

D - ADJUSTMENTS
Article Text
1993 Volkswagen EuroVan
For Volkswagen Technical Site
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Saturday, March 18, 2000 10:31PM

ARTICLE BEGINNING

1993 ENGINE PERFORMANCE
On-Vehicle Adjustments

EuroVan

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

NOTE: See ENTERING SELF-DIAGNOSTICS in the G - TESTS W/CODES article in this section for additional scan tester operating instructions.

5-CYLINDER IGNITION TIMING

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

2) Remove splash shield from distributor. Connect Engine Analyzer (VAG 1367) and Inductive Pick-Up (VAG 1367/8) to engine. Connect Scan Tester (VAG 1551) to Data Link Connectors (DLC) located in fold-down storage shelf in front of relay panel.

3) 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.

NOTE: Some EuroVan engines require the use of TDC sensor and Adapter (VAG 1367/9). On engines having crankshaft position sensor, Ignition Tester (VAG 1367) and Adapter (VAG 1367/9) can be connected to these engines without removing distributor cap.

4) Start engine and let it run at closed throttle (less than 1500 RPM). Operate scan tester and observe display. Press "1" button to select RAPID DATA TRANSFER function.

5) Press "0" and "1" buttons to select ENGINE ELECTRONICS function. Press "Q" button to enter input. Press right arrow button, then "0" and "4" buttons to select BASIC ADJUSTMENT function. The Engine Control Module (ECM) should control idle speed.

6) Press "0" button TWICE to select INDICATOR GROUP NUMBER

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input. Press "Q" button to enter input. Scan tester will display SYSTEM IN BASIC ADJUSTMENT 1 through 10 or FUNCTION UNKNOWN/OR CANNOT BE CONDUCTED AT THIS TIME.

7) If the latter is displayed, ensure coolant temperature is 185°F (85°C). Check for idle speed in excess of 1500 RPM. Basic adjustment function using scan tester is not possible. Correct condition(s) as necessary.

8) If scan tester enters basic adjustment function, disconnect Blue Engine Coolant Temperature (ECT) sensor. Check ignition timing. Timing mark is on flywheel. Timing pointer is on timing hole on transaxle bellhousing.

9) If necessary, adjust ignition timing by rotating distributor. Ensure radiator cooling fan is not running during adjustment. After adjustment, press right arrow button to end basic adjustment.

10) Using scan tester, activate and erase DTCs. This will erase stored DTC set when ECT sensor was disconnected. Check and adjust idle speed if necessary. See IDLE SPEED & MIXTURE.

11) After adjustments, press "0" and "6" buttons to select END DATA TRANSFER function. Press "Q" button to enter input. Allow engine to cool. Disconnect test equipment. Install distributor splash shield. Remove TDC sensor and adapter from bellhousing (if installed).

NOTE: To check ignition timing advance on EuroVan, ensure ignition timing is correctly set. With vehicle/scan tester NOT in basic adjustment function, increase engine speed to slightly over 2200 RPM. See IGNITION TIMING ADVANCE table.

IGNITION TIMING ADVANCE (Degrees BTDC @ RPM)

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Application	Specification
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EuroVan

California	(1) 15-38 @ 2200
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Other 49 States	(1) 26-36 @ 2200
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(1) - Vehicle NOT in BASIC ADJUSTMENT mode, engine oil temperature 176°F (80°C) and Blue engine coolant temperature sensor connected.

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IDLE SPEED & MIXTURE

NOTE: Mixture adjustment is NOT a part of normal tune-up procedure and should not be performed unless mixture control unit is replaced or vehicle fails emissions testing.

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

5-CYLINDER IDLE SPEED & MIXTURE ADJUSTMENT

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1) Adjust ignition timing. See 4-CYLINDER IGNITION TIMING under IGNITION TIMING. Connect CO tester using Adapter (VAG 1363/3) on CO tap tube. DO NOT remove oxygen sensor.

2) Disconnect crankcase breather hose from emission control valve. Position hose so that only fresh air is drawn. With engine in BASIC ADJUSTMENT function, disconnect Blue Engine Coolant Temperature (ECT) sensor.

3) Check idle speed and CO level (fuel mixture). Ensure radiator cooling fan is not running during measurement. After checking idle speed and fuel mixture, press right arrow button to end basic adjustment.

4) Using scan tester, activate and erase DTCs. This will erase stored DTC set when ECT sensor was disconnected. Press "0" and "6" buttons to select END DATA TRANSFER function. Press "Q" button to enter input. Allow engine to cool. Disconnect test equipment.

THROTTLE BODY

THROTTLE BODY ADJUSTMENT

CAUTION: Throttle limiting (stop) screw is set by manufacturer and should NOT be moved. If screw is accidentally turned, perform throttle body adjustment.

1) Turn throttle stop screw until there is a gap between stop lever and screw. Turn in stop screw until it just touches lever. Place a thin piece of paper between stop screw and lever.

2) Slide paper back and forth until resistance is felt. The stop point will become obvious. After determining stop point, turn stop screw in 1/2 turn. check dashpot, throttle position sensor, and idle speed adjustments.

AIRFLOW SENSOR

DASHPOT

Ensure THROTTLE BODY adjustment is correct. 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 0.06-0.10" (1.5-2.5 mm). If gap is not as specified, adjust dashpot.

IDLE & FULL THROTTLE SWITCHES

CLOSED THROTTLE POSITION (CTP) SWITCH ADJUSTMENT

Ensure throttle body adjustment is correct. Loosen CTP switch screws. Ensure throttle stop lever contact limiter (stop) screw. Slightly tighten CTP switch screws. Tightly press throttle lever and CTP switch. Fully tighten CTP switch screws. Open throttle and listen for click from CTP switch.

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THROTTLE POSITION (TP) SENSOR ADJUSTMENT

1) Connect Scan Tester (VAG 1551) to Data Link Connectors (DLC) located in fold-down storage shelf in front of relay panel. Turn ignition on. Operate scan tester until READ BLOCK MEASUREMENT function appears on display. See appropriate G - TESTS W/CODES article.

2) Slowly open throttle, while observing display in channel 3, until throttle is wide open. Numerical value must increase uniformly over entire opening range. Reading should be 0 or greater than zero at idle. Reading should be 80 or greater at full throttle stop.

3) If readings are correct, press right arrow button. Press "0" and "6" to select END DATA TRANSFER function. Press "Q" button to enter input. If readings are incorrect, check TP sensor circuit or replace TP sensor as necessary. After replacing TP sensor, check idle speed.

END OF ARTICLE