VEHICLE THEFT/SECURITY SYSTEMS

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GENERAL INFORMATION

INTRODUCTION

The Vehicle Theft Security System (VTSS) is an available factory-installed option on this model. This system is designed to provide perimeter protection against unauthorized use or tampering by monitoring the vehicle doors, liftgate, and ignition system. If unauthorized use or tampering is detected, the system responds by sounding the horn, flashing the exterior lamps, and providing an engine no-run feature. The VTSS can be disarmed by unlocking the vehicle with the key in either front door lock cylinder or using the Remote Keyless Entry (RKE) transmitters.

Following are some general descriptions of the features of the VTSS. Refer to the vehicle owner's manual for additional information on the use and operation of this system. Refer to 8W-39 - Vehicle Theft Security System in Group 8W - Wiring Diagrams for complete circuit descriptions and diagrams.

ENABLING

The Vehicle Theft Security System (VTSS) features are provided by two electronic modules in the vehicle; the Powertrain Control Module (PCM) located in the engine compartment, and the Body Control Module (BCM) located in the passenger compartment. Both of these modules must have their respective VTSS

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functions electronically enabled in order for the VTSS to perform as designed.

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 when the vehicle is received from the assembly plant.

The preferred method for enabling the VTSS engine no-run feature is to electronically advance the PCM engine start counter using a DRB scan tool. Refer to the Vehicle Theft Security System menu item on the DRB scan tool for the procedures. Once this condition has been met, the PCM will allow the engine no-run feature to arm. Once the VTSS engine no-run feature has been enabled in the PCM, it cannot be disabled. The same VTSS engine no-run feature enable logic will apply anytime the PCM is replaced with a new unit.

The remaining VTSS features are controlled by the BCM. The logic in the BCM keeps its VTSS features dormant until it is enabled using a DRB scan tool. The VTSS features of the BCM are enabled on vehicles equipped with the VTSS option at the factory, but a service replacement BCM must be enabled by the dealer with a DRB scan tool anytime the BCM is replaced with a new unit.

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GENERAL INFORMATION (Continued)

ARMING

Passive arming of the Vehicle Theft Security System (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 using the power lock switch. The power lock switch will not function if the key is in the ignition switch or the headlamps are on with the driver side front door open. The VTSS will not arm if either front door or the liftgate are locked using the key in the lock cylinder or using the mechanical lock button.

Active arming of the VTSS occurs when the Remote Keyless Entry (RKE) transmitter is used to lock the vehicle, even if the doors and/or the liftgate are open when the RKE transmitter Lock button is depressed. However, the VTSS arming will not be complete until all of the doors and the liftgate are closed.

Following successful passive or active VTSS arming, the VTSS set lamp on the top of the instrument panel will flash rapidly for about fifteen seconds after the illuminated entry system times out. This indicates that VTSS arming is in progress. Once the fifteen second arming function is successfully completed, the set lamp will flash at a slower rate to indicate that the VTSS is armed.

DISARMING

Passive disarming of the Vehicle Theft Security System (VTSS) occurs when the vehicle is unlocked using the key to unlock either front door or the liftgate. Active disarming of the VTSS occurs when the vehicle is unlocked by depressing the Unlock button of the Remote Keyless Entry (RKE) transmitter.

Once the alarm has been activated (horn sounding, exterior lamps flashing, and the engine no-run feature), either disarming method will also deactivate the alarm.

Depressing the Panic button on the RKE transmitter will also disarm the VTSS, but the horn will sound and the exterior lamps will flash for about three minutes as part of the Panic feature function. Refer to Group 8P - Power Lock Systems for more information on the Panic feature.

POWER-UP MODE

When the armed Vehicle Theft Security System (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 system will have to be actively or passively disarmed 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.

TAMPER ALERT

The Vehicle Theft Security System (VTSS) tamper alert will sound the horn three times upon disarming, if the alarm was activated and has since timedout (about eighteen minutes). This feature alerts the vehicle operator that the VTSS was activated while the vehicle was unattended.

DESCRIPTION AND OPERATION

BODY CONTROL MODULE

A Body Control Module (BCM) is used on this model to control and integrate many of the electronic functions and features included on the vehicle. The BCM contains a central processing unit and interfaces with other modules in the vehicle on the Chrysler Collision Detection (CCD) data bus network.

The CCD data bus network allows the sharing of sensor information. This helps to reduce wire harness complexity, reduce internal controller hardware, and reduce component sensor current loads. At the same time, this system provides increased reliability, enhanced diagnostics, and allows the addition of many new feature capabilities.

One of the functions and features that the BCM supports and controls, is the Vehicle Theft Security System (VTSS). In the VTSS, the BCM receives CCD message inputs from the Passenger Door Module (PDM), which contains the Remote Keyless Entry (RKE) receiver. In addition to the information received on the CCD data bus, the BCM receives hard-wired inputs from the door ajar, door lock cylinder, ignition, liftgate ajar, liftgate lock cylinder, and liftglass ajar switches. The programming in the BCM allows it to process the information from all of its inputs and send control outputs to energize or de-energize the auto headlamp relay, horn relay, park lamp relay, Powertrain Control Module (PCM), and the security set lamp.

The BCM is mounted under the driver side outboard end of the instrument panel, behind the instrument panel support armature and below the outboard switch pod. Refer to Group 8E - Instrument Panel Systems for the removal and installation procedures. For diagnosis of the BCM or the CCD data bus, the use of a DRB scan tool and the proper Diagnostic Procedures manual are recommended. The BCM can only be serviced by an authorized electronic repair station. Refer to the latest Warranty Policies and Procedures manual for a current listing of authorized electronic repair stations.

DESCRIPTION AND OPERATION (Continued)

DOOR AJAR SWITCH

The door ajar switches are mounted to the pillar in the rear of each door opening. They are plunger-type switches that are case grounded to the pillar. When the door is open the switch is closed, and when the door is closed the switch is open.

The door ajar switches cannot be repaired and, if faulty or damaged, they must be replaced.

DOOR LOCK CYLINDER SWITCH

The door lock cylinder switches are mounted to the back of the key lock cylinder inside each front door. They are normally-open momentary switches that close to ground only when the lock cylinder is rotated to the unlock position.

The door lock cylinder switches cannot be repaired and, if faulty or damaged, they must be replaced.

LIFTGATE AJAR SWITCH

The liftgate ajar switch is integral to the liftgate latch assembly on the liftgate. It is a momentarytype switch that is open when the liftgate is closed, and closed when the liftgate is open.

The liftgate ajar switch cannot be repaired and, if faulty or damaged, the liftgate latch assembly must be replaced.

LIFTGATE LOCK CYLINDER SWITCH

The liftgate lock cylinder switch is mounted to the back of the key lock cylinder inside the liftgate. It is a normally-open momentary switch that closes to ground only when the lock cylinder is rotated to the unlock position.

The liftgate lock cylinder switch cannot be repaired and, if faulty or damaged, it must be replaced.

LIFTGLASS AJAR SWITCH

The liftglass ajar switch is integral to the liftglass latch assembly on the liftgate. It is a momentarytype switch that is open when the liftglass is closed, and closed when the liftglass is open.

The liftglass ajar switch cannot be repaired and, if faulty or damaged, the liftglass latch assembly must be replaced.

AUTO HEADLAMP RELAY

The auto headlamp relay is a International Standards Organization (ISO) micro-relay. The terminal designations and functions are the same as a conventional ISO relay. However, the micro-relay terminal orientation (or footprint) is different, current capacity is lower, and the relay case dimensions are smaller than those of the conventional ISO relay.

The auto headlamp relay is a electromechanical device that switches battery current to the headlamps when the Body Control Module (BCM) grounds the relay coil. See the Diagnosis and Testing section of this group for more information on the operation of the auto headlamp relay.

The auto headlamp relay is located in the junction block, on the right cowl side inner panel below the instrument panel in the passenger compartment.

The auto headlamp relay cannot be repaired and, if faulty or damaged, it must be replaced.

HORN RELAY

The horn relay is a International Standards Organization (ISO) micro-relay. The terminal designations and functions are the same as a conventional ISO relay. However, the micro-relay terminal orientation (or footprint) is different, current capacity is lower, and the relay case dimensions are smaller than those of the conventional ISO relay.

The horn relay is a electromechanical device that switches battery current to the horn when the horn switch or the Body Control Module (BCM) grounds the relay coil. See the Diagnosis and Testing section of this group for more information on the operation of the horn relay.

The horn relay is located in the Power Distribution Center (PDC), in the engine compartment. Refer to the PDC label for relay identification and location.

If a problem is encountered with a continuously sounding horn, it can usually be quickly resolved by removing the horn relay from PDC until further diagnosis is completed.

The horn relay cannot be repaired and, if faulty or damaged, it must be replaced.

PARK LAMP RELAY

The park lamp relay is a International Standards Organization (ISO) micro-relay. The terminal designations and functions are the same as a conventional ISO relay. However, the micro-relay terminal orientation (or footprint) is different, current capacity is lower, and the relay case dimensions are smaller than those of the conventional ISO relay.

The park lamp relay is a electromechanical device that switches battery current to the park lamps when the Body Control Module (BCM) grounds the relay coil. See the Diagnosis and Testing section of this group for more information on the operation of the park lamp relay.

The park lamp relay is located in the junction block, on the right cowl side panel below the instrument panel in the passenger compartment. The park lamp relay can be accessed by removing the fuse access panel and the right cowl side trim panel.

The park lamp relay cannot be repaired and, if faulty or damaged, it must be replaced.

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DESCRIPTION AND OPERATION (Continued)

SET LAMP

The Vehicle Theft Security System (VTSS) set lamp is a red light-emitting diode mounted with the auto headlamp ambient light sensor on top of the instrument panel near the driver side defroster outlet. The set lamp receives fused battery feed at all times and is grounded by the Body Control Module (BCM) to give a visual indication of the VTSS status.

The set lamp cannot be repaired and, if damaged or faulty, the set lamp/auto headlamp ambient light sensor unit must be replaced.

DIAGNOSIS AND TESTING

VEHICLE THEFT SECURITY SYSTEM

WARNING: ON VEHICLES EQUIPPED WITH AIR-BAGS. REFER TO GROUP 8M PASSIVE -**RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY** STEERING WHEEL, STEERING COLUMN, OR **INSTRUMENT PANEL COMPONENT DIAGNOSIS OR** SERVICE. FAILURE TO TAKE THE PROPER PRE-CAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

The Vehicle Theft Security System (VTSS) and the Chrysler Collision Detection (CCD) data bus network should be diagnosed using the DRB scan tool and the proper Diagnostic Procedures manual. The DRB scan tool will provide confirmation that the CCD data bus is functional, that the Body Control Module (BCM) is enabled and putting the proper messages on the CCD data bus, that the BCM is enabled and receiving the proper hard-wired inputs and sending the proper hard-wired outputs, and that the Powertrain Control Module (PCM) is enabled and receiving the CCD data bus messages from the BCM.

Refer to the proper Diagnostic Procedures manual and the Vehicle Theft Security System menu item on the DRB scan tool for the procedures. Refer to 8W-39 - Vehicle Theft Security System in Group 8W - Wiring Diagrams for complete circuit descriptions and diagrams.

RELAYS

The horn relay is located in the Power Distribution Center (PDC) in the engine compartment. The auto headlamp and park lamp relays are located in the junction block in the passenger compartment. Each of these relays (Fig. 1) can be tested as described in the following procedure, however the circuits they are used in do vary. To test the relay circuits, refer to the circuit descriptions and diagrams in 8W-39 -Vehicle Theft Security System in Group 8W - Wiring Diagrams.

WARNING: ON VEHICLES EQUIPPED WITH AIR-BAGS, REFER TO GROUP 8M PASSIVE **RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY** STEERING WHEEL. STEERING COLUMN. OR **INSTRUMENT PANEL COMPONENT DIAGNOSIS OR** SERVICE. FAILURE TO TAKE THE PROPER PRE-CAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

Remove the relay from the PDC or junction block as described in this group to perform the following tests:

(1) A relay in the de-energized position should have continuity between terminals 87A and 30, and no continuity between terminals 87 and 30. If OK, go to Step 2. If not OK, replace the faulty relay.

(2) Resistance between terminals 85 and 86 (electromagnet) should be 75 \pm 5 ohms. If OK, go to Step 3. If not OK, replace the faulty relay.

(3) Connect a battery to terminals 85 and 86. There should now be continuity between terminals 30 and 87, and no continuity between terminals 87A and 30. If OK, test the relay circuits. If not OK, replace the faulty relay.



Fig. 1 Relay Terminals

REMOVAL AND INSTALLATION

DOOR AJAR SWITCH

(1) Disconnect and isolate the battery negative cable.

(2) Remove the screw that secures the door ajar switch to the pillar at the rear of the door opening (Fig. 2).



Fig. 2 Door Ajar Switch Remove/Install

(3) Pull the switch out from the mounting hole in the door opening far enough to access the wire harness connector.

(4) Unplug the wire harness connector from the switch.

(5) Reverse the removal procedures to install. Tighten the switch mounting screw to $1.7 \text{ N} \cdot \text{m}$ (15 in. lbs.).

DOOR LOCK CYLINDER SWITCH

(1) Disconnect and isolate the battery negative cable.

(2) Remove the bezel near the inside door latch release handle by inserting a straight-bladed screwdriver in the notched end of the bezel and prying gently upwards.

(3) Remove the screw located beneath the bezel that secures the front door trim panel to the inner door panel (Fig. 3).

(4) Remove the trim cap and screw near the rear of the front door armrest.

(5) Remove the trim cap and screw at the upper front corner of the front door trim panel.

(6) Remove the screw located above the front door speaker grille on the front door trim panel.



Fig. 3 Front Door Trim Panel Remove/Install

(7) Using a trim stick or another suitable wide flat-bladed tool, gently pry the front door trim panel away from the door around the perimeter to release the trim panel retainers.

NOTE: To aid in the removal of the trim panel, start at the bottom of the panel.

(8) Pull the front door trim panel away from the inner door panel far enough to access and unplug the wire harness connectors from the door module and, if the vehicle is so equipped, from the front door courtesy lamp.

(9) Pull the watershield away from the rear access holes in the front door inner panel.

(10) Remove the U-clip retainer that secures the lock cylinder to the outer door panel (Fig. 4).



Fig. 4 Door Lock Cylinder Remove/Install

(11) Disconnect the door lock cylinder actuator rod from the door latch by unsnapping the plastic retainer.

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(12) Pull the lock cylinder out of its mounting hole from the outside of the door panel far enough to pry the lock cylinder switch off of the back of the lock cylinder (Fig. 5).



Fig. 5 Door Lock Cylinder Switch Remove/Install -Typical

(13) From the inside of the door unplug the lock cylinder switch wire harness connector and remove the switch from the door.

(14) Reverse the removal procedures to install. Tighten the mounting screws to $2.2 \text{ N} \cdot \text{m}$ (20 in. lbs.).

LIFTGATE AJAR SWITCH

(1) Disconnect and isolate the battery negative cable.

(2) Open the liftgate.

(3) Remove the screws that secure the liftgate lower trim panel to the liftgate inner panel (Fig. 6).

(4) Using a trim stick or another suitable wide flat-bladed tool, gently pry the perimeter edges of the trim panel away from the liftgate inner panel to release the retainers.



Fig. 6 Liftgate Trim Panel Remove/Install

NOTE: To aid in the removal of the trim panel, start at the bottom of the panel.

(5) Remove the liftgate trim panel from the vehicle.

(6) Remove the three screws that secure the liftgate latch to the liftgate (Fig. 7).



Fig. 7 Liftgate Latch/Lock Components

(7) Disconnect the liftgate handle latch actuator rod from the latch.

(8) Unplug the liftgate ajar switch wire harness connector from the latch.

(9) Remove the latch from the liftgate.

(10) Reverse the removal procedures to install. Tighten the latch mounting screws to 7 N·m (62 in lbs.).

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LIFTGATE LOCK CYLINDER SWITCH

(1) Disconnect and isolate the battery negative cable.

(2) Open the liftgate.

(3) Remove the screws that secure the liftgate lower trim panel to the liftgate inner panel (Fig. 8).



Fig. 8 Liftgate Trim Panel Remove/Install

(4) Using a trim stick or another suitable wide flat-bladed tool, gently pry the perimeter edges of the trim panel away from the liftgate inner panel to release the retainers.

NOTE: To aid in the removal of the trim panel, start at the bottom of the panel.

(5) Remove the lower liftgate trim panel from the vehicle.

(6) Pry the liftgate lock cylinder switch off of the back of the lock cylinder (Fig. 9).

(7) Unplug the lock cylinder switch wire harness connector and remove the switch from inside the lift-gate.



Fig. 9 Liftgate Lock Cylinder Switch Remove/Install

(8) Reverse the removal procedures to install. Tighten the mounting screws to $2.2 \text{ N} \cdot \text{m}$ (20 in. lbs.).

LIFTGLASS AJAR SWITCH

(1) Disconnect and isolate the battery negative cable.

(2) Open the liftgate.

(3) Remove the screws that secure the liftgate lower trim panel to the liftgate inner panel (Fig. 10).



Fig. 10 Liftgate Trim Panel Remove/Install

(4) Using a trim stick or another suitable wide flat-bladed tool, gently pry the perimeter edges of the trim panel away from the liftgate inner panel to release the retainers.

NOTE: To aid in the removal of the trim panel, start at the bottom of the panel.

(5) Remove the lower liftgate trim panel from the vehicle.

(6) Remove the two nuts that secure the liftglass latch to the liftgate inner panel (Fig. 11).



Fig. 11 Liftglass Ajar Switch Remove/Install

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(7) Unplug the wire harness connectors for the liftglass latch solenoid and the liftglass ajar switch.

(8) Remove the liftglass latch from the liftgate.

(9) Reverse the removal procedures to install. Tighten the latch mounting nuts to 11 N·m (100 in. lbs.). Tighten the trim panel mounting screws to 2.2 N·m (20 in. lbs.).

AUTO HEADLAMP AND PARK LAMP RELAYS

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(1) Disconnect and isolate the battery negative cable.

(2) Remove the fuse access panel by unsnapping it from the right cowl side trim panel.

(3) Remove the push nut that secures the right cowl side trim panel to the junction block stud (Fig. 12).



Fig. 12 Right Cowl Side Trim Remove/Install

(4) Remove the two screws that secure the right cowl side trim panel to the right front door opening trim.

(5) Remove the right cowl side trim panel from the right cowl side inner panel.

(6) Unplug the headlamp or park lamp relay from the junction block.

(7) Install the headlamp or park lamp relay by aligning the relay terminals with the cavities in the junction block and pushing the relay firmly into place.

(8) Connect the battery negative cable.

(9) Test the relay operation.

(10) Reinstall the right cowl side trim and the fuse access panel.

HORN RELAY

(1) Disconnect and isolate the battery negative cable.

(2) Remove the cover from the Power Distribution Center (PDC) (Fig. 13).



Fig. 13 Power Distribution Center

(3) Refer to the label on the PDC for horn relay identification and location.

(4) Unplug the horn relay from the PDC.

(5) Install the horn relay by aligning the relay terminals with the cavities in the PDC and pushing the relay firmly into place.

- (6) Install the PDC cover.
- (7) Connect the battery negative cable.
- (8) Test the relay operation.

SET LAMP

WARNING: ON VEHICLES EQUIPPED WITH AIRто GROUP 8M PASSIVE BAGS. REFER -RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR **INSTRUMENT PANEL COMPONENT DIAGNOSIS OR** SERVICE. FAILURE TO TAKE THE PROPER PRE-CAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Using a trim stick or another suitable wide flat-bladed tool, gently pry the cowl top trim panel off of the instrument panel top pad (Fig. 14).

(3) Pull the trim panel up far enough to access and unplug the wire harness connector for the solar sensor, or to remove the solar sensor from the cowl top trim, if the vehicle is so equipped.

(4) Remove the cowl top trim panel from the instrument panel.

(5) Remove the auto headlamp light sensor/vehicle theft security system set lamp mounting screw near the driver side defroster duct outlet.

(6) Pull the set lamp up from the top of the instrument panel far enough to access and unplug the wire harness connector.

(7) remove the set lamp from the instrument panel.

(8) Reverse the removal procedures to install. Tighten the mounting screw to $2.2 \text{ N} \cdot \text{m}$ (20 in. lbs.).



Fig. 14 Cowl Top Trim Remove/Install

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