Cummins Tier 2/Stage II Timing Adjustment

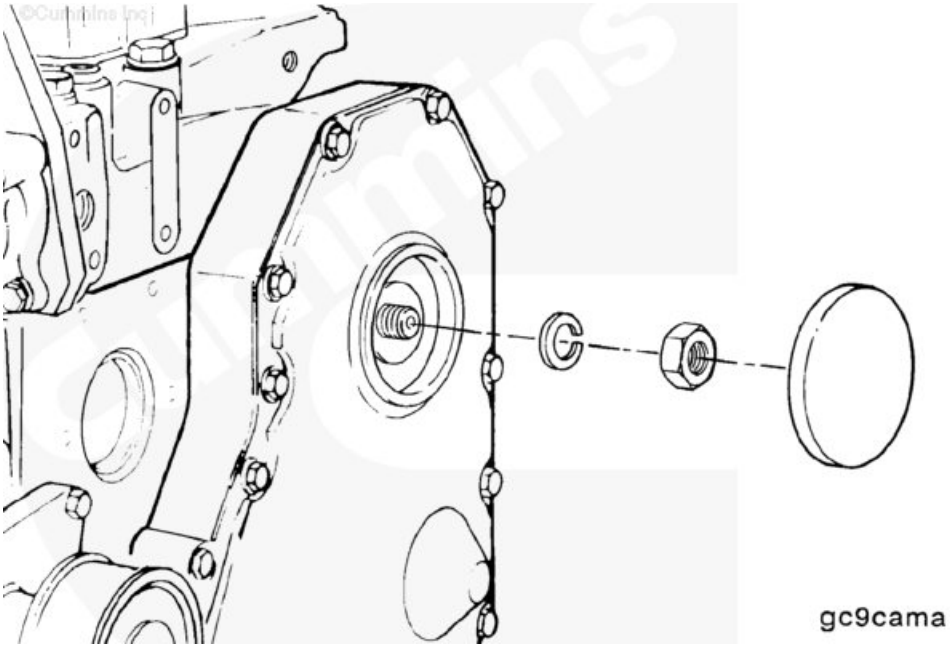
If the pump timing is out on Tier 2/Stage II engines, which no longer use the keyway in the fuel pump shaft, it is possible that the fuel pump gear has slipped on the fuel pump shaft. The fuel pump gear to pump shaft taper will need to be broken so the pump timing can be reset.

In order to reset timing on a Delphi DP210 or DP310 model pump, the pump must be sent to a Delphi DP210/310 authorized injection pump repair shop. The pump will be installed on the calibration test stand and dynamically timed.

Note : This procedure applies to front gear train Tier 2/Stage II engines only.

Remove the access cap.

Remove the fuel pump gear retaining nut and washer.

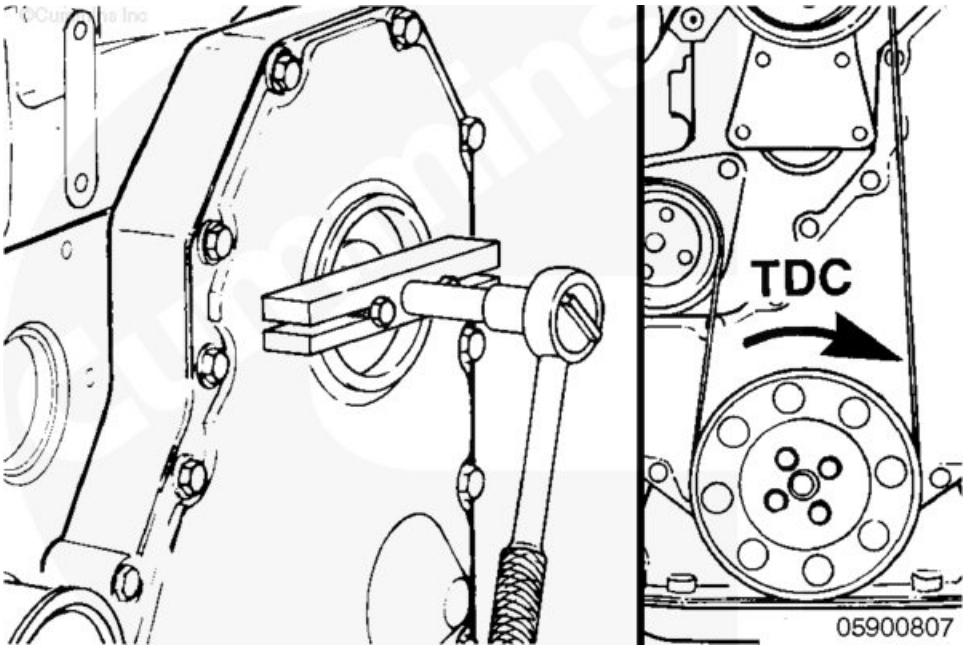


To remove the fuel pump gear, use gear puller, Part Number ST647 or 3163381, to separate the fuel pump gear from the shaft.

Send the injection pump to an authorized Delphi DP210 or DP310 injection pump shop to have the timing set and locked in time.

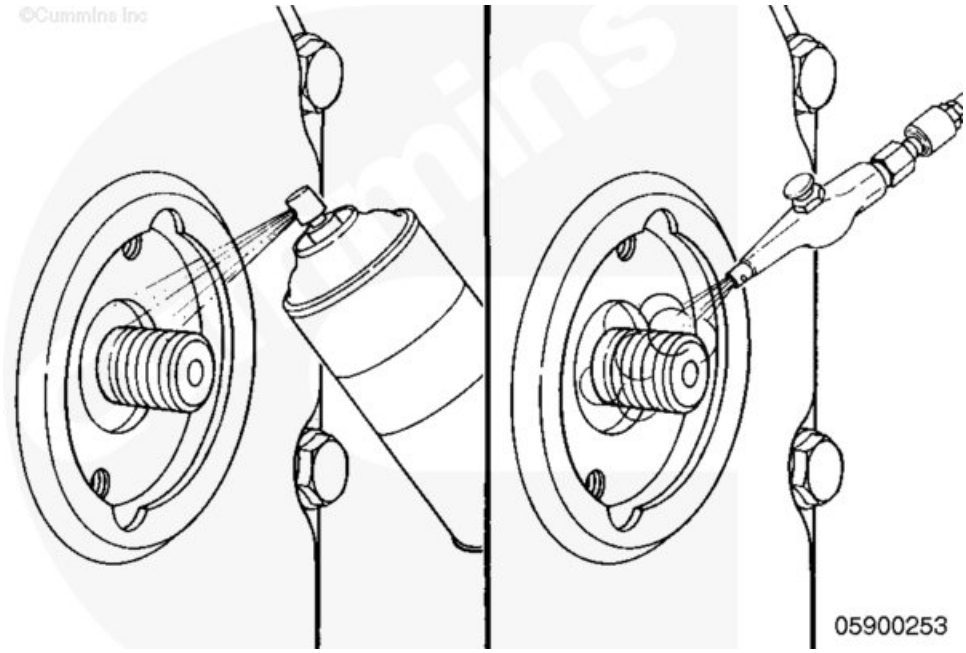
Re-install the injection pump on the engine.

With the gear loose from the fuel pump drive shaft, bar the engine in the opposite direction of rotation, when viewed from the front of the engine, past top dead center at least one quarter turn. Then bar engine in the direction of rotation to top dead center until the timing pin engages the camshaft.



Clean the fuel injection pump drive shaft taper and drive gear bore with a residue-free cleaner. Dry both surfaces with compressed air.

Failure to clean and dry the shaft thoroughly can result in further timing slip after the engine is run.



WARNING

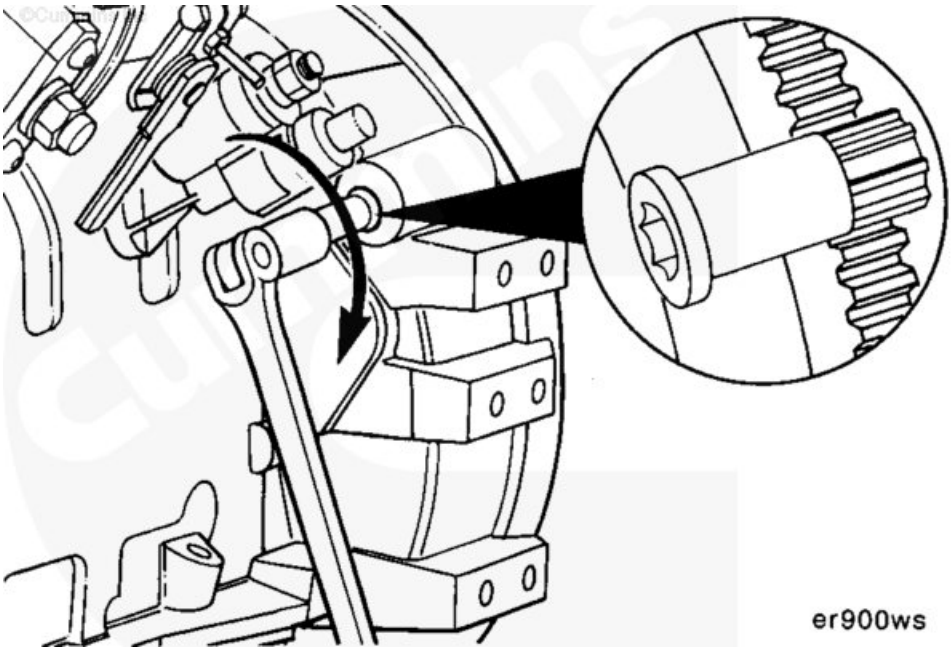
When using solvents, acids, or alkaline materials for cleaning, follow the manufacturer's recommendations for use. Wear goggles and protective clothing to reduce the possibility of personal injury.

WARNING: Wear appropriate eye and face protection when using compressed air. Flying debris and dirt can cause personal injury.

CAUTION

Prior to torquing the fuel pump gear nut, make sure the engine is locked and can not rotate during final torquing of the fuel pump nut.

This can be achieved by using the engine barring tool to prevent the engine from rotating. Make sure the fuel pump is locked at this stage.



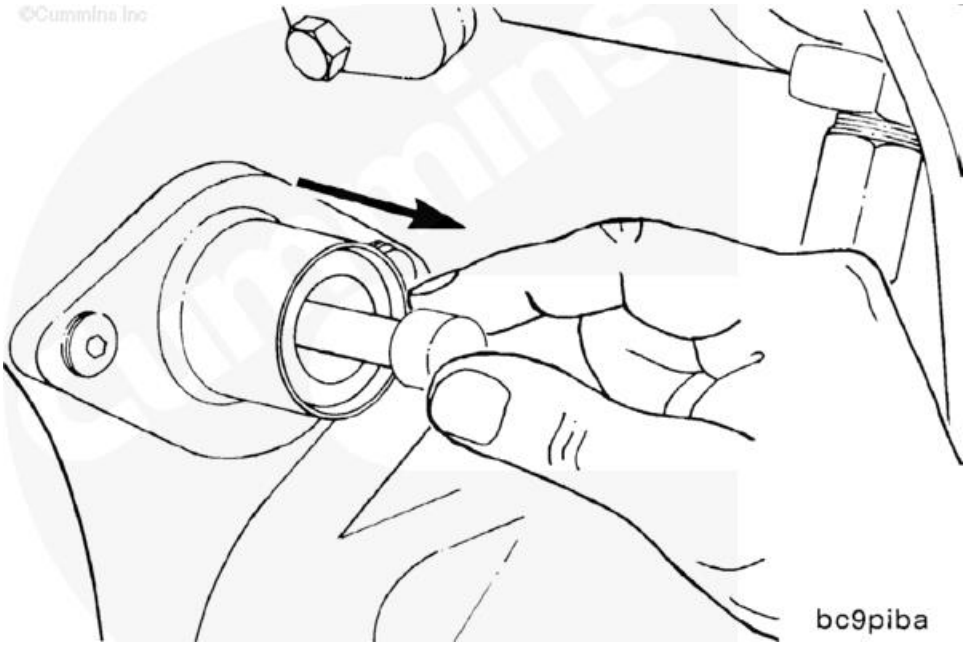
Push the fuel pump gear onto the shaft and assemble the washer and nut.

Remove the top dead center timing pin from the camshaft and the timing pin on the damper, if used.

CAUTION

To reduce the possibility of engine or timing pin damage, you must disengage the timing pin before attempting to bar or crank the engine.

You must do a preliminary torque of approximately 150 inch lbs, then unlock both the pump and the engine.



Tighten the gear pump retaining nut.

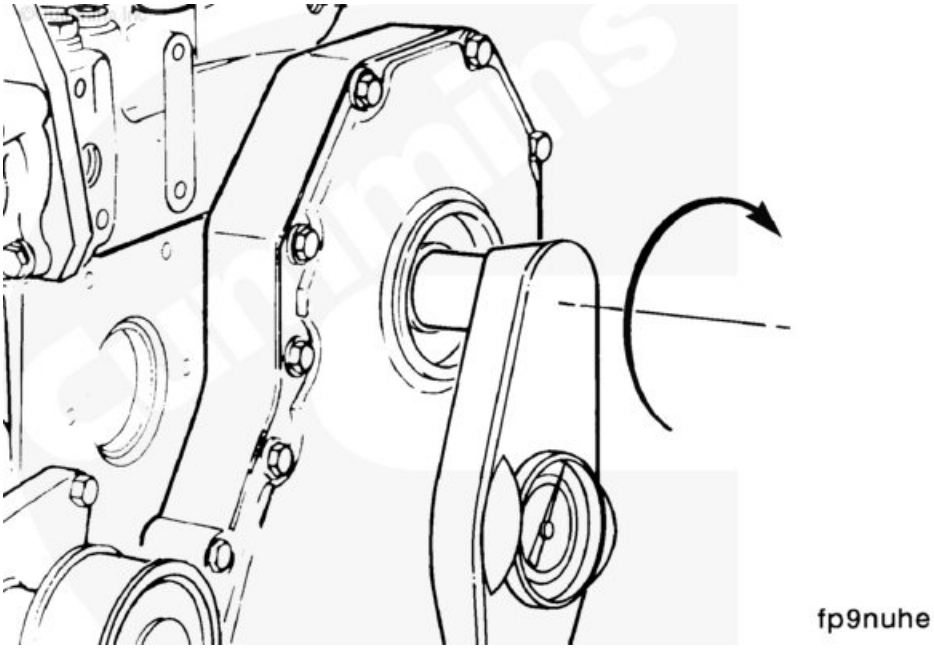
Bosch® VE (M14-1.5 nut) 98 n.m [72 ft-lb]

Bosch® VE (M12 nut) 65 n.m [48 ft-lb]

Lucas CAV/DPA 81 n.m [60 ft-lb]

Stanadyne 65 n.m [48 ft-lb]

Delphi DP210-310 93 n.m [68 ft-lb]



Install the access cap.