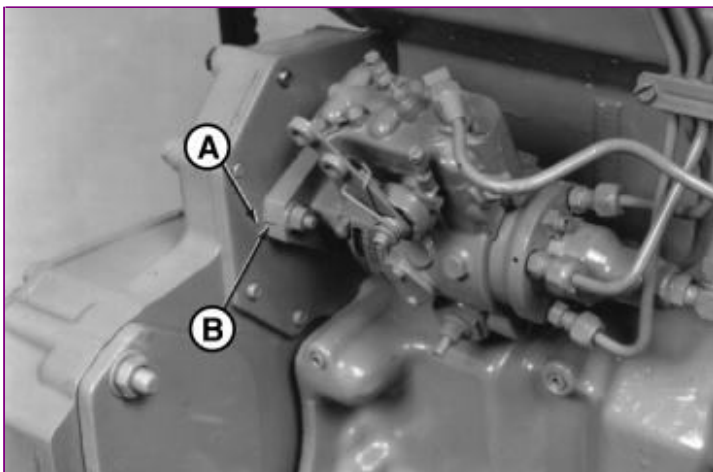


CTM207 - PowerTech™ 4.5L and 6.8LDiesel EnginesMechanical Fuel Systems

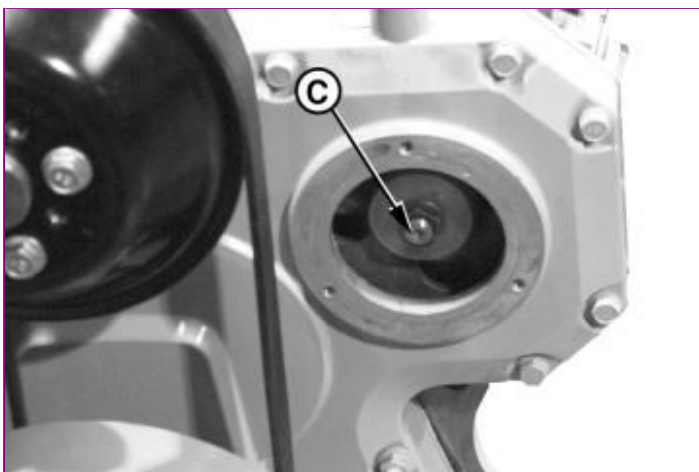
Install Stanadyne Model DB2 and DB4 Injection Pump (without Lock Shaft Timing)

Install Stanadyne Model DB2 and DB4 Injection Pump (without Lock Shaft Timing)

1. **IMPORTANT:**



RG6278-UN: Injection Pump Timing Marks



RG7630C-UN: Pump Drive Gear Retaining Nut

LEGEND:

- A - Front Plate Timing Mark
- B - Pump Timing Mark
- C - Pump Drive Gear Retaining Nut

Injection pump mounting flange timing mark (B) and front plate timing mark (A) presence and alignment **MUST BE** verified before removing pumps from engine. When pump is reinstalled on engine, time pump by aligning these two (external) marks. **DO NOT** reference internal timing marks (on pump cam ring and governor weight retainer) for accurate pump timing.

Lubricate a new square sealing ring with clean engine oil. Install ring into groove on front face of pump mounting flange. Slide injection pump onto mounting studs while inserting pump shaft into drive gear.

2. **IMPORTANT:**

Shaft roll pin may be easily damaged if improperly assembled. Pump drive gear should not move when initially installing pump index pin into drive gear key slot.

Check pump shaft and index pin for proper alignment with pump drive gear key slot.

3. Install injection pump partially onto mounting studs without engaging pump pilot hub into engine front plate.

4. **IMPORTANT:**

DO NOT tighten hex nuts more than three full turns on mounting studs. Pump drive shaft index pin may be damaged if pin is not properly aligned with drive gear key slot and nuts are tightened more than three turns.

Install three flat washers, lock washers, and hex nuts onto pump mounting studs. Tighten nuts three turns only so that pump will not fall off mounting studs.

NOTE:

The pump drive gear should begin to move forward (away from engine front plate) with the pump when flange is approximately 3.2 mm (1/8 in.) away from engine front plate.

5. Install pump mounting flange flush to engine front plate with drive gear held flush against front side of engine front plate.

6. **IMPORTANT:**

DO NOT use tightening force of pump mounting stud nuts to pull pump shaft into drive gear ID.

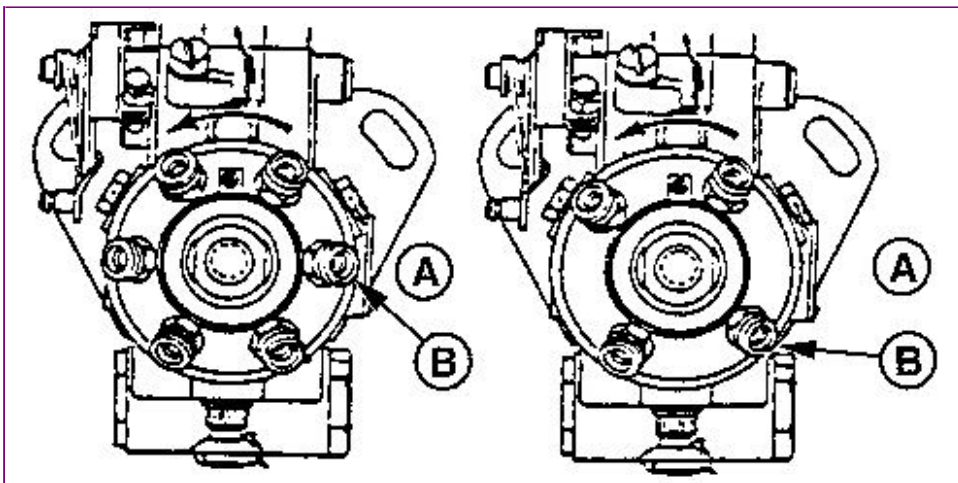
With the pump shaft index pin properly engaged in the drive gear key slot, finger tighten mounting stud nuts.

7. Push pump drive gear firmly onto shaft taper. Install washer and retaining nut (C) onto end of shaft. Tighten retaining nut to the following torque specification:

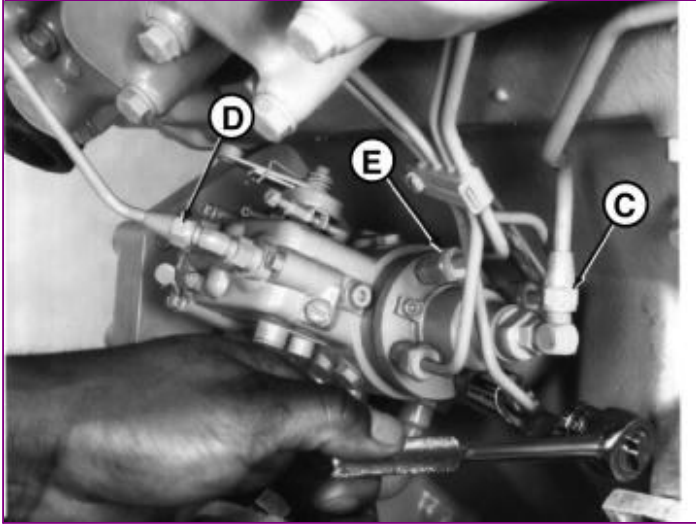
Item	Measurement	Specification
Stanadyne DB2 Fuel Injection Pump Drive Gear-to-Shaft Retaining Nut	Torque	125 N·m (92 lb-ft)
Stanadyne DB4 Fuel Injection Pump Drive Gear-to-Shaft Retaining Nut	Torque	200 N·m (148 lb-ft)

8. **IMPORTANT:**

To avoid damage to O-ring, Do NOT overtighten cap screws on pump cover plate.



RG9089-UN: 6-Cylinder Engine (Left)
4-Cylinder Engine (Right)



RG5664-UN: Fuel Supply, Return and Pressure Lines

LEGEND:

- A - Engine Block Side
- B - Outlet Connection to No. 1 Cylinder
- C - Fuel Supply Line
- D - Fuel Return Line
- E - Fuel Delivery (Pressure) Lines (4 or 6 used)

Install access cover plate using a new O-ring, if needed. Apply LOCTITE ® 242 (T43512) to cap screw threads and tighten to specifications.

Item	Measurement	Specification
Rotary Injection Pump Front Access Plate Cap Screws	Torque	6 N·m (4.5 lb-ft) (54 lb-in.)

9. Align timing mark on pump flange with timing mark on front plate.
10. Tighten three hex nuts securing the pump to the front plate to specifications.

Item	Measurement	Specification
Rotary Injection Pump Mounting Nuts	Torque	27 N·m (20 lb-ft)

11. Connect injection pump pressure lines (E). Beginning with outlet (B) and continuing around the pump head in counterclockwise direction, attach lines in same order as engine firing (1-5-3-6-2-4 on 6-cylinder engines and 1-3-4-2 on 4-cylinder engines).
12. Tighten fuel delivery (pressure) lines at pump to specifications, using a suitable 17 mm deep-well socket.

Item	Measurement	Specification
Fuel Injection Pump Delivery Lines (At Pump)	Torque	27 N·m (20 lb-ft)

13. **IMPORTANT:**

ALWAYS use a backup wrench when loosening or tightening fuel delivery lines at fuel injection pump, so that the pump discharge fittings are not altered. This prevents possible internal pump damage.

Connect fuel supply line (C) and fuel return line (D).

14. Connect fuel shut-off cable and speed control linkage, if equipped. Install and securely tighten electrical connections to shut-off solenoid and throttle positioning solenoid, if equipped. Connect cold start switch, if equipped.

15. Bleed air from fuel system as outlined in this group. (See [BLEED THE FUEL SYSTEM](#) in this group.) Start engine, run for several minutes and check entire fuel system for leaks.
16. If required, proceed with Dynamic Timing.

CTM207 - PowerTech™ 4.5L and 6.8LDiesel Engines Mechanical Fuel Systems Install Stanadyne Model DB4 Injection Pump (with Lock Shaft Timing)

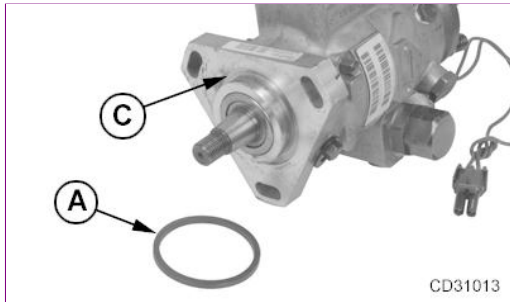
Install Stanadyne Model DB4 Injection Pump (with Lock Shaft Timing)

1. **IMPORTANT:**

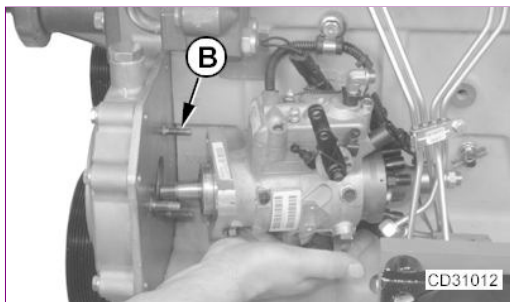
Repaired or replacement pumps have the drive shaft locked by the manufacturer or by the workshop Dealer once proper pump timing orientation has been established. To comply with Emission Regulations, do not install pump which has not the drive shaft locked. Bring the pump to a Stanadyne Agent for timing and installation of the lock shaft timing screw.

NOTE:

When installing pump, do not use previous timing marks (if any) on front plate and on pump flange.



CD31013-UN: Install Sealing Ring



CD31012-UN: Install Injection Pump

LEGEND:

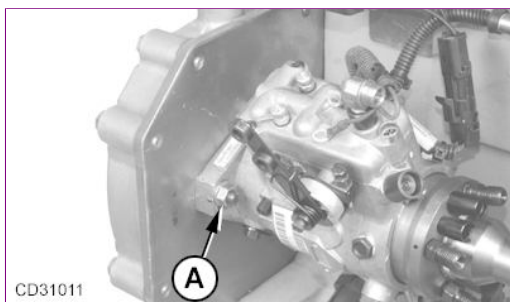
- A - Sealing Ring
- B - Injection Pump Mounting Studs
- C - Sealing Ring Groove

Lubricate a new square sealing ring (A) with clean engine oil. Install ring into groove (C) on front face of pump mounting flange.

2. Slide and rotate injection pump onto mounting studs (B) while inserting pump shaft into drive gear.

IMPORTANT:

Rotate the complete pump to align pump shaft key with gear key slot.



3. CD31011-UN: Install Stud Nuts

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