

D - ADJUSTMENTS

Article Text

1996 Volkswagen Golf
For Volkswagen Technical Site
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Thursday, August 19, 1999 11:36PM

ARTICLE BEGINNING

1996 ENGINE PERFORMANCE

Volkswagen On-Vehicle Adjustments

Cabrio, Golf III, GTI, Jetta III, Passat

ENGINE MECHANICAL

Before performing any on-vehicle adjustments to fuel or ignition systems, ensure engine mechanical condition is okay.

VALVE CLEARANCE

NOTE: All models use hydraulic lifters. No adjustments are required.

IGNITION TIMING

4-CYLINDER (2.0L) IGNITION TIMING

1) Start and warm engine to normal operating temperature. Ensure engine oil temperature is 176°F (80°C). Ensure A/C and electrical loads are off, including radiator cooling fan. Connect Engine Analyzer (VAG 1367) to engine.

2) Connect Scan Tester (VAG 1551) to Data Link Connectors (DLC), located under A/C-heater system control panel. Ensure no Diagnostic Trouble Codes (DTC) are stored. Ensure throttle cable is properly adjusted. Ensure exhaust system has no leaks.

3) Start engine and let it run for 2 minutes at closed throttle. Operate scan tester and observe display. Press "1" button to select RAPID DATA TRANSFER function. Press "0" and "1" buttons to select ENGINE ELECTRONICS function. Press "Q" button to enter input.

4) Press right arrow button, then "0" and "4" buttons to select BASIC SETTING function. The Engine Control Module (ECM) should control idle speed and close fuel evaporative frequency valve.

5) Press "0" and "1" buttons to select DISPLAY GROUP NUMBER 1 input. Press "Q" button to enter input. Scan tester displays idle speed in field one, oxygen sensor factor (fluctuating 0.75-1.25) in field three, and ignition timing in field four.

6) When radiator cooling fan stops running, end BASIC SETTING function by pressing right arrow button. Press "0" and "6" for END OUTPUT function. Press "Q" button to enter input.

7) If idle speed, CO level or ignition timing is incorrect, turn ignition off. Check accelerator pedal and throttle cable for ease of operation. Disconnect ECM and reconnect. Test drive vehicle and check for DTCs. Repeat engine basic setting function.

VR6 (2.8L) IGNITION TIMING

1) Start and warm engine to normal operating temperature.

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Ensure engine oil temperature is at least 176°F (80°C). Ensure A/C and electrical loads are off, including cooling fan.

2) Ensure no Diagnostic Trouble Codes (DTC) are stored.

Ensure throttle cable and closed throttle position switch are properly adjusted. Ensure idle air control valve is okay. Valve must vibrate or hum. Ensure exhaust system has no leaks.

3) Disconnect Blue Engine Coolant Temperature (ECT) sensor wiring harness connector. Start engine and allow to idle. With timing light connected, check ignition timing. Timing mark is on flywheel. Timing pointer is on timing hole on transaxle bellhousing.

4) If necessary, loosen distributor hold-down. Adjust ignition timing to 5-7 BTDC by rotating distributor. Ensure radiator cooling fan is not running during adjustment. Check and adjust idle speed if necessary. See IDLE SPEED & MIXTURE.

5) After adjustment, tighten distributor hold-down. To check ignition timing advance, ensure ignition timing is correctly set. Increase engine speed to about 4500 RPM. See VR6 (2.8L) IGNITION TIMING ADVANCE table.

VR6 (2.8L) IGNITION TIMING ADVANCE TABLE (Degrees BTDC @ RPM)

Application Specification

All Models (1) 27-33 @ 4500

(1) - Vehicle not in BASIC ADJUSTMENT mode, engine oil temperature at 176°F (80°C), and Blue engine coolant temperature sensor connected.

IDLE SPEED & MIXTURE

NOTE: Idle mixture is computer controlled and is not adjustable.

NOTE: Ensure fuel system pressure is correct before attempting idle speed adjustment.

4-CYLINDER IDLE SPEED ADJUSTMENT

See 4-CYLINDER (2.0L) IGNITION TIMING under IGNITION TIMING.

VR6 IDLE SPEED ADJUSTMENT

Idle speed and mixture are not adjustable. If idle speed and/or air mixture is incorrect, check for vacuum leaks. If no vacuum leaks are present, check dashpot adjustment, ERG valve, IAC valve and TP sensor. Repair or replace if necessary.

THROTTLE BODY

If stop screw for basic throttle adjustment has been moved,

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replace throttle body.

DASHPOT

2. 8L

Open and close throttle until dashpot piston contacts roller. With throttle in this position, check gap between limiter (stop) screw and throttle. Gap between limiter (stop) screw and throttle lever must be 0.10-0.14" (2.5-3.5 mm).

THROTTLE POSITION (TP) SENSOR

THROTTLE POSITION (TP) SENSOR ADJUSTMENT

1. 9L

1) Connect Scan Tester (VAG 1551) to Data Link Connector (DLC), located under tachometer. Turn ignition on. Operate scan tester and select RAPID DATA TRANSFER, ENGINE ELECTRONICS, then READ TEST VALUE BLOCK functions.

2) Press "0" and "8" buttons to select READ MEASURING VALUE BLOCK function. Press "Q" button to enter input. Press "0" and "2" buttons to select DISPLAY GROUP NUMBER 02 function. Press "Q" button to enter input.

3) DO NOT press accelerator pedal. Check TP display in 2 channel. Reading should be 0.0. Slowly open throttle, while observing display in channel 2, until throttle is wide open. Reading on display must increase uniformly from 0.0 at closed throttle to 100 at wide open throttle, without interruption.

4) If readings are correct, press right arrow button. Press "0" and "6" to select ENDING OUTPUT function. Press "Q" button to enter input. If readings are incorrect, adjust accelerator pedal by turning accelerator pedal adjustment screw. Retest TP sensor. If readings are not corrected by adjustment, check TP sensor circuit or replace TP sensor as necessary.

2. 0L

1) Connect Scan Tester (VAG 1551) to Data Link Connector (DLC), located under A/C-heater system control panel. Using scan tester, enter READ BLOCK MEASUREMENT function mode. See appropriate articles;

For Diesel see G - TESTS W/CODES,

For Gasoline see G - TESTS W/CODES.

2) Slowly open throttle, while observing display in field 3, until throttle is wide open. Numerical value must increase uniformly over entire throttle opening range and without interruption.

3) If reading is correct, press right arrow button. Press "0" and "6" to select END OUTPUT function. Press "Q" button to enter input. If reading is incorrect, repair TP sensor or circuit as necessary.

2. 8L

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1) Connect Scan Tester (VAG 1551) to Data Link Connectors (DLC), located in center console, in front of shift lever. Turn ignition on. Operate scan tester and select **RAPID DATA TRANSFER**, **ENGINE ELECTRONICS**, then **READ TEST VALUE BLOCK** functions.

2) Press "0" and "3" buttons to select **INSERT DISPLAY GROUP NUMBER 03** function. Press "Q" button to enter input. Slowly open throttle, while observing display in channel 3, until throttle is wide open. Numerical value must increase uniformly over entire throttle opening range, without interruption.

3) Reading should be 5-19 at idle. Reading should be 94-100 at full throttle stop. If readings are correct, press right arrow button. Press "0" and "6" to select **ENDING OUTPUT** function. Press "Q" button to enter input. If readings are incorrect, check TP sensor circuit or replace TP sensor as necessary.

END OF ARTICLE