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Service Information

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#09-05-22-001A: Hard Brake Pedal, Extra Effort Needed to Depress Brake Pedal on Cold Start-Up (Add Auxiliary Vacuum Pump) - (Feb 20, 2009)

Hard Brake Pedal, Extra Effort Needed to Depress Brake Pedal on Cold Start-up (Add Auxiliary Vacuum Pump)

Subject:

Models: 2008–2009 Chevrolet HHR SS

Built Prior to January 2009 and Equipped with Automatic Transmission

Attention: Proceed with this bulletin ONLY if a customer has brought their vehicle in for this concern. For vehicles in inventory or in the service department for an unrelated customer concern, review Bulletin # 08-05-22-001A to reprogram EBCM built prior to and including VIN Breakpoint 8S653008.

This bulletin is being revised to add step 40 to the vacuum pump installation procedure. Please discard Corporate Bulletin 09-05-22-001 (Section 05 — Brakes).

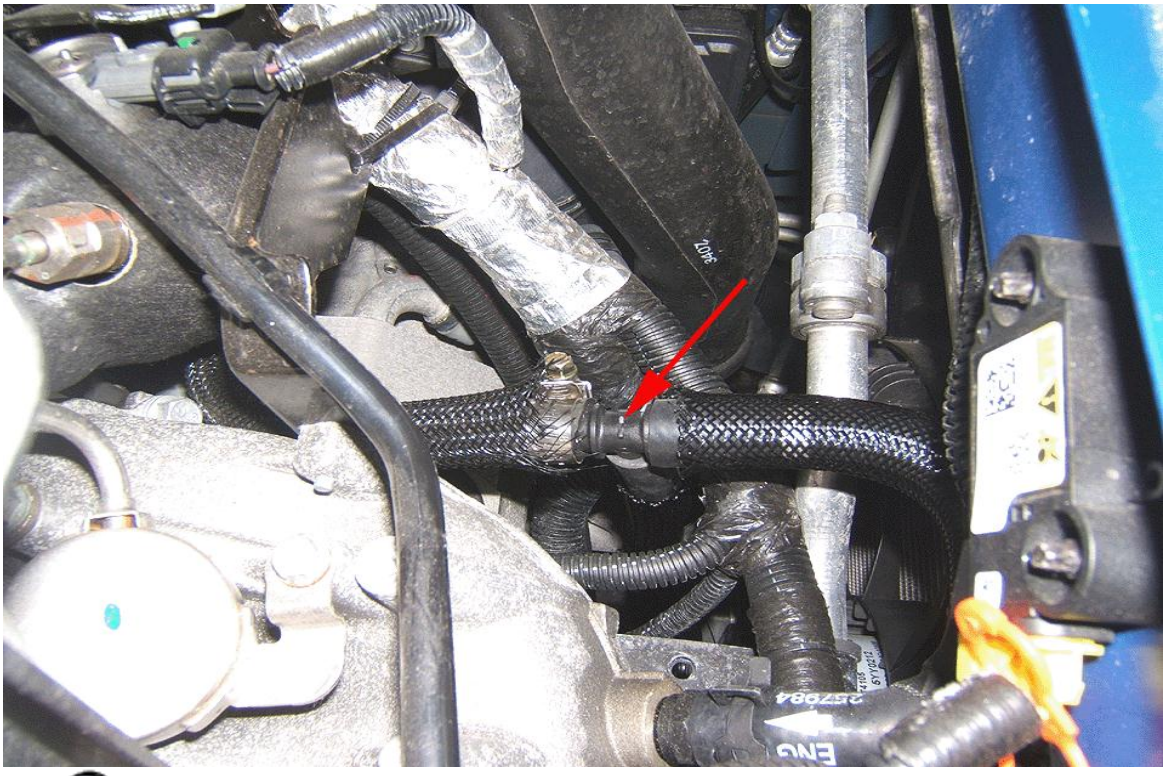
Condition

Some customers may comment that extra effort may be needed to depress the brake pedal on cold start-up.

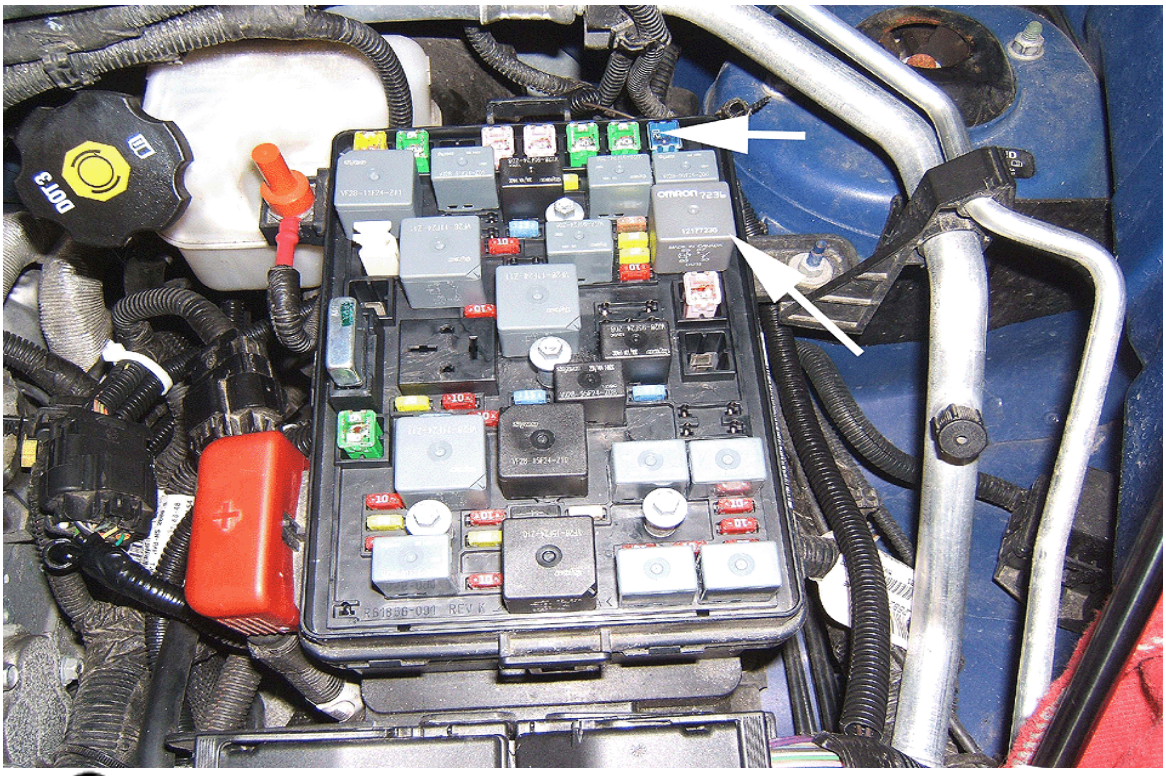
Correction

Add an auxiliary vacuum booster pump to the brake system using the procedure listed below.

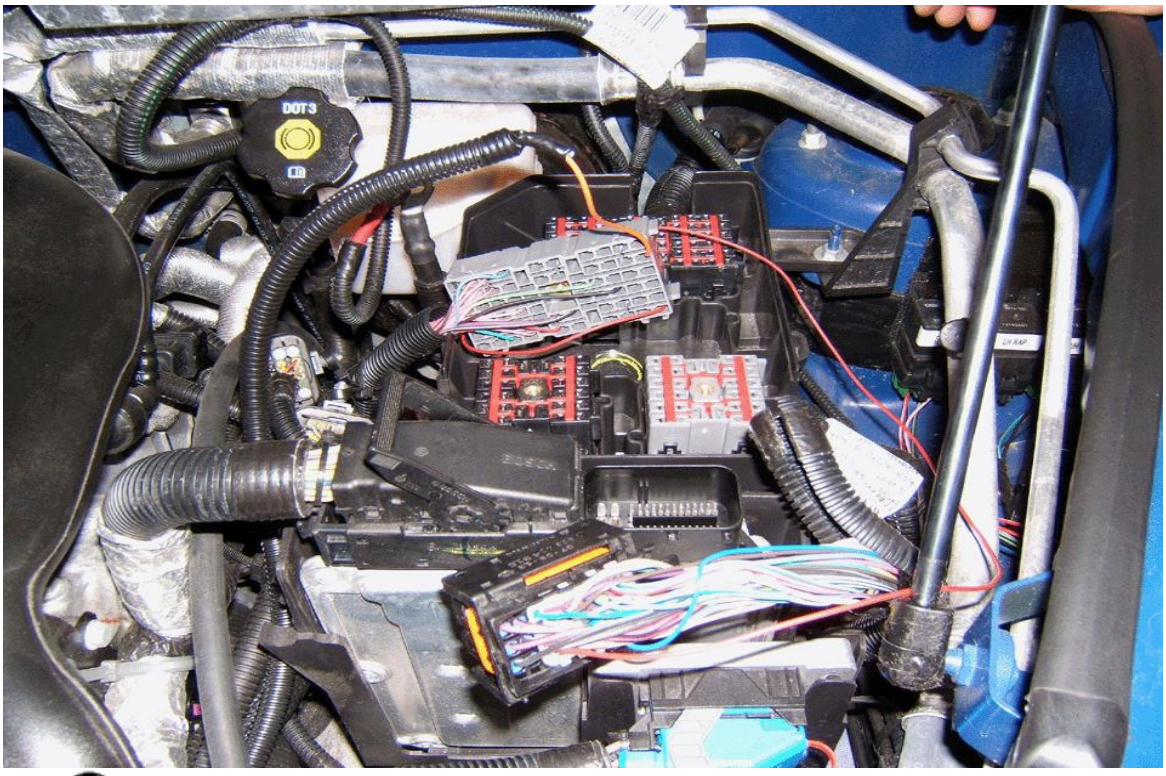
1. Disconnect the negative battery cable.
2. Open the hood.
3. Remove the brake booster vacuum hose from the intake manifold.



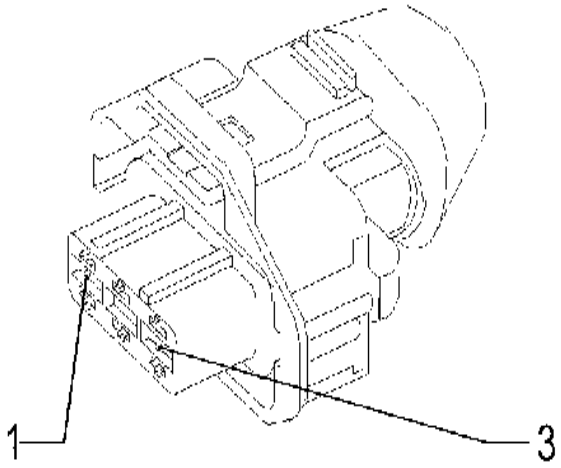
4. Cut off the vacuum hose approximately 250 mm (10 in) from intake manifold end. Discard the cut piece.
5. Install the new hose assembly, GM P/N 20817629. Route the booster pump end (quick connect) down along the main wiring harness near the starter motor to be later attached to the pump. Install the new clamp, GM P/N 25758266 onto the original hose coming from the brake booster and install to tee connection of the new hose. Install the remaining end of the new hose to the intake manifold.
6. Remove the underhood bussed electrical center (UBEC) cover.



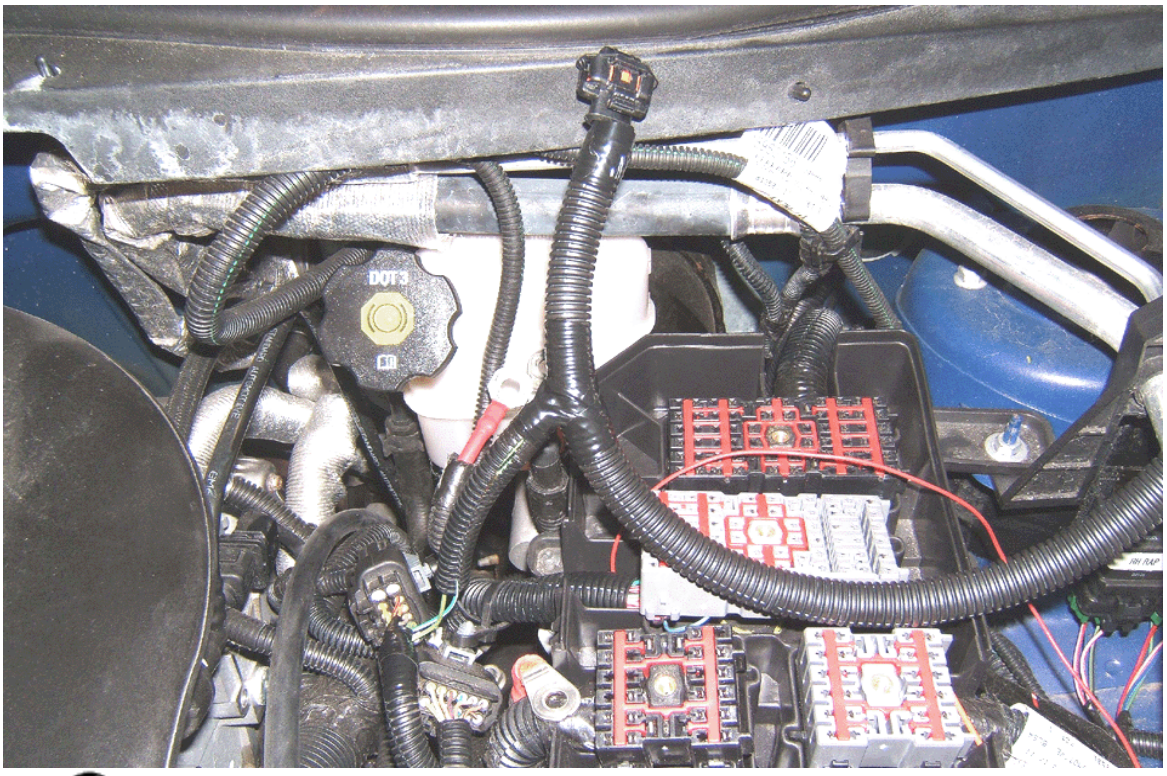
7. Install the mini relay, GM P/N 12177236 into position 24 and install the 20 amp fuse, GM P/N 15319476 into position 8 of the underhood electrical center.
8. Remove the UBEC.
9. Obtain the terminals listed below from the J 38125 Terminal Repair Kit.
10. Obtain bulk red 16 gauge wire and cut to a length of 1524 mm (5 ft).
11. Obtain bulk brown 22 gauge wire and cut to a length of 762 mm (30 in).
12. Obtain bulk black 16 gauge wire and cut to a length of 175 mm (7 in).
13. Crimp the terminal 7116–4110–02 to one end of the red 16 gauge wire. Install the terminal into cavity B1 of the UBEC connector X1. Enclose the wire in 1/4 inch plastic conduit and route down along main wiring harness near the base of the dipstick tube to be later attached to the vacuum pump connector. Secure with tie-straps. This will be identified as circuit 1470.



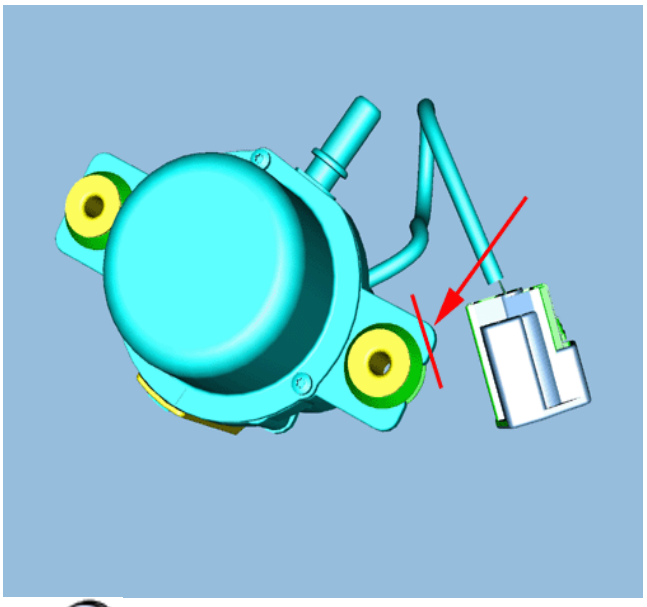
14. Crimp the terminal 7116–4110–02 to one end of the brown 22 gauge wire and install into cavity F1 of the UBEC connector X1.
15. Disconnect the electrical connector X2 from the ECM. Disassemble the connector.
16. Crimp the terminal 1–928–498–135 to the other end of the brown 22 gauge wire. Route the wire along the backside of the UBEC over to the ECM and install the terminal into cavity 20 of the ECM connector X2. This will be identified as circuit 7448.
17. Disconnect the vacuum sensor connector on the brake booster. This connector will no longer be used. Tape up and secure to the existing harness.



18. Add wire length to the new vacuum sensor service connector, GM P/N 88988583, leads by obtaining bulk 22 gauge wire of different color. Cut two wires to a length of 200 mm (8 in). Cut the 3rd wire to a length of 600 mm (24 in).
19. Splice one 8 inch wire to the lead from cavity 1 of the vacuum sensor service connector. Splice the other 8 inch wire to the lead from cavity 2 and the remaining 24 inch wire to the lead from cavity 3.
20. Crimp the terminal 1–928–498–135 to the wire coming from cavity 3 of the vacuum sensor service connector. Route the wire along the backside of the UBEC over to the ECM and install the terminal into cavity 29 of the ECM connector X2. This will be identified as circuit 1809.



21. Splice the wire coming from cavity 1 of the vacuum sensor service connector to the gray wire (pin J) of connector X109 using splice clip, GM P/N 1839906. Solder and insulate the connection. This will be identified as circuit 2700.
22. Splice the wire coming from cavity 2 of the vacuum sensor service connector to the tan wire (pin K) of connector X109 using splice clip, GM P/N 1839906. Solder and insulate the connection. This will be identified as circuit 5514.
23. Enclose the circuits in 3/8 inch plastic conduit and secure with tie-straps.
24. Reconnect the vacuum sensor connector.
25. Reassemble the electrical connector X2 and reconnect to the ECM.
26. Reinstall the UBEC.
27. Raise and support the vehicle.



28. Before installing vacuum booster pump, GM P/N 20804130 to the bracket, remove material from the pump mounting ear as shown. DO NOT cut into the strengthening rib on the underside of the ear. Removing this material will prevent pump contact with the charge air cooler duct once the pump is installed.
29. Install the vacuum booster pump to the bracket, GM P/N 20815216, and secure with nuts, GM P/N 11514516.

Tighten
Tighten the nuts to 9 N·m (80 lb in).

30. Crimp the ring terminal, GM P/N 12103507, to the cavity 2 lead wire of the vacuum booster pump service pigtail, GM P/N 19115602.
31. Connect the pump service pigtail to the pump.

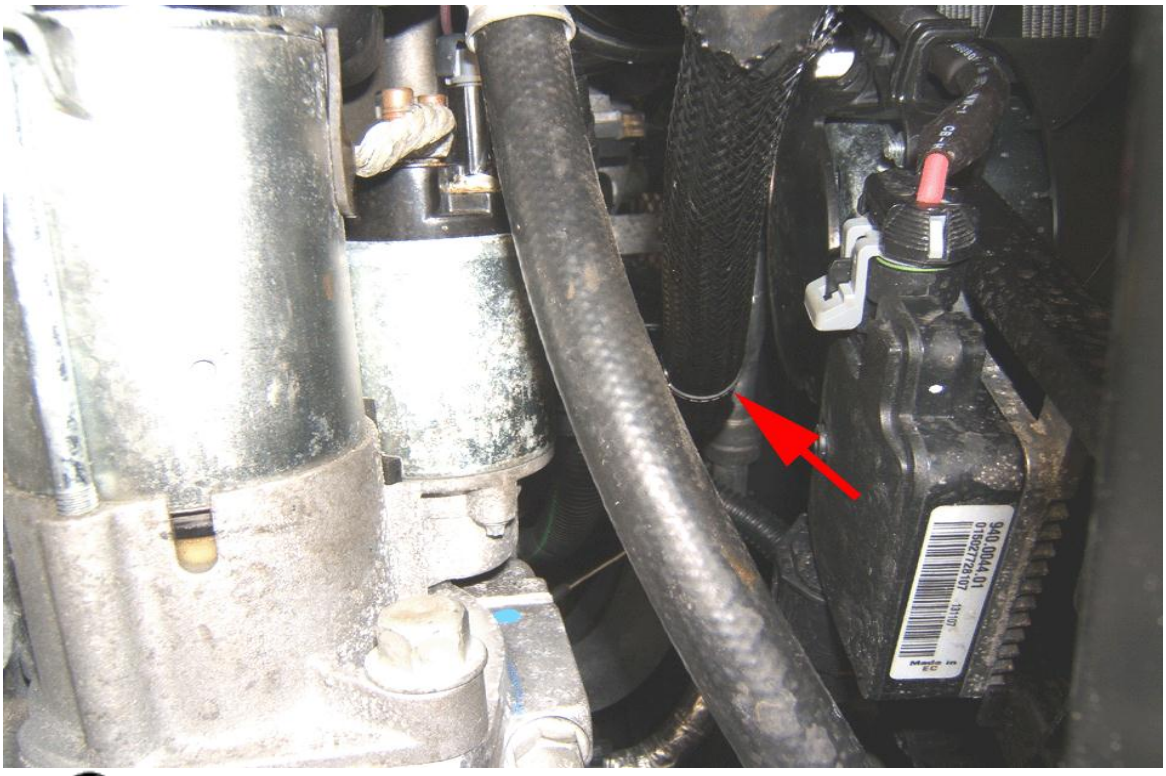
32. Install the vacuum pump with bracket attached to the engine block and secure with 2 M8 bolts, GM P/N 11570082.

Tighten
Tighten the bolts to 22 N·m (16 lb ft).

33. Install the ring terminal lead (ground) to the M10 bolt, GM P/N 11588738 and install the bolt in the remaining pump bracket mounting location.

Tighten
Tighten the bolt to 58 N·m (43 lb ft).

34. Check the clearance between the pump and A/C line. Carefully reposition the A/C line as necessary to provide at least a 1/4 inch clearance.
35. Splice circuit 1470 to the cavity 1 lead wire of the vacuum pump service pigtail.



36. Connect the vacuum hose to the pump. Secure the vacuum hose clip to the existing engine wiring harness.
37. On the area of the charge air cooler duct closest to the pump, clean the surface and apply adhesive backed foam patch, GM P/N 20817688.
38. Lower the vehicle.
39. Reprogram the engine control module (ECM) and electronic brake control module (EBCM) with updated calibration files using the TIS2WEB Service Programming System (SPS).
40. If the vehicle had the Stage 1 turbo upgrade kit installed prior to getting the vacuum pump retrofit, the technician should now contact Techline to get the revised Stage 1 calibrations for the ECM.

Parts Information

Part Number	Description	Location	Qty	Material Allowance

12103507	Ring Terminal	Delphi Tray 18	1	-
7116–4110–02	UBEC Terminal	Yazaki Tray 9	2	-
1–928–498–135	ECM Terminal	Delphi Tray 19	2	-
1839906	Splice Clip	Delphi Tray 1	2	-
15797569	Vacuum Booster Pump	-	1	-
20815216	Vacuum Booster Pump Bracket	-	1	-
20817629	Brake Booster Vacuum Hose Assembly	-	1	-
19115602	Vacuum Pump Connector Service Pigtail	-	1	-
88988583	Vacuum Sensor Service Connector	-	1	-
20817688	Foam Patch	-	1	-
11570082	M8 Bolt	-	2	-
11588738	M10 Bolt	-	1	-

03530297	Nut	-	2	-
12177236	Mini Relay	-	1	-
15319476	20 Amp Fuse	-	1	-
11518257	Hose Clamp	-	1	-
-	Bulk Wire*	-	6 Feet of 16 Gauge Wire 7 Feet of 22 Gauge Wire	$2.00
-	Plastic Conduit	-	5 Feet of 1/4 Inch 4 Feet of 3/8 Inch	$11.00
-	Tie Strap	-	2	$1.40

* Use TXL type wire.

Warranty Information

For vehicles repaired under warranty, use:

Labor Operation	Description	Labor Time

H9726*	Brake Retrofit (Add Vacuum Booster Pump to System)	3.3 hrs
* This is a unique labor operation for bulletin use only. This number will not be published in the Labor Time Guide.		