

Check engine warning light active - Fault P300CA8 or P300CA9 "Hot film mass air flow sensor malfunction" present in engine control unit

Topic number	LI14.30-N-075882
Version	3
Function group	14.30 - Secondary air injection
Date	10/10/24
Validity	Model 907 with engine 654
Reason for change	Adjusting the remedy: requesting IFQ cases.

Complaint

Check engine warning light active.

Fault code P300CA8 or P300CA9 "Hot film mass air flow sensor malfunction" present in engine control unit.

Cause

These faults can be set if:

1. A leakage upstream of the exhaust gas turbocharger causing a to high EGR rate.
2. Carbonized parts, e.g., the intake module, housing intermediate flange on high-pressure EGR valve (assembly of exhaust pressure sensor P3) or the intake ports also let through too little air.
3. The air filter has been highly soiled, incorrectly positioned or has a deformation.

Remedy

In these case of fault P300CA8 in Vehicles from Charleston Plant (11-digit T in the VIN), as of Production date 12/20/2023 open an Initial Field Quality (Info Only) case with the current quick test and photos of the leak.

All other vehicles continue diagnosis with the following instructions.

1. A leakage upstream of the exhaust gas turbocharger causes a to high EGR rate.
 - a. Check the separate parts of the clean air line between the exhaust gas turbocharger and air filter box for correct placement or visual damage.
Information: If there are noticeable problems, perform repair measures as necessary.
 - b. Check intake air system for leakages:
 - Using the leak tester 000 588 18 21 00 (see WS09.00-P-0028B), perform a pressurized smoke leak test of the intake air system with UltraTraceUV. The information on the pressurized smoke leak diagnosis with UltraTraceUV is available in the WIS Service Media (WSM) at the following menu item (to start the WIS Service Media (WSM) refer to Service Information SI00.01-Z-0012A): Content according to model series → Passenger Cars → C Class → Model 205 → 09 - Air intake, charging → AD — Diagnosis of unmetered air in the intake air system
Information: If there are noticeable problems, perform repair measures as necessary.
 - c. Check for correct placement of the separate parts of the intake air system and their connection:
 - Check connection between the exhaust gas turbocharger and the right-hand clean air line. As well as between the right-hand clean air line and center clean air line which has a quick-release coupling.
 - Relevant area of exhaust gas turbocharger to the right-hand clean airline (Picture 1a):

XENTRY Tips

- Check that the right-hand clean air line is aligned with the exhaust gas turbocharger. The cast lug must be cleanly aligned with the tab (Picture 1c).

Information: When conducting repairs and assembly work, ALWAYS replace the seal in this area.

- Relevant area of right-hand clean air line to center clean airline (quick-release coupling - Picture 2a), Observe the following operation steps:
- Operate connector coupling as far as the end stop rib "open position" (Picture 2b).
- Hold connector coupling open until the left-hand clean airline is pushed into the connector coupling as far as the end stop and lies flush all around (Picture 2c).
- Release connector coupling and actively slide it back to the "closed position."
- Check correct seating of the clean air line using the lock position. If the lock position is not visibly reached (Picture 2d), the clean airline must be repositioned.
- Check the seal between the turbocharger and clean airline for damages. When disassembling that connection point, always replace the sealant ring.

Information: See also WIS Media: AR09.10-D-8130TSM and AR09.40-D-0500TSM

For example images of correct and incorrect installation, (Picture 3) and (Picture 4).

2. Carbonized part, e.g., the intake module, housing intermediate flange on high-pressure EGR valve (assembly of exhaust pressure sensor P3), or the intake ports also let through too little air.

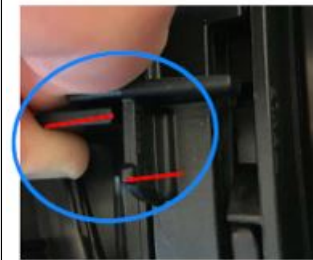
Note: Visually check parts for carbonization or permeability. If the findings are not clear, a TIPS case must be created, and informative pictures attached.

3. The air filter has been highly soiled or is incorrectly positioned.

a. After this, work through the guided test in XENTRY Diagnosis "Check charge air system for control deviation". Read out the intake system's correction values (Picture 5).

- If the intake system is mechanically sound, reset the programmed values for the intake system.
- Please make sure that the programmed values are at zero after being reset. To do so, check the actual values.

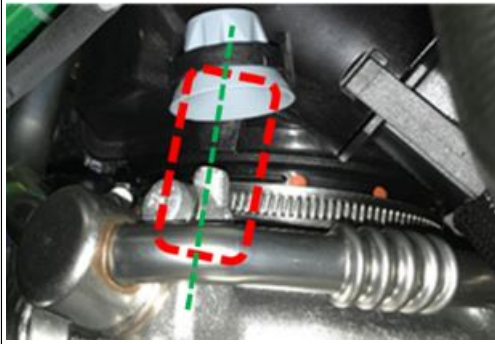
Attachments	
File	Description
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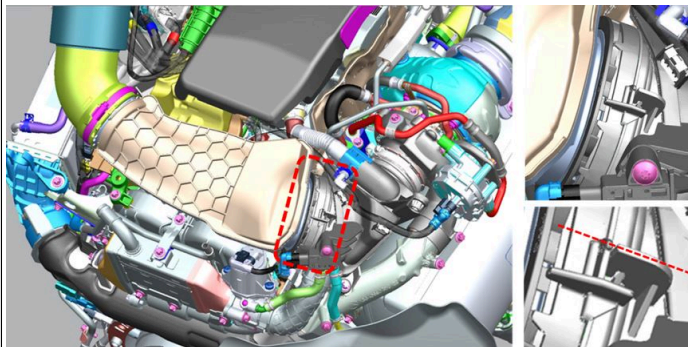
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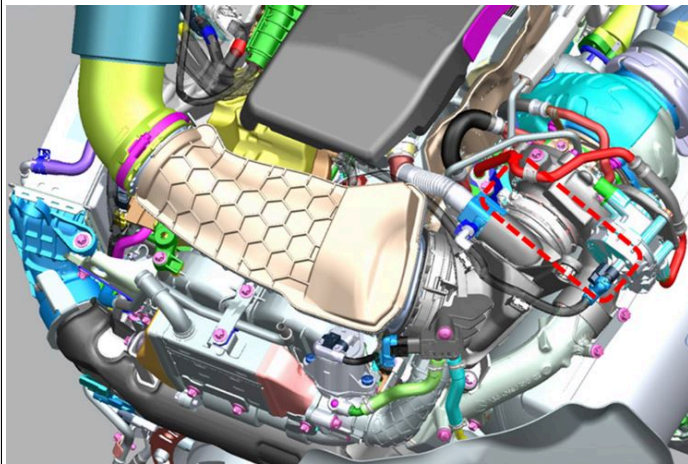
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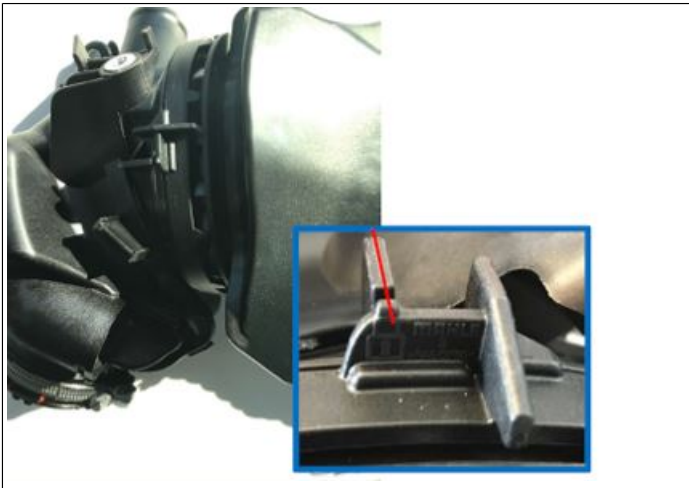
2a.JPG



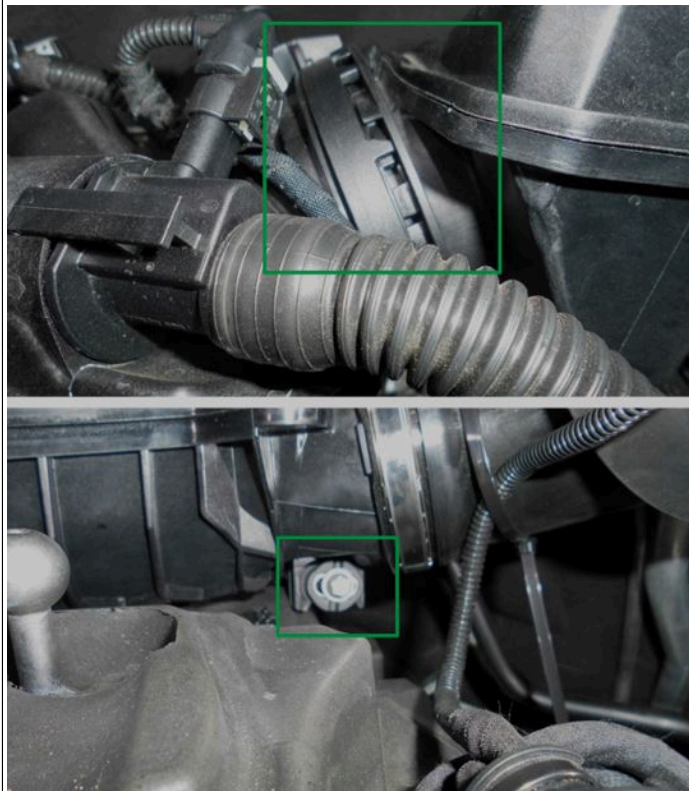
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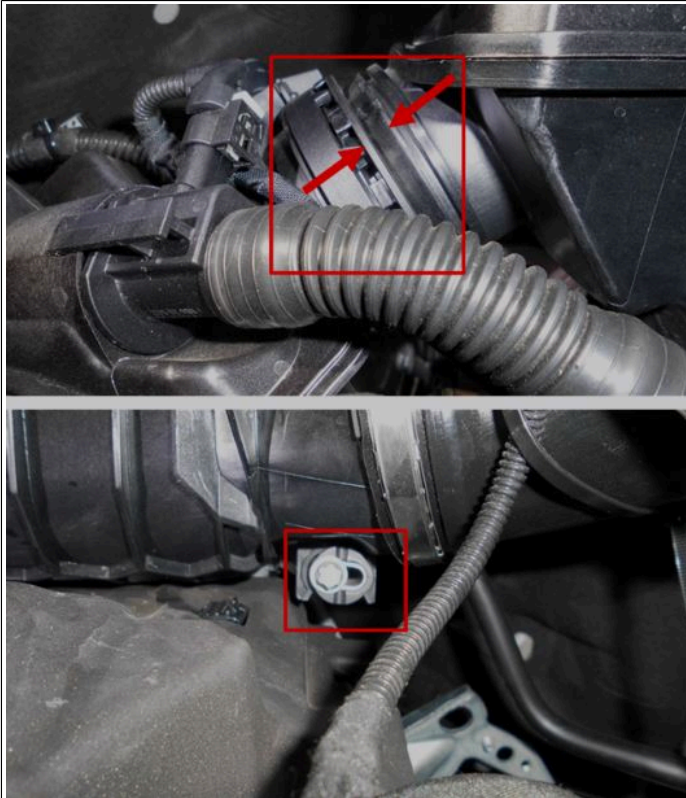
2d.JPG



3.JPG



4.JPG



5.JPG

Korrekturwerte Ansaugluftsystem			
Istwerte			
Nr.	Name	Istwert	Soilwert
046	Korrekturfaktor für Luftmasse im Lastbereich 1	0.85%	[-14.00 .. 14.00]
710	Korrekturfaktor für Luftmasse im Lastbereich 2	2.70%	[-12.00 .. 12.00]
938	Korrekturfaktor für Luftmasse im Lastbereich 3	3.94%	[-10.00 .. 10.00]
979	Korrekturfaktor für Luftmasse im Lastbereich 4	-8.66%	[-8.00 .. 8.00]

WIS-References

Document number	Title	Note
AR09.40-D-0500TSM	Remove/install air intake line upstream of exhaust gas turbocharger	

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

XENTRY Tips

Power generation > Engine management > Indicator lamp > Engine diagnosis > lit

Control unit/fault code

Control unit	Fault text
N3/40 - Motor electronics 'MRD1' for combustion engine 'OM654' (CDI) (MRD1NFZ)	P300CA9 - The air mass flow in the intake air system (cylinder bank 1) has a malfunction.
	P300CA8 - A leak was detected in the intake air system.

Operation numbers/damage codes

Op. no.	Operation text	Time	Damage code	Note
	Clean Air Line		09312	