



**SI 0083**  
For technical personnel only!  
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# SERVICE INFORMATION

## 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

In almost all cases this damage is caused by exhaust gas condensate in the second-ary air pump. In repairs, often only the secondary air pump is replaced.



### NOTE

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 Fig. 1), 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.



Damage as a result of exhaust gas condensate



The new condition as a comparison



Fig. 1: Simple inspection of the non-return valve

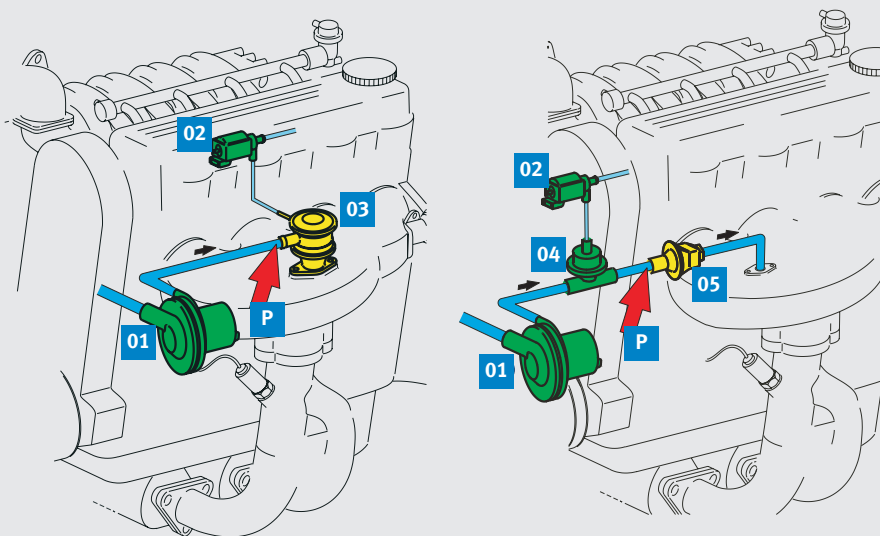
All content including pictures and diagrams is subject to change. For assignment and replacement, refer to the current catalogues or systems based on TecAlliance.



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- 01 secondary air pump
- 02 electrical reversing valve (EUV)
- 03 switch-off non-return valve (approx. 1995 →)
- 04 secondary-air switch-off valve (approx. 1993 → 1997)
- 05 secondary-air non return valve (approx. 1993 → 1997)
- P inspection point for quick inspection

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 →) 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.



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



**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 “Emission control and OBD” (Order No.: 50 003 960-02)

