

# PARTS & SERVICE NEWS

REF NO.	AT01224
DATE	Jan. 21, 2002

Page 1 of 8

**SUBJECT:** REPAIR PROCEDURE OF TORQUE CONVERTER REGULATOR VALVE ON WA900-1

**PURPOSE:** To introduce repair procedure of torque converter regulator valve on WA900-1 wheel loaders

**APPLICATION:** WA900-1 Wheel Loaders, Serial Nos. 10001 thru 10703

**FAILURE CODE:** 1300NQ

## DESCRIPTION:

### 1. Introduction

Depending on the dispersion in the pressure loss in the torque flow oil cooler piping under the higher oil temperature condition, the torque converter outlet pressure may be lowered, and traction force may be decreased.

The improved regulator valve has been developed and it keeps the torque converter outlet pressure constant in any oil temperature.

Make the modification introduced in this Service News to prevent the above problem.

Check the machine condition according to the procedure in this Service News page 3, while doing the modification.

Table of the serial numbers applicable to this modification

Delivered machines of the WA900-1 (3 machines)

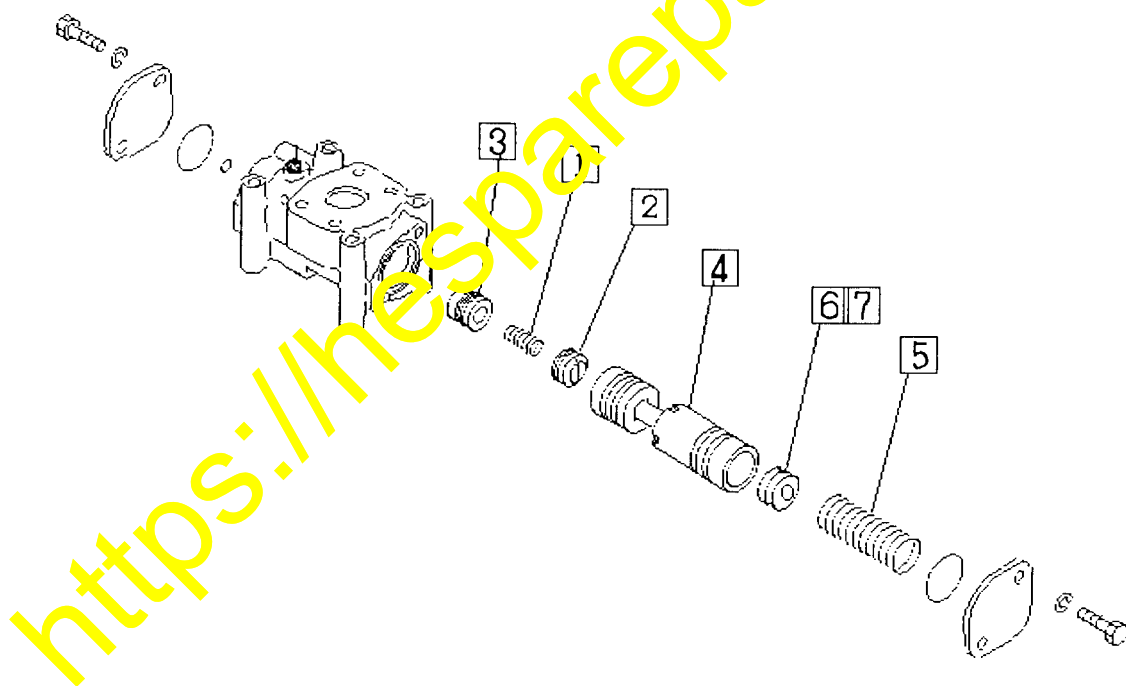
• Overseas delivery machines: 3 machines				
No.	Model	Serial No.	Delivery	Customer
1	WA900-1	10001	Australia	
2	WA900-1	10008	Australia	BHP MOURA MINE
3	WA900-1	10009	Australia	ROCHE ELTIN

## 2. List of parts

Part No.	Part Name	Purpose of part	Q'ty	Remarks
711-56-31004 (711-56-31003)	Converter ass'y (Converter ass'y)	Reworked	1 (1)	Replace valve ass'y
711-56-36601 (711-56-36600)	Valve ass'y (Valve ass'y)	Replacement	1 (1)	Regulator valve ass'y
07000-73048 (07000-73048)	O-ring (O-ring)		2 (2)	} Consumable parts
07000-72014 (07000-72014)	O-ring (O-ring)		2 (2)	
07000-F2055 (07000-F2055)	O-ring (O-ring)		1 (1)	
01643-31445	Washer		2	Use as shim to adjust
23S-15-45860	Shim		9	Shim to adjust
07000-73045 (07000-73045)	O-ring (O-ring)		2 (2)	} Consumable parts
07000-72014 (07000-72014)	O-ring (O-ring)		1 (1)	

## [Reference] Changed parts in valve ass'y

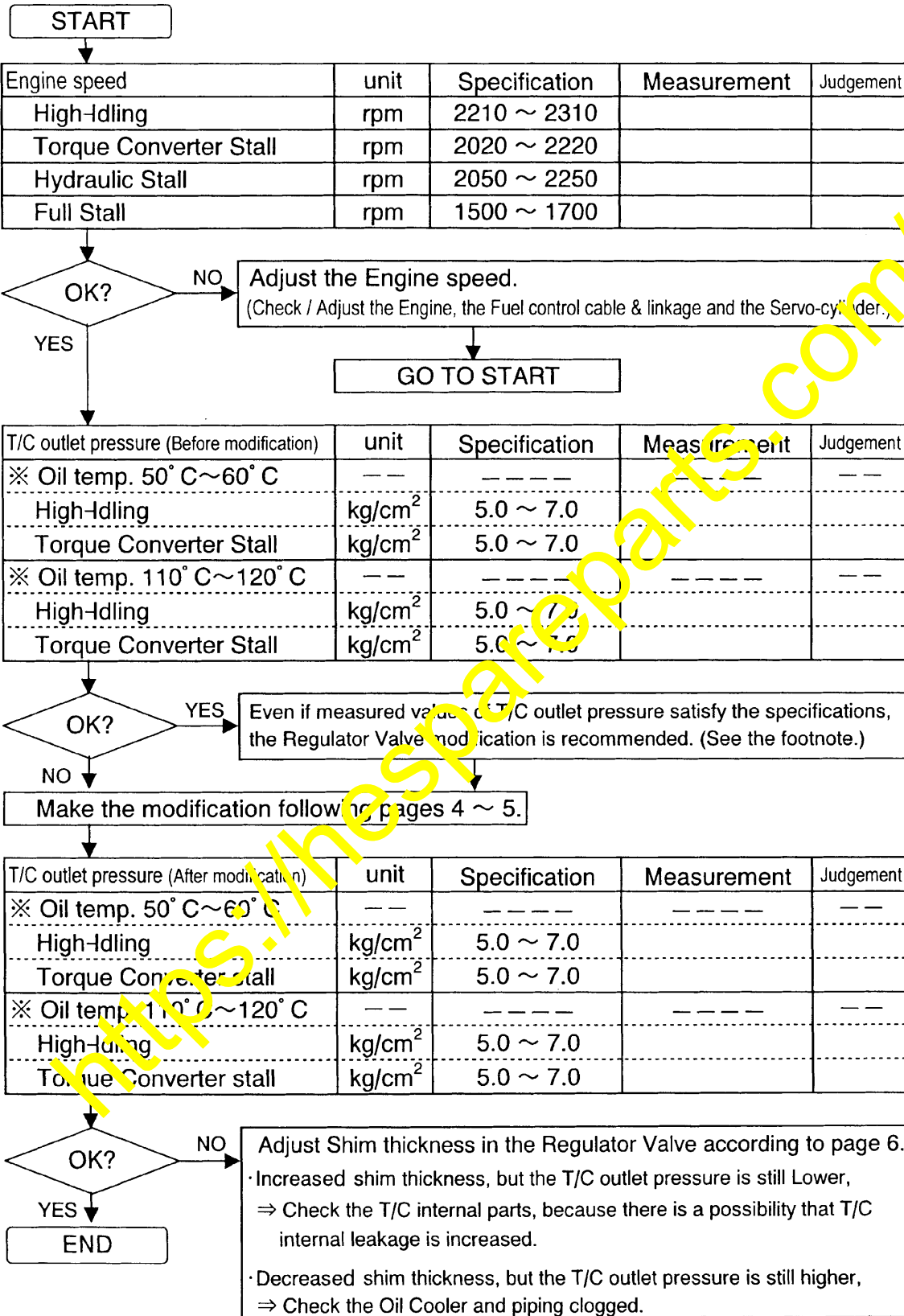
No.	Part No.	Part Name	Q'ty	Remarks
1	711-56-36610 (562-15-16110)	Spring (Spring)	1 (1)	} Not interchangeable alone
2	427-15-15490 (562-13-16460)	Valve (Valve)	1 (1)	
3	711-56-36620 (562-13-16470)	Valve (Valve)	1 (1)	
4	711-56-36640 (562-13-16910)	Spool (Spool)	1 (1)	
5	711-56-36650 (711-56-36630)	Spring (Spring)	1 (1)	
6	01643-31445	Washer	2	
7	23S-15-45860	Shim	0	



3. Machine inspection procedures .

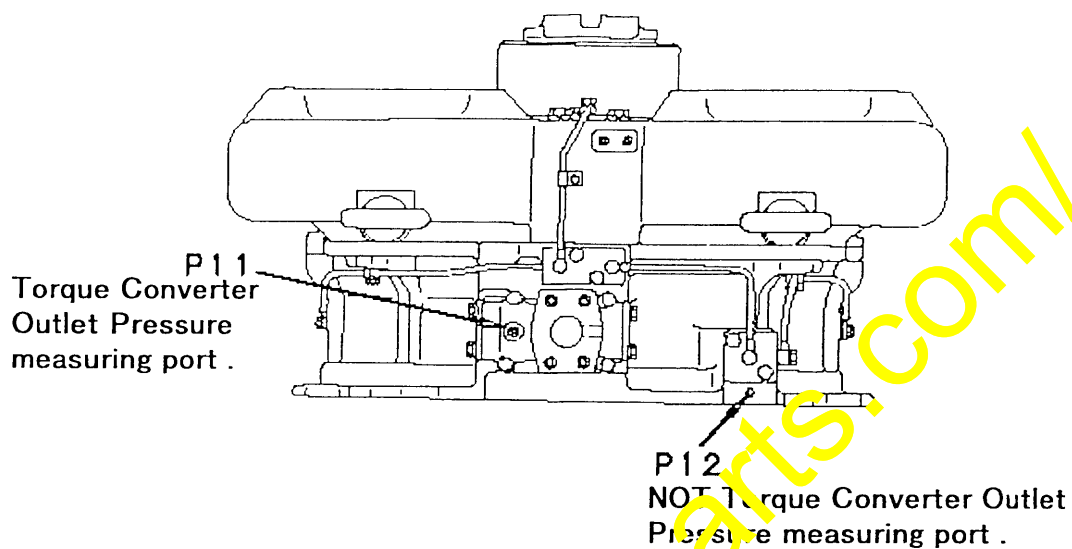
Check the machine conditions according to following Flow-Chart.

The measurement procedures to be according to the SHOP MANUAL.



**[NOTE]** For the machine on which the Torque Converter outlet pressure satisfies the above specifications, the modification introduced in this Service News is not effective to increase the traction force. However, the improved Regulator Valve makes the Torque Converter outlet pressure constant irrespective of oil temperature, and it makes the machine traction force more stable. Therefore, the modification in this Service News is recommended to the machine on which the Torque Converter outlet pressure satisfies the above specifications.

- [ NOTICE ] Port For Measuring Torque Converter Outlet Pressure.  
Measure the Torque Converter Outlet Pressure at P11 in following fig.  
( P12 is not the Torque Converter Outlet Pressure measuring port. )



There is a MISPRINTED in SHOP MANUAL as shown below.

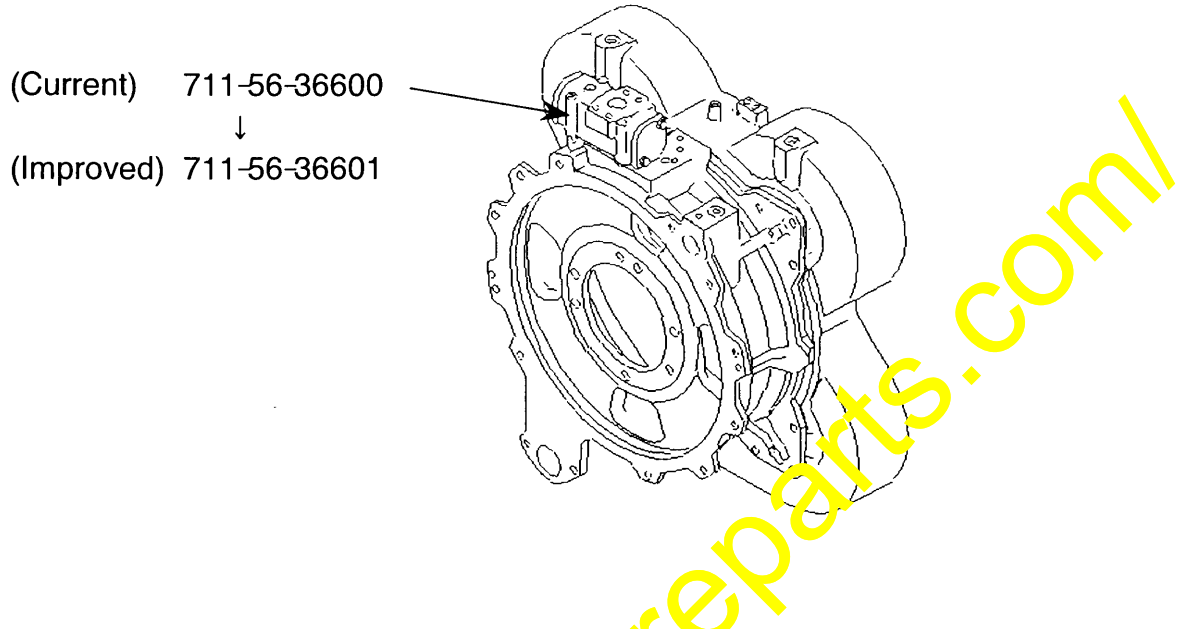
5. Measuring torque converter outlet pressure  
1) Remove plug (P11) or ~~(P12)~~ (PT 1/8), and ...

MISPRINTED

4. Contents of the improvement.

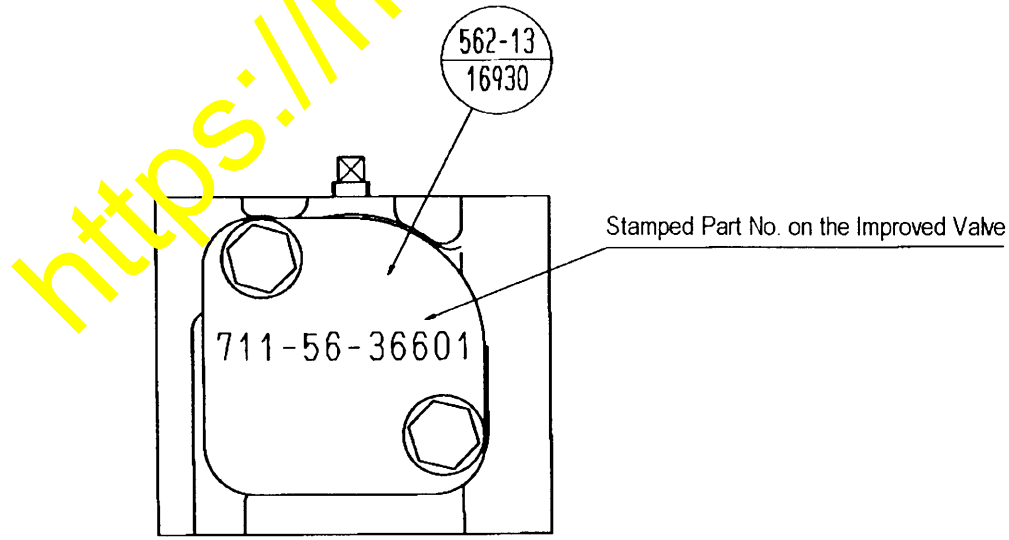
The performance of Regulator Valve has been improved.

The improved Regulator Valve makes the Torque Converter outlet pressure constant irrespective of oil temperature, and it prevents traction force from lowering, that is caused by the lower Torque Converter outlet pressure in higher oil temperature condition.



5. Identification method for the improved valve.

For the identification between the improved valve and the current valve, on the side plate (562-13-16930) of the improved valve, Part No. "711-56-36601" has been stamped.



## 6. Modification procedures [Replacement of Regulator Valve Ass'y].

① Open the Platform Cover (1).

★ Before the Valve Ass'y is removed, clean up the Valve Ass'y and the area around the Valve Ass'y.

★ The entry of dust into the Valve Ass'y or Torque Flow Ass'y causes the internal troubles.

② Disconnect the Connector (2) of the Oil Temperature Sensor.

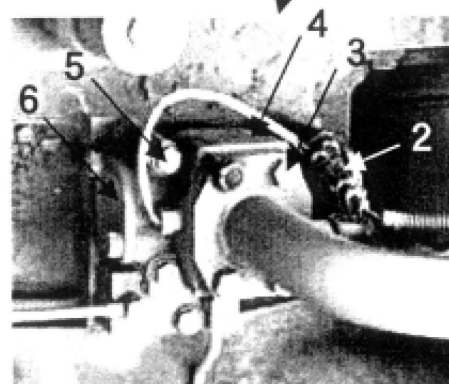
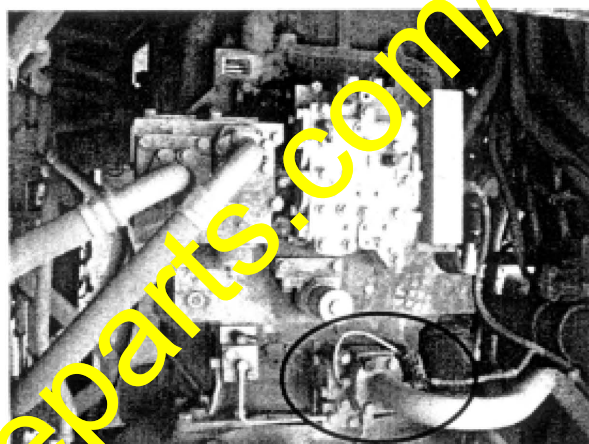
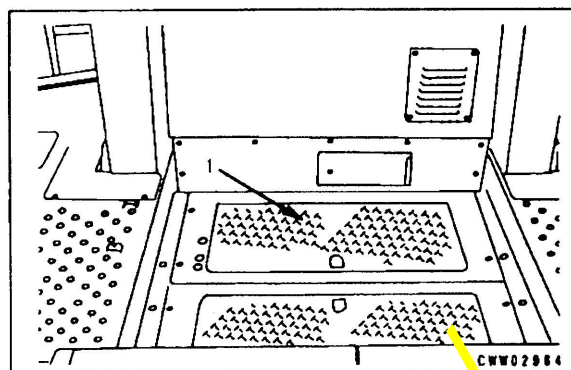
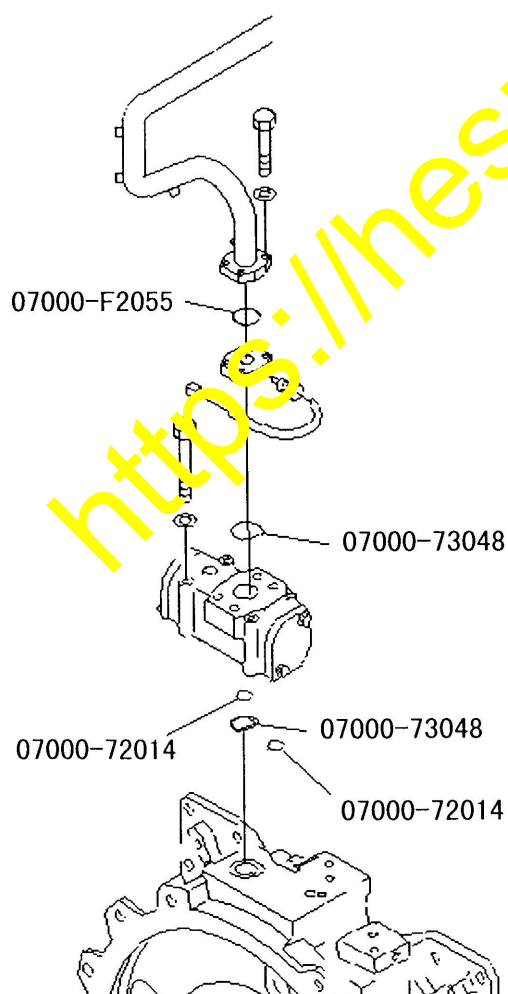
③ Remove 4 Bolts (3) on the tube flange.

④ Remove the Flange (4).

⑤ Remove 4 Bolts (5) on the valve body.

⑥ Remove the Valve Ass'y (6).

★ Following O-rings to be replaced with new ones.



⑦ Install the improved Valve Ass'y.

⑧ Tighten 4 Bolts (5) on the valve body.  
★ Tighten the bolts diagonally.

 Tightening torque :  $5.0 \pm 0.5$  kgm

⑨ Install the Flange (4).

⑩ Tighten 4 Bolts (3) on the tube flange.

⑪ Connect the Connector (2) of the Oil Temperature Sensor.

⑫ Close the Platform Cover (1).

7. Adjustment procedures of shim thickness for the improved Regulator Valve.

The improved Regulator Valve has been set to 6 kg/cm<sup>2</sup> at shipping test. However, installed on machine, depending on the dispersion in conditions, some of valve may be getting out of the setting.

In this case, the valve setting can be adjusted by changing the shim thickness.

★ Remove off the Regulator Valve Ass'y from the Torque Converter Ass'y, and make the adjustment of the shim thickness.

★ Do not make the adjustment of shim thickness as the Regulator Valve Ass'y stays on the Torque Converter Ass'y.

There is a large risk that some parts of valve are fallen into the Torque Converter Ass'y. to prevent entry of

★ Be careful so that dust does not enter into the Valve Ass'y.

The entry of dust into the Valve Ass'y causes performance troubles.

[1] Remove the Regulator Valve Ass'y according to "6. Modification procedures [Replacement of Regulator Valve Ass'y]" on page 5.

[2] Adjust the thickness of shims (8) in the Spool (7).

- 0 1 6 4 3 -3 1 4 4 5 (t=4.5) Amount of pressure adjustment by 1 piece : 0. 3 4 8 kg/cm<sup>2</sup>
- 2 3 S-1 5 -4 5 8 6 0 (t=0.5) Amount of pressure adjustment by 1 piece : 0. 0 3 9 kg/cm<sup>2</sup>

★ Clean up the orifice hole (φ 1.6) of Spool (7) and the orifice hole (φ 0.8) of Valve (9). And check that no dust is in the orifice holes φ 1.6 and φ 0.8.

★ Valve (9), Spring (10) and Valve (11) shall be moved smoothly in Spool (7).

★ Sticking of Valve (9) or Valve (11) causes troubles on valve performance.

★ Following O-rings to be replaced with new ones.

