

Frequent causes of damage:

Bad location for the electric switch-over valve (EUV)

EUVs are often located in areas exposed to splashing water. When the EUV is switched off, water can penetrate it through the aeration system and cause corrosion. The valve no longer switches and the ARV remains open. Exhaust gas gets into the secondary air system, condenses there and causes consequential damage. In many cases water also gets into the vacuum side of the ARV and causes damage there. Damage of this type is not detected as error by the monitoring of electric components in EOBD.

Bad location for the SLP in areas exposed to splashing water

Especially secondary air pumps in which the air is extracted from of the inlet port but directly from the engine compartment are at risk. Here water can be drawn in from the SLP.

No activation of the ARV

The vacuum line between the EUV and the ARV is disconnected, pinched or broken off.

Defective, non-activated or leaky ARV

A leak causes exhaust gas to get into the secondary air system and to condense there. In both cases the secondary air pump and the cut-off secondary air valve are damaged by the aggressive, extremely acidic condensates.

“Garage cars”

Vehicles with frequent long periods of inactivity are especially affected by corrosion. In this case water and condensates can cause damage after a brief time. In vehicles that are continuously being used, secondary air is regularly blown out of the system. Here damage occurs later.

Leaky suction pipe to the secondary air pump

Splashing water can also get in between the air filter and the SLP causing corrosion and later the failure of the secondary air pump. Therefore attention must be given to the lines to ensure that they are correctly inserted and not broken off. Check older lines for cracks. Check gaskets. Splashed water does not lead to damage as quickly as condensates.

Mechanical damage

To secondary air pumps, lines and cables due to accident or also during repairs.

Electrical disturbances

Due to short circuit or interruption.

Stuck non-return valves

(in older systems with separate non-return valves).

If oil vapours (blow-by gases) get into the non-return valve from the inlet port here, the valve can become so stuck that it will also remain closed when the secondary air pump is running.



Important note:

Further information on error diagnosis and function descriptions can be found in the Service Information SI 0012, SI 0024, SI 0049, SI 0050, and SI 0059.



Fig. 32: simple check of the check valve

Non-return valves can be checked for leaks

very simply:

- Release the connection hose on the non-return valve that leads to the secondary air pump.
- If there are deposits on this side of the valve (for the finger test, see illustration), the non-return valve is leaking and must be replaced. In this case the secondary air pump may already be damaged. Check the secondary air pump and replace as well if necessary.