

PARTS & SERVICE NEWS

REF NO.	AA00151
DATE	July 18, 2000

(C)

Page 1 of 9

SUBJECT: NEW STEERING VALVE SEALS

PURPOSE: To introduce new steering valve seals (input shaft seal and the sleeve seal) improvement in the durability as well as the replacement procedure with the improved seals when the current seals have allowed the oil leakage.

APPLICATION: HD205-3 Dump Trucks, S/N 1003 thru 1531
 HD325-5 Dump Trucks, S/N 2001 thru 4287
 HD325-5PB Dump Trucks, S/N 3001 thru 3044
 HD325-6 Dump Trucks, S/N 5001 thru 5127
 HD465-3 Dump Trucks, S/N 1501 thru 2440
 HD465-3PB Dump Trucks, S/N 3001 thru 3054
 HD465-5 Dump Trucks, S/N 4002 thru 4151
 HD785-2 Dump Trucks, S/N 1502 thru 1966
 HD785-3 Dump Trucks, S/N 2001 thru 2224
 HD785-3MC Dump Trucks, S/N 3001 thru 3030
 HD1400B-1 Dump Trucks, S/N 1001 thru 1006
 HD1400B-03 Dump Trucks, S/N 1007 thru 1011
 HD1200M-1 Dump Trucks, S/N 1141 thru 1151
 330M Dump Trucks, S/N 24392 and up

FAILURE CODE: R22899

DESCRIPTION:

On dump trucks provided with the fully hydraulic steering valves, oil leakage may sometimes be encountered due to the steering valve seals forced out of place, etc. If this does occur, replace the current valve seals with the improved ones as referred to in this **PARTS & SERVICE NEWS**. Depending on the area where oil leaks, applicable parts must vary as follows:

Input shaft seal: See Pages 2 thru 5 (Applicable to all models of dump trucks)

Sleeve Seal: See Pages 5 thru 9 (excluding model HD205-3)

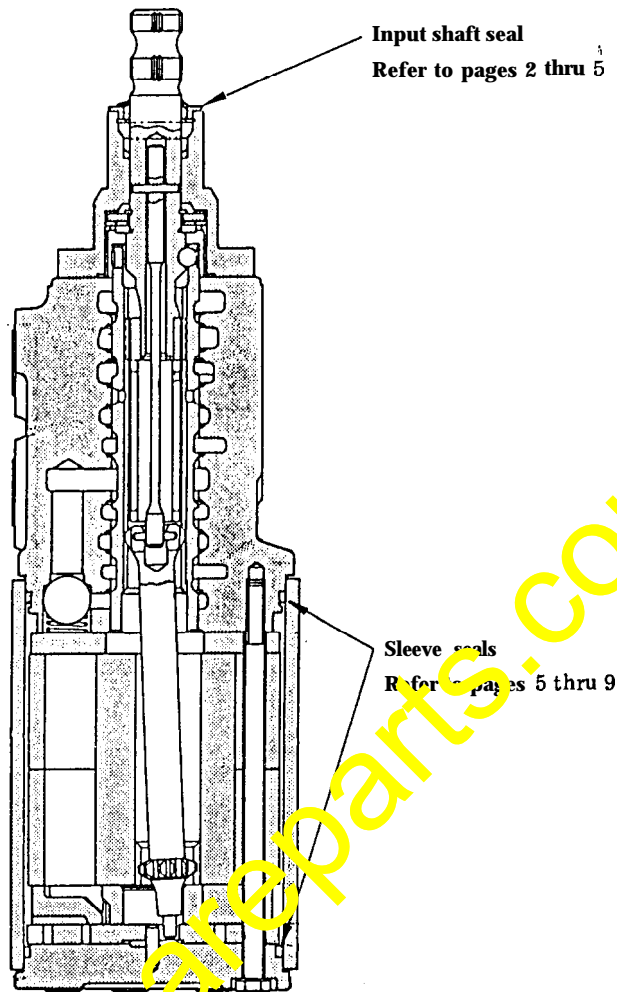


Fig. 1

2. List of parts required for replacement of input shaft seal

Part No.	Part Name	Q'ty	Purpose of part	Remarks
566-40-42501 (566-40-42500)	◆ STEERING VALVE (VALVE ASS'Y)	1 (1)	Reworked	HD325-5 HD325-5PB HD325-6
569-40-42501 (569-40-42500)	STEERING VALVE (VALVE ASS'Y)	1 (1)		HD465-3 HD465-3PB HD465-5
561-40-42101 (561-40-42100)	STEERING VALVE (STEERING VALVE)	1 (1)		HD785-2
561-40-63301 (561-40-63300)	STEERING VALVE (STEERING VALVE)	1 (1)		HD785-3 HD1200M-1
561-40-00100 (561-40-63480)	SEAL KIT (SEAL KIT)	1 (1)		applicable in common to models HD205 thru HD1200M

Note) No steering valve ass'y is provided for HD205.
Refer to the PARTS & SERVICE NEWS No. A900016.

3. Introducing improved seal (Fig. 2)

3-1 Improved seal

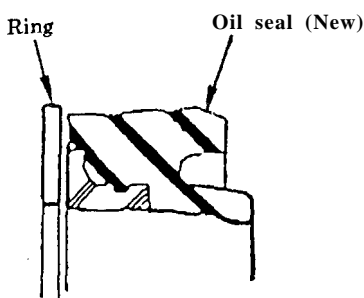
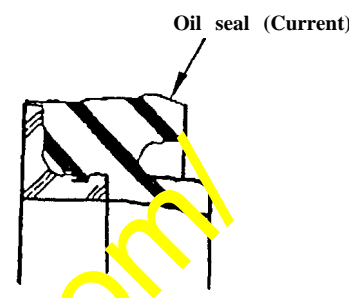
	Improved seal	Current seal
Cross sectional form		
Seal kit part no.	561-40-00100	561-40-63470

Fig. 2

3-2 The part nos. are used in common to all applicable dump trucks models in this PARTS & SERVICE NEWS.

3-3 The conventional seal is interchangeable with the improved one.

3-4 No oil seals can be supplied individually. When replacing the oil seals with the improved ones, order them as a seal kit.

A seal kit consists of dust seal, spacer, oil seal, and ring. This oil seal is an improved one. This ring is a new additional part. The dust seal and spacer are the conventional ones.

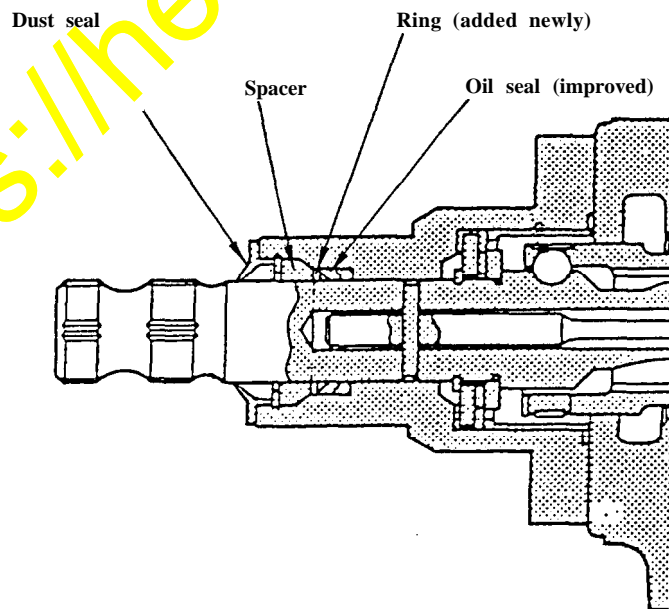


Fig. 3 Composition of seal kit

4. How to replace with the improved seal kit

Although you may refer to the SHOP MANUAL “DISASSEMBLY AND ASSEMBLY OF STEERING VALVE” to replace the seal kit, another method of replacing it that requires no removal of upper cover ① is available. It is more simple. That method thus is introduced in the following. (Note: It is more simple and secured because the upper cover has no flange and thus requires you to use a centering jig when assembling.)

4-1 Removing seal kit (Fig. 4)

(Note: When working to Steps 2) and after, do in a clean indoor place.)

- 1) By referring to SHOP MANUAL “Installing and removing steering valve”, remove the steering valve assembly from the machine.
- 2) Clean the surface of input shaft ②.
- 3) Use a screwdriver to remove dustseal ③.
- 4) Remove snap ring ④ (56640428'70). To remove it, do carefully because it is not a component of the seal kit, thus must be reused as is.

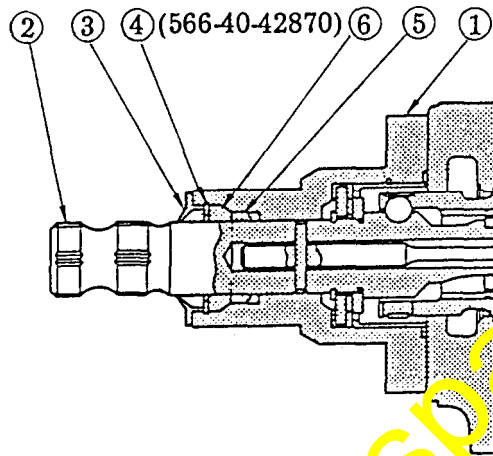


Fig. 4

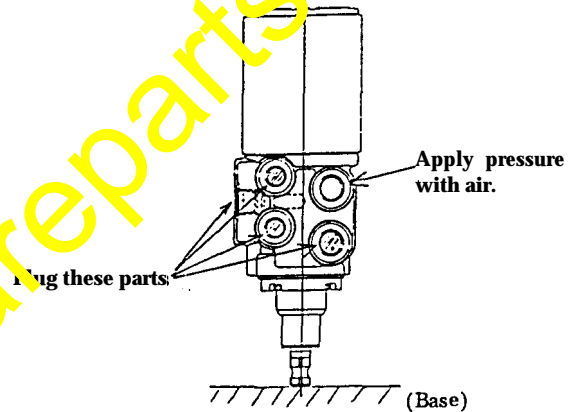


Fig. 5

5) Remove oil seal ⑤ and spacer ⑥ as described below. (Fig. 5)

5-1) Except for one port, plug the remaining ports. (On HD205-3, 3 ports and on the other Models, 4 ports, each.)

5-2) With the shaft end being at the bottom, put the input shaft on a stand, then send air from the open port (about 690 kPa (7 kg/cm²)) to allow the oil seal and spacer to be pushed out. At this time, take care not to let dust get in the steering valve. (▲ To secure safety, be sure to let the shaft end be in the lower position when the input shaft is put on the stand.)

Note: Depending on the seal condition, the oil seal may not get removed. If not, refer to SHOP MANUAL to remove the upper cover ①. However, do not remove the parts other than the upper cover.

4-2 Installing seal kit (Fig. 6)

- 1) Clean the surface of input shaft.
- 2) In order to protect the lip surface of oil seal, cover the input shaft serration with a tape.
- 3) Coat the oil seal, ring, spacer, the inner and outer surfaces of dust seal and the input shaft (including the taped portion) with oil or grease.
- 4) Put the oil seal in place with the lip face kept inside.
- 5) Put the ring in place.
- 6) Put in the spacer and push it all the way inside together with the oil seal and ring.
- 7) Face the rounded (R) corner of snap ring toward the valve inside and fix the snap ring.
 - ▲ If the snap ring is installed in the reverse direction, it may sometimes run out of place during the use, causing danger to the worker.
- 8) Put the dust seal in place.

4-3 Install the steering valve assembly to the machine by referring to SHOP MANUAL.

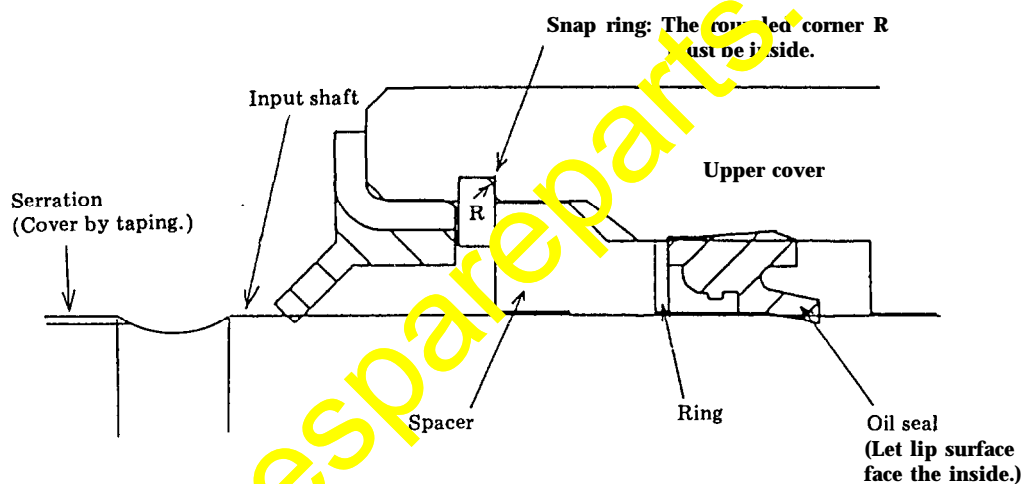


Fig. 6

5. List of parts required for replacement of sleeve seal (not applicable to the model HD205)

Part No.	Part Name	Q'ty	Purpose of part	Remarks
566-40-42501 (566-40-42500)	STEERING VALVE (VALVE ASS'Y)	1 (1)	} Reworked	HD325-5 HD325-5PB HD325-6
569-40-42501 (569-40-42500)	STEERING VALVE (VALVE ASS'Y)	1 (1)		HD465-3 HD465-3PB HD465-5
561-40-42101 (561-40-42100)	STEERING VALVE (STEERING VALVE)	1 (1)		HD785-2
561-40-63301 (561-40-63300)	STEERING VALVE (STEERING VALVE)	1 (1)		HD785-3 HD1200M-1
561-40-00200 (566-40-42930)	SEAL KIT (SEAL)	1 (2)		applicable in common to models HD325 thru HD1200M

6. Introducing improved part (Fig. 7)

6-1 Improved part

	Improved part	Current part
Cross sectional form	<p>Ring (additional) Seal (Same as current one)</p>	<p>Seal</p>
Part no.	56140-00200 (Seal kit)	566-40-42920 (Seal)

Fig. 7

6-2 Part Nos. are used in common to all applicable dump truck models (excluding the model HD205).

6-3 The conventional seal is interchangeable with the improved one.

6-4 Hitherto, the seals could be supplied individually. When replacing this seal with the improved one, the latter improved one should be obtained by ordering a seal kit. Each seal kit consists of two seals and two rings. That is, the new seal kit has newly added two rings and the conventional two seals.

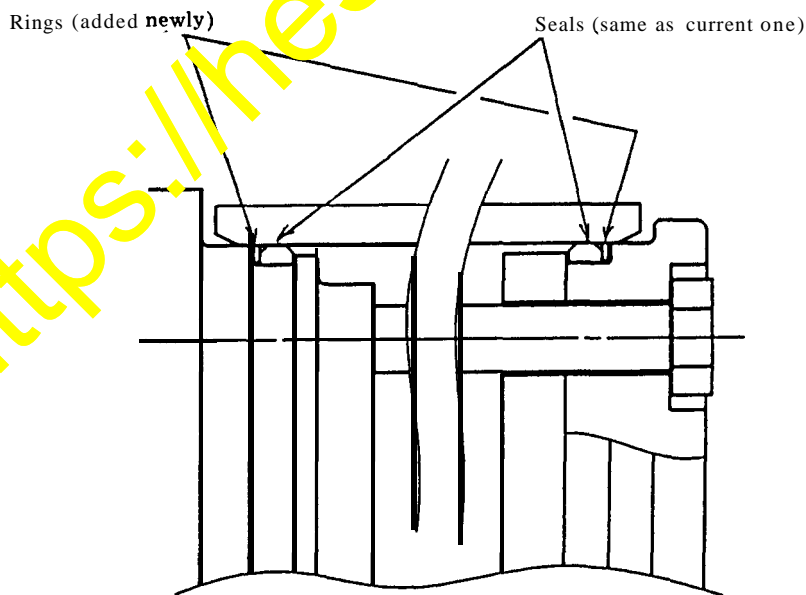


Fig. 8 Composition of seal kit

7. How to replace with the improved seal kit

7-1 Removing seals

(Note: When working in the step 2) and after, use a clean indoor place.)

- 1) By referring to SHOP MANUAL "Installing and removing steering valve", remove the steering valve assembly from the machine.
- 2) Fit blind plugs to 5 ports of the valve body, clean the outer parts, then remove blind plugs.
- 3) Install tube nut ① to one of the ports. (Fig. 9)
- 4) Install in vice ② with the end cover facing up. (Fig. 9)
 - ★ Do not hold the valve body directly in the vice. This may cause damage to the unit.
- 5) Remove 7 mounting bolts (1), then insert screwdriver between end cover assembly (2) and sleeve (3), and remove the end cover assembly. (Fig. 9)
- 6) Remove commutator (5) and washer (6). (Figs. 10 & 11)
 - ★ Do not remove pin (4).
- 7) Using two mounting bolts (1), remove commutator ring (7) and manifold (8). (Figs. 12 & 13)
- 8) Using two mounting bolts (1), remove rotor set (9) and wear plate (10) in the same manner as in case of as commutator ring and manifold. (Figs. 12 & 13)
- 9) Insert screwdriver between sleeve (3) and valve body (11), and remove sleeve. (Fig. 14)
- 10) Remove two seals from end cover assembly (2) and valve body (11).

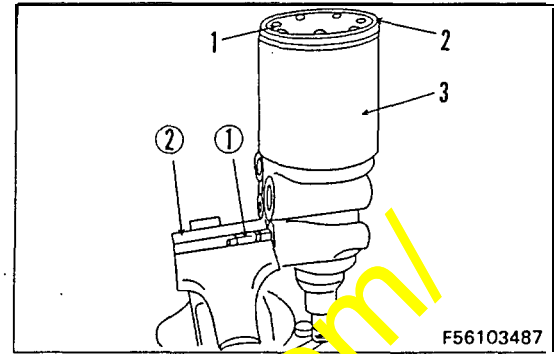


Fig. 9

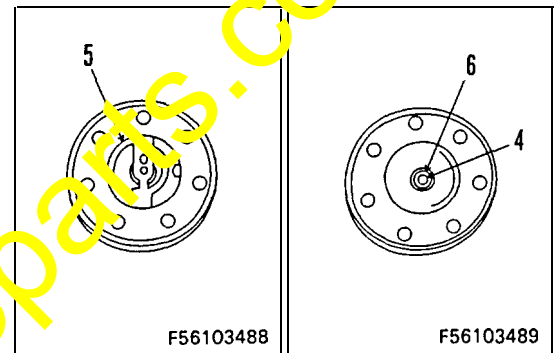


Fig. 10

Fig. 11

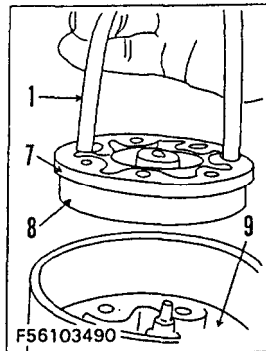


Fig. 12

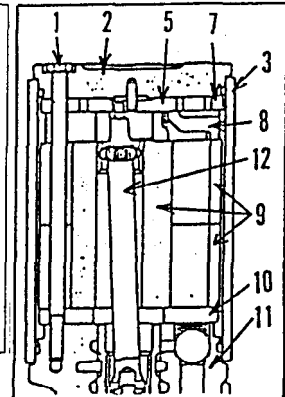


Fig. 13

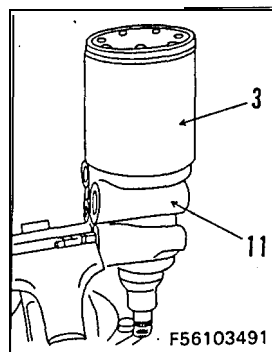


Fig. 14

7-2 Installing seal kit

- 1) Lubricate new seal and the groove for seal of valve body (11) with oil or grease. Fit ring (B) first to the groove of valve body (11), then fit seal (A). (Fig. 15)

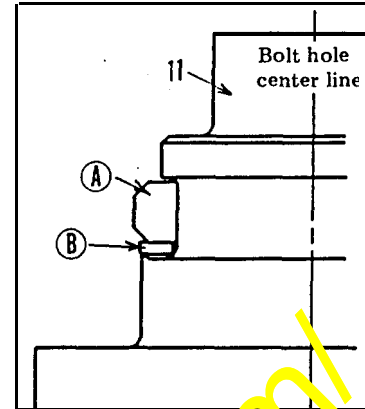


Fig. 15

- 2) Using two guide pins (8) (Dia. = 8.5 mm, Length = 200 mm), install wear plate (10) and rotor set (9). (Figs. 16 & 17)

★ As for HD785-3, HD1200M-1, and HD1400B-3, it should be confirmed that the drive link (12) and rotor (9) splines are fitted in together as shown in Fig. 18.

- 3) Install manifold (8) and commutator ring (7). (Fig. 17)

★ Do not install commutator (5).

- 4) Apply a small amount of oil or grease to the inside of each end of sleeve (3) and to the exposed area of seal previously assembled on valve body (11).

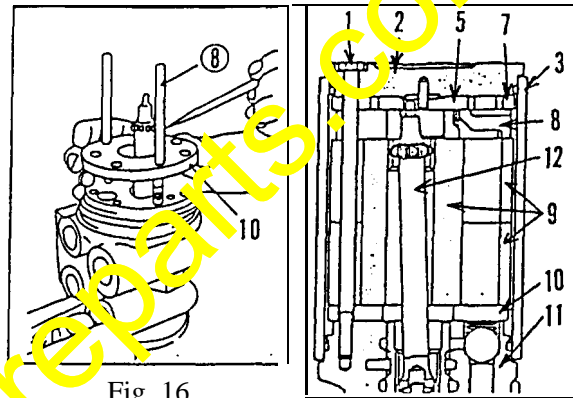


Fig. 16

Fig. 17

- 5) Set sleeve (3) to the valve body (11). In this case, attach the end cover (2) to the sleeve end face and tighten uniformly with the mounting bolt (1) so that the sleeve is set in place straightly. (Fig. 17)

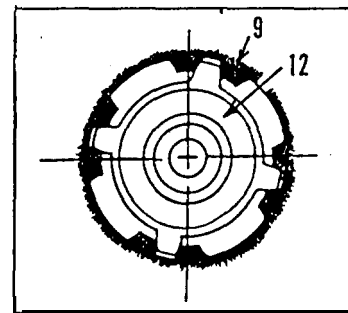


Fig. 18

- 6) Remove end cover (2), lubricate seal and its groove with oil or grease. Then, fit the ring (B) and seal (A) to the end cover in this order. (See Fig. 19)

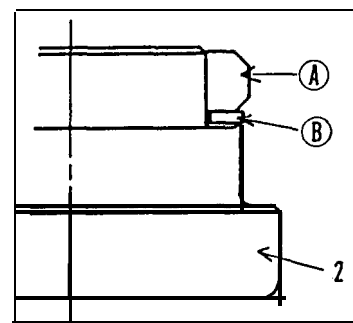


Fig. 19

- 7) Fit washer (6) to end cover assembly (2), then fit commutator (5) with grease to prevent it from separating from end cover.

★ Install the commutator with the concave part facing the end cover assembly side.

★ Position so that the oval hole in the commutator is in a straight line with one of the bolt holes in the end cover assembly. (Fig. 21)

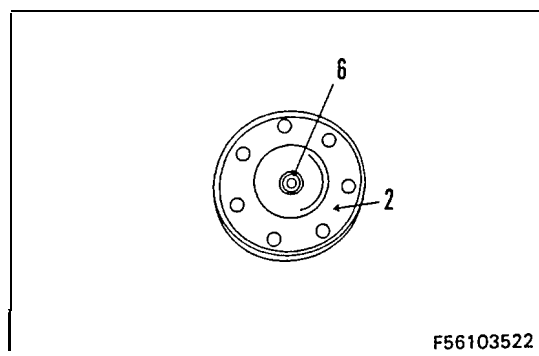


Fig. 20

- 8) Rotate input shaft so that tip of drive link (12) is aligned with oval hole in commutator.

- 9) Apply a small amount of oil or grease to the exposed area of seal previously assembled on end cover.

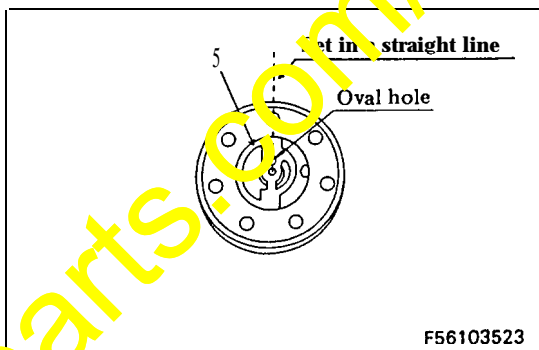



Fig. 21

- 10) Set end cover assembly (2) on sleeve (3), then tighten 5 mounting bolts evenly. (Figs. 23 & 24)

 Mounting bolt: $68.6 \pm 5.9 \text{ Nm}$
($7.0 \pm 0.6 \text{ kgm}$)

★ The five mounting bolts should be tightened in a crisscross fashion, carefully not to allow the sleeve and the end cover to tilt during their installation.

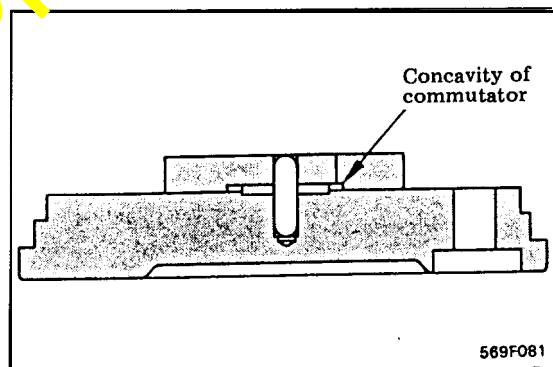



Fig. 22

- 11) Remove guide pins (8), install two bolts, then tighten all bolts.

 Mounting bolt: $68.6 \pm 5.9 \text{ Nm}$
($7.0 \pm 0.6 \text{ kgm}$)

- 7-3 Install the steering valve assemblies on the chassis, referring to the SHOP MANUAL. After completing the installation, run the engine at idle speed to make sure that no oil leakage is encountered at all. In addition, turn the steering wheel to the left and the right sides to make sure that the tire wheels are steered smoothly.

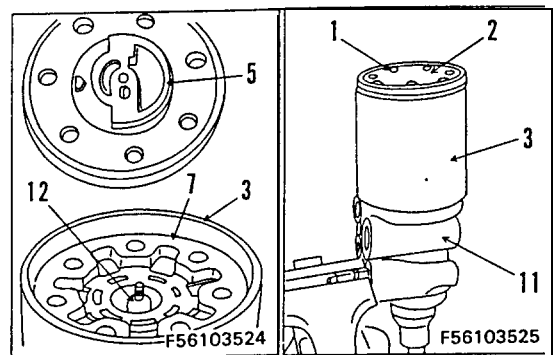


Fig. 23

Fig. 24