Wipers and Washers

Inspection and Verification

1. Verify the customer concern.
2. Visually inspect for obvious signs of mechanical and electrical damage:

Visual Inspection Chart

<table>
<thead>
<tr>
<th>Mechanical</th>
<th>Electrical</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Wiper blades</td>
<td>• Central junction box (CJB) fuse(s):</td>
</tr>
<tr>
<td>• Front wiper linkage</td>
<td>• 43 (15A)</td>
</tr>
<tr>
<td>• Fluid reservoir - windshield washing system (level)</td>
<td>• 56 (20A)</td>
</tr>
<tr>
<td>• Hoses</td>
<td>• Pump</td>
</tr>
<tr>
<td>• Nozzles</td>
<td>• Wiper/washer switch</td>
</tr>
<tr>
<td></td>
<td>• Windshield wiper relay</td>
</tr>
<tr>
<td></td>
<td>• Rear wiper relay</td>
</tr>
<tr>
<td></td>
<td>• Generic electronic module (GEM)</td>
</tr>
<tr>
<td></td>
<td>• Circuitry</td>
</tr>
</tbody>
</table>

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.
4. **NOTE:** Make sure to use the latest scan tool software release.
   - If the cause is not visually evident, connect the scan tool to the data link connector (DLC).
5. **NOTE:** The vehicle communication module (VCM) LED prove out confirms power and ground from the DLC are provided to the VCM.
   - If the scan tool does not communicate with the VCM:
     - check the VCM connection to the vehicle.
     - check the scan tool connection to the VCM.
     - refer to Section 418-00: No power to the scan tool, to diagnose no communication with the scan tool.
6. If the scan tool does not communicate with the vehicle:
   - verify the ignition key is in the ON position.
   - verify the scan tool operation with a known good vehicle.
   - refer to Section 418-00 to diagnose no response from the generic electronic module (GEM).
7. Carry out the network test.
   - if the scan tool responds with no communication from one or more modules, refer to Section 418-00.
   - if the network test passes, retrieve and record the continuous memory diagnostic trouble codes (DTCs).
8. Clear the continuous DTCs and carry out the self-test diagnostics for the GEM.
9. If the DTCs retrieved are related to the concern, go to the Generic Electronic Module (GEM) Diagnostic Trouble Code (DTC) Index. For all other DTCs, refer to Section 419-10.
10. If no DTCs related to the concern are retrieved, GO to Symptom Chart.

Generic Electronic Module (GEM) Diagnostic Trouble Code (DTC) Index

<table>
<thead>
<tr>
<th>DTC</th>
<th>Description</th>
<th>Source</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1244</td>
<td>Rear Window Wiper Motor Run Relay Circuit Failure</td>
<td>GEM</td>
<td>GO to Pinpoint Test F for inoperative. GO to Pinpoint Test E for on continuously.</td>
</tr>
<tr>
<td>B1245</td>
<td>Rear Window Wiper Motor Run Relay Circuit Short To Battery</td>
<td>GEM</td>
<td>GO to Pinpoint Test F.</td>
</tr>
<tr>
<td>B1438</td>
<td>Wiper Mode Select Switch Circuit Failure</td>
<td>GEM</td>
<td>GO to Pinpoint Test H.</td>
</tr>
<tr>
<td>B1446</td>
<td>Wiper Park Sense Circuit Failure</td>
<td>GEM</td>
<td>GO to Pinpoint Test G.</td>
</tr>
<tr>
<td>B1451</td>
<td>Wiper Wash/Delay Switch Circuit Failure</td>
<td>GEM</td>
<td>GO to Pinpoint Test H.</td>
</tr>
</tbody>
</table>
Pinpoint Tests

Symptom Chart

<table>
<thead>
<tr>
<th>Condition</th>
<th>Possible Sources</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>No communication with the generic electronic module (GEM)</td>
<td>Circuitry, GEM, Wiring</td>
<td>REFER to Section 418-00.</td>
</tr>
<tr>
<td>The wipers are inoperative</td>
<td>Fuse, Wiper/washer switch, Windshield wiper motor, Circuitry, Central junction box (CJB)</td>
<td>GO to Pinpoint Test A.</td>
</tr>
<tr>
<td>The wipers stay on continuously</td>
<td>Wiper/washer switch, Windshield wiper motor, Windshield wiper relay, Generic electronic module (GEM), Central junction box (CJB), Circuitry</td>
<td>GO to Pinpoint Test B.</td>
</tr>
<tr>
<td>The high/low wiper speeds do not operate correctly (intermittent wiper mode OK)</td>
<td>Wiper/washer switch, Windshield wiper motor, Circuitry</td>
<td>GO to Pinpoint Test C.</td>
</tr>
<tr>
<td>The wash and wipe function is inoperative</td>
<td>Generic electronic module (GEM), Circuitry</td>
<td>GO to Pinpoint Test D.</td>
</tr>
<tr>
<td>The rear window wiper stays on continuously</td>
<td>Rear window wiper motor (limit switch), Rear wiper relay, Generic electronic module (GEM), Central junction box (CJB), Circuitry, Wiper/washer switch</td>
<td>GO to Pinpoint Test E.</td>
</tr>
<tr>
<td>The rear window wiper is inoperative</td>
<td>Fuse(s), Wiper/washer switch, Generic electronic module (GEM), Rear window wiper motor, Rear window wiper relay, Central junction box (CJB), Circuitry, Wiper/washer switch</td>
<td>GO to Pinpoint Test F.</td>
</tr>
<tr>
<td>The wipers will not park at the correct position</td>
<td>Rear window wiper motor, Windshield wiper motor, Circuitry, Incorrect front wiper arm adjustment, Incorrect rear wiper arm adjustment</td>
<td>GO to Pinpoint Test G.</td>
</tr>
<tr>
<td>The intermittent wiper speed does not operate correctly (high/low speeds OK)</td>
<td>Wiper/washer switch, Windshield wiper relay, Generic electronic module (GEM), Circuitry</td>
<td>GO to Pinpoint Test H.</td>
</tr>
<tr>
<td>The washer pump is inoperative</td>
<td>Fuse, Circuitry, Windshield washer pump, Wiper/washer switch</td>
<td>GO to Pinpoint Test I.</td>
</tr>
<tr>
<td>The wipers will not park at the correct position - intermittent or one-sweep mode</td>
<td>Windshield wiper relay</td>
<td>INSTALL a new windshield wiper relay. TEST the system for normal operation.</td>
</tr>
</tbody>
</table>

Pinpoint Test A: The Wipers Are Inoperative

Refer to Wiring Diagrams Cell B11, Wipers and Washers for schematic and connector information.

Normal Operation

With the ignition switch in the START or RUN position, the wiper/washer switch receives voltage from central junction box (CJB) through circuit 15-KA19 (GN/OG). When low speed or intermittent operation is selected, the windshield wiper motor receives voltage through circuit 32-KA10 (WH/GN). When high speed operation is selected, the windshield wiper motor receives voltage through circuit 32-KA11 (WH/BK). The windshield wiper motor is grounded through circuit 31-KA9 (BK).

Possible Causes
- Fuse
- Circuit 15-KA19 (GN/OG) open
- Circuit 31-KA9 (BK) open
PINPOINT TEST A: THE WIPERS ARE INOPERATIVE

<table>
<thead>
<tr>
<th>Test Step</th>
<th>Result / Action to Take</th>
</tr>
</thead>
</table>
| A1 CHECK THE VOLTAGE SUPPLY AT CJB FUSE 56 (20A) | Yes | GO to A2.  
No | LOCATE and REPAIR the voltage supply to fuse 56 (20A). TEST the system for normal operation. |

<table>
<thead>
<tr>
<th>Test Step</th>
<th>Result / Action to Take</th>
</tr>
</thead>
</table>
| A2 CHECK THE VOLTAGE SUPPLY | Yes | GO to A3.  
No | VERIFY the CJB fuse 56 (20A) is OK. If OK, INSTALL a new CJB. TEST the system for normal operation. |

<table>
<thead>
<tr>
<th>Test Step</th>
<th>Result / Action to Take</th>
</tr>
</thead>
</table>
| A3 CHECK THE VOLTAGE SUPPLY AT THE WIPER/WASHER SWITCH | Yes | GO to A4.  
No | REPAIR the circuit. TEST the system for normal operation. |

<table>
<thead>
<tr>
<th>Test Step</th>
<th>Result / Action to Take</th>
</tr>
</thead>
</table>
| A4 CARRY OUT THE WIPER/WASHER COMPONENT TEST | Yes | GO to A5.  
No | INSTALL a new multi-function switch. REFER to Section 211-08. TEST the system for normal operation. |

<table>
<thead>
<tr>
<th>Test Step</th>
<th>Result / Action to Take</th>
</tr>
</thead>
</table>
| A5 CHECK GROUND CIRCUIT 31-KA9 (BK) FOR AN OPEN | Yes | GO to A6.  
No | REPAIR the circuit. TEST the system for normal operation. |
Pinpoint Test B: The Wipers Stay On Continuously

Refer to Wiring Diagrams Cell 81, Wipers and Washers for schematic and connector information.

Normal Operation

When low speed operation is selected, the windshield wiper motor receives voltage through circuit 32-KA10 (WH/GN). When high speed operation is selected, the windshield wiper motor receives voltage through circuit 32-KA11 (WH/BK). When intermittent operation is selected, the generic electronic module (GEM) sends an intermittent ground signal to the windshield wiper relay through circuit 91S-KA12 (BK/WH). The relay energizes and sends voltage to the wiper/washer switch through circuit 32-KA19 (WH/BK). The wiper/washer switch sends voltage to the windshield wiper motor through circuit 32-KA10 (WH/GN). When the wiper/washer switch is turned to the off position, or between intermittent pulses, the internal run/park switch in the windshield wiper motor provides voltage to the windshield wiper relay through circuit 32-KA9 (WH/BU) until the wiper motor completes its cycle and opens the circuit.

Possible Causes

- Circuit 32-KA10 (WH/GN) short to voltage
- Circuit 32-KA11 (WH/BK) short to voltage
- Circuit 32-KA19 (WH/BK) short to voltage
- Circuit 91S-KA12 (BK/WH) short to ground
- Wiper/washer switch
- Windshield wiper motor
- Windshield wiper relay
- Central junction box (CJB)
- GEM

PINPOINT TEST B: THE WIPERS STAY ON CONTINUOUSLY

<table>
<thead>
<tr>
<th>Test Step</th>
<th>Result / Action to Take</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move the wiper lever to the OFF position.</td>
<td>No to B4.</td>
</tr>
<tr>
<td>Ignition ON.</td>
<td></td>
</tr>
<tr>
<td>Do the windshield wipers move at a fast rate?</td>
<td></td>
</tr>
</tbody>
</table>

B2 CHECK THE WIPER/WASHER SWITCH FOR NORMAL OPERATION

<table>
<thead>
<tr>
<th>Test Step</th>
<th>Result / Action to Take</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ignition OFF.</td>
<td>Yes to B3.</td>
</tr>
<tr>
<td>Disconnect: Wiper/Washer Switch C2081.</td>
<td>No.</td>
</tr>
<tr>
<td>Ignition ON.</td>
<td></td>
</tr>
<tr>
<td>Do the windshield wipers move at a fast rate?</td>
<td>CHECK the wiper/washer switch for correct operation.</td>
</tr>
</tbody>
</table>
Refer to Wiring Diagrams Cell 149 for component testing.

If necessary, INSTALL a new multi-function switch. REFER to Section 211-05. TEST the system for normal operation.

<table>
<thead>
<tr>
<th>B3 CHECK CIRCUIT 32-KA11 (WH/BK) FOR A SHORT TO VOLTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ignition OFF.</td>
</tr>
<tr>
<td>• Disconnect: Windshield Wiper Motor C125.</td>
</tr>
<tr>
<td>• Ignition ON.</td>
</tr>
<tr>
<td>• Measure the voltage between the wiper/washer switch C2081-8, circuit 32-KA11 (WH/BK), harness side and ground.</td>
</tr>
<tr>
<td>Is the voltage greater than 10 volts?</td>
</tr>
<tr>
<td>Yes REPAIR the circuit. TEST the system for normal operation.</td>
</tr>
<tr>
<td>No INSTALL a new windshield wiper motor. REFER to Wiper Motor — Windshield in this section. TEST the system for normal operation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B4 CHECK THE WIPER/WASHER SWITCH FOR NORMAL OPERATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ignition OFF.</td>
</tr>
<tr>
<td>• Disconnect: Wiper/Washer Switch C2081.</td>
</tr>
<tr>
<td>• Ignition ON.</td>
</tr>
<tr>
<td>• Do the front wipers move at a slow rate?</td>
</tr>
<tr>
<td>Yes GO to B5.</td>
</tr>
<tr>
<td>No GO to B6.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B5 CHECK CIRCUIT 32-KA10 (WH/GN) FOR A SHORT TO VOLTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ignition OFF.</td>
</tr>
<tr>
<td>• Disconnect: Windshield Wiper Motor C125.</td>
</tr>
<tr>
<td>• Ignition ON.</td>
</tr>
<tr>
<td>• Measure the voltage between the wiper/washer switch C2081-9, circuit 32-KA10 (WH/GN), harness side and ground.</td>
</tr>
<tr>
<td>Is the voltage greater than 10 volts?</td>
</tr>
<tr>
<td>Yes REPAIR the circuit. TEST the system for normal operation.</td>
</tr>
<tr>
<td>No INSTALL a new windshield wiper motor. REFER to Wiper Motor — Windshield in this section. TEST the system for normal operation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B6 CARRY OUT THE WIPER/WASHER SWITCH COMPONENT TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Carry out the wiper/washer switch component test.</td>
</tr>
<tr>
<td>Refer to Wiring Diagrams Cell 149 for component testing.</td>
</tr>
<tr>
<td>• Does the wiper/washer switch pass the component test?</td>
</tr>
<tr>
<td>Yes GO to B7.</td>
</tr>
<tr>
<td>No GO to B8.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B7 CHECK CIRCUIT 32-KA19 (WH/BK) FOR A SHORT TO VOLTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ignition OFF.</td>
</tr>
<tr>
<td>• Connect: Wiper/Washer Switch C2081.</td>
</tr>
<tr>
<td>• Disconnect: CJB C270c.</td>
</tr>
<tr>
<td>• Ignition ON.</td>
</tr>
<tr>
<td>• Do the windshield wipers move at a slow rate?</td>
</tr>
<tr>
<td>Yes REPAIR the circuit. TEST the system for normal operation.</td>
</tr>
<tr>
<td>No GO to B8.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B8 CHECK THE CJB FOR A SHORT TO VOLTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ignition OFF.</td>
</tr>
<tr>
<td>• Disconnect: Windshield Wiper Relay C2042.</td>
</tr>
<tr>
<td>• Connect: CJB C270c.</td>
</tr>
<tr>
<td>• Ignition ON.</td>
</tr>
<tr>
<td>• Do the windshield wipers move at a slow rate?</td>
</tr>
<tr>
<td>Yes INSTALL a new CJB. TEST the system for normal operation.</td>
</tr>
<tr>
<td>No GO to B9.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B9 CHECK THE WINDSHIELD WIPER RELAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Carry out the windshield wiper relay component test.</td>
</tr>
<tr>
<td>Refer to Wiring Diagrams Cell 149 for component testing.</td>
</tr>
<tr>
<td>• Does the windshield wiper relay function normally?</td>
</tr>
<tr>
<td>Yes GO to B10.</td>
</tr>
<tr>
<td>No INSTALL a new windshield wiper relay. TEST the system for normal operation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B10 CHECK CIRCUIT 91S-KA12 (BK/WH) FOR A SHORT TO GROUND</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ignition OFF.</td>
</tr>
<tr>
<td>• Connect: Windshield Wiper Relay C2042.</td>
</tr>
<tr>
<td>• Disconnect: GEM C201e.</td>
</tr>
<tr>
<td>• Ignition ON.</td>
</tr>
<tr>
<td>• Do the windshield wipers move at a slow rate?</td>
</tr>
<tr>
<td>Yes REPAIR the circuit. TEST the system for normal operation.</td>
</tr>
<tr>
<td>No GO to B11.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B11 CHECK FOR CORRECT GEM OPERATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Disconnect all the GEM connectors.</td>
</tr>
<tr>
<td>• Check for:</td>
</tr>
<tr>
<td>• corrosion.</td>
</tr>
<tr>
<td>• pushed-out pins.</td>
</tr>
<tr>
<td>• Connect all the GEM connectors and make sure they seat correctly.</td>
</tr>
<tr>
<td>• Operate the system and verify the concern is still present.</td>
</tr>
<tr>
<td>Yes INSTALL a new GEM. REFER to Section 419-10. TEST the system for normal operation.</td>
</tr>
</tbody>
</table>
| No The system is operating correctly at this time. The concern may have been caused
Pinpoint Test C: The High/Low Wiper Speeds Do Not Operate Correctly (Intermittent Wiper Mode OK)

Refer to Wiring Diagrams Cell 81, Wipers and Washers for schematic and connector information.

Normal Operation

When low speed operation is selected, the windshield wiper motor receives voltage through circuit 32-KA10 (WH/GN). When high speed operation is selected, the windshield wiper motor receives voltage through circuit 32-KA11 (WH/BK).

Possible Causes
- Circuit 32-KA11 (WH/BK) open
- Wiper/washer switch
- Windshield wiper motor

Pinpoint Test C: The High/Low Wiper Speeds Do Not Operate Correctly (Intermittent Wiper Mode OK)

<table>
<thead>
<tr>
<th>Test Step</th>
<th>Result / Action to Take</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1 CHECK THE WIPER/WASHER SWITCH FOR NORMAL OPERATION</td>
<td></td>
</tr>
<tr>
<td>• Ignition OFF.</td>
<td>Yes</td>
</tr>
<tr>
<td>• Disconnect: Wiper/Washer Switch C2081.</td>
<td></td>
</tr>
<tr>
<td>• Check the wiper/washer switch for correct operation.</td>
<td></td>
</tr>
<tr>
<td>Refer to Wiring Diagrams Cell 149 for component testing.</td>
<td></td>
</tr>
<tr>
<td>• Does the switch pass the component test?</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>GO to C2</td>
</tr>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>INSTALL a new multi-function switch. REFER to Section 811-05. TEST the system for normal operation.</td>
</tr>
</tbody>
</table>

| C2 CHECK CIRCUIT 32-KA11 (WH/BK) FOR AN OPEN |  |
| • Disconnect: Windshield Wiper Motor C125. | Yes  |
| • Measure the resistance between the wiper/washer switch C2081-8, circuit 32-KA11 (WH/BK), harness side and the windshield wiper motor C125-1, circuit 32-KA11 (WH/BK), harness side. |  |
| • Is the resistance less than 5 ohms? | Yes  |
| | INSTALL a new windshield wiper motor. REFER to Wiper Motor — Windshield in this section. TEST the system for normal operation. |
| | No  |
| | REPAIR the circuit. TEST the system for normal operation. |

Pinpoint Test D: The Wash And Wipe Function Is Inoperative

Refer to Wiring Diagrams Cell 81, Wipers and Washers for schematic and connector information.

Normal Operation

When the wash function is selected, the wiper/washer switch provides a ground signal to the generic electronic module (GEM) through circuit 32-KA6 (WH/BK). The GEM cycles the windshield wiper motor for a programmed amount of cycles before allowing the wiper system to return to the mode selected by the operator.

Possible Causes
- Circuit 32-KA6 (WH/BK) open or short to ground
- GEM

Pinpoint Test D: The Wash And Wipe Function Is Inoperative

NOTICE: Use the correct probe adaptor(s) when making measurements. Failure to use the correct probe adaptor(s) may damage the connector.

<table>
<thead>
<tr>
<th>Test Step</th>
<th>Result / Action to Take</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1 CHECK FOR CORRECT WIPER OPERATION</td>
<td></td>
</tr>
<tr>
<td>• Ignition ON.</td>
<td>Yes</td>
</tr>
<tr>
<td>• Turn the wiper/washer switch to the wash and wipe function.</td>
<td></td>
</tr>
<tr>
<td>• Do the wipers operate correctly?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>GO to Pinpoint Test I to diagnose the washer pump.</td>
</tr>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>GO to D2</td>
</tr>
</tbody>
</table>

| D2 CHECK THE INTERMITTENT WIPER MODE |  |
| • Turn the wiper/washer switch to the intermittent wiper function. | Yes  |
| • Does the wiper operate correctly in the intermittent mode? |  |
| | Yes  |
| | GO to D3 |
| | No  |
| | GO to Pinpoint Test H to diagnose the intermittent wiper mode. |

| D3 CHECK CIRCUIT 32-KA6 (WH/BK) FOR AN OPEN OR SHORT TO GROUND |  |
| • Ignition OFF. | Yes  |
| • Disconnect: Wiper/Washer Switch C2081. |  |
| • Disconnect: GEM C201d. |  |
| | Yes  |
| | GO to D4 |
| | No  |
| | GO to Pinpoint Test H to diagnose the intermittent wiper mode. |
Pinpoint Test E: The Rear Window Wiper Stays On Continuously

Refer to Wiring Diagrams Cell 81, Wipers and Washers for schematic and connector information.

Normal Operation

With the ignition switch in the START or RUN position, the wiper/washer switch receives voltage from the central junction box (CJB) through circuit 15-KA19 (GN/OG). When the rear wiper function is selected, the wiper/washer switch sends a voltage signal to the generic electronic module (GEM) through circuit 32-KA35 (WH/RD). The GEM provides a ground signal to the rear wiper relay coil through circuit 91S-KA29 (BK/YE). The relay energizes and provides voltage to the rear window wiper motor through circuit 32-KA28 (WH/RD). When the rear wiper switch is turned off, the rear window wiper motor continues to receive voltage through circuit 15-KA28 (GN/BU) until the wiper motor completes its cycle and the internal run/park switch opens the circuit.

Possible Causes
- Circuit 91S-KA29 (BK/YE) short to ground
- Rear window wiper motor
- Rear wiper relay
- Wiper/washer switch
- CJB
- GEM

PINPOINT TEST E: THE REAR WINDOW WIPER STAYS ON CONTINUOUSLY

NOTICE: Use the correct probe adaptor(s) when making measurements. Failure to use the correct probe adaptor(s) may damage the connector.

<table>
<thead>
<tr>
<th>Test Step</th>
<th>Result / Action to Take</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1 CHECK THE REAR WINDOW WIPER MOTOR FOR NORMAL OPERATION</td>
<td>Yes</td>
</tr>
<tr>
<td>Ignition OFF.</td>
<td>CARRY OUT the rear window wiper motor component test.</td>
</tr>
<tr>
<td>Disconnect: Rear Wiper Relay C2020.</td>
<td>Refer to Wiring Diagrams Cell 149 for component testing.</td>
</tr>
<tr>
<td>Ignition ON.</td>
<td>If necessary, INSTALL a new rear window wiper motor. REFER to Wiper Motor — Rear Window in this section. TEST the system for normal operation.</td>
</tr>
<tr>
<td>Does the rear wiper operate?</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>GO to E2.</td>
</tr>
</tbody>
</table>

E2 CHECK THE REAR WIPER RELAY FOR NORMAL OPERATION

<table>
<thead>
<tr>
<th>Test Step</th>
<th>Result / Action to Take</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carry out the rear wiper relay component test.</td>
<td>Yes</td>
</tr>
<tr>
<td>Refer to Wiring Diagrams Cell 149 for component testing.</td>
<td>GO to E3.</td>
</tr>
<tr>
<td>Does the relay pass the component test?</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>INSTALL a new rear wiper relay. TEST the system for normal operation.</td>
</tr>
</tbody>
</table>

E3 CHECK CIRCUIT 91S-KA29 (BK/YE) FOR A SHORT TO GROUND

<table>
<thead>
<tr>
<th>Test Step</th>
<th>Result / Action to Take</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ignition OFF.</td>
<td>Yes</td>
</tr>
<tr>
<td>Disconnect: GEM C201e.</td>
<td>GO to E5.</td>
</tr>
<tr>
<td>Measure the resistance between the CJB rear wiper relay C2020-2, circuit 91S-KA29 (BK/YE), harness side and ground.</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>GO to E4.</td>
</tr>
</tbody>
</table>
Pinpoint Test F: The Rear Window Wiper Is Inoperative

Refer to Wiring Diagrams Cell 81 for schematic and connector information.

Normal Operation

With the ignition switch in the START or RUN position, the wiper/washer switch receives voltage from the central junction box (CJB) through circuit 15-KA19 (GN/OG). When rear wiper function is selected, the wiper/washer switch sends a voltage signal to the generic electronic module (GEM) through circuit 32-KA35 (WH/RD). The GEM provides a ground signal to the rear wiper relay coil through circuit 91S-KA29 (BK/YE). The relay energizes and provides to the rear window wiper motor through circuit 32-KA28 (WH/RD). When the rear wiper switch is turned off, the rear window wiper motor continues to receive voltage through circuit 15-KA28 (GN/BU) until the wiper motor completes its cycle and the internal run/park switch opens the circuit.

### E4 CHECK THE CJB FOR A SHORT TO GROUND

- Disconnect: CJB C270b.
- Measure the resistance between the CJB rear wiper relay C2020-2, circuit 91S-KA29 (BK/YE), harness side and ground.

<table>
<thead>
<tr>
<th>Is the resistance greater than 10,000 ohms?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>REPAIR the circuit. TEST the system for normal operation.</td>
<td>INSTALL a new CJB. TEST the system for normal operation.</td>
<td></td>
</tr>
</tbody>
</table>

### E5 CHECK THE WIPER/WASHER SWITCH FOR NORMAL OPERATION

- Disconnect: Wiper/Washer Switch C2081.
- Carry out the wiper/washer switch component test.
- Refer to Wiring Diagrams Cell 149 for component testing.
- Does the wiper/washer switch pass the component test?

<table>
<thead>
<tr>
<th>Is the resistance greater than 10,000 ohms?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>GO to E6.</td>
<td>INSTALL a new multi-function switch. REFER to Section 211-05. TEST the system for normal operation.</td>
<td></td>
</tr>
</tbody>
</table>

### E6 CHECK FOR CORRECT GEM OPERATION

- Disconnect all the GEM connectors.
- Check for:
  - corrosion.
  - pushed-out pins.
- Connect all the GEM connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.
- Is the concern still present?

<table>
<thead>
<tr>
<th>Is the concern still present?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTALL a new GEM. REFER to Section 419-10. TEST the system for normal operation.</td>
<td>The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR the DTCs. REPEAT the self-test.</td>
<td></td>
</tr>
</tbody>
</table>

---

Pinpoint Test F: The Rear Window Wiper Is Inoperative

Refer to Wiring Diagrams Cell 81 for schematic and connector information.
Possible Causes
- Fuse(s)
- Circuit 15-KA19 (GN/OG) open
- Circuit 15-KA28 (GN/BU) open
- Circuit 31-DA1 (BK) open
- Circuit 31-KA19 (BK) open
- Circuit 32-KA28 (WH/RD) open
- Circuit 32-KA35 (WH/RD) open
- Circuit 91S-KA29 (BK/YE) open, short to voltage
- Rear window wiper motor
- Rear wiper relay
- Wiper/washer switch
- CJB
- GEM

PINPOINT TEST F: THE REAR WINDOW WIPER IS INOPERATIVE

NOTICE: Use the correct probe adaptor(s) when making measurements. Failure to use the correct probe adaptor(s) may damage the connector.

<table>
<thead>
<tr>
<th>Test Step</th>
<th>Result / Action to Take</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>F1 CHECK THE VOLTAGE TO THE REAR WINDOW WIPER MOTOR RELAY</strong></td>
<td></td>
</tr>
<tr>
<td>Ignition OFF.</td>
<td>Yes GO to F2</td>
</tr>
<tr>
<td>Ignition ON.</td>
<td>No</td>
</tr>
<tr>
<td>Measure the voltage between the rear wiper relay C2020-5, harness side and ground.</td>
<td>VERIFY the CJB fuses 43 (15A) and 56 (20A) are OK. IF OK, INSTALL a new CJB. TEST the system for normal operation.</td>
</tr>
</tbody>
</table>

N0051761
- Measure the voltage between the rear wiper relay C2020-1, harness side and ground.

N0051762
- Are the voltages greater than 10 volts?

**F2 CHECK CIRCUIT 31-DA1 (BK) FOR AN OPEN**

- Ignition OFF.
- Measure the resistance between the rear wiper relay C2020-4, circuit 31-DA1 (BK), harness side and ground.

Yes GO to F3

No
Is the resistance less than 5 ohms?

**F3 CHECK CIRCUIT 91S-KA29 (BK/YE) FOR A SHORT TO VOLTAGE**

- Ignition ON.
- Measure the voltage between the rear wiper relay C2020-2, circuit 91S-KA29 (BK/YE), harness side and ground.

Yes
- GO to **F4**.

No
- GO to **F6**.

Is the voltage greater than 10 volts?

**F4 ISOLATE THE GEM FROM CIRCUIT 91S-KA29 (BK/YE) AND CHECK FOR A SHORT TO VOLTAGE**

- Ignition OFF.
- Disconnect: GEM C201e.
- Ignition ON.
- Measure the voltage between the rear wiper relay C2020-2, circuit 91S-KA29 (BK/YE), harness side and ground.

Yes
- GO to **F5**.

No
- GO to **F17**.
<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
</table>
| **F5** ISOLATE THE CJB FROM CIRCUIT 91S-KA29 (BK/YE) AND CHECK FOR A SHORT TO VOLTAGE | Disconnect: CJB C270b.  
Ignition ON.  
Measure the voltage between the rear wiper relay C2020-2, circuit 91S-KA29 (BK/YE), harness side and ground. |
| **F6** CHECK CIRCUIT 91S-KA29 (BK/YE) FOR GROUND | Turn the wiper/washer switch to the ON position for the rear wiper and measure the resistance between the rear wiper relay C2020-2, circuit 91S-KA29 (BK/YE), and ground. |

| Yes | Yes | INSTALL a new CJB. CLEAR the DTCs. TEST the system for normal operation. |
| No | No | REPAIR the circuit. CLEAR the DTCs. TEST the system for normal operation. |

| Yes | Yes | INSTALL a new CJB. CLEAR the DTCs. TEST the system for normal operation. |
| No | No | REPAIR the circuit. CLEAR the DTCs. TEST the system for normal operation. |

Is the voltage greater than 10 volts?

| Yes | Yes | INSTALL a new CJB. CLEAR the DTCs. TEST the system for normal operation. |
| No | No | REPAIR the circuit. CLEAR the DTCs. TEST the system for normal operation. |
**F7 CHECK THE REAR WINDOW WIPER MOTOR RELAY FOR NORMAL OPERATION**

- **Yes**
  - GO to F8.
- **No**
  - INSTALL a new rear wiper relay. CLEAR the DTCs. TEST the system for normal operation.

**F8 CHECK CIRCUITS 15-KA28 (GN/BU) AND 32-KA28 (WH/RD) FOR VOLTAGE**

- Disconnect: Rear Window Wiper Motor C4218.
- Ignition ON.
- Turn the wiper/washer switch to the ON position for the rear wiper and measure the voltage between the rear window wiper motor C4218-2, circuit 32-KA28 (WH/RD), harness side and ground, and between the rear window wiper motor C4218-1, circuit 15-KA28 (GN/BU), harness side and ground.

<table>
<thead>
<tr>
<th>Are the voltages greater than 10 volts?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Yes</strong> INSTALL a new rear window wiper motor. REFER to Wiper Motor — Rear Window in this section. CLEAR the DTCs. TEST the system for normal operation.</td>
</tr>
<tr>
<td><strong>No</strong> GO to F9.</td>
</tr>
</tbody>
</table>
Are the resistances less than 5 ohms?

**F10 CHECK CIRCUIT 91S-KA29 (BK/YE) FOR AN OPEN**

- Disconnect: GEM C201e.
- Measure the resistance between the rear wiper relay C2020-2, circuit 91S-KA29 (BK/YE), harness side and the GEM C201e-17, circuit 91S-KA29 (BK/YE), harness side.

Is the resistance less than 5 ohms?

Yes
- GO to **F12**.

No
- GO to **F11**.

**F11 CHECK THE CJB**

- Disconnect: CJB C270b.
- Measure the resistance between the CJB C270b-2, circuit 91S-KA29 (BK/YE), harness side and the GEM C201e-17, circuit 91S-KA29 (BK/YE), harness side.

Is the resistance less than 5 ohms?

Yes
- INSTALL a new CJB. CLEAR the DTCs. TEST the system for normal operation.

No
- REPAIR the circuit. CLEAR the DTCs. TEST the system for normal operation.

**F12 CHECK CIRCUIT 15-KA19 (GN/OG) FOR VOLTAGE**

- Ignition OFF.
- Disconnect: Wiper/Washer Switch C2081.
- Ignition ON.
- Measure the voltage between the wiper/washer switch C2081-6, circuit 15-KA19 (GN/OG), harness side and ground.

Is the voltage greater than 10 volts?

Yes
- GO to **F14**.

No
- GO to **F13**.

**F13 CHECK CIRCUIT 15-KA19 (GN/OG) FOR AN OPEN**

- Ignition OFF.
- Disconnect: CJB C270f.
- Measure the resistance between the wiper/washer switch C2081-6, circuit 15-KA19 (GN/OG), harness side and the CJB C270f-5, circuit 15-KA19 (GN/OG), harness side.

Yes
- INSTALL a new CJB. CLEAR the DTCs. TEST the system for normal operation.

No
Pinpoint Test G: The Wipers Will Not Park At The Correct Position

Refer to Wiring Diagrams Cell 81, Wipers and Washers for schematic and connector information.

Normal Operation

When low speed operation is selected, the windshield wiper motor receives voltage through circuit 32-KA10 (WH/GN). When high speed operation is selected, the windshield wiper motor receives voltage through circuit 32-KA11 (WH/BK). When intermittent operation is selected, the generic electronic module (GEM) sends an intermittent ground signal to the windshield wiper relay, which is integral to the central junction box (CJB), through circuit 91S-KA12 (BK/WH).

The relay energizes and sends voltage to the wiper/washer switch through circuit 32-KA19 (WH/BK). When the wiper switch is turned off, or between intermittent pulses, the internal run/park switch in the windshield wiper motor provides voltage to the windshield wiper relay through circuit 32-KA9 (WH/BU) until the wiper motor completes its cycle and opens the circuit.

When rear wiper function is selected, the wiper/washer switch sends a voltage signal to the GEM through circuit 32-KA35 (WH/RD). The GEM provides a ground signal to the rear wiper relay coil through circuit 91S-KA29 (BK/YE). The relay, which is integral to the CJB, energizes and provides voltage to the rear window wiper motor through circuit 32-KA28 (WH/RD). When the rear wiper switch is turned off, the rear window wiper motor continues to receive voltage through circuit 15-KA28 (GN/BU) until the wiper motor completes its cycle and the internal run/park switch opens the circuit.

Possible Causes

- Circuit 15-KA9 (GN/RD) open
- Circuit 15-KA28 (GN/BU) open

Possible Causes

- Circuit 15-KA9 (GN/RD) open
- Circuit 15-KA28 (GN/BU) open

F14 CHECK CIRCUIT 31-KA19 (BK) FOR GROUND

- Ignition OFF.
- Measure the resistance between the wiper/washer switch C2081-3, circuit 31-KA19 (BK), harness side and ground.

- Is the resistance less than 5 ohms?

F15 CHECK CIRCUIT 32-KA35 (WH/RD) FOR AN OPEN

- Measure the resistance between the wiper/washer switch C2081-5, circuit 32-KA35 (WH/RD), harness side and the GEM C201e-3, circuit 32-KA35 (WH/RD), harness side.

- Is the resistance less than 5 ohms?

F16 CHECK THE WIPER/WASHER SWITCH FOR NORMAL OPERATION

- Carry out the wiper/washer switch component test.
- Refer to Wiring Diagrams Cell 149 for component testing.
- Does the wiper/washer switch pass the component test?

F17 CHECK FOR CORRECT GEM OPERATION

- Disconnect all the GEM connectors.
- Check for:
  - corrosion.
  - pushed-out pins.
- Connect all the GEM connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.
- Is the concern still present?

Yes
- INSTALL a new multi-function switch. REFER to Section 211-05, CLEAR the DTCs. TEST the system for normal operation.

No
- The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR the DTCs. REPEAT the self-test.

REPAIR the circuit. CLEAR the DTCs. TEST the system for normal operation.
- Circuit 32-KA9 (WH/BU) open
- Circuit 32-KA9A (WH/BU) open or short to ground
- Incorrect front wiper arm adjustment
- Incorrect rear wiper arm adjustment
- Windshield wiper motor
- Rear window wiper motor

**PINPOINT TEST G: THE WIPERS WILL NOT PARK AT THE CORRECT POSITION**

*NOTICE:* Use the correct probe adaptor(s) when making measurements. Failure to use the correct probe adaptor(s) may damage the connector.

<table>
<thead>
<tr>
<th>Test Step</th>
<th>Result / Action to Take</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>G1 CHECK THE WIPERS FOR CORRECT OPERATION</strong></td>
<td></td>
</tr>
<tr>
<td>Ignition ON.</td>
<td></td>
</tr>
<tr>
<td>Do the front wipers park in the correct position?</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>G2 CHECK CIRCUIT 32-KA9A (WH/BU) FOR AN OPEN</strong></td>
<td></td>
</tr>
<tr>
<td>Ignition OFF.</td>
<td></td>
</tr>
<tr>
<td>Disconnect: CJB C270c.</td>
<td></td>
</tr>
<tr>
<td>Disconnect: GEM C201c.</td>
<td></td>
</tr>
<tr>
<td>Measure the resistance between the CJB C270c-10, circuit 32-KA9A (WH/BU), harness side and the GEM C201c-2, circuit 32-KA9A (WH/BU), harness side.</td>
<td>Yes</td>
</tr>
<tr>
<td>Is the resistance less than 5 ohms?</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>G3 CHECK CIRCUIT 32-KA9A (WH/BU) FOR A SHORT TO GROUND</strong></td>
<td></td>
</tr>
<tr>
<td>Disconnect: Windshield Wiper Motor C12S.</td>
<td></td>
</tr>
<tr>
<td>Measure the resistance between the CJB C270c-10, circuit 32-KA9A (WH/BU), harness side and ground.</td>
<td>Yes</td>
</tr>
<tr>
<td>Is the resistance greater than 10,000 ohms?</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>G4 CHECK CIRCUIT 15-KA9 (GN/RD) FOR VOLTAGE</strong></td>
<td></td>
</tr>
<tr>
<td>Ignition ON.</td>
<td></td>
</tr>
<tr>
<td>Measure the voltage between the windshield wiper motor C12S-4, circuit 15-KA9 (GN/RD), harness side and ground.</td>
<td>Yes</td>
</tr>
<tr>
<td>Is the voltage greater than 10 volts?</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>G5 CHECK CIRCUIT 32-KA9 (WH/BU) FOR AN OPEN</strong></td>
<td></td>
</tr>
<tr>
<td>Ignition OFF.</td>
<td></td>
</tr>
<tr>
<td>Measure the resistance between the windshield wiper motor C12S-5, circuit 32-KA9 (WH/BU), harness side and the CJB C270c-10, circuit 32-KA9 (WH/BU), harness side.</td>
<td>Yes</td>
</tr>
<tr>
<td>Is the resistance less than 5 ohms?</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Repair the circuit. Clear the DTCs. Test the system for normal operation.
Pinpoint Test H: The Intermittent Wiper Speed Does Not Operate Correctly (High/Low Speeds OK)

Refer to Wiring Diagrams Cell 81, Wipers and Washers for schematic and connector information.

Normal Operation

When low speed operation is selected, the windshield wiper motor receives voltage through circuit 32-KA10 (WH/GN). When high speed operation is selected, the windshield wiper motor receives voltage through circuit 32-KA11 (WH/BK). When intermittent operation is selected, the wiper/washer switch sends a voltage signal to the generic electronic module (GEM) through circuit 8-KA19 (WH/BK). The GEM interprets these input voltages and sends an intermittent ground signal to the windshield wiper relay through circuit 915-KA12 (BK/WH). The relay energizes and sends voltage to the wiper/washer switch through circuit 32-KA19 (WH/BK). The wiper/washer switch sends voltage to the windshield wiper motor through circuit 32-KA10 (WH/GN). When the wiper/washer switch is turned to the off position, or between intermittent pulses, the internal run/park switch in the windshield wiper motor provides voltage to the windshield wiper relay through circuit 32-KA9 (WH/BU) until the wiper motor completes its cycle and opens the circuit.

Possible Causes

- Circuit 8-KA18 (WH) open
- Circuit 8-KA19 (WH/BK) open
- Circuit 15-KA19 (GN/OG) open
- Circuit 32-KA19 (WH/BK) open

Possible Causes

- Circuit 8-KA18 (WH) open
- Circuit 8-KA19 (WH/BK) open
- Circuit 15-KA19 (GN/OG) open
- Circuit 32-KA19 (WH/BK) open

Possible Causes

- Circuit 8-KA18 (WH) open
- Circuit 8-KA19 (WH/BK) open
- Circuit 15-KA19 (GN/OG) open
- Circuit 32-KA19 (WH/BK) open
PINPOINT TEST H: THE INTERMITTENT WIPER SPEED DOES NOT OPERATE CORRECTLY (HIGH/LOW SPEEDS OK)

NOTICE: Use the correct probe adaptor(s) when making measurements. Failure to use the correct probe adaptor(s) may damage the connector.

<table>
<thead>
<tr>
<th>Test Step</th>
<th>Result / Action to Take</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>H1 CHECK THE VOLTAGE TO THE WIPER/WASHER SWITCH</strong>&lt;br&gt;- Ignition OFF.&lt;br&gt;- Disconnect: Wiper/Washer Switch C2081.&lt;br&gt;- Ignition ON.&lt;br&gt;- Measure the voltage between the wiper/washer switch C2081-6, circuit 15-KA19 (GN/OG), harness side and ground.</td>
<td>Yes&lt;br&gt;GO to <strong>H2</strong>&lt;br&gt;No&lt;br&gt;REPAIR the circuit. CLEAR the DTCs. TEST the system for normal operation.</td>
</tr>
<tr>
<td><strong>H2 CHECK CIRCUIT 8-KA19 (WH/BK) FOR AN OPEN</strong>&lt;br&gt;- Ignition OFF.&lt;br&gt;- Disconnect: GEM C201d.&lt;br&gt;- Measure the resistance between the wiper/washer switch C2081-10, circuit 8-KA19 (WH/BK), harness side and the GEM C201d-4, circuit 8-KA19 (WH/BK), harness side.</td>
<td>Yes&lt;br&gt;GO to <strong>H3</strong>&lt;br&gt;No&lt;br&gt;REPAIR the circuit. CLEAR the DTCs. TEST the system for normal operation.</td>
</tr>
<tr>
<td><strong>H3 CHECK CIRCUIT 8-KA18 (WH) FOR AN OPEN</strong>&lt;br&gt;- Disconnect: GEM C201e.&lt;br&gt;- Measure the resistance between the wiper/washer switch C2081-1, circuit 8-KA18 (WH), harness side and the GEM C201e-4, circuit 8-KA18 (WH), harness side.</td>
<td>Yes&lt;br&gt;GO to <strong>H4</strong>&lt;br&gt;No&lt;br&gt;REPAIR the circuit. CLEAR the DTCs. TEST the system for normal operation.</td>
</tr>
<tr>
<td><strong>H4 CHECK CIRCUIT 32-KA19 (WH/BK) FOR AN OPEN</strong>&lt;br&gt;- Disconnect: CJB C270c.&lt;br&gt;- Measure the resistance between the wiper/washer switch C2081-7, circuit 32-KA19 (WH/BK), harness side and the CJB C270c-3, circuit 32-KA19 (WH/BK), harness side.</td>
<td>Yes&lt;br&gt;GO to <strong>H5</strong>&lt;br&gt;No&lt;br&gt;REPAIR the circuit. CLEAR the DTCs. TEST the system for normal operation.</td>
</tr>
</tbody>
</table>
### PINPOINT TEST I: THE WASHER PUMP IS INOPERATIVE

**Refer to Wiring Diagrams Cell 81, Wipers and Washers for schematic and connector information.**

**Normal Operation**

When the windshield washer function is selected, the wiper/washer switch provides voltage to the washer pump on circuit 33-KA34 (YE/BK). The wiper/washer switch switches circuit 32-KA34 (WH/BK) to ground through circuit 32-KA34 (WH/BK), circuit 31-KA19 (BK) and the washer pump provides washer solvent to the rear nozzles. When the rear window washer function is selected, if equipped, voltage is supplied through the wiper/washer switch to the washer pump through circuit 33-KA34 (YE/BK). The wiper/washer switch switches circuit 33-KA34 (YE/BK) to ground through circuit 31-KA19 (BK) and the washer pump reverses direction to provide washer solvent to the rear nozzle.

**Possible Causes**

- Fuse
- Circuit 15-KA19 (GN/OG) open
- Circuit 31-KA19 (BK) open
- Circuit 32-KA34 (WH/BK) open
- Circuit 33-KA34 (YE/BK) open
- Windshield washer pump
- Wiper/washer switch

---

### H5 CHECK CIRCUIT 91S-KA12 (BK/WH) FOR A SHORT TO VOLTAGE

- Disconnect: CJ8 C270a.
- Ignition ON.
- Measure the voltage between the CJ8 C270a-7, circuit 91S-KA12 (BK/WH), harness side and ground.

<table>
<thead>
<tr>
<th>Is any voltage present?</th>
<th>Yes</th>
<th>REPAIR the circuit. CLEAR the DTCs. TEST the system for normal operation.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>GO to H6.</td>
</tr>
</tbody>
</table>

### H6 CHECK CIRCUIT 91S-KA12 (BK/WH) FOR AN OPEN

- Ignition OFF.
- Measure the resistance between the CJ8 C270a-7, circuit 91S-KA12 (BK/WH), harness side and the GEM C201e-21, circuit 91S-KA12 (BK/WH), harness side.

<table>
<thead>
<tr>
<th>Is the resistance less than 5 ohms?</th>
<th>Yes</th>
<th>GO to H7.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>REPAIR the circuit. CLEAR the DTCs. TEST the system for normal operation.</td>
</tr>
</tbody>
</table>

### H7 CHECK THE WINDSHIELD WIPER MOTOR RELAY FOR NORMAL OPERATION

- Disconnect: Windshield Wiper Relay.
- Carry out the windshield wiper relay component test.

<table>
<thead>
<tr>
<th>Does the windshield wiper relay pass the component test?</th>
<th>Yes</th>
<th>GO to H8.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>INSTALL a new windshield wiper relay. CLEAR the DTCs. TEST the system for normal operation.</td>
</tr>
</tbody>
</table>

### H8 CHECK THE WIPER/WASHER SWITCH FOR NORMAL OPERATION

- Carry out the wiper/washer switch component test.

<table>
<thead>
<tr>
<th>Does the wiper/washer switch pass the component test?</th>
<th>Yes</th>
<th>GO to H9.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>INSTALL a new multi-function switch. REFER to Section 211-05. CLEAR the DTCs. TEST the system for normal operation.</td>
</tr>
</tbody>
</table>

### H9 CHECK FOR CORRECT GEM OPERATION

- Disconnect all the GEM connectors.
- Check for:
  - corrosion.
  - pushed-out pins.
- Connect all the GEM connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.
- Is the concern still present?

<table>
<thead>
<tr>
<th>INSTALL a new GEM. REFER to Section 419-10. TEST the system for normal operation.</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR the DTCs. REPEAT the self-test.</td>
<td>No</td>
</tr>
<tr>
<td>Test Step</td>
<td>Result / Action to Take</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>I1 CHECK THE VOLTAGE TO THE WIPER/WASHER SWITCH</td>
<td></td>
</tr>
<tr>
<td>• Ignition OFF.</td>
<td>Yes GO to I2.</td>
</tr>
<tr>
<td>• Disconnect: Wiper/Washer Switch C2081.</td>
<td>No</td>
</tr>
<tr>
<td>• Ignition ON.</td>
<td>VERIFY the central junction box (CJB) fuse 56 (20A) is OK. If OK, REPAIR the circuit. CLEAR the DTCs. TEST the system for normal operation.</td>
</tr>
<tr>
<td>• Measure the voltage between the wiper/washer switch C2081-6, circuit 15-KA19 (GN/OG), harness side and ground.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Step</th>
<th>Result / Action to Take</th>
</tr>
</thead>
<tbody>
<tr>
<td>I2 CHECK CIRCUIT 31-KA19 (BK) FOR GROUND</td>
<td></td>
</tr>
<tr>
<td>• Ignition OFF.</td>
<td>Yes GO to I3.</td>
</tr>
<tr>
<td>• Measure the resistance between the wiper/washer switch C2081-3, circuit 31-KA19 (BK), harness side and ground.</td>
<td>No</td>
</tr>
<tr>
<td>• Is the resistance less than 5 ohms?</td>
<td>REPAIR the circuit in question. CLEAR the DTCs. TEST the system for normal operation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Step</th>
<th>Result / Action to Take</th>
</tr>
</thead>
<tbody>
<tr>
<td>I3 CHECK THE WIPER/WASHER SWITCH FOR NORMAL OPERATION</td>
<td></td>
</tr>
<tr>
<td>• Carry out the wiper/washer switch component test.</td>
<td>Yes GO to I4.</td>
</tr>
<tr>
<td>Refer to Wiring Diagrams Cell 149 for component testing.</td>
<td>No</td>
</tr>
<tr>
<td>• Does the wiper/washer switch pass the component test?</td>
<td>INSTALL a new multi-function switch. REFER to Section 211-05. CLEAR the DTCs. TEST the system for normal operation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Step</th>
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</tr>
</thead>
<tbody>
<tr>
<td>I4 CHECK CIRCUITS 32-KA34 (WH/BK) AND 33-KA34 (YE/BK) FOR VOLTAGE</td>
<td></td>
</tr>
<tr>
<td>• Connect: Wiper/Washer Switch C2081.</td>
<td>Yes</td>
</tr>
<tr>
<td>• Ignition ON.</td>
<td>INSTALL a new washer pump motor. REFER to Washer Pump and Reservoir in this section. CLEAR the DTCs. TEST the system for normal operation.</td>
</tr>
<tr>
<td>• Disconnect: Washer Pump Motor C1397.</td>
<td>No</td>
</tr>
<tr>
<td>• Measure the voltage between the washer pump motor C1397-2, circuit 32-KA34 (WH/BK), harness side and ground; and between the washer pump motor C1397-1, circuit 33-KA34 (YE/BK), harness side and ground.</td>
<td>REPAIR the circuit. CLEAR the DTCs. TEST the system for normal operation.</td>
</tr>
</tbody>
</table>

Component Tests

Wiper Motor — Windshield

**NOTICE:** The magnets in the windshield wiper washer motor can become damaged if the motor is jarred.

**NOTICE:** The ammeter must have a range of at least 10 amps DC to prevent damage to the ammeter.

**NOTE:** Use an external 12 volts DC supply which can be loaded to at least 10 amps, or use fused battery voltage.

Measure the voltage drained by the front wiper motor.
1. Switch off the ignition.

2. Remove the windshield wiper motor.

3. Remove the component electrical connector.

**NOTICE:** Mount the windshield wiper motor firmly, so that the wiper linkage can move freely.

4. Connect the negative terminal of the ammeter to pin 1 of the windshield wiper motor.

5. Connect the voltage supply negative to pin 3 of the windshield wiper motor.

6. Connect the voltage supply positive to the positive terminal of the ammeter and switch on the voltage supply. Read the current on the meter as the windshield wiper motor runs at high speed. The reading should be about 3 amps.

7. Switch off the voltage supply and disconnect the negative terminal of the ammeter from the windshield wiper washer motor.

8. Connect the negative terminal of the ammeter to pin 2 of the windshield wiper motor and switch on the voltage supply. Read the current on the meter as the windshield wiper motor runs slowly. The reading should be about 2 amps.

9. Switch off the voltage supply.

Check the limit switch.

**NOTE:** The windshield wiper motor must not be at the rest position.

Connect the voltage supply positive to pin 2 and the voltage supply negative to pin 5 of the front windshield wiper motor. Using test cables, connect pin 3 with pin 4 on the windshield wiper motor. Switch on the voltage supply. The windshield wiper motor must run at slow speed and stop in the rest position.

If it does not, install a new windshield wiper motor. Refer to **Wiper Motor — Windshield** in this section.

Measure the resistance between pin 5 and 3 of the windshield wiper motor.

If the resistance is less than 1 ohm the motor is OK. If not, install a new windshield wiper motor. Refer to **Wiper Motor — Windshield** in this section.

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**Wiper Motor — Rear Window**

**NOTICE:** The magnets in the windshield washer motor can become damaged if the motor is jarred.

**NOTICE:** The ammeter must have a range of at least 10 amps DC to prevent damage to the ammeter.

**NOTE:** Use an external 12 volt DC supply which can be loaded to at least 10 amps, or use fused battery voltage.

Measure the voltage drained by the rear window wiper motor.
1. Turn off the ignition.

2. Remove the component electrical connector.

3. Connect the negative terminal of the ammeter to pin 2 of the rear window wiper motor. Connect the voltage supply negative to the rear window wiper motor housing.

4. Connect the voltage supply positive to the positive terminal of the ammeter and switch on the voltage supply. Read the current on the meter as the rear window wiper motor runs. The reading should be about 2 amps.

5. Turn off the voltage supply and remove all test connections.

Check the limit switch.

NOTE: The rear window wiper motor must not be at the rest position.

Connect the voltage supply negative to the rear window wiper motor housing. Connect the voltage supply positive to pin 1 of the rear window wiper motor and switch on the voltage supply. The motor must run and stop in the rest position. If it does, the motor is OK. If not, install a new rear window wiper motor. Refer to Wiper Motor — Rear Window in this section.