

64 50 010

Drawing off, evacuating and filling heating and air conditioning system (R134a)



Warning!

Only persons in possession of a professional certificate of competence for the maintenance and repair of heating and air conditioning systems are authorised to carry out repair work on the refrigerant circuit. It must be available no later than 04 July 2010 (applies only to EU countries; follow country-specific regulations in non-EU countries).

Refrigerant circuit is under high pressure!

- If the protective caps on the filling valves are difficult to open, there is a danger of injury from leaking valve inserts.

Repair work may only be carried out on a depressurised refrigerant circuit!

- Before conducting repairs, check the actual pressure drop on the pressure gauge of the A/C service station.

Avoid contact with refrigerant and refrigerant fluid.

- Follow safety instructions for [handling R134a refrigerant](#).
- Follow safety information for [handling refrigerant oil](#).



Important!

Risk of damage!

Only BMW-approved R134a refrigerant may be used.
([refer to sourcing reference: Operating Fluids](#))

Restart engine only when A/C system has been correctly filled.



Vehicle-specific notes:

E60/E61 M5only:

To access refrigerant line connections, the right intake silencer housing must be removed.

F01/F02/F03/F04/F06/F12/F13 (N63) only from 07/2012:

To access refrigerant line connections, the right intake port must be removed.

F02/F03/F04 only:

To guarantee a virtually complete draining of refrigerant from the automatic rear air-conditioning system or the hybrid battery cooling system:

In the diagnosis system test module, carry out "draining/filling refrigerant circuit".

F33 only:

To access refrigerant line connections, the left front end strut must be removed.

Only F8x:

In order to access the connections of the refrigerant lines, undo [charge air cooler](#) and place to one side.



Note:

On the F01, F02, F10, F11, an additional refrigerant low pressure connection (2) may be installed specific to the engine and model year.

This refrigerant low pressure connection (2) is not to be used in the inspection!

Use exclusively refrigerant connections (1) for drawing off, evacuating and filling!



Vehicle-specific notes:

BMW I01:



Equipment specification with and without heat pump:

To access the connections for the refrigerant lines, remove front luggage compartment well.



Equipment specification with heat pump:

Before the drawing off, evacuation or filling procedure, carry out the following steps:

1. Switch on terminal 15: To do so, press the

Start/Stop button **without operating the brake pedal.**

2. Switch off blower at IHKA controls (so that compressor cannot start up).
3. Switch on low-beam headlight (so that terminal 15 can switch off automatically after a certain period).

If nec., charge the high-voltage battery (12 V battery is charged via the high-voltage battery).

4. Pull off connector (1).

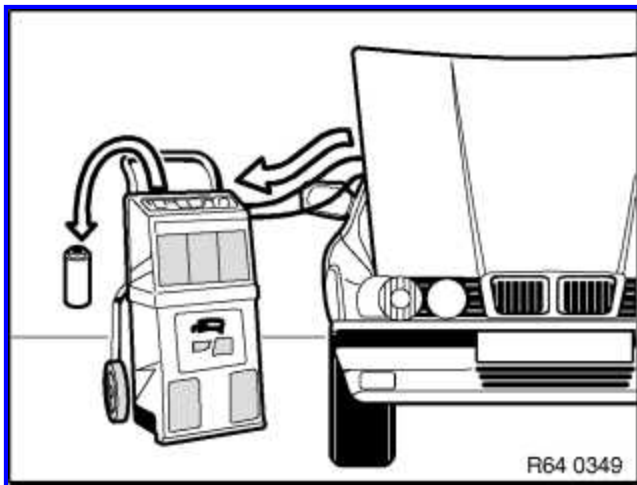
This state must be retained for the duration of the entire drawing off, evacuation and filling procedure.

After filling the refrigerant circuit, reconnect connector (1)!



Equipment specification with and without heat pump:

After filling the refrigerant circuit, delete fault memory!



Important!

Risk of damage!

Comply with [SI 08 07 10 \(669\)](#)!

Carefully move the climate service station!

Comply with the operating instructions and service interval for the A/C service station!

Make sure that the hoses of the A/C service station are drained after the drawing off or filling procedure!

The climate service station contains highly sensitive components, such as scales. These components will be damaged due to improper handling, such as fast driving over a bump. This will result in a significant reduction of the measuring accuracy when drawing off and filling.

Important!

The vehicle must be parked on the floor during all drawing off, evacuation and filling procedures!

Filling a raised vehicle will result in insufficient filling levels.



Note:

In the event of complaints, perform A/C performance test!

If the system fails the test, draw off, evacuate and fill the heating and air conditioning system in accordance with the operating instructions of the relevant service station.



Instructions for drawing off air conditioning:

To help separation of refrigerant and refrigerant oil, run engine at low speed (800-1200 rpm) and with air conditioning turned on for a few minutes.

This limits the entrainment of refrigerant oil while it is drawn off.

Drawn-off refrigerant oil must be changed and reintroduced via the A/C service station.

During drawing off, set blower of heating and air-conditioning unit to middle blower speed. This ensures that drawing off is more effective since the pressure on the low pressure side increases.



Recycling:

Dispose of drawn-off refrigerant oil as hazardous waste.

Observe country-specific waste disposal regulations.



Instructions for evacuating off air conditioning:

Before each filling, evacuate the refrigerant system.

Observe an evacuation time of at least 30 minutes.

The evacuation procedure removes all traces of ambient air, water vapour and any other gases present from the heating and air conditioning system. This enables subsequent system filling with refrigerant.

If the vacuum does not remain stable when the system is off, run the procedure for leaks in the refrigerant circuit.

During evacuation, set blower of heating and air-conditioning unit to middle blower speed. This ensures that evacuation is

more effective since the pressure on the low pressure side increases.

Notes for filling heating and air conditioning system:

Before filling with refrigerant, replace the refrigerant oil entrained during drawing off.

Also top up any lost fluid as indicated in the table:

Loss of R134a refrigerant

Table 1 indicates the permitted loss of refrigerant after a specific period of time. There is no leak. refrigerant oil may not be topped up.

Table 2 indicates the amount of refrigerant oil must be topped up with an unapproved loss of refrigerant due to a leak after a specific period of time.

Different cases:

- a. Loss of refrigerant per **Table 1** is not exceeded
 - Top up lost R134a refrigerant
 - It is not permitted to top up the refrigerant oil

- b. Loss of refrigerant per **Table 1** is exceeded
 - Top up lost R134a refrigerant
 - refrigerant oil must be topped up **additionally** per Table 2

Table 1: Number of years since last filling	0 - 1	1 - 2	2 - 3	3 - 4	4 - 5
Permissible loss [g] --> Do not top up refrigerant oil	≤ 30	≤ 60	≤ 90	≤ 120	≤ 150

Table 2: Number of years since last filling	R134a loss of coolant [g]	Top up quantity refrigerant oil
0 - 1	< 120	0
	120 - 150	10
	> 150	20
1 - 2	< 180	0
	180 - 210	10
	> 210	20
2 - 3	< 240	0
	240 - 270	10
	> 270	20
3 - 4	< 300	0
	300 - 330	10
	> 330	20
4 - 5	< 360	10
	> 360	20



Follow [notes for opening and replacing parts](#) in refrigerant circuit.

Depending on the type of component replaced on the heating and air conditioning system, it may be necessary to top up the refrigerant oil, even if no measurable losses have occurred during drawing off. Follow the notes provided by the heating and air conditioning system manufacturer, taking account of the tolerances (and inaccuracies) indicated in the operating instructions of the relevant service station.

Information on the required refrigerant capacity for the entire heating and air conditioning system is contained on the type plate (1) in the engine compartment.

If necessary, refer to the Technical Data for [capacity](#).

Installation note:

Reseal refrigerant filler necks on vehicle with sealing caps.