

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

Topic number	LI14.30-N-075882
Version	1
Function group	14.30 - Secondary air injection
Date	2/3/23
Validity	Model 907 with engine 654
Reason for change	Remedy adjusted

Complaint

Check engine warning light active.

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

Cause

a) In the case of fault P300CA8:

- Due to incorrectly installed component parts of the clean air line between the air filter box and the exhaust gas turbocharger, it is possible that leaks may occur in the system which subsequently result in air mass faults
- A fouled air filter or leaks in the intake or charge air system downstream of the exhaust gas turbocharger may also cause these faults.

b) In the case of fault P300CA9:

- Computational model for programmed values of air intake, in particular, for the high load mode, calculates this high load correction programmed value incorrectly. This leads to the programmed value drifting too quickly towards the limit.

Remedy

Install the following add-ons:

18937 for XENTRY 12/2020

18938 for XENTRY 03/2021

a) In the case of fault P300CA8:

Check correct installation of individual parts of clean air line between exhaust gas turbocharger and air filter box.

XENTRY TIPS

In particular check connection between exhaust gas turbocharger and right-hand clean air line and between right-hand clean air line and center clean air line which has a connector coupling.

Relevant area of exhaust gas turbocharger to right-hand clean air line (Picture 1a):

Check that right-hand clean air line is correctly aligned with exhaust gas turbocharger.

For a single-stage turbocharger, the cast lug must be cleanly aligned with the counterpart profile (see Picture 1b).

For a two-stage turbocharger, the cast lug must be cleanly aligned with the tab (see Picture 1c).

When carrying out repair and installation work, replace the seal in this area.

Relevant area of right-hand clean air line to center clean air line (connector coupling - Picture 2a):

Observe the following operation steps:

- Operate connector coupling as far as end stop rib (open position). See Picture 2b.
- Hold connector coupling open until left-hand clean air line is pushed into the connector coupling as far as the end stop and lies flush all round. See Picture 2c
- Release connector coupling and actively slide it back to the closed position.
- Check correct seating of clean air line using the lock position. If the lock position is not visibly reached as in Picture 2d, the clean air line must be repositioned.

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

For example images of good and poor installation, see Picture 3 and Picture 4.

After this, work through the guided test in XENTRY Diagnosis and read out the intake system's correction values.

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.

It is not necessary to create a TIPS case.

b) In the case of fault P300CA9:

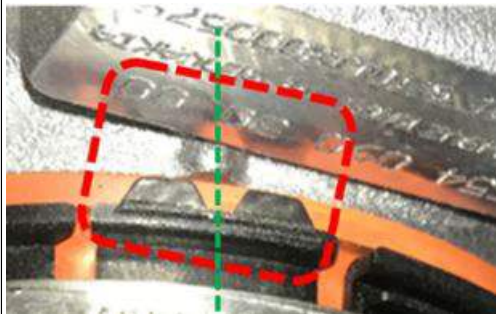
The confirmed abnormal behavior of the adapted air path used for calculation of the learned value, means that a software update will now be made available for the engine control unit. This is currently still in the approval process.

Attachments	
File	Description
2b.JPG	

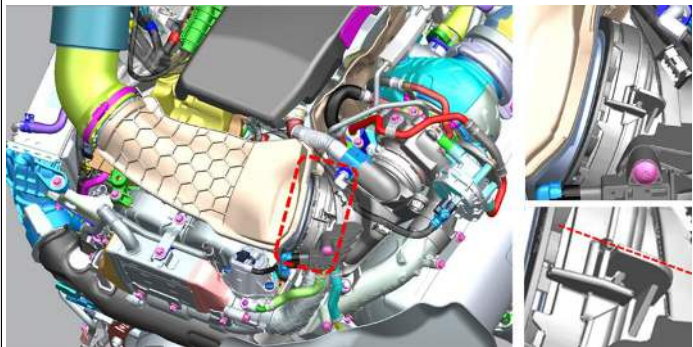
	
2c.JPG 	
1c.JPG	



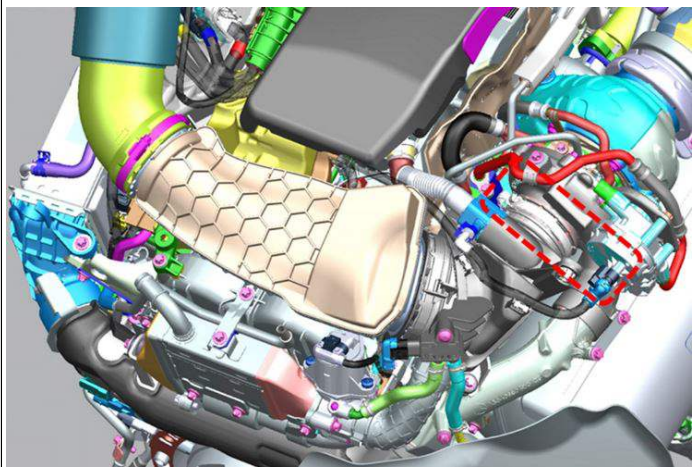
1b.JPG



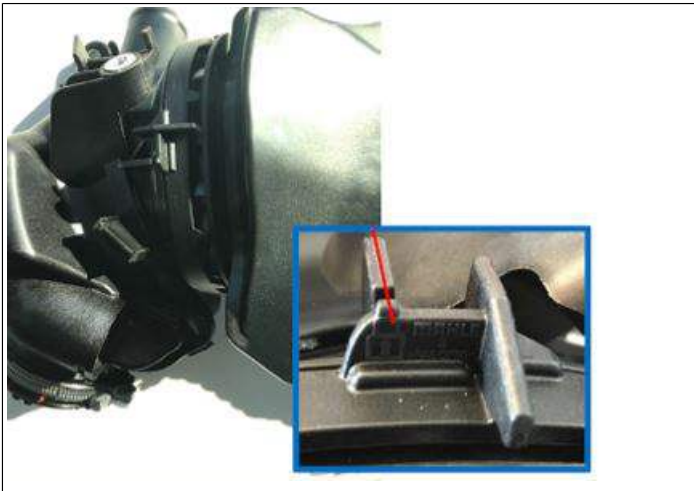
2a.JPG



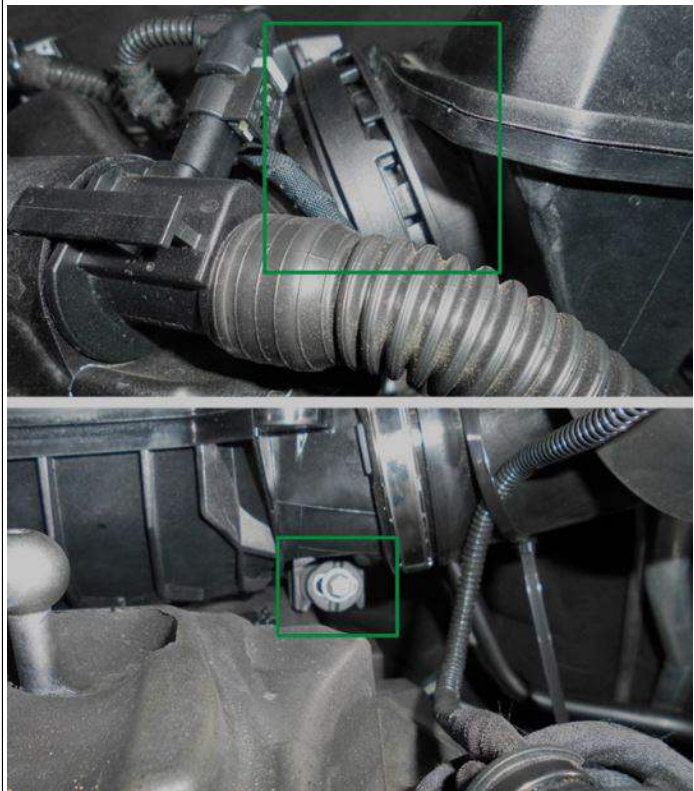
1a.JPG



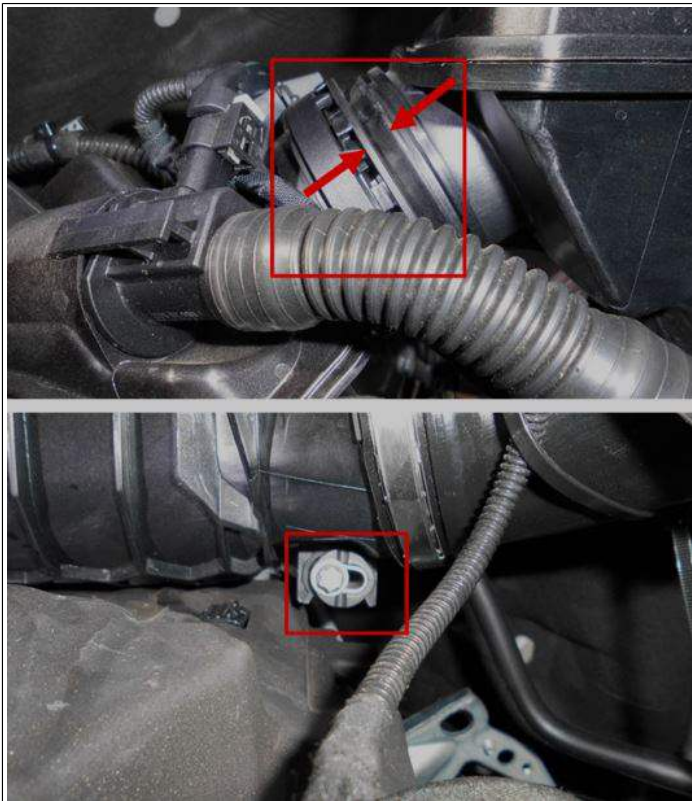
2d.JPG



3.JPG



4.JPG



5.JPG

Korrekturwerte Ansaugluftsystem				
Istwerte				
Nr.	Name	Istwert	Sollwert	
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 upst- ream of exhaust gas turbocharger	

Symptoms

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 (cy- linder 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
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