

Product: TRACK LOADER

Model: 943 TRACK LOADER 03Y

Configuration: 943 TRACK LOADER / POWER SHIFT / 03Y00001-01385 (MACHINE) POWERED BY 3204 ENGINE

Disassembly and Assembly 3204 VEHICULAR ENGINE FOR 943 & 953 TRACK-TYPE LOADERS

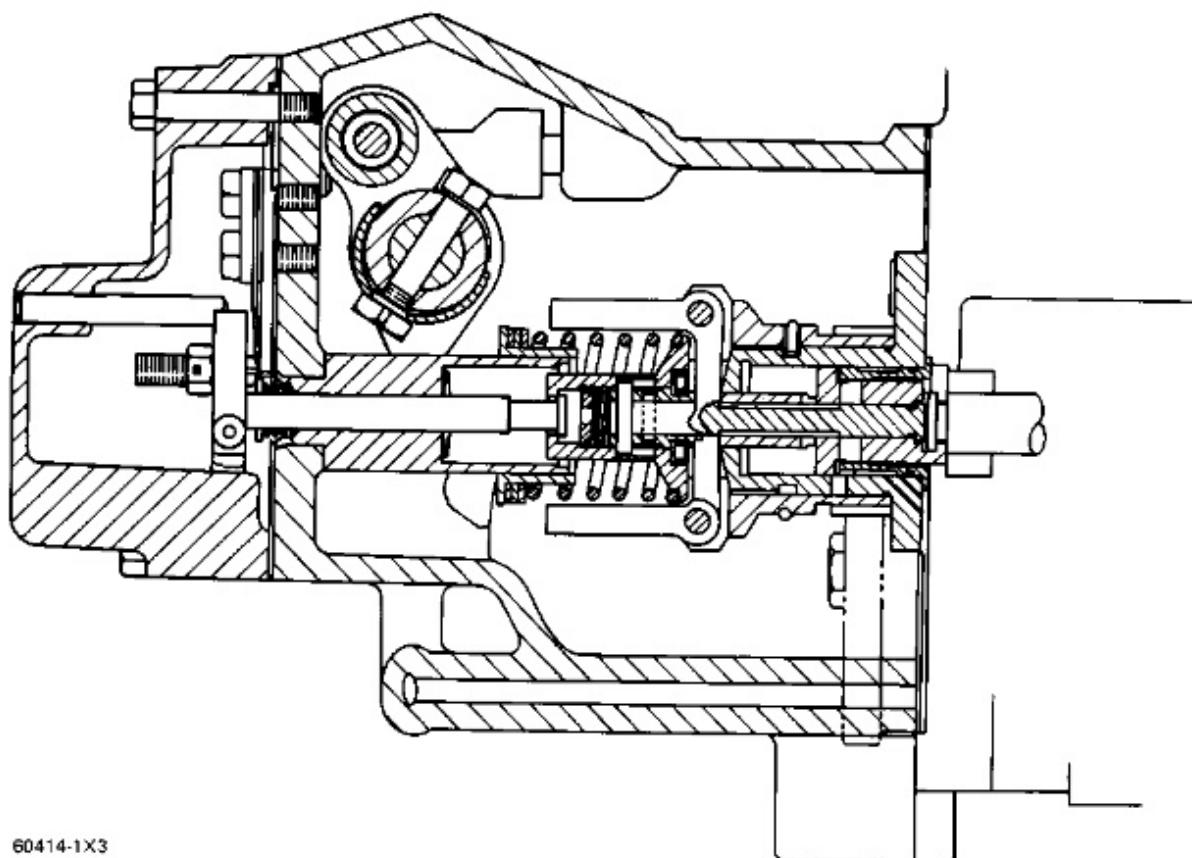
Media Number -SEN4214-00

Publication Date -01/04/1985

Date Updated -11/10/2001

Governor (Interim Scroll Fuel System)

SMCS - 1264-015; 1264-016



Disassemble Governor (Interim Scroll Fuel System)

Tools Needed		A
1P510	Driver Group	1

START BY:

a. remove fuel injection pump housing and governor (interim scroll fuel system)

NOTE: If it is desired to only remove the governor so the fuel injection pump housing can be disassembled, do only Steps 1, 3, 5, 6, 12 and 13.

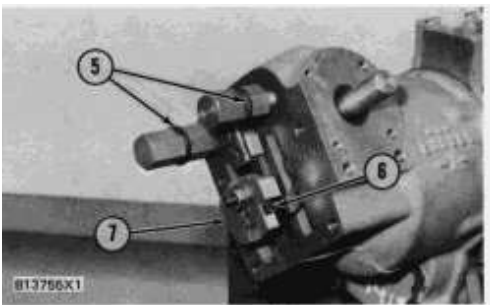


1. Remove cover (1).

2. Remove lever (2) and the key from the shaft.

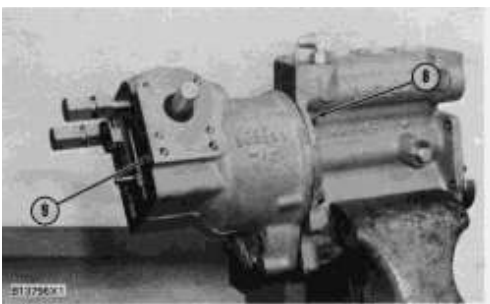


3. Remove bolts (3) and cover (4) from the governor housing.

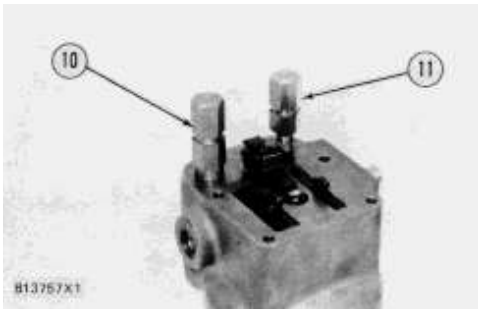


4. Remove O-ring seals (5) from the low and high idle adjustment screws.

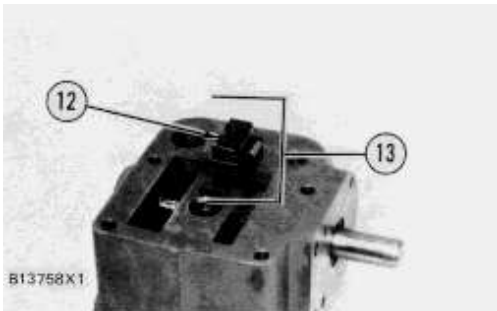
5. Remove screw (6) from rack stop collar (7), and remove collar (7). Remove the spring from behind the collar.



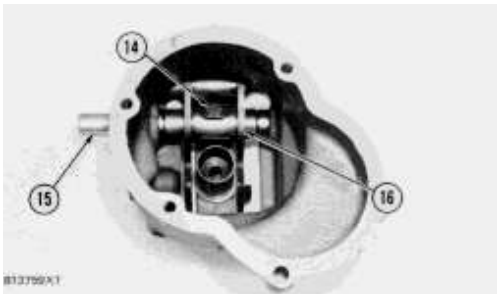
6. Remove bolts (8), and remove governor housing (9) from the fuel injection pump housing.



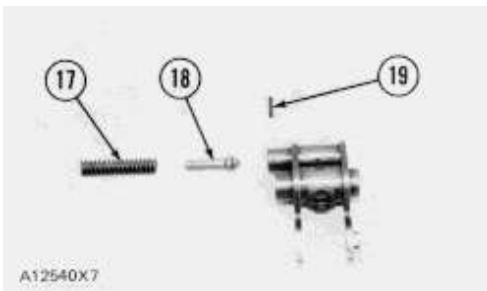
7. Remove high idle adjustment screw (11) and low idle adjustment screw (10) from the governor housing. Remove the high idle adjustment screw first.



8. Remove bolts (12) and torque control (13) from the governor housing.



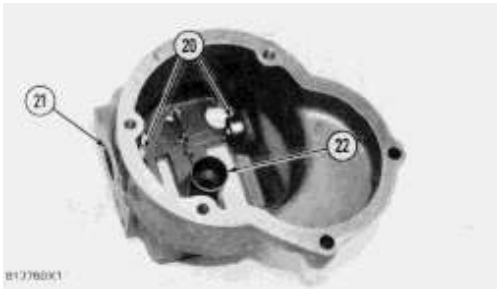
9. Remove bolt (14) and the lock. Remove shaft (15) and lever assembly (16) from the governor housing.



! WARNING

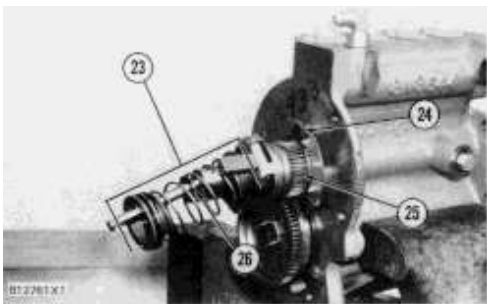
Pin (19) holds spring (17) in compression. Use caution to prevent injury when pin (19) is removed. Release the tension in spring (17) slowly.

10. Remove pin (19), spring (17) and plunger (18) from the lever assembly.



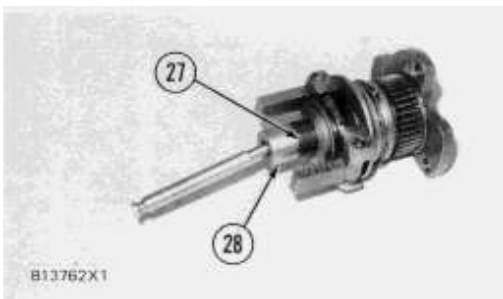
11. Remove seal (21) from the governor housing. Use tooling (A) to remove the plug and bearings (20) from the governor housing.

NOTE: If a replacement of spring guide (22) is necessary, see Special Instruction, Form No. SMHS7356 - Use Of 6V22 Tool Group For Replacement Of Governor Spring Guide.

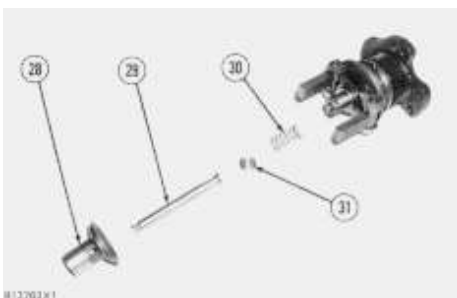


12. Remove seat, washer, wave-washers and governor spring (23) from the weight assembly. Remove spring washer (26) from the weight assembly.

13. Remove bolts (24) and the lock that hold weight assembly (25) to the fuel injection pump housing. Pull the weight assembly out and to the side to disengage it from the rack.



14. Remove ring (27) and the dowel under the ring that holds seat (28) in place.



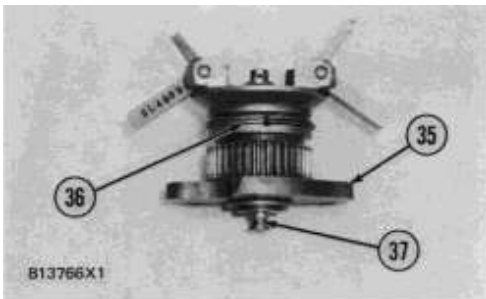
15. Remove seat (28), bolt (29) and spring (30) from the weight assembly. Remove washer (31) from spring (30).



16. Remove guide (32), the two races and bearing from the sleeve.

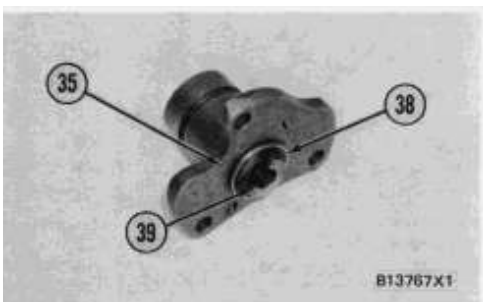


17. Remove the second dowel (33) that holds sleeve (34) in place, and remove the sleeve.



18. Remove valve (37) from the weight assembly and cylinder (35).

19. Remove lock (36), and separate the weight assembly and cylinder (35).

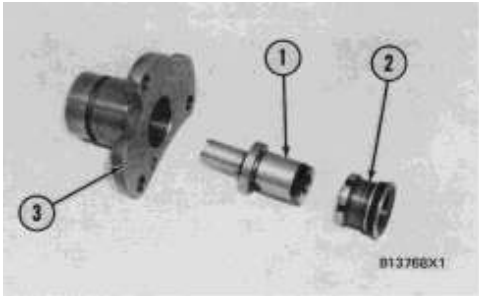


20. Remove sleeve (38) and piston (39) from cylinder (35). Remove the O-ring seal from the sleeve.

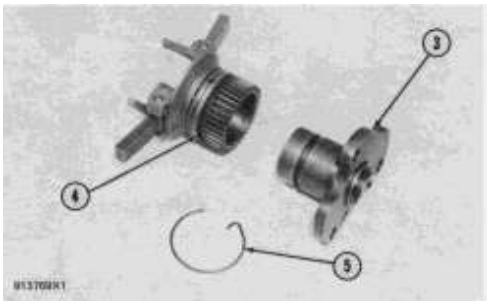
Assemble Governor (Interim Scroll Fuel System)

Tools Needed		A
1P510	Driver Group	1

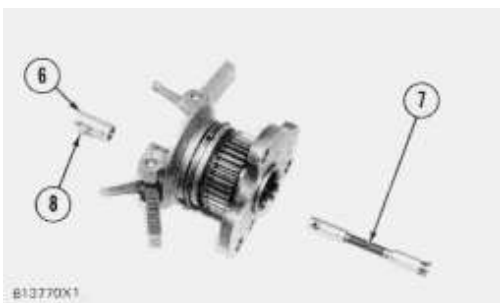
NOTE: Put clean oil on all parts before assembly and be sure all oil passages are clear.



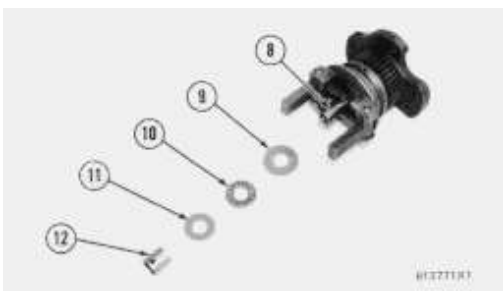
1. Install the O-ring seal on sleeve (2). Install piston (1) in sleeve (2). Install sleeve (2) in cylinder (3).



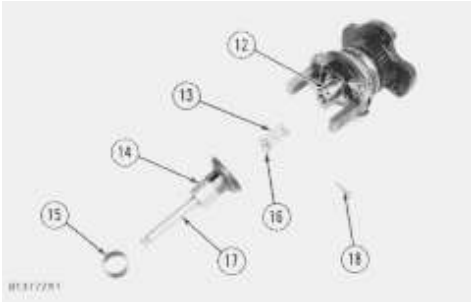
2. Install cylinder (3) in weight assembly (4), and install lock (5) to hold them together.



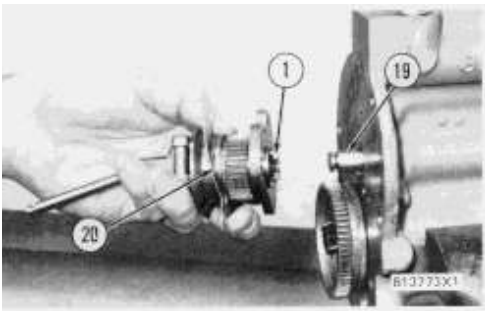
3. Install valve (7) through the cylinder, and install sleeve (6) on the valve with the second hole in the sleeve in alignment with the hole in the valve. Install dowel (8) to hold the sleeve on the valve.



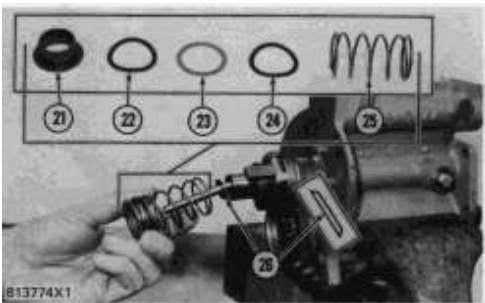
4. Install larger race (9), bearing (10), smaller race (11) and guide (12) on sleeve (8). Put the hole in guide (12) in alignment with the first hole in sleeve (8).



5. Install washer (16) in spring (13). Install bolt (17) in seat (14). Put spring (13) and seat (14) in position on guide (12) with the hole in seat (14) in alignment with the hole in guide (12). Install dowel (18) through seat (14) and guide (12). Install ring (15) on the seat to hold the dowel in place.

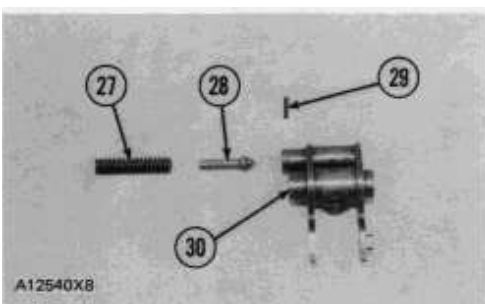


6. Install the weight assembly on the fuel injection pump housing with piston (1) engaged over the groove in rack (19). Install lock (20) and the bolts that hold the weight assembly to the fuel injection pump housing.

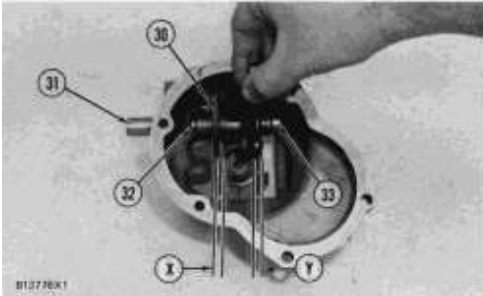


7. Install spring washer (26) on the bolt as shown.

8. Install spring (25), one wave washer (24), flat washer (23), other wave washer (22) and seat (21) on the bolt as shown.



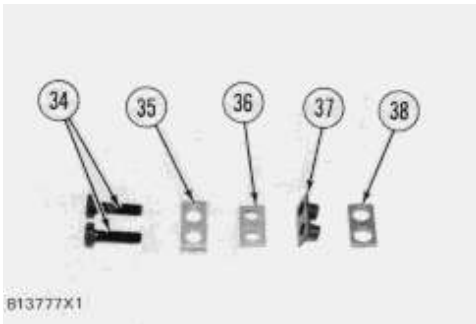
9. Put plunger (28) and spring (27) in position in lever assembly (30), and install pin (29) to hold the spring and plunger in place.



10. Dimensions (X) and (Y) are controlled by the depths of bearings (32) and (33) in the governor housing. Install bearings (32) and (33) with tooling (A). Install lever assembly (30) and shaft (31) in the governor housing. With lever assembly (30) pushed against bearing (33) on the detent side, the clearance [dimension (Y)] between the guide for the governor spring and lever assembly (30) must be approximately 2.49 mm (.098 in.). Push lever assembly (30) against bearing (32) on the other side. The clearance [dimension (X)] between the guide for the governor spring and lever assembly must be approximately 3.40 mm (.134 in.). If the measurements are not correct, remove the lever assembly and the shaft, and move the bearings as necessary to get the correct measurement. After the bearings are installed, there must be approximately .38 mm (.015 in.) end play in the lever assembly. Remove the shaft and lever assembly.

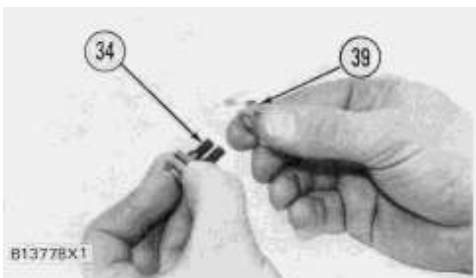
11. Install the plug on the detent side of the governor housing with tooling (A) to a depth of 2.30 ± 0.5 mm ($.091 \pm 0.20$ in.). Install the lip-type seal in the opposite side of the governor housing with tooling (A). Install the lip-type seal with the lip toward the inside of the governor housing.

12. Put the lever assembly and shaft in position in the governor housing, and install the bolt and lock in the lever assembly.

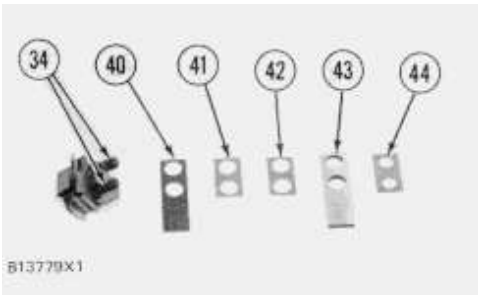


13. Assemble the torque control group as follows:

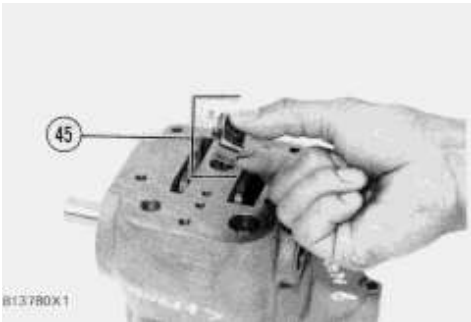
a. Install lock (35), retainer (36), insulator (37) and retainer (38) on bolts (34) as shown.



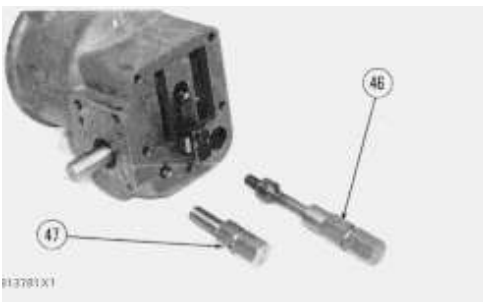
b. Install contact (39) on bolts (34) as shown.



c. Install spring (40), spacer (41), shim (42), bar (43) and insulator (44) on bolts (34) as shown.



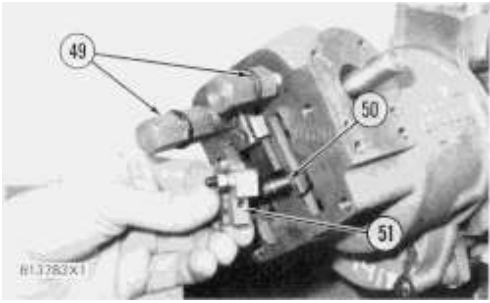
14. Install torque control group (45) on the governor housing as shown. Bend the lock to hold the bolts tight.



15. Install low idle adjustment screw (46) first; then high idle adjustment screw (47) in the governor housing.

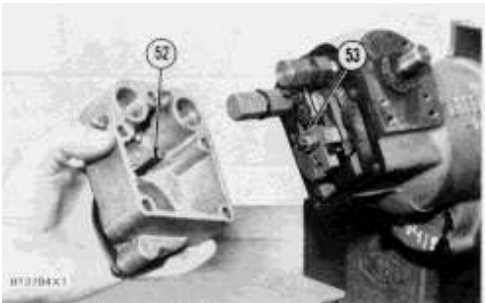


16. Put the gasket and governor housing (48) in position on the fuel injection pump housing with bolt (17) and the spring seat in alignment with the spring guide in the governor housing. Install the bolts that hold the governor housing to the fuel injection pump housing.

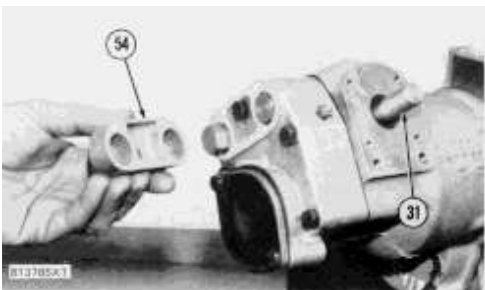


17. Install O-ring seal (49) on the low and high idle adjustment screws.

18. Put spring (50) and rack stop collar (51) in position on the bolt in the weight assembly, and install the allen screw that holds the rack stop collar in place.



19. Put the gasket and cover in position on the governor housing with dowel (52) in the cover in alignment with notch (53) in the rack stop collar. Install the bolts that hold the cover in place.



20. Install the gasket and cover (54) over the low and high idle adjustment screws.

21. Install the key and lever on shaft (31).

22. After installation of the fuel injection pump housing and governor, adjust the rack and governor. See Fuel Rack Setting And Governor Adjustments in Testing And Adjusting.

END BY:

a. install fuel injection pump housing and governor (interim scroll fuel system)

Product: TRACK LOADER

Model: 943 TRACK LOADER 03Y

Configuration: 943 TRACK LOADER / POWER SHIFT / 03Y00001-01385 (MACHINE) POWERED BY 3204 ENGINE

Disassembly and Assembly

3204 VEHICULAR ENGINE FOR 943 & 953 TRACK-TYPE LOADERS

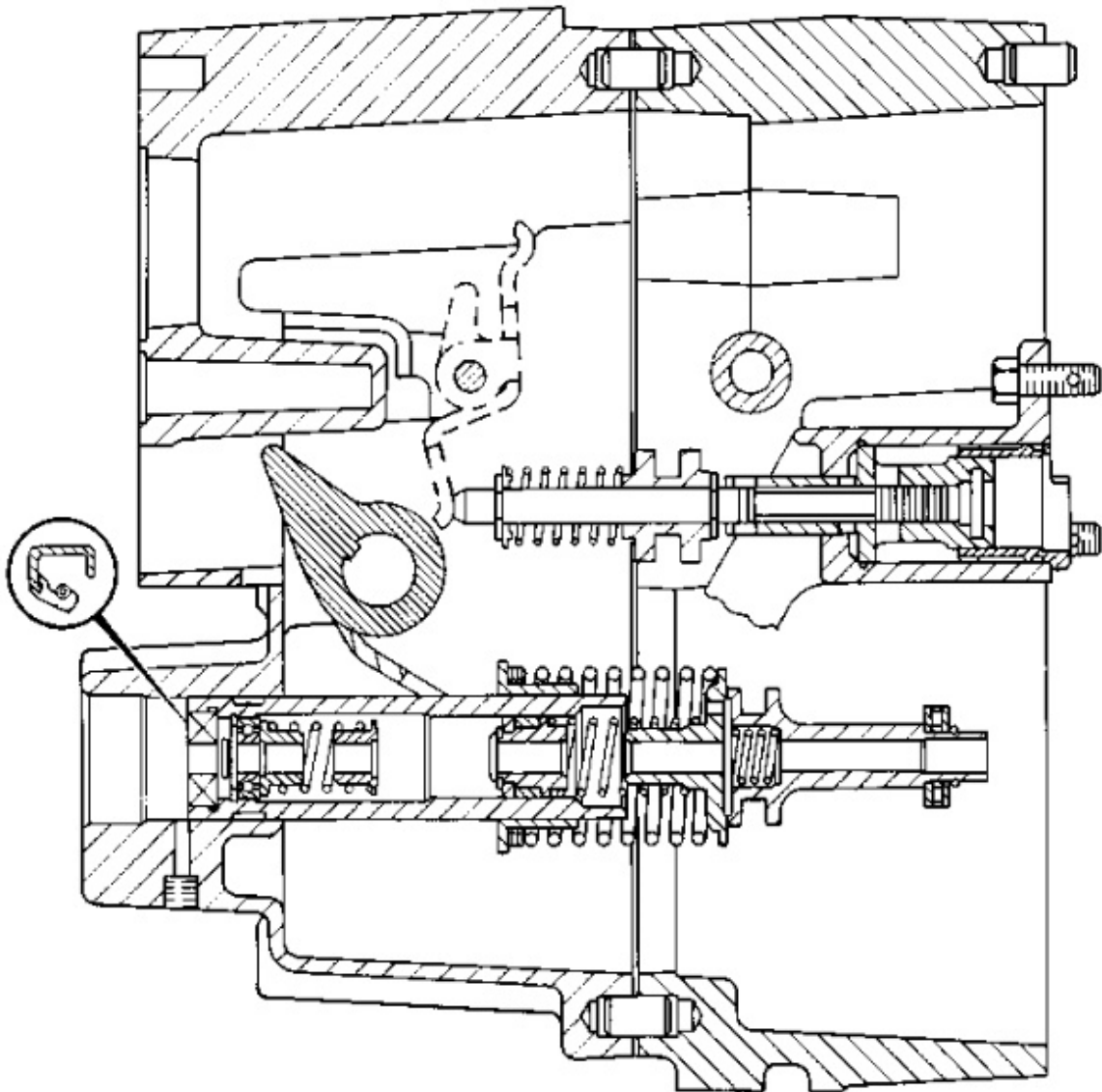
Media Number -SEN4214-00

Publication Date -01/04/1985

Date Updated -11/10/2001

Governor (New Scroll Fuel System Effective In Production With 10X5411-Up, 45V36536-Up)

SMCS - 1264-015; 1264-016



B40324X1

Disassemble Governor (New Scroll Fuel System Effective In Production With 10X5411-Up, 45V36536-Up)

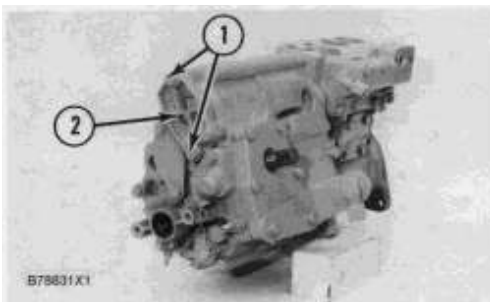
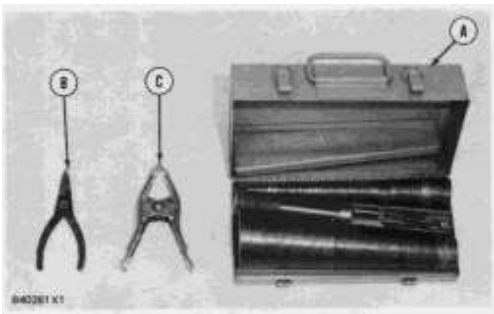
Tools Needed		A	B	C
1P510	Driver Group	1		
1P1855	Retaining Ring Pliers		1	
6V2163	Compressor Clamp*			1

*Part of 6V4095 Pump And Governor Reconditioning Tool Group.

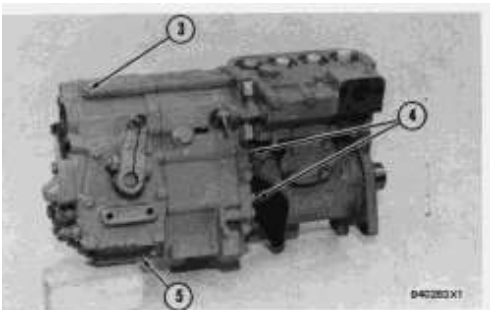
START BY:

- a. remove fuel injection pump housing and governor (new scroll fuel system effective in production with 10X5411-UP, 45V36536-UP)
- b. remove fuel transfer pump (new scroll fuel system effective in production with 10X5411-UP, 45V36536-UP)

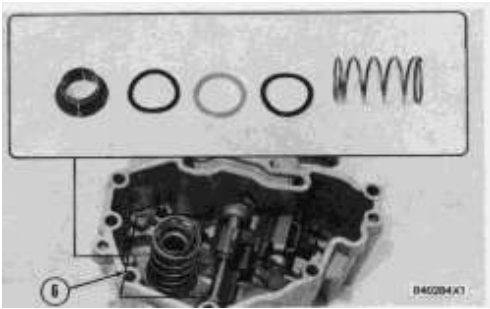
NOTE: If it is desired to remove only the governor so the fuel injection pump housing can be disassembled, do only Steps 1, 2, 15, 21, 25, 26, 27, 28, 31, 33, 34 and 37.



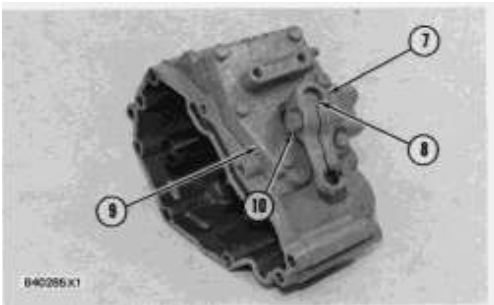
1. Remove bolts (1) and cover (2).



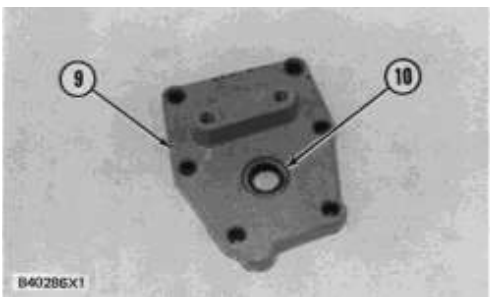
2. Remove six bolts (3), two top bolts (4), housing (5) and the gasket.



3. Remove governor spring (6), the two wave washers, one flatwasher and seat from the guide in the housing.

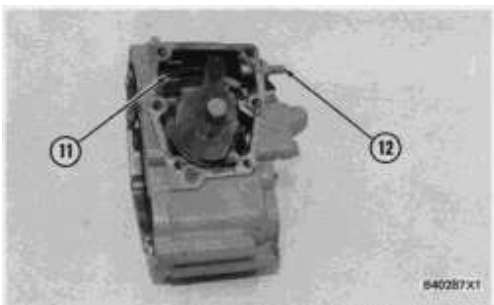


4. Make a mark of the position of lever (7) on shaft (8). Loosen bolt (10). Use a chisel or screwdriver to expand expansion of lever (7) so it can be removed from shaft (8).

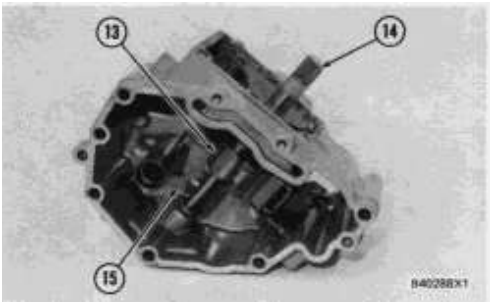


5. Remove cover assembly (9).

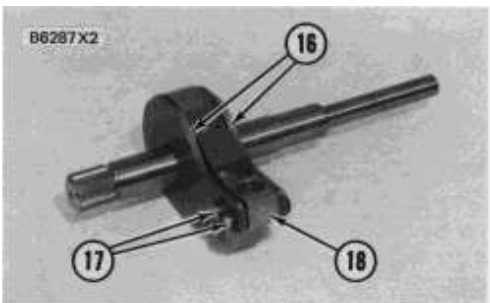
6. Use tooling (A) to remove seal (10) from cover (9).



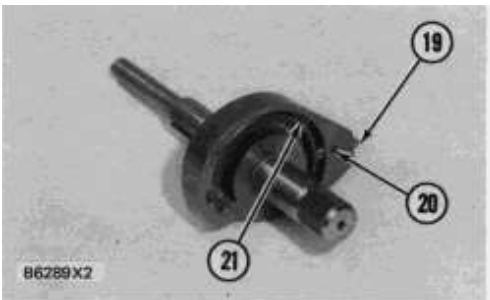
7. Remove low idle adjustment screw (12) and spring (11) from the housing.



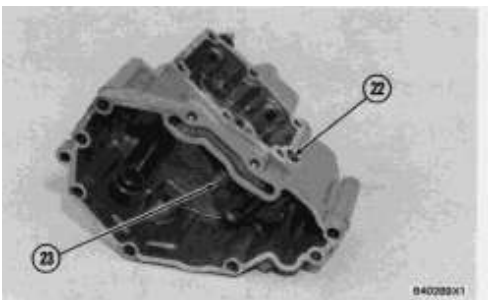
8. Remove shaft assembly (14), lever (13) and lever (15) from the housing.



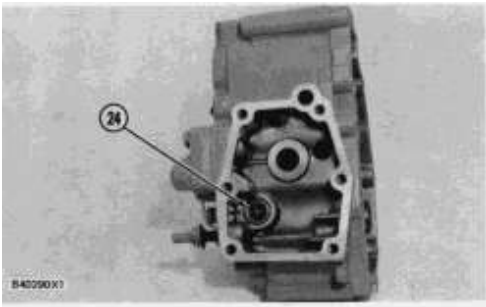
9. Remove two snap rings from pins (17), and remove pins (17). Remove plates (16) and stop (18) from the shaft assembly.



10. Remove pin (20), pin (19) and spring (21) from the shaft assembly.



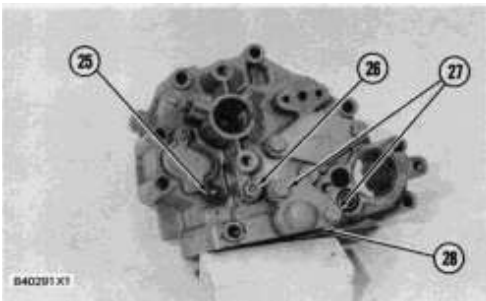
11. Remove shaft (22) and lever (23) from the housing.



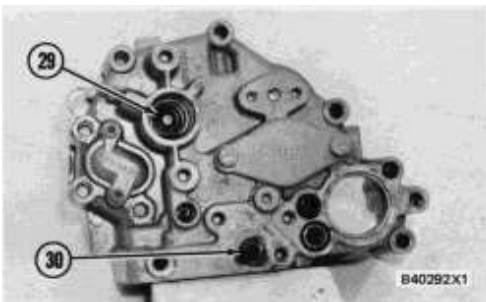
NOTICE

Remove check valve (24) only if a replacement is necessary because the check valve will be damaged during removal.

12. Remove check valve (24) if a replacement is necessary.



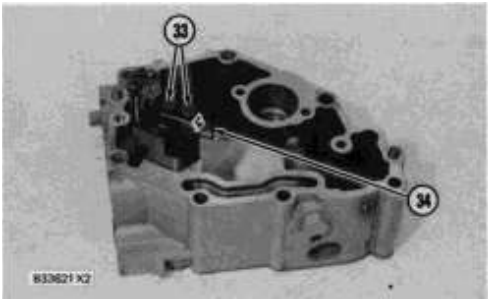
13. Remove contact (25) and body (26) for the governor dashpot adjustment screw from the housing. Remove bolts (27), cover (28) and the gasket from the housing.



14. Remove seal (29) and adjustment screw (30) for high idle.

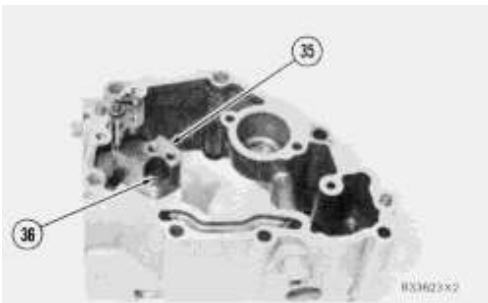


15. Remove two bolts (31), housing (32) and the gasket from the fuel injection pump housing.

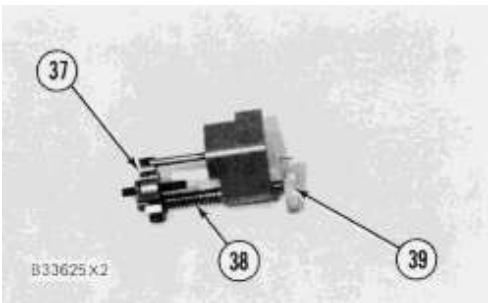


16. Remove bolts (33) and torque control group (34).

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

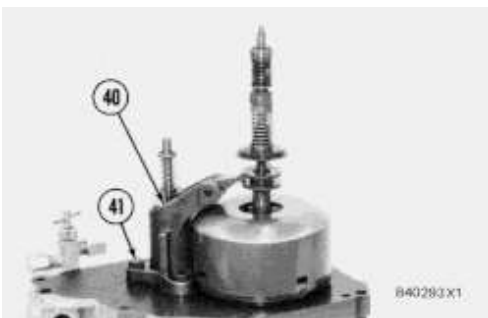


18. Remove bolts (36) and block (35) for the full load stop from the housing.

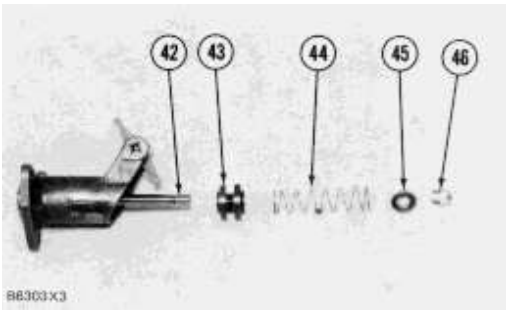


19. Remove the bolt that holds collar (37) to bolt (39). Remove collar (37) and spring (38) from bolt (39). Remove bolt (39) from the block.

20. Remove the stop screw from collar (37) if a replacement is necessary.

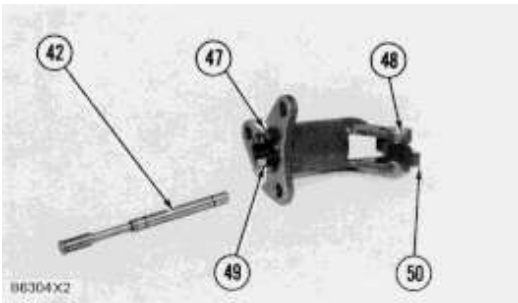


21. Remove bolts (41) and governor servo (40) from the fuel injection pump.



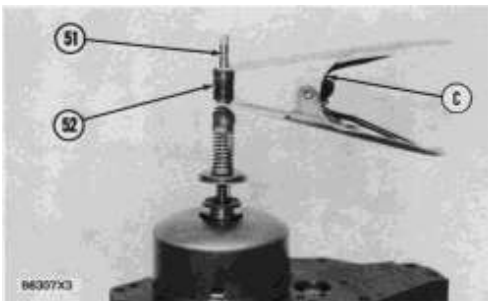
22. Remove lockring (46), seat (45), spring (broken link spring) (44) and sleeve (43) from valve (42). Remove the other lockring (46) from the groove in the center of valve (42).

NOTE: The groove in the bottom of valve (42) must be in alignment with the servo body to permit removal from the fuel rack.



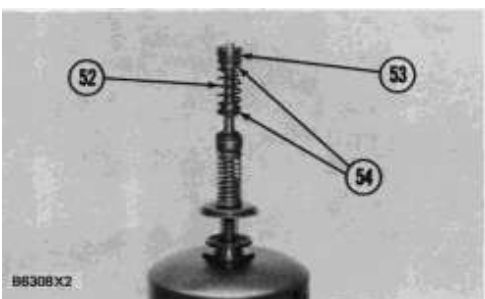
23. Remove valve (42), sleeve (47) and piston (49) from the governor servo. Remove the O-ring seal from sleeve (47).

24. Remove pin (48) and lever (50) from the governor servo.

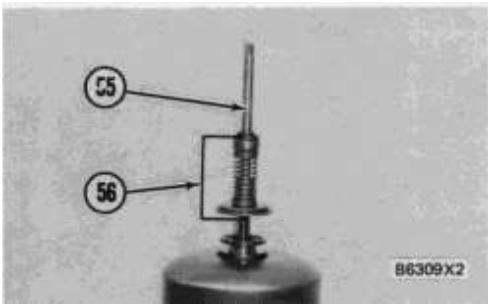


25. Use tool (C) to hold spring (52) in compression so ring (51) can be removed. Spring (52) is used to put a preload on the thrust bearing for the camshaft in the fuel injection pump housing.

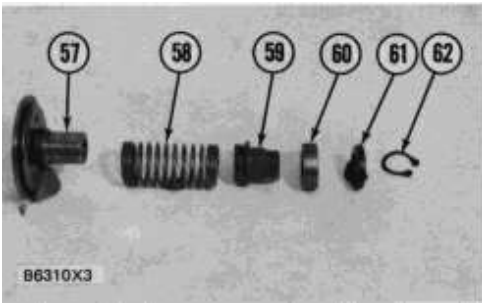
26. Remove ring (51); then remove tool (C).



27. Remove bearing (53), sleeves (54) and spring (52) from the governor shaft.

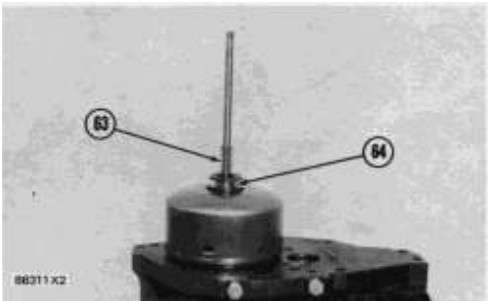


28. Remove ring (55) and dashpot assembly (56) from the governor shaft.

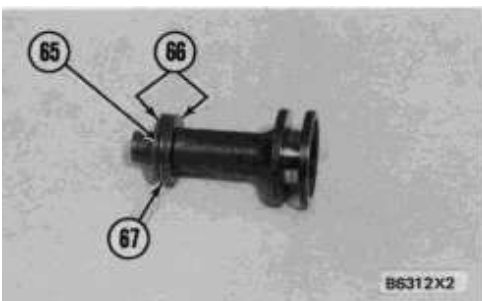


29. Use tool (B) to remove snap ring (62) from seat (59). Remove ring (61) and spool (60) from seat (59).

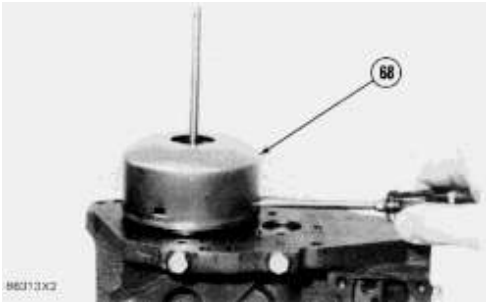
30. Remove seat (59) from spring (58), and remove spring (58) from seat (57).



31. Remove spring (overfueling spring) (63) and riser (64) from the governor shaft.

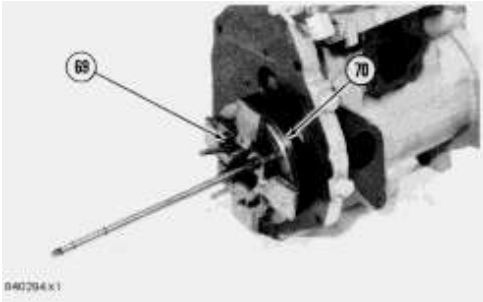


32. Remove ring (65), races (66) and bearing (67) from the riser.

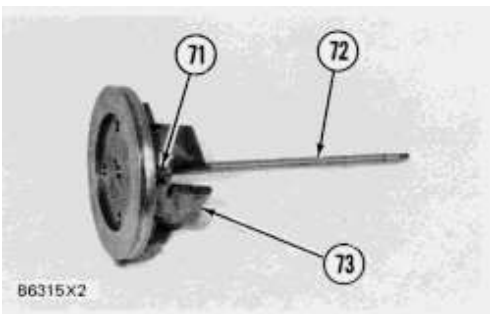


33. Use a screwdriver to remove shield (68) as shown.

NOTE: Make a replacement of shield (68) any time it is removed.

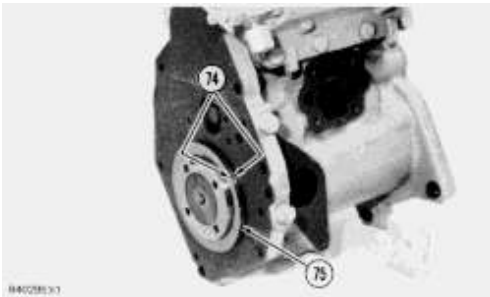


34. Remove bolts (69) and carrier (70) for the governor flyweights.



35. Remove dowels (71) and flyweights (73) from the carrier.

36. Remove shaft (72) from the carrier. Remove the dowel from shaft (72).

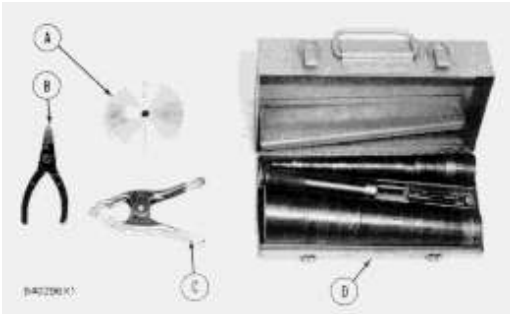


37. Remove races (74) and bearing (75) from the camshaft in the fuel injection pump housing.

Assemble Governor (New Scroll Fuel System Effective In Production With 10Y5411-UP, 45V36536-UP)

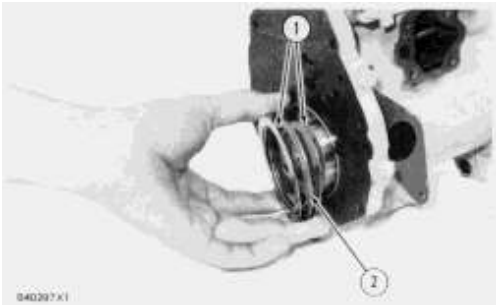
Tools Needed		A	B	C	D
6V2054	Driver*	1			
1P1855	Retaining Ring Pliers		1		
6V2163	Compressor Clamp*			1	
1P510	Driver Group				1

*Part of 6V4095 Tool Group.

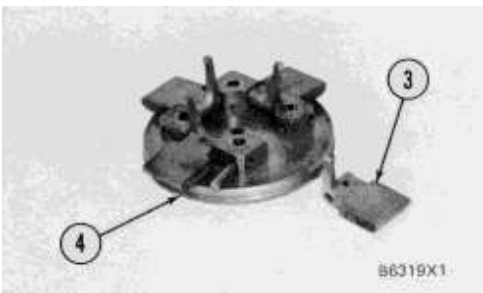


NOTE: If the governor was removed only to permit repair of the fuel injection pump housing, do only Steps 1, 4, 5, 7, 9, 10, 11, 16, 22, 37, 39 and 40.

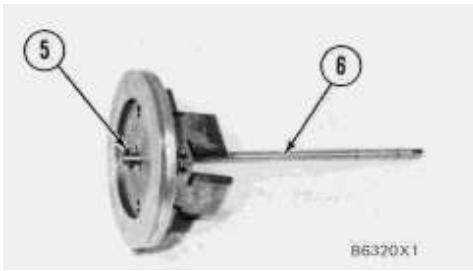
NOTE: Put clean oil on all parts before assembly. Be sure all oil passages are clear.



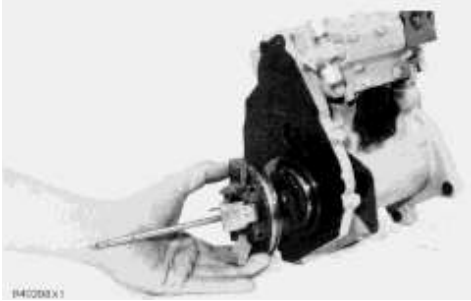
1. Install one race (1), bearing (2) and the other race (1) on the camshaft in the fuel injection pump housing.



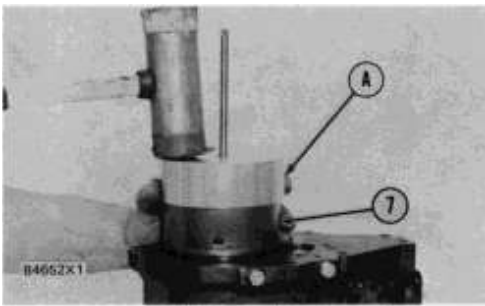
2. Put flyweights (3) in position on carrier (4), and install the dowels to hold the flyweights in place. The flyweights must move freely on the dowels and have 0.010 to 0.23 mm (0.0004 to 0.009 in.) end play.



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

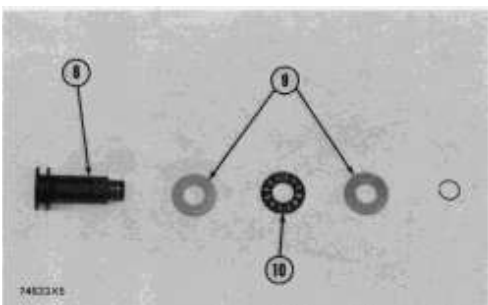


4. Put the carrier in position on the camshaft, and install the bolts that hold the carrier in place.

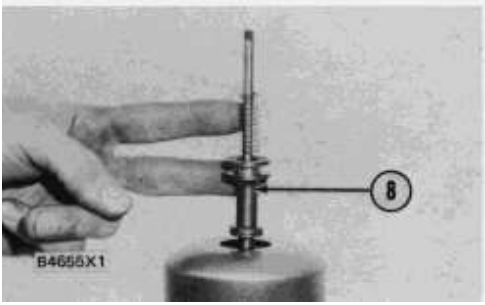


NOTE: Make a replacement of shield (7) any time it is removed.

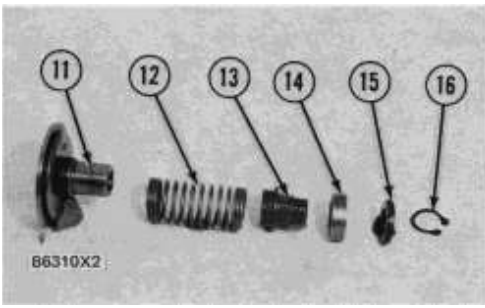
5. Install shield (7) on the carrier, and use tool (A) to push the shield against its seat. Use a hammer and punch to move the metal (stake) two places on the side of the shield $180^\circ \pm 5^\circ$ apart next to the holes in the shield.



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



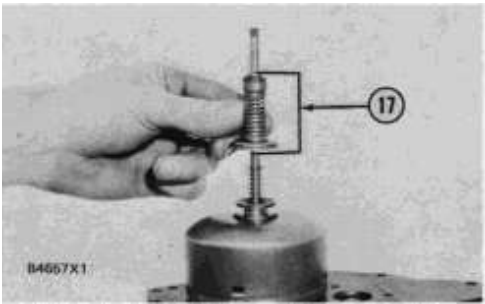
7. Install riser (8) and the spring (overfueling spring) on the governor shaft as shown.



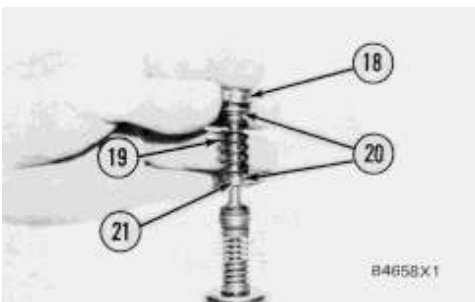
8. Assemble the dashpot as follows:

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 stop ring (16) to hold them in place.

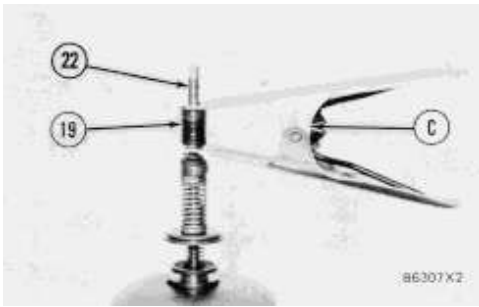


9. Install dashpot assembly (17) on the governor shaft as shown.

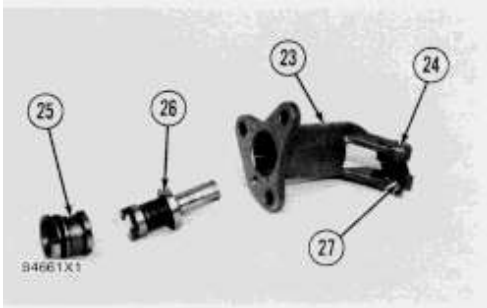


10. Install ring (21) in the lower groove in the governor shaft. Install one sleeve (20), spring (19), the other sleeve (20) and bearing (18) on the governor shaft as shown.

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

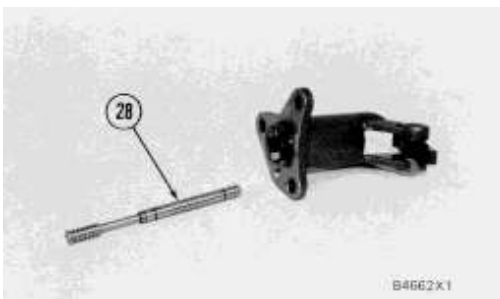


11. Use tool (C) to hold spring (19) in compression, and install ring (22) in the groove in the governor shaft. Remove tool (C).

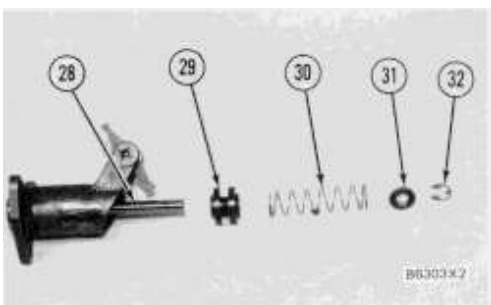


12. Put lever (27) in position on governor servo (23), and install pin (24) to hold the lever in place. Use a hammer and chisel to move the metal (stake) four places 90° apart on the outside surface on both legs of the governor servo to hold pin (24) in place.

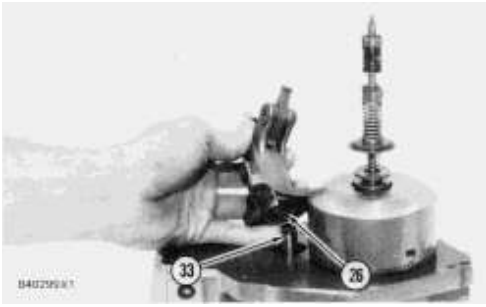
13. Install the O-ring seal on sleeve (25). Install piston (26) and sleeve (25) in the governor servo as shown.



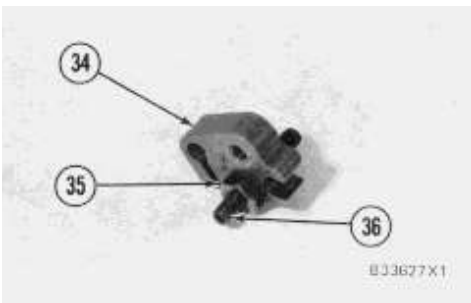
14. Install valve (28) in the governor servo as shown.



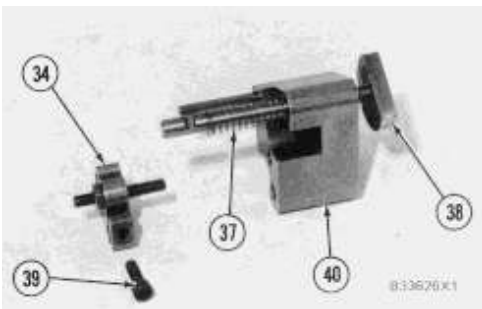
15. Install one lockring (32) in the groove near the center of valve (28). Put sleeve (29), spring (broken link spring) (30) and seat (31) in position on valve (28), and install the other lockring (32) to hold them in place.



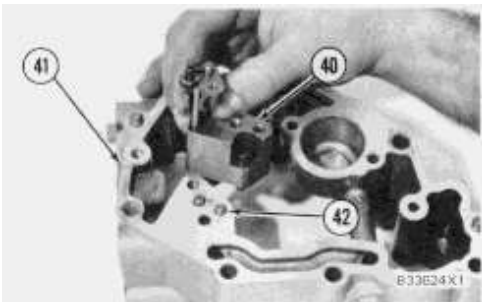
16. Put the governor servo in position on the fuel injection pump housing with piston (26) engaged over rack (33), and install the bolts that hold the governor servo in place.



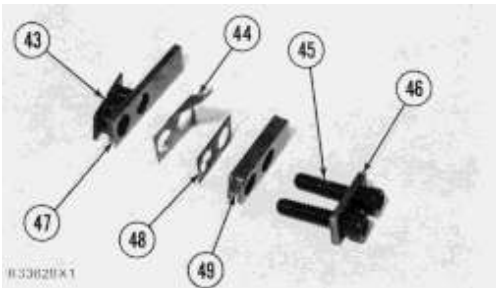
17. Install torque rise adjustment screw (36) in collar (34) as shown, and install locknut (35) on the screw.



18. Install bolt (38) in block (40) as shown. Install spring (37) on bolt (38) as shown. Put collar (34) in position on bolt (38) with the hole in the collar in alignment with the notch in bolt (38), and install bolt (39) to hold the collar in place.

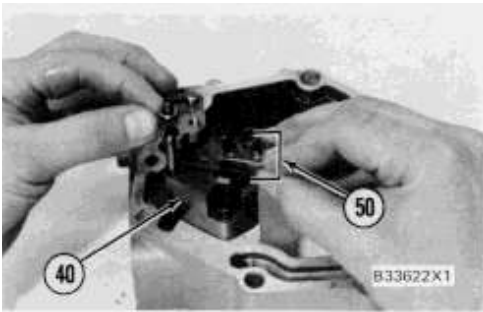


19. Put block (40) in position on housing (41) with the holes in the block in alignment with dowels (42). Install the bolts that hold the block in place.

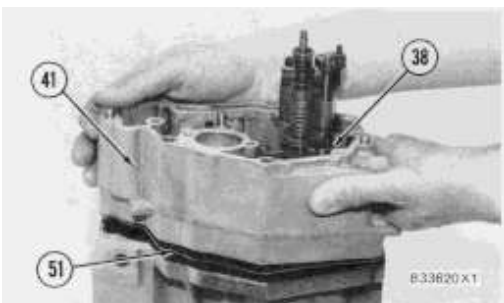


20. Assemble the torque control group as follows:

- a. Install bar (47), contact (44), spacer (48) on insulator (43) as shown.
- b. Install retainer (46), bar (49) and the insulator assembly on bolts (45) as shown.



21. Install torque control group (50) on block (40) as shown.



WARNING

If housing (41) is installed with the flange on bolt (38) on the wrong side of the dashpot, the riser in the governor will be held in the maximum fuel delivery position. To prevent possible personal injury, make sure housing (41) is installed on the fuel injection pump housing with the flange on bolt (38) behind the dashpot.

22. Install gasket (51) on the fuel injection pump housing. Put housing (41) in position on the fuel injection pump housing with bolt (38) behind the dashpot as shown. Install the bolts that hold housing (41) in place.

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