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TECHNICAL BULLETIN		
	May 2011 TB 2579	

Oil Control Valve (OCV) Inspection On
2003-08 Hyundai 1.6, 2.0, 2.4, 2.7, 3.3, 3.8 & 4.6L Engines

The AERA Technical Committee offers the following information for inspecting continuously variable valve timing on 2003-08 Hyundai 1.6, 2.0, 2.4, 2.7, 3.3, 3.8 & 4.6L engines. Customers may complain of rough idle or poor acceleration in vehicles using the above mentioned engines.

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.

There are two OCV suppliers that Hyundai used during production of these engines. When checking the OCV, you will need to know which supplier was used depending on what vehicle and engine you have. Please refer to the chart Figure 1 below for more information on which OCV is used.

Figure 1: Engine, Model, OCV Supplier

To check the OCV, measure the resistance between OCV power and signal terminals as shown in Figure 2. Refer to the Figure 3 chart for ranges and OCV supplier specs.

Figure 3: Resistance Results & Action

Figure 2: Testing OCV

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Check to make sure that the OCV operates normally by providing 12V power as shown in Figure 4.

Figure 4: Checking operation using 12V.

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

When 12V power is provided to the OCV, the OCV must move forward as shown in the Figure 5. Picture A shows maximum retarded valve timing condition when 12V not provided. Picture B shows advanced valve timing condition with 12V supplied. NOTE: Reverse the connection polarity if the movement is opposite.

Figure 5: OCV movement Figure 6: Aluminum chip jammed in OCV

If the OCV does not move forward, examine it for a foreign object such as an aluminum chip © is jammed inside the OCV as show in Figure 6. Blow out the foreign object using compressed air, reinstall the OCV and then verify that the fault is corrected.

The AERA Technical Committee

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Bulletin Diagram: FIGURE 1. APPLICATION CHART - FAILURE ANALYSIS

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

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Bulletin Diagram: FIGURE 2. TESTING OCV WITH OHM METER - FAILURE ANALYSIS



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Bulletin Diagram: FIGURE 3. RESISTENCE READING CHART - FAILURE ANALYSIS

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.

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Bulletin Diagram: FIGURE 4. CHECKING OCV OPERATION WITH 12 VOLTS - FAILURE ANALYSIS



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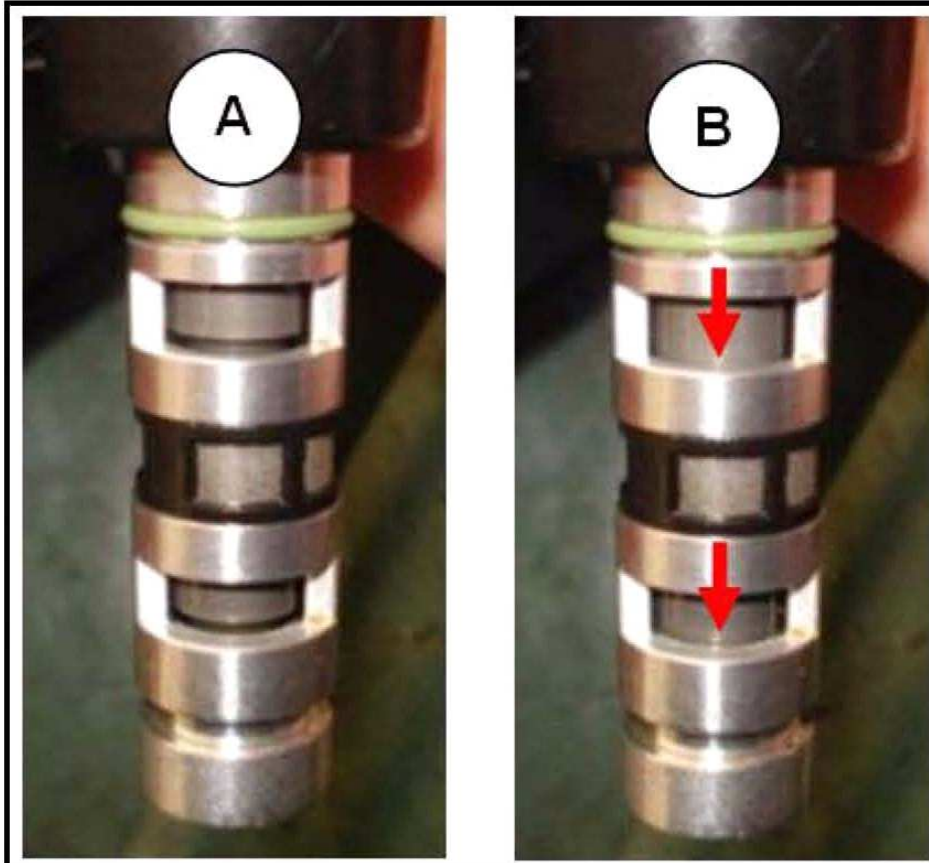
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Bulletin Diagram: FIGURE 5. OCV MOVEMENT - FAILURE ANALYSIS



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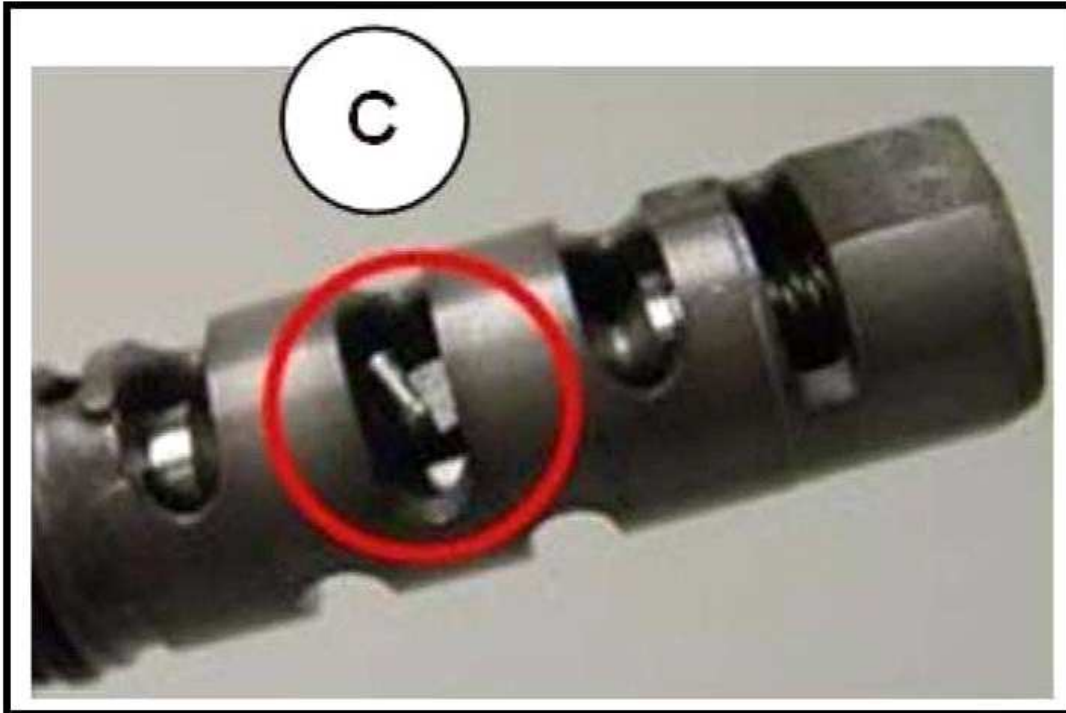
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Bulletin Diagram: FIGURE 6. ALUMINUM DEBRI JAMMED IN OCV - FAILURE ANALYSIS



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