

BMW Air-mass Flow Sensor Reset For Diesel Engine

In normal operation, the air mass flow meter is subject to effects such as soiling and ageing. Those effects cause divergence between the stored characteristic and the specified status resulting in symptoms such as lack of power or black smoke. In order to prevent the effects of this problem, the Air mass flow meter adaptation function has been introduced on the DDE5.

Function:

Air mass flow meter adaptation is performed by the DDE control unit at two operating points: when idling and under load in an operating range defined as follows:

- Engine speed = $1700 \dots 3000 \text{ rpm}$
- Charge-air pressure = 1100 ... 2800 mbar
- Speed = 90 ... 160 km/h
- Change in intake-air temperature < 2 /s
- Change in injection rate < 2 mg/stroke/s
- Delay period = 3 s

Adaptation sequence at each of those points:

The air mass flow meter adaptation uses certain operational data to calculate the theoretical air mass flow passing through the engine. The DDE control unit compares the figure obtained with the level measured by the air mass flow meter.

If the DDE control unit finds that the measured level differs by more than $\pm 8\%$ from the theoretical figure, that difference is stored on the control unit as a compensation factor.

That compensation factor enables the control unit to adjust the measured levels before they are processed by the various functions.

Application:

The service function Air mass flow meter adaptation must be performed after the air mass flow meter is replaced. The stored compensation factors are reset to 0 in the process.

Vehicle Use:

The air mass flow meter adaptation is used as follows:

- E46 M47TU: as of volume production launch
- E46 M57TU: as of volume production launch
- E65 M57TU: as of 03/2003 with integration stage 6.108 and DDE software VQ5.7
- E60 M57TU: as of volume production launch

Procedure:

SELECT DIAG. SYSTEM			
DME (Engine)			
EGS (Transwission)			
ABS (Antilock brake)			
SRS (Air bag)			
IHKA/IHKR (AC/heater)			
IKE/IKI/KOMBI			
EWS (Elec. immobilize system)			
ZKE (Central body electronic)			
PAGE UP		PAGE	DOWN
HOME	BACK	PRINT	HELP
(Start) □ 🔆 🖼 12:26			

Fig. 1 Enter Engine System

SELECT DIAG. FUNCTION			
Read fault memory			
Clear faul	Clear fault memory		
Data strea	Data stream		
Component activation			
Air-wass flow sensor adjustment			
Identification			
PAGE UP		PAGE DOWN	
HOME	BACK	PRINT	HELP
Start 📭 🔅 🚐 1:		12: 26	

Fig. 3 Read Fault Codes

ECU IDEMIIFY	
DDE Diesel Electronics DDE 5.0 Part number basic control 7793443 Coding index 16 Date of manufacture(D,M,Y) 24.10.200 Diagnosis index 30 Hardware number 10 Function software 30.01.00 Message catalog 0B.01.06 Operating software 02.06.00 Variant index 0058 Chassis number PD10599 Type approval number 7788338	02
OR	
(Start) 📭 🔅 📇 12	:26

 $\label{eq:Fig.2} \mbox{Fig. 2}$ ECU information showing DDE 5.0

TROUBLE CODE			
4222 Glow plug,cylinder 2			
4232 Glot	32 Glow plug,cylinder 3		
PAGE UP		PAGE	DOWN
HOME	BACK	PRIMT	HELP
(Start) 📭		*	₩ 12:26

Fig. 4
Any Faults should be corrected first

SELECT DIAG. FUNCTION			
Read fault memory			
Clear fault memory			
Data stream			
Component activation			
Air-mass flow sensor adjustment			
Identification			
PAGE UP		PAGE	DOWN
HOME	BACK	PRINT	HELP
(Start) 📭	•	\	2: 12:26

Fig. 5 Clear Fault Codes

SELECT DIAG. FUNCTION			
Read fault memory			
Clear fault memory			
Data stream			
Component activation			
Air-mass flow sensor adjustment			
Identification			
PAGE UP		PAGE	DOMN
HOME	BACK	PRINT	HELP
(Start) 📭		*	2: 12:27

Fig. 7
Select "Air-Mass Flow Sensor Adjustment"

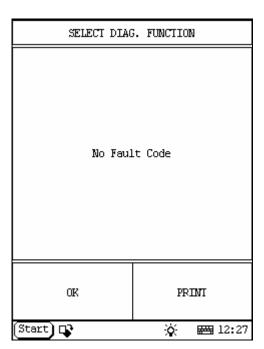


Fig. 6 No Fault Codes Stored

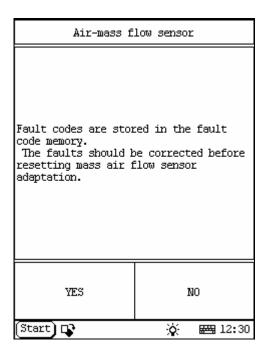


Fig. 8

X431 Software Checks For Any Fault
Codes

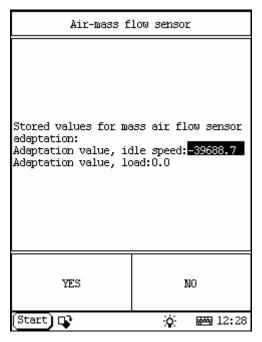


Fig.9

Current Stored information about idle speed and load for the adaptation value Select "YES" to continue

Air-mass flow sensor		
Do you wish to reset sensor adaptation? Selection: [YES]:Reset adaptat values are permanent [NO]:End with no ch values are retained)	rion (the reset rly stored). nange (the old	
YES	NO	
(Start) 📭		

Fig.10

Select "YES" to reset adaptation

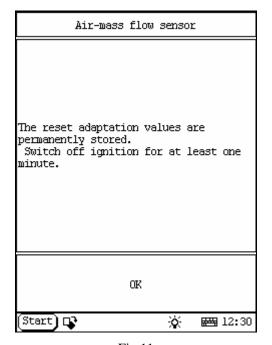


Fig.11
Switch Off Ignition for at least one minute and Select "OK"

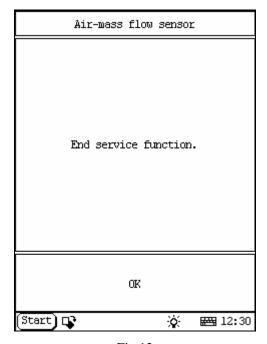


Fig. 12 End of Reset Procedure Select "OK" to go back to Engine Menu

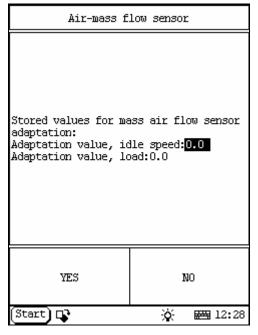


Fig.13

To Check if Air-Mass has been reset Select "Air-Mass Flow Sensor Adjustment" again and Stored information should be 0.0 as above To exit Select NO

Error Resetting Air-Mass

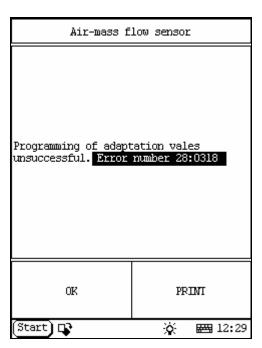


Fig.14

If Error occurs as above please report this number to Launch so we can add this new system