

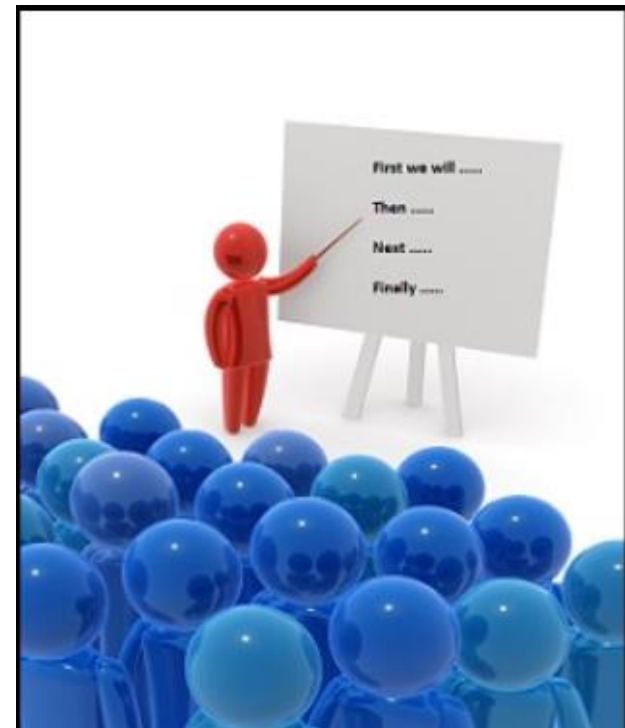
# Vestfrost Solutions

Service and Maintenance Presentation: VLS 204A/304A/354A/404/504A  
AC

# Topics

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1. Overview of VLS 204A\_304A\_404A\_504A AC
2. General required maintenance
3. Vital components
4. Warning
5. Required basic Tools
6. Replacement of components
7. Trouble shooting
8. On site Checklist
9. Technical Support



# Overview of VLS 204A/304A/354A/404A/504A AC

ILR Vaccine Chest Refrigerators

## WHO PQS Approved Codes:

- E003/109
- E003/110
- E003/111
- E003/112
- E003/113

## Technical specifications:

- +43°C hot zone
- Grade A
- Compressor Secop
- Refrigerant R600a
- Integrated Extended voltage stabilizer
- Galvanized pre-painted cabinet
- Inner lining pre-painted aluminium
- Insulation cyclopentane 100mm
- Automatic temperature control
- Adjustable legs
- Dust/Waterproof Junction box
- Lock and key



# General required maintenance

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## Daily Check:

- Monitor Temperature
- Lid fits and lock tight to cabinet
- Lid gasket not faulty
- Condensation build up in vaccine compartment

## Monthly:

- Clean condenser coils
- Clean vaccine compartment with mild detergent/water

## 6 Month:

- Clean grille for compressor compartment
- Clean outside/inside + lid. of appliance

## Yearly:

- Check electrical connections and components



# Vital Components

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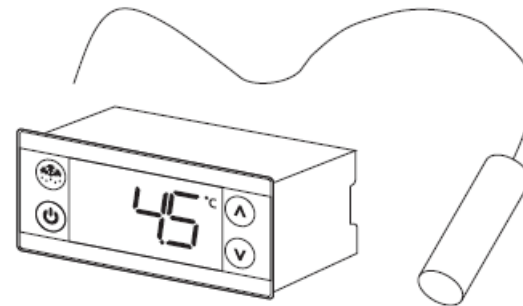
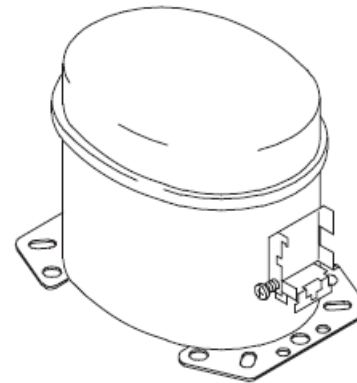
Position	Item no	Description
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VLS204A AC & VLS304A AC: 0129	8-036038297	Compressor
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VLS354A AC & VLS404A AC: 0129	8-036038255	Compressor
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VLS504A AC 0129	8-03606510309	Compressor
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5713	7020961	Sensor
5712	7095514	Thermostat



# Vital Components

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VLS204,304,354,404A AC  
5851 6520229

Run capacitor

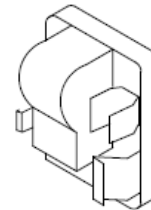


VLS504A AC  
0550 6520510

Run capacitor

VLS204,304,354,404A AC  
0071 A921115

Starting device



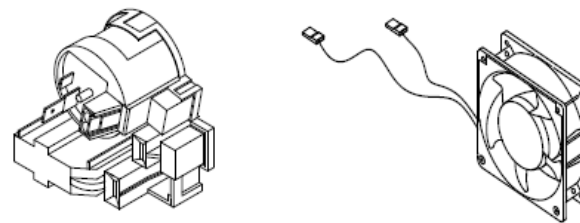
VLS504A AC

1141 6520511

Starting device

5870 7030309

Fan



# Warning!

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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.

(R600a)



# Required Basic Tools

1. Flexible socket wrench - size 7+13mm
2. Nose plier
3. Screwdriver - size 1,0x6,0 + 0,6x3,5
4. Phillips screwdriver
5. Torx screwdriver - size t10+t20
6. Multimeter
7. Clamp meter



## Proposed additional service kit/items

Sealing kit

Tar tape

Extra self-tapping screws



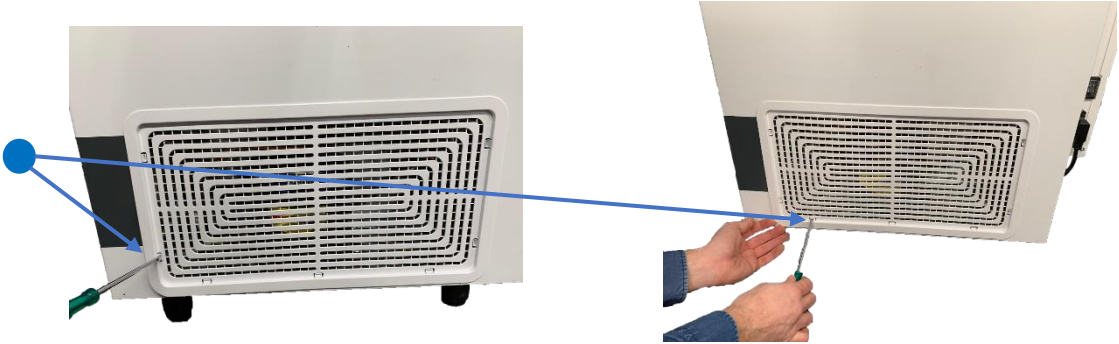
# Replacement of components

1. Motor Compartment
2. Thermostat Replacement
3. Thermostat Adjustment VLS
4. Wiring Diagram
5. Starting Device Replacement
6. Run Capacitor Replacement
7. Thermometer Replacement
8. Thermostat sensor Replacement
9. Compressor Replacement

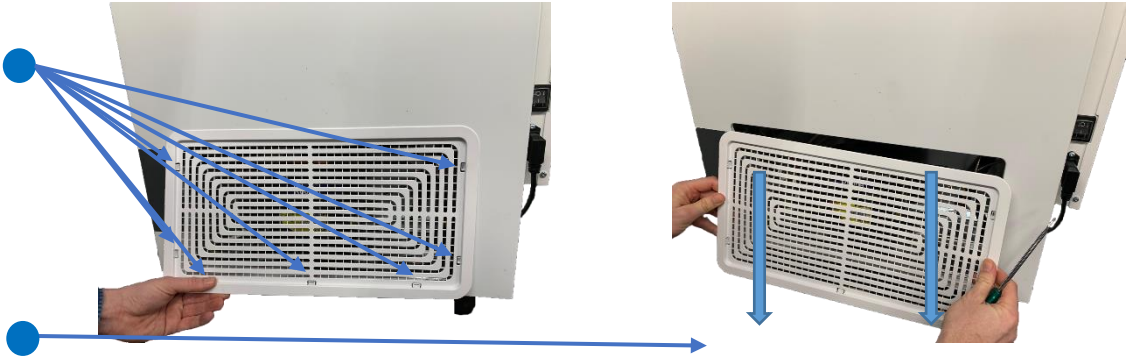
# Motor Compartment

How to get acces to the motor compartment.

- Use a screwdriver to unlock all 7 clamps



- Unluck all 7 clamps



- Gently pull the compressor grille

# Motor Compartment

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Dismounting compressor grille

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*SOLUTIONS*

**Service video**



# Thermostat Replacement

The thermostat is in the junction box located on the backside



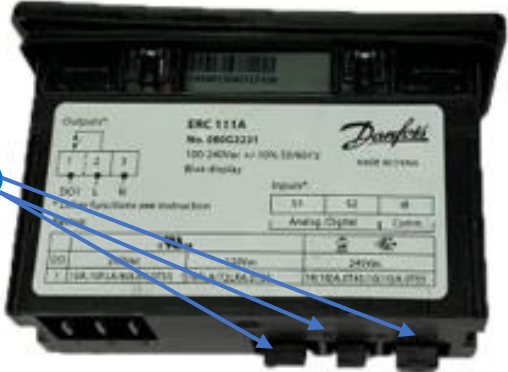
Front with Display



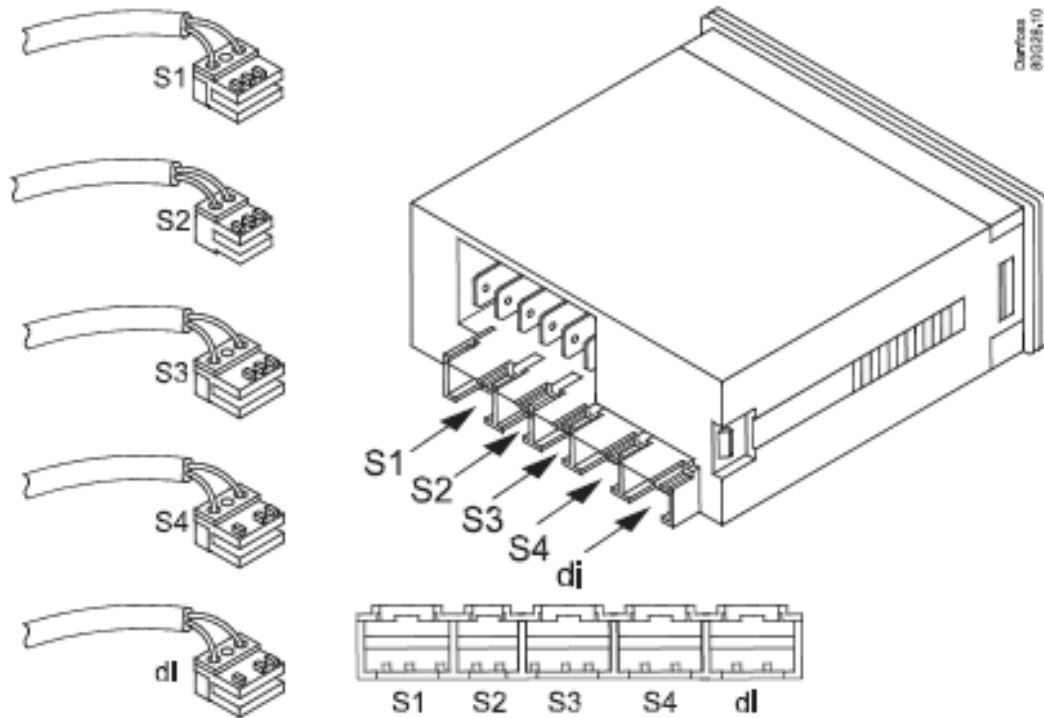
Side view



Back with 3x sensor-wire sockets

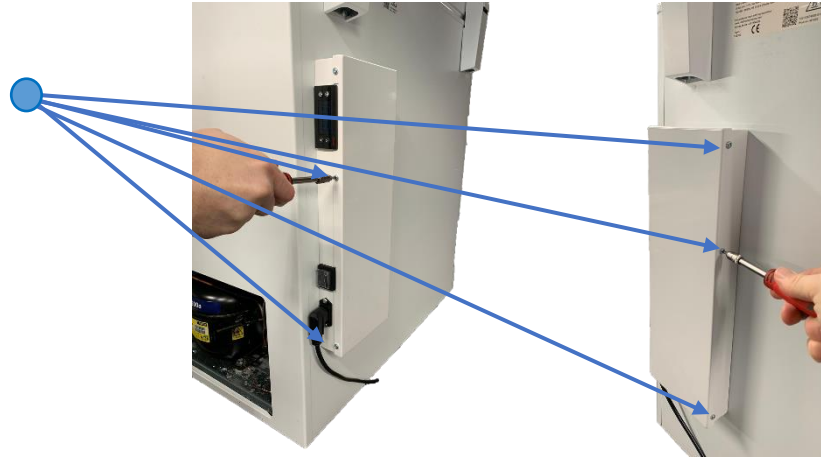


# Thermostat Replacement

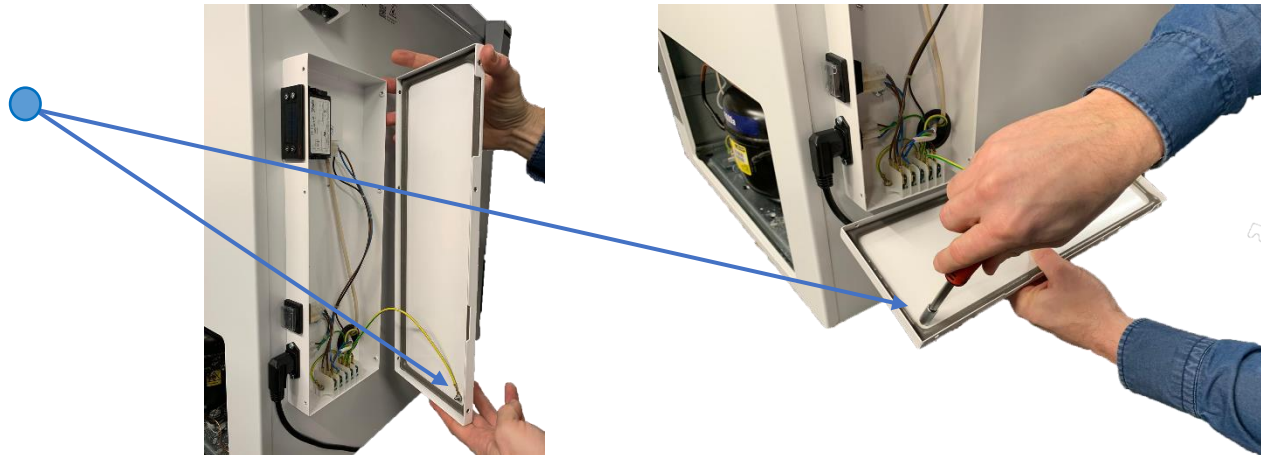


# Thermostat Replacement

1: Open the junction box by unscrewing the 6 Torx 20 screws and unmount lid

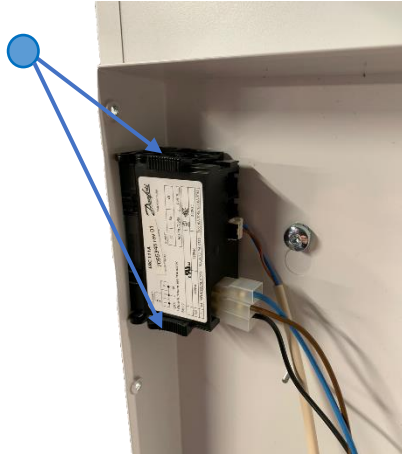


2: Remove grounding cable from junction box by unscrewing bolt with a wrench 6mm

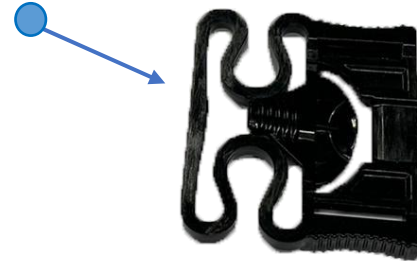


# Thermostat Replacement

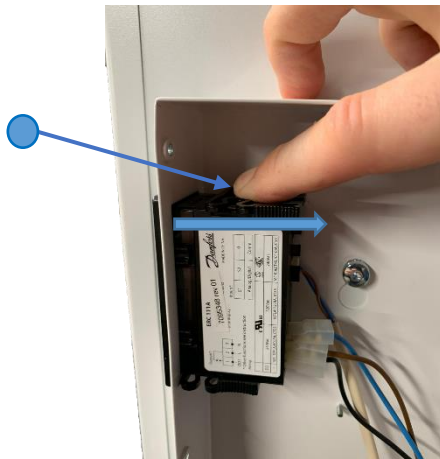
3: Remove 2 clamps from thermostat



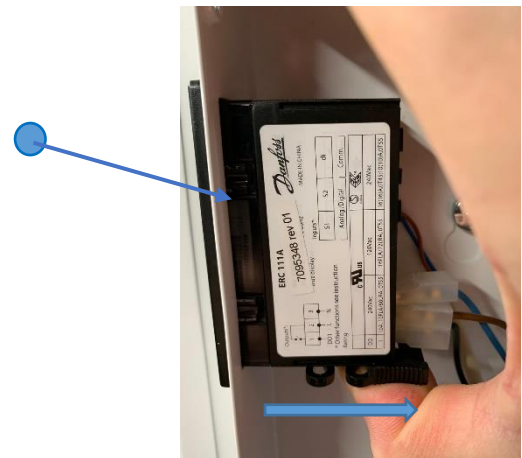
Fixing clamp



4: Use your finger to press and slide the upper clamp backwards to remove from the thermostat body

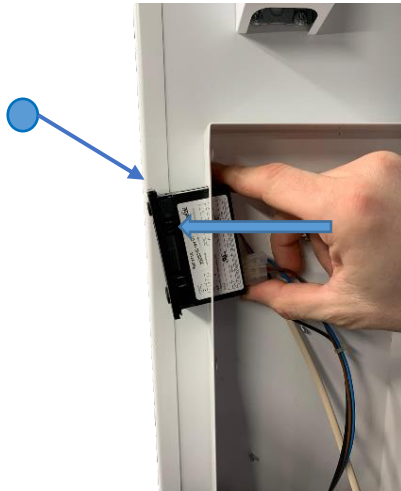


5: Use your finger to press and slide the lower clamp backwards to remove from the thermostat body



# Thermostat Replacement

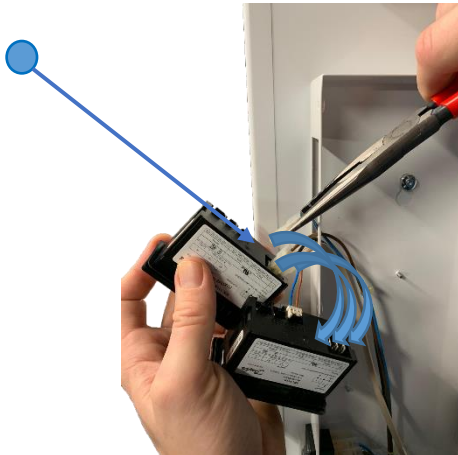
6: Push the thermostat out



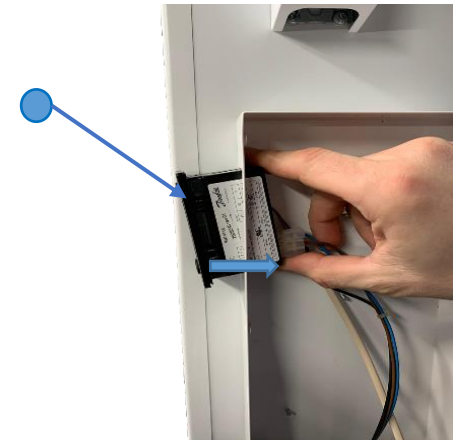
7: Switch the sensor wire plug from old socket to the new thermostat socket



8: Switch the 3 power wires from old to new thermostat wire sockets one by one



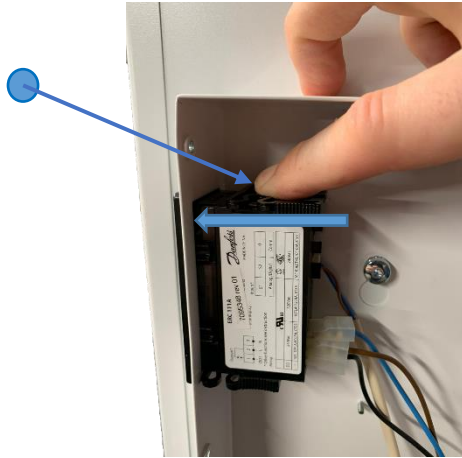
9: Bring the thermostat back in place



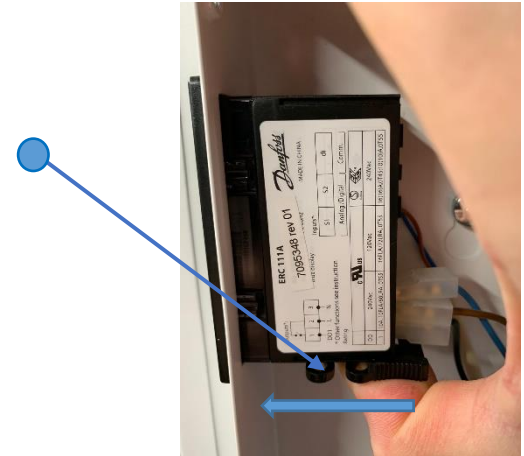


# Thermostat Replacement

10: Use your finger to press and slide the upper clamp back in place to secure fixture of the thermostat



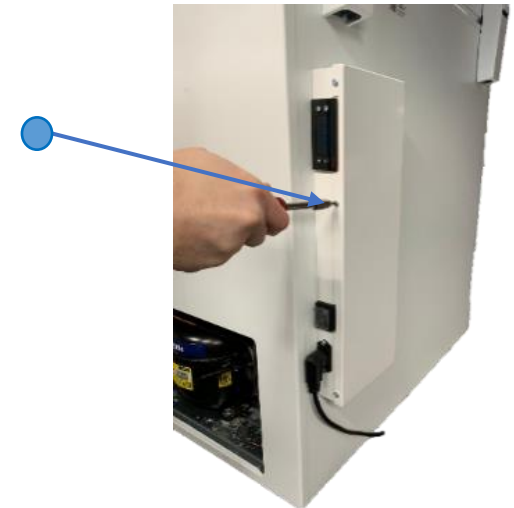
11: Use your finger to press and slide the upper clamp back in place to secure fixture of the thermostat



12: Remount grounding wire



13: Remount junctionbox cover






# Thermostat Adjustment

The thermostat is default factory set, and as a general rule not supposed to be adjusted.

In the event, it is assessed by a cold chain technician that a thermostat adjustment is required, follow this instruction.

## Steps:

1. Press < > "up/down" and hold 5 seconds to access the menu.
2. Press on/off button  x 2 times till you see numbers flashing
3. Press either < for adjusting lower or > for adjusting higher
4. To save press on/off button  x 1 time then freezing symbol  2 times



## Important!

Incorrect parameter settings can lead to unsatisfactory cooling, risking damage to stored vaccines.

If adjustment is required ONLY to be performed by trained technicians.

Adjust the controller max. 1°C at a time.

After adjustment monitor appliance carefully for min. 24 hours

# Thermostat Adjustment

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Refrigerator Higher setpoint  
adjustment

[Video](#)

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*SOLUTIONS*

**Service video**



# Thermostat Adjustment

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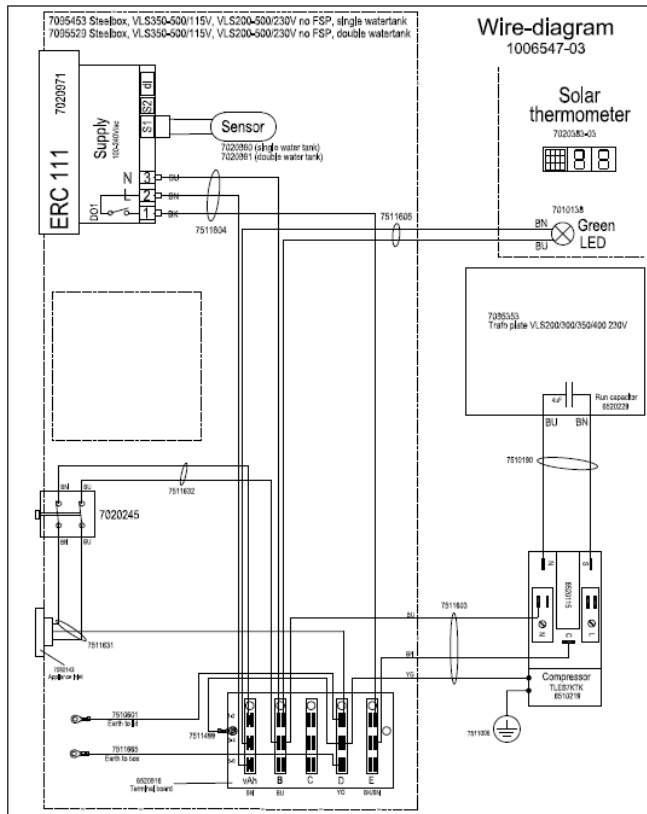
Refrigerator Lower setpoint  
adjustment

[Video](#)

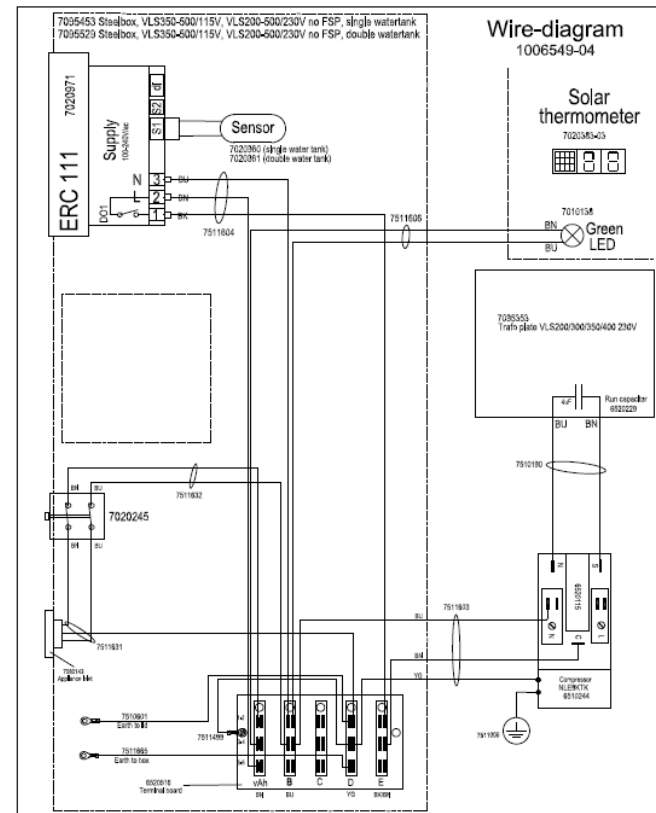


# Thermostat

## Wiring Diagram VLS 204A AC / 304A AC

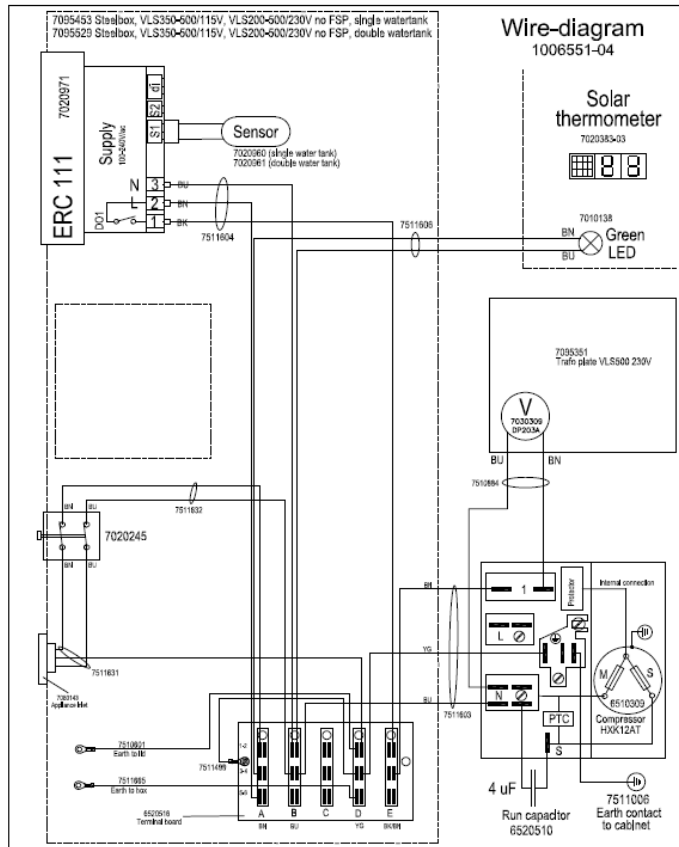


## Wiring Diagram VLS 354A AC / 404A AC



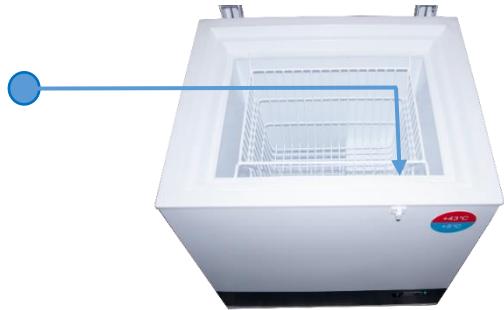
# Thermostat

## Wiring Diagram VLS 504A AC

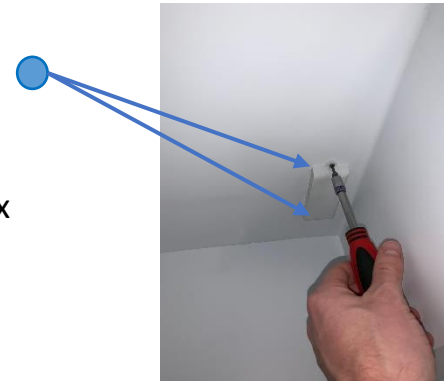


# Thermostat sensor replacement

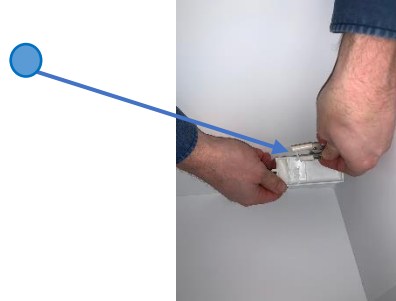
The thermostat sensor is placed inside the compartment of the appliance



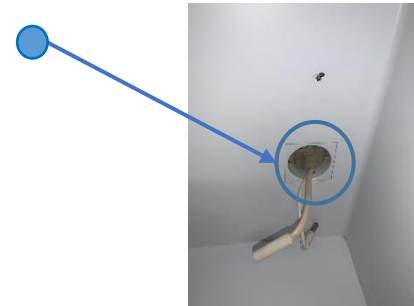
1: Dismount the temperature sensor cover by loosen the 2xtorx screws – size 10



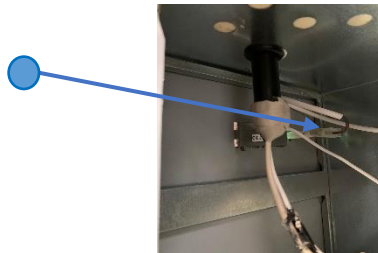
2: Open the 3x clamps fixing the temperature sensors



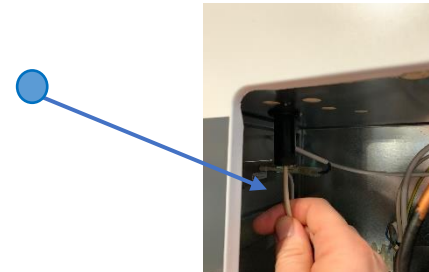
3: Remove sealing kit



5: Remove sealing kit

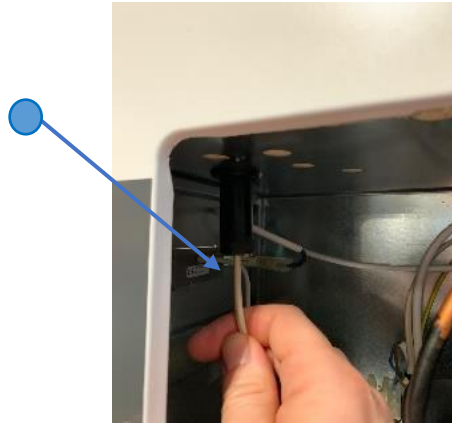


6: gently pull the wire down



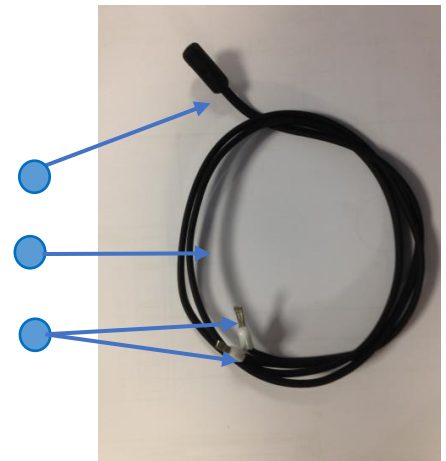
# Thermostat sensor replacement

6: gently pull the wire down

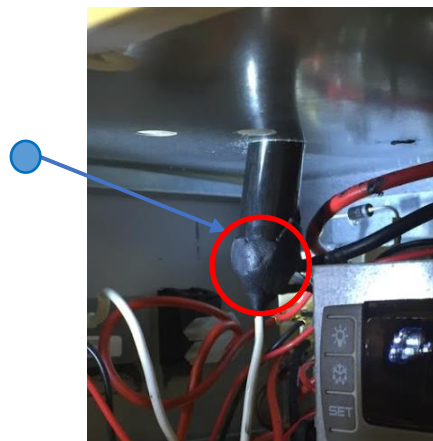


7: The thermostat sensor comes with

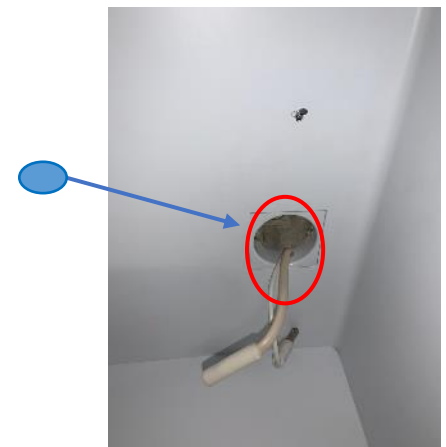
- Probe
- Wire
- Cable sockets



8: **IMPORTANT!**  
When re-mounting the new thermostat remember to properly seal the wire feedthrough in compressor compartment



9: **IMPORTANT!**  
When re-mounting the new thermostat remember to properly seal the wire feedthrough in vaccine compartment





# Starting Device Replacement

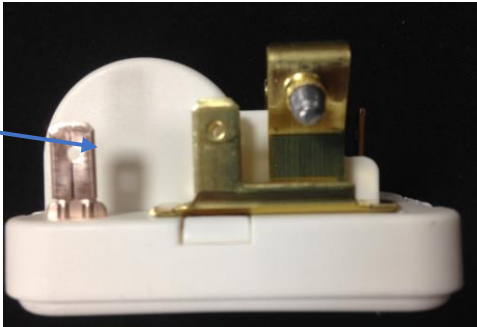
Front with terminals



Back with connection plug



Side view



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

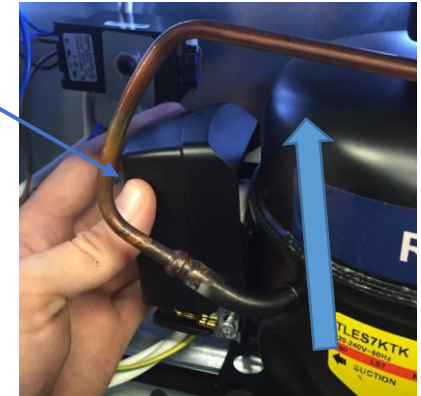


# Starting Device Replacement

1: Dismount the cover for starting device by loosen the phillips screw



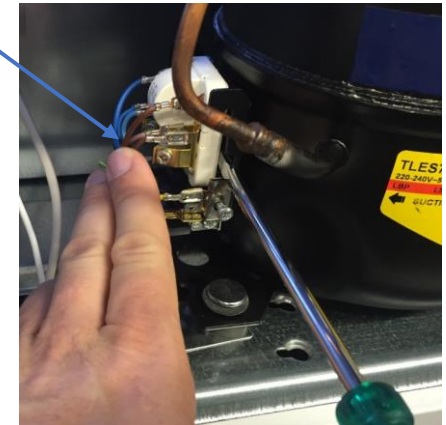
2: Push the plastic cover up



3: Pull the cover back to loosen

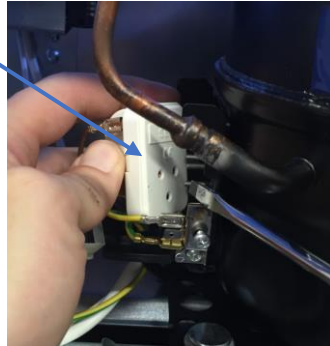


4: Use a screw driver and gently remove the starter from the socket of compressor

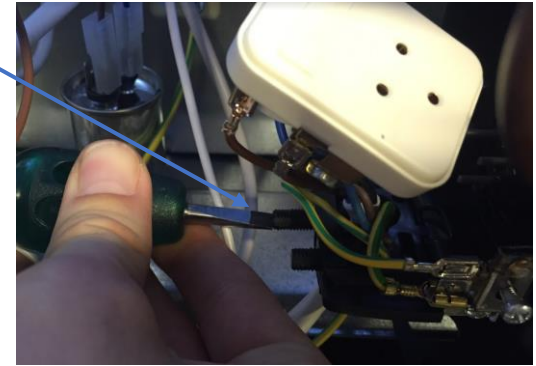


# Starting Device Replacement

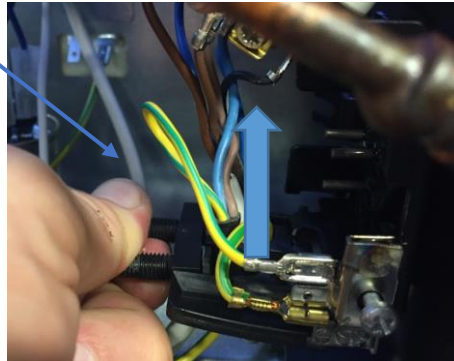
5: Starting device loose from socket



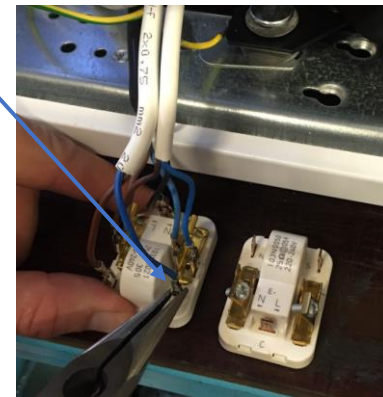
6: Use a small screwdriver or a wrench size 6 – to unmount the wire fastener



7: Push the plastic bracket up

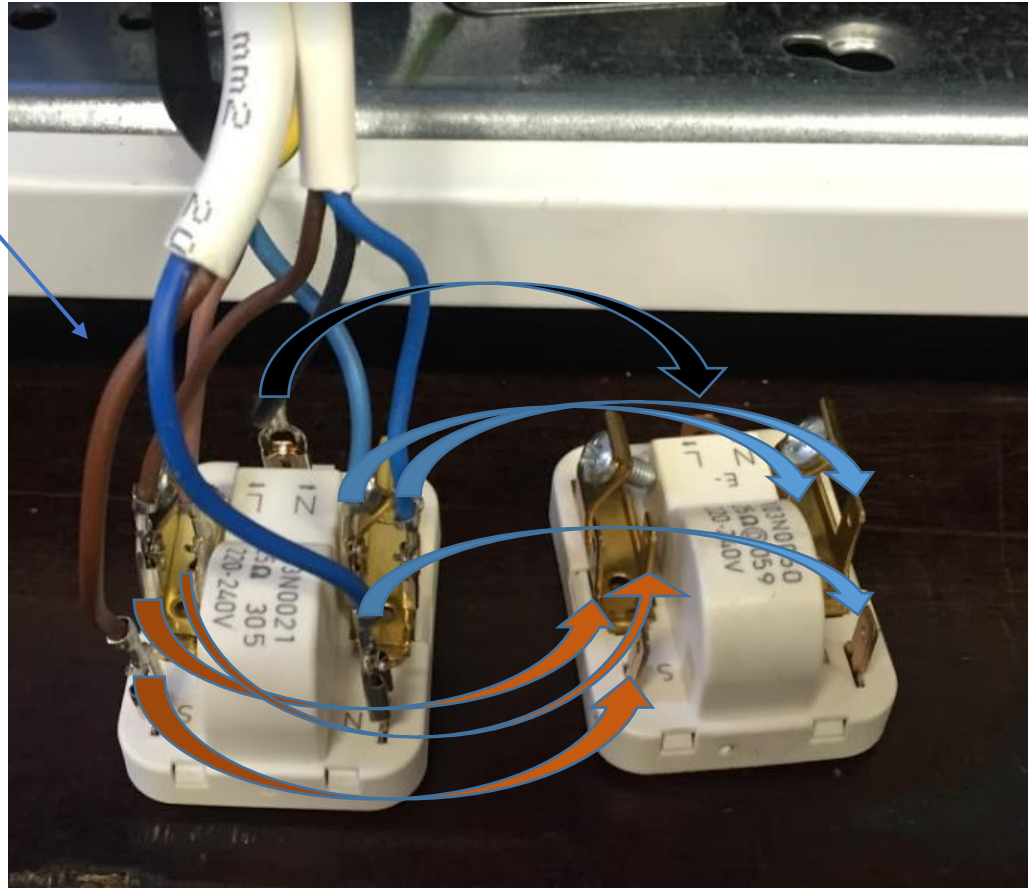


8: Use a nose plier to unmount the wire sockets from starting device

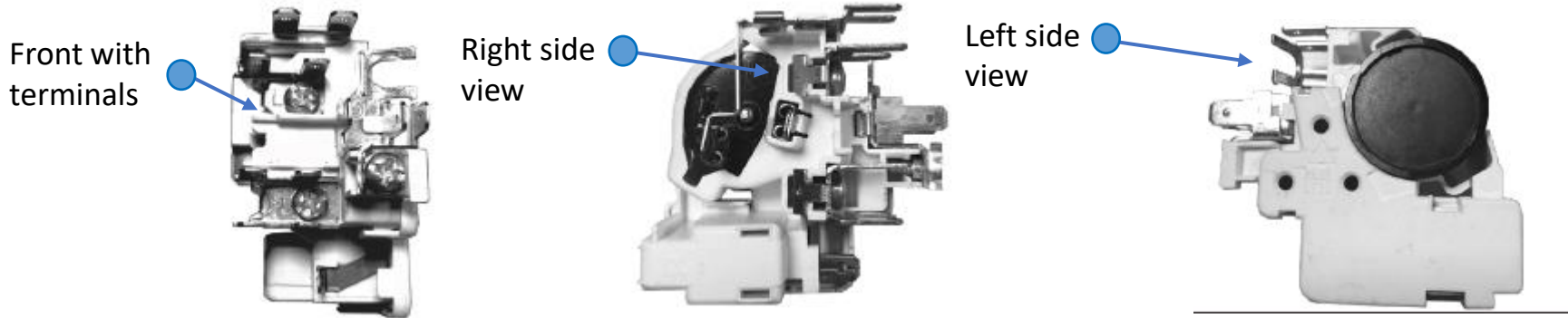


# Starting Device Replacement

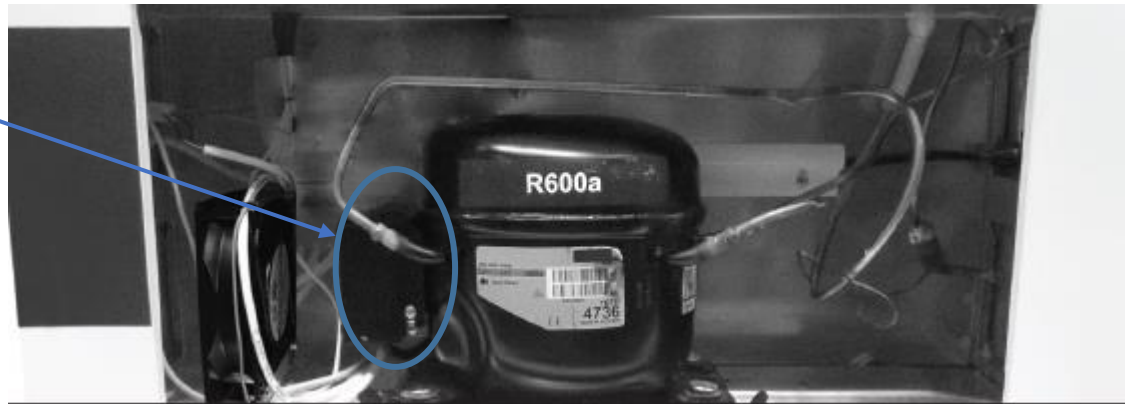
9: Exchange the wires 1/1 from the old starting device to the new one



# Starting Device Replacement – VLS 504A AC

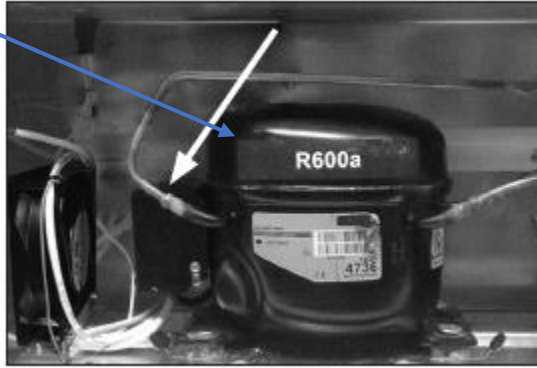


The starting device is mounted on the left side of the compressor



# Starting Device Replacement – VLS 504A AC

The starting device is placed in the left side of the compressor compartment, fixed to the compressor bracket.



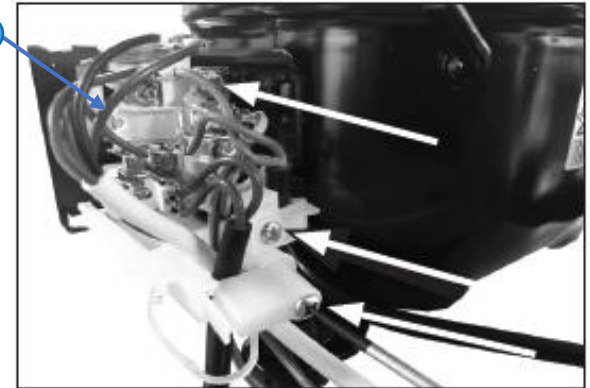
1: Dismount the cover by pushing the cover lock from right to the left with a flat screw driver.



2: Pull out the cover to remove



3: Use a screw driver to loosen 3 x screws.



# Starting Device Replacement – VLS 504A AC

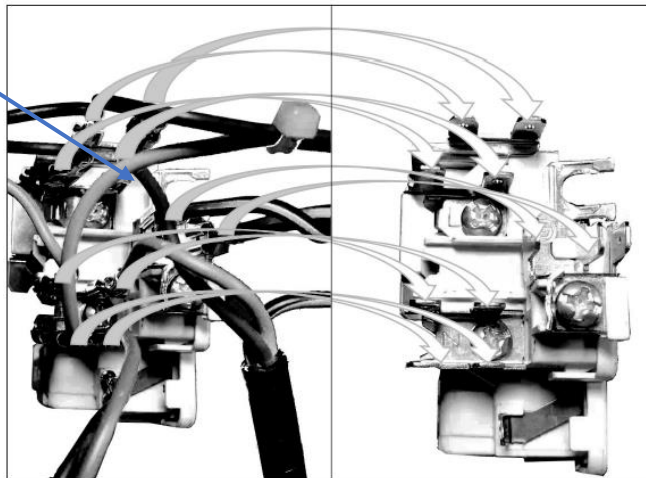
4: Use a screwdriver to loosen the starting device from socket and pull.



5: Use a nose plier to unmount the wire sockets from starting device.



6: Exchange the wires 1/1 from the old starting device to the new one.

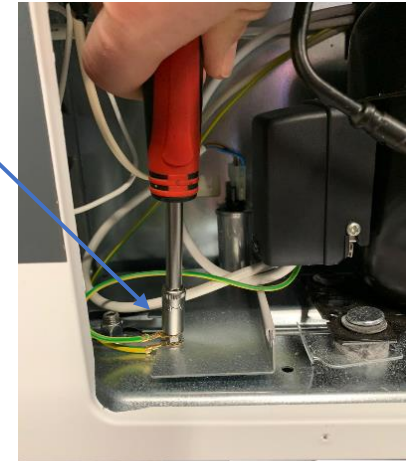


# Run Capacitor Replacement – VLS 204A AC to 404A AC

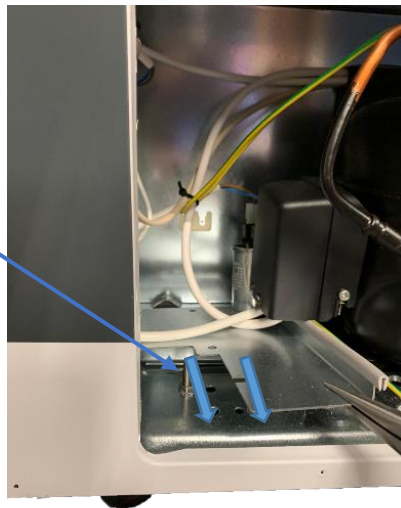
The run capacitor is placed in the left side of the compressor compartment next to the starting device



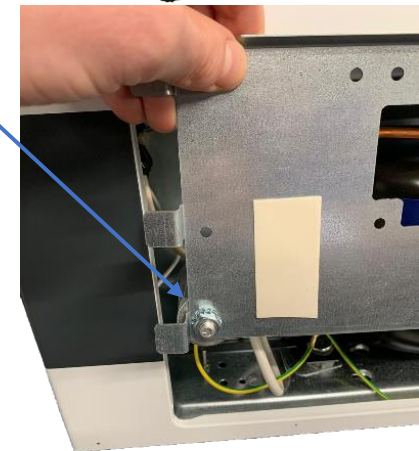
1: remove the grunding cagle



2: Pull the run capacitor mounting bracket out



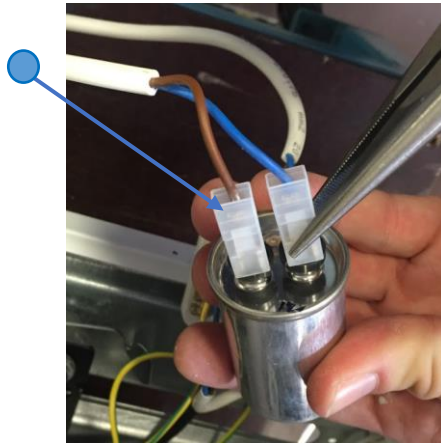
3: Unscrew the capacitor from the backside of the run capacitor mounting bracket



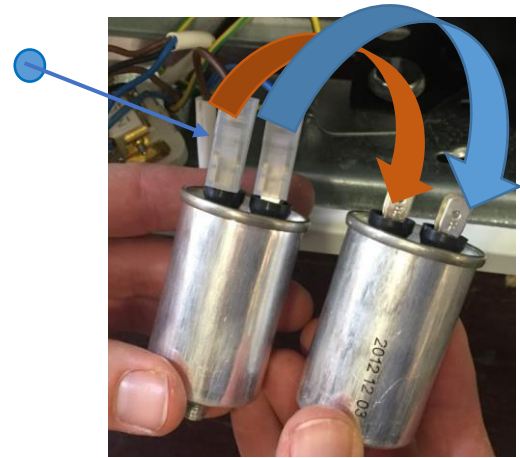


# Run Capacitor Replacement - VLS 204A AC to 404A AC

4: Unmount the 2 x wires by using a nose plier.



5: Exchange the wires 1/1 from the old capacitor to the new one

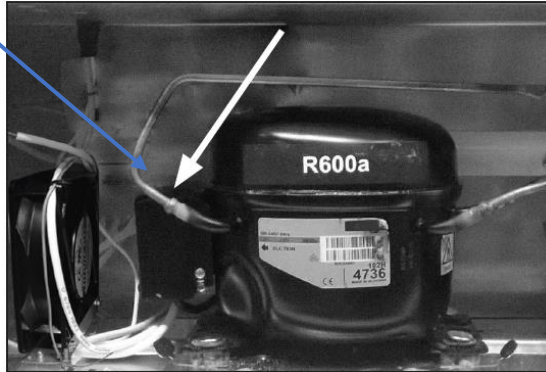


5: When remounting assembly plate remember remounting of earth wires.



# Run Capacitor Replacement – VLS 504A

The run capacitor is placed in the left side of the compressor compartment, fixed to the compressor bracket



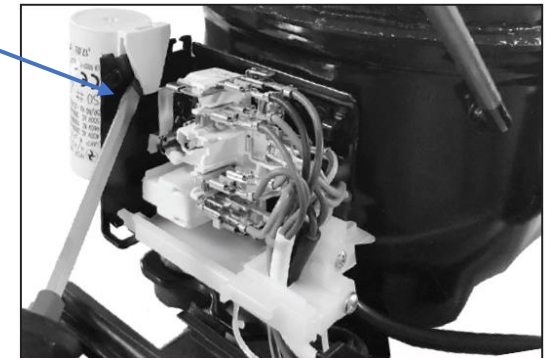
1: Dismount the cover by pushing the cover lock from right to the left with a flat screw driver



2: Pull out the cover to remove

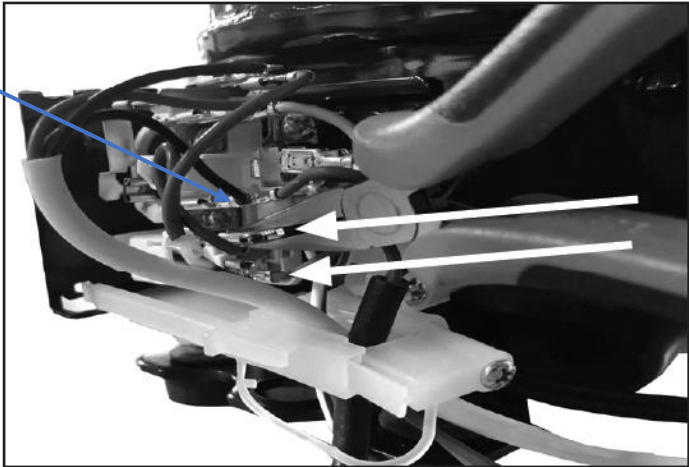


3: Flip out the clamp to free the capacitor from the bracket

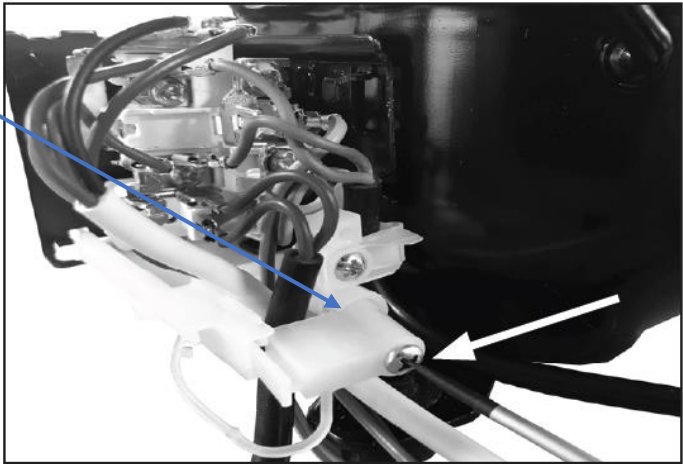


# Run Capacitor Replacement - VLS 504A AC

4: Use a nose plier to unmount the wire sockets



5: Loosen the screw for cord relieve and pull out the wire.



The capacitor can be remounted in reverse order

# Thermometer replacement

The thermometer is placed in at the front of the appliance



The temperature probe is placed inside the compartment of the appliance



2: Open the 3x clamps fixing the temperature sensors



Thermometer display



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

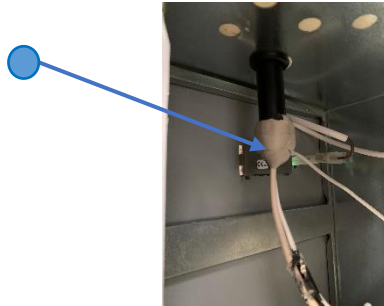


3: Remove sealing kit

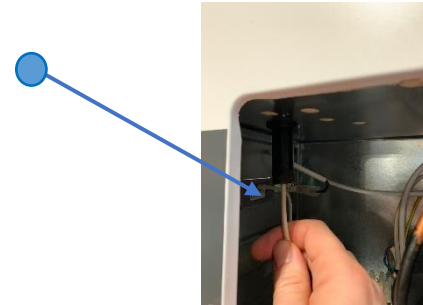


# Thermometer replacement

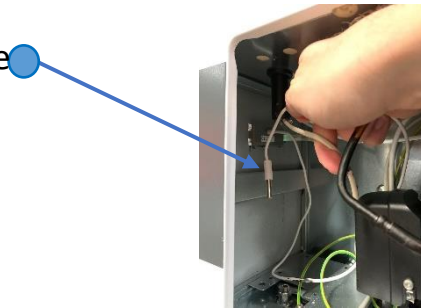
4: Remove sealing kit



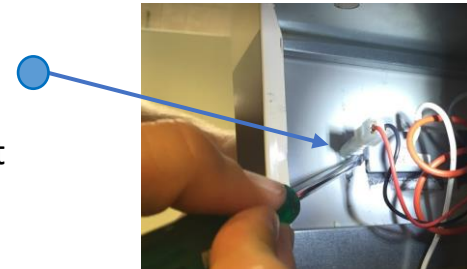
5: Gently pull the wire down



6: Temperature sensor is loose from refrigeration compartment



7: Use a screw driver to gently push the socket of the thermometer



8: Temperature monitor is loose from cabinet



9: Thermometer comes with wire, PV solar cell, display and sensor



# Thermometer replacement

10: Installation of thermometer display



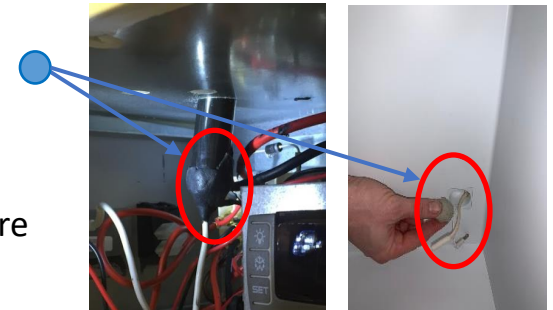
11: Push until display is fixed to cabinet



12: Thermometer display is in place

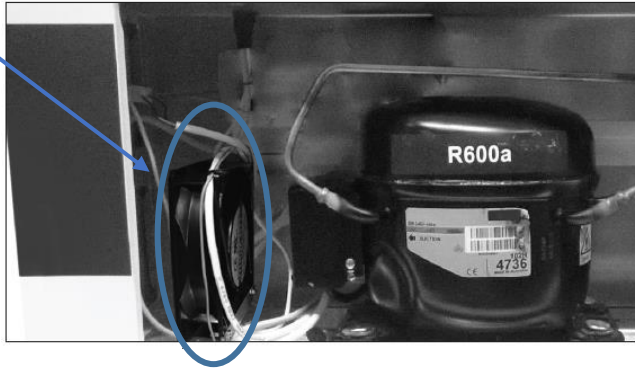


13: **IMPORTANT!**  
When re-mounting the new thermometer remember to properly seal the wire feedthrough with sealing kit  
Inside vaccine- as well as in compressor compartment.

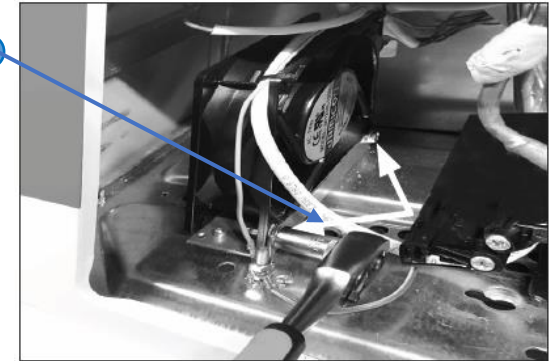


# Fan replacement VLS 504A AC

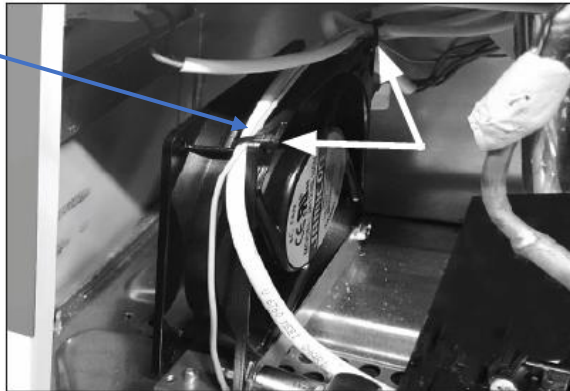
The fan is placed in the left side of the compressor compartment



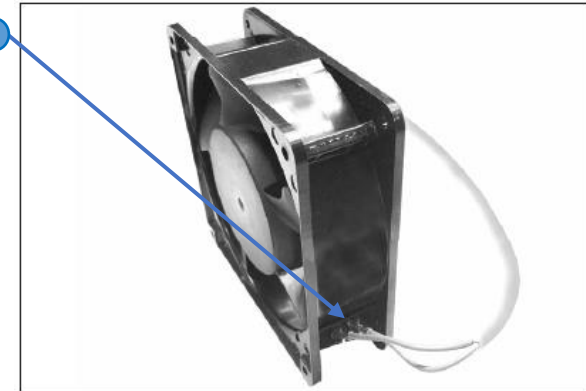
1: Dismount the fan from the bracket by losen the 2 hexagon bolts with a Socket wrench.



2: Remove strips for free access to the fan. When mounting the fan please remember to secure the wires to the fan again.



3: Use the nose plier to unmount the 2x cable sockets



An aerial view of a warehouse interior, showing rows of pallets and shelving units. The image is overlaid with a semi-transparent blue filter. The text 'Vestfrost Solutions' is centered in white on this blue background.

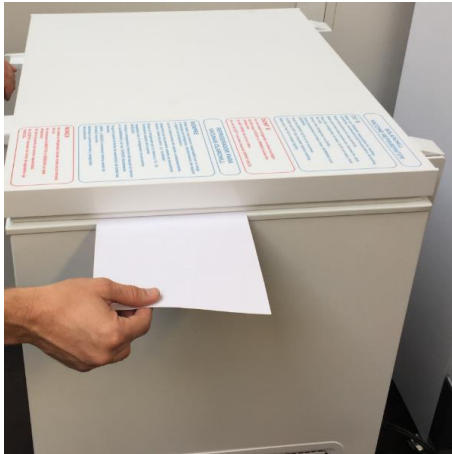
# Vestfrost Solutions

Adjustment of lid



# Adjustment of lid

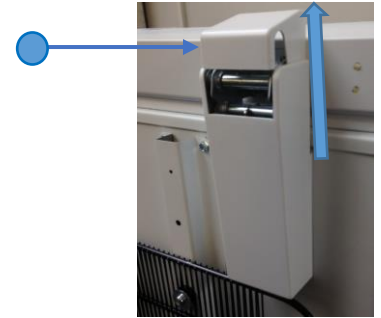
Perform paper test to check that lid gasket fits properly to the cabinet



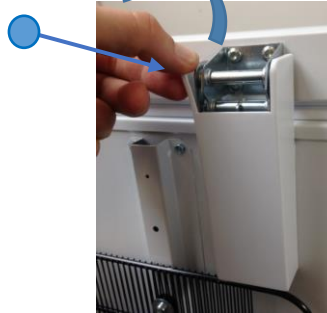
1: Hinge cover



2: Remove upper hinge cover



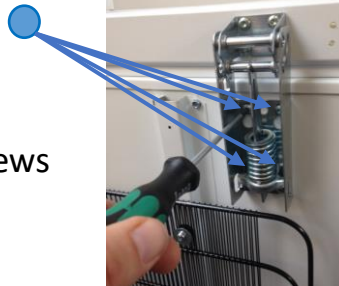
3: Open side of lower hinge cover to remove



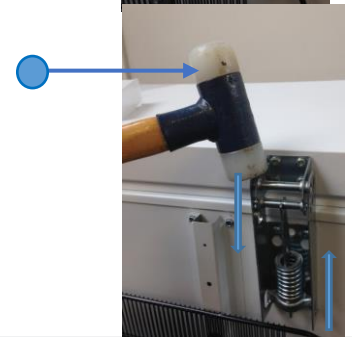
4: Pull lower hinge cover backwards



5: Use T 15 screwdriver then slightly loosen 4 screws



6: Gently tap the hinge up or down using a rubber hammer to adjust position of the lid



# Compressor Replacement

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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

## Filling of new refrigerant

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

# Compressor Replacement

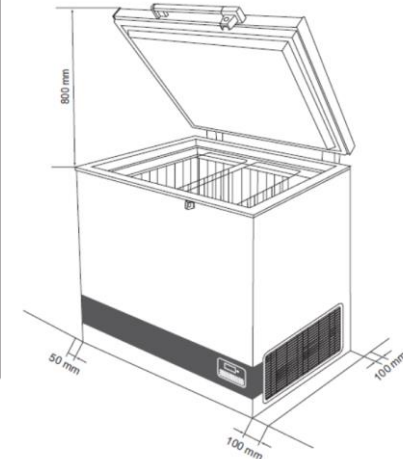
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[Video](#)



# 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.  - If the above is OK, call technical supervisor.
Compressor is running, and the temperature is too high	The ventilation grille is blocked.  The lid is not closed properly.  The temperature in the room in which the appliance is installed is too high.	Ensure unhindered air circulation.  Ensure that the lid is closed properly.  Shield the appliance against direct sun light and ensure more ventilation to the room.
No temperature is displayed	The thermometer is broken.  There is not enough light for the solar sensor.	Change the thermometer.  Turn on the light.



# On-site Checklist

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## 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)?
- 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)



# Technical Support

If contacting Vestfrost Solutions technical support please supply below information:

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

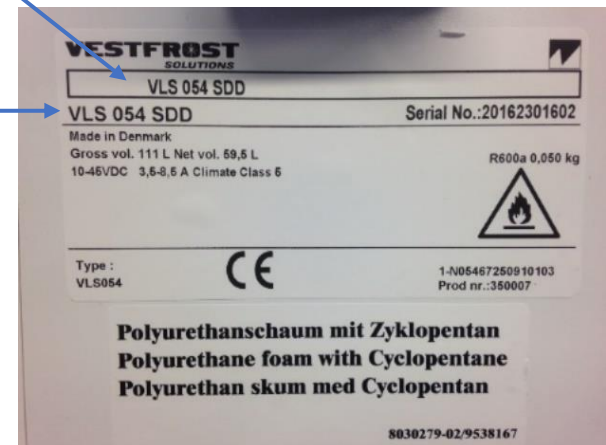


Rating plate



Serial no

Model





# **VESTFROST**

*SOLUTIONS*