

2010 Cadillac SRX

2010 RESTRAINTS Seat Belts - SRX

2010 RESTRAINTS

Seat Belts - SRX

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Application	Specification	
	Metric	English
Front Seat Belt Buckle Bolt	45 N.m	33 lb ft
Front Seat Shoulder Belt Guide Adjuster Bolt	45 N.m	33 lb ft
Rear Seat Belt Anchor Bolts	45 N.m	33 lb ft
Rear Seat Center Belt Buckle Bolt	45 N.m	33 lb ft
Rear Seat Belt Buckle Bolt	45 N.m	33 lb ft
Rear Seat Center Shoulder Belt Retractor Bolt	45 N.m	33 lb ft
Rear Seat Shoulder Anchor Plate Fastener	36 N.m	2 lb ft
Rear Seat Shoulder Belt Retractor Bolt	45 N.m	33 lb ft

SCHEMATIC AND ROUTING DIAGRAMS

SEAT BELT SCHEMATICS

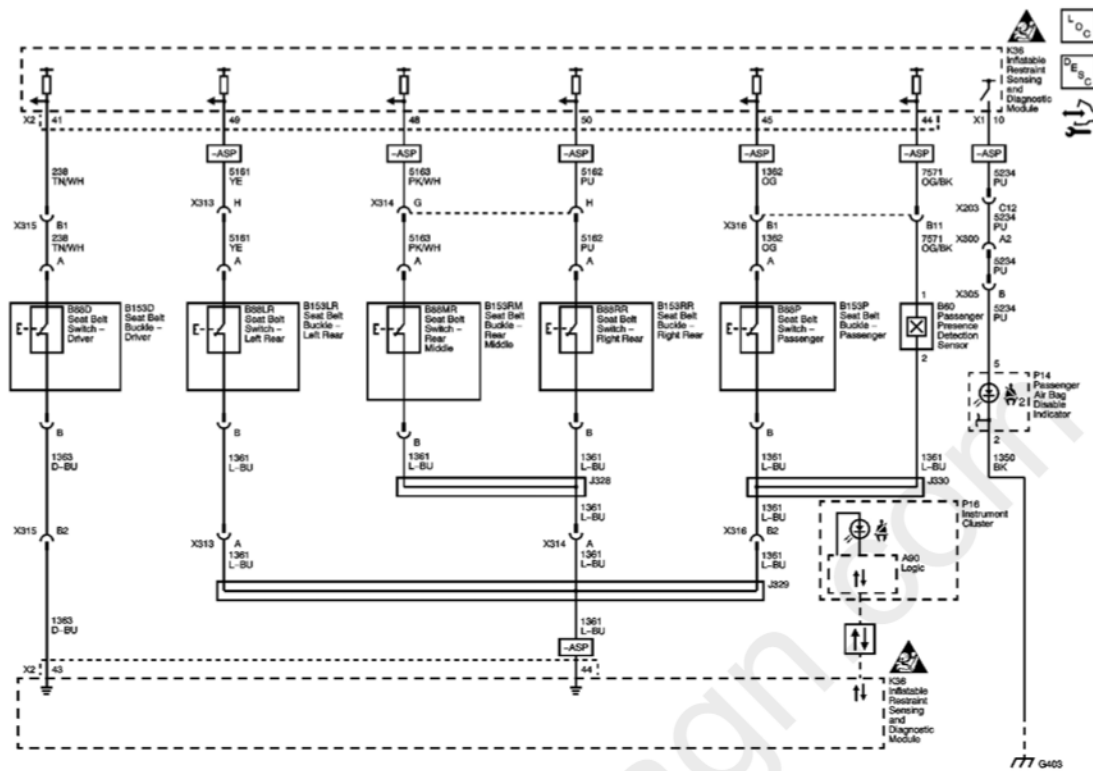


Fig **Seat Belts Circuit Schematic**
 Courtesy of GENERAL MOTORS CORP

DIAGNOSTIC INFORMATION AND PROCEDURES

SEAT BELT SYSTEM OPERATIONAL AND FUNCTIONAL CHECKS

NOTE: If the vehicle has been in a collision, refer to Repairs and Inspections Required After a Collision for additional information.

Perform the following inspection from the driver seat

1. Turn the ignition switch to the ON position. Verify proper operation of the seat belt reminder lamp with the belt buckled and with the belt unbuckled.
2. Inspect the shoulder belt guide in order to ensure that the following conditions are met
 - The shoulder belt guide swivels freely.
 - 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.

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6. Fully extend the seat belt webbing. Verify that the seat belt webbing does not have any twists or tears.
 - Allow the seat belt webbing to retract. Verify that the seat belt webbing returns freely and completely back into the retractor. If the seat belt webbing will not retract, refer to **Seat Belt Does Not Retract**.
8. Snap the seat belt latch plate into the buckle.
 - 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.
1. 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 inspection procedure from the passenger seat.

1. Verify the automatic locking retractor (ALR) feature operates properly by performing the following checks
 1. Pull the seat belt all the way out of the retractor until it stops.
 2. Slowly allow the belt to retract partially, while listening for a ratcheting sound.
 3. Sharply tug on the belt ensuring that the retractor lock sets and does not allow the belt to be pulled from the retractor.
 4. After performing steps 1.1 through 1.3 ensure the belt fully retracts.
2. Repeat the inspection procedure steps 2 through 1 from the passengers seat.

Perform the following steps in order to inspect the center seat belts

1. Verify that the center seat belts are accessible.
2. Verify that the center seat belts have no twists or tears in the webbing.
3. Snap the center seat belt latch plate into the buckle.
4. 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.
5. 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.

Repeat the inspection procedure, steps 2-1 , from the rear seats.

Repeat the center seat belt inspection procedure, steps 1-5, from the rear seat.

Emergency Locking Retractors

WARNING: Perform this test in an area clear of other vehicles or obstructions. Do not conduct this test on the open road. A large, empty parking lot is suitable. Failure to observe this precaution may result in damage to the vehicle and possible personal injury.

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 (10 mph) and apply the brakes firmly.
3. Verify that the seat belt locks when braking firmly.

NOTE: When performing this check, note the position that the retractors are mounted. Some retractors are not mounted at a zero degree inclination.

4. If the belt does not lock, proceed with the following steps
 1. Remove the seat belt retractor assembly.
 2. Tilt the seat belt retractor slowly.

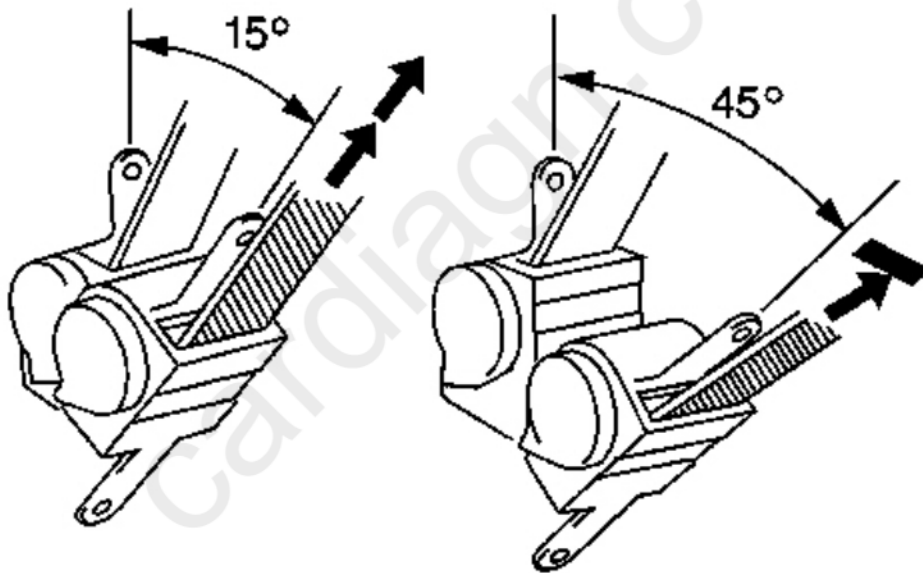


Fig Checking Seat Belt Retractor Inclination
Courtesy of GENERAL MOTORS CORP

3. Ensure that the seat belt webbing can be pulled from the retractor at an inclination of 15 degrees forward or less, from the retractors mounted position.
4. Ensure the retractor cannot be pulled from the retractor at an inclination of 45 degrees forward or more.
5. If a seat belt retractor does not operate as described, replace the retractor assembly.

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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 Circuit Malfunction - Driver
- Seat Belt Indicator Circuit Malfunction - Passenger
- Seat Belt Indicator Circuit Malfunction - Rear

SEAT BELT DOES NOT RETRACT

1. Grab the seat belt webbing and slowly and firmly retract 15-25 mm (5/8-1 in) of webbing from the seat belt.
2. Release the seat belt and allow the webbing to slowly retract back into the retractor.
3. Check to see if the seat belt is released. If the seat belt is not released, repeat steps 1 and 2, two times more.
4. If the retractor does not release after repeating the steps, replace with a new retractor.

SEAT BELT INDICATOR CIRCUIT 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	High Resistance	Open	Short to Voltage	Signal Performance

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Driver Seat Belt Switch Signal	1	2	2	2	-
Driver Seat Belt Switch Low Reference	-	2	2	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 SDM sends the status of the driver seat belt via serial data to the instrument panel cluster. After receiving the message, the instrument panel 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. Ignition ON, with a scan tool command the instrument cluster to turn on all indicators and verify the driver seat belt indicator is illuminated for 5 seconds.
 - If the indicator does not illuminate, replace the P16 instrument panel cluster.
2. With the scan tool, monitor the Driver 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.

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:

- **B Seat belt switch**
- **Seat belt switch harness connector**
- **SD**
- **SD wiring harness connector**

1. Ignition OFF, disconnect the harness connector at the B88 seat belt switch.
2. Test for less than 5 ohms between the ground circuit terminal B and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance. If the circuit tests normal replace the K36 SDM.
3. Ignition ON, verify the scan tool Driver Seat Belt Status parameter displays Buckled.
 - If not the specified value, test the signal circuit terminal A for a short to ground. If the circuit tests normal replace the K36 SDM.
4. Install a 3 A fused jumper wire between the circuit terminal A and the ground circuit terminal B. Verify the scan tool Driver Seat Belt Status parameter displays Unbuckled.
 - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K36 SDM.
5. If all circuits test normal, test or replace the B88 seat belt switch.

Component Testing

1. Ignition OFF, disconnect the harness connector at the B88 seat belt switch.
2. Test for infinite resistance between the signal circuit terminal A and the ground terminal B, at the switch, with the switch in the open position.
 - If not the specified value, replace the B88 seat belt switch.
3. Test for less than 5 ohms between the signal circuit terminal A and the ground terminal B, at the switch, with the switch in the closed position.
 - If greater than the specified range, replace the B88 seat belt switch.

Repair Procedures

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

- **Driver or Passenger Seat Belt Buckle Replacement**
- **Control Module References** for SDM and instrument panel cluster replacement, setup, and programming

SEAT BELT INDICATOR CIRCUIT MALFUNCTION - PASSENGER

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

Circuit/System Description

When an individual is sitting in the passenger seat the passenger presence sensor detects the individual. A signal to the SDM indicates a person is in the passenger seat. The SDM will turn the passenger seat belt indicator on while someone is seating in the passenger seat. 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 SDM sends the status of the passenger seat belt via a hard wire to the passenger air bag disable indicator. The passenger air bag disable indicator will then control the illumination of the passenger 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. Ignition ON, have someone sit in the passenger seat. With a scan tool verify the Automatic Occupant Sensing Current Front Occupancy Status indicates Occupied.
 - If the scan tool does not indicate Occupied, test the passenger presence sensor signal circuit and the low reference circuit for an open or short. If the circuits test normal, replace the passenger presence sensor. Refer to **Inflatable Restraint Front Passenger Presence Sensor Replacement** .
2. Ignition ON, with a scan tool perform the Passenger Seat Belt Reminder Indicator On/Off Control Function and verify the passenger seat belt indicator turns on and off.
 - If the indicator does not illuminate, replace the inflatable restraint instrument panel module indicator. Refer to **Inflatable Restraint Instrument Panel Module Indicator Replacement** .
3. With the 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 status does not change states refer to **Circuit/System Testing** below.
4. Monitor the scan tool Passenger Seat Belt Switch parameter while connecting and disconnecting the seat belt switch connector. The parameter should display Buckled and Unbuckled when changing seat belt states. If the status does not change states refer to **Circuit/System Testing** below.

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.

- B Seat belt switch
- Seat belt switch harness connector
- SD
- SD harness connector

1. Ignition OFF, disconnect the harness connector at the B88 passenger seat belt switch.
2. Ignition OFF, test for less than 5 ohms between the low reference circuit terminal B and ground.
 - If greater than the specified range, test the low reference circuit for an open/high resistance. If the circuit tests normal, replace the K36 SDM.
3. Ignition ON, verify the scan tool Passenger Seat Belt Status parameter displays Buckled.
 - If not the specified value, test the signal circuit for a short to ground. If the circuit tests normal replace the K36 SDM.
4. Install a 3 A fused jumper wire between the signal circuit terminal A and the low reference circuit terminal B. Verify the scan tool Passenger Seat Belt Status parameter displays Unbuckled.
 - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K36 SDM.

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5. If all circuits test normal, replace the B88 seat belt switch.

Component Testing

1. Ignition OFF, disconnect the harness connector at the B88 seat belt switch.
2. Test for infinite resistance between the signal circuit terminal A and the low reference terminal B, at the switch, with the switch in the open position.
 - o If less than the specified value, replace the B88 seat belt switch.
3. Test for less than 1 ohms between the signal circuit terminal A and the low reference terminal B, at the switch, with the switch in the closed position.
 - o If greater than the specified range, replace the B88 seat belt switch.

Repair Procedures

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

- **Driver or Passenger Seat Belt Buckle Replacement**
- **Control Module References** for SDM replacement, setup, and programming

SEAT BELT INDICATOR CIRCUIT MALFUNCTION - REAR

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	High Resistance	Open	Short to Voltage	Signal Performance
Rear Seat Belt Switch Signal	1	2	2	2	-
Rear Seat Belt Switch Low Reference	-	2	2	2	-
1. Green indicator will illuminate only for the bulb check. The red indicator will remain ON with seat belt buckled.					
2. Green indicator will illuminate only for the bulb check. The red indicator will never illuminate.					

Circuit/System Description

All three rear seat belt switches are 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 SDM sends the status of the rear seat belt via serial data to the driver information center. After receiving the message, the driver information center 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**Diagnostic Aids**

1. The mechanical stop in the buckle may prevent latching but the switch in the buckle may momentarily open and the SDM would interpret this as an occupant in the rear seat position and that the buckle was attempting to latch.
2. If a rear occupant attempts to latch the seat belt into the wrong buckle, the indicator may illuminate and the system assumes there is an occupant not buckled in that seat position.
3. An unseated connector can appear as a buckled seat belt connection.

Circuit System Verification

1. Verify that all connectors are fully seated.
2. With the scan tool monitor the 2nd Row 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 indicator does not illuminate, replace the P driver information center.

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.

- **B Seat belt switch**
- **Seat belt switch harness connector**
- **SD**
- **SD wiring harness connector**

1. Ignition OFF, disconnect the harness connector at the B88 seat belt switch.
2. Test for less than 5 ohms between the ground circuit terminal B and ground.
 - If greater than the specified range, test the ground circuit for an open high resistance. If the circuit tests normal replace the 36 SDM.
3. Ignition ON, verify the scan tool 2nd Row Seat Belt Status parameter displays Buckled.
 - If not the specified value, test the signal circuit terminal A for a short to ground. If the circuit tests normal replace the 36 SDM.
4. Install a 3 A fused jumper wire between the circuit terminal A and the ground circuit terminal B. Verify the scan tool 2nd Row Seat Belt Status parameter displays Unbuckled.
 - If not the specified value, test the signal circuit for a short to voltage or an open high resistance. If the circuit tests normal, replace the 36 SDM.
5. If all circuits test normal, test or replace the B88 seat belt switch.

Component Testing

1. Ignition OFF, disconnect the harness connector at the B88 seat belt switch.
2. Test for infinite resistance between the signal circuit terminal A and the ground terminal B, at the switch, with the switch in the open position.
 - If not the specified value, replace the B88 seat belt switch.
3. Test for less than 1 ohms between the signal circuit terminal A and the ground terminal B, at the switch, with the switch in the closed position.
 - If greater than the specified range, replace the B88 seat belt switch.

Repair Procedures

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

- **Driver Information Display Replacement**
- **Rear Seat Buckle Side Belt Replacement (With 40 Percent Seat)** or **Rear Seat Buckle Side Belt Replacement (With 60 Percent Seat)**
- **Rear Seat Center Buckle Side Belt Replacement**

Control Module References for SDM and driver information center, setup, and programming

SEAT BELT SERVICE PRECAUTIONS

I 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
- 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.

REPAIR INSTRUCTIONS

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 LATC 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 LATC 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, LATC 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.

DRIVER OR PASSENGER SEAT BELT BUCKLE REPLACEMENT

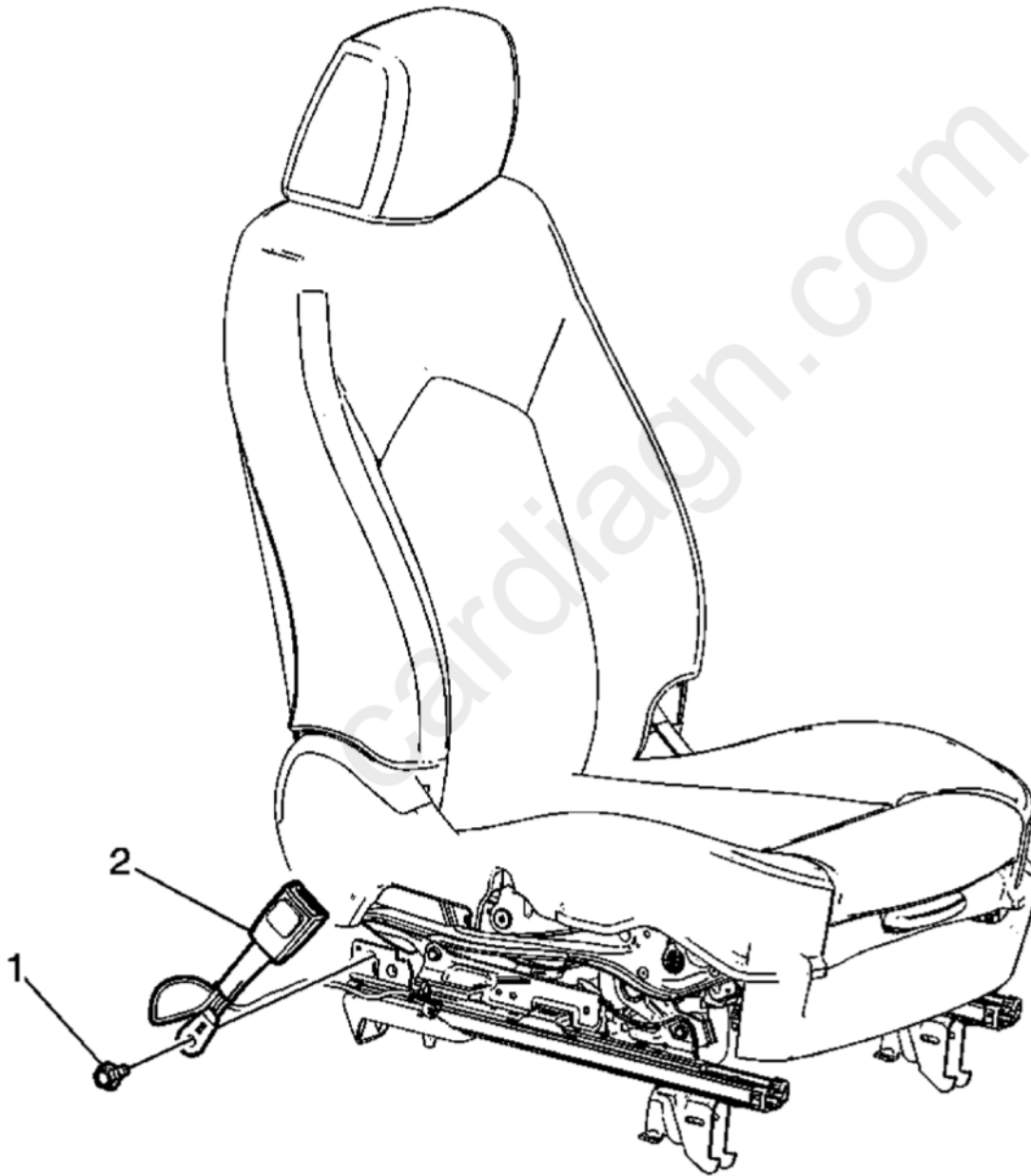


Fig. : Identifying Seat Belt Buckle
Courtesy of GENERAL MOTORS CORP.

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Callout	Component Name
Preliminary Procedure: Remove the front seat assembly. Refer to Driver or Passenger Seat Replacement .	
1	Seat Belt Buckle Bolt CAUTION: Refer to Fastener Caution . Tighten: 45 N.m (33 lb ft)
2	Seat (Buckle Side) Belt Assembly Procedure: Disconnect the electrical connector.

REAR SEAT BUCKLE SIDE BELT REPLACEMENT (WITH 40 PERCENT SEAT)

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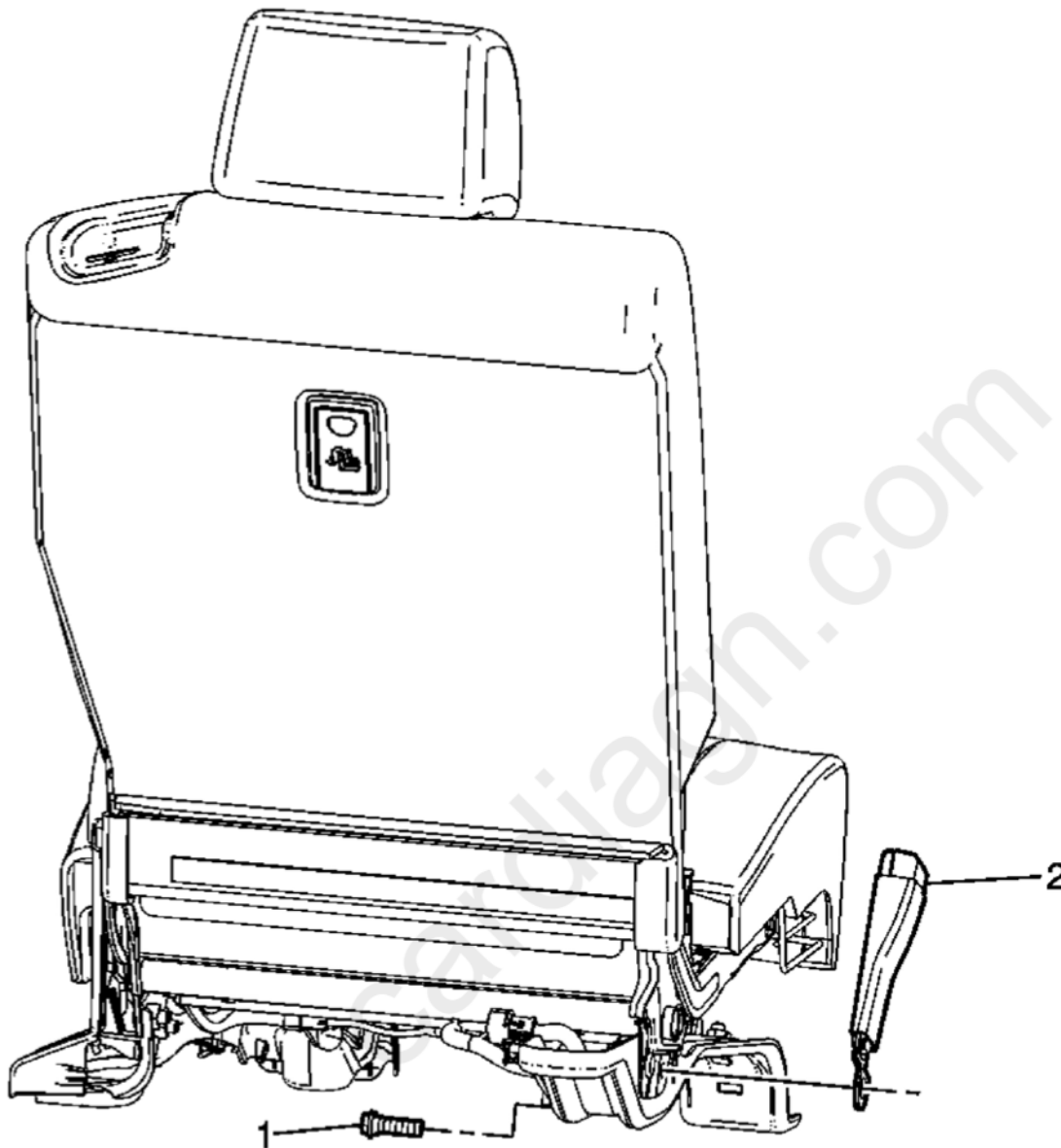


Fig. 4: Locating Rear Seat Buckle Side Belt (With 40 Percent Seat)
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove the rear 40 percent seat. Refer to <u>Rear Seat Replacement</u> .	
1	Rear Seat Belt Buckle Bolt CAUTION: Refer to <u>Fastener Caution</u> .

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	Tighten: 45 N.m (33 lb ft)
2	Rear Seat Belt Buckle Procedure: Disconnect electrical connector.

REAR SEAT BUCKLE SIDE BELT REPLACEMENT (WITH 60 PERCENT SEAT)

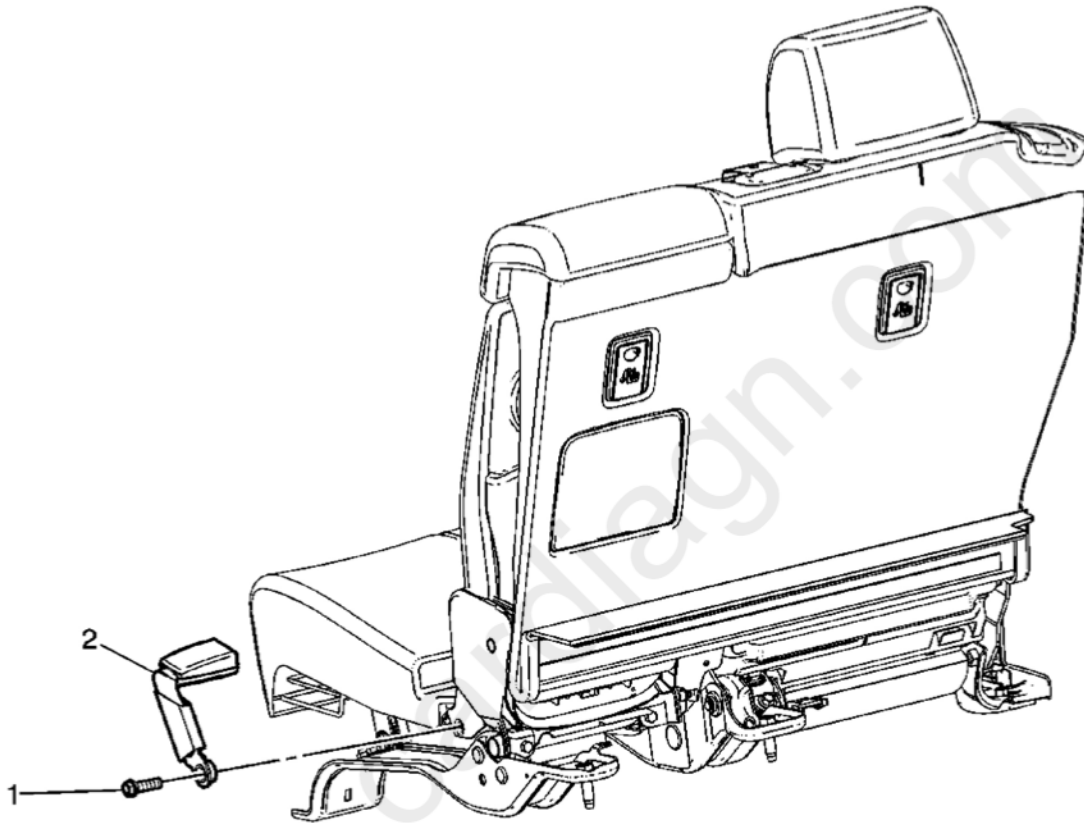


Fig. 5: Rear Seat Buckle Side Belt (With 60 Percent Seat)
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove the rear 60 percent seat. Refer to <u>Rear Seat Replacement</u> .	
1	Rear Seat Belt Buckle Bolt CAUTION: Refer to <u>Fastener Caution</u> . Tighten: 45 N.m (33 lb ft)
	Rear Seat Belt Buckle

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Procedure

- 2
 1. Prior to removal, note the routing of the wire harness to aid in reassembly and to ensure proper installation.
 2. Disconnect electrical connector.

REAR SEAT CENTER BELT REPLACEMENT

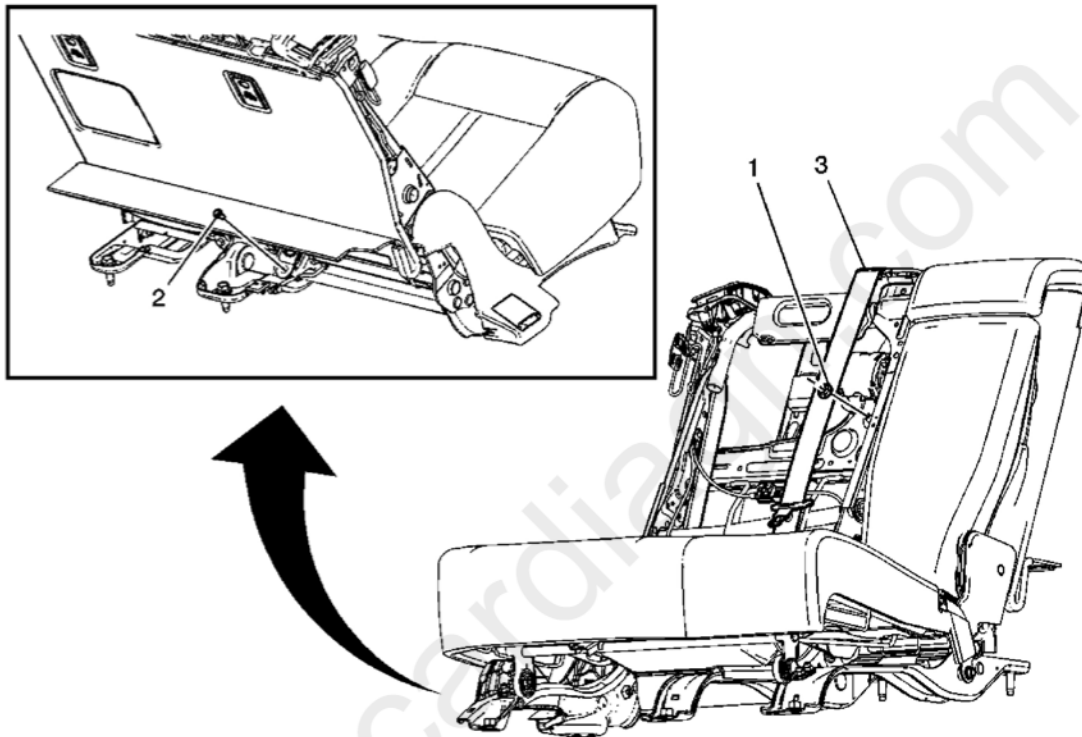


Fig. 6: Identifying Rear Seat Center Belt
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove the rear seat back cushion and cover. Refer to <u>Rear Seat Back Cushion Cover and Pad Replacement (40 Percent Seat)</u> or <u>Rear Seat Back Cushion Cover and Pad Replacement (60 Percent Seat)</u> .	
1	Rear Seat Center Belt Retractor Fastener CAUTION: Refer to <u>Fastener Caution</u> . Tighten: 45 N.m (33 lb ft)
	Rear Seat Center Belt Retractor Anchor Fastener

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2	Tighten: 45 N.m (33 lb ft)
3	Rear Seat Center Belt Retractor Assembly

REAR SEAT CENTER BUCKLE SIDE BELT REPLACEMENT

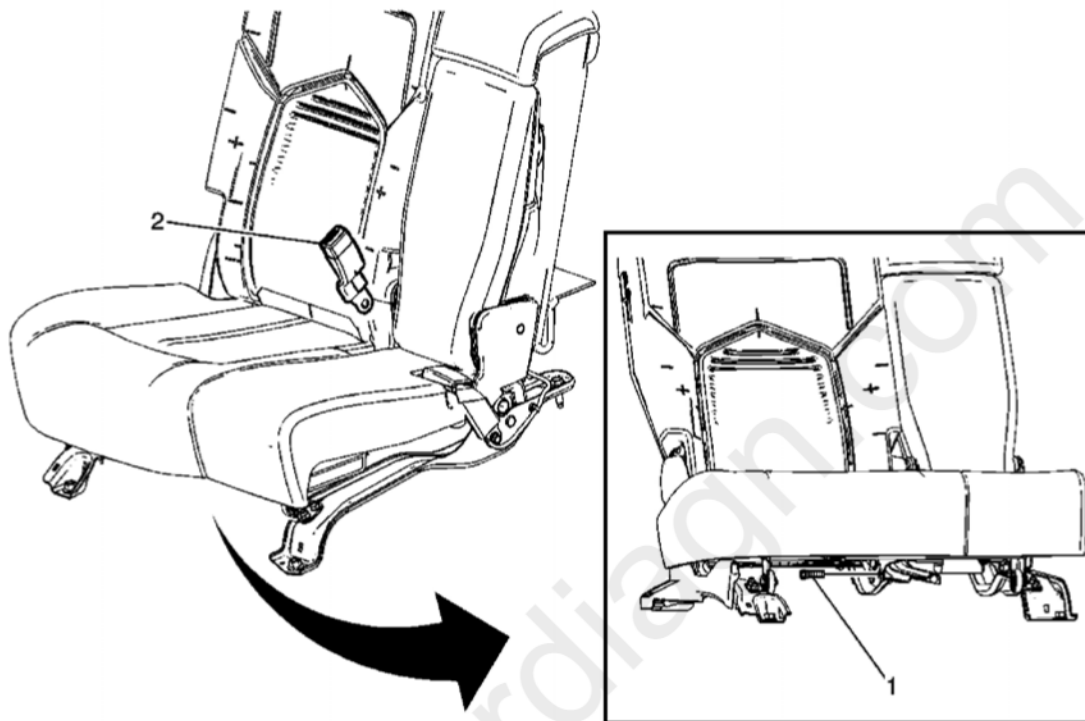


Fig. 7: View Of Rear Seat Center Buckle Side Belt
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures: Remove the rear 60 percent seat. Refer to <u>Rear Seat Replacement</u> .	
1	Rear Seat Center Belt Buckle Bolt CAUTION: Refer to <u>Fastener Caution</u> . Tighten: 45 N.m (33 lb ft)
2	Rear Seat Center Belt Buckle Procedure: Disconnect electrical connector.

DRIVER OR PASSENGER SEAT SHOULDER BELT GUIDE ADJUSTER REPLACEMENT

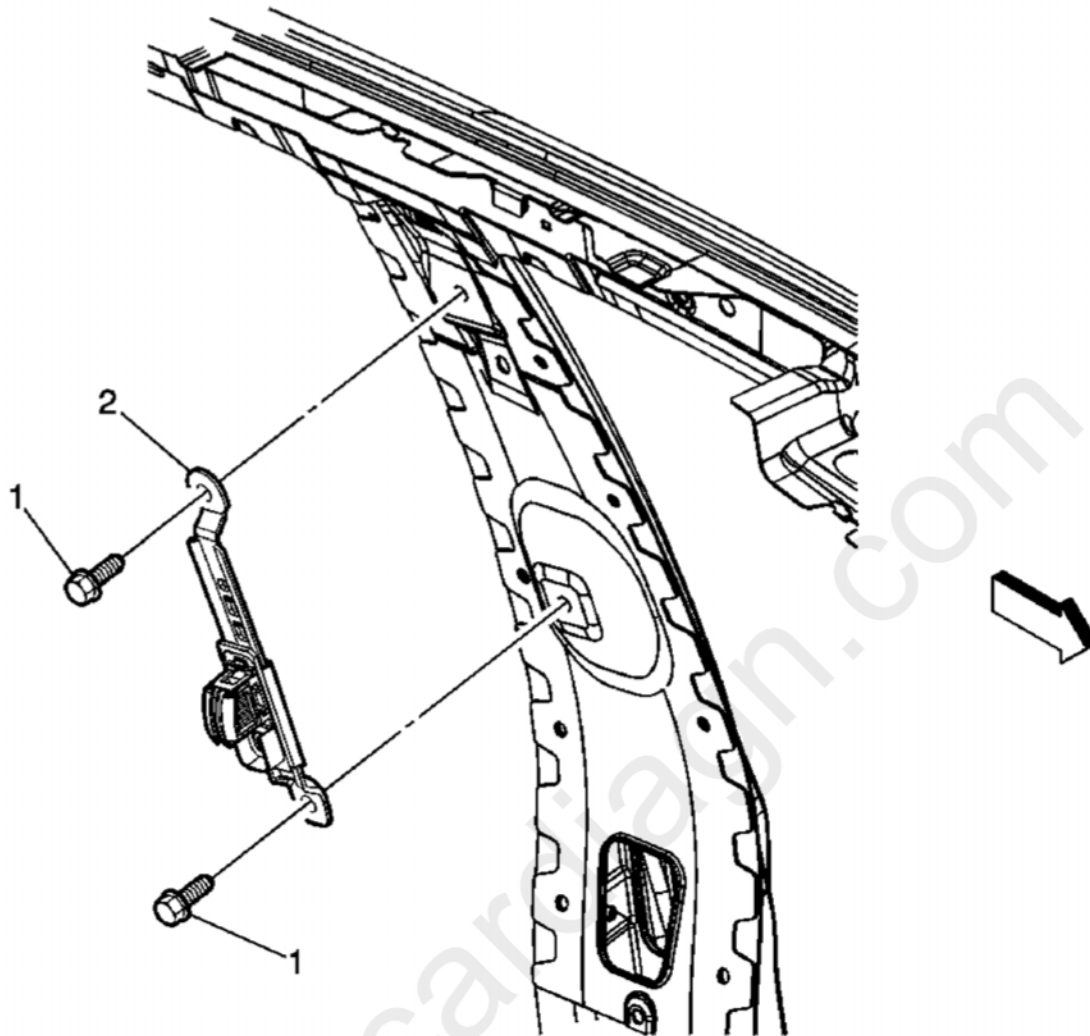


Fig. 8: View Of Shoulder Belt Guide Adjuster - Front
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures	
1. Disable the SIR system. Refer to <u>SIR Disabling and Enabling</u> . 2. Remove the center pillar upper trim. Refer to <u>Center Pillar Upper Trim Panel Replacement</u> . 3. Remove the front seat shoulder belt guide fastener, and position the belt out of the way. Refer to <u>Seat Belt Retractor Pretensioner Replacement - Front</u> .	
1	Front Seat Shoulder Belt Guide Adjuster Bolt (Qty: 2) CAUTION: Refer to <u>Fastener Caution</u> .

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Tighten: 45 N.m (33 lb ft)

2 Front Seat Shoulder Belt Guide Adjuster Assembly

REAR SEAT RETRACTOR SIDE BELT REPLACEMENT

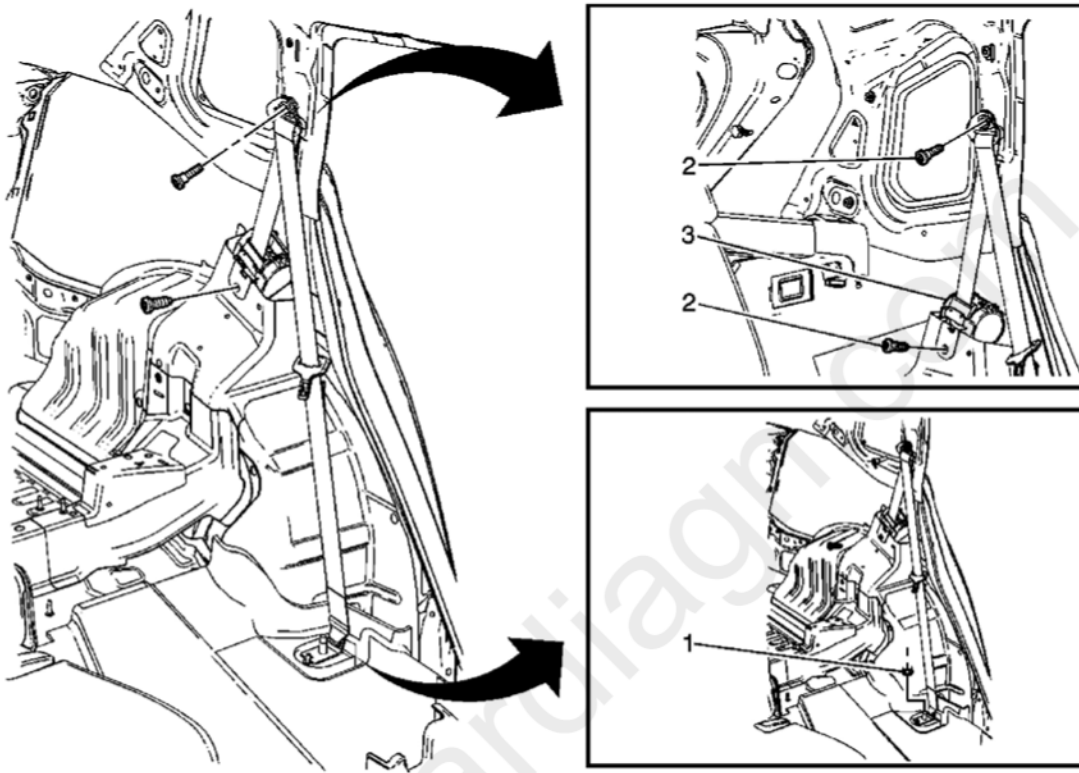


Fig. 9: Identifying Rear Seat Retractor Side Belt
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure	
1. Remove the rear seat track rear outboard cover. Refer to <u>Rear Seat Track Rear Outboard Cover Replacement</u> .	
2. Remove the quarter upper trim panel. Refer to <u>Quarter Upper Trim Panel Replacement</u> .	
1	Seat Shoulder Belt Anchor Plate Fastener CAUTION: Refer to <u>Fastener Caution</u> . Tighten: 36 N.m (27 lb ft)
2	Rear Seat Belt Retractor Fastener (Qty: 2)

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	Tighten: 45 N.m (33 lb ft)
3	Rear Shoulder Seat Belt Retractor

DESCRIPTION AND OPERATION

SEAT BELT SYSTEM DESCRIPTION AND OPERATION

Restraint System

NOTE: If the vehicle has been in a collision, refer to Repairs and Inspections Required After a Collision for additional information.

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 SIR 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 passenger presence detection sensor, which detects an occupant. If the passenger presence detection 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.
- Each of the rear seat belts include a seat belt switch in the seat buckle which controls a reminder lamp and a tone alarm.
- When the rear doors are closed and the vehicle is started the 3 rear seat belt indicators show as gray indicators in the DIC.
- When the ignition switch is turned ON, a rear seat belt is buckled, the rear doors are closed and the speed exceeds 10kph (6.5mph) the following events will occur:
 - The tone alarm will not operate.
 - The green rear seat belt indicators in the Driver Information Center will illuminate for 35 seconds.
- When the ignition switch is turned ON, a rear seat belt is not buckled for the duration of the ignition cycle, the rear doors are closed and the speed exceeds 10kph (6.5mph) the following events will occur:
 - The tone alarm will not operate.
 - The green rear seat belt indicator in the Driver Information Center will not operate.
- * When the ignition switch is turned ON, a rear seat belt is buckled and during that ignition cycle is unbuckled with the rear doors closed at all times and the speed exceeding 10kph (6.5mph) the following

events will occur:

- The tone alarm will operate for 3 seconds.
- The red rear seat belt indicator in the Driver Information Center will illuminate and remain on until the seat belt is buckled again or the ignition cycle ends.

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.

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 are three fasten safety belt indicators for this vehicle. The driver fasten safety belt reminder is displayed in the instrument cluster, the passenger fasten safety belt reminder is displayed in the inflatable restraint instrument panel module indicator, and the rear fasten safety belt reminder is displayed in the driver information center. 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

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- The inflatable restraint sensing and diagnostic module (SDM) sends the status of the driver seat belt to the instrument cluster via serial data. The passenger seat belt status is sent to the inflatable restraint instrument panel module indicator via serial data. The rear seat belt status is sent to the driver information center 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.

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