1998 Dodge Durango GM Gen 3 Engine Swap Wiring Guide
Using 1999-2002 GM and Durango Powertrain Control Modules (PCM)
Originally Compiled February 2018, updated April 2018 Version 3

This guide was written to facilitate the swap of a Generation 3 GM V8 (4.8~6.0L) and 4L80E tarnsmission into a 1998 Durango that had a 5.9L V8 and 46RE transmission. This document offers wiring information, and "piggybacks" the GM PCM with the Dodge one- both are used. This *may* work for other year Durangos or Dakotas but the user must verify the wiring. GM changed the PCM wiring after 1998 and again after 2002. One reason the 1999-02 "Blue and Red" PCM was used was due to the Dodge PCM not being able to control electric fans, and my desire to have a working AC. The 2003+ GM PCM uses serial data to engage the AC, and that is too complex for me. All connector references here relate to the 1999-2002 harness. A 2003+ harness can be used but has to be modified. See the link at the bottom of the page for a great site, he makes harnesses. Since I have swapped a number of Generation 3 engines, I made my own.

In summary, the GM PCM will control the engine, transmission, fan(s), and AC, while the Dodge PCM will control everything else. As many of the original Dodge functions that could be retained were, for simplicity and lower cost. An example is the starter wiring using this principle- the Dodge wire to the GM solenoid.

One of the main problems with this swap is getting the Dodge tach to work. Two options are listed here, one an external adapter and the other programming via HP Tuners. Neither has been verified as working yet. **HP Tuners is highly recommended for this or any swap**, as it allows a lot of programming and disabling of things like vehicle security.

Some items shown require no action, but are included as a reference source. Wire colors shown are the same as depicted in online wiring diagrams that were used.

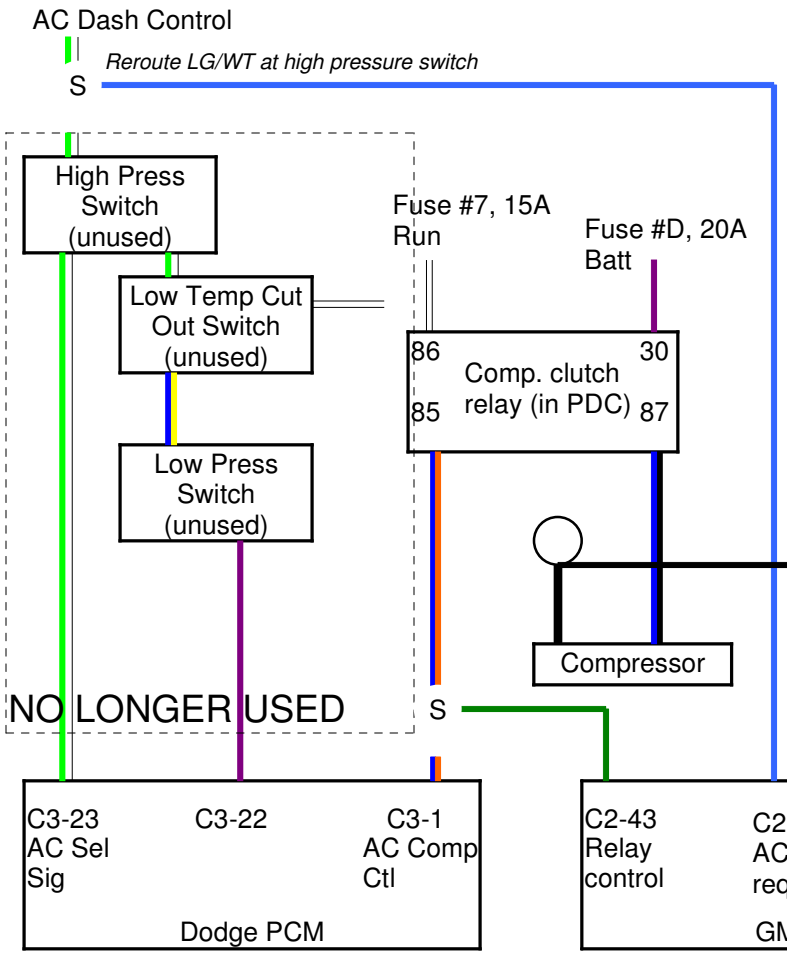
Excellent reference source:
http://www.lt1swap.com

I used this site extensively in preparing my wiring harness. Just about anything you need to learn is there and free. It has instructions on how to use a 2003+ harness with a cable throttle body, how to rewire a harness for the 4L80, and how to get rid of needless wires.

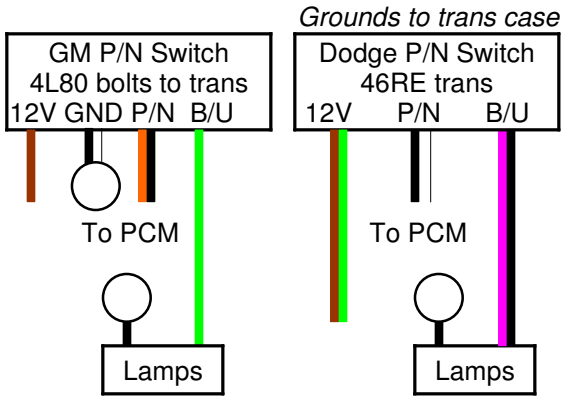
The webmaster makes harnesses and also does discount programming.

Air Conditioning

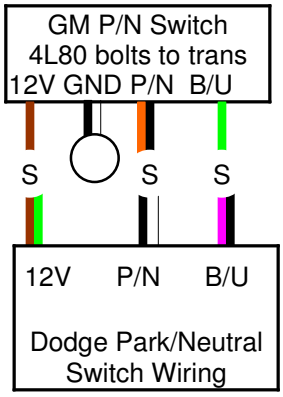
Summary- Due to using electric fan(s), must use 1999-02 GM PCM to interface with Dodge wiring. 2003+ uses serial data to operate AC. Both trucks use same thread size pressure switches, so you can install GM switches on Dodge fittings. This uses the Dodge compressor relay and wire.



Backup Lamps & P/N Switch



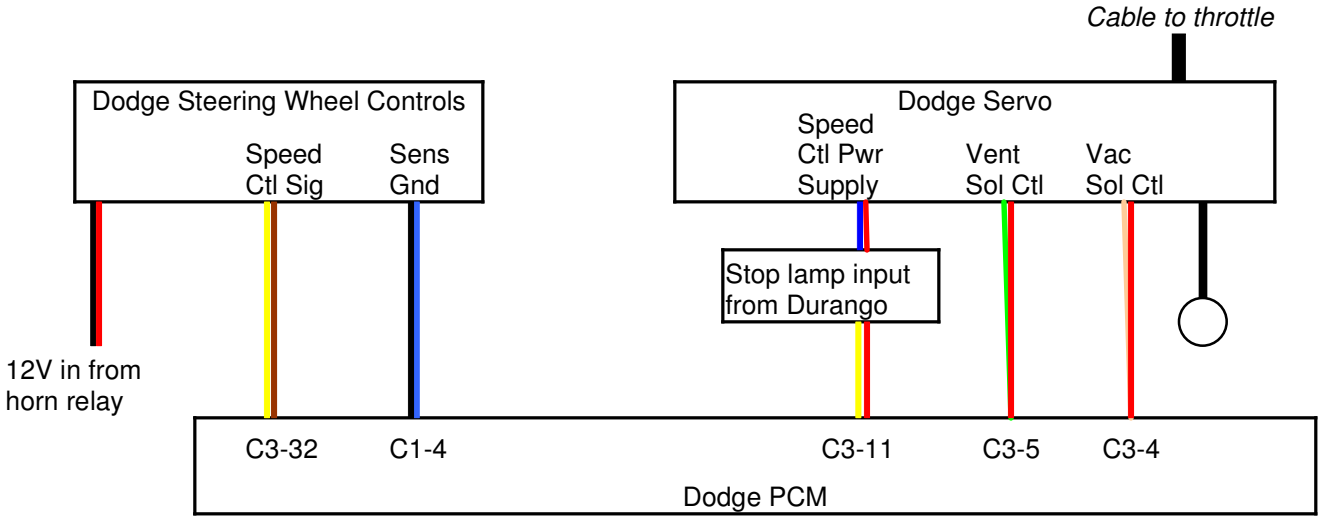
Wiring adapted at transmission, may need to ground GM B/W wire.



Redirect LG/WT wire at high pressure switch to Pin A of GM high pressure switch, LT BLUE wire.
Redirect DB/OR wire at PCM C3-1 to GM PCM C2-43, DG/WT wire.

Cruise control- will use Dodge servo

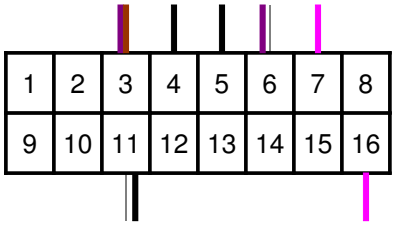
Per the manual, vehicle speed and distance are measured by the rear wheel sensor.



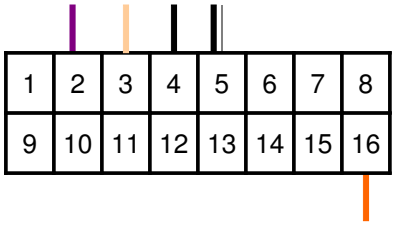
Data Link Connectors

Two connectors are used.

Dodge



GM

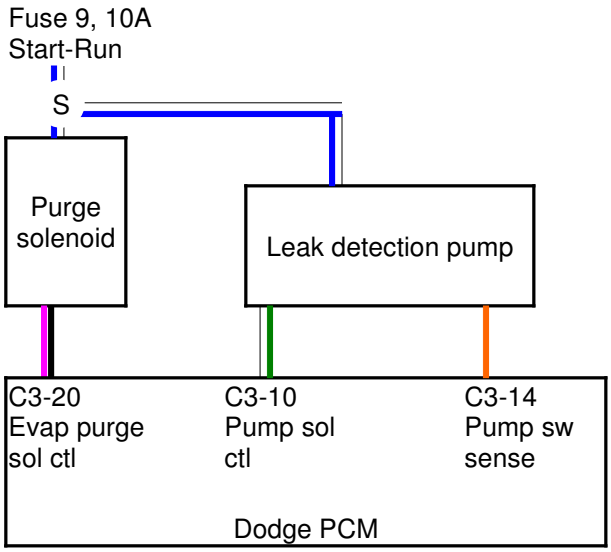


Serial data will need to be fed through from engine bay; ground can be terminated under dash; power can be piggybacked from Dodge connector.

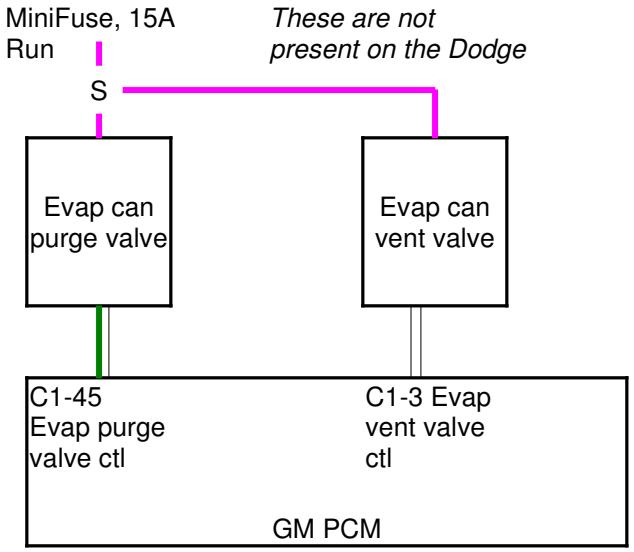
Pins used:
3: CCD Bus (+) C3-30
4: Ground
5: Ground
6: SCI receive C3-29
7: SCI transmit C3-27
11: CCD Bus (-) C3-28
16: 12V Batt via fuse 12

Pins used:
2: Serial data C2-58
3. UART C2-3
4: Ground
5: Ground
16: 12V Batt 25A fuse 11

Dodge Evap System- Info Only, Leave As-Is



GM Evap System

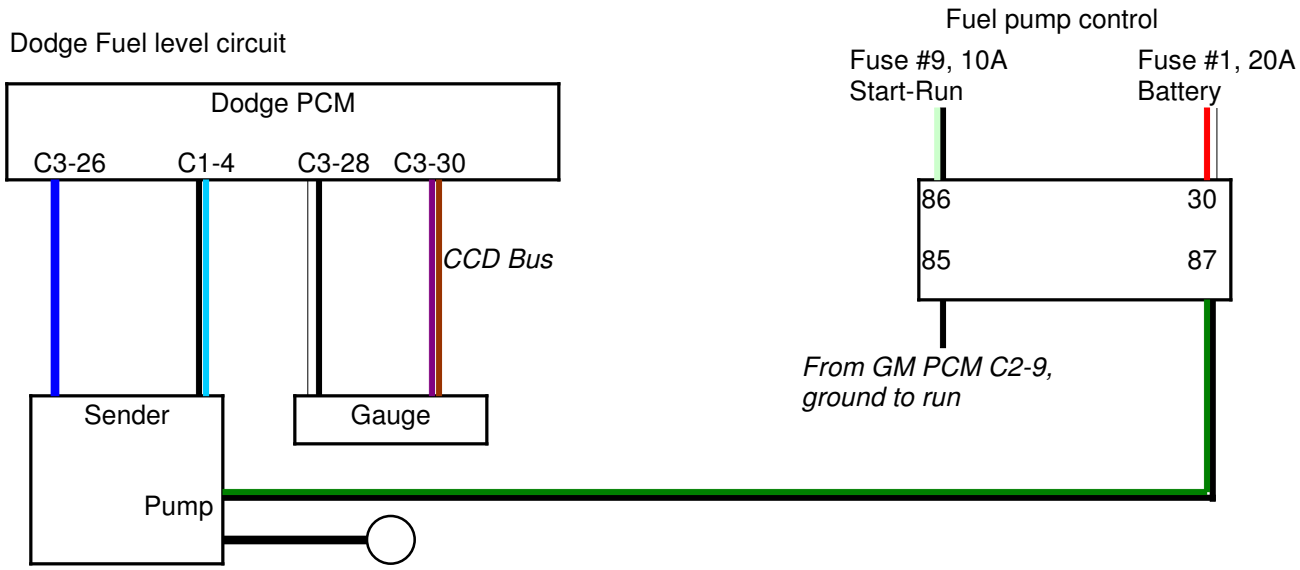


From a Dodge forum:
The Chrysler evaporative Emissions monitoring system uses an air pump to pressurize the fuel tank and charcoal canister. It has a solenoid, switch and pump all in one unit.

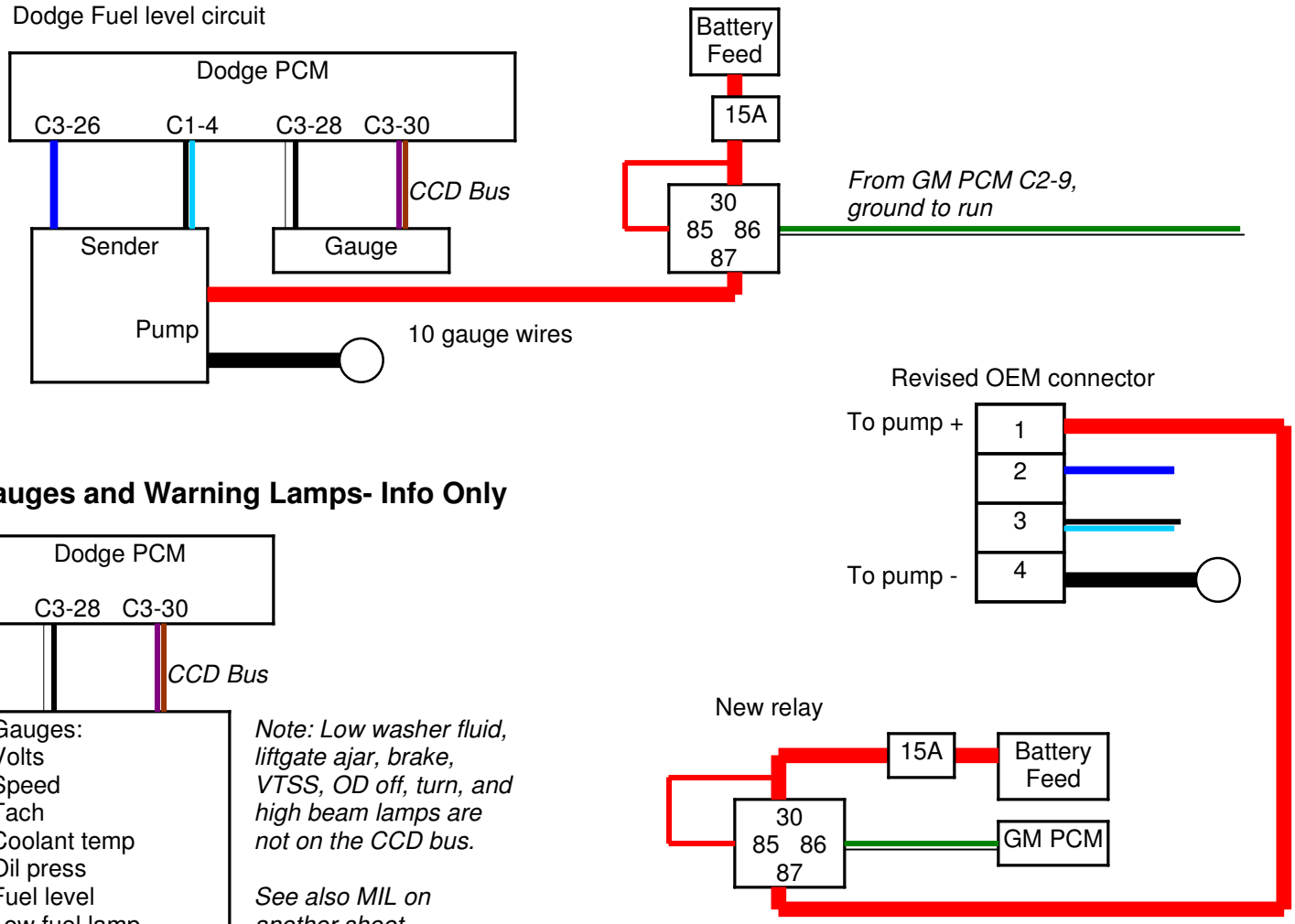
Part looks to be unique to 1998-99 models.

This appears to be a standalone function that should still work w/o any engine sensors being present. **Plan to leave as-is.**

Fuel System- Gauge and Pump



Fuel System- Gauge and Pump- 340 LPH Pump



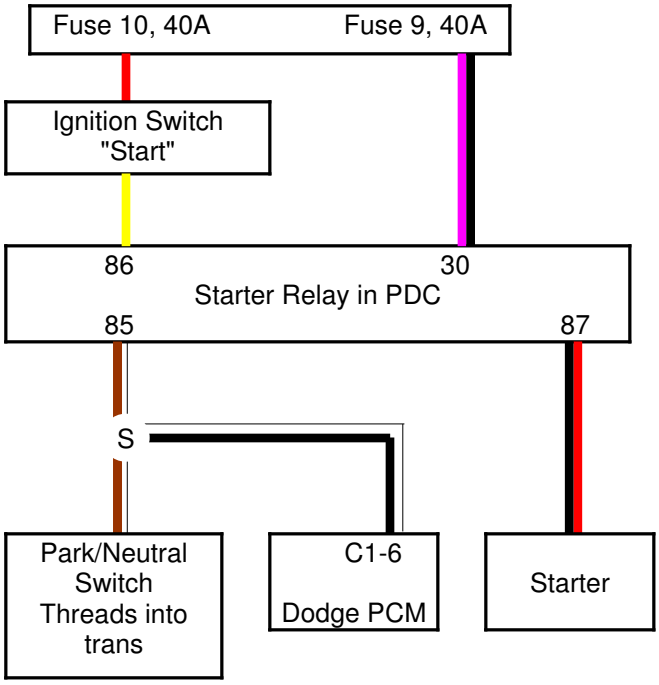
Gauges and Warning Lamps- Info Only

Note: Low washer fluid, liftgate ajar, brake, VTSS, OD off, turn, and high beam lamps are not on the CCD bus.

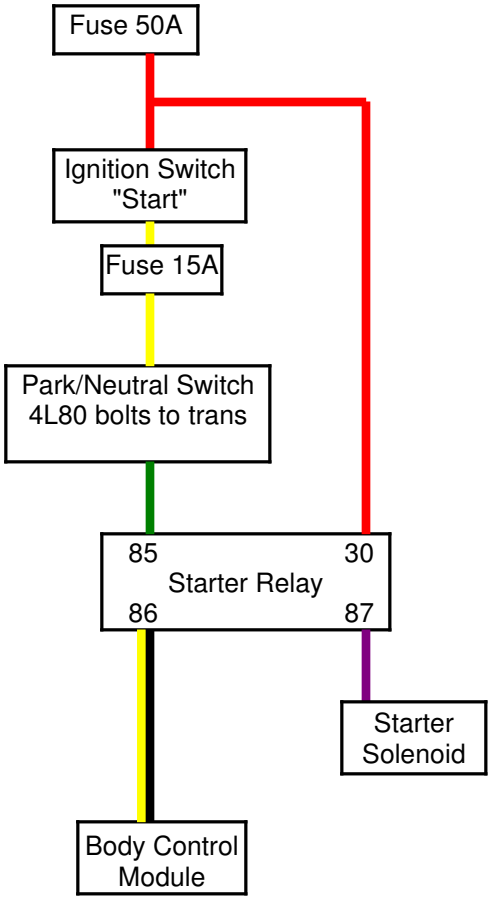
See also MIL on another sheet.

Ignition Switch and Starter

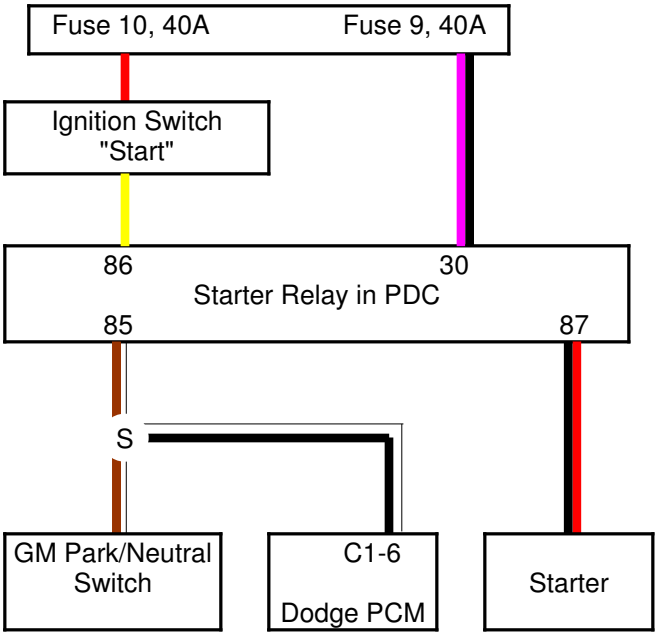
Dodge Ignition Switch & Starter



Chevy Ignition Switch & Starter



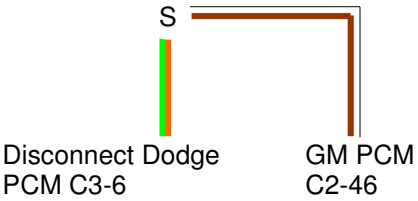
Hybrid Ignition Switch & Starter

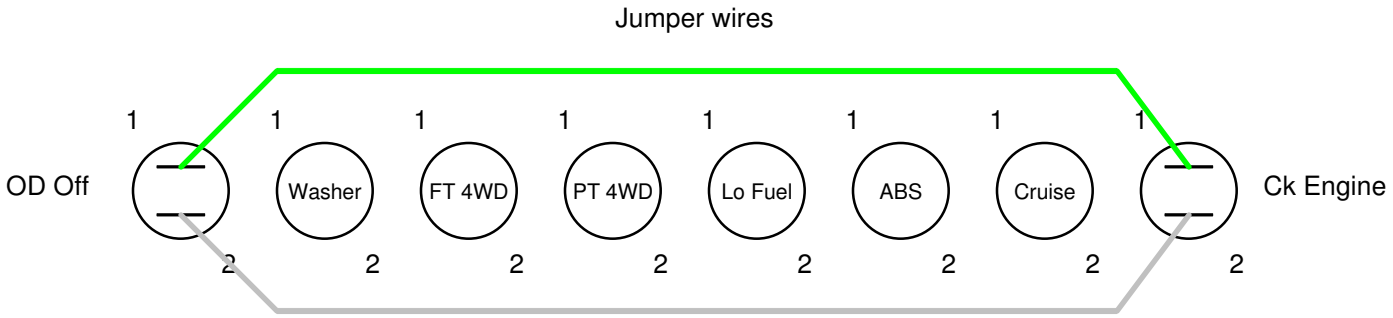


See page 2 for P/N switch detail.

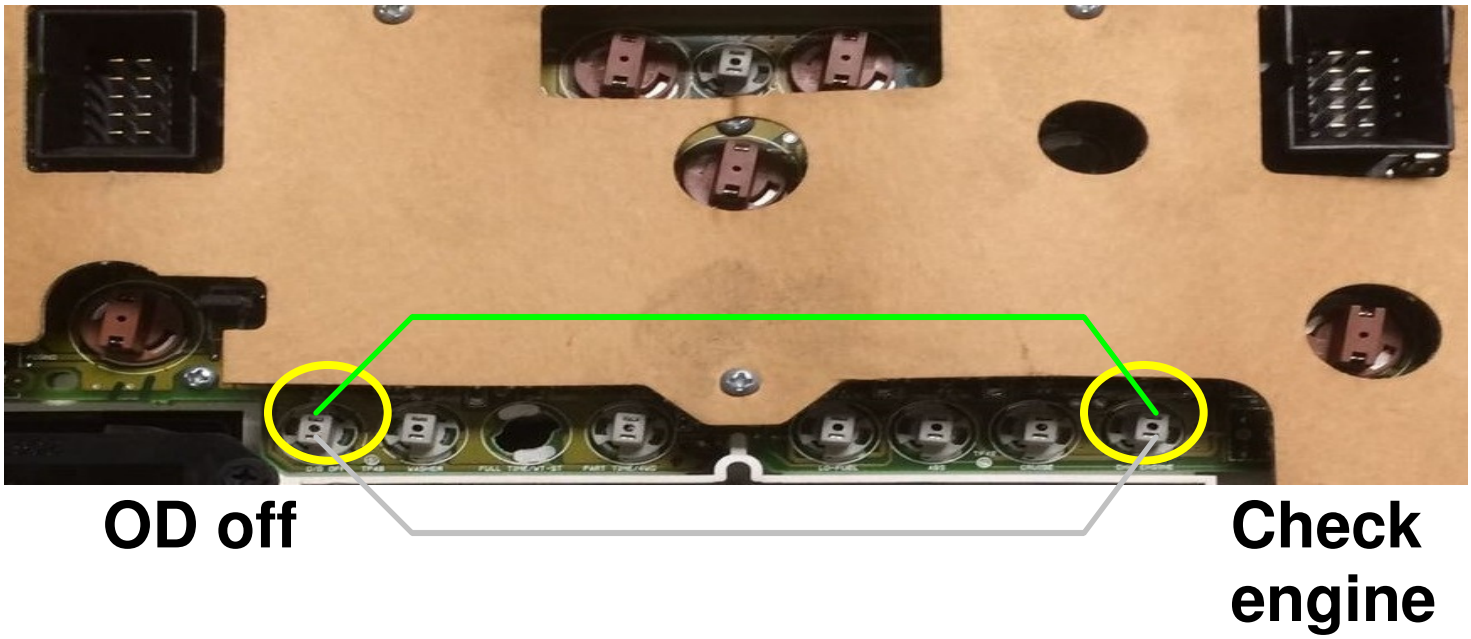
Dash wiring mod to use Check Engine lamp w/ GM PCM

Check Engine (CE) lamp is on Dodge Bus; lamp grounds (illuminates) via CC Bus. OD Off circuit does not go through CC Bus and is not used w/ GM transmission. CE will need to only light via GM PCM. This will require two modified bulbs/sockets wired to the GM PCM. Viewing the rear of the dash, the sockets are easily accessible. Modify Check Engine socket by pulling contacts up alongside socket and use electrical tape to cover dash contacts. Pull bulb from OD Off socket and solder green and white new wires to the same terminals on both. This makes a jumper so Check Engine socket will only illuminate upon GM output. At the Dodge PCM, connect LG/OR OD off wire C3-6 to GM MIL output wire, such as C2-46. Doing this avoids running a wire to the dash.





1= Ground side, 2= power feed

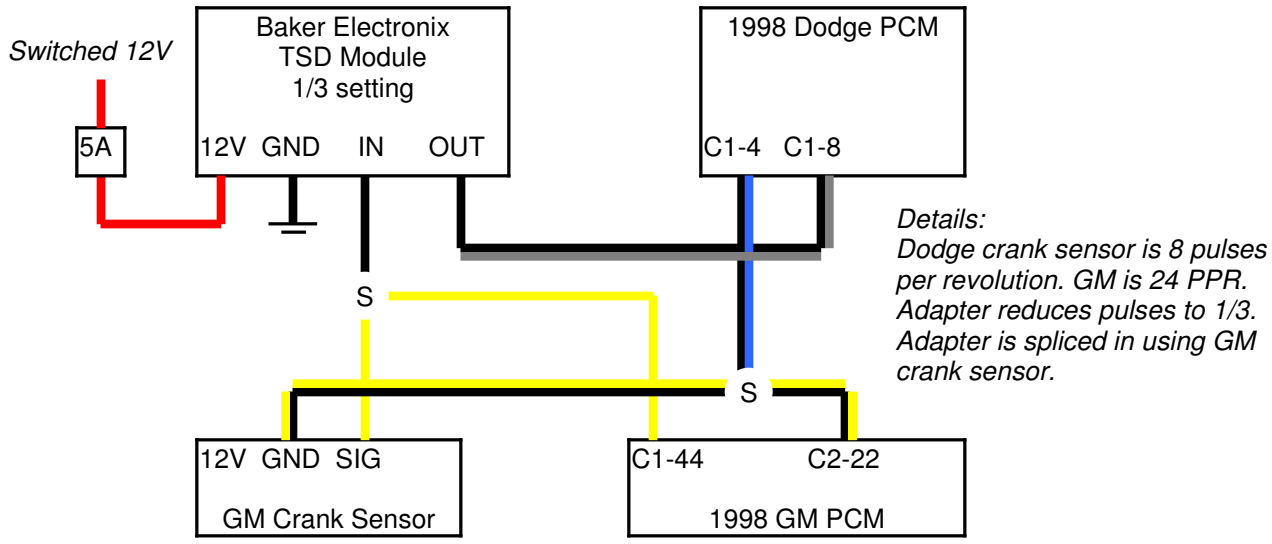


Tach Adapters- 2 Variations

UNTESTED THEORY

Dodge Tach Adapter (Baker Electronix)

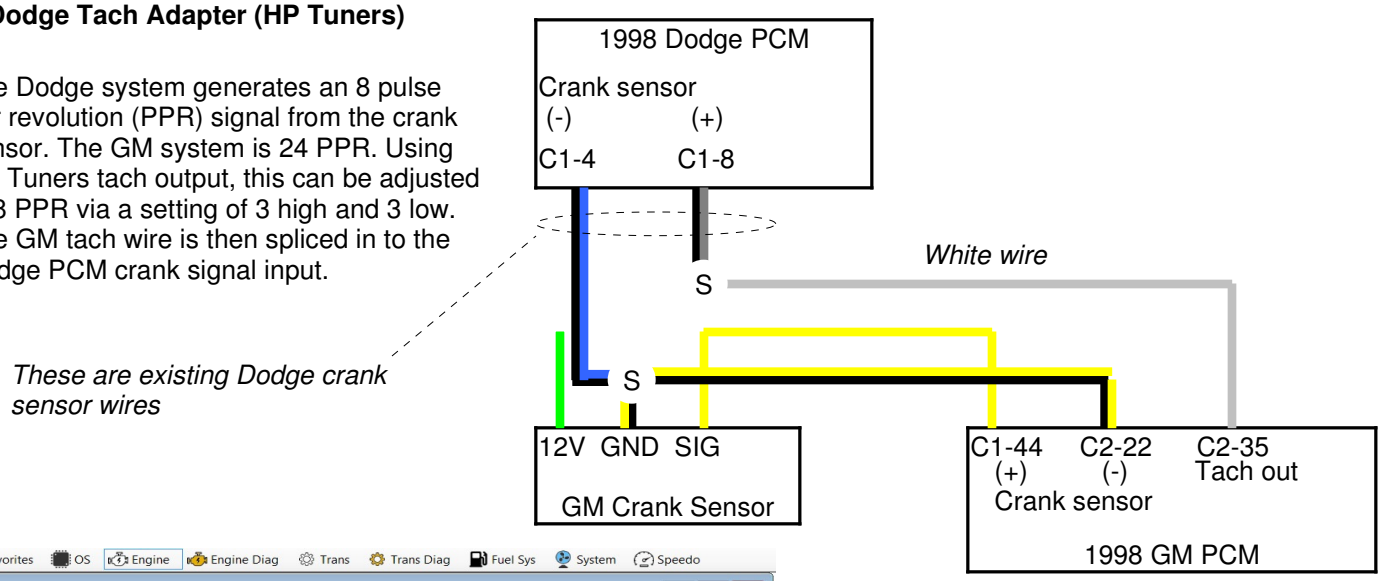
Adapter source: http://www.bakerelectronix.com/products_tsd/

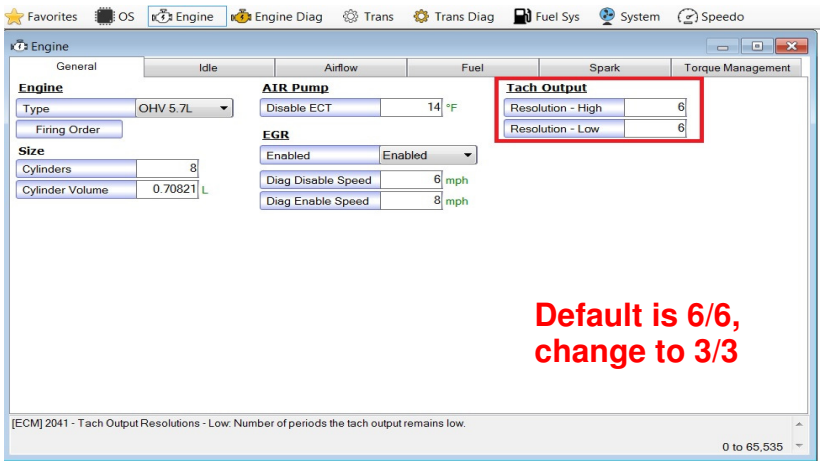


Details:
Dodge crank sensor is 8 pulses per revolution. GM is 24 PPR. Adapter reduces pulses to 1/3. Adapter is spliced in using GM crank sensor.

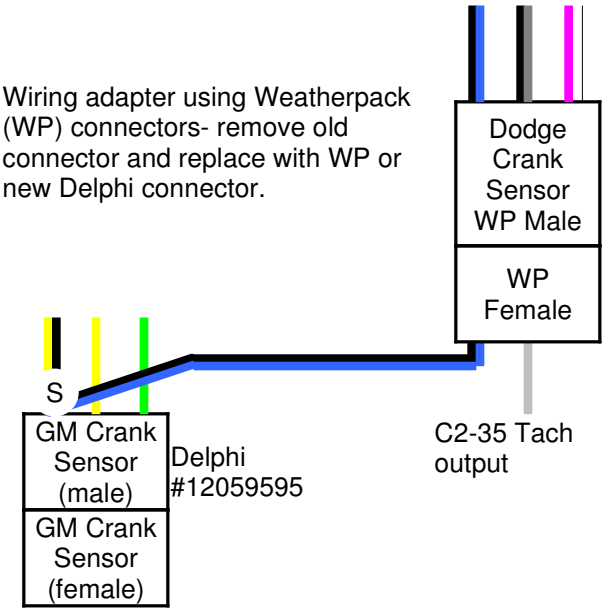
Dodge Tach Adapter (HP Tuners)

The Dodge system generates an 8 pulse per revolution (PPR) signal from the crank sensor. The GM system is 24 PPR. Using HP Tuners tach output, this can be adjusted to 8 PPR via a setting of 3 high and 3 low. The GM tach wire is then spliced in to the Dodge PCM crank signal input.





Wiring adapter using Weatherpack (WP) connectors- remove old connector and replace with WP or new Delphi connector.



Transfer Case Information and Wiring

Note- the 1998 Durango came with either the 231D/231D HD (2WD high, 4WD high, Neutral, 4WD low) or 242D (same except no 2WD) transfer case, which was manually shifted via a lever on the console. Later models used similar cases (233 or 244) that were electrically shifted. These cases are available in different input shaft sizes. The Durango used a 23 spline input and either a 27 or 32 spline output. The 5.9 V8 usually had the 232D HD, which had the 32 spline output.

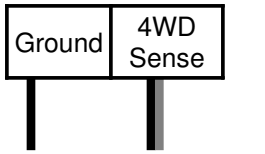
Since the GM cases used a differnt bolt pattern and either a 27 spline (TH 350, 4L60/65/70) or 32 spline (TH 400, 4L80/90) input, a different case is required depending upon which transmission is used. The later and far more expensive 6 speed 6L80 uses the 32 spline output while the 6L90 uses a different 29 spline output. Since these are new models, it's uncertain if an older transfer case will bolt to them. A GM case with a 32 spline output can use the same driveshaft yoke as a Durango that had the 231D HD. A good option for manually shifted trucks is the 241C, which is found in late 80's-late 90's GM trucks. It's available in both 27 and 32 spline inputs for use with either of the popular 4L60 or 4L80 transmissions. It is possible to find a 231C case used in a GM, but these were used mostly with V6 engines.

The case model can be decoded online. This is a brief overview, you can spend a lot of time reading about transfer cases. There are positives and negatives for the several options available.
First digit= Number of speeds, Second digit= Case size, Third digit= Drive type
2= Two speed
3= Case sizes range from 2 (smallest) through 7.
1= Part time 4WD manually shifted, 2= Part time plus full time 4WD manually shifted, 3= Same as 1, electrically shifted, 4= Same as 2, electrically shifted.

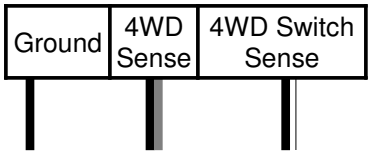
Transfer case data sources as of 2018:
Chart listing what vehicle uses what transfer case:
http://www.manualtransmissionpart.com/TransferCase-Make-Model.html

New Venture model number decoding:
http://bc4x4.com/faqs/yj.cfm?cat=6&faqid=162

1998 Durango 231
Transfer Case Wiring

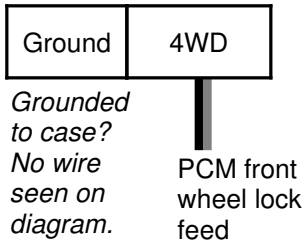


1998 Durango 242 Transfer
Case Wiring



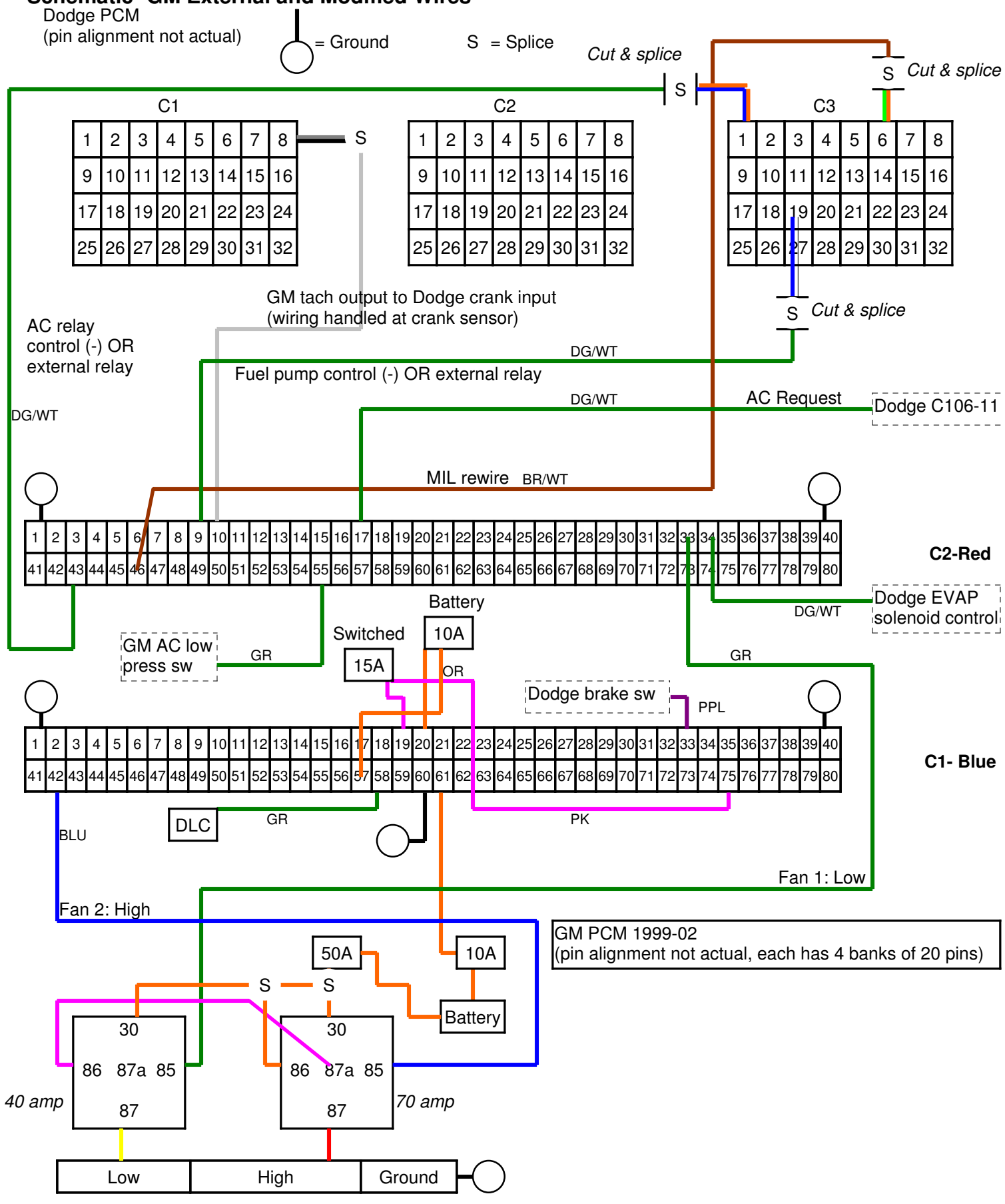
This is an example, others are likely similar.

1998 Chevy K2500 Pickup
241 Transfer Case Wiring



For the 231, the GM switch should work the same as the Dodge one and it may even use the same connector. Parts listing for the 1998 Durango show only a 2 pin standard Weatherpack connector. 1998 Chevy listings show either the same 2 pin Weatherpack or a 3 pin Metripack.

Schematic- GM External and Modified Wires



Example: Mark 8 Two Speed Fan

1998 Dodge Durango
GM LSx Swap

Schematic- Dodge PCM Retained Wires

Dodge PCM (pin alignment actual)
Note: Engine harness does not connect to C3 so it is omitted here
All other wires can be removed. PCM connectors are rear view when plugged in.