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Symptom/Vehicle Issue: Rain Sensing Auto Wipers and Auto on Head Lamps Inoperative

Owner Complaint/Technician Observation: The owner complains that the rain-sensitive wipers and/or the automatic headlamps are not functioning. The technician observed one or more of the following Diagnostic Trouble Codes (DTCs) have set dependent on the vehicle.

B221D-49 - Rain Sensor Module (RSM) Internal
B23AA-01- Implausible Data Received from Rain Sensor
B225F-49 - Light sensor Internal
B11FA-49 - Humidity Sensor Internal

Repair Procedure: Verify that the auto-on wiper selection within the radio settings is set to on and verify the customer-selected headlamp switch position is positioned for AUTO-ON headlamps. Inspect the windshield area where the light rain sensor is located, make sure nothing is blocking the sensor like windshield tint or any other aftermarket equipment, make sure there are no cracks in the windshield and if a replacement glass, inspect the area of the sensor mounting location.

CAUTION: During installation or removal process of the sensor, the SILGel membrane and Humidity Flex PCB must not be handled/touched, as this may cause sensor malfunctions see steps 1-5.

1. Visually inspect the sensor at the glass, looking for air bubbles from a sensor area that is properly wetted to the glass surface. If there are air bubbles or any other damage to the SILGel membrane check if the windshield was replaced recently or the sensor was removed and re-installed recently. This issue might have been caused by not being careful enough when removing and re-installing the sensor.
2. Functionally check the rain sensing by splashing some water near the area where the sensor is facing, to test if the wipers activate. For the auto headlamps functional check, block the light going into the sensor from exterior glass using an opaque object, make sure the headlamp switch is in auto mode and check headlamp operation.

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3. Record DTCs and environmental data checking the voltage recorded when the DTC is set, if the fault set for low voltage test the voltage at the sensor for proper battery voltage.
4. Remove the rear-view mirror cover (inside) and make sure the connector to the sensor is secure, use the push-pull-push method to secure a loose connection. If secure, disconnect the connector and check for bent or pushed-out terminals and repair if needed. Verify the light-rain sensor and harness are secure. Verify that the sensor is fully retained by the bracket, ensuring the two steel retaining clips on the sensor are fully secured to the housing bracket.
5. Erase the DTCs and perform a key cycle, the key cycle should be key off for 1 minute with wiTECH disconnected. Removing power from the light rain sensor is required for proper sensor calibration. Perform a battery disconnect of the light rain sensor by disconnecting the fuse (fuse number/location dependent upon vehicle) to allow recalibration of the sensor. Make sure all doors/hood and gate are closed, then turn the ignition back on and test the operation following step 2 checking for proper operation. If no DTCs return release the vehicle. If DTCs return, perform a battery disconnect and at least 3 key cycles to make the sensor relearns the calibration. After, if no DTCs return, release the vehicle. If DTCs return, follow Service Library DTC diagnostics as needed.

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