



Although this type of EGR valve/cooler is notoriously unreliable, there are also several other factors that cause common EGR fault codes.

Common OBDII codes associated with the EGR system include:

- P0400 Exhaust Gas Recirculation Flow Malfunction
- P0401 Exhaust Gas Recirculation Flow Insufficient Detected
- P0402 Exhaust Gas Recirculation Flow Excessive Detected
- P0403 Exhaust Gas Recirculation Circuit Malfunction
- P0404 Exhaust Gas Recirculation Circuit Range/Performance
- P0405 Exhaust Gas Recirculation Sensor A Circuit Low
- P0406 Exhaust Gas Recirculation Sensor A Circuit High

P0401 and P0402 tend to be the codes found that are not necessarily the fault of the EGR.

EGR flow rates are determined by the engine ECU measuring inputs from various sensors. One of the main sensors used to calculate this is the Air Mass Meter. A faulty air mass meter often logs the P0401 and P0402 fault codes.

Other common faults leading to these codes are intake and exhaust leaks. It is always worth having a good look around all inlet and exhaust pipes for any sign of leaks such as soot around connections etc.



Check Inlet for Leaks



Check Exhaust/Turbocharger for Leaks

The other codes P0400, P0403, P0404, P0405 and P0406 tend to point to electrical problems with the EGR positional system.

The feedback voltage from the EGR valve is an analogue voltage. The voltage is directly relevant to the cam position inside the EGR valve.

There are 5 wires on this particular EGR valve. Two wires drive the cam motor and three wires are connected to the PCB inside the EGR valve.

These are 5 volt reference, Gnd, and the analogue output voltage.

The analogue voltage ranges from 1 volt fully closed to 4 volt fully open.

Closed voltage lower than 0.8 will log a P0405 code.

Open voltage higher than 4.2 will log a P0406 code.

Any electrical related fault codes should be followed up by checking the wiring has no breaks or damages to insulation before condemning the EGR valve as faulty.

It is also worth noting that an EGR valve sat at natural rest is not always fully closed. This is the case with OE valves not just remanufactured ones.

For the valve to be fully closed the motor has to driving the valve back into its seat. This is the point where it will read fully closed 1 volt.

There is a myth that you can test whether an EGR valve is faulty by shining a light down the top port and looking into the bottom port to see if any light visible. This is a pointless test unless the EGR valve is powered and being driven to its closed position.

The ECU will have learned the open and closed voltage positions of the original valve. These should adapt to the new EGR valve values after a short drive, but the best way is re-adapt the new valve with an appropriate diagnostic tool.