

Service-Info: EGR modules for VW engines

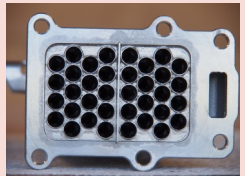
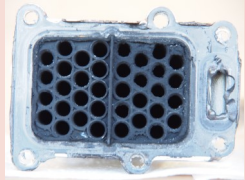
### Soot deposits and slag leads to premature wear

An EGR module serves to add exhaust gas to the intake air and to therefore reduce the proportion of nitrogen oxides being emitted. To enable this, the exhaust must first be cooled from 700°C to around 400°C. This is done by directing the exhaust through water-cooled ducts.

The EGR module for VW engines has become renowned for premature wear. The background to this involves the soot deposits in these intake ducts, but also those around the valve and the swirl flaps. The cause of these soot deposits is the very narrow construction dimensions of the exhaust ducts in these modules. These duct dimensions are based on the construction specifications of the vehicle manufacturer. The sooting and malfunctioning of the EGR module is therefore not a production defect but a constructional issue. The effect is intensified through:

- Frequent short-distance operation
- Frequent driving at full throttle—e.g. when drivers like to „put the pedal to the metal“
- Incorrect engine adjustment causing unburned residual oil to enter the module and additionally block the module with oil slag

For this reason, in the OE area, service cases under a mileage of 30,000-40,000km are only recognised as a guarantee claim if the cause of the problem is not soot deposits.



Top: Clogged intake ducts  
Bottom: New EGR module

### Note

Especially the soot deposits around the valve and swirl flaps mean that they cannot return to their intended position and thereby impair the EGR module's operation. This can even lead to a fault being displayed in the cockpit and the shutdown of the module.

**Important: For correct functioning, all engine control unit parameters for the ERG module must be reset.**

### NO ACKNOWLEDGEMENT AS A GUARANTEE CLAIM

Even though we could improve the module construction in several respects, the soot deposits in the AIC products are also the result of the original specification of the vehicle manufacturer. That's why every claim is individually assessed, but we can only recognise cases as a guarantee claim if the problem is not due to soot deposits. If oil slag remnants are found in the EGR module, this is due to the engine not being correctly adjusted and motor oil not being completely combusted. In such cases recognition as a guarantee claim is fundamentally excluded. **In the case of a guarantee claim, please always include the fault log and inspection protocol, if possible.**

### You identify:

You obtain the error code P0401 “Exhaust EGR Flow Insufficient” during the diagnosis, the engine exhibits performance deficiencies, runs only in emergency mode or shows visible diesel exhaust (black) and the vehicle has increased fuel consumption.

### Possible causes:

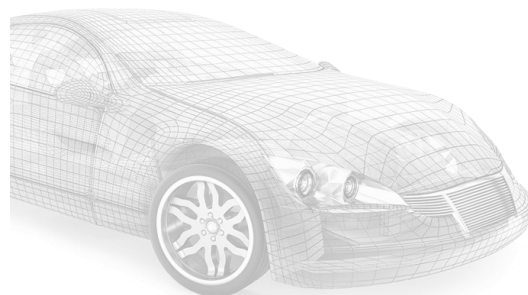
#### Air flow sensor damaged/dirty due to

- Pollutant particles from the intake air
- Leakages in the intake tract, water spray
- Uncleanliness during air filter exchange
- Oil-wetted sport air filter

Turbocharge damage

### Remedies :

- Avoid water and pollutant particles in the intake tract
- Examine the air filter
- Examine the turbocharger



### You identify:

The engine rattles or jolts, exhibits decreasing braking performance or runs inhibited (emergency mode)

### Possible causes:

- Damage to cable harness
- Faulty hoses (porous, rodent damage)
- Leaks at connections of pneumatic valves
- Leaky check valves / vacuum tanks
- Faulty porous membranes or seals at pneumatic actuators
- Leakages at intake manifold
- Corrosion at plug contacts

### Remedies :

#### Check

- All components of the vacuum system and replace as required
- Cable harness and plug contacts

## Fault Area 3: EGR valve

### You identify:

### Possible causes:

### Remedies:

The engine runs roughly or with curbed performance (emergency mode), jerks and jolts or exhibits performance reductions in the lower (petrol engine) or higher (diesel) rpm range, the engine lamp is on in the cockpit or an error code is shown.

Is the EGR valve clogged with soot or slag due to:

- Poor, unclean combustion?
- Faults in the engine management?
- Frequent short trips?
- Leaks in the boost pressure system?

- Check the engine control unit and (without fail!) the software status
- Avoid only undertaking short trips
- Renew the EGR valve

Are there leakages in the vacuum system?

- Are solenoid valves faulty
- Is there a malfunction in the vacuum system?

Check that the vacuum system is airtight as well as its electrical control and ensure that everything functions correctly

Is the intake or intercooler air very oily?

- Malfunctions in the crankcase venting system?
- Engine oil level too high?
- Poor quality engine oil?
- Worn valve stem seals or guides?
- Saturation of the diesel particle filter?

Check the

- Oil separator and the engine bleed valve
  - Wear to the pistons, rings, cylinders, valve stem seals
  - Turbocharger for blocked oil return pipes
- Change the oil and oil filter

Is there a malfunction in the air flow or other sensor signal?

Check and, if necessary, renew the sensors to the target values

In the diagnosis, you obtain the error codes P0401 “Exhaust EGR Flow Insufficient” or P0103 “Mass or Volume Air Flow Circuit High”

Does the EGR valve not open or is it not being accessed?  
Is the EGR system inoperative?

Check all relevant connections and controls

In the diagnosis, you obtain the error codes P0402 “Excessive Exhaust EGR Flow Detected” or P0102 “Mass or Volume Air Flow Circuit Low”

Does the EGR valve not close or is it constantly open?  
Is there continuous and uncontrolled exhaust gas recirculation?

Renew the EGR valve.  
Check all relevant connections and controls

The EGR valve exhibits discolouration and molten parts, which infers damage has occurred due to extreme temperatures (petrol engine)

Does the control work correctly? Is there excessive exhaust gas back pressure? Does the turbocharger’s bleed valve not open?

Renew the EGR valve and then check the

- Control of the EGR valve
- Exhaust gas back pressure
- Turbocharger bleed valve and its control

A newly installed EGR valve does not work and/or the engine idles high following the installation

Is the engine control unit running the latest available software version?  
Was the EGR valve configured to align with the control unit?

All settings for the EGR module must be reset in the engine control unit. Then conduct a software update. Finally, configure the EGR valve to align with the control unit.