

Seat Belt System Description and Operation (Sedan)

Description

The Occupant Protection System (OPS) is designed to restrain and protect occupants of the vehicle during a collision. This is achieved by the use of:

- Lap-sash inertia reel seat belt assemblies fitted in all seating positions.
- Seat belt pretensioners which are incorporated in the front drivers and passenger seat belt buckles.
- A dual stage drivers airbag which is incorporated in the steering wheel.
- A dual stage passenger airbag which is incorporated in the instrument panel.
- Side impact inflatable restraints which are incorporated in the front driver and passenger seats, where fitted.
- Side impact inflatable restraints (curtain airbags) which are incorporated in the roof, where fitted.
- Active head restraints which are incorporated in the front seat assemblies, where fitted.

Locking of the inertia reel seat belt is automatic. Deployment of the seat belt pretensioners and inflatable restraints is controlled by a sensing diagnostic module (SDM), which is mounted on the floor panel beneath the centre console. The SDM has an internal velocity sensor and two external impact sensors mounted to the front of the vehicle to detect frontal collisions, while side impact sensor assemblies fitted to each side of the vehicle detect side impacts.

Front Seat Belt System

The front seat belt system includes the following components:

- Driver and passenger seat belt retractors which are located behind the centre pillar lower trim panel and are attached to the vehicle body.
- Driver and passenger seat belt buckles which are located near the centre console side of the seats and are attached to the seat frame.
- The system also includes a seat belt switch in the drivers seat buckle which controls a warning indicator lamp and a tone alarm.

Rear Seat Belt System

The rear seat belt system includes the following components:

- The rear seat belt retractors are located behind the body lock pillar trims and are attached to the vehicle body.
- The centre rear seat belt retractor is located in the rear seat and is attached to the rear seat frame assembly.
- The centre rear seat belt buckle and the outer rear seat belt buckles are located in the seat cushion and are attached to the vehicle body.

Child Seat Restraint System

Warning: A child in a rear-facing child restraint can be seriously injured if the right-front passengers air bag inflates. This is because the back of a rear-facing child restraint would be very close to the inflating air bag. NEVER use a rear-facing child restraint in this vehicle. If a forward-facing child restraint is suitable for your child, ALWAYS move the front passenger seat as far back as it will go and then install the child restraint. Be sure the child restraint position does not conflict with any additional requirements provided by the manufacturer. For more information, refer to the vehicle owners manual and the instruction that came with the child restraint.

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The child seat may only be used in a forward facing seating location. The child seat should be installed and secured according to the manufacturer's directions. If the child seat has a top strap, the seat will need to be anchored. Passengers should not be allowed to sit at locations where the seat belts are being used to secure the child seat.

Fasten Safety Belt Indicator (ISO Symbol) (Red)

The fasten safety belt indicator may only be ON when the vehicle is in RUN mode. The instrument panel cluster (IPC) illuminates the fasten safety belt indicator under the following conditions:

- During the bulb check.
- The inflatable restraint sensing and diagnostic module (SDM) sends the status of the driver seat belt switch to the IPC. If the seat belt is unfastened, the IPC will illuminate the fasten safety belt indicator for approx. 20 seconds or until the seat belt is fastened. If the seat belt is unfastened within 8 seconds following the bulb check, the SDM sends a request to the IPC for 5 chimes to sound.

Seat Belt System Description and Operation (Sportwagon)

Restraint System

The vehicle has front and rear seat belts that are the primary means of occupant restraint. Seat belts help to keep the occupants inside the passenger compartment and to gradually reduce the impact forces during the following events:

- Frontal impact type crashes
- Rear impact type crashes
- Side impact type crashes
- Roll-over type crashes

All seat belt retractors have emergency locks. The retractors remain unlocked during normal operation and under normal driving conditions. The retractors remain unlocked during normal conditions in order to allow free movement of the upper body of each occupant. A pendulum locks the seat belt webbing into position. The pendulum causes a locking bar to engage a cog on the spool of the retractor mechanism when the following conditions occur:

- A rapid extraction of the seat belt webbing from the retractor
- An abrupt change in vehicle speed
- An abrupt change in vehicle direction
- Operation of the vehicle on a steep upgrade
- Operation of the vehicle on a downgrade

The seat belts have an automatic locking (cinch) feature. The cinch feature is activated when the seat belt webbing is completely extended from the retractor. The cinch feature prevents the webbing from extending beyond the position from which it is allowed to retract. Use of the cinch feature is recommended for securing a child seat. The cinch feature may be cancelled by allowing the webbing to wind back completely into the retractor. After the cinch feature is cancelled, the webbing is unlocked. After the cinch feature is cancelled, the webbing will extend from the retractor. This vehicle is also equipped with a supplemental inflatable restraint (SIR) system. Refer to [Supplemental Inflatable Restraint System Description and Operation](#)

Front Seat Belt System

The front seat belt system includes a driver and passenger seat belt pretensioner retractor. Both front seat belt pretensioners includes a seat belt switch in the seat buckle which controls a reminder lamp and a tone alarm.

Note: The front passenger seat is equipped with a seat belt reminder sensor, which detects an occupant. If the seat belt reminder sensor detects an empty front passenger seat, then the passenger fasten safety belt indicator will be disabled.

- When the driver seat belt is buckled and the ignition switch is turned ON, the following events will occur:
 - The tone alarm will not operate.
 - The reminder lamp will not operate.
- When the passenger seat belt is buckled with an occupant sitting in the passenger front seat, then the ignition switch is turned ON, the following events will occur:
 - The tone alarm will not operate.
 - The reminder lamp, which is located within the Driver Information Display, will not be turned ON.

- When the driver seat belt is not buckled and the ignition switch is in the ON position, the following events will occur:
 - The tone alarm will operate for 4–8 seconds and then go OFF.
 - The fasten safety belt indicator will turn ON for 20 seconds, until the driver seat belt is buckled.
- When the passenger seat belt is not buckled with an occupant sitting in the passenger front seat, then the ignition switch is turned ON, the following events will occur:
 - The tone alarm will operate for 4–8 seconds and then go OFF.
 - The reminder lamp, which is located within the Driver Information Display, will be turned ON.

Rear Seat Belt System

The Rear Seat Belt System includes the following components:

- The rear seat belt retractor is located at the wheelhouse panel and attached to the floor panel by the rear seat shoulder belt retractor bracket.
- The rear seat belt buckles and the center seat belt buckle are attached to each seat.

Child Seat Restraint System

Warning: A child in a rear-facing child restraint can be seriously injured if the right-front passengers air bag inflates. This is because the back of a rear-facing child restraint would be very close to the inflating air bag. NEVER use a rear-facing child restraint in this vehicle. If a forward-facing child restraint is suitable for your child, ALWAYS move the front passenger seat as far back as it will go and then install the child restraint. Be sure the child restraint position does not conflict with any additional requirements provided by the manufacturer. For more information, refer to the vehicle owners manual and the instruction that came with the child restraint.

All vehicles are equipped with a dual-mode type retractor with emergency and automatic locking features. The automatic locking feature is for restraint of a child seat. The child seat can be secured by pulling the seat belt all the way out to lock it. Then tighten the seat belt around the child seat.

If a child seat is to be used in the second seat position, a special dealer-installed anchor must be used in order to anchor the child seat top strap. This only applies to the seats designed with the top strap provision and for the vehicles sold in Canada. In order to ensure the correct top strap angle, the child seat is only to be used at the seating position for which the top strap anchor is installed.

Fasten Safety Belt Indicators

There is one fasten safety belt indicator for this vehicle. The fasten safety belt reminder is displayed in the instrument cluster. The fasten safety belt indicator may only be ON during RUN. The fasten safety belt indicator illuminates under the following conditions:

- During the bulb check
- The inflatable restraint sensing and diagnostic module (SDM) sends the status of the driver and passenger seat belt to the instrument cluster via serial data. If any of the seat belts are unfastened, the instrument cluster will send a message requesting a chime sound to be turned ON after a bulb check.

Child Seat Restraint System

Warning: A child in a rear-facing child restraint can be seriously injured if the right-front passengers air bag inflates. This is because the back of a rear-facing child restraint would be very close to the inflating air bag. NEVER use a rear-facing child restraint in this vehicle. If a forward-facing child restraint is suitable for your child, ALWAYS move the front passenger seat as far back as it will go and then install the child restraint. Be sure the child restraint position does not conflict with any additional

requirements provided by the manufacturer. For more information, refer to the vehicle owners manual and the instruction that came with the child restraint.

The child seat may only be used in a forward facing seating location. The child seat should be installed and secured according to the manufacturer's directions. If the child seat has a top strap, the seat will need to be anchored.

Fasten Safety Belt Indicator (ISO Symbol) (Red)

The seat belt reminder switch is wired to the SDM, which sends a message via GMLAN to the instrument panel cluster (IPC) on the status of the seat belt buckle. The IPC activates the seat belt warning lamp and an audible chime. If the seat belt is not fastened when the ignition is ON, the seat belt warning lamp will illuminate and a chime will sound for approximately 20 seconds. If the seat belt is not fastened and the vehicle speed reaches 25 Km/h, the seat belt warning lamp will flash, the chime will sound and the Fasten Seat Belt message is displayed in the drivers multi function display until the seat belt is fastened.

Seat Belt System Operational and Functional Checks

Important: If the vehicle has been in a collision, refer to [Repairs and Inspections Required After a Collision](#) for additional information.

Perform the following inspection of the driver and passenger seat:

1. Ignition ON. Verify proper operation of the seat belt reminder lamp with the belt buckled and with the belt unbuckled. Refer to [Seat Belt System Description and Operation](#).
2. Inspect the shoulder belt guide in order to make sure that the following conditions are met:
 - The seat belt webbing is seated flat in the guide slot.
 - The seat belt webbing does not bind.
3. Verify that the seat belt buckle faces inboard and is accessible.
4. Verify that the seat belt retractor units are securely attached.
5. Verify that the seat belt anchor bolts are secure.
6. Fully extend the seat belt webbing. Verify that the seat belt webbing does not have any twists or tears.
7. Allow the seat belt webbing to retract. Verify that the seat belt webbing returns freely and completely back into the retractor.
8. Snap the seat belt latch plate into the buckle.
9. Sharply tug on the seat belt latch plate and the buckle. Verify that the seat belt latch plate and the buckle remain locked when tugged.
10. Push the button on the buckle.
 - Verify that the seat belt latch plate releases easily from the buckle.
 - Verify that the button returns to its original position.

Perform the following steps to inspect the left and right seat belts:

1. Inspect the shoulder belt guide in order to make sure that the following conditions are met:
 - The seat belt webbing is seated flat in the guide slot.
 - The seat belt webbing does not bind.
2. Verify that the seat belt buckle is accessible.
3. Verify that the seat belt retractor units are securely attached.
4. Verify that the seat belt anchor bolts are secure.
5. Fully extend the seat belt webbing. Verify that the seat belt webbing does not have any twists or tears.
6. Allow the seat belt webbing to retract. Verify that the seat belt webbing returns freely and completely back into the retractor.
7. Snap the seat belt latch plate into the buckle.
8. Sharply tug on the seat belt latch plate and the buckle. Verify that the seat belt latch plate and the buckle remain locked when tugged.
9. Push the button on the buckle.
 - Verify that the seat belt latch plate releases easily from the buckle.
 - Verify that the button returns to its original position.

Perform the following steps to inspect the centre rear seat belts:

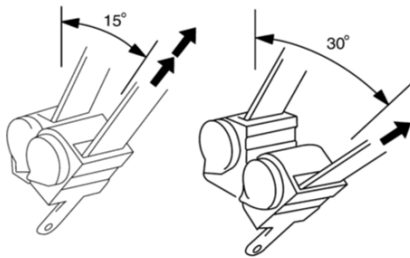
1. Verify that the centre seat belts are accessible.
2. Verify that the centre seat belt retractor unit is securely attached.

3. Verify that the seat belt anchor bolts are secure.
4. Verify that the seat belt buckle anchor bolts are secure.
5. Fully extend the centre seat belt webbing. Verify that the seat belt webbing does not have any twists or tears.
6. Allow the centre seat belt webbing to retract. Verify that the seat belt webbing returns freely and completely back into the retractor.
7. Snap the seat belt latch plate into the buckle.
8. Sharply tug on the seat belt latch plate and the buckle. Verify that the seat belt latch plate and the buckle remain locked when tugged.
 - Verify that the seat belt latch plate releases easily from both buckles.
 - Verify that the buttons return to their original positions.

For information on removal of the rear seats cushions refer to [Rear Seat Cushion Removal and Installation](#).

Emergency Locking Retractors

1. Fasten the seat belts, an assistant is needed when the retractor under test is not part of the driver seat belt.
2. Accelerate the vehicle slowly to 16 km/h and apply the brakes firmly.
3. Verify that the seat belt locks when braking firmly.
4. If the belt does not lock, proceed with the following steps.



Important: When performing this check , note the position the retractor is mounted.

- 4.1. Remove the seat belt retractor assembly.
- 4.2. Tilt the seat belt retractor slowly.
- 4.3. Make sure that the seat belt webbing can be pulled from the retractor at an inclination from the vehicle position of 15 degrees or less and cannot be pulled from the retractor at an inclination of 30 degrees or more.
- 4.4. If the seat belt retractor does not operate as described, replace the retractor assembly. Refer to the following procedures:
 - [Front Seat Belt Buckle Replacement](#)
 - [Rear Seat Belt Retractor Replacement](#)
 - [Rear Center Seat Belt Retractor Replacement](#)

Symptoms - Seat Belts

Note: Review the seat belt system description and operation in order to familiarize yourself with the system and how it functions. Refer to [Seat Belt System Description and Operation](#).

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the seat belt system. Refer to [Checking Aftermarket Accessories](#).
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to [Testing for Intermittent Conditions and Poor Connections](#).

Symptom List

Refer to the following symptom diagnostic procedure in order to diagnose the symptom:

- [Seat Belt Indicator Malfunction - Driver](#)
- [Seat Belt Indicator Malfunction - Passenger](#)

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Seat Belt Does Not Retract

1. Grasp the seat belt and pull it out slowly and evenly from the retractor, do that in 15-25mm (5/8 -1in) increments, continuing until the seat belts entire length has been pulled out.
2. Release the seat belt, and allow the retractor to slowly retract the full length of the seat belt. The seat belt must retract without any additional help.
3. Additionally, make sure, that the seat belt can be stopped any time while retracting and then resumed while being released again. This must also be possible in all retracting positions.
4. Should problems be observed in step 3, perform the first two steps 2 more times.
5. Should the retractor, after performing these steps, not function freely and properly, it is to be replaced with a new part.

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Seat Belt Indicator Malfunction - Driver

Diagnostic Instructions

- Perform the [Diagnostic System Check - Vehicle](#) prior to using this diagnostic procedure.
- Review [Strategy Based Diagnosis](#) for an overview of the diagnostic approach.
- [Diagnostic Procedure Instructions](#) provides an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Driver Seat Belt Switch Signal	1	2	2	—
Driver Seat Belt Switch Low Reference	—	2	—	—
1. Indicator will remain ON with seat belt buckled. 2. Indicator will illuminate only for the bulb check.				

Circuit/System Description

The driver seat belt switch is a 2-wire switch wired to the inflatable restraint sensing and diagnostic module (SDM) using a signal circuit and a low reference circuit. When the seat belt is unbuckled the switch is closed, and when the seat belt is buckled the switch is open. The inflatable restraint sensing and diagnostic module sends the status of the driver seat belt via serial data to the instrument cluster. After receiving the message, the instrument cluster controls the illumination of the driver seat belt indicator.

Reference Information

Schematic Reference

[Seat Belt Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

Description and Operation

[Seat Belt System Description and Operation](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Verification

1. Verify the driver seat belt indicator turns ON and OFF when commanding the instrument cluster all indicators ON and OFF with a scan tool.
 - ⇒ **If the driver seat belt indicator does not turn ON and OFF as commanded.**
Replace the P16 Instrument Cluster.
 - ⇓ **If the driver seat belt indicator does turn ON and OFF as commanded**
2. Verify the scan tool Driver Seat Belt Switch parameter changes between Buckled and Unbuckled when buckling and unbuckling the driver seat belt.
 - ⇒ **If the parameter does not change**
Refer to Circuit/System Testing.
 - ⇓ **If the parameter changes**
3. All OK.

Circuit/System Testing

Note: When removing connectors inspect for damage or corrosion. Damage or corrosion in the following requires repair or replacement of the affected component/connector.

- B153D Seat Belt Buckle-Driver
- Seat belt switch harness connector
- K36 Inflatable Restraint Sensing and Diagnostic Module
- Inflatable Restraint Sensing and Diagnostic Module wiring harness connector

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the B153D Seat Belt Buckle-Driver. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 5 Ω between the low reference circuit terminal 1 and ground.

⇒ **If 5 Ω or greater**

- 2.1. Disconnect the X2 harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module.
- 2.2. Test for less than 2 Ω in each low reference circuit end to end.
 - ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
 - ⇒ If less than 2 Ω , replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

⇓ **If less than 5 Ω**

3. Ignition ON.
4. Verify the scan tool Driver Seat Belt Status parameter is Buckled.

⇒ **If not Buckled**

- 4.1. Ignition OFF, disconnect the X2 harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module.
- 4.2. Test for infinite resistance between the seat belt switch signal circuit terminal 2 and ground.
 - ⇒ If less than infinite resistance, repair the short to ground on the circuit.
 - ⇒ If infinite resistance, replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

⇓ **If Buckled**

5. Install a 3 A fused jumper wire between the signal circuit terminal 2 and the low reference circuit terminal 1.
6. Verify the scan tool Driver Seat Belt Status parameter is Unbuckled.
 - ⇒ **If Unbuckled**
 - 6.1. Ignition OFF, disconnect the X2 harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module, ignition ON.
 - 6.2. Test for less than 1 V between the signal circuit and ground.
 - ⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇓ If less than 1 V

6.3. Test for less than 2 Ω in each circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω , replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

⇓ **If Unbuckled**

7. Test or replace the B153D Seat Belt Buckle-Driver.

Component Testing

1. Ignition OFF, disconnect the harness connector at the B153D Seat Belt Buckle-Driver, buckle the driver seat belt.

2. Test for infinite resistance between the signal circuit terminal 2 and the low reference terminal 1.

⇒ **If not infinite resistance**

Replace the B153D Seat Belt Buckle-Driver.

⇓ **If infinite resistance**

3. Unbuckle the driver seat belt.

4. Test for less than 1 Ω between the signal circuit terminal 2 and the low reference terminal 1.

⇒ **If 1 Ω or greater**

Replace the B153D Seat Belt Buckle-Driver.

⇓ **If less than 1 Ω**

5. All OK.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Seat Belt Buckle Pretensioner Replacement](#)
- [Control Module References](#) for inflatable restraint sensing and diagnostic module or instrument cluster replacement, programming and setup

Seat Belt Indicator Malfunction - Passenger

Diagnostic Instructions

- Perform the [Diagnostic System Check - Vehicle](#) prior to using this diagnostic procedure.
- Review [Strategy Based Diagnosis](#) for an overview of the diagnostic approach.
- [Diagnostic Procedure Instructions](#) provides an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Passenger Seat Belt Buckle Signal	1	2	2	—
Passenger Seat Belt Buckle Low Reference	—	2	—	—
Passenger Seat Belt Indicator Control	B059A 02, 3	B059A 04, 3	B059A 01, 4	—
Ground	—	3	—	—

1. Indicator will remain ON with seat belt buckled.
2. Indicator will illuminate only for the bulb check.
3. Indicator will not illuminate.
4. Indicator always ON.

Circuit/System Description

When an individual is sitting in the passenger seat the passenger presence sensor detects the individual. A signal to the Inflatable Restraint Sensing and Diagnostic Module indicates a person is in the passenger seat. The Inflatable Restraint Sensing and Diagnostic Module will turn the passenger seat belt indicator on. The passenger seat belt switch is a 2-wire switch wired to the Inflatable Restraint Sensing and Diagnostic Module (SDM) using a signal circuit and a low reference circuit. When the seat belt is unbuckled the switch is closed, and when the seat belt is buckled the switch is open. The Inflatable Restraint Sensing and Diagnostic Module sends the status of the passenger seat belt via a hard wire to the passenger air bag disable switch. After receiving the message, the passenger air bag disable switch controls the illumination of the passenger seat belt indicator.

Diagnostic Aids

Objects on the passenger seat can cause the passenger seat belt reminder to be commanded on. Depending on the sensing technology used, a conductive object (computers, MP3 players, cell phones, diagnostic scan tool, wires, a hand, etc.) placed on the passenger seat may cause the Passenger Presence Detection Module to command the passenger air bag indicator ON and/or command the passenger seat belt indicator ON. The fasten seat belt chime will also sound.

Reference Information

Schematic Reference

[Seat Belt Schematics](#)

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Connector End View Reference

[Component Connector End Views](#)

Description and Operation

[Seat Belt System Description and Operation](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

[Circuit/System Verification](#)

1. Ignition ON.
2. Verify the passenger seat belt indicator turns ON and OFF when performing the Passenger Seat Belt Reminder Indicator On/Off Control Function with a scan tool.
 - ⇒ **If the passenger seat belt indicator does not turn ON and OFF**
Refer to Seat Belt Indicator Malfunction.
 - ⇓ **If the passenger seat belt indicator turns ON and OFF**
3. Verify the scan tool Passenger Seat Belt Status parameter changes between Buckled and Unbuckled when buckling and unbuckling the seat belt.
 - ⇒ **If the parameter does not change between Buckled and Unbuckled when buckling and unbuckling the seat belt**
Refer to Seat Belt Buckle Malfunction.
 - ⇓ **If the parameter changes between Buckled and Unbuckled when buckling and unbuckling the seat belt**
4. All OK.

[Circuit/System Testing](#)

Seat Belt Buckle Malfunction

Note: When removing connectors inspect for damage or corrosion. Damage or corrosion in the following requires repair or replacement of the affected component/connector.

- B153P Seat Belt Buckle – Passenger
- Seat belt switch harness connector
- K36 Inflatable Restraint Sensing and Diagnostic Module
- Inflatable Restraint Sensing and Diagnostic Module harness connector

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the B153P Seat Belt Buckle – Passenger. It may take up to 2 minutes for all vehicle systems to power down.
2. Disconnect the harness connector at the B153P Seat Belt Buckle – Passenger.
3. Test for less than 5 Ω between the low reference circuit terminal B and ground.
 - ⇒ **If 5 Ω or greater**
 - 3.1. Disconnect the harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module.
 - 3.2. Test for less than 2 Ω in each control circuit end to end.
 - ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω , replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

⇓ **If less than 5 Ω**

4. Ignition ON.

5. Verify the scan tool Passenger Seat Belt Status parameter is Buckled.

⇒ **If the scan tool Passenger Seat Belt Status parameter does not display Buckled**

5.1. Disconnect the harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module.

5.2. Test for infinite resistance between the signal circuit terminal A and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇒ If less infinite resistance, replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

⇓ **If the scan tool Passenger Seat Belt Status parameter does display Buckled**

6. Install a 3 A fused jumper wire between the signal circuit terminal A and the ground circuit terminal B.

7. Verify the scan tool Passenger Seat Belt Status parameter is Unbuckled.

⇒ **If the scan tool Passenger Seat Belt Status parameter is not Unbuckled**

7.1. Disconnect the harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module.

7.2. Ignition ON.

7.3. Test for less than 1 V between the signal circuit and ground.

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇓ If less than 1 V

7.4. Test for less than 2 Ω in each circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω , replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

⇓ **If the scan tool Passenger Seat Belt Status parameter does display Unbuckled**

8. Ignition OFF, reconnect all harness connectors. Ignition ON.

9. With a scan tool, monitor the Passenger Seat Belt Status parameter while buckling and unbuckling the seat belt. The parameter should display Buckled and Unbuckled when buckling and unbuckling the seat belt.

⇒ **If the Passenger Seat Belt Status parameter is not Buckled and Unbuckled**

Test or replace the B153P Seat Belt Buckle – Passenger.

⇓ **If the Passenger Seat Belt Status parameter does display Buckled and Unbuckled**

10. All OK.

Seat Belt Indicator Malfunction

1. Ignition OFF, disconnect the harness connector at the P14 Passenger Air Bag Disable Indicator. It may take up to 2 minutes for all vehicle systems to power down.

2. Test for less than 5 Ω between the low reference circuit terminal B and ground.

⇒ **If 5 Ω or greater**

2.1. Disconnect the harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module.

2.2. Test for less than 2 Ω in each control circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω , replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

⇓ **If less than 5 Ω**

3. Connect a test lamp between the control circuit terminal 5 and ground, ignition ON.

4. Verify with a scan tool, command the Passenger Seat Belt Reminder Indicator ON and OFF, the test lamp should turn ON and OFF while changing between the commanded states.

⇒ **If the test lamp is always on**

- 4.1. Ignition OFF, disconnect the harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module. Ignition ON.
- 4.2. Test for less than 1 V between the control circuit and ground.
 - ⇒ If 1V or greater, repair the short to voltage on the circuit.
 - ⇒ If less than 1V, replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

⇒ **If the test lamp is always off**

- 4.1. Ignition OFF, disconnect the harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module.
- 4.2. Test for infinite resistance between the control circuit and ground.
 - ⇒ If less than infinite resistance, repair the short to ground on the circuit.
- 4.3. Test for less than 2 Ω in the control circuit end to end.
 - ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
 - ⇒ If less than 2 Ω , replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

↓ **If test lamp turns on and off while changing between the commanded states**

5. Replace the P14 Passenger Air Bag Disable Indicator.

Component Testing

1. Ignition OFF, disconnect the harness connector at the B153P Seat Belt Buckle – Passenger.
2. Buckle the passenger seat belt.
3. Test for infinite resistance between the signal circuit terminal A and the ground terminal B.
 - ⇒ **If less than infinite resistance**
Replace the B153P Seat Belt Buckle – Passenger.
 - ↓ **If infinite resistance**
4. B153 seat belt switch in the unbuckled position.
5. Test for less than 2 Ω between the signal circuit terminal A and the ground terminal B.
 - ⇒ **If 2 Ω or greater**
Replace the B153P Seat Belt Buckle – Passenger.
 - ↓ **If less than 2 Ω**
6. All OK.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair

- [Seat Belt Buckle Pretensioner Replacement](#)
- [Control Module References](#) for Inflatable Restraint Sensing and Diagnostic Module replacement, programming and setup

Seat Belt Service Precautions

Important: If the vehicle has been in a collision, refer to [Repairs and Inspections Required After a Collision](#) for additional information.

- Do not bleach or dye the seat belt webbing. Use only the following items in order to clean the seat belt webbing:
 - A mild soap and water solution.
 - A soft brush or cloth.
 - Rinse with fresh water.
- Keep sharp edges and damaging objects away from the seat belts. Avoid bending or damaging any part of the seat belt buckle or the latch plate. Replace any seat belts which are cut or damaged in any way.
- Use only the correct seat belt anchor bolts/screws and tighten the anchor bolts/screws to the correct torque value. Refer to [Fastener Tightening Specifications](#). When installing seat belt anchor bolts, start the bolt by hand to ensure that the bolt is threaded straight.
- Some seat belts and retractors require service as a set, with service replacement parts only. Do not attempt to repair to individual components that require service as a set.
- Verify that the replacement part number is correct for the vehicle at that seating position. Do not substitute a seat belt from a different seating position.

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Repairs and Inspections Required After a Collision

Warning: Restraint systems can be damaged in a collision. To help avoid injury and ensure that all parts in need of replacement are replaced:

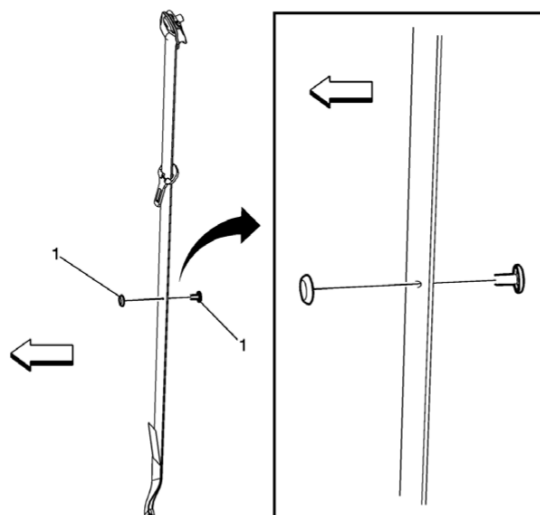
- Replace any seat belt system that was in use during the collision serious enough to deploy any automatic restraint device such as air bags and seat belt pretensioners. This not only includes seat belt systems in use by people of adult size, but seat belt systems used to secure child restraints, infant carriers and booster seats, including LATCH system and top tether anchorages.
- Replace any seat belt system that has torn, worn, or damaged components. This not only includes adult seat belt systems, but built-in child restraints and LATCH system components, if any.
- Replace any seat belt system if you observe the words "REPLACE" or "CAUTION", or if a yellow tag is visible. Do not replace a seat belt if only the child seat caution label is visible.
- Replace any seat belt system if you are doubtful about its condition. This not only includes adult seat belt systems, but built-in child restraints, LATCH system components, and any restraint system used to secure infant carriers, child restraints, and booster seats.

Do NOT replace single seat belt system components in vehicles that have been in a collision as described above. Always replace the entire seat belt system with the buckle, guide and retractor assembly, which includes the latch and webbing material.

After a minor collision where no automatic restraint device was deployed, seat belt system replacement may not be necessary, unless some of the parts are torn, worn, or damaged.

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Seat Belt Latch Stop Installation

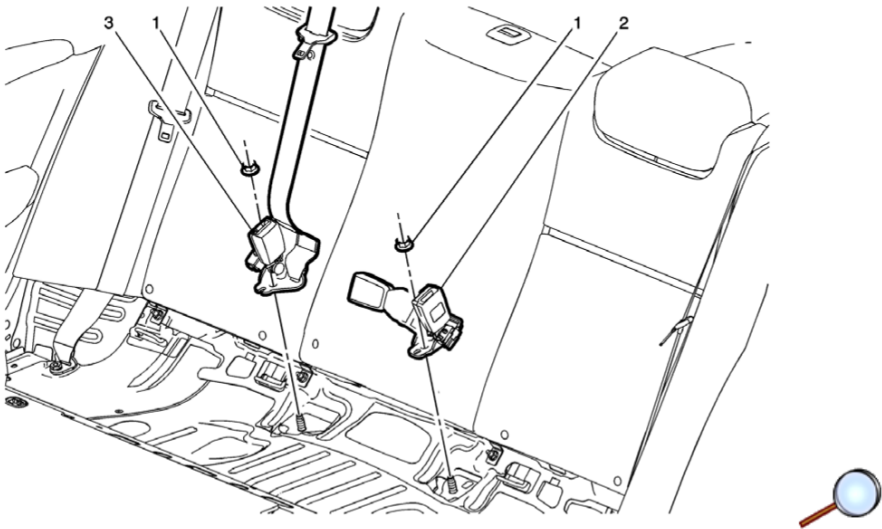


Seat Belt Latch Stop Installation

Callout	Component Name
Preliminary Procedure 1. Locate the hole in the seat belt webbing where the original seat belt stop button was located. 2. If the original hole in the seat belt webbing is not visible, perform the following: ◦ If either the right or left stop button is missing use the opposing seat belt as a reference. ◦ With the opposing seat belt fully stowed, measure the distance between the seat belt lower anchor and the stop button. ◦ Using the measurement obtained above, measure and mark the location of the missing stop button on the center of the seat belt webbing. 3. Ensure the seat belt latch plate is located above the mark or original hole.	
1	Seat Belt Stop Button Procedure 1. Work the male half of the stop button through the hole in the webbing or at the marked location. 2. Align the female half of the stop button with the male half of the stop button. 3. Snap the two halves together. 4. Trim off any excess of the male half of the stop button flush with the female half of the stop button.

Callout	Component Name
	Tip: Ensure the male half of the stop button is facing forward in the vehicle in order to ensure the stop button will not snag customers clothing.

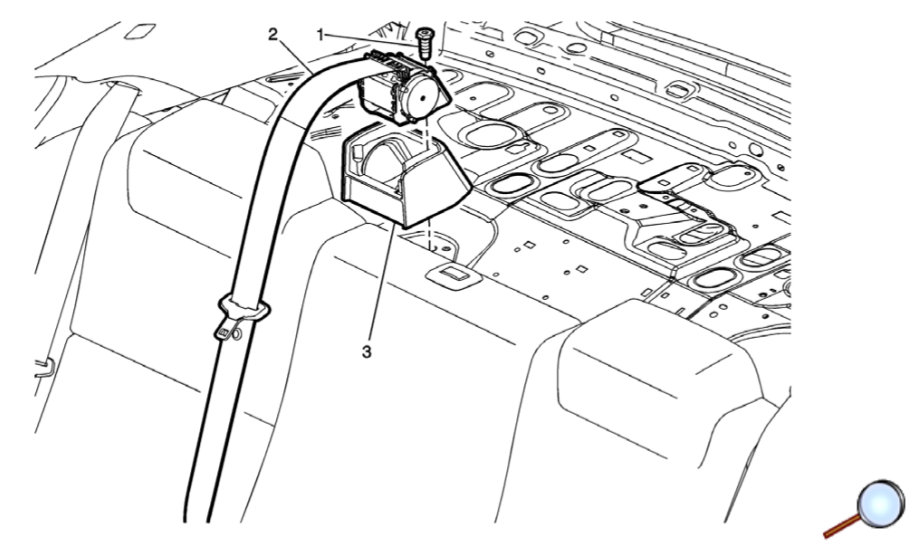
Rear Seat Belt Buckle Replacement



Rear Seat Belt Buckle Replacement

Callout	Component Name
Preliminary Procedures Remove the rear seat cushion. Refer to Rear Seat Cushion Removal and Installation .	
1	Rear Seat Belt Buckle Nut (Qty: 2) Caution: Refer to Fastener Caution . Tighten 40 N•m (30 lb ft)
2	Rear Seat Belt Buckle Procedure Disconnect the electrical connector.
3	Rear Seat Belt Retractor Buckle Procedure Disconnect the electrical connector.

Rear Center Seat Belt Retractor Replacement (Sedan)

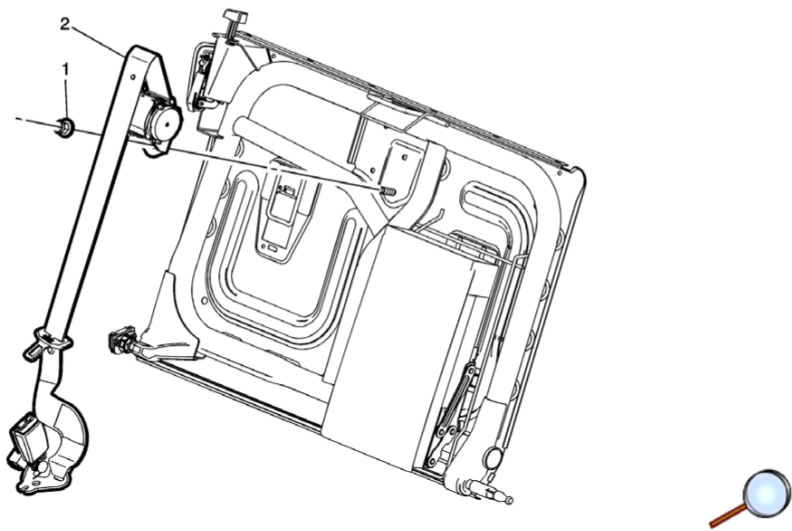


Rear Center Seat Belt Retractor Replacement

Callout	Component Name
Preliminary Procedure 1. Remove the rear seat belt buckle nut. Refer to Rear Seat Belt Buckle Replacement . 2. Remove the rear window panel trim. Refer to Rear Window Panel Trim Replacement .	
1	Rear Center Seat Belt Retractor Fastener Caution: Refer to Fastener Caution . Tighten 45 N·m (33 lb ft)
2	Rear Center Seat Belt Retractor
3	Rear Center Seat Belt Retractor Housing

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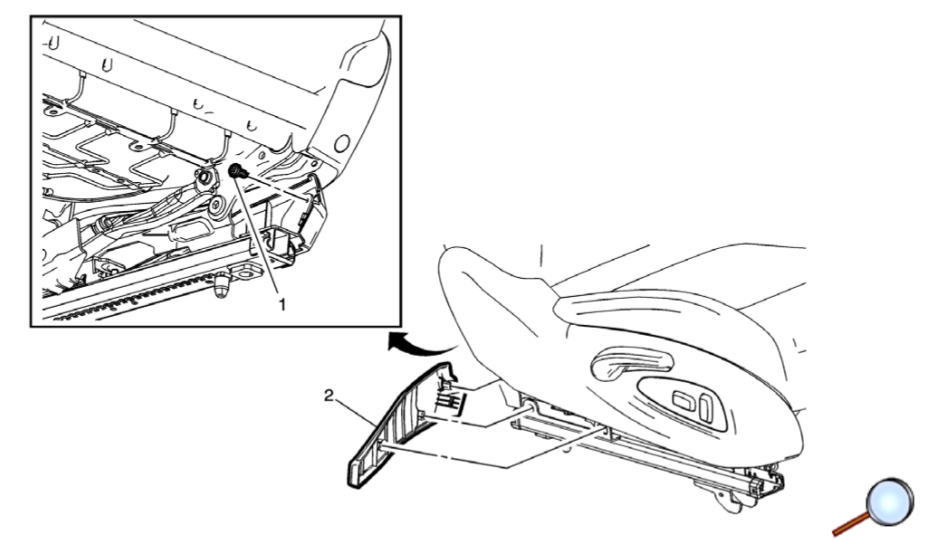
Rear Center Seat Belt Retractor Replacement
(Sportwagon)



Rear Center Seat Belt Retractor Replacement

Callout	Component Name
Preliminary Procedures 1. Remove the rear seat cushion. Refer to Rear Seat Cushion Removal and Installation . 2. Remove the rear seat back cushion cover and pad. Refer to Rear Seat Back Cushion Cover and Pad Replacement . 3. Remove the rear center seat belt buckle. Refer to Rear Seat Belt Buckle Replacement .	
1	Rear Center Seat Belt Retractor Nut Caution: Refer to Fastener Caution . Tighten 40 N•m (30 lb ft)
2	Rear Center Seat Belt Retractor Assembly

Front Seat Belt Front Trim Cover Replacement

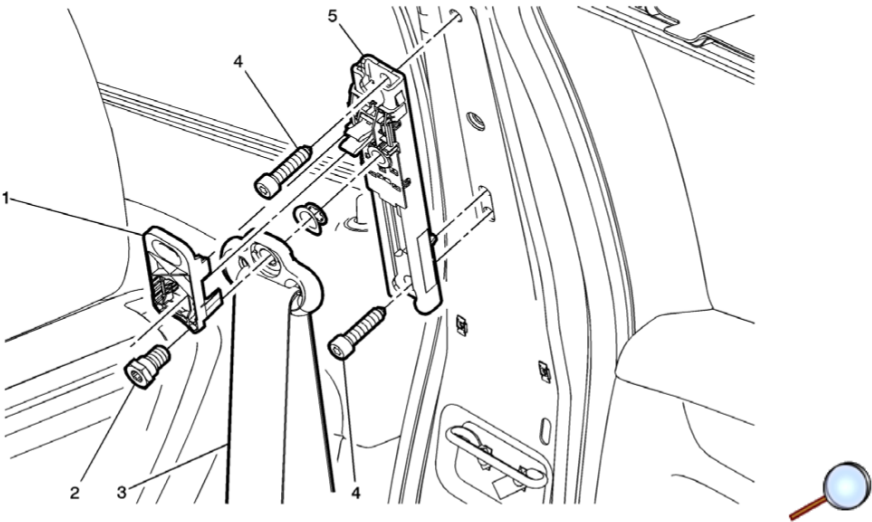


Front Seat Belt Front Trim Cover Replacement

Callout	Component Name
1	Front Seat Belt Front Trim Cover Fastener Caution: Refer to Fastener Caution .
2	Front Seat Belt Front Trim Cover Procedure 1. Raise the seat to the highest seat position. 2. Disengage the rear tab of the cover from the seat track. 3. Remove the trim cover by pulling outboard.

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Front Seat Belt Guide Adjuster Replacement

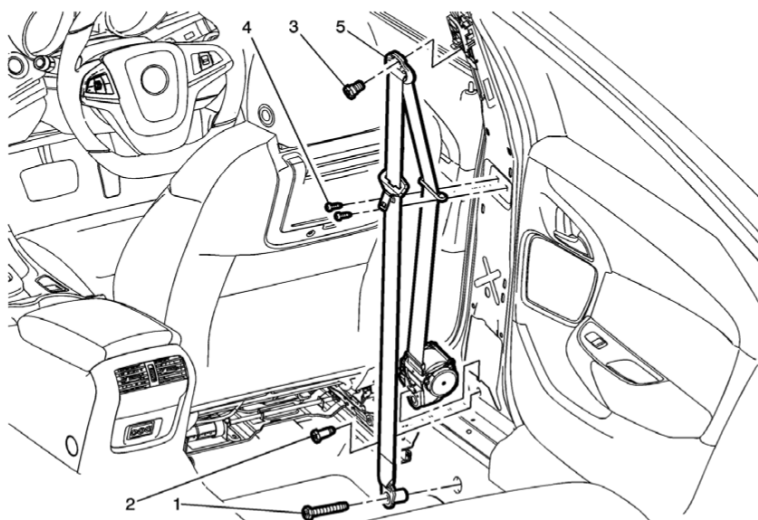


Front Seat Belt Guide Adjuster Replacement

Callout	Component Name
Preliminary Procedure Remove the center pillar upper trim panel. Refer to Center Pillar Upper Trim Panel Replacement	
1	Front Seat Belt Guide Adjuster Cover
2	Front Seat Belt Retractor Bolt Caution: Refer to Fastener Caution . Tighten 45 N•m (33 lb ft)
3	Front Seat Belt
4	Front Seat Belt Guide Adjuster Fastener (Qty: 2) Tighten 45 N•m (33 lb ft)
5	Front Seat Belt Guide Adjuster

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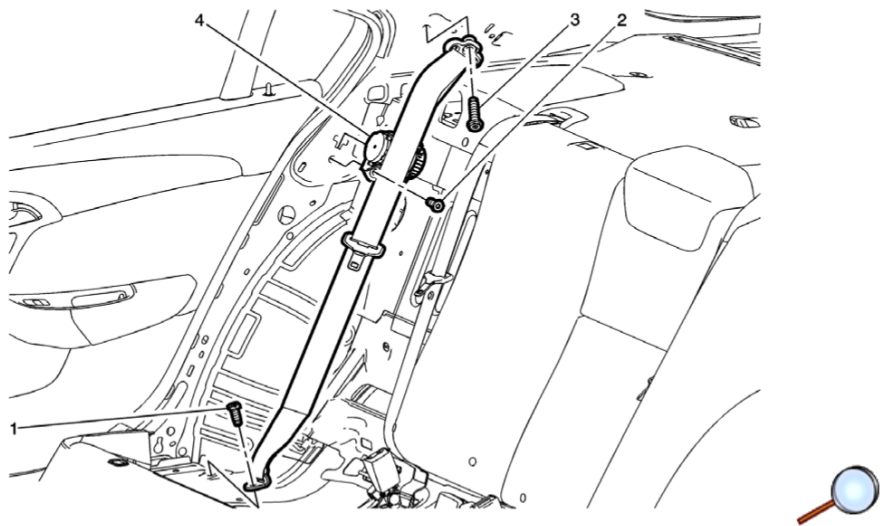
Front Seat Belt Retractor Replacement



Front Seat Belt Retractor Replacement

Callout	Component Name
Preliminary Procedure 1. Remove the center pillar upper trim panel. Refer to Center Pillar Upper Trim Panel Replacement . 2. Remove the center pillar lower trim panel. Refer to Center Pillar Lower Trim Panel Replacement .	
1	Front Seat Belt Retractor Anchor Bolt Caution: Refer to Fastener Caution . Tighten 45 N•m (33 lb ft)
2	Front Seat Belt Retractor Bolt (lower) Tighten 45 N•m (33 lb ft)
3	Front Seat Belt Retractor Bolt (upper) Tighten 45 N•m (33 lb ft)
4	Front Seat Belt Retractor Fastener (Qty 2)
5	Front Seat Belt Retractor

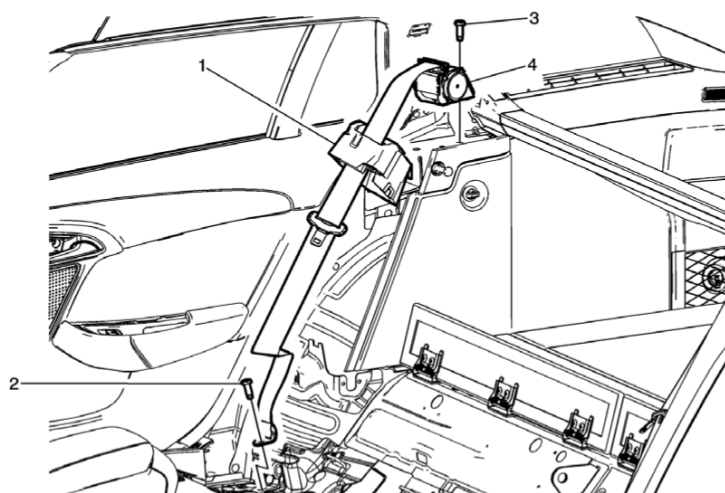
Rear Seat Belt Retractor Replacement (Sedan)



Rear Seat Belt Retractor Replacement

Callout	Component Name
Preliminary Procedures 1. Remove the rear seat cushion. Refer to Rear Seat Cushion Removal and Installation . 2. Remove the window quarter trim finish panel. Refer to Quarter Window Trim Finish Panel Replacement .	
1	Rear Seat Belt Retractor Anchor Plate Bolt Caution: Refer to Fastener Caution . Tighten 45 N•m (33 lb ft)
2	Rear Seat Belt Retractor Bolt (lower) Tighten 45 N•m (33 lb ft)
3	Rear Seat Belt Retractor Bolt (upper) Tighten 45 N•m (33 lb ft)
4	Rear Seat Belt Retractor

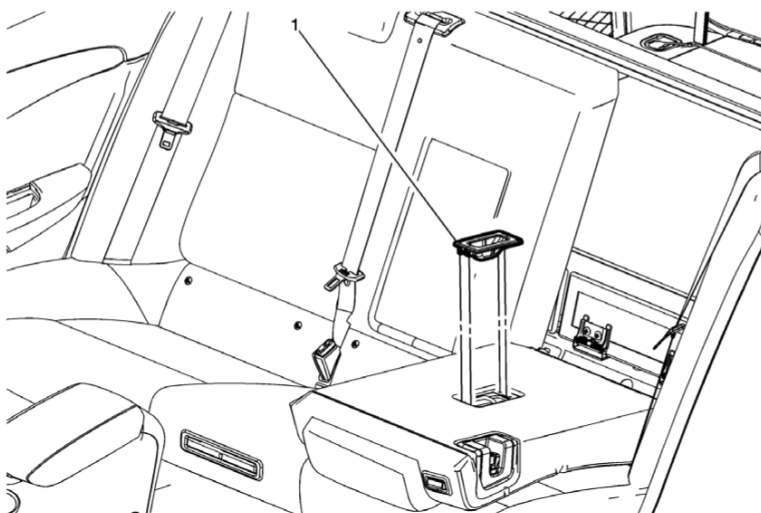
Rear Seat Belt Retractor Replacement (Sportwagon)



Rear Seat Belt Retractor Replacement

Callout	Component Name
Preliminary Procedures 1. Remove the rear seat cushion. Refer to Rear Seat Cushion Removal and Installation. 2. Remove the rear seat back cushion. Refer to Rear Seat Back Cushion Removal and Installation. 3. Remove the window quarter trim finish panel. Refer to Quarter Window Trim Finish Panel Replacement.	
1	Rear Seat Belt Retractor Housing Procedure Gently pull upward on the retractor housing to disengage it, then slide it down the seat belt webbing to gain access to the retractor bolt.
2	Rear Seat Belt Retractor Anchor Plate Bolt Caution: Refer to Fastener Caution . Tighten 45 N•m (33 lb ft)
3	Rear Seat Belt Retractor Bolt Tighten 45 N•m (33 lb ft)
4	Rear Seat Belt Retractor

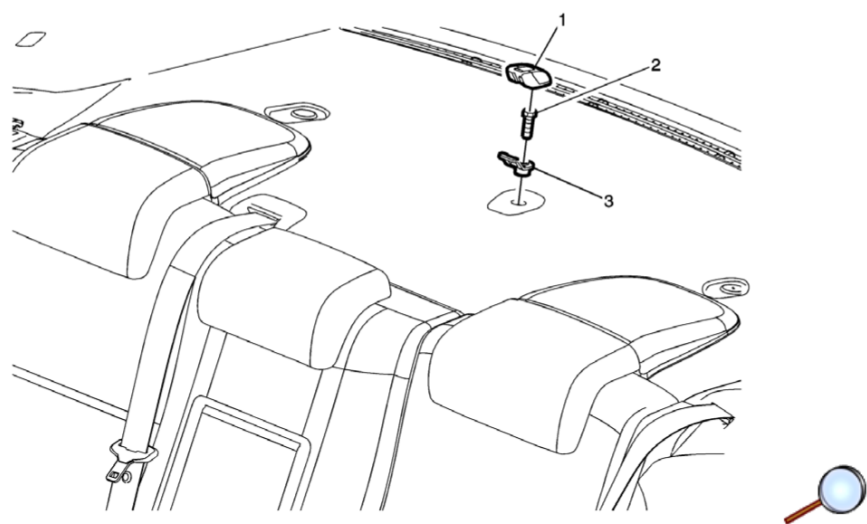
Child Seat Top Strap Bracket Trim Cover Replacement (Sportwagon)



Child Seat Top Strap Bracket Trim Cover Replacement

Callout	Component Name
1	Child Seat Top Strap Bracket Trim Cover Procedure 1. Fold the rear seat back cushion down to gain access to the trim cover. 2. Release the child seat top strap bracket access hole cover using a suitable flat-bladed tool.

Child Seat Top Strap Bracket Trim Cover Replacement (Sedan)

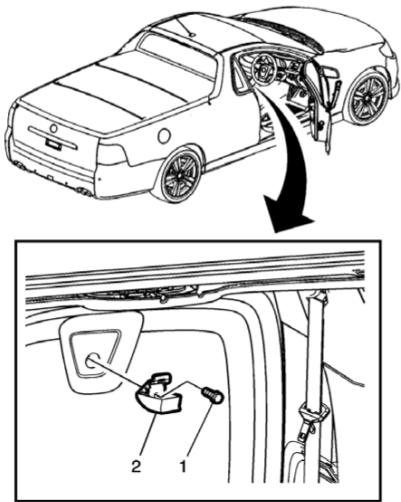


Child Seat Top Strap Bracket Trim Cover Replacement

Callout	Component Name
1	Child Seat Top Strap Bracket Trim Cover
2	Child Seat Top Strap Bracket Trim Cover Fastener Caution: Refer to Fastener Caution Tighten 24 N•m (18 lb ft)
3	Child Seat Top Strap Bracket Trim Cover Bracket

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Child Seat Top Strap Bracket Trim Cover Replacement
(Ute)



Child Seat Top Strap Bracket Trim Cover Replacement

Callout	Component Name
1	Child Seat Top Strap Bracket Trim Cover Bolt Caution: Refer to Fastener Caution Tighten 24 N•m (18 lb ft) Note: Pull back on trim bracket cover to gain access to the bracket bolt.
2	Child Seat Top Strap Bracket Trim Cover

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Fastener Tightening Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Child Seat Top Strap Bracket Trim Cover Bolt	24 N•m	18 lb ft
Front Seat Belt Buckle Bolt	45 N•m	33 lb ft
Front Seat Belt Guide Adjuster Bolt	45 N•m	33 lb ft
Front Seat Belt Retractor (lower) Bolt	45 N•m	33 lb ft
Front Seat Belt Retractor (Upper) Bolt	45 N•m	33 lb ft
Rear Center Seat Belt Retractor Bolt	45 N•m	33 lb ft
Rear Center Seat Belt Retractor Nut	40 N•m	30 lb ft
Rear Seat Belt Retractor Bolt	45 N•m	33 lb ft
Rear Seat Belt Anchor Plate Bolt	45 N•m	33 lb ft
Rear Seat Belt Buckle Nut	40 N•m	30 lb ft
Rear Seat Belt Retractor (Lower) Bolt	45 N•m	33 lb ft
Rear Seat Belt Retractor (Upper) Bolt	45 N•m	33 lb ft

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