

GENERAL INFORMATION

GENERAL NOTES: PASSENGER CARS: FUEL SYSTEM - AH47.00-Z-9999AZ

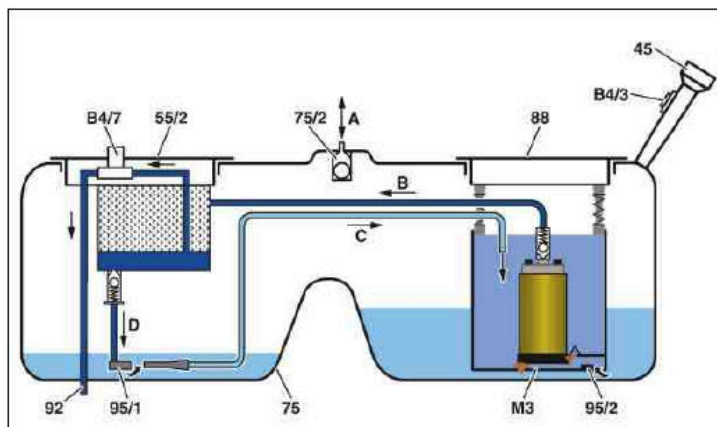
MODEL all

i	Information on fuel gage sensor	MODEL 203, 209...	AH47.10-P-7000-02A
	Information on fuel level sensor	MODEL 219.322 with ENGINE 642	AH47.10-P-7000-02TQ
i	Information on fuel level sensor	MODEL 211 with ENGINE 642	AH47.10-P-7000-02TI

BASIC KNOWLEDGE

FUEL TANK FUNCTION - GF47.10-P-3000-01MS

- 45 Fuel filler neck
 55/2 Fuel filter with overflow valve
 (opening pressure approx. 3.0 bars)
 75 Fuel tank
 75/2 Rollover valve
 88 Fuel delivery module
 92 Fuel pressure line to the engine
 95/1 Left suction jet pump
 (Nozzle approx. 0.5 mm)
 95/2 Right suction spray pump
 B4/3 Fuel tank pressure sensor (USA)
 B4/7 Fuel pressure sensor
 M3 Fuel pump



P47.10-2374-75

- A Vent/breather line
 B Fuel line from fuel pump to fuel filter
 C Fuel delivery line from left suction jet pump to fuel delivery module
 D Fuel pressure line for supplying left suction jet pump

Fig. 1: Fuel Tank Function Diagram

Courtesy of MERCEDES-BENZ USA

The fuel flows from the controlled fuel pump into the fuel delivery module from the right fuel tank chamber, through the fuel pressure line to the fuel filter with fuel pressure regulator into the left fuel tank chamber.

The filtered fuel is supplied to the engine by the fuel pressure line via the fuel pressure sensor (single-line system).

The left suction jet pump is supplied with fuel via the overflow valve at the fuel filter.

A suction effect is produced in the suction jet pump which draws the fuel from the deepest point out of the left fuel tank chamber to the fuel delivery module. This ensures that the left fuel tank chamber is properly emptied.

The housing of the fuel delivery module serves as a swirl pot. When cornering with a low level of fuel in the fuel tank, the increased fuel level in the swirl pot ensures that the fuel pump draws in air.

The right suction jet pump is located at the bottom of the fuel delivery module and a fuel strainer located at the fuel pump feed.

Each fuel tank chamber has a fuel level indicator sensor. The resistance values are transmitted separately to the rear SAM control unit with fuse and relay module, which processes the signals accordingly and transmits them to the instrument cluster over the CAN databus.

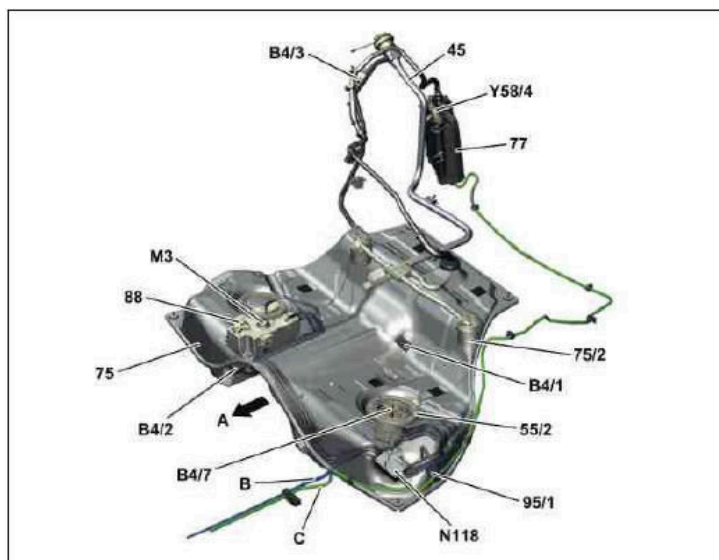
[i] For maintenance and repair work, loosen the nuts at the top of the fuel tank only when the fuel tank is filled 2/3 to maximum capacity. The fuel tank has no outlet valves. It is drained through the fuel pump via the fuel line in the engine compartment. To empty the fuel pump, actuate using STAR DIAGNOSIS (menu item).

FUEL TANK, LOCATION/DESIGN/FUNCTION - GF47.10-P-3000MS

MODEL 216, 221 with ENGINE 275.953 up to Model Year 8

MODEL 216, 221 with ENGINE 275.982 up to Model Year 8

- 45 Fuel filler neck
- 55/2 Fuel filter with overflow valve, about 3.0 bar
- 75 Fuel tank
- 75/2 Rollover valve
- 77 Activated charcoal canister
- 88 Fuel delivery module
- 95/1 Left suction spray pump



- B4/1 Left fuel level sensor
- B4/2 Right fuel level sensor
- B4/3 Fuel tank pressure sensor (USA)
- B4/7 Fuel pressure sensor
- M3 Fuel pump (AMG: high delivery rate)
- N118 Fuel pump control unit
- Y58/4 Activated charcoal filter shutoff valve (USA)

- A Direction of travel
- B Fuel pressure line to the engine
- C Fuel pressure line to the purge control valve

Fig. 2: Identifying Fuel Tank Components
Courtesy of MERCEDES-BENZ USA

Fuel tank position	The fuel tank is positioned at the frame floor ahead of the rear axle because of the through-loading facility from trunk into passenger compartment.	
--------------------	--	--

2012 Mercedes-Benz CL600

2007-12 ENGINE Fuel System - 216.376 CL600

Fuel tank design	The fuel tank made out of sheet metal is split into two chambers due to the "U"-shaped recess.	
Fuel tank function		GF47.10-P-3000-01MS

FUEL LEVEL SENSOR, LOCATION/TASK/DESIGN/FUNCTION - GF47.10-P-3001M

MODEL 215, 220 with ENGINE 275.950

MODEL 230 with ENGINE 275.951 up to Model Year 8

MODEL 216, 221 with ENGINE 275.953 up to Model Year 8

MODEL 230 with ENGINE 275.954 up to Model Year 8

MODEL 215, 220 with ENGINE 275.980

MODEL 230 with ENGINE 275.981 up to Model Year 8

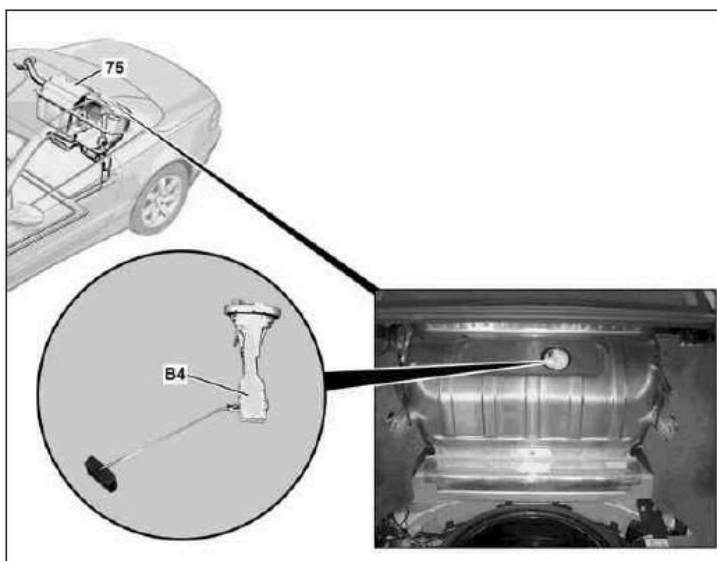
MODEL 216, 221 with ENGINE 275.982 up to Model Year 8

MODEL 240 with ENGINE 285.950

MODEL 240 with ENGINE 285.980

Illustrated on model 230

75 Fuel tank
B4 Fuel level sensor



P47.50-2028-06

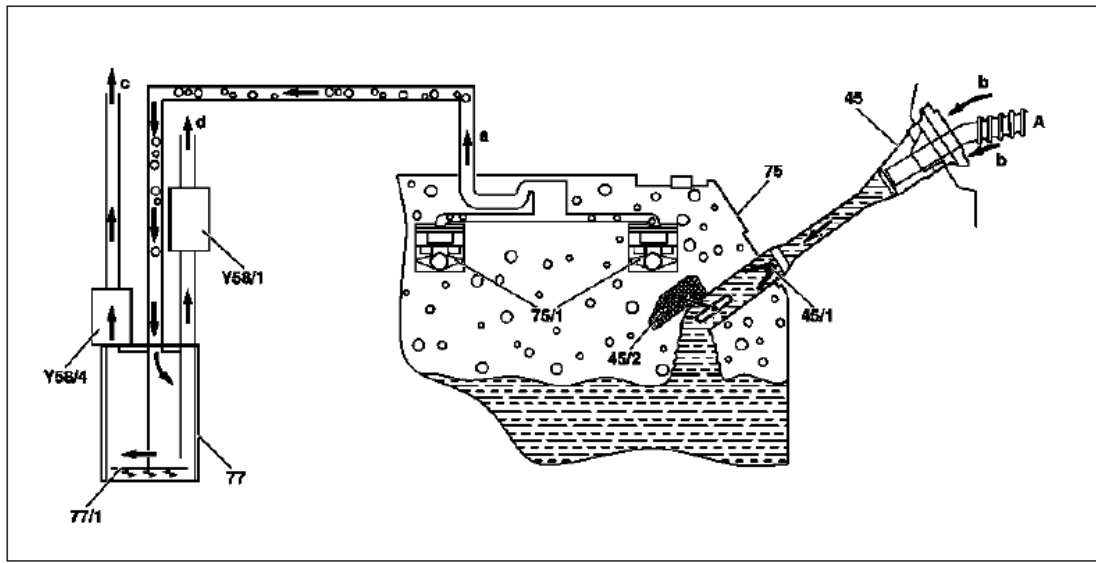
Fig. 3: Identifying Fuel Tank And Fuel Level Sensor

2012 Mercedes-Benz CL600

2007-12 ENGINE Fuel System - 216.376 CL600

Fuel gage sensor, location	Model 215, 220, 230, 240: Installed into the fuel tank from above. Model 216, 221: One fuel level sensor is mounted in each fuel tank chamber.
Fuel gage sensor task	The fuel level sensor determines the fuel level in the fuel tank.
Fuel gage sensor design	Float-and-lever sensor with two wiper contacts (potentiometer) and a float.
Fuel gage sensor function	Modification of resistance value in line with fuel level.

ON-BOARD REFUELING VAPOR RECOVERY FUNCTION - GF47.10-P-3004M**MODEL 215, 220 with ENGINE 275.950 with CODE (494) USA version****MODEL 230 with ENGINE 275.951 with CODE (494) USA version up to Model Year 8****MODEL 216, 221 with ENGINE 275.953 with CODE (494) USA version up to Model Year 8****MODEL 230 with ENGINE 275.954 with CODE (494) USA version up to Model Year 8****MODEL 215, 220 with ENGINE 275.980 with CODE (494) USA version****MODEL 230 with ENGINE 275.981 with CODE (494) USA version up to Model Year 8****MODEL 216, 221 with ENGINE 275.982 with CODE (494) USA version up to Model Year 8****MODEL 240 with ENGINE 285.950 with CODE (494) USA version****MODEL 240 with ENGINE 285.980 with CODE (494) USA version****Shown on vehicle with fuel tank in luggage compartment**



P47.10-2140-09

45	Filler neck with ORVR (because of its shape, acts as a suction jet pump)	75/1	Safety valve (rollover valve)	A	Nozzle
45/1	Check valve	77	Activated charcoal canister	a	ORVR vent line
45/2	Float with flap	77/1	Pressure relief valve (opening pressure approx. 30 to 40 mbar)	b	Air intake around the nozzle
75	Fuel tank	Y58/1	Purge control valve	c	Depressurization in open air (if pressure relief valve 77/1 is open)
		Y58/4	Activated charcoal filter shutoff valve	d	to engine

Fig. 4: On-Board Refueling Vapor Recovery Function Diagram
Courtesy of MERCEDES-BENZ USA

The legislator demands:

- Refueling vapors must be recovered inside the vehicle (ORVR = Onboard Refueling Vapor Recovery).
- Fuel and refueling gases must be separated in order to prevent fuel from flowing into the activated charcoal canister due to inappropriate refueling or a defective nozzle.

To satisfy these requirements, the filler neck is designed as a suction jet pump.

The fuel out of the nozzle accelerates through this in the filler neck and air is suctioned around the nozzle.

As a result of this air intake around the nozzle, refueling vapors are not able to rise up at the filler neck and escape to the atmosphere. They flow to the activated charcoal canister.

The refueling gases are stored in the activated charcoal canister and when releasing regeneration together with fuel gases out of the fuel evaporation control system, are suctioned off and burnt by engine.

1. Vehicles with fuel tank in luggage compartment

If the fuel tank is full, the float with the flap (45/2) closes the filler neck at the bottom. This ensures that the refueling nozzle shuts off rapidly and overfilling is largely prevented. A check valve (45/1) prevents

the quick increase of fuel in the filler neck.

Two safety valves (rollover valves) are located in the fuel tank (75). If fuel flows to the high mounted safety valves (75/1), they close the vent line to the activated charcoal canister. Through powerful braking, accelerating or cornering the valves can also close briefly.

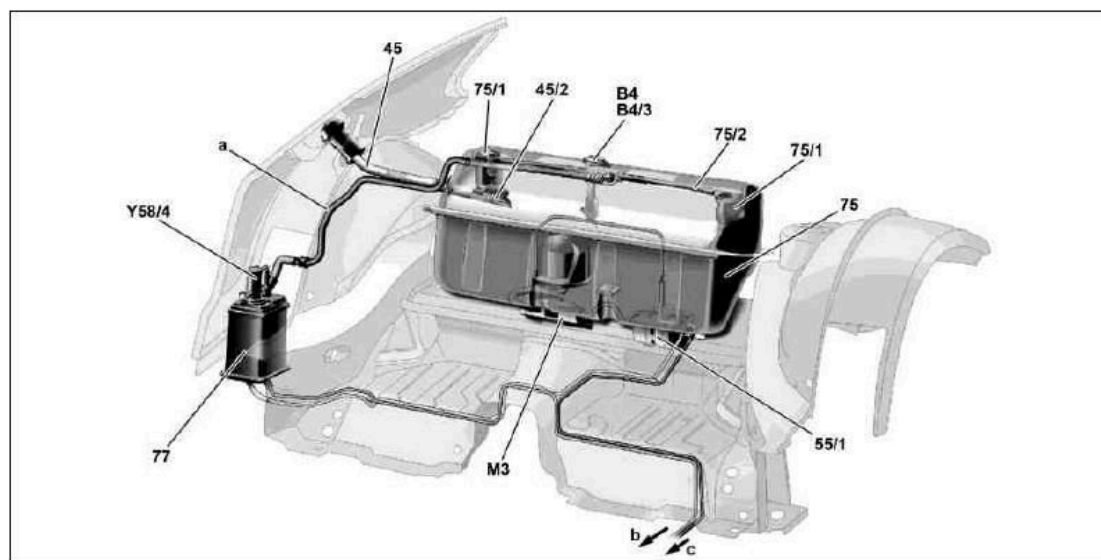
If an excessively high pressure exists in the activated charcoal canister, the pressure relief valve (77/1) opens. In this special case the removal of pressure is performed via the activated charcoal canister shutoff valve (Y58/4) into the open air.

2. Vehicles with fuel tank at frame floor in front of rear axle

The refueling vapors flow along the vent line to the expansion reservoir and on from there to the activated charcoal canister. A filler neck with valves is not necessary.

[i] Ending refueling when the refueling nozzle switches off and the fuel tank is full! On no account overfill fuel tank as a result of refueling nozzle being switched on several times.

Shown on model 230 with engine 275.951



P47.10-2141-09

45 Filler neck with ORVR
45/2 Float with flap
55/1 Fuel filter with integrated overflow valve
75 Fuel tank
75/1 Safety valve (rollover valve)

75/2 Ventilation pipe of ORVR
77 Activated charcoal canister
B4 Fuel level sensor
B4/3 Fuel tank pressure sensor
M3 Fuel pump

Y58/4 Activated charcoal filter shutoff valve
a ORVR vent line
b To purge control valve
c Fuel line to engine

Fig. 5: Locating Fuel Tank Components
Courtesy of MERCEDES-BENZ USA

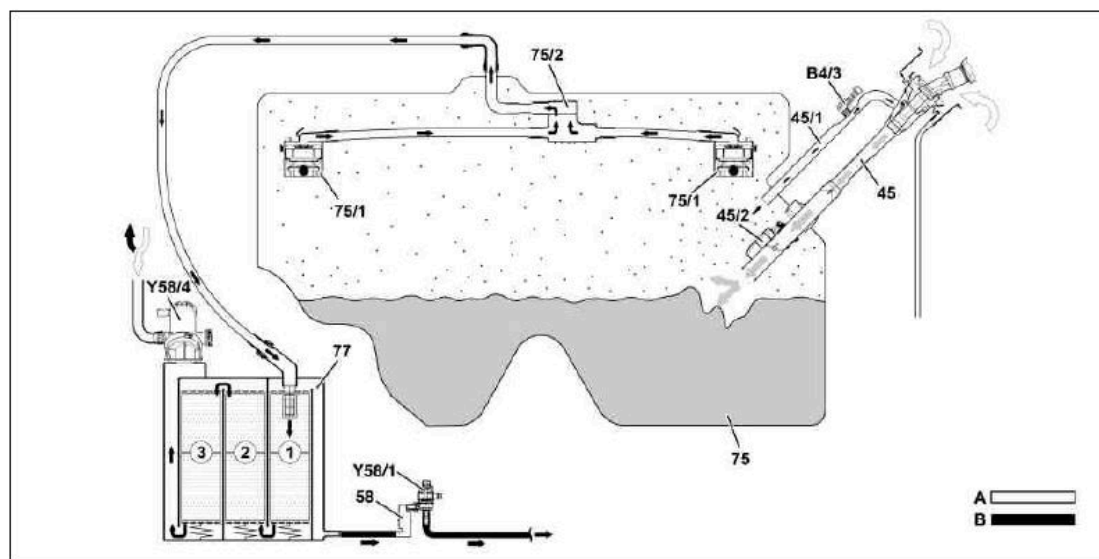
Activated charcoal canister,
location/task/design/function

GF47.30-P-3102M

ON-BOARD REFUELING VAPOR RECOVERY FUNCTION - GF47.10-P-3004MOS

MODEL 216.376, 221.176 with ENGINE 275.953 as of Model Year 09 /AEJ 08 with CODE (494) USA version

MODEL 216.379, 221.179 with ENGINE 275.982 as of Model Year 09 /AEJ 08 with CODE (494) USA version

Schematic diagram of fuel tank aeration and ventilation

P47.31-2141-09

- | | | | | | |
|------|---------------------------------------|------|-------------------------------|-------|---|
| 1 | Activated charcoal canister chamber 1 | 58 | Fluid reservoir | B4/3 | Fuel tank pressure sensor |
| 2 | Activated charcoal canister chamber 2 | 75 | Fuel tank | Y58/1 | Purge control valve |
| 3 | Activated charcoal canister chamber 3 | 75/1 | Safety valve (rollover valve) | Y58/4 | Activated charcoal filter shutoff valve |
| 45 | Fuel filler neck | 75/2 | Fuel retention valve | | |
| 45/1 | Refueling ventilation | 77 | Activated charcoal canister | A | Air admission line and vent line |
| 45/2 | Float with flap | | | B | Purge line |

Fig. 6: Fuel Tank Aeration And Ventilation Diagram
Courtesy of MERCEDES-BENZ USA

On-board refueling vapor recovery, general points

The legislator requires that the refueling vapors in the vehicle are collected (ORVR = Onboard Refueling Vapor Recovery).

Fuel and refueling vapors must be separated in order to prevent fuel from flowing into the activated charcoal canister due to inappropriate refueling or a defective nozzle.

On-board refueling vapor recovery, function sequence

2012 Mercedes-Benz CL600

2007-12 ENGINE Fuel System - 216.376 CL600

Thanks to its shape, the fuel filler neck functions as a suction jet pump. The fuel out of the nozzle accelerates through this in the filler neck and air is suctioned around the nozzle.

As a result of this air intake (in the fuel tank) around the nozzle, refueling vapors are not able to rise up at the fuel filler neck and escape into the atmosphere.

The fuel vapors through flow the safety valves (rollover valves) and fuel retention valve to the activated charcoal canister, where they are stored.

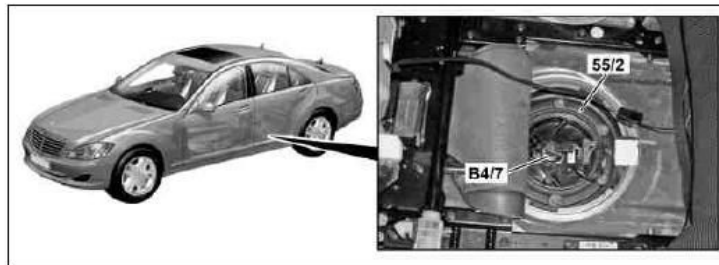
When the fuel tank is full, the float valve closes off the fuel filler neck. This ensures that the refueling nozzle shuts off more rapidly and overfilling is largely prevented.

If fuel reaches the safety valves, these close off the aeration and vent line to the activated charcoal canister and thus prevent fuel from flowing into the activated charcoal canister. By means of a diaphragm, the fuel retention valve also prevents fuel from flowing into the activated charcoal canister.

When purging is enabled, the fuel vapors are drawn off through the purge line by the engine, and burnt together with the fuel gases from the activated charcoal canister.

FUEL PRESSURE SENSOR POSITION - GF47.20-P-4007-01MS

55/2 Fuel filter with integrated overflow valve (approx. 3.0 bars)
B4/7 Fuel pressure sensor



P47.20-2288-04

Fig. 7: Identifying Fuel Pressure Sensor And Fuel Filter With Integrated Overflow Valve
Courtesy of MERCEDES-BENZ USA

The fuel pressure sensor is located on the fuel filter. Remove to reach seat cushions, soundproofing and screw caps.

[i] For adjustable individual seats at the rear: Remove left seat cushions by pushing back from catch on the rails.

FUEL PRESSURE SENSOR, LOCATION/TASK/DESIGN/FUNCTION - GF47.20-P-4007M

ENGINE 275.950 in MODEL 215, 220

ENGINE 275.951 in MODEL 230 up to Model Year 8

ENGINE 275.953 in MODEL 216, 221 up to Model Year 8

ENGINE 275.954 in MODEL 230 up to Model Year 8

ENGINE 275.980 in MODEL 215, 220

ENGINE 275.981 in MODEL 230 up to Model Year 8

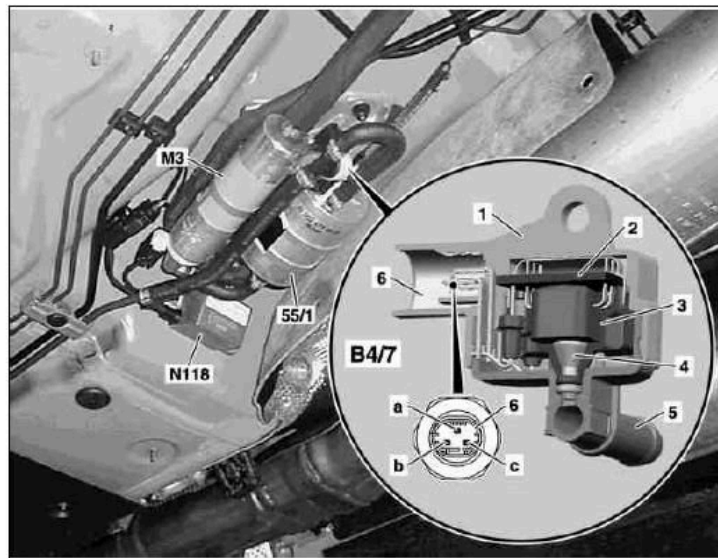
ENGINE 275.982 in MODEL 216, 221 up to Model Year 8

ENGINE 285.950 in MODEL 240

ENGINE 285.980 in MODEL 240

Shown model 240

- 1 Housing top section
- 2 Electronic circuit board
- 3 Coil
- 4 Armature
- 5 Housing lower part with hose connections
- 6 Electrical connection
 - a Ground (Pin 2)
 - b Signal (Pin 3)
 - c +5 V (Pin 1)
- 55/1 Fuel filter with integrated overflow valve
- B4/7 Fuel pressure sensor
- M3 Fuel pump
- N118 Fuel pump control unit



P47.20-2103-06

Fig. 8: Identifying Fuel Pressure Sensor Component Location
 Courtesy of MERCEDES-BENZ USA

Fuel pressure sensor position	Model 215, 220 with engine 275.950	GF47.20-P-4007-01K
	Model 215, 220 with engine 275.980	GF47.20-P-4007-01KA
	Model 216, 221	GF47.20-P-4007-01MS
	Model 230	GF47.20-P-4007-01R
	Model 240	GF47.20-P-4007-01MM
Fuel pressure sensor task	Detect fuel system pressure and conduct a corresponding voltage signal to the fuel pump control unit (N118).	