

PARTS & SERVICE NEWS

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This PARTS & SERVICE NEWS supersedes the previous issue No. AT00121 dated Jul. 5, 2000 which should be discarded.

SUBJECT: REPAIR OF TRAVEL PPC VALVE LEVER MALFUNCTION ON PC78US-5—1100-6, CD60/110R-1

PURPOSE: To introduce modification procedures to repair malfunctioning of the control lever for the travel PPC valve on PC78US-5 thru PC1100-6, CD60R-1 and CD110R-1

APPLICATION: See page 5.

FAILURE CODE: Q1B0MA

DESCRIPTION:


1-1. Introduction

The following malfunctionings may occur with hydraulic excavators PC78US-5 thru PC1100-6 and models CD60R-1 and CD110R-1 carrying travel PPC valve assemblies equipped with the damper:

- (1) The control lever cannot be moved from the neutral position.
- (2) The control lever cannot be returned to the neutral position from a stroked state.

When the aforesaid malfunctionings occur, repair the failures following the modification procedures outlined in this Service News.

1-2. Revised places:

28 places 	Jun. 28, 2001	Changed the replacement parts and reviewed the serial numbers.
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2. List of parts

Part No.	Part Name	Purpose of part	Q'ty	Remarks
Δ 702-16-01901 (702-16-01900)	Case A. (Case A.)		1 (1)	For standard spec. machines
Δ 702-16-01911 (702-16-01910)	Case A. (Case A.)		1 (1)	For KUE Δ
Δ 702-16-01921 (702-16-01920)	Case A. (Case A.)		1 (1)	PC400 (-50°C)
700-11-31980 (700-11-31980)	Plate (Plate)		1 (1)	Number plate
702-16-54311 (702-16-54310)	Case (Case)	Replacement	1 (1)	This part can be used for PPC valve assemblies without the damper.
702-16-54121 (702-16-54121)	Lever (Lever)		2 (2)	
702-16-54450 (702-16-54450)	Shaft (Shaft)		2 (2)	
702-16-54462 (702-16-54461)	Plate (Plate)	Replacement	1 (1)	
01010-80855 (01010-80855)	Bolt (Bolt)		2 (2)	
01643-30823 (01643-30823)	Washer (Washer)		2 (2)	
04025-00432 (04025-00432)	Pin, spring (Pin, spring)		2 (2)	
702-16-54430 (702-16-54430)	Bushing (Bushing)		4 (4)	
702-16-54280 (702-16-54280)	Seal, dust (Seal, dust)		2 (2)	
Δ 702-16-54506 (702-16-54505)	Damper A. (Damper A.)	Replacement	1 (1)	
01252-60325 (01252-60325)	Bolt (Bolt)		4 (4)	
702-16-54511 (702-16-54510)	Plate (Plate)	Replacement	2 (2)	
04025-00420 (04025-00420)	Pin, spring (Pin, spring)		2 (2)	
702-16-54520 (702-16-54520)	Lever (Lever)		2 (2)	
01224-40612 (01224-40612)	Screw (Screw)		2 (2)	
04022-04010	Pin, dowel	} Addition	2	
04022-04016	Pin, dowel		2	

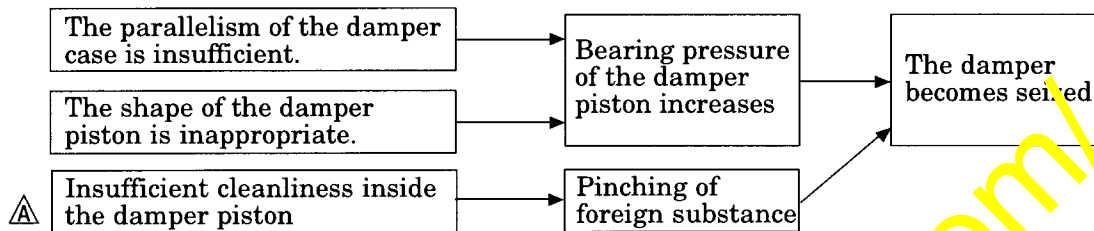
Part No.	Part Name	Purpose of part	Q'ty	Remarks
01580-00860	Nut	Addition	2	
△ 702-16-01432 (702-16-01431)	Pilot Valve (Pilot Valve)	}	1 (1)	PC300, 400-6 △(AL body)
△ 702-16-01502 (702-16-01501)	Pilot Valve (Pilot Valve)		1 (1)	△PC750, 800-6
△ 702-16-01542 (702-16-01541)	Pilot Valve (Pilot Valve)		1 (1)	△PC78U, 100 thru 228
△ 702-16-01582 (702-16-01581)	Pilot Valve (Pilot Valve)		1 (1)	△PC400-6 (-50°C)
△ 702-16-01682 (702-16-01681)	Pilot Valve (Pilot Valve)		1 (1)	△PC1100-6
△ 702-16-01832 (702-16-01831)	Pilot Valve (Pilot Valve)		1 (1)	For FKI (Part No. of PPC valve alone)
702-16-09063 (702-16-09062)	Valve A. (Valve A.)		1 (1)	For FKI (Assembly Part No. in- cluding the lever)
△ 702-16-01632 (702-16-01631)	Pilot Valve (Pilot Valve)		1 (1)	△CD60R-CD60RT-1
△ 702-16-01681 (702-16-01680)	Pilot Valve (Pilot Valve)		1 (1)	△PC228US-3
			Reworked	

3. Failure phenomena

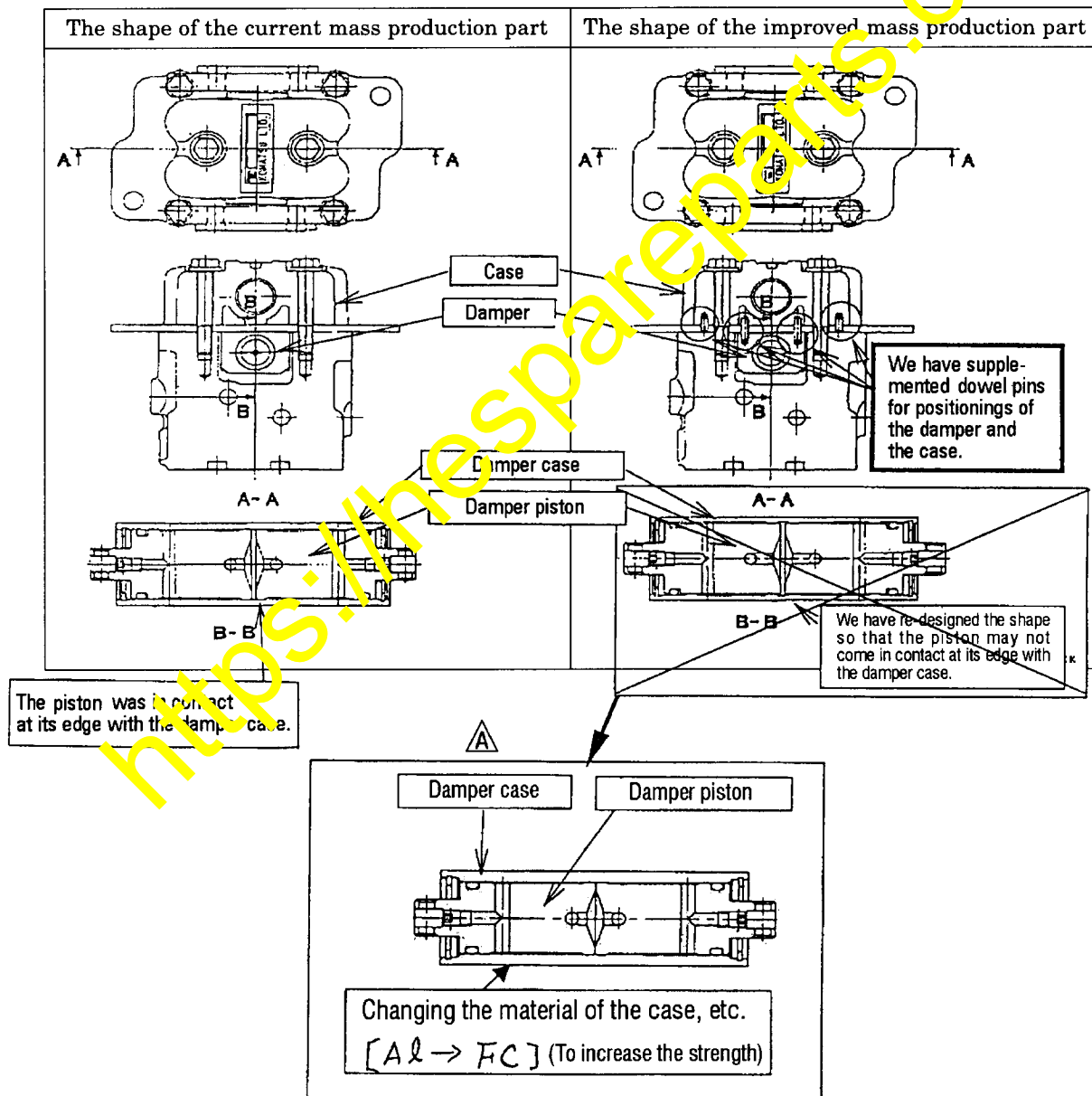
- (1) The lever would not move from the neutral position.
- (2) The lever cannot be returned to the neutral position from a stroked state.

4. Failure causes

- (1) The damper becomes seized.



5. Contents of the modification



6. Machine models, serial numbers of the applicable machines and the serial numbers of applicable PPC valve assemblies

Δ Table 4-1. Models and serial numbers of the applicable machines

Machine models	Serial Nos.	Serial Nos. of already modified machines	Remarks
PC78US-5	#1001 -	#3108 -	
PC100-6	#40624 -	#46881 -	EXCEL spec. machines are not applicable.
PC100L-6	#15011 -	#15270 -	EXCEL spec. machines are not applicable.
PC120-6	#47571 -	#65190 -	EXCEL spec. machines are not applicable.
PC130-6	#47713 -	#52679 -	EXCEL spec. machines are not applicable.
PC100N-6	#1001 -	#1222 -	
PC128UU-2	#5001 -	#5567 -	
PC128US-1, 2	#1001 -	#7118 -	
PC138US-2	#1001 -	#2436 -	
PC200-6	#83826 -	#110481 -	
PC210-6	#30335 -	#31910 -	
PC220-6	#50310 -	#56313 -	
PC230-6	#10048 -	#10332 -	
PC228UU-1	#10001 -	#10390 -	
PC228US-1, 2	#11001 -	#15323 -	
PC228US-3	#20001 -	#20395 -	
PC300-6	#30001 -	#34157 -	
PC350-6	#10001 -	#12803 -	
PC400-6	#30001 -	#32514 -	
PC400ST-6	#10001 -	#10026 -	
PC450-6	#10001 -	#12658 -	
PC600-6	#10001 -	#11042 -	
PC650-6	#30001 -	#31015 -	
PC750-6	#10001 -	#10359 -	
PC800-6	#30001 -	#30262 -	
PC1100-6	#10001 -	#10204 -	
CD60R-1	#1033 -	#1580 -	Excluding machines applicable to the A2 grade
CD110R-1	#1001 -	#1207 -	Excluding machines applicable to the A2 grade

Note: Since the travel PPC valve assemblies on the PC100-6, PC120-6 and PC130-6 EXCEL spec. machines are of the type without the damper, they are not applicable to the modification.

(Part number of the subject part: 702-16-01590)

\triangle Table 4-2. Serial numbers of already modified PPC valve assemblies

Part Nos.	Serial Nos. of already modified PPC valve assemblies	Applicable machine models
702-16-01632	N15-1 -	CD60R-CD60RT-1
702-16-01432	14-137 -	PC100N-6, PC128US-1, PC300-350-400-450-6, CD110R-1
702-16-01502	B15-1 -	PC750-800-6
702-16-01542	C14-355 -	PC78US-5, PC128UU-2, PC128US-2, PC138US-2, PC100-100L-120-130-6, PC200-210-220-230-6, PC600-650-6, PC228UU-1, PC228US-1, 2
702-16-01582	E15-1 -	PC400-6 (extremely cold weather spec.)
702-16-01682	D15-1 -	PC1100-6
702-16-09064	L15-1 -	KUEPC75-95-110
702-16-01861	14-31 -	PC228US-3 (The PC200-6 is already modified from the first serial number machine.)
702-16-03321 (for PC58UU-3) and 702-16-03361 (for PC78UU/US-6) are of modified type from the start and employed on machines in the range from the 1st in mass production onward.		

Definition of the serial numbers:

$\square \circ \circ - X X X$ Example: 05-1 (Means No. 1 in May 2000.)
 Year | Serial No.
 Month

7. Modification procedures for the travel PPC valve assembly

(1) Preparations before starting this modification work

① Order for the replacing parts.

Destination of the machine		Specs. of the machine	Necessary replacing parts Part Nos. of the case assembly
Overseas markets	(Machines shipped from Japan)	Standard spec.	702-16-01901 \triangle
Overseas markets	(Machines shipped from Japan)	Extremely cold weather spec.	702-16-01921 \triangle
Overseas markets	Machines produced by FKI	All types	702-16-01911 \triangle
Overseas markets	Machines produced by overseas affiliates	All types	702-16-01901 \triangle

(2) Preparations

- ★ Lower the work equipment to touch the ground, stop the engine and gradually loosen the oil filler port cap of the hydraulic tank to release the internal pressure from the tank before setting the safety lock lever to the LOCK position.

Release the residue pressure from the hydraulic circuits referring to the Section "Releasing the Residue Pressure from Hydraulic Circuits" in Chapter "Inspection and Adjustment" in the Shop Manual.

- ① Wash the travel PPC valve assembly and its neighborhood and removing hoses, nipples, elbows, etc. by an engine cleaner (or brake cleaner or parts cleaner (washing detergent in a spray container)) using an air compressor.
- ② Before disconnecting the hoses, mark the disconnecting hoses and mating parts using tags or paint.
- ③ Be careful since residue oil may flow out from disconnected hoses and from the valve.

(3) Removing the travel PPC valve assembly

Remove the travel PPC valve assembly referring to the Section "Removal of Travel PPC Valve Assembly" in Chapter "Disassembly and Assembly" in the Shop Manual for the subject machine model.

(4) Modifying the travel PPC valve assembly

- ① **Provide matchmarks to the bolts (2) and washers (3) shown in the schematic diagram indicated below using a marking pen or the sort since they need to be installed to the same place before and after making this modification.**

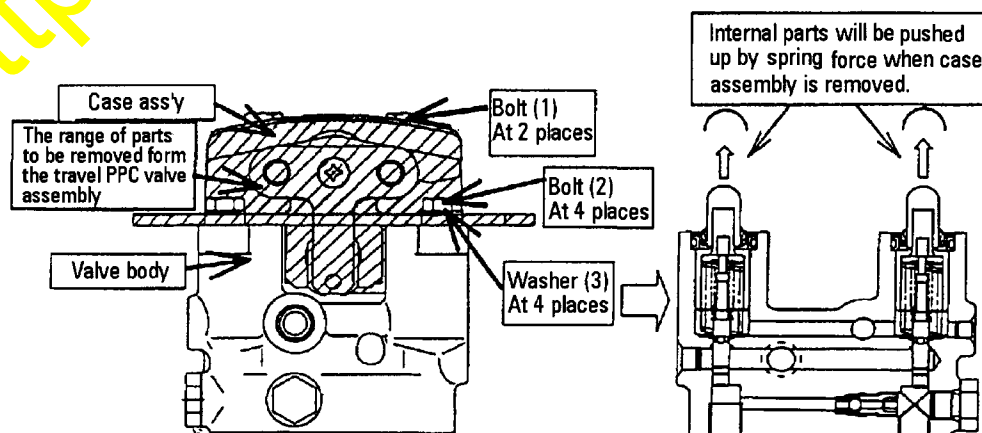
(Since the full stroke distance is being determined by these bolts (2) and washers (3), if their positions are changed, the distance of the lever strokes will change and the lever will become uneven.)

- ② Remove the bolts (1), bolts (2) and washers (3) from the travel PPC valve assembly. When making this disassembly work, place the travel PPC valve assembly on a stable and level stand.

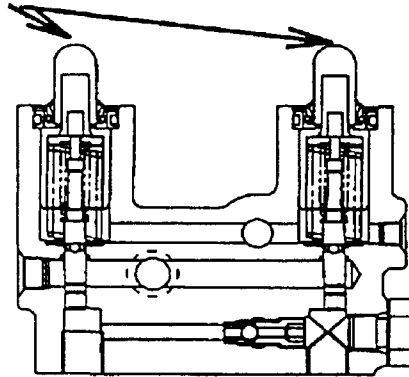
At this time, remove the case assembly of the PPC valve slowly while holding it by hand in order not to let the internal parts being pushed up by springs may not jump out.

Also, in order not to let the case assembly inclined to have the inner parts thereby twisted while the case assembly is being removed, loosen these bolts little by little alternately so that the valve case assembly may be lifted up horizontally.

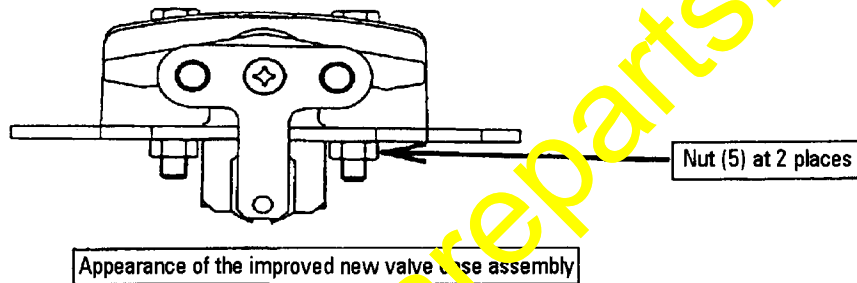
- ③ Remove the valve case assembly (the hatched sections in the schematic diagram below) to separate form the travel PPC valve body.



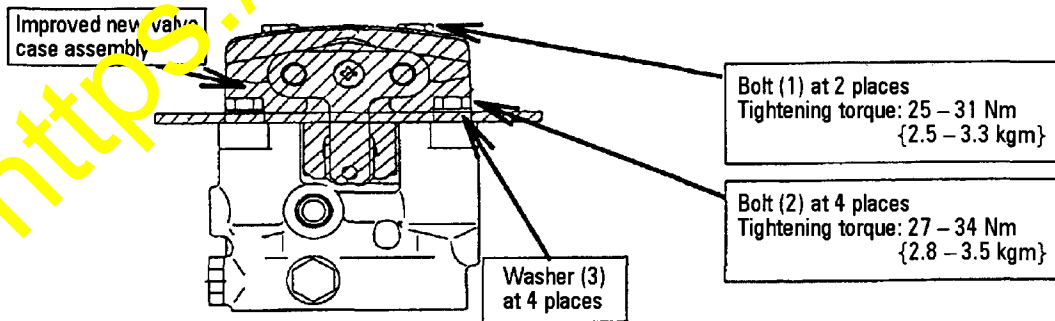
- ④ Apply grease to the top end of the pistons (4).
Using grease: G2LI (0.3 to 0.8 ml/min. per piston)



- ⑤ Remove the nuts (5) from the improved new valve case assembly.



- ⑥ Setting the improved new valve case assembly to the PPC valve body, install the bolts (2) and washers (3) and tighten the bolts (1) and bolts (2).
At this time, be sure to use the bolts (2) and washers (3) at their original places, respectively, observing the matchmarks.
Also, in order not to let the valve case assembly inclined to have the inner parts thereby twisted while the valve case is being installed, tighten these bolts little by little alternately so that the valve case may be lowered horizontally.



- (5) Reinstallation of the travel PPC valve assembly.
Reinstall the travel PPC valve assembly back to its original position referring to the Section "Installation of Travel PPC Valve Assembly" in Chapter "Disassembly and Assembly" in the Shop Manual for the subject machine model.