

P0491

Secondary Air Injection System, Bank 1 – Below Limit

Diagnosis conditions

- Intake air temperature 4.5 - 60 °C
- Engine temperature 4.5 - 102 °C
- Mass air flow 36 - 150 kg/h
- Engine starting temperature less than 42 °C
- Altitude correction factor greater than 0.75
- Oxygen sensors 1 and 2 ahead of TWC are ready for operation
- The secondary air injection pump is switched on
- Diagnosis has not yet taken place during this cycle

Possible fault cause

- ◆ Secondary air injection pump is not triggered
- ◆ Secondary air injection pump does not work
- ◆ Air supply lines restricted
- ◆ Electric change-over valve does not function
- ◆ Air change-over valve does not function
- ◆ Vacuum system leaking

Affected terminals

III/11 and III/14

Diagnosis/Troubleshooting

**Note!**

Secondary air diagnosis can be activated with the Porsche System Tester 2 in the "Short test" menu.

Work instruction		Display OK	If not OK
1	Activate secondary air pump	⇒ Step 3.	⇒ Step 2.
	<ul style="list-style-type: none"> ◆ Remove relay of secondary air injection pump. ◆ Jumper terminals 30 and 87. ◆ The secondary air pump must be running (audible function). – or ◆ Connect and switch on Porsche System Tester 2. ◆ Select DME. ◆ Call up "Drive links" menu. ◆ Select "Secondary air pump". ◆ Activate secondary air pump (audible function). 		
2	Check triggering of secondary air pump	Battery voltage.	Check wire from pin 2 to DME control module pin III/11 for continuity.
	<ul style="list-style-type: none"> ◆ Check fuse (Maxi Fuse) of AIR pump (on relay carrier 2). ◆ Remove relay of AIR pump (on relay carrier 2). ◆ Measure voltage between pin 3 and ground ◆ Push relay back on. 		
	<ul style="list-style-type: none"> ◆ Remove connector of AIR pump. ◆ Measure voltage at pin 1 and pin 2 	Battery voltage.	
3	Check vacuum system for leaks		Seal vacuum system
4	Check electric change-over valve	Battery voltage.	
	<ul style="list-style-type: none"> ◆ Remove two-pole connector of electric change-over valve. ◆ Trigger AIR pump with Porsche System Tester 2. ◆ Measure voltage at pin 1 and pin 2 		
	<ul style="list-style-type: none"> ◆ Remove vacuum hose of electric change-over valve with the engine running. 	Vacuum must be present	

Work instruction		Display OK	If not OK
5	Check air change-over valve	Vacuum must be present	
	<ul style="list-style-type: none"> ◆ Run engine briefly to produce vacuum. ◆ Activate secondary air pump. ◆ Remove vacuum hose of air change-over valve. 		
6	Check air supply lines for blockage		