

EziCore TCE Series

SKOPE Upright Fridge

R290

SKOPE IDs: TCE650N:ET65BYN, TCE1000N:ET10BYN



EziCore TCE Series
Top Mount Fridge
R290
Service Manual

MAN80380
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1 Specifications

Models

This service manual is applicable to the EziCore TCE top mount fridges listed in the table below. Refer to the relevant product specification sheet (available on the SKOPE website: www.skope.com) for specifications.

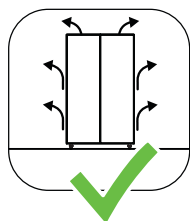
Table 1: Model specifications

Series	Model	SKOPE ID
EziCore TCE Series	TCE650N	ET65BYN
	TCE1000N	ET10BYN

2 Installation

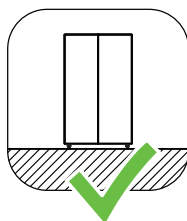
Installation Guidelines

When installing this cabinet, ensure you consider and meet the installation guidelines below.



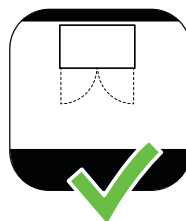
Ventilation

Ensure all ventilation requirements below are met.



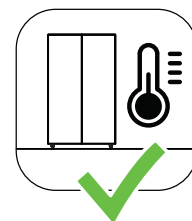
Surface

The installation surface must be capable of supporting the loaded cabinet.



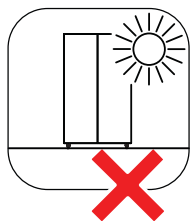
Door Opening

Allow adequate space for the door/s to open and close properly.



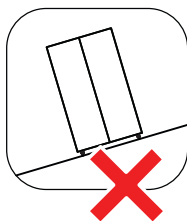
Climate Class

The fridge must be installed in an environment within its climate class. The climate class is stated on the cabinet rating label inside the fridge.



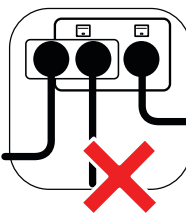
Sunlight

Do not install the fridge in direct sunlight.



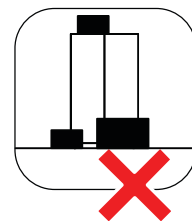
Uneven Surface

Do not install the fridge on an uneven surface.



Power Supply

Do not overload the power supply.

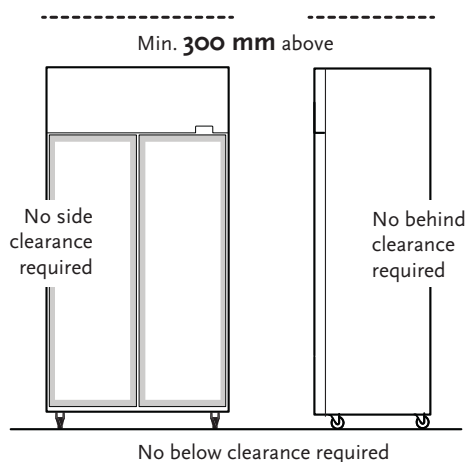


Blocking Ventilation

Do not store boxes or items in front or on top of the fridge.

Ventilation Requirements

This cabinet must have the following ventilation clearances at all times:



Sign Assembly and Refrigeration Cartridge

To transport the cabinet through a lower clearance doorway, you will need to remove the sign assembly and refrigeration cartridge. Follow Procedure 20, “To remove the refrigeration cartridge,” on page 26.

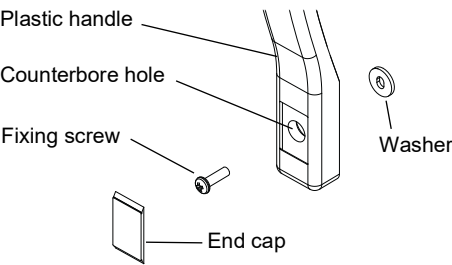
Door Handles

Fitting Door Handles The cabinets are fitted with door handles when they are shipped or supplied. If you need to fit a handle, follow the procedure below.

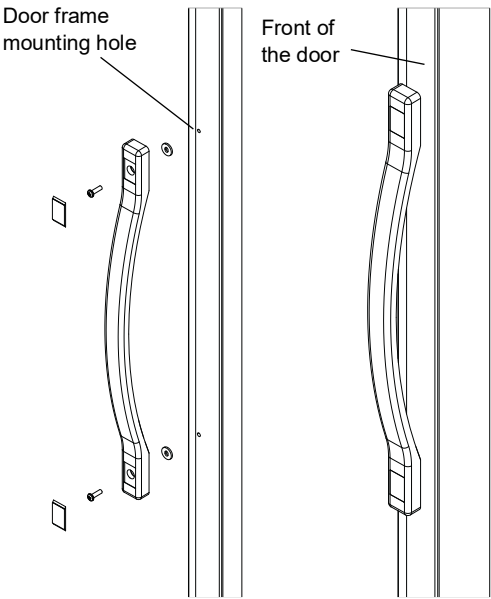
Procedure 1: To fit a door handle

Before you start

- 1. Make sure all handle components are ready to assemble.
- 2. Ensure you have a screwdriver to fit the mounting hardware.
- 3. Note that the fixing screw is fastened through a counterbore hole, washer and into the nut bar in the door frame. The handle is fixed to mounting holes in the door frame.



- 1. Place **BOTH** handle counterbore holes simultaneously onto the door frame mounting holes.



- 2. Fasten the fixing screws through the handle to lock the handle position.

CAUTION
Ensure **BOTH** handles are securely fixed to the door frames before using the fridge.

- 3. Place the end caps over the screw heads to conceal the fasteners.
The door handle assembly is now complete.

Removing Door Handles

The door handles can be removed for transporting and moving the cabinet through doorways, or for refitting.

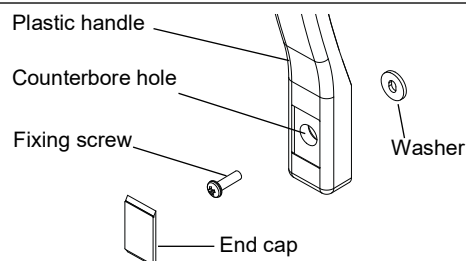
Procedure 2: To remove a door handle

Before you start

Make sure you have a screwdriver and flat end tool, to remove the mounting hardware.

1. Use the flat end tool to gently pry off the handle end caps. This will expose fixing screw heads.

2. Unscrew handle fixing screws from both the top and bottom mounting points.
The handle is now ready to be removed.

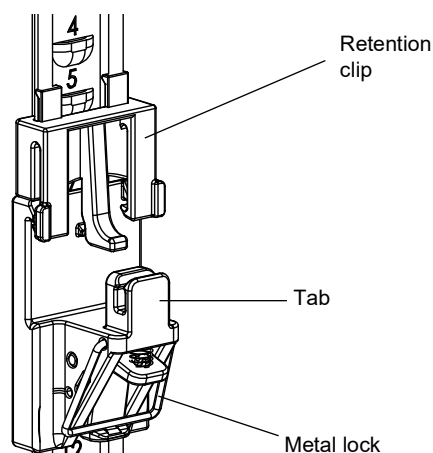


Shelves

The wire shelves each sit on shelf clips which slide up and down the shelf support strips inside the cabinet. The shelves may be positioned at different heights to suit various products. The retention clip which sits on the shelf clip doesn't need to be unlocked to move the shelf clip. Use the numbers on the shelf support strips to set the shelf clips at the same height.

Procedure 3: To move a shelf clip

1. Unclip the metal lock by pulling it forwards.
2. Move the clip:
 - To go upwards, slide the clip to the required position.
 - To go downwards, push the tab up and slide down to the required position.
3. When the clip is at the correct height, push the metal lock in to set the clip



Procedure 4: To reposition a shelf

1. Unload and remove the shelf.
2. Move each shelf clip to the required position.
3. Sit the shelf on the shelf clips, and reload with product.

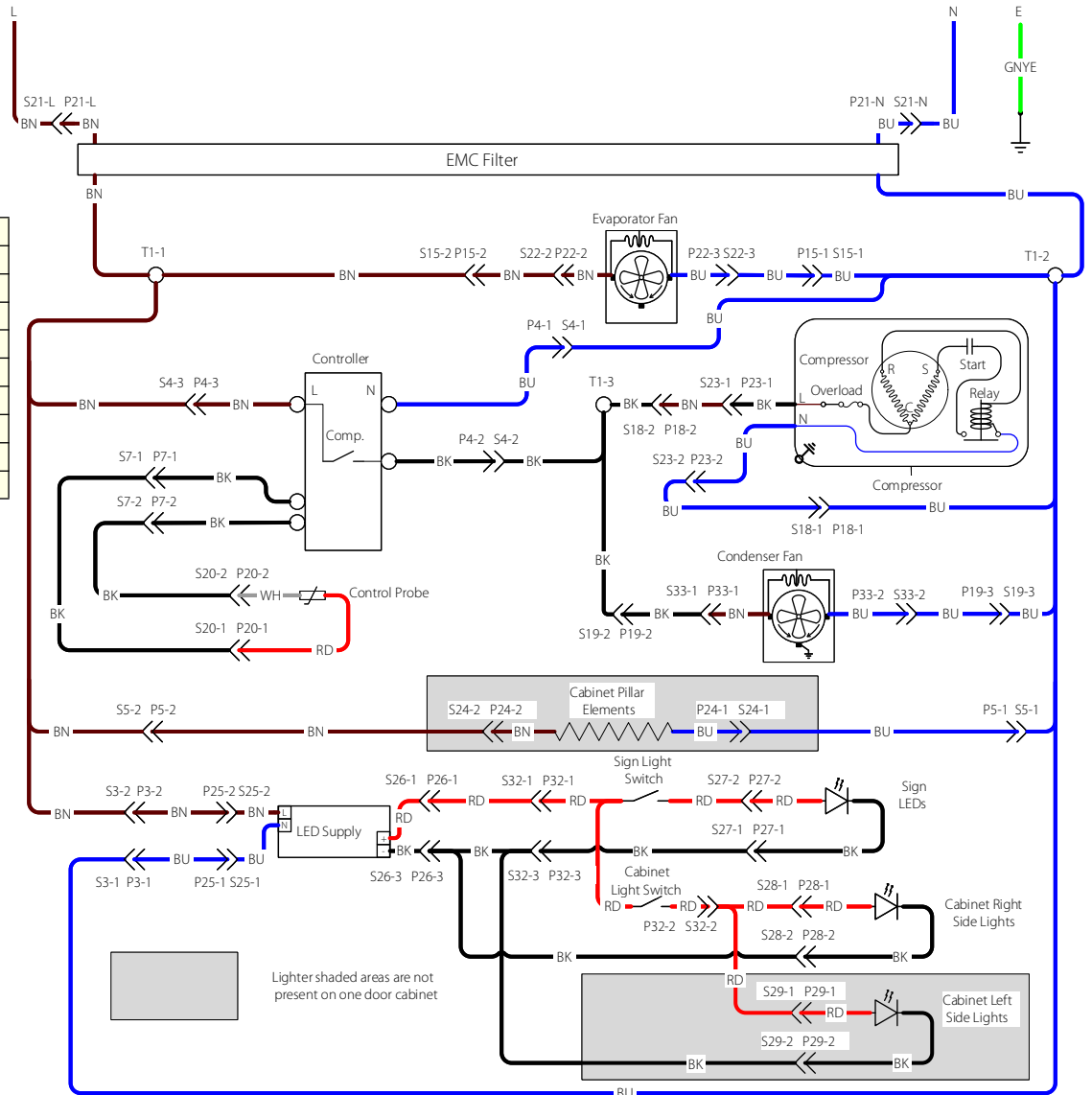
3 Wiring

TCE650N and TCE1000N

Wire colours

BK	Black
BN	Brown
RD	Red
OG	Orange
GN	Green
BU	Blue
GY	Grey
WH	White
GNYE	Green-Yellow

Based upon IEC 757 Standard



Legend

Item	Description	Item	Description
Cartridge electrics box connections			
S1/P1	Unused	S18/P18	Compressor (4-way blue)
S2/P2	Unused	S19/P19	Condenser fan motor (4-way white)
S3/P3	Cabinet lighting (4-way yellow)	S20/P20	Unit temperature probe (2-way red)
S4/P4	Controller power (3-way white)	Other connections	
S5/P5	Cabinet heating (3-way black)	S21/P21	Mains IEC connection
S6/P6	Unused	S22/P22	Evaporator fan extension (4-way white)
S7/P7	Controller sensor (2-way black)	S23/P23	Compressor extension (Molex)
S8/P8	Unused	S24/P24	Pillar element connection (3-way black)
S9/P9	Unused	S25/P25	LED power supply input (Molex)
S10/P10	Unused	S26/P26	LED power supply output (4-way white)
S11/P11	Unused	S27/P27	Sign connection
S12/P12	Unused	S28/P28	Right lights connection
S13/P13	Unused	S29/P29	Left lights connection
S14/P14	Unused	S30/P30	Unused
S15/P15	Evaporator fan motor (4-way red)	S31/P31	Unused
S16/P16	Unused	S32/P32	Lighting flex connection (4-way white)
S17/P17	Unused	S33/P33	Condenser fan extension (Molex)
		T1	Cartridge joins

4 Electronic Controller

Introduction

The cabinet is fitted with a Chunchang C212 electronic controller which is visible through a cut-out below the sign. The electronic controller is pre-programmed and requires no initial setup or additional programming.



Temperature Setpoint

The temperature is set to stay between 0.5°C and 2.5°C. The setpoint can be adjusted to other temperature ranges for specialist applications if required (see below).

SKOPE does not recommend that the setpoint range be changed unless it is absolutely necessary, and then only by small increments at a time.

Procedure 5: To change the temperature setpoint range

1. Refer to the table below to determine the set number for the required temperature range.

Set	Temperature range
0	0.0°C to 1.5°C
1	0.5°C to 2.5°C
2	1.5°C to 3.5°C
3	2.5°C to 4.5°C
4	3.0°C to 5.0°C





Set	Temperature range
5	3.5°C to 5.5°C
6	4.0°C to 6.0°C
7	4.5°C to 6.5°C
8	5.0°C to 7.0°C

2. Press the **set** button for more than 3 seconds, until the controller displays the code "Po" (password).
3. Press the **set** button again to enter password setting mode. The controller will display "00".
4. Press the **Power** (up) or **Defrost** (down) button to scroll to "55".
5. Press the **set** button to confirm the password.
 - The parameter name "St" (setpoint) will be displayed.
 - If the password is incorrect the controller will return to its home screen.
6. Press the **set** button again. The controller will display the setpoint default value of 1.
7. Press the **Power** (up) or **Defrost** (down) button to increase or decrease the setpoint value.
8. Once the required setpoint is displayed, press the **set** button for more than 3 seconds. The controller will store the new setpoint and exit the setpoint parameter.

Messages and Alarms

The following table explains messages and alarms that the electronic controller displays.

Table 2: Chunchang C212 messages and alarms

Display	Description
	The cabinet's internal temperature. The temperature is what the sensor inside the fridge detects, and not necessarily the product temperature. However, they may be very close depending on how the controller is set to sense temperature. Note: The display does not have a decimal point.
	Compressor indicator. On when the compressor starts. Off when the compressor stops.
	Defrost indicator. On when the defrost is activated. Off when the defrost is over.
	Temperature sensor/control probe fault. This indicates a fault with the temperature sensor. Replace the control probe – see Procedure 18, “To replace the control probe”, on page 21.

Parameters

The following table lists the electronic controller's parameters.

Table 3: Chunchang C212 parameters

Parameter	Setting	Description	Min	Max	Unit	Default
St	1	Set temperature	R1	R2	°C	2
R1	0	Set temperature minimum	0	R2	°C	0
R2	8	Set temperature maximum	R1	8	°C	8
C1	-2	Temperature sensor calibration	-10	10	°C	-2
C2	0	Compressor power-on delay	0	60	Sec.	0
C3	5	Minimum downtime	0	60	Min.	5
A1	5	Compressor working time when sensor fails	1	60	Min.	5
A2	30	Compressor downtime in case of sensor failure	1	60	Min.	5
D1	4	Defrost cycle	0	90	Hour	4
D2	30	Defrost time	1	90	Min.	20
D3	2	Defrost display	0	2	–	2
DC	1	Display switching time	0	99	Min.	1

5 Replacement Procedures

Electrical Safety

Caution

Disconnect the cabinet from the mains power supply before attempting **any** maintenance.

Correct wiring routing is as important as using the correct components for compliance with safety and radio interference regulations.

In order to maintain safety and compliance with regulations, make sure you replace any wiring that is disturbed during servicing and secure it back in its original position.

Procedure 6: To disconnect the cabinet from the mains power supply

1. Switch the cabinet off at the mains power supply.
 2. Unplug the power cord from the mains power supply.
-

Lighting

The cabinet is fitted with LED interior lights and LED sign lights. Ensure the light is replaced with the same light type. Fluorescent or LED tubes cannot be used in place of LED modular lights.

IMPORTANT

Replace the light with the same SKOPE OEM part.
DO NOT use alternative LED strip or tube lights, or fluorescent tubes.

Refer to Spare Parts for replacement light specifications:

- “Glass Door Assembly” on page 41 for the interior light.
- “Sign Assembly” on page 42 for the sign light.

The lighting is made up of three components which are replaceable:

- LED modular light
- LED driver
- Interior wiring loom

Power is supplied to the lights by the LED driver (located in the cabinet electrics panel above the doors) via the wiring loom/s which run down the sidelight channel.

Lighting components are all non-serviceable items. If a component is faulty, remove it and replace it with a SKOPE OEM new component.

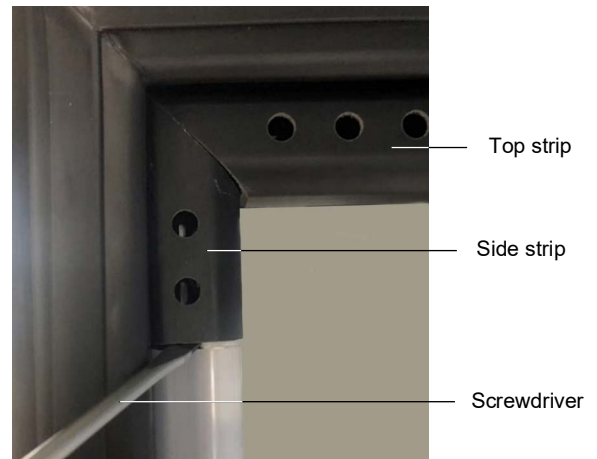
Refer to Table 18, “Cabinet and cartridge troubleshooting,” on page 48 to see which component may be at fault, and follow the procedures over the next few pages for replacement instructions.

Ensure the cabinet is disconnected from the power supply before removing any parts.

Procedure 7: To replace an interior light assembly

1. Disconnect the cabinet from the mains power supply (see page 12).

2. Gently remove the side plastic strip with a slotted screwdriver to expose the failed assembly's black waterproof connector.
If the black connector isn't exposed, remove the top plastic strip as well.

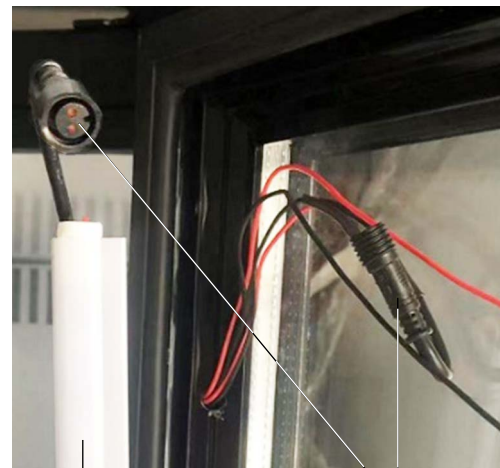


Black connector on the side



Black connector on the top

3. Unplug the connector and gently remove the failed light assembly with the slotted screwdriver.



Light assembly

Unplugged black connector

4. Fit the new light assembly and plug into the black connector.
5. Refit the side plastic strip, and top strip if you removed it.
6. Reconnect the cabinet to the mains power supply and check for correct operation.

Procedure 8: To replace the LED driver

1. Disconnect the cabinet from the mains power supply (see page 12).

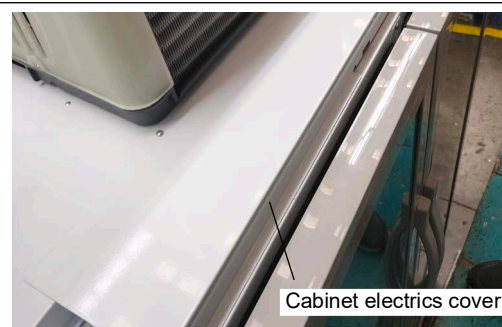
2. Lift up the sign's front panel and unplug the white 4-way connector near the switches at the back of the sign's front panel.



3. Remove the sign's front panel and place it in your working area.



4. Unscrew and detach the refrigeration cartridge and carefully manoeuvre it to allow access to the cabinet electrics cover.



5. Unscrew the cabinet electrics cover.

6. Remove the LED driver.



7. Replace the LED driver and reassemble the cabinet.
8. Reconnect to the mains power supply and check for correct operation.

Procedure 9: To replace the sign lighting loom and cabinet lighting loom

1. Disconnect the cabinet from the mains power supply (see page 12).
2. Remove the sign's front panel (see steps 2 and 3 in Procedure 8 on page 14).

Procedure 9: To replace the sign lighting loom and cabinet lighting loom (continued)

3. Unplug the relevant connectors:

• Sign lighting loom:

- 1) Remove the sign clips to release the front panel.
- 2) Unplug the black 2-way connector in the front, and the 4 × switch connectors at the back.



Black 2-way connector in the front

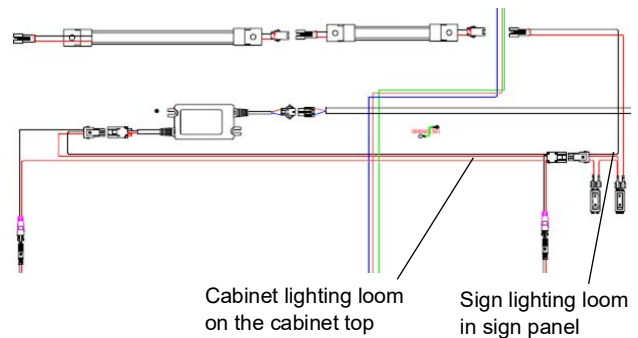


4 × switch connectors at the back

• Cabinet lighting loom:

- 1) Remove the cabinet electrics cover on the cabinet top (see steps 4 and 5 in Procedure 8 on page 14).
- 2) Unplug the cabinet light connector leading from the hinge, and the white 4-way connector to the LED driver.

Cabinet light connector, leading from the hinge



4. Release the cable ties and remove the relevant loom:

- sign lighting loom from the sign panel.
- cabinet lighting loom from the top of the cabinet.

5. Fit the new loom and reassemble the cabinet. Ensure that:

- all the plugs are clean, correctly fitted and plugged in.
- the loom is reconnected to the door light connector.

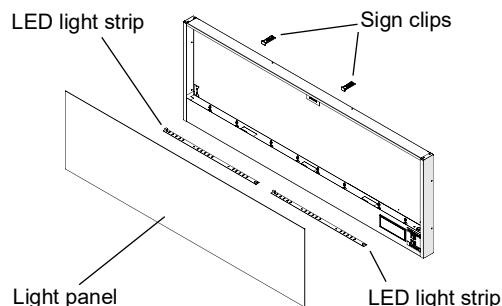
6. Reconnect to the mains power supply and check for correct operation.

Sign Light The sign is lit by an LED modular light which can be replaced.

Procedure 10: To replace the sign light

1. Disconnect the cabinet from the mains power supply (see page 12).
 2. Remove the sign's front panel (see steps 2 and 3 in Procedure 8 on page 14).
-

3. Remove the sign clips to release the light panel. Unplug the failed LED strip and fit the new LED strip.



4. Refit the sign's front panel to the cabinet, and reconnect the white 4-way connector near the switches at the back of the sign.
 5. Reconnect the cabinet to the mains power supply and check for correct operation.
-

Doors

Replacing the Gasket The one-piece door gasket clips into the door frame and runs around the perimeter of the door. Remove the gasket by peeling it from the door frame, starting at a corner.

If the gasket is out of shape after refitting, use a hair dryer to heat and reshape it.

Removing and Refitting the Door For ease of servicing, the doors can be removed from the cabinet.

Procedure 11: To remove the door

1. Disconnect the cabinet from the mains power supply (see page 12).
 2. Remove the sign's front panel and sign sides.
-

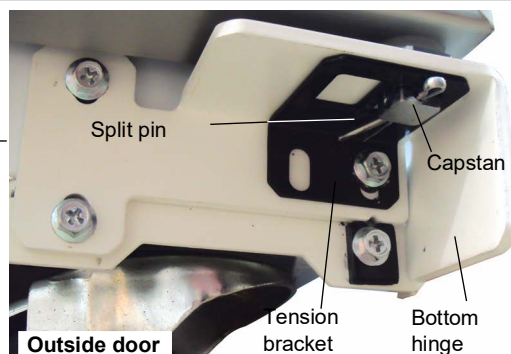
TCE650N only

3. Detach the refrigeration cartridge, and carefully push it back to allow access to the top hinge.
-

TCE650N and TCE1000N

4. Remove the split pin from the capstan at the bottom hinge.
-

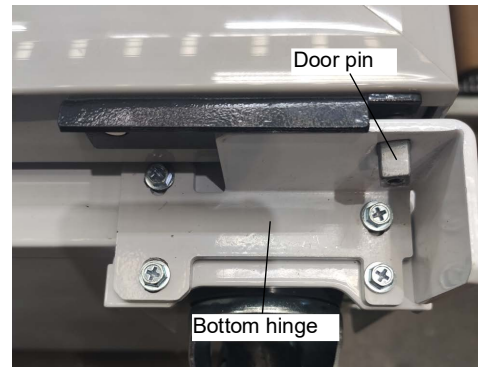
5. Unscrew and remove the tension bracket. Take care when removing it, as the bracket is under tension.



6. Unscrew the top hinge, and lift the cabinet door up and off the bottom hinge.
-

Procedure 12: To refit the door

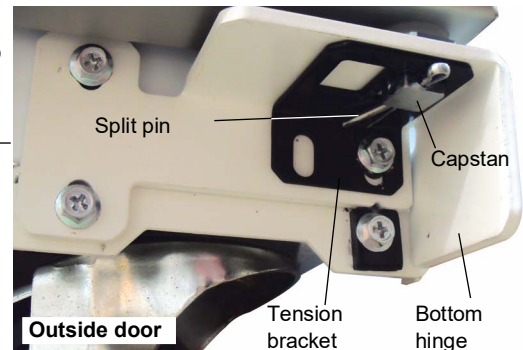
1. Lift the door onto the bottom hinge using the door pin to help position it correctly.



2. Fit the top hinge to the top of the door and cabinet, and partially fix it in place.
3. Align the door with the cabinet and tighten the fixing screws.
4. Apply tension to the door (see Procedure 14, "To adjust the door tension," on page 17).

5. Fit the split pin through the hole in the capstan to lock the door in place.

6. Fit the height adjustment block to the bottom screw hole. If necessary, adjust the height of the door (see Procedure 15, "To adjust the door height," on page 18).



7. Replace the sign's front panel and sides removed in Procedure 12 on page 17.

Procedure 13: To replace the top hinge bracket

1. Follow the steps in Procedure 11 above to remove the top hinge bracket.
2. Remove the top hinge from the top of the door and fit the new one.
3. Follow Procedure 12 above to refit the door.

Adjusting Door Tension

The door has an internal torsion bar, pre-tensioned at the factory, that lets the door self-close. If necessary, the door tension can be further adjusted by rotating the capstan mounted in the bottom hinge bracket.

Procedure 14: To adjust the door tension

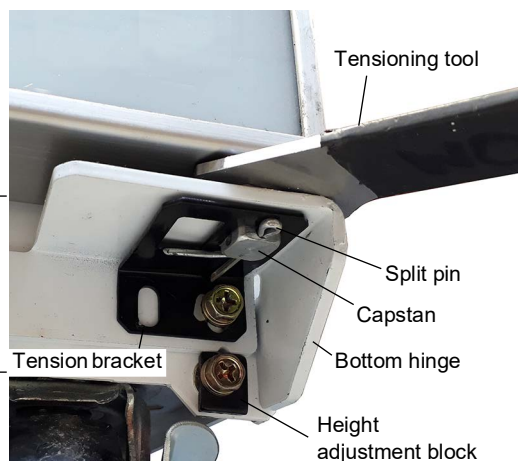
1. Remove the split pin from the capstan at the bottom hinge.
2. Remove the tension bracket from the bottom hinge.

Procedure 14: To adjust the door tension (continued)

3. Use a tool to apply tension to the door via the capstan. First, rotate the capstan against the door opening direction to remove any slack. Once resistance is felt, continue to rotate 180° to provide tension.

4. While holding door tension on the capstan, fit the tension bracket to the top screw hole so that it supports the door tension on the capstan.

5. Fit the split pin through the hole in the capstan to lock the door in place.

**Outside door**

6. Check door tension by holding the door open about 100 mm and letting it go. The door should close gently, with the gasket forming an airtight seal with the cabinet.

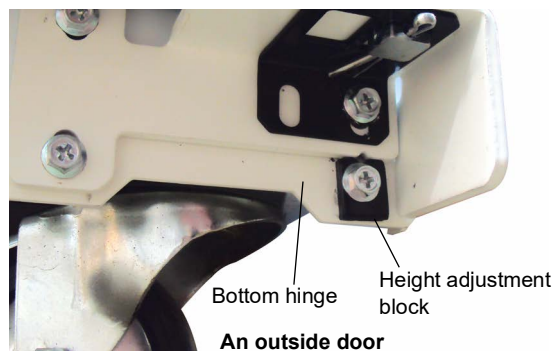
Adjusting Door Height

A height adjustment block is fitted below the bottom hinge. As standard, the notched edges on the bottom of the hinge and the top of the height adjustment block align to set the door to the correct level. If the door is not at the correct height when at the standard setting, follow the steps below to adjust the height.

Procedure 15: To adjust the door height

1. Disconnect the cabinet from the mains power supply (see page 12).

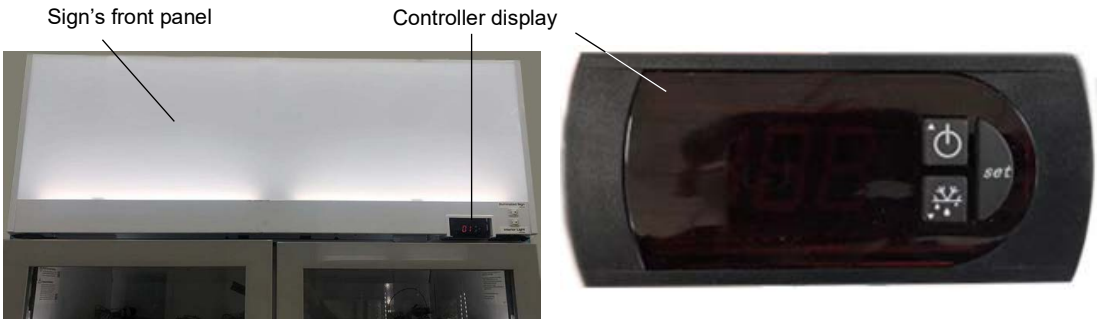
2. Loosen the bottom hinge, and remove the height adjustment block.



3. Set the door to the correct height, turn the height adjustment block to the most appropriate angle, refit it, and tighten up the bottom hinge screws.

Electronic Controller

Controller Location The electronic controller is located within the sign assembly. The module sits in a cut-out in the sign. It is mounted with a snap-fit feature on the sides of the controller.

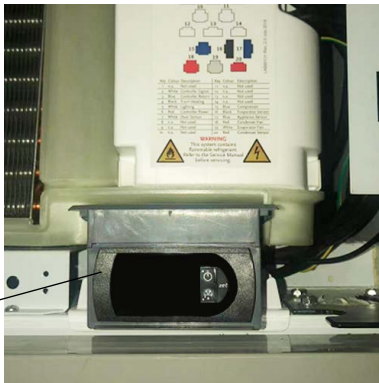


Procedure 16: To access the controller

1. Disconnect the cabinet from the mains power supply (see page 12).
2. Remove the sign's front panel (see steps 2 and 3 in Procedure 8 on page 14).

3. Pull the controller housing assembly from the bracket on the top of the cabinet.

Controller housing assembly



4. Unscrew and remove the controller housing cover to access the controller.

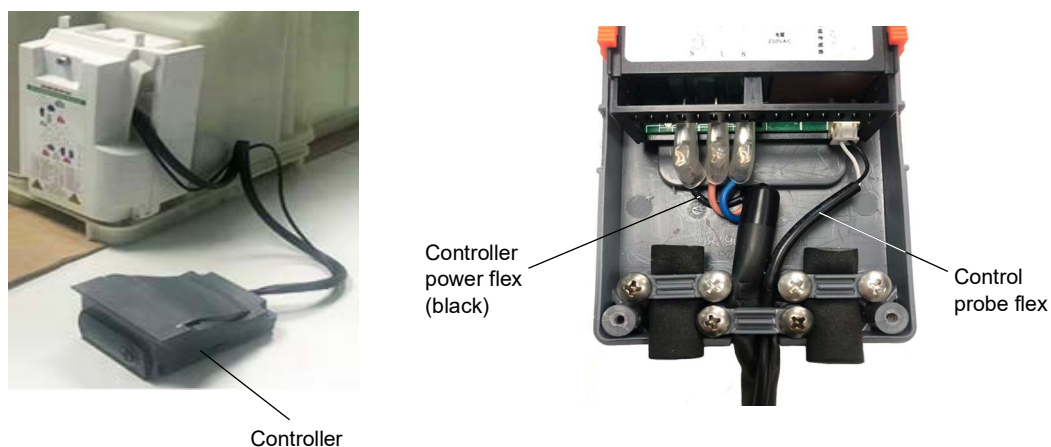
Note: Do **not** remove the closed cell foam, as it keeps the housing waterproof.

Controller housing

Closed cell foam



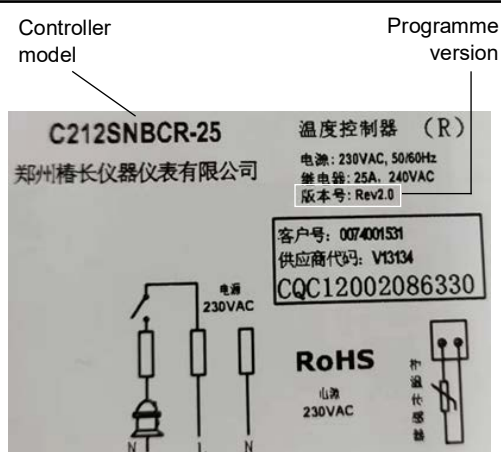
Controller Flexes To connect the controller, plug the control probe flex and controller power flex into the correct sockets on the controller. To disconnect the controller, simply unplug the control probe flex and controller power flex.



Replacing the Controller **Note:** Replacement spare part electronic controllers are supplied with the default parameter set loaded.

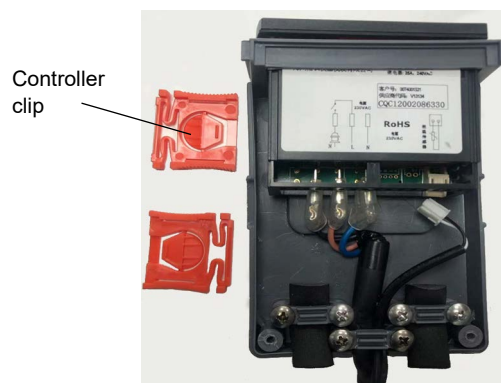
Procedure 17: To replace the controller

1. Make sure that the replacement controller has the:
 - correct model name (C212SNBCR-25).
 - same programme version as the original controller.



2. Disconnect the cabinet from the mains power supply (see page 12).
3. Access the electronic controller (see page 19).
4. Disconnect the controller from its flexes.

5. Remove the controller from its housing base by releasing the clip on each side of the controller.

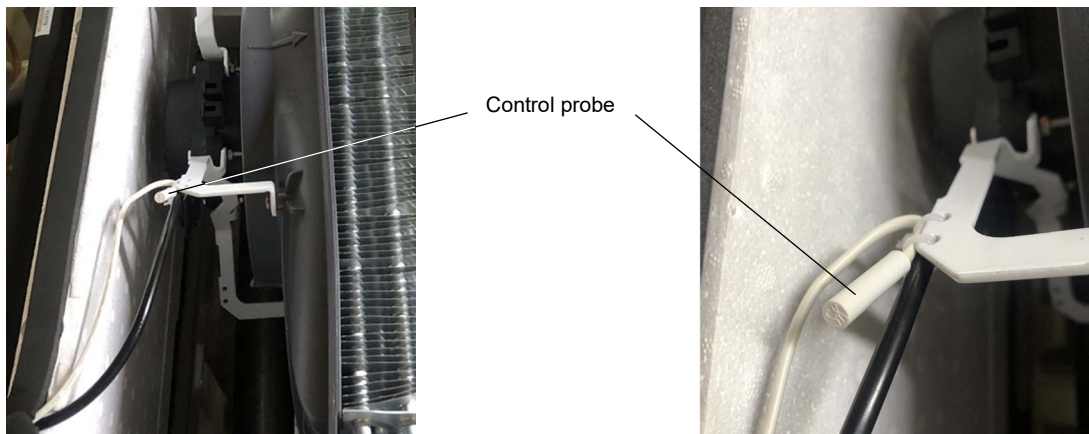


6. Fit the replacement controller, connect its flexes, and refit the clips and controller housing cover.

Procedure 17: To replace the controller (continued)

7. Refit the controller housing to the cabinet, and replace the sign panel.
8. Perform an electrical safety test as required, and reconnect to the power supply.
9. Check that the display is showing correctly on the controller without any alarms (see "Messages and Alarms" on page 11).

Control Probe The control probe is cable-tied to a bracket on the evaporator fan motor.

**Procedure 18: To replace the control probe****Before you start**

- If a customer reports a "not cooling" fault, and it has been established that the cabinet is not cooling, follow the "On-site Work Procedure" on page 35.
- Make sure you take note of the control probe's original path.

1. Disconnect the cabinet from the mains power supply (see page 12).
2. Remove the evaporator fan assembly (see page 31).
3. Trace the probe cable back to the cartridge electrics box and unplug it (see page 26).
4. Following the same path as the original probe, fit the new probe with cable ties as necessary. Ensure the probe cable is securely plugged into the rear of the cartridge electrics box, and that it is cable-tied to the evaporator fan shroud bracket, with the probe bent away from the fan bracket at a 45° angle.
5. Reassemble the cartridge and test and tag as per standard procedure.
6. Reconnect to the power supply and check for correct operation.

Refrigeration System

Before Servicing Overview

Ensure you have read and understood this manual before starting any servicing.

Important

- SKOPE hydrocarbon refrigeration systems must only be serviced by appropriately skilled and qualified refrigeration mechanics.
- Servicing a sealed refrigeration system must occur at a hydrocarbon workshop or service area with dedicated hydrocarbon equipment and personal protective equipment (PPE).
- All local hydrocarbon storage and handling regulations and procedures must be followed at all times.

Ensure all electronic controller alarms diagnostics and refrigeration system diagnostics are performed to confirm a refrigeration system fault is present.

Check all components including the electronic controller and electrical systems.

Ensure your work area is well ventilated.

IMPORTANT

Use only dedicated hydrocarbon SKOPE OEM spare parts.

DO NOT use alternative parts.

For safety compliance, use only SKOPE-supplied components specified for the appliance.



Safety hazards

The main hydrocarbon safety hazards are:

- Flammability
- Venting of hydrocarbon and compressor oil
- Asphyxiation

Refrigerant identification

Correctly identifying the refrigerant is critical to maintain safety and the correct functioning of the cabinet.

- The cabinet rating label (located in the upper inside of the cabinet) states the refrigerant type.
- Warning labels are fitted to hydrocarbon refrigeration cabinets to indicate the use of hydrocarbon refrigerant.

Personal protective equipment (PPE)

Correctly wear or use all PPE required by local regulations and procedures during servicing.

Service equipment

Only use dedicated hydrocarbon service equipment which is hydrocarbon-compliant. Electrical equipment that could be exposed to the refrigerant must be intrinsically safe.

In addition to standard tools for accessing and removing parts, specialist tools are required for completing the refrigeration system service tasks in this manual:

- Intrinsically safe refrigeration vacuum pump, rated by the manufacturer as suitable for use with hydrocarbon refrigerant
- Dedicated hydrocarbon gauge set
- Flammable gas detector to warn if flammable refrigerant is present
- Charging scales, rated by the manufacturer as suitable for use with hydrocarbon refrigerant, accurate to 1 gram

Leak detector

A leak detector is used to track and locate the source of hydrocarbon gas leaks. It is:

- recommended for servicing hydrocarbon units on-site.
- required for servicing hydrocarbon units off-site.

Service vehicle

- Must be suitable for transporting flammable gas.
- Vehicle cargo area:
 - Must be well ventilated to outside the vehicle only.
 - Must have no ignition sources, nor any areas where the gas may pool.
- Must be able to transport swap units.
- Should carry minimum SKOPE hydrocarbon service parts.

On-site Work The service technician must have required knowledge, skills, qualifications, and tools before beginning any on-site work on the refrigeration sealed system.

Minimum knowledge and skills

- Qualifications and certifications required by local/state regulatory bodies to service hydrocarbon refrigeration systems
- Safe working practices, including a safe working environment at all times

Minimum tools and equipment

- Safety signs and/or barrier – suitable to create a safe work zone 1.5 m around the cabinet
- Hydrocarbon gas detector
- Dedicated hydrocarbon gauge set
- Bullet valves/line piercing valves suitable for a 6 mm tube

Off-site Work Hydrocarbon workshop

The following tools and equipment are required in the hydrocarbon workshop:

- Dedicated area for hazardous work – suitable for servicing and releasing flammable hydrocarbon refrigerant
- Hydrocarbon leak detector
- Refrigeration gauge set – suitable for flammable hydrocarbon refrigerant
- Dry nitrogen – suitable for purging and high pressure testing
- Intrinsically safe refrigeration vacuum pump, rated by the manufacturer as suitable for use with hydrocarbon refrigerant
- Charging scales, rated by the manufacturer as suitable for use with hydrocarbon refrigerant, accurate to 1 gram
- Hydrocarbon refrigerant supply cylinder

Refrigeration Cartridge

Refrigeration Cartridge Assembly The refrigeration cartridge is a top-mounted, electronically controlled removable cartridge. For safety and compliance, only repair the cabinet with SKOPE-supplied parts made specifically for this appliance. Other parts may appear to be suitable, but may not be approved or safe for use in an appliance with hydrocarbon refrigerant.

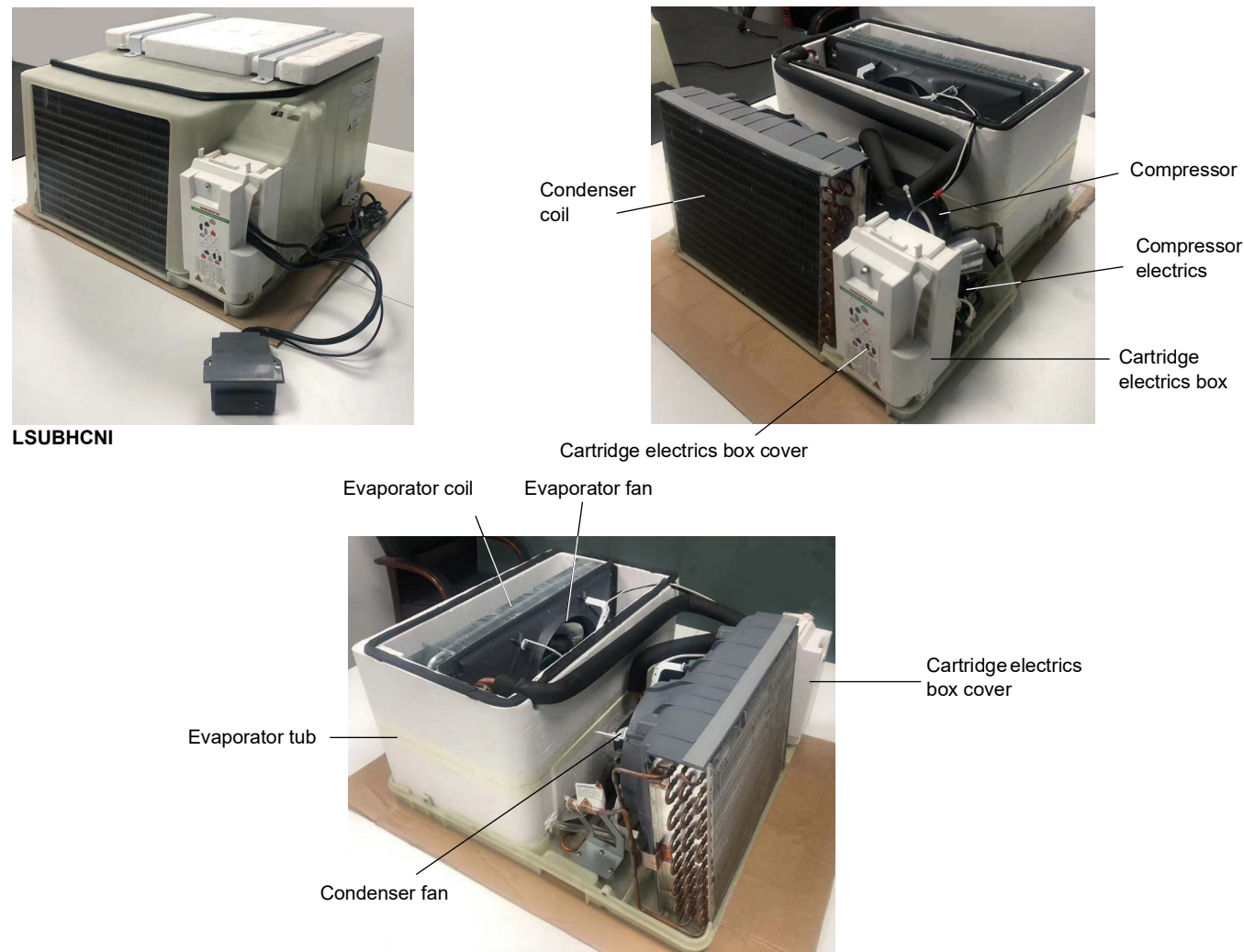
The cartridge must only be used on a SKOPE hydrocarbon-compliant cabinet. Refer to the cabinet rating label to determine if the cabinet is suitable for use with a hydrocarbon cartridge. The rating label **must** state refrigerant as R290. If the label states a different refrigerant, or does **not** state a refrigerant, it is NOT suitable for a hydrocarbon cartridge.

WARNING

The hydrocarbon cartridge must only be used on an hydrocarbon-compliant cabinet.

For servicing or transportation, the refrigeration cartridge unplugs and can be removed from the cabinet. Some minor servicing can be performed without removing the cartridge.

The model and serial number are both printed on the cartridge rating/serial number label attached to the top of the side of the cover.



Verify the model and basic requirements before servicing.

Table 4: Cartridge specifications

Cartridge model	UTHCNI-0060
Compressor	Donper L96CU1
Compressor capacity	670 watts (EN12900 MBP)
Refrigerant/Charge	R290/84 g

Not Cooling Fault If a customer reports a “not cooling” fault, and it has been established that the cabinet is not cooling, follow the procedure on page 35 when making the service visit.

Diagnostics The following diagnostic test (Procedure 19) is useful to diagnose if the refrigeration cartridge is short of gas. Perform the test before opening the refrigeration system.

It is helpful to have a correctly operating cartridge running beside the cartridge being serviced to compare behaviour.

Note: This diagnostic procedure is indicative only.

Procedure 19: To determine if there is a sealed system fault**Before you start**

- If a customer reports a “not cooling” fault, and it has been established that the cabinet is not cooling, follow the “On-site Work Procedure” on page 35.
- Ensure you are in a suitable workshop (see page 23).

1. Disconnect the cabinet from the mains power supply (see page 12).
2. Remove the refrigeration cartridge (see page 26).
3. Remove the cartridge cover (see page 28).
4. Place cartridge on bench and connect a service probe to the red plug on the cartridge.
5. Connect the refrigeration cartridge to the power supply and allow to run for approximately 10 minutes, until the evaporator temperature stabilises.
6. Refer to the table below to determine if the system charge is correct.
A system with the correct refrigerant charge will frost back towards the compressor. The point where the frost stops is affected by the ambient temperature.
The following table details the frost stop point on a correctly charged system running on the bench.

Table 5: Frost stop point

Ambient	50% charged	75% charged	100% charged
10°C	Cold with light sweat	Cold with light sweat	Frosting to compressor
20°C	Cold with light sweat	Sweating 50 mm from compressor	Frosting to compressor
30°C	Dry	Dry	Frosting 20 mm from compressor
40°C	Dry	Dry	Sweating 50 mm from compressor

7. If the suction pipe frosts to the appropriate frost stop point, the charge is likely to be correct. If the frost does not go back to the point shown there may be a capillary blockage or compressor fault.
8. If required, use the table below to determine whether the system is short of refrigerant or has a blocked capillary.

Table 6: System diagnosis

Diagnosis	Frost back (after 10 mins)
Blocked capillary	None
Normal operation	Refer to Table 5 above

9. After the fault has been diagnosed and repaired, reassemble the refrigeration system and test run.

Removing the Cartridge

Follow the steps below to remove the refrigeration cartridge from the cabinet. Ensure the cabinet is disconnected from the power supply before removing the cartridge.

Procedure 20: To remove the refrigeration cartridge

Before you start

If a customer reports a “not cooling” fault, and it has been established that the cabinet is not cooling, follow the “On-site Work Procedure” on page 35.

1. Disconnect the cabinet from the mains power supply (see page 12).

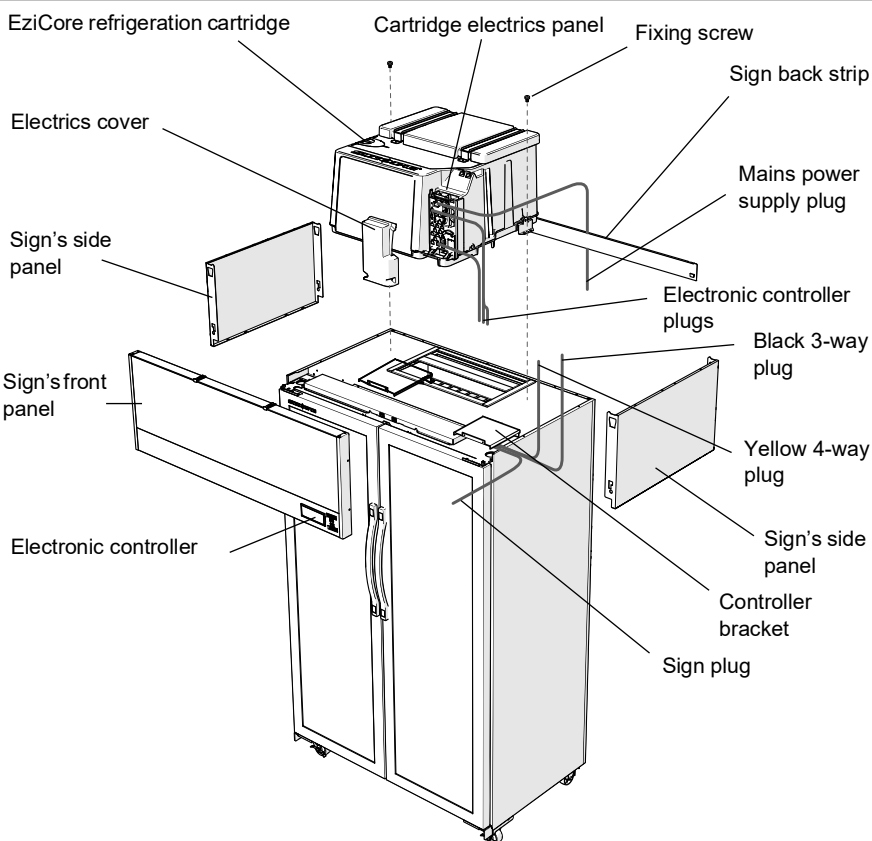
2. Remove the sign's front panel (see steps 2 and 3 in Procedure 8 on page 14).

3. Unscrew and detach the electrics cover from the cartridge.

4. Unplug the yellow 4-way plug for the lighting and the black 3-way plug for the heating from the cartridge electrics panel.

5. Remove the sign back strip, and if necessary the sign sides.

6. Unscrew the two fixing screws (one on each side of the cartridge) and with two people, lift the cartridge off the cabinet.



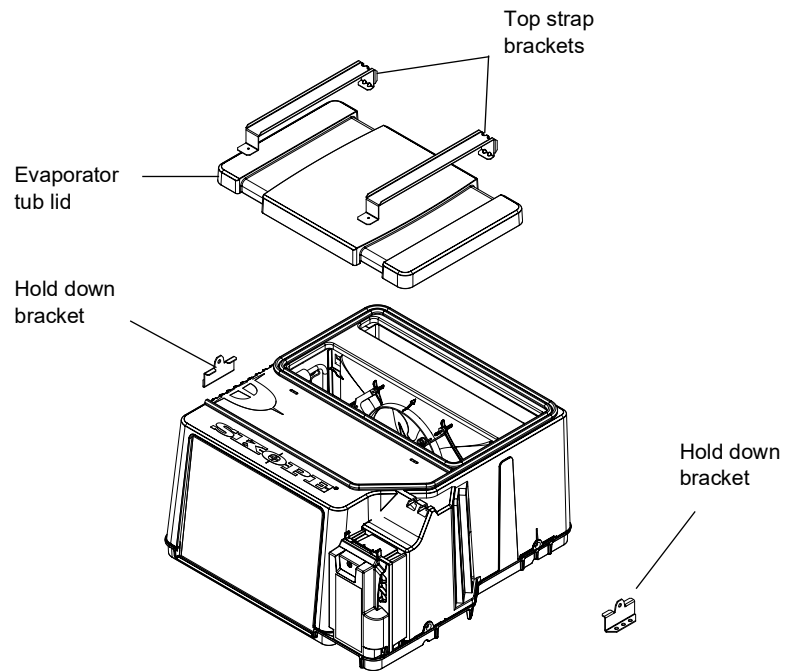
Replacing the Cartridge

WARNING

The hydrocarbon cartridge must only be used on a hydrocarbon-compliant cabinet.

New spare part refrigeration cartridges supplied by SKOPE do not come with the evaporator tub lid, top strap brackets or hold down brackets. When replacing a faulty top mount refrigeration cartridge, keep these parts for the new replacement cartridge.

The evaporator tub lid, top strap brackets and hold down brackets can be ordered in addition to the refrigeration cartridge if required. See page 43 for spare part numbers.



Procedure 21: To replace a cartridge

1. Disconnect the cabinet from the mains power supply (see page 12).
2. Remove the existing cartridge (see page 26).
3. On the new cartridge, push the bottom plugs out of the bottom of the evaporator box.
4. Swap the evaporator tub lid, top strap brackets and hold down brackets from the existing cartridge to the new cartridge.
5. Fit the new cartridge to the cabinet.
6. Fit the controller housing assembly into the white plastic bracket on top of the cabinet.
7. Unscrew and remove the electrics cover from the front of the cartridge and connect the power supply plug and cabinet plugs.
8. Refit the cartridge electrics cover.
9. Put the sign's front panel back on.
10. Reconnect to the mains power, and check for correct operation.

Cartridge Cover Remove the cartridge cover to access parts within the cartridge assembly.

Procedure 22: To remove the refrigeration cartridge cover

1. Disconnect the cabinet from the mains power supply (see page 12).
2. Remove the refrigeration cartridge (see page 26).

3. Unscrew the four machine screws from the sides of the refrigeration cartridge and lift the cover off the cartridge. Note that the evaporator tub lid is attached to the cartridge cover, so will be removed at the same time.

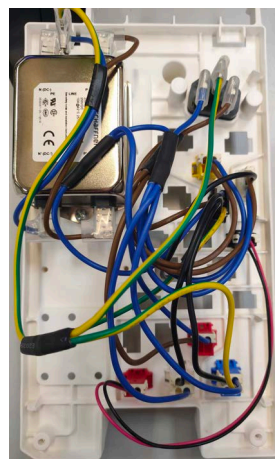
**Cartridge
Electrics Box
Assembly**

The cartridge electrics box assembly contains the mains supply socket, EMI filter and panel mount socket connectors for the cartridge and cabinet. Refer to the "Wiring diagram" on page 29 or label on the electrics box cover for the socket connections.

Plugs may come loose as a result of movement and vibrations. When refitting, take care that all plugs are securely attached to the correct sockets.



Cartridge electrics box



Inside the cartridge electrics box

Procedure 23: To remove and open the cartridge electrics box assembly**Before you start**

If a customer reports a "not cooling" fault, and it has been established that the cabinet is not cooling, follow the "On-site Work Procedure" on page 35.

1. Disconnect the cabinet from the mains power supply (see page 12).
2. If required, unclip the electronic controller from the top of the electrics box.

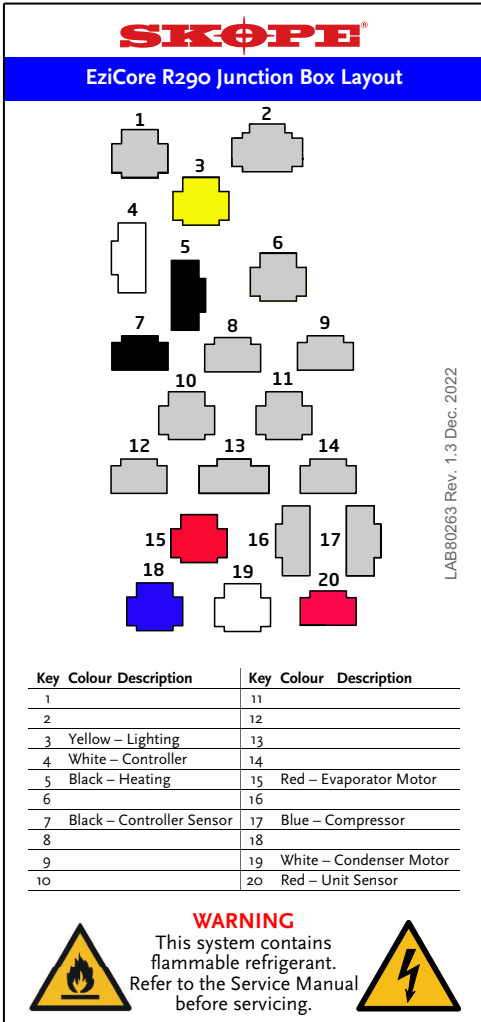
3. Undo the fixing screw at the top of the electrics box cover, and remove the cover.



Procedure 23: To remove and open the cartridge electrics box assembly (continued)

4. Unplug all cartridge plugs from the cartridge electrics box.
5. Undo the two fixing screws at the base of the electrics box, and detach the electrics box from the cartridge.
6. To open the electrics box, undo the two fixing screws on the back of the electrics box and swing the back cover off.

Wiring diagram



Condenser Fan The condenser fan assembly is made up of a fan motor, fan blade and mounting brackets which can be replaced if necessary. The condenser fan flexible cord has a white plug.

If the fan stops for any reason, check all connections to ensure no plugs have come loose. Refer to the label on the electrics box cover to identify the condenser fan plug and socket in the electrics box.

IMPORTANT

Replace the motor with the same SKOPE OEM part.

DO NOT use alternative parts.

It is important that the fan blade and/or fan motor is replaced with the same part to ensure safety, correct alignment and refrigeration performance, and compliance. Tighten fan blades to the fan motor manufacturer recommended torque settings shown in Table 7 below.

Table 7: Fan motor manufacturer recommended torque settings

Fan motor manufacturer	Torque setting
Haier	1.5 Nm

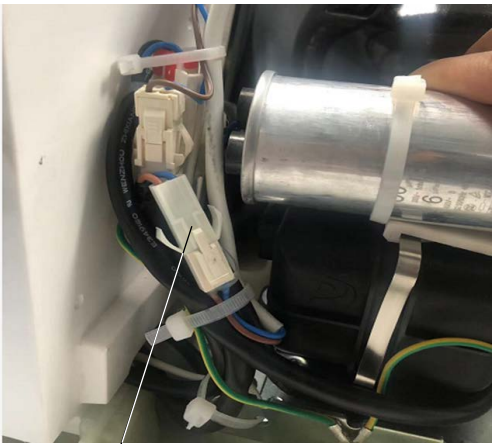
Procedure 24: To access and remove the condenser fan assembly

Before you start

If a customer reports a “not cooling” fault, and it has been established that the cabinet is not cooling, follow the “On-site Work Procedure” on page 35.

1. Disconnect the cabinet from the mains power supply (see page 12).
2. Remove the refrigeration cartridge (see page 26).
3. Remove the cartridge cover (see page 27).

4. Unplug the condenser fan’s white 2-way connector, located near the compressor electrics.



White 2-way connector

5. Free up the condenser fan motor cable and earth wire by:
 - releasing the eye terminal on the motor body.
 - cutting the cable ties holding the cables along the cartridge.



Eye terminal



Fan motor cable and earth wire

6. Remove the fan assembly (fan motor, fan blade, mounting brackets) from the cartridge by lifting the shroud up and out.

Procedure 25: To replace the condenser fan blade**Before you start**

If a customer reports a “not cooling” fault, and it has been established that the cabinet is not cooling, follow the “On-site Work Procedure” on page 35.

1. Disconnect the cabinet from the mains power supply (see page 12).
2. Remove the condenser fan assembly (see page 30).
3. Remove the screw and washer from the centre of the fan blade, and lift the blade from the motor.
4. Fit the new blade and fix with a 12 mm flat washer and serrated head screw. Tighten the blade to the fan motor manufacturer’s recommended torque setting (1.5 Nm).
5. Reassemble the cartridge and test for correct operation.

Procedure 26: To replace the condenser fan motor**Before you start**

If a customer reports a “not cooling” fault, and it has been established that the cabinet is not cooling, follow the “On-site Work Procedure” on page 35.

1. Disconnect the cabinet from the mains power supply (see page 12).
2. Remove the condenser fan assembly (see Procedure 24 on page 30) and the fan blade (see Procedure 25 on page 31).
3. Detach the fan motor from the fan mounting bracket by removing the four screws from the mounting bracket.
4. Fit the new motor and reattach the fan blade with a 12 mm flat washer and serrated head screw. Tighten the blade to the fan motor manufacturer’s recommended torque setting (1.5 Nm).
5. Reassemble the cartridge, ensuring that:
 - all cables are neatly cable-tied away from the fan blade.
 - the eye terminal of the earth wire is fitted back on the body of the fan motor.
6. Test for correct operation.

Evaporator Fan The evaporator fan assembly is made up of a fan motor and fan blade, both of which can be replaced when necessary. The evaporator fan flexible cord has a white 4-way plug near the compressor electrics.

If the fan stops for any reason, check all connections to ensure no plugs have come loose. Refer to the label on the electrics box cover to identify the evaporator fan plug and socket in the electrics box.

The fan motor and fan blade are fixed to the evaporator shroud via the brackets. The shroud (complete with fan motor and fan blade) can be lifted off the evaporator tub once the refrigeration cartridge cover has been removed.

IMPORTANT
Replace the motor with the same SKOPE OEM part.
DO NOT use alternative parts.

It is important that the evaporator fan blade and/or fan motor is replaced with the same part to ensure safety, correct alignment and refrigeration performance, and compliance. Tighten fan blades to the fan motor manufacturer recommended torque settings shown in Table 8 below.

Table 8: Fan motor manufacturer recommended torque settings

Fan motor manufacturer	Torque setting
Haier	1.5 Nm

Procedure 27: To access the evaporator fan assembly**Before you start**

If a customer reports a “not cooling” fault, and it has been established that the cabinet is not cooling, follow the “On-site Work Procedure” on page 35.

1. Disconnect the cabinet from the mains power supply (see page 12).
2. Remove the refrigeration cartridge (see page 26).
3. Remove the cartridge cover (see page 28).
4. Free up the cables from the putty on the evaporator tub perimeter.
5. Cut the cable ties to release the control probe from the fan bracket.

6. Lift the evaporator fan assembly up and out of the evaporator box.

**Procedure 28: To replace the evaporator fan blade****Before you start**

If a customer reports a “not cooling” fault, and it has been established that the cabinet is not cooling, follow the “On-site Work Procedure” on page 35.

1. Disconnect the cabinet from the mains power supply (see page 12).
2. Remove the refrigeration cartridge (see page 26).
3. Gain access to the evaporator fan assembly (see page 32).
4. Remove the screw and washer from the centre of the fan blade, and lift the blade from the motor.
5. Fit the new blade, ensuring it is centred within the evaporator shroud. Tighten the blade to the fan motor manufacturer's recommended torque setting (1.5 Nm).
6. Reassemble the cartridge and test for correct operation.

Procedure 29: To replace the evaporator fan motor**Before you start**

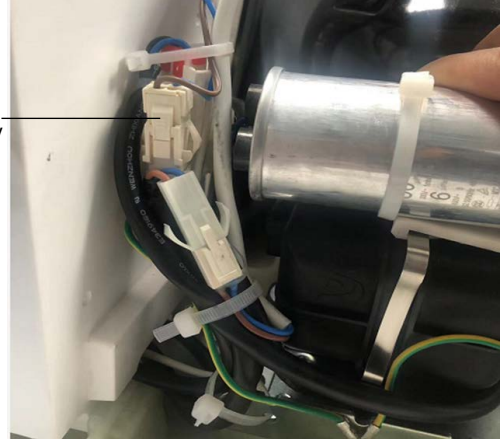
If a customer reports a “not cooling” fault, and it has been established that the cabinet is not cooling, follow the “On-site Work Procedure” on page 35.

1. Access the evaporator fan assembly (see page 32) and remove the fan blade (see page 32).
2. Free the fan flexible cord by cutting the cable ties.

Procedure 29: To replace the evaporator fan motor (continued)

3. Trace the cable back to the connector (near the compressor electrics) and unplug it.

Evaporator fan motor's white 4-way connector



4. Detach the fan motor from the fan mounting bracket by removing the four screws from the mounting bracket.
5. Install the replacement motor.
 - Attach the screws to the replacement motor.
 - Ensure that the flexible cord points towards the bottom of the evaporator tub.
 - Attach the replacement motor to the mounting brackets.
6. Take care to re-cable tie the fan and control probe flexible cords back onto the mounting bracket to prevent high frequency vibration.
7. Fit the fan blade, ensuring it is centred within the evaporator shroud. Tighten the blade to the fan motor manufacturer's recommended torque setting (1.5 Nm).
8. Reassemble the cartridge and test for correct operation.

Compressor The compressor is located at the front of the refrigeration cartridge, beside the condenser.

Condenser



Compressor

Before replacing the compressor

If the compressor is causing excessive noise, check the mountings to ensure there is no damage to the rubber or the washers, nuts and screws. A faulty compressor may have a distinct hissing sound and run with a very hot body temperature.

Check all plug connections and ensure the compressor electrics are operating correctly (see "Compressor Electrics" on page 34). The compressor must be supplied with consistent voltage

over 220 volts, so ensure the voltage does not drop at start-up. If the voltage does drop, ensure the cartridge has a direct power supply (not from a multi-box or extension cord).

IMPORTANT

To eliminate possible vibration noise, ensure no pipes touch the plastic base and condenser assembly.

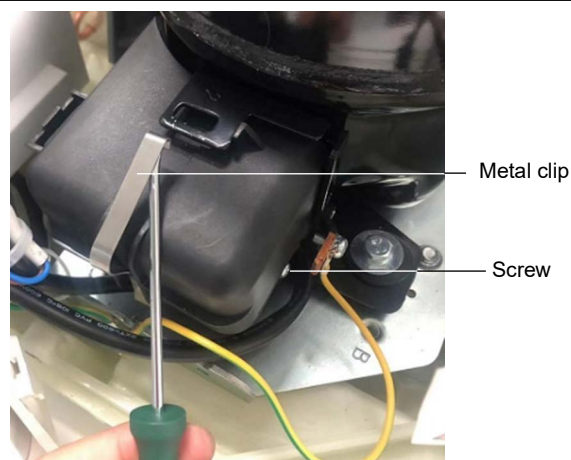
Compressor Electrics

The compressor electrics are located on the front of the compressor.

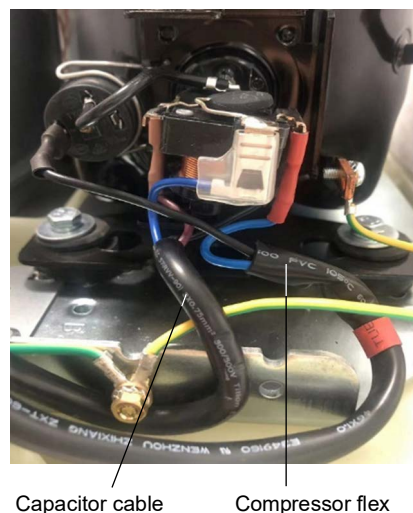
Procedure 30: To access the compressor electrics

1. Disconnect the cabinet from the mains power supply (see page 12).
2. Remove the refrigeration cartridge (see page 26).
3. Remove the cartridge cover (see page 28)
4. Unclip the capacitor from the relay cover.

5. Unclip the relay cover from the compressor by releasing the metal clip and screw on the relay cover.

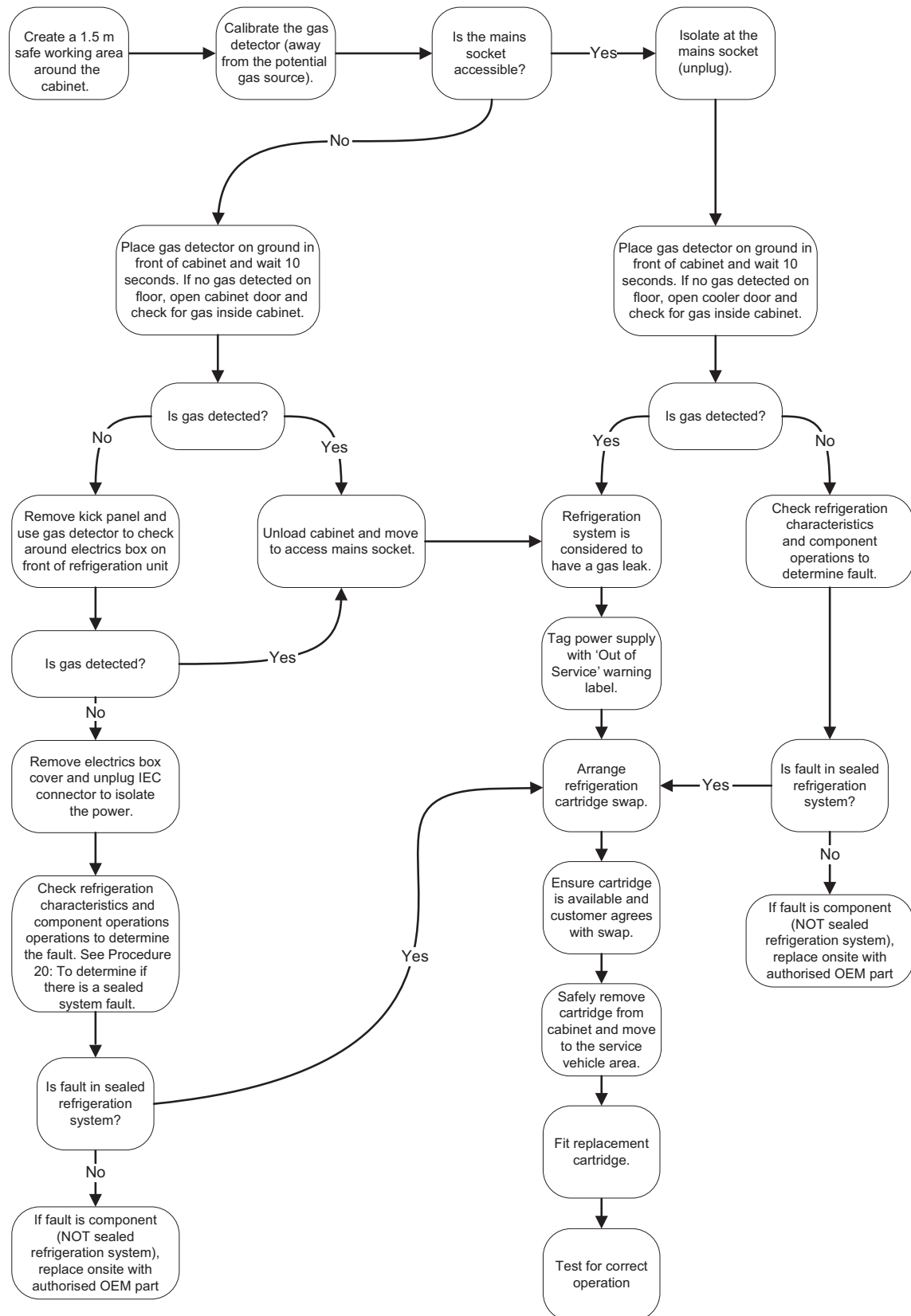


6. Make sure that all terminals in the relay cover are in their correct locations, and not loose or falling off.

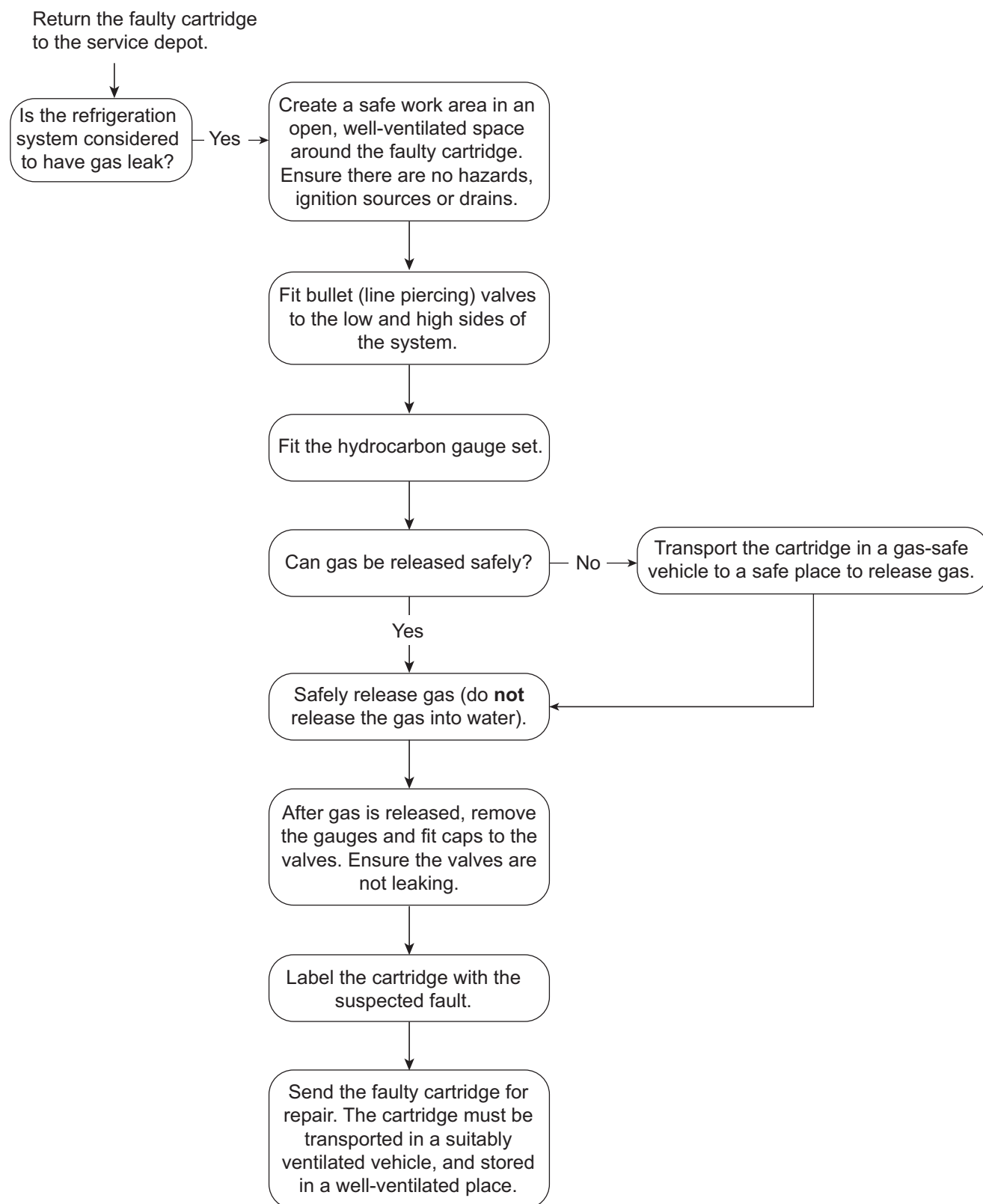


On-site Work Procedure

If a customer reports a “not cooling” fault, and it has been established that the cabinet is not cooling, follow the procedure below when making the service visit.



On-site work procedure (continued)



6 Spare Parts

Main Assembly

TCE650N

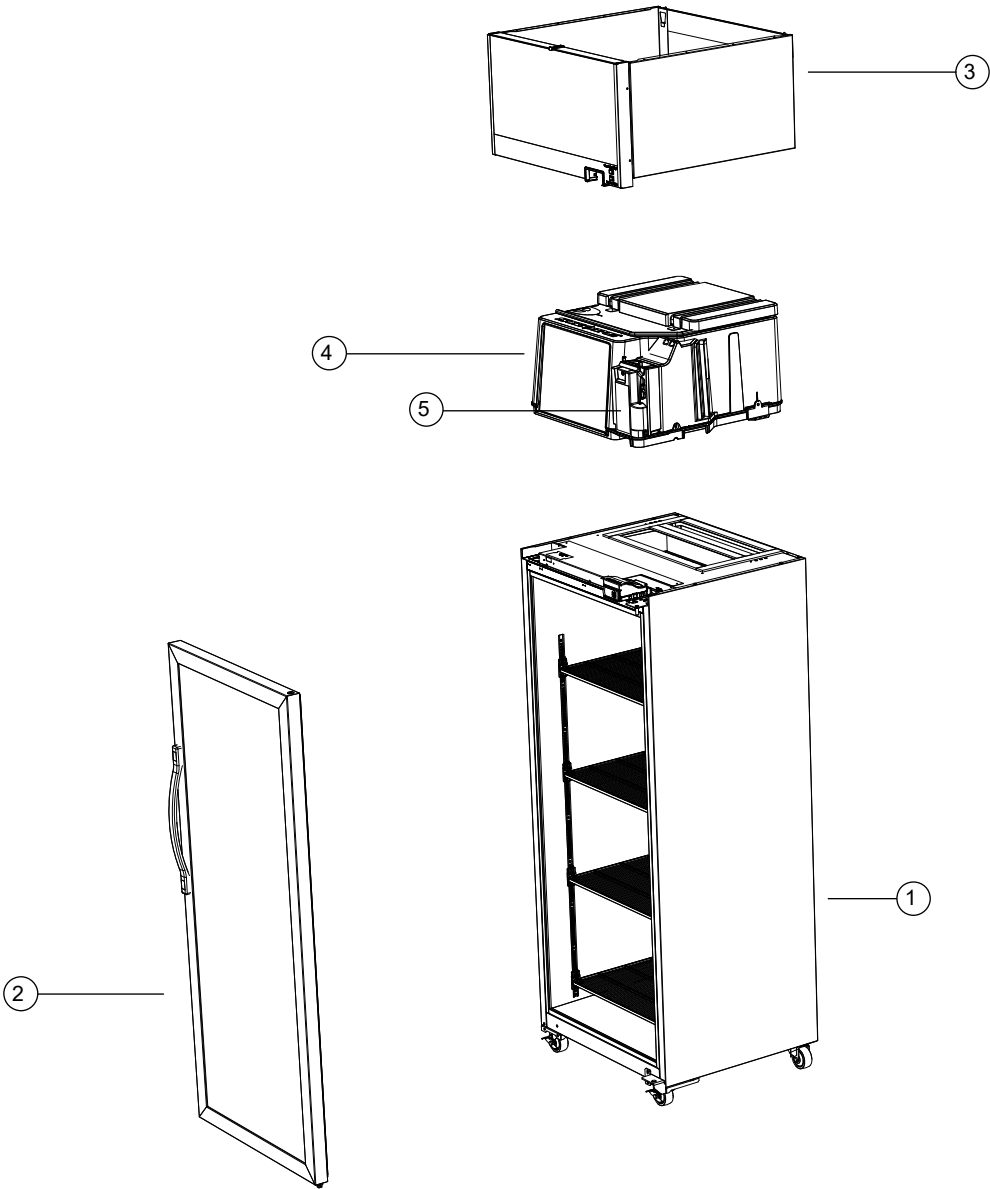


Table 9: Parts – Main assembly TCE650N

No.	Description	Page
1	Cabinet assembly	Page 39
2	Door assembly	Page 41
3	Sign assembly	Page 42
4	Cartridge assembly	Page 43
5	Electrics box assembly	Page 45

TCE1000N

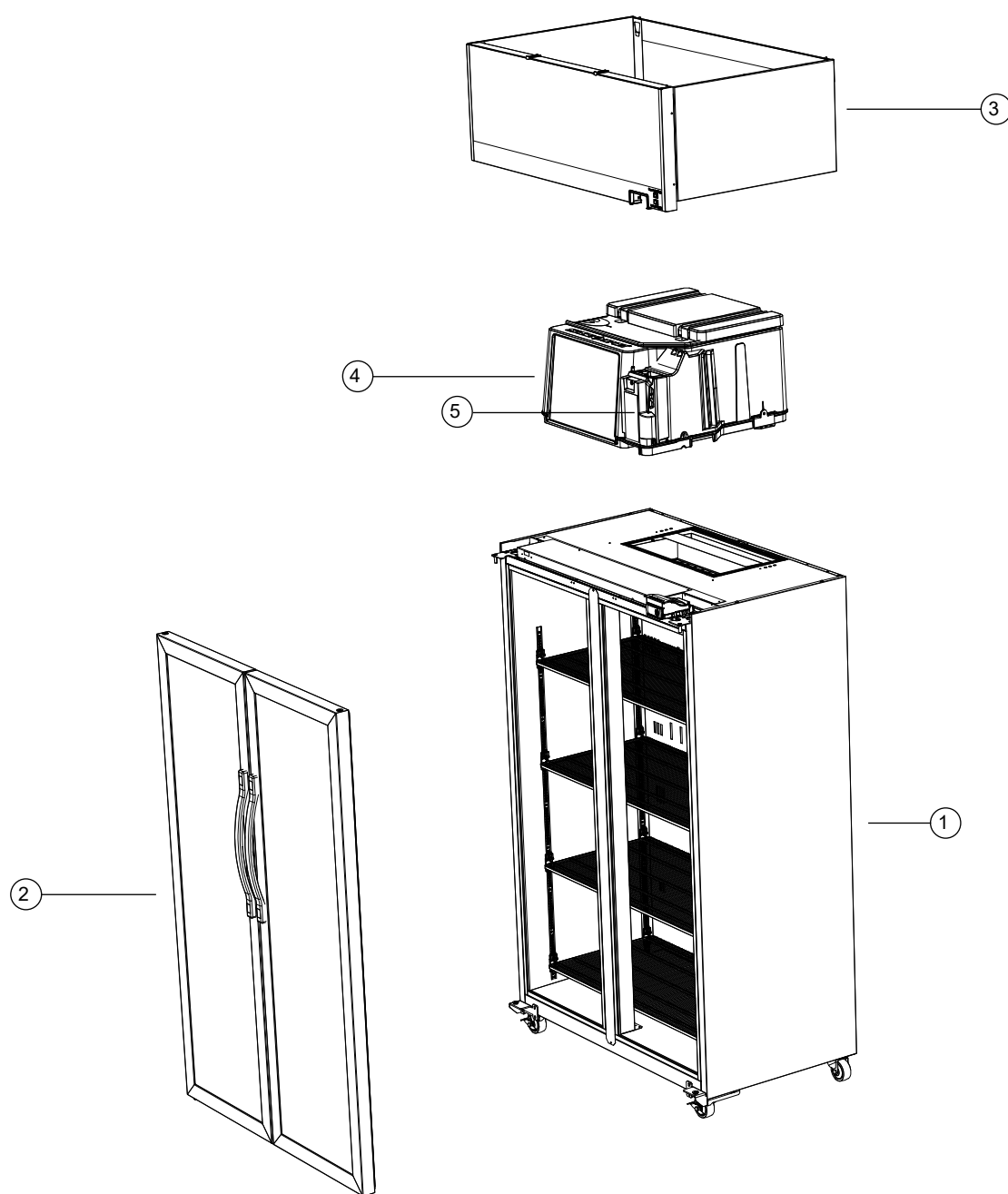


Table 10: Parts – Main assembly TCE1000N

No.	Description	Page
1	Cabinet assembly	Page 40
2	Door assembly	Page 41
3	Sign assembly	Page 42
4	Cartridge assembly	Page 43
5	Electrics box assembly	Page 45

Cabinet Assembly

TCE650N

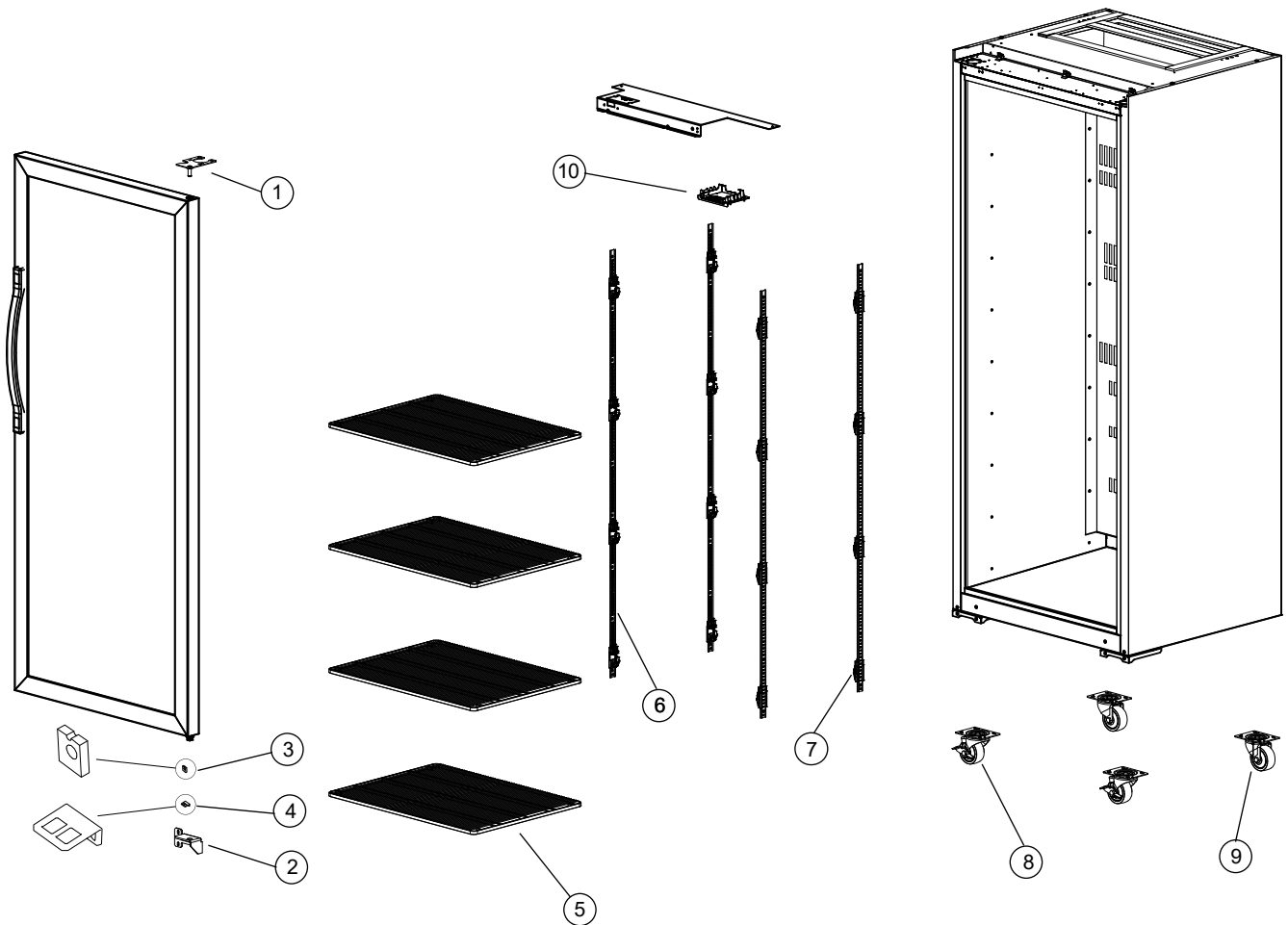


Table 11: Parts – Cabinet assembly TCE650N

No.	Description	SKOPE Part No.
1	Top hinge – right hand	HB0070110582B
2	Bottom hinge – right hand	HB0070110851
3	Height adjustment block	HB0070110581
4	Tension bracket	HB0070110580
5	Wire shelf	HB0070116489
6	Shelf support strip	HB0070113857H
7	Shelf clip and retention clip	HB0070209545E
8	Front lockable castor	HB0070105065B
9	Rear swivel castor	HB0070105066
10	Light power supply (LED driver)	HB0071800265
–	Cabinet lighting loom (not shown)	HB0070403058

TCE1000N

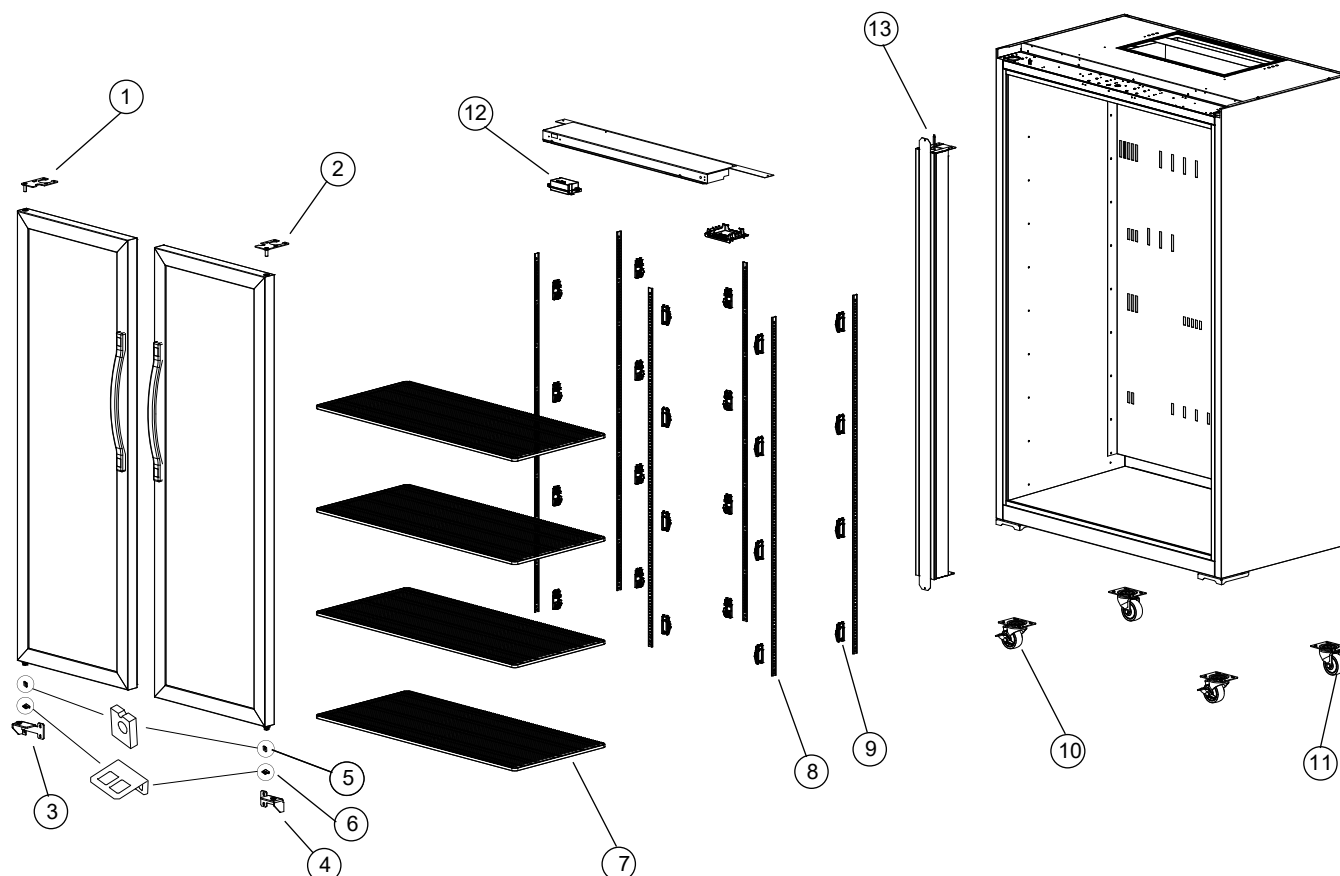


Table 12: Parts – Cabinet assembly TCE1000N

No.	Description	SKOPE Part No.
1	Top hinge – left hand	HB0070110583B
2	Top hinge – right hand	HB0070110582B
3	Bottom hinge – left hand	HB0070110850
4	Bottom hinge – right hand	HB0070110851
5	Height adjustment block	HB0070110581
6	Tension bracket	HB0070110580
7	Wire shelf	HB0070116490
8	Shelf support strip	HB0070113857H
9	Shelf clip and retention clip	HB0070209545E
10	Front lockable castor	HB0070105065B
11	Rear swivel castor	HB0070105066
12	Light power supply (LED driver)	HB0071800265
13	Centre pillar assembly	HB0070843035
–	Cabinet lighting loom (not shown)	HB0070403055

Glass Door Assembly

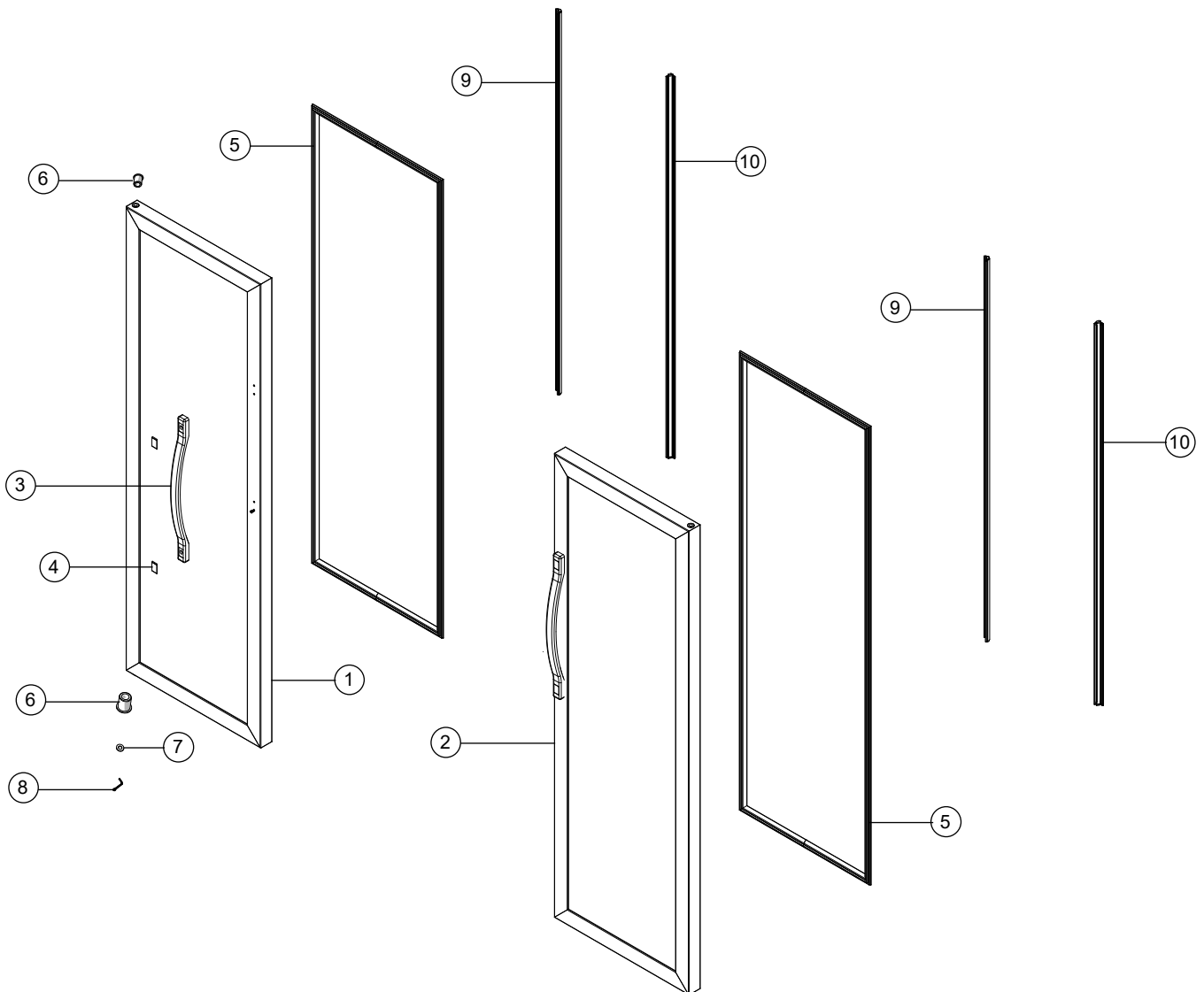


Table 13: Parts – Glass door assembly

No.	Description	SKOPE Part No.	
		TCE650N	TCE1000N
1	Left hand door assembly	–	HB0070843179
2	Right hand door assembly	HB0070843178	HB0070843180
3	Door handle	HB0070202818E	HB0070202818E
4	Door handle cap	HB0070202817E	HB0070202817E
5	Door gasket	HB0070204885B	HB0070204885A
6	Bush	PLM5075	PLM5075
7	Bush washer	PLM11298	PLM11298
8	Split pin	FAS5076	FAS5076
9	Door LED assembly – left hand	HB0074001528	HB0074001528
10	Door LED assembly – right hand	HB0074001529	HB0074001529

Sign Assembly

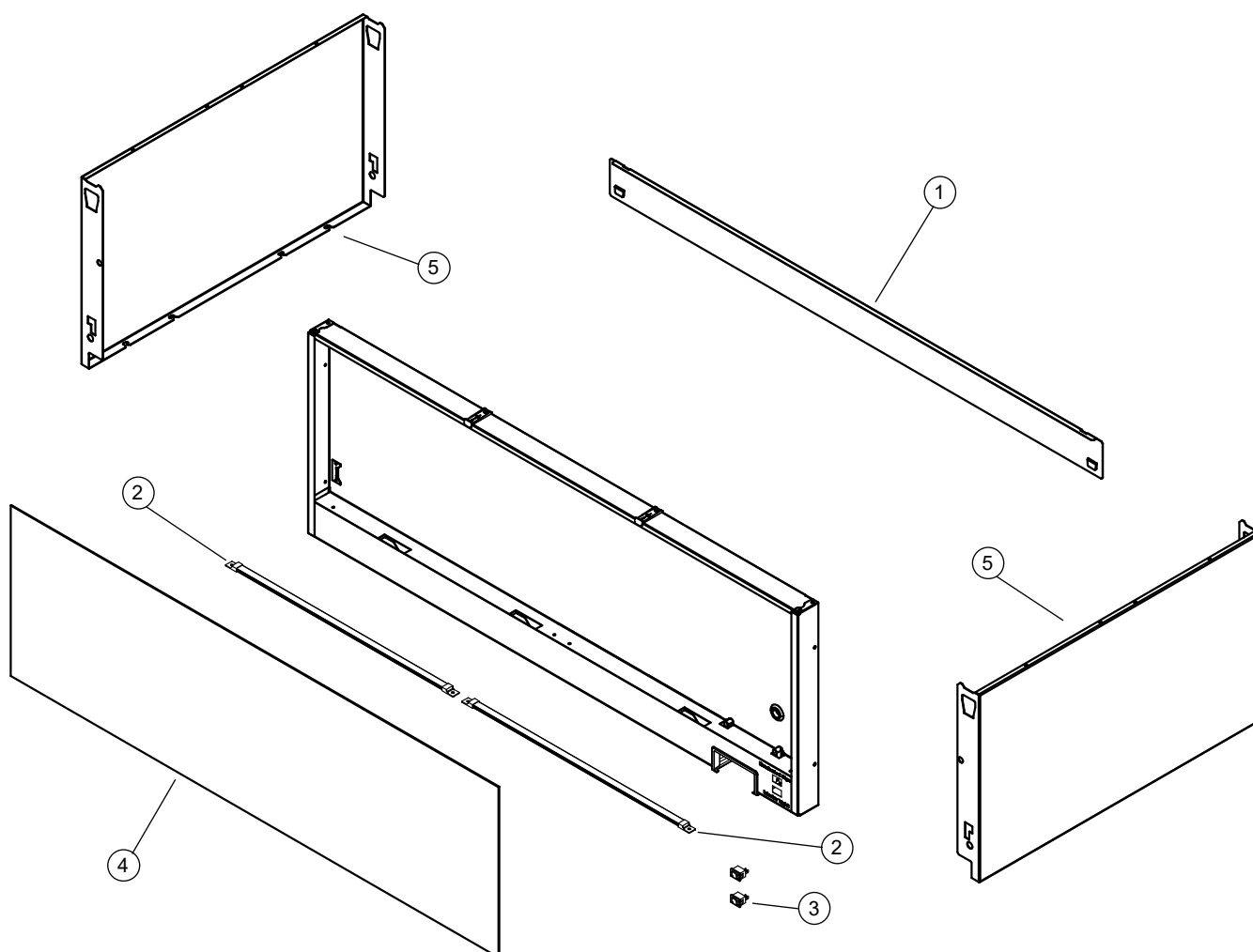


Table 14: Parts – Sign assembly

No.	Description	SKOPE Part No.	
		TCE650N	TCE1000N
0	Sign assembly	HB0070843779	HB0070843780
1	Sign back strip	HB0070110813	HB0070110812
2	LED light strip	HB0074001541 (× 1)	HB0074001527A (left side) HB0074001527 (right side)
3	1 × light switch	HB0074001365	HB0074001365
4	Opal light panel	HB0070212173	HB0070212174
5	Sign sides	SM65BV/182-32	SM65BV/182-32
–	Sign lighting loom (not shown)	HB0070403065	HB0070403065

Cartridge Assembly - UTHCNI-0061

Ordering The model and serial number are both printed on the cartridge rating/serial number label attached to the front of the cartridge. Before ordering spare parts, take note of the model and serial numbers.

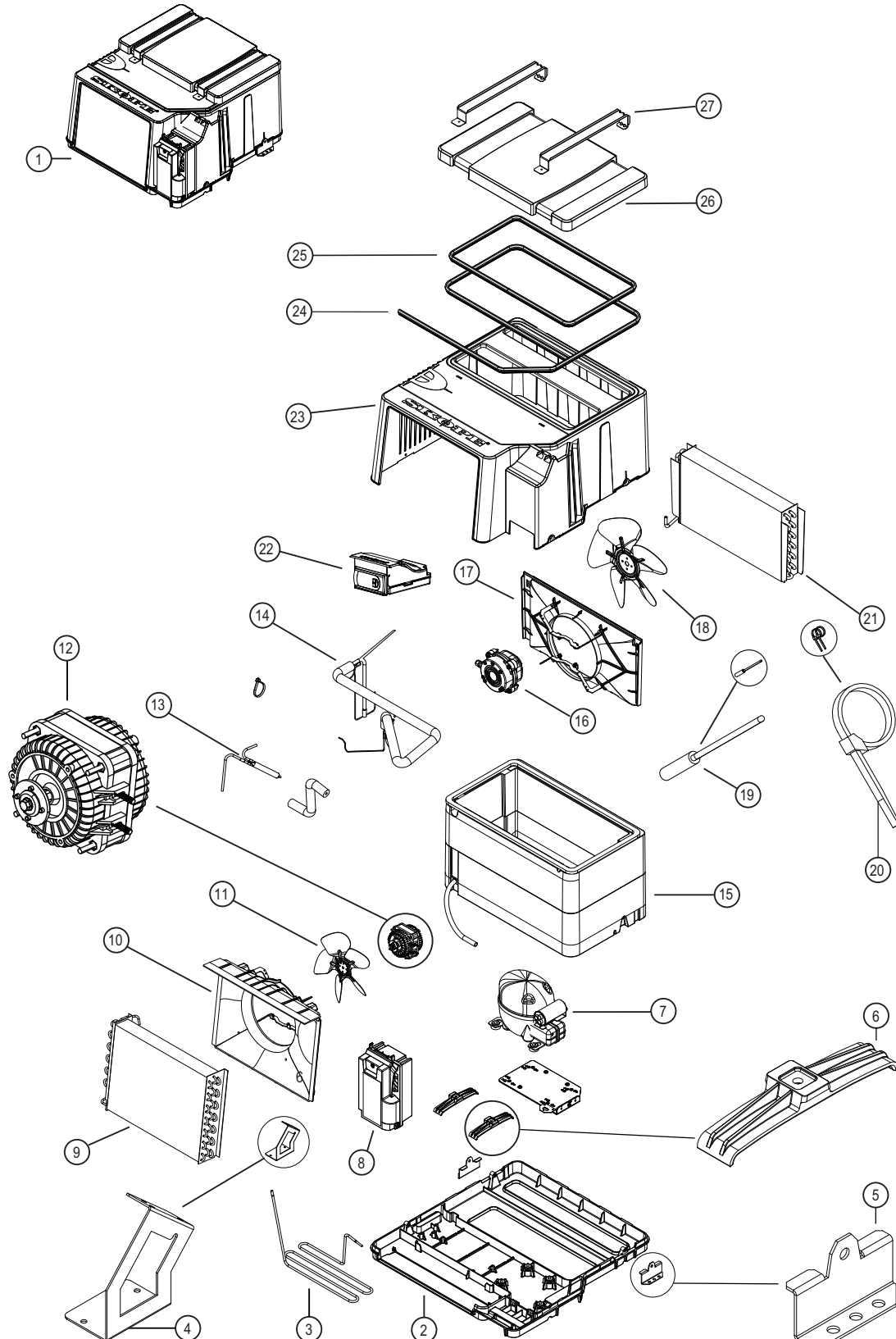


Table 15: Parts – Cartridge assembly

No.	Description	SKOPE Part No.
1	EziCore cartridge assembly*	UBHCNI-0061
2	Cartridge plastic bottom	HB0070206212D
3	Condensate line	HB0070702717
4	Drier bracket	HB0070112920
5	Hold down bracket	HB0070110815A
6	Condensate pipe support	HB0070206128
7	Compressor – Donper L96CU1	HB0074001387A
8	Electrics box assembly (see page 45)	HB0070843783
9	Condenser coil	HB0070702972
10	Condenser fan shroud	HB0070206124
11	Condenser fan blade	HB0074000868
12	Condenser fan motor	HB0074000728B
13	Drier	HB0074180006
14	Suction line assembly	HB0070702718
15	Evaporator box	HB0070510928A
16	Evaporator fan motor	HB0074001315
17	Evaporator fan shroud	HB0070206123
18	Evaporator fan blade	HB0074001530
19	Temperature probe	HB0070400497
20	Cartridge cable clamp	HB0070206127
21	Evaporator coil	HB0070702968
22	Controller – Chunchang C212	HB0074001531
23	Cartridge plastic top cover	HB0070206133A
24	Cartridge gasket seal 2306 mm	PLE11052-2306
25	Cartridge gasket seal 1571 mm	PLE11052-1571
26	Evaporator box lid	HB0070511356
27	Top metal strap bracket	HB0070110816
–	Mains power cord (not shown)	HB0070402658

***Note:** When ordered as a spare part, the refrigeration cartridge does not include a hold down bracket, evaporator box lid or top metal strap bracket. If required, these items must be ordered in addition to the refrigeration cartridge (items 5, 23 and 24).

Electrics Box Assembly

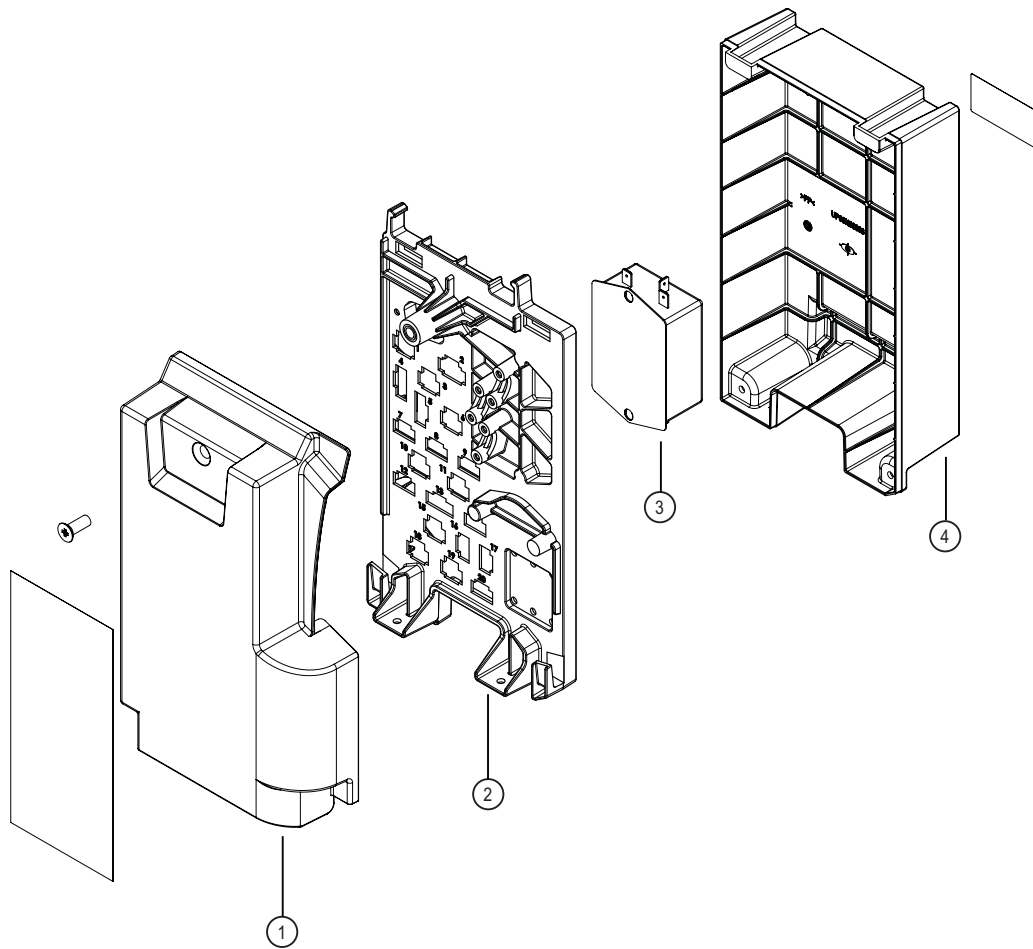


Table 16: Parts – Electrics box assembly

No.	Description	SKOPE Part No.
0	Electrics box assembly	HB0070843783
1	Cartridge electrics box enclosure front	HB0070207012A
2	Electrical enclosure panel	HB0070207014
3	EMI filter	HB0074600001
4	Cartridge electrics box enclosure rear	HB0070207013A
–	Controller to electrics box wire looms (not shown)	HB0070403052

7 Maintenance

Cleaning

Before any maintenance, unplug the cabinet from the mains power supply.

Cabinet The owner should periodically wipe the inside and outside of the cabinet with a damp cloth, taking care to keep moisture away from electrical parts.

Condenser Coil To ensure trouble-free performance, SKOPE strongly recommends the cleaning schedule in Table 17, which will depend on:

- the cabinet's location and environment.
- the condition of the condenser coil.

Table 17: Cleaning schedule

Timeframe	Performed by	Action
At least once a month	Owner	Condenser coil Brush with a soft brush to remove dust and fluff. If debris can no longer be removed, arrange a service call for comprehensive maintenance and coil clean.
Every 6 months, or as required	Service technician	Condenser coil Comprehensive maintenance based on the condition of the coil, which may include: <ul style="list-style-type: none">• a nitrogen blow-out.• a PH-neutral chemical clean.

The condenser coil **must** be kept clean for efficient and reliable operation.

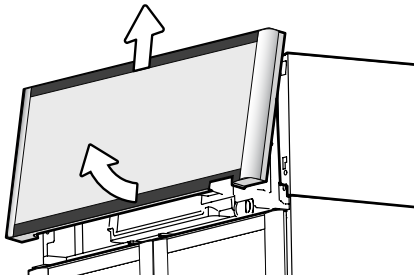
WARNING

Unplug the cabinet from the mains power supply before cleaning the condenser coil.

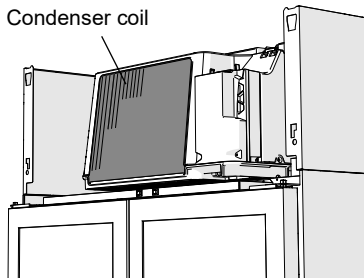
Procedure 31: To clean the condenser coil

1. Disconnect the cabinet from the mains power supply (see page 12).

2. Unplug the lit sign panels, and remove the sign from the top of the cabinet.



3. Check the condition of the condenser coil, and use an appropriate cleaning method:
 - a nitrogen blow-out.
 - a PH-neutral chemical clean.

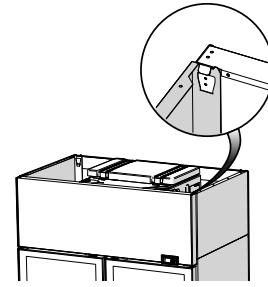


Procedure 31: To clean the condenser coil (continued)

4. Refit the sign assembly and reconnect to the power supply.

Important

When refitting, ensure the tabs on the back of the sign are located in the notches on top of the cabinet, and that the sign is pushed fully in and secure.



-
5. Check for correct operation.
-

8 Troubleshooting

Cabinet and Refrigeration Cartridge

For problems with the cabinet and refrigeration cartridge use Table 18.

Table 18: Cabinet and cartridge troubleshooting

Problem	Possible cause	Recommended action
<ul style="list-style-type: none"> Cabinet not operating No controller display 	<ul style="list-style-type: none"> Loss of power supply Loose plug 	<ul style="list-style-type: none"> Check the mains power supply. Check that all plugs are connected correctly.
<ul style="list-style-type: none"> Cabinet not operating as usual Defrost cycle incorrect length 	<ul style="list-style-type: none"> Incorrect parameters 	Check each parameter individually. Get the latest parameter set by registering for and logging into the skope.com website, or contacting Customer Service.
<ul style="list-style-type: none"> Fan not working 	<ul style="list-style-type: none"> Loose plug 	Check all plugs are connected correctly.
<ul style="list-style-type: none"> Lights not on 	<ul style="list-style-type: none"> Electronic controller is in Night mode Light switched off Failed LED light Refrigeration system error (indicated by the electronic controller) Plug not connected properly Power supply fault 	<ul style="list-style-type: none"> Switch the light on while keeping the cabinet in Night mode by pressing the light button on the electronic controller faceplate. Change the cabinet into Day mode by pressing and holding the light button on the electronic controller faceplate, or holding the door open for 10 seconds. Switch the light on via the independent light switch. Replace the light. Diagnose and repair. If a system fault is found contact SKOPE for information on how to proceed. Check and clean the plugs. Replace the light's power supply.
<ul style="list-style-type: none"> Light component not working 	<ul style="list-style-type: none"> Plug not connected properly Faulty light 	<ul style="list-style-type: none"> Check and clean the plug connection. Replace the light.
<ul style="list-style-type: none"> Segment of light not working 	<ul style="list-style-type: none"> Faulty light 	Replace the light.
<ul style="list-style-type: none"> Excess noise vibration 	<ul style="list-style-type: none"> Refrigeration pipes transferring vibration into the cartridge 	Re-align the pipes to ensure they are not touching the evaporator tub bottom surface, evaporator tub support legs, plastic base, or condenser coil assembly.
<ul style="list-style-type: none"> Excess compressor noise 	<ul style="list-style-type: none"> Noise variation is usual as the variable speed compressor speed changes Damaged mountings 	Check the mountings to ensure there is no damage to the rubber, or the washers, nuts or screws.
<ul style="list-style-type: none"> Compressor not operating 	<ul style="list-style-type: none"> Compressor electrics Failed compressor 	<ul style="list-style-type: none"> Check all plug connections and ensure that the compressor electrics are operating correctly. Make sure the compressor is supplied with consistent voltage over 220 volts. Ensure the voltage does not drop at start-up. If the voltage does drop, ensure the cartridge has a direct power supply (not from a multi-box or extension cord).
<ul style="list-style-type: none"> Frozen evaporator coil 	<ul style="list-style-type: none"> Setpoint is too cold Electronic controller fault Short of refrigerant 	<ul style="list-style-type: none"> Check and raise the setpoint. Replace the controller. Perform refrigeration system diagnostics and service as required.

Table 18: Cabinet and cartridge troubleshooting (continued)

Problem	Possible cause	Recommended action
• Ice build-up inside the evaporator tub	• Leaking cartridge seal	Check that the evaporator tub seals are fully clamped, and the cabinet top seal is good without gaps. Micro-gaps will allow ice build-up in the cabinet.
• Power consumption is higher than expected	• Cabinet door is opened too often	Ensure the door is closed more often.
	• Cartridge is operating too hot	<ul style="list-style-type: none"> • Clean the condenser. • Ensure the cabinet has good ventilation around the refrigeration cartridge. • Ensure the cabinet is within the maximum operating temperature.
	• Product is too cold	Raise the setpoint.
• Product is too warm	• Door not closing properly	<ul style="list-style-type: none"> • Check and clean the door gasket. • Ensure the cabinet is on a level surface.
	• Excessive door opening	Limit door openings.
	• Electronic controller is in Night mode	Change the cabinet into Day mode by pressing and holding the light button on the electronic controller faceplate, or holding the door open for ten seconds.
	• Cartridge is operating too hot	• Ensure the cabinet has good ventilation around the refrigeration cartridge.
	• Excessive refrigeration heat load	• Ensure the cabinet is within the maximum operating conditions.
	• Setpoint is too high	Lower the setpoint.
	• The cabinet is recently loaded	Allow the product time to cool down.
	• The cabinet is overstocked	<ul style="list-style-type: none"> • Remove some product. • Product must not overhang the shelves.
	• Refrigeration system error (indicated by the electronic controller)	Diagnose and repair. If a system fault is found contact SKOPE for information on how to proceed.
• Moisture build up on cabinet exterior	• Frequent door opening	Limit door openings.
	• Door not closing properly	<ul style="list-style-type: none"> • Check and clean the door gasket. • Ensure the cabinet is on a level surface.
	• High humidity	Check the ambient operating temperature and reposition the cabinet if necessary.
• Cabinet door does not close properly	• Cabinet is on an uneven surface	Level the cabinet.
	• Door is obstructed	Check the shelves and product.
	• Door gasket is dirty	Check and clean the door gasket.
• Warm cabinet temperatures • Compressor operating for long periods (more than 1 hour)	• Blocked condenser coil	Clean the condenser coil.
	• Poor ventilation around the refrigeration cartridge	<ul style="list-style-type: none"> • Ensure the cabinet has good ventilation around the refrigeration cartridge. • Ensure the cabinet is within the maximum operating temperature.

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