## DTC P0341 Camshaft Position (CMP) Sensor Performance



# **Circuit Description**

The camshaft position PCM input is produced by the ignition control module or ICM. The ICM produces the camshaft position PCM input by filtering the camshaft position (CMP) sensor pulses when the engine is running and CKP sync pulses are also being received. The PCM uses the camshaft position PCM input pulses to initiate sequential fuel injection and to determine crankshaft position for the misfire diagnostic. The PCM constantly monitors the number of pulses on the camshaft position PCM input circuit and compares the number of camshaft position PCM input pulses to the number of 18X reference pulses and the number of 3X reference pulses being received. If the PCM receives an incorrect number of pulses on the camshaft position PCM input circuit, DTC P0341 will set and the PCM will initiate injector sequence without the camshaft position PCM input with a one in six chance that injector sequence is correct. The engine will continue to start and run normally, although the misfire diagnostic will be disabled.

## **Conditions for Running the DTC**

The engine is running (3X reference pulses are being received).

## **Conditions for Setting the DTC**

No cam sensor reference pulses are not received in one engine cycle (720 degrees of crankshaft rotation).

## Action Taken When the DTC Sets

- The PCM will illuminate the malfunction indicator lamp (MIL) during the second consecutive trip in which the diagnostic test has been run and failed.
- The PCM will store conditions which were present when the DTC set as Freeze Frame/Failure Records data.

### **Conditions for Clearing the MIL/DTC**

- The PCM will turn the MIL OFF during the third consecutive trip in which the diagnostic has been run and passed.
- The History DTC will clear after 40 consecutive warm-up cycles have occurred without a malfunction.
- The DTC can be cleared by using a scan tool.

### **Diagnostic Aids**

Inspect for the following:

- Secondary ignition wires arcing to wiring harness -Inspect secondary ignition wires for carbon tracking or other signs of damage.
- Faulty Ignition Coil Remove the ignition coils and inspect the ignition control module and coils for cracks, carbon tracking, or other signs that indicate that the coil secondary circuit is arcing to the ICM or ICM wiring harness. Refer to *Ignition Coil(s) Replacement*

# Engine

Important: Remove any debris from the connector • Inspect the PCM and the engine grounds for surfaces before servicing a component. Inspect the connector gaskets when diagnosing or replacing a component. Ensure that the gaskets are installed correctly. The gaskets prevent contaminate intrusion.

Poor terminal connection.

Inspect the harness connectors for backed out terminals, improper mating, broken locks, improperly formed or damaged terminals, and faulty terminal to wire connection. Use a corresponding mating terminal to test for proper tension. Refer to Testing for Intermittent and Poor Connections and Connector Repairs in Wiring Systems.

Damaged harness. 0

> Inspect the wiring harness for damage. If the harness appears to be OK, observe the display on the scan tool while moving connectors and wiring harnesses related to the sensor. A change in the display may indicate the location of the fault. Refer to Wiring Repairs in Wiring Systems.

clean and secure connections.

If the DTC is determined to be intermittent, reviewing the Failure Records can be useful in determining when the DTC was last set.

#### **Test Description**

- The numbers below refer to the step numbers on the diagnostic table.
- 2. Ensures that the fault is present.
  - 21. Determines whether the fault is caused by a missing camshaft magnet or a faulty PCM. The voltage measured in this step should read around 4 volts, toggling to near 0 volts when the CMP sensor interfaces with the camshaft magnet.
  - 22. This vehicle is equipped with a PCM which utilizes an Electrically Erasable Programmable Read Only Memory (EEPROM). When the PCM is replaced, the new PCM must be programmed.

1 St cat 1	Important: If the engine cranks but will not run, refer to Engine Cranks but Does Not Run. Did you perform the Powertrain On-Board Diagnostic (OBD) System Check?	reor: the sensor lead o d to the OMP grad	ev 4140 ent losens de apollov old ekte	Go to A
2	the second se	Verdiev. New Jacobski (1997)	Go to Step 2	Board Diagnostic (OBD) System Check
ALC: NO	Operate vehicle within Fail Records conditions.	86 980 <u>e</u> ñ er 5.	bennob el tab MA	Go to
<u> 1 1 633 p</u>	Does the scan tool indicate this DTC failed this ignition?	belieses ses out	Go to Step 3	Diagnostic Aids
	1. Turn OFF the ignition.	gie hageni Pitatia och	co opariov edit asca	39M . 1 - 1
	2. Disconnect the PCM.	j isti MNU s gola	a 20M conceder u	
	3. Probe the camshaft position input signal circuit at the PCM connector using a Digital Multimeter that is connected to a good ground.	is repeatedly 1992 it at the CMP sen	pere pronet and for vallagie vij excess agant nea ences adan a res f	na sa 1920 - IS 1940 - Oli
3	4. Turn ON the ignition.	5V	beret	-260 <u>0</u>
81 QB) [-	Important: If voltage measures 0, bump over engine to insure cam sensor magnet is not located under the cam sensor at the time of this test.	altovi Elona () nee gla 1940 orti ortio	yen halve some Gori slemator e	eri secol polso teol
	5. Observe the voltage indicated on the DMM.		istoces grimatio) er	1.107.2831
I	Does the voltage measure near the specified value?	okeonii toji 20 00000 Henik	Go to Step 4	Go to Step 5
	1. Turn OFF the ignition.	Menselor Bertone, Loop	sinobecé (Judeméo	off is the second
	2. Without disconnecting the CMP harness connector, remove the CMP sensor from the engine front cover.	/ m munophi prinik	shagasi - (J. Darawi Paréng and I	iv di di min/印
1	Important:			, smaalley E
>1 033 S	• The magnet used must have sufficient power and the	Sectored and a sector of the s	on bestable by	1.007360
4	correct polarity.	neewied dago na	siloving circuits for	ant isaT
	<ul> <li>If the voltage remains at 5 volts, retest using the opposite and of the magnet</li> </ul>		ner secon Personal de la compañía	
	3 Turn ON the ignition	1997 - 1997 -	n a sen un un un un vienza de la versiona de la sensiona de la sensiona de la sensiona de la sensiona de la se Referencia de la sensiona de la sensi	
	4. Place a magnet on the CMP sensor.	ere Mensere Alassa des 1	Anno an Noolo Naord	at spinist
	Does the voltage toggle from 5 volts to 0 volts as the	e internet in hereit in die neuer i	and the first state of the second state of the	in star
1-1 (3) <b>1</b> -1	magnet is placed on the sensor?		Go to Step 16	Go to Step 8
5 [	Does the voltage on the camshaft position input signal cipic circuit measure more than the specified value?	tagel network that at rate (1 <b>5V</b> (C) and	Go to Step 7	Go to Step 6

### DTC P0341 Camshaft Position (CMP) Sensor Performance

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	2. Leave the PCM disconnected.	iokusioj stebline	roe sepera see	rep oviči visornos				
	3. Disconnect the ignition control module (ICM).		405354600	states and a				
	4. Turn ON the ignition.	the beyind the	jajosanoo asems	a sé losgad				
905 00 <b>6</b>	<ol> <li>Probe the camshaft position input signal circuit and the CMP sensor signal circuit at the ICM using a test lamp that is connected to B+.</li> </ol>	1609 100%6. Seogli <del>sse</del> s 2000	od goladi regori negaricu to vikor negaricu to vikor	no lastronsi Li vesebresi Li vesebresi				
3	<ol> <li>If the test lamp is illuminates, repair the short to ground in the camshaft position input signal circuit or the CMP sensor signal circuit. Refer to <i>Wiring</i> <i>Repairs</i> in Wiring Systems.</li> </ol>	na severa to tost to prope jornatisce and Pl sector in Witting	non qui san un c Ierrinat gularit q Al rot gintes Cota Rivatosconta das	00000000000000000000000000000000000000				
1650	Did you find and correct the condition?		Go to Step 24	Go to Step 13				
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147	2. Leave the PCM disconnected.	ant thogain in gast searche thea nisocleau	n an Secondar ghad Na 1960 na trioca	e teo exepte ante execté				
	3. Disconnect the ICM.	bonnocky, j	guivon'i earlie cod	- ande self so				
visti cas	4. Turn ON the ignition.	A nosonia oritu	n beaster catalog	er gehler tens				
7	5. Probe the camshaft position input signal circuit using a test lamp that is connected to a good ground.	taised <u>ia</u> thean Saistean Saistean	alite Asta Antonio - Solite Asta Antonio -	ati a synado 1981 funi esti				
	<ol> <li>If the test lamp is illuminates, repair the short to voltage in the camshaft position input signal circuit. Refer to <i>Wiring Repairs</i> in Wiring Systems.</li> </ol>	4 Madalasis I	vos ota	30055-00 Ki				
1999 - 1997 - 19	Did you find and correct the condition?	702	Go to Step 24	Go to Step 18				
	1. Disconnect the CMP sensor.	ranj kaj filov ipoj sak	ene, energe all 11 d	16200363				
8	2. Measure the voltage on the sensor feed circuit using a DMM that is connected to the CMP ground circuit.	<b>B+</b> □ 34	ante bel Date No. 40000 (les Cowatte	Sempsi Lanvail				
(080) a	Is the voltage at the specified value?	11. Sylaw	Go to Step 9	Go to Step 12				
9	Measure the voltage on the CMP sensor signal circuit using a DMM that is connected to the CMP ground circuit.		a liga diliny oldidar	osseo <sub>s</sub>				
त्रेवर्स को	Does the voltage measure within the specified range?	ahit bélist OTO ak	Go to Step 10	Go to Step 11				
	<ol> <li>Measure the voltage on the CMP input signal circuit at the PCM connector using a DMM that is connected to a good ground.</li> </ol>		aniingi nai 2905 Anton in 1993 Anton in 1993					
10	<ol> <li>Observe the voltage while repeatedly touching the CMP sensor signal circuit at the CMP sensor connector using a test lamp that is connected to a good ground.</li> </ol>	onan en an	se an constanty of Language using a church in a galage Officie gradus					
	Does the voltage switch between 0 and 5 volts when the test lamp is repeatedly touched to the CMP signal circuit?	s levo sprao 10 ko Moné possáci (na	Go to Step 15	Go to Step 14				
	Test for the following conditions:	tadi sasi su italara	na ana a <del>na amin'ny a</del> na Ny INSEE dia mampi					
6. 025F2	<ol> <li>The CMP sensor signal circuit for an open, a short to voltage or a short to ground.</li> </ol>	e hallpeac eith an	n menser spotter					
11	<ol> <li>The camshaft position input signal circuit for a short to voltage.</li> </ol>	o asanaa 1940 sa	i CRV the spatial put disconcering t					
	Refer to <i>Circuit Testing</i> and <i>Wiring Repairs</i> in Wiring Systems.	- shiphy arit must "	orinae 940 est on I					
	Did you find and correct the condition?	della includiation alpare	Go to Step 24	Go to Step 14				
	Test the following circuits for an open between the ICM and the CMP sensor:	na 1940 Berger I view S	anang ku Kabupatén kabupatén ka					
	1. The sensor feed circuit.	la di seconda di second Seconda di seconda di se	gant wit is bie wie	20.20				
12	2. The sensor ground circuit.	—	and the art HO					
	Refer to <i>Circuit Testing</i> and <i>Wiring Repairs</i> in Wiring Systems.	1444 Alexandri A Noder to United	e a magant de terra Automotion autor					
l dage	Did you find and correct the condition?	14.97 (14.97	Go to Step 24	Go to Step 14				
13	Test for an open in the camshaft position input signal circuit between the PCM and the ICM. Refer to <i>Circuit</i> <i>Testing</i> and <i>Wiring Repairs</i> in Wiring Systems.	ang againta dana Pang againtan d	ngel gelt die ogeneen Gelegelte geltet geleen	avi (1913) Avi (1913)				
ļ	Did you find and correct the condition?		Go to Step 24	Go to Step 14				

DIC P0341 Camshaft Position (CMP) Sensor Performance (cont d)						
Step	Action	Values	Yes	No		
ಿ.14ೆಂಗ	Inspect for poor connections at the ICM. Refer to <i>Testing</i> for Intermittent and Poor Connections and Connector Repairs in Wiring Systems.	ionstaleceb pon Nel <del>su</del> lsv 96	io metaya 6.83 e Biasti galensarang	The PGM tests if by momentarity o		
	Did you find and correct the condition?		Go to Step 24	Go to Step 17		
8740 15	Inspect for poor connections at the CMP sensor. Refer to Testing for Intermittent and Poor Connections and Connector Repairs in Wiring Systems.	NO <mark>Se</mark> nsi MOS <u>e</u> rsi MOS <u>e</u> rsi Ana bendebi	Sin Scrothogold in 16 Ion St Robit Io 19 Ion St Robit Ion 19 Ion Ion Ion	POM should see SOA should see associed moteses minima elli selee		
ioo'.	Did you find and correct the condition?	daare stat e wee	Go to Step 24	Go to Step 19		
16	Inspect for poor connections at the PCM. Refer to <i>Testing</i> for Intermittent and Poor Connections and Connector Repairs in Wiring Systems.	encervé hel our c Te melv <u>ur</u> arti Variaech c	assons istruct N (DACE POAC) storioos of ban	Plant nantwi Java 14 MOR anti Java 15 MOR anti Java		
evieseo:	Did you find and correct the condition?	tone vor oester	Go to Step 24	Go to Step 20		
)	Inspect for the following conditions: 1. Incorrect harness routing near secondary ignition components.	no 838 kbw phyton cycle. To Yows a specified	A will only allow I taken dyring an tapat, the PCM a	Normally, the PC lest sample to 54 ald in vertifing a		
0,502 E Q0594 <b>17</b> S. Onise	2. Ignition coil arcing to the wiring harness or to the ignition control module. Inspect ignition coils for cracks, carbon tracking, or other signs of damage. Refer to <i>Ignition Coil(s) Replacement</i> .	Yest ignason o or a hattery se satr <del>a l</del> as shot ina sciacute	adt gehtup ealget ni sealù topi mess text pos anitros merso pi M39 a	sel to tedriur byde following s haconocol: Setu e sufficient for 3		
er gi ter E i	3. Secondary ignition wires arcing to the wiring harness. Refer to <i>Spark Plug Wire Harness Replacement</i> (3.8 L Right Bank) in Engine Electrical.	dormanaya akti T	se ne 668 lest A Running Mark	sq bas wolf AOB Testico, garatego ant sanctitisant		
	Did you find and correct the condition?		Go to Step 24	Go to Step 18		
18	Replace the ICM. Refer to <i>Ignition Control Module</i> <i>Replacement</i> .	(as <u>10</u> 10 R	W to enfisitive an	19 98 <u>8 1</u> 04		
2.13 3.14	Did you complete the replacement?	e e alagande 20 Maert	Go to Step 24	arpou aragino		
19	Replace the CMP sensor. Refer to Camshaft Position (CMP) Sensor Replacement.		itar bas 650 ass	u vig e vi u stat di <u>u</u> tri e -		
and the second sec	Did you complete the replacement?		Go to Step 24	1021-22-02-24-4 		
Jist	Inspect for the following conditions: 1. Incorrect harness routing near secondary ignition components.	Contrast contrast Contrast contrast Contrast contrast contra Contrast contrast contr	ue den som sig begrædson av ens rædons et sæssi	sege gomeV + is nobio CA + nossansan7 +		
ਸ਼ਿਆ ( <b>20</b> ਸਾਲਕੁਵ	<ol> <li>Ignition coil arcing to wiring harness or ignition control module. Inspect ignition coils for cracks, carbon tracking, or other signs of damage. Refer to <i>Ignition</i> <i>Coil(s) Replacement.</i></li> </ol>	esei – inso – inso Secov	is test man itali a test man itali and VSS are t	igns Bliand + Tolkzog ASR + 18 - 91 JRAM +		
	3. Secondary ignition wires arcing to wiring harness. Refer to <i>Spark Plug Wire Harness Replacement</i> ( <i>3.8 L Right Bank</i> ) in Engine Electrical.	i karwat Albi	NG ant goldteß Int black betafn	not encitiones MAP changes m		
	Did you find and correct the condition?		Go to Step 24	Go to Step 21		
	1. Reinstall the CMP sensor to the engine front cover.	At De	) OTO ant nam	i nakaT nekoA		
loot neo 201	2. Probe the camshaft position input signal circuit using a DMM that is connected to a good ground.		en od oberanje obered average	aw MOR adî 🔹		
to <b>fil</b> ia Ver	3. Observe the voltage while repeatedly bumping the engine with the starter.		5, A.F. 1986, 367 7 2007 1986, 367 7			
	Does the voltage toggle between the specified values?	C. Market Strain Sciences and Control of Sciences and Sciences an Sciences and Sciences and S	Go to Step 22	Go to Step 23		
	Important: The replacement PCM must be programmed.			usb stropeR		
22	Replace the PCM. Refer to <i>PCM Replacement/Programming.</i> Did you complete the replacement?	_	Go to Step 24			
23	Replace faulty or missing CMP sensor magnet. Did you complete the replacement?		Go to Step 24	_		
24	<ol> <li>Use the scan tool in order to clear the DTCs.</li> <li>Operate the Fail Record conditions.</li> <li>Does the DTC reset?</li> </ol>		Go to Step 2	System OK		