

2003-05 ENGINE**Fuel System - Repair Information - Z4/E85****FUEL PICK-UP CLEANING****16 00 E85 FUEL SUPPLY SYSTEM (SPARK-IGNITION ENGINES)****1. General**

The electric fuel pump in the fuel tank generates the pressure in the fuel system which is set by the pressure regulator to a specific level.

2. Tank venting system

The tank venting system is an enclosed system which is vented via a carbon canister. The carbon is incorporated in the carbon canister as granulate. The large surface of the carbon stores the fuel vapors which occur in the fuel tank. The carbon canister must be regenerated on a regular basis so as to be able to continue storing fuel vapors. Regeneration is performed by way of purging with fresh air via the intake manifold. This process is controlled by the engine control unit.

3. Parts designation**PARTS DESIGNATION**

1. Fuel tank (plastic)	12. Non-return flap
2. Surge chamber	13. Fuel feed line
3. Electric fuel supply pump	14. Fuel rail
4. Suction jet pump	15. Carbon canister (AKF)
5. Fuel filter with pressure regulator	16. Purge air line
6. Fill level limiting valve (rollover valve)	17. Tank vent valve (TEV)
7. Overpressure safety valve	18. Intake manifold
8. Service vent valve (rollover valve)	19. Engine control unit (DME)
9. Vent line	20. Tank leakage diagnostic module (USA only)
10. Mushroom valve	21. Dust filter (USA only)
11. Fuel filler pipe	A: Max. fuel tank fill height

4. Function description**Fuel system**

The saddle-shaped fuel tank contains the surge chamber with integrated electric fuel supply pump and level sensor on its right side.

The surge chamber ensures that the fuel supply pump is properly supplied in all vehicle operating states.

The fuel is pumped from the right side of the fuel tank into the surge chamber via the suction jet pump integrated in the surge chamber.

The fuel in the left tank half is repumped via a second suction jet pump from left to right.

Return line, pressure regulator and fuel filter are located in the tank.

The non-return flap prevents fuel from splashing back in the filler pipe after shutdown of the petrol/gas pump nozzle.

Fuel supply to engine:

M54

The fuel is routed from the electric fuel supply pump via the fuel filter and the fuel feed line to the fuel rail.

Pressure regulator and fuel filter are incorporated in a single unit in the tank. This removes the need for a fuel return line.

The fuel passes through the pressure regulator into the left side of the tank and thereby drives a suction jet pump. This pump repumps the fuel from the left side of the tank to the right side.

The fuel rail is return-free.

Venting system USA

The fuel tank is vented during refueling via the vent line.

Because of its large cross-section, the vent line directs the displaced volume (fuel vapors) at high speed to the carbon canister.

The activated carbon retains the fuel contained in the fuel vapors. The cleaned air is discharged to atmosphere via the evaporation line, the tank leakage diagnostic module and the dust filter.

During driving, the system tank is vented in the same way via the vent line.

The condensed constituents of the fuel vapors remain in the tank because the tank has an integrated compensating volume.

The limiting valve in the tank is closed by the rising fuel if the tank is overfilled. The residual volume thus created replaces the expansion tank. The ventilation function is maintained by a second float valve.

Both valves are designed as rollover valves. This prevents fuel from escaping from the fuel tank in extreme vehicle positions (overturning, inclined position).

The carbon canister is regenerated by purging with fresh air.

The engine control unit opens the tank vent valve. Thus the vacuum pressure of the engine intake manifold is applied at the purge line. The carbon canister is purged in this way. The fresh air needed for this purpose is supplied via the tank leakage diagnostic module and the dust filter. The fuel constituents bound by the activated carbon are flushed out by the supplied air and directed via the purge line to the engine for combustion.

This operation is only possible while the engine is running.

Leakage detection for tank venting system USA

The tank leakage diagnostic module serves to detect leakages for the tank venting system within the on-board diagnosis laid down by legislation.

The tank venting system is pressurized and the pressure loss is detected in the event of a leak.

The tank leakage diagnostic module detects the pressure loss by way of the power consumption of the integrated pump. The air required for this purpose is supplied via the dust filter.

The systems is activated by the engine control unit.

The mushroom valve establishes by way of the vent line the connection between the fuel tank and the filler neck. This enables a leak to be detected in the filler pipe-tank cap area.

Determining fill level in fuel tank

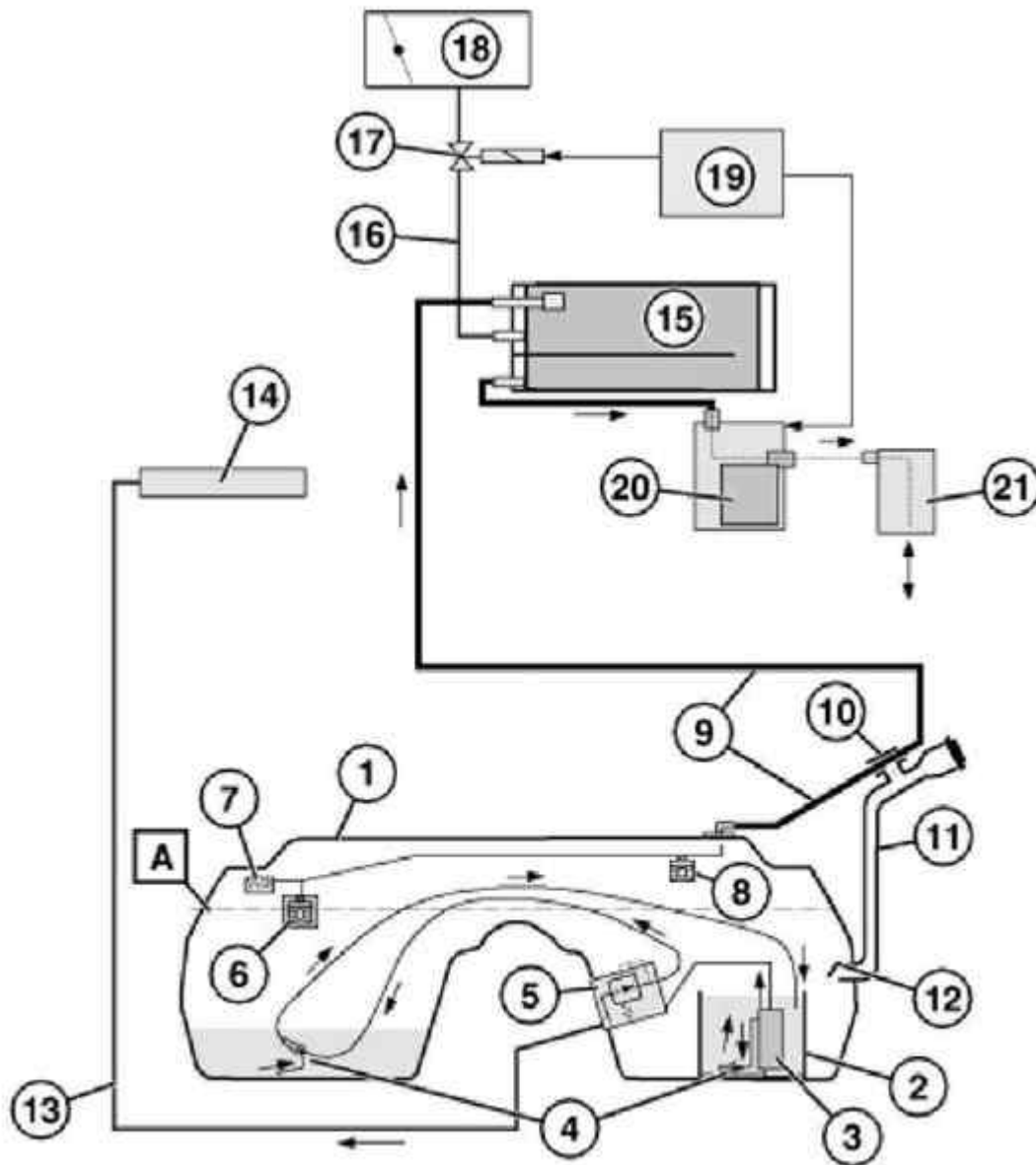
The fuel level is measured by means of lever-type sensors on both sides of the fuel tank. The right lever-type sensor is integrated in the fuel supply unit. The left lever-type sensor is located in the left sensor unit. The combination of the determined ohm values from the right and left lever-type sensors produces the actual level in the fuel tank.

5. Service data, fuel system

Pressure regulator: 3.5 bar.

Working pressure of suction jet pumps: 1 - 1.3 bar

6. Schematic drawings of fuel supply systems



G03297551

Fig. 1: Identifying Schematic Drawings 5.2 E85 Fuel Supply System USA
 Courtesy of BMW OF NORTH AMERICA, INC.

16 00 GENERAL FUNCTION DESCRIPTION FOR FUEL SUPPLY SYSTEMS

Fuel supply systems, spark-ignition engines

Fuel system

The electric fuel pump in the fuel tank generates the pressure in the fuel system which is set by the pressure regulator to a specific level.

Tank venting system

The tank venting system is an enclosed system which is vented via a carbon canister. The carbon is incorporated in the carbon canister as granulate. The large surface of the carbon stores the fuel vapors which occur in the fuel tank. The carbon canister must be regenerated on a regular basis so as to be able to continue storing fuel vapors. Regeneration is performed by way of purging with fresh air via the intake manifold. This process is controlled by the engine control unit.

16 00 005 DRAINING AND FILLING FUEL TANK

IMPORTANT: Observe relevant country safety legislation and regulations!
Ensure adequate ventilation in the place of work!
Connect the exhaust and extraction systems to the exhaust tailpipe.
Carefully withdraw extraction hose so as not to damage non-return flap.

The electric fuel pump must not operate without fuel!

After the repair work but before starting the engine for the first time, fill the fuel tank with min. 5 L of fuel through the fuel filler pipe.

Drawing off fuel:

Start engine and allow to run. Electric fuel supply pump runs.

The fuel is thus repumped via the suction jet pump and the tank expansion line from the left to the right side of the fuel tank.

NOTE: Fuel can be drawn off from the left and right tank halves through the fuel filler pipe down to a small residual amount. The residual amount on left and right can continue to be drawn off after removal of the fuel filter.

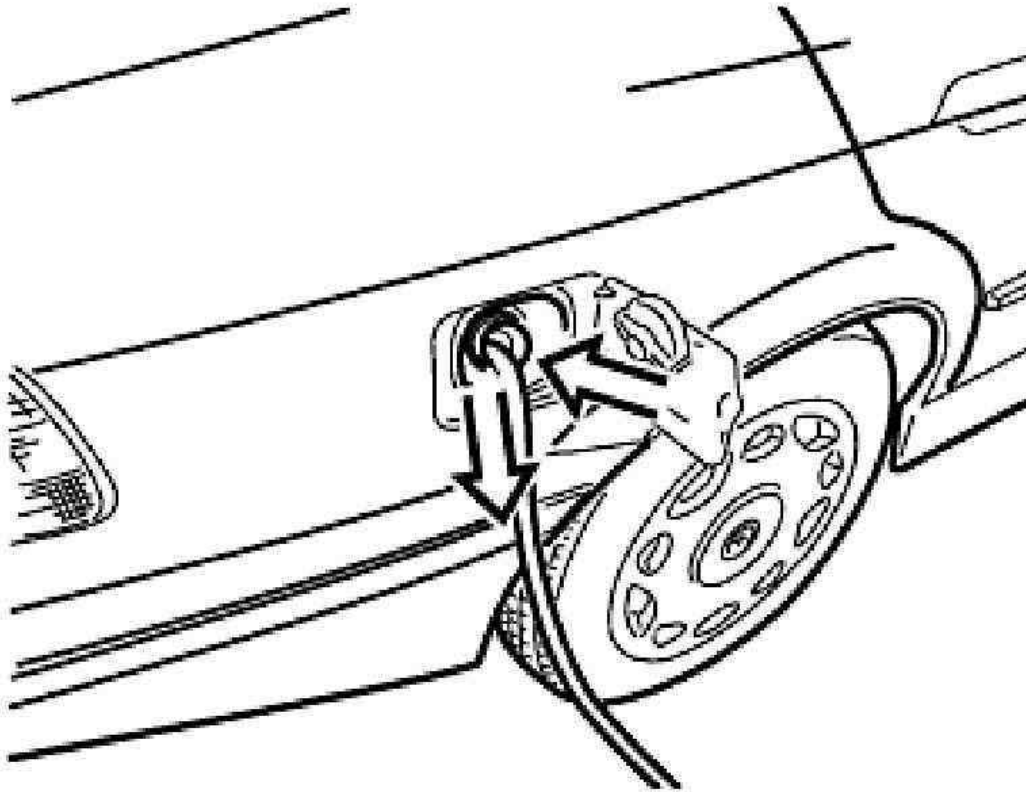
Push extraction hose of suction extractor unit into fuel filler pipe. In so doing, turn slightly if necessary.

Insertion length:

Approx. 90 cm

Draw off fuel with suction extractor unit as far as possible.

Follow the fuel drawing-off procedure at the fuel gauge in the instrument cluster.



G03297552

Fig. 2: Pushing Extraction Hose Of Suction Extractor Unit Into Fuel Filler Pipe

Courtesy of BMW OF NORTH AMERICA, INC.

Drawing off residual fuel quantity:

Catch dripping fuel in a suitable container.

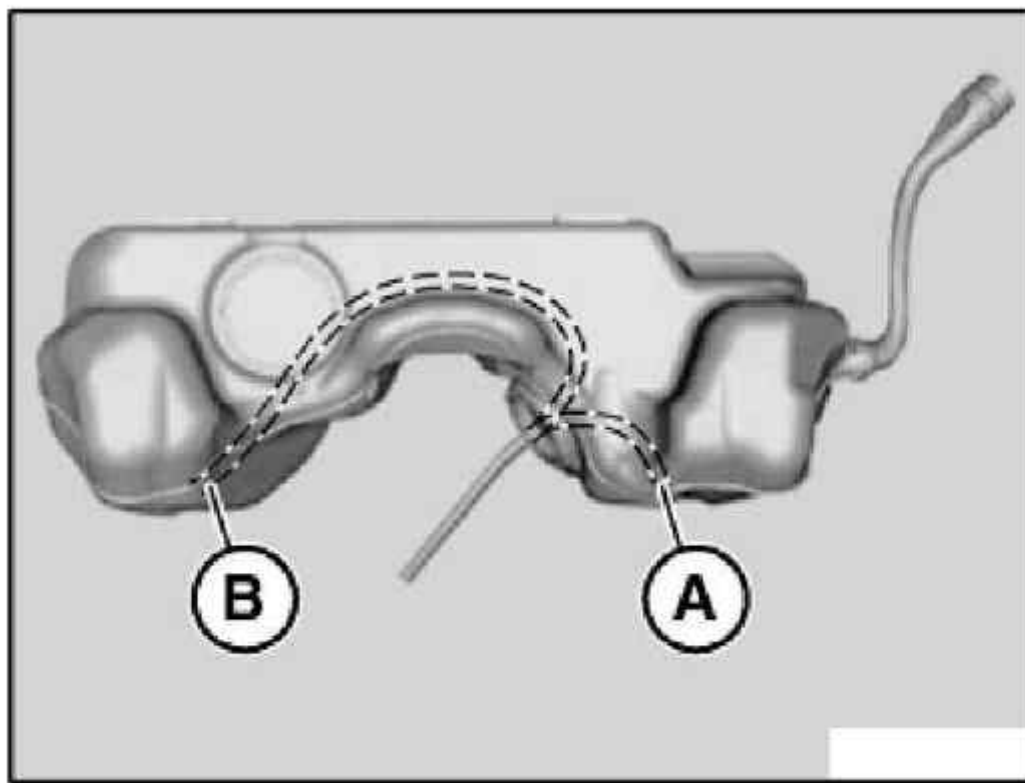
Remove fuel filter. See **16 11 048 Removing And Installing/Replacing Fuel Filter With Pressure Regulator** .

Drawing off residual fuel amount on right side:

Draw off residual fuel amount in right tank half through service opening (A).

Drawing off residual fuel amount on left side:

Feed extraction hose through service opening in tank above saddle into left tank half (B). Residual fuel amount can be drawn off.



G03297553

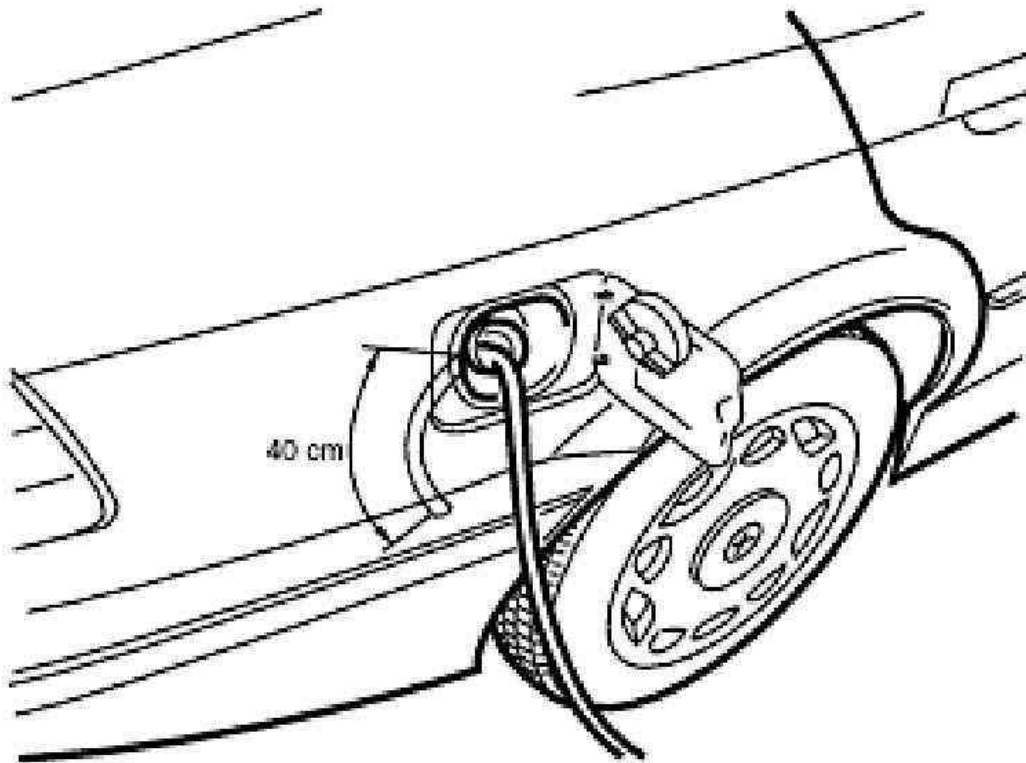
Fig. 3: Identifying Fuel Tank Points

Courtesy of BMW OF NORTH AMERICA, INC.

Fuel filling:

Push extraction hose of suction extractor unit approx. 40 cm into fuel filler pipe.

Fill fuel from suction extractor unit.



G03297554

Fig. 4: Pushing Extraction Hose Of Suction Extractor Unit
Courtesy of BMW OF NORTH AMERICA, INC.

Drawing off after fault in suction jet pump:

Draw off right tank half completely via fuel filler pipe.

Remove **Fuel Filter** .

Feed extraction hose through service opening in tank above saddle into left tank half (B). Fuel (also residual amount) can be drawn off.

16 00 102 CHECKING FUEL TANK AND TANK VENTING SYSTEM FOR LEAKS WITH TANK LEAKAGE DIAGNOSIS MODULE (DM-TL)

NOTE: An OBD fault is indicated by the "Check Engine" indicator lamp in the instrument cluster lighting up. This may indicate a leak in the tank venting system. Information on this is provided by the fault memory of the DME control

unit.

- **Read out fault memory of DME control unit and carry out diagnosis in accordance with faults stored.**
- **A leak test of the DM-TL module is performed when:**
 - **The components of the DM-TL module are O.K.**
 - **A fault is stored in the DME fault memory (tank leak detected).**

Adhere to following conditions in order to carry out a correct leak test:

- Content of fuel tank < 90 %
- Reserve indicator lamp "off"
- Leave car in workshop for at least 2 hours so that fuel temperature comes into line with workshop temperature (ideal fuel temperature approx. 10...20°C).
- Do not under any circumstances fill up car with fresh fuel (strong exhalation of fresh fuel).
- Check that tank cap is correctly seated.

WARNING: During the leak test, under no circumstance apply external pressurization through the tank filler neck as this may cause incorrect readings.

Clear DME fault memory.

In the Diagnosis and Information System (DIS), go to the FUNCTION AND COMPONENT SELECTION screen.

By selecting:

- Complete vehicle
- Drive
- Engine management
- Tank system test
- Tank leakage diagnostic module (DM-TL)

Adopt test module in test schedule.

Switch to the test schedule and implement the tank leakage diagnosis module. Leakage test is carried out.

Carry out leak detection if the fault is stored again in the DME fault memory (tank leak detected). See **16 00 510 Conducting Leak Test On Fuel Tank And Tank Ventilation System** .

16 00 510 CONDUCTING LEAK TEST ON FUEL TANK AND TANK VENTILATION SYSTEM

NOTE: The following procedure is only applicable to vehicles with the tank leak diagnosis module (DM-TL).

IMPORTANT: On vehicles with tank leak diagnosis modules (DM-TL), do not work with external pressurization as the tank venting system will leak under this condition.

On account of the escaping fuel vapors, these tasks should only be carried out in well ventilated rooms or with a suitable extractor facility provided. Observe country-specific accident prevention and occupational safety regulations.

In the Diagnosis and Information System (DIS), go to the FUNCTION AND COMPONENT SELECTION screen.

By selecting:

- Service functions
- Drive
- Digital Motor Electronics
- Activation DMTL pump

Adopt test module in test schedule.

Switch to the test schedule and implement the "Activation DMTL pump" test module.

Tank leak diagnosis pump pressurizes fuel tank and tank venting system.

Carry out leak test.

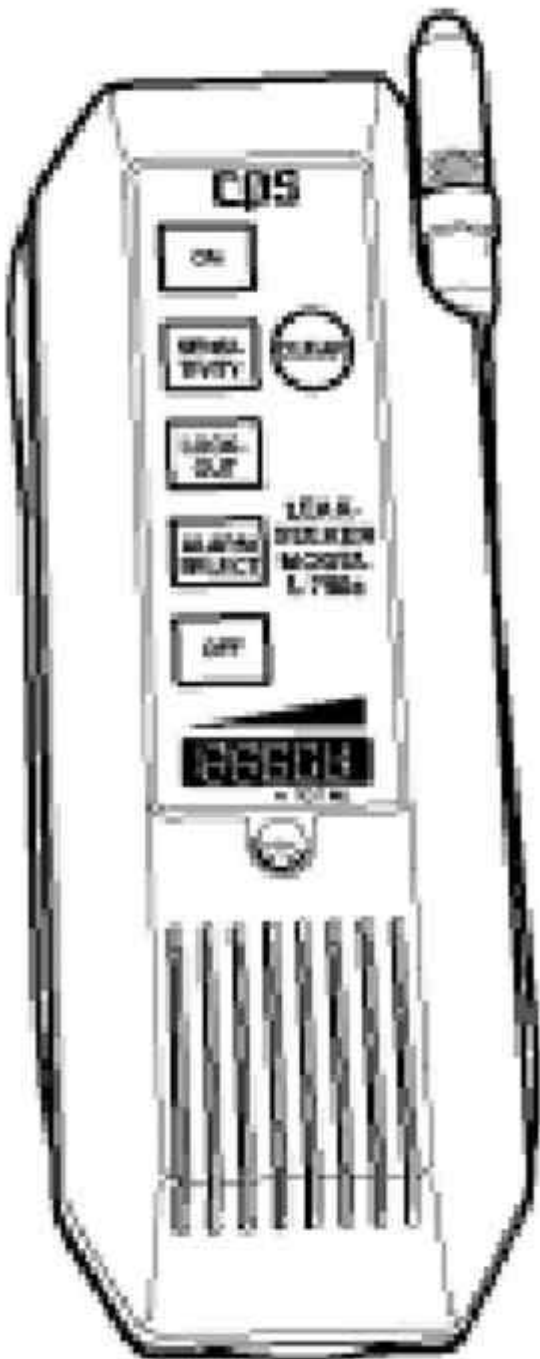
Terminate test module after completing leak test.

NOTE: Tank leak diagnosis pump is automatically shut down after approx. 15 minutes due to risk of overheating. Allow pump to cool down for at least 15 minutes. Then continue procedure.

The leak test can be carried out with a leak detector. Follow manufacturer's operating instructions in doing so.

Possible causes of leaks are:

- Tank cap leaking.
- Tank vent line leaking (fuel tank-carbon canister).
- Tank vent line leaking (engine compartment).
- Sealing ring on fuel filter leaking.



G03297555

Fig. 5: Identifying Leak Detector
Courtesy of BMW OF NORTH AMERICA, INC.

Pressurize fuel tank and tank venting system.

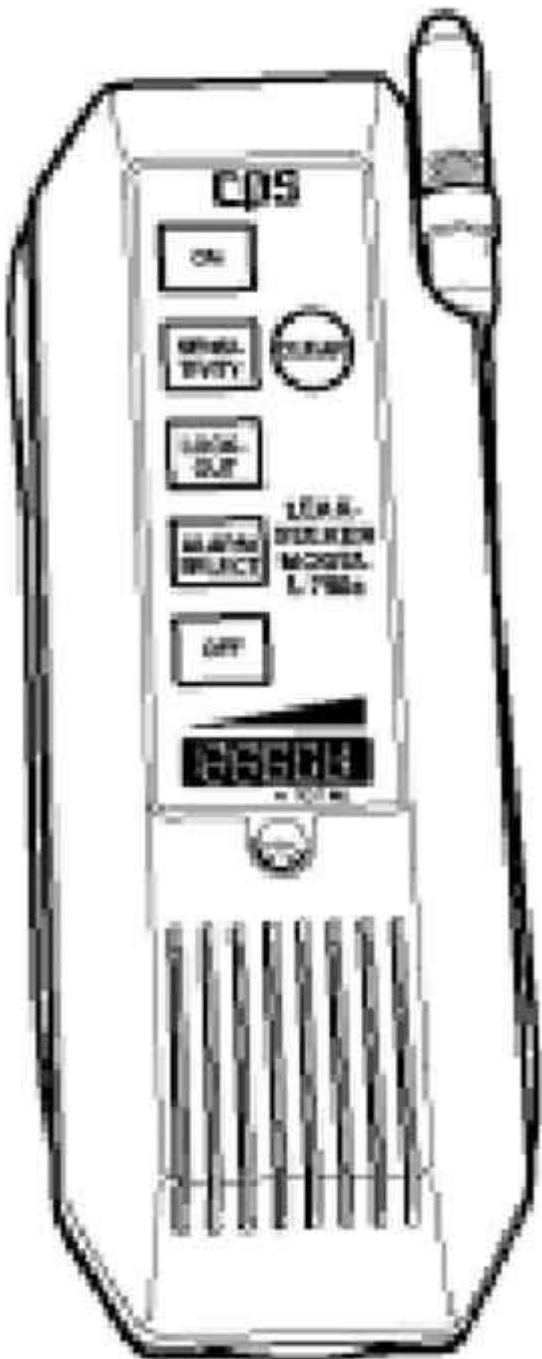
NOTE: When leak-testing with a leak tester device, follow the operation instructions of the device manufacturer.

IMPORTANT: Emerging fuel vapors!
These tasks should only be performed in well ventilated rooms or with a suitable extractor facility provided.
Observe country-specific accident prevention and occupational safety regulations.

The leak test can be carried out with a leak detector.

Possible causes may be:

- Tank cap leaking.
- Tank vent line leaking (fuel tank-carbon canister).
- Tank vent line leaking (engine compartment).
- Sealing ring on fuel filter leaking.
- Carbon canister shut-off valve leaking.



G03297556

Fig. 6: Identifying Leak Tester
Courtesy of BMW OF NORTH AMERICA, INC.

FUEL TANK WITH MOUNTING

16 11 030 REMOVING AND INSTALLING FUEL TANK**Special tools required:**

- 31 1 150
- 33 4 410

IMPORTANT: After installing fuel tank (before initial engine starting):

- Check resistance between metal filler bowl and wheel hub.

Measured value approx. 0.6 ohm.

- Fill fuel tank with min. 5 L fuel.

After installation:

Carry out wheel alignment check.

Necessary preliminary tasks:

Draw off fuel from fuel tank. See **16 00 005 Draining And Filling Fuel Tank** .

Remove handbrake Bowden cables. See **34 41 120 REMOVING AND INSTALLING/REPLACING BOWDEN CABLES** .

Remove right wheel arch cover.

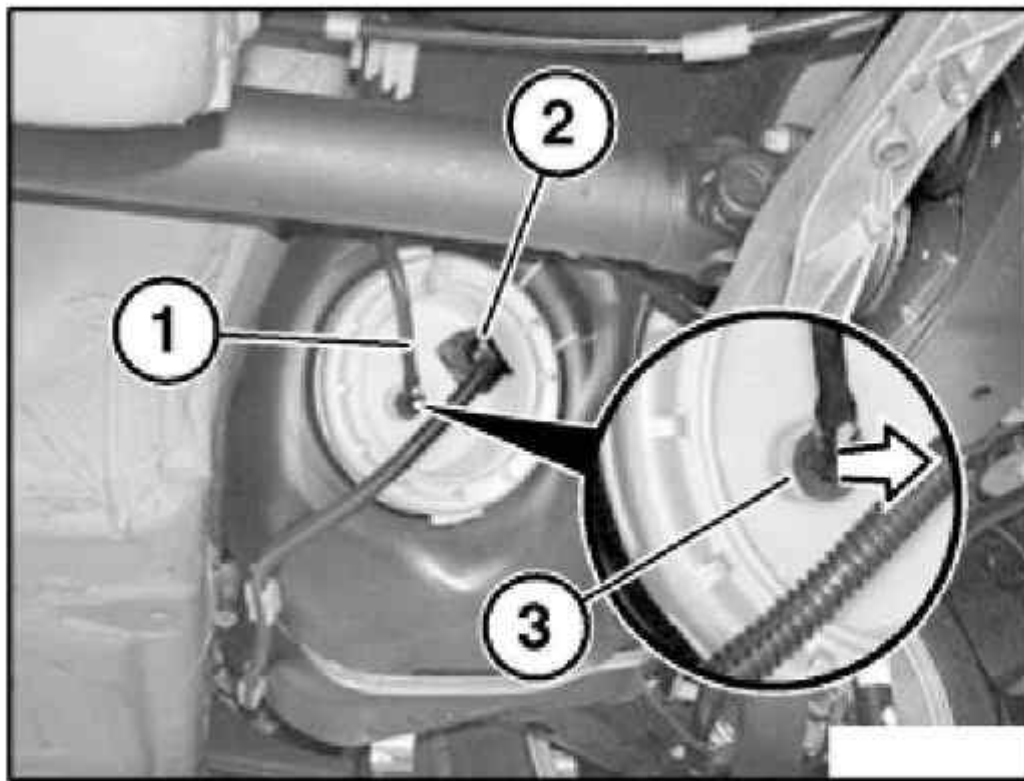
Remove right wheel arch lip.

Remove tank cap with cover.

Disconnect feed line (1) and connector (2) from fuel filter.

Unclip both lines from tank.

NOTE: **To disconnect feed line, press ring (3) in direction of fuel filter and pull out feed line.**



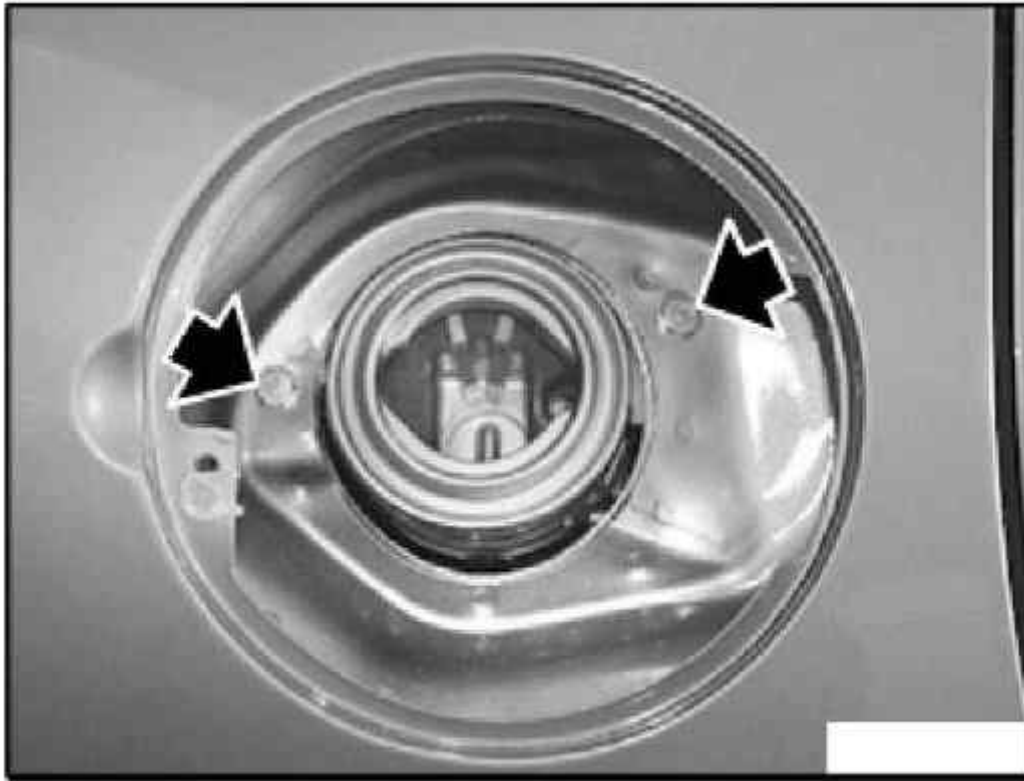
G03297557

Fig. 7: Disconnecting Feed Line And Connector From Fuel Filter
Courtesy of BMW OF NORTH AMERICA, INC.

Unfasten screws.

Installation:

Tightening torque, see 16 12 11AZ in **FUEL SUPPLY SYSTEM - TIGHTENING TORQUES** .



G03297558

Fig. 8: Unfastening Screws

Courtesy of BMW OF NORTH AMERICA, INC.

Unfasten nut.

Disconnect service vent lines from tank filler pipe.

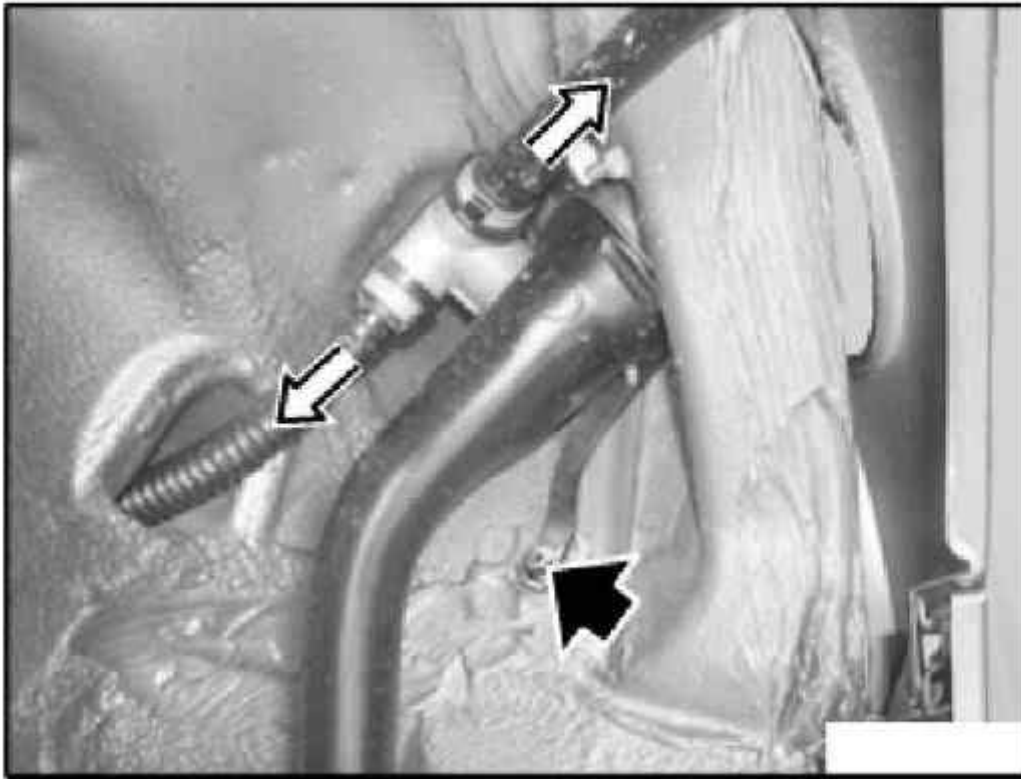
Installation:

Tightening torque, see 16 12 16AZ in **FUEL SUPPLY SYSTEM - TIGHTENING TORQUES** .

Installation:

Moisten connecting pieces and seals of vent lines with low surface-tension water or with a soapy solution.

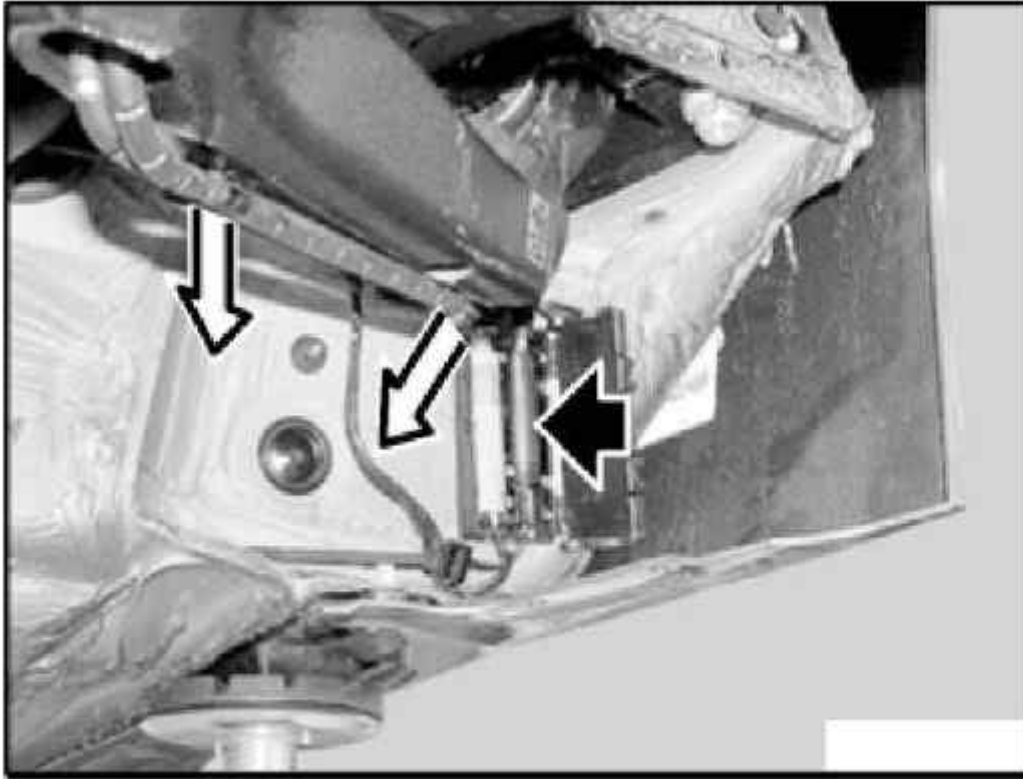
Facilitates installation!



G03297559

Fig. 9: Disconnecting Service Vent Lines From Tank Filler Pipe
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect cable for wear indicator and wheel speed sensor and detach from trailing arm.



G03297560

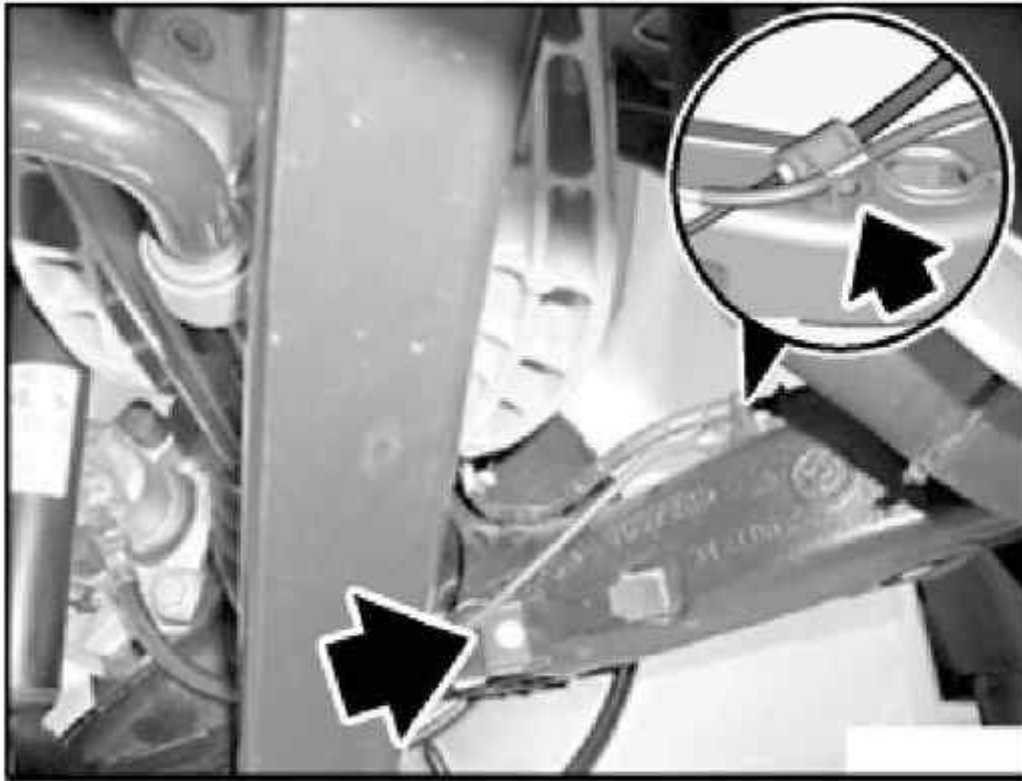
Fig. 10: Disconnecting Cable For Wear Indicator And Wheel Speed Sensor And Detaching From Trailing Arm

Courtesy of BMW OF NORTH AMERICA, INC.

Release both holders for brake line.

Detach brake line completely from right trailing arm.

Tightening torque, see 34 32 3AZ in **BRAKES - TIGHTENING TORQUES** .



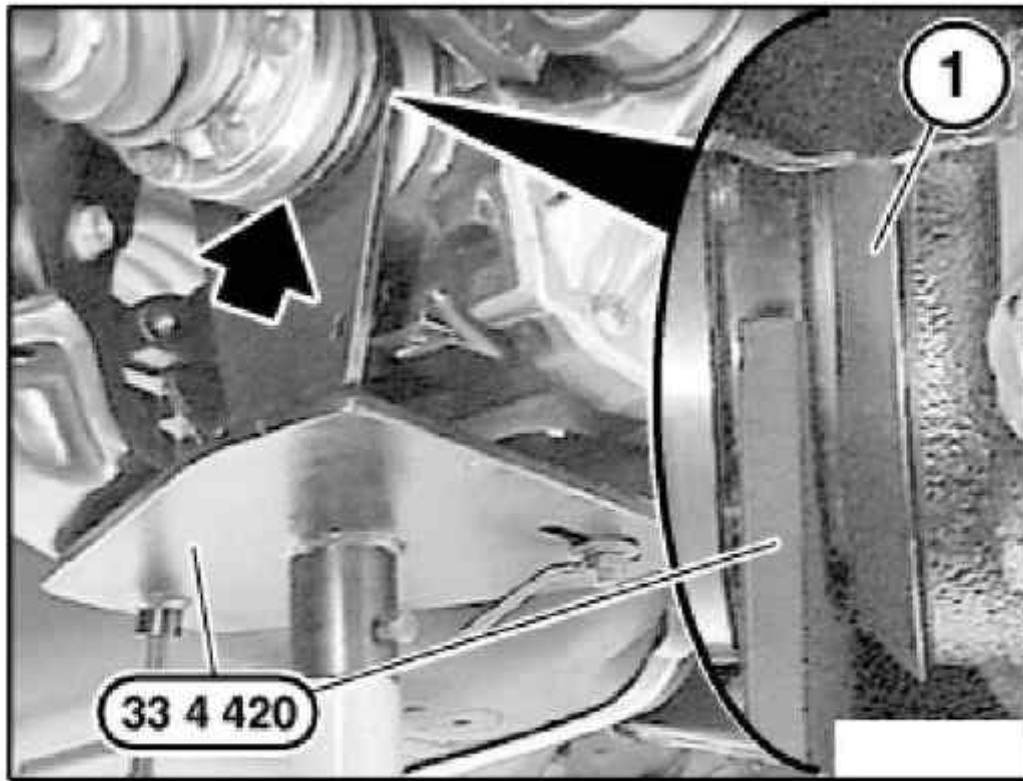
G03297561

Fig. 11: Releasing Both Holders For Brake Line
Courtesy of BMW OF NORTH AMERICA, INC.

Remove tension strut on final drive.

Support final drive with transmission lifter and special tool 33 4 410.

IMPORTANT: Make sure there is clearance between special tool 33 4 410 and dust sleeve (1).
Contact may be made with flange if dust sleeve (1) is damaged or bent.



G03297562

Fig. 12: Identifying Dust Sleeve

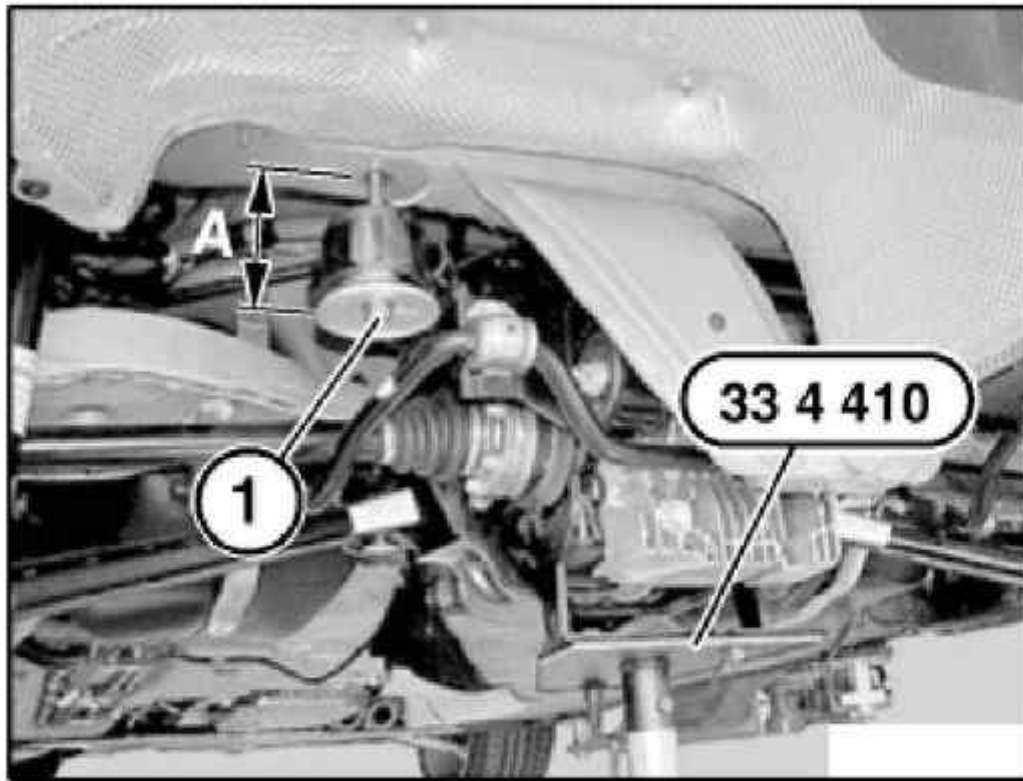
Courtesy of BMW OF NORTH AMERICA, INC.

Consequence: noise!

If necessary, detach cable for ride level sensor from rear axle bracket.

Replace rear screws (1) on left and right with special tool 31 1 150.

NOTE: Screws of E38 front axle support (part number 9 900 223) can be used instead of special tool 31 1 150.



G03297563

Fig. 13: Replacing Rear Screws On Left And Right With Special Tool 31 1 150
Courtesy of BMW OF NORTH AMERICA, INC.

Lower rear axle bracket with special tool 33 4 410.

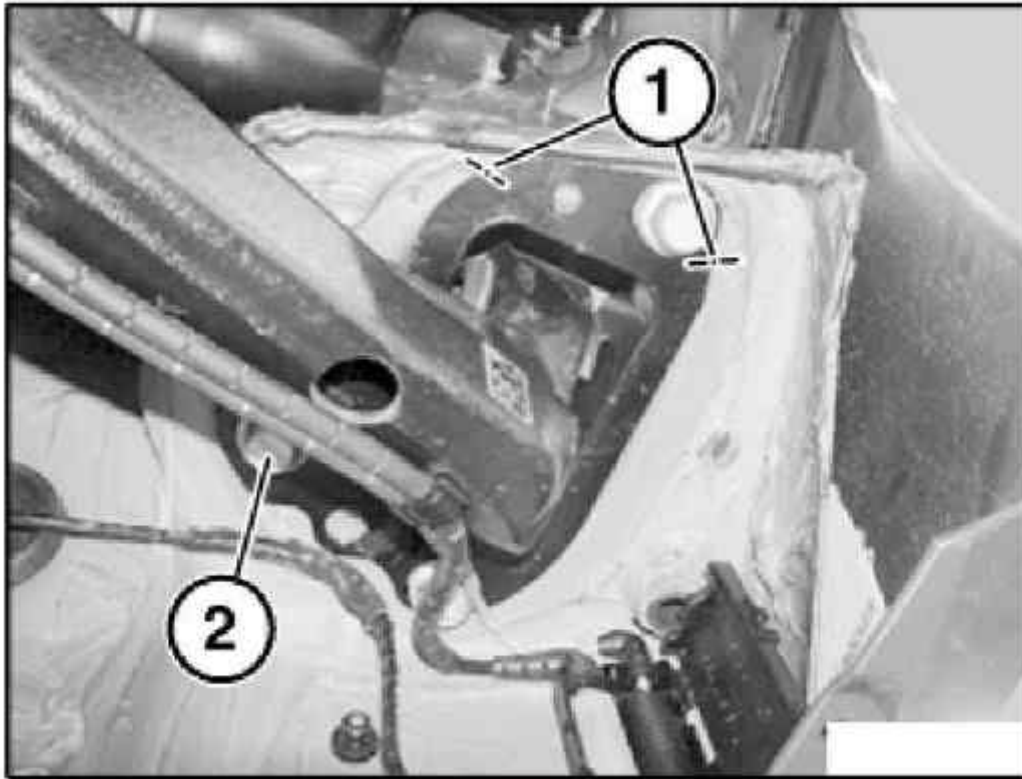
Clearance A=10 cm.

Installation:

Damaged threads in body-side sleeves can be repaired with Helicoil thread inserts. Install Helicoil thread inserts flush with original thread.

Mark position of right bearing block to body with colored markings (1). This simplifies subsequent toe-in adjustment.

Replace screw (2) with special tool 31 1 150.



G03297564

Fig. 14: Identifying Mark On Right Bearing Block To Body
Courtesy of BMW OF NORTH AMERICA, INC.

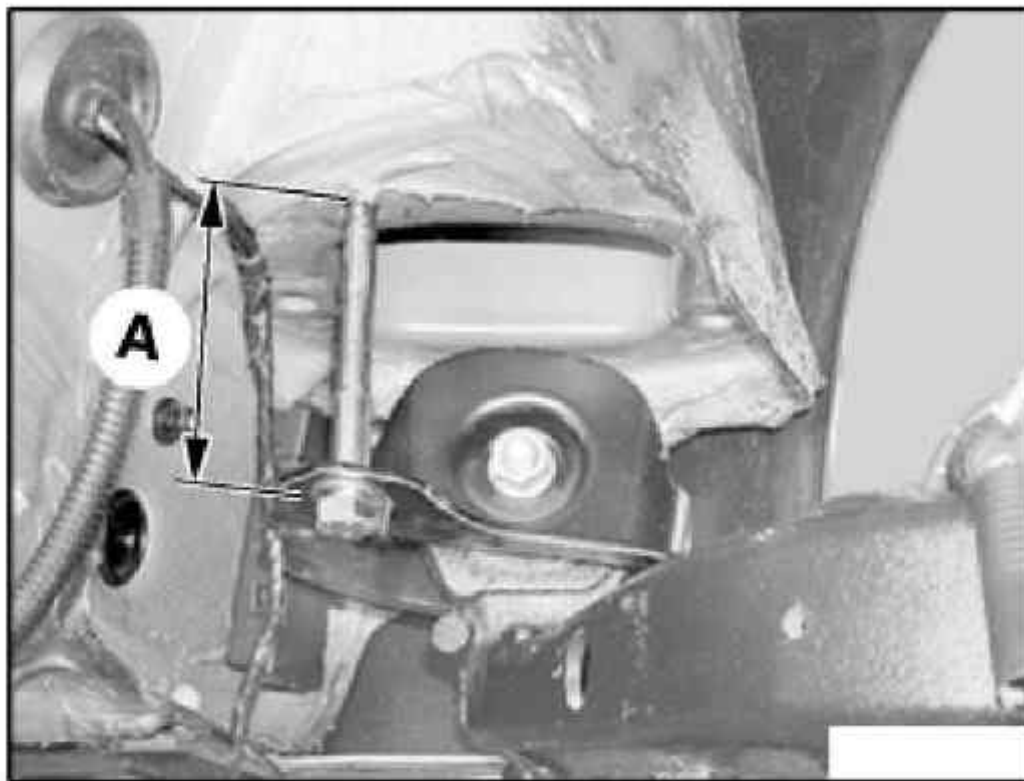
NOTE: Screws of E38 front axle support (part number 9 900 223) can be used instead of special tool 31 1 150.

Release and lower bearing block.

Clearance A=9 cm.

Installation:

Damaged threads in body-side sleeves can be repaired with Helicoil thread inserts. Install Helicoil thread inserts flush with original thread.



G03297565

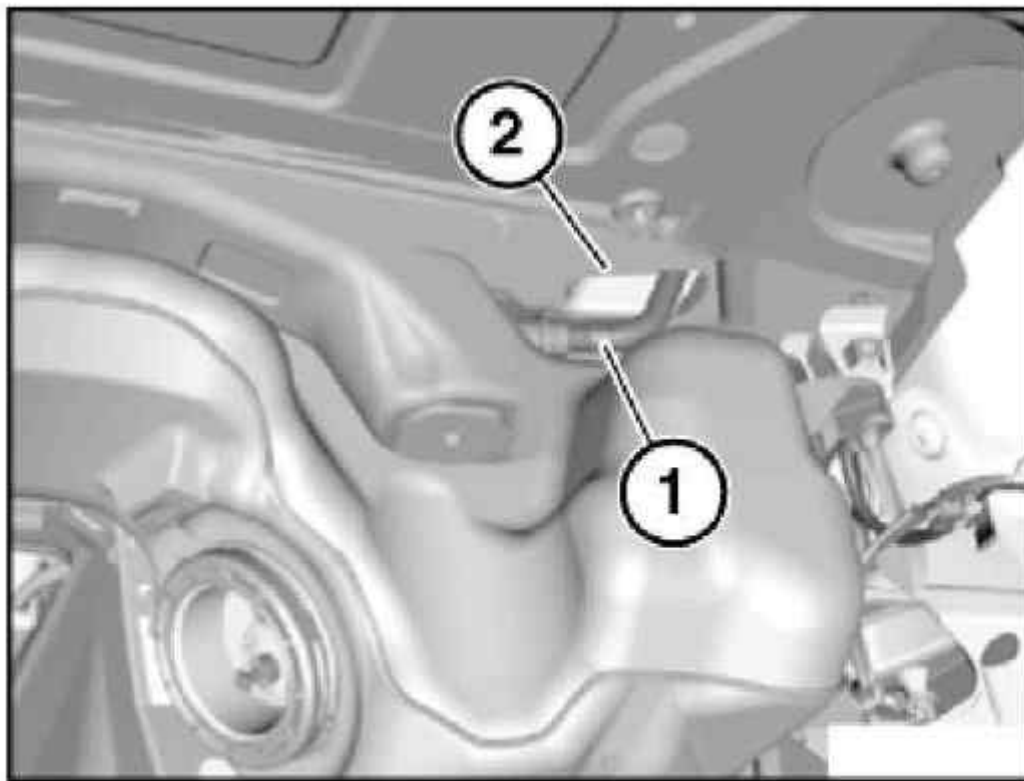
Fig. 15: Identifying Clearance

Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Pay attention to top vent line (1) when installing fuel tank.

Feed vent line (1) through opening (2) into wheel arch.



G03297566

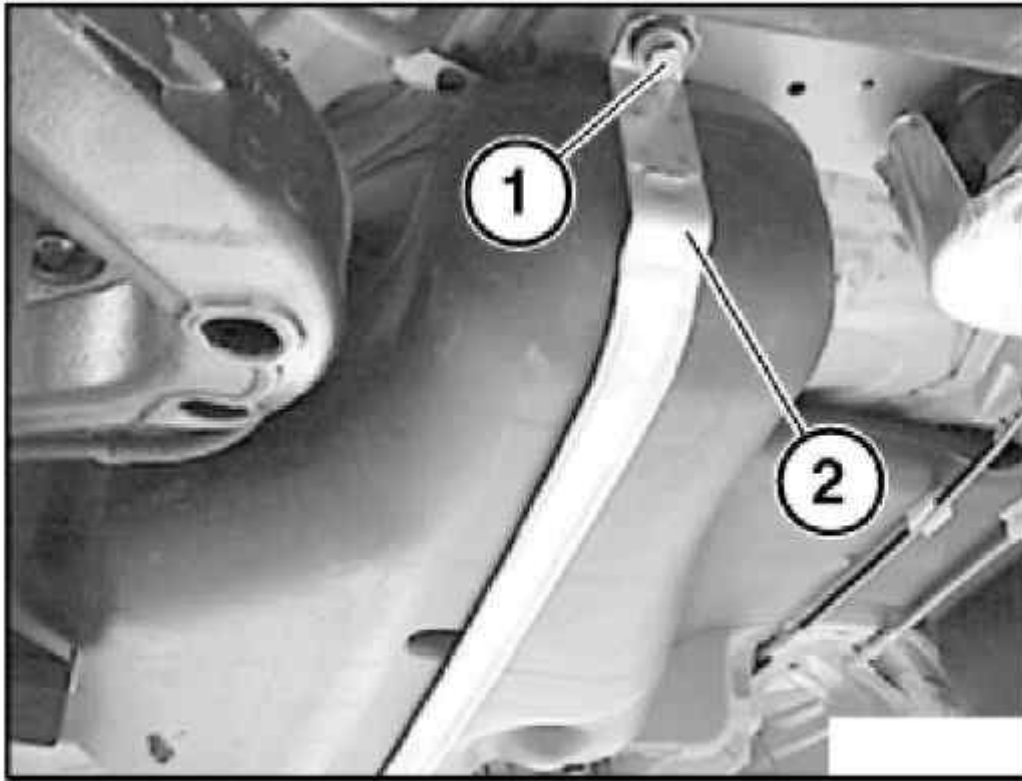
Fig. 16: Feeding Vent Line Through Opening Into Wheel Arch
Courtesy of BMW OF NORTH AMERICA, INC.

Support tank with lifter.

Unscrew left and right bolts (1).

Remove clamping band (2) on left and right.

Remove tank downwards with assistance of a 2nd person.



G03297567

Fig. 17: Identifying Bolts And Clamping Band
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Tightening torque, see 16 11 1AZ in **FUEL SUPPLY SYSTEM - TIGHTENING TORQUES** .

When replacing fuel tank:

- Modify fuel pump. See **16 14 010 Removing and installing/replacing fuel pump** .
- Modify fuel filter. See **16 11 048 Removing And Installing/Replacing Fuel Filter With Pressure Regulator** .

16 11 048 REMOVING AND INSTALLING/REPLACING FUEL FILTER WITH PRESSURE REGULATOR

Special tools required:

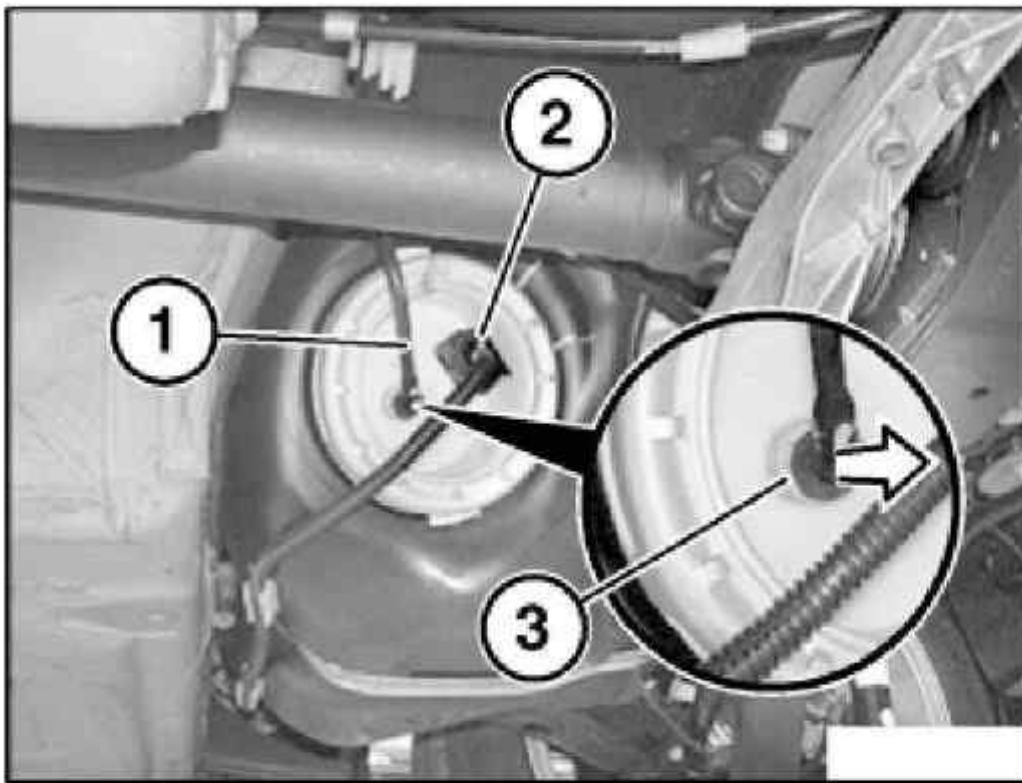
- 16 1 020

Necessary preliminary tasks:

- Draw off fuel from fuel tank. See **16 00 005 Draining and filling fuel tank** .
- Remove exhaust system . See **EXHAUST SYSTEM - REPAIR INSTRUCTIONS** .
- Remove tunnel thermal insulation.

Disconnect feed line (1) and connector (2) from fuel filter.

NOTE: To disconnect feed line, press ring (3) in direction of fuel filter and pull out feed line (1).



G03297568

Fig. 18: Disconnecting Feed Line And Connector From Fuel Filter
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw cap with special tool 16 1 020.

Installation:

Always replace rubber seal.

Tightening torque, see 16 14 2AZ in **FUEL SUPPLY SYSTEM - TIGHTENING TORQUES** .

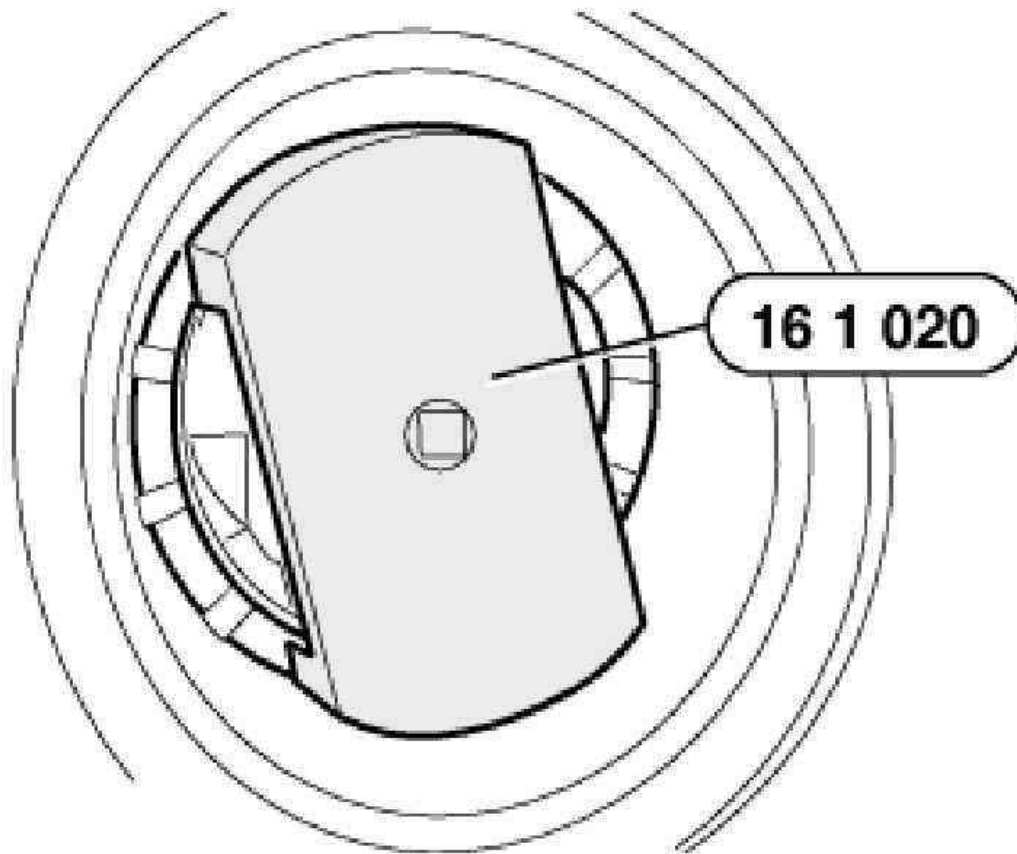
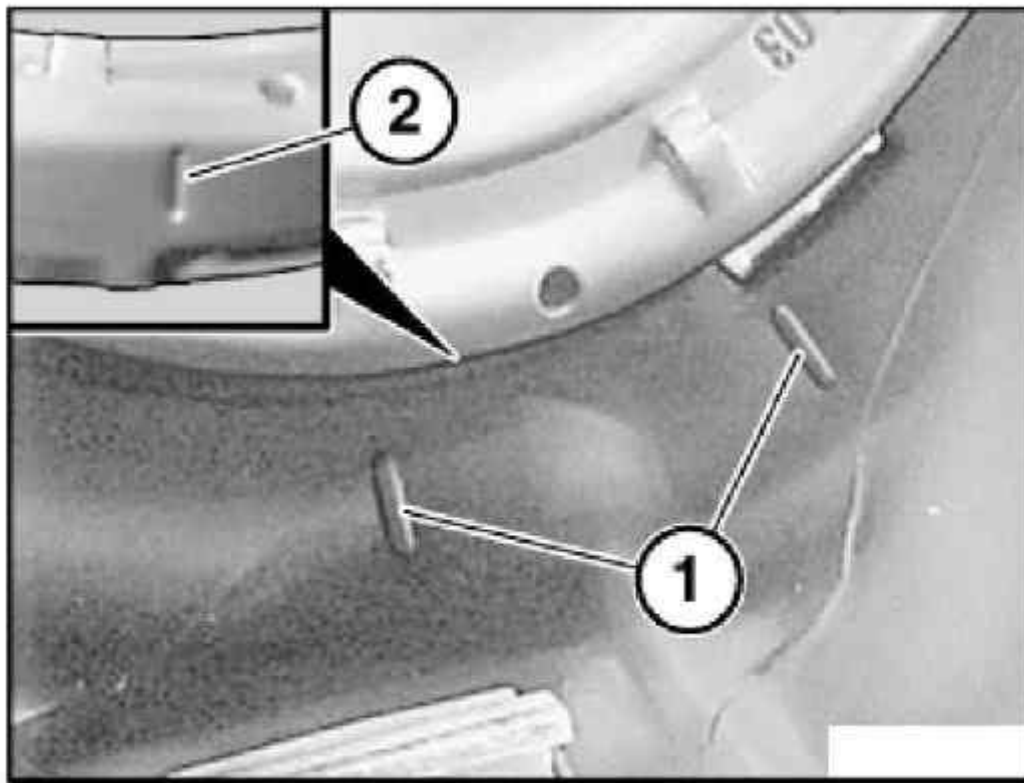
**G03297569**

Fig. 19: Releasing Screw Cap With Special Tool 16 1 020
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

After tightening to specified torque, make sure the notch (2) on the rotary catch is located between the two markings (1) on the fuel tank.



G03297570

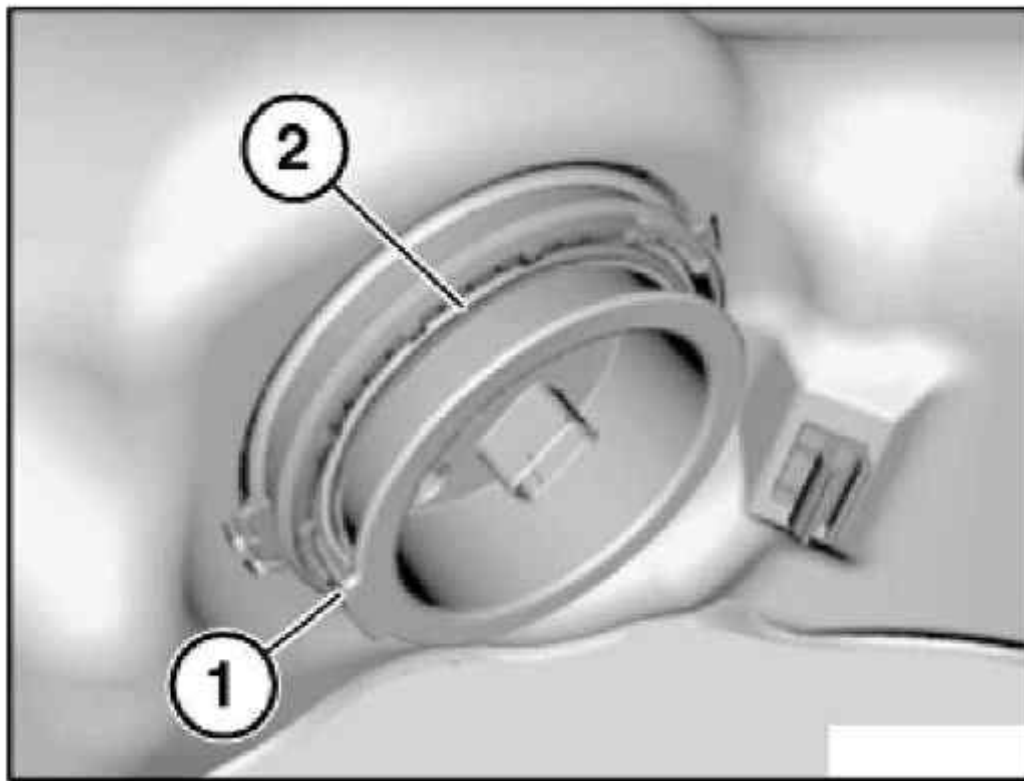
Fig. 20: Identifying Notch And Marking On Fuel Tank
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

The fuel filter can only be installed in one position.

When installing, make sure lug (1) of fuel filter engages in corresponding opening on fuel tank.

Always replace seal (2).



G03297571

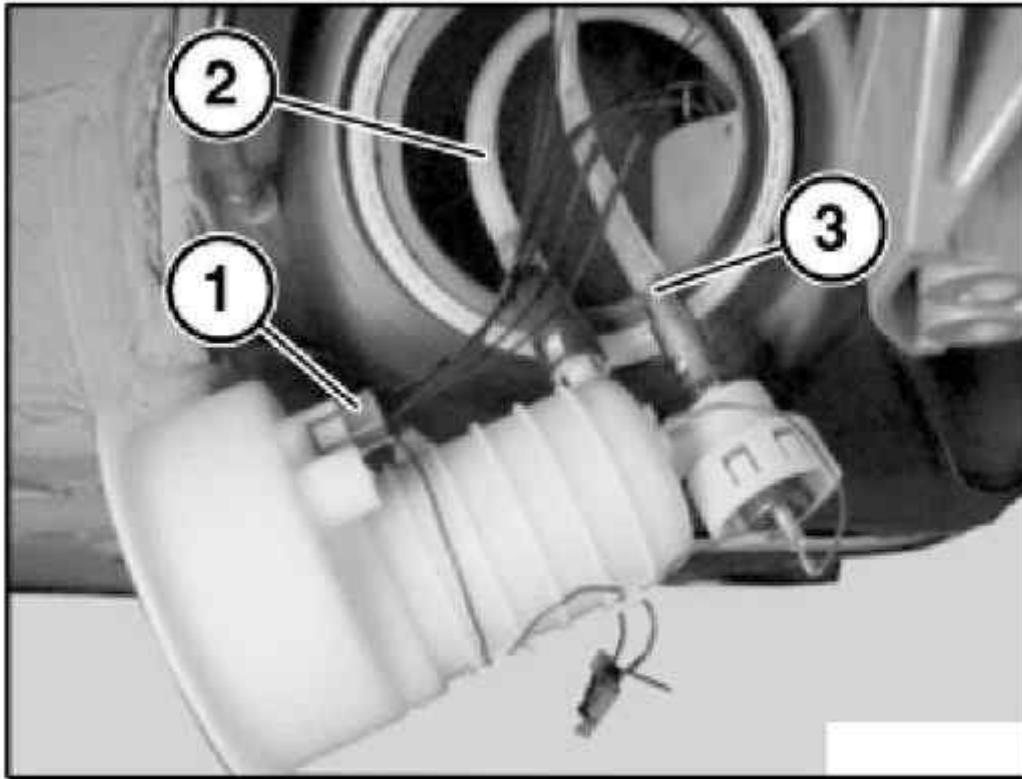
Fig. 21: Identifying Lug Of Fuel Filter And Seal
Courtesy of BMW OF NORTH AMERICA, INC.

Pull off plug (1).

Disconnect lines (2) and (3) from fuel filter.

NOTE: Lines (2) and (3) must not be switched round as they have different diameters.

Fuel filter and pressure regulator together form a single unit and can only be replaced as such.



G03297572

Fig. 22: Disconnecting Lines And From Fuel Filter
Courtesy of BMW OF NORTH AMERICA, INC.

16 11 130 CHECKING FILLER CAP PRESSURE RELIEF VALVE

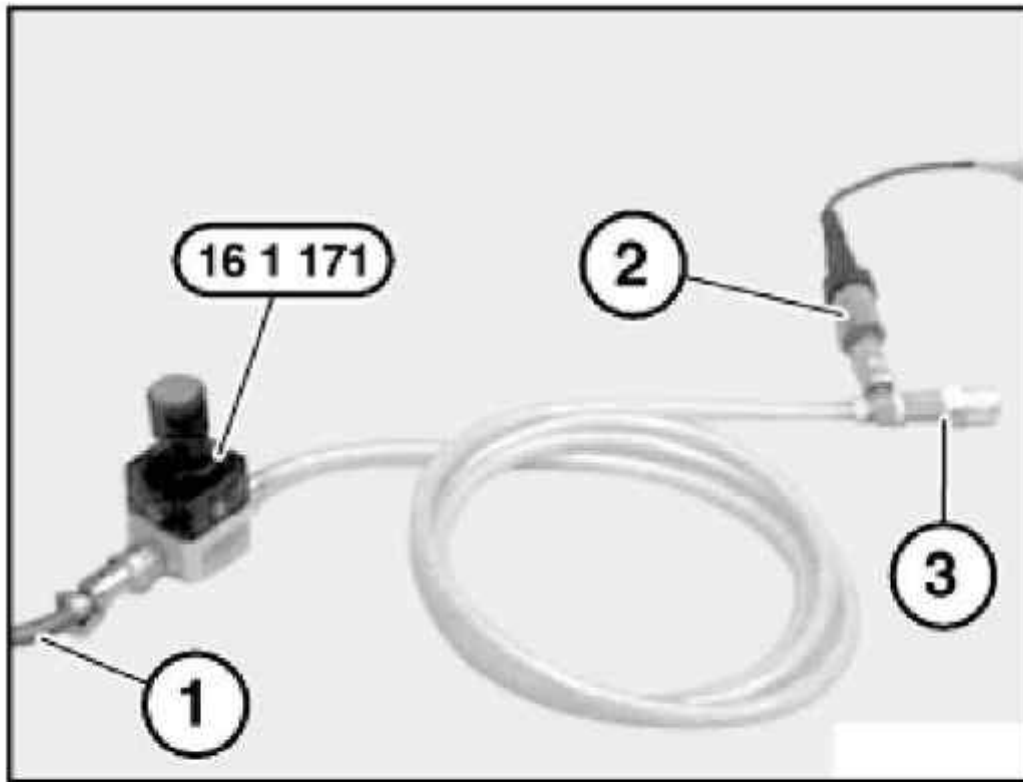
Special tools required:

- 13 3 010
- 16 1 171
- 16 1 172
- 16 1 173

Set pressure regulator on special tool 16 1 171 fully in "-" direction.

Connect special tool 16 1 171 via compressed air line (1) to workshop/garage compressed air system (8...10 bar).

Connect pressure sensor (2) of Diagnosis and Information System with a measuring range of 0...3.5 bar.



G03297573

Fig. 23: Connecting Special Tool 16 1 171 Via Compressed Air Line
Courtesy of BMW OF NORTH AMERICA, INC.

Select special tool 16 1 172 or 16 1 173 matching vehicle's filler cap and attach to quick-release coupling of special tool 16 1 171.

Install filler cap on selected special tool.



G03297574

Fig. 24: Identifying Special Tool 16 1 172 Or 16 1 173 Matching Vehicle's Filler Cap
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Only the absolute pressure is indicated in the display of the Diagnosis and Information System (DIS). The current ambient air pressure is already displayed without additional pressurization.

Check testing equipment for leaks!

Select "Measurement" function on Diagnosis and Information System (DIS).

Increase pressure by 0.2 bar with pressure regulator on special tool 16 1 171.

Using special tool 13 3 010, disconnect delivery line from special tool 16 1 171 to fuel filler neck.

Wait 60 secs.

Read off final pressure value and compare with starting pressure value

Measurement evaluation:**MEASUREMENT EVALUATION**

Pressure drop > 0.012 bar	Testing equipment leaking. Check connection points for leaks.
---------------------------	---

Check filler cap pressure relief!

Follow same test procedure as for "Checking testing equipment for leaks". See **16 00 510 Conducting Leak Test On Fuel Tank And Tank Ventilation System** .

Increase pressure by 0.3 bar with pressure regulator on special tool 16 1 171.

Measurement evaluation:**MEASUREMENT EVALUATION**

Pressure drop > 0.012 bar	Filler cap pressure relief valve faulty. Replace filler cap I.
---------------------------	--

FUEL TRANSFER SENSOR**16 12 000 REMOVING AND INSTALLING/REPLACING THE SENSOR FOR THE FUEL LEVEL GAUGE (RIGHT)**

NOTE: In the E85 only the right sensor for fuel level indication can be replaced. If the left sensor is faulty, the fuel tank must be replaced.

Sensors for fuel level indication, electric fuel pump and right suction jet pump together form a single unit and can only be replaced as such.

Necessary preliminary tasks:

- Draw off fuel from fuel tank. See **16 00 005 Draining and filling fuel tank** .
- Remove fuel filter. See **16 11 048 Removing and installing/replacing fuel filter with pressure regulator**

Remove electric fuel pump. See **16 14 010 Removing and installing/replacing fuel pump** .

16 12 010 REMOVING AND INSTALLING/REPLACING CARBON CANISTER WITH DM-TL

DM-TL = diagnosis module-tank leakage

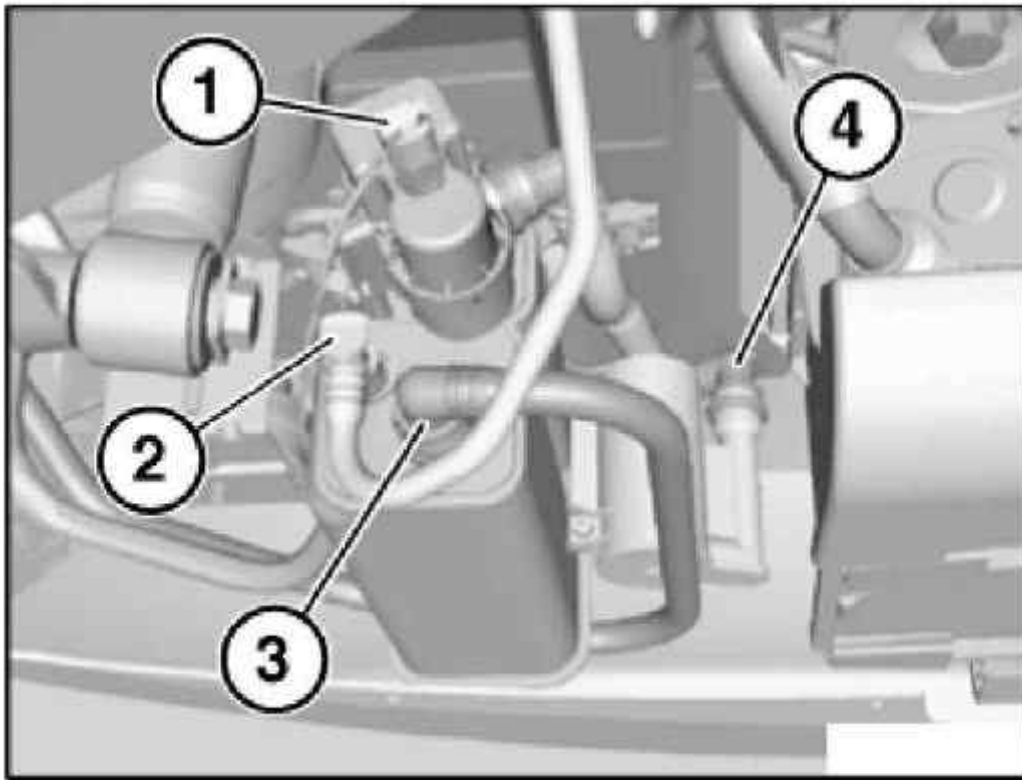
Necessary preliminary tasks:

1. Remove rear right wheel arch cover.

Unfasten plug connection (1).

Unlock lines (2) to 4 and detach.

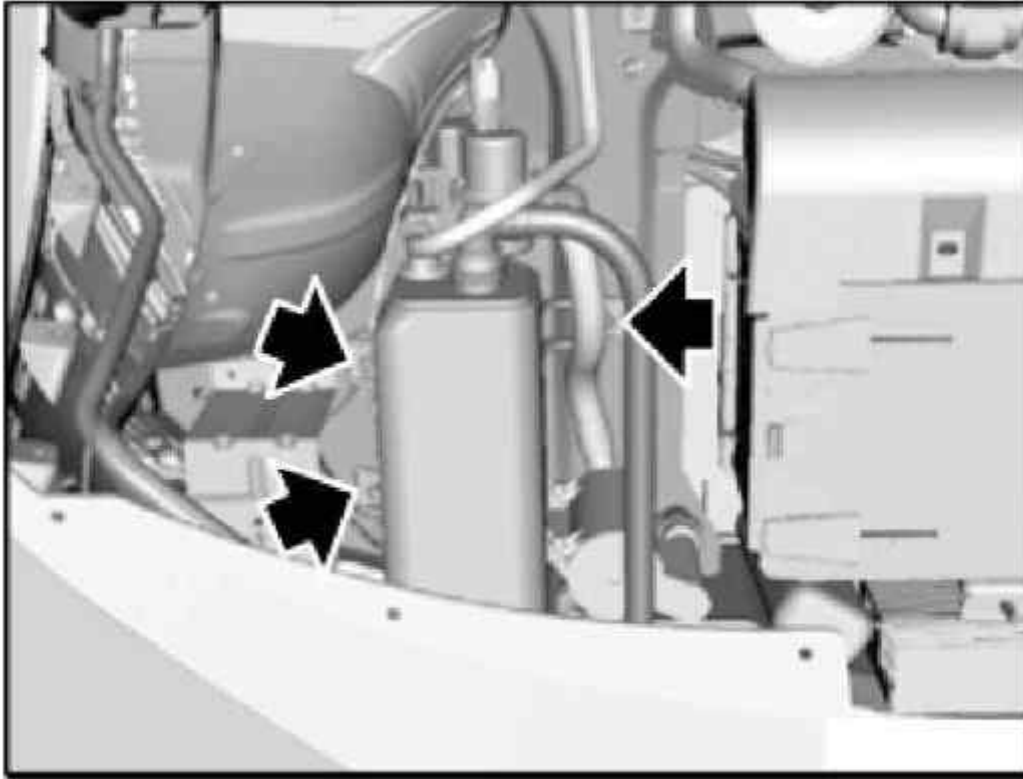
2. Scavenging air line.
3. Vent line to tank.
4. Evaporation line.



G03297575

Fig. 25: Identifying Scavenging Air Line & Vent Line To Tank And Evaporation Line
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws and remove carbon canister with DM-TL towards bottoms.



G03297576

Fig. 26: Removing Carbon Canister With DM-TL Towards Bottom
Courtesy of BMW OF NORTH AMERICA, INC.

Tightening torque, see 16 13 2AZ in **FUEL SUPPLY SYSTEM - TIGHTENING TORQUES** .

FUEL VENTILATION

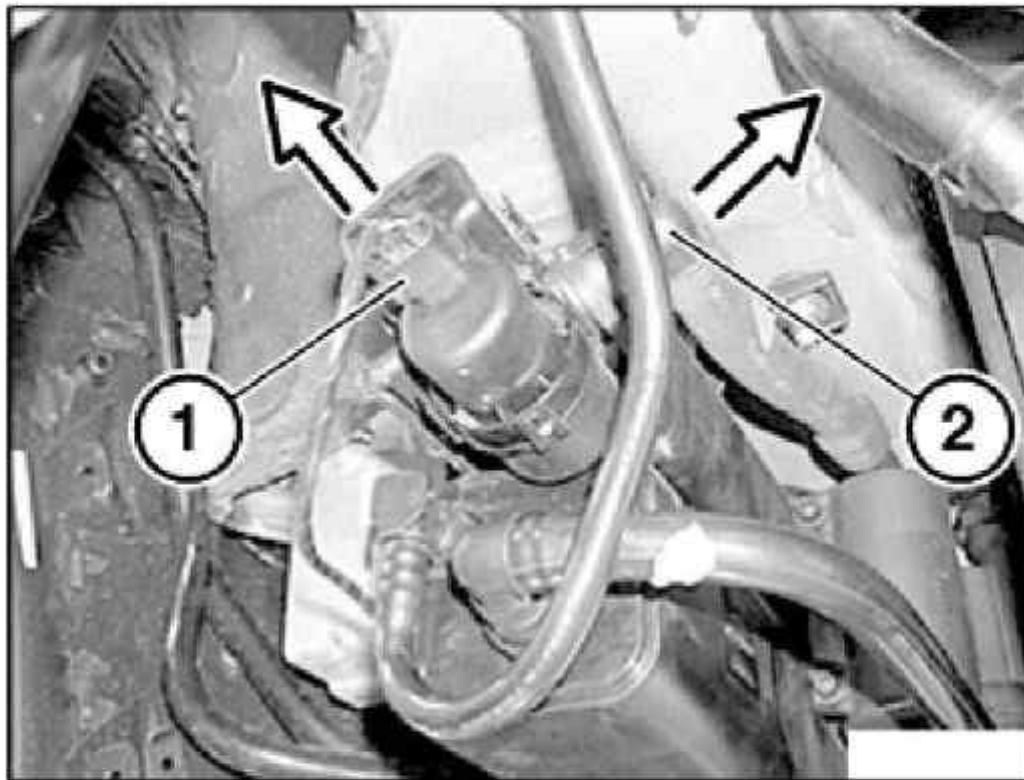
16 13 015 REMOVING AND INSTALLING/REPLACING TANK LEAK DIAGNOSTIC MODULE (DM-TL)

Necessary preliminary tasks:

- Remove rear right wheel. See **36 10 300 REMOVING OR INSTALLING FRONT OR REAR WHEEL** .
- Remove rear right wheel arch cover.

Unfasten line (1) and detach.

Remove hose (2).



G03297577

Fig. 27: Removing Hose

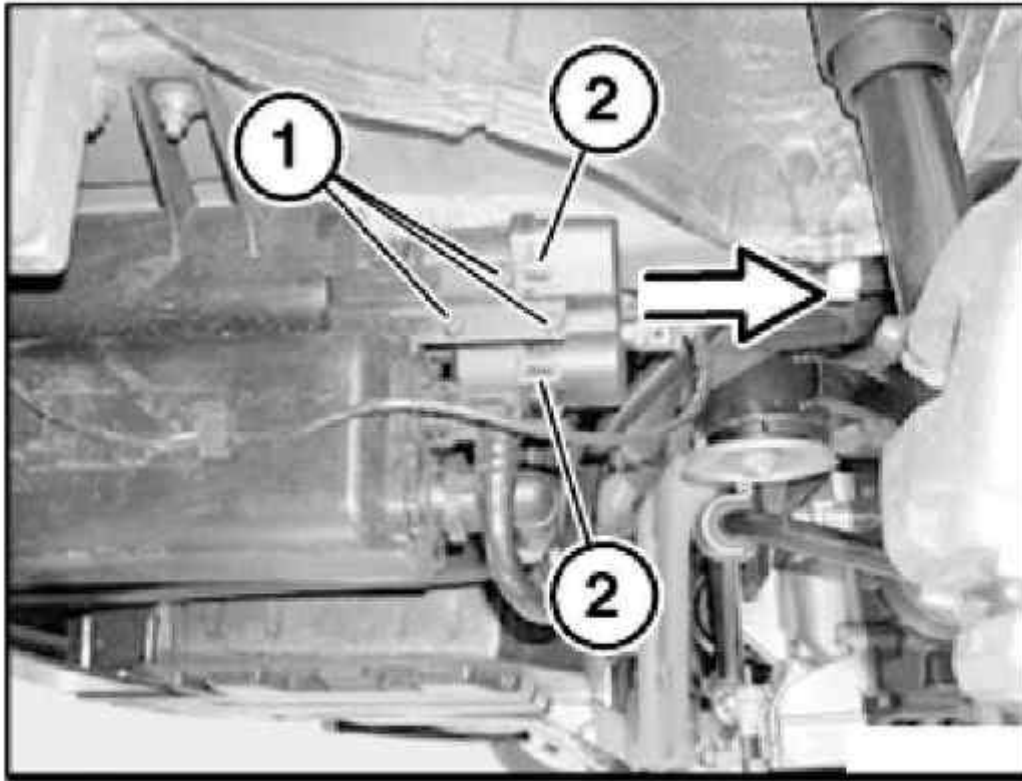
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

Tightening torque, see 16 13 3AZ in **FUEL SUPPLY SYSTEM - TIGHTENING TORQUES** .

Release lugs (2).

Detach DM-TL from carbon canister.



G03297578

Fig. 28: Releasing Lugs

Courtesy of BMW OF NORTH AMERICA, INC.

FUEL PUMP

16 14 010 REMOVING AND INSTALLING/REPLACING FUEL PUMP

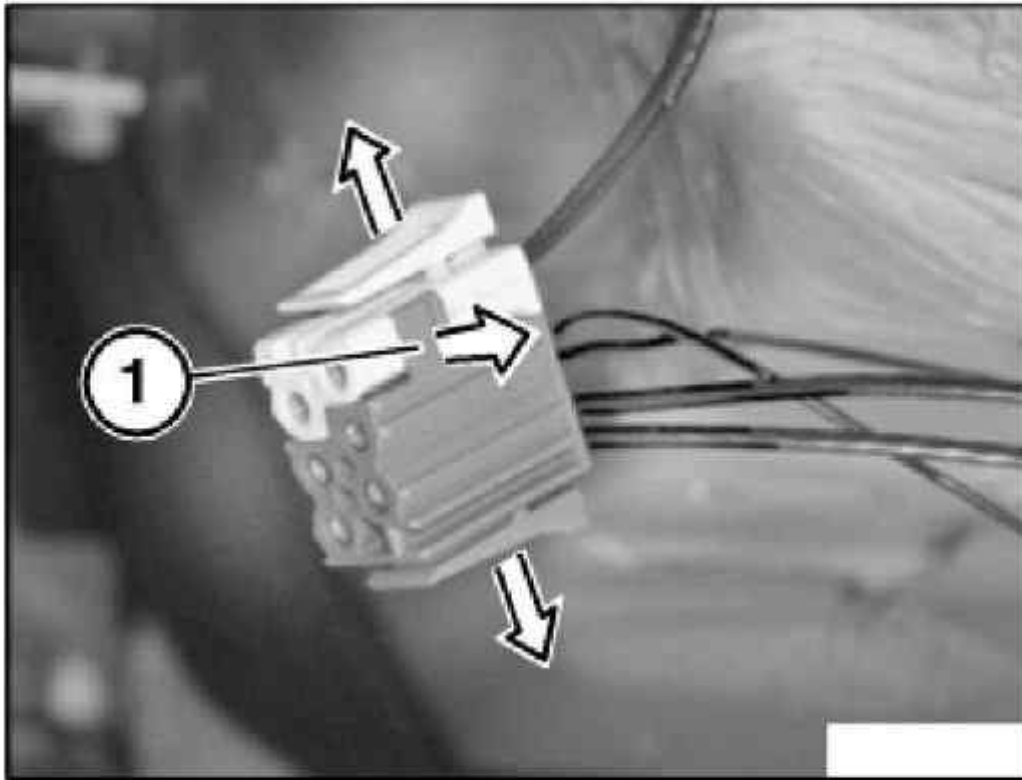
NOTE: Fuel pump, right suction jet pump and right sensors for fuel level indication together form a single unit and can only be replaced as such.

Necessary preliminary tasks:

- Remove fuel filter. See **16 11 048 Removing And Installing/Replacing Fuel Filter With Pressure Regulator** .

Disconnect plug.

To do so, bend lug (1) on both sides outwards and pull plug apart.



G03297579

Fig. 29: Pulling Plug Apart

Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect line (2) from fuel pump.

Unlock fuel pump by pressing lug (1). Release fuel pump upwards from catch.

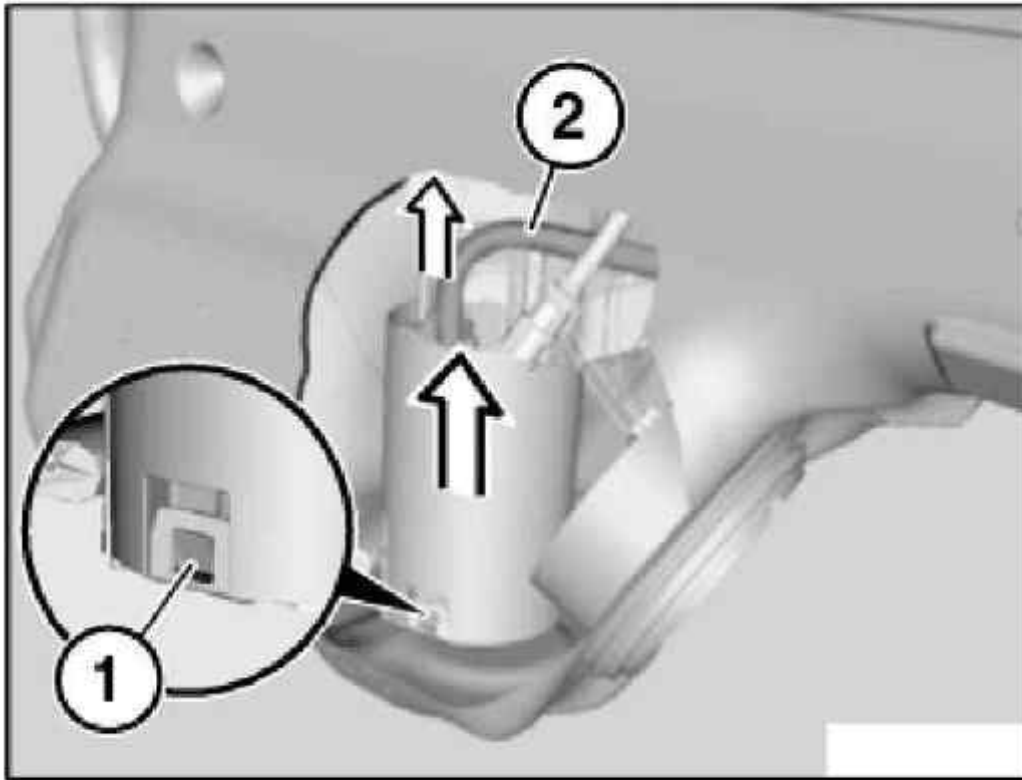
Remove fuel pump with sensor through service aperture. See **16 14 010 Removing And Installing/Replacing Fuel Pump** .

Installation:

When installed, fuel pump must clearly be heard to snap into place.

Do not bend sensor arm during installation.

Line (2) must not be kinked!



G03297580

Fig. 30: Unlocking Fuel Pump By Pressing Lug
Courtesy of BMW OF NORTH AMERICA, INC.

16 14 030 REPLACING SUCTION JET PUMP (RIGHT)

NOTE: In the E85 only the right suction jet pump can be replaced. If the left suction jet pump is faulty, the fuel tank must be replaced.

Sensors for fuel level indication, electric fuel pump and right suction jet pump together form a single unit and can only be replaced as such.

Necessary preliminary tasks:

- Draw off fuel from fuel tank. See **16 00 005 Draining And Filling Fuel Tank**.
- Remove fuel filter. See **16 11 048 Removing And Installing/Replacing Fuel Filter With Pressure**

Regulator .

Remove electric fuel pump. See **16 14 010 Removing And Installing/Replacing Fuel Pump** .

**16 14 060 REMOVING AND INSTALLING/REPLACING DUST FILTER FOR TANK LEAKAGE
DIAGNOSIS MODULE (DM-TL)**

Necessary preliminary tasks:

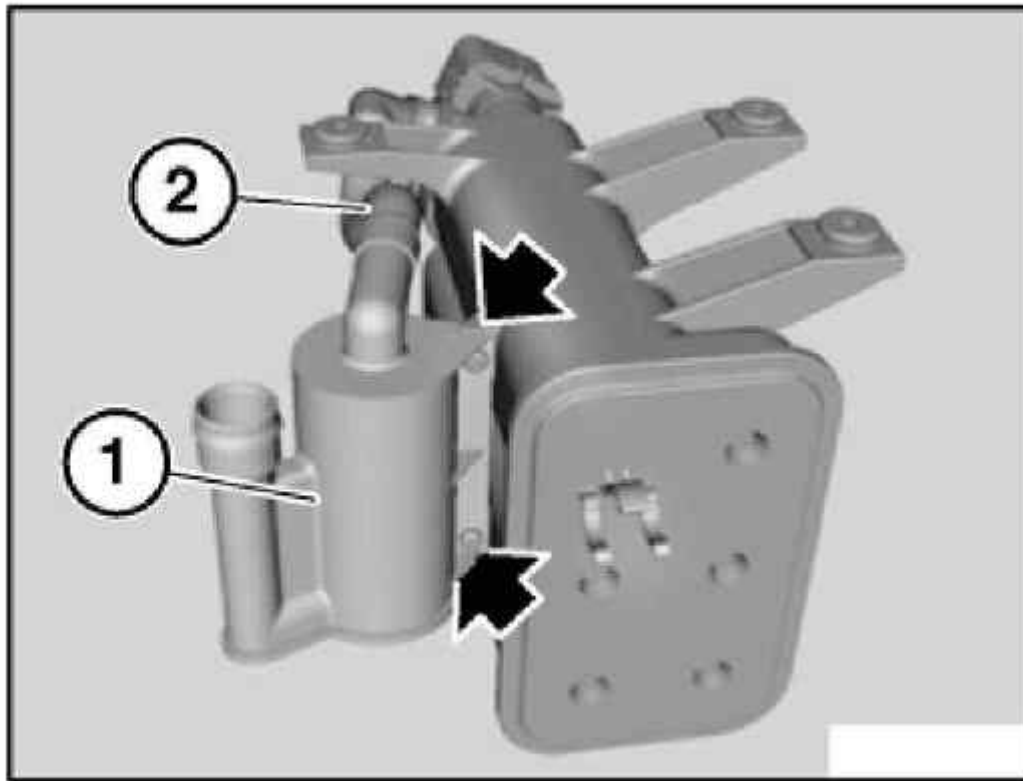
- Remove rear right wheel arch cover .
- Remove carbon canister. See **16 12 010 Removing And Installing/Replacing Carbon Canister With DM-TL** .

Detach line (2) from carbon canister.

Unfasten screws.

Tightening torque, see 16 13 4AZ in **FUEL SUPPLY SYSTEM - TIGHTENING TORQUES** .

Remove dust filter (1) with line (2).



G03297581

Fig. 31: Removing Dust Filter With Line
Courtesy of BMW OF NORTH AMERICA, INC.