



# Service Repair Manual

## **Model**

322C EXCAVATOR

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Previous Screen

Product: EXCAVATOR  
 Model: 322C EXCAVATOR BNY  
 Configuration: ISJ HEX COMMONALITY CHART BNY00001-UP (MACHINE)

**Disassembly and Assembly  
 3114, 3116 and 3126 MUI Engine Governors**

Media Number -SEN6454-05

Publication Date -01/02/2002

Date Updated -01/03/2002

i01095686

## Governor (Type IV) - Disassemble

SMCS - 1264-015

### Disassembly Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1U-7307	Governor Repair Fixture <sup>(1)</sup>	1
B	1P-1855	Retaining Ring Pliers	1
C	1P-1857	Retaining Ring Pliers	1
D	1U-7606	Servo Block <sup>(1)</sup>	1
E	1U-7277	Pin Punch	1
F	1U-7635	Clevis Driver <sup>(1)</sup>	1

<sup>(1)</sup> Part of former 1U-9088 Governor Tool Group

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**NOTICE**

**Keep all parts clean from contaminants.**

**Contaminants may cause rapid wear and shortened component life.**

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**NOTICE**

**Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.**

**Refer to Special Publication, NENG2500, "Caterpillar Tools and Shop Products Guide" for tools and supplies suitable to collect and contain fluids on Caterpillar products.**

**Dispose of all fluids according to local regulations and mandates.**

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**Note:** Inspect all parts of the governor upon disassembly. For information on the reusability of components in the governor, refer to the Guideline For Reusable Parts And Salvage Operations, SEBF8434, "3100 Governor Inspection and General Information for Mechanical Governor Groups Used in 3114, 3116, and 3126 Engines Equipped with Mechanical Unit Injectors (MUI)". For information on cleaning the components in the governor, refer to the The Cleaning Guide, SEBF8354, "Equipment And Chemical Recommendations Reference Manual".

**Note:** Refer to Chart A "Parts to be Replaced During Rebuild" in Guideline For Reusable Parts And Salvage Operations, SEBF8434 for a list of components that need to be replaced during a governor rebuild. It is not necessary to replace the components in Chart A "Parts to be Replaced During Rebuild" if the governor is in the shop for a bench test or for minor repair.

**Note:** Refer to Chart B "Parts Replacement Chart" in Guideline For Reusable Parts And Salvage Operations, SEBF8434 for a list of components that need to be replaced when the servo assembly is serviced.

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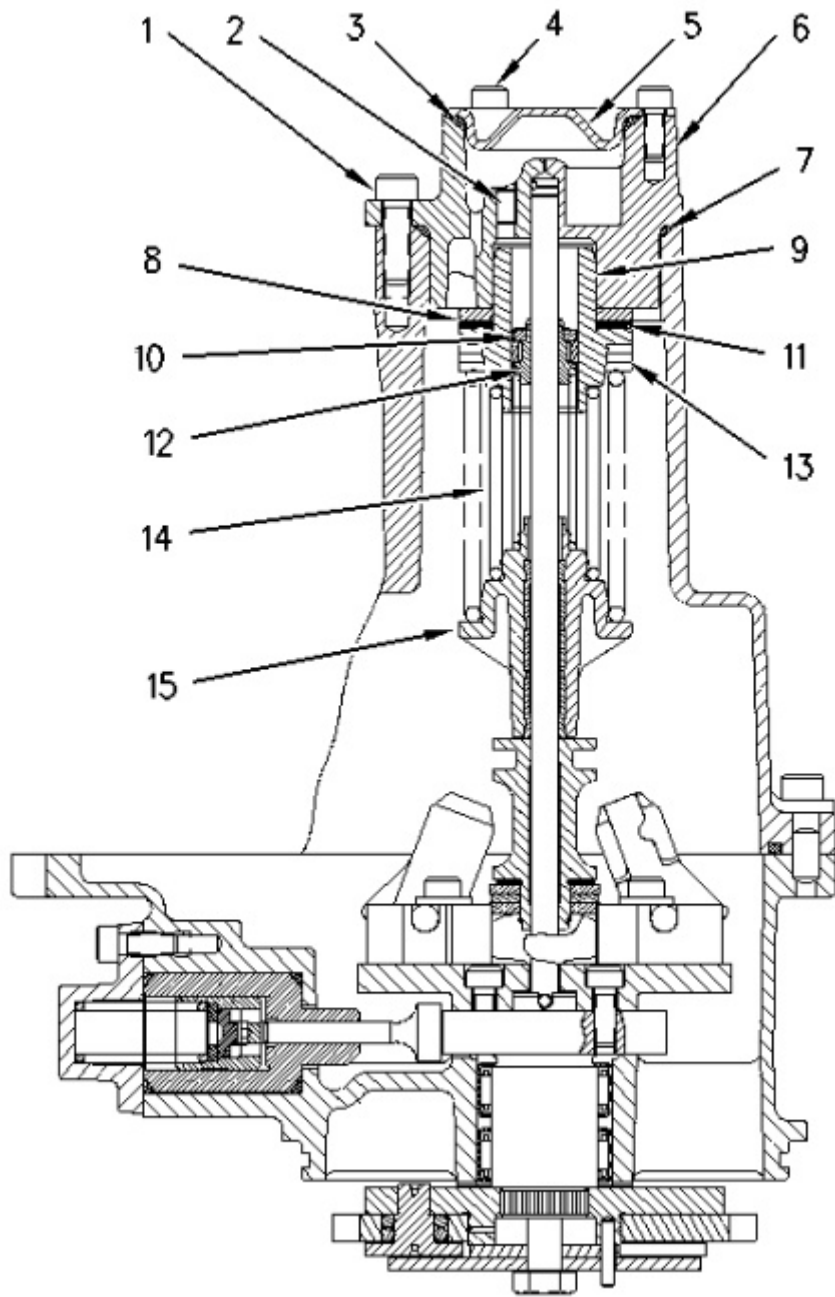


Illustration 1

g00521797

Typical Governor

- (1) Bolt
- (2) Orifice for the dashpot
- (3) O-ring seal
- (4) Bolt
- (5) Cover
- (6) Cover assembly
- (7) O-ring seal

- (8) Shims
- (9) Rear spring seat
- (10) Retaining ring
- (11) Spacer
- (12) Piston assembly for the dashpot
- (13) Shims for the high idle governor (if equipped)
- (14) Spring pair
- (15) Spring seat assembly

1. Mount the drive gear end of the governor on the **1U-7307** Governor Repair Fixture (Tool (A)).

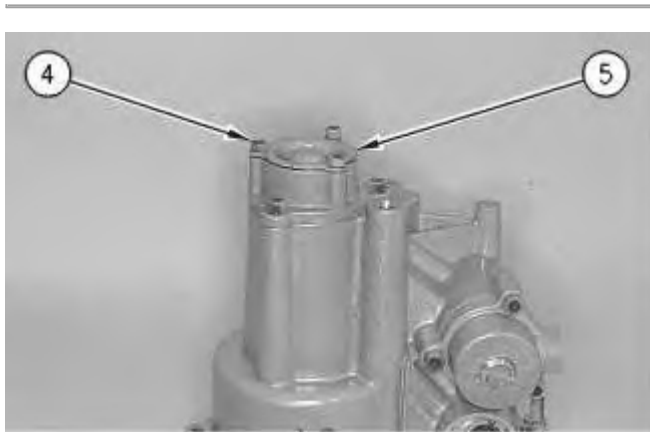


Illustration 2

g00521798

2. Remove three bolts (4) .
3. Remove cover (5) .



Illustration 3

g00521800

4. Remove O-ring seal (3) from cover (5). Check the O-ring seal for wear or damage. If the O-ring seal is worn or damaged, use a new part for replacement.

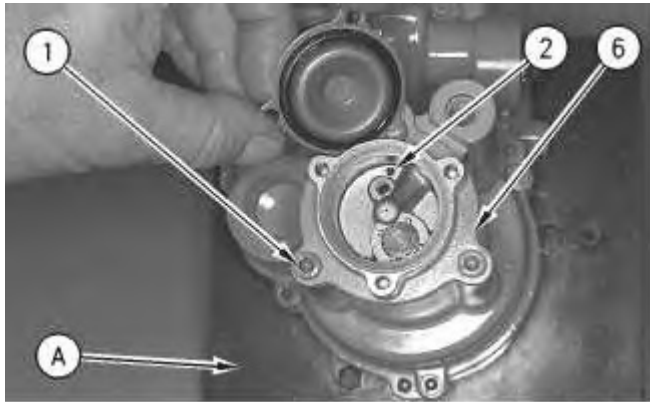


Illustration 4

g00521801

5. Ensure that orifice (2) for the dashpot is not plugged. Also ensure that orifice (2) is tight in the casting.

**Note:** The orifice for the dashpot may be drilled directly into the governor housing or the orifice may be a fitting that is staked into the governor housing. Ensure that all orifice fittings are staked into the governor housing before reassembly.

 **WARNING**

**Personal injury can result from being struck by parts propelled by a released spring force.**

**Make sure to wear all necessary protective equipment.**

**Follow the recommended procedure and use all recommended tooling to release the spring force.**

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6. Use the following procedure in order to remove cover assembly (6) .
    - a. Hold cover assembly (6) in position and slowly loosen bolts (1) in order to release the spring force.
    - b. Remove three bolts (1) from the cover assembly.
    - c. Remove cover assembly (6) .
-

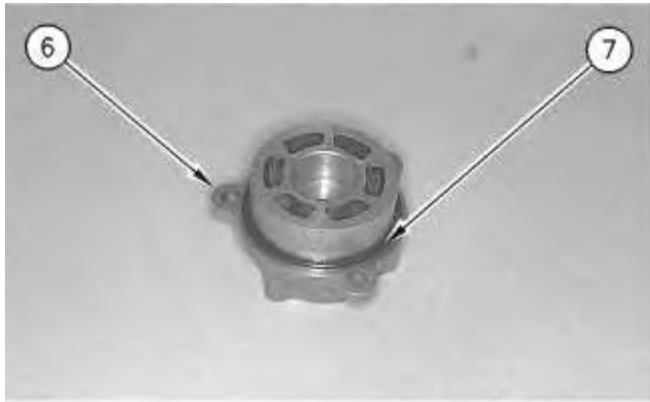


Illustration 5

g00521802

7. Remove O-ring seal (7) from cover assembly (6). Inspect the O-ring seal for wear or damage. If the O-ring seal is worn or damaged, use a new part for replacement.

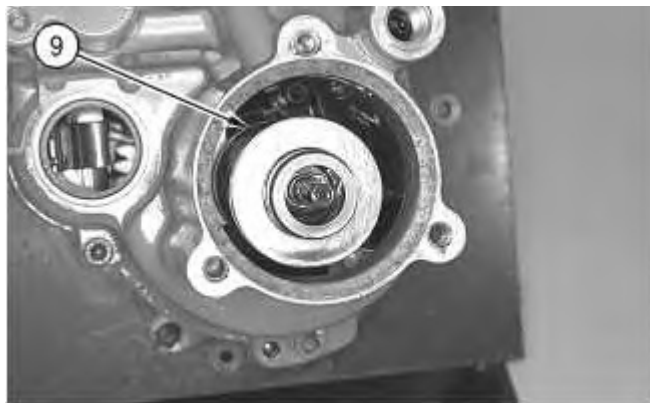


Illustration 6

g00521803

8. Remove governor spring seat (9) .

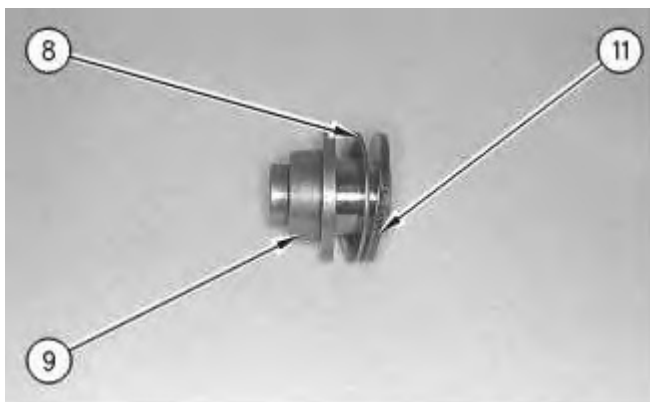


Illustration 7

g00522509

9. Remove spacer (11) and shims (8) from governor spring seat (9), if equipped.



Illustration 8

g00522514

10. Remove shims (13) for the high idle governor, if equipped.

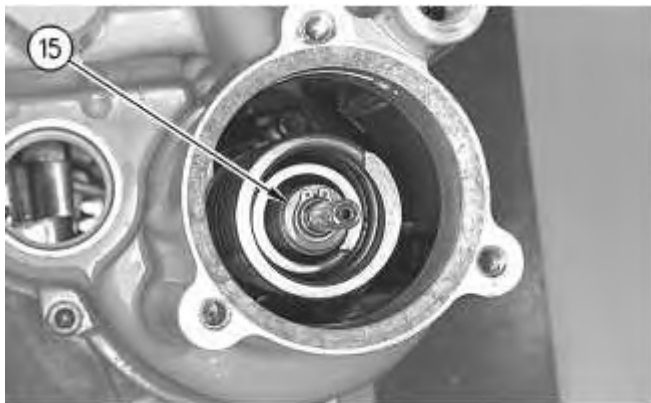
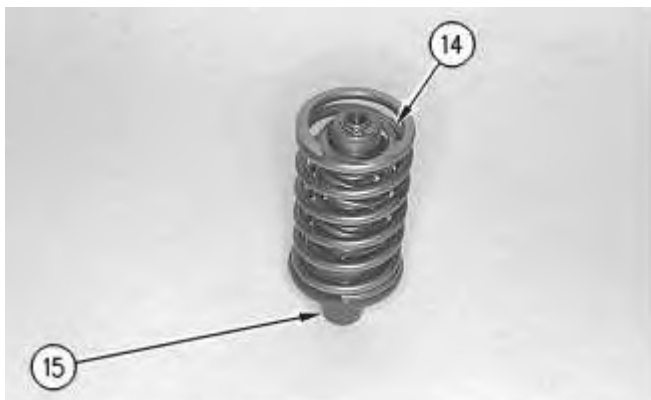


Illustration 9

g00522516

11. Remove spring seat assembly (15) from the governor.



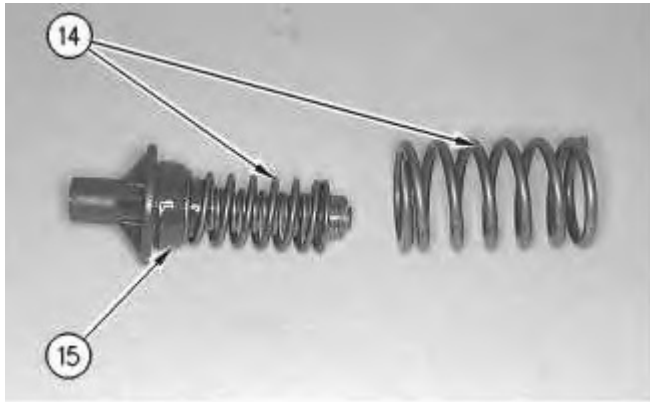


Illustration 11

**Note:** Spring pair (14) can be removed by unscrewing the coils of the springs from spring seat assembly (15). Replace the spring pair as a spring group package only. The dashpot spring (if equipped) does not need to be replaced as part of the governor spring package.

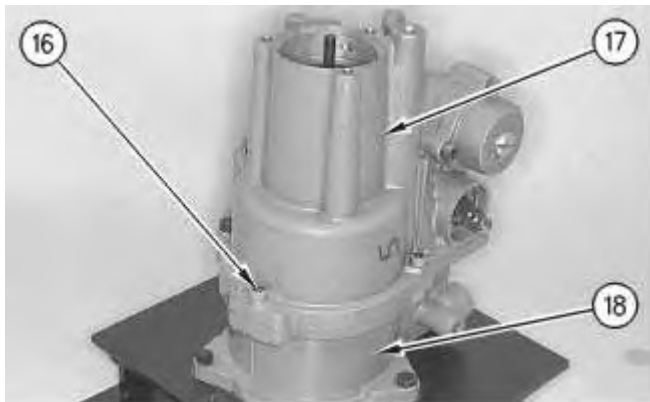


Illustration 12

12. Remove six bolts (16) in order to separate governor rear housing (17) from governor front housing (18) .

**Note:** Steps 13 through 34 are for the disassembly of the governor front housing. Steps 457 through 52 are for the disassembly of the governor rear housing.

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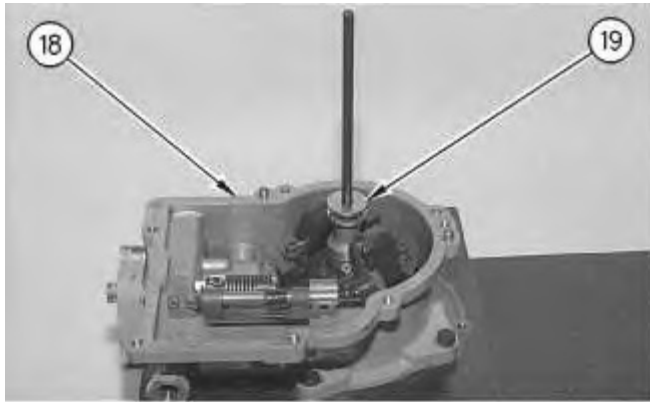


Illustration 13

g00522534

13. Remove riser (19) from governor front housing (18) .

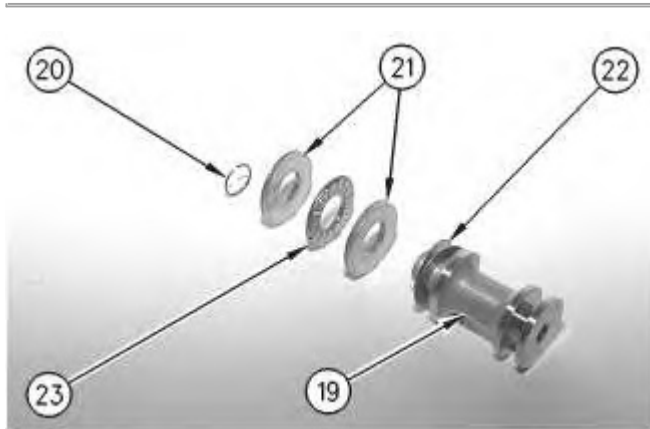


Illustration 14

g00522535

14. Remove retaining ring (20), two races (21), bearing (23) and shims (22) from riser (19) .

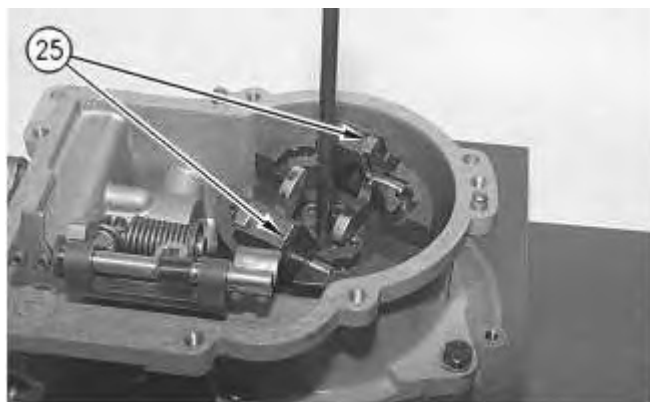


Illustration 15

g00522537

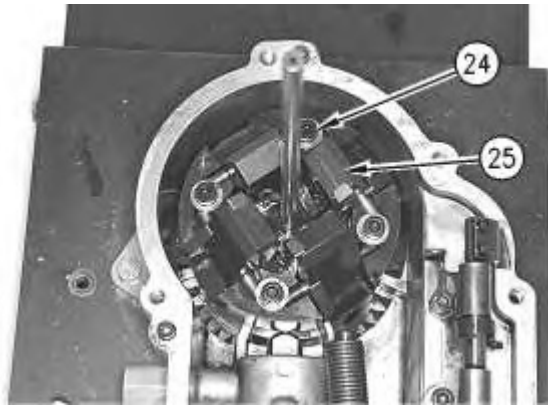


Illustration 16

g00575326

15. Remove four bolts and four washers (24) that hold the flyweights in position.
16. Remove flyweights (25) .

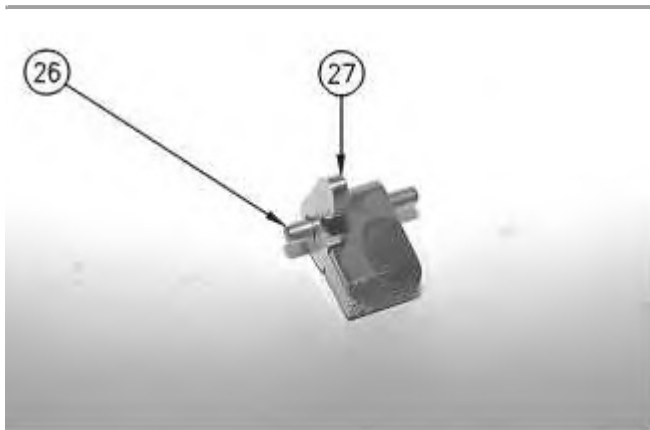


Illustration 17

g00522574

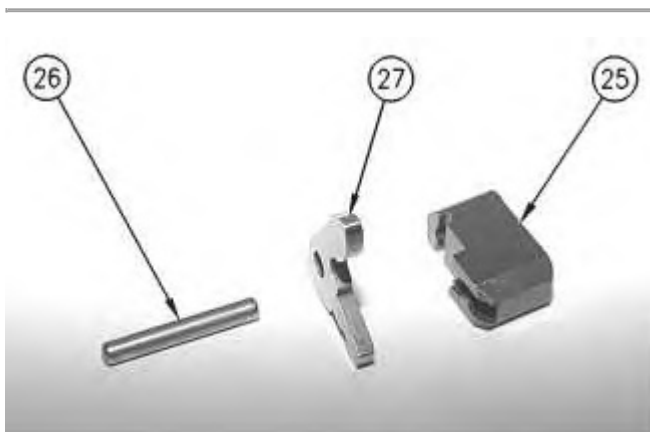


Illustration 18

g00522576

17. Remove flyweight pin (26). Inspect the pin for wear or damage. If the flyweight pin is worn or damaged, use a new part for replacement.
18. Remove flyweight (25) from flyweight toe (27). Inspect the flyweight toe for wear or damage. If the flyweight toe is worn or damaged, use new parts for replacement.

**Note:** Keep all parts of each flyweight together for assembly.

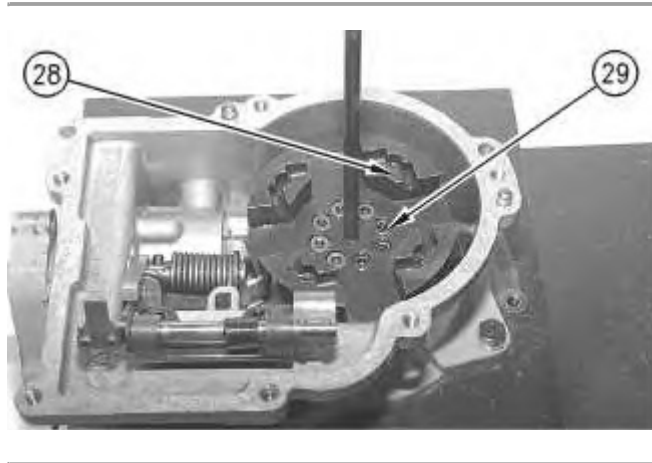


Illustration 19

g00522577

19. Hold flyweight carrier (28) in order to prevent the flyweight carrier from rotating and remove eight carrier bolts (29) .

**Note:** Upon assembly, do not reuse eight carrier bolts (29). Replace the used carrier bolts with new carrier bolts.

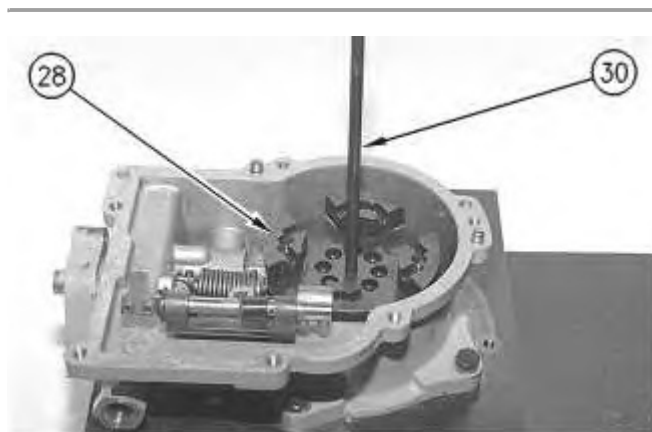


Illustration 20

g00522581

20. Remove flyweight carrier (28) and riser shaft (30) .
-

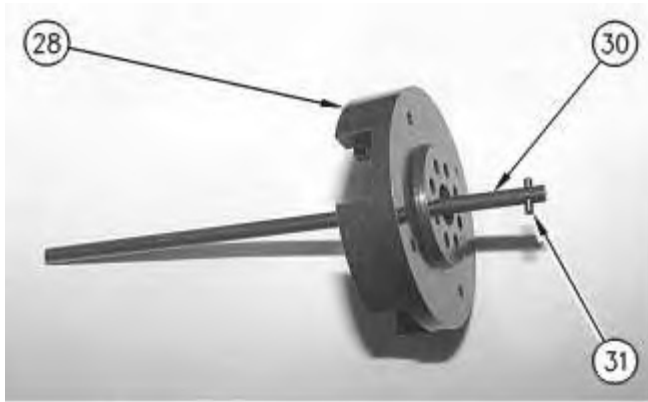


Illustration 21

g00522582

21. Remove pin (31) from riser shaft (30). Remove riser shaft (30) from flyweight carrier (28). Inspect riser shaft (30) for wear or damage. If the riser shaft is worn or damaged, use a new part for replacement.

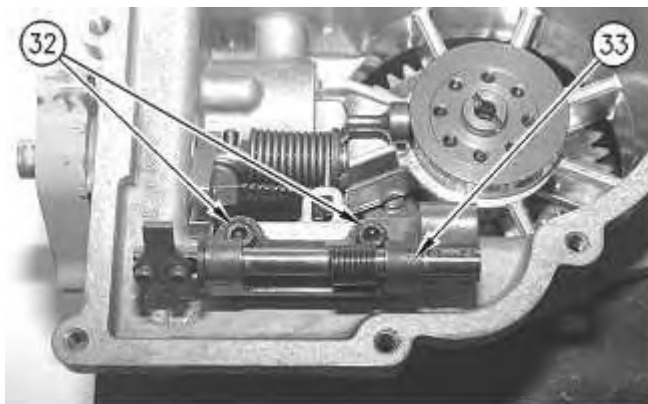


Illustration 22

g00522819

**Note:** Two types of shutoff assemblies are used. The first type was used on Types I, II, and III governors. The second type has a spring that is preloaded in the opposite direction. This is the bias spring.

22. Remove two bolts (32) .
23. Remove shutoff assembly (33). Inspect the shutoff assembly for wear or damage.

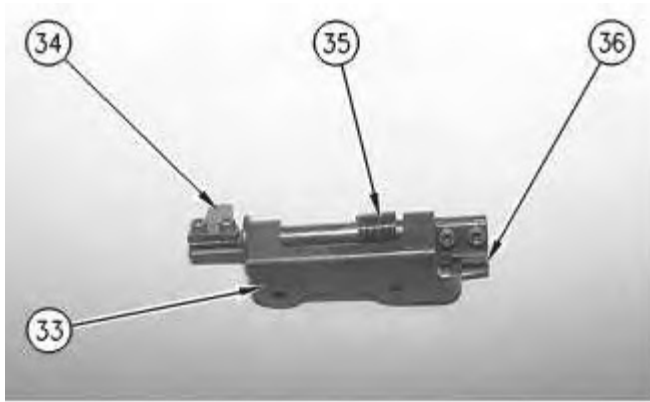


Illustration 23

g00522821

24. If necessary, remove blade (34) and blade (36). Do not remove spring (35) .

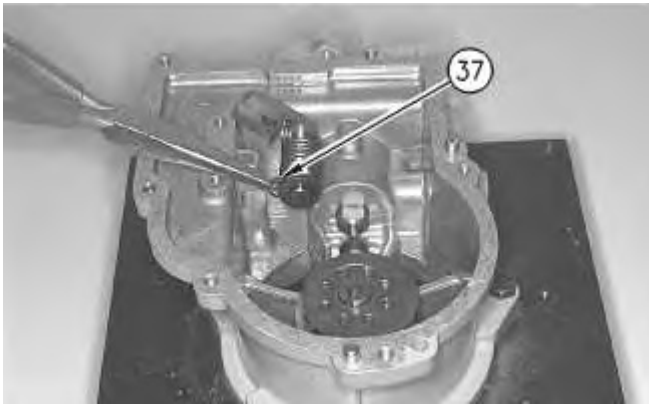


Illustration 24

g00575331

25. Use needle nose pliers to remove retaining ring (37) .

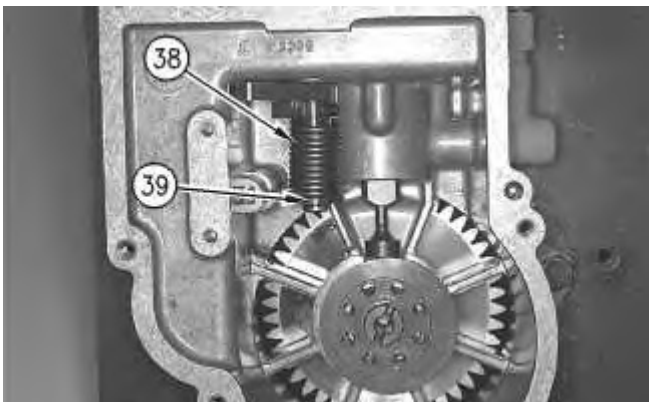


Illustration 25

g00575458

26. Remove spacer (39) and throttle spring (38) .

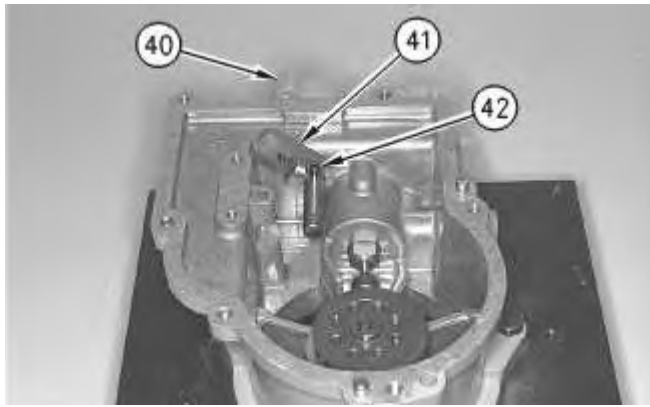


Illustration 26

g00575459

27. Remove setscrew (42) and control lever (41) from throttle shaft (40) .

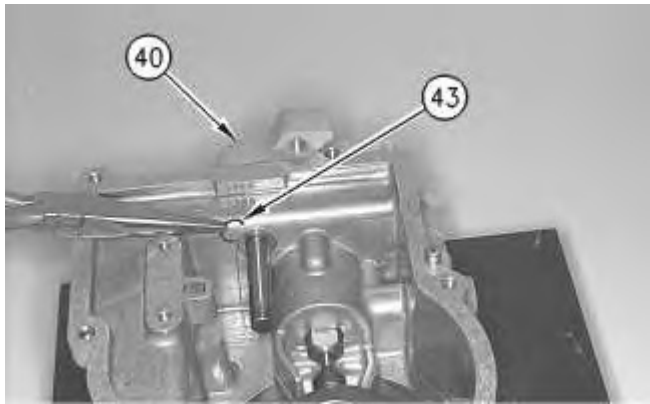
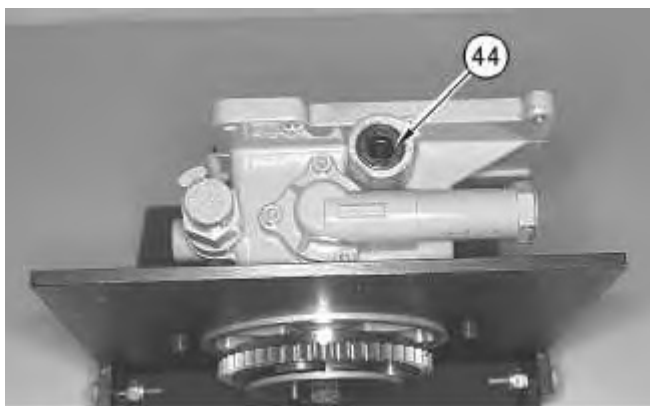


Illustration 27

g00575467

28. Use needle nose pliers to remove retaining ring (43). Remove throttle shaft (40) from the governor front housing. Inspect the throttle shaft for wear or damage.



29. Inspect throttle shaft seal (44) carefully for wear or damage. If the seal is worn or damaged, use a new part for replacement.

**! WARNING**

**Personal injury can result from being struck by parts propelled by a released spring force.**

**Make sure to wear all necessary protective equipment.**

**Follow the recommended procedure and use all recommended tooling to release the spring force.**

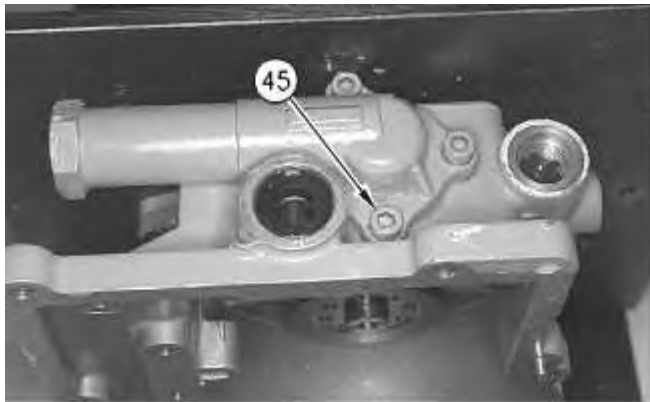


Illustration 29

g00575485

30. Remove three bolts (45). Carefully remove the cover from the fuel transfer pump.

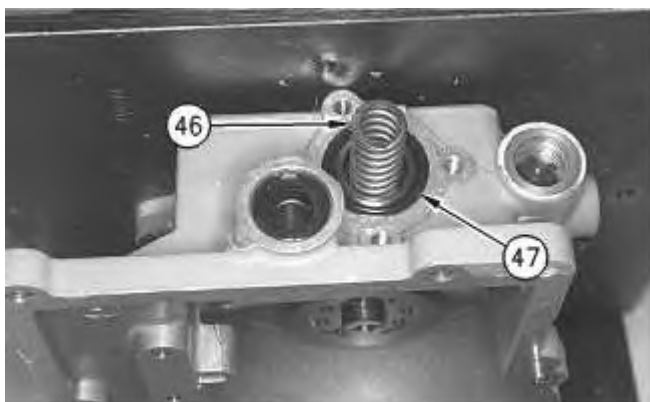


Illustration 30

g00575489

31. Remove spring (46) and O-ring seal (47). Inspect the O-ring seal for wear or damage. If the O-ring seal is worn or damaged, use a new part for replacement.

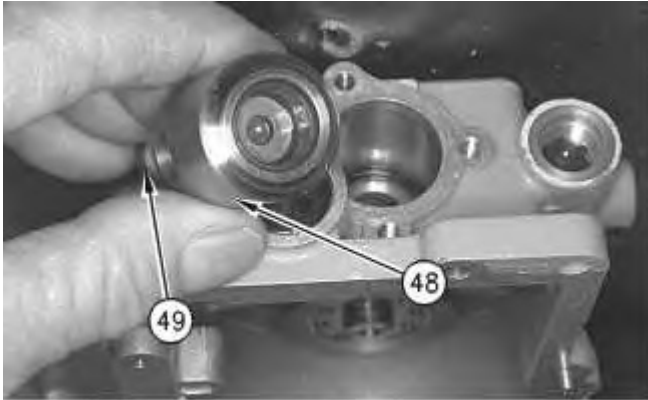


Illustration 31

g00575490

32. Remove sleeve assembly (48) and tappet (49) .

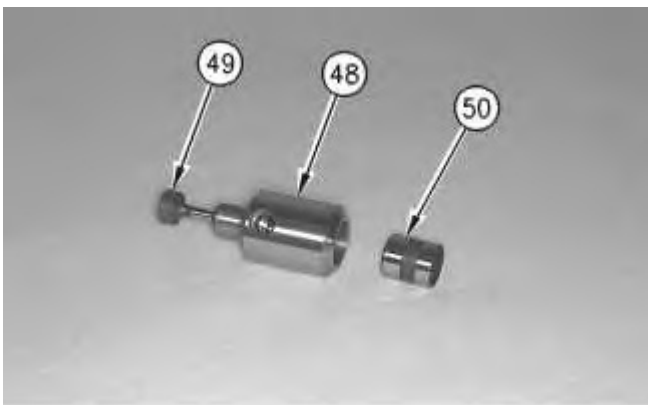
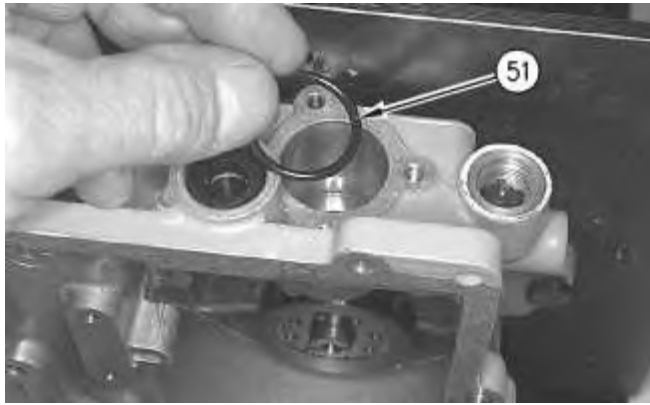


Illustration 32

g00575516

33. Remove piston (50) from sleeve assembly (48). Inspect piston (50) and sleeve assembly (48) for wear or damage. If the piston or the sleeve assembly are worn or damaged, use new parts for replacement.
-



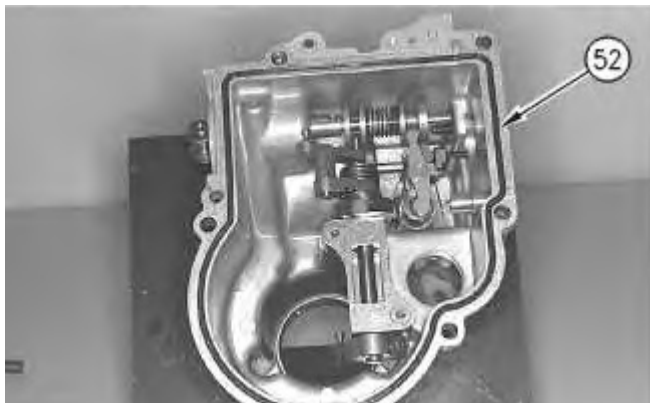
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Illustration 33

g00575519

34. Remove lower O-ring seal (51) from the fuel transfer pump housing. Inspect the O-ring seal for wear or damage. If the O-ring seal is worn or damaged, use a new part for replacement.

**Note:** Remove the governor front housing from Tool (A). Install three legs on Tool (A) and mount the governor rear housing on the three legs.



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Illustration 34

g00575527

35. Remove seal (52) from the governor rear housing. Inspect the seal for wear or damage. If the seal is worn or damaged, use a new part for replacement.
-



Illustration 35

g00575534

36. Remove stop screw (53) for the bumper spring, if necessary.

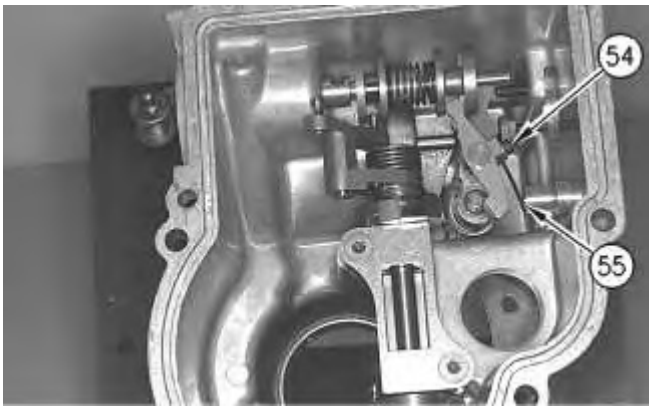


Illustration 36

g00575538

37. Remove bolt (54) and bumper spring (55), if necessary.

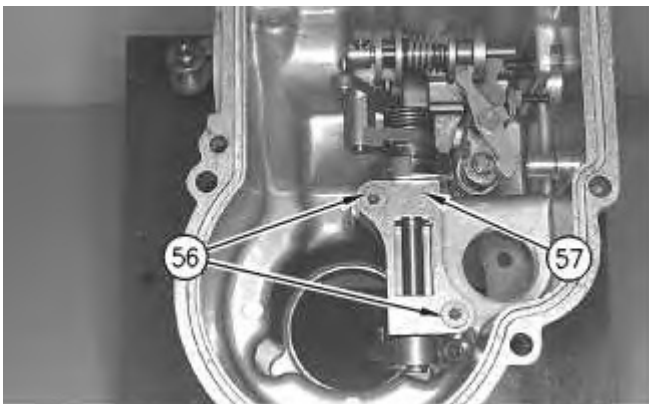


Illustration 37

g00575542

38. Remove two bolts (56) and bearing block assembly (57) .

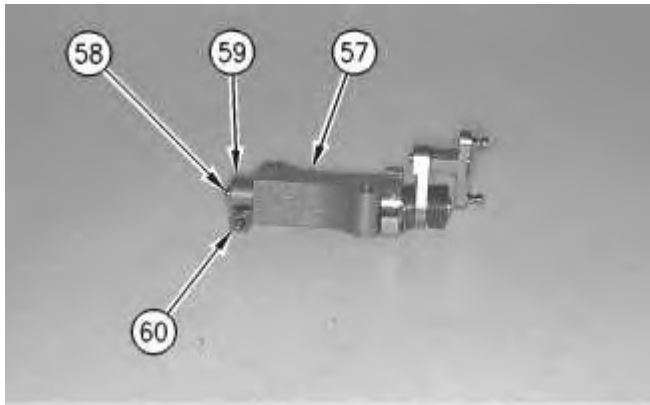


Illustration 38

g00575546

39. Loosen bolt (60) and use Tool (B) to remove retaining ring (58). Remove riser lever (59) from bearing block assembly (57) .

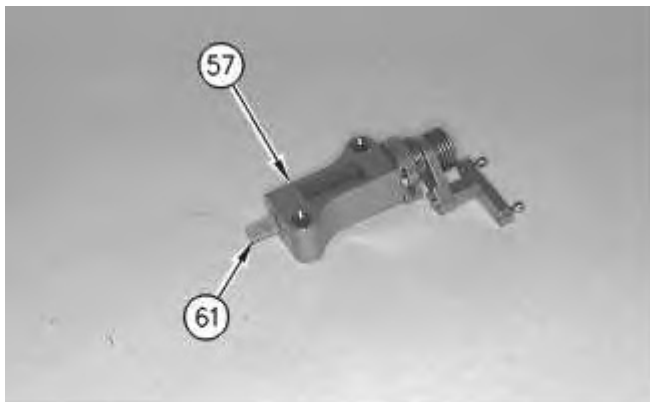
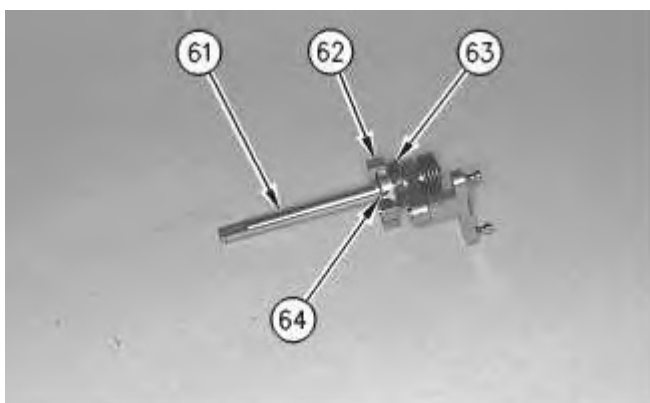


Illustration 39

g00575551

40. Remove bearing block assembly (57) from pivot shaft (61) .



41. Remove torque cam (62), torsion spring (63) and adjuster (64) for the torque cam from pivot shaft (61). Remove the fulcrum spring from the end of pivot shaft (61). Inspect the condition of the parts on pivot shaft (61). If any of the parts are worn or damaged, use new parts for replacement.

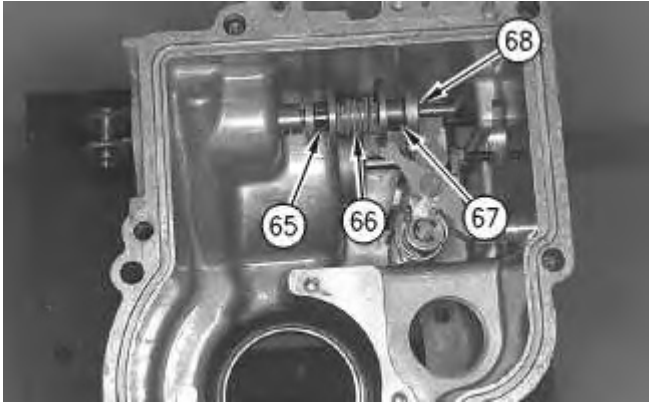


Illustration 41

42. Push limit sleeve (67) and control sleeve (65) toward each other in order to compress spring (66). Remove retaining ring (68) when retaining ring (68) becomes exposed.

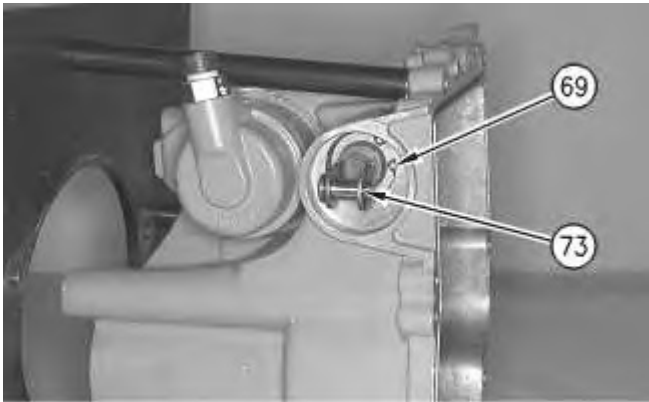
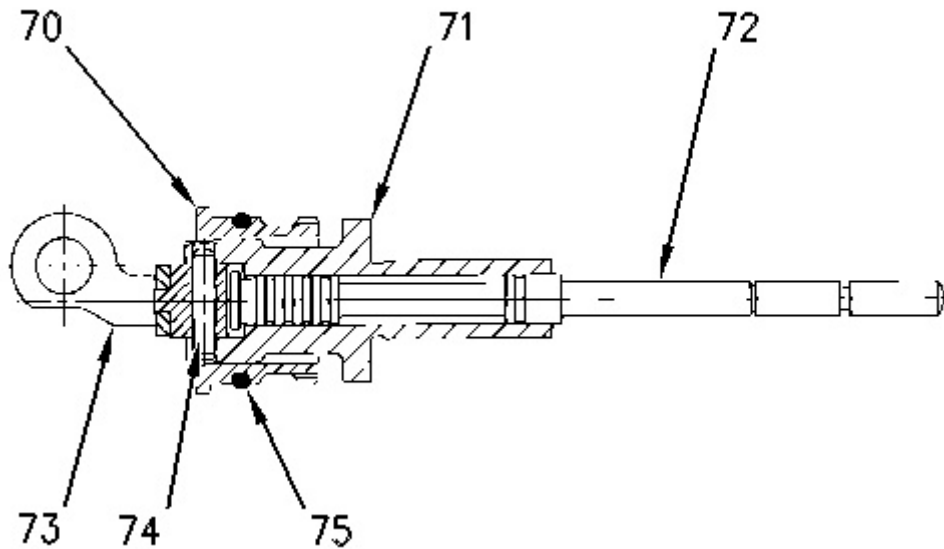


Illustration 42

43. Remove retaining ring (69) on the governor output servo with Tool (C). Remove the governor output servo by pulling out on clevis (73) .

**Note:** Limit sleeve (67), spring (66) and control sleeve (65) will come out of the governor housing when the governor output servo is removed.



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Illustration 43

g00523034

Governor Output Servo (Earlier Style)

(70) Sleeve

(71) Servo piston

(72) Servo Valve

(73) Clevis

(74) Spring pin

(75) O-ring seal

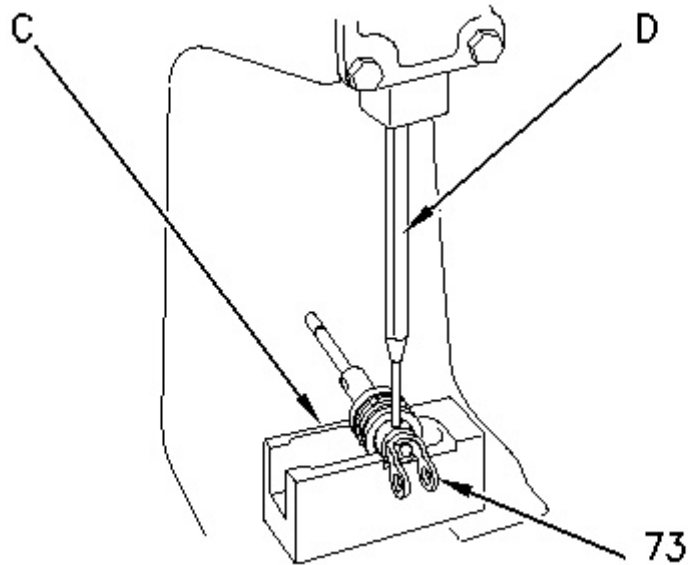
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## NOTICE

**The servo could come apart during engine shutdown if you fail to replace the parts that are listed in Chart B "Parts Replacement Chart" in the Guideline For Reusable Parts And Salvage Operations, SEBF8434. The engine will not start if the servo comes apart.**

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44. Use the following procedure to disassemble the earlier style of governor output servo assembly.
    - a. Slide sleeve (70) against servo piston (71) .
-



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Illustration 44

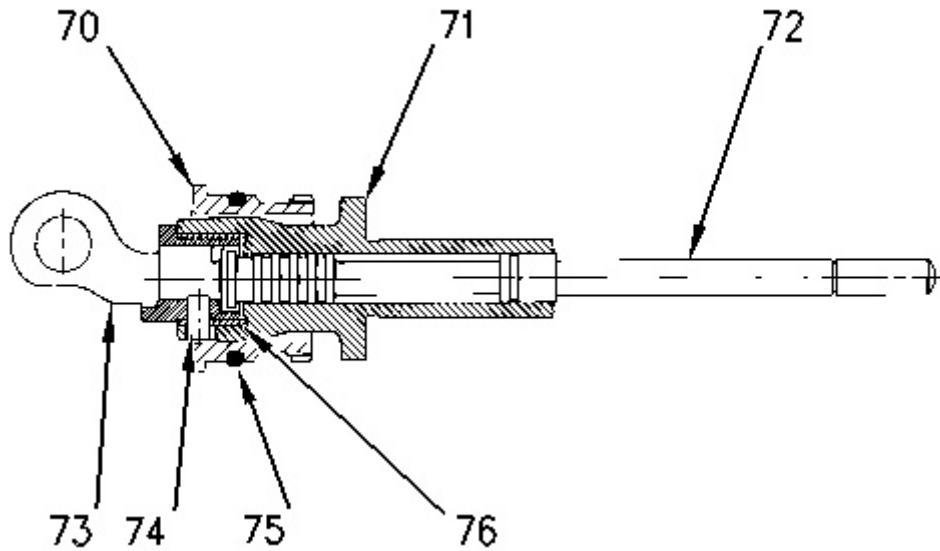
g00523035

(D) 1U-7606 Servo Block

(E) 1U-7277 Pin Punch

(73) Clevis

- b. Position Tool (D) on the side so the notch is facing upward. Place the governor output servo so the sleeve is in the recess of Tool (D). The clevis end of the governor output servo should be located on the side of Tool (D). Rotate the governor output servo assembly so spring pin (74) is facing upward. Use Tool (E) to press spring pin (74) through both parts.
  - c. Remove clevis (73), sleeve (70) and servo valve (72). Remove O-ring seal (75). Check the O-ring seal for wear or damage. If the O-ring seal is worn or damaged, use a new part for replacement.
45. Inspect all parts for wear or damage. If the parts are worn or damaged, use new parts for replacement.
-



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Illustration 45

g00523041

Governor Output Servo (Later Style)

(70) Sleeve

(71) Servo piston

(72) Servo Valve

(73) Clevis

(74) Spring pin

(75) O-ring seal

(76) Tolerance ring

46. Use the following procedure to disassemble the later style of governor output servo assembly.

- a. Slide sleeve (70) against servo piston (71) .
-

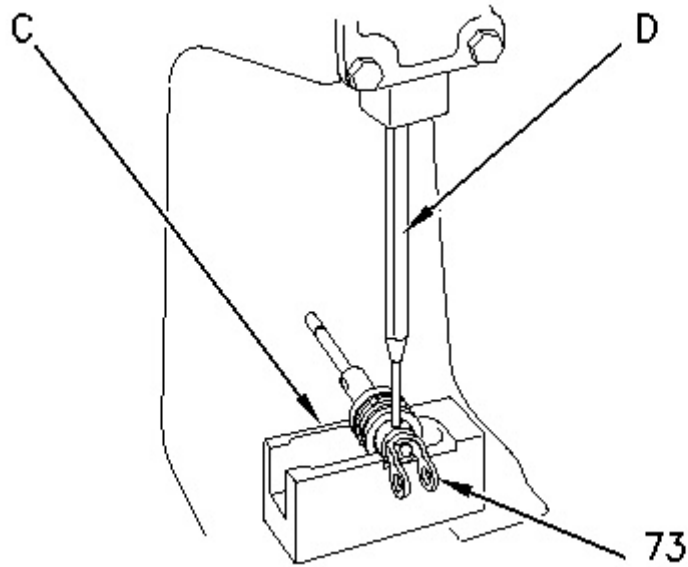


Illustration 46

g00523035

(D) 1U-7606 Servo Block

(E) 1U-7277 Pin Punch

(73) Clevis

- b. Position Tool (D) on the side so the notch is facing upward. Place the governor output servo so the sleeve is in the recess of Tool (D). The clevis end of the governor output servo should be located on the side of Tool (D). Rotate the assembly so spring pin (74) is facing upward. Use Tool (E) to press spring pin (74) through both parts.

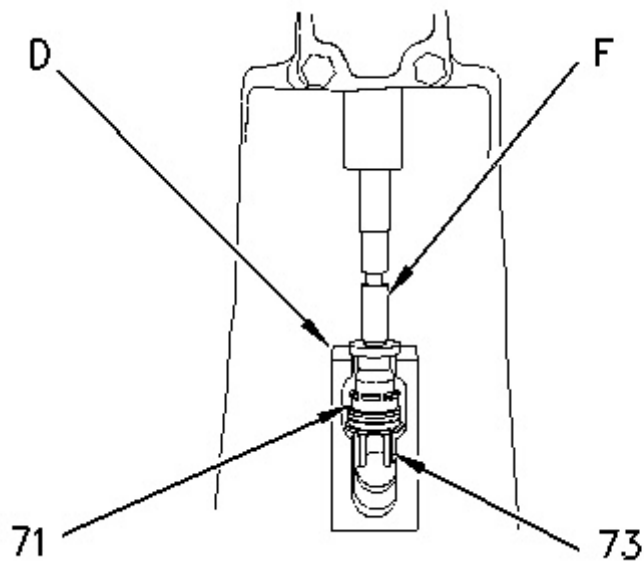


Illustration 47

g00523042

(D) 1U-7606 Servo Block



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(F) 1U-7635 Clevis Driver

(71) Servo piston

(73) Clevis

- c. Position Tool (D) on the end so the notch end is facing upward. Hold the governor output servo so the clevis is pointing downward. Slide sleeve (70) down the clevis as far as possible. Do not force the sleeve. Slide the entire assembly into Tool (D) from the open side. Position the assembly so the flange with the large diameter on servo piston (71) rests on the top surface of Tool (D) .
- d. Slide Tool (F) over the end of servo valve (72). Position the driver so the end with the smaller diameter is against the shoulder of servo valve (72). Press against the end of the driver until clevis (73) is removed from the governor output servo.
- e. Remove sleeve (70), servo valve (72), O-ring seal (75) and tolerance ring (76) .

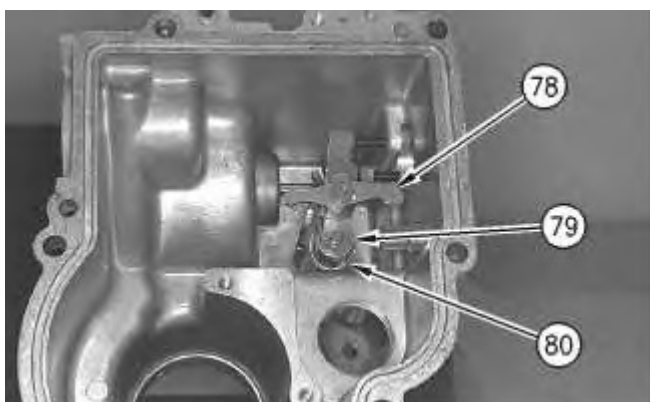
47. Inspect all parts for wear or damage. If the parts are worn or damaged, use new parts for replacement.



Illustration 48

g00575614

48. Remove retaining clip (77) .



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