INSTRUMENT PANEL

1998 Pontiac Bonneville

1998 ACCESSORIES & EQUIPMENT
General Motors Corp. - Analog Instrument Panel
Pontiac; Bonneville

* PLEASE READ THIS FIRST *

WARNING: Deactivate air bag system before performing any service operation. See AIR BAG RESTRAINT SYSTEM article. DO NOT apply electrical power to any component on steering column without first deactivating air bag system. Air bag may deploy.

DESCRIPTION

The instrument panel cluster uses an analog speedometer (with stepper motor-driven odometer), fuel gauge, coolant temperature gauge, oil pressure gauge, tachometer and voltmeter. Models equipped with a supercharger are equipped with a boost gauge. Warning indicators include: traction off, air bag, security, fasten belts, anti-lock, check oil level, washer fluid low, low coolant, hood ajar, trunk ajar, door ajar, check gauges, brake, volts, check engine, turn signal and exterior lighting indicators. Some models have a Driver Information Center (DIC) and/or an electronic compass.

OPERATION

INSTRUMENT CLUSTER GAUGES

Boost Gauge (U2F Clusters)
Boost gauge displays engine intake manifold vacuum or pressure to indicate operation of supercharger. Gauge is an electronically-controlled air core display that is supplied a variable voltage signal (proportional to manifold vacuum or pressure) by boost/manifold absolute pressure sensor.

Coolant Temperature Gauge
Coolant temperature gauge is operated by 2 coils, with battery voltage applied to each coil. One coil is grounded directly. The other coil is grounded through the Engine Coolant Temperature (ECT) sensor. As resistance of ECT sensor changes with temperature, current to temperature gauge changes, which moves pointer of gauge.

Fuel Gauge
Powertrain Control Module (PCM) receives a fuel level input signal from fuel level sender. PCM generates a Pulse Width Modulated (PWM) fuel level output signal to instrument cluster fuel gauge. The PCM circuit to instrument cluster connects midway between 2 coils which change resistance levels according to fuel level. Gauge is not affected by changes in vehicle’s electrical system.

Oil Pressure Gauge
Similar to fuel gauge, oil pressure gauge pointer moves due to changing resistance of oil pressure sender. Oil pressure gauge will have low resistance when oil pressure is low, and 90 ohms resistance when oil pressure is high. As resistance changes, pointer of oil pressure gauge changes.

Speedometer/Odometer
Speedometer is driven by a signal generated from Vehicle Speed Sensor (VSS). This AC voltage signal (proportional to vehicle speed) is sent to Powertrain Control Module (PCM). PCM then supplies a signal to a solid state unit on instrument panel which drives pointer of speedometer. Odometer is driven by a stepper motor that responds to pulses of speedometer circuit.

Tachometer
Tachometer receives an engine speed input signal from Ignition Control Module (ICM).

Voltmeter
Voltmeter measures electrical system voltage when ignition switch is in RUN, BULB TEST or START position. With engine running, voltmeter indicates charging system voltage output. When engine is stopped, voltmeter indicates battery condition.

DRIVER INFORMATION CENTER (DIC)

On vehicles with U50 and U2F clusters, Driver Information Center (DIC) uses a 2-color vacuum fluorescent display that includes odometer, warning indicators, lamp monitor displays and a graphic representation of the vehicle. To identify DIC functions, see DRIVER INFORMATION CENTER (DIC) FUNCTIONS table.

DRIVER INFORMATION CENTER (DIC) FUNCTIONS TABLE

<table>
<thead>
<tr>
<th>Fault</th>
<th>(1) Illuminated Segments</th>
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<tbody>
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<td>Low Coolant</td>
<td>Engine &amp; LOW COOLANT</td>
</tr>
<tr>
<td>Low Fuel</td>
<td>Fuel Tank &amp; CHECK GAUGES</td>
</tr>
<tr>
<td>Low Washer Fluid</td>
<td>WASHER FLUID &amp; (2) Windshield</td>
</tr>
<tr>
<td>Low Oil Level</td>
<td>Engine &amp; CHECK OIL LEVEL</td>
</tr>
<tr>
<td>Low Oil Pressure</td>
<td>Engine &amp; CHECK GAUGES</td>
</tr>
<tr>
<td>Low Or High Voltage</td>
<td>Engine &amp; CHECK GAUGES</td>
</tr>
<tr>
<td>High Coolant Temperature</td>
<td>Engine &amp; CHECK GAUGES</td>
</tr>
<tr>
<td>Trunk Ajar</td>
<td>Trunk &amp; TRUNK AJAR</td>
</tr>
<tr>
<td>Hood Ajar</td>
<td>Hood &amp; HOOD AJAR</td>
</tr>
<tr>
<td>Door Ajar</td>
<td>Respective Door &amp; DOOR AJAR</td>
</tr>
<tr>
<td>Front Parking Light</td>
<td>Front Lights, LAMP MONITOR &amp;</td>
</tr>
<tr>
<td>Headlight Failure</td>
<td>PARK LAMP</td>
</tr>
<tr>
<td>High Beam Failure</td>
<td>Front Lights, LAMP MONITOR &amp;</td>
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<tr>
<td>Front Turn Signal</td>
<td>HI BEAM LAMP</td>
</tr>
<tr>
<td>Taillight Failure</td>
<td>Rear Lights, LAMP MONITOR &amp;</td>
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<td>Back-Up Light Failure</td>
<td>TAIL LAMP</td>
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<tr>
<td>License Plate Light</td>
<td>Rear Lights, LAMP MONITOR &amp;</td>
</tr>
<tr>
<td>Rear Turn Signal Failure</td>
<td>BACK UP LAMP</td>
</tr>
<tr>
<td>Brakelight Failure</td>
<td>Rear Lights, LAMP MONITOR &amp;</td>
</tr>
<tr>
<td>CHMSL Failure</td>
<td>CHMSL, LAMP MONITOR &amp;</td>
</tr>
<tr>
<td>Lamp Monitor</td>
<td>LAMP MONITOR</td>
</tr>
</tbody>
</table>

(1) - Vehicle outline is illuminated at all times.
(2) - Windshield indicator will flash 5 times, then stay
### COMPONENT LOCATIONS

**COMPONENT LOCATIONS TABLE**

<table>
<thead>
<tr>
<th>Component</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body Control Module (BCM) (1)</td>
<td>Under Right Side Of Instrument Panel, Near Rear Of Glove Box</td>
</tr>
<tr>
<td>Boost/Manifold Absolute Pressure (MAP) Sensor</td>
<td>Left Rear Of Engine, Near Exhaust Gas Recirculation Valve</td>
</tr>
<tr>
<td>Data Link Connector (DLC)</td>
<td>Under Left Side Of Instrument Panel, Attached To Instrument Panel Sound Insulator</td>
</tr>
<tr>
<td>Door Jamb Switch</td>
<td>Rear Of Door, On Door Latch Assembly</td>
</tr>
<tr>
<td>Engine Coolant Level Switch</td>
<td>In Right Radiator Tank</td>
</tr>
<tr>
<td>Engine Coolant Temperature (ECT) Sensor</td>
<td>Front Of Engine, Near Thermostat Housing</td>
</tr>
<tr>
<td>Fuel Tank Unit</td>
<td>In Top Of Fuel Tank</td>
</tr>
<tr>
<td>Head Up Display (HUD) Adjuster Motor</td>
<td>Left Top Of Instrument Panel, Under Upper Instrument Panel Pad</td>
</tr>
<tr>
<td>Head Up Display (HUD) Control Module</td>
<td>Left Top Of Instrument Panel, Under Upper Instrument Panel Pad</td>
</tr>
<tr>
<td>Head Up Display (HUD) Switch</td>
<td>Left Side Of Instrument Panel, Near Instrument Cluster</td>
</tr>
<tr>
<td>Hood Ajar Switch</td>
<td>Left Front Corner Of Engine Compartment On Top Of Radiator Support</td>
</tr>
<tr>
<td>Ignition Control (IC) Module</td>
<td>Right Top Of Engine, Under Ignition Coils</td>
</tr>
<tr>
<td>Instrument Panel Fuse Block</td>
<td>Under Left Side Of Instrument Panel, On Left Sound Insulator</td>
</tr>
<tr>
<td>Instrument Panel Junction Block</td>
<td>Under Right Side Of Instrument Panel, Near Rear Of Glove Box</td>
</tr>
<tr>
<td>Oil Pressure Sensor</td>
<td>Right Rear Corner Of Engine, Below Power Steering Pump</td>
</tr>
<tr>
<td>Park/Neutral Position (PNP) Switch</td>
<td>Left Side Of Transaxle, Under Exhaust Gas Recirculation Valve</td>
</tr>
<tr>
<td>Powertrain Control Module (PCM)</td>
<td>Left Front Corner Of Engine Compartment, Near Air Cleaner Housing</td>
</tr>
</tbody>
</table>
### TROUBLE SHOOTING

#### INSTRUMENT CLUSTER

1) Check fuses located in instrument panel fuse block and instrument panel junction block. If more than one gauge is malfunctioning, check common power and ground inputs. See WIRING DIAGRAMS.

2) If an indicator does not illuminate, suspect bulb can be tested by checking continuity at instrument cluster connector (instrument cluster side). Before replacing any components, check for poor terminal contacts at component and associated harness connectors. Check for broken (or partially broken) wire inside of insulation which could cause system failure but pass a continuity/voltage check. Check for proper installation of aftermarket equipment.

3) Check for Powertrain Control Module (PCM) Diagnostic Trouble Codes (DTCs). If any PCM DTCs exist, locate and repair problem in PCM system. See G - TESTS W/CODES article in ENGINE PERFORMANCE section.

#### HEAD UP DISPLAY (HUD)

1) Ensure windshield is clean. Ensure HUD window is clean and unobstructed. Check AUTO/A/C/CRUISE FUSE 5A (15-amps), located in instrument panel fuse block.

2) Before replacing any components, check for poor terminal contacts at component and associated harness connectors. Check for broken (or partially broken) wire inside of insulation which could cause system failure but pass a continuity/voltage check. Check for proper installation of aftermarket equipment.

#### SYMPTOM TESTS

NOTE: To locate components, see COMPONENT LOCATIONS table. To identify instrument panel clusters, see Figs. 1-3. To identify instrument panel cluster connector terminals, see Fig. 4 or 5.
Fig. 2: Identifying Instrument Cluster U50
Courtesy of General Motors Corp.

Fig. 3: Identifying Instrument Cluster U2F
Courtesy of General Motors Corp.

Fig. 4: Identifying Instrument Panel Cluster Connector Terminals
(Connector C1 On U50 & U2F Instrument Clusters)
Courtesy of General Motors Corp.
1) Turn ignition switch to OFF position. Disconnect instrument cluster Black 34-pin connector C1. See Fig. 4. Turn ignition switch to RUN position. Using DVOM, check voltage between instrument cluster harness connector terminal A6 (Pink wire) and ground. Check voltage between instrument cluster harness connector terminal B2 (Pink wire) and ground. If battery voltage exists at both terminals, go to next step. If battery voltage does not exist at both terminals, repair open in appropriate circuit No. 439 (Pink wire) between instrument cluster and instrument panel junction block. Recheck system operation.

2) Check voltage between instrument cluster harness connector terminals B2 (Pink wire) and B3 (Black wire). If battery voltage exists, go to next step. If battery voltage does not exist, check for open in circuit No. 1250 (Black wire) between instrument cluster and ground. Check for poor terminal contact at Black 116-pin connector C200 (body-to-instrument panel wiring harness, located under center of instrument panel), terminal F12 (Black wire). Repair as necessary. Recheck system operation.

3) Check voltage between instrument cluster harness connector terminals B2 (Pink wire) and A8 (Black/White wire). Check voltage between instrument cluster harness connector terminals B2 (Pink wire) and A17 (Black/White wire). If battery voltage exists at both terminals, go to next step. If battery voltage does not exist at both terminals, check for open in appropriate circuit No. 451 (Black/White wire) between instrument cluster and ground. Check for poor terminal contact at Black 116-pin connector C200 (body-to-instrument panel wiring harness, located under center of instrument panel), terminal H11 (Black/White wire). Repair as necessary. Recheck system operation.

4) Check voltage between instrument cluster harness connector terminal B4 (Pink wire) and ground. If battery voltage exists, go to next step. If battery voltage does not exist, repair open in circuit No. 439 (Pink wire) between instrument cluster and instrument panel junction block. Recheck system operation.

5) Check voltage between instrument cluster harness connector terminal A15 (Pink wire) and ground. If battery voltage exists, go to next step. If battery voltage does not exist, repair open in circuit...
INSTRUMENT CLUSTER INOPERATIVE (U50 & U2F)

1) Turn ignition switch to OFF position. Disconnect instrument cluster Black 34-pin connector C1. See Fig. 4. Turn ignition switch to RUN position. Using DVOM, check voltage between instrument cluster harness connector C1, terminal A7 (Pink wire) and ground. If battery voltage exists, go to next step. If battery voltage does not exist, repair open in circuit No. 439 (Pink wire) between instrument cluster and instrument panel junction block. Recheck system operation.

2) Turn ignition switch to OFF position. Disconnect instrument cluster Black 32-pin connector C2. See Fig. 5. Turn ignition switch to RUN position. Using DVOM, check voltage between instrument cluster harness connector C2, terminal A10 (Pink wire) and ground. If battery voltage exists, go to next step. If battery voltage does not exist, repair open in circuit No. 439 (Pink wire) between instrument cluster and instrument panel junction block. Recheck system operation.

3) Check voltage between instrument cluster harness connector C2, terminal A10 (Pink wire) and instrument cluster harness connector C1, terminal B8 (Black/White wire). Check voltage between instrument cluster harness connector C2, terminal A10 (Pink wire) and instrument cluster harness connector C1, terminal B9 (Black/White wire). If battery voltage exists at both terminals, go to next step. If battery voltage does not exist at both terminals, repair open in appropriate circuit No. 451 (Black/White wire) between instrument cluster connector C1 and ground. Recheck system operation.

4) Check voltage between instrument cluster harness connector C2, terminal A10 (Pink wire) and instrument cluster harness connector C1, terminal A14 (Black wire). If battery voltage exists, go to next step. If battery voltage does not exist, check for open in circuit No. 1250 (Black wire) between instrument cluster connector C1 and ground. Check for poor terminal contact at Black 116-pin connector C200 (body-to-instrument panel wiring harness, located under center of instrument panel), terminal F12 (Black wire). Repair as necessary. Recheck system operation.

5) Check voltage between instrument cluster harness connector C1, terminal A1 (Orange wire) and ground. If battery voltage exists, go to next step. If battery voltage does not exist, check for open in circuit No. 40 (Orange wire) between instrument cluster connector C1 and instrument panel fuse block. Check for poor terminal contact at Black 116-pin connector C200 (body-to-instrument panel wiring harness, located under center of instrument panel), terminal D4 (Orange wire). Repair as necessary. Recheck system operation.

6) Move headlight switch to PARK position. Using DVOM, check voltage between instrument cluster and instrument panel junction block. Recheck system operation.

6) Turn ignition switch to OFF position. Using DVOM, check voltage between instrument cluster harness connector terminal B9 (Orange wire) and ground. If battery voltage exists, go to next step. If battery voltage does not exist, check for open in circuit No. 40 (Orange wire) between instrument cluster and instrument panel fuse block. Check for poor terminal contact at Black 116-pin connector C200 (body-to-instrument panel wiring harness, located under center of instrument panel), terminal D4 (Orange wire). Repair as necessary. Recheck system operation.
voltage between instrument cluster harness connector C1, terminal B12 (Yellow wire) and ground. If battery voltage exists, go to next step. If battery voltage does not exist, check for open in circuit No. 32 (Yellow wire) between instrument cluster connector C1 and instrument panel fuse block. Check for poor terminal contact at Black 116-pin connector C200 (body-to-instrument panel wiring harness, located under center of instrument panel), terminal B2 (Yellow wire). Repair as necessary. Recheck system operation.

7) Check for poor terminal contact at instrument cluster connector C1, terminals A7 (Pink wire), B8 (Black/White wire), B9 (Black/White wire), A1 (Orange wire), B1 (Orange wire), B12 (Yellow wire) and A14 (Black wire). Check for poor terminal contact at instrument cluster connector C2, terminals A10 (Pink wire) and A1 (Brown wire). Repair as necessary and recheck system operation. If connector is okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

INSTRUMENT CLUSTER DISPLAY DOES NOT DIM (UB3)

1) Turn ignition switch to OFF position. Disconnect instrument cluster Black 34-pin connector C1. See Fig. 4. Move headlight switch to PARK or HEAD position. Turn dimmer control to low position. Using DVOM, check voltage between instrument cluster harness connector terminal B6 (Gray wire) and ground. If battery voltage exists, go to next step. If battery voltage does not exist, check for open or short to ground in circuit No. 8 (Gray wire) between instrument cluster and interior lighting system. See WIRING DIAGRAMS. Check for poor connections at headlight switch. Repair as necessary and recheck system operation. If circuit and connections are okay, replace headlight switch. Recheck system operation.

2) Check voltage between instrument cluster harness connector terminal A4 (Gray wire) and ground while adjusting dimmer control. If voltage varies with dimmer control, go to next step. If voltage does not vary with dimmer control, check for open, high resistance or short to ground in circuit No. 8 (Gray wire) between instrument cluster and interior lighting system. See WIRING DIAGRAMS. Check for poor connections at headlight switch. Repair as necessary and recheck system operation. If circuit and connections are okay, replace headlight switch. Recheck system operation.

3) Check for poor terminal contact at instrument cluster connector terminals A4 (Gray wire) and B6 (Gray wire). Repair as necessary and recheck system operation. If connector is okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

INSTRUMENT CLUSTER DISPLAY DOES NOT DIM (U50 & U2F)

1) Turn ignition switch to OFF position. Disconnect instrument cluster Black 22-pin connector C2. See Fig. 5. Move headlight switch to PARK or HEAD position. Turn dimmer control to low position. Using DVOM, check voltage between instrument cluster harness connector C2, terminal B3 (Gray wire) and ground. If battery voltage exists, go to step 3). If battery voltage does not exist, go to next step.

2) Check for open or short to ground in circuit No. 8 (Gray wire) between instrument cluster connector C2 and interior lighting system. See WIRING DIAGRAMS. Check for poor connections at headlight switch. Repair as necessary and recheck system operation. If circuit and connections are okay, replace headlight switch. Recheck system operation.

3) Check voltage between instrument cluster Black 34-pin harness connector C1, terminal B16 (Gray wire) and ground while
adjusting dimmer control. See Fig. 4. If voltage varies with dimmer
control, go to next step. If voltage does not vary with dimmer
control, check for open, high resistance or short to ground in circuit
No. 8 (Gray wire) between instrument cluster connector C1 and interior
lighting system. See WIRING DIAGRAMS. Check for poor connections at
headlight switch. Repair as necessary and recheck system operation. If
circuit and connections are okay, replace headlight switch. Recheck
system operation.

4) Check for poor terminal contact at instrument cluster
connector C1, terminal B16 (Gray wire). See Fig. 5. Check for poor
terminal contact at instrument cluster connector C2, terminal B3 (Gray
wire). Repair as necessary and recheck system operation. If connector
is okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER
under REMOVAL & INSTALLATION. Recheck system operation.

FUEL GAUGE INOPERATIVE (UB3)

1) Connect scan tool to Data Link Connector (DLC). Turn
ignition switch to RUN position. Using scan tool, check for Powertrain
Control Module (PCM) Diagnostic Trouble Codes (DTCs). If no PCM DTCs
exist, go to next step. If any PCM DTCs exist, locate and repair
problem in PCM system. See G - TESTS W/CODES article in ENGINE
PERFORMANCE section.

2) Turn ignition switch to OFF position. Disconnect fuel tank
unit connector. Using Instrument Panel Tester (J-33431), connect 2 Red
leads to fuel tank unit harness connector terminals "B" (Purple wire)
and "D" (Black wire). Turn ignition switch to RUN position. Move
tester resistance dials to 40 ohms (empty), then to 248 ohms (full).
Fuel gauge should display empty at 40 ohms, and display full at 248
ohms. If fuel gauge operates as specified, go to next step. If fuel
gauge does not operate as specified, go to step 6).

3) Using scan tool, establish communication with PCM. Move
tester resistance dials to 40 ohms (empty), then to 248 ohms (full).
If PCM does not perceive changes in fuel sender data, go to next step.
If PCM perceives changes in fuel sender data, locate and repair
problem in PCM system. See G - TESTS W/CODES article in ENGINE
PERFORMANCE section.

4) Check for short to voltage or ground in circuit No. 1589
(Purple wire) between fuel tank unit and PCM Clear 80-pin connector
C2, terminal No. 64. Repair as necessary and recheck system operation.
If circuit is okay, go to next step.

5) Check for open in circuit No. 808 (Black wire) between
fuel tank unit and PCM connector C2, terminal No. 35. Repair as
necessary and recheck system operation. If circuit is okay, replace
fuel level sender. Recheck system operation.

6) Disconnect instrument cluster Black 34-pin connector C1.
See Fig. 4. Connect a DVOM between instrument cluster harness
connector terminals A14 (Purple/White wire) and A8 (Black/White wire).
Move tester resistance dials to 40 ohms, then to 248 ohms. If DVOM
voltage varies with changes in tester resistance, go to next step. If DVOM
voltage does not vary with changes in tester resistance, go to
step 8).

7) Check for poor terminal contact at instrument cluster
connector. Repair as necessary and recheck system operation. If
contacts are okay, replace instrument cluster. See
INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system
operation.

8) Turn ignition switch to OFF position. Disconnect PCM Blue
80-pin connector C1. Using DVOM, check resistance between instrument
cluster harness connector terminal A14 (Purple/White wire) and ground.
If resistance is not less than 5 ohms, go to next step. If resistance
is less than 5 ohms, repair short to ground in circuit No. 455
(Purple/White wire) between instrument cluster and PCM connector C1,
FUEL GAUGE INOPERATIVE (U50 & U2F)

1) Connect scan tool to Data Link Connector (DLC). Turn ignition switch to RUN position. Using scan tool, check for Powertrain Control Module (PCM) Diagnostic Trouble Codes (DTCs). If no PCM DTCs exist, go to next step. If any PCM DTCs exist, locate and repair problem in PCM system. See G - TESTS W/CODES article in ENGINE PERFORMANCE section.

2) Turn ignition switch to OFF position. Disconnect fuel tank unit connector. Using Instrument Panel Tester (J-33431), connect 2 Red leads to fuel tank unit harness connector terminals "B" (Purple wire) and "D" (Black wire). Turn ignition switch to RUN position. Move tester resistance dials to 40 ohms (empty), then to 248 ohms (full). Fuel gauge should display empty at 40 ohms, and display full at 248 ohms. If fuel gauge operates as specified, go to next step. If fuel gauge does not operate as specified, go to step 6).

3) Using scan tool, establish communication with PCM. Move tester resistance dials to 40 ohms (empty), then to 248 ohms (full). If PCM does not perceive changes in fuel sender data, go to next step. If PCM perceives changes in fuel sender data, locate and repair problem in PCM system. See G - TESTS W/CODES article in ENGINE PERFORMANCE section.

4) Check for short to voltage or ground in circuit No. 1589 (Purple wire) between fuel tank unit and PCM Clear 80-pin connector C2, terminal No. 69. Repair as necessary and recheck system operation. If circuit is okay, go to next step.

5) Check for open in circuit No. 808 (Black wire) between fuel tank unit and PCM connector C2, terminal No. 35. Repair as necessary and recheck system operation. If circuit is okay, replace fuel level sender. Recheck system operation.

6) Disconnect instrument cluster Black 34-pin connector C1. See Fig. 4. Disconnect instrument cluster Black 22-pin connector C2. See Fig. 5. Connect a DVOM between instrument cluster harness connector C2, terminal A2 (Purple/White wire) and instrument cluster harness connector C1, terminal B8 (Black/White wire). Move tester resistance dials to 40 ohms, then to 248 ohms. If DVOM voltage varies with changes in tester resistance, go to next step. If DVOM voltage does not vary with changes in tester resistance, go to step 8).

7) Check for poor terminal contact at instrument cluster connectors. Repair as necessary and recheck system operation. If contacts are okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

8) Turn ignition switch to OFF position. Disconnect PCM Blue 80-pin connector C1. Using DVOM, check resistance between instrument cluster harness connector C2, terminal A2 (Purple/White wire) and ground. If resistance is not less than 5 ohms, go to next step. If resistance is less than 5 ohms, repair short to ground in circuit No. 455 (Purple/White wire) between instrument cluster connector C2 and PCM connector C1, terminal No. 3. Recheck system operation.

9) Check resistance between instrument cluster harness connector terminal A14 (Purple/White wire) and PCM harness connector C1, terminal No. 3 (Purple/White wire). If resistance is less than 5 ohms, locate and repair problem in PCM system. See G - TESTS W/CODES article in ENGINE PERFORMANCE section. If resistance is not less than 5 ohms, repair open in circuit No. 455 (Purple/White wire) between instrument cluster and PCM connector C1. Recheck system operation.
procedures in G - TESTS W/CODES article in ENGINE PERFORMANCE section. If resistance is not less than 5 ohms, repair open in circuit No. 455 (Purple/White wire) between instrument cluster connector C2 and PCM connector C1. Recheck system operation.

TACHOMETER INOPERATIVE (UB3)

1) Turn ignition switch to OFF position. Disconnect Ignition Control Module (ICM) connector. Plug Instrument Panel Tester (J-33431) into a wall outlet. Connect Harness Adapter (J-33431-10) to instrument panel tester. Connect Black lead of harness adapter to ground, and Red lead to ICM harness connector terminal "E" (White wire). Move instrument panel tester to 54 MPH, 60 Hz and turn power switch to ON position. Turn ignition switch to RUN position. If tachometer reads about 1350 RPM, go to next step. If tachometer does not read about 1350 RPM, go to step 3).

2) Check for poor terminal contacts at ICM connector. Repair as necessary and recheck system operation. If contacts are okay, replace Ignition Control Module (ICM). Recheck system operation.

3) Check for open or short to ground in circuit No. 121 (White wire) between ICM and instrument cluster Black 34-pin connector C1 terminal B15. See Fig. 4. Check for poor terminal contact at Black 8-pin connector C107 (engine-to-ignition wiring harness, located at right front of engine near ignition coils), terminal "E" (White wire). Check for poor terminal contact at Black 66-pin connector C101 (body-to-engine wiring harness, located at right rear of engine compartment, near strut tower), terminal J7 (White wire). Check for poor terminal contact at Black 116-pin connector C200 (body-to-instrument panel wiring harness, located under center of instrument panel), terminal A6 (White wire). Check for poor terminal contact at instrument cluster connector terminal B15 (White wire). Repair as necessary and recheck system operation. If circuits and connections are okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

TACHOMETER INOPERATIVE (U50 & U2F)

1) Turn ignition switch to OFF position. Disconnect Ignition Control Module (ICM) connector. Plug Instrument Panel Tester (J-33431) into a wall outlet. Connect Harness Adapter (J-33431-10) to instrument panel tester. Connect Black lead of harness adapter to ground, and Red lead to ICM harness connector terminal "E" (White wire). Move instrument panel tester to 54 MPH, 60 Hz and turn power switch to ON position. Turn ignition switch to RUN position. If tachometer reads about 1350 RPM, go to next step. If tachometer does not read about 1350 RPM, go to step 3).

2) Check for poor terminal contacts at ICM connector. Repair as necessary and recheck system operation. If contacts are okay, replace Ignition Control Module (ICM). Recheck system operation.

3) Check for open or short to ground in circuit No. 121 (White wire) between ICM and instrument cluster Black 22-pin connector C2, terminal B9. See Fig. 5. Check for poor terminal contact at Black 8-pin connector C107 (engine-to-ignition wiring harness, located at right front of engine near ignition coils), terminal "E" (White wire). Check for poor terminal contact at Black 66-pin connector C101 (body-to-engine wiring harness, located at right rear of engine compartment, near strut tower), terminal J7 (White wire). Check for poor terminal contact at Black 116-pin connector C200 (body-to-instrument panel wiring harness, located under center of instrument panel), terminal A6 (White wire). Check for poor terminal contact at instrument cluster connector C2, terminal B9 (White wire). Repair as necessary and recheck system operation. If circuits and connections are okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL
OIL PRESSURE GAUGE INOPERATIVE (UB3)

1) Turn ignition switch to OFF position. Disconnect oil pressure sensor connector. Connect Red leads of Instrument Panel Tester (J-33431) to oil pressure sensor harness connector terminals "A" (Tan wire) and "B" (Black/White wire). Turn ignition switch to RUN position. Move tester resistance dials to zero ohms (zero psi), then to 90 ohms (120 psi). Scan tool should display zero psi at zero ohms, and 120 psi at 90 ohms. If scan tool indicates as specified, go to next step. If scan tool does not indicate as specified, go to step 3).

2) Check for poor terminal contact at oil pressure sensor connector terminals "A" (Tan wire) and "B" (Black/White wire). If connections are okay, replace oil pressure sensor. Recheck system operation.

3) Check for open, high resistance or short to ground in circuit No. 31 (Tan wire) between instrument cluster Black 34-pin connector C1 terminal A2 and oil pressure sensor. See Fig. 4. Check for open or high resistance in circuit No. 251 (Black/White wire) between oil pressure sensor and ground. Check for poor terminal contact at Black 66-pin connector C101 (body-to-engine wiring harness, located at right rear of engine compartment, near strut tower), terminals A4 (Tan wire) and A1 (Black/White wire). Check for poor terminal contact at Black 116-pin connector C200 (body-to-instrument panel wiring harness, located under center of instrument panel), terminal A5 (Tan wire). Check for poor terminal contact at Black 66-pin connector C101 (body-to-engine wiring harness, located at right rear of engine compartment, near strut tower), terminals A4 (Tan wire) and A1 (Black/White wire). Check for poor terminal contact at instrument cluster connector terminal A2 (Tan wire). If circuits and connections are okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

OIL PRESSURE GAUGE INOPERATIVE (U50 & U2F)

1) Turn ignition switch to OFF position. Disconnect oil pressure sensor connector. Connect Red leads of Instrument Panel Tester (J-33431) to oil pressure sensor harness connector terminals "A" (Tan wire) and "B" (Black/White wire). Turn ignition switch to RUN position. Move tester resistance dials to zero ohms (zero psi), then to 90 ohms (120 psi). Scan tool should display zero psi at zero ohms, and 120 psi at 90 ohms. If scan tool indicates as specified, go to next step. If scan tool does not indicate as specified, go to step 3).

2) Check for poor terminal contact at oil pressure sensor connector terminals "A" (Tan wire) and "B" (Black/White wire). If connections are okay, replace oil pressure sensor. Recheck system operation.

3) Check for open, high resistance or short to ground in circuit No. 31 (Tan wire) between oil pressure sensor and instrument cluster Black 22-pin connector C2. See Fig. 5. Check for open or high resistance in circuit No. 251 (Black/White wire) between oil pressure sensor and ground. Check for poor terminal contact at Black 66-pin connector C101 (body-to-engine wiring harness, located at right rear of engine compartment, near strut tower), terminals A4 (Tan wire) and A1 (Black/White wire). Check for poor terminal contact at Black 116-pin connector C200 (body-to-instrument panel wiring harness, located under center of instrument panel), terminal A5 (Tan wire). Check for poor terminal contact at instrument cluster connector terminal A2 (Tan wire). Check for poor terminal contact at instrument cluster connector terminal B1 (Tan wire). If circuits and connections are okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

COOLANT TEMPERATURE GAUGE INOPERATIVE (UB3)

1) Turn ignition switch to OFF position. Disconnect Engine
Coolant Temperature (ECT) sensor connector. Connect Red leads of Instrument Panel Tester (J-33431) to ECT sensor harness connector terminal "C" (Light Green wire) and ground. Turn ignition switch to RUN position. Move tester resistance dials to 1400 ohms, 93 ohms, then to 55 ohms. Coolant temperature gauge should indicate minimum, midscale, then maximum temperature. If coolant temperature gauge indicates as specified, go to next step. If coolant temperature gauge does not indicate as specified, go to step 3).

2) Check for poor terminal contact at ECT sensor connector terminals. Check for open at ECT sensor ground. Repair as necessary and recheck system operation. If connections are okay, replace ECT sensor. Recheck system operation.

3) Check for open or short to ground in circuit No. 36 (Light Green wire) between ECT sensor and instrument cluster Black 34-pin connector C1 terminal A9. See Fig. 4. Check for poor terminal contact at Black 66-pin connector C101 (body-to-engine wiring harness, located at right rear of engine compartment, near strut tower), terminal B3 (Light Green wire). Check for poor terminal contact at Black 116-pin connector C200 (body-to-instrument panel wiring harness, located under center of instrument panel), terminal A8 (Light Green wire). Check for poor terminal contact at instrument cluster connector terminal A9 (Light Green wire). If circuits and connections are okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

COOLANT TEMPERATURE GAUGE INOPERATIVE (U50 & U2F)

1) Turn ignition switch to OFF position. Disconnect Engine Coolant Temperature (ECT) sensor connector. Connect Red leads of Instrument Panel Tester (J-33431) to ECT sensor harness connector terminal "C" (Light Green wire) and ground. Turn ignition switch to RUN position. Move tester resistance dials to 1400 ohms, 93 ohms, then to 55 ohms. Coolant temperature gauge should indicate minimum, midscale, then maximum temperature. If coolant temperature gauge indicates as specified, go to next step. If coolant temperature gauge does not indicate as specified, go to step 3).

2) Check for poor terminal contact at ECT sensor connector terminals. Check for open at ECT sensor ground. Repair as necessary and recheck system operation. If connections are okay, replace ECT sensor. Recheck system operation.

3) Check for open or short to ground in circuits No. 135 (Dark Green wire) and No. 36 (Light Green wire) between ECT sensor and instrument cluster Black 22-pin connector C2, terminal A11. See Fig. 5. Check for poor terminal contact at Black 66-pin connector C101 (body-to-engine wiring harness, located at right rear of engine compartment, near strut tower), terminal B3 (Dark Green wire). Check for poor terminal contact at Black 116-pin connector C200 (body-to-instrument panel wiring harness, located under center of instrument panel), terminal A8 (Dark Green wire). Check for poor terminal contact at instrument cluster connector C2, terminal A11 (Dark Green wire). If circuits and contacts are okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

VOLTMETER INOPERATIVE (UB3 & U50)

1) Connect voltmeter between battery positive and negative terminals. Turn ignition switch to RUN position. If voltage reading on voltmeter is not similar to vehicle’s voltmeter, go to next step. If voltage reading on voltmeter is similar to vehicle’s voltmeter, vehicle’s voltmeter is operating properly. Locate and repair problem in charging system. See GENERATOR & REGULATOR article in ELECTRICAL section. Recheck system operation.
2) If other gauges are not operating properly, go to appropriate INSTRUMENT CLUSTER INOPERATIVE test. If other gauges are operating properly, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

VOLTMETER INDICATES HIGH OR LOW BATTERY VOLTAGE (UB3 & U50)

Check charging system. See GENERATOR & REGULATOR article in ELECTRICAL section. Check starting system. See STARTER article in ELECTRICAL section. Repair as necessary. Recheck system operation.

BOOST GAUGE INOPERATIVE (U2F)

1) Turn ignition switch to OFF position. Disconnect boost/MAP sensor connector. Turn ignition switch to RUN position. Using DVM, check voltage between boost/MAP sensor harness connector terminal "C" (Gray wire) and ground. If reading is not about 5 volts, go to next step. If reading is about 5 volts, go to step 3).

2) Check for open or short to ground in circuits No. 705 (Gray wire) and No. 910 (Gray wire) between boost/MAP sensor and instrument cluster Black 34-pin connector C1, terminal B7. See Fig. 4. Check for poor terminal contact at Black 66-pin connector C101 (body-to-engine wiring harness, located at right rear of engine compartment, near strut tower), terminal D6 (Gray wire). Check for poor terminal contact at instrument cluster connector C1, terminal B7 (Gray wire). Repair as necessary and recheck system operation. If circuits and contacts are okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

3) Check voltage between boost/MAP sensor harness connector terminals "C" (Gray wire) and "A" (Black/White wire). If reading is not about 5 volts, go to next step. If reading is about 5 volts, go to step 5).

4) Check for open in circuit No. 251 (Black/White wire) between boost/MAP sensor and ground. Check for poor terminal contact at Black 66-pin connector C101 (body-to-engine wiring harness, located at right rear of engine compartment, near strut tower), terminal A1 (Black/White wire). Repair as necessary. Recheck system operation.

5) Connect a fused jumper wire between boost/MAP sensor harness connector terminals "C" (Gray wire) and "B" (Black wire). If boost gauge indicates +10, go to next step. If boost gauge does not indicate +10, go to step 7).

6) Check for poor terminal contacts at boost/MAP sensor connector. Repair as necessary and recheck system operation. If contacts are okay, replace boost/MAP sensor. Recheck system operation.

7) Check for open or short to ground in circuit No. 891 (Black wire) between boost/MAP sensor and instrument cluster Black 22-pin connector C2, terminal B11. See Fig. 5. Check for poor terminal contact at Black 66-pin connector C101 (body-to-engine wiring harness, located at right rear of engine compartment, near strut tower), terminal F7 (Black wire). Check for poor terminal contact at instrument cluster connector C2, terminal B11 (Black wire). Repair as necessary and recheck system operation. If circuits and contacts are okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

SPEEDOMETER INOPERATIVE

NOTE: This test only applies to speedometer on instrument cluster. If speedometer on Head Up Display (HUD) is inoperative, see HEAD UP DISPLAY (HUD) SPEEDOMETER INOPERATIVE (U50 & U2F).
1) Disconnect Powertrain Control Module (PCM) Blue 80-pin connector C1. Connect Signal Generator Instrument Panel Tester (J-33431-B) to PCM harness connector C1, terminal No. 55 (Dark Green/White wire). Connect tester ground terminal to a good chassis ground. Set tester to 54 MPH. Turn ignition switch to RUN position. If speedometer reads 54 MPH, go to next step. If speedometer does not read 54 MPH, go to step 3).

2) Check for poor terminal contact at PCM connector C1, terminal No. 55 (Dark Green/White wire). Check for poor terminal contact at Black 66-pin connector C101 (body-to-engine wiring harness, located at right rear of engine compartment, near strut tower), terminal B6 (Dark Green/White wire). Repair as necessary and recheck system operation. If contacts are okay, locate and repair problem in PCM system. See G - TESTS W/CODES article in ENGINE PERFORMANCE section.

3) Check for open or short (to ground or voltage) in circuit No. 817 (Dark Green/White wire) between PCM connector C1 and instrument cluster Black 22-pin connector C2, terminal B10. See Fig. 5. Check for poor connection at instrument cluster vehicle speed input terminal. Repair as necessary and recheck system operation. If circuits and connections are okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

SPEEDOMETER OR ODOMETER INOPERATIVE

If speedometer or odometer (but not both) is inoperative, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

CHECK ENGINE INDICATOR ALWAYS ON OR INOPERATIVE

Perform on-board diagnostic system check. See G - TESTS W/CODES article in ENGINE PERFORMANCE section. Recheck system operation.

AIR BAG INDICATOR ALWAYS ON OR INOPERATIVE

Locate and repair problem in air bag system. See procedures in AIR BAG RESTRAINT SYSTEM article. Recheck system operation.

ANTI-LOCK INDICATOR ALWAYS ON OR INOPERATIVE


TRACTION OFF INDICATOR ALWAYS ON OR INOPERATIVE

Locate and repair problem in traction control system. See ANTI-LOCK/TCS article in BRAKES section. Recheck system operation.

SECURITY INDICATOR ALWAYS ON OR INOPERATIVE

Locate and repair problem in anti-theft system. See procedures in ANTI-THEFT SYSTEM article in ACCESSORIES/SAFETY EQUIPMENT section. Recheck system operation.

VOLTS INDICATOR INOPERATIVE (U2F)

1) Turn ignition switch to OFF position. Disconnect Powertrain Control Module (PCM) Blue 80-pin connector C1. Connect a fused jumper wire between PCM harness connector C1, terminal No. 36.
(Brown wire) and ground. Turn ignition switch to RUN position. If VOLTS indicator illuminates, go to next step. If VOLTS indicator does not illuminate, go to step 3).

2) Check for poor terminal contacts at PCM connector C1. Repair as necessary and recheck system operation. If contacts are okay, locate and repair problem in PCM system. See G - TESTS W/CODES article in ENGINE PERFORMANCE section. Recheck system operation.

3) Check for open in circuit No. 25 (Brown wire) between instrument cluster connector Black 34-pin connector C1, terminal B13 and PCM connector C1. See Fig. 4. Check for poor terminal contact at Black 116-pin connector C200 (body-to-instrument panel wiring harness, located under center of instrument panel), terminal C4 (Brown wire). If circuit and contact are okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

VOLTS INDICATOR ALWAYS ON (U2F)

Check charging system. See GENERATOR & REGULATOR article in ELECTRICAL section. Check starting system. See STARTER article in ELECTRICAL section. Repair as necessary. Recheck system operation.

BRAKE INDICATOR ALWAYS ON OR INOPERATIVE

Locate and repair problem in brake system. See BRAKE SYSTEM article in BRAKES section. Recheck system operation.

FASTEN BELTS INDICATOR INOPERATIVE

Locate and repair problem in audible warning system. Recheck system operation.

HIGH BEAM INDICATOR INOPERATIVE

Check for open in circuit No. 11 (Light Green wire) between instrument cluster Black 34-pin connector C1, terminal B14 and headlight system. See Fig. 4. Repair as necessary and recheck system operation. If circuit is okay, locate and repair problem in headlight system. See WIRING DIAGRAMS. Recheck system operation.

RIGHT TURN SIGNAL INDICATOR INOPERATIVE

Check for open in circuit No. 15 (Dark Blue wire) between instrument cluster Black 34-pin connector C1, terminal A13 and exterior lighting system. See Fig. 4. Repair as necessary and recheck system operation. If circuit is okay, locate and repair problem in exterior lighting system. See WIRING DIAGRAMS. Recheck system operation.

LEFT TURN SIGNAL INDICATOR INOPERATIVE

Check for open in circuit No. 14 (Light Blue wire) between instrument cluster Black 34-pin connector C1, terminal B17 and exterior lighting system. See Fig. 4. Repair as necessary and recheck system operation. If circuit is okay, locate and repair problem in exterior lighting system. See WIRING DIAGRAMS. Recheck system operation.

LOW WASHER FLUID INDICATOR ALWAYS ON (UB3)

Check for short to ground in circuit No. 99 (Black/White wire) between washer fluid level switch and instrument cluster Black
34-pin connector C1, terminal A11. See Fig. 4. Check for short to ground in washer fluid level switch. Repair as necessary. Recheck system operation.

LOW WASHER FLUID INDICATOR ALWAYS ON (U50 & U2F)

Check for short to ground in circuit No. 99 (Black/White wire) between washer fluid level switch and instrument cluster Black 34-pin connector C1, terminal A16. See Fig. 4. Check for short to ground in washer fluid level switch. Repair as necessary. Recheck system operation.

LOW WASHER FLUID INDICATOR INOPERATIVE (UB3)

1) Turn ignition switch to OFF position. Disconnect washer fluid level switch connector. Connect a fused jumper wire between washer fluid level switch harness connector terminals "A" (Black wire) and "B" (Black/White wire). Turn ignition switch to RUN position. If LOW WASHER FLUID indicator illuminates, go to next step. If LOW WASHER FLUID indicator does not illuminate, go to step 3).

2) Check for poor terminal contact at washer fluid level switch connector terminals "A" (Black wire) and "B" (Black/White wire). Repair as necessary and recheck system operation. If contacts are okay, replace washer fluid level switch. Recheck system operation.

3) Turn ignition switch to OFF position. Disconnect instrument cluster Black 34-pin connector C1. See Fig. 4. Using DVOM, check resistance between instrument cluster harness connector terminal A11 (Black/White wire) and ground. If resistance is about zero ohms, go to next step. If resistance is not about zero ohms, go to step 5).

4) Check for poor terminal contact at instrument cluster connector terminal A11 (Black/White wire). Repair as necessary and recheck system operation. If contact is okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

5) Check for open or short to voltage in circuit No. 99 (Black/White wire) between washer fluid level switch and instrument cluster connector. Check for open in circuit No. 1150 (Black wire) between washer fluid level switch and ground. Check for poor terminal contact at Black 116-pin connector C200 (body-to-instrument panel wiring harness, located under center of instrument panel), terminal L11 (Black/White wire). Repair as necessary. Recheck system operation.

LOW WASHER FLUID INDICATOR INOPERATIVE (U50 & U2F)

1) Turn ignition switch to OFF position. Disconnect washer fluid level switch connector. Connect a fused jumper wire between washer fluid level switch harness connector terminals "A" (Black wire) and "B" (Black/White wire). Turn ignition switch to RUN position. If LOW WASHER FLUID indicator illuminates, go to next step. If LOW WASHER FLUID indicator does not illuminate, go to step 3).

2) Check for poor terminal contact at washer fluid level switch connector terminals "A" (Black wire) and "B" (Black/White wire). Repair as necessary and recheck system operation. If contacts are okay, replace washer fluid level switch. Recheck system operation.

3) Turn ignition switch to OFF position. Disconnect instrument cluster Black 34-pin connector C1. See Fig. 4. Using DVOM, check resistance between instrument cluster harness connector C1, terminal A16 (Black/White wire) and ground. If resistance is about zero ohms, go to next step. If resistance is not about zero ohms, go to step 5).

4) Check for poor terminal contact at instrument cluster connector C1, terminal A16 (Black/White wire). Repair as necessary and recheck system operation. If contact is okay, replace instrument
cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

5) Check for open or short to voltage in circuit No. 99 (Black/White wire) between washer fluid level switch and instrument cluster connector C1. Check for open in circuit No. 1150 (Black wire) between washer fluid level switch and ground. Check for poor terminal contact at Black 116-pin connector C200 (body-to-instrument panel wiring harness, located under center of instrument panel), terminal L11 (Black/White wire). Repair as necessary. Recheck system operation.

CHECK OIL LEVEL INDICATOR ALWAYS ON

Perform on-board diagnostic system check. See G - TESTS W/CODES article in ENGINE PERFORMANCE section. Recheck system operation.

CHECK OIL LEVEL INDICATOR INOPERATIVE

Perform on-board diagnostic system check. See G - TESTS W/CODES article in ENGINE PERFORMANCE section. Recheck system operation.

LOW COOLANT INDICATOR ALWAYS ON (U50 & U2F)

1) Turn ignition switch to OFF position. Disconnect coolant level switch connector. Start engine. If LOW COOLANT indicator does not illuminate, go to next step. If LOW COOLANT indicator illuminates, check for short to ground in circuit No. 68 (Yellow/Black wire) between coolant level switch and instrument cluster Black 34-pin connector C1, terminal B5. Repair as necessary and recheck system operation. If circuit is okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

2) Turn ignition switch to OFF position. Using DVOM, check voltage between coolant level switch harness connector terminals "A" (Black/White wire) and "B" (Pink wire). If battery voltage does not exist, go to next step. If battery voltage exists, check for poor terminal contacts at coolant level switch. Repair as necessary and recheck system operation. If contacts are okay, replace coolant level switch. Recheck system operation.

3) Check for open or high resistance in circuit No. 239 (Pink wire) between coolant level switch and instrument panel fuse block. Check for open or high resistance in circuit No. 251 (Black/White wire) between coolant level switch and ground. Check for poor terminal contacts at engine coolant level switch. Repair as necessary and recheck system operation. If circuits and contacts are okay, replace engine coolant level switch. Recheck system operation.

LOW COOLANT INDICATOR INOPERATIVE (U50 & U2F)

1) Turn ignition switch to OFF position. Disconnect coolant level switch connector. Connect a fused jumper wire between coolant level switch harness connector terminal "C" (Yellow/Black wire) and ground. Turn ignition switch to RUN position. If LOW COOLANT indicator does not illuminate, go to next step. If LOW COOLANT indicator illuminates, go to step 3).

2) Check for open or high resistance in circuit No. 68 (Yellow/Black wire) between coolant level switch and instrument cluster Black 34-pin connector C1, terminal B5. See Fig. 4. Check for poor terminal contact at instrument cluster connector C1, terminal B5 (Yellow/Black wire). Check for poor terminal contact at Black 116-pin connector C200 (body-to-instrument panel wiring harness, located under
center of instrument panel), terminal L5 (Yellow/Black wire). Repair as necessary and recheck system operation. If circuits and contacts are okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

3) Using DVOM, check voltage between coolant level switch harness connector terminals "A" (Black/White wire) and "B" (Pink wire). If battery voltage does not exist, go to next step. If battery voltage exists, replace engine coolant level switch. Recheck system operation.

4) Check for open, high resistance or short to ground in circuit No. 239 (Pink wire) between coolant level switch and instrument panel fuse block. Check for open or high resistance in circuit No. 251 (Black/White wire) between coolant level switch and ground. Repair as necessary. Recheck system operation.

CHECK GAUGES INDICATOR INOPERATIVE (UB3)

1) Disconnect instrument cluster Black 34-pin connector C1. See Fig. 4. Connect a fused jumper wire between instrument cluster connector terminal A1 (Dark Green wire) and ground. If CHECK GAUGES indicator illuminates, go to step 3). If CHECK GAUGES indicator does not illuminate, go to next step.

2) Check for poor terminal contacts at instrument cluster connector. Repair as necessary and recheck system operation. If contacts are okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

3) Reconnect instrument cluster connector. Connect a fused jumper wire between instrument cluster connector terminal A13 (Brown wire) and ground. If CHECK GAUGES indicator illuminates, go to next step. If CHECK GAUGES indicator does not illuminate, go to step 2).

4) Check for open in circuit No. 35 (Dark Green wire) between instrument cluster and Powertrain Control Module (PCM) Blue 80-pin connector C1, terminal No. 75. Check for open in circuit No. 25 (Brown wire) between instrument cluster and starting/charging system. See GENERATOR & REGULATOR or STARTER article in ELECTRICAL section. Repair as necessary and recheck system operation. If circuits are okay, locate and repair problem in PCM system. See G - TESTS W/CODES article in ENGINE PERFORMANCE section.

CHECK GAUGES INDICATOR ALWAYS ON (UB3)

1) Disconnect Powertrain Control Module (PCM) Clear 80-pin connector C2. Turn ignition switch to RUN position. If CHECK GAUGES indicator illuminates, go to next step. If CHECK GAUGES indicator does not illuminate, locate and repair problem in PCM system. See G - TESTS W/CODES article in ENGINE PERFORMANCE section.

2) Check for short to ground in circuit No. 35 (Dark Green wire) between instrument cluster and PCM Blue 80-pin connector C1, terminal No. 75. Repair as necessary and recheck system operation. If circuit is okay, go to next step.

3) Check for short to ground in circuit No. 25 (Brown wire) between instrument cluster and starting/charging system. See GENERATOR & REGULATOR or STARTER article in ELECTRICAL section. Repair as necessary and recheck system operation. If circuit is okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

HOOD AJAR INDICATOR ALWAYS ON (U50 & U2F)

1) Disconnect hood ajar switch connector. Turn ignition switch to RUN position. If HOOD AJAR indicator illuminates, go to next step. If HOOD AJAR indicator does not illuminate, adjust or replace
hood ajar switch. Recheck system operation.

2) Check for short to ground in circuit No. 109 (Pink/Black wire) between instrument cluster Black 34-pin connector C1 and hood ajar switch. See Fig. 4. Repair as necessary and recheck system operation. If circuit is okay, check instrument cluster connectors. If connectors are okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

**HOOD AJAR INDICATOR INOPERATIVE (U50 & U2F)**

1) Disconnect hood ajar switch connector. Connect a fused jumper wire between hood ajar switch harness connector terminals "A" (Pink/Black wire) and "B" (Black wire). Turn ignition switch to RUN position. If HOOD AJAR indicator illuminates, go to next step. If HOOD AJAR indicator does not illuminate, go to step 3).

2) Check for poor terminal contacts at hood ajar switch connector. Repair as necessary and recheck system operation. If contacts are okay, replace hood ajar switch. Recheck system operation.

3) Check for open in circuit No. 109 (Pink/Black wire) between instrument cluster Black 34-pin connector C1 and hood ajar switch. See Fig. 4. Check for open in circuit No. 1150 (Black wire) between hood ajar switch and ground. Check for poor terminal contact at instrument cluster connector C1, terminal B4 (Pink/Black wire). Check for poor terminal contact at Black 116-pin connector C200 (body-to-instrument panel wiring harness, located under center of instrument panel), terminal C5 (Pink/Black wire). Repair as necessary and recheck system operation. If circuits and contacts are okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

**DOOR AJAR INDICATOR ALWAYS ON (U50 & U2F)**

1) Turn ignition switch to OFF position. Disconnect suspect door jamb switch connector. Turn ignition switch to RUN position. If DOOR AJAR indicator illuminates, go to next step. If DOOR AJAR indicator does not illuminate, replace door jamb switch. Recheck system operation.

2) Check for short to ground in circuits between appropriate door jamb switch and instrument cluster. See WIRING DIAGRAMS. Repair as necessary and recheck system operation. If circuits are okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

**DOOR AJAR INDICATOR INOPERATIVE (U50 & U2F)**

1) Turn ignition switch to OFF position. Disconnect suspect door jamb switch connector. Turn ignition switch to RUN position. Connect a fused jumper wire between door jamb switch harness connector terminals and ground. If DOOR AJAR indicator illuminates, go to step 4). If DOOR AJAR indicator does not illuminate, go to next step.

2) Check for open in circuits No. 745 (Gray/Black wire), No. 746 (Black/White wire), No. 747 (Light Blue/Black wire), and No. 748 (Light Green/Black wire) between instrument cluster Black 34-pin connector C1 and door jamb switches. See Fig. 4. See WIRING DIAGRAMS. Check for poor terminal contacts at Black 6-pin connector C502 (located at lower front of left front door), Black 6-pin connector C603 (located at lower front of right front door), Black 4-pin connector C702 (located at lower front of left rear door), and Black 4-pin connector C802 (located at lower front of right rear door). Repair as necessary and recheck system operation. If circuits and contacts are okay, go to next step.

3) Check for poor terminal contacts at Black 116-pin
connector C200 (body-to-instrument panel wiring harness, located under center of instrument panel), terminals J1 (Gray/Black wire), J2 (Light Blue/Black wire), J3 (Light Green/Black wire) and K1 (Black/White wire). Check for poor terminal contacts at instrument cluster Black 34-pin connector C1. Repair as necessary and recheck system operation. If contacts are okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

4) Connect a fused jumper wire between door jamb switch harness connector terminals. If DOOR AJAR indicator illuminates, go to next step. If DOOR AJAR indicator does not illuminate, repair open in circuit No. 1250 (Black wire) between appropriate door jamb switch and ground. Recheck system operation.

5) Check for poor terminal contacts at door jamb switch connector. Repair as necessary and recheck system operation. If contacts are okay, replace door jamb switch. Recheck system operation.

TRUNK AJAR INDICATOR ALWAYS ON (U50 & U2F)

1) Disconnect rear compartment lid latch switch connector. Turn ignition switch to RUN position. If TRUNK AJAR indicator illuminates, go to next step. If TRUNK AJAR indicator does not illuminate, go to step 3).

2) Check for short to ground in circuit No. 744 (Red/Black wire) between rear compartment lid latch switch and instrument cluster Black 34-pin connector C1, terminal B3. See Fig. 4. Repair as necessary and recheck system operation. If circuit is okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

3) Check for poor terminal contacts at rear compartment lid latch switch. Repair as necessary and recheck system operation. If contacts are okay, replace rear compartment lid latch switch. Recheck system operation.

TRUNK AJAR INDICATOR INOPERATIVE (U50 & U2F)

1) Disconnect rear compartment lid latch switch connector. Connect a fused jumper wire between rear compartment lid latch switch harness connector terminal "B" (Red/Black wire) and ground. If TRUNK AJAR indicator illuminates, go to step 3). If TRUNK AJAR indicator does not illuminate, go to next step.

2) Check for open in circuit No. 744 (Red/Black wire) between rear compartment lid latch switch and instrument cluster Black 34-pin connector C1, terminal B3. Check for poor terminal contact at instrument cluster connector C1, terminal B3 (Red/Black wire). Check for poor terminal contact at Black 116-pin connector C200 (body-to-instrument panel wiring harness, located under center of instrument panel), terminal L6 (Red/Black wire). Repair as necessary and recheck system operation. If circuits and contacts are okay, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

3) Connect a fused jumper wire between rear compartment lid latch switch harness connector terminals "B" (Red/Black wire) and "C" (Black/White wire). If TRUNK AJAR indicator illuminates, go to next step. If TRUNK AJAR indicator does not illuminate, repair open in circuit No. 1350 (Black/White wire) between rear compartment lid latch switch and ground. Recheck system operation.

4) Check for poor terminal contacts at rear compartment lid latch switch. Repair as necessary and recheck system operation. If contacts are okay, replace rear compartment lid latch switch. Recheck system operation.

CHECK GAUGES INDICATOR ALWAYS ON (U50 & U2F)
1) Start engine. If fuel tank indicator does not illuminate along with CHECK GAUGES indicator, go to next step. If fuel tank indicator illuminates along with CHECK GAUGES indicator, see procedures in FUEL GAUGE INOPERATIVE (U50 & U2F).

2) If engine indicator illuminates along with CHECK GAUGES indicator, go to next step. If engine indicator does not illuminate along with CHECK GAUGES indicator, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

3) If coolant temperature gauge is suspect, see procedures in COOLANT TEMPERATURE GAUGE INOPERATIVE (U50 & U2F). If oil pressure gauge is suspect, go to OIL PRESSURE GAUGE INOPERATIVE (U50 & U2F). If volts gauge is suspect, go to VOLTMETER INOPERATIVE (UB3 & U50) or VOLTS INDICATOR INOPERATIVE (U2F). Repair as necessary and recheck system operation. If gauges and associated circuits are okay, go to next step.

4) Disconnect instrument cluster Black 22-pin connector C2. See Fig. 5. Using DVOM, check resistance between instrument cluster harness connector C2, terminal A9 (Dark Green wire) and ground. If resistance is 5 ohms or less, go to next step. If resistance is not 5 ohms or less, go to step 6).

5) Check for short to ground in circuit No. 35 (Dark Green wire) between instrument cluster connector C2 and Powertrain Control Module (PCM) Blue 80-pin connector C1, terminal No. 75. Repair as necessary and recheck system operation. If circuit is okay, locate and repair problem in engine electrical system. See G - TESTS W/CODES article in ENGINE PERFORMANCE section.

6) On vehicles with U50 cluster, disconnect instrument cluster Black 34-pin connector C1. See Fig. 4. On all models, use DVOM to check resistance between instrument cluster harness connector C1, terminal B13 (Brown wire) and ground. If resistance is 5 ohms or less, go to next step. If resistance is not 5 ohms or less, replace instrument cluster. See INSTRUMENT PANEL CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

7) Check for short to ground in circuit No. 25 (Brown wire) between instrument cluster connector C1 and generator. See WIRING DIAGRAMS. See GENERATOR & REGULATOR article in ELECTRICAL section. Repair as necessary and recheck system operation. If circuit is okay, locate and repair problem in engine electrical system. See G - TESTS W/CODES article in ENGINE PERFORMANCE section.

LAMP MONITOR FUNCTION ON DIC INOPERATIVE (U50 & U2F)

Locate and repair problem in lamp monitor system. See WIRING DIAGRAMS. Recheck system operation.

HEAD UP DISPLAY (HUD) SYSTEM INOPERATIVE (U50 & U2F)

1) Disconnect HUD control switch connector. Turn ignition switch to ON position. Using DVOM, check voltage between HUD control switch harness connector terminal No. 6 (Brown wire) and ground. If battery voltage exists, go to next step. If battery voltage does not exist, repair open or short to ground in circuit No. 1141 (Brown wire) between HUD control switch and instrument panel fuse block. Recheck system operation.

2) Turn ignition switch to OFF position. Disconnect HUD control module connector. Turn ignition switch to RUN position. Using DVOM, check voltage between HUD control module harness connector terminal No. 11 (Brown wire) and ground. If battery voltage exists, go to next step. If battery voltage does not exist, repair open in circuit No. 1141 (Brown wire) between HUD control module and instrument panel fuse block. Recheck system operation.
3) Check voltage between HUD control module harness connector terminals No. 11 (Brown wire) and No. 12 (Black/White wire). If battery voltage exists, go to next step. If battery voltage does not exist, repair open in circuit No. 251 (Black/White wire) between HUD control module and ground. Recheck system operation.

4) Check for poor terminal contacts at HUD control module harness connector terminals No. 11 (Brown wire) and No. 12 (Black/White wire). Repair as necessary and recheck system operation. If contacts are okay, see HEAD UP DISPLAY (HUD) IMAGE INTENSITY DOES NOT DIM WHEN PARKING LIGHTS ARE ON (U50 & U2F).

HEAD UP DISPLAY (HUD) ALWAYS ON (U50 & U2F)

Disconnect HUD control switch connector. Turn ignition switch to RUN position. If HUD display is on, replace HUD switch and recheck system operation. If HUD display is not on, repair short to voltage in circuit No. 717 (White wire) between HUD control switch and HUD control module. Recheck system operation.

HEAD UP DISPLAY (HUD) IMAGE DOES NOT ADJUST UP & DOWN (U50 & U2F)

1) Disconnect HUD control switch connector. Connect a fused jumper wire between HUD control switch harness connector terminals No. 6 (Brown wire) and No. 9 (Yellow wire). Connect another fused jumper wire between HUD control switch harness connector terminals No. 5 (Brown wire) and No. 10 (Black/White wire). Turn ignition switch to RUN position. Adjuster motor should move down. Reconnect jumper wires between HUD control switch harness connector terminals No. 5 and 6, and between terminals No. 9 and 10. Adjuster motor should move up. If adjuster motor operates as specified, go to next step. If adjuster motor does not operate as specified, go to step 3).

2) Check for poor terminal contacts at HUD control switch connector. Repair as necessary and recheck system operation. If contacts are okay, replace HUD control switch. Recheck system operation.

3) Check for open or short to ground in circuit No. 621 (Yellow wire) between HUD control switch and adjuster motor. Check for open or short to ground in circuit No. 620 (Brown wire) between HUD control switch and adjuster motor. Repair as necessary and recheck system operation. If circuits are okay, replace HUD control module. Recheck system operation.

HEAD UP DISPLAY (HUD) IMAGE INTENSITY DOES NOT DIM (U50 & U2F)

1) Turn HUD control switch on. Turn ignition switch to RUN position. Using DVOM to check voltage, backprobe between HUD control switch connector terminal No. 7 (White wire) and ground while moving HUD control switch from minimum to maximum intensity. If reading is zero volts, go to next step. If reading varies between zero volts to battery voltage, go to step 3). If reading is battery voltage, repair short to voltage in circuit No. 717 (White wire) between HUD control switch and HUD control module. Recheck system operation.

2) Check for short to ground in circuit No. 717 (White wire) between HUD control switch and HUD control module. Check for poor terminal contact at HUD control switch connector terminal No. 7 (White wire). Repair as necessary and recheck system operation. If circuits and contacts are okay, replace HUD control switch. Recheck system operation.

3) Turn ignition switch to OFF position. Disconnect HUD control module connector. Turn ignition switch to RUN position. Using
DVOM, check voltage between HUD control module harness connector terminal No. 3 (White wire) and ground while moving HUD control switch from minimum to maximum intensity. If reading is zero volts, go to next step. If reading varies between zero volts to battery voltage, go to step 5).

4) Check for poor terminal contact at HUD control switch connector terminal No. 7 (White wire). Check for open in circuit No. 717 (White wire) between HUD control switch and HUD control module. Repair as necessary. Recheck system operation.

5) Check for poor terminal contact at HUD control module connector terminal No. 3 (White wire). Repair as necessary and recheck system operation. If contact is okay, replace HUD control module. Recheck system operation.

HEAD UP DISPLAY (HUD) IMAGE INTENSITY DOES NOT DIM WHEN PARKING LIGHTS ARE ON (U50 & U2F)

1) Disconnect HUD control module connector. Turn parking lights on. Using DVOM, check voltage between HUD control module harness connector terminal No. 2 (Yellow wire) and ground. If battery voltage exists, go to next step. If less than battery voltage exists, repair open in circuit No. 32 (Yellow wire) between HUD control module and instrument panel fuse block. Recheck system operation.

2) Check for poor terminal contact at HUD control module connector terminal No. 2 (Yellow wire). Repair as necessary and recheck system operation. If contact is okay, replace HUD control module. Recheck system operation.

HEAD UP DISPLAY (HUD) SPEEDOMETER INOPERATIVE (U50 & U2F)

1) If instrument cluster speedometer operates properly, go to next step. If instrument cluster speedometer does not operate properly, go to SPEEDOMETER INOPERATIVE.

2) Check for open or short to ground in circuit No. 817 (Dark Green/White wire) between HUD control module connector terminal No. 8 and splice S255 (in instrument panel wiring harness, located about 3" from instrument cluster C1 breakout). Check for poor terminal contact at HUD control module connector terminal No. 8 (Dark Green/White wire). Repair as necessary and recheck system operation. If circuits and contacts are okay, replace HUD control module. Recheck system operation.

HEAD UP DISPLAY (HUD) TURN SIGNAL INDICATORS INOPERATIVE (U50 & U2F)

1) If instrument cluster turn signal indicators operate properly, go to next step. If instrument cluster turn signal indicators do not operate properly, locate and repair problem in exterior lighting system. See WIRING DIAGRAMS.

2) If right turn indicator on HUD does not operate, go to step 4). If left turn indicator on HUD does not operate, disconnect HUD control module connector. Turn ignition switch to RUN position. Move turn signal switch to left turn position. Using DVOM, check voltage between HUD control module harness connector terminal No. 5 (Light Blue wire) and ground. If pulsing battery voltage exists, go to next step. If no voltage exists, repair open in circuit No. 14 (Light Blue wire) between HUD control module and exterior lighting system. See WIRING DIAGRAMS. Recheck system operation.

3) Check for poor terminal contacts at HUD control module connector. Repair as necessary and recheck system operation. If contacts are okay, replace HUD control module. Recheck system operation.

4) If right turn indicator on HUD does not operate,
disconnect HUD control module connector. Turn ignition switch to RUN position. Move turn signal switch to right turn position. Using DVOM, check voltage between HUD control module harness connector terminal No. 10 (Dark Blue wire) and ground. If pulsing battery voltage exists, go to step 3). If no voltage exists, repair open in circuit No. 15 (Dark Blue wire) between HUD control module and exterior lighting system. See WIRING DIAGRAMS. Recheck system operation.

HEAD UP DISPLAY (HUD) TURN SIGNAL INDICATORS ALWAYS ON (U50 & U2F)

1) Disconnect steering column harness Natural 48-pin connector C202. On body main harness side, remove terminals A11 (Light Blue wire) and A10 (Dark Blue wire) from connector C202. Reconnect connector C202. Turn ignition switch to RUN position. Turn HUD control switch on. If left or right turn signal indicator is on, go to next step. If left or right turn signal indicator is not on, go to step 3).

2) If left turn signal indicator is on, check for short to voltage in circuit No. 14 (Light Blue wire). If right turn signal indicator is on, check for short to voltage in circuit No. 15 (Dark Blue wire). See WIRING DIAGRAMS. Repair as necessary and recheck system operation. If circuits are okay, replace HUD control module. Recheck system operation.

3) Check for short to voltage in steering column wiring harness. Repair as necessary and recheck system operation. If circuits are okay, replace turn signal switch assembly. See STEERING COLUMN SWITCHES article. Recheck system operation.

HEAD UP DISPLAY (HUD) HIGH BEAM INDICATOR INOPERATIVE (U50 & U2F)

1) Turn ignition switch to RUN position. Turn HUD control switch on. Turn high beams on. If instrument cluster high beam indicator illuminates, go to next step. If instrument cluster high beam indicator does not illuminate, locate and repair problem in headlight system. See WIRING DIAGRAMS.

2) Disconnect HUD control module connector. Using DVOM, check voltage between HUD control module harness connector terminal No. 9 (Light Green wire) and ground. If battery voltage exists, go to next step. If less than battery voltage exists, repair open in circuit No. 11 (Light Green wire) between HUD control module and headlight system. See WIRING DIAGRAMS. Recheck system operation.

3) Check for poor terminal contact at HUD control module connector terminal No. 9 (Light Green wire). Repair as necessary and recheck system operation. If contact is okay, replace HUD control module. Recheck system operation.

HEAD UP DISPLAY (HUD) HIGH BEAM INDICATOR ALWAYS ON (U50 & U2F)

1) If high beam headlights are on at all times, go to next step. If high beam headlights are not on at all times, replace HUD control module. Recheck system operation.

2) Disconnect steering column harness connector. If high beam headlights are still on, repair short to voltage in circuit No. 11 (Light Green wire) between HUD control module and headlight system. See WIRING DIAGRAMS. Recheck system operation. If high beam headlights are not on, replace headlight dimmer switch. Recheck system operation.

HEAD UP DISPLAY (HUD) CHECK GAUGES INDICATOR INOPERATIVE (U50 & U2F)
1) Turn ignition switch to OFF position. Disconnect instrument cluster Black 22-pin connector C2. See Fig. 5. Turn HUD control switch off. Using DVOM, check resistance between instrument cluster harness connector C2, terminal A7 (Brown wire) and ground. If resistance is greater than 5 ohms, go to step 3). If resistance is not greater than 5 ohms, go to next step.

2) Check for short to ground in circuit No. 1675 (Brown wire) between HUD control module and instrument cluster connector C2. Repair as necessary and recheck system operation. If circuit is okay, replace HUD control module. Recheck system operation.

3) Connect a fused jumper wire between instrument cluster harness connector C2, terminal A7 (Brown wire) and battery voltage. Turn ignition switch to RUN position. Turn HUD control switch on. If CHECK GAUGES indicator illuminates, go to next step. If CHECK GAUGES indicator does not illuminate, go to step 5).

4) Check for poor terminal contact at instrument cluster connector C2, terminal A7 (Brown wire). Repair as necessary and recheck system operation. If contact is okay, repair or replace instrument cluster. Recheck system operation.

5) Using DVOM to check voltage, backprobe between HUD control module connector terminal No. 6 (Brown wire) and ground. If battery voltage exists, go to next step. If battery voltage does not exist, repair open in circuit No. 1675 (Brown wire) between HUD control module and instrument cluster connector C2. Recheck system operation.

6) Check for poor terminal contact at HUD control module connector terminal No. 6 (Brown wire). Repair as necessary and recheck system operation. If contact is okay, replace HUD control module. Recheck system operation.

HEAD UP DISPLAY (HUD) CHECK GAUGES INDICATOR ALWAYS ON (U50 & U2F)

1) Disconnect instrument cluster Black 22-pin connector C2. See Fig. 5. Turn ignition switch to RUN position. Set HUD control switch at maximum intensity. If CHECK GAUGES indicator illuminates, go to next step. If CHECK GAUGES indicator does not illuminate, repair or replace instrument cluster.

2) Check for short to voltage in circuit No. 1675 (Brown wire) between HUD control module and instrument cluster connector C2. Repair as necessary and recheck system operation. If circuit is okay, replace HUD control module. Recheck system operation.

HEAD UP DISPLAY (HUD) LOW FUEL INDICATOR INOPERATIVE (U50 & U2F)

1) Disconnect instrument cluster Black 22-pin connector C2. See Fig. 5. Turn ignition switch to OFF position. Turn HUD control switch off. Using DVOM, check resistance between instrument cluster connector C2, terminal A6 (Dark Green/White wire) and ground. If resistance is greater than 5 ohms, go to step 3). If resistance is not greater than 5 ohms, go to next step.

2) Check for short to ground in circuit No. 1194 (Dark Green/White wire) between HUD control module and instrument cluster connector C2. Repair as necessary and recheck system operation. If circuit is okay, replace HUD control module. Recheck system operation.

3) Connect a fused jumper wire between instrument cluster harness connector C2, terminal A6 (Dark Green/White wire) and battery voltage. Turn ignition switch to RUN position. Turn HUD control switch on. If LOW FUEL indicator illuminates, go to next step. If LOW FUEL indicator does not illuminate, go to step 5).

4) Check for poor terminal contact at instrument cluster connector C2, terminal A6 (Dark Green/White wire). Repair as necessary and recheck system operation. If contact is okay, repair or replace
instrument cluster. Recheck system operation.

5) Using DVOM to check voltage, backprobe between HUD control module connector terminal No. 4 (Dark Green/White wire) and ground. If battery voltage exists, go to next step. If battery voltage does not exist, repair open in circuit No. 1194 (Dark Green/White wire) between HUD control module and instrument cluster connector C2. Recheck system operation.

6) Check for poor terminal contact at HUD control module connector terminal No. 4 (Dark Green/White wire). Repair as necessary and recheck system operation. If contact is okay, replace HUD control module. Recheck system operation.

HEAD UP DISPLAY (HUD) LOW FUEL INDICATOR ALWAYS ON (U50 & U2F)

1) Disconnect instrument cluster Black 22-pin connector C2. See Fig. 5. Turn ignition switch to RUN position. Set HUD control switch at maximum intensity. If LOW FUEL indicator illuminates, go to next step. If LOW FUEL indicator does not illuminate, repair or replace instrument cluster.

2) Check for short to voltage in circuit No. 1194 (Dark Green/White wire) between HUD control module and instrument cluster connector C2. Repair as necessary and recheck system operation. If circuit is okay, replace HUD control module. Recheck system operation.

REMOVAL & INSTALLATION

* PLEASE READ THIS FIRST *

WARNING: Deactivate air bag system before performing any service operation. See AIR BAG RESTRAINT SYSTEM article. DO NOT apply electrical power to any component on steering column without first deactivating air bag system. Air bag may deploy.

CAUTION: When battery is disconnected, vehicle computer and memory systems may lose memory data. Driveability problems may exist until computer systems have completed a relearn cycle. See COMPUTER RELEARN PROCEDURES article in GENERAL INFORMATION before disconnecting battery.

INSTRUMENT PANEL CLUSTER

Removal & Installation

1) Disconnect negative battery cable. Disable air bag system. See AIR BAG RESTRAINT SYSTEM article. Remove steering column covers. Remove steering column brackets, and lower steering column. Cover top of steering column to prevent scratch damage.

2) Pry lower instrument panel trim plate up, then rearward. Remove lower trim plate. Disconnect sub-woofer gain control switch connector (if equipped). Remove upper instrument panel trim plate screws. Remove interior lights dimmer and twilight sentinel control knob from headlight switch (DO NOT lose dimmer knob retainer). Disconnect cigarette lighter connector. Remove upper instrument panel cluster trim plate.

3) Pull right end of cluster rearward, and rotate cluster assembly to face upward. Remove instrument panel cluster-to-instrument panel screws. See Fig. 6. Pull bottom of cluster rearward, and rotate cluster assembly to face upward. Reach around cluster assembly and disconnect cluster electrical connector(s). Slide instrument cluster toward center of vehicle. Remove instrument cluster.

4) To install, reverse removal procedure. Tighten instrument cluster screws to 14 INCH lbs. (1.6 N.m). Tighten instrument cluster
trim plate screws to 17 INCH lbs. (1.9 N.m). Enable air bag system. See AIR BAG RESTRAINT SYSTEM article.
Fig. 8: Analog Instrument Panel Wiring Diagram (With Head Up Display - 2 Of 2)
Fig. 9: Analog Instrument Panel Wiring Diagram (Without Head Up Display)
Fig. 10: Exterior Lights Wiring Diagram (With Lamp Monitor - 1 Of 2)
Fig. 12: Exterior Lights Wiring Diagram (Without Lamp Monitor - 1 Of 2)
Fig. 13: Exterior Lights Wiring Diagram (Without Lamp Monitor - 2 of 2)
Fig. 14: Headlight System & Daytime Running Lights Wiring Diagram
Fig. 15: Illumination/Interior Lights Wiring Diagram (1 Of 2)