

Engine 276 in model 212, 218

Modification notes

24.09.2014	Union nut, fuel line to high-pressure pump	BA07.03-P-1002-01D
24.09.2014	Union nut, fuel line to fuel distributor	BA07.03-P-1001-01D

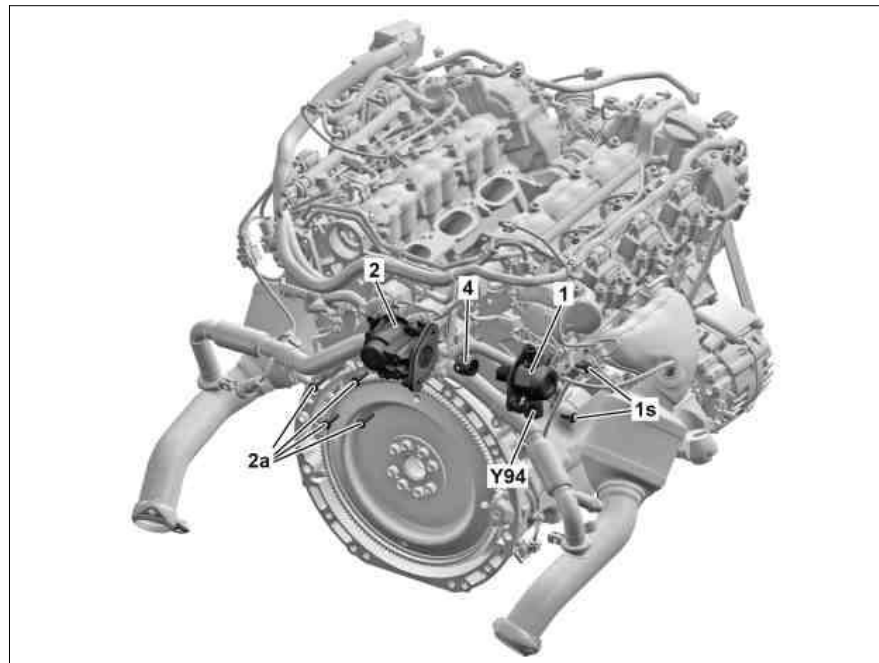
Shown on engine 276.9

78 Center section of the bulkhead



P00.00-4697-11

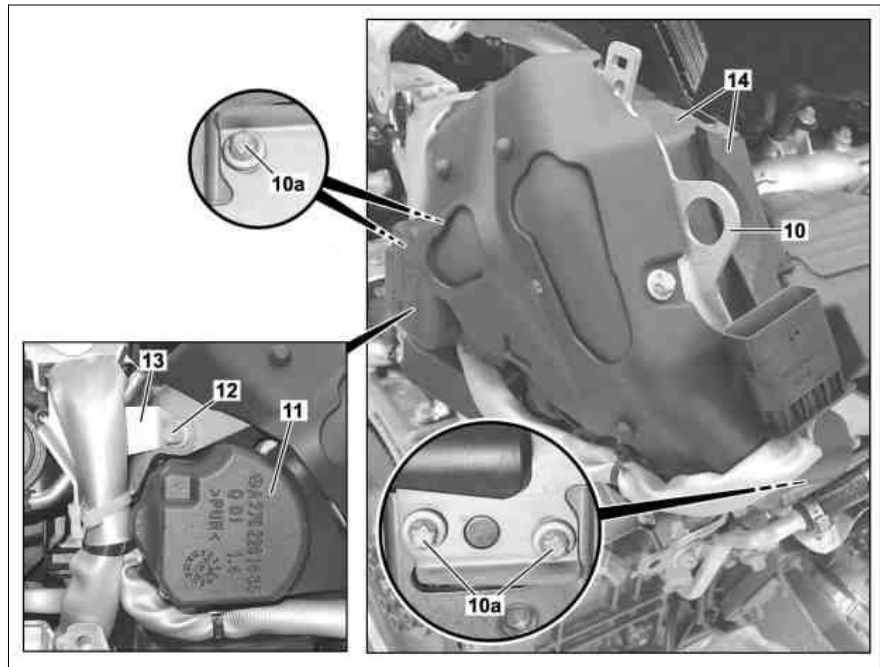
- 1 High-pressure pump
- 1s Screw/bolts
- 2 High-pressure pump housing
- 2a Screw/bolts
- 4 Tappet element
- Y94 Quantity control valve



P07.02-2139-06

Shown on engine 276.8

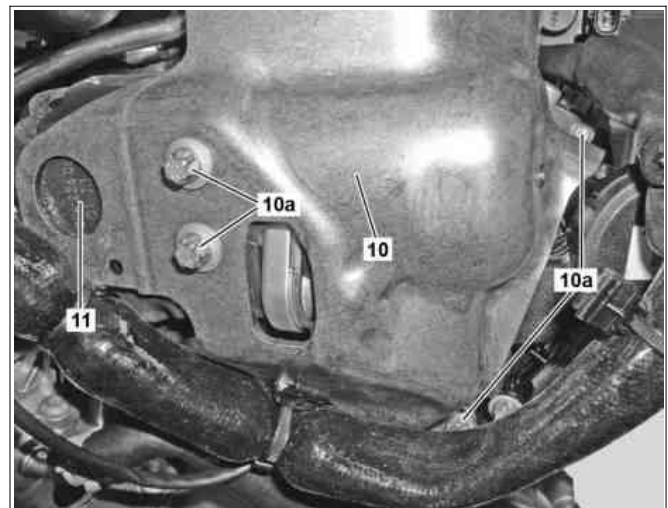
- 10 Crash plate
- 10a Screw/bolts
- 11 Insulation
- 12 Screw/bolt
- 13 Bracket
- 14 Insulation



P07.00-2158-06











Shown on engine 276.9

- 10 Crash plate
- 10a Screw/bolts
- 11 Insulation



P07.00-2154-11

	Risk of explosion caused by fuel igniting, risk of poisoning caused by inhaling and swallowing fuel as well as risk of injury to eyes and skin caused by contact with fuel.	No fires, sparks, open flames or smoking. Pour fuels into suitable and appropriately marked containers only. Wear protective clothing when handling fuel.	AS47.00-Z-0001-01A
	Information on preventing damage to electronic components due to electrostatic discharge		AH54.00-P-0001-01A
	General information on work on gasoline direct injection system		AH07.00-P-2000-01A
	Remove		
1	Drain coolant Notes on coolant		AR20.00-P-1142EL AH20.00-N-2080-01A
2	Detach ground line from battery Notes on battery		AR54.10-P-0003EW AH54.10-P-0001-01A
3.1	Remove both air filter housings	Engine 276.8 in model 212, 218	AR09.10-P-1150ELS
3.2	Remove air filter housing	Engine 276.9 in model 212, 218	
4	Take off and remove insulation from right rail		AR07.03-P-1010EL

5	Remove intake manifold	Engine 276.9 in model 212, 218	AR09.20-P-1961EL
6	Detach engine wiring harness on crash plate (10)	Engine 276.8 in model 212, 218 Engine 276.9 in model 212, 218	AR01.00-P-2410-02ELS AR01.00-P-2410-02EL
7	Disconnect left electrical connection at ME-SFI [ME] control unit and unclip electrical line at bracket (13) and place to one side	Engine 276.8 in model 212, 218	AR07.08-P-7008ELS
8	Unclip ME-SFI [ME] control unit from bracket and place to one side with attached lines	Engine 276.8 in model 212, 218	AR07.08-P-7008ELS
9	Remove center section of the bulkhead (78)	Engine 276 in model 212, 218 Engine 276.8 in model 212	AR61.25-P-6600EW
10	Remove bracket at crash plate (10) and vacuum pump	Engine 276.8 in model 212, 218	
11	Rotate engine at crankshaft center bolt in direction of engine rotation to a 40° crank angle (CKA) after top dead center (TDC) on cylinder 1 (ignition TDC)		AR05.10-P-7620-04MM
12	Remove screw/bolt (12) and press the bracket (13) to one side.		
13	Remove screw/bolts (10a) and remove crash plate (10)		
14	Remove insulation (11, 14)		
15	Unclip engine wiring harness on exhaust gas recirculation positioner bracket	Engine 276.9 in model 212, 218	
16	Relieve fuel pressure over diagnostic socket	 Cap on service connection  Pressure hose	AR07.03-P-1460-01VA *BA07.03-P-1007-01D *119589046300
17	Relieve fuel pressure in fuel high-pressure circuit		AR07.03-P-1460-02MM
18	Unscrew union nuts for fuel lines on rails and high-pressure pump (1)	 Thoroughly clean area around the fuel lines at points to separated. Failure of the fuel system can occur otherwise.  Do not kink or bend fuel lines. Otherwise leaks and damage may occur. Assembly cleaner	*BR00.45-Z-1028-04A
19	Disconnect electrical connection on quantity control valve (Y94)		
20	Remove high-pressure pump (1) screw/bolts (1s) and the high-pressure pump (1)	 Screw/bolts (1s) must be removed alternately each by half a revolution each time when removing the high-pressure pump (1). Damage could occur to the high-pressure pump (1) otherwise.  Thoroughly clean area around the fuel high-pressure circuit. Failure of the fuel system can occur otherwise.	
21	Pull tappet element (4) out of high-pressure pump housing (2)		
22	Detach engine wiring harness bracket on high-pressure pump housing (2)		
23	Remove screw/bolts (2a) of the high-pressure pump housing (2) and high-pressure pump housing (2) upwards		
	Check		
24	Check tappet element (4)	If wear is found: ↓ Replace tappet element (4)	
	Install		
25	Place high-pressure pump housing (2) and tighten screw/bolts (2a) of high-pressure pump housing (2)	Tightening procedure for housing of fuel system high pressure pump  Observe tightening procedure. Damage can occur otherwise to the camshaft and cylinder head.  Replace seal.	AR07.02-P-1020-02MM

		Bolt, high-pressure pump drive housing to cylinder head/cylinder head cover	*BA07.02-P-1002-01C
26	Detach engine wiring harness bracket on high-pressure pump housing (2)	Screw/bolt, additional bracket for high-pressure line to high pressure pump drive housing	*BA07.03-P-1006-01D
27	Push tappet element (4) in high-pressure pump housing (2)	The tappet element (4) must be installed in such a way that the drive roller for the tappet element (4) sits on the camshaft. Damage can occur to the camshaft otherwise.	
28	Clean mount for high-pressure pump (1) in high-pressure pump housing (2).		
29	Replace sealing rings of the high-pressure pump (1).	There are two variants of the sealing rings which can be differentiated between based on their color. Dry green sealing ring coated with low-friction paint and insert the black sealing ring wet with oil into the high-pressure pump housing (2). Replace sealing ring by an same colored sealing ring.	
30	Attach high-pressure pump (1) to high-pressure pump housing (2) and tighten screw/bolts (1s) for high-pressure pump (1)	Screw/bolts (1s) must be screwed in alternately each by half a revolution each time when installing the high-pressure pump (1). Damage could occur to the high-pressure pump (1) otherwise. Replace screw/bolts (1s) with new ones. The high-pressure pump (1) must lie flat on the high pressure pump housing (2) after tightening the screw/bolts (1s) . Assembly cleaner Bolt, high-pressure pump to high-pressure pump drive housing	*BR00.45-Z-1028-04A *BA07.02-P-1001-01C
31	Place electrical connection on quantity control valve (Y94)		
	Check		
32	Check fuel lines		AR07.03-P-1010-03MM
33	Attach union nuts for fuel lines to rails and high-pressure pump (1)	Union nut, fuel line to fuel distributor Union nut, fuel line to high-pressure pump	AR07.03-P-1010-02MMA *BA07.03-P-1001-01D *BA07.03-P-1002-01D
34	Clip in engine wiring harness on exhaust gas recirculation positioner bracket	Engine 276.9 in model 212, 218	
35	Attach insulation (11, 14)		
36	Attach crash plate (10) and screw/bolts (10a)	Bolt, shield to housing for high-pressure pump drive/bracket	*BA07.02-P-1003-01C
37	Screw in screw/bolt (12) and tighten down bracket (13)		
38	Remove bracket at crash plate (10) and vacuum pump	Engine 276.8 in model 212, 218	
39	Install center section of the bulkhead (78)	Engine 276.8 in model 212, 218 Engine 276.8 in model 212 Ensure correct seating of the center section of the bulkhead (78).	AR61.25-P-6600EW
40	Clip ME-SFI [ME] control unit into bracket	Engine 276.8 in model 212, 218	AR07.08-P-7008ELS
41	Place left electrical connection on ME-SFI [ME] control unit and clip in electrical line on bracket (13)	Engine 276.8 in model 212, 218	AR07.08-P-7008ELS
42	Attach engine wiring harness to crash plate (10)	Engine 276.9 in model 212, 218 Engine 276.8 in model 212, 218	AR01.00-P-2410-02EL AR01.00-P-2410-02ELS
43	Install intake manifold	Engine 276.9 in model 212, 218	AR09.20-P-1961EL
44	Attach insulation to right rail		AR07.03-P-1010EL
45.1	Install air filter housing	Engine 276.9 in model 212, 218 Screw/bolt, air filter to air intake pipe support brace Screw/bolt, air filter to cylinder head cover	*BA09.10-P-1002-01M *BA09.10-P-1001-01M
45.2	Install both air filter housings	Engine 276.8 in model 212, 218	AR09.10-P-1150ELS

46	Attach ground line to battery Notes on battery		AR54.10-P-0003EW AH54.10-P-0001-01A
47	Switch on ignition	ⓘ The ignition must be switched on for 5 s before the engine start in order to fill the high-pressure pump (1) with fuel. Damage could occur to the high-pressure pump (1) otherwise.	
48	Pour in coolant Notes on coolant		AR20.00-P-1142EL AH20.00-N-2080-01A
	Check		
49	Check fuel high-pressure circuit.		AR07.03-P-1010-04MM
Warning	Risk of accident from vehicle starting off by itself when engine running. Risk of injury (bruises and burns) resulting from working on the engine while it is being started or when it is running.	Secure vehicle to prevent it from starting off by itself. Wear buttoned-up and snug-fitting work clothes. Do not touch hot or rotating parts.	AS00.00-Z-0005-01A
50	Perform an engine test run and check fuel system for proper operation and leaktightness		

High pressure pump

Number	Designation		Engine 276
BA07.02-P-1001-01C	Bolt, high-pressure pump to high-pressure pump drive housing	Nm	14

High pressure pump

Number	Designation		Engine 276	
BA07.02-P-1002-01C	Bolt, high-pressure pump drive housing to cylinder head/cylinder head cover	Stage 1	Nm	1
		Stage 2	Nm	9

High pressure pump

Number	Designation		Engine 276
BA07.02-P-1003-01C	Bolt, shield to housing for high-pressure pump drive/bracket	Nm	14

Injection nozzles, injection valves, lines

Number	Designation		Engine 276	
BA07.03-P-1001-01D	Union nut, fuel line to fuel distributor	Stage 1	Nm	15
		Stage 2	Δ°	90

Injection nozzles, injection valves, lines

Number	Designation		Engine 276	
BA07.03-P-1002-01D	Union nut, fuel line to high-pressure pump	Stage 1	Nm	15
		Stage 2	Δ°	90

Injection nozzles, injection valves, lines

Number	Designation		Engine 276
BA07.03-P-1006-01D	Screw/bolt, additional bracket for high-pressure line to high pressure pump drive housing	Nm	9

Nm Injection nozzles, injection valves, lines

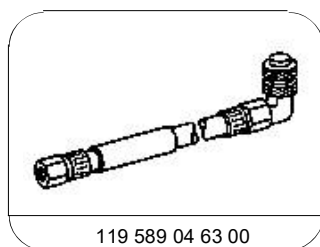
Number	Designation			Engine 276
BA07.03-P-1007-01D	Cap on service connection	Plastic	Nm	2
		Metal	Nm	15

Nm Air filter

Number	Designation		Engine 276.9
BA09.10-P-1001-01M	Screw/bolt, air filter to cylinder head cover	Nm	9

Nm Air filter

Number	Designation		Engine 276.9
BA09.10-P-1002-01M	Screw/bolt, air filter to air intake pipe support brace	Nm	9



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Pressure hose

Repair materials

Number	Designation	Order number
BR00.45-Z-1028-04A	Assembly cleaner	Adolf Würth GmbH & Co. KG Reinhold-Würth-Str. 12-17 74653 Künzelsau-Gaisbach Germany Tel. +49 7940 15-0 Fax +49 7940 15-1000 http://www.wuerth.de