Caterpillar 3406 B

CHECKING ENGINE TIMING BY TIMING PIN METHOD 2

Tools Needed		
9S9082	Engine Turning Tool	1
6V4186	Timing Pin	1
1U8271	Timing Advance Holding Tool	1
8T5300	Engine Timing Indicator Group	1
8T5301	Diesel Timing Adapter Group	1

1. Put No. 1 piston at top center on the compression stroke. Make reference to Finding Top Center Compression Position For No. 1 Piston. Remove the timing bolt from the flywheel and use 9S9082 Engine Turning Tool to rotate the crankshaft clockwise 45° as seen from the flywheel end of the engine.

NOTE: The crankshaft can be turned from the front of the engine by using a wrench on the vibration damper bolts, if necessary.

2. Remove timing advance cover (1).
3. Loosen nuts (3) and remove retainer (2) and the flyweight spring from the timing advance unit. Make sure that the flyweight spring does not fall out and get lost.

NOTE: **Do not** loosen the locknuts and adjustment screws in the end of retainer (2). If the adjustment screws are moved from their original settings, the dynamic engine timing must be set by sing 8T5300 Timing Indicator Group after the static timing pin procedure is completed

4. Loosen bolts (4) that hold the timing advance unit together.
5. Tighten bolts (4) to a torque of 2.2 +- 0.1 N*m (20+- 1 lb in). This puts a slight clamping force on the fuel pump drive gear to hold it in position. Also, the fuel pump camshaft can be turned or held in position separate from the engine crankshaft. The drive gear is allowed to slip.
6. Remove plug (5) from the fuel injection pump housing.
7. With No. 1 piston 45° before Top Center, slowly rotate the crankshaft counterclockwise (as seen from the flywheel end of the engine) until timing pin (6) goes into the slot in the fuel pump camshaft and the timing bolt can be installed in the timing hole in the flywheel.
8. Install the 1U8271 Holding Tool (7) and push the timing advance unit piston back as follows:
   - **a)** Turn the knurled nuts on the holding tool out until each stud is 6.4 mm (.25 in) below the surface of the nut.
   - **b)** Put holding tool (7) in position on the cap screws that hold retainer (2). Install and tighten nuts (3) finger tight. Make sure that the four tangs on the loose inner ring of the holder tool are positioned at the corners of the four flyweights and flyweights are free to move.
   - **c)** Tighten the four large knurled nuts evenly by hand until a positive stop is felt. No external component contact can be seen. The positive contact at the bottom of its travel. This step makes sure that the timing advance unit is in its most retarded timing position.
9. Tighten the four bolts (4) to a torque of 55 +- 7 N*m (41 +- 5 lb ft).
10. Remove holding tool from the automatic timing advance unit.
11. Remove the timing pin bolt from the flywheel and timing pin (6) from the fuel injection pump housing.
12. Install the flyweight spring and retainer (2) on the timing advance unit. Make sure the spring is in its correct position and tighten the four nuts to hold the retainer in position.
13. Install cover (1) on the timing gear housing and plug (5) in the fuel injection pump housing.
14. If necessary, check the dynamic timing of the engine with that 8T5300 and 8T5301 Tool Groups. Make reference to Special Instructions, Form No. SEHS8580, for the correct installation and operation of the tool groups. Also, see Checking Engine Timing With 8T5300 Timing Indicator Group And 8T5301 Diesel Timing Adapter Group for the procedure to check the dynamic timing of the engine