



Repair Instructions  
BMW ALPINA B5 / B6

# Repair Instructions

## BMW ALPINA B5 BMW ALPINA B6



**Expert automotive knowledge is required.**

These Repair Instructions are based on the BMW 545i/550i/650i TIS Repair Instructions.

If Nm torque settings are not shown, please see the BMW 545i/550i/650i TIS Repair Instructions.



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**Installing, removing and replacing the radial compressor**

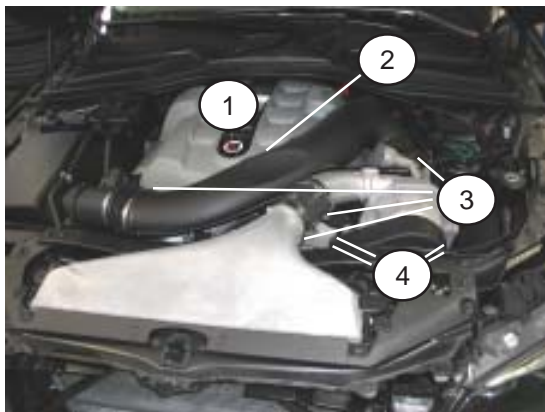


**WARNING!**

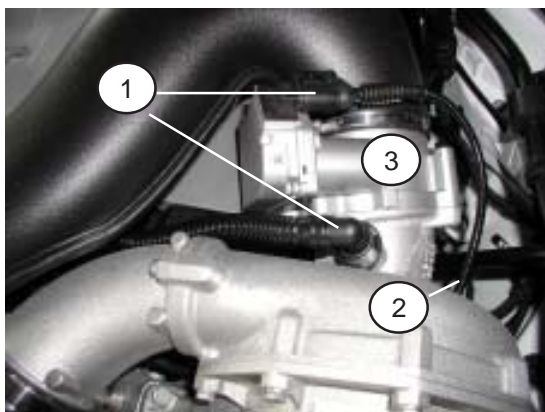
Danger of burns! Perform the following job on the vehicle only once it has completely cooled down.

**ATTENTION!**

The intercooler's hoses could fail if not installed when dry and free of any grease or oils. Please ensure a grease-free and dry installation.



Remove engine cover (1), back out bolt (2) and loosen clamps (3). Remove air intake tract and intercooler hose. Back out bolts (4) and remove belt cover. **ATTENTION!** Bolts (4) have to be replaced by the delivered ones ALPINA 11 65 701 and screwed in with Loctite.



Unplug electrical connectors leading to the boost pressure regulator (3) and the crankcase ventilator (1) and open the cable ties (2).

**ATTENTION!** Don't turn ignition on while the power pressure regulator (3) is disconnected!

**ATTENTION!** During assembly: ensure the correct mounting of the rubber seal within the black air intake tract!



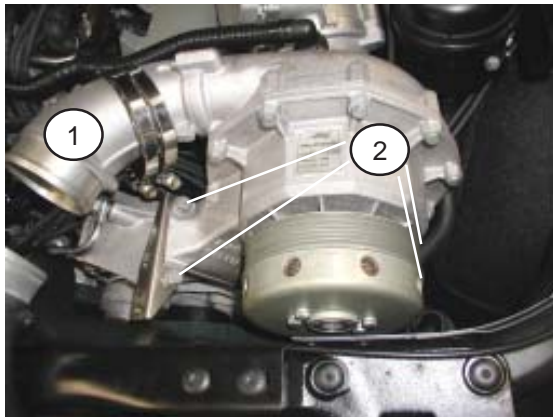
Press the belt tensioner (1) back to its stops using ALPINA special tool 74 00 643 or 60 Torx Socket:



and remove the drive belt.



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Unscrew the radial compressor's mounting bolts (2) and remove the radial compressor.

Dismount pulley wheel.

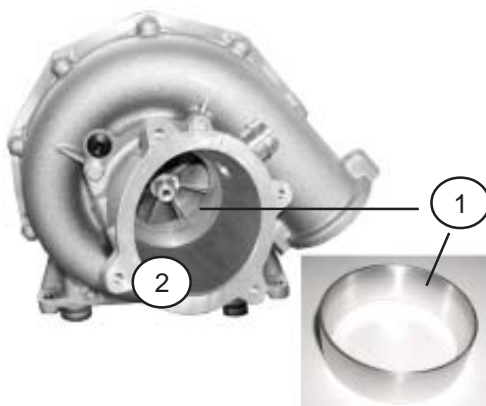
Dismount tube (1) and screw it to the new radial compressor.

Torque the screws to 8,8Nm.

ATTENTION: use new O-ring.



Pay careful attention that the positioning dowels (3) are properly fitted, that the oil passages are clean. Ensure that you don't damage the oil passages while remounting the radial compressor.



When exchanging the compressor, take over distance spacer (1), tube (2) and a new O-ring into the new radial compressor.

Tightening torque of tube screws: 8,8 Nm.

Dismount power pressure regulator.



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Install spacer (1). Rotate the spacer such that the holes in the spacer line up with the bore holes in the clutch housing.

Check pulley disc for cracks and replace if necessary.

Install the pulley disc.

Hand-tighten the bolts in a cross-wise pattern.

Check the belt housing to ensure it is running true on centre.

**ATTENTION!** Tighten screws with torque wrench after mounting the compressor's belt (see below).



Install the boost pressure regulator (2) and pay attention to the correct position of the gasket. Torque screws to 8,8 Nm.

Install radial compressor.

**ATTENTION:**

**Mount the radial compressor straight on the bracket**, ensure the correct mounting of the belt cover brackets and pay attention to the correct length of the screws: 8x30 front; 8x35 rear (mounting bolt torque: 21 Nm.)

Carefully push back the belt tightener to its stop, mount the compressor belt and check that it is properly seated.

Torque the belt housing screws cross-wise to 9 Nm.

Start the engine and check the belt drive.



**ATTENTION: danger of injury from moving parts.**

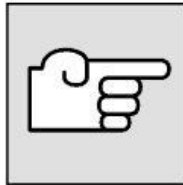
Complete assembly.

**ATTENTION: Erase the fault memory before the testdrive!**



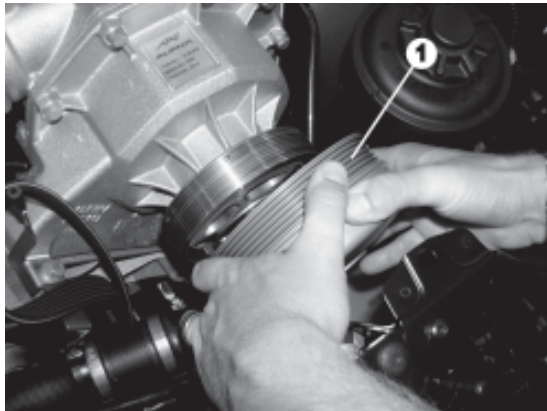
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**Checking the radial compressor's clutch for wear / replacement**

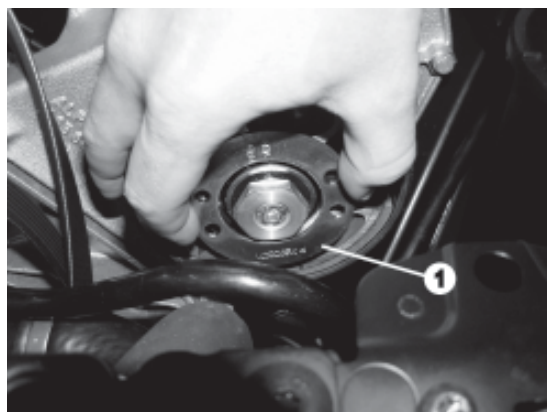


Remove radial compressor (see ALPINA repair instructions).

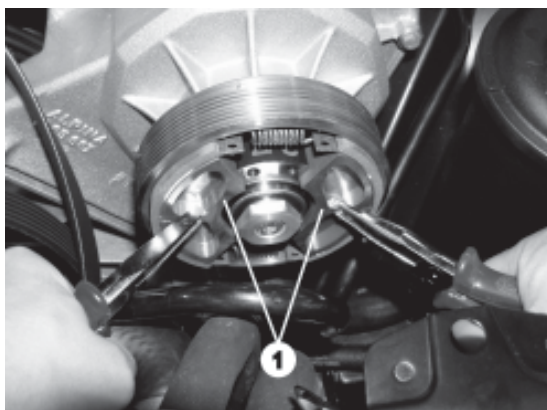
**ATTENTION!** Ensure that the oil passages stay clean and that you don't damage the oil passages of the radial compressor.



Unscrew the bolts from the radial compressor's pulley disc and remove the pulley disc as shown in picture (1).



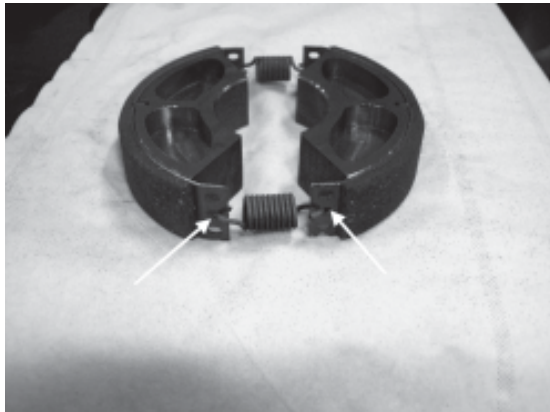
Remove spacer (1).



Pull the centrifugal clutch's (1) weights and friction pads out of the clutch housing using two needle nose pliers.

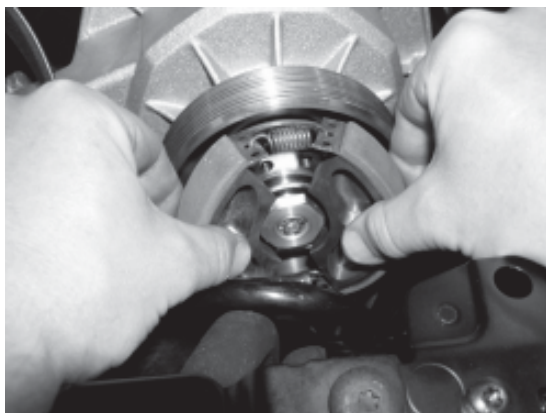


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Reassemble the clutch components with the new set of pads if necessary. The complete clutch has to be exchanged at 100.000km/60.000mls. Clutch pads worn to less than 2mm thickness must be replaced!

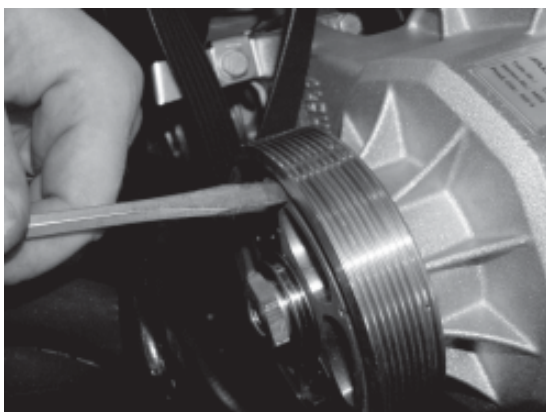
Please take care that the springs are hooked into the centre holes in the friction pads and take care that the coloured dots on the pads are visible (2) and ensure that the pinballs face forward.



Place the clutch components back into the clutch housing as shown.



Ensure that the coloured dots on the pads are visible (1) - the edges of the pads are bended differently (2) and it is not allowed to mount them in a different way as on the picture!



**ATTENTION:** the clutch pads are not to hang out over the clutch bell housing at all.

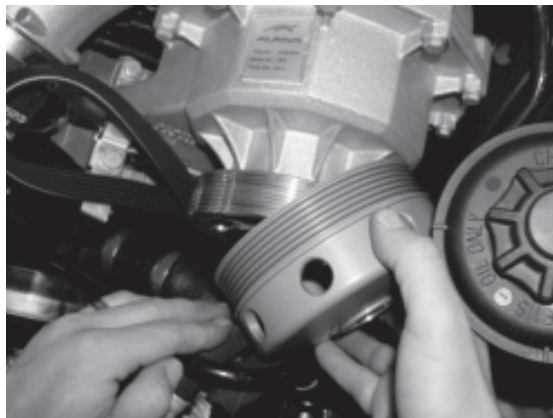
Push the clutch plates into the clutch bell housing with a screwdriver. Take care not to damage the clutch pads.



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Install spacer (1). Rotate the spacer such that the holes in the spacer line up with the bore holes in the clutch housing.



Check pulley disc for cracks and replace if necessary.  
Install the pulley disc.  
Hand-tighten the bolts in a cross-wise pattern.  
Check the belt housing to ensure it is running true on centre.

Carefully push back the belt tightener to its stop, mount the compressor belt and check that it is properly seated.  
Torque the belt housing screws cross-wise to 9Nm.  
Start the engine and check the belt drive.



**ATTENTION: danger of injury from moving parts.**

Complete assembly.



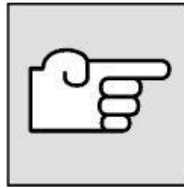
**ATTENTION: Please erase fault memory before the testdrive!**





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**Kühlerpaket aus- und einbauen / ersetzen**



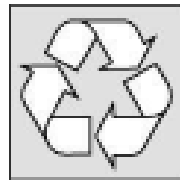
Remove front spoiler valance.



**WARNING!**

Danger of being scalded!

Perform this work only after engine has completely cooled down. Pay attention to instructions for working on cooling systems.

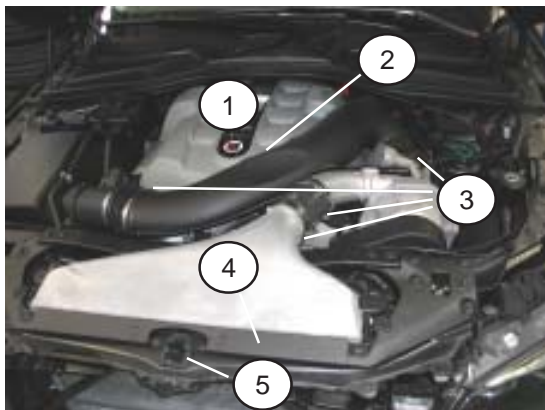


**Recycling!**

Retain and dispose of discharged coolant. When oil lines are loosened oil will leak out. Retain and dispose of leaking oil. Please obey country-specific requirement regarding recycling.

Evacuate air conditioning system as per BMW instructions.

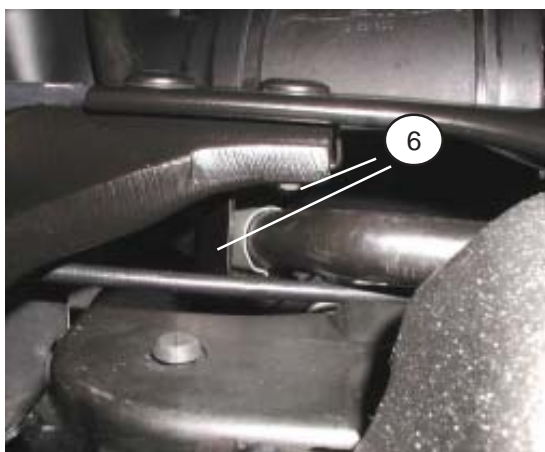
Remove aggregate lower cover.



Remove motor cover (1), back out bolt (2) and loosen clamps (3). Remove air intake tract and intercooler hose.

Back out front structure connector bolts (4), remove rubber bracket for radiator and back out hood latch bolts. Remove complete front structure.

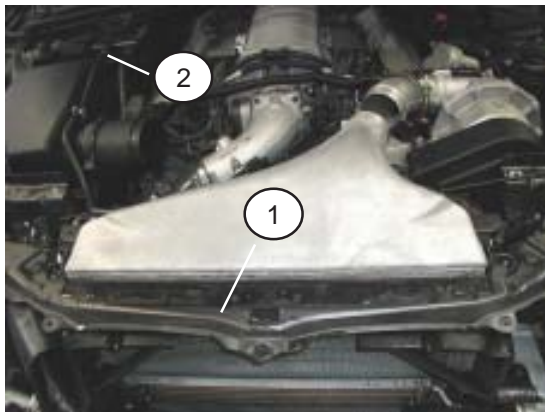
Remove hood catch end support (5).



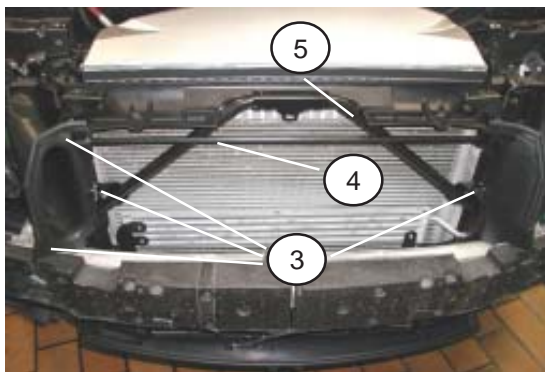
**ATTENTION!** Remove / remount water hose bracket and nut on the right side of Connect pcs. front structure.



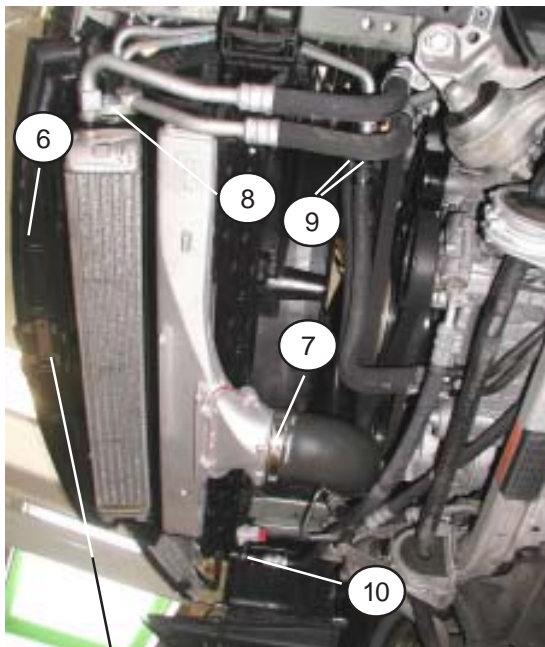
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Remove front center bumper mount (1).  
Disconnect water hose (2) from expansion tank.



Back out bolts (3), remove strut (4) and remove air tracts. Remove air intake tract from air filter housing. Remove V-Support (5).



Remove front air guide (6).  
**ATTENTION!** During assembly: ensure correct position of hooks - foam padding frontwards!

Loosen clamp (7) and remove hose from intercooler.

Back out bolt (8) and remove lines from engine oil cooler.  
**ATTENTION!** During assembly: Torque cooler line to 20,5Nm - renew gaskets!

Disconnect transmission oil cooler lines (9).  
**ATTENTION!** During assembly: confirm proper attachment of the transmission oil cooler lines. Listen for the "click".

Remove power steering fluid cooler line (10).  
**ATTENTION!** During assembly: Confirm proper attachment of the power steering fluid cooler lines. Listen for the "click".



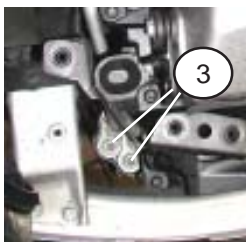


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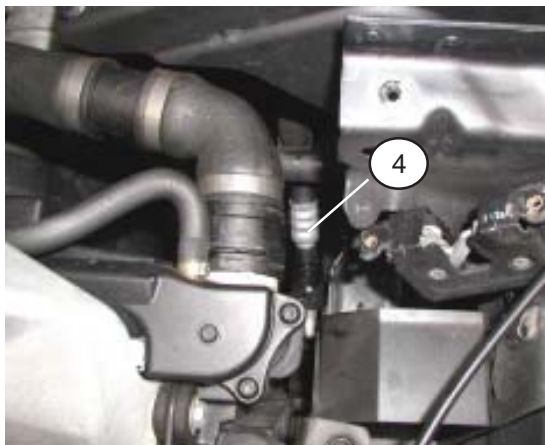


Loosen air intake hose clamp (1) and remove hose downwards.

Unplug electric fan (2) and AUC-Sensor.



Remove the air conditioning lines (3).

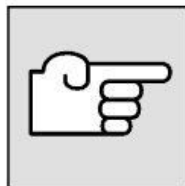


Remove power steering fluid cooler line (10).

**ATTENTION!** During assembly:

Confirm proper attachment of the power steering fluid cooler lines.

Listen for the "click".



Remove coolant and loosen coolant hoses.



Attach ALPINA Special Tool 74 00 166 (5):



to the radiator aggregate and lower it downward using an engine hoist.

Assembly occurs in reverse fashion.

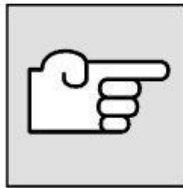
Fill coolant system, release trapped air, and check for leaks.

Fill all fluids and set fluid levels based on BMW regulations.

Fill air conditioning unit and check for leaks based on BMW regulations. Check head light settings.



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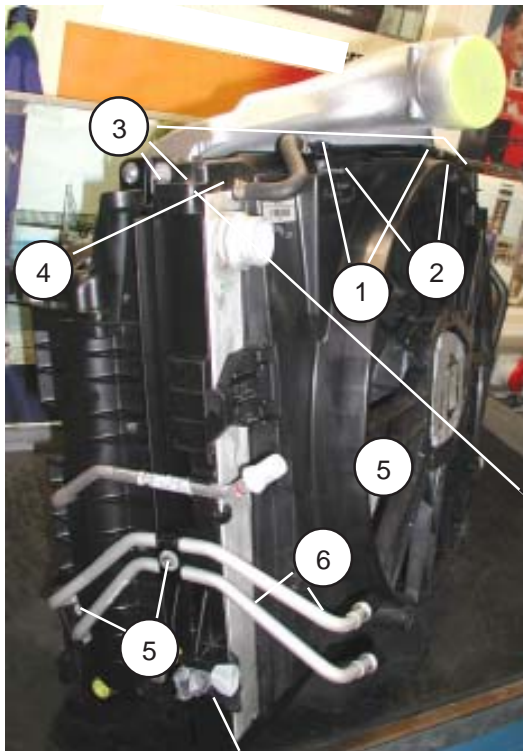
**Disassembly and assembly of the radiator cooling package**

Remove radiator aggregate as per B5 repair instructions.

Unclip line (1), remove pop-rivets (2) and back out bolts (3).

**ATTENTION!** During assembly: Torque the bolts to 5Nm!

Remove radiator cover (4) and electric fan (5) and pull them upward to remove.



**ATTENTION!** During assembly: ensure that the rubber fittings are in their proper position!

(Radiator cover: picture from below)

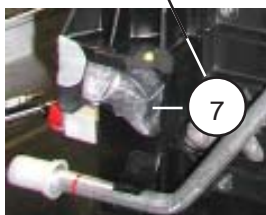


Back out bolts (5) and remove transmission oil cooler lines (6) demontieren.

**ATTENTION!** During assembly: Torque of bracket-screw 5Nm, torque of screw: lines to cooler 20,5Nm!

Dismount rubber bracket (7).

**ATTENTION!** During assembly: Fix rubber bracket with adhesive tape in the correct position for mounting!



Remove upper front radiator cover (8).

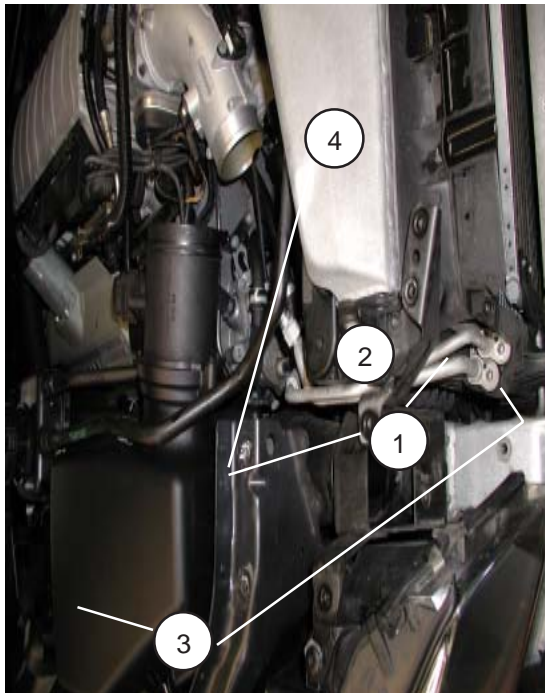
**ATTENTION!** During assembly: ensure that the rubber fittings are in their proper position!

**ATTENTION!** During assembly: torque the screws to 5Nm!





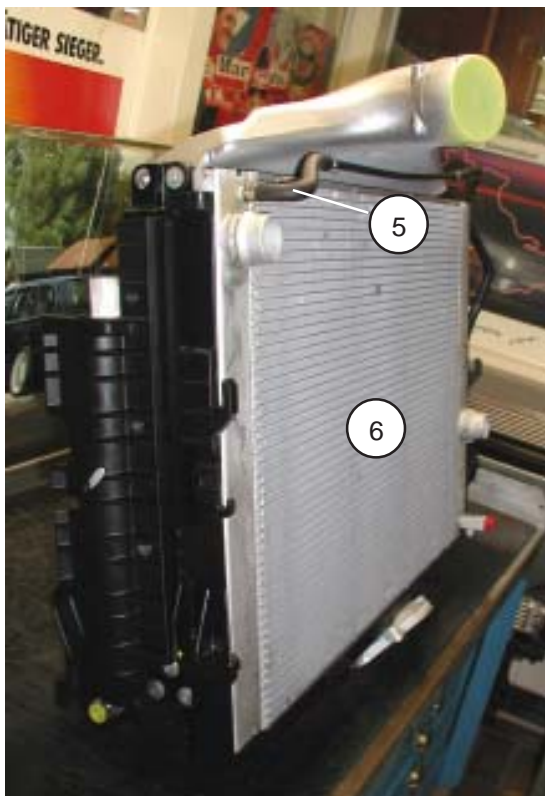
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Back bolts (1) out of the power steering cooler (2), warm the edge lightly with an industrial dryer and clip out power steering cooler lines (3).

**ATTENTION!** During assembly: warm the edge lightly with an industrial dryer to keep from breaking the plastic edge.

**ATTENTION!** During assembly: Torque screws to 5Nm - ensure the correct mounting of the washer (4)!



If needed loosen the hose bracket (5) and remove the ventilation hose.

Take radiator (6) out.

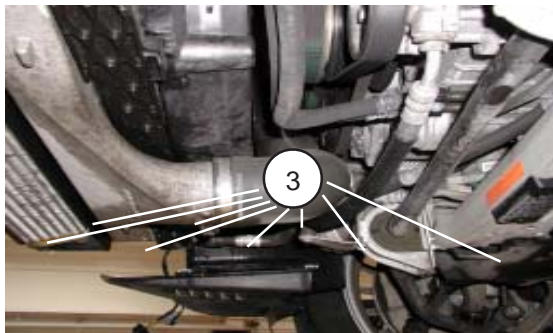


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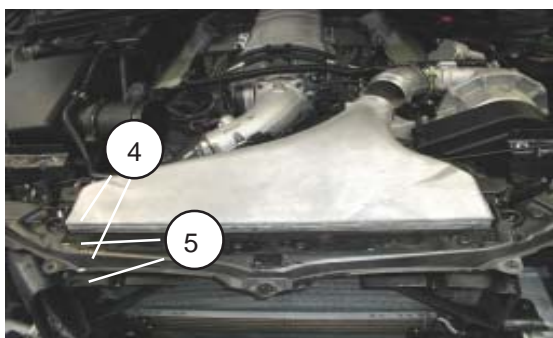
Remove air conditioning radiator (1) by lifting upward!

ATTENTION! During assembly: If necessary, attach a new rubber strip to the intercooler (2)!



Back out bolts (3) left and right and demount frame.

ATTENTION! During assembly: Torque the screws to 5Nm!



Back out bolts(4) and remove transmission oil cooler. Remove clasps (5) and take out engine oil cooler by pulling it downward and out.

ATTENTION! During assembly: Torque the screws to 9Nm!

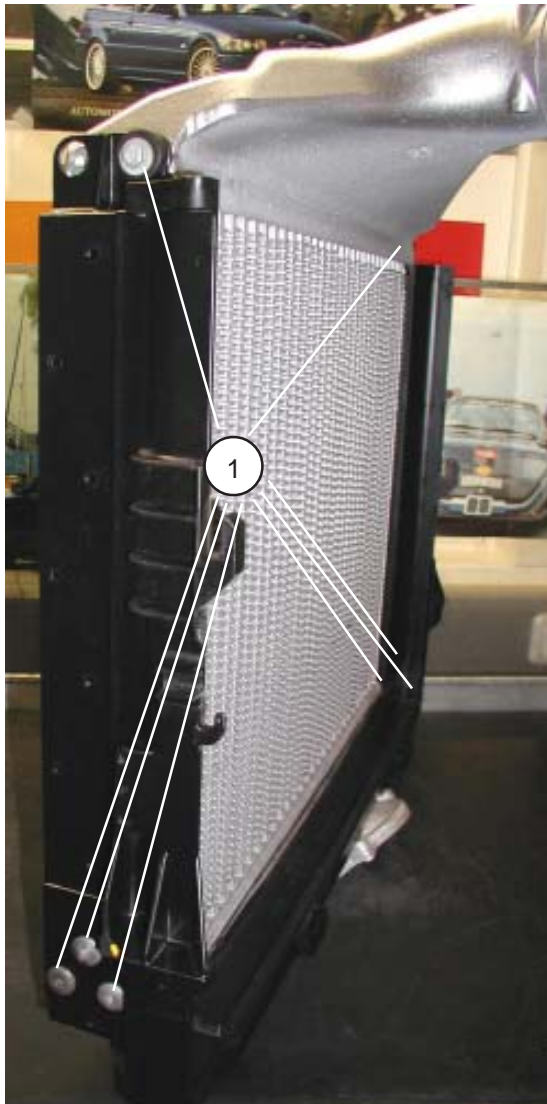
Engine oil cooler and transmission oil cooler are identical, and differ only in the position of their mounting pins.

If the cooler is defective, re-use these mounting pins in the new cooler.

Engine oil cooler and transmission oil cooler cannot be switched (different types of oil)!

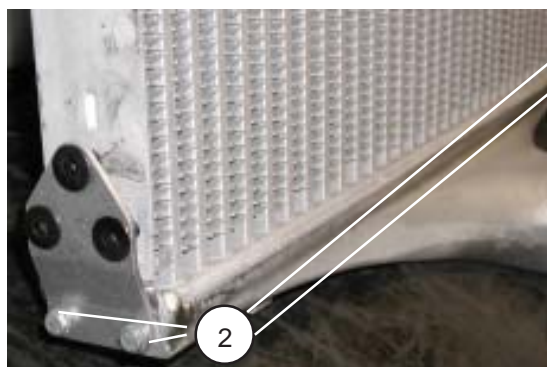


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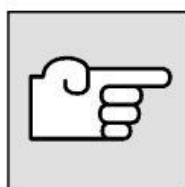


Back out bolts (1) on the left and right and remove frame.

ATTENTION! During assembly: Torque the bolts to 9Nm!



Remove bolts (2) from holder.

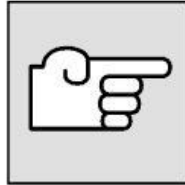


Assembly occurs in reverse order!



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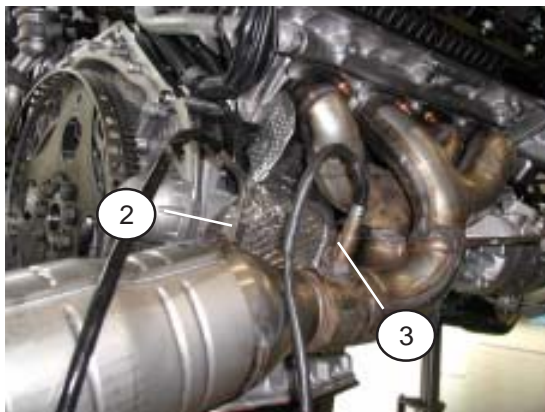
**Disassembly and assembly of the catalytic converters**



Remove the exhaust system and catalytic converters as per BMW repair instructions.



Unplug exhaust gas temperature sensor (1).



**ATTENTION:** There are exhaust gas temperature sensors (2) built in ahead of the catalytic converters that are extremely sensitive to knocks or impacts and could fail.

When installing new catalytic converters, or when removing exhaust gas temperature sensors from the exhaust system, new exhaust gas temperature sensors must be installed!

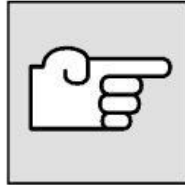
(Picture 3: Lamba sensor)





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**Disassembly and assembly of the DSC Hydro Unit**



Remove the wheel well housing as per BMW repair instructions.

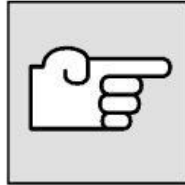


The DSC Hydro Unit (1) is mounted in the front wheel well housing on the left side.



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**Disassembly and assembly of the automatic transmission**



Remove automatic transmission as per BMW repair instructions.

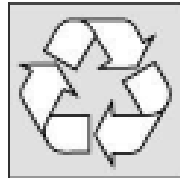


**ATTENTION!** When exchanging the transmission please ensure installation of the current thermostat (1) into the new transmission!



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### Renewing rear differential oil



Caution: Use only BMW recommended rear differential oil.  
Failing to change oil can damage rear diff.!

Vehicles without limited slip differential:

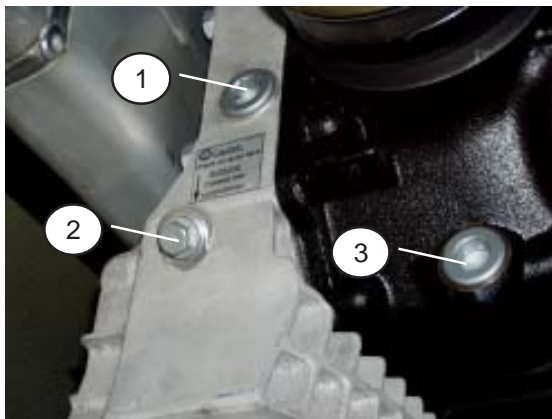
CASTROL SAF XO

Vehicles with limited slip differential - sticker (4) on rear axle housing: CASTROL SAF XJ

Recycling: Leaking oil has to be captured and disposed of properly and in accordance with local statutes and regulations.

### **Topping up rear differential oil:**

1. Use oil pan.
2. Unscrew filling screw (1).
3. Unscrew oil level screw (2).
4. Fill up until oil runs out of the oil level screw hole (2).  
Oil level is correct when no more oil runs out of the oil level screw hole (2).



Installation information:

- a) Replace filling screw (1), Part number: 33 11 7 525 064, Tighten to 60 Nm of torque
- b) Replace oil level screw ring seal (2), Part number: 07 11 9 963 225, Tighten to 25 Nm of torque.

### **Changing rear differential oil:**

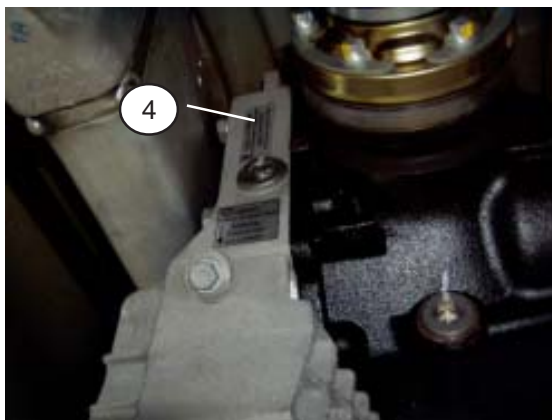
Change oil only at normal oil operating temperature.

1. Use oil pan.
2. Unscrew drain screw (3).
3. Drain rear diff. oil and dispose of it properly and in accordance with local statutes and regulations.
4. Replace drain screw.
5. Unscrew filling screw (1) and oil level screw (2)
6. Fill up rear diff. (ca. 1.4 ltr./ 1.5 quarts) until oil runs out of the oil level screw (2).

Oil level is correct when no more oil runs out of the oil level screw hole (2).

Installation information

- a) Replace drain screw (3) and filling screw (1), Part number: 33 11 7 525 064, Tighten to 60 Nm of torque.
- b) Replace oil level screw ring seal (2), Part number: 07 11 9 963 225, Tighten to 25 Nm of torque.





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**Exchange of spark plugs**



**WARNING!**

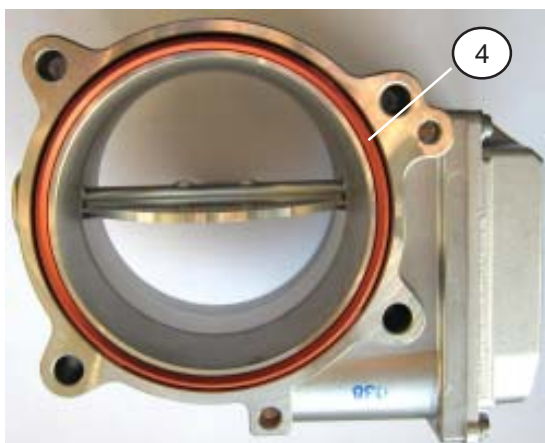
Danger of burns! Perform the following job on the vehicle only once it has completely cooled down.



Remove engine cover (1). Remove air intake tract (2).  
Remove boost pressure regulator (3).



Exchange spark plugs as per BMW repair instructions.



Install boost pressure regulator with included gasket (4) .