

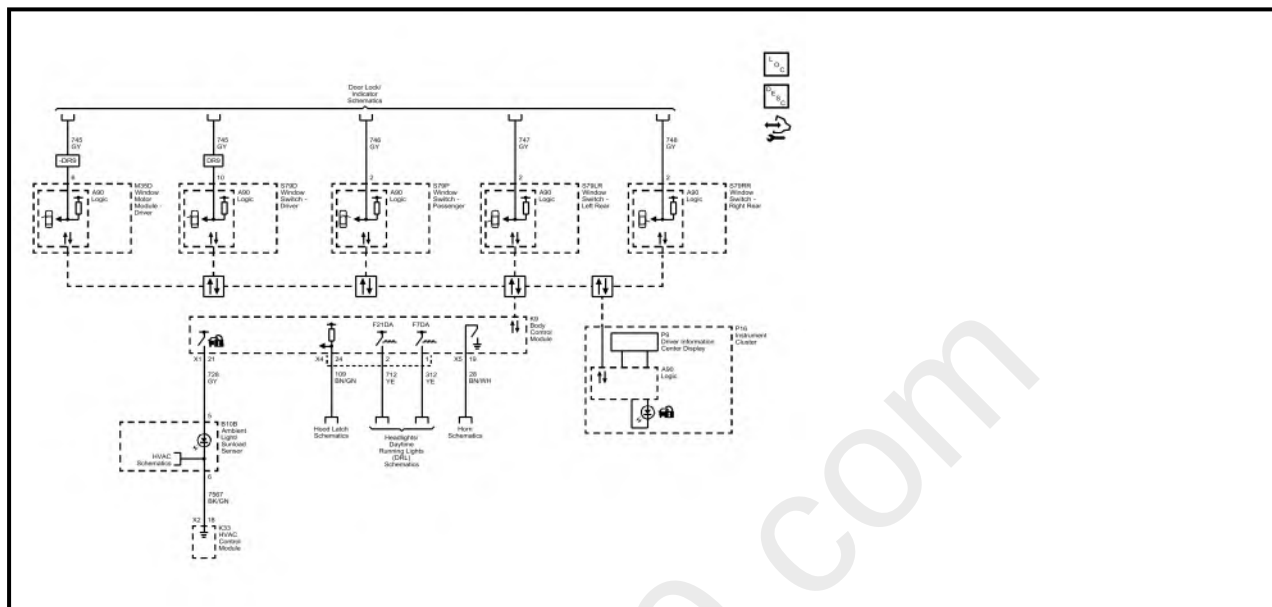
2018 ACCESSORIES & EQUIPMENT

Theft Deterrent - Traverse

SCHEMATIC WIRING DIAGRAMS

THEFT DETERRENT SYSTEM WIRING SCHEMATICS

Content Theft Deterrent



DIAGNOSTIC INFORMATION AND PROCEDURES

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

Content Theft Deterrent Sensor

For symptom byte information, refer to [Symptom Byte List](#).

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
B+	B291B 3B	B291B 3B	-	-
Serial Data	U1515, B291B 3B	B291B 3B	U1515, B291B 3B	B291B 00
Ground	-	B291B 3B	-	-

Circuit/System Description

The body control module performs various communication fault detection tests to determine if a software, hardware, or communication concern exists with the ultrasonic intrusion sensor. The sensor

being disconnected, a poor connection at the connector, or the vehicle battery being discharged could all cause the communication to be interrupted. This interruption stops the self test from completing which causes DTC B291B 3B. This is not because of the sensor failing, it is because of a previous or existing open connection between the sensor and the BCM. Restoring this connection and then arming the theft system will complete the test and allow the DTC to be cleared.

Conditions for Running the DTC

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

Conditions for Setting the DTC

The body control module cannot establish communications with the ultrasonic intrusion sensor.

Action Taken When the DTC Sets

The intrusion and inclination alarm output is disabled.

Conditions for Clearing the DTC

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

Diagnostic Aids

Before performing any diagnostic procedures, ensure the sensor is properly connected and arm the theft system. After the system has been armed long enough to have performed the tests within the system, disarm the theft system and attempt to clear the DTC.

Reference Information

Schematic Reference

Theft Deterrent System Wiring Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Theft Systems 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. Vehicle OFF, close and lock the doors using the keyless entry transmitter.
2. Arm the theft system and wait 5 min.
3. Disarm the system.
4. Attempt to clear the DTC.
 - If the DTC will not clear or transition to a history DTC

- **Go to next step: If the DTC clears or transitions to a history DTC**

5. All OK.

Circuit/System Testing

1. Ignition OFF and vehicle systems OFF, disconnect the harness connector at the B165 Content Theft Deterrent Sensor Module. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 5 and ground.

- **If 10 Ω or greater**

1. Ignition OFF.
2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.

- **Go to next step: If less than 10 Ω**

3. Ignition ON.

4. Verify a test lamp illuminates between the B+ circuit terminal 3 and ground.

- **If the test lamp does not illuminate and the circuit fuse is good**

1. Ignition OFF.
2. Test for less than 2 Ω in the B+ circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , verify the fuse is OK and there is voltage at the fuse.

- **If the test lamp does not illuminate and the circuit fuse is open**

1. Ignition OFF.
2. Test for infinite resistance between the B+ circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the B165 Content Theft Deterrent Sensor Module.

- **Go to next step: If the test lamp illuminates**

5. Ignition OFF, arm the content theft deterrent system.

6. Test for greater than 4.5 V between the serial data circuit terminal 4 and ground.

- **If 4.5 V or less**

1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.
2. Test for infinite resistance between the serial data circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - Go to next step: If infinite resistance

3. Test for less than 2 Ω in the serial data circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , replace the K9 Body Control Module.

- **Go to next step: If greater than 4.5 V**

7. Ignition OFF, disconnect the harness connector at the K9 Body Control Module and any other components or control modules sharing the serial data circuit with the B165 Content Theft Deterrent Sensor Module, ignition ON.

8. Test for less than 1 V between the B165 Content Theft Deterrent Sensor Module serial data circuit terminal 4 and ground.

- **If 1 V or greater**

Repair the short to voltage on the circuit.

- **Go to next step: If less than 1 V**

9. Test or replace the B165 Content Theft Deterrent Sensor Module.

10. Fully arm then disarm the content theft deterrent system and verify no DTCs are set.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Control Module References](#) for replacement, programming, and setup.

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 [Theft Systems 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](#)
- [Security Indicator Malfunction](#)

CONTENT THEFT DETERRENT 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 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 Wiring Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

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- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition ON.
2. Verify each indicator/message transition between the ajar and closed state while opening and closing each vehicle door, hood, and rear compartment.
 - **If the indicator/message does not change**

Refer to Door Ajar Indicator Malfunction , or Hood Ajar Indicator/Message Malfunction .
 - **Go to next step: If each indicator/message changes**
3. Completely lower the driver door window and close all vehicle doors, ignition OFF.
4. Arm the content theft deterrent system by locking the door with the keyless entry transmitter.
5. Verify the scan tool BCM Content Theft Deterrent Alarm Status parameter is Armed.
 - **If not Armed**

Refer to Keyless Entry System Malfunction (Active), Keyless Entry System Malfunction (Passive) .
 - **Go to next step: If Armed**
6. Without disarming the system, reach in through the open driver window and open the driver door.
7. Verify the scan tool BCM Content Theft Deterrent Alarm Status parameter is Alarm.
 - **If not Alarm**

Replace the K9 Body Control Module.
 - **Go to next step: If Alarm**
8. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

Control Module References for Body Control Module replacement, programming, and setup

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](#) provide an overview of each diagnostic category.

Circuit/System Description

The security indicator acts as a status indicator for the content theft deterrent (CTD) system when the ignition is OFF and as a fault indicator for the immobilizer system when the ignition is ON. When either the body control module (BCM) or theft deterrent module (TDM) requires the security indicator to be illuminated, a serial data message is sent to the instrument panel cluster (IPC), which will illuminate the indicator.

Reference Information

Schematic Reference

[Theft Deterrent System Wiring Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

Description and Operation

[Theft Systems Description and Operation](#)

Electrical Information Reference

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- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Verification

Ignition ON, verify the security indicator illuminates when performing the scan tool IPC Display Test.

- If the security indicator does not illuminate, replace the IPC.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the diagnostic procedure.

[Control Module References](#) for IPC replacement, setup, and programming

DESCRIPTION AND OPERATION

THEFT SYSTEMS DESCRIPTION AND OPERATION

When armed, the content theft deterrent (CTD) 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 CTD system does not affect engine starting.

An unauthorized entry can be any of the following with the CTD system armed:

- When any door is opened without first being unlocked using the keyless entry transmitter
- After a battery reconnect, if the battery was disconnected with the CTD system armed

The components of the CTD system are:

- Body Control Module (BCM)
- Security indicator
- Door ajar switches
- Liftgate ajar switch

Arming the CTD 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.

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

4. Lock the doors with 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 to arm the system after the vehicle doors are closed, the arm sequence will begin as soon as the LOCK command is received from the transmitter.

Locking the Vehicle Without Arming the CTD System

Locking the vehicle may be accomplished without arming the content theft deterrent (CTD) system. Use of the manual door locks or using the key to lock the doors will lock the vehicle, but will not arm the CTD 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.

Using the power door unlock switch or manually unlocking the doors does not disable the content theft deterrent (CTD) arm mode. Also, disconnecting the battery or pulling fuses does not disable the arm mode, since the BCM stores the CTD mode status in memory.
IMPORTANT:

- To disarm the CTD system in standby mode, perform one of the following:
 - Press the UNLOCK button on the keyless entry transmitter.
 - Insert a valid key into the ignition and switch to the ON position.
- To disarm the CTD 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

CTD Circuit Description

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

Body Control Module (BCM)

The CTD system is an internal function of the BCM which utilizes serial data and various switch inputs information to perform CTD 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 CTD system. The different modes are described below.

1. The BCM has the CTD 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 forced entry activates the alarm mode.
 4. When the BCM detects a forced 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.

Security Indicator

The security indicator is illuminated on the instrument panel cluster (IPC) by the BCM for CTD or the immobilizer system. The CTD system uses the security indicator to inform the driver of system status prior to arming. The security indicator on the instrument cluster is controlled by both the CTD system and the immobilizer system.

- The CTD system, integral to the BCM, commands the IPC to control the security indicator only when the ignition switch is OFF. The CTD system uses the indicator to identify system status.
- The immobilizer system commands the IPC to control the security indicator only when the ignition switch is ON as a malfunction indicator. The immobilizer system is to deter vehicle theft. Refer to [Immobilizer Description and Operation](#) for more information on the immobilizer system.

Liftgate Ajar Switch

The CTD system uses the liftgate ajar switch as a status indicator to activate the alarm. The liftgate ajar switch is monitored by the BCM via a discrete input. If the BCM receives a signal indicating a liftgate is opened when the CTD system is armed, the BCM activates the alarm.

Door Ajar Switches

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

Inputs

The BCM monitors the following inputs for CTD:

- The door ajar switches
- The liftgate ajar switch
- The keyless entry transmitter LOCK/UNLOCK buttons
- The 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

Outputs

The BCM controls the following for CTD:

- The horn relay
 - The exterior lamps
-