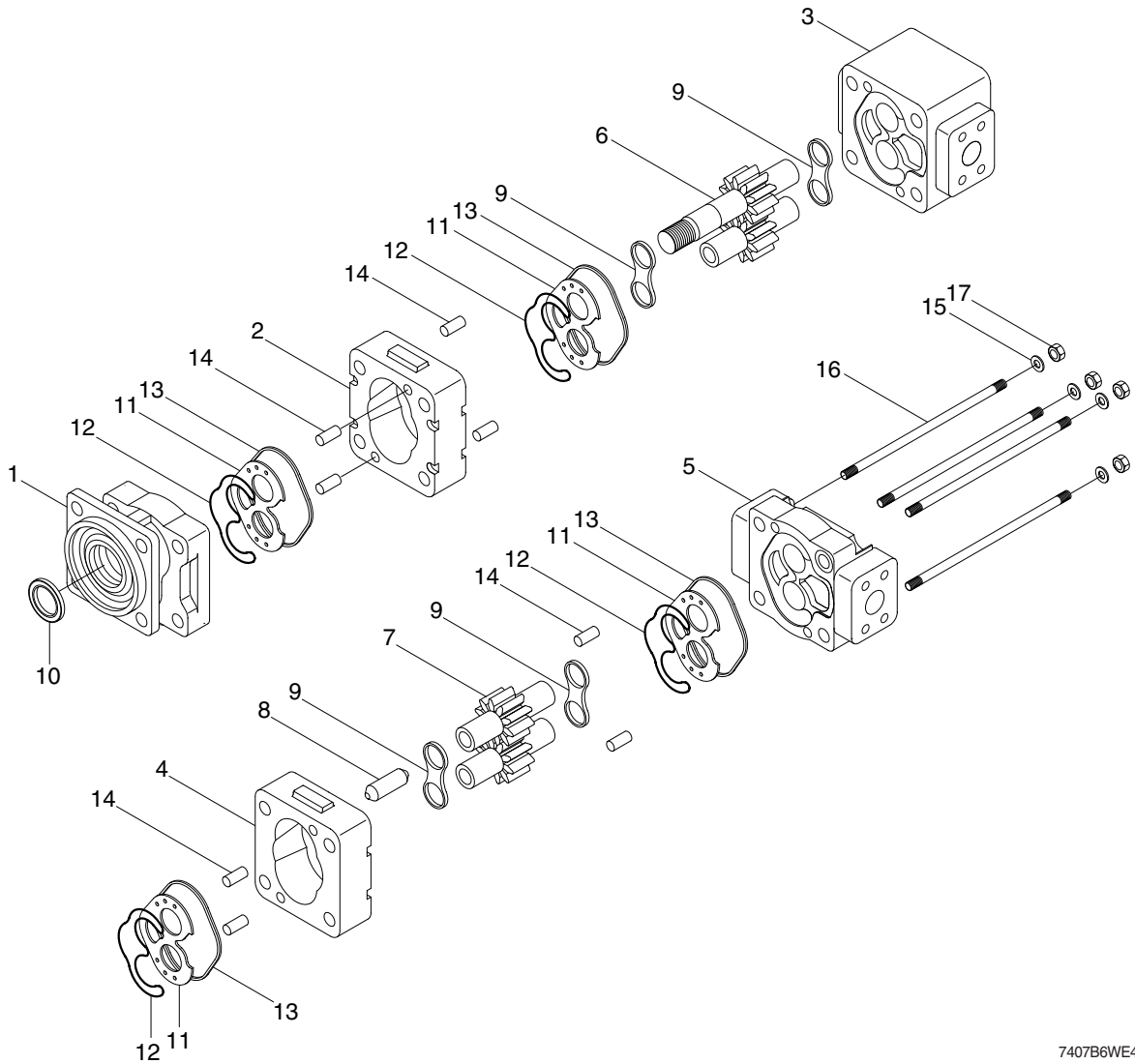


GROUP 4 DISASSEMBLY AND ASSEMBLY

1. MAIN PUMP

1) STRUCTURE



7407B6WE48

- | | | | | | |
|---|----------------|----|-----------------|----|-------------|
| 1 | Front cover | 7 | Driven gear set | 13 | Square seal |
| 2 | Housing | 8 | Connector shaft | 14 | Dowel pin |
| 3 | Carrier | 9 | Thrust plate | 15 | Washer |
| 4 | Housing | 10 | Lip seal | 16 | Stud bolt |
| 5 | Rear cover | 11 | Rubber seal | 17 | Hex nut |
| 6 | Drive gear set | 12 | Back up seal | | |

2) MANDATORY REPLACEMENT PARTS

Discard all seals including square seals, lip seals, rubber seals and back up seals. Fit new seals on reassembly. Thrust plates should also be replaced with new items from seal kit.

3) 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 protective boxes.

4) INSPECTION OF PARTS

Wash all parts in a solvent and dry.

(1) Cover, housing and carrier

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) |
| Machined sealing Interfaces | Scores, cracks or corrosion |

(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 |
| Tooth | Cracks or heavy scoring or chipped |
| Splines/keyways | Distortion or wear |
| End faces | Wear, cracks |

(3) Bolts/studs

The pump should 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) ASSEMBLY

(1) Prepare sub assembled parts (front and rear cover, carrier, housing, thrust plate).

※ Grease must be spreaded slightly on each seal.



(2) Put section sub assembly on the assembly table.

Assemble dowel pins.



(3) Assembly gear housing and thrust plate.

※ Check the contact status of square seal.



Push a thrust plate down on front cover.

(4) Mount a jig on the shaft end to protect lip seal.

Assemble drive gear.



- (5) Assemble driven gear.
Spread hydraulic fluid around gear set.



- (6) Assemble thrust plate.
Rotate the shaft gear and check status of gear set.
Assemble dowel pins and connector shaft.



- (7) Assemble sub assy of carrier.
Inlet hole is located on the right side.
※ Outlet drill hole is located at the bottom of carrier. Sub assy of piggy back type carrier is the same.



- (8) Assemble gear housing and thrust plate.
※ Check the contact status of square seal.



- (9) Assemble drive gear set.
Spread hydraulic fluid around gear set.



- (10) Assemble thrust plate.
Rotate the shaft gear and check status of gear set.
Assemble dowel pins and connector shaft.



- (11) Assemble the rear cover.
Check the contact status of square seal.



- (12) Assemble stud bolt and washer.
※ Washer : smooth - convex side up
※ Keep bolts in dry condition after washing.



(13) Nuts are pre-assemble by hand.



(14) Use air impact to assemble nuts.
At this time, assemble nuts diagonally.

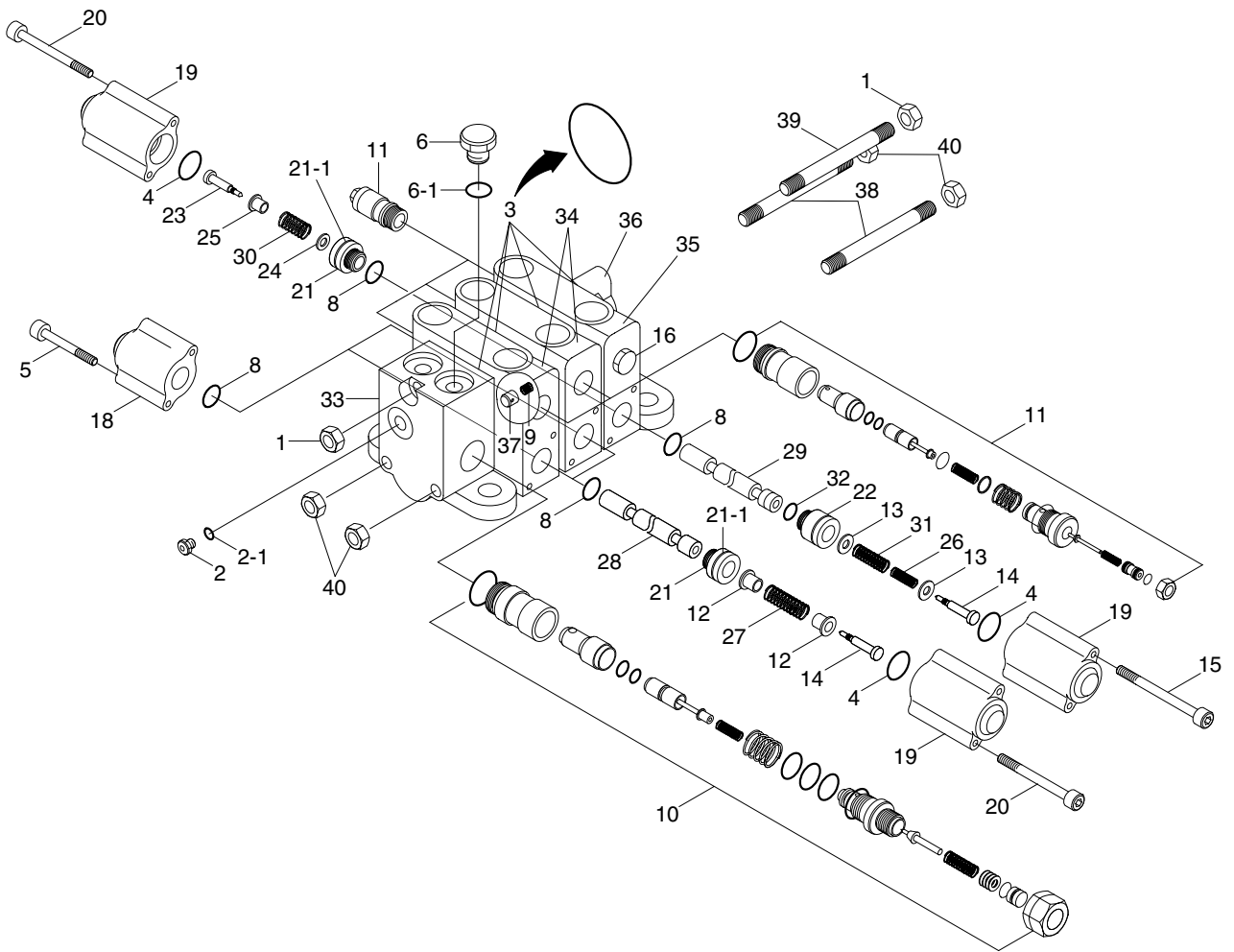


(15) Use torque wrench to assemble.
· Tightening torque : 15 kgf · m
(108 lbf · ft)



2. MAIN CONTROL VALVE

1) STRUCTURE

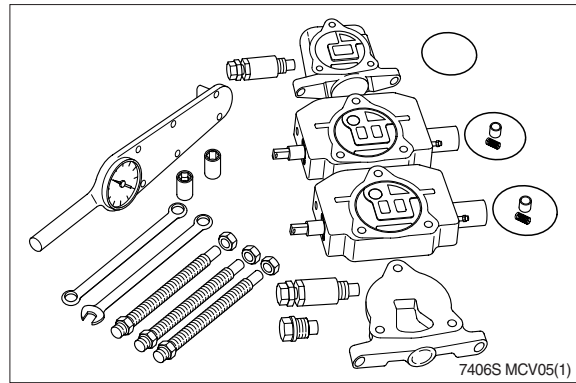


7407B6WE45

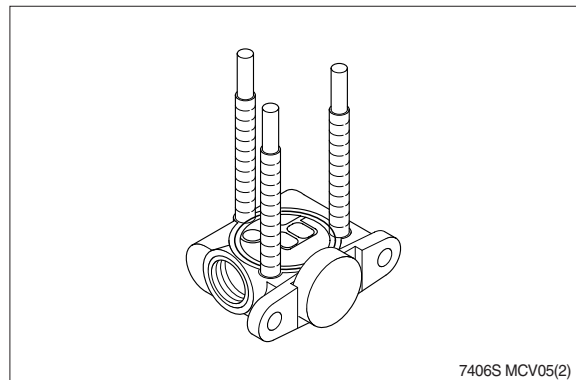
| | | | | | |
|-----|-------------------|------|----------------|----|---------------------|
| 1 | Nut | 14 | Screw | 28 | Spool |
| 2 | Plug | 15 | Screw | 29 | Spool |
| 2-1 | O-ring | 16 | Anti void assy | 30 | Spring |
| 3 | O-ring | 18 | Spool cap | 31 | Spring |
| 4 | O-ring | 19 | Spool cap | 32 | Back up ring |
| 5 | Cap screw | 20 | Cap screw | 33 | Inlet section assy |
| 6 | Plug | 21 | Spool retainer | 34 | Spool section assy |
| 6-1 | O-ring | 21-1 | Back up ring | 35 | Spool section assy |
| 8 | O-ring | 22 | Spool retainer | 36 | Outlet section assy |
| 9 | Spring | 23 | Screw | 37 | Poppet |
| 10 | Main relief valve | 24 | Washer | 38 | Tie rod |
| 11 | Port relief valve | 25 | Spacer | 39 | Tie rod |
| 12 | Spring seat | 26 | Spring | 40 | Nut |
| 13 | Washer | 27 | Spring | | |

2) ASSEMBLY AND DISASSEMBLY

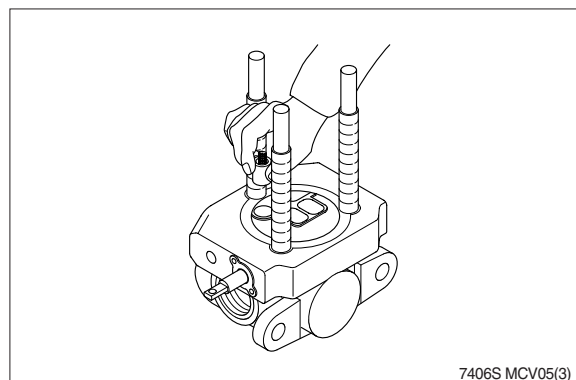
(1) Lay out valve components on a clean, flat working surface. The inlet assembly will include an O-ring, and the spool section (s) include an O-ring, a load check poppet and a load check spring. Tools required for basic valve assembly include 3/4 and 11/16 open or box end wrenches and a torque wrench with thin wall sockets.



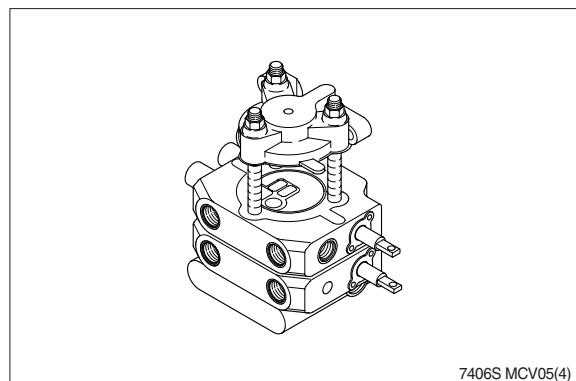
(2) Assemble tie rod nuts to one end of each tie rod with one or two threads showing. Insert tie rods through tie rod holes of inlet (large tie rod at top). Lay inlet on end with tie rods up, place O-ring into position.



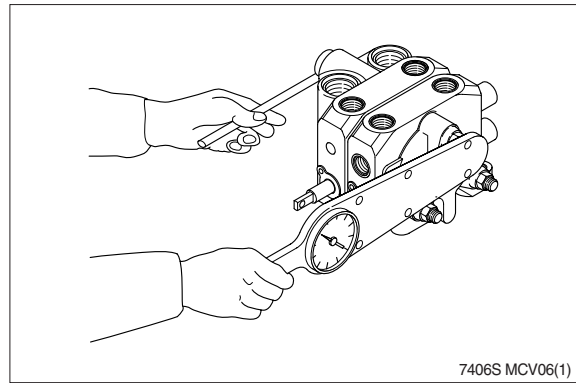
(3) Place first spool section (O-ring side up) on inlet section, position O-ring and insert load check poppet (nose down) and spring (behind poppet) into load check cavity as shown. Repeat this procedure for each spool section ; The load check springs are compressed by the following sections during assembly.



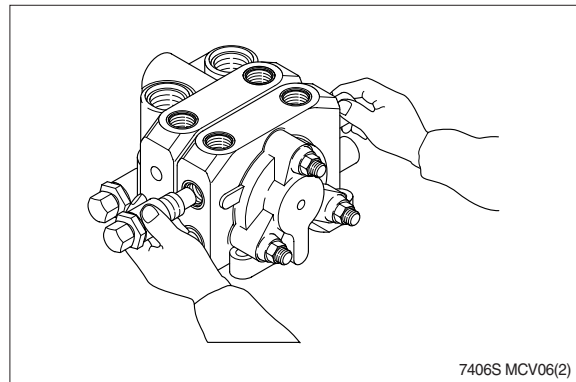
(4) Position end section on last spool section as shown and hand tighten tie rod nuts. The end section on picture is a "turn around" section without ports. Universal outlet/power beyond section and power beyond and closed center sections are also used as end sections. These end sections do not have O-ring grooves.



- (5) Position valve assembly with the mounting pads of the end sections on a flat surface. To obtain proper alignment of end sections relative to the spool sections apply downward pressure to the end sections ; Snug tie rod nuts to about 10 lbf · ft.
Final torque the two 11/16 nuts to 48 ± 5 lbf · ft ; Final torque the 3/4 nut to 74 ± 8 lbf · ft. Check for proper spool movement.

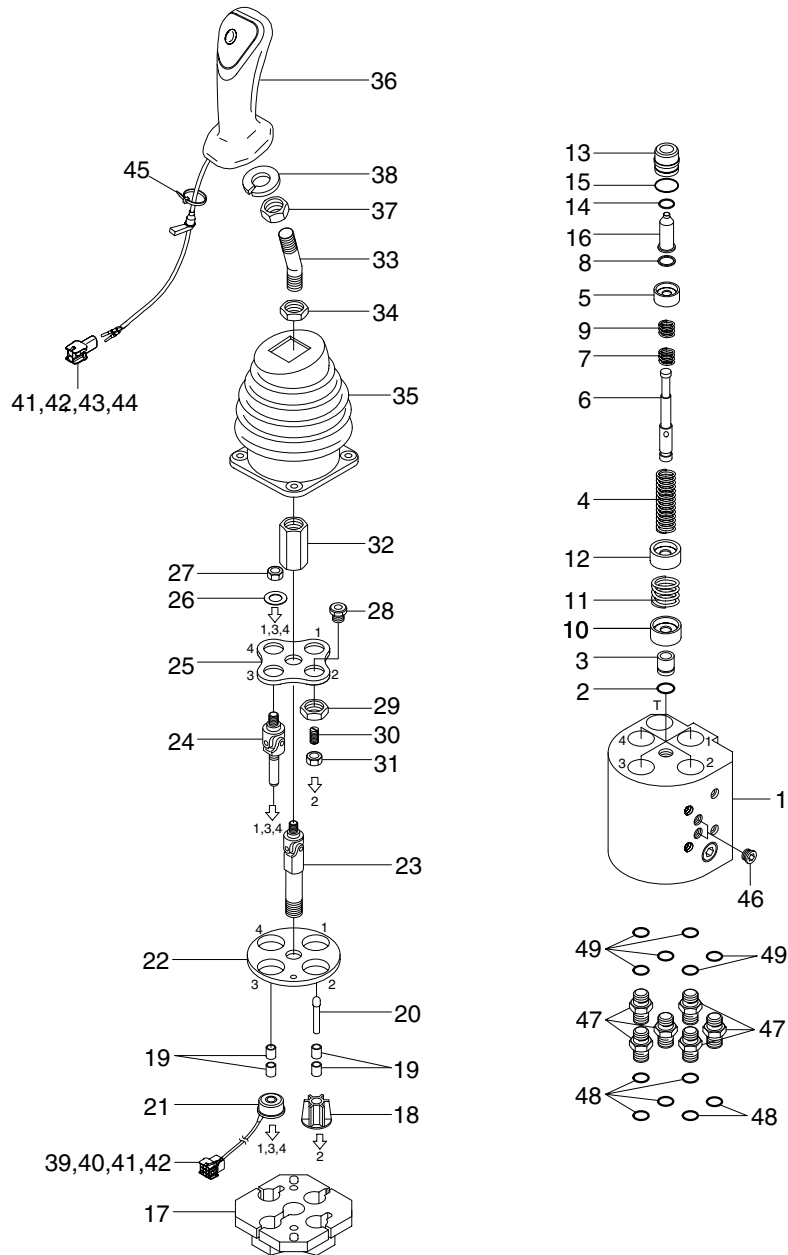


- (6) Install auxilliary valves and plugs and torque to proper specifications.
General assembly notes :
A. Lever assemblies can be installed on section before or after complete valve assembly.
B. The load check and spring may be ommitter from assembly in certain circuit conditions (i.e., motor spools).



3. REMOTE CONTROL VALVE

1) STRUCTURE



7407S6WE48

| | | | | | | | |
|----|-------------|----|-------------|----|---------------|----|-------------|
| 1 | Body | 14 | Rod seal | 27 | Nut | 40 | Rear holder |
| 2 | O-ring | 15 | O-ring | 28 | Plug | 41 | Terminal |
| 3 | Plug | 16 | Push rod | 29 | Nut | 42 | Seal wire |
| 4 | Spring | 17 | Plate | 30 | Set screw | 43 | Housing |
| 5 | Spring seat | 18 | Rod stopper | 31 | Nut | 44 | Rear holder |
| 6 | Spool | 19 | Bushing | 32 | Nut | 45 | Clip band |
| 7 | Spring seat | 20 | Rod | 33 | Handle bar | 46 | Plug |
| 8 | Stopper | 21 | Magnet | 34 | Nut | 47 | Connector |
| 9 | Spring | 22 | Plate | 35 | Boot | 48 | O-ring |
| 10 | Spring seat | 23 | Joint assy | 36 | Handle assy | 49 | O-ring |
| 11 | Spring | 24 | Joint assy | 37 | Nut | | |
| 12 | Spring seat | 25 | Plate | 38 | Spring washer | | |
| 13 | Plug | 26 | Washer | 39 | Housing | | |

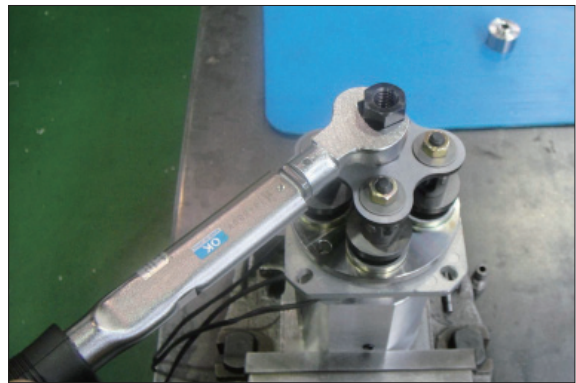
2) DISASSEMBLY

(1) Remove the boot (35) and loosen nut (34).

- Tool : spanner 19 mm



7607BRCV01



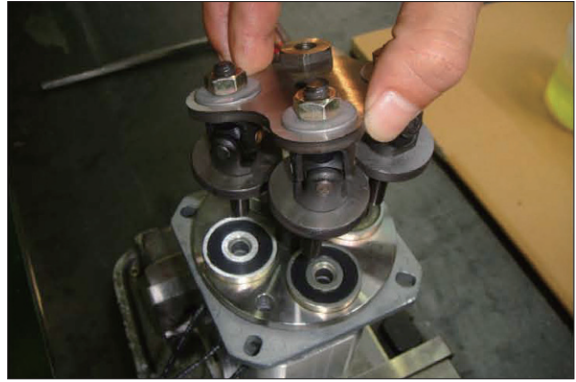
7607BRCV02

(2) Remove nut (32).



7607BRCV03

(3) Disassemble plate kit.



7607BRCV04

(4) Remove rod (20).



7607BRCV05

(5) Remove joint assembly (23).

· Tool : spanner 17 mm



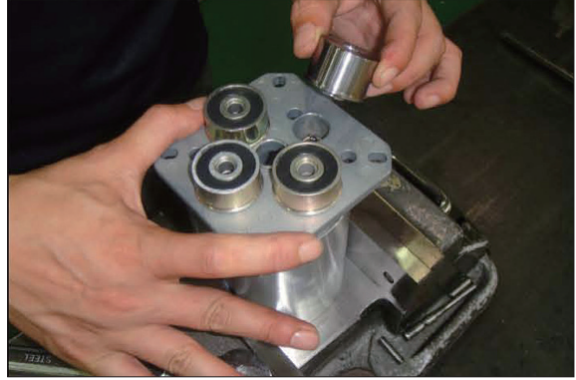
7607BRCV06

(6) Disassemble plate (22).



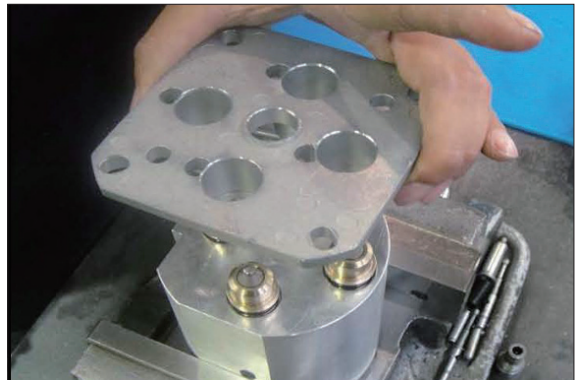
7607BRCV07

(7) Disassemble magnet (21) and rod stopper (18).



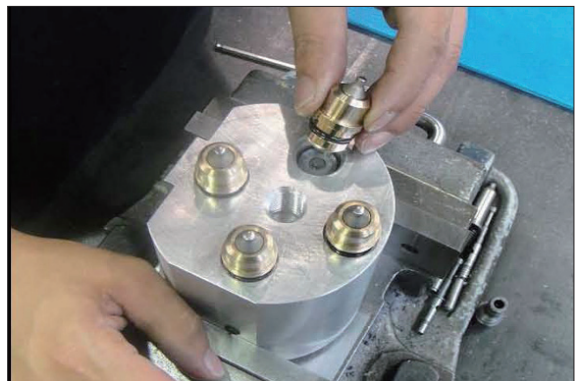
7607BRCV08

(8) Disassemble plate (17).



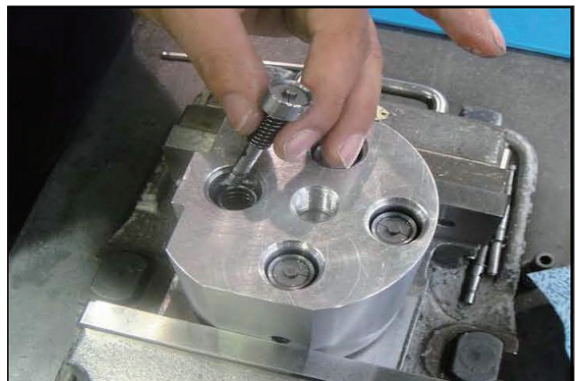
7607BRCV09

(9) Disassemble plug kit.



7607BRCV10

(10) Disassemble spring (4) and spool kit.



7607BRCV11

(11) Disassemble plug (2).

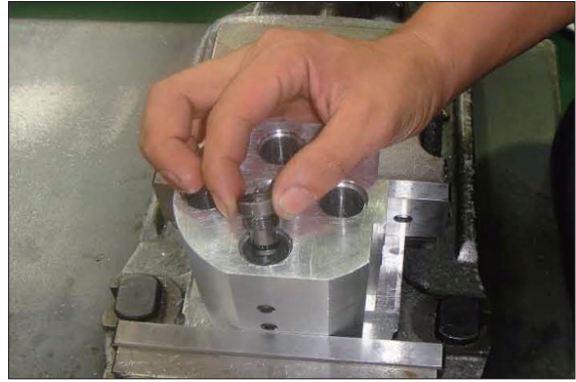
- Tool : wrench 10 mm



7607BRCV12

3) ASSEMBLY

- (1) Coat oil on O-ring and mount plug (3) into body assembly (1).



7607BRCV13

- (2) Tighten the plug (3).

- Tool : wrench 10 mm
- Tightening torque (M14) :
 $30 \pm 3 \text{ kgf} \cdot \text{m}$ ($217 \pm 21.7 \text{ lbf} \cdot \text{ft}$)



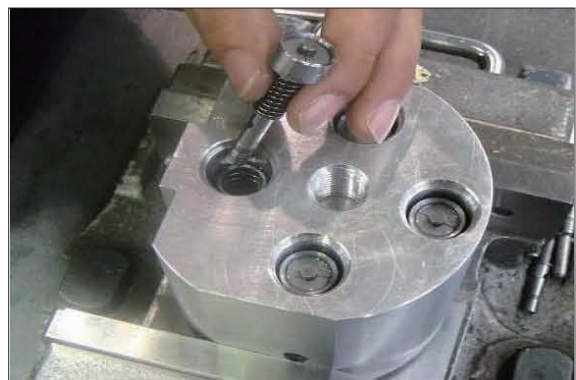
7607BRCV14

- (3) Assemble spring (4).



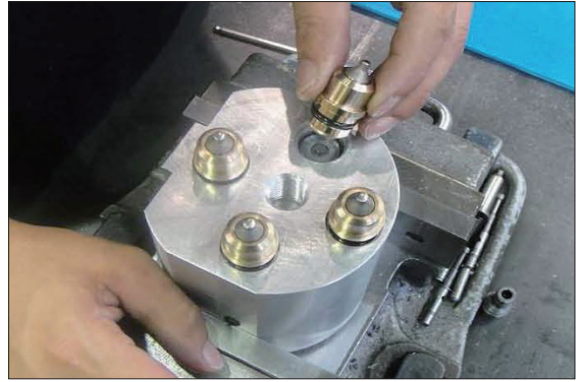
7607BRCV15

- (4) Assemble spool kit.



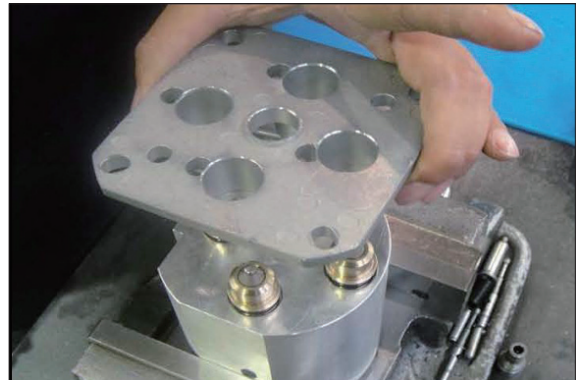
7607BRCV16

(5) Assemble plug kit.



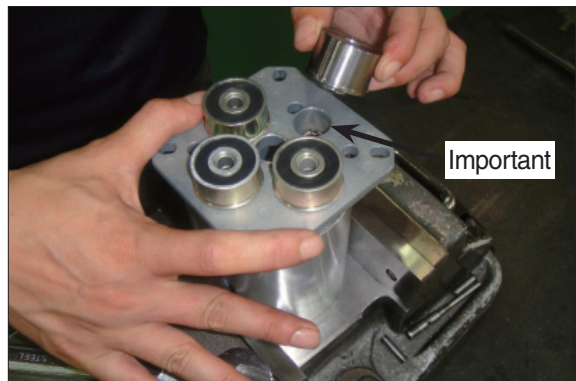
7607BRCV17

(6) Assemble plate (17).



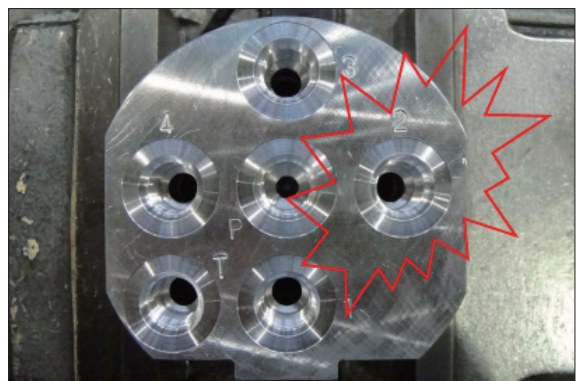
7607BRCV09

(7) Assemble magnet (21) at port 1, 3 and 4.
Assemble rod stopper (18) at port 2.



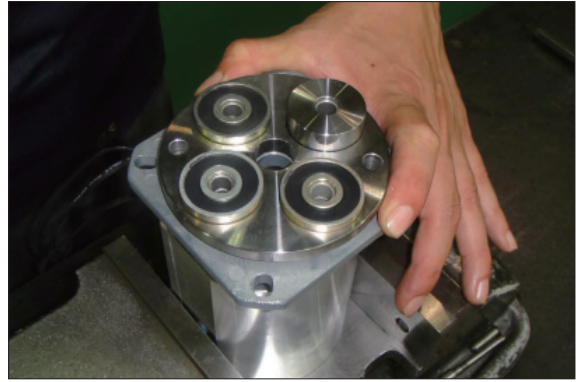
7607BRCV19

(8) Confirm port 2 on the bottom of the body.



7607BRCV20

(9) Assemble plate (22).



7607BRCV21

(10) Assemble joint assembly (23) and put grease on joint pin lightly.

- Tools : spanner 17 mm
- Tightening torque (M16) :
 $45 \pm 4.5 \text{ kgf} \cdot \text{m}$ ($325 \pm 32.5 \text{ lbf} \cdot \text{ft}$)



7607BRCV22



7607BRCV23

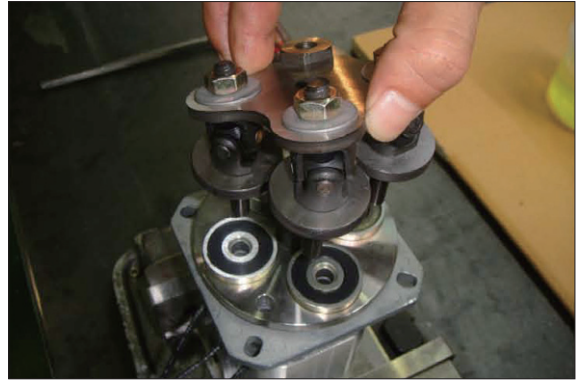
(11) Assemble rod (20).



7607BRCV24

(12) Assemble plate kit.

Put a bit of grease on rod (20) and Joint (24).



7607BRCV04

(13) Assemble nut (32).

- Tool : spanner 17 mm
- Tightening torque (M12) :
 $40 \pm 4 \text{ kgf} \cdot \text{m}$ ($289 \pm 28.9 \text{ lbf} \cdot \text{ft}$)



7607BRCV03



7607BRCV02

(14) Assemble nut (34).

- Tool : spanner 19 mm
- Tightening torque (M12) :
 $40 \pm 4 \text{ kgf} \cdot \text{m}$ ($28 \pm 28.9 \text{ lbf} \cdot \text{ft}$)



7607BRCV01

(15) Assemble the boot (35).



7607BRCV25