

OBD and exhaust gas return system

Finding and remedying faults

Pierburg products
01 EGR cooler
02 Intake manifold
03 Air mass sensor (LMS)
04 Pneumatic EGR valve (petrol)
05 Electric EGR valve (petrol)
06 Electromotive EGR valve (diesel)
07 Pneumatic EGR valve (diesel)
08 Electropneumatic pressure transducer (EPW) for pneumatic EGR valves

On-board diagnostics
09 Engine control unit
10 Malfunction indicator lamp (MIL)
11 Diagnostic plug
12 OBD data scan tool

Blocked air mass sensor (LMS)

Stuck EGR valve (diesel) and in new condition

Carbonised EGR valve (petrol) with zoom

Code	P0400	P0401	P0402	P0403	P0404	P0405/P0406 P0407/P0408
Fault	EGR system – flow malfunction The EGR valve does not open: <ul style="list-style-type: none"> There is no exhaust gas recirculation, or it is not detected Output not reached Engine goes into limp home function Driving behaviour is deficient Uneven idling 	EGR system – insufficient flow rate Not enough exhaust gas is being recirculated: <ul style="list-style-type: none"> EGR valve does not open wide enough Cross section restricted by impurities (carbon deposits) EGR valve opening time too short Air mass sensor defective or soiled 	EGR system – excessive flow rate Too much exhaust gas is being recirculated: <ul style="list-style-type: none"> EGR valve opens to an extent that deviates from the set-point values Valve does not close completely Air mass sensor defective or soiled 	EGR system – control loop malfunction EGR signals incorrect or implausible: <ul style="list-style-type: none"> Wear/soiling of the potentiometer in the EGR valve, temperature sensor 	EGR System – control loop measurement/ power problem <ul style="list-style-type: none"> Exhaust gas recirculation outside set-point range EGR signals incorrect or implausible Wear/soiling of potentiometer in the EGR valve, pressure sensor, temperature sensor, air mass sensor, electrical plug-in connections and lines 	EGR system – sensor A/B circuit too small/ large <ul style="list-style-type: none"> EGR signals incorrect or implausible Wear/soiling of potentiometer in the EGR valve, pressure sensor, temperature sensor, air mass sensor, electrical plug-in connections and lines
Next steps/ Possible remedies	<ul style="list-style-type: none"> Check pneumatic EGR valve with vacuum hand pump: <ul style="list-style-type: none"> If the vacuum is not maintained, replace the EGR valve If it is not actuated, check the vacuum lines for free flow/tightness Examine the EGR valve for visible damage or discolouration: <ul style="list-style-type: none"> Exhaust gas back pressure could be too high or the actuation could be incorrect Check the exhaust system for free flow Check the boost pressure control valve for functioning and actuation If there is sticking, replace the EGR valve and check the fuel injection system and the oil vapour separator (blow-by separator) Check the power supply to the EGR valve and electropneumatic pressure transducer, replace any defective parts 	<ul style="list-style-type: none"> Check electric actuators Check pneumatic actuators (vacuum) If there is sticking, replace the EGR valve and check the fuel injection system and the oil vapour separator (blow-by separator) Especially for electric EGR valves, check actuators and sensors Check the air mass sensor and replace if necessary 	<ul style="list-style-type: none"> Check sensors and actuators If there is sticking, replace the EGR valve and check the fuel injection system and the oil vapour separator (blow-by separator) Check the air mass sensor and replace if necessary 	<ul style="list-style-type: none"> Check signals and compare with set-point values 	<ul style="list-style-type: none"> Check signals and compare with set-point values Check lines, plug-in connections and components 	<ul style="list-style-type: none"> Check signals and compare with set-point values Check lines, plug-in connections and components

Further details on this subject can be found in our brochure "Service Tips & Info – Emission control and OBD".
Further information can be obtained directly from your local Motorservice partner or at www.ms-motorservice.com

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