Disassembly and Assembly 3304 VEHICULAR ENGINE FOR 955L TRACK-TYPE LOADER Media Number -SENR7675-00 Publication Date -01/08/1978

Date Updated -12/10/2001

Fuel Injection Pump Housing And Governor (Sleeve Metering Fuel System)

SMCS - 1286-11; 1286-12

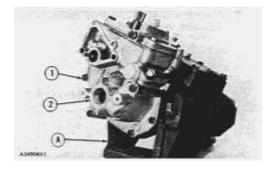
Separation Of Governor From Fuel Injection Pump Housing

	Tools Needed	A	В
2P8315	Bracket Assembly	1	
5P302	Bar		1

start by:

a) remove fuel injection pump housing and governor

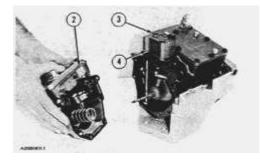
b) remove adapter housing



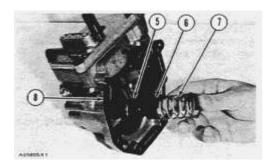
1. Put the fuel injection pump housing and governor in position on tool (A).

2. Remove bolts (1) that hold the governor housing (2) to the fuel injection pump housing.

3. Remove governor housing (2).

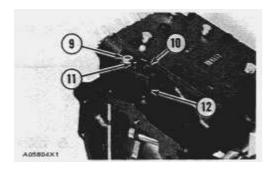


4. Remove two bolts (3) from the cover. Remove cover (4) from over the torque spring.

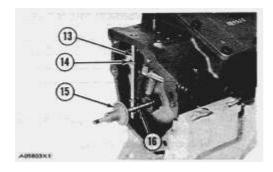


5. Remove spring (7), wave washer (6) and guide (5) from the governor housing.

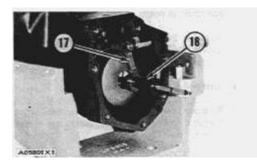
6. Remove gasket (8) from the governor housing.



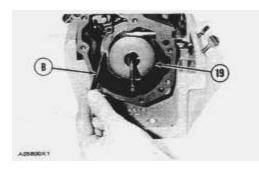
- 7. Remove bolt (11) and nut (9) from the torque spring (10). Remove the torque spring.
- 8. Remove pin (12) from the hole in the fuel injection pump housing.



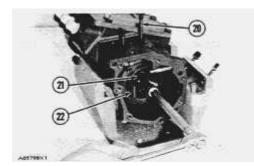
- 9. Remove seat (15) and over fueling spring (16) from the shaft.
- **10.** Pull shaft (13) up and remove lever (14).



- 11. Remove riser (follower) (18) from the shaft.
- **12.** Remove ring and lever (17) from the dowel.
- **13.** Remove cover (19) with tool (B).



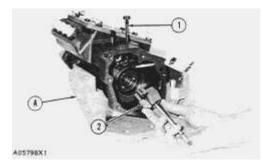
NOTE: Tool (B) can cause damage to cover. Always inspect the cover for damage and install a new cover if needed.



- 14. Install timing pin (20) to hold the camshaft from turning.
- 15. Remove three bolts (21) that hold the flyweight assembly in position.
- **16.** Remove flyweight assembly (22).
- 17. Remove the timing pin from the fuel injection pump housing.

Connection Of Governor To Fuel Injection Pump Housing

	Tools Needed	A	В
2P8315	Bracket Assembly	1	
5P301	Driver		1



- **1.** Put the fuel injection pump housing on tool (A).
- **2.** Install timing pin (1) to hold the camshaft from turning.
- 3. Put flyweight assembly (2) in position on the camshaft.

NOTICE

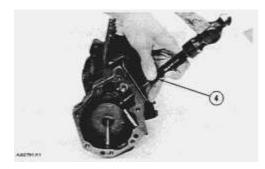
Make sure the pin that holds the shaft in the flyweight assembly is in position before the flyweight assembly is installed.

4. Install three new bolts that hold the flyweight assembly to the camshaft.

NOTE: The bolts for holding the flyweight assembly to the camshaft have a locking material on the threads. The bolts must not be used more then one time.



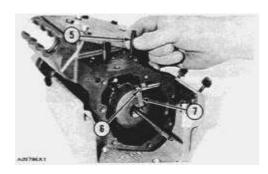
5. Install cover (3) over the flyweight assembly with tool (B).



6. Grind a taper on the bottom edge of a 1/8" screwdriver (4). Install the screwdriver through the bolt hole in the governor housing. The screwdriver must fit evenly against the flyweight assembly cover. Make a mark (stake) in four places around the cover in line with the groove in the camshaft.

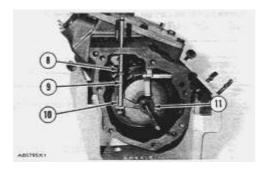
NOTICE

Never install a used flyweight cover that is bent.



7. Put lever (7) on the dowel. Install ring (6).

8. Install pin (5) in the fuel injection pump housing with the round edge down.

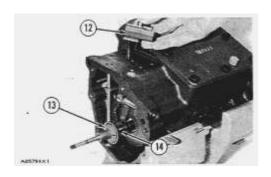


9. Put the riser (follower) (11) in position between the flyweights. Lift the flyweights up with a piece of wire and push the riser (follower) forward.

10. Put lever (10) in position in the groove of the riser (follower) (11) and the ball end engaged in the sleeve shaft lever (8). Install shaft (9) that holds the lever in position.

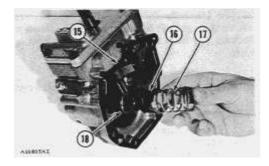
NOTICE

If lever (10) is not installed correctly, the governor can not operate and can cause the engine to overspeed.



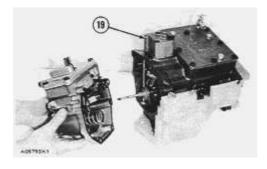
11. Install over fueling spring (14) and seat (13) on the shaft.

12. Install the torque spring (12). Install the bolt and nut that hold the torque spring in position.



13. Install guide (18), wave washer (16) and spring (17) in the governor housing.

14. Put a new gasket (15) on the governor housing.



15. Install cover (19) over the torque spring. Install the two bolts that hold the cover in position.

16. Put the governor housing on the fuel injection pump housing. Install the bolts that hold the governor housing in position.

end by:

a) install adapter housing

b) install fuel injection pump housing and governor

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Fuel Injection Pump Housing And Governor (Compact Fuel System)

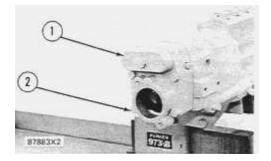
SMCS - 1286-11; 1286-12

Separation Of Governor From Fuel Injection Pump Housing

start by:

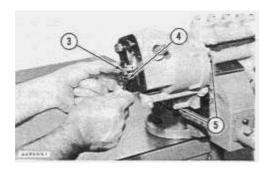
a) remove fuel injection pump housing and governor

b) remove fuel ratio control



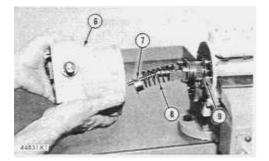
TYPICAL EXAMPLE

1. Remove lever (2) and cover (1) from the governor housing.



2. Remove screw (4) from rack stop collar (3) and remove collar (3). Remove the collar and spring from behind collar (3).

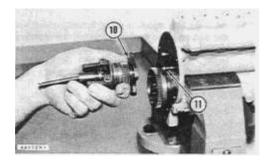
3. Remove bolts (5) that hold the governor housing to the fuel injection pump housing. Remove governor housing (6).



4. Remove seat (7), spring (8) and the washer between the spring and seat. Remove the washer-type spring from the governor bolt and weight assembly.

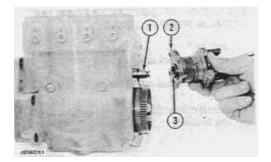
5. Remove bolts (9) and the lock that hold weight assembly (10) to the fuel injection pump housing.

6. Pull weight assembly (10) straight back to remove it from the dowels in the pump housing.



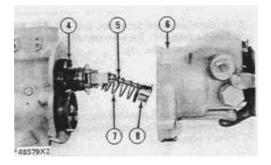
7. Move the weight assembly (10) to the side to remove it from rack (11).

Connection Of Governor To Fuel Injection Pump Housing



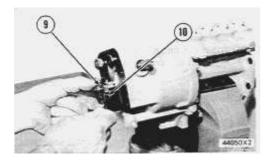
1. Put weight assembly (2) in position on the fuel injection pump housing so piston (3) fits in the groove of rack (1).

2. Push weight assembly (2) on to the dowels in the pump housing and install the lock and bolts (4).



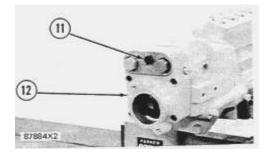
3. Install spring (5) on the governor bolt so the inside diameter of the spring makes contact with the guide in governor housing (6).

4. Install spring (7), the washer and seat (8) on the governor bolt. Install governor housing (6) and the gasket on the fuel injection pump housing.



5. Install the spring on the end of the governor bolt. Install the small collar and rack stop collar (9) on the end of the governor bolt.

6. Install rack stop collar screw (10).



7. Put the gasket and cover (12) in position and install bolts (11) to hold them. Install the gasket and cover over the idle adjustment screws.

8. After the fuel injection pump housing and governor as a unit and fuel ratio control are installed, make adjustments to the rack and governor. See FUEL RACK SETTING AND GOVERNOR ADJUSTMENTS in TESTING AND ADJUSTING.

end by:

a) install fuel ratio control

b) install fuel injection pump housing and governor

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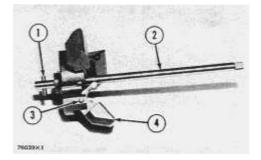
Governor (Sleeve Metering Fuel System)

SMCS - 1264-15; 1264-16

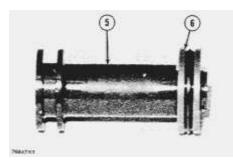
Disassemble Governor

start by:

a) separation of governor from fuel injection pump housing

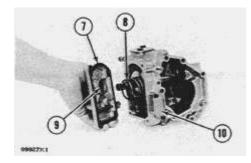


- 1. Remove shaft (2). Remove pin (1) from shaft.
- 2. Remove pins (3) from the flyweights. Remove flyweights (4).

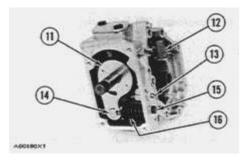


- **3.** Remove ring, races (6) and bearing from the riser (follower) (5).
- 4. Remove cover (7) and spring (8) from governor housing.

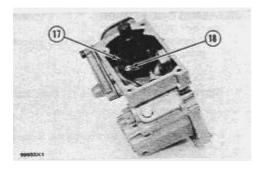
NOTE: There is force on the cover from the spring.



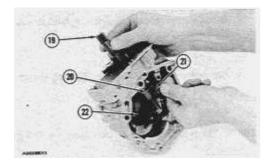
- **5.** Remove seal (9) from cover.
- 6. Remove cover (10) for the low and high idle adjustments.



- 7. Remove locknut and screw (13) for the high idle adjustment.
- 8. Remove bolt (15) and washers for the low idle adjustment.
- 9. Remove spring (16) and guide.
- **10.** Remove pin (14) and plate (11).
- 11. Remove shaft (12) from the housing.

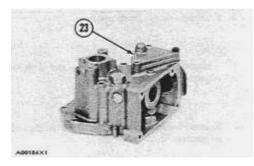


12. Remove pin (18) and two spacers (17) from shaft.

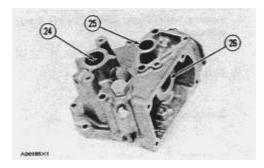


13. Remove shaft (19) from the governor housing.

14. Remove washer (20) and levers (21) and (22) from governor housing.



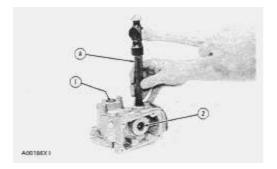
15. Remove cover (23) from governor housing.



- 16. Remove seal (25) and bearing.
- 17. Remove seals (24) and (26) from governor housing.

Assemble Governor

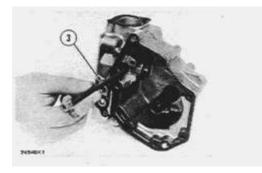
20020	Tools Needed	A	B
1 P 529	Handle	1	1
1 P 457	Drive Plate		1
1P471	Drive Plate		1



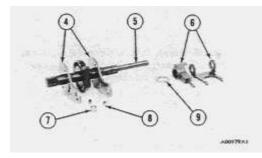
1. Install bearing and seal in the housing with tool (A). The lip of the seal must be toward the bearing.

2. Install seal (1) in housing with tool (A). The lip of seal must be toward inside of housing.

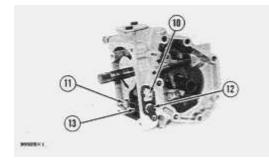
3. Install seal (2) in housing with tooling (B). The lip of seal must be toward the inside of housing.



4. Install shaft (3) in the housing.



- 5. Install plates (4), spacers (8) and pin (7) on shaft.
- 6. Install shaft (5) in housing and through washer (9) and levers (6).



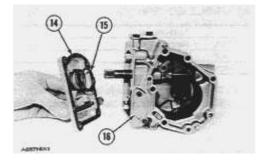
- 7. Install pin (11) in holes of the plates.
- 8. Install screw (10) and locknut for high idle adjustment.
- 9. Install spring (13) and guide.
- 10. Install bolts (12) and washer for low idle adjustment.

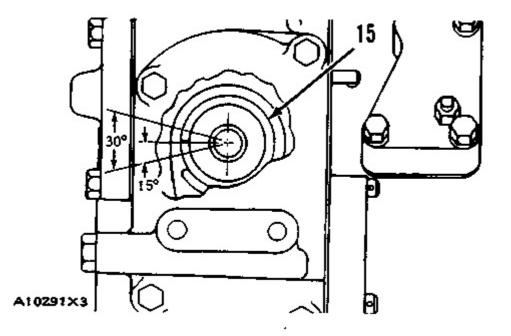
NOTICE

After the fuel injection pump housing and governor have been installed on the engine, make an adjustment for the high and low idle. See GOVERNOR ADJUSTMENT as shown in TESTING AND ADJUSTING.

11. Push plate and pin (11) over toward the bolt (12) and tighten the bolt.

12. Install seal in cover with tooling (B). The lip of seal must be toward the inside.



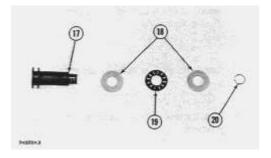


13. Install spring (15) in the cover. Install cover (14) on housing.

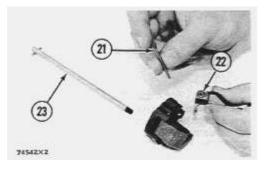
NOTICE

The spring (15) must be installed with the end of spring as shown.

14. Install cover (16) for the idle adjustment screws.



15. Install bearing (19) between the races (18) on riser (follower) (17). Install ring (20) that holds the washers on the riser (follower).



16. Install pin in shaft (23).

17. Install flyweights (22) and pin (21).

18. Install shaft (23) in the flyweight assembly.

end by:

a) connection of governor to fuel injection pump housing

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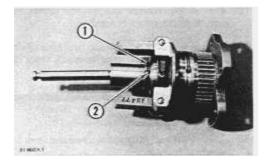
Governor (Compact Fuel System)

SMCS - 1264-16; 1264-15

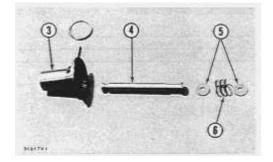
Disassemble Governor

start by:

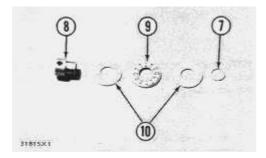
a) separation of governor from fuel injection pump housing



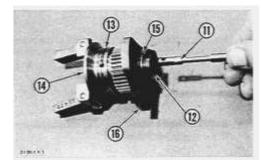
1. Remove ring (1) and dowel (2) that hold the seat to the piston assembly.



2. Remove seat (3), governor bolt (4), washers (5) and spring (6) from the weight assembly.



3. Remove sleeve (8) from the weight assembly. Remove ring (7), bearing (9) and bearing races (10) from sleeve (8).

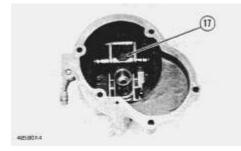


4. Remove valve (11) from piston (12).

5. Remove lock (13) and remove weight assembly (14) from cylinder (16).

6. Remove piston (12) and sleeve (15) from cylinder (16). Remove the O-ring seal from sleeve (15).

7. Remove the high idle and low idle screws and seals from the governor housing.



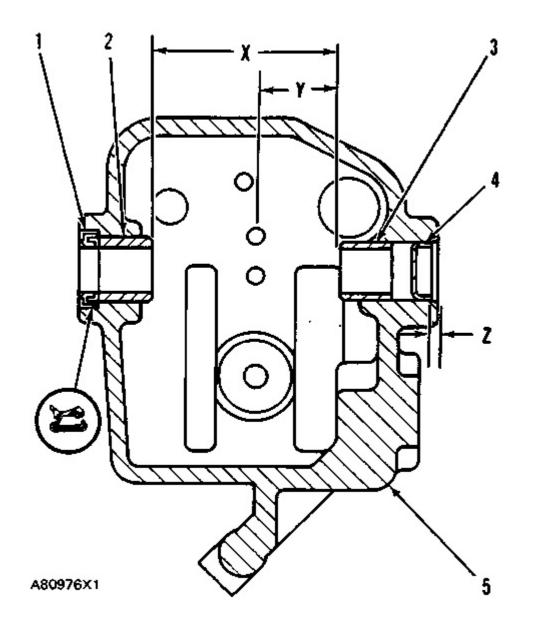
8. Remove bolt (17), the lock and band assembly to remove the shaft and lever assembly from the governor housing.

9. If necessary, remove the pin, spring and plunger (detent assembly) from the lever assembly.

10. Remove the seal, plug and two bearings from the governor housing.

Assemble Governor

	Tools Needed	A
1P510	Driver Group	1

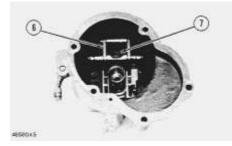


1. Install bearing (3) in housing (5) with tool group (A). Make sure dimension (Y) is 1.073 in. (27.25 mm).

2. Install bearing (2) in housing (5) with tool group (A) until dimension (X) is $2.385 \pm .005$ in. $(60.58 \pm 0.13 \text{ mm})$.

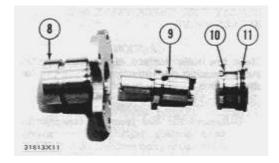
NOTE: Make sure the inside diameter of bearings (2) and (3) is $.6210 \pm .0013$ in. $(15.773 \pm 0.033 \text{ mm})$ after they are installed.

3. Install plug (4) with tool group (A) until dimension (Z) is .09 in. (2.29 mm).



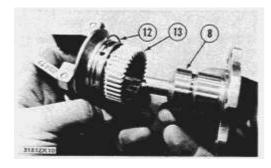
4. Install the plunger, spring and pin for the detent assembly in lever assembly (6). Put lever assembly (6) and shaft in position and install bolt (7) and the lock.

5. Install the high idle and low idle screws and seals in the governor housing.

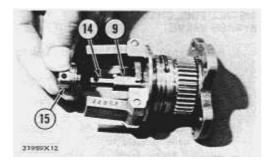


5. Install the O-ring seal (11) on sleeve (10).

6. Install piston (9) and sleeve (10) in cylinder (8).

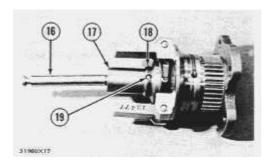


7. Put weight assembly (13) in position on cylinder (8) and install lock (12) to hold the unit together.



8. Install valve (14) in piston (9).

9. Install the bearing and two races on sleeve (15). Install the ring to hold the bearing assembly on sleeve (15). Install sleeve (15) on valve (14) as shown.



10. Install governor bolt (16) and spring (with a washer on each end) in seat (17). Put seat (17) in position on sleeve (15) and valve (14). Install pin (19) to hold the seat, sleeve and valve together. Install ring (18) to hold pin (19) in position.

end by:

a) connection of governor to fuel injection pump housing

b) install fuel injection pump housing and governor

c) make rack setting and governor adjustment (See FUEL RACK SETTING AND GOVERNOR ADJUSTMENTS in TESTING AND ADJUSTING section)

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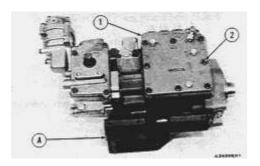
Fuel Check Valve And Bypass Valve (Sleeve Metering Fuel System)

SMCS - 1264-16; 1264-15

Remove Fuel Check Valve And Bypass Valve

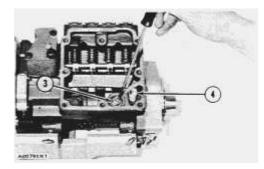
NOTICE

Clean the outer surface of the fuel injection pump housing and governor before the fuel check valve and bypass valve are removed.



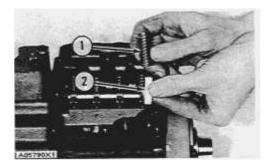
1. Remove the fuel from the fuel injection pump housing. Install the fuel injection pump housing and governor on tool (A).

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

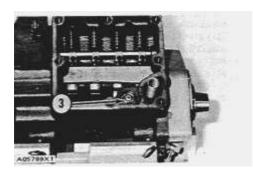


- **3.** Remove check valve (3).
- 4. Remove spring (4) and the bypass valve.

Install Fuel Check Valve And Bypass Valve



1. Install bypass valve (2) and spring (1) in the fuel injection pump housing.



2. Install check valve (3) in the fuel injection pump housing. Make sure the check valve is installed evenly in the fuel injection pump housing.

NOTE: Do not install a check valve that is bent.

3. Put the cover in position on the fuel injection pump housing. Make sure the spring on the bypass valve is in the cover. Install the eight bolts that hold the cover in position.

Disassembly and Assembly 3304 VEHICULAR ENGINE FOR 955L TRACK-TYPE LOADER Media Number -SENR7675-00 Publication Date -01/08/1978

Date Updated -12/10/2001

Fuel Injection Pumps (Sleeve Metering Fuel System)

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

Remove Fuel Injection Pumps

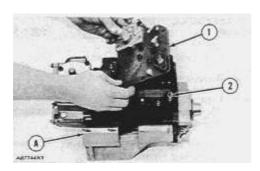
	Tools Needed	A	в
2P8315	Bracket Assembly	1	
8S2243	Wrench		1

start by:

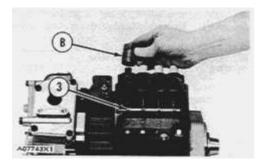
a) remove fuel injection pump housing and governor

NOTICE

Thoroughly clean the outside of the fuel injection pump housing before the fuel injection pumps are removed.



1. Put the pump housing in position on tool (A). Remove cover (1) from the pump housing. Remove spring (2) for the bypass valve.



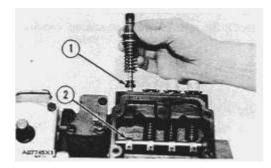
2. Loosen the bushing from the pump housing with tool (B).

NOTE: Do not loosen screws (3). If the screws are loosened, the fuel pump adjustment will be changed.

3. Remove the fuel injection pump from the housing. The sleeve on the plunger will slide off the lever as the pump is removed.

Install Fuel Injection Pumps

	Tools Needed	A
8S2243	Wrench	1



1. Put the fuel injection pump in the bore in the pump housing so that sleeve (1) is engaged with lever (2).

NOTICE

If the screws in the levers have been loosened, an adjustment must be made for the fuel pumps. See FUEL PUMP CALIBRATION as shown in TESTING AND ADJUSTING.

2. Tighten the bushing for the fuel pump with wrench (A) to a torque of 70 ± 5 lb.ft. (95 ± 7 N·m).

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