Check engine light or Adblue warning with fault codes P206B31, P203B31, or P300494 when outside temperatures are below 32 degrees Fahrenheit

Topic number	LI49.20-N-078838
Version	1
Function group	49.20 - Exhaust gas aftertreatment
Date	1/29/25
Validity	Model 907
Reason for change	

Complaint

The check engine light or AdBlue warning is activated, accompanied by one or more of the following fault codes related to the AdBlue tank:

P206B31: Malfunction of the concentration sensor for AdBlue; the signal is absent.

P203B31: Malfunction of the AdBlue fill level sensor; the signal is absent.

P300494: The quality of the AdBlue is insufficient.

Cause

A. Software for AdBlue (SCR) control unit (N118/5).

B. Frozen/partially frozen Adblue causing the Adblue Level Sensor to misread.

C. Damaged Adblue Level sensor.

Remedy

A. Software

1. Verify no newer software in AdBlue® SCR control unit (N118/5).

2. Complete LI49.20-N-075995 for Adblue warning reset.

--NOTE:-- If there is no updated software available, proceed to step B.

B. Frozen Adblue or the SCR Actual Values state 'Frozen Adblue'

1. Check if the AdBlue is frozen. If it is, let the vehicle sit in a warm place overnight and recheck.

2. Have the vehicle running and XENTRY hooked up displaying Adblue level values

3. Drain the Adblue Tank and verify fill level reflects the change in the Adblue level

4. Fill the Adblue Tank SLOWLY and do not overfill, verify fill level reflects the change in the Adblue level

--NOTE-- The Fill Level Sensor 1 functions as the "empty sensor." It accurately measures the bottom 60 mm (2.3 inches) of the AdBlue tank. Once the tank is filled beyond the 60 mm (2.3 inch) mark, the sensor may not read accurately, and you might notice the displayed value fluctuating. This behavior is normal, see attachment 'Fill Level 1'.

5. Reset the Adblue Tank fill level via XENTRY

--NOTE-- If the XENTRY still shows that there is frozen Adblue or the concentration is still inaccurate after draining and filling, please refer to the attachments 'Adblue Frozen' and 'Adblue Concentration' and proceed to step C.

6. Complete LI49.20-N-075995 for Adblue warning reset.

--NOTE-- If the steps above do not fix the vehicle, please proceed to step C.

C. Damaged Adblue Level Sensor/Concentration Sensor

1. Replace the Adblue Tank

2. With the vehicle running and XENTRY hooked up displaying Adblue level values

3. Fill the Adblue Tank SLOWLY and do not overfill, verify fill level reflects the change in the Adblue level

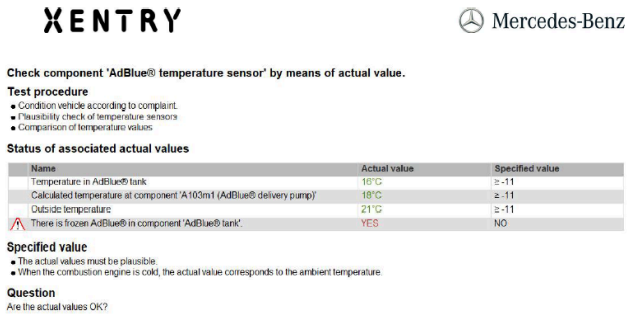
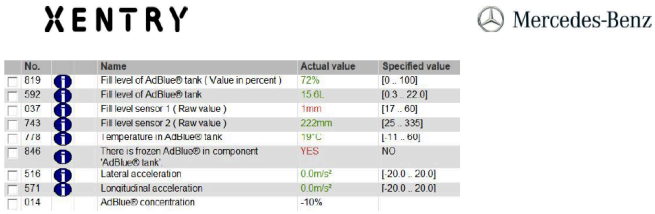
3. Reset the Adblue Tank fill level via XENTRY

4. Complete LI49.20-N-075995 for Adblue warning reset.

--NOTE-- During LI49.20-N-075995 for Adblue warning reset, please ensure that the outside temperature is above 10 degrees Fahrenheit. If it is not, keep the vehicle inside the shop overnight. Complete LI49.20-N-075995 again. Additionally, please note that the vehicle may need to be driven approximately 50 miles to allow the NOx sensors and SCR system to complete their self-test. Once this is finished, the P13DF00 code should be stored and can then be cleared.

--NOTE--During cold weather, when temperatures are below 32 degrees Fahrenheit, please advise the client to keep the AdBlue tank fill level between 50% and 85%. This will allow for proper fluid expansion and help prevent damage to the level/concentration sensor.

Attachments

File	Description
Adblue Frozen.png  XENTRY Mercedes-Benz **Check component 'AdBlue® temperature sensor' by means of actual value.** **Test procedure** • Condition vehicle according to complaint. • Plausibility check of temperature sensors • Comparison of temperature values **Status of associated actual values** Name / Actual value / Specified value Temperature in AdBlue® tank / 16°C / ≥ -11 Calculated temperature at component 'A103m1 (AdBlue® delivery pump)' / 18°C / ≥ -11 Outside temperature / 21°C / ≥ -11 There is frozen AdBlue® in component 'AdBlue® tank'. / YES / NO **Specified value** • The actual values must be plausible. • When the combustion engine is cold, the actual value corresponds to the ambient temperature. **Question** Are the actual values OK?	Adblue Frozen
Adblue Concentration.png  XENTRY Mercedes-Benz No. / Name / Actual value / Specified value 819 Fill level of AdBlue® tank (Value in percent) 72% [0 .. 100] 592 Fill level of AdBlue® tank 15.0l [0.3 .. 22.0] 037 Fill level sensor 1 (Raw value) 1mm [17 .. 60] 743 Fill level sensor 2 (Raw value) 222mm [25 .. 335] 778 Temperature in AdBlue® tank 19°C [-11 .. 60] 846 There is frozen AdBlue® in component 'AdBlue® tank'. YES NO 516 Lateral acceleration 0.0m/s² [-20.0 .. 20.0] 571 Longitudinal acceleration 0.0m/s² [-20.0 .. 20.0] 014 AdBlue® concentration -10%	Adblue Concentration

Adblue Fill Level.mp4	Adblue Fill Level 1

WIS-References		
Document number	Title	Note
AP49.20-D-0101TS	AdBlue(R) tank - Check/correct fluid level	
AR49.20-D-2015TS	Empty/fill AdBlue(R) tank	
AR49.20-D-2014TSF	Remove/install AdBlue(R) tank	

Disclaimer

NOTE: The information contained in this document is intended for use by trained, professional technicians with the knowledge to properly and safely perform diagnosis and repairs on Mercedes-Benz vehicles, using Mercedes-Benz approved tools and equipment. It informs service technicians about conditions that could occur in certain vehicles and provides information that could assist in proper vehicle diagnosis, service, or repair. It does not indicate that a defect is present in any vehicle referenced in this document nor does it imply warranty coverage. DO NOT assume that a symptom or condition, or a described cause of a symptom or condition, affects any particular vehicle or groups of vehicles, or that a described repair applies to any particular vehicle or groups of vehicles. There can be multiple causes resulting in the same or similar symptoms or conditions described in this document, and trained professional service technicians must use their diagnostic skills to make evaluations on a case-by-case basis. The information contained in this document does not guarantee warranty coverage nor does it extend the vehicle's warranty in any way.

Symptoms
Power generation > Fuel system > Fuel tank > Function > Different level
Power generation > Exhaust system > AdBlue > AdBlue consumption > Too high

Parts						
Part number	ES1	ES2	Designation	Quantity	Note	EPC
A9104702401			NOX REDUCING AGENT TANK	1		X

Control unit/fault code	
Control unit	Fault text
N3/40 - Motor electronics 'MRD1' for combustion engine 'OM654' (CDI) (MRD1NFZ)	P300494 - The AdBlue® quality is insufficient.
N118/5 | N141 - Selective catalytic reduction (SCR GEN4) (UDCM2)	P203B31 - The AdBlue® fill level sensor has a malfunction. The signal is not present. P206B31 - Concentration sensor 'AdBlue®' has a malfunction. The signal is not present.

Operation numbers/damage codes				
Op. no.	Operation text	Time	Damage code	Note
470643	Check separate parts of AdBlue(R) system: ... as per fault code	0-.7		This Operation item is used for completing LI49.20-N-075995.
499264	Check AdBlue(R) concentration (After quick test)	.20		

499290	Empty/fill AdBlue(R) tank	.70		
499292	Replace AdBlue(R) tank	1.80	4707250	
540650	On-board power supply voltage Maintain (when checking/testing and troubleshooting)	.10		
541011	Perform quick test	.20		
540990	Program, code ..... control unit (After quick test)	.3		If newer software is available