

VOLKSWAGEN

DESCRIPTION & OPERATION

All models have an instrument cluster that contains a speedometer, fuel gauge and temperature gauge (except Vanagon). Optional instruments include clock, tachometer, voltmeter and oil temperature gauge. The cluster has a printed circuit to power the gauges.

A voltage regulator fits onto the cluster printed circuit and controls voltage to the fuel and temperature gauges. Light emitting diodes (LEDs) are used for most warning lights. The diodes can be replaced by pulling them out of the printed circuit socket.

All models have headlight switch mounted on the dashboard. Other switches on the instrument panel control the hazard flashers, rear window defogger and options. Levers on the steering column control high beams, turn signals and wiper/washers. Most switches are retained in place by spring clips.

TESTING

NOTE: Specific test procedures for Quantum not available from manufacturer.

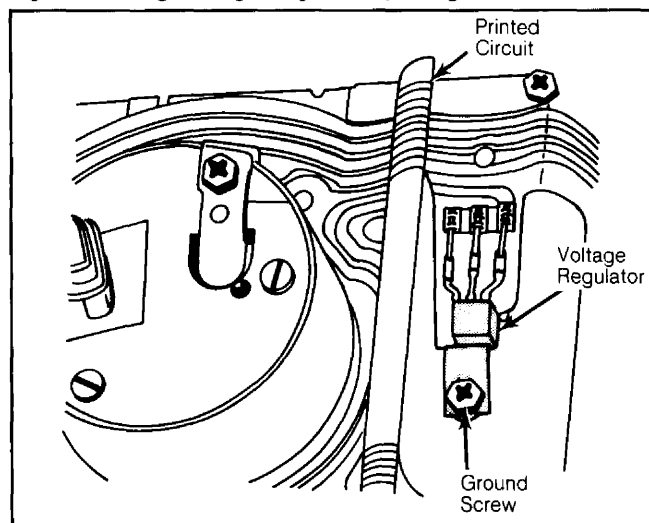
VOLTAGE REGULATOR

1) If both fuel and temperature gauges are inoperative, voltage regulator may be faulty or have a bad ground connection. If only one gauge is inoperative, regulator is not the problem.

2) Partially remove instrument cluster. Position cluster so regulator can be reached with voltmeter probes, but leave chassis harness connected. Check to make sure ground screw on regulator is tight.

3) Turn ignition on. Connect voltmeter negative lead to center terminal of regulator. Connect positive lead to each of the other terminals. Battery voltage should be present at one terminal and 9.5-10.5 volts at the other. If not, replace voltage regulator.

Fig. 1: Testing Voltage Regulator (Vanagon Shown)



Place negative lead on center terminal.

FUEL GAUGE

1) Unplug wire from fuel tank sending unit. Connect VW tester 1301 between wire and ground. Turn ignition on. With tester set at 60, gauge should show a full

tank. With tester at 560 (Vanagon) or 350 (all other models), gauge should show empty.

NOTE: Tester settings do not indicate resistance in ohms. Resistance values were not available.

2) If gauge needle does not move at all, check continuity between sender wire and gauge. If needle moves but does not match specifications, replace gauge. If gauge works correctly with tester but not sending unit, replace sending unit.

TEMPERATURE GAUGE

1) Unplug sending unit wire. Connect VW tester 1301 between wire and ground. Turn ignition on. With tester set at 500, gauge should indicate cool. With tester at 60, gauge should indicate hot.

NOTE: Tester settings do not indicate resistance in ohms. Resistance values were not available.

2) If gauge needle does not move at all, check continuity between sender wire and gauge. If needle moves but does not match specifications, replace gauge. If gauge works correctly with tester but not sending unit, replace sending unit.

REMOVAL & INSTALLATION

NOTE: Removal and installation procedures for Quantum not available.

INSTRUMENT CLUSTER

Removal (Vanagon)

Disconnect battery ground. Reach behind cluster hood and pull back of hood up. Pull hazard flasher switch forward. Pull brake warning light housing toward front of vehicle. Remove 4 mounting screws and remove cluster.

Installation

To install, reverse removal procedure.

Removal (All Except Quantum and Vanagon)

1) Disconnect battery ground. Remove left radio speaker grille and speaker. Pull headlight switch knob out. Reach through speaker grille opening and press button on headlight switch, then pull off headlight knob.

2) Remove radio knobs. Remove 6 screws and pull off cluster bezel. Remove 4 screws and pull instrument cluster back. Disconnect speedometer cable and wiring. Remove cluster.

Installation

To install, reverse removal procedure.

COMBINATION SWITCH

Removal (All Models)

Pull off horn pad and remove steering wheel nut. Remove steering wheel. Remove column cover. Unplug wiring and remove 3 switch screws. Remove switches.

Installation

Install switches on column. Place steering wheel on column and check that clearance between wheel and turn signal switch is about 1/16-1/8" (2-4 mm). If not correct, move spacer sleeve up or down. Tighten steering wheel nut to 36 ft. lbs. (50 N.m) and replace pad.