Timing Adjustment by Timing Pin Method

**Note:** For all engines that are regulated for emission control, use the dynamic timing at 1000 rpm to measure the static fuel injection timing. Also, use the dynamic timing at 1000 rpm to set the static fuel injection timing. Do not use the timing pin method for this measurement or for this setting.

### Table 2

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Part Name</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8S-2264</td>
<td>Puller Gp</td>
<td>1</td>
</tr>
<tr>
<td>1B-3680</td>
<td>Bolt (1)</td>
<td>2</td>
</tr>
<tr>
<td>4B-5271</td>
<td>Washer</td>
<td>2</td>
</tr>
<tr>
<td>8B-7560</td>
<td>Step Plate</td>
<td>1</td>
</tr>
<tr>
<td>6F-7030</td>
<td>Bolt (2)</td>
<td>2</td>
</tr>
<tr>
<td>6V-4186</td>
<td>Fuel Pump Timing Pin</td>
<td>1</td>
</tr>
<tr>
<td>6V-6176</td>
<td>Adapter</td>
<td>1</td>
</tr>
<tr>
<td>4C-9874</td>
<td>Spanner Wrench</td>
<td>1</td>
</tr>
</tbody>
</table>

(1) The bolt (3/8-24 NF) is 95.3 mm (3.75 inch) long.
(2) The bolt (3/8-24 NF) is 25.4 mm (1.00 inch) long.

1. Move the No. 1 piston to the top center position on the compression stroke. Remove the timing bolt.
**Note:** Refer to Testing and Adjusting Manual, "Finding Top Center Position for No. 1 Piston".

2. Rotate the crankcase counterclockwise by 30 degrees.

3. Remove timing pin cover (14) from the side of the fuel injection pump housing.

5. Slowly rotate the crankshaft counterclockwise until fuel pump timing pin (17) fits into the slot inside the fuel pump camshaft.

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**NOTICE**

Too much pressure on the timing pin can damage the fuel injection pump camshaft or the timing pin.

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6. Place the timing bolt into the timing hole in the flywheel housing.

7. Slowly move the crankshaft counterclockwise until the fuel pump camshaft fits tightly against the timing pin. View the engine from the flywheel end during this procedure. This removes the gear clearance from the drive train.

   a. If the timing bolt can be installed in the flywheel and the timing pin can be installed in the fuel pump camshaft, the timing is correct.

   b. If either the timing bolt or the timing pin can NOT be installed, follow Steps 10 through 18.

8. Remove nuts (16) and timing pin cover (15) from the timing gear housing.
9. Loosen bolt (18) that connects the timing gear to the fuel pump camshaft. Turn bolt (18) counterclockwise for three turns.

10. Install the **8S-2264 Puller Gp** and loosen the timing gear from the fuel pump camshaft.

11. Rotate the flywheel clockwise to 60 degrees before No. 1 piston reaches the top center position.

12. Tighten bolt (18) finger tight. Ensure that fuel pump timing pin (17) fits inside the groove in the fuel pump camshaft.

13. Slowly rotate the crankshaft counterclockwise until the timing bolt can be installed in the flywheel.
14. Install **4C-9874** Spanner Wrench (23) onto the timing gear.

15. Maintain a torque of 68 N·m (50 lb ft) on spanner wrench (23) in a clockwise direction, and tighten bolt (18) that retains the timing gear to 270 ± 25 N·m (200 ± 20 lb ft).

16. Remove the timing bolt from the flywheel and remove fuel pump timing pin (17) from the fuel pump camshaft.

17. Rotate the crankshaft counterclockwise for two revolutions.

   a. If the timing bolt can be installed in the flywheel and the timing pin can be installed in the fuel pump camshaft, the timing is correct.

   b. If either the timing bolt or the timing pin can NOT be installed, repeat Steps 10 through 17.b.

18. Use the **8T-5300** Engine Timing Indicator Group to verify the change to the engine's timing.