

The logo features a stylized diamond shape on the left, composed of a dark blue left-pointing triangle and a red right-pointing triangle. To the right of this graphic, the company name is written in a bold, italicized, sans-serif font.

**DIAMOND DIESEL and
TURBOCHARGER SERVICE, Inc.**

Diesel Fuel Injection:

Fuel pumps

Injectors

Turbochargers

OAKLAND

SACRAMENTO

SPARKS, NV

1-800-4-DIESEL

REMOVAL AND INSTALLATION INSTRUCTIONS FOR:

VE STYLE BOSCH PUMP

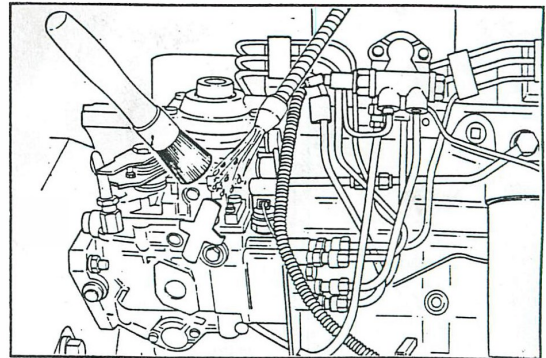
for

4BT and 6BT Cummins Engines

DIAMOND DIESEL and TURBOCHARGER SERVICE, Inc.

NOTE: A diesel engine cannot tolerate dirt or water in the fuel system. A tiny piece of dirt or a few drops of water in the injection system may stop your unit.

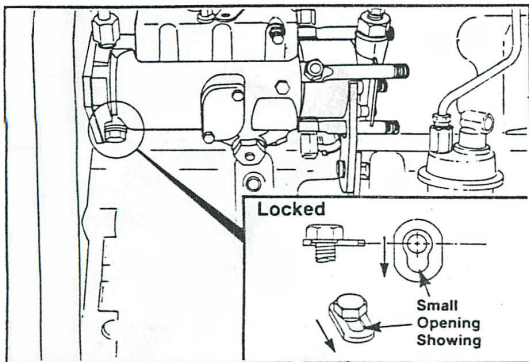
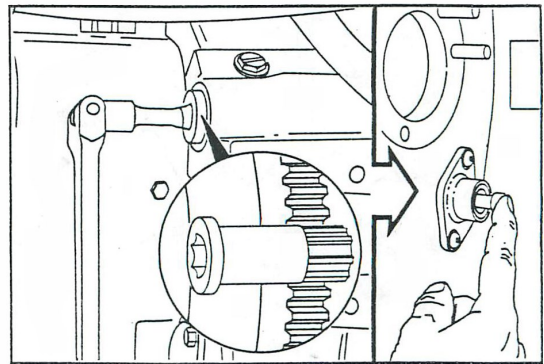
Clean all external surfaces of the injection pump, including all line connections and fittings that are to be disconnected. Clean the area around the injection pump gear cover to prevent dirt from entering the crankcase.



Removing the Fuel Pump

Locate TDC for cylinder number 1. Push the TDC pin into the hole in the camshaft gear while slowly barring the engine.

To prevent damage to the timing pin, be sure to disengage the pin after locating TDC.

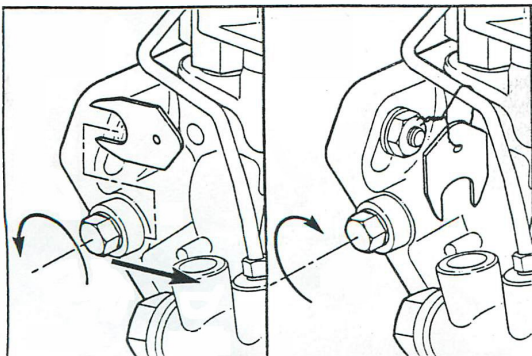


14 mm

Loosen the CAV injection pump lockscrew and position the special washer, then tighten the lockscrew against the pump drive shaft.



Torque Value: 8 N•m [6 ft-lb]



10 mm

The special washer on the Bosch injection pump must be removed so the lockscrew can be tightened against the drive shaft.



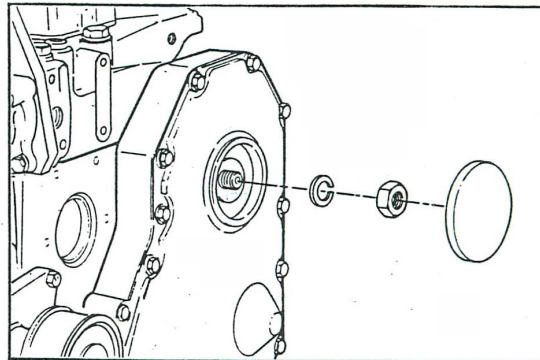
Torque Value: 30 N•m [22 ft-lb]

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22 mm

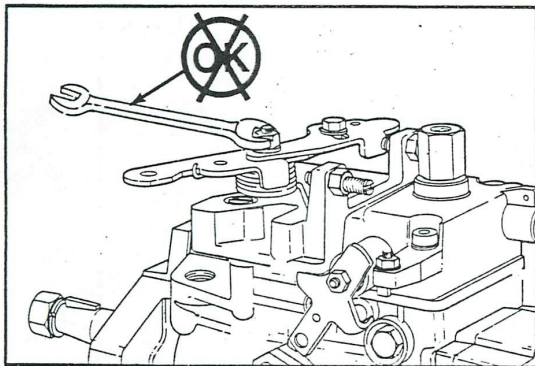
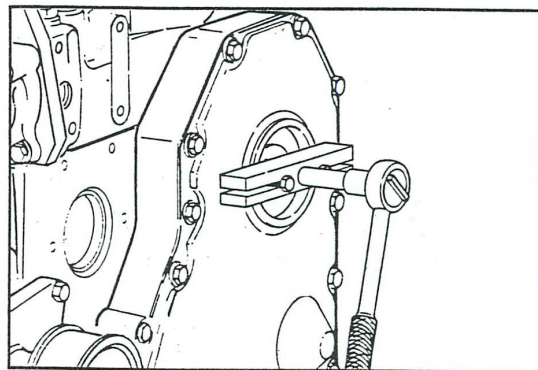
Remove the gear cover access cap.

Remove the nut and washer from the fuel pump shaft.

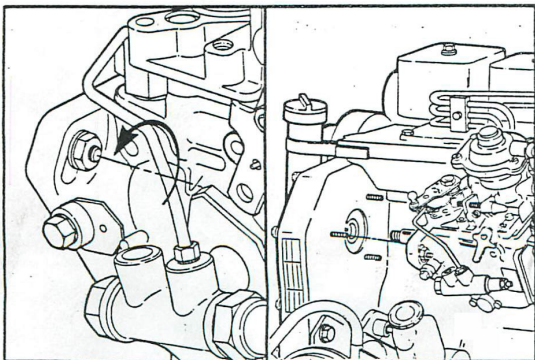


75 mm T-Bar Puller

Pull the fuel pump drive gear loose from the shaft.



Caution: Do not remove the control lever. The lever is indexed to shaft during pump calibration.



13 mm

Caution: Do not drop drive gear key when removing pump.



Remove the three mounting nuts.



Remove the fuel pump.

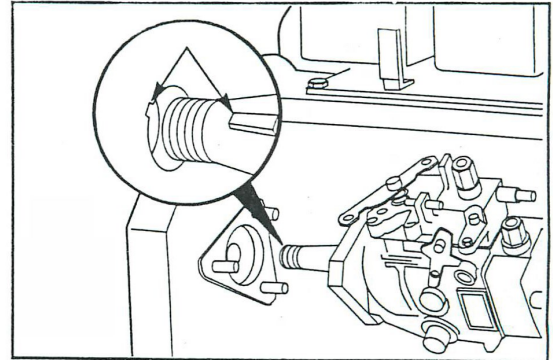
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Installing the Fuel Pump

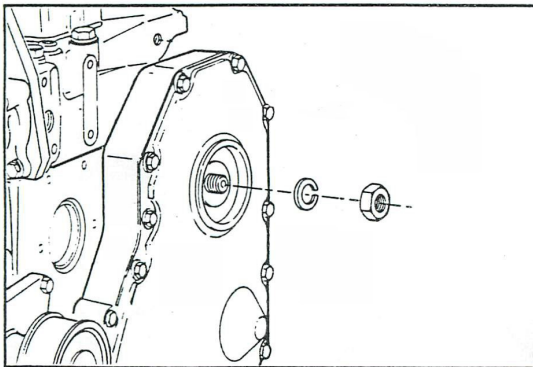
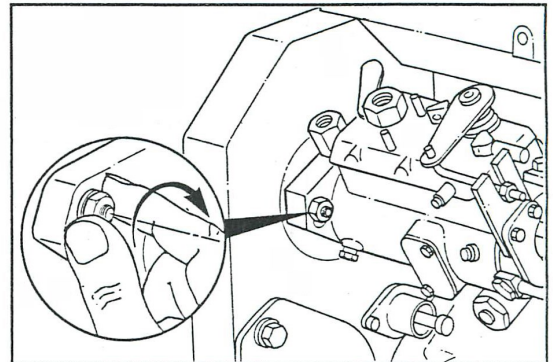
Make sure the engine has cylinder number 1 at TDC.

The keyway in the shaft of new and reconditioned pumps will be locked in a position corresponding to the keyway in the drive gear when cylinder number 1 is at TDC on the compression stroke.

After verifying that Cylinder Number 1 is at TDC, install the pump. Make sure the key doesn't fall into the gear housing.



Attach the pump by finger tightening the three mounting nuts. The pump must be free to move in the slots.



22 mm (CAV), 24 mm (Bosch)

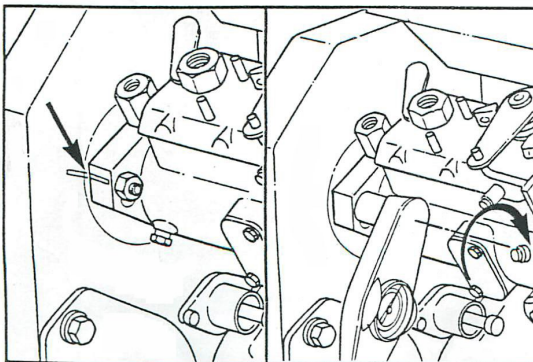


Attach the pump drive shaft nut and spring washer. The pump may rotate slightly due to gear helix and clearance. This is acceptable providing the pump is free to move on the flange slots and the crankshaft does not move.



NOTE: Do not overtighten. This is not the final torque.

Torque Value: 15 to 20 N•m [11 to 15 ft-lb]



13 mm

If reinstalling the removed pump, refer to page 10-46 to unlock the pump. Rotate the pump to align the scribe marks. Tighten the three mounting nuts.



Proceed with the installation procedure given on page 10-47.



Torque Value: 24 N•m [18 ft-lb]

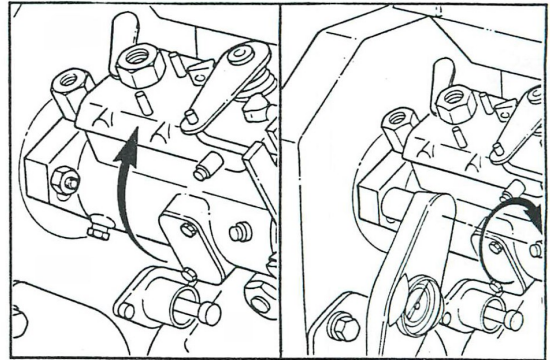
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13 mm

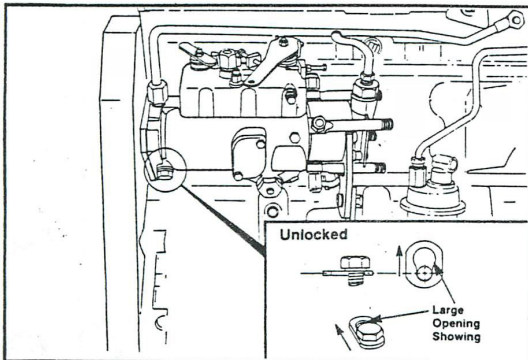
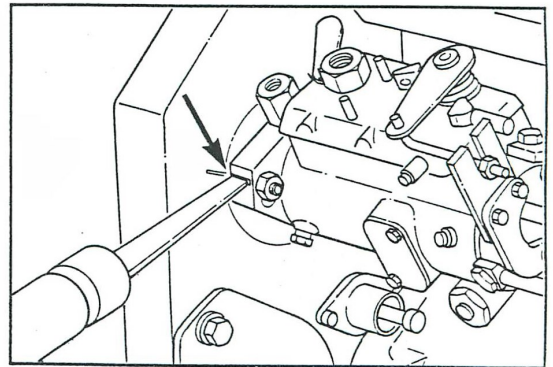
If installing a new or rebuilt pump without scribe marks, take up gear lash by rotating the pump against the direction of drive rotation.

Tighten pump retaining nuts.

Torque Value: 24 N•m [18 ft-lb]



If a new or rebuilt pump is being installed, permanently mark the injection pump flange to match the mark on the gear housing.



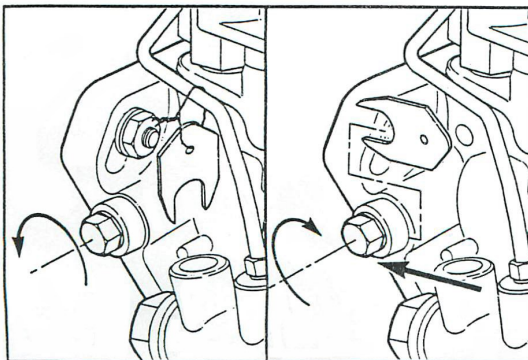
14 mm

Loosen the CAV pump lockscrew and position the special washer behind the lockscrew head.

Tighten the pump lockscrew.



Torque Value: 20 N•m [15 ft-lb]



10 mm

NOTE: On the Bosch pump, the special washer is wired to the pump and must be installed under the lockscrew

Tighten the pump lockscrew.



Torque Value: 13 N•m [10 ft-lb]

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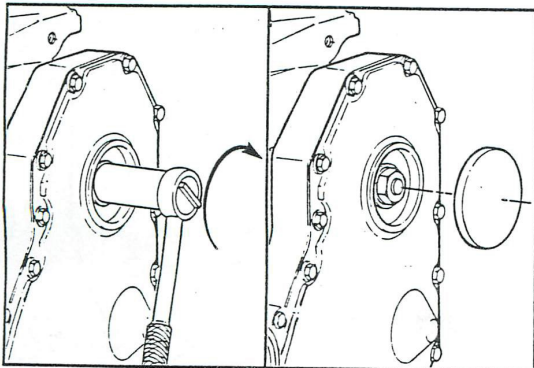
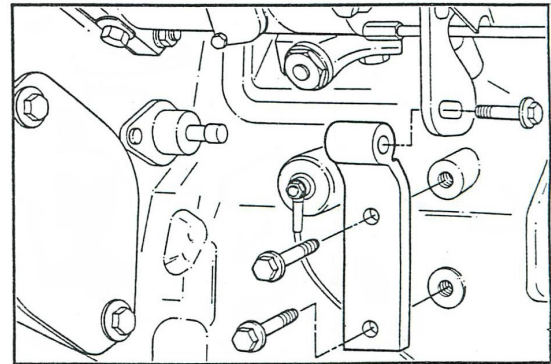
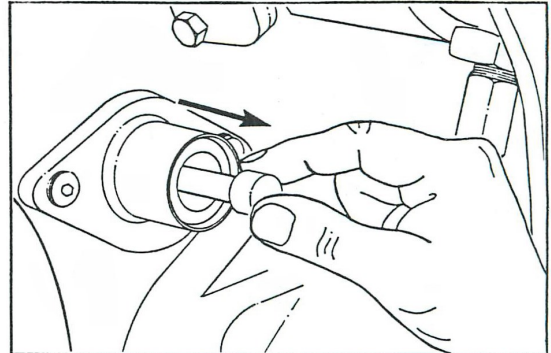
NOTE: Be sure to disengage the timing pin.

13 mm

Attach the injection pump support bracket. Finger Tighten all capscrews before final tightening.

NOTE: Tighten the bracket to block mounting capscrew before tightening the bracket to injection pump capscrews.

Torque Value: 24 N•m [18 ft-lb]



22 mm

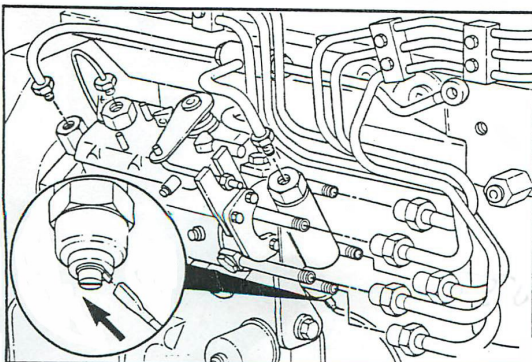
Tighten the drive gear mounting nut.

Install the access cap.

Torque Value: 65 N•m

12 mm NUT 48 ft-lb

14 mm NUT 69 ft/lb



8 mm

Install the solenoid wiring and all fuel lines.