You are here because the Brake lamp is on. There are no codes from RWAL controller and the brake lamp is not flashing.

MC: Measure voltage between terminals 5 and 3 at monitor coupler pins.

0 volt:
- Check for:
  - Blown TAIL DOME fuse.
  - Open circuit from TAIL DOME fuse to RWAL control module terminal.

LAMP OUT?
- yes: OK now?
  - no: power loss

Check the CM pin 5 is grounded. Check that CM pin 3 is connected, to MC pin 7 AND is not grounded out, or is not open circuit cut or broken. If this checks out then the CM is dead. Replace it or repair it.

CM: Disconnect harness connector from RWAL control module.

Light “OFF”:
- Measure voltage terminal 3/4 of RWAL control module harness connector.
- Repair short in brake warning light circuit.

10 - 15 volt:
- Replace RWAL control module

Check for:
- Blown RWAL fuse and REAR DEFG fuse.
- Open circuit form RWAL fuse to RWAL control module terminal

0 volt:
- Replace RWAL control module

CM = control module (@rwal puter)
MC = monitor coupler. Diag Plug at steering column.
Disconnect connector from RWAL control module.

Light goes OFF.

Check if power supply to control module is intermittent.
- Shake harness and check voltage of control module harness connector and terminal 14.
- Check voltage of terminal 18 likewise.

Voltage is stable between 10 to 15 volts.

Check control module ground wire for temporary breakage or poor grounding.
- Shake harness and check resistance between module harness connector terminal 31 and vehicle body ground.
- Check that vehicle body ground terminals are properly grounded by bolts.

Resistance is less than 1 Ω and stable. Also, vehicle body ground terminals of harness are securely fixed.

Replace RWAL control module.

Light flashes.

Temporary fault has occurred in either brake warning light circuit or light to control module harness connector terminal 3. Circuit. Check fuse, bulb and wiring.

Voltage is obtained intermittently or less than 10 volts.

Correct temporary fault in power supply to control module. Refer to wiring diagram provided in this Section.

Measured resistance is more than 1 Ω or Unstable. Or, vehicle body ground terminal of harness is not fixed securely.

Repair poor grounding of wire.
REAR WHEEL ANTI-LOCK (RWAL) BRAKE SYSTEM

General Description

The Kelsey Hayes RWAL system was available as an option on 1990–95 Sidekick and 1991 Tracker models. The system is particularly useful because of the wide variations of loading the vehicle may experience. Preventing rear wheel lock-up often makes the difference in controlling the vehicle during hard or sudden stops.

Found on both 2WD and 4WD vehicles, the RWAL system is designed to regulate rear hydraulic brake line pressure, preventing wheel lock-up at the rear. Pressure regulation is managed by the proportioning and differential (control) valve, located under the master cylinder. The control valve is capable of holding, increasing or decreasing brake line pressure based on electrical commands from the RWAL Electronic Control Unit (ECU) or Electronic Brake Control Module (EBCM).

![Fig. 1: Rear Wheel Anti-Lock (RWAL) brake system component identification and locations](image)

The RWAL ECU is a separate and dedicated microcomputer mounted next to the master cylinder; it is not to be confused with the engine management ECU. The RWAL ECU receives signals from the speed sensor. The speed sensor sends its signals to the Vehicle Speed Sensor buffer (previously known as the Digital Ratio Adapter Controller or DRAC) within the instrument cluster. The buffer translates the sensor signal into a form usable by the ECU. The RWAL ECU reads this signal and commands the control valve to function. If commanded to release pressure, the dump valve releases pressurized fluid into the accumulator where it is held under pressure. If a pressure increase is called for, the isolator valve within the control valve pulses, releasing pressurized fluid into the system.

The RWAL system is connected to the BRAKE warning lamp on the instrument cluster. A RWAL self-check and a bulb test are performed every time the ignition switch is turned to ON. The BRAKE warning lamp should illuminate for about 2 seconds and then go off. Problems within the RWAL system will be indicated by the BRAKE warning lamp staying illuminated.

If a fault is detected within the system, the RWAL ECU will assign a fault code and store the code in memory. The code may be read to aid in diagnosis.
Key on, place jumper for 2 seconds.

1. Monitor coupler
2. Fuse box
NOTE:
When RWAL control module detects two or more of the following conditions, only the smallest one among their corresponding codes is indicated repeatedly.

<table>
<thead>
<tr>
<th>DIAGNOSTIC CODE NO.</th>
<th>CONDITION</th>
<th>ACTION TO TAKE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Open isolation solenoid circuit</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Open dump solenoid circuit</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Valve reset switch closed</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>System dumps too many times</td>
<td>Diagnosis according to diagnosis procedure for each code.</td>
</tr>
<tr>
<td></td>
<td>(Condition occurs when brake is applied during driving)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Rear wheel speed sensor signal changed rapidly</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Condition only occurs while driving.)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Shorted isolation solenoid circuit</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Shorted dump solenoid circuit</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Open rear wheel speed sensor circuit</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Stop light switch remains ON</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Shorted rear wheel speed sensor circuit</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>RWAL control module malfunction</td>
<td></td>
</tr>
</tbody>
</table>
Pressure Limit (Isolation/Dump) Valve

INSPECTION

1. Ensure the ignition switch is turned OFF.
2. Detach the wiring harness connector from the pressure limit valve.

![Diagram of pressure limit valve](image)

3. Using a Digital Volt-Ohmmeter (DVOM) set on the ohmmeter function, measure the resistance between valve terminals ISO and GND, terminals DUMP and GND, and between the valve body and terminal RESET. The resistance between terminals ISO and GND should register 3–6 ohms at 68°F (20°C). The resistance between terminals DUMP and GND should be 1–3 ohms at 68°F (20°C). The resistance between the valve body and terminal RESET should register infinite resistance (no continuity). If the resistances were not as indicated, replace the valve.
4. Reattach the wiring harness connector to the valve.