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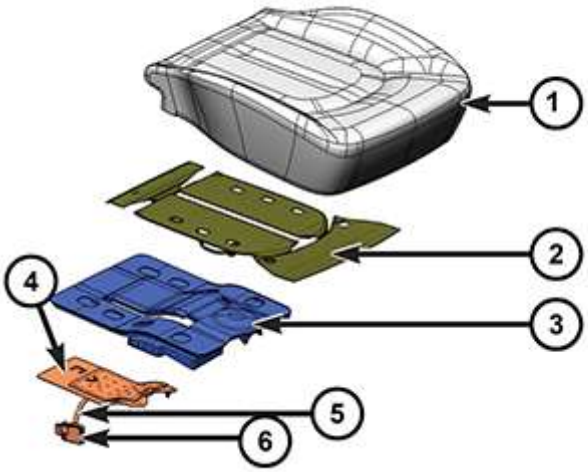
YOUR CURRENT VEHICLE

2018 Chrysler Pacifica

Description & Operation

DESCRIPTION AND OPERATION

DESCRIPTION



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In vehicles manufactured for domestic markets, the passenger side front seat incorporates the Occupant Classification System (OCS). The OCS consists of a single factory-calibrated unit, which includes the following components:

- **Electronic Pressure Sensor** - The electronic pressure sensor is integral and internal to the Occupant Classification Module (OCM). Only the hose nipple for the pressure hose is visible on the outside of the OCM housing. The remainder of the sensor and the sensor circuitry are concealed and protected within the molded black plastic OCM housing.
- **Occupant Classification Module** - The Occupant Classification Module (OCM) (6) is located beneath the front of the passenger front seat cushion. Concealed within a hollow in the center of the molded black plastic OCM housing is the electronic circuitry of the module. The module housing is sealed to enclose and protect the internal electronic circuitry. A connector receptacle integral to the OCM housing contains terminal pins that connect the sensor to the vehicle electrical system through a dedicated take

out and connector of the passenger front seat wire harness. A hose nipple formation is integral to the OCM housing.

A slot integral to the top of the OCM housing snaps over a blade on a stamped metal bracket bolted to the outboard upper seat track.

- **Pressure Hose** - Beneath the seat cushion a length of clear poly hose serves as the OCS pressure hose (5). The hose is securely clamped at one end to a hose nipple fitting that extends downward from the Seat Weight Sensor (SWS), and at the opposite end to the hose nipple formation of the electronic pressure sensor integral to the outside of the OCM housing. The pressure sensor circuitry is internal and integral to the OCM. The pressure hose is filled with the same silicone fluid that fills the SWS.
- **Seat Cushion Foam** - The passenger front seat cushion foam (1) is an integral part of the factory-calibrated OCS.
- **Seat Weight Sensor** - The Seat Weight Sensor (SWS) is sandwiched between the seat cushion springs and the seat cushion foam. A heavy plastic insulator pad (4) is installed between the lower surface of the bladder and the seat cushion pan and springs. The bladder and pad are secured near the forward end to the seat cushion pan by three plastic push-in fasteners.

  The bladder consists of two sheets of an elastomeric material and a molded plastic hose nipple fitting. The two sheets of elastomeric material are sealed together around their perimeter and joined at numerous specific intervals within their field. The hose nipple fitting is sealed to a small round hole in the lower surface of the bladder and is pointed downward where it passes through a clearance hole in the insulator pad and extends to just below the seat cushion springs. The bladder is filled with a silicone fluid to become a pliable, quilted, resistive mat and is connected to a pressure hose that connects it to the electronic pressure sensor within the OCM unit.
- **Heat Mat** - If equipped with heated seats, the heat mat is sandwiched between the seat trim and the seat cushion foam and adhered to the foam. This component will be included in the service kits for heated seats and vented seats.
- **Vent Bag** - If equipped with vented seats, the vent bag is sandwiched between the seat foam and the Occupant Classification Module and adhered to the foam. This component will be included in the service kit for vented seats.

All of the components that make up the OCS, including the heat mat and vent bag, are a factory-calibrated and assembled unit. If the vehicle is equipped with either the heated seat, vented seat or both, these components must be replaced with the rest of the OCS components as they are calibrated together as one unit at the factory. The OCS components cannot be adjusted or repaired and, if damaged or ineffective, they must all be replaced as a calibrated unit.

Any time the OCM is removed or replaced for any reason, the new OCS data must be configured within the Occupant Restraint Controller (ORC) using a diagnostic scan tool. Refer to the appropriate diagnostic information.

OPERATION

In vehicles manufactured for domestic markets, the Occupant Classification System (OCS) provides electronic message inputs to other electronic modules in the vehicle indicating whether the passenger front seat is occupied and the relative size classification of the seat occupant. The microcontroller within the Occupant Classification Module (OCM) contains the OCS logic and communication circuitry. The OCM uses On-Board Diagnostics (OBD) and can communicate with other electronic modules in the vehicle as well as with a diagnostic scan tool using the Controller Area Network (CAN) data 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 Seat Weight Sensor (SWS) and the electronic pressure sensor integral and internal to the OCM allow the OCS logic circuits to sense the relative weight of a load applied to the passenger front seat cushion. When a load is applied to the seat cushion, silicone fluid within the bladder becomes pressurized. These changes in bladder fluid pressure are measured by the electronic pressure sensor circuitry through the OCS pressure hose. As the pressure within the bladder changes, the electronic pressure sensor input to the OCM microcontroller also changes. This electronic pressure sensor input allows the OCM to monitor the passenger front seat cushion by providing a weight-sensing reference to the relative load on the seat cushion.

Pre-programmed decision algorithms and OCS calibration allow the OCM microcontroller to determine the appropriate occupant classification based upon the seat cushion load as signaled by the pressure sensor. The OCM then sends the proper electronic **occupant classification status** messages over the CAN data bus to the Occupant Restraint Controller (ORC) and the ORC controls the deployment circuits for the passenger front supplemental restraints accordingly.

The OCM 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 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 electronic messages to the Instrument Panel Cluster (IPC) to control airbag indicator operation. The OCM stores the DTC after the fault has been corrected.

The OCM receives battery current on a fused ignition output (run-start) circuit through a fuse in the Power Distribution Center (PDC). The OCM circuitry has a path to ground at all times through a ground circuit and take out of the instrument panel wire harness, which it shares with the ORC. This take out is secured to the body sheet metal. These connections allow the OCM to be operational whenever the ignition switch status is ON or START.

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 some features of the OCS. The most reliable, efficient and accurate means to diagnose the OCM or the electronic controls and communication related to OCS operation requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.