



HYUNDAI Technical Service Bulletin

Group	ENGINE
Number	09-EM-002
Date	MAY, 2009
Model	MULTIPLE MODELS (SEE BELOW)

Subject	CVVT OIL CONTROL VALVE INSPECTION
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CIRCULATE TO:	<input type="checkbox"/> GENERAL MANAGER	<input checked="" type="checkbox"/> PARTS MANAGER	<input checked="" type="checkbox"/> TECHNICIAN
<input checked="" type="checkbox"/> SERVICE ADVISOR	<input checked="" type="checkbox"/> SERVICE MANAGER	<input checked="" type="checkbox"/> WARRANTY MGR	<input type="checkbox"/> SALES MANAGER

DESCRIPTION:

When diagnosing the Continuously Variable Valve Timing (CVVT) system for rough idling, poor acceleration, camshaft timing misalignment-related trouble codes, misfire-related trouble codes, and/or other related symptoms, it may be required to inspect the Oil Control Valve (OCV) for proper operation.

Follow the procedure outlined in this bulletin to inspect the OCV. If the OCV operates normally, then carry out other necessary repairs. Do not replace the OCV if normal operation is confirmed.

APPLICABLE VEHICLES:

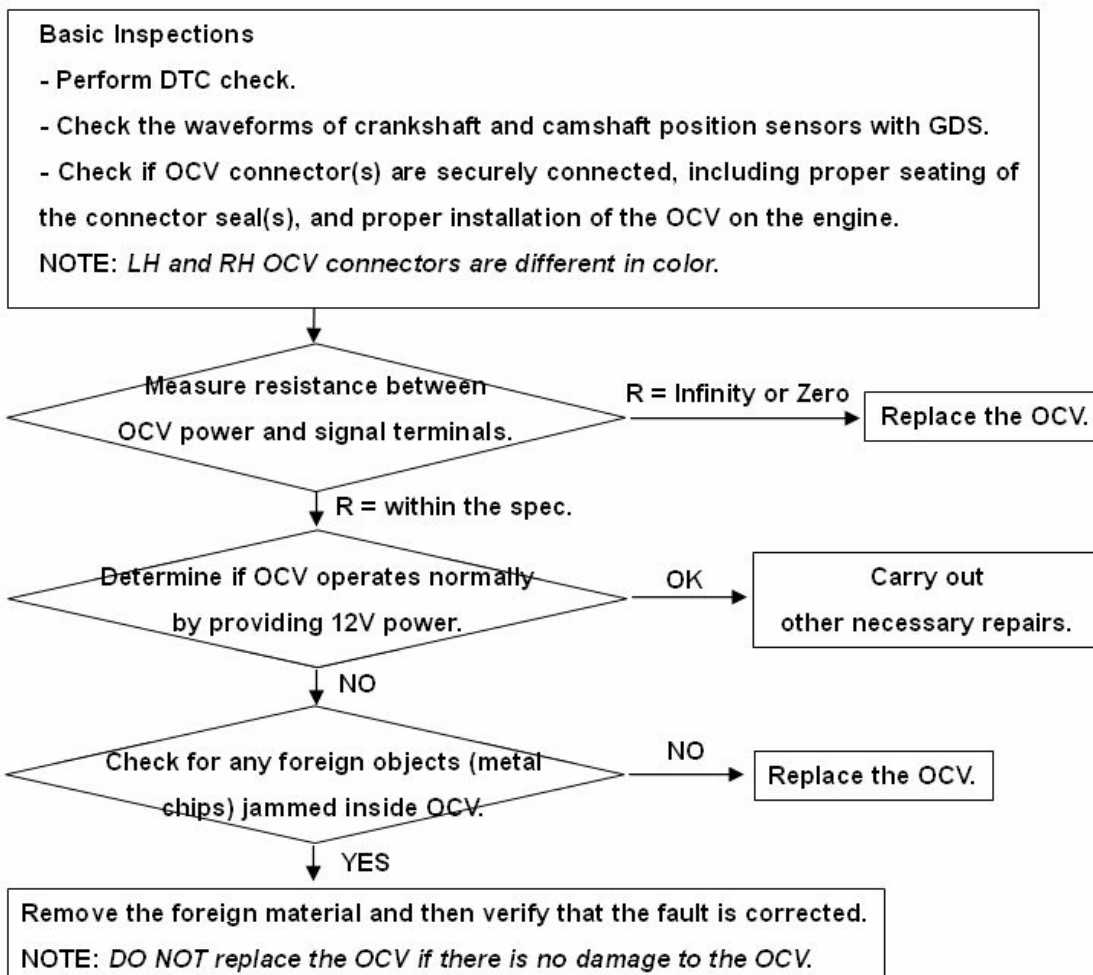
- Model: Hyundai vehicles equipped with CVVT systems

ENGINE	VEHICLE MODEL	OCV SUPPLIER
Alpha 1.6L	Accent (MC)	Denso
Beta 2.0L	2003-2006 SULEV Elantra (XD), 2004-2008 Tiburon 2.0L (GK), Tucson 2.0L (JM), Elantra (HD), Elantra Touring (FD)	Denso
Theta 2.0L / 2.4L	Genesis Coupe (BK), Sonata (NF)	Denso
Mu 2.7L	Santa Fe (CM)	Delphi
Lambda 3.3L / 3.8L	Sonata (NF), Santa Fe (CM), Azera (TG), Veracruz (EN), Entourage (EP), Genesis Coupe (BK), Genesis Sedan (BH)	Delphi
Tau 4.6L	Genesis Sedan (BH)	Denso

RELEVANT DIAGNOSTIC TROUBLE CODES (DTC):

RELATED DTC	CODE DESCRIPTION
P0011	'A' camshaft position - Timing over-advanced or System performance (Bank 1)
P0012	'A' camshaft position - Timing over-retarded (Bank 1)
P0014	'B' camshaft position - Timing over-advanced or System performance (Bank 1)
P0015	'B' camshaft position - Timing over-retarded (Bank 1)
P0016	Crankshaft position-Camshaft position correlation (Bank1 Sensor A)
P0018	Crankshaft position-Camshaft position correlation (Bank2 Sensor A)
P0021	'A' camshaft position - Timing over-advanced or System performance (Bank 2)
P0022	'A' camshaft position - Timing over-retarded (Bank 2)
P0300	Random/Multiple cylinder misfire detected

INSPECTION FLOW DIAGRAM:





OCV COIL RESISTANCE SPECIFICATION:

OCV SUPPLIER (SEE PAGE 1)	COIL RESISTANCE AT 68°F (20°C)
Denso	6.9~7.9 Ohms
Delphi	6.7~7.7 Ohms

OCV INSPECTION PROCEDURE:

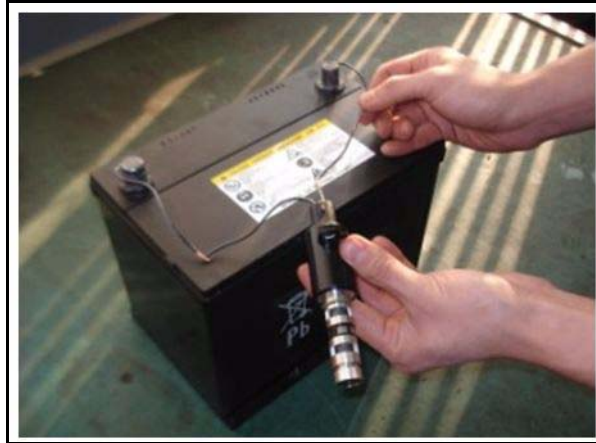
1. Measure the resistance between the OCV Power and Signal terminals.



MEASURED RESISTANCE 68°F (20°C)	RECOMMENDED ACTION
Denso (6.9~7.9 Ohms) Delphi (6.7~7.7 Ohms)	Check if the OCV operates normally by providing 12V power. (See the STEP 2.)
Infinity (OPEN)	Open circuit - Replace the OCV.
Below specified range or zero	Short circuit - Replace the OCV.

2. Check if the OCV operates normally by providing 12V power as shown in the picture below.

IMPORTANT: Careful attention is necessary to avoid a short circuit when providing the OCV with 12V power. Spacing between the OCV power and signal terminals is very narrow. Use suitable connections to prevent shorting of the test power supply.

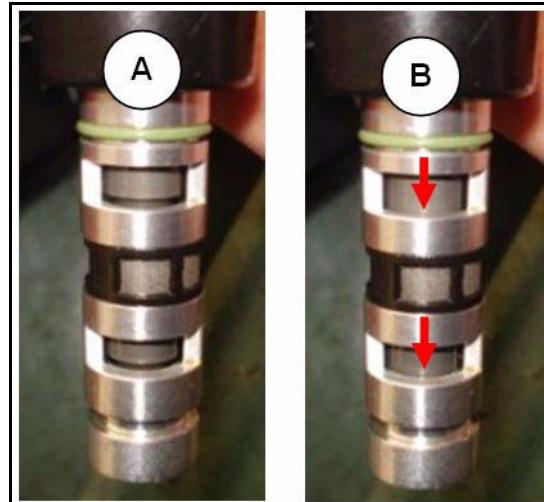


3. When 12V power is provided to the OCV, the OCV must move forward as shown in the picture to the right.

A: Maximum retarded valve timing condition (12V not provided)

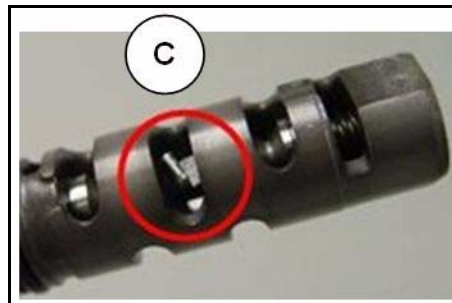
B: Maximum advanced valve timing condition (12V provided)

NOTE: Reverse the connection polarity if the movement is opposite.



4. If the OCV does not move forward, examine if a foreign object like an aluminum chip (C) is jammed inside the OCV.

- Blow out the foreign object using compressed air, reinstall the OCV and then verify that the fault is corrected.
- If there is no damage to the OCV, then do not replace the OCV.



WARRANTY INFORMATION:

Normal warranty applies, if applicable.