

Product: WHEEL DOZER

Model: 814B WHEEL DOZER 16Z

Configuration: 814B TRACTOR / POWER SHIFT / 16Z00001-UP (MACHINE) POWERED BY 3306 ENGINE

Disassembly and Assembly

3306 VEHICULAR ENGINE FOR 814B TRACTOR, 815B & 816B COMPACTO

Media Number -SEN2205-00

Publication Date -01/01/1982

Date Updated -11/10/2001

Fuel Injection Pumps

SMCS - 1251-15; 1251-16; 1251-11; 1251-12

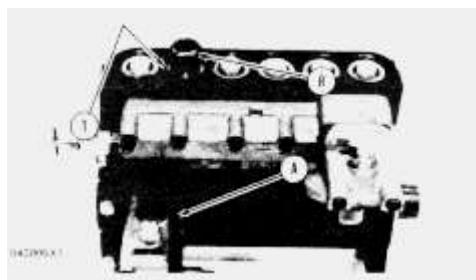
Remove Fuel Injection Pumps

	Tools Needed	A	B	C
6V4186	Timing Pin	1		
8S4613	Wrench		1	
8S2244	Extractor			1

start by:

a) remove governor

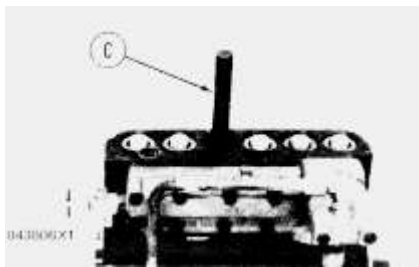
1. Remove the bolts and the plate from side of the fuel injection pump housing.



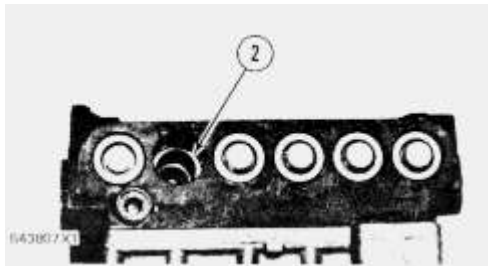
2. Install tool (A) in the fuel injection pump housing. Move the rack until tool (A) can be installed to hold the rack in the center position. The rack must be in the center position to remove the fuel injection pumps.

3. Use tool (B) to remove bushing (1) from the fuel injection pump housing.

4. Remove the O-ring seal from the fuel injection pump housing.



5. Install tool (C) on the bonnet and remove the fuel injection pump.



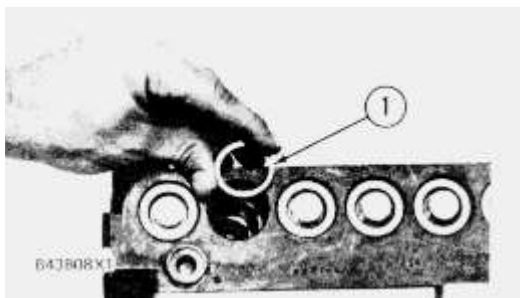
6. Remove spacer (2) from the fuel injection pump housing.

NOTE: Spacers (2) are the same thickness for each full injection pump so they can be mixed. The fuel injection pump plungers and barrels are sets and can not be mixed.

7. Do Steps 3 through 6 to remove the other fuel injection pumps.

Install Fuel Injection Pumps Housing

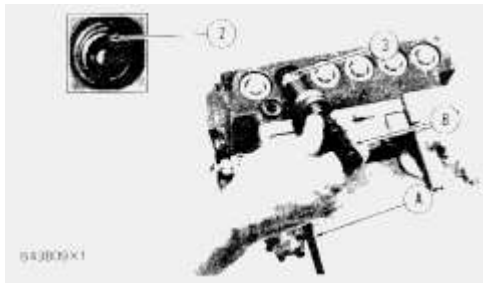
	Tools Needed	A	B	C	D
6V4186	Timing Pin	1			
8S2244	Extractor		1		
8S4613	Wrench			1	
9S228	Rack Position Tool Group				1
3S3270	1" Contact Tip				1
	C-Clamp				1



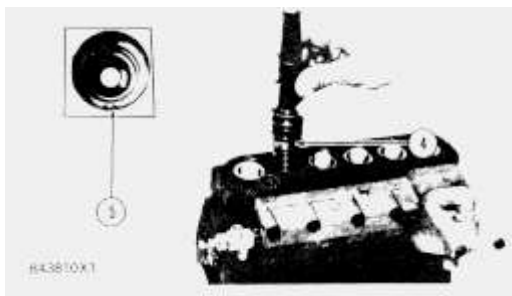
1. Install spacer (1) in the fuel injection pump housing.

2. Install tool (A) in the fuel injection pump housing. Move the rack until tool (A) can be installed to hold the rack in the center position. The rack must be in the center position to install the fuel injection pumps.

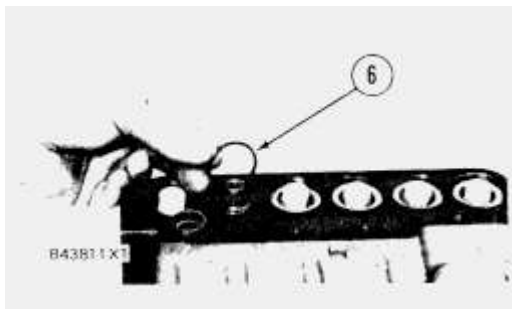
3. Turn camshaft until the lobe of the camshaft is down for the pump to be installed.



4. Install tool (B) on the bonnet of the fuel injection pump.

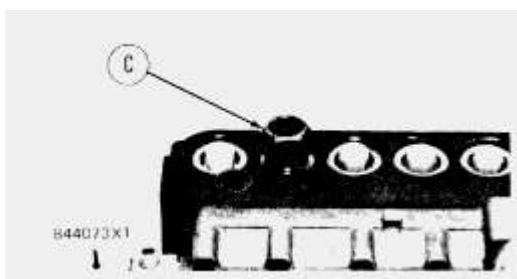


5. Install the fuel injection pump in the pump housing with saw cut (slot) (3) in the gear in alignment with the small pin (2) and groove (4) in the barrel in alignment with dowel (5) in the pump housing.

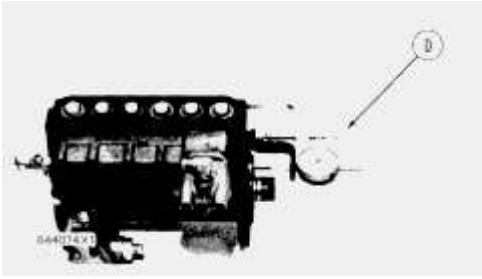


6. Put clean oil on O-ring seal (6) and install it in the fuel injection pump housing.

7. Install the bushing by hand until the bushing is even with the top of the housing. If the bushing can not be made this far by hand, remove it. Remove the fuel injection pump and put the pump in alignment again and install the bushing again.



8. Install tool (C) on the bushing and tighten the bushing to a torque of $190 \pm 14 \text{ N}\cdot\text{m}$ ($140 \pm 10 \text{ lb}\cdot\text{ft}$).



9. Install tooling (D) to measure total rack travel. Correct rack travel is 15.7 mm (.618 in.). A smaller measurement is an indication of wrong fuel injection pump installation.

10. Do Steps 1 through 9 again for installation of the other fuel pumps.

11. Install the cover and gasket on the fuel injection pump housing.

end by:

a) install governor

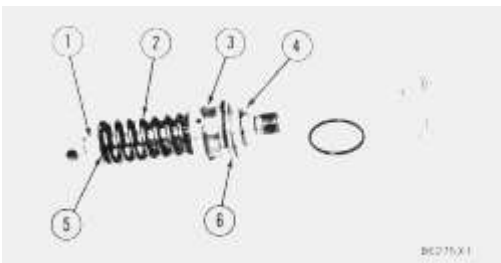
Disassemble Fuel Injection Pumps

start by:

a) remove fuel injection pumps

NOTICE

Be careful when the injection pumps are disassembled. Do not damage the surfaces of the plungers, barrels and bonnets. Any scratches will cause leakage inside the fuel injection pump. The plunger and barrel for each pump are made as a set. Do not put the plunger of one pump in the barrel of another pump. If one part has wear, install a complete new pump assembly. Be careful when the plunger is put into the bore of the barrel.



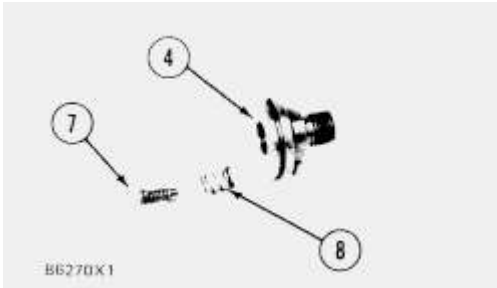
1. Pull plunger (1) and washer (5) out of barrel (3) and spring (2).

2. Remove washer (5) from plunger (1).

NOTICE

Do not remove the gear from the plunger. The gear and plunger are assembled and adjusted at the factory.

3. Remove spring (2) from barrel (3).
4. Remove ring (6) and make a separation of barrel (3) and bonnet (4).

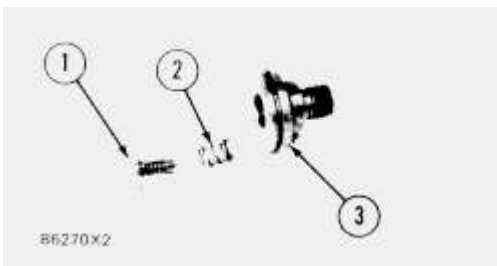


5. Remove check assembly (7) and spring (8) from bonnet (4). If check assembly (7) is disassembled, do not mix parts with parts from another check assembly.

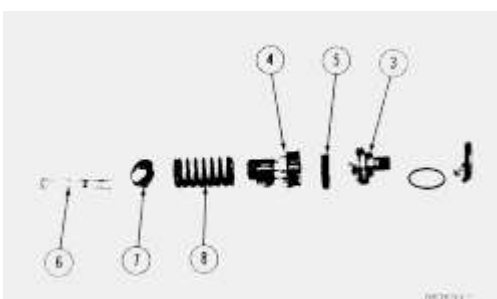
Assemble Fuel Injection Pumps

NOTICE

Put clean fuel oil on all parts during assembly.



1. Install spring (2) and check assembly (1) in bonnet (3).



- 2.** Install bonnet (3) on barrel (4) and install ring (5) to hold them together. Do not slide bonnet (3) across barrel (4) because check assembly (1) in the bonnet can cause damage to the face of barrel (4).
- 3.** Install spring (8) on barrel (4).
- 4.** Install washer (7) on plunger (6) with the flat side toward the gear on the plunger.
- 5.** Install plunger (6) in barrel (4) until washer (7) is engaged in the spring.

end by:

a) install fuel injection pumps

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Media Number -SEN2205-00

Publication Date -01/01/1982

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Governor

SMCS - 1264-15; 1264-16

Disassemble Governor

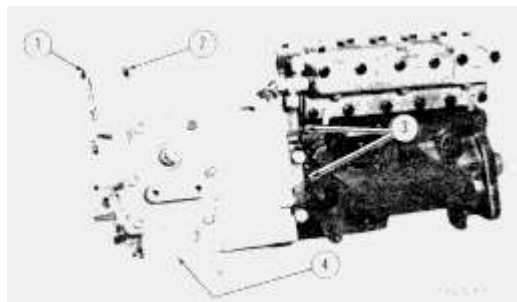
	Tools Needed	A	B	C
1P510	Driver Group	1		
6V2163	Clamp Assembly-Spring Compressor		1	
1P1855	Snap Ring Pliers			1

start by:

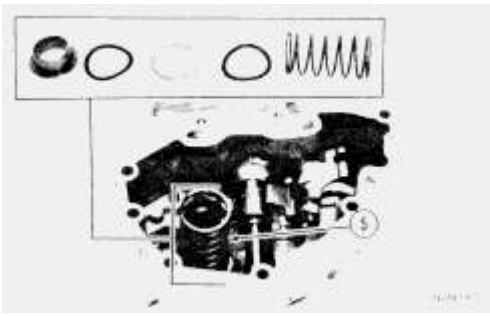
a) remove fuel injection pump housing and governor

b) remove fuel transfer pump

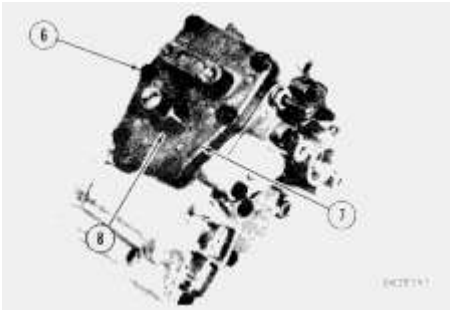
NOTE: If it is desired to only remove the governor so the fuel injection pump housing can be disassembled, do only Steps 1, 13, 19, 23-26, 29, 31, 32 and 35.



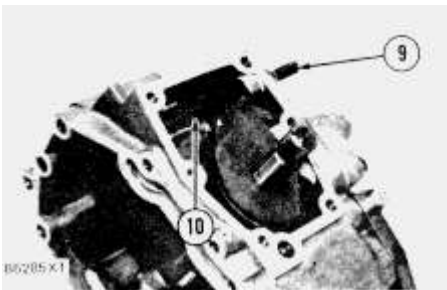
1. Remove bolt (1), six bolts (2), two top bolts (3), housing (4) and the gasket.



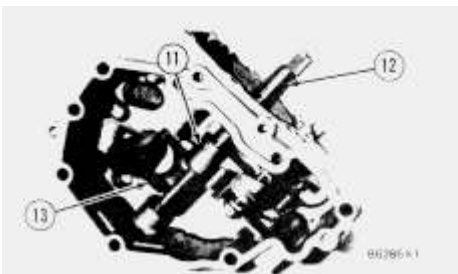
2. Remove governor spring (5), the two wave washers, one flat washer and seat from the guide in the housing.



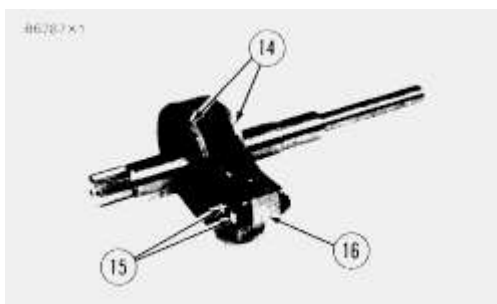
3. Remove bolts (6), cover (7) and the gasket from the housing. Use tooling (A) to remove seal (8) from the cover.



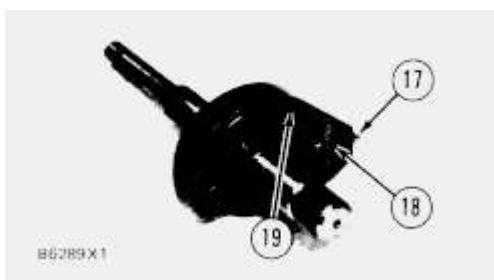
4. Remove low idle adjustment screw (9) and spring (10) from the housing.



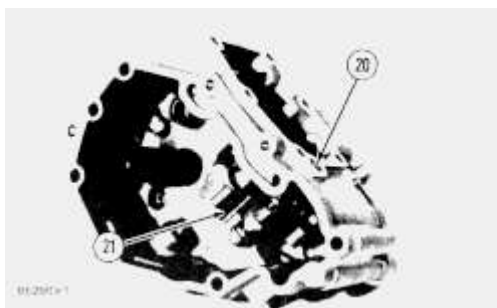
5. Remove shaft assembly (12), lever (11) and lever (13) from the housing.



6. Remove two snap rings from pins (15) and remove pins (15). Remove plates (14) and stop (16) from the shaft assembly.



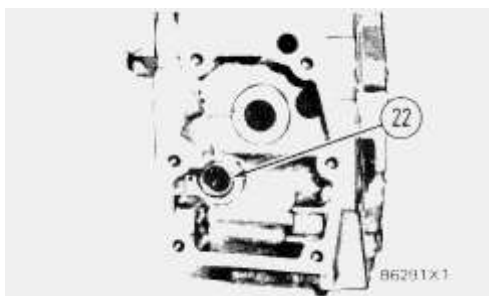
7. Remove pin (18), pin (17) and spring (19) from the shaft assembly.



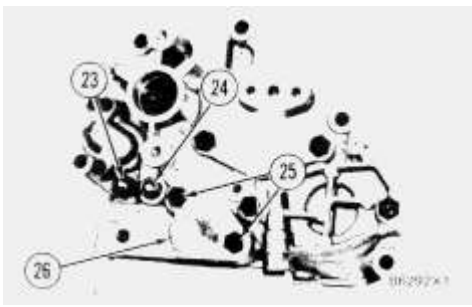
8. Remove shaft (20) and lever (21) from the housing.

NOTICE

Remove check valve (22) only if a replacement is necessary because the check valve will be damaged during removal.



9. Remove check valve (22) if a replacement is necessary.



10. Remove contact (23) and body (24) for the governor dashpot adjustment screw from the housing.

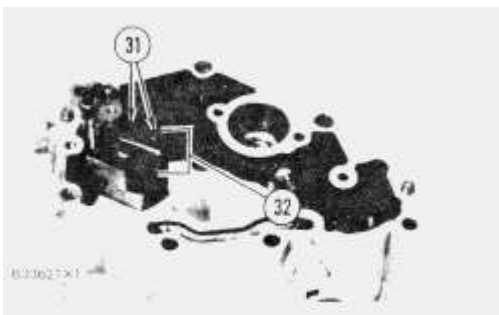
11. Remove bolts (25), cover (26) and the gasket from the housing.



12. Remove seal (27) and adjustment screw (28) for the high idle.

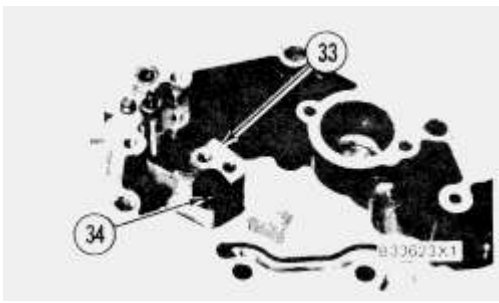


13. Remove two bolts (29), housing (30) and the gasket from the fuel injection pump housing.

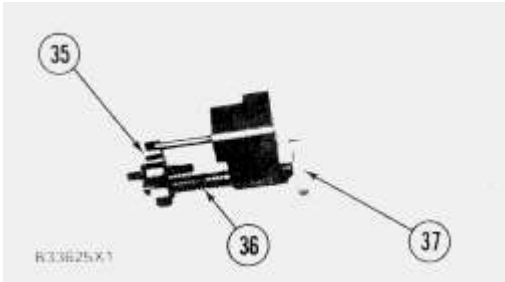


14. Remove bolts (31) and torque control group (32).

15. Disassemble the torque control group and inspect the spacer, spring and insulator for damage or wear.

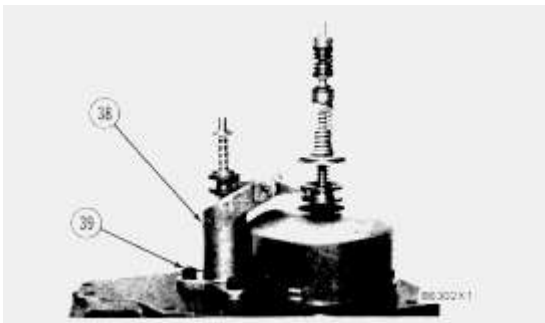


16. Remove bolts (34) and block (33) for the full load stop from the housing.

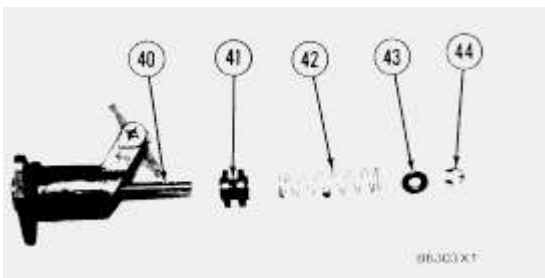


17. Remove the bolt that holds collar (35) to bolt (37). Remove collar (35) and spring (36) from bolt (37). Remove bolt (37) from the block.

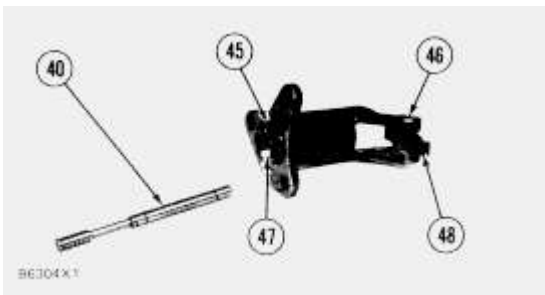
18. Remove the stop screw from collar (35) if a replacement is necessary.



19. Remove bolts (39) and governor servo (38) from the fuel injection pump.

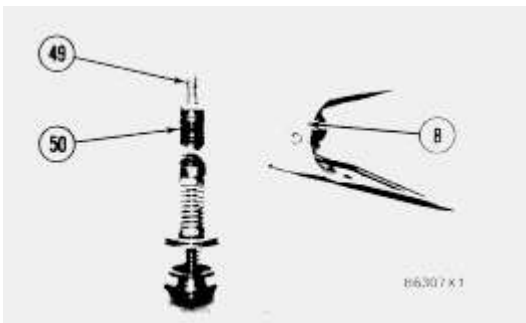


20. Remove locking (44), seat (43), spring (broken link spring) (42) and sleeve (41) from valve (40). Remove the other locking (44) from the groove in the center of valve (40).



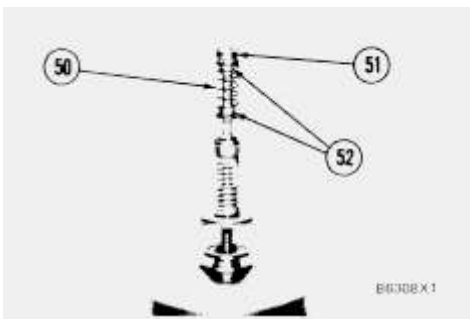
21. Remove valve (40), sleeve (45) and piston (47) from the governor servo. Remove the O-ring seal from sleeve (45).

22. Remove pin (46) and lever (48) from the governor servo.

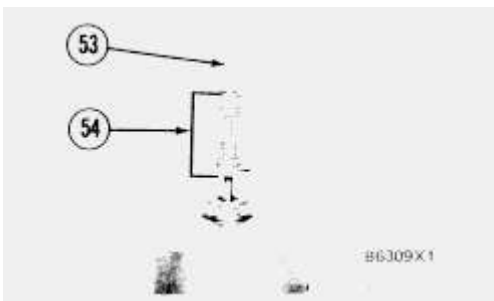


23. Use tool (B) to hold spring (50) in compression so ring (49) can be removed. Spring (50) is used to put a preload on the thrust bearing for the camshaft in the fuel injection pump housing.

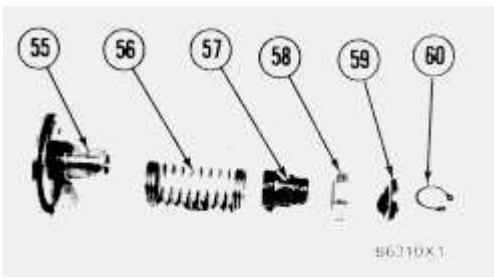
24. Remove ring (49) then remove tool (B).



25. Remove bearing (51), sleeves (52) and spring (50) from the governor shaft.

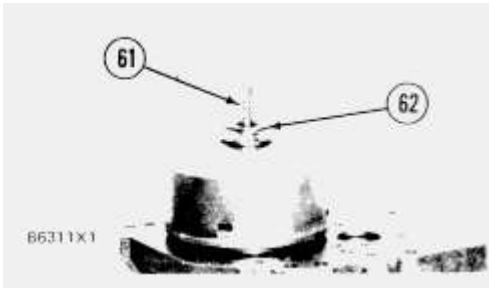


26. Remove ring (53) and dashpot assembly (54) from the governor shaft.

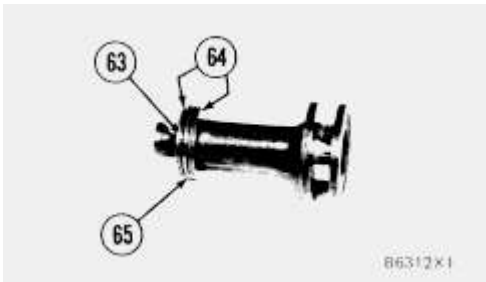


27. Use tool (C) to remove snap ring (60) from seat (57). Remove ring (59) and spool (58) from seat (57).

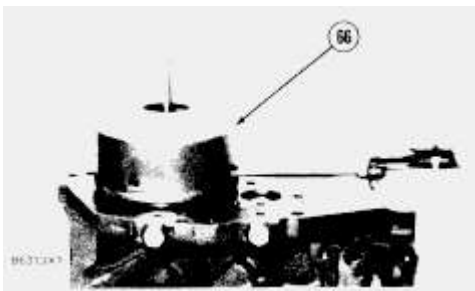
28. Remove seat (57) from spring (56) and remove spring (56) from seat (55).



29. Remove spring (overfueling spring) (61) and riser (62) from the governor shaft.



30. Remove ring (63), races (64) and bearing (65) from the riser.

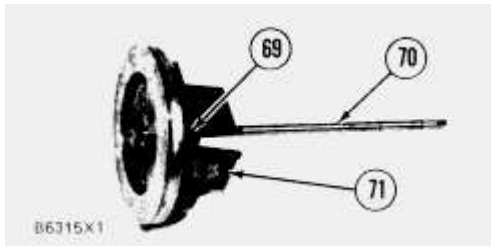


31. Use a screwdriver to remove shield (66) as shown.

NOTE: Make a replacement of shield (66) any time it is removed.

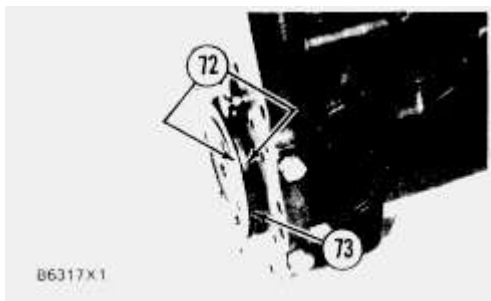


32. Remove bolts (67) and carrier (68) for the governor flyweights.



33. Remove dowels (69) and flyweights (71) from the carrier.

34. Remove shaft (70) from the carrier. Remove the dowel from shaft (70).

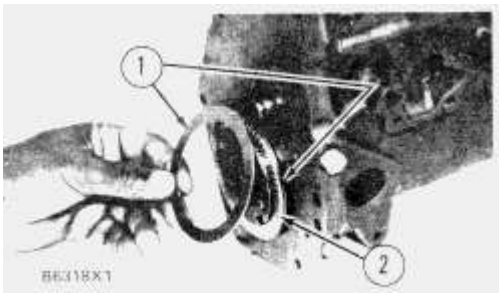


35. Remove races (72) and bearing (73) from the camshaft in the fuel injection pump housing.

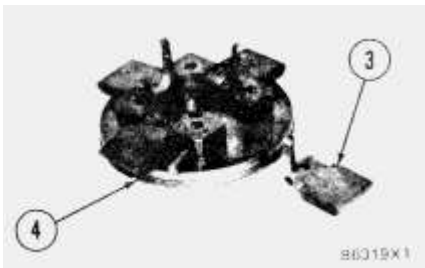
Assemble Governor

	Tools Needed	A	B	C	D
6V2054	Shield Driver	1			
1P1855	Snap Ring Pliers		1		
6V2163	Clamp Assembly-Spring Compressor			1	
1P510	Driver Group				1

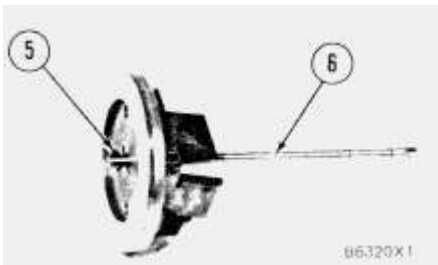
NOTE: Put clean oil on all parts before assembly. Be sure all oil passages are clear.



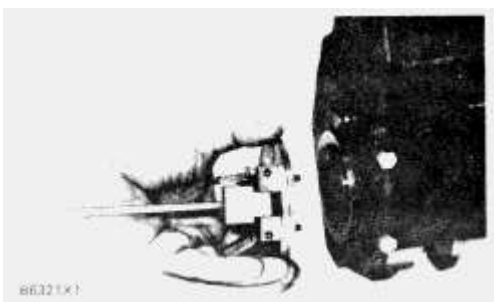
1. Install one race (1), bearing (2) and the other race (1) on the camshaft in the fuel injection pump housing.



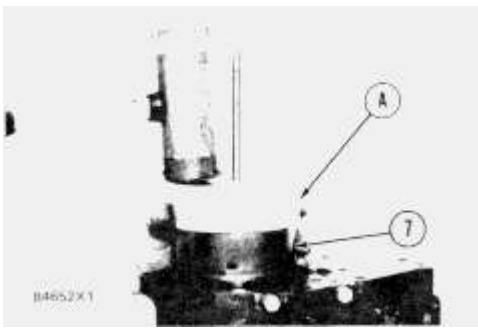
2. Put flyweights (3) in position on carrier (4) and install the dowels to hold the flyweights in place. The flyweights must move freely on the dowels and have 0.010 to 0.23 mm (0.0004 to 0.009 in. end play).



3. Install dowel (5) in governor shaft (6) and install the governor shaft in the carrier as shown.

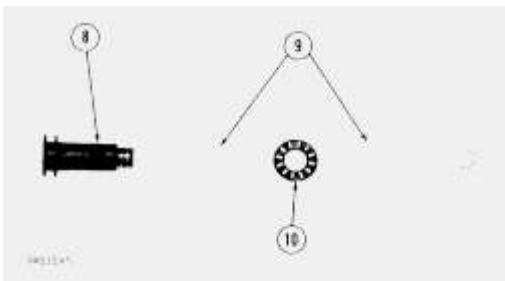


4. Put the carrier in position on the camshaft and install the bolts that hold the carrier in place.

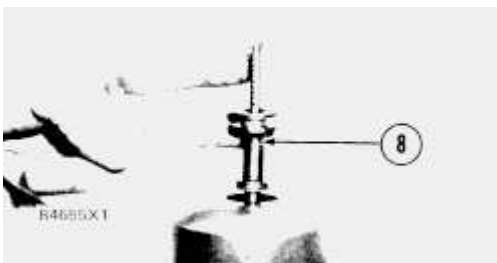


NOTE: Make a replacement of shield (7) any time it is removed.

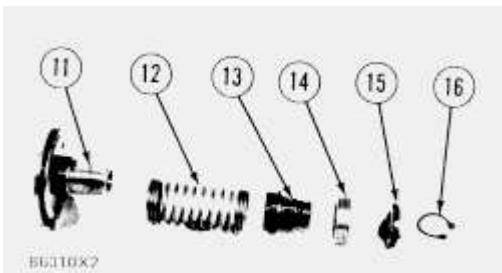
5. Install shield (7) on the carrier and use tool (A) to push the shield against its seat. Use a hammer and punch to move the metal (stake) two places on the side of the shield $180^\circ \pm 5^\circ$ apart next to the holes in the shield.



6. Install one race (9), bearing (10), the other race (9) and use tool (B) to install the ring on riser (8) as shown.



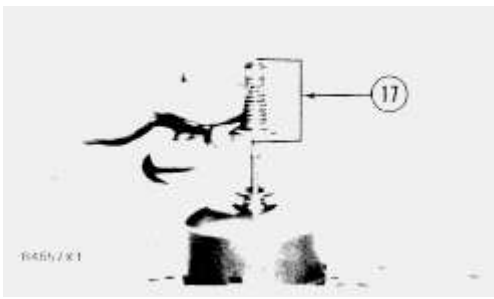
7. Install riser (8) and spring (overfueling spring) on the governor shaft as shown.



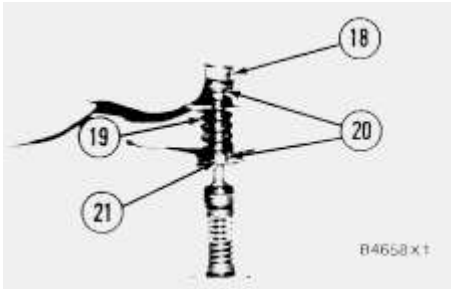
8. Assemble the dashpot as follows:

a) Install spring (12) on seat (11) and install seat (13) in spring (12).

b) Put spool (14) and ring (15) in position on seat (13) and use tool (B) to install snap ring (16) to hold them in place.

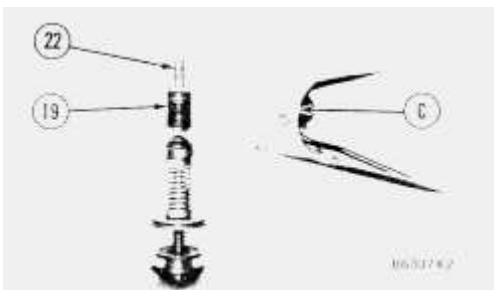


9. Install dashpot assembly (17) on the governor shaft as shown.

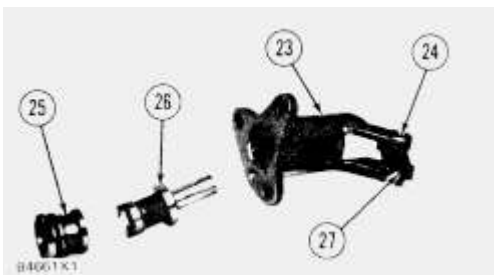


10. Install ring (21) in the lower groove in the governor shaft. Install one sleeve (20), spring (19), the other sleeve (20) and bearing (18) on the governor shaft as shown.

NOTE: Spring (19) is used to put a preload on the thrust bearing on the camshaft in the fuel injection pump housing.



11. Use tool (C) to hold spring (19) in compression and install ring (22) in the groove in the governor shaft. Remove tool (C).



12. Put lever (27) in position on governor servo (23) and install pin (24) to hold the lever in place. Use a hammer and chisel to move the metal (stake) four places 90° apart on the outside surface on both legs of the governor servo to hold pin (24) in place.

13. Install the O-ring seal on sleeve (25). Install piston (26) and sleeve (25) in the governor servo as shown.

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