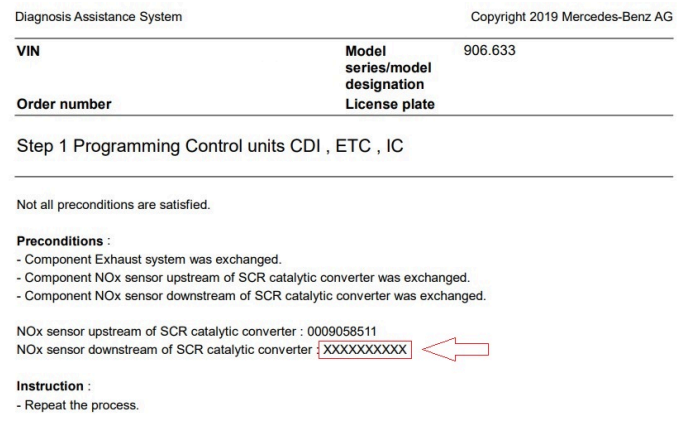
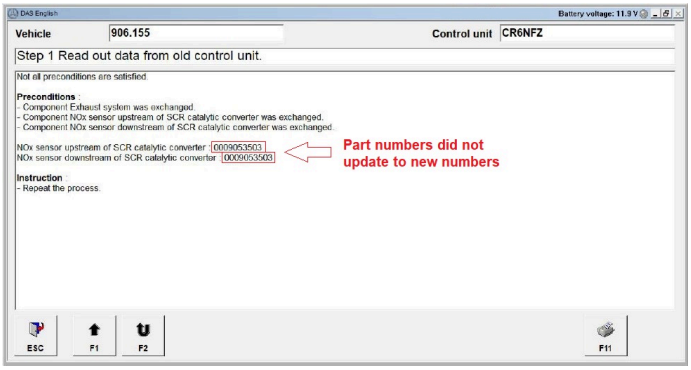
MY2010-2016 906 Sprinter: New NOx Sensor part numbers are not recognized during the Approved Emission Modification (AEM) Campaign

Topic number	LI49.20-N-074942
Version	1
Function group	49.20 - Exhaust gas aftertreatment
Date	6/13/22
Validity	MY 2010 - 2016 906 Sprinter with OM642 or OM651
Reason for change	

Complaint

After installing new NOx sensors during the Approved Emission Modification (AEM), the Exhaust Aftertreatment Customer Service Measure in XENTRY/DAS displays incorrect NOx sensor part number values, X's, or no part numbers at all. The Approved Emission Modification (AEM) Exhaust Aftertreatment Customer Service Measure stops in error.

Attachments	
File	Description
Example DAS error 1.jpg  Diagnosis Assistance System Copyright 2019 Mercedes-Benz AG VIN Model series/model designation 906.633 Order number License plate Step 1 Programming Control units CDI , ETC , IC Not all preconditions are satisfied. **Preconditions** : - Component Exhaust system was exchanged. - Component NOx sensor upstream of SCR catalytic converter was exchanged. - Component NOx sensor downstream of SCR catalytic converter was exchanged. NOx sensor upstream of SCR catalytic converter : 0009058511 NOx sensor downstream of SCR catalytic converter : XXXXXXXXXX **Instruction** : - Repeat the process.	Example DAS error 1
Example DAS error 2.jpg  Vehicle 906.155 Control unit CR6NFZ Step 1 Read out data from old control unit. Not all preconditions are satisfied. **Preconditions** : - Component Exhaust system was exchanged. - Component NOx sensor upstream of SCR catalytic converter was exchanged. - Component NOx sensor downstream of SCR catalytic converter was exchanged. NOx sensor upstream of SCR catalytic converter : 0009053503 NOx sensor downstream of SCR catalytic converter : 0009053503 Part numbers did not update to new numbers **Instruction** : - Repeat the process. ESC F1 F2 F11	Example DAS error 2

Cause

1. Fault codes in CDI or SCR control units indicating a pre-existing problem related to NOx sensors.
2. Incorrect NOx sensor part number installed.
3. NOx sensor part number actual values in CDI are only updated after a circuit 87 reset. Up-fit power supplies, remote start units, devices connected to X11 OBD connector, etc. can interfere with this power reset.
4. NOx sensor power supply or CAN wiring open or shorted.
5. Aftermarket alterations to the Exhaust Aftertreatment system or Engine Sensor CAN that prevents NOx sensor signals from reaching CDI. Some aftermarket alterations cause XENTRY/DAS to communicate with a 'phantom' SCR control unit created by an aftermarket CAN device, even when the real SCR control unit is disconnected.

Remedy

Testing:

1. Check CDI and SCR control units for fault codes that could be causing or caused-by pre-existing NOx sensor faults.
2. Verify part numbers on installed NOx sensor control units are the correct numbers referenced in the Approved Emission Modification (AEM) Campaign work instructions (Individual NOx sensor part numbers are found in installation instructions section - The campaign parts list shows a different NOx sensor kit part number).
3. Check for up-fit power supplies, remote start units, devices connected to X11 OBD connector, etc.
4. Inspect NOx sensor wiring and connectors for damage, corrosion, test for voltage, resistance, voltage drop, load test amperage etc.
5. Inspect Engine Sensor CAN for aftermarket alterations including devices spliced into wiring, check CAN connector blocks for disconnected connectors, etc. (connectors may be folded-back and taped into wiring harness)
6. Check if SCR control unit connector is disconnected.
7. Disconnect SCR control unit, start a new XENTRY/DAS session, and attempt to communicate with SCR control unit. If XENTRY/DAS communicates with SCR control unit, an aftermarket CAN device is installed on Drivetrain Sensor CAN creating a phantom SCR control unit.

Correction and Verification:

1. Diagnose and repair pre-existing fault codes.
2. Install correct NOx sensors as per Approved Emission Modification (AEM) campaign work instructions.
3. Disconnect up-fit power supplies, remote start units, devices connected to X11 OBD connector, etc.
4. Disconnect vehicle batteries for 3 minutes so entire vehicle is without power, reconnect.
5. Repair or replace all damaged wiring and connectors.
6. Reverse all aftermarket CAN modifications, re-connect all OEM connectors.
7. Perform NOx sensor teach-in initialization in CDI / Adaptation.
8. Verify NOx sensor object numbers are correct in CDI / Actual values / Exhaust system / Version NOx sensors.
9. Perform Approved Emission Modification (AEM) Exhaust Aftertreatment Customer Service Measure completely as instructed by the AEM Campaign Work Instructions.

If all above measures have been performed and symptom is still present, create a PTSS case with the following:

1. This LI document number
2. Documentation of all measures performed
3. Initial Quick Test (from AEM Pre-Inspection)
4. Current Quick Test
5. Paperless pXD screenshot of XENTRY/DAS error screen
6. Paperless pXD screenshot of CDI / Actual values / Exhaust system / Version NOx sensors
7. Paperless pXD screenshots of Guided Tests of all relevant Fault Codes related to NOx sensors, Exhaust Aftertreatment system, or Engine Sensor CAN

8. Photos of relevant aftermarket CAN alterations, up-fit power supplies, wiring damage, etc.

Symptoms
Power generation > Engine management > Function > Malfunction

Operation numbers/damage codes				
Op. no.	Operation text	Time	Damage code	Note