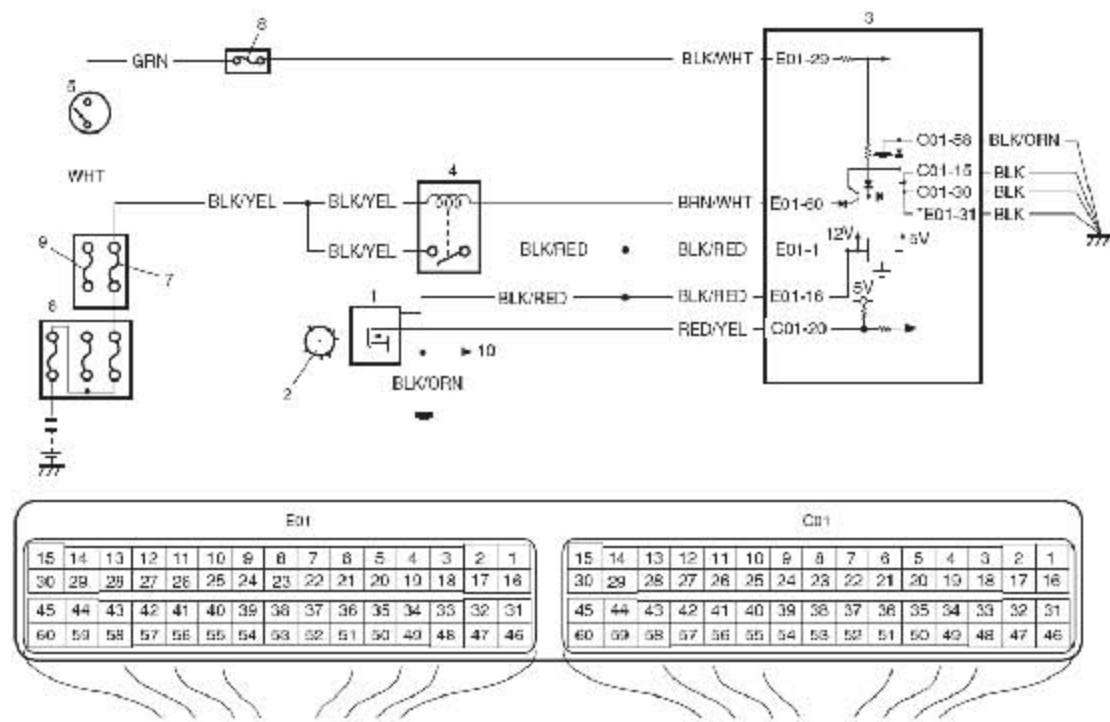


# P0340: Camshaft Position (CMP) Sensor Circuit

## Wiring Diagram



1. CMP sensor	3. ECM	5. Ignition switch	7. "FI" fuse	9. "IGN" fuse
2. Signal rotor	4. Main relay	6. Main fuse box	8. "IG COIL" fuse	10. To CKP sensor

## System Description

The CMP sensor located on the transmission side of cylinder head (VVT model) or timing chain cover (non-VVT model) consists of the signal generator (magnetic sensor) and signal rotor (intake camshaft portion (VVT model) or exhaust camshaft timing sprocket (non-VVT model)).

The signal generator generates reference signal through slits in the slit plate which turns together with the camshaft.

## Reference signal

The CMP sensor generates 6 pulses of signals each of which has a different

waveform length while the camshaft makes one full rotation. Refer to "Inspection of ECM and Its Circuits". Based on these signals, ECM judges which cylinder piston is in the compression stroke and the engine speed.

## DTC Detecting Condition and Trouble Area

DTC detecting condition	Trouble area
<ul style="list-style-type: none"> <li>• CMP sensor pulse is less than 20 pulses per crankshaft 8 revolutions or</li> <li>• CMP sensor pulse is more than 28 pulses per crankshaft 8 revolutions or</li> <li>• CMP sensor pulse is less than 20 pulses between BTDC 75° CA and BTDC 5° CA with crankshaft 8 revolutions from engine start. (1 driving cycle detection logic)</li> </ul>	<ul style="list-style-type: none"> <li>• CMP sensor circuit open or short</li> <li>• Signal rotor teeth damaged</li> <li>• CMP sensor malfunction, foreign material being attached or improper installation</li> <li>• ECM</li> </ul>

## DTC Confirmation Procedure

- 1) With ignition switch turned OFF, connect scan tool.
- 2) Turn ON ignition switch and clear DTC using scan tool.
- 3) Crank engine for 5 sec.
- 4) Check DTC and pending DTC.

## DTC Troubleshooting

Step	Action	Yes	No
1	Was "Engine and Emission Control System Check" performed?	Go to Step 2.	Go to "Engine and Emission Control System Check".
2	CMP sensor and connector for proper installation check Is CMP sensor installed properly and connector connected securely?	Go to Step 3.	Correct.

Step	Action	Yes	No
3	<p>Wire harness and connection check</p> <p>1) Disconnect connector from CMP sensor.</p> <p>2) Check for proper connection to CMP sensor at "BLK/ RED", "RED/YEL" and "BLK/ORN" wire terminals.</p> <p>3) If OK, turn ON ignition switch and check voltage at "BLK/ RED", "RED/YEL" and "BLK/ORN" wire terminals of disconnected CMP sensor connector.</p> <p>CMP sensor voltage</p> <p>Terminal "B+": 10 – 14 V</p> <p>Terminal "Vout": 4 – 5 V</p> <p>Terminal "GND": 0 V</p> <p>For engine without VVT system I4RS0B110031-01</p> <p>For engine with VVT system</p> <p>Is check result satisfactory?</p>	Go to Step 7.	Go to Step 4.
4	<p>Was terminal "Vout" voltage in Step 3 within specification?</p>	Go to Step 5.	<p>"RED/YEL" wire is open or shorted to ground / power supply circuit.</p> <p>If wire and connection are OK, substitute a known-good ECM and recheck.</p>
5	<p>Ground circuit check</p> <p>1) Turn ignition switch to OFF position.</p> <p>2) Measure resistance between "BLK/ORN" wire terminal of CMP sensor connector and engine ground.</p> <p>Is measured resistance value less than 3 <math>\Omega</math>?</p>	Go to Step 6.	<p>"BLK/ORN" wire is open or high resistance circuit.</p>

Step	Action	Yes	No
6	Was terminal "B+" voltage in Step 3 within specification?	Go to Step 7.	"BLK/RED" wire is open circuit. If wire and connection are OK, substitute a known-good ECM and recheck.
7	CMP sensor check 1) Check CMP sensor and signal rotor tooth referring to "Camshaft Position (CMP) Sensor Inspection in Section 1C". Is check result satisfactory?	Substitute a known-good ECM and recheck.	Replace CMP sensor and/or intake camshaft.

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