Colorado Al's EGR mod:

First off, I do not take credit for this mod. It was developed by Alex Crow an MB tech from UK.
His original thread is here:
http://forums.mercedesclub.org.uk/sh...ad.php?t=88374

I built a copy of the circuit that Alex designed and I copied the layout of Ben Tan (mercuxio), whose circuit is pictured in that thread.

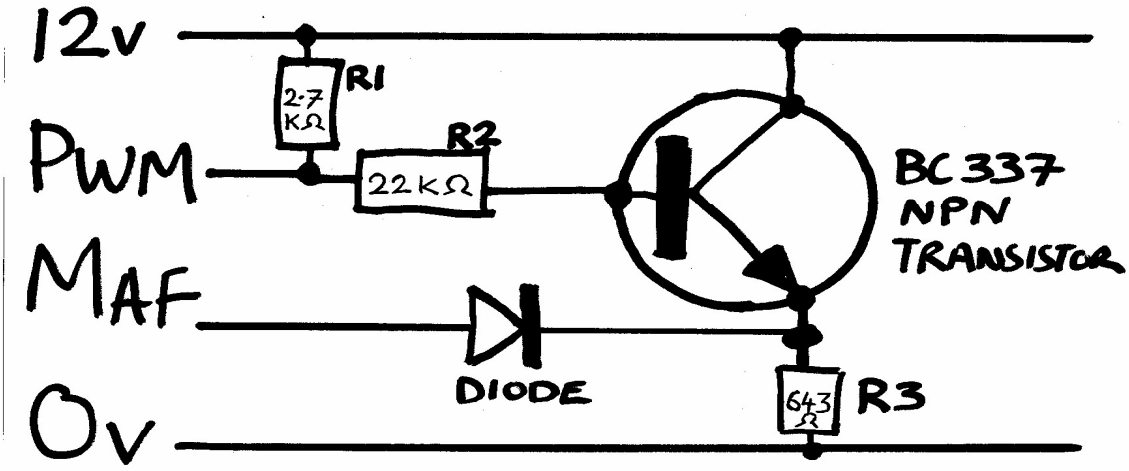
This mod does not physically remove the EGR (though you could if you have the machine skills to make the pipe and block off).

This mod allows you to unplug your EGR (which will remain closed when off) and trick the MAF and ECU into believing that it is still plugged in and working.
If you want to make a block off plate for the EGR you may (for example if your EGR is broken and stuck open, or if you are of the opinion that at WOT vacuum will pull the EGR open or something) but I do not think it is needed.

Also, I have only tried this on my 03 OM612 engine. I suspect that it will also work on the 04-06 T1N OM647 engine, but the ECU pinouts may be different so you'll have to give it a try.
It appears to work on many MB diesel engines as evidenced in Alex Crow's thread. It may even work on NCV3, but I do not know.

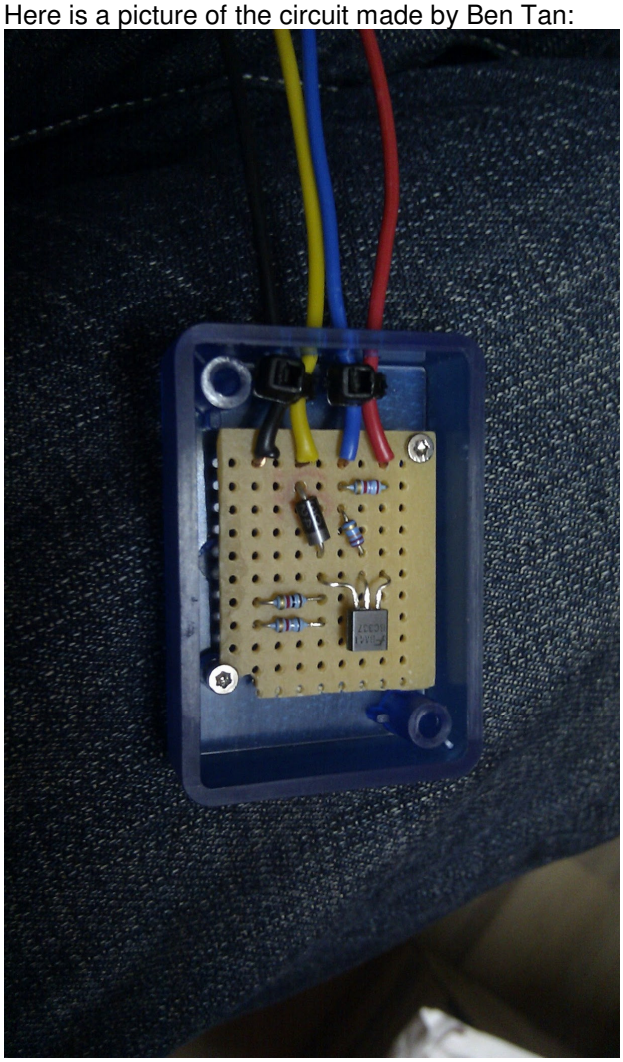
This circuit supplies the ECU with the voltages that it expects to see with a working EGR.
When the key is turned to the on position, the ECU looks for proper voltages to ensure that the EGR is connected.
Then while the engine is running, the MAF sensor is monitored for changes in flow corresponding to an open or closed EGR valve.

Here is a diagram of the circuit as drawn by Alex Crow:



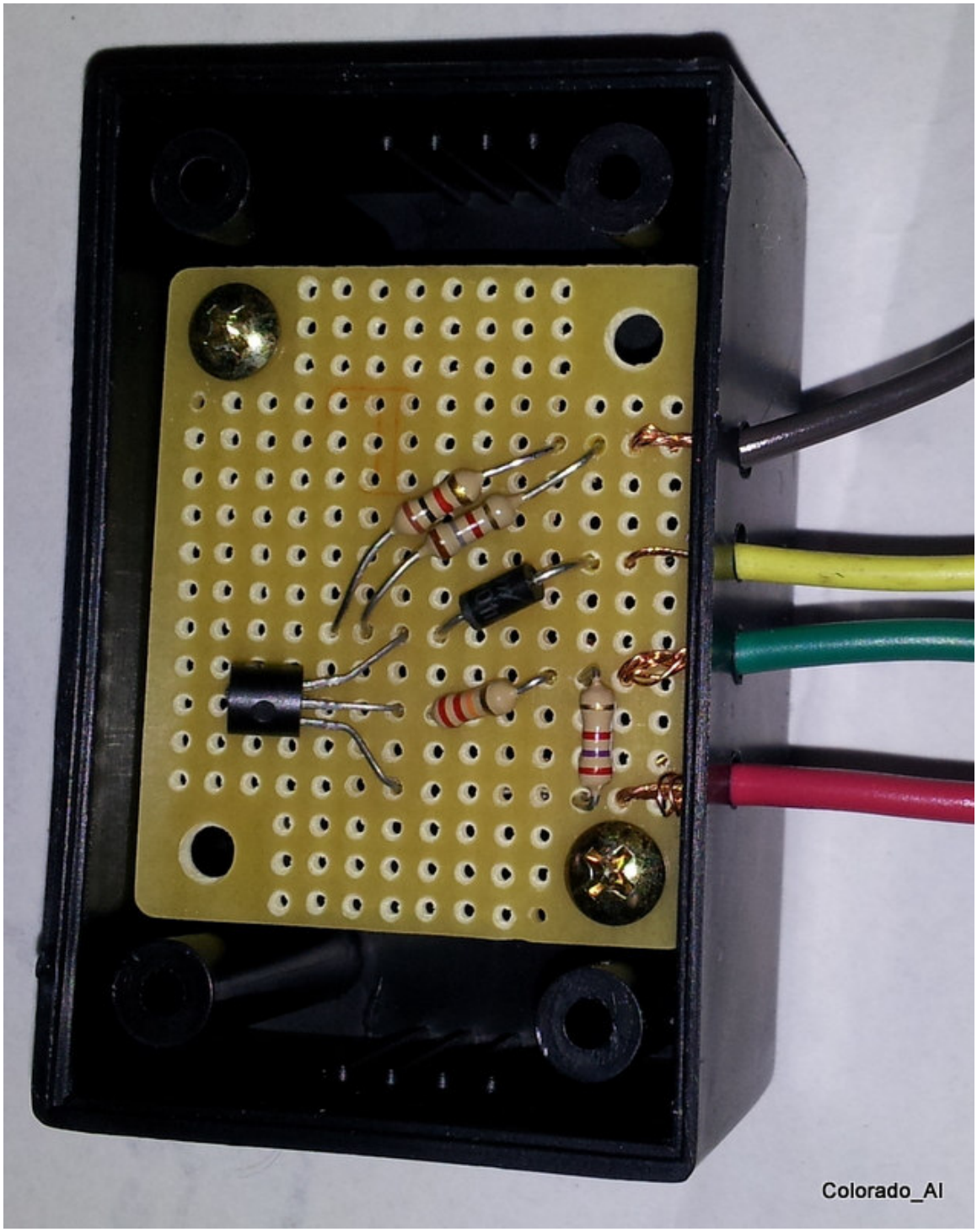

PWM is the pulse modulated signal wire for the EGR
MAF is the signal wire from the MAF

Here is a picture of the circuit made by Ben Tan:



Attached is a picture of my build. In the next post I will detail how I made the circuit and where it attached in the OM612 engine.
You may notice in my build that the transistor is reversed.
That is because I used an equivalent to the BC337 that has a reversed pin out (2N2222).
Additionally, I used a 1.8K & 1K resistors in parallel to achieve the 647 Ohm listed in the diagram (as suggested by Alex Crow)
The diode used is 1N4004 - Radio Shack part #276-1103
(Thanks to Dieselman here: http://forums.mercedesclub.org.uk/sh...ad.php?t=68928 )

PS- I apologize for the massive size of the pictures. I don;t know how to re-size them in line.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So, after building the circuit, I connected it to the ECU, and unplugged the EGR cable at the EGR.
All 4 wires are piggybacked to wires at the ECU, connected with wire taps.
This means that you do not have to cut any wires for this mod.
You can cut out the mod and reconnect the EGR if you wish at a later date.
If you want the EGR cable plugged in (so as to appear untampered with), but EGR disconnected and bypassed, you can clip the EGR cable somewhere that will not be easily visible.

In my build Red goes to 12v switched. You can use any 12v switched source.
(I connected it to Yellow/Red wire at Pin 33 on the ECU C3 connector, which is the MAF 12v supply and uses the same fuse as the EGR 12v supply -which I could not find).

Green goes to EGR Valve control - Red/Yellow wire at pin 40 on the ECU C4 connector.
Be careful here as the ECU C4 connector has at least 1 other red/yellow wire at pin 18 = Engine oil sensor 5v.
My ECU C4 connector also had another red/yellow wire at pin 1. No idea what that one is as it isn't listed in my chart.

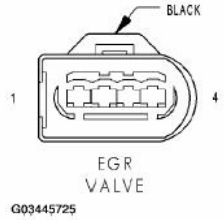
Yellow goes to MAF Sensor Signal - Yellow/Dark Green wire at pin 18 on the ECU C3 connector.

Brown goes to EGR Sensor ground - Brown/ Black wire at pin 17 on ECU C4 connector.

I have attached the pinouts below.

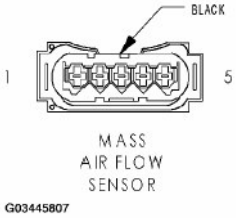
Remember that you want to leave the EGR cable unplugged at the EGR. Probably best to tape it closed (and the EGR connection too) to keep dirt and water out.

**EGR VALVE - BLACK**

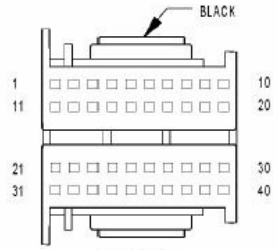



| CAV | CIRCUIT | FUNCTION |
|---|---|---|
| 1 | 20RD/YL | EGR VALVE CONTROL |
| 2 | 18BK/GY | FUSED ENGINE CONTROL RELAY OUTPUT |
| 3 | 18BR/BK | SENSOR GROUND |

**MASS AIR FLOW SENSOR - BLACK**




| CAV | CIRCUIT | FUNCTION |
|---|---|---|
| 2 | 20YL/RD | MASS AIR FLOW SENSOR 12 VOLT SUPPLY |
| 3 | 20BR/YL | SENSOR GROUND |
| 4 | 20BR/BK | MASS AIR FLOW SENSOR 5 VOLT SUPPLY |
| 5 | 20YL/DG | MASS AIR FLOW SENSOR SIGNAL |




ENGINE CONTROL MODULE C4

| CAV | CIRCUIT | FUNCTION |
|---|---|---|
| 2 | 20BR/DG | SENSOR GROUND |
| 3 | 20YL/GY | CAMSHAFT POSITION SENSOR SIGNAL |
| 4 | 20BR/GY | SENSOR GROUND |
| 7 | 18GY/YL | SENSOR GROUND |
| 8 | 18GY/DG | LOW FUEL PRESSURE SENSOR 5 VOLT SUPPLY |
| 10 | 18BR/RD | WATER IN FUEL SENSOR 12 VOLT SUPPLY |
| 11 | 18BK/YL | WATER IN FUEL SENSOR SIGNAL |
| 12 | 18RD/BL | CAMSHAFT POSITION SENSOR 12 VOLT SUPPLY |
| 13 | 20RD/DG | FUEL PRESSURE SENSOR 5 VOLT SUPPLY |
| 14 | 20DG/VT | FUEL PRESSURE SENSOR SIGNAL |
| 15 | 20GY/BL | ENGINE OIL SENSOR SIGNAL |
| 17 | 20BR/BK | SENSOR GROUND |
| 18 | 20RD/YL | ENGINE OIL SENSOR 5 VOLT SUPPLY |
| 21 | 20BK/WT | GROUND |
| 22 | 18RD/BK | FUEL SHUTDOWN SOLENOID 12 VOLT SUPPLY |
| 26 | 20DG | SENSOR GROUND |
| 27 | 20BR/WT | SENSOR GROUND |
| 30 | 18DG/BK | SENSOR GROUND |
| 31 | 20RD/WT | FUEL PRESSURE SOLENOID CONTROL |
| 32 | 20BR/YL | FUEL SHUTDOWN SOLENOID CONTROL |
| 34 | 18BR | SENSOR GROUND |
| 36 | 20DG/RD | ENGINE COOLANT TEMPERATURE SENSOR SIGNAL |
| 37 | 20DG/WT | CRANKSHAFT POSITION SENSOR SIGNAL |
| 38 | 18GY/RD | LOW FUEL PRESSURE SENSOR SIGNAL |
| 39 | 18BL/GY | FUEL TEMPERATURE SENSOR SIGNAL |
| 40 | 20RD/YL | EGR VALVE CONTROL |

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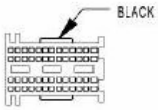


ENGINE CONTROL MODULE C3

| CAV | CIRCUIT | FUNCTION |
|---|---|---|
| 1 | 18BR/DG | SENSOR GROUND |
| 5 | 18BL/RD | ACCEL PEDAL POSITION SENSOR 5 VOLT SUPPLY |
| 6 | 18WT/DG | BOOST PRESSURE SENSOR SIGNAL |
| 7 | 20BR/YL | SENSOR GROUND |
| 8 | 18BR/GY | SENSOR GROUND |
| 9 | 18GY/DG | ACCEL PEDAL POSITION SENSOR SIGNAL NO. 2 |
| 10 | 18BL/DG | ACCEL PEDAL POSITION SENSOR SIGNAL NO. 1 |
| 12 | 18DG/WT | INTAKE AIR TEMPERATURE SENSOR SIGNAL |
| 17 | 18WT/RD | BOOST PRESSURE SENSOR 5 VOLT SUPPLY |
| 18 | 20YL/DG | MASS AIR FLOW SENSOR SIGNAL |
| 19 | 20BR/BK | MASS AIR FLOW SENSOR 5 VOLT SUPPLY |
| 20 | 18VT | IGNITION SWITCH OUTPUT (START) |
| 22 | 18BR/WT | SENSOR GROUND |
| 23 | 18BR/BL | SENSOR GROUND |
| 25 | 18BK/RD | GLOW PLUG MODULE CONTROL |
| 28 | 20BL/YL | K-ECM |
| 30 | 18RD/BL | STARTER MOTOR RELAY 12 VOLT SUPPLY |
| 33 | 20YL/RD | MASS AIR FLOW SENSOR 12 VOLT SUPPLY |
| 35 | 20BR | BOOST PRESSURE SOLENOID 12 VOLT SUPPLY |
| 40 | 20DG/YL | ENGINE RPM |
| 43 | 18VT/DG | STARTER MOTOR RELAY CONTROL |
| 46 | 18YL/BL | FUSE BLOCK NO. 1 C5 CAV 15 COMMON CIRCUIT |
| 48 | 20WT | BOOST PRESSURE SOLENOID CONTROL |

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