

WHEEL LOADER [HL770(#1001-#1170)]

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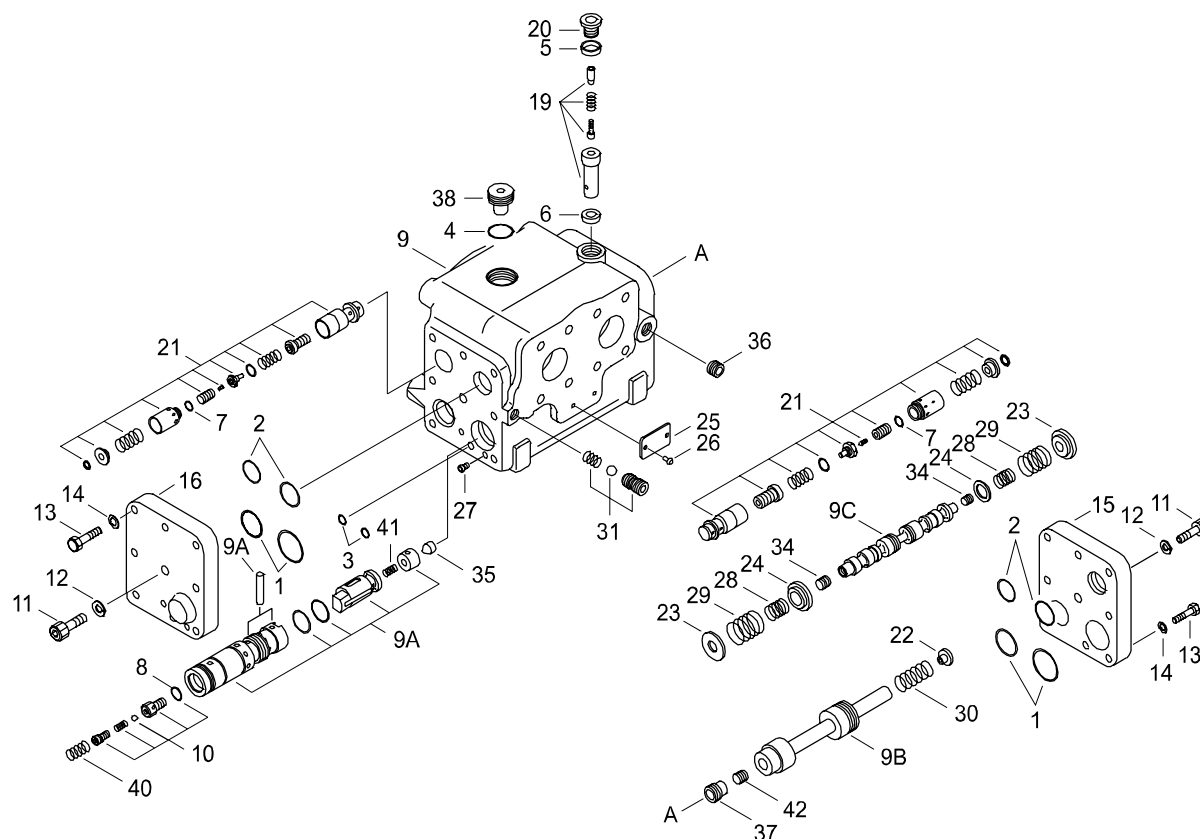
- Group 1 Component Location
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GROUP 4 DISASSEMBLY AND ASSEMBLY

1. FLOW AMPLIFIER

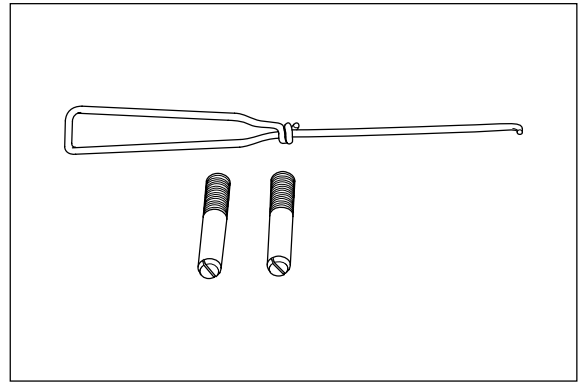
1) STRUCTURE



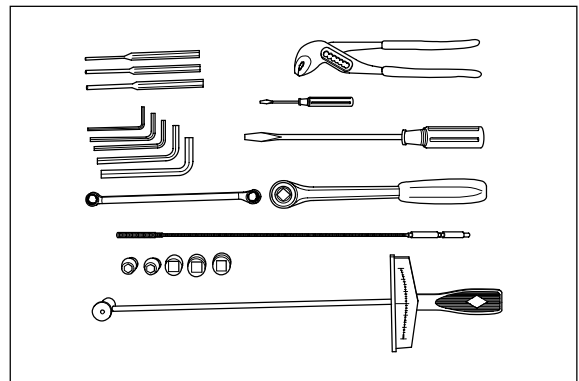
1	O-ring	12	Spring washer	28	Spring
2	O-ring	13	Screw	29	Spring
3	O-ring	14	Spring washer	30	Spring
4	O-ring	15	End cover	31	Throttle check valve
5	Washer	16	End cover	34	Orifice
6	Washer	19	Relief valve	35	Orifice
7	O-ring	20	Plug	36	Orifice
8	O-ring	21	Shock, suction valve	37	Plug
9	Housing	22	Spring seat	38	Plug
9A	Amplifier valve	23	Spring seat	40	Spring
9B	Priority valve	24	Spring guide	41	Spring
9C	Directional valve	26	Name plate	42	Orifice
10	Check valve	27	Orifice		
11	Screw				

2) TOOLS

- Guide screws : M8 × 1.0
- Hook : Wire



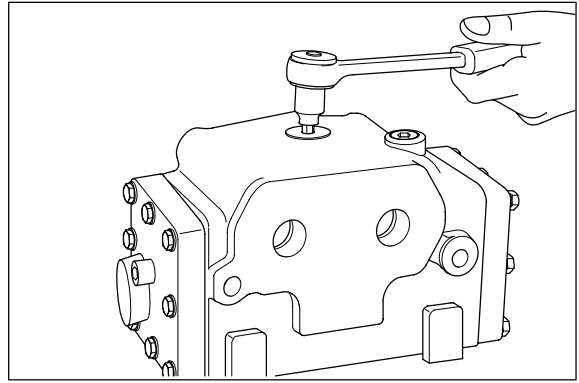
- Hexagon keys : 4, 5, 6, 8 and 10mm
- Ratchet for socket spanners
- Hex socket for external : 13, 17 & 19 mm
- Hex socket for internal : 8 & 10mm
- Multigrip pliers
- Ring spanner : 13mm
- Screwdrivers : 3 and 10mm
- Steel Mandrels : 3, 5 and 8mm
- Torque wrench : 12.2kgf · m(88lbf · ft)
- Magnetic rod



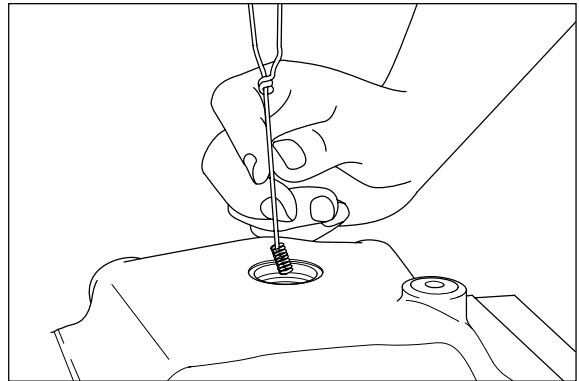
3) DISASSEMBLY

(1) Disassembly counter pressure valve

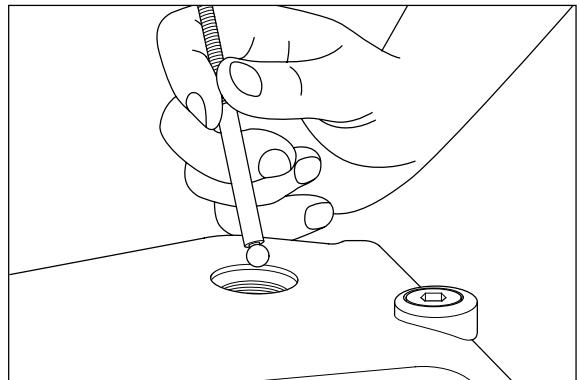
- ① Unscrew plug with O-ring (hexagon socket for 8mm internal hexagon).



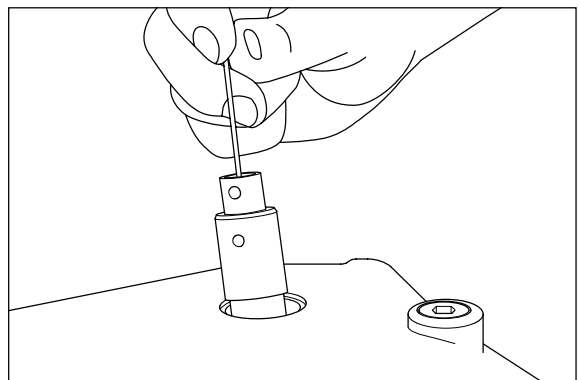
- ② Take out small spring(hook).



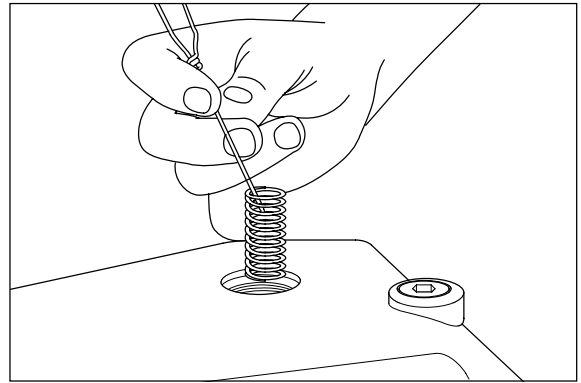
- ③ Take out ball(magnetic rod).



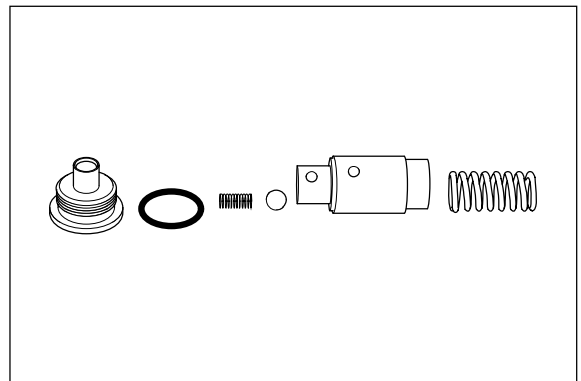
- ④ Take out piston.



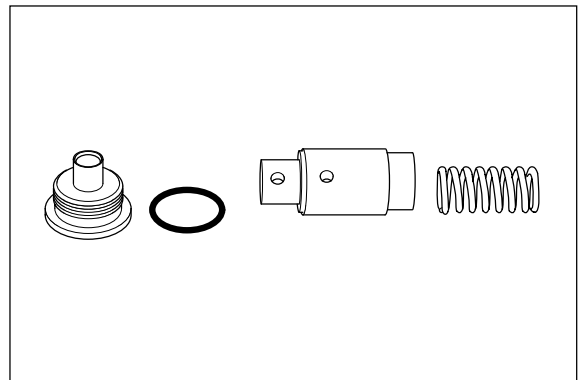
- ⑤ Take out spring.



- ⑥ Counter pressure valve shown disassembled.

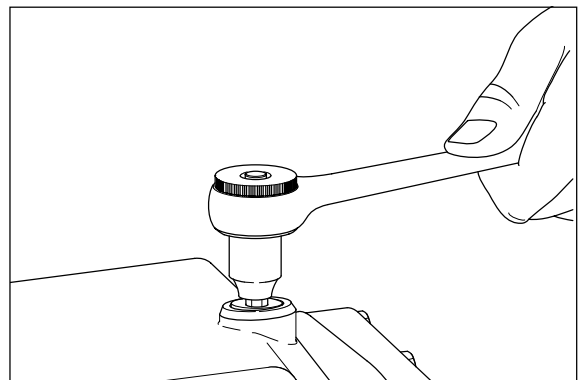


- ⑦ Counter pressure valve with orifice shown disassembled.

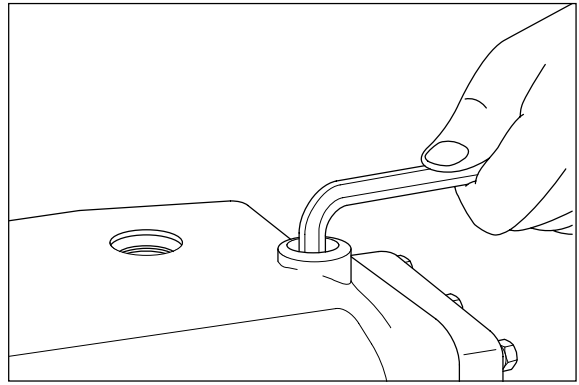


(2) Removing pressure relief valve

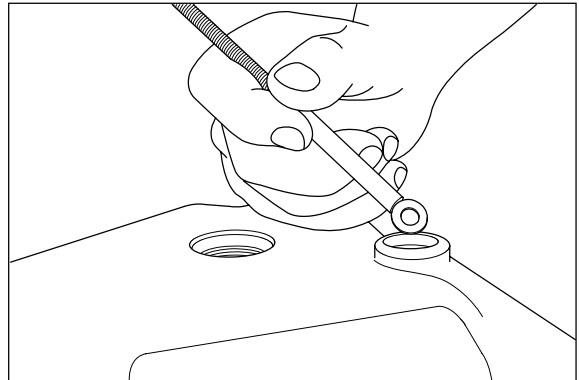
- ① Unscrew plug with washer (hexagon socket for 8mm internal hexagon).



- ② Screw pressure relief valve out(10mm hexagon key).

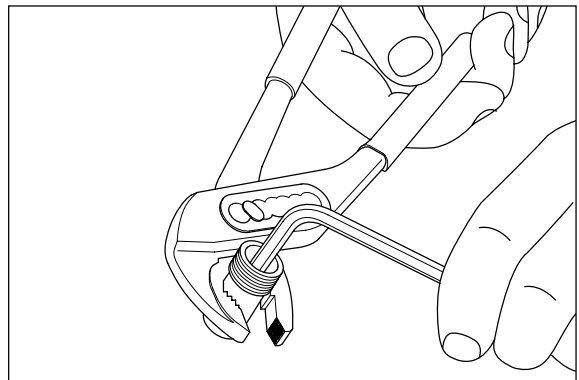


- ③ Take out washer(magnetic rod).

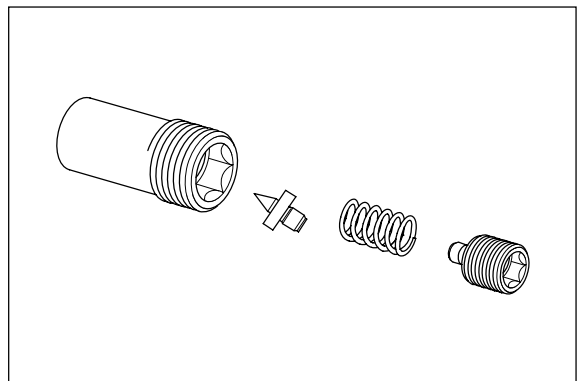


(3) Disassembly pressure relief valve

- ① Hold cartridge(multigrip pliers) and screw the adjustment screw out(5mm hexagon key).

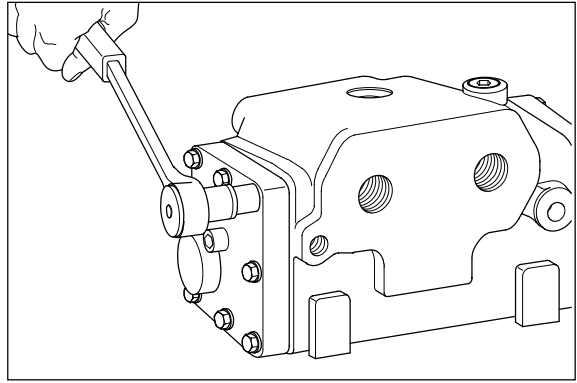


- ② Pressure relief valve shown disassembled.

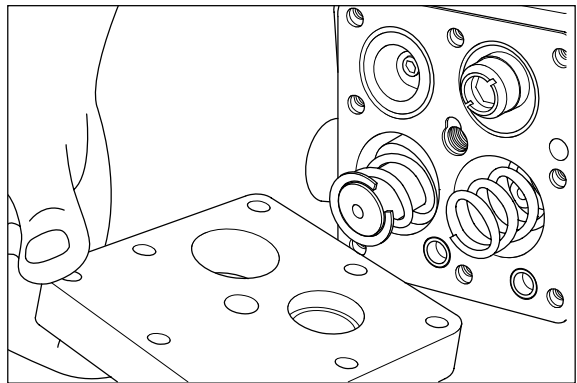


(4) Removing end cover at PP-connection

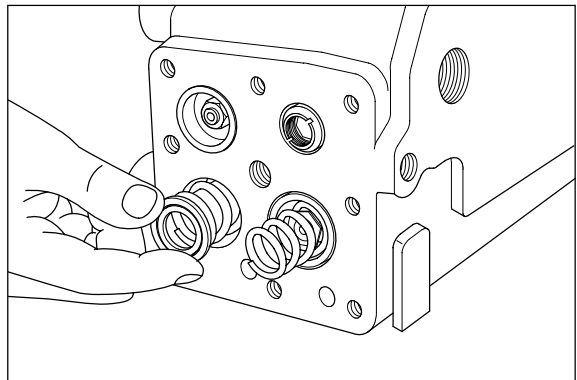
- ① Unscrew screws with spring washer using hexagon socket for 13mm external hexagon and 10mm internal hexagon.



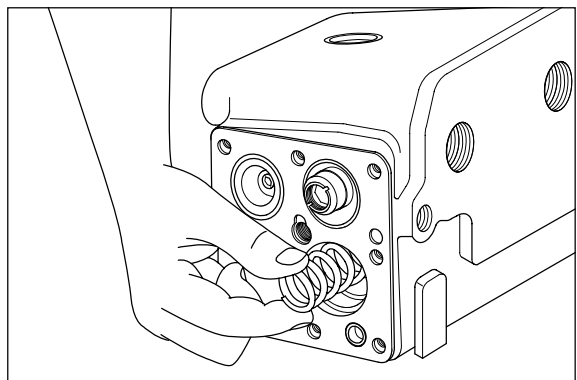
- ② Remove end cover.



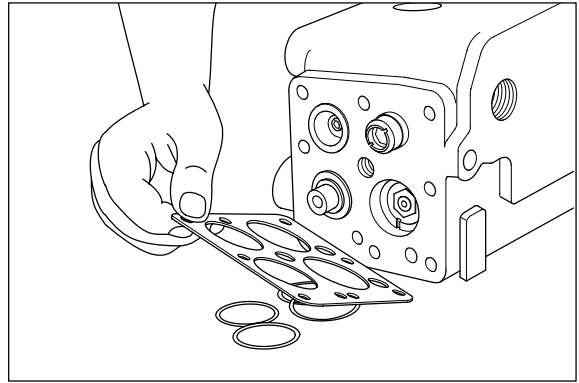
- ③ Remove stop and 2 springs.



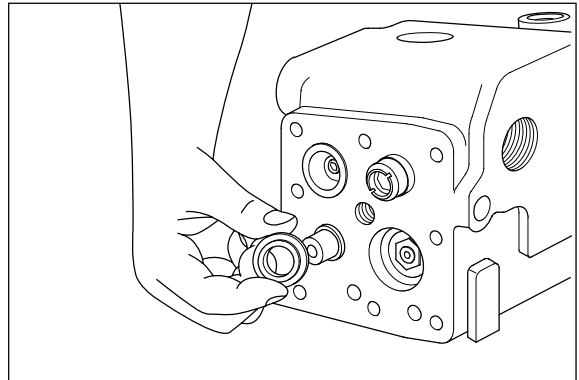
- ④ Remove spring.



③ Remove plate and 6 O-rings.

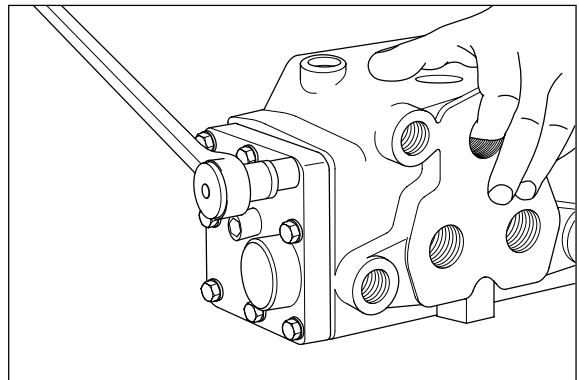


④ Remove spring guide.

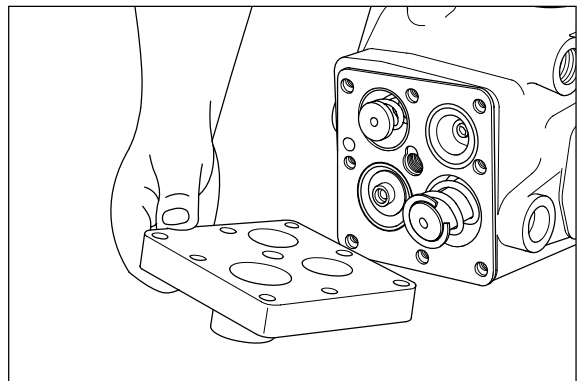


(5) Removing end cover at LS-connection

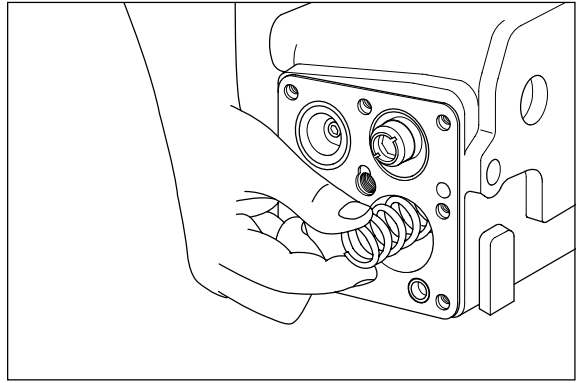
① Unscrew screws with spring washer using hexagon socket for 13mm external hexagon and 10mm internal hexagon.



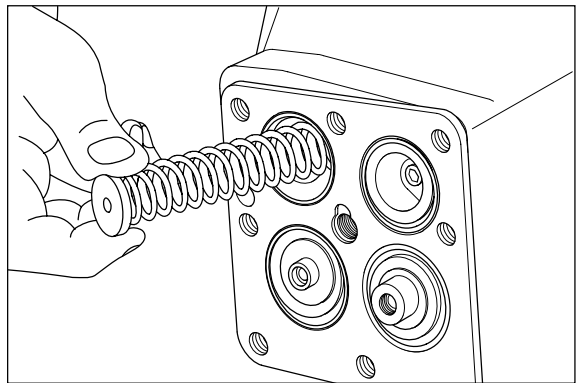
② Remove end cover.



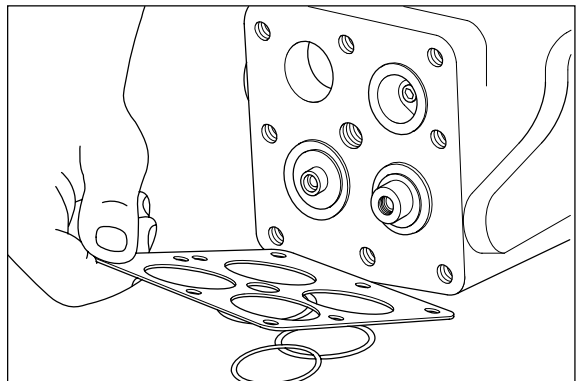
③ Remove stop and 2 springs.



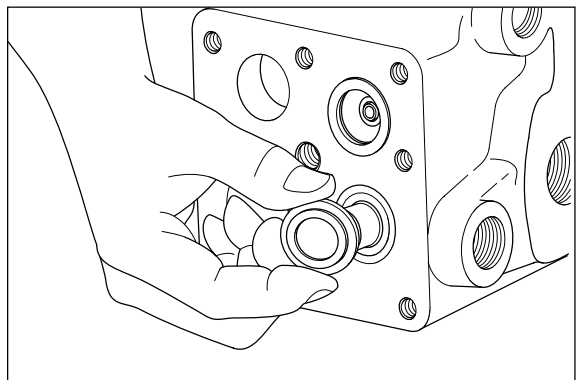
④ Remove stop and spring.



⑤ Remove plate and 4 O-rings.

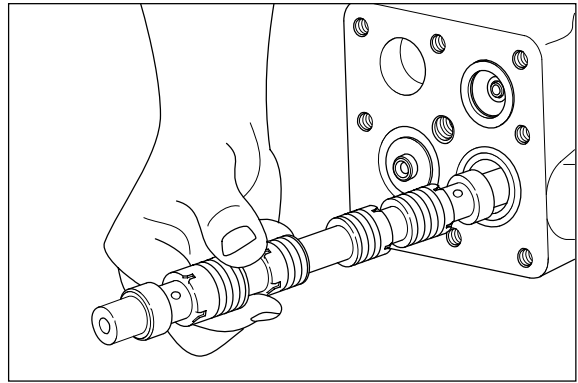


⑥ Remove spring guide.

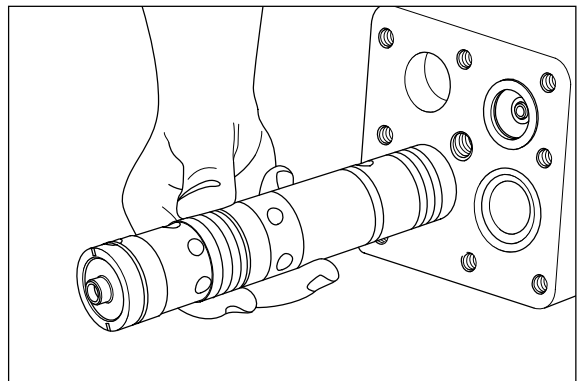


(6) Removing spools

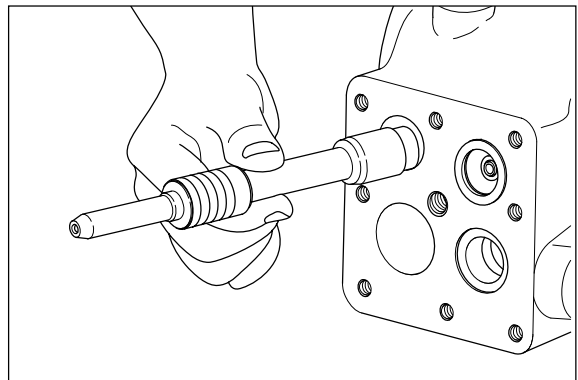
① Remove directional spool.



② Remove amplifier spool.

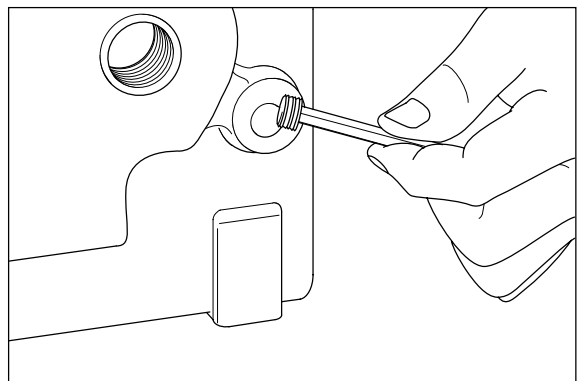


③ Remove priority valve spool.

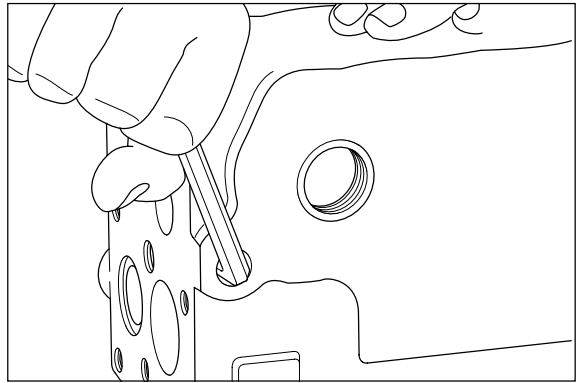


(7) Removing orifices and throttle check valve

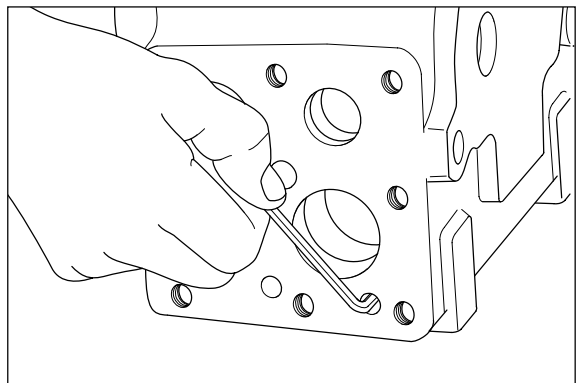
① Unscrew orifice in LS-connection with 6mm hexagon key.



- ② Unscrew throttle check valve in PP-connection with 6mm hexagon key.

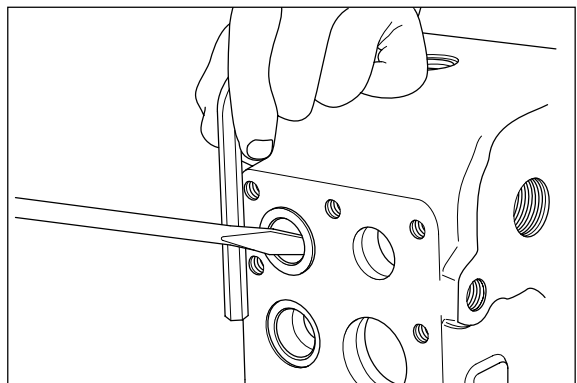


- ③ Unscrew orifice in housing with 4mm hexagon key.



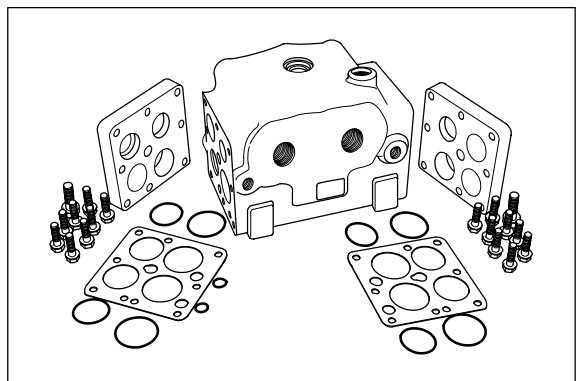
(8) Removing shock valves

- ① Remove shock valve with screwdriver and hexagon key.

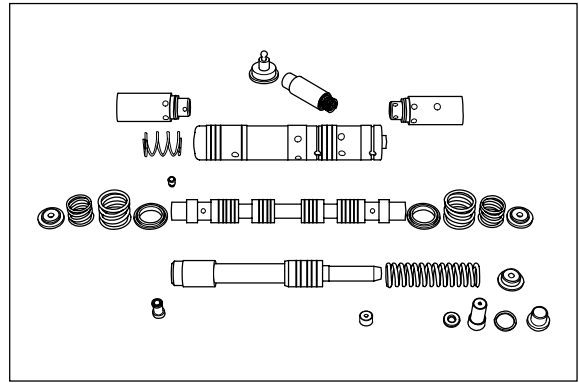


(9) Overview of disassembled parts

- ① Housing and end cover with accessories.

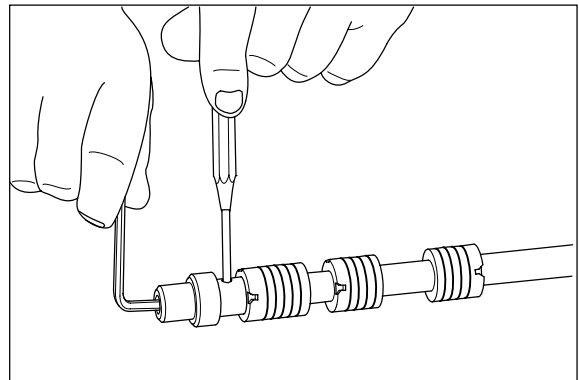


② Spool with accessories.

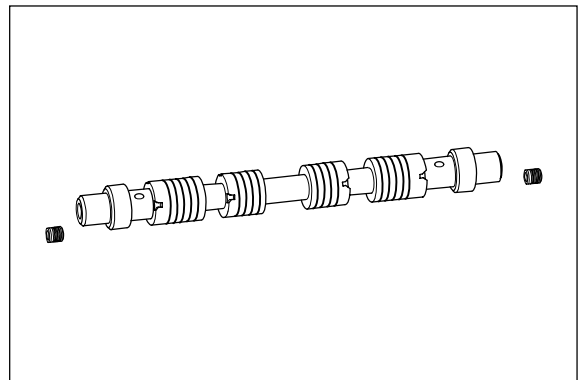


(10) Disassembly of directional spool

- ① Unscrew orifice with 4 mm hexagon key.
Use a mandrel.

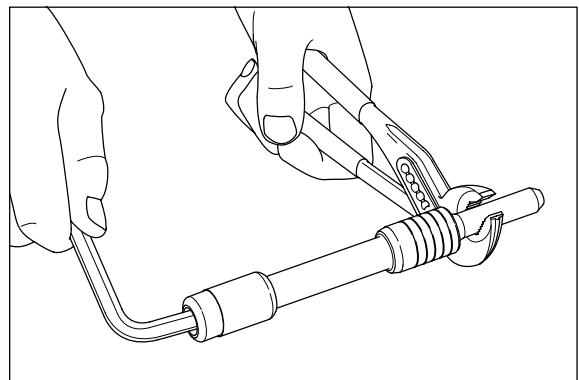


② Directional spool shown disassembled.

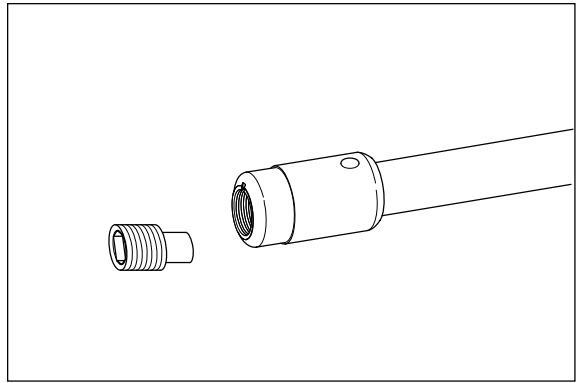


(11) Disassembly of priority valve spool

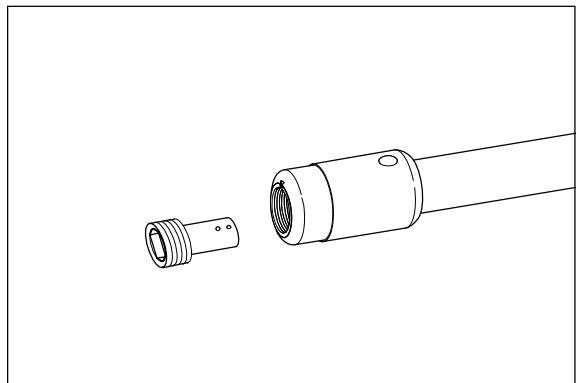
- ① Unscrew plug or throttle check valve with
8mm hexagon key.



- ② Priority valve spool with plug for external PP shown disassembled.

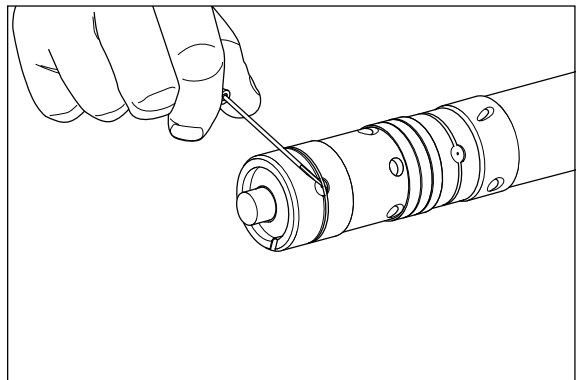


- ③ Priority valve spool with throttle check valve for internal PP shown disassembled.

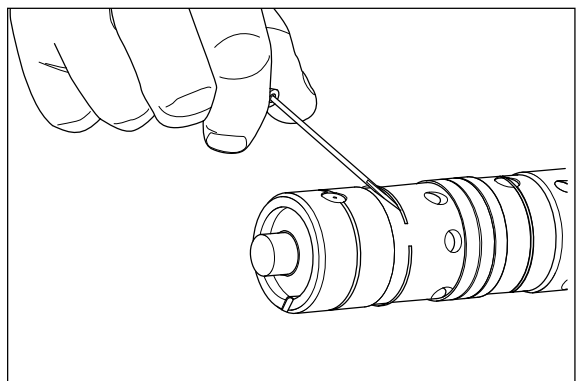


(12) Disassembly of amplifier spool

- ① Carefully remove the spring ring from the recess with 3mm screwdriver.
※ Avoid damage to the spring ring.

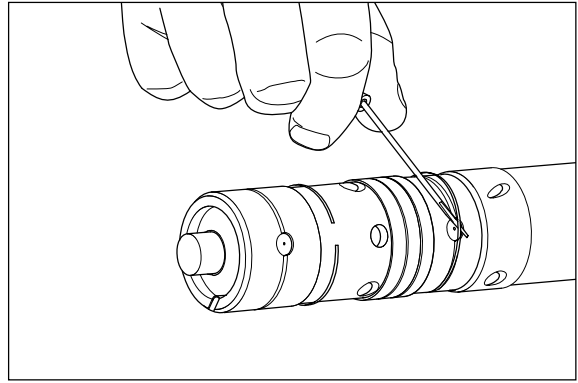


- ② Carefully guide the spring ring back.

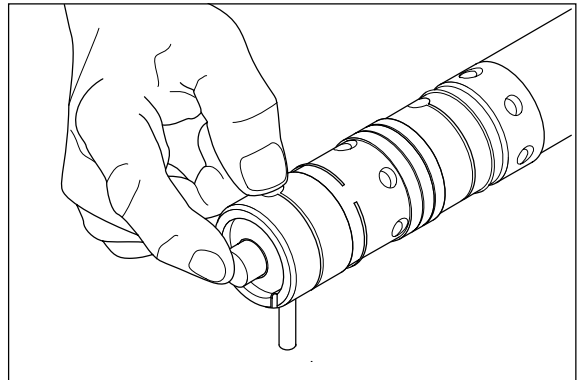


- ③ Carefully take the spring ring from the recess and guide it back with 3mm screwdriver.

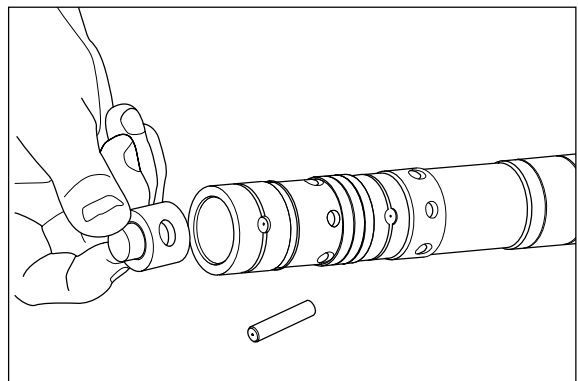
※ Avoid damage to the spring ring.



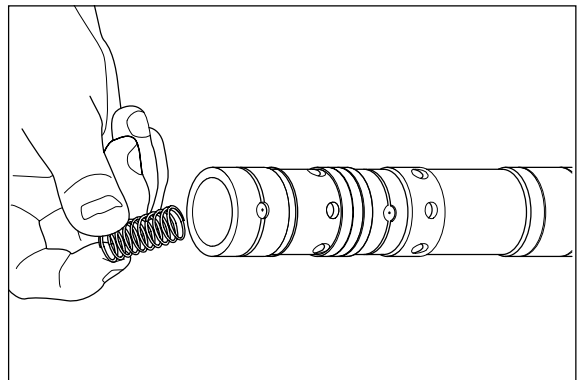
- ④ Press pin out gently with finger.



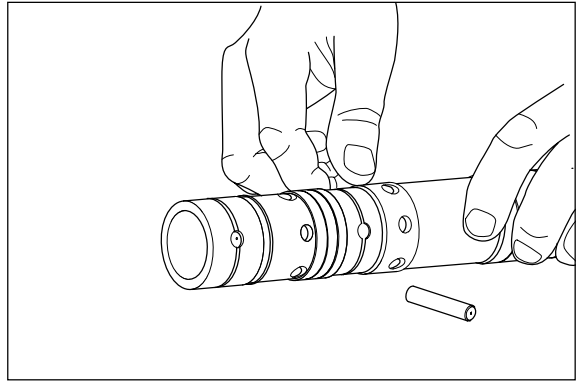
- ⑤ Take out plug.



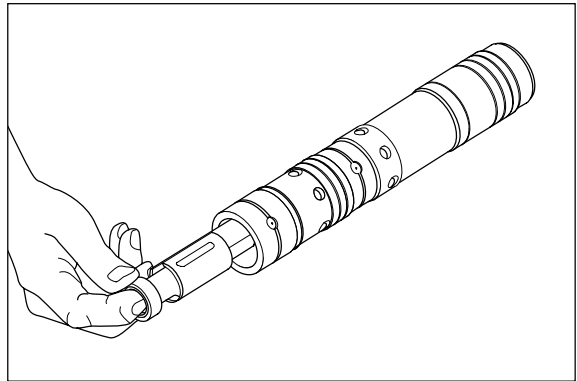
- ⑥ Take out spring.



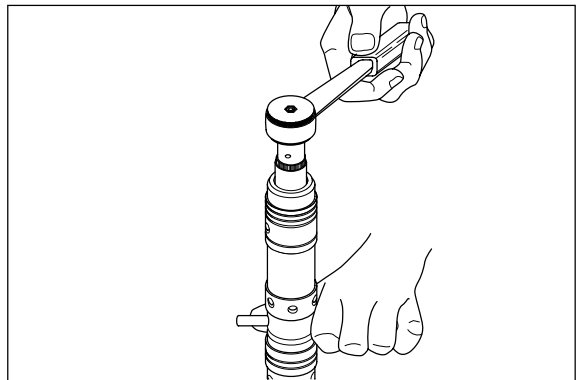
- ⑦ Take out pin 3mm screwdriver.



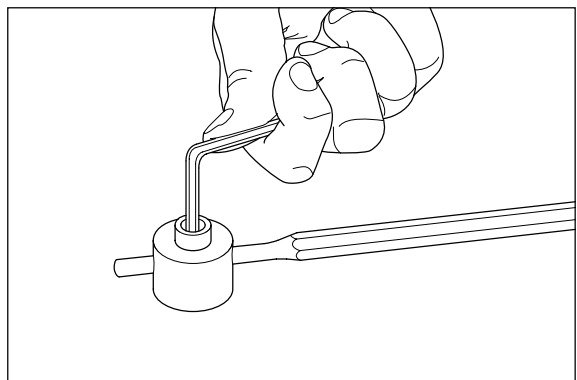
- ⑧ Take out inner spool.



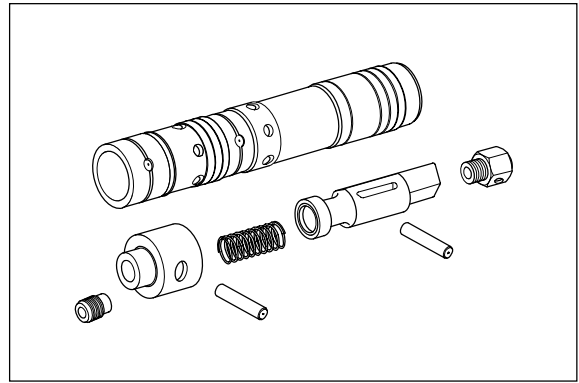
- ⑨ Unscrew check valve with hexagon socket for 17mm external hexagon and mandrel in the pin hole.
※ Avoid damaging the spool surface.



- ⑩ Unscrew orifice out of plug with 4mm hexagon key. Use a mandrel.

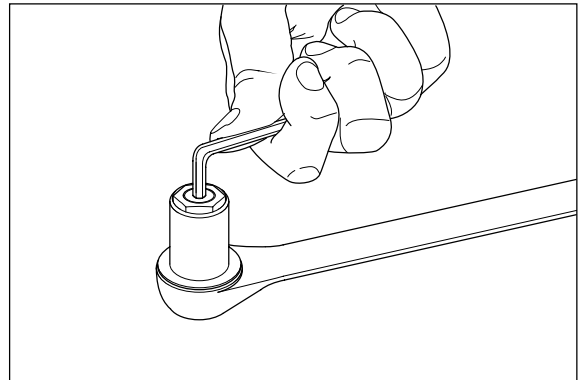


- ⑪ Amplifier spool shown disassembled.

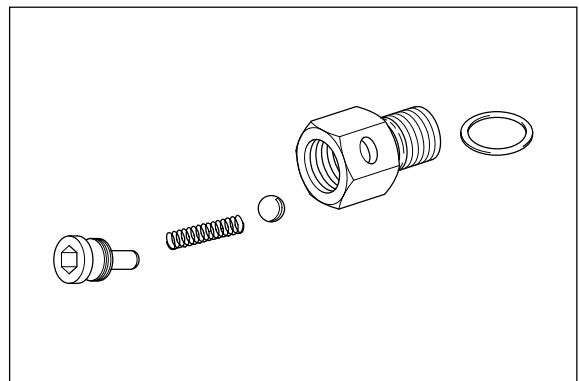


(13) Disassembly of check valve

- ① Unscrew plug with 4mm hexagon key and hexagon socket for 17mm external hexagon.

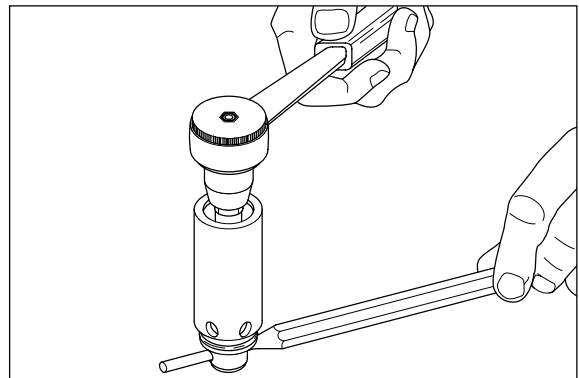


- ② Check valve shown disassembled.

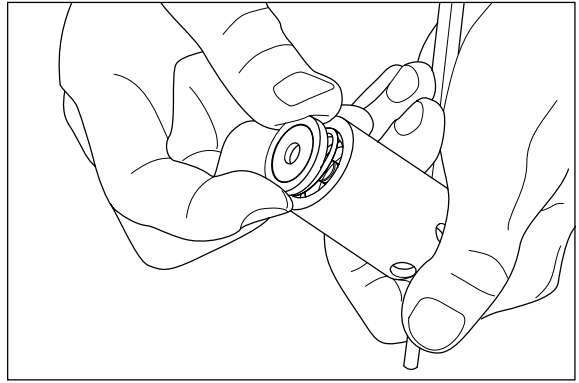


(14) Disassembly of shock valve / suction valve

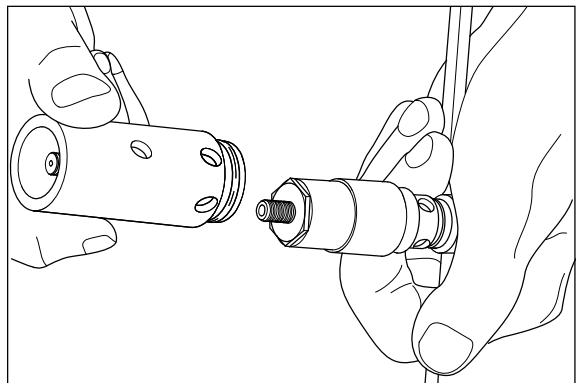
- ① Unscrew locknut with hexagon socket for 13mm external hexagon. Use a mandrel.
※ When readjusting shock valve hold locknut with 13mm ring spanner.



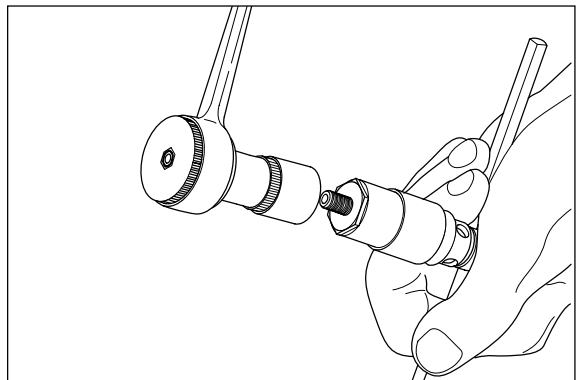
- ② Take out disc and spring.



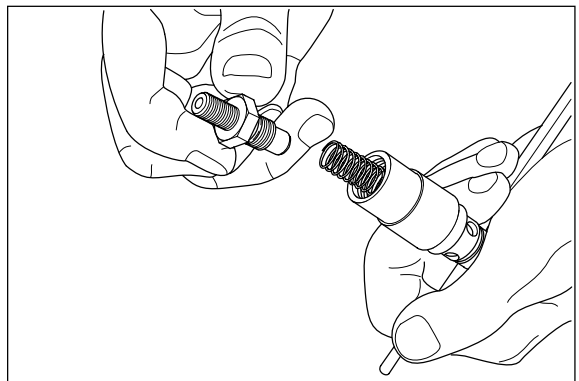
- ③ Take off housing.



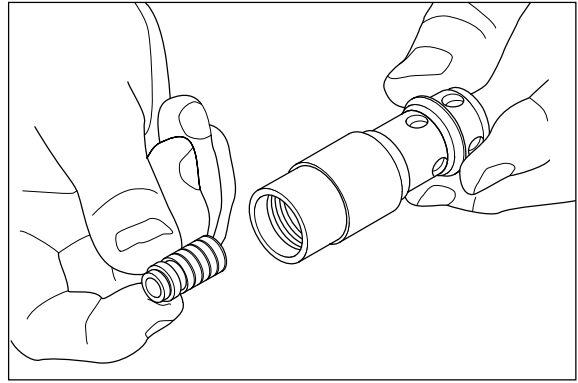
- ④ Unscrew pilot valve with hexagon socket for 19mm external hexagon. Use a mandrel.



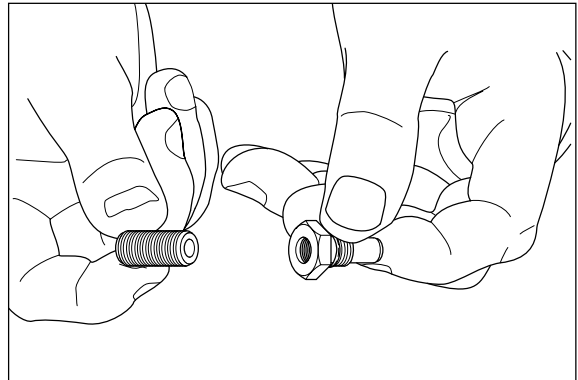
- ⑤ Take out pilot valve and spring.



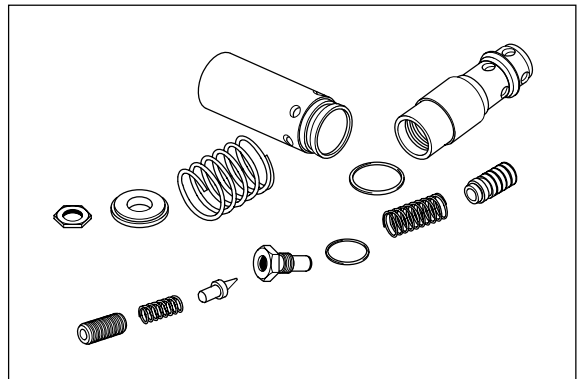
⑥ Take out spool.



⑦ Unscrew adjustment screw and take out spring and ball.



⑧ Shock valve / suction valve shown disassembled.



※ **Cleaning**

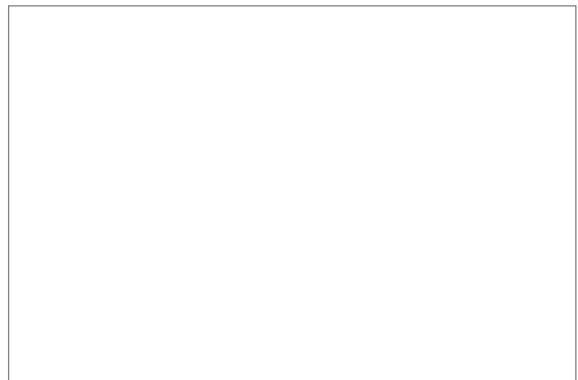
Clean all parts carefully with low aromatic kerosene.

※ **Inspection and replacement**

Replace all gaskets and sealing washers. Check all other parts carefully and replace if necessary.

※ **Lubrication**

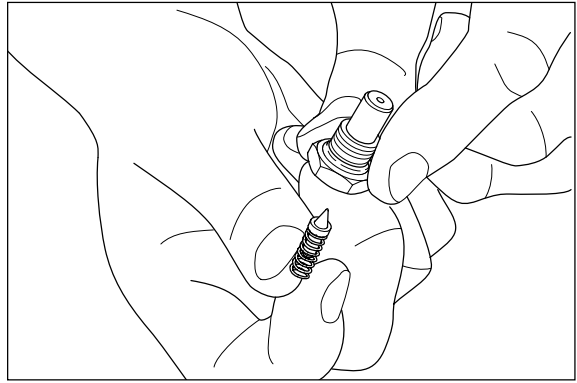
Before assembly, lubricate all parts with hydraulic oil.



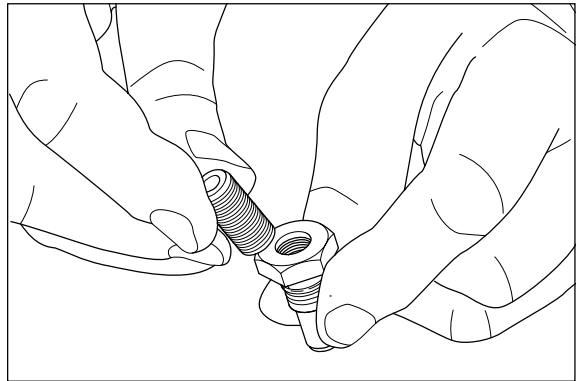
4) ASSEMBLY

(1) Assembly of shock valve / suction valve

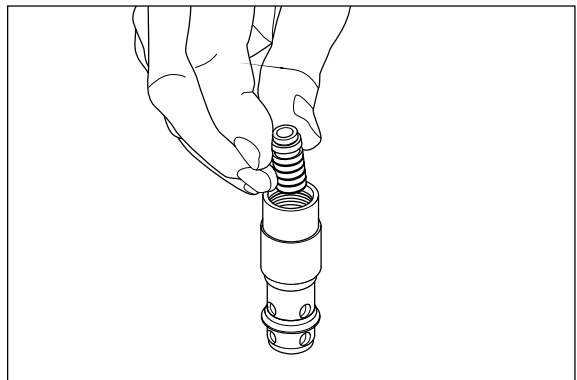
- ① Guide spring with cone into housing.



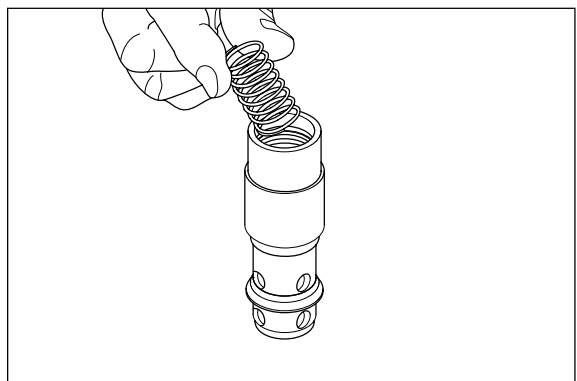
- ② Fit adjustment screw.



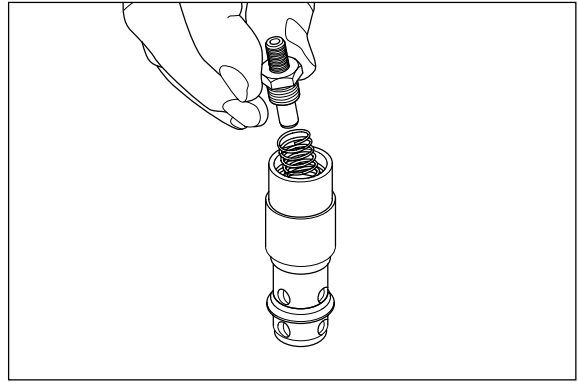
- ③ Fit spool.



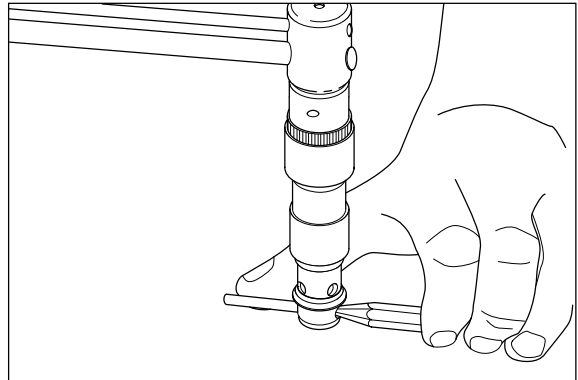
- ④ Fit spring.



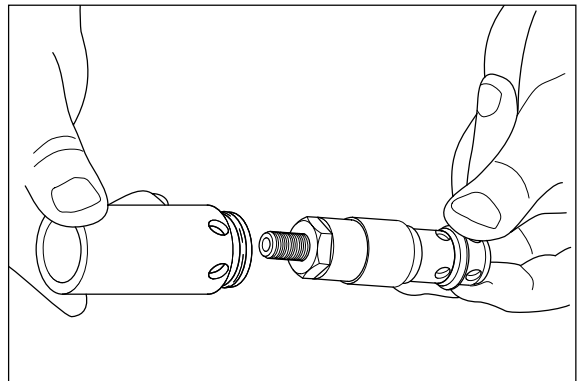
- ⑤ Fit pilot valve.
Remember O-ring.



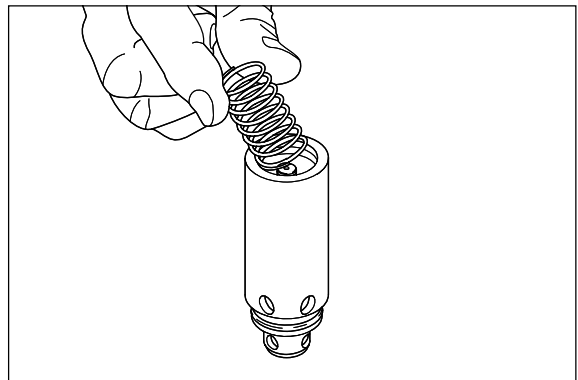
- ⑥ Tighten with torque wrench for 19mm external hexagon. Use a mandrel.
• Tightening torque : $2 \pm 0.5 \text{ kgf} \cdot \text{m}$
($14.5 \pm 3.6 \text{ lbf} \cdot \text{ft}$)



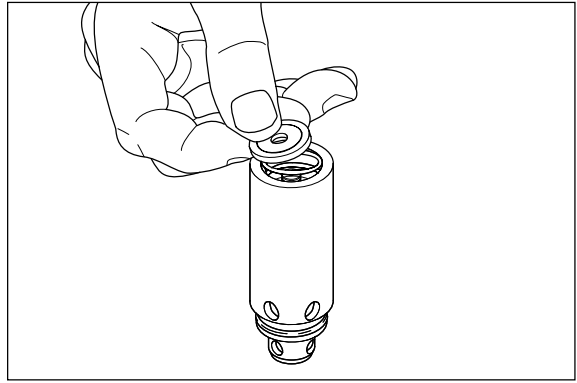
- ⑦ Fit housing.



- ⑧ Fit spring.

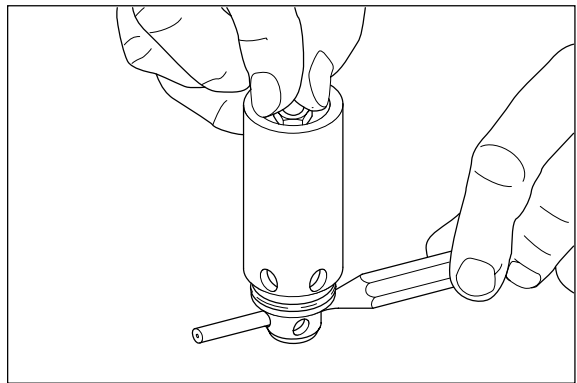


⑨ Fit disc.



⑩ Fit locknut.

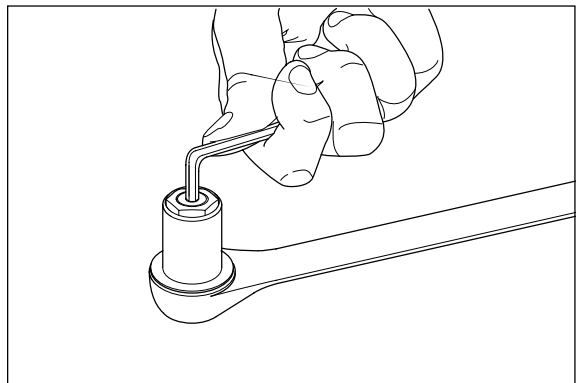
- Tightening torque : $1.5 \pm 0.2 \text{kgf} \cdot \text{m}$
($10.8 \pm 1.4 \text{bf} \cdot \text{ft}$)



(2) Assembly of check valve

① Fit ball, spring and plug.

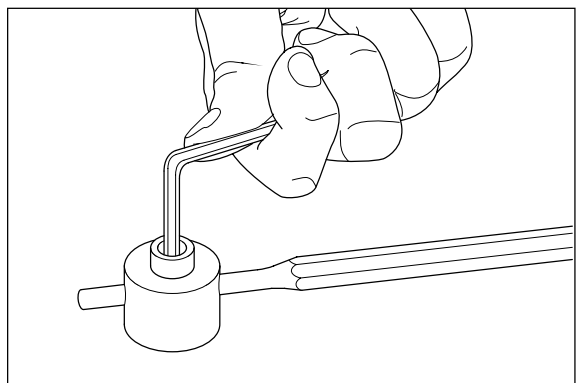
- Tightening torque : $0.5 \pm 0.1 \text{kgf} \cdot \text{m}$
($3.6 \pm 0.7 \text{bf} \cdot \text{ft}$)



(3) Assembly of amplifier spool

① Fit orifice in plug.

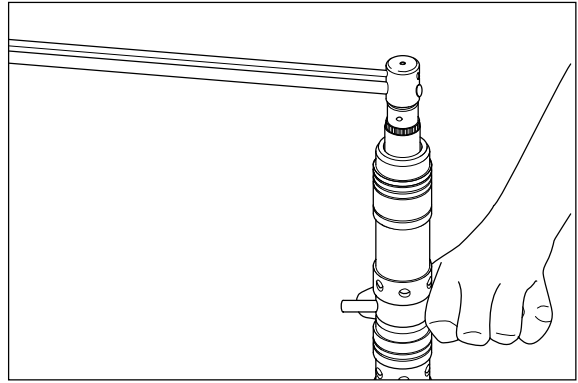
- Tightening torque : $0.5 \pm 0.1 \text{kgf} \cdot \text{m}$
($3.6 \pm 0.7 \text{bf} \cdot \text{ft}$)



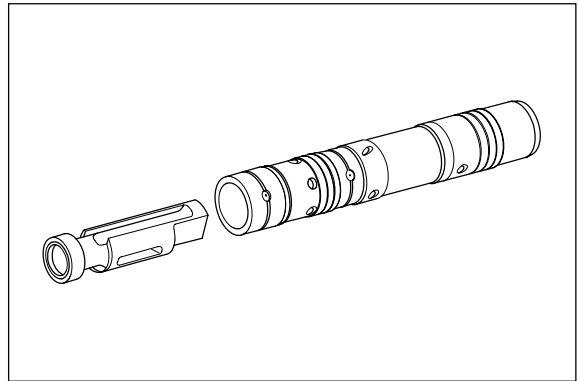
② Fit check valve.

- Tightening torque : $2 \pm 0.3\text{kgf} \cdot \text{m}$
($14.5 \pm 2.2\text{lbf} \cdot \text{ft}$)

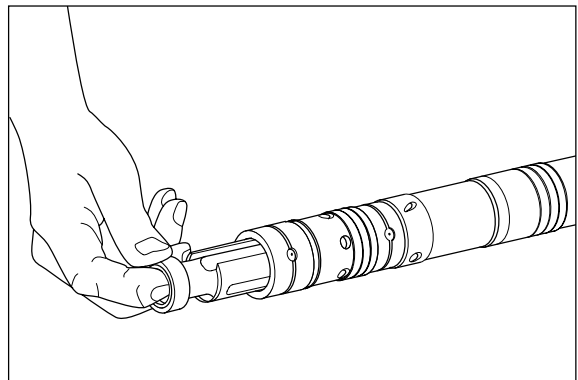
※ Avoid damaging spool surface.
Remember O-ring.



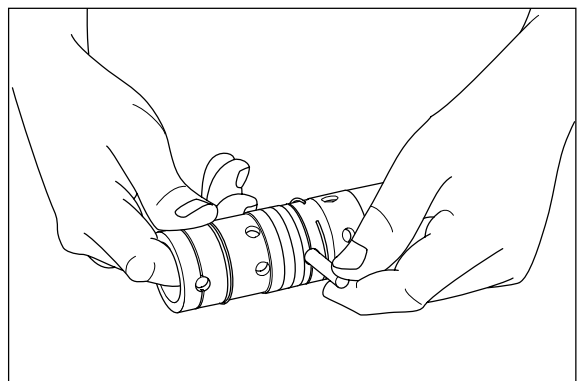
③ Place inner spool in the correct position.



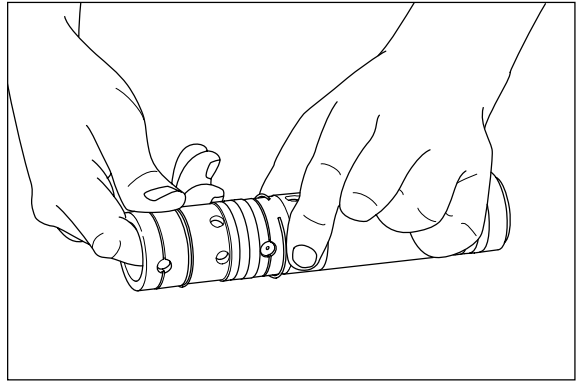
④ Guide inner spool in.



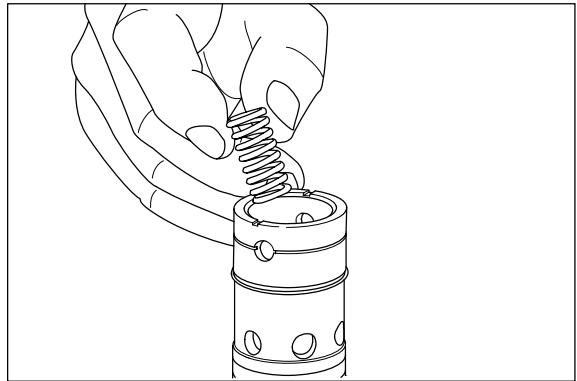
⑤ Fit pin.



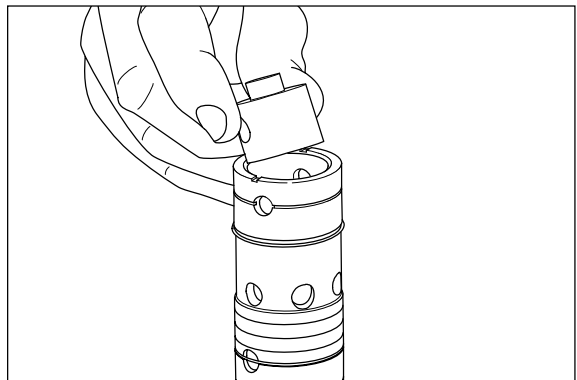
- ⑥ Push spring ring into position. Place spring ring into the recess with ends facing away from pin holes.



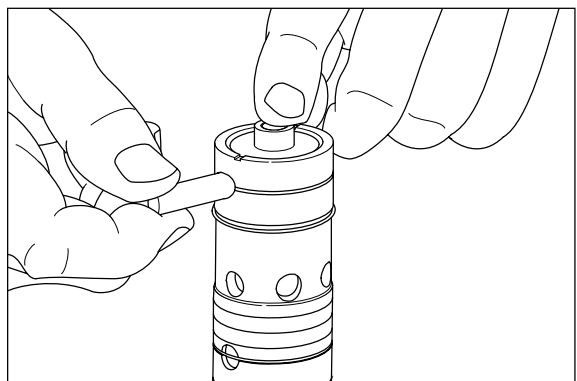
- ⑦ Fit spring.



- ⑧ Fit plug.



- ⑨ Fit pin.



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