

2007 ACCESSORIES AND EQUIPMENT**Power Locks - Service Information - Nitro****POWER LOCKS - SERVICE INFORMATION****DESCRIPTION****POWER LOCKS****POWER LOCKS**

The power lock system allows all of the doors and the tailgate to be locked or unlocked electrically by operating a switch on either front door trim panel. The power lock system receives non-switched battery current through a fuse in the Totally Integrated Power Module (TIPM), so that the power locks remain operational, regardless of the ignition switch position.

The TIPM locks the doors and tailgate automatically when the vehicle is driven beyond the speed of 25.7 Km/h (15 mph), all doors are closed and the accelerator pedal is depressed. The rolling door lock feature can be disabled if desired.

This vehicle also offers several customer programmable features, which allows the selection of several optional electronic features to suit individual preferences.

The power lock system for this vehicle can also be operated remotely using the available Remote Keyless Entry (RKE) system radio frequency transmitters, if equipped.

Certain functions and features of the power lock system rely upon resources shared with other electronic modules in the vehicle over the Controlled Area Network (CAN). For proper diagnosis of these electronic modules or of the CAN, the use of a scan tool and the appropriate diagnostic information are required.

REMOTE KEYLESS ENTRY

The RKE system allows the use of a remote battery-powered radio transmitter to signal the TIPM to actuate the power lock system. The RKE receiver operates on non-switched battery current through a fuse in the TIPM, so that the system remains operational, regardless of the ignition switch position.

Certain RKE transmitters are also equipped with a Panic button. If the Panic button on the RKE transmitter is depressed, the horn will sound and the exterior lights will flash on the vehicle for about three minutes, or until the Panic button is depressed a second time. A vehicle speed of about 25.7 Km/h (15 mph) will also cancel the panic event.

The RKE system can also perform other functions on this vehicle. If the vehicle is equipped with the optional Vehicle Theft Security System (VTSS), the RKE transmitter will arm the VTSS when the Lock button is depressed, and disarm the VTSS when the Unlock button is depressed.

The RKE system includes two transmitters when the vehicle is shipped from the factory, but the system can

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retain the vehicle access codes of up to four transmitters. The transmitter codes are retained in the RKE receiver memory, even if the battery is disconnected. If an RKE transmitter is faulty or lost, new transmitter vehicle access codes can be programmed into the system using a scan tool.

This vehicle also offers several customer programmable features, which allows the selection of several optional electronic features to suit individual preferences. Customer programmable feature options affecting the RKE system include:

- **Remote Unlock Sequence** - Allows the option of having only the driver side front door unlock when the RKE transmitter Unlock button is depressed the first time. The remaining doors and the tailgate unlock when the button is depressed a second time within 5 seconds of the first unlock press. Another option is having all doors and the tailgate unlock upon the first depression of the RKE transmitter Unlock button.
- **Sound Horn on Lock** - Allows the option of having the horn sound a short chirp as an audible verification that the RKE system received a valid Lock request from the RKE transmitter, or having no audible verification. This feature is not available on export vehicles.
- **Flash Lights with Lock and Unlock** - Allows the option of having the lights flash as an optical verification that the RKE system received a valid Lock request or Unlock request from the RKE transmitter, or having no optical verification.
- **Programming Additional Transmitters** - Allows up to four transmitter vehicle access codes to be stored in the receiver memory. This feature is not available on export vehicles.

Certain functions and features of the RKE system rely upon resources shared with other electronic modules in the vehicle over the Controlled Area Network (CAN). For diagnosis of these electronic modules or of the CAN, the use of a scan tool and the appropriate diagnostic information are required.

COMBINATION FLASHER

This flasher can be energized by the TIPM to flash all of the park/turn signal lamps as an optical alert for the RKE panic function and if the Flash Lights with Lock/Unlock programmable feature is enabled, as an optical verification for the RKE lock/unlock event.

LOW BEAM HEADLAMP RELAY

This relay can be energized by the TIPM to flash the headlamp low beams as an optical alert for the RKE panic function.

OPERATION

POWER LOCKS

POWER LOCKS

The Totally Integrated Power Module (TIPM) locks or unlocks the doors when an actuation input signal from a door lock switch or Remote Keyless Entry Module (RKE) is received. The TIPM turns on the output drivers and provides a voltage level to the door lock motor for a specified time. All passenger doors can be locked or unlocked using a mechanical button mounted on the door trim panel. The front passenger doors and tailgate can be locked or unlocked by using the key cylinder (tailgate cylinder does not lock/unlock vehicle. It only unlocks

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the tailgate). The tailgate will lock and can not be unlocked if the rear wiper switch is activated (this prevents the wiper from operating when the tailgate is ajar). The tailgate will also lock if battery power is lost and then restored.

AUTOMATIC DOOR LOCKS

When the automatic door locks are **ENABLED** the door locks will lock when the vehicle is moving at about 25.7 Km/h (15 mph), all doors are closed and the accelerator pedal is depressed. This 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. Once the automatic door locks have been actuated, they will not try to lock the doors again until a door is opened.

DOOR LOCK INHIBIT

If the key is in the ignition, in any position, and either front door is ajar, the doors can not be locked, but the unlock function still operates. Pressing the RKE lock/unlock button under these conditions will result in a normal lock/unlock activation.

After the key is removed from the Ignition Switch, or the doors are closed, the power door locks will operate normally.

DOOR LOCK CIRCUIT PROTECTION

The TIPM controls the door lock relays. If the door lock switch is actuated continuously for more than five seconds the TIPM will turn the output driver **OFF** (the TIPM would consider the switch stuck). Each lock motor is protected with a Positive Temperature Coefficient device that prevents motor burn out.

REMOTE KEYLESS ENTRY

LOCK : Pressing the **LOCK** button locks all doors, sounds horn (chirp) if enabled, and arms the Vehicle Theft Security System, if enabled. The chirp verifies that the RKE receiver has sent a message to the TIPM for door lock operation. If a door has not been closed before pressing the **LOCK** button, the vehicle may not be secured and the VTSS (if equipped) will not arm until the door is closed.

UNLOCK : Pressing the **UNLOCK** button once will unlock the driver's 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.

PANIC : If equipped, 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) in its memory even after vehicle power has been interrupted.

DIAGNOSIS AND TESTING

POWER LOCKS

The Totally Integrated Power Module (TIPM) enters a reduced power mode after the key is turned OFF. All diagnosis and testing of the power lock system must be done with the key in the ON position unless otherwise stated.

The most reliable, efficient, and accurate means to diagnose the power lock system requires the use of a scan tool and the proper Diagnostic article. The scan tool can provide confirmation that the CAN data bus is functional, that all of the electronic modules are sending and receiving the proper messages on the CAN data bus, and that the power lock motors are being sent the proper hard wired outputs by the relays for them to perform their power lock system functions.

Following are tests that will help to diagnose the hard wired components and circuits of the power lock system. However, these tests may not prove conclusive in the diagnosis of this system. In order to obtain conclusive testing of the power lock system, the Controlled Area Network (CAN) and all of the electronic modules that provide inputs to, or receive outputs from the power lock system components must be checked.

The TIPM will set Diagnostic Trouble Codes (DTC) for the power lock system.

Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

PRELIMINARY DIAGNOSIS

As a preliminary diagnosis for the power lock system, note the system operation while you actuate both the Lock and Unlock functions with the power lock switches and with the Remote Keyless Entry (RKE) transmitter. Then, proceed as follows:

If the entire power lock system fails to function with either the power lock switches or the RKE transmitter, check the fused B(+) fuse in the Junction Block (JB).

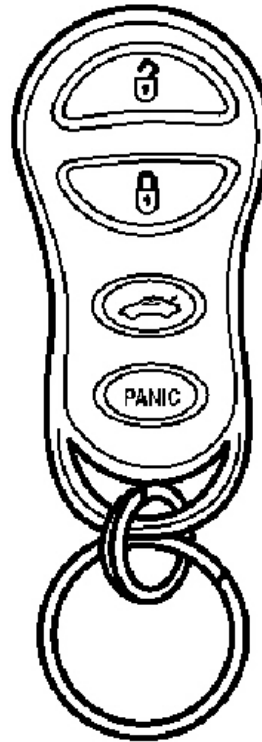
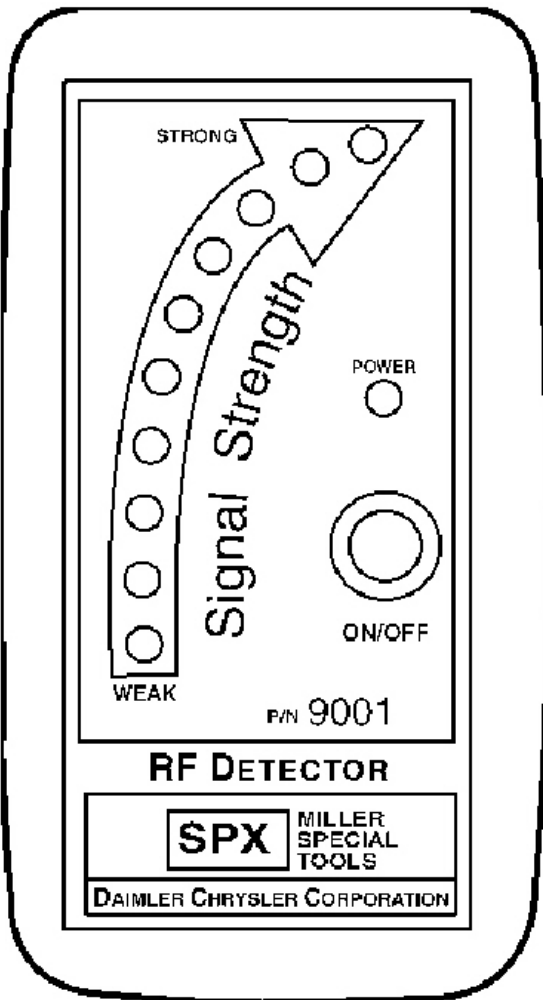
If the power lock system functions with both power lock switches, but not with the RKE transmitter, proceed to diagnosis of the Remote Keyless Entry (RKE) system. See **DIAGNOSIS AND TESTING**.

If the driver side power lock switch operates only the driver side front door power lock motor, but all other power lock motors operate with the passenger side power lock switch or the RKE transmitter, use a scan tool and the appropriate diagnostic information to diagnose the Controlled Area Network (CAN).

If only one power lock motor fails to operate with both power lock switches and the RKE transmitter, proceed to diagnosis of the power lock motor. See **DIAGNOSIS AND TESTING**.

SPECIAL TOOLS

SPECIAL TOOLS



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Fig. 1: Testing Remote Keyless Entry Transmitter
Courtesy of CHRYSLER LLC

DOOR LOCK/UNLOCK SWITCH

REMOVAL

DOOR LOCK/UNLOCK SWITCH

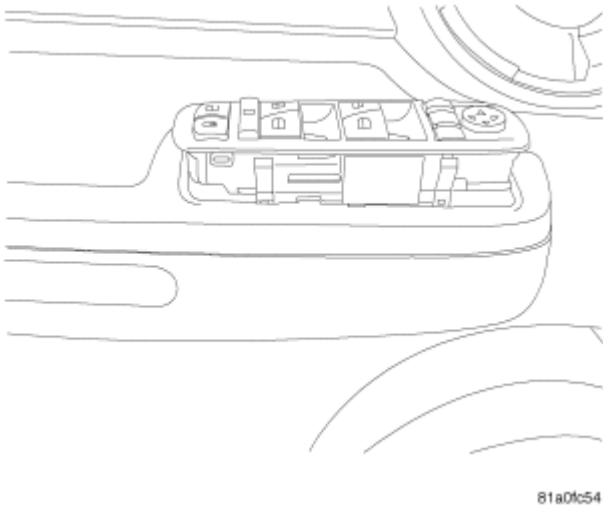


Fig. 2: Door Lock/Unlock Switch
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Gently pry the switch from the door trim panel.
3. Disconnect electrical harness connector from switch.

INSTALLATION

DOOR LOCK/UNLOCK SWITCH

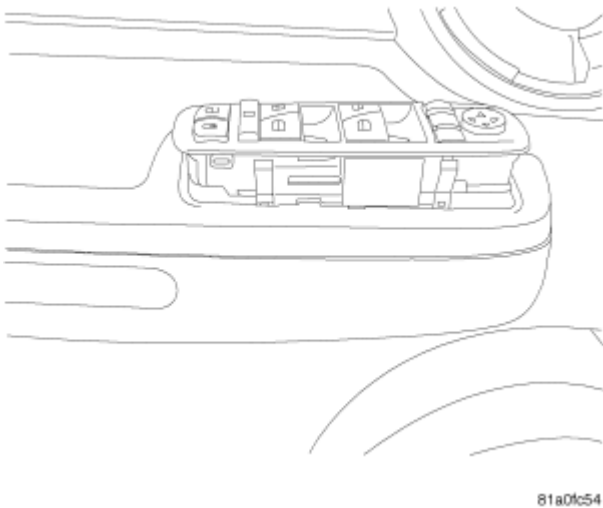


Fig. 3: Door Lock/Unlock Switch
Courtesy of CHRYSLER LLC

1. Connect the electrical harness connector to the switch.
2. Press the switch into place.
3. Connect the battery negative cable.

DOOR LOCK MOTOR**DESCRIPTION****DOOR LOCK MOTOR**

The lock mechanisms are actuated by a reversible electric motor mounted within each door and tailgate. The power lock motors are integral to the door latch units.

The power lock motors cannot be adjusted or repaired and, if faulty or damaged, the door latch unit must be replaced.

OPERATION**DOOR LOCK MOTOR**

The door lock motors are controlled by relays. A positive and negative battery connection to the two motor terminals will cause the motor to move in one direction. Reversing the current will cause the motor to move in the opposite direction.

DIAGNOSIS AND TESTING**DOOR LOCK MOTOR**

The most reliable, efficient, and accurate means to diagnose the power lock system requires the use of a scan tool and the proper Diagnostic article. Refer to the appropriate wiring information.

REMOTE KEYLESS ENTRY MODULE**REMOVAL****REMOTE KEYLESS ENTRY MODULE**

Refer to **REMOVAL** .

INSTALLATION**REMOTE KEYLESS ENTRY MODULE**

Refer to **INSTALLATION** .

REMOTE KEYLESS ENTRY TRANSMITTER**DIAGNOSIS AND TESTING****REMOTE KEYLESS ENTRY TRANSMITTER**

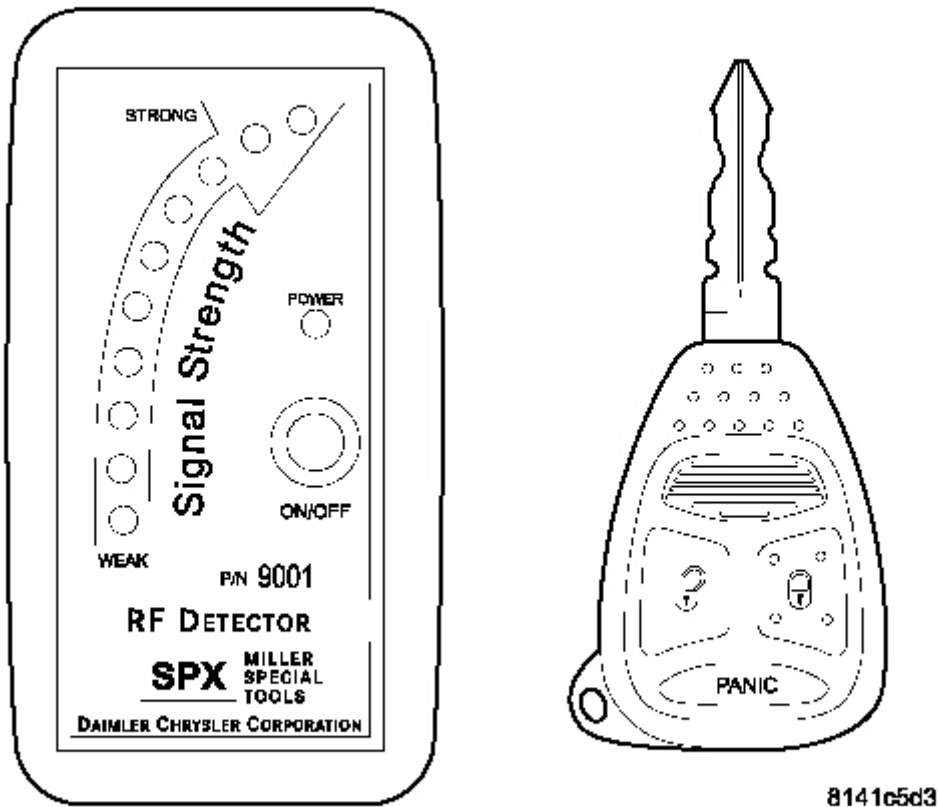


Fig. 4: Remote Keyless Entry Transmitter
Courtesy of CHRYSLER LLC

Using special tool 9001, first test to ensure that the transmitter is functioning. Typical testing distance is 2.5 centimeters (1 inch) for Asian transmitters and 30.5 centimeters (12 inches) for all others. To test, position the transmitter as shown. Press any transmitter button, then test each button individually. The tool will beep if a radio signal strength that lights five or more LED's is detected. Repeat this test three times. If transmitter fails any of the test refer to the Diagnostic article.

STANDARD PROCEDURE

RKE TRANSMITTER CUSTOMER PREFERENCES

AUTOMATIC (ROLLING) LOCKS

The rolling locks feature can be toggled ON/OFF by using the scan tool only.

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HORN CHIRP DISABLING/ENABLING

The horn chirp can be toggled using the scan tool or by using the Remote Keyless Entry (RKE) transmitter.

To **DISABLE** (cancel) the horn chirp feature, press and hold the transmitter **LOCK** button for four to ten seconds. While pressing the **LOCK** button in, press the **UNLOCK** button. Release both buttons.

To **ENABLE** the horn chirp feature, repeat the above procedure.

OPTICAL CHIRP (FLASH) DISABLING/ENABLING

The optical chirp can be toggled using the scan tool or by using the Remote Keyless Entry (RKE) transmitter.

To **DISABLE** (cancel) the optical chirp feature, press and hold the transmitter **LOCK** button for four to ten seconds. While pressing the **LOCK** button in, press the **TAILGATE RELEASE** button. Release both buttons.

To **ENABLE** the optical chirp feature, repeat the above procedure.

TAIL GATE RELEASE DELAY

Press the **UNLOCK** button for four to ten seconds. While pressing the **UNLOCK** button, press the **TAIL GATE RELEASE** button. Release both buttons.

This will toggle between **PRESS AND HOLD** and **PRESS** (no delay).

UNLOCK SEQUENCE

The unlock sequence can be toggled using the scan tool or by using the Remote Keyless Entry (RKE) transmitter.

Press and hold the transmitter **UNLOCK** button for four to ten seconds. While pressing the **UNLOCK** button in, press the **LOCK** button. Release both buttons.

This will toggle between **Driver door first** and **Unlock all doors** function.

RKE TRANSMITTER BATTERIES

The Remote Keyless Entry (RKE) transmitter case snaps open and shut for battery access. To replace the RKE transmitter batteries:

1. Using a thin coin, gently pry at the notch in the center seam of the RKE transmitter case halves near the key ring until the two halves unsnap.
2. Lift the back half of the transmitter case off of the RKE transmitter.
3. Remove the two batteries from the RKE transmitter.
4. Replace the two batteries with new Panasonic 2016 (if equipped with one battery, use 2032), or equivalent. Be certain that the batteries are installed with their polarity correctly oriented.
5. Align the two RKE transmitter case halves with each other, and squeeze them firmly and evenly together.

until they snap back into place.

RKE TRANSMITTER PROGRAMING

New Remote Keyless Entry (RKE) transmitters can be programed using the scan tool and the proper Diagnostic article, if no functioning transmitter is available. The scan tool can provide confirmation that the Controlled Area Network (CAN) is functional, and that all of the electronic modules are sending and receiving the proper messages on the CAN data bus.

The following procedure can be used as long as one functioning transmitter is available:

1. Turn ignition to the RUN position (allow ignition chimes to stop).
2. Using any original (working) transmitter, press the UNLOCK button for 4 to 10 seconds.
3. Within the specified 4 to 10 seconds, continue pressing the UNLOCK button and press the PANIC button for 1 second, and release both buttons (a chime will sound to indicate that the transmitter programming mode has been entered - allow 3 seconds for chime to sound).
4. Press LOCK and UNLOCK buttons simultaneously for 1 second and release.
5. Press and release any button on the same transmitter and a chime will sound after successfully programming the transmitter.
6. Repeat steps 4 to 6 to program additional transmitters.
7. Turn ignition to the OFF position. Transmitter programming mode will discontinue after 60 seconds. All transmitter programming must be completed within time specified.

SPECIFICATIONS

REMOTE KEYLESS ENTRY TRANSMITTER

RANGE

Normal operation range is up to a distance of 3 to 7 meters (10 to 23 ft.) of the vehicle. Range may be better or worse depending on the environment around the vehicle.

TAILGATE CYLINDER LOCK SWITCH

DESCRIPTION

TAILGATE CYLINDER LOCK SWITCH

The tailgate cylinder lock switch is integral to the key lock cylinder inside the tailgate. The tailgate cylinder lock switch is a normally-open momentary switch that is hard wired directly to the Totally Integrated Power Module (TIPM), and closes a path to ground through an internal resistor when the lock cylinder is rotated to the unlock or lock position.

The tailgate cylinder lock switch cannot be adjusted or repaired.

OPERATION

TAILGATE CYLINDER LOCK SWITCH

The tailgate cylinder lock switch is actuated when the key is inserted in the lock cylinder and turned to the unlock or lock position. The tailgate cylinder lock switch closes a path to ground through an internal resistor for the Totally Integrated Power Module (TIPM) when the tailgate key lock cylinder is in the lock or unlock position, and opens the ground path when the lock cylinder is in the neutral position. The TIPM reads the switch status, then sends the proper switch status messages to other electronic modules over the Controlled Area Network (CAN). The tailgate cylinder lock switch unlock status message is used by the TIPM as an input for Vehicle Theft Security System (VTSS) operation and to tell the TIPM to lock or unlock the tailgate. There is no mechanical linkage between the tailgate key cylinder and the latches.

DIAGNOSIS AND TESTING**TAILGATE CYLINDER LOCK SWITCH**

1. Disconnect and isolate the battery negative cable.
2. Remove tailgate trim panel. Refer to **REMOVAL** .
3. Disconnect tailgate cylinder lock switch harness connector.
4. Using a ohmmeter, test for resistances as shown in the Tailgate Cylinder Lock Switch Table.

TAILGATE CYLINDER LOCK SWITCH TABLE

SWITCH POSITION	RESISTANCE
NEUTRAL	0 OHMS
LOCK (CLOCKWISE)	2 K OHMS \pm 10 %
UNLOCK (COUNTER-CLOCKWISE)	470 OHMS \pm 10 %

5. If switch resistance is not correct, replace switch.

REMOVAL**TAILGATE CYLINDER LOCK SWITCH**

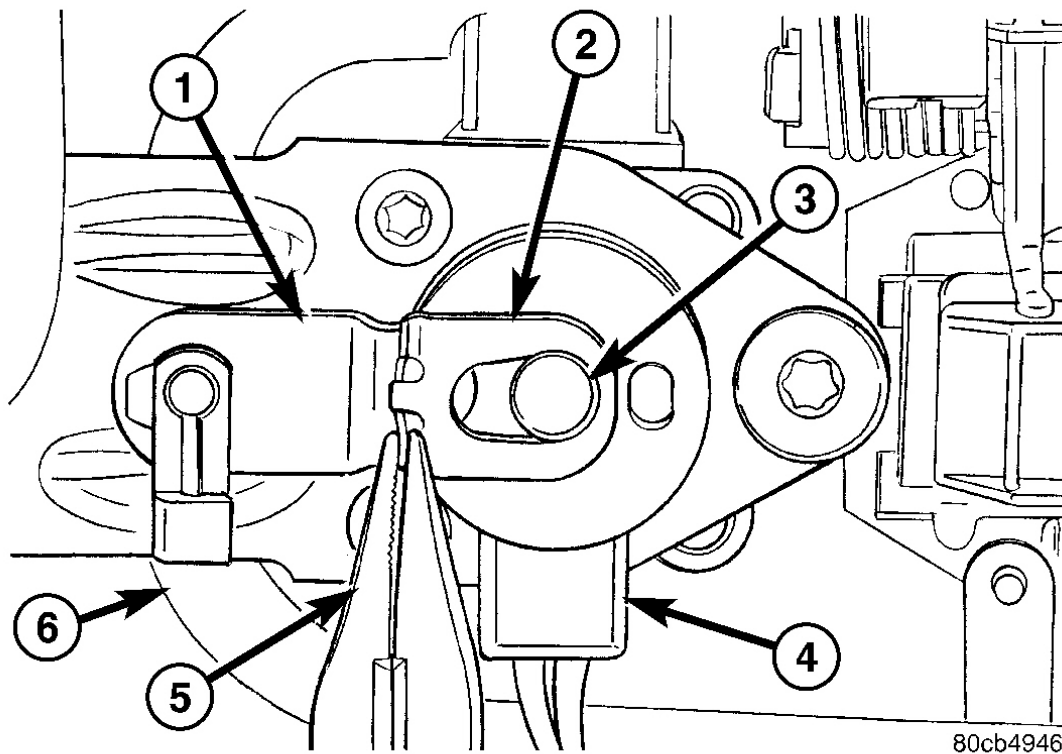


Fig. 5: Removing/Installing Lock Cylinder Switch -Typical
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Remove the tailgate trim panel. Refer to **REMOVAL** .
3. Remove the retainer clip from the pin on the back of the door lock cylinder (3).
4. Remove the washer from the pin on the back of the door lock cylinder.
5. Remove the door cylinder lock switch (4) from the back of the lock cylinder.

INSTALLATION

TAILGATE CYLINDER LOCK SWITCH

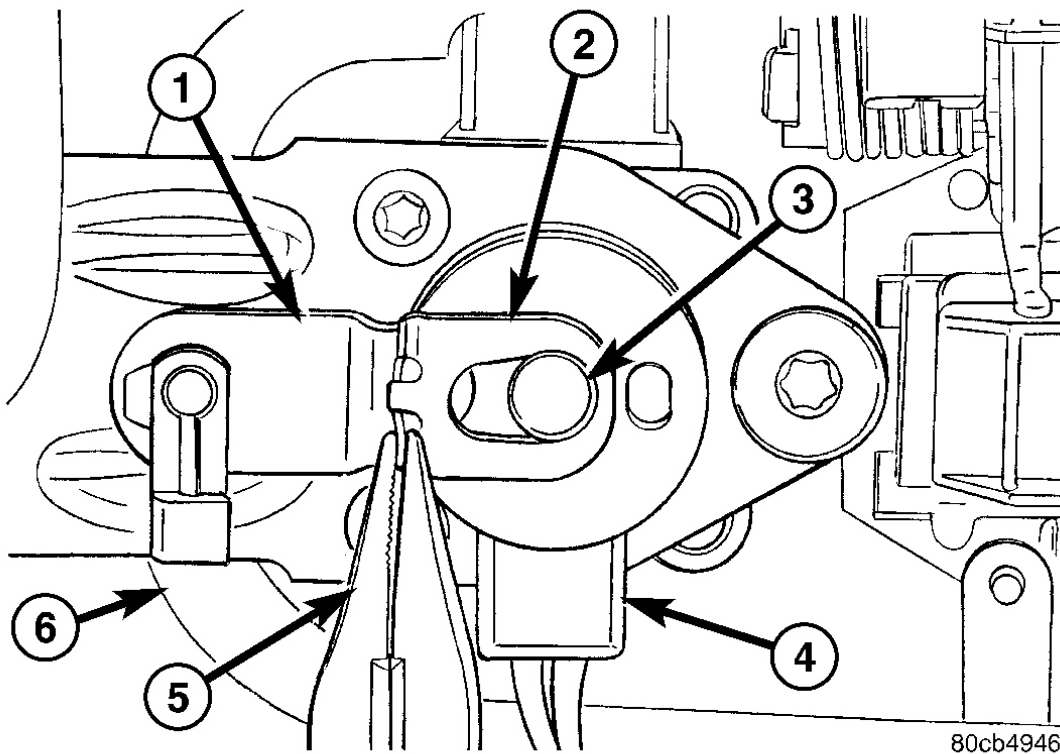


Fig. 6: Removing/Installing Lock Cylinder Switch -Typical
Courtesy of CHRYSLER LLC

1. Position the tailgate cylinder lock switch (4) onto the back of the lock cylinder (3) with the wire harness oriented toward the bottom.
2. Position the washer over the switch.
3. Install the retainer (2) clip onto the pin on the back of the tailgate lock cylinder. Be certain that the center tab of the retainer is engaged in the retention hole on the lock lever.
4. Install the trim panel. Refer to **INSTALLATION** .
5. Connect the battery negative cable.