

P0300

Misfire detection - checksum error

Diagnostic conditions - V8

- Intake air temperature greater than -20°
- Engine speed between 400 rpm ... 6500 rpm
- Load between 12 % ... 39 %
- No 'crankshaft sensor' fault code stored in memory

Diagnostic conditions - V6

- Intake air temperature greater than -20°
- Engine speed between 520 rpm ... 6500 rpm
- Load between 12 % ... 34 %
- No 'crankshaft sensor' fault code stored in memory

Possible cause of fault

- ◆ Improper handling of a block heater

Fault in ignition system:

- ◆ Mechanical or electrical fault in spark plug
- ◆ Spark plug connector faulty
- ◆ Bar ignition module faulty

Fault in fuel/air mixture:

- ◆ Tank filled with incorrect fuel quality
- ◆ Tank driven empty
- ◆ Mechanical or electrical fault in injection valve
- ◆ Oxygen sensor faulty
- ◆ Fuel filter soiled
- ◆ Mechanical fault in fuel pump

Fault in exhaust system:

- ◆ Catalytic converter damaged (flow severely restricted)
- ◆ Kink in exhaust pipe
- ◆ Muffler faulty (flow severely restricted)

Fault in valve drive:

- ◆ Fault in timing adjustment of inlet camshaft (VarioCam)
- ◆ Outlet camshaft timing incorrect
- ◆ Hydro push rod faulty
- ◆ Valve seat or valve faulty

Fault in intake system:

- ◆ Leak in intake distributor

Affected pins

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Diagnosis/troubleshooting



Note!

- ◆ The fault 'Misfire Detection Checksum Error' causes the Check Engine lamp to light up if exhaust-relevant misfires were detected in one or more cylinders in two consecutive journeys.
- ◆ An initial note appears because the relevant cylinder is stored.



Note!

- ◆ A cycle of 1,000 crankshaft revolutions is evaluated in the case of exhaust-related misfires (in the case of misfiring that causes damage to the catalytic converters, the cycle amounts to 200 revolutions). The misfiring rates are compared with a threshold value. If the misfiring rate is greater than the threshold value, the fault is set.
- ◆ The 'Check Engine' warning light is switched on (permanent light) if the misfiring rate exceeds the threshold value in two (or three in the case of EOBD) consecutive 'driving cycles' in which the emission limit values are exceeded.
- ◆ The 'Check Engine' warning light flashes if the misfiring rate has the potential to cause permanent catalytic converter damage. If the misfire rate is no longer reached during the first journey, the warning light goes out. If the rate is reached during the next journey, the warning light flashes. If this misfire rate is subsequently no longer reached, the warning light changes to a continuous light.

 **Note!**

- ◆ When using a block heater (for heating the coolant), start and driving off difficulties or misfiring can occur if the block heater was connected for less than 4 hours.
- ◆ If the tank is driven empty, this can also lead to misfiring. The tank contents are therefore also stored in the event of misfire faults. If the tank was almost empty, there is probably no malfunction. Erase fault memory and carry out a test drive.
- ◆ In the event of a short circuit to B+ or ground in the oxygen sensors ahead of the catalytic converter, the mixture becomes too lean or too rich. This can cause misfiring. If an oxygen sensor fault ahead of the catalytic converter is also stored in memory, first correct this fault and then test drive the vehicle.

 **Note!**

- ◆ If the battery was disconnected during troubleshooting or if the DME control module was removed, a sensor wheel must be adapted (range 1). It is only when this is done that misfires can be reliably detected by the DME.
- ◆ To do this, you must accelerate three times in fixed driving position Two and then allow the vehicle to coast to a stop, without switching the driving position or using the brake or accelerator (overrun fuel cut-off phase).
- ◆ To determine whether the adaptation was carried out, read out the "Actual values" under the "Adaptation status" menu item in the 9588 Porsche System Tester II.

Work instruction			Display OK	If not OK
1	Read out fault memory	◆ Check whether additional faults have been recorded	Only the 'Misfire detection' fault is entered ⇒ Step 2	'Bar ignition module, injection valve, oxygen sensor or inlet camshaft' faults are also entered ⇒ Work through faults in accordance with instructions → End
2	Check fault memory for cause of misfires	◆ Check whether all faults occurred on one bank	Faults occur only on one bank ⇒ Step 3	Faults occur on both banks ⇒ Step 8
3	Check fault memory cylinder-selectively	◆ Check whether the misfire fault only occurs on one cylinder	Fault occurs only on one cylinder ⇒ Step 4	Fault occurs on several cylinders ⇒ Step 9
4	Check spark plug for 'breakage, spark-plug face and electrode gaps'		⇒ Step 5	Replace spark plug → End

Work instruction		Display OK	If not OK
5	Check spark plug connector	⇒ Step 6	Replace spark plug connector → End
6	Check bar ignition module visually for 'disruptive discharge'	⇒ Step 7	Replace bar ignition module → End
7	Check for loss of pressure	⇒ Step 8	⇒ Step 15
8	Check injection valve for mechanical faults	⇒ Step 11	Replace injection valve → End
9	Carry out a Required/Actual comparison using the 9588 Porsche System Tester II	The inlet camshafts on bank 1 and bank 2 differ by no more than $\pm 4^\circ$ NW ⇒ Step 10	The difference is more than $\pm 4^\circ$ NW ⇒ Step 15
10	Measure the level of raw emissions	<ul style="list-style-type: none"> ◆ Reset mixture adaptation values (disconnect battery or erase faults using the 9588 Porsche System Tester II) ◆ Disconnect all four oxygen sensor plug connections ◆ Engine idling ◆ Measure the level of raw emissions 	<ul style="list-style-type: none"> ◆ The difference between bank 1 and bank 2 is less than 1 % ⇒ Step 12 ◆ The difference between bank 1 and bank 2 is greater than 1 % ⇒ Step 11
11	Check timing	<ul style="list-style-type: none"> ◆ Check that the position of the outlet camshafts matches the crankshaft 	Timing OK ⇒ Step 14 Set timing Continue troubleshooting in chapter 'Engine repair instructions (Rep. Gr. 1535)' → End
12	Check exhaust system for blockage	Check whether: <ul style="list-style-type: none"> ◆ Catalytic converter is OK ◆ Pipe is not kinked ◆ Mufflers are OK 	⇒ Step 12 Replace faulty part → End
13	Check intake distributor for leaks	⇒ Step 13	Continue troubleshooting in chapter 'Engine repair instructions (Rep. Gr. 2446)' → End
14	Check fuel pressure	⇒ Step 15a	Continue troubleshooting in chapter 'Engine repair instructions (Rep. Gr. 20)' → End
15	Check engine for mechanical damage	<ul style="list-style-type: none"> ◆ Cause of fault: Pressure loss 	Continue troubleshooting in chapter 'Engine repair instructions (Rep. Gr. 15)' → End

<i>Work instruction</i>			<i>Display OK</i>	<i>If not OK</i>
15 a	Check engine for mechanical damage	◆ Cause of fault: Oil circuit and VarioCam	Continue troubleshooting in chapter 'Engine repair instructions (Rep. Gr. 15)' → End	
15 b	Check engine for mechanical damage	◆ Cause of fault: Sensors, sensor wheels, etc. loose or damaged	Continue troubleshooting in chapter 'Engine repair instructions (Rep. Gr. 15)' → End	
16	Check whether additional faults have been recorded		Work through faults in accordance with instructions → End	

