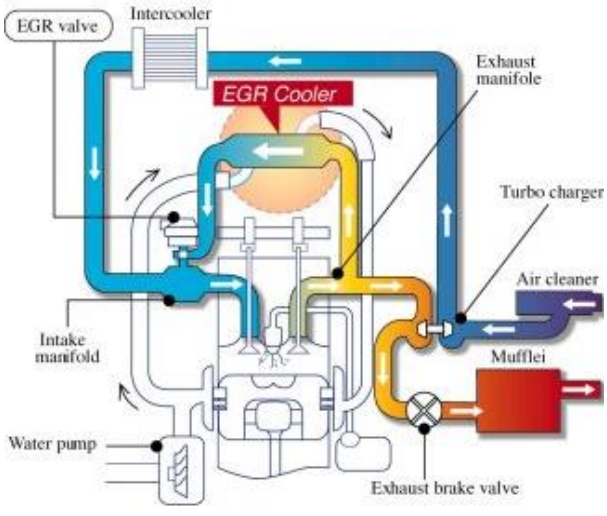
Virtual EGR system
for vehicles equipped with analog or digital air flow mass meters

1. Product description:

1.1. This product is designed to replace faulty or broken exhaust gas recirculation valves either electronically controlled ones or the ones that are controlled by vacuum (further EGR) for “Mercedes Benz” diesel engines. It is compatible with OM606, 611, 612, 613, 646, 647, 648, 668. There is a possibility that this emulator might be suitable for other engines.
1.2. This product does not replace the entire inlet or exhaust gas management system or its components such as the air mass sensor(further HFM) , turbocharger, inlet and exhaust manifolds, intercooler, catalysator, pipes, inlet port shut-off drive motors, flaps and other parts. You must be sure that the problem is only in the EGR valve, otherwise this product will not help you or will help you partially.
1.3. System advantages:
1.3.1. clean inlet manifold;
1.3.2. up to 5% fuel economy;
1.3.3. simple installation;
1.3.4. much cheaper than the original EGR valve
1.4.5. no problems with EGR system in the future

1.4. System disadvantages:
None determined

1.5. EGR system’s functional diagram:



1.6. Problems caused by the original EGR system:

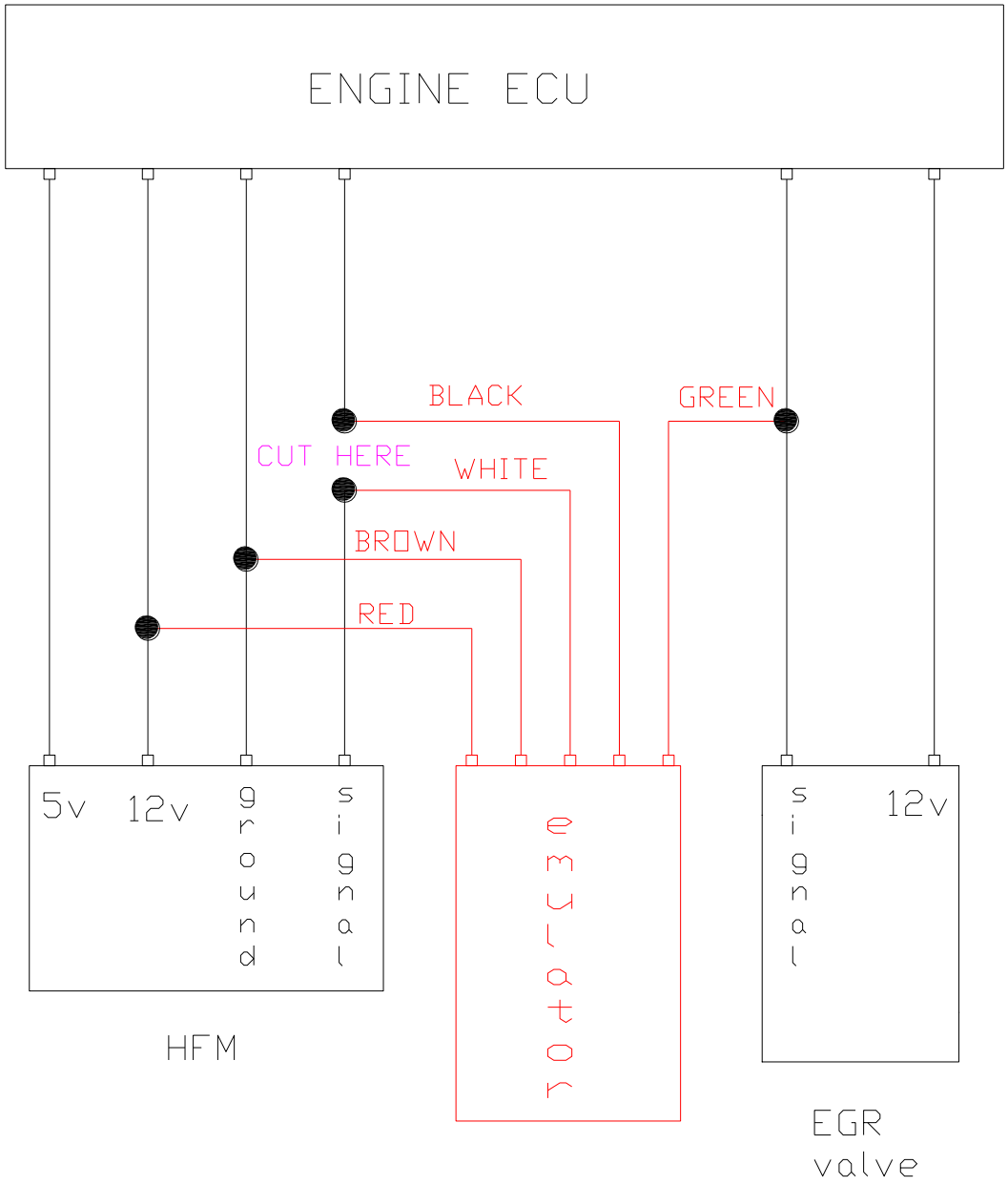
1) Shorter distance between oil change intervals.
2) Soot in the air inlet duct.
3) Higher fuel consumption.

Here are some examples illustrating the air inlet duct of a vehicle that is equipped with the EGR system:

2. Product installation

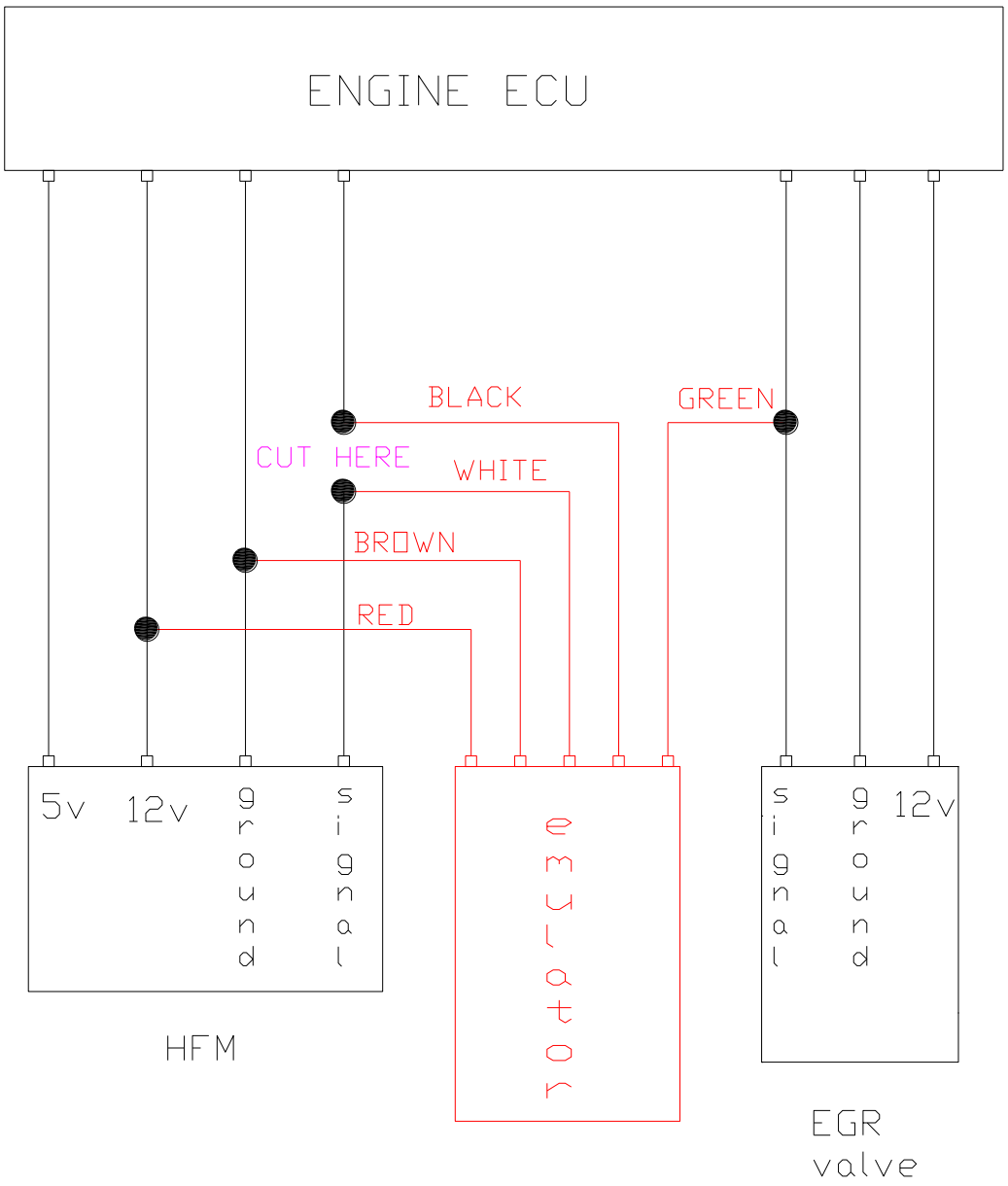
2.1. Find a suitable place to install the emulator. The place should be within normal working temperatures (<40°C), dry, without high vibration levels. Best place to install the emulator is near the engine control module, in the same control unit's box.
2.2. Always make soldered and well-isolated connections.
2.3. Wires should always be tied with fasteners.
2.4. It is highly recommended to remove and clean the inlet manifold before installing the emulator.

2.5. Make sure that the EGR valve is closed and exhaust gas are not flowing into the inlet manifold. Best way to do that is to fasten the EGR valve ball mechanically or close exhaust gas channel with a gasket.
2.6. Installation diagram:
2.6.1. For vacuum controlled EGR valve:



Note: Once the emulator installed then the original EGR valve must not be disconnected, otherwise the engine control unit will detect faults related to EGR valve.

2.6.2. For the electrically controlled EGR valve:



Note: Once the emulator installed then the original EGR valve must be disconnected, otherwise engine control unit will detect faults related to EGR valve.

2.7. It is advised to always use a diagnostic tool to detect faults and check if the emulator is functioning properly.
2.8. Some emulators have a small hole in the plastic box with a LED inside. What each LED light means:

Blinking green: EGR valve is fully closed at this time, or green wire of the emulator has shorted to the positive terminal.
When does this occur? – Engine is working on full load or has been idling for more than 3 minutes. Or the green wire has short circuited.
Permanent green: EGR valve is fully closed at this time.

When does this occur? – Engine is working on full load or has been idling for more than 3 minutes.
Permanent red: EGR valve is partially opened at this time.
When does this occur? – Engine is working on partial load or has been idling for less than 3 minutes.
Blinking red: EGR valve is fully opened at this time, or green wire of the emulator has shorted to the negative terminal.
When does this occur? – Usually it means that the green wire has short circuited to negative terminal.

3. You have done a good job. Enjoy our product!

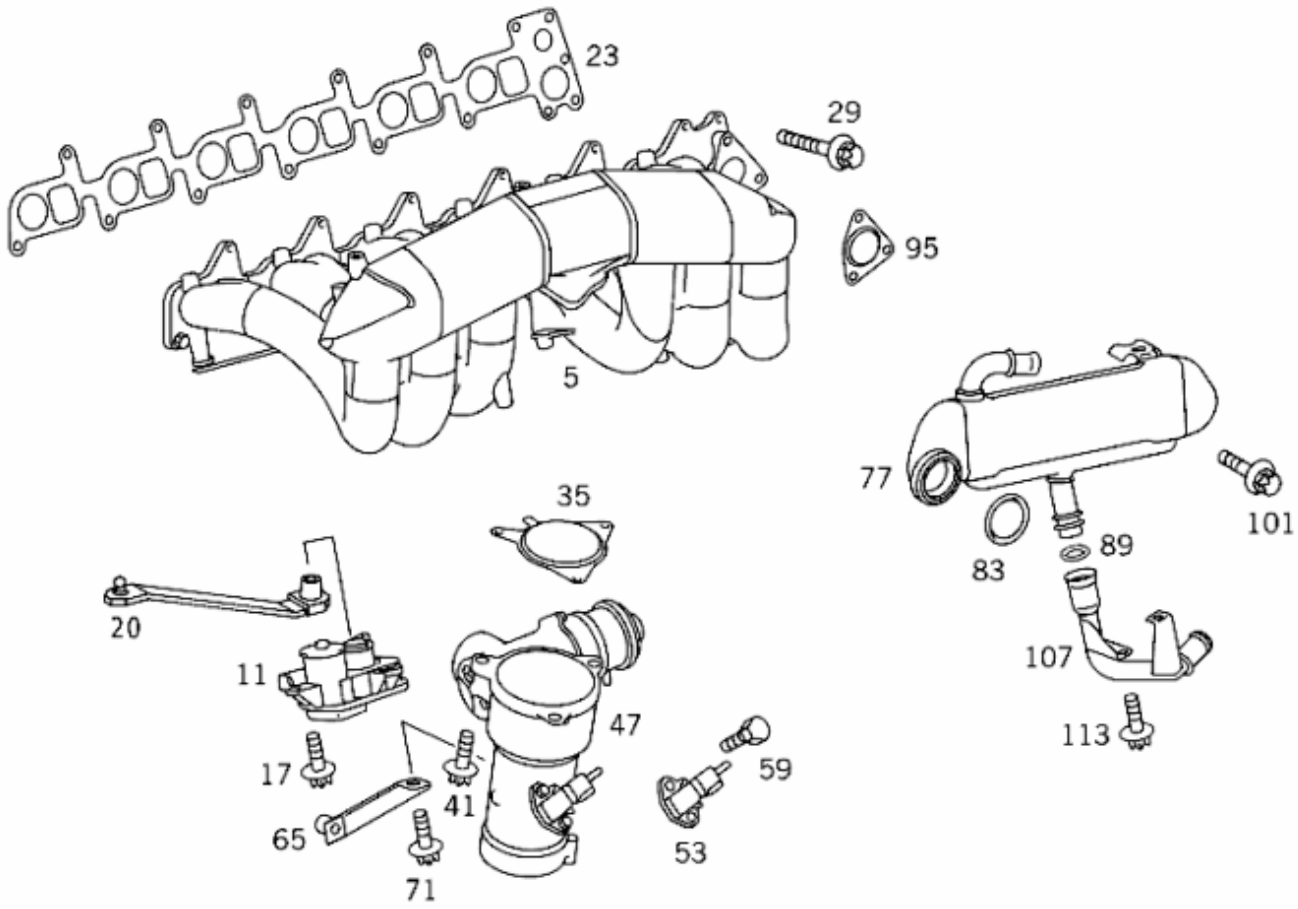
4. Advices.

4.1. **For 613 engine, 6 cylinders, 3.2 L displacement.**

4.1.1. Control units wiring diagram:

Connector	PIN Nr.	Color	Meaning
3	37	Red/black	EGR valve
	50	Grey/black	EGR valve
4	11	Red/blue	HFM +12V
	24	Yellow/white	HFM signal
	34	brown	HFM ground

4.1.2. There should be a gasket included in the package. Replace original gasket (pos.95) with the supplied one.



4.2 For 647 engine, 5 cylinders, electrical EGR valve, 270CDI, (E-class, WDB211016)

4.2.1. Control unit wiring diagram:

Connector	PIN Nr.	Color	Meaning	Pin number, (on)
1	90	Grey/yellow (not necessarily)	EGR valve	1,(EGR valve)
1	17	Brown or white	HFM +12V	2,(HFM)
	85	Red/blue or yellow/white	HFM signal	5,(HFM)
	61	Green or brown	HFM ground	3,(HFM)