

# PARTS & SERVICE NEWS

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- SUBJECT:** MODIFICATION OF CAM FOLLOWER ASSEMBLY
- PURPOSE:** To introduce modification procedure to repair cam follower assembly on the 12V 140 Series Engines
- APPLICATION:** HD785-5LC Dump Truck Serial Number A10300 through A10310  
WA800-3LC Wheel Loader Serial Number A50025 through A50028  
WA900-3LC Wheel Loader Serial Number A50021 through A50032  
330M Dump Truck Serial Number A10219  
★ See List of Applicable Engines and Machines
- FAILURE CODE:** A420FF
- DESCRIPTION:** On the 12V140 Series Engines, since the durability margin for various uses has been insufficient, the breakage failure of the roller pin may occur. In case the above mentioned failure has occurred with these engines, make the modification being introduced in this Service News to repair and to prevent the occurrence of the failure.

## 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.*

**LIST OF APPLICABLE ENGINES AND MACHINES**

Applicable machine models	Engine Serial Number		Machine Serial Number	
	Engines already shipped	Engines shipped with modification	Machines already shipped	Machines shipped with modification
HD785-2	13298 - 13373	Already modified	—	—
HD785-3	13257	Already modified	2469	—
HD785-5	13244 - 13458	13427 and after	4366 - 4438	4439
	37205119	—	A10300	—
	37205745	—	A10301	—
	37205633	—	A10302	—
	37205768	—	A10303	—
	37205650	—	A10304	—
	37205847	—	A10305	—
	37206022	—	A10306	—
	37206373	—	A10307	—
	37206660	—	A10308	—
	37206854	—	A10309	—
37208231	—	A10310	—	
HD785-DZ-5 (KI production)	13291, 13292 13301, 13464 13465, 13466	Already modified	—	—
HD985-5	13273	3493 and after	1064	1065
D475-3	13262 - 13450	3467 and after	10745 - 10767	Next shipment
330M	37206874	—	A10219	—
WA800-3	13242 - 13475	13456 and after	50032 - 50039 and 51001	50040
WA800AP-2	13264	—	—	—
WA800-3LC	37206798	—	A50025	—
	37208029	—	A50026	—
	37208154	—	A50027	—
	37208283	—	A50028	—
WA900-1	13310	—	—	—
WA900-3	13243 - 13420	Already modified	50027 - 50033 and 51001	Next shipment

WA900-3LC	37207059	—	A20021	—
	37205539	—	A50022	
	37205154	—	A50023	—
	37205420	—	A50024	—
	37205540	—	A50025	—
	37205721	—	A50026	—
	37205989	—	A50027	—
	37206037	—	A50028	—
	37206282	—	A50029	—
	37206589	—	A50030	—
	37206897	—	A50031	—
37208362	—	A50032	—	
WD900-3	13337, 13415, 13460	Next shipment	50007, 50008, 50009	50100
SA12V140-G1-1 (Hitachi)	10399 - 12502	—	<a href="http://linespareparts.com/">http://linespareparts.com/</a>	
SA12V140-G1-1 (Hitachi)	60101 - 60160	Already modified		
SA12V140-G1-1 (Hitachi)	13271, 13316, 13338	Already modified		
SA12V140-G1-1 (Mitsubishi)	60115 - 60158	Already modified		
SA12V140-G1-1 (Denyo DSG725)	13269 - 13407	Already modified		
SA12V140-G1-1 (Nishishiba and Shinko Engineering Co. LTD.)	60096 - 60150	Already modified		
SA12V140-G1-1 (Shinko Engineering Co. LTD.)	13395	Already modified		
SA12V140-G1-1 (TES)	13246 - 13431	Already modified		
SA12V140-G1-1 (DSA800SPC)	13302 - 13381	Already modified		
SAA12V140 (for KAP)	13265 - 13456	Already modified		
12M140	11079 - 11085	Already modified		
SA12V140-G2-1 The emergency purpose engines Hitachi, Ltd., Tokyo Electric and Meidensha Corp.	10352 - 13468 19 engines among the above serial numbers	10352, 13239, 13272, 133272, 13314, 13348, 13349, 13362, 13371, 13374, 13392, 13419, 13427, 13441, 13446, 13451, 13452, 13468, 13469, 60141		

- Among the applicable Serial Numbers of the engines on the HD785-5 per above last listing, the following 11 engines are the modified stocks and are not included in the applicable engines. #13259, #13261, #13375, #13376, #13377, #13382, #13383, #13408, #13409, #13410 and #13416
- Among the applicable Serial Numbers of the engines on the D475-3 per above last listing, #13436 is the modified stocks and are not included in the applicable engines.

**STOCK**

No.	Date	Part Number	Status	Remark	
1	Feb.-03	37206724	Stock	CPL: 2127 1050 BHP 300 M DO5032	PN PB9979
2	Feb.-03	37206744	Stock	CPL: 2255 897 BHP WA900-1L	PN 427-01-A1200
3	Feb.-03	37206746	Stock	CPL: 2255 833 BHP WA800-2LC	PN 427-01-A1300
4	Mar.-03	372068784	Stock	CPL: 2127 1050 BHP 330 M DO5032	PN PB9979
5	Mar.-03	37206875	Stock	CPL: 2127 1050 BHP 330 M DO5032	PN PB9979
6	Mar.-03	37206898	Stock	CPL: 2640 853 BHP WA800-3LC	PN 427-01-A1402
7	Jun.-03	37208137	Stock	CPL: 2640 853 BHP WA800-3LC	PN 427-01-A1402
8	Feb.-03	37206506	Stock	Ripley	—
9	Feb.-03	37206724	Stock	Ripley	PN PB9979
10	Feb.-03	37206744	Stock	Ripley	PN 427-01-A1200
11	Feb.-03	37206746	Stock	Ripley	PN 427-01-A1300
12	Mar.-03	37206875	Stock	Ripley	PN PB9979
13	Mar.-03	37206896	Stock	Ripley	PN 427-01-A1402
14	Jun.-03	37208137	Stock	Ripley	PN 427-01-A1402

**NEW PART LISTING**

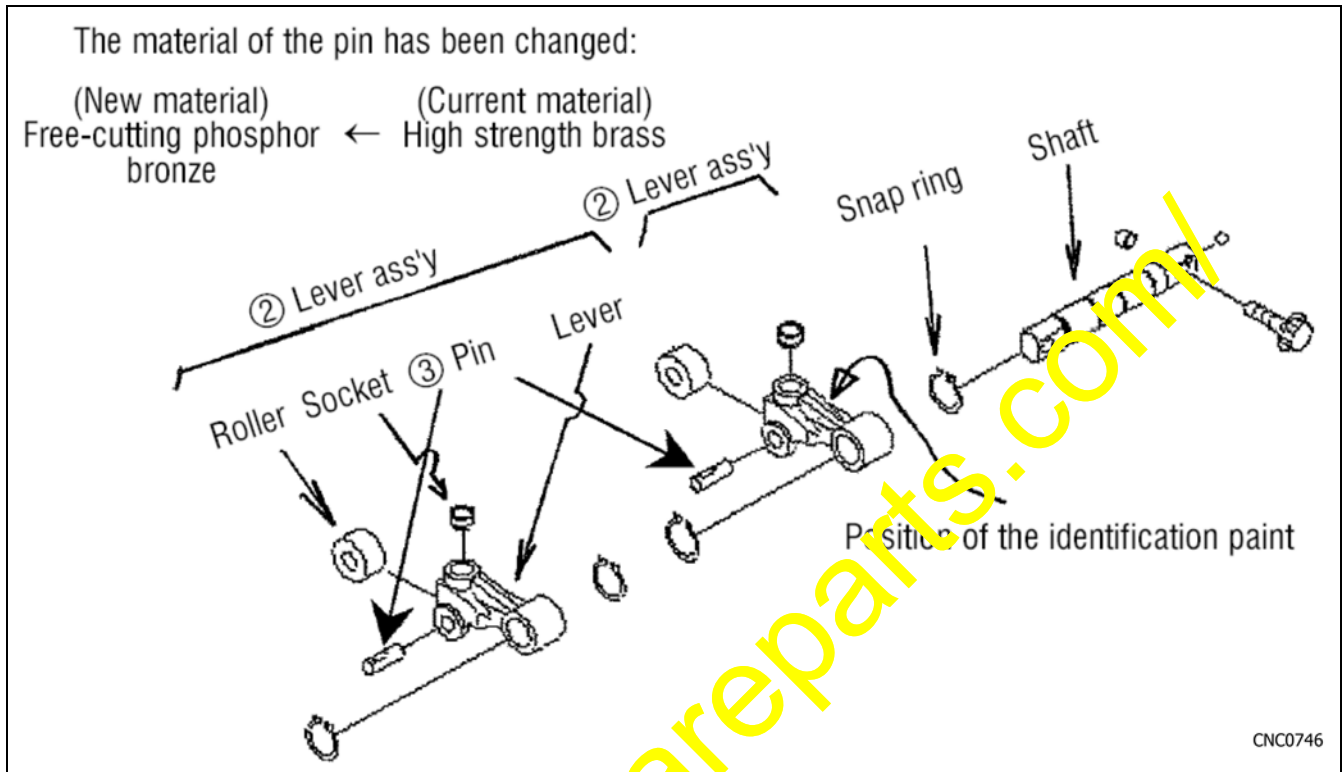
No.	Part Number	Description	Qty.	Remark
1	6210-41-2020 (6210-41-2011)	ROCKER SHAFT ASSEMBLY. . . . . (ROCKER SHAFT ASSEMBLY). . . . .	12 (12)	
2	6210-41-2020 (6210-41-2012)	ROCKER SHAFT ASSEMBLY. . . . . (ROCKER SHAFT ASSEMBLY). . . . .	12 (12)	
3	6210-41-2320 (6210-41-2302)	ROCKER ASSEMBLY. . . . . (ROCKER ASSEMBLY). . . . .	24 (24)	
4	6210-41-2320 (6210-41-2301)	ROCKER ASSEMBLY. . . . . (ROCKER ASSEMBLY). . . . .	24 (24)	
5	6210-41-2350 (6210-41-2351)	PIN. . . . . (PIN). . . . .	24 (24)	

**ADDITIONAL PARTS NEEDED**

No.	Part Number	Part Name	Part Location	Necessary quantity for machine				
				D475	HD785	WA800	WA900	WD900
1	6210-41-2020	Rocker-shaft ass'y	Rocker ass'y + Shaft ass'y	12	12	12	12	12
2	6210-11-8820	Gasket	Rocker housing cover	12	12	12	12	12
3	6215-21-6431	Gasket	Cam follower cover	12	12	12	12	12
4	6215-21-6450	Bolt	Cam follower cover	72	72	72	72	72
5	6210-41-2450	Bolt	Cam follower shaft mounting bolt	24	24	24	24	24
6	6210-41-2430	Dowel pin	Cam follower shaft section	10	10	10	10	10
7	6164-61-6340	O-ring	Upper section of pipe connecting to oil filter connector and cooler	2	2	2	2	2
8	6215-51-5690	Grommet	Upper section of pipe connecting to oil filter connector and cooler	2	2	2	2	2
9	07000-73045	O-ring	At lower section of pipe connecting oil filter connector and cooler	3	3	3	3	3
10	07000-73040	O-ring	Between oil filter connector installed to the block	2	2	2	2	2
11	6221-81-6810	Gasket	Starter motor mounting section (use this gasket when starter is removed for modification)	1	1	1	1	
12	6215-61-6630	O-ring	Connecting section between the after cooler and water pump piping	1	1	1	1	1
13	07005-00812	Gasket	For fuel injection pump and filter	5	5	5	5	5
14	07005-01012	Gasket	For fuel injection pump and filter	10	10	10	10	10
15	07005-01412	Gasket	For fuel injection pump and filter	15	45	15	15	15
16	07005-02012	Gasket	For fuel filter piping	0	0	4	4	4

### DETAILS OF MODIFICATION

To improve the durability margin against breakage failure of the roller pin, the following modifications have been made. As the pin is changed, the part number of the assembly will also change.



★ Structure Of The Rocker Shaft Assembly

	Name	Part Number		Type of drawing
		New	Current	
1	Rocker-shaft assembly ② + Shaft Snap ring	6210-41-2020 Identification paint: Green	6210-41-2011 Identification paint: White or 6210-41-2012 Identification paint: Pink	Rocker assembly  CNC0747
2	Rocker assembly Rocker + Roller Pin Socket	6210-41-2320 Identification paint: Green	6210-41-2301 Identification paint: White or 6210-41-2302 Identification paint: Pink	Rocker  CNC0748
3	Pin	6210-41-2350 Free-cutting phosphor bronze. Pin color: Brown	6210-41-2351 High strength brass Pin color: Yellow	 Pin CNC0749

## MODIFICATION PROCEDURE

1. Disassemble and remove the lever and the neighboring parts referring to the Shop Manual for the engine.
2. Carefully check the lever-shaft assembly if there are the following failures.
  - a. Excessive play of the roller.
  - b. The roller pushed into the lever.
  - c. The roller pin broken or fallen down.
3. If the above failures are found, check the neighboring parts (cam shaft, push rod, rocker arm etc.) assembly if the following failures are found.
  - a. The cam shaft exfoliated or abnormally worn.
  - b. The push rod bent, broken, or interfering with the cylinder head or block.
  - c. The rocker arm adjust screw nicked, galled, abnormally worn or broken.
4. Replace the lever-shaft assembly with the improved parts. At that time, if unusual damages are found with the neighboring parts, replace them with the new parts at the same time.
5. Replace the consumable parts like the gasket, etc. with new parts.
6. Refer to pages addressing detailed cam follower replacement procedure.

### ★ Modification history of the lever-shaft assembly and the roller

With the roller, 2 stage modifications have been made as shown in the Table (As per No. 2 and No. 3 in the Table) Both of these modifications are for the purpose of improving the durability of the cam shaft and the roller. When replacing the roller separately, use either one of the 6210-41-2341 or 6210-41-2342.

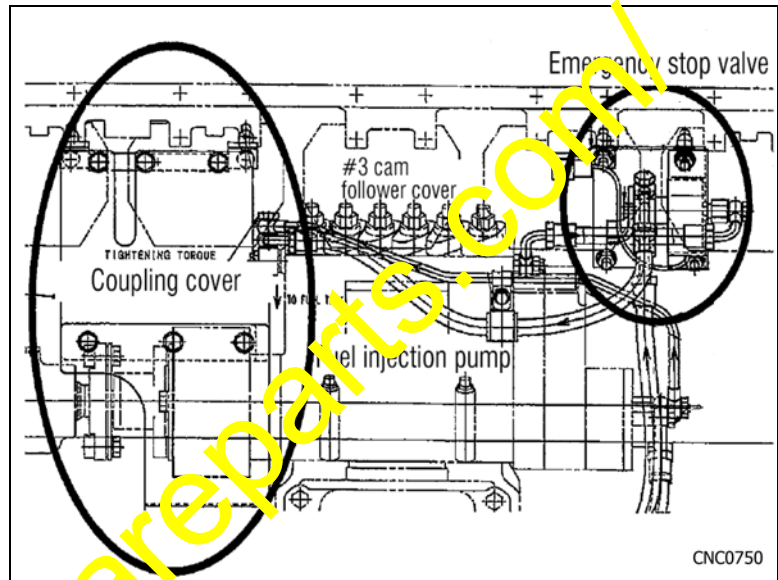
No.	Part of rocker assembly	Roller		Remark
		Part Number	Modification	
1	6210-41-2010	6210-41-2340	—	—
2	6210-41-2011	6210-41-2341	Outer shape The crown has been modified	Improved parts with decreased pressure (Durability of the cam roller has been improved.) (Introduced in Service News "AT02194")
3	6210-41-2012	6210-41-2342	The above No. 2 + The heat treatment has been changed.	In comparison with the above No. 2, the durability of the cam roller has been further improved.
4	6210-41-2020	6210-41-2342	The above No. 2 + The heat treatment has been changed.	The roller is the same as the above No. 3. (Material change has been made with the pin only.)

7. Replacement procedure for the cam follower of the SA12V140 Series engines on the HD785, D475A and WA800

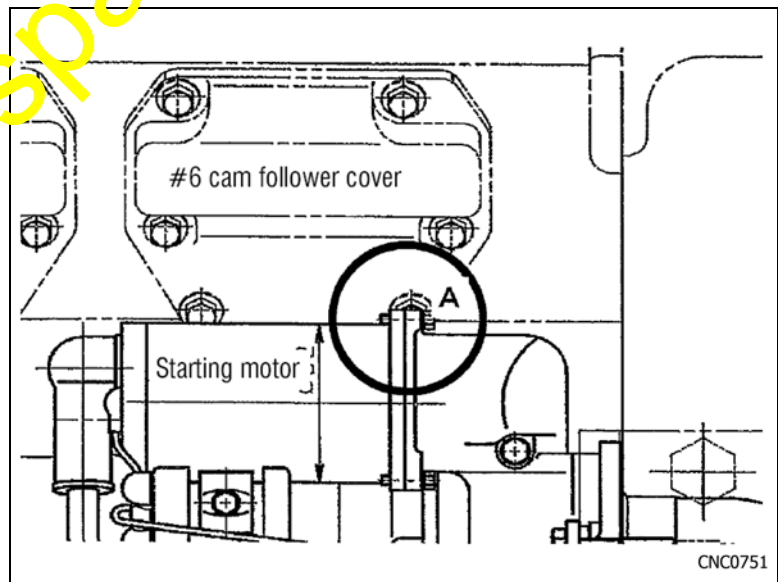
- In order to prevent entry of dust into the inside of the engine, wash the surrounding area before starting the disassembly work.
- It is not necessary to drain the engine coolant.
- To make the removal and installation work for the head cover easier, remove the air cleaner, muffler and side covers in the case of a D475A remove the muffler and covers in the case of the WA800.

1. Replacement procedure for the cam follower assembly on the LH bank

Remove the coupling cover mounting bracket which is tightened in common with the cam follower cover, the cover and emergency stop valve together with the bracket.



2. Do not remove the fuel injection pump. Although the mounting bolts for the #3 cylinder cam follower cover are located behind the fuel injection pump and it is not easy to remove and reinstall, it is possible to remove them somehow using the ring spanner.



3. Do not remove the starting motor. Although the mounting bolt A for the #6 cylinder cam follower cover cannot be removed since the starting motor is in hindrance, it is possible to separate the screwed-in section and it can be removed keeping the starting motor installed.



★ Preparations have been finished by the above processes.

4. Remove the valve covers, rocker assembly and push-rods.
5. Remove the cam follower covers.
6. Remove the cam follower assembly.
  - a. The dowel ring for positioning may come out being attached to the cam follower assembly side. If this happens, install a new dowel ring to the cylinder block.

★ Removal of parts has been finished by the above processes.

1. Regarding the reinstallation work after the disassembly work, refer to the Shop Manual. Tightening torque when carrying out the reinstallation work Valve clearance adjustment

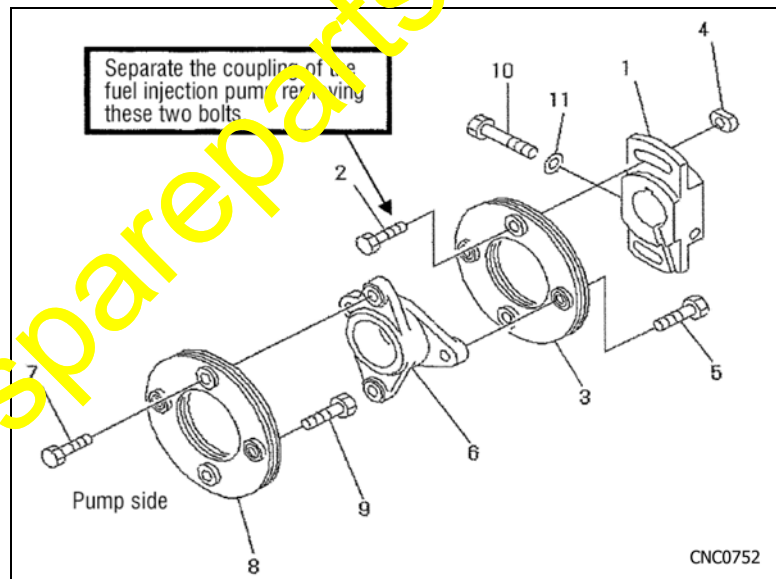
**Remark**

*When installing the cam follower assembly, to prevent the dowel ring from riding onto the shaft, screw-in the bolt by hand until the shaft seats onto the block.*

★ Replacement procedure for the cam follower assembly on the RH bank

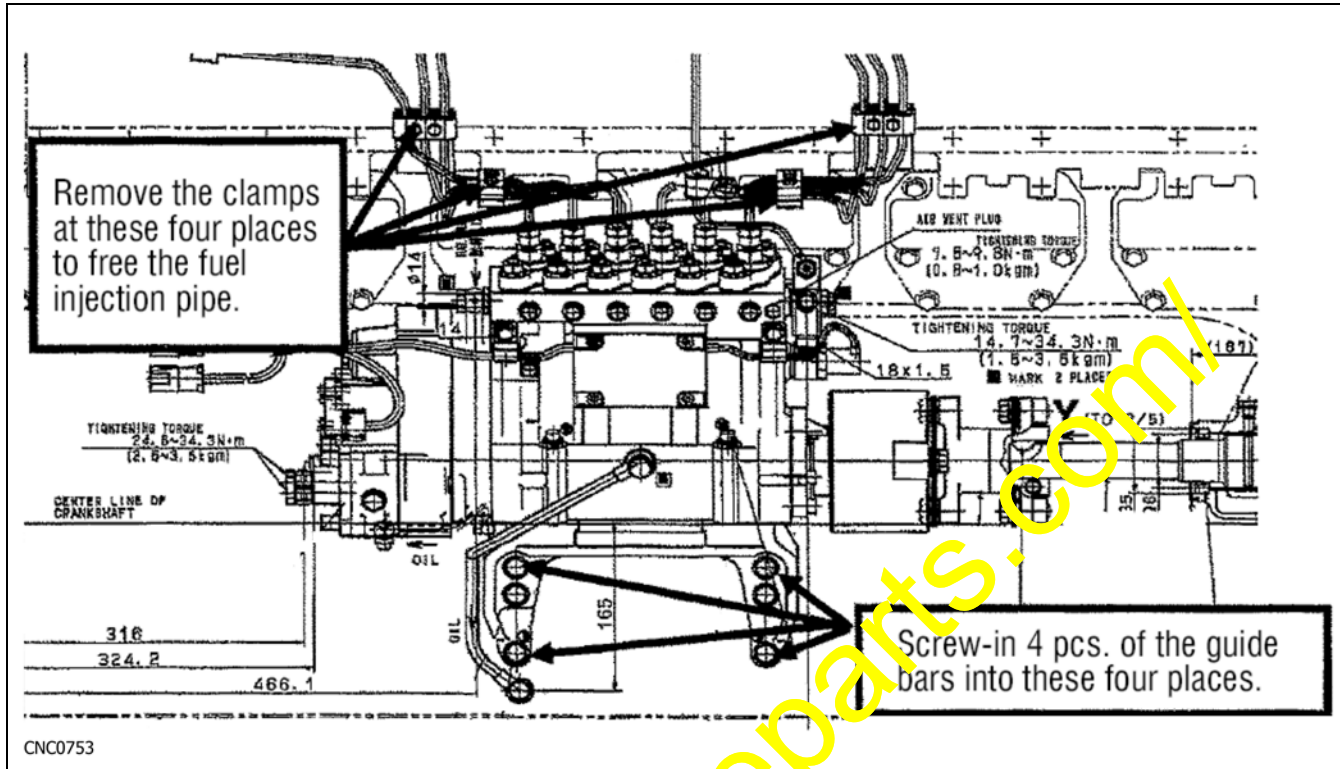
- It is necessary to shift the position of the fuel injection pump.

2. Remove the coupling cover.
3. Remove the fuel piping and oil piping being installed to the fuel injection pump.
4. Remove the harness clamp and the emergency stop valve.
5. Separate the coupling of the fuel injection pump.

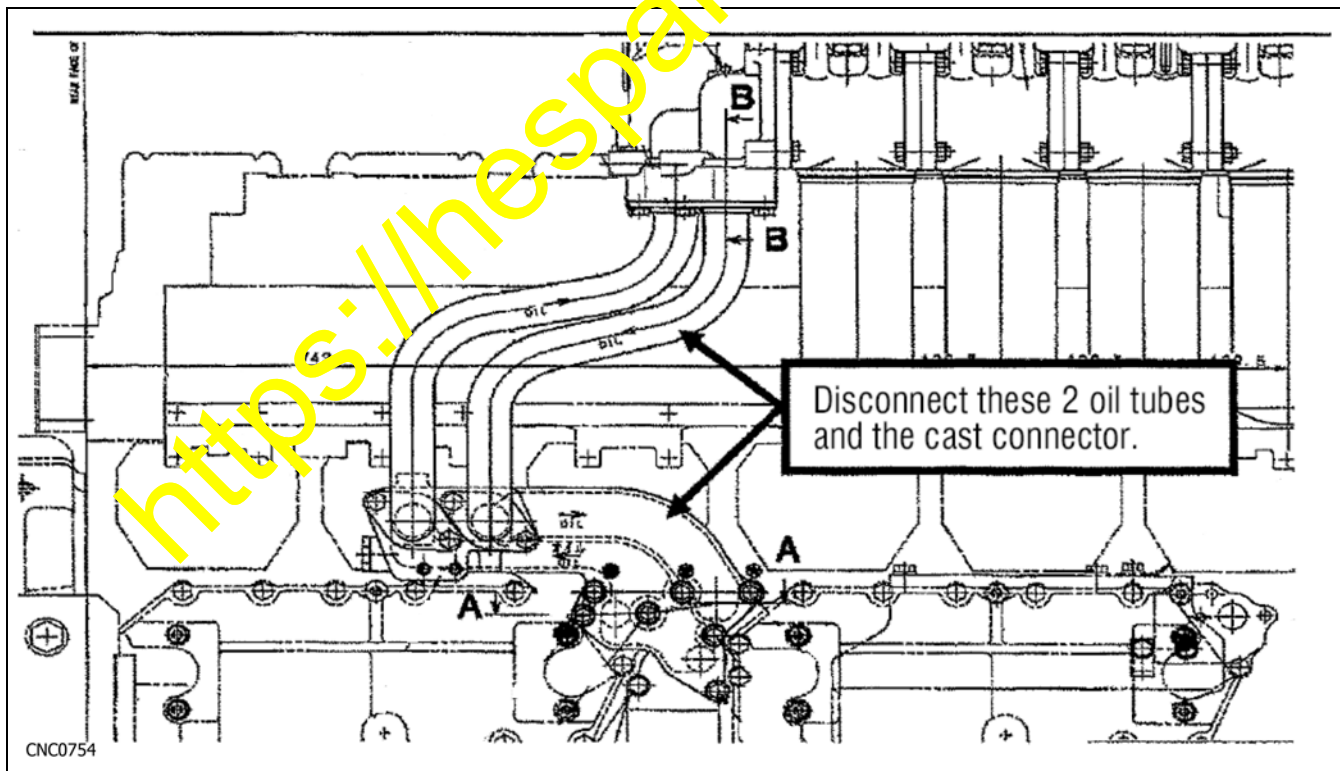


6. Separate the pump side connection of the fuel injection piping and remove the clamps for the fuel injection piping to free them.
7. Remove the fuel injection pump bracket mounting bolts and shift the position of the fuel injection pump as installed to the bracket toward the outside by about 200 mm. (8 in)

- At this time, screw-in 4 pcs. of the guide bars with a length of 400 mm (16 in) into the bracket mounting bolt holes to use them as the guide.



- Disconnect the oil tube and the connector.



★ Preparations have been finished by the above processes.

10. Remove the head covers, rocker assembly and push-rods.
11. Remove the cam follower covers.
12. Remove the cam follower assembly.  
The dowel ring for positioning may come out being adhered to the cam follower assembly side. If this happens, install a new dowel ring to the cylinder block.
13. Removal of parts has been finished by the above processes.
14. Regarding the reinstallation work after the disassembly work, refer to the Shop Manual.
  - a. Tightening torque when carrying out the reinstallation work
  - b. Valve clearance adjustment

**Remark**

*When installing the cam follower assembly, to prevent the dowel ring from riding onto the shaft, screw-in the bolt by hand until the shaft seats onto the block.*

15. After the reinstallation work completed, carry out test operation and make sure oil leakage and abnormal sound are not occurring.

- Consumable parts

List of necessary parts (including the consumable parts) for this installation is given earlier.