

2004 ACCESSORIES & EQUIPMENT

Body Control System - Vue

SCHEMATIC AND ROUTING DIAGRAMS

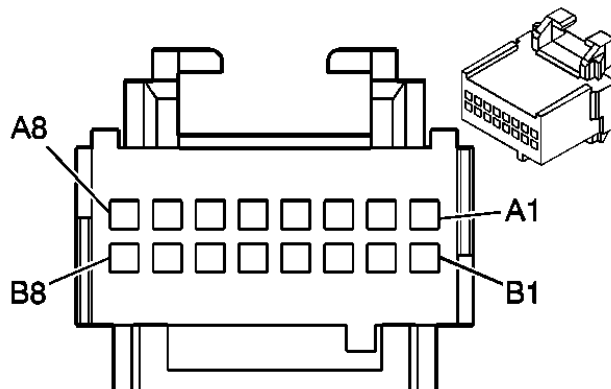
BODY CONTROL SYSTEM SCHEMATICS

Refer to Body Control Modules in System Wiring Diagrams .

COMPONENT LOCATOR

BODY CONTROL SYSTEM CONNECTOR END VIEWS

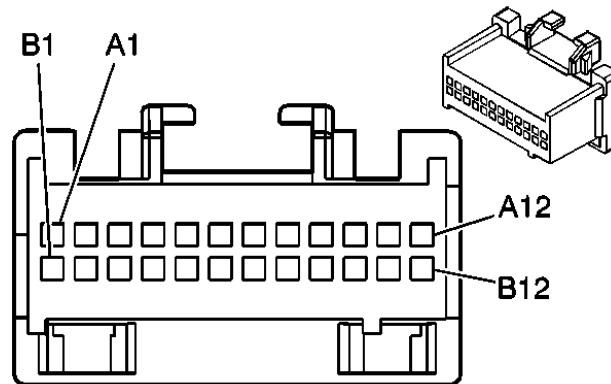
Body Control Module (BCM) C1 Connector End View



Connector Part Information		<ul style="list-style-type: none">• 12084945• 16-Way F Micro-Pack 100 Series (GY)	
Pin	Wire Color	Circuit Number	Function
A1	-	-	Not Used
A2	L-GN	1391	Driver Door Unlock Relay Control (w/AU0)
A3	L-BU	195	Door Lock Relay Control (w/AU0)
A4	WH	194	Door Unlock Relay Control (w/AU0)
A5-A6	-	-	Not Used
A7	OG/BK	781	Driver Door Lock Switch Unlock Signal (w/AU0)
A8	RD/BK	780	Driver Door Lock Switch Lock Signal (w/AU0)
B1	-	-	Not Used
B2	D-BU	1201	Headlamp Low Beam Signal
B3	-	-	Not Used

B4	GY	731	EVAP Temperature Sensor Signal
B5	L-GN/BK	1137	DRL Ambient Light Sensor Signal (w/HAA)
B6	YE/BK	1138	DRL Ambient Light Sensor Low Referencel (w/HAA)
B7	-	-	Not Used
B8	L-GN	66	A/C Request Signal

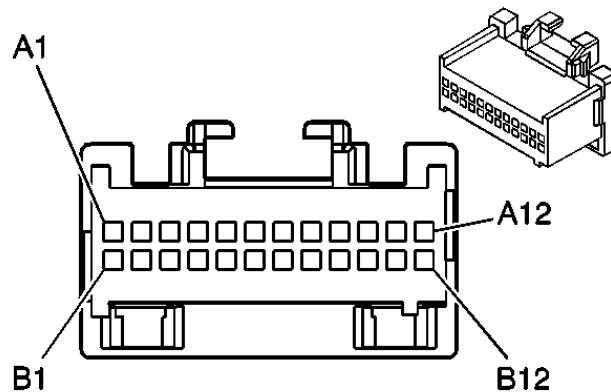
Body Control Module (BCM) C2 Connector End View



Connector Part Information		<ul style="list-style-type: none"> • 12110088 • 24-Way F Micro-Pack 100 Series (GY) 	
Pin	Wire Color	Circuit Number	Function
A1	-	-	Not Used
A2	L-BU	1134	Park Brake Switch Signal
A3	PK	1200	Headlamp High Beam Signal
A4	-	-	Not Used
A5	PU	333	Brake Fluid Level Switch Signal
A6	BN	96	Windshield Wiper Switch Pulse Delay Signal
A7	-	-	Not Used
A8	PK	94	Windshield Washer Switch Signal
A9	RD	228	Windshield Washer Pump Control
A10	PK	339	Ignition 1 Voltage
A11	L-GN	80	Key In Ignition Switch Signal
A12	BK/WH	746	Passenger Doors Ajar Switch Signal
B1	YE	749	Security Indicator Control
B2	GY/BK	745	Left Front Door Ajar Switch Signal
B3	L-BU	292	Rear Defog Switch Signal
B4	RD/BK	744	Liftgate Ajar Switch Signal
B5	D-GN	392	Rear Window Washer Switch Signal

B6	L-BU	74	Park Lamp Switch Signal (w/ T82/HAA)
B7	OG	192	Fog Lamp Switch Signal (w/ T96)
B8	-	-	Not Used
B9	YE	743	Accessory Voltage
B10	BN	9	Park Lamp Supply Voltage
B11	L-GN	1478	Coolant Level Switch Signal
B12	PU	719	Low Reference

Body Control Module (BCM) C3 Connector End View



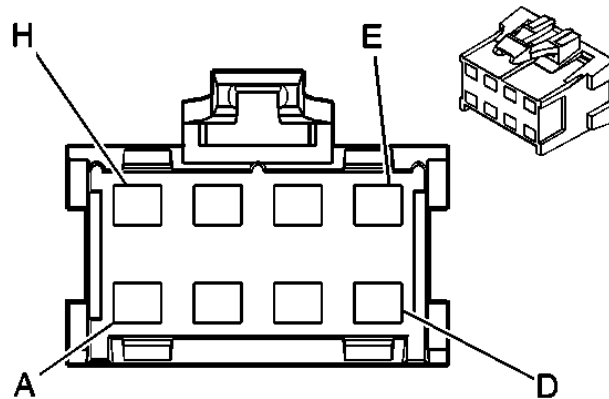
Connector Part Information

- 12110244
- 24-Way F Micro-Pack 100 Series (PK)

Pin	Wire Color	Circuit Number	Function
A1	WH	156	Dome Lamp Control
A2	RD/WH	812	12 Volt Reference
A3	WH	352	Headlamp Relay Coil Supply Voltage(w/ T82/HAA)
A4	YE	317	Fog Lamp Relay Control (w/ T96)
A5	OG/BK	1445	BCM Program Enable Signal
A6	RD	2445	Rear Wiper Relay Control
A7	WH	1080	Park Lamp Relay Control (w/ T82/HAA)
A8	L-GN/BK	592	DRL Relay Control
A9	BN/WH	230	I/P Lamps Dimming Control
A10	PU	1807	Class 2 Serial Data
A11	-	-	Not Used
A12	TN	2501	CAN Low
B1	TN/WH	816	A/T Shift Lock Switch Signal
B2	BK	28	Horn Relay Control
B3	OG/BK	1057	Low Reference

B4	GY	112	Windshield Wiper Switch Signal 1
B5	TN	470	Low Reference
B6	WH	193	Rear Defog Relay Control
B7	YE	1836	Security System Sensor Signal
B8	D-GN	113	Windshield Wiper Switch Signal 2
B9	PU	1807	Class 2 Serial Data
B10	PU	1807	Class 2 Serial Data
B11	-	-	Not Used
B12	TN/WH	2500	CAN High

Body Control Module (BCM) C4 Connector End View



Connector Part Information		<ul style="list-style-type: none"> • 12110626 • 8-Way F Metri-Pack 280 Series (GY) 	
Pin	Wire Color	Circuit Number	Function
A	OG	1732	Courtesy Lamps Supply Voltage
B-C	-	-	Not Used
D	OG	2540	Battery Positive Voltage
E	GY	8	I/P Lamps Dimmer Switch Signal
F	BK/WH	151	Ground
G	-	-	Not Used
H	OG	1640	Battery Positive Voltage

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC STARTING POINT - BODY CONTROL SYSTEM

Begin the diagnosis of the body control system by performing the Diagnostic System Check for the system in

which the customer concern is apparent. The Diagnostic System Check will direct you to the correct procedure for diagnosing the system and where the procedure is located.

SCAN TOOL DATA LIST

Accessory Scan Tool Data List

Scan Tool Parameter	Units Displayed	Typical Data Value
Operating Conditions: Ignition in RUN, Engine OFF, All Doors Closed, Park Brake Applied (DRLs OFF)		
A/C Sensor	Volts	Varies
Afterblow Relay Cmd.	On/Off	Off
Afterblow Relay Fdbk.	High/Low	Low
Battery 1	Volts	Varies
Coolant Gauge Position	% of Gauge	%
Fuel Gauge Position	% of Full	%
Odometer	km/miles	Varies
Rear Defog Relay Cmd.	On/Off	Off
Rear Defog Relay Fdbk.	High/Low	High
Rear Defog Switch	On/Off	Off
Shifter Unlock Cmd.	On/Off	On
Shifter Unlock Fdbk.	High/Low	Low

Switch Inputs Scan Tool Data List

Scan Tool Parameter	Units Displayed	Typical Data Value
Operating Conditions: Ignition in RUN, Engine OFF, All Doors Closed, Park Brake Applied (DRLs OFF)		
A/C Request (Manual A/C)	Yes/No	No
Battery 1	Volts	Varies
Driver Door Switch	High/Low	High
Fog Lamp Switch	On/Off	Off
Front Wiper Delay Switch	On/Off	Off
High Beam Switch	On/Off	On
Key In Ignition	Yes/No	Yes
Liftgate Ajar Switch	High/Low	High
Lock Switch	On/Off	Off
Low Beam Input = DRL	Yes/No	No
Low Beam Input = High	Yes/No	No
Low Beam Input = Off	Yes/No	Yes
Low Brake Fluid	Yes/No	No
Low Coolant	Yes/No	No
Oil Life Reset Switch	High/Low	High
Park Brake Switch	On/Off	On

Park Lamp Switch	On/Off	Off
Psgr. Door Switches	High/Low	High
Rear Defog Switch	On/Off	Off
Rear Wiper Switch	On/Off	Off
Unlock Switch	On/Off	Off

Exterior Lamps Scan Tool Data List

Scan Tool Parameter	Units Displayed	Typical Data Value
Operating Conditions: Ignition in RUN, Engine OFF, All Doors Closed, Park Brake Applied (DRLs OFF)		
Battery 1	Volts	Varies
DRL Relay Cmd.	On/Off	Off
DRL Relay Fdbk.	High/Low	High
Fog Lamp Relay Cmd.	On/Off	Off
Fog Lamp Relay Fdbk.	High/Low	High
Fog Lamp Switch	On/Off	Off
High Beam Switch	On/Off	On
Low Beam Input	Volts	Varies
Low Beam Input = DRL	Yes/No	No
Low Beam Input = High	Yes/No	No
Low Beam Input = Off	Yes/No	Yes
Park Lamp Switch	On/Off	Off

Interior Lamps Scan Tool Data List

Scan Tool Parameter	Units Displayed	Typical Data Value
Operating Conditions: Ignition in RUN, Engine OFF, All Doors Closed, Park Brake Applied (DRLs OFF)		
Battery 1	Volts	Varies
Dome Lamp Cmd.	On/Off	Off
Dome Lamp Fdbk.	High/Low	High
Driver Door Switch	High/Low	High
Inadvertent Power Cmd.	On/Off	On
Inadvertent Power Fdbk.	High/Low	High
I/P Dimmer Input	Volts	Varies
I/P Dimmer Output	% Duty Cycle	%
Key In Ignition	Yes/No	Yes
Psgr. Door Switches	High/Low	High

Door Locks Scan Tool Data List

Scan Tool Parameter	Units Displayed	Typical Data Value
Operating Conditions: Ignition in RUN, Engine OFF, All Doors Closed, Park Brake Applied		

(DRLs OFF)

Battery 1	Volts	Varies
Driver Unlock Relay Cmd.	On/Off	Off
Driver Unlock Relay Fdbk.	High/Low	Low
Lock All Relay Cmd.	On/Off	Off
Lock All Relay Fdbk.	High/Low	Low
Lock Switch	On/Off	Off
Psgr. Unlock Relay Cmd.	On/Off	Off
Psgr. Unlock Relay Fdbk.	High/Low	Low
Remote Lock Cmd.	Yes/No	No
Remote Panic Cmd.	Yes/No	No
Remote Unlock Cmd.	Yes/No	No
Unlock Switch	On/Off	Off

Wiper/Washer Scan Tool Data List

Scan Tool Parameter	Units Displayed	Typical Data Value
Operating Conditions: Ignition in RUN, Engine OFF, All Doors Closed, Park Brake Applied (DRLs OFF)		
Battery 1	Volts	Varies
Front Washer Motor Input	On/Off	Off
Front Wiper Delay Relay Cmd.	On/Off	Off
Front Wiper Delay Relay Fdbk.	High/Low	High
Front Wiper Delay Switch	On/Off	Off
Rear Washer Motor Input	On/Off	Off
Rear Wiper Relay Cmd.	On/Off	Off
Rear Wiper Relay Fdbk.	High/Low	High
Rear Wiper Switch	On/Off	Off
Wiper Delay 1	Yes/No	Varies
Wiper Delay 2	Yes/No	Varies
Wiper Delay 3	Yes/No	Varies
Wiper Delay Input	Volts	Varies

Security Data Scan Tool Data List

Scan Tool Parameter	Units Displayed	Typical Data Value
Operating Conditions: Ignition in RUN, Engine OFF, All Doors Closed, Park Brake Applied (DRLs OFF)		
Auto-Learn Timer	Seconds	Varies
Battery 1	Volts	Varies
Horn Relay Cmd.	On/Off	Off
Horn Relay Fdbk.	High/Low	High
Ignition 1 Input	High/Low	High

Ignition 2 Input	High/Low	High
Key Learned	Yes/No	No
Key Learn Enabled	Yes/No	Yes
Passlock Input	Volts	Varies
Passlock Power Fdbk.	High/Low	High
Passlock Timer	Seconds	Varies
Security LED	On/Off/Flash	Off

SCAN TOOL DATA DEFINITIONS

A/C Request (Manual A/C)

The scan tool displays Yes/No. The BCM receives an input from the HVAC control head indicating Yes when A/C is requested.

A/C Sensor

The scan tool displays voltage. The body control module displays the voltage from the EVAP temperature sensor.

Afterblow Relay Cmd.

The scan tool displays On/Off. The body control module will indicate if it is commanding the afterblow relay On or Off.

Afterblow Relay Fdbk.

The scan tool displays High/Low. The BCM indicates whether the afterblow relay control circuit is High or Low.

Auto-Learn Timer

The scan tool displays the time in seconds used by the BCM to learn valid code from the Passlock(tm) sensor using the techline terminal reprogramming procedure.

Battery 1

The scan tool displays 0-25.5 volts. The state of the battery voltage supplied to the body control module.

Coolant Gauge Position

The scan tool displays the % of Gauge. The amount of coolant that is in the vehicle.

Dome Lamp Cmd.

The scan tool displays On/Off. The BCM will indicate if it is commanding the dome lamp On or Off.

Dome Lamp Fdbk.

The scan tool displays High/Low. The BCM indicates whether the dome lamp control circuit is High or Low.

Driver Door Switch

The scan tool displays the current state of the drivers door ajar switch as either High or Low. When the driver door is open the scan tool will display Low.

Driver Unlock Relay Cmd.

The scan tool displays On/Off. The body control module will indicate if it is commanding the driver unlock relay On or Off.

Driver Unlock Relay Fdbk.

The scan tool displays High/Low. This input to the BCM displays the state of the driver unlock relay feedback circuit. High is displayed when the BCM is providing battery voltage to the driver lock actuator unlock control circuit.

DRL Relay Cmd.

The scan tool displays On/Off. The body control module will indicate if it is commanding the DRL relay On or Off.

DRL Relay Fdbk.

The scan tool displays High/Low. This input to the BCM displays the state of the DRL relay feedback circuit. Low is displayed when the BCM is providing a ground to the DRL relay control circuit.

Fog Lamp Relay Cmd.

The scan tool displays On/Off. The body control module will indicate if it is commanding the fog lamp relay On or Off.

Fog Lamp Relay Fdbk.

The scan tool displays High/Low. This input to the BCM displays the state of the fog lamp relay feedback circuit. Low is displayed when the BCM is providing a ground to the fog lamp relay control circuit.

Fog Lamp Switch

The scan tool displays On/Off. This input displays On when the fog lamps are on.

Front Washer Motor Input

The scan tool displays On/Off. This input displays On when the front washer spray is on.

Front Wiper Relay Cmd.

The scan tool displays On/Off. The body control module will indicate if it is commanding the front wiper relay On or Off.

Front Wiper Relay Fdbk.

The scan tool displays High/Low. This input to the BCM displays the state of the front wiper relay feedback circuit. Low is displayed when the BCM is providing a ground to the front wiper relay control circuit.

Front Wiper Switch

The scan tool displays On/Off. This input displays On when the front wipers are on.

Fuel Gauge Position

The scan tool displays the % of Full. The amount of fuel that is in the gas tank.

High Beam Switch

The scan tool displays On/Off. This input displays On when the high beams are on.

Horn Relay Cmd.

The scan tool displays On/Off. the body control module will indicate if it is commanding the horn relay On or Off.

Horn Relay Fdbk.

The scan tool displays High/Low. This input to the BCM displays the state of the horn relay feedback circuit. Low is displayed when the BCM is providing a ground to the horn relay control circuit.

I/P Dimmer Input

The scan tool displays volts. The BCM indicates the voltage from the dimmer switch.

I/P Dimmer Output

The scan tool displays the % duty cycle. The BCM will indicate 0-100% of the dimmer switch duty cycle.

Ignition 1 Input

The scan tool displays High/Low. The state of the ignition 1 input to the body control module.

Ignition 2 Input

The scan tool displays High/Low. The state of the ignition 2 input to the body control module.

Inadvertent Power Cmd.

The scan tool displays On/Off. The body control module will indicate if it is commanding the inadvertent power to the interior lamps.

Inadvertent Power Fdbk.

The scan tool displays High/Low. The BCM indicates whether the inadvertent power control circuit is High or Low.

Key In Ignition

The scan tool displays Yes/No. The BCM receives an input from the ignition switch indicating whether the key is in the ignition or not, with Yes meaning the key is in the ignition.

Key Learned

The scan tool displays Yes/No. The body control module will indicate if the ignition key has been learned.

Key Learn Enabled

The scan tool displays Yes/No. The body control module will indicate if it is enabled to learn the ignition key.

Liftgate Ajar Switch

The scan tool displays the current state of the liftgate ajar switch as either High or Low. When the liftgate is open the scan tool will display Low.

Lock All Relay Cmd.

The scan tool displays On/Off. The body control module will indicate if it is commanding the lock all relay On or Off.

Lock All Relay Fdbk.

The scan tool displays High/Low. This input to the BCM displays the state of the door lock relay feedback circuit. High is displayed when the BCM is providing battery voltage to the door lock actuator lock control circuit.

Lock Switch

The scan tool displays On/Off. This input to the BCM displays the state of the lock switch.

Low Beam Input

The scan tool displays volts. This input displays the voltage supplied to the body control module.

Low Beam Input = Off

The scan tool displays Yes/No. This input to the body control module displays the state of the low beam input.

Low Beam Input = DRL

The scan tool displays Yes/No. This input to the body control module displays the state of the low beam input.

Low Beam Input = High

The scan tool displays Yes/No. This input to the body control module displays the state of the low beam input.

Low Brake Fluid

The scan tool displays Yes/No. The BCM receives an input from the low brake fluid switch indicating Yes when the switch is closed, low brake fluid.

Low Coolant

The scan tool displays Yes/No. The BCM receives an input from the low coolant switch indicating Yes when the switch is open, low coolant.

Odometer

The scan tool displays km/miles. The body control module receives a class 2 message from the ECM. The BCM stores this information and displays it on the scan tool.

Oil Life Reset Switch

The scan tool displays High/Low. The BCM receives an input from the oil life reset switch (in the underhood fuse block) indicating Low when the engine oil needs to be changed.

Park Brake Switch

The scan tool displays High/Low. The BCM receives an input from the park brake switch indicating Low

when the switch is closed, park brake applied.

Park Lamp Switch

The scan tool displays On/Off. This input displays On when the park lamps are on.

Passlock Input

The scan tool displays the voltage from the Passlock(tm) sensor to the BCM. The BCM determines if the voltage received is a valid or invalid code voltage.

Passlock Power Fdbk.

The scan tool displays High/Low. The state of the Passlock(tm) system power feedback to the body control module.

Passlock Timer

The scan tool displays the time in seconds used by the BCM to learn a valid code from the Passlock(tm) sensor. The learn procedure consists of 3 consecutive periods.

Psgr. Door Switches

The scan tool displays the current state of the passengers door ajar switch as either High or Low. When any door (other than driver) is open the scan tool will display Low.

Psgr. Unlock Relay Cmd.

The scan tool displays On/Off. The body control module will indicate if it is commanding the psgr. unlock relay On or Off.

Psgr. Unlock Relay Fdbk.

The scan tool displays High/Low. This input displays the state of the to the passenger unlock relay feedback circuit. High is displayed when the BCM is providing battery voltage to the passenger lock actuator unlock control circuit

Rear Defog Relay Cmd.

The scan tool displays On/Off. The body control module will indicate if it is commanding the rear defog relay On or Off.

Rear Defog Relay Fdbk.

The scan tool displays High/Low. This input to the BCM displays the state of the rear defog relay feedback circuit. Low is displayed when the BCM is providing a ground to the rear defog relay control

circuit.

Rear Defog Switch

The scan tool displays On/Off. The BCM receives an input from the HVAC control head indicating On when the rear defog system is turned On.

Rear Washer Motor Input

The scan tool displays On/Off. This input displays On when the rear washer spray is on.

Rear Wiper Relay Cmd.

The scan tool displays On/Off. The body control module will indicate if it is commanding the rear wiper relay On or Off.

Rear Wiper Relay Fdbk.

The scan tool displays High/Low. This input to the BCM displays the state of the rear wiper relay feedback circuit. Low is displayed when the BCM is providing a ground to the rear wiper relay control circuit.

Rear Wiper Switch

The scan tool displays On/Off. This input displays On when the rear wipers are on.

Remote Lock Cmd.

The scan tool displays the current state of the lock button on the key fob that is being operated as Yes/No.

Remote Panic Cmd.

The scan tool displays the current state of the panic button on the key fob that is being operated as Yes/No.

Remote Programmed

The scan tool displays Yes/No. The current state of the key fob either being programmed or not.

Remote Unlock Cmd.

The scan tool displays the current state of the unlock button on the key fob that is being operated as Yes/No.

Security LED

The scan tool displays the state of the body control module (BCM) commanding the SECURITY lamp. The scan tool displays ON, OFF or FLASH, as commanded by the BCM.

Shifter Unlock Cmd.

The scan tool displays On/Off. The body control module will indicate if it is commanding the shifter unlock On or Off.

Shifter Unlock Fdbk.

The scan tool displays High/Low. The BCM indicates whether the shifter unlock control circuit is High or Low.

Unlock Switch

The scan tool displays On/Off. This input to the BCM displays the state of the unlock switch.

Wiper Delay 1

The scan tool displays Yes/No. This input to the body control module displays the state of the wiper delay switch.

Wiper Delay 2

The scan tool displays Yes/No. This input to the body control module displays the state of the wiper delay switch.

Wiper Delay 3

The scan tool displays Yes/No. This input to the body control module displays the state of the wiper delay switch.

Wiper Delay Input

The scan tool displays volts. This input displays the voltage supplied to the body control module.

DIAGNOSTIC TROUBLE CODE (DTC) LIST

Diagnostic Trouble Code (DTC) List

DTC	Diagnostic Procedure	Module(s)
B0005	DTC B0005 in Hydraulic Brakes	BCM
B0285	DTC B0285 in Stationary Windows	BCM
B0286	DTC B0286 in Stationary Windows	BCM
B0936	DTC B0936 in Engine Cooling	BCM
B1000	DTC B1000	SDM, BCM

B1001	<u>DTC B1001</u>	SDM, BCM
B1327	<u>DTC B1327</u> in Engine Electrical	BCM
B1328	<u>DTC B1328</u> in Engine Electrical	BCM
B1372	<u>DTC B1372</u>	BCM
B1382	<u>DTC B1382</u>	BCM
B1482	<u>DTC B1482</u> in Lighting Systems	BCM
B2532	<u>DTC B2532</u> in Lighting Systems	BCM
B2533	<u>DTC B2533</u> in Lighting Systems	BCM
B2600	<u>DTC B2600</u> in Lighting Systems	BCM
B2602	<u>DTC B2602</u> in Lighting Systems	BCM
B2603	<u>DTC B2603</u> in Lighting Systems	BCM
B2622	<u>DTC B2622</u> in Lighting Systems	BCM
B2623	<u>DTC B2623</u> in Lighting Systems	BCM
B2627	<u>DTC B2627</u> in Lighting Systems	BCM
B2628	<u>DTC B2628</u> in Lighting Systems	BCM
B2662	<u>DTC B2662</u> in Lighting Systems	BCM
B2707	<u>DTC B2707</u> in Shift Lock Control	BCM
B2708	<u>DTC B2708</u> in Shift Lock Control	BCM
B2743	<u>DTC B2743</u> in Lighting Systems	BCM
B2752	<u>DTC B2752</u> in Horns	BCM
B2753	<u>DTC B2753</u> in Horns	BCM
B2947	<u>DTC B2947</u> in Theft Deterrent	BCM
B2948	<u>DTC B2948</u> in Theft Deterrent	BCM
B2957	<u>DTC B2957</u> in Theft Deterrent	BCM
B2958	<u>DTC B2958</u> in Theft Deterrent	BCM
B2960	<u>DTC B2960</u> in Theft Deterrent	BCM
B2965	<u>DTC B2965</u> in Instrument Panel, Gages, and Console	BCM
B3031	<u>DTC B3031</u> in Theft Deterrent	BCM
B3033	<u>DTC B3033</u> in Theft Deterrent	BCM
B3109	<u>DTC B3109</u> in Keyless Entry	BCM
B3702	<u>DTC B3702</u> in Wiper/Washer Systems	BCM
B3703	<u>DTC B3703</u> in Wiper/Washer Systems	BCM
B3708	<u>DTC B3708</u> in Wiper/Washer Systems	BCM
B3713	<u>DTC B3713</u> in Wiper/Washer Systems	BCM
B3717	<u>DTC B3715, B3716, B3717, B3718, or B3719</u> in Wiper/Washer Systems	BCM
B3718	<u>DTC B3715, B3716, B3717, B3718, or B3719</u> in Wiper/Washer Systems	BCM
B3722	<u>DTC B3723</u> in Wiper/Washer Systems	BCM
B3723	<u>DTC B3722</u> in Wiper/Washer Systems	BCM
B3787	<u>DTC B3787 or B3788</u> in HVAC Systems - Manual	BCM

B3788	<u>DTC B3787 or B3788</u> in HVAC Systems - Manual	BCM
C0267	<u>DTC C0267</u> in Hydraulic Brakes	BCM
U1000	<u>DTC U1000</u> in Data Link Communications	BCM, EPS, SDM, VCIM
U1048	<u>DTC U1001-U1254</u> in Data Link Communications	BCM
U1088	<u>DTC U1001-U1254</u> in Data Link Communications	BCM, VCIM
U1096	<u>DTC U1001-U1254</u> in Data Link Communications	BCM, EPS, SDM
U1151	<u>DTC U1001-U1254</u> in Data Link Communications	BCM
U1300	<u>DTC U1300, U1301, or U1305</u> in Data Link Communications	BCM, EPS, SDM, VCIM
U1301	<u>DTC U1300, U1301, or U1305</u> in Data Link Communications	BCM, EPS, SDM, VCIM
U2100	<u>DTC U2100</u>	BCM
U2102	<u>DTC U2102 or U2103</u>	BCM
U2103	<u>DTC U2102 or U2103</u>	BCM
U2105	<u>DTC U2105-U2199</u> in Data Link Communications	BCM, EBTCM, TCM
U2106	<u>DTC U2105-U2199</u> in Data Link Communications	BCM, EBTCM, ECM
U2107	<u>DTC U2105-U2199</u>	EBCM, ECM, TCM
U2108	<u>DTC U2105-U2199</u> in Data Link Communications	BCM, ECM, TCM

DTC B1000

Circuit Description

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

Conditions for Running the DTC

The microprocessor runs the program to detect an internal fault when power up is commanded. The only requirements are voltage and ground. This program runs even if the voltage is out of the valid operating range.

Conditions for Setting the DTC

The microprocessor first writes information to a cell, or address, adds 0.25 to the value, calculates a check sum. If this check sum minus 0.25 is not equal to the cell value, the module sets the DTC.

Action Taken When the DTC Sets

The microprocessor refuses all additional inputs.

Conditions for Clearing the DTC

- A current DTC clears when the malfunction is no longer present.
- A history DTC clears when the module ignition cycle counter reaches the reset threshold, without a repeat

of the malfunction.

Diagnostic Aids

- This DTC may be stored as a history DTC with out 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

Step	Action	Yes	No
Schematic Reference:Body Control System Schematics			
Connector End View Reference:Master Electrical Component List in Wiring Systems			
1	Did you perform the Diagnostic System Check for the system exhibiting the symptom?	Go to Step 2	Go to Control Module References for the applicable Diagnostic System Check
2	<ol style="list-style-type: none"> 1. Install a scan tool. 2. Turn ON the ignition, with the engine OFF. 3. Retrieve DTCs. Is DTC retrieved as a current DTC?	Go to Step 3	Go to Diagnostic Aids
3	IMPORTANT: Perform the programming or set up procedure for the replaced control module if required. Replace the control module setting the DTC as current. Refer to Control Module References for applicable replacement procedure.Did you complete the replacement?	Go to Step 4	-
4	<ol style="list-style-type: none"> 1. Use the scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text. Does the DTC reset?	Go to Step 2	System OK

DTC B1001

Circuit Description

Modules can be configured with the applicable vehicle options. This code implies that a module was not configured either at the assembly plant or after replacement.

Conditions for Running the DTC

The ignition switch is turned ON.

Conditions for Setting the DTC

The DTC sets when a module is not configured properly.

Conditions for Clearing the DTC

- A current DTC B1001 will clear when the module is properly programmed.
- A history DTC will clear after the modules ignition cycle counter reaches the reset threshold, without a repeat of the malfunction.

Diagnostic Aids

The most likely reason for this DTC being set is due to incorrect calibration files downloaded to the module installed in the vehicle or the module was replaced without the recalibration having been performed.

Test Description

The number below refers to the step number on the diagnostic table.

3: If DTC B1001 is set as current, reprogram the module.

DTC B1001

Step	Action	Yes	No
Schematic Reference:Body Control System Schematics Connector End View Reference:Master Electrical Component List in Wiring Systems			
1	Did you perform the Diagnostic System Check for the system exhibiting the symptom?	Go to Step 2	Go to Control Module References for the applicable Diagnostic System Check
2	1. Install the scan tool. 2. Turn ON the ignition, with the engine OFF. 3. Retrieve the DTCs. Is the DTC retrieved as current?	Go to Step 3	Go to Diagnostic Aids
3	Perform the programming or set up procedure for the module. Refer to Control Module References for the proper procedure. Does the DTC reset?	Go to Step 4	System OK
4	IMPORTANT: Perform the programming or setup procedure for the replaced control module. Replace the module. Refer to Control Module References for applicable replacement procedure.Did you complete the replacement?	System OK	

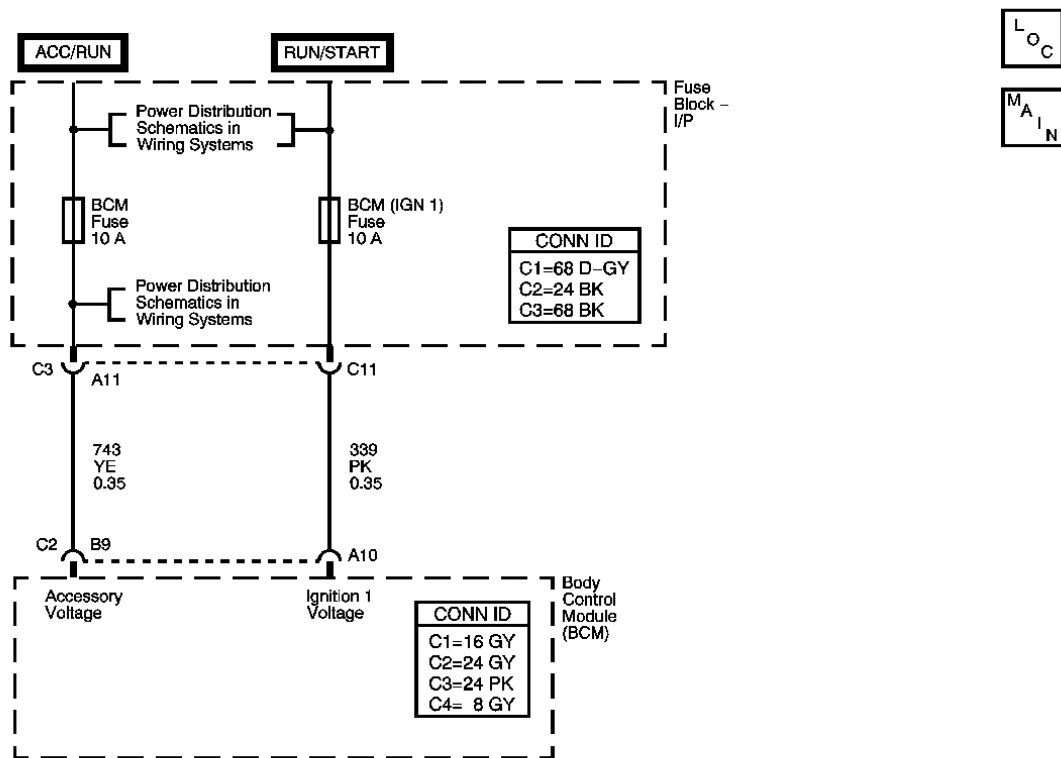


Fig. 1: DTC B1372 Circuit
 Courtesy of GENERAL MOTORS CORP.

Circuit Description

Normal vehicle class 2 communication will not commence until the system power mode has been identified. The BCM communicates the system power mode to all the modules connected to the class 2 serial data circuit. The BCM monitors the state of the ignition 1 voltage circuit, accessory voltage circuit and the engine run flag (ERF) in order to determine the present system power mode. The ERF is a serial data message from the engine controller.

Conditions for Running the DTC

Anytime the BCM receives an input or message. The ignition is in the START position.

Conditions for Setting the DTC

The BCM has detected the ignition 1 voltage circuit is open or shorted to ground for greater than 1.2 seconds when the accessory voltage circuit is high and the engine run flag is true.

Action Taken When the DTC Sets

- There is no cluster illumination during bulb check.
- DTC B1372 is set in the BCM.
- The malfunction indicator lamp (MIL) is illuminated.
- BCM (IGN 1) fuse will open with a short to ground present.

Conditions for Clearing the MIL/DTC

- A current DTC clears and the MIL is turned OFF when the fault is no longer present.
- A history DTC clears when the module ignition cycle counter reaches the reset threshold, without a repeat of the fault.

Diagnostic Aids

Refer to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems.

Device Power Moding

Key Position	Ignition Accessory/Run	Ignition 1 Run/Crank
RUN	Active	Active
CRANK	Inactive	Active
ACCY	Active	Inactive
OFF	Inactive	Inactive

Test Description

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

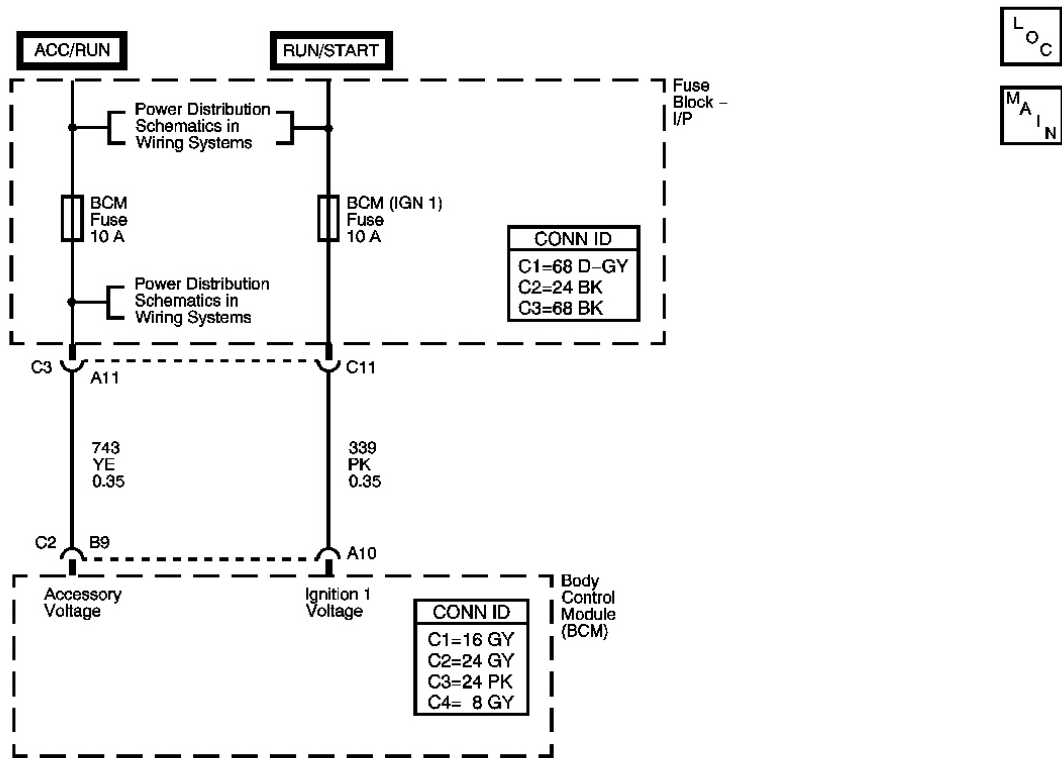
3: This step tests the inactive signal circuit for an open or a high resistance.

DTC B1372

Step	Action	Yes	No
Schematic Reference:Body Control System Schematics Connector End View Reference:Master Electrical Component List in Wiring Systems			
1	Did you perform the Diagnostic System Check for the system exhibiting the symptom?	Go to Step 2	Go to Control Module References for the applicable Diagnostic System Check
2	1. Turn ON the ignition, with the engine OFF. 2. With a scan tool, observe the Ignition 1 Input parameter in BCM security data display. Does the Ignition 1 Input parameter display High?	Go to Diagnostic Aids	Go to Step 3

3	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Disconnect the body control module (BCM) connector C2. 3. Turn ON the ignition, with the engine OFF. 4. Connect a test lamp between the inactive ignition 1 voltage signal circuit and a good ground. <p>Does the test lamp illuminate?</p>	Go to Step 4	Go to Step 5
4	<p>Inspect for poor connections and terminal tension at the harness connector of the BCM. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to Step 7	Go to Step 6
5	<p>Repair the inactive ignition 1 voltage signal circuit for an open, high resistance or a short to ground. Refer to Circuit Testing and Wiring Repairs in Wiring Systems.</p> <p>Did you complete the repair?</p>	Go to Step 7	-
6	<p>IMPORTANT: Perform the programming or set up procedure for the BCM. Refer to <u>Body Control Module (BCM) Programming/RPO Configuration</u> .</p> <p>Replace the BCM. Refer to Body Control Module Replacement for applicable replacement procedure. Did you complete the replacement?</p>	Go to Step 7	-
7	<ol style="list-style-type: none"> 1. Use a scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text. <p>Does the DTC reset?</p>	Go to Step 2	System OK

DTC B1382



L O C
M A I N

Fig. 2: DTC B1382 Circuit
 Courtesy of GENERAL MOTORS CORP.

Circuit Description

Normal vehicle class 2 communication will not commence until the system power mode has been identified. The BCM communicates the system power mode to all the modules connected to the class 2 serial data circuit. The BCM monitors the state of the ignition 1 voltage circuit, accessory voltage circuit and the engine run flag (ERF) in order to determine the present system power mode. The ERF is a serial data message from the engine controller.

Conditions for Running the DTC

Anytime the BCM receives an input or message. The ignition is in the START position.

Conditions for Setting the DTC

The BCM has detected the accessory voltage circuit is open or shorted to ground for greater than 1 minute when the ignition 1 voltage circuit is high and the engine run flag is true.

Action Taken When the DTC Sets

- There is no cluster illumination during bulb check.
- DTC B1382 is set in the BCM.
- BCM fuse will open with a short to ground present.

Conditions for Clearing the MIL/DTC

- A current DTC clears and the MIL is turned OFF when the fault is no longer present.
- A history DTC clears when the module ignition cycle counter reaches the reset threshold, without a repeat of the fault.

Diagnostic Aids

Refer to Testing for Intermittent Conditions and Poor Connections in Wiring Systems.

Device Power Moding

Key Position	Ignition Accessory/Run	Ignition 1 Run/Crank
RUN	Active	Active
CRANK	Inactive	Active
ACCY	Active	Inactive
OFF	Inactive	Inactive

Test Description

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

3: This step tests the inactive signal circuit for an open or a high resistance.

DTC B1382

Step	Action	Yes	No
Schematic Reference:Body Control System Schematics			
Connector End View Reference:Master Electrical Component List in Wiring Systems			
1	Did you perform the Diagnostic System Check for the system exhibiting the symptom?	Go to Step 2	Go to Control Module References for the applicable Diagnostic System Check
2	1. Turn ON the ignition, with the engine OFF. 2. With a scan tool, observe the Ignition 2 Input parameter in BCM security data display. Does the Ignition 2 Input parameter display High?	Go to Diagnostic Aids	Go to Step 3
	1. Turn OFF the ignition. 2. Disconnect the body control module (BCM) connector C2.		

3	<p>3. Turn ON the ignition, with the engine OFF.</p> <p>4. Connect a test lamp between the inactive accessory voltage signal circuit and a good ground.</p> <p>Does the test lamp illuminate?</p>	Go to Step 4	Go to Step 5
4	<p>Inspect for poor connections and terminal tension at the harness connector of the BCM. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to Step 7	Go to Step 6
5	<p>Repair the inactive accessory voltage signal circuit for an open, high resistance or a short to ground. Refer to Circuit Testing and Wiring Repairs in Wiring Systems.</p> <p>Did you complete the repair?</p>	Go to Step 7	-
6	<p>IMPORTANT:</p> <p>Perform the programming or set up procedure for the BCM. Refer to <u>Body Control Module (BCM) Programming/RPO Configuration</u> .</p> <p>Replace the BCM. Refer to Body Control Module Replacement for applicable replacement procedure. Did you complete the replacement?</p>	Go to Step 7	-
7	<p>1. Use a scan tool in order to clear the DTCs.</p> <p>2. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text.</p> <p>Does the DTC reset?</p>	Go to Step 2	System OK

CONTROL MODULE REFERENCES

Control Module References

Control Module	Repair	Diagnostic System Check	Schematic
Body Control Module (BCM)	Refer to Body Control Module Replacement	Refer to Diagnostic Starting Point - Body Control System	Refer to Body Control System Schematics
Electronic Brake/Traction Control Module (EBTCM)	Refer to Electronic Brake Control Module Replacement in Anti-lock Brake System	Refer to Diagnostic System Check - ABS in Anti-lock Brake System	Refer to ABS Schematics in Anti-lock Brake System
Engine Control Module (ECM) (L61)	Refer to Engine Control Module (ECM) Replacement in Engine Controls - 2.2L (L61)	Refer to Diagnostic System Check - Engine Controls in Engine Controls - 2.2L (L61)	Refer to Engine Controls Schematics in Engine Controls - 2.2L (L61)

Inflatable Restraint Sensing and Diagnostic Module (SDM)	Refer to <u>Inflatable Restraint Sensing and Diagnostic Module Replacement</u> in SIR	Refer to <u>Diagnostic System Check - SIR</u> in SIR	Refer to <u>SIR Schematics</u> in SIR
Instrument Panel Cluster (IPC)	Refer to <u>Instrument Panel Cluster (IPC) Replacement</u> in Instrument Panel, Gages, and Console	Refer to <u>Diagnostic System Check - Instrument Cluster</u> in Instrument Panel, Gages, and Console	Refer to <u>Instrument Cluster Schematics</u> in Instrument Panel, Gages, and Console
Power Steering Control Module (PSCM)	Refer to <u>Steering Column Replacement</u> in Steering Wheel and Column	Refer to <u>Diagnostic System Check - Power Steering System</u> in Power Steering System	Refer to <u>Power Steering System Schematics</u> in Power Steering System
Powertrain Control Module (PCM) (L66)	Refer to <u>Powertrain Control Module (PCM) Replacement</u> in Engine Controls - 3.5L (L66)	Refer to <u>Diagnostic System Check - Engine Controls</u> in Engine Controls - 3.5L (L66)	Refer to <u>Engine Controls Schematics</u> in Engine Controls - 3.5L (L66)
Transmission Control Module (TCM) (5AT)	Refer to <u>Powertrain Control Module (PCM) Replacement</u> in Engine Controls - 3.5L (L66)	Refer to <u>Diagnostic System Check - Automatic Transmission</u> in Automatic Transmission (5AT)	Refer to <u>Automatic Transmission Controls Schematics</u> in Automatic Transmission (5AT)
Transmission Control Module (TCM) (VT25-E)	Refer to <u>Transmission Control Module (TCM) Replacement</u> in Automatic Transmission VT25-E	Refer to <u>Diagnostic System Check - Automatic Transmission</u> in Automatic Transmission VT25-E	Refer to <u>Automatic Transmission Controls Schematics</u> in Automatic Transmission VT25-E
Vehicle Communication Interface Module (VCIM)	Refer to <u>Communication Interface Module Replacement</u> in Cellular Communication	Refer to <u>Diagnostic System Check - Cellular Communication</u> in Cellular Communication	Refer to <u>OnStar Schematics</u> in Cellular Communication

REPAIR INSTRUCTIONS

BODY CONTROL MODULE REPLACEMENT

Removal Procedure

1. Remove the radio bezel. Refer to **Radio Replacement** in Entertainment.

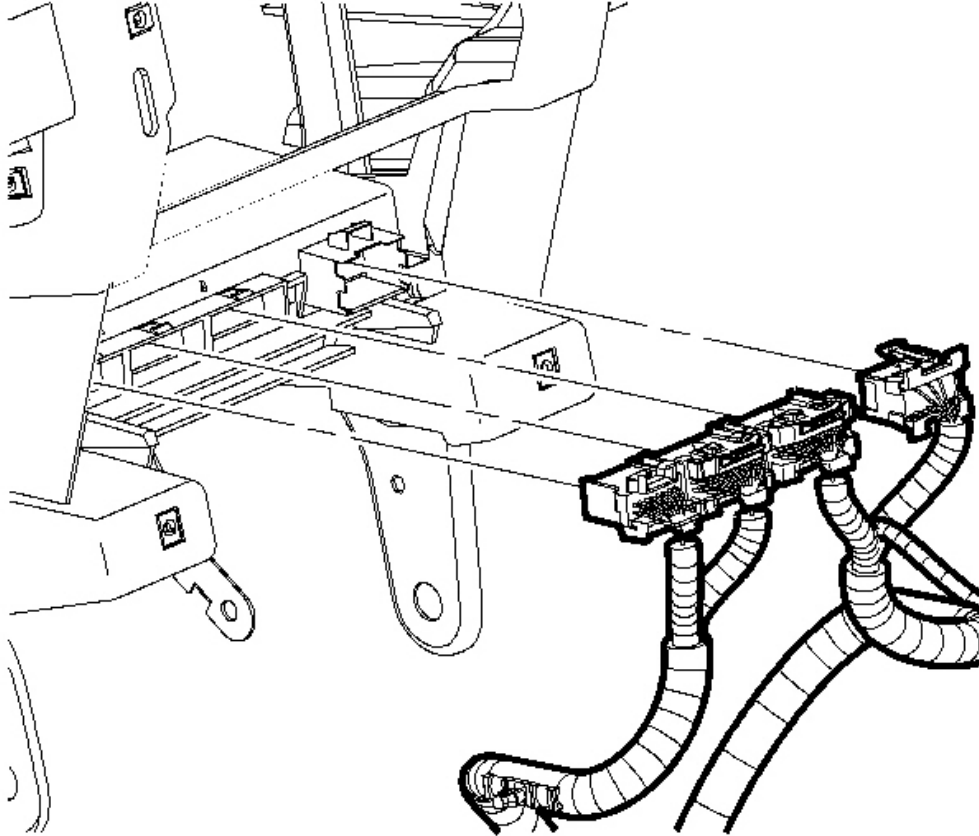


Fig. 3: Install The Radio Bezel
Courtesy of GENERAL MOTORS CORP.

2. Disconnect the body control module (BCM) electrical harnesses.
3. Remove the BCM from the instrument panel (I/P) retainer:
 1. Pry the BCM tabs from the locking tabs on the underside of the restraint.
 2. Slide the BCM out of the retainer.

Installation Procedure

1. Install the BCM.

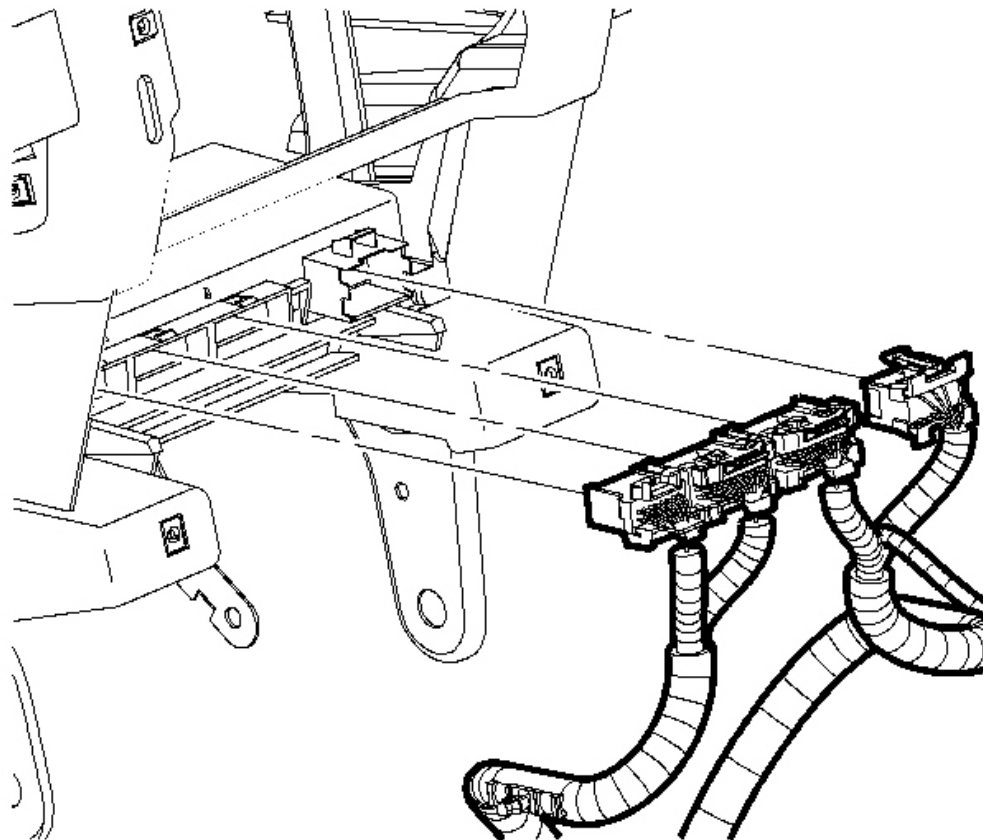


Fig. 4: Install The Radio Bezel
Courtesy of GENERAL MOTORS CORP.

2. Install the radio bezel. Refer to **Radio Replacement** in Entertainment.
3. Slide the BCM tabs into the slots in the I/P retainer until the tabs lock into place.
4. Connect the electrical connectors.
5. Program a new or a remanufactured BCM. Refer to **Body Control Module (BCM) Programming/RPO Configuration** .

BODY CONTROL MODULE (BCM) PROGRAMMING/RPO CONFIGURATION

1. The body control module (BCM) must be programmed with the proper RPO configurations. The BCM

stores the information regarding the vehicle options and if the BCM is not properly configured with the correct RPO codes, the BCM will not control all of the features properly. Ensure that the following conditions exist in order to prepare for BCM programming:

- The battery is fully charged.
 - The ignition switch is in the ON position.
 - The data link connector (DLC) is accessible.
 - All disconnected modules and devices are reconnected before programming.
2. To setup a new BCM, use the Tech 2 in conjunction with the Saturn Service Stall System. Refer to **Service Programming System (SPS)** in Programming.
 3. If the BCM fails to accept the program, perform the following steps:
 - Inspect all BCM connections.
 - Verify that the scan tool has the latest software version.

Passlock Learn Procedures

IMPORTANT: If any module or device listed is replaced, programming of the module must be done prior to performing the Passlock Learn procedure.

Perform the Learn Procedure if any of the following components have been replaced:

- The body control module (BCM)
- The ignition switch
- The engine control module (ECM)

Refer to **Programming Theft Deterrent System Components** in Theft Deterrent for the proper procedure.

IMPORTANT: After programming, perform the following to avoid future misdiagnosis:

1. Turn the ignition OFF for 10 seconds.
2. Connect the scan tool to the data link connector.
3. Turn the ignition ON with the engine OFF.
4. Use the scan tool in order to retrieve history DTCs from all modules.
5. Clear all history DTCs.

DESCRIPTION AND OPERATION

BODY CONTROL SYSTEM DESCRIPTION AND OPERATION

A/C Request

Automatic Climate Control

The ACC system will request air compressor over serial data from the ACC module to the body control module (BCM). The BCM will send the request on to the powertrain control module (PCM) or engine control module (ECM), if request is valid.

Standard HVAC

A/C request is made by the HVAC control head supplying voltage to circuit 66 to the BCM. The BCM will then request over the serial data link to the engine controller to operate the compressor. The BCM provides evaporator freeze protection by monitoring engine speed and ambient temperature and evaporator temperature from the A/C sensor.

Anti-Lockout

The anti-lockout feature aids in preventing the customer from locking their car keys in the vehicle. This is a programmable feature using the Tech 2. The options are enable and disabling the feature. The feature works as follows: If the keys are in the ignition, and a manual door lock switch is activated with any door open, the BCM will lock all doors, then within 500 mS, the drivers door will unlock. This feature can be overridden in 2 ways:

- The doors will lock if a lock command from a remote keyless entry (RKE) transmitter is sent to the BCM
- Manually push the lock tab on the door.

Audible Warnings

The BCM will provide an audible warning for various events relating to the vehicle. The functions that provide an audible warning are key in ignition, light ON, occupant restraint (seat belt) and park brake.

Key in Ignition Audible Chime

The ignition key must be seated and rotated before a chime will occur. The BCM will provide an audible chime if the key is left in the ignition in either OFF or Accessory position with the drivers door open. The chime rate for this chime is 150 chimes per minute. The key in ignition chime has a higher priority than the lights on chime.

Lights On Audible Chime

The BCM will provide an audible chime if the park lights are ON and the drivers door open. In addition 1 of 2 other conditions exists. The key is out of the ignition or the key is in the ignition at the OFF position and has not been turned. The BCM will chime at a rate of 200 chimes per minute until the conditions are removed.

Occupant Restraint Audible Chime

The BCM will provide an audible chime based on the class 2 message received from the SDM if the drivers seat belt is not buckled when the ignition is turned to run or crank. The chime rate for this feature is 50 chimes per minute.

Park Brake Audible Chime

The BCM will provide an audible chime for park brake when the park brake is applied and the vehicle speed is

higher than 6 mph. The chime rate for this feature is 200 chimes per minute.

Telltale Chimes

The BCM will provide 4 chimes for each I/P cluster light activation, per ignition cycle at a rate of 150 or 200 chimes per minute. The chimes are limited to 1 chime event per light for each ignition cycle. The power up light function will not activate the light chime function. If the light becomes active during a drive cycle then the chime will sound.

The following lights will activate the chime function:

- Air Bag Readiness
- Anti-Lock Brake System (ABS)
- Brake System Warning
- Change Oil Soon Indicator
- Charging System
- Decklid/Liftgate Ajar
- Engine Coolant Temperature Warning
- Engine Oil Pressure
- Low Coolant Warning
- Low Fuel

Battery Rundown Protection

Battery rundown protection, inadvertent power, is controlled by the BCM for all devices powered by circuit 1732. The devices include glove compartment lamp, rear dome lamps, cargo lamp, map lamps, reading lamps, sunshade mirror lamps and courtesy lamps.

Should any device be ON, the BCM will turn inadvertent power off after 20 minutes to conserve battery energy if there has not been an ignition switch transition to RUN or START, an RKE LOCK or UNLOCK, liftgate operation or a driver/passenger door open/close. Inadvertent power shutoff is disabled in ignition RUN or START.

IMPORTANT: To prevent battery rundown on newly delivered vehicles, inadvertent power is limited to 3 minutes until vehicle mileage exceeds 15 miles.

BCM Replacement

The body control module (BCM) is pre-programmed with software and calibrations for operation when received from the plant. The requirements for replacement of the module are located in the saturn service stall (SSS) Users Guide. In general, the existing BCM information is read from the controller and stored in SSS until the new BCM is installed. Then the option content, odometer, and other vehicle specific information, from the original BCM is written into the new BCM. If the original controller is unreadable, the option content for the specific vehicle will require input. Refer to **Body Control Module (BCM) Programming/RPO Configuration** on the procedure for programming a BCM.

BTSI Solenoid

The brake transaxle shift interlock (BTSI) solenoid is energized by the BCM switching circuit 816 to ground. When energized, the BTSI solenoid will allow shifting from PARK. A condition for shifting from PARK is that the foot brake must be applied. The BCM receives this information over the serial data link from the engine controller.

The BCM also monitors ignition 1 circuit 339 and ACC 2 circuit 743 to determine if the ignition switch is in the RUN or ACC position.

CAN/Class 2 Communications

The class 2 serial data circuit 1807 is used to communicate information between modules, for example the body control module and the engine controller.

Contained in each module's memory is a list of serial data messages that are important and should be received by the module. Also contained are the default actions to be taken by the module, if one of the important messages is not received in time. One of those important messages is the state of health (SOH) message. This message is sent by a module, if no other message needs to be sent, to let all the other modules on the serial data circuit know the sending module is working correctly.

Each time the ignition is turned ON, all the modules on the class 2 serial data circuit first learn the other modules connected to the class 2 serial data circuit. Modules are able to learn the other modules on the serial data circuit because each of the important messages has a source identifier as part of the message.

This process of learning by a module allows the module to know if it has lost communication with a specific module on the class 2 data circuit.

The ECM, electronic brake traction control module (EBTCM), and the transaxle control module (TCM) communicate with each other over the CAN (controller area network) bus circuit 2501 and circuit 2500 (V6 only). The CAN bus is a communication link similar to class 2.

The BCM acts as a gateway between the other modules connected to the class 2 serial data circuit 1807 and the ECM, EBTCM, and TCM connected to the CAN bus circuit 2501 and circuit 2500.

State of health (SOH) messages are sent from the ECM, EBTCM and TCM to the BCM when the ignition is turned ON and during vehicle operation. These messages tell the BCM the ECM, EBTCM and TCM are working correctly. The BCM has an internal reset counter to monitor the status of the CAN bus. When the counter reaches a defined value and no CAN messages have been received from either the ECM, EBTCM or TCM, the BCM sets DTC U2104 - CAN Bus Reset Counter Overrun.

Coolant Level

When engine coolant is at the proper level, the low coolant switch is closed. When in this condition, battery voltage is applied to the low coolant circuit 1478 input of the BCM.

When coolant is below the proper level, the low coolant switch opens. Because no voltage is applied to circuit

1478 the BCM responds by sending a serial data message to the instrument panel cluster to turn ON the low coolant warning light.

The BCM has an internal timer, which will not turn ON the low coolant warning light unless the coolant level is low for greater than 30 seconds. The timer avoids coolant sloshing, falsely turning ON the low coolant telltale.

Daytime Running Lamps

Daytime running lamps (DRL) are controlled by the BCM based on input from the high beam headlamp circuit 1200, the low beam headlamp circuit 1201, the parking brake circuit 1134 and ignition switch state.

When DRL operation is desired, the BCM switches circuit 592 to ground. This action energizes the DRL relay. When energized, the DRL relay operates the left high beam headlamp and right high beam headlamp as a series circuit, 1/2 of battery voltage across each high beam headlamp.

When DRL operation is not desired, the BCM does not provide ground for the DRL relay. When not energized, as when high beam headlamps are desired, the DRL relay operates the right and left high beam headlamps as a parallel circuit, full battery voltage across each high beam headlamp.

For DRL operation, the parking brake must be fully released, the ignition switch must be in the RUN position and headlamp switch must be in the OFF position. Under normal operating conditions, the feedback voltage to the BCM measured at circuit 1200 is (see chart below):

Body Control System Description and Operation

Headlamp	Circuit 1200 Voltage
DRL ON	6 to 8 Volts
Highbeam ON	Less than 1 Volt
Highbeam OFF	Battery Voltage

Delayed Locking

The delayed locking feature will activate when a valid lock command is received from a transmitter while any door or liftgate remains open. The BCM will delay locking the vehicle until all doors and deck lid (hatch) are closed. The lock command will execute within 500 mS after all doors and/or liftgate transition to closed. If during the delayed state a transmitter unlock command, door unlock switch input or the ignition switch changes state to other than OFF, the delayed locking command will cancel.

When the delayed locking feature is active in the delayed state the BCM will activate a chime at the rate of 50 chime per minute for a duration of 3 chime cycles. If the condition or state changes the chime will continue until completion of the chime schedule.

Device Power

Battery 1 voltage is supplied to the BCM by circuit 2540. Battery 2 voltage is supplied to the BCM by circuit 1640. These inputs are internally monitored by the BCM for proper operating voltage. The proper operating voltage range is from 9-16 volts.

Display Dimming

Display dimming is controlled by the BCM based on input received from the dimming potentiometer. The dimming potentiometer is connected between circuit 230 and circuit 470. The BCM monitors their inputs and provides a pulse width modulated (PWM) output at circuit 8 to operate the display lamps.

Dome/Rear Reading Lamps

Dome and rear reading lamp operation is through the BCM providing ground to circuit 156. When manually operated by their respective local switches, the dome and rear reading lamps are grounded through circuit 450 and the right body ground splice pack.

Door Locking/Unlocking

Door locking/unlocking, by remote keyless entry (RKE) or driver/all door lock switches, is controlled through the BCM.

When a driver door unlock has been requested, the BCM switches circuit 1391 to battery voltage. This energizes the driver door unlock relay which supplies power to the driver door lock motor. Grounding is achieved through the closed contacts of the all-door lock relay. Grounding is also achieved through the windings of the all-door lock motors and the all-door unlock relay.

When an all-door unlock has been requested, the BCM switches circuit 194 to battery voltage. This energizes the all-door unlock relay which supplies power to all-door lock motors. Grounding is achieved through the closed contacts of the door lock relay. Grounding is also achieved through the winding of the driver door lock motor and the driver door unlock relay.

When an all-door lock has been requested, the BCM switches circuit 195 to battery voltage. This energizes the all-door lock relay which supplies power to all-door lock motors. Grounding is achieved through the closed contacts of the driver door unlock relay and all-door unlock relay.

Lock/Unlock power application is limited by the BCM to 7 seconds to protect lock motors.

ECU Malfunction

The BCM performs an electrically erasable programmable read-only memory (EEPROM) checksum as a part of its internal diagnostics as the BCM is operating. When the EEPROM checksum does not equal a predetermined value, DTC B1000 - ECU Malfunction sets. The checksum is the contents of each memory location in EEPROM added together.

Electric Rear Defogger

When the rear defog switch input circuit 292 to the BCM is momentarily switched to ground, as when the rear defog switch is pressed, the BCM will respond by grounding circuit 193, the coil of the rear defog relay.

This action energizes the rear defog relay providing power to circuit 293 - rear defog heater elements, circuit 683 - heated mirror relay coil and circuit 683 - rear defog LED. Momentarily switching circuit 292 to ground

again will result in the BCM turning the rear defog relay OFF.

Front Washer Motor

The BCM monitors the front washer motor circuit 228. When a front windshield wash is requested for more than 2 minutes circuit 228 at battery voltage, the BCM will turn OFF the front wiper motor if the front wiper is not requested by the wiper switch.

Power for the front washer motor, and rear washer motor when equipped, is supplied through the front wiper fuse and washer switch. Grounding for the front washer motor is through circuit 550 or through the OFF position of the rear washer motor switch, when equipped.

Front Wiper Control

When intermittent or mist operation of the windshield wiper is selected, battery voltage from the wiper switch is applied to the front wiper input of the BCM. The BCM responds by switching circuit 1445 to ground. This action energizes the front wiper relay, providing low speed operation of the wiper motor during single swipes.

Control of the wiper during continuous LO or HI speed switch settings is direct wired from the wiper switch to the wiper motor and is not under the control of the BCM.

Fuel Level

The BCM receives fuel level data from the ECM over CAN. The BCM calculates the data and sends the result to the instrument cluster over class 2 to control the fuel gauge deflection. The scan tool supports a display for fuel gage position.

Grounding

Ground for the BCM is by circuit 151 through the I/P ground splice pack G201.

Horn

The BCM controls the operation of the horns for the security system and remote keyless entry (RKE) functions. Circuit 28 is grounded by the BCM when horn operation is desired. Normal operation of the horn is performed by the horn switch grounding the horn relay and is not controlled by the BCM.

There is a 30 second delay prior to setting DTC B2752 - Horn Relay Coil Circuit Low for grounded circuit conditions. It is possible to set DTC B2752 if the horn is operated by the horn switch for greater than 30 seconds.

Instrument Panel Lights/Gauges

There are several lights/gauges in the I/P cluster that can be controlled by the BCM. The BCM will send a class 2 message to the I/P cluster when certain DTCs set in the BCM. Refer to the specific BCM code in order to determine if an indicator was turned ON by the BCM. For a description on all I/P cluster lights/gauges, refer to the **Instrument Panel Cluster (IPC) Description and Operation** and **Indicator/Warning Message**

Description and Operation in Instrument Panel, Gages, and Console.

Intermittent Wiper Delay

The intermittent wiper delay switch is a voltage divider connected across BCM inputs circuit 113 and circuit 96. The wiper relay is energized by the BCM switching circuit 1445 to ground depending on delay switch position.

The intermittent wiper delay switch has three switch positions:

- Delay 3 - 2000 ohms resistance
- Delay 2 - 1000 ohms resistance
- Delay 1- 500 ohms resistance

Refer to **Wiper/Washer System Description and Operation** in Wiper/Washer Systems for the timing of each delay position.

Key-In-Ignition

When the ignition key is seated and rotated in the ignition switch, the key-in-ignition switch contacts close grounding circuit 80. The BCM monitors the state of the key-in-ignition switch, the state of the ignition switch (OFF, ACC or RUN), and the drivers door to control the key-in-ignition chime.

Keyless Entry Transmitter

The BCM will fail DTC B3109 - Keyless Entry Transmitter Low Battery when the transmitter battery voltage is below 2.5 volts. Nominal transmitter battery voltage is 3.0 volts.

Liftgate Release

The liftgate on the Saturn VUE operates just as the other passenger doors do. The liftgate will lock and unlock using the RKE transmitters or the power door lock switch inside the vehicle.

Low Brake Fluid

Under low brake fluid conditions, the brake fluid switch closes. When closed, the brake fluid switch grounds circuit 333. The BCM responds by sending a serial data message to the instrument panel cluster (IPC) to turn ON the brake system warning light.

Notification Feature

The BCM provides a notification feature that will unlock all of the doors if the vehicle is equipped with power door locks, turn ON the dome lamp and flash the daytime running lights (DRLs). The sensing and diagnostic module (SDM) will send the air bag deployed message to the BCM. The BCM will begin the notification event 15 seconds after receiving the message. The BCM will continue flashing the DRLs and keep the dome lamp ON until the ignition is turned from ON to Off then ON. The notification feature is enabled from the factory on all vehicles.

Odometer

The BCM calculates vehicle mileage from rolling count data sent to the BCM by a CAN message from the ECM. The BCM sends the mileage data to the cluster over class 2 serial data to display the vehicle mileage. The actual mileage is located in the BCM. All calculations for odometer are performed in the BCM.

Oil Life Reset

The GM Oil Life System calculates when to change your engine oil and filter based on vehicle use. Anytime your oil is changed, reset the system so it can calculate when the next oil change is required. If a situation occurs where you change your oil prior to a Change Engine Oil light being turned on, reset the system.

After changing the engine oil, reset the system by performing the following steps:

1. Turn the ignition key to RUN with the engine OFF.
2. Fully press and release the accelerator pedal three times within 5 seconds.

If the Change Engine Oil light is flashing, the system is reset. The light will flash for up to 30 seconds or until the ignition is turned OFF. If the light comes on again and stays on for 30 seconds at the next ignition cycle, it did not reset. You will need to reset the system again.

Option Configuration

The vehicle option content information must be entered as part of the BCM programming procedure. If the vehicle option content information is not included and programming procedure is completed, DTC B1001 - Option Configuration Error will set.

Park Brake

When the park brake input circuit 1134 to the BCM is grounded, as when the parking brake is applied, the BCM will turn ON the brake light in the I/P cluster by sending a serial data message to the instrument panel cluster (IPC).

If the vehicle is moving at greater than 6 mph and the park brake input to the BCM is grounded, the BCM will sound the warning chime to notify the driver the parking brake is applied. DTC B0005 - Park Brake Switch Circuit Low will set under these conditions.

Park Lamp Switch

The BCM compares the state of the park lamp circuit 9 to the high beam headlamp circuit 1200 and the low beam headlamp circuit 1201.

Power Mode

The BCM monitors ignition 1 voltage circuit 339, ACC voltage circuit 743 and the engine run flag (ERF). The ERF is a serial data message from the engine controller. The BCM determines the state of the ignition switch for all modules on the serial data link.

Rear Washer Motor

The BCM monitors the rear washer motor circuit 392. When a rear windshield wash is requested for more than two minutes circuit 392 at battery voltage, the BCM will turn OFF the rear wiper motor if the rear wiper is not requested by the wiper switch.

Power for the rear washer motor is supplied through the front wiper fuse and rear washer switch. Grounding for the rear washer motor is through the OFF position of the front washer motor switch.

Rear Wiper Control

When operation of the rear wiper is selected, battery voltage from the rear wiper switch is applied to the rear wiper input of the BCM circuit 94. The BCM responds by switching circuit 2445 to ground. This action energizes the rear wiper relay, providing power to the rear wiper motor.

Security System

The PASSLOCK(tm) sensor is powered by circuit 812. The PASSLOCK(tm) sensor is grounded by circuit 1057. PASSLOCK(tm) sensor data is supplied to the BCM by circuit 1836.

The PASSLOCK(tm) sensor data supplied to the BCM is in the form of V-codes or voltage codes. When the proper ignition key is turned in the ignition switch, the correct V-code is supplied to the BCM. The BCM responds by sending a serial data password to the engine controller allowing the engine to run.

The security resistor is bypassed under a tamper condition, possible external magnet applied to sensor. In this mode, a specific V-Code is supplied to the BCM. The vehicle will not start in this mode.

Power Outlets - Vue

SCHEMATIC AND ROUTING DIAGRAMS

CIGAR LIGHTER/AUXILIARY OUTLETS SCHEMATICS

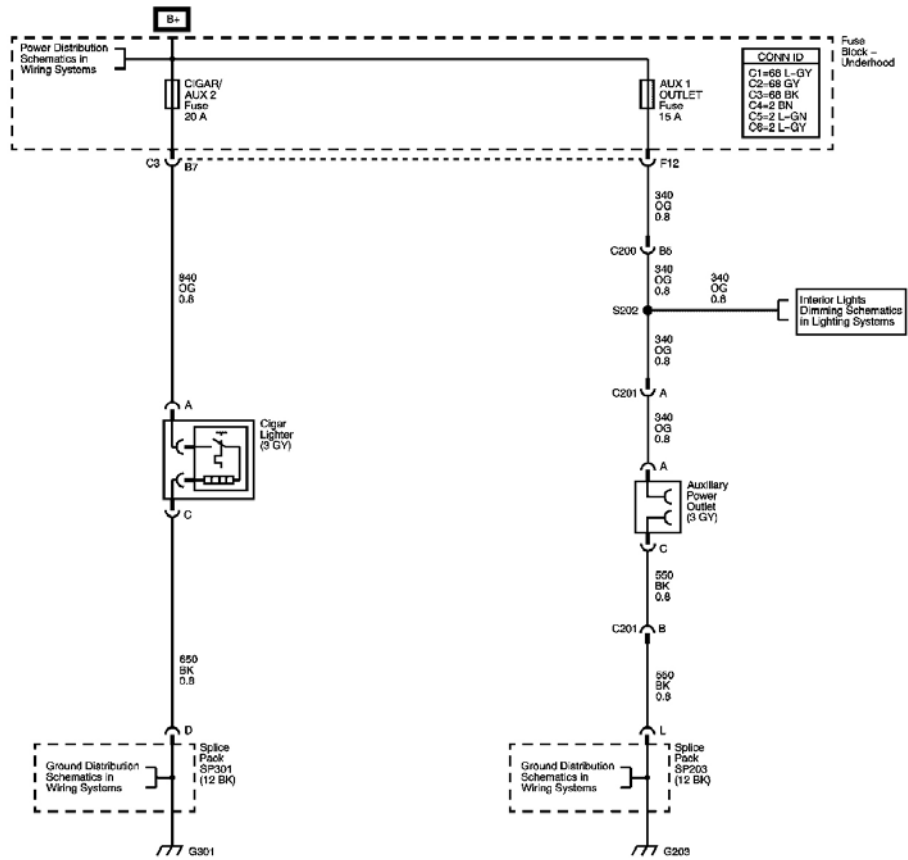


Fig. 1: Cigar Lighter/Auxiliary Outlets Schematic
 Courtesy of GENERAL MOTORS CORP.

COMPONENT LOCATOR

POWER OUTLET COMPONENT VIEWS

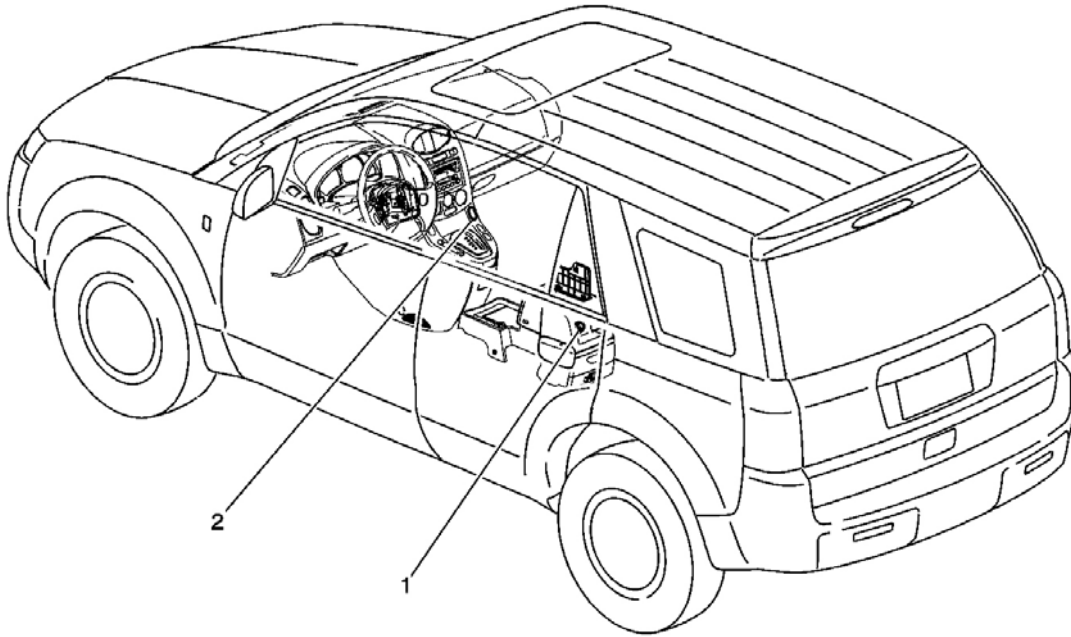


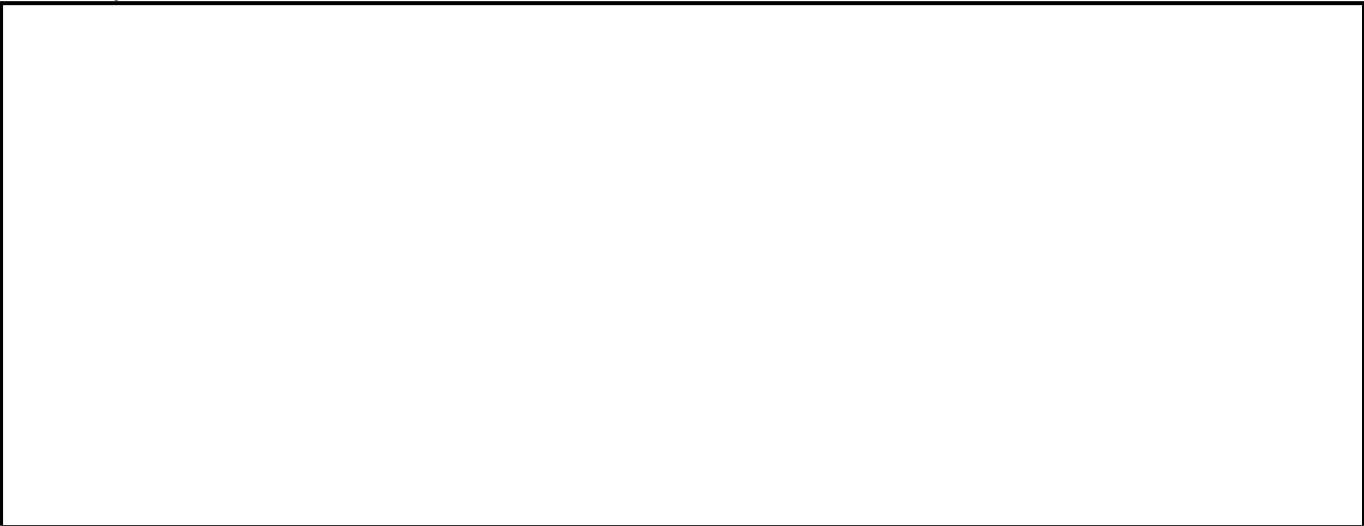
Fig. 2: Power Outlets Component Views
 Courtesy of GENERAL MOTORS CORP.

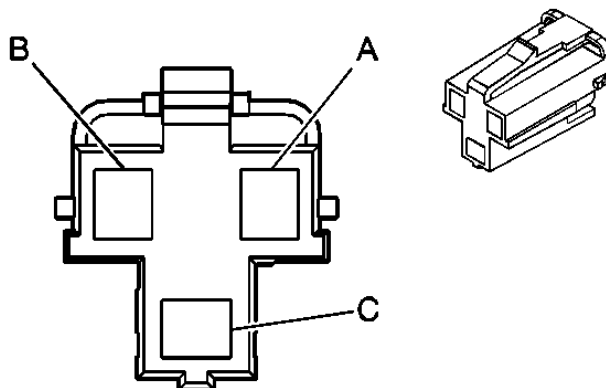
Callouts For Fig. 2

Callout	Component Name
1	Auxiliary Power Outlet
2	Cigar Lighter

POWER OUTLET CONNECTOR END VIEWS

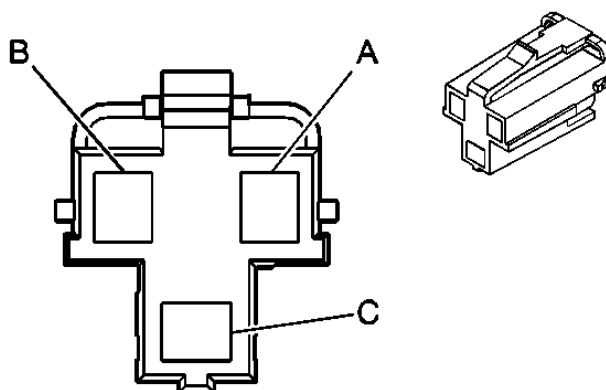
Auxiliary Power Outlet Connector End View





Connector Part Information		<ul style="list-style-type: none"> • 12176836 • 3-Way F Metri-Pack 280 Series (GY) 	
Pin	Wire Color	Circuit Number	Function
A	OG	340	Battery Positive Voltage
B	-	-	Not Used
C	BK	550	Ground

Cigar Lighter Connector End View



Connector Part Information		<ul style="list-style-type: none"> • 12176836 • 3-Way F Metri-Pack 280 Series (GY) 	
Pin	Wire Color	Circuit Number	Function
A	OG	840	Battery Positive Voltage
B	-	-	Not Used

REPAIR INSTRUCTIONS

ACCESSORY POWER RECEPTACLE REPLACEMENT - FLOOR CONSOLE

Tools Required

J 42059 Cigar Lighter Removal Tool. See **Special Tools and Equipment** .

Removal Procedure

1. Remove the fuse located in the I/P fuse block.
2. Lift the tether cap and locate 2 square holes in the receptacle.

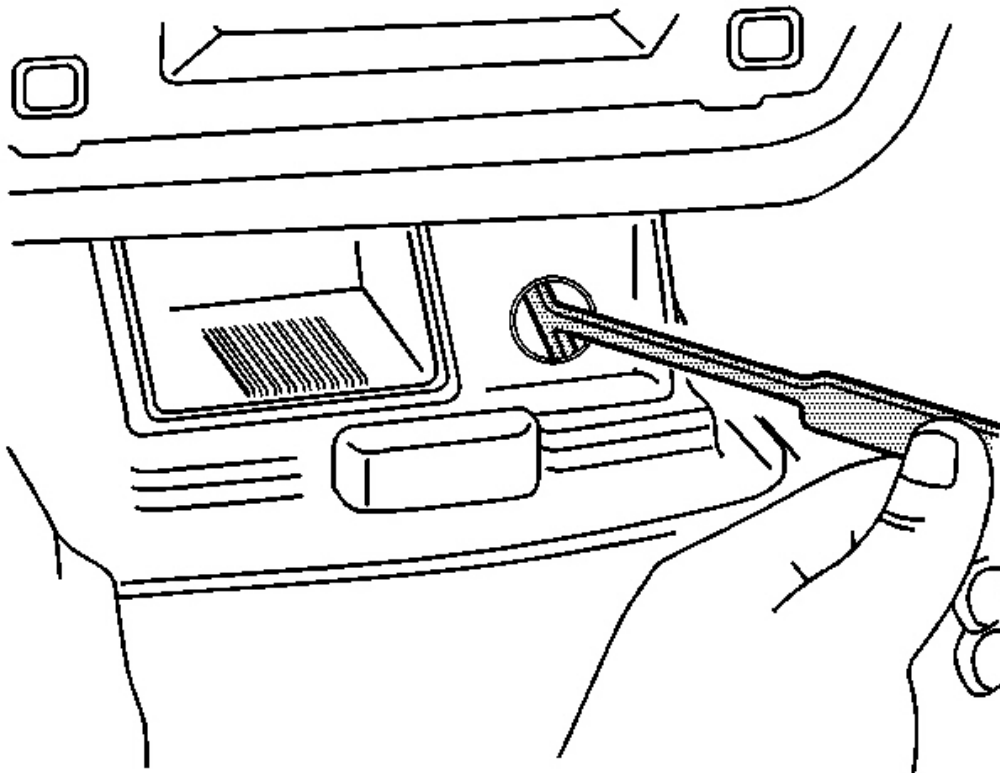


Fig. 3: View of Receptacle Connector
Courtesy of GENERAL MOTORS CORP.

3. Hold **J 42059** at a 30-degree angle as you insert the tool into the receptacle. See **Special Tools and Equipment**.
4. Position one side of the tool in each hole.
5. Pull the receptacle straight out.
6. Disconnect the connector and remove the receptacle.

Installation Procedure

1. Connect the receptacle connector.

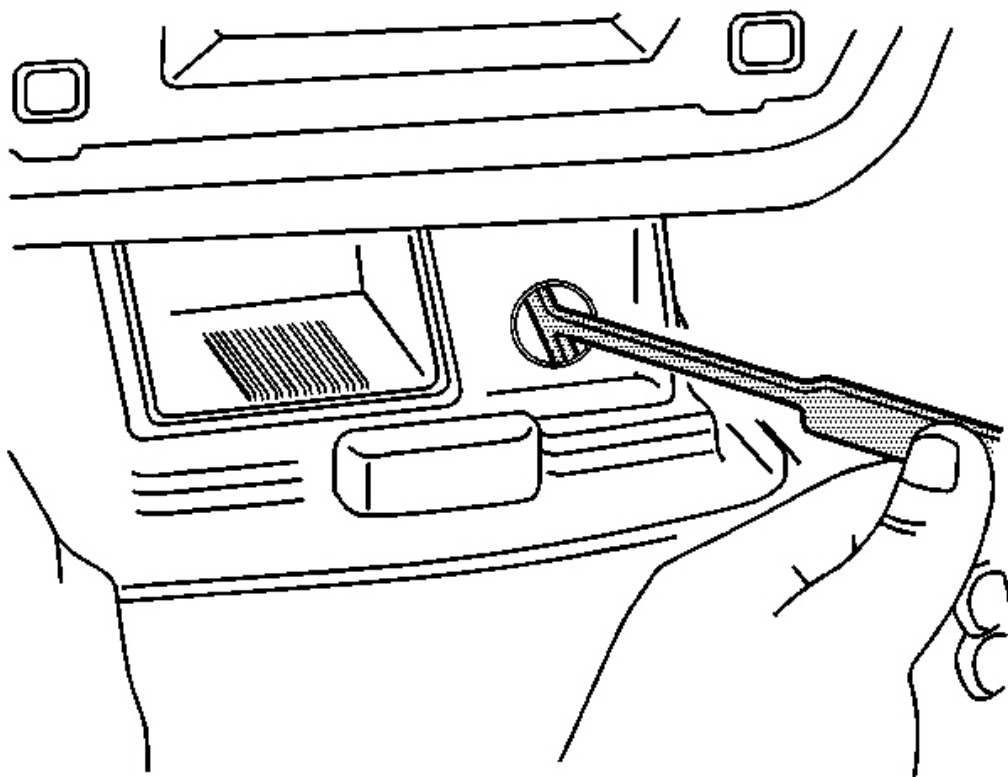
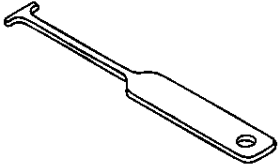


Fig. 4: View of Receptacle Connector
Courtesy of GENERAL MOTORS CORP.

2. Push the receptacle into the side trim.
3. Install the fuse.

SPECIAL TOOLS

Special Tools

Illustration	Tool Number/ Description
	<p data-bbox="894 305 1291 374">J 42059 Cigar Lighter Socket Remover</p>

2004 ACCESSORIES & EQUIPMENT

Vehicle DTC Information - Vue

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC TROUBLE CODE (DTC) LIST - VEHICLE

Diagnostic Trouble Code (DTC) List - Vehicle

DTC	Descriptor
DTC B0005	In Park Switch Circuit
DTC B0012, B0013, B0014, B0016, B0017, or B0018	Right Front/Passenger Frontal Deployment Loop Circuit
DTC B0022, B0024, B0026, B0042, B0043, or B0044	Left Front/Driver Frontal Deployment Loop Circuit
DTC B0028, B0029, or B0030	Right Front/Driver Side Deployment Loop Circuit
DTC B0040, B0041, or B0045	Left Front/Driver Side Deployment Loop Circuit
DTC B0051	Deployment Commanded
DTC B0053	Deployment Commanded With Loop Malfunction Present
DTC B0057, B0058, or B0059	Left Front/Driver Frontal Deployment Loop Open
DTC B0064, B0065, or B0066	Left Front/Driver Frontal Deployment Loop Open
DTC B0077, B0078, B0079, B0080, B0081, or B0082	Left Front/Driver Frontal Deployment Loop Open
DTC B0285	Electric Rear Defrost Circuit Low
DTC B0286	Electric Rear Defrost Circuit High
DTC B0936	Coolant Level Sensor Circuit
DTC B1000	ECU Malfunction
DTC B1001	Option Configuration Error
DTC B1025, B1035, B1045, or B1055	Audio [+] Output Circuit
DTC B1030, B1040, B1050, or B1060	Audio [-] Output Circuit
DTC B1259	Antenna Ground Circuit
DTC B1325	Device Power Circuit
DTC B1327	Device Power 1 Circuit Low
DTC B1328	Device Power 1 Circuit High
DTC B1372	Device Ignition 1 Circuit Low
DTC B1382	Device Ignition ACC Circuit Low
DTC B1482	Battery Rundown Protection Circuit Low
DTC B2455	Cellular Phone Microphone Circuit
DTC B2470	Cellular Phone Antenna Circuit
DTC B2476	Cellular Phone Select Service Switch Malfunction
DTC B2482	Cellular Phone Select Service Switch Range/Performance
DTC B2483 or B2484	Global Positioning System (GPS) Sensor Circuit

DTC B2532	Front Foglamps Control Circuit Low
DTC B2533	Front Foglamps Control Circuit High
DTC B2600	Daytime Running Lamp Control 1 Circuit Malfunction
DTC B2602	Daytime Running Lamp Control 1 Circuit Low
DTC B2603	Daytime Running Lamp Control 1 Circuit High
DTC B2622	Display Dimming PWM Input Circuit Low
DTC B2623	Display Dimming PWM Input Circuit High
DTC B2627	Display Dimming Pulse Width Modulation (PWM) Output Circuit Low
DTC B2628	Display Dimming PWM Output Circuit High
DTC B2662	Park Lamp Switch Circuit Malfunction
DTC B2707	Gearshift Unlock Circuit Low
DTC B2708	Gearshift Unlock Circuit High
DTC B2743	Front Foglamp Switch Circuit High
DTC B2752	Horn Relay Coil Circuit Low
DTC B2753	Horn Relay Coil Circuit High
DTC B2947	Security System Sensor Power Circuit Low
DTC B2948	Security System Sensor Power Circuit High
DTC B2957	Security System Sensor Data Circuit Low
DTC B2958	Security System Sensor Data Circuit High
DTC B2960	Security System Sensor Data Incorrect but Valid
DTC B2965	Key in Ignition Circuit Malfunction
DTC B3031	Security System Controller in Learn Mode
DTC B3033	Security System Indicates Tamper
DTC B3109	Keyless Entry Transmitter Low Battery
DTC B3127 or B3128	Driver Door Only Unlock Circuit
DTC B3132 or B3133	All Door Unlock Circuit
DTC B3137 or B3138	All Door Lock Circuit
DTC B3702	Intermittent Wiper Delay Input Circuit Low
DTC B3703	Intermittent Wiper Delay Input Circuit High
DTC B3708	Front Washer Motor Input Circuit High
DTC B3713	Rear Washer Motor Input Circuit High
DTC B3715, B3716, B3717, B3718, or B3719	Front Wiper Relay Drive Circuit
DTC B3722	Rear Wiper Relay Drive Circuit Low
DTC B3723	Rear Wiper Relay Drive Circuit High
DTC B3787 or B3788	Blower Motor Relay Control Circuit Low
DTC C0000	Vehicle Speed Information Circuit Malfunction
DTC C0035-C0051	Wheel Speed Sensor Circuit
DTC C0060-C0095	EBCM Malfunction
DTC C0110	Pump Motor Malfunction

DTC C0121	Valve Relay Circuit Malfunction
DTC C0161	ABS/TCS Brake Switch Circuit Malfunction
DTC C0236	TCS RPM Signal Circuit Malfunction
DTC C0241	PCM Indicated Requested Torque Malfunction
DTC C0245	Wheel Speed Sensor Frequency Error
DTC C0267	Low Brake Fluid Indicated
DTC C0475	Electric Steering Motor Circuit
DTC C0476	Electric Steering Motor Circuit Performance
DTC C0545	Steering Wheel Torque Input Sensor
DTC C0550	ECU Malfunction
DTC C0551	Option Configuration Error
DTC C0847	Device Ignition 1 Circuit Low
DTC C0848	Device Ignition 1 Circuit High
DTC C0896	Device Voltage Range Performance
DTC C0899	Device 1 Voltage Low
DTC C0900	Device 1 Voltage High
DTC P0030, P0036, P0050, or P0056	HO2S Heater Control Circuit
DTC P0068	MAP/MAF - Throttle Position Correlation
DTC P0097	Intake Air Temperature Sensor 2 Circuit Low
DTC P0098	Intake Air Temperature Sensor 2 Circuit High
DTC P0105	Manifold Absolute Pressure (MAP) Sensor Performance
DTC P0106	Manifold Absolute Pressure (MAP) Sensor Circuit
DTC P0107	Manifold Absolute Pressure (MAP) Sensor Circuit Low Voltage
DTC P0108	Manifold Absolute Pressure (MAP) Sensor Circuit High Voltage
DTC P0112	Intake Air Temperature (IAT) Sensor Circuit Low Voltage
DTC P0113	Intake Air Temperature (IAT) Sensor Circuit High Voltage
DTC P0116	Engine Coolant Temperature (ECT) Sensor Performance
DTC P0117	Engine Coolant Temperature (ECT) Sensor Circuit Low Voltage
DTC P0118	Engine Coolant Temperature (ECT) Sensor Circuit High Voltage
DTC P0120	Throttle Position Sensor "A" Circuit
DTC P0122	Throttle Position (TP) Sensor 1 Circuit Low Voltage
DTC P0123	Throttle Position (TP) Sensor 1 Circuit High Voltage
DTC P0125	Engine Coolant Temperature (ECT) Insufficient for Closed Loop Fuel Control
DTC P0128	Engine Coolant Temperature (ECT) Below Thermostat Regulating Temperature
DTC P0130	HO2S Circuit Bank 1 Sensor 1

DTC P0131	HO2S Circuit Low Voltage Bank 1 Sensor 1
DTC P0132	HO2S Circuit High Voltage Bank 1 Sensor 1
DTC P0133	HO2S Slow Response Sensor 1 (L61)
DTC P0133 or P0153	HO2S Slow Response
DTC P0134	HO2S Circuit Insufficient Activity Bank 1 Sensor 1
DTC P0135 or P0141	HO2S Heater Performance (L61)
DTC P0135 or P0155	HO2S Heater Performance (L66)
DTC P0136	HO2S Circuit Bank 1 Sensor 2
DTC P0137	HO2S Circuit Low Voltage Sensor 2 (L61)
DTC P0137 or P0157	HO2S Circuit Low Voltage (L66)
DTC P0138	HO2S Circuit High Voltage Bank 1 Sensor 2 (L61)
DTC P0138 or P0158	HO2S Circuit High Voltage (L66)
DTC P0139 or P0159	HO2S Slow Response
DTC P0140	HO2S Circuit Insufficient Activity Bank 1 Sensor 2
DTC P0141 or P0161	HO2S Heater Performance
DTC P0171	Fuel Trim System Lean Bank 1 (L61)
DTC P0171 or P0174	Fuel Trim System Lean (L66)
DTC P0172	Fuel Trim System Rich Bank 1 (L61)
DTC P0172 or P0175	Fuel Trim System Rich (L66)
DTC P0201-P0204	Injector Control Circuit (L61)
DTC P0201-P0206	Injector Control Circuit (L66)
DTC P0217	Engine Coolant Overtemperature
DTC P0218	Transmission Fluid Overtemperature
DTC P0220	Throttle Position Sensor "B" Circuit
DTC P0222	Throttle Position (TP) Sensor 2 Circuit Low Voltage
DTC P0223	Throttle Position (TP) Sensor 2 Circuit High Voltage
DTC P0300	Engine Misfire Detected
DTC P0301-P0304	Engine Misfire Detected (L61)
DTC P0301-P0306	Engine Misfire Detected (L66)
DTC P0315	Crankshaft Position System Variation Not Learned (CASE)
DTC P0325	Knock Sensor (KS) Circuit
DTC P0326	Knock Sensor (KS) Performance
DTC P0327	Knock Sensor (KS) Circuit Low Voltage Bank 1
DTC P0335	Crankshaft Position (CKP) Sensor Circuit
DTC P0336	Crankshaft Position (CKP) Sensor Performance
DTC P0340	Camshaft Position (CMP) Sensor Circuit
DTC P0341	Camshaft Position (CMP) Sensor Performance
DTC P0385	Crankshaft Position Sensor "B" Circuit
DTC P0386	Crankshaft Position Sensor "B" Circuit Range/Performance
DTC P0401	Exhaust Gas Recirculation (EGR) Flow Insufficient
DTC P0403	Exhaust Gas Recirculation (EGR) Solenoid Control Circuit

DTC P0404	Exhaust Gas Recirculation Control Circuit Range/Performance
DTC P0406	Exhaust Gas Recirculation (EGR) Position Sensor Circuit High Voltage
DTC P0420	Catalyst System Low Efficiency
DTC P0420 or P0430	Catalyst System Low Efficiency
DTC P0442	Evaporative Emission (EVAP) System Small Leak Detected
DTC P0443	Evaporative Emission (EVAP) Purge Solenoid Control Circuit
DTC P0446	Evaporative Emission (EVAP) Vent System Performance
DTC P0452	Fuel Tank Pressure (FTP) Sensor Circuit Low Voltage
DTC P0453	Fuel Tank Pressure (FTP) Sensor Circuit High Voltage
DTC P0455	Evaporative Emission (EVAP) System Leak Detected
DTC P0461	Fuel Level Sensor Performance
DTC P0462	Fuel Level Sensor Circuit Low Voltage
DTC P0463	Fuel Level Sensor Circuit High Voltage
DTC P0480, P0481, P0691, P0692, P0693, P0694, or P1650	Cooling Fan Relay Control Circuit
DTC P0496	Evaporative Emission (EVAP) System Flow During Non-Purge
DTC P0498	Evaporative Emission (EVAP) Vent Solenoid Control Circuit Low Voltage
DTC P0499	Evaporative Emission (EVAP) Vent Solenoid Control Circuit High Voltage
DTC P0501	Vehicle Speed Sensor "A" Range/Performance
DTC P0502	Vehicle Speed Sensor (VSS) Circuit Low Voltage
DTC P0503	Vehicle Speed Sensor (VSS) Circuit Intermittent
DTC P0506	Idle Speed Low
DTC P0507	Idle Speed High
DTC P0520	Engine Oil Pressure (EOP) Switch Circuit
DTC P0530, P0532, or P0533	Air Conditioning (A/C) Refrigerant Pressure Sensor Circuit
DTC P0562	System Voltage Low
DTC P0563	System Voltage High
DTC P0567	Cruise Control Resume Switch Circuit
DTC P0568	Cruise Control Set Switch Circuit
DTC P0571	Cruise Control Brake Switch Circuit
DTC P0601	Control Module Read Only Memory (ROM)
DTC P0601-P0607, P1600, P1621, P1627, P1680, P1681, P1683, or P2610	ECU Malfunction
DTC P0602	Control Module Not Programmed
DTC P0603	Control Module Long Term Memory Reset

DTC P0604	Control Module Random Access Memory (RAM)
DTC P0606	Control Module Internal Performance
DTC P0621	Generator L-Terminal Circuit
DTC P0622	Generator F-Terminal Circuit
DTC P0628	Fuel Pump Relay Control Circuit Low Voltage
DTC P0629	Fuel Pump Relay Control Circuit High Voltage
DTC P0641	5-Volt Reference Circuit
DTC P0645, P0646, or P0647	Air Conditioning (A/C) Clutch Relay Control Circuit
DTC P0651	Sensor Reference Voltage "B" Circuit/Open
DTC P0685	ECM/PCM Power Relay Control Circuit /Open
DTC P0688	ECM/PCM Power Relay Sense Circuit /Open
DTC P0700	Transmission Control Module (TCM) Requested MIL Illumination
DTC P0705	Transmission Range (TR) Switch Circuit
DTC P0706	Transmission Range Sensor "A" Circuit Range/Performance
DTC P0711	Transmission Fluid Temperature (TFT) Sensor Performance
DTC P0712	Transmission Fluid Temperature (TFT) Sensor Circuit Low Voltage
DTC P0713	Transmission Fluid Temperature (TFT) Sensor Circuit High Voltage
DTC P0716	Input Speed Sensor Performance
DTC P0717	Input Speed Sensor Circuit Low Voltage
DTC P0718	Input/Turbine Speed Sensor "A" Circuit Intermittent
DTC P0719	Brake Switch Circuit Low Voltage
DTC P0722	VSS Circuit Low
DTC P0723	Output Speed Sensor Circuit Intermittent
DTC P0724	Brake Switch Circuit High Voltage
DTC P0727	Engine Speed-No Signal
DTC P0731	Incorrect 1st Gear Ratio
DTC P0732	Incorrect 2nd Gear Ratio
DTC P0733	Incorrect 3rd Gear Ratio
DTC P0734	Incorrect 4th Gear Ratio
DTC P0735	Incorrect 5th Gear Ratio
DTC P0741	Torque Converter Clutch (TCC) System-Stuck Off
DTC P0742	Torque Converter Clutch (TCC) System-Stuck On
DTC P0746	Pressure Control Solenoid "A" Performance or Stuck Off
DTC P0747	Pressure Control Solenoid "A" Stuck On
DTC P0751	1-2 Shift Solenoid Valve Performance - No First or Fourth Gear

DTC P0752	1-2 Shift Solenoid Valve Performance - No Second or Third Gear
DTC P0756	2-3 Shift Solenoid Valve Performance - No First or Second Gear
DTC P0757	2-3 Shift Solenoid Valve Performance - No Third or Fourth Gear
DTC P0761	Shift Solenoid "C" Performance or Stuck Off
DTC P0762	4-5 Shift Solenoid Valve Performance - No Fifth Gear
DTC P0776	Pressure Control Solenoid "B" Performance or Stuck Off
DTC P0777	Pressure Control Solenoid "B" Stuck On
DTC P0780	Shift Error
DTC P0841	Transmission Fluid Pressure (TFP) Sensor Performance
DTC P0842	Transmission Fluid Pressure (TFP) Sensor Circuit Low Voltage
DTC P0843	Transmission Fluid Pressure (TFP) Sensor Circuit High Voltage
DTC P0847	Transmission Fluid Pressure Sensor "B" Circuit Low
DTC P0848	Transmission Fluid Pressure Sensor "B" Circuit High
DTC P0872	Transmission Fluid Pressure Sensor "C" Circuit Low
DTC P0873	Transmission Fluid Pressure Sensor "C" Circuit High
DTC P0960	Line Pressure Control (PC) Solenoid Control Circuit Open
DTC P0961	Line Pressure Control (PC) Solenoid System Performance
DTC P0962	Line Pressure Control (PC) Solenoid Control Circuit Low Voltage
DTC P0963	Line Pressure Control (PC) Solenoid Control Circuit High Voltage
DTC P0964	Torque Converter Clutch (TCC) Pressure Control (PC) Solenoid Control Circuit Open
DTC P0965	Torque Converter Clutch (TCC) Pressure Control (PC) Solenoid System Performance
DTC P0966	Torque Converter Clutch (TCC) Pressure Control (PC) Solenoid Control Circuit Low Voltage
DTC P0967	Torque Converter Clutch (TCC) Pressure Control (PC) Solenoid Control Circuit High Voltage
DTC P0973	Shift Solenoid 1 Control Circuit Low Voltage
DTC P0974	Shift Solenoid 1 Control Circuit High Voltage
DTC P0976	Shift Solenoid 2 Control Circuit Low Voltage
DTC P0977	Shift Solenoid 2 Control Circuit High Voltage
DTC P0979	Shift Solenoid 3 Control Circuit Low Voltage
DTC P0980	Shift Solenoid 3 Control Circuit High Voltage
DTC P1128	Manifold Absolute Pressure (MAP) Sensor Low Pressure
DTC P1129	Manifold Absolute Pressure (MAP) Sensor High Pressure

DTC P1133	HO2S Insufficient Switching Sensor 1
DTC P1134	HO2S Transition Time Ratio Bank1 Sensor 1
DTC P1137	HO2S Circuit Low Voltage During Power Enrichment Sensor 2
DTC P1138	HO2S Circuit High Voltage During Decel Fuel Cut-Off (DFCO) Sensor 2
DTC P1171	Fuel System Lean During Acceleration
DTC P1516	Throttle Actuator Control (TAC) Module Throttle Actuator Position Performance
DTC P1574	Stop Lamp Switch Circuit
DTC P1599	Engine Stall Detected
DTC P1626	Theft Deterrent Fuel Enable Signal Not Received
DTC P1630	Theft Deterrent Learn Mode Active
DTC P1631	Theft Deterrent Fuel Enable Signal Not Correct
DTC P1632	Theft Deterrent Fuel Disable Signal Received
DTC P1640	Control Module Output A Circuit
DTC P1650	Control Module Output B Circuit
DTC P1670	Control Module Output D Circuit
DTC P1680	Control Module Accelerator Pedal Position (APP) System Performance
DTC P1681	Control Module Throttle Position (TP) System Performance
DTC P1682	Ignition 1 Switch Circuit 2
DTC P1756	Transmission Range (TR) Switch Indicates Park/Neutral (P/N) With Drive Ratio
DTC P1758	Transmission Range (TR) Switch Indicates Drive Without Drive Ratio
DTC P1779	Torque Delivered Signal
DTC P1882	Ratio Control Performance
DTC P1883	Ratio Control Motor Coil A1 Control Circuit
DTC P1884	Ratio Control Motor Coil A2 Control Circuit
DTC P1885	Ratio Control Motor Coil B1 Control Circuit
DTC P1886	Ratio Control Motor Coil B2 Control Circuit
DTC P1888	Torque Converter Clutch (TCC) Enable Solenoid Control Circuit Low Voltage
DTC P1889	Torque Converter Clutch (TCC) Enable Solenoid Control Circuit High Voltage
DTC P2100	Throttle Actuator Control (TAC) Motor Control Circuit
DTC P2101	Control Module Throttle Actuator Position Performance
DTC P2108	Throttle Actuator Control Module Performance
DTC P2111	Throttle Actuator Control System - Stuck Open
DTC P2112	Throttle Actuator Control System - Stuck Closed
DTC P2119	Throttle Closed Position Performance

DTC P2120	Throttle/Pedal Position Sensor/Switch "D" Circuit
DTC P2122	Accelerator Pedal Position (APP) Sensor 1 Circuit Low Voltage
DTC P2123	Accelerator Pedal Position (APP) Sensor 1 Circuit High Voltage
DTC P2125	Throttle Position Sensor "E" Circuit
DTC P2127	Accelerator Pedal Position (APP) Sensor 2 Circuit Low Voltage
DTC P2128	Accelerator Pedal Position (APP) Sensor 2 Circuit High Voltage
DTC P2135	Throttle Position Sensor "A" / "B" Voltage Correlation
DTC P2138	Accelerator Pedal Position (APP) Sensor 1-2 Correlation
DTC P2176	Minimum Throttle Position Not Learned
DTC P2199	Intake Air Temperature Sensor 1 / 2 Correlation
DTC P2227	Barometric Pressure Circuit Range/Performance
DTC P2228	Barometric Pressure Circuit Low
DTC P2229	Barometric Pressure Circuit High
DTC P2238 or P2241	HO2S Pumping Current Control Circuit Low Voltage
DTC P2239 or P2242	HO2S Pumping Current Control Circuit High Voltage
DTC P2243 or P2247	HO2S Reference Voltage Circuit
DTC P2245 or P2249	HO2S Reference Voltage Circuit Low Voltage
DTC P2252 or P2255	HO2S Reference Ground Circuit Low Voltage
DTC P2253 or P2256	HO2S Reference Ground Circuit High Voltage
DTC P2282	Air Leak Between Throttle Body and Intake Valves
DTC P2297 or P2298	HO2S Performance During Decel Fuel Cut-Off (DFCO)
DTC P2413	Exhaust Gas Recirculation System Performance
DTC P2414	O2 Sensor Exhaust Sample Error Bank 1 Sensor 1
DTC P2415	O2 Sensor Exhaust Sample Error Bank 2 Sensor 1
DTC P2553	Throttle Inhibit Circuit Range/Performance
DTC P2554	Throttle Inhibit Circuit Low
DTC P2555	Throttle Inhibit Circuit High
DTC P2627 or P2630	HO2S Pumping Current Trim Circuit Low Voltage
DTC P2628 or P2631	HO2S Pumping Current Trim Circuit High Voltage
DTC P2646	"A" Rocker Arm Actuator System Performance or Stuck Off Bank 1
DTC P2647	"A" Rocker Arm Actuator System Stuck On Bank 1
DTC P2648	"A" Rocker Arm Actuator Control Circuit Low Bank 1
DTC P2649	"A" Rocker Arm Actuator Control Circuit High Bank 1
DTC P2763	Torque Converter Clutch Pressure Control Solenoid Control Circuit High
DTC P2764	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low

DTC P2769	Torque Converter Clutch Circuit Low
DTC P2770	Torque Converter Clutch Circuit High
DTC U0107	Lost Communications With Throttle Actuator Control (TAC) Module
DTC U1000	Class 2 Data Link Malfunction
DTC U1001-U1254	Loss of XXX Communications
DTC U1300, U1301, or U1305	Class 2 Data Link Shorted
DTC U1500	Communication State of Health
DTC U2100	CAN Bus Communication
DTC U2102 or U2103	Fewer Controllers On Bus Than Programmed
DTC U2105-U2177	Loss of XXX Communications

DESCRIPTION AND OPERATION

DTC SYMPTOM DESCRIPTION

The DTCs for this vehicle include DTC symptoms. A DTC symptom is a 2-digit number which adds additional detail to a DTC. The DTC symptom provides the technician additional information without requiring a large increase in the number of new DTCs.

DTC Symptom Categories

The DTC symptom is made up of 2 alphanumeric digits. The first digit following the DTC indicates the DTC symptom category. There are 16 possible categories available in the range of 0 through the letter F. Currently there are 8 categories in use, 0 through 7. These 8 categories together with their definitions are given below.

DTC Symptom Description

Category #	Category name	Category Description
0	General Electrical Failures	This category includes standard wiring failure modes, direct current quantities related by Ohm's Law and quantities related to amplitude, frequency or rate of change, and wave shape.
1	Additional General Electrical Failures	This category includes the overflow from the previous category.
2	FM/PWM (Frequency/Pulse Width Modulated) Failures	This category includes faults related to frequency modulated and pulse width modulated inputs and outputs of the ECU. This category also includes faults where position is determined by counts.
3	ECU internal failures	This category includes faults related to memory, software, and internal electrical circuitry requiring ECU replacement.
4	ECU Programming Failures	This category includes faults related to operational software, calibrations, and options remedied by programming the ECU.
5	Algorithm Based Failures	This category includes faults based on comparing two or more input parameters for plausibility or comparing a single parameter

		to itself with respect to time.
6	Mechanical Failures	This category includes faults detected by inappropriate motion in response to an ECU controlled output.
7	Bus Signal / Message Failures	This category includes faults related to bus hardware and signal integrity. This category is also used when the physical input for a signal is located in one ECU and another ECU diagnoses the circuit.
8-F	Reserved by Document	Not in use at this time.

DTC Symptom Subtypes

The second digit of the DTC symptom is the subtype of the DTC symptom. These subtypes and their categories, together with their definitions, are given in the following table. DTC symptom 00 is a special case. If 00 is displayed, only the base code number and its description apply. Information regarding the fault will be provided in the code setting criteria.

DTC Symptom Description

DTC Symptom	DTC Symptom Description
00	no additional information
01	short to battery
02	short to ground
03	voltage below threshold
04	open circuit
05	short to battery or open
06	short to ground or open
07	voltage above threshold
08	signal invalid
09	rate of change above threshold
0A	rate of change below threshold
0B	current above threshold
0C	current below threshold
0D	resistance above threshold
0E	resistance below threshold
OF	erratic
10	reserved
11	above maximum threshold
12	below minimum threshold
13	voltage low/high temperature
14	voltage high/low temperature
15	signal rising time failure
16	signal falling time failure
17	signal shape/waveform failure

18	signal amplitude < minimum
19	signal amplitude < maximum
1A	bias level out of range
1F	intermittent
21	incorrect period
22	low time < minimum
23	low time > maximum
24	high time < minimum
25	high time > maximum
26	frequency too low
27	frequency too high
28	incorrect frequency
29	too few pulses
2A	too many pulses
2B	missing reference
2C	reference compare error
31	general checksum failure
32	general memory failure
33	special memory failure
34	RAM failure
35	ROM failure
36	EEPROM failure
37	watchdog/safety processor failure
38	supervision software failure
39	internal electronic failure
41	operational software/calibration data set not programmed
42	calibration data set not programmed
43	EEPROM error
44	security access not activated
45	variant not programmed
46	vehicle configuration not programmed
47	VIN not programmed
48	theft/security data not programmed
49	RAM error
4A	checksum error
4B	calibration not learned
51	calculation failure
52	compare failure
53	temperature low
54	temperature high
55	expected number of transitions/events not reached

56	allowable number of transitions/events exceeded
57	expected reaction after event didn't occur
58	incorrect reaction after event
59	circuit/component protection time-out
61	actuator stuck
62	actuator stuck open
63	actuator stuck closed
64	actuator slipping
65	emergency position not reachable
71	invalid serial data received (signal validity bit indicates failure)
72	alive counter incorrect/not updated
73	parity error
74	value of signal protection calculation incorrect
75	signal above allowable range
76	signal below allowable range
7F	erratic

Example

The DTC symptoms associated with each DTC provide more information about the fault that caused that DTC. An example of a DTC displayed can be B1451 05 where the B1451 is the DTC, and 05 after the space represents the DTC symptom. While the DTC indicates that the fault is in the accessory power circuit, this DTC symptom indicates the circuit is shorted to battery or open. Another possible symptom for this code is B1451 02, where B1451 indicates the accessory power circuit, and 02 indicates the circuit is shorted to ground.

2004 ACCESSORIES & EQUIPMENT

Programming - Vue

REPAIR INSTRUCTIONS

SERVICE PROGRAMMING SYSTEM (SPS)

For step by step programming instructions, please refer to the techline information system (TIS) terminal.

Review the information below to ensure proper programming protocol.

IMPORTANT: DO NOT program a control module unless you are directed by a service procedure or you are directed by a General Motors Corporation service bulletin. Programming a control module at any other time will not permanently correct a customer's concern.

It is essential that the Tech 2 and the TIS terminal are both equipped with the latest software before performing service programming system (SPS).

Some modules will require additional programming/setup events performed before or after programming.

Review the appropriate service information for these procedures.

Ensure the following conditions are met before programming a control module:

- Vehicle system voltage
 - There is not a charging system concern. All charging system concerns must be repaired before programming a control module.
 - Battery voltage is greater than 12 volts but less than 16 volts. The battery must be charged before programming the control module if the battery voltage is low.
 - A battery charger is NOT connected to the vehicle's battery. Incorrect system voltage or voltage fluctuations from a battery charger, may cause programming failure or control module damage.
 - Turn OFF or disable any system that may put a load on the vehicle's battery, such as the following components:
 - Twilight sentinel
 - Interior lights
 - Daytime running lights (DRL)-Applying the parking brake, on most vehicles, disables the DRL system. Refer to the Owner's manual.
 - Heating, ventilation, and air conditioning (HVAC) systems
 - Engine cooling fans, radio, etc.
- The ignition switch must be in the proper position. The Tech 2 prompts you to turn ON the ignition, with the engine OFF. DO NOT change the position of the ignition switch during the programming procedure, unless instructed to do so.
- Make certain all tool connections are secure, including the following components and circuits:

- The control module Serial Data Link Tester
- The RS-232 communication cable port
- The connection at the data link connector (DLC)
- The voltage supply circuits
- DO NOT disturb the tool harnesses while programming. If an interruption occurs during the programming procedure, programming failure or control module damage may occur.
- DO NOT turn OFF the ignition if the programming procedure is interrupted or unsuccessful. Ensure that all control module and DLC connections are secure and the TIS terminal operating software is up to date. Attempt to reprogram the control module. If the control module cannot be programmed, replace the control module.