### Troubleshooting in exhaust gas recirculation system

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<td><strong>Caused by EGR valve</strong></td>
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| • Irregular idling | • General: Coked/stuck EGR valve  
- Poor, inadequate combustion  
- Engine management fault  
- Frequent short-distance drives  
- Leaks in vacuum system | • Check engine controls  
• Check software update of engine control unit  
• Avoid frequent short-distance drives  
• Replace valve |
| • Jerking | • Defective solenoid valves  
• Malfunctions in vacuum system | • Check function, electrical actuation and tightness of vacuum system  
See below: “Vacuum system” |
| • Insufficient engine power | • High oil content in intake or charge air:  
- Malfunctions in crankcase ventilation  
- Engine oil level too high  
- Low-quality engine oil  
- Worn valve stem seal or guides | • Check oil separator, engine exhaust valve  
• Check pistons, piston rings, cylinders, valve stem seals and/or guides for wear  
• Check turbochargers for clogged oil return line  
• Change of oil and oil filter replacement (by professional) |
| • Limp-home operation | • Air mass sensor signal/other sensor signal defective | • Check sensors for set-point values, replace if necessary |
| • MIL lights up/error code set | • EGR valve does not open or is not actuated  
• EGR system has been shut down (the vehicle no longer complies with the ABE!) | • Check connectors and actuation |
| • Insufficient engine power in lower rpm range or in cold run (Otto) | • Uncontrolled, permanent exhaust gas recirculation | • Replace EGR valve  
• Check connectors and actuation |
| • Insufficient engine power in upper rpm range (diesel) | • Incorrect actuation  
• Exhaust gas back pressure too high  
• Blow-off valve of turbocharger does not open | • Replace EGR valve  
• Check actuator of EGR valve  
• Check exhaust gas back pressure  
• Check blow-off valve of turbocharger (“waste-gate”) and its actuation |
| • P0401 "Flow rate too low" | • New EGR valve, inoperative  
• High idling after installation | • New EGR valve has not been adapted  
• Conduct a basic setting of EGR valve using the engine tester |
| • P0103 "Air mass too high" | | |
| • P0402 "Flow rate too high" | • EGR valve does not close/remains permanently open  
• Uncontrolled, permanent exhaust gas recirculation | • Replace EGR valve  
• Check connectors and actuation |
| • P0102 "Air mass too low" | | |
| • EGR valve has temperature damage, visible discoloration, initial fusing (Otto) | • Defective hoses (porous, damaged by marten bites)  
• Leaking connectors on pneumatic valves  
• Leaking non-return valves/vacuum reservoir  
• Defective/porous diaphragms or seals on pneumatic actuators  
• Leaks in intake manifold | • In the event of damage, check the tightness of all components in the vacuum system and replace defective part |
| • New EGR valve, inoperative  
• High idling after installation | • Air mass sensor damaged/dirty due to  
- Dirt particles in intake air  
- Leaks in intake air system, splash water  
- Contamination during air filter replacement  
- Clogged air filters  
- Oil-moistened sports air filters | • Avoid any intake of water and particles into intake air system |

**EGR** = Exhaust gas recirculation; **MIL** = Malfunction Indicator Lamp