

PARTS & SERVICE NEWS

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This PARTS & SERVICE NEWS supersedes the previous issue No. AT04809 dated May 14, 2004 which should be discarded.

SUBJECT: MODIFICATION TO REPLACE RETARDER EPC VALVE, TO ADD ABNORMAL PRESSURE PREVENTIVE VALVE AND TO CARRY OUT FLUSHING OF TRANSMISSION + BRAKE CIRCUITS ON HD465/605-7

PURPOSE: To introduce modification procedures to replace the retarder EPC valve, to add the abnormal pressure preventive valve and to carry out flushing of the transmission + brake circuits on HD465-7 and HD605-7 dump trucks

APPLICATION:

- Retarder EPC + Flushing
HD465-7 Dump Trucks, Serial Nos. 7001 thru 7137 (without 7037, 7070)
HD605-7 Dump Trucks, Serial Nos. 7001 thru 7070 (without 7007, 7010)
- Abnormal pressure preventive valve
HD465-7 Dump Trucks, Serial Nos. 7001 thru 7265
HD605-7 Dump Trucks, Serial Nos. 7001 thru 7112

FAILURE CODE: DX11MC

DESCRIPTION:

1-1. Introduction

With the retarder brake commonly using the power train oil for the transmission ass'y on the HD465-7 and HD605-7 dump trucks, there is a possibility of occurrence of unstable activation pressure being reduced by the retarder EPC valve (electromagnetic proportional pressure reducing valve), thus lowering the effect of the retarder or damaging the rear brake piston seal by the high pressure.

To prevent the above mentioned failures, replace the retarder EPC valve, add the abnormal pressure preventive valve and carry out flushing of the power train oil (transmission + brake) circuits.

This modification should be carried out simultaneously with the following modifications. In the meantime, regarding the comprehensive version of these diverse modifications, refer to the Service News "AT04069".

Modification procedure to replace clutch disc to reduce wear of transmission plate on HD465-7 and HD605-7: Service News "AT04010".

Modification procedure to replace the brake piston seal and the brake disc: Service News "AT04808".

1-2. Revised places:

2 places A	Jun. 21, 2004	The Part No. for the abnormal pressure preventive pressure reducing valve was changed.
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2. List of parts


Necessary parts for modification by replacement of the retarder EPC valve

Part No.	Part Name	Purpose of part	Q'ty	Remarks
569-43-83171 (569-43-83171)	Valve (Valve)	Replacement	1 (1)	Retarder EPC valve
07002-22034 (07002-22034)	O-ring (O-ring)		2 (2)	
07002-22034 (07002-22034)	O-ring (O-ring)		3 (3)	
02896-21012 (02896-21012)	O-ring (O-ring)		3 (3)	
02896-21015 (02896-21015)	O-ring (O-ring)		3 (3)	
42C-43-18310 (42C-43-18310)	Switch (Switch)	Addition	1 (1)	Pressure switch
415-62-11560 (415-62-11560)	O-ring (O-ring)		1 (1)	For the pressure switch
569-43-84642 (569-43-84640)	Bracket		1	
569-43-84861	Cover		1	
01435-01016	Bolt	2		

Necessary parts for flushing of the transmission + brake circuits

Part No.	Part Name	Purpose of part	Q'ty	Remarks
561-15-55670	Element	Replacement	2	Flushing element for the transmission oil filter
569-16-81160 (569-16-81160)	Element (Element)		2 (2)	Standard element for the transmission oil filter
07000-12125 (07000-12125)	O-ring (O-ring)		4 (4)	Consumable parts
07063-41187	Element		1	Flushing element for the transmission + brake cooling circuit
07063-51210 (07063-51210)	Element (Element)		1 (1)	Standard element for the transmission + brake cooling circuit
07000-F5180 (07000-F5180)	O-ring (O-ring)		2 (2)	Consumable parts
569-43-83920	Element		1	Brake oil filter element
07000-12065 (07000-12065)	O-ring (O-ring)		1 (1)	Consumable parts
07001-02065 (07001-02065)	Backup ring (Backup ring)		1 (1)	
07000-12014 (07000-12014)	O-ring (O-ring)		4 (4)	

Necessary parts for modification by addition of the relief valve

Part No.	Part Name	Purpose of part	Q'ty	Remarks
 85211 569-43-85211	Valve	Addition	1	Same as 884-0467-360
569-43-85220	Bracket		1	Same as 884-0467-361
01010-81025	Bolt		4	
01010-81030	Bolt		4	
01643-31032	Washer		8	
02782-10516	Elbow		3	
07002-22034	O-ring		3	
02896-21015	O-ring		3	
569-43-85230	Bracket		1	Same as 884-0467-362
01010-81095 (01435-01040)	Bolt		Replacement	2

Part No.	Part Name	Purpose of part	Q'ty	Remarks
01643-31032	Washer	} Addition	2	
07094-30518	Clamp		2	
07095-00523	Cushion		2	
01010-81265	Bolt		1	
01643-31232	Washer		1	
569-43-85240	Tube		1	Same as 884-0467-363
569-43-85250	Tube		1	Same as 884-0467-364
569-43-85260 (569-43-84362)	Tube	1	Same as 884-0467-365	
02896-21015	O-ring	} Replacement	6	
569-43-85270 (569-43-84130)	Tube		1	
569-43-85280	Plate	} Addition	1	Same as 884-0467-367
07283-32236	Clip		3	
01597-01009	Nut		6	
01643-31032	Washer	} Replacement	6	
569-88-86751 (02782-10423)	Tee (Elbow)		1	
07002-22034	O-ring	} Addition	1	
02896-21012	O-ring		1	
02896-21015	O-ring		1	
02766-005A6	Hose		1	
02766-005A5	Hose		1	
02766-005A4	Hose	1		
02896-21009	O-ring	1		

3. Details of the modification

① Replacement of the retarder EPC valve

- There is a possibility that the movement of the retarder EPC valve has become dull by the metallic powder coming from the transmission.
If this status is left as it is the effect of the retarder may be reduced, or on the contrary, high pressure may occur to damage the brake seal. Therefore, replace the retarder EPC valve with a new part is to be replaced at the same time as replacing the transmission ass'y.

② Replacement of the relief valve

- For the purpose of keeping the brake circuit from abnormal high pressure even when malfunctioning occurs with the retarder EPC valve and when the pressure reducing function is lost, a valve to limit the primary pressure is to be installed in an upstream section of the EPC valve.

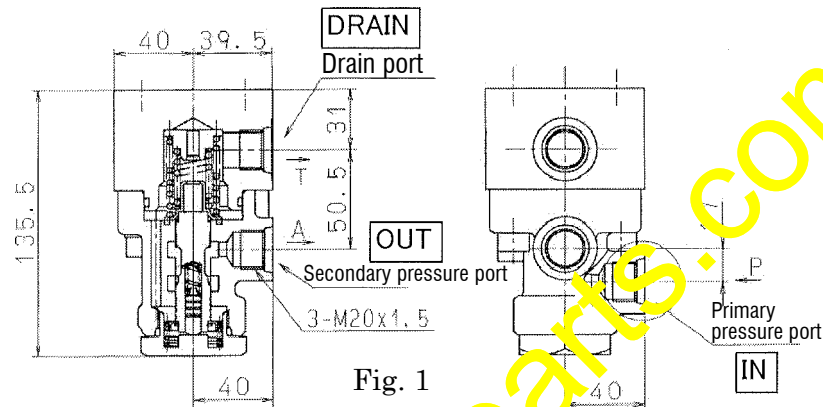


Fig. 1

Hydraulic circuit diagram

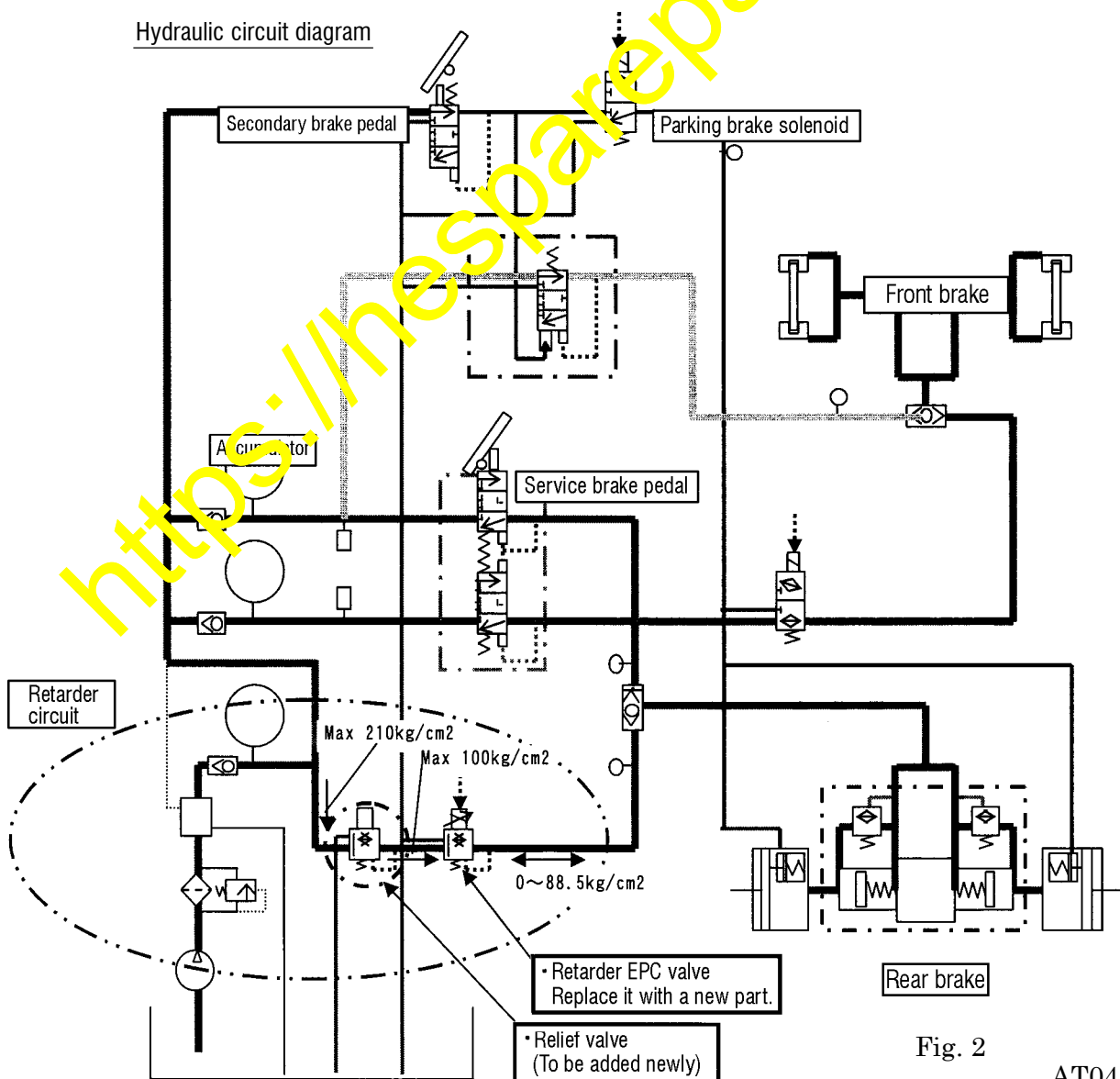


Fig. 2

- This modification work should be carried out at the same time as changing the transmission discs and brake piston seals.

After finishing all the modification work, flush the transmission + brake circuits and check the working pressure for the brake.

This Service News will also introduce the procedures for the above work.

- In case this modification cannot be carried out at the same time as changing the transmission discs and brake piston seals due to the scheduling for the vehicle, flush the above circuits after finishing the above modification works for the transmission and the brake. In the meantime, check the working pressure for the brake after finishing this modification work on a later day.

4. Modification procedure

4-1 Preparations before starting the modification work

(In case this modification work is carried out at the same time as the time when the modification works for the transmission and the brake are carried out, refer to the related Service News's also.)

- 1) Park the vehicle on a flat plate, turn on the parking brake and turn OFF the main (starting) switch. After that, apply chocks to each tire.
- 2) Press the brake pedal for more than 20 times to release the pressure in the brake controlling accumulator completely.

* When the pressure in the accumulator is released, the required power for the leg to press the brake pedal will decrease and the hydraulic sound will fade away. Immediately after the engine stops, the temperature of the parts, oil, etc. is still high and you may receive burning trouble. Therefore, start the modification work after the temperature has dropped sufficiently.

4-2 Modification procedure

- 1) Remove the cover of the space where the accumulator is installed.
(Refer to Fig. 3.)

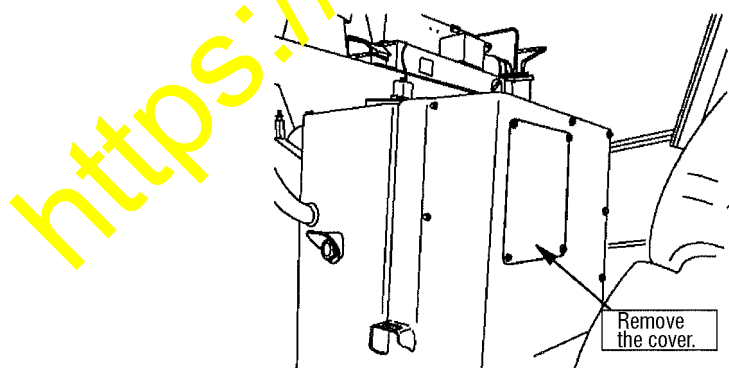


Fig. 3

- 2) Remove the parts marked ☆ and ★ in the figure shown below. (Refer to Fig. 4 and Fig. 5.)

☆ Removing parts ★ Reusing parts

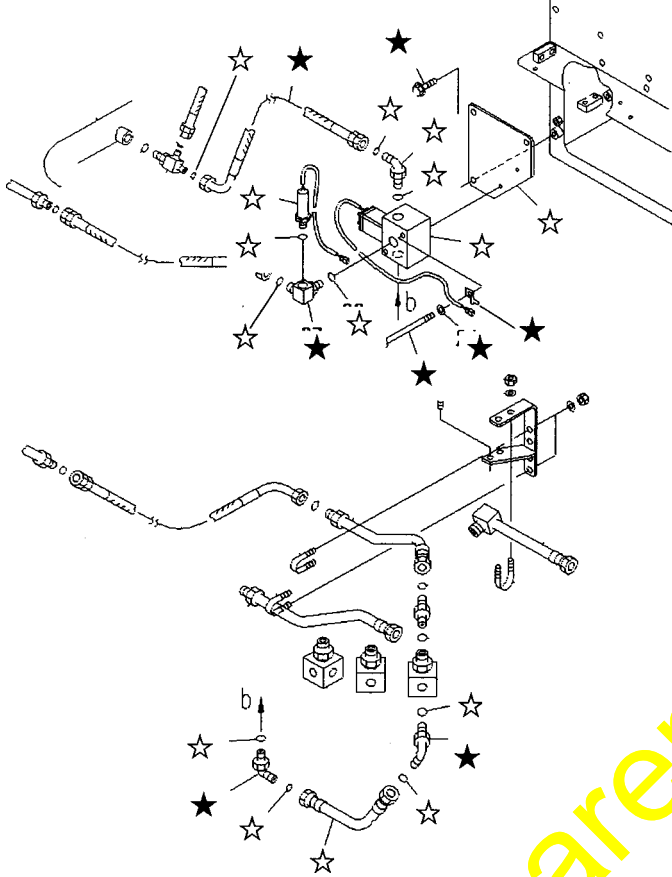


Fig. 4

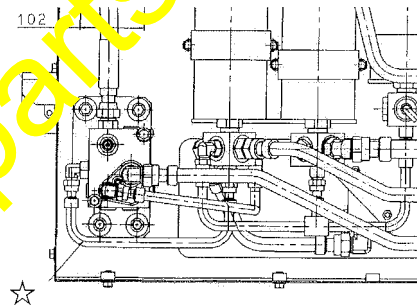


Fig. 5

- 3) Rework the bracket onto which the accumulator is installed. (Refer to Fig. 6.)
(Drill at 4 places)

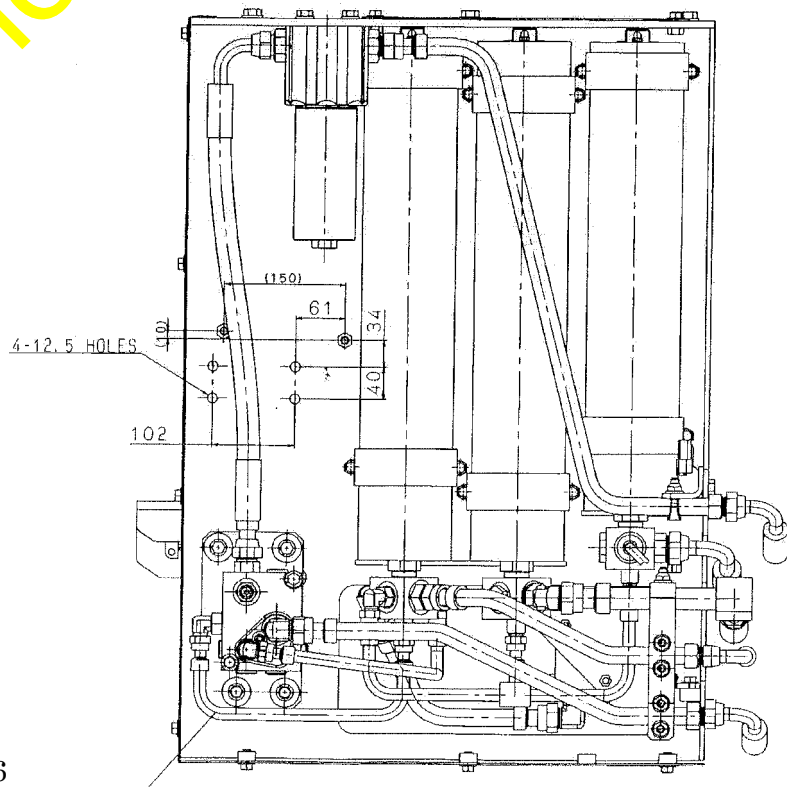


Fig. 6

- 4) Referring to the drawing shown below, install the relief valve and the pipings, etc. (Refer to Fig. 7)
 At this time, replace the EPC valve (569-43-83171) and the oil pressure switch (42C-43-18310) with new parts.

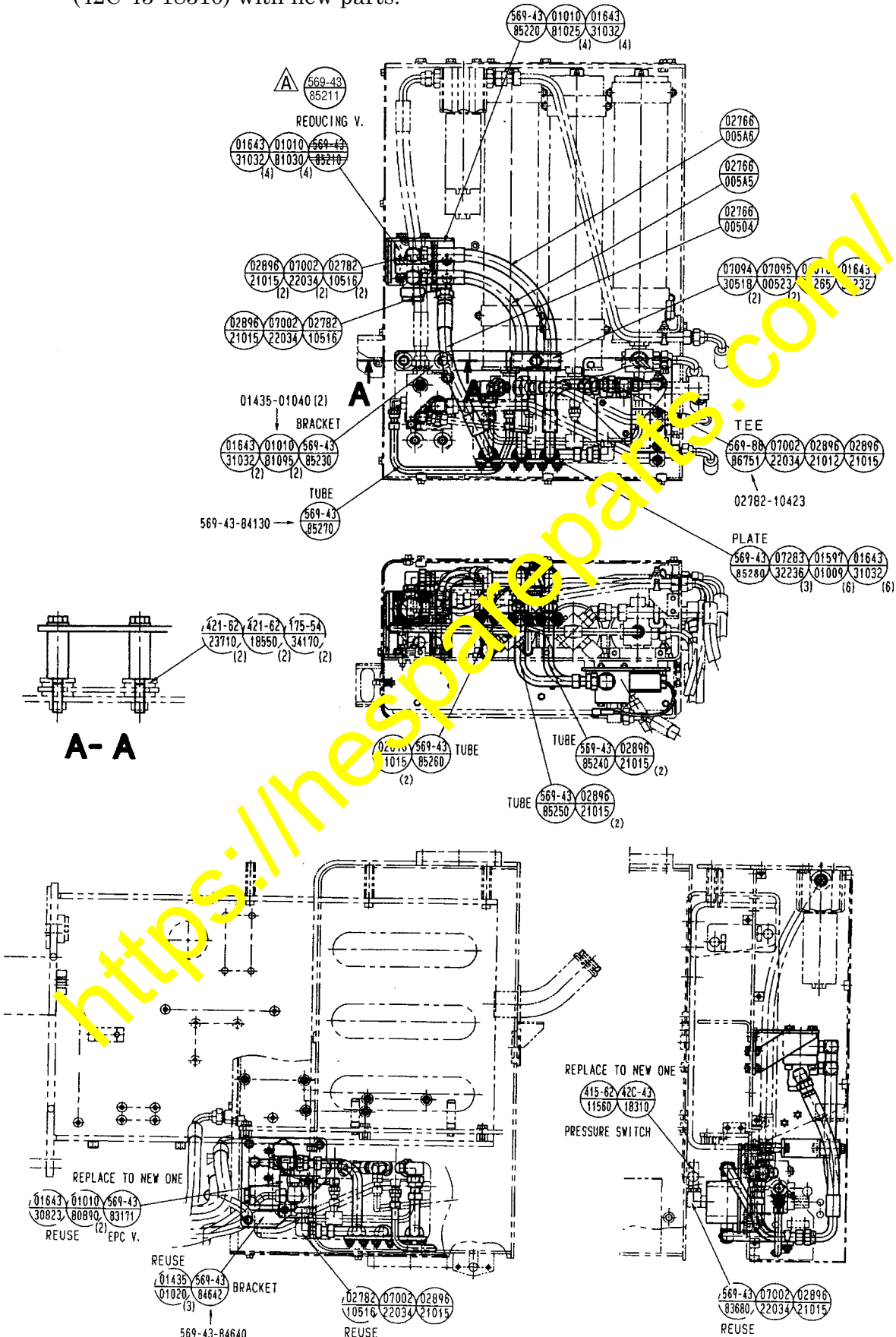


Fig. 7

- 5) Install the drain hose (02766-004A7) for the EPC valve in opposite direction to the direction before starting this modification work. (Refer to Fig. 8.)

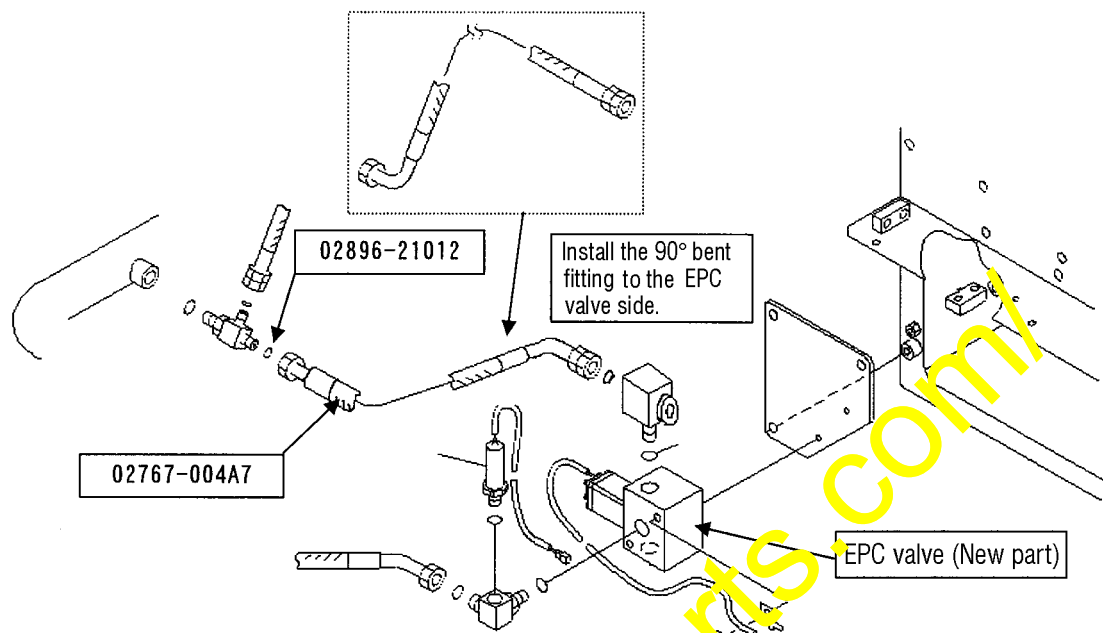


Fig. 8

- 6) Install the cover after connecting the connectors of the EPC valve and of the pressure switch. (Refer to Fig. 9.)

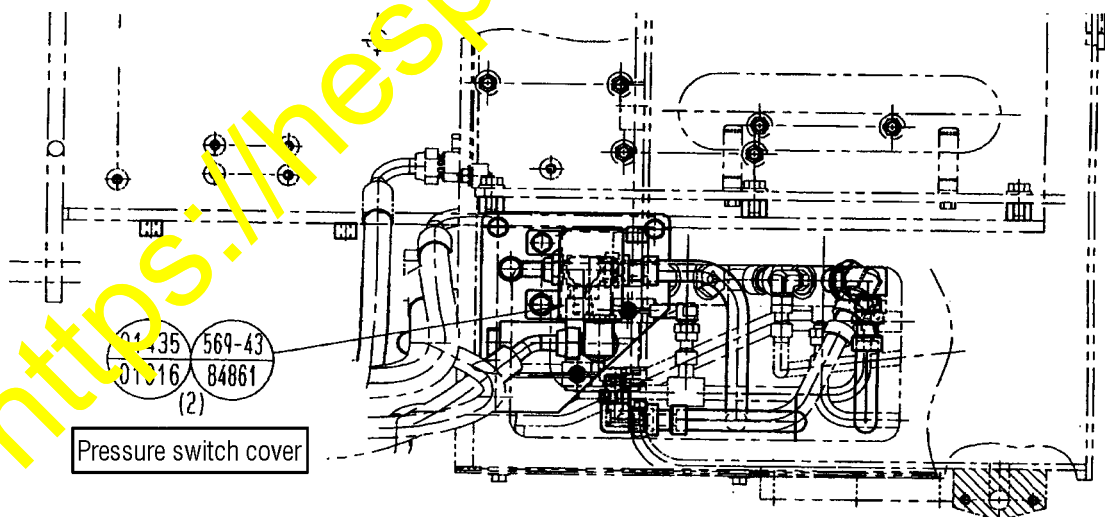


Fig. 9

- 7) Install the accumulator cover.
5. Confirmations to make after finishing the modification work
- 1) Turn ON the starting switch and check that the error code is not indicated.
 - 2) Start the engine to accumulate the pressure in the accumulator, and after that, pull the retarder lever to check that oil does not leak or any other failure does not occur.

6. Flushing procedure after finishing the modification works for the transmission and brake piston seals

- 1) Install the flushing elements [561-15-55670] (2 pcs.) in the transmission oil filter case and the flushing element [07063-41187] (1 pc.) in the transmission • rear brake cooling oil filter case.
 - Check the part number for the correct installation of the flushing elements and the standard elements.

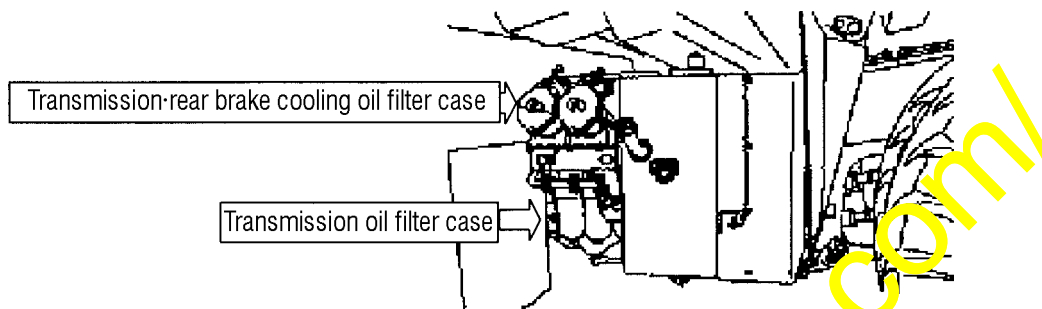


Fig. 10

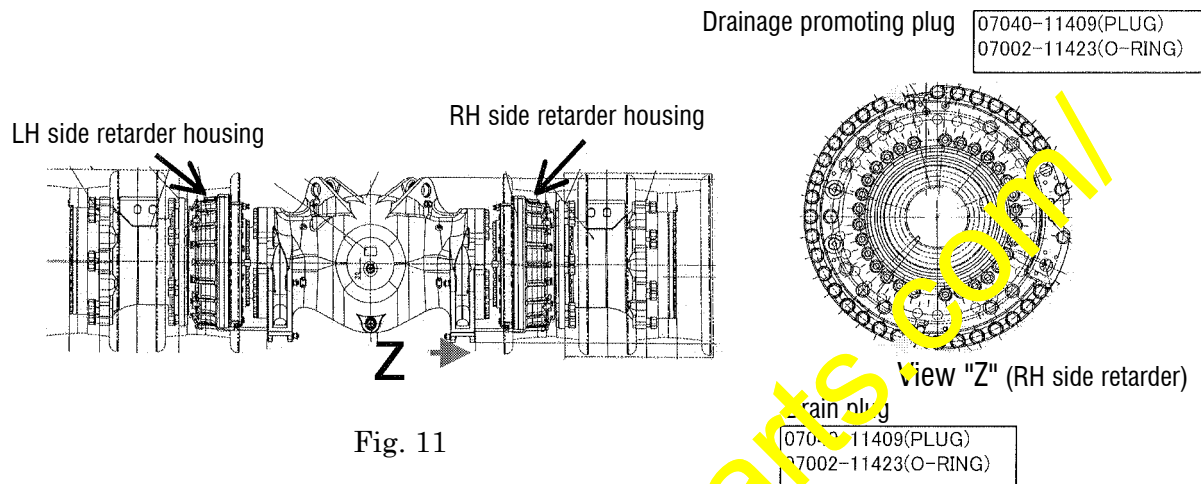
- 2) Refill the transmission oil pan with new oil.
 - Charge the specified quantity oil referring to the Operation and Maintenance Manual. EO30-CD: About 190 L
 - Check and adjust the oil level with the engine running at Lo-Idling speed.
- 3) After starting the engine, maintain the Lo-Idling for about 20 minutes without moving the speed shift lever.

At this time, increase the engine revolution to about 1,500 rpm once in a while.

 - If the engine water temperature gauge does not reach the green range by influence of the atmospheric temperature, etc., continue the warming up operation further.
- 4) Referring to the Operation and Maintenance Manual, bleed air from the brake circuits (service brake [rear and front], retarder brake and parking brake).
 - Usually, the air bleeding work is completed when air bubbles stop coming out. However, since it is necessary this time to circulate the oil in the brake control circuit in order to change the oil to the new oil, continue the air bleeding work even after air bubbles stop coming out and drain about 5 liters. of oil from each circuit. Add new oil for the drained quantity of the oil.
- 5) Carry out the adjustment of the transmission EPC valve.
 - Carry out the above adjustment work referring to the Section "Special function and adjusting function (Tuning) of the machine monitor" in the Chapter "Checking and Adjusting" in the Shop Manual. For details, refer to the Service News No. AT04010.
- 6) After that, run the vehicle for about 20 min. At this time, use all the speed ranges (F1 thru F7 and R) and also use the retarder.
- 7) After finishing the above traveling test, maintain the Lo-Idling operation for about 20 minutes without moving the speed shift lever.

At this time, raise the engine revolution to about 1,500 rpm once in a while.

- 8) Stop the engine and press the service brake pedal for more than 20 times to release the pressure remaining inside the brake control accumulator, and after that, drain the transmission oil.
- The transmission oil is used commonly for the retarder cooling. Therefore, when changing the transmission oil, in addition to the drain cock for the transmission oil pan, drain oil from the LH and RH side retarder housings also, so that oil may not remain inside.



- 9) Replace 2 pcs. of the transmission oil filter elements and the transmission · rear brake cooling filter element with the standard elements.
- Transmission oil filter element: 569-16-81160 (2pcs.)
 - Transmission · rear brake cooling filter element: 07063-51210

At the same time, replace the brake oil filter element with the new element.

- Brake oil filter element: 569-43-83920
(New element with improved filtration performance)

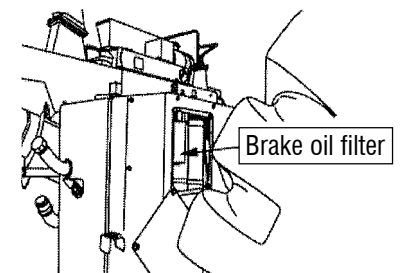


Fig. 12

- * Regarding the brake oil filter, a new filter with improved filtration performance is introduced in the Service News. Install this new filter at the time of making periodical change after this.

- 10) Refill the transmission oil pan with new oil.
- Charge the specified quantity of transmission oil. EO30-CD: About 190L
 - Running the engine at the Lo-Idling revolution, re-adjust the oil level.
- 11) Bleeding air from the brake circuits referring to the Operation and Maintenance Manual.

7. Check procedure for the retarder brake pressure after finishing the modification work

After completing all the modification works, measure the brake pressure to confirm that the retarder brake circuit is operating properly.

Measure the brake pressure following the instructions given in the Section "Inspection of Brake Oil Pressure" in the Chapter "Checking and Adjusting" in the Shop Manual.