

POWER LOCK SYSTEMS

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POWER DOOR LOCKS

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DESCRIPTION AND OPERATION

POWER DOOR LOCK SYSTEM

DESCRIPTION

The power lock system allows both doors to be locked or unlocked electrically by operating the switch on either front door trim panel. The power lock system operates on non-switched battery current supplied through a fuse in the junction block so that the system remains functional, regardless of the ignition switch position.

OPERATION

The doors can be locked or unlocked electrically by operating the switch on either front door panels or with the locking knobs from within the vehicle.

The doors can be locked or unlocked mechanically from the outside with the key or electrically by using the Key Fob Transmitter. Both front doors can also be unlocked by actuation of the inside remote door handle.

AUTOMATIC DOOR LOCKS

DESCRIPTION

The system includes an automatic door locking feature actuated by the Body Control Module (BCM). **The vehicle is built with the system enabled.**

The BCM will automatically lock all doors when all of the conditions below are met:

- All doors are closed
- The vehicle speed exceeds 15 ± 1 M. P. H.
- The throttle position sensor tip-in is greater than 10 ± 2 degrees

When the system is disabled the door locks will work by use of the door lock switches only. When this system is enabled the automatic door locks will work automatically.

OPERATION

The BCM controls the power locks when the door lock switch is activated. If the door lock switch is pressed for longer than eight consecutive seconds, the BCM will de-energize the door lock relay.

The automatic door lock system can be enabled/disabled either by the customer or with the DRB III® scan tool. Refer to the DRB III® or the vehicle owners manual for enabling/disabling procedures.

DESCRIPTION AND OPERATION (Continued)

The BCM will automatically re-lock all doors if the above conditions are met and if any of the doors become ajar and then closes again.

The power latches are also equipped with a thermal protection system which prevents the latches from burning out.

CENTRAL LOCKING SYSTEM

DESCRIPTION

The central locking system is part of the Vehicle Theft Security System. This feature allows the doors to be locked/unlocked all at once with the turn of the key in the drivers or passengers side door.

OPERATION

Using the key, turn the driver's or passenger door cylinder lock to the lock position, all doors will lock. This feature operates differently on each door. Turn key in the driver's door to the unlock position once will unlock driver's door only. Turning the key a second time to the unlock position within five seconds of the first time will unlock all doors. Turn key once in the passenger's door to the unlock position will unlock all doors.

The lock/unlock operation will arm/disarm the Vehicle Theft Security System and will also activate/cancel the illuminated entry feature.

DOOR LOCK INHIBIT FEATURE

DESCRIPTION

The door lock inhibit feature is designed to prevent the locking of keys in a vehicle. The drivers door cannot be locked unless the keys are removed from the ignition switch.

OPERATION

With the key in the ignition switch in the ON or OFF position and the driver's door open the BCM will ignore the command to lock the power door locks. Once the key is removed, or the driver's door is closed, the body control module will allow the power door locks to lock.

DIAGNOSIS AND TESTING

AUTOMATIC DOOR LOCK SYSTEM

For complete testing of the Automatic Door Lock System, refer to the proper Body Diagnostic Procedures Manual.

DECK LID

For vehicles equipped with electric deck lid release.

(1) Confirm deck lid release solenoid lead wire is connected to the deck lid relay. Check at the deck lid release solenoid for 10 volts or more while the relay is energized. Ensure that the visor lamps are operating they are on the same G38 circuit.

(2) Check for a proper ground through latch mounting screws and the Pin 14 of the BCM 20-way connector.

(3) Remove latch and examine plunger. Plunger should spring back when pressed.

(4) Insure that solenoid plunger travel is adequate approximately 16 mm (5/8 inch).

DOOR LOCK MOTOR/LATCH

Ensure battery is in good condition before performing the circuit tests.

To determine which latch is faulty, check each individual door for electrical lock and unlock or disconnect the latch connectors one at a time, while operating the door lock switch. In the event that none of the latches work, the problem maybe caused by a short or a bad switch. Disconnecting the defective latch will allow the others to work.

To test an individual door latch, disconnect the electrical connector from the latch. To lock the door, connect a 12 volt power source to the positive pin of the latch and a ground wire to the other pin (Fig. 1). To unlock the door reverse the wire connections at the latch pin terminals. If these results are NOT obtained, replace the door latch assembly.

DOOR LOCK SWITCH

Remove the door lock switch from its mounting location. Refer to Door Lock Switch Removal and Installation procedures. Using an ohmmeter, test door lock switch continuity. Refer to (Fig. 2) and move the switch to the Lock and Unlock positions. If the resistance values are not obtained, replace the switch.

VOLTAGE

The following circuit test sequence determines whether or not voltage is continuous through the body harness to switch.

(1) Remove the driver door trim panel. Refer to Group 23, Body for proper procedures.

(2) Carefully separate multiple terminal block on wiring harness from switch body. Refer to Group 8W, Wiring Diagrams.

(3) Using a voltmeter, connect the ground lead to the Pin 3 of the door lock connector.

(a) Using the positive lead, check Pin 1 of the connector for battery voltage. If OK, go to Step b. If not OK, check fuse #5 in the Junction Block, and fuse #4 in the Power Distribution Center. If the fuse is OK, repair wire as necessary.

DIAGNOSIS AND TESTING (Continued)

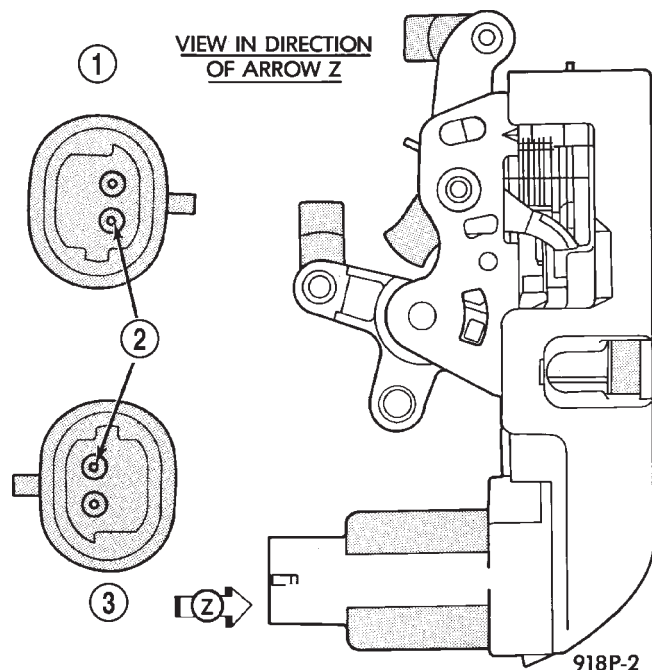


Fig. 1 Door motor/Latch Assembly

- 1 - RH
- 2 - + TO LOCK
- 3 - LH

4 in the Junction Block, and fuse #16 in the Power Distribution Center. If the fuse is OK, repair wire as necessary.

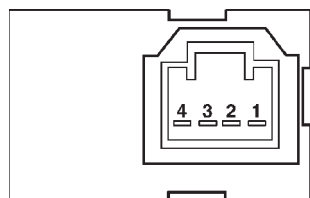
SERVICE PROCEDURES

AUTOMATIC DOOR LOCKS ENABLED/DISABLED

To disable the Automatic Door Lock feature, do the following:

- (1) Close all doors.
- (2) Place the ignition switch in the OFF position for at least 20 seconds.
- (3) Turn the ignition switch to the RUN position and to the OFF position without cranking the engine four times. The Malfunction lamp will come on each time the ignition switch is in the RUN position.
- (4) Press the power door lock button to lock the doors.
- (5) A single chime should sound to indicate that the feature has been changed successfully. If no chime, repeat procedure.

To enable the automatic feature, repeat Step 1 through Step 4.



SWITCH POSITION	CONTINUITY BETWEEN	RESISTANCE VALUE
UNLOCK	1 AND 4	2700 Ω $\pm$ 10%
LOCK	1 AND 4	620 Ω $\pm$ 10%

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Fig. 2 Door Lock Switch Continuity Test

(b) Check Pin 2 of the connector for battery voltage. If OK, go to Switch Test. If not OK, check fuse

REMOVAL AND INSTALLATION

DOOR LOCK MOTOR

The Door Lock Motor is integral to the door latch. For service of the Door Lock Motor, the door latch must be removed. Refer to Group 23 body, for Door Latch Removal and Installation.

DOOR LOCK SWITCH

REMOVAL

(1) Disconnect and isolate the battery negative remote cable.

(2) Start at the rear center of the bezel. Using your fingers or a trim stick, lift the bezel upwards and slightly inboard to disconnect the two rear clips (Fig. 3). Use care not to mar the door trim.

(3) With the rear of the bezel raised, pull the forward end up to release the third clip.

(4) Disconnect the power window switches and door lock switch wire connectors.

(5) Release the locking tabs and remove door lock switch.

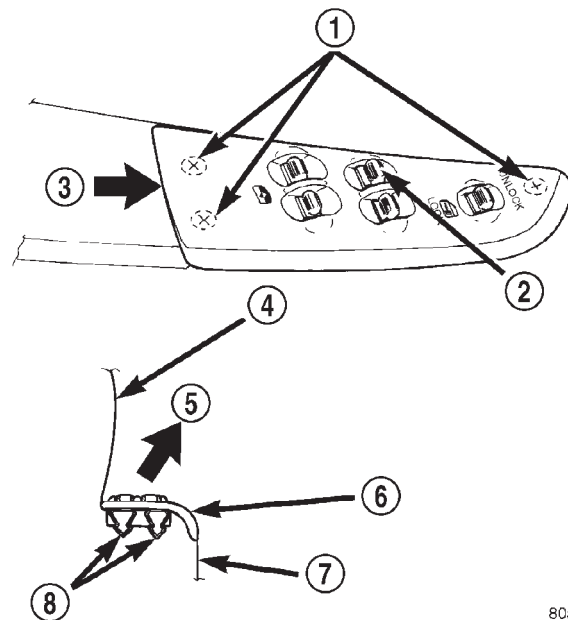
INSTALLATION

For installation, reverse the above procedures.

ADJUSTMENTS

DECK LID

Adjust the deck lid latch and striker so that deck lid latches with a moderate slam. Push deck lid release switch and the deck lid should release.



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Fig. 3 Door and Switch Bezel

- 1 - LOCATION OF BEZEL TO DOOR TRIM CLIPS UNDERNEATH
- 2 - AUTO
- 3 - LIFT POINT
- 4 - DOOR TRIM
- 5 - LIFT UPWARD & INBOARD IN THE DIRECTION OF ARROW
- 6 - SWITCH & BEZEL ASSEMBLY
- 7 - DOOR TRIM (ARMREST AREA)
- 8 - CLIPS

Should latch fail to lock or unlock replace latch assembly.

REMOTE KEYLESS ENTRY

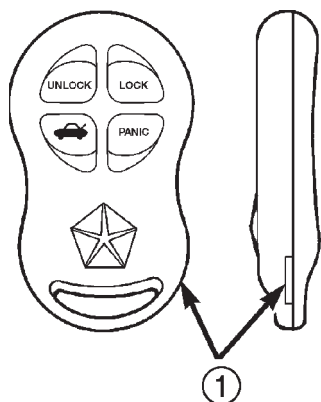
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DESCRIPTION AND OPERATION

REMOTE KEYLESS ENTRY SYSTEM

DESCRIPTION



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Fig. 1 Remote Keyless Entry (RKE) Transmitter

1 – INSERT DIME

The Remote Keyless Entry (RKE) System allows locking/unlocking of vehicle door(s), unlatching of the deck lid, and a panic feature 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 pro-

grammed 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 in this section.

OPERATION

The key fob transmitter has four buttons for operation. They are LOCK, UNLOCK, DECK LID RELEASE, and PANIC.

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 RELEASE will unlatch the deck lid. Opening the deck lid will not disarm the Vehicle Theft Security System (VTSS), but will allow the customer to access the trunk without the VTSS going off.
- PANIC button will start the panic mode when the button is pressed for more than one second. The driver door will unlock. The horn will sound and the headlamps flash approximately once a second. The interior lamps will come ON. The PANIC mode can be cancelled by pressing the unlock button, or will time out in approximately three minutes.

NOTE: PANIC mode is cancelled when the vehicle speed reaches 15 mph.

DESCRIPTION AND OPERATION (Continued)

The BCM is capable of retaining Vehicle Access Code (VAC) even when power is removed.

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

DECK LID RELEASE RELAY**DESCRIPTION**

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).

OPERATION

The relay is energized from either the deck lid release switch or from the BCM from a signal from the Remote RKE fob transmitter.

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:

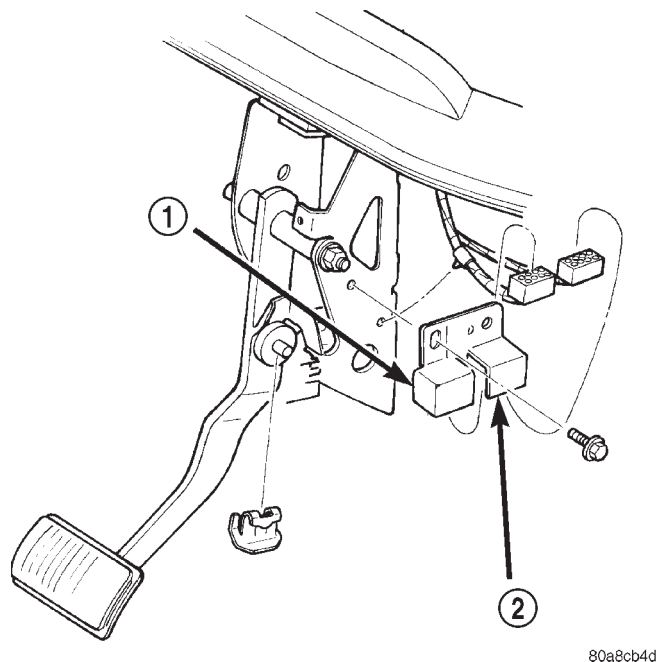


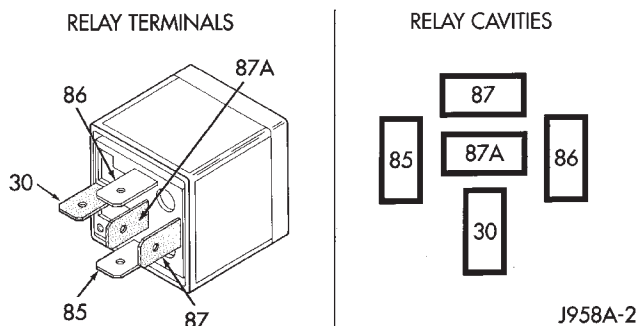
Fig. 2 Deck Lid Release Relay Location

- 1 - COURTESY ILLUMINATION LAMP RELAY
2 - DECK LID RELEASE RELAY

(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. 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.



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 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.

DIAGNOSIS AND TESTING (Continued)

(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

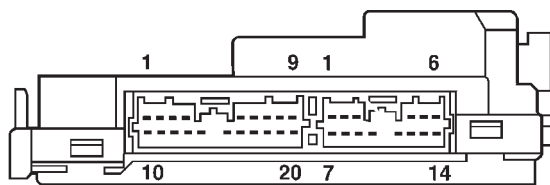
A blown fuse is the probable cause. The Body Control Module (BCM) battery feed fuse are located in the Power Distribution Center (PDC). Check fuses 4, 15 and 18 in the PDC and fuses 4, 5 and 9 in the Junction Block.

Key fob transmitter will not lock or unlock doors.

- (1) Check that the BCM has power and ground.
- (2) If the RKE still doesn't function. Check the key fob transmitter batteries for 3 Volts each. If less than 3 Volts, replace the battery.
- (3) If the system still does not work, replace the key fob transmitter. Refer to Programing 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.

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 (Fig. 3). 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.

DIAGNOSIS AND TESTING (Continued)

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 DRB III® scan tool must be used to enable/disable the Horn Chirp. Refer to the DRB III® scan tool for the procedure.

PROGRAMMING RKE MODULE

The DRB III® and the transmitter must be used to program the Remote Keyless Entry Module. Refer to the DRB III® for the procedure.

SYNCHRONIZATION OF ROLLING CODE

The key fob transmitter code will go out of synchronization if any button is pressed 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 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 is for a key fob transmitter that has been previously programmed to this vehicle only.

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 batteries are Toshiba CR2016 or equivalent. Battery life is about one to two years.

REMOVAL AND INSTALLATION

BODY CONTROL MODULE (BCM)

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

DECK LID RELEASE RELAY**REMOVAL**

(1) Disconnect and isolate the battery negative remote cable.

(2) The relay is located above the brake pedal to the right side (Fig. 2).

(3) 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.

JUNCTION BLOCK (JB)

Refer to Group 8O, Power Distribution Systems for Removal and Installation.

SPECIFICATIONS

TRANSMITTER CONTROL RANGE

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