

# PARTS & SERVICE NEWS

REF NO.	AA04153
DATE	September 9, 2004

(C)

**SUBJECT:** REPLACEMENT PROCEDURE FOR BOOM CONTROL VALVE SPOOL TO IMPROVE BOOM DOWN CONTROLLABILITY

**PURPOSE:** To introduce boom control valve spool replacement procedure to improve the boom down controllability on the listed wheel loaders

**APPLICATION:** WA800-2L Wheel Loader Serial Number A20001, A20002, A20004 to A20019  
 WA800-2LC Wheel Loader Serial Number A20002, A20020 to A20028  
 WA800-3LC Wheel Loader Serial Number A50001 to A50020, A50022, A50028  
 WA900-1L Wheel Loader Serial Number A20001 to A20007  
 WA900-1LC Wheel Loader Serial Number A20008 to A20023, A20024  
 WA900-3LC Wheel Loader Serial Number A50001 to A50023, A50025 to A50029, A50031 to A50035  
 WA800-1 Wheel Loader Serial Number ALL  
 WA800-2 Wheel Loader Serial Number ALL  
 WA800-3 Wheel Loader Serial Number ALL  
 WA900-1 Wheel Loader Serial Number ALL  
 WA900-3 Wheel Loader Serial Number ALL

**FAILURE CODE:** P120MB

**DESCRIPTION:** With the WA800 and WA900 wheel loaders, there is a possibility of occurrence of a larger shock while making "Boom down" ⇒ "Boom stop" operation. As KOMATSU has developed an improved new boom spool with modified spool shape in order to reduce the shock and introduces the replacement procedure for the boom control valve spool in this Service News

## MACHINE PREPARATION

1. Park the machine on a flat level surface; lower the work equipment to the ground. Shut off the engine and cycle the controls to remove any residual hydraulic pressure from the work equipment circuits. Turn the parking brake switch on and block the tires or tracks.
2. Remove the key from the ignition switch until the repairs are complete. Place a tag on the steering controls advising: "This machine is being repaired. It should not be started or moved for any reason until the tag is removed by the person doing the repairs."



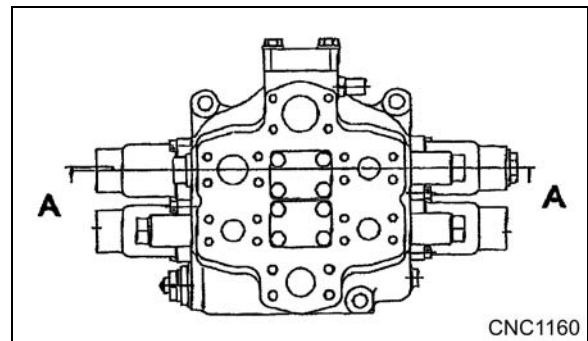
**WARNING!** Observe all safety and precautionary standards as dictated by the environment and work conditions under which the equipment will be inspected, reworked and repaired. consult the "Shop Manual" and "Operator's and Maintenance Manual" and your "Komatsu district service manager" with any/all questions regarding safety.

### Remark

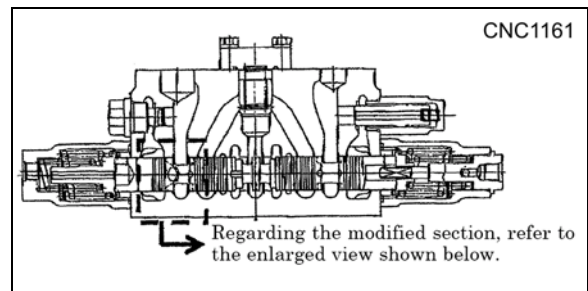
*These instructions are intended to supplement the service data contained in the appropriate "Shop Manual". Always refer to that manual for Removal, Installation, Disassembly and Reassembly instructions when not contained in this document.*




## OUTLINE OF MODIFICATION

- The boom control valve spool is to be replaced with the improved spool to reduce the shock which may occur while making "Boom down"  $\square \Rightarrow$  "Boom stop" operation.
  - Contents of the replacement work (Refer to the replacement procedure for details.)
  - Change the boom spool of the "Rear Valve".
- ★ Valve shown A-A as it appears.

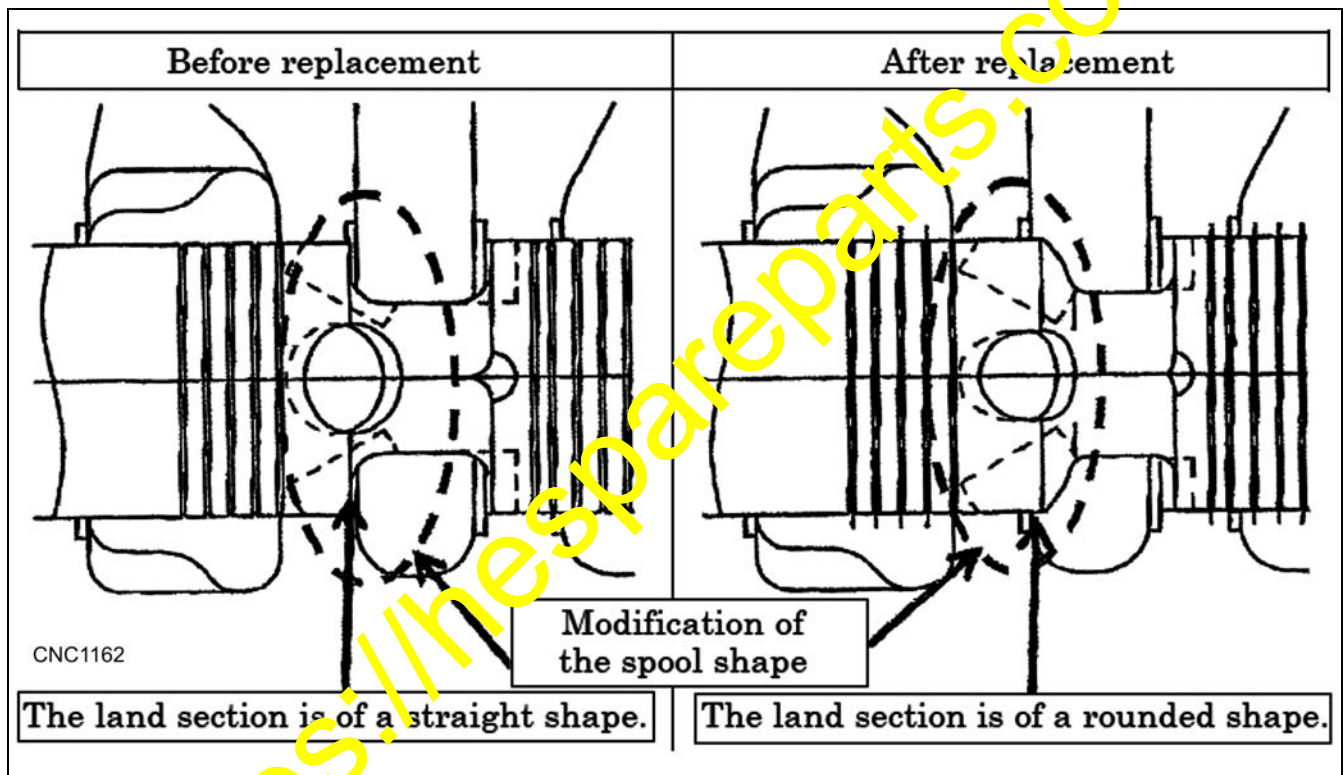


- ★ Cross sectional view of the valve A-A



Control valve	WA800 Standard	709-12-11806 through 709-12-11807 Valve No. CMN00098 through CMN00247		709-12-11808 Valve No. CMN00248-
	WA800 Cold weather	709-12-12902 through 709-12-12903 Valve No. No valve is applicable		709-12-12904 Valve No. CMG00001-
	WA900	709-12-13602 through 709-12-13603 Valve No. KKK00024 through KKK00131		709-12-13604 Valve No. KKK00132-

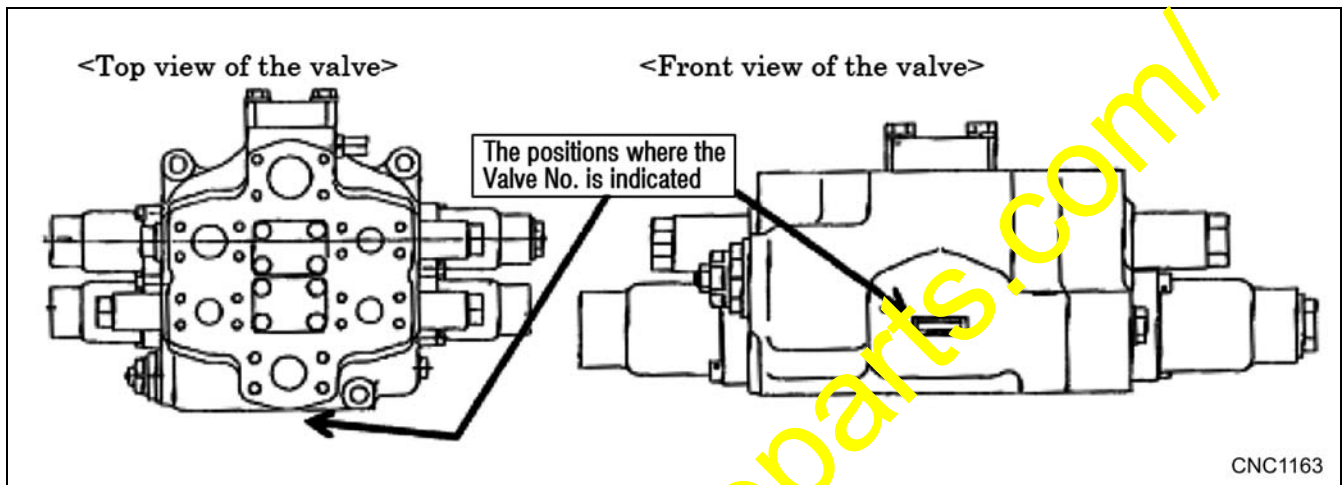
Although “Front Valve” and “Rear Valve” are being used, the “Rear Valve” only is applicable to this modification. (Refer to the replacement procedure for details.)



## REPLACEMENT PROCEDURE FOR THE SPOOL

### ★ Regarding The Supply Of The Parts Necessary For This Modification

Enter the required matters in the attached Check Sheet (given on last page) and fax it to the Quality Assurance Section in Mooka Plant. We will then dispatch the parts necessary for this modification. In the meantime, be sure to indicate the Valve No. of the “Rear Valve” for us to determine the size of the spool. The positions where the Valve No. is indicated is shown in the drawing below. (Regarding the position of the **R** valve, refer to the replacement procedure.)

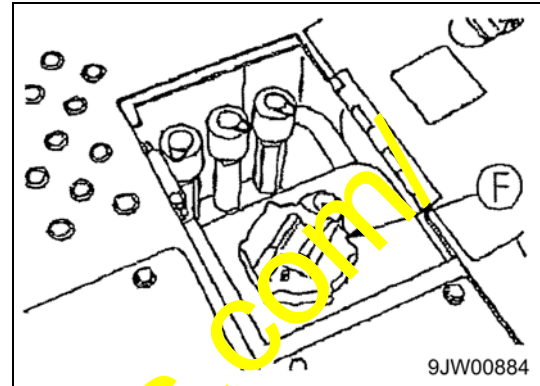


## PREPARATIONS BEFORE REPLACING THE SPOOL

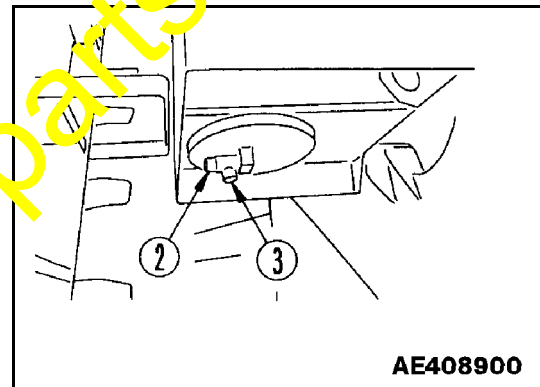
- For protection of the hydraulic equipment and devices, pay attention to the following points when carrying out the disassembly and reassembly work.
  - a. Wash the machine before starting the disassembly work, and especially, wash the surroundings of the disassembling parts completely.
  - b. Do not let dust, dirt, etc. enter into the hydraulic circuits while carrying out the disassembly work and reassembly work.
  - c. Wash the parts completely, and especially, wash the circuit and parts where the failure is occurring.
  - d. When carrying out the disassembly work or after finishing the washing work, mask the opened sections of the pipings and hydraulic parts completely.
- Loosen the oil filler cap to release the internal pressure in the hydraulic tank and operate the work equipment control lever between the “Tilt position” □⇒ “Neutral position” for 40 times or more to release the remaining pressure inside the accumulator and in the pipings completely. Refer to the Section “Release of remaining pressure from hydraulic circuit” in the Shop Manual when carrying out the above operation.

- Carry out either one of the following processes to prevent leakage in a large quantity of the hydraulic oil while replacing the parts.
  - e. Drain the hydraulic oil from the drain port of the hydraulic tank.
  - f. Vacuum the hydraulic tank.

- Drain the hydraulic oil from the drain port of the hydraulic tank:
- Refer to the Section “Changing the oil in the hydraulic tank” in the Operation and Maintenance Manual.
  - g. Remove the cap of the oil filler port (F).
  - h. Set an oil pan to receive drained oil under the drain plug (3).

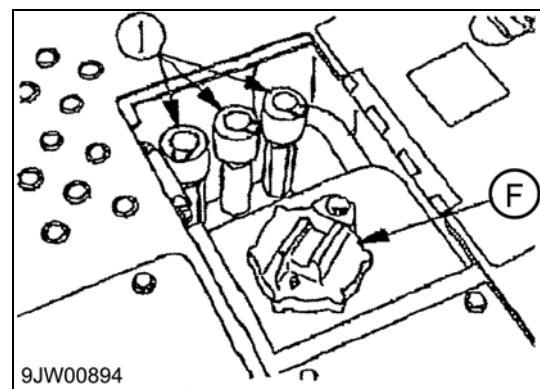


- The oil pan should be with a capacity of 725ℓ or more.
  - i. Remove the drain plug (3).
  - j. Gradually open the drain valve (2) to drain the oil.
  - k. After draining the oil, close the drain valve (2) and tighten the drain plug (3).

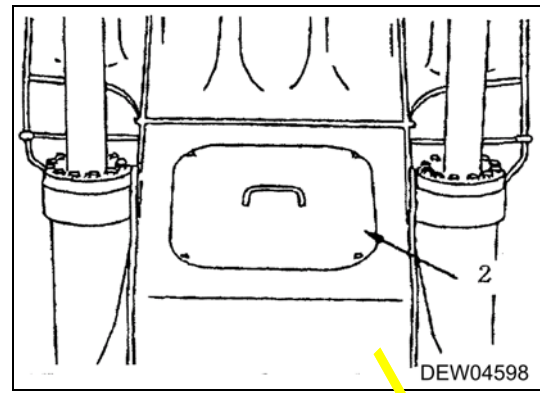


- When carrying out the above (2) vacuum the hydraulic tank, vacuum after removing the element and after making hermetic seals by use of vinyl sheets, etc. referring to the section “Changing the breather element of the hydraulic tank” in the Operation and Maintenance Manual.

- l. Remove the cap of the oil filler port (F).
- m. Remove the snap rings of the breathers (I), remove the breather caps and, after that, make seal the breathers hermetically.
- n. Vacuum the hydraulic tank from the oil filler port (F).



- Cover
  - o. Remove the cover (2) from the front frame.

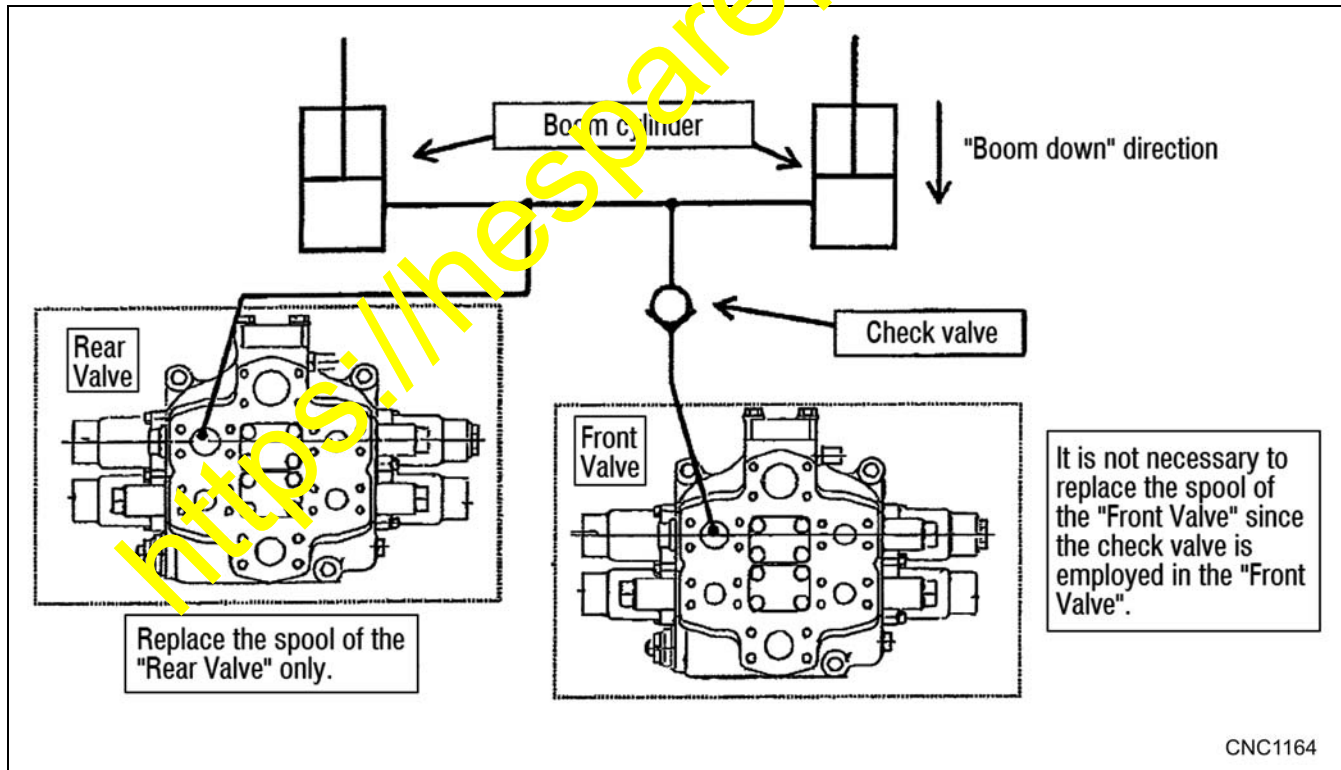


### SPOOL REPLACEMENT METHOD

#### ★ Work Equipment Control Valve

- (1) 2 sets of work equipment control valves are used per machine in case of both WA800 and WA900.
- And, while boom-down operations are made as shown in the drawing shown below, the flow to the “Front Valve” is shut-off by the check valve. Therefore, it is necessary to replace the spool of the “Rear Valve” only by this modification.

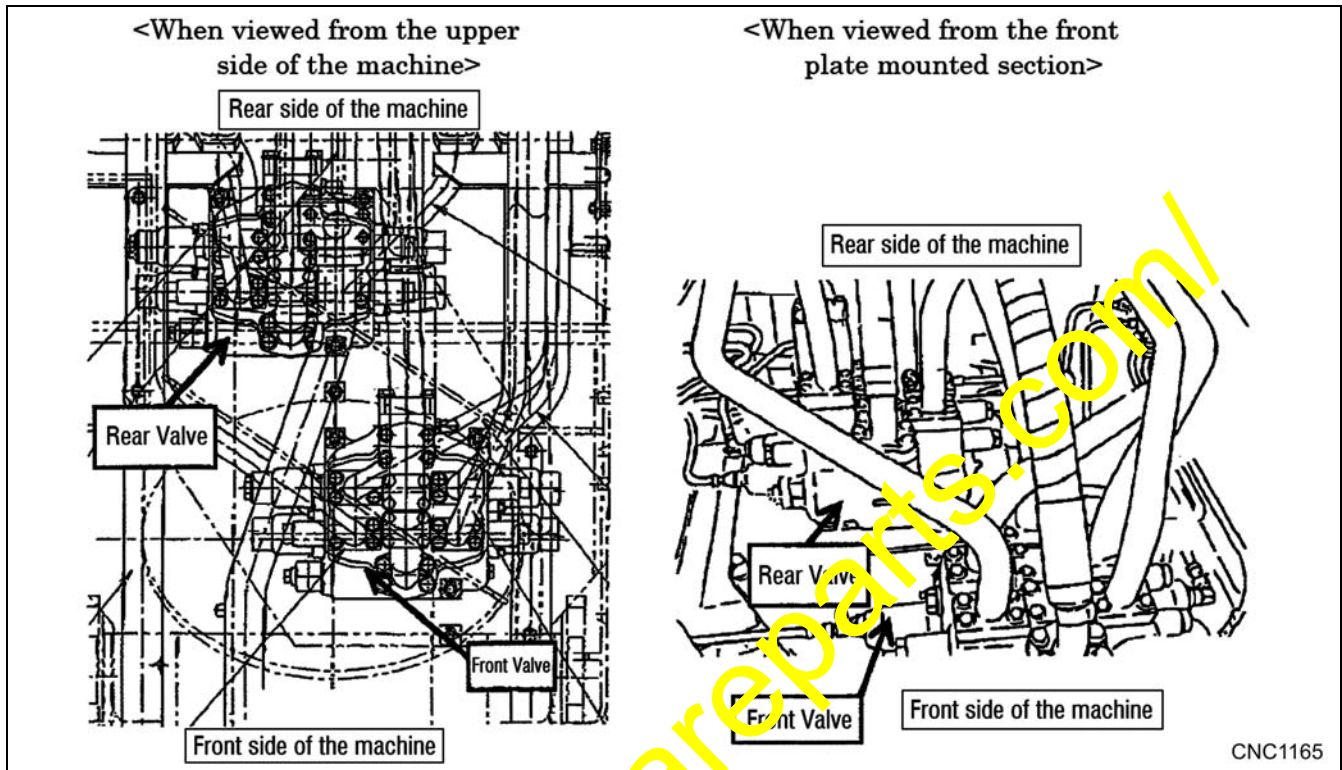
#### <Outline Drawing Of Piping Connecting Boom Cylinders And Work Equipment Control Valves>





## ★ Rear Valve

- The work equipment control valves are located in the front section of the machine. The rear valve is located at the rear of the machine as shown in the drawing below.

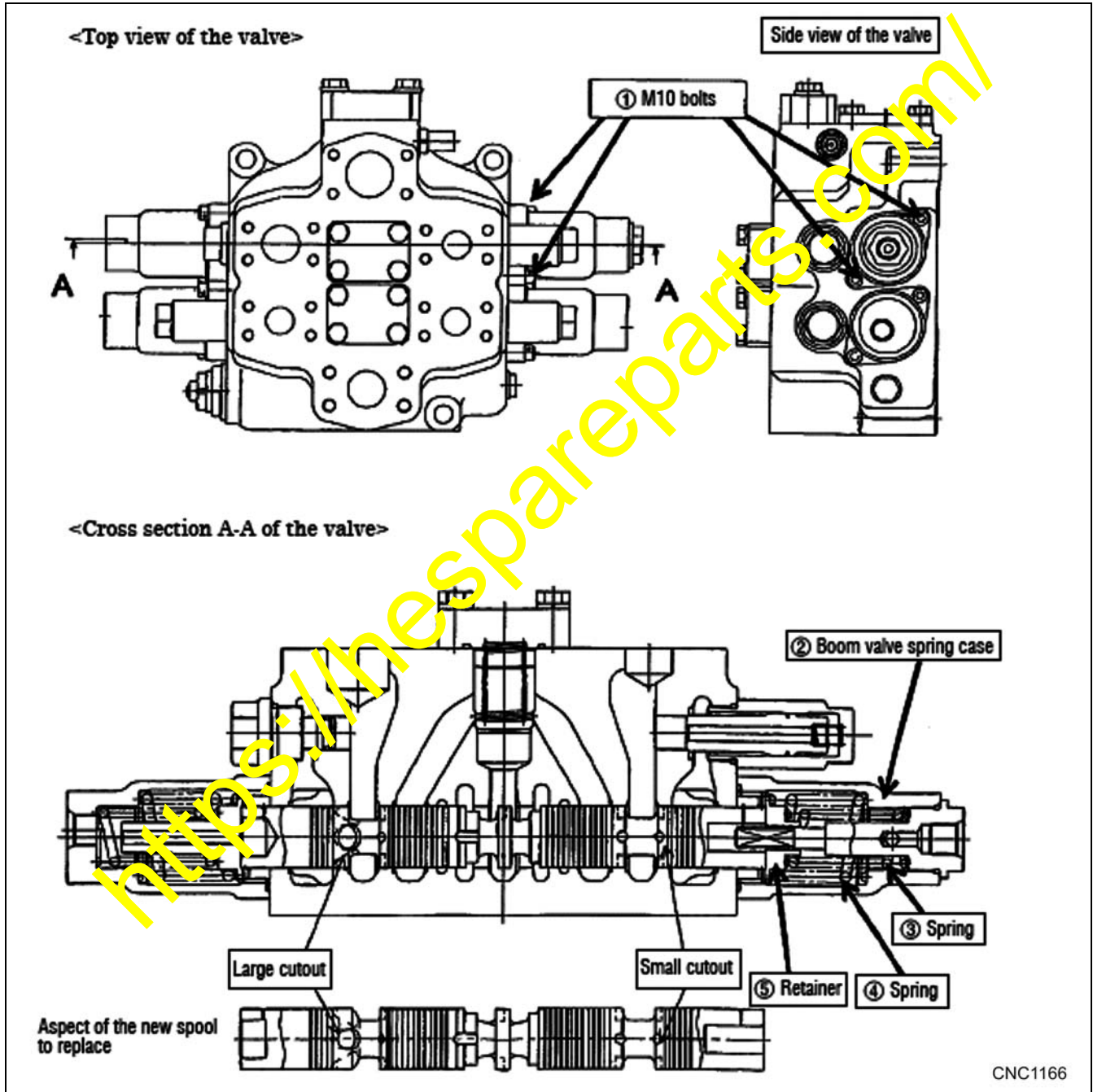


<https://hespareparts.com/>

## REPLACEMENT METHOD

★ Replace the spool of the “Rear Valve” in the following method.

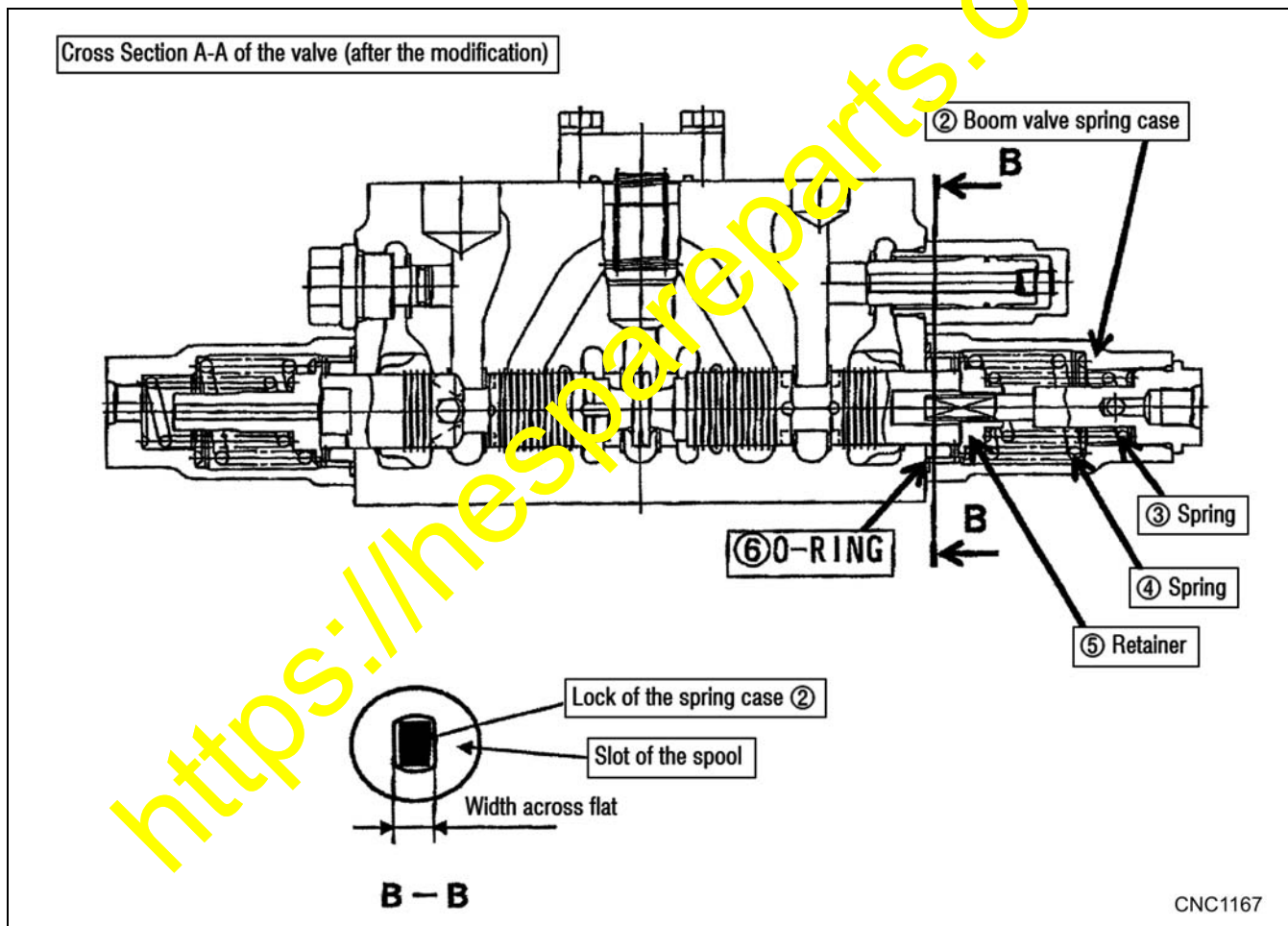
- p. Loosen the M10 bolts (1) (2 pcs.) and remove the boom valve spring case (2), springs (3) and (4) and retainer (5).
- q. Slowly take out the current spool.
- r. Slowly install the new spool to replace. (Refer to the drawing shown below regarding the installation method.)





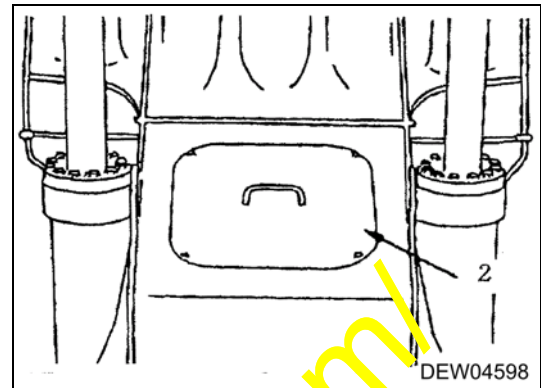
## REPLACEMENT METHOD

- Install the springs (3) and (4), and retainer (5) to the original positions and lightly applying grease on the boom valve spring case (2) so that the O-ring (6) may not drop off, reinstall the spring case to the original position.
- When reinstalling the boom valve spring case (2), pay attention and the following points.
- The boom valve spring case (2) has a lock to stop turning of the spring case. Therefore, check the direction of the slot of the spool and the direction of the width across flat of the lock on the spring case to be sure they match when installing the boom valve spring case (2). (Refer to the Cross Section B-B shown below.)
- Install bolt (1) of the spring case and tighten the bolt. (Tightening torque: 59~71 Nm (44~55 ft/lbs) (Refer to the "Top view of the valve" and "Side view of the valve" on pages 7 and 8.)

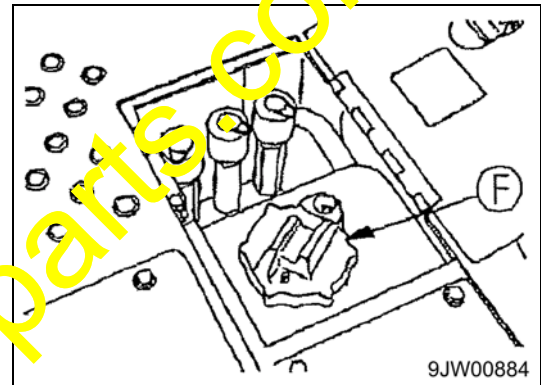


## STEPS TO TAKE AFTER REPLACING THE SPOOL

- Install the cover (2) to the front frame.
- Release what was taken to prevent leakage of a large quantity of the hydraulic oil while replacing the parts.
- When drain the hydraulic oil from the drain port of the hydraulic tank refill the hydraulic tank with oil from the oil filler port (F) to the specified level.



- When starting the engine, bleed air from the piston pump circuit referring to “Air bleeding from each section” described below.
- After bleeding air from each section refer to “Air bleeding from each section” described below, let the hydraulic oil circulate through the circuit, check the hydraulic oil level. If the hydraulic oil quantity is in low, add oil.
- If vacuuming the hydraulic tank was carried out install the breather element to its original position.



- After the replacement work is done, before starting the engine, bleed air from the piston pump circuit referring to “Air bleeding from each section” in the Section “Hydraulic oil change at 2,000 hour maintenance” in the Operation and Maintenance Manual.
- After the air bleeding from each section, start the engine to let the hydraulic oil circulate through the circuit, and check the hydraulic oil level. If the hydraulic oil quantity is in low, add oil.

**To: Manager**  
**Quality Assurance Section**  
**Mooka Plant**  
**Fax No. 81-285-83-9808**

<b>Fax sent on</b>	
<b>Outlet name</b>	
<b>Fax sent by</b>	

<Request for supply of spool to improve the boom on WA800 and WA900>

<b>1. Machine model:</b>
<b>2. Serial number:</b>
<b>3. Delivery date:</b>
<b>4. Failure date:</b>
<b>5. Service meter reading:</b>
<b>6. Operating location:</b>
<b>7. Owner name:</b>
<b>8. Control valve No.</b> (Control valve No. of "Rear Valve" is indispensable.)
<b>9. Phenomenon experienced:</b>
_____
_____
_____
_____
_____
_____
_____
<b>10. Spool</b> <b>Address to send the improved spool:</b>
_____
_____
_____
_____
_____
_____
<b>11. Preferred delivery date:</b>