


Troubleshooting in exhaust gas recirculation system

Complaint	Potential causes	Remedies
Caused by EGR valve		
<ul style="list-style-type: none"> Irregular idling Jerking Insufficient engine power Limp-home operation MIL lights up/error code set Insufficient engine power in lower rpm range or in cold run (Otto) Insufficient engine power in upper rpm range (diesel) 	<ul style="list-style-type: none"> General: Coked/stuck EGR valve <ul style="list-style-type: none"> Poor, inadequate combustion Engine management fault Frequent short-distance drives Leaks in vacuum system 	<ul style="list-style-type: none"> Check engine controls Check software update of engine control unit Avoid frequent short-distance drives Replace valve
	<ul style="list-style-type: none"> Defective solenoid valves Malfunctions in vacuum system 	<ul style="list-style-type: none"> Check function, electrical actuation and tightness of vacuum system See below: "Vacuum system"
	<ul style="list-style-type: none"> High oil content in intake or charge air: <ul style="list-style-type: none"> Malfunctions in crankcase ventilation Engine oil level too high Low-quality engine oil Worn valve stem seal or guides 	<ul style="list-style-type: none"> 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)
	<ul style="list-style-type: none"> Air mass sensor signal/other sensor signal defective 	<ul style="list-style-type: none"> Check sensors for set-point values, replace if necessary
<ul style="list-style-type: none"> P0401 "Flow rate too low" P0103 "Air mass too high" 	<ul style="list-style-type: none"> EGR valve does not open or is not actuated EGR system has been shut down (the vehicle no longer complies with the ABE!) 	<ul style="list-style-type: none"> Check connectors and actuation
<ul style="list-style-type: none"> P0402 "Flow rate too high" P0102 "Air mass too low" 	<ul style="list-style-type: none"> EGR valve does not close/remains permanently open Uncontrolled, permanent exhaust gas recirculation 	<ul style="list-style-type: none"> Replace EGR valve Check connectors and actuation
<ul style="list-style-type: none"> EGR valve has temperature damage, visible discolouration, initial fusing (Otto) 	<ul style="list-style-type: none"> Incorrect actuation Exhaust gas back pressure too high Blow-off valve of turbocharger does not open 	<ul style="list-style-type: none"> Replace EGR valve Check actuator of EGR valve Check exhaust gas back pressure Check blow-off valve of turbocharger ("waste-gate") and its actuation
<ul style="list-style-type: none"> New EGR valve, inoperative High idling after installation 	<ul style="list-style-type: none"> New EGR valve has not been adapted 	<ul style="list-style-type: none"> Conduct a basic setting of EGR valve using the engine tester
Caused by vacuum system/solenoid valves		
<ul style="list-style-type: none"> Engine "chattering" Engine misfires Limp-home operation Decreasing braking performance 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> In the event of damage, check the tightness of all components in the vacuum system and replace defective part
Caused by air mass sensor		
<ul style="list-style-type: none"> P0401 "Flow rate too low" Black smoke Inadequate engine performance Limp-home operation 	<ul style="list-style-type: none"> Air mass sensor damaged/dirty due to <ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Avoid any intake of water and particles into intake air system
	<ul style="list-style-type: none"> Damage to turbocharger 	<ul style="list-style-type: none"> Check turbocharger

EGR = Exhaust gas recirculation; MIL = Malfunction Indicator Lamp