FACTORY MANUALS

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## 1988 JEEP Cherokee OEM Service and Repair Workshop Manual

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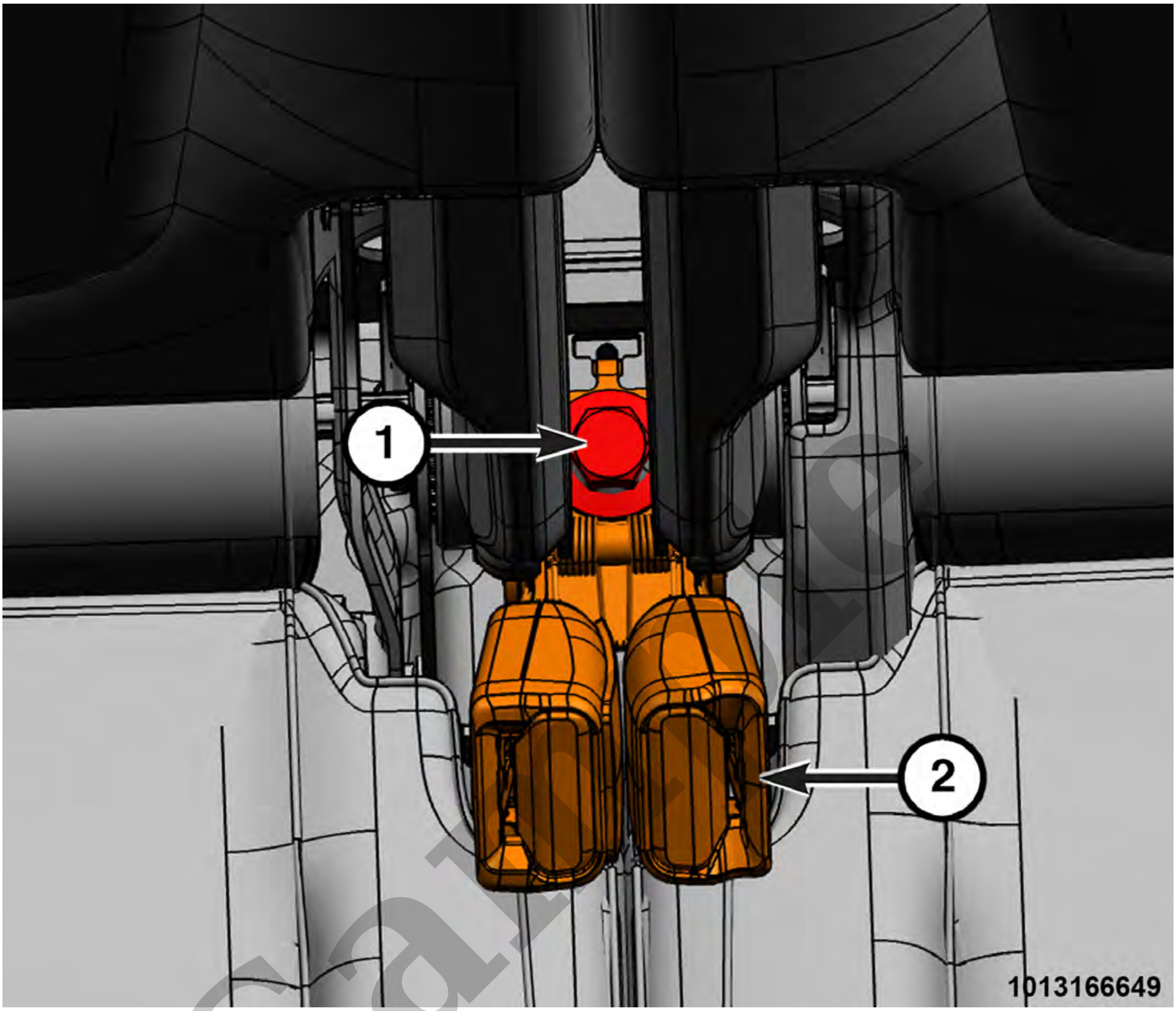





| | |
|---|---|
| 1 - Third Row Buckle Assembly Bolt | |
| 2 - Buckle Assembly | |

1. Remove the third row buckle assembly bolt from the buckle anchor.
2. Remove the third row buckle assembly from the vehicle.

**INSTALLATION**

Follow the removal procedure in reverse for general reassembly of the components on the vehicle.

**TORQUE SPECIFICATIONS - RESTRAINTS**

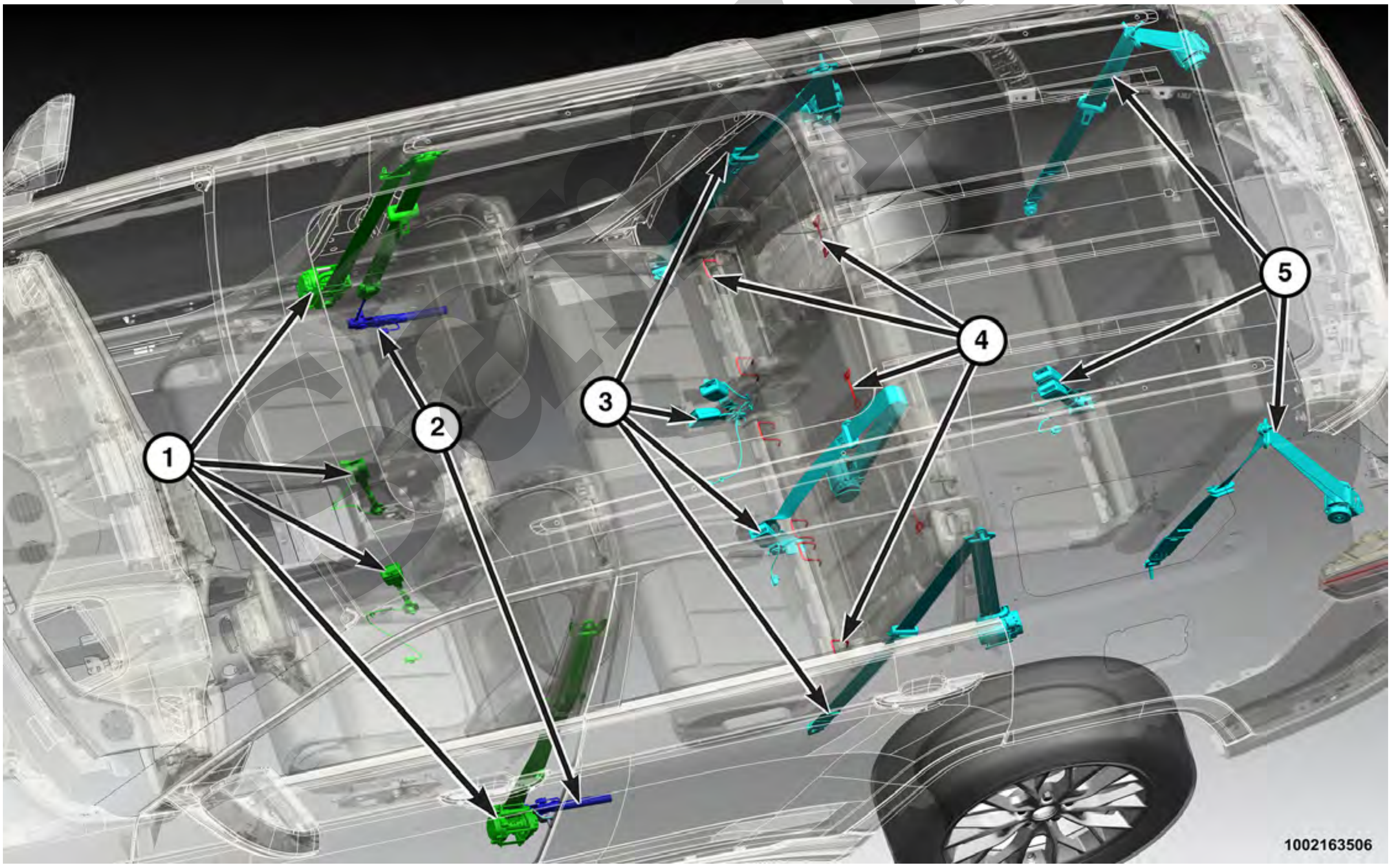
# Restraint System

## RESTRAINT SYSTEM

### DESCRIPTION

A Supplemental Restraint System (SRS) is standard factory-installed safety equipment on this vehicle. Available supplemental occupant restraints for this vehicle include both **Active** and **Passive** types. Active restraints are those which require the vehicle occupants to take some action to employ, such as fastening and adjusting a seat belt; while passive restraints require no action by the vehicle occupants to be employed.






The **Active** restraints for this vehicle include:

Component Index

With LATCH, child seats are secured by direct attachment to the vehicle structure, rather than by the seat belts. With LATCH-compatible child seats, lower (also known as ISOFIX) anchors attach to the seat structure through heavy-gauge wire loops located near the intersection between the seat cushion and the seat back surfaces.

The owner's information packet in the vehicle glove box contains details and suggestions on the proper use of all of the factory-installed child restraint anchors.

Pre-Tensioners at the Anchors

Component Index

Both front seating positions are equipped with three-point seat belt systems. Both positions employ a lower B-pillar mounted retractors, height-adjustable upper B-pillar mounted turning loops, an integral anchor tensioner that is secured at the base of the B-pillar, and a traveling end-release seat belt buckle secured to the inboard side of the seat frame.

The buckles of the driver and front passenger seats are equipped with a Hall-effect sensor that checks the seat belt fastening. The Hall-effect sensors are hardwired to, and monitored by, the ORC.

A 1.0 kilohm diagnostic resistor is connected in parallel with the Hall-effect sensor where the two pigtail wire leads connect to the Hall-effect sensor terminals. The resistor allows a small amount of current to flow through the circuit continuously. The ORC monitors the current in the circuit. When 5-8 mA are present, the seat belt is unbuckled. When 12-17 mA are present, the seat belt is buckled. If the harness is disconnected, the current flow is interrupted and a seat belt switch Diagnostic Trouble Code (DTC) is set.

The front seat belt switches are designed to control a hardwired switch status input to the ORC. A spring-loaded slide with a small window-like opening is integral to the buckle latch mechanism. When a seat belt tip-half is inserted and latched to the seat belt buckle, the slide is pushed downward and the window of the slide exposes the Hall Effect integrated circuit chip within the buckle. The field of the permanent magnet induces a current within the chip. The chip provides this induced current as an output to the ORC. When the seat belt is unbuckled, the spring-loaded slide moves upward and shields the integrated circuit from the field of the permanent magnet, causing the output current from the seat belt switch to be reduced.

The seat belt switches receive a supply of current from the ORC, and the ORC senses the status of the seat belt switches through its connection to each switch. The ORC provides electronic seat belt switch status messages to the IPC over the CAN data bus. The IPC uses these messages as an additional logic input for control of the seat belt indicator. The ORC monitors the condition of the seat belt switch circuits and will store a DTC for any fault that is detected.

The seat belt switches cannot be adjusted or repaired and, if ineffective or damaged, the entire front seat belt buckle-half unit must be replaced (Refer to Restraints/BUCKLE, Seat Belt/Removal and Installation).

Second Row Seat Belts And Buckles

Typically, the vehicle occupants recall more about the events preceding and following a collision than they do of an airbag deployment itself. This is because the airbag deployment and deflation occur very rapidly. In a typical 48 km/h (30 mph) barrier impact, from the moment of impact until the airbags are fully inflated takes about 40 milliseconds. Within one to two seconds from the moment of impact, the airbags are almost entirely deflated. The times cited for these events are approximations, which apply only to a barrier impact at the given speed. Actual times will vary somewhat, depending upon the vehicle speed, impact angle, severity of the impact, and the type of collision.

When the ORC monitors a problem in any of the SRS circuits or components, including the seat belt tensioners, it stores a fault code or DTC in its memory circuit and sends an electronic message to the IPC to turn ON the airbag indicator. The hardwired circuits between components related to the SRS may be diagnosed using conventional diagnostic tools and procedures. Refer to the appropriate wiring information. The wiring information includes wiring diagrams, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds. For proper wire repair, (Refer to Non-DTC Diagnostics/Circuit Testing Procedures/Standard Procedure) and connector repair procedures, (Refer to Non-DTC Diagnostics/Circuit Testing Procedures/Removal) and (Refer to Non-DTC Diagnostics/Circuit Testing Procedures/Installation).

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

Clockspring

Component Index

The Steering Column Control Module (SCCM) is located near the top of the steering column below the steering wheel. The SCCM includes the clockspring, the left (lighting) multifunction switch, the right (wiper) multifunction switch, and a steering column power tilt and telescope switch (if equipped).

The SCCM is secured to the steering column by an integral band clamp on the bottom of the instrument panel side of the SCCM. The SCCM has a centering attachment screw located on the top of the instrument panel side of the SCCM to be certain the SCCM is centered properly on the steering column.

There are also unique lugs cast into the outer circumference of the steering wheel hub that must be engaged into slots within the inner circumference of the clockspring rotor hub to unlock and drive the clockspring. The steering wheel must be tightened to specification to ensure proper clockspring function.

The SCCM includes three integral connector receptacles that face toward the Driver AirBag (DAB) (front side) and are connected to the steering wheel electrical components through three take outs and connectors of the steering wheel wire harness. The 6-terminal receptacle at the 11 o'clock position contains the circuits for the

Remote or satellite acceleration type impact sensors are mounted in various locations in the vehicle. These sensors are mounted remotely from the impact sensor that is internal to the ORC. Sensors at the front of the vehicle provide an additional logic input for use by the ORC to control the front airbags, the seat belt tensioners and, if equipped, the driver KAB. Sensors on each side of the vehicle provide an additional logic input for use by the ORC to control the side curtain airbags, the seat belt tensioners and the seat airbags.

Although the front and side acceleration type impact sensors are similar in appearance and construction, they may not be interchangeable. The front impact sensors may monitor acceleration forces on a different axis than those monitored by the side impact sensors. Each front sensor is secured with a single fastener to a weld stud in its mounting location. The side impact sensors are secured with a single fastener to its mounting location.

A front sensor is located on the back of each vertical support next to the radiator, below the inboard side of the headlamp housing and have a side acceleration type sensor located near the base of each inner B-pillar, the middle of each inner C-pillar, and below the rear quarter window, each concealed behind the interior trim.

Each acceleration sensor housing has an integral connector receptacle, an integral locator and anti-rotation pin, and an integral mounting hole with a metal sleeve to provide crush protection. A cavity in the center of the molded plastic impact sensor housing contains the electronic circuitry of the sensor which includes an electronic communication chip and an electronic acceleration sensor. Potting material fills the cavity and a translucent molded cover is laser welded over the cavity to seal and protect the internal electronic circuitry and components.

The acceleration type impact sensors are electronic accelerometers that sense the rate of vehicle deceleration, which provides verification of the direction and severity of an impact. Each sensor also contains an electronic communication chip that allows the unit to communicate the sensor status as well as sensor fault information to the microcontroller within the ORC.

The ORC microcontroller continuously monitors all of the passive restraint system electrical circuits to determine the system readiness. If the ORC detects a monitored system fault, it sets a DTC and controls the airbag indicator operation accordingly. The acceleration type and pressure type side impact sensors for each side of the vehicle are connected in series (daisy-chained) to the ORC. The impact sensors on each side of the vehicle receive battery current and ground through dedicated left and right sensor plus and minus circuits from the ORC. The impact sensors and the ORC communicate by modulating the voltage in the sensor plus circuit.

The front impact sensors are each connected to the vehicle electrical system through dedicated take outs and connectors of the headlamp and dash wire harness, while the side impact sensors are connected through dedicated take outs and connectors of the body wire harness.

The hardwired circuits between the impact sensors and the ORC may be diagnosed using conventional diagnostic tools and procedures. Refer to the appropriate wiring information. However, conventional diagnostic methods will not prove conclusive in the diagnosis of the impact sensors or the electronic controls

- Impact command signal
- Impact command signal confirmation
- Impact fault status
- Impact threshold status – "met" or "not met"
- Impact type, severity, direction and rollover information

For additional information on the ORC, (Refer to Electrical/8E - Electronic Control Modules/MODULE, Occupant Restraint/Description and Operation).

Passenger Airbag (PAB)

Component Index

A front PAB is standard in this vehicle. This airbag system consists of passive, inflatable, SRS components and vehicles with this equipment can be readily identified by the **AIRBAG** logo molded to the PAB door on the instrument panel above the glove box. Vehicles with the airbag system can also be identified by the airbag indicator, which will illuminate in the IPC from 4-6 seconds as a bulb test each time the status of the ignition transitions to ON.

The PAB is integral to the top of the instrument panel and bolts to the instrument panel frame. The PAB contains an active vent.

The PAB is a multistage, adaptive-deployment airbag. The airbag contains three squib circuits. Two squibs inflate the airbag, the third squib activates the last charge which allows the cushion to follow a curve of deflation appropriate to impact severity.

The PAB is deployed by electrical signals generated by the ORC through the PAB squib circuits to the initiator in the airbag inflator and, in vehicles so equipped, to the initiator of the MGG for the adaptive vent.

By using two initiators and an adaptive vent, the PAB can be deployed at multiple levels of force. The force level is controlled by the ORC to suit the monitored impact conditions by providing one of multiple delay intervals between the electrical signals provided to the two initiators and the MGG. The longer the delay between the initiator signals and the sooner the adaptive vent is opened, the less forcefully the PAB will deploy.

When the ORC sends the proper electrical signals to the initiator, the electrical energy generates enough heat to initiate a small pyrotechnic charge which, in turn ignites chemical pellets within the inflator. Once ignited, these chemical pellets burn rapidly and produce a large quantity of inert gas. The inflator is sealed to the airbag cushion and a diffuser in the inflator directs all of the inert gas to the airbag cushion, causing the cushion to inflate. As the cushion inflates, the PAB door area of the instrument panel cover will split at predetermined breakout lines, then fold back out of the way. Following an airbag deployment, the airbag cushion quickly deflates by venting the inert gas through a discrete vent hole in each fabric side panel of the airbag cushion.

passengers in the event of a rollover event. The deflation rate of the airbags is controlled by the tightness of the airbag fabric mesh.

Each SABIC is deployed individually by an electrical signal generated by the ORC to which it is connected through the left or right SABIC line 1 and line 2 (or squib) circuits. The hybrid-type inflator assembly for each airbag contains a small canister of highly compressed inert gas. When the ORC sends the proper electrical signal to the airbag inflator, the electrical energy creates enough heat to ignite chemical pellets within the inflator.

Once ignited, these chemicals burn rapidly and produce the pressure necessary to rupture a containment disk in the inert gas canister. The inflator and inert gas canister are sealed and connected to a tubular manifold so that all of the released gas is directed to the folded airbag cushion, causing the cushion to inflate. As the cushion inflates it will drop down from the roof rail between the edge of the headliner and the side glass/body pillars to form a curtain-like cushion to protect the vehicle occupants during a side impact collision incident. The cushion features large chambers that inflate adjacent to the head of each front and rear seat occupant.

The front tether and rear locating tab keep the side curtain airbag cushion taut to the side of the vehicle. In addition, ramps integral to the side trim of the interior, integral to the side curtain airbag modules themselves and the shape of the roof rails at the tops of the B, C and D-pillars guide the cushion to the proper deployment position. Following the deployment, the cushion slowly deflates by venting the inert gas through the loose weave of the cushion fabric and the deflated cushion hangs down loosely from the roof rail.

The ORC monitors the condition of the side curtain airbags through circuit resistance. If any fault is detected the ORC will illuminate the airbag indicator in the instrument cluster and store a DTC. Proper diagnosis of the side curtain airbag inflator and squib circuits requires the use of a diagnostic scan tool and may also require the use of the Airbag Kit. Refer to the appropriate diagnostic information.

The side curtain airbag units cannot be adjusted or repaired and must be replaced if deployed, ineffective, or in any way damaged. Once a side curtain airbag has been deployed, the complete side curtain airbag unit, the headliner, and the upper A, B, C and D-pillar trim, as well as all other visibly damaged components must be replaced.

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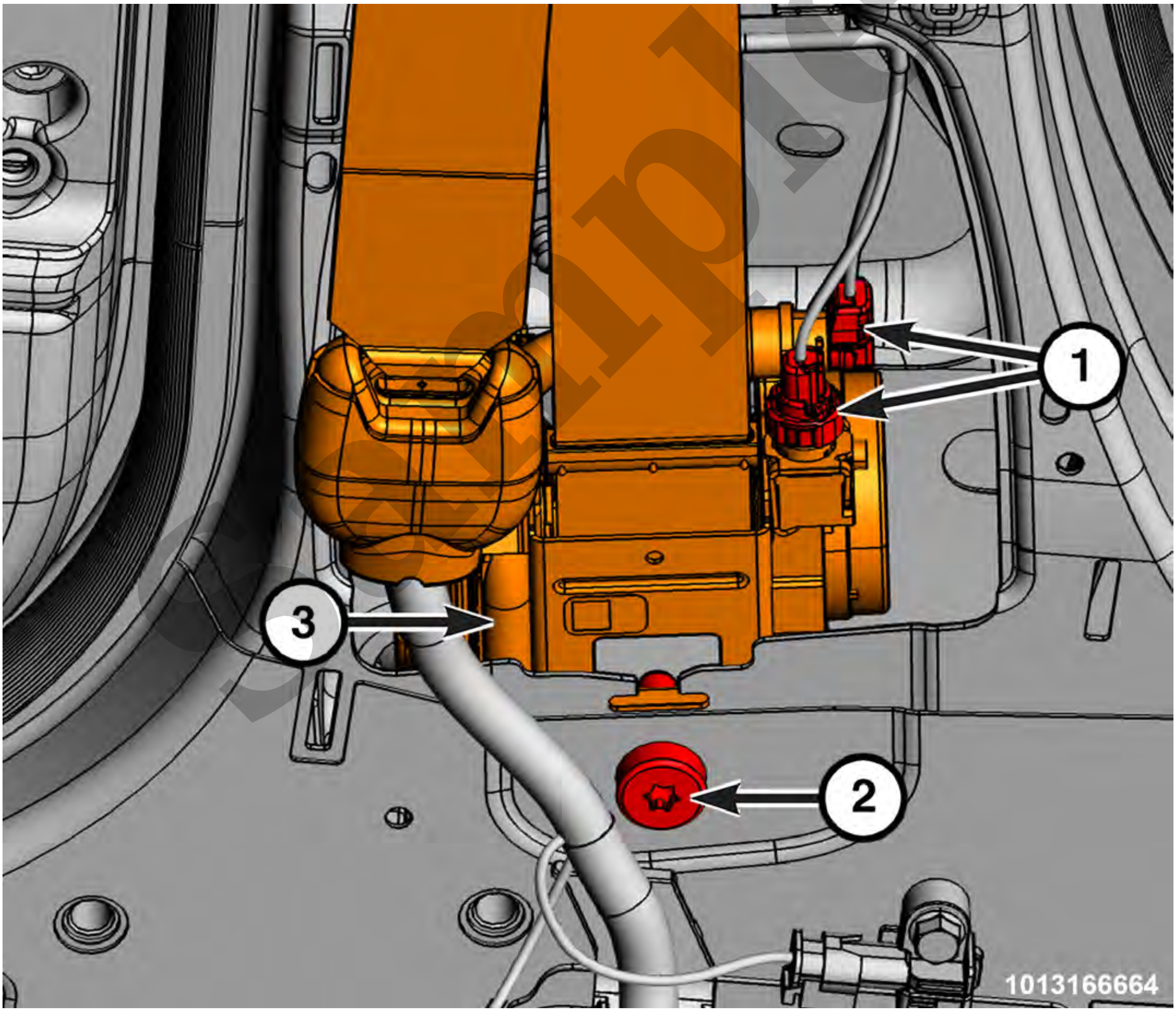
|---|
| 1 - Front Seat Belt Turning Loop Nut |
| 2 - Guide |
| 3 - Front Seat Belt Turning Loop |

4. Remove the front seat belt turning loop cover to access the front seat belt turning loop nut.

5. Remove the nut from the seat belt turning loop height adjuster.

6. Remove the front seat belt turning loop from the height adjuster.

7. Remove the seat belt webbing guide from the B-pillar.



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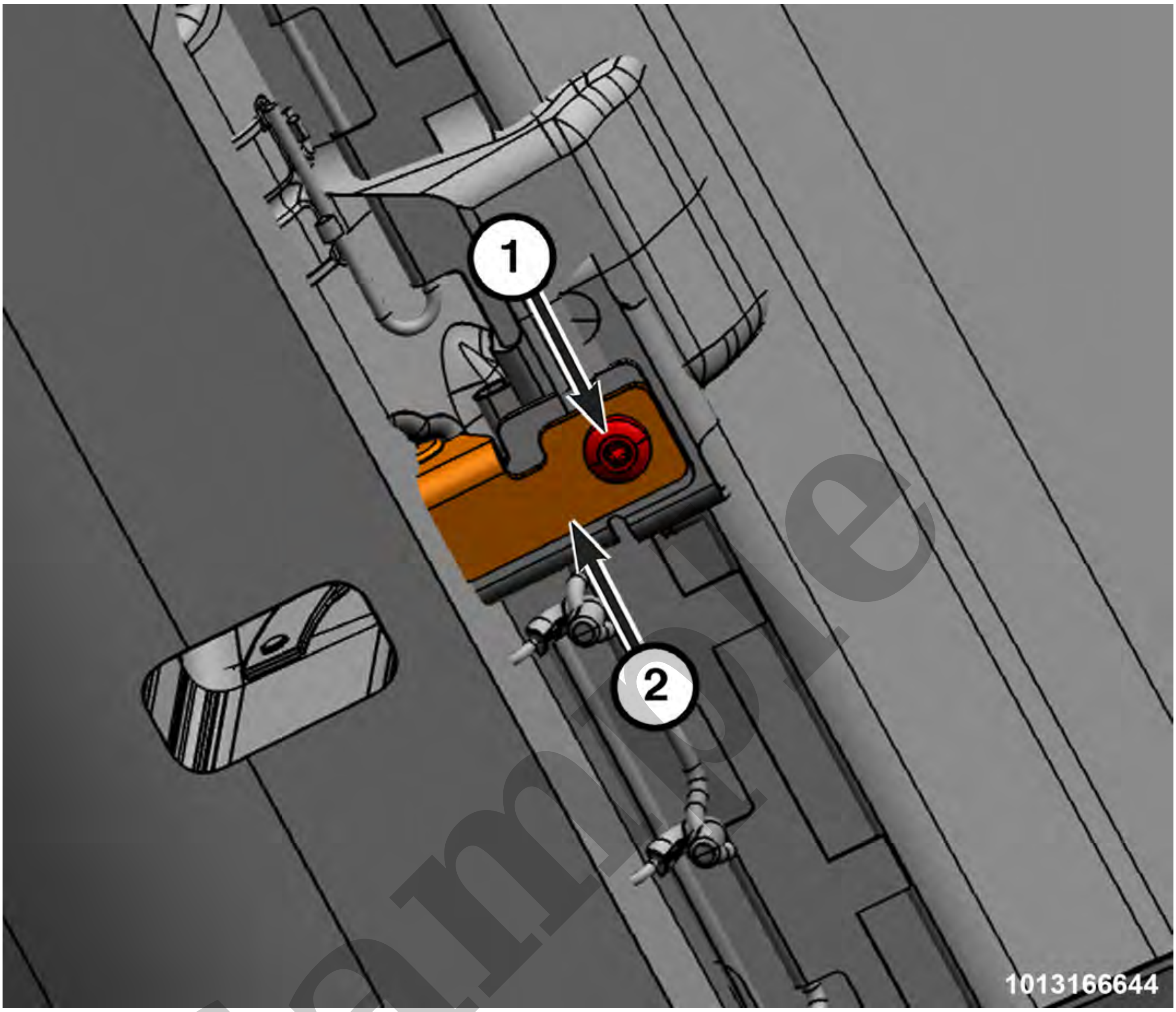
| 1 - Wire Harness Connectors |




| | |
|---|---|
| 1 - Second Row Center Seat Belt Anchor Bolt | |
| 2 - Seat Belt Anchor | |

2. Remove the second row center seat belt anchor bolt.