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THE HEART OF EVERY GREAT MACHINE

KENR9225
July 2014

Disassembly and Assembly

4016-61 TRG Industrial Engine

S16 (Engine)

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Disassembly and Assembly Section

i05784201

Fuel Priming Pump - Remove and Install

Removal Procedure

NOTICE
Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

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.

Dispose of all fluids according to local regulations and mandates.

1. Turn the fuel supply to the OFF position.

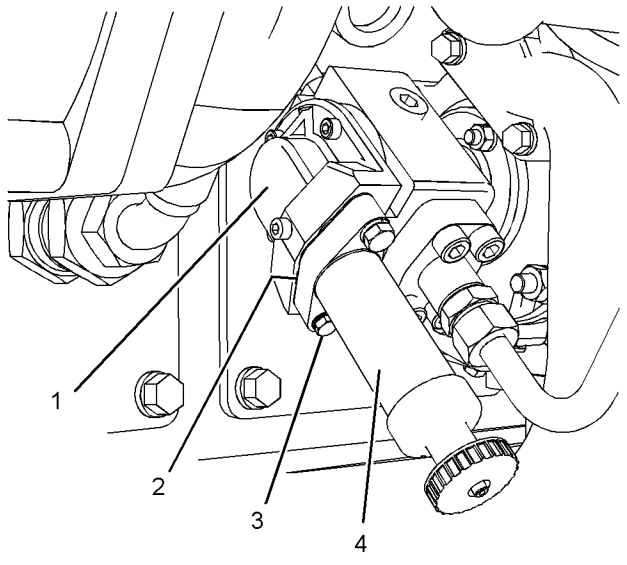

Illustration 1 g03670234

2. Remove bolts (3). Remove fuel priming pump (4) from fuel lift pump (1).

3. Remove gasket (2) (not shown).

Installation Procedure

NOTICE
Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Ensure that the gasket surfaces of the fuel priming pump and the fuel lift pump are clean and free from damage.

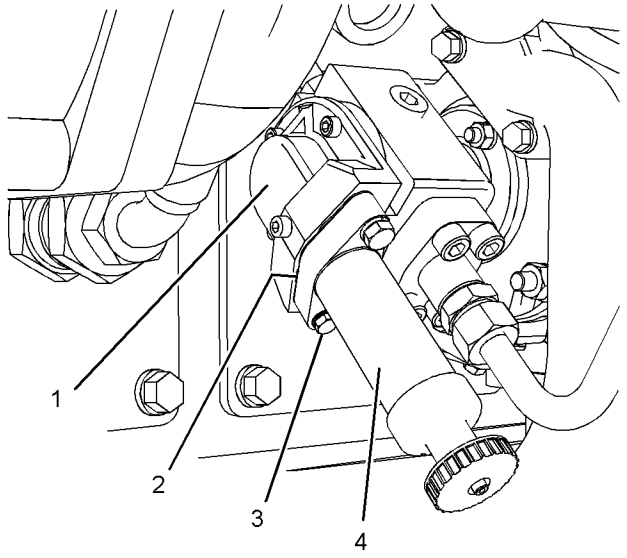

Illustration 2 g03670234

2. Position a new gasket (2) (not shown) on fuel lift pump (1).

Note: Ensure correct orientation of the gasket.

3. Position fuel priming pump (4) on fuel lift pump (1). Install bolts (3).

Tighten the M6 bolt to a torque of 10 N·m (90 lb in) .

Tighten the M8 bolt to a torque of 25 N·m (220 lb in).

4. Turn the fuel supply to the ON position.

5. Remove the air from the fuel system. Refer to Operation and Maintenance Manual, “Fuel System - Prime” for the correct procedure.

i05784083

Fuel Filter Base - Remove and Install

Removal Procedure

NOTICE
Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

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.

Dispose of all fluids according to local regulations and mandates.

1. Turn the fuel supply to the OFF position.

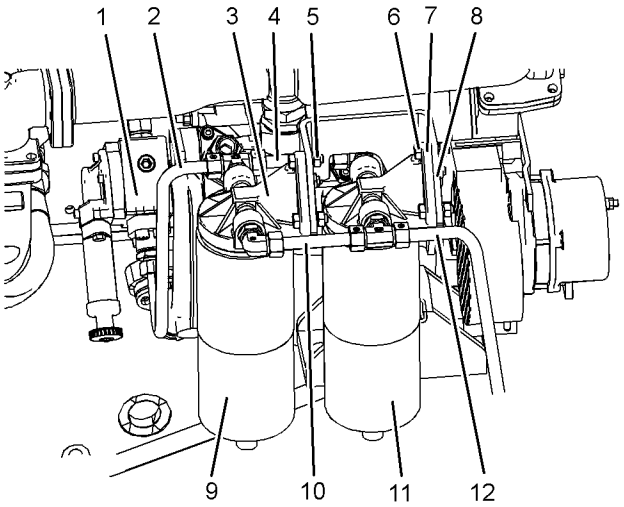

Illustration 3 g03669213

2. Drain and remove fuel filter (9) and fuel filter (11). Refer to Operation and Maintenance Manual, “Fuel System Filter - Replace” for the correct procedure.

3. Remove the Original Equipment Manufacture (OEM) tube assembly (12) from filter head (7). Refer to the OEM for the correct procedure.

4. Remove tube assembly (2) from lift pump (1) and fuel filter base (3).

5. Disconnect tube assembly (4) and tube assembly (10) from fuel filter base (3).

6. Remove the nuts and bolts (5) and remove fuel filter base (3) from bracket (8).

7. Remove the nuts and bolts (6) and remove fuel filter base (7) from bracket (8).

8. Remove tube assembly (4) and tube assembly (10) from fuel filter base (8).

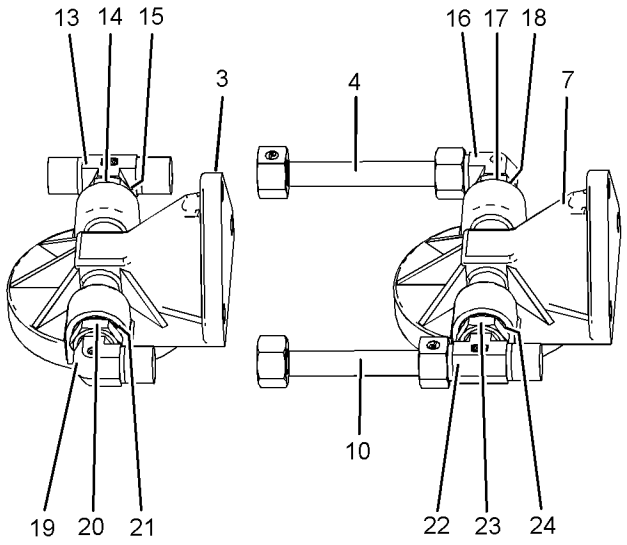

Illustration 4 g03669215

9. If necessary, follow Step 2.a. through Step 4 in order to disassemble fuel filter base (3) and fuel filter base (7).

a. Place fuel filter base (3) and fuel filter base (7) in a suitable support.

b. Remove tube assembly (4) and tube assembly (10) from fuel filter base (7).

c. Make temporary mark on tee connection (13). Loosen lock nut (14) and remove the tee connection from fuel filter base (3). Remove O-ring seal (15) (not shown) from the tee connection.

d. Make temporary mark on elbow connection (19). Loosen lock nut (20) and remove the elbow connection from fuel filter base (3). Remove O-ring seal (21) (not shown) from the elbow connection.

e. Make temporary mark on elbow connection (16). Loosen lock nut (17) and remove the elbow connection from fuel filter base (7). Remove O-ring seal (18) (not shown) from the elbow connection.

f. Make temporary mark on tee connection (22). Loosen lock nut (23) and remove the tee connection from fuel filter base (7). Remove O-ring seal (24) (not shown) from the tee connection.

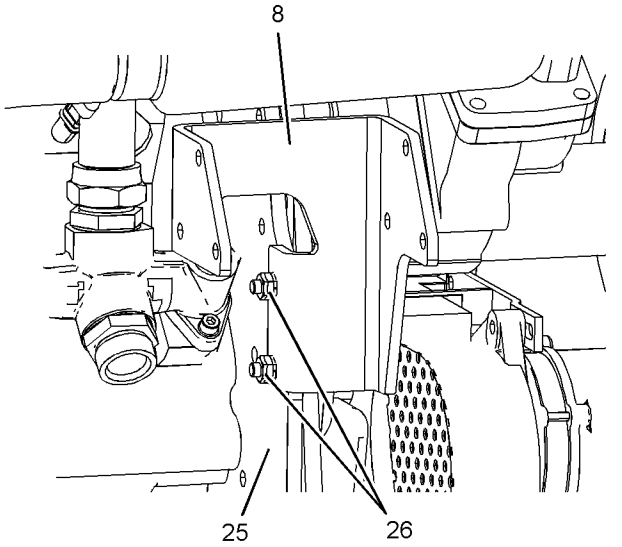

Illustration 5 g03669692

10. If necessary, follow Step 3.a. through Step 10.b. in order to remove bracket (8).

a. Remove the nuts and bolts (26) from bracket (8).

b. Remove bracket (8) from support plate (25).

Installation Procedure

NOTICE
Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Ensure that the fuel filter bases and the bracket are clean and free from damage. Replace any component that is worn or damaged.

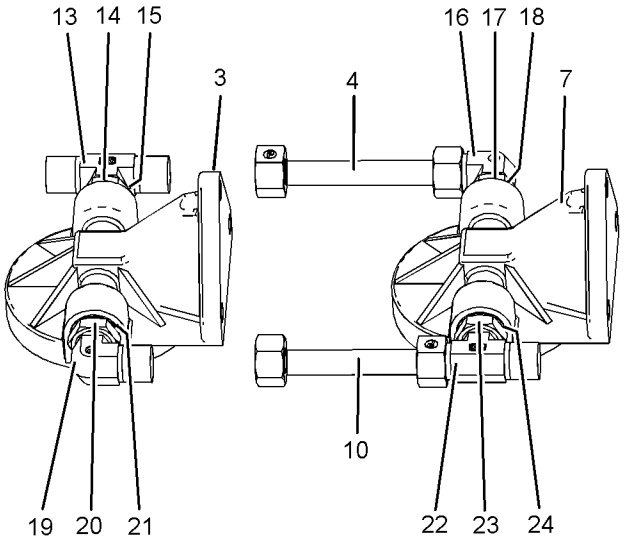

Illustration 6 g03669215

2. If necessary, follow Step 2.a. through Step 2.g. in order to assemble fuel filter base (3) and fuel filter base (7).

a. Place fuel filter base (3) in a suitable support.

b. Install a new O-ring seal (24) (not shown) to tee connection (22). Install the tee connection to fuel filter base (7) and align with temporary mark. Use a suitable tool to hold the tee connection and tighten lock nut (23) to a torque of 110 N·m (81 lb ft).

c. Install a new O-ring seal (18) (not shown) to elbow connection (16). Install the elbow connection to fuel filter base (7) and align with temporary mark. Use a suitable tool to hold the elbow connection and tighten lock nut (17) to a torque of 110 N·m (81 lb ft).

d. Loosely connect tube assembly (4) and tube assembly (10) to fuel filter base (7).

e. Place fuel filter base (7) in a suitable support.

f. Install a new O-ring seal (21) (not shown) to elbow connection (19). Install the elbow connection to fuel filter base (3) and align with temporary mark. Use a suitable tool to hold the elbow connection and tighten lock nut (20) to a torque of 110 N·m (81 lb ft).

g. Install a new O-ring seal (15) (not shown) to tee connection (13). Install the tee connection to fuel filter base (3) and align with temporary mark. Use a suitable tool to hold the tee connection and tighten lock nut (14) to a torque of 110 N·m (81 lb ft).

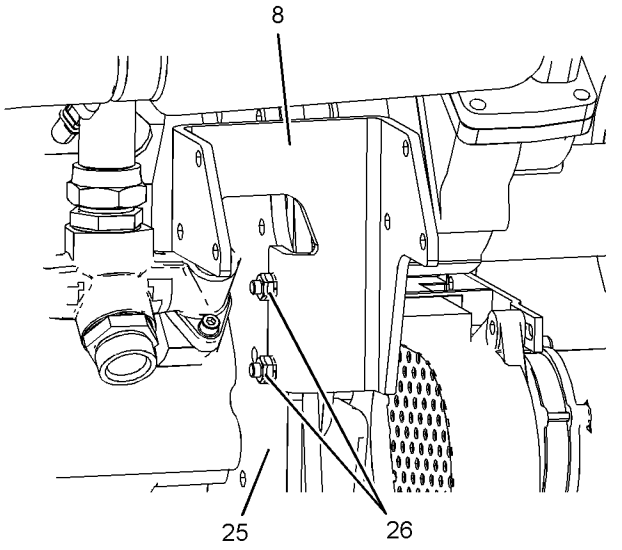

Illustration 7 g03669692

3. If necessary, follow Step 3.a. through Step 3.b. in order to install bracket (8).

a. Install bracket (8) to support plate (25).

b. Install the nuts and bolts (26) to bracket (8). Tighten the nuts and bolts to a torque of 47 N·m (35 lb ft).

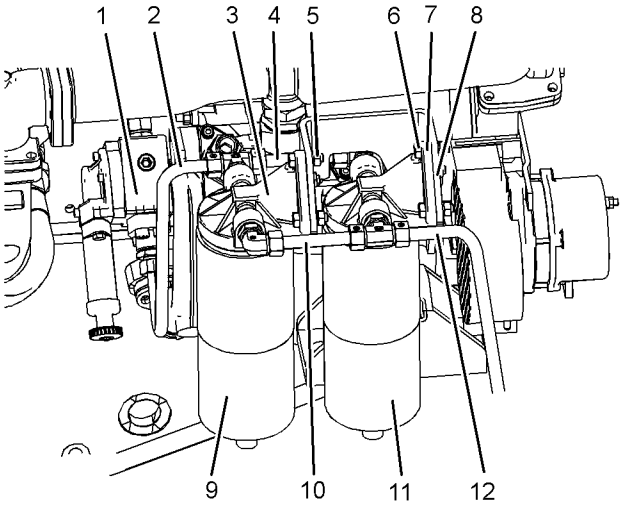

Illustration 8 g03669213

4. If necessary, loosely install tube assembly (4) and tube assembly (10) to fuel filter base (8).

5. Install fuel filter base (7) to bracket (8). Install the nuts and bolts (6) hand tight.

6. Install fuel filter base (3) to bracket (8). Connect tube assembly (4) and tube assembly (10) to the fuel filter base.

7. Install the nuts and bolts (5) hand tight.

8. Tighten the nuts and bolts (5) and the nuts and bolts (6) to a torque of 47 N·m (35 lb ft).

9. Tighten the tube nuts for tube assembly (4) and tube assembly (10) to a torque of 110 N·m (81 lb ft).

10. Install tube assembly (2) to lift pump (1) and fuel filter base (3). Tighten the tube nuts for tube assembly (2) to a torque of 110 N·m (81 lb ft).

11. Install the OEM tube assembly (12) to filter head (7). Tighten the tube nuts for tube assembly (2) to a torque of 110 N·m (81 lb ft). Refer to the OEM for more information.

12. Install a new fuel filter (9) and a new fuel filter (11). Refer to Operation and Maintenance Manual, “Fuel System Filter - Replace” for the correct procedure.

13. Turn the fuel supply to the ON position.

14. Remove the air from the fuel system. Refer to Operation and Maintenance Manual, “Fuel System - Prime” for the correct procedure.

i05784202

Fuel Transfer Pump - Remove and Install
(Lift Pump)

Removal Procedure

NOTICE
Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

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.

Dispose of all fluids according to local regulations and mandates.

1. Turn the fuel supply to the OFF position.

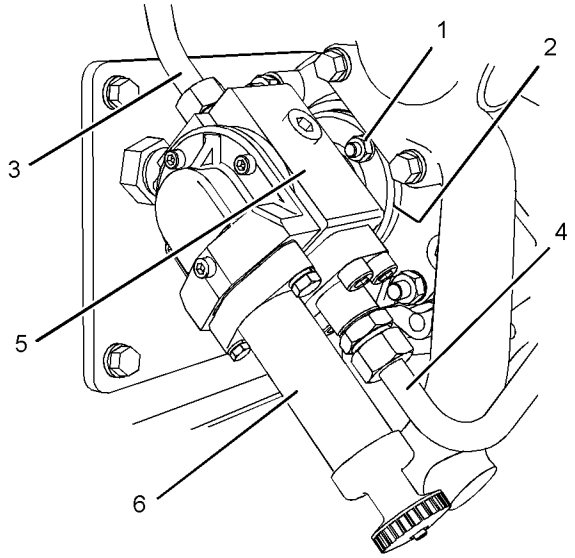

Illustration 9 g01429930

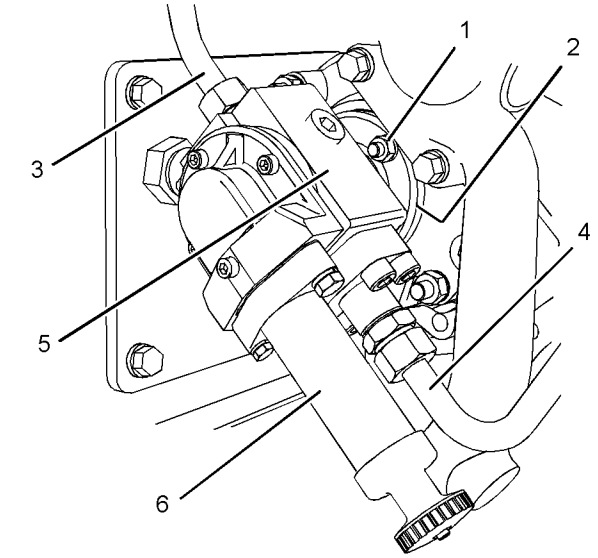

Illustration 10 g01429930

2. Disconnect tube assembly (3) from fuel lift pump (5).

Note: Cap all tube assemblies and connections.

3. Remove tube assembly (4).

Note: Cap all tube assemblies and connections.

4. Remove nuts (1) and remove fuel lift pump (5) from the engine oil pump.

5. Remove gasket (2) (not shown).

6. If necessary, remove fuel priming pump (6) from fuel lift pump (5). Refer to Disassembly and Assembly, “Fuel Priming Pump - Remove and Install” for the correct procedure.

Installation Procedure

NOTICE
Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Ensure that the gasket surfaces of the fuel lift pump and the engine oil pump are clean and free from damage. Inspect the seal and inspect the drive for the fuel lift pump for wear or damage.

2. If necessary, install fuel priming pump (6) to fuel lift pump (5). Refer to Disassembly and Assembly, “Fuel Priming Pump - Remove and Install” for the correct procedure.

3. Position a new gasket (2) (not shown) on the engine oil pump. Lubricate the drive for the fuel lift pump and the seal in the engine oil pump with clean engine oil.

Note: Ensure that the shaft of the fuel lift pump is aligned with the drive in the rear of engine oil pump.

4. Position fuel lift pump (5) on the engine oil pump. Install nuts (1). Tighten the nuts to a torque of 25 N·m (18 lb ft).

5. Remove cap from tube assemblies and connections. Install tube assembly (4) and tube assembly (3) to fuel lift pump (5). Tighten the tube nuts to a torque of 100 N·m (74 lb ft).

6. Turn the fuel supply to the “ON” position.

7. Remove the air from the fuel system. Refer to Operation and Maintenance Manual, “Fuel System - Prime” for the correct procedure.

i05784096

Fuel Manifold (Rail) - Remove and Install
(Fuel and Oil Manifold)

Removal Procedure

Start By:

a. Remove the electronic governor control unit. Refer to Disassembly and Assembly, “Governor - Remove and Install”. Removal of the electronic governor control unit is only necessary if Bank A fuel rail requires removal.

NOTICE
Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

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.

Dispose of all fluids according to local regulations and mandates.

1. Turn the fuel supply to the OFF position.

2. For Bank A cut the cable straps that secure the thermocouples for the exhaust temperature sensors to the fuel rail. Loosen the clips that secure the thermocouples for the exhaust temperature sensors to the fuel rail and detach the thermocouples from the fuel rail.

Note: Do not allow the unions to turn when the tube assemblies are disconnected from the fuel rail. Allowing the unions to turn when the tube assemblies are disconnected will damage the threads in the fuel rail. Use two spanners in order to loosen the tube assemblies from the unions.

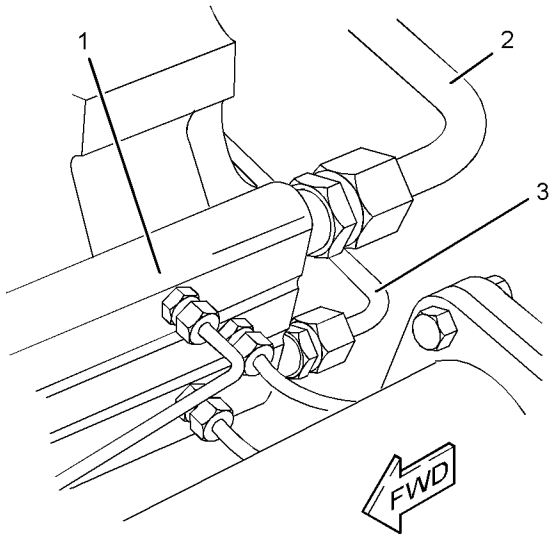

Illustration 11 g01437826
Typical example

3. Disconnect tube assembly (2) from fuel rail (1). Allow the fuel to drain from the fuel rail.

4. Disconnect tube assembly (3) from fuel rail (1). Allow the oil to drain from the fuel rail.

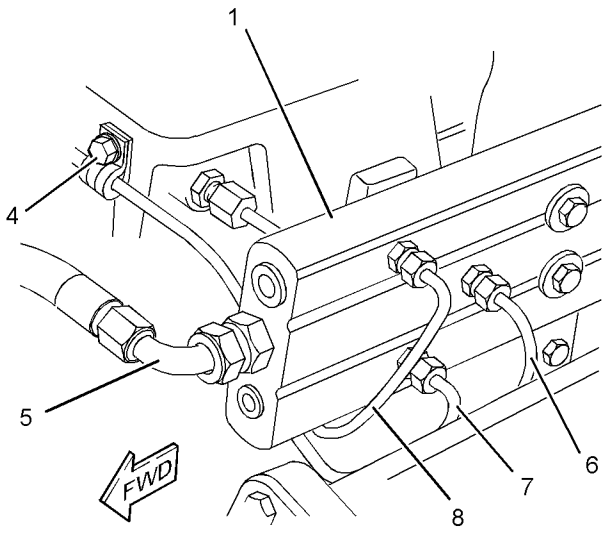

Illustration 12 g01437839
Typical example

5. Disconnect hose assembly (5) from fuel rail (1).

6. Remove tube assembly (6) and remove tube assembly (8).

7. Remove bolt (4) and remove tube assembly (7).

8. Repeat Step 6 and Step 7 in order to remove the remaining tube assemblies.

Note: Cap the tube assemblies and cap the connections on the fuel rail.

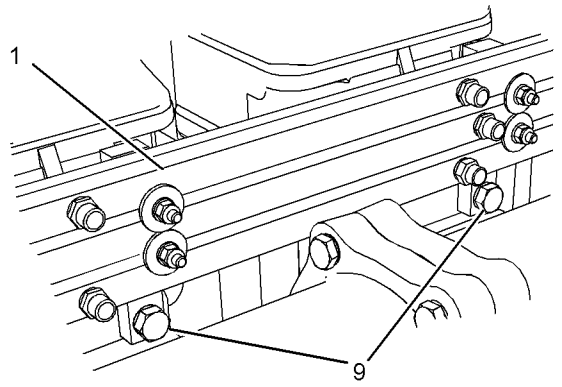

Illustration 13 g01437840
Typical example

9. Remove bolts (9) the brackets on fuel rail (1).

10. Remove fuel rail (1) from the engine.

Installation Procedure

NOTICE
Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Ensure that the fuel rail and the tube assemblies are clean and free from restrictions.

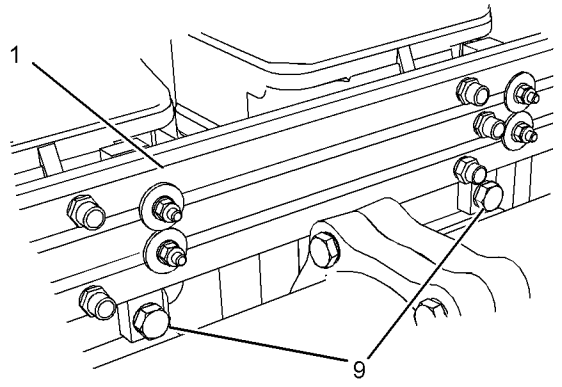

Illustration 14 g01437840
Typical example

2. Place fuel rail (1) in position and install bolts (9) to the brackets on the fuel rail. Tighten the bolts to a torque of 47 N·m (35 lb ft).

Note: Do not allow the unions to turn when the tube assemblies are connected to the fuel rail. Allowing the unions to turn when the tube assemblies are connected will damage the threads in the fuel rail. Use two spanners in order to tighten the tube assemblies to the unions.

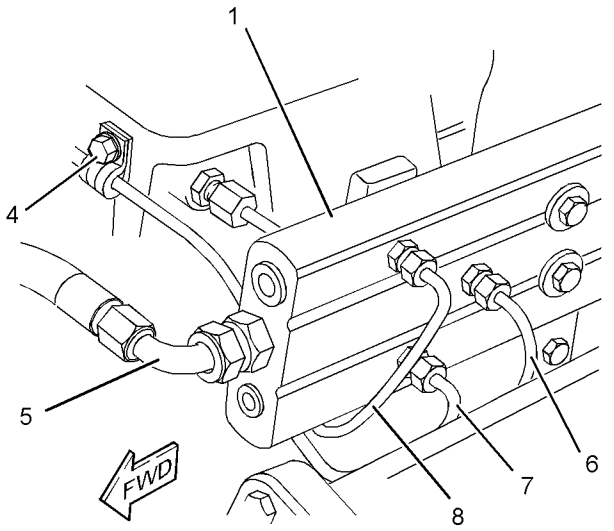

Illustration 15 g01437839
Typical example

3. Install tube assembly (7). Install bolt (4) to the tube clip. Tighten the bolt to a torque of 41 N·m (30 lb ft).

4. Install tube assembly (8) and install tube assembly (6).

5. Tighten tube nuts for tube assembly (6), tube assembly (7), and tube assembly (8) to a torque of 20 N·m (177 lb in).

6. Repeat Step 3 through Step 5 in order to install the remaining tube assemblies.

7. Connect hose assembly (5) to fuel rail (1). Tighten the tube nut for the hose assembly to a torque of 100 N·m (74 lb ft).

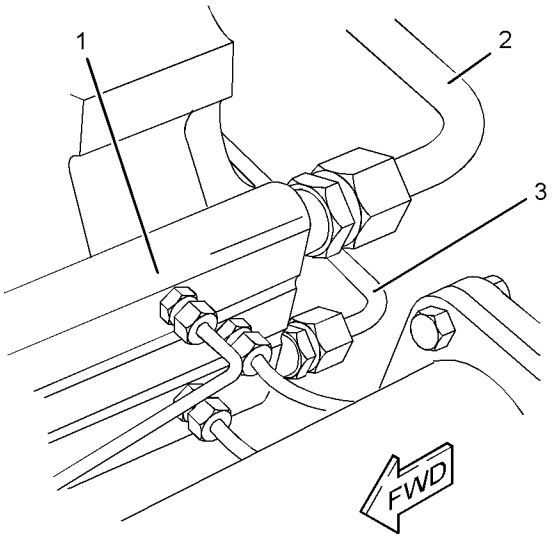

Illustration 16 g01437826
Typical example

8. Connect tube assembly (2) to fuel rail (1).Tighten the tube nut for the tube assembly to a torque of 100 N·m (74 lb ft).

9. Connect tube assembly (3) to fuel rail (1). Tighten the tube nut for the tube assembly to a torque of 30 N·m (266 lb in).

10. For Bank A position the thermocouples for the exhaust temperature sensors onto the fuel rail. Secure the thermocouples to the fuel rail with clips and new cable straps.

11. Turn the fuel supply to the ON position.

12. Remove the air from the fuel system. Refer to Operation and Maintenance Manual, “Fuel System - Prime” for the correct procedure.

End By:

a. Install the electronic governor control unit. Refer to Disassembly and Assembly, “Governor - Remove and Install” for the correct procedure. Installation of the electronic governor control unit is only necessary if Bank A fuel rail was removed.

i05784215

Governor - Remove
(Electronic Control Unit)

Removal Procedure

NOTICE
Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

⚠ WARNING

Accidental engine starting can cause injury or death to personnel working on the equipment.

To avoid accidental engine starting, disconnect the battery cable from the negative (−) battery terminal. Completely tape all metal surfaces of the disconnected battery cable end in order to prevent contact with other metal surfaces which could activate the engine electrical system.

Place a Do Not Operate tag at the Start/Stop switch location to inform personnel that the equipment is being worked on.

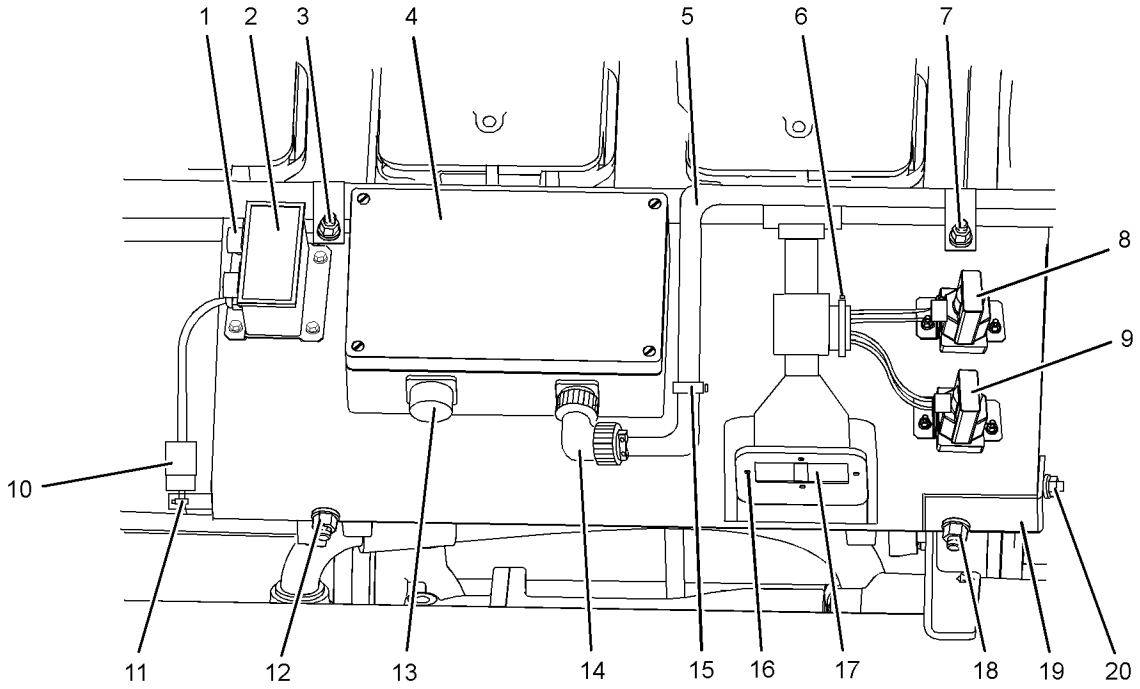

Illustration 17 g03670242

Typical example

1. Disconnect the Original Equipment Manufacture (OEM) harness assemblies from connection (13) and the harness assembly from connection (17) from electronic governor control unit (4). Refer to the OEM for the correct procedure.

Note: Make temporary marks on harness assembly.

2. Disconnect the harness assemblies for exhaust temperature sensors from connection (1) on high turbine inlet temperature switch (2).

Note: Make temporary marks on exhaust temperature sensors for installation purposes.

3. Cut cable strap (11) and disconnect harness assembly (10).

4. Disconnect the harness assemblies from solenoid (8) and solenoid (9).

Note: Make temporary marks on harness assemblies.

5. Disconnect harness assembly (5) from connection (14).

6. Cut cable strap (6) and cable strap (15).

7. Remove the nuts and bolts (16) from connection (17).

8. Remove nut (3) and nut (7). Position harness assembly (5) away from electronic governor control unit (4).

9. Remove nut (18) and nut (20). Remove bracket (19).

10. Remove nut (12). Remove electronic governor control unit (4) and the plate as an assembly.

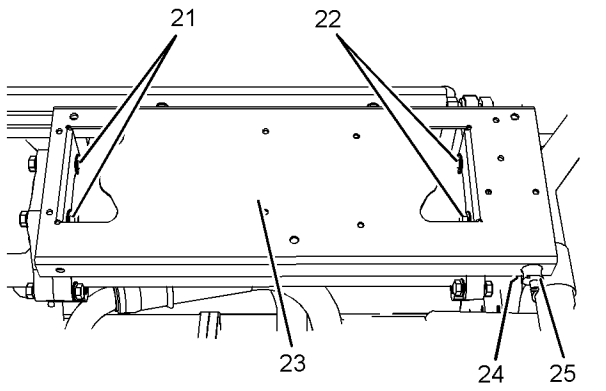

Illustration 18 g03670243

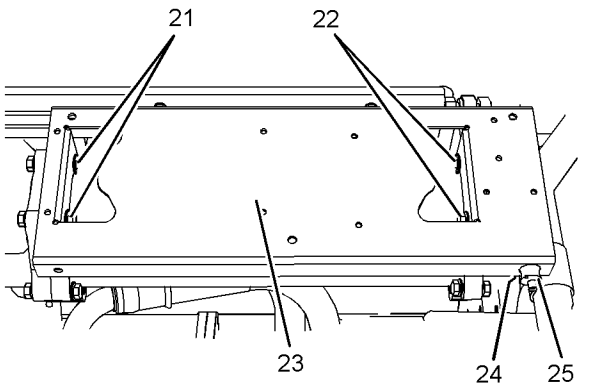

Illustration 19 g03670243

11. If necessary, remove the nuts and bolts (21) and the nuts and bolts (22). Remove plate (23) from the inlet manifold.

12. If necessary, remove nut (24) (not shown) and remove anti-vibration mount (25). Repeat Step 12 to remove remaining anti-vibration mount (25).

i05784214

Governor - Install
(Electronic Control Unit)

Installation Procedure

NOTICE
Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. If necessary, follow Step 1.a. through Step 1.d. in order to install the mounting plate for the electric governor control unit.

a. Ensure that anti-vibration mounts (25) and plate (23) are free from wear or damage.

b. If necessary, install anti-vibration mount (25) to plate (23). Install nut (24) (not shown). Tighten the nut to a torque of 25 N·m (221 lb in). Repeat Step 1.b. to install remaining anti-vibration mount (25).

c. Position plate (23) onto the inlet manifold. Install the nuts and bolts (21) and the nuts and bolts (22).

d. Tighten the nuts and bolts (21) and the nuts and bolts (22) to a torque of 50 N·m (35 lb ft).

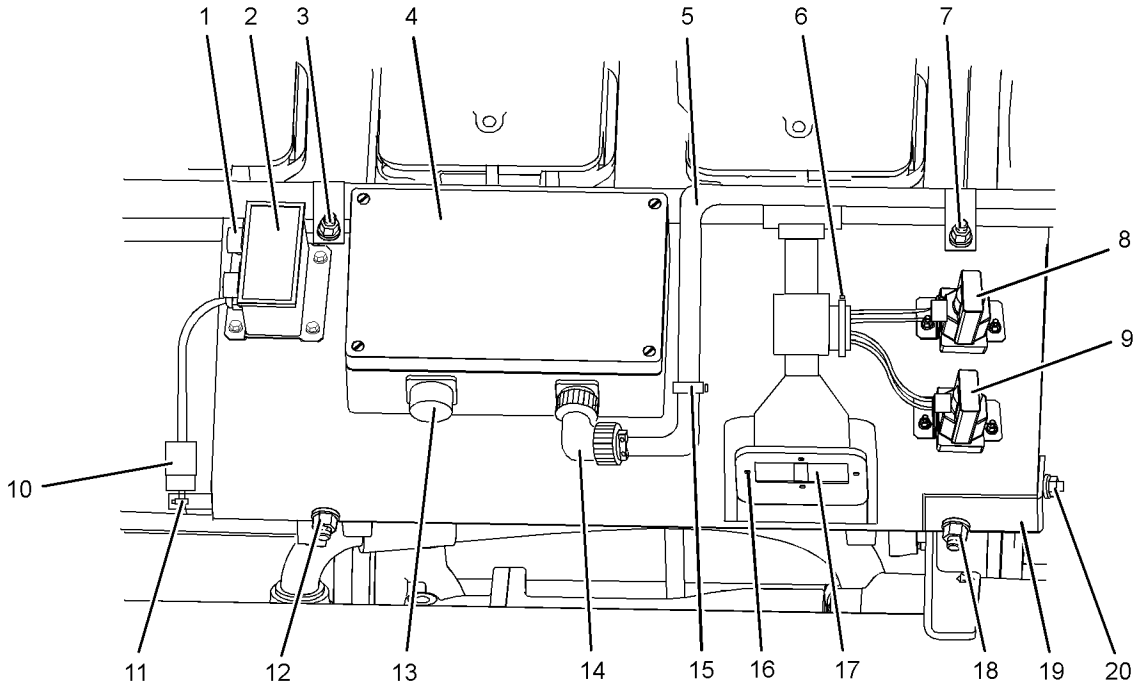

Illustration 20 g03670242

2. If a replacement electronic governor control unit has been installed, the feedback for the governor must be calibrated. Refer to Special Instruction, “Pandoras Digital Governor” for the correct procedure.

3. Install electronic governor control unit (4) and the plate as an assembly. Position harness assembly (5) onto electronic governor control unit (4) and the plate. Ensure that the clips on the harness assembly are installed onto the anti-vibration mount.

4. Install nut (3), nut (7), and nut (12) hand tight.

5. Install bracket (19). Install nut (18) and nut (20) hand tight.

6. Tighten nut (3), nut (7), nut (12), nut (18), and nut (20) to a torque of 25 N·m (18 lb ft). Ensure that the harness assembly clips are not strained as the nuts are tightened.

7. Connect harness assembly (5) to connection (14).

8. Connect the harness assemblies to solenoid (8) and solenoid (9). Ensure that the harness assemblies are connected into the correct positions. Tighten the nuts securely.

9. Position connection (17) onto plate. Install the nuts and bolts (16). Tighten the nuts and bolts securely.

10. Connect harness assembly (10). Install a new cable strap (11).

11. Install new cable strap (6) and cable strap (15) for harness assembly (5).

12. Connect the harness assemblies for exhaust temperature sensors to connections (1) on high turbine inlet temperature switch (2). Ensure that the harness assemblies for exhaust temperature sensors are connected to correct positions

13. Connect the Original Equipment Manufacture (OEM) harness assemblies to connection (13) and the harness assembly to connection (17) on electronic governor control unit (4). Refer to the OEM for the correct procedure.

i05817329

Governor Actuator - Remove (Twin Governor Actuators)

Removal Procedure

NOTICE
Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

⚠ WARNING

Accidental engine starting can cause injury or death to personnel working on the equipment.

To avoid accidental engine starting, disconnect the battery cable from the negative (−) battery terminal. Completely tape all metal surfaces of the disconnected battery cable end in order to prevent contact with other metal surfaces which could activate the engine electrical system.

Place a Do Not Operate tag at the Start/Stop switch location to inform personnel that the equipment is being worked on.

Governor Actuators

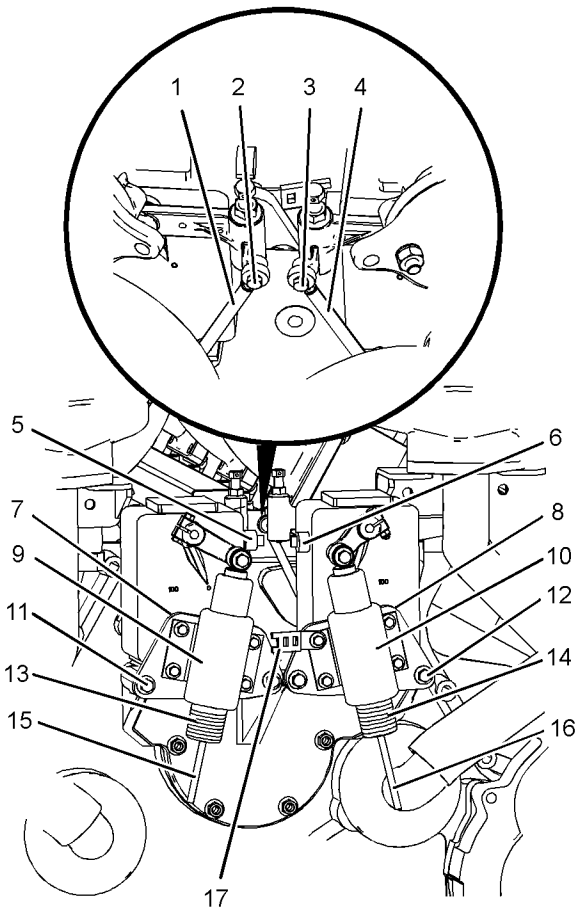

Illustration 21 g03677697

1. Remove bolt (2) and bolt (3). Disconnect link (1) and link (4).

2. Disconnect harness assembly (5) and harness assembly (6) from the governor actuators. Cut the cable strap from clip (17) and position the harness assemblies away from the governor actuators.

3. Compress the plungers on stop solenoid (9) and stop solenoid (10). Use suitable cable straps in order to secure the plungers in the compressed position.

4. Cut the cable straps that retain rubber cover (13) and rubber cover (14). Slide the rubber cover down harness assembly (15) and harness assembly (16).

5. Make temporary identification marks on the connections of harness assembly (15) and harness assembly (16). Disconnect the harness assemblies from stop solenoid (9) and stop solenoid (10).

6. Remove bolts (11) and remove bracket (7) and stop solenoids (9) from the governor actuators.

7. Remove bolts (12) and remove bracket (8) and stop solenoids (10) from the governor actuators.

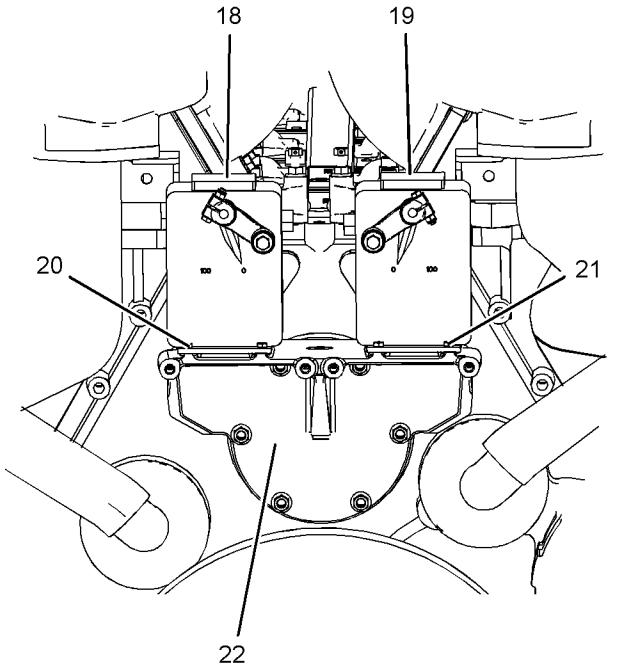

Illustration 22 g03677864

8. Remove bolts (20) and bolts (21) from governor actuator (18) and governor actuator (19).

9. Remove governor actuator (18) and governor actuator (19) from bracket (22).

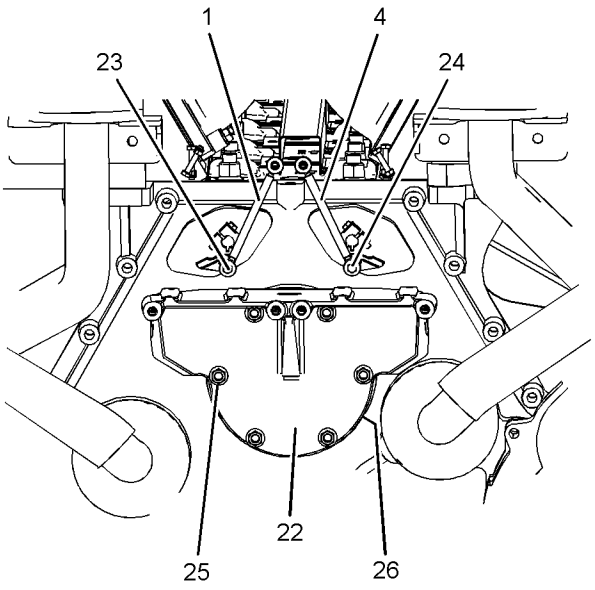

Illustration 23 g03677874

10. If necessary, follow Step 10.a. through Step 10.b. in order to remove the links.

a. Make temporary marks on link (1) and link (4) for installation purposes.

b. Remove bolt (23) and bolt (24). Remove link (1) and link (4).

11. If necessary, follow Step 11.a. through Step 11.c. in order to remove the bracket.

a. Remove nuts (25) from bracket (22). Support the bracket as the nuts are removed.

b. Remove bracket (22) from the front cover.

c. Remove gasket (26) (not shown).

Stop Solenoids and Brackets

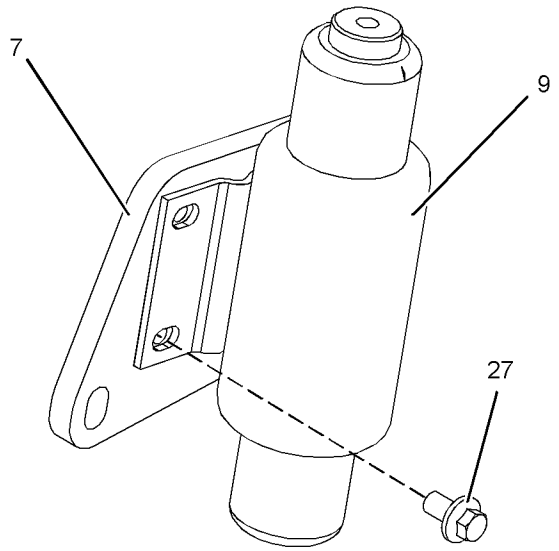

Illustration 24 g03677698

Bank A stop solenoid and bracket

1. If necessary, follow Step 1.a. through Step 1.b. in order to remove the stop solenoid from the bracket.

a. Remove bolts (27).

b. Remove stop solenoid (9) from bracket (7).

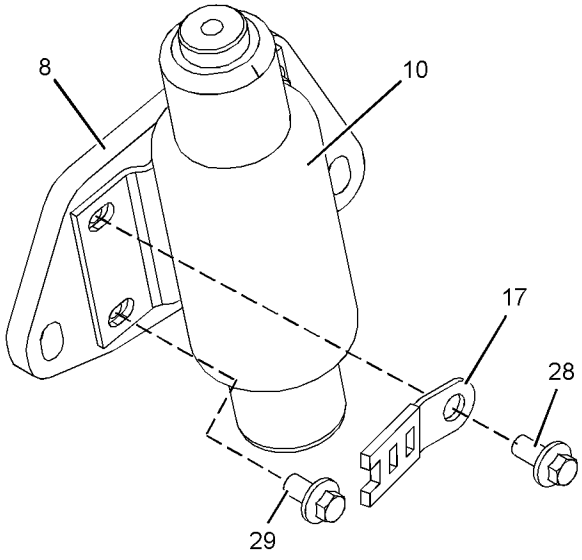

Illustration 25 g03677699

Bank B stop solenoid and bracket

2. If necessary, follow Step 2.a. through Step 2.c. in order to remove the stop solenoid from the bracket.

a. Make temporary mark on clip (17) for instillation purposes. Remove bolt (28) and remove the clip.

b. Remove bolts (29).

c. Remove stop solenoid (10) from bracket (8).

Actuator Adjustment Levers

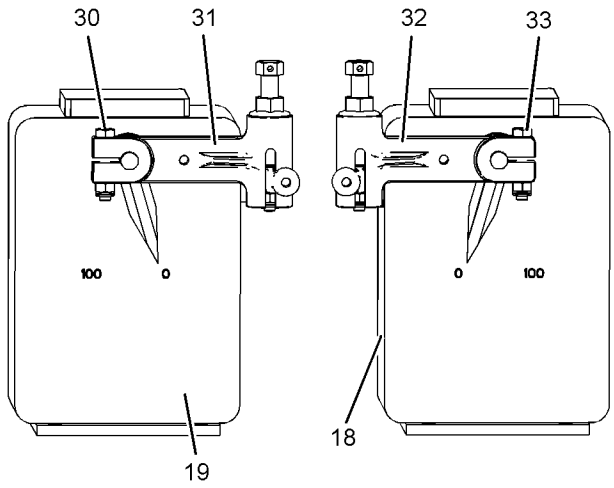

Illustration 26 g03678317

Rear view of governor actuators

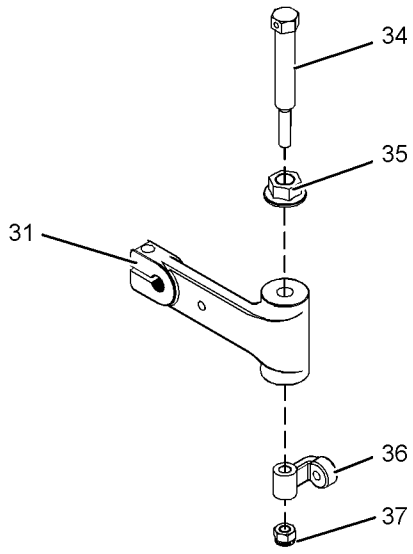

Illustration 27 g03678318

Actuator adjustment lever

1. If necessary, follow Step 1.a. through Step 1.j. in order to remove the actuator adjustment lever and disassemble the actuator adjustment lever.

a. Make temporary mark on actuator adjustment lever (31) and governor actuator (19) for instillation purposes.

b. Remove the nut and bolt (30). Remove actuator adjustment lever (31) from governor actuator (19).

c. Make temporary mark on actuator adjustment lever (32) and governor actuator (18) for instillation purposes.

d. Remove the nut and (33). Remove actuator adjustment lever (32) from governor actuator (18).

e. Remove locking nut (37) from adjuster (34).

f. Remove link (36) from lever (31) and adjuster (34).

g. Loosen nut (35) on adjuster (34).

h. Remove adjuster (34) from lever (31).

i. Remove nut (35) from adjuster (34).

j. Repeat Step 1.h. through Step 1.i. in order to disassemble lever (32).

Actuator Stop Levers

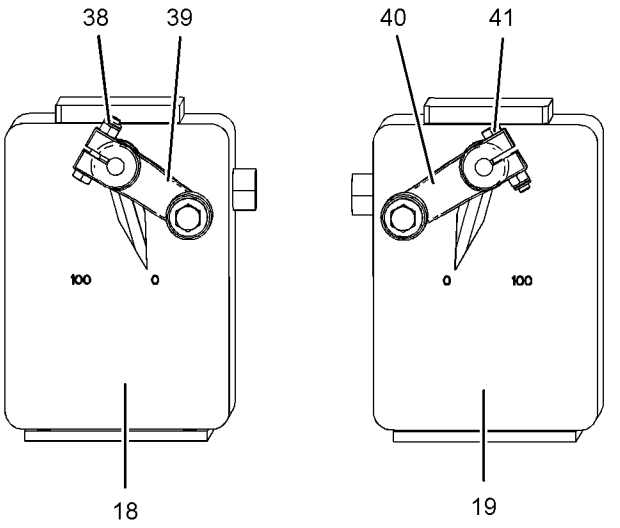

Illustration 28 g03678322

Front view of governor actuators

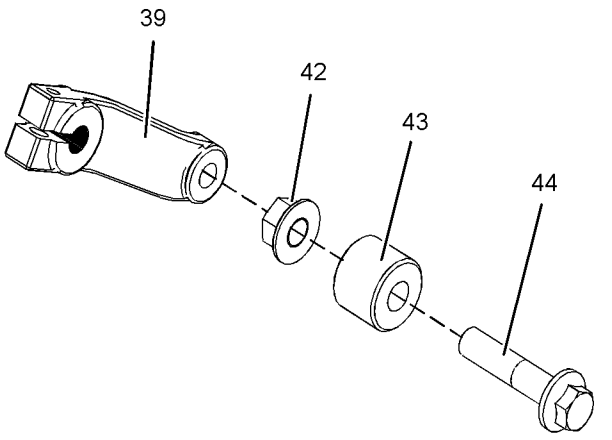

Illustration 29 g03678323

Actuator stop lever

1. If necessary, follow Step 1.a. through Step 1.i. in order to remove the actuator stop lever and disassemble the actuator stop lever.

a. Make temporary marks on actuator stop lever (39) and governor actuator (18) for instillation purposes.

b. Remove the nut and bolt (38).

Note: Make temporary marks to show orientation of the nut and bolt.

c. Remove actuator stop lever (39) from governor actuator (18).

d. Make temporary marks on actuator stop lever (40) and governor actuator (19) for instillation purposes.

e. Remove the nut and bolt (41).

Note: Make temporary marks to show orientation of the nut and bolt.

f. Remove actuator stop lever (40) from governor actuator (19).

g. Loosen nut (42). Remove bolt (44) and bush (43) from lever (39).

h. Remove nut (42) from bolt (43) and remove bush (43).

i. Repeat Step 1.g. through Step 1.h. in order to disassemble lever (39).

i05817327

Governor Actuator - Remove
(Single Governor Actuator)

Removal Procedure

NOTICE
Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

⚠ WARNING

Accidental engine starting can cause injury or death to personnel working on the equipment.

To avoid accidental engine starting, disconnect the battery cable from the negative (−) battery terminal. Completely tape all metal surfaces of the disconnected battery cable end in order to prevent contact with other metal surfaces which could activate the engine electrical system.

Place a Do Not Operate tag at the Start/Stop switch location to inform personnel that the equipment is being worked on.

Governor Actuator

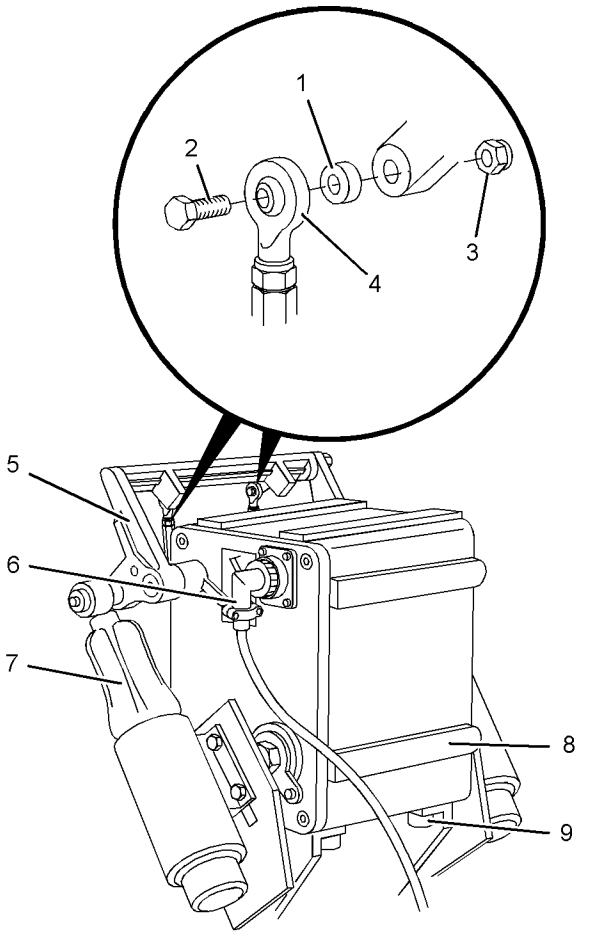

Illustration 30 g03681732
Typical example

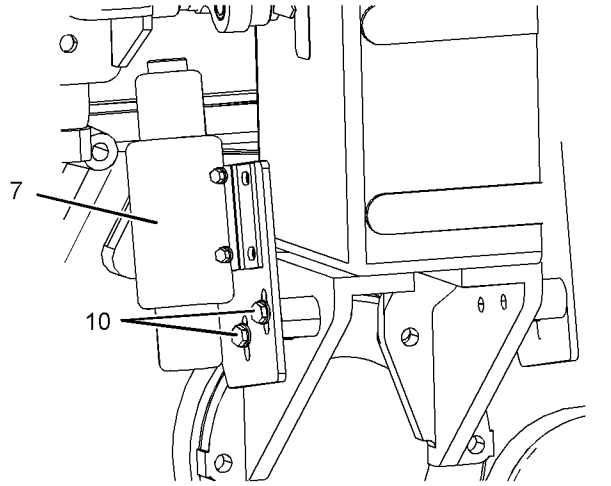

Illustration 31 g03681764

1. Disconnect harness assembly (6) from governor actuator (8).

2. Compress the plungers on stop solenoids (7). Use suitable cable straps in order to secure the plungers in the compressed position.

3. Remove nut (3), bolt (2) and spacer (1) in order to disconnect control rod (4) from lever (5).

4. Repeat Step 3 in order to remove the remaining control rod from lever (5).

5. Remove bolts (10) and remove stop solenoid (7) from the bracket. Repeat Step 5 in order to remove the remaining stop solenoid from the brackets.

6. Remove allen head bolts (9) and carefully lift governor actuator (8) from the brackets.

7. If necessary, remove lever (5) from governor actuator (8).

Note: Mark the position of the lever for installation purposes.

Actuator Stop Levers

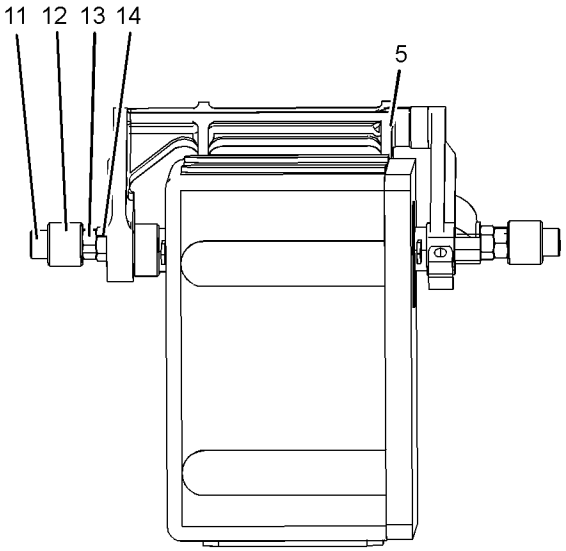

Illustration 32 g03681735

1. If necessary, follow Step 1.a. through Step 1.e. in order to disassemble lever (5).

a. Loosen nut (14).

b. Remove the assembly of allen head bolt (11) from lever (5).

c. Remove nut (14) and nut (13) from allen head bolt (11).

d. Remove bush (12) from allen head bolt (11).

e. Repeat Step 1.a. through Step 1.d. in order to remove remaining allen head bolt (11), bush (12), nut (14), and nut (13) from lever (5).

Stop Solenoids and Governor Actuator Mounting Bracket

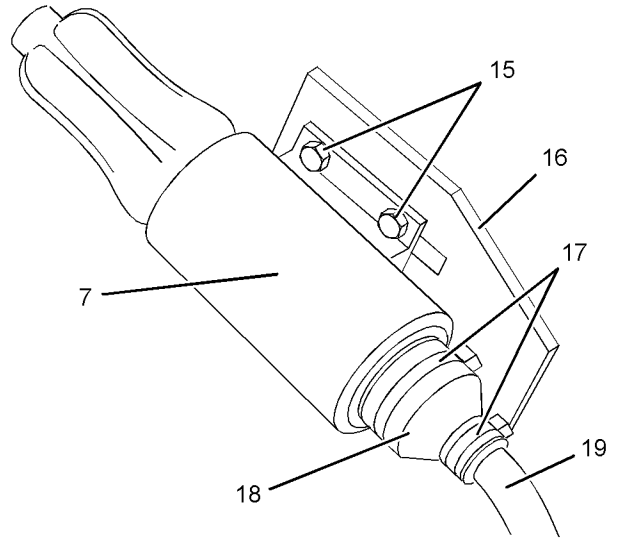

Illustration 33 g03681733

Typical example

1. Cut cable straps (17) and slide rubber covers (18) down harness assemblies (19).

2. Make temporary identification marks on the connections of harness assemblies (19). Disconnect the harness assemblies from stop solenoid (7).

3. Remove the nuts and bolts (15) and remove stop solenoid (7) from bracket (16).

4. Repeat Step 1 through Step 3 in order to remove the remaining stop solenoid from the bracket.

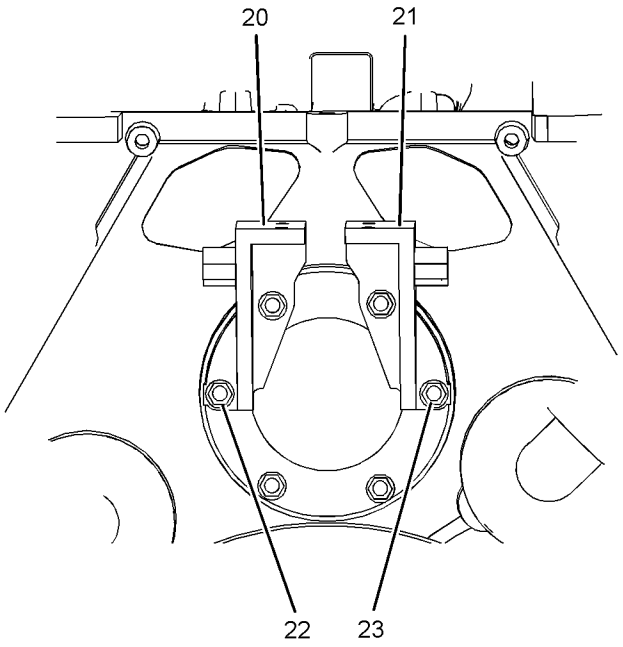

Illustration 34 g03681734

5. If necessary, follow Step 5.a. through Step 5.b. in order to remove bracket (20) and bracket (21) from the timing case.

a. Make temporary identification marks on the bracket (20). Remove nuts (22) and remove the bracket from the timing case. Support the bracket as the nuts are removed.

b. Make temporary identification marks on the bracket . Remove nuts (23) and remove the bracket (21)from the timing case. Support the bracket as the nuts are removed.

i05817330

Governor Actuator - Install (Twin Governor Actuators)

Installation Procedure

NOTICE
Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Ensure that all components for the governor actuators are free from wear or damage. Replace any component that is worn or damaged.

Actuator Stop Levers

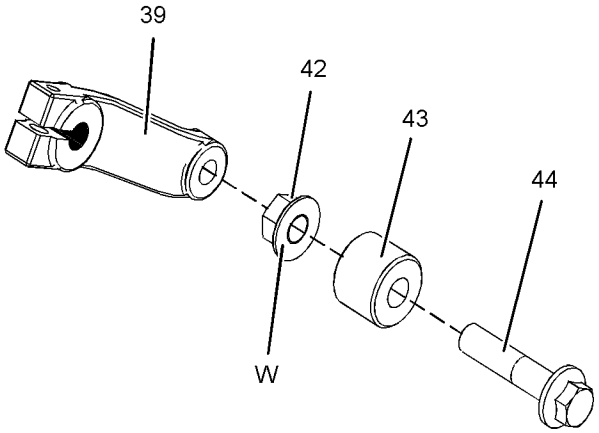

Illustration 35 g03678359

Actuator stop lever

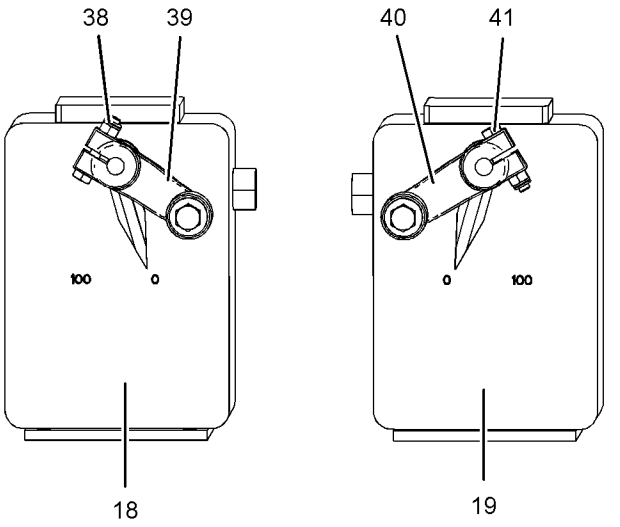

Illustration 36 g03678322

Front view of governor actuators

1. If necessary, follow Step 1.a. through Step 1.j. in order to assemble the actuator stop lever and install the actuator stop lever.

a. Grease the internal diameter of bush (43).

b. Install bush (43) to bolt (44) and install nut (42). Ensure that flange Section (W) of nut (42) is toward the bush (43).

c. Install the assembly of bolt (44) to lever (39) ensure that bush (43) is free to rotate without excess end play. Tighten nut to a torque of 44 N·m (32 lb ft).

Note: Ensure that the bush can still rotate freely without excess end play after the nut is tightened.

d. Repeat Step 1.a. through Step 1.c. in order to assemble lever (40).

e. Install actuator stop lever (39) to governor actuator (18). Ensure that the actuator stop lever and the governor actuator are aligned with temporary marks.

f. Install the nut and bolt (38) to actuator stop lever (39). Ensure that the nut and bolt are correctly orientated.

g. Tighten to nut and bolt (38) to a torque of 10 N·m (89 lb in).

h. Install actuator stop lever (40) to governor actuator (19). Ensure that the actuator stop lever and the governor actuator are aligned with temporary marks.

i. Install the nut and bolt (41) to actuator stop lever (40). Ensure that the nut and bolt are correctly orientated.

j. Tighten the nut and bolt (41) to a torque of 10 N·m (89 lb in).

Actuator Adjustment Levers