# POWER DOOR LOCKS

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## POWER DOOR LOCKS

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## GENERAL INFORMATION

### INTRODUCTION

The Body Control Module (BCM) locks or unlocks the doors when an actuation input signal from a door lock switch or Remote Keyless Entry Module (RKE) is received. The BCM signals lock and unlock relays in the Junction Block to actuate the door lock motors. The front doors, sliding door(s) and liftgate are equipped with actuator motors to lock or unlock the latch mechanisms. The front door lock actuator motor is not serviced separately from the door latch. The BCM locks the doors and liftgate automatically when the vehicle is driven beyond the speed of 25.7 Km/h (16 mph). The automatic door lock feature can be disabled if desired. All doors and liftgate can be locked or unlocked using mechanical button or key cylinder methods.

## DESCRIPTION AND OPERATION

### AUTOMATIC DOOR LOCK FEATURE

The vehicle comes with two options for power door locks:

- Rolling automatic lock (ENABLE), doors automatically lock at approximately at 25.7 Km/h (16 mph).
- No rolling automatic lock (DISABLE), doors do not automatically lock when the vehicle is moving.

The BCM is equipped with a disable feature to stop the speed sensitive automatic door locks from functioning. The DISABLE feature can be switched ON or OFF as desired. When the system is DISABLED the door locks will operate normally, but will not lock automatically when the vehicle is rolling. When the door locks are ENABLED the door locks will automatically lock when the vehicle is moving at about 25.7 Km/h (16 mph).

### DOOR LOCK CIRCUIT PROTECTION

The BCM controls the door lock relay's operation. If the door lock switch is actuated continuously for more than one second the BCM will interrupt the relay circuit. The door lock system is protected by a 40 amp fuse located in the Power Distribution Center (PDC). The LOCK and UNLOCK relays are located in the Junction Block. The Power Distribution Center is located along side of the battery. The lock motors are protected with Positive Temperature Coefficient (PTC) device that prevents motor burn out.

DESCRIPTION AND OPERATION (Continued)

### DOOR LOCK INHIBIT FEATURE

The BCM cancels out the door lock switch actuation, when the key is in the Ignition Switch and a door is open. After the key is removed from the Ignition Switch, or the doors are closed, the power door locks will operate normally.

### SLIDING DOOR LOCK MEMORY FEATURE

The door locks on the sliding door(s) can be actuated when the door(s) are closed. If the sliding door(s) are open when the door locks are actuated, the BCM will hold the lock command in memory until the door(s) is closed. When the door is closed and the door jamb terminals make contact, signaling the BCM to lock the sliding door(s) automatically. Actuating the door lock switch to the unlock position before the sliding door(s) are closed will cancel the lock request.

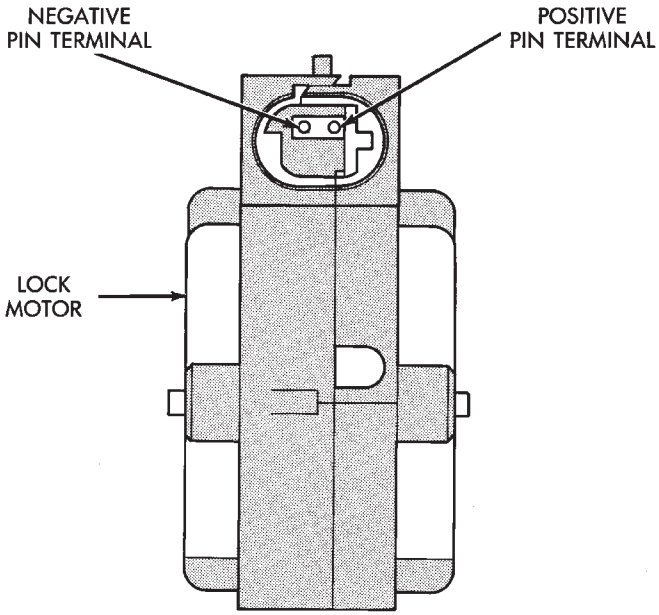


*Fig. 1 Sliding Door Lock Motor–Typical*

## DIAGNOSIS AND TESTING

### AUTOMATIC DOOR LOCK SYSTEM TEST

When using a scan tool (DRB) for testing the automatic door lock system, refer to the Body Diagnostic Procedures Manual. Refer to Group 8W, Wiring Diagrams for circuit information and component locations.

### DOOR LOCK MOTOR

Verify battery condition before testing door lock motor(s), refer to Group 8A, Battery for proper diagnosis procedures.

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

To test an individual door lock motor, disconnect the electrical connector from the motor. To lock the door, connect a 12 volt power source to the positive pin of the lock motor and a ground wire to the other pin (Fig. 1), (Fig. 2), (Fig. 3) and refer to Group 8W, Wiring Diagrams for pin locations. To unlock the door reverse the wire connections at the motor pin terminals. If these results are NOT obtained, replace the motor.

### DOOR LOCK SWITCH TEST

(1) Remove door lock switch bezel assembly from door. Refer to Group 23, Body for removal procedures.

(2) Disconnect wire connector from back of door lock switch.

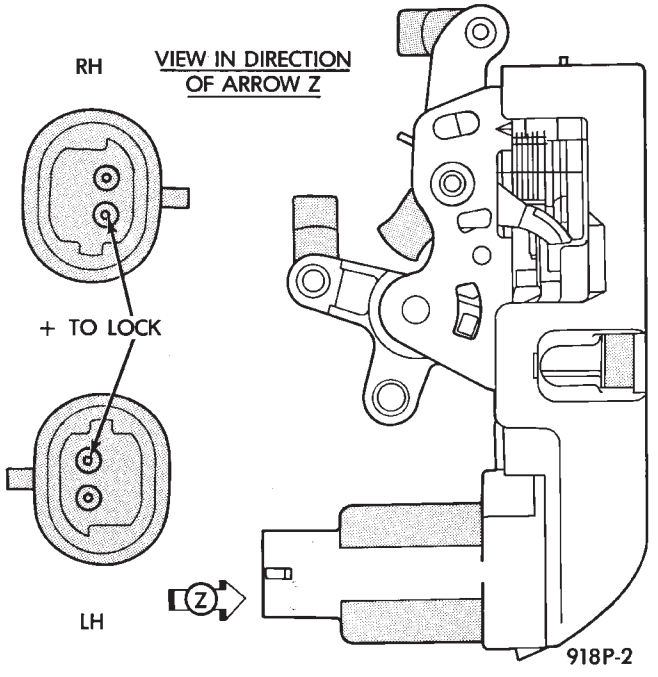


*Fig. 2 Front Door Lock Motor*

(3) Depress switch to LOCK position.

(4) Using an ohmmeter, test switch resistance between Pins 2 and 3. Refer to Door Lock Switch Test and (Fig. 4).

(5) Depress switch to UNLOCK position.

(6) Test resistance between Pins 2 and 3.

(7) If resistance values are not within the parameters shown replace the door lock switch.

SERVICE PROCEDURES (Continued)

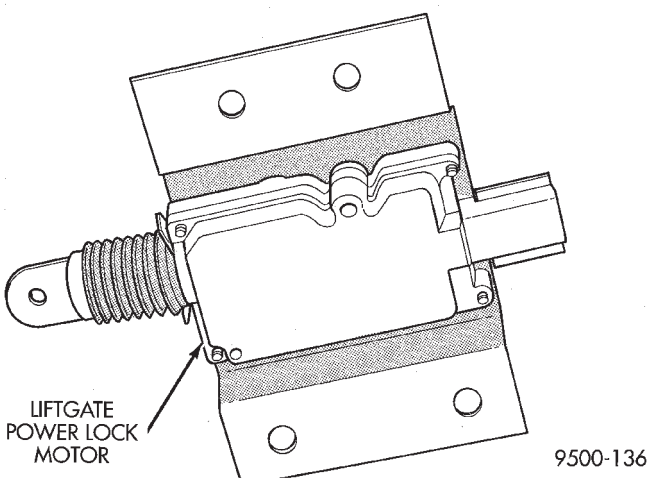


***Fig. 3 Lift Gate Release Assembly***

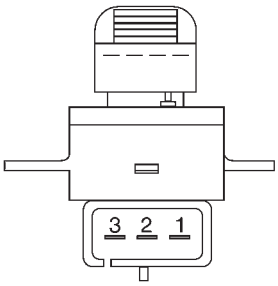


***Fig. 4 Door Lock Switch***

*DOOR LOCK SWITCH TEST*

| SWITCH POSITION | CONTINUITY BETWEEN | RESISTANCE VALUE |
|---|---|---|
| LOCK | 2 and 3 | 1.5K Ohm ± 1% |
| UNLOCK | 2 and 3 | 249 Ohm ± 1% |

## SERVICE PROCEDURES

### AUTOMATIC DOOR LOCKS DISABLE OR ENABLE

The vehicle comes with two options for power door locks:

- Rolling automatic lock, ENABLE approximately at 16 mph.
- No rolling automatic lock, DISABLE.

To change the automatic door lock selection, do the following:

(1) Close all doors.

(2) Place the ignition key in the OFF position for 20 seconds or more.

(3) Turn ignition key to the run position and to the OFF position without cranking the engine four times. The malfunction lamp will come on each time the key is in the run position.

(4) Press the door lock button to lock the doors. This procedure reverses the automatic door lock option, Enable to Disable, or Disable to Enable. If the present option is undesirable, repeat to arrive at the desired option.

## REMOVAL AND INSTALLATION

### FRONT DOOR LOCK MOTOR/LATCH

Refer to Group 23, Body for proper service procedures.

### LIFTGATE LOCK MOTOR

*REMOVAL*

(1) Remove liftgate trim panel.

(2) Remove bolts holding liftgate lock motor to liftgate (Fig. 5).

(3) Disconnect the wire connector from power lock motor.

(4) Disconnect the liftgate lock motor from outside handle lock link.

(5) Remove the liftgate lock motor from vehicle.

*INSTALLATION*

For installation, reverse the above procedures.

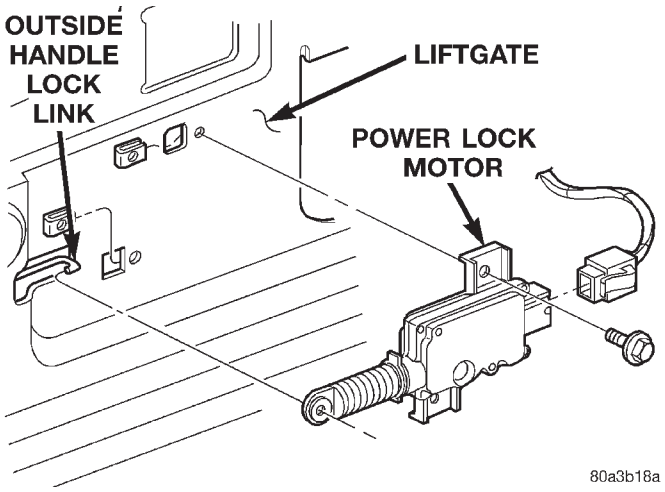


***Fig. 5 Liftgate Lock Motor***

### SLIDING DOOR LOCK CONTACTS

*REMOVAL*

(1) Open the sliding door.

(2) Remove screw holding the lock contacts to B-pillar (Fig. 6).

(3) Disconnect the wire connector from the lock contacts.

(4) Remove the lock contacts from B-pillar.

*INSTALLATION*

For installation, reverse the above procedures.

REMOVAL AND INSTALLATION (Continued)

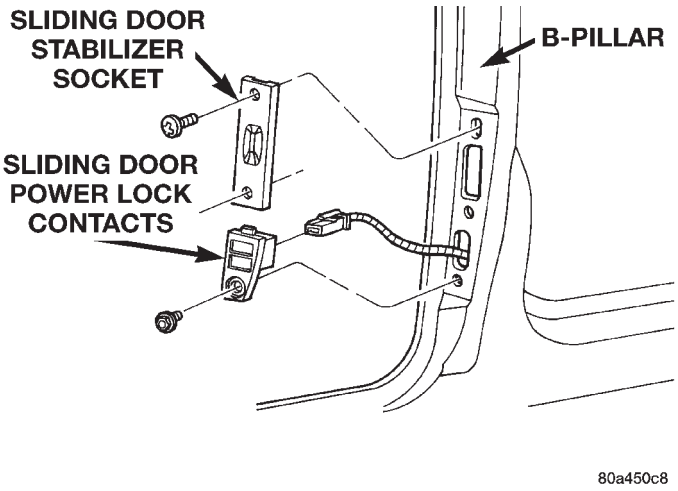


*Fig. 6 Sliding Door Lock Contacts*

## SLIDING DOOR LOCK MOTOR

*REMOVAL*

(1) Remove sliding door trim panel.
(2) Remove watershield as necessary.
(3) Remove latch/lock control cover.
(4) Remove latch/lock control.
(5) Remove screws holding door lock motor to latch/lock control (Fig. 7).
(6) Remove lock motor from control.

*INSTALLATION*

For installation, reverse the above procedures.

## SLIDING DOOR LOCK PLUNGER

*REMOVAL*

(1) Remove sliding door trim panel.
(2) Remove watershield as necessary to gain access to push-in fasteners holding sliding door lock plunger wiring harness to inner door panel.
(3) Make note of wiring harness routing to aid installation (Fig. 8).
(4) Remove push-in fasteners holding lock plunger wiring harness to inner door panel.
(5) Disconnect plunger wiring harness from sliding door lock motor.

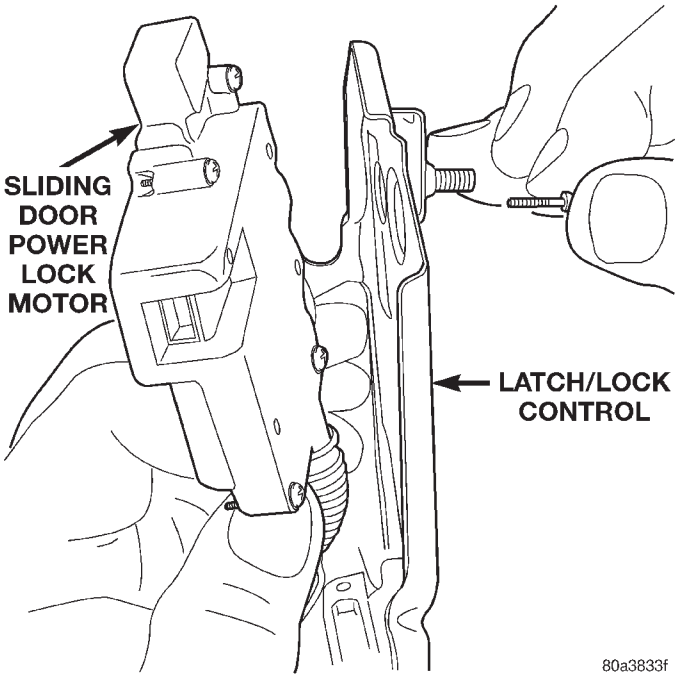


*Fig. 7 Sliding Door Lock Motor*

(6) Remove screw holding lock plunger to door frame (Fig. 8).
(7) Remove lock plunger from sliding door.

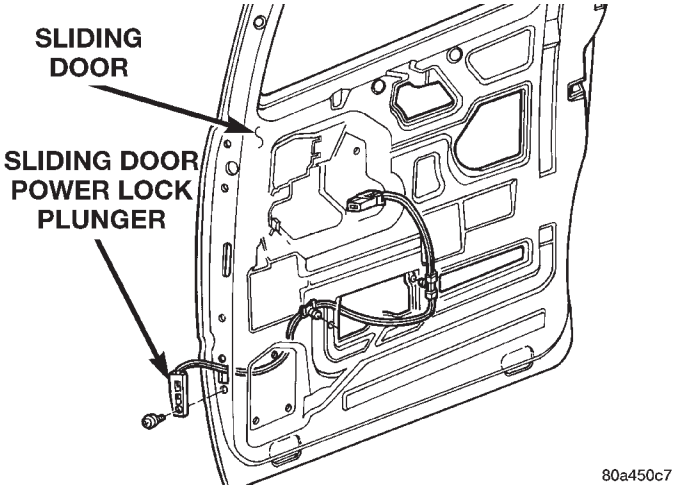


*Fig. 8 Sliding Door Lock Plunger*

*INSTALLATION*

For installation, reverse the above procedures.

# REMOTE KEYLESS ENTRY

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## DESCRIPTION AND OPERATION

### INTRODUCTION

The key fob transmitter has three buttons to actuate and program the Remote Keyless Entry (RKE) system (Fig. 1).

- UNLOCK: Pressing the UNLOCK button once will unlock the driver door and activate the illuminated entry system and disarm Vehicle Theft Security System, if equipped. Pressing the UNLOCK button twice within five seconds will unlock all doors and activate the illuminated entry system.
- LOCK: Pressing the LOCK button locks all doors and sounds horn (chirp) and arm the Vehicle Theft Security System. The chirp verifies the door lock operation.
- PANIC: Pressing the PANIC button sounds the horns at half second intervals, flashes the exterior lamps, and turns ON the interior lamps. The panic alarm will remain on for three minutes, or until the PANIC button is actuated again or the ignition switch is turned to the RUN position.
- The Remote Keyless Entry Module is capable of retaining the transmitter Vehicle Access Code(s) (VAC) in its memory even after vehicle power has been interrupted.
- The RKE system activates the optional memory seat and mirror system, if equipped. Two primary key fob transmitters can be programmed to actuate memory seat and mirror setting 1 or 2. Two additional key fob transmitters can be added, but they will not be able to operate the memory seat and mirror system. Refer to Group 8R, Power Seats and Group 8T, Power Mirrors for memory system information.

### VEHICLE ACCESS CODE (VAC) PROGRAMMING

The RKE module is capable of retaining up to four different Vehicle Access Codes. Whenever the vehicle battery power is interrupted the RKE Module will retain all vehicle access codes in its memory. When replacing or adding a key fob transmitter (maximum 4) a functional key fob transmitter is required to program the RKE Module to accept the new Vehicle Access Code. If a functional key fob transmitter is not available, a scan tool (DRB) can be used to program the RKE Module. Refer to the proper Body Diagnostic Procedures manual for Vehicle Access Code programming procedures using a scan tool.

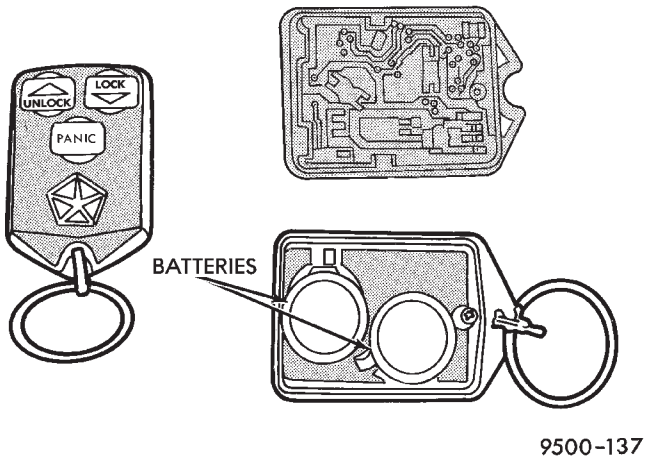


*Fig. 1 Key Fob Transmitter*

## DIAGNOSIS AND TESTING

### RKE DIAGNOSTICS

Refer to Group 8W, Wiring Diagrams for circuit information and component locations. Refer to the proper Body Diagnostic Procedures manual for testing the Remote Keyless Entry system using a scan tool (DRB). Also refer to other interrelated systems groups within this manual:

- Group 8Q, Vehicle Theft Security System
- Group 8R, Power Seats
- Group 8T, Power Mirrors

## SERVICE PROCEDURES

### HORN CHIRP DISABLE OR ENABLE

The horn chirp can be DISABLED or ENABLED using the following procedure.

To DISABLE (cancelling) the horn chirp feature, press and hold the transmitter LOCK button for a minimum four seconds. While pressing LOCK button in, press the UNLOCK button. The horn chirp feature will not function until the above procedure is repeated. To ENABLE (reinstate) the horn chirp feature, use any one of the four key fob transmitters and reverse the above procedures. It will ENABLE the horn chirp feature for all transmitters.

## REMOVAL AND INSTALLATION

### RKE MODULE

*REMOVAL*

(1) Remove instrument panel top cover. Refer to Group 8E, Instrument Panel and Gauges for proper procedures.

(2) Remove screws holding RKE module to instrument panel.

(3) Disconnect wire connector from RKE module (Fig. 2).

(4) Remove the RKE module.

*INSTALLATION*

For installation, reverse the above procedures.

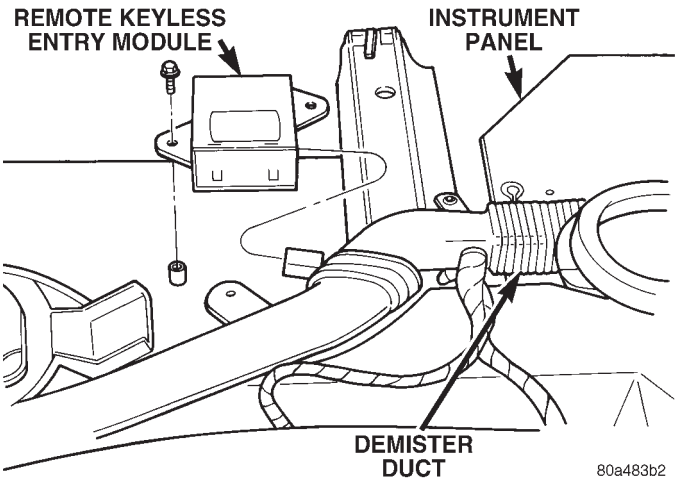


***Fig. 2 RKE Module***

## ADJUSTMENTS

### PROGRAMMING RKE MODULE

(1) Using a functional key fob transmitter, unlock the vehicle and disarm the Vehicle Theft Security System.

(2) Insert ignition key into the ignition switch.

(3) Turn the ignition switch to RUN position without starting engine.

(4) Using a functional key fob transmitter, press and hold the UNLOCK button for a minimum four seconds (maximum ten seconds).

(5) While holding UNLOCK button, and before ten seconds passes, press and release the PANIC button. A single chime will sound to verify that the RKE module is set to receive the new Vehicle Access Code(s).

(6) Within 30 seconds of the chime, press any button on each new key fob transmitter. After 30 seconds or when ignition switch is turned OFF, the RKE module will end the programming mode. A single chime will sound to verify that the RKE module will no longer receive additional Vehicle Access Code(s).

(7) When Vehicle Access Code(s) programming is complete, turn Ignition Switch to the OFF position and verify RKE system operation using each key fob.

**NOTE: Only the primary (first two) key fob transmitters will operate the memory seat and mirror systems. If a primary key fob is being replaced, the memory seat and mirror module will require programming. Refer to Group 8R, Power Seats for proper (data link) programming procedure.**

## SPECIFICATIONS

### RKE TRANSMITTER BATTERY

The batteries can be removed without special tools and are readily available at local retail stores. The recommended battery is Duracell DL 2016 or equivalent. Battery life is about one to two years.

**CAUTION: Do not touch the battery terminals or handle the batteries any more than necessary. Hands must be clean and dry.**

### RKE TRANSMITTER RANGE

Normal operation range is up to about a distance of 7 meters (23 ft.) of the vehicle. Range may be better or worse depending on the environment around the vehicle. Closeness to a radio frequency transmitter such as a radio station tower may degrade operational range, while range in an open field will be enhanced.