

REMOTE KEYLESS ENTRY

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GENERAL INFORMATION

INTRODUCTION

The Remote Keyless Entry System (RKE) allows locking/unlocking of vehicle door(s) by remote control using a hand held radio frequency (RF) key fob transmitter.

The Body Control Module (BCM) may receive signals from up to four key fob transmitters. Each key fob transmitter has its own ID with a rolling code. The code is programmed and stored into BCM memory. The ID code of the key fob transmitter never changes. However the rolling code portion changes every time a button is pressed. If the key fob transmitter is replaced or an additional transmitter is added, the codes of all units may have to be reprogrammed into the BCM memory. If a BCM is replaced, the key fob transmitter codes must be programmed in the new BCM memory. If a programmed key fob transmitter button is pressed more than 250 times outside of the vehicle range, the rolling code will go out of synchronization. In this case the rolling code has to be synchronized again for complete operation. Refer to Synchronization of Rolling Code.

OPERATION

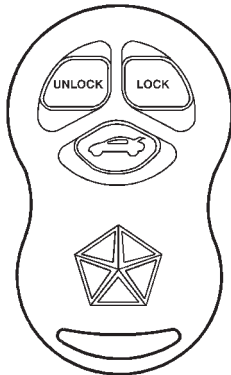
The key fob transmitter has three buttons for operation (Fig. 1). They are LOCK, UNLOCK, and TRUNK.

Depressing the button:

- UNLOCK button will unlock the driver's door and enable illuminated entry, if equipped. Pushing and releasing the button once will unlock the driver's door. Pushing and releasing the button two times, within five seconds interval, will unlock all doors.
 - LOCK button, the horn will sound a short CHIRP to notify that the all door lock signal was received and set. The illuminated entry operation will be cancelled and all interior lamps will immediately turn OFF.
 - DECK LID button will release the deck lid when the button is pressed twice within two seconds.
- The BCM is capable of retaining Vehicle Access Code (VAC) even when power is removed.

GENERAL INFORMATION (Continued)

Each Remote Keyless Entry Module must have at least one and no more than four key fob transmitters.



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Fig. 1 Remote Keyless Entry (RKE) Transmitter

DESCRIPTION AND OPERATION

DECK LID RELEASE RELAY

The Deck Lid Release circuit works in conjunction with the BCM to prevent unwanted operation after the Vehicle Theft Security System is set. The VTSS portion of the BCM will also disable the Universal Transmitter (garage door opener). The relay is energized from either the deck lid release switch or from the BCM from a signal from the Remote RKE fob transmitter.

TRANSMITTER BATTERY

The transmitter has two 3 volt batteries, which can be removed and replaced without special tools. The battery is available at local retail stores. Recommended battery is CR2016 Panasonic or equivalent. Battery life is about one to two years.

DIAGNOSIS AND TESTING

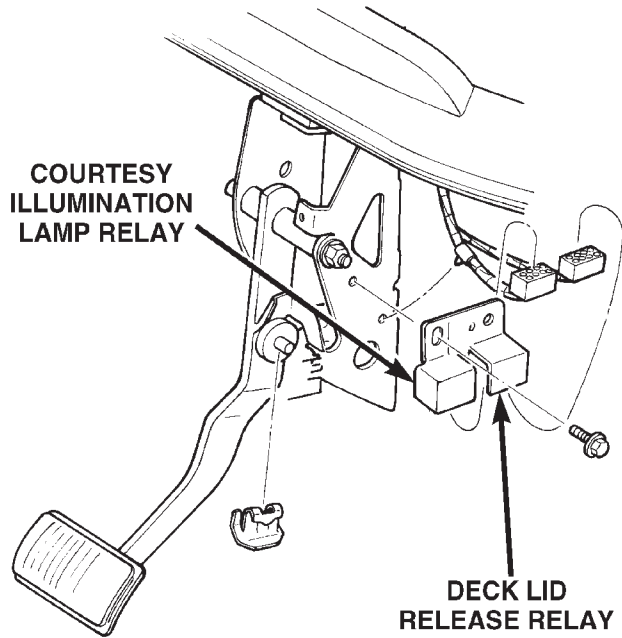
DECK LID RELEASE RELAY TEST

RELAY TEST

The deck lid release relay is located on the right side of the brake pedal mounting bracket (Fig. 2).

Remove the starter relay from mounting bracket to perform the following tests:

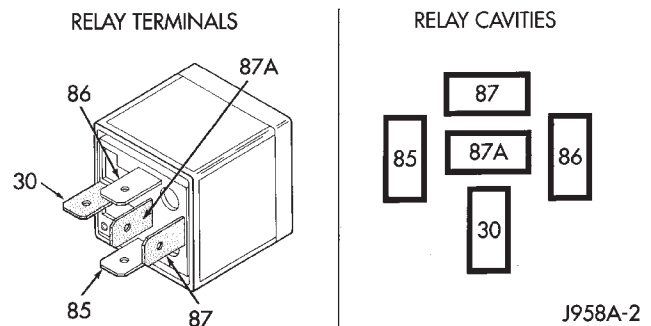
- (1) A relay in the de-energized position should have continuity between terminals 87A and 30, and no continuity between terminals 87 and 30. If OK, go to Step 2. If not OK, replace the faulty relay.
- (2) Resistance between terminals 85 and 86 (electromagnet) should be 75 ± 5 ohms. If OK, go to Step 3. If not OK, replace the faulty relay.
- (3) Connect a battery B+ lead to terminals 86 and a ground lead to terminal 85 to energize the relay.



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Fig. 2 Deck Lid Release Relay Location

The relay should click. Also test for continuity between terminals 30 and 87, and no continuity between terminals 87A and 30. If OK, refer to Relay Circuit Test procedure. If not OK, replace the faulty relay.



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TERMINAL LEGEND	
NUMBER	IDENTIFICATION
30	COMMON FEED
85	COIL GROUND
86	COIL BATTERY
87	NORMALLY OPEN
87A	NORMALLY CLOSED

Deck Lid Release Relay

RELAY CIRCUIT TEST

- (1) The relay common feed terminal cavity (30) is connected to battery voltage and should be hot at all times. If OK, go to Step 2. If not OK, repair the open circuit to the circuit breaker as required.
- (2) The relay normally open terminal (87) is connected to the common feed (movable contact) terminal (30) in the energized position. This terminal

DIAGNOSIS AND TESTING (Continued)

when energized supplies battery voltage to the deck lid release solenoid. If OK, go to Step 3. If not OK, repair the open circuit to the deck lid release solenoid as required.

(3) The coil battery (+) terminal (86) is connected to the electromagnet in the relay. It has battery (+) at all times. Check for battery voltage at cavity (86) of the relay connector. If OK, go to Step 4. If not OK, check for an open circuit to the deck lid release relay and repair as necessary.

(4) The relay coil ground (-) terminal (85) is connected to the Body Control Module Q33 circuit and deck lid release switch. This terminal will receive a ground (-) through the BCM, or the deck lid release switch, when the key fob transmitter button, or the deck lid release switch is depressed. If not OK, check for an open circuit to the BCM and repair as necessary.

(5) When the Vehicle Theft Security System is armed the BCM opens the ground circuit to the deck lid release switch.

DIAGNOSTIC CONDITIONS

When trouble shooting problems with the Remote Keyless Entry System, always verify that the power door lock/unlock switches are functional. If the doors do not lock/unlock with the power switches, the following modules should be analyzed: Lock/Unlock Switches, Body Control Module, and the door lock/unlock latches. Refer to Group 8W, Wiring Diagrams.

FUSE TEST

If the following modules do not work:

- Remote Keyless Entry System
- Body Control Module
- Door lock switches

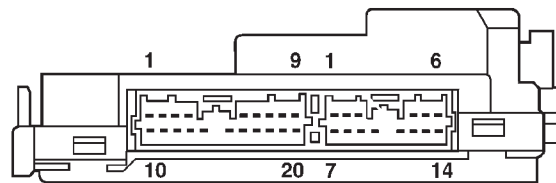
A blown fuse is the probable cause. The Body Control Module (BCM) battery feed fuse are located in the Power Distribution Center (PDC). Check fuses 4, 15 and 18 in the PDC and fuses 4, 5 and 9 in the Junction Block.

Key fob transmitter will not lock or unlock doors.

- (1) Check that the BCM has power and ground.
- (2) Re-synchronize the key fob rolling code with the receiver by pressing and holding the lock button then the deck lid button simultaneously for at least five seconds. Then wait until the doors unlock indicating that the code has been synchronized. This may take as long as six minutes. This procedure is to be used for a key fob transmitter that has been previously programmed to this vehicle only.
- (3) If the RKE system still doesn't function, replace the key fob transmitter. Refer to Programming Remote Keyless Entry Key Fob Transmitter.

All doors will not unlock with the key fob transmitter.

- (1) Using a voltmeter, check Pin 4 of the BCM 20 Pin connector for a voltage pulse (Fig. 3). Press the unlock button once.
- (2) If no voltage pulse, replace RKE module. If voltage is measured, repair the harness between the BCM and the driver door latch.
- (3) Check Pin 1 of the BCM 20 Pin connector for a quick voltage pulse when the unlock button is pressed.
- (4) If no voltage pulse is measured at Pin 1, replace the BCM. Repair the harness between terminal and lock latch.



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Fig. 3 BCM 20-Way Connector

Driver door will NOT unlock with the key fob transmitter, but passenger door will unlock.

- (1) Using a voltmeter, check Pin 4 of the BCM 20 Pin connector for a voltage pulse (Fig. 3). Depress the unlock button. The voltmeter should read battery voltage for approximately 1 second.
- (2) If no voltage pulse is measured, replace the BCM. If voltage is measured repair harness from BCM to the driver door latch.

Driver door will unlock with the key fob transmitter, but passenger door will not lock.

- (1) Using a voltmeter, check Pin 1 of the BCM 20 Pin connector for a voltage pulse (Fig. 3). Press the unlock button.
- (2) If no voltage pulse is measured, replace the BCM. If voltage is measured, repair the harness to the door latch.

Doors do not lock with the key fob transmitter.

- (1) Using a voltmeter, check Pins 10 and 11 of the BCM 20 Pin connector for a voltage pulse (Fig. 3). Press the lock button on the transmitter. Wait for quick voltage pulse. It may be necessary to press the key fob transmitter several times. The voltage pulse only appears for milliseconds.
- (2) If no voltage pulse is measured, replace BCM. If a voltage is measured, repair the Junction Block as necessary.

DIAGNOSIS AND TESTING (Continued)

Doors will lock with the key fob transmitter but there is no horn CHIRP.

- (1) Press horn button, listen horn sound.
- (2) If the horn does not CHIRP, check if horn is disabled with the scan tool (DRB). Then check the horn relay and the horn(s). Repair as necessary.
- (3) Using a voltmeter, check horn relay for voltage pulse. Press the lock button on the key fob transmitter.
- (4) If no voltage pulse measured, replace the BCM. If voltage is measured, repair harness to the horn relay.

Unable to program BCM with a new key fob transmitter, door locks will not cycle.

Refer to the proper Body Diagnostic Procedure Manual.

Unable to program BCM with a new key fob transmitter, door locks cycle. The locks will not cycle when the transmitter button is depressed.

Refer to the proper Body Diagnostic Procedure Manual.

SERVICE PROCEDURES

HORN CHIRP ENABLE/DISABLE

The scan tool (DRB) must be used to enable/disable the Horn Chirp. Refer to the scan tool (DRB) for the procedure.

SYNCHRONIZATION OF ROLLING CODE

The key fob transmitter code will go out of synchronization if any button is press more than 250 times outside the range of the receiver which is inside of the BCM. In other words the transmitter will not work. To synchronize the code of a particular key fob transmitter with the receiver, press and hold the lock button then the deck lid button simulta-

neously for at lease five seconds. Then wait until the doors unlock indicating that the code has been synchronized. This may take as long as six minutes. This is for a key fob transmitter that has been previously programed to this vehicle only.

REMOVAL AND INSTALLATION

DECK LID RELEASE RELAY**REMOVAL**

- (1) The relay is located above the brake pedal to the right side.
- (2) Grasp the relay and pull downward to disconnect the relay.

INSTALLATION

Align the relay pins with the connector terminals and push the relay in to place.

BODY CONTROL MODULE (BCM)

Refer to Group 8E, Instrument Panel and Systems for Removal and Installation.

ADJUSTMENTS

PROGRAMMING RKE MODULE

The scan tool (DRB) and the transmitter must be used to program the Remote Keyless Entry Module. Refer to the scan tool (DRB) for the procedure.

SPECIFICATIONS

TRANSMITTER CONTROL RANGE

Operation range is within 7 meters (23 ft.) of the BCM.