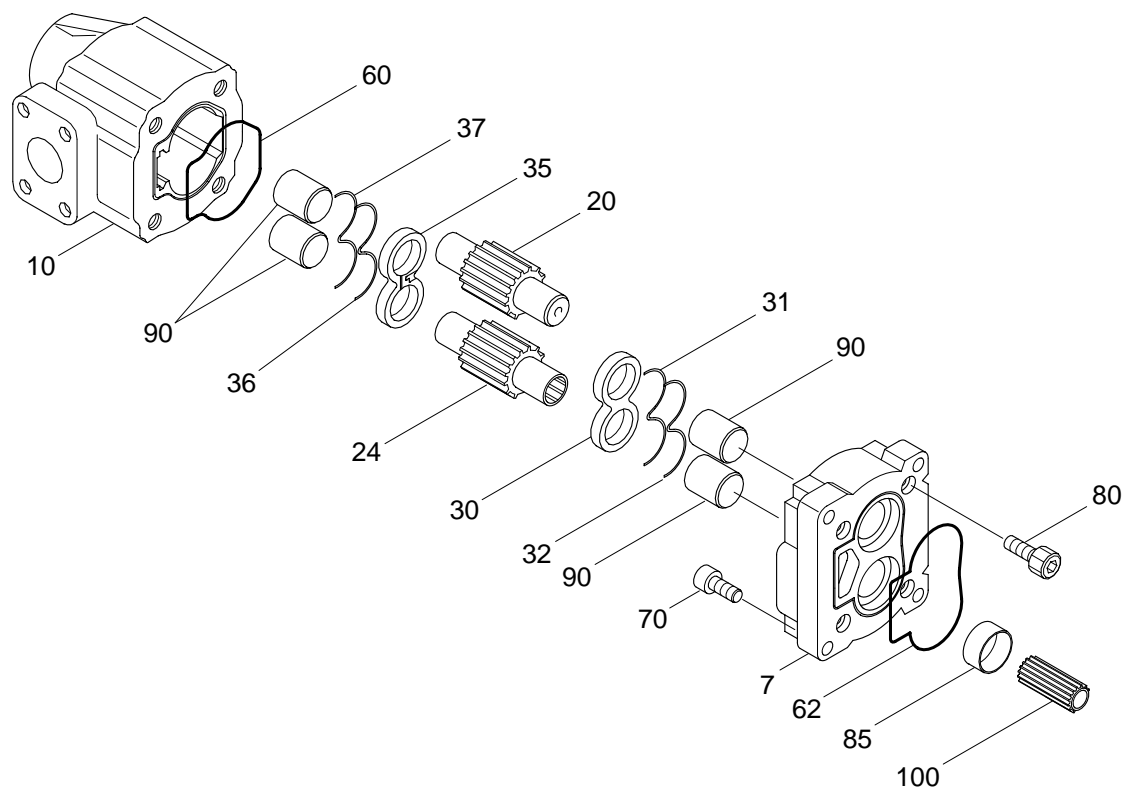


GROUP 4 DISASSEMBLY AND ASSEMBLY

1. BRAKE PUMP

1) STRUCTURE



7	Cover	32	Wear plate back up seal	70	Cap screw
10	Housing	35	Wear plate	80	Cap screw
20	Driven gear	36	Wear plate seal	85	Location ring
24	Drive gear	37	Wear plate back up seal	90	Plain bearing
30	Wear plate	60	O-ring	100	Coupling
31	Wear plate seal	62	O-ring		

2) GENERAL INSTRUCTION

(1) Cleanliness

- ① Cleanliness is the primary means of assuring satisfactory hydraulic pump life. Components such as flanges and covers are best cleaned in soap and hot water, then air dried. Gears should be washed in solvent, air dried, and oiled immediately.

▲ Certain cleaning solvents are flammable. Do not allow sources of ignition in the area when using cleaning solvents.

- ② Protect all exposed surfaces and open cavities from damage and foreign material.

※ Gear journals and gear faces are super finished. Take care not to touch these surfaces after oil and solvent have been removed.

(2) Lubrication of moving parts

During assembly, all running surfaces(Bearing and wear plate) must be lightly lubricated with a clean oil or aerosol lubricant.

(3) Tools required for assembly

- ① Torque wrench (0~50kgf · m, 0~360lbf · ft)
- ② Open end wrenches
- ③ Seal installation tools (Inner and outer)
- ④ Shaft bullet (Seal protector)
- ⑤ Installation plate

(4) Tightening torque

Item	Torque	
	kgf · m	lbf · ft
Screw(70)	4.7	34
Screw(80)	16.5	119

3) DISASSEMBLY

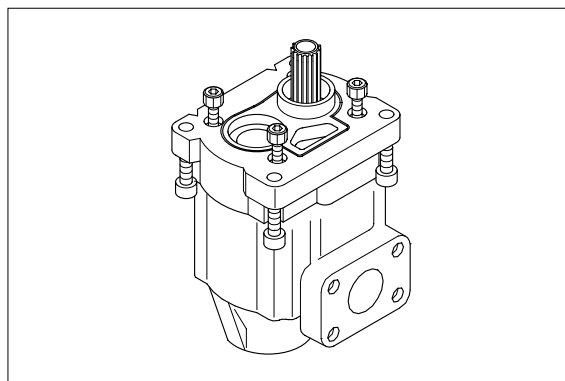
- ※ Plug all ports prior to cleaning and disassembling pump to prevent ingress of debris or contamination.

Clean the pump thoroughly with a solvent, ensuring no loose debris or contamination remains on the unit.

Dry pump using compressed air or clean lint-free cloths.

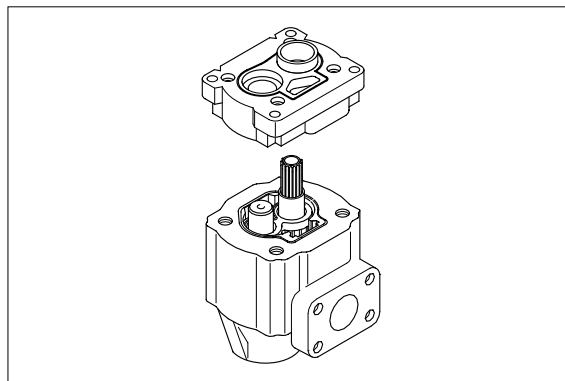
- ※ Ensure that interface location ring(85) and splined coupling(100) are retained for reassembly.

- (1) Remove the cap screw(70, 80) securing the cover(7) to housing(10).



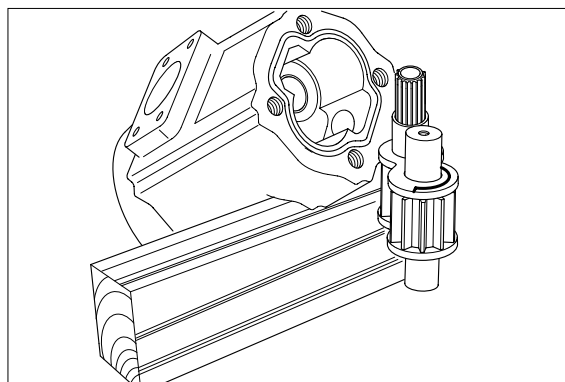
- (2) Remove the cover(7) from the housing(10).

- ※ Under NO circumstances attempt to prise or chisel cover from housing as such action could damage the machined sealing faces.



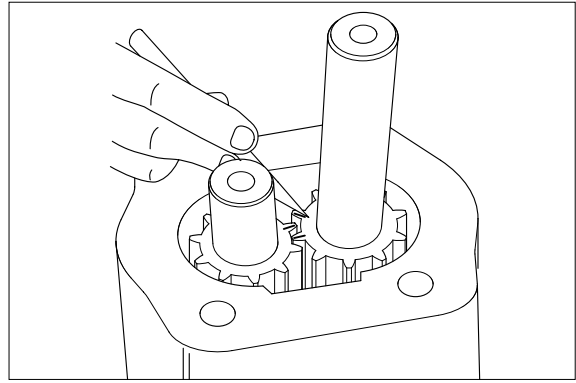
- (3) Before removing wear plate(30) from the housing(10) mark it using a soft pencil or a felt-tip pen to ensure correct reassembly.

Remove wear plate(30) complete with wear plate seal(31) and back up seal(32).



- ※ Mark the gears using a soft pencil or felt-tip pen to ensure reassembly in the same relative position, then withdraw the drive shaft/gear and driven gear separately to prevent jamming.

Again, to ensure correct reassembly, mark remaining wear plate(35) using a soft pencil a felt-tip pen. Remove wear plate(35) from housing(10) complete with wear plate seal(36) and back up seal(37).



4) MANDATORY REPLACEMENT PARTS

Discard all seals including interface seals, shaft seals, wear plate seals and back up seals. Fit new seals on reassembly.

5) HANDLING / STORAGE

While disassembling pump, ensure no surfaces are scored or marked in any way. A rubber surfaced table will be beneficial. All components must be placed in a clean, dry and safe area. Leakage will be created by scratches on components. If parts are to be left for any period ensure they are not exposed to dirt, dust and corrosion. Keep gears separate from each other in cardboard boxes.

6) INSPECTION OF PARTS

Wash all parts in a solvent and dry using compressed air or clean, lint-free cloths.

(1) Mounting flange, housing and cover

The pump must be replaced if the damage listed is present.

Feature	Damage
Surfaces	Corrosion, nicks or burrs(Slight burrs can be removed using and india stone)
Machined sealing Interfaces	Scores or cracks
Bearing bores	Incorrect diameter, grooves or distorted
Bearing	Loose

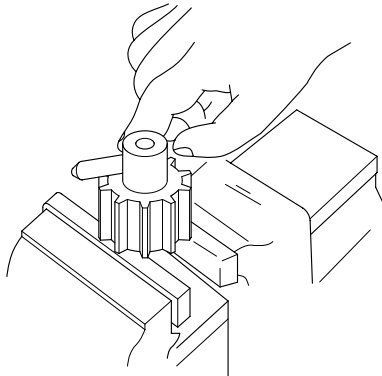
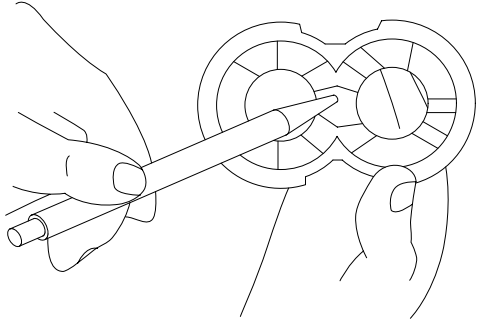
(2) Gears

The pump must be replaced if the damage listed is present.

Feature	Damage
Surfaces	Corrosion, nicks or burrs(Slight burrs can be removed using an India stone). Wear due to seal(s)
Journals	Pitting, wear, sufficient wear to change outside diameter
Gears	Cracks or heavy scoring or chipped
Splines/keyways	Distortion of wear

(3) Floating wear plates

The pump must be replaced if the damage listed is present.

Feature	Damage
Surfaces	Corrosion, nicks or burrs, amounts of scoring, erosion or any cracks, discoloration caused by overheating
 Removing burrs or minor scoring from end faces and teeth of the gears.	 Scoring of wear plate.

(4) Bolts / Studs

These must be replaced if the damage listed is present.

Feature	Damage
Surfaces	Corrosion, nicks or burrs (Slight burrs can be removed using an India stone), cracks or scoring, distortion or damage to thread form

(5) Plain bearings

The pump must be replaced if the damage listed is present.

Feature	Damage
Surfaces	Cracks or scoring
PTEF Coating	Worn
Bearing	Loosen in mating component

(6) Coupling

This must be replaced if damage listed is present.

Feature	Damage
Surfaces	Corrosion, nicks or burrs, erosion, cracks or pitting
Splines	Distorted or badly worn

7) WEAR PLATES, SEALS AND BACK UP SEAL, SUB-ASSEMBLY

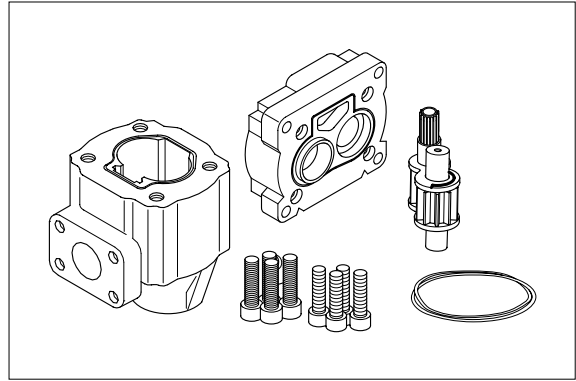
Refer to illustration on assembly drawing for the correct fitment of the wear plate seal and back up seal in the groove of the wear plates(30, 35).

It is critical that the wear plates are assembled into the pump with regard to the following :

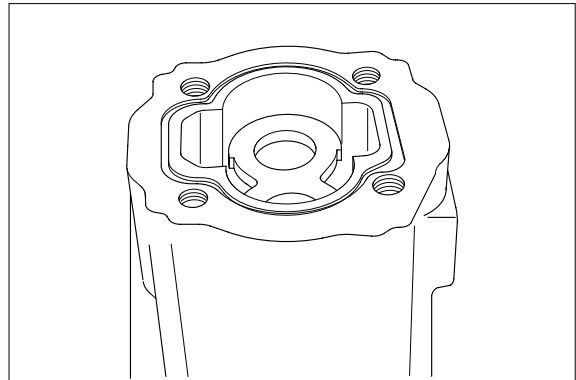
- (1) The seal side of the wear plate must be adjacent to the cover(7) or housing(10).
- (2) The high pressure side of the wear plate must be adjacent to the outlet port. Refer to assembly drawing.

8) ASSEMBLY

(1) Lightly oil surfaces with clean hydraulic oil.



(2) Place housing(10) vertically with front section gear pockets upper most.



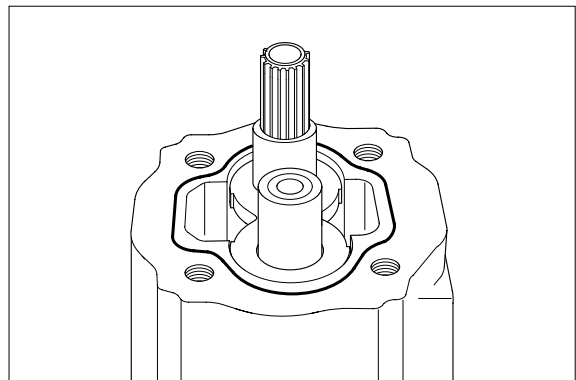
Side wear plate(35) complete with seal (36) and back up seal(37) down through the housing(10) to the bottom of the gear pockets.

※ Be sure to refit the wear plate you have marked from this position.

Fit the gears within the housing taking care to replace as marked, with the teeth reassembled to their original related position.

Fit the wear plate(30) complete with seal(31) and back up seal(32).

※ Be sure to refit the wear plate you have marked from this position.



(3) Fit new O-ring(60) into groove in housing(10). Fit cover(7).

Tighten cap screws(70, 80) to half torque and then full torque in diagonal sequence to figure as per assembly drawing.

