

Theft Deterrent SRX

THEFT DETERRENT SYSTEM SCHEMATICS

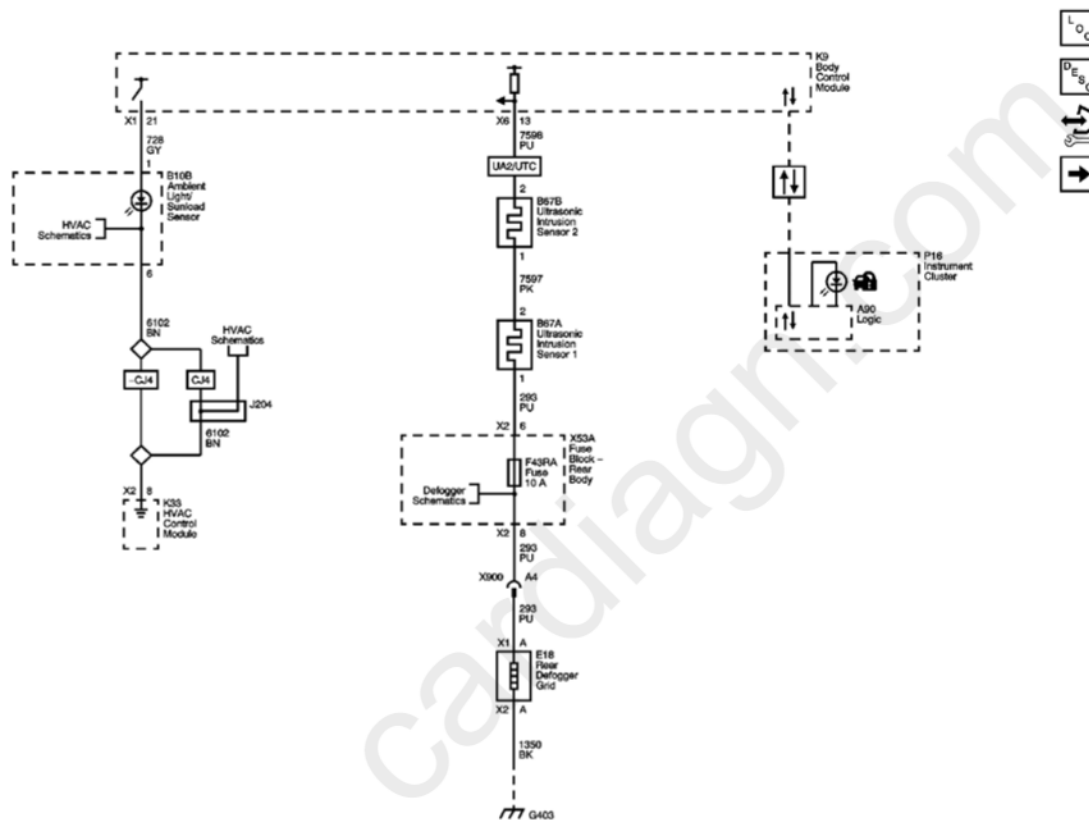


Fig 1 Intrusion Sensors Theft Deterrent Indicator Circuit Schematic (With UA2 Or UTC)
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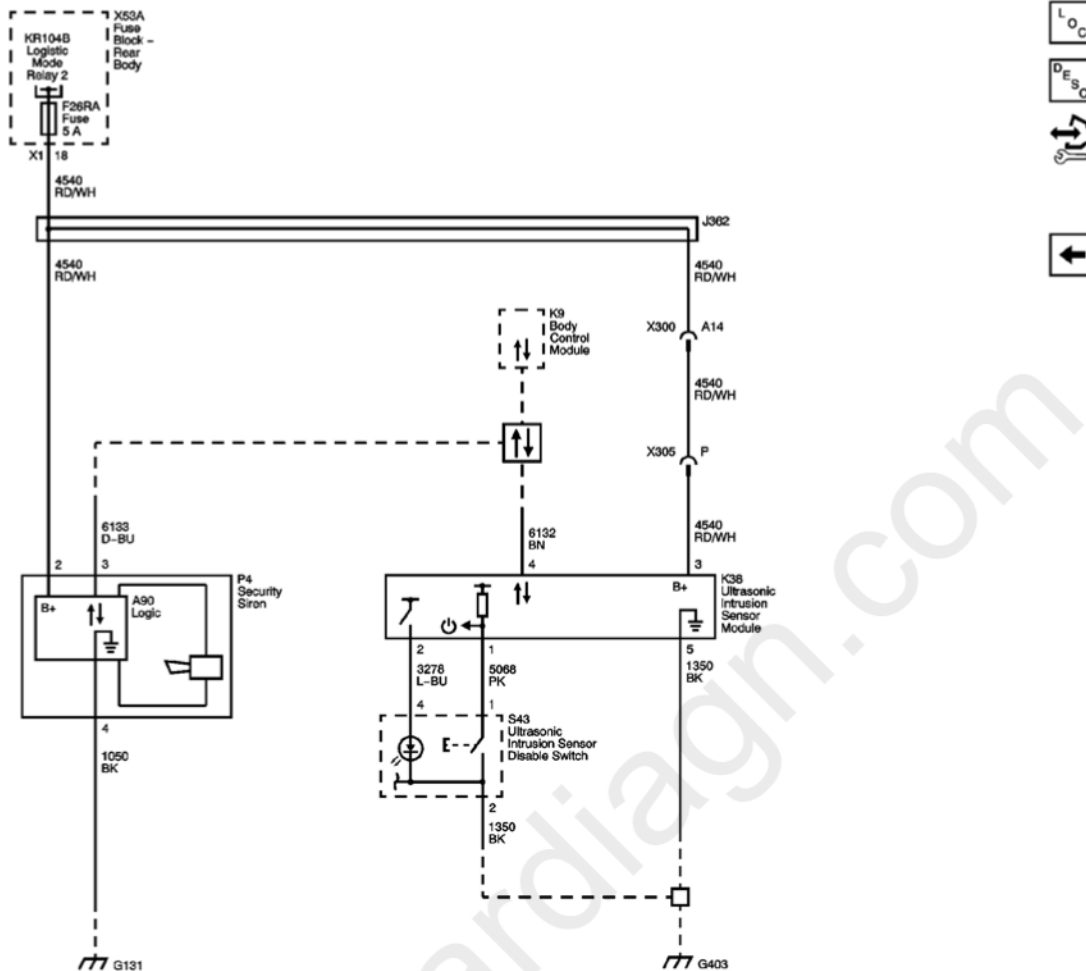


Fig 2 Intrusion Sensor Module Defeat Switch Theft Deterrent Alarm Siren Circuit Schematic (With UA2 Or UTC)

Courtesy of GENERAL MOTORS CORP

DIA NOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC CODE INDEX

DIAGNOSTIC CODE INDEX

DTC	Description
DTC B06	B0685 02: Security System Indicator Circuit Short to ground
DTC B291A	B291A 39: Content Theft Deterrent Assembly Internal Malfunction
DTC B291B	B291B 00: Content Theft Deterrent Sensor Malfunction
	B291B 39: Content Theft Deterrent Sensor Internal Malfunction
	B291B 42: Content Theft Deterrent Sensor Calibration Not Programmed

DTC B06

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Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptor

DTC B06 02

Security System Indicator Circuit Short to ground

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Control	B0685 02	1	1	-
Low Reference	-	B0163 05, B0183 05	-	-
1. Security Indicator Malfunction				

Circuit/System Description

The security LED is controlled by the body control module (BCM) based on commands from the content theft deterrent system. The security LED is located in the dash as part of the ambient light sensor and is supplied ground at all times. When the content theft deterrent system requests the LED be commanded ON, the BCM applies voltage to the security indicator control circuit, illuminating the LED.

Conditions for Running the DTC

The system voltage is between 9-16 V.

Conditions for Setting the DTC

- The BCM detects a short to ground on the security indicator control circuit.
- The above condition exist for 1 second.

Action Taken When the DTC Sets

Security LED output is disabled

Conditions for Clearing the DTC

- A current DTC is cleared when the conditions for setting the DTC are no longer present.
- A history DTC will clear after 40 malfunction free ignition cycles.

Reference Information

Schematic Reference**Theft Deterrent System Schematics****Connector End View Reference****Component Connector End Views****Description and Operation****Content Theft Deterrent (CTD) Description and Operation****Electrical Information Reference**

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference**Control Module References** for scan tool information**Circuit/System Verification**

Arm the content theft deterrent system. The security LED should illuminate and/or flash during the arming sequence.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the B10B Ambient Light/Sunload Sensor.
2. Test for less than 10 ohms between the low reference circuit terminal 6 and ground.
 - If greater than the specified range, test the low reference circuit for an open/high resistance.
3. Ignition ON, test for less than 1 V between the control circuit terminal 1 and ground.
 - If greater than the specified range, test the control circuit for a short to voltage. If the circuit tests normal, replace the K9 BCM.
4. Command the security LED ON. Test for B+ between the control circuit terminal 1 and ground.
 - If less than the specified range, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the K9 BCM.
5. If all circuits test normal, replace the B10B Ambient Light/Sunload Sensor.

Repair Procedures

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

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- Sun Load Temperature and Daytime Running Lamp Ambient Light Sensor Replacement
- Control Module References for BCM replacement, programming and setup

DTC B291A

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

DTC Descriptor

DTC B291A 39

Content Theft Deterrent Assembly Internal Malfunction

Circuit/System Description

The content theft deterrent intrusion/inclination sensor performs an internal self-check to determine it is functioning properly.

Conditions for Running the DTC

- The ignition is OFF.
- The vehicle is in Park.

Conditions for Setting the DTC

The body control module (BCM) detects an internal failure within the content theft deterrent intrusion/inclination sensor.

Action Taken When the DTC Sets

The intrusion and inclination output is disabled.

Conditions for Clearing the DTC

- A current DTC is cleared when the conditions for setting the DTC are no longer present.
- A history DTC will clear after 40 malfunction-free ignition cycles.

Reference Information

Schematic Reference

Theft Deterrent System Schematics

Connector End View Reference**Component Connector End Views****Description and Operation****Content Theft Deterrent (CTD) Description and Operation****Electrical Information Reference**

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference**Control Module References** for scan tool information**Circuit/System Testing**

Verify that DTC B291A is not set.

- If the DTC is set, replace the B67 ultrasonic intrusion sensor.

Repair Procedures

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

- **Theft Deterrent Sensor Replacement**
- **Control Module References** for BCM replacement, setup, and programming

DTC B291B**Diagnostic Instructions**

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptors**DTC B291B 00**

Content Theft Deterrent Sensor Malfunction

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DTC B291B 39

Content Theft Deterrent Sensor Internal Malfunction

DTC B291B 42

Content Theft Deterrent Sensor Calibration Not Programmed

Circuit/System Description

The content theft deterrent intrusion/inclination sensor is a multifunction sensor which detects motion inside the vehicle (intrusion), as well as change in the vehicle level (inclination). The intrusion/inclination sensor is supplied power and ground for operation and communicates with the body control module (BCM) via a dedicated LAN circuit. The sensor may be turned on or off using the disable switch and will display its status through the status LED.

Conditions for Running the DTC

- The ignition is OFF.
- The vehicle is in Park.

Conditions for Setting the DTC

The BCM detects a malfunction within the content theft sensor.

Action Taken When the DTC Sets

The intrusion and inclination output is disabled.

Conditions for Clearing the DTC

- A current DTC is cleared when the conditions for setting the DTC are no longer present.
- A history DTC will clear after 40 malfunction-free ignition cycles.

Reference Information

Schematic Reference

Theft Deterrent System Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Content Theft Deterrent (CTD) Description and Operation

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Verify that DTC B291B 39 or B291B 42 is not set.

- If the DTC is set, program the K9 BCM. If the DTC resets, replace the B67 ultrasonic intrusion sensor.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the S43 ultrasonic intrusion sensor disable switch.
2. Test for less than 10ohms between the ground circuit terminal 2 and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition OFF, connect the harness connector at the S43 ultrasonic intrusion sensor disable switch. Disconnect the harness connector at the B67 ultrasonic intrusion sensor.
4. Test for less than 10ohms between the ground circuit terminal 5 and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
5. Ignition ON, verify a test lamp illuminates between the B+ circuit terminal 3 and ground.
 - If the test lamp does not illuminate, test the B+ circuit for a short to ground or an open/high resistance.
6. Test for less than 1V between the signal circuit terminal 1 and ground.
 - If greater than the specified range, test the signal circuit for a short to voltage.
7. Ignition OFF, test for infinite resistance between the signal circuit terminal 1 and ground.
 - If not the specified value, test the signal circuit for a short to ground. If the circuit tests normal, test or replace the S43 ultrasonic intrusion sensor disable switch.
8. Content theft disable switch closed, test for less than 10ohms between the signal circuit terminal 1 and ground.
 - If greater than the specified range, test the signal circuit for an open/high resistance. If the circuit tests normal, test or replace the S43 ultrasonic intrusion sensor disable switch.
9. Ignition ON, verify the content theft disable indicator is not illuminated.
 - If the indicator is illuminated, test the control circuit terminal 2 for a short to voltage.
10. Install a 3A fused jumper wire between the control circuit terminal 2 and B+. Verify the content theft disable indicator is illuminated.

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- If the indicator is not illuminated, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, test or replace the S43 ultrasonic intrusion sensor disable switch.
- 11. Disconnect the X6 harness connector at the K9 BCM.
- 12. Test for less than 1V between the serial data circuit terminal 16 and ground.
 - If greater than the specified range, test the serial data circuit for a short to voltage.
- 13. Ignition OFF, test for infinite resistance between the serial data circuit terminal 16 and ground.
 - If not the specified value, test the serial data circuit for a short to ground.
- 14. Test for less than 2ohms between the serial data circuit terminal 16 at the K9 BCM harness connector X6 and the serial data circuit terminal 4 at the B67 ultrasonic intrusion sensor harness connector.
 - If greater than the specified range, test the serial data circuit for an open/high resistance.
- 15. If all circuits test normal, replace the B67 ultrasonic intrusion sensor. Verify DTC B291B is not set.
 - If the DTC is set, replace the K9 BCM.

Repair Procedures

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

- **Theft Deterrent Sensor Replacement**
- **Control Module References** for BCM replacement, setup, and programming

SYMPTOMS - THEFT DETERRENT

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

1. Perform **Diagnostic System Check - Vehicle** in order to verify that all of the following are true:
 - There are no DTCs set.
 - The control modules can communicate via the serial data link.
2. Review the system operation in order to familiarize yourself with the system functions. Refer to the following **Content Theft Deterrent (CTD) Description and Operation**.

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the Theft Deterrent System. Refer to **Checking Aftermarket Accessories** .
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Intermittent

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

Symptom List

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

- **Content Theft Deterrent Malfunction (with UA6) or Content Theft Deterrent Malfunction (with UA2 or UTC)**
- **Inclination/Intrusion Sensor Malfunction**
- **Glass Breakage Sensor Malfunction**
- **Security Indicator Malfunction**
- **Theft Deterrent Alarm Malfunction**

CONTENT THEFT DETERRENT MALFUNCTION (WITH UA6)

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

Circuit/System Description

The content theft deterrent system is a software based system in which the body control module (BCM) actively monitors certain inputs to determine if unauthorized vehicle access is being attempted. Based on inputs such as the door ajar switches, the rear compartment ajar switch, and the hood ajar switch, the BCM determines whether a content theft deterrent alarm is warranted. If unauthorized access is being detected, the BCM will pulse the vehicle horn and flash the exterior lamps as a means of theft deterrence.

Diagnostic Aids

The scan tool BCM Content Theft Deterrent Trigger History 1, 2, and 3 parameters can be used to help isolate an intermittent unwanted content theft deterrent alarm. These parameters are a rolling history of the previous three causes of a theft deterrent alarm. If all three parameters are indicating the same alarm trigger, the indicated input should be the starting point when diagnosing an intermittent concern.

Reference Information

Schematic Reference

Theft Deterrent System Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Content Theft Deterrent (CTD) Description and Operation

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition ON, individually open and close each vehicle door, hood, and rear compartment while observing their respective ajar indicator/message. The indicator/message should accurately transition between the ajar and closed state when each access is opened and closed.
 - If the indicator/message does not properly transition when each access is opened and closed, refer to the appropriate symptom diagnostic below
 - Door Ajar Indicator Malfunction
 - Liftgate Ajar Indicator Malfunction (Manual Liftgate) or Liftgate Ajar Indicator Malfunction (Power Liftgate)
2. Completely lower the driver door window and close all vehicle doors.
3. Ignition OFF, arm the content theft deterrent system by locking the door with the keyless entry transmitter. Verify the scan tool BCM Content Theft Deterrent Alarm Status parameter is Armed.
 - If not the specified value, refer to Keyless Entry System Malfunction (Active) or Keyless Entry System Malfunction (Passive).
4. Without disarming the system, reach in through the open driver window and open the driver door. Verify the scan tool BCM Content Theft Deterrent Alarm Status parameter is Alarm.
 - If not the specified value, replace the K9 body control module.

Repair Procedures

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

Control Module References for BCM replacement, setup, and programming

CONTENT THEFT DETERRENT MALFUNCTION (WITH UA2 OR UTC)

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

Circuit/System Description

The content theft deterrent system is a software based system in which the body control module (BCM) actively monitors certain inputs to determine if unauthorized vehicle access is being attempted. Based on inputs such as the door ajar switches, the rear compartment ajar switch, and the hood ajar switch, the BCM determines whether a content theft deterrent alarm is warranted. If unauthorized access is being detected, the BCM will activate the theft alarm and flash the exterior lamps as a means of theft deterrence.

Reference Information**Schematic Reference****Theft Deterrent System Schematics****Connector End View Reference****Component Connector End Views****Description and Operation****Content Theft Deterrent (CTD) Description and Operation****Electrical Information Reference**

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference**Control Module References** for scan tool information**Circuit/System Verification**

1. Ignition ON, verify the scan tool Glass Breakage parameter is Inactive.
 - If not the specified value, refer to **Glass Breakage Sensor Malfunction**.
2. Ignition OFF, operate the content theft deterrent disable switch. Verify the status LED turns ON and OFF.
 - If the indicator does not turn ON and OFF, refer to **Inclination/Intrusion Sensor Malfunction**.
3. Individually open and close each vehicle door while observing the door ajar indicator/message. The indicator/message should accurately transition between the door ajar and door closed state when each door is opened and closed.
 - If the door ajar indicator/message does not properly transition when each door is opened and closed, refer to **Door Ajar Indicator Malfunction**.
4. Open and close the rear compartment while observing the rear compartment open indicator/message. The

indicator/message should accurately transition between the rear compartment open and rear compartment closed state when the rear compartment is opened and closed.

- If the rear compartment open indicator/message does not properly transition when the rear compartment is opened and closed, refer to **Liftgate Ajar Indicator Malfunction (Manual Liftgate)** or **Liftgate Ajar Indicator Malfunction (Power Liftgate)**.
- 5. Completely lower the driver door window and close all vehicle doors.
- 6. Ignition OFF, arm the content theft deterrent system using the keyless entry system. Verify the content theft deterrent system arms.
 - If the system does not arm, refer to **Keyless Entry System Malfunction (Active)** or **Keyless Entry System Malfunction (Passive)**.
- 7. Without disarming the system, reach in through the open driver window, unlock and open the driver door. Verify the theft alarm is activated and the exterior lamps are flashing.
 - If the theft alarm is not activated, refer to **Theft Deterrent Alarm Malfunction**.
 - If the exterior lights are not flashing, refer to **Park License and/or Tail Lamps Malfunction**.

INCLINATION/INTRUSION SENSOR MALFUNCTION

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

Circuit/System Description

The content theft deterrent intrusion/inclination sensor is a multifunction sensor which detects motion inside the vehicle (intrusion), as well as change in the vehicle level (inclination). The intrusion/inclination sensor is supplied power and ground for operation and communicates with the body control module (BCM) via a dedicated LAN circuit. The sensor may be turned on or off using the disable switch and will display its status through the status LED.

Reference Information

Schematic Reference

Theft Deterrent System Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Content Theft Deterrent (CTD) Description and Operation

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference**Control Module References** for scan tool information**Circuit/System Testing**

1. Ignition OFF, disconnect the harness connector at the S43 ultrasonic intrusion sensor disable switch.
2. Test for less than 10ohms between the ground circuit terminal 2 and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition OFF, connect the harness connector at the S43 ultrasonic intrusion sensor disable switch. Disconnect the harness connector at the B67 ultrasonic intrusion sensor.
4. Test for less than 10ohms between the ground circuit terminal 5 and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
5. Ignition ON, verify a test lamp illuminates between the B+ circuit terminal 3 and ground.
 - If the test lamp does not illuminate, test the B+ circuit for a short to ground or an open/high resistance.
6. Test for less than 1V between the signal circuit terminal 1 and ground.
 - If greater than the specified range, test the signal circuit for a short to voltage.
7. Ignition OFF, test for infinite resistance between the signal circuit terminal 1 and ground.
 - If not the specified value, test the signal circuit for a short to ground. If the circuit tests normal, test or replace the S43 ultrasonic intrusion sensor disable switch.
8. Content theft disable switch closed, test for less than 10ohms between the signal circuit terminal 1 and ground.
 - If greater than the specified range, test the signal circuit for an open/high resistance. If the circuit tests normal, test or replace the S43 ultrasonic intrusion sensor disable switch.
9. Ignition ON, verify the content theft disable indicator is not illuminated.
 - If the indicator is illuminated, test the control circuit terminal 2 for a short to voltage.
10. Install a 3A fused jumper wire between the control circuit terminal 2 and B+. Verify the content theft disable indicator is illuminated.
 - If the indicator is not illuminated, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, test or replace the S43 ultrasonic intrusion sensor disable switch.
11. Disconnect the X6 harness connector at the K9 BCM.
12. Test for less than 1V between the serial data circuit terminal 16 and ground.
 - If greater than the specified range, test the serial data circuit for a short to voltage.

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13. Ignition OFF, test for infinite resistance between the serial data circuit terminal 16 and ground.
 - If not the specified value, test the serial data circuit for a short to ground.
14. Test for less than 20ohms between the serial data circuit terminal 16 at the K9 BCM harness connector X6 and the serial data circuit terminal 4 at the B67 ultrasonic intrusion sensor harness connector.
 - If greater than the specified range, test the serial data circuit for an open/high resistance.
15. If all circuits test normal, replace the B67 ultrasonic intrusion sensor.

Repair Procedures

Perform the **Diagnostic Repair Verification** Diagnostic Repair Verification after completing the diagnostic procedure.

- **Theft Deterrent Sensor Replacement**
- **Control Module References** for BCM replacement, setup, and programming

GLASS BREAKAGE SENSOR MALFUNCTION

Diagnostic Instructions

- Perform the **Diagnostic System Check Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

Circuit/System Description

The glass breakage sensors are located on the rear side windows and are supplied B+ at all times. The body control module (BCM) monitors the glass breakage sensor signal circuit. If the rear side glass is broken, the glass breakage sensor signal circuit will open and the BCM will no longer see voltage on the circuit.

Reference Information

Schematic Reference

Theft Deterrent System Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Content Theft Deterrent (CTD) Description and Operation

Electrical Information Reference

- **Circuit Testing**

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- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the B67A ultrasonic intrusion sensor 1.
2. Ignition ON, verify a test lamp illuminates between the B+ circuit terminal 1 and ground.
 - If the test lamp does not illuminate, test the B+ circuit for a short to ground or an open/high resistance. If the circuit fuse is open, test the signal circuit for a short to ground.
3. Connect the harness connector at the B67A ultrasonic intrusion sensor 1. Disconnect the harness connector at the B67B ultrasonic intrusion sensor 2.
4. Verify a test lamp illuminates between the signal circuit terminal 1 and ground.
 - If the test lamp does not illuminate, test the signal circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the B67A ultrasonic intrusion sensor 1.
5. Connect the harness connector at the B67B ultrasonic intrusion sensor 2. Disconnect the X6 harness connector at the K9 BCM.
6. Verify a test lamp illuminates between the signal circuit terminal 13 and ground.
 - If the test lamp does not illuminate, test the signal circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the B67B ultrasonic intrusion sensor 2.
7. If all circuits test normal, test or replace the K9 BCM.

Repair Procedures

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

Control Module References for ECM replacement, setup, and programming

SECURITY INDICATOR MALFUNCTION

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
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Control	B0685 02	1	1	-
Low Reference	-	B0163 05, B0183 05	-	-
1. Security Indicator Malfunction				

Circuit/System Description

The security LED is controlled by the body control module (BCM) based on commands from the content theft deterrent system. The security LED is located in the dash as part of the ambient light sensor and is supplied ground at all times. When the content theft deterrent system requests the LED be commanded ON, the BCM applies voltage to the security indicator control circuit, illuminating the LED.

Reference Information

Schematic Reference

Theft Deterrent System Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Content Theft Deterrent (CTD) Description and Operation

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Arm the content theft deterrent system. The security LED should illuminate and/or flash during the arming sequence.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the B10B Ambient Light/Sunload Sensor.
2. Test for less than 10 ohms between the low reference circuit terminal 6 and ground.

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- If greater than the specified range, test the low reference circuit for an open/high resistance.
- 3. Ignition ON, test for less than 1 V between the control circuit terminal 1 and ground.
 - If greater than the specified range, test the control circuit for a short to voltage. If the circuit tests normal, replace the K9 BCM.
- 4. Command the security LED ON. Test for B+ between the control circuit terminal 1 and ground.
 - If less than the specified range, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the K9 BCM.
- 5. If all circuits test normal, replace the B10B Ambient Light/Sunload Sensor.

Repair Procedures

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

- **Sun Load Temperature and Daytime Running Lamp Ambient Light Sensor Replacement**
- **Control Module References** for BCM replacement, programming and setup

THEFT DETERRENT ALARM MALFUNCTION

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

Circuit/System Description

The content theft deterrent system uses the security siren as an audible alert device to alert individuals near the vehicle that a vehicle intrusion is occurring. The security is supplied power and ground for operation and communicates with the body control module (BCM) via a dedicated LAN circuit.

Reference Information

Schematic Reference

Theft Deterrent System Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Content Theft Deterrent (CTD) Description and Operation

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the P4 security siren.
2. Test for less than 10ohms between the ground circuit terminal 4 and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition ON, verify a test lamp illuminates between the B+ circuit terminal 2 and ground.
 - If the test lamp does not illuminate, test the B+ circuit for a short to ground or an open/high resistance.
4. Disconnect the X6 harness connector at the K9 BCM.
5. Test for less than 1V between the serial data circuit terminal 9 and ground.
 - If greater than the specified range, test the serial data circuit for a short to voltage.
6. Ignition OFF, test for infinite resistance between the serial data circuit terminal 9 and ground.
 - If not the specified value, test the serial data circuit for a short to ground.
7. Test for less than 2ohms between the serial data circuit terminal 9 at the K9 BCM harness connector X6 and the serial data circuit terminal 3 at the P4 security siren harness connector.
 - If greater than the specified range, test the serial data circuit for an open/high resistance.
8. If all circuits test normal, replace the P4 security siren.

Repair Procedures

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

Control Module References for BCM replacement, setup, and programming

REPAIR INSTRUCTIONS

THEFT DETERRENT ALARM CUTOFF SWITCH REPLACEMENT

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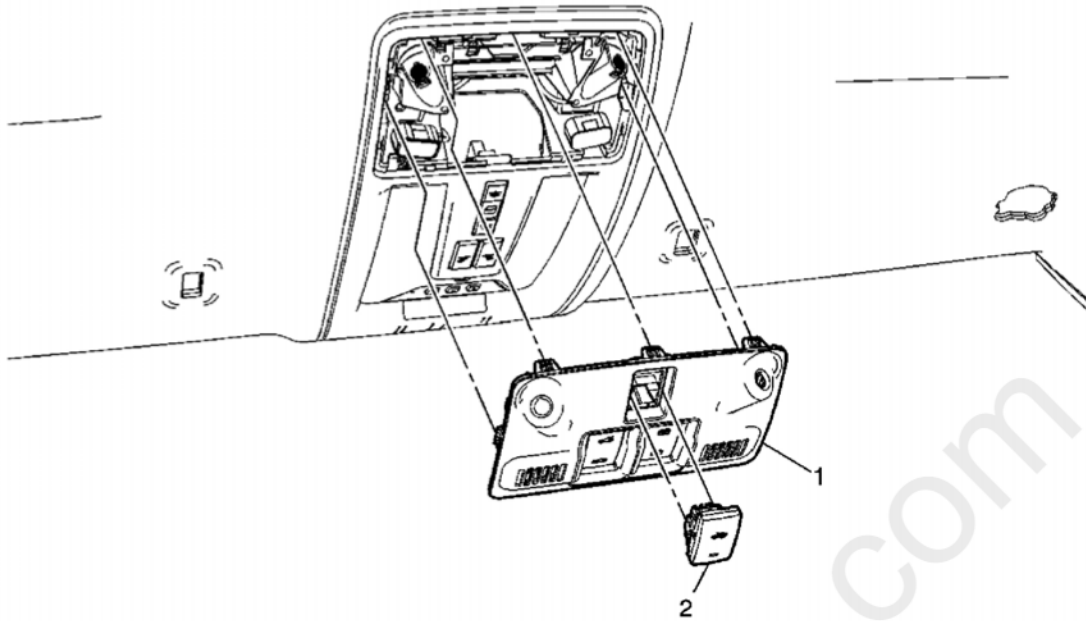


Fig 3 Identifying Theft Deterrent Alarm Cutoff Switch

Courtesy of GENERAL MOTORS CORP

Callout	Component Name
1	Roof Console Opening Cover Procedure Disconnect electrical connectors.
2	Theft Deterrent Alarm Cut-off Switch Procedure Push in two tabs from the back of the cover and push forward through opening.

THEFT DETERRENT SENSOR REPLACEMENT

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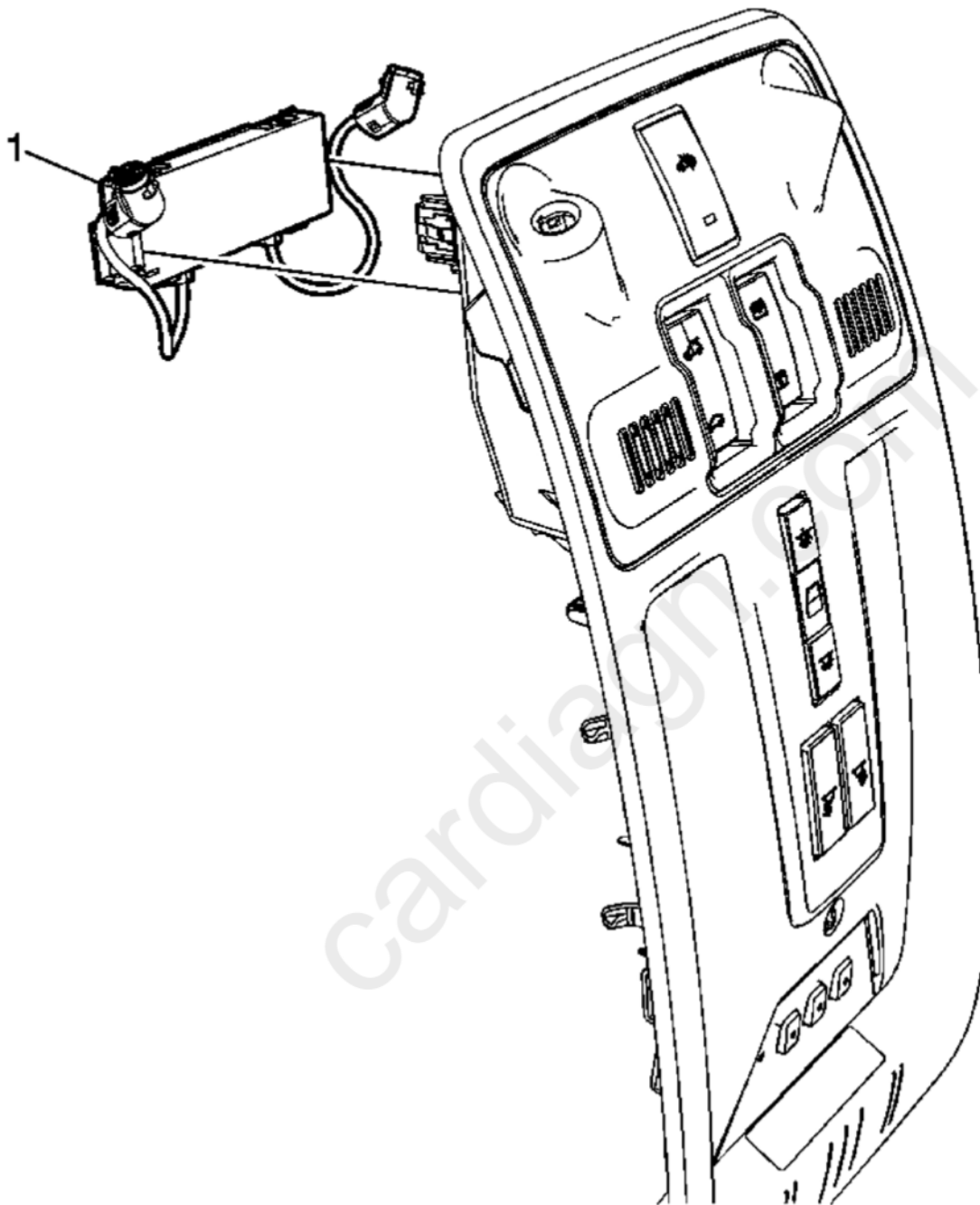


Fig. 4: Identifying Theft Deterrent Sensor
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove the roof console. Refer to <u>Roof Console Replacement</u> .	
	Theft Deterrent Sensor

Procedure

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1. Disconnect the electrical connectors.
2. Refer to **Control Module References** for programming and set-up procedures.

DESCRIPTION AND OPERATION**CONTENT THEFT DETERRENT (CTD) DESCRIPTION AND OPERATION**

When armed, the content theft deterrent system is designed to deter vehicle content theft by pulsing the horns and exterior lamps for approximately 30 seconds when an unauthorized vehicle entry is detected. However, the content theft deterrent system does not affect engine starting.

An unauthorized entry can be any of the following with the content theft deterrent system armed:

- Unauthorized entry into the underhood area
- Unauthorized entry into the rear compartment
- When any door is opened without using the UNLOCK command from a keyless entry transmitter
- After a battery reconnect, if the battery was disconnected with the content theft deterrent system armed

The components of the content theft deterrent system are:

- Body Control Module (BCM)
- Keyless entry control module (RPO ATH)
- Remote control door lock receiver
- Security indicator
- Door ajar switches
- Liftgate ajar switch
- Hood ajar switch
- Intrusion sensor (RPO UA2 or UTC)
- Intrusion sensor disable switch (RPO UA2 or UTC)
- Glass breakage sensor (RPO UA2 or UTC)
- Alarm siren (RPO UA2 or UTC)

Arming the Content Theft Deterrent System

Use the following procedure in order to arm the system:

1. Place the shift lever in P (park).
2. Turn OFF the ignition.
3. Open any door.

NOTE: **The system is not armed if the doors are locked manually; the power door lock switch or remote keyless entry transmitter must be used to arm the content theft deterrent system.**

4. Lock the doors with the power door lock switch or by pressing the LOCK button on the transmitter. The system is in standby mode and will not start the arming timer until all doors are closed.
5. The system will begin the arm sequence immediately after the last door is closed. If the keyless entry transmitter is used the arm the system after the vehicle doors are closed, the arm sequence will begin as soon as the LOCK command is received by the transmitter.
6. Pressing the LOCK button on the keyless entry transmitter a second time will bypass the delayed arming function and force the system to arm.

Locking the Vehicle Without Arming the Content Theft Deterrent System

Locking the vehicle may be accomplished without arming the content theft deterrent system. Use of the manual door locks will lock the vehicle, but will not arm the content theft deterrent system.

Disarming an Armed System/Silencing an Alarm

If system arming has been requested by the power door lock switch or the keyless entry transmitter, it must be disarmed.

NOTE: **Disconnecting the battery or removing fuses does not disable the arm or alarm modes, since the BCM stores the content theft deterrent mode status in memory.**

- To disarm the content theft deterrent system in standby mode, perform one of the following:
 - Press the UNLOCK button on the keyless entry transmitter.
 - Approach the vehicle with a valid keyless entry transmitter and pull the vehicle door handle (RPO ATH).
 - Insert a valid key into the ignition and switch to the ON position.
- To disarm the content theft deterrent system in the armed mode (non-event) or when activated (during an alarm event):
 - Press the UNLOCK button on the keyless entry transmitter.
 - Insert a valid key into the ignition and switch to the ON position

Content Theft Deterrent Circuit Description

The following is a description of each component used in the content theft deterrent system:

Body Control Module

The content theft deterrent system is an internal function of the BCM which utilizes serial data and various switch inputs information to perform content theft deterrent functions. When the BCM detects an unauthorized entry, it activates the horns and exterior lamps. The BCM has 4 basic modes (disarmed, standby, armed, and

alarm) for operating the content theft deterrent system. The different modes are described below.

1. The BCM has the content theft deterrent system in a disarmed mode until the following conditions are detected:
 - Ignition key turned to the OFF position.
 - Doors locked by either the power door lock switch or the LOCK button on the transmitter.
2. The BCM enters the standby mode when the above conditions are detected. If a door was already opened when the arm mode was requested, the standby mode does not start the timer until the last door is closed.
3. When the last door is closed, a 15 second timer is activated. Once the timer has expired, the BCM enters the armed mode. After this delay, any unauthorized entry will activate the alarm mode.
4. When the BCM detects an unauthorized entry, the BCM enters the alarm mode. The BCM activates the horns and exterior lamps for 30 seconds. This is followed by a three minute time-out with the horn no longer active. If no new intrusions are detected after the time-out, the horn is not active. The system must be disarmed or the intrusion condition removed after the time-out for the system to exit alarm mode.

Keyless Entry Control Module (RPO ATH)

The passive keyless entry system can arm and disarm the content theft deterrent system. When a valid keyless entry transmitter is detected while attempting to passively access the vehicle, the keyless entry module will send a message via serial data to disarm the content theft deterrent system.

Remote Control Door Lock Receiver

The keyless entry system can arm and disarm the content theft deterrent system. When the remote control door lock receiver receives a door lock or unlock signal from the transmitter, the remote control door lock receiver sends a message to the BCM via serial data to perform the appropriate arm/disarm functions.

Security Indicator

The security LED is illuminated on the upper I/P by the BCM. The content theft deterrent system uses the security LED to inform the driver of system status prior to arming.

Door Ajar Switches

The content theft deterrent system uses the door ajar switches as a status indicator to activate the alarm. The door ajar switches are monitored by the body control module via a discrete input from each door ajar switch. If the BCM receives a signal indicating a door is opened when the content theft deterrent system is armed, the BCM activates the alarm.

Hood Ajar Switch

The content theft deterrent system uses the hood ajar switch as a status indicator to activate the alarm. The BCM monitors the hood ajar switch via a discrete input from the switch. If the BCM receives a signal indicating the hood has been opened when the content theft deterrent system is armed, the BCM activates the alarm.

Liftgate Ajar Switch

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The content theft deterrent system uses the liftgate ajar switch as a status indicator to activate the alarm. The BCM monitors the liftgate ajar switch via a discrete input from the switch. If the BCM receives a signal indicating the liftgate has been opened when content theft deterrent system is armed, the BCM activates the alarm.

Intrusion Sensor (RPO UA2 and UTC)

The intrusion sensor is located in the overhead console and uses two ultrasonic sensors to detect any motion inside the vehicle. If motion is detected inside the vehicle while the content theft deterrent system is armed, the system will transition to the alarm mode. The intrusion sensor also acts as an inclination sensor. The inclination sensor determines the vehicles level when the content theft deterrent system is armed. If the vehicle level is changed while the system is armed, such as being lifted by a tow truck or raised with a jack, the alarm will be activated. The intrusion sensor can be disabled using the intrusion sensor disable switch. The intrusion sensor disable switch also shows the intrusion sensor status using a status LED.

Glass Breakage Sensor (RPO UA2 and UTC)

The glass breakage sensors are located on the rear side windows and are supplied B+ at all times. The BCM monitors the glass breakage sensor signal circuit. If the rear side glass is broken, the glass breakage sensor signal circuit will open and the BCM will enter the alarm mode.

Alarm Siren (RPO UA2 and UTC)

The content theft deterrent system uses the alarm siren as an audible alert device to alert individuals near the vehicle that a vehicle intrusion is occurring. The siren is supplied power and ground for operation and communicates with the body control module (BCM) via a dedicated LAN circuit.

Inputs

The BCM monitors the following inputs for content theft deterrent:

- Door ajar switches
- Keyless entry transmitter LOCK/UNLOCK buttons; a message from the remote control door lock receiver
- Immobilizer status - The BCM uses the immobilizer status for disarming the system or silencing an alarm when the correct vehicle key is used to start the vehicle
- Liftgate ajar switch
- Hood ajar switch
- Intrusion sensor (RPO UA2 and UTC)
- Glass breakage sensor (RPO UA2 and UTC)

Outputs

The BCM controls the following for content theft deterrent:

- Horn relay
- Exterior lamps

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- Alarm siren (RPO UA2 and UTC)

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