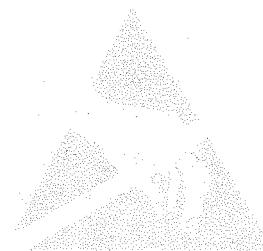


Instrument Panel, Gauges and Console

Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
48-Way Connector Bolt	1.5 N·m	13 lb in
Air Distribution Duct Bolt	2.2 N·m	19 lb in
Armrest Bottom Cover Screw	2 N·m	18 lb in
Data Link Connector Bolt	2 N·m	18 lb in
Floor Console Bolt	8 N·m	71 lb in
Fuse Block Mounting Bolt	1.5 N·m	13 lb in
Console Armrest Door Bolt	2 N·m	18 lb in
Console Bracket Bolt	2 N·m	18 lb in
Console Latch Screw	2 N·m	18 lb in
Console Trim Plate Bolt	2 N·m	18 lb in
Cup Holder Screw	2 N·m	18 lb in
Headlamp Switch Bolt	2 N·m	18 lb in
Instrument Cluster Bolt	2.2 N·m	19 lb in
Instrument Panel Carrier Mounting Bolt	2 N·m	18 lb in
Instrument Panel Carrier Mounting Nut	2.5 N·m	22 lb in
Instrument Panel Cluster Trim Bezel Bolt	2 N·m	18 lb in
Instrument Panel Compartment Door Latch Bolt	2 N·m	18 lb in
Instrument Panel Compartment Hinge Screw	2.8 N·m	25 lb in
Instrument Panel Door Striker Bolt	2 N·m	18 lb in
Instrument Panel Knee Bolster Bolt	2 N·m	18 lb in
Instrument Panel Knee Bolster Deflector Nut	10 N·m	89 lb in
Steering Column Upper Support Nut	25 N·m	18 lb ft
Temperature Control Cable Bolt	2.2 N·m	19 lb in

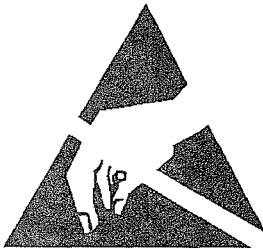


GM SPO Group Numbers

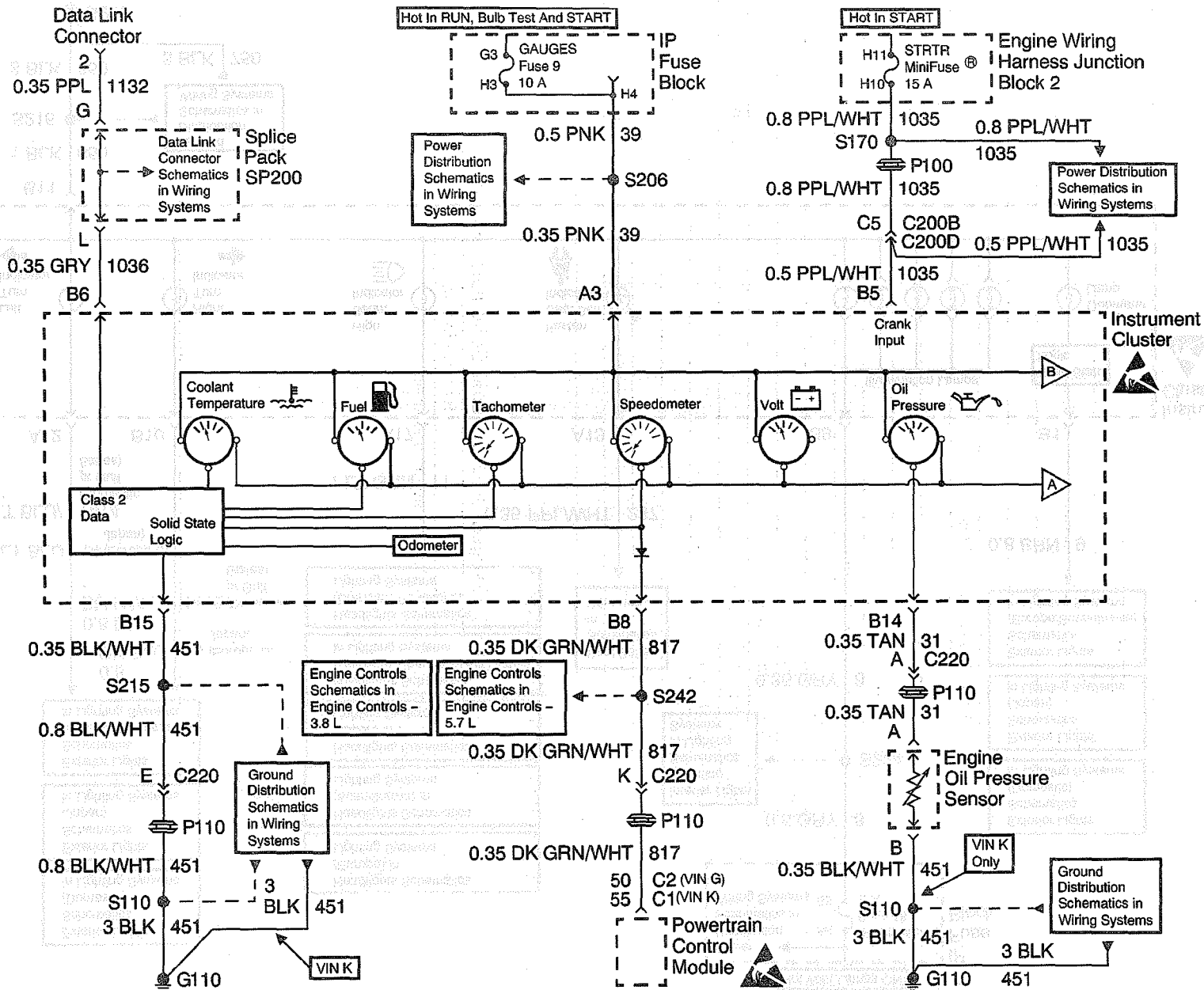
Application	GM SPO Group Number
Accessory Power Receptacle	9.000
Ashtray	12.000
Cigarette Lighter	9.000
Coin Holder	10.000
Front Floor Console	10.000
Front Floor Console Accessory Trim Plate	10.000
Front Floor Console Compartment	10.000
Front Floor Console Cup Holder	10.000
Front Floor Console Door	10.000
Front Floor Console Door Latch	10.000
Front Floor Console Transmission Shift Opening Trim Plate	10.000
Instrument Cluster	9.000
Instrument Panel	10.000
Instrument Panel Accessory Trim Plate	10.000
Instrument Panel Accessory Trim Plate (Cluster Bezel)	10.000
Instrument Panel Compartment Door	10.000
Instrument Panel Compartment Door Latch	10.000
Instrument Panel Compartment Door Latch Striker	10.000
Instrument Panel Compartment Door Lock Cylinder	10.000
Instrument Panel Compartment Lamp Switch	2.000
Instrument Panel Driver Knee Bolster	10.000
Instrument Panel Driver Knee Bolster Deflector	10.000
Instrument Panel Insulator	10.000
Instrument Panel Upper Trim Panel	10.000

Schematic and Routing Diagrams

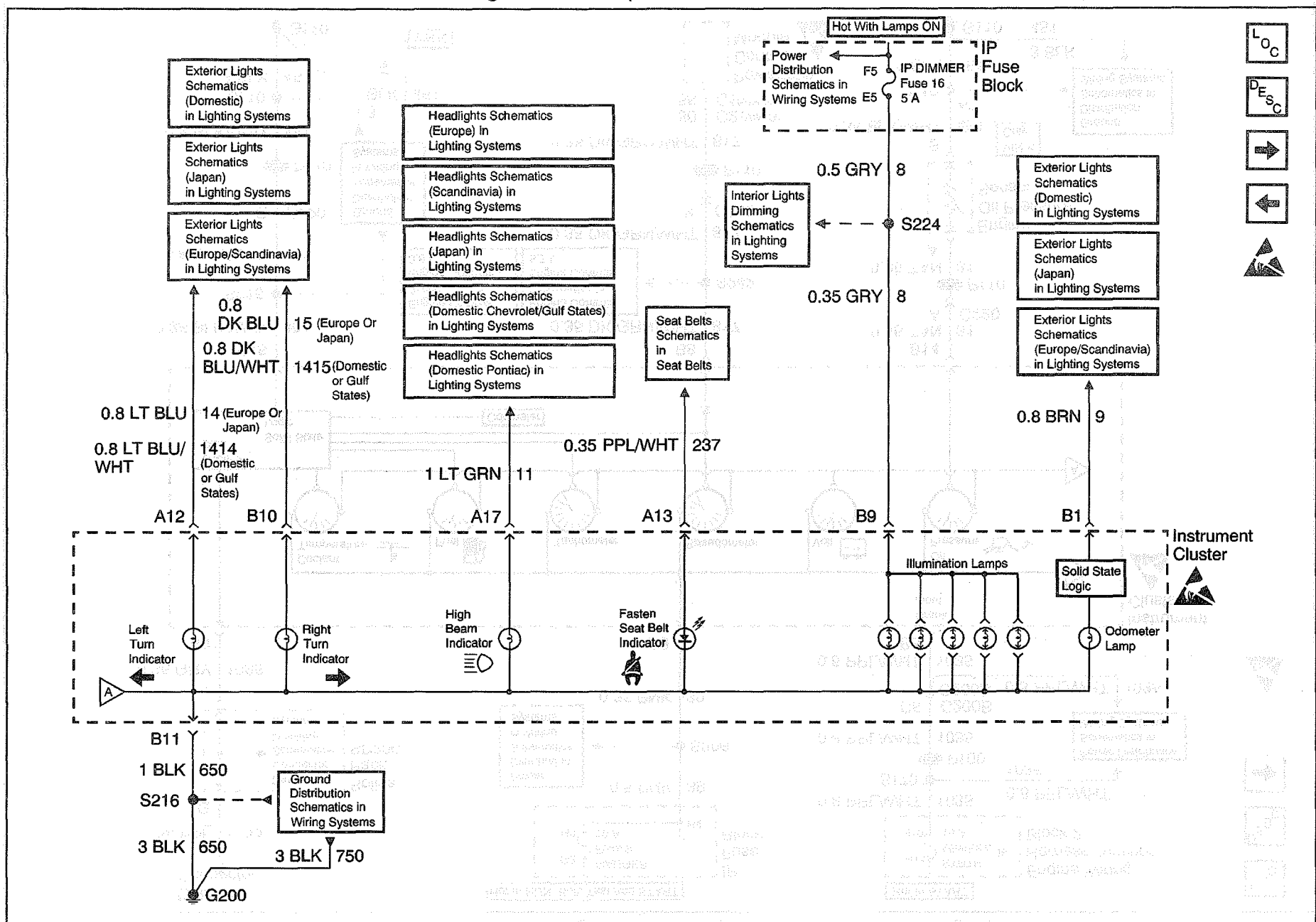
Instrument Panel, Gauges, and Console Schematic Icons

Icon	Icon Definition
 19384	Refer to <i>ESD Notice</i> in Caution and Notices.

Instrument Cluster: Analog Schematics (Instrument Cluster Gauges)

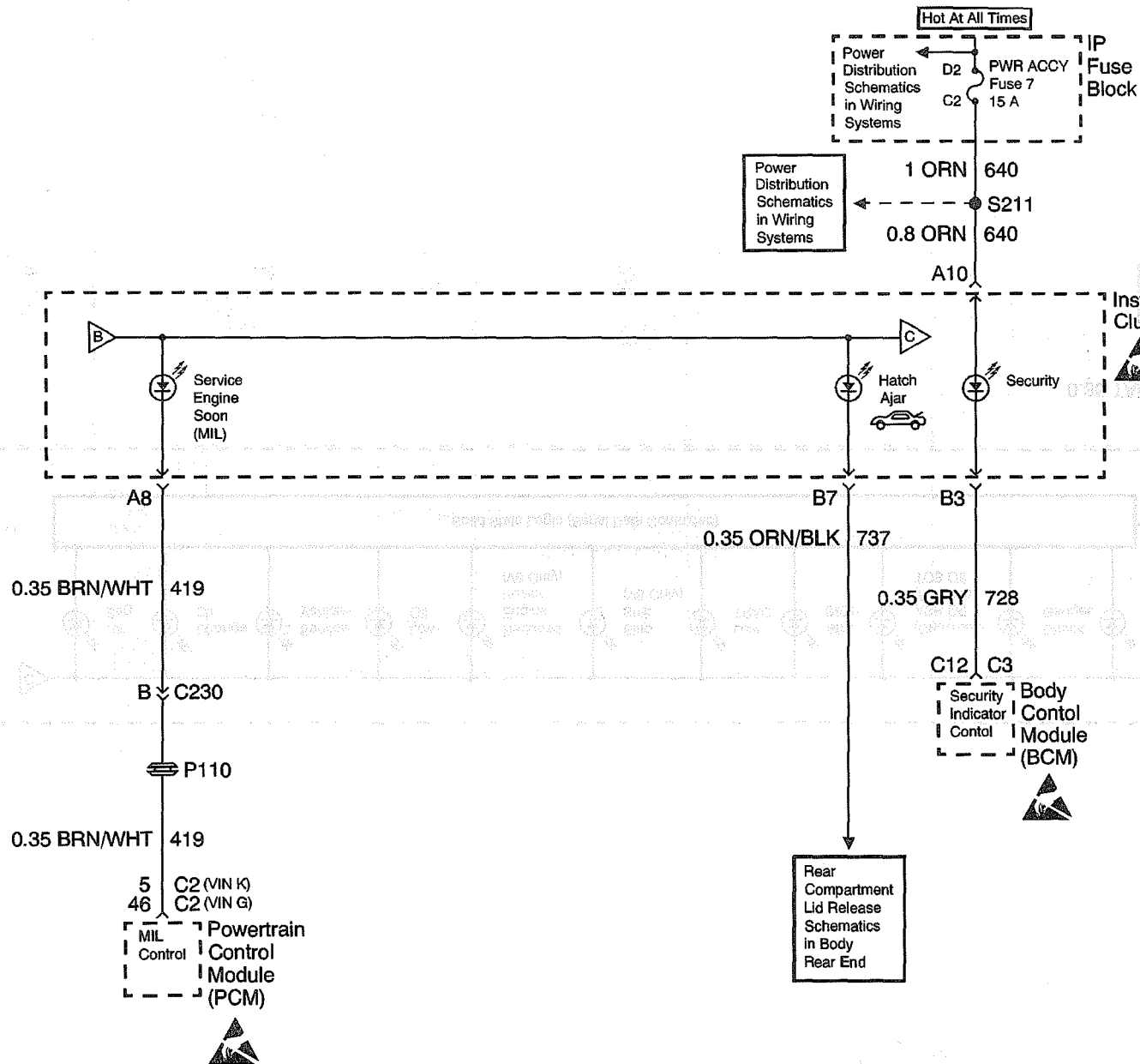


Instrument Cluster: Analog Schematics (Instrument Cluster Illumination and Indicators)

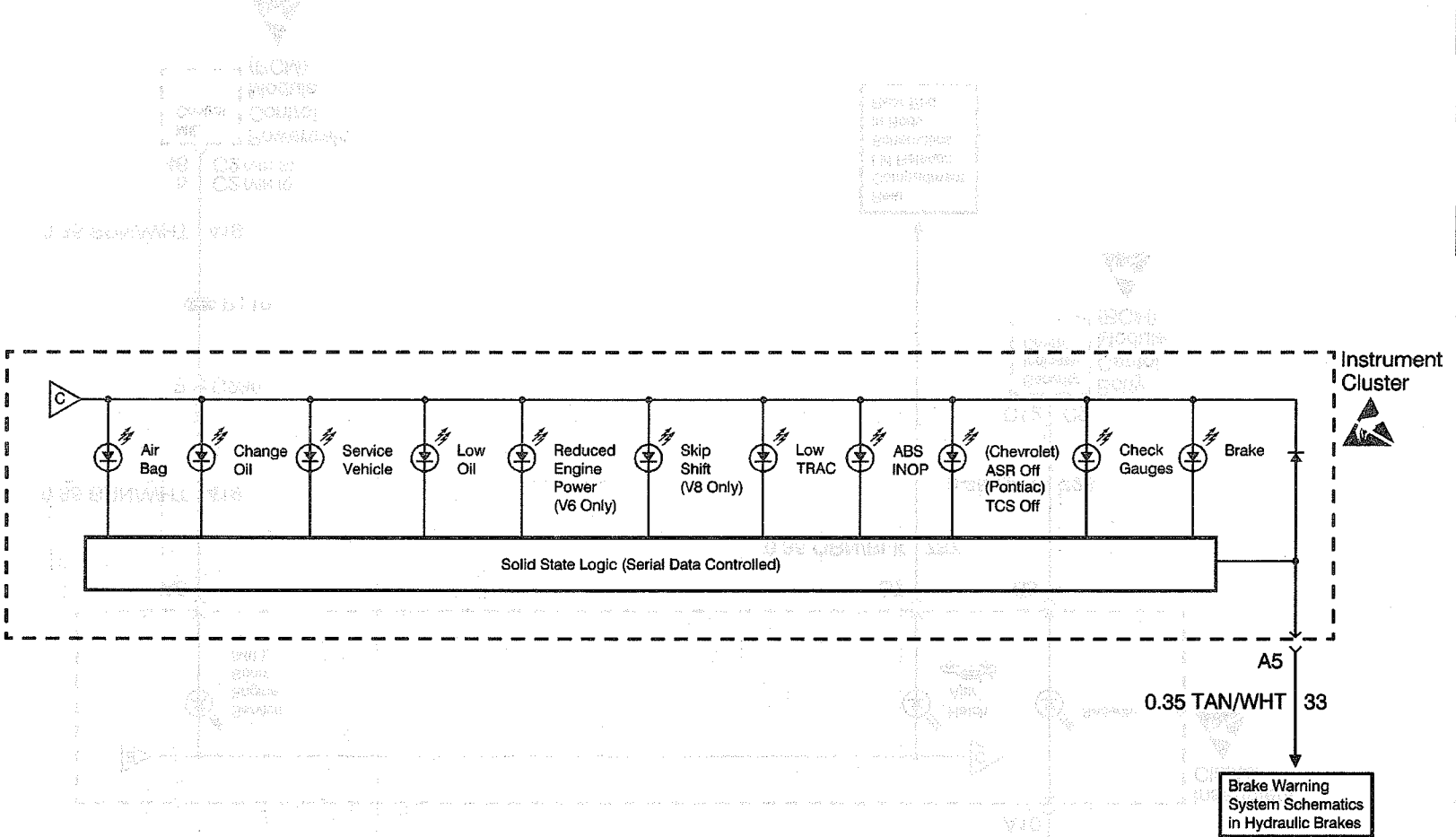


508288

Instrument Cluster: Analog Schematics (Instrument Cluster Indicators)



Instrument Cluster: Analog Schematics (Instrument Cluster Class 2 Indicators)



Component Locator

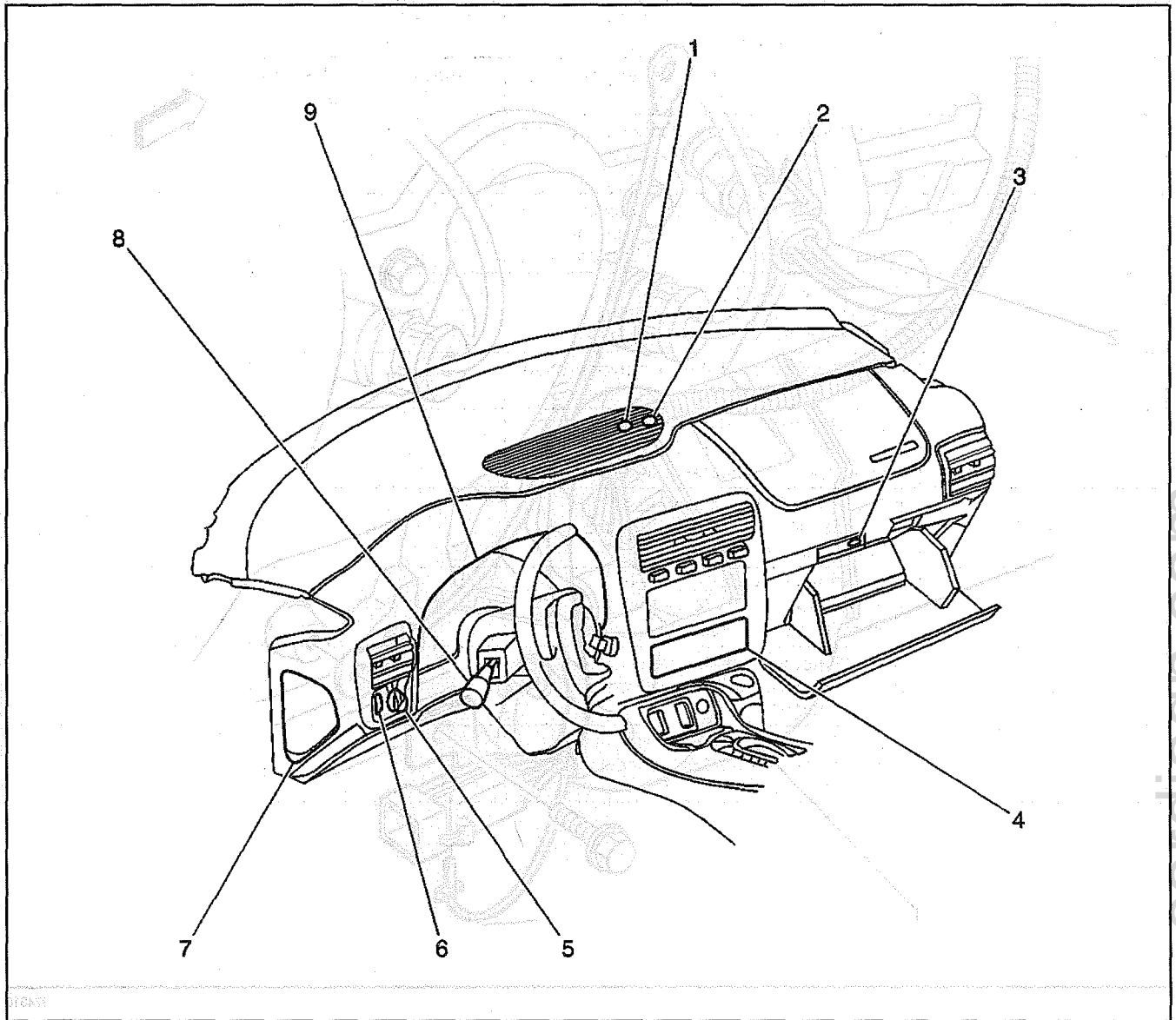
Instrument Cluster Components			
Name	Location	Locator View	Connector End View
Body Control Module (BCM)	Under the right side of the IP near the blower motor	Body Control Module Component Views in Body Control Systems	Body Control Module Connector End Views in Body Control Systems
Data Link Connector (DLC)	Under the IP, right of the steering column	Data Link Communications Component Views in Data Link Communications	Data Link Communications Connector End Views in Data Link Communications
Engine Oil Pressure Sensor (Switch) (V6 VIN K)	On the top right side of the engine	Engine Controls Component Views in Engine Controls	Engine Controls Connector End Views in Engine Controls
Engine Oil Pressure Sensor (Switch) (V8 VIN G)	On the top rear of the engine, near the left cylinder head	Engine Controls Component Views in Engine Controls	Engine Controls Connector End Views in Engine Controls
Engine Wiring Harness Junction Block 2	In the left front corner of the engine compartment	Power and Grounding Component Views in Wiring Systems	
Instrument Cluster	On the left side of the IP	Instrument Panel, Gauges, and Console Component Views	Instrument Panel, Gauges, and Console Connector End Views
IP Fuse Block	On the left end of the IP carrier	Instrument Panel, Gauges, and Console Component Views	
Powertrain Control Module (PCM) (V6 VIN K)	On the right side of the engine compartment, rear of the wheelhouse	Power and Grounding Component Views in Wiring Systems	PCM Connector End Views in Engine Controls
Powertrain Control Module (PCM) (V8 VIN G)	On the right side of the engine compartment, rear of the wheelhouse	Engine Controls Component Views in Engine Controls	PCM Connector End Views in Engine Controls
Splice Pack SP200	Under the left side of the IP, near the DLC	Lighting Systems Component Views in Lighting Systems	Data Link Communications Connector End Views in Data Link Communications
C200B (18 cavities)	Forward lamp to IP harness, between the left kick panel and the steering column	Harness Routing Views in Wiring Systems	Inline Harness Connector End Views in Wiring Systems
C200D (48 cavities)	Part of the IP harness, between the left kick panel and the steering column	Harness Routing Views in Wiring Systems	Inline Harness Connector End Views in Wiring Systems
C220 (10 cavities)	IP to engine harness, under the right side of the IP, behind the knee bolster	Harness Routing Views in Wiring Systems	Inline Harness Connector End Views in Wiring Systems
C230 (10 cavities)	IP to engine harness, under the right side of the IP, behind the knee bolster	Harness Routing Views in Wiring Systems	Inline Harness Connector End Views in Wiring Systems
G110 (V6 VIN K)	In the front of the engine, bolted to the pulley above the A/C clutch connector	Harness Routing Views in Wiring Systems	—
G110 (V8 VIN G)	Attached to the rear of the left cylinder head	Harness Routing Views in Wiring Systems	—
G200	Near the left A-pillar, bolted to the IP mounting stud behind the kick panel	Harness Routing Views in Wiring Systems	—

Instrument Cluster Components (cont'd)

Name	Location	Locator View	Connector End View
P100	Left side in the dash panel, engine to the passenger compartment	<i>Harness Routing Views in Wiring Systems</i>	—
P110	Right side in the dash panel, engine to the passenger compartment	<i>Harness Routing Views in Wiring Systems</i>	—
S110 (V6 VIN K)	In the engine harness, approximately 4 cm (1.6 in) from the powertrain control module (PCM) breakout	—	—
S110 (V8 VIN G)	In the engine harness, main branch, approximately 20 cm (7.9 in) from the powertrain control module (PCM) breakout	—	—
S170	In the forward lamp harness, approximately 13 cm (5.1 in) from G106 breakout	—	—
S206	In the IP harness, at the rear compartment lid release relay breakout	—	—
S211	In the IP harness, main branch, approximately 7 cm (2.8 in) from the rear compartment lid release relay breakout	—	—
S215	In the IP harness, main branch, approximately 11 cm (4 in) from the antenna cable breakout	—	—
S216	In the IP harness, main branch, approximately 10 cm (4 in) from the instrument cluster breakout	—	—
S224	In the IP harness, main branch, approximately 17 cm (6.7 in) from the instrument cluster breakout	—	—
S242	In the IP harness, approximately 4 cm (1.6 in) from the data link connector (DLC) breakout	—	—

Instrument Panel, Gauges, and Console Component Views

Instrument Panel

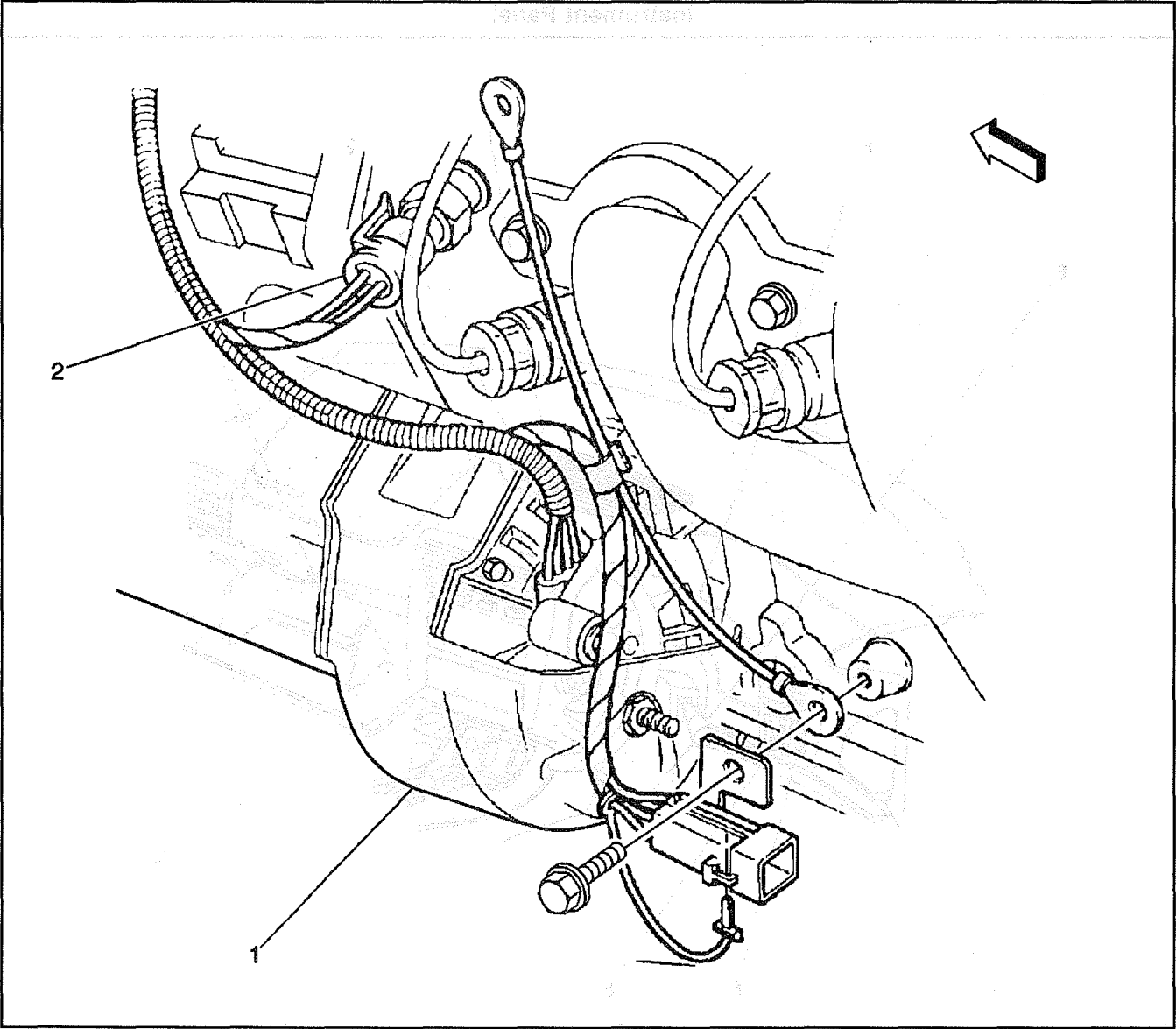


374345

Legend

- | | |
|------------------------------|--------------------------|
| (1) Security Indicator LED | (6) IP Dimmer Switch |
| (2) DRL Ambient Light Sensor | (7) IP Fuse Block |
| (3) IP Compartment Lamp | (8) Multi-function Lever |
| (4) Radio | (9) Instrument Cluster |
| (5) Headlamp Switch | |

Lower Left Front of Engine (V8 VIN G)



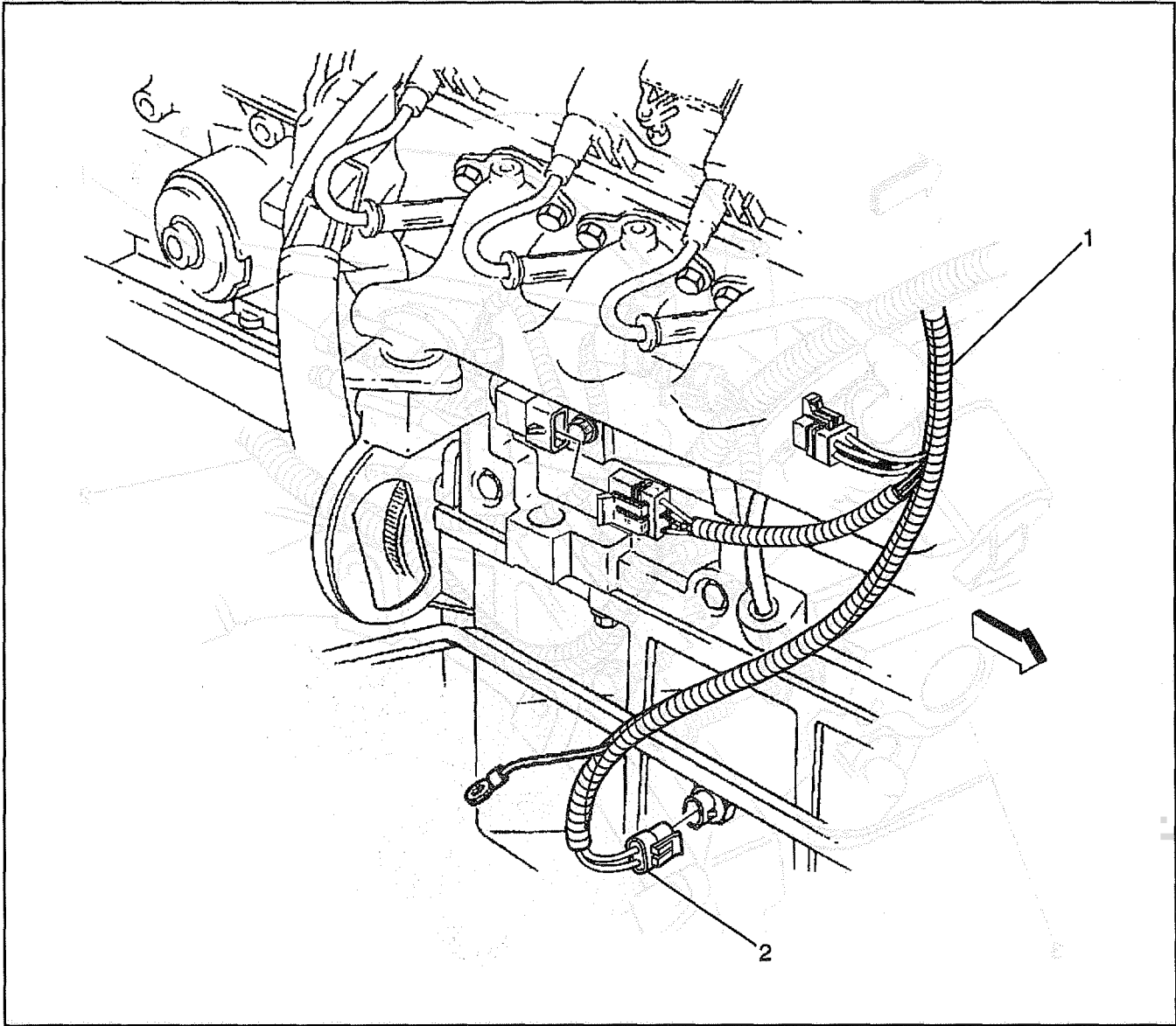
374310

Legend

(1) Generator

(2) Engine Coolant Temperature Sensor

Lower Right Front of Engine (V8 VIN G)

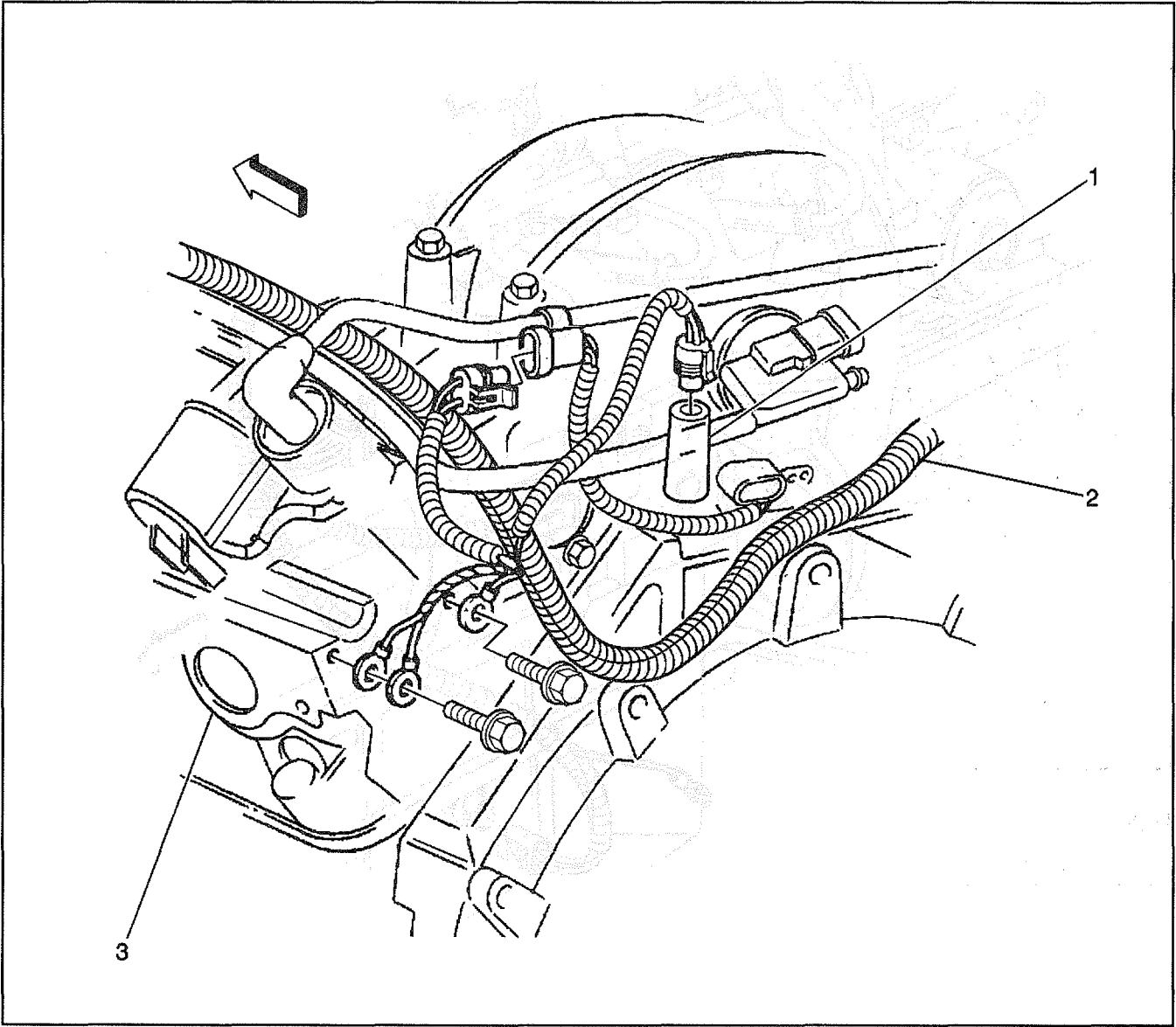


374142

Legend

- (1) Engine Wiring Harness (2) Engine Oil Level Switch

Rear Upper Left Side of Engine (V8 VIN G)

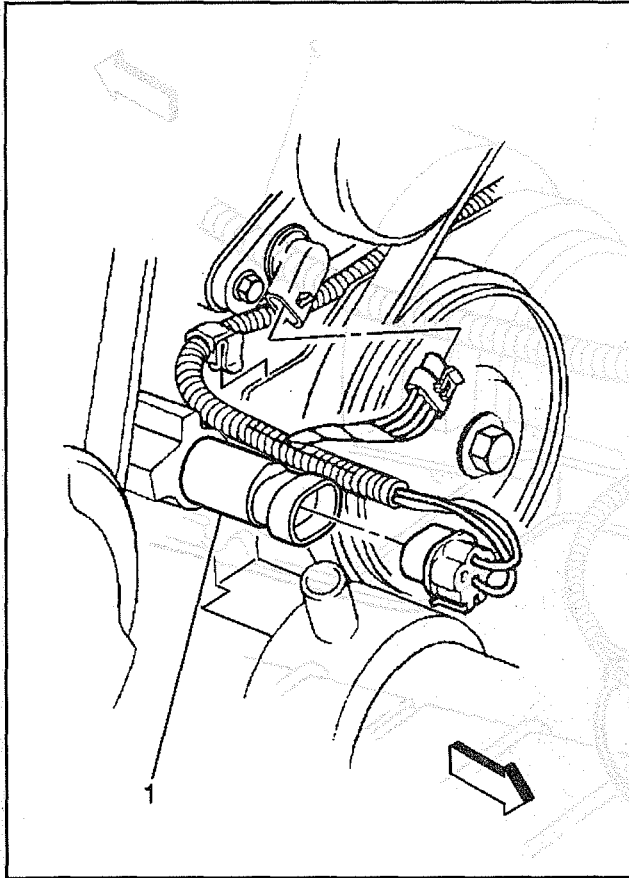


374132

Legend

- (1) Engine Oil Pressure Sensor
- (2) Engine Harness
- (3) Left Cylinder Head

Front of Engine (V6 VIN K)

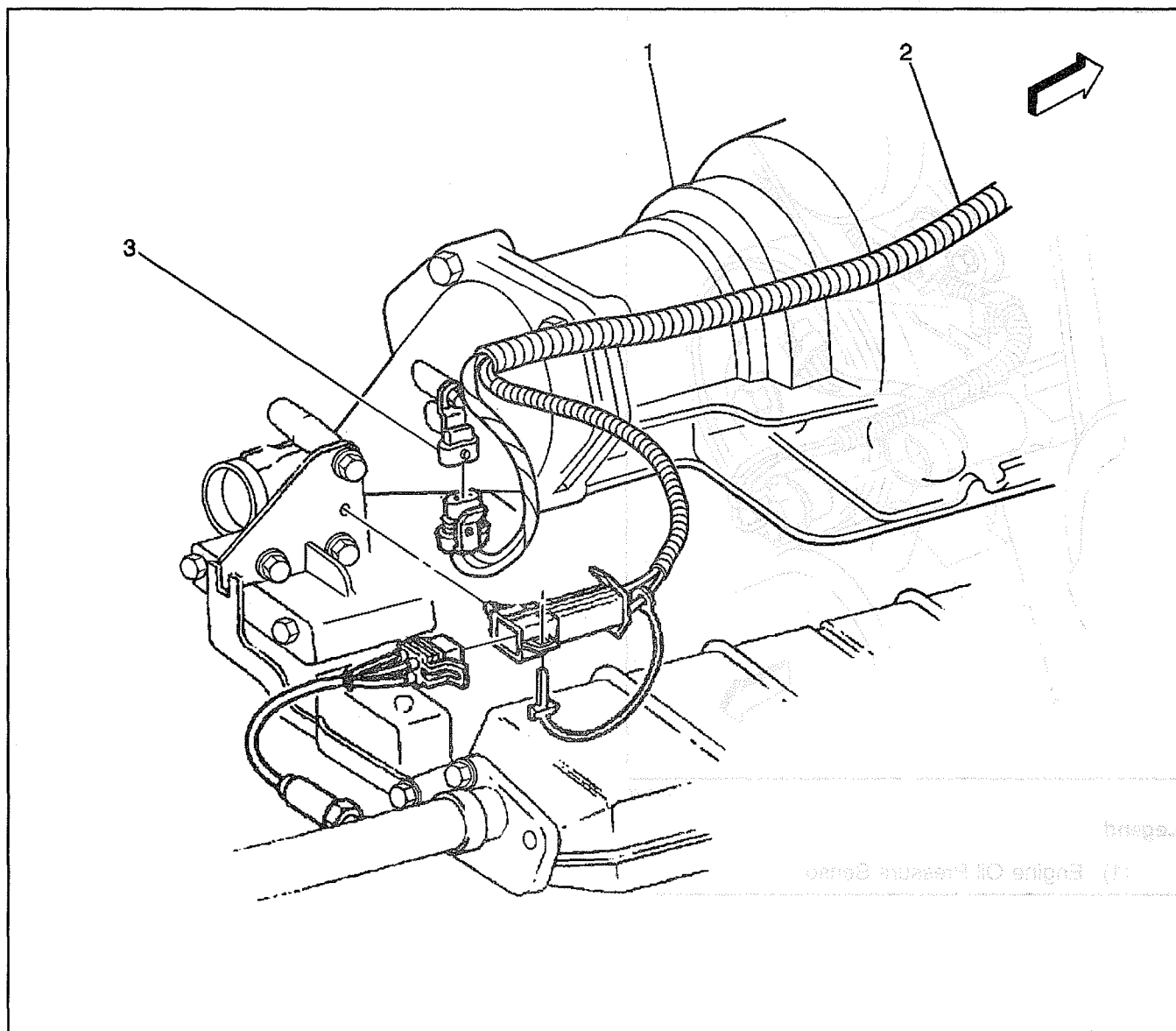


374446

Legend

- (1) Engine Oil Pressure Sensor

Right Side of the Automatic Transmission (V6 VIN K M30)



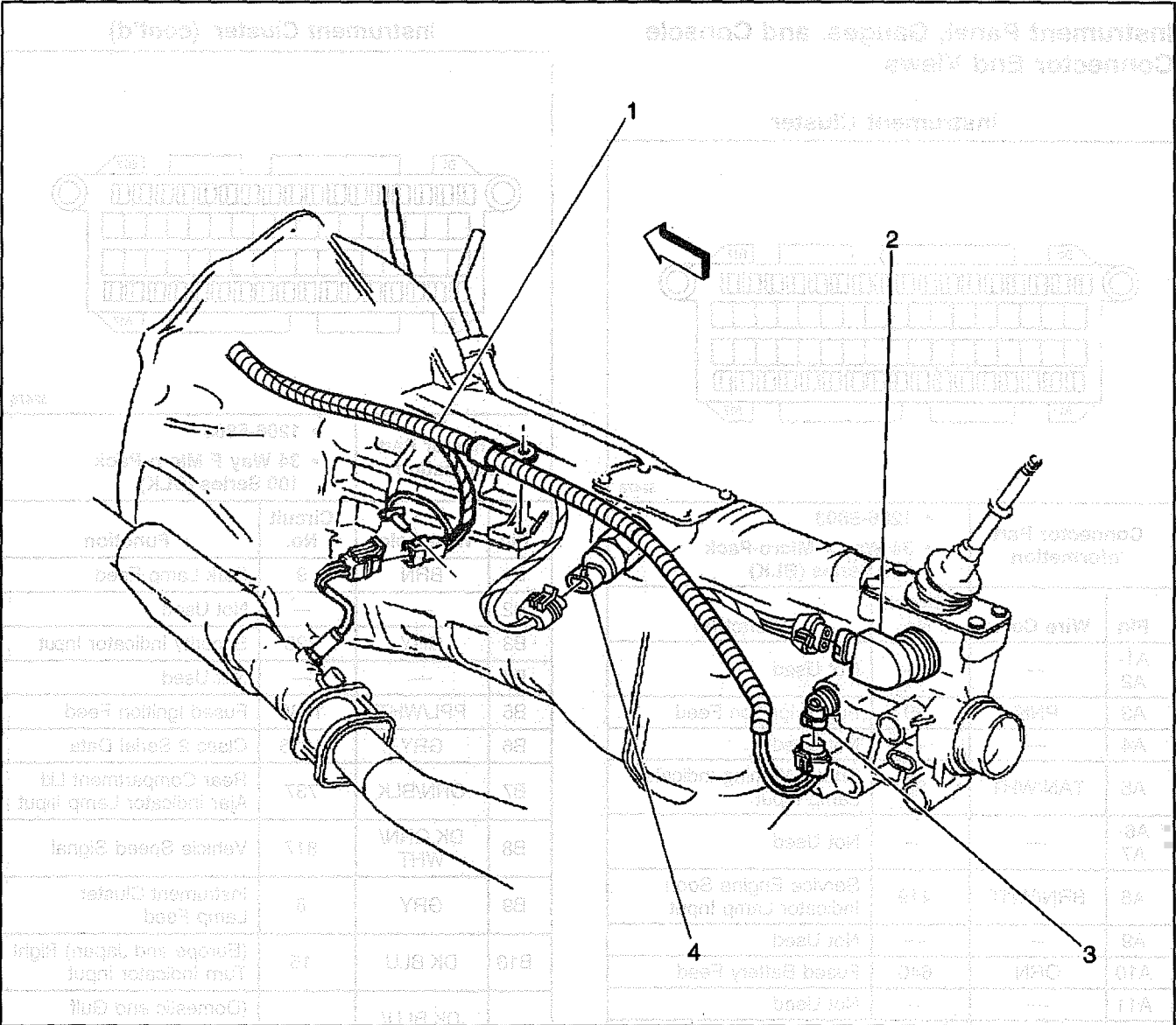
374368

Legend

- (1) Automatic Transmission
- (2) Engine Wiring Harness

- (3) Vehicle Speed Sensor

Left Side of the Manual Transmission



Legend

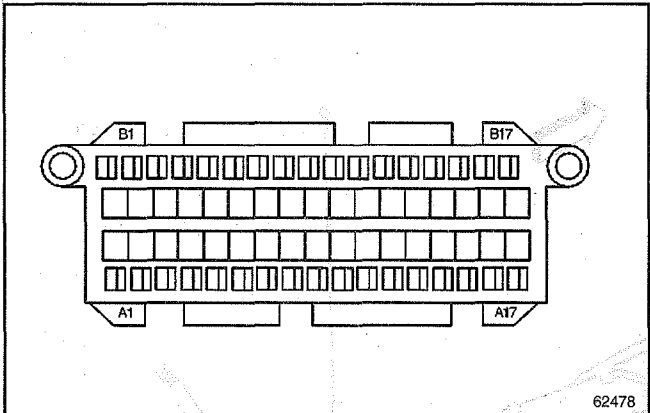
(1) Engine Wiring Harness	(3) Vehicle Speed Sensor
(2) Reverse Lockout Solenoid	(4) Skip Shift Solenoid

B10	DK BLU	12	Turn Indicator Input	Not Used
B9	GRY	5	Lamp Feed	Instrument Cluster
B8	WHT	811	Vehicle Speed Signal	Not Used
B7	BLK	137	After Indicator Lamp Input	Not Used
B6	GRY	9	Class 2 Serial Data	Not Used
B5	GRY	9	Class 2 Serial Data	Not Used
B4	GRY	9	Class 2 Serial Data	Not Used
B3	GRY	9	Class 2 Serial Data	Not Used
B2	GRY	9	Class 2 Serial Data	Not Used
B1	GRY	9	Class 2 Serial Data	Not Used
B0	GRY	9	Class 2 Serial Data	Not Used
B10	DK BLU	12	Turn Indicator Input	Not Used
B9	GRY	5	Lamp Feed	Instrument Cluster
B8	WHT	811	Vehicle Speed Signal	Not Used
B7	BLK	137	After Indicator Lamp Input	Not Used
B6	GRY	9	Class 2 Serial Data	Not Used
B5	GRY	9	Class 2 Serial Data	Not Used
B4	GRY	9	Class 2 Serial Data	Not Used
B3	GRY	9	Class 2 Serial Data	Not Used
B2	GRY	9	Class 2 Serial Data	Not Used
B1	GRY	9	Class 2 Serial Data	Not Used
B0	GRY	9	Class 2 Serial Data	Not Used

Visual Identification

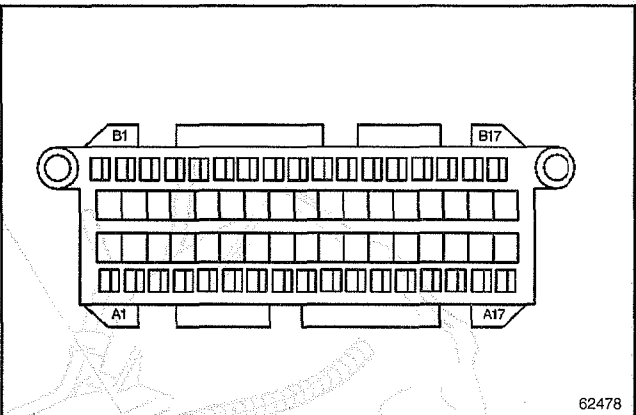
Instrument Panel, Gauges, and Console
Connector End Views

Instrument Cluster



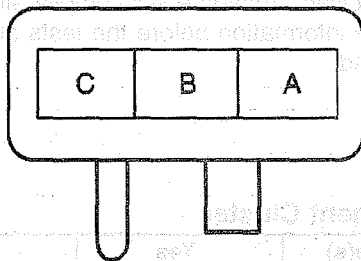
Connector Part Information		• 1206-5803 • 34 Way F Micro-Pack 100 Series (BLK)	
Pin	Wire Color	Circuit No.	Function
A1-A2	—	—	Not Used
A3	PNK	39	Fused Ignition Feed
A4	—	—	Not Used
A5	TAN/WHT	33	Brake Warning Indicator Lamp Input
A6-A7	—	—	Not Used
A8	BRN/WHT	419	Service Engine Soon Indicator Lamp Input
A9	—	—	Not Used
A10	ORN	640	Fused Battery Feed
A11	—	—	Not Used
A12	LT BLU	14	(Europe and Japan) Left Turn Indicator Input
A12	LT BLU/WHT	1414	(Domestic and Gulf States) Left Turn Indicator Input
A13	PPL/WHT	237	(Domestic/Japan) Fasten Seat Belt Indicator Input
A14-A16	—	—	Not Used
A17	LT GRN	11	High Beam Indicator Input

Instrument Cluster (cont'd)



Connector Part Information		• 1206-5803 • 34 Way F Micro-Pack 100 Series (BLK)	
Pin	Wire Color	Circuit No.	Function
B1	BRN	9	Park Lamp Feed
B2	—	—	Not Used
B3	GRY	728	Security Indicator Input
B4	—	—	Not Used
B5	PPL/WHT	1035	Fused Ignition Feed
B6	GRY	1036	Class 2 Serial Data
B7	ORN/BLK	737	Rear Compartment Lid Ajar Indicator Lamp Input
B8	DK GRN/WHT	817	Vehicle Speed Signal
B9	GRY	8	Instrument Cluster Lamp Feed
B10	DK BLU	15	(Europe and Japan) Right Turn Indicator Input
B10	DK BLU/WHT	1415	(Domestic and Gulf States) Right Turn Indicator Input
B11	BLK	650	Ground
B12-B22	—	—	Not Used
B14	TAN	31	Oil Pressure Gauge Input
B15	BLK/WHT	451	Ground
B16-B17	—	—	Not Used

Rear Compartment Lid Ajar Indicator Switch



333035

Connector Part Information		• 1204-7781 • 3 Way F Metri-Pack 150 Series (BLK)	
Pin	Wire Color	Circuit No.	Function
A	BLK	1550	Ground
B	ORN/BLK	737	Rear Compartment Lid Ajar Indication Switch Output
C	—	—	Not Used

Diagnostic Information and Procedures

A Diagnostic Starting Point - Instrument Panel, Gauges and Console

Begin the system diagnosis with *A Diagnostic System Check - Instrument Cluster*. The Diagnostic System Check will provide the following information:

- The identification of the control module(s) which command the system.
- The ability of the control module(s) to communicate through the serial data circuit.
- The identification of any stored diagnostic trouble codes (DTCs) and their status.

The use of the Diagnostic System Check will identify the correct procedure for diagnosing the system and where the procedure is located.

For concerns with the Audible Warnings system, refer to *Symptoms - Instrument Panel, Gauges and Console*.

Diagnostic Trouble Code (DTC) List/Type

Description	Module
For B0670, refer to <i>DTC B0670 Inflatable Restraint System Indicator #1 (Main Indicator) Circuit Malfunction</i> in SIR.	SDM
For B1000, refer to <i>DTC B1000 IPC Malfunction</i> .	IPC
For U1000, refer to <i>Scan Tool Does Not Communicate w/Class 2 Data Line</i> in Data Link Communications.	EBCM, IPC, PCM, SDM
For U1016, refer to <i>Scan Tool Does Not Communicate w/Class 2 Data Line</i> in Data Link Communications.	EBCM, IPC, SDM
For U1040, refer to <i>Scan Tool Does Not Communicate w/Class 2 Data Line</i> in Data Link Communications.	IPC, PCM, SDM
For U1088, refer to <i>Scan Tool Does Not Communicate w/Class 2 Data Line</i> in Data Link Communications.	IPC
For U1300, refer to <i>Scan Tool Does Not Communicate w/Class 2 Data Line</i> in Data Link Communications.	EBCM, IPC, PCM, SDM
For U1301, refer to <i>Scan Tool Does Not Communicate w/Class 2 Data Line</i> in Data Link Communications.	EBCM, IPC, PCM, SDM

A Diagnostic System Check - Instrument Cluster

Test Description

The numbers below refer to the step numbers on the diagnostic table:

2. Lack of communication may be due to a partial malfunction of the class 2 serial data circuit or due to a total malfunction of the class 2 serial data circuit. The specified procedure will determine the particular condition.

4. The presence of DTCs which begin with "U" indicate some other module is not communicating. The specified procedure will compile all of the available information before the tests are performed.

A Diagnostic System Check - Instrument Cluster

Step	Action	Value(s)	Yes	No
1	Install a scan tool. Does the scan tool power up?	—	Go to Step 2	Go to Scan Tool Does Not Power Up in Data Link Communications
2	1. Turn ON the ignition, with the engine OFF. 2. Attempt to establish communication with the following modules: • Electronic Brake Control Module (EBCM) • Instrument Cluster (IPC) • Powertrain Control Module (PCM) • Sensing Diagnostic Module (SDM) Does the scan tool communicate with the modules?	—	Go to Step 3	Go to Scan Tool Does Not Communicate w/Class 2 Data Line in Data Link Communications
3	Select the display DTCs function on the scan tool for the following modules: • Electronic Brake Control Module (EBCM) • Instrument Cluster • Powertrain Control Module (PCM) • Sensing Diagnostic Module (SDM) Does the scan tool display any DTCs?	—	Go to Step 4	Go to Symptoms - Instrument Panel, Gauges and Console
4	Does the scan tool display any DTCs which begin with a "U"?	—	Go to Scan Tool Does Not Communicate w/Class 2 Data Line in Data Link Communications	Go to Step 5
5	Does the scan tool display DTC B1000?	—	Go to Diagnostic Trouble Code (DTC) List/Type in Body Control System	Go to Diagnostic Trouble Code (DTC) List/Type

DTC B1000 IPC Malfunction**Circuit Description**

When power is applied to the instrument cluster, the cluster performs an internal monitoring of several functions. The cluster monitors these functions every 63 seconds.

Conditions for Setting the DTC

The instrument cluster detects a failure in any of the monitored functions.

Action Taken When the DTC Sets

The instrument cluster stores DTC B1000 in memory.

Conditions for Clearing the DTC

- A history DTC will clear after 100 consecutive ignition cycles if the condition for the malfunction is no longer present.
- Using a scan tool.

Diagnostic Aids

DTC B1000 is related to an internal malfunction of the instrument cluster. Attempt to clear the DTC using a scan tool. If the DTC cannot be cleared, replace the instrument cluster. Refer to *IP Cluster Replacement*.

Symptoms - Instrument Panel, Gauges and Console

Important: The following steps must be completed before using the symptom tables.

1. Perform *A Diagnostic System Check - Instrument Cluster* before using the Symptom Tables in order to verify that all of the following are true:
 - There are no DTCs set.
 - The control module(s) can communicate via the serial data link.
2. Review the system operation in order to familiarize yourself with the system functions. Refer to:
 - *Instrument Cluster Gauge Operation*
 - *Instrument Cluster Indicator Operation*
 - *Audible Warnings Description*

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the Instrument Panel, Gauges, and Console System. Refer to *Checking Aftermarket Accessories* in Wiring Systems.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to *Testing for Intermittent and Poor Connections* in Wiring Systems.

Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- *Engine Coolant Temperature Gauge Always Cold*
- *Engine Coolant Temperature Gauge Always Hot*
- *Engine Oil Pressure Gauge Always High (V8 VIN G)*
- *Engine Oil Pressure Gauge Always High (V6 VIN K)*
- *Engine Oil Pressure Gauge Always Low*
- *Engine Oil Pressure Gauge Inaccurate or Inoperative*
- *Fuel Gauge Always Indicates Empty*
- *Fuel Gauge Always Indicates Full*
- *Odometer Inoperative*
- *Odometer Inoperative - Trip*
- *Speedometer and/or Odometer Inoperative*
- *Tachometer Inoperative*
- *Volt Gauge Inaccurate or Inoperative*
- *CHANGE ENGINE OIL Indicator Always On*
- *CHANGE ENGINE OIL Indicator Inoperative*
- *CHECK GAGES Indicator Always On*
- *CHECK GAGES Indicator Inoperative*
- *Low Engine Oil Level Indicator Always On*
- *Low Engine Oil Level Indicator Inoperative*
- *REDUCED ENGINE POWER Indicator Always On*
- *REDUCED ENGINE POWER Indicator Inoperative*
- *Speedometer Inaccurate (J 38522 Available)*
- *Speedometer Inaccurate (J 38522 Unavailable)*
- *Key-in-Ignition Chime Always On*
- *Key-in-Ignition Chime Inoperative*
- *Key-in-Ign Chime On with LF Door Closed*
- *Lights On Chime On with Ignition in Run*
- *Lights On Chime Inoperative*

Engine Coolant Temperature Gauge Always Cold

Step	Action	Value(s)	Yes	No
1	Did you perform the Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Instrument Cluster
2	1. Start the vehicle. 2. Allow the engine to warm up. Does the engine coolant temperature gauge move to the warm level?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	1. Connect a scan tool to the vehicle data link connector (DLC). 2. Using the scan tool, attempt to perform the engine coolant temperature gage sweep test. Does the engine coolant temperature gage sweep from cold to hot and return to cold?	—	Go to A Powertrain On Board Diagnostic (OBD) System Check (3.8L) or A Powertrain On Board Diagnostic (OBD) System Check (5.7L)	Go to Step 4
4	Replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Did you complete the replacement?	—	Go to Step 5	—
5	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

Engine Coolant Temperature Gauge Always Hot

Step	Action	Value(s)	Yes	No
1	Did you perform the Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Instrument Cluster
2	Start the vehicle. Does the engine coolant temperature gauge read hot with the engine cold?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	1. Connect a scan tool to the vehicle data link connector (DLC). 2. Using the scan tool, attempt to perform the engine coolant temperature gage sweep test. Does the engine coolant temperature gage sweep from cold to hot and return to cold?	—	Go to A Powertrain On Board Diagnostic (OBD) System Check (3.8L) or A Powertrain On Board Diagnostic (OBD) System Check (5.7L)	Go to Step 4
4	Replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Did you complete the replacement?	—	Go to Step 5	—
5	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

Engine Oil Pressure Gauge Always High (V8 VIN G)

Step	Action	Value(s)	Yes	No
Important: In order to avoid misdiagnosis, check for proper engine oil pressure before performing this diagnosis. Refer to <i>Oil Pressure Diagnosis and Testing</i> .				
1	Did you perform the Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Instrument Cluster
2	Start the vehicle. Does the engine oil pressure gauge read at an acceptable level?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	1. Disconnect the engine oil pressure sensor. 2. Connect a 10A fused jumper between the oil pressure sensor connector terminal A and ground. Refer to <i>Circuit Testing</i> in Wiring Systems. 3. Turn the ignition switch to the RUN position. Does the engine oil pressure gauge read low pressure?	—	Go to Step 4	Go to Step 6
4	Check for and repair a poor connection at the engine oil pressure sensor. Refer to <i>Testing for Intermittent and Poor Connections</i> and <i>Connector Repairs</i> in Wiring Systems. Did you find and repair a poor connection?	—	Go to Step 8	Go to Step 5
5	Replace the engine oil pressure sensor. Refer to <i>Engine Oil Pressure Switch Replacement (3.8 L)</i> or <i>Engine Oil Pressure Switch Replacement (5.7 L)</i> . Did you complete the replacement?	—	Go to Step 8	—
6	Test for and repair an open or a poor connection in circuit 31. Refer to <i>Circuit Testing</i> or <i>Testing for Intermittent and Poor Connections</i> and <i>Wiring Repairs</i> or <i>Connector Repairs</i> in Wiring Systems. Did you find and repair an open or a poor connection?	—	Go to Step 8	Go to Step 7
7	Replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Did you complete the replacement?	—	Go to Step 8	—
8	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

Engine Oil Pressure Gauge Always High (V6 VIN K)

Step	Action	Value(s)	Yes	No
Important: In order to avoid misdiagnosis, check for proper engine oil pressure before performing this diagnosis. Refer to <i>Oil Pressure Diagnosis and Testing</i> .				
1	Did you perform the Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Instrument Cluster
2	Start the vehicle. Does the engine oil pressure gauge read at an acceptable level?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	1. Disconnect the engine oil pressure sensor. 2. Connect a fuse jumper between the oil pressure sensor connector terminal A and ground. Refer to <i>Circuit Testing</i> in Wiring Systems. 3. Turn the ignition switch to the RUN position. Does the engine oil pressure gauge read low pressure?	—	Go to Step 4	Go to Step 8
4	1. Connect a 10A fused jumper between the oil pressure sensor connector terminal A and terminal B. A and ground. Refer to <i>Circuit Testing</i> in Wiring Systems. 2. Turn the ignition switch to the RUN position. Does the oil pressure gauge read low pressure?	—	Go to Step 5	Go to Step 7
5	Test for and repair a poor connection at the engine oil pressure sensor. Refer to <i>Testing for Intermittent and Poor Connections</i> and <i>Connector Repairs</i> in Wiring Systems. Did you find and repair a poor connection?	—	Go to Step 10	Go to Step 6
6	Replace the engine oil pressure sensor. Refer to <i>Engine Oil Pressure Switch Replacement (3.8 L)</i> or <i>Engine Oil Pressure Switch Replacement (5.7 L)</i> . Did you complete the replacement?	—	Go to Step 10	—
7	Repair the open in circuit 451 between the oil pressure sensor and S110. Refer to <i>Wiring Repairs</i> in Wiring Systems. Did you complete the repair?	—	Go to Step 10	—
8	Test for and repair an open or a poor connection in circuit 31. Refer to <i>Circuit Testing</i> or <i>Testing for Intermittent and Poor Connections</i> and <i>Wiring Repairs</i> or <i>Connector Repairs</i> in Wiring Systems. Did you find and repair an open or a poor connection?	—	Go to Step 10	Go to Step 9
9	Replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Did you complete the replacement?	—	Go to Step 10	—
10	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

Engine Oil Pressure Gauge Always Low

Step	Action	Value(s)	Yes	No
Important: In order to avoid misdiagnosis, check for proper engine oil pressure before performing this diagnosis. Refer to <i>Oil Pressure Diagnosis and Testing</i> (V8 VIN G) or <i>Oil Pressure Diagnosis and Testing</i> (V6 VIN K).				
1	Did you perform the Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Instrument Cluster
2	Start the vehicle. Does the engine oil temperature gauge read at an acceptable level?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	1. Disconnect the engine oil pressure sensor. 2. Turn the ignition switch to the RUN position. Does the engine oil pressure gauge read high pressure?	—	Go to Step 4	Go to Step 5
4	Replace the engine oil pressure sensor. Refer to <i>Engine Oil Pressure Switch Replacement</i> (5.7 L) (V8 VIN G) or <i>Engine Oil Pressure Switch Replacement</i> (3.8 L) (V6). Did you complete the replacement?	—	Go to Step 7	—
5	Test for and repair a short to ground in circuit 31. Refer to <i>Circuit Testing and Wiring Repairs</i> in Wiring Systems. Did you find and repair a short to ground?	—	Go to Step 7	Go to Step 6
6	Replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Did you complete the replacement?	—	Go to Step 7	—
7	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

Engine Oil Pressure Gauge Inaccurate or Inoperative

Step	Action	Value(s)	Yes	No
Important: In order to avoid misdiagnosis, check for proper engine oil pressure before performing this diagnosis. Refer to <i>Oil Pressure Diagnosis and Testing</i> (V8 VIN G) or <i>Oil Pressure Diagnosis and Testing</i> (V6 VIN K).				
1	Did you perform the Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Instrument Cluster
2	Start the vehicle. Does the oil pressure gauge read at an acceptable level?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	Does the oil pressure gauge always read low pressure?	—	Go to Engine Oil Pressure Gauge Always Low	Go to Step 4
4	1. Disconnect the oil pressure sensor. 2. Using a J 33431-C signal generator and instrument cluster tester, connect 1 red lead to the sensor connector terminal A and connect the other red lead to ground. 3. Turn the ignition switch to the RUN position. 4. While observing the oil pressure gauge, set the resistance dial on the tester to 0 Ω , 40 Ω , and 100 Ω . Does the oil pressure gauge move from low pressure to approximately 30 psi, and then move to high pressure?	—	Go to Step 5	Go to Step 7

Engine Oil Pressure Gauge Inaccurate or Inoperative (cont'd)

Step	Action	Value(s)	Yes	No
5	Test for and repair a poor connection at the oil pressure sensor. Refer to <i>Testing for Intermittent and Poor Connections</i> and <i>Connector Repairs</i> in Wiring Systems. Did you find and repair a poor connection?	—	Go to Step 9	Go to Step 6
6	Replace the engine oil pressure sensor. Refer to <i>Engine Oil Pressure Switch Replacement (3.8 L)</i> or <i>Engine Oil Pressure Switch Replacement (5.7 L)</i> . Did you complete the replacement?	—	Go to Step 9	—
7	Test for and repair an open or poor connection in circuit 31 between the oil pressure sensor and the instrument cluster. Refer to <i>Circuit Testing</i> or <i>Testing for Intermittent and Poor Connections</i> and <i>Wiring Repairs</i> or <i>Connector Repairs</i> in Wiring Systems. Did you find and repair an open or a poor connection?	—	Go to Step 9	Go to Step 8
8	Replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Did you complete the replacement?	—	Go to Step 9	—
9	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

Fuel Gauge Always Indicates Empty

Step	Action	Value(s)	Yes	No
1	Did you perform the Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Instrument Cluster
2	1. Turn the ignition to the RUN position. 2. Ensure that fuel tank is at least 3/16 full. Does the fuel gauge read approximately where the fuel level is at actually?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	1. Connect a scan tool to the vehicle data link connector (DLC). 2. Using the scan tool, perform the fuel gauge sweep test. Does the engine fuel gauge sweep from empty to full and return to empty when prompted?	—	Go to A Powertrain On Board Diagnostic (OBD) System Check (3.8L) or A Powertrain On Board Diagnostic (OBD) System Check (5.7L)	Go to Step 4
4	Replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Did you complete the replacement?	—	Go to Step 5	—
5	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

Fuel Gauge Always Indicates Full

Step	Action	Value(s)	Yes	No
1	Did you perform the Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Instrument Cluster
2	1. Turn the ignition to the RUN position. 2. Ensure that the fuel tank is NOT full. Does the fuel gauge read approximately where the fuel level actually is?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	1. Connect a scan tool to the vehicle data link connector (DLC). 2. Using the scan tool, perform the fuel gauge sweep test. Does the engine fuel gauge sweep from empty to full and return to empty when prompted?	—	Go to A Powertrain On Board Diagnostic (OBD) System Check (3.8L) or A Powertrain On Board Diagnostic (OBD) System Check (5.7L)	Go to Step 4
4	Replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Did you complete the replacement?	—	Go to Step 5	—
5	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

Odometer Inoperative

Step	Action	Value(s)	Yes	No
1	Did you perform the Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Instrument Cluster
2	Drive the vehicle. Does the odometer record the mileage?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	Test drive the vehicle. Does the speedometer operate?	—	Go to Step 4	Go to Speedometer and/or Odometer Inoperative
4	Replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Did you complete the replacement?	—	Go to Step 5	—
5	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

Odometer Inoperative - Trip

Step	Action	Value(s)	Yes	No
1	Did you perform the Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Instrument Cluster
2	1. Reset the trip odometer. 2. Drive the vehicle. Does the trip odometer record the mileage?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 4
3	Test drive the vehicle. Does the speedometer operate?	—	Go to Step 4	Go to Speedometer and/or Odometer Inoperative
4	Replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Did you complete the replacement?	—	Go to Step 5	—
5	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

Speedometer and/or Odometer Inoperative

Step	Action	Value(s)	Yes	No
Important: In order to avoid misdiagnosis, check for powertrain control module (PCM) diagnostic trouble codes (DTCs). Refer to <i>A Powertrain On Board Diagnostic (OBD) System Check</i> (3.8L) or <i>A Powertrain On Board Diagnostic (OBD) System Check</i> (5.7L).				
1	Did you perform the diagnostic system check?	—	Go to Step 2	Go to A Diagnostic System Check - Instrument Cluster
2	Drive the vehicle. Do both the speedometer and the odometer operate properly?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	1. Disconnect the powertrain control module (PCM) connector C2 (V8 VIN G) or C1 (V6 VIN K). 2. Attach a 10A fused jumper between the PCM connector circuit 817 and ground. 3. Disconnect the instrument cluster. 4. Connect a test lamp between the instrument cluster terminal A3 and terminal B8. Refer to <i>Circuit Testing</i> in Wiring Systems. 5. Turn the ignition switch to the RUN position. Does the test lamp illuminate?	—	Go to Step 4	Go to Step 6
4	Test for and repair a poor connection in circuit 817 at the PCM and the instrument cluster. Refer to <i>Testing for Intermittent and Poor Connections</i> and <i>Connector Repairs</i> in Wiring Systems. Did you find and repair a poor connection?	—	Go to Step 7	Go to Step 5
5	Replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Did you complete the replacement?	—	Go to Step 7	—
6	Repair an open or a poor connection in circuit 817 between the instrument cluster and the PCM. Refer to <i>Wiring Repairs</i> or <i>Connector Repairs</i> in Wiring Systems. Did you complete the repair?	—	Go to Step 7	—
7	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

Tachometer Inoperative

Step	Action	Value(s)	Yes	No
1	Did you perform the Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Instrument Cluster
2	Start the vehicle. Does the tachometer show the correct engine RPM?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	Does the tachometer always indicate low RPMs?	—	Go to Step 5	Go to Step 4
4	Does the tachometer always indicate high RPMs?	—	Go to Step 5	Go to A Diagnostic System Check - Instrument Cluster
5	1. Connect a scan tool to the vehicle data link connector (DLC). 2. Using the scan tool, perform the engine tachometer gage sweep test. Does the tachometer gage sweep from low RPMs to high RPMs and return to low RPMs when prompted?	—	Go to A Powertrain On Board Diagnostic (OBD) System Check (3.8L) or A Powertrain On Board Diagnostic (OBD) System Check (5.7L)	Go to Step 6
6	Replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Did you complete the replacement?	—	Go to Step 7	—
7	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

Volt Gauge Inaccurate or Inoperative

Step	Action	Value(s)	Yes	No
1	Did you perform the Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Instrument Cluster
2	Start the vehicle. Does the volt gauge display the correct voltage?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	Replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Did you complete the replacement?	—	Go to Step 4	—
4	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

CHANGE ENGINE OIL Indicator Always On

Step	Action	Value(s)	Yes	No
1	Did you perform the Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Instrument Cluster
2	Turn the ignition to the RUN position. Does the CHANGE ENGINE OIL indicator turn off after the bulb test?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	1. Turn the ignition switch to the RUN position with the engine off. 2. Press and hold the odometer trip reset button for approximately 12 seconds. Does the change oil indicator flash twice and then turn off?	—	Go to Step 6	Go to Step 4
4	1. Connect a scan tool to the vehicle data link connector (DLC). 2. Enter the instrument cluster WOW mode. 3. Command the instrument cluster indicators off. Does the change oil indicator turn off?	—	Go to Step 6	Go to Step 5
5	Replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Did you complete the replacement?	—	Go to Step 6	—
6	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	

CHANGE ENGINE OIL Indicator Inoperative

Step	Action	Value(s)	Yes	No
1	Did you perform the Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Instrument Cluster
2	Start the vehicle. Does the CHANGE ENGINE OIL indicator illuminate during the bulb test?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	1. Connect a scan tool to the vehicle data link connector (DLC). 2. Enter the instrument cluster WOW mode. 3. Command the instrument cluster indicators on. Does the change oil indicator turn on?	—	Go to Step 5	Go to Step 4
4	Replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Did you complete the replacement?	—	Go to Step 5	—
5	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

CHECK GAGES Indicator Always On

Step	Action	Value(s)	Yes	No
1	Did you perform the Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Instrument Cluster
2	Start the vehicle. Does the CHECK GAGES indicator turn off after the bulb test?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	Inspect the vehicle fuel level. Is the fuel level at least 3/16 full?	—	Go to Step 5	Go to Step 4
4	1. Fill the vehicle fuel tank to at least 3/16 full. 2. Turn the ignition switch to the RUN position. Does the check gauges indicator illuminate for approximately 3 seconds and turn off?	—	Go to Step 8	Go to Step 5
5	Inspect for powertrain control module (PCM) DTCs. Are any PCM DTCs set?	—	Go to A Powertrain On Board Diagnostic (OBD) System Check (3.8L) or A Powertrain On Board Diagnostic (OBD) System Check (5.7L)	Go to Step 6
6	1. Connect a scan tool to the vehicle data link connector (DLC). 2. Enter the instrument cluster WOW mode. 3. Command the instrument cluster indicators off. Does the CHECK GAGES indicator turn off?	—	Go to A Powertrain On Board Diagnostic (OBD) System Check (3.8L) or A Powertrain On Board Diagnostic (OBD) System Check (5.7L)	Go to Step 7
7	Replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Did you complete the replacement?	—	Go to Step 8	—
8	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

CHECK GAGES Indicator Inoperative

Step	Action	Value(s)	Yes	No
1	Did you perform the Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Instrument Cluster
2	Start the vehicle. Does the CHECK GAGES indicator illuminate during the bulb test?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	1. Connect a scan tool to the vehicle data link connector (DLC). 2. Enter the instrument cluster WOW mode. 3. Command the instrument cluster indicators on. Does the CHECK GAGES indicator turn on?	—	Go to A Powertrain On Board Diagnostic (OBD) System Check (3.8L) or A Powertrain On Board Diagnostic (OBD) System Check (5.7L)	Go to Step 4
4	Replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Did you complete the replacement?	—	Go to Step 5	—
5	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

Low Engine Oil Level Indicator Always On

Step	Action	Value(s)	Yes	No
1	Did you perform the Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Instrument Cluster
2	Start the vehicle. Does the low engine oil level indicator turn off after the bulb test?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	Check the engine oil level. Is the engine oil level at the FULL mark on the dipstick?	—	Go to Step 5	Go to Step 4
4	1. Fill the engine oil level to the full mark on the dip stick. Refer to <i>Owner Checks and Services</i> . 2. Turn the ignition switch to the RUN position. Does the low oil indicator illuminate for approximately 3 seconds and turn off?	—	System OK	Go to Step 5
5	Check for powertrain control module (PCM) DTCs. Are any PCM DTCs set?	—	Go to A Powertrain On Board Diagnostic (OBD) System Check (3.8L) or A Powertrain On Board Diagnostic (OBD) System Check (5.7L)	Go to Step 6

Low Engine Oil Level Indicator Always On (cont'd)

Step	Action	Value(s)	Yes	No
	1. Connect a scan tool to the vehicle data link connector (DLC). 2. Enter the instrument cluster WOW mode. 3. Command the instrument cluster indicators off.		Go to A Powertrain On Board Diagnostic (OBD) System Check (3.8L) or A Powertrain On Board Diagnostic (OBD) System Check (5.7L)	
6	Does the low oil indicator turn off?	—		Go to Step 7
7	Replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Did you complete the replacement?	—	Go to Step 8	—
8	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

Low Engine Oil Level Indicator Inoperative

Step	Action	Value(s)	Yes	No
1	Did you perform the Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Instrument Cluster
2	Start the vehicle. Does the low engine oil level indicator illuminate during the bulb test?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	1. Connect a scan tool to the vehicle data link connector (DLC). 2. Enter the instrument cluster WOW mode. 3. Command the instrument cluster indicators on. Does the low oil indicator turn on?	—	Go to A Powertrain On Board Diagnostic (OBD) System Check (3.8L) or A Powertrain On Board Diagnostic (OBD) System Check (5.7L)	Go to Step 4
4	Replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Did you complete the replacement?	—	Go to Step 5	—
5	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

(REDUCED ENGINE POWER Indicator Always On

Step	Action	Value(s)	Yes	No
1	Did you perform the Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Instrument Cluster
2	Start the vehicle. Does the REDUCED ENGINE POWER indicator turn off after the bulb test?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	1. Connect a scan tool to the vehicle data link connector (DLC). 2. Enter the instrument cluster WOW mode. 3. Command the instrument cluster indicators off. Does the reduced engine power indicator turn off?	—	Go to A Powertrain On Board Diagnostic (OBD) System Check 3.8L	Go to Step 4
4	Replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Did you complete the replacement?	—	Go to Step 5	—
5	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 2

REDUCED ENGINE POWER Indicator Inoperative

Step	Action	Value(s)	Yes	No
1	Did you perform the Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Instrument Cluster
2	Start the vehicle. Does the REDUCED ENGINE POWER indicator illuminate during the bulb test?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	1. Connect a scan tool to the vehicle data link connector (DLC). 2. Enter the instrument cluster WOW mode. 3. Command the instrument cluster indicators on. Does the reduced engine power indicator turn on?	—	Go to A Powertrain On Board Diagnostic (OBD) System Check 3.8L	Go to Step 4
4	Replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Did you complete the replacement?	—	Go to Step 5	—
5	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

Speedometer Inaccurate (J 38522 Available)

Step	Action	Value(s)	Yes	No
Important: In order to avoid misdiagnosis, check for powertrain control module (PCM) DTCs before performing this diagnosis. Refer to <i>A Powertrain On Board Diagnostic (OBD) System Check</i> (3.8L) or <i>A Powertrain On Board Diagnostic (OBD) System Check</i> (5.7L).				
1	Did you perform the Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Instrument Cluster
2	Drive the vehicle. Does the speedometer display the correct speed?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	1. Disconnect the powertrain control module (PCM) connector C1 (V6 VIN K) or C2 (V8 VIN G). 2. Connect a J 33431-C signal generator and instrument cluster tester to the PCM connector circuit 817. 3. Set the J 33431-C to 87 kph (54 mph). 4. Turn the ignition switch to the RUN position. Does the speedometer measure approximately 87 kph (54 mph)?	87 kph (54 mph)	Go to Step 4	Go to Step 6
4	Test for and repair a poor connection in circuit 817 at the PCM. Refer to <i>Testing for Intermittent and Poor Connections</i> and <i>Connector Repairs</i> in Wiring Systems. Did you find and repair a poor connection?	—	Go to Step 14	Go to Step 5
5	Replace the PCM. Refer to <i>PCM Replacement/Programming</i> (3.8L) or <i>PCM Replacement/Programming</i> (5.7L). Did you complete the repair?	—	Go to Step 14	—
6	1. Disconnect the instrument cluster. 2. Connect a test lamp from the PCM connector circuit 817 to ground. Refer to <i>Circuit Testing</i> in Wiring Systems. Does the test lamp illuminate?	—	Go to Step 7	Go to Step 8
7	Repair the short to battery voltage in circuit 817. Refer to <i>Wiring Repairs</i> in Wiring Systems. Did you complete the repair?	—	Go to Step 14	—
8	Connect a test lamp from the PCM connector circuit 817 to battery voltage. Refer to <i>Circuit Testing</i> in Wiring Systems. Does the test lamp illuminate?	—	Go to Step 9	Go to Step 10
9	Repair the short to ground in circuit 817. Refer to <i>Wiring Repairs</i> in Wiring Systems. Did you complete the repair?	—	Go to Step 14	—
10	1. Connect a fused jumper from the PCM connector circuit 817 to ground. 2. Connect a test lamp from the instrument cluster connector circuit 817 to battery voltage. Refer to <i>Circuit Testing</i> in Wiring Systems. 3. Does the test lamp illuminate?	—	Go to Step 11	Go to Step 13
11	Test for and repair a poor connection in circuit 817 at the instrument cluster. Refer to <i>Testing for Intermittent and Poor Connections</i> and <i>Connector Repairs</i> in Wiring Systems. Did you find and repair a poor connection?	—	Go to Step 14	Go to Step 12

Speedometer Inaccurate (J 38522 Available) (cont'd)

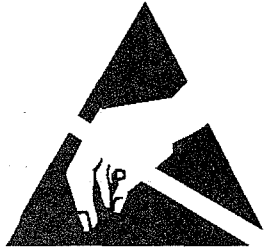
Step	Action	Value(s)	Yes	No
12	Replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Did you complete the repair?	—	Go to Step 14	—
13	Repair an open or a poor connection in circuit 817 between the instrument cluster and the PCM. Refer to <i>Wiring Repairs</i> or <i>Connector Repairs</i> in Wiring Systems. Did you complete the repair?	—	Go to Step 14	—
14	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

Speedometer Inaccurate (J 38522 Unavailable)

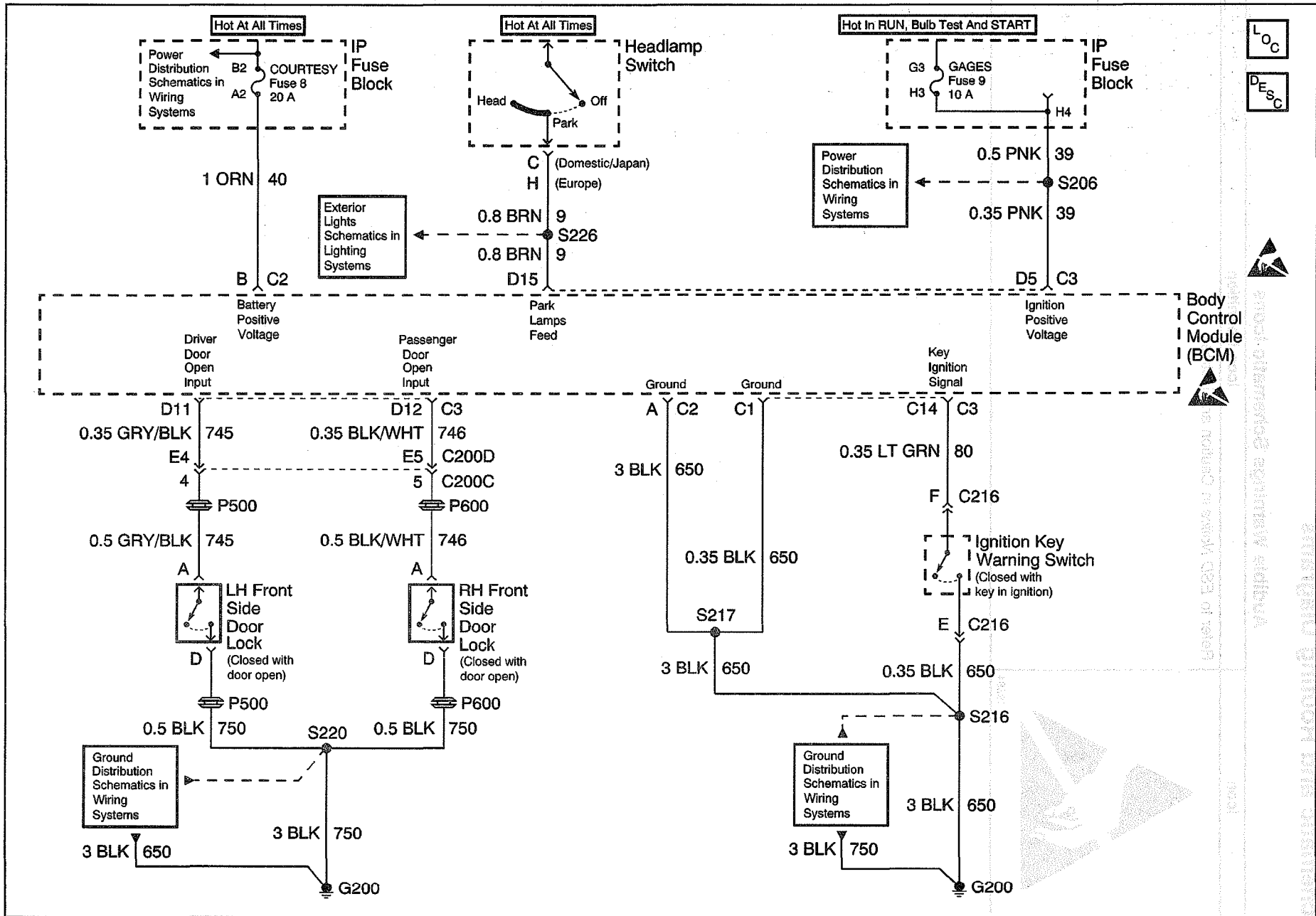
Step	Action	Value(s)	Yes	No
Important: In order to avoid misdiagnosis, check for powertrain control module (PCM) diagnostic trouble codes (DTCs). Refer to <i>A Powertrain On Board Diagnostic (OBD) System Check (3.8L)</i> or <i>A Powertrain On Board Diagnostic (OBD) System Check (5.7L)</i> .				
1	Did you perform the Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Instrument Cluster
2	Drive the vehicle. Does the speedometer display the correct speed?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	1. Disconnect the powertrain control module (PCM) connector C2 (V8 VIN G) or C1 (V6 VIN K). 2. Connect a 10A fused jumper between the PCM connector circuit 817 and ground. 3. Disconnect the instrument cluster. 4. Connect a test lamp between the instrument cluster terminal A3 and terminal B8. 5. Turn the ignition switch to the RUN position. Refer to <i>Circuit Testing</i> in Wiring Systems. Does the test lamp illuminate?	—	Go to Step 4	Go to Step 6
4	Test for and repair a poor connection in circuit 817 at the PCM and the instrument cluster. Refer to <i>Testing for Intermittent and Poor Connections</i> and <i>Connector Repairs</i> in Wiring Systems. Did you find and repair a poor connection?	—	Go to Step 7	Go to Step 5
5	Replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Did you complete the replacement?	—	Go to Step 7	—
6	Repair an open or a poor connection in circuit 817 between the instrument cluster and the PCM. Refer to <i>Wiring Repairs</i> or <i>Connector Repairs</i> in Wiring Systems. Did you complete the repair?	—	Go to Step 7	—
7	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

Schematic and Routing Diagrams

Audible Warnings Schematic Icons

Icon	Icon Definition
 19384	Refer to <i>ESD Notice</i> in Caution and Notices.

Audible Warnings Schematics (Body Control Module and Switch Inputs)



Component Locator

Audible Warnings Components

Name	Location	Locator View	Connector End View
Body Control Module (BCM)	Under the right side of the IP near the blower motor	Body Control Module Component Views in Body Control Systems	Body Control Module Connector End Views in Body Control Systems
Front Side Door Lock	Inside the rear of the door	Power Door Systems Component Views in Doors	Body Control Module Connector End Views in Body Control Systems
Headlamp Switch	On the left side of the IP	Lighting Systems Component Views in Lighting Systems	Lighting Systems Connector End Views in Lighting Systems
Ignition Key Warning Switch	Part of the ignition key lock cylinder	—	Lighting Systems Connector End Views in Lighting Systems
IP Fuse Block	On the left end of the IP carrier	Instrument Panel, Gauges, and Console Component Views	—
Seat Belt Switch	Part of the driver seat buckle assembly	—	Seat Belt Connector End Views in Seat Belts
C200C (13 cavities)	Cross car to IP harness, between the left kick panel and the steering column	Harness Routing Views in Wiring Systems	Inline Harness Connector End Views in Wiring Systems
C200D (48 cavities)	Part of the IP harness, between the left kick panel and the steering column	Harness Routing Views in Wiring Systems	Inline Harness Connector End Views in Wiring Systems
C216 (11 cavities)	IP to steering column harness, attached to the base of the steering column	Harness Routing Views in Wiring Systems	Lighting Systems Connector End Views in Lighting Systems
G200	Near the left A-pillar, bolted to the IP mounting stud behind the kick panel	Harness Routing Views in Wiring Systems	—
P500	Between the driver door and A-pillar	Harness Routing Views in Wiring Systems	—
P600	Between the passenger door and A-pillar	Harness Routing Views in Wiring Systems	—
S206	In the IP harness, at the rear compartment lid release relay breakout	—	—
S216	In the IP harness, main branch, approximately 10 cm (4 in) from the instrument cluster breakout	—	—
S217	In the IP harness, main branch, approximately 18 cm (6.8 in) from the body control module (BCM) breakout	—	—
S220	In the cross car harness, main branch, approximately 9 cm (3.5 in) from C200C breakout	—	—
S226	In the IP harness, approximately 7 cm (2.8 in) into the headlamp switch breakout	—	—

Diagnostic Information and Procedures

Key-in-Ignition Chime Always On

Step	Action	Value(s)	Yes	No
1	Did you review the system operation and perform the necessary inspections?	—	Go to Step 2	Go to Symptoms - Instrument Panel, Gauges and Console
2	1. Close the driver door. 2. Remove the key from the ignition. Does the chime turn off?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	1. Remove the ignition key from the ignition key lock cylinder. 2. Disconnect the body control module (BCM) connector C3. 3. Connect a test lamp from battery voltage to the BCM connector C3 terminal C14. Refer to <i>Circuit Testing</i> in Wiring Systems. Does the test lamp illuminate?	—	Go to Step 5	Go to Step 4
4	Replace the body control module (BCM). Refer to <i>Body Control Module Replacement</i> in Body Control System. Did you complete the replacement?	—	Go to Step 7	—
5	Test for and repair a short to ground in circuit 80. Refer to <i>Circuit Testing</i> and <i>Wiring Repairs</i> in Wiring Systems. Did you find and repair a short to ground?	—	Go to Step 7	Go to Step 6
6	Replace the ignition key warning switch. Refer to <i>Ignition Switch Replacement - On Vehicle</i> . Did you complete the replacement?	—	Go to Step 7	—
7	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

Key-in-Ignition Chime Inoperative

Step	Action	Value(s)	Yes	No
1	Did you review the system operation and perform the necessary inspections?	—	Go to Step 2	Go to Symptoms - Instrument Panel, Gauges and Console
2	1. Turn the ignition to the ACCY position. 2. Open the driver door. Does the key-in-ignition chime sound?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	1. Place the key into the ignition switch. 2. Turn the ignition switch to the OFF position. 3. Close the passenger door and the rear compartment lid. 4. Open the driver door. Are the courtesy lamps ON?	—	Go to Step 4	Go to Courtesy Lamps Inoperative with Doors Open
4	1. Disconnect the BCM connector C3. 2. Use a DMM in order to test the continuity between the BCM connector C3 terminal C14 and ground. Refer to <i>Circuit Testing</i> in Wiring Systems. Is there continuity?	—	Go to Step 5	Go to Step 7

Key-in-Ignition Chime Inoperative (cont'd)

Step	Action	Value(s)	Yes	No
5	Test for and repair a poor connection at the BCM connector C3. Refer to <i>Testing for Intermittent and Poor Connections</i> and <i>Connector Repairs</i> in Wiring Systems. Did you find and repair a poor connection?	—	Go to Step 12	Go to Step 6
6	Replace the BCM. Refer to <i>Body Control Module Replacement</i> in Body Control System. Did you complete the replacement?	—	Go to Step 12	—
7	1. Disconnect connector C216. 2. Use a DMM in order to test the continuity between connector C216 terminal E and ground. Refer to <i>Circuit Testing</i> in Wiring Systems. Is there continuity?	—	Go to Step 9	Go to Step 8
8	Repair the open in circuit 650 between the ignition key warning switch and S216. Refer to <i>Wiring Repairs</i> in Wiring Systems. Did you complete the repair?	—	Go to Step 12	—
9	Test for and repair a poor connection at connector C216 terminal E. Refer to <i>Testing for Intermittent and Poor Connections</i> and <i>Connector Repairs</i> in Wiring Systems. Did you find and repair a poor connection?	—	Go to Step 12	Go to Step 10
10	Test for and repair an open in circuit 80 between the ignition key warning switch and the BCM. Refer to <i>Circuit Testing</i> and <i>Wiring Repairs</i> in Wiring Systems. Did you find and repair an open?	—	Go to Step 12	Go to Step 11
11	Replace the ignition key warning switch. Refer to <i>Ignition Switch Replacement - On Vehicle</i> . Did you complete the replacement?	—	Go to Step 12	—
12	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

Key-in-Ign Chime On with LF Door Closed

Step	Action	Value(s)	Yes	No
1	Did you review the system operation and perform the necessary inspections?	—	Go to Step 2	Go to Symptoms - Instrument Panel, Gauges and Console
2	1. Close the driver door. 2. Insert the key into the ignition. Does the key-in-ignition chime remain off?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	Are the interior lights on at all times?	—	Go to A Diagnostic System Check - Lighting Systems in Lighting Systems	Go to Step 4
4	Replace the body control module (BCM). Refer to <i>Body Control Module Replacement</i> in Body Control System. Did you complete the replacement?	—	Go to Step 5	—
5	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

Lights On Chime On with Ignition in Run

Step	Action	Value(s)	Yes	No
1	Did you review the system operation and perform the necessary inspections?	—	Go to Step 2	Go to Symptoms - Instrument Panel, Gauges and Console
2	1. Turn on the head lamps. 2. Turn the ignition to the RUN position. Does the lights-on-chime turn off?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	1. Turn the ignition switch to the RUN position. 2. Using a test lamp connected to ground, backprobe body control module (BCM) connector C3 terminal D5. Refer to <i>Circuit Testing</i> in Wiring Systems. Does the test lamp illuminate?	—	Go to Step 4	Go to Step 6
4	Test for and repair a poor connection at the BCM connector C3 terminal D5. Refer to <i>Testing for Intermittent and Poor Connections</i> and <i>Connector Repairs</i> in Wiring Systems. Did you find and repair a poor connection?	—	Go to Step 7	Go to Step 5
5	Replace the BCM. Refer to <i>Body Control Module Replacement</i> in Body Control System. Did you complete the replacement?	—	Go to Step 7	—
6	Repair the open in circuit 39 between the BCM and S206. Refer to <i>Wiring Repairs</i> in Wiring Systems. Did you complete the repair?	—	Go to Step 7	—
7	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

Lights On Chime Inoperative

Step	Action	Value(s)	Yes	No
1	Did you review the system operation and perform the necessary inspections?	—	Go to Step 2	Go to Symptoms - Instrument Panel, Gauges and Console
2	1. Open the driver door. 2. Turn the park lamps on. Does the lights-on-chime sound?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	1. Turn the headlamp switch to the ON position. 2. Connect a test lamp between the body control module (BCM) connector C3 terminal D15 and ground. Refer to <i>Circuit Testing</i> in Wiring Systems. Does the test lamp illuminate?	—	Go to Step 4	Go to Step 6
4	Test for and repair a poor connection at the BCM connector C3 terminal D15. Refer to <i>Testing for Intermittent and Poor Connections</i> and <i>Connector Repairs</i> in Wiring Systems. Did you find and repair a poor connection?	—	Go to Step 7	Go to Step 5
5	Replace the BCM. Refer to <i>Body Control Module Replacement</i> in Body Control System. Did you complete the replacement?	—	Go to Step 7	—
6	Repair the open in circuit 9 between the BCM and S226. Refer to <i>Wiring Repairs</i> in Wiring Systems. Did you complete the repair?	—	Go to Step 7	—
7	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

Repair Instructions

IP Service Precautions

The inflatable restraint sensing and diagnostic module (SDM) maintains enough voltage in order to cause an air bag deployment for up to 10 minutes after any of the following situations occur:

- The ignition switch is turned to the OFF position.
- The battery is disconnected.
- The fuse that is powering the SDM is removed.

Many of the service procedures require removal of the AIR BAG fuse and disconnection of the deployment loops. These actions help avoid an accidental air bag deployment. If the inflator modules are disconnected from the deployment loops, service can begin immediately without waiting for the 10 minute time period to expire.

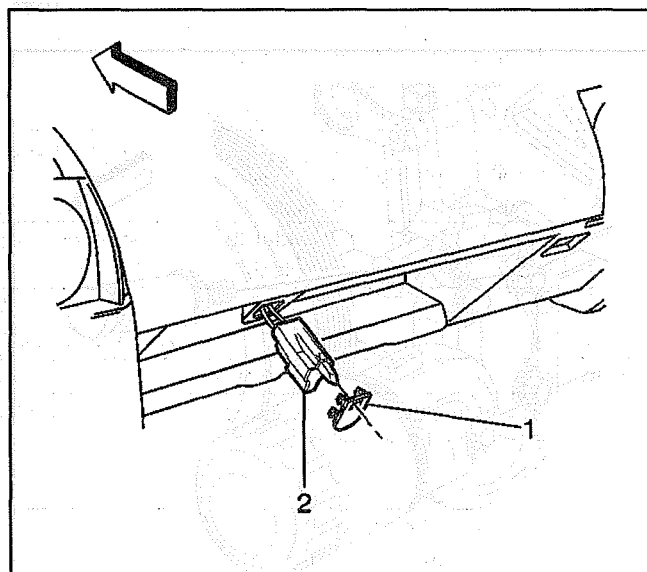
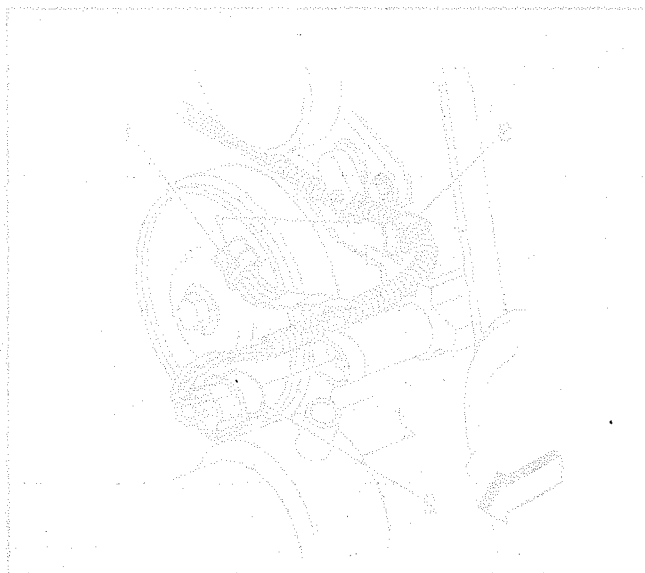
IP Compartment Lamp Switch Replacement

Removal Procedure

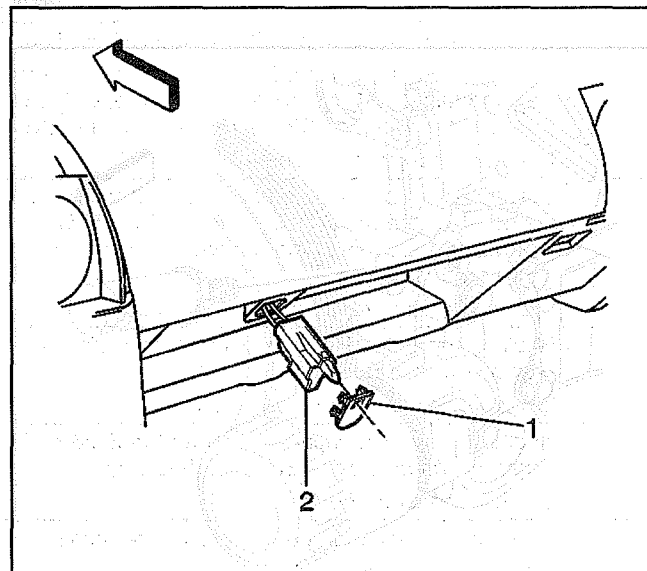
1. Unsnap the retainer (1) from the instrument panel (I/P).
2. Unsnap the retainer (1) from the IP compartment lamp switch (2).
3. Remove the IP compartment lamp switch (2) from the vehicle.

Installation Procedure

1. Install the IP compartment lamp switch (2) to the vehicle.
2. Connect the retainer (1) to the IP compartment lamp switch (2).
3. Install the retainer (1) through the opening in the IP.



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Engine Oil Pressure Switch Replacement (3.8 L)

Removal Procedure

1. Disconnect oil pressure sensor electrical connector (2).

- The ignition switch is turned to the OFF position.
- The battery is disconnected.
- The fuse that is powering the SDM is removed.

Many of the service procedures require removal of the AIR BAG fuse and disconnection of the deployment loops. These actions help avoid an accidental air bag deployment. If the inflator modules are disconnected from the deployment loops, service can begin immediately without waiting for the 10 minute time period to expire.

2. Remove the oil pressure sensor.

- ### Removal Procedure
1. Disconnect the oil pressure sensor electrical connector (2).
 2. Turn the oil pressure sensor (1) from the IP compartment.
 3. Remove the IP compartment lamp switch (3) from the vehicle.

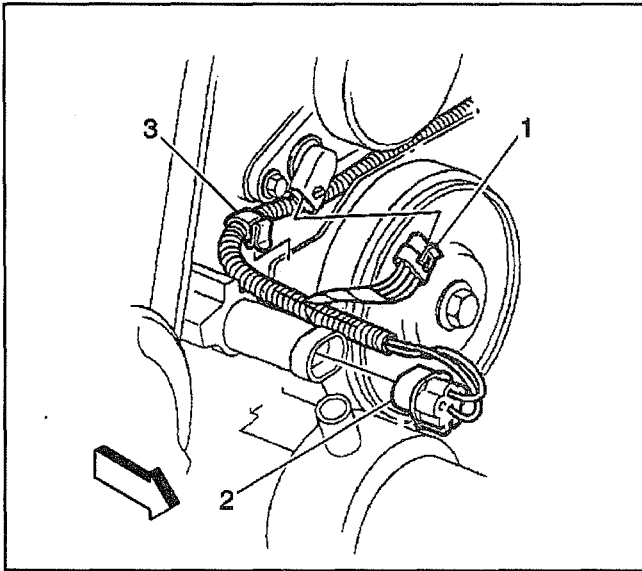
Installation Procedure

Notice: Refer to *Fastener Notice* in Cautions and Notices.

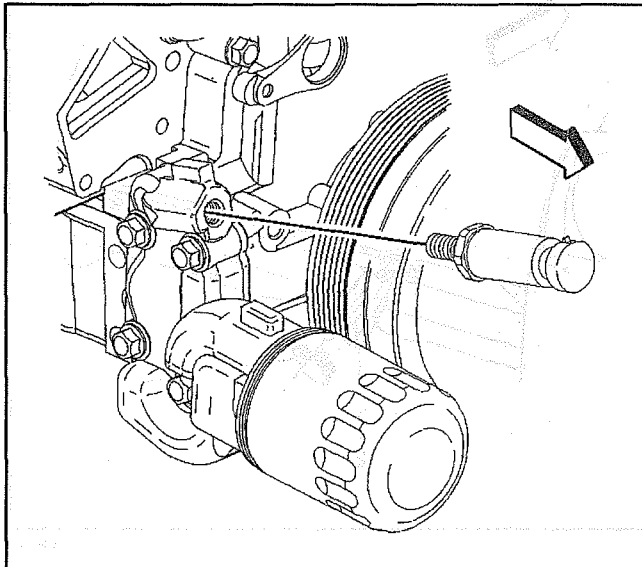
1. Install the oil pressure sensor.

Tighten

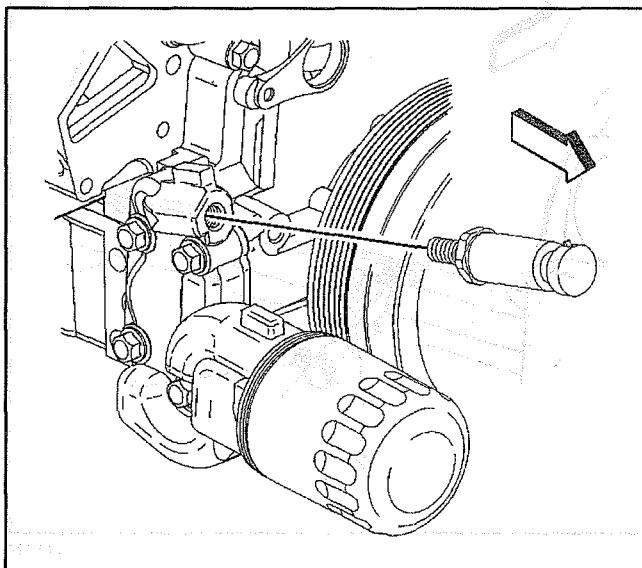
Tighten the oil pressure sensor to 16 N·m (12 lb ft).



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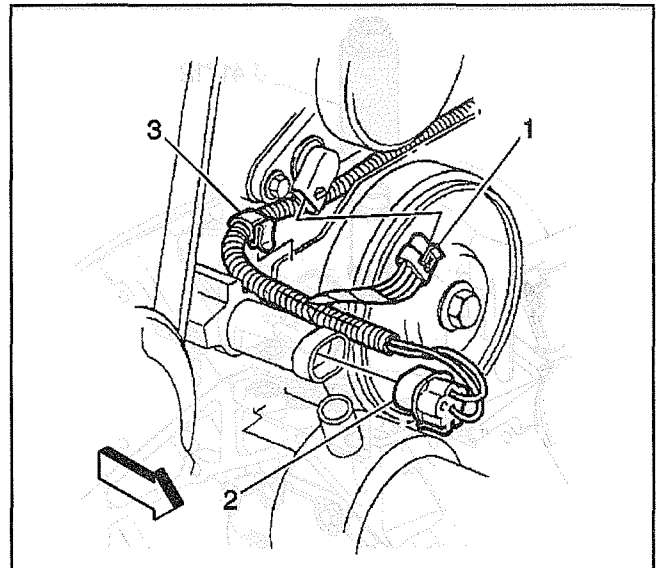


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2. Connect oil pressure sensor electrical connector (2).



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Engine Oil Pressure Switch Replacement (5.7 L)

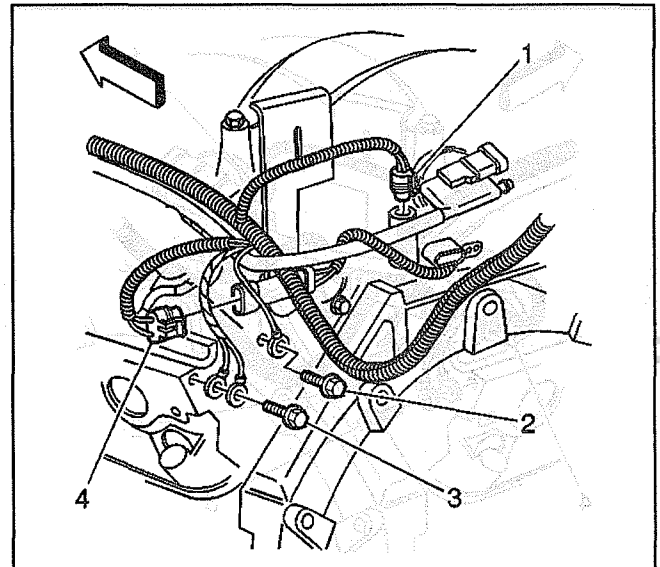
Removal Procedure

Tools Required

J 41712 Oil Pressure Sensor Socket

1. Remove the intake manifold. Refer to *Intake Manifold Replacement* in Engine Mechanical 5.7 L.
2. Disconnect the oil pressure sensor electrical connector (1).

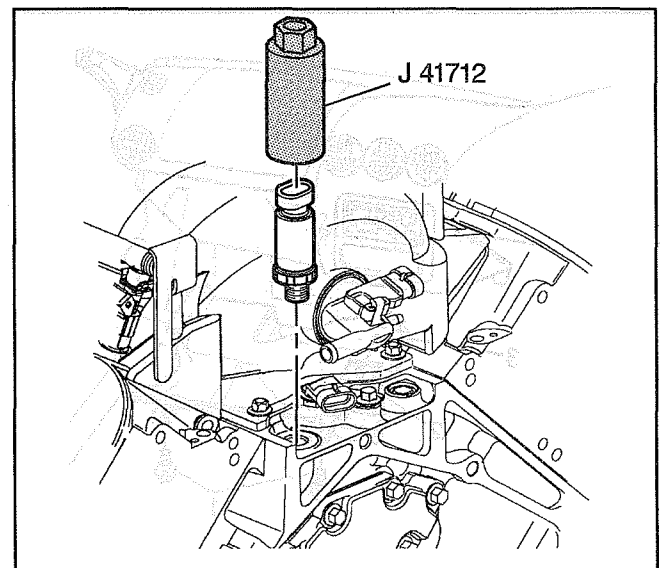
Important: Clean the area around the sensor before removal. This avoids debris from entering the engine.



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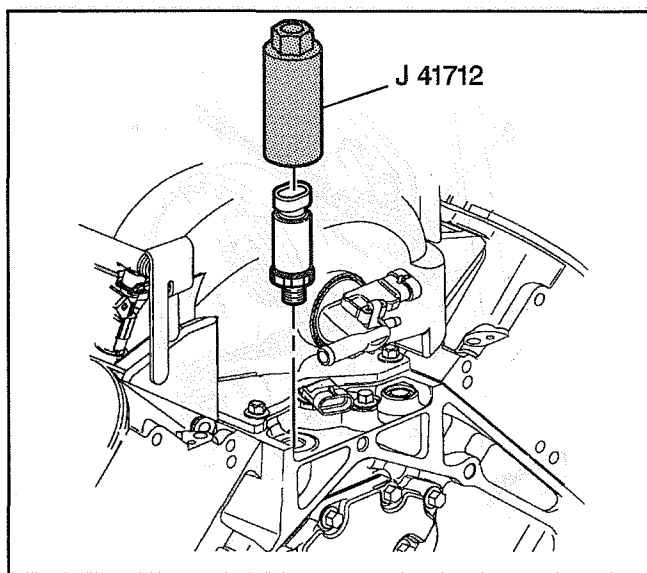
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3. Use J 41712 to remove the oil pressure sensor from the engine block.

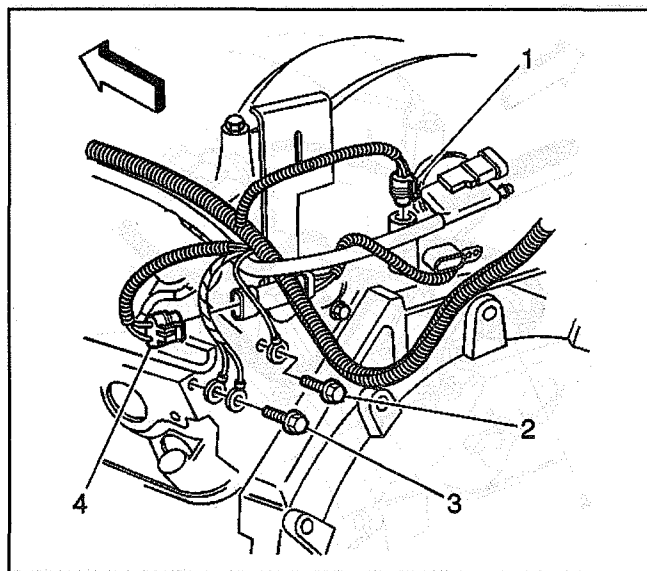


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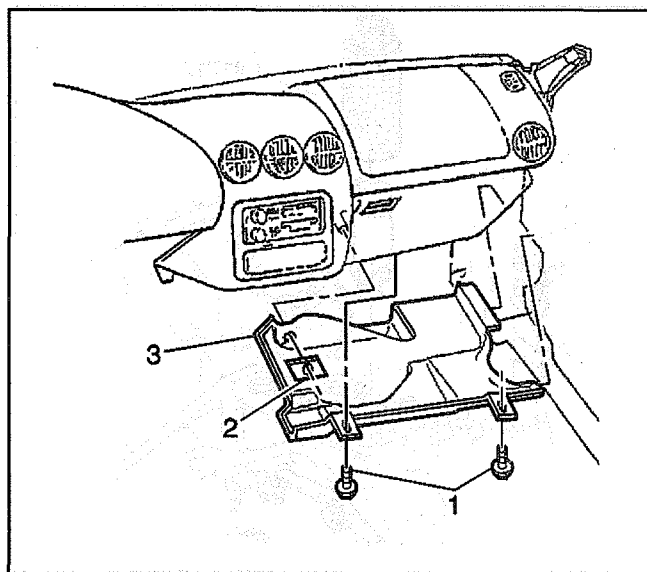
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Installation Procedure

Tools Required

J 41712 Oil Pressure Sensor Socket

1. If installing the old sensor, apply thread sealant GM P/N 12346004 or equivalent.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Use J 41712 to install the oil pressure sensor to the engine block.

Tighten

Tighten the engine oil pressure sensor to 20 N·m (15 lb ft).

3. Connect the oil pressure sensor electrical connector (1).
4. Install the intake manifold. Refer to *Intake Manifold Replacement* in Engine Mechanical 5.7 L.

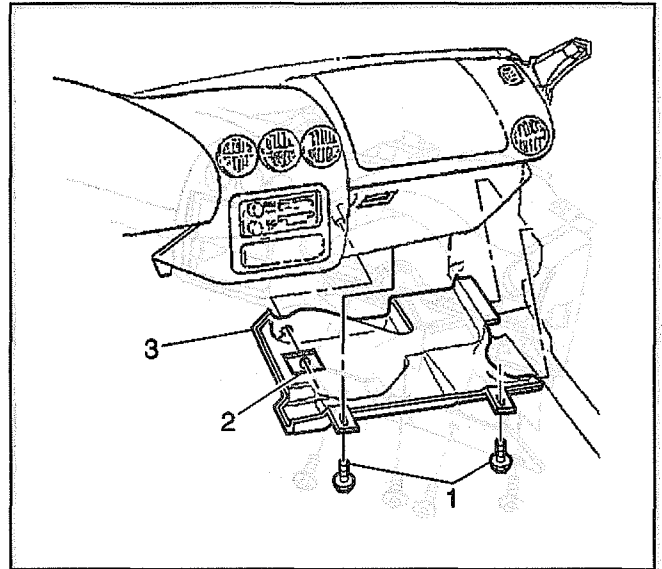
Closeout/Insulator Panel Replacement - Right

Removal Procedure

1. Remove the retainer (2) from the boss on the heating, ventilation and air conditioning (HVAC) module.
2. Remove the push-in retainers (1) from the insulator (3).
3. Slide the flange on the insulator (3) from the boss on the HVAC module.
4. Unhook the flange on the insulator (3) from over the kick panel.
5. Remove the insulator (3) from the instrument panel (IP).

Installation Procedure

1. Align the IP sound insulator (3) to the bottom of the IP.
2. Lift the flange on the insulator (3) over the kick panel.
3. Press forward the flange over the boss on the HVAC module.
4. Install the push-in retainers (1) to the insulator (3).
5. Press the retainer (2) onto the boss on the HVAC module.
6. Ensure that the flat sides of the retainers (1) are facing each other.

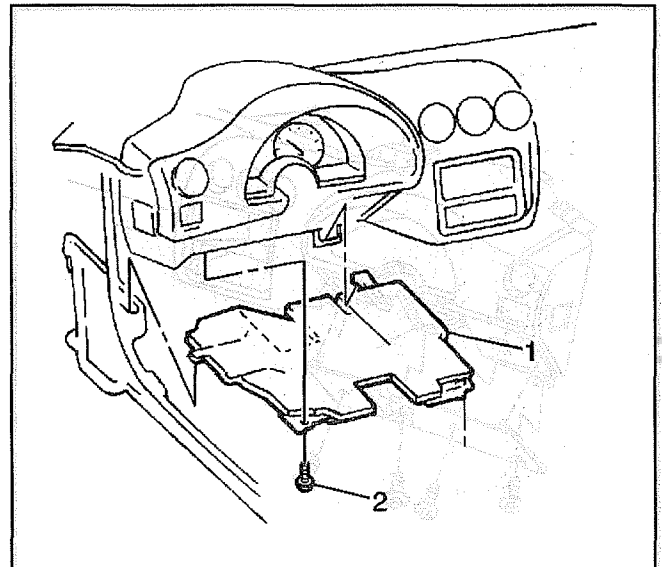


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Closeout/Insulator Panel Replacement - Left**Removal Procedure**

1. Remove the push-in retainers (2).
2. Unhook the tab on the instrument panel (IP) insulator (1) from the retaining feature on the dash mat.
3. Lift the flange on the IP insulator (1) out of the kick panel.

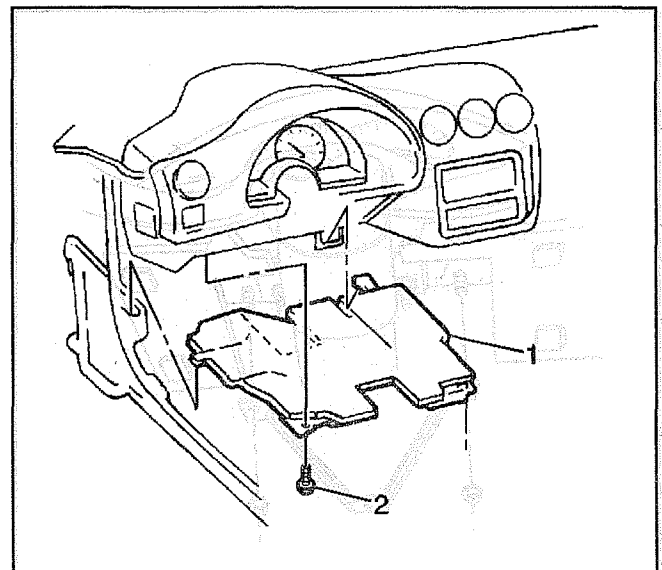


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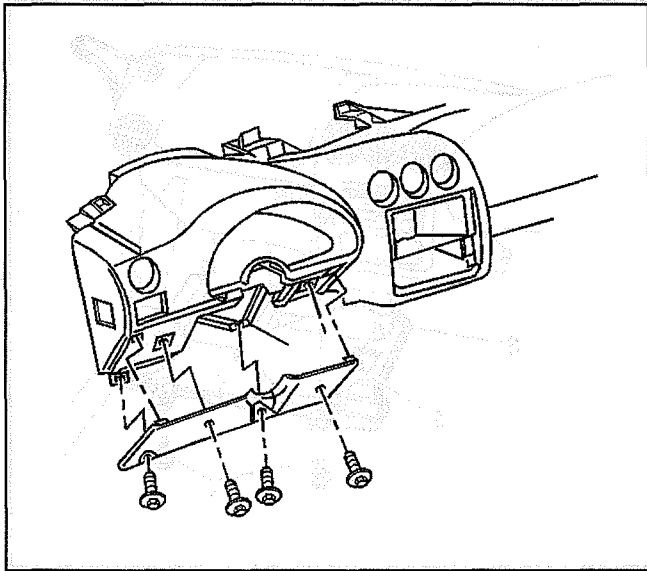
Installation Procedure

1. Align the IP insulator (1) to the bottom of the IP.
2. Lift the flange on the IP insulator (1) over the kick panel.
3. Install the tab on the IP insulator (1) into the retaining feature on the dash mat.
4. Install the push-in retainers (2).



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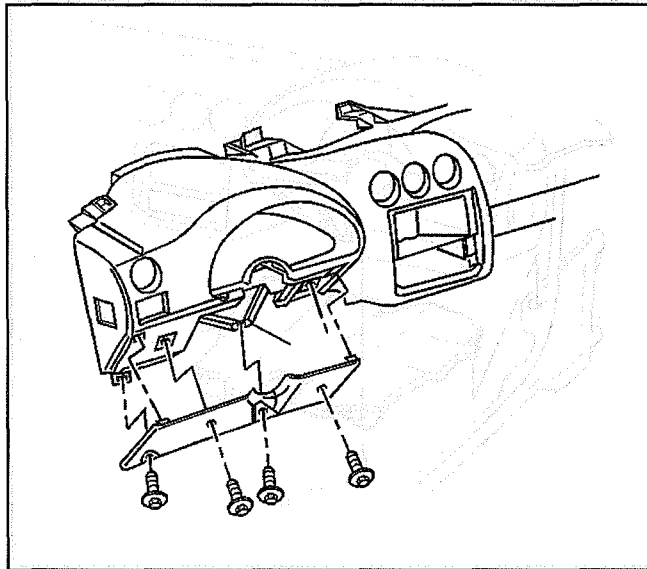


523613

Knee Bolster Replacement - Left

Removal Procedure

1. Remove the rear compartment lid release switch, if equipped. Refer to *Rear Compartment Lid Switch Replacement* in Body Rear End.
2. Remove the instrument panel (IP) knee bolster bolts.
3. Remove the IP knee bolster.



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Installation Procedure

1. Insert knee bolster tabs in IP.
2. Align knee bolster for best fit.

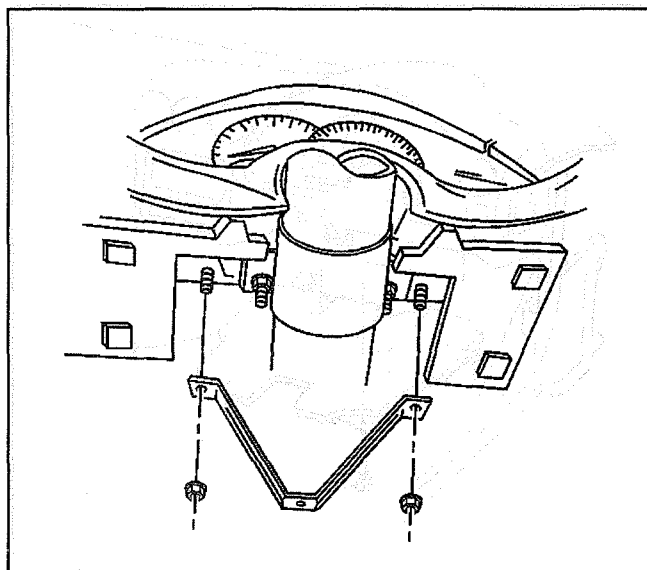
Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the IP knee bolster bolts.

Tighten

Tighten the IP knee bolster bolts to 2 N·m (18 lb in).

4. Install the rear compartment lid release switch, if equipped. Refer to *Rear Compartment Lid Switch Replacement* in Body Rear End.



523615

Knee Bolster Deflector Replacement - Left

Removal Procedure

1. Remove the instrument panel (IP) knee bolster. Refer to *Knee Bolster Replacement - Left*.
2. Remove the IP knee bolster deflector nuts.
3. Remove the IP knee bolster deflector.

Installation Procedure

1. Install the IP knee bolster deflector.

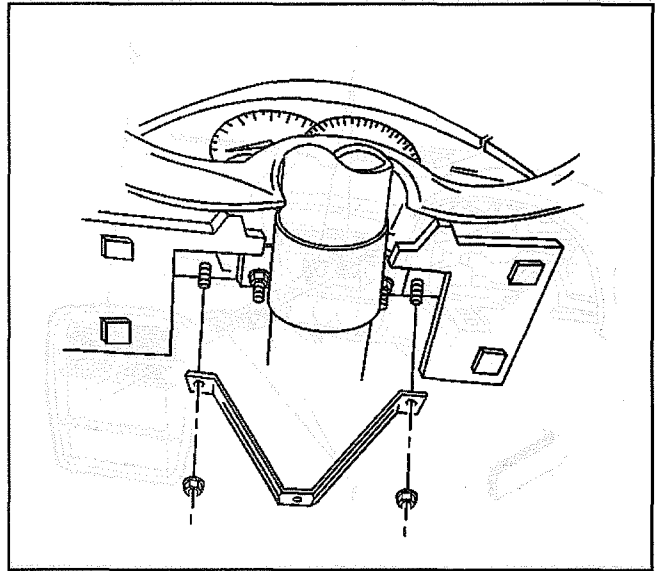
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the IP knee bolster deflector nuts.

Tighten

Tighten the IP knee bolster deflector nuts to 10 N·m (89 lb in).

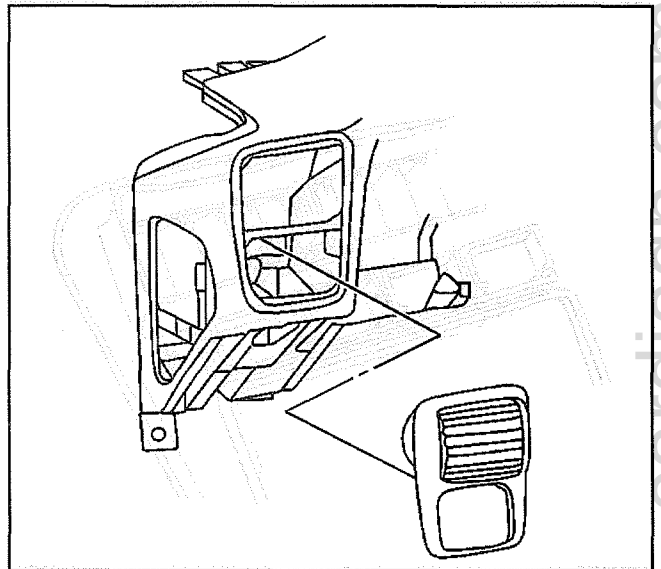
3. Install the IP knee bolster. Refer to *Knee Bolster Replacement - Left*.



523615

**Trim Plate Replacement - IP
Accessory Left**
Removal Procedure

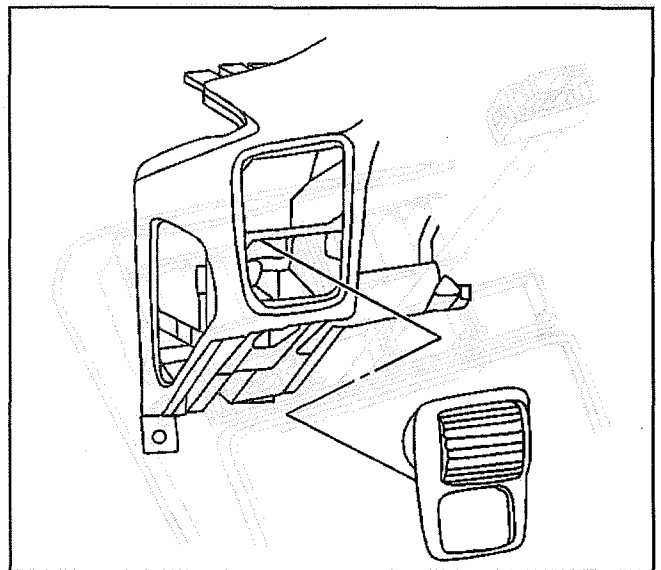
1. Gently pull on the top of the instrument panel (IP) trim plate in order to disengage the retaining clips from the IP.
2. Gently pull on the bottom of the IP trim plate in order to disengage the retaining clips from the IP.
3. Remove the IP trim plate from the IP.
4. Unsnap the air outlet from the IP trim plate, if necessary.



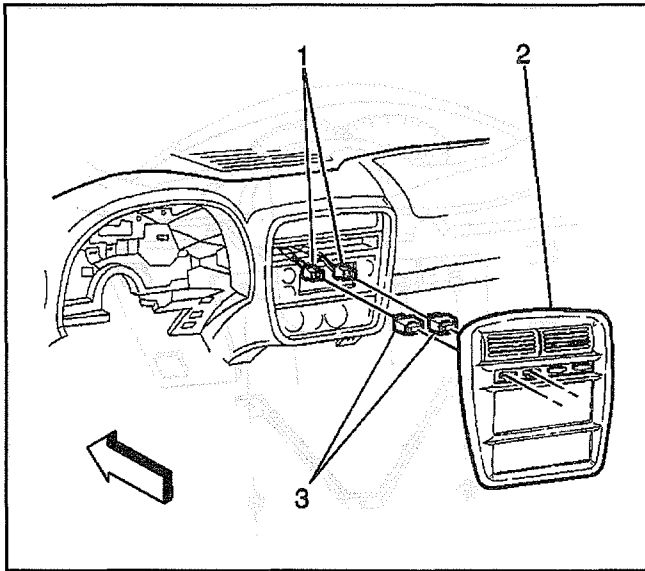
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Installation Procedure

1. Snap the air outlet to the IP trim plate, if removed.
2. Align the IP trim plate to the IP.
3. Insert the locating pins on the IP trim plate into the holes in the IP.
4. Apply pressure in order to snap the IP trim plate into place in order to secure.

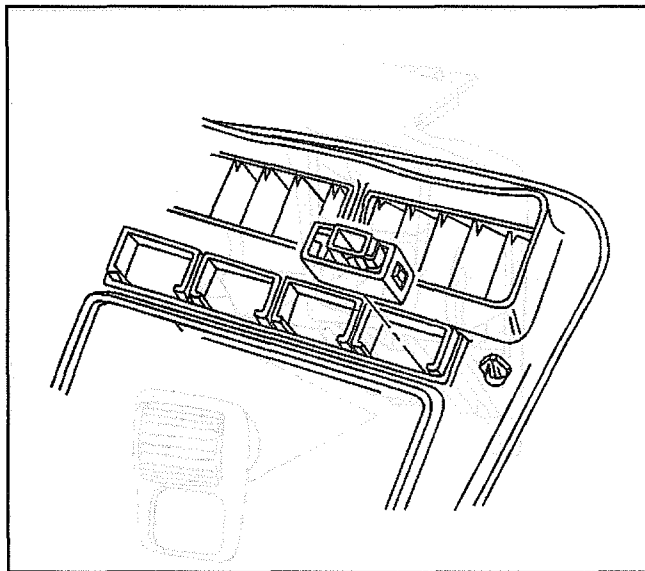


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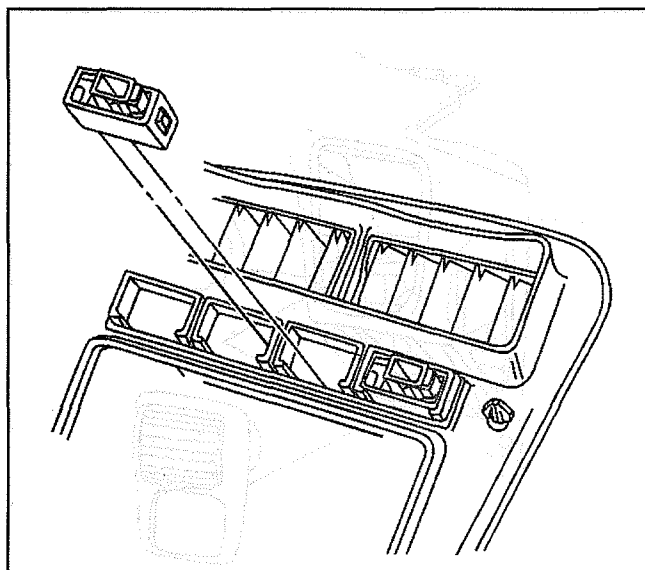
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Trim Plate Replacement - IP Accessory (Chevrolet)

Removal Procedure

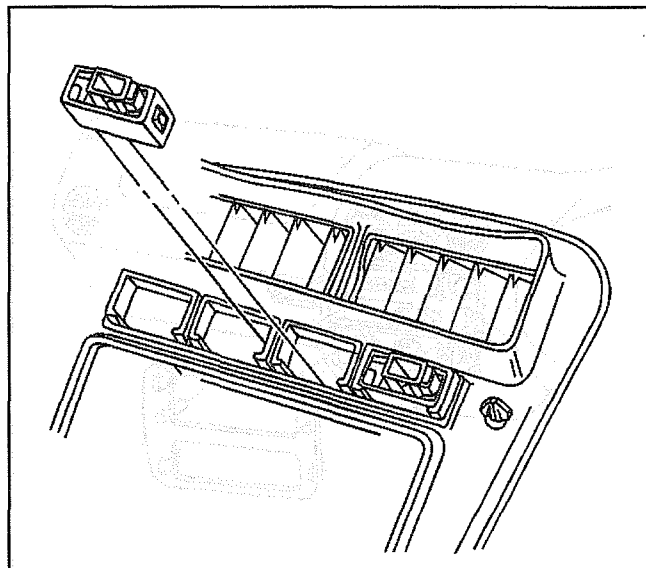
1. Unsnap the instrument panel (IP) accessory trim plate (2).
2. Remove the electrical connectors (1) from the switches (3), if equipped.

3. Remove the fog lamp or second gear start switch located in position 1, if equipped.

4. Remove the second gear start, rear fog lamp, or traction control switch located in position 2, if equipped.
5. Remove the rear fog lamp switch located in position 3, if equipped.

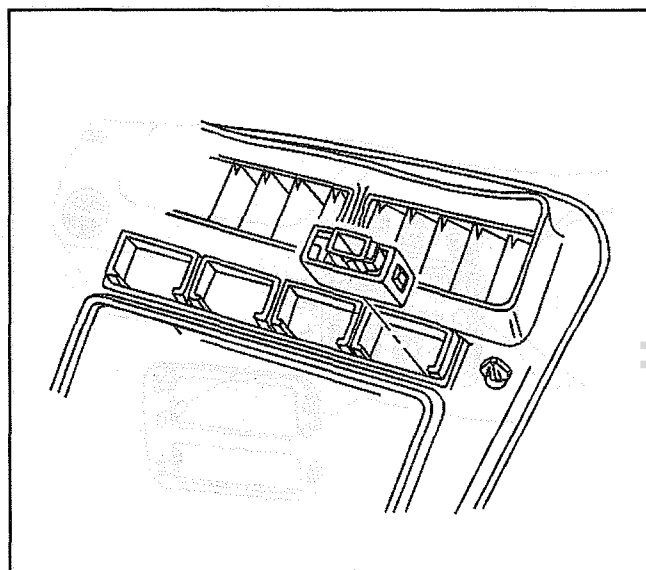
Installation Procedure

1. Install the rear fog lamp switch located in position 3, if equipped.
2. Install the second gear start, rear fog lamp, or traction control switch located in position 2, if equipped.



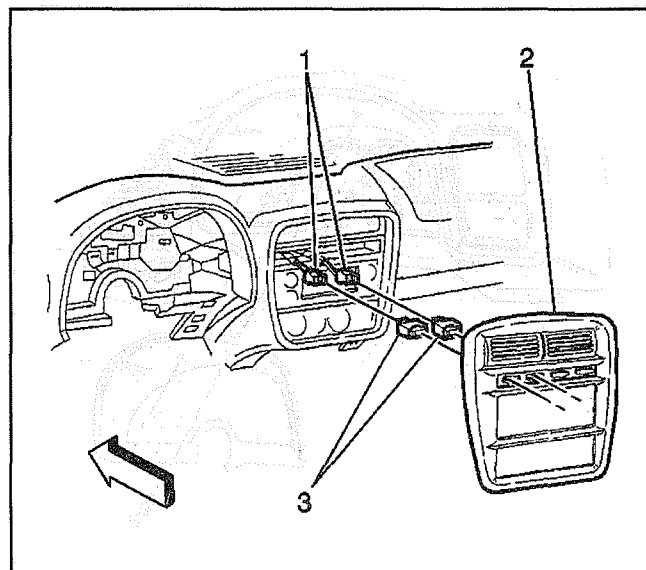
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3. Install the fog lamp or second gear start switch located in position 1, if equipped.

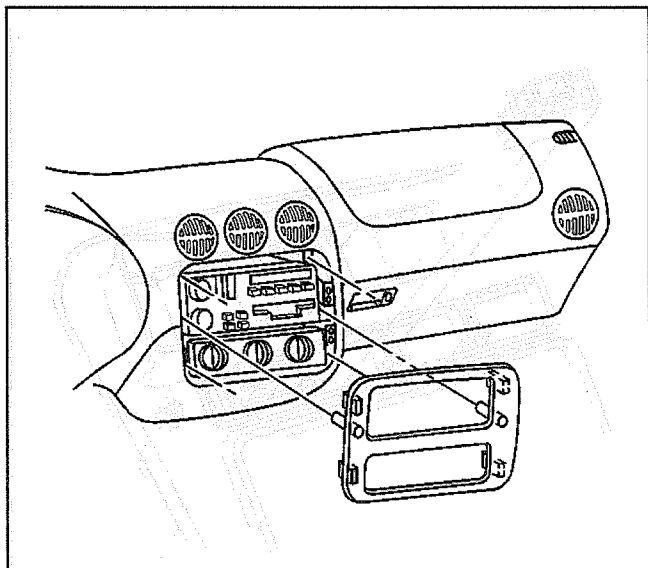


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4. Install the electrical connectors (1) to the switches (3), if equipped.
5. Snap the IP accessory trim plate (2) to the IP.



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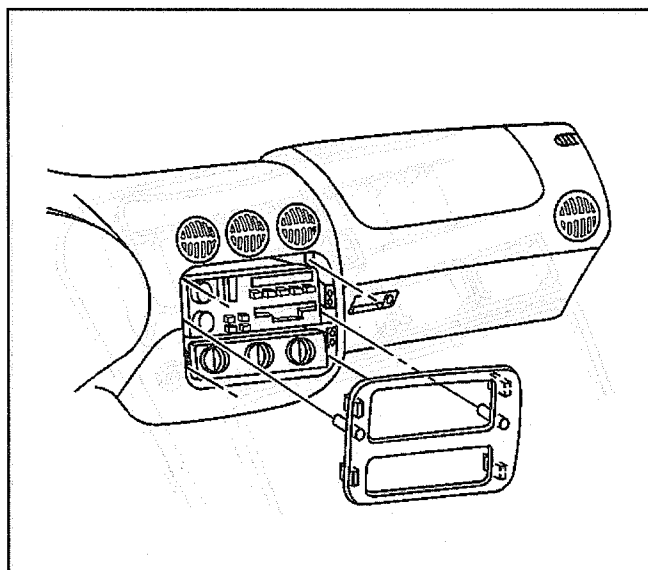


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Trim Plate Replacement - IP Accessory (Pontiac)

Removal Procedure

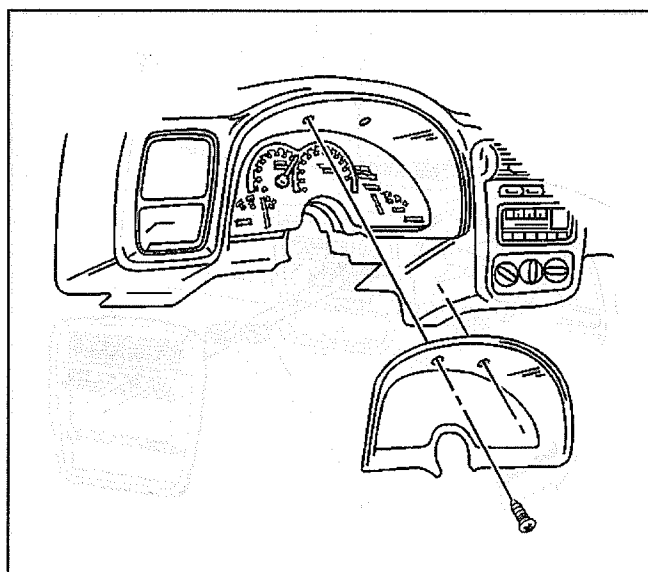
1. Gently pull the upper corners of the instrument panel (IP) accessory trim plate.
2. Unsnap the lower corners of the IP trim plate from the IP.
3. Remove the IP accessory trim plate from the vehicle.



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Installation Procedure

1. Align the IP trim plate to the IP.
2. Insert the locating pins on the IP trim plate to the holes in the IP.
3. Apply pressure to the IP trim plate in order to snap the IP trim plate in place and secure.



367397

Trim Plate Bezel Replacement - IP Cluster (Chevrolet)

Removal Procedure

Caution: When you are performing service on or near the SIR components or the SIR wiring, you must disable the SIR system. Refer to *Disabling the SIR System*. Failure to follow the correct procedure could cause air bag deployment, personal injury, or unnecessary SIR system repairs.

1. Disable the supplemental inflatable restraint (SIR) system. Refer to *Disabling the SIR System* in Restraints.
2. Remove the instrument panel (IP) insulator. Refer to *Closeout/Insulator Panel Replacement - Left*.
3. Remove the knee bolster deflector. Refer to *Knee Bolster Deflector Replacement - Left*.

4. Loosen the steering column upper support nuts.
5. Lower the steering column.
6. Remove the IP cluster trim bezel screws.
7. Remove the IP cluster trim bezel.

Installation Procedure

1. Install the IP cluster trim bezel.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the IP cluster trim bezel screws.

Tighten

Tighten the IP cluster trim bezel screws to 2 N·m (18 lb in).

3. Raise the steering column.
4. Tighten the steering column upper support nuts.

Tighten

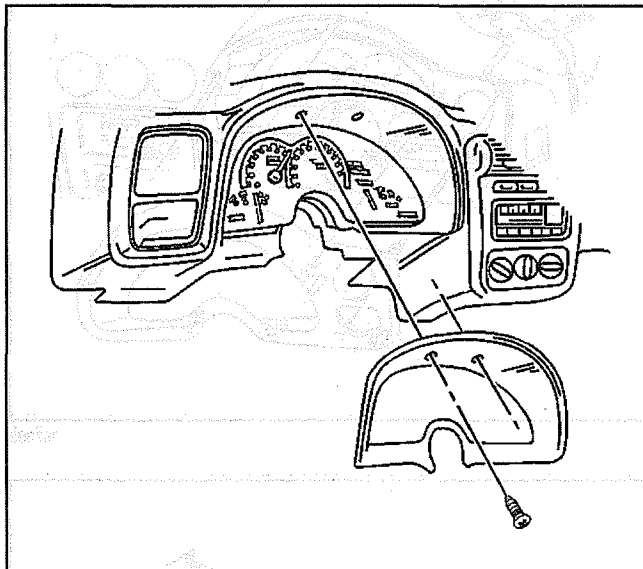
Tighten the steering column upper support nuts to 25 N·m (18 lb ft).

5. Install the knee bolster deflector. Refer to *Knee Bolster Deflector Replacement - Left*.
6. Install the IP insulator. Refer to *Closeout/Insulator Panel Replacement - Left*.
7. Enable the SIR system. Refer to *Enabling the SIR System* in Restraints.

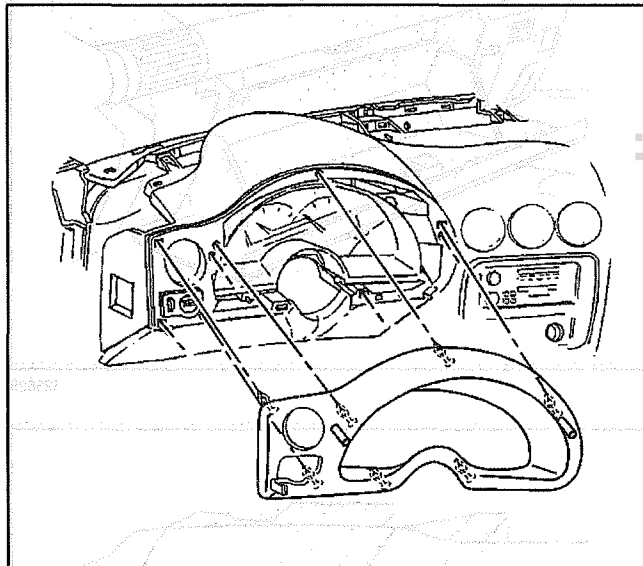
Trim Plate Bezel Replacement - IP Cluster (Pontiac)

Removal Procedure

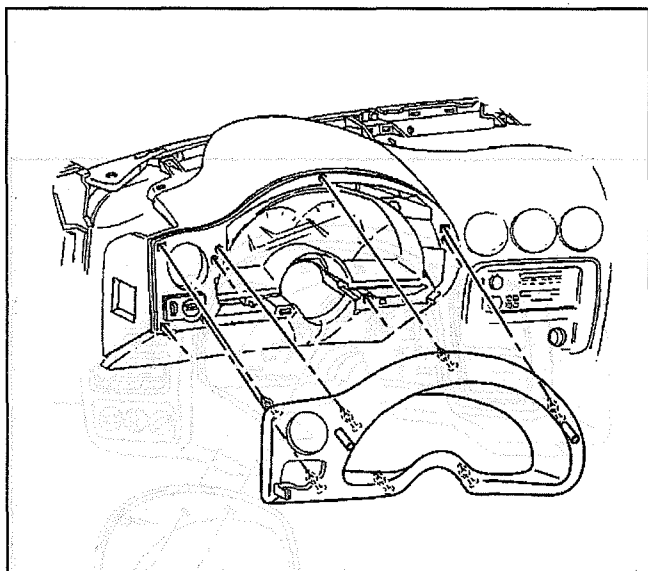
1. Remove the fog lamp switch. Refer to *Fog Lamp Switch Replacement - Front (Pontiac)* in Lighting Systems.
2. Unsnap the instrument panel (IP) cluster trim bezel.
3. Remove the IP cluster trim bezel from the vehicle.



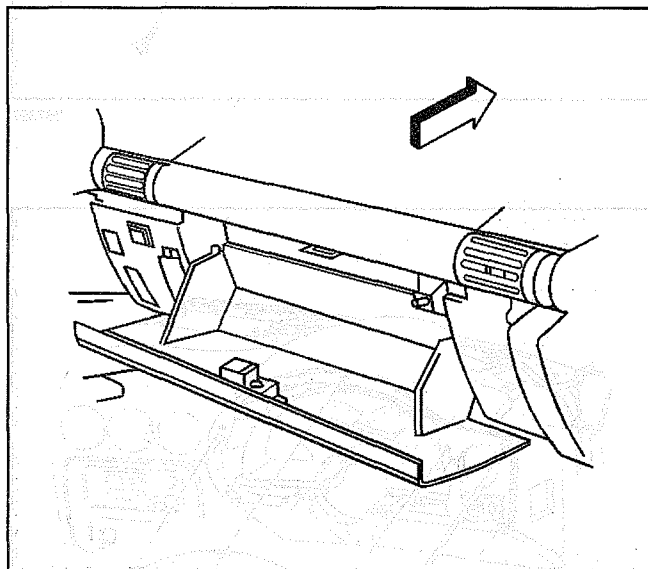
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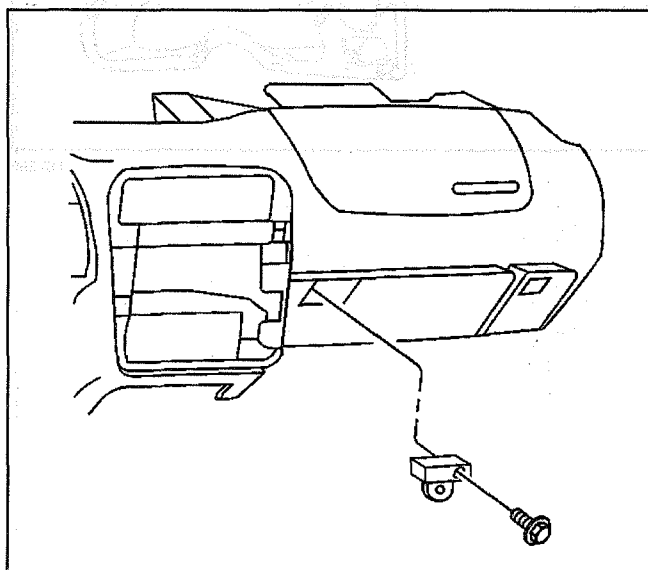
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Installation Procedure

1. Align the IP cluster bezel over the cluster.
2. Insert the locating pins on the IP cluster bezel into the appropriate holes in the IP.
3. Snap the fasteners on the IP cluster bezel into the IP in order to secure.
4. Install the fog lamp switch. Refer to *Fog Lamp Switch Replacement - Front (Pontiac) in Lighting Systems*.

Striker Replacement - IP Compartment

Removal Procedure

1. Open the instrument panel (IP) storage compartment door.

2. Remove the IP compartment door striker bolts.
3. Remove the IP compartment door striker.

Installation Procedure

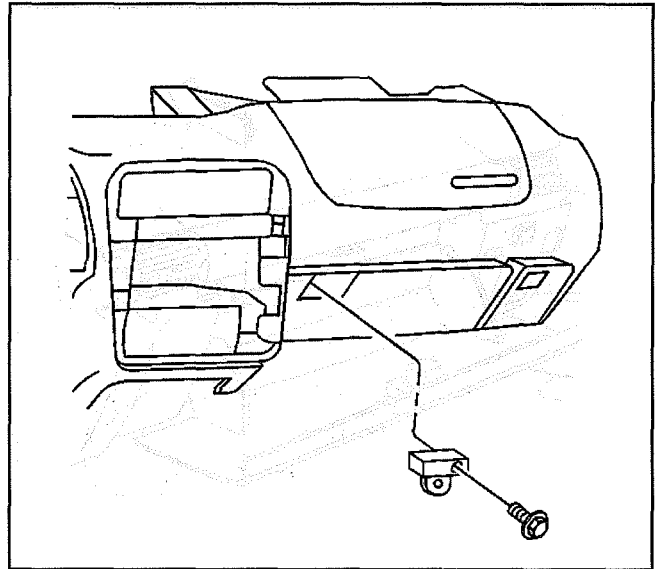
1. Align the IP compartment door striker to the I/P.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the IP compartment door striker bolts.

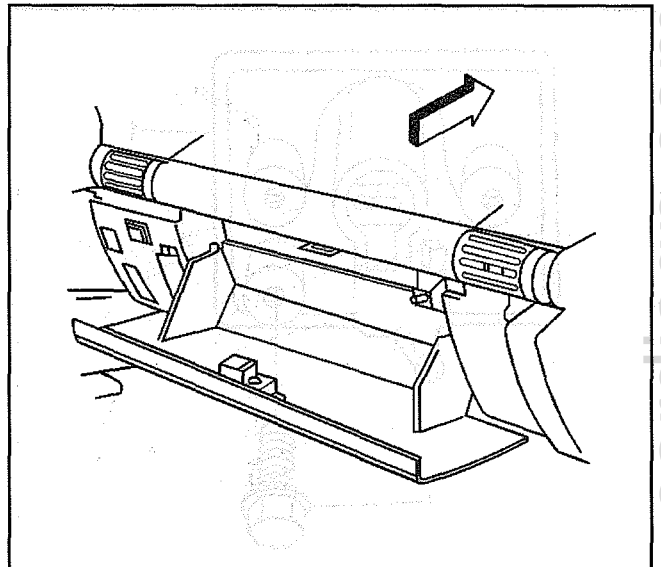
Tighten

Tighten the IP compartment door striker bolts to 2 N·m (18 lb in).



517343

3. Close the IP storage compartment door.

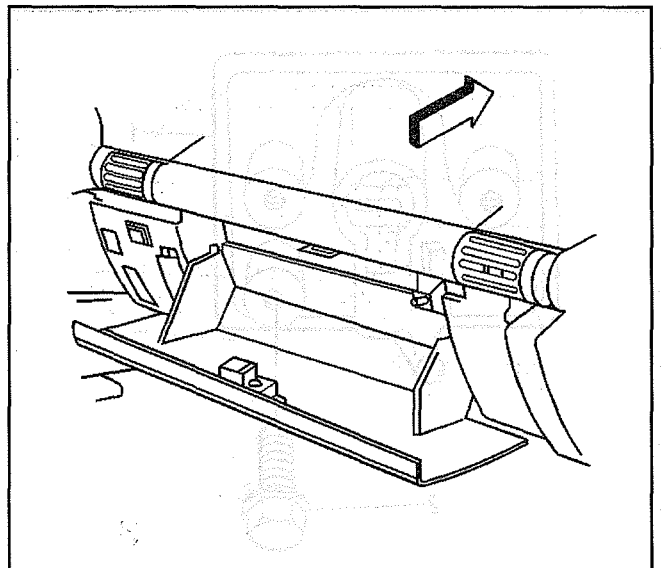


523628

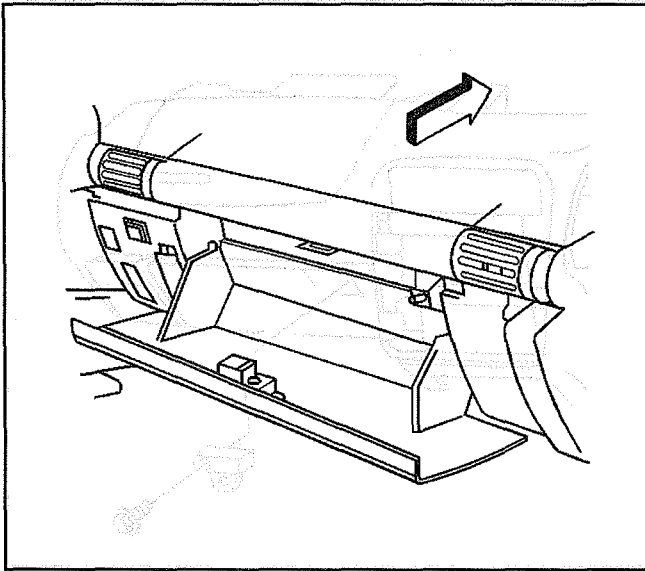
Door Replacement - IP Storage Compartment Door

Removal Procedure

1. Open the instrument panel (IP) compartment door.
2. Remove the contents of the IP compartment.
3. Remove the IP compartment hinge screws.
4. Remove the IP compartment door from the IP.



523628



523628

Installation Procedure

1. Install the IP compartment door to the IP.

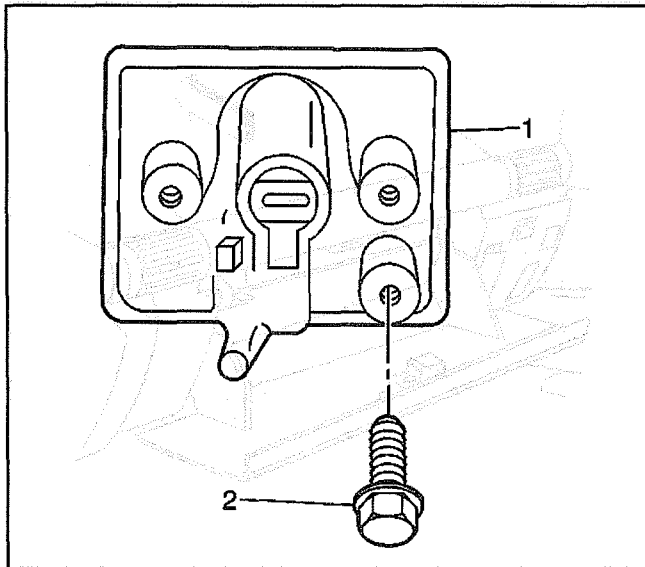
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the IP compartment hinge screws.

Tighten

- Tighten the IP compartment hinge screws to 2.8 N·m (25 lb in).

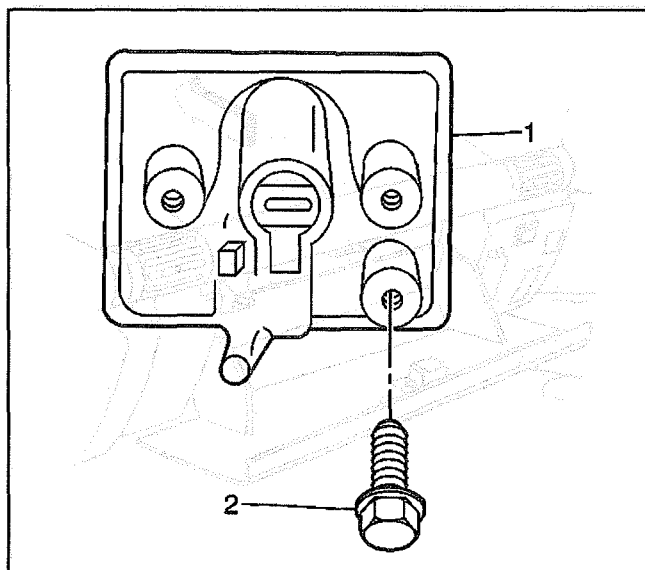
3. Install the contents of the IP compartment.
4. Close the IP compartment door.



523638

Latch Replacement - IP Compartment**Removal Procedure**

1. Open the instrument panel (IP) compartment door. Refer to *Door Replacement - IP Storage Compartment Door*.
2. Remove the IP compartment door latch bolts (2) and bracket.
3. Remove the IP compartment door latch (1).



523638

Installation Procedure

1. Install the IP compartment door latch (1).
2. Align and install the IP compartment door latch bracket and bolts (2).

Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Tighten the IP compartment door latch bolts (2).

Tighten

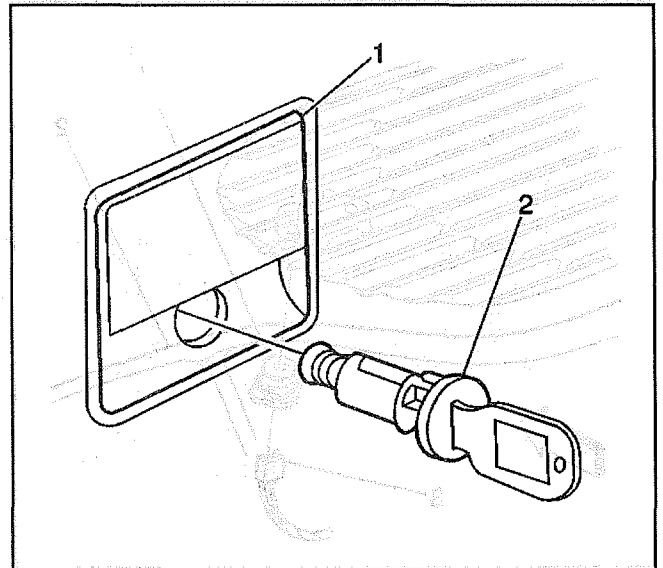
Tighten the IP compartment door latch bolts (2) to 2 N·m (18 lb in).

4. Close the IP compartment door.

Lock Cylinder Replacement - IP Compartment Door

Removal Procedure

1. Remove the instrument panel (IP) compartment door latch. Refer to *Latch Replacement - IP Compartment*.
2. Insert the key into the lock cylinder (1).
3. Rotate the key to the locked position.
4. Remove the key from the lock cylinder (1).
5. Depress the silver key tumbler using a small bladed screwdriver.
6. While depressing the key tumbler reinsert the key into the lock cylinder (1).
7. Rotate the cylinder clockwise and remove the lock cylinder (1) and the key.



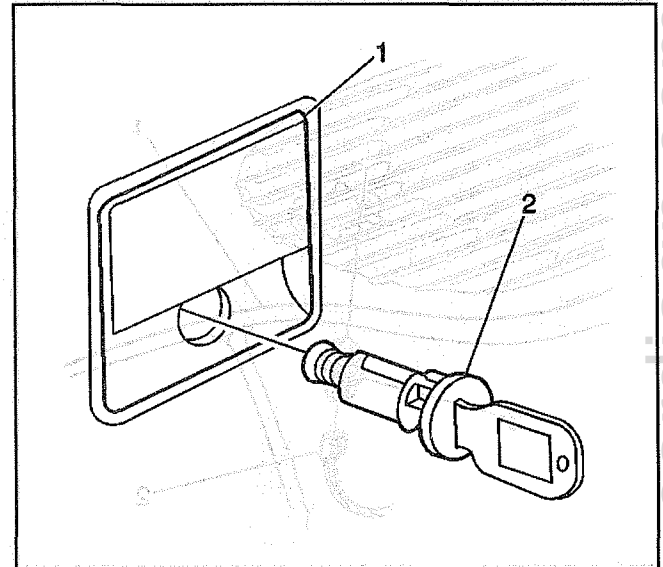
523640

Installation Procedure

1. Depress the silver key tumbler and insert the key into the lock cylinder (1).

Important: Open the lock handle in order to allow installation.

2. Insert the lock cylinder (1) and the key into the lock.
3. Relock the lock rotor.
4. Rotate the key to the unlock position.
5. Remove the key from the lock cylinder (1).
6. Install the I/P compartment door latch. Refer to *Latch Replacement - IP Compartment*.

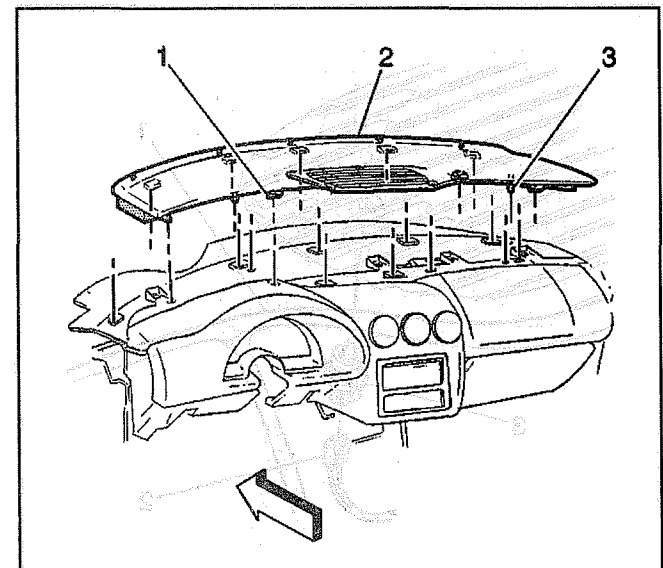


523640

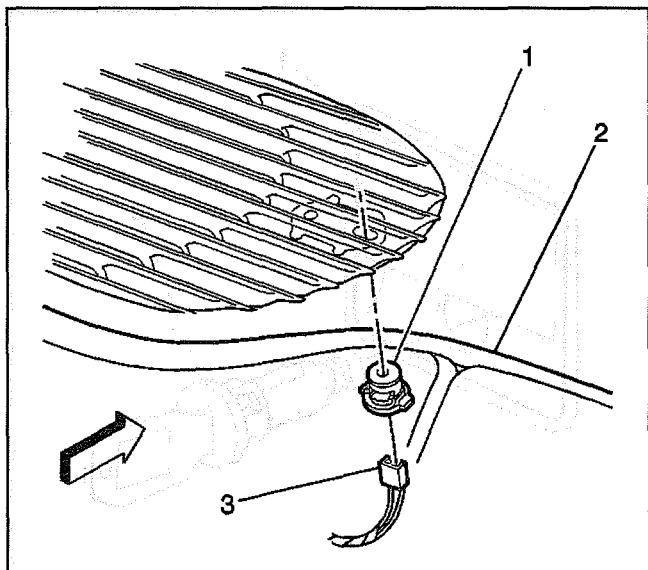
Trim Pad Replacement - IP Upper

Removal Procedure

1. Remove the windshield side garnish moldings. Refer to *Windshield Side Garnish Molding Replacement (W/O Lift Off Window Panels)* or *Windshield Side Garnish Molding Replacement (W/ Lift Off Window Panels)* in Stationary Windows.
2. Gently lift the instrument panel (IP) trim pad (2) in order to disengage the dual-lock fasteners (1).



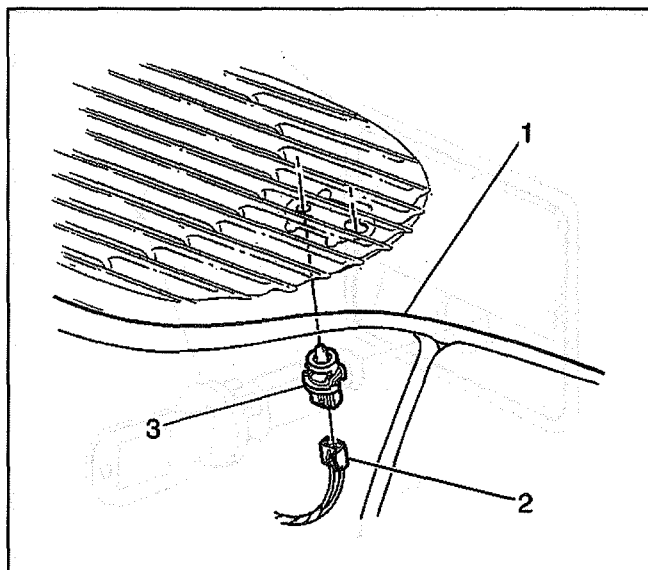
296100



W00000

294801

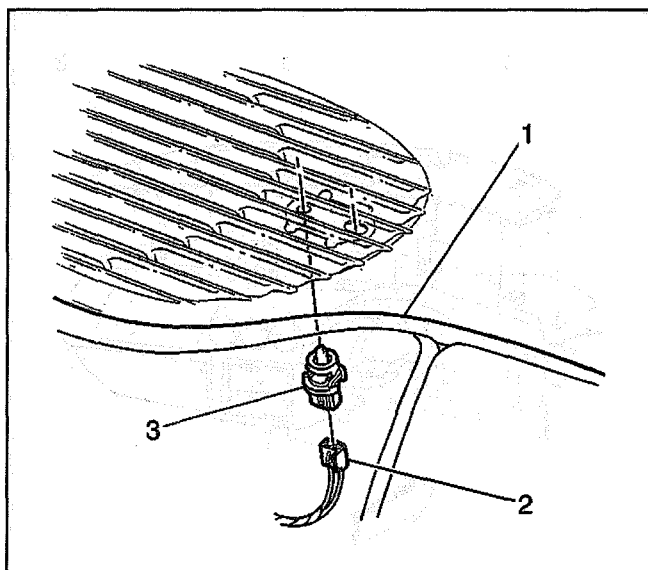
3. Remove the daytime running lamp (DRL) ambient light sensor (1).



W00000

367389

4. Remove the security indicator lamp (3).
5. Remove the IP upper trim panel (1).



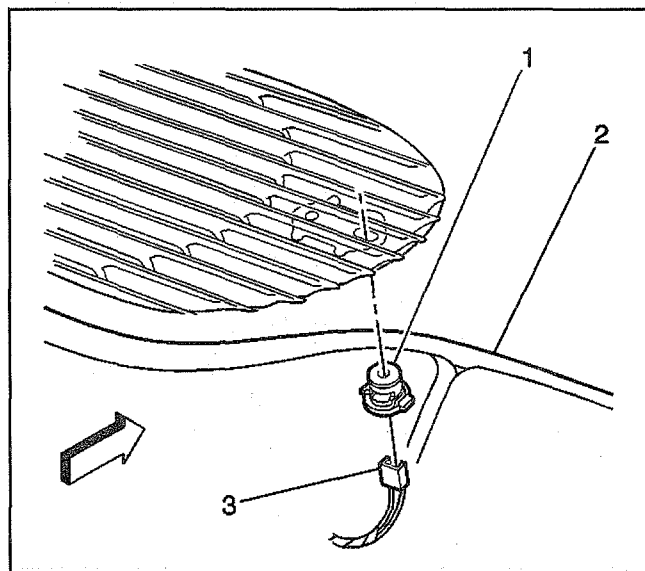
W00000

367389

Installation Procedure

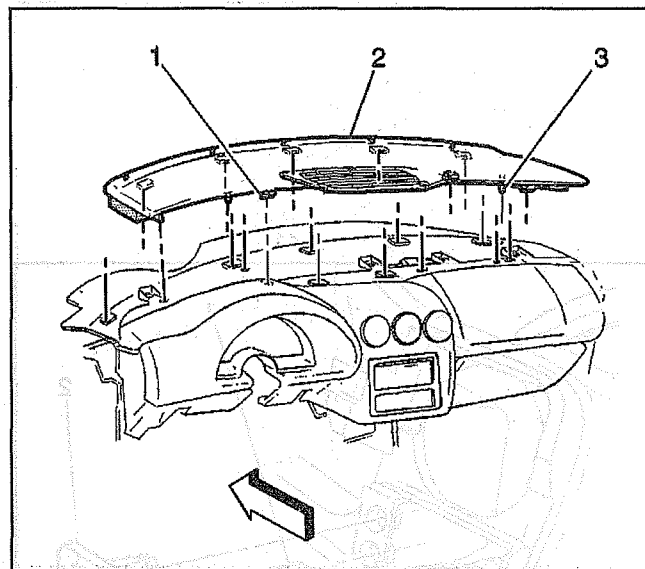
1. Set the IP trim pad (1) into place.
2. Install the security indicator lamp (3).

3. Install the DRL ambient light sensor (1).



294801

4. Using the locator pins (3), align the IP upper trim panel (2).
5. Apply pressure to the rear of the IP upper trim panel (2), engaging the dual lock fasteners (1).
6. Apply pressure to the front of the IP upper trim panel (2), engaging the dual lock fasteners (1).
7. Install the windshield side garnish moldings. Refer to *Windshield Side Garnish Molding Replacement (W/O Lift Off Window Panels)* or *Windshield Side Garnish Molding Replacement (W/ Lift Off Window Panels)* in Stationary Windows.

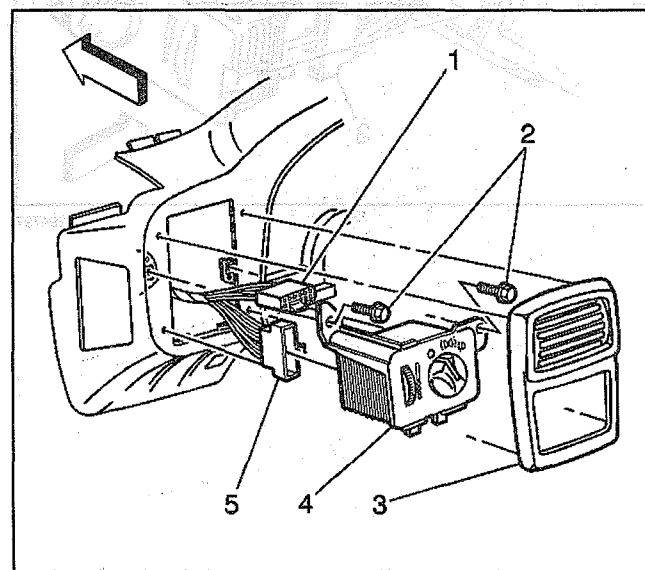


296100

IP Carrier Replacement

Removal Procedure

1. Remove the instrument panel (IP) insulators. Refer to *Closeout/Insulator Panel Replacement - Right* and *Closeout/Insulator Panel Replacement - Left*.
2. Remove the T-tops, if equipped.
3. Remove the IP upper trim pad. Refer to *Trim Pad Replacement - IP Upper*.
4. Remove the knee bolster deflector. Refer to *Knee Bolster Deflector Replacement - Left*.

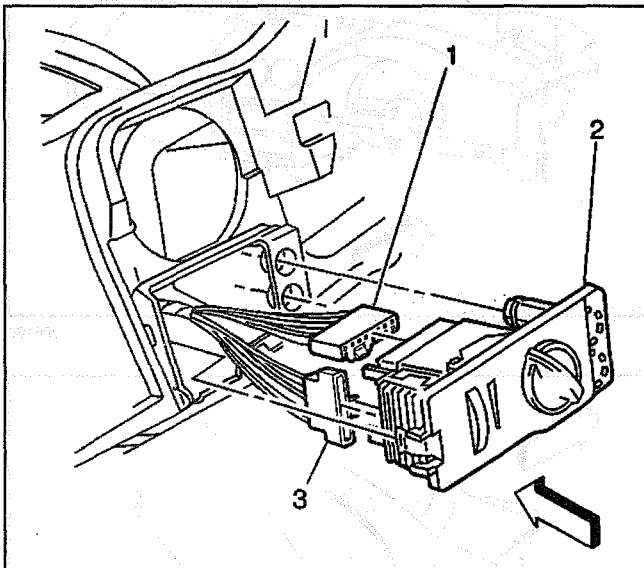


294793

5. Remove the IP storage compartment door. Refer to *Door Replacement - IP Storage Compartment Door*.

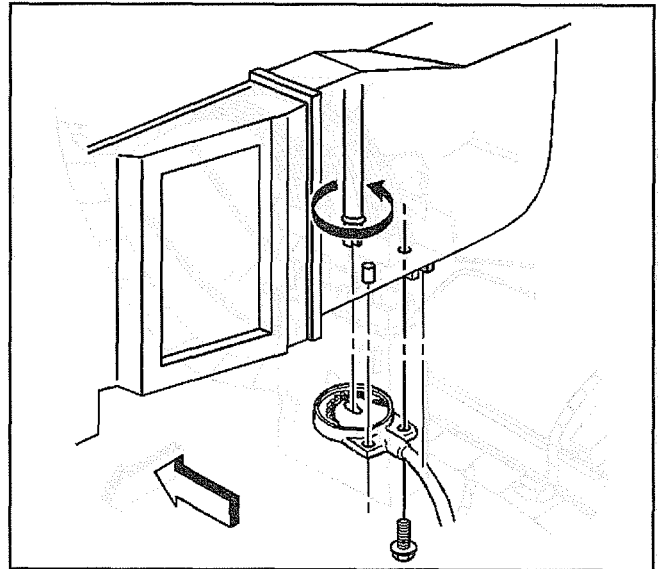
Caution: When you are performing service on or near the SIR components or the SIR wiring, you must disable the SIR system. Refer to *Disabling the SIR System*. Failure to follow the correct procedure could cause air bag deployment, personal injury, or unnecessary SIR system repairs.

6. Disable the supplemental inflatable restraint (SIR) system. Refer to *Disabling the SIR System* in Restraints.
7. Remove the stoplamp switch. Refer to *Stoplamp Switch Replacement* in Hydraulic Brakes.
8. Remove the radio. Refer to *Radio Replacement (Chevrolet)* or *Radio Replacement (Pontiac)* in Entertainment.
9. Remove the instrument cluster. Refer to *IP Cluster Replacement*.
10. Remove the left hand IP accessory trim plate (3). (Chevrolet only).
11. Remove the headlamp switch bolts (2). (Chevrolet only).
12. Disconnect the headlamp switch connector (1) from the headlamp switch (4). (Chevrolet only).
13. Disconnect the dimmer switch connector (5) from the headlamp switch (4). (Chevrolet only).
14. Unsnap the headlamp switch (2) from the IP. (Pontiac only).
15. Disconnect the headlamp switch connector (1) from the headlamp switch (2). (Pontiac only).
16. Disconnect the dimmer switch connector (3) from the headlamp switch (2). (Pontiac only).



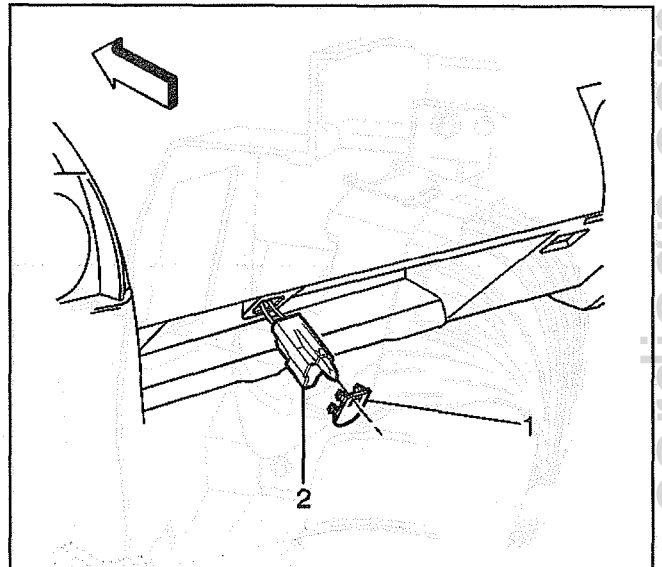
294797

17. Remove the temperature control cable bolt.
18. Remove the temperature control cable from the module.



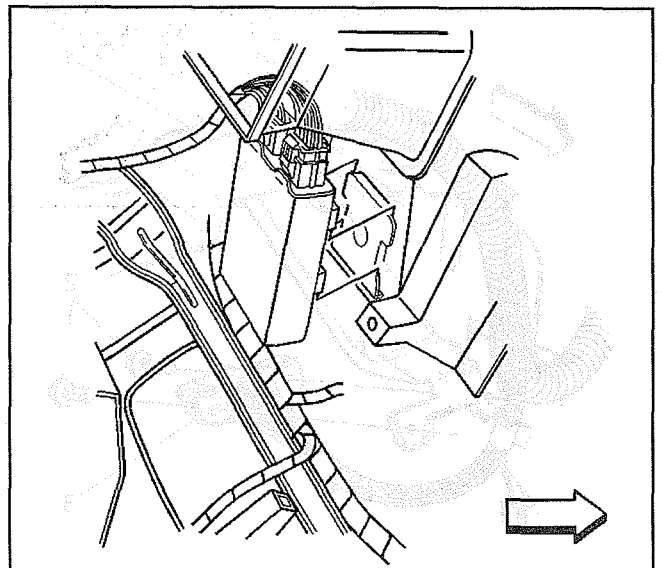
282922

19. Unsnap the retainer (1) from the IP.
20. Remove the retainer (1) from the switch (2).
21. Push the harness through the IP opening.
22. Remove the heating, ventilation and air conditioning (HVAC) control. Refer to *Control Assembly Replacement in HVAC Systems - Manual*.

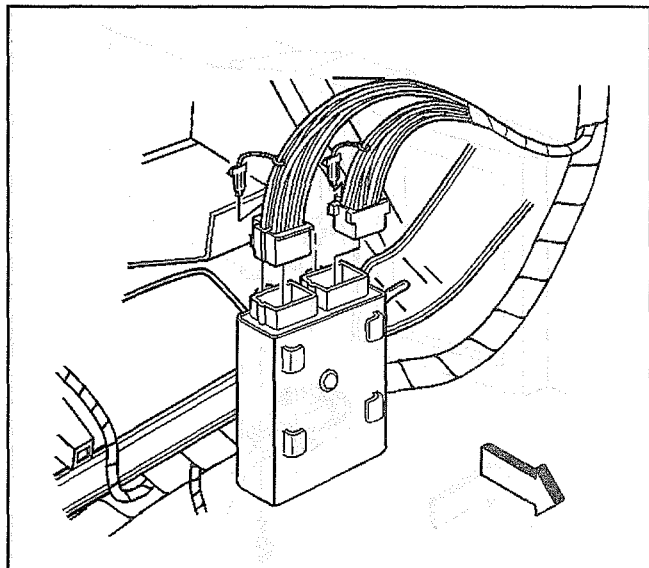


366722

23. Remove the daytime running lamp (DRL) ambient light sensor module from the HVAC duct.

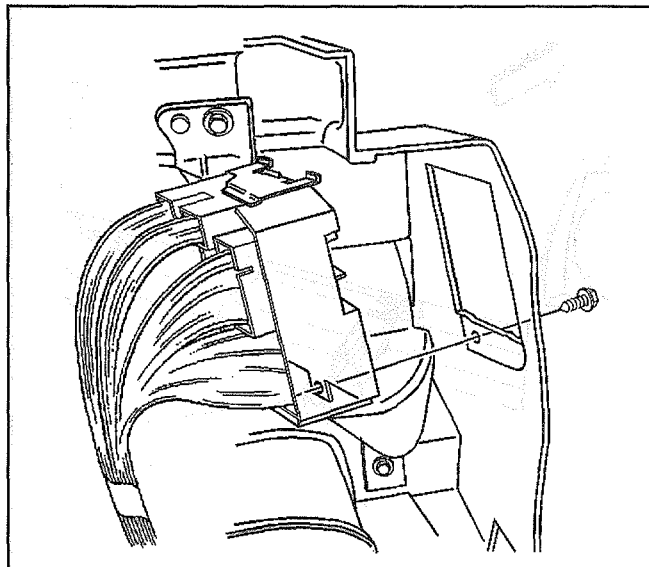


294803



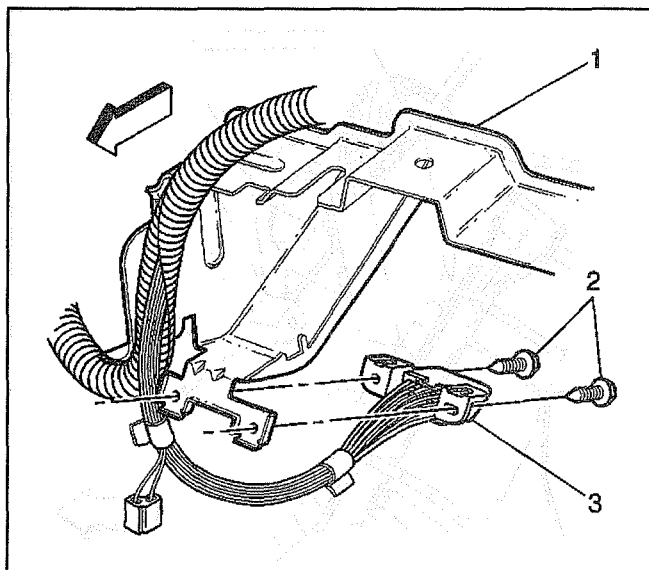
294804

24. Disconnect the DRL module electrical connectors.
25. Remove the DRL module.
26. Remove the front floor console. Refer to *Console Replacement - Front Floor*.



379391

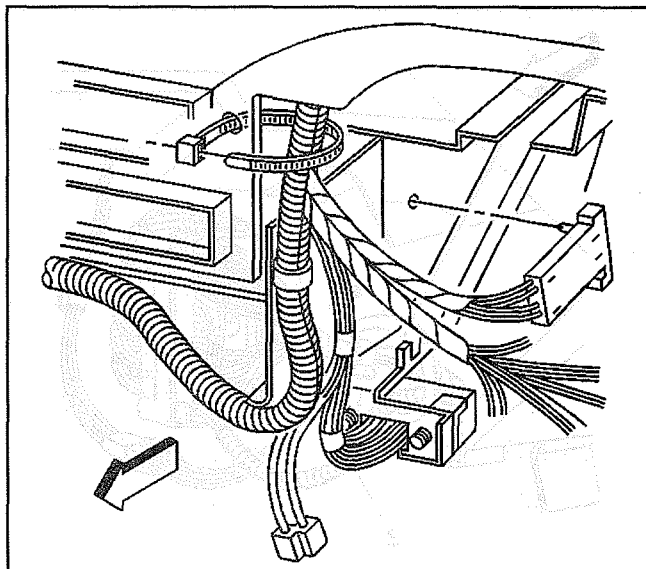
27. Remove the fuse block cover.
28. Remove the fuse block mounting bolt.
29. Reposition the fuse block.



367393

30. Remove the data link connector (DLC) mounting bolts (2).
31. Remove the DLC (3) from the tie bar (1).

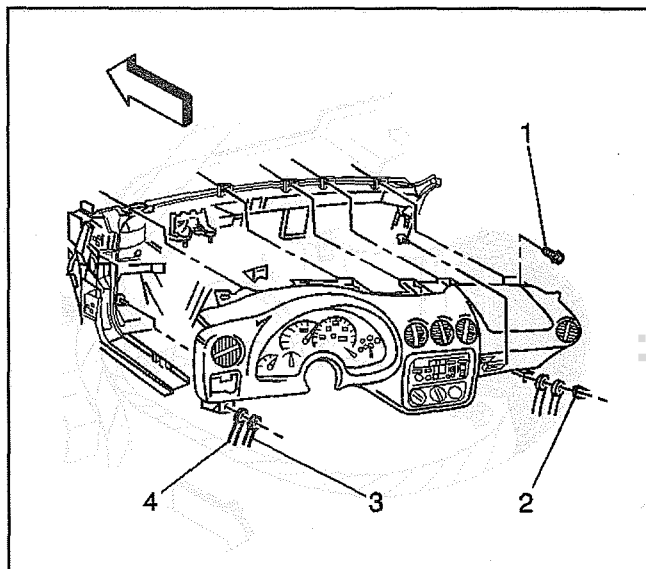
32. Cut the tie strap securing the steering column branch to the air distributor duct.
33. Unclip the star connector from the knee bolster bracket.



532301

532301

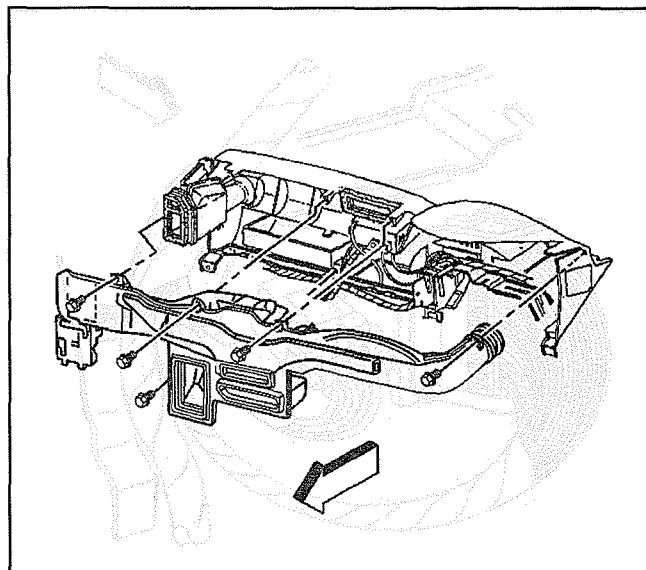
34. Remove the IP carrier mounting nuts (2).
35. Remove the cross car and IP harness grounds from the IP mounting studs.
36. Remove the IP carrier mounting bolts (1).
37. Pull the IP outward from the front of dash.



523626

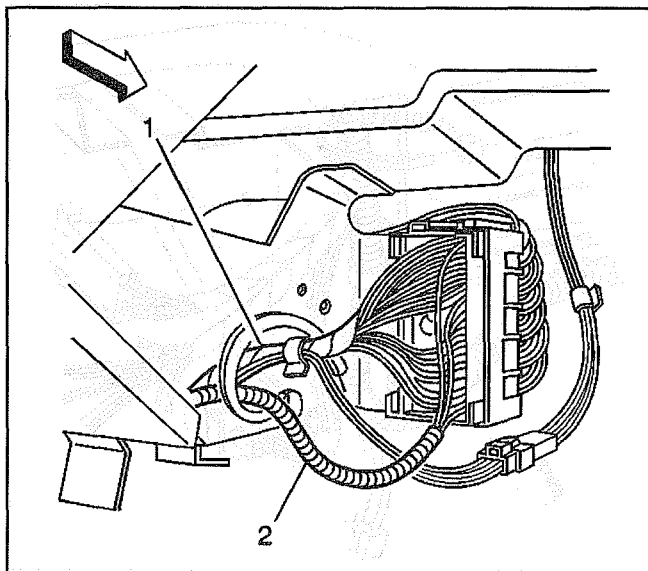
523626

38. Remove the three upper bolts starting at the passenger side from the air distribution duct.



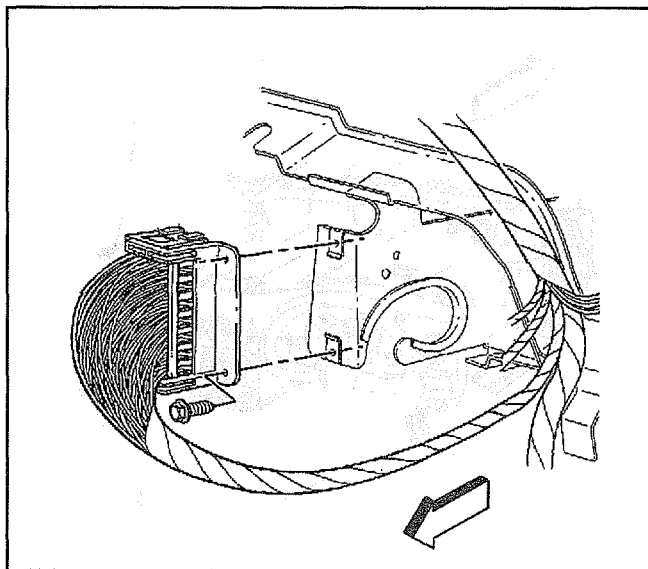
365456

365456



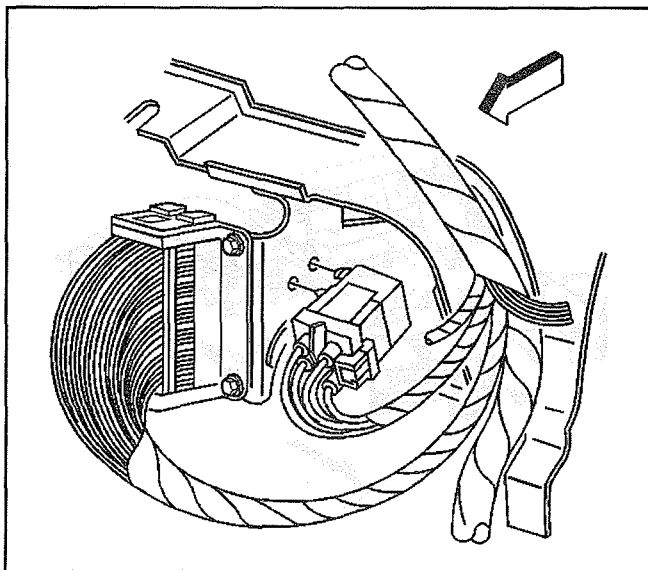
533362

39. Remove the forward lamp harness (1) and the cross car harness (2) from the hook.



379393

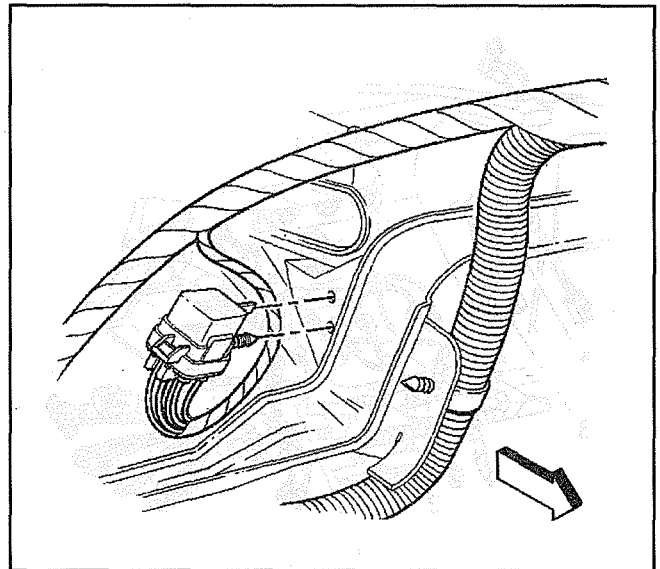
40. Remove the 48-way connector bolts and connector from the IP.



533362

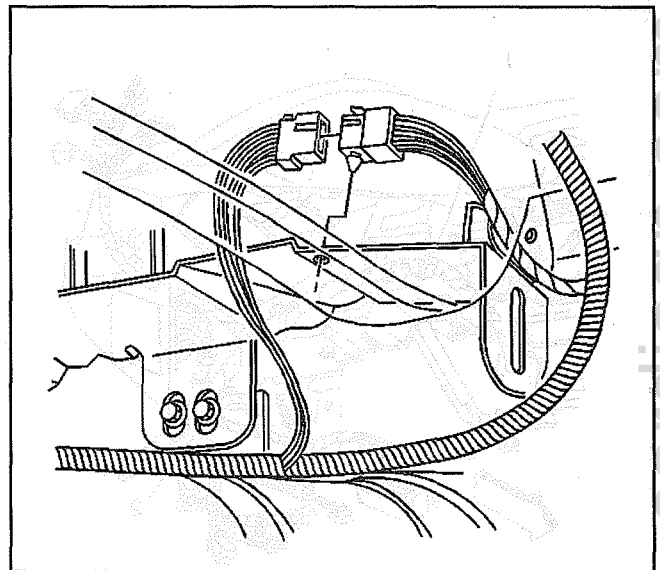
41. Remove the hatch release relay from the IP.

42. Remove the blower motor relay from the IP.
43. Disconnect the IP harness to air conditioning (A/C) resistor connector.
44. Unclip the A/C resistor connector from the IP.



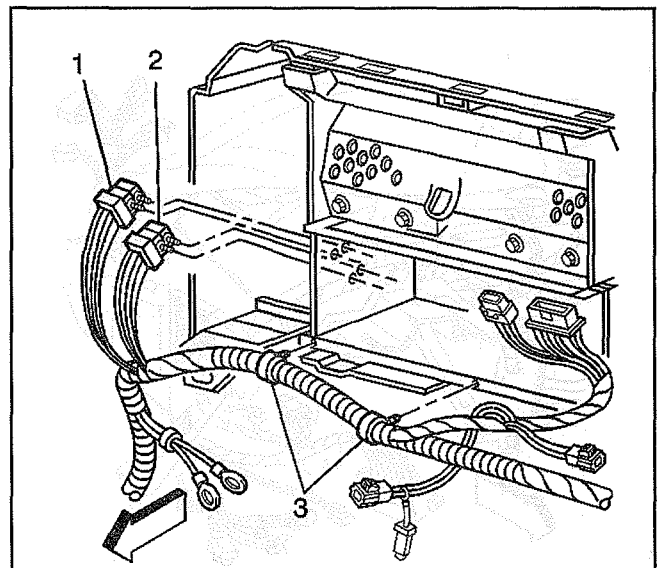
365453

45. Remove the rear fog lamp relay (1), if equipped from the SIR bracket.
46. Remove the convertible top relay (2), if equipped from the SIR bracket.
47. Disconnect the rosebud connectors (3) from the IP tie bar.

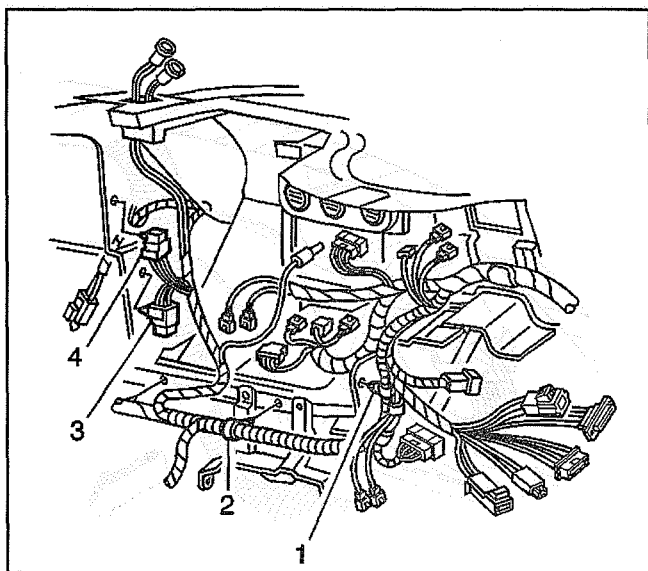


533354

45. Remove the rear fog lamp relay (1), if equipped from the SIR bracket.
46. Remove the convertible top relay (2), if equipped from the SIR bracket.
47. Disconnect the rosebud connectors (3) from the IP tie bar.

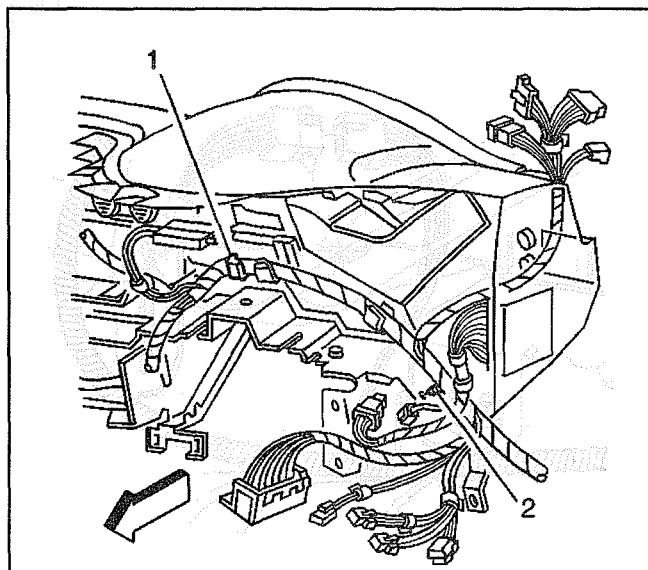


533357



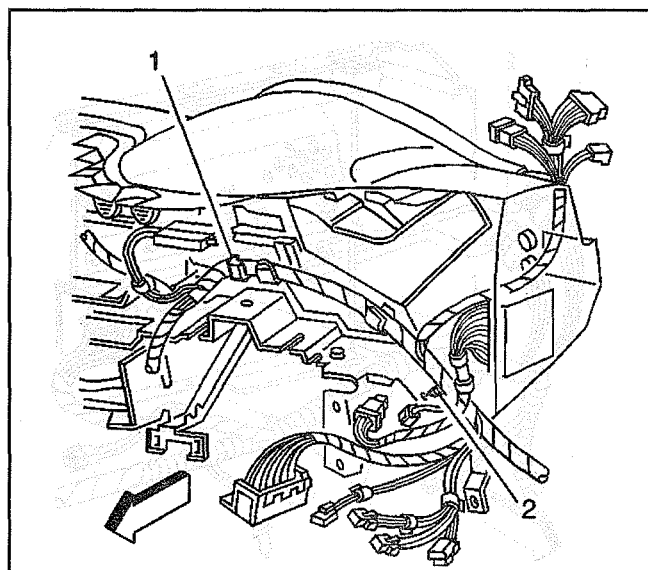
533360

48. Remove the harness rosebuds (1,2) from the IP.
49. Remove the convertible top motor relay (3), if equipped from the SIR bracket.
50. Remove the theft deterrent relay (4) from the SIR bracket.
51. Remove the harness branches from the IP openings.



533361

52. Remove the IP cluster connector from the IP.
53. Remove the IP harness from the retaining clips (1).
54. Disconnect the harness rosebud (2) from the IP.
55. Remove the harness headlamp branch from the IP opening.
56. Remove the IP carrier from the vehicle.
57. Place the IP carrier face down on a work surface.
58. Remove the lower and driver side bolts from the air distribution duct.



533361

Installation Procedure

1. Align the air distribution duct to the IP.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

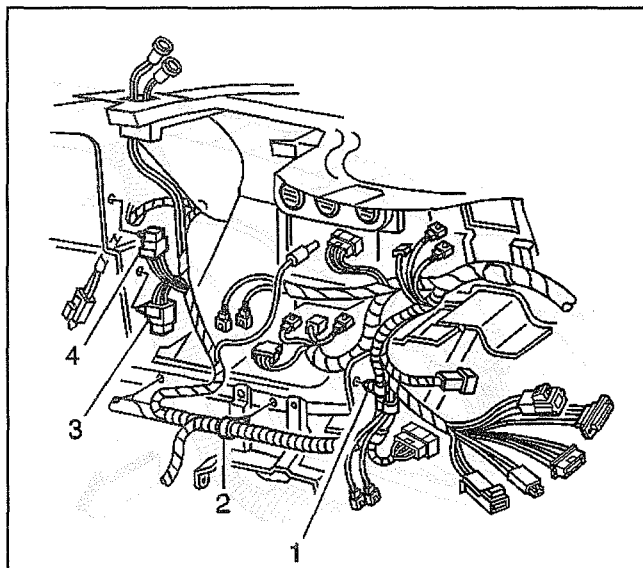
2. Install the lower and driver side air distribution duct bolts.

Tighten

Tighten the lower and driver side air distribution duct bolts to 2.2 N·m (19 lb in).

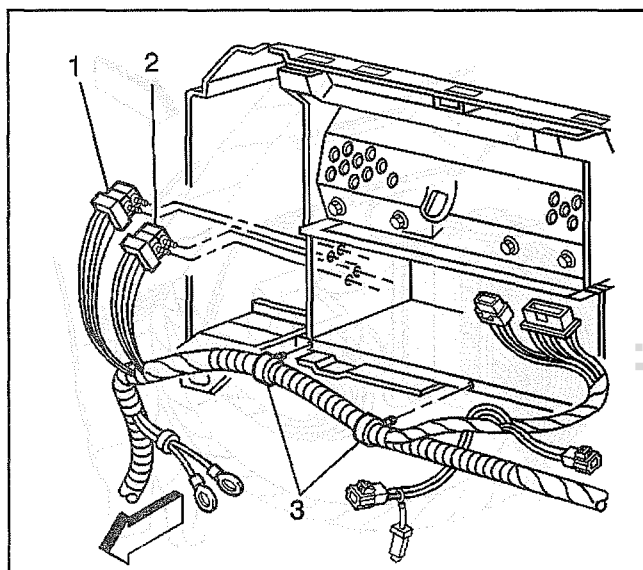
3. Install the IP carrier to the vehicle.
4. Route the harness headlamp branch through the IP opening.
5. Connect the harness rosebud (2) to the IP.
6. Place the IP harness over the retaining clips (1).
7. Connect the IP cluster connector to the IP.

8. Route the harness branches through the IP openings.
9. Connect the theft deterrent relay (4) to the SIR bracket.
10. Connect the convertible top motor relay (3), if equipped to the SIR bracket.
11. Connect the harness rosebuds (1,2) to the IP.



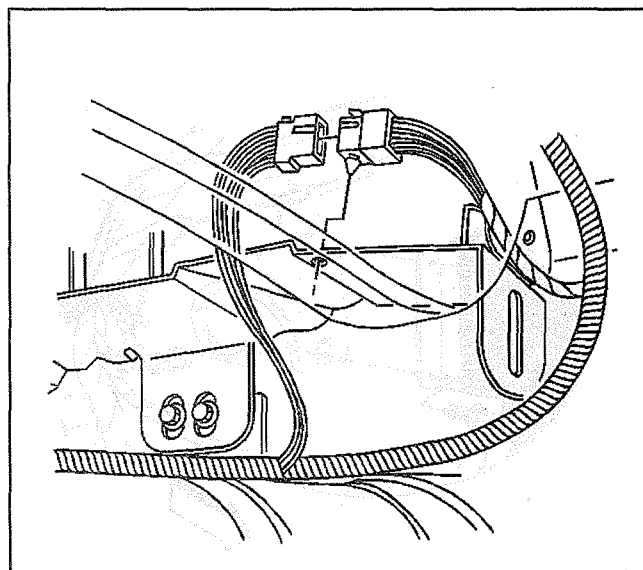
533360

12. Connect the rosebud connectors (3) to the IP tie bar.
13. Connect the convertible top relay (2), if equipped to the SIR bracket.
14. Connect the rear fog lamp relay (1), if equipped to the SIR bracket.

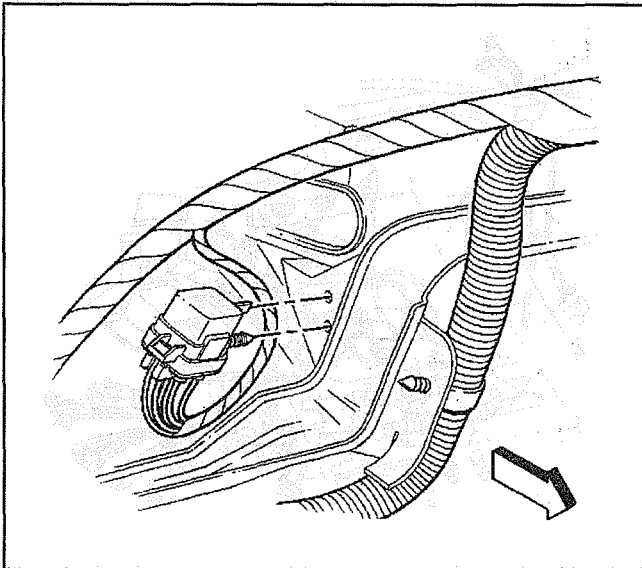


533357

15. Clip the A/C resistor connector to the IP.
16. Connect the IP harness to the A/C resistor connector.

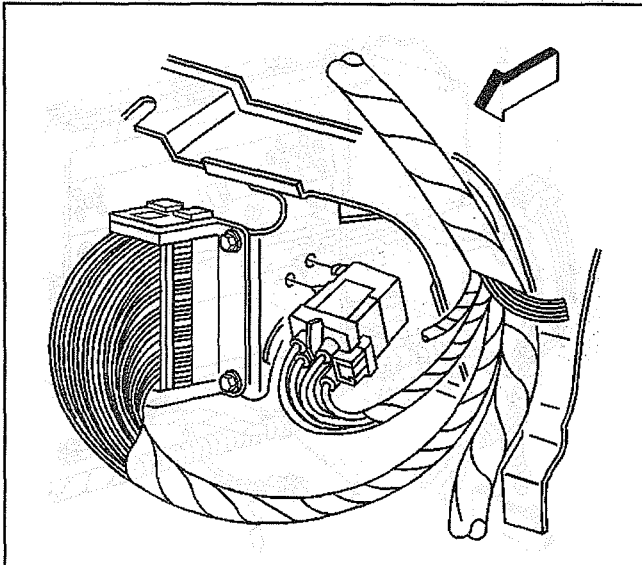


533354



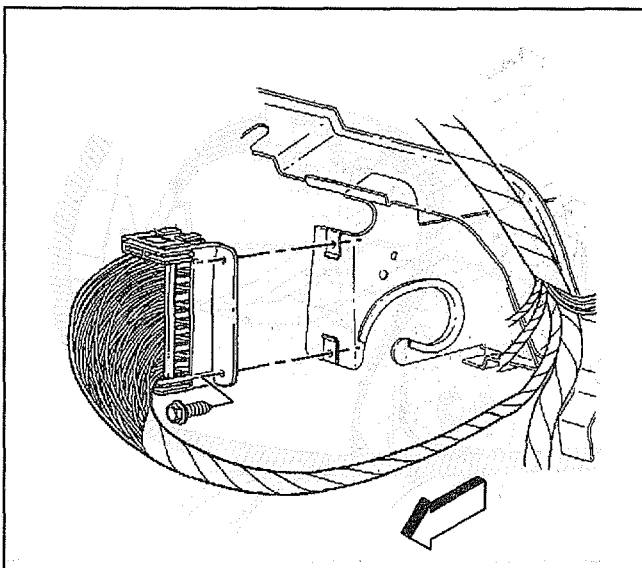
365453

17. Connect the blower motor relay to the IP.



533352

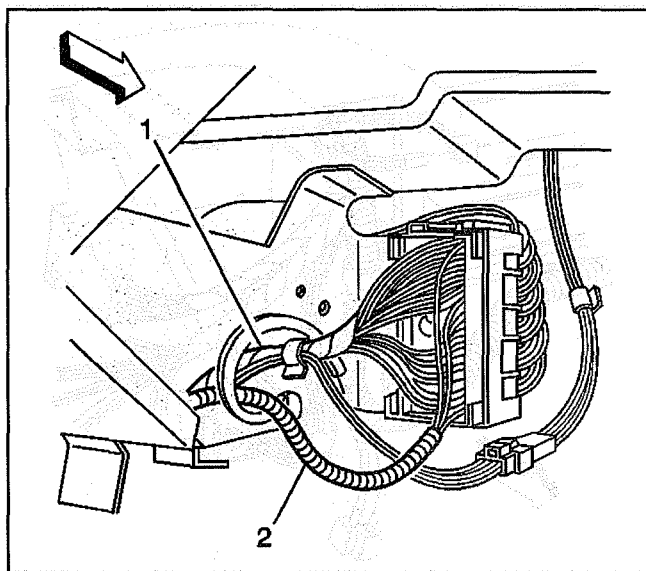
18. Connect the hatch release relay to the IP.



379393

19. Install the 48-way connector and bolts to the IP.
- Tighten**
Tighten the 48-way connector bolts to 1.5 N·m (11 lb in).

20. Route the cross car harness (2) and forward lamp harness (1) over the hook.

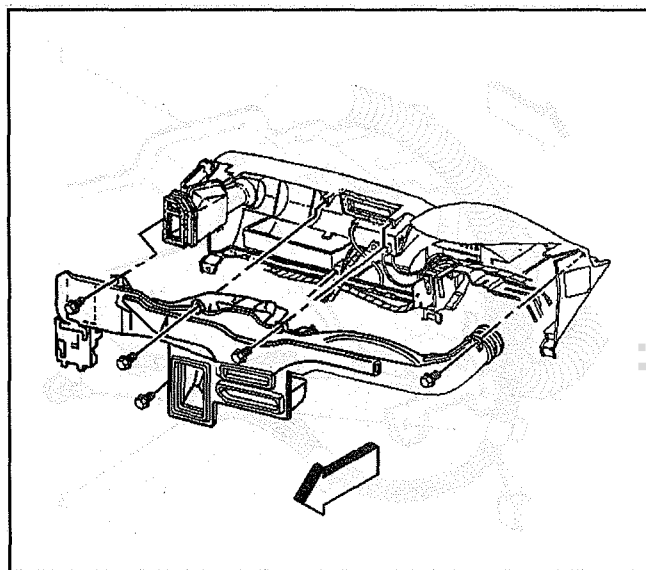


533362

21. Install the upper bolts to the air distribution duct.

Tighten

Tighten the air distribution duct bolts to 2.2 N·m (19 lb in).



365456

22. Align the IP carrier to the dash, with the outboard slots in the IP tie bar over the studs on the IP mounting brackets at the front body hinge pillar inner panel.
23. Press the IP forward and engage the slots in the tie bar onto the studs on the steering column mounting bracket.
24. Align the holes in the IP carrier and the passenger side SIR bracket to the J-nuts on the dash.
25. Install the IP carrier mounting bolts (1).

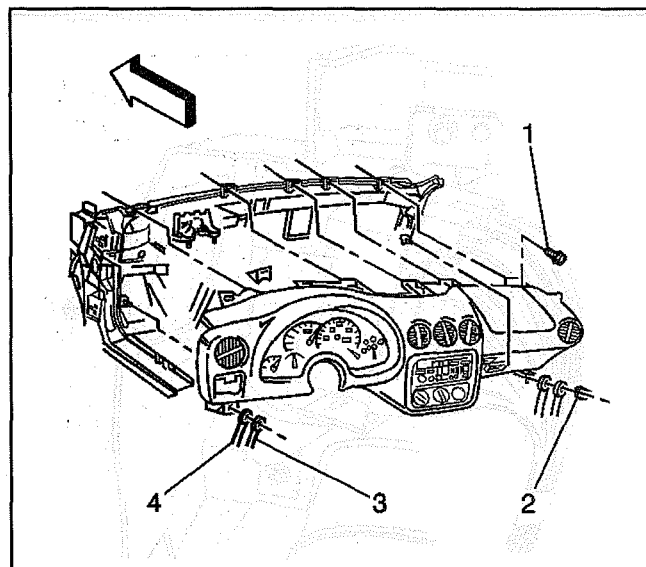
Tighten

Tighten the IP carrier mounting bolts (1) to 2 N·m (18 lb in).

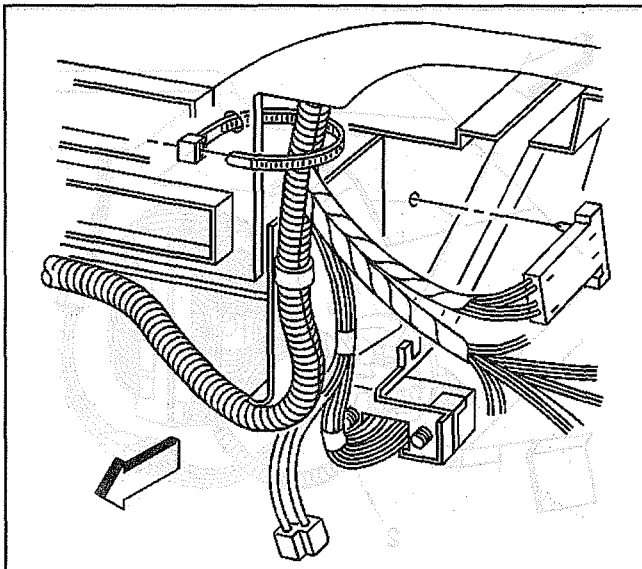
26. Align the cross car and the IP harness ground to the appropriate IP mounting studs.
27. Install the IP carrier mounting nuts (2).

Tighten

Tighten the IP carrier mounting nuts (2) to 2.5 N·m (22 lb in).

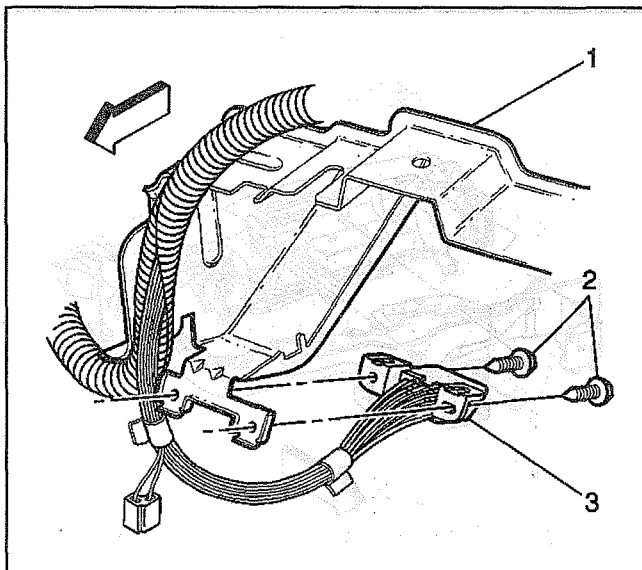


523626



532301

28. Clip the star connector to the knee bolster bracket.
29. Install a tie strap securing the steering column harness branch to the air distributor duct.

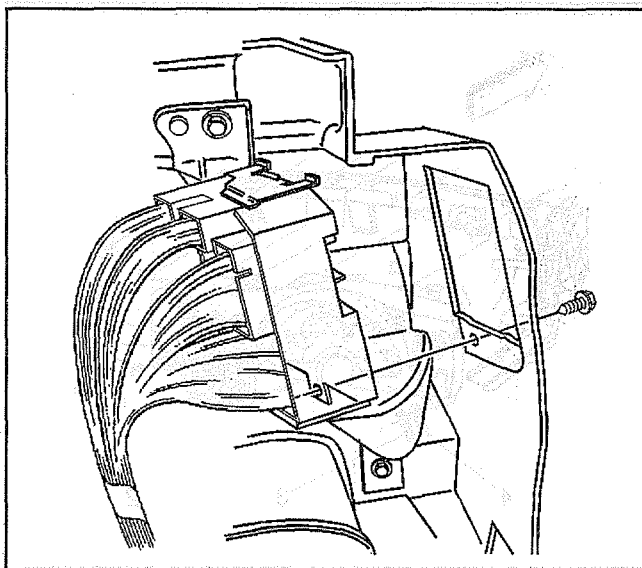


367393

30. Align the data link connector to the tie bar (1).
31. Install the data link connector bolts (2).

Tighten

Tighten the data link connector bolts (2) to 2 N·m (18 lb in).



379391

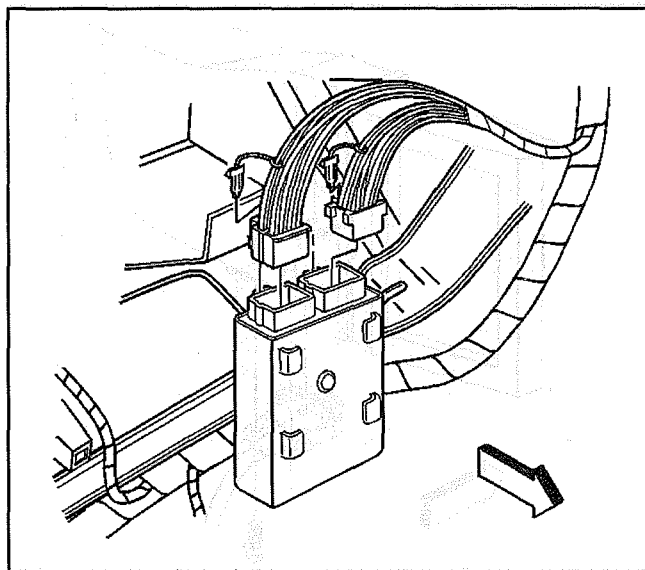
32. Install upper tabs on the fuse block into the IP carrier.
33. Install the fuse block mounting bolt.

Tighten

Tighten the fuse block mounting bolt to 1.5 N·m (13 lb in).

34. Install the front floor console. Refer to *Console Replacement - Front Floor*.

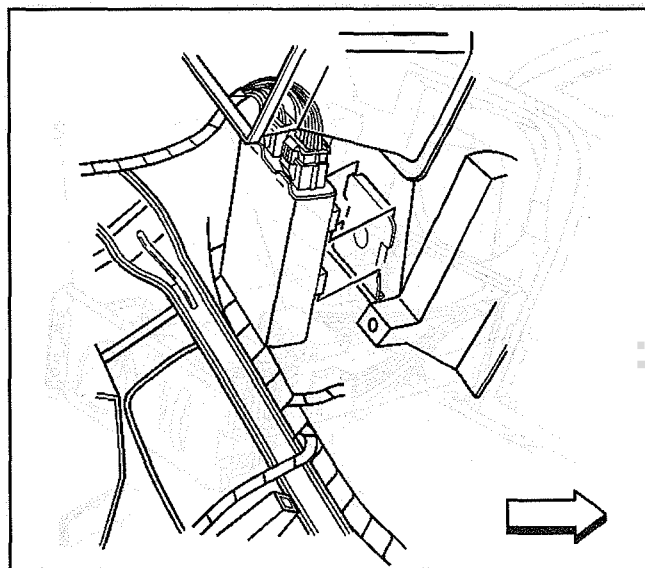
35. Connect the DRL module electrical connectors.



294804

36. Install the DRL module to the HVAC duct.

37. Install the HVAC control. Refer to *Control Assembly Replacement in HVAC Systems - Manual*.

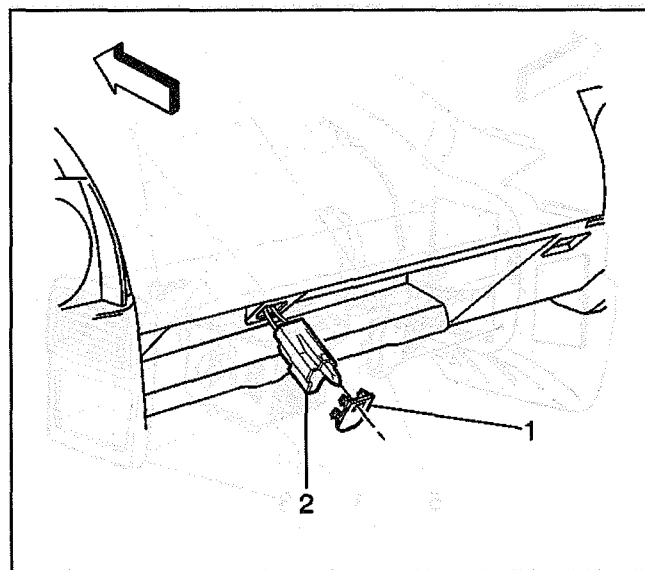


294803

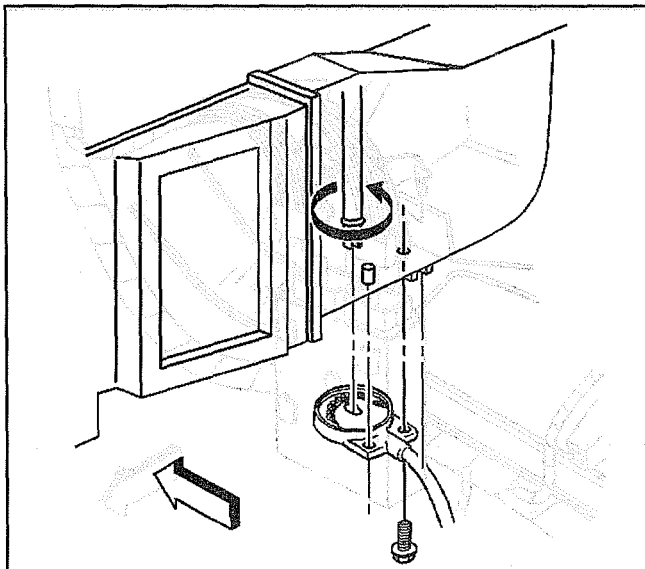
38. Pull the harness through the IP opening.

39. Install the retainer (1) to the switch (2).

40. Snap the retainer (1) to the IP.



366722

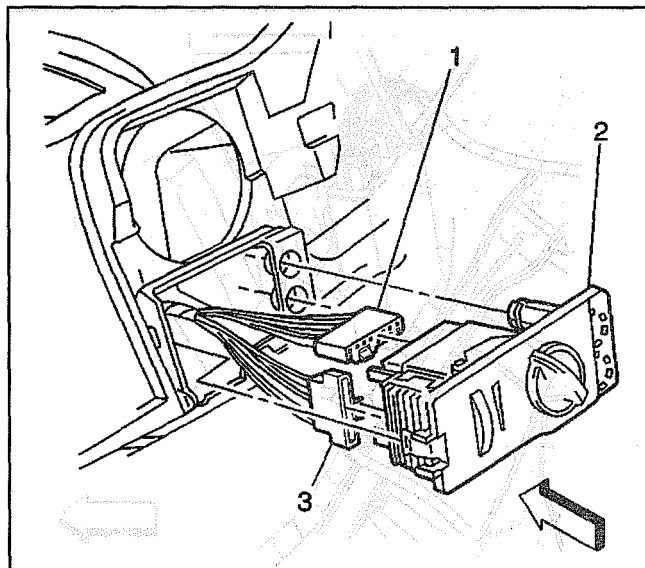


282922

41. Install the temperature control cable to the module.
42. Install the temperature control cable bolt.

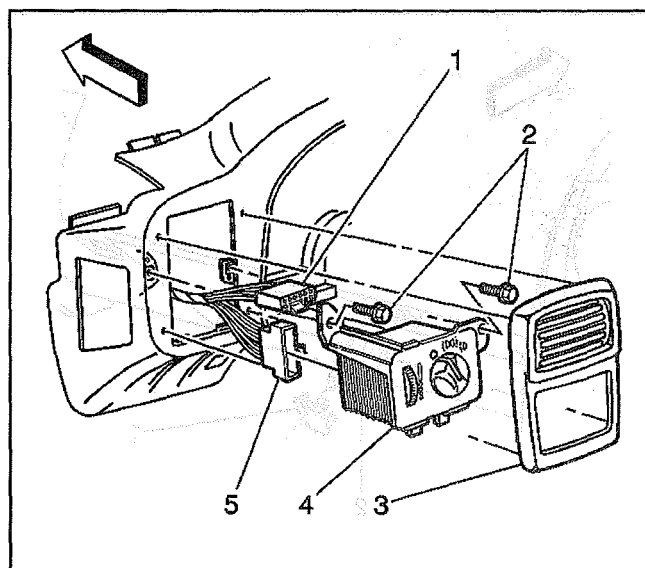
Tighten

Tighten the temperature control cable bolt to 2.2 N·m (19 lb in).



294797

43. Connect the dimmer switch connector (3) to the headlamp switch (2) (Pontiac only).
44. Connect the headlamp switch connector (1) to the headlamp switch (2) (Pontiac only).
45. Snap the headlamp switch (2) to the IP (Pontiac only).



294793

46. Connect the dimmer switch connector (5) to the headlamp switch (4) (Chevrolet only).
47. Connect the headlamp switch connector (1) to the headlamp switch (4) (Chevrolet only).
48. Install the headlamp switch bolts (Chevrolet only).

Tighten

Tighten the headlamp switch bolts to 2 N·m (18 lb in).

49. Install the left hand IP accessory trim plate (3) (Chevrolet only).
50. Install the IP cluster. Refer to *IP Cluster Replacement*.
51. Install the radio. Refer to *Radio Replacement (Chevrolet)* or *Radio Replacement (Pontiac)* in Entertainment.
52. Install the stoplamp switch. Refer to *Stoplamp Switch Replacement* in Hydraulic Brakes.

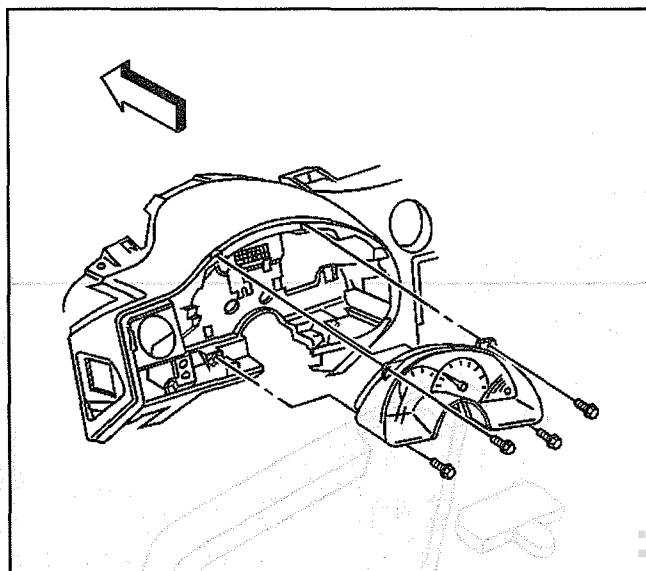
53. Enable the SIR system. Refer to *Enabling the SIR System* in Restraints.
54. Install the IP storage compartment door. Refer to *Door Replacement - IP Storage Compartment Door*.
55. Install the knee bolster deflector. Refer to *Knee Bolster Deflector Replacement - Left*.
56. Install the IP upper trim pad. Refer to *Trim Pad Replacement - IP Upper*.
57. Install the T-tops, if equipped.
58. Install the IP insulators. Refer to *Closeout/Insulator Panel Replacement - Right* and *Closeout/Insulator Panel Replacement - Left*.

IP Cluster Replacement

Removal Procedure

1. Remove the IP cluster bezel. Refer to *Trim Plate Bezel Replacement - IP Cluster (Chevrolet)* or *Trim Plate Bezel Replacement - IP Cluster (Pontiac)*.
2. Remove the instrument cluster bolts.
3. Remove the instrument cluster.

Gently pull the cluster straight out in order to disconnect the electrical connector.



523621

Installation Procedure

1. Align the instrument cluster to the IP carrier alignment pins.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

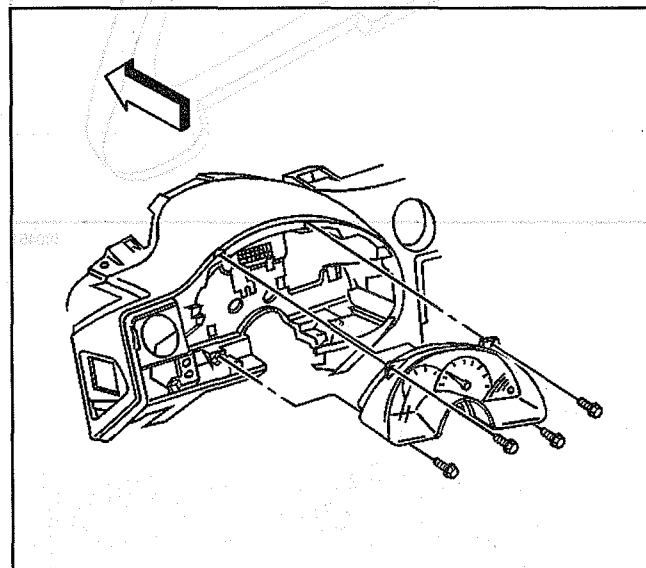
2. Install the instrument cluster bolts.

Tighten

Tighten the instrument cluster bolts to 2.2 N·m (19 lb in) in the following sequence:

- 2.1. Upper left
- 2.2. Lower right
- 2.3. Upper right
- 2.4. Lower left

3. Install the IP cluster bezel. Refer to *Trim Plate Bezel Replacement - IP Cluster (Chevrolet)* or *Trim Plate Bezel Replacement - IP Cluster (Pontiac)*.
4. Synchronize the IP cluster. Refer to the following procedure.



523621

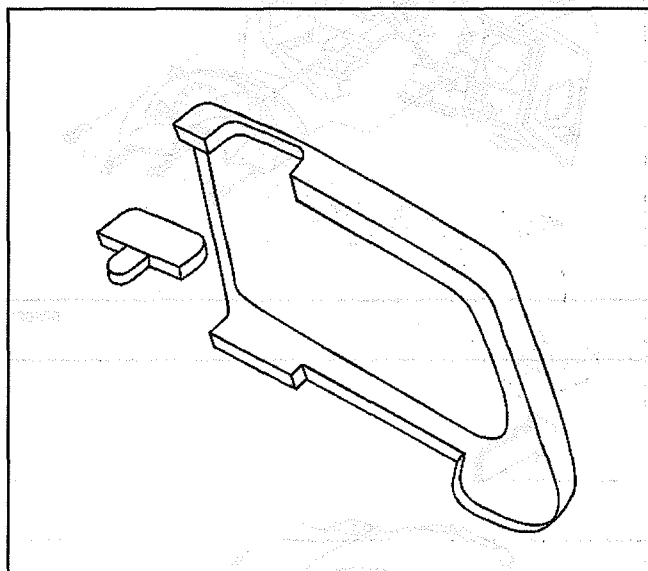
Instrument Panel Cluster Synchronization**Tools Required****Scan Tool**

When installing a new IP cluster it must be synchronized to the supplemental inflatable restraint (SIR) module in order to synchronize the new cluster, perform the following steps:

1. Connect the *Scan Tool* to the data link connector (DLC).
2. Proceed to the SPECIAL FUNCTIONS key under INSTRUMENT PANEL CLUSTER.
3. Select the SYNCHRONIZE IPC and SIR key.
4. The screen will display: IPC and SIR modules-Now synchronizing modules.
5. If the procedure is completed successfully the screen will display: Module Synchronization Complete.
6. If communication is lost with the SIR or IPC, the screen will display: Loss of Communications with Vehicle - Check Diagnostics Link Connector - Check Ignition (On/Off).

Latch Replacement - Console Compartment Door**Removal Procedure**

1. Open the armrest door.
2. Remove the armrest bottom cover screws.
3. Remove the armrest bottom cover.
4. Remove the console latch screws.
5. Remove the console latch.



580451

Installation Procedure

1. Install the console latch.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the console latch screws.

Tighten

Tighten the console latch screws to 2 N·m (18 lb in).

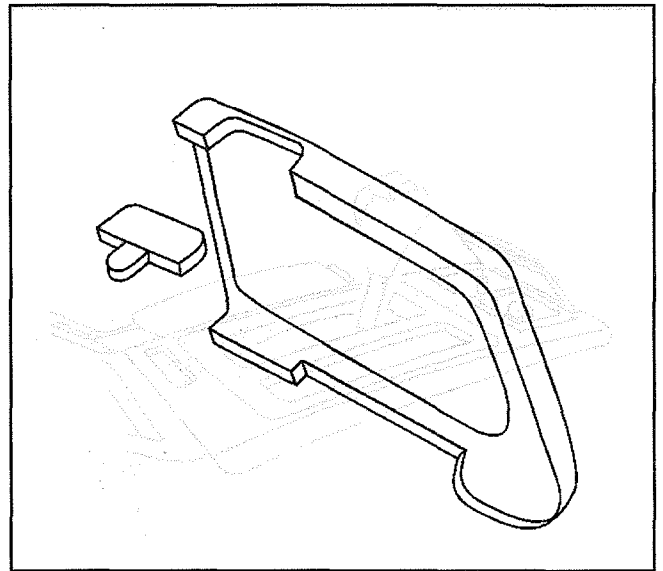
3. Install the armrest bottom cover.

4. Install the armrest bottom cover screws.

Tighten

Tighten the armrest bottom cover screws to 2 N·m (18 lb in).

5. Close the armrest door.

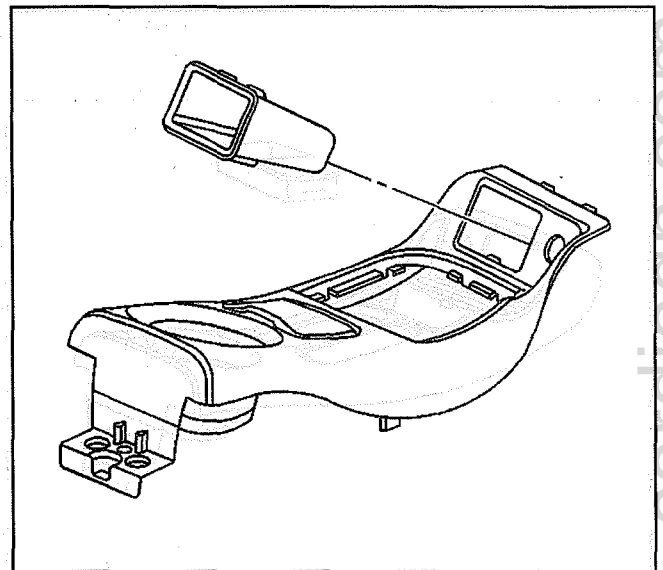


580451

Console Storage Bin Replacement

Removal Procedure

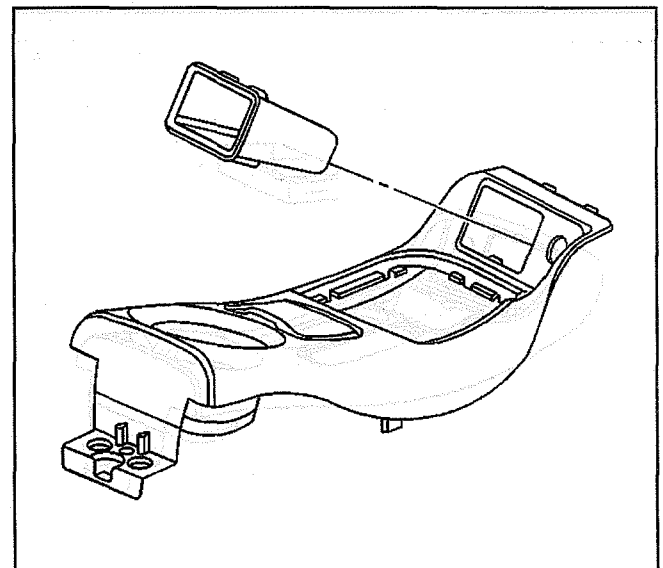
1. Unsnap the storage bin from the console.
2. Slide the bin out from the console opening.



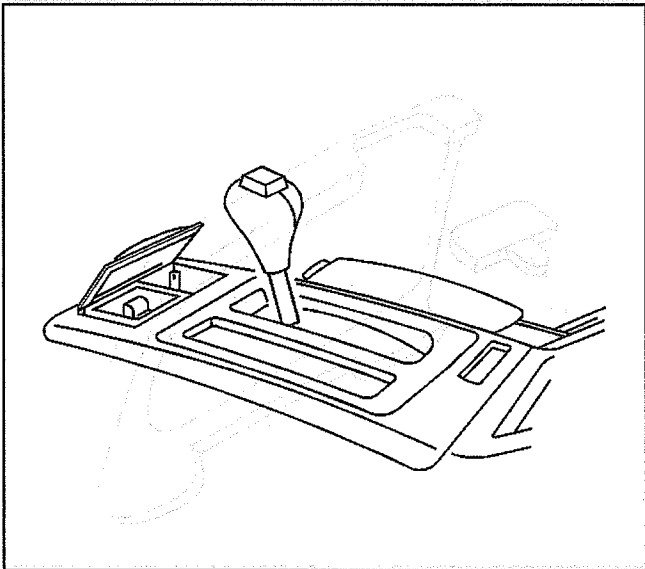
517345

Installation Procedure

1. Slide the bin into the console opening.
2. Snap the storage bin into the console.



517345

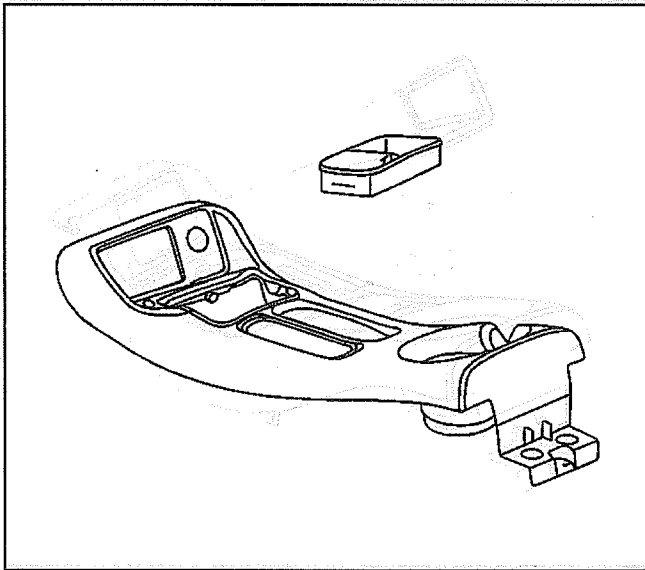


523616

Ashtray Replacement - Floor Console Front

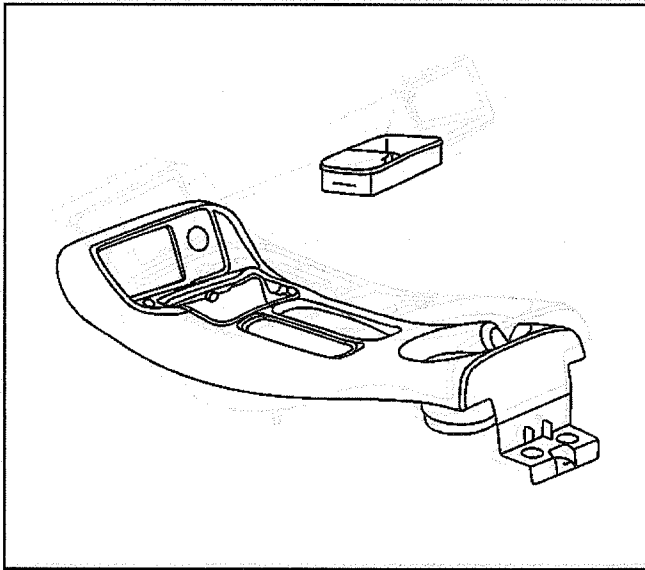
Removal Procedure

1. Open the ashtray door.



367408

2. Gently pull the ashtray up and out from the console.

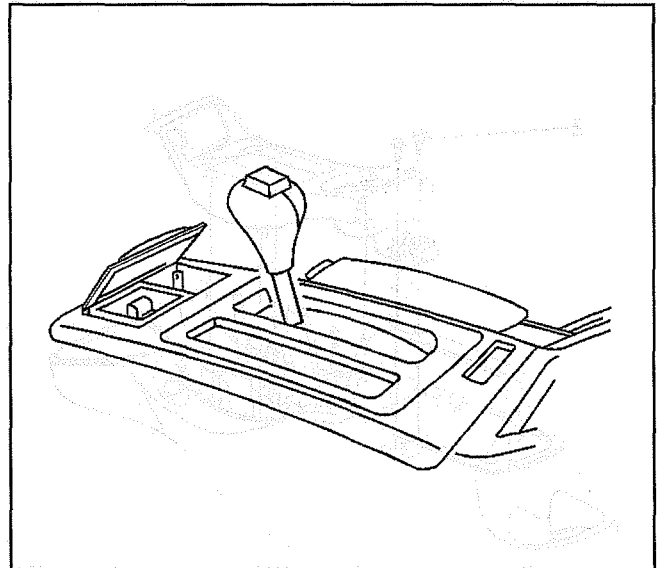


367408

Installation Procedure

1. Install the ashtray to the console.

2. Close the ashtray door.
3. Remove the console (Manual Floor Console Replacement - Front Floor Console Automatic) or Trim Plate Replacement - Front Floor Console (Manual).
4. Remove the cigarette lighter fuse. Refer to Electrical Center Identification Views in Wiring Systems.
5. Disconnect the electrical connector from the cigarette lighter socket.
6. Using the J 42059, remove the lighter socket by performing the following steps:
 - 6.1. Insert one side of the T portion of the J 42059 into the tab window.
 - 6.2. The other side should be angled into the opposite window.
 - 6.3. Pull the lighter socket straight out of the mounting hole.



367401

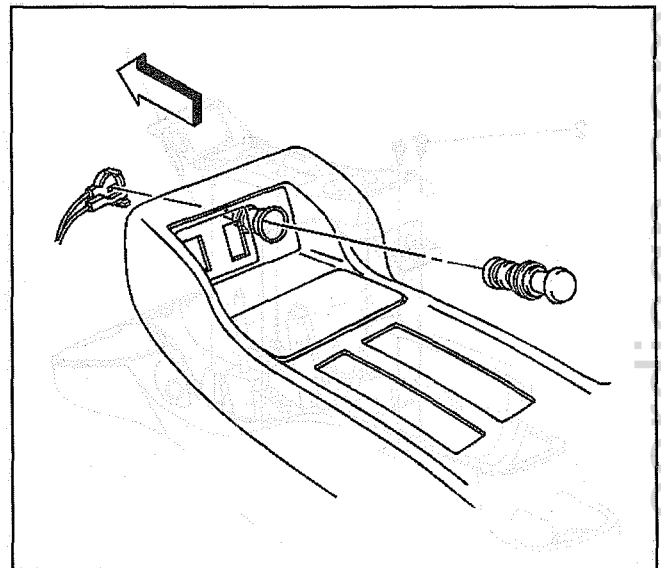
523616

Console Ashtray/Lighter Replacement

Removal Procedure

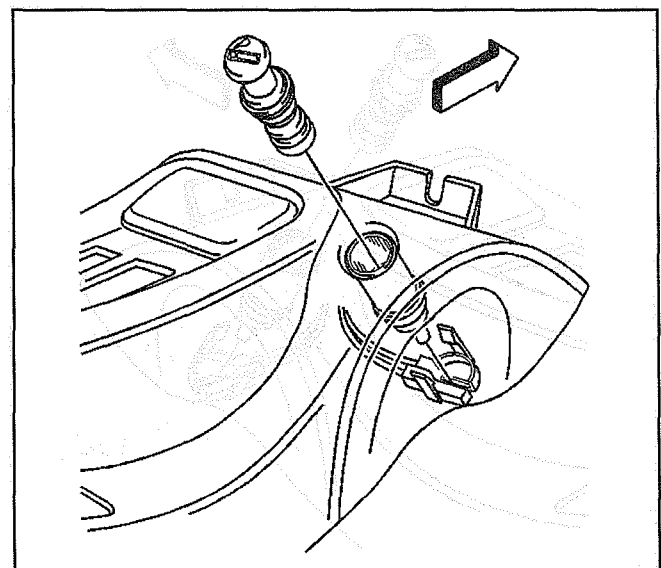
Tools Required
J 42059 Cigarette Lighter Socket Remover

1. Remove the cigarette lighter from the outlet. (Chevrolet automatic shown, Chevrolet and Pontiac manual similar).
 2. Connect the electrical cigarette socket.
 3. Install the cigarette lighter fuse. Refer to Electrical Center Identification Views in Wiring Systems.
 4. Install the console trim plate (1). Refer to Trim Plate Replacement - Front Floor Console Automatic) or Trim Plate Replacement - Front Floor Console (Manual).
2. Remove the cigarette lighter from the outlet. (Pontiac automatic shown).



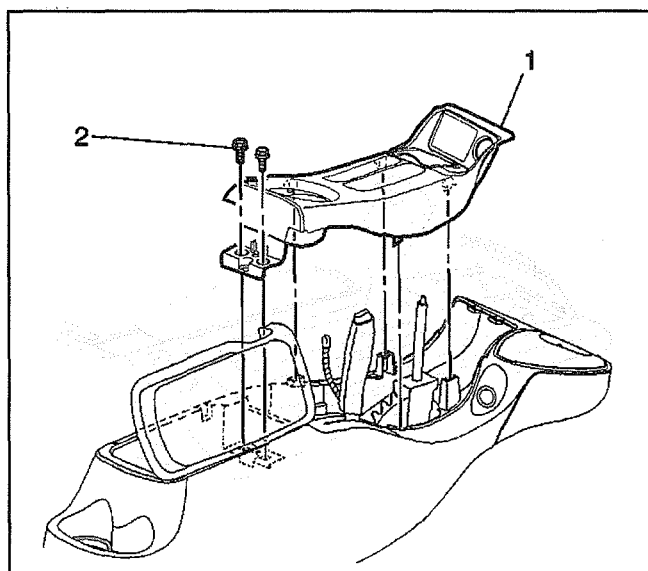
367402

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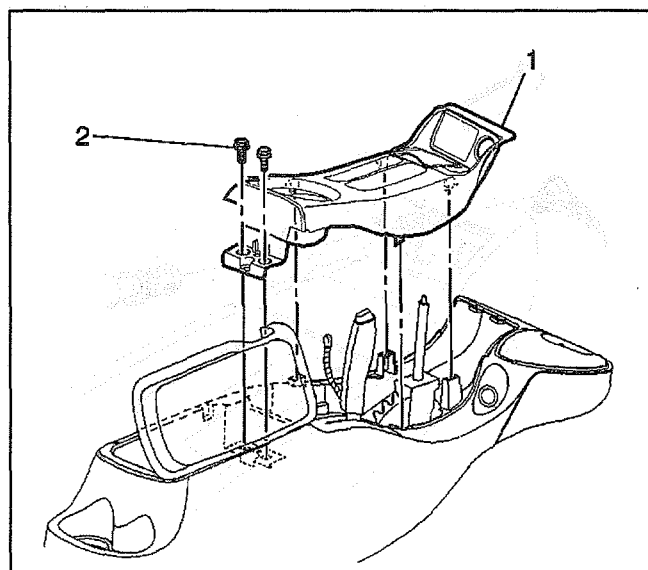


367403

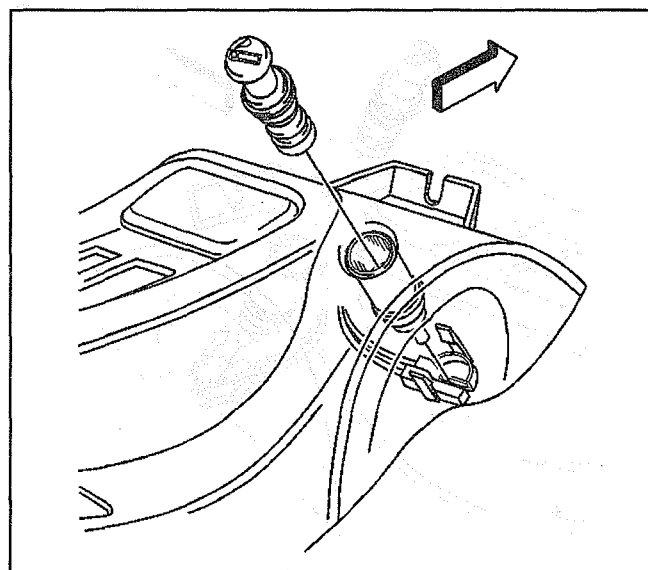
367405



296126



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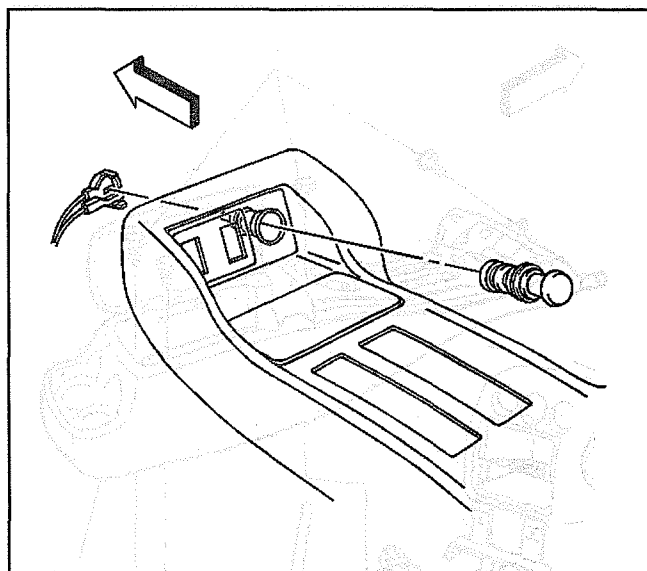
367405

3. Remove the console trim plate (1). Refer to *Trim Plate Replacement - Front Floor Console (Automatic)* or *Trim Plate Replacement - Front Floor Console (Manual)*.
4. Remove the cigarette lighter fuse. Refer to *Electrical Center Identification Views* in *Wiring Systems*.
5. Disconnect the electrical connector from the cigarette lighter socket.
6. Using the *J 42059*, remove the lighter socket by performing the following steps:
 - 6.1. Insert one side of the T portion of the *J 42059* into the tab window.
 - 6.2. The other side should be angled into the opposite window.
 - 6.3. Pull the lighter socket straight out of the mounting hole.

Installation Procedure

1. Install the cigarette lighter socket by performing the following steps:
 - 1.1. Align the socket ribs in the indents in the trim ring.
 - 1.2. Push the socket straight into the mounting hole.
2. Connect the electrical connector to the cigarette lighter socket.
3. Install the cigarette lighter fuse. Refer to *Electrical Center Identification Views* in *Wiring Systems*.
4. Install the console trim plate (1). Refer to *Trim Plate Replacement - Front Floor Console (Automatic)* or *Trim Plate Replacement - Front Floor Console (Manual)*.
5. On Pontiac, install the cigarette lighter to the outlet.

6. On Chevrolet, install the cigarette lighter to the outlet.

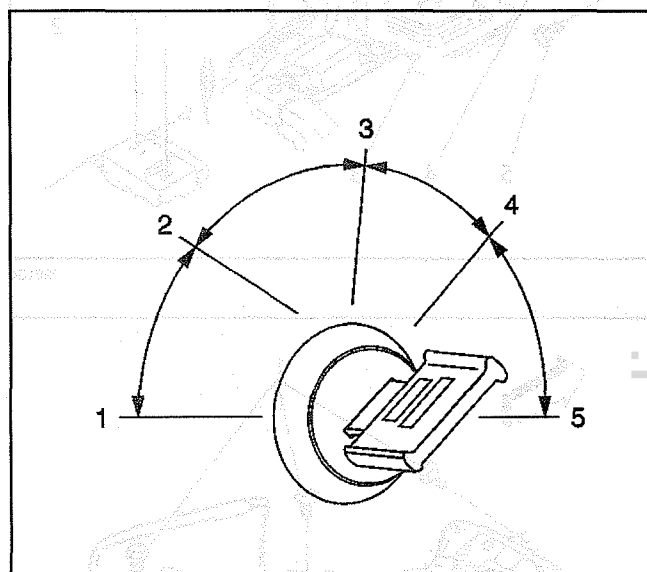


367402

Console Replacement - Front Floor

Removal Procedure

1. Turn the ignition key to the RUN (4) position.
2. Place the shift lever in the NEUTRAL position.
3. Remove the console trim plate. Refer to *Trim Plate Replacement - Front Floor Console (Automatic)* or *Trim Plate Replacement - Front Floor Console (Manual)*.



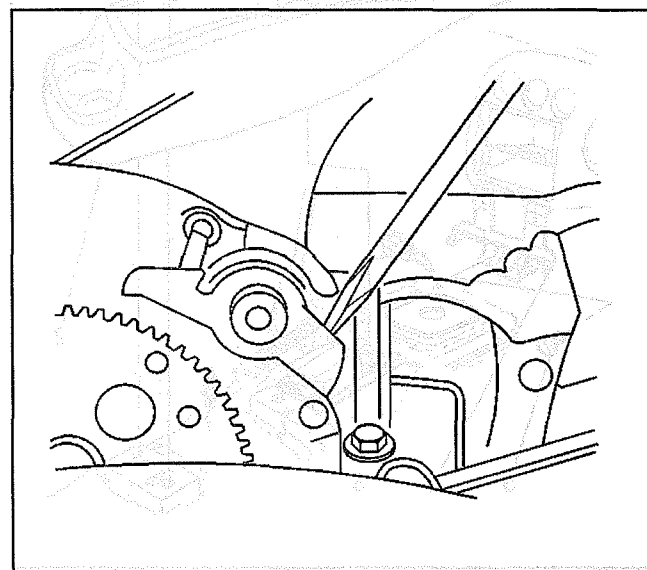
341078

4. Raise the park brake handle as far as possible.

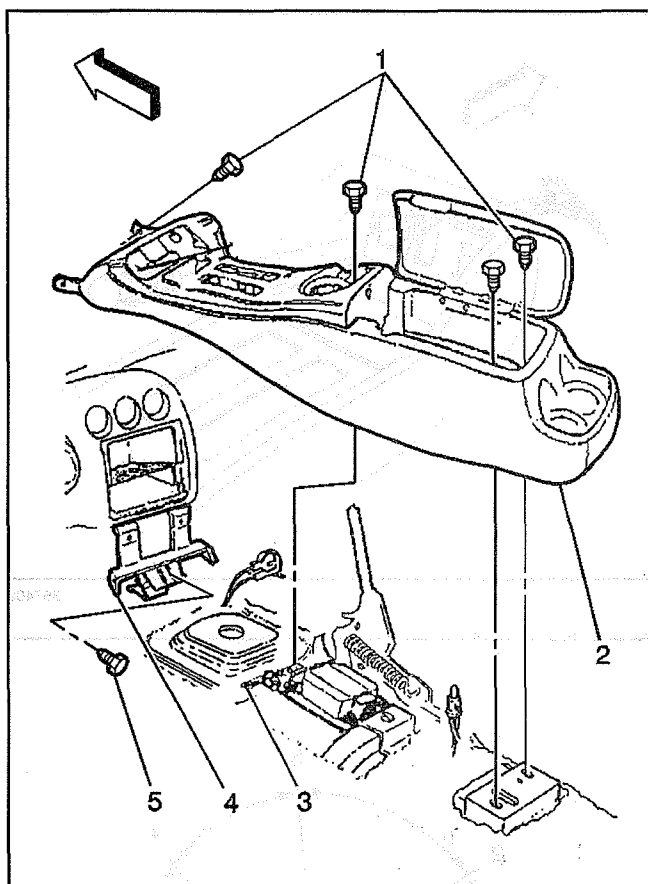
If the park brake handle cannot be pulled up far enough to remove the console, perform the following steps:

- Release the park brake handle.
- Hold the adjuster pawl disengaged.

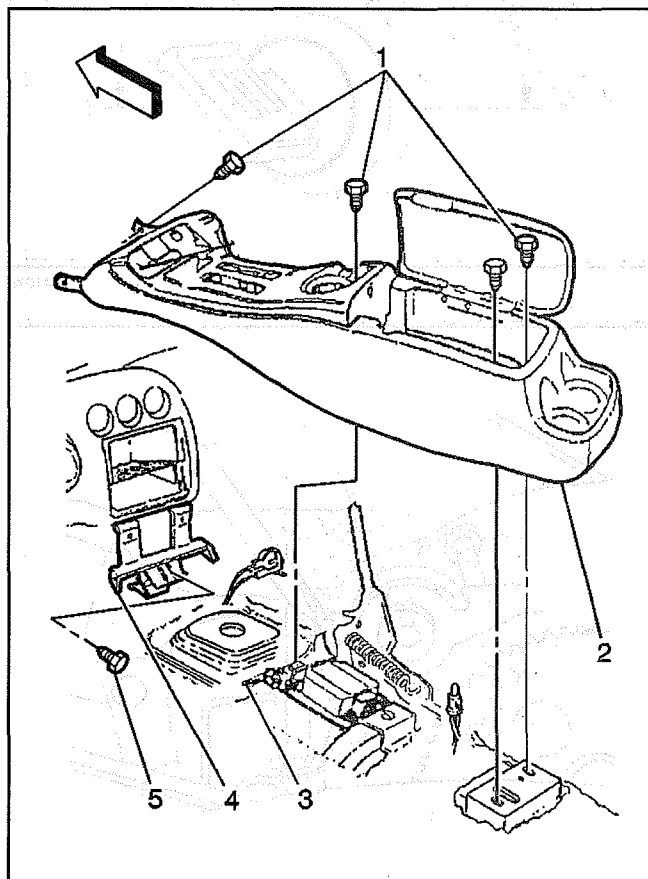
The park brake handle can be pulled up further.



517344



296134



296134

5. Remove the floor console bolts (1).
6. Disconnect the power outlet electrical connector.
7. Remove the floor console (2) from the vehicle.

Removal Procedure

1. Turn the ignition key to the RUN (R) position.
2. Place the shift lever in the NEUTRAL position.
3. Remove the console trim plate. Refer to *Trim Plate Replacement - Front Floor Console (Automatic)* or *Trim Plate Replacement - Front Floor Console (Manual)*.

Installation Procedure

1. Install the floor console (2) to the vehicle.
2. Connect the power outlet electrical connector.
3. Release the park brake handle.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

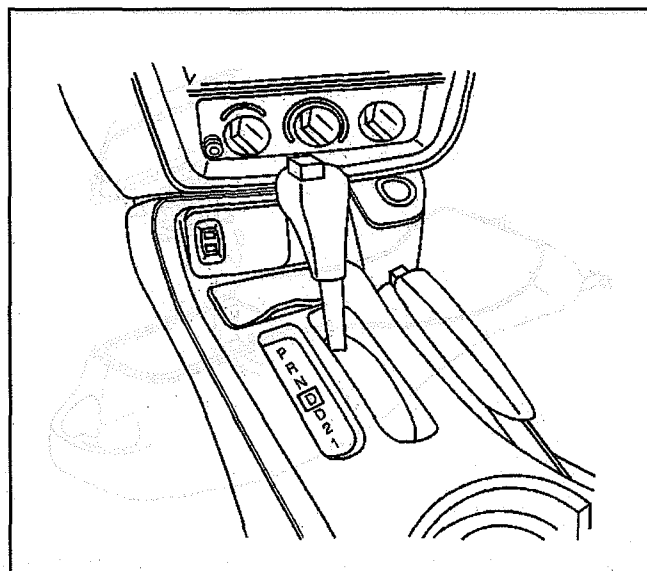
4. Install the floor console bolts (1).

Tighten

Tighten the floor console bolts (1) to 8 N·m (71 lb in).

5. Install the console trim plate. Refer to *Trim Plate Replacement - Front Floor Console (Automatic)* or *Trim Plate Replacement - Front Floor Console (Manual)*.

6. Place the shift lever in the PARK position.
7. Turn the ignition key to the OFF position (2).

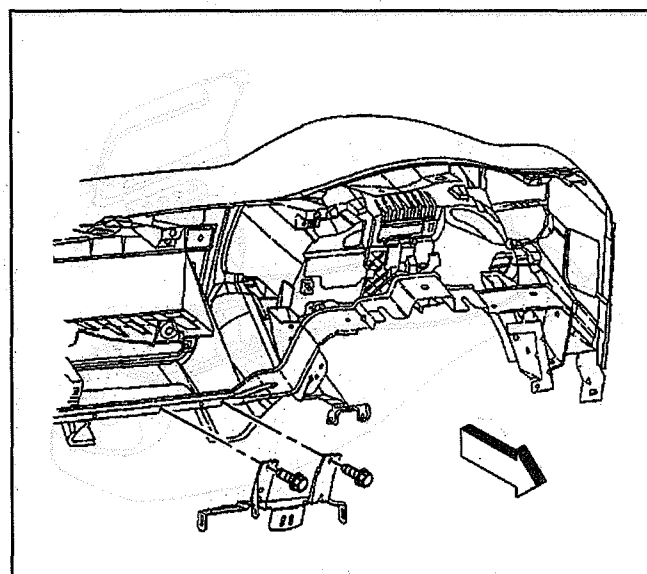


341077

Bracket Replacement - Console Floor

Removal Procedure

1. Remove the front floor console. Refer to *Console Replacement - Front Floor*.
2. Remove the console bracket bolts.
3. Remove the console bracket.



507517

Installation Procedure

1. Align the console bracket to the instrument panel (IP) tie bar.

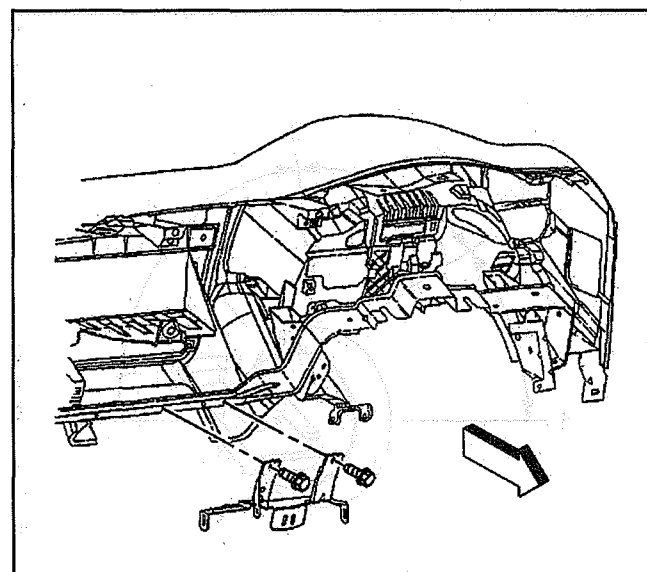
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the console bracket bolts.

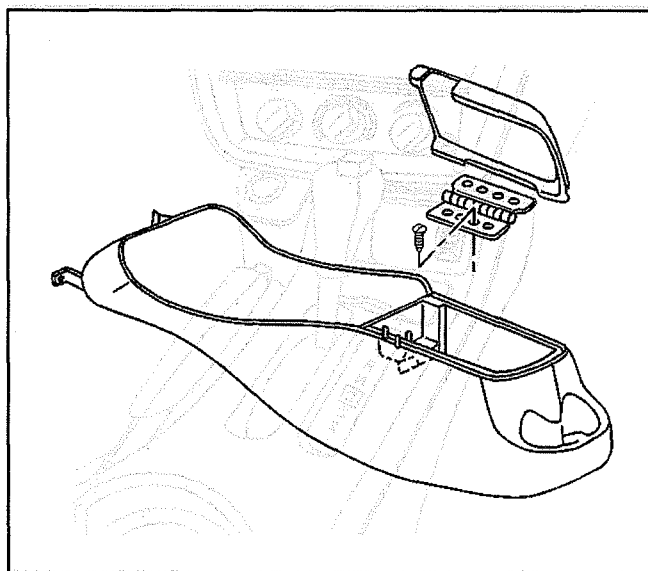
Tighten

Tighten the console bracket bolts to 2 N·m (18 lb in).

3. Install the front floor console. Refer to *Console Replacement - Front Floor*.



507517

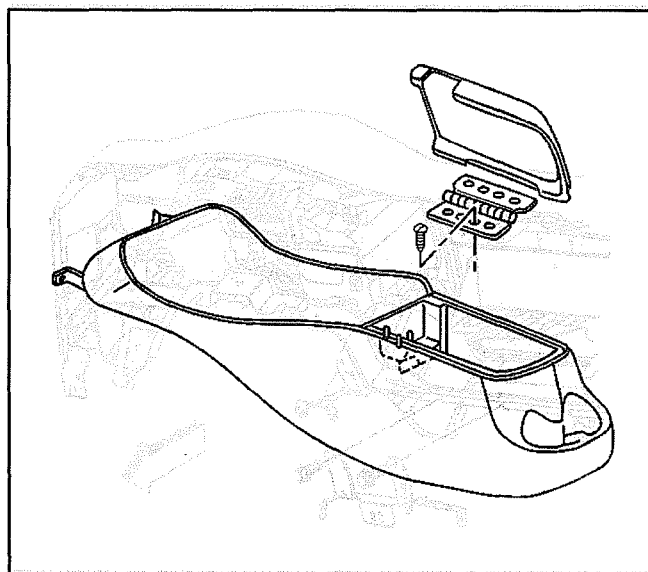


367406

Console Armrest Replacement - Front Floor

Removal Procedure

1. Open the console armrest door.
2. Remove the console armrest door bolts.
3. Remove the console armrest from the vehicle.



367406

Installation Procedure

1. Install the console armrest door to the vehicle.

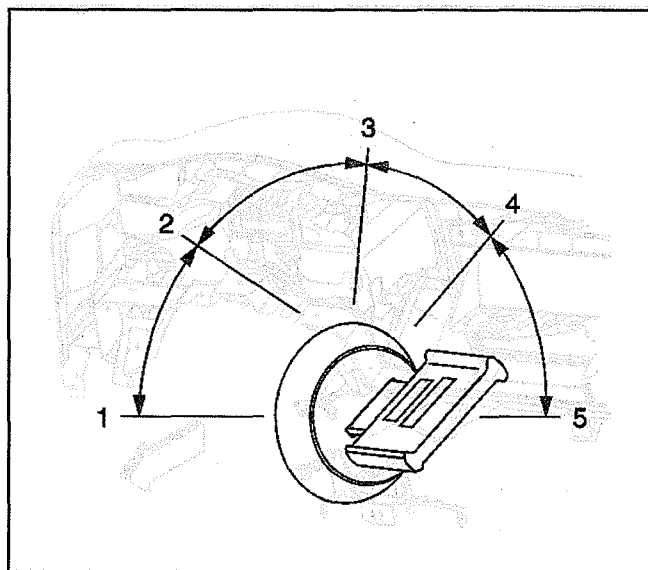
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the console armrest door bolts.

Tighten

Tighten the console armrest door bolts to 2 N·m (18 lb in).

3. Close the console armrest door.



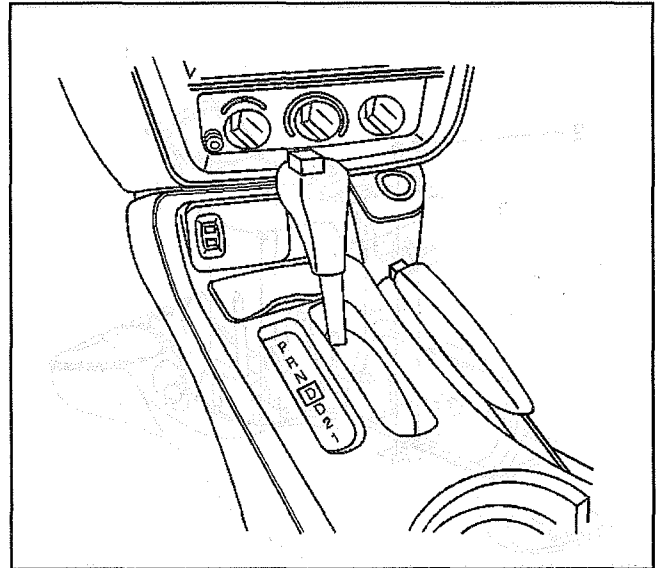
341078

Trim Plate Replacement - Front Floor Console (Automatic)

Removal Procedure

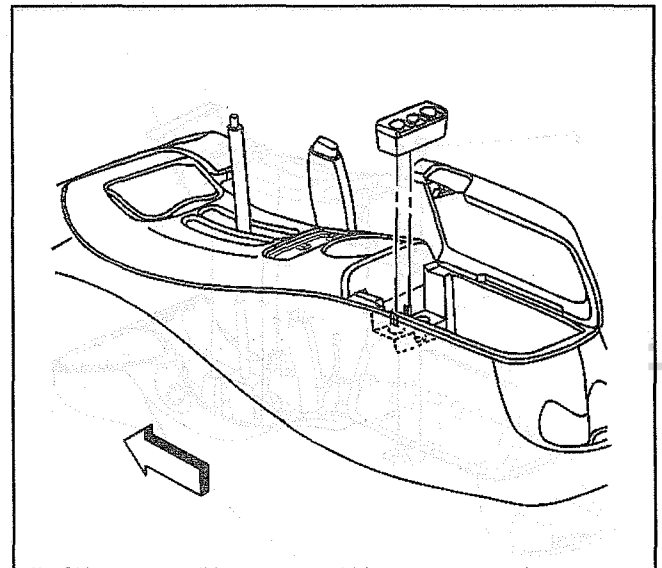
1. Turn the ignition key to the RUN (4) position.

2. Place the shift lever in the NEUTRAL position.
3. Remove the shift control knob. Refer to *Floor Shift Control Knob Replacement in Automatic Transmissions*.
4. Open the console armrest door.



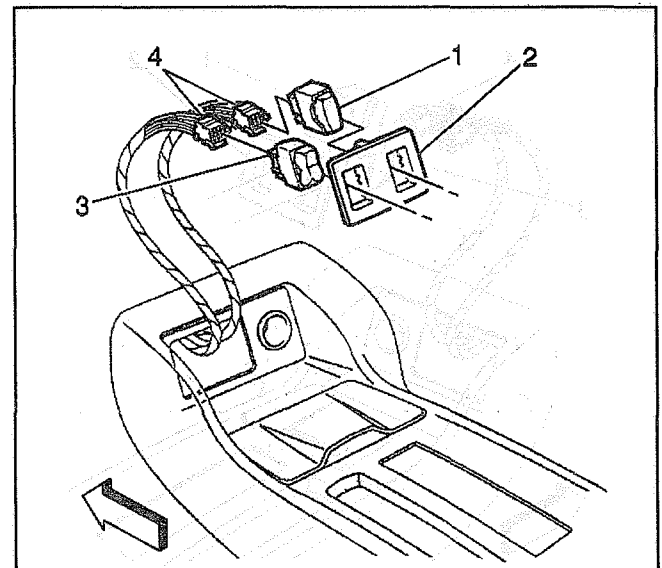
341077

5. Remove the coin holder from inside the console.

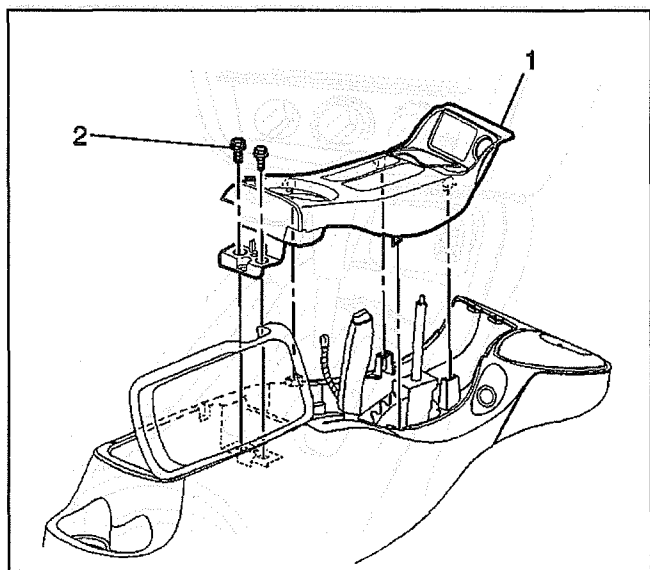


367401

6. Unsnap the switch plate (2) from the floor console.
7. Disconnect the electrical connectors (4) from the switches (1,3), if equipped.

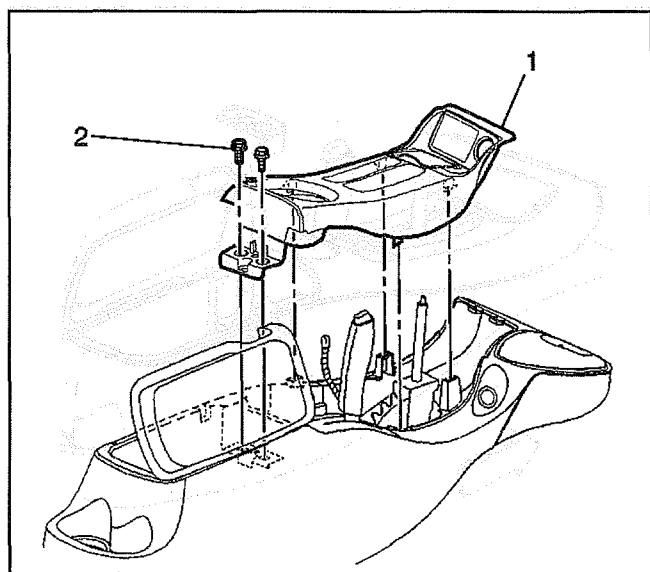


380686



296126

8. Remove the console trim plate bolts (2).
9. Disconnect the PRNDL lamp connector.
10. Disconnect the cigarette lighter electrical connector.
11. Remove the console trim plate (1).



296126

Installation Procedure

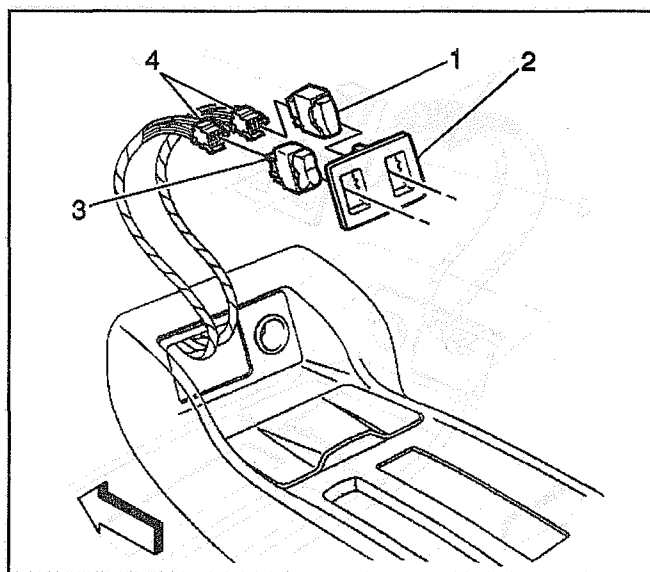
1. Position the console trim plate (1) over the shift lever.
2. Connect the cigarette lighter electrical connector.
3. Connect the PRNDL lamp connector.
4. Insert the forward end of the trim plate (1) into the console.
5. Apply pressure to the console trim plate (1) and snap the trim plate (1) into place.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

6. Install the console trim plate bolts (2).

Tighten

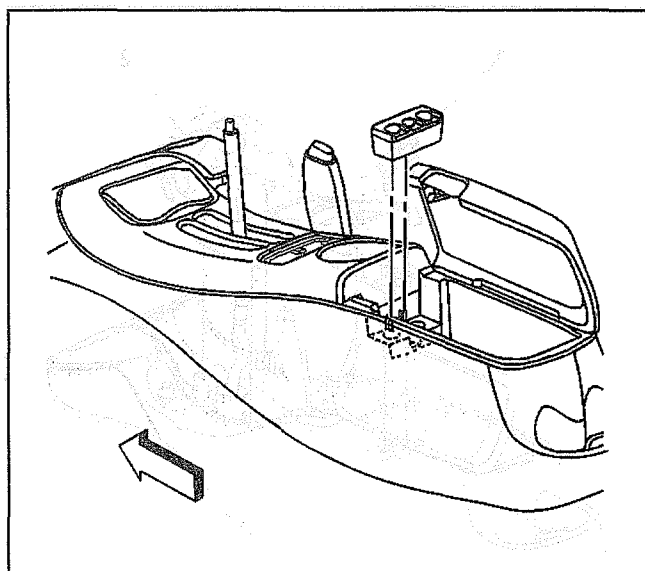
Tighten the console trim plate bolts (2) to 2 N·m (18 lb in).



380886

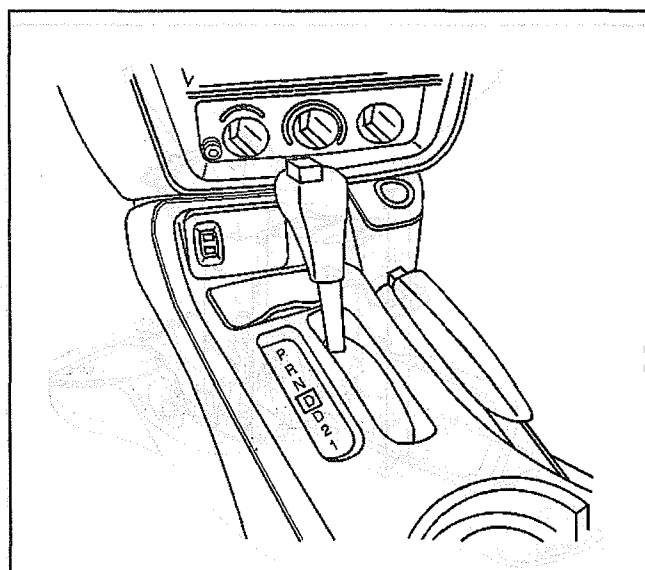
7. Snap the switch plate (2) to the floor console.
8. Connect the electrical connectors (4) to the switches (1,3), if equipped.

9. Install the coin holder to inside the console.
10. Close the console armrest door.
11. Install the shift control knob. Refer to *Floor Shift Control Knob Replacement in Automatic Transmissions*.



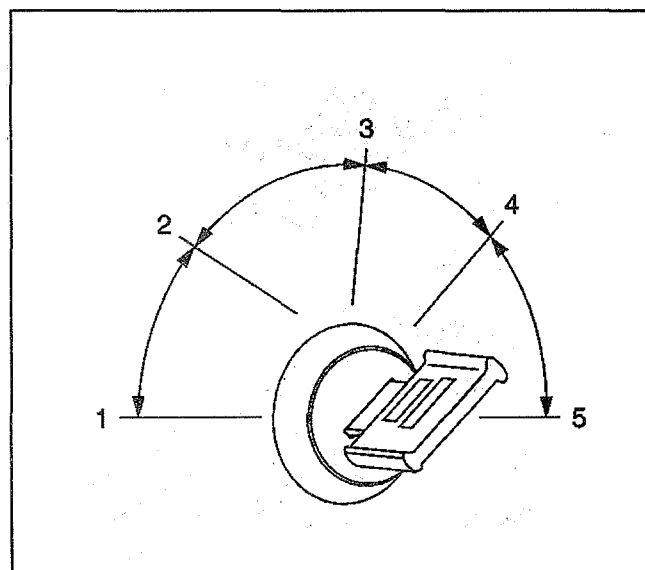
367401

12. Place the shift lever in the PARK position.

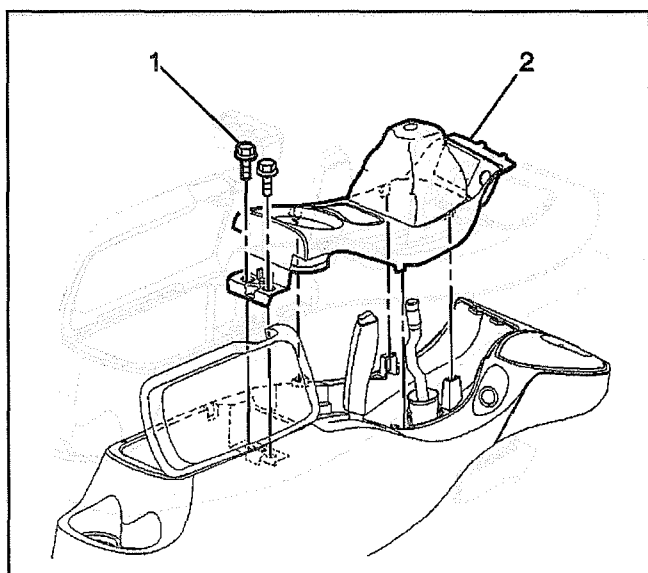


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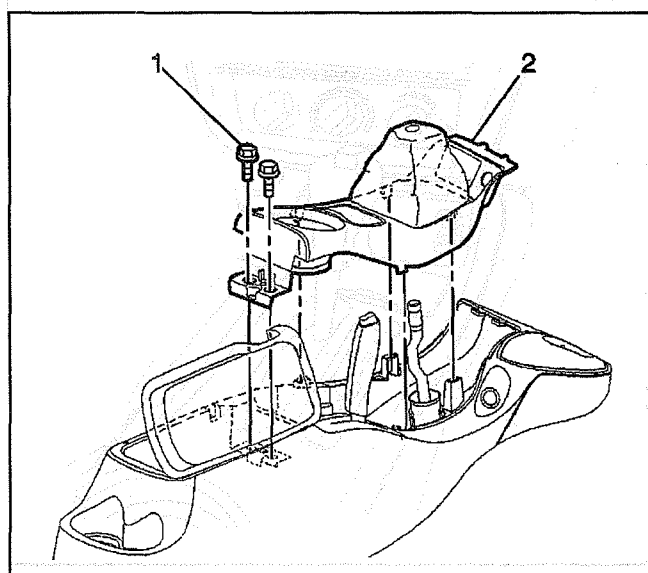
13. Turn the ignition key to the OFF position (2).



341078



296131



296131

Trim Plate Replacement - Front Floor Console (Manual)

Removal Procedure

1. Remove the shift lever knob. Refer to *Shift Control Knob Replacement* in Manual Transmission - M49 or *Shift Control Knob Replacement* in Manual Transmission - MM6.
2. Open the console armrest door.
3. Remove the coin holder from inside the console.
4. Unsnap the switch plate from the floor console.
5. Disconnect the electrical connectors from the switches, if equipped.
6. Remove the console trim plate bolts (1). Lift the trim plate up.
7. Disconnect the ashtray lamp connector.
8. Disconnect the cigarette lighter electrical connector.
9. Remove the console trim plate (2).

Installation Procedure

1. Position the trim plate (2) over the shift lever.
2. Connect the cigarette lighter electrical connector.
3. Connect the ashtray lamp connector.
4. Insert the forward end of the trim plate (2) into the console.
5. Apply pressure to the console trim plate (2) and snap the trim plate (2) into place.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

6. Install the console trim plate bolts (1).

Tighten

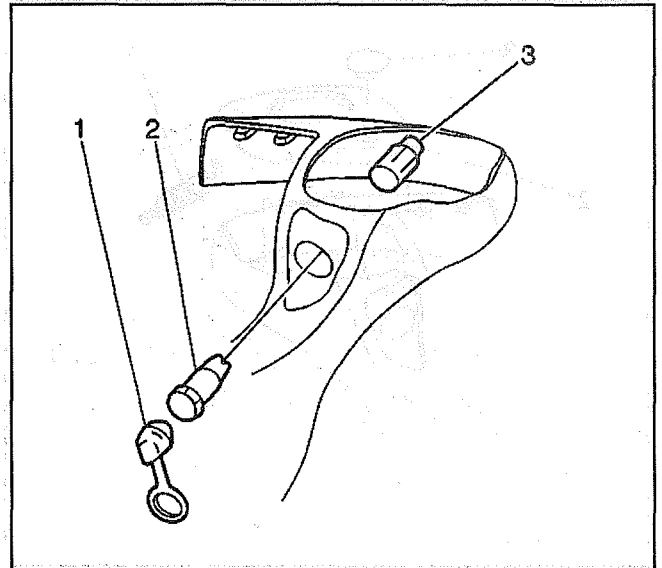
Tighten the console trim plate bolts (1) to 2 N·m (18 lb in).

7. Connect the electrical connectors to the switches, if equipped.
8. Snap in the front floor console accessory trim plate.
9. Install the coin holder to the inside of the console.
10. Close the console armrest door.
11. Snap the console accessory bin to the console, if equipped.
12. Install the shift lever knob. Refer to *Shift Control Knob Replacement* in Manual Transmission - M49 or *Shift Control Knob Replacement* in Manual Transmission - MM6.

Power Accessory Port Replace - Front Floor Console

Removal Procedure

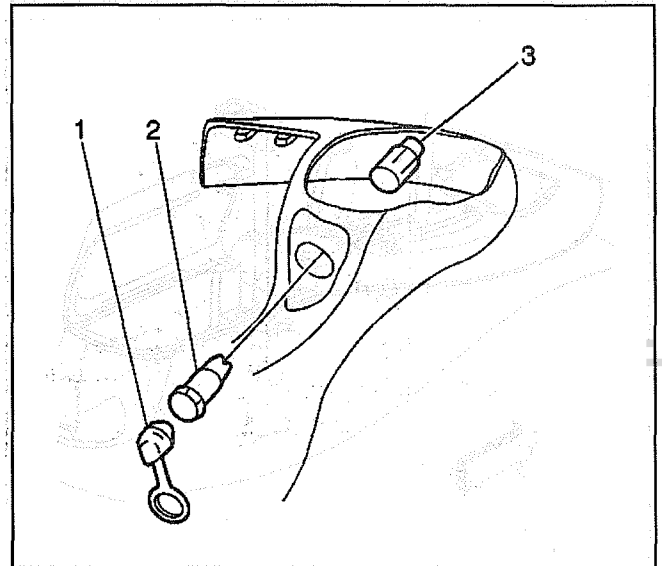
1. Remove the console trim plate. Refer to *Trim Plate Replacement - Front Floor Console (Automatic)* or *Trim Plate Replacement - Front Floor Console (Manual)*.
2. Disconnect the electrical connector from the accessory power receptacle.
3. Unscrew the accessory power receptacle retainer (3).
4. Remove the accessory power receptacle (2) from the console.
5. Remove the accessory power receptacle opening plug (1) from the receptacle (2), if necessary.



367411

Installation Procedure

1. Install the accessory power receptacle opening plug (1) to the receptacle (2), if removed.
2. Install the accessory power receptacle (2) to the console.
3. Screw the accessory power receptacle retainer (3) to the receptacle (2).
4. Connect the electrical connector to the power receptacle (2).
5. Install the console trim plate. Refer to *Trim Plate Replacement - Front Floor Console (Automatic)* or *Trim Plate Replacement - Front Floor Console (Manual)*.

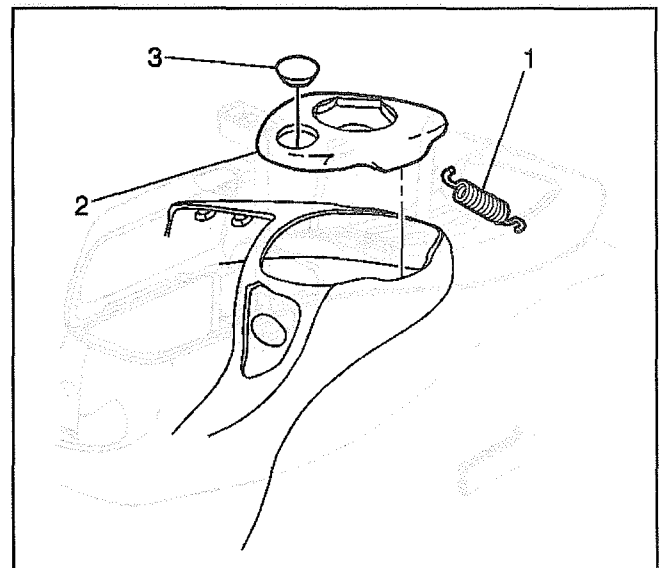


367411

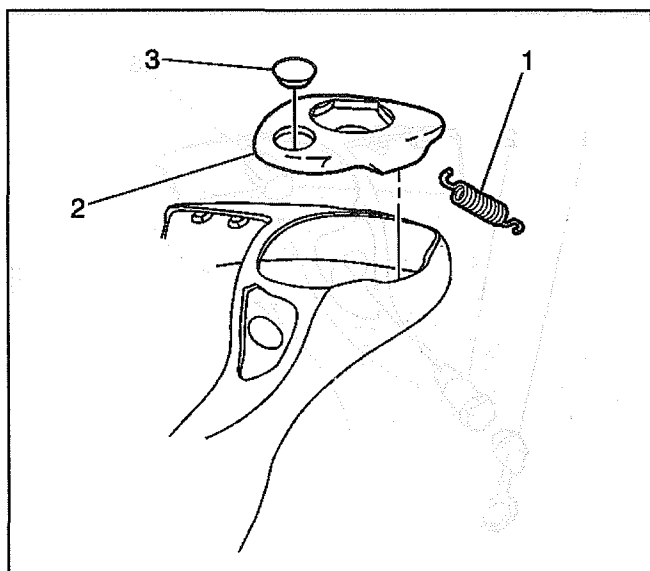
Cupholder Replacement - Front Floor Console

Removal Procedure

1. Remove the front floor console. Refer to *Console Replacement - Front Floor*.
2. Lay the console upside-down on a work surface.
3. Remove the cup holder screw.
4. Remove the cup holder (2).
5. Remove the cup holder spring (1), if necessary.



367410



367410

Installation Procedure

1. Install the cup holder spring (1), if necessary.
2. Install the cup holder (2).

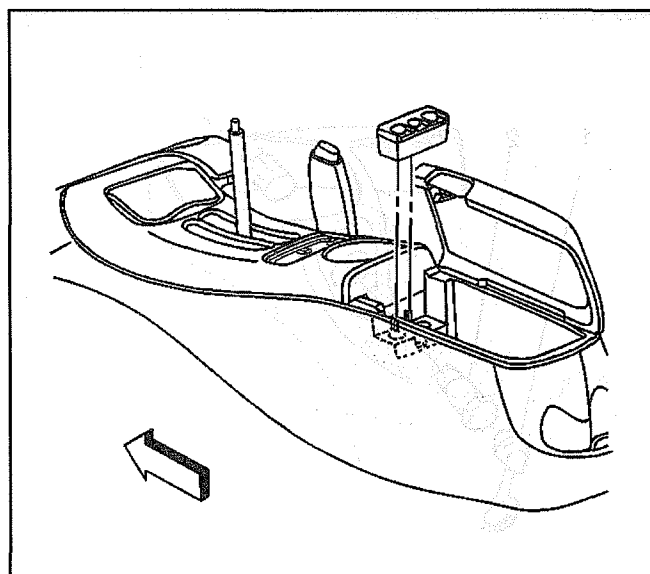
Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the cup holder screw.

Tighten

Tighten the cup holder screw to 2 N·m (18 lb in).

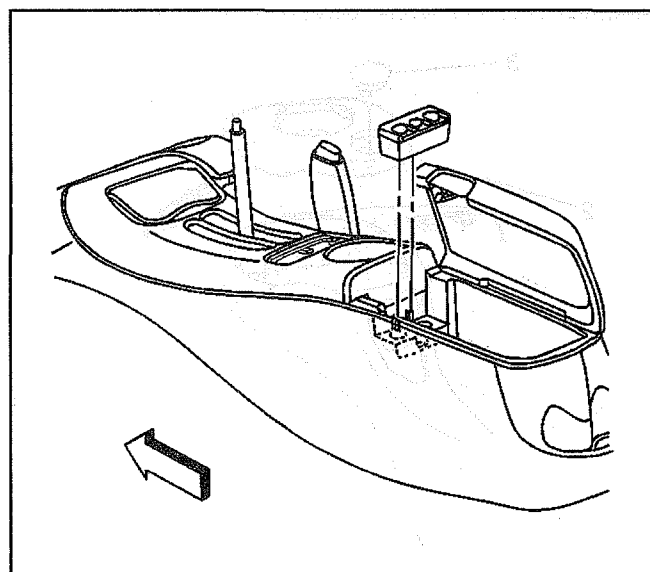
4. Install the front floor console. Refer to *Console Replacement - Front Floor*.



367401

Coin Holder Replacement - Front Floor Console**Removal Procedure**

1. Open the console door.
2. Remove any coins from the coin holder.
3. Remove the coin holder from the console.



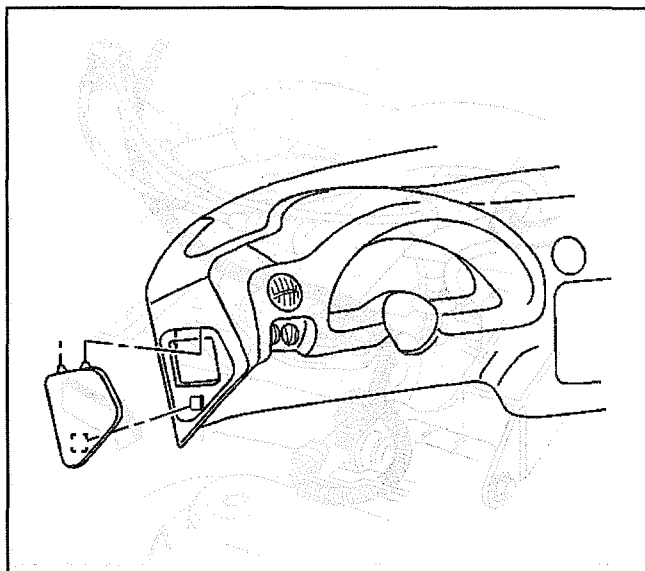
367401

Installation Procedure

1. Install the coin holder to the console.
2. Press the coin holder down until it snaps into place.
3. Install the coins to the coin holder.
4. Close the console door.

Fuse Block Access Cover Replacement**Removal Procedure**

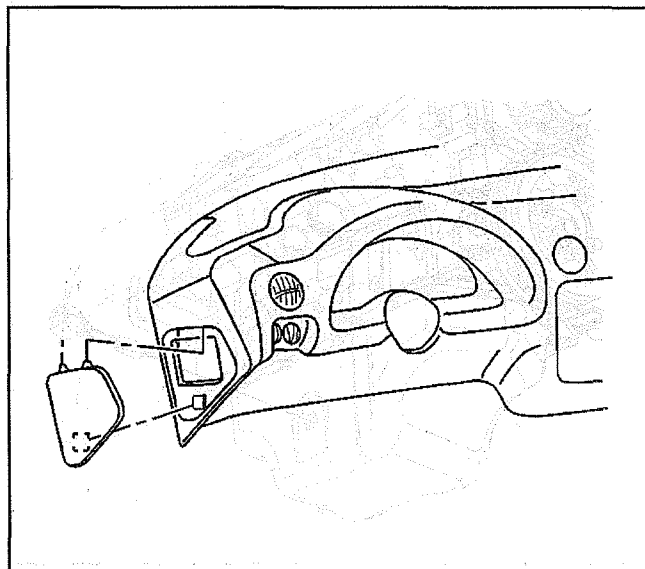
1. Open the driver side door.
2. Pull on the lower portion of the cover to unhook the hook and loop fastener.
3. Slide the cover down and remove the cover.



507518

Installation Procedure

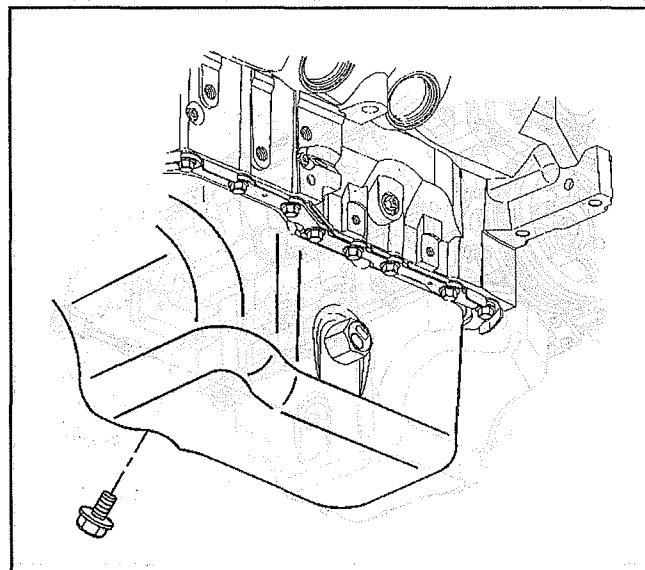
1. Slide the cover up to install the tabs.
2. Push the bottom portion of the cover to secure the hook and loop fastener.
3. Close the driver side door.



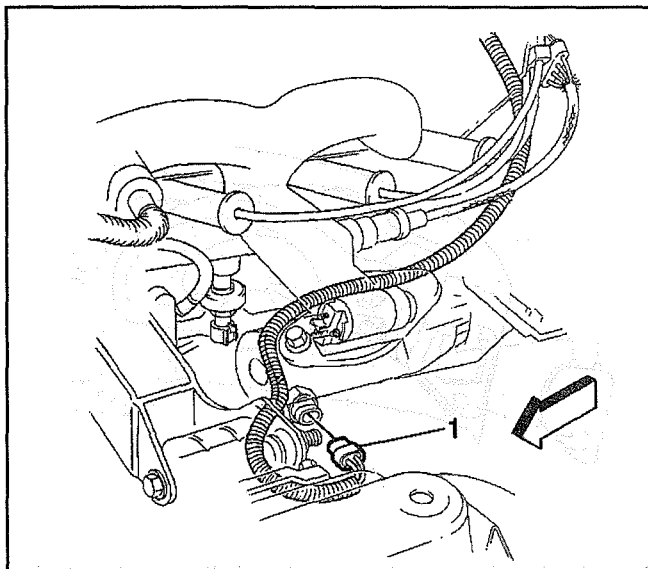
507518

Engine Oil Level Sensor Replacement (3.8 L)**Removal Procedure**

1. Raise and suitably support the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information.
2. Remove the engine oil drain plug in order to drain the engine oil.

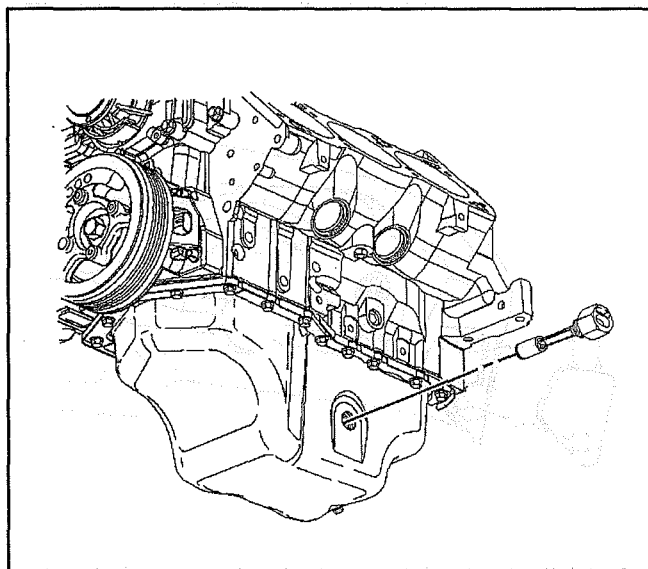


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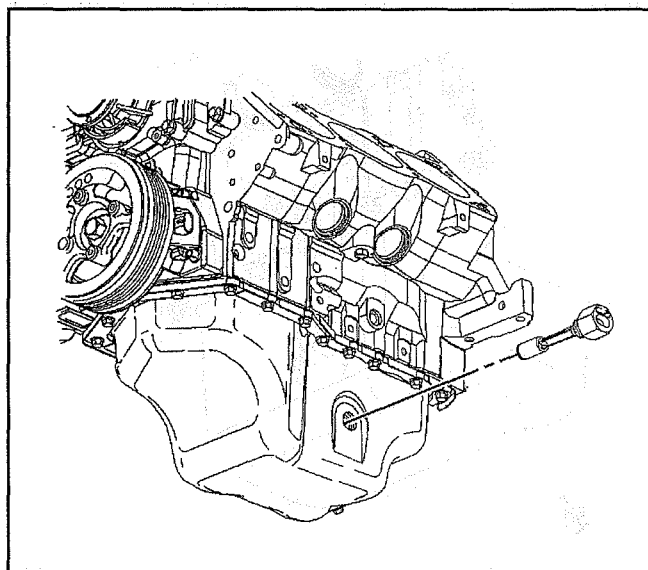
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3. Disconnect the oil level sensor electrical connector (1).



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4. Remove the oil level sensor from the oil pan.



441263

Installation Procedure

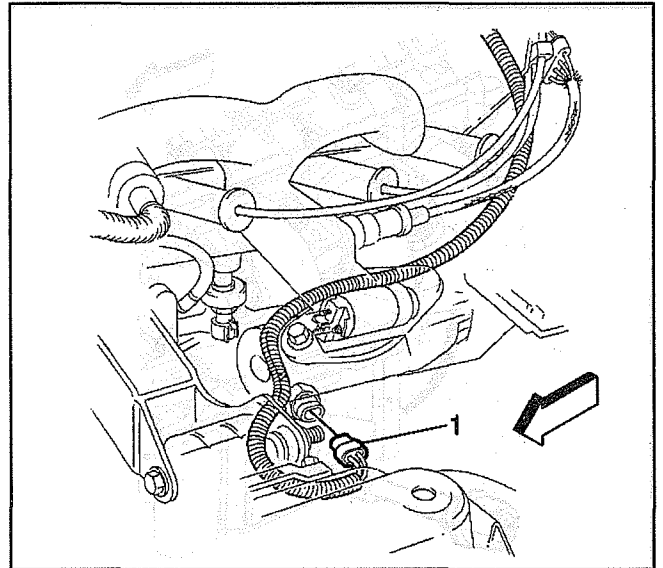
Notice: Refer to *Fastener Notice* in Cautions and Notices.

1. Install the oil level sensor from the oil pan.

Tighten

Tighten the oil level sensor to 20 N·m (15 lb ft).

2. Connect the oil level sensor electrical connector (1).



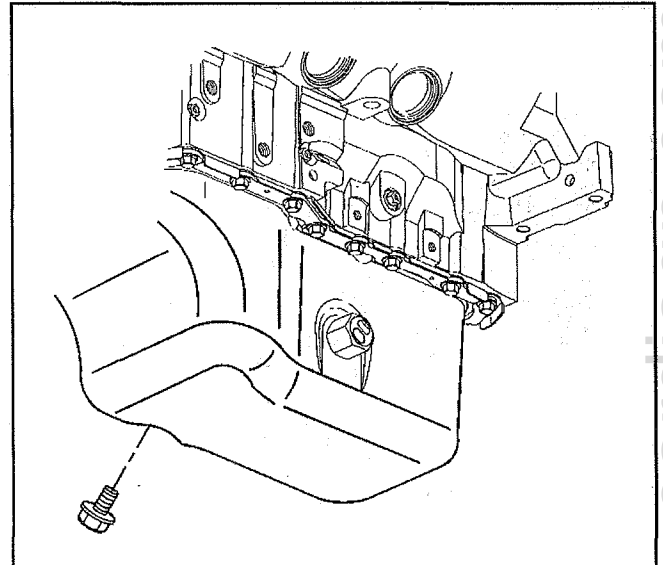
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3. Install the engine oil drain plug.

Tighten

Tighten the engine oil drain plug to 30 N·m (22 lb ft).

4. Refill the engine with oil.
5. Lower the vehicle.

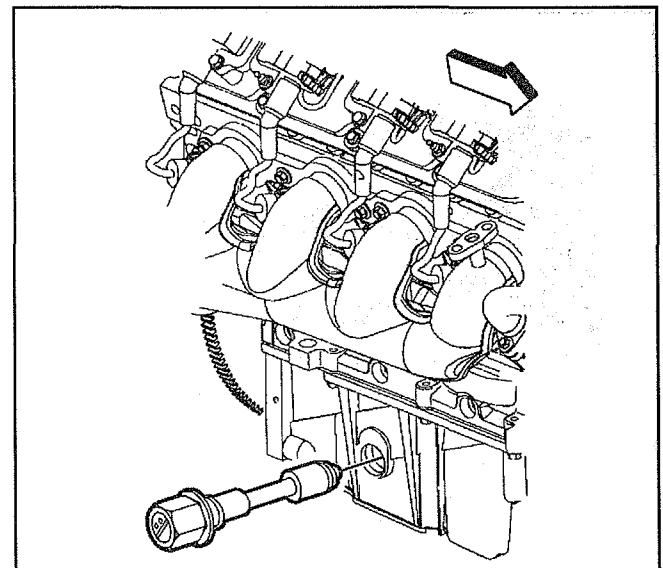


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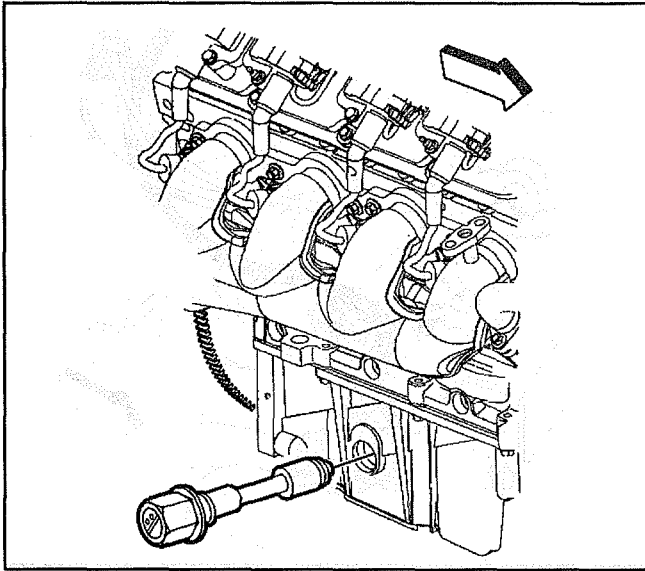
Engine Oil Level Sensor Replacement (5.7 L)

Removal Procedure

1. Raise and suitably support the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information.
2. Remove the oil pan drain plug.
3. Completely drain the engine oil.
4. Disconnect the engine oil level sensor electrical connector.
5. Remove the engine oil level sensor.



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178467

Installation Procedure

Notice: Refer to *Fastener Notice* in Cautions and Notices.

1. Install the drain plug to the oil pan.

Tighten

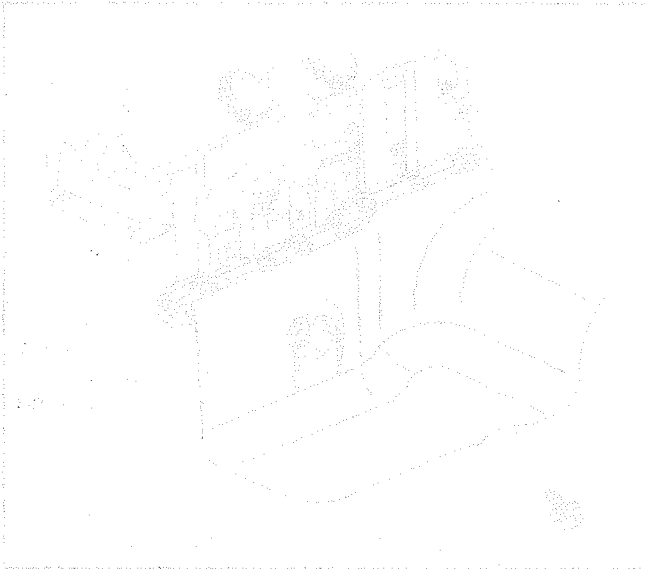
Tighten the drain plug to 25 N·m (18 lb ft).

2. Install the engine oil level sensor.

Tighten

Tighten the engine oil level sensor to 13 N·m (115 lb in).

3. Connector the engine oil level sensor electrical connector.
4. Lower the vehicle.
5. Refill the engine with oil.



Description and Operation

Instrument Panel Description

Instrument Panel (IP)

The IP and related parts form a rigid structure. This structure encloses and supports many components on or near the passenger compartment side of the cowl. The top of the IP is attached to the front of dash, along the base of the windshield by bolts. The IP is also attached at both outer lower corners by nuts. The bottom of the IP is attached to a stamped metal tie bar. The tie bar adds to the rigidity of the IP structure. Sound insulator panels are attached to the bottom of the IP. The sound insulator panels conceal the components under the IP and also provides a finished appearance.

The steering column is clamped in place at the left side of the IP. Below the steering column is an IP driver knee bolster. An impact-absorbing pad covers the top of the IP. Trim covers and trim plates accent the appearance of the exposed rear face of the IP.

The air conditioning module case is attached to the front of dash. Air ducts connect the case outlets to the following outlets:

- The floor outlet
- The windshield defroster outlets
- The side window defogger outlets
- High level outlets located in the center of the IP

A high level air outlet is provided at each end of the IP. The air conditioning module and the ducts are concealed within the IP structure.

All Chevrolet and Canadian Pontiac and Chevrolet vehicles are equipped with daytime running lamps. These vehicles are equipped with a headlamp automatic control ambient light sensor. The sensor is installed flush with the top surface of the IP upper trim panel, under the windshield defroster nozzle grille.

Vehicles equipped with the theft deterrent system have a security LED. The LED is installed flush with the top surface of the IP upper trim panel, under the windshield defroster nozzle grille.

The IP wiring harness is installed behind the IP area.

Headlamp and Instrument Panel Lamp Dimmer Switch

The headlamp and instrument panel lamp dimmer switch with thumbwheel dimmer control is mounted in the IP to the left of the instrument cluster.

The headlamp switch controls the following lamps:

- The headlamps
- The parking lamps
- The sidemarker lamps
- The taillamps
- The interior lamps
- The IP lamps

The dimmer control regulates the intensity of the IP illumination.

Front Fog Lamp Switch

On Chevrolet vehicles equipped with fog lamps, the front fog lamp switch is next to the headlamp and the IP lamp dimmer switch. On Pontiac vehicles equipped with fog lamps, the front fog lamp switch will be below the headlamp and IP lamp dimmer switch.

Perform the following steps in order to use the front fog lamps:

1. Turn on the headlamps or the parking lamps.
2. Push the right side of the front fog lamp switch. This action will turn on the front fog lamps.
3. Push the left side of the switch.

This action will turn off the front fog lamps.

Do not use the front fog lamps as a substitute for the headlamps. Switching to high-beam headlamps will turn off the front fog lamps. Switching back to low-beam headlamps will turn the front fog lamps on again.

Rear Fog Lamp Switch (Export Only)

On Chevrolet vehicles equipped with rear fog lamps, the switch is located on the IP accessory trim plate. The switch will be in either the second or third position, depending on option content.

Rear Compartment Lid Release Switch

The rear compartment lid release switch releases the rear deck lid of the vehicle automatically.

On Chevrolet vehicles, the rear compartment lid release switch is located in the glove box. On Pontiac vehicles, the rear compartment lid release switch is located on the left side of the IP, below the headlamp and the IP lamp dimmer switch and the fog lamps switch.

Rear Window Defogger Switch

The rear defogger switch, when activated, slowly heats the rear window in order to remove interior fog or outside snow and ice. The switch has an integral lamp. The switch will operate for 5 or 10 minutes, depending on the following conditions:

- The vehicle speed
- The outside window temperature
- The atmospheric pressure
- The number of passengers

The switch will automatically turn off or may be turned off as follows:

- Through the use of a timer
- Through the IP switch
- By turning the ignition switch to the OFF position

The rear defogger switch is located with the heating ventilation and air conditioning (HVAC) controls

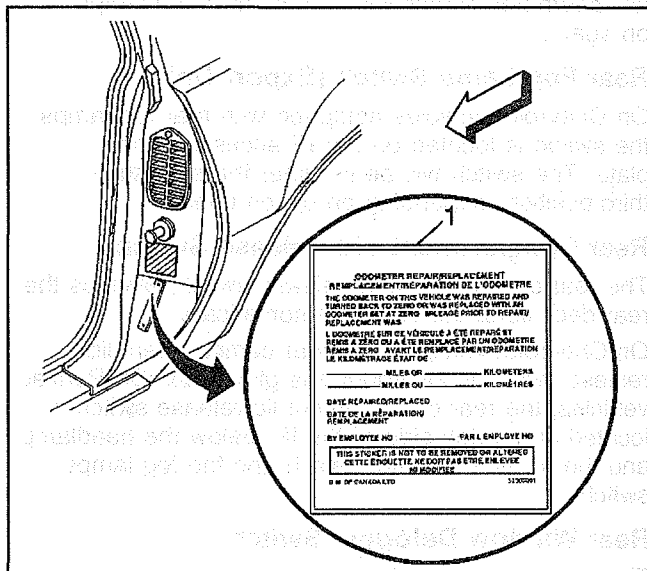
Daytime Running Lamp (DRL) Ambient Light Sensor

The DRL ambient light sensor is located to the right of the heat and air conditioning duct, in the center of the IP.

As the intensity of the light reaching the sensor increases, the electrical resistance of the sensor decreases. When the DRL control module senses a low resistance in the sensor, the module allows voltage to be applied to the DRL diode and then to the headlamps. Due to the voltage drop across the diode, the headlamps are on at a reduced intensity.

As the intensity of light reaching the sensor decreases, the electrical resistance of the sensor increases. When the DRL module senses a high resistance in the sensor, the module closes an internal relay and allows the headlamps to come to full intensity.

Odometer Repair Label Description



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Important: When you repair an instrument cluster, the law requires that you perform the following steps:

- Set the odometer reading of the replacement unit to register the same mileage that the previous odometer registered.
- If the same mileage cannot be set, set the replacement odometer to zero and install a label on the driver's door frame.

The label should include the previous reading of the odometer and the date of replacement.

- Retain a copy of the label in compliance with the retention requirements specified in the Guidelines for General Motors Odometer Policy.

Instrument Cluster Description

The instrument cluster is centered above the steering column in the instrument panel (IP). The instrument cluster contains gauges and indicator lamps that provide the driver with vehicle performance information. Warning lights come on when there may be or is a problem with one of the vehicle's functions. Some warning lights come on briefly when the vehicle is started to let you know they are working. Gauges can indicate when there may be or is a problem with one of the vehicle's functions. Often gauges and warning lights work together to let you know when there is a problem with the vehicle.

The instrument cluster includes the following gauges:

- The fuel gauge
- The engine coolant temperature gauge
- The voltmeter gauge
- The speedometer gauge
- The odometer gauge
- The trip odometer gauge
- The tachometer gauge

The instrument cluster contains the following indicator lamps:

- The headlamp high beam indicator lamp
- The fasten seatbelt indicator lamp
- The turn signal directional arrow indicator lamps
- The skip shift indicator lamp
- The oil change indicator lamp
- The hatch ajar indicator lamp

The instrument cluster also contains the following warning indicator lamps:

- ABS INOP
- AIR BAG
- ASR OFF (acceleration slip regulation, Chevrolet V8 only)
- BRAKE
- CHECK GAGES
- LOW COOLANT symbol (V8 engines only)
- LOW OIL
- LOW TRAC (on vehicles with ASR or TCS systems only)
- REDUCED ENG PWR (V6 engines only)
- SECURITY
- SERVICE ENGINE SOON
- SERVICE VEHICLE
- TCS OFF (traction control system, Pontiac V8 only)

Electric power is directed to the appropriate lamps and gauges of the instrument cluster by a flexible printed circuit. This circuit is attached to the back of the instrument cluster case. Two multiple connectors and the snap-in bulb sockets help to hold the printed circuit to the back of the instrument cluster.

The instrument cluster is non-serviceable, except as noted in this section. The instrument cluster must be replaced as a unit.

When an instrument cluster is replaced, the law requires that the odometer reading of the replacement unit be set to register the same mileage as the prior odometer. If the same mileage cannot be set the law requires that the following actions be performed:

1. Set the replacement odometer to zero.
2. Install a label on the driver's door frame, providing the following information:
 - The previous odometer reading
 - The date of the replacement

Refer to *Odometer Repair Label Description*.

Instrument Cluster Gauge Operation

Engine Coolant Temperature

The coolant temperature sending unit is mounted to the engine. The unit is mounted at a point where the unit is exposed to the coolant being circulated through the engine coolant passages. The sending unit contains a temperature-sensitive variable resistor that senses and reacts to coolant temperature. Resistance decreases as temperature increases.

When electric power is supplied to the engine coolant temperature gauge, current flows through the gauge. The current flows to the variable resistor and then to a ground at the engine. The position of the gauge pointer is determined by the strength of the current flowing through the gauge. When the engine coolant is cold the following situations exist:

- The resistance is high.
- The current flow is low.
- The pointer indicates a cold reading.

As the coolant temperature increases, the following situations occur:

- The resistance decreases.
- The current flow is high.
- The pointer moves toward the center of the gauge.

Prolonged driving or idling in very hot weather may cause the pointer to move beyond this point. An overheat condition exists if the pointer goes into the red zone at the upper limit of the scale.

Dial calibrations go far above the normal boiling point of water, which is 100°C (212°F). This is because the cooling system is pressurized. The increase in pressure also increases the boiling temperature of the coolant. This action permits the coolant to reach temperatures above those possible with a non-pressurized system without boiling. The higher operating temperature of the cooling system that results gives greater cooling efficiency and other benefits.

Fuel

The fuel gauge sending unit is mounted on the top surface of the fuel tank. The fuel level sender itself consists of the following two components:

- A float that rides on the surface of the fuel in the tank
- A variable resistor that is controlled by the float arm

When electric power is supplied to the fuel gauge, current flows through the gauge to the variable resistor and then to a ground. The position of the gauge pointer is determined by the strength of the current that is flowing through the gauge.

If the tank is full, the following situations occur:

- The resistance of the variable resistor is high (90 Ω).
- The current flow through the gauge is minimum.
- The pointer indicates that the gauge reads full (F) on the gauge dial.

If the fuel level is low, the following situations occur:

- The resistance of the variable resistor is low.
- The current flow through the gauge is high.
- The pointer indicates a low fuel level reading.

Intermediate fuel levels cause the pointer to indicate the corresponding position between F and E.

Oil Pressure

The oil pressure gauge indicates the pressure of the lubricating oil flow provided by the engine oil pump.

The oil pressure gauge sending unit is a variable resistor that is mounted to the engine block.

The sending unit senses the oil pressure in a main oil passage just downstream from the engine oil pump. When electric power is supplied to the gauge, current flows through the gauge to the resistor in the sending unit and then to the ground at the engine block. The position of the oil pressure gauge pointer is determined by the strength of the current flowing through the gauge.

When oil pressure is low, the following situations exist:

- The resistance of the sending unit is low.
- Current flow through the gauge is high.
- The gauge indicator needle shows a low pressure reading.

As oil pressure increases, the following situations occur:

- The resistance of the sending unit resistor increases.
- Current flow through the gauge is reduced.

Under normal conditions the oil pressure reading should be measure 138-414 kPa (20-60 psi). Engine oil pressure should never fall below a reading of 28 kPa (4 psi), even at idle.

Speedometer

The electric speedometer does not have a speedometer cable. The source of speed information is a small permanent magnet alternating current generator called a vehicle speed sensor (VSS). The VSS is mounted on the transmission. The shaft of the VSS fits into rotor teeth on the transmission output shaft in the same manner as the speedometer cable of a mechanical speedometer system. The transmission output shaft rotates and turns the rotor teeth near a magnetic pick-up within the VSS. This generates an alternating current in the coil with a frequency that is proportional to the speed of the vehicle.

The alternating current from the VSS is sent to the powertrain control module (PCM).

The PCM modifies the current to a series of direct current pulses at a frequency proportional to the speed of the vehicle. These pulses form a vehicle speed signal that is transmitted to the speedometer.

At the speedometer, a solid state circuit uses the speed signal in order to regulate the distribution of the current from the fuse block to 2 electromagnetic coils. The magnetic coils are at right angles to each other, near the base of the speedometer pointer pivot. At the base of the speedometer pointer pivot is a magnet that is acted upon by the magnetic fields of the 2 coils. The relative strength of the 2 magnetic fields determines the position of the magnet and accordingly, the position of the speedometer pointer.

Pulses from the solid state circuit also are used in order to drive a small electric stepper motor. The stepper motor turns the numbered wheels of the odometer and the trip odometer. The numbered wheels are geared so that when any one wheel completes a revolution, the next wheel to the left is turned one-tenth of a revolution. Every tenth of a revolution advances the displayed number by one unit. The trip odometer can be reset to zero at any time. This allows the driver to record the distance traveled from any selected starting point.

Tachometer

The tachometer signal comes from the powertrain control module (PCM). The tachometer displays the engine speed in thousands of revolutions per minute (RPM).

Voltmeter

The voltmeter is an instrument that shows the voltage of the vehicle electrical system. The voltmeter indicates the ability of the charging system to keep the storage battery charged. The voltmeter is wired in parallel with other circuits in the vehicle.

When the engine is running the voltmeter indicates charging system voltage. If the engine is not running and the ignition switch is in the RUN or START position the voltmeter will show battery voltage. The voltmeter can be used as a first step in diagnosing many electrical problems. Battery voltage drop can be seen while the engine is cranking. After the engine is running, generator output voltage is indicated.

The voltmeter should read between 11-13 volts during extended idle or just after starting. As the electrical load is increased, or in stop-and-go driving, the pointer may rotate temporarily to the bottom of the scale. A voltmeter reading continuously below 11 volts or above 16 volts indicates an electrical system problem.

Instrument Cluster Indicator Operation

Fasten Seat Belts Indicator Lamp

The FASTEN SEATBELTS indicator lamp will go on when one of the following conditions exist:

- The ignition switch is in the RUN position.
- The ignition switch is in the BULB TEST position.
- The ignition switch is in the START position.
- The driver's seatbelt is unbuckled.

The FASTEN SEATBELTS indicator lamp will remain on until the driver's seatbelt is buckled.

For more information, refer to *Audible Warnings Description*.

Turn Signal Indicator Lamps

The left or right turn signal indicator lamp will illuminate when the multi-function lever on the left side of the steering column is moved to signal a turn. The turn/hazard switch in the steering column receives an on-and-off flashing current from the fuse block and the turn signal flasher unit in the convenience center when the ignition switch is in one of the following positions:

- RUN
- START
- BULB TEST

When the multi-function lever is moved the turn/hazard switch routes the current to circuits that feed the following lamps:

- The left front turn signal lamp
- The right front turn signal lamp
- The left rear tail/stop/turn signal lamps
- The right rear tail/stop/turn signal lamps

The circuit to the left or right front turn signal lamp, and the cornering and sidemarker lamps has a branch that feeds the appropriate turn indicator lamp in the instrument cluster. This causes the lamps to flash when the exterior lamps are indicating a turn.

When the hazard warning button on the right side of the steering column is pressed in the following lamps in the instrument cluster flash:

- The left front turn signal lamps
- The right front turn signal lamps
- The cornering lamps
- The sidemarker lamps
- The rear tail/stop/turn lamps
- Both turn signal indicator lamps

Power for the hazard warning system reaches the turn/hazard switch from the fuse block and the hazard flasher in the convenience center. Power is supplied with the ignition switch in any position. When the hazard warning system is flashing, the turn signal circuits are inoperative.

Air Bag Indicator Lamp

The AIR BAG indicator lamp will light in order to warn the driver of a potential supplemental inflatable restraint (SIR) system problem that could prevent the proper deployment of the air bags in an accident. When the ignition switch is first turned on, the lamp will flash seven times. This flashing verifies the proper operation of the lamp circuit and the sensing and discriminating module (SDM). A scan tool can be used in order to read diagnostic trouble codes (DTCs) in the SDM and to clear all DTCs after repair. For additional information, including service precautions, refer to Supplemental Inflatable Restraints (SIR).

Service Engine Soon Indicator Lamp

The SERVICE ENGINE SOON indicator lamp in the instrument cluster will come on when turning the ignition ON or OFF. This serves as a bulb and system check. The light should go off after the engine starts unless a problem has been detected by the system.

For diagnosis, refer to Engine Controls.

Low Coolant Indicator Lamp (V8 Only)

With a low coolant level, the circuit made by the low coolant probe has very high resistance (over 50,000 Ω). The low engine coolant indicator module senses the voltage change at the low coolant level input. The indicator module provides ground to the LOW COOLANT indicator and the indicator lights up. The LOW COOLANT indicator is grounded for 1.5 seconds when the ignition switch is initially turned the ON position, causing the LOW COOLANT indicator to light.

Low Oil Indicator Lamp

The LOW OIL indicator ground is controlled by the engine oil level indicator control module. In order to check for a low oil condition, the low oil module looks for a ground through the oil level switch. This is done after the ignition switch has been turned to the OFF or LOCK position.

The low oil module tests for a low oil condition as follows:

- 32 minutes after the ignition switch is turned to the OFF or LOCK position, if the previous ignition cycle was less than 12 minutes
- 3 minutes after the ignition switch is turned to the OFF or LOCK position, if the previous ignition cycle was longer than 12 minutes.

When the oil level is low, the low oil module loses the ground through the oil level switch. This means that the oil level switch is open, indicating low oil level. This action causes the low oil module to ground the LOW OIL indicator for the duration of the next ignition cycle.

When the low oil module is grounded through the oil level switch, the low oil module ground the LOW OIL indicator. This allows a bulb test when the ignition switch is turned to the RUN position during the next ignition cycle. The bulb test takes 4–5 seconds.

Oil Change Lamp

The OIL CHANGE light comes on for a 3 second bulb check when the vehicle is first started. The light stays on for 60 seconds after the vehicle is started the oil needs to be changed. The light may indicate to change the oil sooner than suggested in the maintenance schedule. The light comes on when the system predicts that the oil's remaining useful life is almost up. To reset the oil life monitor perform the following:

1. Turn the ignition to the RUN position.
2. Push and hold the TRIP/OIL RESET button for 12 seconds.
3. The OIL CHANGE light will start to flash to confirm the system is reset.
4. The reset is complete when the OIL CHANGE light goes out.

Brake Warning Lamp

When the ignition switch is turned to the RUN position the BRAKE warning lamp will come on for approximately 3 seconds. If the parking brake is set, the lamp will remain on. The lamp may also be illuminated by information from the electronic brake control module (EBCM) to the electronic brake/traction control module (EBTCM).

The BRAKE warning lamp may be activated by the brake combo valve when the ignition switch is turned to one of the following positions:

- RUN
- BULB TEST
- START

For more information, refer to Engine Electrical.

ABS INOP Indicator Lamp

The ABS INOP indicator lamp is part of the antilock brake system. When the ignition switch is turned to the RUN position, the ABS INOP lamp will turn on for approximately 3 seconds. The lamp will turn off if no ABS malfunction is detected. If a malfunction is detected, the lamp will remain on.

If the ABS INOP indicator lamp comes on while driving, there is a malfunction in the antilock brake system.

ASR Indicator Lamp**Chevrolet V8 Only**

The accelerated slip regulation (ASR) system limits wheel spin if the ASR senses that one or both of the rear wheels begin to lose traction. When this happens, the ASR system works the rear brakes and reduces engine power in order to limit wheel spin.

The ASR indicator lamp will come on if one of the following conditions exist:

- There is a system failure.
- The driver turns off the system.
- The engine is starting.

When the ignition switch is turned to the crank position the following lamps will come on:

- ABS INOP
- ASR
- TCS OFF

These lights will remain on if the switch is held in the crank position.

Check Gages Indicator Lamp

The CHECK GAGES indicator lamp alerts the driver to inspect the instrument cluster gauges when any of the following abnormalities are detected:

- The coolant temperature is too high.
- The generator voltage is too high.
- The generator voltage is too low.
- The oil pressure is too low.

The indicator lamp also comes on for about one second after the ignition is placed into the BULB TEST position.

LOW TRAC Indicator Lamp**ASR and TCS Systems**

On vehicles equipped with accelerated slip regulation (ASR) or traction control systems (TCS) the LOW TRAC indicator lamp comes on in order to indicate the following situations:

- The system is active.
- The system is limiting wheel spin.

The LOW TRAC lamp will turn on during the following situations:

- ABS initialization
- An ABS stop
- A TCS event

The LOW TRAC lamp will remain on for approximately 3 seconds and will then turn off.

The LOW TRAC indicator lamp also comes on when the antilock brake system (ABS) is adjusting brake pressure in order to help avoid a skid.

SECURITY Indicator Lamp

The SECURITY indicator lamp is part of the theft deterrent system. This lamp will come on if one of the following conditions exists:

- The body control module (BCM) is preventing the engine from starting.
- The BCM is not properly programmed.
- The ignition has been turned to the BULB TEST position. The lamp will light for approximately 5 seconds.

Skip Shift Indicator Lamp**V8 Manual Only**

When the SKIP SHIFT indicator lamp is on the manual transmission can only be shifted from first gear to fourth gear.

TCS OFF Indicator Lamp**Pontiac V8 Only**

The traction control system (TCS), if equipped, limits wheel spin if the TCS senses that one or both of the rear wheels are beginning to lose traction. When this happens, the TCS works the rear brakes and reduces engine power in order to limit wheel spin.

The TCS OFF indicator lamp will come on when one of the following conditions exists:

- There is a system failure.
- The driver turns off the TCS.
- The engine is starting.

When the ignition switch is turned to the crank position the following lamps will come on:

- ABS INOP
- ASR
- TCS OFF

These lamps will remain on if the switch is held in the crank position.

Service Vehicle Lamp

The SERVICE VEHICLE warning light comes on for a 3 second bulb check when the vehicle is first started. This light will stay on steady if there are certain non-emission related vehicle problems. These problems may not be obvious and may affect vehicle performance or durability.

Reduced Engine Power Lamp

The REDUCED ENG PWR warning light comes on for a 3 second bulb check when the vehicle is first started. When this light comes on a noticeable reduction in the vehicle's performance may occur. The vehicle may be driven at a reduced speed while the light is on. Acceleration and speed may be reduced.

Instrument Cluster Circuit Description

ABS Inop Indicator

The ABS Inop indicator is controlled by either of the following components:

- The electronic brake control module (EBCM)
- The instrument cluster

The EBCM sends a Class 2 message through circuit 1036 to the instrument cluster to turn on the ABS inop indicator when a problem with the ABS system has been detected. The ABS system may be disabled, but base brake performance will remain.

The instrument cluster turns on the ABS Inop indicator under the following conditions:

- Class 2 communication has been lost between the instrument cluster and the EBCM.
- The 3 second bulb test is occurring.

Air Bag Indicator

The air bag indicator is controlled by either of the following components:

- The inflatable restraint sensing and diagnostic module (SDM)
- The instrument cluster

The SDM sends a Class 2 message through circuit 1036 to the instrument cluster to turn on the indicator when a problem with the SIR system has been detected.

The instrument cluster turns on the air bag indicator under the following conditions:

- Class 2 communication has been lost between the instrument cluster and the SDM.
- The 3 second bulb test is occurring.

If the instrument cluster detects a fault in the air bag indicator, the cluster sets DTC B0670 and illuminates the Service Vehicle Soon indicator.

ASR Off Indicator (Chevrolet with Traction Control Only)

The ASR off indicator is controlled by either of the following components:

- The electronic brake control module (EBCM)
- The instrument cluster

The EBCM sends a Class 2 message through circuit 1036 to the instrument cluster to turn on the ASR off indicator. The EBCM turns on the indicator under any of the following conditions:

- The traction control system is off.
- The traction control system has failed.
- Class 2 communication has been lost between the instrument cluster and the EBCM.
- The 3 second bulb test is occurring.

Brake Warning Indicator

The brake warning indicator lights under any of the following conditions:

- The master cylinder senses a low brake fluid level.
- The park brake switch is closed (park brake is set).
- The EBCM senses a base brake failure.
- Class 2 communication has been lost between the instrument cluster and the EBCM.
- The 3 second bulb test is occurring.

Change Oil Indicator

The change oil indicator is controlled by either of the following components:

- The powertrain control module (PCM)
- The instrument cluster

The PCM sends a Class 2 message through circuit 1036 to the instrument cluster to turn on the change oil indicator when the engine oil is due to be changed. After the Class 2 message is sent from the PCM, the instrument cluster turns on the change oil indicator for approximately 60 seconds when the ignition switch is turned to the RUN position. The indicator is turned on every following ignition cycle until it is reset.

Perform the following steps in order to reset the change oil indicator:

1. Turn the ignition switch to the RUN position with the engine off.
2. Press and hold the trip odometer reset button for approximately 12 seconds.

When the change oil reset is completed, the PCM will flash the indicator twice through the Class 2 data line (circuit 1036).

Under normal conditions, the instrument cluster turns on the change oil indicator for approximately 3 seconds at bulb test.

Check Gauges Indicator

The check gauges indicator turns on in order to draw the driver's attention to the instrument cluster gauges. The check gauges indicator turns on under any of the following conditions:

- The engine coolant temperature exceeds 107.2°C (225°F).
- The engine oil pressure is low.
- The generator malfunctions.
- The vehicle fuel level falls below approximately 1/16 tank.

The powertrain control module (PCM) sends a Class 2 message to turn on the check gauges indicator depending on the signals it receives from the following components:

- The engine coolant temperature sensor
- The generator
- The fuel level sender

The instrument cluster turns on the check gauges indicator for approximately 3 seconds at bulb test.

Engine Coolant Temperature Gauge

The engine coolant temperature gauge is controlled by the powertrain control module (PCM). The PCM monitors the engine coolant temperature sensor and sends the Class 2 information to the instrument cluster through circuit 1036. The temperature gauge displays the coolant temperature based on the Class 2 information it receives from the PCM.

Fasten Belts Indicator

The fasten seat belt indicator is controlled by the body control module (BCM). The BCM monitors the driver seat belt switch. If the driver seat belt is not buckled, the BCM applies voltage to the instrument cluster through circuit 237 at terminal A13 in order to illuminate the indicator. The indicator remains illuminated for approximately 70 seconds. The indicator turns off immediately if the seatbelt is buckled.

If the driver seat belt is buckled when the ignition switch is turned to the RUN or START position, the fasten seat belt indicator does not illuminate.

Fuel Gauge

The fuel gauge is controlled by the powertrain control module (PCM). The PCM monitors the fuel level sensor and sends the Class 2 information to the instrument cluster through circuit 1036. The fuel gauge displays the fuel level based on the Class 2 information sent from the PCM.

When the fuel level sensor reads the fuel level at less than 1/16 full, the PCM sends a Class 2 message to the instrument cluster through circuit 1036 in order to turn on the check gauges indicator.

Hatch Ajar Indicator

The hatch ajar indicator receives battery voltage when the ignition switch is in the following positions:

- RUN
- BULB TEST
- START

The hatch ajar indicator is controlled by the rear compartment lid ajar indicator switch. The rear compartment lid ajar indicator switch closes when the rear compartment lid is open or ajar. The indicator turns on when the switch closes and ground is applied to the hatch ajar indicator through circuit 737.

High Beam Indicator

The high beam indicator is controlled by the headlamp dimmer switch. The high beam indicator turns on under the following conditions:

- The headlamps are on.
- The headlamp dimmer switch is in the high beam position.

Voltage is applied to the instrument cluster at terminal A17 through circuit 11 to turn on the indicator.

Low Oil Indicator

The low oil indicator is controlled by either of the following components:

- The powertrain control module (PCM)
- The instrument cluster

The PCM receives oil level information from the engine oil level switch. When a low engine oil condition exists, the PCM sends a Class 2 message through circuit 1036 to the instrument cluster in order to turn on the low oil indicator.

The instrument cluster turns the low oil indicator on for approximately 3 seconds at bulb test.

Trac Indicator

The trac indicator is controlled by either of the following components:

- The electronic brake control module (EBCM)
- The instrument cluster

The EBCM sends a Class 2 message through circuit 1036 to the instrument cluster in order to turn on the trac indicator. The EBCM turns on the indicator under one of the following conditions:

- The anti-lock brake system is active.
- The traction control system is active.
- The 3 second bulb test is occurring.

Oil Pressure Gauge

The oil pressure gauge receives battery voltage through circuit 1035 when the ignition switch is in the following positions:

- RUN
- BULB TEST
- START

The oil pressure gauge is controlled by the engine oil pressure sensor. The resistance of the engine oil pressure sensor varies with the engine oil pressure. The voltage drop across the oil pressure gauge varies due to the changing resistance in the gauge ground circuit. The oil pressure gauge reading changes with the voltage drop.

Reduced Engine Power Indicator (V6 VIN K Only)

The reduced engine power indicator is controlled by the following components:

- The powertrain control module (PCM)
- The instrument cluster

The PCM sends a Class 2 message through circuit 1036 to the instrument cluster in order to turn on the indicator when problems with the engine have been detected.

The instrument cluster turns on the reduced engine power indicator under the following conditions:

- Class 2 communication has been lost between the instrument cluster and the PCM.
- The 3 second bulb test is occurring.

Security Indicator

The security indicator is controlled by the body control module (BCM). The BCM monitors the ignition key resistor pellet. If the resistor pellet is incorrect, the BCM applies ground to the instrument cluster through circuit 728 at terminal B3 in order to illuminate the indicator. For a complete understanding of the security indicator operation, refer to the *Vehicle Theft Deterrent (VTD) Operation*.

The BCM turns on the security indicator for approximately 5 seconds at bulb test.

Skip Shift Indicator (V8 VIN G Manual Transmission Only)

The skip shift indicator is controlled by the following components:

- The powertrain control module (PCM)
- The instrument cluster

The PCM sends a Class 2 message through circuit 1036 to the instrument cluster in order to turn on the indicator when the transmission skip shift function is enabled.

The instrument cluster turns on the skip shift indicator for approximately 3 seconds at bulb test.

Service Engine Soon Indicator

The powertrain control module (PCM) controls the service engine soon indicator.

Service Vehicle Indicator

The service vehicle indicator is controlled by the following components:

- The powertrain control module (PCM)
- The instrument cluster

The PCM sends a Class 2 message through circuit 1036 to the instrument cluster in order to turn on the indicator when problems with the engine have been detected.

The instrument cluster turns on the service soon indicator under the following conditions:

- Class 2 communication has been lost between the instrument cluster and any other module (PCM, SDM, EBCM).
- The air bag indicator is defective. DTC B0670 is set.
- The 3 second bulb test is occurring.

Speedometer and Odometer

The vehicle speed sensor (VSS) is a gear driven permanent magnet generator housed in the transaxle. The sensor generates a sine wave output with a frequency proportional to the vehicle speed. The powertrain control module (PCM) converts the signal to an output that switches to ground at a frequency of 4000 pulses per mile. The signal (circuit 389) drives the speedometer and the odometer.

Tachometer

The tachometer is controlled by the powertrain control module (PCM). The PCM monitors the engine RPMs and sends the Class 2 information to the instrument cluster through circuit 1036. The tachometer displays the engine RPMs based on the Class 2 information sent from the PCM.

TCS Off Indicator (Pontiac with traction control only)

The TCS off indicator is controlled by either of the following components:

- The electronic brake control module (EBCM)
- The instrument cluster

The EBCM sends a Class 2 message through circuit 1036 to the instrument cluster to turn on the TCS off indicator. The EBCM turns on the indicator under any of the following conditions:

- The traction control system is off.
- The traction control system has failed.
- Class 2 communication has been lost between the instrument cluster and the EBCM.
- The 3 second bulb test is occurring.

The instrument cluster turns the TCS indicator on for approximately 3 seconds at bulb test.

Turn Signal Indicators

The turn signal switch is used to control the turn signal lamps. Voltage is sent to the instrument cluster in order to turn on the turn signal indicators. If the emergency flashers are turned on, both of the turn signal indicators will flash.

Audible Warnings Description

Warning/Reminder Chimes

The body control module (BCM) sounds a chime in order to bring attention to one or more of the following conditions:

- The lights are on and the ignition switch is not in the RUN, BULB TEST, or START positions.
- The ignition key is in the ignition switch when the driver's door is open.
- The seatbelt is unbuckled when the ignition switch is placed into the RUN, BULB TEST or START position.
- The turn signal has been on for more than a half mile. Voltage is applied at all times through the fuse block in order to power the solid state BCM.

Ignition Key Warning:

A ground is provided to the BCM, which sounds the chime, when both of the following conditions exist:

- The key is in the ignition switch.
- The driver's door is open.

Fasten Seatbelt Warning:

Voltage is applied through the fuse block to the BCM when the ignition switch is in one of the following positions:

- RUN
- BULB TEST
- START

With the driver's seat belt unbuckled, the module is grounded through the seatbelt switch. This causes the chime to sound. When the driver's seatbelt is buckled, the alarm shuts off. If the driver's seatbelt remains unbuckled, the alarm times out after 4 to 8 seconds.

Lights-On Warning:

Voltage is applied to the audio alarm module when the headlamp switch is in the HEAD or PARK position. Voltage is applied through the fuse block to the alarm module when the ignition switch is in one of the following position:

- RUN
- BULB TEST
- START

These 2 voltages are sensed and the alarm is not sounded.

The module loses voltage when the ignition switch is not in one of the following positions:

- RUN
- BULB TEST
- START

The audio alarm module senses change. If voltage is still available, the voltage is applied in order to sound the alarm. The alarm can be turned off by turning the headlamp switch to the OFF position. The alarm module will no longer sense voltage from the headlamp switch, so the alarm will not sound.

Audible Warnings Circuit Description**Circuit Operation**

The body control module generates a chime in order to provide the following warnings:

- Lights on
- Ignition key in
- Seat belt unfastened

Lights On Warning

The body control module (BCM) will sound the lights on warning when the BCM senses all of the following conditions:

- The ignition switch is in the OFF, LOCK or ACCY position. Voltage is not present at the BCM ignition positive voltage input.
- The park lamps or the headlamps are on. Voltage is applied to the BCM park lamps input.
- The driver door is open. Ground is applied to the BCM driver door open input.

Ignition Key Warning

The Body Control Module (BCM) will sound the ignition key warning when the BCM senses all of the following conditions:

- The ignition switch is in the OFF, LOCK or ACCY position. Voltage is not present at the BCM ignition positive voltage input.
- The ignition key is in the ignition switch. Ground is applied to the BCM key ignition signal input.
- The driver door is open. Ground is applied to the BCM driver door open input.

Fasten Belts Warning

The body control module (BCM) will sound the fasten belts warning for 5–8 seconds and illuminate the fasten seat belt indicator under the following conditions:

- The ignition switch is in the RUN, BULB TEST or START position. Voltage is applied to the BCM ignition positive voltage input.
- The driver's seat belt is unbuckled. Ground is applied to the BCM seat belt switch signal input.

If the driver seat belt is buckled before the ignition switch is turned to the RUN position, the BULB TEST position, or the START position, the following will occur:

- The fasten seat belt warning will be disabled.
- The fasten seat belt indicator will not illuminate.

If the driver seat belt is unbuckled, the fasten seat belt indicator will remain ON for approximately 70 seconds. The indicator turns off immediately if the seat belt is buckled.

Console

The front floor console is located between the driver and passenger seats, covering the transmission shift lever and the park brake lever. The console fits over the tunnel in the floor of the vehicle. The console extends from under the center of the instrument panel (IP) to just before the rear seat. The front floor console is a one piece design.

The console is equipped with the following items:

- A 12v power outlet
- A passenger side cup holder
- 2 rear passenger cup holders

The console storage compartment is located at the rear of the console. The storage compartment also contains a cassette tape/compact disc storage area and a removable coin holder. The padded door of the storage compartment serves as a front seat center armrest. Attached to the center console is the transmission shift opening trim plate. The console trim plate contains the following items:

- A driver's cupholder
- A cigarette lighter
- The PRNDL for the automatic transmission

Attached to the console is the console accessory trim plate. On Pontiac vehicles, this trim plate may contain any of the following switches:

- The convertible top switch
- The traction control switch

On Chevrolet vehicles, this trim plate will contain only the convertible top switch.

On certain Chevrolet export vehicles there may also be a headlamp leveling switch.

Special Tools and Equipment

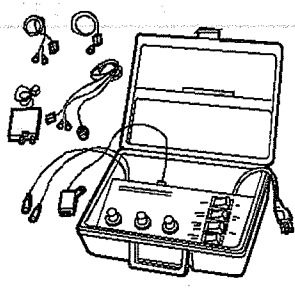
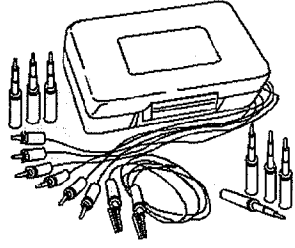
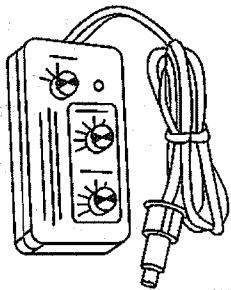
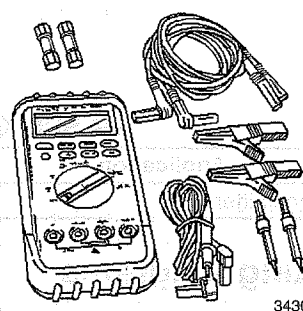
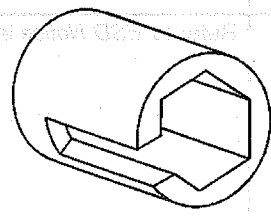
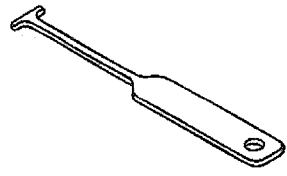
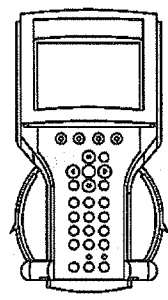
Illustration	Tool Number/ Description
 14424	J 33431-C Signal Generator and Instrument Panel Tester
 8917	J 35616-A Connector Test Adapter Kit
 41666	J 38522 Variable Signal Generator

Illustration	Tool Number/ Description
 3430	J 39200 Digital Multimeter
 9192	J 41712 Oil Pressure Sensor Socket
 345719	J 42059 Cigarette Lighter Socket Remover
 59260	Scan Tool