

G - TESTS W/CODES

Article Text

1993 Volkswagen Corrado

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Wednesday, March 22, 2000 09:11PM

ARTICLE BEGINNING

1993 ENGINE PERFORMANCE
Volkswagen Self-Diagnostics

Corrado SLC

INTRODUCTION

If no faults were found while performing preliminary inspection procedures, proceed with self-diagnostics. If no fault codes or only pass codes are present after entering self-diagnostics, proceed to H - TESTS W/O CODES article for diagnosis by symptom (i.e., ROUGH IDLE, NO START, etc.).

NOTE: Scan Tester (VAG 1551) must be used to make full use of the self-diagnostic system capabilities.

SELF-DIAGNOSTIC SYSTEM DESCRIPTION

Hard Failures

Hard failures of monitored sensors and/or components, cause Malfunction Indicator Light (MIL) to come on and remain on until problem is repaired. If malfunction indicator CHECK ENGINE light comes on and remains on during vehicle operation, cause of malfunction must be determined.

If malfunctions are present for more than 5 seconds, they are stored as Diagnostic Trouble Codes (DTCs) and will be displayed as a permanent malfunction even though the malfunction is not occurring at the time DTCs are displayed. Malfunctions that affect oxygen sensor control can only be read accurately after a test drive of at least 5 minutes.

Intermittent Failures

If a malfunction occurs for a maximum of 5 seconds, they are stored and considered to be "sporadic" (intermittent failures). When displayed on scan tester, malfunctions will have "SP" (sporadic) code.

RETRIEVING CODES

NOTE: See ENTERING SELF-DIAGNOSTICS for additional scan tester operating instructions.

Corrado SLC

1) Turn ignition on. Connect Jumper Cable (357 971 514E) to Data Link Connectors (DLC) located in center console. See Fig. 1. Black end of jumper cable attaches to Black data link connector; White end of cable attaches to White connector.

2) Leave jumper cable attached for 5 seconds, until on-board diagnostic CHECK ENGINE light begins to blink. Remove jumper cable. Allow on-board diagnostic code retrieval procedure to run until Code

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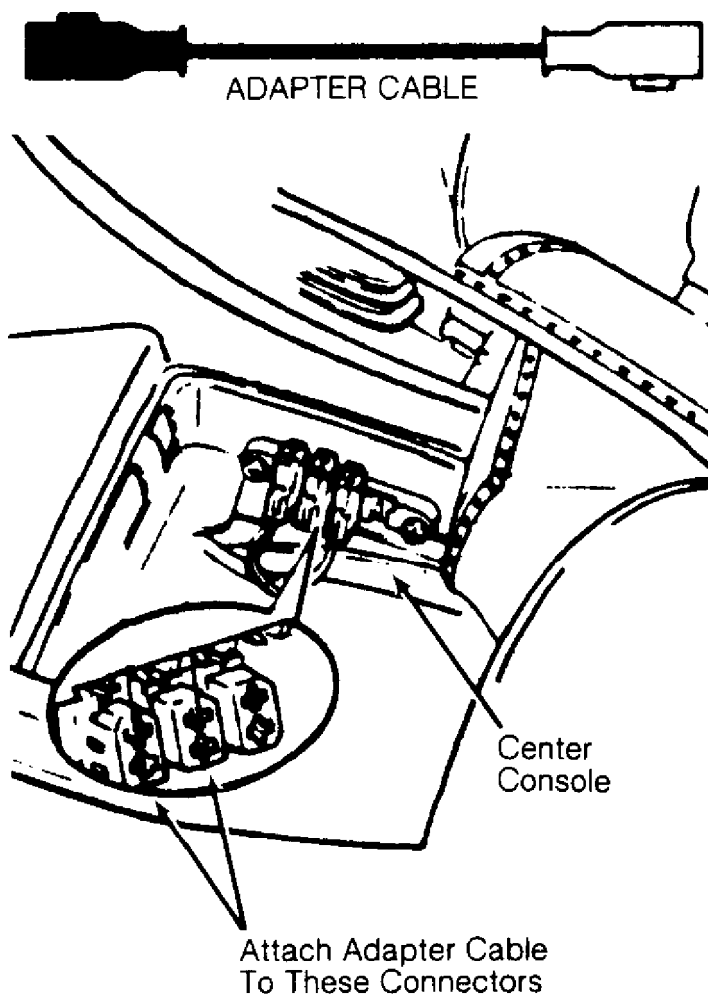
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4444 (no faults indicated) or Code 0000 (end of output) appears. To end code retrieval procedure, reconnect jumper cable to data link connectors or turn ignition off.

3) To erase fault codes, turn ignition off. Connect jumper cable and turn ignition on. Leave jumper cable attached for 5 seconds, until CHECK ENGINE light begins to blink.

4) When light displays code 4444 (no faults indicated), reconnect jumper cable to data link connectors or turn ignition off to end code clearing procedure. Fault memory is now erased.



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Fig. 1: Retrieving Fault Codes (Typical)
Courtesy of Volkswagen United States, Inc.

ECM LOCATION

ECU/ECM LOCATION

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Application

Location

Corrado Below fresh air intake on firewall

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TROUBLE CODE IDENTIFICATION

TROUBLE CODE IDENTIFICATION (CORRADO SLC) (1)

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DTC (2) (Blink) Code	System/ Affected Circuit	Possible Cause/Repair
00281 (1231)	Vehicle Speed Sensor	Open Ckt (No Signal From Speedometer)
00513 (2111)	Engine Speed Sensor	Open Ckt Or Loose Or Faulty Sensor
00515 (2113)	Hall Effect Sensor	Open/Short Ckt To Ground Or Battery Voltage
00518 (2212) ...	Throttle Valve Potentiometer ..	Open/Short Ckt To Ground Or Battery Voltage
00522 (2312)	Coolant Temp. Sensor	Open/Short Ckt To Ground Or Battery Voltage
00524 (2142)	Knock Sensor I	Open Ckt Or Short Ckt To Battery Voltage
00525 (2342)	Oxygen (O2) Sensor	Open/Short Ckt To Ground Or Battery Voltage
00527 (2412)	Intake Air Temp. Sensor	Open/Short Ckt To Ground Or Battery Voltage
00532 (2234)	Supply Voltage	Battery Voltage Less Than 10.0 Volts Or More Than 16.0 Volts
00533 (2231) ..	Idle (IAC Valve) Regulation ..	Intake System Leaks Or IAC Valve Stuck Or Dirty
00535 (2141)	Knock Sensor (Primary)	Defective Knock Sensor In ECM (Replace ECM)
00537 (2341) ..	Oxygen (O2) Sensor Regulation ...	(3) Control Limit Exceeded Or Not Reached
00540 (2144)	Knock Sensor II	Open/Short Ckt (No Signal to ECM)
00543 (2214)	Maximum RPM Exceeded ..	RPM Signal Interference; Engine RPM Exceeded Cut-Off Point
00545 (2314) ...	Engine/Transmission Signal ..	Short Ckt To Ground
00553 (2324)	Mass Airflow Sensor	Short Ckt To Ground Or Battery Voltage
00561 (2313) ...	Fuel Mixture Adaptation	(4) Control Limit Not Reached Or

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				Exceeded
00585 (2411)	...	EGR Temperature Sensor	Short Ckt To Ground Or Faulty Sensor
00586 (----)	.....	EGR Control	.....	EGR Valve Sticking Open
01025 (----)	..	Malfunction Indicator Light	....	Open/Short Ckt To Ground Or Battery Voltage
01242 (4332)	.....	ECM Output Stage	.....	Faulty Ckt To Output Check Controlled Components
01247 (4343)	...	EVAP Frequency Solenoid	.....	Open/Short Ckt To Ground Or Battery Voltage
01249 (4411)	.....	Injector No. 1	.....	Open/Short Ckt To Ground Or Battery Voltage
01250 (4412)	.....	Injector No. 2	.....	Open/Short Ckt To Ground Or Battery Voltage
01251 (4413)	.....	Injector No. 3	.....	Open/Short Ckt To Ground Or Battery Voltage
01252 (4414)	.....	Injector No. 4	.....	Open/Short Ckt To Ground Or Battery Voltage
01253 (4415)	.....	Injector No. 5	.....	Open/Short Ckt To Ground Or Battery Voltage
01254 (4422)	.....	Injector No. 6	.....	Open/Short Ckt To Ground Or Battery Voltage
01257 (4431)	..	Idle Air Control (IAC) Valve	...	Open/Short Ckt To Ground Or Battery Voltage
01259 (4433)	.....	Fuel Pump Relay	.....	Open Ckt Or Short Ckt To Battery Voltage
01265 (4312)	..	EGR Frequency (2-Way) Valve	....	Open/Short Ckt To Ground Or Battery Voltage
65535 (1111)	...	Electronic Control Module	....	Replace Faulty ECM

- (1) - For testing information, see J - PIN VOLTAGE CHARTS article.
- (2) - Blink code is 4-digit malfunction indicator CHECK ENGINE light code.
- (3) - Check intake and exhaust systems for leaks. Check for too low or too high a fuel pressure. Also check for malfunctioning fuel injectors or engine misfire.
- (4) - Check intake and exhaust systems for leaks. Check for mass airflow sensor hot wire not burning off cleanly. Check for faulty oxygen sensor control and for EVAP frequency solenoid sticking open. Also check for malfunctioning fuel injectors or engine misfire.

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ENTERING SELF-DIAGNOSTICS

VAG ON-BOARD DIAGNOSTICS

NOTE: If VAG SELF-DIAGNOSIS (VAG ON-BOARD DIAGNOSTIC) display does not appear on scan tester, check DLC terminals for battery voltage and ground. Upper terminal should have battery voltage, bottom terminals serve as ground.

Corrado SLC

1) Ensure battery voltage and fuses No. 18 and 22 are okay. Ensure engine ground connections at cylinder head cover and at manifold are okay.

2) Connect Scan Tester (VAG 1551) to Data Link Connectors (DLC) located in center console, in front of shift lever. Attach Black connector first, wait for VAG ON-BOARD DIAGNOSTIC display, then connect White connector. DO NOT connect scan tester Blue connector.

3) Turn ignition on or start engine depending on function being selected. See appropriate SELECTABLE FUNCTIONS table. Press "1" button to select RAPID DATA TRANSFER function.

4) Press "0" and "1" buttons to select ENGINE ELECTRONICS function. Press "Q" button to enter input. Electronic Control Module (ECM) identification will be displayed on scan tester.

5) If CONTROL MODULE DOES NOT ANSWER message is displayed, press HELP button to print a list of possible causes. With scan tester in RAPID DATA TRANSFER function, press right arrow button. Press "02" to "08" buttons to select desired function. Press "Q" button to enter input.

SELECTABLE FUNCTIONS (CORRADO SLC) (1)

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Function	Ignition On	Engine On
02 (Read DTC/Fault Memory)	X
03 (Output Check/ 03 Diagnostic Test Mode) X
04 (Start Basic Setting)	..... .....	X
05 (Erase DTC/Fault Memory)	.. .....	X
06 (End Output)	..... X	X
08 (Read Measuring Value Block)	X	X

(1) - Press HELP button at any time to obtain additional scan tester operating instructions.

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OUTPUT CHECK DIAGNOSIS (OUTPUT DIAGNOSTIC TEST MODE)

NOTE: See ENTERING SELF-DIAGNOSTICS for additional scan tester operating instructions.

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Corrado SLC (2.8L)

1) Connect Scan Tester (VAG 1551) to Data Link Connectors (DLC) located in center console, in front of shift lever. With scan tester in OUTPUT DIAGNOSTIC TEST MODE, the injectors, Idle Air Control (IAC) valve, evaporative frequency (solenoid) valve, oxygen sensor relay, and EGR frequency valve (if equipped) may be actuated in sequence listed.

2) The injector(s) must click by opening and closing throttle. To trigger injectors 2 through 6, open and close throttle once for each injector. If injector(s) do(es) not click, test circuit(s) using the J - PIN VOLTAGE CHARTS article.

3) If injectors are okay, switch to next output test by pressing the right arrow button. Press right arrow button to actuate IAC valve. IAC valve must pulsate noticeably until switched to next output test by pressing the right arrow button.

4) If IAC valve does not pulsate, turn ignition off. Disconnect IAC valve and connect LED Tester (US 1115) to IAC valve wiring harness connector using jumper wires from Adapter Kit (VW 1594).

5) Turn ignition on and repeat IAC valve output test. If LED blinks, replace IAC valve. If LED does not blink, test circuit using the J - PIN VOLTAGE CHARTS article in this section. If IAC and circuit are okay, replace ECM.

6) If IAC valve pulsates properly, locate evaporative frequency solenoid valve (located behind air cleaner housing, on wheelwell). Disconnect hose, coming from fuel vapor canister, from frequency solenoid. Attach auxiliary hose to solenoid.

7) Blow into auxiliary hose, in direction of throttle housing, while performing solenoid output test (pressing right arrow button to actuate evaporative frequency solenoid). If solenoid does not actuate (open and close), disconnect wiring harness from solenoid. Connect LED tester to solenoid wiring harness connector using jumper wires from adapter kit.

8) Repeat evaporative solenoid valve output test. If LED blinks, replace evaporative frequency solenoid valve. If LED does not blink, test circuit using the J - PIN VOLTAGE CHARTS article. If evaporative solenoid valve and circuit are okay, replace ECM.

9) If evaporative frequency solenoid operates properly, press right arrow button to actuate oxygen sensor relay (mounted on fuse/relay panel with a clip). If relay does not click, test relay and its circuit using the J - PIN VOLTAGE CHARTS article.

10) If relay operates properly, press right arrow button to actuate EGR frequency valve. Frequency valve must click until test mode is switched to next output test by pressing the right arrow button.

11) If frequency valve does not click, disconnect valve. Connect LED tester using jumper wires from Adapter Kit (VAG 1594) to frequency valve wiring harness connector.

12) If LED blinks, replace EGR frequency valve. If LED does not blink, test circuit using the J - PIN VOLTAGE CHARTS article. If EGR frequency valve and circuit are okay, replace ECM.

13) If EGR frequency valve operates properly, press right

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arrow button twice to select END OUTPUT function on scan tester. Press "Q" to enter input. Turn ignition off. Disconnect scan tester.

READ MEASUREMENT & READ MEASURING (TEST) VALUE BLOCK

NOTE: See ENTERING SELF-DIAGNOSTICS for additional scan tester operating instructions.

Corrado SLC (2.8L)

1) Connect Scan Tester (VAG 1551) to Data Link Connectors (DLC) located in center console, in front of shift lever. With scan tester in READ MEASURING VALUE BLOCK function, press "01" to "06" buttons to select desired display group. See appropriate DISPLAY GROUP table.

2) When display group is selected, only the second number is shown on display (the zero does not appear on display). With READ MEASUREMENT BLOCK function completed, select END OUTPUT function on scan tester. Turn ignition off. Disconnect scan tester.

DISPLAY GROUP (CORRADO SLC)

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Display Group Number & Channel Number	Display Parameters
--	-----------------------

01	
1 Engine Speed
2	..... Engine Coolant Temperature
3	..... Oxygen Sensor Signal
4	..... Ignition Timing

02	
1	..... Engine Speed
2	..... Injection Time
3	..... System Voltage
4	..... EGR Temperature (If Applicable)

03	
1	..... Engine Speed
2	..... Engine Load
3	..... Throttle Angle
4	..... Intake Air Temperature (At Manifold)

04	
1	..... Engine Speed
2	..... Engine Load
3	..... Vehicle Speed
4	..... Switch Positions (Operating Status)

05	
1	..... Engine Speed
2	..... Idle Air Control (IAC) Valve
3	..... IAC Duty Cycle
4 Switch Positions (A/C & Auto. Trans.)

06	
1 Oxygen Sensor Signal
2 Oxygen Sensor Adaptive Learning (Idle)

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3 .. Oxygen Sensor Adaptive Learning (Part Throttle)

4 .. Oxygen Sensor Adaptive Learning (Full Throttle)

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CLEARING CODES

See RETRIEVING CODES.

ECM LOCATION

ECU/ECM LOCATION

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Application

Location

Corrado Below fresh air intake on firewall

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SUMMARY

If no hard fault codes (only "sporadic" codes) are present, driveability symptoms exist or intermittent codes exist, proceed to the H - TESTS W/O CODES article for diagnosis by symptom (i.e., ROUGH IDLE, NO START, etc.) or intermittent diagnostic procedures.

END OF ARTICLE