



Quick inspection of secondary air valves



The following customer complaints can occur during the cold-running phase in vehicles that have a secondary air system:

- secondary air pump (SLP) makes noises
- SLP does not work
- repeated failure of the SLP after a brief running period
- variation in revs when the engine is cold

Possible OBD error codes are:
P0410; P0411



Damage as a result of exhaust gas condensate



The new condition as a comparison

In almost all cases this damage is caused by exhaust gas condensate in the secondary air pump.

In repairs, often only the secondary air pump is replaced.



However, the actual cause of the damage is not in the secondary air pump.

The trigger for this damage remains in the vehicle and can lead to the recurrent failure of the secondary air pump.

When replacing the secondary air pump, the electrical reversing valve and the secondary air valve must be inspected for leaks as a basic principle.

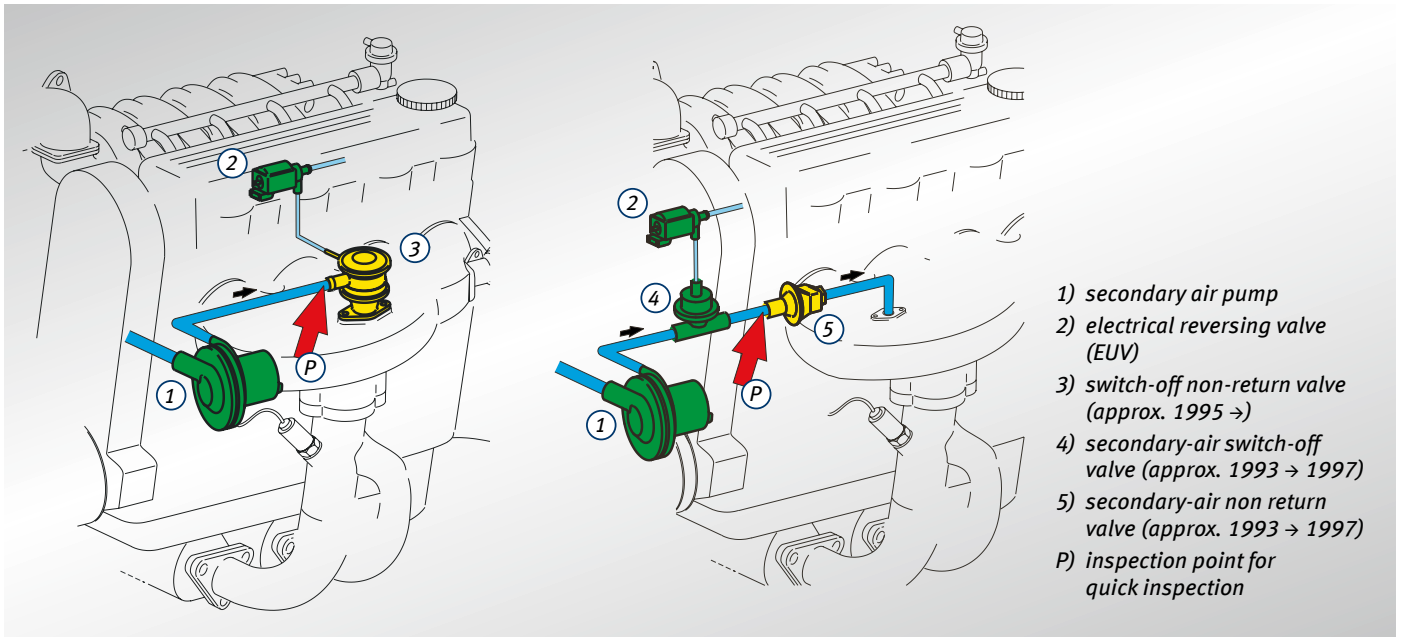
The secondary air valve can be quickly inspected in an easy way:

- Loosen the connecting hose on the secondary air non-return valve leading to the secondary air pump. See inspection point "P" on the graphic overleaf
- If there are deposits on this side of the valve (finger test, see adjacent Figure), the nonreturn valve is leaky and must be replaced. In that case the secondary air pump may already have been damaged.
- Inspect the secondary air pump and replace it if necessary.



Simple inspection of the non-return valve

The right of changes and deviating pictures is reserved. Assignment and usage, refer to the each case current catalogues, TecDoc CD respectively systems based on TecDoc.



Two variants of the secondary air system

Secondary air valves are an integral part of the secondary air system. They are fitted between the secondary air pump (1) and exhaust manifold.

They prevent pressure peaks in the exhaust flow from damaging the secondary air system and exhaust gas or condensate from entering the secondary air pump.

There are different designs of secondary air valves:

Switch-off non-return valves (3) are generally vacuum-operated valves. Later designs (from approx. 1998 to date) are opened by the pressure of the secondary air. This does away with pneumatic control by an electrical reversing valve (2). Secondary-air non-return valves (5) open as a result of the pressure of the secondary airflow.



You will find further information on the function and diagnosing faults in the secondary air system:

- in Service Information leaflet SI 0106.
- in the brochure “Service Tips & Infos – Emission Control & OBD” (Order No.: 50 003 960-02)

Quick inspection of the secondary air valve in the BMW 520i (highlighted)