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2001 JEEP Cherokee OEM Service and Repair Workshop Manual

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1. Visual - The CADM2 sends a CAN-C signal to the IPC to control the activation and deactivation of the AEB visual warning.
2. Audible - The CADM2 requests audible tones through the IPC or DSM.
3. Haptic - The haptic warning used by the AEB system is a brake jerk. A brake jerk is a brake pulse or a momentary application of the brakes. The brake jerk warning parameters are contained within and implemented by the BSCM. The CADM controls the activation and deactivation of the AEB brake jerk warning. The BSCM activates the brake lamps during this event.

During an ignition cycle, the total number of brake jerks or AEB system evens is limited to a maximum of four events. If any brake event counter has reached four, one second after the completion of the fourth brake event, the CADM changes the DSM touchscreen configuration to “Active Braking OFF”. The AEB system returns to the last known active braking setting at the next ignition cycle.

LRCF Heating Element:

- This feature is capable of clearing the windshield in front of CADM from fog and frost.
- The CADM module operates the heating element.
- The CADM allows activation of the heating element relay only when the BCM sets the ignition state to run.
- The CADM turns the heating element relay to "Off" if it is "On" when the BCM sets the ignition state to anything other then run.
- The CADM will turn "Off" the heating element relay if a loss of communication condition is determined.
- There is always a timer that is limiting the duration the heating element may be ON. Timers are reset only after an ignition cycle.
- This feature will automatically be activated by the CADM in the case of cold weather when remote starting the vehicle.
- The heating element participates in the load shed strategy. The strategy is managed by the BCM and the BCM will signal the CADM to deactivate the heating element when it is required.

Body Control Module (BCM)

Component Index

The BCM is used for gating messages between various networks as well as supplying certain operating parameters to the CADM such as temperature and battery states.

Brake System Control Modules (BSCM)

Component Index

- Pitch Rate from the GNMM
- Roll Rate from the GNMM
- Vertical Acceleration from the GNMM
- Yaw Rate from the GNMM

The CADM2 receives and uses the following internal signals from the ORC on the CAN-FD3 to assist in obtaining vehicle dynamic information:

- ORC Internal Error
- ORC .Lateral Acceleration
- ORC. Lateral Acceleration Fail Status
- ORC Longitudinal Acceleration
- ORC Longitudinal Acceleration Fail Status
- ORC Yaw Rate
- ORC Yaw Rate Fail Status

The CADM2 also receives battery voltage over CAN-FD3 from the BCM to help determine if the FCW system is within operating parameters to perform.

Hands On Detection (HOD) Module and Wheel Mat

Component Index

The HOD activates a hands on sensor in the steering wheel to determine if the driver has their hands on the steering wheel. The HOD receives the sensor input then uses its own internal algorithm to determine if the hands are off or on the steering wheel. The HOD transmits this determination in a signal to the CADM. The CADM uses this signal and/or the EPS torque sensing signal in order to determine the final hands on/off state.

Instrument Panel Cluster (IPC)

Component Index

The IPC is responsible for receiving message requests in the AEB system that require it to display warning, system status and telltales to the customer.

Long Range Camera Front (LRCF)

Component Index

The LRCF is wired directly to the CADM and is used to perform object classification and to determine lane markings.

- Haptic feedback using vibration in the drivers seat.
- Haptic feedback using steering wheel vibration.
- Audible alerts.
- Visual indications using the driver assist screen on the IPC.

The driver is required to remain engaged in the task of driving the vehicle at all times. The Enhanced Lane Centering system determines driver engagement by monitoring the drivers eyes and other inputs to ensure that the driver is looking at the road. If the driver becomes inattentive, an initial visual warning is issued to engage the driver. If the driver remains inattentive continuously, the Enhanced Lane Centering system escalates the visual warning level. If the driver does not assume control of the vehicle, the Enhanced Lane Centering system will further escalate efforts to engage the driver via invasive alerts (i.e. audible, visual, haptic notifications). If the driver re-engages during the warning phase, the Enhanced Lane Centering system will resume normal operation. If the driver still does not assume control of the vehicle within a tunable time duration, the Enhanced Lane Centering system enters a safety response mode; at which time, it will bring the vehicle to a stop and then ramp out lateral control and secure the vehicle. a combination of capacitive sensing by the SWSM plus steering wheel torque sensing by the EPS in order to determine whether at least one of the drivers hands is in contact with the steering wheel. If the driver removes both hands from the steering wheel, an initial visual warning is issued to engage the driver. If the driver keeps their hands off the steering wheel continuously, the Enhanced Lane Centering system escalates the visual warning level. If the driver does not assume control of the vehicle, the Enhanced Lane Centering system will further escalate efforts to engage the driver via invasive alerts (i.e. audible, visual, haptic notifications). If the driver re-engages during the warning phase, the Enhanced Lane Centering system will resume normal operation. If the driver still does not assume control of the vehicle, the Enhanced Lane Centering system enters a safety response mode; at which time, it will ramp out lateral control and return full lateral control of the vehicle to the driver. Momentary “hands off” is considered acceptable misuse. Prolonged continuous “hands off” operation of the Enhanced Lane Centering system is not considered acceptable misuse and will result in an escalated driver notification strategy to reengage the driver in the driving task. Failure to reengage will cause the Enhanced Lane Centering system to disengage and return control of the vehicle to the driver.

Auxiliary Switch Bank Module (ASBM)

Component Index

The ASBM transmits the state the button (pressed/not pressed) to the BCM which gates the message to the CADM. The BCM transmits a signal to the ASBM indicating if the LED should be active or be deactivated based on the button state.

Body Control Module (BCM)

Component Index

The SWSM activates a hands On Sensor to determine if the driver has their hands on the steering wheel. The SWSM receives the sensor input then uses its own internal algorithm to determine if the hands are off or on the steering wheel. The SWSM transmits this determination in a signal to the CADM. The CADM uses this signal and/or the EPS torque sensing signal in order to determine the final hands on / hands off state.

Instrument Panel Cluster (IPC)

Component Index

The IPC utilizes several signals received from the CADM to activate indications. The indications will display only when the IPC receives a signal from the BCM indicating the ignition is in the RUN position. The CADM is also responsible for sending the pop up message requests and drivers assistance screen requests for display to the customer.

The IPC also provides Enhanced Lane Centering personalization settings for the customer. When the Lane Centering setting for steering vibration is turned ON or OFF, the IPC sends a signal to indicate the appropriate setting to the CADM. The IPC also sends a signal to the CADM indicating the haptic feedback vibration strength level that is selected by the customer.

Long Range Radar Front (LRRF)

Component Index

The Enhanced Lane Centering system uses the LRRF to monitor stationary objects and traffic flow to determine the forward path, and positioning of a forward vehicle. This input uses a private/serial CAN FD-SB1 bus to the CADM for processing.

For servicing (Refer to Electrical/8B - Driver Assist/RADARS/Removal and Installation).

Long Range Camera Front (LRCF)

Component Index

Image Acquisition

The LRCF is wired directly to the CADM2 assembly and is used to identify road edges, visible lane markings, and to track lane boundaries. This information is an internal input to the CADM2 for processing.

In the daytime, the LRCF will detect lane marking where lighting and environmental conditions provide good visibility in excess of 30 meters.

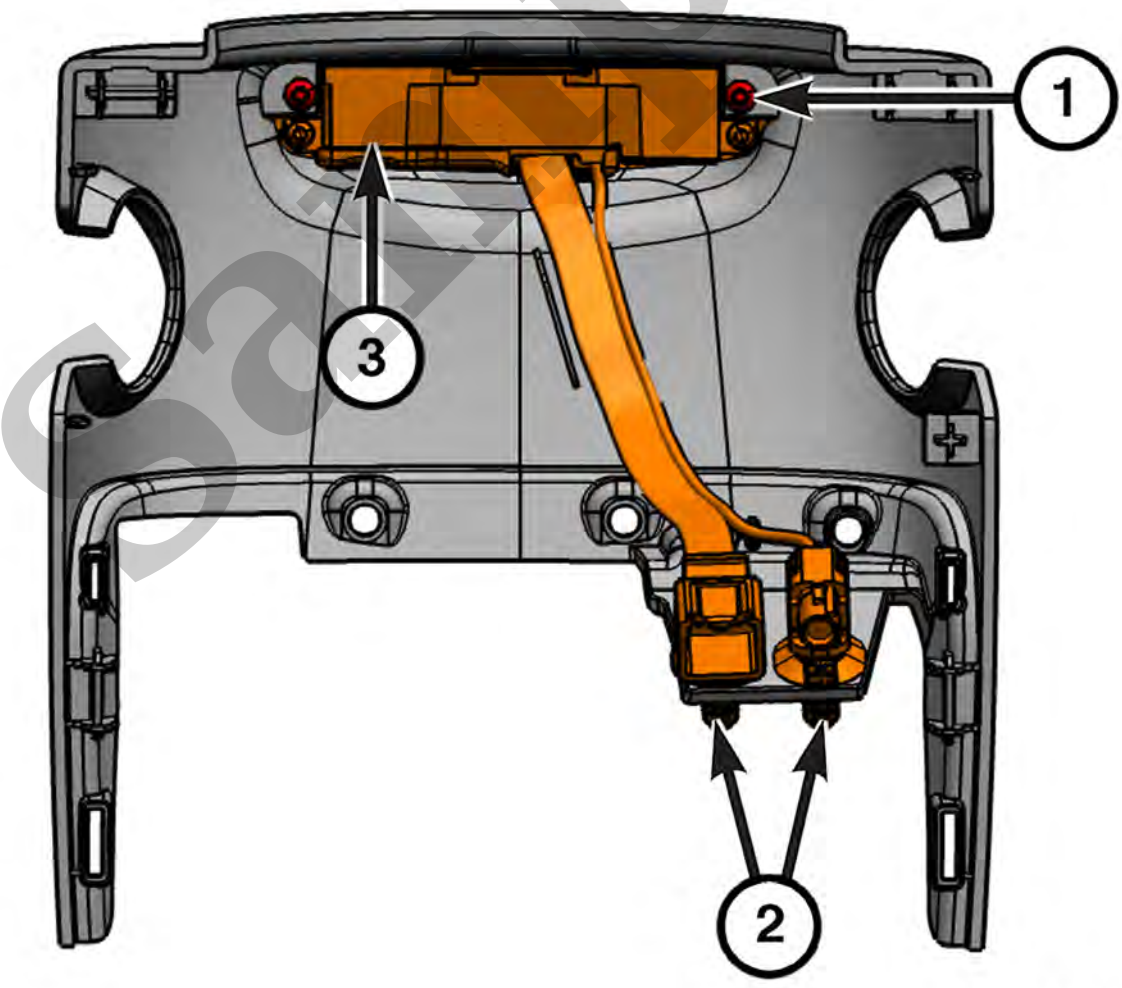
At night, the LRCF will detect the lane markings with lighting conditions provided by standard, productions low beam headlamps, with or without additional sources of road illumination, and where environmental conditions provide good visibility in excess of 30 meters.

Driver Monitoring Camera

DRIVER MONITORING CAMERA

REMOVAL

1. Remove the steering column shroud (Refer to Steering/Column/SHROUD, Steering Column/Removal and Installation).



Follow the removal procedure in reverse for general reassembly of the components on the vehicle. The steps listed below are calling out specific procedures that should be followed during installation.

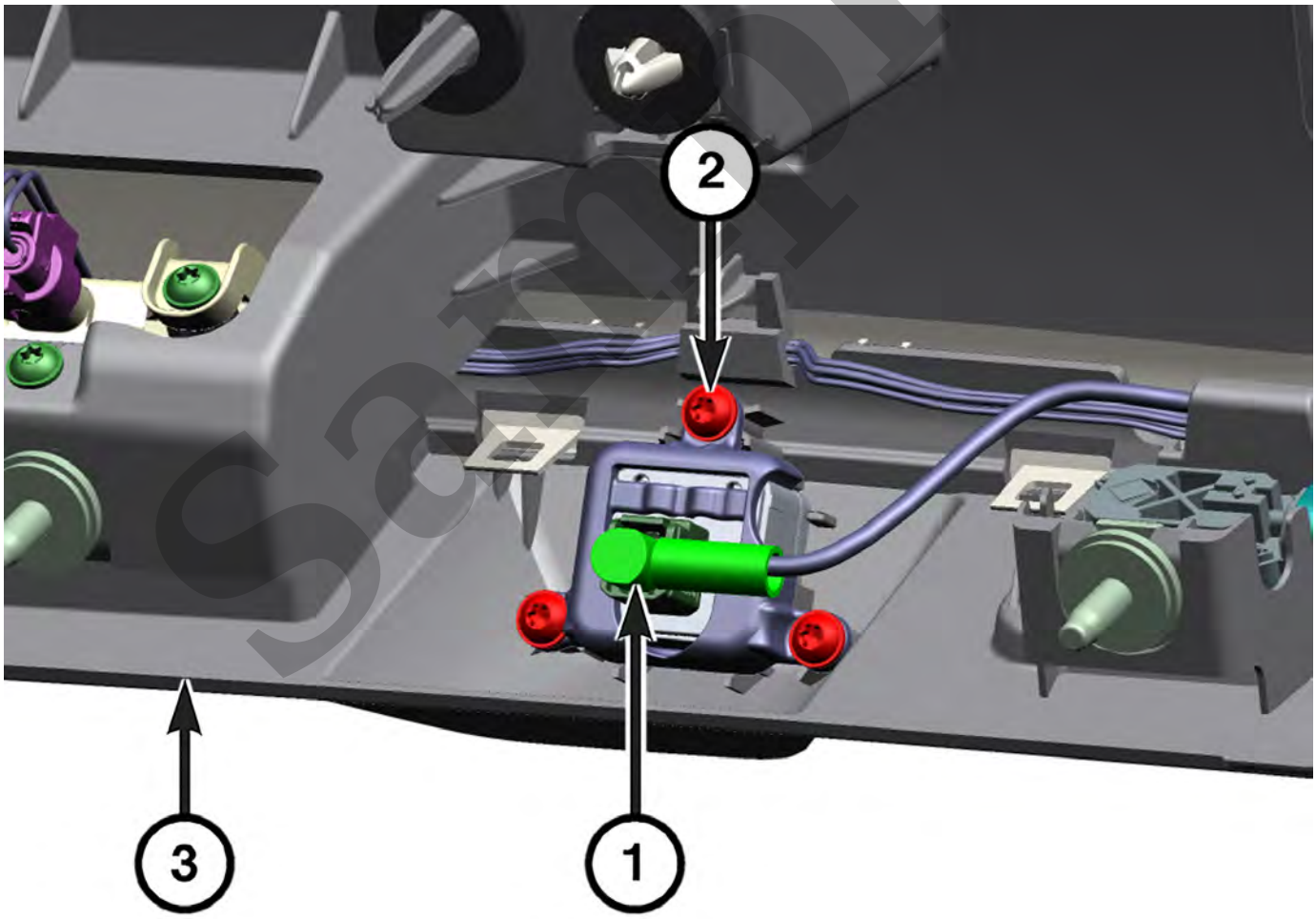
- Perform the Forward Facing Camera dynamic service alignment routine located in the scan tool (Refer to Electrical/Programming and Calibration/Programming and Calibration).

Rear Camera

REAR CAMERA

REMOVAL

1. Remove the liftgate lamp bar (Refer to Body/Decklid/Hatch/Liftgate/Tailgate/LAMP BAR, Exterior Handle/Removal and Installation).



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1 - Fasteners
2 - Wire Harness Connector
3 - Front Surround View Camera

2. Remove the wire harness connector for the front surround view camera.
3. Remove the fasteners to release the camera from the bracket.
4. Remove the camera from the vehicle.

INSTALLATION

Follow the removal procedure in reverse for general reassembly of the components on the vehicle. The steps listed below are calling out specific procedures that should be followed during installation.

- Tighten the fasteners securely.
- Perform the CVPAM - CVPM - SVC - PAM calibration routine (Refer to Electrical/Programming and Calibration/Programming and Calibration).

Surround View Camera - Side Mirror

SURROUND VIEW CAMERA - SIDE MIRROR

NOTE

Left side shown, right side similar.

REMOVAL

1. Remove the outside rearview mirror signal lamp (Refer to Electrical/Lamps/Lighting - Exterior/LAMP, Mirror/Removal and Installation).