Brake Lights Remain On After Pedal Released

General Information

There have been complaints that the brake (stop) lights have been staying on after the brake pedal has been released on some Business Class M2 trucks. The following procedure is designed to help diagnose this issue.

IMPORTANT: Please make notes of the results of the following tests. If any of the tests fail, report the results to your District Service Manager.

Procedure

1. Park the vehicle on a level surface, shut down the engine, apply the parking brake, and chock the tires.

2. Verify that the brake lights are on when the vehicle is parked and the brake pedal is released. Pull up on the brake pedal to verify there is not a problem with brake pedal return. If so, repair as necessary.

3. Locate the Air Module Unit (AMU) between the frame rails, just forward of the rear axle.

4. Without disconnecting the electrical connector at Switch Module "A" (the widest module and farthest one to the right, Fig. 1), inspect the electrical connection. Note whether the connector seal is fully seated in the cavity. A seal that is not completely seated in the cavity might allow water to enter the connector cavity and create a short between connector pins.

5. With the brake pedal depressed, measure the voltage drop between pin C3-G of the chassis module (CHM) and ground by back probing the CHM connector and the negative battery post. See Fig. 2. The voltage should be less than 0.2 volts. If so, go to step 6. If the voltage is more than 0.2 volts, measure the voltage drop across the AMU switch "A" by backprobing pins C & D with the brake depressed. If the voltage drop is still above 0.2 volts, replace the pressure switch. If the voltage drop is much less than 0.2 volts, check the wiring between the AMU and CHM, and check the ground circuit.

6. Without disturbing the electrical connector on pressure switch module "A" of the AMU, disconnect the air line routed from the double-check valve module (Fig. 3) to the application port of the pressure switch.
A. C3 Connector Pin Locations
1. Driver's-Side Frame Rail
2. Chassis Module
3. C3 Connector

Fig. 2, Chassis Module (isometric view)

Do not disconnect this line at pressure switch “A”. If the vehicle is NOT equipped to tow a trailer, disconnect the line at the AMU double-check module. If the vehicle is equipped to tow a trailer, cut the line leading to the application port of pressure switch "A". A union connector will be required to put the air line back together.

7. If air is heard exhausting and the brake lights turn off when removing the air line, then air is being trapped in the circuit, causing the lights to stay on. This usually indicates an air line is pinched or kinked. Go to step 9.
If the brake lights turn off after removing the air line, go to the next step.

8. If brake lights turn off after disconnecting the air line at pressure switch module “A”, air is not releasing properly. Check the air lines from the modules to the brakes.
   • For vehicles not equipped to tow a trailer: Check that the air line between the double check module and switch module “A” is not kinked or pinched. If this is not the cause, then isolate a pinched line by testing the brake light reaction time with one side of the double-check signal working at a time. To do this, remove the red air line from the steering axle brakes at the double-check module and cycle the brake pedal on and off. This should operate the brake lights by use of the drive axle pressure only (green line). If the brake lights illuminate then there may be a pinched/kinked line in the steering axle circuit. If the brake lights stay on or turn off slowly, there may be a pinched line in the drive axle circuit. Connect the red line and disconnect the green line and repeat to verify. It is also possible that the double-check module is causing the problem. Go to Step 9.
   • For vehicles equipped to tow a trailer: Go to step 9.
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9. Check for pinched/kinked air lines.

   NOTE: It may be faster to check for a pinched line by bypassing the existing lines with a new air line run between the foot valve and the AMU.

   • For vehicles equipped to tow a trailer: Start at pressure switch module "A" and check the red and green air lines to the tractor protection valve and back to the foot valve for kinks and pinches.
   
   • For vehicles not equipped to tow a trailer: Start at the double-check module and check the red air line to the R7 valve and back to the steering axle quick release valve. Follow the line back to the foot valve.

   For the drive axle circuit, start at the double-check module and check the green line to the drive axle relay valve and back to the foot valve. If pinches or kinks were found in the air lines, replace them and test the brake lights again.

If no pinched or kinked airlines were found, go to step 10. If pinched or kinked airlines were found, repair or replace them and retest.

10. Unplug the electrical connector at the AMU switch module "A" and check to see if the brake lights turn off. If the brake lights remain on, go to step 12. Note if any water dripped out of the connector when removed. If water came out, disassemble the module from the AMU, tilt it over and check for more water in the connector. If more exists, shake it out and attach the electrical connector and air line again. If the brake lights stay on after depressing the brake pedal a few times, and it is believed that the air lines are exhausting properly and completely, go to step 11.

   If the brake lights go out, go to the last step.

11. With the service brake released, measure the voltage drop between either C3-J, C4-J, or C4-P and C3-G (Fig. 2). The voltage should be less than 2 volts. If the voltage is less than 2 volts, the problem has not been found. If more than 2 volts, replace the AMU pressure switch "A" (diode is leaking too much current).
12. If the brake lights remain on after unplugging the connector at AMU switch module "A", then check for shorted wiring between the connector and the CHM. If the wiring is not shorted, there may be a problem with the chassis or bulkhead module. See Group 54 of the Business Class® M2 Workshop Manual.

13. Remove the chocks from the tires.

**Parts**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Part Description</th>
<th>Qty</th>
</tr>
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<tbody>
<tr>
<td>12-18205-000</td>
<td>AMU Pressure Switch &quot;A&quot; (3 ports)</td>
<td>1</td>
</tr>
<tr>
<td>12-18205-001</td>
<td>AMU Pressure Switch &quot;A&quot; (4 ports)</td>
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</table>

Table 1, Parts List

Parts are available through the PDCs.

**Warranty**

Normal warranty applies. When submitting claims, reference this service bulletin by number in the story of the claim and use the damage code and repair time information in Table 2.

IMPORTANT: Please make notes of the results of the following tests. If any of the tests fail, report detailed results to your District Service Manager.

<table>
<thead>
<tr>
<th>Damage Code</th>
<th>Operation Number</th>
<th>Description</th>
<th>Time (hours)</th>
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<tbody>
<tr>
<td>486-001A03653</td>
<td>486-5000A</td>
<td>AMU, STOP LAMPS REMAINING ON, M2, INSPECTION</td>
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</table>

Table 2, Damage Code and Repair Time Information

IMPORTANT: Indicate as the failed part number on the claim the number of the part being replaced.