

VEHICLE THEFT/SECURITY SYSTEMS

TABLE OF CONTENTS

	page		page
GENERAL INFORMATION		HORN RELAY	4
INTRODUCTION	1	SECURITY LAMP	4
VEHICLE THEFT SECURITY SYSTEM.	1	DIAGNOSIS AND TESTING	
ENABLING.	1	VEHICLE THEFT SECURITY SYSTEM.	4
ARMING	1	DOOR LOCK CYLINDER SWITCH.	4
DISARMING	2	LIFTGATE LOCK CYLINDER SWITCH.	4
POWER-UP MODE	2	RELAYS.	5
TAMPER ALERT	2	REMOVAL AND INSTALLATION	
DESCRIPTION AND OPERATION		DOOR AJAR SWITCH.	5
CENTRAL TIMER MODULE	2	LIFTGATE AJAR SWITCH	5
DOOR AJAR SWITCH.	3	DOOR LOCK CYLINDER SWITCH.	5
LIFTGATE AJAR SWITCH	3	LIFTGATE LOCK CYLINDER SWITCH.	5
DOOR LOCK CYLINDER SWITCH.	3	HEADLAMP RELAY.	6
LIFTGATE LOCK CYLINDER SWITCH.	3	HORN RELAY	7
HEADLAMP RELAY.	3		

GENERAL INFORMATION

INTRODUCTION

The Vehicle Theft Security System (VTSS) is an available factory-installed option on this model. Refer to 8W-39 - Vehicle Theft Security System in Group 8W - Wiring Diagrams for complete circuit descriptions and diagrams.

VEHICLE THEFT SECURITY SYSTEM

The Vehicle Theft Security System (VTSS) is designed to provide perimeter protection against unauthorized use or tampering by monitoring the vehicle doors and the ignition system. If unauthorized use or tampering is detected, the system responds by sounding the horn, flashing the headlamps, and providing an engine no-run feature.

Following are general descriptions of the features and major components of the VTSS. Refer to the owner's manual in the vehicle glove box for more information on the features, use and operation of the vehicle theft security system.

ENABLING

If the vehicle is so equipped, the Vehicle Theft Security System (VTSS) feature is enabled in the high-line Central Timer Module (CTM) before the vehicle is shipped from the factory. However, if a vehicle with VTSS requires CTM replacement, the VTSS feature must be enabled in the new CTM using

a DRB scan tool. Refer to the Vehicle Theft Security System menu item on the DRB scan tool for the procedures.

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.

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 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 and liftgate are locked while they are open using the power lock switch or locked after they are closed by turning either front door lock cylinder or the liftgate lock cylinder to the lock position using the key. Passive arming will not begin until all the doors and the liftgate are closed. 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.

GENERAL INFORMATION (Continued)

The VTSS will not arm if the doors 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. For active arming to occur, the doors and liftgate 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 lamp in the instrument cluster 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 the liftgate, or unlocking a door or the liftgate by any means during the fifteen second arming process will cause the security lamp to stop flashing and the arming process to abort. Once the fifteen second arming function is successfully completed, the security 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, headlamps flashing, and the engine no-run feature), either disarming method will also deactivate the alarm.

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 triggered and has since timed-

out (about fifteen minutes). This feature alerts the vehicle operator that the VTSS was activated while the vehicle was unattended.

DESCRIPTION AND OPERATION

CENTRAL TIMER MODULE

Two versions of the Central Timer Module (CTM) are available on this vehicle, a base version and a high-line version. The base version of the CTM is used on base models of the vehicle. The base version of the CTM combines the functions of a chime/buzzer module, an intermittent wipe module and an illuminated entry module into a single unit. The base CTM also uses inputs from the door ajar switches, the headlamp switch and the key-in ignition switch to control the output to the dome lamp circuits, which allows the base CTM to provide load shedding to help protect the battery from becoming discharged.

The high-line version of the CTM is used on high-line vehicles. The high-line CTM provides all of the functions of the base version CTM, but also is used to control and integrate many of the additional electronic functions and features included on the high-line models. The high-line version of the CTM 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 features that the high-line CTM supports and controls is the Vehicle Theft Security System (VTSS). In the VTSS, the CTM receives hardwired inputs from the door and liftgate ajar, door and liftgate lock cylinder, and ignition switches. The programming in the CTM allows it to process the information from these inputs and send control outputs to energize or de-energize the headlamp (or security) relay, horn relay, and the security lamp. The CTM also sends CCD data bus messages to the Powertrain Control Module (PCM) to control the engine no-run feature of the VTSS.

The high-line CTM also contains the receiver and control logic for the power lock and Remote Keyless Entry (RKE) systems, which are integrated into the arming, disarming, and triggering functions of the VTSS.

Both versions of the CTM are mounted under the passenger side end of the instrument panel, outboard of the instrument panel glove box opening. Refer to Central Timer Module in the Removal and Installa-

DESCRIPTION AND OPERATION (Continued)

tion section of Group 8E - Instrument Panel Systems for the service procedures.

For diagnosis of the high-line version of the CTM or of the CCD data bus, a DRB scan tool and the proper Diagnostic Procedures manual are recommended. The CTM cannot be repaired and, if faulty or damaged, it must be replaced.

DOOR AJAR SWITCH

The door ajar switches are integral to the door latches on each door. The switches close a path to ground for the Central Timer Module (CTM) when a door is opened, and open the ground path when a door is closed.

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

LIFTGATE AJAR SWITCH

The liftgate ajar switch is integral to the latch on the liftgate. The switch closes a path to ground for the Central Timer Module (CTM) when the liftgate is opened, and opens the ground path when the liftgate is closed.

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

DOOR LOCK CYLINDER SWITCH**DESCRIPTION**

The door lock cylinder switches are mounted to the back of the key lock cylinder inside each front door. They are resistor multiplexed momentary switches that are hard wired between a body ground and the Central Timer Module (CTM) through the front door wire harnesses. These switches are driven by the key lock cylinders and contain three internal resistors. One resistor is used for the neutral switch position, one for the lock position and one for the unlock position.

The door lock cylinder switches cannot be adjusted or repaired and, if faulty or damaged, they must be replaced. For complete circuit diagrams, refer to **Vehicle Theft Security System** in the Contents of Group 8W - Wiring Diagrams.

OPERATION

The door lock cylinder switches are actuated by the key lock cylinder when the key is inserted in the lock cylinder and turned to the lock or unlock positions. The door lock cylinder switch closes a path to ground through one of three internal resistors for the CTM when the front door key lock cylinder is in the lock, unlock or neutral positions. The CTM reads the switch status through an internal pull-up, then uses

this input and its internal programming to control the proper Vehicle Theft Security System (VTSS) and power lock system outputs.

LIFTGATE LOCK CYLINDER SWITCH**DESCRIPTION**

The liftgate lock cylinder switch is mounted to the back of the liftgate key lock cylinder inside the liftgate. It is a resistor multiplexed momentary switch that is hard wired between a body ground and the Central Timer Module (CTM) through the liftgate wire harness. This switch is driven by the key lock cylinder and contains three internal resistors. One resistor is used for the neutral switch position, one for the lock position and one for the unlock position.

The liftgate lock cylinder switch cannot be adjusted or repaired and, if faulty or damaged, it must be replaced. For complete circuit diagrams, refer to **Vehicle Theft Security System** in the Contents of Group 8W - Wiring Diagrams.

OPERATION

The liftgate lock cylinder switch is actuated by the key lock cylinder when the key is inserted in the lock cylinder and turned to the lock or unlock positions. The liftgate lock cylinder switch closes a path to ground through one of three internal resistors for the CTM when the liftgate key lock cylinder is in the lock, unlock or neutral positions. The CTM reads the switch status through an internal pull-up, then uses this input and its internal programming to control the proper Vehicle Theft Security System (VTSS) and power lock system outputs.

HEADLAMP RELAY

The headlamp (or security) 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 headlamp relay is an electromechanical device that switches battery current to the headlamps when the high-line Central Timer Module (CTM) grounds the relay coil. See Headlamp Relay in the Diagnosis and Testing section of this group for more information.

The headlamp relay is located in the Power Distribution Center (PDC), behind the battery on the left side of the engine compartment.

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

DESCRIPTION AND OPERATION (Continued)

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 high-line Central Timer Module (CTM) grounds the relay coil. Refer to **Relays** in the Diagnosis and Testing section of this group for more information.

The horn relay is located in the Junction Block (JB), on the left end of the instrument panel in the passenger compartment. See the fuse and relay layout label on the inside of the fuse access panel 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 the JB until further diagnosis is completed.

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

SECURITY LAMP

The security lamp is located within the instrument cluster on the instrument panel. The security lamp is illuminated by a red Light-Emitting Diode (LED) that is integral to the instrument cluster circuit board. The security lamp receives fused battery feed at all times and is grounded by the high-line Central Timer Module (CTM) to give a visual indication of the Vehicle Theft Security System (VTSS) arming status.

The security lamp cannot be repaired and, if faulty or damaged, the instrument cluster unit must be replaced. Refer to Instrument Cluster in the Removal and Installation section of Group 8E - Instrument Panel Systems for the service procedures.

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 PRECAUTIONS 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 a DRB scan tool and the proper Diagnostic Procedures manual. The DRB will provide confirmation that the data bus is functional, that the high-line Central Timer Module (CTM) is receiving and sending the proper messages on the data bus, that the CTM is receiving the proper hard-wired inputs and sending the proper hard-wired outputs, and that the Powertrain Control Module (PCM) is receiving the data bus messages from the CTM. Refer to 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.

DOOR LOCK CYLINDER SWITCH

Refer to **Vehicle Theft Security System** in the index of this service manual for the location of complete door lock cylinder switch wiring diagrams.

(1) Disconnect the door lock cylinder switch wire harness connector from the door wire harness connector.

(2) Using an ohmmeter, perform the switch resistance checks between the two cavities of the door lock cylinder switch wire harness connector. Actuate the switch by rotating the key in the door lock cylinder to test for the proper resistance values in each of the three switch positions, as shown in the Door Lock Cylinder Switch chart.

DOOR LOCK CYLINDER SWITCH		
Switch Position		Resistance
Driver Side	Passenger Side	
Neutral	Neutral	12 Kilohms
Lock (Clockwise)	Lock (Counter Clockwise)	644 Ohms
Unlock (Counter Clockwise)	Unlock (Clockwise)	1565 Ohms

(3) If a door lock cylinder switch fails any of the resistance tests, replace the faulty switch as required.

LIFTGATE LOCK CYLINDER SWITCH

Refer to **Vehicle Theft Security System** in the index of this service manual for the location of complete liftgate lock cylinder switch wiring diagrams.

(1) Disconnect the liftgate lock cylinder switch wire harness connector from the liftgate wire harness connector.

DIAGNOSIS AND TESTING (Continued)

(2) Using an ohmmeter, perform the switch resistance checks between the two cavities of the liftgate lock cylinder switch wire harness connector. Actuate the switch by rotating the key in the liftgate lock cylinder to test for the proper resistance values in each of the three switch positions, as shown in the Liftgate Lock Cylinder Switch chart.

LIFTGATE LOCK CYLINDER SWITCH	
Switch Position	Resistance
Neutral	12 Kilohms
Lock (Counter Clockwise)	644 Ohms
Unlock (Clockwise)	1565 Ohms

(3) If a liftgate lock cylinder switch fails any of the resistance tests, replace the faulty switch as required.

RELAYS

The headlamp (or security) and horn relays are located in the Power Distribution Center (PDC) in the engine compartment. Each of these relays 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 PRECAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

Remove the relay (Fig. 1) from the PDC 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 ± 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.

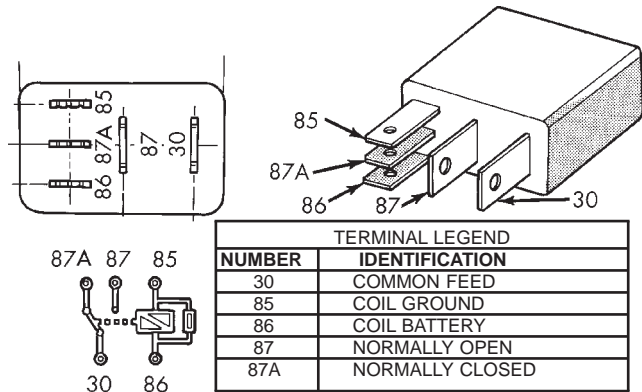


Fig. 1 Relay Terminals

REMOVAL AND INSTALLATION

DOOR AJAR SWITCH

The door ajar switch is integral to the door latch unit. If the door ajar switch is faulty or damaged, the entire door latch unit must be replaced. Refer to Group 23 - Body for the door latch service procedures.

LIFTGATE AJAR SWITCH

The liftgate ajar switch is integral to the liftgate latch unit. If the liftgate ajar switch is faulty or damaged, the entire liftgate latch unit must be replaced. Refer to Group 23 - Body for the liftgate latch service procedures.

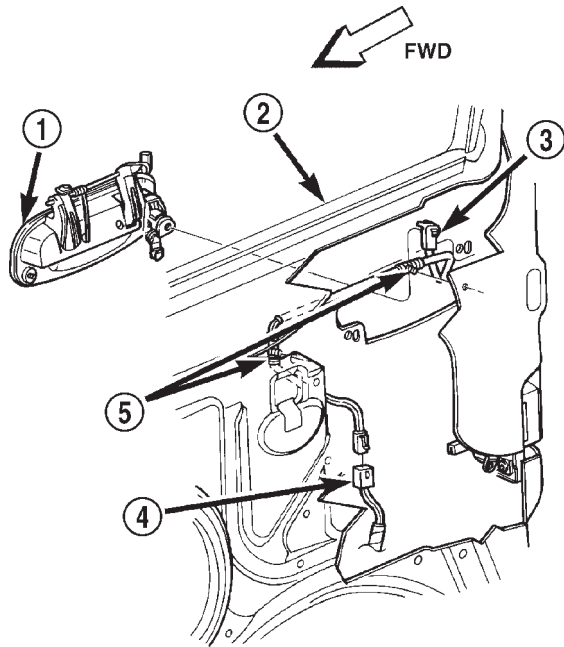
DOOR LOCK CYLINDER SWITCH

- (1) Disconnect and isolate the battery negative cable.
- (2) Remove the door outside latch handle mounting hardware and linkage from the inside of the door. Refer to Group 23 - Body for the procedures.
- (3) From the outside of the door, pull the door outside latch handle out far enough to access the door lock cylinder switch (Fig. 2).
- (4) Disengage the door lock cylinder switch from the back of the lock cylinder.
- (5) Unplug the door lock cylinder switch wire harness connector.
- (6) Disengage the retainers that secure the door lock cylinder switch wire harness to the inner door panel.
- (7) Remove the door lock cylinder switch from the door.
- (8) Reverse the removal procedures to install.

LIFTGATE LOCK CYLINDER SWITCH

- (1) Disconnect and isolate the battery negative cable.
- (2) Remove the trim panel from the liftgate inner panel. Refer to Group 23 - Body for the procedures.

REMOVAL AND INSTALLATION (Continued)

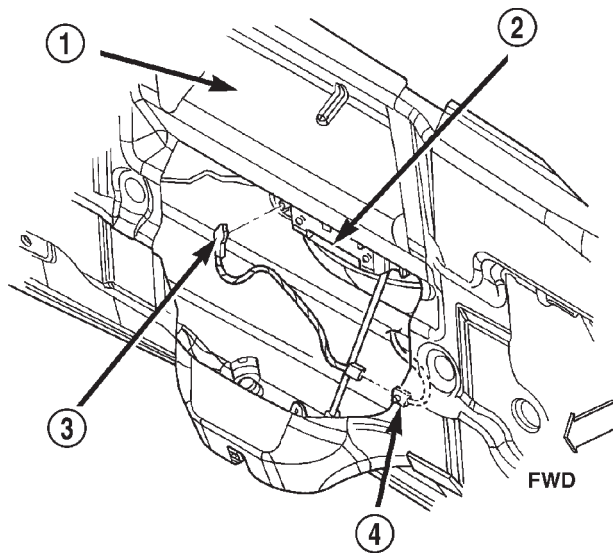


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Fig. 2 Door Lock Cylinder Switch Remove/Install - Typical

- 1 - DOOR OUTSIDE LATCH HANDLE
- 2 - DOOR
- 3 - DOOR LOCK CYLINDER SWITCH
- 4 - CONNECTOR
- 5 - RETAINERS

(3) Reach through the access hole in the liftgate inner panel to disengage the switch from the back of the liftgate lock cylinder (Fig. 3).



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Fig. 3 Liftgate Lock Cylinder Switch Remove/Install

- 1 - LIFTGATE INNER PANEL
- 2 - LIFTGATE LATCH OUTSIDE HANDLE
- 3 - LIFTGATE LOCK CYLINDER SWITCH
- 4 - WIRE HARNESS CONNECTOR

(4) Unplug the liftgate lock cylinder switch wire harness connector.

(5) Remove the liftgate lock cylinder switch from the liftgate.

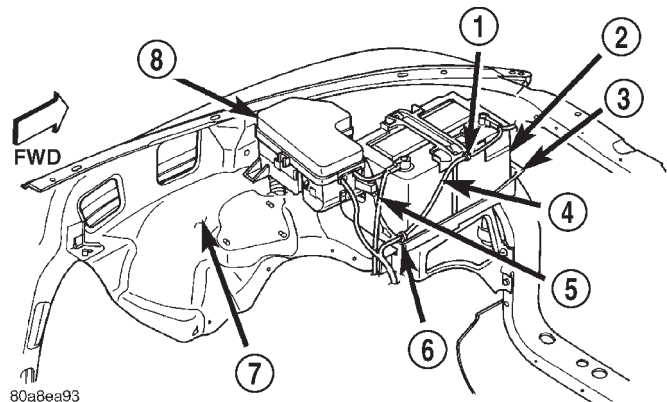
(6) Reverse the removal procedures to install.

HEADLAMP RELAY

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 PRECAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Remove the cover from the Power Distribution Center (PDC) (Fig. 4).



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Fig. 4 Power Distribution Center

- 1 - CLIP
- 2 - BATTERY
- 3 - TRAY
- 4 - NEGATIVE CABLE
- 5 - POSITIVE CABLE
- 6 - CLIP
- 7 - FENDER INNER SHIELD
- 8 - POWER DISTRIBUTION CENTER

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

(4) Unplug the headlamp relay from the PDC.

(5) Install the headlamp 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.

REMOVAL AND INSTALLATION (Continued)

HORN RELAY

(1) Disconnect and isolate the battery negative cable.

(2) Remove the fuse access panel from the left end of the instrument panel (Fig. 5).

(3) Refer to the label on the inside of the fuse access panel for horn relay identification and location.

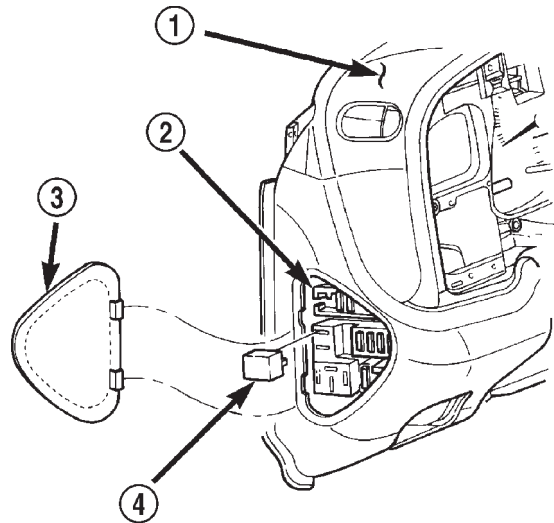
(4) Unplug the horn relay from the Junction Block (JB).

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

(6) Install the fuse access panel.

(7) Connect the battery negative cable.

(8) Test the relay operation.



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Fig. 5 Horn Relay Remove/Install

- 1 - INSTRUMENT PANEL
- 2 - JUNCTION BLOCK
- 3 - FUSE ACCESS PANEL
- 4 - HORN RELAY

