

LKPv
652./142.
LGPv
6520/1420

ProfiPremiumLine

Lab appliances



LKPv 6522



LGPv 6520



Functions

Functions at a glance

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- **Temperature control:** electronic
- **Temperature range:**
 - GGPv 65.. , LGPv : -10°C to -35°C
 - GGPv 14.. : -10°C to -26°C
 - GKPv, LKPv ...0 : -2°C to +15°C
 - LKPv ...2 : 0°C to +15°C
- **Temperature display:** digital
- **Temperature alarm:** visual and acoustic
- **Door alarm:** visual and acoustic
- **Interior compartment cooling:** dynamic
- **Defrosting:** automatic with hot gas
- **Interior light:** on LKPv ...2 installed
- **HACCP:** yes
- **Potential-free contact** yes
- **Interfaces:** infrared, RS 485

Controls

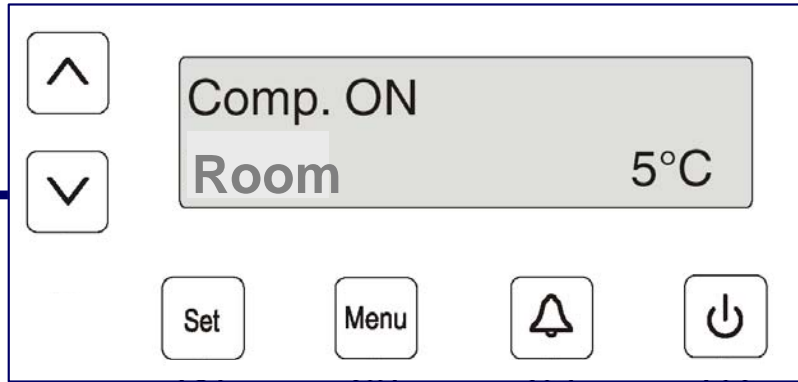
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- 1 : Temperature control buttons
- 2 : Set button (enter)
- 3 : Menu button (activate main menu)
- 4 : Alarm-Off button
- 5 : On/Off button
- 6 : Display for temperature display and status messages
- 7 : Infra-red sensor

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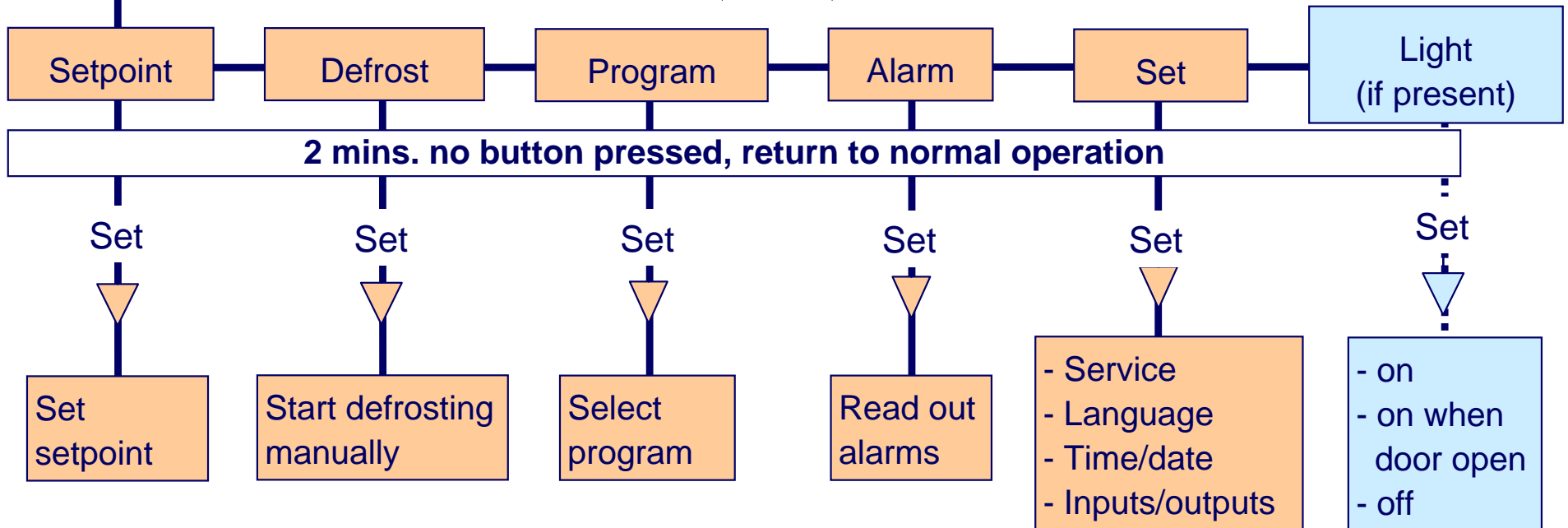
Menu



Only available sub-menus can be selected.

Menu

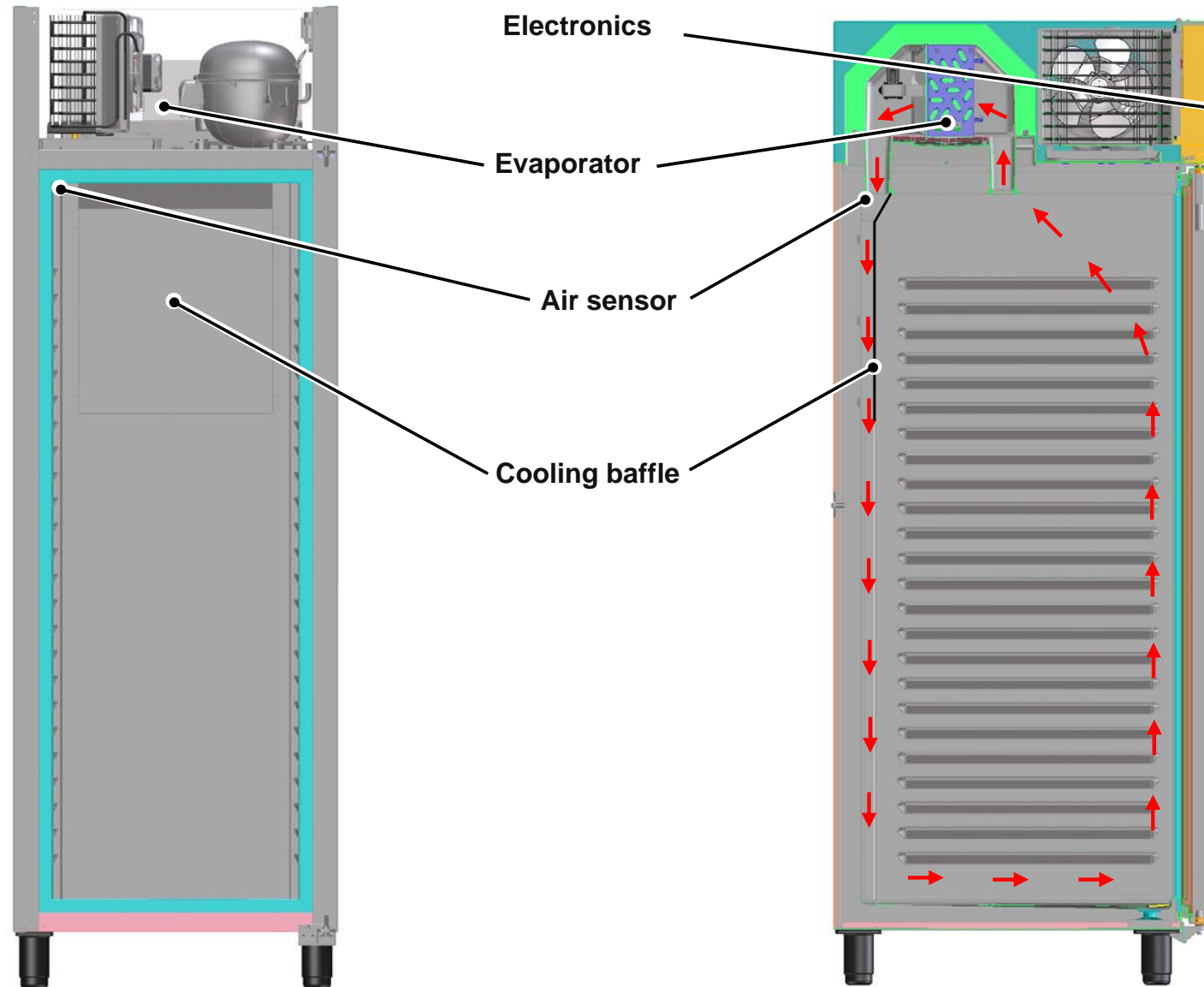
Down ← Menu sel. → Up



Design

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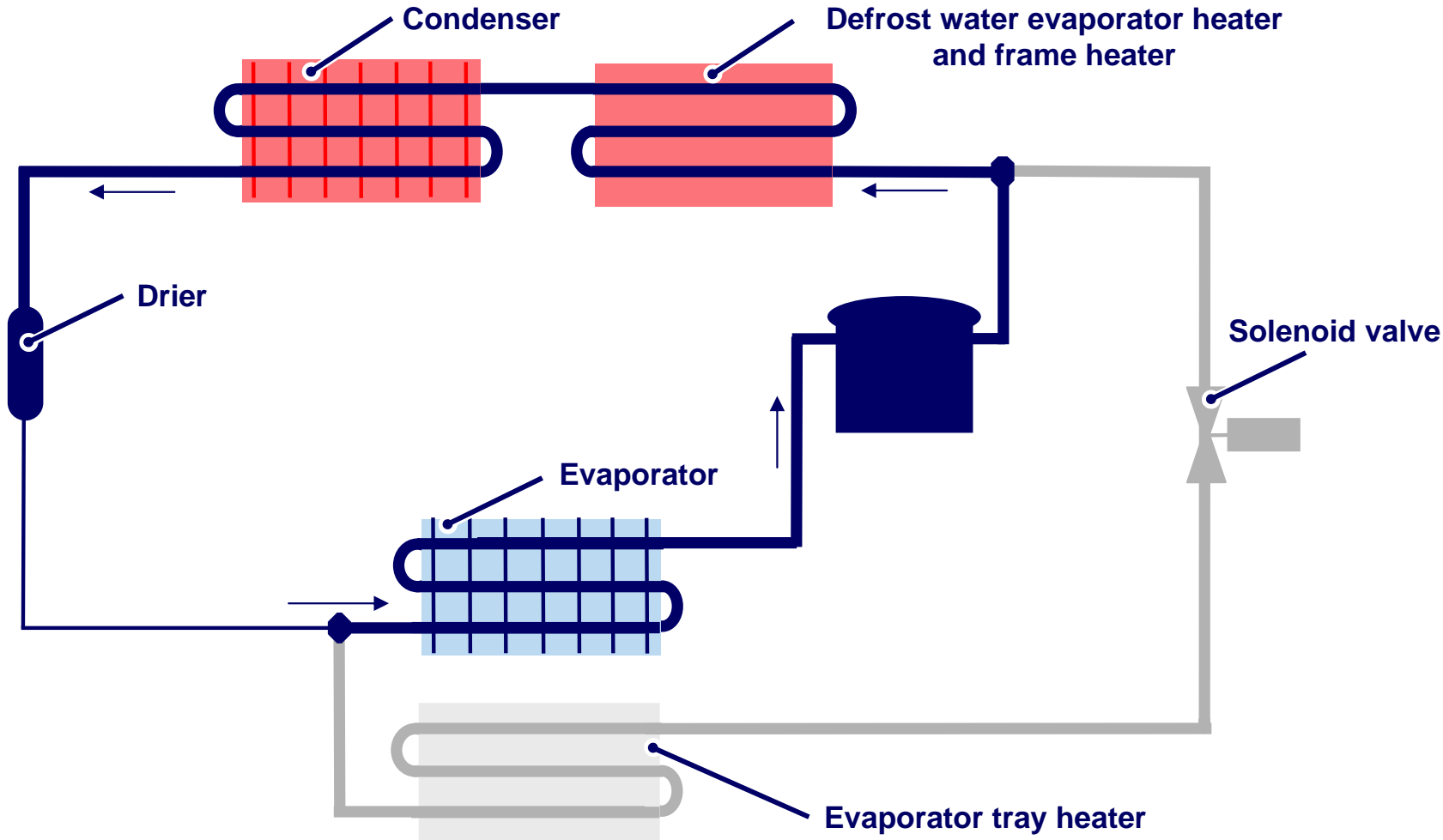
Operating principle



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Schematic diagram refrigeration technology

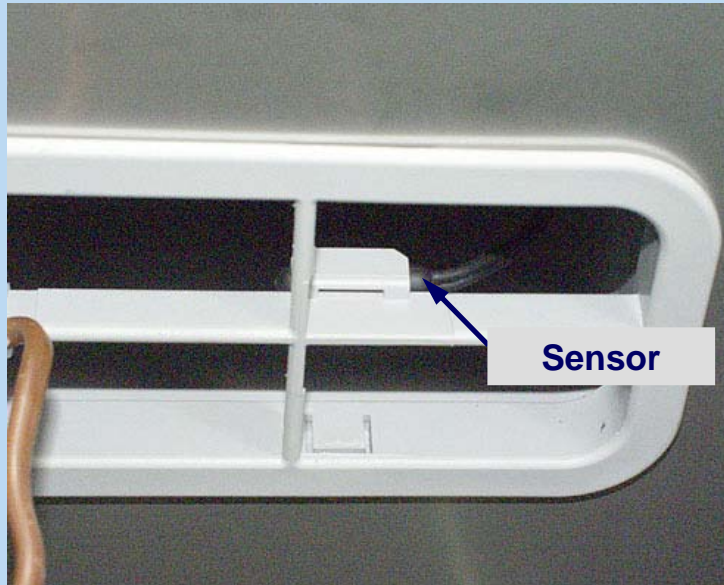
Cooling (Compressor on – solenoid valve closed)



Control

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Air sensor



Position:

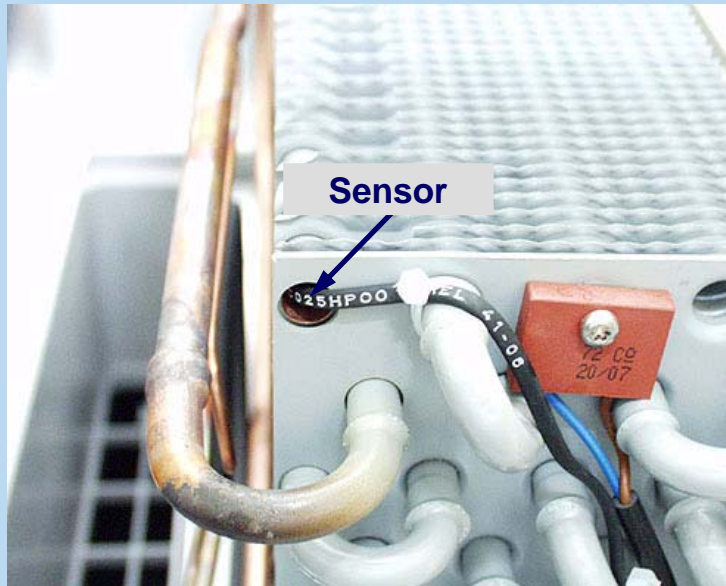
In top left-hand corner of interior at back.

Depending on this sensor

- the compressor switches ON and OFF.
- the temperature display is formed.
- the temperature alarm is initiated.
- the foamed in heaters (intake opening, drain tube) will be activated.

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Evaporator sensor



Position:

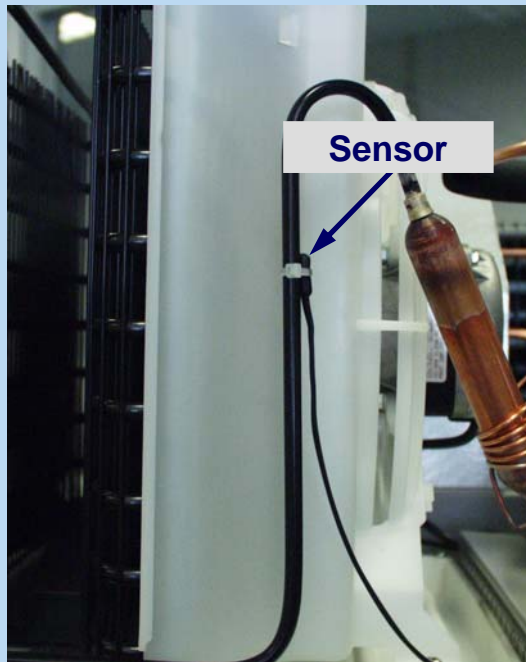
On the intake side of the evaporator,
pushed half way in.

Depending on this sensor

- the defrosting phase is ended (at +10°C).
- the evaporator fans are switched on when the evaporator is cold enough.

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Condenser sensor



Position:

On the condenser output

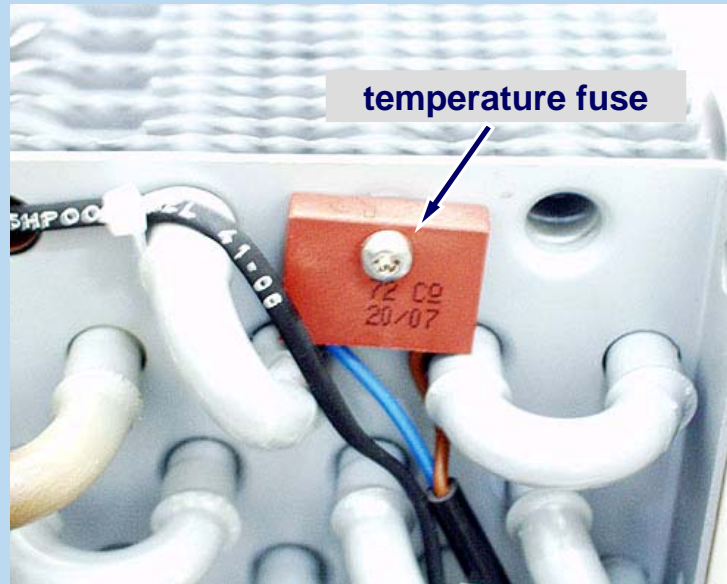
Depending on this sensor

- the condenser fan switches ON (at GKPv from +40°C, at GGPv from +20°C).

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temperature fuse for protection

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Position:

Screwed on the frontside of the evaporator

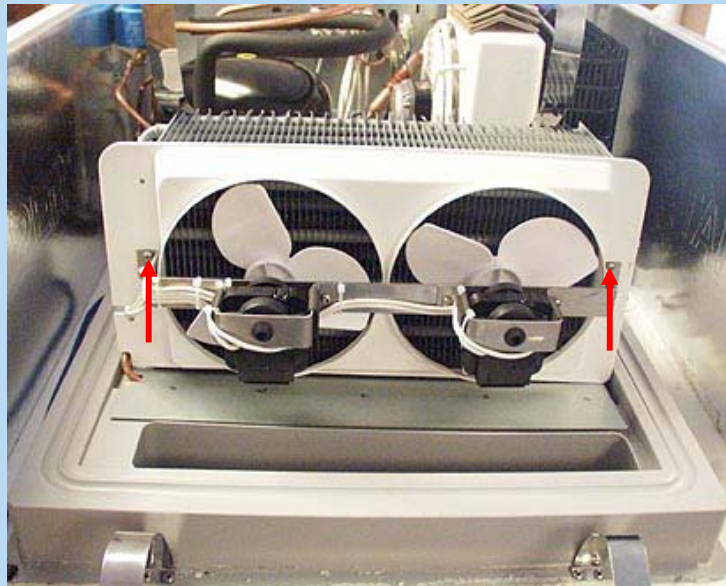
Depending on this fuse

- the compressor switches OFF at +72°C.

The fuse is an additional protection if the electronical protection (+60°C) fails.

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Evaporator fans



Position:

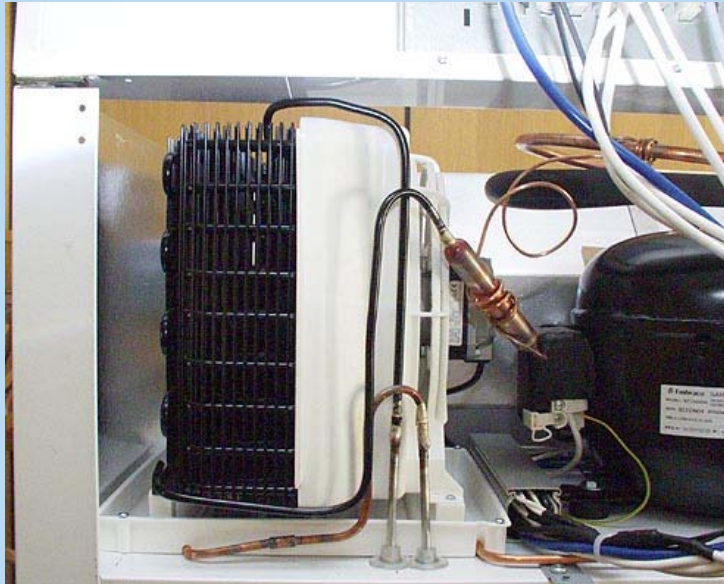
Attached to the evaporator together with the air funnel

The two fans

- run permanently.
- generally switch off when the door is open and during defrosting.

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Condenser fan



Position:

Attached to the condenser together with the air funnel

The fan

- runs in parallel with the compressor, provided that the condenser is warmer than +40°C (GKPv) or +20°C (GGPv).

Activation:

- The defrosting phase is automatically initiated after 4 hours accumulated compressor operation.
- The defrosting phase can also be manually initiated via the main menu.

Function:

- Hot gas defrosting (see next slide)
- The defrost water is collected in the evaporator tray and fed into the defrost water evaporating tray through a drain tube (siphon). During the next cooling phase, this tray is heated with hot gas and the water evaporates.

End:

- The defrosting phase is generally ended thermally (+10°C).
After 10 minutes, defrosting would be stopped where necessary.
- After a drain down time of 4 minutes at LKPv and 8 minutes at LGPv, the compressor starts up.
- The evaporator fans start up when the evaporator is colder than the air in the appliance
(min. time at LKPv 1 minute, min. time at LGPv 2 minute)

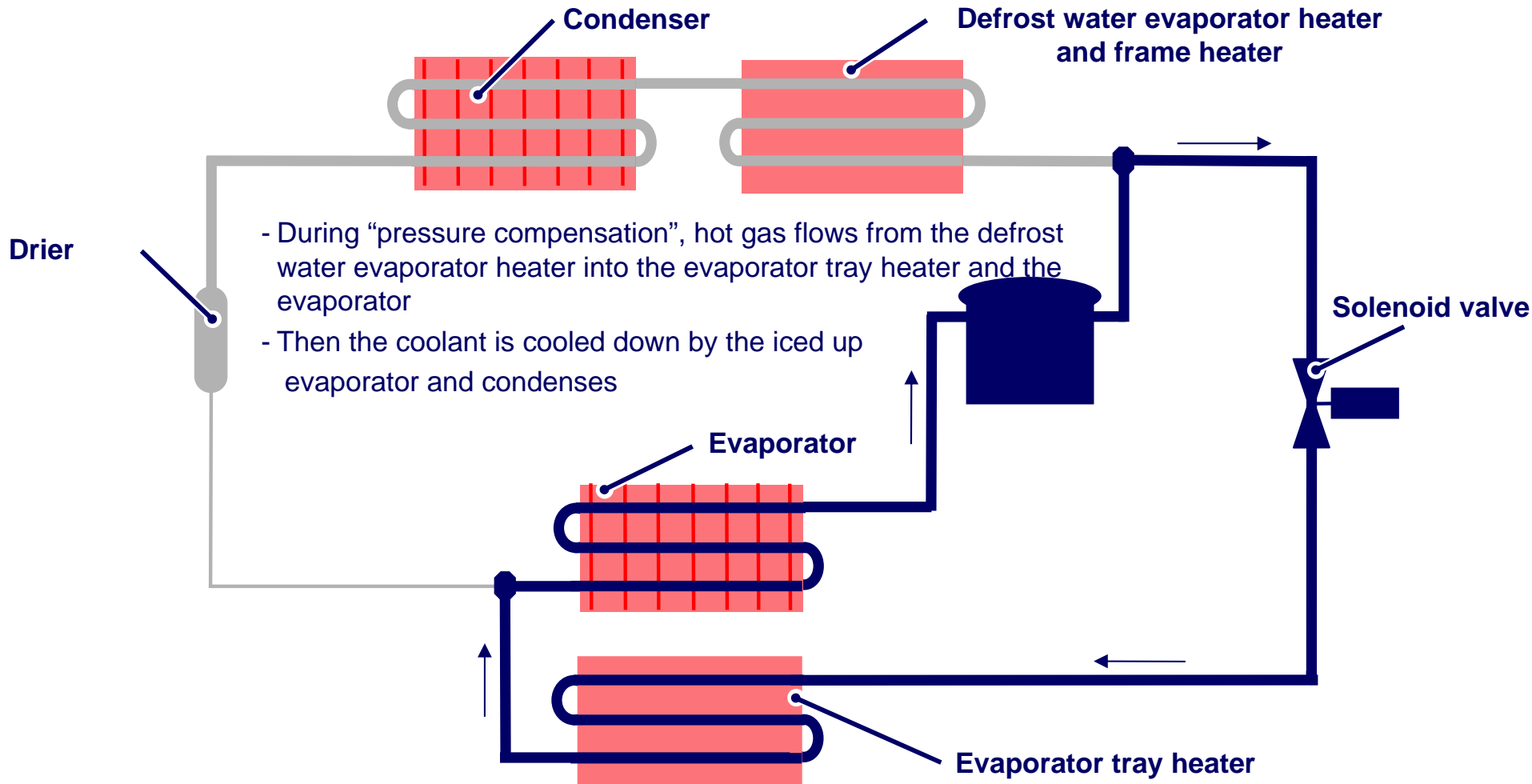
Note:

The intake opening and the drain tube to the evaporator tray are electrically heated on the LGPv.

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Schematic diagram hot gas defrosting

Compressor on – solenoid valve open)



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Solenoid valve



Housing with coil

Position:

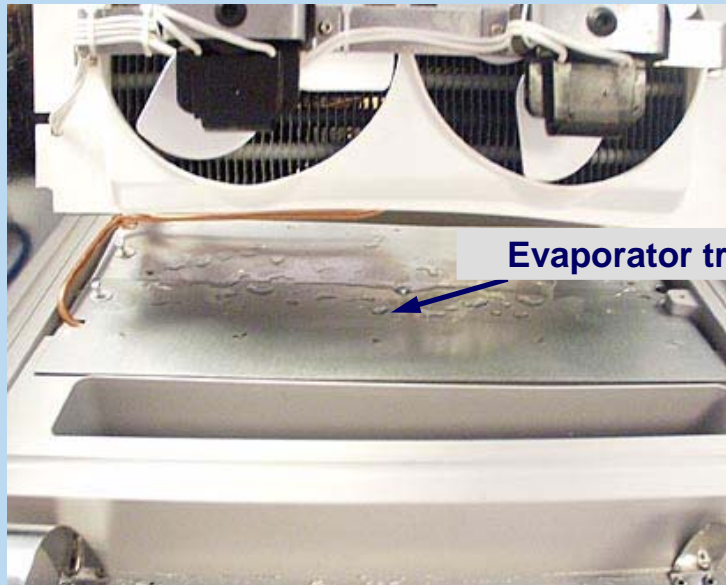
Attached to the right-hand upright side wall

Function:

The solenoid valve opens a bypass so that hot gas is pumped directly through the evaporator tray and the evaporator

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Evaporator tray heater



Position:

Attached to the evaporator tray

Function:

The tray heater is heated with hot gas during the defrosting phase and prevents defrost water freezing in the evaporator tray.

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Defrost water evaporator tray

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Position:

Tray is installed below the condenser.

Function:

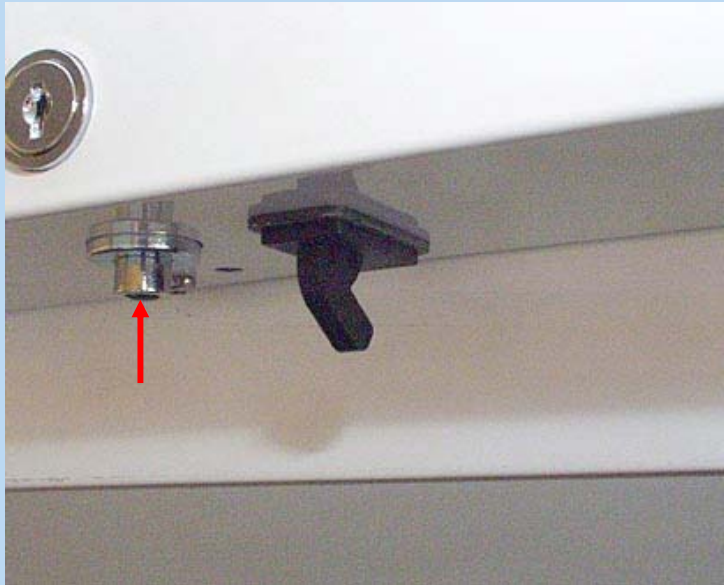
In the cooling phase, the tray is heated with hot gas so that the water collected during the defrosting phase evaporates

Parts

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Replacing the electronics

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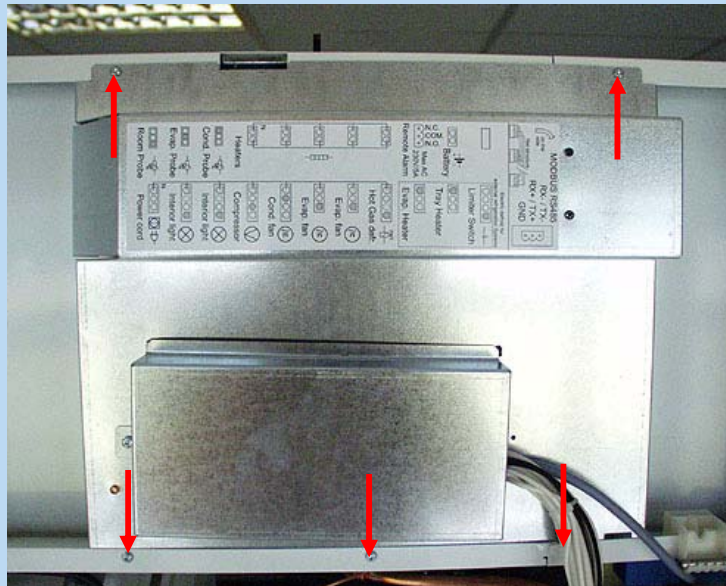
Procedure

- Remove screw on the underside and lift up the housing to open.

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Replacing the electronics

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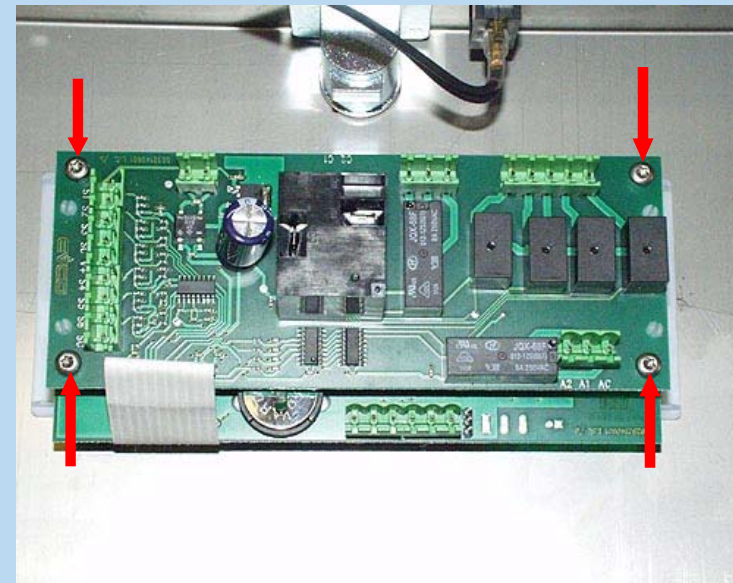
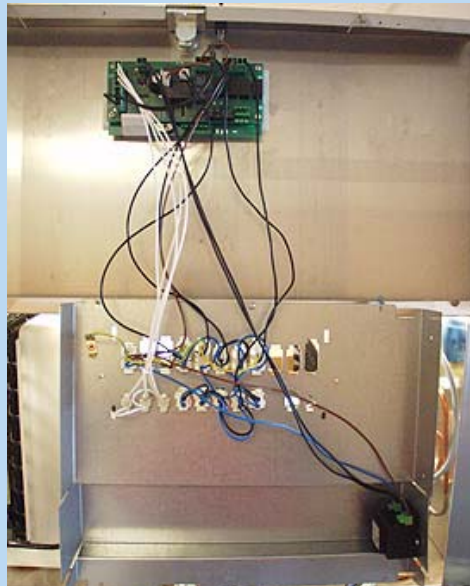
Procedure

- Remove fixing screws of the cover and take cover off.

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Replacing the electronics

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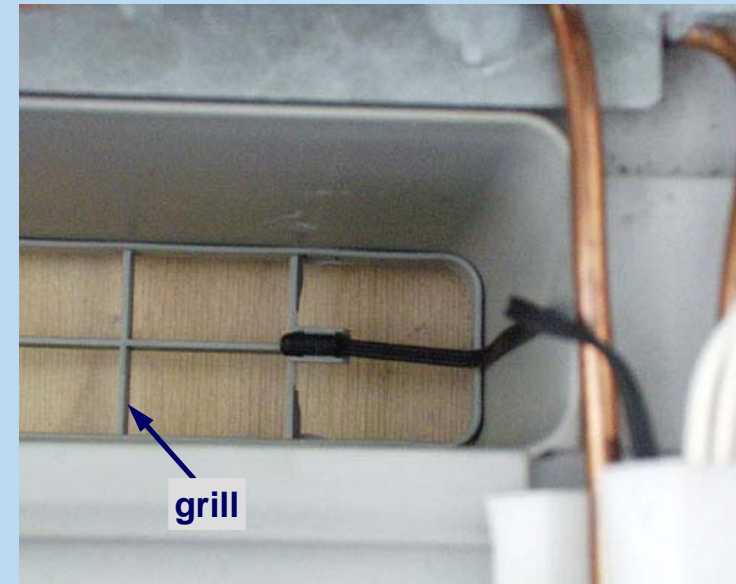
Procedure

- Disconnect plug of the electronics.
- Unclip electronics from holder.

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Replacing the air sensor

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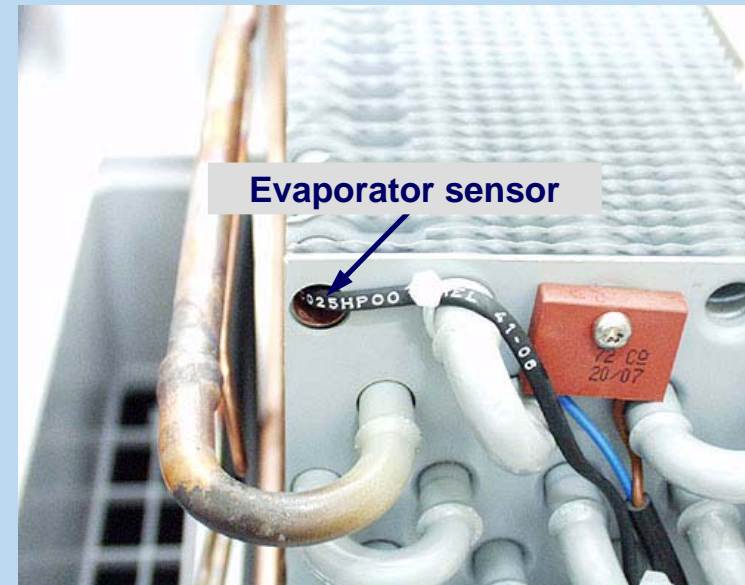
Procedure

- Loose the screws and stripes of the evaporator cover – remove the cover and the sensor from the grill (see pic. 5.2 / 3).
- Mount the cable of the new sensor correctly, that the cover can close the gap.

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Replacing the evaporator sensor

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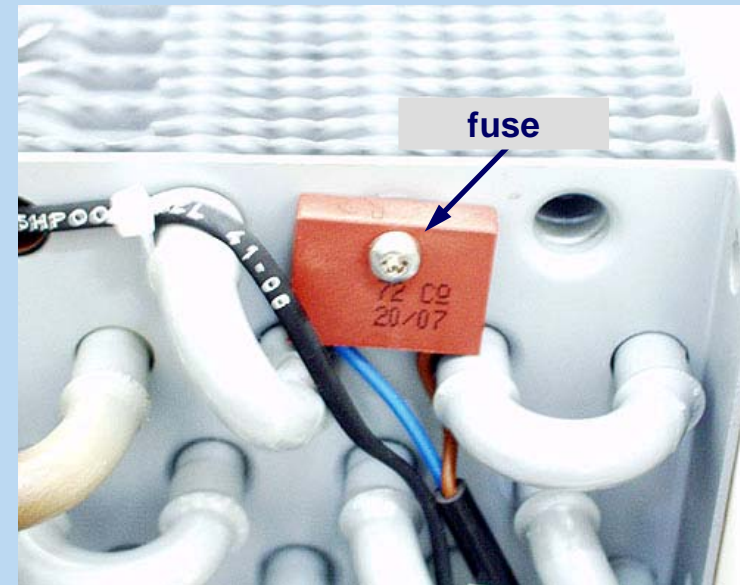
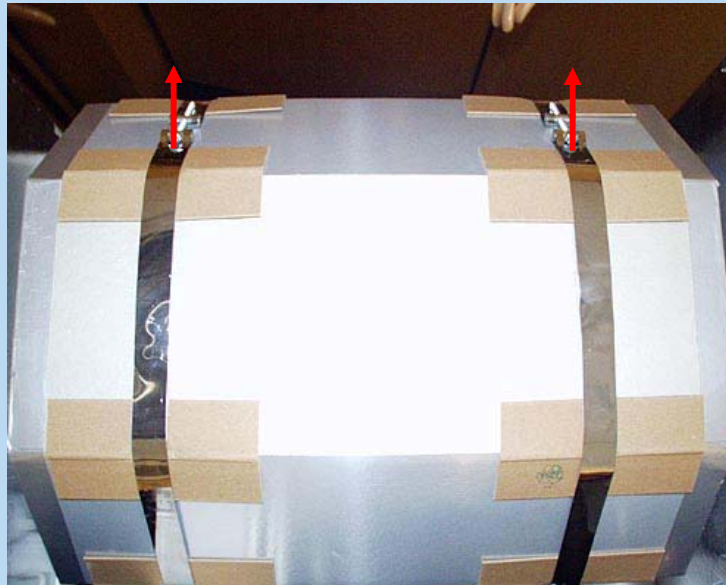
Procedure

- Undo screws and tightening straps. Remove evaporator cover.
- Pull sensor out of evaporator and disconnect from the distributor board.
- When installing, ensure that the sensor is pushed half way into the evaporator and is fixed with a cable tie.
- When installing the cover, ensure that it seals correctly all the way round.

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Replacing the fuse

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Procedure

- Undo screws and tightening straps. Remove evaporator cover.
- disconnect the fuse from the evaporator.
- When installing the cover, ensure that it seals correctly all the way round.

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Replacing the condenser sensor

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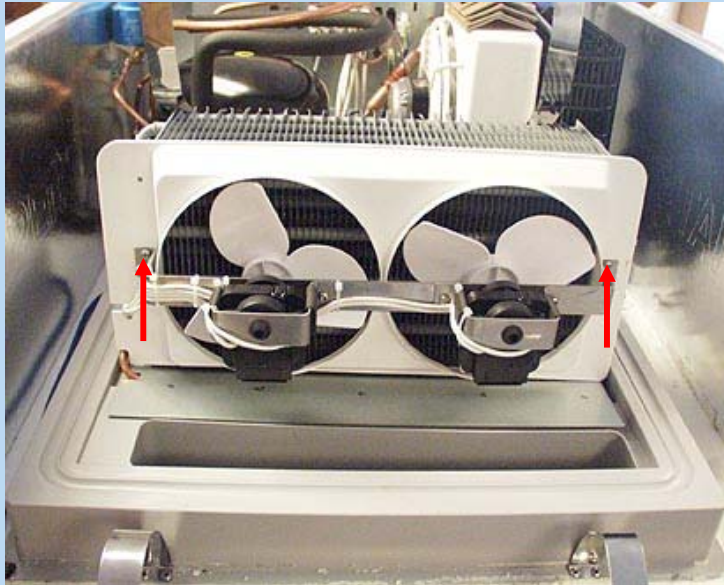
Procedure

- Remove cable tie and replace sensor.

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Replacing the evaporator fans

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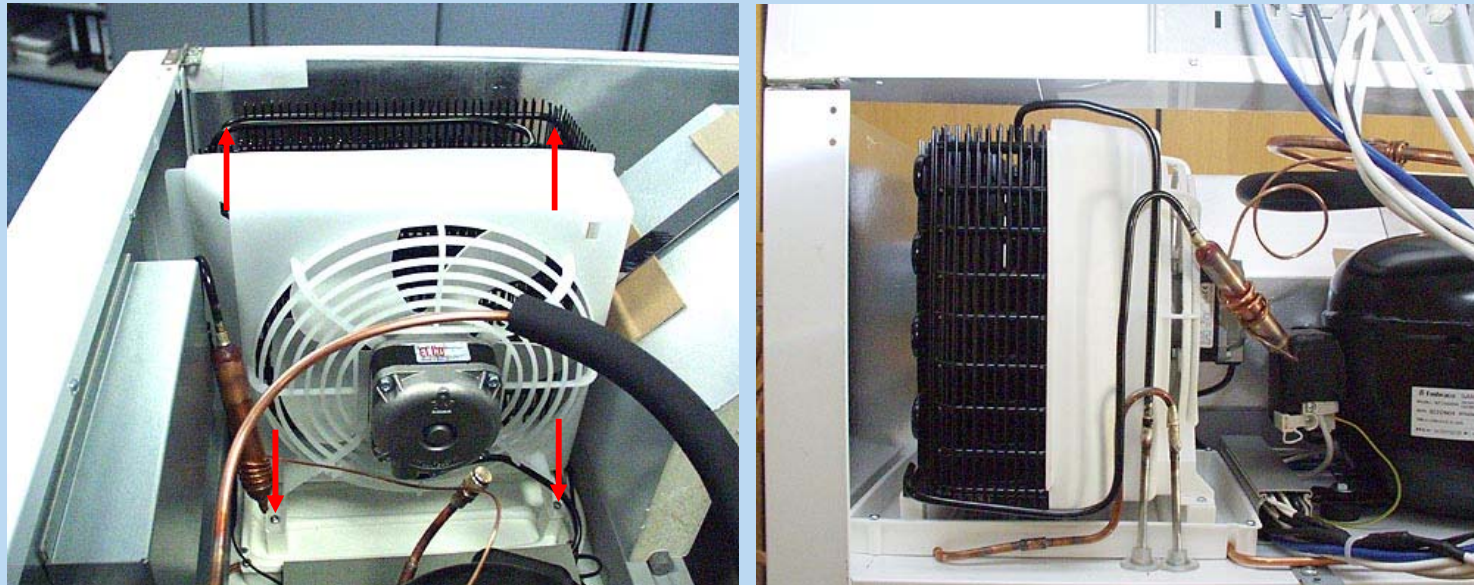
Procedure

- Remove evaporator cover.
- Undo screws of the fan holder and remove fans.

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Replacing the condenser fan

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Procedure

- Remove fixing screws of the fan holder.
- Detach holder from condenser at the top and remove.
- Unscrew motor holder

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Replacing the solenoid valve

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Housing with coil



Procedure

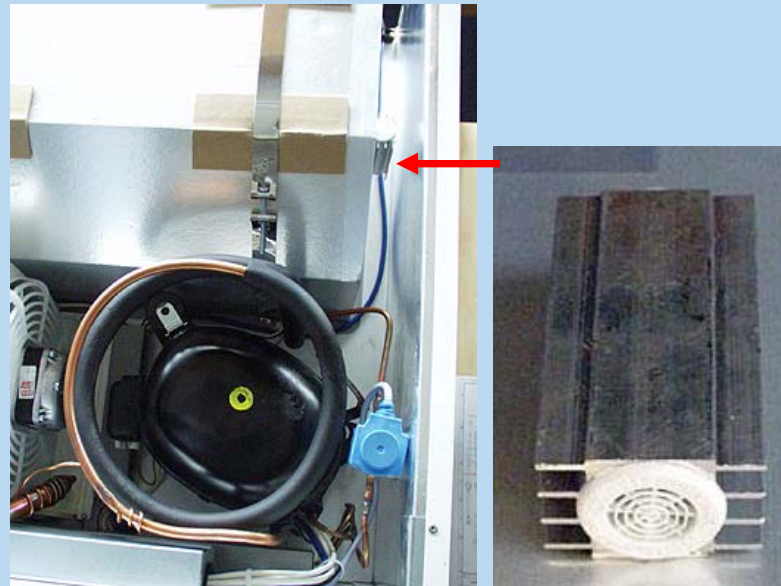
- The coil of the solenoid valve can be removed upwardly (i.e. no intervention in the cooling circuit is necessary!).

Special features

Pressure compensation valve

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GGPv



Position:

On the left-hand side of the evaporator cover

Function:

The pressure compensation valve enables fast pressure compensation. The valve is heated via the aluminium fins, so that no electrical heating is necessary

Storage battery

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Position:

At the left-hand side – next to the evaporator cover

Function:

In case of black out the akku supplies the electronic. So the temperature can be displayed and the alarms can be generated.

Hidden functions

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Inputs/Outputs

Via the menu set – inputs/outputs, the statuses of the sensors, inputs and outputs can be displayed.

Room sensor

Evaporator sensor

Condenser sensor

S 4 Door switch

S 5

S 6

C Compressor

D Defrosting

FE Evaporator fan

FC Condenser fan

L Interior light

X AUX relay (all electrical heaters – only for GGPv)

A Alarm relay (potential-free alarm contact)

Operating data

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Via the menu set – service, data on the recorded operating statuses can be displayed and certain stored data deleted.

Timer: Data on the operating times and frequency of start-up of the compressor

Defrosting Data on the last 16 defrosting cycles

Door opened Data on door openings of the last 31 days can be displayed.

Parameters The parameters and their values can be displayed.

Relay test Enables all relays and therefore consumers to be activated individually

Reset memory Enables all data stored in the memory to be deleted

Operating data

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Via the menu set – service, data on the recorded operating statuses can be displayed and certain stored data deleted.

Timer:

The following data can be displayed with the Up/Down buttons:

- Average switch-on and switch-off times of the compressor
- Daily and hourly percentage of compressor operation
- Days and hours of compressor operation or appliance operation

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Via the menu set – service, data on the recorded operating statuses can be displayed and certain stored data deleted.

Defrosting

The last 16 defrosting cycles can be displayed with the Up/Down buttons.

The following are displayed:

- date and time of defrosting
- duration of defrosting
- type of activation of defrosting (manual, automatic,...)

Operating data

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Via the menu set – service, data on the recorded operating statuses can be displayed and certain stored data deleted.

Door opened The data on door openings of the last 31 days can be displayed with the Up/Down buttons.

The following are displayed:

- number of all door openings of the day
- number of door openings which lasted more than 3 minutes
- total duration of door openings of the day

Operating data

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Via the menu set – service, data on the recorded operating statuses can be displayed and certain stored data deleted.

Parameter The parameters and their values can be displayed with the Up/Down buttons.
The parameters must not be changed!

Operating data

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Via the menu set – service, data on the recorded operating statuses can be displayed and certain stored data deleted.

Relay test: The following consumers can be switched on individually with the Up/Down buttons:

- compressor
- solenoid valve (defrosting)
- evaporator fans
- condenser fans
- interior light (if fitted)
- AUX relays (heaters for intake shaft, drain tube, door ledge and frame)
- Alarm relay (potential-free alarm contact)

Operating data

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Via the menu set – service, data on the recorded operating statuses can be displayed and certain stored data deleted.

Reset memory Enables all data stored in the memory to be deleted