

N - REMOVE/INSTALL/OVERHAUL

Article Text

1989 Volkswagen Golf

For Volkswagen Technical Site

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 23, 1999 11:58PM

ARTICLE BEGINNING

1989 ENGINE PERFORMANCE

Volkswagen Removal, Overhaul & Installation

Cabriolet, Fox, Golf, Golf GT, Jetta, Vanagon

INTRODUCTION

Removal, overhaul and installation procedures (when given by manufacturer) are covered in this article. If component removal and installation is primarily an unbolt on procedure, a simple tightening specification may be all that is furnished.

AIRFLOW SENSOR PLATE

REMOVAL & INSTALLATION

1) Remove air filter and unscrew stop bracket. Using heat gun, heat locking compound on fastening bolt. Remove bolt slowly. Do not damage threads. Clean locking compound from bolt hole threads.

2) Install airflow sensor plate. Ensure 5 dimple marks are up. Lightly tighten self-locking screw. Ensure sensor plate is centered and rest position is correct. To complete installation, reverse removal procedure.

AIRFLOW SENSOR POTENTIOMETER

REMOVAL & INSTALLATION

Remove differential pressure regulator. Remove insulating compound covering mounting screws. Remove potentiometer. Do not touch or damage slide contact and conductor. To install, reverse removal procedure. Adjust potentiometer. See ON-VEHICLE ADJUSTMENTS article in this section.

IGNITION DISTRIBUTOR

REMOVAL

1. 8L

1) Turn engine crankshaft to TDC. Marking on vibration dampener pulley must align with drive belt guard pointer. Marking on cam shaft gear sprocket must align with cylinder head cover.

2) Remove distributor cap and mark position of rotor. Rotor should be pointing to No. 1 cylinder in distributor firing sequence. Mark position of distributor housing for reference to timing currently set. Remove distributor hold-down and bolt. Remove distributor assembly, noting position of rotor when distributor shaft gear is disengaged from driving gear.

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 2)

1989 Volkswagen Golf

For Volkswagen Technical Site

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 23, 1999 11:58PM

2. 1L

Turn engine crankshaft to TDC. Remove distributor cap. Rotor should point to No. 1 cylinder mark on edge of distributor housing. Index mark the current position of distributor housing to the crankcase. Remove distributor hold-down and bolt. Remove distributor assembly.

INSTALLATION

1. 8L

1) Align oil pump drive pinion lug parallel to crankshaft. Set rotor so that it is pointing toward mark made when distributor was disengaged from drive gear.

2) Install distributor. Rotor should now point to mark made for No. 1 cylinder in distributor firing sequence. Align mark for distributor housing and install distributor hold-down and bolt. Tighten hold-down bolt 18 ft. lbs. (24 N.m). Install distributor cap.

2. 1L

Align rotor of distributor to No. 1 cylinder mark on edge of distributor housing. Install distributor and align housing to index mark made on crankcase. Install distributor hold-down and bolt. Tighten hold-down bolt 18 ft. lbs. (24 N.m). Install distributor cap.

FUEL DISTRIBUTOR (1.8L ONLY)

CAUTION: Fuel system pressure must be relieved before removing or disconnecting any fuel lines. Wipe up all gasoline BEFORE continuing service.

REMOVAL

1) Disconnect battery and remove air cleaner. Disconnect all fuel and injector lines from fuel distributor. Plug fuel supply and return lines. Catch any spilled fuel.

2) Disconnect wiring from differential pressure regulator. Remove screws holding fuel distributor to airflow sensor housing. Remove fuel distributor by turning back and forth while lifting up.

OVERHAUL

Air Sensor Plate (Rest Position)

Upper edge of sensor plate must be below lower edge of sensor cone .070-.080" (1.80-2.10 mm). See Fig. 1. If rest position is incorrect, raise sensor plate. Open or close wire clip to change position of sensor plate. DO NOT bend leaf spring.

N - REMOVE/INSTALL/OVERHAUL

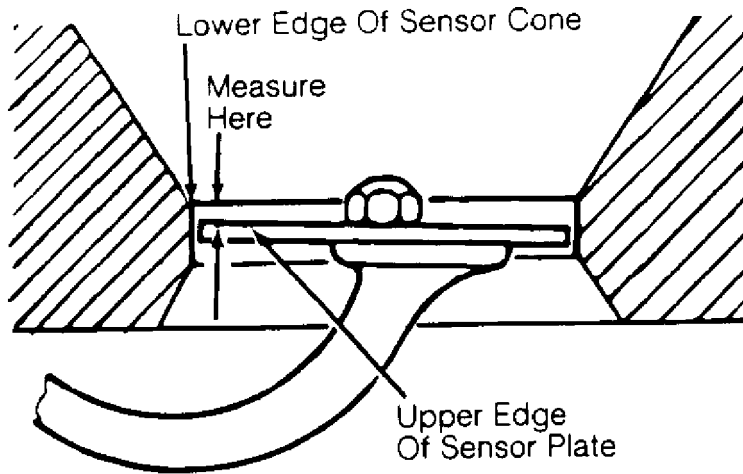
Article Text (p. 3)

1989 Volkswagen Golf

For Volkswagen Technical Site

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 23, 1999 11:58PM



121528

Fig. 1: Sensor Plate Rest Position
Courtesy of Volkswagen United States, Inc.

Centering Sensor Plate & Lever

1) Check sensor plate for centered position in airflow sensor housing. See Fig. 2. If plate binds on housing or is off-center, remove 6 mm bolt holding plate to lever. Coat bolt with locking compound and install finger tight.

2) Use Centering Gauge (US 1109) or .004" (.10 mm) feeler gauges to set plate an equal distance from sensor housing. If plate cannot be centered, remove airflow sensor housing.

3) Turn housing upside-down and remove bolt clamping counterweight to sensor lever. Coat bolt with locking compound and install finger tight. Center sensor plate lever in housing and tighten clamping bolt. Complete centering of plate.

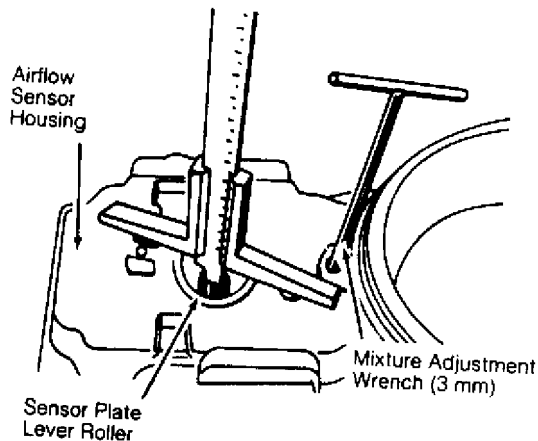


Fig. 2: Adjusting Sensor Plate Lever On Airflow Sensor Housing
Courtesy of Volkswagen United States, Inc.

Sensor Plate Free Plate

1) Free play is measured between control piston and adjusting lever. To ensure that Differential Pressure Regulator (DPR) current is 4-16 mA, position of sensor plate lever must be correct. Measure free

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 4)

1989 Volkswagen Golf

For Volkswagen Technical Site

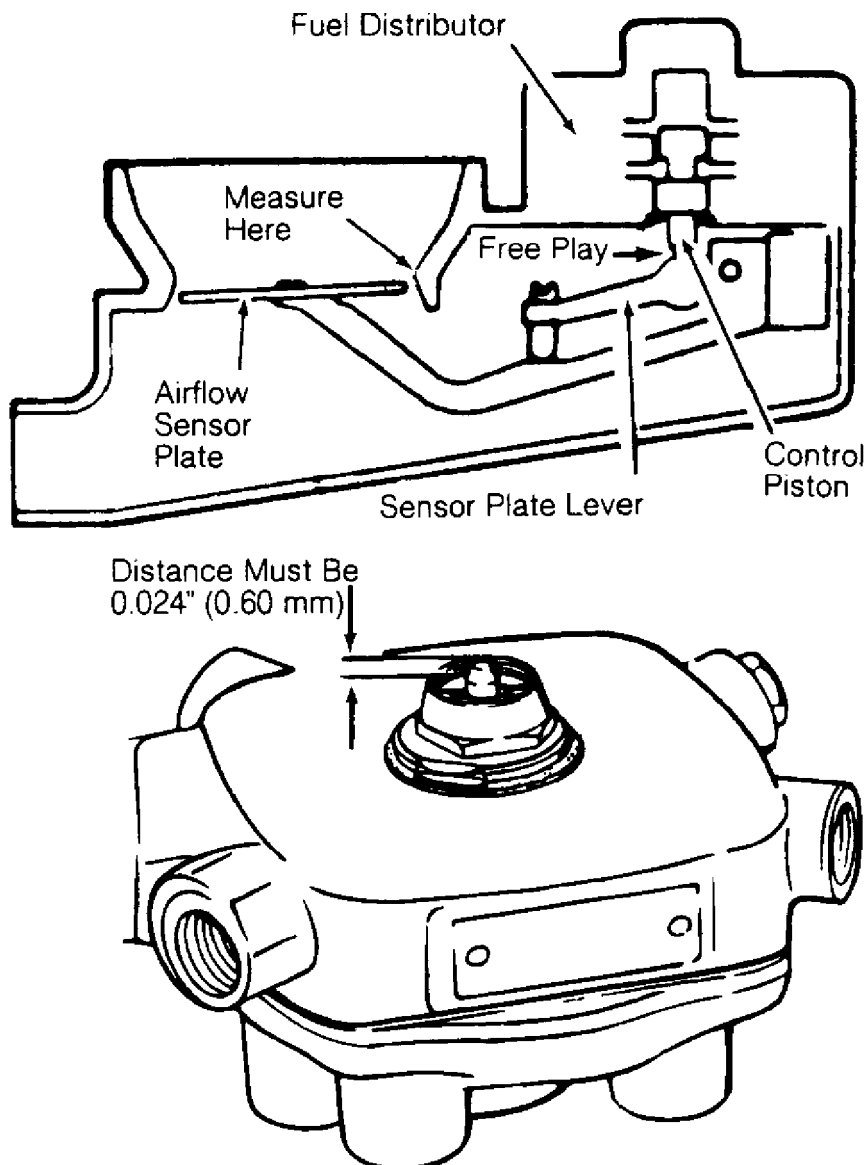
Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 23, 1999 11:58PM

play on side of sensor cone closest to fuel distributor. See Fig. 3.

2) Crank starter motor for 10 seconds to develop fuel pressure. Lift sensor plate slightly until resistance is felt. **Minimum** clearance is any noticeable free play. **Maximum** clearance is .078" (1.99 mm) up to sensor cone.

3) If free play clearance is incorrect, remove fuel distributor. Check basic adjustment of sensor plate lever. Install fuel distributor and repeat free play clearance check. If still incorrect, adjust sensor plate clearance with control piston stop screw.



121530

Fig. 3: Sensor Plate Free Play
Courtesy of Volkswagen United States, Inc.

Sensor Plate Lever Adjustment

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 5)

1989 Volkswagen Golf

For Volkswagen Technical Site

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 23, 1999 11:58PM

1) Check basic adjustment of sensor plate lever. With fuel distributor removed from airflow sensor housing, measure distance between roller on sensor plate lever and contact points of fuel distributor on top of airflow sensor housing.

2) Use a depth gauge or vernier caliper for measuring distance. See Fig. 2. Distance should be .74-.75" (18.9-19.1 mm). If distance is out of specified range, correct it by adjusting mixture screw.

INSTALLATION

1) Lightly lubricate new sealing "O" ring and mount on fuel distributor. Install fuel distributor. Connect all fuel lines except those to fuel injectors. Check sensor plate adjusting lever and fuel distributor control piston for smooth operation.

2) Remove fuel pump relay and bridge fuel pump circuit. Use Jumper Switch (US 4480/3) in place of fuel pump relay. When pressure has built up, turn off fuel pump. Move sensor plate from rest position to end of travel.

3) Uniform resistance should be felt during entire movement. No resistance should be felt during entire movement. No resistance should be felt on quick return to rest position. Connect injector lines. Install fuel pump relay. Start engine and check for leaks.

INJECTORS

CAUTION: Fuel system pressure must be relieved before removing injectors. Wipe up all gasoline BEFORE continuing service.

REMOVAL

1. 8L

Remove injectors from inserts in head with fuel lines attached. Using 13 mm hex head socket, remove inserts from head. Use 2 wrenches to remove injectors from lines.

2. 1L

Disconnect negative battery cable. Disconnect electrical connectors at injectors. Loosen and remove both hoses on each end of fuel rail. Note direction of electrical connector on injectors. Remove hold-down bolt and pull out two fuel injectors together with fuel rail. Remove injectors from fuel rail when servicing.

INSTALLATION

1. 8L

To install, reverse removal procedures. Use 2 wrenches when tightening injector lines to injectors. Use new "O" rings lightly lubricated. On models with 2-piece inserts, replace insert sealing washer (against head) and use sealing compound on upper insert threaded portion.

N - REMOVE/INSTALL/OVERHAUL

Article Text (p. 6)

1989 Volkswagen Golf

For Volkswagen Technical Site

Copyright © 1998 Mitchell Repair Information Company, LLC

Monday, August 23, 1999 11:58PM

2. 1L

To install injectors, reverse removal procedures. Use new "O" rings when installing injectors. Replace hose clamps if necessary.

OXYGEN SENSOR

REMOVAL & INSTALLATION

All Models

O2 sensor is mounted in the exhaust pipe in front of catalytic converter. It is equipped with a permanent pigtail which must be protected from damage when the sensor is removed. Ensure sensor is free of contaminants, avoid using cleaning solvents of any type. Sensor may be difficult to remove when engine temperature is less than 120°F (48°C). Always use anti-seize compound on threads prior to installation. Tighten sensor to 30 ft. lbs. (41 N.m).

THROTTLE VALVE HOUSING (TVH)

REMOVAL & INSTALLATION

1) Disconnect accelerator cable from linkage. Disconnect return spring on TVH. Remove cruise control connecting rod on TVH (if equipped). Pull off vacuum hoses. Remove TVH mounting nuts.

2) Disconnect throttle valve switch. Remove 2 nuts holding TVH to metallic front vibration mounts. Disconnect fuel return hose from pressure regulator. Lift sensor housing upward and remove TVH. Remove gasket.

3) To install, reverse removal procedure. Ensure all surfaces are clean and mate correctly. Use new gaskets when assembling. Adjust accelerator linkage and idle speed.

END OF ARTICLE