UK-12655

DiagnoseDan TSB

MAKE / MODEL:	YEAR:	TYPE:
Volkswagen Touran (5T1)	**2018-2021**	**2.0 TDI (DFGC)**

SUBJECT / SYMPTOM / TROUBLE CODE:

MIL on, AdBlue faults appear in the display of the car, fault code stored:
P20EE00 - SCR NOx Catalyst Efficiency Below Threshold Bank 1

SOLUTION:

Possible cause:

Faulty NOx sensor 2 G687.

Possible solution:

- **Please note that a software update is available, as seen in bulletin No. 11750.**
- **Replacement of NOx sensor 2 to the latest variant.**

Problem description:

NOx sensor 2 shows an excessively high NOx PPM value, and therefore a fault code is stored for lack of AdBlue efficiency, P20EE00.
There has been a number change of this spare part in April 2022.
Old type: 04L 907 807 BJ
New type: 04L 907 807 GK



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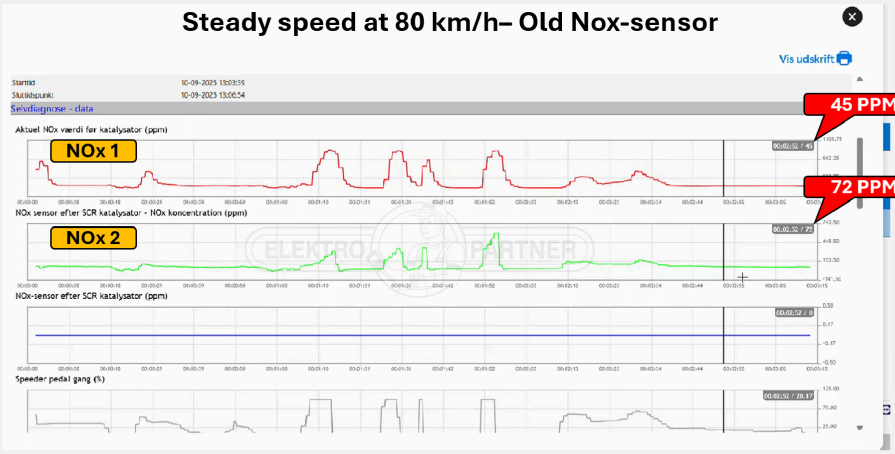
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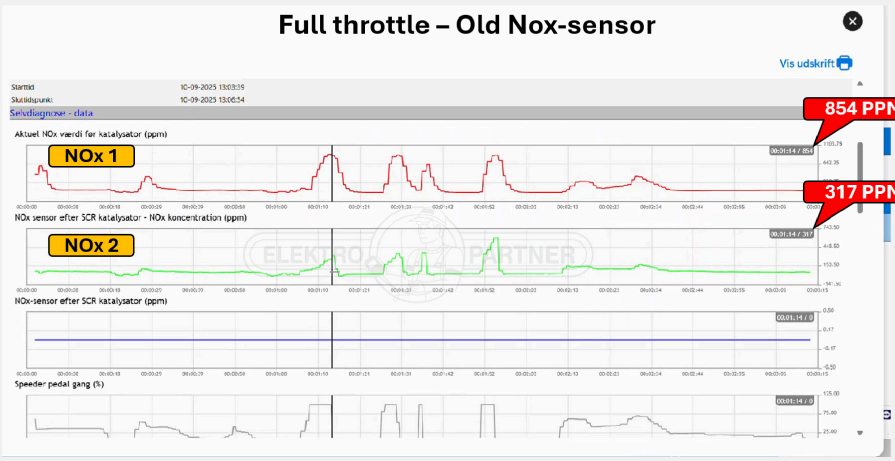
Troubleshooting procedure:

Check AdBlue efficiency according to bulletin No. 11440.

The example below shows measurement on the main road with a faulty NOx sensor 2.
There should be a reduction of at least 80% in the SCR catalytic converter, but in the example you can see that instead of a reduction, there is an increase of NOx PPM, which is causing fault code P20EE00 for lack of efficiency.



The example below shows measurement at full acceleration with a faulty NOx sensor 2.
This measurement does not indicate any immediate fault, but does indicate that NOx sensor 1 shows a realistic value for an engine with this performance.
And that NOx sensor 2 shows an increased NOx PPM (indicates that the sensor is responding) and that the SCR system has a significant reduction even under a maximum acceleration.
Overall, this measurement does not show anything that indicates a fault.



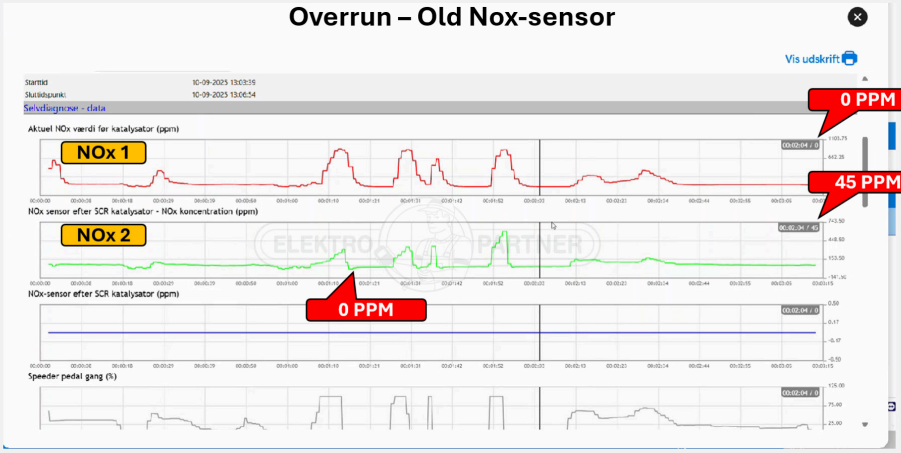
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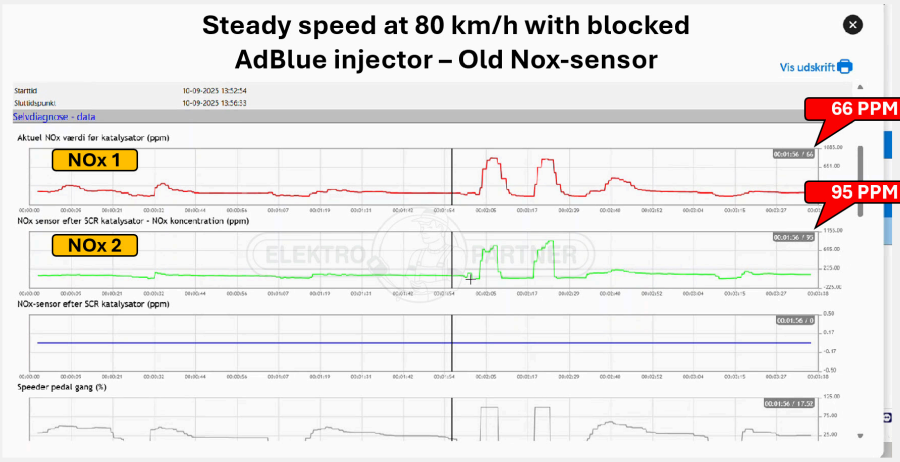
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SOLUTION CONTINUED:

The example below shows measurement during engine braking with a faulty NOx sensor 2.
NOx sensor 1 shows a correct low value of 0 PPM.
NOx sensor 2 shows an excessive value, here at 45 PPM, which is too much. However, it is worth noting that NOx sensor 2 briefly shows 0 PPM in the measurement. It is therefore important to assess a fault like this over a longer run and not a snapshot.



The example below shows measurement when driving on the main road where the AdBlue hose to the injector is physically blocked. Measurement is with a faulty NOx sensor 2.
This measurement is intended to rule out that the faulty high PPM measurement on NOx sensor 2 is not due to a leaking AdBlue injector.
When driving on the main road and with a blocked AdBlue injector, NOx sensors 1 and 2 should display the same value.
In the measurement below, NOx sensor 1 again shows an excessively high value, which indicates a fault on NOx sensor 2.



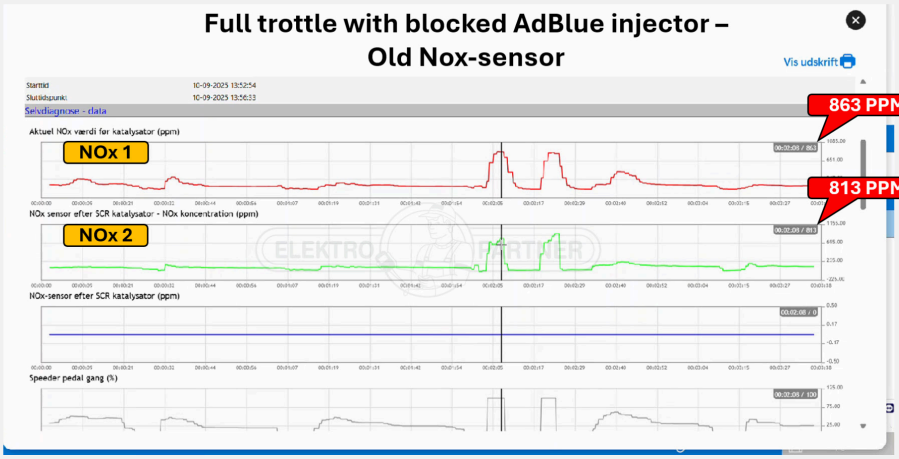
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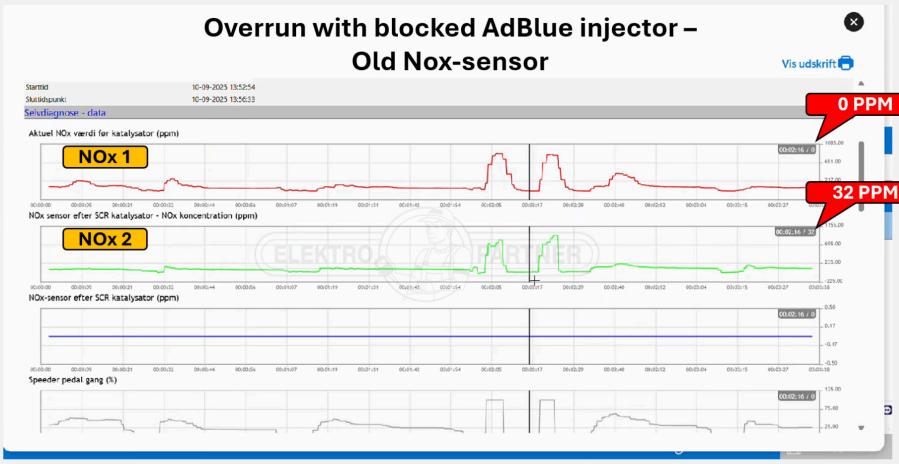
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SOLUTION CONTINUED:

The example below shows measurement when driving at full acceleration where the AdBlue hose to the injector is physically blocked. Measurement is with a faulty NOx sensor 2.
The NOx measurements show approximately the same values on NOx sensors 1 and 2, which does not indicate any faults.



The example below shows measurement during engine braking where the AdBlue hose to the injector is physically blocked. Measurement is with a faulty NOx sensor 2.
This measurement conclusively confirms that the fault is due to an incorrect measurement from NOx sensor 2. Since the AdBlue injector has been blocked here, an excessively high NOx PPM on NOx sensor 2 alone can only be caused by an imprecise NOx sensor 2.



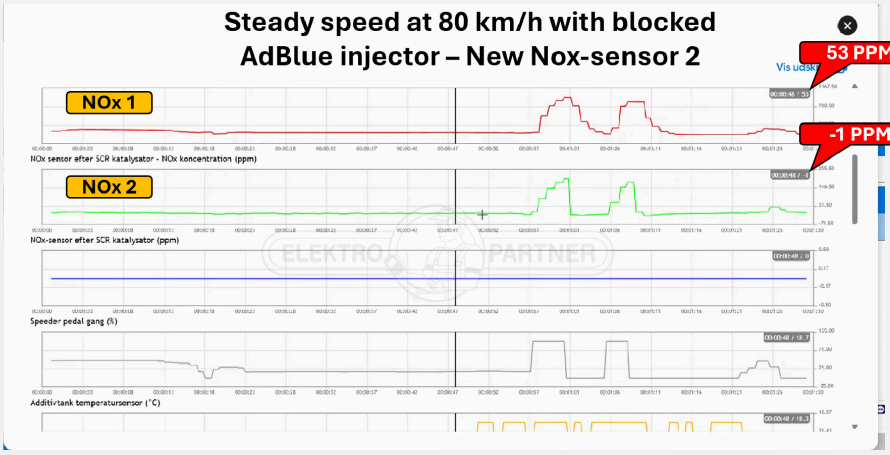
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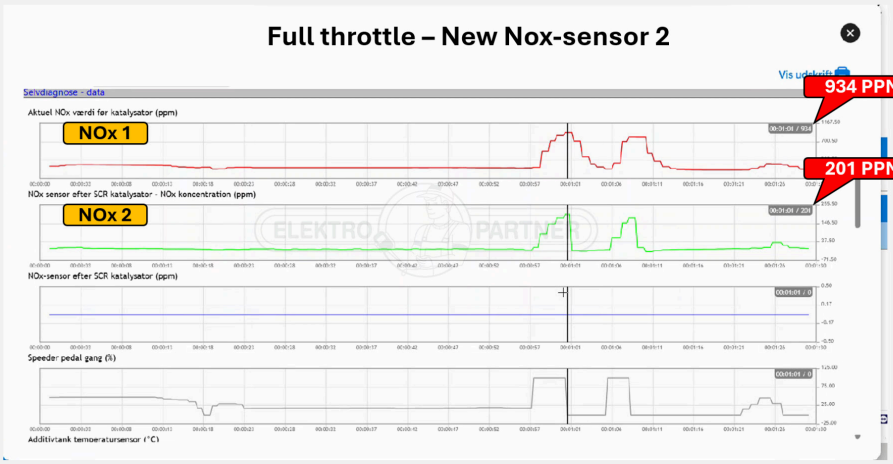
SOLUTION CONTINUED:

For reference, the same measurements are now shown after replacing NOx sensor 2 and on a new flawless car.

The example below shows measurement when driving on the main road with a flawless car.
Here you see a significant reduction of more than 90%.
The reason why the new NOx sensor 2 shows minus 1 PPM may be that the sensor has just been replaced and needs to be adapted while driving. This is not a fault.



The example below shows measurement at full acceleration in a flawless car.
Even during full acceleration, a significant reduction in NOx PPM can be seen.

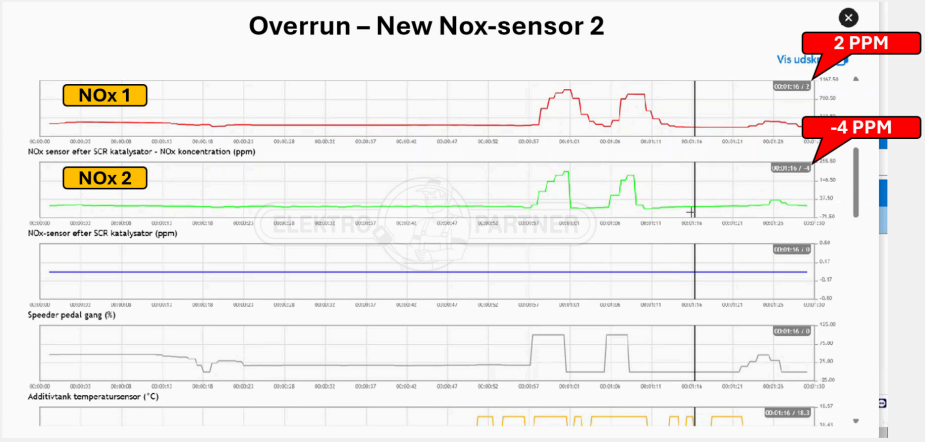


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SOLUTION CONTINUED:

The example below shows measurement when engine braking in a flawless car.
Both NOx sensors come down around 0 PPM, as they should during this measurement.



Additional info:
For general information about AdBlue troubleshooting, see bulletin No. 7666.

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