





EXHAUST GAS RECIRCULATION

ADVICE ON TROUBLESHOOTING

A11801

One of the most common reasons for errors in the EGR system are sticky or coked EGR valves.

The recirculated exhaust gas contains an increased amount of soot particles, especially in diesel vehicles. In addition, oil contained in the intake air can promote the formation of adhesion and coking. This means that after a period of time the performance of the valve can no longer cope with the deposits, and stays in an open position or does not open anymore. This can be felt through bad performance, jerking or rough idling.

The root causes for an increased proportion of oil in the intake air or intercooler can be due to inconsistencies in the crankcase ventilation, worn bearings, a clogged oil return line on the turbocharger, worn valve stem seals or valve stem guides, using unsuitable engine oil quality, or a too high engine oil level. Extraordinarily strong residues can also be caused by an error in the fuel injection. EGR valves are designed for high temperatures in the exhaust system. However, heat damage can occasionally occur. The reasons for this may be due to bad control, too high exhaust gas back pressure, or due to a non-opening thrust recirculation valve of the turbocharger ("Wastegate"). Manipulation to increase the boost pressure may also be a reason.

Moreover, with pneumatic EGR valves, a possible cause can be found due to defects in the entire vacuum pump control area (vacuum pump, vacuum lines, and solenoid valves). Electric EGR valves and solenoid valves can mostly be performed by an actuator diagnosis through the engine tester.

The switching of a working valve is easy to hear with the engine at standstill.

If a new EGR valve was installed and the vehicle behaves as if the valve was not changed, the correct data necessary for operation must be "fine-tuned" again. This can be done either through a longer test drive or through specific programming by the engine tester, e.g. "Basic setting".

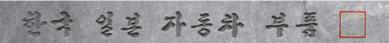
IMPORTANT!

Return consignments will not be accepted where adaption of the EGR valve cannot be proven!





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DEFECT	CAUSE	PROPOSED SOLUTION
	EGR VALVE	
 rough idling jerking lack of Power emergency operating mode MIL lights / error code set lack of power in the lower -rpm range or in - old modus (Otto) lack of power in the upper rpm range (Diesel) 	 general: coked/sticky EGR valve poor, unclean combustion engine management fault frequent short journeys 	 check the engine control check software version of the engine control unit avoid only short distance operation replace the valve
	leaks in the vacuum system defective solenoid valves disturbances in the vacuum system	check the function, electrical actuation and imperme- ability of the vacuum system
	very oily intake or charged air: disturbances in the crankcase ventilation too high engine oil level poor engine oil quality worn valve stem seals or valve stem guides	 check oil separator, check engine ventilation valve check pistons, piston rings, cylinders, valve stem seals or valve stem guides for wear and tear check turbocharger for clogged oil return line perform professional oil and oil filter change
	air flow signal or other sensor signal error	check sensors on correct values, replace if necessary
P0401 "Flow rate too low"P0103 "Air mass too high"	EGR valve does not open or is not actuatedEGR system has been shut down	check connectors and control
P0402 "Flow rate too high" P0102 "Air mass too low"	EGR valve does not close / is permanently open uncontrolled, permanent EGR	replace EGR valvecheck connectors and control
EGR valve has temperature damage, visible discoloration, partial melting (Otto)	 false triggering excessive exhaust backpressure not opening turbocharger outlet valve 	 replace EGR valve check control of the EGR valve check exhaust backpressure thrust recirculation valve of turbocharger ("Wastegate") and its actuation
new EGR valve without function high idling after installment	new EGR valve was not adapted	adjust basic setting of the EGR valve through engine tester
	SOLENOID VALVES / PRESSURE SYSTEM	
 sawing engine misfirings emergency operating mode deteriorating brake performance 	 defective hoses (porous, marten bites) leaking connectors on pneumatic valves leaking non-return valves / vacuum tank defective / porous diaphragms or gaskets at pneumatic actuators leakages in suction pipe 	in case of damage check the impermeability of all components in the vacuum system and replace broken part
	AIR FLOW METER	
 P0401 "Flow rate too low" black smoke lack of Power emergency operating mode 	 air flow meter damaged / contaminated by dirt particles with the intake air leaks in the intake duct, spray water uncleanliness when changing the air filter clogged air filter oil-coated high performance air filter 	avoid water and particle entry in the intake duct
	damage to the turbocharger	check turbocharger

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