

Installation of a MDS “ON” Indicator Light

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Edited & Updated by IT Rider

The following is a “How to” for the addition of a **Multi-Displacement System (MDS) “ON” indicator light** for the 2005 MDS equipped Hemi engines installed in the Dodge Magnum RT.

The author accepts no responsibility for errors, omissions, or any other problems or damage that may be caused by this installation.

The purpose of this modification is to provide a method (lighted switch in “on” position) of monitoring when the MDS is active. Turning the switch off will stop the light from coming on and cease monitoring of the MDS (if a switch was used). It will not affect the operation of the MDS. It is accomplished by connecting the lighted switch to the power wire for the No. 4 cylinder MDS activation solenoid. Connection is made to the wire leading to Pin 28 of plug C1 of the Power train Control Module (PCM).

Parts Used

All parts were obtained from local parts store.

- 1 Illuminated rocker switch (any color) or LED with Holder (e.g. RadioShack part# 276-271)
- 1 Plastic rocker switch mount bracket (if used)
- 2 No. 8 X ½ inches, pan head sheet metal screws (to mount switch mount bracket)
- 18 gauge multi-strand wires (Should be this size to tie into 18 gauge MDS power wire on PCM)
- 1-5 Pair of solder less fully insulated wire connectors to match wire size(s)
- 2 Push on style to match connections on back of rocker switch (if used)
- 1-3 Pair barrel style connector (to be used on wire connecting to PCM)
- 1 Connector with ¼ inch hole or “open” horseshoe type (for switch ground at PCM)
- 1 18 gauge saddle type wire splice; Blue in color (used to tie into MDS power wire on PCM)
- 4-8 Zip nylon ties
- 1 Roll of Electrical Tape

Tools used

- Screwdrivers (Phillips and Flat head)
- 8-10 inch long small common screwdriver (used only to feed wire thru firewall)
- 10mm and ½” sockets
- Exacto knife (preferred) or single edged razor blade
- Wire cutters
- Wire strippers
- Solderless terminal crimping tool
- Pliers (used only to crimp closed saddle splice)
- Drill for mounting
- Drill bit (for drilling mount bracket holes or mounting LED)
- Multi-meter (handy but not mandatory)
- 18-24 inch Test lead with alligator clips on each end (handy but not mandatory)
- Solder & Iron for those who would rather use it over the solderless connections.

Preparation (under hood)

Unplug negative battery cable before proceeding!

1. Remove plastic PCM cover held on by two push lock fasteners. Use common screwdriver to pull up on center of fasteners. The PCM is located in the right front fender well near the firewall.

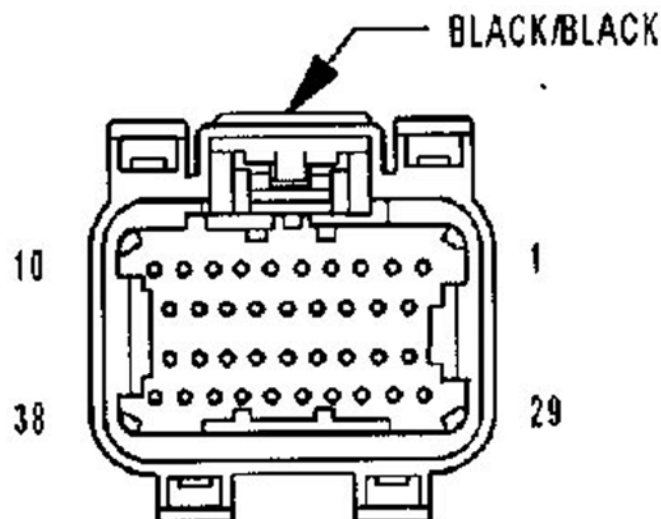


2. Remove the PCM. Held on by one ½ inch bolt. Let it sit on mount brace.



3. Unplug top (C1) plug on PCM only.





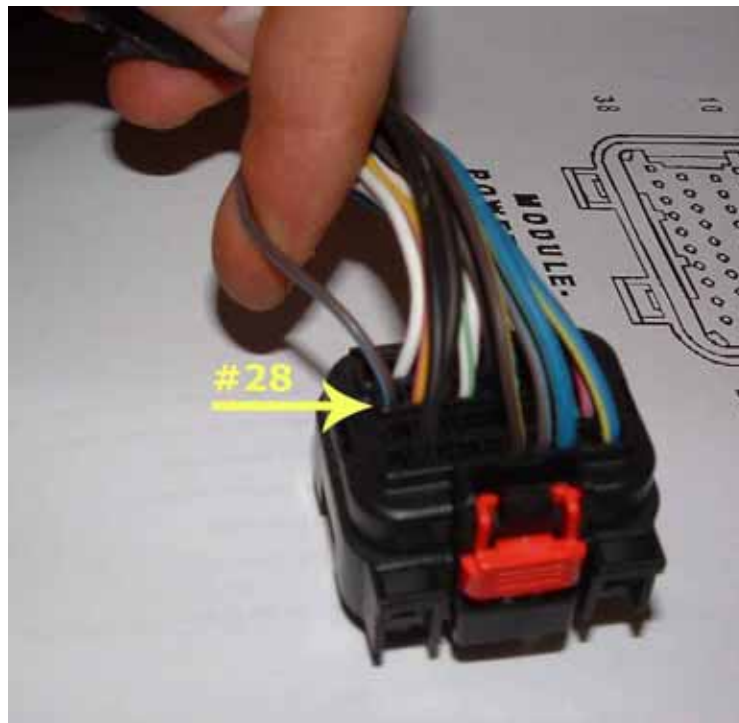
MODULE- POWERTRAIN CONTROL C1

MODULE-POWERTRAIN CONTROL C1 - BLACK/BLACK 38 WAY

CAV	CIRCUIT	FUNCTION
1	K98 16DB/YL (5.7L)	COIL CONTROL NO. 8
2	-	-
3	K97 16DB/YL (5.7L)	COIL CONTROL NO. 7
4	K28 20BR/LB (5.7L)	INJECTOR CONTROL NO. 8
5	K26 20BR/YL (5.7L)	INJECTOR CONTROL NO. 7
6	-	-
7	-	-
8	-	-
9	Z904 16BK/BR	GROUND
10	-	-
11	F202 20PK/GY	FUSED IGNITION SWITCH OUTPUT (RUN-START)
12	F902 20PK (2.7L/3.5L)	IGNITION UNLOCK-RUN-START
13	-	-
14	-	-
15	-	-
16	K236 20DB/LG (3.5L)	SRV CONTROL
17	-	-
18	Z904 16BK/BR	GROUND
19	-	-
20	G6 20VT/GY	ENGINE OIL PRESSURE SIGNAL
21	-	-
22	-	-
23	-	-
24	-	-
25	D20 20WT/LG	SCI RECEIVE (PCM)
26	D16 20WT/OR	SCI RECEIVE (TCM)
27	F816 20YL/PK	5 VOLT SUPPLY
28	K452 20BR/LB (5.7L MDS)	MDS SOL CONTROL NO. 4
29	A209 18RD	FUSED B(+)
30	T751 20YL	FUSED IGNITION SWITCH OUTPUT (START)
31	K141 20DB/YL	O2 1/2 SIGNAL
32	K904 20DB/DG	O2 RETURN (DOWN)
33	K243 20BR	O2 2/2 SIGNAL
34	D65 20WT/LG	CAN C BUS (+)
35	D64 20WT/LB	CAN C BUS (-)
36	D21 20WT/BR	SCI TRANSMIT (PCM)
37	D15 20WT/DG	SCI TRANSMIT (TCM)
38	-	-

4. Using an exacto knife or single edge razor blade, carefully slice the electrical tape covering the wires on plug C1 from the plug to the junction with other wires (about 2 inches), being careful not to damage any of the wires. I used an exacto knife and slid it under the tape and cut away from the wires.
5. Gently peel the tape back, but do not remove it. Wires from plug should now be exposed.
6. Locate and isolate the 18 gauge brown with light blue striped wire. This is the No. 4 cylinder MDS activation solenoid power wire. Power from this wire will be used to turn on illuminated switch.

There is more than one brown/light blue striped wire on plug C1 of the PCM. The brown/light blue wire we are concerned with is the one that goes to **Pin 28**, the MDS solenoid for the No. 4 cylinder. (The other brown/light blue striped wire goes Pin 4 and is connected to the injector control for the No. 8 cylinder. There is also a plain brown wire with no stripe going to pin 33, which is the No. 2/2 oxygen sensor signal lead.)



Installation and Testing

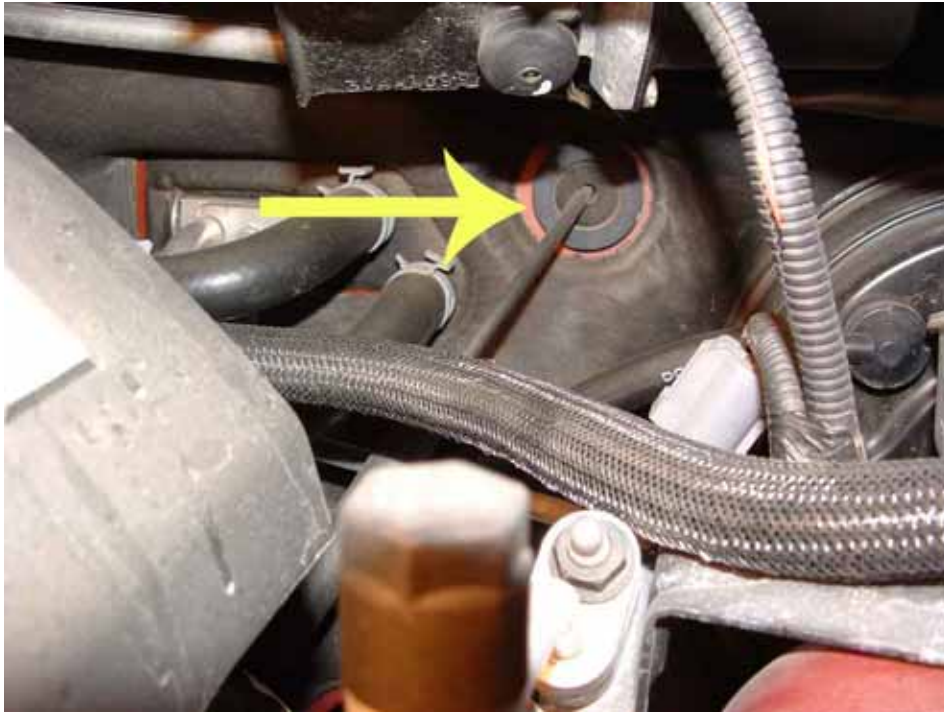
1. Using the saddle splice, connect and securely lock the six inch 18 gauge wire and the previously isolated 18 gauge brown/light blue striped wire on plug C1 of the PCM.
2. Strip and securely crimp the female barrel style push plug to the other end of the six inch 18 gauge wire.
3. Slip the original electrical tape cover back over the wires and, using electrical tape, securely re-tape (leaving just the six inch “pigtail” exposed) to look like the original installation.



4. Strip and securely crimp the male barrel style push plug to one of the newly installed wires, making note of wire color or identifying mark. This will be the power wire going to the lighted switch. Do not plug in at this time.
5. Strip and securely crimp the connector with the ¼ inch hole or open horseshoe to the other speaker wire. This will be the ground wire going to the lighted switch.
6. Connect this wire to the removed mount bracket bolt on the PCM. Tighten mount bolt.
7. Route the wires behind the fire wall support brace (the one the PCM is mounted to) and secure with nylon ties. The nylon ties will slide between the brace and the plastic cover mounted to the top of the brace. The last nylon tie should be place directly over the cable/ grommet area. The only thing that should be visible are the nylon ties.
8. Replace plastic PCM cover.

Firewall Pass Thru

1. From the driver's side under the hood, locate the small cable and grommet that goes through the firewall. It is located about 10-12 inches above and to the outside (right) of the steering linkage.



2. Pull the soft center of the grommet away from the firewall (toward front of car) using a pair of pliers. The soft Styrofoam and rubber outside will come out together. The grommet does not separate from the firewall; it just comes out about 2 inches or so. Later we'll feed the wire through this grommet.
3. Using electrical tape secure the free end of the wire to the small 8-10 inch common screwdriver starting about 2 inches back from screwdriver blade. **Note: Leave a little tape pigtail so you can easily remove the tape after feeding through the firewall.**



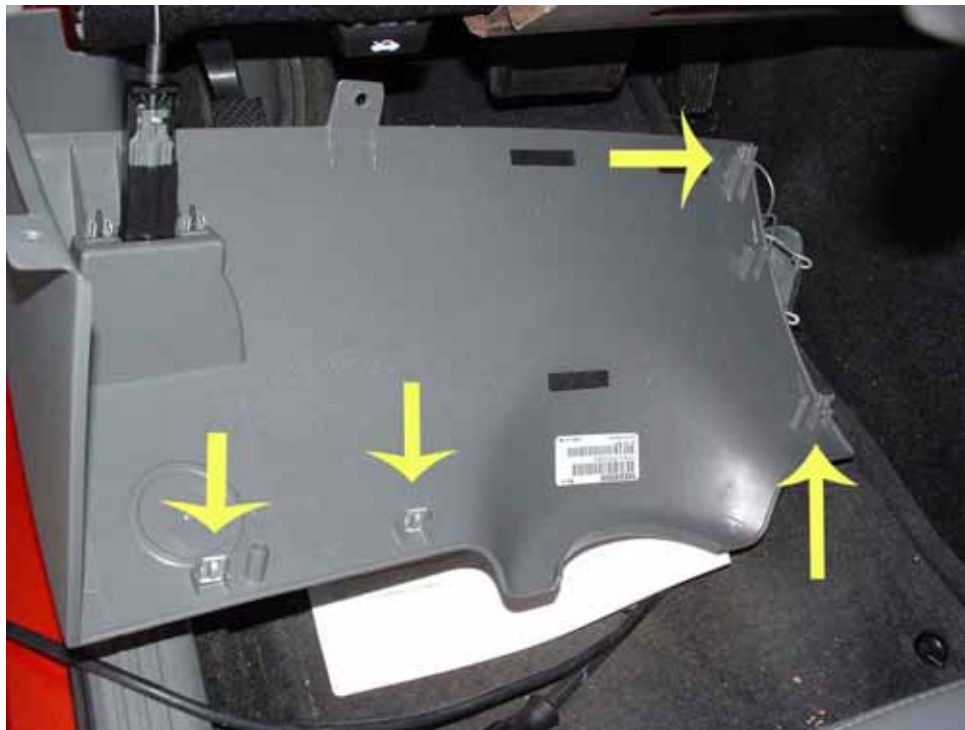
Preparation (inside the car on driver's side)

1. With door open remove trim strip (approx. 12X2 inch) on door side of lower dash panel. Gently slide a common screwdriver under the strip and pry the clips loose. This will expose one (1) lower panel mount screw.





2. Remove mount screw and one (1) other located at the bottom of the panel to the left of the steering column.
3. Gently pull the top of the panel from right to left toward the back of the car. You can get hold right under the steering column to start. The panel is held in place by about four snap clips similar to those on trim strip. Just let panel lay on floor.



4. Remove the shiny metal panel under the steering column, held on by four 10mm bolts.



5. Mark and drill where you want to mount either the toggle switch or LED.
6. Push the screwdriver and wire through the firewall grommet. This will require a little force to puncture the grommet. Push in far enough to grasp wire from inside the car.
7. From inside the car under the dash, locate and remove tape from screwdriver. Pull remaining wire into car.



Finishing Up

1. From under the hood, remove the screwdriver and push the soft center of the grommet back in place.
2. Route wire to the area where the switch/LED is going to be mounted, being careful not to interfere with any moving parts under the dash. I routed over existing wire looms away from pedal/steering mechanisms.
3. Reinstall the shiny metal panel.
4. Reinstall lower dash panel, making sure to hold wire between upper dash and lower panel right behind where the switch mount is going to be mounted.
5. Reinstall the trim strip.

If the lighted switch was used:

1. Feed the wire through the hole in the switch mount.
2. Strip and securely crimp both wires using the two connectors that fit the back of the switch.
3. Connect both wires to their correct terminals. My lighted switch had 3 terminals: Supply Volts, On Acc., and Earth Ground. The previously identified power lead gets connected to the Supply Volts terminal, and the ground wire gets connected to the Earth Ground terminal. Do not hook anything to the center On Acc. Terminal.
4. Lightly and carefully, pull the lower panel outward and push the excess wire back behind the panel. Secure the switch in the mount.

Finishing Up Continued

1. Reconnect the negative terminal on the battery.
2. Reset various vehicle functions, as needed/ required.
3. If you have a test lead, connect one end to the male barrel style push plug and the other end to the red “positive” terminal on the battery jump terminal, located in front of where you are working.
4. Test either the LED or switch to make sure the ground is functioning and the light works.
5. Disconnect test lead and connect the male barrel style push plug to the female barrel style push plug on the exposed pigtail at the PCM.
6. Go for a ride and try it out. NOTE: Certain conditions must be met for the MDS to activate. So don't be disappointed if the light does not turn on immediately.