

**2007 RESTRAINTS****Service Information - Nitro****RESTRAINTS - SERVICE INFORMATION****DESCRIPTION****RESTRAINT SYSTEM**

An occupant restraint system is standard factory-installed safety equipment on this vehicle. Available 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 a seat belt; while passive restraints require no action by the vehicle occupants to be employed.

**ACTIVE RESTRAINTS**

The active restraints for this vehicle include:

- **Child Restraint Anchors** - All vehicles are equipped with three, fixed-position, child seat upper tether anchors for the second row seat. Two anchors are integral to the back of the left rear seat back panel, and one is integral to the right rear seat back panel. Two lower anchors are also provided for each outboard second row seating position. Except for the left inboard anchor, these lower anchors are integral to the seat brackets on the rear floor panel. The left inboard anchor is integral to the left seat cushion frame. The lower anchors are all accessed from the front of the second row seats, where the seat back meets the seat cushion.
- **Front Seat Belts** - Both front seating positions are equipped with three-point seat belt systems employing lower B-pillar mounted inertia latch-type emergency locking retractors, height-adjustable upper B-pillar mounted turning loops, a traveling lower seat belt anchor secured to the outboard side of the seat frame, and a traveling end-release seat belt buckle secured to the inboard side of the seat frame. The front seat belt buckles include an integral Hall-effect seat belt switch that detects whether the front seat belts have been fastened.
- **Second Row Seat Belts** - All second row seating positions are equipped with three-point seat belt systems. The outboard seating position belts employ lower C-pillar mounted inertia latch-type emergency locking retractors, fixed position upper C-pillar mounted turning loops and fixed lower seat belt anchors secured to the floor panel. The second row center seating position belt has an inertia latch-type emergency locking retractor that is integral to the left rear seat back panel. The second row center seating position belt lower anchor is secured to the floor panel. All three rear seat belts have fixed end-release seat belt buckles secured to the floor panel, a double buckle unit on the right side and a single buckle unit on the left side.

**PASSIVE RESTRAINTS**

# SRS

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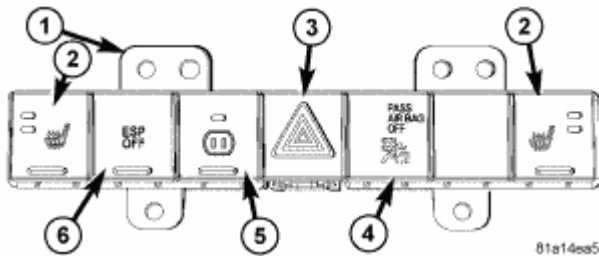
# AIRBAG

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**Fig. 1: SRS Emblem**

Courtesy of CHRYSLER LLC

The passive restraints available for this vehicle include the following:

**Fig. 2: Identifying Occupant Classification System Switches & Indicators**

Courtesy of CHRYSLER LLC

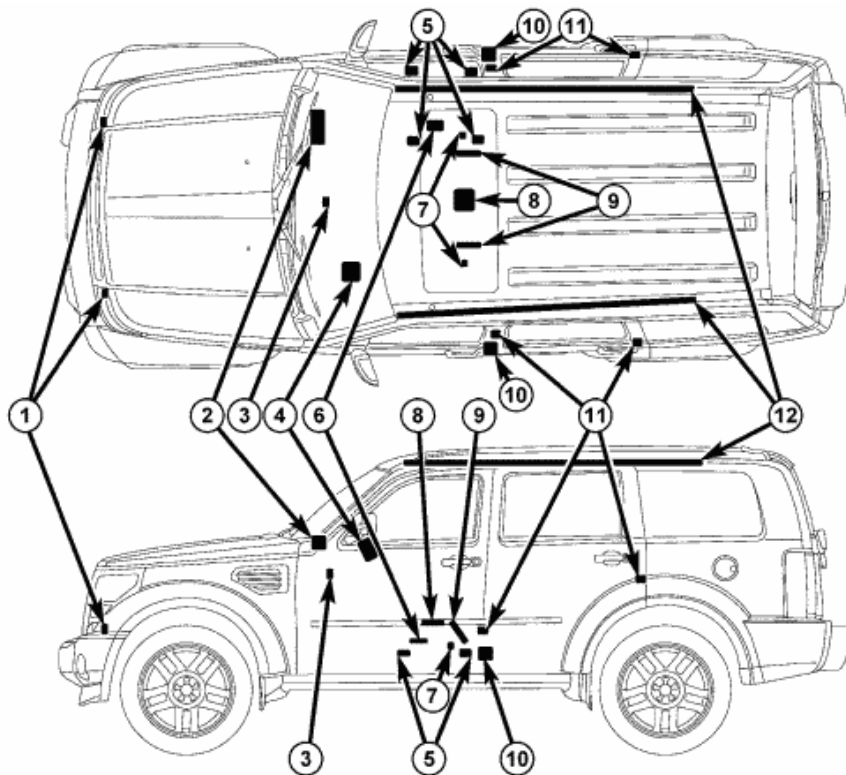
- Dual Front Airbags** - Multistage driver and front passenger airbags are used in this vehicle. This airbag system consists of passive, inflatable, Supplemental Restraint System (SRS) components and vehicles with this equipment can be readily identified by the **SRS - AIRBAG** logo molded into the driver airbag trim cover in the center of the steering wheel and also into the passenger airbag 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 Electro Mechanical Instrument Cluster (EMIC) (also known as the Cab Compartment Node/CCN) for about seven seconds as a bulb test each time the ignition switch is turned to the ON position. Dual pyrotechnic-type seat belt tensioners are also integral to the driver and passenger front seat belt retractor units and buckle units of all airbag equipped vehicles to work in conjunction with the dual front and side curtain airbags.
- Occupant Classification System** - Vehicles manufactured for sale in North America (except Mexico) also include an Occupant Classification System (OCS) with components that are located on the passenger

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side front seat. These components include an Occupant Classification Module (OCM) and four seat weight sensors on the passenger side front seat. Vehicles equipped with the OCS components can be readily identified by a passenger airbag on/off indicator (4) located to the right of the hazard switch (3) in the instrument panel switch pod (1) near the base of the instrument panel center bezel.

- **Side Curtain Airbags** - Side curtain airbags are standard equipment for this vehicle when it is also equipped with dual front airbags. This airbag system consists of passive, inflatable SRS components and vehicles with this equipment can be readily identified by a molded identification trim plug with the **SRS - AIRBAG** logo located near the tops of the B and C-pillar trim.



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**Fig. 3: SRS Components**

Courtesy of CHRYSLER LLC

The SRS includes the following major components, which are described in further detail elsewhere in this service information:

**Airbag Indicator** - The airbag indicator is integral to the Electro Mechanical Instrument Cluster (EMIC) (also known as the Cab Compartment Node/CCN), which is located on the instrument panel in front of the driver.

**Clockspring** - The clockspring is located near the top of the steering column, directly beneath the steering wheel.

**Driver Airbag (4)** - The driver airbag is located in the center of the steering wheel, beneath the driver airbag trim cover.

**Driver Knee Blocker** - The driver knee blocker is a structural unit secured to the back side of and integral to the instrument panel steering column opening cover.

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**Front Impact Sensor (1)** - Two front impact sensors are used on vehicles equipped with dual front airbags, one left side and one right side. One sensor is located on the back side of the front end module carrier on either side of the radiator and inboard of the headlamp within the engine compartment.

**Occupant Classification Module (6)** - Vehicles equipped with the Occupant Classification System (OCS) include an Occupant Classification Module (OCM) which is secured to a bracket on the inboard side of the inboard passenger side seat track riser beneath the seat cushion.

**Occupant Restraint Controller (8)** - The Occupant Restraint Controller (ORC) is located on a mount on the floor panel transmission tunnel rearward of the transmission gear selector, and is concealed beneath the center floor console.

**Passenger Airbag (2)** - The passenger airbag is located in the instrument panel, beneath the passenger airbag door on the instrument panel above the glove box on the passenger side of the vehicle.

**Passenger Airbag On/Off Indicator (3)** - Vehicles with the Occupant Classification System (OCS) include a passenger airbag on/off indicator which is located in the instrument panel switch pod near the base of the instrument panel lower center bezel.

**Passenger Knee Blocker** - The passenger knee blocker is a structural reinforcement that is integral to and concealed within the glove box door.

**Seat Belt Tensioner (9 and 10)** - Dual seat belt tensioners are integral to both front seat belt buckle units (9) and retractor units (10) on vehicles equipped with dual front airbags. The seat belt buckle tensioner units are located on the inboard rear corner of each front seat cushion. The seat belt retractor tensioner units are secured to the right and left inner B-pillars and concealed beneath the lower B-pillar trim.

**Seat Weight Sensor (5)** - Vehicles equipped with the Occupant Classification System (OCS) include four seat weight sensors, one on each corner of the passenger side front seat between the lower seat adjuster tracks and the seat track risers.

**Side Curtain Airbag (12)** - A side curtain airbag is secured to each inside roof side rail above the headliner, and extends from the A-pillar to just beyond the C-pillar.

**Side Impact Sensor (11)** - Four side impact sensors are used on vehicles equipped with side curtain airbags, two left side and two right side. One sensor is located behind the trim above the front seat belt retractor on each inner B-pillar and one is located above the second row outboard retractor on each inner C-pillar.

The ORC, the OCM, and the EMIC each contain a microprocessor and programming that allow them to communicate with each other using the Controller Area Network (CAN) data bus. This method of communication is used by the ORC for control of the airbag indicator in the EMIC. Refer to **DESCRIPTION** .

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

## OPERATION

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#### RESTRAINT SYSTEM

##### ACTIVE RESTRAINTS

The primary passenger restraints in this or any other vehicle are the standard equipment factory-installed seat belts and child restraint anchors. Seat belts and child restraint anchors are referred to as an active restraint because the vehicle occupants are required to physically fasten and properly adjust these restraints in order to benefit from them.

##### PASSIVE RESTRAINTS

The passive restraints are referred to as a Supplemental Restraint System (SRS) because they were designed and are intended to enhance the protection for the occupants of the vehicle **only** when used in conjunction with the seat belts. They are referred to as passive restraints because the vehicle occupants are not required to do anything to make them operate; however, the vehicle occupants must be wearing their seat belts in order to obtain the maximum safety benefit from the factory-installed SRS components.

The SRS electrical circuits are continuously monitored and controlled by a microprocessor and software contained within the Occupant Restraint Controller (ORC). An airbag indicator in the Electro Mechanical Instrument Cluster (EMIC) (also known as the Cab Compartment Node/CCN) illuminates for about seven seconds as a bulb test each time the ignition switch is turned to the ON or START positions. Following the bulb test, the airbag indicator is turned ON or OFF by the ORC to indicate the status of the SRS. If the airbag indicator comes ON at any time other than during the bulb test, it indicates that there is a problem in the SRS electrical circuits. Such a problem may cause airbags not to deploy when required, or to deploy when not required.

Deployment of the SRS components depends upon the angle and severity of an impact. Deployment is not based upon vehicle speed; rather, deployment is based upon the rate of deceleration as measured by the forces of gravity (G force) upon the acceleration-type impact sensors. When an impact is severe enough, the microprocessor in the ORC signals the inflator of the appropriate airbag units to deploy their airbag cushions. The front seat belt retractor tensioners and, if equipped, buckle tensioners are provided with a deployment signal by the ORC in conjunction with the front or side curtain airbags. The side curtain airbags are provided with a deployment signal individually by the ORC based upon a side impact sensor input for the same side of the vehicle.

During a frontal vehicle impact, the knee blockers work in concert with properly fastened and adjusted seat belts to restrain both the driver and the front seat passenger in the proper position for an airbag deployment. The knee blockers also absorb and distribute the crash energy from the driver and the front seat passenger to the structure of the instrument panel. The seat belt tensioners remove the slack from the front seat belts to provide further assurance that the driver and front seat passenger are properly positioned and restrained for an airbag deployment.

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 kilometer-per-hour (30 mile-per-hour) 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 Diagnostic Trouble Code (DTC) in its memory circuit and sends an electronic message to the EMIC to turn ON the airbag indicator. The hard wired 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, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

However, conventional diagnostic methods will not prove conclusive in the diagnosis of the SRS or the electronic controls or 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. Refer to the appropriate diagnostic information.

#### **OCCUPANT CLASSIFICATION SYSTEM**

In vehicles equipped with the Occupant Classification System (OCS), the OCS automatically suppresses or enables passenger airbag and seat belt tensioner operation based upon whether or not the passenger side front seat is occupied and, if the seat is occupied, classifies the size of the occupant and whether the seat is occupied by a child seat. The passenger airbag and seat belt tensioners are disabled when the system senses the seat is occupied by a child seat or a person below a minimum weight threshold.

The OCS has an Occupant Classification Module (OCM) that monitors inputs from the seat weight sensors under the passenger side front seat cushion. Based upon those inputs the microprocessor within the OCM classifies the occupant of the passenger side front seat. The OCM then sends electronic **occupant classification** messages to the Occupant Restraint Controller (ORC). The microprocessor and programming of the ORC determines whether to enable or disable the deployment circuits for the passenger airbag and seat belt tensioners; and, if enabled, what force level should be used to deploy each front airbag.

The OCS electrical circuits and components are continuously monitored by the OCM, and the OCM is continuously monitored by the ORC. A passenger airbag on/off indicator is located in the instrument panel switch pod near the base of the instrument panel center bezel. This indicator receives battery current whenever the ignition switch is in the ON or START positions, and illuminates only when the ORC pulls the indicator control circuit to ground. The indicator illuminates for about seven seconds as a bulb test each time the ignition switch is turned to the ON or START positions. Following the bulb test, the indicator is turned ON or OFF by the ORC based upon the electronic **occupant classification** messages received from the OCM. This indicator is illuminated whenever the seat is occupied and passenger airbag and seat belt tensioner operation has been suppressed. The indicator is turned OFF whenever the seat is empty or when the seat is occupied and the passenger airbag and seat belt tensioners are enabled.

When the OCM monitors a problem in any of the OCS circuits or components, it stores a fault code or DTC in its memory circuit and sends an electronic message to the ORC. The ORC then sends an electronic message to the Electro Mechanical Instrument Cluster (EMIC) (also known as the Cab Compartment Node/CCN) to turn ON the airbag indicator. If for any reason the OCM is unable to classify the occupant it sends an electronic message to the ORC, and the ORC suppresses passenger airbag and seat belt tensioner operation. The hard wired circuits between components related to the OCS may be diagnosed using conventional diagnostic tools

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

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#### **WARNING**

##### **RESTRAINT SYSTEM**

**WARNING:** To avoid serious or fatal injury during and following any seat belt or child restraint anchor service, carefully inspect all seat belts, buckles, mounting hardware, retractors, tether straps, and anchors for proper installation, operation, or damage. Replace any belt that is cut, frayed, or torn. Straighten any belt that is twisted. Tighten any loose fasteners. Replace any belt that has a damaged or ineffective buckle or retractor. Replace any belt that has a bent or damaged latch plate or anchor plate. Replace any child restraint anchor or the unit to which the anchor is integral that has been bent or damaged. Never attempt to repair a seat belt or child restraint component. Always replace damaged or ineffective seat belt and child restraint components with the correct, new and unused replacement parts

**WARNING:** To avoid serious or fatal injury on vehicles equipped with side curtain airbags, disable the supplemental restraint system before attempting any occupant restraint controller diagnosis or service. The occupant restraint controller contains a rollover sensor, which enables the system to deploy the side curtain airbags in the event of a vehicle rollover event. If an occupant restraint controller is accidentally rolled during service while still connected to battery power, the side curtain airbags will deploy. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the supplemental restraint system. Failure to take the proper precautions could result in accidental airbag deployment.

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the supplemental restraint system before attempting any steering wheel, steering column, airbag, occupant classification system, seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing

further diagnosis or service. This is the only sure way to disable the supplemental restraint system. Failure to take the proper precautions could result in accidental airbag deployment.

- WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, before performing any welding operations disconnect and isolate the battery negative (ground) cable and disconnect all wire harness connectors from the Occupant Restraint Controller (ORC). Failure to take the proper precautions could result in accidental airbag deployment and other possible damage to the supplemental restraint system circuits and components.
- WARNING:** To avoid serious or fatal injury, do not attempt to dismantle an airbag unit or tamper with its inflator. Do not puncture, incinerate, or bring into contact with electricity. Do not store at temperatures exceeding 93°C (200°F). An airbag inflator unit may contain sodium azide and potassium nitrate. These materials are poisonous and extremely flammable. Contact with acid, water, or heavy metals may produce harmful and irritating gases (sodium hydroxide is formed in the presence of moisture) or combustible compounds. An airbag inflator unit may also contain a gas canister pressurized to over 17.24 kPa (2500 psi).
- WARNING:** To avoid serious or fatal injury when handling a seat belt tensioner retractor, proper care should be exercised to keep fingers out from under the retractor cover and away from the seat belt webbing where it exits from the retractor cover.
- WARNING:** To avoid serious or fatal injury, replace all restraint system components only with parts specified . Substitute parts may appear interchangeable, but internal differences may result in inferior occupant protection.
- WARNING:** To avoid serious or fatal injury, the fasteners, screws, and bolts originally used for the restraint system components must never be replaced with any substitutes. These fasteners have special coatings and are specifically designed for the restraint system. Any time a new fastener is needed, replace it with the correct fasteners provided in the service package .
- WARNING:** To avoid serious or fatal injury when a steering column has an airbag unit attached, never place the column on the floor or any other surface with the steering wheel or airbag unit face down.

## DIAGNOSIS AND TESTING

### RESTRAINT SYSTEM



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The hard wired circuits between modules and components related to the Supplemental Restraint System (SRS) may be diagnosed using conventional diagnostic tools and procedures. Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

However, conventional diagnostic methods will not prove conclusive in the diagnosis of the SRS or the electronic controls or 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. Refer to the appropriate diagnostic information.

In addition to a diagnostic scan tool that contains the latest version of the proper diagnostic software, certain diagnostic procedures for the SRS may require the use of the SRS Load Tool special tool along with the appropriate Load Tool Jumpers and Adapters or the Occupant Classification System (OCS) Seat Weight special tool. Refer to the appropriate diagnostic information.

**WARNING: To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.**

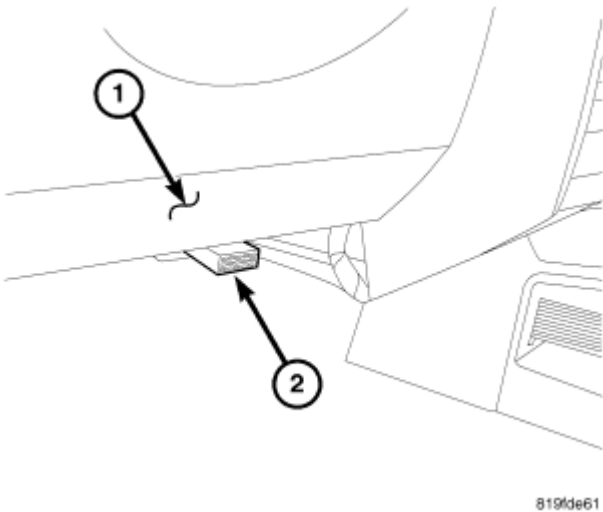
### STANDARD PROCEDURE

#### VERIFICATION TEST - SUPPLEMENTAL RESTRAINT SYSTEM

**NOTE:** The following procedure should be performed using a diagnostic scan tool to verify proper Supplemental Restraint System (SRS) operation following the service or replacement of any SRS component. In addition, if the vehicle is equipped with the Occupant Classification System (OCS) and one of the passenger front seat SRS components has been replaced, following successful completion of the SRS Verification Test procedure, perform the OCS Verification Test using a diagnostic scan tool. Refer to the appropriate diagnostic procedures.

**WARNING: To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before**

**performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.**



**Fig. 4: Identifying Instrument Panel & 16-Way Data Link Connector (DLC)**

Courtesy of CHRYSLER LLC

1. During the following test, the battery negative cable remains disconnected and isolated, as it was during the Supplemental Restraint System (SRS) component removal and installation procedures.
2. Be certain that the diagnostic scan tool contains the latest version of the proper diagnostic software. Connect the scan tool to the 16-way Data Link Connector (DLC) (2). The DLC is located on the driver side lower edge of the instrument panel (1), inboard of the steering column.
3. Turn the ignition switch to the ON position and exit the vehicle with the scan tool.
4. Check to be certain that nobody is in the vehicle, then reconnect the battery negative cable.
5. Using the scan tool, read and record the active (current) Diagnostic Trouble Code (DTC) data.
6. Next, use the scan tool to read and record any stored (historical) DTC data.
7. If any DTC is found in step 5 or 6, refer to the appropriate diagnostic information.
8. Use the scan tool to erase the stored DTC data. If any problems remain, the stored DTC data will not erase. Refer to the appropriate diagnostic information to diagnose any stored DTC that will not erase. If the stored DTC information is successfully erased, go to step 9.
9. Turn the ignition switch to the OFF position for about 15 seconds, and then back to the ON position. Observe the airbag indicator in the instrument cluster. It should light for six to eight seconds, and then go out. This indicates that the SRS is functioning normally and that the repairs are complete. If the airbag indicator fails to light, or lights and stays ON, there is still an active SRS fault or malfunction. Refer to the appropriate diagnostic information to diagnose the problem.

#### **SERVICE AFTER A SUPPLEMENTAL RESTRAINT DEPLOYMENT**

Any vehicle which is to be returned to use following a supplemental restraint deployment, must have the deployed restraints replaced. In addition, if the driver airbag has been deployed, the clockspring and the steering

column must be replaced. If the passenger airbag is deployed, the passenger airbag door and both passenger airbag squib connectors must be replaced. The seat belt tensioners are deployed by the same signal that deploys either the driver and passenger front airbags or the side curtain airbags and must also be replaced if any airbag has been deployed.

If a side curtain airbag has been deployed, the complete airbag unit, the headliner, as well as the upper A, B, C and D-pillar trim must be replaced. These components are not intended for reuse and will be damaged or weakened as a result of a supplemental restraint deployment, which may or may not be obvious during a visual inspection. On vehicles with an optional sunroof, the sunroof drain tubes and hoses must be closely inspected following a side curtain airbag deployment.

It is also critical that the mounting surfaces and mounting brackets for the Occupant Restraint Controller (ORC), side impact sensors, and front impact sensors be closely inspected and restored to their original conditions following any vehicle impact damage. Because the ORC and each front and side impact sensor are used by the supplemental restraint system to monitor or confirm the direction and severity of a vehicle impact, improper orientation or insecure fastening of these components may cause airbags not to deploy when required, or to deploy when not required.

All other vehicle components should be closely inspected following any supplemental restraint deployment, but are to be replaced only as required by the extent of the visible damage incurred.

#### **AIRBAG SQUIB STATUS**

Multistage airbags with multiple initiators (squibs) must be checked to determine that all squibs were used during the deployment event. The driver and passenger airbags in this vehicle are deployed by electrical signals generated by the Occupant Restraint Controller (ORC) through the driver or passenger squib 1 and squib 2 circuits to the two initiators in the airbag inflators. Typically, both initiators are used and all potentially hazardous chemicals are burned during an airbag deployment event. However, it is possible for only one initiator to be used due to an airbag system fault; therefore, it is always necessary to confirm that both initiators have been used in order to avoid the improper handling or disposal of potentially live pyrotechnic or hazardous materials. The following procedure should be performed using a diagnostic scan tool to verify the status of both airbag squibs before either deployed airbag is removed from the vehicle for disposal.

**CAUTION: Deployed front airbags having two initiators (squibs) in the airbag inflator may or may not have live pyrotechnic material within the inflator. Do not dispose of these airbags unless you are certain of complete deployment. Refer to the Hazardous Substance Control System for proper disposal procedures. Dispose of all non-deployed and deployed airbags and seat belt tensioners in a manner consistent with state, provincial, local, and federal regulations.**

1. Be certain that the diagnostic scan tool contains the latest version of the proper diagnostic software. Connect the scan tool to the 16-way Data Link Connector (DLC). The DLC is located on the driver side lower edge of the instrument panel, inboard of the steering column.
2. Turn the ignition switch to the ON position.
3. Using the scan tool, read and record the active (current) Diagnostic Trouble Code (DTC) data.

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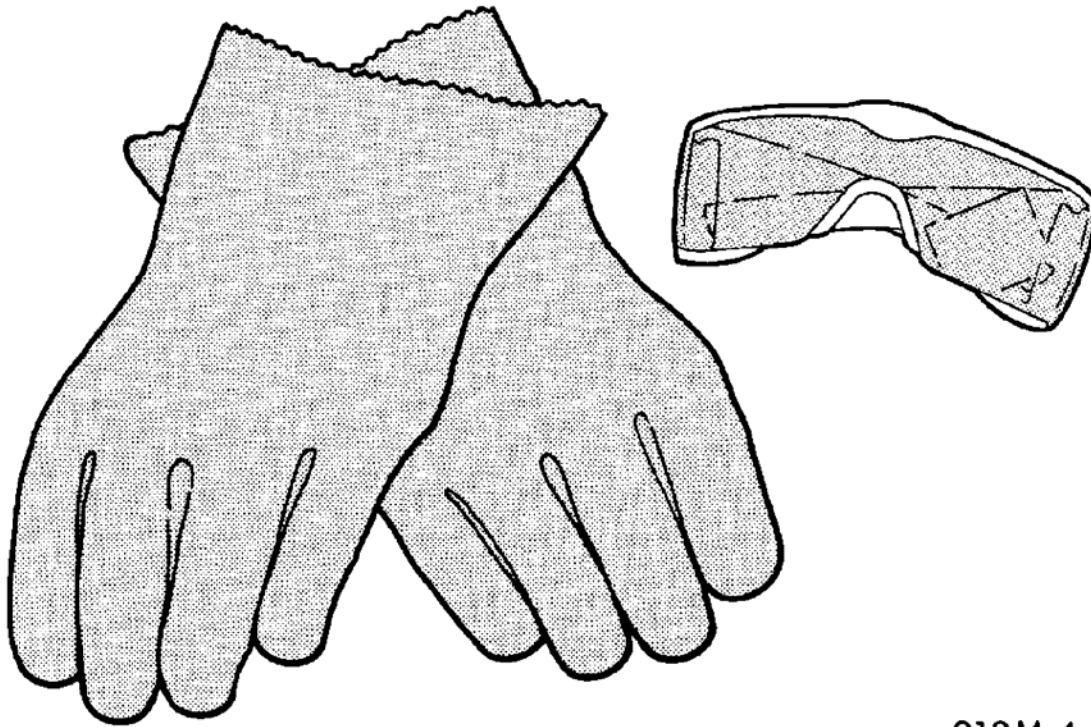
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Using the active DTC information, refer to the **Airbag Squib Status** table to determine the status of both driver and passenger airbag squibs.

<b>AIRBAG SQUIB STATUS</b>		
<b>IF THE ACTIVE DTC IS:</b>	<b>CONDITIONS</b>	<b>SQUIB STATUS</b>
Driver or Passenger Squib 1 open	<b>AND</b> the stored DTC minutes for both Driver or Passenger squibs are within 15 minutes of each other	Both Squib 1 and 2 were used.
Driver or Passenger Squib 2 open		
Driver or Passenger Squib 1 open	<b>AND</b> the stored DTC minutes for Driver or Passenger Squib 2 open is <b>GREATER</b> than the stored DTC minutes for Driver or Passenger Squib 1 by 15 minutes or more	Squib 1 was used; Squib 2 is live.
Driver or Passenger Squib 2 open		
Driver or Passenger Squib 1 open	<b>AND</b> the stored DTC minutes for Driver or Passenger Squib 1 open is <b>GREATER</b> than the stored DTC minutes for Driver or Passenger Squib 2 by 15 minutes or more	Squib 1 is live; Squib 2 was used.
Driver or Passenger Squib 2 open		
Driver or Passenger Squib 1 open	<b>AND</b> Driver or Passenger Squib 2 open is <b>NOT</b> an active code	Squib 1 was used; Squib 2 is live.
Driver or Passenger Squib 2 open	<b>AND</b> Driver or Passenger Squib 1 open is <b>NOT</b> an active code	Squib 1 is live; Squib 2 was used.

**NOTE:** If none of the Driver or Passenger Squib 1 or 2 open are active codes, the status of the airbag squibs is unknown. In this case the airbag should be handled and disposed of as if the squibs were both live.

#### CLEANUP PROCEDURE

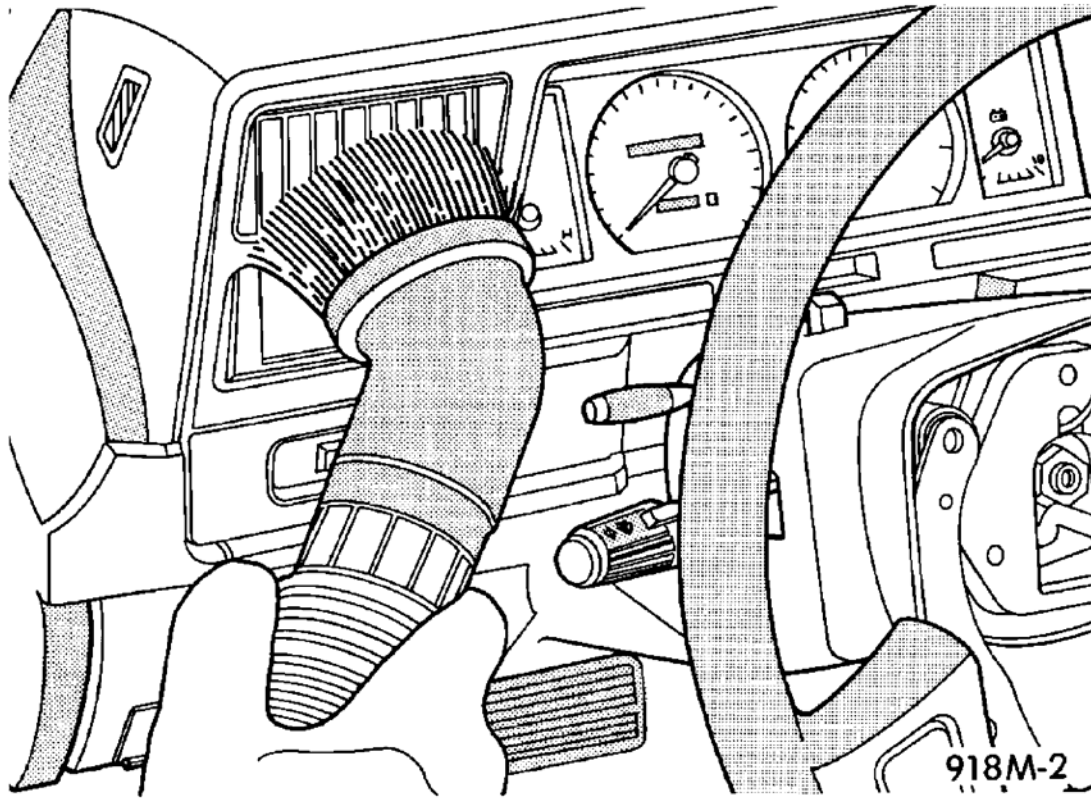


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**Fig. 5: Safety Glasses & Rubber Gloves - Typical**  
Courtesy of CHRYSLER LLC

Following a supplemental restraint deployment, the vehicle interior will contain a powdery residue. This residue consists primarily of harmless particulate by-products of the small pyrotechnic charge that initiates the propellant used to deploy a supplemental restraint. However, this residue may also contain traces of sodium hydroxide powder, a chemical by-product of the propellant material that is used to generate the inert gas that inflates the airbag. Since sodium hydroxide powder can irritate the skin, eyes, nose, or throat, be certain to wear safety glasses, rubber gloves, and a long-sleeved shirt during cleanup.

**WARNING:** To avoid serious or fatal injury, if you experience skin irritation during cleanup, run cool water over the affected area. Also, if you experience irritation of the nose or throat, exit the vehicle for fresh air until the irritation ceases. If irritation continues, see a physician.



**Fig. 6: Vacuum Heater & A/C Outlets - Typical**  
Courtesy of CHRYSLER LLC

1. Begin the cleanup by using a vacuum cleaner to remove any residual powder from the vehicle interior. Clean from outside the vehicle and work your way inside, so that you avoid kneeling or sitting on a non-cleaned area.
2. Be certain to vacuum the heater and air conditioning outlets as well. Run the heater and air conditioner blower on the lowest speed setting and vacuum any powder expelled from the outlets.

**CAUTION:** Deployed front airbags having two initiators (squibs) in the airbag inflator may or may not have live pyrotechnic material within the inflator. Do not dispose of these airbags unless you are certain of complete deployment. Refer to step **AIRBAG SQUIB STATUS**. All damaged, ineffective, or non-deployed supplemental restraints which are replaced on vehicles are to be handled and disposed of properly. If an airbag or seat belt tensioner unit is ineffective or damaged and non-deployed, refer to the Hazardous Substance Control System for proper disposal. Be certain to dispose of all non-deployed and deployed supplemental restraints in a manner consistent with state, provincial, local and federal regulations.

3. Next, remove the deployed supplemental restraints from the vehicle. Refer to the appropriate service

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removal procedures.

4. You may need to vacuum the interior of the vehicle a second time to recover all of the powder.

#### HANDLING NON-DEPLOYED SUPPLEMENTAL RESTRAINTS

At no time should any source of electricity be permitted near the inflator on the back of a non-deployed airbag or seat belt tensioner. When carrying a non-deployed airbag, the trim cover or airbag cushion side of the unit should be pointed away from the body to minimize injury in the event of an accidental deployment. If the airbag unit is placed on a bench or any other surface, the trim cover or airbag cushion side of the unit should be face up to minimize movement in the event of an accidental deployment.

When handling a non-deployed seat belt retractor tensioner, take proper care to keep fingers out from under the retractor cover and away from the seat belt webbing where it exits from the retractor cover. When handling a non-deployed seat belt buckle tensioner, take proper care to keep fingers away from the scabbard between the buckle and the tensioner unit. In addition, the Supplemental Restraint System (SRS) should be disarmed whenever any steering wheel, steering column, seat belt tensioner, airbag, impact sensor Occupant Classification System (OCS), or instrument panel components require diagnosis or service. Failure to observe this warning could result in accidental airbag deployment and possible personal injury.

All damaged, ineffective or non-deployed airbags and seat belt tensioners which are replaced on vehicles are to be handled and disposed of properly. If an airbag or seat belt tensioner unit is ineffective or damaged and non-deployed, refer to the Hazardous Substance Control System for information regarding the potentially hazardous properties of the subject component and the proper safe handling procedures. Then dispose of all non-deployed and deployed airbags and seat belt tensioners in a manner consistent with state, provincial, local and federal regulations.

#### SUPPLEMENTAL RESTRAINT STORAGE

Airbags and seat belt tensioners must be stored in their original, special container until they are used for service. Also, they must be stored in a clean, dry environment; away from sources of extreme heat, sparks, and high electrical energy. Always place or store any airbag on a surface with its trim cover or airbag cushion side facing up, to minimize movement in case of an accidental deployment.

#### SPECIFICATIONS

##### RESTRAINT SYSTEM SPECIFICATIONS

##### TORQUE SPECIFICATIONS

DESCRIPTION	N.m	Ft. Lbs.	In. Lbs.
Clockspring Mounting Screws	3	-	27
Curtain Airbag Mounting Nuts	8	-	71
Front Impact Sensor Mounting Nut	8	-	71
Side Impact Sensor	7	-	62

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### 2007 RESTRAINTS Service Information - Nitro

Mounting Nut			
Occupant Classification Module Mounting Screws	2	-	20
Occupant Restraint Controller Mounting Screws	10.5	-	95
Occupant Restraint Controller Mounting Nuts	10.5	-	95
Passenger Airbag Lower Instrument Panel Bracket Nuts	20	15	-
Passenger Airbag Lower Mounting Nuts	7	-	62
Passenger Airbag Upper Instrument Panel Bracket To Structural Duct Screw	2.9	-	25
Passenger Airbag Upper Instrument Panel Bracket Mounting Screws	29.5	21	-
Front Seat Belt Buckle Lower Anchor Mounting Screw	43	32	-
Second Row Center and Right Outboard Seat Belt Buckle Mounting Screw	55	41	-
Second Row Seat Cushion Leg Mounting Screws	54	40	-
Second Row Center Seat Belt Anchor and Left Outboard Buckle Mounting Nut	62.5	46	-
Front Seat Belt Retractor Lower Bracket Mounting Screw	44.5	33	-
Front Seat Belt Turning Loop Mounting Screw	44.5	33	-
Front Seat Belt Lower Anchor Mounting Screw	44.5	33	-
Second Row Center Seat Belt Retractor Mounting Screw	55	41	-
Second Row Outboard Seat Belt Retractor Lower Bracket Mounting	44.5	33	-



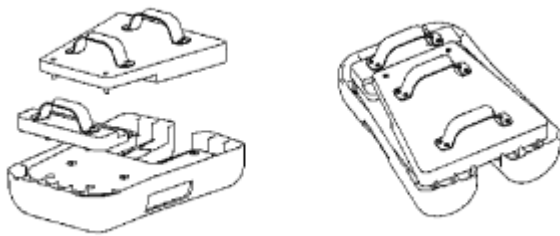
## 2007 Dodge Nitro R/T

### 2007 RESTRAINTS Service Information - Nitro

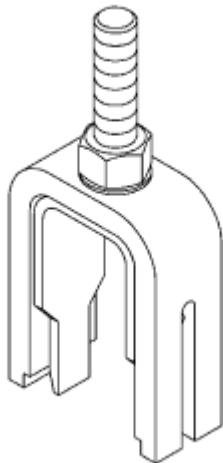
Screw			
Second Row Outboard Seat Belt Turning Loop Mounting Screw	44.5	33	-
Second Row Outboard Seat Belt Lower Anchor Mounting Nut	62.5	46	-
Seat Belt Turning Loop Adjuster Mounting Screw	44.5	33	-
Seat Weight Sensor to Seat Adjuster Track Mounting Nuts	28	21	-
Seat Weight Sensor to Seat Riser Mounting Nut	44.5	33	-

### SPECIAL TOOLS

#### SPECIAL TOOLS



**Fig. 7: OCS Seat Weight Tool No. 9077**  
Courtesy of CHRYSLER LLC

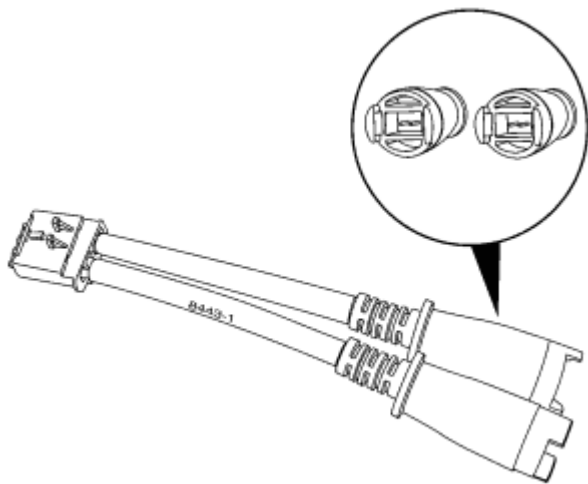


**Fig. 8: Strain Gauge Alignment Tool No. 9689**  
Courtesy of CHRYSLER LLC



8171ad9e

**Fig. 9: SRS Load Tool Kit No. 8443 or 8443A**  
Courtesy of CHRYSLER LLC

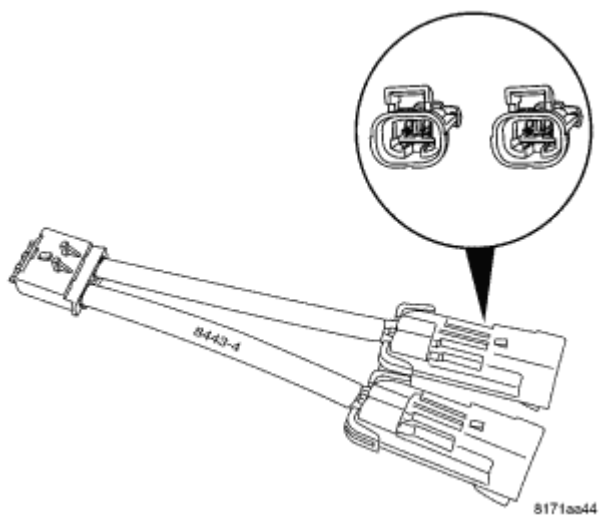


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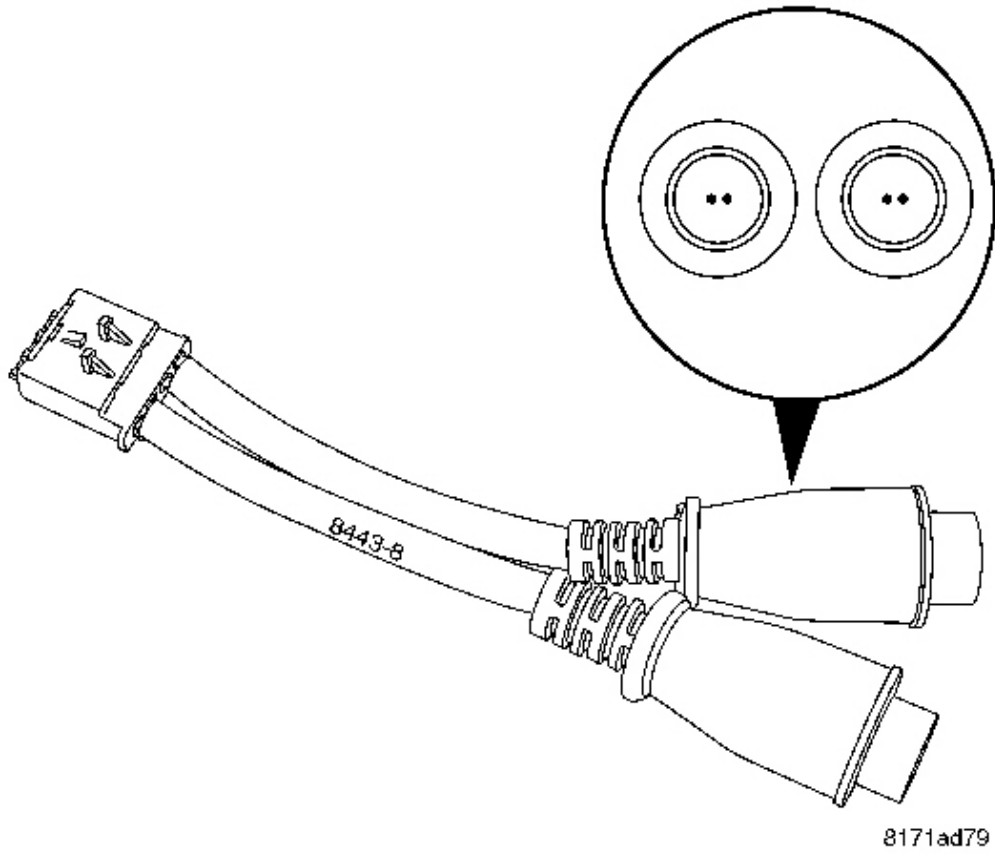
**Fig. 10: Jumper No. 8443-1**  
Courtesy of CHRYSLER LLC

**2007 Dodge Nitro R/T**

2007 RESTRAINTS Service Information - Nitro



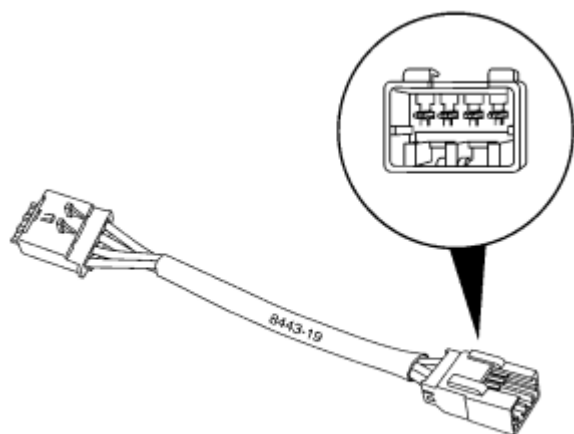
**Fig. 11: Jumper No. 8443-4**  
Courtesy of CHRYSLER LLC



**Fig. 12: Jumper No. 8443-8**  
Courtesy of CHRYSLER LLC

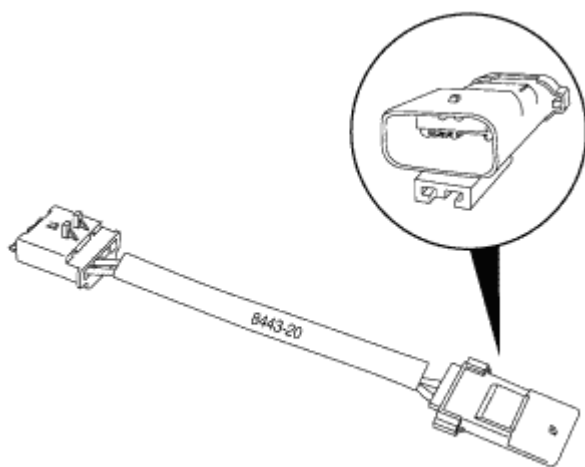
2007 Dodge Nitro R/T

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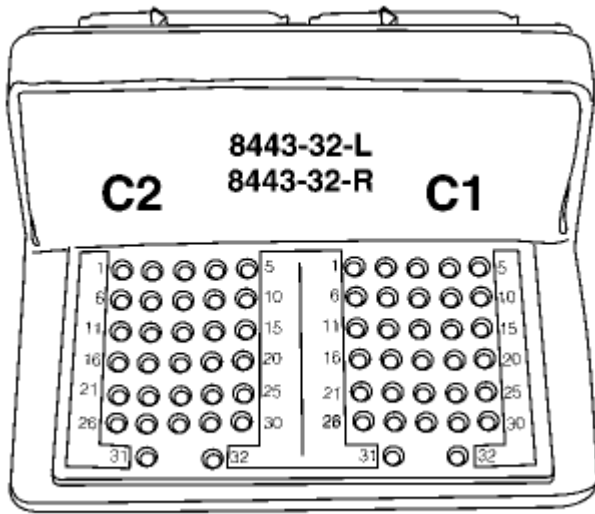
8171aab3

**Fig. 13: Jumper No. 8443-19**  
Courtesy of CHRYSLER LLC



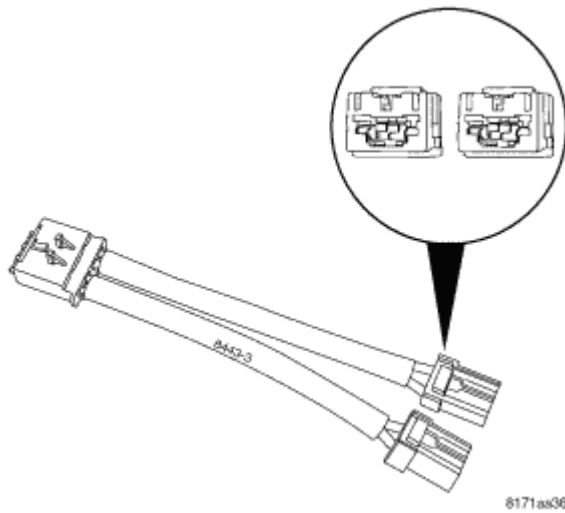
8171aab64

**Fig. 14: Jumper No. 8443-20**  
Courtesy of CHRYSLER LLC



819bdb44

**Fig. 15: Adapter No. 8443-32-R (BLACK)**  
Courtesy of CHRYSLER LLC



8171as06

**Fig. 16: Jumper No. 8443-3**  
Courtesy of CHRYSLER LLC

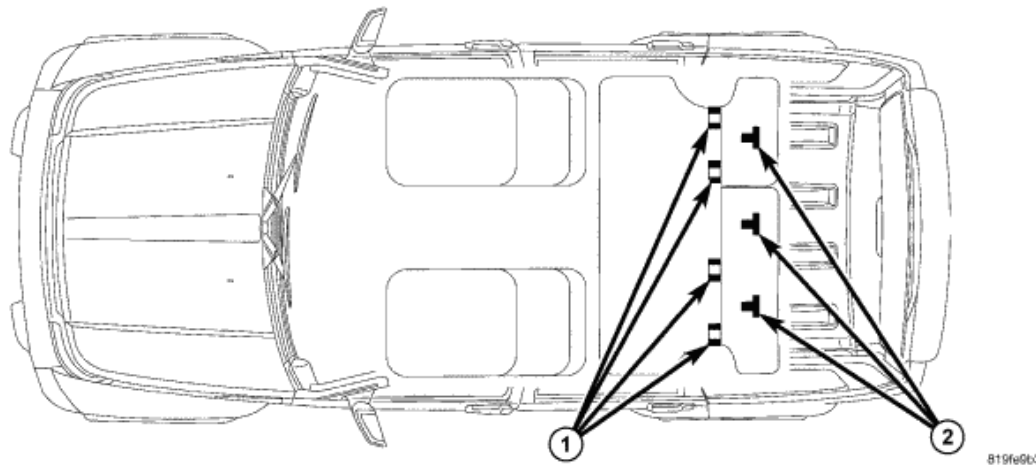
## CHILD RESTRAINT ANCHOR

### DESCRIPTION

CHILD RESTRAINT ANCHOR

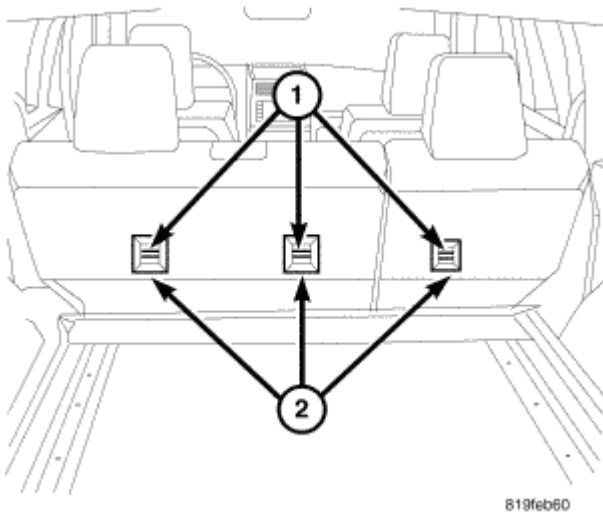
## 2007 Dodge Nitro R/T

2007 RESTRAINTS Service Information - Nitro



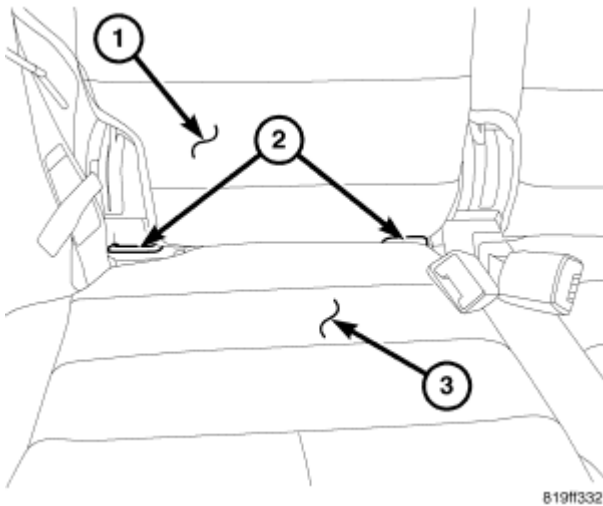
**Fig. 17: Identifying Child Restraint Lower Anchors & Child Restraint Upper Tether Anchor**  
Courtesy of CHRYSLER LLC

This vehicle is equipped with a Lower Anchors and Tether for Children, or LATCH child restraint anchorage system. The second row seats in these vehicles are equipped with a fixed-position child restraint upper tether anchor (2) for both the center and the two outboard seating positions, and child restraint lower anchors (1) for the two outboard seating positions.



**Fig. 18: Identifying Upper Tether Anchors & Molded Plastic Trim Bezel**  
Courtesy of CHRYSLER LLC

The upper tether anchors (1) are each integral to the second row seat back panels. These anchors are each constructed from short lengths of heavy-gauge steel wire that is securely welded into stamped steel cups that are integral to the seat back panels. There is a separate molded plastic trim bezel (2) located around each of these anchors. The child restraint upper tether anchors cannot be adjusted or repaired and, if ineffective or damaged, they must be replaced as a unit with their respective second row seat back panels.



81911332

**Fig. 19: Identifying Second Row Seat Back, Lower Anchors & Seat Cushion**  
 Courtesy of CHRYSLER LLC

The lower anchors (2) for this vehicle are integral to their respective second row seat brackets, which are secured to the rear floor panel at the front with studs and nuts, and at the rear with screws. These anchors are each constructed from a heavy-gauge steel wire loop that is securely welded to the seat bracket. The anchor loops are located where the second row seat back (1) meets the seat cushion (3). The child restraint lower tether anchors cannot be adjusted or repaired and, if ineffective or damaged, they must be replaced as a unit with their respective second row seat brackets.

**WARNING:** To avoid serious or fatal injury during and following any seat belt or child restraint anchor service, carefully inspect all seat belts, buckles, mounting hardware, retractors, tether straps, and anchors for proper installation, operation, or damage. Replace any belt that is cut, frayed, or torn. Straighten any belt that is twisted. Tighten any loose fasteners. Replace any belt that has a damaged or ineffective buckle or retractor. Replace any belt that has a bent or damaged latch plate or anchor plate. Replace any child restraint anchor or the unit to which the anchor is integral that has been bent or damaged. Never attempt to repair a seat belt or child restraint component. Always replace damaged or ineffective seat belt and child restraint components with the correct, new and unused replacement parts .

## OPERATION

### CHILD RESTRAINT ANCHOR

All vehicles manufactured for sale in the United States and Canada are required to be equipped with a Lower Anchors and Tether for Children, or LATCH child restraint anchorage system. The second row seats in this vehicle have two pairs of anchor provisions for installing a LATCH-compatible child seat. A single seat may be mounted in the center seating position, or one in each outboard seating position.

With LATCH, child seats are secured by direct attachment to the vehicle seat structure, rather than by the seat



belts. With LATCH-compatible child seats, lower anchors attach to the seat structure through heavy-gauge wire loops located at the intersection between the seat cushion and the seat back surfaces.

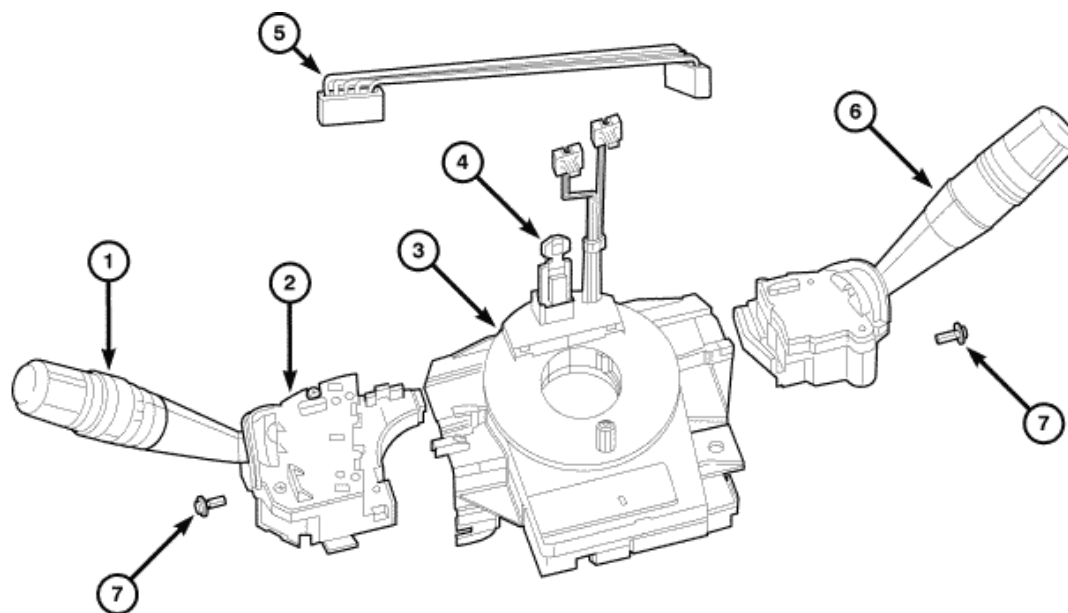
Three upper tether anchors are integral to the second row seat back frames to secure the top tether strap of child seats equipped with this feature. These upper tether anchors work with both LATCH-compatible and other child seats equipped with a top tether strap.

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.

## CLOCKSPRING

### DESCRIPTION

### CLOCKSPRING



817a5ee2

**Fig. 20: Steering Control Module Components**  
Courtesy of CHRYSLER LLC

The clockspring (3) for this vehicle is secured near the top of the steering column below the steering wheel. The clockspring also includes an integral, internal turn signal cancel cam and a Steering Angle Sensor (SAS) that are both serviced as a unit with the clockspring. The clockspring also supports the left (lighting) multi-function switch (1), the Steering Control Module (SCM) internal to the left multi-function switch housing (2), and the right (wiper) multi-function switch (6). Each of these switches and the jumper wire harness (5) between the two multi-function switches can be separated from and are serviced individually from the clockspring.

The clockspring case includes integral tabs for mounting the unit with three screws to the steering column lock housing as well as integral provisions for mounting and supporting both multi-function switches. The multi-function switches are each secured to the clockspring with a single screw (7). The SAS within the clockspring includes an electronic circuit board and a microprocessor, which allows it to communicate with other electronic

## 2007 Dodge Nitro R/T

### 2007 RESTRAINTS Service Information - Nitro

modules in the vehicle over the Controller Area Network (CAN) data bus. The SAS circuitry, the clockspring, and the turn signal cancel cam are all contained within a flat, molded plastic case.

The clockspring case includes three connector receptacles that face toward the instrument panel. Within the plastic case is a spool-like molded plastic rotor with a large exposed hub. The upper surface of the rotor hub has a large center hole, two short pigtail wires with connectors, and a connector receptacle that faces toward the steering wheel. The lower surface of the rotor has an integral dowel or drive pin that also faces toward the steering wheel. Wound around the rotor spool within the case is a long ribbon-like tape that consists of several thin copper wire leads sandwiched between two thin plastic membranes. The outer end of the tape terminates at two of the connector receptacles that face the instrument panel, while the inner end of the tape terminates at the pigtail wires and connector receptacle on the hub of the clockspring rotor that face the steering wheel. The outer surface of the rotor hub rim within the clockspring case also has the integral lobes of the turn signal cancel cam.

The service replacement clockspring is shipped pre-centered and with a molded plastic locking pin (4) installed. The locking pin secures the centered clockspring rotor to the clockspring case during shipment and handling, but must be removed after the clockspring is installed on the steering column and the steering wheel is installed. See **CLOCKSPRING CENTERING**.

The clockspring cannot be repaired. If the clockspring is ineffective, damaged, or if the driver airbag has been deployed, the clockspring/turn signal cancel cam/SAS unit must be replaced.

## OPERATION

### CLOCKSPRING

The clockspring is a mechanical electrical circuit component that is used to provide continuous electrical continuity between the fixed instrument panel wire harness and certain electrical components mounted on or in the rotating steering wheel. On this vehicle the rotating electrical components include the driver airbag, the horn switch, the speed control switch, the remote radio switches and the Electronic Vehicle Information Center (EVIC) control switches, if the vehicle is so equipped. The clockspring is positioned and secured near the top of the steering column. The fixed connector receptacles on the back of the fixed clockspring case connect the clockspring to the vehicle electrical system through three take outs with connectors from the instrument panel wire harness.

The turn signal cancel cam is integral to the rim of the clockspring rotor hub within the clockspring case so it also moves with the rotation of the steering wheel. Two short, black-sleeved pigtail wires on the upper surface of the clockspring rotor connect the clockspring to the driver airbag, while a steering wheel wire harness connected to the connector receptacle on the upper surface of the clockspring rotor complete circuits to the horn switch, the speed control switch and, if the vehicle is so equipped, to the optional remote radio switches and EVIC control switches on the steering wheel. The third connector receptacle is dedicated to the inputs and outputs of the Steering Angle Sensor (SAS) internal to the clockspring case.

Like the clockspring in a timepiece, the clockspring tape has travel limits and can be damaged by being wound too tightly during full stop-to-stop steering wheel rotation. To prevent this from occurring, the clockspring is centered when it is installed on the steering column. Centering the clockspring indexes the clockspring tape to the movable steering components so that the tape can operate within its designed travel limits. However, if the steering wheel is removed from the steering column, if the clockspring is removed from the steering column, or if the steering shaft is disconnected from the steering gear, the clockspring spool can change position relative to

## 2007 Dodge Nitro R/T

2007 RESTRAINTS Service Information - Nitro

the other steering components. The clockspring must be re-centered following completion of this service or the tape may be damaged.

Service replacement clocksprings are shipped pre-centered and with a plastic locking pin installed. This locking pin should not be removed until the steering wheel has been installed on the steering column. If the locking pin is removed before the steering wheel is installed on a steering column, the clockspring centering procedure must be performed. See **CLOCKSPRING CENTERING**. Proper clockspring installation may be confirmed by viewing the SAS data using a diagnostic scan tool.

The hard wired clockspring circuits as well as the hard wired inputs and outputs of the SAS 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 SAS or the electronic controls or communication between other modules and devices that provide features of the Electronic Stability Program (ESP) or Supplemental Restraint System (SRS). The most reliable, efficient, and accurate means to diagnose the SAS or the electronic controls and communication related to ESP or SRS operation requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

### STANDARD PROCEDURE

#### CLOCKSPRING CENTERING

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the supplemental restraint system before attempting any steering wheel, steering column, airbag, occupant classification system, seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the supplemental restraint system. Failure to take the proper precautions could result in accidental airbag deployment.

**NOTE:** A service replacement clockspring is shipped with the clockspring pre-centered and with a molded plastic locking pin installed. This locking pin should not be removed until the steering wheel has been installed on the steering column. If the locking pin is removed before the steering wheel is installed, the clockspring centering procedure must be performed.

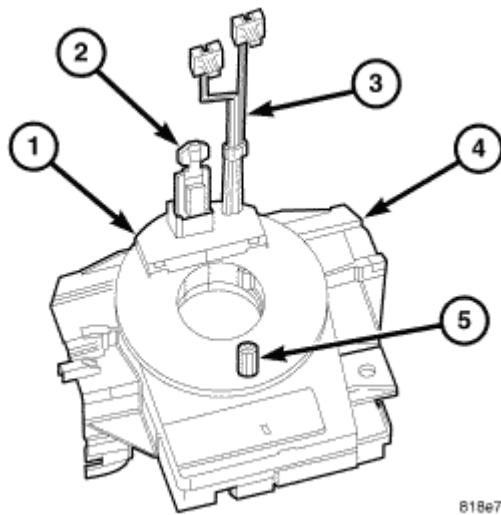
**NOTE:** When a clockspring is installed into a vehicle without properly centering and locking the entire steering system, the Steering Angle Sensor (SAS) data does not agree with the true position of the steering system and causes the ESP system to shut down. This may also damage the clockspring without any immediate malfunction. Unlike some other DaimlerChrysler vehicles, this SAS never requires calibration. See **CLOCKSPRING CENTERING**.

**NOTE:** Determining if the clockspring/SAS is centered is also possible electrically using the diagnostic scan tool. Steering wheel position is displayed as ANGLE

with a range of up to 900 degrees. Refer to the appropriate menu item on the diagnostic scan tool.

**NOTE:** Before starting this procedure, be certain to turn the steering wheel until the front wheels are in the straight-ahead position and that the entire steering system is locked or inhibited from rotation.

**NOTE:** The clockspring may be centered and the rotor may be rotated freely once the steering wheel has been removed.



**Fig. 21: Identifying Clockspring Components**  
Courtesy of CHRYSLER LLC

1. Place the front wheels in the straight-ahead position and inhibit the steering column shaft from rotation.
2. Remove the steering wheel from the steering shaft. Refer to **REMOVAL** .
3. Rotate the clockspring rotor (1) clockwise to the end of its travel. **Do not apply excessive torque.**
4. From the end of the clockwise travel, rotate the rotor about two and one-half turns counterclockwise. Turn the rotor slightly clockwise or counterclockwise as necessary so that the clockspring airbag pigtail wires (3) and connector receptacle are at the top and the dowel pin (5) is at the bottom.
5. The clockspring is now centered. Secure the clockspring rotor to the clockspring case using a locking pin (2) or some similar device to maintain clockspring centering until the steering wheel is reinstalled on the steering column.

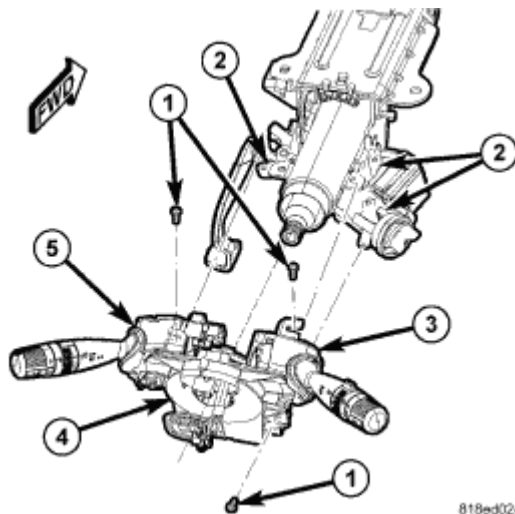
## REMOVAL

## CLOCKSPRING

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the supplemental restraint system before attempting any steering wheel, steering column, airbag, occupant classification system, seat belt

tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the supplemental restraint system. Failure to take the proper precautions could result in accidental airbag deployment.

- NOTE:** A service replacement clockspring is shipped with the clockspring pre-centered and with a molded plastic locking pin installed. This locking pin should not be removed until the steering wheel has been installed on the steering column. If the locking pin is removed before the steering wheel is installed, the clockspring centering procedure must be performed.
- NOTE:** When a clockspring is installed into a vehicle without properly centering and locking the entire steering system, the Steering Angle Sensor (SAS) data does not agree with the true position of the steering system and causes the ESP system to shut down. This may also damage the clockspring without any immediate malfunction. Unlike some other DaimlerChrysler vehicles, this SAS never requires calibration. See STANDARD PROCEDURE.
- NOTE:** Determining if the clockspring/SAS is centered is also possible electrically using the diagnostic scan tool. Steering wheel position is displayed as ANGLE with a range of up to 900 degrees. Refer to the appropriate menu item on the diagnostic scan tool.
- NOTE:** Before starting this procedure, be certain to turn the steering wheel until the front wheels are in the straight-ahead position and that the entire steering system is locked or inhibited from rotation.

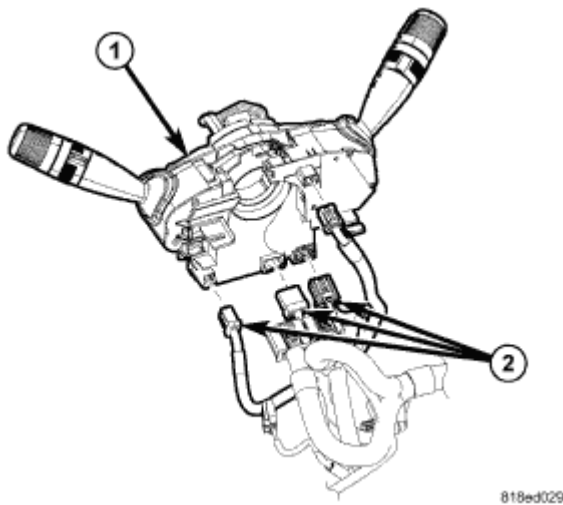


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**Fig. 22: Identifying Screws, Steering Column Lock Housing, Right Multi-Function Switch, Clockspring & Left Multi-Function Switch**

Courtesy of CHRYSLER LLC

1. Place the front wheels in the straight ahead position and inhibit the steering column shaft from rotation.
2. Disconnect and isolate the battery negative cable.
3. Remove the steering wheel from the steering shaft. Refer to **REMOVAL** .
4. If the removed clockspring is to be reused, be certain to secure the clockspring rotor to the clockspring case to maintain clockspring centering until the steering wheel is reinstalled on the steering column. If clockspring centering is not maintained, the clockspring must be centered again before the steering wheel is reinstalled. See **CLOCKSPRING CENTERING**.
5. Move the steering column to the fully lowered position and leave the tilt release lever in the released (down) position.
6. Remove the upper and lower shrouds from the steering column. Refer to **REMOVAL** .
7. Remove the right multi-function switch (3) from the clockspring (4). Refer to **REMOVAL** .
8. Remove the left multi-function switch (5) from the clockspring. Refer to **REMOVAL** .
9. Remove the three screws (1) that secure the clockspring to the steering column lock housing (2).



**Fig. 23: Identifying Clockspring & Instrument Panel Wire Harness Connectors**  
 Courtesy of CHRYSLER LLC

10. Pull the clockspring (1) away from the steering column lock housing far enough to access and disconnect the three instrument panel wire harness connectors (2) from the receptacles on the back of the clockspring case.
11. Remove the clockspring from the steering column.

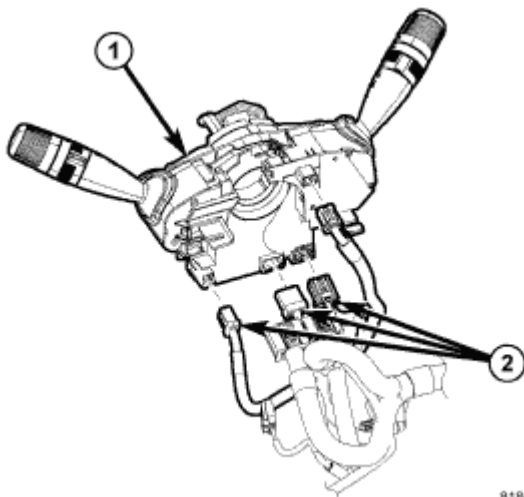
## INSTALLATION

### CLOCKSPRING

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the supplemental restraint system before attempting any steering wheel,

steering column, airbag, occupant classification system, seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the supplemental restraint system. Failure to take the proper precautions could result in accidental airbag deployment.

- NOTE:** A service replacement clockspring is shipped with the clockspring pre-centered and with a molded plastic locking pin installed. This locking pin should not be removed until the steering wheel has been installed on the steering column. If the locking pin is removed before the steering wheel is installed, the clockspring centering procedure must be performed.
- NOTE:** When a clockspring is installed into a vehicle without properly centering and locking the entire steering system, the Steering Angle Sensor (SAS) data does not agree with the true position of the steering system and causes the ESP system to shut down. This may also damage the clockspring without any immediate malfunction. Unlike some other DaimlerChrysler vehicles, this SAS never requires calibration. See CLOCKSPRING CENTERING.
- NOTE:** Determining if the clockspring/SAS is centered is also possible electrically using the diagnostic scan tool. Steering wheel position is displayed as ANGLE with a range of up to 900 degrees. Refer to the appropriate menu item on the diagnostic scan tool.
- NOTE:** Before starting this procedure, be certain to turn the steering wheel until the front wheels are in the straight-ahead position and that the entire steering system is locked or inhibited from rotation.

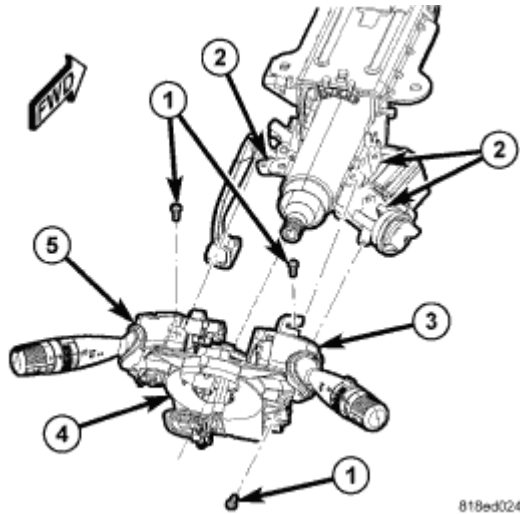


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**Fig. 24: Identifying Clockspring & Instrument Panel Wire Harness Connectors**

## Courtesy of CHRYSLER LLC

1. If a new clockspring (1) is being installed, transfer the multifunction switch jumper harness from the old clockspring or position a new jumper harness onto the new clockspring.
2. Carefully slide the clockspring down over the steering column upper shaft far enough to reconnect the three instrument panel wire harness connectors (2) to the receptacles on the back of the clockspring case.



**Fig. 25: Identifying Screws, Steering Column Lock Housing, Right Multi-Function Switch, Clockspring & Left Multi-Function Switch**  
Courtesy of CHRYSLER LLC

3. Position the clockspring (4) onto the steering column lock housing (2).
4. Install and tighten the three screws (1) that secure the clockspring to the lock housing in the following sequence: lower right, upper left, upper right. Tighten the screws to 3 N.m (27 in. lbs.).

**NOTE:** Use of an improper sequence when tightening the clockspring mounting screws may result in an audible ticking noise as the steering wheel is rotated.

5. Reinstall the left multi-function switch (5) onto the clockspring. Refer to INSTALLATION .
6. Reinstall the right multi-function switch (3) onto the clockspring. Refer to INSTALLATION .
7. Reinstall the upper and lower shrouds onto the steering column. Refer to INSTALLATION .
8. Move the steering column back to the fully raised position and move the tilt release lever back to the locked (up) position.
9. Reinstall the steering wheel onto the steering column. Refer to INSTALLATION .
10. Remove the plastic locking pin that secures the clockspring rotor to the clockspring case to maintain clockspring centering.
11. Reconnect the battery negative cable.

## CURTAIN AIRBAG



## DESCRIPTION

## SIDE CURTAIN AIRBAG

**SRS**

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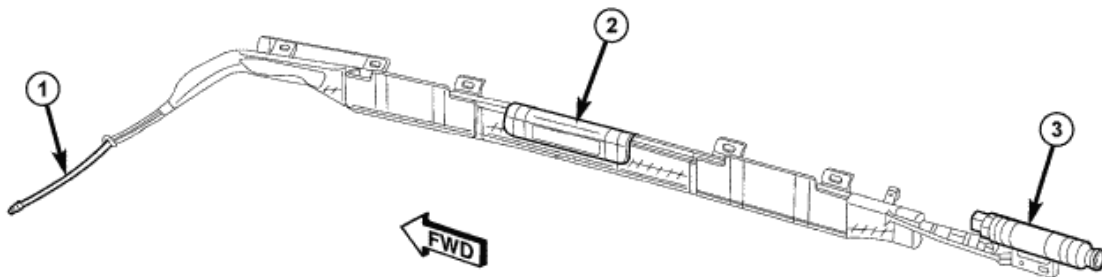
**AIRBAG**

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**Fig. 26: SRS Emblem**

Courtesy of CHRYSLER LLC

Side curtain airbags are standard equipment for this vehicle when it is also equipped with dual front airbags. These airbags are passive, inflatable, Supplemental Restraint System (SRS) components, and vehicles with this equipment can be readily identified by a molded identification trim plug with the **SRS - AIRBAG** logo located near the tops of the B and C-pillar trim. This system is designed to reduce injuries to the vehicle occupants in the event of a side impact collision or a vehicle rollover incident.



81a00de

**Fig. 27: Identifying Long Tether, Individually Controlled Curtain Airbag Units & Hybrid-Type Inflator**

Courtesy of CHRYSLER LLC

## 2007 Dodge Nitro R/T

### 2007 RESTRAINTS Service Information - Nitro

Each vehicle has two individually controlled curtain airbag units (2). These airbag units are concealed and mounted above the headliner where they are each secured to one of the roof side rails by two plastic push-in fasteners and to five studs on the inner roof side rail by five nuts. Each folded airbag cushion is contained within a fabric wrap and has molded plastic ramps that extend along the roof rail from the A-pillar at the front of the vehicle to just behind the C-pillar at the rear of the vehicle.

A long tether (1) extends down the A-pillar from the front of the airbag cushion. The tether is secured to mounting holes in the inner A-pillar sheet metal with plastic push-in routing clips and is secured to the base of the A-pillar near the belt line with a metal key engaged into a slot in the A-pillar. A plastic push-in fastener fills the A-pillar slot after the metal key is installed to prevent the key from becoming disengaged.

The hybrid-type inflator (3) for each airbag is secured to the roof rail at the rear of the airbag unit between the C-pillar and the D-pillar, and is connected to the airbag cushion by a long tubular manifold. The bracket holding the inflator is secured by nuts to two studs on the inner roof side rail.

One end of a two-wire jumper harness connects to the initiator at the forward end of the curtain airbag inflator. The other end is routed down the D-pillar with plastic push-in routing clips and connects to the body wire harness near the belt line, which connects the airbag unit to the Occupant Restraint Controller (ORC).

The side curtain airbag unit 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 airbag unit, the headliner, the upper A, B, C and D-pillar trim, and all other visibly damaged components must be replaced.

## OPERATION

### SIDE CURTAIN AIRBAG

Each side curtain airbag is deployed individually by an electrical signal generated by the Occupant Restraint Controller (ORC) to which it is connected through left or right curtain airbag 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 into the folded curtain airbag cushion, causing the cushion to inflate. As the airbag 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 or a vehicle rollover incident.

The front tether keeps the front portion of the bag taut to the side of the vehicle, thus ensuring that the bag will deploy in the proper position. Following the airbag deployment, the airbag 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.

Proper diagnosis of the side curtain airbag inflator and squib circuits requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

## REMOVAL

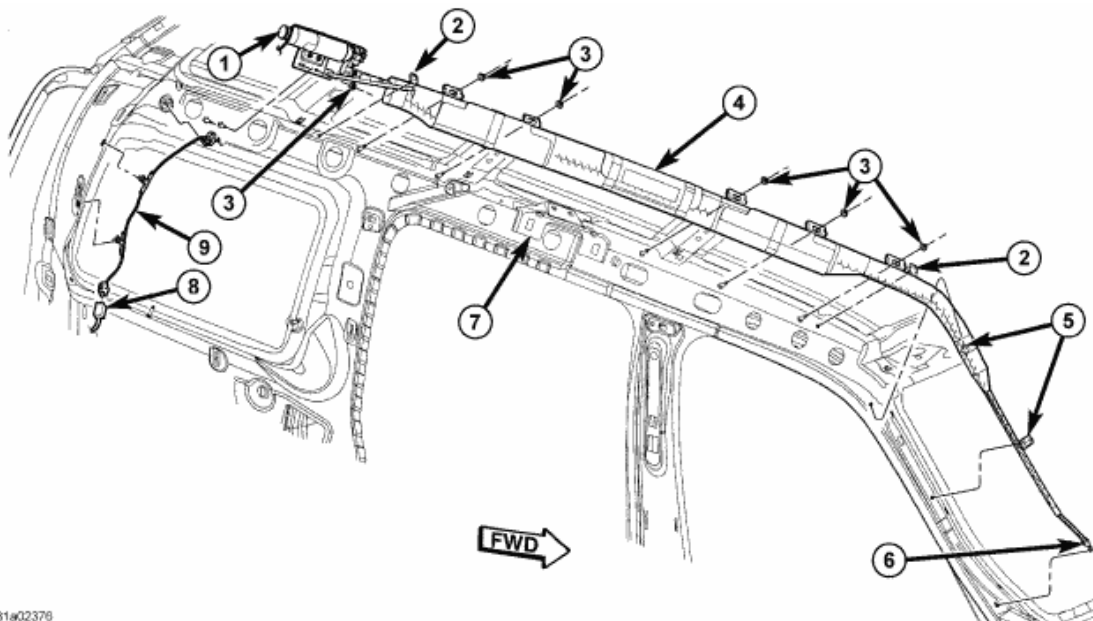
### SIDE CURTAIN AIRBAG

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**WARNING:** To avoid serious or fatal injury when removing a deployed airbag, rubber gloves, eye protection, and a long-sleeved shirt should be worn. There may be deposits on the airbag unit and other interior surfaces. In large doses, these deposits may cause irritation to the skin and eyes.

**WARNING:** To avoid serious or fatal injury, use extreme care to prevent any foreign material from entering the side curtain airbag, or becoming entrapped between the side curtain airbag cushion and the headliner. Failure to observe this warning could result in occupant injuries upon airbag deployment.

**NOTE:** The following procedure is for replacement of an ineffective or damaged side curtain airbag. If the airbag is ineffective or damaged, but not deployed, review the recommended procedures for handling non-deployed supplemental restraints. See HANDLING NON-DEPLOYED SUPPLEMENTAL RESTRAINTS. If the side curtain airbag has been deployed, review the recommended procedures for service after a supplemental restraint deployment before removing the airbag from the vehicle.



81#02376

**Fig. 28: Inner A/D-Pillar Components**  
 Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable. Wait two minutes for the system capacitor to discharge before further service.
2. Remove the headliner from the vehicle. Refer to **REMOVAL**.
3. Disengage the plastic push-in routing clips that secure the jumper wire harness (9) to the inner D-pillar.
4. Disconnect the jumper wire harness from the body wire harness connector (8) for the side curtain airbag located on the inner D-pillar near the belt line.
5. Remove the push-in fastener that secures the side curtain airbag tether metal key (6) in the slot near the base of the inner A-pillar.
6. Disengage the tether metal key from the A-pillar slot.
7. Disengage the two plastic push-in routing clips (5) that secure the tether to the inner A-pillar.
8. Remove the seven nuts (3) that secure the side curtain airbag (4) and the inflator (1) bracket to the studs on the inner roof side rail.
9. Disengage the two plastic push-in fasteners (2) that secure the airbag unit to the inner roof side rail.
10. Disengage the side curtain airbag from under the grab handle bracket (7) on the inner roof side rail above the rear door opening.
11. Remove the side curtain airbag from the vehicle as a unit.

## INSTALLATION

### SIDE CURTAIN AIRBAG

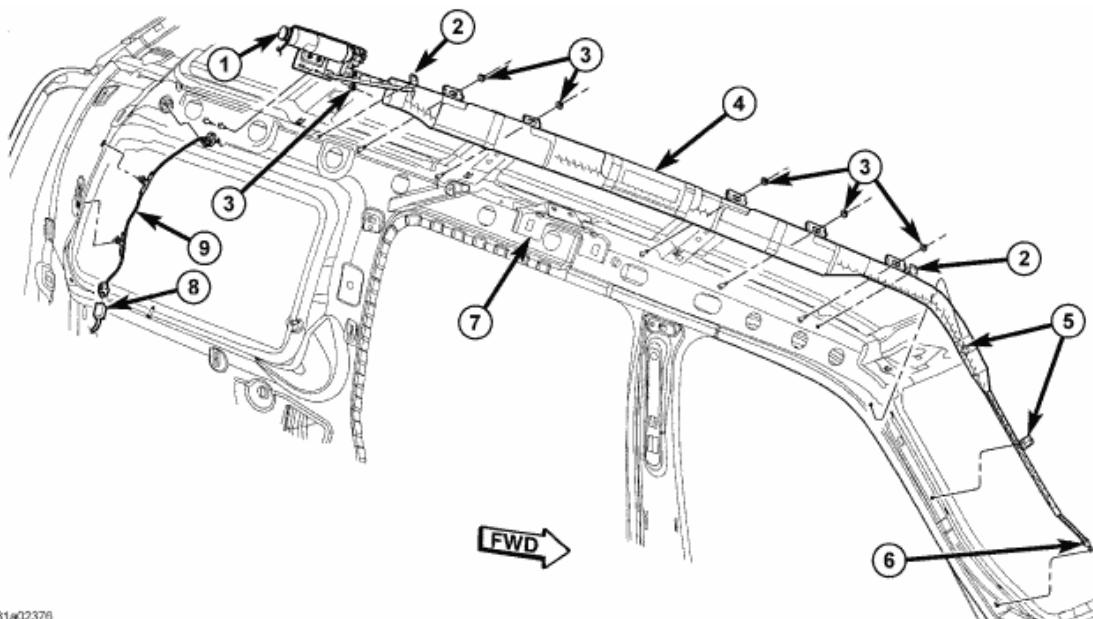
**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS),

seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**WARNING:** To avoid serious or fatal injury when removing a deployed airbag, rubber gloves, eye protection, and a long-sleeved shirt should be worn. There may be deposits on the airbag unit and other interior surfaces. In large doses, these deposits may cause irritation to the skin and eyes.

**WARNING:** To avoid serious or fatal injury, use extreme care to prevent any foreign material from entering the side curtain airbag, or becoming entrapped between the side curtain airbag cushion and the headliner. Failure to observe this warning could result in occupant injuries upon airbag deployment.

**NOTE:** The following procedure is for replacement of an ineffective or damaged side curtain airbag. If the airbag is ineffective or damaged, but not deployed, review the recommended procedures for handling non-deployed supplemental restraints. See HANDLING NON-DEPLOYED SUPPLEMENTAL RESTRAINTS. If the side curtain airbag has been deployed, review the recommended procedures for service after a supplemental restraint deployment before removing the airbag from the vehicle.



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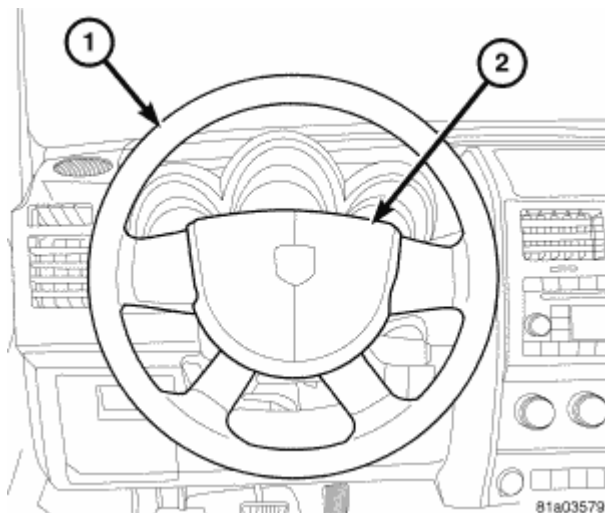
**Fig. 29: Inner A/D-Pillar Components**  
Courtesy of CHRYSLER LLC

1. Position the side curtain airbag (4) into the vehicle as a unit.
2. Engage the rear plastic push-in fastener (2) that secures the airbag unit to the inner roof side rail.
3. Tuck the side curtain airbag under the grab handle bracket (7) on the inner roof side rail above the rear door opening.
4. Engage the front plastic push-in fastener (2) that secures the airbag unit to the inner roof side rail.
5. Engage the two plastic push-in routing clips (5) that secure the tether to the inner A-pillar.
6. Engage the side curtain airbag tether metal key (6) into the slot near the base of the inner A-pillar.
7. Install a plastic push-in fastener to secure the tether metal key within the inner A-pillar slot.
8. Position the side curtain airbag mounting tabs and the inflator (1) bracket onto the seven studs on the inner roof side rail.
9. Working from the rear of the vehicle to the front, install and tighten the seven nuts (3) that secure the side curtain airbag and inflator bracket to the studs. Tighten the nuts to 8 N.m (71 in. lbs.).
10. Reconnect the jumper wire harness (9) to the body wire harness connector (8) for the side curtain airbag located on the inner D-pillar near the belt line.
11. Engage the plastic push-in routing clips that secure the jumper wire harness to the inner D-pillar.
12. Reinstall the headliner into the vehicle. Refer to **INSTALLATION** .
13. Do not reconnect the battery negative cable at this time. The Supplemental Restraint System (SRS) verification test procedure should be performed following service of any SRS component. See **VERIFICATION TEST - SUPPLEMENTAL RESTRAINT SYSTEM.**

## DRIVER AIRBAG

### DESCRIPTION

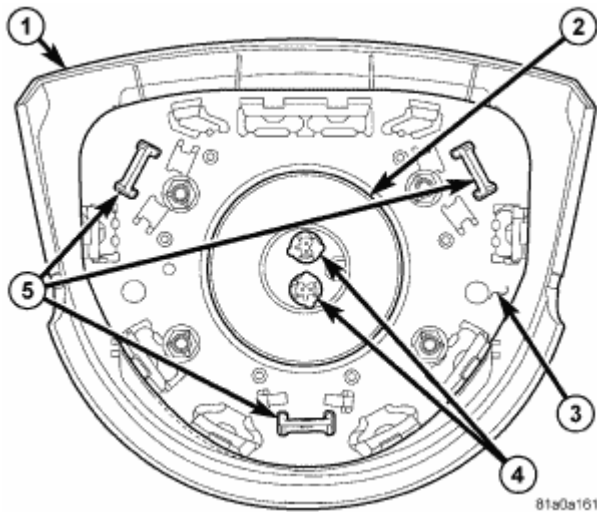
#### DRIVER AIRBAG



**Fig. 30: Identifying Steering Wheel & Thermoplastic Driver Airbag Protective Trim Cover**  
 Courtesy of CHRYSLER LLC

The injection molded, thermoplastic driver airbag protective trim cover (2) is the most visible part of the driver

airbag. The driver airbag is located in the center of the steering wheel (1), where it is secured to the armature within the hub cavity of the four-spoke steering wheel. An injection molded, bright emblem with the Dodge Ram logo is applied to the center of the trim cover.



**Fig. 31: Identifying Trim Cover, Inflator, Housing, Snap Retainers & Receptacles**  
Courtesy of CHRYSLER LLC

Concealed beneath the driver air bag trim cover are the folded airbag cushion, the airbag housing, the airbag inflator and the retainers that secure the inflator to the housing. The airbag cushion, housing (3), and inflator (2) are secured within an integral receptacle molded into the back of the trim cover (1). The vertical walls of this receptacle have numerous integral latch features that are inserted through numerous openings around the perimeter of the airbag housing. After the trim cover latches are fully seated in the housing a blocking tab integral to the housing is bent down to block the latch feature of the trim cover, locking the trim cover securely into place on the airbag housing. Three wire loop snap retainers (5) extend from the housing to secure the airbag to the steering wheel armature. The snap retainer at the 6 o'clock position has a distinctive V-shape to ensure proper orientation of the airbag when it is installed onto the steering wheel.

The airbag used in this vehicle is a multistage-type that complies with revised federal airbag standards to deploy with less force than those used in some prior vehicles. A radial deploying 67.3 centimeter (26.5 inch) diameter fabric airbag cushion with internal tethers is used. The airbag inflator is a dual-initiator, non-azide, pyrotechnic-type unit and is secured to the stamped metal airbag housing using four flanged hex nuts. Two keyed and color-coded connector receptacles (4) on the driver airbag inflator connect the two inflator initiators to the vehicle electrical system through two yellow-jacketed, two-wire pigtail harnesses of the clockspring.

The driver airbag cannot be repaired, and must be replaced if deployed, ineffective, or in any way damaged.

## OPERATION

### DRIVER AIRBAG

The multistage driver airbag is deployed by electrical signals generated by the Occupant Restraint Controller (ORC) through the driver airbag squib 1 and squib 2 circuits to the two initiators in the airbag inflator. By using two initiators, the airbag can be deployed at multiple levels of force. The force level is controlled by the ORC to

## 2007 Dodge Nitro R/T

### 2007 RESTRAINTS Service Information - Nitro

suit the monitored impact conditions by providing one of several delay intervals between the electrical signals provided to the two initiators. The longer the delay between these signals, the less forcefully the airbag will deploy.

When the ORC sends the proper electrical signals to each 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 back of the airbag housing and a diffuser in the inflator directs all of the inert gas into the airbag cushion, causing the cushion to inflate. As the cushion inflates, the driver airbag trim 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 towards the instrument panel through vent holes within the fabric used to construct the back (steering wheel side) panel of the airbag cushion.

Some of the chemicals used to create the inert gas may be considered hazardous while in their solid state before they are burned, but they are securely sealed within the airbag inflator. Typically, both initiators are used and all potentially hazardous chemicals are burned during an airbag deployment event. However, it is possible for only one initiator to be used during a deployment due to an airbag system fault; therefore, it is necessary to always confirm that both initiators have been used in order to avoid the improper disposal of potentially live pyrotechnic or hazardous materials. See **SERVICE AFTER A SUPPLEMENTAL RESTRAINT DEPLOYMENT**.

The inert gas that is produced when the chemicals are burned is harmless. However, a small amount of residue from the burned chemicals may cause some temporary discomfort if it contacts the skin, eyes, or breathing passages. If skin or eye irritation is noted, rinse the affected area with plenty of cool, clean water. If breathing passages are irritated, move to another area where there is plenty of clean, fresh air to breathe. If the irritation is not alleviated by these actions, contact a physician.

Proper diagnosis of the driver airbag inflator and squib circuits requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

## REMOVAL

### DRIVER AIRBAG

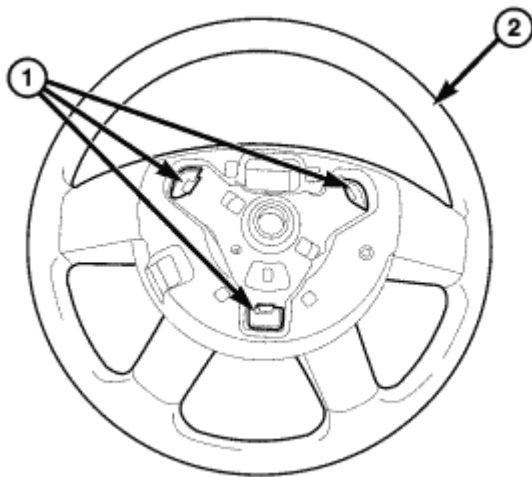
**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**WARNING:** To avoid serious or fatal injury when removing a deployed airbag, rubber gloves, eye protection, and a long-sleeved shirt should be worn. There may be deposits on the airbag cushion and other interior surfaces. In



large doses, these deposits may cause irritation to the skin and eyes.

**NOTE:** The following procedure is for replacement of an ineffective or damaged driver airbag. If the airbag is ineffective or damaged, but not deployed, review the recommended procedures for handling non-deployed supplemental restraints. See **HANDLING NON-DEPLOYED SUPPLEMENTAL RESTRAINTS**. If the driver airbag has been deployed, review the recommended procedures for service after a supplemental restraint deployment before removing the airbag from the vehicle.



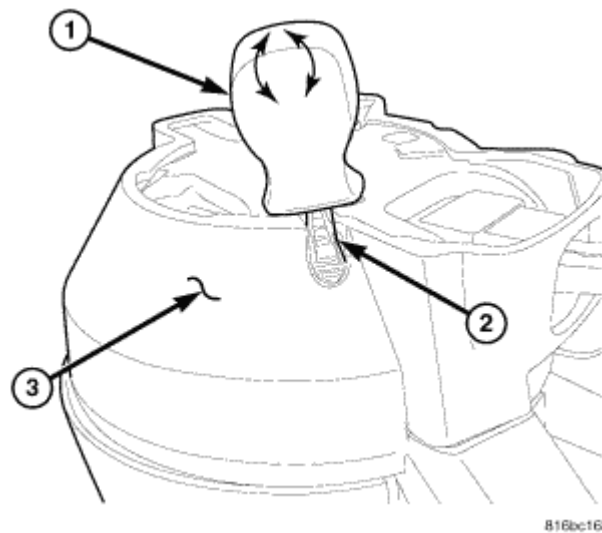
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**Fig. 32: Identifying Airbag Retainer Access Holes & Steering Wheel**  
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable. Wait two minutes for the system capacitor to discharge before further service.
2. Release the steering column tilt lever and lower the column to its most downward position for easiest driver airbag removal access.

**NOTE:** It may be helpful to use a small mirror to aid visibility during the initial attempt to remove the driver airbag from the steering wheel.

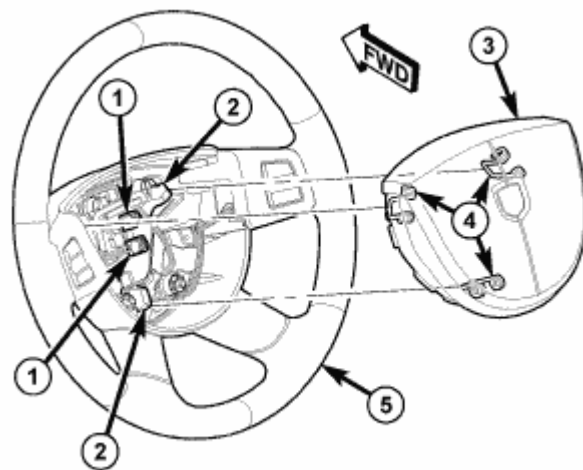
3. There are three airbag retainer access holes (1) on the instrument panel side of the hub of the steering wheel (2), located at the two o'clock, six o'clock and ten o'clock positions. The steering wheel must be rotated to bring each of these access holes up to the twelve o'clock position of the steering column one at a time for removal access.



816bc163

**Fig. 33: Identifying Flat-Bladed Screwdriver, Screwdriver Blade & Steering Wheel Hub Trim Cover**  
 Courtesy of CHRYSLER LLC

4. Insert the tip of a short handled, flat-bladed screwdriver (1) into either of the upper (two o'clock or ten o'clock) access holes of the steering wheel hub trim cover (3) being certain to place the screwdriver blade (2) on the inboard side of the airbag snap retainer wire loop.

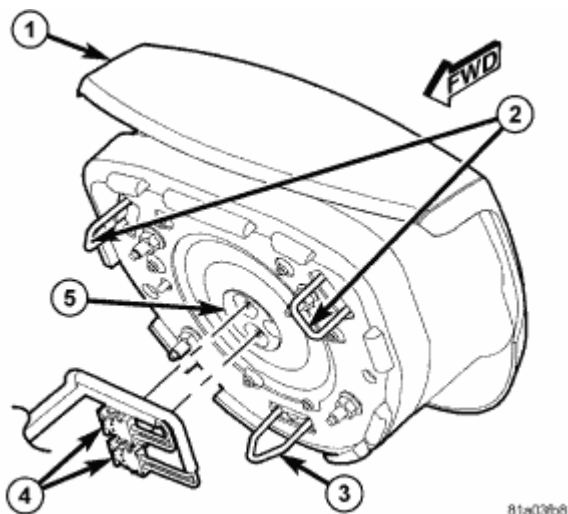


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**Fig. 34: Identifying Electrical Connections, Hook, Driver Airbag, Snap Retainer Wire Loop & Steering Wheel**  
 Courtesy of CHRYSLER LLC

5. Twist the screwdriver handle in either direction far enough to disengage the snap retainer wire loop (4) from the hook (2) of the steering wheel armature. At the same time, gently pull the driver airbag (3) away from the steering wheel (5) to prevent the retainer from snapping back into place over the hook once it is disengaged.
6. Repeat step 4 and 5 at the other upper (two o'clock or ten o'clock) access hole to disengage the other upper snap retainer wire loop.

7. Repeat step 4 and 5 at the lower (six o'clock) access hole to disengage the lower snap retainer wire loop. The lower snap retainer wire loop has a distinctive V-shape and must always be installed onto the six o'clock hook of the steering wheel armature.
8. Pull the driver airbag away from the steering wheel far enough to access the electrical connections (1) at the back of the airbag housing.



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**Fig. 35: Identifying Driver Airbag, Lower Airbag Snap Retainer Wire Loop, Electrical Connections & Airbag Inflator**

Courtesy of CHRYSLER LLC

**CAUTION:** Do not pull on the clockspring pigtail wires or pry on the connector insulator to disengage the connector from the driver airbag inflator connector receptacle. Improper removal of these pigtail wires and their connector insulators can result in damage to the airbag circuits or the connector insulators.

9. The clockspring driver airbag pigtail wire connectors (4) are secured by an integral lock to the airbag inflator (5) connector receptacles, which are located on the back of the driver airbag (1) housing. Firmly grasp and pull the lock straight out from the connector insulator, then pull the insulators straight out from the airbag inflator to disconnect them from the connector receptacles.
10. Remove the driver airbag from the steering wheel.
11. If the driver airbag has been deployed, the clockspring must be replaced. See **REMOVAL**.

## INSTALLATION

### DRIVER AIRBAG

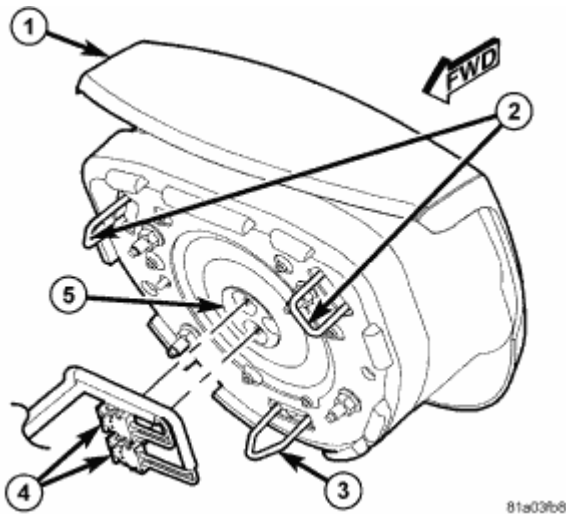
**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component

diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**WARNING:** To avoid serious or fatal injury, use extreme care to prevent any foreign material from entering the driver airbag, or becoming entrapped between the driver airbag cushion and the driver airbag trim cover. Failure to observe this warning could result in occupant injuries upon airbag deployment.

**WARNING:** To avoid serious or fatal injury, the driver airbag trim cover must never be painted. Replacement airbags are serviced with trim covers in the original colors. Paint may change the way in which the material of the trim cover responds to an airbag deployment. Failure to observe this warning could result in occupant injuries upon airbag deployment.

**NOTE:** The following procedure is for replacement of an ineffective or damaged driver airbag. If the airbag is ineffective or damaged, but not deployed, review the recommended procedures for handling non-deployed supplemental restraints. See HANDLING NON-DEPLOYED SUPPLEMENTAL RESTRAINTS. If the driver airbag has been deployed, review the recommended procedures for service after a supplemental restraint deployment before removing the airbag from the vehicle.

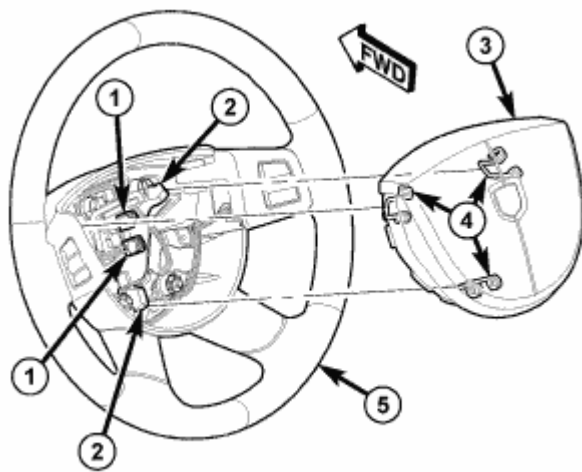


**Fig. 36: Identifying Driver Airbag, Lower Airbag Snap Retainer Wire Loop, Electrical Connections & Airbag Inflator**

Courtesy of CHRYSLER LLC

1. Position the driver airbag (1) close enough to the steering wheel to reconnect the electrical connections

- (4) to the back of the airbag housing.
- When installing the driver airbag, reconnect the two clockspring driver airbag pigtail wire connectors to the airbag inflator (5) connector receptacles by pressing straight in on the connectors, then push the locks straight into the connectors. Be certain to engage each keyed and color-coded connector to the matching connector receptacle.
  - Carefully position the driver airbag into the steering wheel hub. Be certain that the clockspring pigtail wires are not pinched between the driver airbag and the horn switch or the steering wheel armature.
  - Engage the lower airbag snap retainer wire loop (3) onto the lower hook of the steering wheel armature. The lower snap retainer wire loop has a distinctive V-shape and must always be installed onto the six o'clock hook of the steering wheel armature.



**Fig. 37: Identifying Electrical Connections, Hook, Driver Airbag, Snap Retainer Wire Loop & Steering Wheel**

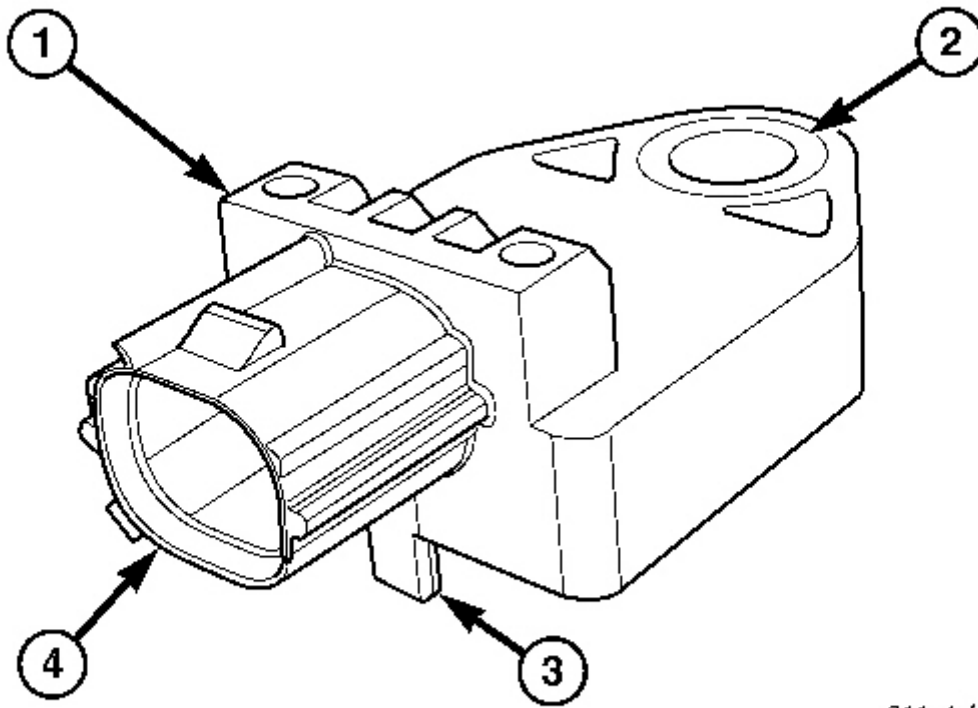
Courtesy of CHRYSLER LLC

- Roll the driver airbag (3) upwards and press firmly and evenly over the two upper snap retainer wire loop (4) locations simultaneously until they snap into place over the two upper hooks (2) of the steering wheel armature.
- Do not reconnect the battery negative cable at this time. The Supplemental Restraint System (SRS) verification test procedure should be performed following service of any SRS component. See **VERIFICATION TEST - SUPPLEMENTAL RESTRAINT SYSTEM.**

## IMPACT SENSOR

### DESCRIPTION

#### FRONT IMPACT SENSOR



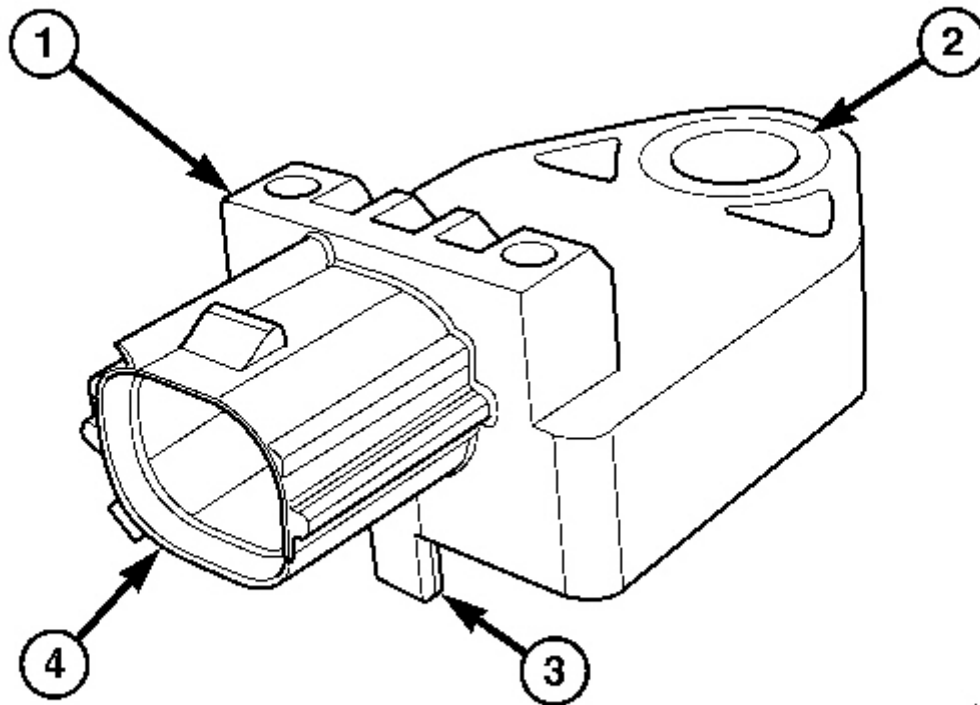
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**Fig. 38: Impact Sensor Components**  
Courtesy of CHRYSLER LLC

Two front impact sensors (1) are used on this vehicle, one each for the left and right sides of the vehicle. These sensors are mounted remotely from the impact sensor that is internal to the Occupant Restraint Controller (ORC). Each front sensor is secured with a nut to a stud on the back of the front end module carrier on either side of the cooling module, below and inboard of the front park/turn signal lamp socket within the engine compartment. The sensor housing has an integral connector receptacle (4), an integral anti-rotation pin (3), and an integral mounting hole (2) with a metal sleeve to provide crush protection.

The right and left front impact sensors are identical in construction and calibration. A cavity in the center of the molded black plastic impact sensor housing contains the electronic circuitry of the sensor which includes an electronic communication chip and an electronic impact sensor. A nylon cover is laser-welded over the cavity to seal and protect the internal electronic circuitry and components. The front impact sensors are each connected to the vehicle electrical system through a short jumper wire harness to a dedicated take out and connector of the body wire harness.

The impact sensors cannot be repaired or adjusted and, if damaged or ineffective, they must be replaced.

**SIDE IMPACT SENSOR**

811a4cf1

**Fig. 39: Impact Sensor Components**  
Courtesy of CHRYSLER LLC

Two side impact sensors (1) are used on this vehicle when it is equipped with the side curtain airbags, two each for the left and right sides of the vehicle. These sensors are mounted remotely from the impact sensor that is internal to the Occupant Restraint Controller (ORC). Each side sensor is secured with a nut to a stud on the inner right or left B-pillar above the front seat belt retractor, or to a stud on the right or left inner C-pillar just forward of the second row outboard seat belt retractor within the passenger compartment. The sensor housing has an integral connector receptacle (4), an integral anti-rotation pin (3), and an integral mounting hole (2) with a metal sleeve to provide crush protection.

The right and left side impact sensors are identical in construction and calibration. A cavity in the center of the molded black plastic impact sensor housing contains the electronic circuitry of the sensor which includes an electronic communication chip and an electronic impact sensor. A nylon cover is laser-welded over the cavity to seal and protect the internal electronic circuitry and components. The side impact sensors are each connected to the vehicle electrical system through a dedicated take out and connector of the body wire harness.

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The impact sensors cannot be repaired or adjusted and, if damaged or ineffective, they must be replaced.

#### **OPERATION**

##### **SIDE IMPACT SENSOR**

The side 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 microprocessor in the Occupant Restraint Controller (ORC).

The ORC microprocessor continuously monitors all of the side passive restraint system electrical circuits to determine the system readiness. If the ORC detects a monitored system fault, it sets a Diagnostic Trouble Code (DTC) and controls the airbag indicator operation accordingly. The impact sensors each receive battery current and ground through the same left or right sensor plus and minus circuits in a series arrangement from the ORC. The impact sensors and the ORC communicate by modulating the voltage in the sensor plus circuit.

The hard wired circuits between the side 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 or communication between other modules and devices that provide features of the supplemental restraint system. The most reliable, efficient, and accurate means to diagnose the impact sensors or the electronic controls and communication related to side impact sensor operation requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

##### **FRONT IMPACT SENSOR**

The front 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 microprocessor in the Occupant Restraint Controller (ORC).

The ORC microprocessor 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 Diagnostic Trouble Code (DTC) and controls the airbag indicator operation accordingly. The impact sensors each 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 hard wired circuits between the front 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 or communication between other modules and devices that provide features of the supplemental restraint system. The most reliable, efficient, and accurate means to diagnose the impact sensors or the electronic controls and communication related to front impact sensor operation requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

#### **REMOVAL**

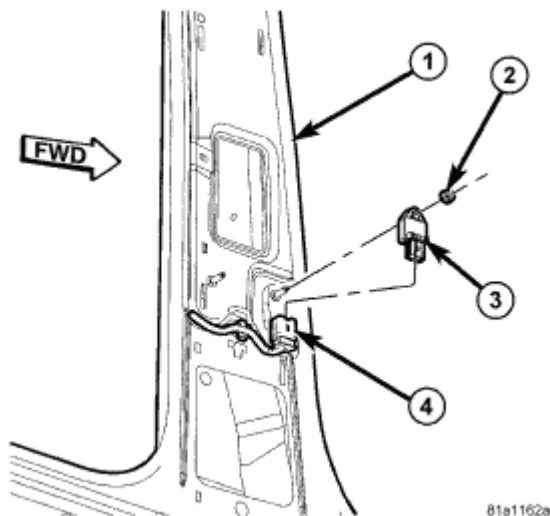


## SIDE IMPACT SENSOR - B-PILLAR

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**WARNING:** To avoid serious or fatal injury, never strike or drop the side impact sensor, as it can damage the impact sensor or affect its calibration. The side impact sensor enables the system to deploy the side Supplemental Restraint System (SRS) components. If an impact sensor is accidentally dropped during service, the sensor must be scrapped and replaced with a new unit. Failure to observe this warning could result in accidental, incomplete, or improper side SRS component deployment.

**NOTE:** The front and side impact sensors are interchangeable.



**Fig. 40: Identifying B-Pillar, Nut, Side Impact Sensor & Body Wire Harness Connector**  
Courtesy of CHRYSLER LLC

1. Adjust the driver or passenger side front seat to its most forward position for easiest access to the B-pillar trim.
2. Disconnect and isolate the battery negative cable. Wait two minutes for the system capacitor to discharge before further service.
3. Remove the trim from the inside of the lower right or left B-pillar (1). Refer to **REMOVAL**.
4. Remove the nut (2) that secures the side impact sensor (3) to the weld stud on the lower B-pillar.

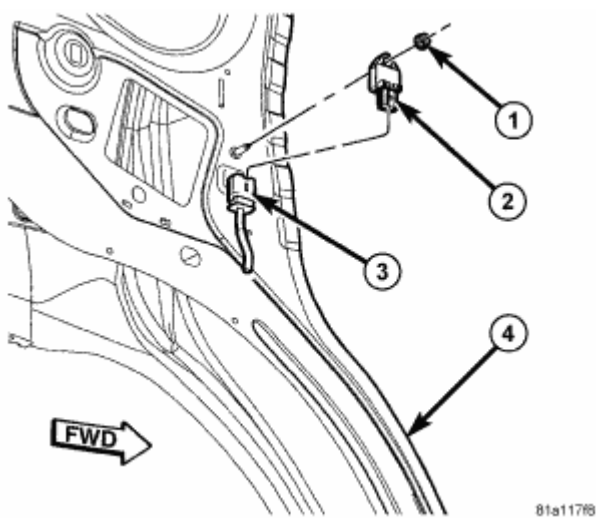
5. Remove the sensor from the weld stud on the inner B-pillar.
6. Disconnect the body wire harness connector (4) from the sensor connector receptacle.

#### SIDE IMPACT SENSOR - C-PILLAR

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**WARNING:** To avoid serious or fatal injury, never strike or drop the side impact sensor, as it can damage the impact sensor or affect its calibration. The side impact sensor enables the system to deploy the side Supplemental Restraint System (SRS) components. If an impact sensor is accidentally dropped during service, the sensor must be scrapped and replaced with a new unit. Failure to observe this warning could result in accidental, incomplete, or improper side SRS component deployment.

**NOTE:** The front and side impact sensors are interchangeable.



**Fig. 41: Identifying Nut, Side Impact Sensor, Body Wire Harness Connector & C-Pillar**  
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable. Wait two minutes for the system capacitor to discharge before further service.
2. Remove the lower trim from the inside of the lower right or left C-pillar (4). Refer to **REMOVAL**.

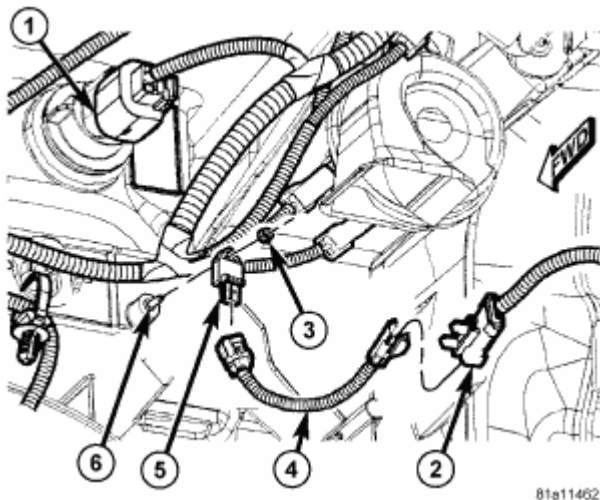
3. Remove the nut (1) that secures the side impact sensor (2) to the weld stud on the lower C-pillar.
4. Remove the sensor from the weld stud on the inner C-pillar.
5. Disconnect the body wire harness connector (3) for the side impact sensor from the sensor connector receptacle.

#### FRONT IMPACT SENSOR

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**WARNING:** To avoid serious or fatal injury, never strike or drop the front impact sensor, as it can damage the impact sensor or affect its calibration. The front impact sensor enables the system to deploy the front Supplemental Restraint System (SRS) components. If an impact sensor is accidentally dropped during service, the sensor must be scrapped and replaced with a new unit. Failure to observe this warning could result in accidental, incomplete, or improper front SRS component deployment.

**NOTE:** The front and side impact sensors are interchangeable.



**Fig. 42: Identifying Front Lamp Unit Park/Turn Signal Bulb Socket, Body Wire Harness, Nut, Jumper Wire Harness & Impact Sensor**  
Courtesy of CHRYSLER LLC

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1. Disconnect and isolate the battery negative cable. Wait two minutes for the system capacitor to discharge before further service.
2. Service access for the right front impact sensor is accomplished by removing the air filter housing from the engine compartment. Service access for the left front impact sensor is accomplished by raising and supporting the vehicle, then removing the access plug from the front of the left front wheel house liner.
3. Remove the nut (3) that secures the front impact sensor (5) to the stud (6) on the back (engine compartment side) of the front end module carrier below and inboard of the front lamp unit park/turn signal bulb socket (1).
4. Disconnect one end of the jumper wire harness (4) from the right or left front impact sensor connector receptacle or from the body wire harness (2).
5. Remove the right or left front impact sensor from the engine compartment.

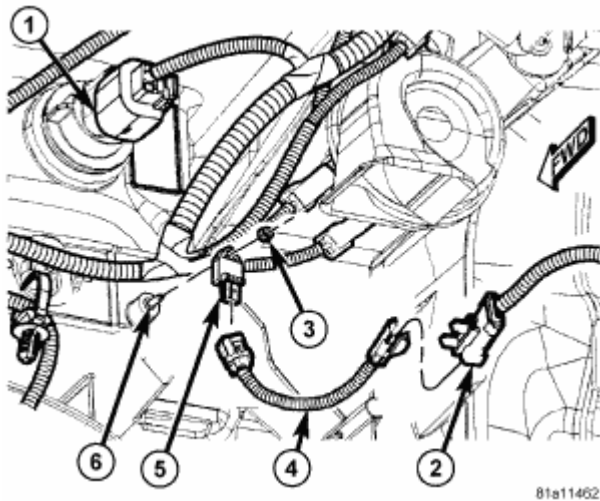
#### INSTALLATION

##### FRONT IMPACT SENSOR

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**WARNING:** To avoid serious or fatal injury, never strike or drop the front impact sensor, as it can damage the impact sensor or affect its calibration. The front impact sensor enables the system to deploy the front Supplemental Restraint System (SRS) components. If an impact sensor is accidentally dropped during service, the sensor must be scrapped and replaced with a new unit. Failure to observe this warning could result in accidental, incomplete, or improper front SRS component deployment.

**NOTE:** The front and side impact sensors are interchangeable.



**Fig. 43: Identifying Front Lamp Unit Park/Turn Signal Bulb Socket, Body Wire Harness, Nut, Jumper Wire Harness & Impact Sensor**  
 Courtesy of CHRYSLER LLC

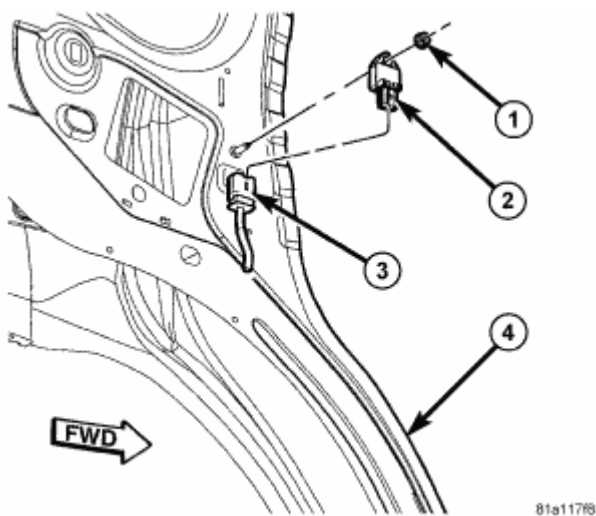
1. Service access for the right front impact sensor is accomplished by removing the air filter housing from the engine compartment. Service access for the left front impact sensor is accomplished by raising and supporting the vehicle, then removing the access plug from the front of the left front wheel house liner.
2. Position the right or left front impact sensor (5) into the engine compartment.
3. Reconnect the jumper wire harness (4) to the right or left front impact sensor connector receptacle or to the body wire harness (2).
4. Position the sensor onto the stud (6) on the back (engine compartment side) of the front end module carrier below and inboard of the front lamp unit park/turn signal bulb socket (1). Be certain that the anti-rotation pin on the back of the sensor is engaged in the clearance notch of the carrier and the connector receptacle is pointed straight downward.
5. Install and tighten the nut (3) that secures the sensor to the stud on the back of the carrier. Tighten the nut to 8 N.m (71 in. lbs.).
6. Do not reconnect the battery negative cable at this time. The Supplemental Restraint System (SRS) verification test procedure should be performed following service of any SRS component. See **VERIFICATION TEST - SUPPLEMENTAL RESTRAINT SYSTEM.**

#### SIDE IMPACT SENSOR - C-PILLAR

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**WARNING:** To avoid serious or fatal injury, never strike or drop the side impact sensor, as it can damage the impact sensor or affect its calibration. The side impact sensor enables the system to deploy the side Supplemental Restraint System (SRS) components. If an impact sensor is accidentally dropped during service, the sensor must be scrapped and replaced with a new unit. Failure to observe this warning could result in accidental, incomplete, or improper side SRS component deployment.

**NOTE:** The front and side impact sensors are interchangeable.



**Fig. 44: Identifying Nut, Side Impact Sensor, Body Wire Harness Connector & C-Pillar**  
Courtesy of CHRYSLER LLC

1. Reconnect the body wire harness connector (3) to the side impact sensor (2) connector receptacle.
2. Position the impact sensor onto the weld stud on the inner C-pillar (4). Be certain that the anti-rotation pin on the back of the sensor is engaged in the clearance hole of the C-pillar.
3. Install and tighten the nut (1) that secures the sensor to the weld stud on the inner C-pillar. Tighten the nut to 7 N.m (62 in. lbs.).
4. Reinstall the trim onto the inside of the lower C-pillar. Refer to **INSTALLATION**.
5. Do not reconnect the battery negative cable at this time. The Supplemental Restraint System (SRS) verification test procedure should be performed following service of any SRS component. See **VERIFICATION TEST - SUPPLEMENTAL RESTRAINT SYSTEM**.

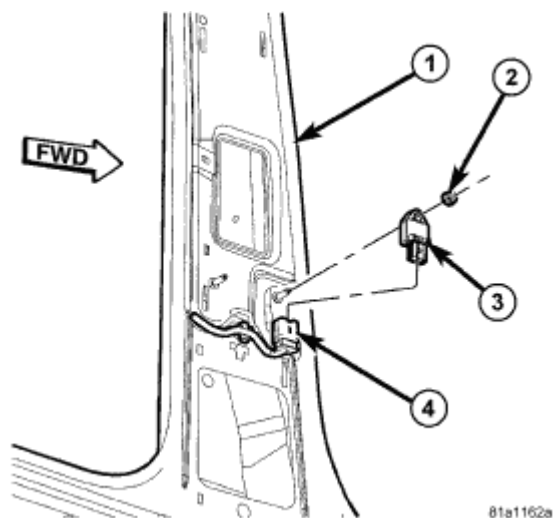
#### SIDE IMPACT SENSOR - B-PILLAR

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before

performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**WARNING:** To avoid serious or fatal injury, never strike or drop the side impact sensor, as it can damage the impact sensor or affect its calibration. The side impact sensor enables the system to deploy the side Supplemental Restraint System (SRS) components. If an impact sensor is accidentally dropped during service, the sensor must be scrapped and replaced with a new unit. Failure to observe this warning could result in accidental, incomplete, or improper side SRS component deployment.

**NOTE:** The front and side impact sensors are interchangeable.



**Fig. 45: Identifying B-Pillar, Nut, Side Impact Sensor & Body Wire Harness Connector**

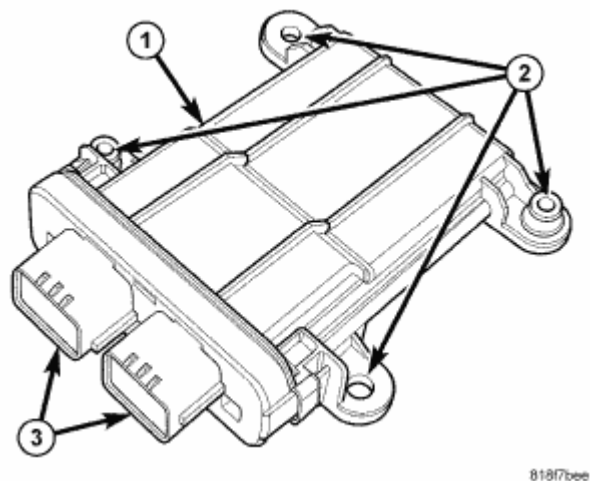
Courtesy of CHRYSLER LLC

1. Reconnect the body wire harness connector (4) to the side impact sensor (3) connector receptacle.
2. Position the sensor onto the weld stud on the inner B-pillar (1). Be certain that the anti-rotation pin on the back of the sensor is engaged in the clearance hole of the B-pillar.
3. Install and tighten the nut (2) that secures the sensor to the weld stud on the inner B-pillar. Tighten the nut to 7 N.m (62 in. lbs.).
4. Reinstall the lower trim onto the inside of the B-pillar. Refer to **INSTALLATION**.
5. Do not reconnect the battery negative cable at this time. The Supplemental Restraint System (SRS) verification test procedure should be performed following service of any SRS component. See **VERIFICATION TEST - SUPPLEMENTAL RESTRAINT SYSTEM**.

## OCCUPANT CLASSIFICATION MODULE

### DESCRIPTION

## OCCUPANT CLASSIFICATION MODULE



81817bee

**Fig. 46: Occupant Classification Module**  
 Courtesy of CHRYSLER LLC

The Occupant Classification Module (OCM) (1) is secured with two screws to a stamped metal bracket on the inboard passenger side front seat riser beneath the seat cushion. Concealed within a hollow in the center of the molded plastic OCM housing is a microprocessor and the other electronic circuitry of the module. The module housing is sealed to enclose and protect the internal electronic circuitry.

Four mounting tabs (2) and two connector receptacles (3) are integral to the OCM housing. The two mounting tabs designed to accept self tapping screws are used to secure the module to the mounting bracket, while the remaining two mounting tabs are unused in this application. The connector receptacles contain terminal pins that connect the OCM to the vehicle electrical system through dedicated take outs and connectors of the passenger side front seat wire harness.

The OCM and all of the other components of the Occupant Classification System (OCS) including the passenger side front seat, the seat weight sensors, and the seat adjusters, cushion, back, frame, foam, springs, and wiring harness are a factory-calibrated and assembled unit. Any time any one of these components is removed or replaced for any reason, the OCM must be re-calibrated using a diagnostic scan tool, the Occupant Classification Seat Weight special tool, and the Occupant Classification System Verification Test. Refer to the appropriate diagnostic procedures.

The OCM cannot be adjusted or repaired and, if damaged or ineffective, it must be replaced. The OCM software is flash programmable. A non-calibrated OCM is available for separate service replacement.

## OPERATION

## OCCUPANT CLASSIFICATION MODULE

The microprocessor in the Occupant Classification Module (OCM) contains the Occupant Classification System (OCS) logic circuits. The OCM uses On-Board Diagnostics (OBD) and can communicate with other electronic modules in the vehicle as well as with the diagnostic scan tool using the Controller Area Network (CAN) data



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bus. This method of communication is also used for OCS diagnosis and testing through the 16-way data link connector located on the driver side lower edge of the instrument panel.

The OCM provides voltage to the four seat weight sensors located on the corners of the passenger side front seat. The OCM then monitors return inputs from each of the sensors on dedicated hard wired data communication circuits. The seat weight sensor inputs allow the OCM to determine whether the passenger side front seat is occupied and the relative size of the occupant by providing a weight-sensing reference to the load on the seat.

Pre-programmed decision algorithms and OCS calibration allow the OCM microprocessor to determine when passenger airbag protection is appropriate based upon the seat load as signaled by the seat weight sensors. When the programmed conditions are met, the OCM sends the proper electronic **occupant classification** messages over the CAN data bus to the Occupant Restraint Controller (ORC), and the ORC controls the deployment circuits for the passenger side front supplemental restraints. On vehicles so equipped, the ORC also provides a control output for the passenger airbag on/off indicator in the instrument panel based upon the electronic **occupant classification** messages it receives from the OCM.

The OCM microprocessor continuously monitors all of the OCS electrical circuits and components to determine the system readiness. If the OCM detects a monitored system fault, it sets an active and stored Diagnostic Trouble Code (DTC) and sends the appropriate electronic messages to the ORC over the CAN data bus. Then the ORC sets a DTC and sends messages to control the airbag indicator operation accordingly. An active fault only remains for the duration of the fault, or in some cases for the duration of the current ignition switch cycle, while a stored fault causes a DTC to be stored in memory by the OCM and the ORC. For some DTCs, if a fault does not recur for a number of ignition cycles, the OCM will automatically erase the stored DTC. For other internal faults, the stored DTC is latched forever.

The OCM receives battery current on a fused B(+) circuit through a fuse in the Totally Integrated Power Module (TIPM) and receives electronic **ignition switch status** messages indicating the ignition switch position over the CAN data bus. The OCM receives ground through a ground circuit and take out of the body wire harness. These connections allow the OCM to be operational whenever the ignition switch is in the ON or START positions.

The hard wired inputs and outputs for the OCM 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 OCM or the electronic controls and communication between other modules and devices that provide features of the OCS. The most reliable, efficient, and accurate means to diagnose the OCM or the electronic controls and communication related to OCM operation requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

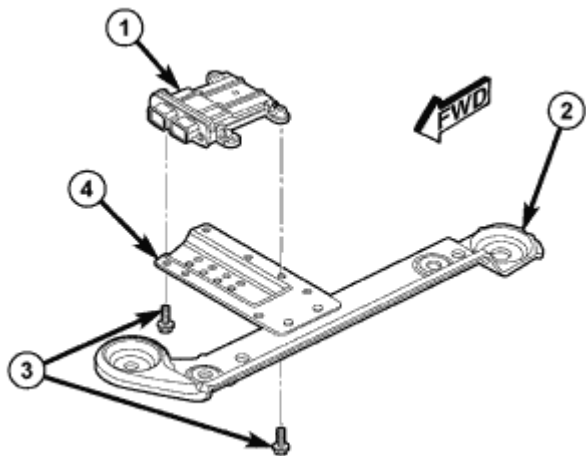
## REMOVAL

### OCCUPANT CLASSIFICATION MODULE

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component

diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**NOTE:** A non-calibrated Occupant Classification Module (OCM) is available for separate service replacement. The OCM and all of the other components of the Occupant Classification System (OCS) including the passenger side front seat, the seat weight sensors, and the passenger seat adjusters, cushion, back, frame, foam, springs, and wiring harness are a factory-calibrated and assembled unit. Any time any one of these components is removed or replaced for any reason, the OCM must be re-calibrated using a diagnostic scan tool, the Occupant Classification Seat Weight special tool, and the Occupant Classification System Verification Test. Refer to the appropriate diagnostic procedures.



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**Fig. 47: Identifying Occupant Classification Module (OCM), Inboard Passenger Side Front Seat Riser, Screws & Mounting Bracket**

Courtesy of CHRYSLER LLC

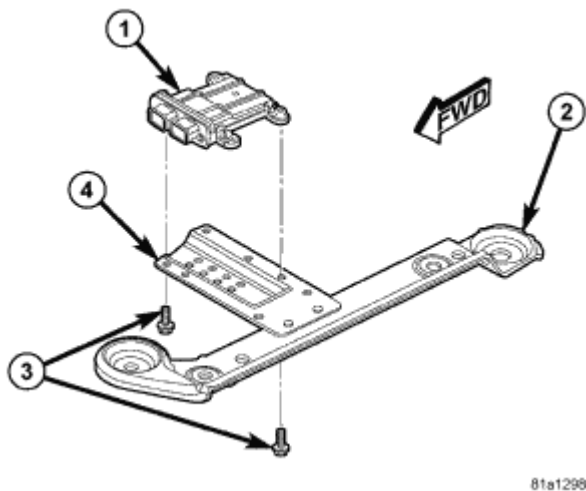
1. Disconnect and isolate the battery negative cable. Wait two minutes for the system capacitor to discharge before further service.
2. Reach under the front edge of the passenger side front seat cushion to access and disconnect the two seat wire harness connectors from the Occupant Classification Module (OCM) (1) connector receptacles located on the forward-facing end of the module.
3. Remove the two screws (3) that secure the OCM to the top of the mounting bracket (4) on the inboard passenger side front seat riser (2).
4. Remove the OCM from under the passenger side front seat cushion.

## INSTALLATION

## OCCUPANT CLASSIFICATION MODULE

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**NOTE:** A non-calibrated Occupant Classification Module (OCM) is available for separate service replacement. The OCM and all of the other components of the Occupant Classification System (OCS) including the passenger side front seat, the seat weight sensors, and the passenger seat adjusters, cushion, back, frame, foam, springs, and wiring harness are a factory-calibrated and assembled unit. Any time any one of these components is removed or replaced for any reason, the OCM must be re-calibrated using a diagnostic scan tool, the Occupant Classification Seat Weight special tool, and the Occupant Classification System Verification Test. Refer to the appropriate diagnostic procedures.



81a12980

**Fig. 48: Identifying Occupant Classification Module (OCM), Inboard Passenger Side Front Seat Riser, Screws & Mounting Bracket**

Courtesy of CHRYSLER LLC

1. Reach under the front edge of the passenger side front seat cushion to carefully position the Occupant Classification Module (OCM) (1) to the top of the mounting bracket (4) on the inboard passenger side front seat riser (2). When the OCM is correctly positioned, the connector receptacles on the module will be pointed forward.
2. Install and tighten the two screws (3) that secure the OCM to the mounting bracket. Tighten the screws to

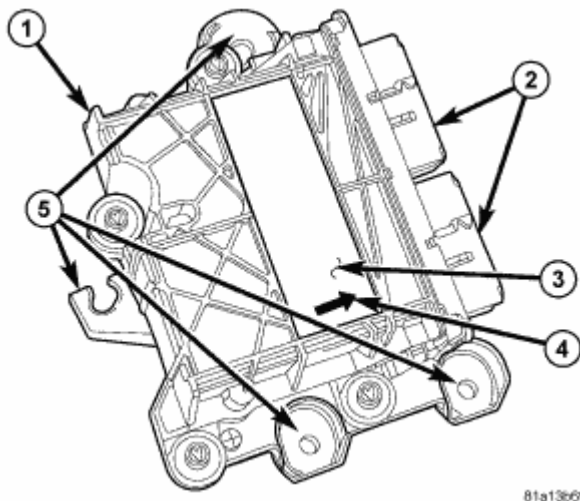
2 N.m (20 in. lbs.).

3. Reconnect the two seat wire harness connectors to the OCM connector receptacles located on the forward-facing end of the module. Be certain that the latches on each connector are fully engaged.
4. Do not reconnect the battery negative cable at this time. The Supplemental Restraint System (SRS) verification test procedure should be performed following service of any SRS component. See **VERIFICATION TEST - SUPPLEMENTAL RESTRAINT SYSTEM**.
5. Following successful completion of the SRS verification test procedure, perform the Occupant Classification System Verification Test using a diagnostic scan tool. Refer to the appropriate diagnostic procedures.

## OCCUPANT RESTRAINT CONTROLLER

### DESCRIPTION

#### OCCUPANT RESTRAINT CONTROLLER



**Fig. 49: Identifying Occupant Restraint Controller (ORC), Electrical Connector Receptacle, Label, Arrow & Mounting Bracket**  
 Courtesy of CHRYSLER LLC

The Occupant Restraint Controller (ORC) (1) is secured with four screws to a molded plastic mounting bracket (5). The mounting bracket and ORC unit is then secured with two nuts and two screws to a stamped steel mounting bracket welded onto the top of the floor panel transmission tunnel between the two front seats beneath the floor console and rearward of the transmission gearshift mechanism in the passenger compartment of the vehicle. Concealed within a hollow in the center of the molded plastic ORC housing is the electronic circuitry of the ORC which includes a microprocessor, an electronic impact sensor, an electronic safing sensor, and an energy storage capacitor. A molded plastic end cover plate with a rubber O-ring seal is secured to the open end of the ORC housing with two integral latch features to enclose and protect the internal electronic circuitry and components.

An arrow (4) printed on the label (3) on the top of the ORC housing provides a visual verification of the proper orientation of the unit, and should always be pointed toward the front of the vehicle. The ORC housing has four

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integral mounting flanges with metal sleeves to provide crush protection. Two molded plastic electrical connector receptacles (2) are integral to the end cover plate. These receptacles connect the ORC to the vehicle electrical system through dedicated take outs and connectors from the instrument panel and the body wire harnesses.

The impact sensor and safing sensor internal to the ORC are calibrated for the specific vehicle, and are only serviced as a unit with the ORC. The ORC cannot be repaired or adjusted and, if damaged or ineffective, it must be replaced as a unit with the molded plastic mounting bracket.

## OPERATION

### OCCUPANT RESTRAINT CONTROLLER

The microprocessor in the Occupant Restraint Controller (ORC) contains the Supplemental Restraint System (SRS) logic circuits and controls all of the SRS components. The ORC uses On-Board Diagnostics (OBD) and can communicate with other electronic modules in the vehicle as well as with the diagnostic scan tool using the Controller Area Network (CAN) data bus. This method of communication is used for control of the airbag indicator in the Electro Mechanical Instrument Cluster (EMIC) (also known as the Cab Compartment Node/CCN) and for SRS diagnosis and testing through the 16-way data link connector located on the driver side lower edge of the instrument panel. Refer to **OPERATION** .

The ORC microprocessor continuously monitors all of the SRS electrical circuits to determine the system readiness. If the ORC detects a monitored system fault, it sets an active and stored Diagnostic Trouble Code (DTC) and sends electronic messages to the EMIC over the CAN data bus to turn ON the airbag indicator. An active fault only remains for the duration of the fault, or in some cases for the duration of the current ignition switch cycle, while a stored fault causes a DTC to be stored in memory by the ORC. For some DTCs, if a fault does not recur for a number of ignition cycles, the ORC will automatically erase the stored DTC. For other internal faults, the stored DTC is latched forever.

On vehicles so equipped, the ORC provides voltage to the seat track position sensors on the inboard passenger and driver side front seat upper seat tracks. The ORC then monitors return inputs from each of the sensors on dedicated hard wired data communication circuits. The seat track position sensors provide additional logic inputs to the ORC microprocessor that allow it to determine the position of the front seat passenger and the driver relative to the front airbags for determining the force level with which to deploy the multistage front airbags.

On vehicles equipped with the Occupant Classification System (OCS), the ORC communicates with the Occupant Classification Module (OCM) over the CAN data bus. The ORC will internally disable the passenger airbag and seat belt tensioner deployment circuits if the OCM detects that the passenger side front seat is unoccupied or that it is occupied by a load that is inappropriate for an airbag deployment. The ORC also provides a control output to the passenger airbag on/off indicator through the passenger airbag indicator driver circuit. The OCM notifies the ORC when it has detected a monitored system fault and stored a DTC in its memory for any ineffective OCS component or circuit, then the ORC sets a DTC and controls the airbag indicator operation accordingly.

The ORC receives battery current through two circuits; a fused ignition switch output (run) circuit through a fuse in the Totally Integrated Power Module (TIPM), and a fused ignition switch output (run-start) circuit through a second fuse in the TIPM. The ORC receives ground through a ground circuit and take out of the

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instrument panel wire harness. These connections allow the ORC to be operational whenever the ignition switch is in the START or ON positions. Refer to the appropriate wiring information for additional details.

The ORC also contains an energy-storage capacitor. When the ignition switch is in the START or ON positions, this capacitor is continually being charged with enough electrical energy to deploy the SRS components for up to one second following a battery disconnect or failure. The purpose of the capacitor is to provide backup SRS protection in case there is a loss of battery current supply to the ORC during an impact.

Two sensors are contained within the ORC, an electronic impact sensor and a safing sensor. The ORC also monitors inputs from two remote front impact sensors located on the back of the right and left ends of the front end module carrier inboard of the headlamps near the front of the vehicle. The electronic impact sensors are accelerometers that sense the rate of vehicle deceleration, which provides verification of the direction and severity of an impact. The ORC also monitors inputs from an internal rollover sensor and four additional remote impact sensors located on the left and right inner B and C-pillars to control deployment of the side curtain airbag units.

The safing sensor is an electronic accelerometer sensor within the ORC that provides an additional logic input to the ORC microprocessor. The safing sensor is used to verify the need for a SRS component deployment by detecting impact energy of a lesser magnitude than that of the primary electronic impact sensors, and must exceed a safing threshold in order for the airbags to deploy. A second safing sensor within the ORC provides confirmation to the ORC microprocessor of side impact forces. This second safing sensor is a bi-directional unit that detects impact forces from either side of the vehicle.

Pre-programmed decision algorithms in the ORC microprocessor determine when the deceleration rate as signaled by the impact sensors and the safing sensors indicate an impact that is severe enough to require SRS protection and, based upon the severity of the monitored impact, determines the level of front airbag deployment force required for each front seating position. When the programmed conditions are met, the ORC sends the proper electrical signals to deploy the dual multistage front airbags at the programmed force levels, the front seat belt tensioners and either side curtain airbag unit. For vehicles equipped with the OCS, the passenger side front airbag and seat belt tensioner will be deployed by the ORC only if enabled by the OCM messages (passenger airbag on/off indicator OFF) at the time of the impact.

The hard wired inputs and outputs for 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 ORC or the electronic controls or communication between other modules and devices that provide features of the supplemental restraint system. The most reliable, efficient, and accurate means to diagnose the ORC or the electronic controls and communication related to ORC operation requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

## REMOVAL

### OCCUPANT RESTRAINT CONTROLLER

**WARNING: To avoid serious or fatal injury on vehicles equipped with side curtain airbags, disable the Supplemental Restraint System (SRS) before attempting any Occupant Restraint Controller (ORC) diagnosis or service. The ORC contains a rollover sensor, which enables the system to deploy**

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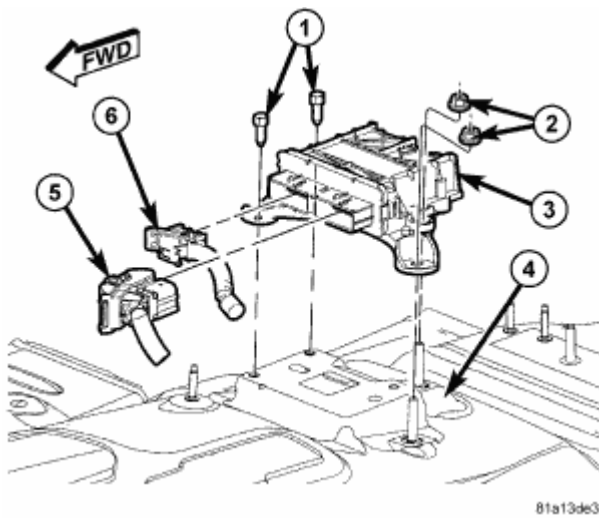
the side airbags in the event of a vehicle rollover event. If an ORC is accidentally rolled during service while still connected to battery power, the side curtain airbags will deploy. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**WARNING:** To avoid serious or fatal injury, never strike or drop the Occupant Restraint Controller (ORC), as it can damage the impact sensor or affect its calibration. The ORC contains the impact sensor, which enables the system to deploy the SRS components. If an ORC is accidentally dropped during service, the module must be scrapped and replaced with a new unit. Failure to observe this warning could result in accidental, incomplete, or improper SRS component deployment.

**CAUTION:** On vehicles equipped with the Occupant Classification System (OCS), never replace both the Occupant Restraint Controller (ORC) and the Occupant Classification Module (OCM) at the same time. If both require replacement, replace one. Then perform the Supplemental Restraint System (SRS) verification test before replacing the other. Both the ORC and the OCM store OCS calibration data, which they transfer to one another when one of them is replaced. If both are replaced at the same time, an irreversible fault will be set in both modules.

**NOTE:** The Occupant Restraint Controller (ORC) should only be removed as a complete unit with the molded plastic mounting bracket. The service replacement ORC is supplied already installed on a new bracket.



**Fig. 50: Identifying Screws, Nuts, Occupant Restraint Controller, ORC Mount, Body Wire Harness Connector & Instrument Panel Wire Harness Connector**  
 Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable. Wait two minutes for the system capacitor to discharge before further service.
2. Remove the center console from the top of the floor panel transmission tunnel. Refer to **REMOVAL** .
3. Unlatch and disconnect the body wire harness connector (5) and the instrument panel wire harness connector (6) from the Occupant Restraint Controller (ORC) (3) connector receptacles located on the forward-facing side of the module. To disconnect the wire harness connectors from the ORC, depress the release tab and lift the lever arm on each connector.
4. Remove the two nuts (2) that secure the left side of the ORC mounting bracket to the two studs on the ORC mount (4) welded onto the top of the floor panel transmission tunnel.
5. Remove the two screws (1) that secure the right side of the ORC mounting bracket to the ORC mount.
6. Remove the ORC and mounting bracket unit from the ORC mount.

## INSTALLATION

### OCCUPANT RESTRAINT CONTROLLER

**WARNING:** To avoid serious or fatal injury on vehicles equipped with side curtain airbags, disable the Supplemental Restraint System (SRS) before attempting any Occupant Restraint Controller (ORC) diagnosis or service. The ORC contains a rollover sensor, which enables the system to deploy the side airbags in the event of a vehicle rollover event. If an ORC is accidentally rolled during service while still connected to battery power, the side curtain airbags will deploy. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

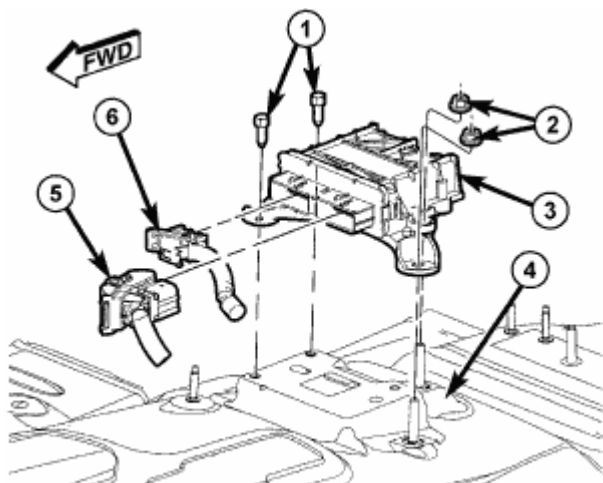


**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**WARNING:** To avoid serious or fatal injury, never strike or drop the Occupant Restraint Controller (ORC), as it can damage the impact sensor or affect its calibration. The ORC contains the impact sensor, which enables the system to deploy the SRS components. If an ORC is accidentally dropped during service, the module must be scrapped and replaced with a new unit. Failure to observe this warning could result in accidental, incomplete, or improper SRS component deployment.

**CAUTION:** On vehicles equipped with the Occupant Classification System (OCS), never replace both the Occupant Restraint Controller (ORC) and the Occupant Classification Module (OCM) at the same time. If both require replacement, replace one. Then perform the Supplemental Restraint System (SRS) verification test before replacing the other. Both the ORC and the OCM store OCS calibration data, which they transfer to one another when one of them is replaced. If both are replaced at the same time, an irreversible fault will be set in both modules.

**NOTE:** The Occupant Restraint Controller (ORC) should only be removed as a complete unit with the molded plastic mounting bracket. The service replacement ORC is supplied already installed on a new bracket.



**Fig. 51: Identifying Screws, Nuts, Occupant Restraint Controller, ORC Mount, Body Wire Harness Connector & Instrument Panel Wire Harness Connector**

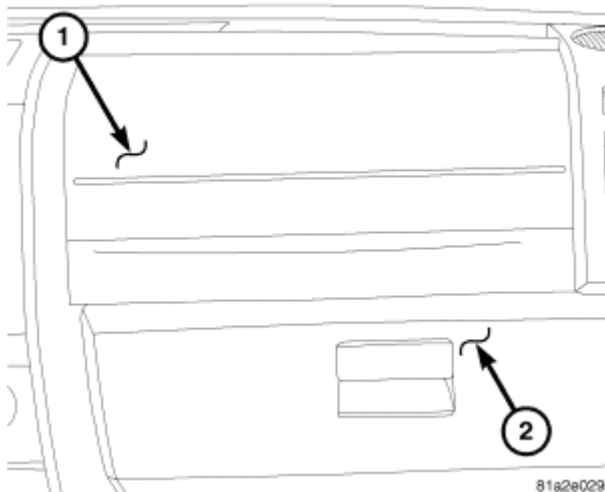
Courtesy of CHRYSLER LLC

1. Carefully position the Occupant Restraint Controller (ORC) and mounting bracket unit (3) onto the two studs on the left side of the ORC mount (4) on the floor panel transmission tunnel. When the ORC is correctly positioned, the bracket will fit flush with the mount and the orientation arrow on the label on top of the housing will be pointed forward in the vehicle.
2. Install and tighten the two screws (1) that secure the right side of the ORC mounting bracket to the ORC mount.
3. Install and tighten the two nuts (2) that secure the left side of the ORC mounting bracket to the two studs on the ORC mount.
4. Reconnect the instrument panel wire harness connector (6) and the body wire harness connector (5) to the ORC connector receptacles located on the forward-facing side of the module. Be certain that the latches on the connectors are each fully engaged.
5. Reinstall the center console onto the top of the floor panel transmission tunnel. Refer to **INSTALLATION**.
6. Do not reconnect the battery negative cable at this time. The Supplemental Restraint System (SRS) verification test procedure should be performed following service of any SRS component. See **VERIFICATION TEST - SUPPLEMENTAL RESTRAINT SYSTEM**.

## PASSENGER AIRBAG

### DESCRIPTION

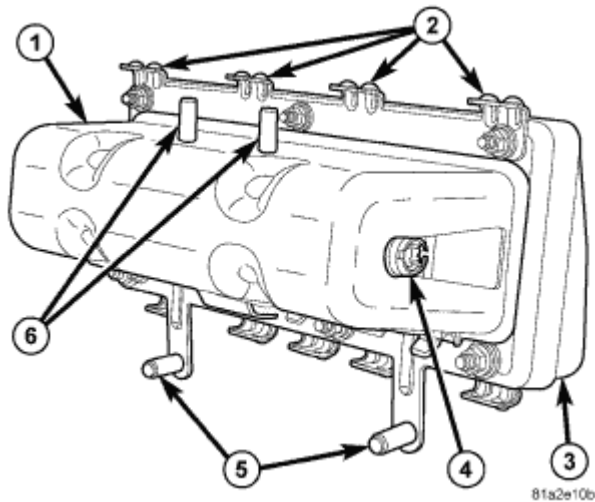
#### PASSENGER AIRBAG



**Fig. 52: Identifying Thermoplastic Passenger Airbag Door & Glove Box**  
Courtesy of CHRYSLER LLC

The rearward facing surface of the injection molded, thermoplastic passenger airbag door (1) is the most visible part of the passenger airbag. The passenger airbag door is located above the glove box (2) opening on the top

and face of the instrument panel in front of the front seat passenger seating position. The upper and lower edges of the airbag door are secured with integral snap features to the instrument panel base trim.



**Fig. 53: Identifying Passenger Airbag Housing, Stamped Hook Formations, Airbag Cushion, Inflator Initiators, Lower Studs & Upper Studs**  
 Courtesy of CHRYSLER LLC

Located behind the passenger airbag door within the instrument panel is the passenger airbag unit. The passenger airbag unit is secured through two lower studs (5) to the instrument panel structural support armature above the glove box opening. While the two upper studs (6) are secured to a heavy stamped steel instrument panel bracket secured to the dash panel near the lower windshield fence line and to the instrument panel structural duct.

The passenger airbag housing (1) fits into a molded receptacle on the back of the airbag door, where several stamped hook formations (2) on the upper and lower edges of the airbag housing are engaged in mating small window openings on the upper and lower flanges of the receptacle to secure the airbag door to the airbag housing. These airbag door fasteners and mounting provisions are all concealed beneath the instrument panel base trim.

The passenger airbag unit used in this vehicle is a multistage, Next Generation-type that complies with revised federal airbag standards to deploy with less force than those used in some prior vehicles. The passenger airbag unit consists of a stamped metal housing, the airbag cushion (3), and a dual initiator airbag inflator. The airbag housing contains the airbag inflator and the folded airbag cushion. An approximately 80 centimeter (31.5 inch) wide by 90 centimeter (35.5 inch) high rectangular fabric cushion with internal tethers is used.

The airbag inflator is a non-azide, hybrid-type unit that is secured to and sealed within the airbag housing. The two inflator initiators (4) are connected to the vehicle electrical system through dedicated take outs and connectors of the instrument panel wire harness with connector insulators that connect directly to the two inflator initiators. The connector insulators are uniquely keyed and color-coded to ensure they can only be connected to the correct initiator.

A service replacement passenger airbag does not include the airbag door. The passenger airbag door may be disassembled from the passenger airbag and is available for individual service replacement. The passenger

## 2007 Dodge Nitro R/T

2007 RESTRAINTS Service Information - Nitro

airbag unit cannot be repaired and must be replaced if deployed, ineffective, or in any way damaged.

### OPERATION

#### PASSENGER AIRBAG

The multistage passenger airbag is deployed by electrical signals generated by the Occupant Restraint Controller (ORC) through the passenger airbag squib 1 and squib 2 circuits to the two initiators of the hybrid airbag inflator. By using two initiators, the airbag 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 several delay intervals between the electrical signals provided to the two initiators. The longer the delay between these signals, the less forcefully the airbag will deploy.

When the ORC sends the proper electrical signals to each initiator, the electrical energy generates enough heat to initiate a small pyrotechnic charge which produces the pressure necessary to rupture a containment disk in an inert gas canister. The inflator and inert gas canister are sealed to the airbag cushion and a diffuser in the inflator directs all of the inert gas into the airbag cushion, causing the cushion to inflate. As the cushion inflates, the passenger airbag door will split horizontally at predetermined tear seam lines concealed on the inside surface of the door. The upper half of the door pivots up and the lower half pivots down and out of the way. Following an airbag deployment, the airbag cushion quickly deflates by venting the inert gas through a vent hole in each fabric side panel of the airbag cushion.

Typically, both initiators are used during an airbag deployment event. However, it is possible for only one initiator to be used during a deployment due to an airbag system fault; therefore, it is necessary to always confirm that both initiators have been used in order to avoid the improper disposal of potentially live pyrotechnic materials. See **SERVICE AFTER A SUPPLEMENTAL RESTRAINT DEPLOYMENT**.

Proper diagnosis of the passenger airbag inflator and the passenger airbag squib circuits requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

### REMOVAL

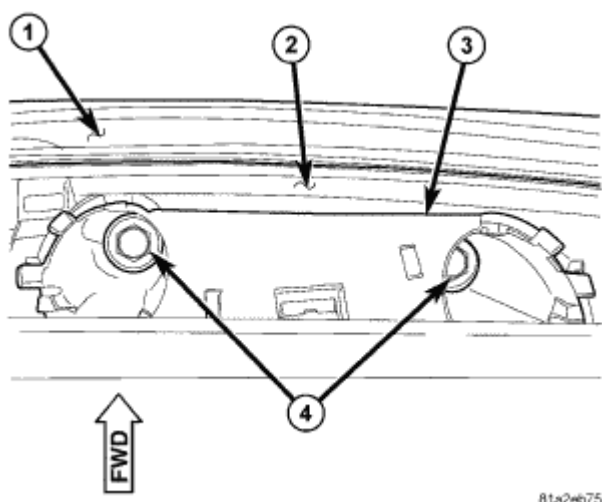
#### PASSENGER AIRBAG

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**WARNING:** To avoid serious or fatal injury when removing a deployed airbag, rubber gloves, eye protection, and a long-sleeved shirt should be worn. There may be deposits on the airbag unit and other interior surfaces. In large

doses, these deposits may cause irritation to the skin and eyes.

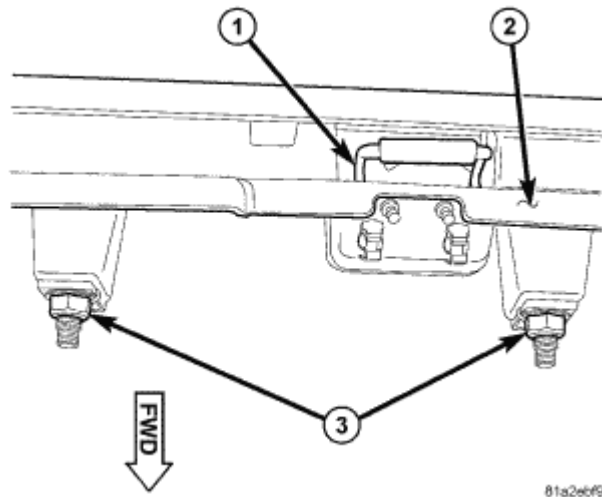
**NOTE:** The following procedure is for replacement of an ineffective or damaged passenger airbag. If the airbag is ineffective or damaged, but not deployed, review the recommended procedures for handling non-deployed supplemental restraints. See **HANDLING NON-DEPLOYED SUPPLEMENTAL RESTRAINTS**. If the passenger airbag has been deployed, review the recommended procedures for service after a supplemental restraint deployment before removing the airbag from the vehicle.



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**Fig. 54: Identifying Windshield, Instrument Panel, Screw Guide & Screws**  
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable. Wait two minutes for the system capacitor to discharge before further service.
2. Remove the top cover from the instrument panel. Refer to **REMOVAL**.
3. Remove the two screws (4) from the screw guide (3) on the top of the instrument panel (2) near the windshield (1) that secure the instrument panel bracket for the passenger airbag to the dash panel.
4. Using a trim stick or another suitable wide flat-bladed tool, pry the screw guide away from the top of the instrument panel far enough to disengage the two integral latch features that secure it and remove the screw guide to allow access to the trim screw that secures the passenger airbag instrument panel bracket to the instrument panel structural duct.
5. Work through the rectangular hole in the top of the instrument panel beneath the removed screw guide to access and remove the one screw that secures the center tab of the passenger airbag instrument panel bracket to the structural duct.



**Fig. 55: Identifying Glove Box Latch Striker, Upper Glove Box Opening & Nuts**  
 Courtesy of CHRYSLER LLC

6. Remove the glove box from the instrument panel. Refer to **REMOVAL** .
7. Reach up into the instrument panel above the upper glove box opening (2) to access and remove the two nuts (3) that secure the passenger airbag lower studs to the instrument panel base trim on each side of the glove box latch striker (1).
8. Using a trim stick or another suitable wide flat-bladed tool, gently pry the lower edge of the passenger airbag door rearward away from the upper glove box opening reinforcement far enough to disengage the snap features on the door from the receptacles in the instrument panel base trim.
9. Grasp the lower edge of the passenger airbag door and gently pull the door and airbag rearward far enough to disengage the upper snap features from the receptacles in the instrument panel base trim and to access the two instrument panel wire harness connections to the airbag inflators at each side of the airbag housing.

**CAUTION: Do not pull on the instrument panel wire harness take outs or pry on the connector insulators to disengage the connectors from the passenger airbag inflator connector receptacles. Improper removal of these take outs and their connector insulators can result in damage to the airbag circuits or connector insulators.**

10. The instrument panel passenger airbag wire harness connectors are secured by integral latches to the airbag inflator connector receptacles, which are located on the sides of the passenger airbag housing. Depress the latches on each side of each connector insulator and pull the insulators straight out from the airbag inflator to disconnect them from the connector receptacles.
11. Remove the passenger airbag, airbag door and instrument panel bracket from the instrument panel as a unit.

## DISASSEMBLY

### PASSENGER AIRBAG DOOR

## 2007 Dodge Nitro R/T

2007 RESTRAINTS Service Information - Nitro

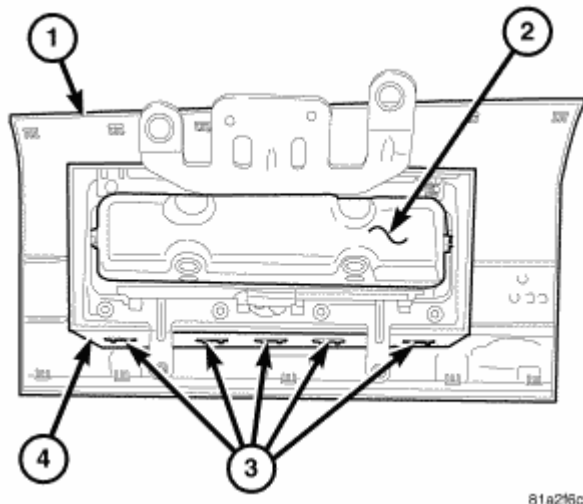
**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**WARNING:** To avoid serious or fatal injury, service of this unit should be performed only by DaimlerChrysler-trained and authorized dealer service technicians. Failure to take the proper precautions or to follow the proper procedures could result in accidental, incomplete, or improper airbag deployment and possible occupant injuries.

**WARNING:** To avoid serious or fatal injury, use extreme care to prevent any foreign material from entering the passenger airbag, or becoming entrapped between the passenger airbag cushion and the passenger airbag door. Failure to observe this warning could result in occupant injuries upon airbag deployment.

**WARNING:** To avoid serious or fatal injury, the passenger airbag door must never be painted. Replacement airbag doors are serviced in the original colors. Paint may change the way in which the material of the airbag door responds to an airbag deployment. Failure to observe this warning could result in occupant injuries upon airbag deployment.

**NOTE:** The following procedures can be used to replace the passenger airbag door. If the passenger airbag is deployed, the passenger airbag unit and the airbag door must both be replaced.



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**Fig. 56: Identifying Passenger Airbag Door, Airbag Housing, Lower Hooks & Receptacle**  
 Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable. Wait two minutes for the system capacitor to discharge before further service.
2. Remove the passenger airbag from the instrument panel. See **REMOVAL**.
3. Place the passenger airbag on a suitable work surface with the passenger airbag door (1) facing down. If the airbag door will be reused, be certain to take the proper precautions to prevent the airbag door from receiving cosmetic damage during the following procedures.
4. Disengage each of the upper hooks of the airbag housing (2) from the windows in the upper wall of the receptacle (4) on the back of the airbag door. To disengage the hooks, use hand pressure to push the adjacent edge of the airbag housing firmly and evenly downward into the airbag door receptacle, while at the same time pulling outward on that edge of the receptacle wall.
5. With all of the upper hooks disengaged, roll the top of the airbag housing upward to disengage the lower hooks (3) then lift the housing, inflator and cushion from the receptacle on the back of the passenger airbag door.

#### PASSENGER AIRBAG INSTRUMENT PANEL BRACKET

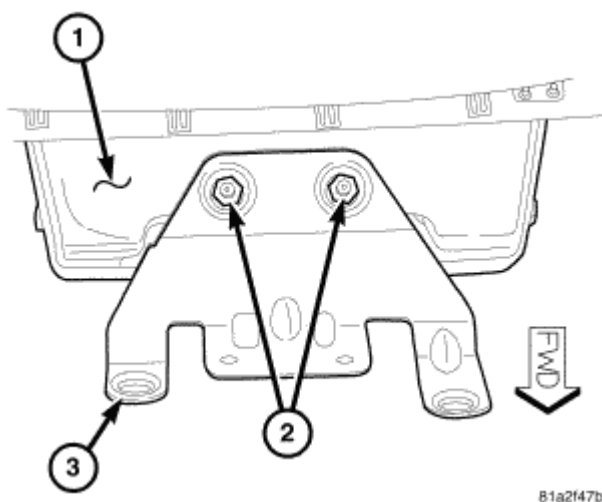
**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**WARNING:** To avoid serious or fatal injury, service of this unit should be performed only by DaimlerChrysler-trained and authorized dealer service



technicians. Failure to take the proper precautions or to follow the proper procedures could result in accidental, incomplete, or improper airbag deployment and possible occupant injuries.

**WARNING:** To avoid serious or fatal injury, use extreme care to prevent any foreign material from entering the passenger airbag, or becoming entrapped between the passenger airbag cushion and the passenger airbag door. Failure to observe this warning could result in occupant injuries upon airbag deployment.



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**Fig. 57: Identifying Airbag Housing, Nuts & Passenger Airbag Instrument Panel Bracket**  
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable. Wait two minutes for the system capacitor to discharge before further service.
2. Remove the passenger airbag from the instrument panel. See **REMOVAL**.
3. Place the passenger airbag instrument panel bracket (3) facing up. Be certain to take the proper precautions to prevent the airbag door from receiving cosmetic damage during the following procedures.
4. Remove the two nuts (2) that secure the bracket to the two studs on the top of the airbag housing (1).
5. Remove the bracket from the studs.

#### ASSEMBLY

#### PASSENGER AIRBAG DOOR

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before

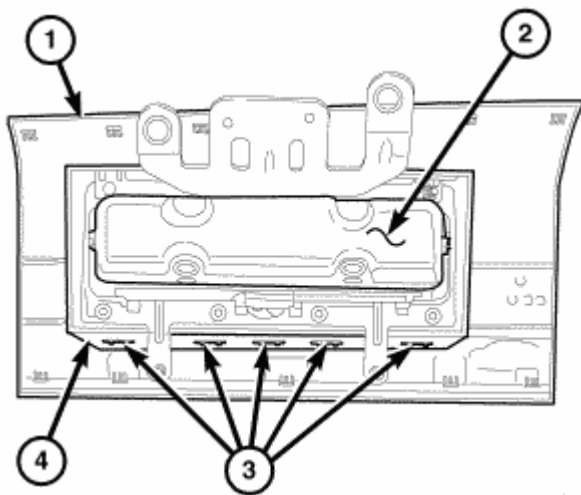
performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**WARNING:** To avoid serious or fatal injury, service of this unit should be performed only by DaimlerChrysler-trained and authorized dealer service technicians. Failure to take the proper precautions or to follow the proper procedures could result in accidental, incomplete, or improper airbag deployment and possible occupant injuries.

**WARNING:** To avoid serious or fatal injury, use extreme care to prevent any foreign material from entering the passenger airbag, or becoming entrapped between the passenger airbag cushion and the passenger airbag door. Failure to observe this warning could result in occupant injuries upon airbag deployment.

**WARNING:** To avoid serious or fatal injury, the passenger airbag door must never be painted. Replacement airbag doors are serviced in the original colors. Paint may change the way in which the material of the airbag door responds to an airbag deployment. Failure to observe this warning could result in occupant injuries upon airbag deployment.

**NOTE:** The following procedures can be used to replace the passenger airbag door. If the passenger airbag is deployed, the passenger airbag unit and the airbag door must both be replaced.



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**Fig. 58: Identifying Passenger Airbag Door, Airbag Housing, Lower Hooks & Receptacle**  
Courtesy of CHRYSLER LLC

1. Place the passenger airbag door (1) on a suitable work surface with the airbag receptacle (4) facing up. Be certain to take the proper precautions to prevent the airbag door from receiving cosmetic damage during

the following procedures.

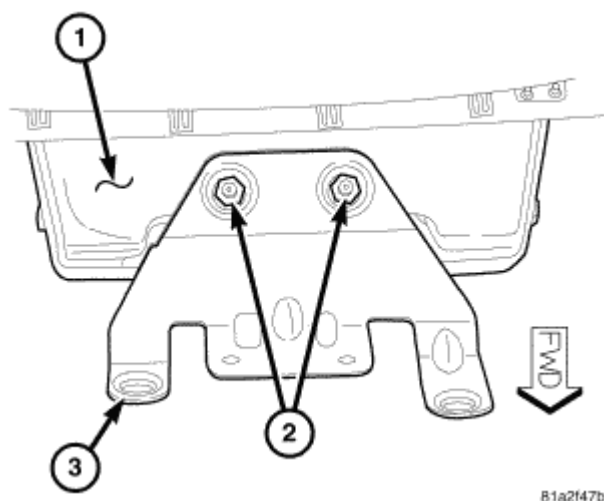
2. Carefully position the passenger airbag housing (2) into the airbag door receptacle.
3. Work around the perimeter of the unit engaging each of the nine hooks (3) on the housing through the windows in the upper and lower walls of the airbag door receptacle.
4. After the passenger airbag has been assembled, try pulling the airbag door and the airbag housing away from each other. Visually verify that this action has fully seated all of the windows of the airbag door into the cradles of the airbag housing hooks.
5. Reinstall the passenger airbag into the instrument panel. See **INSTALLATION**.

#### PASSENGER AIRBAG INSTRUMENT PANEL BRACKET

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**WARNING:** To avoid serious or fatal injury, service of this unit should be performed only by DaimlerChrysler-trained and authorized dealer service technicians. Failure to take the proper precautions or to follow the proper procedures could result in accidental, incomplete, or improper airbag deployment and possible occupant injuries.

**WARNING:** To avoid serious or fatal injury, use extreme care to prevent any foreign material from entering the passenger airbag, or becoming entrapped between the passenger airbag cushion and the passenger airbag door. Failure to observe this warning could result in occupant injuries upon airbag deployment.



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**Fig. 59: Identifying Airbag Housing, Nuts & Passenger Airbag Instrument Panel Bracket**  
 Courtesy of CHRYSLER LLC

1. Place the passenger airbag on a suitable work surface with the housing (1) facing up. Be certain to take the proper precautions to prevent the airbag door from receiving cosmetic damage during the following procedures.
2. Carefully position the passenger airbag instrument panel bracket (3) over the two studs on the top of the airbag housing.
3. Install and tighten the two nuts (2) that secure the bracket to the studs on the housing. Tighten the nuts to 20 N.m (15 ft. lbs.).
4. Reinstall the passenger airbag onto the instrument panel. See **INSTALLATION**.

## INSTALLATION

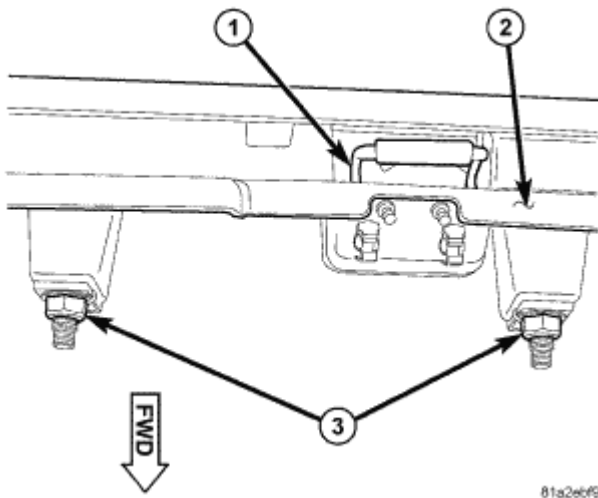
### PASSENGER AIRBAG

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**WARNING:** To avoid serious or fatal injury, use extreme care to prevent any foreign material from entering the passenger airbag, or becoming entrapped between the passenger airbag cushion and the passenger airbag door. Failure to observe this warning could result in occupant injuries upon airbag deployment.

**WARNING:** To avoid serious or fatal injury, the passenger airbag door must never be painted. Replacement passenger airbag units are serviced with doors in the original colors. Paint may change the way in which the material of the airbag door responds to an airbag deployment. Failure to observe this warning could result in occupant injuries upon airbag deployment.

**NOTE:** The following procedure is for replacement of an ineffective or damaged passenger airbag. If the airbag is ineffective or damaged, but not deployed, review the recommended procedures for handling non-deployed supplemental restraints. See HANDLING NON-DEPLOYED SUPPLEMENTAL RESTRAINTS. If the passenger airbag has been deployed, review the recommended procedures for service after a supplemental restraint deployment before removing the airbag from the vehicle.

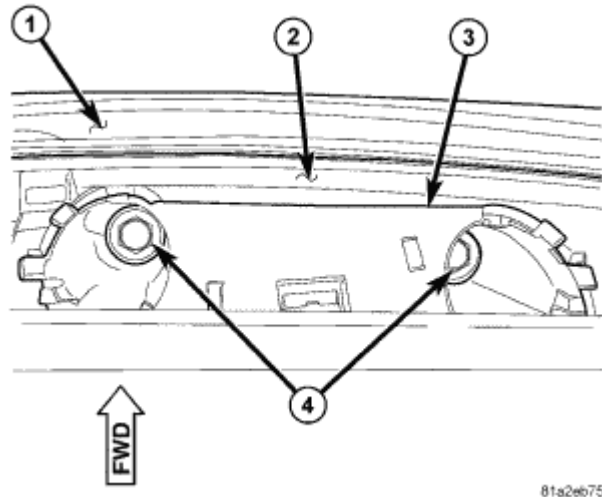


**Fig. 60: Identifying Glove Box Latch Striker, Upper Glove Box Opening & Nuts**  
Courtesy of CHRYSLER LLC

1. Position the passenger airbag, airbag door and instrument panel bracket to the opening in the face of the instrument panel base trim as a unit.
2. Reconnect the two connector insulators of the instrument panel wire harness take outs to the airbag inflator connector receptacles on each side of the airbag housing by pressing straight in on the connectors. Be certain to engage each keyed and color-coded connector to the matching connector receptacle. You can be certain that each connector is fully engaged in its receptacle by listening carefully for a distinct, audible click as the connector latches snap into place.
3. Slide the passenger airbag forward being certain that the instrument panel bracket is engaged between the dash panel and the instrument panel structural support at the lower windshield fence line and that the two lower studs of the airbag are engaged in the holes of the instrument panel base trim. It may be necessary to angle the forward end of the unit slightly downward and then roll it upward to engage the instrument panel bracket properly between the fence line and the structural support.
4. Reach up into the instrument panel above the upper glove box opening (2) to install and tighten the two nuts (3) that secure the passenger airbag lower studs to the instrument panel base trim on each side of the

glove box latch striker (1). Tighten the nuts to 7 N.m (62 in. lbs.).

5. Reinstall the glove box into the instrument panel. Refer to **INSTALLATION** .



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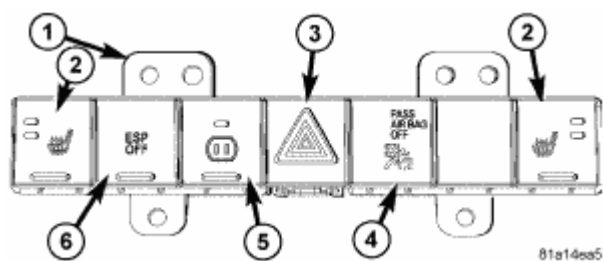
**Fig. 61: Identifying Windshield, Instrument Panel, Screw Guide & Screws**  
Courtesy of CHRYSLER LLC

6. Work through the rectangular hole in the top of the instrument panel to install and tighten the one screw that secures the center tab of the passenger airbag instrument panel bracket to the instrument panel structural duct. Tighten the screw to 2.9 N.m (25 in. lbs.).
7. Position the screw guide (3) onto the top of the instrument panel (2) near the windshield (1) and, using hand pressure, press the screw guide downward until both integral latch features snap into place.
8. Install and tighten the two screws (4) through the screw guide that secure the instrument panel bracket for the passenger airbag to the dash panel. Tighten the screws to 29.5 N.m (21.5 ft. lbs.).
9. Using hand pressure, press the top of the passenger airbag door forward and downward until each snap feature on the upper edge of the airbag door is fully engaged into its receptacle in the instrument panel base trim.
10. Using hand pressure, wrap the passenger airbag door downward tightly against the instrument panel, then push forward until each snap feature on the lower edge of the airbag door is fully engaged into its receptacle in the instrument panel base trim.
11. Visually verify that each of the snap features of the airbag door is fully engaged in the instrument panel. There will be a distinct bulge in the door over any snap that is not fully engaged.
12. Reinstall the top cover onto the instrument panel. Refer to **INSTALLATION** .
13. Do not reconnect the battery negative cable at this time. The Supplemental Restraint System (SRS) verification test procedure should be performed following service of any SRS component. See **VERIFICATION TEST - SUPPLEMENTAL RESTRAINT SYSTEM**.

## PASSENGER AIRBAG ON/OFF INDICATOR

### DESCRIPTION

### PASSENGER AIRBAG ON/OFF INDICATOR



**Fig. 62: Identifying Occupant Classification System Switches & Indicators**  
Courtesy of CHRYSLER LLC

Vehicles equipped with the Occupant Classification System (OCS) include a passenger airbag on/off indicator (4), which is located just to the right of the hazard switch (3) in the center of the instrument panel switch pod (1) near the base of the instrument panel center bezel. The passenger airbag on/off indicator consists of a molded plastic housing and a rectangular dark translucent outer lens.

The opaque text **PASS AIRBAG OFF** and an opaque International Control and Display Symbol icon for **Passenger Airbag Off or Not Available** are imprinted on the back of the lens within the indicator. The dark outer lens prevents the indicator text and icon from being clearly visible when it is not illuminated. An amber Light Emitting Diode (LED) behind the lens causes the text and icon to appear silhouetted against an amber field through the translucent lens when the indicator is illuminated from behind by the LED.

The passenger airbag on/off indicator cannot be repaired or adjusted and, if ineffective or damaged, the switch pod unit must be replaced. Refer to **REMOVAL**.

## OPERATION

### PASSENGER AIRBAG ON/OFF INDICATOR

In the Occupant Classification System (OCS) the passenger airbag on/off indicator gives an indication when the passenger airbag and seat belt tensioner deployment circuits are disabled by the Occupant Restraint Controller (ORC). This indicator is controlled by a transistor within the ORC through a hard wired output based upon ORC programming and electronic **occupant classification** messages received by the ORC over the Controller Area Network (CAN) data bus from the Occupant Classification Module (OCM).

The passenger airbag on/off indicator Light Emitting Diode (LED) is completely controlled by the ORC. The LED receives a battery current input on a fused ignition switch output (run) circuit. Therefore, the LED will always be OFF when the ignition switch is in any position except ON. The LED only illuminates when it is provided a path to ground by the ORC transistor. The ORC will turn ON the passenger airbag on/off indicator for the following reasons:

- **Bulb Test** - Each time the ignition switch is turned to the ON position the passenger airbag on/off indicator is illuminated for about six seconds.
- **Child Seat Detected (or Load Less Than Minimum Weight Threshold) Occupant Classification Message** - Each time the ORC receives an electronic message from the OCM indicating a child seat has been detected in the passenger side front seat (or that the seat load is less than a minimum weight threshold) the passenger airbag and seat belt tensioner deployment circuits are deactivated and the passenger airbag on/off indicator will be illuminated. The indicator remains illuminated until the ORC

## 2007 Dodge Nitro R/T

### 2007 RESTRAINTS Service Information - Nitro

receives an **occupant classification** message indicating that the passenger side front seat is empty, that the seat is occupied by a load equal to or greater than a minimum weight threshold, or until the ignition switch is turned to the OFF position, whichever occurs first.

- **Load Undetermined Occupant Classification Message** - Each time the ORC receives an electronic message from the OCM indicating that a load cannot be determined in the passenger side front seat, the passenger airbag and seat belt tensioner deployment circuits are deactivated and the passenger airbag on/off indicator will be illuminated. The indicator remains illuminated until the ORC receives an **occupant classification** message indicating that the passenger side front seat is empty, that the seat is occupied by a load equal to or greater than a minimum weight threshold, or until the ignition switch is turned to the OFF position, whichever occurs first.
- **Communication Error** - If the ORC receives invalid **occupant classification** messages or no messages from the OCM, the passenger airbag on/off indicator is illuminated. The indicator remains illuminated until the ORC receives a valid message from the OCM indicating that the passenger side front seat is empty, that the seat is occupied by a load equal to or greater than a minimum weight threshold, or until the ignition switch is turned to the OFF position, whichever occurs first.

The ORC continually monitors the **occupant classification** messages from the OCM to decide whether the passenger airbag and seat belt tensioner deployment circuits should be activated or deactivated. Note that there may be several seconds of delay between changes in the detected occupant status and passenger airbag on/off indications. This is a programmed feature of the OCM used to prevent a flashing indicator condition resulting from the normal shifting of occupant weight on the passenger seat cushion. The ORC then provides the proper control output to turn the passenger airbag on/off indicator ON or OFF.

The ORC will store a Diagnostic Trouble Code (DTC) for any malfunction it detects. The hard wired circuits between the passenger airbag on/off indicator 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 passenger airbag on/off indicator or the electronic controls and communication between other modules and devices that provide features of the OCS. The most reliable, efficient, and accurate means to diagnose the passenger airbag on/off indicator or the electronic controls and communication related to passenger airbag on/off indicator operation requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

## SEAT BELT BUCKLE

### REMOVAL

#### FRONT SEAT BELT BUCKLE

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, occupant classification system, seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.



**WARNING:** To avoid serious or fatal injury during and following any seat belt or child restraint anchor service, carefully inspect all seat belts, buckles, mounting hardware, retractors, tether straps, and anchors for proper installation, operation, or damage. Replace any belt that is cut, frayed, or torn. Straighten any belt that is twisted. Tighten any loose fasteners. Replace any belt that has a damaged or ineffective buckle or retractor. Replace any belt that has a bent or damaged latch plate or anchor plate. Replace any child restraint anchor or the unit to which the anchor is integral that has been bent or damaged. Never attempt to repair a seat belt or child restraint component. Always replace damaged or ineffective seat belt and child restraint components with the correct, new and unused replacement parts .

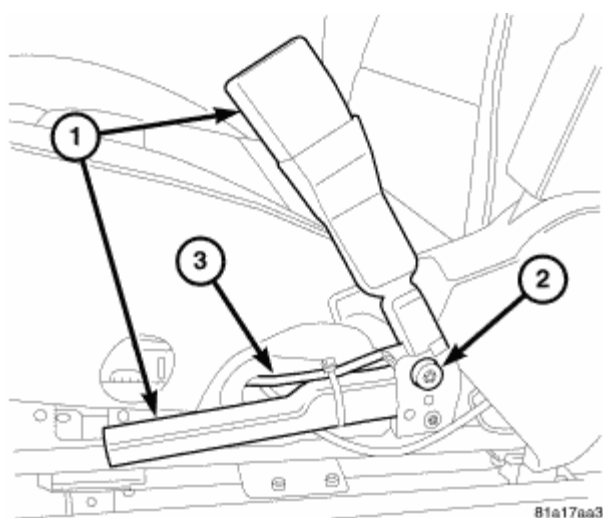
**WARNING:** To avoid serious or fatal injury on vehicles equipped with the Occupant Classification System (OCS), do not modify the front passenger seat assembly or center floor console in any way. Do not use any prior year, subsequent year, secondary or aftermarket seat trim covers. At no time should any Supplemental Restraint System (SRS) or OCS component be modified or replaced with any part except those which are specified for the particular vehicle application . Failure to observe these precautions could cause an OCS miscalibration condition, which may result in the passenger airbag failing to deploy when required or deploying when not required.

**WARNING:** To avoid serious or fatal injury, never strike or drop a seat weight sensor or the passenger side front seat assembly to which the sensors are secured as it can damage the sensors or affect their calibration. The seat weight sensors and the passenger side front seat assembly must be handled with care to avoid damage to the sensors. Do not sit upon or place any loads upon a passenger side front seat while it is removed from its mounts in or outside of the vehicle. If an individual sensor is dropped or damaged, replace the sensor with a new and unused unit. If a seat has been dropped during removal or loaded while removed from its mounts, replace each of the seat weight sensors with new and unused units. Failure to observe this warning could result in an accidental, incomplete, or improper passenger side front Supplemental Restraint System (SRS) component deployment.

**WARNING:** To avoid serious or fatal injury on vehicles equipped with the Occupant Classification System (OCS), any time the passenger side front seat assembly has been removed or loosened from the vehicle for service of any vehicle component or system the Occupant Classification System (OCS) Verification Test must be performed using a diagnostic scan tool and the Occupant Classification Seat Weight special tool following reinstallation. Refer to the appropriate diagnostic procedures. Failure to observe this warning could result in an accidental, incomplete, or

improper passenger side front Supplemental Restraint System (SRS) component deployment.

**NOTE:** The following procedure is for replacement of an ineffective or damaged seat belt buckle unit. The front seat belt buckle also includes a seat belt tensioner. If the front seat belt buckle is ineffective or damaged, but the seat belt tensioner is not deployed, review the recommended procedures for handling non-deployed supplemental restraints. See **HANDLING NON-DEPLOYED SUPPLEMENTAL RESTRAINTS**. If the seat belt tensioner has been deployed, review the recommended procedures for service after a supplemental restraint deployment before removing the unit from the vehicle.



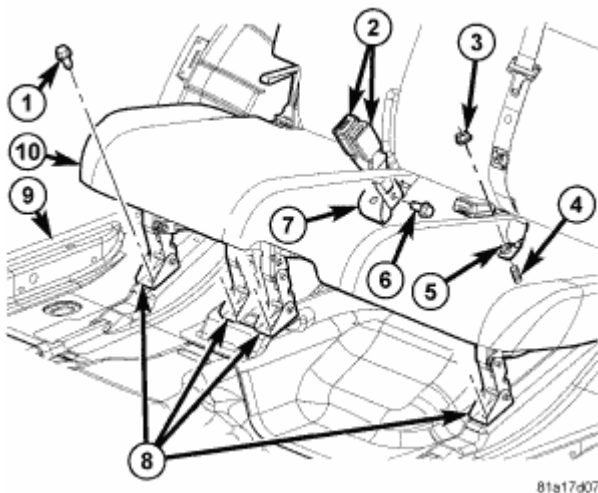
**Fig. 63: Identifying Front Seat Belt Buckle And Tensioner Unit, Screw & Pigtail Wire**  
Courtesy of CHRYSLER LLC

1. Move the front seat to its middle position for easiest access to the front seat mounting provisions.
2. Disconnect and isolate the battery negative cable. Wait two minutes for the system capacitor to discharge before further service.
3. Remove the front seat from the vehicle. Refer to **REMOVAL**.
4. Disconnect the seat belt tensioner and seat belt switch (driver side only) pigtail wire (3) connector from the seat wire harness connector located under the seat cushion near the inboard side of the seat.
5. Remove the screw (2) that secures the front seat belt buckle (1) lower anchor and tensioner unit to the back of the inboard seat cushion frame.
6. Pull the buckle and tensioner unit away from the inboard side of the seat while feeding the pigtail wire and connector from under the seat out through the clearance hole in the inboard seat cushion frame.
7. Remove the seat belt buckle and tensioner from the front seat as a unit.

#### SECOND ROW CENTER ANCHOR AND LEFT SEAT BELT BUCKLE

**WARNING:** To avoid serious or fatal injury during and following any seat belt or child

restraint anchor service, carefully inspect all seat belts, buckles, mounting hardware, retractors, tether straps, and anchors for proper installation, operation, or damage. Replace any belt that is cut, frayed, or torn. Straighten any belt that is twisted. Tighten any loose fasteners. Replace any belt that has a damaged or ineffective buckle or retractor. Replace any belt that has a bent or damaged latch plate or anchor plate. Replace any child restraint anchor or the unit to which the anchor is integral that has been bent or damaged. Never attempt to repair a seat belt or child restraint component. Always replace damaged or ineffective seat belt and child restraint components with the correct, new and unused replacement parts .



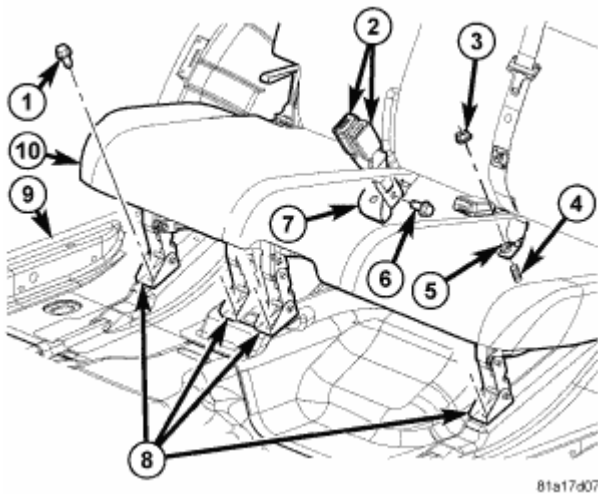
**Fig. 64: Second Row Center And Seat Belt Buckle Components**  
Courtesy of CHRYSLER LLC

**NOTE:** The anchor plates for the left outboard second row seat belt buckle and the second row center seat belt anchor are secured to each other by a soft metal grommet as an assembly aid during the manufacturing process and, once removed, the grommet does not require reinstallation.

1. Remove the four screws (1) that secure the second row seat cushion legs (8) to the rear floor panel (9).
2. Lift the front edge of the seat cushions (10) up against the seat backs for access to the second row center seat belt and left outboard seat belt buckle anchors (5) on the rear floor panel.
3. Remove the nut (3) that secures the center seat belt and left buckle anchors to the stud (4) on the rear floor panel.
4. Lift the anchors off of the stud on the rear floor panel.
5. Using an appropriate drill or chisel, carefully remove the soft metal grommet that secures the two anchor plates to each other.
6. Remove the second row left outboard buckle and anchor from between the seat back and the seat cushion as a unit.

## SECOND ROW CENTER AND RIGHT SEAT BELT BUCKLES

**WARNING:** To avoid serious or fatal injury during and following any seat belt or child restraint anchor service, carefully inspect all seat belts, buckles, mounting hardware, retractors, tether straps, and anchors for proper installation, operation, or damage. Replace any belt that is cut, frayed, or torn. Straighten any belt that is twisted. Tighten any loose fasteners. Replace any belt that has a damaged or ineffective buckle or retractor. Replace any belt that has a bent or damaged latch plate or anchor plate. Replace any child restraint anchor or the unit to which the anchor is integral that has been bent or damaged. Never attempt to repair a seat belt or child restraint component. Always replace damaged or ineffective seat belt and child restraint components with the correct, new and unused replacement parts .



**Fig. 65: Second Row Center And Seat Belt Buckle Components**

Courtesy of CHRYSLER LLC

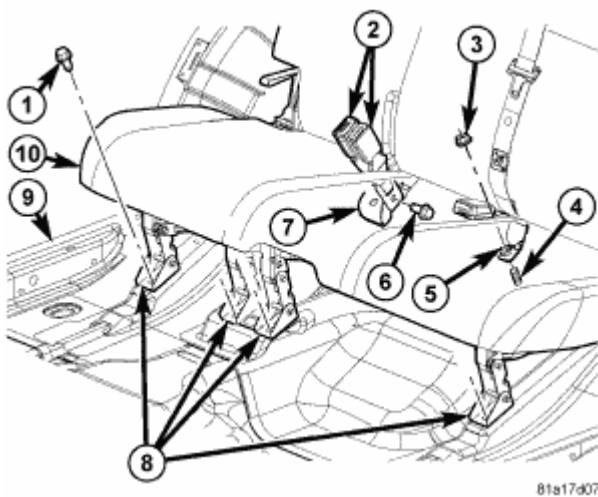
1. Remove the four screws (1) that secure the second row seat cushion legs (8) to the rear floor panel (9).
2. Lift the front edge of the seat cushions (10) up against the seat backs for access to the forward end of the right center seat bracket (7).
3. Remove the screw (6) that secures the lower anchor for the center and right seat belt buckle unit (2) to the inboard side of the right center seat bracket.
4. Remove the center and right seat belt buckle unit from between the second row seat cushions as a unit.

## INSTALLATION

## SECOND ROW CENTER AND RIGHT SEAT BELT BUCKLES

**WARNING:** To avoid serious or fatal injury during and following any seat belt or child restraint anchor service, carefully inspect all seat belts, buckles, mounting hardware, retractors, tether straps, and anchors for proper

installation, operation, or damage. Replace any belt that is cut, frayed, or torn. Straighten any belt that is twisted. Tighten any loose fasteners. Replace any belt that has a damaged or ineffective buckle or retractor. Replace any belt that has a bent or damaged latch plate or anchor plate. Replace any child restraint anchor or the unit to which the anchor is integral that has been bent or damaged. Never attempt to repair a seat belt or child restraint component. Always replace damaged or ineffective seat belt and child restraint components with the correct, new and unused replacement parts .



**Fig. 66: Second Row Center And Seat Belt Buckle Components**  
Courtesy of CHRYSLER LLC

1. Position the center and right seat belt buckle unit (2) between the second row seat cushions (10).
2. Position the lower anchor of the seat belt buckle unit to the inboard side of the right center seat bracket (7). Be certain that the anti-rotation tab on the anchor is engaged in the notch of the bracket.
3. Install and tighten the screw (6) that secures the buckle anchor to the right center seat bracket. Tighten the screw to 55 N.m (41 ft. lbs.).
4. Lower the front edge of the seat cushions downward and align the seat cushion legs (8) to the holes in the rear floor panel (9).
5. Install and tighten the four screws (1) that secure the legs to the floor panel. Tighten the screws to 54 N.m (40 ft. lbs.).

#### FRONT SEAT BELT BUCKLE

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, occupant classification system, seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing

further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**WARNING:** To avoid serious or fatal injury during and following any seat belt or child restraint anchor service, carefully inspect all seat belts, buckles, mounting hardware, retractors, tether straps, and anchors for proper installation, operation, or damage. Replace any belt that is cut, frayed, or torn. Straighten any belt that is twisted. Tighten any loose fasteners. Replace any belt that has a damaged or ineffective buckle or retractor. Replace any belt that has a bent or damaged latch plate or anchor plate. Replace any child restraint anchor or the unit to which the anchor is integral that has been bent or damaged. Never attempt to repair a seat belt or child restraint component. Always replace damaged or ineffective seat belt and child restraint components with the correct, new and unused replacement parts .

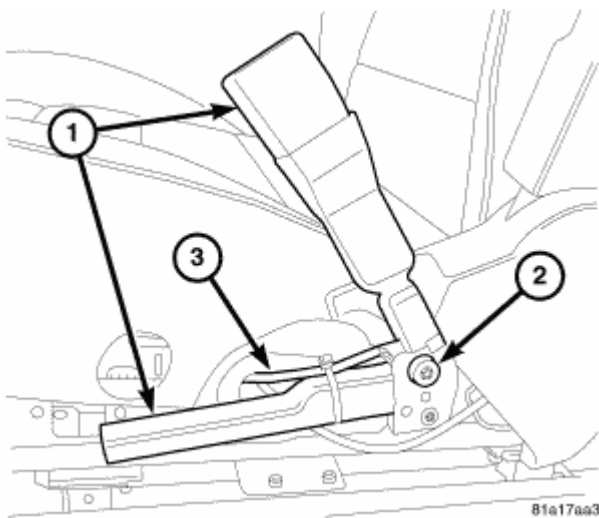
**WARNING:** To avoid serious or fatal injury on vehicles equipped with the Occupant Classification System (OCS), do not modify the front passenger seat assembly or center floor console in any way. Do not use any prior year, subsequent year, secondary or aftermarket seat trim covers. At no time should any Supplemental Restraint System (SRS) or OCS component be modified or replaced with any part except those which are specified for the particular vehicle application . Failure to observe these precautions could cause an OCS miscalibration condition, which may result in the passenger airbag failing to deploy when required or deploying when not required.

**WARNING:** To avoid serious or fatal injury, never strike or drop a seat weight sensor or the passenger side front seat assembly to which the sensors are secured as it can damage the sensors or affect their calibration. The seat weight sensors and the passenger side front seat assembly must be handled with care to avoid damage to the sensors. Do not sit upon or place any loads upon a passenger side front seat while it is removed from its mounts in or outside of the vehicle. If an individual sensor is dropped or damaged, replace the sensor with a new and unused unit. If a seat has been dropped during removal or loaded while removed from its mounts, replace each of the seat weight sensors with new and unused units. Failure to observe this warning could result in an accidental, incomplete, or improper passenger side front Supplemental Restraint System (SRS) component deployment.

**WARNING:** To avoid serious or fatal injury on vehicles equipped with the Occupant Classification System (OCS), any time the passenger side front seat assembly has been removed or loosened from the vehicle for service of

any vehicle component or system the Occupant Classification System (OCS) Verification Test must be performed using a diagnostic scan tool and the Occupant Classification Seat Weight special tool following reinstallation. Refer to the appropriate diagnostic procedures. Failure to observe this warning could result in an accidental, incomplete, or improper passenger side front Supplemental Restraint System (SRS) component deployment.

**NOTE:** The following procedure is for replacement of an ineffective or damaged seat belt buckle unit. The front seat belt buckle also includes a seat belt tensioner. If the front seat belt buckle is ineffective or damaged, but the seat belt tensioner is not deployed, review the recommended procedures for handling non-deployed supplemental restraints. See **HANDLING NON-DEPLOYED SUPPLEMENTAL RESTRAINTS**. If the seat belt tensioner has been deployed, review the recommended procedures for service after a supplemental restraint deployment before removing the unit from the vehicle.



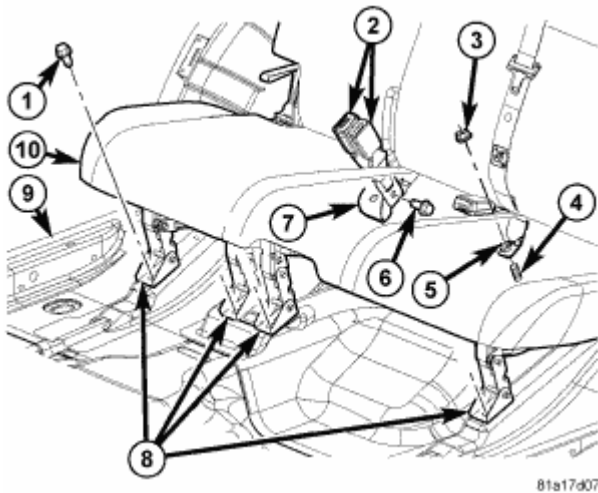
**Fig. 67: Identifying Front Seat Belt Buckle And Tensioner Unit, Screw & Pigtail Wire**  
Courtesy of CHRYSLER LLC

1. Position the front seat belt buckle and tensioner unit (1) to the inboard seat cushion frame.
2. Insert the seat belt tensioner and seat belt switch (driver side only) pigtail wire (3) connector under the seat through the clearance hole in the inboard seat cushion frame.
3. Position the front seat belt buckle lower anchor to the back of the inboard seat cushion frame.
4. Install and tighten the screw (2) that secures the front seat belt buckle anchor to the seat cushion frame. Tighten the screw to 43 N.m (32 ft. lbs.).
5. Reconnect the seat belt buckle tensioner and seat belt switch (driver side only) pigtail wire connector to the seat wire harness connector located under the seat cushion near the inboard side of the seat.
6. Reinstall the front seat into the vehicle. Refer to **INSTALLATION**.
7. Do not reconnect the battery negative cable at this time. The Supplemental Restraint System (SRS)

verification test procedure should be performed following service of any SRS component. See **VERIFICATION TEST - SUPPLEMENTAL RESTRAINT SYSTEM.**

#### SECOND ROW CENTER ANCHOR AND LEFT SEAT BELT BUCKLE

**WARNING:** To avoid serious or fatal injury during and following any seat belt or child restraint anchor service, carefully inspect all seat belts, buckles, mounting hardware, retractors, tether straps, and anchors for proper installation, operation, or damage. Replace any belt that is cut, frayed, or torn. Straighten any belt that is twisted. Tighten any loose fasteners. Replace any belt that has a damaged or ineffective buckle or retractor. Replace any belt that has a bent or damaged latch plate or anchor plate. Replace any child restraint anchor or the unit to which the anchor is integral that has been bent or damaged. Never attempt to repair a seat belt or child restraint component. Always replace damaged or ineffective seat belt and child restraint components with the correct, new and unused replacement parts .



**Fig. 68: Second Row Center And Seat Belt Buckle Components**  
Courtesy of CHRYSLER LLC

**NOTE:** The anchor plates for the left outboard second row seat belt buckle and the second row center seat belt anchor are secured to each other by a soft metal grommet as an assembly aid during the manufacturing process and, once removed, the grommet does not require reinstallation.

1. Position the second row left outboard buckle anchor plate (5) between the seat back and the seat cushion (10).
2. Lower the second row center seat belt and left outboard seat belt buckle anchors over the stud (4) on the rear floor panel (9).
3. Install and tighten the nut (3) that secures the anchors to the stud on the rear floor panel. Tighten the nut to 62.5 N.m (46 ft. lbs.).



## 2007 Dodge Nitro R/T

### 2007 RESTRAINTS Service Information - Nitro

4. Lower the front edge of the seat cushions downward and align the seat cushion legs (8) to the holes in the rear floor panel.
5. Install and tighten the four screws (1) that secure the legs to the floor panel. Tighten the screws to 54 N.m (40 ft. lbs.).

## SEAT BELT AND RETRACTOR

### DESCRIPTION

#### AUTOMATIC LOCKING RETRACTOR

The seat belt retractors used in all seating positions include an inertia-type, emergency locking mechanism as standard equipment. However, the retractor locking mechanisms for the front passenger and both second row outboard seating positions are mechanically switchable from an emergency locking retractor to an automatic locking retractor. The primary function of this feature is to securely accommodate a child seat in any of these seating positions of the vehicle without the need for a self-cinching seat belt tip half latch plate unit or another supplemental device that would be required to prevent the seat belt webbing from unwinding freely from the retractor spool of an inertia-type emergency locking retractor mechanism.

The automatic locking mechanism is integral to the seat belt and retractor unit and is concealed beneath a molded plastic cover located on one side of the retractor spool. The automatic locking mechanism cannot be adjusted or repaired and, if ineffective or damaged, the entire seat belt and retractor unit must be replaced.

### OPERATION

#### AUTOMATIC LOCKING RETRACTOR

The locked mode of the automatic locking retractor is engaged and the retractor is switched from operating as a standard inertia-type emergency locking retractor by first buckling the combination lap and shoulder belt buckle. Then grasp the shoulder belt and pull all of the webbing out of the retractor. Once all of the belt webbing is extracted from the spool, the retractor will automatically become engaged in the pre-locked automatic locking mode and will make a light, audible clicking or ratcheting sound as the shoulder belt is allowed to retract to confirm that the automatic locking mode is now engaged. Once the automatic locking mode is engaged, the retractor will remain locked and the belt will remain tight around whatever it is restraining.

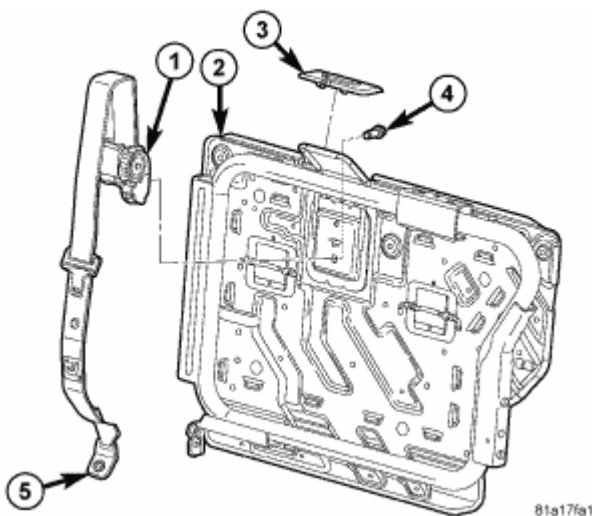
The retractor is returned to standard emergency locking (inertia) mode by unbuckling the combination lap and shoulder belt buckle and allowing the belt webbing to be almost fully retracted onto the retractor spool. The emergency locking mode is confirmed by the absence of the light, audible clicking or ratcheting sound as the belt webbing retracts. This mode will allow the belt to unwind from and wind onto the retractor spool freely unless and until a predetermined inertia load is sensed, or until the retractor is again switched to the automatic locking mode.

### REMOVAL

#### SECOND ROW CENTER SEAT BELT AND RETRACTOR

**WARNING:** To avoid serious or fatal injury during and following any seat belt or child restraint anchor service, carefully inspect all seat belts, buckles, mounting hardware, retractors, tether straps, and anchors for proper installation, operation, or damage. Replace any belt that is cut, frayed, or torn. Straighten any belt that is twisted. Tighten any loose fasteners. Replace any belt that has a damaged or ineffective buckle or retractor. Replace any belt that has a bent or damaged latch plate or anchor plate. Replace any child restraint anchor or the unit to which the anchor is integral that has been bent or damaged. Never attempt to repair a seat belt or child restraint component. Always replace damaged or ineffective seat belt and child restraint components with the correct, new and unused replacement parts .

**NOTE:** All seat belt retractors except the driver side front and the second row center retractor include a switchable automatic locking mechanism. See DESCRIPTION.



**Fig. 69: Identifying Second Row Center Seat Belt Retractor, Seat Back Panel, Bezel, Screw & Anchor Unit**

Courtesy of CHRYSLER LLC

**NOTE:** The anchor plates for the left outboard second row seat belt buckle and the second row center seat belt anchor are secured to each other by a soft metal grommet as an assembly aid during the manufacturing process and, once removed, the grommet does not require reinstallation.

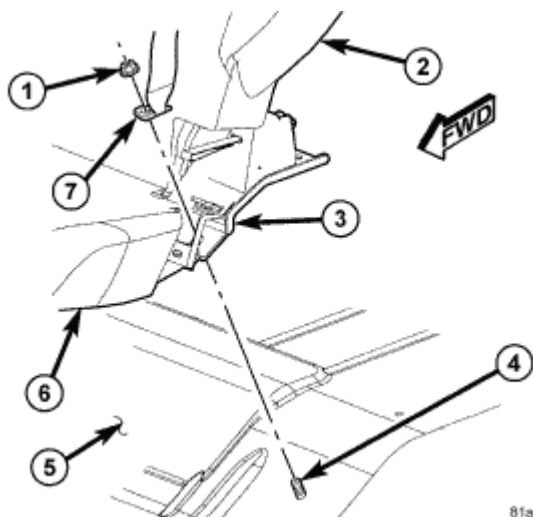
1. Remove the left second row seat belt buckle and center seat belt lower anchor unit (5) from the rear floor panel and separate them from each other. See REMOVAL.
2. Remove the second row seat from the vehicle as a unit and place it on a suitable work surface. Be certain to take the proper precautions to prevent the trim cover from receiving cosmetic damage during the following procedures. Refer to REMOVAL .

3. Remove the bezel (3), trim cover and foam from the 60 percent seat back panel (2). Refer to **DISASSEMBLY**.
4. Remove the screw (4) that secures the second row center seat belt retractor (1) to the seat back panel.
5. Remove the second row center seat belt and retractor unit from the seat back panel.

#### SECOND ROW OUTBOARD SEAT BELT AND RETRACTOR

**WARNING:** To avoid serious or fatal injury during and following any seat belt or child restraint anchor service, carefully inspect all seat belts, buckles, mounting hardware, retractors, tether straps, and anchors for proper installation, operation, or damage. Replace any belt that is cut, frayed, or torn. Straighten any belt that is twisted. Tighten any loose fasteners. Replace any belt that has a damaged or ineffective buckle or retractor. Replace any belt that has a bent or damaged latch plate or anchor plate. Replace any child restraint anchor or the unit to which the anchor is integral that has been bent or damaged. Never attempt to repair a seat belt or child restraint component. Always replace damaged or ineffective seat belt and child restraint components with the correct, new and unused replacement parts .

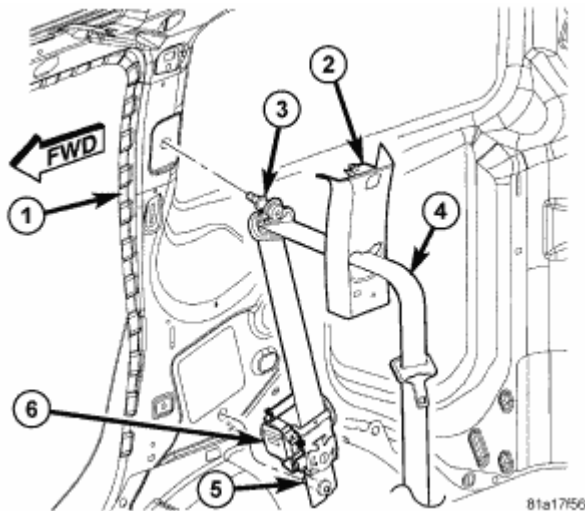
**NOTE:** All seat belt retractors except the driver side front and the second row center retractor include a switchable automatic locking mechanism. See **DESCRIPTION**.



**Fig. 70: Identifying Nut, Second Row Seat Back, Outboard Seat Bracket, Stud, Rear Floor Panel, Seat Cushion & Seat Belt Lower Anchor**  
 Courtesy of CHRYSLER LLC

1. Reach through the outboard opening between the second row seat back (2) and seat cushion (6) to access and remove the nut (1) that secures the seat belt lower anchor (7) and the forward end of the outboard seat bracket (3) to the rear floor panel (5).

- Remove the seat belt lower anchor from the stud (4).



**Fig. 71: Identifying Inner C-Pillar, Trim, Screws, Second Row Outboard Seat Belt & Retractor**  
Courtesy of CHRYSLER LLC

- Remove the trim (2) from the inner C-pillar (1). Refer to **REMOVAL** .
- Remove the screw (3) that secures the seat belt turning loop to the upper C-pillar.
- Remove the quarter trim panel from the inner lower C-pillar. Refer to **REMOVAL** .
- Remove the screw (5) that secures the retractor (6) bracket to the lower C-pillar.
- Remove the second row outboard seat belt (4) and retractor from the C-pillar as a unit.

#### FRONT SEAT BELT AND RETRACTOR

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

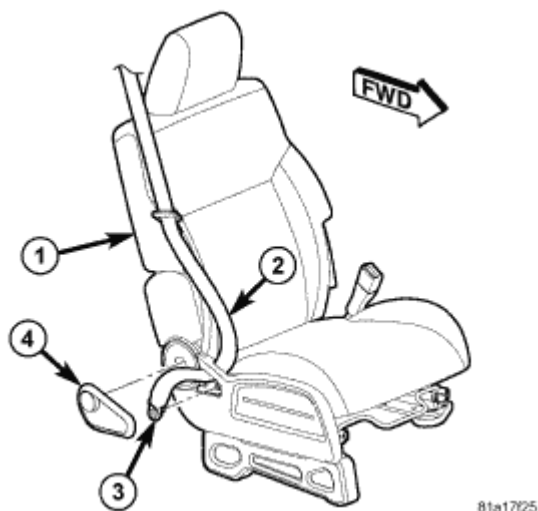
**WARNING:** To avoid serious or fatal injury during and following any seat belt or child restraint anchor service, carefully inspect all seat belts, buckles, mounting hardware, retractors, tether straps, and anchors for proper installation, operation, or damage. Replace any belt that is cut, frayed, or torn. Straighten any belt that is twisted. Tighten any loose fasteners. Replace any belt that has a damaged or ineffective buckle or retractor. Replace any belt that has a bent or damaged latch plate or anchor plate. Replace any child restraint anchor or the unit to which the anchor is

integral that has been bent or damaged. Never attempt to repair a seat belt or child restraint component. Always replace damaged or ineffective seat belt and child restraint components with the correct, new and unused replacement parts .

**NOTE:** The only component of this seat belt and retractor unit that is available for individual service replacement is the plastic web stop button that prevents the latch plate from falling to the floor while in the stored position. Refer to the instructions supplied with the service kit for the proper web stop button replacement procedures.

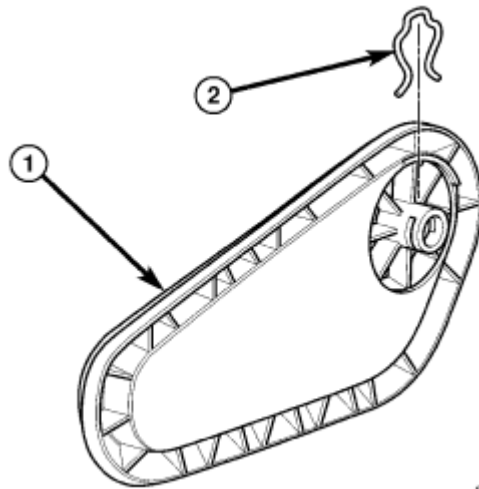
**NOTE:** The following procedure is for replacement of an ineffective or damaged seat belt and retractor unit. The front retractor also includes a seat belt tensioner. If the front seat belt or retractor is ineffective or damaged, but the seat belt tensioner is not deployed, review the recommended procedures for handling non-deployed supplemental restraints. See HANDLING NON-DEPLOYED SUPPLEMENTAL RESTRAINTS. If the seat belt tensioner has been deployed, review the recommended procedures for service after a supplemental restraint deployment before removing the unit from the vehicle.

**NOTE:** All seat belt retractors except the driver side front and the second row center retractor include a switchable automatic locking mechanism. See DESCRIPTION.



**Fig. 72: Identifying Front Seat, Front Seat Belt, Screw & Seat Back Recliner Handle**  
Courtesy of CHRYSLER LLC

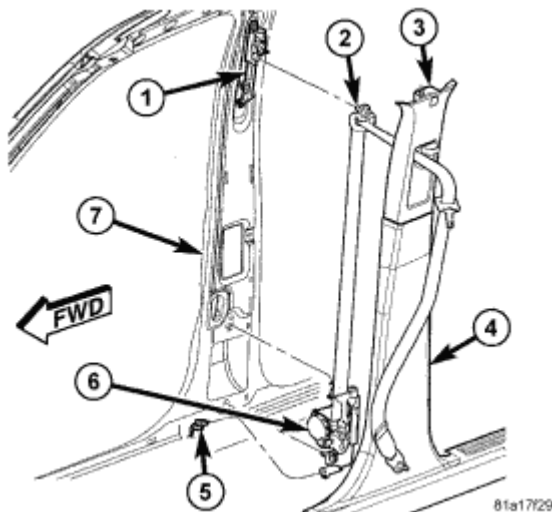
1. Adjust the front seat (1) to its most forward position for easiest access to the front seat belt (2) lower anchor and the B-pillar trim.
2. Disconnect and isolate the battery negative cable. Wait two minutes for the system capacitor to discharge before further service.



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**Fig. 73: Identifying Seat Back Recliner Handle & Spring Clip**  
Courtesy of CHRYSLER LLC

3. Using a trim stick or another suitable wide flat-bladed tool, gently pry the seat back recliner handle (1) to release the spring clip (2) and remove the handle from the recliner mechanism shaft at the rear of the outboard seat side shield. Optionally, a manual window regulator handle clip removal tool may be used to remove the spring clip from the handle before removing the handle from the recliner mechanism shaft.
4. Using a trim stick or another suitable wide flat-bladed tool, gently pry the rear edge of the seat belt anchor cover to remove it from the outboard seat side shield.
5. Remove the screw that secures the lower anchor to the outboard side of the front seat cushion frame.



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**Fig. 74: Identifying Height Adjuster, Seat Belt Turning Loop, Upper Trim, Lower Trim, Body Wire Harness Connector, Lower Retractor & B-Pillar**  
Courtesy of CHRYSLER LLC

6. Remove the upper trim (3) from the inside of the B-pillar (7). Refer to **REMOVAL**.
7. Remove the screw that secures the seat belt turning loop (2) to the height adjuster (1) on the upper B-

pillar.

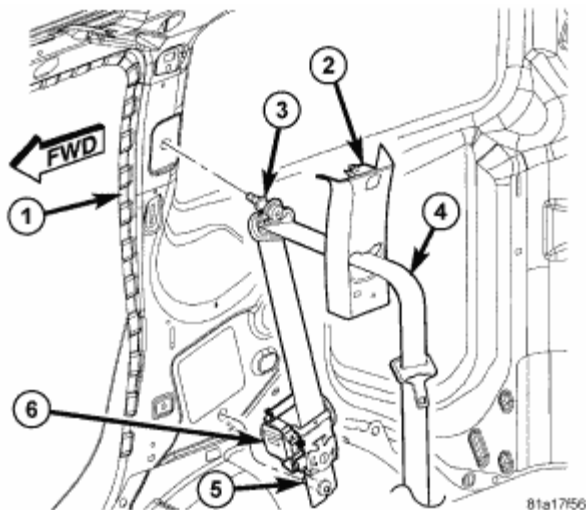
8. Remove the seat belt turning loop from the height adjuster.
9. Remove the lower trim (4) from the inside of the B-pillar. Refer to **REMOVAL** .
10. Disconnect the body wire harness connector (5) from the seat belt tensioner pigtail wire connector.
11. Remove the screw that secures the lower retractor (6) bracket to the B-pillar.
12. Disengage the engagement tab on the upper retractor bracket/seat belt web guide from the engagement slot in the B-pillar.
13. Remove the front seat belt and retractor from the B-pillar as a unit.

## INSTALLATION

### SECOND ROW OUTBOARD SEAT BELT AND RETRACTOR

**WARNING:** To avoid serious or fatal injury during and following any seat belt or child restraint anchor service, carefully inspect all seat belts, buckles, mounting hardware, retractors, tether straps, and anchors for proper installation, operation, or damage. Replace any belt that is cut, frayed, or torn. Straighten any belt that is twisted. Tighten any loose fasteners. Replace any belt that has a damaged or ineffective buckle or retractor. Replace any belt that has a bent or damaged latch plate or anchor plate. Replace any child restraint anchor or the unit to which the anchor is integral that has been bent or damaged. Never attempt to repair a seat belt or child restraint component. Always replace damaged or ineffective seat belt and child restraint components with the correct, new and unused replacement parts .

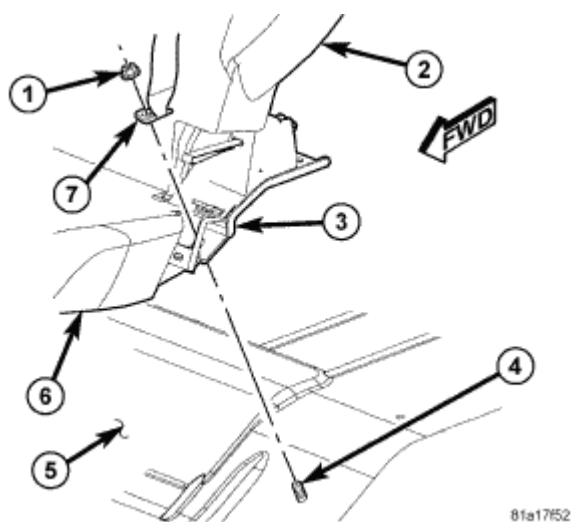
**NOTE:** All seat belt retractors except the driver side front and the second row center retractor include a switchable automatic locking mechanism. See **DESCRIPTION**.



**Fig. 75: Identifying Inner C-Pillar, Trim, Screws, Second Row Outboard Seat Belt & Retractor**

## Courtesy of CHRYSLER LLC

1. Position the second row outboard seat belt (4) and retractor (6) to the lower inner C-pillar (1) as a unit.
2. Install and tighten the screw (5) that secures the retractor bracket to the lower C-pillar. Tighten the screw to 44.5 N.m (33 ft. lbs.).
3. Reinstall the quarter trim panel onto the lower C-pillar. Refer to **INSTALLATION** .
4. Position the seat belt turning loop to the upper C-pillar. Be certain the seat belt webbing between the retractor and the turning loop is not twisted.
5. Install and tighten the screw (3) that secures the seat belt turning loop to the upper C-pillar. Tighten the screw to 44.5 N.m (33 ft. lbs.).
6. Reinstall the trim (2) onto the upper C-pillar. Refer to **INSTALLATION** .



**Fig. 76: Identifying Nut, Second Row Seat Back, Outboard Seat Bracket, Stud, Rear Floor Panel, Seat Cushion & Seat Belt Lower Anchor**

Courtesy of CHRYSLER LLC

7. Reach through the outboard opening between the second row seat back (2) and seat cushion (6) to position the lower seat belt anchor (7) over the stud (4) at the forward end of the outboard seat bracket (3) on the rear floor panel (5). Be certain the seat belt webbing between the turning loop and the lower anchor is not twisted.
8. Install and tighten the nut (1) that secures the lower seat belt anchor and the seat bracket to the stud. Tighten the nut to 62.5 N.m (46 ft. lbs.).

## FRONT SEAT BELT AND RETRACTOR

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before



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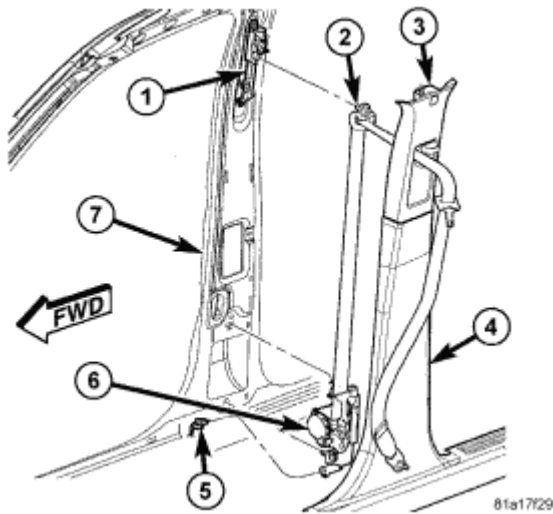
performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**WARNING:** To avoid serious or fatal injury during and following any seat belt or child restraint anchor service, carefully inspect all seat belts, buckles, mounting hardware, retractors, tether straps, and anchors for proper installation, operation, or damage. Replace any belt that is cut, frayed, or torn. Straighten any belt that is twisted. Tighten any loose fasteners. Replace any belt that has a damaged or ineffective buckle or retractor. Replace any belt that has a bent or damaged latch plate or anchor plate. Replace any child restraint anchor or the unit to which the anchor is integral that has been bent or damaged. Never attempt to repair a seat belt or child restraint component. Always replace damaged or ineffective seat belt and child restraint components with the correct, new and unused replacement parts .

**NOTE:** The only component of this seat belt and retractor unit that is available for individual service replacement is the plastic web stop button that prevents the latch plate from falling to the floor while in the stored position. Refer to the instructions supplied with the service kit for the proper web stop button replacement procedures.

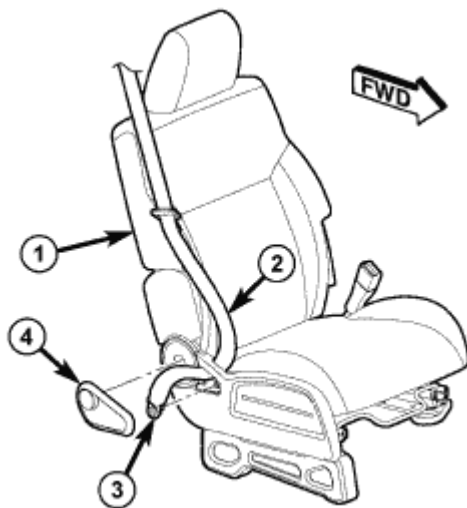
**NOTE:** The following procedure is for replacement of an ineffective or damaged seat belt and retractor unit. The front retractor also includes a seat belt tensioner. If the front seat belt or retractor is ineffective or damaged, but the seat belt tensioner is not deployed, review the recommended procedures for handling non-deployed supplemental restraints. See HANDLING NON-DEPLOYED SUPPLEMENTAL RESTRAINTS. If the seat belt tensioner has been deployed, review the recommended procedures for service after a supplemental restraint deployment before removing the unit from the vehicle.

**NOTE:** All seat belt retractors except the driver side front and the second row center retractor include a switchable automatic locking mechanism. See DESCRIPTION.



**Fig. 77: Identifying Height Adjuster, Seat Belt Turning Loop, Upper Trim, Lower Trim, Body Wire Harness Connector, Lower Retractor & B-Pillar**  
 Courtesy of CHRYSLER LLC

1. Position the front seat belt and retractor (6) to the inner B-pillar (7) as a unit. Be certain to engage the tab on the upper retractor bracket/seat belt web guide into the engagement slot in the lower B-pillar.
2. Install and tighten the screw that secures the lower retractor bracket to the B-pillar. Tighten the screw to 44.5 N.m (33 ft. lbs.).
3. Reconnect the body wire harness connector (5) to the seat belt tensioner pigtail wire connector.
4. Reinstall the lower trim (4) onto the inside of the B-pillar. Refer to **INSTALLATION** .
5. Position the seat belt turning loop (2) onto the height adjuster (1) on the upper B-pillar. Be certain that the seat belt webbing between the retractor and the turning loop is not twisted.
6. Install and tighten the screw that secures the seat belt turning loop to the height adjuster. Tighten the screw to 44.5 N.m (33 ft. lbs.).
7. Reinstall the upper trim (4) onto the inside of the B-pillar. Refer to **INSTALLATION** .



**Fig. 78: Identifying Front Seat, Front Seat Belt, Screw & Seat Back Recliner Handle**

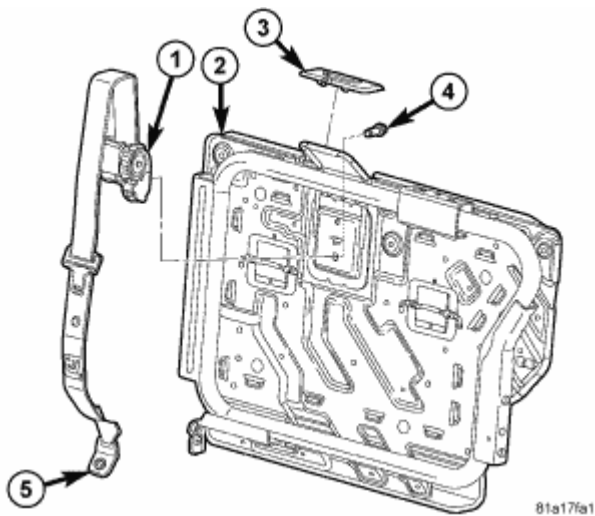
**Courtesy of CHRYSLER LLC**

8. Position the front seat belt (2) lower anchor to the outboard side of the front seat (1) cushion frame. Be certain that the seat belt webbing between the turning loop and the lower anchor is not twisted.
9. Install and tighten the screw (3) that secures the lower anchor to the front seat cushion frame. Tighten the screw to 44.5 N.m (33 ft. lbs.).
10. Insert the engagement tab of the seat belt anchor cover into the front of the opening near the rear of the outboard seat side shield. Using hand pressure, press firmly and evenly on the rear of the cover until it snaps into place.
11. Align the seat back recliner handle (4) to the recliner mechanism shaft near the rear of the outboard seat side shield. Using hand pressure, press firmly and evenly on the handle until it snaps into place.
12. Do not reconnect the battery negative cable at this time. The Supplemental Restraint System (SRS) verification test procedure should be performed following service of any SRS component. See **VERIFICATION TEST - SUPPLEMENTAL RESTRAINT SYSTEM.**

**SECOND ROW CENTER SEAT BELT AND RETRACTOR**

**WARNING:** To avoid serious or fatal injury during and following any seat belt or child restraint anchor service, carefully inspect all seat belts, buckles, mounting hardware, retractors, tether straps, and anchors for proper installation, operation, or damage. Replace any belt that is cut, frayed, or torn. Straighten any belt that is twisted. Tighten any loose fasteners. Replace any belt that has a damaged or ineffective buckle or retractor. Replace any belt that has a bent or damaged latch plate or anchor plate. Replace any child restraint anchor or the unit to which the anchor is integral that has been bent or damaged. Never attempt to repair a seat belt or child restraint component. Always replace damaged or ineffective seat belt and child restraint components with the correct, new and unused replacement parts .

**NOTE:** All seat belt retractors except the driver side front and the second row center retractor include a switchable automatic locking mechanism. See **DESCRIPTION.**



**Fig. 79: Identifying Second Row Center Seat Belt Retractor, Seat Back Panel, Bezel, Screw & Anchor Unit**

Courtesy of CHRYSLER LLC

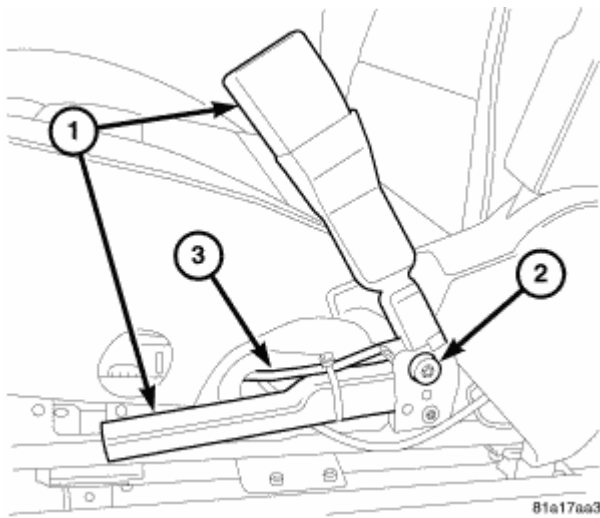
**NOTE:** The anchor plates for the left outboard second row seat belt buckle and the second row center seat belt anchor are secured to each other by a soft metal grommet as an assembly aid during the manufacturing process and, once removed, the grommet does not require reinstallation.

1. Position the second row center seat belt and retractor unit (1) onto the 60 percent seat back panel (2). Be certain to engage the tab on the retractor frame into the keyed hole in the back panel.
2. Install and tighten the screw (4) that secures the retractor to the seat back panel. Tighten the screw to 55 N.m (41 ft. lbs.).
3. Reinstall the foam, trim cover and bezel (3) onto the seat back panel. Be certain the seat belt webbing between the retractor and the bezel is not twisted. Refer to **ASSEMBLY** .
4. Reinstall the second row seat into the vehicle as a unit. Refer to **INSTALLATION** .
5. Reinstall the left second row seat belt buckle and center seat belt lower anchor unit (5) onto the rear floor panel. See **INSTALLATION**.

## SEAT BELT SWITCH

### DESCRIPTION

### SEAT BELT SWITCH



**Fig. 80: Identifying Front Seat Belt Buckle And Tensioner Unit, Screw & Pigtail Wire**  
 Courtesy of CHRYSLER LLC

Two different seat belt switches are used in the front seat buckles of this vehicle. The driver side uses a mechanical switch, while the passenger side is actually a Hall Effect-type sensor. The driver side switch is a small, normally open, single pole, single throw, leaf contact, momentary switch. The driver side seat belt switch is integral to the buckle of the driver side front seat belt buckle. The passenger side switch consists of a fixed-position, Hall Effect Integrated Circuit (IC) chip and a small permanent magnet that is integral to the passenger side front seat belt buckle. The front seat belt buckles (1) are located on a molded plastic scabbard and secured along with the seat belt buckle tensioner mechanism by a screw (2) near the back of the inboard front seat cushion frame.

The seat belt switches are connected to the vehicle electrical system through a two-lead pigtail wire (3) and a four-way connector shared with the buckle tensioner squib circuits on the front seat belt buckle-half, which is connected to a wire harness connector and take out of the seat wire harness routed beneath the front seat cushion. On the passenger side, a one kilohm diagnostic resistor is connected in parallel with the IC where the two pigtail wire leads connect to the IC pins.

The seat belt switches cannot be adjusted or repaired. If ineffective or damaged, the entire front seat belt buckle-half and tensioner unit must be replaced.

## OPERATION

### SEAT BELT SWITCH

#### DRIVER SIDE

The driver side front seat belt switch is a hard wired input to the Totally Integrated Power Module (TIPM), which provides electronic driver side seat belt switch status messages to the Electro Mechanical Instrument Cluster (EMIC) (also known as the Cab Compartment Node/CCN) over the Controller Area Network (CAN) data bus. The EMIC controls the seat belt indicator based upon the electronic driver side seat belt switch status message inputs.

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When the driver side front seat belt tip-half is inserted into the seat belt buckle, the switch closes the path to ground; and, when the driver side front seat belt tip-half is removed from the seat belt buckle, the switch opens the ground path. The switch is actuated by the latch mechanism within the seat belt buckle.

The seat belt switch is connected in series between ground and the seat belt switch sense input of the TIPM. The seat belt switch receives ground at all times through its pigtail wire connection to the seat wire harness from a take out of the body wire harness. An eyelet terminal connector on the body wire harness ground take out is secured beneath a ground screw on the left cowl side inner panel, beneath the instrument panel. The TIPM monitors the condition of the driver seat belt switch circuits and will send an electronic message to illuminate the airbag indicator in the EMIC then store a Diagnostic Trouble Code (DTC) for any fault that is detected.

The hard wired circuits between the driver side seat belt switch and the TIPM 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 switch or the electronic controls or communication between other modules and devices that provide features of the supplemental restraint system. The most reliable, efficient, and accurate means to diagnose the driver side seat belt switch or the electronic controls and communication related to seat belt switch operation requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

#### **PASSENGER SIDE**

The passenger side front seat belt switch is a hard wired input to the Occupant Restraint Controller (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 into the seat belt buckle, the slide is pushed downward and the window of the slide exposes the Hall Effect Integrated Circuit (IC) 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 IC from the field of the permanent magnet, causing the output current from the seat belt switch to be reduced.

The passenger side seat belt switch receives a clean ground from the ORC through a hard wired connection, and the ORC senses the status of the seat belt buckle by monitoring the modulation of voltage through its connection to the seat belt switch output. The ORC also monitors the condition of the passenger side seat belt switch circuits and will send an electronic message to illuminate the airbag indicator in the EMIC then store a DTC for any fault that is detected. However, the ORC is not currently programmed to provide any features in response to the status of the passenger side seat belt switch input.

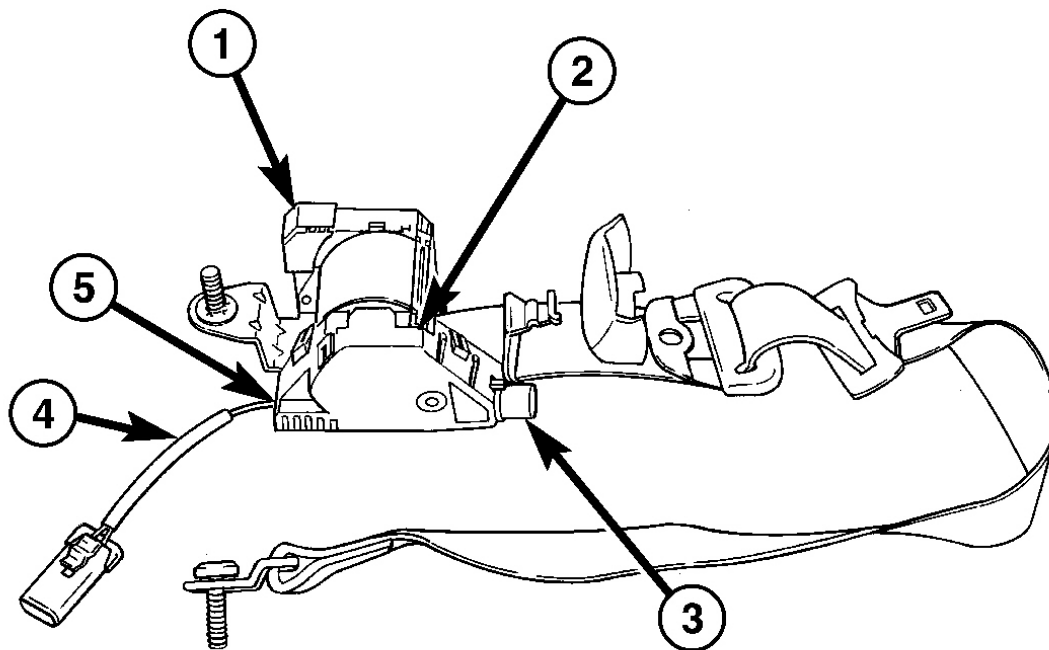
The hard wired circuits between the passenger side seat belt switch and the ORC may be diagnosed using conventional diagnostic tools and procedures. Refer to the appropriate wiring information. However, conventional diagnostic methods will not prove conclusive in the diagnosis of the switch or the electronic controls or communication between other modules and devices that provide features of the supplemental restraint system. The most reliable, efficient, and accurate means to diagnose the passenger side seat belt switch or the electronic controls and communication related to seat belt switch operation requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

#### **SEAT BELT TENSIONER**

##### **DESCRIPTION**

**SEAT BELT TENSIONER**

Both front seat belts incorporate dual tensioners: one integral to the retractor, and one integral to the buckle.

**RETRACTOR TENSIONER**

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**Fig. 81: Identifying Retractor Units, Molded Plastic Tensioner Housing, Tubular Metal Piston Housing, Pigtail Wire & Gas Generator**  
 Courtesy of CHRYSLER LLC

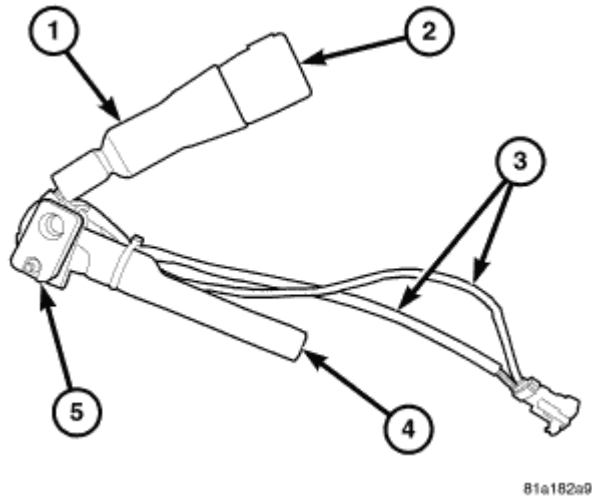
Seat belt retractor tensioners supplement the dual front and side curtain airbag system for all versions of this vehicle. These tensioners are integral to the front seat belt and retractor units (1), which are secured to the B-pillars on the right and left sides of the vehicle. The retractors are concealed beneath the molded plastic B-pillar trim. The seat belt tensioner consists primarily of a molded plastic tensioner housing (2), a tubular metal piston housing (3), a piston, a short rack gear, a set of pinion gears, a pyrotechnically activated gas generator (5), and a short pigtail wire (4).

All of these components are located on one side of the retractor spool on the outside of the retractor housing. The seat belt tensioners are controlled by the Occupant Restraint Controller (ORC) and are connected to the vehicle electrical system through dedicated take outs of the body wire harness by keyed and latching molded plastic connector insulators to ensure a secure connection.

The retractor tensioners cannot be repaired and, if ineffective or damaged, the entire front seat belt and retractor

unit must be replaced. The retractor tensioners are not intended for reuse and must be replaced following any front airbag deployment. A locked retractor that will not allow the seat belt webbing to be retracted or extracted is a sure indication that the seat belt tensioner has been deployed and requires replacement. See **REMOVAL**.

### BUCKLE TENSIONER



**Fig. 82: Identifying Molded Plastic Scabbard, Buckle, Pigtail Harnesses, Steel Cylinder Tube & Bracket**  
Courtesy of CHRYSLER LLC

Seat belt buckle tensioners supplement the dual front and side curtain airbags for all versions of this vehicle. These tensioners are integral to the front seat belt buckle units, which are secured by a large screw to the outside of the inboard seat cushion frames of the right and left front seats. The buckle tensioner consists primarily of a buckle (2), a molded plastic scabbard (1), a cable and piston, a cable guide and bracket (5), a steel cylinder tube (4), and a small pyrotechnically activated gas generator.

The buckle tensioners are controlled by the Occupant Restraint Controller (ORC) and are connected to the vehicle electrical system through a dedicated take out of the seat wire harness by a keyed and latching yellow molded plastic connector insulator to ensure a secure connection. The buckle tensioner connector for the driver side is shared by two pigtail harnesses (3): one two-wire squib pigtail and a second two-wire pigtail for the integral seat belt switch.

The buckle tensioners cannot be repaired and, if ineffective or damaged, the entire front seat belt buckle unit must be replaced. If the front airbags have been deployed, the buckle tensioners have also been deployed. The buckle tensioners are not intended for reuse and must be replaced following any front airbag deployment. See **REMOVAL**.

### OPERATION

#### SEAT BELT TENSIONER

The seat belt retractor tensioners and buckle tensioners are deployed by a signal generated by the Occupant Restraint Controller (ORC) through the driver or passenger seat belt tensioner line 1 and line 2 (or squib) circuits. When the ORC sends the proper electrical signal to the tensioners, the electrical energy generates



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enough heat to initiate a small pyrotechnic gas generator.

On the retractor tensioner, the gas generator is installed in one end of the tubular metal piston housing, which contains a piston and a small rack gear. As the gas expands, it pushes the piston and the rack gear through the tube. The rack gear engages a pinion gear that drives a gear set in the tensioner housing, which rotates the seat belt retractor spool causing the slack to be removed from the front seat belts.

On the buckle tensioner, the gas generator is installed in one end of the tubular metal piston housing, which contains a piston secured to one end of a cable. The cable is routed around an integral guide to the buckle, which is secured to the opposite end of the cable. As the gas expands, it pushes the piston and the cable through the tube and pulls the buckle downward, causing the slack to be removed from the front seat belts.

Removing excess slack from the front seat belts not only keeps the occupants properly positioned for an airbag deployment following a frontal impact of the vehicle, but also helps to reduce injuries that the occupants of the front seat might experience in these situations as a result of a harmful contact with the steering wheel, steering column, instrument panel or windshield. Also, the seat belt retractor has a torsion bar mechanism that is designed to deform in order to control the loading being applied to the occupants by the seat belts during a frontal impact, further reducing the potential for occupant injuries.

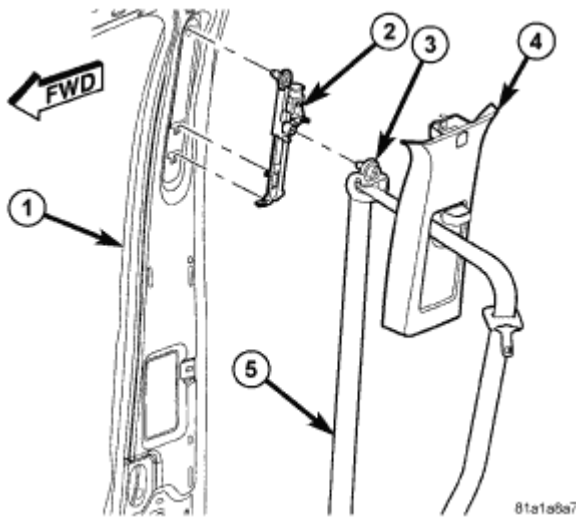
The ORC monitors the condition of the seat belt tensioners through circuit resistance, and will illuminate the airbag indicator in the Electro Mechanical Instrument Cluster (EMIC) and store a Diagnostic Trouble Code (DTC) for any fault that is detected. Proper diagnosis of the seat belt tensioner gas generator and squib circuits requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

## SEAT BELT TURNING LOOP ADJUSTER

### REMOVAL

#### SEAT BELT TURNING LOOP ADJUSTER

**WARNING:** To avoid serious or fatal injury during and following any seat belt or child restraint anchor service, carefully inspect all seat belts, buckles, mounting hardware, retractors, tether straps, and anchors for proper installation, operation, or damage. Replace any belt that is cut, frayed, or torn. Straighten any belt that is twisted. Tighten any loose fasteners. Replace any belt that has a damaged or ineffective buckle or retractor. Replace any belt that has a bent or damaged latch plate or anchor plate. Replace any child restraint anchor or the unit to which the anchor is integral that has been bent or damaged. Never attempt to repair a seat belt or child restraint component. Always replace damaged or ineffective seat belt and child restraint components with the correct, new and unused replacement parts .



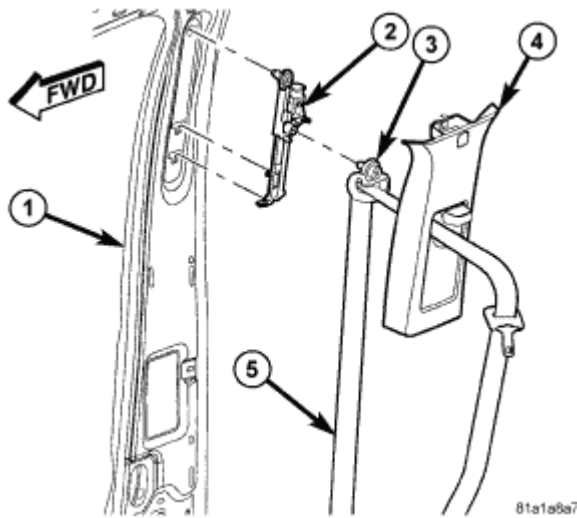
**Fig. 83: Identifying B-Pillar, Height Adjuster, Seat Belt Turning Loop & Upper Trim**  
 Courtesy of CHRYSLER LLC

1. Remove the upper trim (4) from the inside of the B-pillar (1). Refer to **REMOVAL** .
2. Remove the screw that secures the seat belt turning loop (3) to the height adjuster (2) on the upper B-pillar.
3. Remove the seat belt turning loop from the height adjuster.
4. Remove the screw that secures the upper end of the seat belt turning loop adjuster to the upper B-pillar.
5. Pull the turning loop adjuster upward and away from the B-pillar far enough to disengage the tabs on the lower end of the adjuster from the keyed holes in the B-pillar.
6. Remove the seat belt turning loop adjuster from the B-pillar.

## INSTALLATION

### SEAT BELT TURNING LOOP ADJUSTER

**WARNING:** To avoid serious or fatal injury during and following any seat belt or child restraint anchor service, carefully inspect all seat belts, buckles, mounting hardware, retractors, tether straps, and anchors for proper installation, operation, or damage. Replace any belt that is cut, frayed, or torn. Straighten any belt that is twisted. Tighten any loose fasteners. Replace any belt that has a damaged or ineffective buckle or retractor. Replace any belt that has a bent or damaged latch plate or anchor plate. Replace any child restraint anchor or the unit to which the anchor is integral that has been bent or damaged. Never attempt to repair a seat belt or child restraint component. Always replace damaged or ineffective seat belt and child restraint components with the correct, new and unused replacement parts .



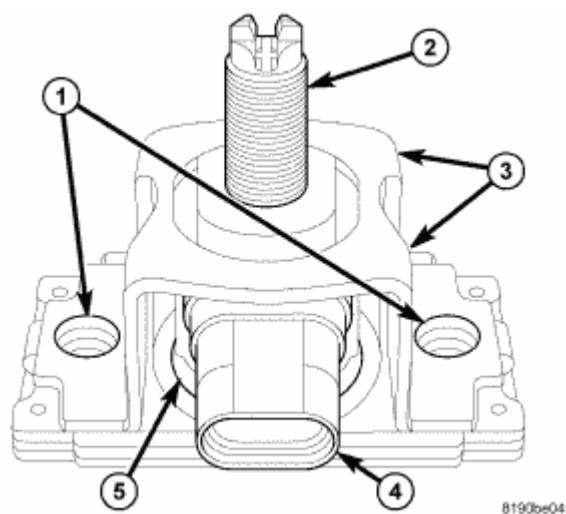
**Fig. 84: Identifying B-Pillar, Height Adjuster, Seat Belt Turning Loop & Upper Trim**  
Courtesy of CHRYSLER LLC

1. Position the seat belt turning loop adjuster (2) to the inner B-pillar (1).
2. Engage the tabs on the lower end of the adjuster into the keyed holes in the B-pillar.
3. Position the upper end of the turning loop adjuster against the B-pillar.
4. Install and tighten the screw that secures the seat belt turning loop adjuster to the upper B-pillar. Tighten the screw to 44.5 N.m (33 ft. lbs.).
5. Position the seat belt turning loop (3) onto the height adjuster on the upper B-pillar. Be certain that the seat belt webbing (5) between the retractor and the turning loop, and between the turning loop and the lower anchor is not twisted.
6. Install and tighten the screw that secures the seat belt turning loop to the height adjuster. Tighten the screw to 44.5 N.m (33 ft. lbs.).
7. Reinstall the upper trim (4) onto the inside of the B-pillar. Refer to **INSTALLATION** .

## SEAT WEIGHT SENSOR

### DESCRIPTION

### SEAT WEIGHT SENSOR



**Fig. 85: Identifying Sensor Mounting Flange, Threaded Mounting Stud, Stamped Metal Cage, Sensor Body & Receptacle**

Courtesy of CHRYSLER LLC

The seat weight sensors are strain gauge-type units. The electronic elements of the sensor are encased within the sensor body (5) and the sensor body is located within a stamped metal cage (3). Four sensors are used in the Occupant Classification System (OCS). The sensors are located below the seat cushion between the seat adjuster track and the seat track riser at each corner of the passenger side front seat.

A threaded mounting stud (2) on each sensor body is secured by a nut to the seat track riser, and two nuts secure each sensor mounting flange (1) to two studs integral to the front and rear of the inboard and outboard passenger side lower seat adjuster tracks. A molded connector receptacle (4) integral to each sensor body is oriented towards the center of the seat and is connected to the vehicle electrical system through a dedicated connector and take out of the passenger seat wire harness beneath the seat cushion.

The seat weight sensors cannot be adjusted or repaired and, if ineffective or damaged, the entire sensor must be replaced.

## OPERATION

### SEAT WEIGHT SENSOR

The seat weight sensor units are designed to sense the relative weight of a load applied to the passenger side front seat, which provides a logic input to the microprocessor of the Occupant Classification Module (OCM). When any load is applied to the seat the load is transmitted through the sensor mounting stud to the sensor body (strain gauge) of each sensor, causing a change of electrical resistance through the strain gauge. These changes in resistance within the internal sensor circuitry change the sensor output voltage.

Each weight sensor receives a nominal five volts and a ground through parallel hard wired circuits from the OCM. The OCM then monitors the output voltage of each sensor on dedicated hard wired data communication circuits. The OCM also monitors the condition of the sensor circuits and will store a Diagnostic Trouble Code (DTC) for any fault that is detected, then send messages to the Occupant Restraint Controller (ORC) to illuminate the airbag indicator in the Electro Mechanical Instrument Cluster (EMIC) (also known as the Cab

Compartment Node/CCN).

The hard wired circuits between the seat weight sensor and the OCM 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 seat weight sensors or the electronic controls and communication between other modules and devices that provide features of the Occupant Classification System (OCS). The most reliable, efficient, and accurate means to diagnose the seat weight sensors or the electronic controls and communication related to seat weight sensor operation requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

## **REMOVAL**

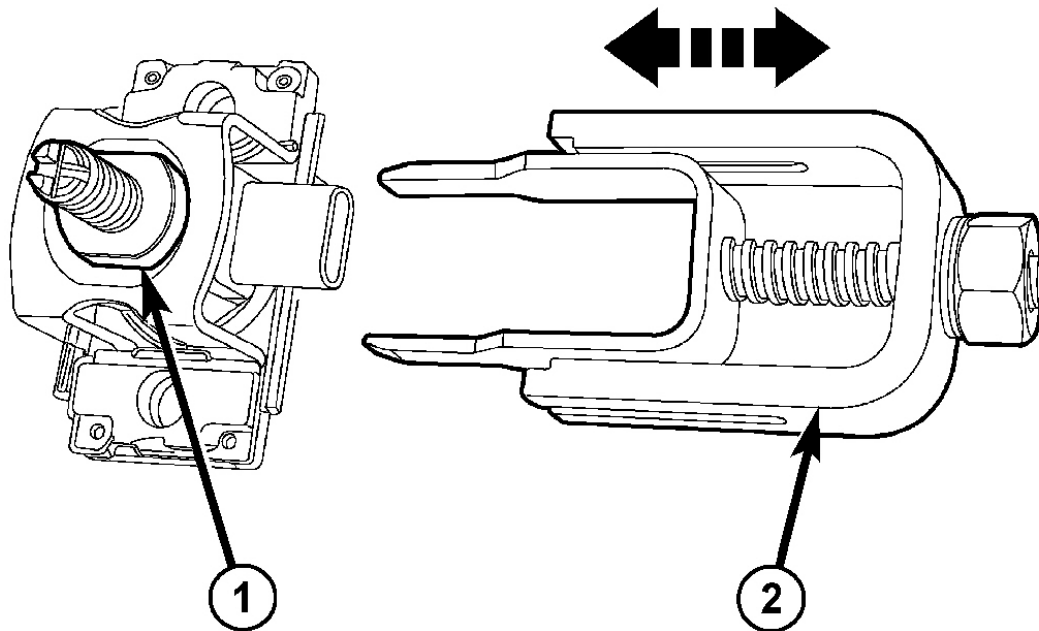
### **SEAT WEIGHT SENSOR**

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

**WARNING:** To avoid serious or fatal injury on vehicles equipped with the Occupant Classification System (OCS), do not modify the front passenger seat assembly or center floor console in any way. Do not use any prior year, subsequent year, secondary or aftermarket seat trim covers. At no time should any Supplemental Restraint System (SRS) or OCS component be modified or replaced with any part except those which are specified for the particular vehicle application. Failure to observe these precautions could cause an OCS miscalibration condition, which may result in the passenger airbag failing to deploy when required or deploying when not required.

**WARNING:** To avoid serious or fatal injury, never strike or drop a seat weight sensor or the passenger side front seat assembly to which the sensors are secured as it can damage the sensors or affect their calibration. The seat weight sensors and the passenger side front seat assembly must be handled with care to avoid damage to the sensors. Do not sit upon or place any loads upon a passenger side front seat while it is removed from its mounts in or outside of the vehicle. If an individual sensor is dropped or damaged, replace the sensor with a new and unused unit. If a seat has been dropped during removal or loaded while removed from its mounts, replace each of the seat weight sensors with new and unused units. Failure to observe this warning could result in an accidental, incomplete,

or improper passenger side front supplemental restraint deployment.



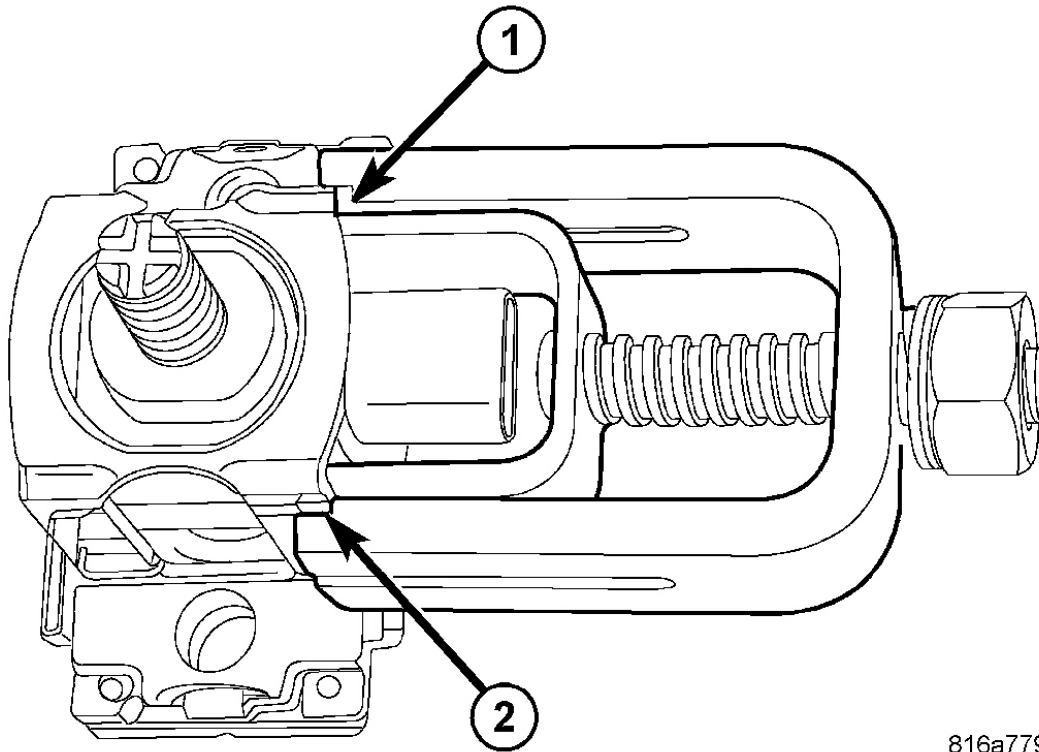
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**Fig. 86: Strain Gauge Alignment Tool (Special Tool No. 9689) Used To Secure Body Of Seat Weight Sensor**

Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable. Wait two minutes for the system capacitor to discharge before further service.
2. Remove the passenger side front seat from the vehicle. Refer to **REMOVAL**.
3. From the underside of the seat, disconnect the seat wire harness from the connector receptacles of each of the four weight sensors.
4. Disconnect the seat wire harness from the connector receptacle of the seat track position sensor located on the inboard side of the inboard seat adjuster upper track near the rear of the seat track.

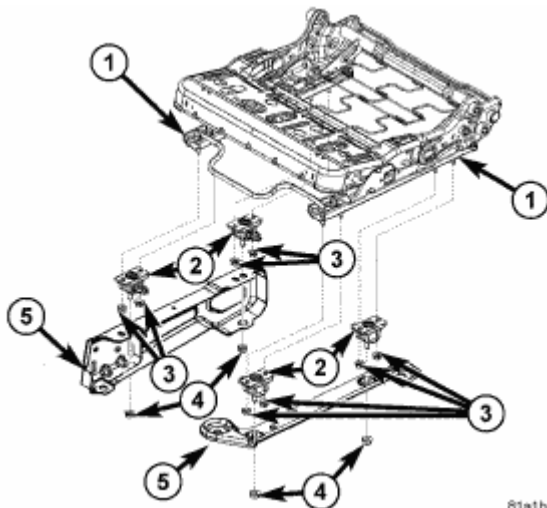
**CAUTION:** A strain gauge alignment tool (Special Tool No. 9689) (2) must be used to secure the body of the seat weight sensor (1) from any rotation during removal or installation of the nut that secures the sensor stud to the seat track riser. In addition, the sensor fasteners should always be serviced using hand tools **ONLY**, and not electric or pneumatic power tools. Failure to observe these cautions may result in irreversible sensor damage requiring sensor replacement.



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**Fig. 87: Identifying Center Fork & Tool Support Yoke**  
 Courtesy of CHRYSLER LLC

5. Install the strain gauge alignment tool (Special Tool 9689) on the sensors by inserting the center fork (1) of the tool between the flats on each side of the sensor body and inside of the cage, then seating the tool support yoke (2) firmly against the outside of the sensor cage.



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**Fig. 88: Identifying Passenger Side Front Seat Adjuster, Seat Weight Sensor, Nuts & Seat Track Risers****Courtesy of CHRYSLER LLC**

6. With the alignment tool securing the body of the seat weight sensor (2), remove the nut (4) that secures the sensor stud to the seat track riser (5).
7. Transfer the special tool to each weight sensor, one at a time, and remove the nuts that secure the sensor studs to the seat track risers until all four nuts have been removed.
8. Carefully separate the seat track risers from the seat weight sensor studs.
9. Remove the two nuts (3) that secure the sensor to the studs on the lower track of the seat adjuster (1).
10. Remove the seat weight sensor from the seat adjuster.

**INSTALLATION****SEAT WEIGHT SENSOR**

**WARNING:** To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

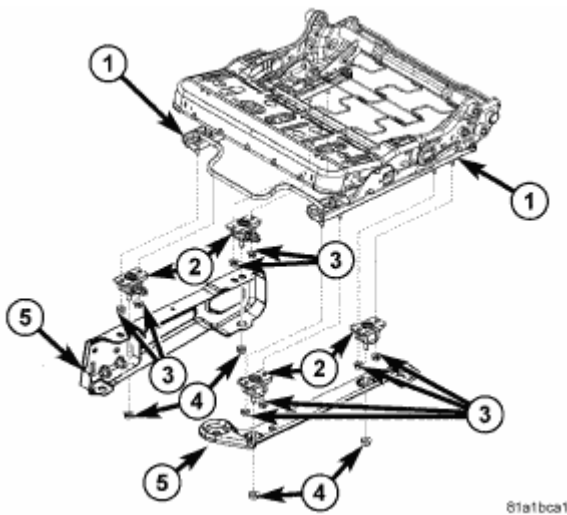
**WARNING:** To avoid serious or fatal injury on vehicles equipped with the Occupant Classification System (OCS), do not modify the front passenger seat assembly or center floor console in any way. Do not use any prior year, subsequent year, secondary or aftermarket seat trim covers. At no time should any Supplemental Restraint System (SRS) or OCS component be modified or replaced with any part except those which are specified for the particular vehicle application. Failure to observe these precautions could cause an OCS miscalibration condition, which may result in the passenger airbag failing to deploy when required or deploying when not required.

**WARNING:** To avoid serious or fatal injury, never strike or drop a seat weight sensor or the passenger side front seat assembly to which the sensors are secured as it can damage the sensors or affect their calibration. The seat weight sensors and the passenger side front seat assembly must be handled with care to avoid damage to the sensors. Do not sit upon or place any loads upon a passenger side front seat while it is removed from its mounts in or outside of the vehicle. If an individual sensor is dropped or damaged, replace the sensor with a new and unused unit. If a seat has



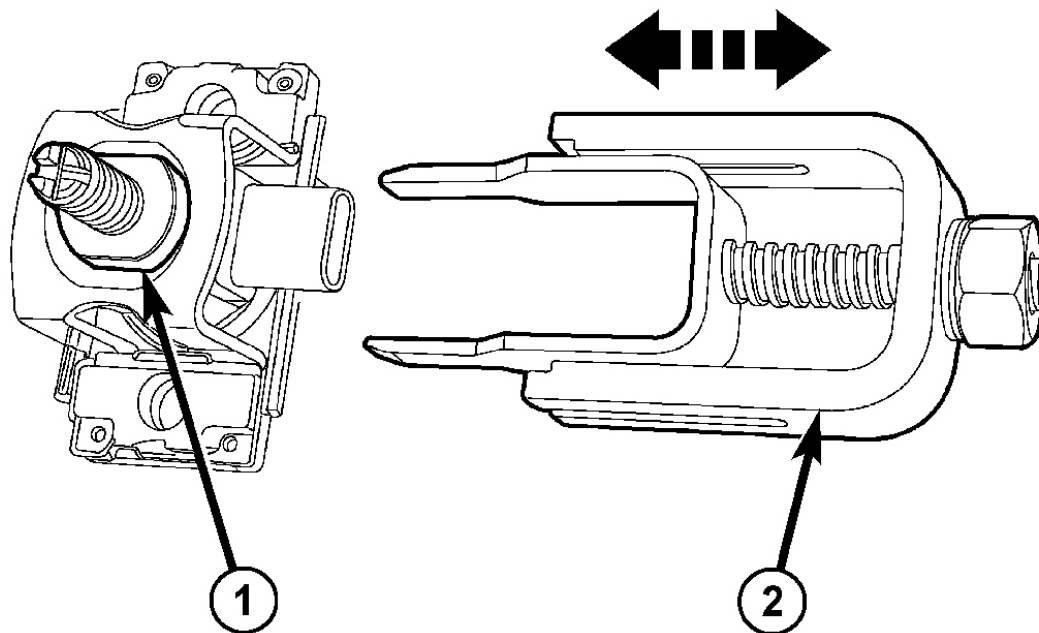
been dropped during removal or loaded while removed from its mounts, replace each of the seat weight sensors with new and unused units. Failure to observe this warning could result in an accidental, incomplete, or improper passenger side front supplemental restraint deployment.

**WARNING:** To avoid serious or fatal injury on vehicles equipped with the Occupant Classification System (OCS), any time the passenger side front seat assembly has been removed or loosened from the vehicle for service of any vehicle component or system the Occupant Classification System (OCS) Verification Test must be performed using a diagnostic scan tool and the Occupant Classification Seat Weight special tool following reinstallation. Refer to the appropriate diagnostic procedures. Failure to observe this warning could result in an accidental, incomplete, or improper passenger side front supplemental restraint deployment.



**Fig. 89: Identifying Passenger Side Front Seat Adjuster, Seat Weight Sensor, Nuts & Seat Track Risers**  
Courtesy of CHRYSLER LLC

1. Position the seat weight sensor (2) over the studs on the lower track of the passenger side front seat adjuster (1).
2. Install and tighten the two nuts (3) that secure the sensor to the studs. Tighten the nuts to 28 N.m (21 ft. lbs.).
3. Carefully position the seat track risers (5) over all four seat weight sensor studs.

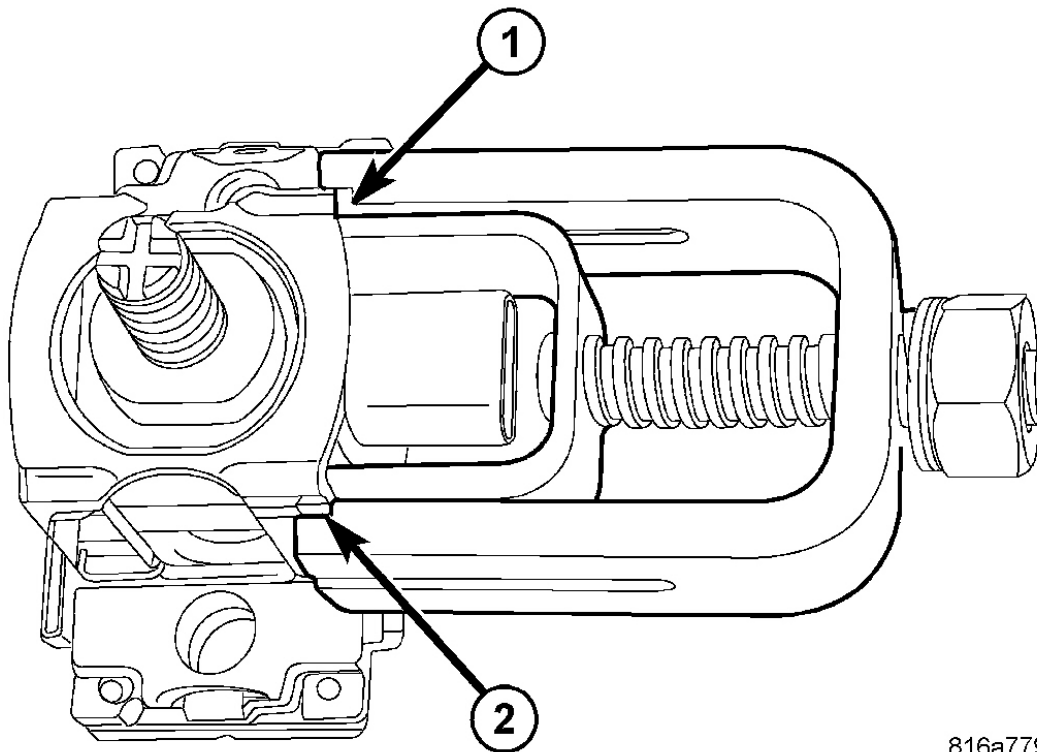


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**Fig. 90: Strain Gauge Alignment Tool (Special Tool No. 9689) Used To Secure Body Of Seat Weight Sensor**

Courtesy of CHRYSLER LLC

**CAUTION:** A strain gauge alignment tool (Special Tool No. 9689) (2) must be used to secure the body of the seat weight sensor (1) from any rotation during removal or installation of the nut that secures the sensor stud to the seat track riser. In addition, the sensor fasteners should always be serviced using hand tools **ONLY**, and not electric or pneumatic power tools. Failure to observe these cautions may result in irreversible sensor damage requiring sensor replacement.



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**Fig. 91: Identifying Center Fork & Tool Support Yoke**  
 Courtesy of CHRYSLER LLC

4. Install the strain gauge alignment tool (Special Tool 9689) on the sensors by inserting the center fork (1) of the tool between the flats on each side of the sensor body and inside of the cage, then seating the tool support yoke (2) firmly against the outside of the sensor cage.
5. With the alignment tool securing the body of the seat weight sensor, install and tighten the nut that secures the sensor stud to the seat track riser. Tighten the nut to 44.5 N.m (33 ft. lbs.).
6. Transfer the special tool to each weight sensor, one at a time, then install and tighten the nuts that secure each of the four sensor studs to the seat track risers until all four nuts have been installed and tightened.
7. From the underside of the seat, reconnect the seat wire harness to the connector receptacle of the seat track position sensor located on the inboard side of the inboard seat adjuster upper track near the rear of the seat track.
8. Reconnect the seat wire harness to the connector receptacles of each of the four weight sensors.
9. Reinstall the passenger side front seat into the vehicle. Refer to **INSTALLATION**.
10. Do not reconnect the battery negative cable at this time. The Supplemental Restraint System (SRS) verification test procedure should be performed following service of any SRS component. See **VERIFICATION TEST - SUPPLEMENTAL RESTRAINT SYSTEM**.
11. Following successful completion of the SRS verification test procedure, perform the Occupant Classification System (OCS) Verification Test using a diagnostic scan tool and the Occupant

## 2007 Dodge Nitro R/T

2007 RESTRAINTS Service Information - Nitro

Classification Seat Weight special tool. Refer to the appropriate diagnostic procedures.