

VEHICLE THEFT SECURITY

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VEHICLE THEFT SECURITY

DESCRIPTION

The Vehicle Theft Security System (VTSS) is an available factory-installed option on this model when it is also equipped with the high-line or premium Central Timer Module (CTM). The VTSS is designed to provide perimeter protection against unauthorized use or tampering by monitoring the vehicle doors and the ignition system. If unauthorized vehicle use or tampering is detected, the system responds by pulsing the horn, flashing the headlamps, and preventing the engine from operating.

The VTSS includes the following major components, which are described in further detail elsewhere in this service manual:

- **Central Timer Module** - The high-line or premium Central Timer Module (CTM) is located under the driver side end of the instrument panel, inboard of the instrument panel steering column opening. The high-line or premium CTM contains a microprocessor and software that allow it to provide many electronic functions and features not available with base version of the CTM, including the VTSS. The CTM provides all of the proper VTSS features and outputs based upon the monitored inputs. The CTM circuitry monitors hard wired switch inputs, as well as message inputs received from other vehicle electronic modules over the Chrysler Collision Detection (CCD) data bus network. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/BODY CONTROL/CENTRAL TIMER MODULE - DESCRIPTION).

- **Door Ajar Switch** - A door ajar switch is located on the hinge pillar of each front door in the vehicle. These switches provide an input to the VTSS indicating whether the door is opened or closed. (Refer to 8 - ELECTRICAL/LAMPS/LIGHTING - INTERIOR/DOOR AJAR SWITCH - DESCRIPTION).

- **Door Cylinder Lock Switch** - A door cylinder lock switch is located on the back of each front door lock cylinder. This switch provides an input to the

VTSS indicating whether the system should remain armed or be disarmed. (Refer to 8 - ELECTRICAL/POWER LOCKS/DOOR CYLINDER LOCK SWITCH - DESCRIPTION).

- **Horn Relay** - The horn relay is located in the Power Distribution Center (PDC) in the engine compartment near the battery. The horn relay is normally activated by the horn switch to control the sounding of the vehicle horn or horns. However, it can also be activated by an output of the Central Timer Module (CTM) to provide an audible indication that unauthorized vehicle use or tampering has been detected. (Refer to 8 - ELECTRICAL/HORN/HORN RELAY - DESCRIPTION).

- **Headlamp Relay** - The headlamp relay (also known as the security relay) is located in the Power Distribution Center (PDC) in the engine compartment near the battery. The headlamp relay is normally activated by the Central Timer Module (CTM) based upon inputs from the Remote Keyless Entry (RKE) panic mode feature. However, it can also be activated by an output of the CTM to flash the headlamp low beams to provide a highly visible indication that unauthorized vehicle use or tampering has been detected. (Refer to 8 - ELECTRICAL/LAMPS/LIGHTING - EXTERIOR/HEADLAMP RELAY - DESCRIPTION).

- **VTSS Indicator** - A red Light Emitting Diode (LED) located on the lower surface of the overhead console near the windshield is illuminated by an output of the Central Timer Module (CTM) to indicate the status of the VTSS. This LED is integral to the electronic circuit board for the Compass Mini-Trip Computer (CMTC). (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE/COMPASS/MINI-TRIP COMPUTER - DESCRIPTION).

The engine no-run feature of the VTSS relies upon communication between the high-line or premium CTM and the Powertrain Control Module (PCM) over the Chrysler Collision Detection (CCD) data bus network.

VEHICLE THEFT SECURITY (Continued)

Hard wired circuitry connects many of the VTSS components to each other through the electrical system of the vehicle. These hard wired circuits are integral to several wire harnesses, which are routed throughout the vehicle and retained by many different methods. These circuits may be connected to each other, to the vehicle electrical system and to the VTSS components through the use of a combination of soldered splices, splice block connectors, and many different types of wire harness terminal connectors and insulators. Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, further details on wire harness routing and retention, as well as pin-out and location views for the various wire harness connectors, splices and grounds.

OPERATION

A Central Timer Module (CTM) is used on this model to control and integrate many of the electronic functions and features included in the Vehicle Theft Security System (VTSS). In the VTSS, the CTM receives inputs indicating the status of the door ajar switches, the door cylinder lock switch, and the ignition switch. The programming in the CTM allows it to process the information from all of these inputs and send control outputs to energize or de-energize the horn relay, the headlamp relay, and the VTSS indicator. The control of these inputs and outputs are what constitute all of the features of the VTSS. Following is information on the operation of each of the VTSS features. Refer to the owner's manual in the vehicle glove box for more information on the features, use and operation of the VTSS.

ENABLING

The high-line or premium version of the CTM must have the VTSS function electronically enabled in order for the VTSS to perform as designed. The logic in the CTM keeps its VTSS function dormant until it is enabled using a DRBIII® scan tool. The VTSS function of the high-line or premium CTM is enabled on vehicles equipped with the VTSS option at the factory, but a service replacement CTM must be VTSS-enabled by the dealer using a DRBIII® scan tool. Refer to the appropriate diagnostic information.

The VTSS engine no-run feature is disabled when it is shipped from the factory. This is done by programming within the Powertrain Control Module (PCM). The logic in the PCM prevents the VTSS engine no-run feature from arming until the engine start counter within the PCM sees twenty engine

starts. The VTSS no-run feature must be enabled by the dealer when the vehicle is received from the assembly plant. Once the VTSS engine no-run feature has been enabled, it cannot be disabled unless the PCM is replaced with a new unit. The same VTSS engine no-run feature enable logic will apply anytime the PCM is replaced with a new unit.

ARMING

Passive arming of the VTSS occurs when the vehicle is exited with the key removed from the ignition switch, the headlamps are turned off, and the doors are locked while they are open using the power lock switch, or locked after they are closed by turning either front door lock cylinder to the lock position using the key. The power lock switch will not function if the key is in the ignition switch or the headlamps are turned on with the driver side front door open. The VTSS will not arm if the doors are locked using the mechanical lock button. Active arming of the VTSS occurs when the "Lock" button on the Remote Keyless Entry (RKE) transmitter is depressed to lock the vehicle. For active arming to occur, the doors must be closed and the ignition switch must be in the Off position when the RKE transmitter "Lock" button is depressed. However, once the VTSS arming process has been completed, the ignition switch can be turned to the Accessory position without triggering the alarm.

Once the VTSS begins passive or active arming, the security indicator lamp in the overhead console will flash rapidly for about fifteen seconds. This indicates that the VTSS arming is in progress. Turning a key in the ignition switch, opening a door, or unlocking a door by any means during the fifteen second arming process will cause the VTSS indicator to stop flashing and the arming process to abort. Once the fifteen second arming function is successfully completed, the indicator will flash at a slower rate, indicating that the VTSS is armed.

DISARMING

Passive disarming of the VTSS occurs when the vehicle is unlocked using the key to unlock either front door. Active disarming of the VTSS occurs when the vehicle is unlocked by depressing the "Unlock" button of the RKE transmitter. Once the alarm has been activated (horn pulsing, headlamps flashing, and the engine no-run feature), either disarming method will also deactivate the alarm. Depressing the "Panic" button on the RKE transmitter will **not** disarm the VTSS.

VEHICLE THEFT SECURITY (Continued)

POWER-UP MODE

When the armed VTSS senses that the battery has been disconnected and reconnected, it enters its power-up mode. In the power-up mode the alarm system remains armed following a battery failure or disconnect. If the VTSS was armed prior to a battery disconnect or failure, the technician or vehicle operator will have to actively or passively disarm the alarm system after the battery is reconnected. The power-up mode will also apply if the battery goes dead while the system is armed, and battery jump-starting is attempted. The engine no-run feature will prevent the engine from starting until the alarm system has been actively or passively disarmed. The VTSS will be armed until the technician or vehicle operator has actively or passively disarmed the alarm system. If the VTSS is in the disarmed mode prior to a battery disconnect or failure, it will remain disarmed after the battery is reconnected or replaced, or if jump-starting is attempted.

TAMPER ALERT

The VTSS tamper alert feature will sound the horn three times upon disarming, if the alarm was triggered and has since timed-out (about fifteen minutes). This feature alerts the vehicle operator that the VTSS alarm was activated while the vehicle was unattended.

DIAGNOSIS AND TESTING - VEHICLE THEFT SECURITY SYSTEM

The VTSS-related hard wired inputs to and outputs from the high-line or premium Central Timer Module (CTM) may be diagnosed and tested using conventional diagnostic tools and procedures. Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, further details on wire harness routing and retention, as well as pin-out and location views for the various wire harness connectors, splices and grounds.

However, conventional diagnostic methods may not prove conclusive in the diagnosis of the CTM, the Powertrain Control Module (PCM), or the Chrysler Collision Detection (CCD) data bus network. In order to obtain conclusive testing of the VTSS, the CTM, the PCM, and the CCD data bus network must also be checked. The most reliable, efficient, and accurate means to diagnose the VTSS requires the use of a DRBIII® scan tool. Refer to the appropriate diagnostic information. The DRBIII® scan tool can provide confirmation that the CCD data bus network is functional, that all of the electronic modules are sending and receiving the proper messages over the CCD data bus, and that these modules are receiving the proper hard wired inputs and responding with the

proper hard wired outputs needed to perform their functions. See the "Vehicle Theft Security System" menu item on the DRBIII® scan tool.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

VTSS INDICATOR

DESCRIPTION

The Vehicle Theft Security System (VTSS) indicator consists of a red Light-Emitting Diode (LED) located on the electronic circuit board of the Compass Mini-Trip Computer (CMTc) within the overhead console. The LED extends through a hole in the CMTc lens located near the forward end of the overhead console housing near the windshield.

The VTSS indicator cannot be adjusted or repaired and, if faulty or damaged, the entire CMTc unit must be replaced. (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE/COMPASS/MINI-TRIP COMPUTER - DESCRIPTION).

OPERATION

The Vehicle Theft Security System (VTSS) indicator gives a visible indication of the VTSS arming status. One side of Light-Emitting Diode (LED) in the VTSS indicator is connected to battery current through a fused B(+) circuit and a fuse in the Junction Block (JB), so the indicator remains functional regardless of the ignition switch position. The other side of the LED is hard wired to the Central Timer Module (CTM), which controls the operation of the VTSS indicator by pulling this side of the LED circuit to ground. When the VTSS arming is in progress, the CTM will flash the LED rapidly on and off for about fifteen seconds. When the VTSS has been successfully armed, the CTM will flash the LED on and off continually at a much slower rate until the VTSS has been disarmed. The VTSS indicator can be diagnosed using conventional diagnostic tools and methods.

VTSS INDICATOR (Continued)**DIAGNOSIS AND TESTING - VTSS INDICATOR**

The diagnosis found here addresses an inoperative Vehicle Theft Security System (VTSS) indicator condition. If the problem being diagnosed is related to indicator accuracy, be certain to confirm that the problem is with the indicator and not with an inoperative VTSS. (Refer to 8 - ELECTRICAL/VEHICLE THEFT SECURITY SYSTEM- DIAGNOSIS AND TESTING). If no VTSS problem is found, the following procedure will help to locate a short or open in the VTSS indicator control circuit. Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

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(1) Check the fused B(+) fuse (Fuse 12 - 10 ampere) in the Junction Block (JB). If OK, go to Step 2. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(2) Check for battery voltage at the fused B(+) fuse (Fuse 12 - 10 ampere) in the JB. If OK, go to Step 3. If not OK, repair the open fused B(+) circuit between the JB and the Power Distribution Center (PDC) as required.

(3) Disconnect and isolate the battery negative cable. Disconnect the body wire harness connector for the Compass Mini-Trip Computer (CMTC) from the CMTC connector receptacle. Reconnect the battery negative cable. Check for battery voltage at the fused B(+) circuit cavity of the body wire harness connector for the CMTC. If OK, go to Step 4. If not OK, repair the open fused B(+) circuit between the CMTC indicator and the JB as required.

(4) Disconnect and isolate the battery negative cable. Disconnect the instrument panel wire harness connector (Connector C2) for the Central Timer Module (CTM) from the CTM connector receptacle. Check for continuity between the VTSS indicator driver circuit cavity of the body wire harness connector for the CMTC and a good ground. There should be no continuity. If OK, go to Step 5. If not OK, repair the shorted VTSS indicator driver circuit between the CMTC and the CTM as required.

(5) Check for continuity between the VTSS indicator driver circuit cavities of the instrument panel wire harness connector (Connector C2) for the CTM and the body wire harness connector for the CMTC. There should be continuity. If OK, replace the faulty CMTC indicator. If not OK, repair the open VTSS indicator driver circuit between the CMTC and the CTM as required.