

**Special tools required:**

- 16 1 080

**Important!**

Observe country-specific safety regulations.

Ensure adequate ventilation in the workbay!

Connect the exhaust extraction unit to the exhaust tailpipe.

The electric fuel pump must not operate without fuel! After completing repairs but before starting the engine for the first time, fill the fuel tank with min. 5 l fuel through the fuel filler pipe.

Do not damage non-return valve when pulling out suction hose.

**Diesel vehicles:**

Before starting the engine for the first time, if the fuel tank has been run dry or emptied, fill with diesel fuel and turn on ignition for approx. 1 minute. The fuel circuit is thus filled and vented, which results in the engine firing more quickly.

**Drawing off fuel:**

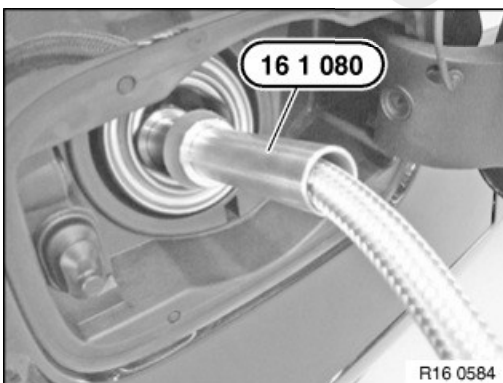
Start engine and allow to run.

The electric fuel pump runs.

In this way, the fuel is re-pumped through the suction jet pump from the left to the right side of the fuel tank.

Note:

Fuel can be drawn out of left and right sides of tank through fuel filler neck, leaving only a small residue. The residual amount is drawn off via the sensor opening.



Insert special tool 16 1 080 into fuel filler neck.

Special tool 16 1 080 has two different diameters for petrol/gasoline and diesel-engine cars!

Slide suction hose of extractor unit, refer to BMW Service Workshop Equipment - Planning Documentation, through special tool 16 1 080 into the fuel filler pipe, turning in the process if necessary.

Insertion length approx. 125 cm.

Draw off fuel with extractor unit (refer to BMW Service Workshop Equipment) as far as possible.

Follow drawing off of fuel on fuel gauge in instrument cluster.





Drawing off residual fuel quantity:

Drawing off residual fuel amount is not included in the time value of this operation.

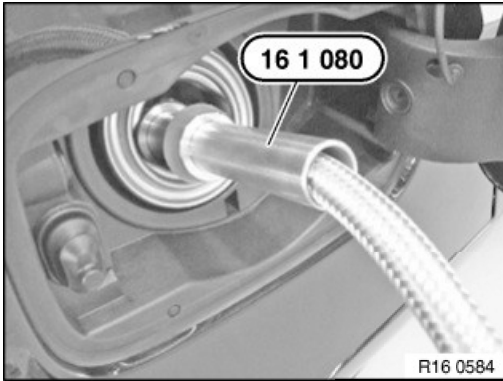
Important!

Ensure passenger compartment is adequately ventilated.

Catch dripping fuel in a suitable container.

Remove flange cover.

Draw off residual fuel quantity through sensor openings.



Fuel filling:

Insert special tool 16 1 080 into fuel filler neck.

Special tool 16 1 080 has two different diameters for petrol/gasoline and diesel-engine cars!

Slide suction hose of extractor unit, refer to BMW Service Workshop Equipment - Planning Documentation, approx. 40 cm into fuel filler pipe.

Fill fuel from suction extractor unit.



Extracting fuel after a defect in the suction jet pump or fuel pump:

Draw off right half of tank completely through fuel filler pipe.

Remove flange cover.

Insert extraction hose through service opening in tank, fuel (also residual quantity) can be drawn off.



**Recycling**

Fuel escapes when fuel lines are detached. Have a suitable collecting vessel ready.

Catch and dispose of escaping fuel.

Observe country-specific waste disposal regulations.

**Caution!**

Ensure adequate ventilation in the workbay!

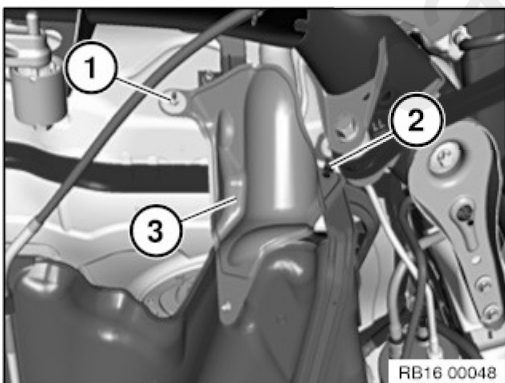
Avoid skin contact (wear gloves)!

After installation of fuel tank/prior to first engine start-up:

- Fill fuel tank with at least 5 litres of fuel.
- Check ground connection at fuel filler neck to body for continuity. If necessary, clean contact surface between body and fuel filler pipe screw connection.
- Check transfer function of suction jet pump.

**Necessary preliminary work:**

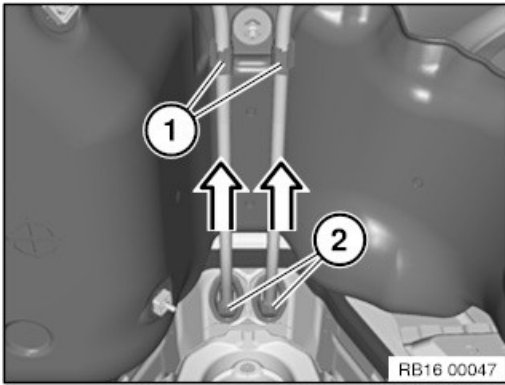
- Extract fuel from fuel tank.
- Remove the left tank cover.
- Remove the right tank cover.
- Remove propeller shaft.
- Remove carbon canister.
- Detach parking brake Bowden cables from the brake shoe expander, left and right.



Undo sheet metal nut (1).

Remove the clip (2) from the tensioning strap and remove the heat shield (3).





Detach the guide tubes from the clip (1).

Installation note:

It is absolutely necessary to replace damaged clips (1).

Pull both guide tubes back in the direction of the arrow until the guide tubes can be moved freely.

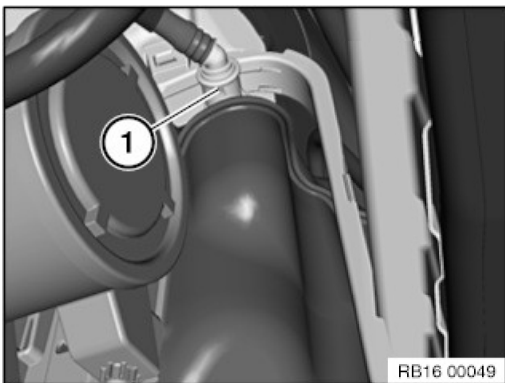
Caution!

Parking brake bowden cables remain attached to parking brake lever!

Installation note:

The two guide tubes must be inserted into the holder under the centre console by touch!

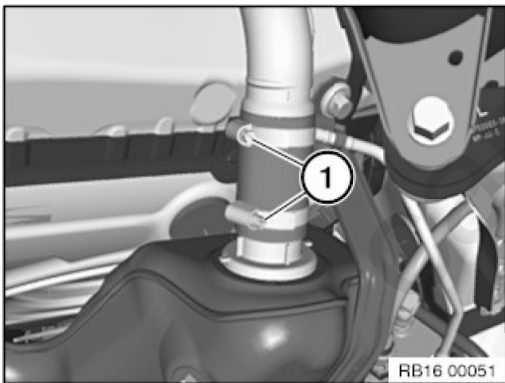
Both rubber grommets (2) must be correctly pressed into the body after securing the guide tubes in the clips (1).



Unlock the snap fastener (1) and pull off the tank ventilation line.

Installation note:

Make sure quick-release fasteners engage correctly.



Caution!

There may still be residual amounts of fuel in the fuel tank.

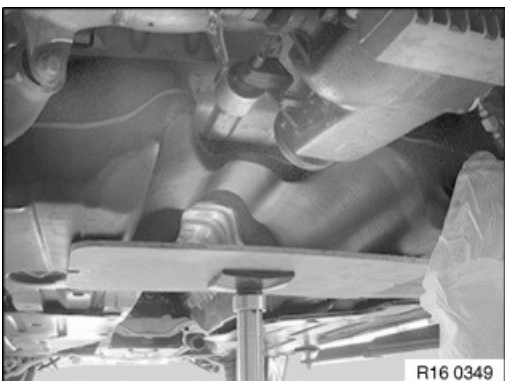
Catch and dispose of escaping fuel.

Release hose clamps (1) and loosen the fuel filling hose from fuel filler pipe.

The fuel filling hose cannot be pulled off until the fuel tank has been lowered.

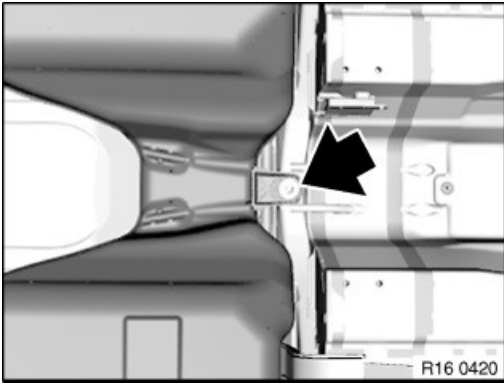
Installation note:

Tightening torque 16 12 1AZ.

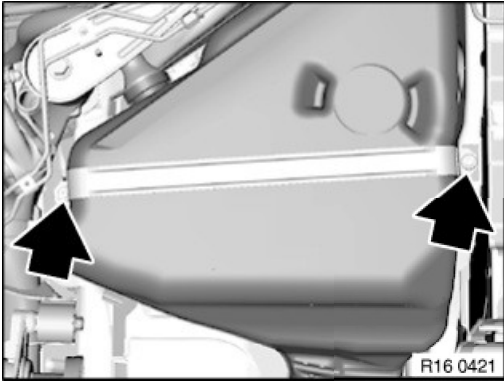


Heavily support the fuel tank.

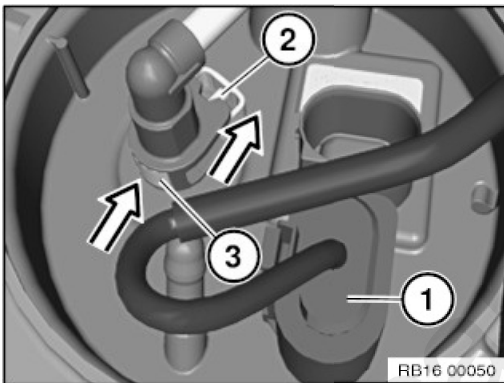




Unfasten nut. *Installation note:*
Replace self-locking nut.
Tightening torque 16 11 1AZ.



Release screws for tightening straps on left and right and remove tightening straps.
Carefully lower the fuel tank until the plug connection and fuel delivery line are accessible at the flange cover.
Installation note:
Tightening torque 16 11 2AZ.

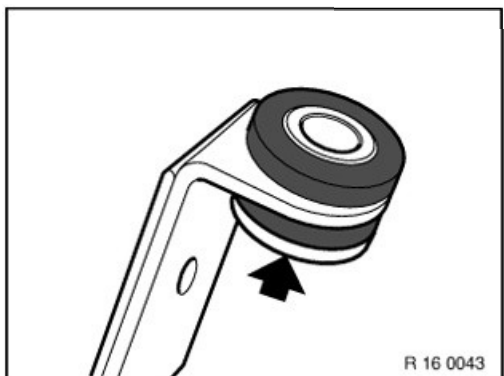


Disconnect plug connection (1).
Open the lock (2) in the direction of the arrow (graphic already opened).
Press the release button (3) and pull off the fuel delivery line. If applicable, slightly push the connector out to make pulling the part off easier.

Caution!

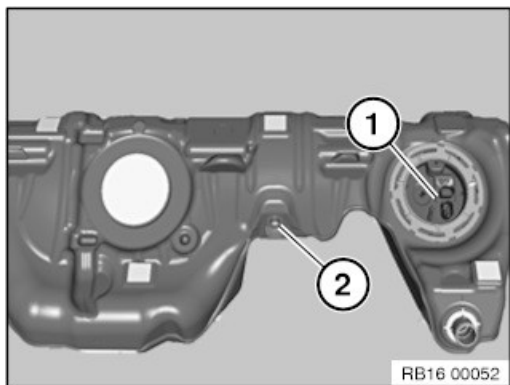
Fuel delivery line must be felt and heard to snap into place.
Damaged lock parts must be replaced without fail!

Completely lower the fuel tank.



Installation note:
Note rubber mount with spacer bush.
Wide collar on spacer bush points to screw head.





The following components must be remounted when the fuel tank is replaced:

- Delivery unit
- Holder for parking brake Bowden cable guide tubes

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**Recycling**

Fuel escapes when fuel lines are detached. Have a suitable collecting vessel ready.

Catch and dispose of escaping fuel.

Observe country-specific waste disposal regulations.

**Caution!**

Ensure adequate ventilation in the workbay!

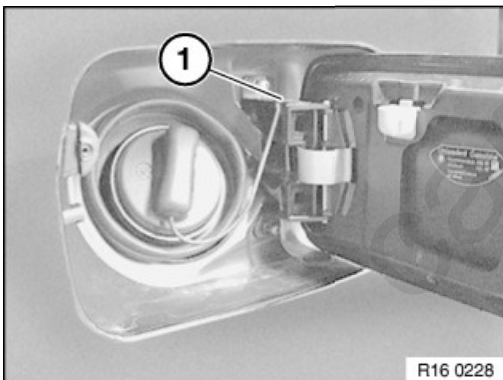
Avoid skin contact (wear gloves)!

After installation of fuel tank/prior to first engine start-up:

- Fill fuel tank with at least 5 litres of fuel.
- Check ground connection at fuel filler neck to body for continuity. If necessary, clean contact surface between body and fuel filler pipe screw connection.

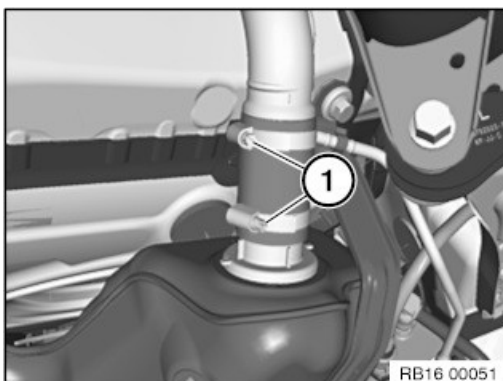
**Necessary preliminary work:**

- Extract fuel from fuel tank.
- Remove rear right wheel arch trim.
- Lower rear axle.



Unhook retaining strap (1) from tank flap.

Open cap and set to one side.

**Caution!**

There may still be residual amounts of fuel in the fuel tank.

Catch and dispose of escaping fuel.

Loosen hose clamps (1).

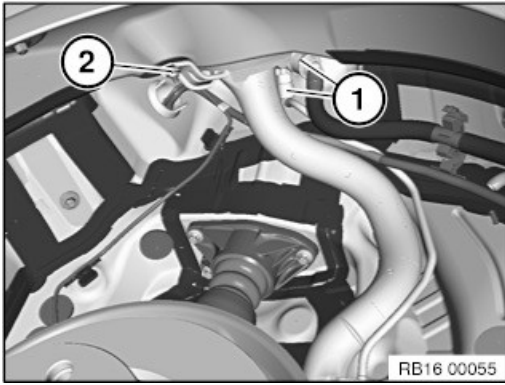
Detach fuel filler hose from fuel filler pipe.

Installation note:

Replace hose clamps.

Tightening torque 16 12 1AZ.



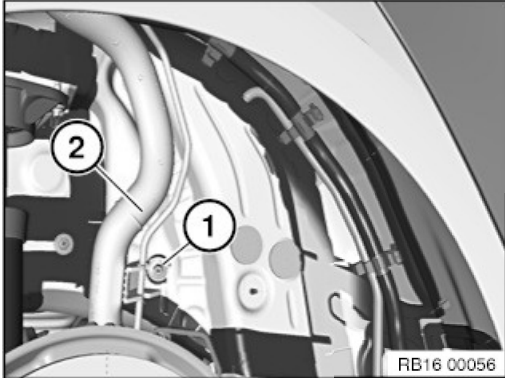


Unlock quick-release fasteners (1) and disconnect vent hoses.

Slacken nut (2).

Installation note:

Tightening torque: 16 12 2AZ.



Detach the tank ventilation line from the holder.

Slacken nut (1).

Installation note:

Renew plastic nut.

Tightening torque 16 12 2AZ.

Withdraw fuel filler pipe (2) completely out of rubber cup at wheel arch and feed out.

Installation note:

Make sure rubber cup fits correctly.



Installation note:

Clean **contact surface** on body and earth cable on fuel filler pipe.

Ground connection must be guaranteed.



**Special tools required:**

- 16 1 190
- 33 5 070

**Recycling**

Fuel escapes when fuel lines are detached. Have a suitable collecting vessel ready.

Catch and dispose of escaping fuel.

Observe country-specific waste disposal regulations.

**Important!**

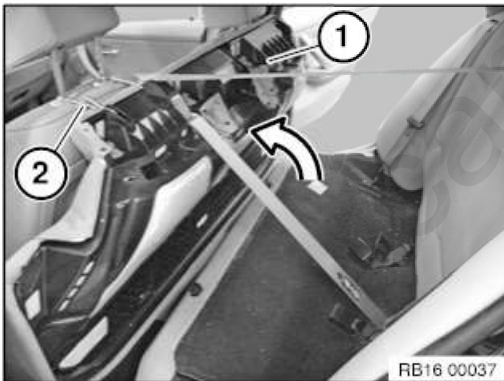
Ensure adequate ventilation in the workbay!

Avoid skin contact (wear gloves)!

Ensure absolute cleanliness when performing repair work on the open fuel system. Dirt contamination in the fuel tank may impair driving or may even result in vehicle breakdown.

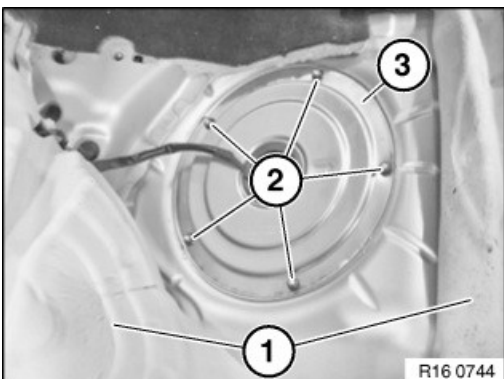
**Necessary preliminary work:**

- Draw off fuel



Only unclip seat bench (1) as shown on the left and right and fold up in direction of arrow.

Secure seat bench on front seat (2).

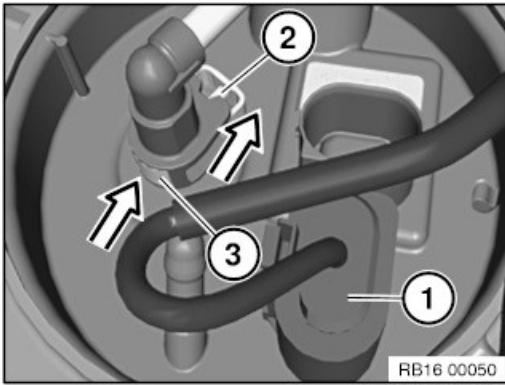


Fold both floor trim panels (1) to the side.

Unscrew nuts (2).

Remove cover for service opening (3).





Disconnect plug connection (1).

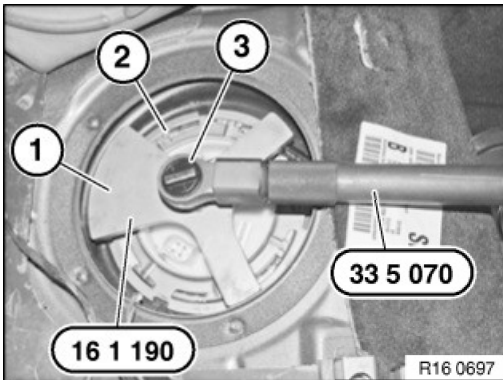
Open the lock (2) in the direction of the arrow (graphic already opened).

Press the release button (3) and pull off the fuel delivery line. If applicable, slightly push the connector out to make pulling the part off easier.

Important!

Fuel delivery line must be felt and heard to snap into place.

Damaged lock parts must be replaced without fail!



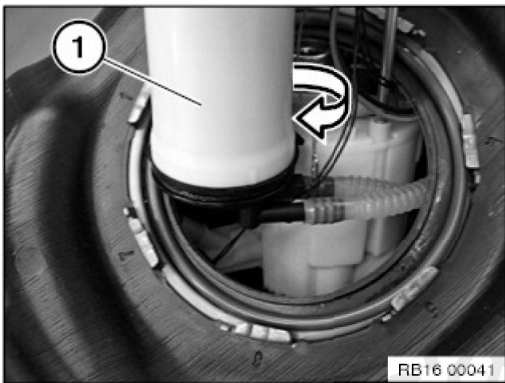
Fit special tool 16 1 190 with wide crank web (1) towards rear onto locking ring (2).

Connect special tool 33 5 070 with reversible ratchet head 1/2" (3) and position on special tool 16 1 190.

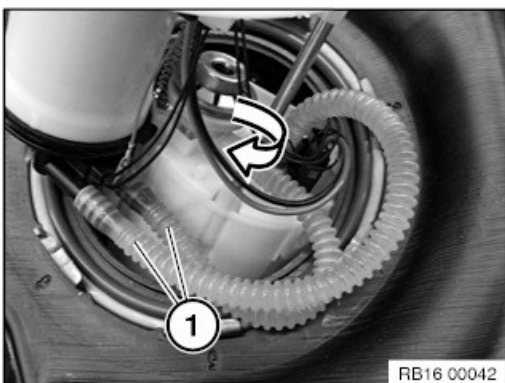
Release locking ring (2) in counterclockwise direction.

Installation note:

Replace the sealing ring between the flange head and fuel tank.



First, unscrew the flange cover with container (1) from the fuel tank. *Note:* Graphic shows fuel tank removed.



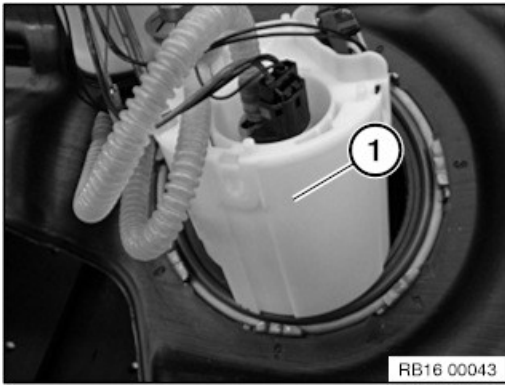
Feed both hoses (1) out of the fuel tank.

Raise the fuel pump by continuing to turn the delivery unit.

Note:

Graphic shows fuel tank removed.



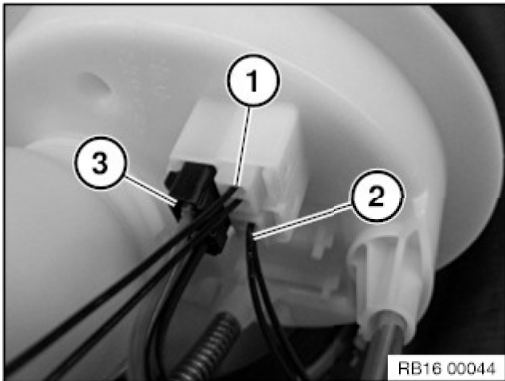


Carefully remove the delivery unit (1) from the fuel tank.

Make sure that the fuel level sensor is not damaged or bent during the removal.

Note:

Graphic shows fuel tank removed.



Disconnect the plug connection (1) from the left fuel level sensor.

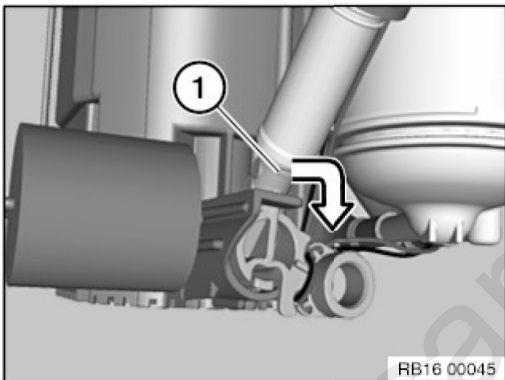
The plug connections (2 and 3) will remain connected.

Important!

Connector housings (1 and 2) are not encoded and accidental switching is possible!

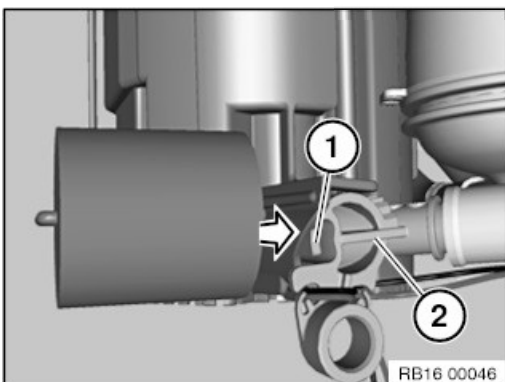
Plug assignment:

- (1) Fuel level sensor, left (cannot be mistakenly switched).
- (2) Fuel level sensor, right
- (3) Fuel pump



Disconnect the hose connection to the left tank half.

Turn the fuel hose (1) by 90° in direction of arrow.



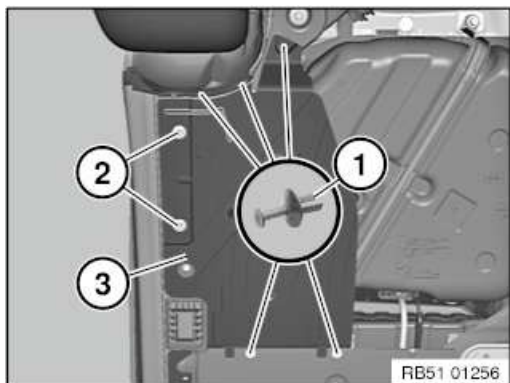
Press the unlocking tab (1) and pull the connector out of the delivery unit in the direction of the arrow. *Installation note:*

Replace sealing ring on the connector (2).

Make sure the connector latches correctly.



51 75 ... Removing and installing/replacing left or right tank cover



Release expanding rivets (1).

Unfasten screws (2).

Tightening torque 51 75 1AZ.

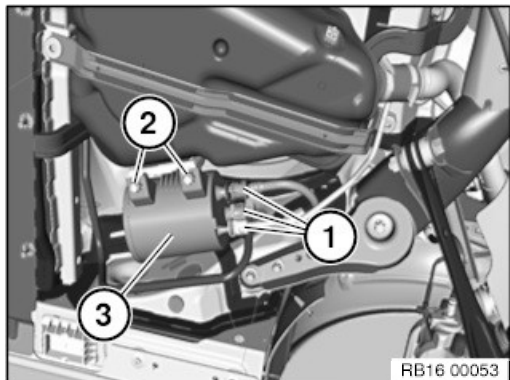
Remove tank (3).

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**Necessary preliminary work:**

- Remove the tank cover on the right.



Unlock snap fastener (1) and pull off tank ventilation line.

Release screws (2) and remove carbon canister (3).

Installation note:

Tightening torque 16 13 1AZ.

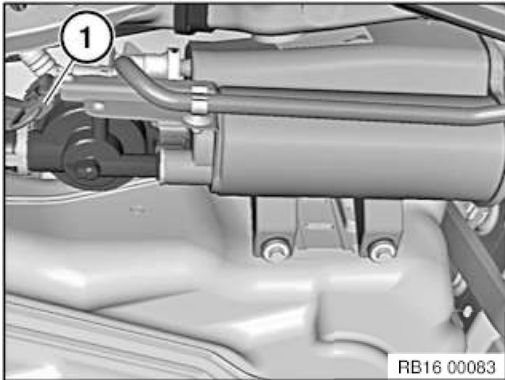
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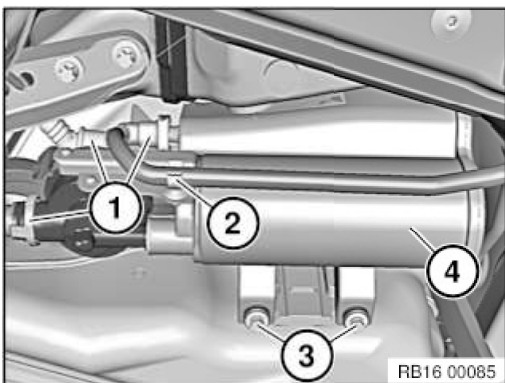


Necessary preliminary work:

- Remove right tank cover.



Disconnect plug connection (1). *Installation note:*
Make sure plug connection latch mechanism is correct.



Unlock snap fasteners (1) and remove tank ventilation lines.
Detach tank ventilation line from holder (2).
Release screws (3) and remove carbon canister (4).

Installation note:
Tightening torque 16 13 1AZ.

The following components must be modified when the carbon canister is replaced:

- Pressure switch NVLD



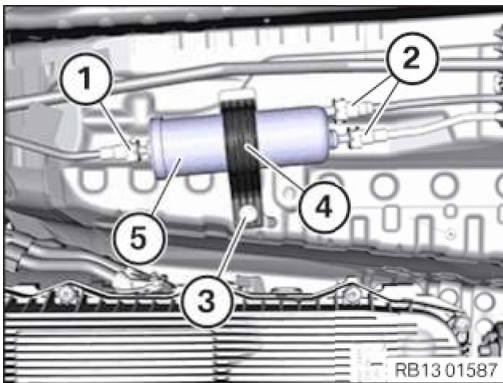
**Recycling:**

Catch and dispose of escaping fuel.

Observe country-specific waste disposal regulations.

**Necessary preliminary tasks:**

- Remove rear underbody protection.

**Removal:**

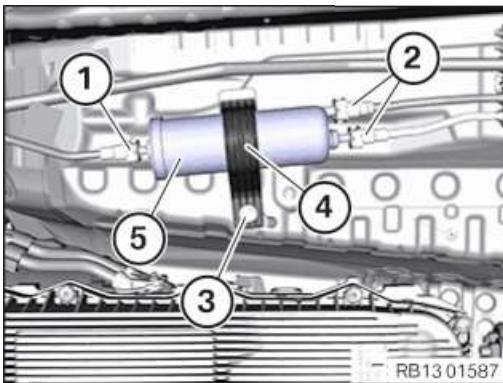
Unlock and detach fuel line (1).

Unlock fuel line (2) and pull off.

Catch and dispose of escaping fuel.

Release screw (3) and remove holder (4).

Remove fuel filter (5).

**Installation:**

Install new fuel filter (5).

Connect and audibly lock fuel line (2).

Connect and audibly lock the fuel lines (1).

Install the holder (4) and tighten the screw (3).

Tightening torque 13 32 1AZ.

**Required follow-up work:**

- Check fuel system for leak tightness.
- Install the rear underbody protection.



*Note:*

Left fuel level sensor cannot be replaced separately.

The entire fuel tank must be replaced.

This operation is described in: Removing and installing the fuel tank.

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*Note:*

The fuel level sensor, right, cannot be replaced separately.

The entire delivery unit must be replaced.

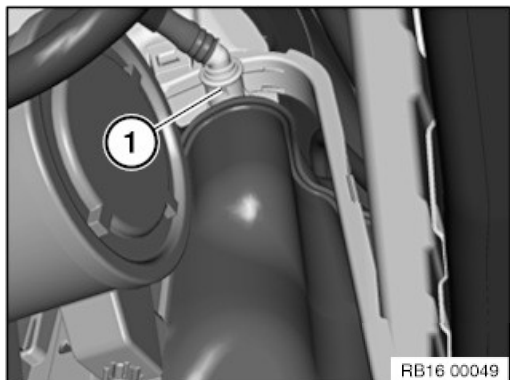
This operation is described in: Remove and install the delivery unit

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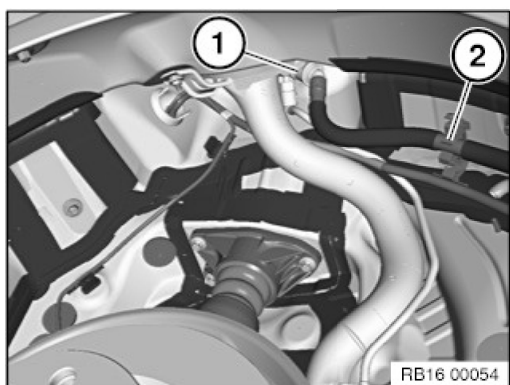


**Necessary preliminary work:**

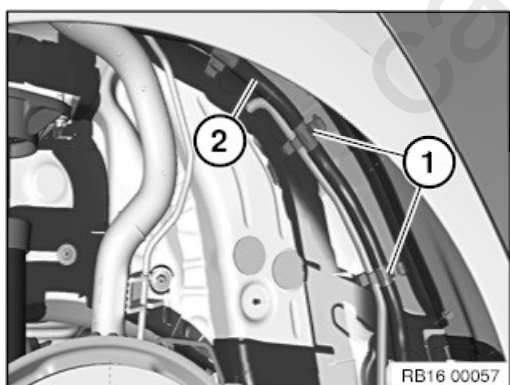
- Remove right tank cover.
- Remove right wheel arch panel.



Unlock and disconnect snap fastener (1). *Installation note:*
Make sure the quick-release fastener snaps in correctly.



Unlock and disconnect snap fastener (1).
Disengage fuel filler neck breather pipe from holder (2).
Installation note:
Make sure the quick-release fastener snaps in correctly.

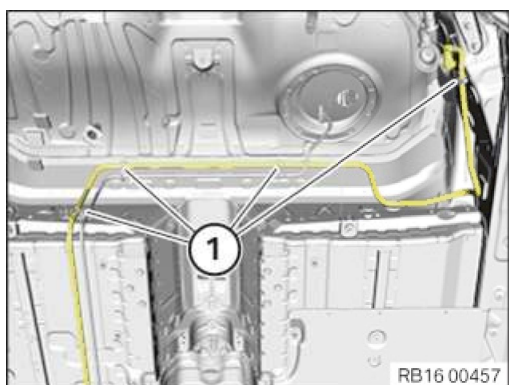


Detach the fuel filler neck breather pipe (2) from the holders (1) and feed through body.

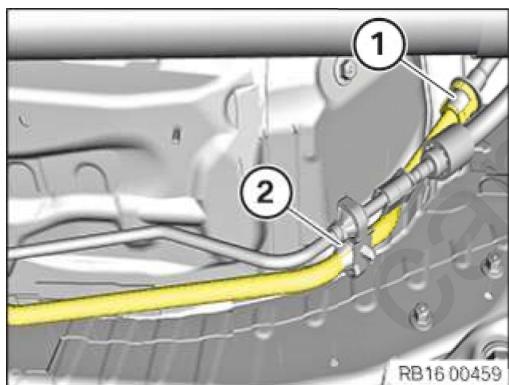


**Necessary preliminary tasks:**

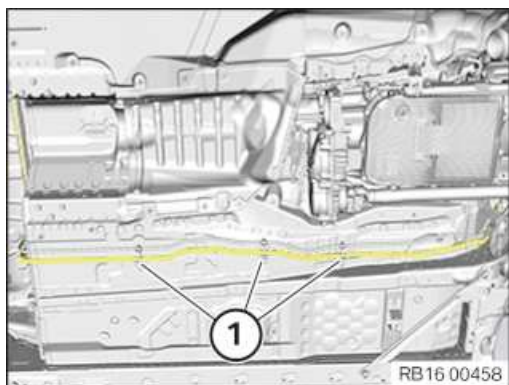
- Remove fuel tank.
- Remove carbon canister.
- Remove left underbody panelling.

**Removal:**

Detach purge air line from brackets (1).



Unlock and disconnect snap fastener (1).
Detach purge air line from bracket (2).

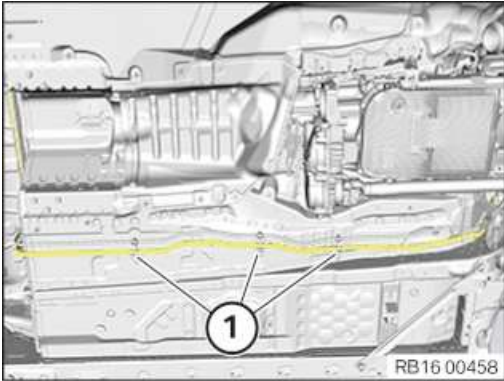


Detach purge air line from brackets (1).
Remove purge air line.

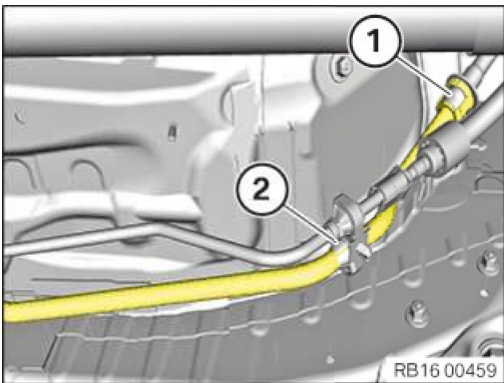




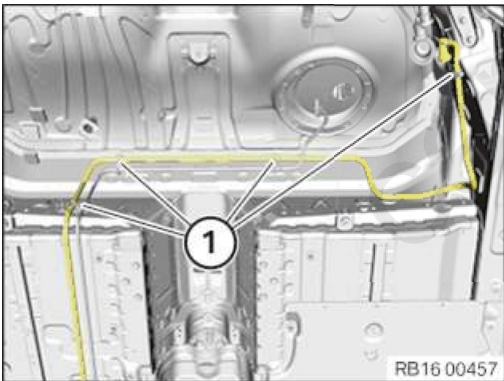
Installation:



Position purge air line in the vehicle.
Attach purge air line in brackets (1).



Position snap fastener (1) and lock.
Attach purge air line in bracket (2).



Attach purge air line in brackets (1).



Required follow-up work:

- Install fuel tank.
- Install carbon canister.
- Install left underbody panelling.



16 13 521 Removing and installing/replacing pressure switch for Natural Vacuum Leak Detection (NVLD)

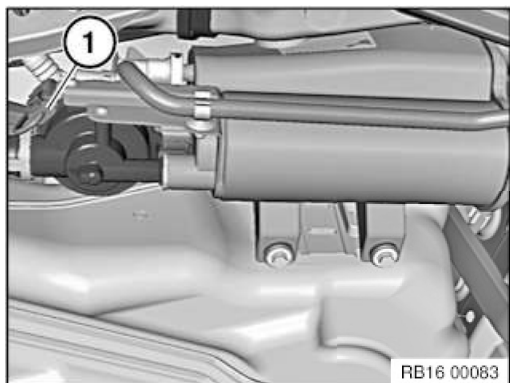


Necessary preliminary tasks:

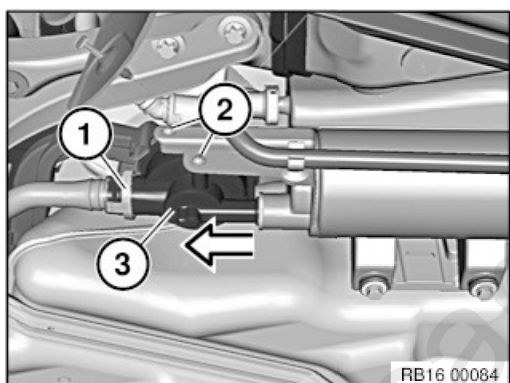
- Remove the tank cover on the right.

Important!

When replacing the pressure switch, the dust filter must also always be replaced.



Disconnect plug connection (1). *Installation note:*
Make sure plug connection latch mechanism is correct.



Unlock and disconnect snap fastener (1).
Unfasten screws (2).
Pull off pressure switch (3) in direction of arrow.
Installation note:
Check gaskets and replace if necessary.



16 13 522 Removing and installing/replacing temperature sensor for Natural Vacuum Leak Detection (NVLD)



Note:

On this system the temperature sensor is integrated in the pressure switch.

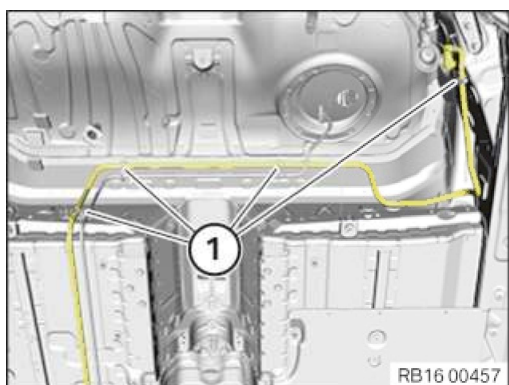
The procedure for removing and installing the pressure switch is described in: Removing and installing pressure switch for Natural Vacuum Leak Detection (NVLD).

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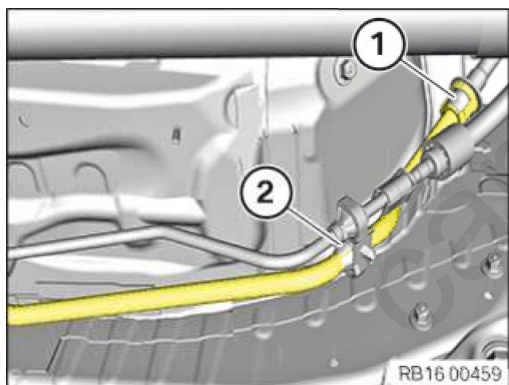


**Necessary preliminary tasks:**

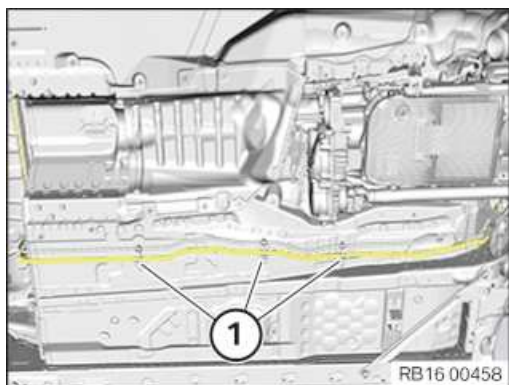
- Remove fuel tank.
- Remove carbon canister.
- Remove left underbody panelling.

**Removal:**

Detach purge air line from brackets (1).



Unlock and disconnect snap fastener (1).
Detach purge air line from bracket (2).

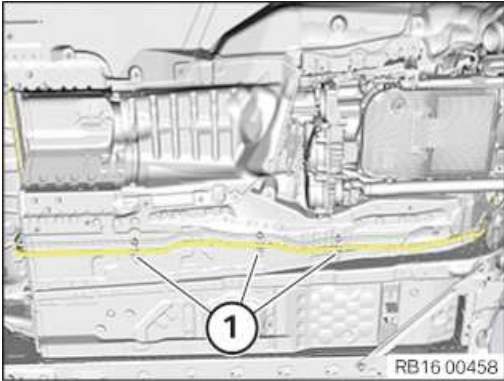


Detach purge air line from brackets (1).
Remove purge air line.

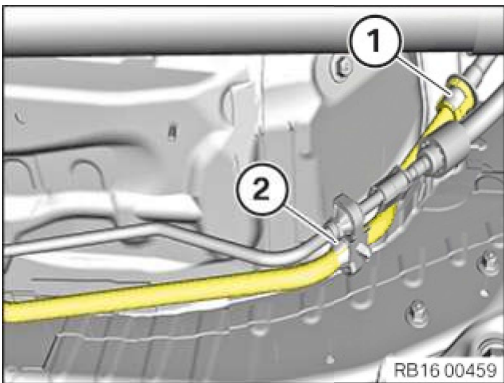




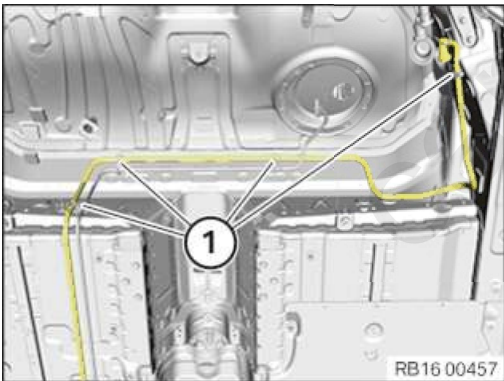
Installation:



Position purge air line in the vehicle.
Attach purge air line in brackets (1).



Position snap fastener (1) and lock.
Attach purge air line in bracket (2).



Attach purge air line in brackets (1).



Required follow-up work:

- Install fuel tank.
- Install carbon canister.
- Install left underbody panelling.



*Note:*

The fuel pump can not be replaced separately.

The entire delivery unit must be replaced.

This operation is described in: Remove and install the delivery unit

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Attention!

Read and comply with notes on protection against electrostatic discharge (ESD protection).

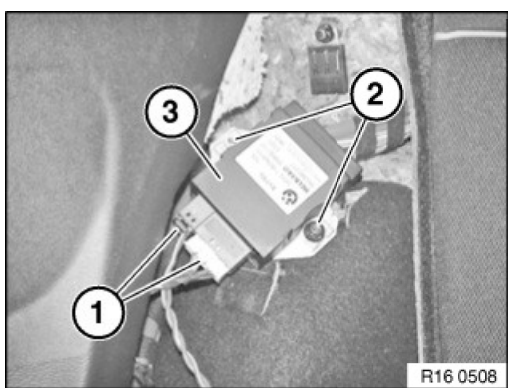


Necessary preliminary work:

- Remove backrest side section, right rear seat.

Note:

On motor vehicles with N13 engine, the control unit for the electric fuel pump is integrated into the DME control unit.



Disconnect plug connection (1).

Release nuts (2) and remove control unit (3).

Installation note:

Tightening torque 16 14 1AZ.



Replacement:

- Replacement only: Perform initial operation of electric fuel pumps-control electronics.



**Special tools required:**

- 16 1 190
- 33 5 070

**Recycling**

Fuel escapes when fuel lines are detached. Have a suitable collecting vessel ready.

Catch and dispose of escaping fuel.

Observe country-specific waste disposal regulations.

**Important!**

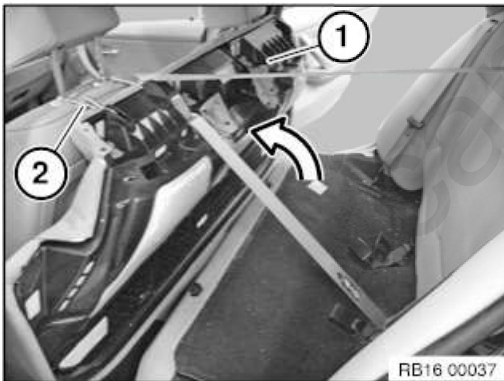
Ensure adequate ventilation in the workbay!

Avoid skin contact (wear gloves)!

Ensure absolute cleanliness when performing repair work on the open fuel system. Dirt contamination in the fuel tank may impair driving or may even result in vehicle breakdown.

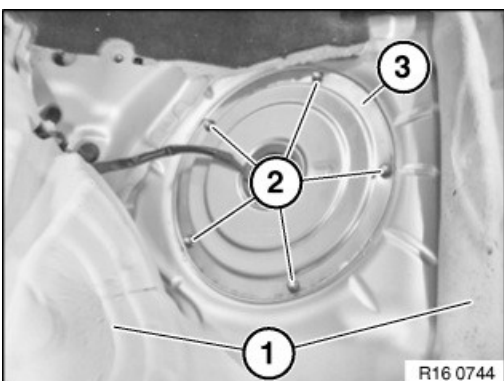
**Necessary preliminary work:**

- Draw off fuel



Only unclip seat bench (1) as shown on the left and right and fold up in direction of arrow.

Secure seat bench on front seat (2).

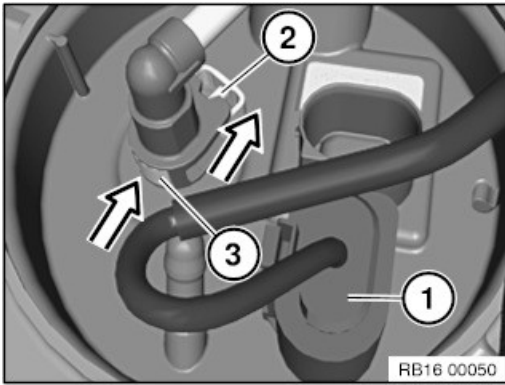


Fold both floor trim panels (1) to the side.

Unscrew nuts (2).

Remove cover for service opening (3).





Disconnect plug connection (1).

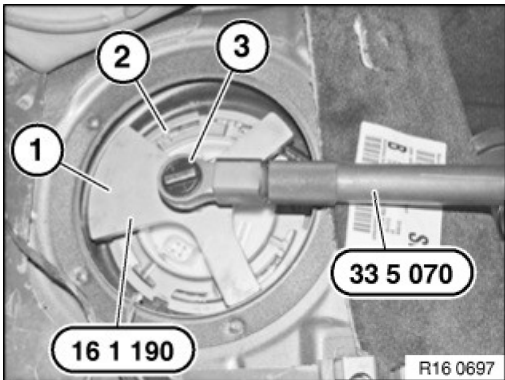
Open the lock (2) in the direction of the arrow (graphic already opened).

Press the release button (3) and pull off the fuel delivery line. If applicable, slightly push the connector out to make pulling the part off easier.

Important!

Fuel delivery line must be felt and heard to snap into place.

Damaged lock parts must be replaced without fail!



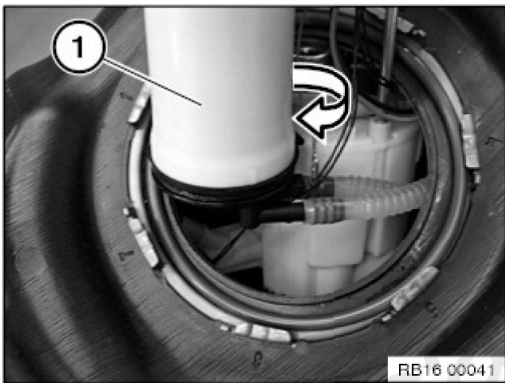
Fit special tool 16 1 190 with wide crank web (1) towards rear onto locking ring (2).

Connect special tool 33 5 070 with reversible ratchet head 1/2 " (3) and position on special tool 16 1 190 .

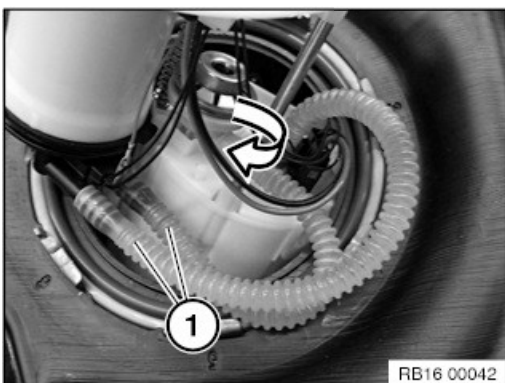
Release locking ring (2) in counterclockwise direction.

Installation note:

Replace the sealing ring between the flange head and fuel tank.



First, unscrew the flange cover with container (1) from the fuel tank. *Note:* Graphic shows fuel tank removed.



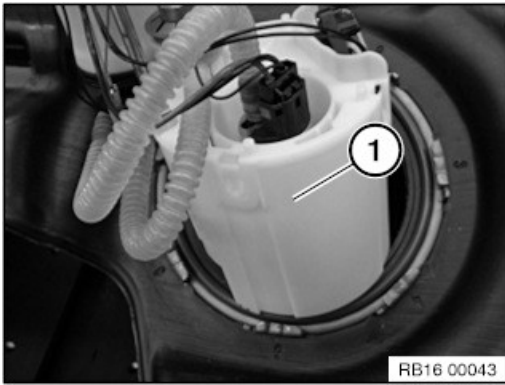
Feed both hoses (1) out of the fuel tank.

Raise the fuel pump by continuing to turn the delivery unit.

Note:

Graphic shows fuel tank removed.



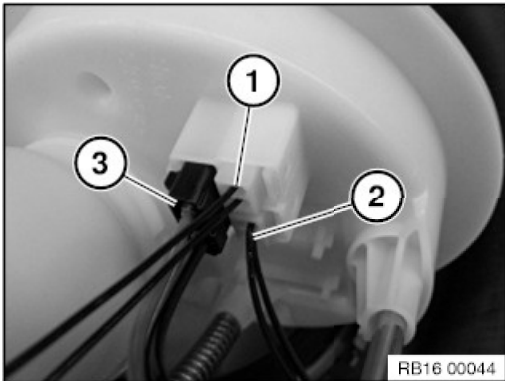


Carefully remove the delivery unit (1) from the fuel tank.

Make sure that the fuel level sensor is not damaged or bent during the removal.

Note:

Graphic shows fuel tank removed.



Disconnect the plug connection (1) from the left fuel level sensor.

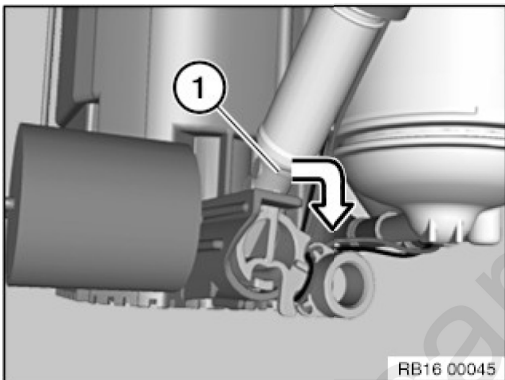
The plug connections (2 and 3) will remain connected.

Important!

Connector housings (1 and 2) are not encoded and accidental switching is possible!

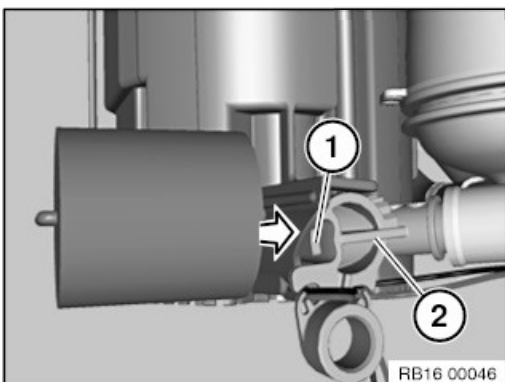
Plug assignment:

- (1) Fuel level sensor, left (cannot be mistakenly switched).
- (2) Fuel level sensor, right
- (3) Fuel pump



Disconnect the hose connection to the left tank half.

Turn the fuel hose (1) by 90° in direction of arrow.



Press the unlocking tab (1) and pull the connector out of the delivery unit in the direction of the arrow.

Installation note:

Replace sealing ring on the connector (2).

Make sure the connector latches correctly.

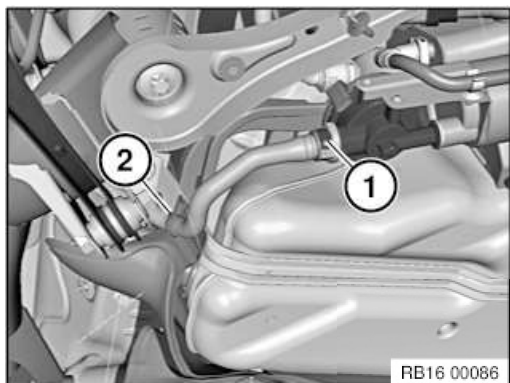


16 14 065 Removing and installing/replacing dust filter for Natural Vacuum Leak Detection (NVLD)

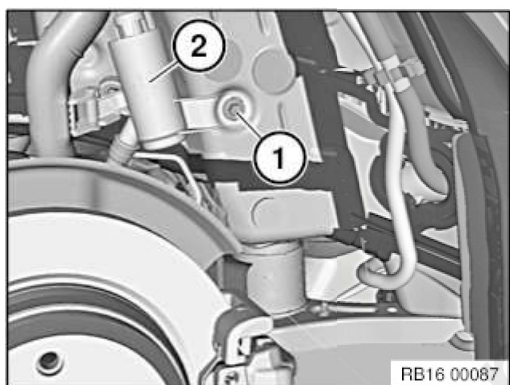


Necessary preliminary tasks:

- Remove right tank cover.
- Remove right wheel arch panel.



Unlock and disconnect snap fastener (1).
Detach tank ventilation line from bracket (2).



Release nut (1) and feed out dust filter (2) with tank ventilation line.



64 00 ... Information on using cleaning agent/paints (personal protection equipment)



Warning!

Use of cleaning agents/paints not compliant with instructions can cause serious injuries or burns!

Handling cleaning agents/paints can trigger allergic skin and respiratory reactions!



Important!

Observe following instructions:

- Store cleaning agents/paints only in a secure cabinet.
- Keep cleaning agents/paints away from naked flames and other sources of ignition.
- Protect cleaning agents/paints from high temperatures and direct sunlight.
- Always keep an eye douche on hand, change the water regularly (once a month).



Important!

Observe following instructions before use:

- Manufacturer's instructions (on container/packaging)
- Hazard warnings (on container/packaging)
- Manufacturer's instructions on package insert
- Material safety data sheet of manufacturer
- Product information in EPC
- National market regulations



Important!

Observe following instructions during use:

- Do not eat, drink or smoke while working with these products.
- Avoid direct contact with skin and eyes.
- Wear personal protective clothing/equipment.
- Ensure that all enclosed areas are well ventilated or extract fumes directly.
- Immediately change working clothes soiled with cleaning agent/paint.
- After finishing work, wash your hands and apply protective skin cream.



Important!

Follow hazard warnings and wear personal protection equipment!





First Aid:

- If product comes in contact with eyes, immediately flush with running water for about 10 - 15 minutes. Seek the advice of eye specialist.
- In the event of skin contact and where applicable an allergic skin reaction, clean the affected areas immediately with soap and water and then apply silicone-free skin cream. Seek advice of physician.
- If an adhesive product is swallowed, rinse mouth/parts of mouth thoroughly with running water. Drink 1-2 glasses of water. Do not induce vomiting. Consult a doctor.
- After inhaling vapours ensure ample supply of fresh air. Keep calm, keep respiratory tracks clear and call doctor.



Recycling:

Dispose of cleaning agents/paints in a professional manner!
Observe national/country-specific disposal regulations.

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