

Vestfrost Solutions

Maintenance and Repair Presentation VLS 024 SDD

Topics

1. Overview of VLS 024 SDD
2. General required maintenance
3. Vital components
4. Warning
5. Required basic Tools
6. Replacement of components
 - Thermostat
 - Starting Device ECU
 - Thermometer
 - Thermostat Sensor
 - Fan
 - Fuse
7. Trouble shooting
8. On-Site Checklist
9. Technical Support

Overview of VLS 024 SDD

Vaccine Chest Refrigerators

SDD – Solar Direct Drive

WHO PQS Approved Codes:

- E003/069

Technical specifications:

- +43°C hot zone
- Grade A
- Compressor Secop BD35K
- Refrigerant R600a
- Galvanized pre-painted cabinet
- Inner lining pre-painted aluminium
- Insulation cyclopentane 100mm
- Automatic temperature control
- Solar connection - Plug & Play
- Voltage 10-45V
- Lock and key



General required maintenance

Daily Check:

Monitor Temperature
Internal lid is placed properly
Lid fits and lock tight to cabinet
Lid gasket not faulty

Monthly:

Clean grill for compressor compartment

6 Month:

Clean condenser coils

Yearly:

Check electrical connections and components
Check electrical connections, cables, wirings from PV panel system

Regularly:

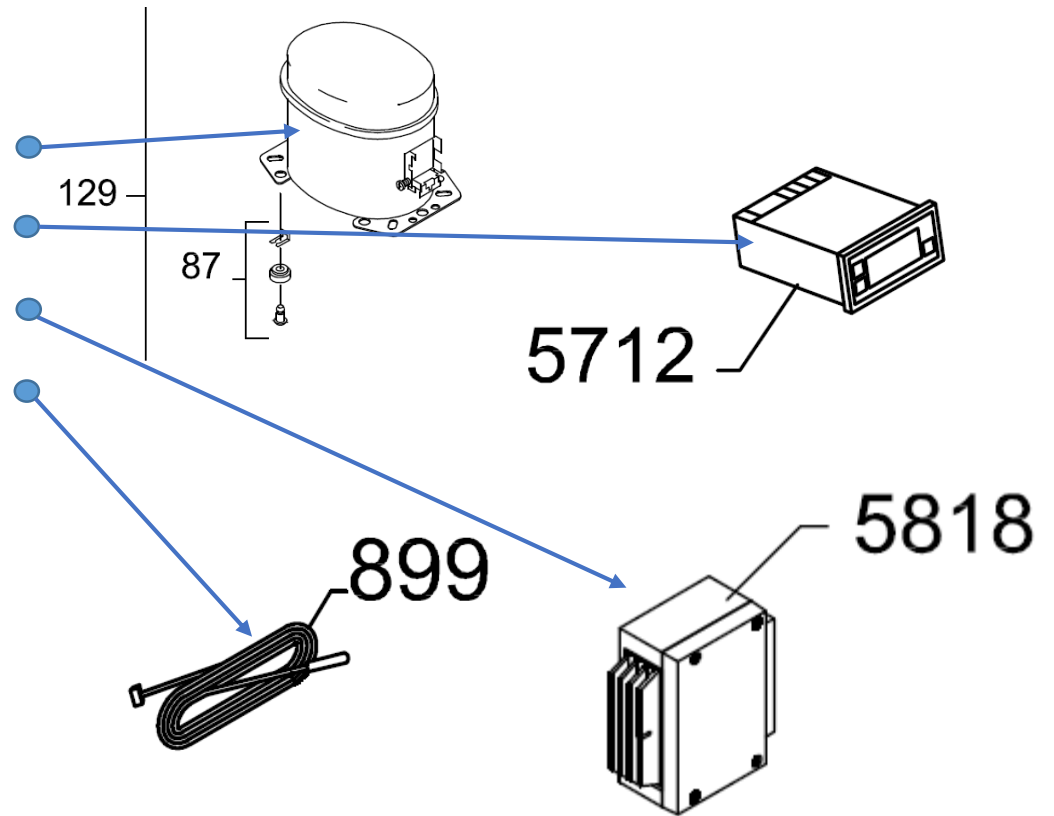
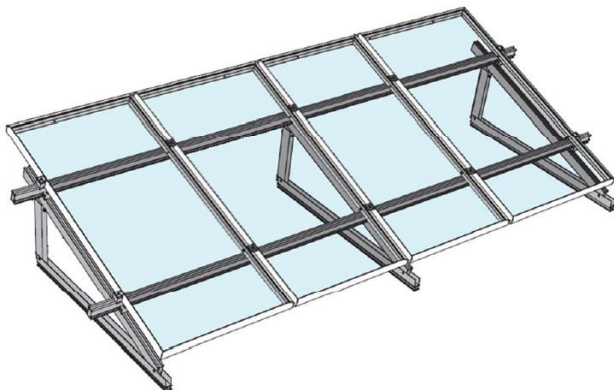
Clean Solar Panels
Check Solar Panels are not shaded at any time of the day



Vital Components

Position	Item no	Description
129	8-036510214	Compressor
5212	7020274	Thermostat
5818	6520258	Starting Device ECU
0899	0-7220006	Thermostat sensor

PV Solar Panel Kit



Warning!

Before any repair job be aware of following!

WARNING:

Before servicing or cleaning the appliance, disconnect it from power source.

WARNING:

Danger risk of fire or explosion. Flammable refrigerant used. To be repaired only by trained personnel.



Required Basic Tools

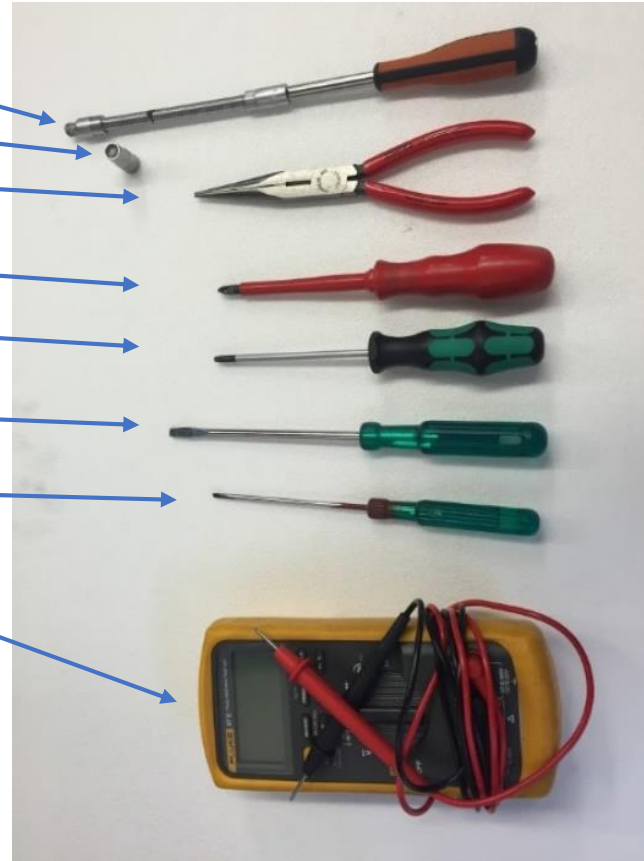
1. Flexible socket wrench
2. Socket wrench - size 7mm
3. Nose plier
4. Phillips screwdriver
5. Torx screwdriver - size t10+t20
6. Screwdriver - size 1,0x6,0
7. Screwdriver – size 0,6x3,5
8. Multimeter

Proposed additional service kit/items

Sealing kit

Tar tape

Extra self-tapping screws



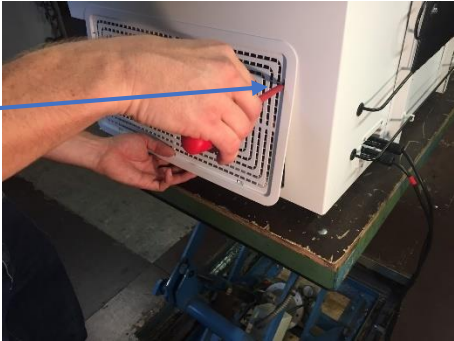
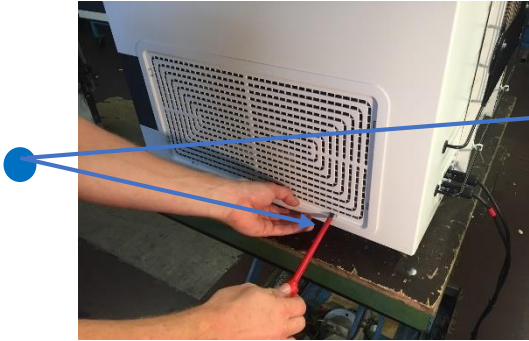
Replacement of components

1. Motor Compartment
2. Thermostat
3. Starting Device ECU
4. Thermometer
5. Thermostat sensor
6. Fan

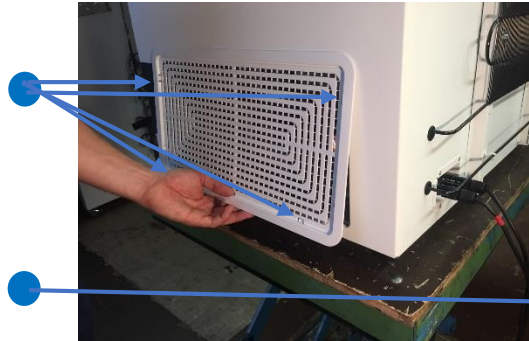
Motor Compartment

How to get access to the motor compartment.

- Use a screwdriver to remove grill



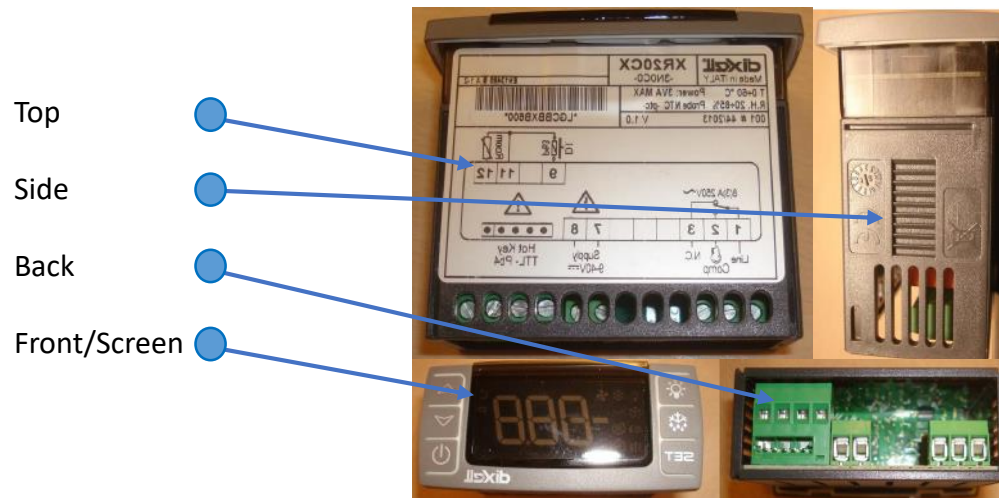
- Unlatch all 4 clamps



- Pull the compressor grill

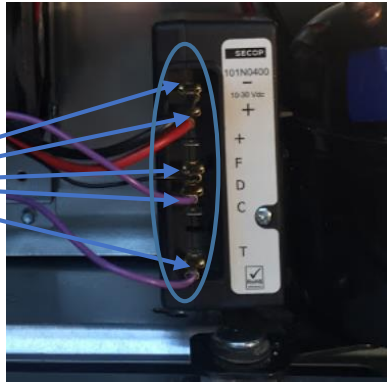
Thermostat Replacement

The thermostat is placed in the left corner of the compressor compartment on the terminal bracket

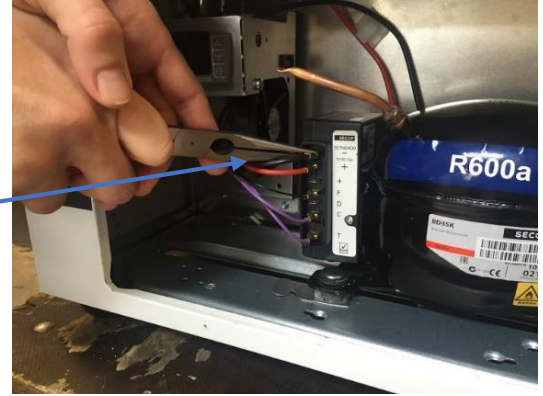


Thermostat Replacement

1: Dismount 5 wires from ECU



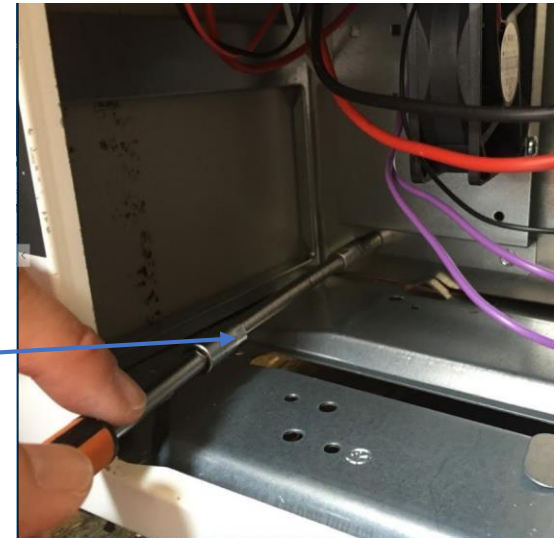
Use a nose plier to grab the wire socket and gently pull



2: Loosen 4 screws for thermostat/fan bracket

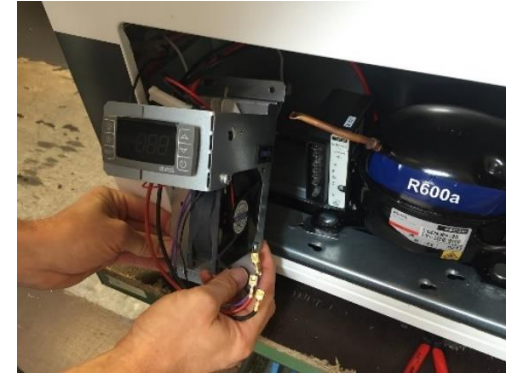
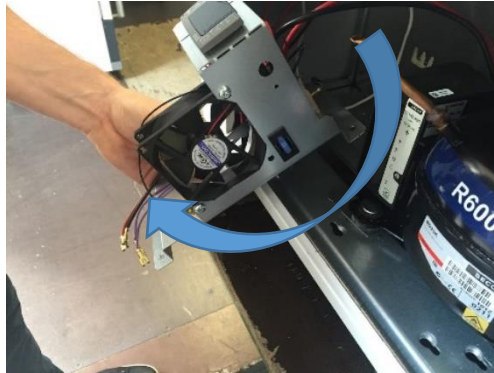


Use the flexible socket wrench size 7mm

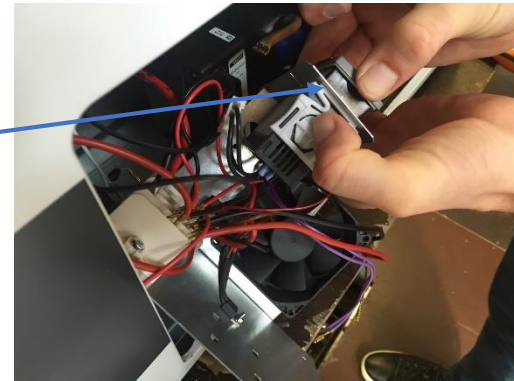
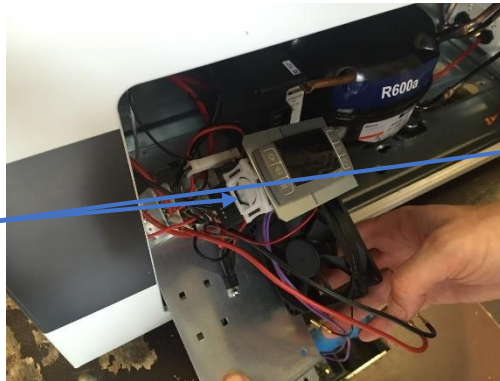


Thermostat Replacement

3: Gently pull out the thermostat bracket, by tilting out from bottom

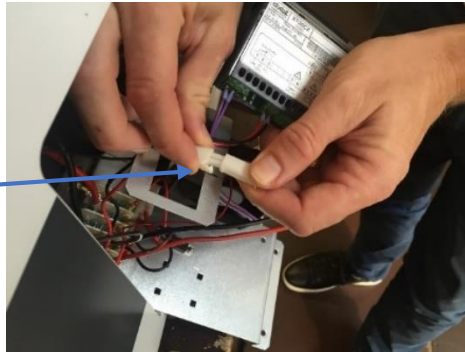


4: Push clip on left and right side and pull out thermostat



Thermostat Replacement

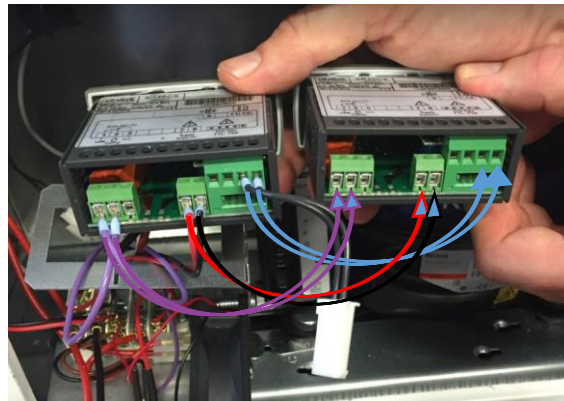
5: Unplug connector for temperature probe



6: Use a small screwdriver to loosen the cable lugs from thermostat socket.

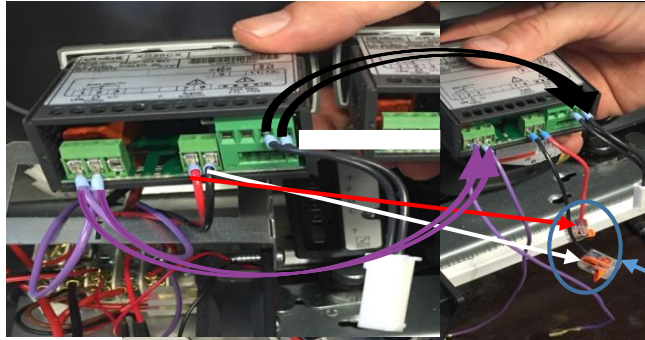


7: Exchange the wires 1/1 from the old thermostat to the new



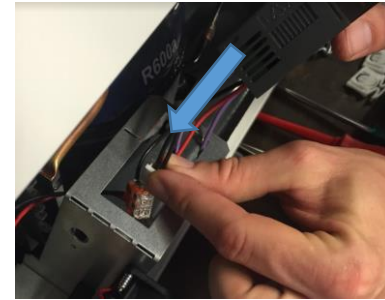
Thermostat Replacement

5: Exchange the wires 2x purple wires and the 2x black sensor wires incl. socket 1/1 to new thermostat

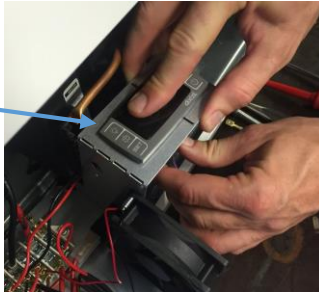


Red & black power wires to be connected with cable joint

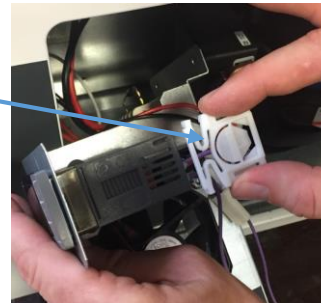
6: Enter the wires into the thermometer bracket



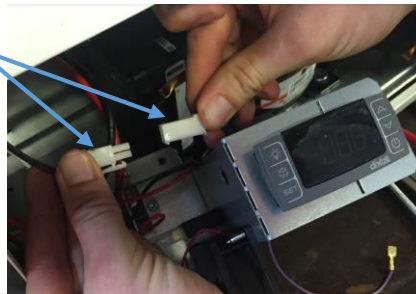
7: Place thermometer in bracket slot



8: Mount the 2x clips



9: Connect cable joint for temperature sensor

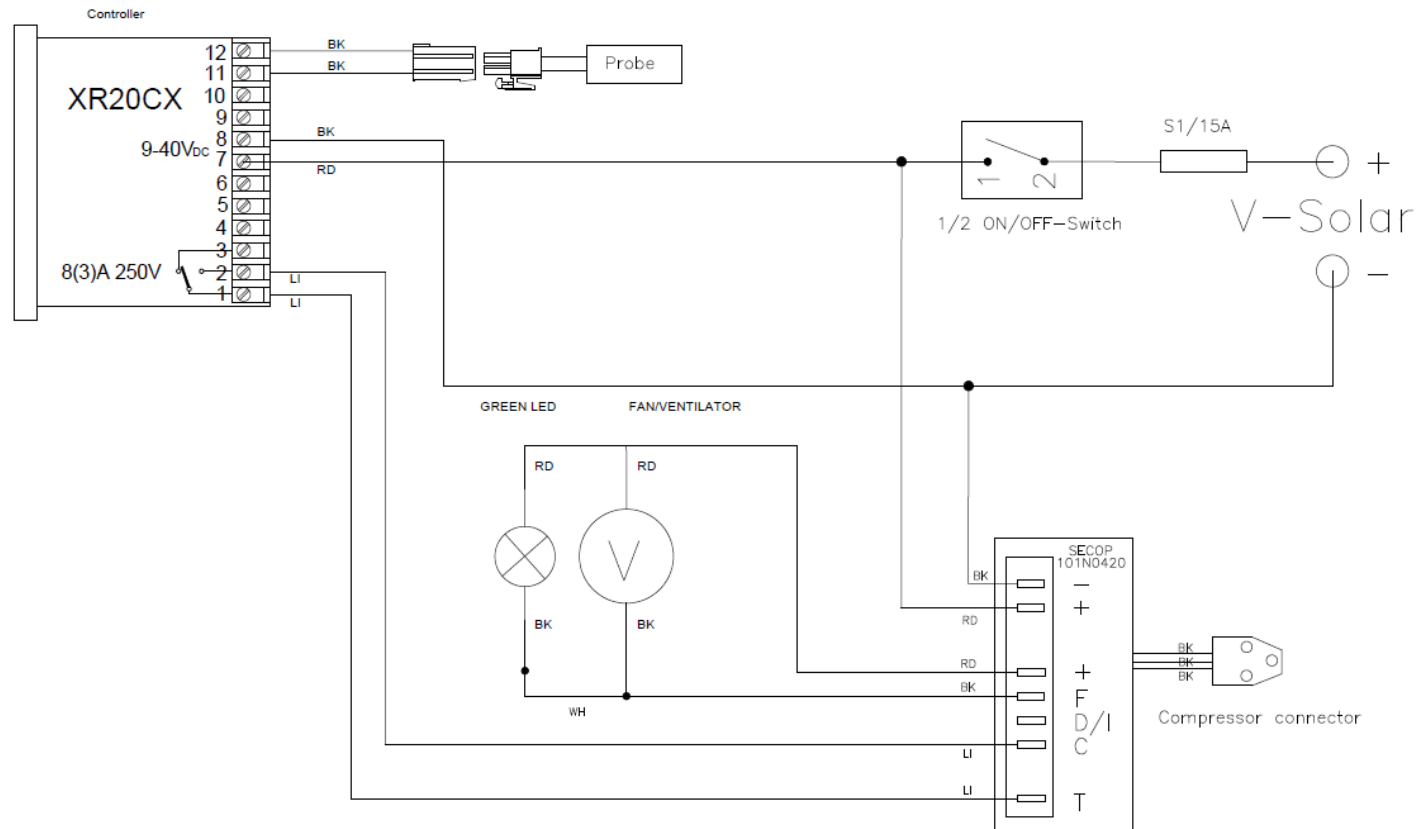


10: Re-mount the fan/thermometer bracket using 4xscrews



Thermostat

Wiring Diagram





Thermostat Programming


4. FRONT PANEL COMMANDS





SET: To display target set point; in programming mode it selects a parameter or confirm an operation.

 **(DEF)** To start a manual defrost

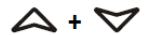
 **(UP)**: To see the max. stored temperature; in programming mode it browses the parameter codes or increases the displayed value.


 **(DOWN)** To see the min stored temperature; in programming mode it browses the parameter codes or decreases the displayed value.


 To switch the instrument off, if onF = oFF.

 Not enabled

KEY COMBINATIONS:


 To lock & unlock the keyboard.

SET +  To enter in programming mode.



SET +  To return to the room temperature display.

6. MAIN FUNCTIONS

6.1 HOW TO SEE THE SETPOINT


- SET** 
1. Push and immediately release the **SET** key: the display will show the Set point value;
 2. Push and immediately release the **SET** key or wait for 5 seconds to display the probe value again.

6.2 HOW TO CHANGE THE SETPOINT

1. Push the **SET** key for more than 2 seconds to change the Set point value;
2. The value of the set point will be displayed and the “°C” or “°F” LED starts blinking;
3. To change the Set value push the  or  arrows within 10s.
4. To memorise the new set point value push the **SET** key again or wait 10s.

6.4 HOW TO CHANGE A PARAMETER VALUE

To change the parameter's value operate as follows:

1. Enter the Programming mode by pressing the **Set** +  keys for 3s (the “°C” or “°F” LED starts blinking).
2. Select the required parameter. Press the “**SET**” key to display its value
3. Use “**UP**” or “**DOWN**” to change its value.
4. Press “**SET**” to store the new value and move to the following parameter.

To exit: Press **SET** + **UP** or wait 15s without pressing a key.

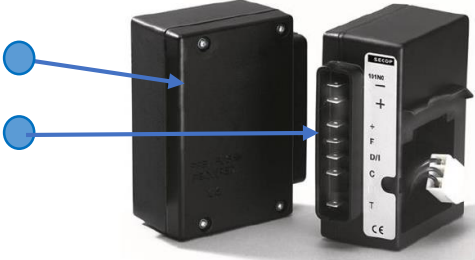
NOTE: the set value is stored even when the procedure is exited by waiting the time-out to expire.

Starting Device Replacement

Starting device

Back

Front
with terminal
board



The starting device is mounted to the left side of the compressor



1: Loosen the phillips screw a couple of turns



2: Place a screwdriver in the small vent in the plastic cover



3: Unclick plastic cover/starting device from compressor bracket



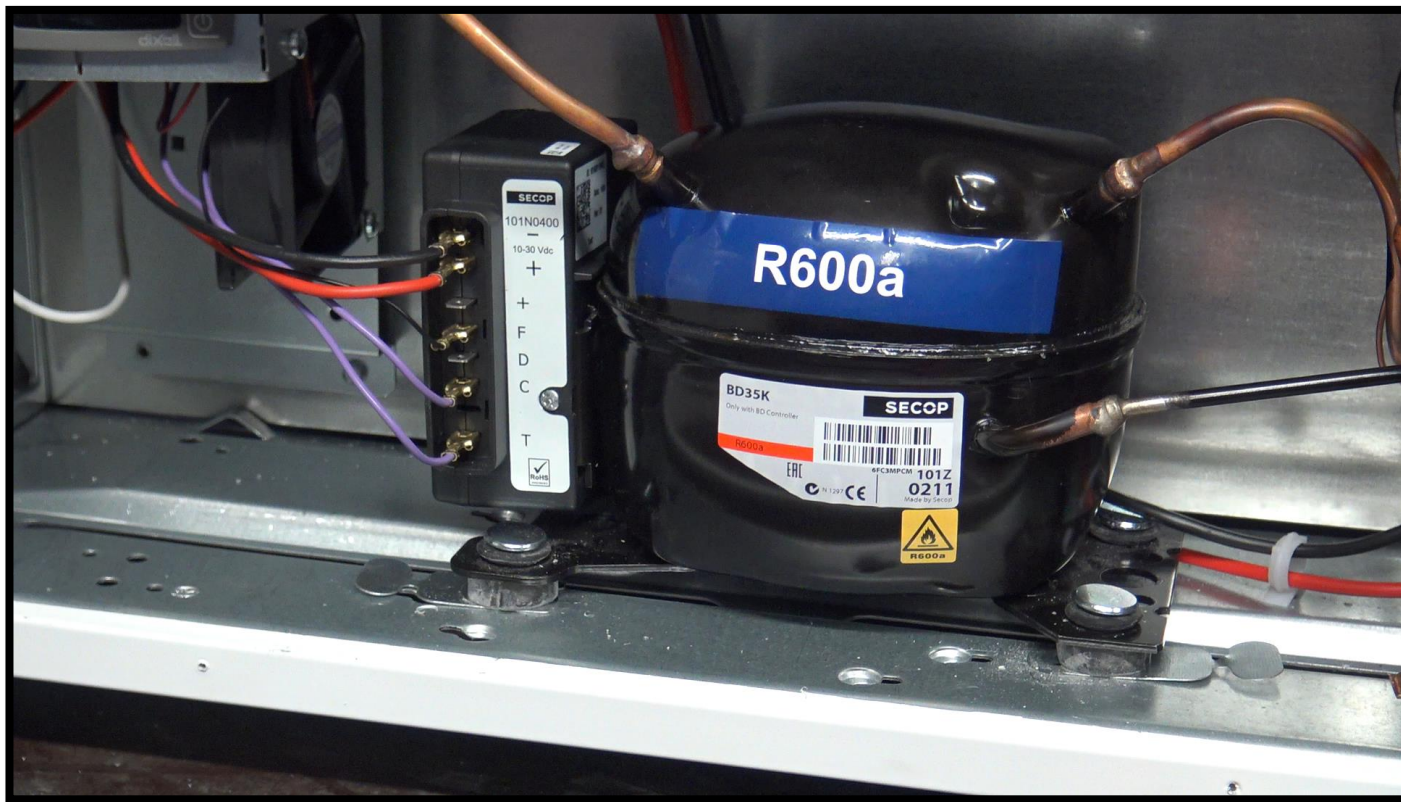
4: Use a screwdriver to disconnect the socket from compressor



Starting Device Replacement

Video

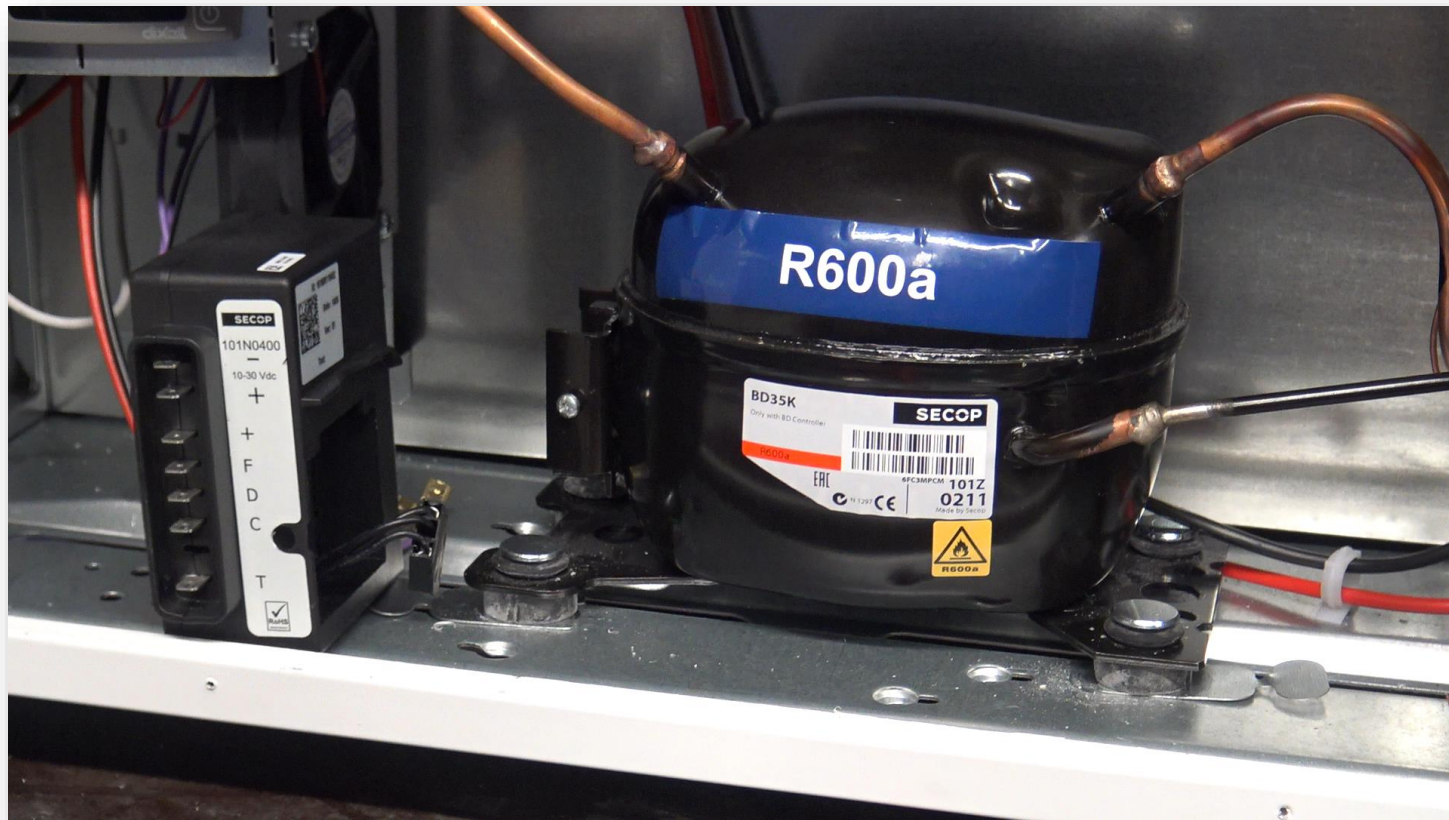
How to dismount



Starting Device Replacement

Video

How to install



Thermometer Replacement

The thermometer is placed in at the front of the appliance



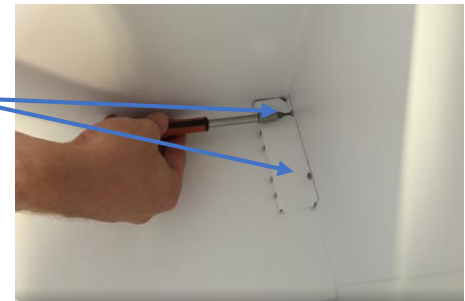
Thermometer display



The temperature probe is placed inside the compartment of the appliance



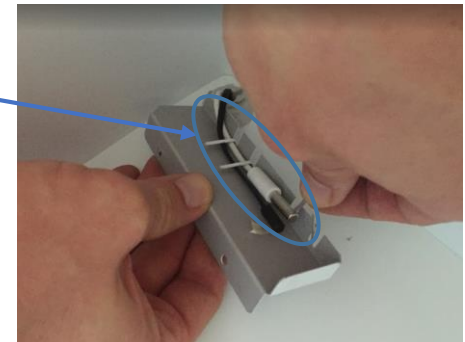
1: Dismount the temperature sensor cover by loosen the 2x torx screws – size 10



2: Remove wire sealing plug

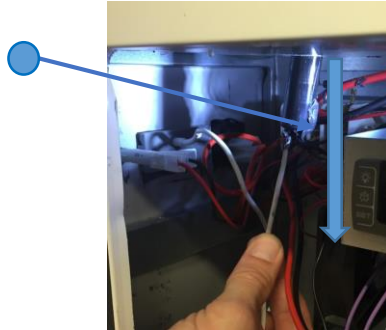


3: Open the 3x clamps fixing the temperature sensors



Thermometer Replacement

4: Remove black sealing tar-kit and gently pull the white wire until the probe is visible



6: Thermometer comes with wire and sensor



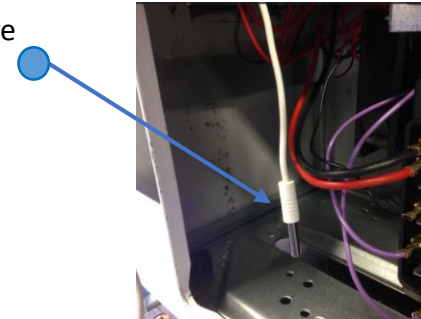
8: **IMPORTANT!** When re-mounting the new thermometer remember to properly seal the wire feedthrough



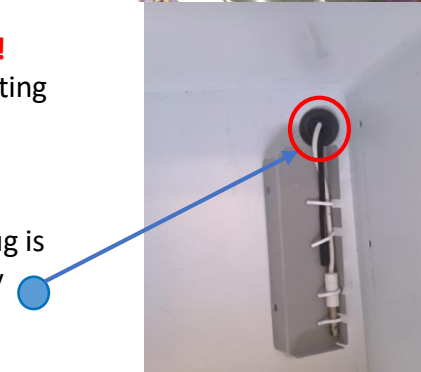
Tar kit



5: Temperature sensor



7: **IMPORTANT!** When re-mounting the new thermometer make sure the wire sealing plug is placed properly

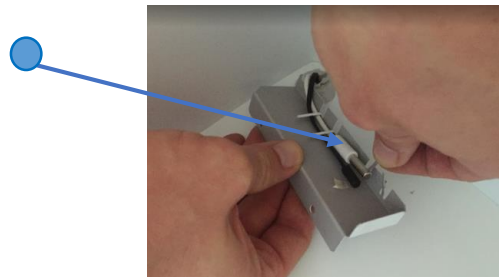


Thermostat Sensor Replacement

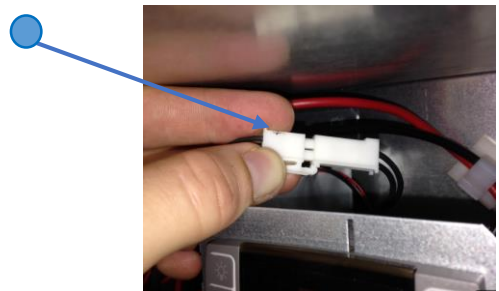
The thermostat sensor is placed inside the compartment of the appliance



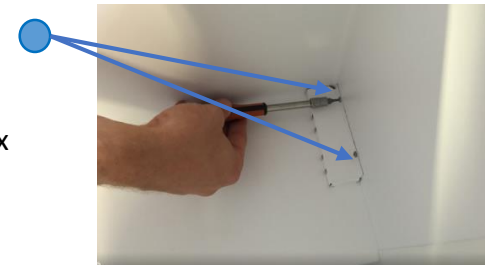
2: Open the 3x clamps fixing the temperature sensors



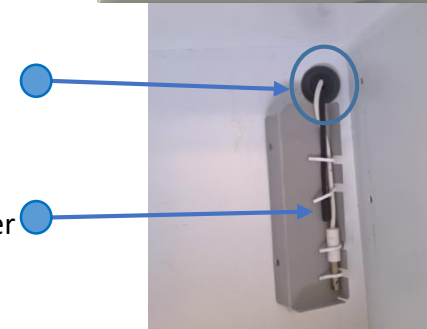
4: Unplug the probe connector from thermostat



1: Dismount the temperature sensor cover by loosen the 2xtorx screws – size 10

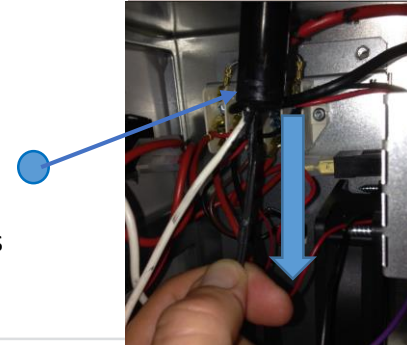


3: Remove sensor wire sealing plug



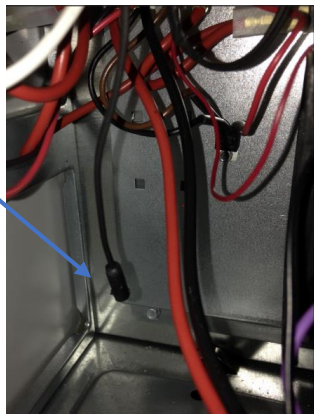
Thermometer sensor

5: Remove black sealing tar-kit and gently pull the black wire until the probe is visible



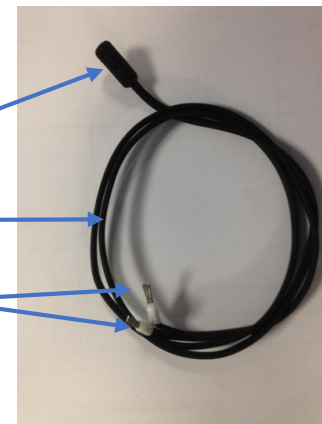
Thermostat sensor replacement

6: Thermostat temperature sensor



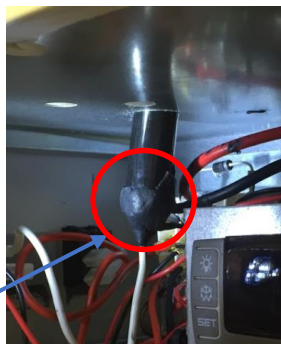
7: The thermostat sensor comes with

- Probe
- Wire
- Cable sockets



8: **IMPORTANT!**
When re-mounting the new thermometer remember to properly seal the wire feedthrough

Tar kit



9: **IMPORTANT!**
When re-mounting the new thermometer make sure the wire sealing plug is placed properly



Fan

The fan is placed in the motor compartment on the fan/thermostat bracket

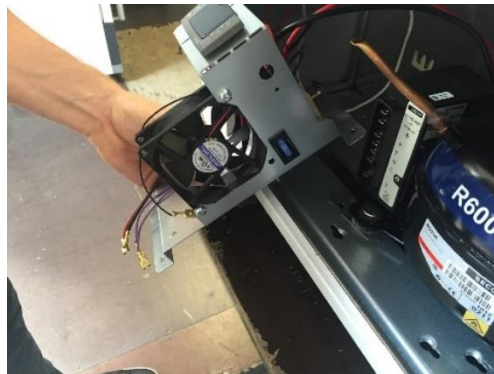
1: Dismount then fan/thermostat bracket as discribed in section - "thermostat replacement"



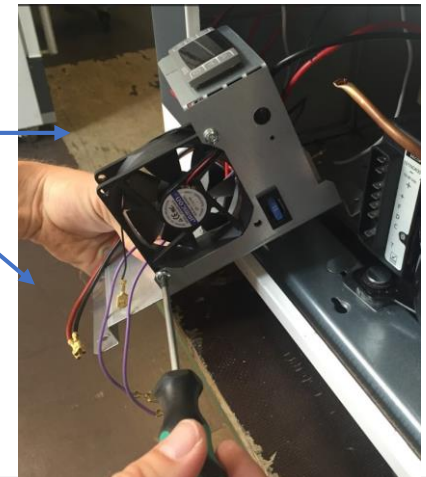
2: Unplug the power and signal wires form the ECU using a nose plier



3: Gently pull out the thermostat bracket, by tilting out from bottom

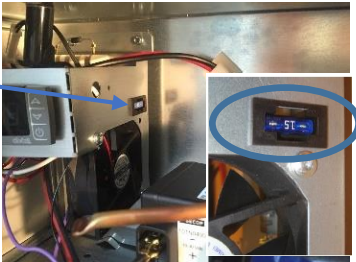


4: Loosen the 2 screws with a torx t20



Fuse exchange

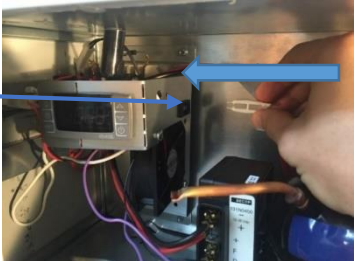
If the fuse is burned
It need to be replaced.
The fuse is placed in the
compressor compartment
at the terminal box



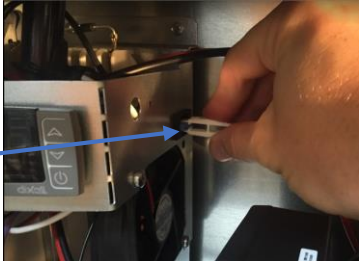
Use the small fuse-
tool supplied
together with spare
fuses in the small
plastic bag together
with appliance.



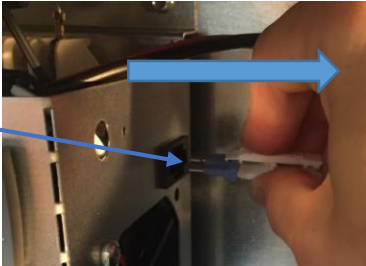
If the fuse is burned
It need to be replaced.
The fuse is placed in the
compressor compartment
at the terminal box



Pinch the tool to the fuse



Pull the tool and fuse



Compressor Replacement

Procedure of compressor switch.

- 1: WARNING! Drain coolant R600a from refrigeration system by vacuum suction
- 2: IMPORTANT! Blow refrigeration system with NO/Nitrogen

3: Cut

- A: Suction and pressure tube
- B: Capillary tube
- C: Dry filter

- 4: Dismount starting device ECU
- 5: Dismount old compressor
- 6: Insert new compressor
- 7: Install starting device ECU

8: Solder

- A. Suction and pressure tube
- B. Capillary tube
- C. Dry filter

IMPORTANT! When solder copper tubes to iron tubes use silver tin

Filling of new refrigerant

- 8: Drain refrigeration system by vacuum suction
- 9: Fill 50g of R600a refrigerant on the system

Compressor Replacement

Video



Trouble-shooting

Fault	Possible cause	Remedy
Compressor is not running	Be patient, it is most likely that the compressor will start within a few minutes.	If this is not the case, check the following: - Check that power is connected and that the wire from the solar panel to the appliance is intact. - Check the fuse and replace it if necessary. - If the above is OK, call technical supervisor.
Compressor is running, and the temperature is too high	The ventilation grill is blocked.	Ensure unhindered air circulation.
	The lid is not closed properly.	Ensure that the lid is closed properly.
	The fan in the compressor compartment is blocked or defective.	Check that the fan is running, if not it should be replaced. See section: Service
The temperature in the room in which the appliance is installed is too high.		Shield the appliance against direct sun light and ensure more ventilation to the room.
Temperature in VLS 054 SDD is too low	To low set point on digital controller	Contact technical supervisor for adjustment.
No temperature is displayed	There is not enough light for the solar sensor.	Turn on the light.
No light in green diode during day time	Switch is turned OFF	Turn on the switch
	Fuse is burned	Replace the fuse.
	Diode is defect	Replace diode.



On-site Checklist

Service technician to check

- Is the green diode in the control panel on (Power check)
- Is the internal temperature inside the acceptable range of +2° to +8°
- Is the vaccine compartment clean and without condensation (water)
- Is the Compressor is running
- Is baskets used and in place
- Is the appliance placed according to instruction in the manual.
- Does the lid close tight to cabinet and is the lid gasket in good condition
- Is the grill for compressor compartment clean
- Is the condenser coils on the backside clean
- Is all electrical components working properly
- Is there condensation on electric parts (water condensation)?
- Is there a risk of water leakage from the refrigeration compartment to the thermostat? (where temperature sensor cable is passing through?)
- Over all condition of the cabinet –internal and external: any corrosion, rusting, cracks?
- Inspection of the refrigeration line (the condenser, evaporator, the whole refrigeration circuit/line)
- Panel installation condition and the power reaching at the input of the compressor during sunshine
- Condition of the cables from the panel to the compressor including the lightning protection
- Temperature records (manual records, FT2 data)
- Action taken by local technicians to address the problem
- Is the Solar panels clean and mounted according to the instruction



Technical Support

If contacting Vestfrost Solutions technical support please supply below information:

1. Model
2. Serial number
3. What is the issue

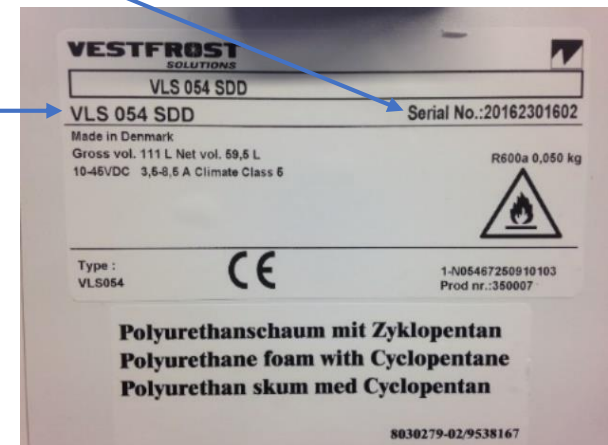


Rating plate



Serial no

Model





VESTFROST

SOLUTIONS