

POWER LOCK SYSTEMS

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POWER DOOR LOCKS

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GENERAL INFORMATION

INTRODUCTION

All doors can be locked or unlocked electrically by operating the switch on either front door panels.

The rear doors can be locked or unlocked by actuation of the front door switch, or can be locked or unlocked mechanically and independently with their respective locking knobs.

The front doors can be locked or unlocked mechanically with the locking knob regardless of electrical locking and unlocking actuation with the front door knobs.

The right and left front door on all vehicles can be locked or unlocked mechanically from the outside with the key or electrically as described above. The left front can also be unlocked by actuation of the inside remote door handle. The right front door can be unlocked by actuation of the inside remote door handle.

DESCRIPTION AND OPERATION

AUTOMATIC DOOR LOCKS

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

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.

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. Also, 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

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.

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

The central locking system is part of the Vehicle Theft Security System. Using the key, turn the driv-

DESCRIPTION AND OPERATION (Continued)

er'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.

CHILD PROTECTION LOCK

The child protection locks are on the rear doors only. The lock when engaged, will disable the inside door handle from opening the door. The lock is part of the latch/lock assembly. The lock is engaged by moving a lever that is located on the rearward inside edge of the door.

DOOR LOCK INHIBIT

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.

KEYLESS ENTRY SYSTEM

The system allows locking and unlocking of vehicle door(s) by remote control using a hand held radio transmitter.

DIAGNOSIS AND TESTING

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.

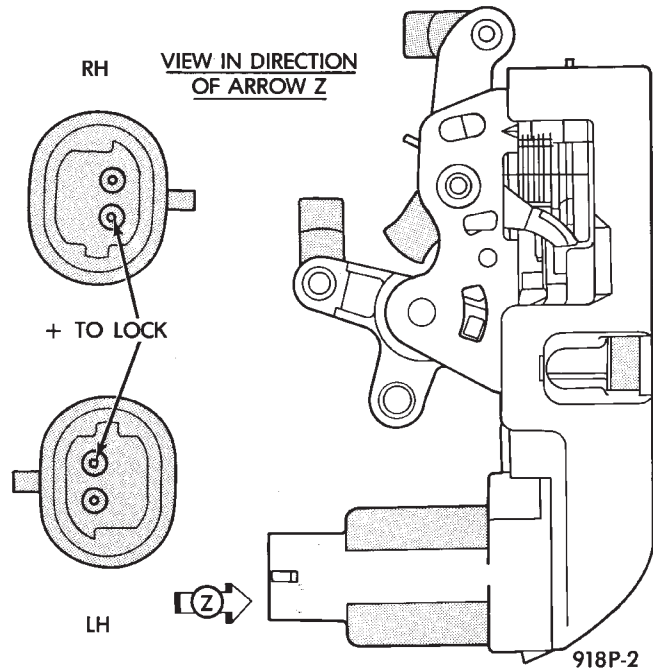
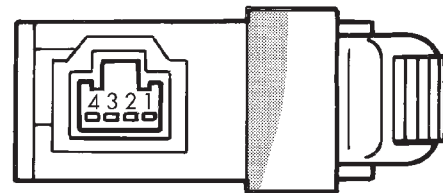


Fig. 1 Door motor/Latch Assembly

DOOR LOCK SWITCH

Remove the switch from its mounting location. 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.



SWITCH POSITION	CONTINUITY BETWEEN	RESISTANCE VALUE
UNLOCK	1 and 4	2700 Ω ± 10%
LOCK	1 and 4	620 Ω ± 10%

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Fig. 2 Door Lock Switch Continuity Test

DOOR LOCK SYSTEM

For complete testing of the automatic door lock systems, refer to the proper Body Diagnostic Procedures Manual.

DIAGNOSIS AND TESTING (Continued)

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.

(b) Check Pin 2 of the connector for battery voltage. If OK, go to Switch Test. If not OK, check fuse 4 in the Junction Block, and fuse #16 in the Power Distribution Center. If the fuse is OK, repair wire as necessary.

REMOVAL AND INSTALLATION**DOOR LOCK MOTOR/LATCH****REMOVAL**

(1) Remove door trim panel, refer to Group 23 Body, for removal procedures.

(2) Disconnect motor/latch wire connector (Fig. 1).

(3) Disconnect linkage from:

- Outside door handle
- Inside door handle
- Locking knobs
- Key cylinder

(4) Remove motor/latch assembly attaching screws and remove assembly.

INSTALLATION

For installation, reverse the above procedures.

DOOR LOCK SWITCH**REMOVAL**

(1) Remove door trim panel, refer to Group 23 Body, for removal procedures.

(2) Disconnect switch wire connector.

(3) Remove switch attaching screws and remove.

INSTALLATION

For installation, reverse the above procedures.

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 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.

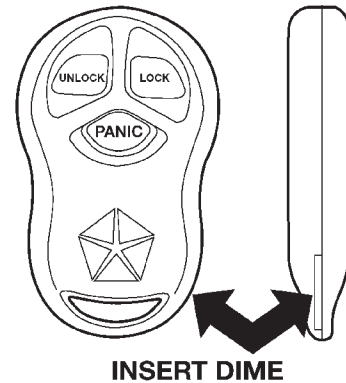
- LOCK button, the horn will sound a short CHIRP to notify that the all door lock signal was

received and set. The illuminated entry operation will be cancelled and all interior lamps will immediately turn OFF.

- 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 canceled by pressing the unlock button, or will time out in approximately three minutes.

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.



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Fig. 1 Remote Keyless Entry (RKE) Transmitter

DESCRIPTION AND OPERATION

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.

DIAGNOSIS AND TESTING

DIAGNOSTIC CONDITIONS

Refer to (Fig. 2) for internal BCM relay configuration.

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 battery(s) for 3 Volts each. If less than 3 Volts, replace the battery(s).

(3) If the system still does not work, replace the key fob transmitter. Refer to Programing Remote Keyless Entry Key Fob Transmitter.

(4) Check country code setting in BCM. Set to U.S. or Canada.

All doors will not unlock with the key fob transmitter.

(1) With the driver's door in the unlocked position. 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 BCM. If voltage is measured, repair the harness between the BCM and the driver door latch.

(3) Check Pins 1, 2, and 3 of the BCM 20 Pin connector for quick voltage pulse when the unlock button is pressed twice within a 5 second interval.

(4) If no voltage pulse is measured at Pin 1, 2, and/or 3, replace the BCM. If voltage is measured repair the harness between terminal and door latch.

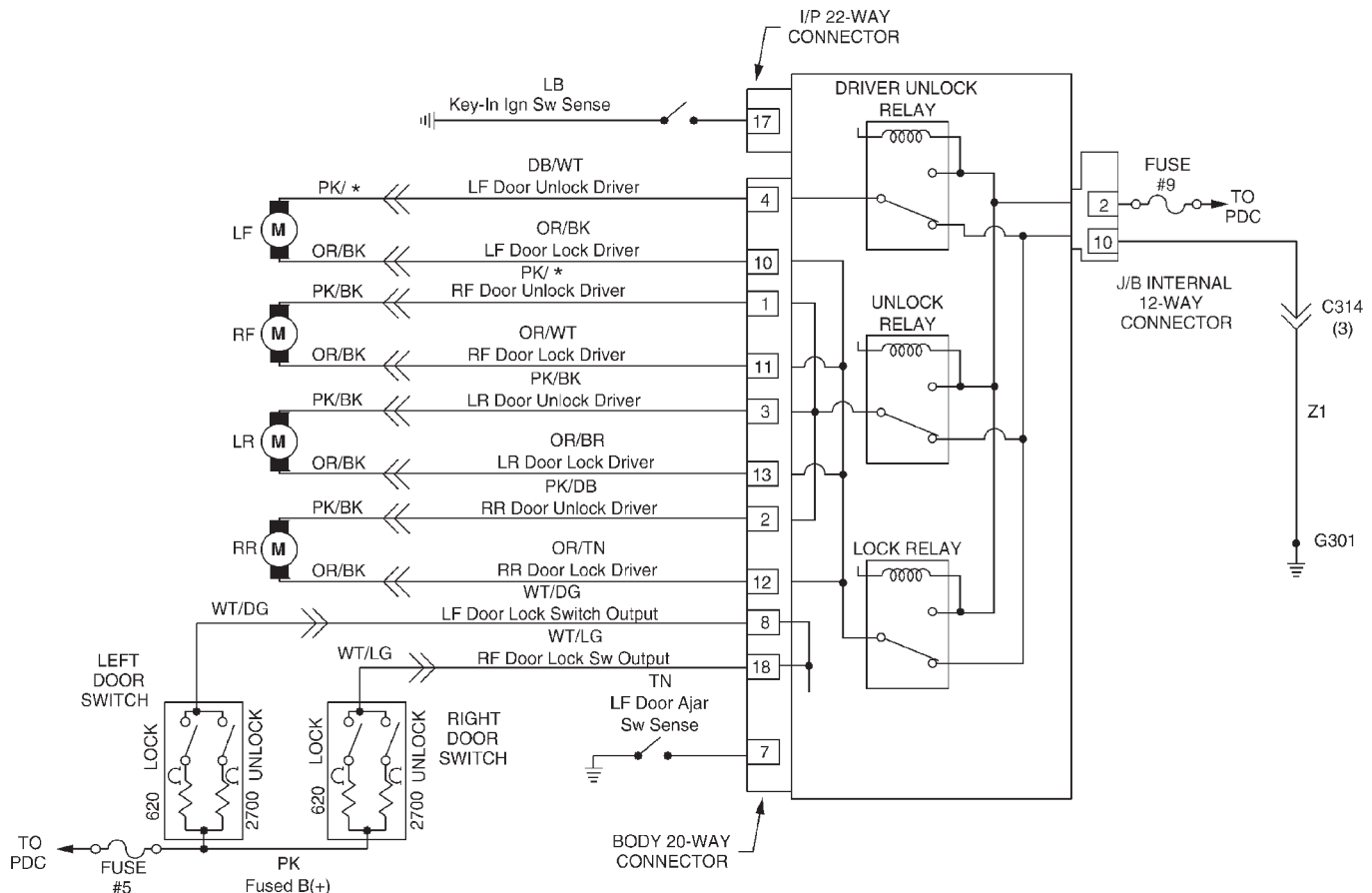
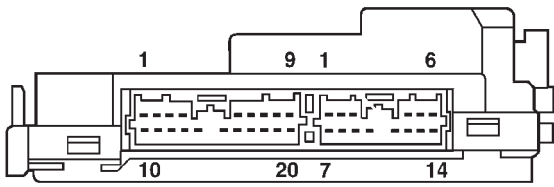


Fig. 2 Internal BCM Lock/Unlock Relay Configuration

DIAGNOSIS AND TESTING (Continued)



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Fig. 3 BCM 20-Way Connector

Driver doors will NOT unlock with the key fob transmitter, but other doors unlock.

(1) With the driver's door in the unlocked position. 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 all other doors will not unlock.

(1) With the driver's door in the unlocked position. Using a voltmeter, check Pin 1, 2, and 3 of the BCM 20 Pin connector for a voltage pulse (Fig. 3). Press the unlock button twice, within a 5 second interval.

(2) If no voltage pulse is measured, replace the BCM. If voltage is measured, repair the harness to the unlock relay.

All doors do not lock with the key fob transmitter.

(1) Using a voltmeter, check Pins 10, 11, 12 and 13 of the BCM 20 Pin connector for a voltage pulse (Fig. 3). Press the lock button on the key fob 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 harness to the lock relay.

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, first verify at the horn is enabled using a DRB III® scan tool. 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.

CAUTION: Be careful not to short the relay terminals together. Doing so will cause BCM damage and then module replacement.

(4) If no voltage pulse measured, replace the BCM. If voltage is measured, repair the Junction Block as necessary.

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

Check BCM country code setting and 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.

REMOVAL AND INSTALLATION

JUNCTION BLOCK/BODY CONTROL MODULE

Refer to Group 8E, Instrument Panel and Systems.

JUNCTION BLOCK (JB)

Refer to Group 80, Power Distribution 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.

SYNCHRONIZATION OF ROLLING CODE

Pressing any button twice on the transmitter will cause it to re-synchronize.

SPECIFICATIONS

TRANSMITTER CONTROL RANGE

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