

Electric in-tank fuel pump Replacing the pump

si 0068 GB

MSI-PG 11.02

Vehicle:					
Manufacturer	Model range (design)	Type	Year of construction	Power rating [kW]	Capacity [cm ³]
BMW	5 (E39)	520i	04.99 - 01.96 - 09.00	100	1991
			09.00 - 11.95 - 09.00	110	1991
			09.00 - 11.95 - 09.00	125	2171
			09.00 - 11.95 - 09.00	125	2494
			09.00 - 11.95 - 09.00	141	2494
		520i	09.00 - 11.95 - 09.00	142	2793
			09.00 - 11.95 - 09.00	170	2979
			04.96 - 03.99	173	3498
			04.99 - 04.96 -	180	3498
			04.96 - 04.99 -	210	4398
BMW	5 (E39) Touring	520i	04.99 - 01.97 - 09.00	100	1991
			01.97 - 09.00	110	1991
			09.00 - 01.97 - 09.00	125	2171
			01.97 - 09.00	125	2494
			09.00 - 01.97 - 09.00	141	2494
		520i	01.97 - 09.00	142	2793
			09.00 - 01.97 - 09.00	170	2979
			09.00 - 01.97 -	173	3498
			01.97 - 01.97 -	180	3498
			01.97 - 01.97 -	210	4398
Product		Pierburg-No.:		OE-No.: *)	
Electric in-tank pump E3TS		7.22013.12.0		16141183216 / 16146752368	
		7.22013.00.0 / .01.0 / .03.0 / .04.0 / .09.0 / .18.0			
Replacement pump:		7.22013.02.0			

The above-mentioned vehicles are fitted with an in-tank pump.

Technical specifications

Configuration:	Internal annular-gear pump with side-channel preliminary stage
Rated voltage:	12 [V]
System pressure:	3.5 [bar]
Feed capacity:	approx. 130 [l/h]
Power consumption:	max. 9.5 [A] (at system pressure)

Items supplied 7.22013.02.0

- Fuel pump
- Fitting instructions 3.45222.47.0

The following instructions for removal and fitting must be observed when carrying out replacement.

For details of changes with respect to coordination and replacement, see → the corresponding current catalogues, TecDoc-CD and/or on TecDoc data-based systems.

Subject to change of illustrations and text.

*) The reference numbers given are for the purposes of comparison only and must not appear on invoices or any other correspondence addressed to the final end-user.



Fig. 1

Tools required:

- Pierburg tool no.: 4.00063.00.0
See → fig. 1
- Crosshead screwdriver
- Fuel-test stopper for shutting off the fuel line (Ø 7.5 mm)
- Fuel-line fixing clip (Ø 7.5 mm)
(See → range of hose-attachment fittings/-clips 4.00005.01.0)
- BMW tool no.: 16 1 020
- Ø 7.5 mm fuel line (if required)
(Pierburg no.: 4.07371.06.0)

1 Notes on safety

- For reasons of safety, the removal and fitting of electrical fuel pumps must only be carried out at approved workshops.
- Collect escaping fuel in a suitable container.
- Before starting work on the vehicle, ensure that no gear is engaged and that the handbrake is on.
- Keep removed parts clean and covered.
- Cover or close off any open components before interrupting work for any reason.
- Install only clean parts.
- Do not remove packaging or items such as sealing stoppers until the item in question is about to be installed.
- Always observe the vehicle manufacturer's instructions when working on the fuel system.
- Wear adequate protective equipment (goggles).



Fuel and fuel vapour are highly inflammable. When working on the fuel supply system:

- No smoking
- No naked lights
- Flooble
- No use of equipment likely to produce sparks flooble

Ensure adequate ventilation.

Local and country-specific safety regulations should also be observed.

2 Removal



The fuel tank should be as emptied as much as possible for removal of the fuel pump.

- Switch off the ignition and remove the key.
- Remove the rear seat base.
Grasp the seat base at the front right- and left-hand corners and pull upwards to release it from its mountings.
- Locate the pre-stamped section in the rubber covering on the right-side (looking in the direction of travel of the vehicle) and carefully cut along the perforation (1) with a sharp blade. Fold back the cut-out flap.
- Remove the three screws (2) from the cover panel and detach the panel.
Take care to avoid damage to cables and hoses when doing so.
Carefully pull the electrical connection lead (3) through the hole in the rubber covering.

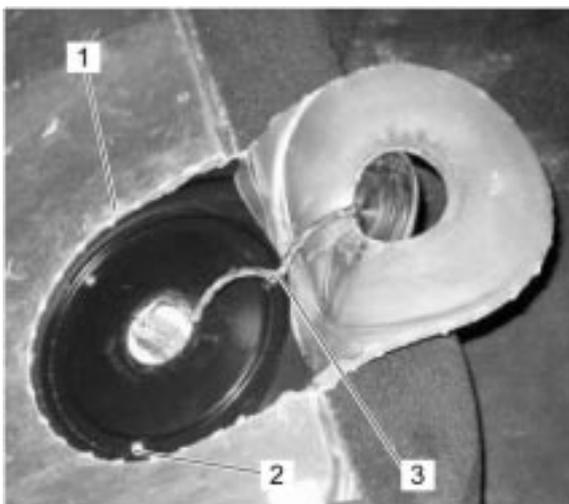


Fig. 2

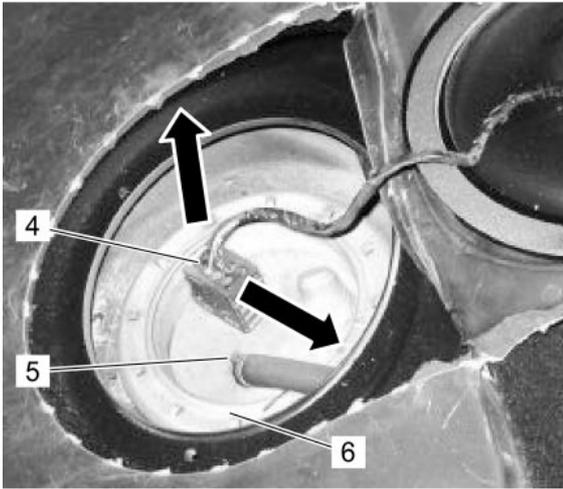


Fig. 3

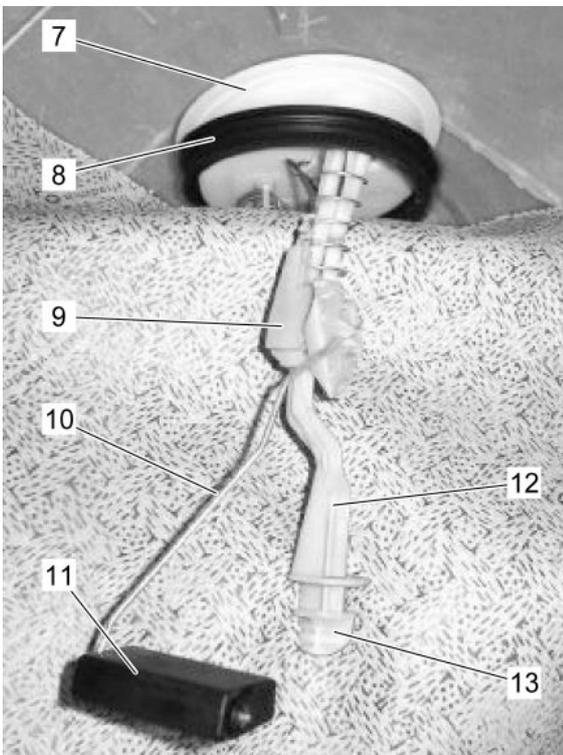


Fig. 4

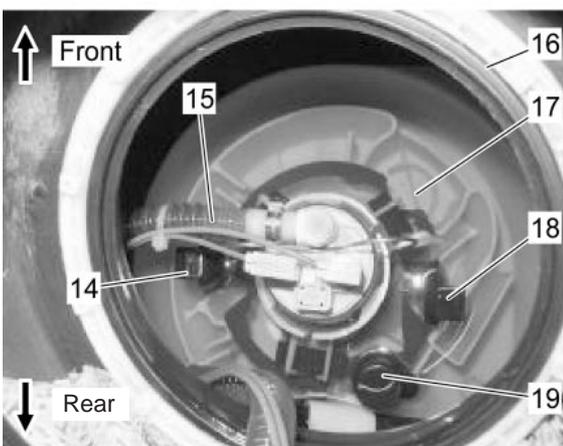


Fig. 5

- Push the sliding catch on the compact plug (4) to the centre and pull the plug upwards to remove it.
- Clean the area around the locking ring.



Ensure that no impurities or other debris are allowed to enter the fuel tank.

Cover the opening to prevent dirt getting into the fuel tank while the pump is detached.

- Use a suitable tool to loosen the hose clamp (5). Avoid damage to the fuel hose when doing so.
- ☞ Wrap absorbent rags around the flange cover before releasing the fuel hoses.
- Pull the fuel hose to remove it and shut it off with a sealing stopper to prevent fuel from flowing back. Avoid damage to the connection nozzle when doing so.
- ☹ Wipe up any escaped fuel immediately with an absorbent cloth.
- Loosen the locking ring (6) with the appropriate special BMW tool (no. 16 1 020).

The sealing cap (7) is fitted to the tank with two interlocking sealing rings (8) (16).

A bottom-mounted element (12) links the sealing cap with the surge tank (fuel reservoir used when driving around curves).

The catch (13) is located in a recess (17) in the bottom of the surge tank.

The filling-level detector (9) is fitted to the bottom-mounted element.

- Carefully pull the sealing cap (7) upwards to remove. Note that it may sometimes be difficult to move.

When lifting out the sealing cap:

- avoid bending the float arm (10) and
- take care not to damage the fuel hose (15).

The fuel pump is secured inside the surge tank by means of a bracket.

- Push the two clamps (14) (18) of the bracket towards the centre and pull the bracket upwards to remove.



The bracket is fitted with a pressure-limiting valve (19), which is in turn secured to the surge tank with an O-ring.

The bracket must be pulled with enough force to remove it from the surge tank.

- Take care not to mislay or damage the sealing ring on the pressure-limiting valve (19).



Note when pulling out the element that the pump is still charged with fuel.

Collect escaping fuel in a suitable container.

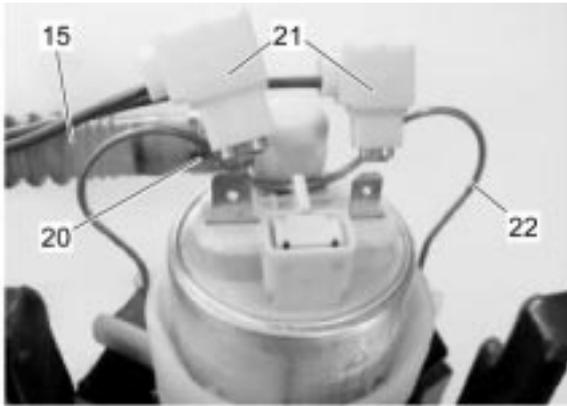


Fig. 6

3 Replacing the pump

- Remove the electrical contacts (21).
- Release the hose clip (20) and remove the hose (15).

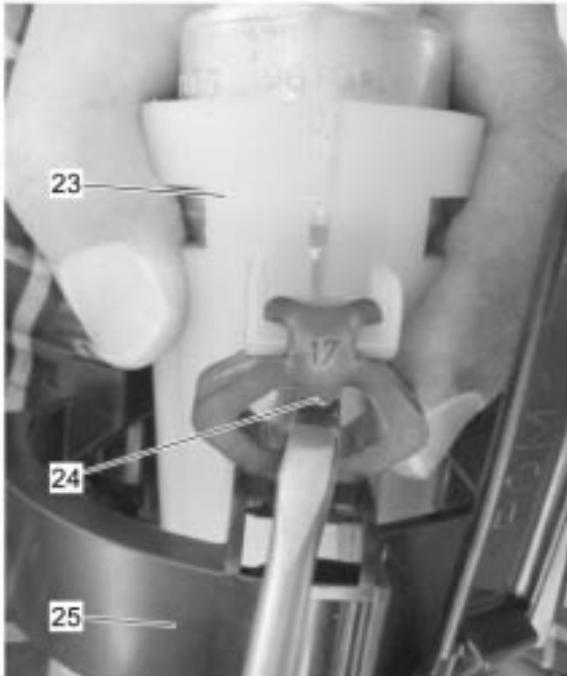


Fig. 7

The fuel pump is located within a sleeve (23) in the bracket (25).

- Use a screwdriver to lever the upper section of the three rubber buffers (24) out of the sleeve. Push the triangular indentation from back to top when doing so (see → fig. 7).
- Pull the pump and sleeve (23) upwards and out of the bracket (25).

- The pump is secured to the sleeve with a stay (22) (see → fig. 7). Remove the stay (22).

- Die Pumpe ist mit einem Bügel (22) in der Hülse gesichert (siehe → Abb. 7). Den Bügel (22) entfernen.

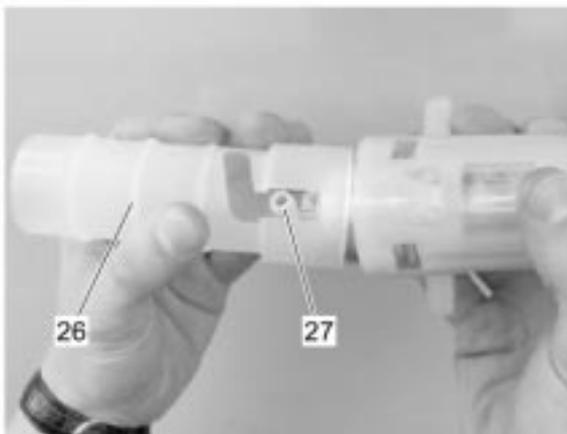


Fig. 8

- Place the tool (26) (Pierburg no. 4.00063.00.0) with the recess on the angled pressure nozzle (27) of the pump.

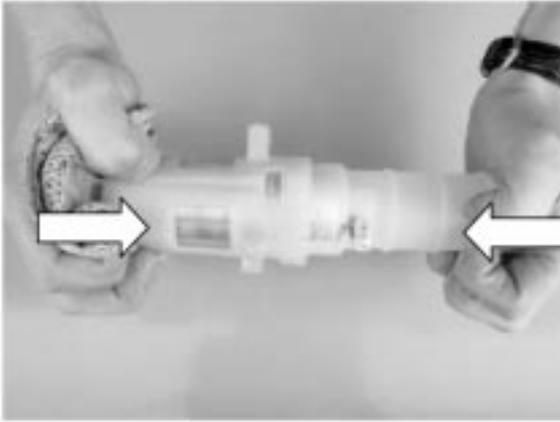


Abb. 9

- Push the tool firmly onto the pump, until the tool is pressed up against the bulge that runs around the pump. The tool spreads open the sleeve mounting as this takes place.

 While pressing is in progress, use a lint-free cloth to prevent damage to the pump's inlet filter (see → fig. 9).

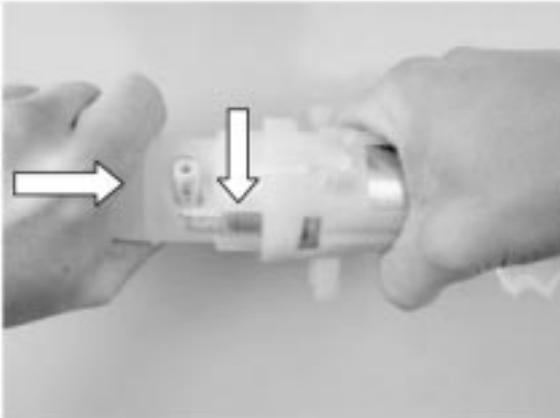


Fig. 10

- Rotate the tool to one side, so that the angled pressure joint of the pump engages with the recess in the tool (see → fig. 10).
- The tool can now be used to pull the pump out of the sleeve.

- Place the new pump with the angled pump pressure nozzle (27) into the recess in the tool (26) (Pierburg no. 4.00063.00.0) (See → fig. 8)

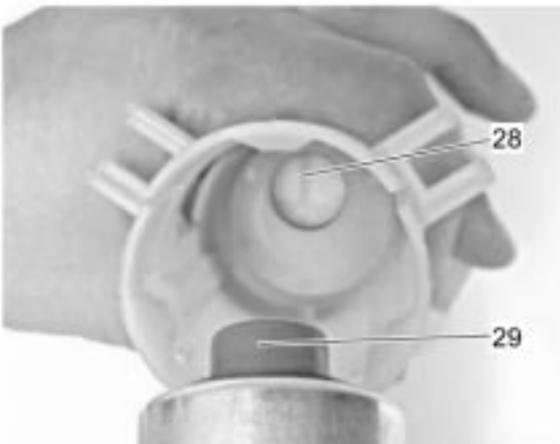


Fig. 11

- Now use the tool to insert the pump into the sleeve in such a way that the suction nozzle (29) comes to rest in the corresponding opening (28) in the bottom of the sleeve.

- Use the tool to push the pump firmly into the sleeve. While pressing is in progress, use a lint-free cloth to prevent damage to the pump's inlet filter (see → fig. 9). The pump is inserted sufficiently when the all-round bulge (30) is visible in the recess (31) of the sleeve.

If the pump cannot be pushed in this far, the sleeve and pump are misaligned relative to one another, and the suction nozzle (29) fails to engage with the corresponding opening (28) in the bottom of the sleeve.

- Remove the tool once the pump is correctly located in the sleeve.

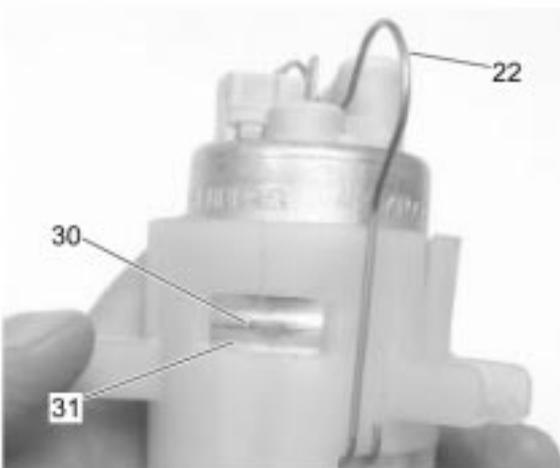


Fig. 12

- Secure the pump to the sleeve with the stay (22) (see → fig. 12).

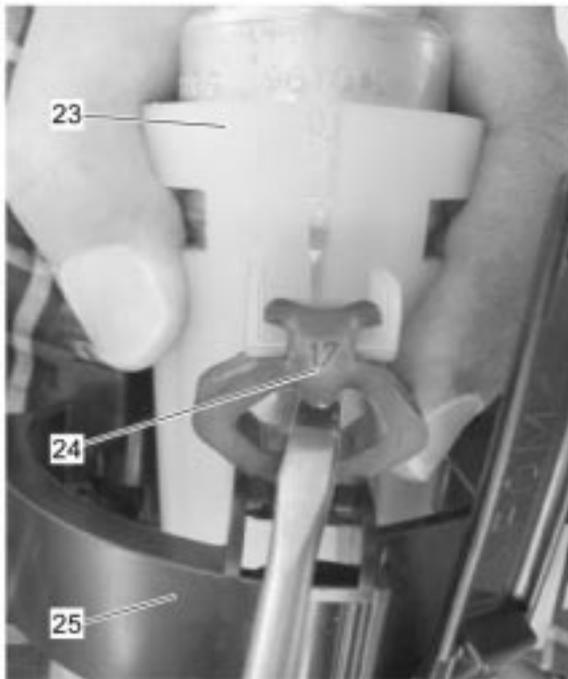


Fig. 13

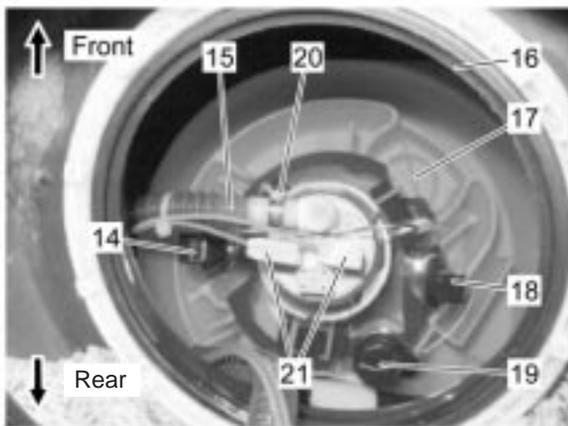


Fig. 14

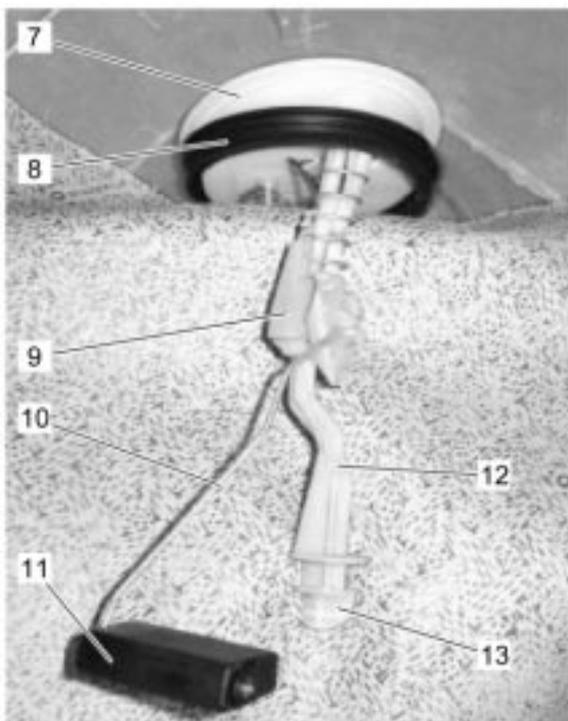


Fig. 15

- Push the new pump with sleeve (23) into the bracket (25).
- ☞ For details of the correct fitting position, see → fig. 14.
As seen from above, the excess-pressure valve (19) faces towards the bottom right and the pressure joint to the left.
- Push the upper sections of the three rubber buffers (24) back into their mountings on the sleeve (23). (cf. → fig. 13).



Ensure that the rubber buffers are fixed correctly to the bracket and sleeve.

- Check the rubber seal (8) on the sealing cap.
- Push the hose (15) onto the hose nozzle and secure with the hose clip (20).
- Attach the electrical contacts (21). The electrical contacts are protected against reverse-polarity.

4 Installation



Ensure that no impurities or other debris are allowed to enter the fuel tank.

- Place the full bracket assembly inside the surge tank.
Ensure that the sealing ring on the excess-pressure valve is (19) is correctly fitted and undamaged.
- ☞ For details of the correct fitting position, see → fig. 14.
The excess-pressure valve (19) points towards the rear right-hand wheel.
The pressure joint points to the left (looking in direction of travel of vehicle).
The bracket clamps (14) (18) must engage firmly in position.

The sealing cap (7) is fitted to the tank with two interlocking sealing rings (8) (16). A bottom-mounted element (12) links the sealing cap (7) with the surge tank (fuel reservoir used when driving around curves).

The filling-level detector (9) is fitted to the bottom-mounted element (12).

- Match the all-round sealing ring (8) to the sealing ring (16) of the tank opening.
- Insert the sealing cap (7) into the tank opening in such a way that the **catch (13) of the bottom-mounted element engages with the circular recess (17) in the surge tank.**



When fitting the sealing cap:

- avoid bending the float arm (10) and
- take care not to damage the fuel hose (15).

The float (11) points to the right (looking in direction of travel of vehicle) and is positioned outside the surge tank.

Ensure that the float arm (10) can move freely. When fitting the sealing cap, take care to ensure that the all-round seal is not pushed into the tank.

Note that it may be necessary to apply fuel-resistant lubricant between the seal and the sealing cap.

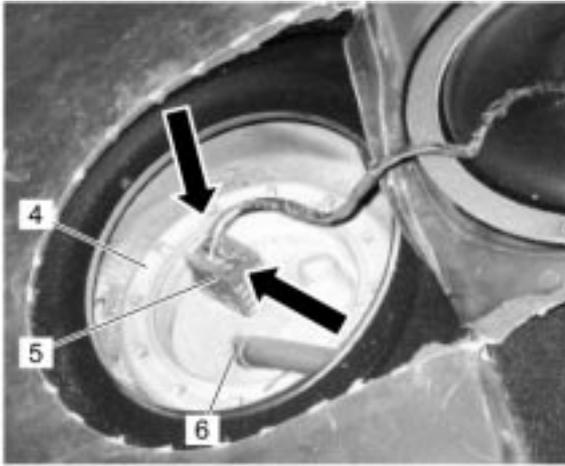


Fig. 16

- Place the locking ring (4) on the thread and lightly hand-tighten. Do not allow the locking ring to become cross-threaded.
- Tighten the locking ring with the appropriate special BMW tool (BMW no.: 16 1 020).

Tightening torque: 35 Nm

- Push the fuel hose onto its connector, fitting a new hose clip (6). Secure the hose in place with the hose clip (6).



Remove all fuel-soaked rags and dispose of safely.

- Insert the compact plug (5) into its socket and push the locking catch outwards until it engages. The plug is protected against reverse-polarity.

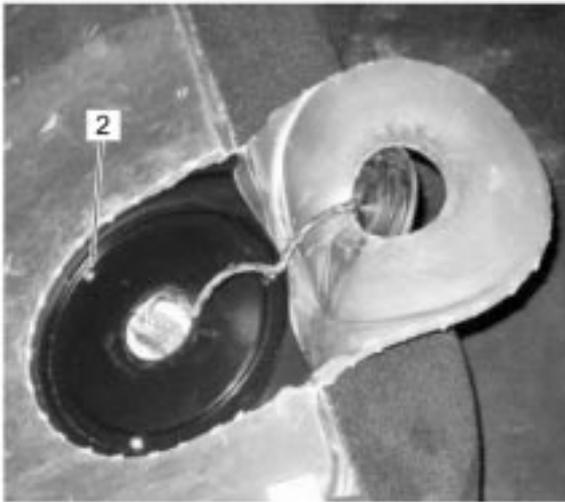


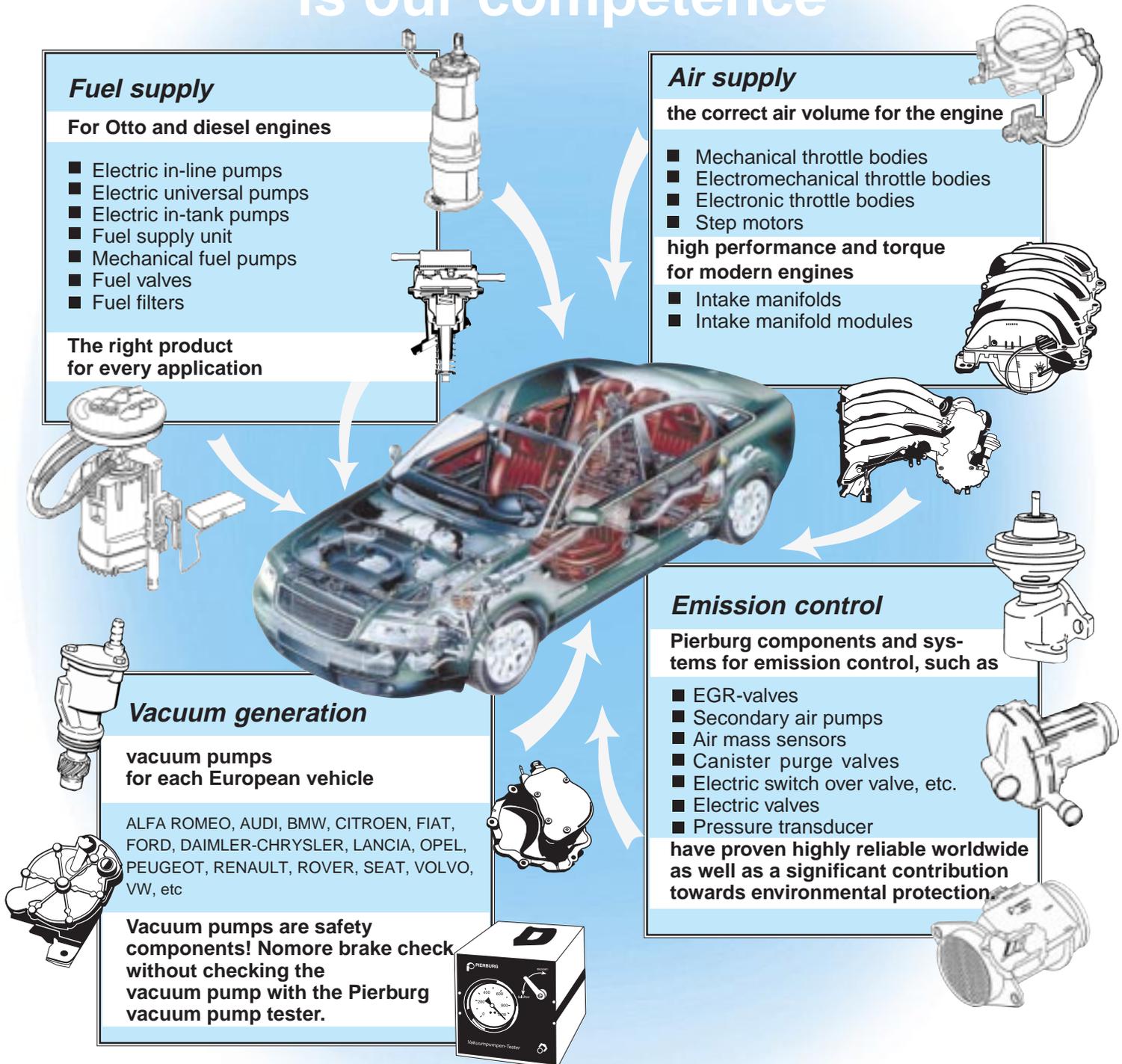
Fig. 17

- Refit the cover panel and sealing ring, and secure with the three screws (2).
- Fold the rubber cover-flap back into place and refit the rear bench seat. Push down on the front left- and right-hand corners of the rear seat base until you feel it engage with its mountings.



Fuel supply, Air supply, Vacuum generation and Emission control

is our competence



Pierburg delivers yearly mor then 30 million components and systems to the automotive industry. In almost every car a Pierburg product can be found.