

PRODEMAND

YMMS: 2008 Chrysler Aspen Limited

Engine: 5.7L Eng

VIN:

Dec 3, 2019

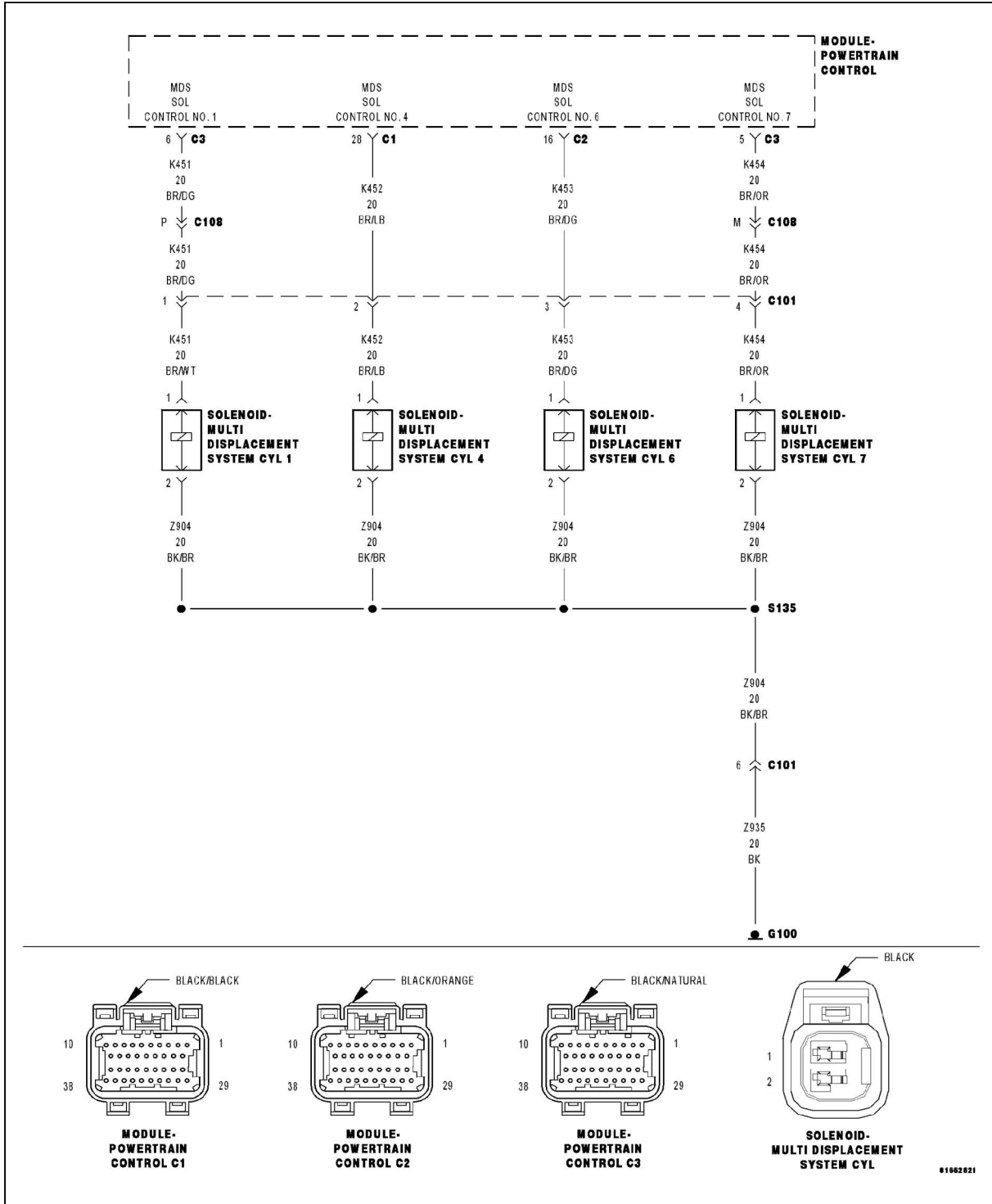
License:

Odometer:

P3450-CYLINDER 7 DEACTIVATION CONTROL PERFORMANCE

Circuit Schematic

Fig 1: Multi Displacement System Solenoids Circuit Schematic



Courtesy of CHRYSLER LLC

Additional Wiring

For complete wiring diagrams refer to:
SYSTEM WIRING DIAGRAMS for Durango.

SYSTEM WIRING DIAGRAMS for Aspen.

When all criteria has been met, power is supplied to each MDS Solenoid when the engine is making a transition from 8 cylinder mode to 4 cylinder mode. By actuating the solenoid, oil pressure is raised to the pair of lifters that coincide with each particular solenoid. The oil pressure pushes in the locking pins that allows the lifter to collapse, decoupling the valves and camshaft.

Monitor Conditions

When Monitored:

Transition from 8 to 4 cylinder mode.

Set Conditions

- **Set Condition:**

The MDS fails to disengage for cylinder 7. Two trip fault.

Possible Causes

Possible Causes
(K454) MDS SOLENOID NO.7 CONTROL SHORT TO GROUND
(K454) MDS SOLENOID NO.7 CONTROL OPEN
(Z935) GROUND CIRCUIT OPEN
INSUFFICIENT OIL PRESSURE ACTING ON THE LIFTER LOCKING PINS
OIL PASSAGES RESTRICTED
LIFTER
MDS SOLENOID
POWERTRAIN CONTROL MODULE (PCM)

Always perform the PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE before proceeding.

Diagnostic Test

1. ACTIVE DTC

NOTE: Diagnose any Misfire DTCs before continuing.

Start the engine and allow it to reach normal operating temperature.

WARNING: When the engine is operating, do not stand in direct line with the fan. Do not put your hands near the pulleys, belts, or fan. Do not wear loose clothing.

Failure to follow these instructions can result in personal injury or death.

NOTE: *It may be necessary to test drive the vehicle in order for this DTC to set.*

With a scan tool, select View DTCs.

Is the DTC Active at this time?

Yes

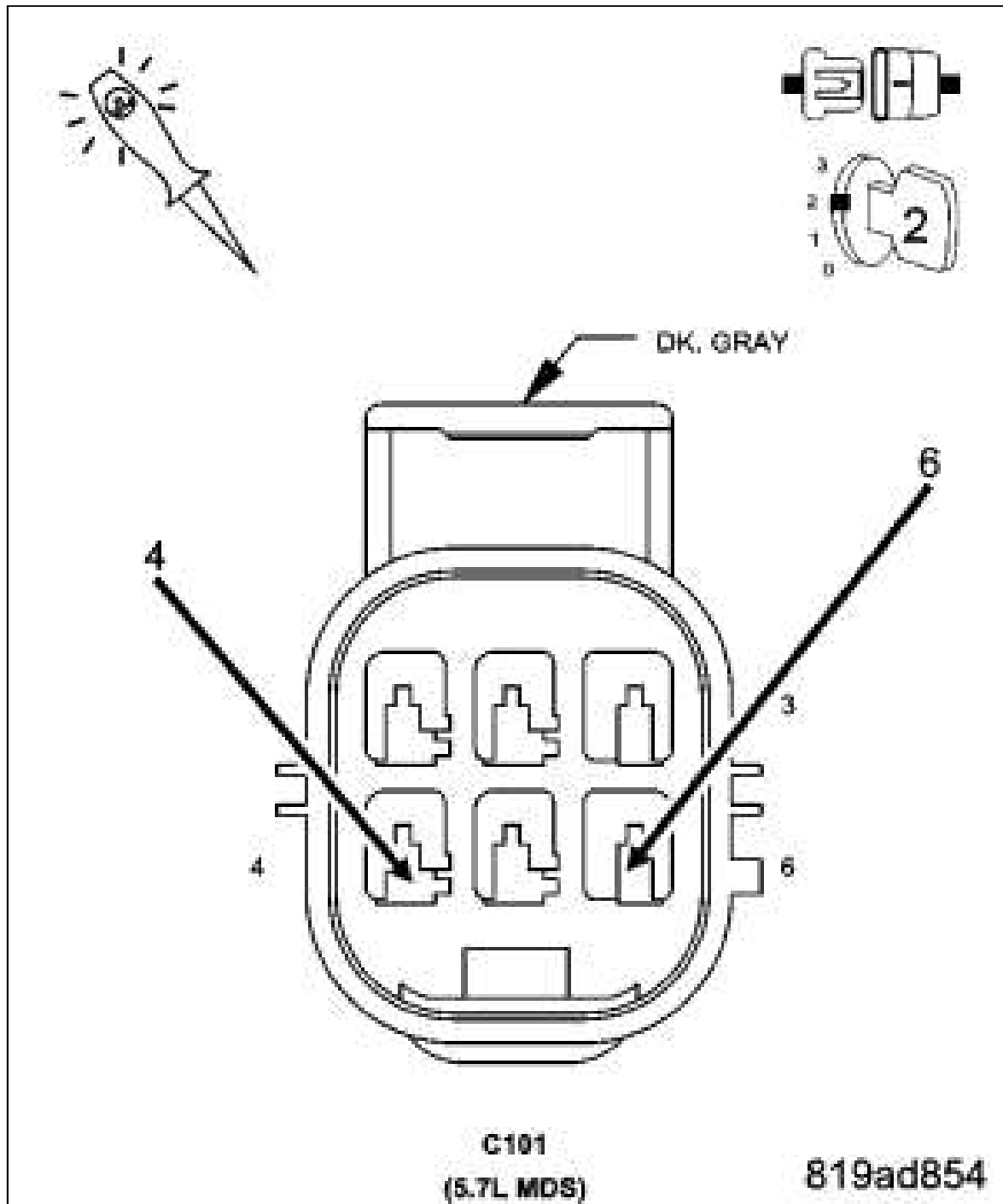
1. Go To 2.

No

1. Refer to the INTERMITTENT CONDITION Diagnostic Procedure.

2. CHECKING PCM CONTROL SIDE FOR THE MDS SOLENOID (C101)

Fig 2: Checking C101 Harness Connector



Courtesy of CHRYSLER LLC

Turn the ignition off.

Disconnect the C101 harness connector.

Using a 12-volt test light, jumper from the (Z935) Ground Circuit and the (K454) MDS Solenoid No.7 Control Circuit in the C101 harness connector (PCM side).

Turn the ignition on.

With the scan tool, actuate the MDS Solenoid No.7.

NOTE: *The test light should be illuminated and bright proportional to the maximum duty cycle allowed by the scan tool. For example, if the scan tool allows 100% actuation, the brightness should be as bright as a direct connection to the battery. If the scan tool allows a maximum 25% actuation, the brightness should be 25% as bright as a direct connection to the battery.*

Does the 12-volt test light illuminate accordingly?

Yes

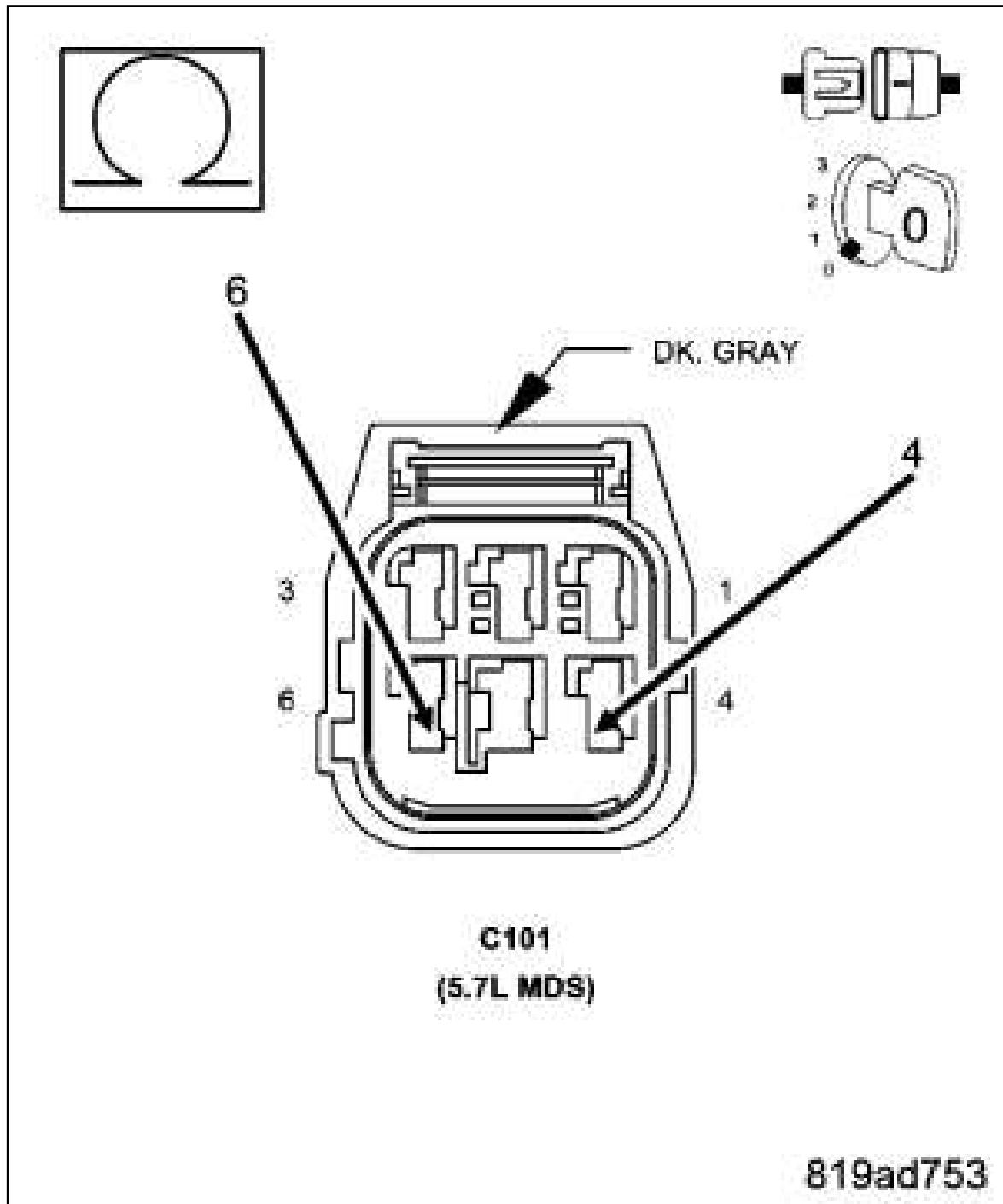
1. Go To 3.

No

1. Go To 4.

3. MDS SOLENOID RESISTANCE

Fig 3: Measuring Resistance Between Ground Circuit And MDS Solenoid No. 7 Control Circuit



Courtesy of CHRYSLER LLC

Turn the ignition off.

Measure the resistance between the (Z903) Ground Circuit and the (K454) MDS Solenoid No.7 Control Circuit in the C101 harness connector (MDS side).

NOTE: *It is important to follow the below temp/resistance values to ensure an accurate reading.*

MDS SOLENOID RESISTANCE	
TEMPERATURE VALUE \pm -7° C (20° F)	RESISTANCE (OHMS) \pm.25 ohms
-18° C (0° F)	8.8 ohms
0° C (32° F)	9.5 ohms
20° C (68° F)	10.3 ohms
38° C (100° F)	11 ohms
66° C (150° F)	12.2 ohms
93° C (200° F)	13.4 ohms
121° C (250° F)	14.4 ohms
149° C (300° F)	15.6 ohms

Is the resistance within an acceptable range?

Yes

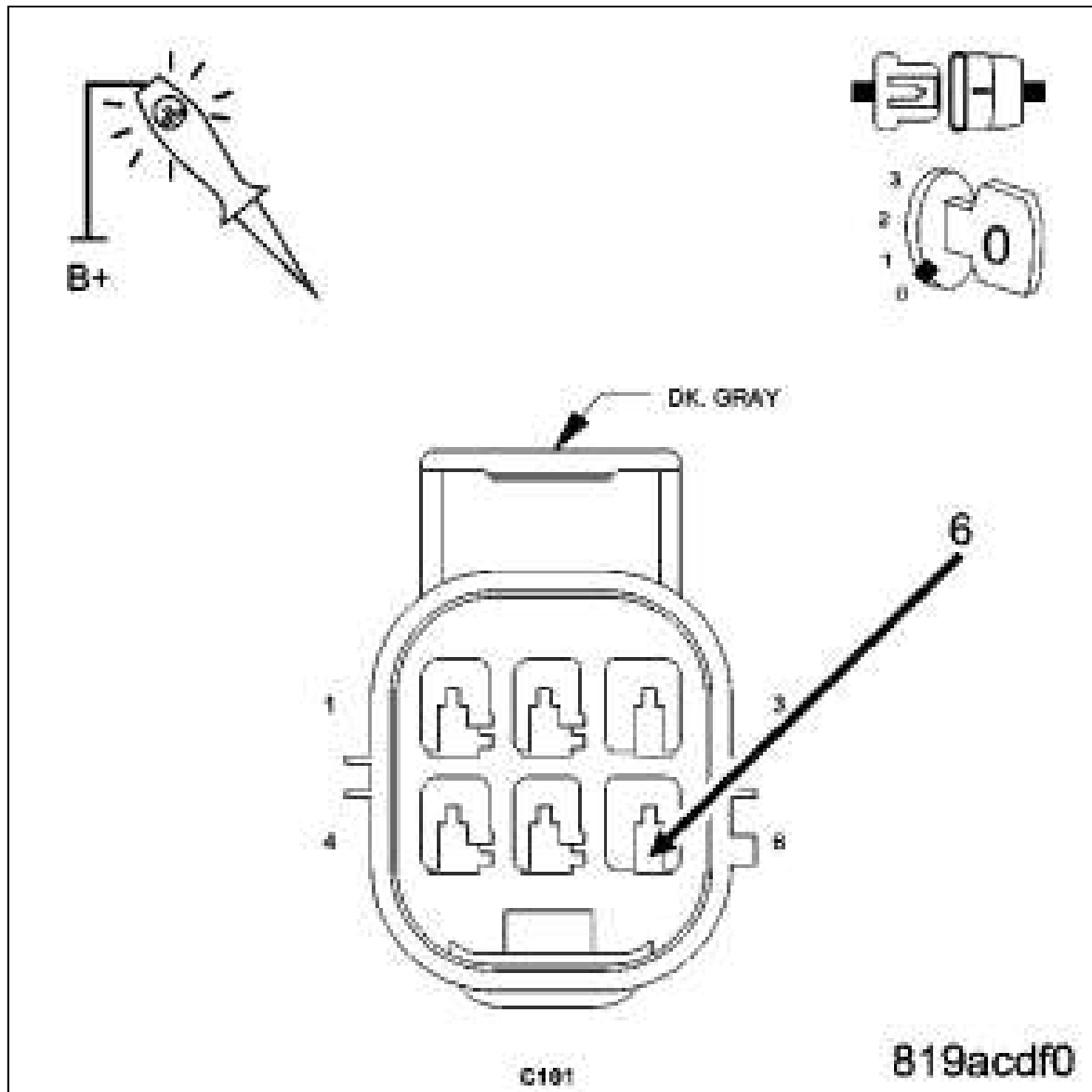
1. Go To 7.

No

1. Visually and Physically inspect the wiring harness between the C101 connector and the MDS Solenoid connector. Repair as necessary. If OK, replace the MDS Solenoid in accordance with the Service Information.

4. (Z935) GROUND CIRCUIT OPEN (PCM SIDE)

Fig 4: Checking Ground Circuit For Open



Courtesy of CHRYSLER LLC

Turn the ignition off.

Using a 12-volt test light connected to 12-volts, probe the (Z935) Ground circuit in the C101 harness connector (PCM side).

Does the test light illuminate brightly?

Yes

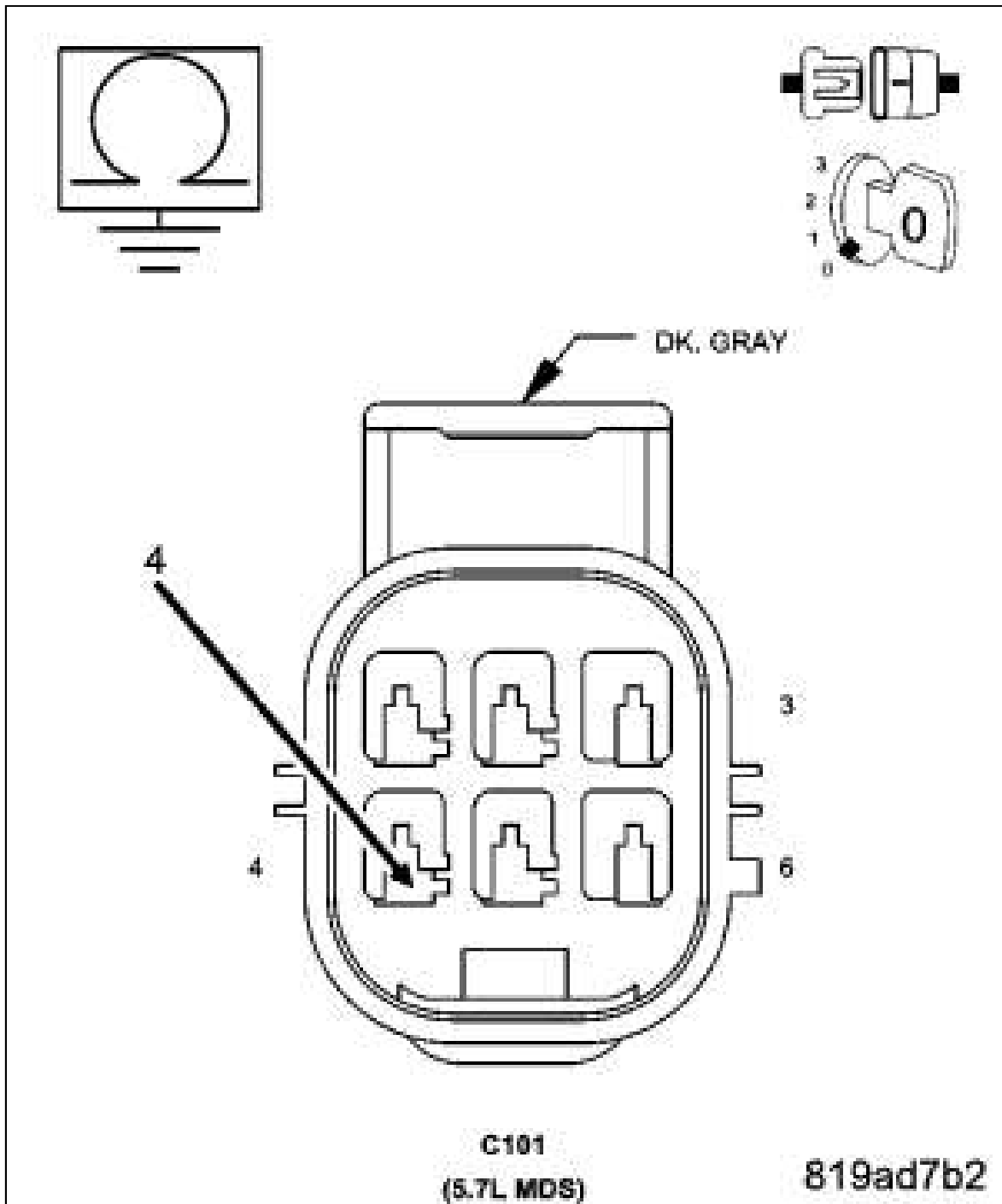
1. Go To 5.

No

1. Repair the open in the (Z935) Ground circuit.
2. Perform POWERTRAIN VERIFICATION TEST .

5. (K454) MDS SOLENOID NO.7 CONTROL CIRCUIT SHORTED TO GROUND (PCM SIDE)

Fig 5: Measuring Resistance Between Ground And MDS Solenoid No. 7 Control Circuit



Courtesy of CHRYSLER LLC

Turn the ignition off.

Disconnect the C3 PCM harness connector.

Measure the resistance between ground and the (K454) MDS Solenoid No.7 Control circuit in the C101 harness connector.

Is the resistance below 100 ohms?

Yes

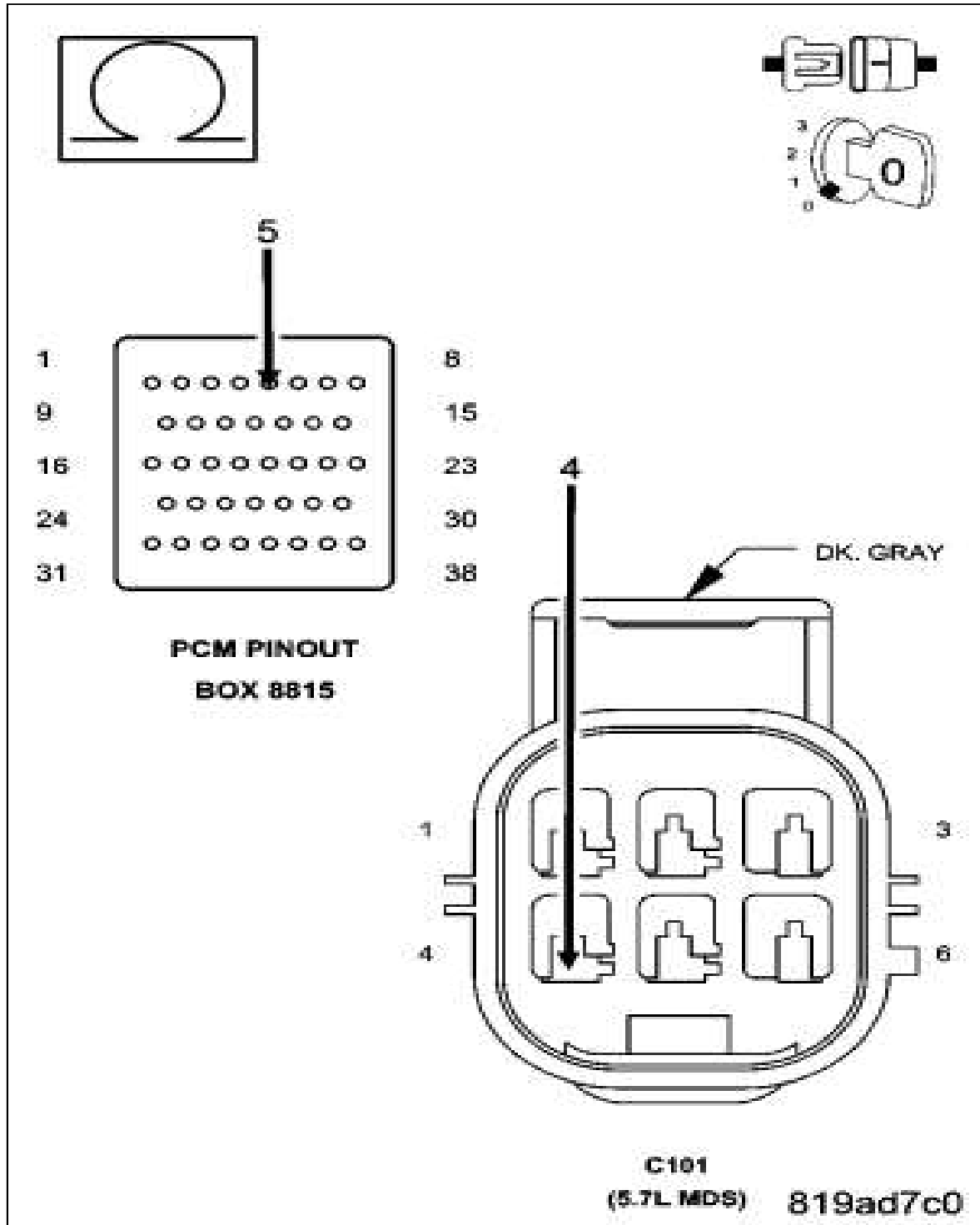
1. Repair the short to ground in the (K454) MDS Solenoid No.7 Control circuit between the PCM harness connector and the C101 harness connector.
2. Perform POWERTRAIN VERIFICATION TEST .

No

1. Go To 6.

6. (K454) MDS SOLENOID NO.7 CONTROL CIRCUIT OPEN (PCM SIDE)

Fig 6: Measuring Resistance Of MDS Solenoid No. 7 Control Circuit



Courtesy of CHRYSLER LLC

CAUTION: Do not probe the PCM harness connectors. Probing the PCM harness connectors will

damage the PCM terminals resulting in poor terminal to pin connection. Install Miller Special Tool #8815 to perform diagnosis.

Measure the resistance of the (K454) MDS Solenoid No.7 Control circuit from the C101 harness connector to the appropriate terminal of special tool #8815.

Is the resistance below 5.0 ohms?

Yes

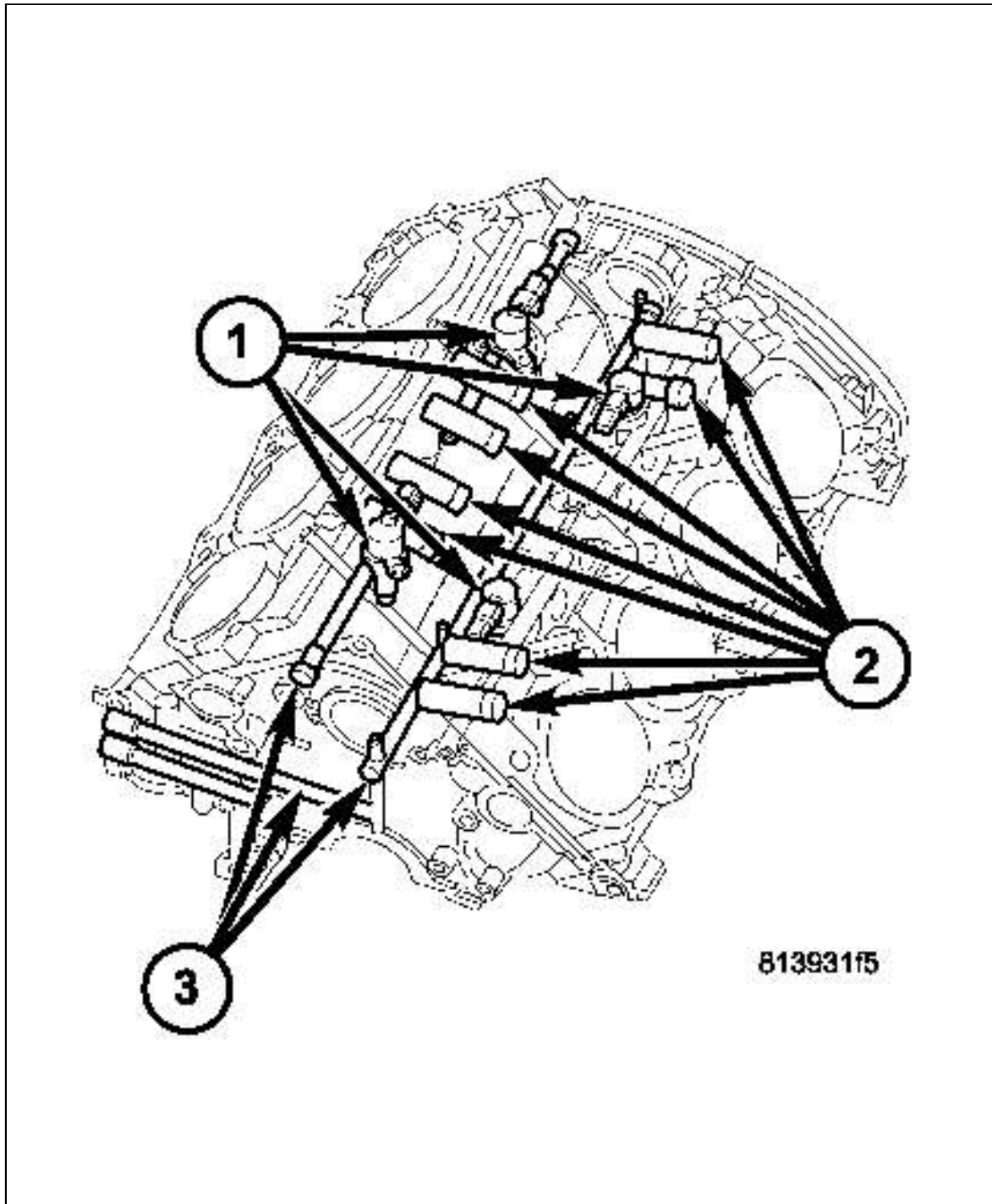
1. Replace and program the Powertrain Control Module in accordance with the service information.
2. Perform POWERTRAIN VERIFICATION TEST .

No

1. Repair the open in the (K454) MDS Solenoid No.7 Control circuit between the C101 harness connector and the PCM harness connector.
2. Perform POWERTRAIN VERIFICATION TEST .

7. MDS SOLENOID 7

Fig 7: Checking Multi Displacement System Cylinder Solenoids



Courtesy of CHRYSLER LLC

Turn the ignition off.
Remove the Intake Manifold per Service Information.
Reconnect the C3 PCM harness connector.
Turn the ignition on.
With the scan tool actuate the MDS Solenoid 7.
Can you feel and hear the Solenoid Actuating?

Yes

1. Go To 8.

No

1. Remove the Solenoid (1) and check for any debris that may be blocking the oil passages (3) to the Solenoid. If the passages are clogged, clean the passages and replace the MDS Solenoid 7. If the passages are not clogged with debris, replace the MDS Solenoid 7.

8. OIL PASSAGES RESTRICTED

Turn the ignition off.

Remove both Solenoids on Bank 1 of the engine block.

Remove the Bank 1 Cylinder Head per Service Information.

Remove the Lifters from the right engine bank.

Inspect the oil passages to the Solenoids and from the Solenoids to the lifters.

Are the passages blocked?**Yes**

1. Clean the oil passages as necessary. If the entire engine is restricted disassembly of the entire engine block may be necessary.

No

1. Replace both sets of lifters if no other possible causes remain.



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