# Warning – Memory Seat Status – CGEA1.3

## Functional Description

The Memory Seat Status Warning function provides confirmation and status to the customer of memory stored, request notification to link a key to memory and confirmation when a key is linked to memory. It also provides an unallowed memory recall notification to the driver through the message center warnings.

The Memory Seat Status Warnings correlate the ~~Memory\_Cmd~~ MemStoreMsgTxt\_D\_Rq, MemSetButtnMsgTxt\_D\_Rq, KeyAssocCmplt\_B\_Rq and MemDrvDeny\_B\_Stat signals from the BCM and DSM module and the Operational\_Mode to display the appropriate message center warnings.

The warnings include:

1. Confirmation of storing Memory positions. (4 set positions)
2. Request to link key to saved memory position
3. Confirmation of key linked to memory
4. Notification that memory recall is not permitted while vehicle is in motion (while driving).

## Interfaces

### Interface Context Diagram (I/O Block Diagram)

**Figure 1 Warning – Memory Seat Status Warning Messages Context Diagram**

### 

### Inputs

* + - * INTERNAL:
    - Operational\_Mode
* MUX signals from the CAN bus

1. MemDrvDeny\_B\_Stat Signal

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Signal Name** | **Size**  **(bits)** | **Detail** | **Units** | **Res.** | **Offset** | **State Encoded** | **Min.** | **Max.** |
| MemDrvDeny\_B\_Stat | 1 |  | SED | 1 | 0 |  | 0 (0x0) | 1(0x1) |
|  | No |  |  |  | 0x0 |  |  |
|  | Yes |  |  |  | 0x1 |  |  |

1. MemStoreMsgTxt\_D\_Rq Signal

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Signal Name** | **Size**  **(bits)** | **Detail** | **Units** | **Res.** | **Offset** | **State Encoded** | **Min.** | **Max.** |
| MemStoreMsgTxt\_D\_Rq | 4 |  | SED | 1 | 0 |  | 0 (0x0) | 15  (0xF) |
|  | Null |  |  |  | 0x0 |  |  |
|  | Mem1Saved\_DoNotShowLinkMsg |  |  |  | 0x1 |  |  |
|  | Mem2Saved\_DoNotShowLinkMsg |  |  |  | 0x2 |  |  |
|  | Mem3Saved\_DoNotShowLinkMsg |  |  |  | 0x3 |  |  |
|  | Mem4Saved\_DoNotShowLinkMsg |  |  |  | 0x4 |  |  |
|  | Mem4Saved\_ShowLinkMsg |  |  |  | 0x5 |  |  |
|  | Mem4Saved\_ShowLinkMsg |  |  |  | 0x6 |  |  |
|  | Mem4Saved\_ShowLinkMsg |  |  |  | 0x7 |  |  |
|  | Mem4Saved\_ShowLinkMsg |  |  |  | 0x8 |  |  |
|  | Unused\_1 – Unused\_7 |  |  |  | 0x9 – 0xF |  |  |

1. MemSetButtnMsgTxt\_D\_Rq Signal

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Signal Name** | **Size**  **(bits)** | **Detail** | **Units** | **Res.** | **Offset** | **State Encoded** | **Min.** | **Max.** |
| MemSetButtnMsgTxt\_D\_Rq | 2 |  | SED | 1 | 0 |  | 0 (0x0) | 3(0x3) |
|  | Null |  |  |  | 0x0 |  |  |
|  | Press1or2 |  |  |  | 0x1 |  |  |
|  | Press1or2or3 |  |  |  | 0x2 |  |  |
|  | NotUsed\_1 |  |  |  | 0x3 |  |  |

1. KeyAssocCmplt\_B\_Rq Signal

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Signal Name** | **Size**  **(bits)** | **Detail** | **Units** | **Res.** | **Offset** | **State Encoded** | **Min.** | **Max.** |
| KeyAssocCmplt\_B\_Rq | 1 |  | SED | 1 | 0 |  | 0 (0x0) | 1(0x1) |
|  | No |  |  |  | 0x0 |  |  |
|  | Yes |  |  |  | 0x1 |  |  |

### Outputs

* Memory\_Recall\_Not\_Permitted\_MC\_Warn\_Status\_Flag
* Press\_1\_2\_To\_Save\_MC\_Warn\_Status\_Flag
* Press\_1\_2\_3\_To\_Save\_MC\_Warn\_Status\_Flag
* Memory\_X\_Saved\_MC\_Warn\_Status\_Flag (X = 1, 2, 3 or 4)
* Memory\_X\_Press\_Lock\_To\_Link\_MC\_Warn\_Status\_Flag (X = 1, 2, 3 or 4)
* Key\_Linked\_MC\_Warn\_Status\_Flag

## Function/Performance

### Operational Modes

|  |  |
| --- | --- |
| **Mode** | **Differentiating Vehicle Conditions** |
| Sleep Mode | Memory Seat Status Warnings Inactive |
| Limited Mode | Memory Seat Status Warnings Inactive |
| Normal Mode | Memory Seat Status Warnings Active/Inactive |
| Crank Mode | Memory Seat Status Warnings Active/Inactive |

The above table references the setting of the Warning flags as per this section. However, the actual warning display operational modes are defined in the Message Center section of this SPSS.

### Voltage Levels

Refer to the Cluster Features Table located in the Operational Modes and Voltage Range Strategies Section of this SPSS

### Human-Machine Interface

#### Visual

###### 1.3.3.1.1 Indicator Graphics / Display Format

Message Center Text Warning Message as defined in section 1.3.5.7 of this document.

###### 1.3.3.1.2 Indicator Color Coordinates

Reference section COLOR & ILLUMINATION REQUIREMENTS (GRAPHICS).

#### Audio

None.

#### Switch Control Logic

None.

### System Accuracy

Within 100 msec of receiving a message that results in a change of state the cluster will update the output flag to the proper state.

### Operation: Performance and Functional

#### Subsystem Algorithm Flowchart / State Diagram

1. State Matrix for Memory Seat Status Warning MC Status Flags

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Operational\_  Mode | MemDrvDeny\_B\_Stat  Signal | MemSetButtnMsgTxt\_D\_Rq Signal | MemStoreMsgTxt\_D\_Rq  Signal | KeyAssocCmplt\_B\_Rq  Signal | Memory\_Recall\_Not\_  Permitted\_MC\_Warn\_  Status\_Flag | Press\_1\_2\_  \_To\_Save\_MC\_  Warn\_Status\_Flag | Press\_1\_2\_3\_  To\_Save\_MC\_  Warn\_Status\_Flag | Memory\_X\_Saved\_  MC\_Warn\_  Status\_Flag | Memory\_X\_Press\_  Lock\_To\_Link\_  MC\_Warn\_  Status\_Flag | Key\_Linked\_MC\_  Warn\_Status\_Flag |
| Normal or Crank | Yes (0x1) | X | X | X | Active | Inactive | Inactive | Inactive | Inactive | Inactive |
| No (0x0) | 0x1 | 0x0 | 0x0 | Inactive | Active | Inactive | Inactive | Inactive | Inactive |
| 0x2 | Inactive | Inactive | Active | Inactive | Inactive | Inactive |
| 0x0 | 0x1 | 0x0 | Inactive | Inactive | Inactive | Active  (X = 1) | Inactive | Inactive |
| 0x2 | Inactive | Inactive | Inactive | Active  (X = 2) | Inactive | Inactive |
| 0x3 | Inactive | Inactive | Inactive | Active  (X = 3) | Inactive | Inactive |
| 0x4 | Inactive | Inactive | Inactive | Active  (X = 4) | Inactive | Inactive |
| 0x5 | Inactive | Inactive | Inactive | Inactive | Active  (X = 1) | Inactive |
| 0x6 | Inactive | Inactive | Inactive | Inactive | Active  (X = 2) | Inactive |
| 0x7 | Inactive | Inactive | Inactive | Inactive | Active  (X = 3) | Inactive |
| 0x8 | Inactive | Inactive | Inactive | Inactive | Active  (X = 4) | Inactive |
| X | X | 0x1 | Inactive | Inactive | Inactive | Inactive | Inactive | Active |
| Normal | Missing as per 1.4.1 | X | X | X | Inactive | Inactive | Inactive | Inactive | Inactive | Inactive |
| X | Missing as per 1.4.1 | X | X | Inactive | Inactive | Inactive | Inactive | Inactive | Inactive |
| X | X | Missing as per 1.4.1 | X | Inactive | Inactive | Inactive | Inactive | Inactive | Inactive |
| X | X | X | Missing as per 1.4.1 | See Note Below | See Note Below | See Note Below | See Note Below | See Note Below | Inactive |
| All Other Cases | | | | | Inactive | Inactive | Inactive | Inactive | Inactive | Inactive |

Note: KeyAssocCmplt\_B\_Rq declared missing has no impact on these warnings. These warnings shall retain their current state based on the designated input signal states.

X = Don’t Care (unless defined otherwise in the matrix)

1. Memory Seat Status MC Status Flags to MC Warning Message ID

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Memory\_Recall\_Not\_  Permitted\_MC\_  **Status\_Flag** | Press\_1\_2\_  \_To\_Save\_MC\_  Warn\_Status\_Flag | Press\_1\_2\_3\_  To\_Save\_MC\_  Warn\_Status\_Flag | Memory\_X\_Saved\_  MC\_Warn\_  Status\_Flag | Memory\_X\_Press\_  Lock\_To\_Link\_  MC\_Warn\_  Status\_Flag | Key\_Linked\_MC\_  **Warn\_Status\_Flag** | **MC Warning ID** |
| **Active** | Inactive | Inactive | Inactive | Inactive | Inactive | W2080 |
| Inactive | **Active** | Inactive | Inactive | Inactive | Inactive | W2083 |
| Inactive | Inactive | **Active** | Inactive | Inactive | Inactive | W2084 |
| Inactive | Inactive | Inactive | **Active** | Inactive | Inactive | W2081 |
| Inactive | Inactive | Inactive | Inactive | **Active** | Inactive | W2086 |
| Inactive | Inactive | Inactive | Inactive | Inactive | **Activek** | W2085 |

#### Operation Description (supports algorithm flowchart /state diagram)

* The data values in input CAN signals is active (!= 0) for 500 msec and then returns to zero. The warnings should, however, be displayed for the full duration of the minimum display time once active.
* For definition of how the Message Center arbitrates and displays Active warnings, see the Warning / Alert Display Logic Diagram, located in the Message Center – X Display with W Button Interface section of this SPSS (where X and W are appropriate values in this document).
* This system's "OK" status is NOT reported in the Message Center SYSTEM CHECK.

#### Function Safety Classification (EMC)

Class B

#### Memory Storage

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter Name** | **Description** | **Value at**  **Battery Connect** | **Value at**  **Module Wake-up** |
| MemDrvDeny\_B\_Stat Signal | Input CAN Signal sent from the DSM | No (0x0) | No (0x0) |
| MemStoreMsgTxt\_D\_Rq Signal | Input CAN Signal sent from the DSM | Null (0x0) | Null (0x0) |
| MemSetButtnMsgTxt\_D\_Rq | Input CAN Signal sent from the DSM | Null (0x0) | Null (0x0) |
| KeyAssocCmplt\_B\_Rq | Input CAN Signal sent from the BCM | Null (0x0) | Null (0x0) |
| Memory\_Recall\_Not\_Permitted\_  MC\_Warn\_Status\_Flag | State variable used by M/C Warning Arbitrator | INACTIVE | INACTIVE |
| Memory\_X\_Saved\_MC\_  Warn\_Status\_Flag  (X = 1,2,3 or 4) | State variable used by M/C Warning Arbitrator | INACTIVE | INACTIVE |
| Memory\_x\_Press\_Lock\_To\_Link\_MC\_  Warn\_Status\_Flag  (X = 1, 2, 3 or 4) | State variable used by M/C Warning Arbitrator | INACTIVE | INACTIVE |
| Press\_1\_2\_To\_Save\_MC\_  Warn\_Status\_Flag | State variable used by M/C Warning Arbitrator | INACTIVE | INACTIVE |
| Press\_1\_2\_3\_To\_Save\_MC\_  Warn\_Status\_Flag | State variable used by M/C Warning Arbitrator | INACTIVE | INACTIVE |
| Key\_Linked\_MC\_Warn\_Status\_Flag | State variable used by M/C Warning Arbitrator | INACTIVE | INACTIVE |
| Operational\_Mode | 4 state indicator for cluster operational mode | Limited | Limited or Normal or Crank |

#### Prove Out

No.

#### Reconfigurable Telltale

###### No.

#### Message Center Msg

As per table 1.5 of this STSS.

## Error Handling

### Missing Message Strategy

The signals will be declared missing as per the Diagnostics section of this SPSS.

No DTC shall be logged for a missing signal for this feature.

## Diagnostics

### Self Test

None

### Engineering Test Mode

Not Applicable

### Part II Performance

**Supported Diagnostic Trouble Codes (DTCs)**

None

## Reference Specification

IS-0001 WARNINGS/INDICATORS/DISPLAYS PROVEOUT

IS-0052 OPERATING VOLTAGES - FUNCTIONAL/PERFORMANCE

IS-0069 FUNCTIONAL IMPORTANCE CLASS

IS-0324 WINDSHIELD & OTHER REFLECTIONS

IS-0327 WARNING INDICATOR EVALUATION

IS-0379 NORTH AMERICAN WARNINGS AND INDICATORS STRATEGY

IL-0019 GENERAL ILLUMINATION DIMMING

IL-0021 CRAFTSMANSHIP – DISPLAYS

IL-0022 GENERAL ILLUMINTATION COLOR

IL-0023 CLARITY/LEGIBILITY/READABILITY/VISUAL CONTRAST

IL -0043 OPERATIONAL ENVIRONMENT FUNCTIONALITY

IL -0045 COLOR

IL -0048 ILLUMINATION ACCEPTABILITY

03-0661  PLACEMENT: CONTROL AND DISPLAY LOCATIONS

03-0662  PLACEMENT: LOGICAL GROUPING FUNCTION AND USAGE

03-0664  PLACEMENT: DOWN VISION TO COMPONENTS WITH HIGH VISUAL DEMAND

03-0665  PLACEMENT: EXPECTED LOCATIONS OF CONTROLS AND DISPLAYS VDS

03-0670  INTERIOR VISIBILITY

03-0671  INTERIOR VISIBILITY: REFLECTIONS FROM COMPONENTS & SURFACES

03-0672  INTERIOR VISIBILITY: REFLECTIONS IN DISPLAYS

03-0673  INTERIOR VISIBILITY: VISUAL OBSCURATIONS

03-0674  INTERIOR VISIBILITY: ILLUMINATION CONTROLS / DISPLAYS

03-0675  INTERIOR VISIBILITY: VEILING GLARE

03-0677  INTERIOR VISIBILITY: SUNLIGHT WASHOUT

03-0681  IDENTIFICATION: CHARACTER AND SYMBOL SIZE

03-0682  IDENTIFICATION: LEGIBILITY

03-0685  IDENTIFICATION: SYMBOLS,  ABBREV FOR CONTROL

03-0721  LOGIC OF OPERATION: OPERATIONAL STEREOTYPES

03-0722  LOGIC OF OPERATION: INTERPRETATION

03-0723  LOGIC OF OPERATION: USE OF SYSTEMS WITH VISUAL DISPLAYS

## Revision History

**SPSS Module Revision History**

|  |  |  |  |
| --- | --- | --- | --- |
| **Revision Level** | **Name** | **Change Description** | **Date** |
| 1.0 | V. Patel | Initial revision. Based on DI Change Control Pro-Forma presented by Julie Zayan (feature owner). | 11/08/2012 |
| 1.1 | V. Patel | No functional changes.  Fixed typos in table 1.1. Signal name was defined incorrectly in table 1.1, fixed it to the correct signal name. | 12/5/2012 |
| 1.2 | V. Patel | Removed table that associated chime flag to the warnings since chimes are no longer required for any of the warnings in this STSS as per direction from feature owner Neal Manson. Direction provided on 2/6/2013 | 2/7/2013 |
| 2.0 | V. Patel | With advancement in feature functionality, this update adds 4 new warnings and 3 new input CAN signals. One previously existing CAN signal has been deleted as well.  DI CC approval: 11/2/2017  Feature owner: Julie Zayan  There are now a total of 6 warnings for this feature.   * Memory\_Cmd signal has been replaced by the MemSetButtnMsgTxt\_D\_Rq signal. * The additional new signals are: MemStoreMsgTxt\_D\_Rq and KeyAssocCmplt\_B\_Rq   The new warning flags are:   * Press\_1\_2\_To\_Save\_MC\_Warn\_Status\_Flag * Press\_1\_2\_3\_To\_Save\_MC\_Warn\_Status\_Flag * Memory\_X\_Press\_Lock\_To\_Link\_MC\_Warn\_Status\_Flag * Key\_Linked\_MC\_Warn\_Status\_Flag   Section 1.2.1, figure 1: Added 3 new CAN signals as inputs, 4 new warning flag outputs.  Section 1.2.2, tables 1.1, 1.2, 1.3: Add CAN signal detail for new input signals.  Section 1.3.5.1,  Table 1.4: Expanded warning state matrix to process the new input CAN signals and 4 new warning flags.  Table 1.5: Expanded table to associate new warning flags to message IDs in the GML  Section 1.3.5.4: Define default values during Battery Connect and module wakeup for new CAN signals and warning flags. | 11/29/2017 |
|  |  |  |  |
|  |  |  |  |