Piston Seal Replacement

PUMP PISTON SEAL REPLACEMENT

INSTRUCTION MANUAL

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1. Introduction

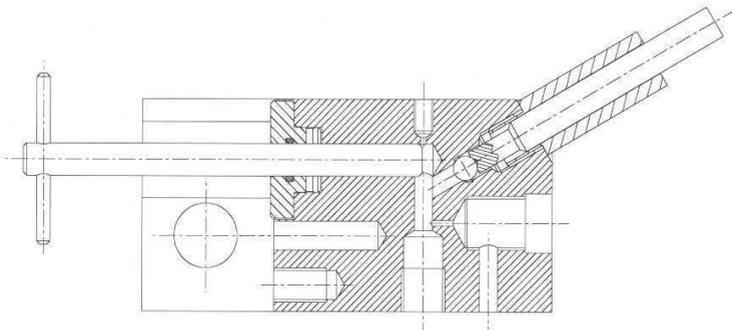
A kit of parts has been collected together for the replacement of the pump piston seal within a 15 or 25 tons manual hydraulic press. The kit consists of the pump piston seal, pump piston O-ring, a litre of oil, re-seating and seal guide tools and a set of instructions. The numbers in brackets from this instruction sheet relate to the parts from the diagrams of the press in the manual hydraulic press instruction manual. It is imperative to have the manual hydraulic press instruction manual for help in any of the procedures described.

The seal may need to be changed in the press if it is suspected that the pressure loss in the system is greater than that specified. Ordinarily the press should not lose more than 1 ton of load, registered at the load gauge (31), over a 15 minute period. If the rate of drop is greater than this, the pressure loss in the system may be from a faulty seal (43) at the pump piston (42), or from other check valves in the system such as the load gauge (31), the pressure release handle assembly (30), or the pressure relief valve assembly (66 to 73) . If the pump piston seal is to be replaced it is recommended that these other check valves are inspected to see if the ball bearing seatings are sealing correctly. The pump piston seal kit contains the necessary tool bits and guides to tap/punch lightly on the ball bearing for re-seating into position once cleaned and inspected. In the main it should only be necessary to gain access to the ball bearing (50) beneath the load gauge (31) and the ball bearing (58) behind the pressure release handle (30). Instructions for removal of the load gauge (31) to gain access to the ball bearing (50) are found in the press manual. The ball bearing behind the release handle (30) can be accessed by unscrewing the handle (30) fully and tipping the press slightly over (be careful as the press is heavy) to allow the ball bearing to roll out. *(Tip: Pulling slightly on the press pump handle (33) will raise some oil in the system to push the ball bearing out of the recess, when the release handle is unscrewed and removed from the pump block).* The bearings and seatings should be inspected for any particulate matter that may have been carried around in the oil flow or for any marks that may be preventing them from sealing properly.

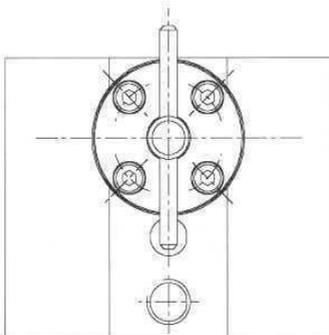
It may also be prudent to change the oil in the press if it is suspected that there has been a build up of particulates in the oil from the seal material, which can occur over time. The procedure for changing the oil involves removal of the pump block and pump handle assembly from the base casting of the press. When the base casting opening is exposed the oil can be drained out of the press. The pump block assembly is refitted and the press is filled with clean oil. The instructions for this procedure are also found in the press instruction manual under the maintenance section.

2. Diagrams Of Tools In The Kit

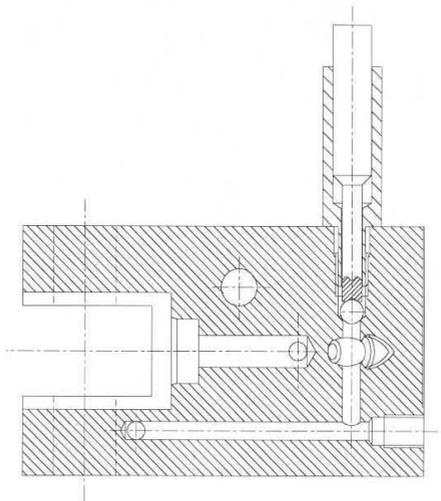
The following diagrams are to explain the seating tools and their guides and where they are used on the pump block of the press.



Above is a side view of the pump block assembly. The load gauge (31) has been removed and the correct guide and tapping tool for ball bearing (50) have been positioned (right hand side). To the left hand side the seal positioning guide rod has been inserted in place of the pump piston (42).



Above is a view from the back of the pump block assembly of the pump piston housing. The seal positioning guide rod is shown with the T handle in a vertical position.



Above is a cut-away top view of the pump block showing the guide and tapping tool to be used for the ball bearing (58) behind the pressure release handle (30)

3. Procedure For Seal Replacement

Removal of the Pump Block Piston

To remove the pump block piston (42), in order to gain access to the seal (43) and O-ring (44), it is not necessary to remove the pump block assembly from the press. However, it is necessary to remove the pump handle (32) and crank assembly (60 to 64). (You can use the following procedure, even if the pump block assembly has been removed from the press.)

The pump plate (36) must be removed from the pump block assembly by undoing the four securing screws. (This is the same procedure involved for bleeding air from the pump block assembly). Carefully remove the pump block upper gasket (38), inspect and replace if necessary.

Turn the press so you can gain access to the rear. Move the pump handle so that it is fully upright and at a 90 degree angle to the pump piston (42). You will then see two roll spiral fixing pins (63), one that attaches the pump handle (32) through the crank shaft (61), and a second that passes through the crank (60) and crank shaft (61). You will need to remove this second spiral pin (63). Use a 5.0 mm stainless steel rod, or punch, and hammer to tap it through completely (there is a special recess hole in the pump block to accommodate the spiral pin as it is knocked through), whilst ensuring that the pump handle (32) remains fully upright.

The crank shaft (61) is now only connected to the pump handle (32), and this assembly is pulled out through the two crank shaft bushes (62) and removed from the pump block. (This is a tight fit and might require a slight backward and forward motion of the pump handle (32).) You can now pull the pump piston (42) completely out of the pump, along with the crank (60) and the crank pin (64).

Important: *The spiral pin (63) will now be seen in the recess hole. Remove this pin and inspect. It may be usable for re-assembly, if not replace with a new one. It is important to remove it from the recess hole before re-assembly because the accommodation recess would already be filled the next time you needed to tap out the spiral pin (63) from the crank (64) connection.*

To gain access to the pump piston seal (43) and O-ring (44), the pump piston sealing housing (45) is removed by undoing the four screws (47). The O-ring (44) is contained within the housing (45), and the seal (43) is retained in the pump block. Inspect both seal and O-ring for wear and replace if necessary. (It is usually worthwhile replacing both of these parts whilst you have access to them.)

To replace the seal (43) and the O-ring (44) you will need to use the T - handled seal positioning guide rod tool. First place the O-ring (44) into the seal housing (45) and slide onto the guide rod tool. Ensure that the face of the seal housing (45) with the four screw recess holes is facing the T-handle part.

Tip: – *You may need to lightly lubricate the tool with some press oil to allow the O-ring to slide over the guide rod tool.*

Now take the piston seal (43) and also slide it over the guide rod tool. Take care to replace the piston seal (43) in the correct way. One face of the seal is flat and the other face has a groove. The grooved face of the seal is inserted into the pump block, and when the housing (45) is replaced, the flat faces of the seal and the housing are in contact with each other. Now insert the guide rod tool with the seal housing/O-ring and piston seal into the back of the pump block and when the seal housing is roughly in position replace the four seal housing screws (47). With the guide rod tool acting as a “dummy” pump piston, tighten the four screws (47) but do not over tighten them, as they will squash the piston seal (43) and make it difficult to remove the guide rod tool for replacement and insertion of the actual pump block piston (42). The four screws (47) should be tightened sufficiently so that the guide rod tool can be pulled free with mild force. Test the tightness by inserting the pump block piston (42), prior to re-assembly of the crank mechanism.

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Re-assembly of the pump block piston (42), crank assembly (60 to 64), and pump handle is the reverse procedure to the above. Slide the crank pin (64), still fixed to the crank (60), into the U shaped part of the pump block piston (42). Push the piston (42) into the pump block piston housing (45), with the crank pieces attached, until the crank (60) is in its upright position. Now slide the crank shaft (61) and pump handle (32) assembly back through the crank shaft bearings (62), so that it also passes through the crank (60). Realign the crank shaft (61) (pump handle (32) is fully upright) and the crank (60) such that both parts will accept the spiral pin (63), to reattach the crank (60) to the crank shaft (61). Tap the spiral pin (63) back into position to secure.

4. Individual Part Numbers Of Items In The Kit

P/N 377-001 The pump piston seal

P/N 377-027 The pump piston O-ring

P/N GS15101 1 Litre of Oil

P/N 580-000 Setting tools for pump block

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