

P0340 CMP SENSOR (PHASE)

< COMPONENT DIAGNOSIS >

[HR16DE]

P0340 CMP SENSOR (PHASE)

Description

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The camshaft position sensor (PHASE) senses the retraction of camshaft (INT) to identify a particular cylinder. The camshaft position sensor (PHASE) senses the piston position.

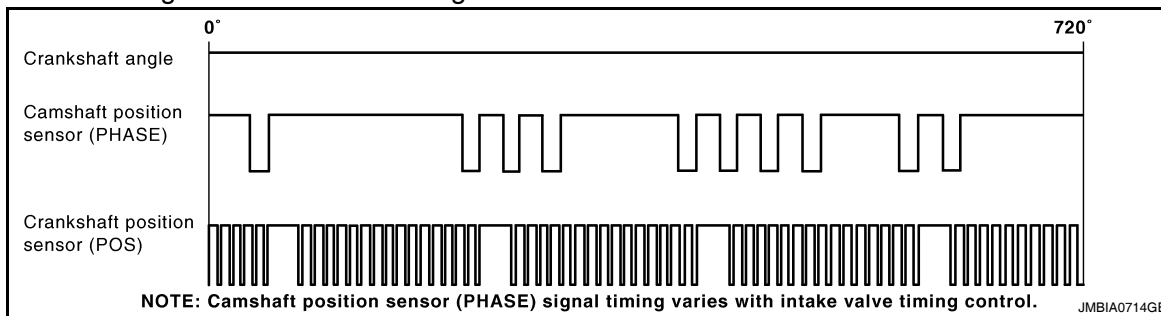
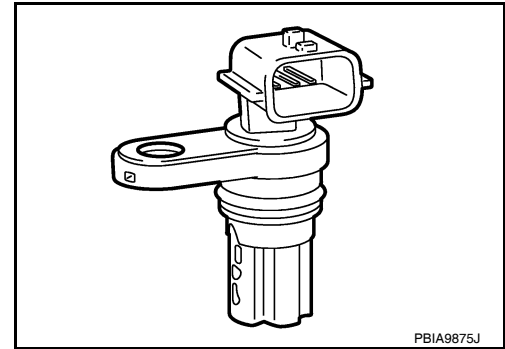
When the crankshaft position sensor (POS) system becomes inoperative, the camshaft position sensor (PHASE) provides various controls of engine parts instead, utilizing timing of cylinder identification signals.

The sensor consists of a permanent magnet and Hall IC.

When engine is running, the high and low parts of the teeth cause the gap with the sensor to change.

The changing gap causes the magnetic field near the sensor to change.

Due to the changing magnetic field, the voltage from the sensor changes. ECM receives the signals as shown in the figure.



DTC Logic

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DTC DETECTION LOGIC

NOTE:

If DTC P0340 is displayed with DTC P0643, first perform the trouble diagnosis for DTC P0643. Refer to [EC-358, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P0340	Camshaft position sensor (PHASE) circuit	<ul style="list-style-type: none">The cylinder No. signal is not sent to ECM for the first few seconds during engine cranking.The cylinder No. signal is not sent to ECM during engine running.The cylinder No. signal is not in the normal pattern during engine running.	<ul style="list-style-type: none">Harness or connectors (The sensor circuit is open or shorted)Camshaft position sensor (PHASE)Camshaft (INT)Starter motorStarting system circuitDead (Weak) battery

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 10.5 V with ignition switch ON.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE-I

- Start engine and let it idle for at least 5 seconds.
If engine does not start, crank engine for at least 2 seconds.
- Check 1st trip DTC.

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Is 1st trip DTC detected?

- YES >> Go to [EC-270, "Diagnosis Procedure"](#).
- NO >> GO TO 3.

A

3.PERFORM DTC CONFIRMATION PROCEDURE-I

EC

- 1. Maintaining engine speed at more than 800 rpm for at least 5 seconds.
- 2. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Go to [EC-270, "Diagnosis Procedure"](#).
- NO >> INSPECTION END

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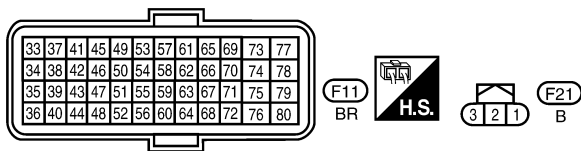
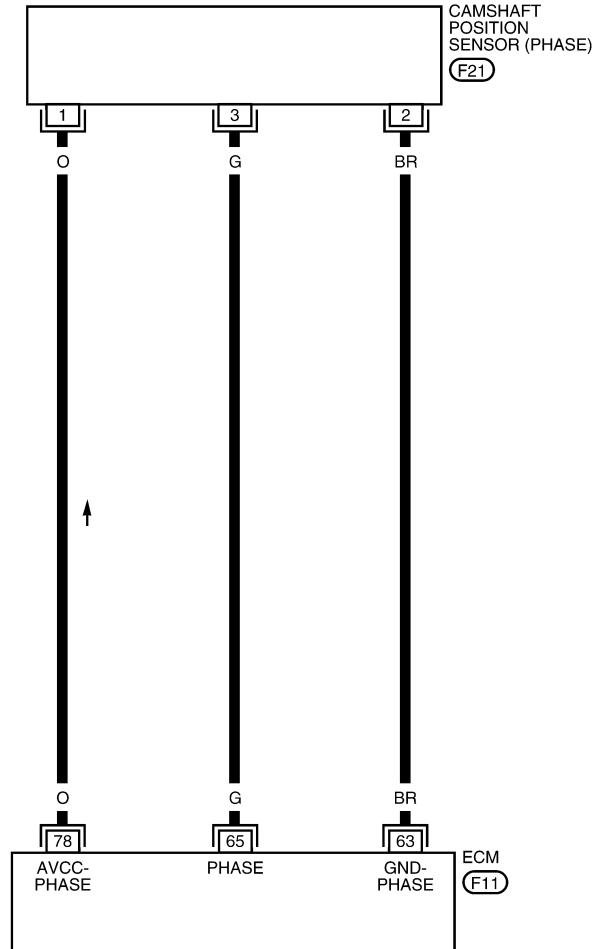
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Wiring Diagram

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EC-PHASE-01

— : DETECTABLE LINE FOR DTC
— : NON-DETECTABLE LINE FOR DTC



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Diagnosis Procedure

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1. CHECK STARTING SYSTEM

Turn ignition switch to START position.

Does the engine turn over? Does the starter motor operate?

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- YES >> GO TO 2.
NO >> Check starting system (Refer to [SC-16, "Trouble Diagnosis with Multitasking Battery Diagnostic Station"](#)).

2.CHECK GROUND CONNECTION

1. Turn ignition switch OFF.
2. Check ground connections E15, E24. Refer to [EC-125, "Ground Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace ground connection.

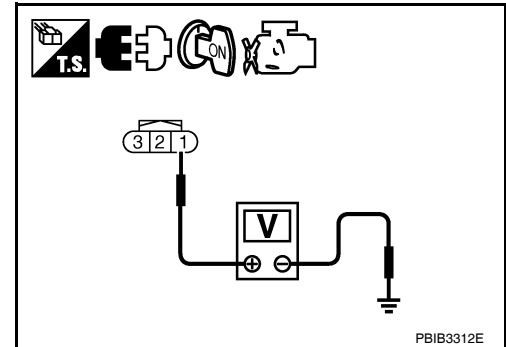
3.CHECK CAMSHAFT POSITION (CMP) SENSOR (PHASE) POWER SUPPLY CIRCUIT

1. Disconnect camshaft position (CMP) sensor (PHASE) harness connector.
2. Turn ignition switch ON.
3. Check the voltage between CMP sensor (PHASE) harness connector and ground.

CMP sensor (PHASE)		Ground	Voltage
Connector	Terminal		
F21	1	Ground	Approx. 5 V

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair open circuit or short to ground or short to power in harness or connectors.



4.CHECK CMP SENSOR (PHASE) GROUND CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.
2. Check the continuity between CMP sensor (PHASE) harness connector and ECM harness connector.

CMP sensor (PHASE)		ECM		Continuity
Connector	Terminal	Connector	Terminal	
F21	2	F11	63	Existed

3. Also check harness for short to power.

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Repair open circuit or short to ground or short to power in harness or connectors.

5.CHECK CMP SENSOR (PHASE) INPUT SIGNAL CIRCUIT FOR OPEN AND SHORT

1. Disconnect ECM harness connector.
2. Check the continuity between CMP sensor (PHASE) harness connector and ECM harness connector.

CMP sensor (PHASE)		ECM		Continuity
Connector	Terminal	Connector	Terminal	
F21	3	F11	65	Existed

3. Also check harness for short to ground and short to power.

Is the inspection result normal?

- YES >> GO TO 6.
NO >> Repair open circuit or short to ground or short to power in harness or connectors.

6.CHECK CAMSHAFT POSITION SENSOR (PHASE)

Refer to [EC-272, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 7.
NO >> Replace camshaft position sensor (PHASE).

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7. CHECK CAMSHAFT (INT)

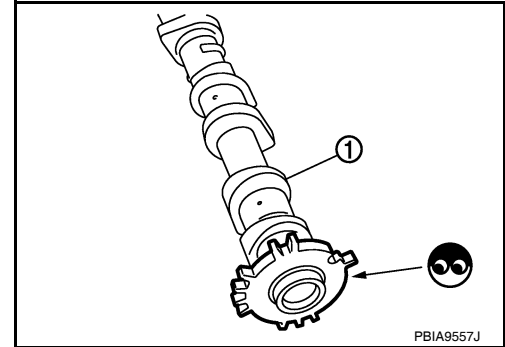
Check the following.

- Accumulation of debris to the signal plate of camshaft (1) rear end
- Chipping signal plate of camshaft rear end

Is the inspection result normal?

YES >> GO TO 8.

NO >> Remove debris and clean the signal plate of camshaft rear end or replace camshaft.



8. CHECK INTERMITTENT INCIDENT

Refer to [EC-120, "Diagnosis Procedure"](#).

>> INSPECTION END

Component Inspection

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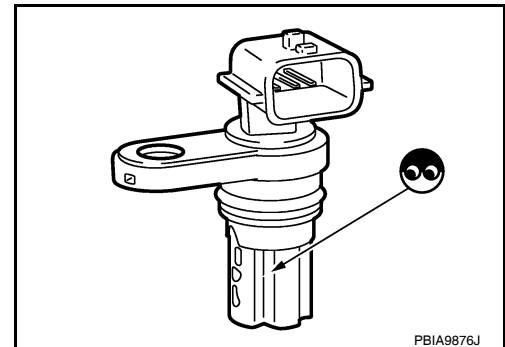
1. CHECK CAMSHAFT POSITION SENSOR (PHASE)-I

1. Turn ignition switch OFF.
2. Loosen the fixing bolt of the sensor.
3. Disconnect camshaft position sensor (PHASE) harness connector.
4. Remove the sensor.
5. Visually check the sensor for chipping.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace camshaft position sensor (PHASE).



2. CHECK CAMSHAFT POSITION SENSOR (PHASE)-II

Check resistance camshaft position sensor (PHASE) terminals as per the following.

Terminals (Polarity)	Resistance [Ω at 25°C (77°F)]
1 (+) - 2 (-)	Except 0 or ∞
1 (+) - 3 (-)	
2 (+) - 3 (-)	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace camshaft position sensor (PHASE).

