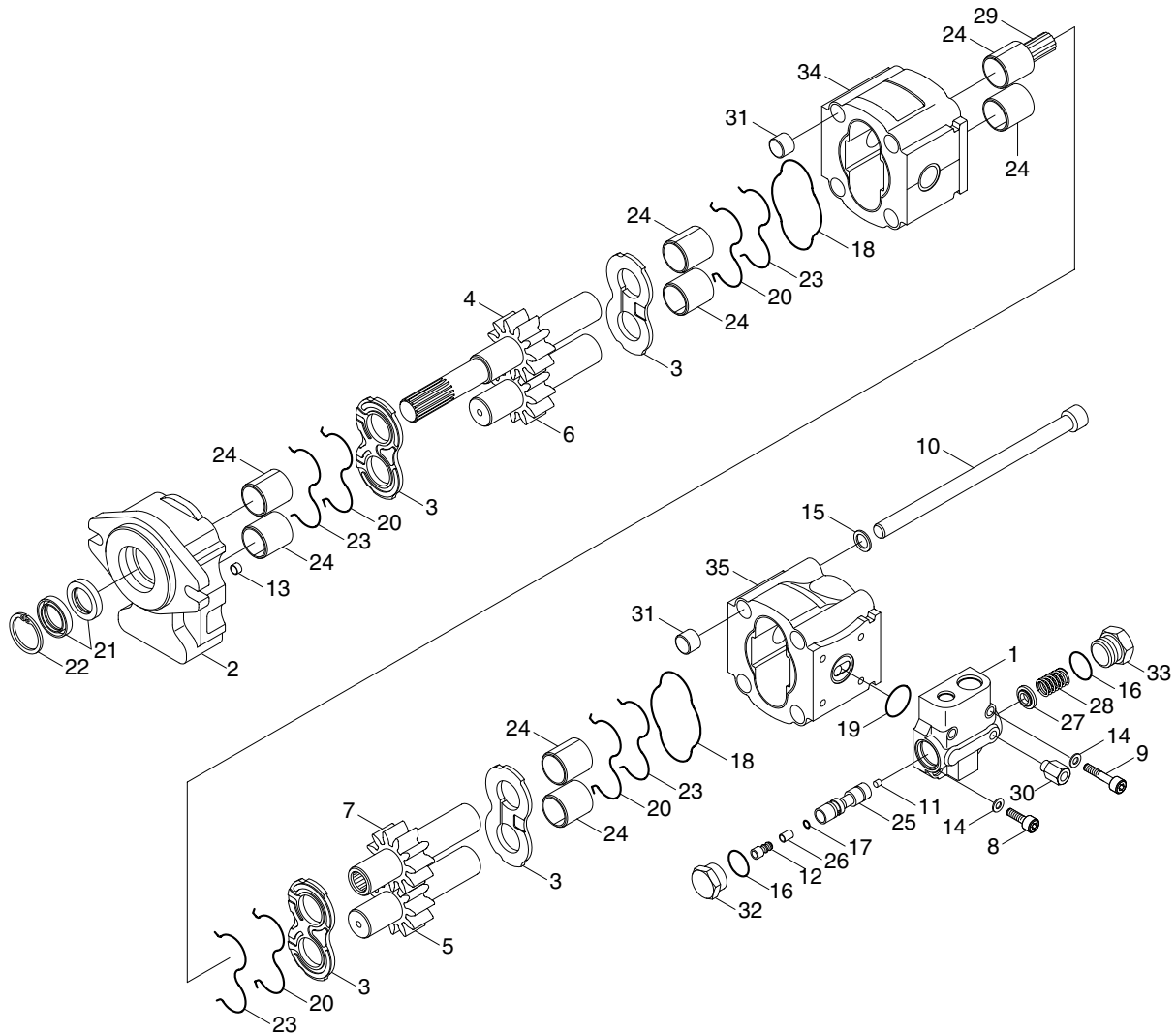


## GROUP 4 DISASSEMBLY AND ASSEMBLY

### 1. MAIN PUMP

#### 1) STRUCTURE



HB100WE21

1	Rear end cover	13	Screw	25	Spool
2	Front cover	14	Washer	26	Filter
3	Thrust plate	15	Washer	27	Spring seat
4	Drive shaft	16	O-ring seal	28	Spring
5	Driven gear	17	O-ring seal	29	Hub
6	Driven gear	18	Ring	30	Connector
7	Drive shaft	19	O-ring seal	31	Steel bushing
8	Screw	20	Seal	32	Plug
9	Screw	21	Shaft seal	33	Plug spring
10	Screw	22	Ring	34	Body
11	Screw	23	Ring	35	Body
12	Screw	24	Sleeve bearing		

## 2) GENERAL INSTRUCTIONS

- (1) Check immediately that any spare parts you receive have not been damaged in shipment.
- (2) Always work in a clean environment.
- (3) Wash all components in solvent and blow dry with compressed air before refitting.
- (4) Take care not to damage rubber seals.
- (5) Avoid damaging precision machined surfaces.
- (6) Components should fit into their housings without excessive force. If force is necessary, this normally means that the component does not have the correct dimensional tolerances or is aligned incorrectly.
- (7) When hand pressure is insufficient, only use presses or rubber hammer to fit components.
- (8) Never strike components with steel hammers.
- (9) Steel bushing must be fitted only with a suitable press.
- (10) Do not use hammers to fit bearings.
- (11) Always respect the direction of rotation when assembling components.

### 3) DISASSEMBLY

#### (1) LS priority valve

- ① Loosen and remove the assembling bolts and washers from the valve.



H940C6MP01

- ② Loosen and remove plug and take out spring & spool. (Only when it is needed to replace components inside).

- ※ Pay attention not to give any damage on the surface of the spool and contamination to the orifices prearranged at the spool.



H940C6MP02

#### (2) Mounting flange

- ① Loosen and remove the assembling bolts and washers from the pump.

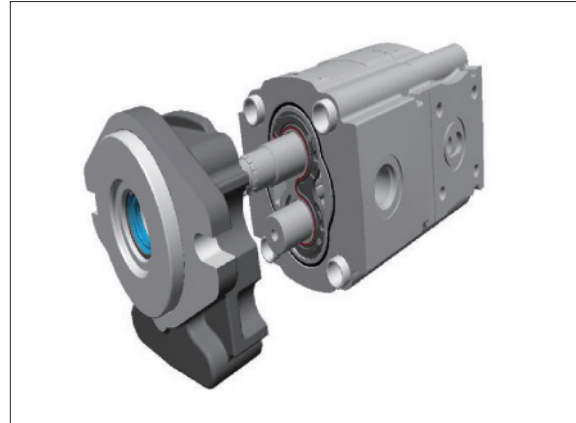


H940C6MP03

- ② Remove mounting flange taking care to keep it as straight as possible during removal.

Tap around the edge with rubber mallet in order to break away from the body.

- ※ Ensure that while removing it, the drive shaft and other components remain position.



H940C6MP04

- ③ Remove shaft seal with (-) screwdriver and take out snap ring with proper tool and shaft seal again.

- ※ Take out the shaft seals only needed. Shaft seals disassembled from the mounting flange is not reusable.



H940C6MP05

### (3) 1st working section

- ① Remove the pressure plate with prearranged parts, O-ring & back up ring from the working section and examine it carefully.



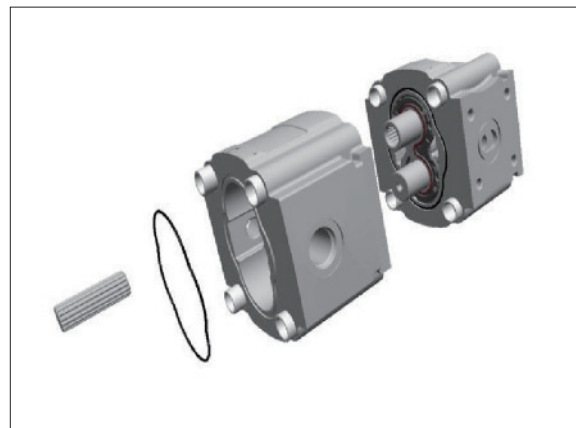
H940C6MP06

- ② Pull out driving gear & driven gear keeping gears as straight as possible.
- ③ Remove other pressure plate on rear side with same way for front side.



H940C6MP07

- ④ Remove square O-ring on the groove of body.
- ⑤ Remove through shaft and front body.
- ※ Tap around marked points with rubber mallet all around to break away first body from second.  
Do not wedge between the bodies, it may give serious damage on the surface.



H940C6MP08

**(4) 2nd working section**

- ① Remove all components inside of second body with same way for 1st section.
- ② Remove the square O-ring if necessary.



H940C6MP09

#### 4) ASSEMBLY

##### (1) Preassembly

###### Pressure plates

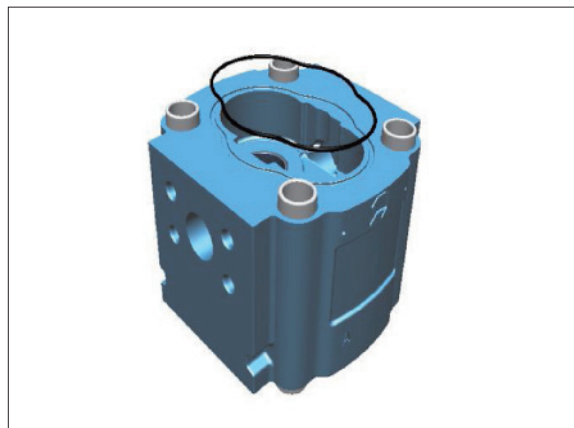
- ① Locate O-ring into the groove on the aluminum pressure plate.
- ② Locate back-up ring upon the O-ring.
- ③ Smear clean grease on the O-ring & back-up ring to fix their position while moving.



H940C6MP10

###### Working body

- ① Insert square rings into grooves.  
Shape of square ring is different depend on type of bodies.



H940C6MP11

###### Mounting flange

- ① Locate shaft seal inside shaft hole to the end.
- ② Insert snap ring and locate it into the groove prearranged on the mounting flange.
- ③ Locate shaft seal again but different direction.

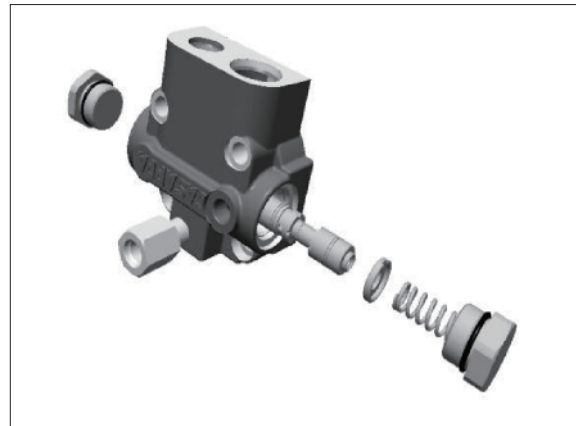


H940C6MP12

### LS - priority valve

① Insert the spool prearranged all orifice first, and spring, plugs.

- Torque value of both sides plugs :  
10.2 kgf · m (73.8 lbf · ft)
- Torque value of LS plug :  
1.53 kgf · m (11.1 lbf · ft)



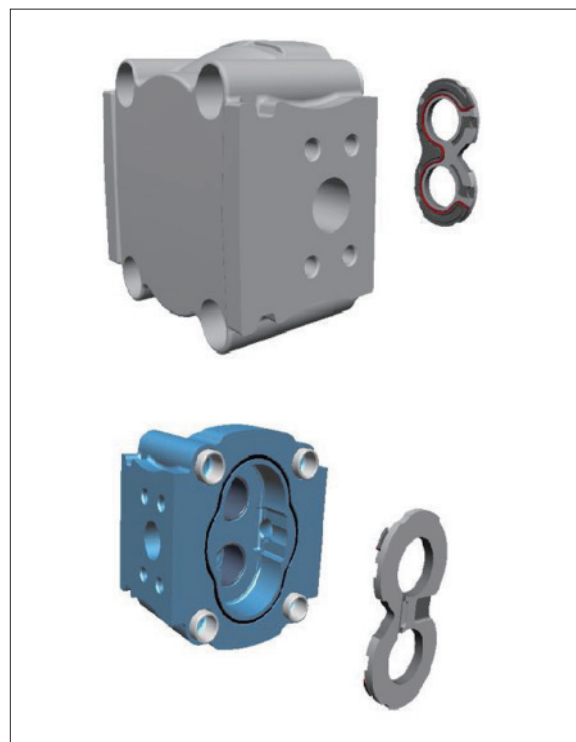
H940C6MP13

### (2) Assembling

① Prepare cleaned 2nd body prearranged guard pins and square O-ring.

② Insert a pressure plate prearranged O-ring & back-up ring inside of body.

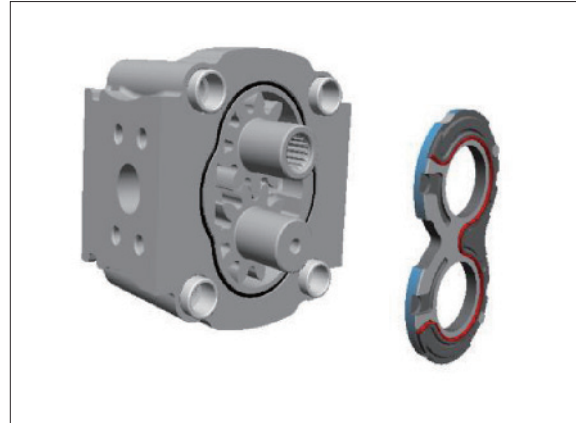
※ Opened area of O-ring should face to suction side. And O-ring side should face to the body.



H940C6MP14

③ Locate driving gear and driven gear keeping as straight as possible during assembling.

④ Locate one of pressure plates prepared.

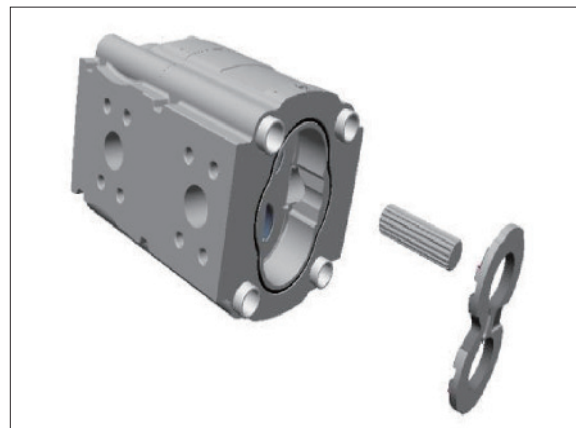


H940C6MP15

⑤ Locate 1st body on the 2nd body tapping around the body with rubber mallet to fit it completely.

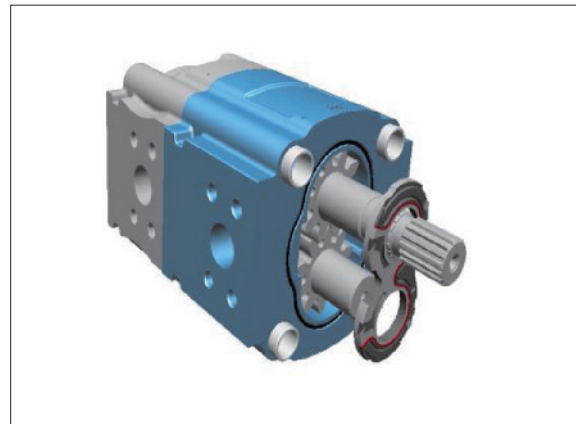
⑥ Locate through shaft on the driving gear.

⑦ Locate pressure plate with same way for 2nd body.



H940C6MP16

⑧ Locate driving gear and driven gear and last pressure plate also.



H940C6MP17



- ⑨ Assemble mounting flange to the body, taking care not to give any damage on the shaft seals by sharp edge of shaft.

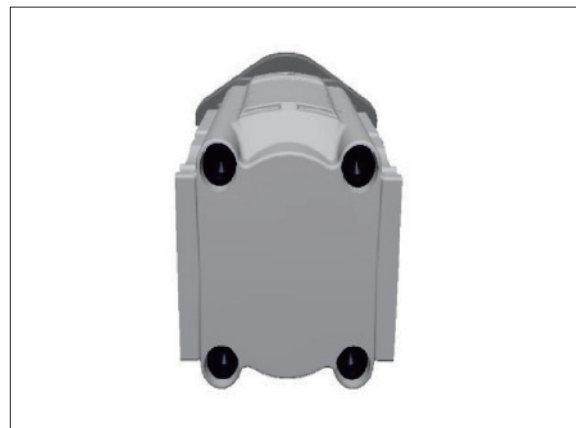
※ Smear clean grease on the lips of shaft seals before assembling.



H940C6MP18

- ⑩ Assemble the bolts and tighten the bolts with in a crisscross pattern to a torque value of 14.3 kgf · m (103 lbf · ft).

- ⑪ Check that the pump rotates freely when the drive shaft is turned by hand, if not a possible, plate seal may be pinched.



H940C6MP19

- ⑫ Locate an O-ring into the groove on the body.

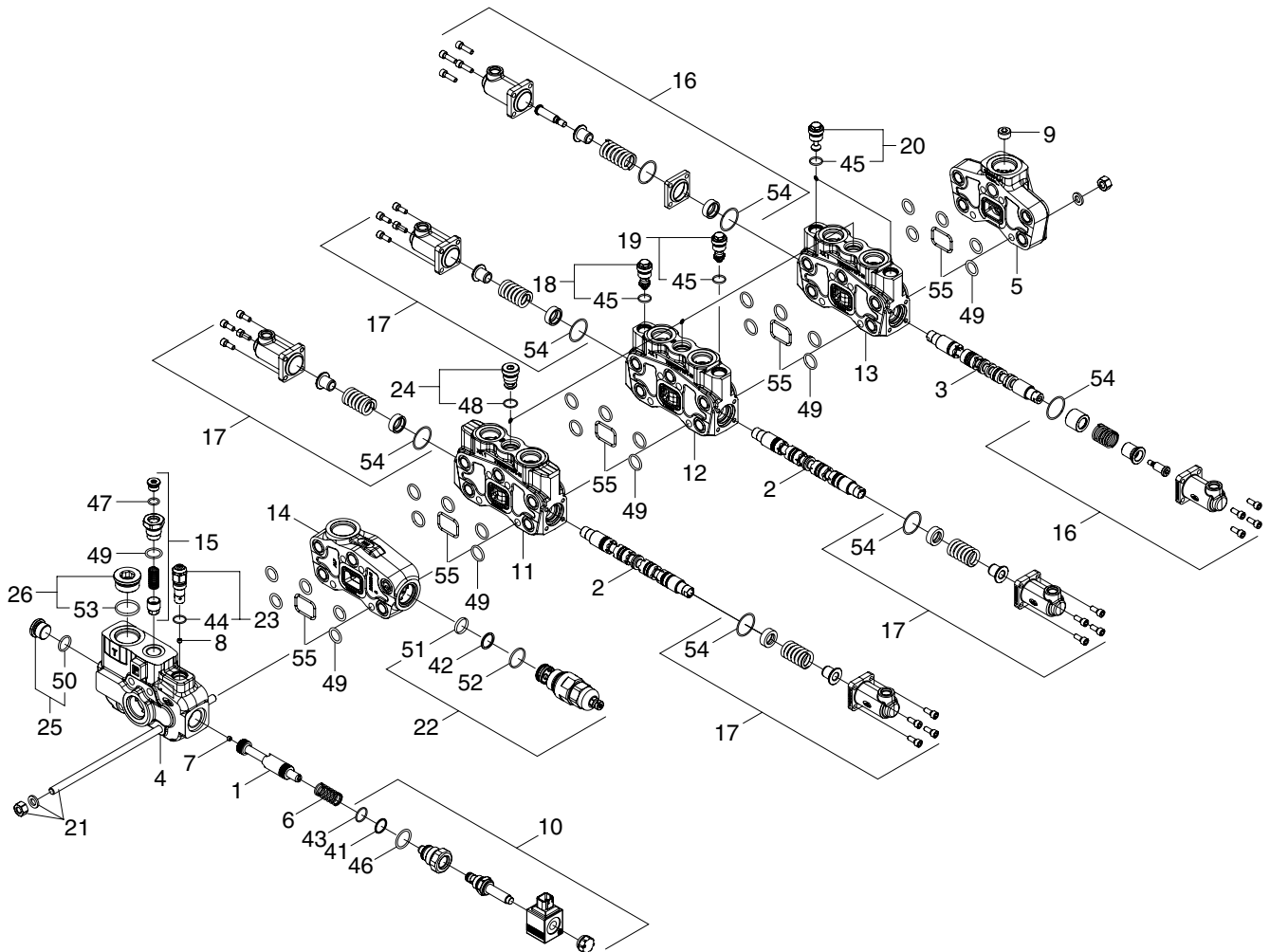
- ⑬ Locate preassembled LS - priority valve on the 1st working section and tighten the bolts with in a crisscross pattern to a torque value of 7.14 kgf · m (51.6 lbf · ft).



H940C6MP20

## 2. MAIN CONTROL VALVE (LOADER)

### 1) STRUCTURE

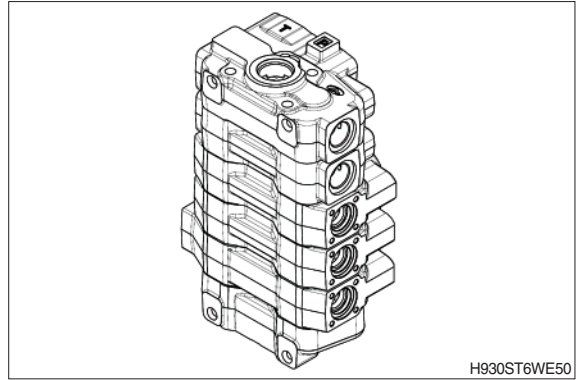


H930ST6WE36

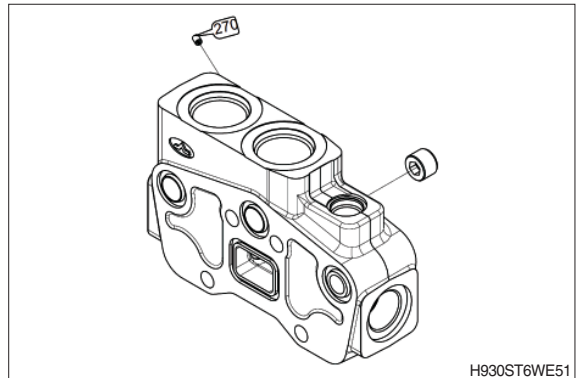
1	Unloader spool	12	Element kit	22	Valve	46	Seal
2	Spool	13	Element kit	23	Cartridge	47	O-ring
3	Spool	14	P1 block kit	24	Kit	48	O-ring
4	Inlet cover	15	Plug kit	25	Plug	49	O-ring
5	Outlet cover	16	Side cap kit	26	Plug	50	O-ring
6	Spring	17	Side cap kit	41	O-ring	51	O-ring
7	Screw	18	Valve	42	Seal	52	Seal
8	Screw	19	Valve	43	O-ring	53	O-ring
9	Conical plug	20	Valve kit	44	O-ring	54	O-ring
10	Valve kit	21	Tie rod kit	45	O-ring	55	O-ring
11	Element kit						

## 2) VALVE STACKING

- (1) Wear safety goggles and clean the table.
- (2) Place the inlet cover on the table.
- (3) Assemble the elements one by one make sure that O-rings are assembled on O-ring grooves.
- (4) Place the outlet cover on the assembled elements.

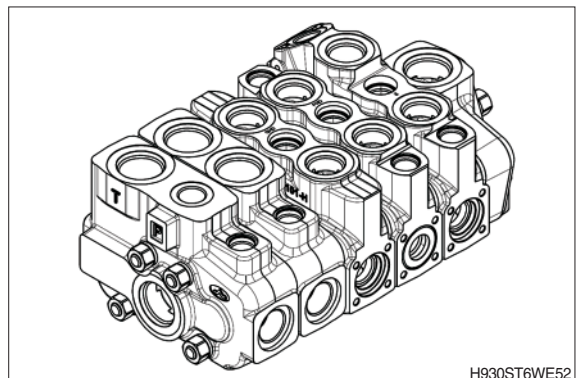


- (5) Assemble the two screws in the section 2 as shown.
- (6) Apply a drop of locktite #270 thread locker on the screw as shown.



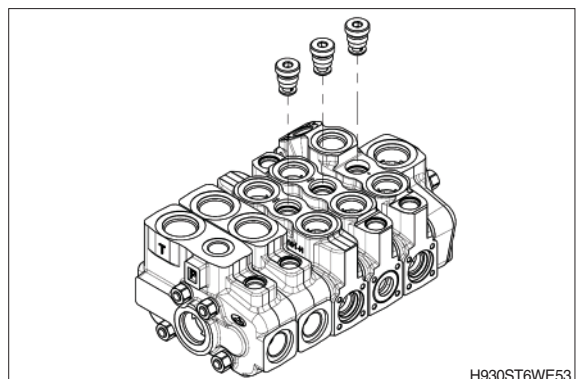
## 3) INITIAL SETUP OF THE VALVE ON ASSEMBLY BENCH

- (1) Wear safety goggles and clean the table.
- (2) Tighten the assembled valve with tirod kit to the  $4.1 \text{ kgf} \cdot \text{m}$  ( $29.7 \text{ lbf} \cdot \text{ft}$ ) torque (17 mm wrench) using pneumatic torque gun.
- (3) Clean the valve using compressed air so that valve is free from any dust or dirt.



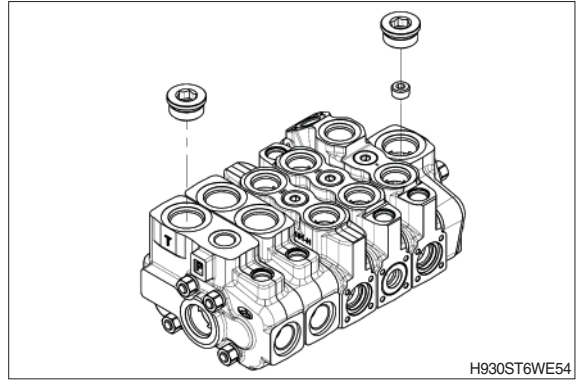
## 4) LOAD DROP CHECK VALVE ASSEMBLY

- (1) Assemble the VR Kit into the VR cavity and tighten it to  $4.3 \text{ kgf} \cdot \text{m}$  ( $31.1 \text{ lbf} \cdot \text{ft}$ ) (wrench 8 mm) torque using Pneumatic torque gun.  
(Make sure that O- ring is present in the VR plug)



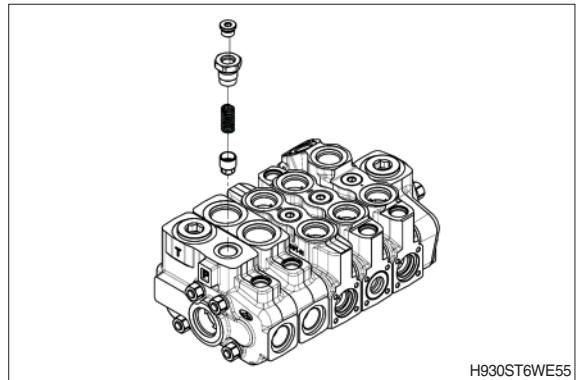
## 5) P AND T PLUGS ASSEMBLY

- (1) Assemble the conical plug at outlet as shown.
- (2) Assemble the plugs in top side cavities (Make sure that O-rings are present in the plugs ) and tighten it to the 4.3 kgf · m (31.1 lbf · ft) torque (wrench 17 mm) using Pneumatic torque gun.



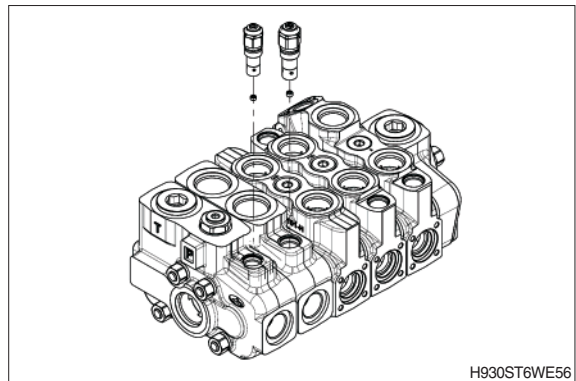
## 6) ADAPTER KIT ASSEMBLY

- (1) Insert the poppet in the manometer cavity.
- (2) Then insert the spring on to the poppet.
- (3) Assemble the BSP 1/2" plug and tighten it to 4.3 kgf · m (31.1 lbf · ft) torque (Wrench 27) using pneumatic torque gun. (Make sure that washer is present in the plug)
- (4) And assemble the sae6 plug and tighten it to the 2.4 kgf · m (17.4 lbf · ft) torque (wrench 6 mm) using pneumatic torque gun.



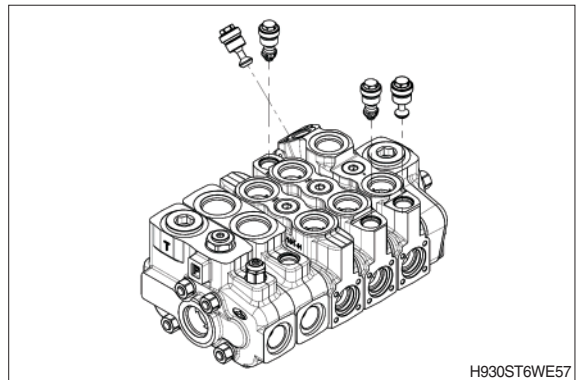
## 7) LS VALVES ASSEMBLY

- (1) Insert orifice of ( $\phi$  1.25 mm dia) in the LS cavity as shown.
- (2) Assemble the LS valve into LS cavity and tighten it to 2.4 kgf · m (17.4 lbf · ft) torque (Wrench 19) using pneumatic torque gun.



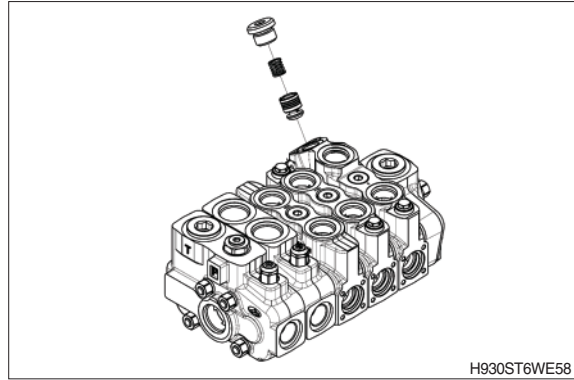
## 8) PORT RELIEF VALVES ASSEMBLY

- (1) Assemble the port relief valves into the port relief valve cavities on both sides of the valve (A& B sides) as shown. (Make sure that O-rings are present in the relief valves)
- (2) And tighten it to the 2.4 kgf · m (17.4 lbf · ft) torque (wrench 13 mm) using pneumatic torque gun.



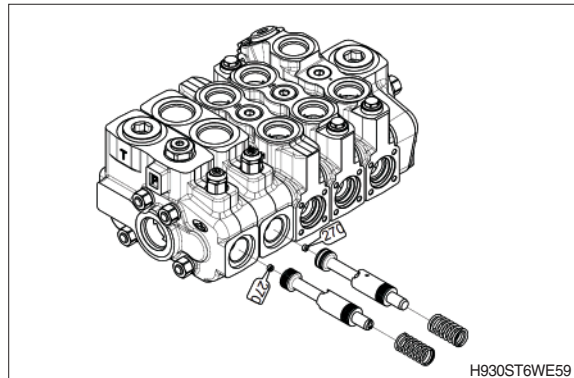
### 9) LOW LEAK POPPET AND SPRING ASSEMBLY

- (1) Insert the low leak poppet in to the cavity.
- (2) Then insert the spring on to the poppet.
- (3) Assemble the plug along with O-ring and tighten it to 2.4 kgf · m (17.4 lbf · ft) torque (Wrench 8 mm) using pneumatic torque gun.

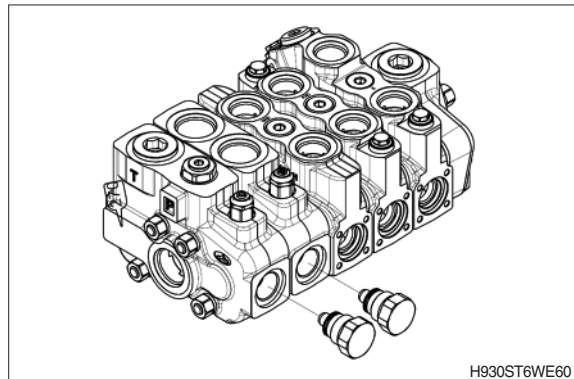


### 10) UNLOADER SPOOL AND COMPENSATOR SPOOL ASSEMBLY

- (1) Insert orifice of ( $\phi 0.75$  mm dia) in the spool as shown in picture.
- (2) Lubricate the spool cavity with hyspin VG46.
- (3) Insert the spool into the spool cavity with orifice face should go inside.
- (4) Insert the spring on to the spool seat.

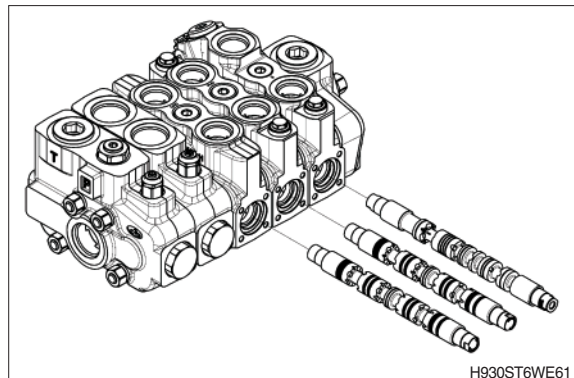


- (5) Assemble the adapter and tighten it to 4.3 kgf · m (31.1 lbf · ft) torque (Wrench 32) using pneumatic torque gun. (Make sure that washer & O-rings are present in the adapter).

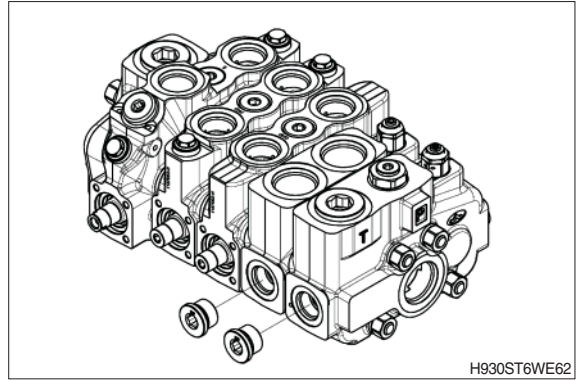


### 11) SPOOLS ASSEMBLY

- (1) Lubricate the spool cavities with hyspin VG46.
- (2) Insert the spools with control kit end facing the operator.
- (3) Move the spool in and out two to three times for free movement.

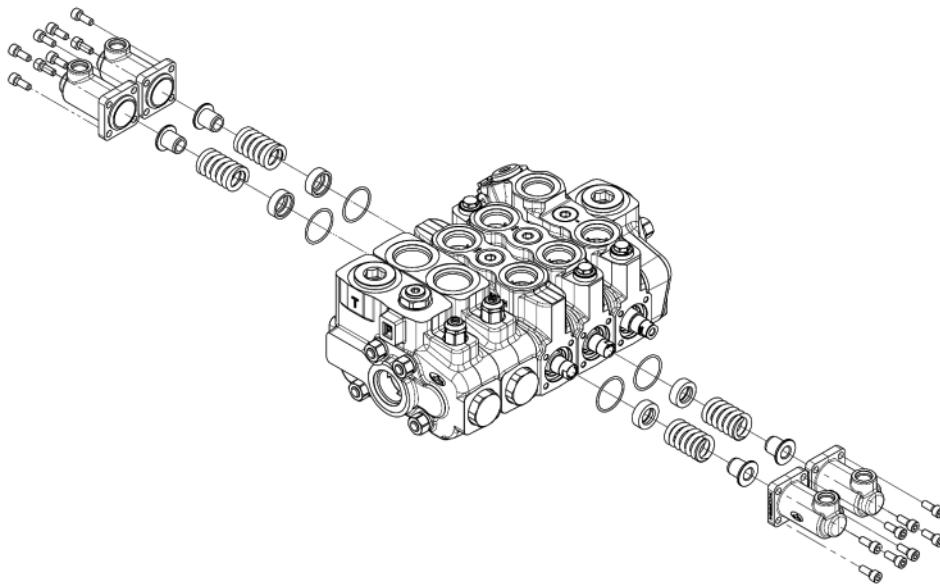


- (4) Assemble the plugs as shown and tighten it to 2.4 kgf · m (17.4 lbf · ft) torque (Wrench 10 mm) using pneumatic torque gun. (Make sure that O-rings are present in the plugs).



## 12) 8IMOH CONTROL KIT ASSEMBLY (boom/auxiliary)

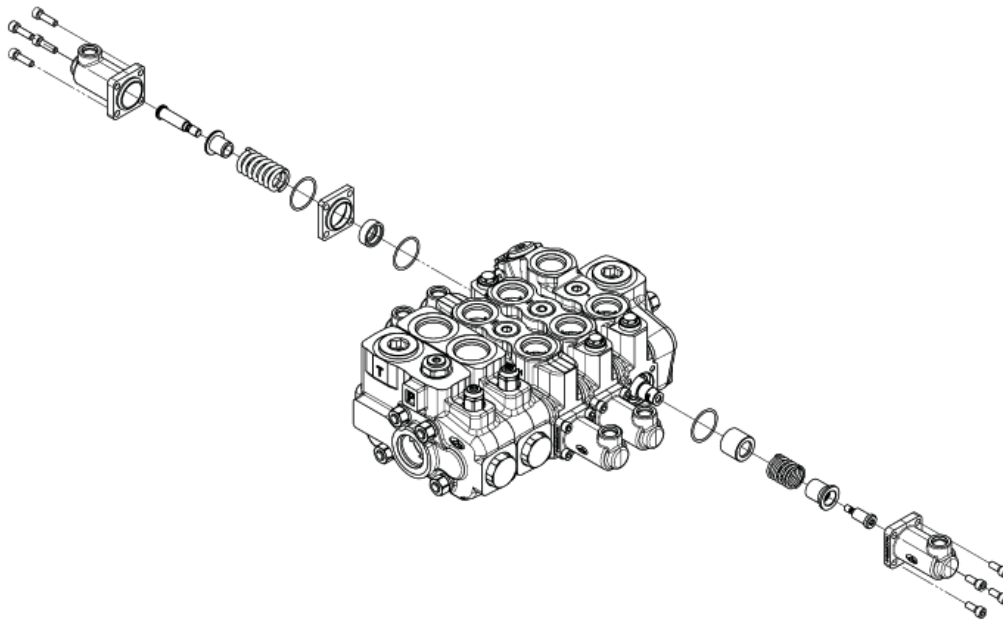
- (1) Place control kit spring in between two bushes as shown, and then assemble these into the spool on both sides of the valve.
- (2) Lubricate the spool end with proper quantity of Castrol Spheerol TM grease or equivalent.
- (3) Assemble the end caps both sides with M6 screws and tighten the control kit cap to 1.0 kgf · m (7.2 lbf · ft) torque (wrench 5 mm) using Pneumatic torque gun (Make sure that O- rings are present in the control kit)



H930ST6WE63

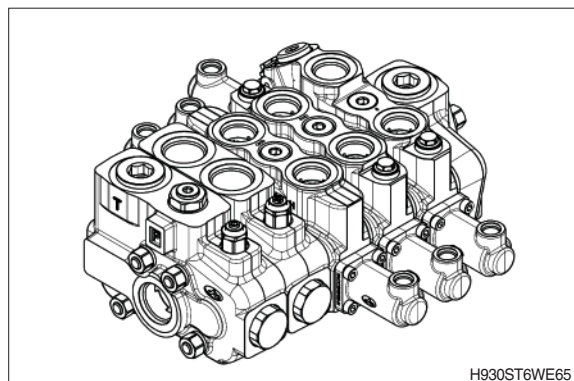
### 13) CONTROL KIT ASSEMBLY (bucket)

- (1) Apply a drop of locktite #270 thread locker on control kit screw threads.
- (2) Place control kit spring in between two bushes as shown, and then assemble these into the spool with control kit screw both sides.
- (3) Tighten the control kit to 1.0 kgf · m (7.2 lbf · ft) (wrench 5 mm) torque using Pneumatic torque gun.
- (4) Lubricate the proper quantity of Castrol Spheerol TM grease or equivalent.
- (5) Assemble the end cap both sides of the valve with M6 screws and tighten the control kit to 1.0 kgf · m (7.2 lbf · ft) (wrench 5 mm) torque using pneumatic torque gun as shown in the picture. (Make sure that O-rings are present in the control kit)



H930ST6WE64

### 14) FINAL ASSEMBLED VALVE



H930ST6WE65