

## ANTI-THEFT SYSTEM

### 1996 ACCESSORIES & EQUIPMENT Jeep - Anti-Theft System

## DESCRIPTION & OPERATION

Vehicles equipped with Vehicle Theft Security System (VTSS) are protected from vehicle theft and unauthorized entry. VTSS system monitors vehicle doors, hood, liftgate and ignition. If an attempt is made to enter or operate vehicle without proper disarming of system, vehicle horn will sound, headlights, taillights and parking lights will flash, and engine will be prevented from running.

VTSS system arms when ignition is off, vehicle is exited, door is locked using power door locks and door is closed. Alternatively a remote keyless entry transmitter can be used to arm system. A security light on panel will flash for 15 seconds to indicate system is arming. At the end of 15 seconds, if no door, hood or tailgate is opened, system is armed.

If alarm is triggered, horn will sound for 3 minutes, and lights will flash for an additional 15 minutes. If horn sounds 3 times when either front door is unlocked, vehicle has been tampered with (tamper alert). If doors are locked manually or with key, system will not arm (manual override). If an unauthorized entry does occur, VTSS system signals Powertrain Control Module (PCM) to prevent vehicle from being driven. PCM reduces injector pulse width to zero, causing a start and stall condition.

System can be disarmed with the keyless entry transmitter, or by using key to enter vehicle. In both instances, if alarm was activated, vehicle alarm will be terminated. If battery is disconnected and reconnected, alarm will be activated and it will be necessary to disarm system as indicated.

## TESTING

See **BODY CONTROL COMPUTER** article.

## REMOVAL & INSTALLATION

### HOOD SWITCH

#### Removal & Installation

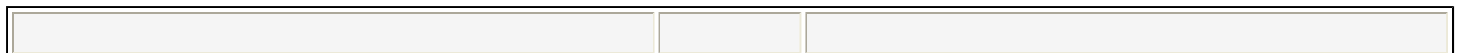
Disconnect negative battery cable. Remove screw securing switch to right inner fender ledge. Disconnect chassis wiring from switch. Remove switch. To install, reverse removal procedure.

### DOOR AJAR SWITCH

#### Removal & Installation

Disconnect negative battery cable. Remove screw securing switch to pillar at rear of door opening. Remove switch from mounting hole. Disconnect chassis wiring from switch. To install, reverse removal procedure.

### DOOR LOCK CYLINDER SWITCH



**Removal & Installation**

1. Disconnect negative battery cable. Remove bezel near inside door latch release handle by inserting a flat-bladed screwdriver into notched end of bezel and prying gently upward. Remove door trim panel mounting screw located in bezel opening near door latch release handle.
2. Remove trim cap and screw near rear of door armrest. Remove trim cap and screw at upper front corner of trim panel. Using a trim stick or other suitable flat-bladed tool, pry trim panel away from door around perimeter, starting at bottom of door, and remove trim panel.
3. Disconnect chassis wiring from door multiplex switch module. Pull watershield away from rear access holes in inner door panel. Remove "U" clip retainer securing lock cylinder. Disconnect lock cylinder rod from door latch by unsnapping retainer from rod.
4. Pull lock cylinder out from outer door panel far enough to pry lock cylinder switch off back of lock cylinder. Disconnect chassis wiring and remove switch from inside door. To install, reverse removal procedure

**LIFTGATE AJAR SWITCH****Removal & Installation**

1. Disconnect negative battery cable. Remove screws securing liftgate lower trim panel to liftgate. Using a trim stick or other suitable flat-bladed tool, pry trim panel away from liftgate around perimeter, starting at bottom of liftgate, and remove trim panel.
2. Remove 3 screws securing liftgate latch to liftgate. Disconnect liftgate handle latch actuator rod from latch. Disconnect chassis wiring from latch. Remove latch from liftgate. To install, reverse removal procedure.

**LIFTGATE LOCK CYLINDER SWITCH****Removal & Installation**

1. Disconnect negative battery cable. Remove screws securing liftgate lower trim panel to liftgate. Using a trim stick or other suitable flat-bladed tool, pry trim panel away from liftgate around perimeter, starting at bottom of liftgate, and remove trim panel.
2. Pry liftgate lock cylinder switch off back of lock cylinder. Disconnect chassis wiring from switch and remove switch from inside liftgate. To install, reverse removal procedures.

**LIFTGLASS AJAR SWITCH****Removal & Installation**

1. Disconnect negative battery cable. Remove screws securing liftgate lower trim panel to liftgate. Using a trim stick or other suitable flat-bladed tool, pry trim panel away from liftgate around perimeter, starting at bottom of liftgate, and remove trim panel.
2. Remove 2 nuts securing liftglass latch to liftgate inner panel. Disconnect chassis wiring from liftglass latch solenoid and liftglass ajar switch. Remove liftglass latch from liftgate. To install, reverse removal procedure.



## **AUTO HEADLIGHT & PARK LIGHT RELAYS**

### **Removal & Installation**

1. Disconnect negative battery cable. Remove fuse access panel by unsnapping it from right side cowl trim panel. Remove nut securing right cowl side trim to junction block stud.
2. Remove 2 screws securing right cowl side trim to right front door opening trim. Remove right cowl side trim panel. Remove relay from junction block. To install, reverse removal procedure.

## **HORN RELAY**

### **Removal & Installation**

Disconnect negative battery cable. Remove cover from Power Distribution Center (PDC). Remove horn relay from PDC. To install, reverse removal procedure.

## **SET LAMP**

### **Removal & Installation**

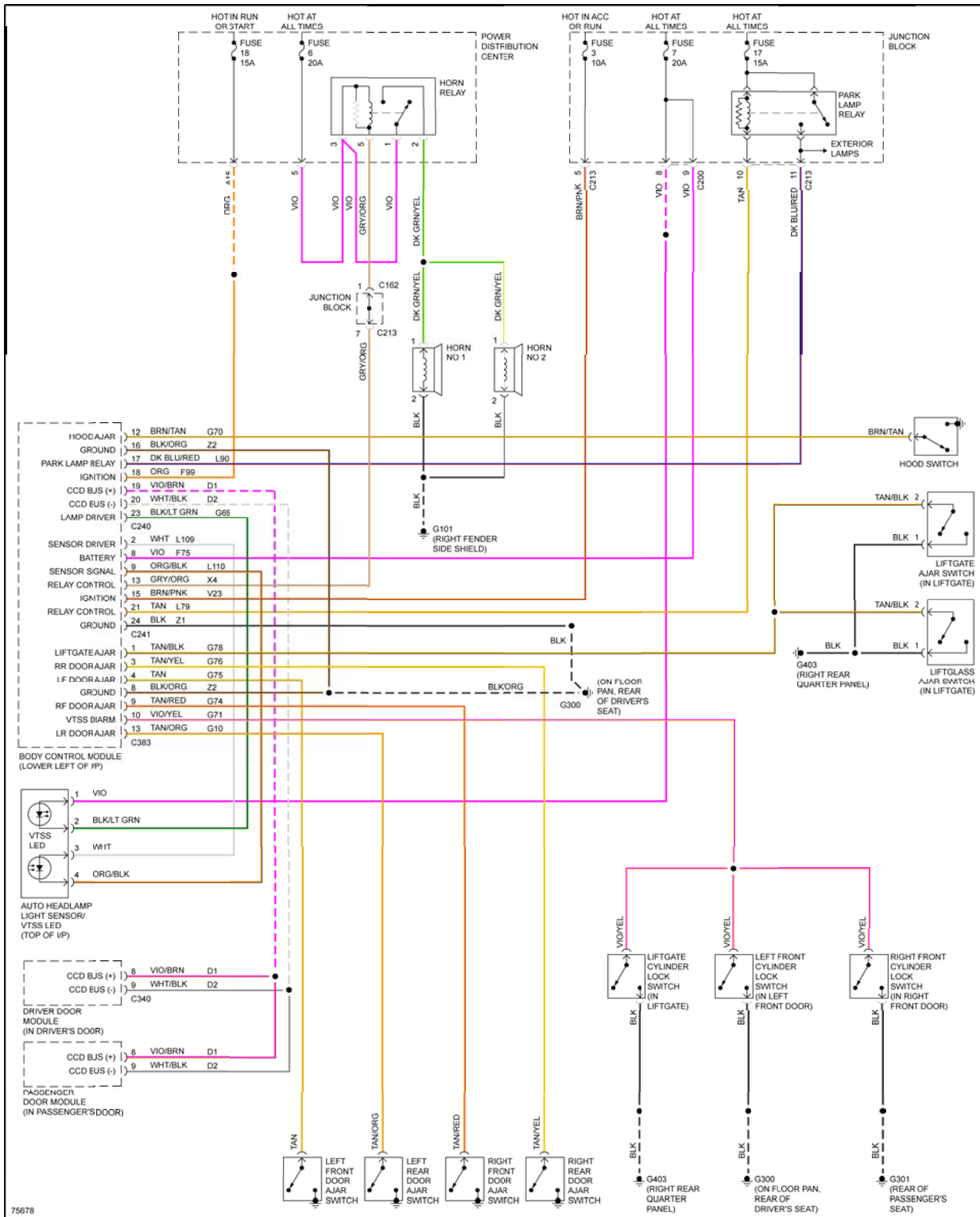
1. Disconnect negative battery cable. Using a trim stick or other suitable flat-bladed tool, pry cowl top trim panel off instrument panel top pad.
2. Pull panel up far enough to disconnect chassis wiring for solar sensor. Remove cowl top trim panel. Remove auto headlight light sensor/vehicle security system set light mounting screw near left defroster duct outlet. Disconnect chassis wiring from light and remove light. To install, reverse removal procedure.

## **WIRING DIAGRAM**



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**Fig. 1: Anti-Theft System Wiring Diagram**

**BODY CONTROL COMPUTER TESTS**

**NOTE:** In following tests, illustrations are courtesy of Chrysler Corp.

**ANTI-THEFT SYSTEM TEST 1A - IDENTIFYING ANTI-THEFT SYSTEM PROBLEMS**

**NOTE:** Perform SYMPTOM ID TEST 1A before proceeding. For connector terminal ID, see CONNECTOR IDENTIFICATION and WIRING DIAGRAM. See ANTI-THEFT SYSTEM article. Perform TEST VER-2A after each repair.

**CAUTION:** Always turn ignition switch to OFF position prior to disconnecting any module connector. Ensure all connectors are clean and tight.

**NOTE:** Anti-theft system may also be referred to as VTSS (Vehicle Theft Security System).

1. Using scan tool, select BODY SYSTEM, then BODY COMPUTER. If scan tool displays BUS OPERATIONAL, go to next step. If scan tool displays NO RESPONSE, go to TEST 3A under VEHICLE COMMUNICATIONS. If scan tool displays any other message, go to TEST 1A under VEHICLE COMMUNICATIONS.
2. If anti-theft indicator light comes on while driving, go to ANTI-THEFT SYSTEM TEST 2A . If anti-theft indicator light stays on during arming process, go to ANTI-THEFT SYSTEM TEST 8A . If okay, go to next step.
3. Using scan tool, select MODULE DISPLAY. If module ID is not ZJ BODY BCM W/VTSS, go to ANTI-THEFT SYSTEM TEST 3A . If okay, go to next step.
4. Using scan tool, select THEFT ALARM. Turn ignition on. With scan tool in THEFT ALARM, select MONITOR DISPLAY. Read VTSS status. If VTSS mode is not disarmed, go to ANTI-THEFT SYSTEM TEST 1B . If scan tool displays powertrain control module 1 - NO RESPONSE/2 -NO RESPONSE, go to TEST 9A under VEHICLE COMMUNICATIONS. If okay, go to next step.
5. Ensure all doors are closed and properly aligned. Turn ignition off. **DO NOT** remove key from ignition switch. With scan tool still under THEFT ALARM, select MISCELLANEOUS, CHANGE MODE, then DIAGNOSTICS. After entering DIAGNOSTICS mode, horn should sound twice, park lights and headlights should flash, and anti-theft indicator light should flash. If the horn fails to sound, go to ANTI-THEFT SYSTEM TEST 4A . If anti-theft indicator light fails to flash, go to ANTI-THEFT SYSTEM TEST 5A . If headlights or park lights fail to flash, go to ANTI-THEFT SYSTEM TEST 6A . If okay, go to next step.
6. Remove key from ignition switch. Park and headlights should stop flashing. Open and close each door, liftgate and hood. Rotate key in front doors and liftgate to unlock position. Horn should sound. If horn does not sound after each action, perform indicated tests specified in ANTI-THEFT SYSTEM DIAGNOSTIC TEST DIRECTORY.

**ANTI-THEFT SYSTEM DIAGNOSTIC TEST DIRECTORY**

Suspected System	Perform Test No.
Left Front Door	<b>DOOR AJAR TEST 3A</b>

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Right Front Door	<b><u>DOOR AJAR TEST 5A</u></b>
Right Rear Door	<b><u>DOOR AJAR TEST 7A</u></b>
Door Or Liftgate Key Cylinder Switch	<b><u>ANTI-THEFT SYSTEM TEST 7A</u></b>
Hood Switch	<b><u>ANTI-THEFT SYSTEM TEST 8A</u></b>
Liftgate	<b><u>DOOR AJAR TEST 9A</u></b>
Left Rear Door	<b><u>DOOR AJAR TEST 11A</u></b>

### ANTI-THEFT SYSTEM TEST 1B - DISARMING ANTI-THEFT SYSTEM

**NOTE:** Perform **ANTI-THEFT SYSTEM TEST 1A** before proceeding. For connector terminal ID, see **CONNECTOR IDENTIFICATION** and **WIRING DIAGRAM**. See **ANTI-THEFT SYSTEM** article. Perform **TEST VER-2A** after each repair.

**CAUTION:** Always turn ignition switch to OFF position prior to disconnecting any module connector. Ensure all connectors are clean and tight.

1. Turn ignition off. Put key in left front door and turn to unlock position. Turn ignition on. Using scan tool under MONITORS menu, read VTSS status. If scan tool displays CURRENT MODE DISARMED, system is okay. Repeat **ANTI-THEFT SYSTEM TEST 1A** . If scan tool does not display CURRENT MODE DISARMED, go to next step.
2. Connect a jumper wire between Backprobe Body Control Module (BCM) Black 14-pin connector terminal No. 10 (Violet/Yellow wire) and chassis ground. Using scan tool, read VTSS status. If scan tool does not display CURRENT MODE DISARMED, replace BCM. If scan tool displays CURRENT MODE DISARMED, go to **ANTI-THEFT SYSTEM TEST 7A** .

### ANTI-THEFT SYSTEM TEST 2A - ANTI-THEFT SYSTEM INDICATOR LIGHT COMES ON WHILE DRIVING

**NOTE:** Perform **ANTI-THEFT SYSTEM TEST 1A** before proceeding. For connector terminal ID, see **CONNECTOR IDENTIFICATION** and **WIRING DIAGRAM**. See **ANTI-THEFT SYSTEM** article. Perform **TEST VER-2A** after each repair.

**CAUTION:** Always turn ignition switch to OFF position prior to disconnecting any module connector. Ensure all connectors are clean and tight.

1. Disconnect Powertrain Control Module (PCM) Gray connector. Inspect terminals for damage. Repair as required. Reconnect PCM connector. Turn ignition on, engine off. Using scan tool, read PCM status under MONITORS. While observing scan tool, wiggle PCM wiring harness.
2. If scan tool displays NO RESPONSE FROM ENGINE CONTROLLER, go to **TEST 9A** under VEHICLE COMMUNICATIONS. If scan tool does not display NO RESPONSE FROM ENGINE CONTROLLER, replace PCM.

### ANTI-THEFT SYSTEM TEST 3A - ENABLING ANTI-THEFT SYSTEM

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**NOTE:** Perform **ANTI-THEFT SYSTEM TEST 1A** before proceeding. For connector terminal ID, see **CONNECTOR IDENTIFICATION** and **WIRING DIAGRAM**. See **ANTI-THEFT SYSTEM** article. Perform **TEST VER-2A** after each repair.

**CAUTION:** Always turn ignition switch to OFF position prior to disconnecting any module connector. Ensure all connectors are clean and tight.

1. Turn ignition off. Using scan tool, select BODY COMPUTER INPUT/OUTPUT. Observe door key cylinder status. Insert key in left front door lock cylinder. Turn key to unlock position. If scan tool does not display DOOR KEY CYL: CLOSED, go to ANTI-THEFT SYSTEM TEST 7A. If scan tool displays DOOR KEY CYL: CLOSED, go to next step.
2. Using scan tool, select MISCELLANEOUS ENABLE VTSS - YES. Select MODULE DISPLAY. If module ID displays ZJ BODY BCM W/VTSS, return to **ANTI-THEFT SYSTEM TEST 1A**. If module ID does not display ZJ BODY BCM W/VTSS, replace body control module.

#### ANTI-THEFT SYSTEM TEST 4A - REPAIRING ANTI-THEFT SYSTEM HORN CIRCUIT

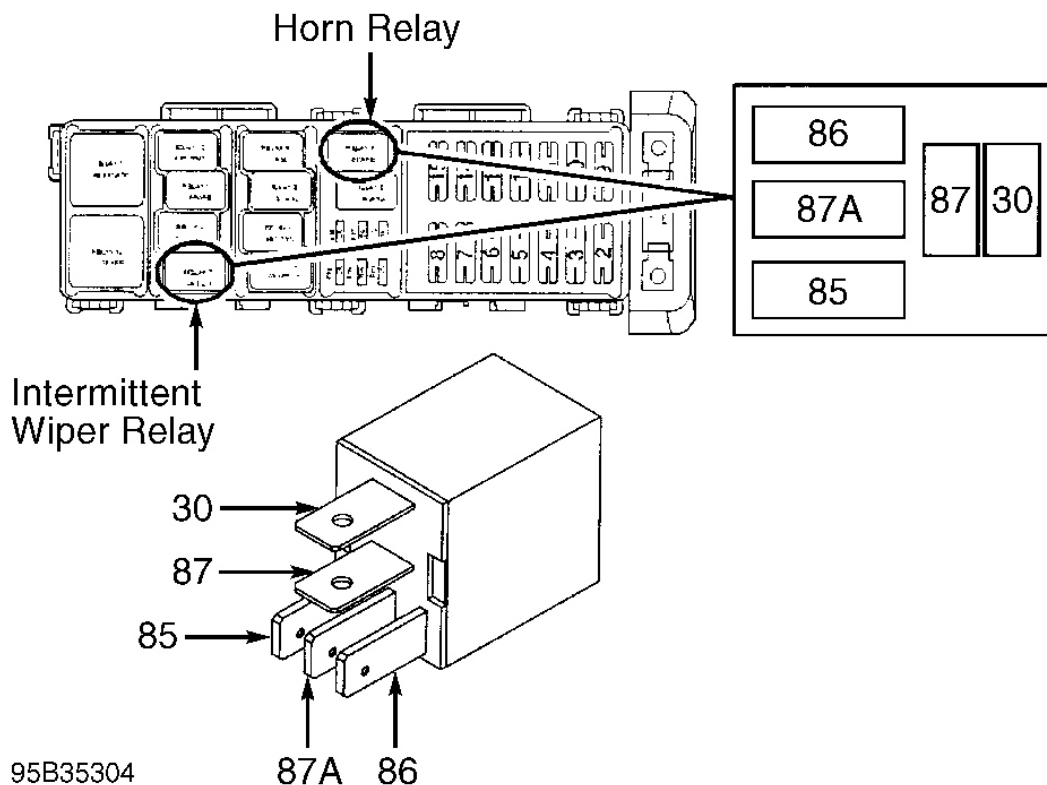
**NOTE:** Perform **ANTI-THEFT SYSTEM TEST 1A** before proceeding. For connector terminal ID, see **CONNECTOR IDENTIFICATION** and **WIRING DIAGRAM**. See **ANTI-THEFT SYSTEM** article. Perform **TEST VER-2A** after each repair.

**CAUTION:** Always turn ignition switch to OFF position prior to disconnecting any module connector. Ensure all connectors are clean and tight.

1. Turn ignition switch to on position. Press horn button. If horn does not sound, go to step 3). If horn sounds, turn ignition off. Disconnect Body Control Module (BCM) White 24-pin connector. BCM is located under left side of dash.
2. Momentarily connect a jumper wire between BCM White 24-pin connector terminal No. 13 (Gray/Orange wire) and chassis ground. If horn does not sound, repair open in Gray/Orange wire. If horn sounds, replace BCM.
3. Remove horn relay. Horn relay is located in power distribution center. Power distribution center is located in engine compartment. Using an ohmmeter, check resistance between horn relay terminals No. 85 and 86. See **Fig. 48**. If resistance is less than 65 ohms or more than 90 ohms, replace relay. If resistance is more than 65 ohms or less than 90 ohms, go to next step.
4. Using scan tool in voltmeter mode, probe horn relay connector terminal No. 86. If voltage is less than 10 volts, replace power distribution center. If voltage is 10 volts or more, go to next step.
5. Connect a test light between horn relay connector terminals No. 85 (Gray/Orange wire) and No. 86 (Violet wire). Press horn button while observing test light. If test light does not flash when horn button is pressed, repair open in Gray/Orange wire. If test light flashes when horn button is pressed, go to next step.
6. Connect a jumper wire between horn relay connector terminals No. 30 (Violet wire) and No. 87 (Dark Green/Yellow wire). If horn sounds, replace horn relay. If horn does not sound, go to next step.
7. Disconnect connector from on both horns. Connect one horn connector with a jumper wire to chassis ground. With scan tool in ohmmeter mode, probe horn relay connector terminal No. 87 (Dark

Green/Yellow wire). If resistance is more than 5 ohms, repair open in Dark Green/Yellow wire. If resistance is 5 ohms or less, go to next step.

- Disconnect jumper wire. Using scan tool in ohmmeter mode, probe horn relay connector terminal No. 87 (Dark Green/Yellow wire). If resistance is less than 100 ohms, repair short in Dark Green/Yellow wire. If resistance is 100 ohms or more, replace horns.



**Fig. 48: Identifying Relay Terminals**

**ANTI-THEFT SYSTEM TEST 5A - REPAIRING ANTI-THEFT SYSTEM INDICATOR LIGHT**

**NOTE:** Perform **ANTI-THEFT SYSTEM TEST 1A** before proceeding. For connector terminal ID, see **CONNECTOR IDENTIFICATION** and **WIRING DIAGRAM**. See **ANTI-THEFT SYSTEM** article. Perform **TEST VER-2A** after each repair.

**CAUTION:** Always turn ignition switch to **OFF** position prior to disconnecting any module connector. Ensure all connectors are clean and tight.

- If anti-theft indicator light stays on steady, go to step 5). If anti-theft indicator light does not stay on steady, disconnect Body Control Module (BCM) Black 24-pin connector. BCM is located under left side of dash.



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2. Connect a jumper wire between BCM Black 24-pin connector terminal No. 23 (Black/Light Green wire). If anti-theft indicator light illuminates, replace BCM. If anti-theft indicator light does not illuminate, go to next step.
3. Leave jumper wire connected. Disconnect anti-theft indicator light connector. Using scan tool in ohmmeter mode, probe anti-theft indicator light connector terminal No. 2 (Black/Light Green wire). If resistance is more than 5 ohms, repair open in Black/Light Green wire. If resistance is 5 ohms or less, go to next step.
4. Using scan tool in voltmeter mode, probe anti-theft indicator light connector terminal No. 1 (Violet wire). If resistance is less than 10 volts, repair open in Violet wire. If resistance is 10 volts or more, replace anti-theft indicator light module.
5. Disconnect Body Control Module (BCM) Black 24-pin connector. If anti-theft indicator light goes out, replace BCM. If anti-theft indicator light does not go out, repair short in Black/Light Green wire between anti-theft indicator light connector terminal No. 2 and BCM Black 24-pin connector terminal No. 23.