

Theft Deterrent - Corvette

SCHEMATIC AND ROUTING DIAGRAMS

THEFT DETERRENT SYSTEM SCHEMATICS

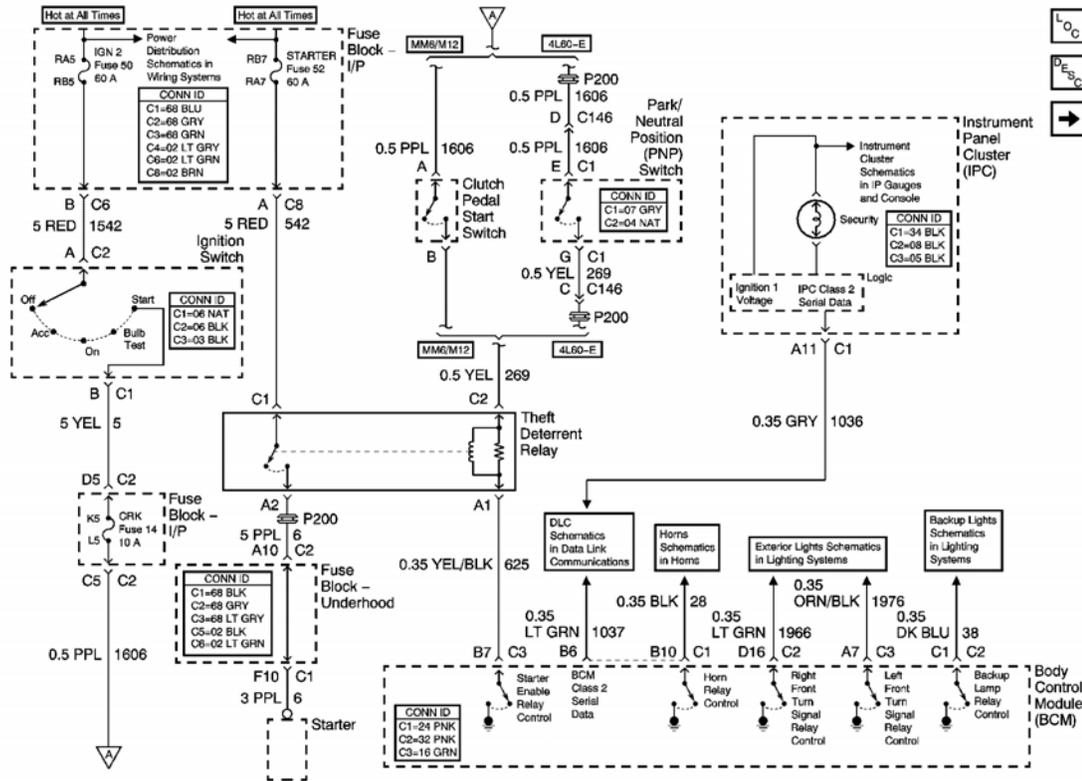


Fig. 1: Theft Deterrent Relay, Security Indicator, Lighting and Horn References Schematic
 Courtesy of GENERAL MOTORS CORP.

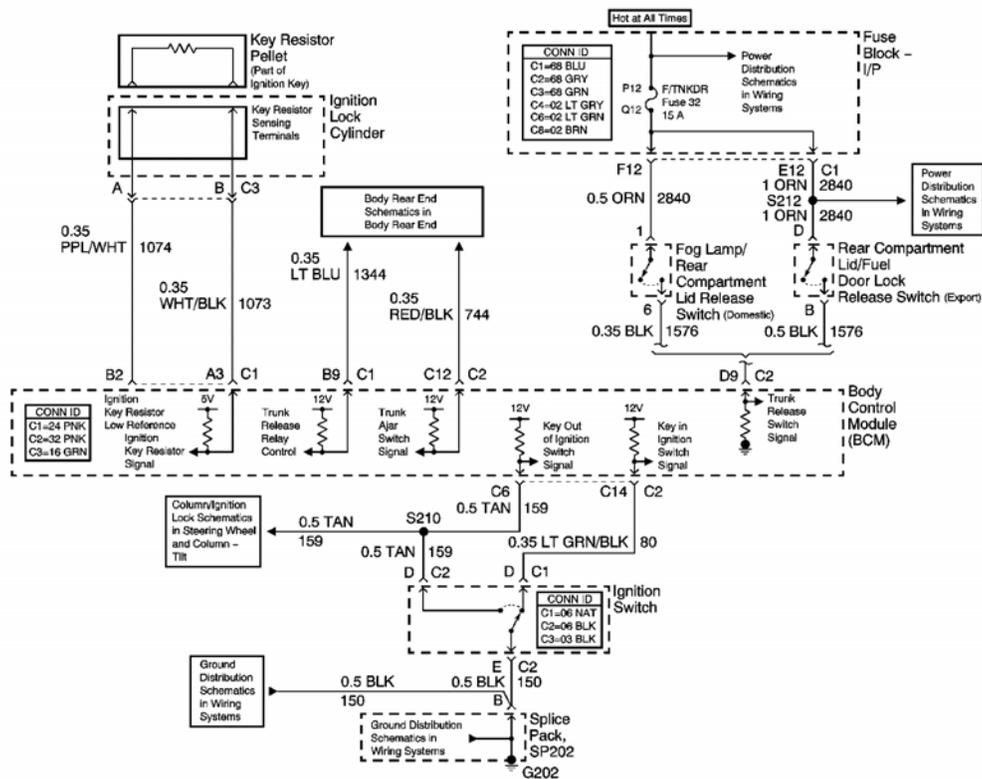


Fig. 3: Ignition Key Signals and Trunk Release Switch Signal Schematic
 Courtesy of GENERAL MOTORS CORP.

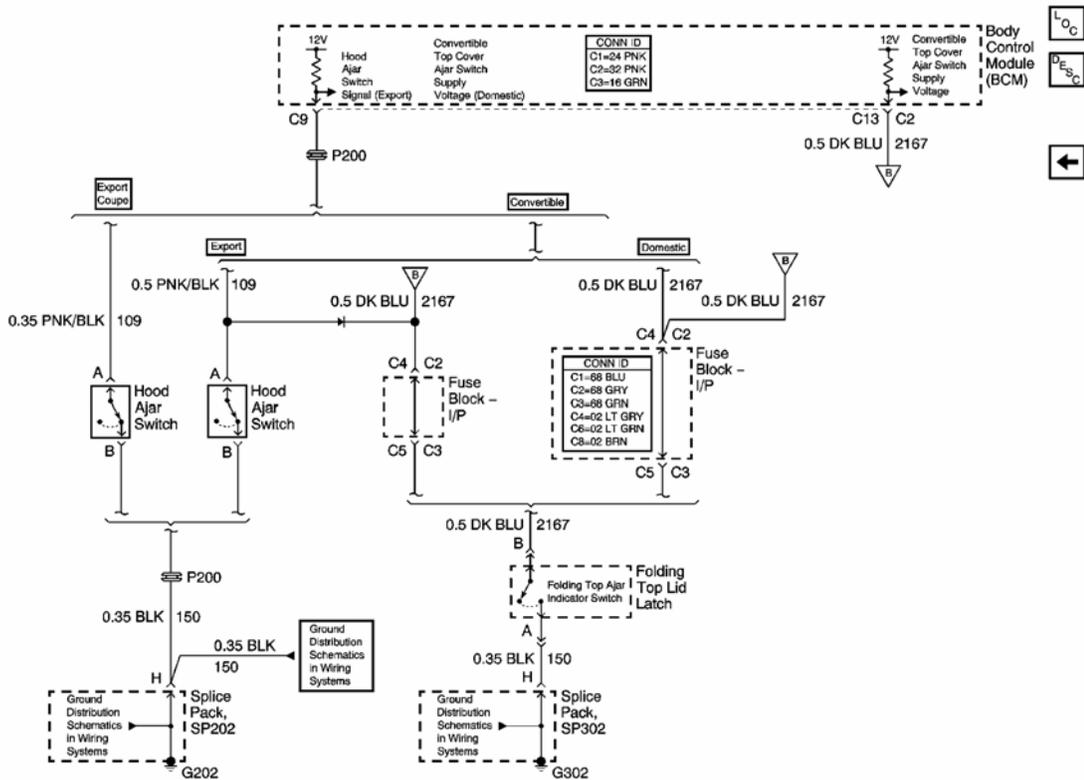


Fig. 4: Hood Ajar Switch Signal and Convertible Top Cover Ajar Switch Supply Voltage Schematic
 Courtesy of GENERAL MOTORS CORP.

COMPONENT LOCATOR

THEFT DETERRENT SYSTEM COMPONENT VIEWS

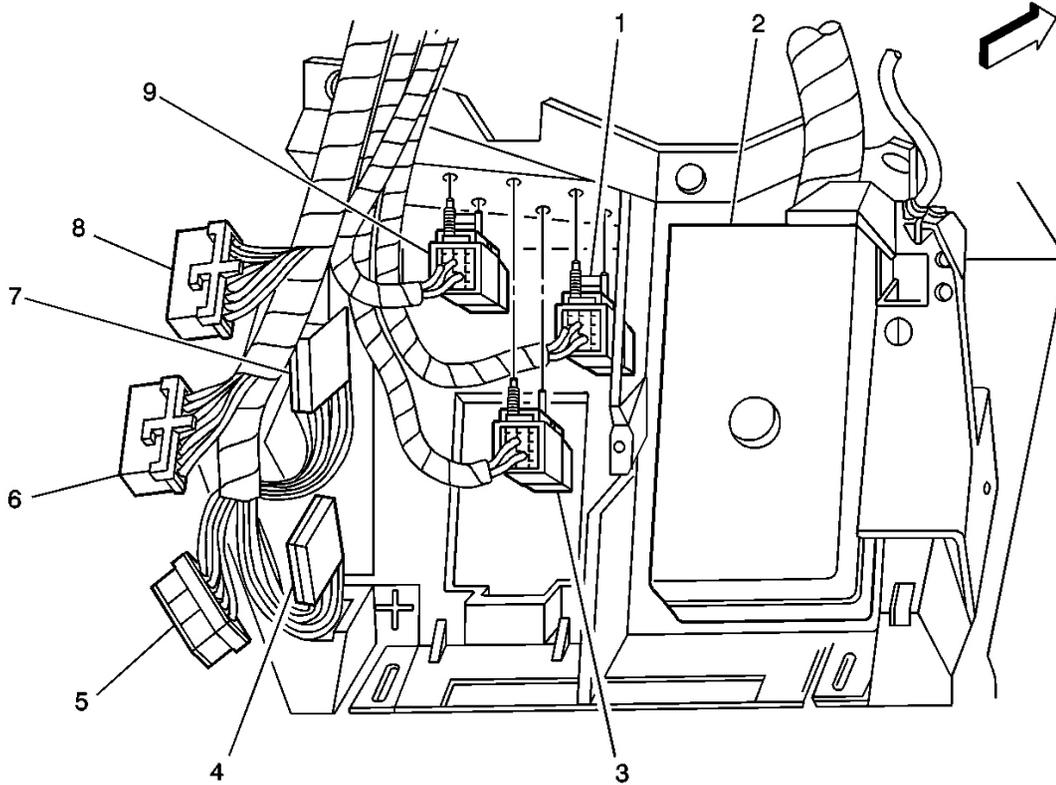


Fig. 5: Under RH Side of Dash Component View
 Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 5

Callout	Component Name
1	Theft Deterrent Relay
2	Fuse Block-IP
3	Blower Motor Relay
4	Star Connector #2
5	Body Control Module (BCM) C3
6	Body Control Module (BCM) C1
7	Star Connector #1
8	Body Control Module (BCM) C2
9	Steering Column Lock Relay

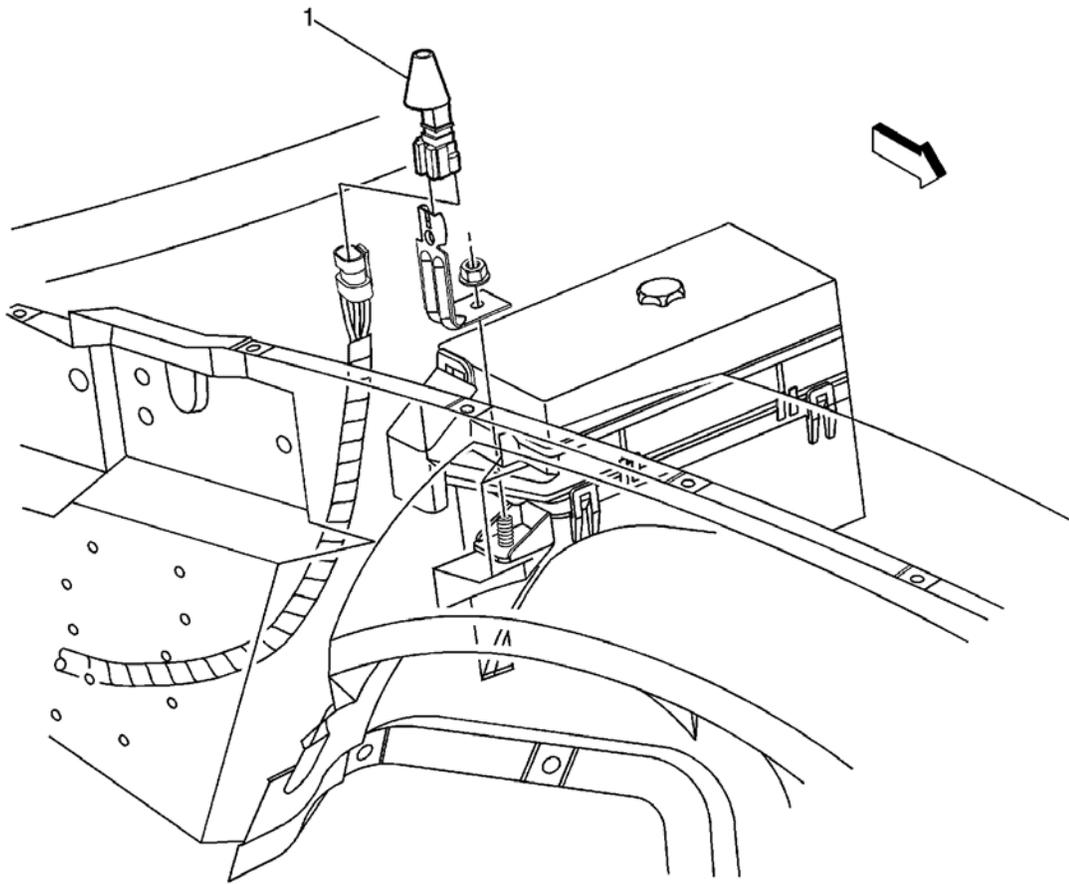


Fig. 6: Hood Ajar Switch Component View
 Courtesy of GENERAL MOTORS CORP.

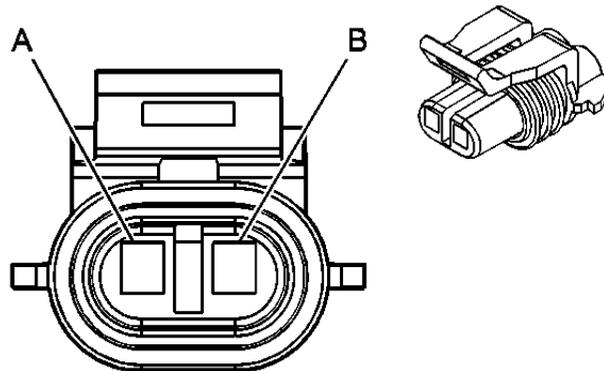
Callouts For Fig. 6

Callout	Component Name
1	Hood Ajar Switch (Export)

THEFT DETERRENT SYSTEM CONNECTOR END VIEWS

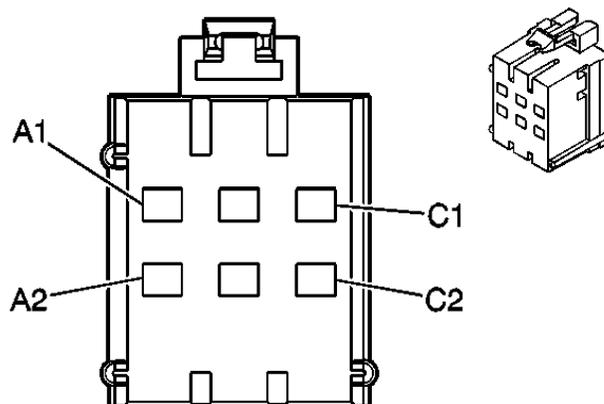
Hood Ajar Switch Connector End View





Connector Part Information		<ul style="list-style-type: none"> • 12052635 • 2-Way F Metri-Pack 150 Series (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	PNK/BLK	109	Ajar Switch Signal
B	BLK	150	Ground

Theft Deterrent Relay Connector End View



Connector Part Information		<ul style="list-style-type: none"> • 12110541 • 6-Way F Metri-Pack 280 Series (BLK) 	
Pin	Wire Color	Circuit No.	Function
A1	YEL/BLK	625	Starter Enable Relay Control
A2	PPL	6	Starter Solenoid Crank Voltage
B1-B2	-	-	Not Used

C1	RED	542	Battery Positive Voltage
C2	YEL	269	Starter Enable Relay Coil Supply Voltage

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC STARTING POINT - THEFT DETERRENT

Begin the system diagnosis with **Diagnostic System Check - Theft Deterrent** . The Diagnostic System Check will provide the following information:

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

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

DIAGNOSTIC SYSTEM CHECK - THEFT DETERRENT

Test Description

The number (s) below refer to the step number (s) on the diagnostic table.

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

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

Diagnostic System Check - Theft Deterrent

Step	Action	Yes	No
1	Install a scan tool. Does the scan tool power up?	Go to Step 2	Go to Scan Tool Does Not Power Up in Data Link Communications
2	1. Turn ON the ignition, with the engine OFF. 2. Attempt to establish communication with the body control module (BCM), the powertrain control module (PCM), the driver door module (DDM), and the passenger door module (PDM). Does the scan tool communicate with all of		Go to Scan Tool Does Not Communicate with Class 2 Device in Data Link

	the control modules?	Go to Step 3	Communications
3	Select the control module display DTCs function on the scan tool for the BCM, PCM, DDM and the PDM. Does the scan tool display any DTCs?	Go to Step 4	Go to Symptoms - Theft Deterrent
4	Does the scan tool display any DTCs which begin with a "U"?	Go to Scan Tool Does Not Communicate with Class 2 Device in Data Link Communications	Go to Step 5
5	Does the scan tool display DTC P0601, P0602, P0604 or P0606?	Go to Diagnostic Trouble Code (DTC) List in Engine Controls	Go to Step 6
6	Does the scan tool display DTC B0605 or B1000?	Go to Diagnostic Trouble Code (DTC) List in Body Control System	Go to Step 7
7	Does the scan tool display DTC B2282-B2285, P0562, P0563, P1637 or P1638?	Go to Diagnostic Trouble Code (DTC) List in Engine Electrical	Go to Diagnostic Trouble Code (DTC) List

SCAN TOOL OUTPUT CONTROLS

Body Control Module (BCM) Scan Tool Output Controls

Scan Tool Output Control	Additional Menu Selection (s)	Description
DRL Parklamps	Special Functions, Output Control, Light Test	The body control module (BCM) actuates the daytime running lamp parklamp relay when commanded ON with the scan tool soft key. The parklamps will illuminate until commanded OFF with the scan tool soft key.
Horn	Special Functions, Output Control, Miscellaneous Test	The body control module (BCM) actuates the horn relay when commanded ON with the scan tool soft key. The horn will sound for 5 seconds.
Backup Lamps	Special Functions, Output Control, Light Test	The body control module (BCM) actuates the backup lamps relay when commanded ON with the scan tool soft key. The backup lamps will illuminate until commanded OFF with the scan tool soft key.

SCAN TOOL DATA LIST

Body Control Module (BCM) Scan Tool Data List

Scan Tool Parameter	Data List	Units Displayed	Typical Data Value
Ignition ON/Engine OFF/Doors, Hatch/Trunk and Hood CLOSED/No Switches Pressed/Vehicle in PARK or NEUTRAL			
	Input Data		

Backup Light Request	1	Active/Inactive	Inactive
Driver Door Ajar Switch	Input Data 2	Open/Closed	Closed
Folding Top Ajar Switch (Convertible)	Input Data 2	Active/Inactive	Inactive
Hatch/Trunk Ajar	Input Data 2	Open/Closed	Closed
Hood Ajar (Export)	Input Data 2	Open/Closed	Closed
Ignition 1	Input Data 1	On/Off	On
Key In Ignition	Input Data 1	Active/Inactive	Active
Left Turn Signal Relay	Input Data 1	Active/Inactive	Inactive
Passenger Door Ajar Switch	Input Data 2	Open/Closed	Closed
PASS-Key(R) Resistor Signal	Data	0-5.0 Volts	Varies
PASS-Key State	Input Data 1	Monitor Key/Ignition Off	Monitor Key
Right Turn Signal Relay	Input Data 1	Active/Inactive	Inactive
Theft Deterrent State	Input Data 1	Active/Inactive/Fully Armed/Passive/Alarm	Inactive

Driver Door Module (DDM) Scan Tool Data List

Scan Tool Parameter	Data List	Units Displayed	Typical Data Value
Ignition ON/Engine OFF/Doors, Hatch/Trunk and Hood CLOSED/No Switches Pressed/Vehicle in PARK or NEUTRAL			
Door Key Unlock	Inputs	Active/Inactive	Inactive

Passenger Door Module (PDM) Scan Tool Data List

Scan Tool Parameter	Data List	Units Displayed	Typical Data Value
Ignition ON/Engine OFF/Doors, Hatch/Trunk and Hood CLOSED/No Switches Pressed/Vehicle in PARK or NEUTRAL			
Door Key Unlock	Inputs	Active/Inactive	Inactive

Powertrain Control Module (PCM) Scan Tool Data List

Scan Tool Parameter	Data List	Units Displayed	Typical Data Value
Ignition ON/Engine OFF/Doors, Hatch/Trunk and Hood CLOSED/No Switches Pressed/Vehicle in PARK or NEUTRAL			
PCM/VCM in VTD Fail Enable	Engine Data 3	Yes/No	No
VTD Auto. Learn Timer	Engine Data 3	Active/Inactive	Inactive

VTD Fuel Disable	Engine Data 3	Active/Inactive	Inactive
VTD Fuel Disable Until Ign. Off	Engine Data 3	Yes/No	No

SCAN TOOL DATA DEFINITIONS

Backup Light Request

The scan tool displays Active/Inactive. Displays indicates the commanded state of the backup lamp relay. The scan tool displays Active when the backup lamp relay is grounded and Off when the backup lamp relay is not grounded.

Door Key Unlock

The scan tool displays Active/Inactive. The scan tool displays Active when the door key cylinder is rotated to the unlock position.

Driver Door Ajar Switch

The scan tool displays Open/Closed. Display indicates the current state of the driver door ajar switch. Open indicates the door is open and Closed indicates the door is closed.

Folding Top Ajar Switch (Convertible)

The scan tool displays Active/Inactive. The scan tool displays Active when the folding top stowage cover is open and Inactive when the folding top stowage cover is closed.

Hatch/Trunk Ajar Switch

The scan tool displays Open/Closed. Display indicates the current state of the hatch/trunk ajar switch. Open indicates the hatch/trunk is open and Closed indicates the hatch/trunk is closed.

Hood Ajar (Export)

The scan tool displays Open/Closed. Display indicates the current state of the hood ajar switch. Open indicates the hood is either open or ajar and Closed indicates the hood is closed.

Ignition 1

The scan tool displays On/Off. The scan tool displays the current state of the ignition switch ignition 1 position.

Key In Ignition

The scan tool displays Active/Inactive. The scan tool displays Active when the ignition key is in the ignition and Inactive when it is not in the ignition.

Left Turn Signal Relay

The scan tool displays Active/Inactive. Displays indicates the commanded state of the left turn signal relay. The scan tool displays Active when the left turn signal relay is grounded and Off when the left turn signal relay is not grounded.

Passenger Door Ajar Switch

The scan tool displays Open/Closed. Display indicates the current state of the driver door ajar switch. Open indicates the door is open and Closed indicates the door is closed.

PASS-Key(R) Resister Signal

The scan tool displays 0-5.0 volts. The voltage level represents the PASS-Key(R) resistance value.

Pass-Key(R) State

The scan tool displays the current PASS-Key(R) state. This data represents what PASS-Key(R) functional mode the BCM is in. The BCM enters different PASS-Key(R) states based upon the information the BCM receives from the ignition switch (switch position and key resistance value).

PCM/VCM in VTD Fail Enable

The scan tool displays Yes/No. The scan tool displays NO when the PCM is in fail enable. This indicates a failure occurred in the VTD system.

Right Turn Signal Relay

The scan tool displays Active/Inactive. Displays indicates the commanded state of the right turn signal relay. The scan tool displays Active when the right turn signal relay is grounded and Off when the right turn signal relay is not grounded.

Theft Deterrent State

The scan tool displays Active/Inactive/Fully Armed/Passive/Alarm. The scan tool displays the state of the CTD system.

VTD Auto. Learn Timer

The scan tool displays Active/Inactive. The scan tool displays the current state of the Auto. Learn Timer, which must time out three times in order for the relearn procedure to be complete.

VTD Fuel Disable

The scan tool displays Active/Inactive. The scan tool displays Active when the PCM has received a disable password from the VTD system.

VTD Fuel Disable Until Ign. Off

The scan tool displays Yes/No. The scan tool displays Yes when the PCM has received the fuel disable password from the VTD system. This indicates the PCM will not allow fuel delivery until the ignition is switched off prior to another start attempt.

DIAGNOSTIC TROUBLE CODE (DTC) LIST

IMPORTANT: Unless otherwise directed by the Diagnostic System Check diagnose all Bxxxx codes prior to diagnosing any Pxxxx codes.

Diagnostic Trouble Code (DTC) List

DTC	Description	Module
B2721	DTC B2721	BCM
B2722	DTC B2722	BCM
B2723	DTC B2723	BCM
B2735	DTC B2735	BCM
P1626	DTC P1626	PCM
P1630	DTC P1630	PCM
P1631	DTC P1631	PCM
Pxxxx	Pxxxx other PCM DTCs Refer to Diagnostic Trouble Code (DTC) List in Engine Controls - 5.7L.	PCM

DTC B2721

Circuit Description

The body control module (BCM) supplies a 5 volt signal and a ground circuit for the PASS-Key(R) system. This allows the BCM to detect PASS-Key(R) resistance values. Inserting the PASS-Key(R) (with resistor pellet) in the ignition lock cylinder completes the PASS-Key(R) circuit. Contacts in the ignition lock cylinder mate with the pellet contacts. The BCM compares the resistance value of the key pellet to the valid resistance programmed into the BCM. If the proper resistance value is read, the BCM allows the following functions to occur:

- The theft deterrent relay to energize.
- The steering column to unlock.
- The BCM sends a message through the serial data line to the powertrain control module (PCM) to enable fuel delivery.

If the resistance value is incorrect, a malfunction is present and a DTC will set.

Conditions for Setting the DTC

- The resistance level sampled at the BCMs PASS-Key(R) signal circuit is one of 15 valid but incorrect resistance ranges, signaling an invalid PASS-Key(R) detection.

- This condition must be present for 1 second.

Action Taken When the DTC Sets

- The BCM stores DTC B2721 in memory.
- The BCM sends a message to the instrument panel cluster (IPC) to illuminate the SECURITY indicator.
- The BCM will disable the theft deterrent relay.
- The PCM will not allow fuel delivery to occur.
- The BCM disables sampling of the PASS-Key(R) resistance for a time-out period of 3 minutes.
- The steering column remains in the locked position.

Conditions for Clearing the DTC

- This DTC requires an ignition cycle in order to change from current to history.
- The BCM detects a valid PASS-Key(R) resistance value on the PASS-Key(R) signal circuit after the 3 minute time-out period occurs.
- A history DTC will clear after 50 consecutive ignition cycles if the condition for the malfunction is no longer present.
- Use the IPC clearing DTCs feature.
- Use a scan tool.

Diagnostic Aids

- The following conditions may cause an intermittent malfunction:
 - There is an intermittent open or short to ground on the PASS-Key(R) signal or ground circuit.
 - There are poor connections at the BCM or the ignition switch connector.
 - The ignition lock cylinder key contacts or the PASS-Key(R) resistor is dirty or loose.
- If the key resistor pellet is incorrect, there will be no BCM outputs to the theft deterrent relay or to the PCM. This state will last about 3 minutes. If a key is inserted, or the ignition is turned ON again before the 3 minute time frame is complete, the timer will reset to 3 minutes. Disconnecting the battery will not clear the timer sequence, but the timer will reset to 3 minutes when the battery power is restored. Even if a proper key is inserted during one of the time periods, the vehicle will not start until the total time period has elapsed.

Test Description

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

3: Tests for other PASS-Key(R) DTCs stored in the BCM that will cause a DTC B2721 to set. These DTCs must be diagnosed first.

4: Tests for an intermittent or incorrect PASS-Key(R) Resister reading due to an incorrect or malfunctioning ignition key.

DTC B2721

Step	Action	Yes	No
Schematic Reference: Theft Deterrent System Schematics Connector End View Reference: Theft Deterrent System Connector End Views			
1	Did you perform the Theft Deterrent Diagnostic System Check?	Go to Step 2	Go to Diagnostic System Check - Theft Deterrent
2	1. Install a scan tool. 2. Turn ON the ignition with the engine OFF. 3. Select the Display DTCs function for the BCM. Does the scan tool display DTC B2721 as a current DTC?	Go to Step 3	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems
3	Does the scan tool display DTC B2722 or B2723 as a current DTC?	Go to Diagnostic Trouble Code (DTC) List	Go to Step 4
4	Inspect the ignition key for dirt or obvious damage. Does the ignition key appear dirty or damaged?	Go to Step 11	Go to Step 5
5	1. Turn OFF the ignition. 2. Disconnect the ignition lock cylinder. 3. Connect a J 35628-A Vats/Passkey Interrogator using terminal adapters from a J 35616 to the key resistor input circuit and key resistor reference ground circuit. See Special Tools and Equipment . 4. Turn the rotary switch on the J 35628-A to each code number (1-15) and attempt to start the vehicle with each code number. See Special Tools and Equipment . (After each failed starting attempt, you must wait 3 minutes before the next attempt. This step may take as long as 45 minutes due to a trial and error process.) Does the vehicle start with one of the codes selected on the J 35628-A ? See Special Tools and Equipment .	Go to Step 6	Go to Step 7
6	1. Note the code number on the J 35628-A that successfully started the vehicle. See Special Tools and Equipment . 2. Obtain and cut a new ignition key with the correct key code value. 3. Attempt to start the vehicle with the new ignition key. Does the vehicle start?	Go to Step 13	Go to Step 8

7	<p>Test the following circuits for an open or a short:</p> <ul style="list-style-type: none"> • The key resistor input circuit • The key resistor reference ground circuit <p>Did you find and correct the condition?</p>	Go to Step 13	Go to Step 9
8	<p>Inspect for poor connections at the harness connector of the ignition lock cylinder. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to Step 13	Go to Step 11
9	<p>Inspect for poor connections at the harness connector of the body control module. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to Step 13	Go to Step 12
10	<p>Clean or replace the ignition key as necessary. Refer to <u>Replacing Keys</u> .</p> <p>Did you complete the procedure?</p>	Go to Step 13	-
11	<p>Replace the ignition lock cylinder. Refer to <u>Ignition Switch Lock Cylinder Replacement</u> in Instrument Panel, Gages, and Console.</p> <p>Did you complete the replacement?</p>	Go to Step 13	-
12	<p>IMPORTANT: When replacing the BCM, perform the relearn procedure. Refer to <u>Body Control Module (BCM) Programming/RPO Configuration in Body Control System.</u></p> <p>Replace the BCM. Refer to <u>Body Control Module Replacement</u> in Body Control System. Did you complete the repair?</p>	Go to Step 13	-
13	<ol style="list-style-type: none"> 1. Use the scan tool in order to clear the DTCs. 2. Attempt to start the vehicle. <p>Does the DTC reset?</p>	Go to Step 2	System OK

DTC B2722

Circuit Description

The body control module (BCM) supplies a 5 volt signal and a ground circuit for the PASS-Key(R) system. This allows the BCM to detect PASS-Key(R) resistance values. Inserting the PASS-Key(R) (with resistor pellet) in the ignition lock cylinder completes the PASS-Key(R) circuit. Contacts in the ignition lock cylinder mate with the pellet contacts. The BCM compares the resistance value of the key pellet to the valid resistance

programmed into the BCM. If the proper resistance value is read, the BCM allows the following functions to occur:

- The theft deterrent relay to energize.
- The steering column to unlock.
- The BCM sends a message through the serial data line to the powertrain control module (PCM) to allow fuel delivery to occur.

If the resistance value is incorrect, a malfunction is present and a DTC will set.

Conditions for Setting the DTC

- The voltage level sampled at the BCMs PASS-Key(R) signal circuit is incorrect, signaling that an invalid PASS-Key(R) resistance was detected, and a short is present.
- This condition must be present for 1 second.

Action Taken When the DTC Sets

- The BCM stores DTC B2722 in memory.
- The BCM sends a message to the instrument cluster to illuminate the SECURITY indicator.
- The BCM disables the theft deterrent relay.
- The PCM will not allow fuel delivery to occur.
- The BCM disables sampling of the PASS-Key(R) resistance for a time-out period of 3 minutes.
- The steering column remains in the locked position.

Conditions for Clearing the DTC

- This DTC requires an ignition cycle in order to change from current to history.
- The BCM detects a valid PASS-Key(R) resistance value on the PASS-Key(R) signal circuit.
- A history DTC will clear after 50 consecutive ignition cycles if the condition for the malfunction is no longer present.
- Use the instrument panel cluster (IPC) clearing DTCs feature.
- Use a scan tool.

Diagnostic Aids

- If the key resistor pellet is incorrect, there will be no BCM outputs to the theft deterrent relay or to the PCM. This state will last about 3 minutes. If a key is inserted, or the ignition is turned ON again before the 3 minute time frame is complete, the timer will reset to 3 minutes. Disconnecting the battery will not clear the timer sequence, but the timer will reset to 3 minutes when the battery power is restored. Even if a proper key is inserted during one of the time periods, the vehicle will not start until the total time period has elapsed.
- If there is a short between the PASS-Key(R) signal and ground circuit, or a short to ground on the PASS-Key(R) signal circuit, the vehicle will exhibit a no crank condition.

Test Description

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

4: This test verifies the integrity of the key resistor circuits between the ignition switch and the BCM.

DTC B2722

Step	Action	Yes	No
Schematic Reference: Theft Deterrent System Schematics Connector End View Reference: Theft Deterrent System Connector End Views			
1	Did you perform the Theft Deterrent Diagnostic System Check?	Go to Step 2	Go to Diagnostic System Check - Theft Deterrent
2	<ol style="list-style-type: none">1. Install a scan tool.2. Turn ON the ignition with the ignition OFF.3. Select the BCM Display DTCs function on the scan tool. Does the scan tool display B2722 as a current DTC?	Go to Step 3	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems
3	Inspect the ignition key for dirt or obvious damage. Does the ignition key appear dirty or damaged?	Go to Step 8	Go to Step 4
4	<ol style="list-style-type: none">1. Turn OFF the ignition.2. Disconnect the ignition lock cylinder connector.3. Connect a J 35628-A Vats/Passkey Interrogator using terminal adapters from a J 35616 to the key resistor input circuit and key resistor reference ground circuit. See Special Tools and Equipment .4. Insert the ignition key into the key code reader on the J 35628-A and note the code on the LCD display. See Special Tools and Equipment .5. Turn the rotary switch on the J 35628-A to the same code number as the ignition key. See Special Tools and Equipment .6. Attempt to start the vehicle. Does the vehicle start?	Go to Step 7	Go to Step 5
5	Test the key resistor input circuit for a short to ground. Did you find and correct the condition?	Go to Step 11	Go to Step 6
6	Inspect for poor connections at the harness connector of the BCM. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 10

7	Inspect for poor connections at the harness connector of the ignition lock cylinder. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 9
8	Clean or replace the ignition key as necessary. Refer to <u>Replacing Keys</u> . Did you complete the procedure?	Go to Step 11	-
9	Replace the ignition switch lock cylinder. Refer to <u>Ignition Switch Lock Cylinder Replacement</u> in Instrument Panel, Gages and Console. Did you complete the replacement?	Go to Step 11	-
10	IMPORTANT: When replacing the BCM, perform the relearn procedure. Refer to <u>Body Control Module (BCM) Programming/RPO Configuration in Body Control System.</u> Replace the BCM. Refer to <u>Body Control Module Replacement</u> in Body Control System. Did you complete the repair?	Go to Step 11	-
11	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 B2723

Circuit Description

The body control module (BCM) supplies a 5 volt signal and a ground circuit for the PASS-Key(R) system. This allows the BCM to detect PASS-Key(R) resistance values. Inserting the PASS-Key(R) (with resistor pellet) in the ignition lock cylinder completes the PASS-Key(R) circuit. Contacts in the ignition lock cylinder mate with the pellet contacts. The BCM compares the resistance value of the key pellet to the valid resistance programmed into the BCM. If the proper resistance value is read, the BCM allows the following functions to occur:

- The theft deterrent relay to energize.
- The steering column to unlock.
- The BCM sends a message through the serial data line to the powertrain control module (PCM) to allow fuel delivery to occur.

If the resistance value is incorrect, a malfunction is present and a DTC will set.

Conditions for Setting the DTC

- The voltage level sampled at the BCMs PASS-Key(R) signal circuit is incorrect, signaling that an invalid PASS-Key(R) resistance was detected, and a short or an open is present.
- This condition must be present for 1 second.

Action Taken When the DTC Sets

- The BCM stores DTC B2723 in memory.
- The BCM sends a message to the instrument cluster to illuminate the SECURITY indicator.
- The BCM disables the theft deterrent relay.
- The PCM will not allow fuel delivery to occur.
- The BCM disables sampling of the PASS-Key(R) resistance for a time-out period of 3 minutes.
- The steering column remains in the locked position.

Conditions for Clearing the DTC

- This DTC requires an ignition cycle in order to change from current to history.
- The BCM detects a valid PASS-Key(R) resistance value on the PASS-Key(R) signal circuit.
- A history DTC will clear after 50 consecutive ignition cycles if the condition for the malfunction is no longer present.
- Use the instrument panel cluster (IPC) clearing DTCs feature.
- Use a scan tool.

Diagnostic Aids

- If the key resistor pellet is incorrect, there will be no BCM outputs to the theft deterrent relay or to the PCM. This state will last about 3 minutes. If a key is inserted, or the ignition is turned ON again before the 3 minute time frame is complete, the timer will reset to 3 minutes. Disconnecting the battery will not clear the timer sequence, but the timer will reset to 3 minutes when the battery power is restored. Even if a proper key is inserted during one of the time periods, the vehicle will not start until the total time period has elapsed.
- If there is a short between the PASS-Key(R) signal and ground circuit, or a short to ground on the PASS-Key(R) signal circuit, the vehicle will exhibit a no crank condition.

Test Description

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

4: This test verifies the integrity of the key resistor circuits between the ignition switch and the BCM.

DTC B2723

Step	Action	Yes	No
Schematic Reference: Theft Deterrent System Schematics			
Connector End View Reference: Theft Deterrent System Connector End Views			

1	Did you perform the Theft Deterrent Diagnostic System Check?	Go to Step 2	Go to <u>Diagnostic System Check - Theft Deterrent</u>
2	<ol style="list-style-type: none"> 1. Install a scan tool. 2. Turn ON the ignition with the ignition OFF. 3. Select the BCM Display DTCs function on the scan tool. <p>Does the scan tool display B2723 as a current DTC?</p>	Go to Step 3	Go to <u>Testing for Intermittent Conditions and Poor Connections</u> in Wiring Systems
3	Inspect the ignition key for dirt or obvious damage. Does the ignition key appear dirty or damaged?	Go to Step 8	Go to Step 4
4	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Disconnect the ignition lock cylinder connector. 3. Connect a J 35628-A Vats/Passkey Interrogator using terminal adapters from a J 35616 to the key resistor input circuit and key resistor reference ground circuit. See <u>Special Tools and Equipment</u> . 4. Insert the ignition key into the key code reader on the J 35628-A and note the code on the LCD display. See <u>Special Tools and Equipment</u> . 5. Turn the rotary switch on the J 35628-A to the same code number as the ignition key. See <u>Special Tools and Equipment</u> . 6. Attempt to start the vehicle. <p>Does the vehicle start?</p>	Go to Step 7	Go to Step 5
5	<p>Test the following circuits for an open or a short to voltage:</p> <ul style="list-style-type: none"> • The key resistor input circuit • The key resistor reference ground circuit <p>Did you find and correct the condition?</p>	Go to Step 11	Go to Step 6
6	Inspect for poor connections at the harness connector of the BCM. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 10
7	Inspect for poor connections at the harness connector of the ignition lock cylinder. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 9
	Clean or replace the ignition key as necessary. Refer to	Go to	

8	Replacing Keys . Did you complete the procedure?	Step 11	-
9	Replace the ignition switch lock cylinder. Refer to Ignition Switch Lock Cylinder Replacement in Instrument Panel, Gages and Console. Did you complete the replacement?	Go to Step 11	-
10	IMPORTANT: When replacing the BCM, perform the relearn procedure. Refer to <u>Body Control Module (BCM) Programming/RPO Configuration</u> in Body Control System. Replace the BCM. Refer to Body Control Module Replacement in Body Control System. Did you complete the repair?	Go to Step 11	-
11	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 B2735

Circuit Description

The body control module (BCM) supplies a 5 volt signal and a ground circuit for the PASS-Key(R) system. This allows the BCM to detect PASS-Key(R) resistance values. Inserting the PASS-Key(R) (with resistor pellet) in the ignition lock cylinder completes the PASS-Key(R) circuit. Contacts in the ignition lock cylinder mate with the pellet contacts. The BCM compares the resistance value of the key pellet to the valid resistance programmed into the BCM. If the proper resistance value is read, the BCM allows the following functions to occur:

- The theft deterrent relay to energize.
- The steering column to unlock.
- The BCM sends a message through the serial data line to the powertrain control module (PCM) to allow fuel enable processing to occur.

When a BCM is replaced, the BCM must be programmed to accept the resistance value of the existing vehicle keys in order to allow PASS-Key(R) operation. When the BCM is replaced, the service replacement BCM is programmed to accept the first PASS-Key(R) resistance value detected. If the BCM is unable to detect a valid PASS-Key(R) resistance value, the BCM will never end the programming sequence and DTC B2735 will set.

Conditions for Setting the DTC

The BCM does not have a valid key pellet resistance in the memory.

Action Taken When the DTC Sets

- The BCM stores DTC B2735 in memory.
- The BCM sends a message to the instrument cluster to illuminate the SECURITY indicator.
- The BCM will disable the theft deterrent relay.
- The PCM will not allow fuel delivery to occur.
- The BCM disables sampling of the PASS-Key(R) resistance for a time-out period of 3 minutes.
- The steering column remains in the locked position.

Conditions for Clearing the DTC

- The BCM detects a valid PASS-Key(R) resistance value when a service replacement BCM is initially programmed for the PASS-Key(R) system.
- A history DTC will clear after 50 consecutive ignition cycles if the condition for the malfunction is no longer present.
- Use the instrument panel cluster (IPC) clearing DTCs feature.
- Use a scan tool.

Diagnostic Aids

- If there is an open or a short on the PASS-Key(R) signal or ground circuit, the BCM will be unable to accept a valid PASS-Key(R) code when the program mode is activated. The vehicle will also exhibit a no crank condition.
- Diagnose all other theft deterrent DTCs before attempting to diagnose DTC B2735, as this will affect the BCM's ability to properly read a PASS-Key(R) resistance value.
- Clean the key resistor contacts of any foreign material. The foreign material could interfere with the key detection circuit, causing the BCM to be unable to program the PASS-Key(R) system and to set a DTC B2735.

DTC B2735

Step	Action	Yes	No
Schematic Reference: Theft Deterrent System Schematics Connector End View Reference: Theft Deterrent System Connector End Views			
1	Did you perform the Theft Deterrent Diagnostic System Check?	Go to Step 2	Go to Diagnostic System Check - Theft Deterrent
2	1. Install a scan tool. 2. Turn ON the ignition with the engine OFF 3. Select the body control module (BCM) Display DTCs function on the scan tool. Does the scan tool display DTC B2735 as a current DTC?	Go to Step 3	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems
	1. Insert the ignition key into the ignition switch.		

3	2. Attempt to start the vehicle. Does the vehicle start and run?	Go to Step 7	Go to Step 4
4	Test the key resistor input circuit for a high resistance or an open. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 7	Go to Step 5
5	Inspect for poor connections at the harness connector of the BCM. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 7	Go to Step 6
6	IMPORTANT: When replacing the BCM, perform the relearn procedure. Refer to <u>Body Control Module (BCM) Programming/RPO Configuration</u> in Body Control System. Replace the BCM. Refer to Body Control Module Replacement in Body Control System. Did you complete the repair?	Go to Step 7	-
7	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 P1626

Circuit Description

The body control module (BCM) produces the theft deterrent crank relay and fuel enable signal when ignition is ON and the proper ignition code voltage value is detected. The powertrain control module (PCM) monitors the fuel enable signal during crank. If the proper signal is present on the Class 2 Serial Data Circuit, the PCM enables the fuel delivery in order to allow the engine to start. If the PCM determines that the fuel enable signal is not present or incorrect while the engine is running, DTC P1626 is set. The engine continues to start and run as long as DTC P1626 is stored. If the problem affects inputs to the VTD signal, the starter motor may be disabled.

Conditions for Running the DTC

The engine is running.

Conditions for Setting the DTC

The PCM has detected a loss of the state of health serial data message from the theft deterrent system.

Action Taken When the DTC Sets

- The body control module (BCM) send a class to message to the instrument panel cluster (IPC) to illuminate the SECURITY indicator.
- The powertrain control module (PCM) will not illuminate the malfunction indicator lamp (MIL).
- The PCM will store conditions which were present when the DTC set as failure records data only. This information will not be stored as freeze frame data.

Conditions for Clearing the DTC

- A history DTC will clear after 40 consecutive warm-up cycles have occurred without a malfunction.
- The DTC can be cleared by using a scan tool.

DTC P1626

Step	Action	Yes	No
1	Did you perform the Theft Deterrent Diagnostic System Check?	Go to Step 2	Go to Diagnostic System Check - Theft Deterrent
2	IMPORTANT: If a loss of DLC data has already been diagnosed, clear this DTC and continue diagnosis with Diagnostic System Check - Engine Controls in Engine Controls - 5.7L . Is DTC P1631 set as a current code?	Go to Diagnostic Trouble Code (DTC) List	Go to Step 3
3	Inspect for poor connections at the harness connector of the powertrain control module (PCM). Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 5	Go to Step 4
4	IMPORTANT: The replacement powertrain control module (PCM) must be programmed. Refer to Programming Theft Deterrent System Components . Replace the PCM. Refer to Powertrain Control Module (PCM) Replacement in Engine Controls - 5.7L. Did you complete the replacement?	Go to Step 5	-
5	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 P1630

Circuit Description

The vehicle theft deterrent system (VTD) is incorporated within the body control module (BCM). If the BCM has been replaced, the password must be relearned. If the powertrain control module (PCM) is replaced, the replacement PCM should learn the password within a few seconds after the ignition is turned ON. This is an information code indicating that the PCM is ready to learn the VTD password.

Conditions for Running the DTC

- The VTD system has allowed fuel delivery.
- The PCM is in the theft deterrent password learn mode.

Conditions for Setting the DTC

The PCM remains in theft deterrent password learn mode for more than 2 seconds.

Action Taken When the DTC Sets

- The body control module (BCM) send a class to message to the instrument panel cluster (IPC) to illuminate the SECURITY indicator.
- The PCM will not illuminate the malfunction indicator lamp (MIL).
- The PCM will store conditions which were present when the DTC set as failure records data only. This information will not be stores as freeze frame data.

Conditions for Clearing the DTC/MIL

- A history DTC will clear after 40 consecutive warm-up cycles have occurred without a malfunction.
- The DTC can be cleared by using a scan tool.

Diagnostic Aids

A new replacement PCM will be in a functional state to learn the password from the BCM. If the BCM is replaced, the PCM must be placed in password learning mode to relearn a new password. Once learned, the password becomes permanent information that remains with the vehicle. The loss of PCM battery or ignition voltage will not affect the programmed password information.

DTC P1630

Step	Action	Yes	No
1	Did you perform the Theft Deterrent Diagnostic System Check?	Go to <u>Programming Theft Deterrent System Components</u>	Go to <u>Diagnostic System Check - Theft Deterrent</u>

DTC P1631

Circuit Description

The powertrain control module (PCM) controls the fuel injector operation and the starter operation based on a vehicle theft deterrent (VTD) password from the vehicle body control module (BCM). When the ignition is first turned ON, the BCM sends a programmed theft deterrent password to the PCM. The PCM acknowledges the password and responds to the BCM that normal fuel injector and starter operation will continue. If the PCM detects an incorrect password, a theft deterrent system failure, or an attempted vehicle theft, DTC 1631 will set. The engine will not start or crank as long as the condition is present.

Conditions for Running the DTC

The ignition is ON.

Conditions for Setting the DTC

- The PCM detects an incorrect password from the VTD system.
- The condition is present for less than 1 second.

Action Taken When the DTC Sets

- The body control module (BCM) send a class to message to the instrument panel cluster (IPC) to illuminate the SECURITY indicator.
- The PCM will not illuminate the malfunction indicator lamp (MIL).
- The PCM will store conditions which were present when the DTC set as Failure Records data only. This information will not be stored as Freeze Frame data.

Conditions for Clearing the MIL/DTC

- A History DTC will clear after 40 consecutive warm-up cycles have occurred without a malfunction.
- The DTC can be cleared by using a scan tool.

Diagnostic Aids

DTC P1631 indicates that the vehicle theft deterrent password that the PCM has learned does not agree with the password received from the VTD system. This condition can occur if an incorrect key is used when attempting to start the vehicle, or if the BCM has been replaced and the PCM Password Learn function has not been enabled. If the BCM has been replaced, the password must be relearned.

DTC P1631

Step	Action	Yes	No
1	Did you perform the Theft Deterrent Diagnostic System Check?	Go to Step 2	Go to Diagnostic System Check - Theft Deterrent
2	Is DTC B2721, B2722, B2723 or B2735 set as a current code?	Go to Diagnostic Trouble Code (DTC) List	Go to Step 3
	Perform the Programming Theft Deterrent System Components procedure. Refer to Programming		

3	Theft Deterrent System Components . Did you complete the action?	Go to Step 4	-
4	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

SYMPTOMS - THEFT DETERRENT

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

1. Perform **Diagnostic System Check - Theft Deterrent** before using the Symptom Tables in order to verify that all of the following are true:
 - There are no DTCs set.
 - The control module (s) can communicate via the serial data link.
2. Review the system operation in order to familiarize yourself with the system functions. Refer to the following:
 - **Theft Systems Description and Operation**
 - **Content Theft Deterrent (CTD) Description and Operation**
 - **Vehicle Theft Deterrent (VTD) 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** in Wiring Systems.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Intermittent

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

Symptom List

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

- **Content Theft Deterrent (CTD) Alarm Mode Inoperative**
- **Horn Inoperative in Content Theft Deterrent (CTD) Alarm Mode**
- **Lights Inoperative in Content Theft Deterrent (CTD) Alarm Mode**
- **Security Indicator Inoperative**

CONTENT THEFT DETERRENT (CTD) ALARM MODE INOPERATIVE

Content Theft Deterrent (CTD) Alarm Mode Inoperative

Step	Action	Yes	No
Schematic Reference: <u>Theft Deterrent System Schematics</u> Connector End View Reference: <u>Theft Deterrent System Connector End Views</u> DEFINITION: The CTD system will not ARM or DISARM properly.			
1	Did you perform the Theft Deterrent Diagnostic System Check?	Go to Step 2	Go to Diagnostic System Check - Theft Deterrent
2	1. Open the driver and passenger windows. 2. Unlock the doors using the power door lock switch or the keyless entry transmitter. 3. Remove the keys from the ignition. 4. Open the passenger door. 5. Observe the SECURITY indicator. 6. Close the passenger door and open the driver's door. 7. Observe the SECURITY indicator. Does the SECURITY indicator flash when the passenger and driver's door are open?	Go to Step 3	Go to Door Ajar Indicator Inoperative in Doors
3	1. With the driver's door open, lock the vehicle using the power door lock switch or the keyless entry transmitter. 2. Observe the SECURITY indicator. Does the SECURITY indicator change from flashing to on steady?	Go to Step 4	Go to Power Door Lock Inoperative - Driver Door in Doors
4	1. Close all of the doors. IMPORTANT: Ensure that all the doors and hatch/trunk are closed. The Content Theft Deterrent System will not arm itself without all of the doors and hatch/trunk being closed.		
	2. Observe the SECURITY indicator.		

	Does the SECURITY indicator transition to OFF?	Go to Step 5	Go to Door Ajar Indicator Inoperative in Doors
5	<ol style="list-style-type: none"> 1. Reach in and manually unlock the driver's door. 2. Open the driver's door. <p>Do all of the alarm mode functions activate (parking lights flash and horn pulses)?</p>	Go to Step 6	Go to Step 7
6	<p>Disarm the CTD system by inserting the door key into the driver door lock cylinder and rotate it to the unlock position.</p> <p>Do all of the alarm mode functions stop?</p>	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Content Theft Deterrent (CTD) Does Not Disarm with Key Lock (Without VE1) or Content Theft Deterrent (CTD) Does Not Disarm with Key Lock (With VE1)
7	Do any of the alarm functions activate?	Go to Step 8	Go to Door Ajar Indicator Inoperative in Doors
8	Do the horns pulse only?	Go to Lights Inoperative in Content Theft Deterrent (CTD) Alarm Mode	Go to Horn Inoperative in Content Theft Deterrent (CTD) Alarm Mode

CONTENT THEFT DETERRENT (CTD) DOES NOT DISARM WITH KEY LOCK (WITHOUT VE1)

Content Theft Deterrent (CTD) Does Not Disarm with Key Lock (Without VE1)

Step	Action	Yes	No
<p>Schematic Reference: <u>Theft Deterrent System Schematics</u></p> <p>Connector End View Reference: <u>Theft Deterrent System Connector End Views</u></p> <p>DEFINITION: The CTD system does not disarm when the vehicle is unlocked with the key.</p>			
1	Did you perform the Theft Deterrent Diagnostic System Check?	Go to Step 2	Go to Diagnostic System Check - Theft Deterrent
2	<ol style="list-style-type: none"> 1. Instal a scan tool. 2. Turn On the ignition, with the engine OFF. 3. With a scan tool, observe the door key unlock parameter in the driver door module (DDM) inputs data list. <p>Does the door key unlock parameter display INACTIVE?</p>	Go to Step 3	Go to Step 7
	<ol style="list-style-type: none"> 1. With a scan tool, observe the door key unlock parameter in the driver door module 		

3	<p>(DDM) inputs data list.</p> <ol style="list-style-type: none"> 2. Insert and rotate a key to the unlock position in the driver's door key cylinder. <p>Does the door key unlock parameter display ACTIVE as the key is rotated to the unlock position?</p>	<p>Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems</p>	<p>Go to Step 4</p>
4	<p>Inspect the driver's door key cylinder for mechanical malfunction (disconnected, binding or bent lock rod, obstructions, etc.).</p> <p>Did you find and correct the condition?</p>	<p>Go to Step 15</p>	<p>Go to Step 5</p>
5	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Connect a 3 amp fused jumper wire between the driver door latch door key switch harness connector signal circuit to the driver door latch door key switch harness connector ground circuit. 3. Turn ON the ignition, with the engine OFF. 4. With a scan tool, observe the door key unlock parameter in the driver door module (DDM) inputs data list. <p>Does the scan tool display ACTIVE?</p>	<p>Go to Step 11</p>	<p>Go to Step 6</p>
6	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Connect a 3 amp fused jumper wire between the driver door latch door key switch harness connector signal circuit and a good ground. 3. Turn ON the ignition, with the engine OFF. 4. With a scan tool, observe the door key unlock parameter in the driver door module (DDM) inputs data list. <p>Does the scan tool display ACTIVE?</p>	<p>Go to Step 9</p>	<p>Go to Step 8</p>
7	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Disconnect the driver front door latch door key switch circuit connector. 3. Turn ON the ignition, with the engine OFF. 4. With a scan tool, observe the door key unlock parameter in the driver door module (DDM) inputs data list. <p>Does the scan tool display INACTIVE?</p>	<p>Go to Step 11</p>	<p>Go to Step 10</p>
	<p>Test the driver door latch door key switch signal</p>		

8	circuit for a short to voltage or an open circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 15	Go to Step 12
9	Test the driver door latch door key switch ground circuit for a short to voltage or an open circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 15	Go to Step 12
10	Test the driver door latch door key switch signal circuit for a short to ground. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 15	Go to Step 12
11	Inspect for poor connections at the harness connector of the driver door latch. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 15	Go to Step 13
12	Inspect for poor connections at the harness connector of the DDM. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 15	Go to Step 14
13	Replace the driver door latch. Refer to Lock Replacement - Door in Doors. Did you complete the replacement?	Go to Step 15	-
14	Replace the DDM. Refer to Door Control Module Replacement in Doors. Did you complete the replacement?	Go to Step 15	-
15	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

CONTENT THEFT DETERRENT (CTD) DOES NOT DISARM WITH KEY LOCK (WITH VE1)

Content Theft Deterrent (CTD) Does Not Disarm with Key Lock (With VE1)

Step	Action	Yes	No
Schematic Reference: <u>Theft Deterrent System Schematics</u> Connector End View Reference: <u>Theft Deterrent System Connector End Views</u> DEFINITION: The CTD system does not disarm when the vehicle is unlocked with the key.			
1	Did you perform the Theft Deterrent Diagnostic System Check?	Go to Step 2	Go to Diagnostic System Check - Theft Deterrent
	1. Instal a scan tool. 2. Turn On the ignition, with the engine OFF.		

2	<ol style="list-style-type: none"> 3. With a scan tool, observe the door key unlock parameter in the driver door module (DDM) inputs data list. 4. With a scan tool, observe the door key unlock parameter in the passenger door module (PDM) inputs data list. <p>Does the door key unlock parameter display INACTIVE?</p>	Go to Step 3	Go to Step 7
3	<ol style="list-style-type: none"> 1. With a scan tool, observe the door key unlock parameter in the driver door module (DDM) inputs data list. 2. With a scan tool, observe the door key unlock parameter in the passenger door module (PDM) inputs data list. 3. Insert and rotate a key to the unlock position in the each door key cylinder. <p>Does each door key unlock parameter display ACTIVE as the key is rotated to the unlock position?</p>	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 4
4	<p>Inspect the suspect door key cylinder for mechanical malfunction (disconnected, binding or bent lock rod, obstructions, etc.).</p> <p>Did you find and correct the condition?</p>	Go to Step 15	Go to Step 5
5	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Connect a 3 amp fused jumper wire between the suspect door latch door key switch harness connector signal circuit to the suspect door latch door key switch harness connector ground circuit. 3. Turn ON the ignition, with the engine OFF. 4. With a scan tool, observe the suspect door key unlock parameter in the suspect door module inputs data list. <p>Does the scan tool display ACTIVE?</p>	Go to Step 11	Go to Step 6
6	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Connect a 3 amp fused jumper wire between the suspect door latch door key switch harness connector signal circuit and a good ground. 3. Turn ON the ignition, with the engine OFF. 		

	<p>4. With a scan tool, observe the suspect door key unlock parameter in the suspect door module inputs data list.</p> <p>Does the scan tool display ACTIVE?</p>	Go to Step 9	Go to Step 8
7	<p>1. Turn OFF the ignition.</p> <p>2. Disconnect the suspect door latch door key switch circuit connector.</p> <p>3. Turn ON the ignition, with the engine OFF.</p> <p>4. With a scan tool, observe the suspect door key unlock parameter in the suspect door module inputs data list.</p> <p>Does the scan tool display INACTIVE?</p>	Go to Step 11	Go to Step 10
8	<p>Test the suspect door latch door key switch signal circuit for a short to voltage or an open circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to Step 15	Go to Step 12
9	<p>Test the suspect door latch door key switch ground circuit for a short to voltage or an open circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to Step 15	Go to Step 12
10	<p>Test the suspect door latch door key switch signal circuit for a short to ground. Refer to Circuit Testing and Wiring Repairs in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to Step 15	Go to Step 12
11	<p>Inspect for poor connections at the harness connector of the suspect door latch. 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 15	Go to Step 13
12	<p>Inspect for poor connections at the harness connector of the suspect door module. 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 15	Go to Step 14
13	<p>Replace the suspect door latch. Refer to Lock Replacement - Door in Doors.</p> <p>Did you complete the replacement?</p>	Go to Step 15	-
	<p>Replace the suspect door module. Refer to Door</p>		

14	Control Module Replacement in Doors. Did you complete the replacement?	Go to Step 15	-
15	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

HORN INOPERATIVE IN CONTENT THEFT DETERRENT (CTD) ALARM MODE

Horn Inoperative in Content Theft Deterrent (CTD) Alarm Mode

Step	Action	Yes	No
Schematic Reference: <u>Theft Deterrent System Schematics</u> Connector End View Reference: <u>Theft Deterrent System Connector End Views</u> DEFINITION: The horn does not sound when the CTD system is in alarm mode.			
1	Did you perform the Theft Deterrent Diagnostic System Check?	Go to Step 2	Go to <u>Diagnostic System Check - Theft Deterrent</u>
2	Perform one of the following to activate the CTD Alarm Mode: Operate the PANIC button on the keyless entry transmitter. OR <ol style="list-style-type: none"> 1. Open the driver's window. 2. Lock the vehicle using the power door locks or the keyless entry transmitter. 3. Close all doors. 4. Wait for the SECURITY indicator to go off (30 seconds). 5. Reach in and manually unlock the driver's door. 6. Open the driver's door. Do all of the Alarm mode functions activate (Lights flash and horn pulses)?	Go to <u>Testing for Intermittent Conditions and Poor Connections</u> in Wiring Systems	Go to Step 3
3	Are only the horns inoperative?	Go to <u>Horns Inoperative</u> in Horns	Go to <u>Content Theft Deterrent (CTD) Alarm Mode Inoperative</u>

LIGHTS INOPERATIVE IN CONTENT THEFT DETERRENT (CTD) ALARM MODE

Lights Inoperative in Content Theft Deterrent (CTD) Alarm Mode

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Step	Action	Yes	No
Schematic Reference: <u>Theft Deterrent System Schematics</u> Connector End View Reference: <u>Theft Deterrent System Connector End Views</u> DEFINITION: The vehicle lights do not flash when the CTD system is in alarm mode.			
1	Did you perform the Theft Deterrent Diagnostic System Check?	Go to Step 2	Go to Diagnostic System Check - Theft Deterrent
2	Perform one of the following to activate the CTD alarm mode: <ul style="list-style-type: none"> • Operate the PANIC button on the keyless entry transmitter. • Complete the following steps: <ul style="list-style-type: none"> ○ Open the driver's window. ○ Lock the vehicle using the power door lock switch. ○ Wait for the theft LED to transition from ON steady to OFF. ○ Reach in and unlock the driver's door. ○ Open the driver's door. Do all of the alarm mode functions activate (lights flash and horn pulses)?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3
3	Do the headlamps flash?	Go to Step 4	Go to Diagnostic Starting Point - Lighting Systems in Lighting Systems
4	Do the backup lamps operate?	Go to Horn Inoperative in Content Theft Deterrent (CTD) Alarm Mode	Go to Backup Lamps Inoperative in Lighting Systems

SECURITY INDICATOR ALWAYS ON OR FLASHING

Security Indicator Always On or Flashing

Step	Action	Yes	No
Schematic Reference: <u>Theft Deterrent System Schematics</u> Connector End View Reference: <u>Theft Deterrent System Connector End Views</u>			

DEFINITION: Ignition OFF, all doors closed

1	Did you perform the Theft Deterrent Diagnostic System Check?	Go to Step 2	Go to Diagnostic System Check - Theft Deterrent
2	1. Observe the instrument cluster 2. Turn ON the ignition leaving the engine OFF. Does the SECURITY indicator turn OFF after a few seconds when the ignition is turned to the ON position?	Go to Door Ajar Indicator Inoperative in Doors	Go to Step 3
3	Inspect for poor connections at the harness connector of the instrument panel cluster (IPC). Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 5	Go to Step 4
4	Replace the instrument cluster. Refer to Instrument Panel Cluster (IPC) Replacement in Instrument Panel, Gauges and Console. Did you complete the repair?	Go to Step 4	-
5	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

SECURITY INDICATOR INOPERATIVE

Security Indicator Inoperative

Step	Action	Yes	No
Schematic Reference: Theft Deterrent System Schematics Connector End View Reference: Theft Deterrent System Connector End Views			
1	Did you perform the Theft Deterrent Diagnostic System Check?	Go to Step 2	Go to Diagnostic System Check - Theft Deterrent
2	1. Observe the instrument cluster. 2. Turn the ignition switch to the ON position. Does the SECURITY indicator illuminate during the bulb-check?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3
3	Inspect for poor connections at the harness connector of the instrument panel cluster (IPC). Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 5	Go to Step 4
4	Replace the instrument cluster. Refer to Instrument Panel Cluster (IPC) Replacement in Instrument Panel, Gauges and Console.		

	Did you complete the repair?	Go to Step 5	-
5	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

REPAIR INSTRUCTIONS

REPLACING KEYS

Tools Required

- **J 35628-A** Vats/Passkey Interrogator. See **Special Tools and Equipment** .
- **J 35616** Terminal Adapters. See **Special Tools and Equipment** .

In order to replace lost PASS-Key(R) II ignition keys, determine the required mechanical cut and the key code to start the vehicle from the vehicle invoice.

If the codes are not available, use the following steps in order to determine the code:

1. Determine the mechanical cut from the following sources:
 - The code sticker on the steering column (ignition) lock cylinder
 - The original key knock outs
 - If the mechanical cut can not be determined, replace the steering column (ignition) lock cylinder.
2. Using the **J 35628-A** , determine the correct key code using the following steps:
 1. Disconnect the ignition lock cylinder connector.
 2. Connect the **J 35628-A** to the harness side of the ignition lock cylinder connector. See **Special Tools and Equipment** .
 3. Turn on the **J 35628-A** . See **Special Tools and Equipment** .
 4. Place the key code switch in the number 1 position.
 5. Attempt to start the engine with the new mechanically cut key.

If the engine starts, the key code is 1.

6. If the engine does not start, turn the ignition switch to the OFF position.
7. Wait at least 3 minutes.
8. Place the **J 35628-A** key code switch in the next position (2, 3, 4, etc.). See **Special Tools and Equipment** .
9. Attempt to start the engine.

If the engine starts, you have the correct key code. Proceed to the next step.

If the engine does not start, perform the previous 3 steps until the engine starts.

10. Make a new ignition key using the correct key code and the mechanical cut.
11. Ensure that the new key starts the engine.

ADDING KEYS

Tools Required

J 35628-A Vats/Pass Interrogator Tester. See Special Tools and Equipment .

IMPORTANT: When servicing the PASS-Key(R) II system, obtain all the vehicle ignition keys. Verify the key code values with the J 35628-A . See Special Tools and Equipment .

1. In order to copy a PASS-Key(R) II ignition key, determine the necessary key code or resistance value.
2. Determine the master ignition key code using the **J 35628-A** as outlined in the following procedure:

IMPORTANT: Disconnect the tool wiring connectors.

1. Turn ON the **J 35628-A** . See Special Tools and Equipment .
2. Insert the key into the tool lock cylinder.
3. Note the measured key code of the master ignition key as displayed on the key code reader.
4. Obtain a key blank matching the key code.
5. Cut the key blank to match the original key.

PROGRAMMING THEFT DETERRENT SYSTEM COMPONENTS

IMPORTANT:

- **The body control module (BCM) must be programmed with the proper RPO configurations before performing learn procedures. Refer to Body Control Module (BCM) Programming/RPO Configuration .**
- **If replacing the BCM with a GM Service Parts Operations (SPO) replacement part, the module will learn the passkey data code immediately. The existing PCM however, must learn the new fuel continue password when the BCM is replaced.**
- **If replacing a PCM with a GM Service Parts Operations (SPO) replacement part, after programming, these modules will learn the incoming fuel continue password immediately upon receipt of a password message. Once a password message is received, and a password is learned, a learn procedure must be performed to change this password again. A PCM which has been previously installed in another vehicle will have learned the other vehicle's fuel continue password and will require a learn procedure after programming to learn the current vehicle's password.**

Use these procedures after replacing:

- BCM
- PCM

10 Minute Learn Procedure

Tools Required

- Tech 2
 - Techline terminal with current SPS (Service Programming System) software
1. Connect the Tech 2 to the vehicle.
 2. Select "Request Information" under "Service Programming".
 3. Disconnect the Tech 2 from the vehicle and connect it to a Techline terminal.
 4. On the Techline terminal, select "Theft Module Re-Learn" under "Service Programming".
 5. Disconnect the Tech 2 from the Techline terminal and connect it to the vehicle.
 6. Turn ON the ignition, with the engine OFF.
 7. Select "VTD Re-Learn" under "Service Programming".
 8. Attempt to start the engine, then release the key to ON (vehicle will not start).
 9. Observe the SECURITY telltale, after approximately 10 minutes the telltale will turn OFF (the vehicle is now ready to relearn the password on the next ignition switch transition from OFF to CRANK).
 10. Turn OFF the ignition, and wait 5 seconds.
 11. Start the engine (the vehicle has now learned the password).
 12. With the Tech 2 (scan tool), clear any DTCs.

30 Minute Learn Procedure

1. Turn ON the ignition, with the engine OFF.
2. Attempt to start the engine, then release the key to ON (vehicle will not start).
3. Observe the SECURITY telltale, after approximately 10 minutes the telltale will turn OFF.
4. Turn OFF the ignition, and wait 5 seconds.
5. Repeat steps 1 through 4 two more times for a total of 3 cycles/30 minutes (the vehicle is now ready to relearn the password on the next ignition switch transition from OFF to CRANK).

IMPORTANT: The vehicle learns the password on the next ignition switch transition from OFF to CRANK. You must turn the ignition OFF before attempting to start the vehicle.

6. Start the engine (the vehicle has now learned the password).
7. With a scan tool, clear any DTCs if needed (history DTCs will self clear after 100 ignition cycles).

DESCRIPTION AND OPERATION

THEFT SYSTEMS DESCRIPTION AND OPERATION

The theft deterrent system on this vehicle is comprised of two separate systems, the vehicle theft deterrent (VTD) system and the content theft deterrent (CTD) system. VTD prevents drive away theft by keeping the vehicle from starting. CTD is the vehicle alarm system which discourages unauthorized entry into the vehicle. These systems are described and diagnosed separately within this section.

Security Indicator

The security indicator on the instrument cluster is controlled by both the VTD system and the CTD system. The security indicator is displayed on the instrument cluster. The indicator is controlled by the instrument cluster when commanded by the theft deterrent controller module via the class 2 serial data line.

- The VTD system commands the instrument cluster to control the indicator only when the ignition switch is ON. The VTD System uses the indicator as a malfunction indicator.
- The CTD system commands the instrument cluster to control the indicator only when the ignition switch is OFF. The CTD System uses the indicator to identify system status.

Keyless Entry System (w/AU0)

The keyless entry system functions interact with the content theft deterrent system but is diagnosed as a stand-alone system. Refer to **Keyless Entry System Description and Operation** in Keyless Entry.

Radio with Theftlock

The theft deterrent system does not interact with radio theft lock equipped vehicles. Radio theft lock is diagnosed as a stand-alone system. Refer to **Radio/Audio System Description and Operation** in Entertainment.

CTD/VTD Description and Operation

- For content theft Deterrent (CTD) information, refer to **Content Theft Deterrent (CTD) Description and Operation** .
- For vehicle theft deterrent (VTD) information, refer to **Vehicle Theft Deterrent (VTD) Description and Operation** .

CONTENT THEFT DETERRENT (CTD) DESCRIPTION AND OPERATION

The CTD system (when armed) is designed to deter vehicle content theft by pulsing the horns and exterior lamps for approximately two minutes when an unauthorized vehicle entry is detected. The CTD system also disables engine starting when an unauthorized entry is detected.

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

- Forced entry into the passenger compartment.
- When any door is opened without being unlocked by using the key to unlock the drivers door or the UNLOCK command from a Keyless Entry Transmitter. On vehicles equipped with option code VE1, when any door is opened without being unlocked by using the key to unlock either of the front doors.
- Forced entry into the rear compartment.

The components of the system are:

- Remote Control Door Lock Receiver (RCDLR), if equipped
- Body Control Module
- Door Ajar Switches (including hatch ajar switch)
- Ignition Lock Cylinder
- Drivers Door Key Switch (W/O VE1)
- Front Door Key Switches (W/VE1)
- Power Door Lock Switches

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.

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

4. Lock the doors with the power door lock switch or the LOCK button on the transmitter (if equipped). The system is in standby mode and will not start the arming timer until all doors are closed.
5. The system will arm approximately 30 seconds from the time that the last door is closed. This delay is shown by the SECURITY indicator ON STEADY. When the indicator transitions to OFF, the system is armed.

Locking the Vehicle Without Arming the CTD System

Locking the vehicle may be accomplished without arming the 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 transmitter, it must be disarmed.

IMPORTANT: Using the power door unlock switch or manually unlocking the doors does not disable the 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.

- To disarm the CTD system in standby mode (SECURITY indicator flashing and door (s) open), perform one of the following:
 - Press either power door unlock switch.
 - Use the key to unlock drivers door. Vehicle's equipped with option code VE1, use the key to unlock either front door.
 - Press the UNLOCK button on the transmitter (if equipped).
 - Insert a valid key into the ignition and switch to the ON position.
- To disarm the CTD system in the armed mode:
 - Use the key to unlock drivers door. Vehicle's equipped with option code VE1, use the key to unlock either front door.
 - Press the UNLOCK button on the transmitter (if equipped).
 - Insert a valid key into the ignition and switch to the ON position
- To disarm the CTD system when activated (alarming mode).
 - Use the key to unlock drivers door. Vehicle's equipped with option code VE1, use the key to unlock either front door.
 - Press the UNLOCK button on the transmitter (if equipped).
 - 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 CTD system:

Remote Control Door Lock Receiver (RCDLR)

The keyless entry system can arm and disarm the CTD system. When the remote control door lock receiver (RCDLR) receives a door lock or unlock signal from the transmitter, the RCDLR sends a class 2 message to the body control module (BCM) to perform the appropriate arm/disarm functions.

Body Control Module (BCM)

The CTD system is an internal function of the Body Control Module (BCM) which utilizes class 2 serial data and various switch input information to perform CTD functions. When the BCM detects an unauthorized entry, it activates the horns and exterior lamps. The BCM has five basic modes (disarmed, standby, delayed, armed, and alarm) for operating the CTD system. The different modes are described below.

1. When the CTD system is in the disarmed mode, ignition is OFF and any door is open, the BCM commands the instrument cluster to flash the SECURITY indicator via the class 2 serial data circuit. The BCM has the CTD system in the disarmed mode until the following conditions are detected:

- Ignition key turned to the OFF position.
 - Any door open.
 - Doors locked by either the power door lock switch or the LOCK button on the transmitter (if equipped).
2. The BCM enters the standby mode when the above conditions are detected. In standby mode, the BCM commands the SECURITY indicator to illuminate ON steady. If all the doors are closed and the LOCK button on the transmitter (if equipped) is used, the BCM enters the delayed mode.
 3. When the last door is closed, the BCM remains in the delayed mode for 30 seconds. In delayed mode the BCM commands the SECURITY indicator to illuminate ON steady.
 4. After 30 seconds, the BCM enters the armed mode. In armed mode, the BCM commands the SECURITY indicator OFF. Any forced entry activates the alarm mode.
 5. When the BCM detects a forced entry, the BCM enters the alarm mode. The BCM activates exterior lamps for 2 minutes and the horns for 30 seconds. This is followed by a three minute time-out of the horns, with the horns no longer active. If no new intrusions are detected during the time-out, the horns remain inactive. The system must be disarmed or the intrusion condition removed after the time-out for the system to exit alarm mode.

Door Ajar Switches

The door ajar switches are an internal function of the door latches. The CTD system uses the door ajar switches as one method to activate the alarm. The body control module (BCM) monitors all door ajar switches via a discrete input from each door ajar switch, including the rear compartment. If the BCM receives a ground signal from a door ajar switch or hatch/trunk ajar switch when the CTD system is armed, the BCM activates the alarm.

Ignition Lock Cylinder

The ignition lock cylinder contains contact terminals that mate with the resistor pellet in the ignition key when the ignition key is inserted into the lock cylinder. When the correct ignition key is inserted into the lock cylinder, the BCM will either silence an alarming system or disarm a system in standby mode.

Drivers Door Key Switch

The drivers door key switch is an internal function of the driver door latch. The door key switch use's a discrete input to the BCM. The BCM utilizes this input to disarm the CTD system. Inserting a key and turning to the unlock position will disarm the CTD system.

Front Door Key Switches (W/VE1)

The door key switches are an internal function of the driver and passenger door latches. The door key switches use a discrete input to the BCM. The BCM utilizes each of these inputs to disarm the CTD system. Inserting a key and turning to the unlock position will disarm the CTD system.

Power Door Lock Switches

The power door lock switches are used to either arm or disarm the CTD system. Pressing the lock position will cause the CTD to arm after all doors are closed and the 30 second delay period has elapsed. Pressing the unlock

position with the CTD system in any mode except ARMED will cause the CTD system to enter the disarm mode.

Important

The CTD system can be armed with the windows or sunroof open.

Inputs

The BCM monitors the following inputs:

- Driver and passenger door ajar switches (including hatch ajar switch)
- Driver and passenger power door lock/unlock switches
- Ignition lock cylinder input
- Drivers door key switch (W/O VE1)
- Front door key switches (W/VE1)
- Transmitter LOCK/UNLOCK buttons, class 2 message from the Remote Control Door Lock Receiver (RCDLR), if equipped

Outputs

The BCM controls the following:

- Theft deterrent relay
- The horn relay
- The exterior lights

VEHICLE THEFT DETERRENT (VTD) DESCRIPTION AND OPERATION

PASS-Key System

The personal automotive security system (PASS-Key(R)) is standard equipment on the vehicle. The system is designed to prevent vehicle theft by disabling the engine unless an ignition key with a specific electrical resistance is used in the ignition cylinder. The PASS-Key(R) system and the content theft deterrent system operate separately.

There are 15 different ignition key resistance values. Of the 15 different resistance values, or key codes available, only one will work with each body control module (BCM). Once the key code is programmed into the BCM, the code is stored in non-volatile memory.

The PASS-Key(R) system prevents the engine from starting by controlling the theft deterrent relay and the powertrain control module (PCM) fuel enable input. If the PCM does not sense the proper fuel enable signal, fuel will not be provided to the engine.

If the wrong resistance value is sensed when the ignition switch is in the RUN position, the BCM will not

ground the theft deterrent relay control circuit and will not provide the fuel enable signal for approximately three minutes. The engine is prevented from starting and discourages a thief from trying key codes or resistance values at random.

If the correct resistance value is sensed when the ignition switch is in the RUN position, the BCM will ground the theft deterrent relay control circuit and enable fuel delivery. The engine will start normally.

If the PASS-Key(R) system detects an open or short to ground when the ignition switch is in the RUN position, the BCM will default to fail enable mode. Fail enable occurs when the proper key resistance is sensed before the open short to ground occurs. Fail enable will illuminate the security indicator lamp and allow the operator to stop and start the vehicle until the problem is corrected. The PASS-Key(R) system includes the following components:

- Ignition key
- Ignition cylinder
- Body control module (BCM)
- Theft deterrent relay
- Powertrain control module (PCM)
- SECURITY indicator

Ignition Key

The ignition key is a typical square ignition key blank with an imbedded resistor. The key blank and resistor are not serviceable separately. There are 15 different resistance values. The ignition key also has mechanical cuts similar to non-PASS-Key(R) ignition keys.

Ignition Cylinder

The ignition cylinder contains a set of electrical contacts used to measure the resistor in the ignition key. When the ignition key is inserted into the lock cylinder, the resistor in the key makes contact with the electrical contacts inside the ignition cylinder.

Body Control Module

The Body Control Module (BCM) contains the theft deterrent system logic. The BCM reads the key code from the ignition cylinder when the ignition is turned to the START position. If the code is correct, the BCM will enable the theft deterrent relay and will send a fuel enable signal to the PCM via the class 2 serial data circuit.

If the BCM receives the wrong code, the BCM will immediately go into tamper mode. The tamper mode will lock-out the vehicle starter and fuel injectors for 3 minutes. The SECURITY indicator will flash while the BCM is in tamper mode.

Theft Deterrent Relay

The theft deterrent relay is used to prevent the engine from cranking if the correct resistance is not sensed at the ignition key. It prevents the engine from cranking by opening the circuit to the starter solenoid.

Powertrain Control Module

The PCM communicates with the BCM over the Class 2 serial data circuit. When the BCM enters tamper mode, it sends a Class 2 message to the PCM in order to disable the fuel injection system. If the BCM receives the expected ignition code, the BCM sends a class 2 message to the PCM in order to enable the fuel injection system. The PCM then allows the vehicle to start.

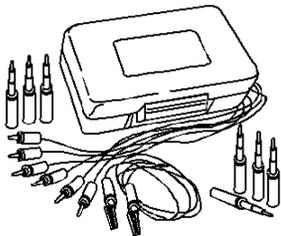
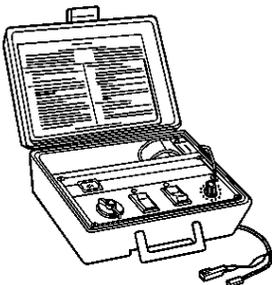
SECURITY Indicator

The SECURITY indicator is located on the instrument cluster. The SECURITY indicator is controlled by the BCM via the class 2 serial data circuit.

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

Special Tools

Illustration	Tool Number/ Description
	J 35616-A Terminal Adapters
	J 35628--A Vats/Passkey Interrogator