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2007 JEEP Commander OEM Service and Repair Workshop Manual

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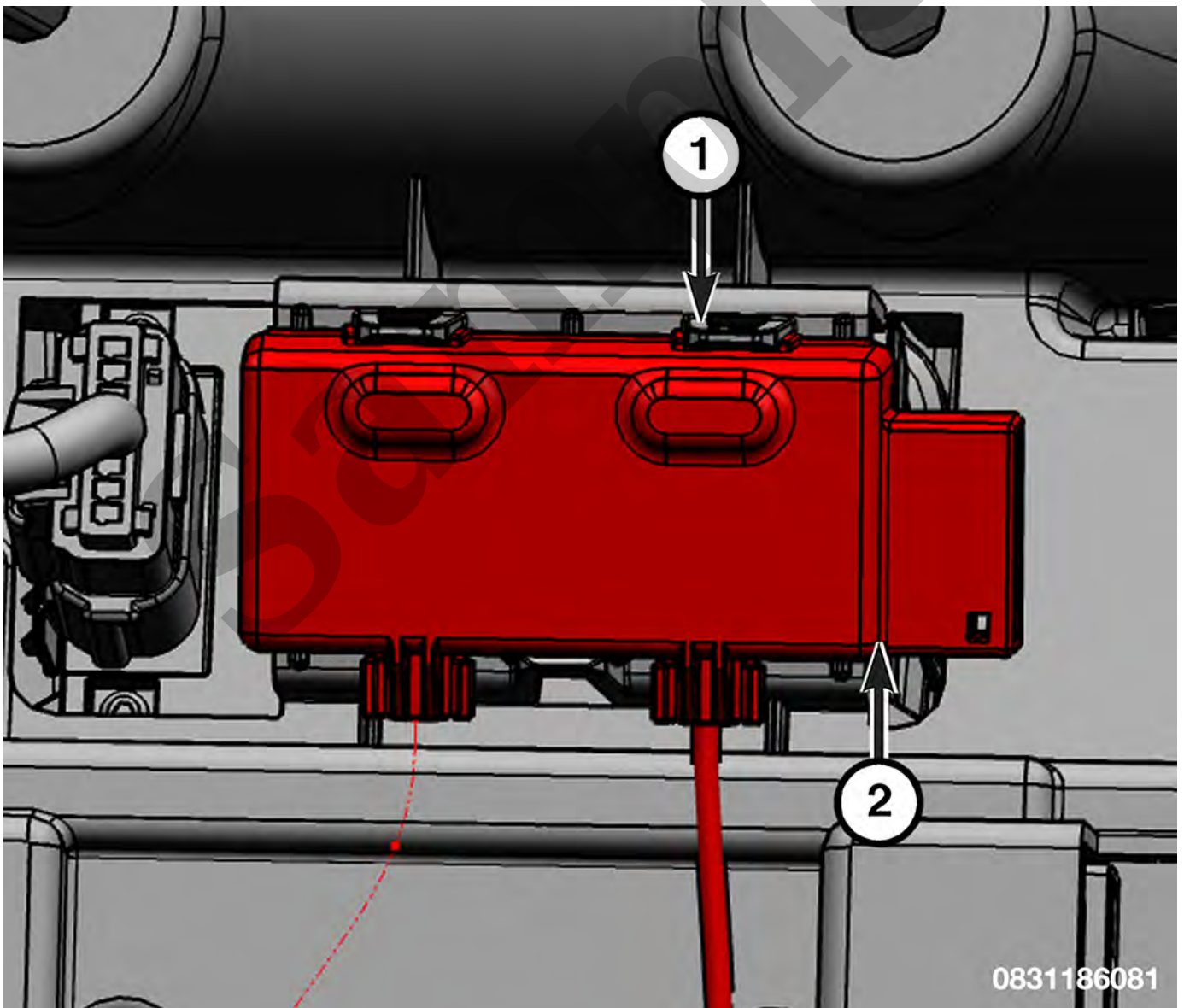
YOUR CURRENT VEHICLE

Security Transmitter

SECURITY TRANSMITTER

REMOVAL

1. Remove the overhead console ([Refer to Body/Interior/CONSOLE, Overhead/Removal and Installation](#)).



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1 - Cap

2. Remove the appropriate wiper blade ([Refer to Electrical/8R - Wipers/Washers/BLADE, Wiper/Removal and Installation](#)).
3. Remove the appropriate cap and remove the wiper arm fastener.
4. Put the arm in the service up position, then use a slight fore/aft rocking action to loosen the wiper arm from the pivot shaft and remove the wiper arm. If required, use appropriate tool to remove the wiper arm from the pivot shaft.

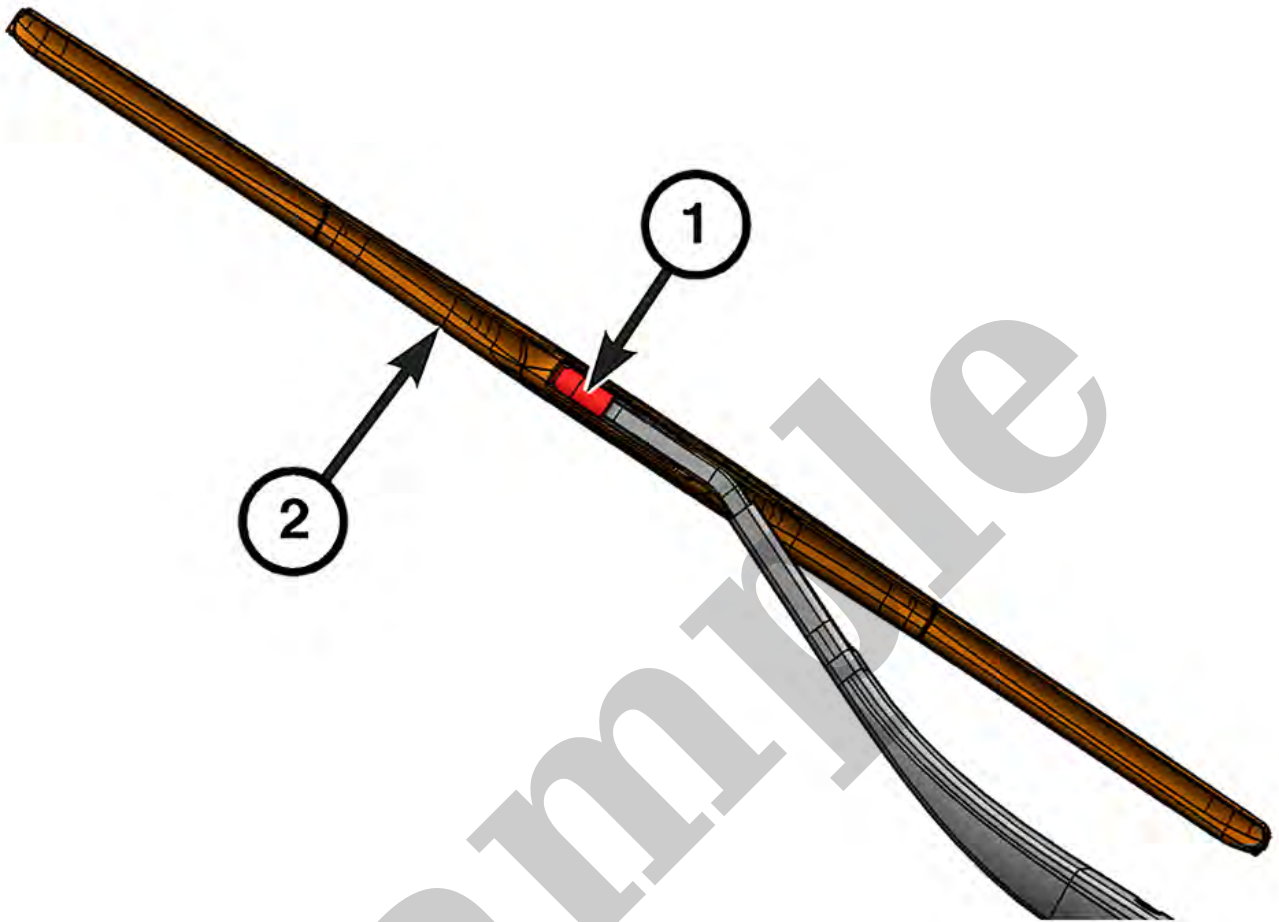
INSTALLATION

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.

- Be certain that the wiper motor is in the park position before installing the wiper arms. Cycle the ignition switch (Keyless Ignition Node/KIN) to ON and move the multifunction switch control knob to turn the wiper motor ON, then turn it to the OFF position. Wait until the wiper pivot shafts stop moving, then cycle the ignition switch to OFF. The wiper motor is now in the park position.
- The right and left wiper arms are not interchangeable. On the underside of the wiper arm, the part number and a "D" for driver and "P" for passenger is stamped for identification.
- Put the wiper motor in the park position.
- Loosely position the wiper arm to the wiper pivot shaft so that the wiper blade is aligned with the alignment marks located on the windshield.
- Once the wiper blade is aligned, push the wiper arm on the pivot shaft firmly and evenly.

TORQUE SPECIFICATIONS - WIPERS / WASHERS

DESCRIPTION	SPECIFICATION	COMMENT
Front Wiper Arm Nut	23 N·m (17 Ft. Lbs.)	-
Rear Wiper Arm Nut	8 N·m (71 In. Lbs.)	-
Rear Wiper Motor Bolts	5 N·m (44 In. Lbs.)	-
Washer Reservoir Bolts	11 N·m (8 Ft. Lbs.)	-
Wiper Linkage Module Bolts	5 N·m (44 In. Lbs.)	-



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- | |
|--------------------|
| 1 - Protective Cap |
| 2 - Wiper Blade |

1. Lift the wiper arm to raise the wiper blade off the glass, until the wiper arm hinge is in its over-center position.
2. Open the wiper blade protective cap.

Washer System Cleaning

WASHER SYSTEM CLEANING

CAUTION

Never introduce petroleum-based cleaners, solvents, or contaminants into the washer system. These products can rapidly deteriorate the rubber seals and hoses of the washer system, as well as the rubber squeegees of the wiper blades.

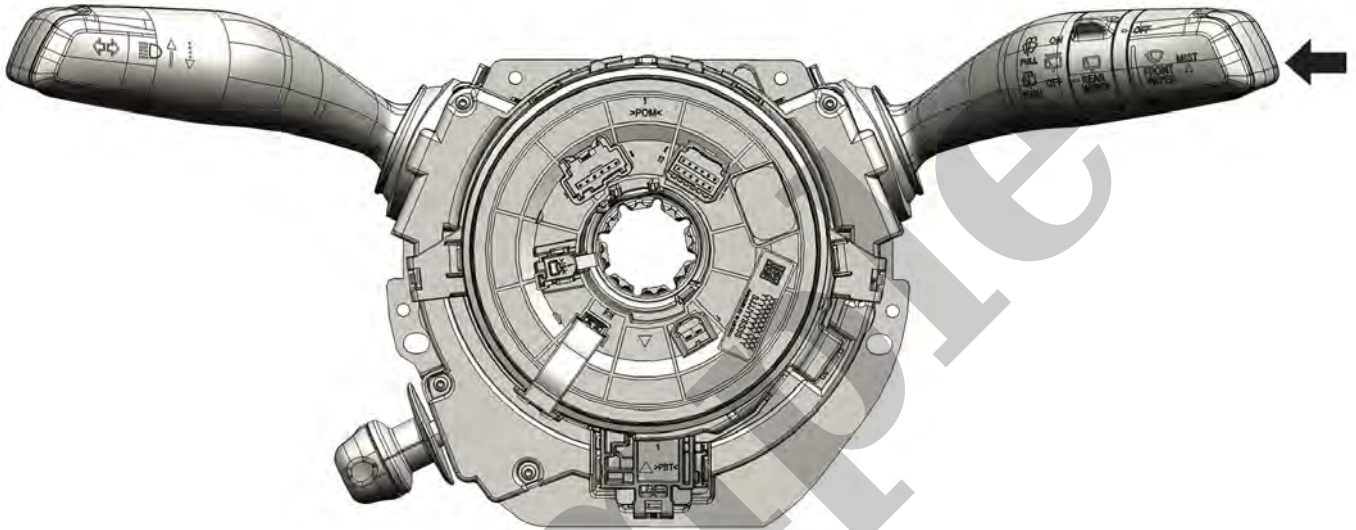
CAUTION

Never use compressed air to flush the washer system plumbing. Compressed air pressures are too great for the washer system plumbing components and will result in further system damage. Never use sharp instruments to clear a plugged washer nozzle or damage to the nozzle orifice and improper nozzle spray patterns will result.

If the washer system is contaminated with foreign material, drain the washer reservoir by removing the washer pump/motor from the reservoir. Clean foreign material from the inside of the washer pump inlet filter screen and the washer reservoir using clean washer fluid, a mild detergent, or a non-abrasive cleaner. Flush foreign material from the washer system plumbing by first disconnecting the washer hoses from the washer nozzles, then running the washer pump/motor to run clean washer fluid or water through the system. Plugged or restricted washer nozzles should be carefully back-flushed using compressed air. If the washer nozzle obstruction cannot be cleared, replace the washer nozzle.

Front camera washer circuit - cut-off

Note: If the rain sensor is present, automatic mode is selected by default during starting.



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Washer activation controls on the right stalk of the SCCM.

The front camera washer functions can be activated via the controls on the right stalk of the SCCM.

washer plumbing, it must be routed away from hot, sharp, or moving parts. Sharp bends that might pinch the plumbing must be avoided.

Washer Fluid Reservoir

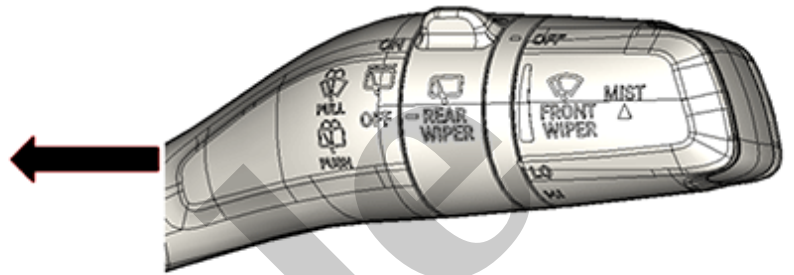
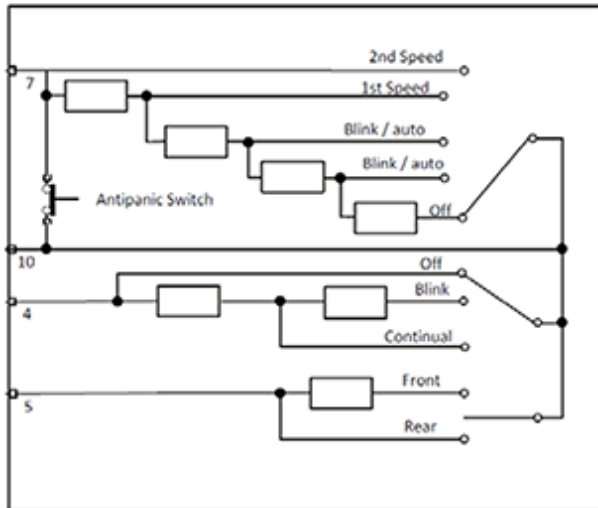
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A single washer fluid reservoir provides a secure, on-vehicle storage location for a large reserve of washer fluid for operation of the various washer systems. The separate washer reservoir filler neck provides a clearly marked and readily accessible point from which to add washer fluid to the reservoir.

The front camera washer pump is located in a sump area near the middle of the reservoir yet above the fluid level sensor on the outboard side of the reservoir. It is located above the washer fluid level sensor to be certain that washer fluid will be available to the windshield washer pump as the fluid level in the reservoir becomes depleted.

Wiper activation controls on the right stalk of the SCCM.

The windshield wiper functions can be activated via the controls on the right stalk of the SCCM.



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The control on the right stalk of the SCCM is electrically connected to the BCM. The BCM receives MUX signals (different levels of resistance according to the position of the lever) from the right stalk of the SCCM.

The BCM controls the windshield wiper motor directly.

The BCM activates the electric motor of the washer pump circuit in accordance with the command from the right stalk of the SCCM.

Body Control Module (BCM)

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Wiper/Washer Inputs:

- Wiper request
- Washer request
- External temperature
- Remote start activity
- Wiper cam info

In order to prevent an electrical charge from accumulating in the electrical leads of the switch, the switch receives current that is pulsed from the BCM located in the passenger compartment. The BCM monitors the switch return signal and is programmed to respond to three consecutive open switch readings by sending an electronic **washer fluid indicator lamp-ON request** message to the IPC over the CAN data bus. The IPC responds to this message by illuminating the washer fluid indicator and by sounding an audible chime tone warning.

The washer fluid level switch is connected to the vehicle electrical system through a dedicated take out and connector of the headlamp and dash wire harness. The switch is connected in series between a sensor return circuit and the washer fluid switch sense input to the BCM.

The washer fluid level switch and the hardwired circuits between the switch and the BCM 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 washer fluid level indicator or the electronic controls and communication between other modules and devices that provide some features of the washer system. The most reliable, efficient and accurate means to diagnose the washer fluid level indicator or the electronic controls and communication related to washer fluid level switch operation requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

The washer fluid level switch cannot be adjusted or repaired. If ineffective or damaged, the switch must be replaced.

Washer Fluid Nozzles

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With Integral Check Valves

The two washer nozzles are designed to dispense washer fluid into the wiper pattern area on the outside of the windshield glass. Pressurized washer fluid is fed to each nozzle from the washer reservoir by the washer pump/motor unit through a single hose, which is attached to a barbed nipple on each washer nozzle below the hood panel. A fluidic matrix within the washer nozzle causes the pressurized washer fluid to be emitted from the nozzle orifice as an oscillating stream to more effectively cover a larger area of the glass to be cleaned.

The integral check valve in each nozzle prevents washer fluid from draining out of the washer supply hoses back to the washer reservoir. This drain-back would result in a lengthy delay after the washer switch is actuated until washer fluid was dispensed through the nozzles, because the washer pump would have to refill the washer plumbing from the reservoir to the nozzles. Such a drain-back condition could also result in water, dirt, or other outside contaminants being siphoned into the washer system through the washer nozzle orifice. This water could subsequently freeze and plug the nozzle, while other contaminants could interfere with proper nozzle operation and cause improper nozzle spray patterns. In addition, the check valve prevents washer fluid from siphoning through the washer nozzles after the washer system is turned OFF.

4.	Washer Fluid Reservoir
5.	Headlamp Washer Pump
6.	Body Control Module (BCM)

An electrically operated headlamp washer system is factory-installed equipment on this vehicle for certain export markets.

Certain functions and features of the headlamp washer system rely upon resources shared with other electronic modules in the vehicle over the Controller Area Network (CAN) data bus.

The BCM and the SCCM each contain a microcontroller and programming that allow them to communicate with each other and other electronic modules in the vehicle using the CAN data bus. ([Refer to Electrical/8E - Electronic Control Modules/COMMUNICATION/Description and Operation](#)).

OPERATION

The headlamp washer system is designed to provide the vehicle operator with a convenient, safe, and reliable means of maintaining headlamp lighting performance. The various components of this system are designed to convert electrical energy produced by the vehicle electrical system into the hydraulic action of the washer system to apply washer fluid stored in an on-board reservoir to the lenses of the two front lamp units, removing excess accumulations of snow, ice, bugs, mud, or other minor debris from the front lamps that might be encountered while driving the vehicle under numerous types of inclement operating conditions.

The vehicle operator initiates the headlamp washer system function by pulling back on the right control stalk of the SCCM while the headlamps are turned ON. This activates the front washer pump/motor which also activates the headlamp washer pump/motor, in combination with the front washer pump/motor, and then on an interval scheduled number of front washer activations after the first one, which is determined by the BCM programming. When the headlamp washer pump/motor unit is energized, hydraulic pressure builds within the headlamp washer system plumbing against the pressure of the return spring in each headlamp washer nozzle. Sufficient pressure causes the headlamp washer nozzles to telescope outward and to dispense high pressure washer fluid to the lenses of both front lamp units for the time duration set in the BCM, which can be from 500-2000 milliseconds (0.5-2.0 seconds) in 100 millisecond (0.1 second) increments. When the headlamp washer is activated, the BCM commands the activation ON for the pre-determined amount of time, turn OFF for a pre-determined amount of soak time, turn ON again for a pre-determined amount of time and then finally OFF completely.

The headlamp washer activation counter resets to the first transition whenever the headlamp switch is cycled from ON to OFF, or if the ignition is cycled from RUN or ACC to OFF or START, then back to RUN or ACC.

Headlamp washer system operation is completely controlled by the BCM logic circuits based upon electronic wash command and lighting switch status message inputs received from the Instrument Panel Cluster (IPC)