CHILTON LIBRARY

YOUR CURRENT VEHICLE

2018 Chrysler Pacifica

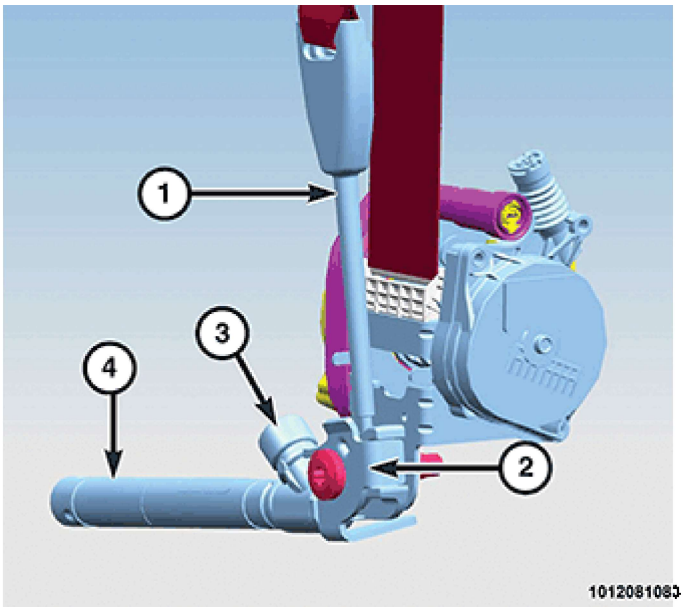
Description & Operation

DESCRIPTION AND OPERATION

SEAT BELT TENSIONERS

The front seat belt incorporates dual tensioners: one integral to the retractor, and one integral to the anchor. Each of these tensioner types is described in further detail elsewhere within this service information.

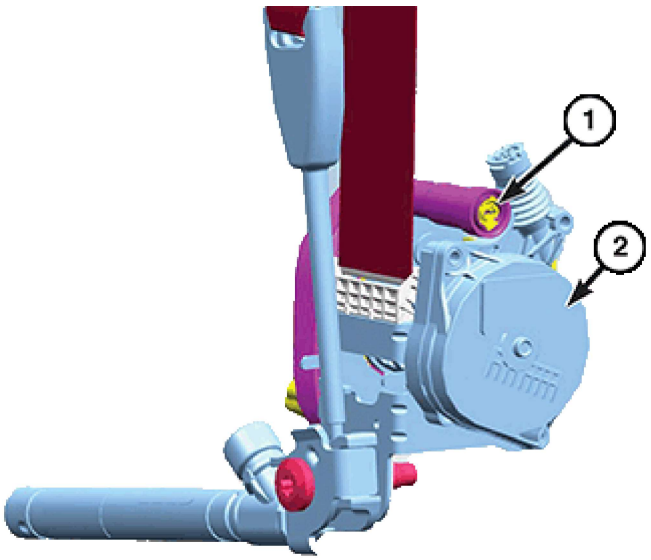
ANCHOR TENSIONER



A seat belt anchor tensioner supplements the dual front airbag system for all versions of this vehicle. These tensioners are integral to the front seat belt anchor units, which are secured to the inside of the sill and the seat belt retractor at the base of the B-pillar outboard of each front seat. The anchor tensioner consists of the anchor rod and seat belt webbing eyelet (1), a cable and piston, a cable guide and bracket (2), a metal cylinder tube (4) and a small pyrotechnically activated gas generator (3). The anchor 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 yellow molded plastic connector insulators to ensure a secure connection.

The anchor tensioners cannot be repaired and, if ineffective or damaged, the entire seat belt retractor and anchor tensioner unit must be replaced. If the front airbags have been deployed, the anchor tensioners have also been deployed. The anchor tensioners are not intended for reuse and must be replaced following any front airbag deployment. (Refer to Restraints/RETRACTOR, Seat Belt/Removal and Installation).

RETRACTOR TENSIONER



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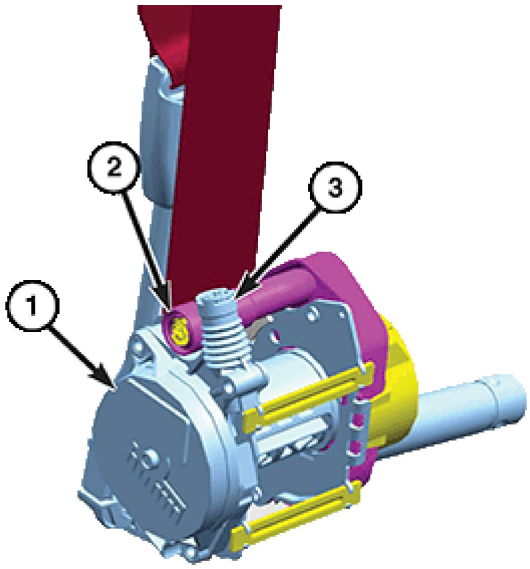
Seat belt retractor tensioners supplement the dual front airbag system for all versions of this vehicle. These tensioners are integral to the front seat belt and retractor units (2), which are secured to the inner B-pillar on the right and left sides of the vehicle. The retractor is concealed beneath the molded plastic inner B-pillar lower trim. The retractor tensioners are controlled by the Occupant Restraint Controller (ORC). Each retractor tensioner has a Micro Gas Generator (MGG) controlled by an initiator (1) connected to the vehicle electrical system through a dedicated take out of the body wire harness by a keyed and latching yellow molded plastic connector insulator to ensure a secure connection.

The retractor tensioners cannot be repaired and, if ineffective or damaged, the entire front or rear outboard seat belt and retractor unit must be replaced. If the front airbags have been deployed, the retractor tensioners have also been deployed. The retractor tensioners are not intended for reuse and must be replaced following any front airbag deployment. A growling or grinding sound while attempting to operate the seat belt retractor is a sure indication that the retractor tensioner has been deployed and requires replacement. (Refer to Restraints/RETRACTOR, Seat Belt/Removal and Installation).

ADAPTIVE LOAD LIMITER



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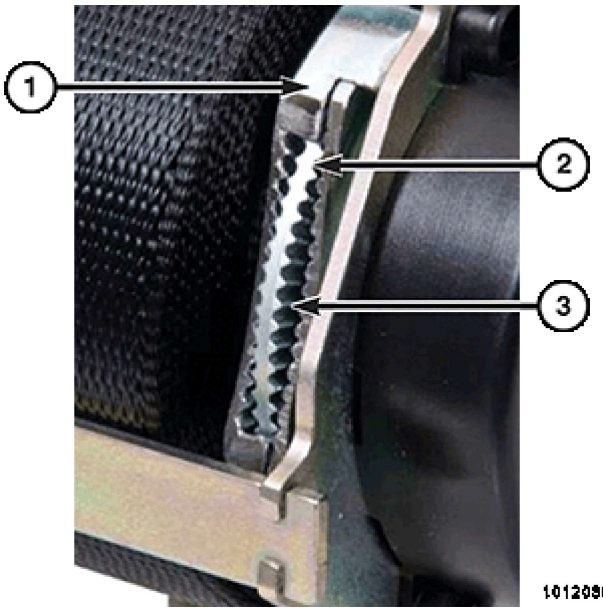
An adaptive load-limiting device is integral to the front passenger seat belt retractor to supplement the anchor and retractor tensioners. The adaptive load limiter is controlled by the Occupant Restraint Controller (ORC). The front retractors (1) have two pyrotechnic initiators, one for the adaptive load limiter (3) and one for the tensioner (2).



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Adaptive load limiting can substantially reduce the load on small occupants while also improving the protection for larger occupants. The seatbelt retractor can tune its restraining force individually to each vehicle occupant and the crash severity without using sensors.

The adaptive load limiter (1) is also controlled by the ORC. Each adaptive load limiter squib is connected to the vehicle electrical system through a dedicated take out of the body wire harness by a keyed and latching yellow molded plastic connector insulator to ensure a secure connection.

The mechanism uses a spring-loaded disc (2) in the retractor which has multiple teeth (3) on both sides. The teeth will engage in and out of the closest fitting grooves as the disc rotates. Milliseconds after a crash has occurred, seatbelt webbing is gradually released after the crash reducing any rebound effect.

The adaptive load limiter cannot be repaired and, if ineffective or damaged, the entire front seat belt and retractor unit must be replaced. If the front airbags have been deployed, the adaptive load limiter has also been deployed. The adaptive load limiter is not intended for reuse and must be replaced following any front airbag deployment. (Refer to Restraints/RETRACTOR, Seat Belt/Removal and Installation).

OPERATION

The seat belt tensioners are deployed in conjunction with the dual front airbags by signals generated by the Occupant Restraint Controller (ORC) through the individual driver or passenger retractor (or sill end), tensioner (or anchor) line 1 and line 2 (or squib) circuits. When the ORC sends the proper electrical signal to the tensioner initiators, the electrical energy generates enough heat to initiate a small pyrotechnic Micro Gas Generator (MGG).

In sequence, the ORC activates the retractor tensioner, followed by the anchor tensioner. The retractor tensioner MGG drives the seat belt retractor spool causing slack to be removed from the front seat belt. The anchor tensioner gas generator pulls the anchor rod and seat belt webbing eyelet downward, causing the slack to be removed from the front seat belt.

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 seats might experience in these situations as a result of harmful contact with the steering wheel, steering column, instrument panel or windshield. The front seat belt retractors also have a pyrotechnic-type load limiter consisting of a spring-loaded disc with multiple teeth on both sides. The teeth will engage in and out of the closest fitting grooves as the disc rotates. Milliseconds after a crash has occurred, seatbelt webbing is gradually released after the crash reducing any rebound effect, further reducing the potential for injuries.

The ORC monitors the condition of the seat belt tensioners and adaptive load limiters through circuit resistance. If any fault is detected the ORC will illuminate the airbag indicator in the instrument cluster and store a Diagnostic Trouble Code (DTC). Proper diagnosis of the seat belt tensioner and adaptive load limiter initiators and squib circuits requires the use of a diagnostic scan tool and may also require the use of the SRS Load Tool special tool along with the appropriate Load Tool Jumpers and Adapters. Refer to the appropriate diagnostic information.