

TECHNICAL BULLETIN 201-7

SERVICE PROCEDURES -

Skipper Series Helm Units -DISMANTLING

Dismantling of the Skipper Helm unit is not difficult, but should not be attempted unless there is something seriously wrong with the unit. It is not necessary to dismantle the unit in order to replace the shaft seal. This can be achieved by following the instructions provided with replacement seal kit.

If however, you do find it necessary to strip the helm pump then the following simple procedure should be followed:-

1) Ensure the outside of the pump is totally clean and that it has been drained completely of oil. You will need a vice, a clean newspaper and a Phillips-head screwdriver.

2) Place the helm unit in the vice, holding onto the pump shaft. Use aluminium "soft" jaws in the vice to avoid damage to the shaft (See diagram Step 1). Use rolled hard cardboard around the shaft if you do not have soft jaws.

3) Unscrew and remove all the end-plate screws EXCEPT one. When you have removed all but one of the screws, Hold the end-plate and the body together using one hand, and unscrew the remaining screw with the other. The pistons are spring-loaded and the end-cap can "spring" off under the pressure if you do not hold them firmly together. When the last screw is removed, slowly relax your grip and the end-plate will rise off the pump (Diagram step 2). Be careful not to damage the gasket between the end plate and the body. Sometimes the gasket might stick slightly to either the body or end-plate, but "GENTLE" persuasion will dislodge it. If damaged, this gasket must be replaced immediately. These are available as a spare part.

4) Lift the end-plate completely off, taking care not to drop the bearing and housing.

5) The end-plate will have the centre "transfer" shaft still in place, and this shaft carries the pick-up valves and the small transfer tubes inside. It is retained by an O-ring on the outside and O-rings on the two small transfer tubes. It can be dismantled further by simply pulling the shaft directly out of the end-plate (diagram step 3). Make sure when you re-assemble these parts that you use a little rubber grease or vaseline to avoid damage to these seals.

6) You will notice a small location pin in either the transfer shaft or the end-plate casting. This location pin is to ensure that the shaft is re-installed in the correct position. Don't lose this pin.

7) With the end-plate dismantled, you will now have the following items:-

- A bearing plate that may be attached to the end-plate casting, OR may become loose during the dismantling procedure.
- The bearing ball race which locates between the two bearing plates.
- The second bearing plate which has a larger hole diameter than the one on the end-plate (see diagram step 3). DO NOT GET THESE MIXED UP - the smaller one MUST go back onto the end-plate. If you install them back-to-front you may cause serious damage to the helm unit when used.
- Two transfer tubes with O-ring seals on each end. Inspect to ensure there is no damage to the O-rings.
- The transfer shaft, complete with pick-up valves installed.

Take note of the order in which the parts were removed so that you can re-install them in the same way.

8) If the problem is merely foreign material in the pick-up valves, then do not disassemble the unit further. Simply wash the transfer shaft with some clean turpentine, kerosene or petrol and then blow out the pick-up valve ports with compressed air. There should be no need to dismantle the pick-up valve to clean them. They are not a wearing part. Simply re-assemble the helm in the reverse order taking care with the bearing that it lines up fully. It would be a help if a second party is able to hold the end-plate in position while you replace the holding screws. In this way the bearing stays in place.

9) If you need to dismantle the unit completely then simply push the steering wheel shaft straight through the front of the body, holding the cylinder shaft on the other side. This houses 7 pistons and springs. Be very careful not to drop any of these parts as the slightest burr can cause serious problems for re-assembly.

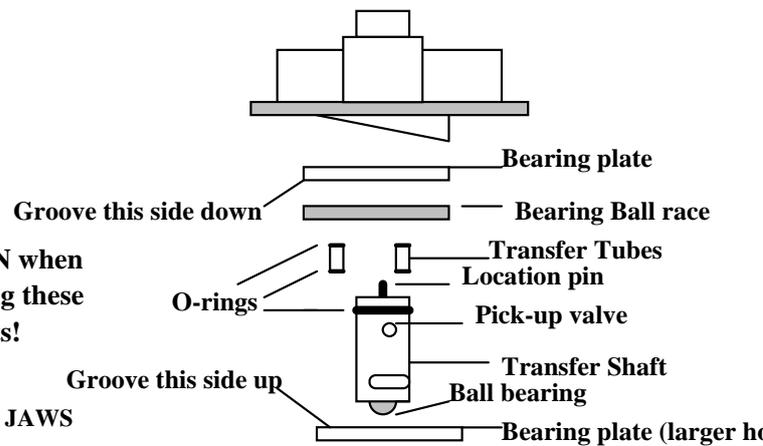
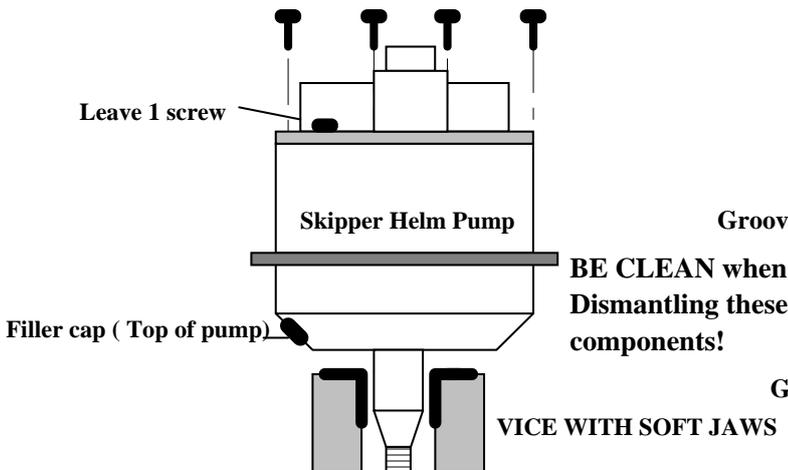
The front of the cylinder shaft retains the main bearing which in turn houses the front thrust bearing which comes in 3 parts. This bearing is a smaller version of the rear thrust bearing you have already removed. One of the bearing plates (the *thin* one) will probably remain in the pump body, and it can remain there so long as it does not become dislodged. Do not reverse the position of these two plates.

Once again, when dismantled, you must be clean and remember to reassemble all of the parts in exactly the reverse sequence of dismantling.

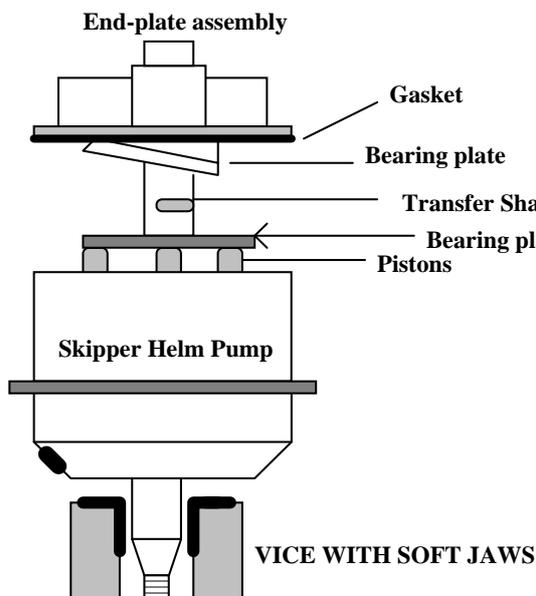
NOTE: The 'T' cast on the inside of the end-plate indicates the "TOP". The end-plate *must* be assembled in that position.

BASIC DISMANTLING OF HELM - Step 3

BASIC DISMANTLING OF HELM - Step 1



BASIC DISMANTLING OF HELM - Step 2



BASIC DISMANTLING OF HELM - Step 4

