



**DTB**

Date: February 9, 2009  
Order No.: S-B-07.07/83  
Supersedes:  
Group: 07

**SUBJECT: Model 164.122/822  
Model 211.022  
Model 251.122  
Hot Film Mass Air Flow Sensor**

If you receive customer reports in the above model vehicles of Diagnostic Trouble Codes (DTC) faults (listed below) related to the hot film mass air flow sensor (HFM) and/or intake air temperature sensor which are stored in the fault memory of the CDI4 / CDI5 engine control unit. This may be caused by air leakage in the following areas:

1. The intake air line upstream of the air filter (Figure 1, 1) and the clean air line between the air filter and the turbocharger (Figure 1, 2). Check the intake air lines for leaks. Visually inspect all connections for leaks, cracks, incorrect assembly and correct as needed.
2. The charge air system (green seal ring between turbocharger and charge air line to noise damper, seal rings at the connections between the charge air hoses and the Henn couplings) (Figure 1, 3). Check charge air system for leaks. Visually inspect all of the connections for oil leakage, cracks, incorrect assembly, and pinched or damaged o-rings on the charge air hoses.
3. For oil leakage at the air intake duct at the intake of the turbo charger, refer to DTB S-B-09.20/29.



**Note:** Oil coating present in the clean air duct (Y-pipe, Figure 1, 2) with integrated hot film mass air flow sensors does **NOT** cause signal drift and therefore does **NOT** generate fault entries.

This bulletin has been created and maintained in accordance with MBUSA-SLP S423QH001, Document and Data Control, and MBUSA-SLP S424HH001, Control of Quality Records.

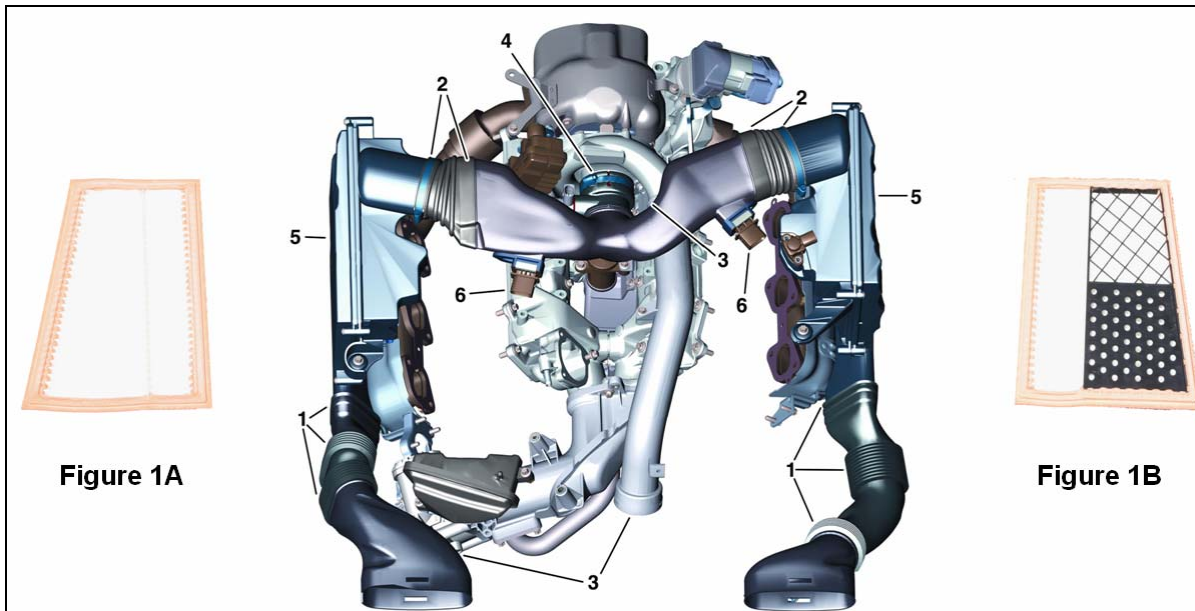


Figure 1

S-B-07.07/83

If vehicle mileage exceeds 18,500 miles, a prematurely clogged air filter can result in fault entries in vehicles operated in dirty/dusty conditions. In cases of vehicles operated in dirty/dusty conditions with heavily contaminated air filters, replace the air filter elements. After replacing the air filters (Figure 1, 5), reset the learned values for the air filter contamination (SDS menu: CDI4/5 control unit → Control unit adaptation → Reset air filter learned values).

**i** **Note:** Ensure that the air filters are installed in the correct side and that the covers are completely seated (Figure1, 1A and 1B).

**i** **Note:** If the checks listed above revealed faults in the system and these have been rectified, always reset the HFM drift compensation (SDS menu CDI4/5 control unit → Control unit adaptation → Reset values for HFM drift compensation).

To resolve contact faults at electrical connections for the hot film mass air flow sensors and the engine control unit CDI4 / CDI5, check connectors for proper seating/engagement, inspect pins on plugs and sockets (pin may be bent back or damaged or corrosion of pins due to moisture) by disconnecting and reconnecting connector.

**i** **Note:** Copy of the SDS short test and all tests performed must accompany returned parts. If the documentation is missing or does not support the diagnosis, the warranty claim may be debited.

### Control Module: CDI 4-Control Rail Diesel Injection

Fault code	Fault text
2024 (001)	Check component B2/7b1 (Intake air temperature sensor). The signal voltage is too high.
2024 (002)	Check component B2/7b1 (Intake air temperature sensor). The signal voltage is too low.

2065 (001)	Test components B2/6 (Left hot film mass air flow sensor) and B2/7(Right hot film mass air flow sensor). The voltage supply is too high.
2065 (002)	Test components B2/6 (Left hot film mass air flow sensor) and B2/7 (Right hot film mass air flow sensor). The voltage supply is too low.
2094 (001)	Check component B2/6b1 (Intake air temperature sensor). Value is above limit.
2094 (002)	Check component B2/6b1 (Intake air temperature sensor). Value is below limit.
2095 (001)	Check component B2/7b1 (Intake air temperature sensor). Value is above limit.
2095 (002)	Check component B2/7b1 (Intake air temperature sensor). Value is below limit.
2096 (001)	Check component B2/6 (Left hot film mass air flow sensor). (Raw value)Offset drift Duty cycle Readout too large.
2096 (002)	Check component B2/6 (Left hot film mass air flow sensor). (Raw value)Offset drift Duty cycle Readout too small.
2097 (001)	Check component B2/7 (Right hot film mass air flow sensor). (Raw value)Offset drift Duty cycle Readout too large.
2097 (002)	Check component B2/7 (Right hot film mass air flow sensor). (Raw value)Offset drift Duty cycle Readout too small.
2098 (001)	Check component B2/6b1 (Intake air temperature sensor). Value is above limit.
2098 (002)	Check component B2/6b1 (Intake air temperature sensor). Value is below limit.
2099 (001)	Check component B2/7b1 (Intake air temperature sensor). Value is above limit.
2099 (002)	Check component B2/7b1 (Intake air temperature sensor). Value is below limit.
2600 (001)	Mass air flow sensor Sensor Left The air mass is too large.
2600 (002)	Mass air flow sensor Sensor Left The air mass is too small.
2601 (001)	Mass air flow sensor Sensor Right The air mass is too large.
2601 (002)	Mass air flow sensor Sensor Right The air mass is too small.
2602 (001)	Check component B2/6 (left hot film mass air flow sensor). The air mass is too large.
2602 (002)	Check component B2/6 (Left hot film mass air flow sensor). The air mass is too small.
2602 (004)	Check component B2/6 (Left hot film mass air flow sensor). Short circuit or open circuit

Continued on Page 4

Continued on Page 3

**Control Module: CDI 4-Control Rail Diesel Injection (continued)**

<b>Fault code</b>	<b>Fault text</b>
2603 (001)	Check component B2/7 (Right hot film mass air flow sensor). The air mass is too large.

2603 (004)	Check component B2/7 (Right hot film mass air flow sensor). Short circuit or open circuit.
2627 (004)	Mass air flow sensor The mass air flow sensor is faulty.
2628 (008)	Mass air flow sensor Plausibility
2629 (008)	Intake air temperature Sensors Plausibility
2630 (001)	Mass air flow sensor Left Sensitivity drift Air mass ratio for calculated quantity (top)
2630 (002)	Mass air flow sensor Left Sensitivity drift Air mass ratio for calculated quantity (bottom)
2631 (001)	Mass air flow sensor Right Sensitivity drift Air mass ratio for calculated quantity (top)
2631 (002)	Mass air flow sensor Right Sensitivity drift Air mass ratio for calculated quantity (bottom)
2644 (001)	Check component B2/6 (Left hot film mass air flow sensor). Value is above limit.
2645 (001)	Check component B2/7 (Right hot film mass air flow sensor). Value is above limit.
2646 (001)	Check component B2/6 (Left hot film mass air flow sensor). Value is above limit.
2647 (001)	Check component B2/7 (Right hot film mass air flow sensor). Value is above limit.
3052 (001)	Check component B2/6b1 (Intake air temperature sensor). The signal voltage is too high.
3052 (002)	Check component B2/6b1 (Intake air temperature sensor). The signal voltage is too low.
3052 (004)	Check component B2/6b1 (Intake air temperature sensor). Signal fault
3053 (001)	Check component B2/7b1 (Intake air temperature sensor). The signal voltage is too high.
3053 (002)	Check component B2/7b1 (Intake air temperature sensor). The signal voltage is too low.
3053 (004)	Check component B2/7b1 (Intake air temperature sensor). Signal fault

Continued on Page 5

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**Control Module: CDI 5-Control Rail Diesel Injection**


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<b>Fault code</b>	<b>Fault text</b>
2024 (001)	Check component B2/7b1 (Intake air temperature sensor). The signal voltage is too high.
2024 (002)	Check component B2/7b1 (Intake air temperature sensor). The signal voltage is too low.
2065 (001)	Check component Hot film mass air flow sensor. The voltage supply is too high
2065 (002)	Check component Hot film mass air flow sensor. The voltage supply is too low.
2094 (001)	Check component B2/6b1 (Intake air temperature sensor). Value is above limit.
2094 (002)	Check component B2/6b1 (Intake air temperature sensor). Value is below limit.
2095 (001)	Check component B2/7b1 (Intake air temperature sensor). Value is above limit.
2095 (002)	Check component B2/7b1 (Intake air temperature sensor). Value is below limit.
2096 (001)	Mass air flow sensor (raw value)Left Offset drift Duty Cycle Readout too large
2096 (002)	Mass air flow sensor (raw value)Left Offset drift Duty Cycle Readout too small
2097 (001)	Mass air flow sensor (raw value)Right Offset drift Duty Cycle Readout too large
2097 (002)	Mass air flow sensor (raw value) Right Offset drift Duty cycle Readout too small
2098 (001)	Check component B2/6b1 (Intake air temperature sensor). Value is above limit.
2098 (002)	Check component B2/6b1 (Intake air temperature sensor). Value is below limit.
2099 (001)	Check component B2/7b1 (Intake air temperature sensor). Value is above limit.
2099 (002)	Check component B2/7b1 (Intake air temperature sensor). Value is below limit.
2600 (001)	Mass air flow sensor Sensor Left The air mass is too large.
2600 (002)	Mass air flow sensor Sensor Left The air mass is too small.
2601 (001)	Mass air flow sensor Sensor Right The air mass is too large.
2601 (002)	Mass air flow sensor Sensor Right The air mass is too small.
2602 (001)	Check component B2/6 (Left hot film mass air flow sensor). The air mass is too large.
2602 (002)	Check component B2/6 (Left hot film mass air flow sensor). The air mass is too small.
2602 (004)	Check component B2/6 (Left hot film mass air flow sensor). Short circuit or open circuit.

**Control Module: CDI 5-Control Rail Diesel Injection (continued)**

<b>Fault code</b>	<b>Fault text</b>
2603 (001)	Check component B2/7 (Right hot film mass air flow sensor). The air mass is too large.
2603 (002)	Check component B2/7 (Right hot film mass air flow sensor). The air mass is too small.
2603 (004)	Check component B2/7 (Right hot film mass air flow sensor). Short circuit or open circuit
2627 (004)	Mass air flow sensor Components B2/6 (Left hot film mass air flow sensor) and B2/7 (Right hot film mass air flow sensor) are faulty.
2628 (008)	Mass air flow sensor Plausibility
2629 (008)	Intake air temperature Sensors Plausibility
2630 (001)	Mass air flow sensor Left Sensitivity drift Air mass ratio for calculated quantity (top)
2630 (002)	Mass air flow sensor Left Sensitivity drift Air mass ratio for calculated quantity (bottom)
2631 (001)	Mass air flow sensor Right Sensitivity drift Air mass ratio for calculated quantity (top)
2631 (002)	Mass air flow sensor Right Sensitivity drift Air mass ratio for calculated quantity (bottom)
2644 (001)	Check component B2/6 (Left hot film mass air flow sensor). Value is above limit.
2645 (001)	Check component B2/7 (Right hot film mass air flow sensor). Value is above limit.
2646 (001)	Check component B2/6 (Left hot film mass air flow sensor). Value is above limit.
2647 (001)	Check component B2/7 (Right hot film mass air flow sensor). Value is above limit.
3052 (001)	Check component B2/6b1 (Intake air temperature sensor). The signal voltage is too high.
3052 (002)	Check component B2/6b1 (Intake air temperature sensor). The signal voltage is too low.
3052 (004)	Check component B2/6b1 (Intake air temperature sensor). Signal fault
3053 (001)	Check component B2/7b1 (Intake air temperature sensor). The signal voltage is too high.
3053 (002)	Check component B2/7b1 (Intake air temperature sensor). The signal voltage is too low.
3053 (004)	Check component B2/7b1 (Intake air temperature sensor). Signal fault

**Parts Information**

<b>Qty.</b>	<b>Part Name</b>	<b>Part Number</b>
1	Filter Element (Replace as needed)	A642 094 04 04



**Note:** The following allowable labor operations should be used when submitting a warranty claim for this repair. This information has been generated on February 9, 2009. Please refer to Netstar → Star TekInfo → Star Time for the most current labor time allowance.

**In Case of Warranty**

- Operation:** Short test, perform (54-1011)  
 Test program – after short test, perform (54-1012)  
 Mass air flow sensor, single – fuel injection system, R&R/replace (07-1606)  
 Air cleaner – left and right, clean / replace filters if required (09-1020)  
 Intake air leak test, perform (07-0000)  
 Intake seal, replace (07-0000)

Damage Code	Operation Number	Time (hrs.)	Model Indicator (s)
	54 1011	0.3 hrs.	BD, EB, TC, Z4
09102 04 (vehicles with 18,500 miles or more)	09-1020	0.6 hrs.	TC
		0.8 hrs.	Z4
		0.9 hrs.	BD
		1.0 hrs.	EB
	54 1012	0.5 hrs.	BD, EB, TC, Z4
09N01 73 (right mass air flow sensor Model 164/251)	07 1606	0.6 hrs.	EB, TC, Z4
		0.8 hrs.	BD
09175 52 (Model 211)			
09A01 73 (left mass air flow sensor Model 164/251)	07 1606	0.6 hrs.	EB, TC, Z4
		0.8 hrs.	BD
09175 52 (Model 211)			
14034 04	07 0000	0.3 hrs. *	BD, EB, TC, Z4
14034 04	07 0000	0.5 hrs. *	BD, EB, TC, Z4

\* Maximum time allowed with a separate time punch. Ensure that punches are labeled as NON time.