

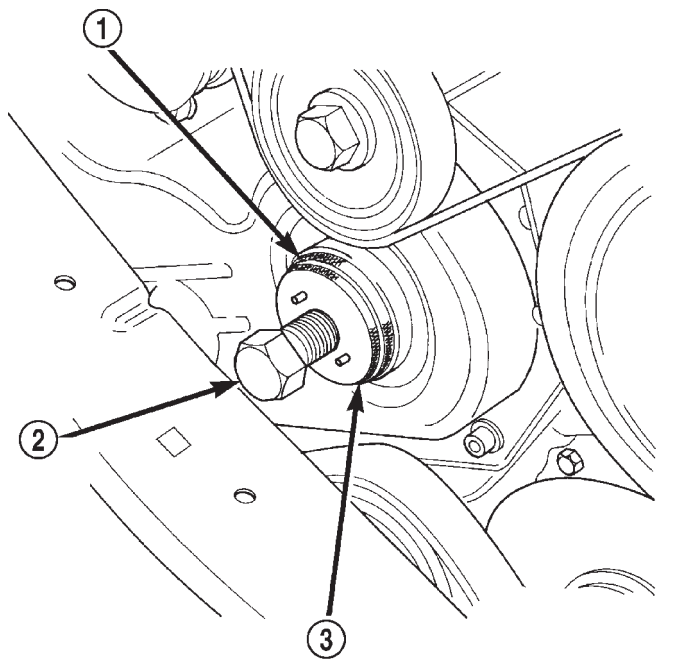
REMOVAL AND INSTALLATION (Continued)

(a) Thread the adapter (Fig. 31) into the timing cover.

(b) Thread the gear puller into the injection pump drive gear (Fig. 31). This tool is also used to hold the gear in synchronization during pump removal.

(c) Remove the three injection pump-to-gear cover mounting nuts (Fig. 32). **CAUTION: This step must be done to prevent injection pump damage.**

(d) Install the drive bolt into the gear puller (Fig. 31). Tighten the drive bolt to press (remove) the drive gear from injection pump shaft while driving injection pump rearward from timing gear cover mounting studs.



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Fig. 31 Installing Pump Drive Gear Removal Tools

- 1 - ADAPTER
- 2 - DRIVE BOLT
- 3 - GEAR PULLER

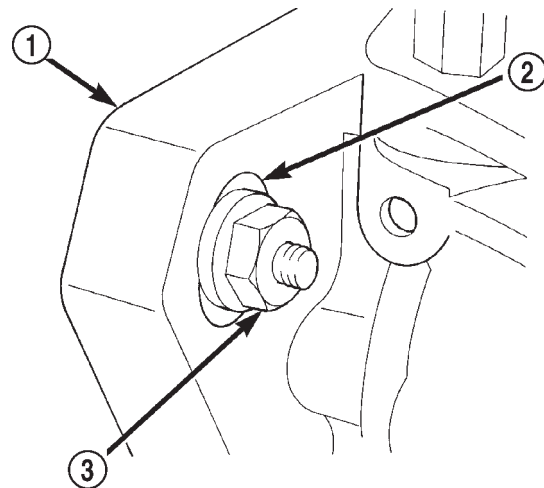
(19) Remove pump from engine. **Do not rotate engine while gear puller is installed. Engine damage will occur.**

INSTALLATION / ADJUSTING INJECTION PUMP TIMING

NOTE: Engine should be positioned at 20°- 25° degrees before T. D. C.

(1) Clean the mating surfaces of injection pump and timing gear cover.

(2) Install a new injection pump-to-timing gear cover gasket.



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Fig. 32 Injection Pump Mounting Nuts

- 1 - MOUNTING FLANGE
- 2 - SLOTTED HOLES (3)
- 3 - PUMP MOUNTING NUTS (3)

(3) Remove the gear removing bolt (drive bolt) from gear puller. **CAUTION: Do not remove the special gear puller or timing cover adapter tools from timing cover at this time. Gear misalignment will result.**

(4) Place the key way on the pump shaft to the 11 o'clock position as viewed from the front of pump. Install the pump into the rear of timing gear cover while aligning the key way on pump shaft into pump gear.

(5) Install and snug the 3 injection pump mounting nuts. This is not the final tightening sequence.

(6) Remove the special gear puller and adapter tools from timing gear cover.

(7) Install the injection pump drive gear nut. Torque the nut to 86 N·m.

(8) Remove the access plug and plug washer at rear of pump (Fig. 33). Thread special dial indicator adapter tool VM# 1011 (Fig. 34) into this opening. Hand tighten only.

(9) Attach special dial indicator tool VM# 1013 into the adapter tool (Fig. 34)

(10) Using a socket attached to the front of the crankshaft, rotate the engine in a counter-clockwise direction until

the dial gauge indicator stops moving (20°-25° before T. D. C.).

(11) Set the dial indicator to 0 mm. Be sure the tip of the dial indicator is touching the tip inside the adapter tool.

(12) Rotate the crankshaft clockwise until the alignment tool can be reinstalled in the flexplate (Fig. 35).

REMOVAL AND INSTALLATION (Continued)

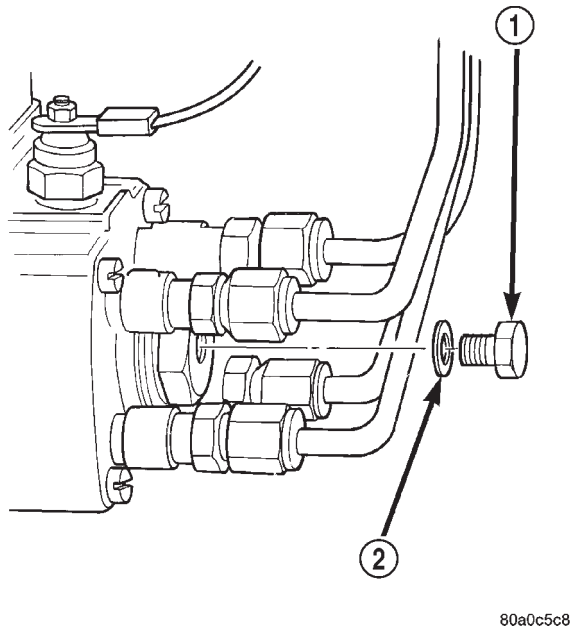


Fig. 33 Access Plug at Rear of Pump

- 1 - ACCESS PLUG
- 2 - WASHER

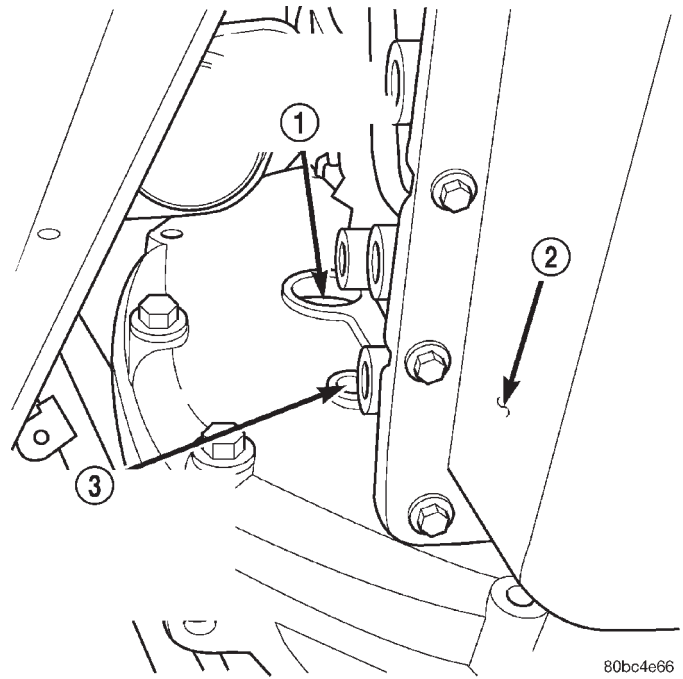


Fig. 35 Top Dead Center Alignment Tool Access Hole

- 1 - TORQUE CONVERTER BOLT ACCESS HOLE
- 2 - ENGINE OIL PAN
- 3 - TOP DEAD CENTER ALIGNMENT TOOL ACCESS HOLE

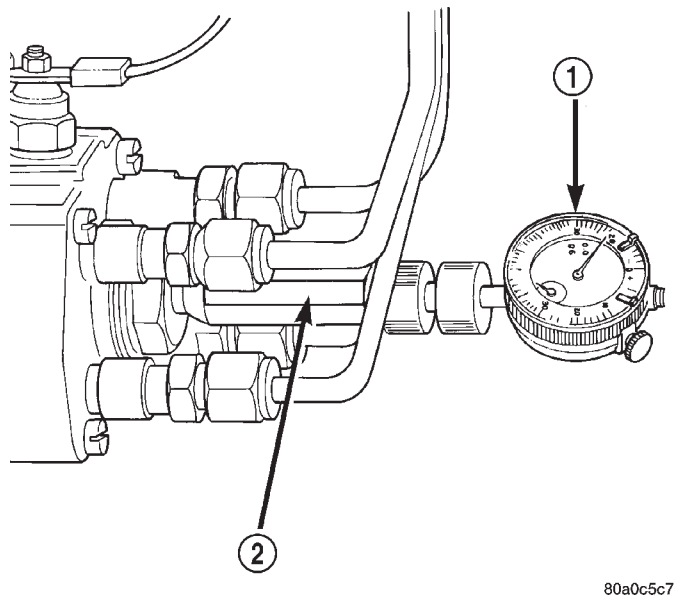


Fig. 34 Installing Dial Indicator and Special Adapter Tools

- 1 - DIAL INDICATOR TOOL
- 2 - ADAPTER TOOL VM1011

NOTE: Engine must be positioned at T. D. C. #1 cylinder compression stroke.

(13) The gauge reading should be at 0.45 mm. If not, the pump must be rotated for adjustment:

NOTE: If the engine is fitted with all new gears, the specification is 0.49 - 0.50 mm.

(a) Loosen the three injection pump mounting nuts at the mounting flanges. These flanges are equipped with slotted holes. The slotted holes are used to rotate and position the injection pump for fuel timing. Loosen the three nuts just enough to rotate the pump.

(b) Rotate the pump until 0.45 mm is indicated on the dial indicator gauge. If while rotating the pump the 0.45 mm specification is passed do not attempt to rotate the pump in the opposite direction. You must rotate the pump back to 0.15 mm and start the procedure over from the start of the T. D. C. procedure. This will prevent a false reading due to gear backlash.

(c) Tighten the three pump mounting nuts to 30 N·m (22 ft. lbs.) torque.

(d) Recheck the dial indicator after tightening the pump mounting nuts. Gauge should still be reading 0.45 mm at T. D. C.

(14) Remove the dial indicator and adapter tools.

(15) Install access plug and washer to rear of injection pump.

(16) Install plug at timing gear cover.