Service Manual: POWER LOCKS - SERVICE INFORMATION

DESCRIPTION AND OPERATION > DESCRIPTION AND OPERATION > DESCRIPTION

A power operated door lock system is standard factory-installed equipment on this vehicle. The power lock system allows all doors to be locked or unlocked electrically. Locking or unlocking the vehicle using the power lock system can be accomplished by two different methods:

- **Power Lock System** - Operating the door lock switch located in the instrument panel center stack operates lock and unlock for all doors on this vehicle.
- **Remote Keyless Entry System** - Depressing the **Lock** or **Unlock** button of the standard equipment Remote Keyless Entry (RKE) system transmitter can also be used to lock or the front and side doors. A third button is added for rear cargo doors on cargo and glazed door vans.

Additional details of each of these subsystems and their components can be found in the subheadings and paragraphs that follow.

DESCRIPTION AND OPERATION > DESCRIPTION AND OPERATION > DESCRIPTION > POWER LOCK SYSTEM

Door locking function - The electric door locks are controlled by the BCM. This locks and unlocks the doors on the basis of two control types: external and internal.

External controls - The external door locking/unlocking commands can arrive from the following components:

- Closing/opening buttons on RF remote controls of keys
- Key cylinder on driver door handle
- Passive Entry System.

The BCM receives the RF signals from the locking/unlocking buttons on the remote controls via an aerial. The movement of the key cylinder on the driver door handle is detected by a switch connected electrically to the BCM.

Fig 1: Door Lock And Unlock Switch

Courtesy of CHRYSLER GROUP, LLC

The internal door locking/unlocking commands can arrive from the following components:

- Buttons on driver door panel
- Buttons on passenger door panel.
- Car speed above 20 km/h (speed information for BCM via CAN)

- Door unlock request from FPS (Fire Prevention System).

In every ignition switch position (OFF, RUN, START) the BCM, before sending the door locking/unlocking command, checks the status of the doors (open or closed) through the switches in the locks.

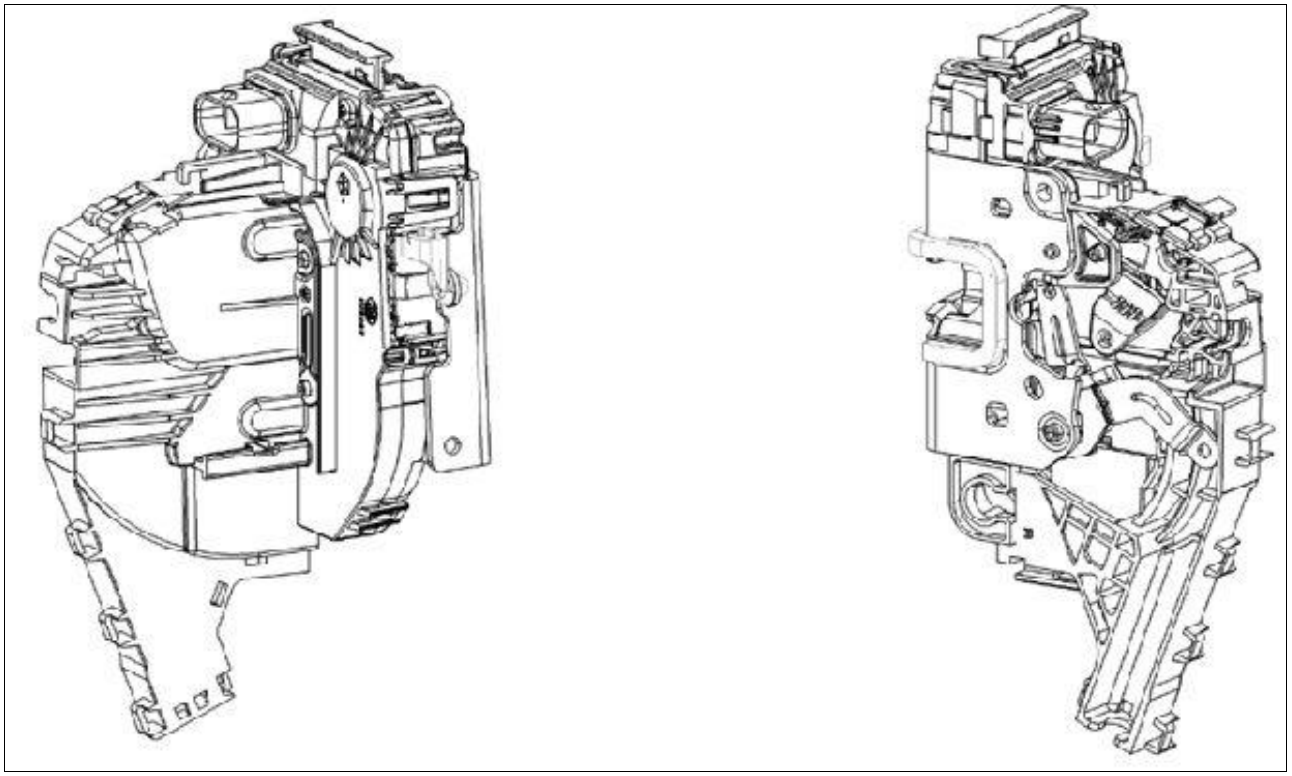
Status of door status switches

- Driver side door switch: if the door is closed the switch is open; if the door is open the switch is closed.
- Passenger side door switch: if the door is closed the switch is open; if the door is open the switch is closed.
- Rear door switches: if the doors are closed the switches (left and right) are open; if the doors are open, the switches are closed.
- Tailgate switch: if the tailgate is closed, the switch is closed; if the tailgate is open, the switch is open.
- Bonnet switch: if the bonnet is open the switch is open; if the bonnet is closed the switch is closed. (There is only a bonnet switch if there is an alarm.)

System without Passive Entry - The BCMs on NAFTA-version vehicles can manage door locking even if one or more doors are open. Door locking will not be carried out only if the key is in the ignition switch. The BCMs on EMEA-version vehicles cannot manage door locking if one or more doors are open.

System with Passive Entry - Where there is the passive entry system, the doors can be locked centrally even if one or more doors are open. When the last door is closed, the BCM will request that the RH module locates the keys: if these are outside of the car, the doors will maintain "locked" status. If, on the other hand, they are inside the vehicle, the BCM will centrally unlock the doors. EMEA-version vehicles may have electric locks with deadlocking. It is not available for NAFTA-version vehicles.

Fig 2: Electric Locks Assembly



Courtesy of CHRYSLER GROUP, LLC

Electric locks - Inside the electric locks is a PTC element in series with their electric motors. The PTC elements permits thermal protection in the event that the BCM continues to supply current to the motors due to a fault. The resistance of the PTC element increases as its temperature increases, consequently interrupting the electrical circuit.

DESCRIPTION AND OPERATION > DESCRIPTION AND OPERATION > DESCRIPTION > REMOTE KEYLESS ENTRY SYSTEM

The Remote Keyless Entry (RKE) system is standard factory-installed equipment on this vehicle. The RKE system includes the following major components, which are described in further detail elsewhere in this service information:

- **Body Control Module** - The Body Control Module (BCM) is the RKE system control module. SKREEM controller and the RF receiver. The BCM is located under the driver side end of the instrument panel in the passenger compartment.
- **Remote Keyless Entry System Transmitter** - The Remote Keyless Entry (RKE) system transmitter is the battery powered, wireless and portable Radio Frequency (RF) user controller for all of the features of the RKE system.

These components and their controls are combined to provide the following RKE system features:

- **Remote Locking** - Depressing the **Lock** button of the FOBIK while within transmitter range will lock all of the vehicle doors and the liftgate.

- **Remote Unlocking** - Depressing the **Unlock** button of the RKE transmitter while within transmitter range will unlock the vehicle and activate the Illuminated Entry System.

Hard wired circuitry connects many of the RKE system components to the electrical system of the vehicle. These hard wired circuits are integral to several wire harnesses, which are routed throughout the vehicle and retained by many different methods. These circuits may be connected to each other, to the vehicle electrical system and to the RKE system components through the use of a combination of soldered splices, splice block connectors, and many different types of wire harness terminal connectors and insulators. Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, further details on wire harness routing and retention, as well as pin-out and location views for the various wire harness connectors, splices and grounds.

DESCRIPTION AND OPERATION > DESCRIPTION AND OPERATION > OPERATION > POWER DOORLOCK

The power lock system uses non-switched battery current received through a fused B(+) fuse so that the system remains operational regardless of the ignition switch position. The Body Control Module (BCM) is the primary power lock system controller. The power lock switch (also known as the door inhibit switch) is hard wired to the BCM.

When the BCM receives an input from the power lock switch, it provides the appropriate hard wired control outputs to energize or de-energize the power lock relays soldered onto its printed circuit board. The relays control the flow of battery current and ground to each of the power lock motors to lock or unlock each of the doors.

The BCM also stores the power lock system Customer Programmable feature settings received from the Electronic Vehicle Information Center (EVIC) circuitry of the Instrument Panel Cluster (IPC). The BCM uses these settings and internal programming along with hard wired and electronic message inputs to determine the proper outputs needed to produce each of the appropriate power lock system features.

The power lock system circuits are continually monitored and controlled by the microcontroller and software contained within the BCM. When the BCM monitors a problem in any of the power lock system circuits or components, it stores a fault code or Diagnostic Trouble Code (DTC) in its memory circuit. The hard wired circuits between components related to the power lock system may be diagnosed using conventional diagnostic tools and procedures. 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.

However, conventional diagnostic methods will not prove conclusive in the diagnosis of the power lock system or the electronic controls or communication between other modules and devices that provide some features of the power lock system. The most reliable, efficient, and accurate means to diagnose the power lock system or the electronic controls and communication related to power lock system operation, as well as the retrieval or erasure of a DTC requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

DESCRIPTION AND OPERATION > DESCRIPTION AND OPERATION > OPERATION > REMOTE KEYLESS ENTRY SYSTEM

The Remote Keyless Entry (RKE) system uses non-switched battery current received through a fused B(+) fuse so that the system remains operational regardless of the ignition switch position. The Body Control Module (BCM) is the primary RKE system controller as well as the Radio Frequency (RF) RKE receiver. The BCM validates the vehicle access code of each RKE transmitter from which it receives RF signal inputs. It ignores requests from any transmitter for which it has no stored vehicle access code. When the BCM receives an input from a valid transmitter source, it uses internal programming to provide the appropriate hard wired outputs to invoke the proper RKE system features and responses.

The RKE system circuits and transmitter inputs are continually monitored by the microcontroller and software contained within the BCM. When the BCM monitors a problem in any of the RKE system circuits or transmitters, it stores a DTC in its memory circuit. The hard wired circuits between components related to the RKE system may be diagnosed using conventional diagnostic tools and procedures. 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.

However, conventional diagnostic methods will not prove conclusive in the diagnosis of the RKE system or the electronic controls and devices that provide features of the RKE system. The most reliable, efficient, and accurate means to diagnose the RKE system or the electronic controls related to RKE system operation, as well as the retrieval or erasure of a DTC requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

DIAGNOSIS AND TESTING > DIAGNOSIS AND TESTING - POWER LOCKS AND REMOTE KEYLESS ENTRY SYSTEM > POWER LOCK SYSTEM

Following are tests that may 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. The most reliable, efficient, and accurate means to diagnose the power lock system requires the use of a diagnostic scan tool and the appropriate diagnostic information. The diagnostic scan tool can provide confirmation that the power lock motors are receiving the proper hard wired outputs from the Body Control Module (BCM) for them to perform their power lock system functions.

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.

DIAGNOSIS AND TESTING > DIAGNOSIS AND TESTING - POWER LOCKS AND REMOTE KEYLESS ENTRY SYSTEM > POWER LOCK SYSTEM > 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 switch and with the Remote Keyless Entry (RKE) transmitter. Then, proceed as follows:

1. If the entire power lock system fails to function with either the power lock switch or the RKE transmitter, check the fused B(+) fuse for the power lock system in the Power Distribution Center (PDC).
2. If the power lock system functions with the power lock switch, but not with the RKE transmitter,

proceed to diagnosis of the RKE system.

3. If the power lock system functions with the RKE transmitter, but not with the power lock switch, proceed to diagnosis of the door lock switch.
4. If only one power lock motor fails to operate with the power lock switch and the RKE transmitter, proceed to diagnosis of the power lock motor.

DIAGNOSIS AND TESTING > DIAGNOSIS AND TESTING - POWER LOCKS AND REMOTE KEYLESS ENTRY SYSTEM > REMOTE KEYLESS ENTRY SYSTEM

Following are tests that may help to diagnose the Remote Keyless Entry (RKE) system. However, these tests may not prove conclusive in the diagnosis of this system. The most reliable, efficient, and accurate means to diagnose the RKE system requires the use of a diagnostic scan tool and the appropriate diagnostic information. The diagnostic scan tool can provide confirmation that the Body Control Module (BCM) is being sent the proper Radio Frequency (RF) signals by the RKE transmitters to perform its RKE system functions.

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.

DIAGNOSIS AND TESTING > DIAGNOSIS AND TESTING - POWER LOCKS AND REMOTE KEYLESS ENTRY SYSTEM > REMOTE KEYLESS ENTRY SYSTEM > PRELIMINARY DIAGNOSIS

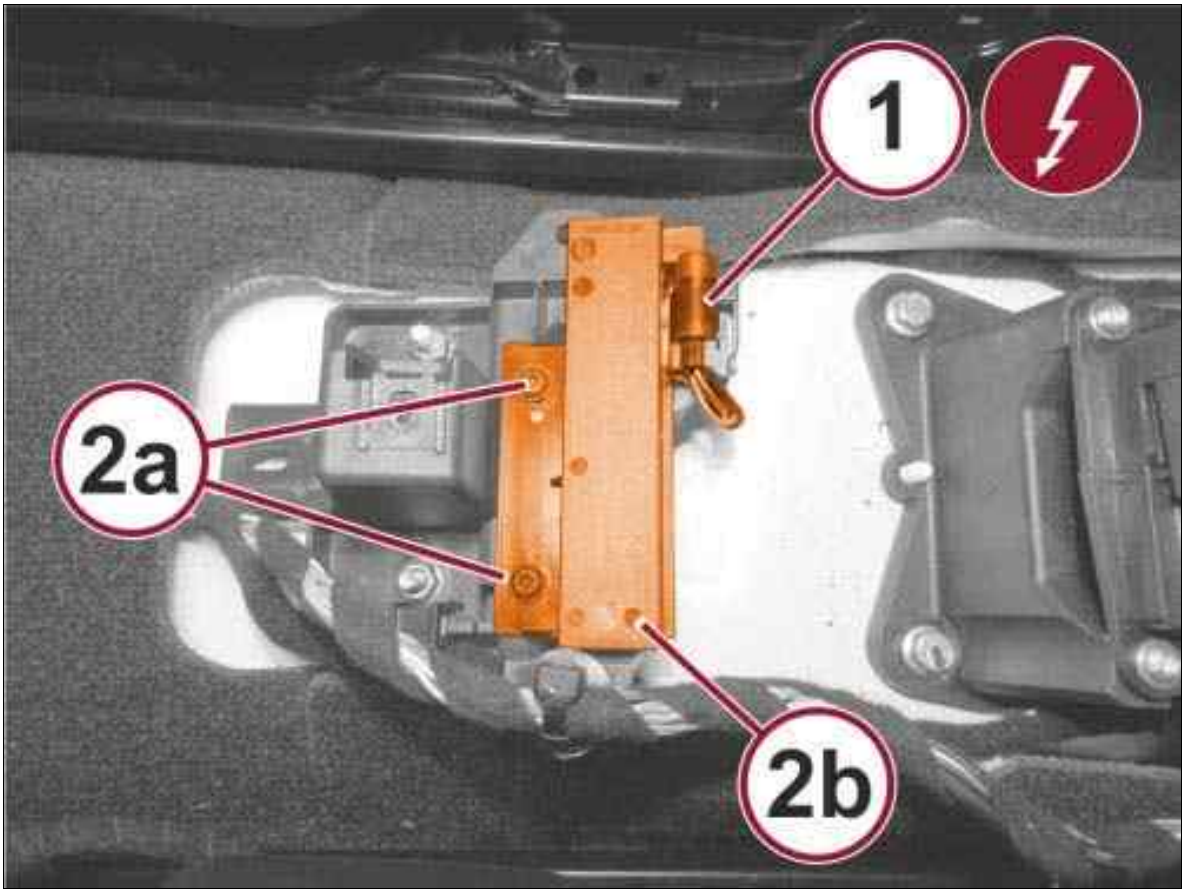
As a preliminary diagnosis for the RKE system, first confirm that the power lock system operates satisfactorily. If the power lock system fails to operate correctly, repair that problem before attempting to diagnose the RKE system. Next, note the RKE system operation while you perform both the Lock and Unlock functions with the RKE transmitter. Then, proceed as follows:

1. If the power lock system functions with the power lock switch, but not with the RKE transmitter, proceed to diagnosis of the RKE transmitter.
2. If the RKE transmitter checks okay, proceed to diagnosis of the BCM. The use of a diagnostic scan tool and the appropriate diagnostic information are required.

ANTENNA, PASSIVE ENTRY > REMOVAL AND INSTALLATION > FLOOR CONSOLE > REMOVAL

1. Disconnect and isolate the negative battery cable.
2. Remove the floor console. Refer to CONSOLE, FLOOR, REMOVAL AND INSTALLATION .

Fig 1: Passive Entry Antenna, Connector & Screws



Courtesy of CHRYSLER GROUP, LLC

3. Disconnect the wiring connector (1) from the passive entry antenna (2b).
4. Remove the mounting screws (2a) and remove the passive entry antenna.

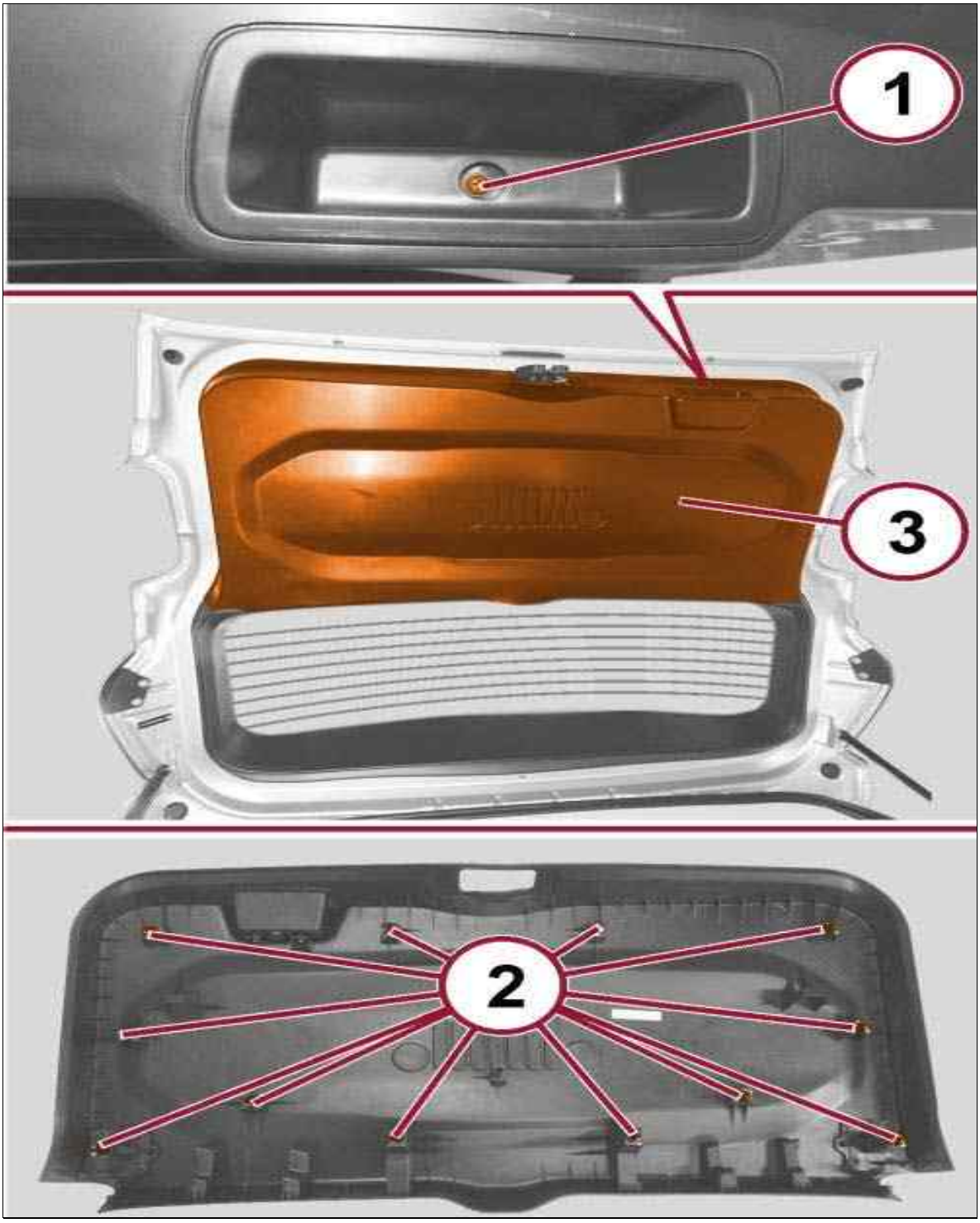
ANTENNA, PASSIVE ENTRY > REMOVAL AND INSTALLATION > FLOOR CONSOLE > INSTALLATION

1. Make sure that the passive entry antenna is not damaged.
2. Place the antenna and tighten the screws.
3. Connect the electrical connector to the antenna.
4. Install the floor console. Refer to CONSOLE, FLOOR, REMOVAL AND INSTALLATION .
5. Connect the negative battery cable.

ANTENNA, PASSIVE ENTRY > REMOVAL AND INSTALLATION > LIFTGATE > LIFTGATE - REMOVAL

1. Disconnect the negative battery cable.

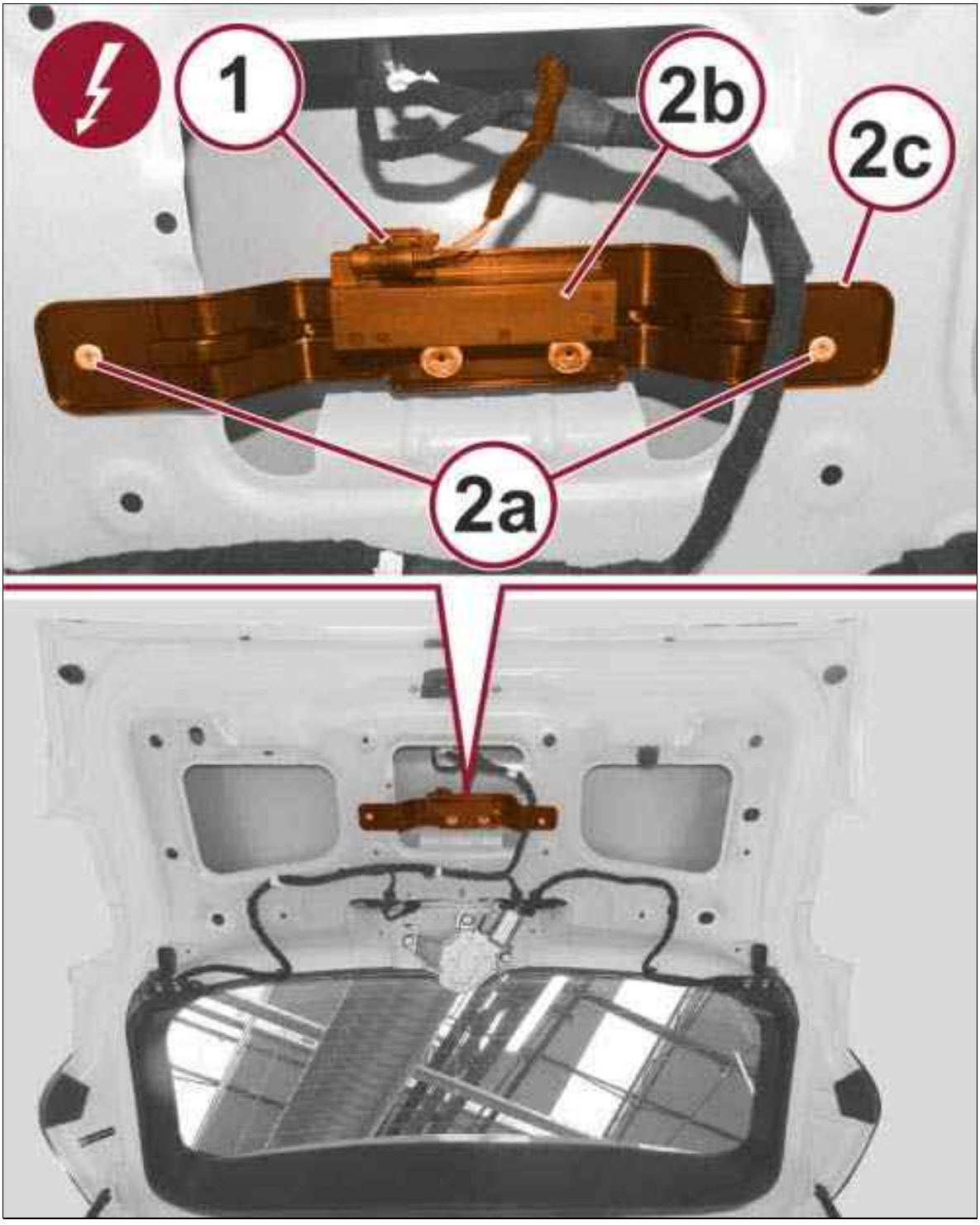
Fig 1: Tailgate Trim Panel, Retainers & Screw



Courtesy of CHRYSLER GROUP, LLC

2. Remove the retaining screw (1).
3. Using special tool, remove retainers (2) from the tailgate trim panel.
4. Remove the tailgate trim panel (3).

Fig 2: Antenna, Support, Rivets & Connector



Courtesy of CHRYSLER GROUP, LLC

5. Disconnect the antenna electrical connection (1).
6. Remove the rivets (2a) and remove the antenna from the tailgate (2b) with the support (2c).

ANTENNA, PASSIVE ENTRY > REMOVAL AND INSTALLATION > LIFTGATE >

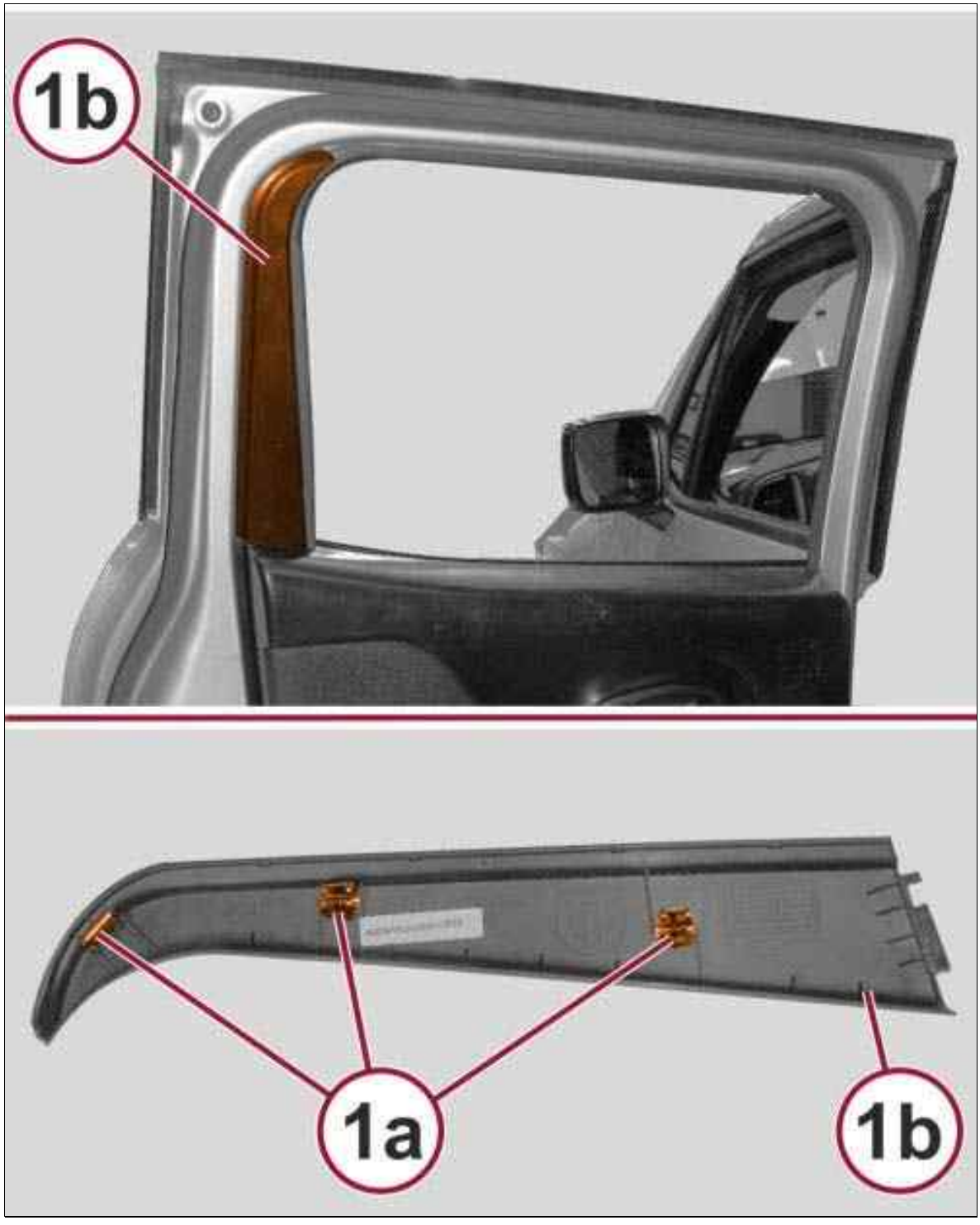
INSTALLATION

1. Make sure the passive entry antenna is not damaged.
2. Place the antenna and secure using rivets.
3. Connect the electrical connector to the antenna.
4. Connect the negative battery terminal.

ANTENNA, PASSIVE ENTRY > REMOVAL AND INSTALLATION > REAR DOOR > REMOVAL

1. Disconnect and isolate the negative battery cable.

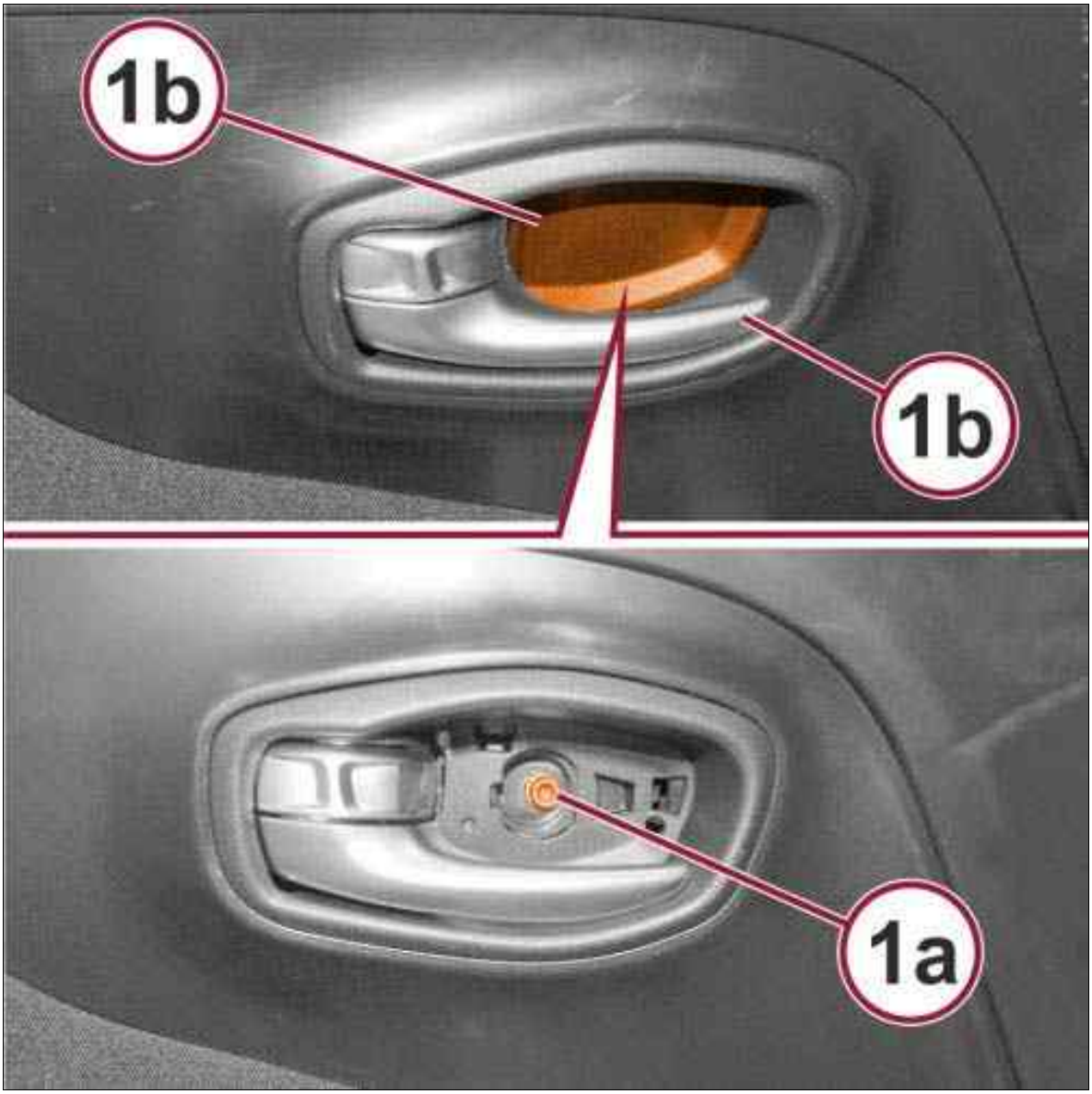
Fig 1: Rear Door Flange & Retainers



Courtesy of CHRYSLER GROUP, LLC

2. Remove the retainers (1a) and remove the flange from the rear door (1b).

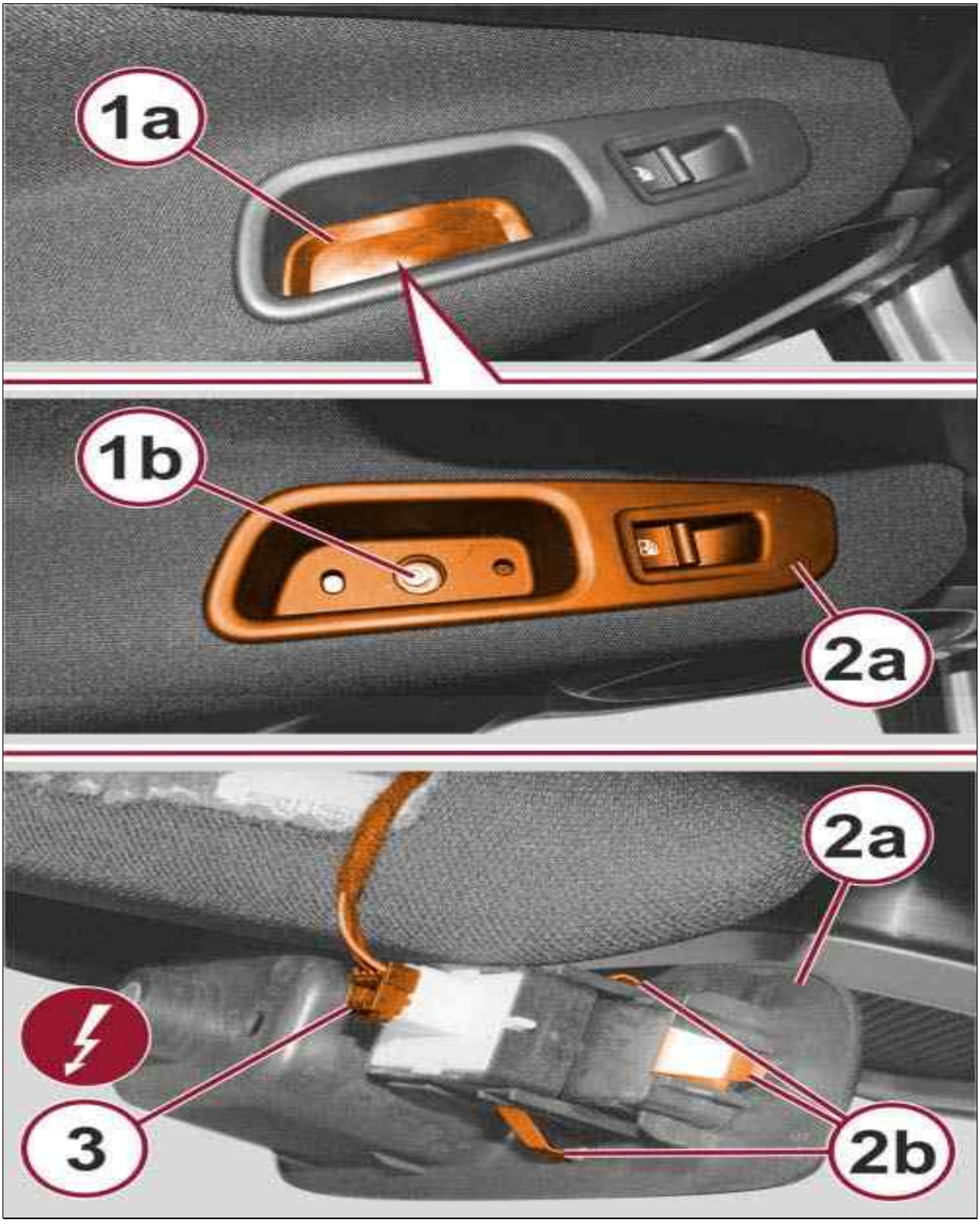
Fig 2: Inside Handle, Flange & Screw



Courtesy of CHRYSLER GROUP, LLC

3. Pull the inside handle (1a) of the rear side door and use a suitable tool to remove the flange (1b).
4. Pull the inside handle and remove the screw.

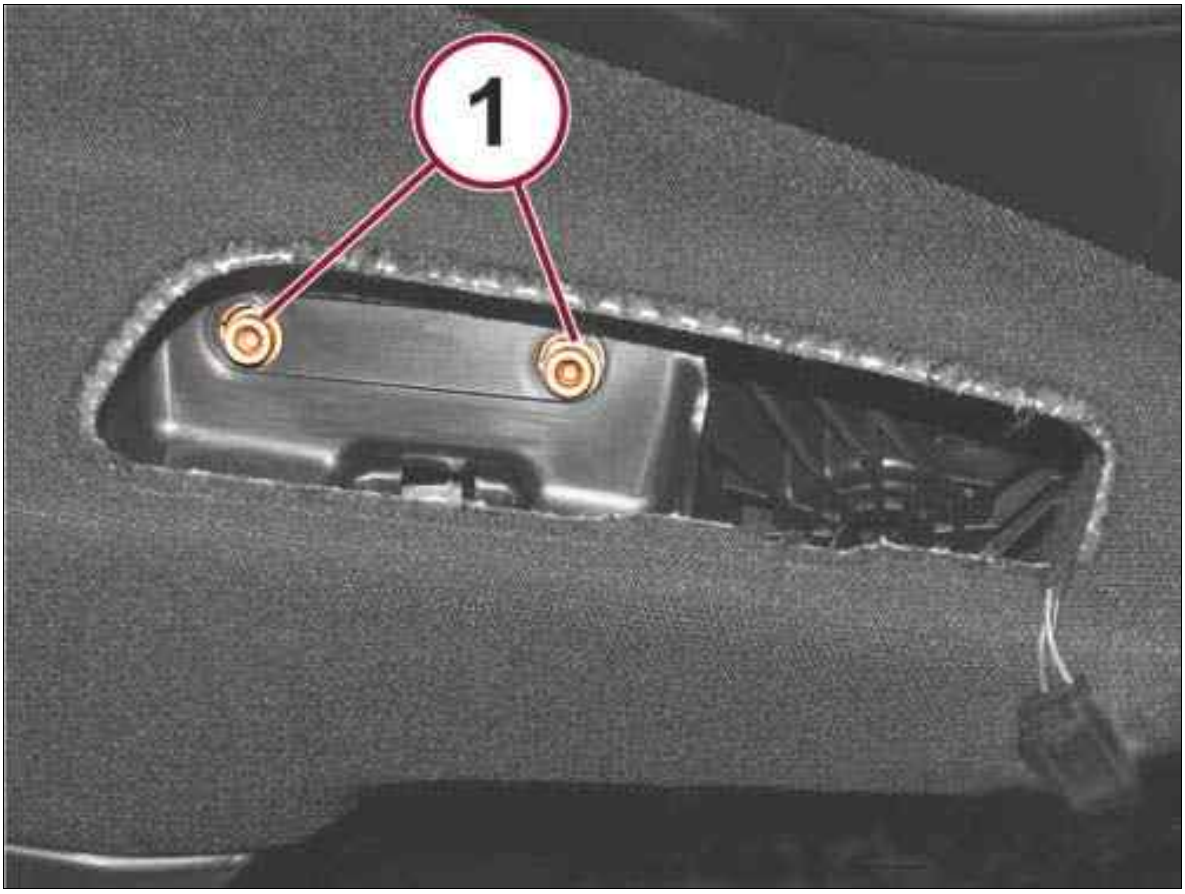
Fig 3: Switch, Pad, Clips & Screw



Courtesy of CHRYSLER GROUP, LLC

5. Remove the pad (1a) and remove the screw below (1b).
6. Use the appropriate tool to prop the power window control switch (2a), releasing the retaining clips (2b).
7. Disconnect the electrical connections.

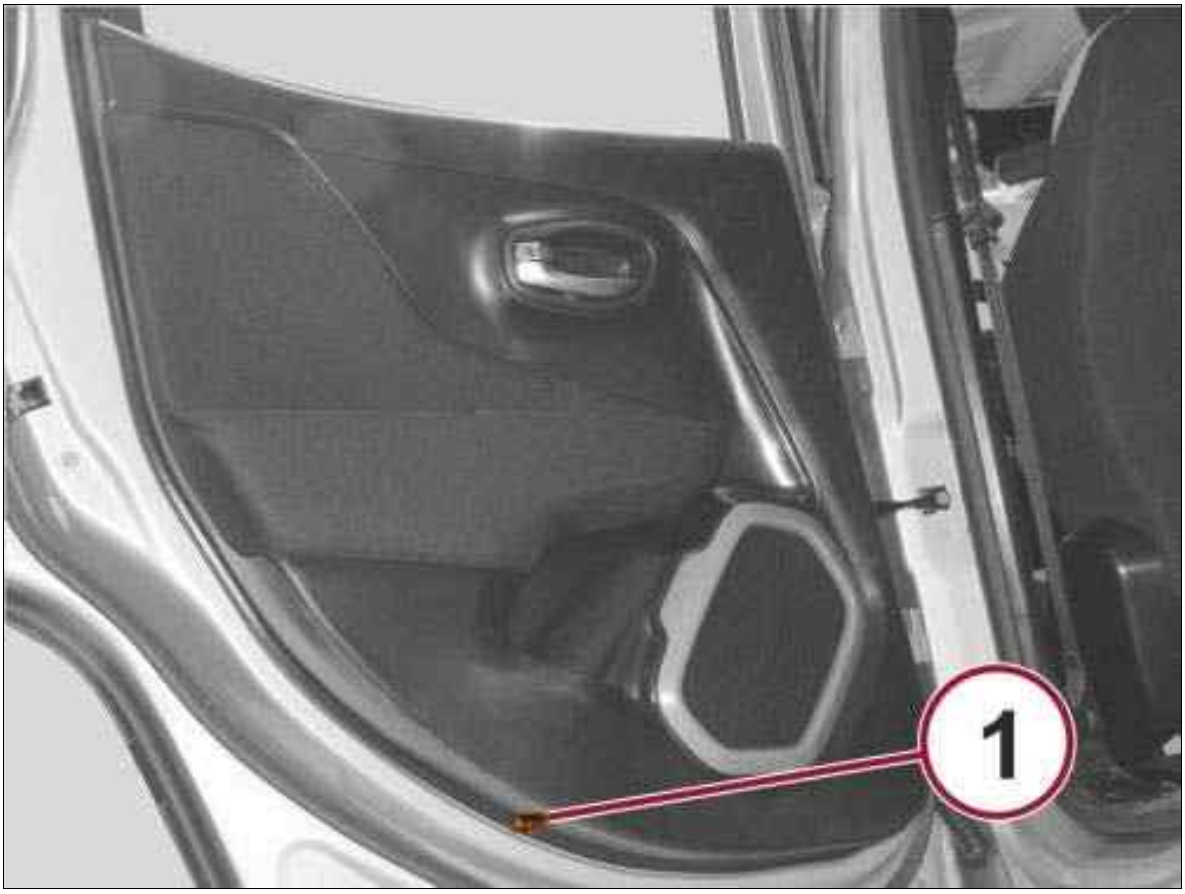
Fig 4: Screws Inside Of Rear Armrest



Courtesy of CHRYSLER GROUP, LLC

8. Loosen the screws on the inside of the rear armrest on the door.

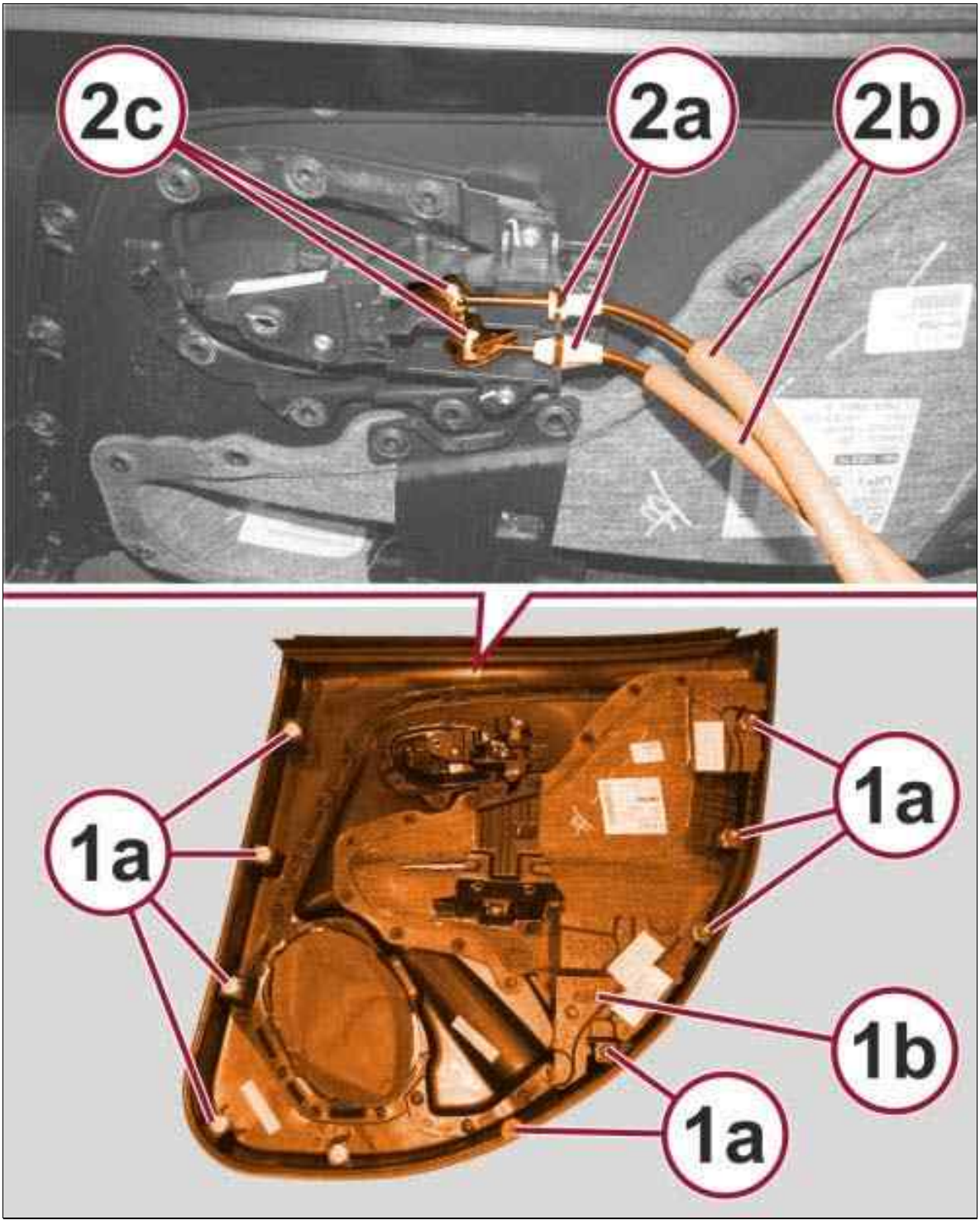
Fig 5: Door Panel Screw



Courtesy of CHRYSLER GROUP, LLC

9. Remove the screw at the bottom of the panel.

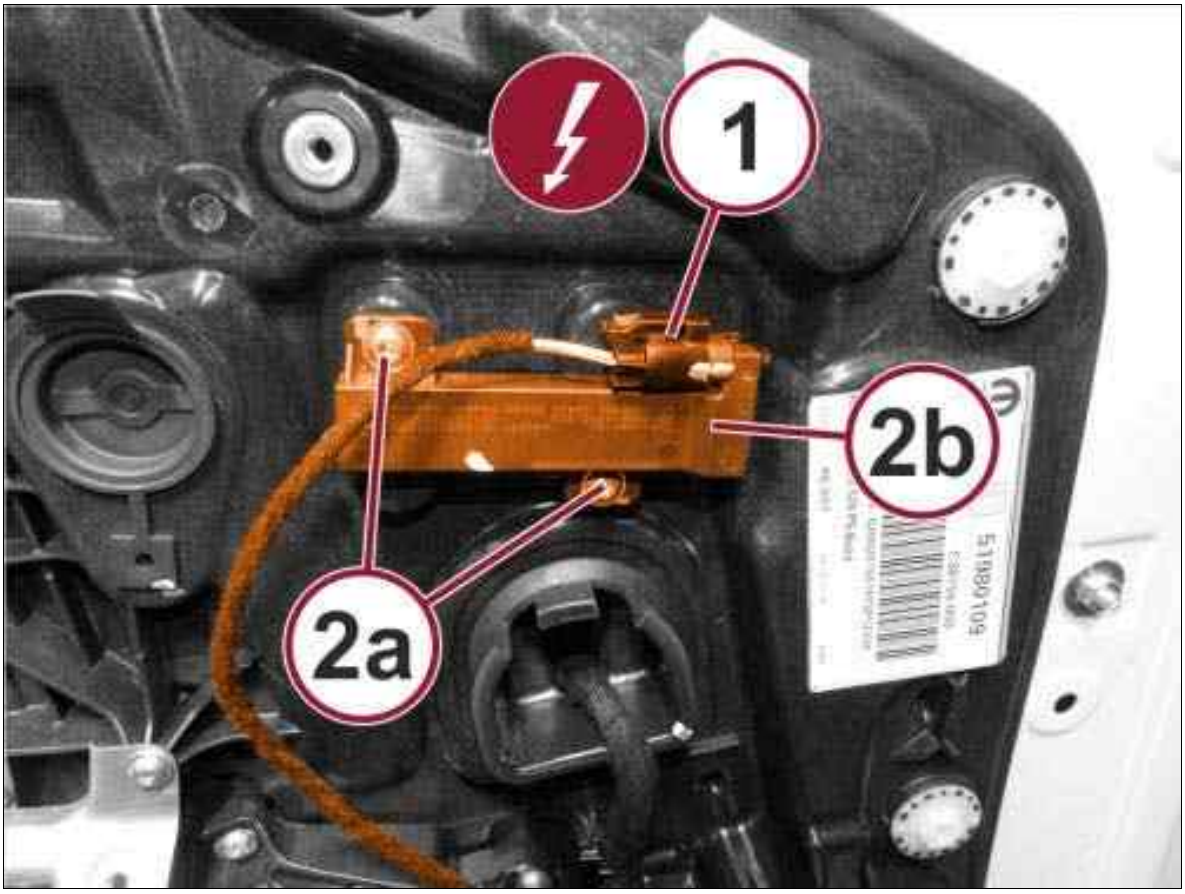
Fig 6: Inner Door Panel, Latches, Rods, Ends & Retainers



Courtesy of CHRYSLER GROUP, LLC

10. Using a special tool, remove the retainers (1a) and fold the inner door panel (1b).
11. Untie the latches (2a) of the tie rods (2b) and unplug the ends (2c) and remove the inner door panel (1b).

Fig 7: Passive Entry Antenna, Connector & Screws



Courtesy of CHRYSLER GROUP, LLC

12. disconnect the connector (1) from the passive entry antenna (2b).
13. Remove the mounting screws (2a) and remove the antenna passive entry from rear door (2b).

ANTENNA, PASSIVE ENTRY > REMOVAL AND INSTALLATION > REAR DOOR > INSTALLATION

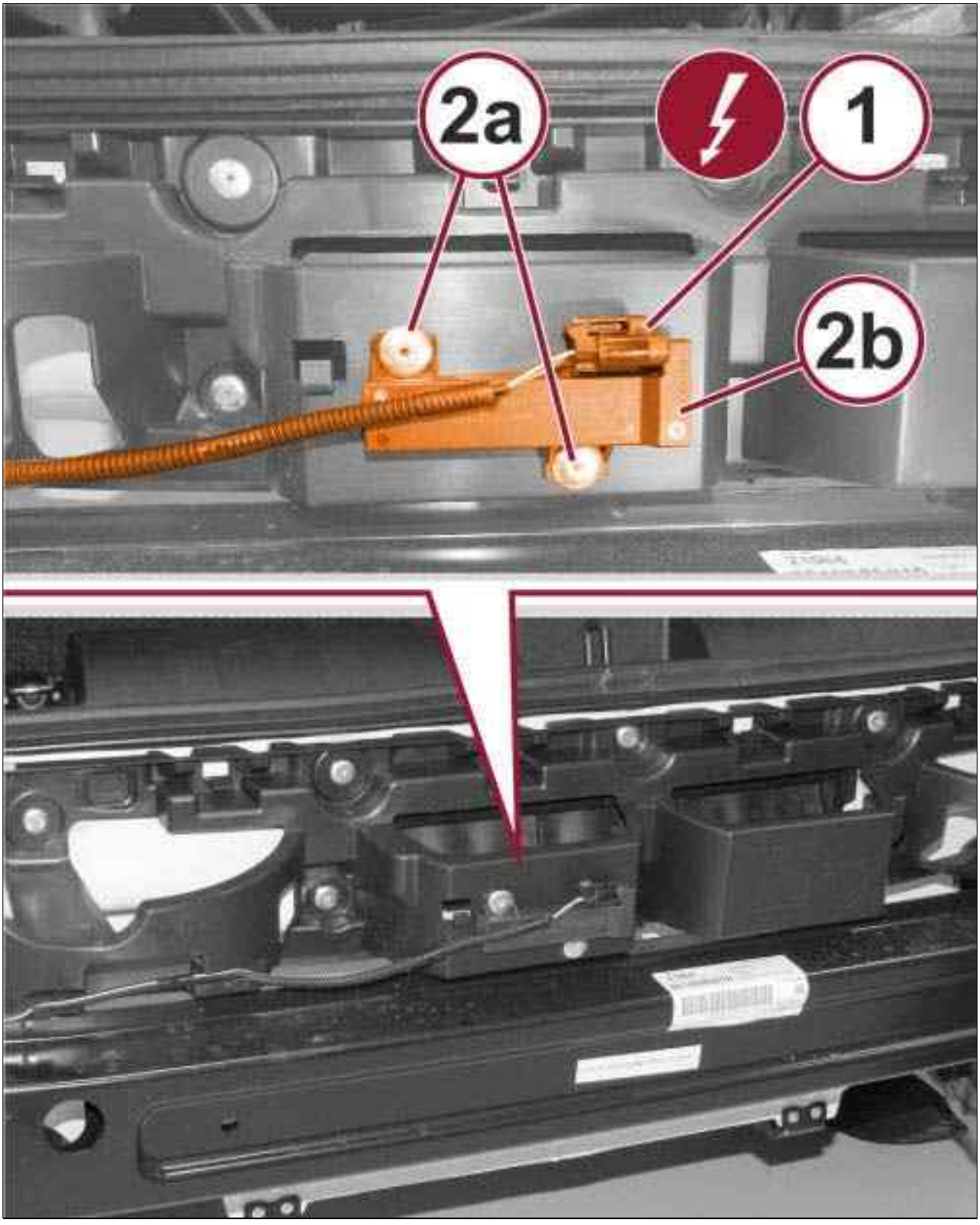
1. Make sure the passive entry antenna is not damaged.
2. Place the antenna and tighten the screws.
3. Before installing the door panel, check that all the fixings of the panel and the inner frame door are intact. If necessary replace them.
4. Place the inner panel near the door, without reattach at this stage.
5. Connect the tie rods to the inside handle, securing fasteners and engaging the ends.
6. By exerting a consistent pressure, fit the hardware of the door panel in their seats on the door frame.
7. Tighten the bottom mounting screws.

8. Tighten the inside front armrest screw.
9. Connect window switch electrical connections.
10. Install the window switch.
11. Screw the retaining screw and insert the mat.
12. Pull the inside door handle front side, tighten the screw and mount the flange.
13. Insert the flange in the inside rear of the rear door and engage the retainers.
14. Connect the negative battery terminal.

ANTENNA, PASSIVE ENTRY > REMOVAL AND INSTALLATION > REAR FASCIA > REMOVAL

1. Disconnect and isolate the negative battery cable.
2. Remove the rear fascia. Refer to FASCIA, REAR, REMOVAL AND INSTALLATION .

Fig 1: Passive Entry Antenna, Connector & Rivets



Courtesy of CHRYSLER GROUP, LLC

3. Disconnect the passive entry antenna (2b) wiring harness connection (1).
4. Using a drill fitted with a suitable tip, remove the rivets (2a) and remove the antenna.

ANTENNA, PASSIVE ENTRY > REMOVAL AND INSTALLATION > REAR FASCIA >

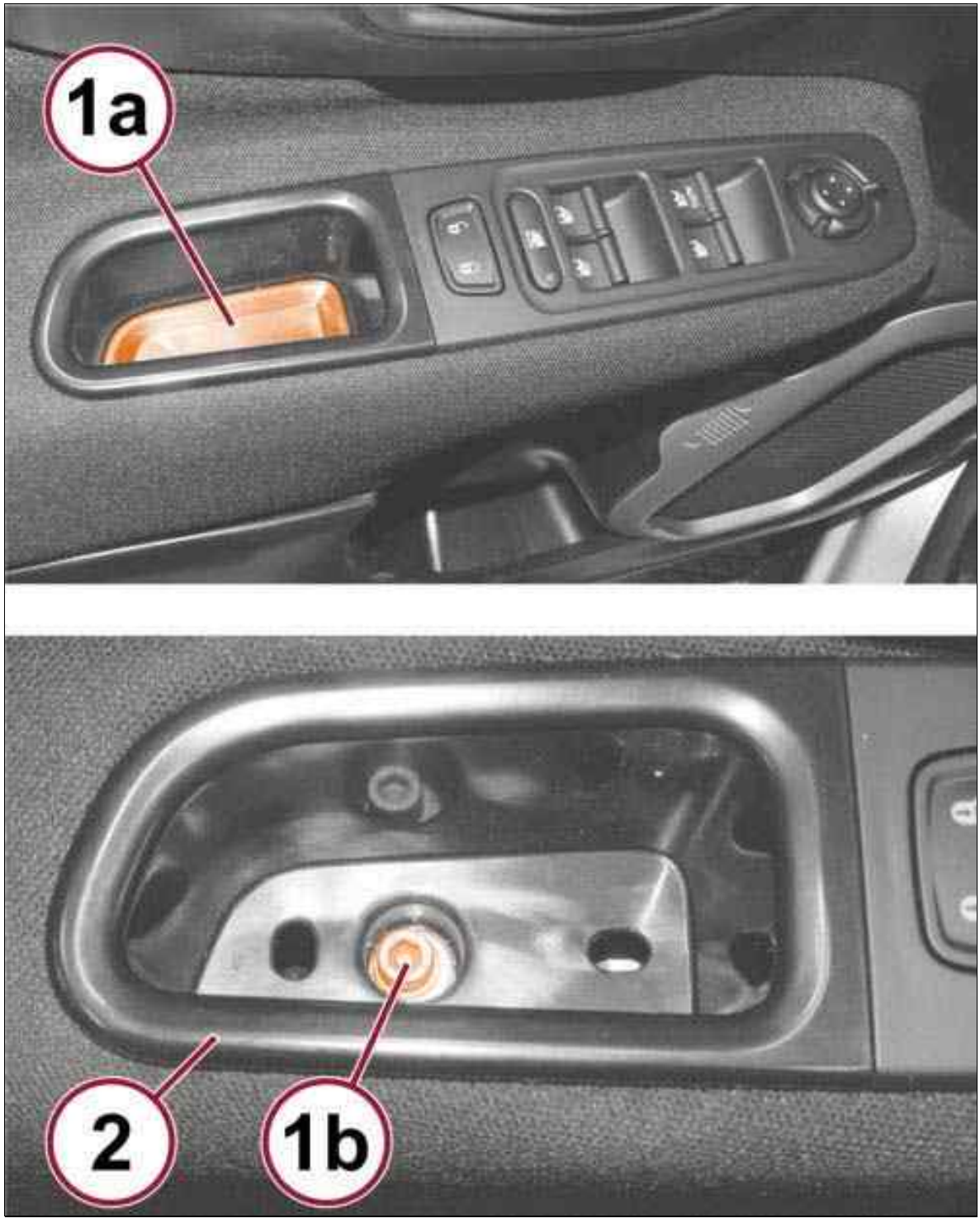
INSTALLATION

1. Make sure the passive entry antenna is not damaged.
2. Place the passive entry antenna and secure it with suitable rivets.
3. Connect the electrical connection to the antenna.
4. Install the rear fascia. Refer to FASCIA, REAR, REMOVAL AND INSTALLATION .
5. Connect the negative battery cable.

SWITCH, LOCK > REMOVAL AND INSTALLATION > REMOVAL AND INSTALLATION > DRIVER DOOR GANG SWITCH - REMOVAL

1. Disconnect and isolate the negative battery cable.

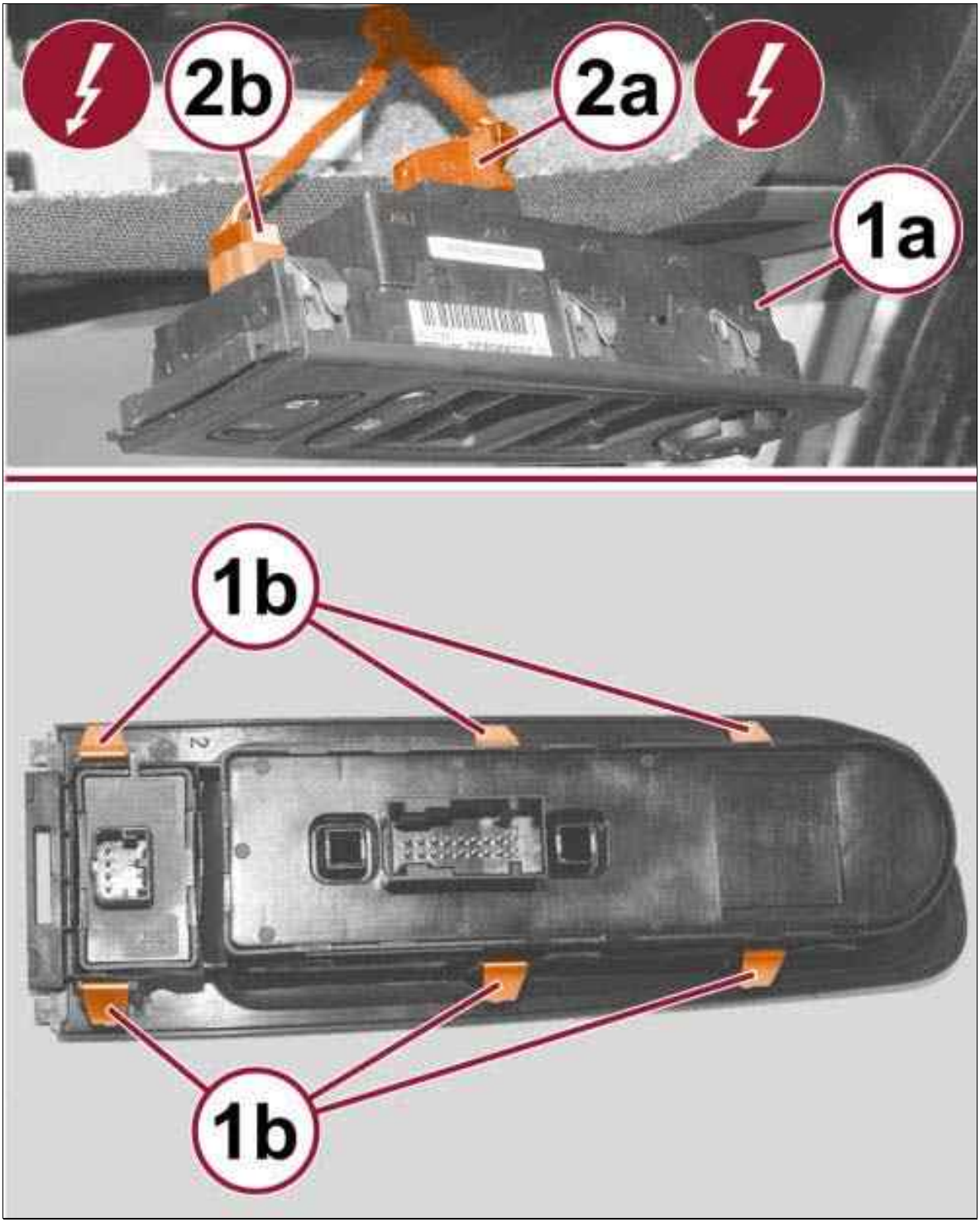
Fig 1: Pad & Screw



Courtesy of CHRYSLER GROUP, LLC

2. Remove the pad (1a) and unscrew the screw below (1b).

Fig 2: Switch Assembly, Clips & Connectors



Courtesy of CHRYSLER GROUP, LLC

3. Using the suitable tool, lift the gang switch assembly (1a) by releasing the retaining clips (1b).
4. Disconnect the electrical connections (2a, 2b)

SWITCH, LOCK > REMOVAL AND INSTALLATION > REMOVAL AND INSTALLATION >

DRIVER DOOR GANG SWITCH - INSTALLATION

1. Connect the driver door gang switch electrical connector.
2. Seat the driver door gang switch into the door panel.
3. Insert and tighten the screw securing the switch to the door.
4. Insert the cover.
5. Connect the negative battery cable.