Testing and Adjusting
3500C Engines

Fuel Injector Adjustment

Table 1

<table>
<thead>
<tr>
<th>Tools Needed</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>9U-5132 Engine Timing Tool Group</td>
<td>1</td>
</tr>
<tr>
<td>6V-3075 Dial Indicator</td>
<td>1</td>
</tr>
<tr>
<td>8S-3675 Indicator Contact Point</td>
<td>1</td>
</tr>
<tr>
<td>9U-5138 Setting Gauge</td>
<td>1</td>
</tr>
<tr>
<td>9U-5137 Magnetic Fixture</td>
<td>1</td>
</tr>
<tr>
<td>122-0451 Timing Fixture Rod</td>
<td>1</td>
</tr>
<tr>
<td>122-0449 Rod Sleeve Extension</td>
<td>1</td>
</tr>
<tr>
<td>9U-6272 Nylon Screw</td>
<td>1</td>
</tr>
</tbody>
</table>

NOTICE

The camshafts must be correctly timed with the crankshaft before an adjustment of the unit injector lash is made. The timing pins must be removed from the camshafts before the crankshaft is turned or damage to the cylinder block will be the result.
The Electronic Control module produces high voltage. To prevent personal injury make sure the Electronic Control Module is not powered and the unit injector solenoids are disconnected.

Note: Calibration of the engine speed/timing sensor is not required unless the timing wheel has been removed from the camshaft or the Electronic Control Module (ECM) has been changed.

This adjustment is critical. Ensure that the adjustment of the fuel injector is made properly.

1. Refer to Testing and Adjusting, "Crankshaft Position for Fuel Injector Adjustment and Valve Lash Setting". All of the injectors can be checked or adjusted with the two crankshaft positions in the chart. This will make sure that the pushrod lifters are off of the lobes and on the base circles of the camshaft.

Before a check or an adjustment can be made, the tooling must be set to the correct dimension.

Illustration 1

(1) 9U-5137 Magnetic Fixture
(2) 122-0451 Timing Fixture Rod
(3) 122-0449 Rod Sleeve Extension
(4) 9U-5138 Setting Gauge
(5) 6V-3075 Dial Indicator
(6) 8S-3675 Indicator Contact Point
2. Place rod (2) in fixture (1). Install extension (3) on fixture (1). Install contact point (6) on dial indicator (5). Install dial indicator (5) in extension (3).

3. Make sure that the surfaces of the fixture (1) and gauge (4) are clean and dry.

4. Place dial indicator assembly from Step 2 on the top surface of gauge (4). Rod (2) must be on the top step of gauge (4).

   **Note:** Gauge (4) has two steps. Make sure that the step designation is for the 64.34 mm (2.53 inch) dimension.

5. Loosen the nylon screw for the dial face of dial indicator (5). Move the dial face of the dial indicator (5) in rod sleeve extension (3) until all of the pointers indicate zero. Tighten the nylon screw for the dial face of dial indicator (5).
6. Make sure that the top surfaces of injector follower (7) and shoulder (8) are clean and dry.

Illustration 3

Fuel timing tools in position
(1) 9U-5137 Magnetic Fixture
(5) 6V-3075 Dial Indicator
(7) Injector follower
(8) Shoulder

7. Place dial indicator (5) and fixture (1) in position on the injector that will be checked. Make sure that the magnetic base of the fixture is on the top surface of injector follower (7). Rod (2) must be on the top surface of shoulder (8).

8. The dial indicator pointers must indicate 0.00 ± 0.20 mm (0.000 ± 0.008 inch).

9. If the dial indicator pointers indicate 0.00 ± 0.20 mm (0.000 ± 0.008 inch), no adjustment is necessary. Proceed to the next injector to be checked. Repeat the procedure from Step 4. If the dial indicator pointers do not indicate 0.00 ± 0.20 mm (0.000 ± 0.008 inch), proceed to Step 10 and Step 11.

10. Loosen the adjustment screw locknut for the injector that is being adjusted.
11. Turn the adjustment screw until the dial indicator pointers indicate $0.00 \pm 0.20$ mm ($0.000 \pm 0.008$ inch). Tighten the adjustment screw locknut to the torque that is listed in the engine's Specifications manual. Then check the adjustment in order to be certain that the adjustment has not changed. If necessary, repeat this procedure until the adjustment is correct. When the adjustment is correct, proceed to the next injector to be checked. Repeat the procedure from Step 3.

12. After all injectors are checked and/or adjusted, remove the timing bolt from the flywheel.