

# INSTRUMENT PANEL

1994 Volvo 960

1994 ACCESSORIES/SAFETY EQUIPMENT  
Volvo Instrument Panel

960

## \* PLEASE READ THIS FIRST \*

**WARNING:** When working around steering column and before performing repairs, disconnect and shield battery ground terminal. Disconnect YELLOW and ORANGE Supplemental Inflatable Restraint (SIR) air bag connectors, located on driver's side of center console, near throttle pedal. Failure to follow precautions may result in air bag deployment and personal injury. See SERVICE PRECAUTIONS and DISABLING & ACTIVATING AIR BAG SYSTEM in AIR BAG RESTRAINT SYSTEM article in the ACCESSORIES/SAFETY EQUIPMENT section.

## DESCRIPTION & OPERATION

All 960 models are equipped with an analog gauge instrument cluster which is either a Yazaki or VDO type. See Fig. 1. Speedometer is centrally located with a tachometer and clock installed on either side. Smaller gauges for coolant temperature and fuel are at opposite sides of instrument cluster. If equipped, a turbo pressure gauge is incorporated within tachometer. A warning/telltale light bar at bottom of cluster panel displays additional information.

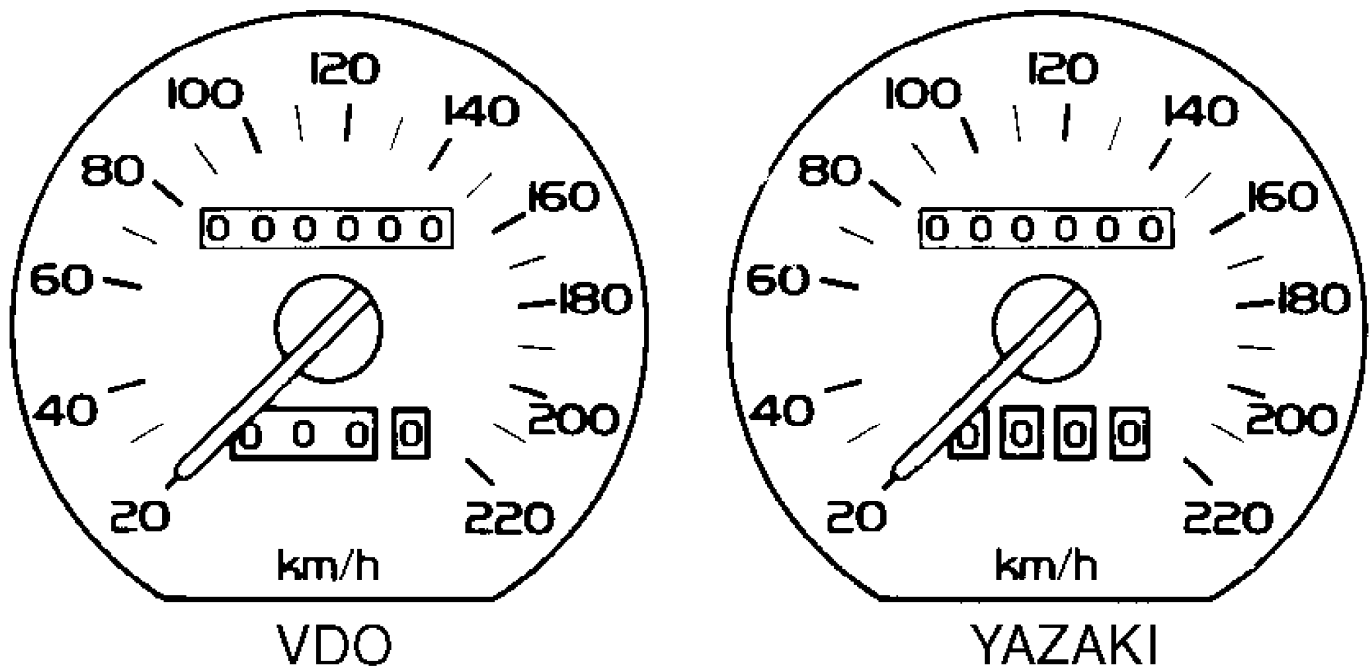


Fig. 1: Identifying Yazaki Or VDO Type Instrument Cluster  
Courtesy of Volvo Cars of North America

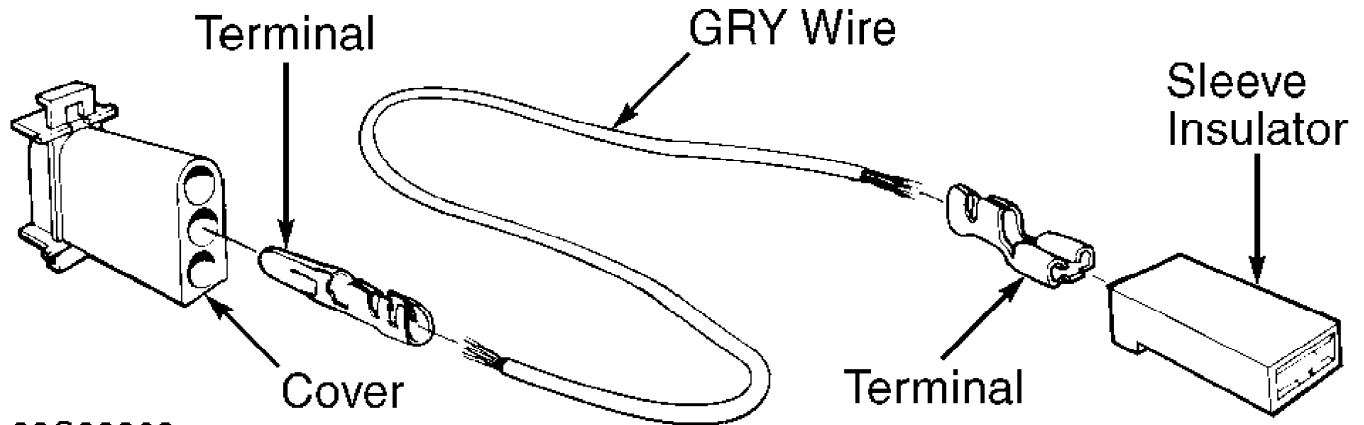
## TESTING

## FUEL GAUGE TEST

1) Ensure temperature gauge operates properly, as fuel gauge receives current from temperature gauge. If temperature gauge does not operate correctly, go to TEMPERATURE GAUGE TEST.

2) If temperature gauge is okay, fuel gauge can be checked with a 68-ohm Test Resistor (999-5824-1). Assemble an adapter from following components: See Fig. 2.

- \* Gray wire (954 441)
- \* Terminal (948 291)
- \* Terminal (942 201)
- \* Sleeve insulator (948 296)
- \* Cover (943511)

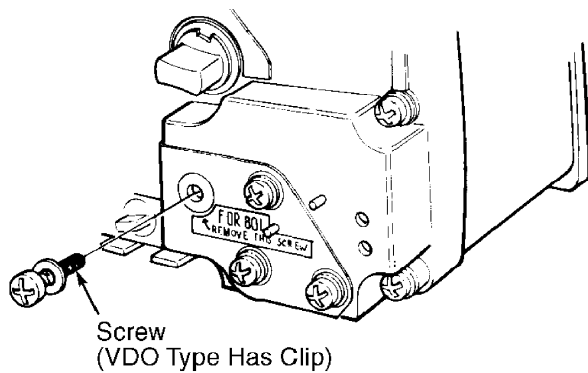


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Fig. 2: Assembling Fuel Gauge Testing Adapter  
Courtesy of Volvo Cars of North America

3) Disconnect Gray/White wire from fuel tank sending unit. Connect test resistor between ground and disconnected wire. If gauge is okay it should indicate 1/4 full (15-gallon tank), or 1/5 full (21-gallon tank). If gauge operates as specified, sender is defective.

4) If needle is not on specified section, ensure gauge is set for 15-gallon or 21-gallon tank. Yazaki gauges use a screw and VDO gauges use a clip if equipped with a 15-gallon tank. See Fig. 3. Clip or screw should be removed for 21-gallon tank.



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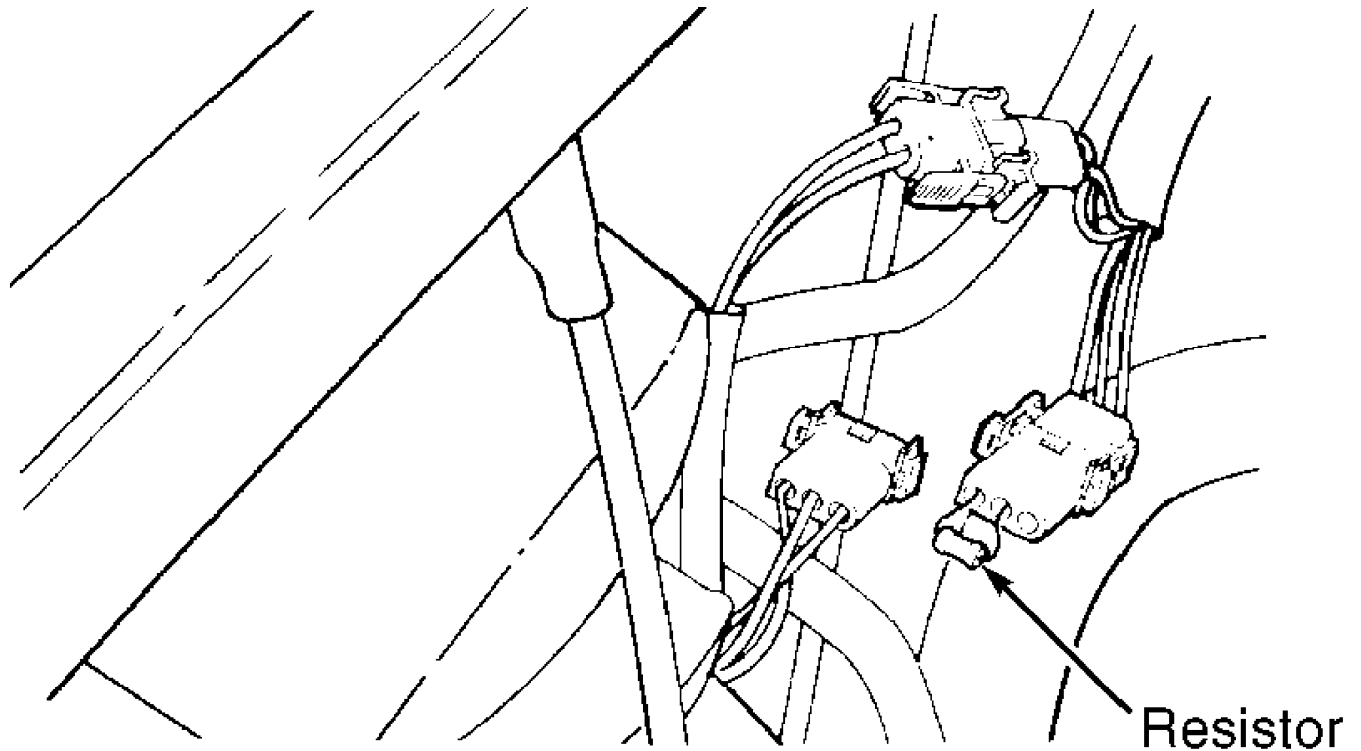
Fig. 3: Checking For Screw Or Clip At Instrument Cluster  
Courtesy of Volvo Cars of North America

5) If gauge is correctly set, but still gives incorrect reading, sender is probably defective. If needle does not move at all,

check continuity of wiring to gauge. If wiring is okay, gauge should be replaced.

6) If fuel gauge replacement is necessary, check rear side of instrument panel to see if a potentiometer has been installed. If so, gauge will require adjustment.

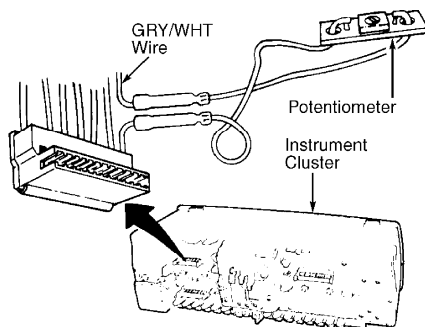
7) If not already present, Fuel Gauge Potentiometer Kit (1 398 171-7) will need to be installed in order to adjust fuel gauge. Disconnect negative battery cable. Disconnect fuel gauge sender connector and install resistor to gauge side of wiring. See Fig. 4.



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Fig. 4: Installing Resistor In Gauge Side Of Wiring  
Courtesy of Volvo Cars of North America

8) Cut Gray/White wire next to 7-pin connector on instrument panel. Using sleeve insulators, join both sides to potentiometer. See Fig. 5. Reconnect negative battery cable. Turn ignition on with engine off. If needle on fuel gauge just touches Red section, go to step 10). If not, go to next step.



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Fig. 5: Installing Potentiometer  
Courtesy of Volvo Cars of North America

9) Turn ignition off. Disconnect negative battery cable. Using a screwdriver, adjust potentiometer. Initial adjustment is 33 ohms. Reduce by turning screw clockwise until correct needle deflection is obtained.

10) With negative battery cable still disconnected, seal potentiometer with a drop of paint. Wrap electrical tape around potentiometer to prevent short circuits. Remove test resistor and reconnect wiring. Reconnect negative battery cable.

## FUEL GAUGE SENDING UNIT TEST

1) Disconnect negative battery cable. Disconnect fuel gauge sending unit connector and measure resistance between Gray/White and Brown wires. Resistance should be 0-280 ohms (15-gallon tank), or 0-367.5 ohms (21-gallon tank). If resistance is not as specified, replace sending unit.

2) Add 2 1/2 gallons (9 L) of fuel to tank. Resistance should increase 5 ohms each 1/4 gallon (1 L). If resistance does not increase as specified, replace sending unit.

## TEMPERATURE GAUGE TEST

1) Gauge can be checked with a 68-ohm Test Resistor (999-5824-1). Disconnect negative battery cable. Disconnect coolant temperature sender wire. Connect test resistor between ground and disconnected wire. Reconnect battery cable and turn ignition on.

2) If gauge is okay, needle should sweep to center of Red section. If gauge is not okay, sender is defective. If needle is not in Red section, gauge is defective. If needle does not move, check wiring. If wiring is okay, replace gauge.

## TEMPERATURE SENDING UNIT TEST

Drain cooling system and remove sending unit from engine head. Heat sensor in water and check sending unit resistance at temperatures listed in TEMPERATURE SENDING UNIT RESISTANCE table. If resistance is incorrect, replace sending unit.

TEMPERATURE SENDING UNIT RESISTANCE TABLE

Temperature °F (°C)	Ohms
140 (60) .....	560
194 (90) .....	206
212 (100) .....	153

## WIPER SWITCH TEST

For testing information on wipers, see WIPER/WASHER SYSTEM article in the ACCESSORIES/SAFETY EQUIPMENT section.

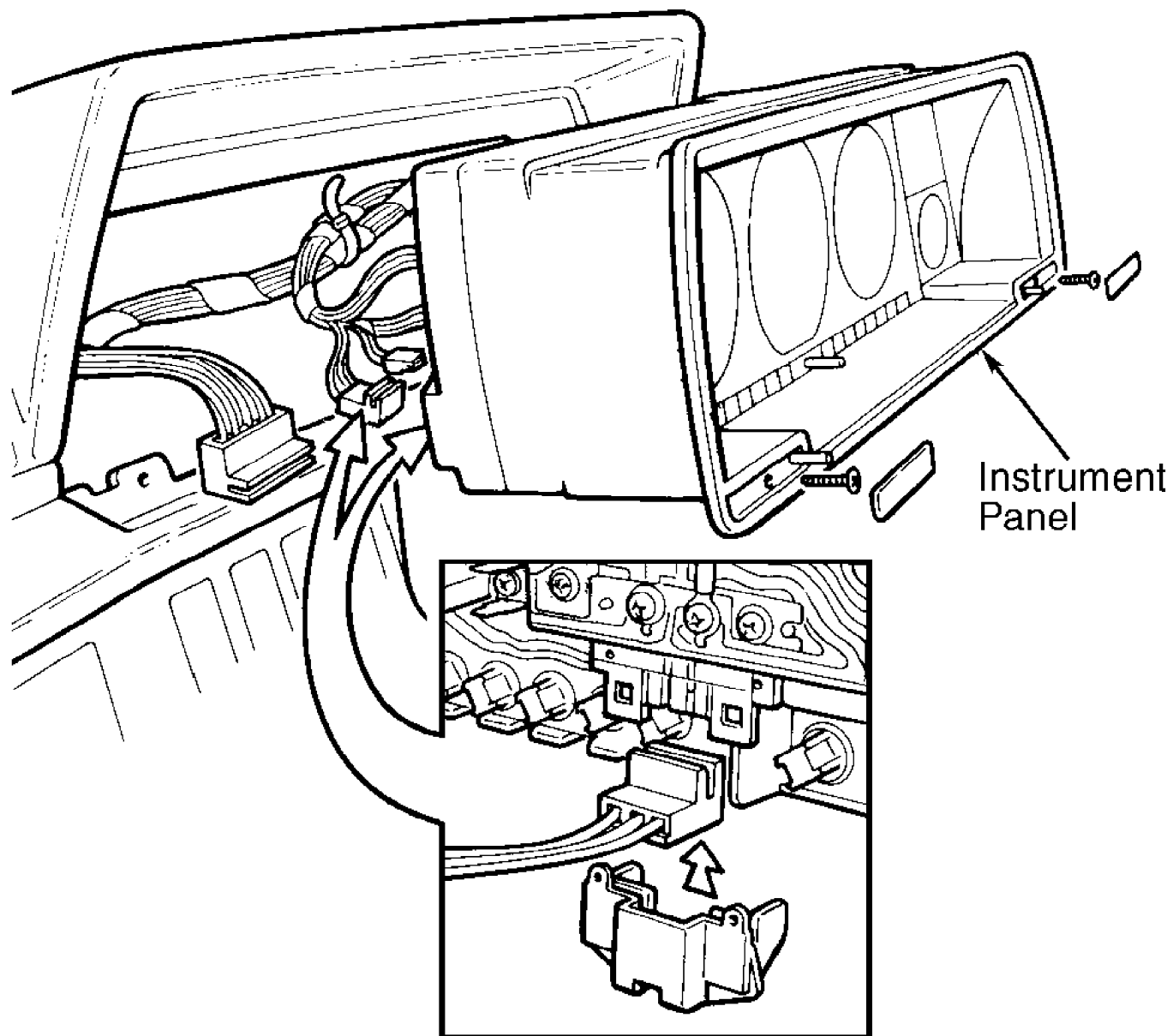
## REMOVAL & INSTALLATION

### INSTRUMENT CLUSTER

NOTE: ALWAYS disconnect negative battery cable before removing ANY instrument panel components.

Removal & Installation

Disconnect negative battery cable. Remove 2 cover panels and screws holding instrument cluster. See Fig. 6. Lift out instrument cluster. Remove connector seal. Disconnect connectors and remove instrument cluster. To install, reverse removal procedure.



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Fig. 6: Removing Instrument Cluster (960)  
Courtesy of Volvo Cars of North America

## WIRING DIAGRAMS

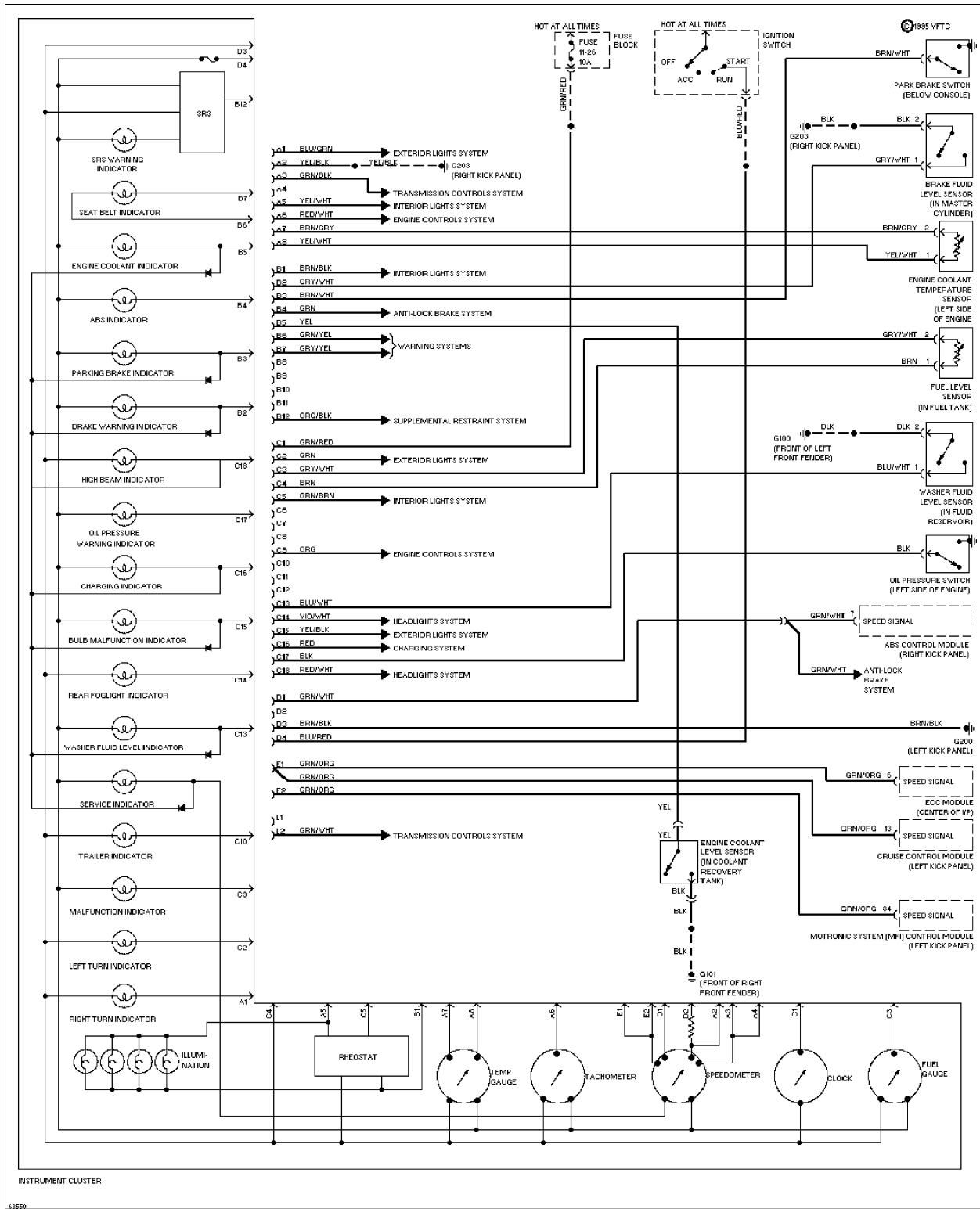
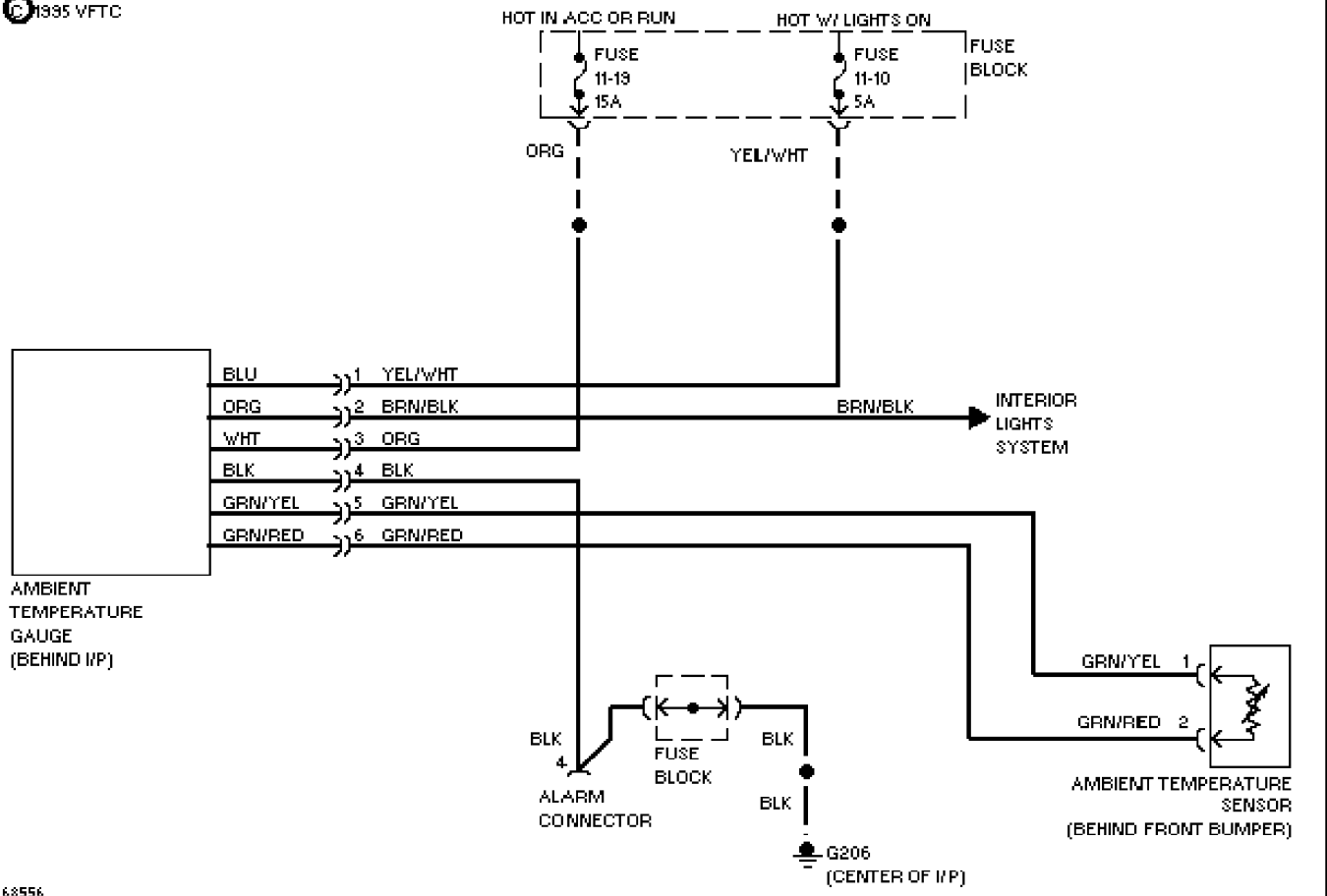


Fig. 7: Instrument Cluster Wiring Diagram (960)

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Fig. 8: Ambient Temperature Gauge Wiring Diagram (960)