



Volkswagen AG, a member of the Volkswagen Group

## Application for Emissions Certification Part 1 2010 Model Year

Durability Group: AVWXGPGNN3UA  
Evap. Families: AVWXR0110238  
AVWXR0125246

### Test Group: AVWXV02.03UA

Certificate Numbers: AVWXV02.03UA-005  
AVWXV02.03UA-006

Durability Group Description: Four Stroke, Otto Cycle, Gasoline Fueled,  
Turbo charged, Charge air cooled  
Direct Fuel Injection, Catalyst Code: REX 1662

Test group Description: 2.0 Liter I4 – LDV

Applicable Standards: Federal: Tier 2 BIN 5

Carlines Covered: Volkswagen Eos  
Volkswagen Passat, Passat Wagon, CC

#### Vehicles Tested:

VID	Config.	Test Type / #	Test Type / #
465-790007/09	00	FTP 75 / 9ADX01087589	HFET / 9ADX01087590
465-790007/09	00	US06 / 9ADX01086566	SC03 / 9ADX01086568
465-790007/09	00	Cold C0 / 9ADX01086567	
6366-AAF	00	ORVR / 8ADX01061699	
6366-AAF	01	2-Day / 8ADX01061642	
6366-AAF	01	3-Day / 8ADX01061643	Running Loss / 8ADX10001963
461-60137/06	00	2-Day / 8VWX01065489	ORVR / 8VWX01065488
461-60137/06	00	3-Day / 8VWX01065514	Running Loss / 8VWX10002331

Issue Date: 06-05-2009

Update: 12-02-2009

Final: 12-23-2010

For Questions, Contact:  
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## Table of Contents - Part 1

Section 01 - Correspondence and Communications	-	refer to Common Sections
Section 02 - Durability Group Description	-	refer to Common Sections
Section 03 - Evaporative/Refueling Family Description	-	refer to Common Sections
Section 04 - Durability Procedure Description	-	refer to Common Sections
Section 05 - Test Group Description		
Section 06 - Test Vehicle Description		
Section 07 - Test Results		
Section 08 - Emission Testing Waiver Statements		
Section 09 - OBD System Description		
Section 10 - Description of Alternate-fueled Vehicles	-	Not Applicable
Section 11 - AECD Description		
Section 12 - Description of vehicles covered by certificate and test parameters		
Section 13 - Projected Sales		
Section 14 - Request for Certificate		
Section 15 - Other Information		
Section 16 - Confidential Information		
Section 17 - California ARB Information		

Section 5	Pg. 1	Test Group Description	Engine Code	R.CH-No.:	Revision Date
Test Group		AVWXV02.03UA	all		

**5.1 Test Group Description**

Test Group Name	AVWXV02.03UA
Certificate Number	AVWXV02.03UA-005
Engine displacements covered	2.0 liters
Arrangement and number of cylinders	I 4
Vehicle class (es) covered	LDV
Federal Emissions Standards Class	Tier 2 BIN 5
California Emissions Standards Class	n.a.

Test Group Name	AVWXV02.03UA
Certificate Number	AVWXV02.03UA-006
Engine displacements covered	2.0 liters
Arrangement and number of cylinders	I 4
Vehicle class (es) covered	LDV
Federal Emissions Standards Class	Tier 2 BIN 5
California Emissions Standards Class	n.a.

**5.2 Test Group Emission Standards**

Please refer to Certification Summary Information report included in Section 7 for applicable emission standards.

Section 5	Pg. 2	Test Group Description	Engine Code	R.CH-No.:	Revision Date
Test Group		AVWXV02.03UA	all		12-23-2010

### 5.3 Test Group Cold NMHC Emission Standards

In accordance with §86.1811-10, the following vehicles of this test groups are part of the Cold NMHC phase in and are certified to fulfill the following family emission limits (FEL):

Certification FEL = 0.3 g/mi

Interim in-use FEL = 0.4 g/mi (MY 2009, 2010, 2011, 2012)

Model	Engine Code	Transmission
Passat CC	CBFA	DQ250-6F
Passat	CBFA	DQ250-6F
Passat wagon	CBFA	DQ250-6F
EOS	CBFA	DQ250-6F
EOS	CBFA	MQ350-6F

<b>Section 6</b>	<b>Pg. 1</b>	<b>Test Vehicle Description</b>	<b>Engine Code</b>	<b>R.CH-No.:</b>	<b>Revision Date</b>
<b>Test Group</b>		<b>AVWXV02.03UA</b>	<b>all</b>		

**6. Test Vehicle Description (cont.)**

Please refer to included Certification Summary Information report for the following vehicles:

Certificate Number: AVWXV02.03UA-005  
 Test Group: AVWXV02.03UA  
 Evaporative/Refueling Family: AVWXR0110238

<b>VID</b>	<b>config.</b>	<b>vehicle type</b>	<b>tests performed</b>
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<b>465-790007/09</b>	00	Cert Emission	FTP 75, HFET, Cold CO, US06, SC03
<b>465-790008/09</b>	00	Fuel Economy	FTP 75, HFET, Cold CO, US06, SC03

<b>6366-AAF</b>	01	Cert. Emission	2-Day EVAP, 3-day EVAP
<b>6366-AAF</b>	00	Cert. Emission	ORVR

<b>Section 6</b>	<b>Pg. 2</b>	<b>Test Vehicle Description</b>	<b>Engine Code</b>	<b>R.CH-No.:</b>	<b>Revision Date</b>
<b>Test Group</b>		<b>AVWXV02.03UA</b>	<b>all</b>		

**6. Test Vehicle Description (cont.)**

Please refer to included Certification Summary Information report for the following vehicles:

Certificate Number: AVWXV02.03UA-006  
 Test Group: AVWXV02.03UA  
 Evaporative/Refueling Family: AVWXR0125246

<b>VID</b>	<b>config.</b>	<b>vehicle type</b>	<b>tests performed</b>
<b>469 00062/10</b>			
	00	Fuel Economy	FTP 75, HFET, Cold CO, US06, SC03
	01	Fuel Economy	FTP 75, HFET, Cold CO, US06, SC03

<b>461-60137/06</b>	00	Cert. Emission	2-Day EVAP, 3-day EVAP, ORVR

<b>Section 7</b>	<b>Pg. 1</b>	<b>Test Results</b>	<b>Engine Code</b>	<b>R.CH-No.:</b>	<b>Revision Date</b>
<b>Test Group</b>		<b>AVWXV02.03UA</b>	<b>all</b>		

**7.        Test Results**

Please refer to included summary sheets.

Please refer to included summary sheets.

Certificate Number:        AVWXV02.03UA-005  
Combination of:  
Test Group:                    AVWXV02.03UA  
EVAP/Refueling Family:    AVWXR0110238

Please refer to included summary sheets.

Certificate Number:        AVWXV02.03UA-006  
Combination of:  
Test Group:                    AVWXV02.03UA  
EVAP/Refueling Family:    AVWXR0125246

## Certification Summary Information Report

<b>Manufacturer</b>	Volkswagen	<b>Manufacturer Code</b>	VWX
<b>Test Group</b>	AVWXV02.03UA	<b>Evaporative/Refueling Family</b>	AVWXR0110238
<b>Certificate Number</b>	AVWXV02.03UA-005	<b>CARB Executive Order #</b>	N/A
<b>Certificate Issue Date</b>	06/10/2009	<b>Certificate Revision Date</b>	N/A
<b>Certificate Effective Date</b>	12/31/2010	<b>Conditional Certificate</b>	No
<b>CSI Revision #</b>	N/A	<b>CSI Revision Date</b>	06/12/2009
<b>Model Year</b>	2010		

### Test Group Information

<b>CSI Type</b>	Update for Correction	<b>Running Change Reference Number</b>	N/A
<b>Drive Source</b>	Combustion Engine	<b>EPA Vehicle Class</b>	LDV
<b>Federal Clean Fuel Vehicle</b>	No	<b>Federal Clean Fuel Vehicle Standard</b>	
<b>Federal Clean Fuel Vehicle ILEV</b>	No	<b>California Partial Zero Emissions Vehicle Indicator</b>	No
<b>Durability Group Name</b>	AVWXGPGNN3UA	<b>Durability Group Equivalency Factor</b>	1.00
<b>Fuel Category</b>	Single Fuel	<b>Fuel(s)</b>	Gasoline, Not Applicable
<b>Reduced Fee Test Group</b>	No		
<b>Certification Region Codes</b>			
<b>Introduction into Commerce Date</b>	06/29/2009	<b>CAP2000 Conditional Certificate?</b>	No
<b>Mfr Test Group Comments</b> Federal Only Test Group			
<b>Exhaust/Evap Standards Comments</b>			

### Evaporative/Refueling Family Information

<b>Evaporative Summary Information Type</b>	New	<b>Submission/Correction Date</b>	01/27/2009
<b>Integrated ORVR?</b>	Yes	<b>Fuel(s)</b>	Gasoline, Not Applicable
<b>Bladder Fuel Tank?</b>	No		
<b>Fuel Tank Material</b>	Plastic	<b>Fuel Tank Material Description</b>	HDPE
<b>Fill Pipe Seal Type</b>	Liquid seal		
<b>Air Intake System Vapor Storage Device?</b>	No	<b>Air Intake System Vapor Storage Device Description</b>	N/A
<b>Fuel System Vapor Storage Canister?</b>	Yes	<b>Other Vapor Storage</b>	N/A
<b>Fuel System Vapor Storage Canister(s) Total Working Capacity</b>	110	<b>Number of Primary Canisters</b>	1
<b>Number of Bleed Canisters</b>	0	<b>Bleed Canister Total Working Capacity (grams)</b>	N/A
<b>Mfr Evaporative/Refueling Family Comments</b> Federal LEV-II and CA LEV-II Evap standards.			

### Models Covered by this Certificate

Manufacturer	Division	Carline	Certification Region Code	Drive System	Transmission			
					Trans Type	Lockup	Creeper Gear	# of Gears
Volkswagen	1 - Volkswagen	216 - EOS	Fed	F	SA	No	No	6
Volkswagen	1 - Volkswagen	216 - EOS	Fed	F	M	No	No	6

### Engine Description

<b>Hybrid Type</b>		<b>Hybrid Description</b>	
<b>Engine Type</b>	4-Stroke Spark Ignition		
<b>Engine Description</b>			
<b>Engine Block Arrangement</b>	Inline		
<b>Engine Block Arrangement Description</b>			
<b>Basic Fuel Metering Systems(s)</b>	Gasoline Direct fuel injection,	<b>Number of Cylinders/Rotors</b>	4



**Certification Summary Information Report**

<b>Manufacturer</b>	Volkswagen	<b>Manufacturer Code</b>	VWX
<b>Test Group</b>	AVWXV02.03UA	<b>Evaporative/Refueling Family</b>	AVWXR0110238
<b>Certificate Number</b>	AVWXV02.03UA-005	<b>CARB Executive Order #</b>	N/A
<b>Certificate Issue Date</b>	06/10/2009	<b>Certificate Revision Date</b>	N/A
<b>Certificate Effective Date</b>	12/31/2010	<b>Conditional Certificate</b>	No
<b>CSI Revision #</b>	N/A	<b>CSI Revision Date</b>	06/12/2009
<b>Model Year</b>	2010		

**Engine Configuration Number 1**

<b>Engine Displacement (liters)</b>	2.0	<b>Engine Rated Horsepower</b>	200
<b>Number of Inlet Valves Per Cylinder</b>	2	<b>Number of exhaust Valves Per Cylinder</b>	2
<b>Air Aspiration Method</b>	Turbocharged	<b>Number of Air Aspiration Devices</b>	1
<b>Air Aspiration Device Configuration</b>	Single	<b>Charge Air Cooler Type</b>	Air
<b>Cylinder Deactivation Description</b> - N/A			
<b>Variable Valve Timing System Description</b> - CONTINUOUS VARIABLE VALVE TIMING			
<b>Variable Valve Lift System</b> - N/A			
<b>Sensor Information</b>			
<b>Number of Knock Sensors</b>	2		
<b>Sensor # 1</b>		<b>Sensor Type</b>	Heated oxygen
<b>Sensor # 2</b>		<b>Sensor Type</b>	Heated oxygen
<b>Sensor Comments</b> - N/A			
<b>Exhaust Gas Recirculation</b>	Yes	<b>EGR Type</b>	Variable Valve Timing Control
<b>Cooled Exhaust Gas Recirculation</b>	No		
<b>Closed Loop Air Injection System</b>	No	<b>Air Injection Type</b>	
<b>Engine Configuration Comments</b> - null			

**After Treatment Device(s) (ATD)**

ATD Number	ATD Type	ATD Precious Metal	Substrate Material	Substrate Construction
1	Three-way catalyst	Paladium + Rhodium	Ceramic	Monolith
2	Three-way catalyst	Paladium + Rhodium	Ceramic	Monolith

**After Treatment Device (ATD) Comments**

ONE PRE-CATALYST AND ONE MAIN CATALYST

**Direct Ozone Reduction****(DOR) Device** Not Equipped**Emission Control Device Comments**

## Certification Summary Information Report

<b>Manufacturer</b>	Volkswagen	<b>Manufacturer Code</b>	VWX
<b>Test Group</b>	AVWXV02.03UA	<b>Evaporative/Refueling Family</b>	AVWXR0110238
<b>Certificate Number</b>	AVWXV02.03UA-005	<b>CARB Executive Order #</b>	N/A
<b>Certificate Issue Date</b>	06/10/2009	<b>Certificate Revision Date</b>	N/A
<b>Certificate Effective Date</b>	12/31/2010	<b>Conditional Certificate</b>	No
<b>CSI Revision #</b>	N/A	<b>CSI Revision Date</b>	06/12/2009
<b>Model Year</b>	2010		

**Emission Data Vehicle Information**

<b>Vehicle ID / Configuration</b>	6366-AAF / 0		
<b>Transmission Type</b>	Automatic	<b># of Transmission Gears</b>	6
<b>Engine Code</b>	BPY	<b>Axle Ratio</b>	3.14
<b>Fuel(s)</b>	Gasoline / Not Applicable	<b>Vehicle Fuel Category</b>	Single Fuel
<b>Displacement (liters)</b>	1.984	<b>Rated Horsepower</b>	200
<b>Equivalent Test Weight (pounds)</b>	3750	<b>Air Aspiration Method</b>	Turbocharged
<b>Test Drive Code</b>	2-Wheel Drive, Front	<b>SIL Usage</b>	Not equipped
<b>Aged Emission Components</b>	4,000 (mi)		

**Dynamometer Coefficients Test Procedure: City/Highway/Evap**

<b>Dynamometer Target Coefficients</b>	a=32.37 (lbf)	b=0.268 (lbf/mph)	c=0.02 (lbf/mph**2)
<b>Dynamometer Set Coefficients</b>	a=5.4 (lbf)	b=0.054 (lbf/mph)	c=0.02 (lbf/mph**2)

**Dynamometer Coefficients Test Procedure: Cold CO**

<b>Dynamometer Target Coefficients</b>	a=32.37 (lbf)	b=0.268 (lbf/mph)	c=0.02 (lbf/mph**2)
<b>Dynamometer Set Coefficients</b>	a=5.4 (lbf)	b=0.054 (lbf/mph)	c=0.02 (lbf/mph**2)

**Dynamometer Coefficients Test Procedure: US06**

<b>Dynamometer Target Coefficients</b>	a=32.37 (lbf)	b=0.268 (lbf/mph)	c=0.02 (lbf/mph**2)
<b>Dynamometer Set Coefficients</b>	a=5.4 (lbf)	b=0.054 (lbf/mph)	c=0.02 (lbf/mph**2)

**Test Vehicle Comments**

MY 2006 AUDI A3 SPORTBACK - L6 TRANS. ETW 3750 - TESTED AS FWD

<b>Test #</b>	8ADX01061699	<b>Exhaust Test # for this Evap Test</b>	8ADX01061636
<b>Test Procedure</b>	Federal fuel refueling test (ORVR)	<b>Test Fuel Type</b>	Tier 2 Cert Gasoline
<b>Test Date</b>	11/11/2004	<b>DF Type</b>	Mfr. Determined
<b>4WD Dyno?</b>	No	<b>State of Charge Delta</b>	
<b>Test Comments</b>	FED FUEL ORVR TEST		

**Evaporative Standards**

Useful Life	Emission Name	Rounded Result	Cert Level	Std	Sales Area	Std Level	Add DF	Pass/Fail
120,000 miles	HC	0.0075	0.008	0.200	Fed	Federal LEV-II Evap	0.000	Pass

**Emission Data Vehicle Information**

<b>Vehicle ID / Configuration</b>	6366-AAF / 1		
<b>Transmission Type</b>	Automatic	<b># of Transmission Gears</b>	6
<b>Engine Code</b>	BPY	<b>Axle Ratio</b>	3.14
<b>Fuel(s)</b>	Gasoline / Not Applicable	<b>Vehicle Fuel Category</b>	Single Fuel
<b>Displacement (liters)</b>	1.984	<b>Rated Horsepower</b>	200
<b>Equivalent Test Weight (pounds)</b>	3750	<b>Air Aspiration Method</b>	Turbocharged
<b>Test Drive Code</b>	2-Wheel Drive, Front	<b>SIL Usage</b>	Not equipped
<b>Aged Emission Components</b>	4,000 (mi)		

**Dynamometer Coefficients Test Procedure: City/Highway/Evap**

<b>Dynamometer Target Coefficients</b>	a=32.37 (lbf)	b=0.268 (lbf/mph)	c=0.02 (lbf/mph**2)
<b>Dynamometer Set Coefficients</b>	a=5.4 (lbf)	b=0.054 (lbf/mph)	c=0.02 (lbf/mph**2)

**Test Vehicle Comments**

MY 2006 AUDI A3 SPORTBACK - L6 TRANS. - ETW 3750 - PHASE 2 FUEL - CALIF. EVAP - TESTED AS FWD

## Certification Summary Information Report

<b>Manufacturer</b>	Volkswagen	<b>Manufacturer Code</b>	VWX					
<b>Test Group</b>	AVWXV02.03UA	<b>Evaporative/Refueling Family</b>	AVWXR0110238					
<b>Certificate Number</b>	AVWXV02.03UA-005	<b>CARB Executive Order #</b>	N/A					
<b>Certificate Issue Date</b>	06/10/2009	<b>Certificate Revision Date</b>	N/A					
<b>Certificate Effective Date</b>	12/31/2010	<b>Conditional Certificate</b>	No					
<b>CSI Revision #</b>	N/A	<b>CSI Revision Date</b>	06/12/2009					
<b>Model Year</b>	2010							
<b>Test #</b>	8ADX01061642	<b>Exhaust Test # for this Evap Test</b>	8ADX01061638					
<b>Test Procedure</b>	California fuel 2-day evap	<b>Test Fuel Type</b>	CARB Phase II Gasoline					
<b>Test Date</b>	10/29/2004	<b>DF Type</b>	Mfr. Determined					
<b>4WD Dyno?</b>	No	<b>State of Charge Delta</b>						
<b>Test Comments</b>	CALIFORNIA PHASE 2 FUEL 2-DAY EVAP TEST							
<b>Evaporative Standards</b>								
<b>Useful Life</b>	<b>Emission Name</b>	<b>Rounded Result</b>	<b>Cert Level</b>	<b>Std</b>	<b>Sales Area</b>	<b>Std Level</b>	<b>Add DF</b>	<b>Pass/Fail</b>
120,000 miles	HC-TOTAL	0.3310	0.342	0.650	Fed	Federal LEV-II Evap	0.011	Pass
<b>Test #</b>	8ADX01061643	<b>Exhaust Test # for this Evap Test</b>	8ADX01061639					
<b>Test Procedure</b>	CA fuel 3-day evap.	<b>Test Fuel Type</b>	CARB Phase II Gasoline					
<b>Test Date</b>	11/16/2004	<b>DF Type</b>	Mfr. Determined					
<b>4WD Dyno?</b>	No	<b>State of Charge Delta</b>						
<b>Test Comments</b>	CALIFORNIA PHASE 2 FUEL 3-DAY EVAP TES							
<b>Evaporative Standards</b>								
<b>Useful Life</b>	<b>Emission Name</b>	<b>Rounded Result</b>	<b>Cert Level</b>	<b>Std</b>	<b>Sales Area</b>	<b>Std Level</b>	<b>Add DF</b>	<b>Pass/Fail</b>
120,000 miles	HC-TOTAL	0.3170	0.328	0.500	Fed	Federal LEV-II Evap	0.011	Pass
<b>Test #</b>	8ADX10001963	<b>Exhaust Test # for this Evap Test</b>	8ADX01061639					
<b>Test Procedure</b>	California Fuel Running Loss	<b>Test Fuel Type</b>	CARB Phase II Gasoline					
<b>Test Date</b>	11/16/2004	<b>DF Type</b>	Mfr. Determined					
<b>4WD Dyno?</b>	No	<b>State of Charge Delta</b>						
<b>Test Comments</b>	CALIFORNIA PHASE 2 FUEL RUNNING LOSS TEST							
<b>Evaporative Standards</b>								
<b>Useful Life</b>	<b>Emission Name</b>	<b>Rounded Result</b>	<b>Cert Level</b>	<b>Std</b>	<b>Sales Area</b>	<b>Std Level</b>	<b>Add DF</b>	<b>Pass/Fail</b>
120,000 miles	HC	0.0000	0.000	0.050	Fed	Federal LEV-II Evap	0.000	Pass

## Certification Summary Information Report

<b>Manufacturer</b>	Volkswagen	<b>Manufacturer Code</b>	VWX
<b>Test Group</b>	AVWXV02.03UA	<b>Evaporative/Refueling Family</b>	AVWXR0110238
<b>Certificate Number</b>	AVWXV02.03UA-005	<b>CARB Executive Order #</b>	N/A
<b>Certificate Issue Date</b>	06/10/2009	<b>Certificate Revision Date</b>	N/A
<b>Certificate Effective Date</b>	12/31/2010	<b>Conditional Certificate</b>	No
<b>CSI Revision #</b>	N/A	<b>CSI Revision Date</b>	06/12/2009
<b>Model Year</b>	2010		

**Emission Data Vehicle Information**

<b>Vehicle ID / Configuration</b>	VW465 790007/09 / 0		
<b>Transmission Type</b>	Automatic	<b># of Transmission Gears</b>	6
<b>Engine Code</b>	CCTA	<b>Axle Ratio</b>	3.14
<b>Fuel(s)</b>	Gasoline / Not Applicable	<b>Vehicle Fuel Category</b>	Single Fuel
<b>Displacement (liters)</b>	1.984	<b>Rated Horsepower</b>	200
<b>Equivalent Test Weight (pounds)</b>	3875	<b>Air Aspiration Method</b>	Turbocharged
<b>Test Drive Code</b>	2-Wheel Drive, Front	<b>SIL Usage</b>	Not equipped
<b>Aged Emission Components</b>	4,000 (mi)		

**Dynamometer Coefficients Test Procedure: City/Highway/Evap**

<b>Dynamometer Target Coefficients</b>	a=39 (lbf)	b=0.29 (lbf/mph)	c=0.0171 (lbf/mph**2)
<b>Dynamometer Set Coefficients</b>	a=16 (lbf)	b=0.17 (lbf/mph)	c=0.0165 (lbf/mph**2)

**Dynamometer Coefficients Test Procedure: Cold CO**

<b>Dynamometer Target Coefficients</b>	a=42 (lbf)	b=0.32 (lbf/mph)	c=0.0187 (lbf/mph**2)
<b>Dynamometer Set Coefficients</b>	a=14 (lbf)	b=0.14 (lbf/mph)	c=0.0195 (lbf/mph**2)

**Dynamometer Coefficients Test Procedure: US06**

<b>Dynamometer Target Coefficients</b>	a=39 (lbf)	b=0.29 (lbf/mph)	c=0.0171 (lbf/mph**2)
<b>Dynamometer Set Coefficients</b>	a=16 (lbf)	b=0.17 (lbf/mph)	c=0.0165 (lbf/mph**2)

**Test Vehicle Comments**

MY 2009 VW EOS - 2.0L I-4 TFSI W/L6 (DQ) TRANS.- FEDV - ETW 3875 - TESTED AS FWD - 99 = DIRECT FUEL INJECTION

<b>Test #</b>	9ADX01086566	<b>Exhaust Test # for this Evap Test</b>	N/A
<b>Test Procedure</b>	US06	<b>Test Fuel Type</b>	Tier 2 Cert Gasoline
<b>Test Date</b>	03/05/2008	<b>DF Type</b>	Mfr. Determined
<b>4WD Dyno?</b>	No	<b>State of Charge Delta</b>	

**Test Comments**

4K MILE US06 - ETW 3875

**Exhaust Standards**

Sales Area	Useful Life	Emission Name	Rounded Result	Cert Level	Std	Vehicle Class	Std Level	NMOG / NMHC	RAF	Deterioration Factor		Diesel Adjustment Factor		Pass/Fail
										Add DF	Mult DF	Up	Down	
Fed	4,000 miles	CO	2.240	2.24	8.00	LDV	Federal Tier 2 Bin 5							Pass
Fed	120,000 miles	CO	2.240	2.24	11.10	LDV	Federal Tier 2 Bin 5		0.00					Pass

**Certification Summary Information Report**

<b>Manufacturer</b>	Volkswagen	<b>Manufacturer Code</b>	VWX
<b>Test Group</b>	AVWXV02.03UA	<b>Evaporative/Refueling Family</b>	AVWXR0110238
<b>Certificate Number</b>	AVWXV02.03UA-005	<b>CARB Executive Order #</b>	N/A
<b>Certificate Issue Date</b>	06/10/2009	<b>Certificate Revision Date</b>	N/A
<b>Certificate Effective Date</b>	12/31/2010	<b>Conditional Certificate</b>	No
<b>CSI Revision #</b>	N/A	<b>CSI Revision Date</b>	06/12/2009
<b>Model Year</b>	2010		

<b>Test #</b>	9ADX01086567	<b>Exhaust Test # for this Evap Test</b>	N/A
<b>Test Procedure</b>	Cold CO	<b>Test Fuel Type</b>	Cold CO Premium (Tier 2)
<b>Test Date</b>	03/11/2008	<b>DF Type</b>	Mfr. Determined
<b>4WD Dyno?</b>	No	<b>State of Charge Delta</b>	
<b>Test Comments</b>	4K MILE COLD CO - ETW 3875		

**Exhaust Standards**

Sales Area	Useful Life	Emission Name	Rounded Result	Cert Level	Std	Vehicle Class	Std Level	NMOG / NMHC	RAF	Deterioration Factor		Diesel Adjustment Factor		Pass/Fail
										Add DF	Mult DF	Up	Down	
Fed	50,000 miles	CO	1.560	1.56	10.00	LDV	Federal Tier 2 Bin 5			0.000				Pass
Fed	120,000 miles	HC-NM	0.148	0.16	0.30	LDV	Federal Tier 2 Bin 5			0.0106				Pass

<b>Test #</b>	9ADX01086568	<b>Exhaust Test # for this Evap Test</b>	N/A
<b>Test Procedure</b>	SC03	<b>Test Fuel Type</b>	Tier 2 Cert Gasoline
<b>Test Date</b>	04/02/2008	<b>DF Type</b>	Mfr. Determined
<b>4WD Dyno?</b>	No	<b>State of Charge Delta</b>	
<b>Test Comments</b>	4K MILE SC03 - ETW 3875		

**Exhaust Standards**

Sales Area	Useful Life	Emission Name	Rounded Result	Cert Level	Std	Vehicle Class	Std Level	NMOG / NMHC	RAF	Deterioration Factor		Diesel Adjustment Factor		Pass/Fail
										Add DF	Mult DF	Up	Down	
Fed	4,000 miles	CO	0.280	0.28	2.70	LDV	Federal Tier 2 Bin 5							Pass
Fed	120,000 miles	CO	0.280	0.28	3.70	LDV	Federal Tier 2 Bin 5			0.00				Pass

## Certification Summary Information Report

<b>Manufacturer</b>	Volkswagen	<b>Manufacturer Code</b>	VWX
<b>Test Group</b>	AVWXV02.03UA	<b>Evaporative/Refueling Family</b>	AVWXR0110238
<b>Certificate Number</b>	AVWXV02.03UA-005	<b>CARB Executive Order #</b>	N/A
<b>Certificate Issue Date</b>	06/10/2009	<b>Certificate Revision Date</b>	N/A
<b>Certificate Effective Date</b>	12/31/2010	<b>Conditional Certificate</b>	No
<b>CSI Revision #</b>	N/A	<b>CSI Revision Date</b>	06/12/2009
<b>Model Year</b>	2010		

<b>Test #</b>	9ADX01087589	<b>Exhaust Test # for this Evap Test</b>	N/A
<b>Test Procedure</b>	Federal fuel 2-day exhaust (w/can load)	<b>Test Fuel Type</b>	Tier 2 Cert Gasoline
<b>Test Date</b>	06/03/2008	<b>DF Type</b>	Mfr. Determined
<b>4WD Dyno?</b>	No	<b>State of Charge Delta</b>	

**Test Comments**

4K MILE 2-DAY FED FTP W/CAN.LOAD - ETW 3875 - ### MFR. CONFIRMATORY RETEST ###

**Exhaust Standards**

Sales Area	Useful Life	Emission Name	Rounded Result	Cert Level	Std	Vehicle Class	Std Level	NMOG / NMHC	RAF	Deterioration Factor		Diesel Adjustment Factor		Pass/Fail
										Add DF	Mult DF	Up	Down	
Fed	50,000 miles	NMOG	0.02280	0.027 2	0.0750	LDV	Federal Tier 2 Bin 5	1.04	1	0.0044				Pass
Fed	50,000 miles	NOX	0.0160	0.019	0.050	LDV	Federal Tier 2 Bin 5			0.003				Pass
Fed	50,000 miles	CO	0.370	0.37	3.40	LDV	Federal Tier 2 Bin 5			0.000				Pass
Fed	120,000 miles	NMOG	0.02280	0.033 4	0.0900	LDV	Federal Tier 2 Bin 5	1.04	1	0.0106				Pass
Fed	120,000 miles	NOX	0.0160	0.023	0.070	LDV	Federal Tier 2 Bin 5			0.007				Pass
Fed	120,000 miles	CO	0.370	0.37	4.20	LDV	Federal Tier 2 Bin 5			0.000				Pass
Fed	120,000 miles	HC-NM+NO X-COMP	0.0441	0.044	0.650	LDV	Federal Tier 2 Bin 5							Pass

<b>Test #</b>	9ADX01087590	<b>Exhaust Test # for this Evap Test</b>	N/A
<b>Test Procedure</b>	HWFE	<b>Test Fuel Type</b>	Tier 2 Cert Gasoline
<b>Test Date</b>	06/03/2008	<b>DF Type</b>	Mfr. Determined
<b>4WD Dyno?</b>	No	<b>State of Charge Delta</b>	

**Test Comments**

4K MILE HFET - ETW 3875 - ### MFR. CONFIRMATORY RETEST ###

**Exhaust Standards**

Sales Area	Useful Life	Emission Name	Rounded Result	Cert Level	Std	Vehicle Class	Std Level	NMOG / NMHC	RAF	Deterioration Factor		Diesel Adjustment Factor		Pass/Fail
										Add DF	Mult DF	Up	Down	
Fed	50,000 miles	NOX	0.0010	0.004	0.070	LDV	Federal Tier 2 Bin 5			0.003				Pass
Fed	120,000 miles	NOX	0.0010	0.008	0.090	LDV	Federal Tier 2 Bin 5			0.007				Pass

## Certification Summary Information Report

<b>Manufacturer</b>	Volkswagen	<b>Manufacturer Code</b>	VWX
<b>Test Group</b>	AVWXV02.03UA	<b>Evaporative/Refueling Family</b>	AVWXR0125246
<b>Certificate Number</b>	AVWXV02.03UA-006	<b>CARB Executive Order #</b>	N/A
<b>Certificate Issue Date</b>	06/10/2009	<b>Certificate Revision Date</b>	N/A
<b>Certificate Effective Date</b>	12/31/2010	<b>Conditional Certificate</b>	No
<b>CSI Revision #</b>	N/A	<b>CSI Revision Date</b>	06/12/2009
<b>Model Year</b>	2010		

### Test Group Information

<b>CSI Type</b>	Update for Correction	<b>Running Change Reference Number</b>	N/A
<b>Drive Source</b>	Combustion Engine	<b>EPA Vehicle Class</b>	LDV
<b>Federal Clean Fuel Vehicle</b>	No	<b>Federal Clean Fuel Vehicle Standard</b>	
<b>Federal Clean Fuel Vehicle ILEV</b>	No	<b>California Partial Zero Emissions Vehicle Indicator</b>	No
<b>Durability Group Name</b>	AVWXGPGNN3UA	<b>Durability Group Equivalency Factor</b>	1.00
<b>Fuel Category</b>	Single Fuel	<b>Fuel(s)</b>	Gasoline, Not Applicable
<b>Reduced Fee Test Group</b>	No		
<b>Certification Region Codes</b>			
<b>Introduction into Commerce Date</b>	06/29/2009	<b>CAP2000 Conditional Certificate?</b>	No
<b>Mfr Test Group Comments</b> Federal Only Test Group			
<b>Exhaust/Evap Standards Comments</b>			

### Evaporative/Refueling Family Information

<b>Evaporative Summary Information Type</b>	New	<b>Submission/Correction Date</b>	01/27/2009
<b>Integrated ORVR?</b>	Yes	<b>Fuel(s)</b>	Gasoline, Not Applicable
<b>Bladder Fuel Tank?</b>	No		
<b>Fuel Tank Material</b>	Plastic	<b>Fuel Tank Material Description</b>	HDPE + EVOH multilayer
<b>Fill Pipe Seal Type</b>	Liquid seal		
<b>Air Intake System Vapor Storage Device?</b>	No	<b>Air Intake System Vapor Storage Device Description</b>	N/A
<b>Fuel System Vapor Storage Canister?</b>	Yes	<b>Other Vapor Storage</b>	N/A
<b>Fuel System Vapor Storage Canister(s) Total Working Capacity</b>	125	<b>Number of Primary Canisters</b>	1
<b>Number of Bleed Canisters</b>	0	<b>Bleed Canister Total Working Capacity (grams)</b>	N/A
<b>Mfr Evaporative/Refueling Family Comments</b> FEDERAL LEV-II / CALIFORNIA LEV-II EVAP STANDARDS.			

### Models Covered by this Certificate

Manufacturer	Division	Carline	Certification Region Code	Drive System	Transmission			
					Trans Type	Lockup	Creep Gear	# of Gears
Volkswagen	1 - Volkswagen	293 - CC	Fed	F	SA	No	No	6
Volkswagen	1 - Volkswagen	291 - PASSAT	Fed	F	SA	No	No	6
Volkswagen	1 - Volkswagen	292 - PASSAT	Fed	F	SA	No	No	6
Volkswagen	1 - Volkswagen	WAGON	Fed	F	SA	No	No	6

## Certification Summary Information Report

<b>Manufacturer</b>	Volkswagen	<b>Manufacturer Code</b>	VWX
<b>Test Group</b>	AVWXV02.03UA	<b>Evaporative/Refueling Family</b>	AVWXR0125246
<b>Certificate Number</b>	AVWXV02.03UA-006	<b>CARB Executive Order #</b>	N/A
<b>Certificate Issue Date</b>	06/10/2009	<b>Certificate Revision Date</b>	N/A
<b>Certificate Effective Date</b>	12/31/2010	<b>Conditional Certificate</b>	No
<b>CSI Revision #</b>	N/A	<b>CSI Revision Date</b>	06/12/2009
<b>Model Year</b>	2010		

### Engine Description

<b>Hybrid Type</b>		<b>Hybrid Description</b>	
<b>Engine Type</b>	4-Stroke Spark Ignition		
<b>Engine Description</b>			
<b>Engine Block Arrangement</b>	Inline		
<b>Engine Block Arrangement Description</b>			
<b>Basic Fuel Metering Systems(s)</b>	Gasoline Direct fuel injection,	<b>Number of Cylinders/Rotors</b>	4

### Engine Configuration Number 1

<b>Engine Displacement (liters)</b>	2.0	<b>Engine Rated Horsepower</b>	200
<b>Number of Inlet Valves Per Cylinder</b>	2	<b>Number of exhaust Valves Per Cylinder</b>	2
<b>Air Aspiration Method</b>	Turbocharged	<b>Number of Air Aspiration Devices</b>	1
<b>Air Aspiration Device Configuration</b>	Single	<b>Charge Air Cooler Type</b>	Air

Cylinder Deactivation Description - N/A

Variable Valve Timing System Description - CONTINUOUS VARIABLE VALVE TIMING

Variable Valve Lift System - N/A

### Sensor Information

<b>Number of Knock Sensors</b>	2		
<b>Sensor # 1</b>		<b>Sensor Type</b>	Heated oxygen
<b>Sensor # 2</b>		<b>Sensor Type</b>	Heated oxygen

Sensor Comments - N/A

<b>Exhaust Gas Recirculation</b>	Yes	<b>EGR Type</b>	Variable Valve Timing Control
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Cooled Exhaust Gas Recirculation No

Closed Loop Air Injection System No

Engine Configuration Comments - null

### After Treatment Device(s) (ATD)

ATD Number	ATD Type	ATD Precious Metal	Substrate Material	Substrate Construction
1	Three-way catalyst	Paladium + Rhodium	Ceramic	Monolith
2	Three-way catalyst	Paladium + Rhodium	Ceramic	Monolith

### After Treatment Device (ATD) Comments

ONE PRE-CATALYST AND ONE MAIN CATALYST

### Direct Ozone Reduction

(DOR) Device Not Equipped

Emission Control Device Comments



## Certification Summary Information Report

<b>Manufacturer</b>	Volkswagen	<b>Manufacturer Code</b>	VWX
<b>Test Group</b>	AVWXV02.03UA	<b>Evaporative/Refueling Family</b>	AVWXR0125246
<b>Certificate Number</b>	AVWXV02.03UA-006	<b>CARB Executive Order #</b>	N/A
<b>Certificate Issue Date</b>	06/10/2009	<b>Certificate Revision Date</b>	N/A
<b>Certificate Effective Date</b>	12/31/2010	<b>Conditional Certificate</b>	No
<b>CSI Revision #</b>	N/A	<b>CSI Revision Date</b>	06/12/2009
<b>Model Year</b>	2010		

**Emission Data Vehicle Information**

<b>Vehicle ID / Configuration</b>	VW465 790007/09 / 0		
<b>Transmission Type</b>	Automatic	<b># of Transmission Gears</b>	6
<b>Engine Code</b>	CCTA	<b>Axle Ratio</b>	3.14
<b>Fuel(s)</b>	Gasoline / Not Applicable	<b>Vehicle Fuel Category</b>	Single Fuel
<b>Displacement (liters)</b>	1.984	<b>Rated Horsepower</b>	200
<b>Equivalent Test Weight (pounds)</b>	3875	<b>Air Aspiration Method</b>	Turbocharged
<b>Test Drive Code</b>	2-Wheel Drive, Front	<b>SIL Usage</b>	Not equipped
<b>Aged Emission Components</b>	4,000 (mi)		

**Dynamometer Coefficients Test Procedure: City/Highway/Evap**

<b>Dynamometer Target Coefficients</b>	a=39 (lbf)	b=0.29 (lbf/mph)	c=0.0171 (lbf/mph**2)
<b>Dynamometer Set Coefficients</b>	a=16 (lbf)	b=0.17 (lbf/mph)	c=0.0165 (lbf/mph**2)

**Dynamometer Coefficients Test Procedure: Cold CO**

<b>Dynamometer Target Coefficients</b>	a=42 (lbf)	b=0.32 (lbf/mph)	c=0.0187 (lbf/mph**2)
<b>Dynamometer Set Coefficients</b>	a=14 (lbf)	b=0.14 (lbf/mph)	c=0.0195 (lbf/mph**2)

**Dynamometer Coefficients Test Procedure: US06**

<b>Dynamometer Target Coefficients</b>	a=39 (lbf)	b=0.29 (lbf/mph)	c=0.0171 (lbf/mph**2)
<b>Dynamometer Set Coefficients</b>	a=16 (lbf)	b=0.17 (lbf/mph)	c=0.0165 (lbf/mph**2)

**Test Vehicle Comments**

MY 2009 VW EOS - 2.0L I-4 TFSI W/L6 (DQ) TRANS.- FEDV - ETW 3875 - TESTED AS FWD - 99 = DIRECT FUEL INJECTION

<b>Test #</b>	9ADX01086566	<b>Exhaust Test # for this Evap Test</b>	N/A
<b>Test Procedure</b>	US06	<b>Test Fuel Type</b>	Tier 2 Cert Gasoline
<b>Test Date</b>	03/05/2008	<b>DF Type</b>	Mfr. Determined
<b>4WD Dyno?</b>	No	<b>State of Charge Delta</b>	

**Test Comments**

4K MILE US06 - ETW 3875

**Exhaust Standards**

Sales Area	Useful Life	Emission Name	Rounded Result	Cert Level	Std	Vehicle Class	Std Level	NMOG / NMHC	RAF	Deterioration Factor		Diesel Adjustment Factor		Pass/Fail
										Add DF	Mult DF	Up	Down	
Fed	4,000 miles	CO	2.240	2.24	8.00	LDV	Federal Tier 2 Bin 5							Pass
Fed	120,000 miles	CO	2.240	2.24	11.10	LDV	Federal Tier 2 Bin 5		0.00					Pass

## Certification Summary Information Report

<b>Manufacturer</b>	Volkswagen	<b>Manufacturer Code</b>	VWX
<b>Test Group</b>	AVWXV02.03UA	<b>Evaporative/Refueling Family</b>	AVWXR0125246
<b>Certificate Number</b>	AVWXV02.03UA-006	<b>CARB Executive Order #</b>	N/A
<b>Certificate Issue Date</b>	06/10/2009	<b>Certificate Revision Date</b>	N/A
<b>Certificate Effective Date</b>	12/31/2010	<b>Conditional Certificate</b>	No
<b>CSI Revision #</b>	N/A	<b>CSI Revision Date</b>	06/12/2009
<b>Model Year</b>	2010		

<b>Test #</b>	9ADX01086567	<b>Exhaust Test # for this Evap Test</b>	N/A
<b>Test Procedure</b>	Cold CO	<b>Test Fuel Type</b>	Cold CO Premium (Tier 2)
<b>Test Date</b>	03/11/2008	<b>DF Type</b>	Mfr. Determined
<b>4WD Dyno?</b>	No	<b>State of Charge Delta</b>	
<b>Test Comments</b>	4K MILE COLD CO - ETW 3875		

Exhaust Standards														
Sales Area	Useful Life	Emission Name	Rounded Result	Cert Level	Std	Vehicle Class	Std Level	NMOG / NMHC	RAF	Deterioration Factor		Diesel Adjustment Factor		Pass/Fail
										Add DF	Mult DF	Up	Down	
Fed	50,000 miles	CO	1.560	1.56	10.00	LDV	Federal Tier 2 Bin 5			0.000				Pass
Fed	120,000 miles	HC-NM	0.148	0.16	0.30	LDV	Federal Tier 2 Bin 5			0.0106				Pass

<b>Test #</b>	9ADX01086568	<b>Exhaust Test # for this Evap Test</b>	N/A
<b>Test Procedure</b>	SC03	<b>Test Fuel Type</b>	Tier 2 Cert Gasoline
<b>Test Date</b>	04/02/2008	<b>DF Type</b>	Mfr. Determined
<b>4WD Dyno?</b>	No	<b>State of Charge Delta</b>	
<b>Test Comments</b>	4K MILE SC03 - ETW 3875		

Exhaust Standards														
Sales Area	Useful Life	Emission Name	Rounded Result	Cert Level	Std	Vehicle Class	Std Level	NMOG / NMHC	RAF	Deterioration Factor		Diesel Adjustment Factor		Pass/Fail
										Add DF	Mult DF	Up	Down	
Fed	4,000 miles	CO	0.280	0.28	2.70	LDV	Federal Tier 2 Bin 5							Pass
Fed	120,000 miles	CO	0.280	0.28	3.70	LDV	Federal Tier 2 Bin 5			0.00				Pass

## Certification Summary Information Report

<b>Manufacturer</b>	Volkswagen	<b>Manufacturer Code</b>	VWX
<b>Test Group</b>	AVWXV02.03UA	<b>Evaporative/Refueling Family</b>	AVWXR0125246
<b>Certificate Number</b>	AVWXV02.03UA-006	<b>CARB Executive Order #</b>	N/A
<b>Certificate Issue Date</b>	06/10/2009	<b>Certificate Revision Date</b>	N/A
<b>Certificate Effective Date</b>	12/31/2010	<b>Conditional Certificate</b>	No
<b>CSI Revision #</b>	N/A	<b>CSI Revision Date</b>	06/12/2009
<b>Model Year</b>	2010		

<b>Test #</b>	9ADX01087589	<b>Exhaust Test # for this Evap Test</b>	N/A
<b>Test Procedure</b>	Federal fuel 2-day exhaust (w/can load)	<b>Test Fuel Type</b>	Tier 2 Cert Gasoline
<b>Test Date</b>	06/03/2008	<b>DF Type</b>	Mfr. Determined
<b>4WD Dyno?</b>	No	<b>State of Charge Delta</b>	
<b>Test Comments</b>	4K MILE 2-DAY FED FTP W/CAN.LOAD - ETW 3875 - ### MFR. CONFIRMATORY RETEST ###		

## Exhaust Standards

Sales Area	Useful Life	Emission Name	Rounded Result	Cert Level	Std	Vehicle Class	Std Level	NMOG / NMHC	RAF	Deterioration Factor		Diesel Adjustment Factor		Pass/Fail
										Add DF	Mult DF	Up	Down	
Fed	50,000 miles	NMOG	0.02280	0.027 2	0.0750	LDV	Federal Tier 2 Bin 5	1.04	1	0.0044				Pass
Fed	50,000 miles	NOX	0.0160	0.019	0.050	LDV	Federal Tier 2 Bin 5			0.003				Pass
Fed	50,000 miles	CO	0.370	0.37	3.40	LDV	Federal Tier 2 Bin 5			0.000				Pass
Fed	120,000 miles	NMOG	0.02280	0.033 4	0.0900	LDV	Federal Tier 2 Bin 5	1.04	1	0.0106				Pass
Fed	120,000 miles	NOX	0.0160	0.023	0.070	LDV	Federal Tier 2 Bin 5			0.007				Pass
Fed	120,000 miles	CO	0.370	0.37	4.20	LDV	Federal Tier 2 Bin 5			0.000				Pass
Fed	120,000 miles	HC-NM+NO X-COMP	0.0441	0.044	0.650	LDV	Federal Tier 2 Bin 5							Pass

<b>Test #</b>	9ADX01087590	<b>Exhaust Test # for this Evap Test</b>	N/A
<b>Test Procedure</b>	HWFE	<b>Test Fuel Type</b>	Tier 2 Cert Gasoline
<b>Test Date</b>	06/03/2008	<b>DF Type</b>	Mfr. Determined
<b>4WD Dyno?</b>	No	<b>State of Charge Delta</b>	
<b>Test Comments</b>	4K MILE HFET - ETW 3875 - ### MFR. CONFIRMATORY RETEST ###		

## Exhaust Standards

Sales Area	Useful Life	Emission Name	Rounded Result	Cert Level	Std	Vehicle Class	Std Level	NMOG / NMHC	RAF	Deterioration Factor		Diesel Adjustment Factor		Pass/Fail
										Add DF	Mult DF	Up	Down	
Fed	50,000 miles	NOX	0.0010	0.004	0.070	LDV	Federal Tier 2 Bin 5			0.003				Pass
Fed	120,000 miles	NOX	0.0010	0.008	0.090	LDV	Federal Tier 2 Bin 5			0.007				Pass

## Certification Summary Information Report

<b>Manufacturer</b>	Volkswagen	<b>Manufacturer Code</b>	VWX
<b>Test Group</b>	AVWXV02.03UA	<b>Evaporative/Refueling Family</b>	AVWXR0125246
<b>Certificate Number</b>	AVWXV02.03UA-006	<b>CARB Executive Order #</b>	N/A
<b>Certificate Issue Date</b>	06/10/2009	<b>Certificate Revision Date</b>	N/A
<b>Certificate Effective Date</b>	12/31/2010	<b>Conditional Certificate</b>	No
<b>CSI Revision #</b>	N/A	<b>CSI Revision Date</b>	06/12/2009
<b>Model Year</b>	2010		

**Emission Data Vehicle Information**

<b>Vehicle ID / Configuration</b>	461-60137/06 / 0		
<b>Transmission Type</b>	Automatic	<b># of Transmission Gears</b>	6
<b>Engine Code</b>	BLV	<b>Axle Ratio</b>	3.46
<b>Fuel(s)</b>	Gasoline / Not Applicable	<b>Vehicle Fuel Category</b>	Single Fuel
<b>Displacement (liters)</b>	3.596	<b>Rated Horsepower</b>	280
<b>Equivalent Test Weight (pounds)</b>	4250	<b>Air Aspiration Method</b>	Naturally Aspirated
<b>Test Drive Code</b>	2-Wheel Drive, Front	<b>SIL Usage</b>	Not equipped
<b>Aged Emission Components</b>	4,000 (mi)		

**Dynamometer Coefficients Test Procedure: City/Highway/Evap**

<b>Dynamometer Target Coefficients</b>	a=42 (lbf)	b=0.47 (lbf/mph)	c=0.017 (lbf/mph**2)
<b>Dynamometer Set Coefficients</b>	a=7 (lbf)	b=0.38 (lbf/mph)	c=0.0172 (lbf/mph**2)

**Test Vehicle Comments**

-99 = DIRECT FUEL INJECTION MY 2006 PASSAT WAGON 4MOTION L6 - ETW 4250 - EDV - TESTED AS A FWD

<b>Test #</b>	8VWX01065488	<b>Exhaust Test # for this Evap Test</b>	8VWX01065485
<b>Test Procedure</b>	Federal fuel refueling test (ORVR)	<b>Test Fuel Type</b>	Tier 2 Cert Gasoline
<b>Test Date</b>	05/31/2005	<b>DF Type</b>	Mfr. Determined
<b>4WD Dyno?</b>	No	<b>State of Charge Delta</b>	
<b>Test Comments</b>	4K MILE - ORVR - PASSAT WAGON 4MOTION - ETW 4250		

**Evaporative Standards**

Useful Life	Emission Name	Rounded Result	Cert Level	Std	Sales Area	Std Level	Add DF	Pass/Fail
120,000 miles	HC	0.0000	0.003	0.200	Fed	Federal LEV-II Evap	0.003	Pass

<b>Test #</b>	8VWX01065489	<b>Exhaust Test # for this Evap Test</b>	8VWX01065487
<b>Test Procedure</b>	2-day evap	<b>Test Fuel Type</b>	Tier 2 Cert Gasoline
<b>Test Date</b>	06/29/2005	<b>DF Type</b>	Mfr. Determined
<b>4WD Dyno?</b>	No	<b>State of Charge Delta</b>	
<b>Test Comments</b>	4K MILE - 2DAY EVAP - PASSAT WAGON 4MOTION - ETW 4250		

**Evaporative Standards**

Useful Life	Emission Name	Rounded Result	Cert Level	Std	Sales Area	Std Level	Add DF	Pass/Fail
120,000 miles	HC-TOTAL	0.2450	0.245	0.650	Fed	Federal LEV-II Evap	0.000	Pass

<b>Test #</b>	8VWX01065514	<b>Exhaust Test # for this Evap Test</b>	8VWX01065484
<b>Test Procedure</b>	Federal fuel 3-day evap	<b>Test Fuel Type</b>	Tier 2 Cert Gasoline
<b>Test Date</b>	04/27/2005	<b>DF Type</b>	Mfr. Determined
<b>4WD Dyno?</b>	No	<b>State of Charge Delta</b>	
<b>Test Comments</b>	4K MILE - 3DAY EVAP - PASSAT WAGON 4MOTION - ETW 4250		

**Evaporative Standards**

Useful Life	Emission Name	Rounded Result	Cert Level	Std	Sales Area	Std Level	Add DF	Pass/Fail
120,000 miles	HC-TOTAL	0.2830	0.283	0.500	Fed	Federal LEV-II Evap	0.000	Pass

**Certification Summary Information Report**

<b>Manufacturer</b>	Volkswagen	<b>Manufacturer Code</b>	VWX
<b>Test Group</b>	AVWXV02.03UA	<b>Evaporative/Refueling Family</b>	AVWXR0125246
<b>Certificate Number</b>	AVWXV02.03UA-006	<b>CARB Executive Order #</b>	N/A
<b>Certificate Issue Date</b>	06/10/2009	<b>Certificate Revision Date</b>	N/A
<b>Certificate Effective Date</b>	12/31/2010	<b>Conditional Certificate</b>	No
<b>CSI Revision #</b>	N/A	<b>CSI Revision Date</b>	06/12/2009
<b>Model Year</b>	2010		

<b>Test #</b>	8VWX10002331	<b>Exhaust Test # for this Evap Test</b>	8VWX01065484
<b>Test Procedure</b>	Federal Fuel Running Loss	<b>Test Fuel Type</b>	Tier 2 Cert Gasoline
<b>Test Date</b>	04/27/2005	<b>DF Type</b>	Mfr. Determined
<b>4WD Dyno?</b>	No	<b>State of Charge Delta</b>	
<b>Test Comments</b>	4K MILE - RUNNING LOSS TEST - PASSAT WAGON 4MOTION - ETW 4250		

<b>Evaporative Standards</b>								
Useful Life	Emission Name	Rounded Result	Cert Level	Std	Sales Area	Std Level	Add DF	Pass/Fail
120,000 miles	HC	0.0000	0.000	0.050	Fed	Federal LEV-II Evap	0.000	Pass

<b>Section 8</b>	<b>Pg. 1</b>	<b>Emission Testing Waiver</b>	<b>Engine Code</b>	<b>R.CH-No.:</b>	<b>Revision Date</b>
<b>Test Group</b>		<b>AVWXV02.03UA</b>	<b>all</b>		

**8. Emission Testing Waiver Statements**

Please refer to Section 8 of the Common Sections Binder for the complete text of the following statements.

High Altitude Exhaust Emissions  
High Altitude EVAP/Refueling Emissions  
Spitback  
Particulate Matter  
Certification Short Test  
Formaldehyde Emissions Compliance  
OBD Compliance  
Leak Free Exhaust System

<b>Section 9</b>	<b>Pg. 1</b>	<b>OBD System Description</b>	<b>Engine Code</b>	<b>R.CH-No.:</b>	<b>Revision Date</b>
<b>Test Group</b>		<b>AVWXV02.03UA</b>	<b>all</b>		

**9.0**      **OBD System Description**

**9.1**      **General Description**

Please refer to Common Section

**9.2**      **Summary Table**

Please refer to Confidential Section

**9.3**      **California Air Resources Board OBD System Approval Letter.**

Please refer to Confidential Section

Section 11 Pg. 1	AECD Description	Engine Code	R.CH-No.:	Revision Date
Test Group	AVWXV02.03UA	all		

11. Auxiliary Emission Control Devices (AECD) Descriptions

Control Device Configuration	Parameters Sensed	Parameters Controlled	Justification
cooling water thermostat	coolant temperature	coolant temperature	A
temperature sensor	coolant temperature	actuation of enrichment characteristic and coolant fan	A
pressure regulator	primary fuel pressure	primary fuel pressure	A
throttle valve position sensor	angel of throttle valve position	actuation of idle speed control, coasting fuel shut off, engine rpm limiting and full-load enrichment	A
knock sensor	engine knocking	ignition timing	A

Justification:

A: under all normal driving condition

B:

C:



<b>Section 12</b>	<b>Pg. 1</b>	<b>Vehicles Covered by Certificate</b>	<b>Engine Code</b>	<b>R.CH-No.:</b>	<b>Revision Date</b>
<b>Test Group</b>		<b>AVWXV02.03UA</b>	<b>all</b>		

### List of Certified Vehicles

<b>Dur. Group:</b>	AVWXGPGNN3UA	<b>Engine Displacement:</b>	2.0 liters
<b>Test Group:</b>	AVWXV02.03UA	<b>Valves / Cylinder:</b>	4
<b>Evap Family:</b>	AVWXR0110238	<b>Sales Area:</b>	federal states + Canada
<b>Emission Control Sys.:</b>	DFI/TWC/HO2S(2)/TC/CAC	<b>MMS:</b>	Bosch

<b>Carline</b>	<b>Model</b>	<b>Engine Code</b>	<b>Transmission Code</b>	<b>SIL</b>	<b>Curb Wgt. [lbs]</b>	<b>ETW [lbs]</b>	<b>Fuel Tank Capacity [l]</b>	<b>Canister Working Capacity [g]</b>	<b>Tire Size</b>
Eos	Eos	CCTA	DQ250-6F	n.a.	3567	3875	55	110	215/55 R16
Eos	Eos	CCTA	MQ350-6F	n.a.	3501	3750	55	110	215/55 R16

Section 12	Pg. 2	Vehicles Covered by Certificate	Engine Code	R.CH-No.:	Revision Date
Test Group		AVWXV02.03UA	all		12-23-2010

### List of Certified Vehicles

Dur. Group:	AVWXGPGNN366	Engine Displacement:	2.0 liters
Test Group:	AVWXV02.03UA	Valves / Cylinder:	4
Evap Family:	AVWXR0125246	Sales Area:	federal states + Canada
Emission Control Sys.:	DFI/TWC/HO2S(2)/TC/CAC	MMS 1:	Bosch

Model	Carline	Engine Code	Transmission Code	SIL	Curb Wgt. [lbs]	ETW [lbs]	Fuel Tank Capacity [l]	Canister Working Capacity [g]	Tire Size
Passat	Passat	CCTA	DQ250-6F	n.a.	3364	3625	70	125	215/55 R16
CC	CC	CCTA	DQ250-6F	n.a.	3378	3625	70	125	235/55 R18
Passat Wagon	Passat Wagon	CCTA	DQ250-6F	n.a.	3490	3750	70	125	215/55 R16

\* Use J1930 Abbreviations  
1) - Motor management system

<b>Section 12</b>	<b>Pg. 3</b>	<b>Vehicles Covered by Certificate</b>	<b>Engine Code</b>	<b>R.CH-No.:</b>	<b>Revision Date</b>
<b>Test Group</b>		<b>AVWXV02.03UA</b>	<b>all</b>		

Engine Code	Engine Code Characteristic					
	Cat Code		Com- pression ratio	Idle [rpm]	HP @ RPM	Torque [lbs.ft.] @ RPM
	Pre-Cat.	Main-Cat.				
CCTA	REX1662	REX1662	9.6 :1	760	200 @ 5100- 6000	207 @ 1700-5000

Transmission Code Characteristic VW Eos												
Transmission Code	Basic drivetrain layout	Trans./OD <sup>1)</sup>	Lock-Up rpm		Gearbox Ratios							
			Gear	min/max	Axle	Gear 1	Gear 2	Gear 3	Gear 4	Gear 5	Gear 6	N/V Ratio
DQ250-6F	2WD	L6/2	2 <sup>nd</sup> , 3 <sup>rd</sup> , 4 <sup>th</sup> , 5 <sup>th</sup> , 6 <sup>th</sup>	n.a.	1: 4,059 2: 3,136	3,462	2,050	1,300	0.902	0.914	0.756	32.4
MQ350-6F	2WD	M6/2	n.a.	n.a.	1: 3,944 2: 3,087	3,357	2,087	1,469	1,098	1,108	0.927	39.2

1) Code number that describes if the ratio of the top gear of the transmission is less than 1. The value is 2 when this is true.

<b>Section 12</b>	<b>Pg. 4</b>	<b>Vehicles Covered by Certificate</b>	<b>Engine Code</b>	<b>R.CH-No.:</b>	<b>Revision Date</b>
<b>Test Group</b>		<b>AVWXV02.03UA</b>	<b>all</b>		

<b>Transmission Code Characteristic VW Passat</b>												
<b>Transmission Code</b>	<b>Basic drivetrain layout</b>	<b>Trans./OD<sup>1)</sup></b>	<b>Lock-Up rpm</b>		<b>Gearbox Ratios</b>							
			<b>Gear</b>	<b>min/max</b>	<b>Axle</b>	<b>Gear 1</b>	<b>Gear 2</b>	<b>Gear 3</b>	<b>Gear 4</b>	<b>Gear 5</b>	<b>Gear 6</b>	<b>N/V Ratio</b>
DQ250-6F	2WD	L6/2	2 <sup>nd</sup> , 3 <sup>rd</sup> , 4 <sup>th</sup> , 5 <sup>th</sup> , 6 <sup>th</sup>	n.a.	1: 4,059 2: 3,136	3,462	2,050	1,300	0.902	0.914	0.756	32.4

1) Code number that describes if the ratio of the top gear of the transmission is less than 1. The value is 2 when this is true.

\*) value = pre stage x axle

Section 13 Pg. 1		Engine Code	R.CH-No.:	Revision Date
Test Group	AVWXV02.03UA	all		

**13.01**            **Test Group Projected Sales**

Please Refer to Section 16 Confidential Information, of this test group

**13.02**            **Compliance Plans**

Refer to Section 16 Confidential Information, of the Common Sections Binder

Section 14 Pg. 1		Engine Code	R.CH-No.:	Revision Date
Test Group	AVWXV02.03UA	all		

#### 14. Request for Certificate

##### 14.01. Statement of Compliance

The Volkswagen Group states that any element of design, system, or emission control device installed on or incorporated in the Volkswagen Group's new motor vehicles or new motor vehicle engines for the purpose of complying with standards prescribed under section 202 of the Clean Air Act, will not, to the best of the Volkswagen Group's information and belief, cause the emission into the ambient air of pollutants in the operation of its motor vehicles or motor vehicle engines which cause or contribute to an unreasonable risk to public health or welfare except as specifically permitted by the standards prescribed under section 202 of the Clean Air Act. The Volkswagen Group further states that any element of design, system, or emission control device installed or incorporated in the Volkswagen Group's new motor vehicles or new motor vehicle engines, for the purpose of complying with standards prescribed under section 202 of the Clean Air Act, will not, to the best of the Volkswagen Group's information and belief, cause or contribute to an unreasonable risk to public safety.

The term pollutant means:

- a. Diesel particulates
- b. Nickel
- c. MMT combustion products
- d. Ammonia
- e. Sulfates
- f. Hydrogen sulfide
- g. Hydrogen cyanide
- h. Ruthenium combustion products
- i. Nitrosamines

or any other pollutant which VW/AUDI has identified which can reasonably be expected to be emitted from these vehicles.

All vehicles have been tested in accordance with good engineering practice to ascertain that such test vehicles meet the requirement of this section for the useful life of the vehicle.

<b>Section 14 Pg. 2</b>		<b>Engine Code</b>	<b>R.CH-No.:</b>	<b>Revision Date</b>
<b>Test Group</b>	<b>AVWXV02.03UA</b>	<b>all</b>		

The test vehicles with respect to which data are submitted are in all material respects as described in the application for certification, have been tested in accordance with the applicable test procedures utilizing the fuels and equipment described in the application for certification, they meet the requirement of such tests, and on the basis of such tests, they conform to the requirements of the regulations in 40 CFR, Part 86, Subpart S.

The vehicles for which certification is requested conform to the requirements in 86.1810-01 (a) and the description of tests performed to ascertain compliance with the general standards in 86.1810-01 (a) and the data derived from such tests are available.

The testing described under 86.1824-01 has been designed and conducted in accordance with good engineering practice to assure that the vehicles covered by a certificate issued under 86.1848-01 will meet the evaporative emission standards in 86.1811-01 for the useful life of the vehicle.

#### 14.02. Durability Statement

Based on the Volkswagen Group's good engineering judgment, all the vehicles described in this Application for Certification comply with all applicable intermediate and full useful life standards.

Section 15 Pg. 1	Other Information	Engine Code	R.CH-No.:	Revision Date
Test Group	AVWXV02.03UA	all		12-23-2010

15. Other Information

15.01 Revision Index

Revision Index for Test Group only

Part 1

Sect No.	Page No.	Date:	Comment:	R/C No.
21	5	11-16-2009	TCM software update EOS	FF_AV2.03UA_01_09
21	4	11-16-2009	ECM software update Passat, EOS	RF_AV2.03UA_02_09
21	5	11-16-2009	TCM software update Passat	RF_AV2.03UA_03_09
21	5	11-16-2009	TCM software update EOS	RF_AV2.03UA_04_09
7	all	12-02-2009	Certification Summary Information Reports updated.	
5	2	12-23-2010	Added Cold NMHC compliance information	
12	2	12-23-2010	Corrected CC weights	
16	09	12-23-2010	Included additional OBD description information	

Part 2

		12-02-2009	Added Part 2	
21	4	12-23-2010	Updated ECM software and CVN	RF_AV2.03UA_05_10



Section 15	Pg. 2	Other Information	Engine Code:	R.CH-No.:	Revision Date:
Part 1	Test Group:	AVWXV02.03UA	all		12-23-2010

## 15.02 Running Change (RC) / Field Fix (FF) Log

Running Change / Field Fix Log for test group only.

Model Year: 2010  
 Test Group: AVWXV02.03UA  
 Models: Volkswagen Eos  
 Volkswagen CC, Passat, Passat Wagon  
 Evaporative Family: AVWXR0110238  
 AVWXR0125246

RC / FF No.	Description of Change / Reason	Date
FF_AV2.03UA_01_09	TCM update Gearbox reprogramming with updated software. The affected temperature sensor will be deactivated and replaced by an modelled temperature	10-29-2009
RF_AV2.03UA_02_09	ECM with new software calibration to avoid battery discharging	11-2009
RF_AV2.03UA_03_09	TCM with new software calibration addressing # deactivation of OBD Mode A ## improvement of vehicle getaway at cold ambient conditions EOS	11-2009
RF_AV2.03UA_04_09	TCM with new software calibration addressing better gear switch timing and better TCM reaction on vehicle braking Passat	11-2009
RF_AV2.03UA_05_10	New ECM software calibration to improve turbocharger cooling after hot engine shut-off.	June 7, 2010

### Impact on emissions:

Listed fixes show no impact on emissions

# VOLKSWAGEN

GROUP OF AMERICA

Mr. David Good  
Compliance and Innovative Strategies Division  
Office of Mobile Sources  
U. S. Environmental Protection Agency  
2000 Traverwood Drive  
Ann Arbor, MI 48105

Leonard W. Kata Name  
Manager – Emis. Cert. Title  
EEO Department  
248-754-4204 Phone  
248-754-4207 Fax  
leonard.kata@vw.com E-Mail

June 5, 2009 Date

Subject: 2010 Volkswagen Initial Application for Emissions Certification

Dear Mr. Good,

We submit, with this letter, the model year 2010 Volkswagen Part 1 Application for Emissions Certification for the following Test Group:

VOLKSWAGEN GROUP OF AMERICA, INC.  
3800 HAMLIN ROAD  
AUBURN HILLS, MI 48326  
PHONE +1 248 754 5000

Test Group  
AVWXV02.03UA

Standards  
Tier 2 BIN 5

Sales Area  
Federal Only

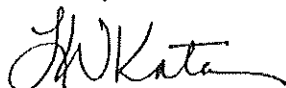
Copies of the Certification Fee filing form and OBD approval letter are contained in sections 15 and 16 of the included electronic application.

All vehicles within this test group comply with all applicable regulations contained in 40 CFR Part 86 and the compliance statements contained in sections 8 and 14.

This submission constitutes our final application and the request for issuance of a Certificate of Conformity.

If you have any questions with regard to this information please contact our office in Auburn Hills at (248) 754-4215 or (248) 754-4224.

Sincerely,



Leonard W. Kata  
Volkswagen Group of America, Inc.

Engineering and Environmental Office

Enclosure(s)

<b>Section 15</b>	<b>Pg. 3</b>	<b>Other Information</b>	<b>Engine Code</b>	<b>R.CH-No.:</b>	<b>Revision Date:</b>
<b>Part 1</b>	<b>Test Group:</b>	<b>AVWXV02.03UA</b>	<b>All</b>		

## **ORVR Safety Application for Carry-over ORVR Systems**

The information provided below is in accordance with EPA Dear Manufacturer Letter CCD-05-03 - Attachment A.

Name of current ORVR/Evaporative Family: AVWXR0110238

- 1.) Name of most recent previously certified ORVR/Evaporative Family from which the current family is being carried over:

9VWXR0110238

- 2.) Statement of No Substantial Changes:

There have been no substantial changes made from the previously certified ORVR system.

- 3.) List of changes that have been implemented:

a) None

- 4.) Statement of No In-Use Problems:

Volkswagen has issued no defect reports, service notifications, emissions or safety recalls, campaigns, instructions or bulletins to dealers or field personnel and there are no changes in production procedure or components related to the ORVR system except as listed below.

a) None

<b>Section 15</b>	<b>Pg. 4</b>	<b>Other Information</b>	<b>Engine Code</b>	<b>R.CH-No.:</b>	<b>Revision Date:</b>
<b>Part 1</b>	<b>Test Group:</b>	<b>AVWXV02.03UA</b>	<b>All</b>		

## **ORVR Safety Application for Carry-over ORVR Systems**

The information provided below is in accordance with EPA Dear Manufacturer Letter CCD-05-03 - Attachment A.

Name of current ORVR/Evaporative Family: AVWXR0125246

- 5.) Name of most recent previously certified ORVR/Evaporative Family from which the current family is being carried over:

9VWXR0125246

- 6.) Statement of No Substantial Changes:

There have been no substantial changes made from the previously certified ORVR system.

- 7.) List of changes that have been implemented:

a) None

- 8.) Statement of No In-Use Problems:

Volkswagen has issued no defect reports, service notifications, emissions or safety recalls, campaigns, instructions or bulletins to dealers or field personnel and there are no changes in production procedure or components related to the ORVR system except as listed below.

a) None



U.S. ENVIRONMENTAL PROTECTION AGENCY  
MOTOR VEHICLE AND ENGINE COMPLIANCE PROGRAM  
ON-HIGHWAY FEE FILING FORM

FOR CERTIFICATION APPLICATIONS RECEIVED IN CALENDAR YEAR 2009

Manufacturer Name Volkswagen Group of America, Inc.

Address 3800 Hamlin Road

City/State/Zip Code/Country Auburn Hills, MI 48309

APPROVED FOR PAYMENT  
R. E. Thomas  
SIGN. [Signature]  
Acct. P.O. # 4500259963  
ITEM # 1

On-Highway Certification Request Type (check one)

- LDV/LDT/MDPV/HDV (Chassis cert) FEDERAL (\$34,323)
- LDV/LDT/MDPV/HDV (Chassis cert) CAL-ONLY (\$17,591)
- HDE (Engine Dyno cert) FEDERAL (\$31,685)
- HDV EVAP-ONLY (\$562)
- HDE CALIF-ONLY (\$562)
- MOTORCYCLE (\$1,337)
- LD/MDPV/HDV ICI (\$34,681)

EPA standard engine family or test group or HDV Evaporative family name:

A V W X V 0 2 . 0 3 U A

Amount paid (U.S. Funds Only):

\$ 34,323.00

Enter the check number, or the statement "EFT/WIRE" or "EFT/ACH":

EFT/ACH

Reduced Fee Section (40 CFR 85.2406)

Reduced fee calculation (minimum initial payment \$750): Total number of vehicles/engines covered: \_\_\_\_\_

Aggregate retail sales price of the vehicles/engines: \$ \_\_\_\_\_ x 1% = \$ \_\_\_\_\_

Check box if an Independent Commercial Importer:  List the VIN of imported vehicles/engines below:


Company Representative: RICHARD E. THOMAS

Signature: [Signature]

Title: Emission Cert Strategist

Phone/Fax: 248 754 4213 / 248 754 4207 Date: 04 / 22 / 2009

E-mail Address: RICHARD.THOMAS@VW.com

Submission of payments and forms:

- (1) Online: Forms may be found and/or payments may be submitted online at [www.Pay.gov](http://www.Pay.gov).
- (2) Send checks and this form to:

Environmental Protection Agency  
Motor Vehicle and Engine Compliance Program  
P.O. Box 979032  
St. Louis, MO 63197-9000

- (3) Transmit offline EFT/Wire payments to the New York Federal Reserve Bank. (See Instructions, p.2)
- (4) Transmit offline EFT/ACH payments to the Federal Reserve Bank of Cleveland. (Instructions, p.2)
- (5) Forms not submitted under (1) and (2) above can be sent as email attachments to [Fees@epa.gov](mailto:Fees@epa.gov). Forms and payments sent in ways other than the above may be delayed or ineffective. See the Instructions for sending checks and forms by private mail service (e.g., Federal Express).

The public reporting and recordkeeping burden for this collection of information is estimated to average 18 minutes per response. Send comments on EPA's need for this information, the accuracy of the provided burden estimate, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques, to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., N.W., Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed Form 3520-29 to this address.

**16.00      Part 1 Confidential Information**

	Subsection Page Number
Section 16.01 - Correspondence and Communications	n.a.
Section 16.02 - Durability Group Description	n.a.
Section 16.03 - Evaporative/Refueling Family Description	n.a.
Section 16.04 - Durability Procedure Description	n.a.
Section 16.05 - Test Group Description	n.a.
Section 16.06 - Test Vehicle Description	n.a.
Section 16.07 - Test Results	n.a.
Section 16.08 - Emission Testing Waiver Statements	n.a.
Section 16.09 - OBD System Description	16.09
Section 16.10 - Description of Alternate-fueled Vehicles	n.a.
Section 16.11 - AECD Description	n.a.
Section 16.12 - Description of vehicles covered by certificate and test parameters	n.a.
Section 16.13 - Projected Sales	16.13
Section 16.14 - Request for Certificate	n.a.
Section 16.15 - Other Information	16.15
Section 16.16 - Confidential Information	n.a.
Section 16.17 - California ARB Information	n.a.

**16.00      Part 2 Confidential Information**

Section 16.21 - Vehicle Emission Control Information (Tune-Up) Label Part Numbers	n.a.
Section 16.22 - Calibration Information	n.a.
Section 16.23 - Vehicle Description	n.a.
Section 16.24 - Final US Sales	n.a.
Section 16.25 - Service Manuals, Service Bulletins,	n.a.

# VOLKSWAGEN

GROUP OF AMERICA

Mr. Robert Peavyhouse  
Compliance and Innovative Strategies Division  
Office of Mobile Sources  
U. S. Environmental Protection Agency  
2000 Traverwood Drive  
Ann Arbor, MI 48105

Leonard W. Kata Name  
Manager – Emis. Cert. Title  
EEO Department  
248-754-4204 Phone  
248-754-4207 Fax  
leonard.kata@vw.com E-Mail

May 14, 2009 Date

Subject: Request for MY 2010 Federal Only OBD Approval for Volkswagen Test Group AVWXV02.03UA

Dear Mr. Peavyhouse,

We are requesting federal only OBD system approval for model year 2010 Volkswagen Test Group AVWXV02.03UA. The OBD documentation was previously submitted for your review on April 8, 2009.

This California Air Resources Board approved MY 2008 and 2009 Volkswagen Group OBD system will be carried over unchanged for model year 2010 in Volkswagen Test Group AVWXV02.03UA.

If you have any questions with regard to this information please contact our office in Auburn Hills at (248) 754-4224.

Sincerely,



Leonard W. Kata  
Engineering and Environmental Office

VOLKSWAGEN GROUP OF AMERICA, INC  
3800 HAMLIN ROAD  
AUBURN HILLS, MI 48326  
PHONE +1 248 754 5000

Approved  
Robert Peavyhouse  
5/14/2009

## OBD Description Submission

As indicated by meeting between EPA / Volkswagen and a letter to EPA Volkswagen is requesting MY 2010 OBD approval for the following OBD group / test group:

<b>OBD Group</b>	AAD-TFSIN
<b>Test group(s)</b>	AVWXV02.03UA (Passat, Passat Wagon, Passat CC and EOS)
<b>MY</b>	2010
<b>Standard</b>	Tier2 Bin 5 (Federal only)
<b>Transmission Group</b>	AVW-DQ carry over from MY 2009 (Approved by CARB)
<b>Application submission</b>  <b>Summary table</b>	New for MY 2010  Based on MY 2008 CARB approved OBD system (please see submitted file)
<b>Emission Control System</b>	<b>DFI/TWC/H02S(2)/TC/CAC</b>
<b>ARB OBD Approval</b>  <b>Test Group in MY 2008</b>	Approval letter MY 2008 is attached for reference  8ADXV02.03UA
<b>Federal OBD</b>	OBD System for this test group complies with CFR §86.1806-01, §86.06-04 and §86.06-05 for light duty vehicle with gasoline engine based on California OBD requirements according to Title 13 CCR Section 1968.2
<b>Concept Differences in comparison to MY 2008 ARB system approval</b>	<b>The OBD system for the test group has no differences in MY 2010 compared to the reviewed OBD system in MY 2008 by CARB.</b>
<b>Deficiency MY08</b>	None
<b>Concern MY08</b>	Front Oxygen Sensor Monitor (E-08-027) Concern was expressed regarding IUMPR counter for the front Oxygen sensor. Federal OBD regulation does not require any IUMPR counter.
<b>OBD Approval request</b>	Calendar Week 18 / 2009



Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
Catalyst System	P0420	measure of OSC compared to OSC of borderline catalyst	<u>measured OSC / OSC of borderline catalyst</u> measured OSC (HC and NOx-correlated)	< 1.00 [-]	time after engine start  or time after dew point delta exhaust mass flow exhaust gas mass flow, lower range  exhaust gas mass flow, upper range  modeled exhaust gas temp. dynamic modeled exhaust gas temp. in catalyst system, lower range modeled exhaust gas temp. in catalyst system, upper range minimum modeled exhaust gas temp. in catalyst system for time filtered minimum modeled exhaust gas temp. in catalyst system engine load evap purge loading engine speed range between lambda set value and lambda value out of lambda range lambda control closed loop lambda control not at min or max limit  number of checks O2S front ready O2S rear ready SAS not active no misfire O2S front response monitoring in current driving cycle ready	> 343.0 [s]  > 343.0 [s] < 25.00 [kg/h] 25.0 ... 130.0 [kg/h]  n.a.  < 50 [K] 450 ... 860 [°C]  n.a.  > 500 [°C]  > 150.0 [s] > 500 [°C]  16.5 ... 84.8 [%] not high 1320 ... 3520 [rpm] <   0.02   [-]  < 2.0 [s] closed loop not at min or max limit  3.00 [-] ready ready not active ready	30.0 [s] once / DCY	2 DCY
Misfire	P0300	crankshaft speed fluctuation (single or multiple)	emission threshold misfire rate (MR)	> 3.0 [%]	active after engine start	idle - 150 [rpm] + 1 camshaft [rev]	1000 [rev] multiple	2 DCY
	P0301		catalyst damage misfire rate (MR)	> 2.5...21 [%]	engine speed range	440 ... 6800 [rpm]	200 [rev] multiple	immediately
	P0302		engine torque	>= 0 [Nm]				
	P0303 P0304		IAT ECT @ start fuel cut off rough road	> -48 [°C] > -48 [°C] not active not detected				
EVAP Purge Valve	P0444	open circuit	signal voltage	> 4.40...5.40 [V]	evap purge valve	commanded off	0.5 [s] continuous	2 DCY
	P0458	short to ground	signal voltage	< 2.15...3.25 [V]	evap purge valve	commanded off	0.5 [s] continuous	2 DCY
	P0459	short to battery plus	signal current	> 2.20 [A]	evap purge valve	commanded on	0.5 [s] continuous	2 DCY

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
EVAP System	P0441	functional check	deviation lambda control  and deviation idle control	<   9.0   [%]  < 30.00 [%]	evap purge flow integral  or integrated air mass engine speed engine speed deviation ECT or substitute ECT IAT altitude lambda control	> 25.0...120.0 [g]  > 1.5...2.5 [g] idle <   80   [rpm] > 65 [°C]  > 80 [°C] > 4 [°C] < 2700 [m] closed loop	120.0 [s] once / DCY	2 DCY
EVAP System Small Leak	P0442	pressure check	time for pressure drop	< 1.55...1.75 [s]	time after engine start  preceding engine shutt-off time ECT ECT @ start air temperature air temperature drop after engine start intake manifold vacuum altitude vehicle speed vehicle speed ones selected gear restart temperature difference evap purge valve LDP <b>deep down hill driving</b> delta ambient pressure or engine load and delta vehicle speed	30.0 ... 65530.0 [s]  > 21600 [s] 5 ... 120 [°C] 5 ... 50 [°C] 5 ... 59 [°C] < 7.5 [K]  > -2560.00 [hPa] < 2700 [m] >= 0.0 [km/h] > 30 [km/h] any drive > 0.0 [K] closed active  < 3.01 [hPa]  n.a. n.a.	180.0 [s] once / DCY	2 DCY
EVAP System Very Small Leak	P0456	pressure check	time for pressure drop	< 4.5...6.0 [s]	time after engine start  preceding engine shutt-off time ECT ECT @ start air temperature air temperature drop after engine start intake manifold vacuum altitude vehicle speed vehicle speed ones selected gear restart temperature difference evap purge valve LDP <b>hill driving</b> delta ambient pressure or engine load and delta vehicle speed <b>additional:</b> vehicle acceleration delta engine load	30.0 ... 1000.0 [s]  > 21600 [s] 5 ... 120 [°C] 5 ... 50 [°C] 5 ... 59 [°C] < 5 [K]  > -2560.00 [hPa] < 2700 [m] 0...150 [km/h] > 30 [km/h] any drive > 0 [K] closed active  -8 ... 1.8 [hPa]  n.a. n.a.  <   3.50   [m/s2] <   767.98   [%/seg]	180.0 [s] once / DCY	2 DCY

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
EVAP System Large Leak	P0455	pressure check	time for pressure drop	< 0.95 [s]	time after engine start preceding engine shutt-off time ECT ECT @ start air temperature air temperature drop after engine start intake manifold vacuum altitude vehicle speed vehicle speed ones selected gear restart temperature difference evap purge valve LDP <b>deep down hill driving</b> delta ambient pressure <b>or</b> engine load <b>and</b> delta vehicle speed	30.0 ... 65530.0 [s] > 21600 [s] 5 ... 120 [°C] 5 ... 50 [°C] 5 ... 59 [°C] < 12 [K] > -2560.00 [hPa] < 2700 [m] ≥ 0.0 [km/h] > 30 [km/h] any drive > 0 [K] closed active < 3.01 [hPa] n.a. n.a.	180.0 [s] once / DCY	2 DCY
LDP	P2400	open circuit	signal voltage	> 4.40...5.60 [V]	LDP engine speed	commanded off > 80 [rpm]	0.5 [s] continuous	2 DCY
	P2401	short to ground	signal voltage	< 2.15...3.25 [V]	LDP engine speed	commanded off > 80 [rpm]	0.5 [s] continuous	2 DCY
	P2402	short to battery plus	signal current	> 3.00 [A]	LDP engine speed	commanded on > 80 [rpm]	0.5 [s] continuous	2 DCY
Reed Sensor	P2403	rationality check unable to close	low signal voltage	> 0.5 [s]	time after engine start preceding engine shutt-off time ECT ECT @ start air temperature altitude integrated purge flow restart temperature difference vehicle speed vehicle speed ones selected gear evap purge valve LDP	30.0 ... 65530.0 [s] > 21600 [s] 5 ... 120 [°C] 5 ... 50 [°C] 5 ... 59 [°C] < 2700 [m] > 12.10 [g] > 0 [K] ≥ 0 [km/h] > 30 [km/h] any drive ready commanded off	0.5 [s] once / DCY	2 DCY
	P2404	rationality check unable to open	high signal voltage <b>and</b> number of checks cumulative time of high signal voltage during pumping	> 12.0 [s] 30.00 [-] > 10.0 [s]	time after engine start preceding engine shutt-off time ECT ECT @ start air temperature altitude intake manifold vacuum restart temperature difference vehicle speed vehicle speed ones selected gear evap purge valve LDP	30.0 ... 65530.0 [s] > 21600 [s] 5 ... 120 [°C] 5 ... 50 [°C] 5 ... 59 [°C] < 2700 [m] > -2560.00 [hPa] > 0 [K] ≥ 0 [km/h] > 30 [km/h] any drive closed, ready commanded on	12.0 [s] once / DCY 120.0 [s] once / DCY	2 DCY 2 DCY

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
<b>Intake Manifold Runner Flap Actuator</b>	P2015	rationality check high	difference between target position vs. actual position <b>and</b> actual position	>   25.00   [%]  0 ... 100 [%]	flap  adaptation	commanded on  ready	1.5 [s] multiple	2 DCY
	P2015	rationality check low	difference between target position vs. actual position <b>and</b> actual position	>   25.00   [%]  0 ... 100 [%]	flap  adaptation	commanded off  ready	1.5 [s] multiple	2 DCY
	P2015	rationality check	difference between target position vs. actual position <b>and</b> actual position	>   25.00   [%]  NOT (0...100) [%]	adaptation	ready	1.5 [s] multiple	2 DCY
<b>Intake Manifold Runner Flap Position Sensor</b>	P2016	out of range low	signal voltage	< 0.25 [V]			0.3 [s] continuous	2 DCY
	P2014	out of range high	signal voltage	> 4.75 [V]			0.3 [s] continuous	2 DCY
<b>Fuel System Pressure Sensor, high pressure side</b>	P0190	signal range check	signal voltage	> 4.80 [V]			0.5 [s] multiple	2 DCY
	P0192	signal range check	signal voltage	< 0.20 [V]			0.5 [s] multiple	2 DCY
<b>Fuel System Pressure Sensor, high pressure side</b>	P12A2	rationality check inappropriately high	pressure control activity <b>and</b> fuel trim activity <b>and</b> difference between target pressure vs. actual pressure	< -0.05 [MPa]  > 1.65 [-]  -16.38 ... 16.38 [MPa]	engine speed  evap purge adaptation ECT IAT lambda control fuel cut off	> 600 [rpm]  < 22.00 [-] >= 63 [°C] < 90 [°C] closed loop fuel not active	5.0 [s] multiple	2 DCY
	P12A1	rationality check inappropriately low	pressure control activity <b>and</b> fuel trim activity <b>and</b> difference between target pressure vs. actual pressure	> 0.20 [MPa]  < 0.80 [-]  -16.38 ... 16.38 [MPa]	engine speed  evap purge adaptation ECT IAT lambda control fuel cut off	> 600 [rpm]  < 22.00 [-] >= 63 [°C] < 90 [°C] closed loop fuel not active	5.0 [s] multiple	2 DCY
<b>Fuel Rail Control Valve, high pressure side</b>	P2293	functional check	difference between target pressure vs. actual pressure	< -1.50 [MPa]	time after engine start  fuel cut off	3.0 [s]  not active	3.5 [s] multiple	2 DCY
	P2293	functional check	difference between target pressure vs. actual pressure	> 1.50 [MPa]	time after engine start  fuel cut off	3.0 [s]  not active	3.5 [s] multiple	2 DCY
<b>Cold Start Monitoring</b> <b>Fuel Rail Control Valve, high pressure side</b>	P053F	functional check	difference between target pressure vs. actual pressure	< -1.50 [MPa]	time after engine start  fuel cut off catalyst heating	3.0 [s]  not active active	3.0 [s] multiple	2 DCY
	P053F	functional check	difference between target pressure vs. actual pressure	> 1.50 [MPa]	time after engine start  fuel cut off catalyst heating	3.0 [s]  not active active	3.0 [s] multiple	2 DCY

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
Fuel Rail Control Valve	P12A4	functional check stuck close	pressure control activity  and fuel trim activity and difference between target pressure vs. actual pressure	< -6.00 [MPa]  0.90 ... 1.15 [-]  < 16.38 [MPa]	engine speed  evap purge adaptation ECT IAT lambda control fuel cut off	> 600 [rpm]  < 22.00 [-] >= 63 [°C] < 90 [°C] closed loop not active	5.0 [s] multiple	2 DCY
	P0087	functional check stuck open	pressure control activity  and fuel trim activity and difference between target pressure vs. actual pressure	> 2.00 [MPa]  0.90 ... 1.15 [-]  > -16.38 [MPa]	engine speed  evap purge adaptation ECT IAT fuel cut off lambda control	> 600 [rpm]  < 22.00 [-] >= 63 [°C] < 90 [°C] not active closed loop	5.0 [s] multiple	2 DCY
Fuel Rail Control Valve	P2294	open circuit	signal voltage	1.40 ... 3.20 [V]	fuel control valve  fuel pump	commanded off  commanded on	0.5 [s] continuous	2 DCY
	P2295	short to ground	signal voltage	1.40 ... 3.20 [V]	fuel control valve	commanded off	0.5 [s] continuous	2 DCY
	P2296	short to battery plus	signal voltage	> 3.20 [V]	fuel control valve	commanded on	0.5 [s] continuous	2 DCY
Fuel Rail Control Valve	P2294	rationality check	signal pattern	incorrect			0.5 [s] continuous	2 DCY
Fuel System	P2096	out of range	l-portion of 2nd lambda control loop	< -0.025 [-]	modeled exhaust gas temp.  exhaust gas mass flow lambda control lambda control  2nd lambda control O2S front O2S rear O2S heater front O2S heater rear fuel cut off catalyst heating SAI	450 ... 850 [°C]  14.00 ... 300.00 [kg/h] closed loop not at min or max limit  closed loop ready ready active active not active not active not active	120.0 [s] multiple	2 DCY
	P2097	out of range	l-portion of 2nd lambda control loop	> 0.025 [-]	modeled exhaust gas temp.  exhaust gas mass flow lambda control lambda control  2nd lambda control O2S front O2S rear O2S heater front O2S heater rear fuel cut off catalyst heating SAI	450 ... 850 [°C]  14.00 ... 300.00 [kg/h] closed loop not at min or max limit  closed loop ready ready active active not active not active not active	120.0 [s] multiple	2 DCY

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
Fuel System	P2187	system too lean @ idle	adaptive value	> 5.02	[%]	engine speed engine load mass air flow ECT IAT delta part load adaptation lambda control evap purge valve if low fuel signal then wait until fuel consumption	< 1200 [rpm] < 9.0...45.0 [%] < 5.0...26.0 [kg/h] > 63 [°C] < 90 [°C] ready closed loop closed n.a.	35.0 [s] multiple	2 DCY
	P2188	system too rich @ idle	adaptive value	< -5.02	[%]	engine speed engine load mass air flow ECT IAT delta part load adaptation lambda control evap purge valve	< 1200 [rpm] < 9.0...45.0 [%] < 5.0...26.0 [kg/h] > 63 [°C] < 90 [°C] ready closed loop closed	35.0 [s] multiple	2 DCY
	P2177	system too lean @ part load	adaptive value	> 28.0	[%]	engine speed engine load mass air flow ECT IAT lambda control evap purge valve if low fuel signal then wait until fuel consumption	1280 ... 6000 [rpm] 20.0 ... 100.0 [%] 30.0 ... 450.0 [kg/h] > 63 [°C] < 90 [°C] closed loop closed n.a.	10.0 [s] multiple	2 DCY
	P2178	system too rich @ part load	adaptive value	< -21.0	[%]	engine speed engine load mass air flow ECT IAT lambda control evap purge valve	1280 ... 6000 [rpm] 20.0 ... 100.0 [%] 30.0 ... 450.0 [kg/h] > 63 [°C] < 90 [°C] closed loop closed	10.0 [s] multiple	2 DCY
Oxygen Sensors front	P2414	signal range check (check for sensor at ambient air)	<b>threshold 1:</b> signal voltage  <b>threshold 2:</b> signal voltage Depending on gain factor, that actual is used for sensor	3.10 ... 4.81	[V]	lambda set value O2S ceramic temp.  fuel cut off heater control SAI if low fuel signal then wait	< 1.6 [-] > 715 [°C]  not active closed loop not active > 0.0 [s]	15.0 [s] multiple	2 DCY

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
Oxygen Sensors front	P2195	out of range	delta lambda of 2nd lambda control loop	> 0.060 [-]	modeled exhaust gas temp.  delta engine load exhaust gas mass flow lambda control 2nd lambda control O2S front O2S rear O2S heater front O2S heater rear fuel cut off catalyst heating SAI <b>Case 1:</b> 1st lambda control loop  2nd lambda control loop <b>Case 2:</b> 1st lambda control loop O2S front O2S rear voltage <b>Case 3:</b> 1st lambda control loop O2S front O2S rear voltage	450 ... 850 [°C]  < 20.0 [%] 14.00 ... 300.00 [kg/h] closed loop closed loop ready ready ready ready not active not active not active  not at min or max limit  active  at min limit < 1.0 [-] < 0.4 [V]  at max limit > 1.0 [-] > 0.6 [V]	120.0 [s] multiple	2 DCY
	P2196	out of range	delta lambda of 2nd lambda control loop	< -0.060 [-]	modeled exhaust gas temp.  delta engine load exhaust gas mass flow lambda control 2nd lambda control O2S front O2S rear O2S heater front O2S heater rear fuel cut off catalyst heating SAI <b>Case 1:</b> 1st lambda control loop  2nd lambda control loop <b>Case 2:</b> 1st lambda control loop O2S front O2S rear voltage <b>Case 3:</b> 1st lambda control loop O2S front O2S rear voltage	450 ... 850 [°C]  < 20.0 [%] 14.00 ... 300.00 [kg/h] closed loop closed loop ready ready ready ready not active not active not active  not at min or max limit  active  at min limit < 1.0 [-] < 0.4 [V]  at max limit > 1.0 [-] > 0.6 [V]	120.0 [s] multiple	2 DCY

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
Oxygen Sensors front		<b>quick pass (only pass result possible):</b> response rate monitoring, area ratio	lower value of both area ratios R2L and L2R <b>and</b> lower value of both counters for area ratio R2L and L2R	< 0.60 [-]  >= 2 times			35.0 [s] once / DCY	
	P0133	response rate monitoring, area ratio	<b>symmetric fault:</b> lower value of both area ratios R2L and L2R <b>and</b> difference of R2L area ratio vs. L2R area ratio <b>asymmetric fault:</b> lower value of both area ratios R2L and L2R <b>and</b> difference of R2L area ratio vs. L2R area ratio <b>general:</b> lower value of both counters for area ratio R2L and L2R	< 0.15 [-]  -0.400 ... 0.400 [-]  < 0.30 [-]  NOT (-0.400...0.400) [-]  >= 5 times	O2S front - min. operation temperatur is reached O2S front - time since operation readiness engine speed engine load  gradient of engine load exhaust system lag time calculation  gradient of exhaust system lag time calculation ECT  catalyst temperature lambda control set-point prior to diagnostic fuel steps relative fuel amount from wall-applied compensation and evap purge canister load time since last measurement 2nd lambda control loop forced lambda oscillation SAI tank leakage detection diagnosis evap purge system fuel cut off for any cylinders open circuit pump current (IP) <b>only Flex fuel systems without ethanol sensor:</b> ethanol concentration adaptation	> 720 [°C]  > 30.0 [s]  1200 ... 3200 [rpm] 25.01 ... 109.99 [%]  <= 7.99 [%] 0.04 ... 0.12 [s]  <= 0.1 [s]  >= 10 [°C]  >= 330 [°C] A/F-Ratio stoichiometric <= 0.1 [-]  < 22 [-] > 5.0 [s] not active not active not active not active not active not active ready  not active	95.0 [s] once / DCY	2 DCY
Oxygen Sensors front	P0130	out of range	O2S ceramic temp.	< 640 [°C]	modeled exhaust gas temp.  fuel cut off	> 300 [°C]  not active	12.0 [s] multiple	2 DCY



Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
Oxygen Sensors front	P2251	open circuit virtual mass (VM)	O2S signal front  and internal resistance	1.47 ... 1.53 [V]  > 1000.00 [Ohm]	modeled exhaust gas temp.  no fuel cut off heater control	< 700 [°C]  > 2.0 [s] active	25 [s] multiple	2 DCY
	P2243	open circuit nernst voltage (UN)	O2S signal front	> 3.25 [V]	heater control	active	20.0 [s] multiple	2 DCY
			and internal resistance	> 1000.00 [Ohm]			20.0 [s] multiple	2 DCY
			O2S signal front	< 0.30 [V]				
	P2626	open circuit adjustment voltage (IA)	O2S signal front	> 4.81 [V]	modeled exhaust gas temp.  O2S ceramic temp. fuel cut off heater control if low fuel signal then wait	< 700 [°C]  > 715 [°C] active closed loop > 0.0 [s]	1.5 [s] multiple	2 DCY
			P2237	open circuit pump current (IP)	O2S signal front  and fuel cut off	< 1.70 [V]  > 3.00 [s]	O2S ceramic temp.  electrical adjustment heater control evap purge valve	> 715 [°C]  not active closed loop ready
	P2237	open circuit pump current (IP)	O2S signal front  and delta lambda controller	1.49 ... 1.51 [V]  >   0.10   [-]	O2S ceramic temp.  lambda modulation lambda control heater control	> 715 [°C]  > 0.01 [-] closed loop closed loop	8.0 [s] multiple	2 DCY
	P0132	signal range check	<b>short to battery</b> virtual mass (VM)  or nernst voltage (UN) or adjustment voltage (IA) or adjustment voltage (IP)	> 3.25 [V]  > 4.40 [V]  > 7.00 [V]  > 7.00 [V]				10.0 [s] multiple
P0131	signal range check	<b>short to ground</b> virtual mass (VM)  or nernst voltage (UN) or adjustment voltage (IA) or adjustment voltage (IP)	< 1.75 [V]  < 1.50 [V]  < 0.30 [V]  < 0.30 [V]				10.0 [s] multiple	2 DCY

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
Oxygen Sensors rear 2-Point-LSF	P0137	O2S signal check - circuit continuity (short to ground, core connection signal wires)	signal voltage  for time <b>and</b> difference of sensor voltage with load pulse and voltage without load pulse (mean value of 3 measurements)	< 0.06 [V]  > 3.0 [s]  < 0.01 [V]	<b>case 1: sensor ready for operation</b> sensor voltage <b>or</b> sensor voltage <b>case 2: sensor theoretical ready for operation</b> for time sensor sufficient heated up if exhaust temperature for time <b>or</b> heater power for time <b>general:</b> dew point exceeded fuel cut off catalyst purge	  ≤ 0.40 [V]  0.50 ... 1.08 [V]  > 20.0 [s] ≥ 700 [°C] > 10.0 [s]  ≥ 50.0 [%] > 10.0 [s]  not active not active	3.0 [s] multiple	2 DCY
	P0138	O2S signal check - out of range high (short to battery plus)	signal voltage  for time	> 1.08 [V]  > 5.0 [s]	<b>case 1: sensor ready for operation</b> sensor voltage <b>or</b> sensor voltage <b>case 2: sensor theoretical ready for operation</b> for time sensor sufficient heated up if exhaust temperature for time <b>or</b> heater power for time <b>general:</b> dew point exceeded lambda set value	  ≤ 0.40 [V]  0.50 ... 1.08 [V]  > 20.0 [s] ≥ 700 [°C] > 10.0 [s]  ≥ 50.0 [%] > 10.0 [s]  > 0.995 [-]	5.0 [s] multiple	2 DCY
	P0140	O2S signal check - circuit continuity (sensor signal line open circuit)	signal voltage  for time <b>and</b> difference of sensor voltage with load pulse and voltage without load pulse (mean value of 3 measurements)	0.40 ... 0.60 [V]  > 3.0 [s]  ≥ 2.80 [V]	<b>case 1: sensor ready for operation</b> <b>operation</b> sensor voltage <b>or</b> sensor voltage <b>case 2: sensor theoretical ready for operation</b> for time sensor sufficient heated up if exhaust temperature for time <b>or</b> heater power for time <b>general:</b> dew point exceeded	  ≤ 0.40 [V]  0.50 ... 1.08 [V]  > 20.0 [s] ≥ 700 [°C] > 10.0 [s]  ≥ 100.0 [%] > 10.0 [s]	5.0 [s] multiple	2 DCY

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
	P0140	O2S signal check - circuit continuity (sensor ground line open circuit)	internal resistance  and exhaust temperature	> 40000.00 [Ohm]  > 600 [°C]	<b>case 1: sensor ready for operation</b> sensor voltage or sensor voltage <b>case 2: sensor theoretical ready for operation</b> for time sensor sufficient heated up if exhaust temperature for time or heater power for time <b>general:</b> dew point exceeded valid Ri-measurements	<= 0.40 [V]  0.50 ... 1.08 [V]  > 20.0 [s]  >= 700 [°C] > 10.0 [s]  >= 50.0 [%] > 10.0 [s]  > 10 times	50.0 [s] multiple	2 DCY
	P0136	O2S signal check - circuit continuity (heater coupling check)	delta voltage one step at heater switching  and number of heater coupling	> 2.00 [V]  >= 4 times	<b>case 1: sensor ready for operation</b> sensor voltage or sensor voltage <b>case 2: sensor theoretical ready for operation</b> for time sensor sufficient heated up if exhaust temperature for time or heater power for time <b>general:</b> dew point exceeded for time heater for time	<= 0.40 [V]  0.50 ... 1.08 [V]  > 20.0 [s]  >= 700 [°C] > 10.0 [s]  >= 50.0 [%] > 10.0 [s]  > 10.0 [s] not active > 0.0 [s]	40.0 [s] multiple	2 DCY
Oxygen Sensors rear 2-Point-LSF	P2270	stuck lean (if sensor stuck lean: 30% enrichment)	O2S signal rear not oscillating at reference	< 603 [mV]	mass air flow  modeled exhaust gas temp. O2S rear readiness 2nd lambda control	25.00 ... 150.00 [kg/h]  > 350 [°C] > 10.0 [s] closed loop	250.0 [s] multiple	2 DCY
	P2271	stuck rich (if sensor stuck rich: 7% enleanment) if enleanment is not successful: waiting for next fuel cut off	O2S signal rear not oscillating at reference	> 603 [mV]	mass air flow  modeled exhaust gas temp. O2S rear readiness fuel cut off 2nd lambda control	25.00 ... 150.00 [kg/h]  > 350 [°C] > 10.0 [s] > 3.0 [s] closed loop	250.0 [s] multiple	2 DCY

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
Oxygen Sensors rear (binary LSF)	P0139	check of transient time at fuel cut off	EWMA filtered transient time at fuel cut off in voltage range number of checks (initial phase) number of checks (step function)	> 1.2 [s] 201 ... 401 [mV] ≥ 3.00 [-] ≥ 3.00 [-]	rich voltage (enable) lean voltage O2S rear rear O2-sensor signal oscillating monitoring EVAP purge valve diagnosis O2S front fuel cut off front O2-Sensor lambda signal modeled exhaust gas temp. slope of exhaust mass rear O2 Sensor internal resistance or trigger for step change: delta transient time	≥ 548 [mV] n.a. ready ready ready ready active > 6.00 [-] > 340 [°C] < 50.00 [kg/h] ≤ 131070.00 [Ohm] > 0.7 [s]	100.0 [s] multiple	1 DCY
Oxygen Sensors rear (binary LSF)	P2271	check of response time at fuel cut off	response time at fuel cut off and measurement range from fuel cut off to voltage threshold and number of checks (initial phase) or measurement range from fuel cut off to O2 mass flow threshold and number of checks (initial phase)	> 8.0 [s] ≤ 191 [mV] ≥ 1.00 [-] ≥ 6500 [mg] ≥ 1.00 [-]	rich voltage (enable) lean voltage O2S rear rear O2-sensor signal oscillating monitoring EVAP purge valve diagnosis O2S front fuel cut off front O2-Sensor lambda signal modeled exhaust gas temp. slope of exhaust mass rear O2 Sensor internal resistance	≥ 548 [mV] n.a. ready ready ready ready active > 6.00 [-] > 340 [°C] < 50.00 [kg/h] ≤ 131070.00 [Ohm]	10.0 [s] multiple	2 DCY
Oxygen Sensors Heater front	P0030	open circuit	heater voltage	2.34 ... 3.59 [V]	time after engine start heater	> 5 [s] commanded off	0.5 [s] continuous	2 DCY
	P0031	short to ground	heater voltage	< 2.34 [V]	time after engine start heater	> 5 [s] commanded off	0.5 [s] continuous	2 DCY
	P0032	short to battery plus	heater voltage	> 3.59 [V]	time after engine start heater	> 5 [s] commanded on	0.5 [s] continuous	2 DCY
Oxygen Sensors Heater front	P0135	out of range high	O2S ceramic temp. and heater duty cycle	< 715 [°C] 100 [%]	modeled exhaust gas temp. heater control	> 300 [°C] active	55.0 [s] multiple	2 DCY
	P0135	rationality check (sensor heating up)	O2S ceramic temp. and time after O2S heater on	< 715 [°C] 40.0 [s]	ECT @ start engine shut-off-time (during ECM keep alive-time after ignition off)	> -11 [°C] > 300.0 [s] < 500.0 [s]	40.0 [s] multiple	2 DCY
	P0606	out of range	difference between measured calibration resistance in ECM and set value	>   45.00   [Ohm]	time after engine start engine speed	> 15.0 [s] idle	15.0 [s] multiple	2 DCY

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
Oxygen Sensors Heater rear 2-Point-LSF	P0036	open circuit	heater voltage	4.50 ... 5.50	[V]	engine speed heater	> 80 [rpm] commanded off	0.5 [s] continuous	2 DCY
	P0037	short to ground	heater voltage	< 3.00	[V]	engine speed heater	> 80 [rpm] commanded off	0.5 [s] continuous	2 DCY
	P0038	short to battery plus	heater current	2.70 ... 5.50	[A]	engine speed heater	> 80 [rpm] commanded on	0.5 [s] continuous	2 DCY
Oxygen Sensors Heater rear 2-Point-LSF	P0141	out of range	heater resistance	792 ... 4560	[Ohm]	modeled exhaust gas temp. engine shut-off-time (during ECM keep alive-time after ignition off) number of checks fuel cut off heater	250 ... 650 [°C] > 60.0 [s] < 500.0 [s] 10.00 [-] not active commanded on	15.0 [s] multiple	2 DCY
Cold Start Detection		detection by engine off timer	---			engine off time	> 25200.0 [s]	2.0 [s] once / DCY	2 DCY

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
<b>Engine Coolant Temperature Sensor</b>	P0118	short to battery / open circuit	ECT	< -40 [°C]			2.0 [s] multiple	2 DCY
	P0117	short to ground	ECT	> 140 [°C]			2.0 [s] multiple	2 DCY
	P0116	stuck high	no change on signal	<u>thres_01</u> [(ECT)]: 1.5 [K]	ECT @ start ECT cold start substitute ECT <u>driving condition L:</u> vehicle speed mass air flow time required / frequency <b>and</b> <u>driving condition H:</u> vehicle speed mass air flow time required / frequency	<u>temp_01</u> n.a. 110 ... 140 [°C] n.a. <u>temp_02</u> > -48 [°C] 0 ... 20 [km/h] 4.0 ... 40.0 [kg/h] > 10.0 [s] 3 times <b>and</b> <u>driving condition H:</u> vehicle speed mass air flow time required / frequency 50 ... 150 [km/h] 28.0 ... 280.0 [kg/h] > 40.0 [s] once	70.0 [s] once / DCY	2 DCY
	P0116	stuck low	no change on signal	<u>thres_01</u> [(ECT)]: 1.5 [K]	ECT @ start ECT cold start substitute ECT <u>driving condition L:</u> vehicle speed mass air flow time required / frequency <b>and</b> <u>driving condition H:</u> vehicle speed mass air flow time required / frequency	<u>temp_01</u> n.a. 55 ... 88 [°C] n.a. <u>temp_02</u> > -48 [°C] 0 ... 20 [km/h] 4.0 ... 40.0 [kg/h] > 10.0 [s] 3 times <b>and</b> <u>driving condition H:</u> vehicle speed mass air flow time required / frequency 50 ... 150 [km/h] 28.0 ... 280.0 [kg/h] > 40.0 [s] once	70.0 [s] once / DCY	2 DCY
P0116	stuck in range	signal in range <b>and</b> no change on signal	signal in range  n.a.	88 ... 110 [°C]  n.a.	cold start  stuck high ECT @ start substitute ECT <u>driving condition L:</u> vehicle speed mass air flow time required / frequency <b>and</b> <u>driving condition H:</u> vehicle speed mass air flow time required / frequency	detected  n.a. <u>temp_01</u> n.a. <u>temp_02</u> n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a.	2.0 [s] once / DCY	2 DCY
<b>Engine Coolant Temperature Sensor rationality</b>	P3081	measured engine coolant temp. below reference model	measured engine coolant temp. not within in a range of the reference model	<u>range_01:</u> > 10 [K]	maximum reference temperature	<u>modmax_01:</u> 60 [°C]	4.0 [s] multiple	2 DCY

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
Coolant System Performance	P2181	cooling system performance not in a expect range	cooling system temperature to low after a sufficient air mass flow integral	<b>thers_03:</b> 74...84 [°C]	begin of air mass integration when engine temp.  ECT @ start AAT fuel cut off <b>and</b> engine load  integrated air mass depending on engine temp. at start and AAT depending on temp. at engine start and min. observed AAT for longer than depending on temp. at engine start and min. observed AAT for more than <b>at time of fault decision:</b> average air mass flow average vehicle speed	<b>thres_01:</b> 30 [°C]  <b>thers_02:</b> -6.7 ... 64.5 [°C] > -6.7 [°C] not active  0 ... 400 [%] <b>airmass_01:</b> 4.0 ... 23.0 [kg/h]  40...250 [s]  4.0...25.0 [kg]  20.8 ... 170.0 [kg/h] 30.0 ... 120.0 [km/h]	2.0 [s] once / DCY	2 DCY
Phase Sensor 1	P0343	rationality check	signal voltage  <b>and</b> crankshaft signals	permanently high  8.00 [-]			0.5 [s] continuous	2 DCY
	P0342	rationality check	signal voltage  <b>and</b> crankshaft signals	permanently low  8.00 [-]			0.5 [s] continuous	2 DCY
	P0341	rationality check	signal pattern	incorrect			0.5 [s] continuous	2 DCY
RPM Sensor	P0321	rationality check	counted teeth vs. reference  <b>or</b> monitoring reference gap	incorrect  failure			2.0 [s] multiple	2 DCY
	P0322	signal activity check	camshaft signals  <b>and</b> engine speed	> 3.00 [-]  no signal			2.0 [s] multiple	2 DCY
Camshaft Position Sensor Inlet	P0016	angular offset check	permissible deviation  <b>or</b> permissible deviation	< -11.0 [°CRK]  > 11.0 [°CRK]			2.0 [s] multiple	2 DCY
VVT Actuator Intake	P0010	open circuit	signal voltage	> 4.40...5.60 [V]	camshaft valve  engine speed	off  > 80 [rpm]	0.5 [s] continuous	2 DCY
	P2088	short to ground	signal voltage	< 2.15...3.25 [V]	camshaft valve  engine speed	off  > 80 [rpm]	0.5 [s] continuous	2 DCY
	P2089	short to battery plus	signal current	> 2.20 [A]	camshaft valve  engine speed	on  > 80 [rpm]	0.5 [s] continuous	2 DCY

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
VVT Actuator Intake	P000A	slow response	difference between target position vs. actual position <b>and</b> adjustment angle	>  ...8.0  [°CRK]  >   2.5   [°CRK]	time after engine start  engine speed oil temperature frequency (normal operation)	> 3.0 [s]  600 ... 6000 [rpm] -48 ... 143 [°C] 4 times	14.0 [s] multiple	2 DCY
	P0011	target error	difference between target position vs. actual position <b>and</b> adjustment angle	>  ...8.0  [°CRK]  <   2.5   [°CRK]	time after engine start  engine speed oil temperature frequency (normal operation)	> 3.0 [s]  600 ... 6000 [rpm] -48 ... 143 [°C] 4 times	14.0 [s] multiple	2 DCY
Cold Start Monitoring VVT Actuator Intake	P052A	target error	difference between target position vs. actual position	>   6.0   [°CRK]	time after engine start  engine speed modeled oil temperature catalyst heating	>= 15.0 [s]  >= 0 [rpm] >= -13 [°C] active	5.0 [s] once / DCY	2 DCY
Intake Air System	P0068	load survey below threshold	<b>plausibility with fuel system</b> load calculation	< -22.0 [%]	engine speed ECT  IAT mass air flow engine load ratio manifold pressure to ambient pressure evap purge valve lambda control	1280 ... 6000 [rpm] > 63 [°C]  < 90 [°C] 0 ... 450.0 [kg/h] 20.0 ... 100.0 [%] < 0.85 [-] closed closed loop	50.0 [s] multiple	2 DCY
	P0068	load survey above threshold	<b>plausibility with fuel system</b> load calculation	> 22.0 [%]	engine speed ECT  IAT mass air flow engine load ratio manifold pressure to ambient pressure evap purge valve lambda control	1280 ... 6000 [rpm] > 63 [°C]  < 90 [°C] 0 ... 450.0 [kg/h] 20.0 ... 100.0 [%] < 0.85 [-] closed closed loop	50.0 [s] multiple	2 DCY
Altitude Sensor	P0606	plausibility check	diff. altitude sensor signal vs. boost pressure signal <b>and</b> diff. altitude sensor vs. last driving cycle	> 90.0 [hPa]  > 150.00 [hPa]	time after engine start  engine speed throttle position	< 5.0 [s]  < 1000 [rpm] < 6.81 [%]	2.0 [s] once / DCY	2 DCY
	P0606	plausibility check	diff. altitude sensor signal vs. boost pressure signal <b>and</b> diff. altitude sensor vs. last driving cycle	< -90.0 [hPa]  > 150.00 [hPa]	time after engine start  engine speed throttle position	< 5.0 [s]  < 1000 [rpm] < 6.81 [%]	2.0 [s] once / DCY	2 DCY
Altitude Sensor	P0606	short to battery / open circuit	signal voltage	> 4.88 [V]			0.2 [s] multiple	2 DCY
	P0606	short to ground	signal voltage	< 0.20 [V]			0.2 [s] multiple	2 DCY
Boost Pressure Control Valve	P0243	open circuit	signal voltage	> 5.60...4.40 [V]	boost pressure control valve  engine speed	commanded off  > 80 [rpm]	0.5 [s] continuous	2 DCY
	P0245	short to ground	signal voltage	< 3.25...2.15 [V]	boost pressure control valve  engine speed	commanded off  > 80 [rpm]	0.5 [s] continuous	2 DCY
	P0246	short to battery plus	signal current	> 2.20 [A]	boost pressure control valve  engine speed	commanded on  > 80 [rpm]	0.5 [s] continuous	2 DCY



Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
Boost Pressure Sensor	P0237	short to ground	signal voltage	< 0.20 [V]			0.5 [s] continuous	2 DCY
	P0238	short to battery / open circuit	signal voltage	> 4.88 [V]			0.5 [s] continuous	2 DCY
Boost Pressure Sensor	P0236	plausibility check	diff. boost pressure signal vs. altitude sensor signal	> 230.0 [hPa]	engine speed throttle position	< 1000 [rpm] < 6.81 [%]	2.0 [s] multiple	2 DCY
	P0236	plausibility check	diff. boost pressure signal vs. altitude sensor signal	< -130.0 [hPa]	engine speed throttle position	< 1000 [rpm] < 6.81 [%]	2.0 [s] multiple	2 DCY
Boost Pressure Control	P0234	rationality check high	diff. set value boost pressure vs. actual boost pressure value	> 200...1275 [hPa]	altitude	< 2700 [m]	1.2 [s] multiple	2 DCY
	P0299	rationality check low	diff. set value boost pressure vs. actual boost pressure value	> 150.00 [hPa]	engine speed altitude diff. set value boost pressure vs. basic boost pressure value boost pressure control turbo charger bypass valve	> 2640 [rpm] < 2700 [m] > 250 [hPa] active closed	6.0 [s] multiple	2 DCY
Intake Air Temperature Sensor	P0112	short to ground	IAT	> 141 [°C]			2.0 [s] multiple	2 DCY
	P0113	short to battery / open circuit	IAT	< -46 [°C]			2.0 [s] multiple	2 DCY
Ambient Air Temperature Sensor	P0072	short to ground	ambient air temperature	> 76 [°C]	CAN	active	6.00 [s] multiple	2 DCY
	P0070	short to battery / open circuit	ambient air temperature	< -50 [°C]	CAN	active	6.00 [s] multiple	2 DCY
Intake Air Temperature	P0111	rationality check	diff. ECT vs. IAT at engine start (depending on engine off time) <b>and</b> diff. IAT vs. AAT at engine start (depending on engine off time) <b>and</b> diff. AAT vs. ECT at engine start (depending on engine off time)	>   24.75   [°C]  >   24.75   [°C]  n.a.	engine off time  <b>Blockheater</b> ECT @ start minus ECT @ condition: time after engine start <b>solar radiation case 1:</b> AAT @ start minus AAT @ condition: vehicle speed for time <b>solar radiation case 2:</b> IAT @ start minus IAT @ condition: vehicle speed for time	> 5 [h]  < 1.5 [°C]  60.0 [s]  <= 3.0 [°C]  > 40 [km/h] > 10.0 [s]  <= 3.0 [°C]  > 40 [km/h] > 10.0 [s]	60.0 [s] once / DCY	2 DCY

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
Ambient Air Temperature	P0071	rationality check	diff. ECT vs. IAT at engine start  (depending on engine off time) <b>and</b> diff. IAT vs. AAT at engine start (depending on engine off time) <b>and</b> diff. AAT vs. ECT at engine start (depending on engine off time)	n.a.  >   24.75   [°C]  >   24.75   [°C]	engine off time  <b>Blockheater</b> ECT @ start minus ECT @ condition: time after engine start <b>solar radiation case 1:</b> AAT @ start minus AAT @ condition: vehicle speed for time <b>solar radiation case 2:</b> IAT @ start minus IAT @ condition: vehicle speed for time	> 5 [h]  < 1.5 [°C]  60.0 [s]  <= 3.0 [°C]  > 40 [km/h] > 10.0 [s]  <= 3.0 [°C]  > 40 [km/h] > 10.0 [s]	60.0 [s] once / DCY	2 DCY
Engine Coolant Temperature	P0116	rationality check	diff. ECT vs. IAT at engine start  (depending on engine off time) <b>and</b> diff. IAT vs. AAT at engine start (depending on engine off time) <b>and</b> diff. AAT vs. ECT at engine start (depending on engine off time)	>   24.75   [°C]  n.a.  >   24.75   [°C]	engine off time  <b>Blockheater</b> ECT @ start minus ECT @ condition: time after engine start <b>solar radiation case 1:</b> AAT @ start minus AAT @ condition: vehicle speed for time <b>solar radiation case 2:</b> IAT @ start minus IAT @ condition: vehicle speed for time	> 5 [h]  < 1.5 [°C]  60.0 [s]  <= 3.0 [°C]  > 40 [km/h] > 10.0 [s]  <= 3.0 [°C]  > 40 [km/h] > 10.0 [s]	60.0 [s] once / DCY	2 DCY
Intake Manifold Runner Control Valve	P2008	open circuit	signal voltage	4.40 ... 5.60 [V]	tumble flap  engine speed	commanded off  > 80 [rpm]	0.5 [s] continuous	2 DCY
	P2009	short to ground	signal voltage	3.25 ... 2.15 [V]	tumble flap  engine speed	commanded off  > 80 [rpm]	0.5 [s] continuous	2 DCY
	P2010	short to battery plus	signal current	> 2.20 [A]	tumble flap  engine speed	commanded on  > 80 [rpm]	0.5 [s] continuous	2 DCY
Vehicle Speed	P0501	plausibility check	vehicle speed	< 6 [km/h]	engine speed  engine torque vehicle speed sensor	> 2800 [rpm]  > 120.00 [Nm] no fault	10.5 [s] multiple	2 DCY

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
MAF Sensor	P0101	rationality check mass air flow	mass air flow vs. lower threshold model	< 0...400.0 [kg/h]	camshaft revolutions time after engine start	> 150.00 [-] > 0.5 [s]	2.0 [s] multiple	
	P0101	rationality check mass air flow	mass air flow vs. upper threshold model	> 60.0...800.0 [kg/h]	camshaft revolutions time after engine start	> 150.00 [-] > 0.5 [s]	2.0 [s] multiple	
	P0101	rationality check load survey	load calculation  and fuel system (mult.)	> 18 [%]  < -17 [%]	engine speed  ECT IAT mass air flow engine load ratio manifold pressure to ambient pressure evap purge valve lambda control	1280 ... 6000 [rpm]  > 63 [°C] < 90 [°C] 0 ... 450.0 [kg/h] 20.0 ... 100.0 [%] < 0.85 [-]  closed closed loop	2.0 [s] multiple	2 DCY
	P0101	rationality check load survey	load calculation  and fuel system (mult.)	< -18 [%]  > 17 [%]	engine speed  ECT IAT mass air flow engine load ratio manifold pressure to ambient pressure evap purge valve lambda control	1280 ... 6000 [rpm]  > 63 [°C] < 90 [°C] 0 ... 450.0 [kg/h] 20.0 ... 100.0 [%] < 0.85 [-]  closed closed loop	2.0 [s] multiple	2 DCY
MAF Sensor	P0100	internal check	MAF sensor signal	0 [µs]	engine speed	> 20 [rpm]	0.5 [s] multiple	2 DCY
	P0102	out of range low	MAF sensor signal	< 66 [µs]	engine speed	> 20 [rpm]	0.5 [s] multiple	2 DCY
	P0103	out of range high	MAF sensor signal	> 4500 [µs]	engine speed	> 20 [rpm]	0.5 [s] multiple	2 DCY
Knock Sensor	P0327	short to ground Port B	lower threshold	< -0.70 [V]	engine speed	> 1000 [rpm]	0.5 [s] continuous	2 DCY
	P0327	short to ground Port A	lower threshold	< -0.70 [V]	engine speed	> 1000 [rpm]	0.5 [s] continuous	2 DCY
	P0328	short to battery plus Port B	upper threshold	> 1.00 [V]	engine speed	> 1000 [rpm]	0.5 [s] continuous	2 DCY
	P0328	short to battery plus Port A	upper threshold	> 1.00 [V]	engine speed	> 1000 [rpm]	0.5 [s] continuous	2 DCY
	P0327	signal range check	lower threshold	< 0.6...1.6 [V]	engine speed  ECT engine load	> 2000 [rpm]  > 41 [°C] > 35.3...60 [%]	0.5 [s] multiple	2 DCY
	P0328	signal range check	upper threshold	> 21.7...115.9 [V]	engine speed  ECT engine load	> 2000 [rpm]  > 41 [°C] > 35.3...60 [%]	0.5 [s] multiple	2 DCY
Knock Control	P0324	internal hardware check	signal fault counter (combustion)  or signal fault counter (measuring window)	> 24.00 [-]  > 2.00 [-]	engine speed	> 2500 [rpm]	0.5 [s] continuous	2 DCY

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
Throttle Position Sensor 1	P0122	out of range low	signal voltage	< 0.20 [V]			0.1 [s] multiple	2 DCY
	P0123	out of range high	signal voltage	> 4.81 [V]			0.1 [s] multiple	2 DCY
	P0121	rationality check	TPS1-TPS2   and  actual TPS1-calc.value   or  TPS1 - calc.value	> 6.30 [%]  >  actual TPS2-calc.value   > 9.00 [%]	engine speed	> 480 [rpm]	0.3 [s] multiple	2 DCY
Throttle Position Sensor 2	P0222	out of range low	signal voltage	< 0.20 [V]			0.1 [s] multiple	2 DCY
	P0223	out of range high	signal voltage	> 4.81 [V]			0.1 [s] multiple	2 DCY
	P0221	rationality check	TPS1-TPS2   and  actual TPS2-calc.value   or  TPS2 - calc.value	> 6.30 [%]  >  actual TPS1-calc.value   > 9.00 [%]	engine speed	> 480 [rpm]	0.3 [s] multiple	2 DCY
Throttle Actuator	P2106	short to battery plus/ short to ground	internal check				5.0 [s] multiple	2 DCY
	P2106	open circuit	internal check		duty cycle  or deviation throttle value angles vs. calculated value	> 80 [%]  > 4...50 [%]	0.5 [s] multiple	2 DCY
	P2106	temperatur / current monitoring	internal check	failed			5.0 [s] multiple	2 DCY
	P2106	functional check	internal check	failed			5.0 [s] multiple	2 DCY
	P2101	signal range check	duty cycle  and ECM power stage	> 80 [%]  no failure			5.0 [s] multiple	2 DCY
	P2101	rationality check	deviation throttle value angles vs. calculated value	> 4...50 [%]			0.5 [s] multiple	
Throttle Actuator Basic Settings	P0638	rationality check close movement	time to close to reference point  and reference point	> 0.6 [s]  2.88 [%]	engine speed  vehicle speed ECT IAT <b>Case 1:</b> ignition <b>Case 2:</b> engine shut-off-time number of checks	0 [rpm]  0 [km/h] > -20.3 [°C] > -20.3 [°C]  on  5.0 [s] 2.0 [-]	5.0 [s] multiple	2 DCY
	P0638	signal range check @ mechanical stop low	TPS 1 signal voltage  or TPS 2 signal voltage or TPS1 + TPS2	NOT (0.40...0.80) [V]  NOT (4.20...4.60) [V]  NOT (4.82...5.18) [V]	engine speed  vehicle speed <b>Case 1:</b> ignition ECT IAT <b>Case 2:</b> engine shut-off-time ECT IAT	0 [rpm]  0 [km/h]  on -20.3 ... 114.8 [°C] -20.3 ... 143.3 [°C]  5.0 [s] 5 ... 115 [°C] 5 ... 143 [°C]	0.3 [s] multiple	2 DCY

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
Accelerator Position Sensor 1	P2122	out of range low	signal voltage	< 0.6 [V]			0.5 [s] continuous	2 DCY
	P2123	out of range high	signal voltage	> 4.8 [V]			0.5 [s] continuous	2 DCY
Accelerator Position Sensor 2	P2127	out of range low	signal voltage	< 0.27 [V]			0.5 [s] continuous	2 DCY
	P2128	out of range high	signal voltage	> 2.43 [V]			0.5 [s] continuous	2 DCY
Accelerator Position Sensor 1 and 2	P2138	rationality check	signal voltage sensor 1 vs. 2	>   0.17...0.70   [V]	signal voltage sensor 1	> 445.00 [mV]	0.5 [s] continuous	2 DCY
					signal voltage sensor 2	> 445.00 [mV]		
Idle Controller	P0506	out of range low	engine speed deviation  and RPM controller torque value	< -80 [rpm]  >= calculated max. value	time after engine start  engine speed vehicle speed  altitude ECT IAT vehicle speed lambda control evap purge adaptation external torque request  engine load	> 0.0 [s]  idle 0 [km/h]  < 2700 [m] > -48 [°C] > -48 [°C] ready active < 22.00 [-] not demanded  <b>for manual transmission:</b> < 15...40 [%]	4.0 [s] multiple	2 DCY
	P0507	out of range high	engine speed deviation  and RPM controller torque value  or RPM controller P-portion and I-portion	> 80 [rpm]  <= calculated min. value  < -15.0 [Nm]	time after engine start  engine speed vehicle speed  altitude ECT IAT vehicle speed lambda control evap purge adaptation external torque request	> 0.0 [s]  idle 0 [km/h]  < 2700 [m] > -48 [°C] > -48 [°C] ready active < 22.00 [-] not demanded	7.0 [s] multiple	2 DCY
	P0506	plausibility check	integrated deviation of engine speed low and integrated deviation of engine speed high	> 2000 [rpm]	time after engine start  engine speed vehicle speed altitude ECT IAT vehicle speed lambda control evap purge adaptation external torque request	> 0.0 [s]  idle 0 [km/h]  < 2700 [m] > -48 [°C] > -48 [°C] ready active < 22.00 [-] not demanded	3.0 [s] multiple	2 DCY

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
<b>Cold Start Monitoring</b>  <b>Idle Controller</b>	P050A	out of range low	engine speed deviation  <b>and</b> RPM controller torque value	< -80 [rpm]  >= calculated max. value	time after engine start  engine speed vehicle speed  altitude ECT @ start IAT vehicle speed lambda control evap purge adaptation external torque request catalyst heating	> 0.0 [s]  idle 0 [km/h]  < 2700 [m] < 143 [°C] > -48 [°C] ready active evap purge adaptation external torque request not demanded active  <b>for manual transmission:</b>	4.0 [s] multiple	2 DCY
	P050A	out of range high	engine speed deviation  <b>and</b> RPM controller torque value  <b>or</b> RPM controller P-portion and I-portion	> 80 [rpm]  ≤ calculated min. value  < -15.0 [Nm]	time after engine start  engine speed vehicle speed  altitude ECT @ start IAT vehicle speed lambda control evap purge adaptation external torque request catalyst heating	> 0.0 [s]  idle 0 [km/h]  < 2700 [m] < 143 [°C] > -48 [°C] ready active evap purge adaptation external torque request not demanded active	4.0 [s] multiple	2 DCY
	P050A	plausibility check	integrated deviation of engine speed low and integrated deviation of engine speed high	> 2000 [rpm]	time after engine start  engine speed vehicle speed altitude ECT @ start IAT vehicle speed lambda control evap purge adaptation external torque request catalyst heating	> 0.0 [s]  idle 0 [km/h]  < 2700 [m] < 143 [°C] > -48 [°C] ready, no fault active evap purge adaptation external torque request not demanded active	3.0 [s] multiple	2 DCY

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
<b>Injection Valves</b>	P2146	short to ground (high side)	signal current	> 14.90 [A]	engine speed	> 80 [rpm]	0.5 [s] continuous	2 DCY
	P2146 P2149 P2149							
	P2146	short to battery plus (high side)	signal current	< 2.60 [A]	engine speed	> 80 [rpm]	0.5 [s] continuous	2 DCY
	P2146 P2149 P2149				low side signal current	> 2.70 [A]		
	P2146	core connection (high side - low side)	signal current		engine speed	> 80 [rpm]	0.5 [s] continuous	2 DCY
	P2146 P2149 P2149							
	P0201	open circuit	signal current	< 2.10 [A]	engine speed	> 80 [rpm]	0.5 [s] continuous	2 DCY
	P0202 P0203 P0204							
<b>Injection Valves Communication</b>	P0261	short to ground (low side)	signal current	< 2.10 [A]	engine speed	> 80 [rpm]	0.5 [s] continuous	2 DCY
	P0264 P0267 P0270				high side signal current	> 4.20 [A]		
	P0262	short to battery plus (low side)	signal current	> 14.70 [A]	engine speed	> 80 [rpm]	0.5 [s] continuous	2 DCY
	P0265 P0268 P0271				injection valve	switched on		
<b>Fuel Pump</b>	P0201	monitoring booster-time	internal logic	failure	engine speed	> 80 [rpm]	0.5 [s] continuous	2 DCY
	P0202 P0203 P0204				injection valve	switched on		
<b>Fuel Pump</b>	P062B	functional monitoring	internal logic	failure	engine speed	> 80 [rpm]	0.5 [s] continuous	2 DCY
<b>Fuel Pump</b>	P025A	open circuit	signal voltage	4.40 ... 5.60 [V]	engine speed	> 80 [rpm]	0.5 [s] continuous	2 DCY
	P025C	short to ground	signal voltage	2.15 ... 3.25 [V]	engine speed	> 80 [rpm]	0.5 [s] continuous	2 DCY
	P025D	short to battery plus	signal current	> 1.10 [A]	engine speed	> 80 [rpm]	0.5 [s] continuous	2 DCY
<b>Engine-Off-Time</b>	P150A	comparison of engine off time from instrument cluster control unit with engine after run time	difference between engine-off-time and ECM after-run time	< -12.0 [s]	key-on after ECM after-run time	active	6.00 [s] once / DCY	2 DCY
	P150A	comparison of engine off time from instrument cluster control unit with engine after run time	difference between engine-off-time and ECM after-run time	> 12.0 [s]	key-on during ECM after-run time	active	6.00 [s] once / DCY	2 DCY
<b>Supply Voltage Relay Engine Components</b>	P0657	open circuit	signal voltage	4.4 ... 5.60 [V]	relay	commanded off	0.5 [s] continuous	2 DCY
	P0658	short to ground	signal voltage	< 2.15...3.25 [V]	engine speed	> 80 [rpm]	0.5 [s] continuous	2 DCY
	P0659	short to battery plus	signal current	> 1.10 [A]	relay	commanded on	0.5 [s] continuous	2 DCY
					engine speed	> 80 [rpm]		

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
<b>Fan Control Coolant Temperature Sensor</b>	P2185	short to battery / open circuit	ECT outlet	< -43 [°C]			2.0 [s] continuous	2 DCY
	P2184	short to ground	ECT outlet	> 141 [°C]			2.0 [s] continuous	2 DCY
<b>Ignition Coils</b>	P0351	open circuit	signal current	-0.25 ... -2.0 [mA]	engine speed	> 680 [rpm]	0.5 [s] continuous	2 DCY
	P0352 P0353 P0354		or internal check	failed				
	P2300	short to ground	signal current	> 24.0 [mA]	engine speed	> 680 [rpm]	0.5 [s] continuous	2 DCY
	P2303 P2306 P2309							
P2301	short to battery plus	signal voltage	> 5.1...7.0 [mA]	engine speed	> 680 [rpm]	0.5 [s] continuous	2 DCY	
P2304 P2307 P2310								
<b>ECM: WDA</b>	P0606	function monitoring: WDA	general cause	failure			0.5 [s] continuous	2 DCY
	P0606	function monitoring: WDA	internal check	failure			0.5 [s] continuous	2 DCY
	P0606	function monitoring: WDA	overvoltage detection	failure			0.5 [s] continuous	2 DCY
<b>ECM: EEPROM</b>	P0606	EEPROM check	check	failed			0.5 [s] continuous	2 DCY
<b>ECM: Self Check for Sensor IC</b>	P0606	internal hardware check (electrical adjustment communication, voltage supply)	check				0.5 [s] continuous	2 DCY
<b>ECM: Sensor Reference Circuit A</b>	P0641	signal range check	signal voltage deviation	> +/- 0.3 [V]			0.5 [s] continuous	2 DCY
<b>ECM: Sensor Reference Circuit B</b>	P0651	signal range check	signal voltage deviation	> +/- 0.3 [V]			0.5 [s] continuous	2 DCY
<b>ECM: Sensor Reference Circuit C</b>	P0697	signal range check	signal voltage deviation	> +/- 0.3 [V]			0.5 [s] continuous	2 DCY
<b>ECM: 5V Supply Voltage</b>	P0606	internal hardware check	under-/ overvoltage detection				0.5 [s] continuous	2 DCY
<b>ECM: A/D converter</b>	P0606	power-up calibration	check	failed	initialization phase	active	0.5 [s] continuous	2 DCY
	P0606	adc-cannel conversion	check	failed	initialization phase power-up calibration	active executed	0.5 [s] continuous	2 DCY



Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
<b>ECM: EGAS module</b>	P0606	function monitoring: A/D converter	comparison refence voltage with sensor voltage	incorrect			0.5 [s] continuous	2 DCY
	P0606	function monitoring: A/D converter	test voltage check	failed			0.5 [s] continuous	2 DCY
	P0606	function monitoring: A/D converter	internal check	failed			0.5 [s] continuous	2 DCY
	P0606	function monitoring: torque	comparison with allowed engine torque	incorrect	internal engine speed	> 720 [rpm]	0.5 [s] continuous	2 DCY
	P0606	function monitoring: engine speed deviation	difference between calculated and internal engine speed	> 320 [rpm]	internal engine speed	> 520 [rpm]	0.5 [s] continuous	2 DCY
	P0606	function monitoring: coding	internal check	failed			0.5 [s] continuous	2 DCY
	P0606	function monitoring: ignition timing	internal check	failed			0.5 [s] continuous	2 DCY
	P0606	function monitoring: intern	system reaction	incorrect			0.5 [s] continuous	2 DCY
	P0606	function monitoring: injection rate limitation	system reaction	incorrect			0.5 [s] continuous	2 DCY
	P0169	function monitoring: injection time	comparison with fuel quantity	incorrect	internal engine speed	> 1200 [rpm]	0.5 [s] continuous	2 DCY
	P0169	function monitoring: lambda mode	internal check	failed	internal engine speed	> 1200 [rpm]	0.5 [s] continuous	2 DCY
	P0606	function monitoring: accelerator position	internal check	failed			0.5 [s] continuous	2 DCY
	P0169	function monitoring: mixture control	correction factor	incorrect	internal engine speed	> 1200 [rpm]	0.5 [s] continuous	2 DCY
	P0169	function monitoring: mixture control	fuel quantity	incorrect			0.5 [s] continuous	2 DCY
	P0606	monitoring modul	function controller check  and monitoring module check	failed  no failure	SPI-interface	no failure	0.5 [s] continuous	2 DCY
	<b>CAN: Vehicle Speed Sensor</b>	U0415	CAN communication with Vehicle Speed Sensor	speed sensor signal: initialisation error	327.08 [km/h]			1980 [ms] continuous
U0415		CAN communication with Vehicle Speed Sensor	speed sensor signal: low voltage error	327.25 [km/h]			1980 [ms] continuous	2 DCY
U0415		CAN communication with Vehicle Speed Sensor	speed sensor signal: sensor error	327.42 [km/h]			480 [ms] continuous	2 DCY
U0415		CAN communication with Vehicle Speed Sensor	vehicle speed	>= 325 [km/h]			2100 [ms] continuous	2 DCY
U0415		CAN communication with Vehicle Speed Sensor	speed sensor signal: out of range	326.39 [km/h]			480 [ms] continuous	2 DCY
<b>CAN: Internal Fault</b>	P0606	CAN controller RAM check	RAM error	memory checksum error	initialization phase  time after ignition on	  500 [ms]	0 [ms] once / DCY	2 DCY
<b>CAN: CAN-Bus</b>	U0001	reading back sent message (Powertrain)	CAN message	no feedback	time after ignition on	500 [ms]	250 [ms] continuous	2 DCY
	U0002	CAN communication check (Powertrain)	global time out	receiving no message	time after ignition on	500 [ms]	450 [ms] continuous	2 DCY
<b>CAN: TCM</b>	U0101	CAN communication with TCM	received CAN message	no message	time after ignition on	500 [ms]	500 [ms] continuous	2 DCY
	U0402	CAN communication with TCM	received data	implausible message	time after ignition on	500 [ms]	60 [ms] continuous	2 DCY
	U0302	CAN communication with TCM	recieved AT vehicle data	TCM signal	time after ignition on	500 [ms]	100 [ms] continuous	2 DCY

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	Monitoring Time Length	MIL Illum.
<b>CAN: Instrument Cluster</b>	U0155	CAN communication with Instrument Cluster Modul	received CAN message	no message	time after ignition on	500 [ms]	500 [ms] continuous	2 DCY
	U0423	CAN communication with Instrument Cluster Modul	received CAN message	implausible message	time after ignition on	500 [ms]	600 [ms] continuous	2 DCY
<b>CAN: Ambient Air Temperature Sensor</b>	U0423	communication with Instrument Cluster Modul	ambient temperatur value (initialization)	00h [-]	key on  status ambient temperatur from instrument cluster electrical check ambient temperature sensor	no fault  no fault	3.0 [s] multiple	2 DCY
<b>CAN: Gateway</b>	U0146	CAN communication with Gateway	received CAN message	no message	time after ignition on	500 [ms]	1000 [ms] continuous	2 DCY
	U0447	CAN communication with Gateway	received data	implausible message	time after ignition on	500 [ms]	300 [ms] continuous	2 DCY
<b>CAN: Brake Unit</b>	U0121	CAN communication with Brake Unit	received CAN message	no message	time after ignition on	500 [ms]	440 [ms] continuous	2 DCY
	U0415	CAN communication with Brake Unit	received data	implausible message	time after ignition on	500 [ms]	60 [ms] continuous	2 DCY



# Air Resources Board



Linda S. Adams  
Secretary for  
Environmental Protection

Mary D. Nichols, Chairman  
9480 Telstar Avenue, Suite 4  
El Monte, California 91731 www.arb.ca.gov

Arnold Schwarzenegger  
Governor

February 22, 2008

Reference No. E-08-027

**VOLKSWAGEN OF AMERICA  
Engineering and Environmental**

Mr. Norbert Krause, Manager  
Volkswagen of America, Inc.  
Mail Code EEO  
3800 Hamlin Road  
Auburn Hills, MI 48326

MAR 03 2008

ATTN:  
FILE:  
COPY:

**SUBJECT: Approval of Volkswagen's (VW) On-Board Diagnostics II (OBD II) System  
Design for 2008 Model Year Test Group 8AD XV02.03UA**

Dear Mr. Krause:

The Air Resources Board's (ARB) Engineering Studies Branch has received the OBD II system description submitted by VW for the 2008 model year test group listed above. Representations made in the application indicate that the system is compliant with the OBD II regulation. Therefore, ARB approves the 2008 model year system with no deficiencies. However, the staff does have concerns regarding front oxygen sensor monitoring which are discussed below.

### Oxygen Sensor Monitoring Concern

ARB staff has recently identified some issues regarding VW's front oxygen sensor monitor. VW has investigated these issues and has identified resolutions as presented to ARB on January 30, 2008. ARB approval of the test groups above is contingent upon VW implementing the resolutions as outlined in the presentation. Staff does remain concerned that, even with the implementation of these resolutions, the in use monitoring performance data reported to a scan tool for the front oxygen sensor monitor will not properly reflect the actual capability to detect in use malfunctions. With the proposed strategy, there is a single numerator tracked and reported for the front oxygen sensor. The numerator will only be incremented when all oxygen sensor diagnostics are executed on the same driving cycle instead of separately tracking numerators for each of the various diagnostics and only reporting data for the diagnostic with the lowest ratio as required by the regulation. As a result, the reported ratio may be lower than the actual monitoring frequency. However, staff has reviewed data indicating the test

*The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website: <http://www.arb.ca.gov>.*

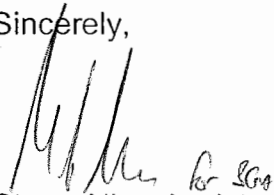
California Environmental Protection Agency

Mr. Krause  
Page 2 of 2  
February 22, 2008

groups above have in-use frequencies well above the required minimum ratios and expects that, even with the incorrect incrementing strategy, the reported data will exceed the minimum ratio. Accordingly, VW is not assessed a deficiency for the incorrect incrementing but is required to address this concern for future model years.

Should you have questions or comments regarding this letter, please have your staff contact Mr. Peter Ho at (626) 459-4392.

Sincerely,

A handwritten signature in black ink, appearing to read "Steve Albu". The signature is stylized and somewhat cursive.

Steve Albu, Assistant Chief  
Mobile Source Control Division

cc: Mr. Peter Ho  
Engineering Evaluation Section

<b>Section 16.13</b>	<b>Confidential Information</b>	<b>Engine Code</b>	<b>R.CH-No.:</b>	<b>Revision Date</b>
Test Group	AVWXV02.03UA	all		

**16.13 Projected Sales**

**Volkswagen**

	<b>2,0 R4 DFI/TC/CA C</b>	<b>2,0 R4 DFI/TC/CAC</b>	<b>2,0 R4 DFI/TC/CAC</b>	<b>2,0 R4 DFI/TC/CAC</b>	engine
	<b>Passat</b>	<b>Passat Wagon</b>	<b>CC</b>	<b>Eos</b>	model designation
	<b>Passat</b>	<b>Passat Wagon</b>	<b>CC</b>	<b>Eos</b>	carline
Job 1 Date	<b>may 09 wk 22/2009</b>	<b>may 09 wk 22/2009</b>	<b>may 09 wk 22/2009</b>	<b>may 09 wk 22/2009</b>	
Introduction Date	<b>june 09</b>	<b>june 09</b>	<b>june 09</b>	<b>june 09</b>	

**Projected Sales by Carline, Test Weight and Transmission Configuration**

<b>Trans. Config.</b>	<b>Carline</b>	<b>Test Weight (lbs.)</b>	<b>CA Sales Area</b>	<b>Federal Sales Area</b>	<b>Sect. 177 States</b>	<b>Total U.S. Sales</b>
L6 FWD	EOS	<b>3875</b>		459		792
M6 FWD	EOS	<b>3750</b>		4588		7128
L6 FWD	Passat CC	<b>3750</b>		6479		7818
L6 FWD	Passat sedan	<b>3625</b>		2383		3082
L6 FWD	Passat wagon	<b>3750</b>		967		1360
	<b>Totals</b>			<b>16037</b>		<b>21840</b>



Volkswagen AG, a member of the Volkswagen Group

## Application for Emissions Certification Part 2 2010 Model Year

**Durability Group:** AVWXGPGNN3UA

**Evap. Families:** AVWXR0110238  
AVWXR0125246

**Test Group:** AVWXV02.03UA

**Certificate Numbers:** AVWXV02.03UA-005  
AVWXV02.03UA-006

**Durability Group Description:** Four Stroke, Otto Cycle, Gasoline Fueled,  
Turbo charged, Charge air cooled  
Direct Fuel Injection, Catalyst Code: REX 1662

**Test group Description:** 2.0 Liter I4 – LDV

**Applicable Standards:** Federal: Tier 2 BIN 5

**Carlines Covered:** Volkswagen Eos  
Volkswagen Passat, Passat Wagon, CC

Issue Date: 12-02-2009

**For Questions, Contact:**

Robert Hart, (248) 754-4224  
Dennis Reineke, (248) 754-4215


## Table of Contents – Part 2

Section 21	Vehicle Emission Control Information (Tune-Up)	
-	Part Numbers	
Section 22	Calibration Information	
-		
Section 23	Vehicle Description	- see Test Group Sections
-		
Section 24	Final US Sales	- see Common Sections
-		
Section 25	Service Manuals, Service Bulletins,	Information provided directly at the time of distribution to the dealers.
-		
	Owners Manuals and Warranty Booklets	Provided under separate cover.


Section 21	Pg. 1	Other Information	Engine Code:	R.CH-No.:	Revision Date:
Part 2	Test Group:	AVWXV02.03UA	all		

21.01 Vehicle Emission Control Information Labels

**LABEL VW Passat**

 <b>VOLKSWAGEN</b> VEHICLE EMISSION CONTROL INFORMATION	
Conforms to regulations: <u>2010 MY</u>	
U.S. EPA: <u>T2B5 LDV</u>	OBD: <u>F II</u> Fuel: <u>Gasoline</u>
California: <u>Not for sale in states with California emissions standards</u>	OBD: <u>N/A</u> Fuel: <u>N/A</u>
No adjustments needed.	DFI/TWC(2)/HO2S(2)/CAC/TC
Group: AVWXV02.03UA Evap: AVWXR0125246	3C0 010 722 G

**LABEL VW EOS**

 <b>VOLKSWAGEN</b> VEHICLE EMISSION CONTROL INFORMATION	
Conforms to regulations: <u>2010 MY</u>	
U.S. EPA: <u>T2B5 LDV</u>	OBD: <u>F II</u> Fuel: <u>Gasoline</u>
California: <u>Not for sale in states with California emissions standards</u>	OBD: <u>N/A</u> Fuel: <u>N/A</u>
No adjustments needed.	DFI/TWC(2)/HO2S(2)/CAC/TC
Group: AVWXV02.03UA Evap: AVWXR0110238	1K0 010 716 R



<b>Section 21</b>	<b>Pg. 2</b>	<b>Other Information</b>	<b>Engine Code:</b>	<b>R.CH-No.:</b>	<b>Revision Date:</b>
<b>Part 2</b>	<b>Test Group:</b>	<b>AVWXV02.03UA</b>	<b>all</b>		

## Production Engine Parameters

### 21.02 Parts List

<b>Part</b>	<b>Part Number</b>
emission control label EOS (my 2010)	<b>1K0 010 716 R</b> <b>1K0 010 704 D</b>
emission control label Passat (my 2010)	<b>3C0 010 722 G</b> <b>3C0 010 704 G</b>
intake air cleaner (assembly)	<b>1K0 129 601 CD</b>
intake manifold	<b>06J 145 713 A</b>
altern.	<b>06J 145 713 D</b>
Turbocharger assembly	<b>06J 145 713 A</b>
add.	<b>06J 145 713 D</b>
charge Air Cooler Passat	<b>3C0 145 805 R</b>
charge Air Cooler EOS	<b>1K0 145 803 S</b>
charge over valve	<b>06F 906 283 F</b>
engine temperature sensor ntc	<b>06A 919 501 A</b>
engine thermostat	<b>06F 121 111 J</b>
Intake air temperature sensor	<b>06B 905 379 D</b>
mass air flow sensor (intake air sens. incl.)	<b>06J 906 461 B</b>
Intake air pressure sensor	<b>038 906 051 D</b>
engine speed sensor	<b>06H 906 433</b>
fuel pressure sensor (high pressure)	<b>06J 906 051 B</b>
injection valves	<b>06H 906 036 Q</b>

<b>Section 21</b>	<b>Pg. 3</b>	<b>Other Information</b>	<b>Engine Code:</b>	<b>R.CH-No.:</b>	<b>Revision Date:</b>
<b>Part 2</b>	<b>Test Group: AVWXV02.03UA</b>		<b>all</b>		

## Production Engine Parameters

### 21.02 Parts List (cont.)

<b>Part</b>	<b>Part Number</b>
throttle part and idle control valve	<b>06F 133 062 J</b>
ignition Coil	<b>06H 905 115</b>
knock Sensor	<b>06E 905 377 A</b>
camshaft position sensor	<b>07L 905 163 A</b>
camshaft Adjuster	<b>06H 109 088 C</b>
camshaft adjuster control valve	<b>07L 905 163 A</b>
crankcase ventilation valve	<b>06H 103 495 A</b>
altern.	<b>06H 103 495 E</b>
EVAP purge valve	<b>06H 906 517 H</b>
EVAP carbon canister      Passat	<b>3C0 201 797 D</b>
EVAP carbon canister      EOS	<b>1K0 201 797 G</b>
catalytic converter	<b>1K0 131 701 BK</b>
warm up catalytic converter	<b>1K0 131 690 CR</b>
front oxygen sensor      Passat	<b>06J 906 262 AC</b>
rear oxygen sensor      Passat	<b>06F 906 262 AE</b>
front oxygen sensor      EOS	<b>06J 906 262</b>
rear oxygen sensor      EOS	<b>06F 906 262 K</b>



Section 21	Pg. 5	Other Information	Engine Code:	R.CH-No.:	Revision Date:
Part 2	Test Group:	AVWXV02.03UA	all	RF_AV2.03UA_04_09	

Production Engine Parameters

21.04 Automatic Transmission Control Module

Transmission Control Module

CARLINE	ENGINE CODE	TRANSM. CODE / Drive	Cal-ID		CVN calibration verification no	REMARKS
			PART NUMBER	SOFTWARE LEVEL		
Passat Passat wagon Passat CC	CCTA	DQ250-6F FWD	02E 300 051 P	1909	052d	SOP
			02E 300 051 P	1912	c9 87	week 45 till 48 intermediate spare part solution
			02E 300 053 A	2101	75d7	RF_AV2.03UA_03_09
			02E 300 053 A	2106	80dc	RF_AV2.03UA_03_09

Transmission Control Module

CARLINE	ENGINE CODE	TRANSM. CODE / Drive	Cal-ID		CVN calibration verification no	REMARKS
			PART NUMBER	SOFTWARE LEVEL		
EOS	CCTA	DQ250-6F FWD	02E 300 051 P	1907	2128	SOP
			02E 300 051 P	1909	052d	RF_AV2.03UA_04_09
			02E 300 051 P	1912	C987	RF_AV2.03UA_04_09
			02E 300 051 P	1940	ffbb	FF_AV2.03UA_01_09

Section 22	Pg. 1	Other Information	Engine Code:	R.CH-No.:	Revision Date:
Part 2	Test Group:	AVWXV02.03UA	all		

## 22.00 Calibration Information

Emission Component	Parameter	Calibration	Engine Code
			<b>CCTA</b>
fuel system		refer to page 22.01	
fuel pressure regulator	fuel pressure high	50 – 150 bar	
	fuel pressure low	4.5 – 6.8 bar	
AIR system		not applicable	
EGR system		not applicable	
ignition system		refer to page 22.03	
EVAP system		refer to page 22.04	
miscellaneous			
Thermostat	starts to open	95 °C	
	fully open by	105 °C	

<b>Section 22</b>	<b>Pg. 2</b>	<b>Other Information</b>	<b>Engine Code:</b>	<b>R.CH-No.:</b>	<b>Revision Date:</b>
<b>Part 2</b>	<b>Test Group:</b>	<b>AVWXV02.03UA</b>	<b>all</b>		

**22.01 Calibration Information fuel system**

The motor management system controls lambda as a function of engine speed and engine load and various input signals to the ECM (please refer to sect. 16.09). The basic calibrations are related to the CAL ID and CVN of the ECM.

**22.02 Calibration Information EGR system**

not applicable

**22.03 Calibration Information ignition system**

The motor management system determines the ignition timing as a function of engine speed and engine load. The basic calibrations are related to the CAL ID and CVN of the ECM.

**22.04 Calibration Information EVAP system**

The motor management system calculates the actual purge rate as a function of engine speed, engine load, intake manifold pressure, ambient pressure and canister loading value. The basic calibrations are related to the CAL ID and CVN of the ECM.