

## **INSTRUMENT PANEL**

### **Article Text**

1993 Volkswagen Passat

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Wednesday, March 22, 2000 10:18PM

## **ARTICLE BEGINNING**

1993 ACCESSORIES & EQUIPMENT

Volkswagen Instrument Panels

Volkswagen; Cabriolet, Fox, Golf, GTI, Jetta

## **DESCRIPTION & OPERATION**

Instrument cluster for most models includes speedometer, fuel gauge and temperature gauge. Optional instruments include clock, tachometer, voltmeter and oil temperature gauge. See Fig. 3

Printed circuit provides voltage to gauges. A voltage regulator attached to printed circuit controls voltage to fuel and temperature gauges. Most warning lights are a Light Emitting Diode (LED). To replace diode, pull from printed circuit socket.

## **TESTING**

### **VOLTAGE REGULATOR TEST**

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

2) Partially remove instrument cluster. Position cluster so regulator can be reached with voltmeter probes. Leave chassis harness connected. Ensure ground connection at regulator is tight.

3) On all except Cabriolet, turn ignition on. Connect voltmeter negative(-) lead to terminal No. 2 of regulator. Connect positive (+) lead to terminal No 1. See Fig. 1 & 2. Meter reading should be 9.5-10.5 volts. If reading exceeds specification, replace voltage regulator.

4) For Cabriolet, turn ignition on. Connect voltmeter negative (-) lead to terminal No. 2 of voltage regulator. Connect positive lead (+) to terminal No. 3. See Fig. 1 & 2. Meter reading should be 9.5-10.5 volts. If reading exceeds specification, replace voltage regulator.

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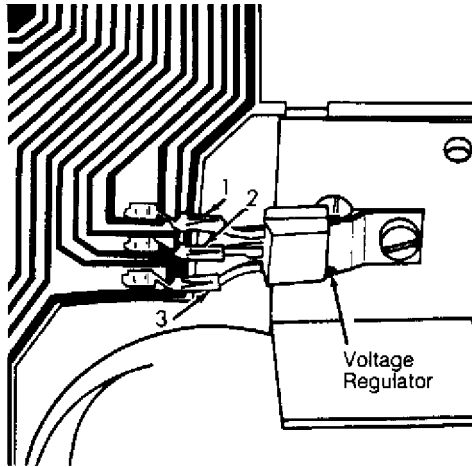


Fig. 1: Testing Voltage Regulator  
Courtesy of Volkswagen United States, Inc.

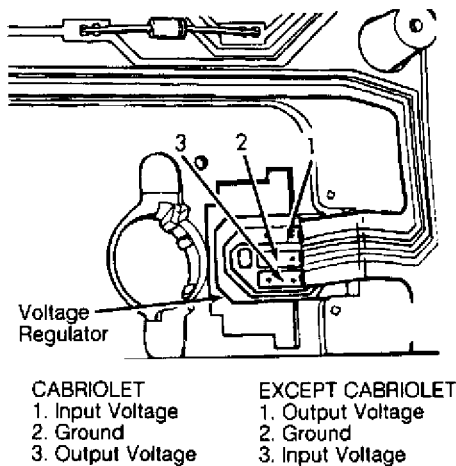


Fig. 2: Testing Voltage Regulator (Except Cabriolet)  
Courtesy of Volkswagen United States, Inc.

## FUEL & TEMPERATURE GAUGE TEST

NOTE: Volkswagen Tester (VW 1301) is required for resistance tests. Tester settings are numerical. Settings do not indicate resistance in ohms. Manufacturer does not supply resistance values in ohms.

1) Disconnect wire from fuel tank or temperature sending unit. Connect VW Tester (VW 1301) between wire and ground. Turn ignition on and allow 2 minutes for gauge reading to stabilize. Use FUEL GAUGE TESTING or TEMPERATURE GAUGE TESTING table to compare gauge reading. Gauge should be within one pointer width of specification.

2) If gauge needle does not move, check continuity between sender wire and gauge. If needle moves but does not match

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specifications, replace gauge. If gauge works correctly with tester but not sending unit, replace sending unit.

#### FUEL GAUGE TESTING (1) TABLE

AA

Application	Dial Setting	Indicator
Cabriolet & Fox .....	55 .....	Full
.....	560 .....	Empty
Golf, GTI & Jetta .....	52 .....	Full
.....	550 .....	Empty

(1) - Information for EuroVan not available from manufacturer.

AA

#### TEMPERATURE GAUGE TESTING (1) TABLE

AA

Application	Dial Setting	Indicator
Cabriolet & Fox .....	500 .....	Cold
.....	62 .....	(2) Hot
Corrado SLC		
& Passat .....	80 .....	Normal
.....	50 .....	(2) Hot
Golf, GTI & Jetta .....	510 .....	Cold
.....	50 .....	(2) Hot

(1) - Information for EuroVan not available from manufacturer.

(2) - With Red LED flashing.

AA

## REMOVAL & INSTALLATION

CAUTION: DO NOT damage printed circuit when installing instruments.

### INSTRUMENT CLUSTER

WARNING: Failure to follow air bag service precautions may result in air bag deployment and personal injury. See SERVICE PRECAUTIONS in AIR BAG RESTRAINT SYSTEM article in ACCESSORIES/SAFETY EQUIPMENT section.

CAUTION: To disable air bag system, disconnect negative battery cable and wait 20 minutes before working on vehicle. To activate system, reconnect negative battery cable. Perform a system operational check to ensure proper system operation. See SYSTEM OPERATION CHECK in appropriate AIR BAG RESTRAINT SYSTEM article in ACCESSORIES/SAFETY EQUIPMENT section.

Removal & Installation (Cabriolet)

1) Obtain radio code. Disconnect negative battery cable.

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Disable air bag. See AIR BAG RESTRAINT SYSTEM article in the ACCESSORIES/SAFETY EQUIPMENT section. Remove steering wheel.

2) Tilt shelf downward, remove mounting screws and remove shelf. Remove instrument panel cover screws and mounting clips. Remove instrument panel cover. Remove instrument panel insert trim screws and pull off instrument panel insert trim.

3) Remove instrument panel insert screw and tip instrument panel insert forward. Press speedometer cable lugs together and disconnect speedometer cable from instrument panel insert.

4) Disconnect multi-point connector, and remove instrument panel insert. To install, reverse removal procedure.

#### **Removal & Installation (Fox)**

1) Obtain radio code. Disconnect negative battery cable. Remove steering wheel. Carefully remove covers from vacant switch positions. Depress switch spring retainer and remove switches from instrument panel. Mark for reassembly and disconnect wire connectors from switches.

2) Remove 4 instrument cluster trim retaining screws. Remove instrument cluster trim panel. Remove 2 instrument cluster retaining screws. Remove speedometer cable. Disconnect cluster wire connector and remove instrument cluster. To install, reverse removal procedure.

#### **Removal & Installation (Golf, GTI & Jetta)**

1) Obtain radio code. Disconnect negative battery cable. Remove steering wheel. Remove lower instrument panel retaining screws, and lower on left side. Remove remaining retaining screws, and lower instrument panel tray on right side.

2) Remove gearshift lever knob and boot. Remove retaining screw(s) and slide console rearward. Separate all electrical connections and lift out console.

3) Pull off all temperature control knobs/levers. Unclip trim plate and remove. Remove radio (or tray). Remove switches from instrument panel trim plate. Remove all retaining screws and remove instrument panel trim plate.

4) Remove instrument cluster retaining screws. Squeeze clips and remove speedometer cable from instrument cluster. Disconnect all vacuum hose connections and separate all electrical connectors. Remove instrument cluster, See Fig. 3. To install, reverse removal procedure.

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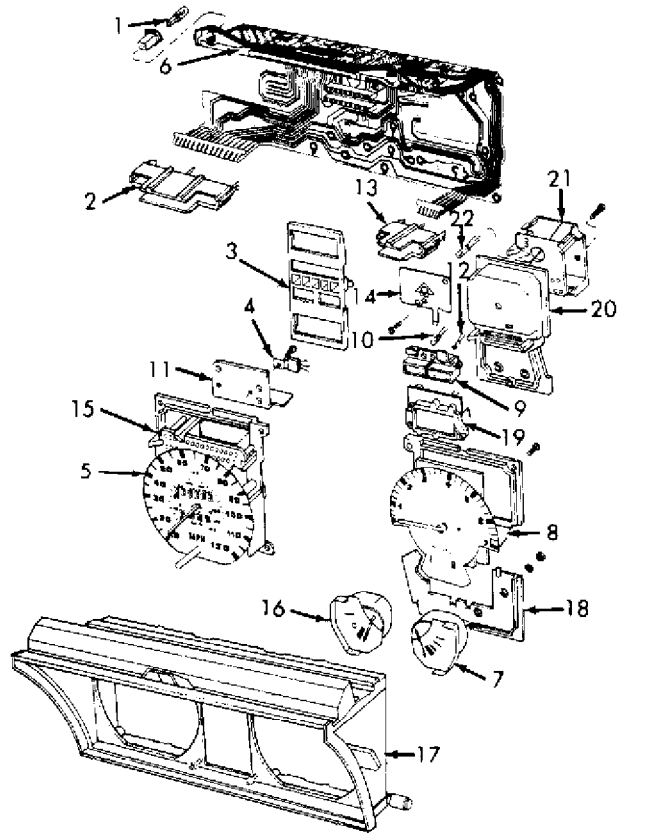
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- |                                   |   |
|-----------------------------------|---|
| 1. Instrument Cluster Light Bulb  | 12. Warning LED   |
| 2. Wire Terminal Housing          | 13. Wire Terminal Housing   |
| 3. Trim                           | 14. Upshift Indicator (If Equipped)                               |
| 4. Voltage Regulator              | 15. Oil Pressure Warning System Control Unit                      |
| 5. Speedometer                    | 16. Coolant Temperature Gauge                                     |
| 6. Flexible Printed Circuit       | 17. Instrument Cluster Insert                                     |
| 7. Fuel Gauge                     | 18. Support Plate For Gauges                                      |
| 8. Tachometer                     | 19. Digital Clock   |
| 9. LED Holder                     | 20. Instrument Cluster Housing Cover                              |
| 10. LED Indicator Light           | 21. Parking Brake/Brake Fluid Level Warning Light Printed Circuit |
| 11. Voltage Regulator Heat Shield | 22. Upshift Indicator LED (If Equipped)                           |

Fig. 3: Exploded View Of Instrument Cluster  
(Fox Is Shown; Cabriolet, Golf, GTI & Jetta Are Similar)  
Courtesy of Volkswagen United States, Inc.

## PRINTED CIRCUIT CONNECTORS

## INSTRUMENT PANEL

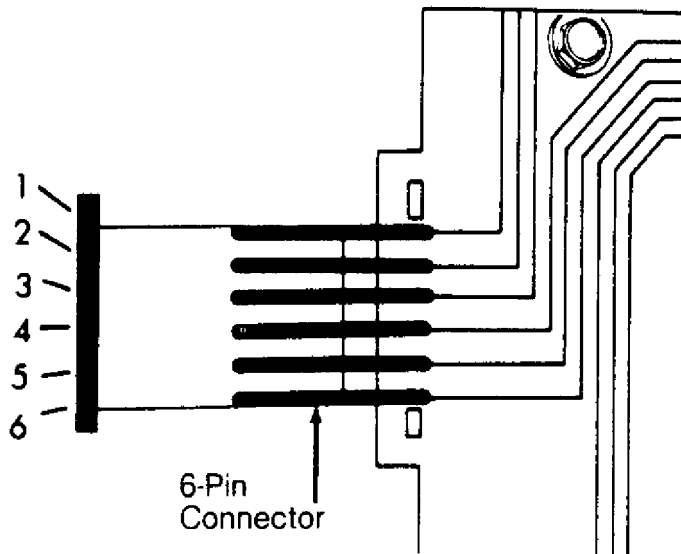
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#### CABRIOLET

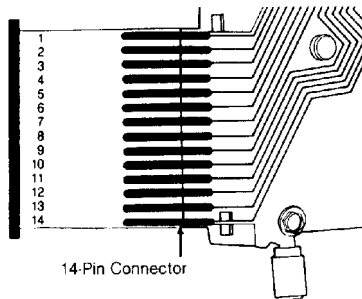
1. (Not Used)
2. (Not Used)
3. (Not Used)
4. Diode Light For Upshift Indicator
5. (Not Used)
6. (Not Used)

#### FOX

1. (Not Used)
2. Parking Brake/Brake Fluid Level Warning
3. Seat Belt Warning
4. Upshift Indicator (LED)
5. Cut-Off Valve
6. (Not Used)

93A01518

Fig. 4: Identifying Printed Circuit 6-Pin Connector (Cabriolet & Fox)  
Courtesy of Volkswagen United States, Inc.



1. Instrument Lights
2. Ground
3. Fuel Gauge (To Sender)
4. Coolant Gauge (To Sender)
5. Tachometer (Terminal No. 1)
6. Clock
7. High Beam
8. (Not Used)
9. Oil Pressure Warning System
10. O<sub>2</sub> Sensor System (If Equipped)
11. Oil Pressure Indicator (LED)
12. Alternator Warning Light
13. Turn Signal Indicator
14. Battery Voltage (Terminal No. 15)

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Fig. 5: Identifying Printed Circuit 14-Pin Connector  
(Cabriolet & Fox)  
Courtesy of Volkswagen United States, Inc.

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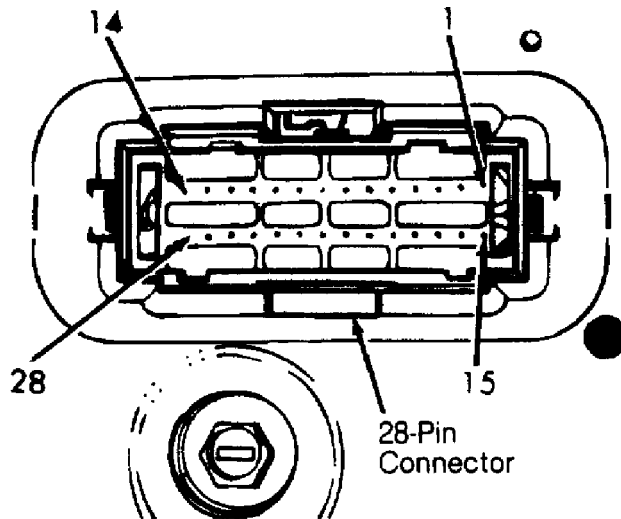
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1. Outside Temperature Sensor Ground (If Equipped)
2. To Coolant Low Level Sensor
3. Ground (Terminal No. 31)
4. Multifunction Indicator Memory Reset Switch (If Equipped)
5. Ground (Terminal No. 31)
6. Multifunction Indicator Memory Reset Switch (If Equipped)
7. Vehicle Speed Sensor Signal
8. From Oil Pressure Switch (High Side)
9. From Oil Pressure Switch (Low Side)
10. Tachometer Input Signal (Terminal 1/W)
11. Battery Voltage (Terminal No. 30)
12. Battery Voltage For Instrument Lighting (Terminal 58b)
13. Battery Voltage (Terminal No. 15)
14. (Not Used)
15. To MFI Mode Switch (If Equipped)
16. Alternator Warning Light (Terminal No. 61)
17. From Oil Temperature Sensor (If Equipped)
18. To Seat Belt Warning Light/Brake Warning Light (If Equipped)
19. Outside Temperature Sensor Signal (If Equipped)
20. MIL Or Glow Plug (Diesel Only)
21. Fuel Gauge
22. Left Turn Signal
23. Coolant Temperature Gauge
24. Right Turn Signal
25. High Beam Indicator
26. Fuel Consumption Indicator (If Equipped)
27. Signal From Speedometer Sensor (If Equipped)
28. A/T Selector Display (If Equipped)

93H82757

Fig. 6: Identifying Printed Circuit 28-Pin Connector  
(GTI & Jetta)

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## **WIRING DIAGRAMS**

See appropriate chassis wiring diagram in WIRING DIAGRAMS.

**END OF ARTICLE**