

SMCS - 1264, 1272

SENR74100018

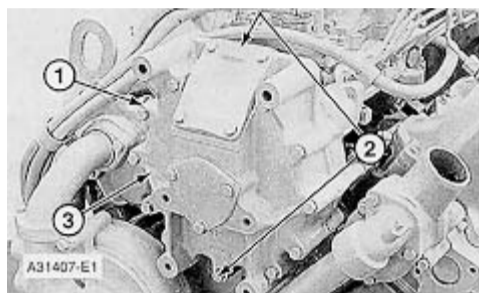
Remove Automatic Timing Advance

Tools Needed		A
9S9082	Engine Turning Pinion	1

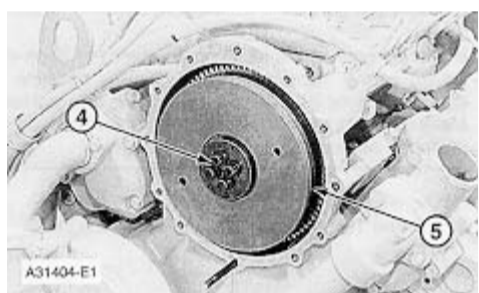
Start By:

a. remove expansion tank and water lines (marine engine)

1. Turn the engine counterclockwise (as seen from the flywheel end of the engine) with tool (A) until the No. 1 piston is at top center (TC) on the compression stroke and the timing bolt can be installed in the flywheel. See Top Center (TC) for No. 1 piston in Testing and Adjusting.



2. Remove ten bolts (1) and two nuts (not shown). Remove cover (3).

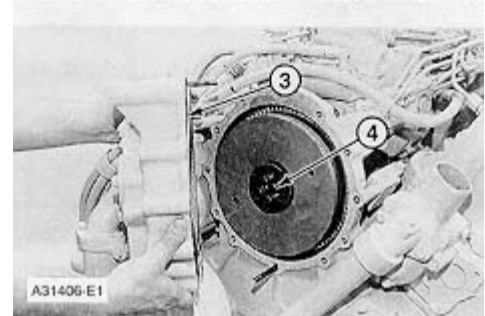
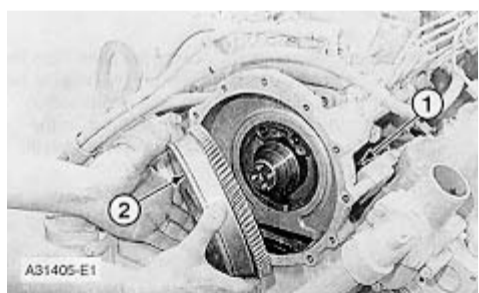


3. Remove four bolts (4) and retainer.

4. Remove automatic timing advance (5).

Install Automatic Timing Advance

Tools Needed		A	B
9S9082	Engine Turning Pinion	1	
5P9697	Timing Pin		1



1. Put automatic timing advance (2) in position in housing (1). Install retainer and bolts (4).

2. Check fuel injection pump timing with Tool (B). See Fuel System Adjustments: On Engine, Timing Pin Method of timing in Testing and Adjusting.

3. Tighten bolts (4) evenly to a torque of **25 N·m (20 lb ft)**. Remove Tool (B).

4. Tighten bolts (4) to a torque of **135 ± 7 N·m (100 ± 5 lb ft)**. Remove the timing pin from the flywheel.

5. Turn the crankshaft two complete turns and check the camshaft timing again.

6. Install cover (3).

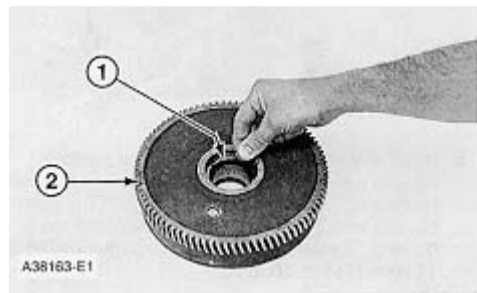
End By:

- a. install expansion tank and water lines (marine engine)

Disassemble Automatic Timing Advance

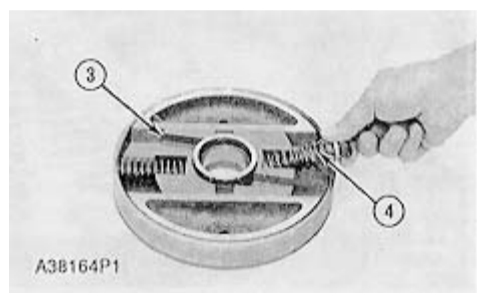
Start By:

- a. remove automatic timing advance



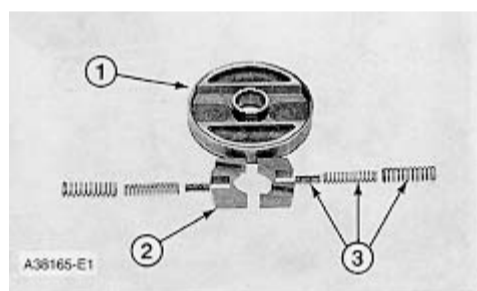
1. Remove ring (1) and gear assembly (2) from the flange assembly.

2. Remove the sides from the weights.



3. Remove springs (4) and weights (3) from the flange assembly.

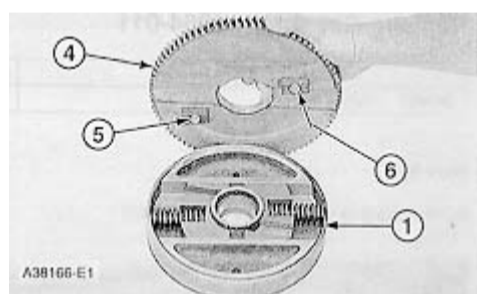
Assemble Automatic Timing Advance



1. Put weights (2) in position in flange assembly (1) as shown.

2. Install springs (3) in flange assembly (1).

NOTE: Low Speed Engine timing advance has only one spring for each weight.



3. If pistons (6) were removed from the gear assembly because of wear, use new parts for replacement. Install new pistons (6) until they are **11.05 ± .13 mm (.435 ± .005 in)** above the inside surface of gear assembly (4). Move the metal (peen) on the outside surface gear assembly (4) in four places around each piston to hold them in position.

4. Use **1P808 General Purpose Lubricant** to hold sides (5) in position on gear assembly (4).

5. Install gear assembly (4) on flange assembly (1). Make sure sides (5) fit in grooves of the weights.

6. Install the ring that holds gear assembly (4) on the flange assembly.

End By:

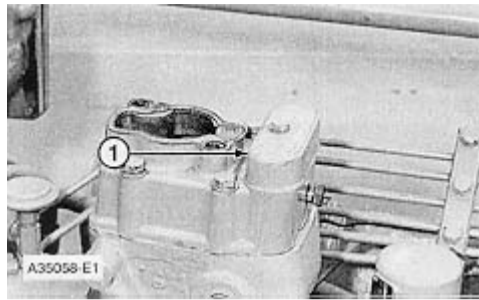
- a. install automatic timing advance

Remove Governor

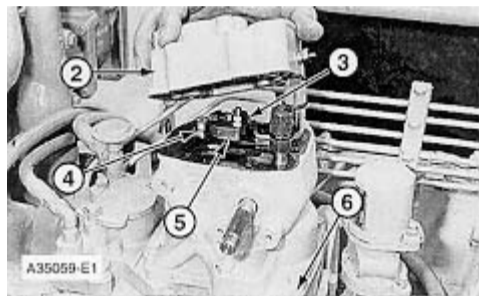
Tools Needed		A
5P9697	Timing Pin	1

Start By:

a. remove fuel ratio control (if equipped)



1. Remove cover (1).

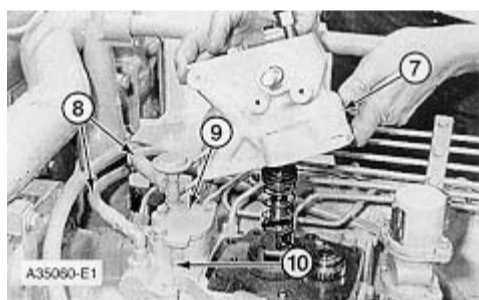


2. Remove the bolts from cover (2). Remove cover (2).

NOTICE

Do not drop valve (4) as cover (2) is removed.

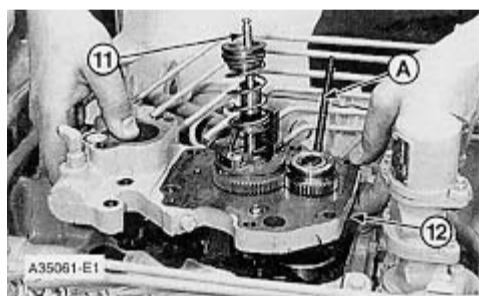
3. Remove the bolt from stop collar (3). Remove collar (3). Remove spring (5) from below collar (3).



4. Remove bolts (6). Remove governor housing (7) and the gasket.

5. Remove cover (9). Remove bolts (10).

6. Disconnect fuel lines (8).



7. Install Tool (A) with the flat end down in the fuel pump housing. Move governor bolt (11) until Tool (A) is in place in the slot in the rack. The racks are now in center (zero) position.

8. Remove governor plate (12).

NOTE: If necessary, hold the racks in the zero position against Tool (a) with a screwdriver while the governor plate is removed.

NOTICE

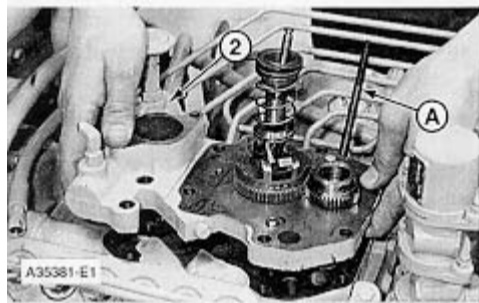
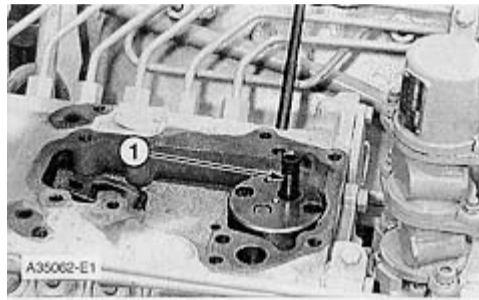
It is possible to remove the entire governor as a unit. The above steps must be followed before the governor can be installed again on the injection pump housing.

Install Governor

Tools Needed		A
5P9697	Timing Pin	1

NOTICE

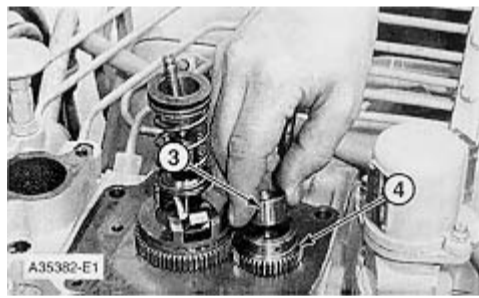
Drive assembly (5) and stop (3) must be removed from the governor plate before the governor plate is installed.



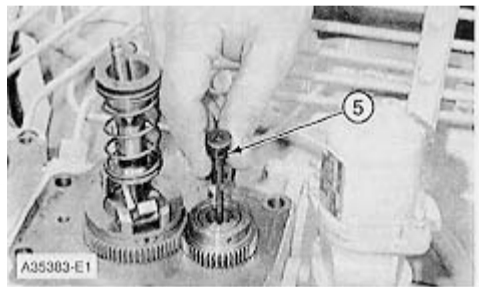
1. Install Tool (A) in the fuel injection pump housing. The square end (flat end) must be down. Make sure the correct end of Tool (A) is used. Push the fuel rack in until Tool (A) is in place in the slot (groove). The racks are now in the center (zero) position.

2. Install a new gasket on the fuel injection pump housing.

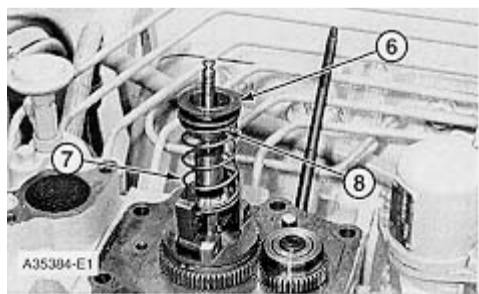
3. Put governor plate (2) into position on the injection pump housing. Be sure the dowels on plate (2) are in alignment with the holes in the injection pump housing and the governor linkage is engaged with the left fuel rack.



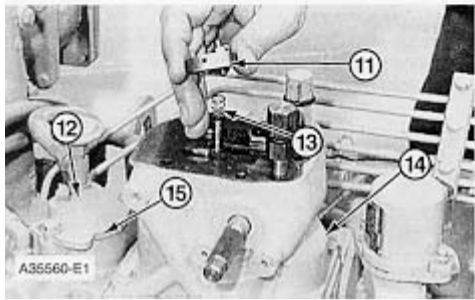
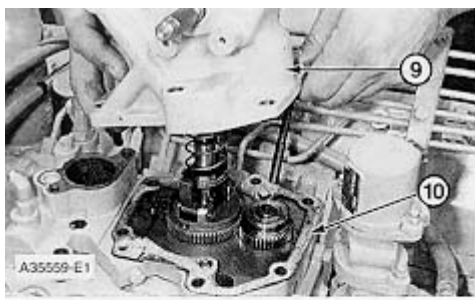
4. Install stop (3) gear (4). Make sure the special tooth (blind spline) in stop (3) is in alignment with the special tooth (blind spline) on pinion assembly (1).



5. Install drive assembly (5). Make an alignment of the hold in gear (4) with the holes in stop (3) and drive assembly (5). Install the pin that holds the gear (4), stop (3) and drive assembly (5) together. Install the lock ring that hold the pin in gear (4).



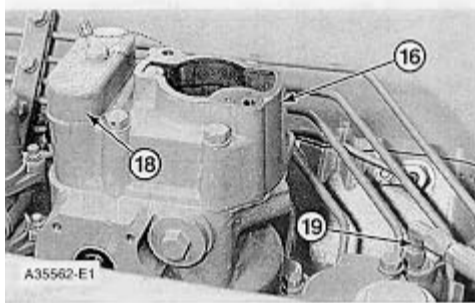
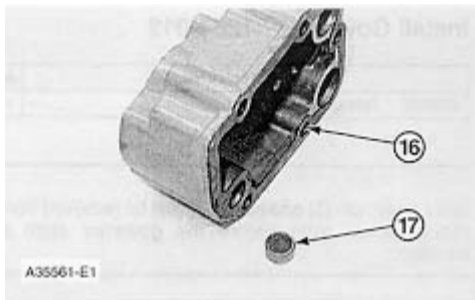
6. Install spring (7) on the governor assembly. Install a spring washer, flat washer (8), spring washer and collar (6).



7. Install a new gasket (10) on the governor plate. Install governor housing (9). Install bolts (15) and bolts (14) that hold the governor plate and governor housing to the injection pump housing. Install cover (12).

8. Install spring (13) and stop collar (11).

9. Check the governor adjustment. See Governor Adjustments in Testing and Adjusting.



10. Install valve (17) in cover (16) with the screen side toward the inside of the valve bore.

11. Install valve (17) in cover (16). Install cover (18).

12. Connect fuel lines (19) to the governor plate.

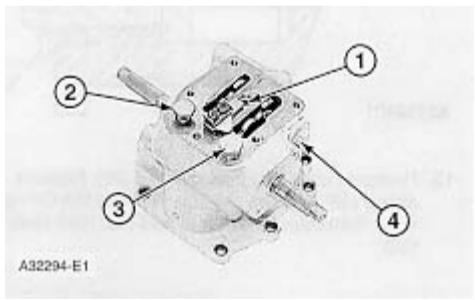
End By:

a. install fuel ratio control (if equipped).

Disassemble Governor (Standard Engine)

Start By:

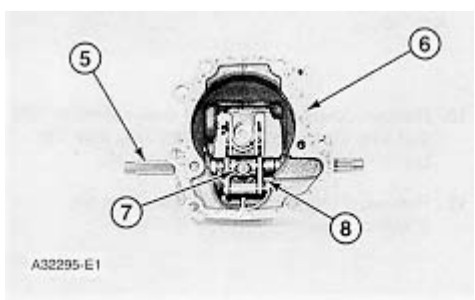
a. remove governor



1. Remove plug (4) and gasket. Remove the spring, plunger and washer from the speed limiter.

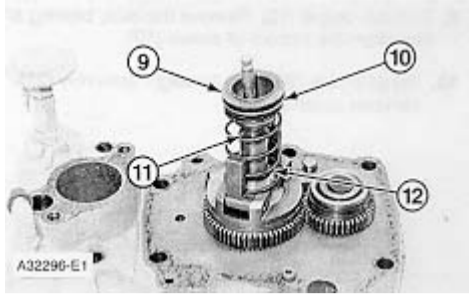
2. Bend the locks down on torque spring assembly (1).

3. Remove high idle screw (2) and low idle screw (3).

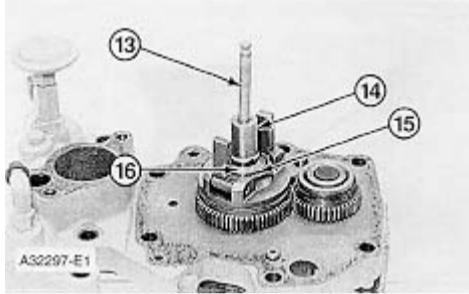


4. Bend lock (7) down and remove the bolt from control lever (8). Remove shaft (5) and control lever (8).

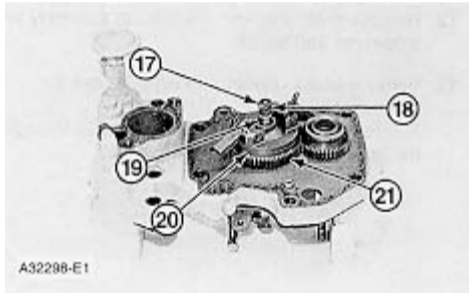
5. Remove the lip type seals and shaft bearings from the housing.



6. Remove seat (9), spring washer, flat washer and spring washer (10). Remove spring washer (11). Remove spring (12).



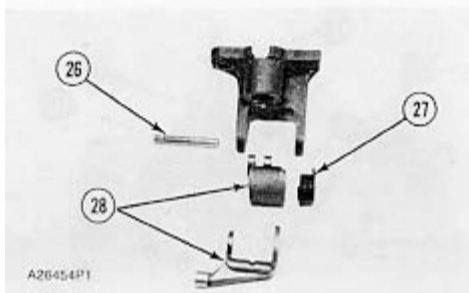
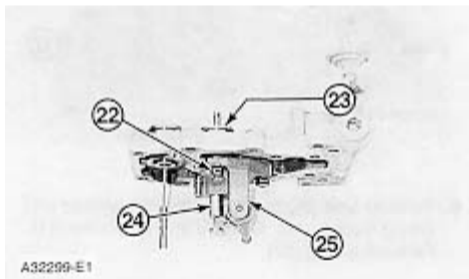
7. Remove ring (16) from seat (14). Remove dowel (15). Remove seat (14) and governor bolt (13) as a unit. Remove bolt (13) from seal (14).



8. Remove top washer (17), spring (18) and bottom washer from the top of the servo piston assembly.

9. Remove sleeve (19). Remove the race, bearing and race from the bottom of sleeve (19).

10. Remove lock (20) from flyweight assembly (21). Remove assembly (21).

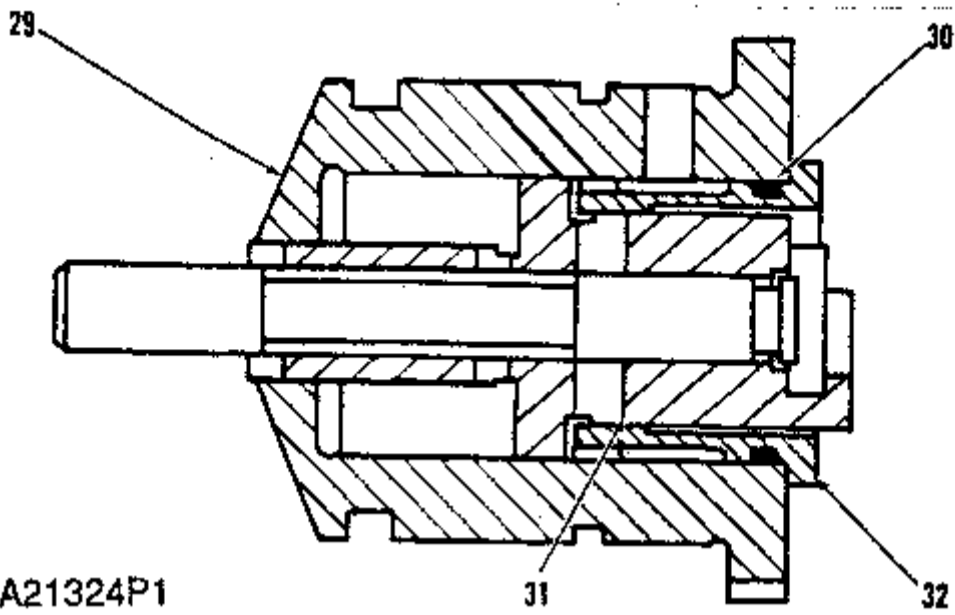


11. Bend the locks from bolts (22) and remove the bolts. Remove bracket (25) and (24) as a unit. Remove the pin from the bracket.

12. Remove shaft (26) from the bracket assembly with a hammer and punch.

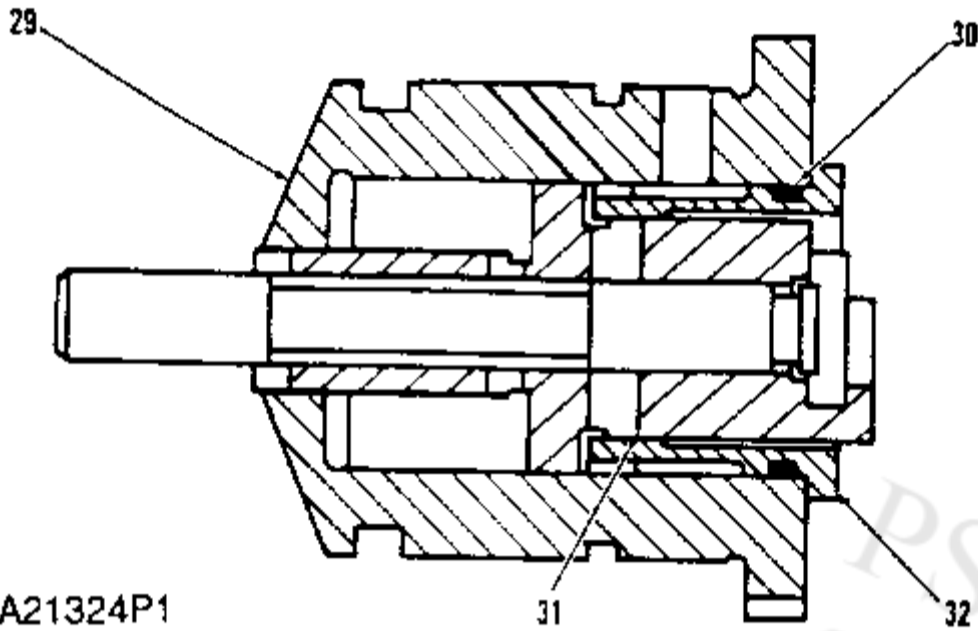
13. Remove levers (28) and spring (27) from the bracket assembly.

14. Remove servo piston assembly (23) through the bottom of the governor plate.



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15. Remove piston (31) from cylinder (29). Remove sleeve (32) from the cylinder. Remove the O-ring seals from cylinder (29) and seal (30) from sleeve (32).



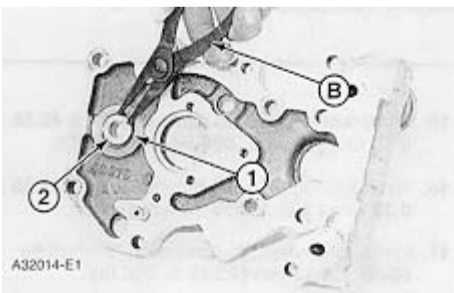
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16. Remove dowel (36). Remove drive assembly (33) and stop (35). Remove the snap ring from the bottom of gear (34). Remove gear (34).

17. Remove the bearing for gear (34) from the governor plate.

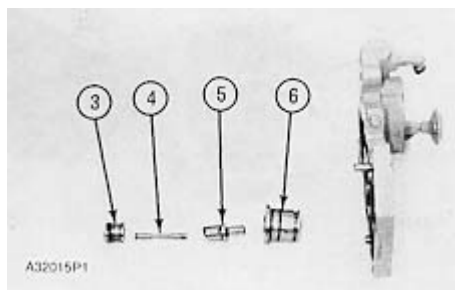
Assemble Governor (Standard Engine)

Tools Needed		A	B	C	D	E
1P0529	Handle	1		1	1	1
1P0463	Drive Plate	1				
1P0461	Drive Plate	1				
1P1856	Pliers		1			
1P0458	Drive Plate			1		1
1P0467	Drive Plate			1		
1P0460	Drive Plate				1	



1. Install the bearing for drive gear (2) in the governor plate with Tool (A) until it is **3.18 mm (.125 in)** from the top surface of the governor plate. Make sure the oil hole is in alignment with the oil passage in the governor plate.

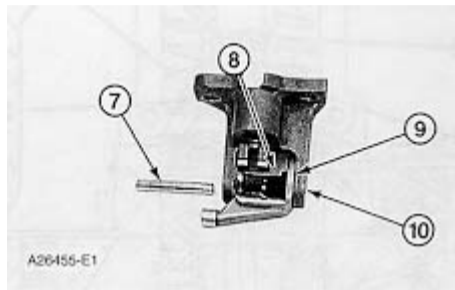
2. Install the drive gear (2). Install ring (1) with Tool (B).



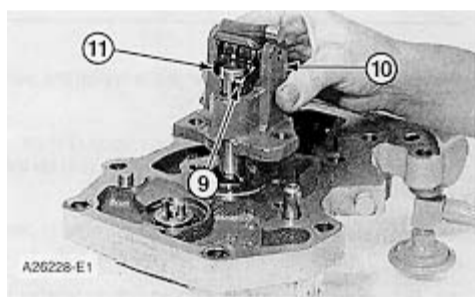
3. Put valve (4) in piston (5). Install piston (5) in sleeve.

4. Install the O-ring seal on cylinder (6).

5. Install the servo piston assembly valve (4), piston (5), sleeve (3) and cylinder (6) through the bottom of the governor plate. The valve, piston, sleeve and cylinder are parts of the servo piston assembly. Put the notch in cylinder (6) in alignment with the bolt hole in the governor plate.

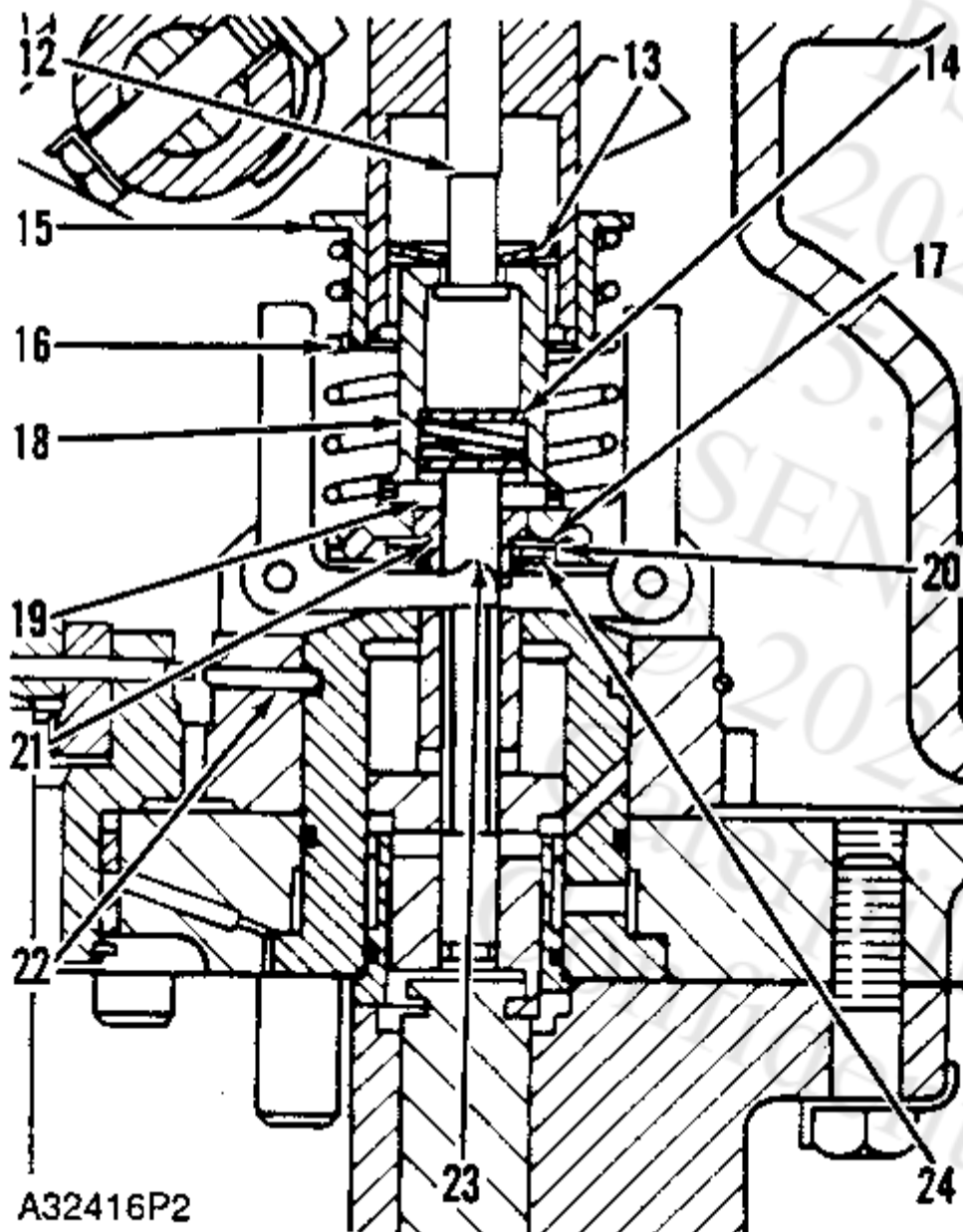


6. Put spring (8) in position on lever (9). Put lever (9) and the spring in position in bracket (10). Put the holes in the bracket in alignment with the holes in lever (9). Install shaft (7).



7. Install pin (11) in bracket assembly (10) with the grooves in pin (11) engaged with lever (9).

8. Put the bracket into position on the governor plate with pin (11) engaged with the servo piston assembly as shown. Install the bolts and locks that hold bracket (10) to the governor plate.



9. Install the flyweight and gear assembly on the servo piston assembly. Install lock (22).

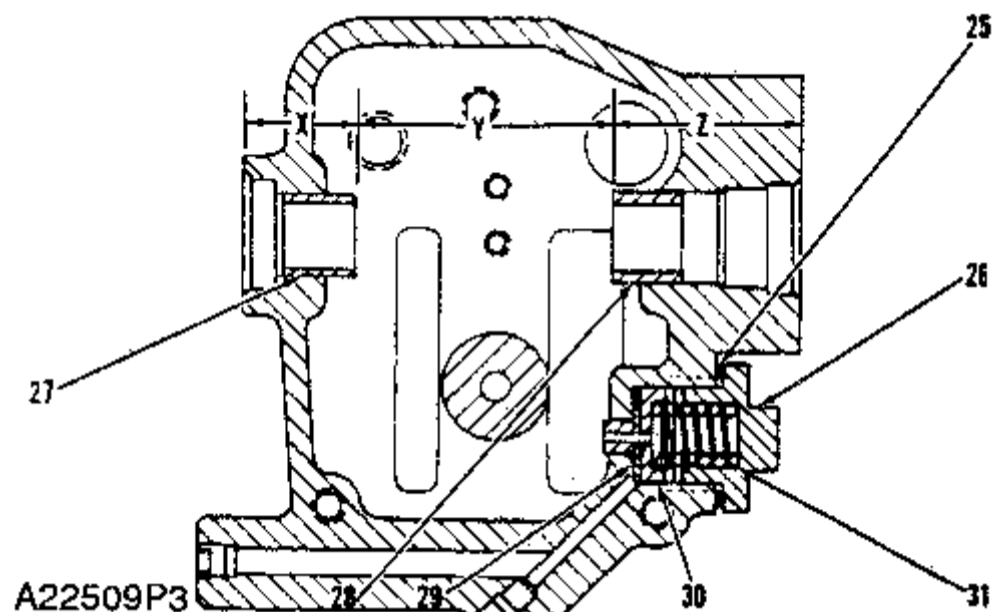
10. Install race (17), bearing (20) and race (24) on sleeve (21). Install the ring under race (24) on the sleeve.

11. Put sleeve (21) on valve (23). Put the hole in sleeve (21) in alignment with the hole in valve (23).

12. Put top washer (14), spring and bottom washer in position on the top of valve (23) as shown.

13. Install governor bolt (12) in seat (18). Put the seat and bolt in position on sleeve (21) with the hole in seat (18) in alignment with the hole in sleeve (21). Install dowel (19) and the ring.

14. Install spring washer (13) over governor bolt (12) as shown (with the concave side up). Install spring (16), spring washer, flat washer and spring washer (not shown). Install seat (15).



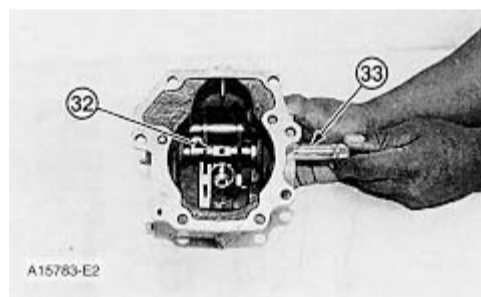
15. Install bearing (28) until dimension "Z" is $43.38 \pm .010$ mm ($1.708 \pm .004$ in) with Tool (D).

16. Install bearing (27) until dimension "X" is 25.35 ± 0.13 mm ($.998 \pm .005$ in) with Tool (E).

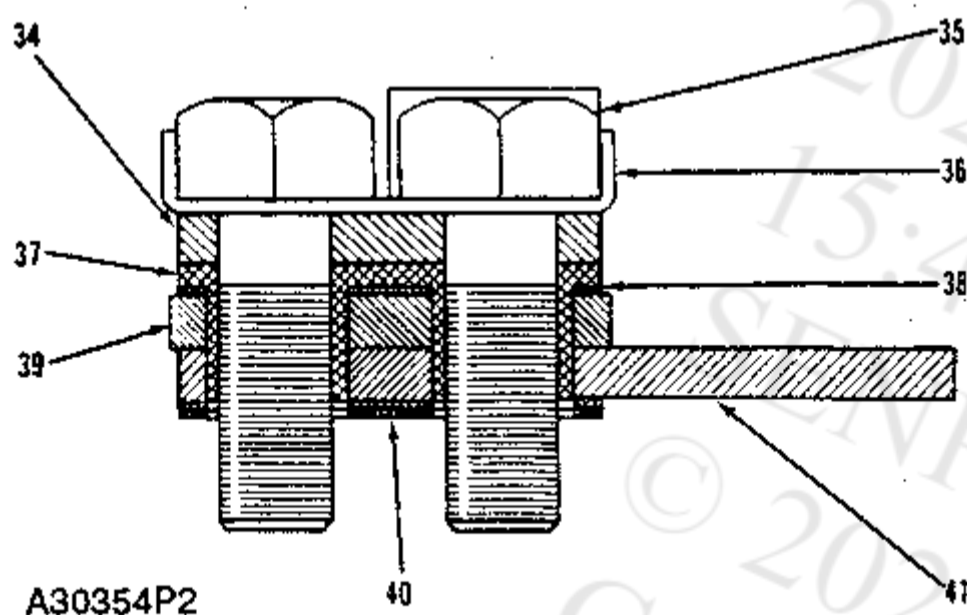
17. Check dimension "Y". Dimension "Y" must be 60.58 ± 0.13 mm ($2.385 \pm .005$ in).

18. Install the lip type seals in the governor housing with Tool (C). Install each seal with the lip toward the inside.

19. Install washer (29), plunger (30), spring (31), seal (25) and plug (26). Tighten the plug to a torque of 100 ± 14 N·m (75 ± 10 lb ft).



20. Put lever (32) into position in the governor housing. Install shaft (33). Install the lock, band assembly and bolt that hold lever (32) to shaft (33).



21. Install spacers (40), bar (41), retainer (39), contact (38), insulation (37), retainer (34), lock (36) and bolts (35) on the governor housing.

22. Install the high idle screw and low idle screw.

23. Check the governor adjustment. See Governor Adjustments in Testing and Adjusting.

End By:

a. install governor

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2022/11/30

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