

Body Control System

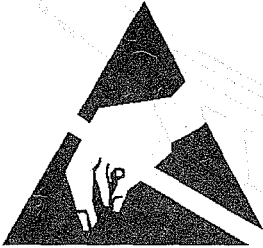
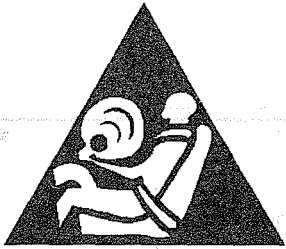
Specifications

GM SPO Group Numbers

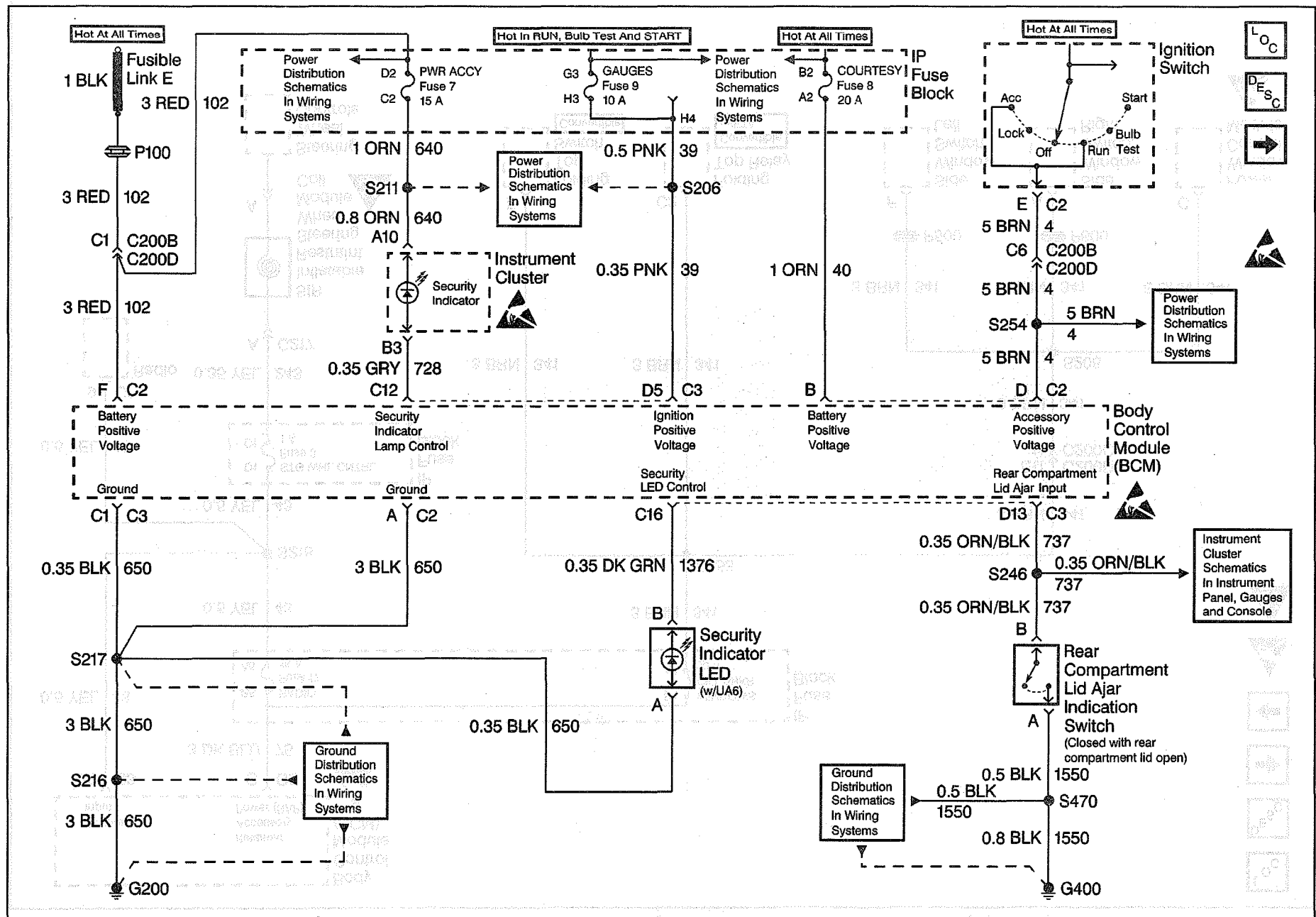
Application	GM SPO Group Number
Body Control Module	2.000

Schematic and Routing Diagrams

Body Control Module Schematic Icons

Icon	Icon Definition
 19384	Refer to <i>ESD Notice</i> in Caution and Notices.
 19386	Refer to <i>SIR Service Precautions Caution</i> in Caution and Notices.

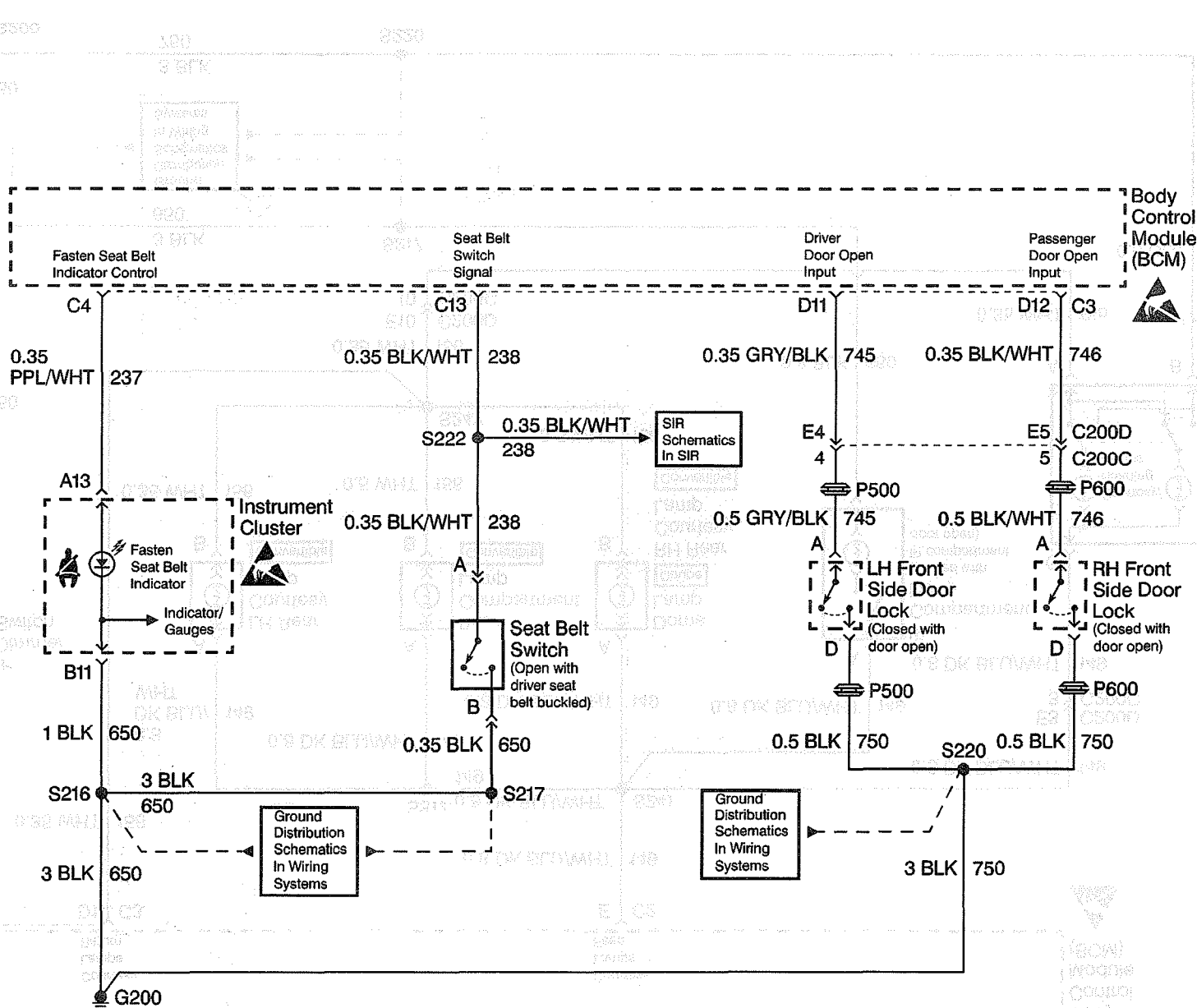
Body Control Module Schematics (Body Control Module, Ignition Switch and Instrument Cluster)



8-522 Body Control System



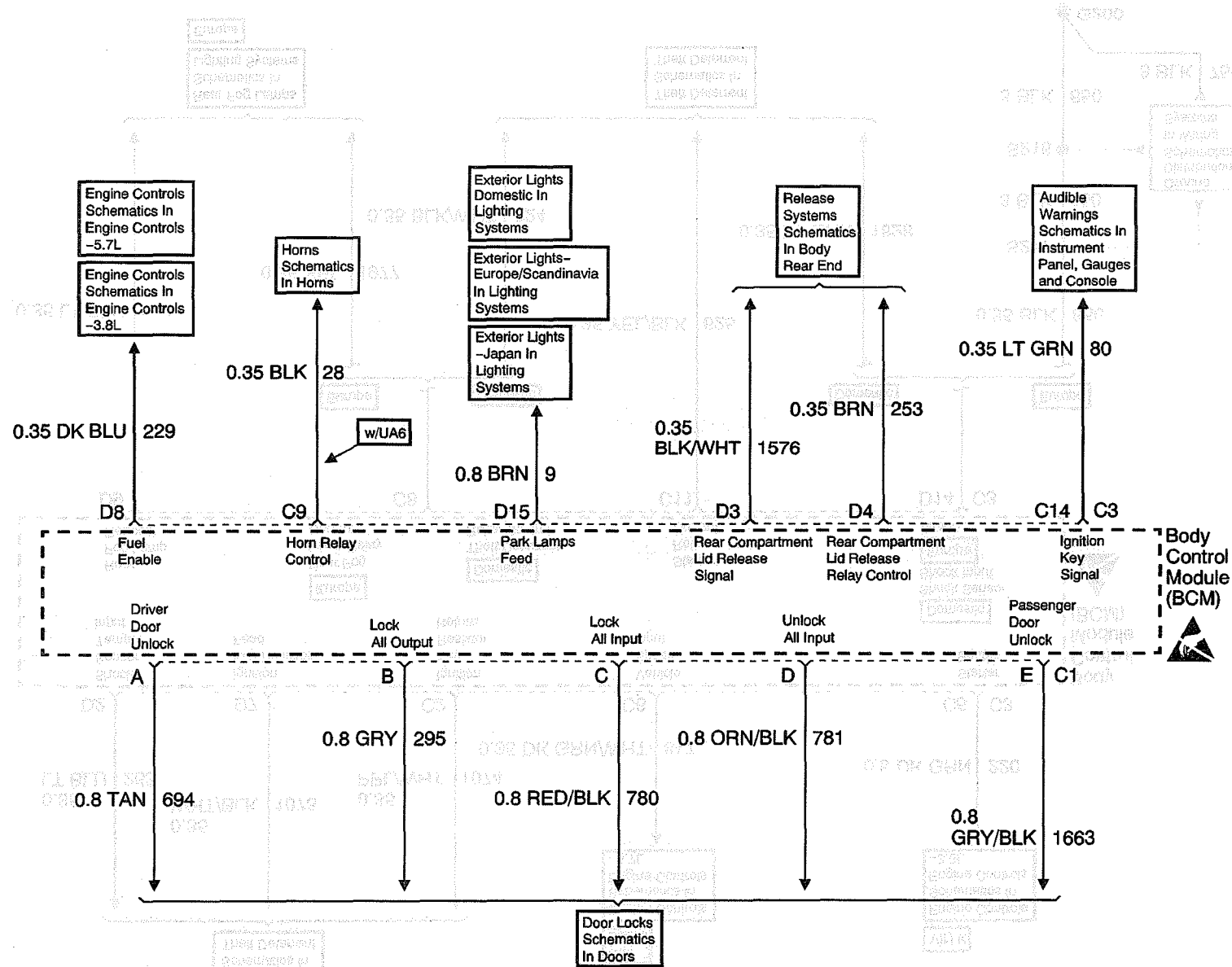
Body Control Module Schematics (Body Control Module and Switch Inputs)



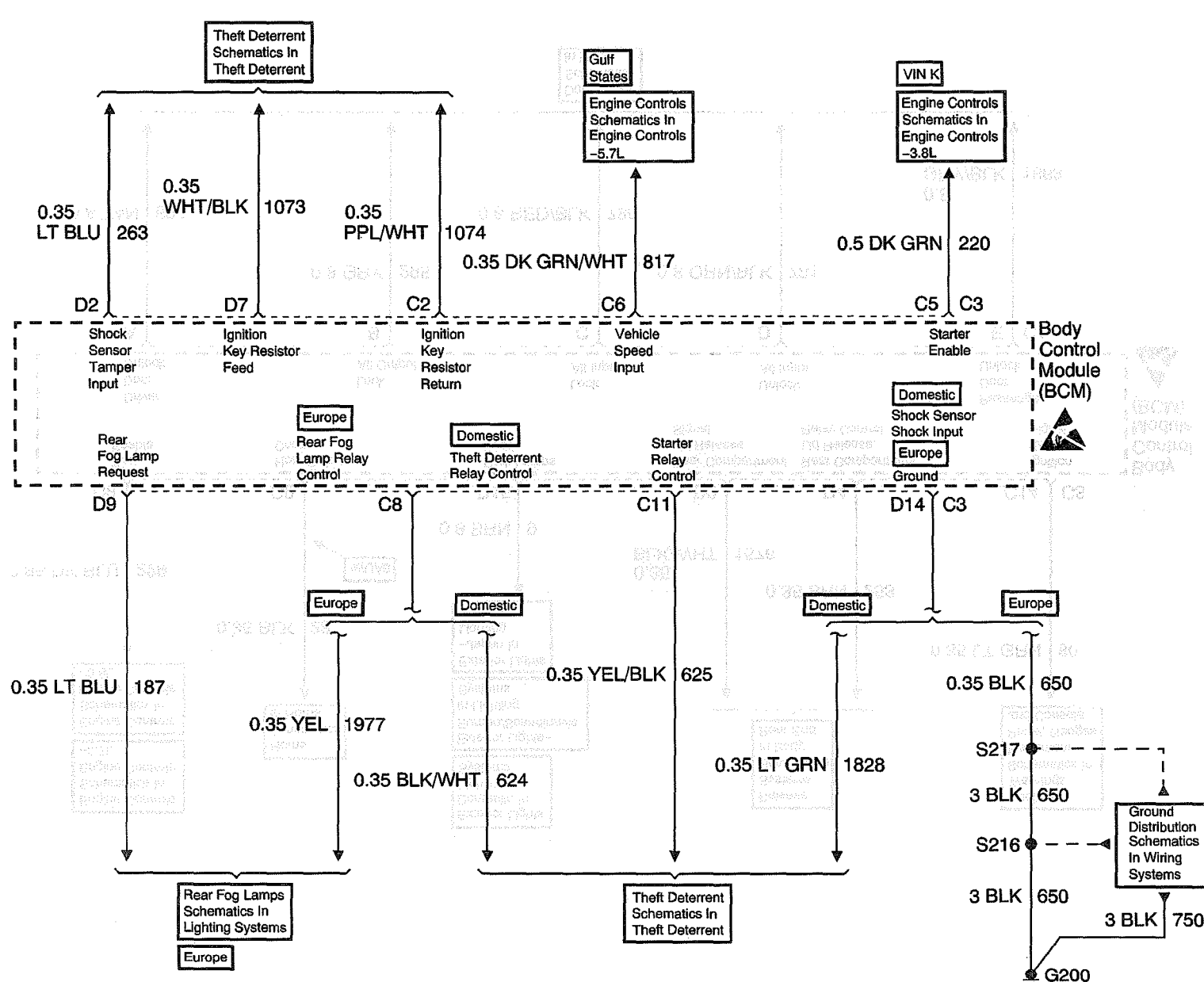
8-524 Body Control System



Body Control Module Schematics (Body Control Module System Outputs)



Body Control Module Schematics (Body Control Module System Inputs and Outputs)



Component Locator

Body Control Module 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	Body Control Module Connector End Views
Courtesy Lamp, Left Rear (Convertible)	Mounted in the left sail panel	—	—
Courtesy Lamp, Right Rear (Convertible)	Mounted in the right sail panel	—	—
Dome Lamp (Coupe)	On the inside of the roof, near the hatch	—	—
Folding Top Relay	Behind the IP, mounted to the right side of the inflatable restraint instrument panel module bracket	Theft Deterrent System Component Views in Theft Deterrent	—
Folding Top Switch	On the left side of the upper console	Power Roof Systems Component Views in Roof	Power Roof Systems Connector End Views in Roof
Front Side Door Lock	Inside the rear of the door	Power Door Systems Component Views in Doors	Body Control Module Connector End Views
Fusible Links	Forward of the left front wheelhouse, behind the underhood electrical center 2	—	—
Ignition Switch	Mounted near the base of the steering column	Engine Electrical Component Views in Engine Electrical	Engine Electrical Connector End Views in Engine Electrical
Inflatable Restraint Steering Wheel Module Coil	On the top of the steering column	SIR Component Views in SIR	—
Inside Rearview Mirror	Mounted to the inside center of the windshield	Lighting Systems Component Views in Lighting Systems	Lighting Systems Connector End Views in Lighting Systems
Instrument Cluster	On the left side of the IP	Instrument Panel, Gauges, and Console Component Views in Instrument Panel, Gauges and Console	Instrument Panel, Gauges, and Console Connector End Views in Instrument Panel, Gauges and Console
IP Compartment Lamp	Inside the top center of the IP compartment	Instrument Panel, Gauges, and Console Component Views in Instrument Panel, Gauges and Console	—
IP Dimmer Switch	Left of the steering wheel, part of the headlamp switch	Instrument Panel, Gauges, and Console Component Views in Instrument Panel, Gauges and Console	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 in Instrument Panel, Gauges and Console	—
Power Window Control Module	Mounted to the center of the dash mat, above the floor tunnel	Power Door Systems Component Views in Doors	Power Door Systems Connector End Views in Doors

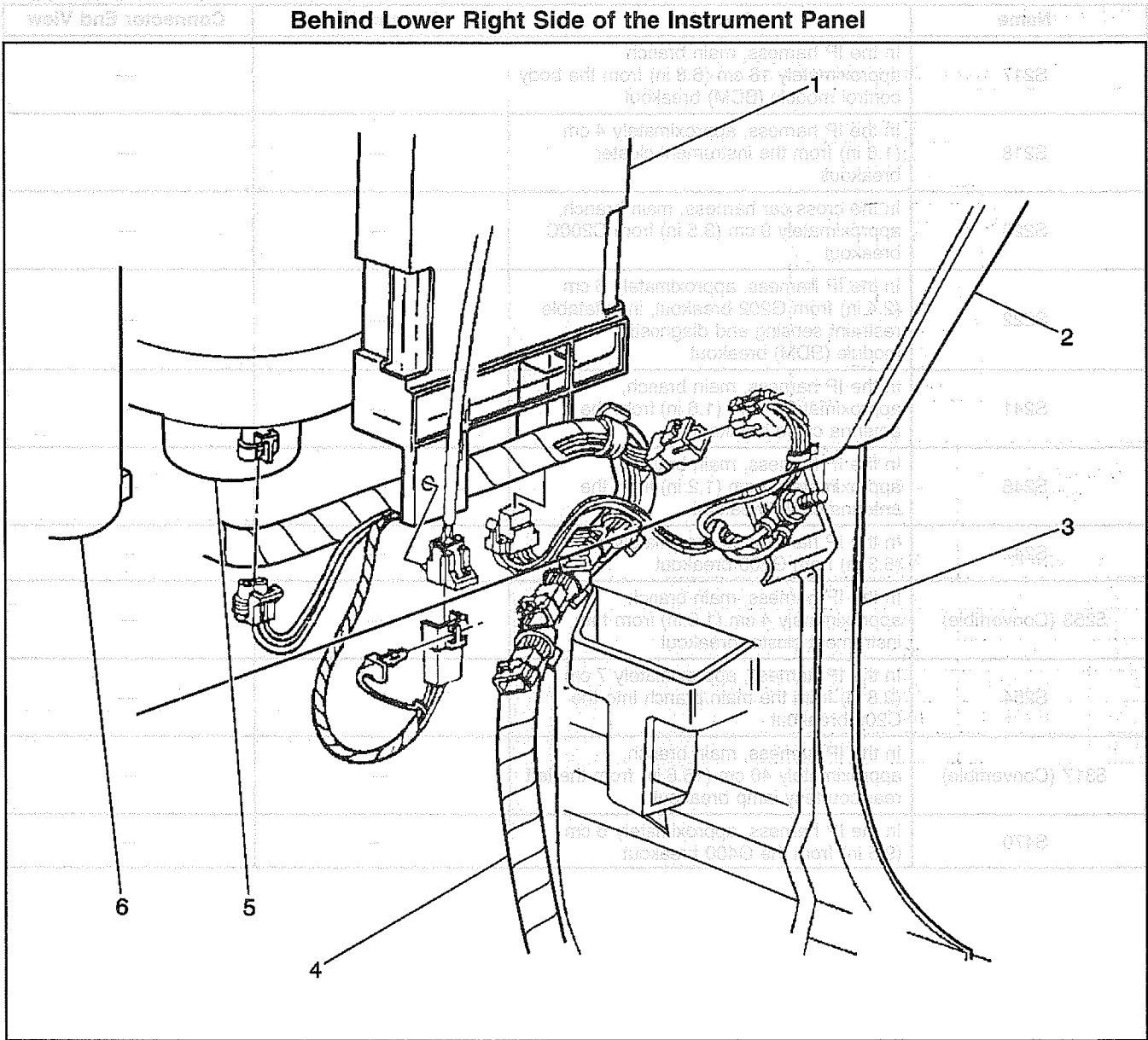
Body Control Module Components (cont'd)

Name	Location	Locator View	Connector End View
Radio	In the center of the IP, below the HVAC control	Entertainment Component Views in Entertainment	Entertainment Connector End Views in Entertainment
Rear Compartment Lid Ajar Indicator Switch	Part of the rear compartment lid latch	Body Rear End Component Views in Body Rear End	Instrument Panel, Gauges, and Console Connector End Views in Instrument Panel, Gauges and Console
Seat Belt Switch	Part of the driver seat buckle assembly	—	Seat Belt Connector End Views in Seat Belts
Security Indicator L.E.D.	On the top center of the IP	Theft Deterrent System Component Views in Theft Deterrent	Theft Deterrent System Connector End Views in Theft Deterrent
Side Window Switch	Mounted in the door arm rest	Power Door Systems Component Views in Doors	Power Door Systems Connector End Views in Doors
Steering Wheel Controls	On the steering wheel	Entertainment Component Views in Entertainment	SIR Connector End Views in Supplemental Inflatable Restraint
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
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
C217 (4 cavities)	IP to inflatable restraint steering wheel module coil harness, near the base of the steering column	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	—
G400	Bolted to the rear compartment lid release actuator bracket in the rear compartment	Harness Routing Views in Wiring Systems	—
P100	Left side in the dash panel, engine to the passenger compartment	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	—	—
S208	In the cross car harness, main branch, approximately 26 cm (10.2 in) from the power window control module breakout	—	—
S211	In the IP harness, main branch, approximately 7 cm (2.8 in) from the rear compartment lid release relay breakout	—	Power Window Control Module
S216	In the IP harness, main branch, approximately 10 cm (4 in) from the instrument cluster breakout	—	—

Body Control Module Components (cont'd)

Name	Location	Locator View	Connector End View
S217	In the IP harness, main branch, approximately 18 cm (6.8 in) from the body control module (BCM) breakout	—	—
S218	In the IP harness, approximately 4 cm (1.6 in) from the instrument cluster breakout	—	—
S220	In the cross car harness, main branch, approximately 9 cm (3.5 in) from C200C breakout	—	—
S222	In the IP harness, approximately 6 cm (2.4 in) from G202 breakout, in inflatable restraint sensing and diagnostic module (SDM) breakout	—	—
S241	In the IP harness, main branch, approximately 4 cm (1.6 in) from the antenna cable breakout	—	—
S246	In the IP harness, main branch, approximately 3 cm (1.2 in) from the antenna cable breakout	—	—
S247	In the IP harness, approximately 16 cm (6.3 in) from G200 breakout	—	—
S253 (Convertible)	In the IP harness, main branch, approximately 4 cm (1.6 in) from the instrument cluster breakout	—	—
S254	In the IP harness, approximately 7 cm (2.8 in) from the main branch into the C200 breakout	—	—
S317 (Convertible)	In the IP harness, main branch, approximately 40 cm (15.8 in) from the left rear courtesy lamp breakout	—	—
S470	In the IP harness, approximately 6 cm (9.5 in) from the G400 breakout	—	—

Body Control Module Component Views

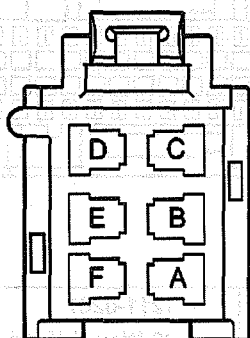


Legend

- | | |
|-------------------------------|-------------------------------------|
| (1) Body Control Module (BCM) | (4) Instrument Panel Wiring Harness |
| (2) Instrument Panel | (5) Blower Motor |
| (3) Right A Pillar | (6) HVAC Module |

Body Control Module Connector End Views

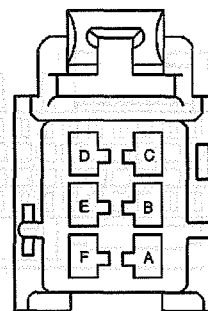
Body Control Module (BCM) C1



62480

Connector Part Information		• 1208-9527 • 6 Way F Metri-Pack 280 Series (GRN)	
Pin	Wire Color	Circuit No.	Function
A	TAN	694	Driver Door Unlock
B	GRY	295	Lock All Output
C	RED/BLK	780	Lock All Input
D	ORN/BLK	781	Unlock All Input
E	GRY/BLK	1663	Passenger Door Unlock
F	—	—	Not Used

Body Control Module (BCM) C2

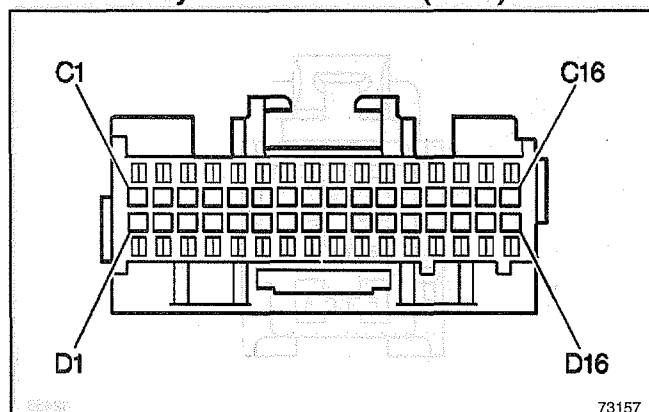


62456

Connector Part Information		• 1206-4752 • 6 Way F Metri-Pack 280 Series (BLK)	
Pin	Wire Color	Circuit No.	Function
A	BLK	650	Ground
B	ORN	40	Battery Positive Voltage
C	DK BLU	75	Retained Accessory Power (RAP)
D	BRN	4	Accessory Positive Voltage
E	DK BLU/WHT	149	Courtesy Lamps Feed
F	RED	102	Battery Positive Voltage

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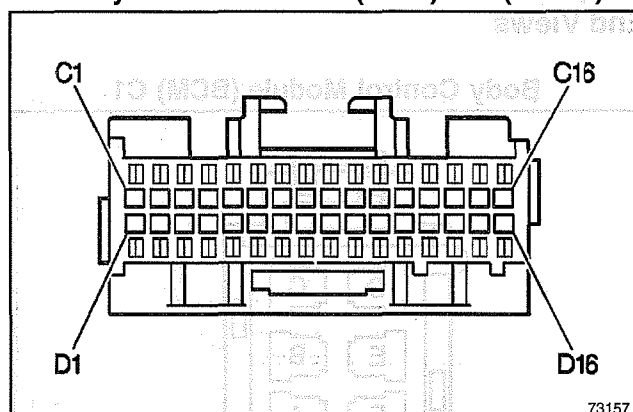
Body Control Module (BCM) C3



73157

Connector Part Information		• 1211-0207 • 32 Way F Metri-Pack 100 Series (BLU)	
Pin	Wire Color	Circuit No.	Function
C1	BLK	650	Ground
C2	PPL/WHT	1074	Ignition Key Resistor Return
C3	—	—	Not Used
C4	PPL/WHT	237	Fasten Seat Belt Indicator Control
C5	DK GRN	220	Starter Enable (V6 VIN K)
C6	DK GRN/WHT	817	Vehicle Speed Input (Gulf States)
C7	GRY	157	Interior Lamps Command Input
C8	BLK/WHT	624	Park Lamps Relay Control (Domestic)
C8	YEL	1977	Rear Fog Lamp Relay Control (Europe)
C9	BLK	28	Horn Relay Control
C10	—	—	Not Used
C11	YEL/BLK	625	Starter Relay Control (Domestic)
C12	GRY	728	Security Indicator Lamp Control
C13	BLK/WHT	238	Seat Belt Switch Signal
C14	LT GRN	80	Ignition Key Signal
C15	—	—	Not Used
C16	DK GRN	1376	Security LED Control

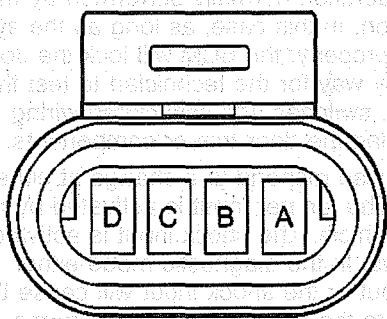
Body Control Module (BCM) C3 (cont'd)



73157

Connector Part Information		• 1211-0207 • 32 Way F Metri-Pack 100 Series (BLU)	
Pin	Wire Color	Circuit No.	Function
D1	WHT	156	Courtesy Lamps Return
D2	LT BLU	263	Shock Sensor Tamper Input
D3	BLK/WHT	1576	Rear Compartment Lid Release Signal
D4	BRN	253	Rear Compartment Lid Release Relay Control
D5	PNK	39	Ignition Positive Voltage
D6	YEL	43	Program Input
D7	WHT/BLK	1037	Ignition Key Resistor Feed
D8	DK BLU	229	Fuel Enable
D9	LT BLU	187	Rear Fog Lamp Request (Europe)
D10	—	—	Not Used
D11	GRY/BLK	745	Driver Door Open Input
D12	BLK/WHT	746	Passenger Door Input
D13	ORN/BLK	737	Rear Compartment Lid Ajar Input
D14	LT GRN	1828	Shock Sensor Shock Input (Domestic)
D14	BLK	650	Ground (Europe)
D15	BRN	9	Park Lamps Feed
D16	—	—	Not Used

Front Side Door Lock, Left



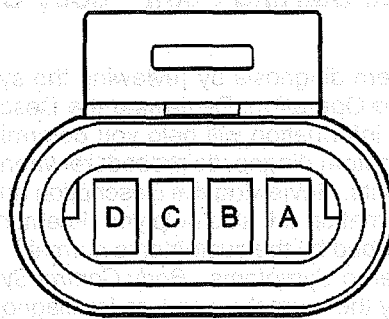
Pin	Wire Color	Circuit No.	Function
A	GRY/BLK	745	Driver Door Open Signal
B-C	—	—	Not Used
D	BLK	750	Ground

Connector Part Information

- 1216-2189
- 4 Way F Metri-Pack 150.2 Series (BLK)

38608

Front Side Door Lock, Right



Pin	Wire Color	Circuit No.	Function
A	BLK/WHT	746	Passenger Door Open Signal
B-C	—	—	Not Used
D	BLK	750	Ground

Connector Part Information

- 1216-2189
- 4 Way F Metri-Pack 150.2 Series (BLK)

38608

will cause the BCM to proceed to the next action in the following list:

1. The courtesy lamps flash.
2. The horn sounds.
3. The exterior lights flash.

DTC Diagnostic Order

In the diagnostic mode, diagnostic trouble codes (DTCs) are displayed in the following order:

1. DTC 12
2. Any current DTCs (DTC 12, DTC 35, or any history DTCs (DTC 31-DTC 36).
3. The remote control door lock transmitter diagnostic DTCs (DTC 41-DTC 45).
4. The body configuration display (DTC 52).
5. DTC 55 and 2 configuration numbers are always displayed. The first number following DTC 55 is the hardware configuration. The second number is the software configuration.
6. After the configuration numbers are displayed, the entire list is repeated beginning with DTC 12.

DTC 12 and DTC 55 are always set and displayed when the body control module (BCM) is in the diagnostic mode. DTC 12 indicates that the diagnostic function is in progress.

If only DTC 12 and DTC 55 are displayed when the BCM is in the diagnostic mode, the BCM is operating properly.

If DTC 12 and DTC 35 are not displayed when the BCM is in the diagnostic mode, refer to Cannot Enter BCM Diagnostic.

If any other DTCs are displayed, refer to Diagnostic Trouble Code (DTC) List/Type.

The BCM memory displays codes as displayed even though the fault is not currently present. If a current DTC is stored, the corresponding history code will always be stored in the BCM. The DTCs are displayed only if the stored code is not the security indicator displayed as a flash code through the security indicator lamp on the instrument cluster. When working on any system controlled by the BCM, the technician should always refer to this section and check for DTCs.

Perform the following steps in order to enter the BCM diagnostic mode:

1. Turn the ignition switch to the RUN position.
2. Turn the ignition switch to the OFF position.
3. Flash the hazard flasher 12 times from the VR (use block).
4. Turn the ignition switch to the ACCY position.
5. The BCM sounds 1 or 2 audible warning tones.
6. Within five seconds, turn the ignition switch to the OFF position and immediately (within 1 second) back to the ACCY position.
7. The BCM sounds 3 audible warning tones.

The BCM will begin flashing trouble codes. Each four seconds after emitting the diagnostic flash, each flash of the security indicator lamp on the instrument cluster represents a number. For example, one flash followed by two quick flashes represents code 15. Each code is displayed three times before the next code is displayed. Stored DTCs are displayed in numerical order. Once the last code is displayed, the list begins again with the first code. The display continues until the diagnostic mode is exited.

When in the diagnostic mode, a change in certain BCM inputs will cause the BCM to respond to the change. For example, if either door lock switch is pressed, the BCM will flash the hazard flasher and sound an audible warning tone. The BCM will also attempt to

Diagnostic Information and Procedures

A Diagnostic Starting Point - Body Control System

Begin the system diagnosis by reviewing the system Description and Operation. Reviewing the Description and Operation information will help you determine the correct symptom diagnostic procedure when a malfunction exists. Reviewing the Description and Operation information will also help you determine if the condition described by the customer is normal operation. Refer to *Symptoms - Body Control System* in order to identify the correct procedure for diagnosing the system and where the procedure is located.

Diagnostic Trouble Code (DTC) Displaying Entry Into Diagnostics

If a malfunction occurs in a system monitored by the BCM, the BCM stores a diagnostic trouble code (DTC) in memory. DTCs are stored by the BCM as either current or history codes. A current DTC means that the fault was present when the diagnostic mode was entered. A history DTC means that the fault occurred sometime after the DTCs were last cleared from the BCM memory. History codes are displayed even though the fault is not currently present. If a current DTC is stored the corresponding history code will always be stored. In the diagnostic mode the BCM displays any DTCs stored in memory. The DTCs are displayed as flash codes through the security indicator lamp on the instrument cluster. When working on any system controlled by the BCM, the technician should always refer to this section and check for DTCs.

Perform the following steps in order to enter the BCM diagnostic mode:

1. Turn the ignition switch to the RUN position.
2. Turn the ignition switch to the OFF position.
3. Remove the Radio fuse 17 from the I/P fuse block.
4. Turn the ignition switch to the ACCY position.
5. The BCM sounds 1 or 2 audible warning tones.
6. Within five seconds, turn the ignition switch to the OFF position and immediately (within 1 second) back to the ACCY position.
7. The BCM sounds 3 audible warning tones.

The BCM will begin flashing trouble codes four seconds after entering the diagnostic mode. Each flash of the security indicator lamp on the instrument cluster represents a number. For example, one flash followed by two quick flashes represents code 12. Each code is displayed three times before the next code is displayed. Stored DTCs are displayed in numerical order. Once the last code is displayed, the list begins again with the first code. The display continues until the diagnostic mode is exited.

When in the diagnostic mode, a change at certain BCM inputs will cause the BCM to respond to the change. For example, if either door lock switch is pressed, the BCM will flash the fasten seat belt indicator on the instrument cluster and sound an audible warning tone. The BCM will also attempt to

perform the operation normally performed by the switch operation. In this case, as long as the system is functioning properly, the BCM will lock the doors. This is an easy way for the technician to test the door lock actuators, switches and associated wiring without removing the door trim or components.

The BCM will also respond to a change at either shock sensor input. The tamper input is activated by minor blows to the vehicle. The shock input is activated by heavy blows. In the diagnostic mode either the tamper input or the shock input will cause the BCM to activate the horn relay, and the horns will sound. The BCM will also flash the fasten seat belt indicator on the instrument cluster and sound an audible warning tone. An effective method of checking the shock sensor and associated wiring is to tap on the shock sensor while in the diagnostic mode.

Switching the interior lamps switch on and off while in the diagnostic mode will cause the BCM to flash the fasten seat belt indicator on the instrument cluster, sound an audible warning tone, and flash the courtesy lamps. On vehicles equipped with theft deterrent, each transition of the interior lamps command input will cause the BCM to proceed to the next action in the following list:

1. The courtesy lamps flash
2. The horns sound
3. The exterior lights flash

DTC Display Order

In the diagnostic mode, diagnostic trouble codes (DTCs) are displayed in the following order:

1. DTC 12
2. Any current DTCs (DTC 21-DTC 25) or any history DTCs (DTC 31-DTC 35)
3. The remote control door lock transmitter diagnostic DTCs (DTC 41-DTC 45)
These DTCs will display if they are invoked while in the diagnostic mode.
4. The begin configuration display (DTC 55).
DTC 55 and 2 configuration numbers are always displayed. The first number following DTC 55 is the hardware configuration. The second number is the software configuration.
5. After the configuration numbers are displayed, the entire list is repeated beginning with DTC 12.

DTC 12 and DTC 55 are always set and displayed when the body control module (BCM) is in the diagnostic mode. DTC 12 indicates that the diagnostic function is in progress.

If only DTC 12 and DTC 55 are displayed when the BCM is in the diagnostic mode, the BCM is operating properly.

If DTC 12 and DTC 55 are not displayed when the BCM is in the diagnostic mode, refer to *Cannot Enter BCM Diagnostics*.

If any other DTCs are displayed, refer to *Diagnostic Trouble Code (DTC) List/Type*.

Intermittent and History DTCs

History DTCs are codes that indicate that the BCM detected a fault which has disappeared.

Any DTC that begins with the digit 3 is a history DTC.

The fault will be stored as a history code under either of the following conditions:

- The fault is an intermittent failure.
- The fault exists in a system which is not currently being operated.

If you cannot determine the cause of the failure through visual inspection, complete the following steps:

1. Connect a DVM to the suspected circuit.
2. Drive the vehicle.
3. Observe the readings. An abnormal voltage or resistance reading when the failure occurs indicates that the condition may be in the suspected circuit.

Clearing DTCs**Clearing BCM DTCs**

Current DTCs (21 to 25) remain stored by the body control module (BCM) and are displayed in the diagnostic mode as long as the BCM detects the fault. Once the fault is corrected, the current DTCs are cleared by the BCM.

To clear history DTCs (31 to 35) press and hold the door unlock switch for four seconds while the BCM is in the diagnostic mode. The BCM will sound three audible warning tones to confirm that the DTCs are cleared.

To clear BCM history DTCs on vehicles without power door locks, backprobe with a fused jumper from BCM connector C1 terminal D to ground for four seconds. The BCM will sound three audible warning tones to confirm that the history DTCs have been cleared.

Diagnostic Trouble Code (DTC) List/Type

Description	Module
DTC 12 Diagnostic System Check	Body Control Module (BCM)
DTC 21/31 Courtesy Lamps Feed Shorted to Ground	Body Control Module (BCM)
DTC 22/32 Courtesy Lamps Return Shorted to Battery (Coupe) or DTC 22/32 Courtesy Lamps Return Shorted to Battery (Convertible)	Body Control Module (BCM)
DTC 23/33 RAP Feed Shorted to Ground or Battery	Body Control Module (BCM)
DTC 24/34 Seatbelt Indicator Shorted to Ground or Battery	Body Control Module (BCM)
DTC 25/35 Security Indicator Status	Body Control Module (BCM)
DTC 41 Last Message Received Valid	Body Control Module (BCM)
DTC 42 Last Message Received Invalid	Body Control Module (BCM)
DTC 43 Last Message Received with Sumcheck Error	Body Control Module (BCM)
DTC 44 Last Message Received with Encryption Error	Body Control Module (BCM)
DTC 45 Receiver Processing in 20 Second Lockout	Body Control Module (BCM)
DTC 55 Begin Configuration Display	Body Control Module (BCM)

Circuit Description

The BCM also uses the SECURITY indicator lamp in order to display the DTC flash codes by grounding CKT 728.

DTC 12 is always set and displayed when the body control module (BCM) is in the diagnostic mode. DTC 12 indicates that the diagnostic function is in progress. If DTC 12 does not display when the BCM is in the diagnostic mode, refer to the following diagnostic chart.

1. This step tests the SECURITY indicator lamp operation at the BULB TEST.
2. This step tests the BCM operation in the diagnostic mode.
3. This step tests the BCM output to the retained accessory power (RAP) components.
4. This step tests circuit 75 for a short to ground.
5. This step tests the BCM operation in the diagnostic mode after the repair to circuit 75.
7. If the SECURITY indicator lamp does not illuminate, this step determines if the fault is in the BCM or the SECURITY indicator circuit.
8. This step tests for a poor connection at the BCM.
9. This step tests for an open in circuit 640.
10. This step tests for an open in circuit 728.

DTC 12 Diagnostic System Check

Step	Action	Value(s)	Yes	No
1	Turn the ignition switch to the RUN position. Does the security indicator illuminate during BULB TEST?	—	Go to Step 2	Go to Step 3
2	Attempt to enter the body control module (BCM) diagnostic mode. Refer to <i>Diagnostic Trouble Code (DTC) Displaying</i> . Does the security indicator flash DTCs?	—	System OK	Go to Step 3
3	1. Turn the ignition switch to the RUN position. 2. Attempt to operate the power windows. Do the power windows work?	—	Go to Step 7	Go to Step 4
4	1. Disconnect the BCM connector C2. 2. Connect a test lamp from connector C2 terminal C to ground. Does the test lamp light?	—	Go to Step 5	Go to Step 6
5	1. Repair the short to ground in circuit 75. 2. Attempt to enter the body control module (BCM) diagnostic mode. Refer to <i>Diagnostic Trouble Code (DTC) Displaying</i> . Does the security indicator flash DTCs?	—	System OK	Go to Step 6
6	Replace the BCM. Refer to <i>Body Control Module Replacement</i> . Is the repair complete?	—	System OK	—
7	1. Turn the ignition switch to the OFF position. 2. Disconnect the BCM connector C3. 3. Connect a fused jumper from BCM connector C3 terminal C12 to ground. Does the security indicator illuminate?	—	Go to Step 8	Go to Step 9
8	1. Test for a poor connection at BCM connector C3 terminal C12. 2. If OK, replace the BCM. Refer to <i>Body Control Module Replacement</i> . Is the repair complete?	—	System OK	—
9	1. Disconnect the instrument cluster connector. 2. Connect a test lamp from the instrument cluster connector terminal A13 to ground. Does the test lamp light?	—	Go to Step 10	Go to Step 11
10	1. Test for an open or poor connection in circuit 728, between the BCM and the instrument cluster. 2. If OK, replace the instrument cluster. Refer to <i>IP Cluster Replacement</i> . Is the repair complete?	—	System OK	—
11	Repair the open in circuit 640, between the instrument cluster and S211. Is the repair complete?	—	System OK	—

DTC 55 Begin Configuration Display**Conditions for Setting the DTC**

DTC 55 is always displayed when the BCM is in the diagnostic mode. The following two configuration codes are always displayed immediately after DTC 55:

- The hardware configuration number
- The software configuration number

After the configuration codes are displayed, the entire DTC list is repeated starting with DTC 12.

DTC B1000 ECU Malfunction**Circuit Description**

The internal fault detection is handled inside the control module. No external circuits are involved.

Conditions for Running the DTC

The control module runs a program to detect an internal fault when power up is commanded. The only requirements are voltage and ground.

Conditions for Setting the DTC

- The control module detects an internal memory (write error) malfunction.
- The control module detects an internal memory (checksum error) malfunction.

Action Taken When the DTC Sets

The microprocessor refuses all additional inputs.

Conditions for Clearing the MIL/DTC

- The current DTC B1000 will clear when the microprocessor makes a successful write to the EEPROM and check sum maneuver.
- A history DTC B1000 will clear after 100 consecutive ignition cycles if the condition for the malfunction is no longer present.
- A scan tool may be used to clear the DTC.

Diagnostic Aids

- This DTC may be stored as a history DTC without affecting the operation of the module. If stored only as a history DTC and not retrieved as a current DTC, do not replace the module.
- If this DTC is retrieved as both a Current and History DTC, replace the module.

DTC B1000 ECU Malfunction

Step	Action	Value(s)	Yes	No
1	Did you perform the control module Diagnostic System Check?	—	Go to Step 2	Go to <i>Control Module References</i> in Data Link Communications
2	Replace the control module. Refer to <i>Control Module References</i> in Data Link Communications. Important: Perform the set up procedure for the control module if needed. Did you complete the replacement?	—	System OK	—

Symptoms - Body Control System

Important: Review the system operation in order to familiarize yourself with the system functions. Refer to *Body Control System Circuit Description*.

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the Body Control 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 *Cannot Enter BCM Diagnostics* in order to diagnose the symptom.

Cannot Enter BCM Diagnostics

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 - Body Control System
2	Attempt to enter the BCM diagnostic mode. Refer to <i>Diagnostic Trouble Code (DTC) Displaying</i> . Does the BCM enter the diagnostic mode?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	Turn the ignition switch to the RUN position. Does the SECURITY indicator illuminate during the BULB TEST?	—	Go to Step 4	Go to SECURITY Indicator Inoperative in Theft Deterrent
4	Attempt to operate the courtesy lamps. Do the courtesy lamps operate normally?	—	Go to Step 5	Go to Step 8
5	1. Disconnect the BCM connector C2. 2. Remove the RADIO Fuse 17 from the IP Fuse Block. 3. Connect a test lamp from connector C2 terminal C to battery voltage. Refer to <i>Circuit Testing</i> in Wiring Systems. Does the test lamp illuminate?	—	Go to Step 6	Go to Step 7
6	Repair the short to ground in circuit 75. Refer to <i>Wiring Repairs</i> in Wiring Systems. Did you complete the repair?	—	Go to Step 20	—
7	Test for and repair an open in circuit 43. Refer to <i>Circuit Testing</i> and <i>Wiring Repairs</i> in Wiring Systems. Did you find and repair an open?	—	Go to Step 20	Go to Step 19
8	1. Disconnect the BCM connector C2. 2. Connect a test lamp between the BCM connector C2 terminal A and 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	1. Disconnect the BCM connector C3. 2. Connect a test lamp between the BCM connector C3 terminal C1 and battery voltage. Refer to <i>Circuit Testing</i> in Wiring Systems. Does the test lamp illuminate?	—	Go to Step 11	Go to Step 10

Cannot Enter BCM Diagnostics (cont'd)

Step	Action	Value(s)	Yes	No
10	Repair an open in circuit 650. Refer to <i>Wiring Repairs</i> in <i>Wiring Systems</i> . Did you complete the repair?	—	Go to Step 20	—
11	Connect a test lamp between the BCM connector C2 terminal B and ground. Refer to <i>Circuit Testing</i> in <i>Wiring Systems</i> . Does the test lamp illuminate?	—	Go to Step 12	Go to Step 15
12	1. Turn the ignition switch to the RUN position. 2. Connect a test lamp between the BCM connector C3 terminal D5 and ground. Refer to <i>Circuit Testing</i> in <i>Wiring Systems</i> . Does the test lamp illuminate?	—	Go to Step 13	Go to Step 16
13	1. Leave the ignition in the RUN position. 2. Connect a test lamp between BCM connector C2 terminal D and ground. Refer to <i>Circuit Testing</i> in <i>Wiring Systems</i> . Does the test lamp illuminate?	—	Go to Step 14	Go to Step 17
14	Connect a test lamp between the BCM connector C2 terminal F and ground. Refer to <i>Circuit Testing</i> in <i>Wiring Systems</i> . Does the test lamp illuminate?	—	Go to Step 19	Go to Step 18
15	Repair an open in circuit 40. Refer to <i>Wiring Repairs</i> in <i>Wiring Systems</i> . Did you complete the repair?	—	Go to Step 20	—
16	Repair an open in circuit 39. Refer to <i>Wiring Repairs</i> in <i>Wiring Systems</i> . Did you complete the repair?	—	Go to Step 20	—
17	Repair an open in circuit 4. Refer to <i>Wiring Repairs</i> in <i>Wiring Systems</i> . Did you complete the repair?	—	Go to Step 20	—
18	Repair an open in circuit 102. Refer to <i>Wiring Repairs</i> in <i>Wiring Systems</i> . Did you complete the repair?	—	Go to Step 20	—
19	Replace the BCM. Refer to <i>Body Control Module Replacement</i> . Did you complete the replacement?	—	Go to Step 20	—
20	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 3

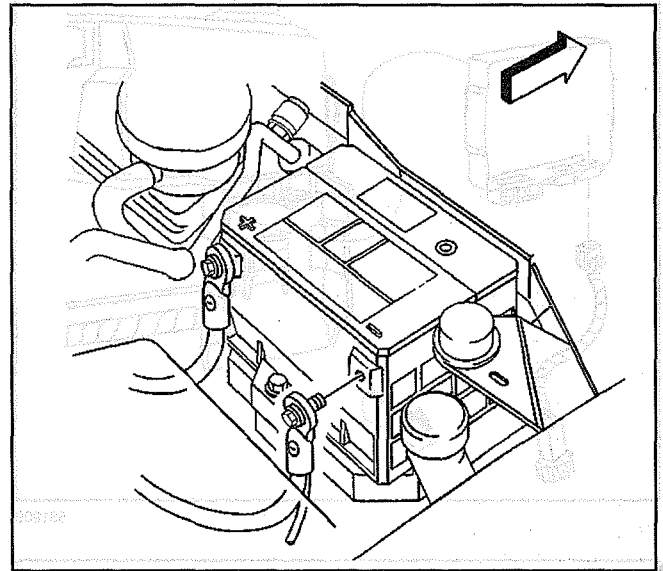
Repair Instructions

Body Control Module Replacement

Removal Procedure

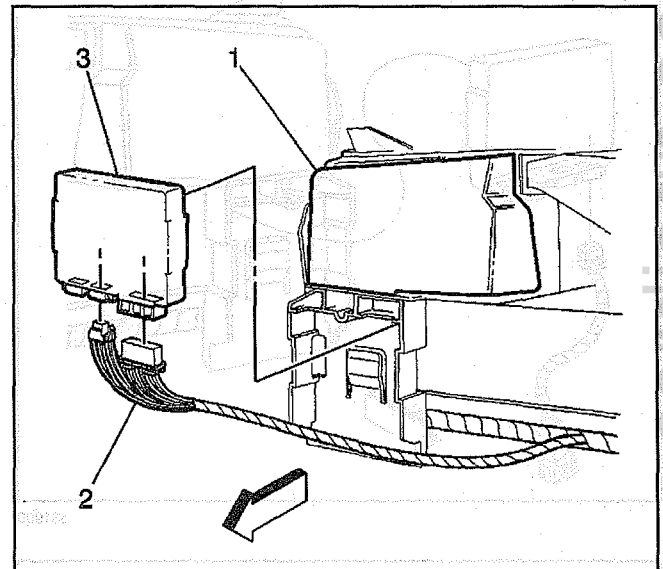
Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the negative battery cable. Refer to *Battery Negative Cable Disconnect/Connect Procedure* in Engine Electrical.
2. Remove the instrument panel (IP) insulator. Refer to *Closeout/Insulator Panel Replacement - Right* in Instrument Panel, Gauge and Console.

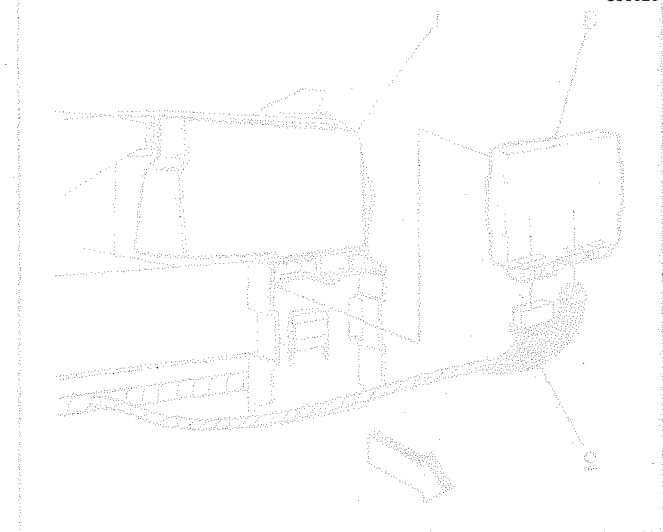


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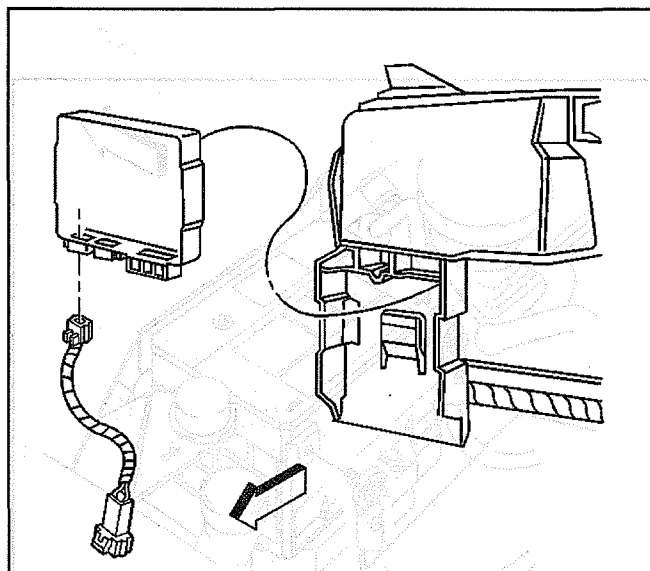
3. Unsnap the body control module (BCM) (3) from the heating, ventilation and air conditioning (HVAC) duct (1).
4. Disconnect the harness electrical connectors (2) from the BCM (3).



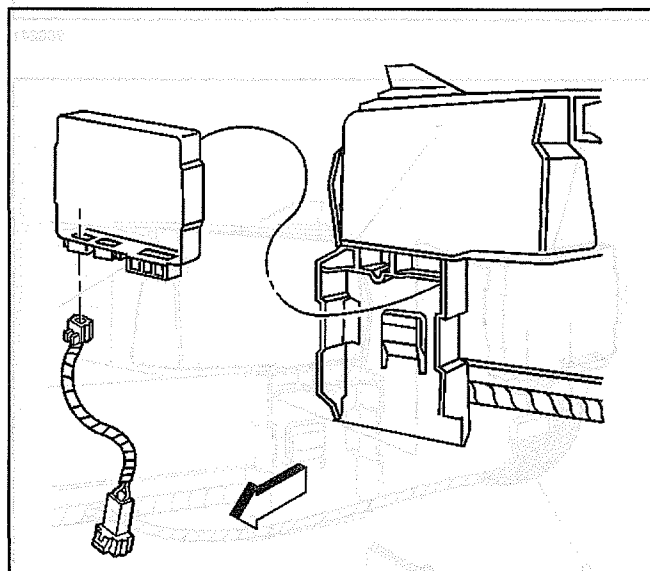
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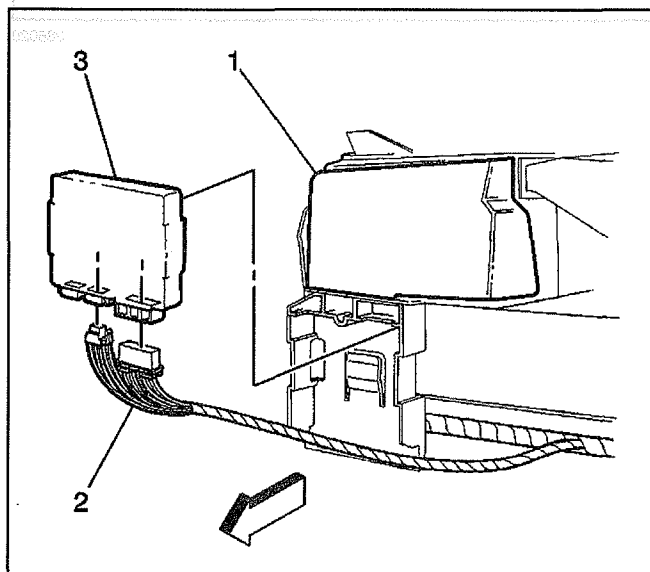
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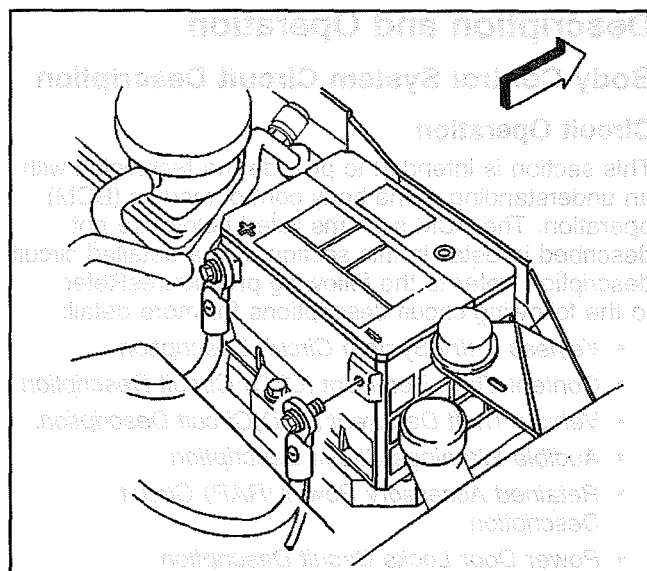
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5. Disconnect the IP harness extension from the BCM.

Installation Procedure

1. Connect the IP harness extension to the BCM.
2. Connect the harness electrical connectors (2) to the BCM.
3. Align the BCM to the duct.
4. Snap the BCM (3) to the HVAC duct (1).
5. Install the I/P insulator. Refer to *Closeout/Insulator Panel Replacement - Right* in Instrument Panel, Gauge and Console.

6. Connect the negative battery cable. Refer to *Battery Negative Cable Disconnect/Connect Procedure* in Engine Electrical.



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BCM Programming/RPO Configuration

Programming A New Body Control Module (BCM)

Important: Any new BCM will automatically program to the resistance of the key (or interrogator setting) being used at the first ignition ON cycle. This can only be done once for the life of the module.

A new BCM is not programmed. Before the system will function properly it must be programmed to the code that matches the customer's keys.

1. Install the new BCM. Refer to *Body Control Module Replacement*.
2. Insert one of the customer's keys into the ignition cylinder and turn it to the on position. Start the engine at this time in order to verify system operation.
3. Observe the SECURITY indicator lamp for the following conditions:
 - The indicator lamp lights for approximately 5 seconds and then goes out.

This indicates that the BCM is programmed properly. The indicator lamp flashes at a rate of one flash per second until the ignition is turned off.

- This indicates that the BCM did not program and the system components, wiring and contacts should be checked for a fault.

Description and Operation

Body Control System Circuit Description

Circuit Operation

This section is intended to provide the technician with an understanding of the body control module (BCM) operation. The BCM systems listed below are not described in detail in this section. For a detailed circuit description, refer to the following procedures. Refer to the following circuit descriptions for more detail:

- *Keyless Entry System Circuit Description*
- *Content Theft Deterrent (CTD) Circuit Description*
- *Vehicle Theft Deterrent (VTD) Circuit Description*
- *Audible Warnings Circuit Description*
- *Retained Accessory Power (RAP) Circuit Description*
- *Power Door Locks Circuit Description*
- *Rear Compartment Lid Release Circuit Description*
- *Interior Lights Circuit Description*

Wake-up and Sleep Modes

Wake-up signals are signals which turn on the BCM. Once active, the BCM begins monitoring and controlling the system functions listed above. With the ignition switch in the OFF position, the BCM ceases control of the system functions after a 10 minute period. This is the sleep mode. During the sleep mode the BCM monitors several circuits for changes in status. The BCM wakes up when a change is detected in any of the following inputs:

- The courtesy lamps
- The remote keyless entry system
- The ignition switch
- The park lamps
- The headlamps
- The side door locks
- The rear compartment lid ajar indication switch
- The ignition key lock cylinder
- The theft deterrent shock sensor

Power Requirements

The BCM will operate properly with a system voltage of 9–16 volts.

Operating current measured at the BCM battery terminals in the awake mode should not exceed the following values:

- 75 milliamps with the ignition switch in the OFF position
- 250 milliamps with the ignition switch in the RUN position

Operating current measured at the BCM battery terminals in the sleep mode should not exceed the following values:

- Two milliamps on vehicles without theft deterrent (UA6)
- Three milliamps on vehicles with theft deterrent (UA6)

Operating current measured at the BCM IGN1 and IGN3 terminals should not exceed 15 milliamps.

Abbreviations

The following abbreviations are used throughout this section:

- Body control module (BCM)
- Data link connector (DLC)
- Diagnostic trouble code (DTC)
- Digital multimeter (DMM)
- Powertrain control module (PCM)
- Personal automotive security system (PASS-Key® II)
- Retained accessory power (RAP)
- Universal theft deterrent (UTD)

BCM Replacement

Technicians should not replace the BCM unless directed to do so by the diagnostic procedures in this section. Most system faults are traceable to faulty wiring, connectors or components. The BCM is very reliable and is not likely the cause of the fault. Do not replace the BCM before performing a complete diagnosis. This may result in the replacement of a good BCM and a recurrence of the fault.

Important:

- If the BCM is replaced, refer to *BCM Programming/RPO Configuration* to program the new BCM to the current ignition key.
- A new BCM is shipped from the supplier in the factory test mode. This mode allows only limited functionality of the BCM controlled systems. When a new BCM is installed it is necessary to exit the factory test mode prior to returning the vehicle to the customer. To restore the BCM to normal operation, turn the ignition switch from the RUN position to the OFF position 10 times or enter the program mode as described in the theft deterrent system.