CHILTON LIBRARY

Description & Operation

DESCRIPTION AND OPERATION

DESCRIPTION

NOTE

The scan tool standardization process must be performed on the Memory Seat Module (MSM) any time a new module is installed or the existing module is reflashed.

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Memory Seat Module DRIVER (MSMD) : The MSMD (4) is located underneath the middle of the driver seat (2). It is used in conjunction with the other modules in the memory system to recall the driver seat to one of two preset seat positions (horizontal, vertical, and recliner). The switch for the memory seat programming and selection mounts on the driver door trim panel. The memory system is able to store and recall all driver side power seat positions, outside mirror positions and power adjustable pedal position. The system can be set for two different drivers. On vehicles with a factory installed radio connected to the Controller Area Network (CAN) data bus network, the memory system is also able to store and recall up to twelve radio

station presets (six AM and six FM), also for two drivers. The memory system will also store and recall the last station listened to for each driver, even if it is not one of the twelve preset stations.

The memory system will automatically recall all of these settings when a button of the memory switch is depressed, or when the doors are unlocked using the Remote Keyless Entry (RKE) transmitter (if the "RKE Linked to Memory" feature is enabled). If the vehicle has more than two drivers the RKE transmitter recall of memory features can be disabled. This is a customer programmable feature.

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MEMORY SEAT MODULE PASSENGER (MSMP) :

The MSMP (1) is used only for the second row "Stow and Go" seat option. When second row seating "Stow and Go" is requested, the MSMP will signal the passenger seat to move as far forward as possible allowing the room for the second row seating to fold and stow. Afterward, the passenger seat will return to its previous position.

The passenger memory seat module is located under the passenger seat and has four connectors. The module itself does NOT record any passenger seat settings for recall.

The stow and go system allows for rapid movement of the first row passenger seat in the forward direction to a pre-determined location. A pre-determined seat vertical and recline location may also be part of the stow and go seat position.

Once the pre-determined location is achieved the seat will stop automatically. When the seat is in the pre-determined location, the second row stow and go seat can be folded and stowed without any physical interference with the passenger seat.

Once the second row seat is stowed, the stow and go system can be re-activated and the passenger seat will move rearward and return to the previous location and stop automatically.

Activation of the stow and go system is accomplished by a switch located on the passenger side second row seating area.

OPERATION

- The MSMD and MSMP receive battery current through a fuse in the Power Distribution Center (PDC).
- The MSMD is responsible for the 12 volt Direct Current (DC) feed and ground path to the power seat adjuster motors and to the other memory system components.
- The memory system remains operational, regardless of ignition position.

The MSMD performs the following functions:

- Positions the driver power seat (fore/aft, up/down, tilt and recline positions), adjustable pedals and/or power adjustable steering wheel.
- Sends the memory save or recall (number 1 or number 2) command over the CAN data bus circuit to the other memory system components, radio station pre-sets and power mirror positions.
- Provides for the easy entry/exit feature.

The MSMP performs the following function:

- The MSMP will signal the passenger seat via CAN-IHS to move as far forward as possible allowing the room for the second row seating to fold and stow.
- Afterward, the passenger seat will return to its previous position.

MSMD Operation:

- Unlock button is pressed on previously programmed Passive Entry Keyless Go (PEKG) Fob on which generates a low frequency signal to the Radio Frequency Hub Module (RFHM).
- The RFHM receives the unlock and PEKG fob identification signals from PEKG Fob and sends to Body Control Module (BCM) over CAN-IHS.
- The BCM receives the unlock signal from RFHM and broadcasts programmed PEKG fob identification to the Driver Memory Seat Module (MSMD) over CAN-IHS.
- The MSMD receives the PEKG fob identification and sends the appropriate signals to all motor outputs to assume preprogrammed positions.
- The MSMD broadcasts driver mirror positions over CAN-IHS.
- The Driver Door Control (DDM) module receives MSMD inputs and broadcasts input to MSMD over CAN-IHS.
- The DDM outputs preprogrammed mirror positions.

The MSMD also receives hard-wired input from the hall effect sensors, mounted on each of the driver power seat adjuster motors, driver side view mirror motors and power adjustable steering column motors, when equipped. The programmed software in the MSMD allows it to know where the driver seat, mirror and steering column are located in there designed travel by a pulse count, generated from hall effect sensors. This way, when a memory seat switch is pressed the MSMD will power these components until the correct preset location is achieved. The MSMD will prevent the seat memory recall function from being initiated, if the transmission gear selector is not in the Park position. These inputs are monitored over the CAN bus by the MSMD.

To set a memory position:

- adjust the power seat to the most comfortable position
- Adjust the right and left outside rear view mirrors to the most optimal positions
- Set all radio station pre-sets to the desired settings
- Press the "S" (set) button on the driver door panel
- Choose the "1" or "2"' button to designate and record your personal settings

When a driver seat setting is requested by pressing button "1" or "2," the request is sent through the CAN-IHS network to the MSMD. The MSMD sends the appropriate signals to the horizontal, vertical and recliner motors to achieve the programmed seat position. The MSMD also sends a CAN-IHS message to the driver door control module to recall mirror adjustment.

FOB LINKING - The MSM has the capacity to store two linked fobs only. If one is lost or damage, a third can not be programmed successfully. In order to remove stored keys and to add the new key, the MSM module needs to forget what links already exist.

- Using the scan tool, enter the MSM and then select MISC FUNCTIONS.
- Reset/Erase the saved settings in this menu.

Once this has been completed, you will need to re-link the original Remote Keyless Entry (RKE) as well as linking the new Remote Keyless Entry (RKE). Remember that linking requires the key/Remote Keyless Entry (RKE) to be out of the ignition.

NOTE

Only one RKE transmitter can be linked to each of the memory positions.

NOTE

Passive Entry door handles cannot be linked to the memory function. Use either the memory recall switch or the RKE transmitter (if linked to the memory feature) to recall memory positions 1 or 2.

A Remote Keyless Entry (RKE) is "linked" to a memory setting by performing the following steps:

1. Place the ignition into the RUN position.
2. Adjust all memory profile settings to desired preferences (i.e., seat, side mirror, adjustable pedals [if equipped], power tilt and telescopic steering column [if equipped], and radio station presets).
3. Push and release the S (Set) button on the memory switch.
4. Within five seconds, push and release either of the memory buttons (1) or (2). The Driver Information Display (DID) will display which memory position has been set.

EASY ENTRY/EXIT - This feature enables the driver to comfortably enter and exit the vehicle by:

- moving the seat cushion rearward to the soft stop position. The maximum amount of rearward seat cushion movement will depend on the current position of the seat cushion at the time the Easy Entry/Exit feature is activated
- moving the steering column upward to the soft stop position.

This is a customer programmable feature. The seat will return to the pre-set position when the ignition is pressed to RUN. The memory seat system "learns" the seat, mirror and column motors maximum end positions when the motor reaches the limit of travel in any direction and stalls. Subsequently, movement will stop just short of that position to avoid extra stress on the motors and mechanisms. If the system learned a maximum position as a result of an obstruction, as for instance if a large object was placed on the floor behind the seat, the system can relearn the "true" maximum position through manually operating the power seat after the obstruction is removed.

NOTE

It is normal for the power accessories contained in the memory system to stop at the maximum "learned" position and then continue to the "true" maximum position when the control switch is released and then applied in the same direction a second time.

Certain functions and features of the memory seat system rely upon resources shared with other electronic modules in the vehicle over the CAN bus. The CAN bus allows the sharing of sensor information. This helps to reduce wire harness complexity, internal controller hardware and component sensor current loads. At the same time, the memory seat system provides increased reliability, enhanced diagnostics and allows the addition of new feature capabilities.

NOTE

Anytime a new Memory Seat Module (MSM) or a driver power seat motor or seat track is replaced, the MSM must be cleared of all learned parameters using a scan tool and the Power Seat System Verification test must be performed.

The use of a scan tool is needed for diagnosis of the MSM, CAN bus and other electronic modules.