

TME-N ActiveCore

SKOPE Top Mount Fridge
R290



TME-N ActiveCore
SKOPE Top Mount Fridge
R290
Service Manual

MAN80218
Rev. 1.8 Nov. 2023

© 2018 SKOPE Industries Limited. All rights reserved.

SKOPE Industries Limited reserves the right to alter specifications without notice.

SKOPE® is a registered trademark of SKOPE Industries Limited.
SKOPE INDUSTRIES LIMITED
Head Office
PO Box 1091, Christchurch
New Zealand
A.B.N. 73 374 418 306
AU: 1800 121 535
NZ: 0800 947 5673
E-mail: skope@skope.com
Website: www.skope.com

Trademark Infringement

The SKOPE trademark on this product is infringed if the owner, for the time being, does any of the following:

- Applies the trade mark to the product after its state, condition, get-up or packaging has been altered in any manner.
- Alters, removes (including part removal) or obliterates (including part obliteration) the trade mark on the product.
- Applies any other trade mark to the product.
- Adds to the product any written material that is likely to damage the reputation of the trade mark.

Notice of the above contractual obligations passes to:

- Successors or assignees of the buyer.
- Future owners of the product.

Contents

1 Servicing Hydrocarbon	
Overview	5
SKOPE Hydrocarbon Service Requirements	6
2 Specifications	
Models	7
3 Installation	
Installation Guidelines	8
Ventilation Requirements	8
Door Handles	9
Fitting Door Handles	9
Removing Door Handles	9
Shelves	10
Shelf Clips	10
Repositioning a Shelf	11
4 Electronic Controller	
Overview	12
Apps	12
SCS Connect Field App	12
SCS Connect Track App	12
SKOPE-Connect App	12
Controller Faceplate	13
Buttons and Display	13
Service Mode	13
SCS Connect Field App	14
Connecting	14
App Menu Items	15
Faults and Alarms	16
5 Replacement Procedures	
Lighting	21
Sign Light	23
Doors	24
Alignment Adjustment	24
Height Adjustment	24
Replacing the Gasket	25
Removing and Refitting the Door	25
Adjusting Door Tension	26
Replacing the Torsion Bar	26
Hinge Reversal	26
Refrigeration System	27
Before Servicing	27
On-site Work	29
Off-site Work	29
Refrigeration Cartridge	29
Refrigeration Cartridge Assembly	29
Not Cooling Fault	30
Diagnostics	30
Removing the Cartridge	31

Replacing the Cartridge	32
Cartridge Electrics Box Assembly	33
Cartridge Cover	35
Condenser Fan	35
Evaporator Fan	36
Compressor	37
Compressor Electrics	38
Electronic Controller	38
Controller Location	38
Replacing the Controller	39
Door Switch	40
Control Probe	40
Evaporator Probe	41
Condenser Probe	42
Ambient Probe	42
On-site Work Procedure	44
6 Wiring	
Model: TME650/1000N-A Series	46
7 Spare Parts	
Main Assembly	47
TME650N-A Series	47
TME1000N-A Series	48
Cabinet Assembly	49
TME650N-A Series	49
TME1000N-A Series	50
Glass Door Assembly	51
Sign Assembly	52
Cartridge Assembly – UTHCNI-0010	53
8 Maintenance	
Routine Cleaning	55
Cabinet	55
Condenser Coil	55
9 Troubleshooting	
Electronic Controller	56
Cabinet and Refrigeration Cartridge	56

1 Servicing Hydrocarbon

Overview

This cooler uses hydrocarbon (HC) R290 propane as its refrigerant. Hydrocarbon is a natural refrigerant that has a very low environmental impact.

Special service requirements are needed as hydrocarbon is a flammable refrigerant.

Safety hazards

The main hydrocarbon safety hazards are:

- Flammable refrigerant.
- Venting of hydrocarbon and compressor oil.
- Asphyxiation.



SKOPE does **not** recommend performing hazardous activities on the refrigeration system. See “Refrigeration Cartridge” on page 29 for more information including examples of hazardous activities.

SKOPE Hydrocarbon Service Requirements

Servicing must only be performed by Approved SKOPE Service Technicians, and must meet all requirements in the SKOPE Hydrocarbon Service Policy (available from SKOPE), including the following:

It is the responsibility of the service technician to follow SKOPE's Hydrocarbon equipment service policy and by accepting a service work order they agree to the following (where applicable):

- MUST – Ensure all workers are trained in the SAFETY of hydrocarbon products to the appropriate level for the work required.
- MUST – Follow all Local Safety Regulations relevant to flammable refrigerant gases.
 - Australia should reference - AIRAH Flammable Refrigerants – Safety Guide
 - New Zealand should reference – Flammable Refrigerant Safety Documentation (Refrigerant License NZ)
- MUST – Adhere to all on-site (workplace) Health and Safety requirements
- MUST – Not modify or alter the design of SKOPE equipment in any way
- MUST – In cases where the refrigeration system is not readily removable from the cabinet; then the entire cabinet MUST be sent to the Hydrocarbon workshop for repair.
- MUST – ONLY use SKOPE OEM Spare Parts; or identical replacement parts. Any variation in replacement part may render the system non-compliant and unsafe.
- MUST – Follow all best practice work activities for servicing hydrocarbon refrigerants (SKOPE recommend attending specific hydrocarbon refrigeration handling training courses). Nitrogen must be used for purging system before commencing "Hot Work" – brazing.
- MUST – Adhere to relevant SKOPE Service Manual. If any contradiction, the local Regulations take precedence over SKOPE requirements
- MUST – Work only in suitable, safe and compliant work spaces. Personal Protective Equipment must always be used when working on Hydrocarbon equipment.
- MUST – Service people diagnosing refrigeration faults must always carry and utilise Flammable Gas detectors when working on Hydrocarbon equipment.
- MUST – Prior to any service work; know where and how to safely and quickly isolate power supply to cabinet
- MUST – Not perform any Hot Work (brazing etc.) in the field. These are to be completed in a suitable service depot / workshop (in a dedicated specific Hazardous Work Area compliant to local flammable gas regulations)
- MUST – Not transport a refrigeration system with a known active leak. If there is an active leak the refrigerant must be safely removed (with use of Bullet Piercing Valve or Line Tap valves) before transporting. Valves must be removed at the hydrocarbon service depot once repair is completed.
- MUST – All hydrocarbon workshop areas must have emergency plans; that includes suitable evacuation and fire control plans and equipment.
- MUST – Only use refrigerant grade hydrocarbon, to precise mass specified on removable refrigeration system serial label.
- MUST – Be accurate refrigerant charge; The refrigerant mass is ultra-low charge and must only be measured in by accurate scales to +/- 1.0gram. Refrigerant MUST not be overcharged; or added to an already charged system.
- MUST – Use identical drier replacement; as any change will affect gas charge volume; and effect reliability compliance and safety.
- MUST – Any pipework replacement, must be identical to genuine SKOPE parts.
- MUST – Not introduce a sparking device inside a cabinet or inside a removable refrigeration system. Battery drills should not be used.
- MUST – Not perform any activity that could stress a refrigeration pipe (unless in a workshop).
- MUST – Get customer authorisation to permanently swap a removable refrigeration system.
- MUST – Have the Wellington Drive SCS Field app installed on a Bluetooth enabled device carried by the service technician (exception is for cabinets that do not utilise the Wellington Drive Controller).
The app should be utilised for safe, accurate diagnosis of the system and it is required to complete a controller replacement in the field.
- RECOMMENDED – Have the Wellington Drive SCS Track app installed on a Bluetooth enabled device carried by the service technician. This passive app collects system data from the Wellington Drive SCS Connect Controller and transmit it to the cloud.
- Logistics companies may be used to transport a complete refrigerator where no separation of the refrigeration system occurs. Logistics companies are not required to be contracted to this SKOPE Service Policy.

2 Specifications

Models

This service manual is applicable to the SKOPE TME ActiveCore top mount cabinets detailed in the table below. Refer to the relevant product specification sheet (available on the SKOPE website: www.skope.com) for specifications.

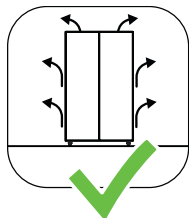
Table 1: Model specifications

Series	Model	SKOPE ID
TME650N-A ActiveCore	TME650N-A	SM65GYN
	TME650N-AC	SM65BYN
TME1000N-A ActiveCore	TME1000N-A	SM10GYN
	TME1000N-AC	SM10BYN

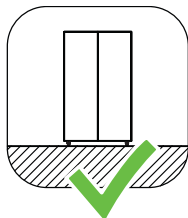
3 Installation

Installation Guidelines

When installing this cabinet, ensure the installation guidelines below are considered and met.



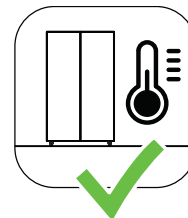
Ventilation
Ensure all ventilation requirements below are met.



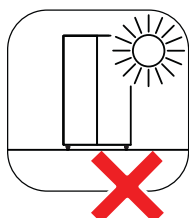
Surface
The installation surface must be capable of supporting the loaded cabinet.



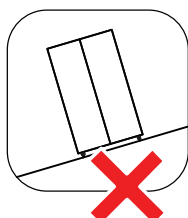
Door Opening
Allow adequate space for the door/s to open and close properly.



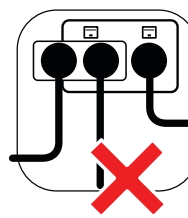
Climate Class
The fridge must be installed in an environment within its climate class.
The climate class is stated on the cabinet rating label inside the fridge.



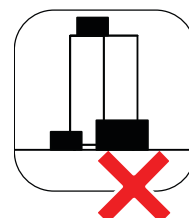
Sunlight
Do not install the fridge in direct sunlight.



Uneven Surface
Do not install the fridge on an uneven surface.



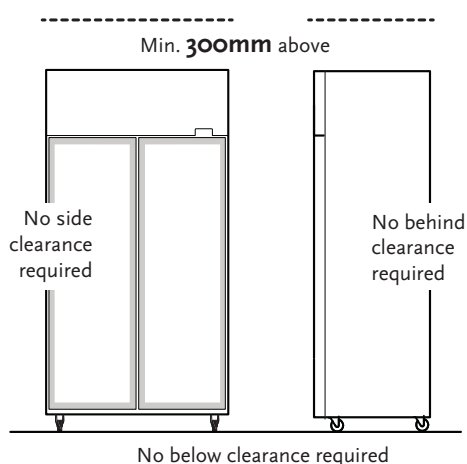
Power Supply
Do not overload the power supply.



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.



Door Handles

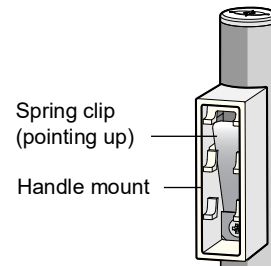
Fitting Door Handles For transit purposes door handles may be packed separately inside the cabinet. If the door handle/s are packed separately, follow the procedure below.

Procedure 1: To fit a door handle

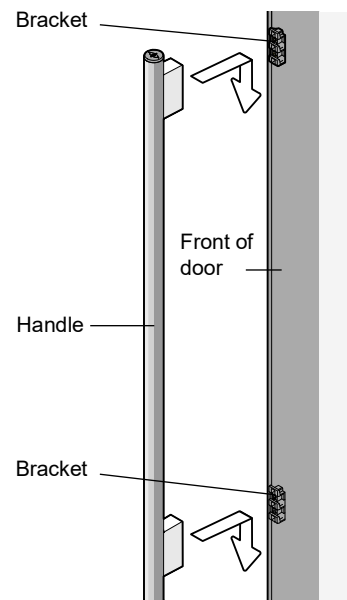
1. Remove the handle/s from inside the cabinet by carefully cutting the cable ties securing the handle, and remove the packaging.

A metal spring clip is fitted inside the handle mounts at each end of the handle.

2. Ensure that the spring clips point up.



3. Place **BOTH** handle mounts simultaneously onto both door brackets.



4. Push the handle down onto the brackets until the handle locks into place.

CAUTION

Ensure **BOTH** handle mounts are in position before pushing down.

Troubleshooting

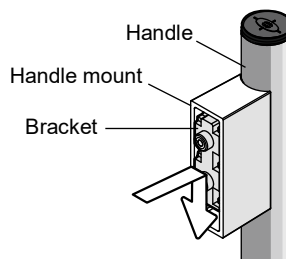
- If the handle does not lock into place, ensure the spring clips are pointing up and try again.
- If only one end of the handle locks into place, unscrew the door handle (See "To remove a door handle" on page 10), and refit, ensuring both the handle mounts are placed onto the brackets before pushing the handle down and locking into place.

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

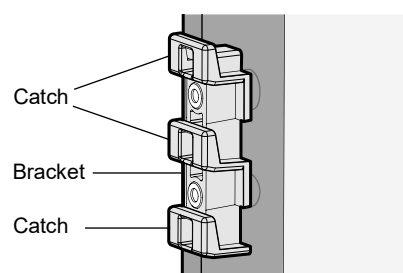
Procedure 2: To remove a door handle

1. Open the door, and peel back the door gasket from behind the handle mounts on the inside of the door frame.
2. Unscrew the handle mounts through the holes on the inside of the door frame (top and bottom screws only), and remove the handle.

3. Remove the bracket/s from the handle mount by pressing the bracket in and down until it unclips from the handle mount.



4. Fit and screw the bracket/s back onto the door. Ensure the catches are pointing up as pictured.



5. Refit the door gasket by clipping it back into place on the inside of the door frame.
6. If the gasket is out of shape after refitting it, use a hair drier to heat and reshape it.

Shelves

The cabinet is fitted with five layers of wire shelves which may be positioned at different heights to suit various products.

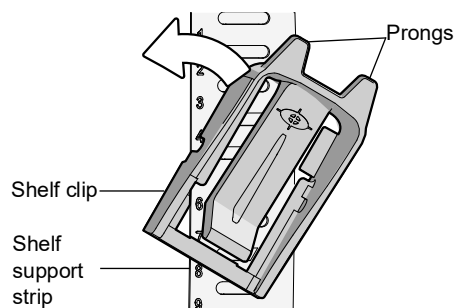
Shelf Clips Each wire shelf is held in place with four shelf clips, which clip in the shelf support strips and slide up and down to the required shelf position.

The support strips are numbered to help place the shelf clips. You can see the numbers in the bottom left hand corner of the shelf clip.

Procedure 3: To fit a shelf clip

The shelf clip twists onto the shelf support strip.

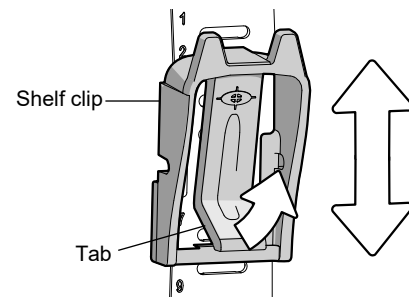
1. Position the shelf clip with the flat side against the shelf support strip and the two prongs pointing up.



2. Twist the top of the clip anticlockwise onto the shelf support strip until it locks in place.

Procedure 4: To slide a shelf clip up and down

1. Pull the shelf clip tab up and slide the shelf clip up or down as required.



2. Once in position, ensure the shelf clip is locked into place.

Procedure 5: To remove a shelf clip

1. Pull the shelf clip tab up.
2. Twist the top of the clip clockwise off the shelf support strip.

Repositioning a Shelf

Procedure 6: To reposition a standard shelf

1. Unload the shelf and remove it from the cabinet.
2. Slide each shelf clip to the new position in the shelf support strips.
3. Replace the shelf back in the cabinet, and sit it on the shelf clips.

4 Electronic Controller

Overview

The cooler is fitted with an AoFrio SCS Connect electronic controller. The controller is located above the door/s and visible from outside the cabinet.

Controller servicing can be performed via the controller faceplate, or the SCS Connect Field app.

Apps

SCS Connect Field App The SCS Connect Field app is designed for service techs, and provides access to the controller from mobile devices with Bluetooth capability. The app provides information on data logging, alarm notification and diagnostic control.

See “SCS Connect Field App” on page 14 for information on setting up and using the app.

SCS Connect Track App The SCS Connect Track app is used to upload data from cabinets fitted with a Wellington SCS Connect electronic controller.

SKOPE-Connect App The SKOPE-connect app is designed for end-users and provides wireless access to the controller from mobile devices with Bluetooth capability.

The app allows end users to adjust some electronic controller settings including energy saving modes, open/close hours and preset temperature setpoints for specific product.

The app may be useful for diagnostics. Download from the Google Play Store, or Apple App Store.



Apple App
Store



Google Play
Store

Controller Faceplate

Buttons and Display The controller faceplate includes the front display panel and interface buttons.

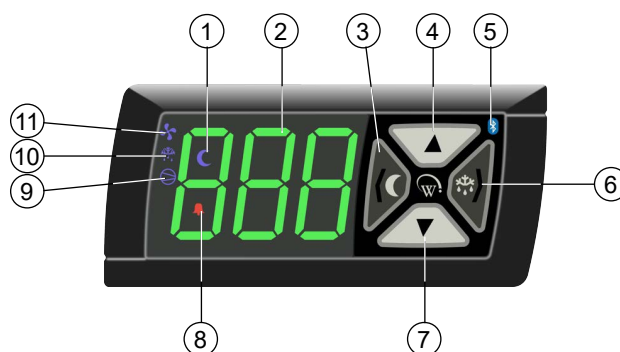


Table 2: Controller faceplate

No.	Description
1	Night Mode: Indicator. On during cooler night mode.
2	Display: Indicator. Digital display of cabinet air temperature or messages. The temperature is what the sensor inside the cooler detects, and not necessarily the product temperature. However, they may be very close depending on how the controller is set to sense temperature.
3	Light Switch - Night Mode (back/abort): Button. Press to switch the lights on or off. Press and hold to switch cooler between day and night mode. Used during programming.
4	Up: Button. Used for programming.
5	Bluetooth: Indicator. On when ready to connect to a device. Flashing when connected to a device.
6	Defrost Cycle (next/enter): Button. Press and hold to initiate manual defrost. Used during programming.
7	Down: Button. Used for programming.
8	Fault - Alarm: Indicator. On during fault or alarm. Note: Alarm message is also shown on the display during alarm.
9	Compressor: Indicator. On when the compressor is running.
10	Defrost Mode: Indicator. On during defrost cycle.
11	Fan: Indicator. ON when evaporator fan running.

Service Mode Service mode can be accessed and used via the SCS Connect Field app (see “SCS Connect Field App” on page 14), or the controller faceplate (see below).

Note: A 9 digit pin code is required to access service mode via the controller buttons. Contact Customer Services to receive your activation code.

Procedure 7: To enable and use service mode via the controller faceplate

1. Press and hold the up and down buttons simultaneously until prompted to enter the 9 digit pin code.
2. Enter service mode pin code.
3. Use the up, down, back/abort and next/enter buttons to navigate to the required category.

The 5 main service mode categories include:

Parameters

Allows you to access and edit individual controller parameters.

It is not recommended that parameters are changed unless absolutely necessary. If incorrect parameter settings are suspected, reload the complete parameter set.

Reset

Returns the controller back to factory settings. Parameter set must be reloaded after performing a reset.

Manual test

Allows you to see the input values from the sensors, check the effects of output adjustments to peripherals, and run preset test routines.

Statistics

Displays logged values and event counts to assist with fine tuning and diagnostics.

About

Lists the properties of the refrigeration system and the controller, including cooler model codes, firmware, hardware and software versions.

Refer to AoFrio documentation for further information.

SCS Connect Field App

Connecting The SCS Connect Field app gives authorised service technicians wireless access to the controller from mobile devices with Bluetooth capability. The app provides data logging, alarm notification, and control over inputs (probes, switches) and outputs (e.g. relays).

Procedure 8: To install the SCS Connect Field app

Before you start

When you first run the app, you will need to enter an activation code – a 9-digit PIN. If you don't already have one, contact SKOPE Customer Services to request an activation code. You will need to be connected to the internet at the time of activation.

Your activation code is unique to you, and determines your personal level of access for the app. **Never** share it with anyone else. The same code will give you access to all SCS apps you are authorised to use.

1. Download and install the Connect Field app:

- Apple App Store:
<https://apps.apple.com/nz/app/scs-connect-field/id1172570106>



- Google Play Store:
<https://play.google.com/store/apps/details?id=air.com.wdtl.scs.diagnostic.mobile>



2. Make sure you are connected to the internet, and enter your 9-digit activation code.
 3. Once activation is complete, you must define a 4-digit PIN. This can be any code unique to you. Each time you start the app, you will be required to enter this same PIN. This is to prevent other people accessing the app from an unlocked phone.
-

Procedure 9: To connect to a controller

1. Check that the Bluetooth logo on the top right of the controller faceplate is unlit, indicating that the controller is ready to connect to a device.
Note: A flashing Bluetooth logo indicates that the controller is currently connected to a device.
2. Open the SCS Connect Field app.
3. Select the controller from the list of visible controllers.
Note: This list is filtered by your activation permissions, so devices you are not authorised to connect to will not be displayed.
4. Select "CONNECT" to connect to the controller.
5. Check that the Bluetooth logo on the top right of the controller faceplate is flashing, indicating that the controller is connected.

App Menu Items You can find information and make changes to the connected controller and its fridge via the app menu.

Home screen

Shows a graphic representation of the fridge being controlled.

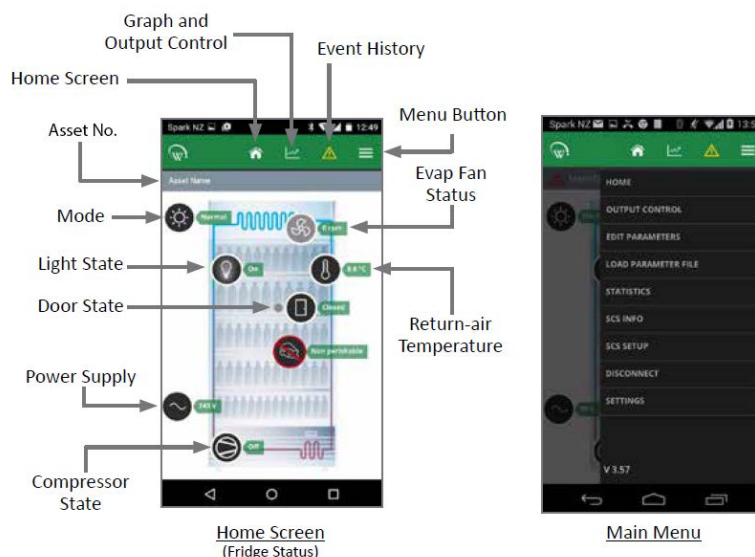


Table 3: SCS Connect Field app home screen

Item	Description	Action
Output control	Gives you control of the input sensors and switches, and output relays.	
Edit parameters	Allows you to access and edit individual controller parameters. SKOPE does not recommended changing parameters unless absolutely necessary.	If you edit a parameter, you must: select "DISCONNECT" from the menu to apply the updated parameter. record the changes on the warranty/job card.
Load parameter file	Allows you to reload a default parameter set or change to new parameter set. SKOPE does not recommended changing parameters unless absolutely necessary.	If you suspect an incorrect parameter setting, reload the complete parameter set. After loading the new parameter set, select "DISCONNECT" from the menu to apply the updated parameters.
Statistics	Displays information from the past seven days about the cabinet's activity, including temperatures and alarms.	

Table 3: SCS Connect Field app home screen (continued)

Item	Description	Action
SCS info	Displays information about the cabinet and the controller version.	
SCS setup	Allows you to add or change SCS info (see above).	
Disconnect	Allows you to disconnect from the currently connected controller.	
Settings	Allows you to change the app's general settings and see which databases you have activated. You can have more than one database activated at the same time.	To add a new database, select ACTIVATE ANOTHER DATABASE , and enter the new database's unique activation code.

Faults and Alarms

The following table explains faults and alarms that the electronic controller may log and display.

If a fault occurs, the fault - alarm indicator is lit on the controller faceplate, but no message is displayed. Faults do not affect product temperature, and require no action from the shop owner.

Alarms are logged and the alarm message is displayed on the controller faceplate. Alarms may result in abnormal product temperature.

Some faults and alarms can be cleared by the shop owner, and others can only be cleared by a service technician.

If the cooler is connected to the power supply and has warm product, check the SCS Connect Field App for active fault or alarm, and investigate. If the cooler does not have an active fault or alarm, check the app statistics to determine if and when the controller signalled a fault or alarm.

Refer to the tables below for faults and alarm descriptions and possible causes and actions. The service tech type column refers to the service tech skill level required to complete a task. Refer to the SKOPE HC Service Policy for service tech type details.

Table 4: Faults

Description	Service tech type	Possible root cause
Door left open. The door has been open for several minutes. Excessive door open counts	1, 2, 3, 4	<ul style="list-style-type: none"> Door not self closing (torsion fault) Door switch or circuit Controller
Over-voltage protection The maximum allowable mains supply voltage has been exceeded. The cabinet has temporarily shut down to prevent damage and will restart once the supply voltage decreases.	1, 2, 3, 4	Should be a one off; if continues, consider: <ul style="list-style-type: none"> Line voltage/rural Voltage setting parameter Controller

Table 4: Faults (continued)

Description	Service tech type	Possible root cause
<p>Under-voltage protection</p> <p>The mains supply voltage has dropped below the minimum allowable level. The cabinet has temporarily shut down to prevent damage and will restart once the supply voltage increases.</p>	1, 2, 3, 4	<p>Should be a one off; if continues, consider:</p> <ul style="list-style-type: none"> • Power supply overloaded or multi-box • Line voltage/rural. • Voltage setting parameter • Controller
<p>High condensing temperature protection</p> <p>The system was operating at an elevated temperature and has temporarily shut down to prevent damage. Extended operation in this condition may result in ALARM 15, increased energy consumption and a reduction in cabinet life. This alarm may be caused by very high ambient temperature.</p>	2, 3, 4	<p>NO swap cartridge required</p> <ul style="list-style-type: none"> • Condenser not clean • Poor installation or ventilation • Condenser fan motor or blade • Controller
<p>Excessive compressor cycling protection</p> <p>The system has been turning on and off too frequently.</p>	2, 3, 4	<p>Take a spare cartridge in case refrigeration system fault.</p> <ul style="list-style-type: none"> • Condenser blocked • Poor installation or ventilation • Cabinet or cartridge gasket seals leaking • Door not self-closing or gasket leaking • Product hot or blocking cabinet airflow • Overloaded from excess door openings/ambient • Fan motor or blade (condenser or evaporator) • Controller • Compressor or gas leak = SWAP cartridge

Table 5: Alarms

Code	Description	Service tech type	Possible root cause
dor	<p>Door left open.</p> <p>The door has been open for several minutes. Will revert to door left open FAULT after 10 minutes (see faults table on previous page).</p>	1, 2, 3, 4	<ul style="list-style-type: none"> • Door not self closing (torsion fault) • Dor switch or circuit • Controller
8	<p>Estimated product temperature below allowable range</p> <p>The estimated product temperature has been below the allowable range for longer than the permissible time. Potential causes are: an empty or partially filled cabinet, or low ambient temperature.</p>	1, 2, 3, 4	<ul style="list-style-type: none"> • Low ambient • App settings • Controller
9	<p>Estimated product temperature above allowable range</p> <p>The estimated product temperature has been above the allowable range for longer than the permissible time. Potential causes are: excessive door openings, door being left open, or warm product loaded into cabinet.</p>	2, 3, 4	<p>NO spare cartridge required to be taken (but may be required as fault could still be with sealed refrigeration system)</p> <ul style="list-style-type: none"> • Condenser blocked • Poor installation or ventilation • Frozen blocked evaporator coil • Cartridge gasket leaking (to cabinet or lid seal) • Door leaking air (bad gasket or door not self-closing) • Product hot or blocking cabinet airflow • Overloaded from excess door openings/ambient • Fan motor or blade (condenser or evaporator) • App settings • Controller • Compressor or gas leak = arrange SWAP cartridge

Table 5: Alarms (continued)

Code	Description	Service tech type	Possible root cause
15	Excessive condensing temperature protection The system was operating at an excessive temperature and has shut down to prevent permanent damage. This alarm may occur due to very high ambient temperature.	2, 3, 4	NO swap cartridge required <ul style="list-style-type: none"> Condenser not clean Poor installation or ventilation Condenser fan motor or blade Controller
17	Control probe failure A critical system sensor has failed and the cabinet can no longer operate.	2, 3, 4	NO swap cartridge required <ul style="list-style-type: none"> Control probe or circuit Controller
18	Electrical over-current protection activated The compressor was drawing too much current and has shut down to prevent permanent damage.	2, 3, 4	Take spare cartridge in case refrigeration system fault. <ul style="list-style-type: none"> Condenser blocked Poor installation or ventilation Cabinet or cartridge gasket seals leaking Door not self-closing or gasket leaking Product hot or blocking cabinet airflow Overloaded from excess door openings/ambient Fan motor or blade (condenser or evaporator) Controller Compressor or gas leak = SWAP cartridge
19	Failed to reach set temperature The refrigeration system has been operating continuously for a long period without reaching the set temperature.	2, 3, 4	Take spare cartridge in case refrigeration system fault. <ul style="list-style-type: none"> Condenser blocked Poor installation or ventilation Frozen blocked evaporator coil Cabinet, door or cartridge seal leaking Product; hot or blocking cabinet airflow Overloaded from excess door openings/ambient Fan motor or blade (condenser or evaporator) Controller Compressor or gas leak = SWAP cartridge
20	Over cooling product The internal temperature is too low. The system has temporarily shut down until the temperature has returned to normal. This can occur if the set temperature has been raised by a large amount.	1, 2, 3, 4	Confirm if really too cold; change parameters accordingly.
22	Evaporator fan over-current protection The current supplied to the evaporator fan motor is too high.	2, 3, 4	<ul style="list-style-type: none"> NO swap cartridge required Faulty fan motor Fan blade fault (imbalance, debris or blockage) Controller
23	Condenser fan over-current protection The current supplied to the condenser fan motor is too high.	2, 3, 4	NO swap cartridge required <ul style="list-style-type: none"> Faulty fan motor Fan blade fault (imbalance, debris or blockage) Controller
24	Controller communication error Controller has lost communication channels.	1, 2, 3, 4	<ul style="list-style-type: none"> App Controller or circuit
25	Controller update failed Controller update could not be completed.	1, 2, 3, 4	<ul style="list-style-type: none"> App Controller or circuit
26	Controller hardware failure Controller hardware has failed.	1, 2, 3, 4	<ul style="list-style-type: none"> App Controller or circuit

Table 5: Alarms (continued)

Code	Description	Service tech type	Possible root cause
27	Probe failure A non-critical system probe has failed. The cabinet will continue to operate with partial function but requires service.	2, 3, 4	NO swap cartridge required <ul style="list-style-type: none"> • Evaporator probe or connections • Controller
28	No downward tendency The temperature is no longer decreasing.	2, 3, 4	Take spare cartridge in case refrigeration system fault. <ul style="list-style-type: none"> • Condenser blocked • Poor installation or ventilation • Cabinet or cartridge gasket seals leaking • Door not self-closing or gasket leaking • Product hot or blocking cabinet airflow • Overloaded from excess door openings/ambient • Fan motor or blade (condenser or evaporator) • Controller • Compressor or gas leak = SWAP cartridge
29	Compressor cutting out The compressor cut out on its internal protection or pressure switch.	2, 3, 4	Take spare cartridge in case refrigeration system fault. <ul style="list-style-type: none"> • Condenser blocked • Poor installation or ventilation • Cabinet, door or cartridge seal leaking • Product hot or blocking cabinet airflow • Overloaded from excess door openings/ambient • Fan motor or blade (condenser or evaporator) • Controller • Compressor or gas leak = SWAP cartridge
30	Excessive automatic defrosting The system is automatically defrosting too frequently.	2, 3, 4	Take spare cartridge in case refrigeration system fault. <ul style="list-style-type: none"> • Door not self-closing or gasket leaking • Evaporator probe • Evaporator motor or fan • Controller • Compressor or gas leak = SWAP cartridge
31	Compressor stalling The compressor is stalling on start up.	2, 3, 4	Take spare cartridge in case refrigeration system fault. <ul style="list-style-type: none"> • Condenser blocked • Poor installation or ventilation • Cabinet or cartridge gasket seals leaking • Door not self-closing or gasket leaking • Product hot or blocking cabinet airflow • Overloaded from excess door openings/ambient • Fan motor or blade (condenser or evaporator) • Controller • Compressor or gas leak = SWAP cartridge

Notes

[illegible]

5 Replacement Procedures

Lighting

The cooler is fitted with LED modular interior lights, and TME-AC models are also fitted with an LED modular sign light. 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 the table below for replacement light specifications.

Table 6: Light specifications

Model	Interior light		Sign light	
	Description	Part No.	Description	Part No.
TME650N-A	Interior light	ELL11771	n.a.	n.a.
TME650N-AC			Sign light	ELL11772
TME1000N-A			n.a.	n.a.
TME1000N-AC			Sign light	ELL11773

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

- LED modular light
- Light power supply (1 per cabinet)
- Interior wiring loom (1 per door)

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

Lighting components are all non-serviceable items. If a component is faulty, it should be removed and a SKOPE OEM new replacement component fitted.

Refer to the diagnostics table below to determine what component may be at fault, and the procedures over the next few pages for component replacement instructions.

Ensure the cabinet is isolated from the power supply before removing parts.

Table 7: Lighting fault diagnostics

Problem	Possible cause	Repair
No lights working. Cabinet is dark.	Lights switched off.	Switch the lights using the app, or on the electronic controller faceplate (see page 13).
	Controller is in Energy Saving mode.	Open the door to bring the controller into Normal mode.
	Controller alarm.	Check the controller for the alarm code.
	Plug not connected properly.	Check and clean the plugs on top of the cabinet.
	Light power supply fault.	Replace the light power supply.

Table 7: Lighting fault diagnostics (continued)

Problem	Possible cause	Repair
Light component not working.	Plug not connected properly.	Check and clean the plug connection inside the light channel, behind the loom cover.
	Faulty light.	Replace the light.
Segment of light not working.	Faulty light.	Replace the light.

Procedure 10: To replace an interior light component

1. Disconnect the cabinet from the mains power supply.

2. Unplug the light, and remove the light from the plastic casing.



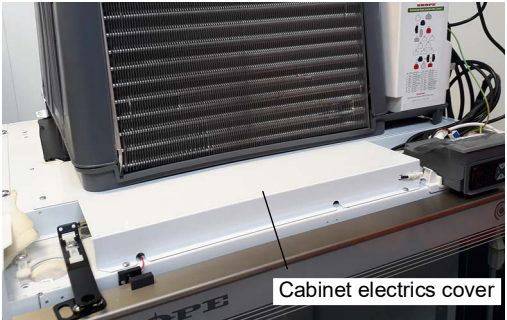
3. Clip the replacement light into place on the plastic casing, ensuring the male end of the light is at the top, and plug the light in.

4. Ensure the light is firmly and completely clipped in.
5. Reconnect to the power supply and check for correct operation.

Procedure 11: To replace the LED driver power supply

1. Disconnect the cabinet from the mains power supply.
2. Remove the sign panel.

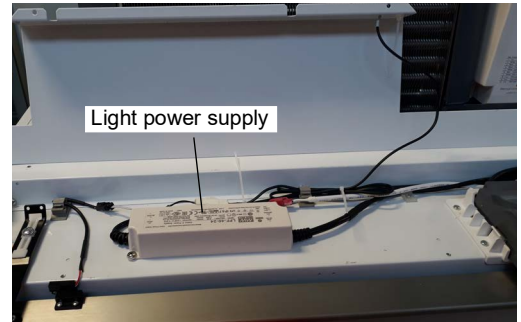
3. Detach the refrigeration cartridge and carefully push back or remove to allow access to the cabinet electrics cover.



Procedure 11: To replace the LED driver power supply (continued)

4. Unscrew the cabinet electrics cover.

5. Remove the light power supply.



6. Replace the light power supply and reassemble.

Procedure 12: To replace an interior wiring loom

1. Disconnect the cabinet from the mains power supply.
2. Unplug the light from the wire loom.
3. Gain access to the cabinet electrics panel (see procedure above).
4. Move up to the cabinet roof, and unplug the wiring loom from the light power supply, and if applicable the sign light.
5. Remove the putty from the loom entry point on the cabinet roof, and pull the loom up through the cabinet ceiling.
6. Refit the new loom and reassemble. Ensure that:
 - All plugs are clean, correctly fitted and plugged in.
 - That the ceiling and roof hole is completely sealed with putty.

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

Procedure 13: To replace the sign light

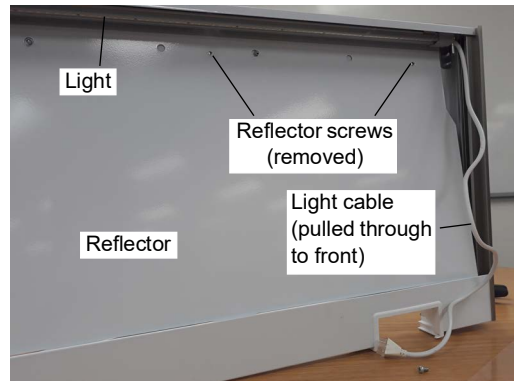
1. Disconnect the cabinet from the mains power supply.
2. Undo the two fixing screws from the sign top cover and remove the top cover.
3. Remove the front sign panel/decals by sliding them up and out of the sign.
4. Remove the sign cover from the top of the sign.
5. Remove additional sign panel by sliding up and out of the sign.
6. Cut the cable tie holding the light cable at the back of the sign.

Procedure 13: To replace the sign light (continued)

7. Undo the two most right hand sign reflector screws.

8. Carefully pull the light plug and cable through to the front of the sign, manipulating the reflector as required.

9. Unclip and replace the light.



10. Rout the light plug and cable back through behind the reflector and hole at the back of the sign, and cable tie in place.

11. Reassemble the sign, reconnect to the power supply and check for correct operation.

Doors

WARNING

For safe door operation the bottom hinge bracket must always be fitted with a split pin.

Alignment Adjustment If a door is out of alignment, realign it by loosening the top hinge bracket fixing screws, and move the top of the door as required.

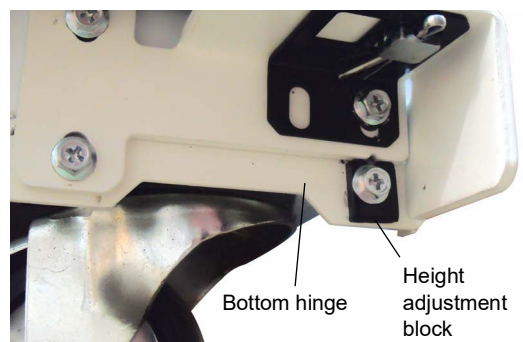
Height Adjustment A height adjustment block is fitted below the bottom hinge. As standard, the notched edges on the bottom of the hinge and the top of the height adjustment block align to set the door to the correct level. If the door is not at the correct height when at the standard setting, follow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

Note: The door height cannot be adjusted on the middle door on three door models.

Procedure 14: To adjust the door height

1. Disconnect the cabinet from the mains power supply.

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



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

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 and to reverse the hinging, the door can be removed from the cabinet.

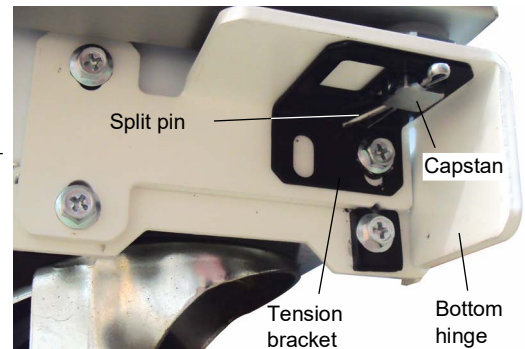
Procedure 15: To remove the door

1. Disconnect the cabinet from the mains power supply.
 2. Remove the sign panel and sign sides.
-

Single door cabinets only:

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

4. Remove the split pin from the capstan at the bottom hinge (outside door pictured).
-



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

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

Procedure 16: To replace the top hinge bracket

1. Follow the steps in Procedure 15 to remove the door.
 2. Remove the top hinge from the top of the door and replace it.
 3. Follow the steps in Procedure 17 to replace the door.
-

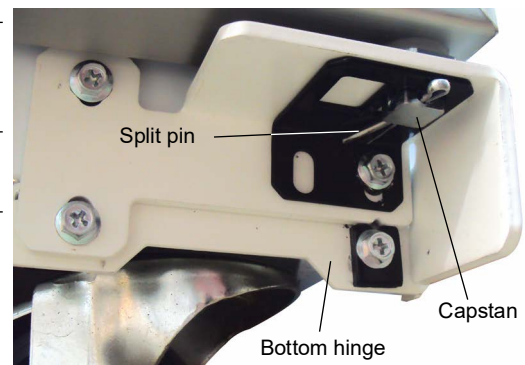
Procedure 17: To refit the door

1. Lift the door onto the bottom hinge.
 2. Place the top hinge spacer on top of the door.
 3. Fit the top hinge, on top of the spacer, to the top of the door, and partially fix in place. Align the door with the cabinet and tighten the fixing screws.
 4. Apply tension to the door (see page 26).
 5. Fit the split pin through the hole in the capstan to lock the door in place (outside door pictured).
-

6. Fit the height adjustment block to the bottom screw hole (not fitted to middle doors).
-

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.

7. If necessary, rotate the height adjustment block to level 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.

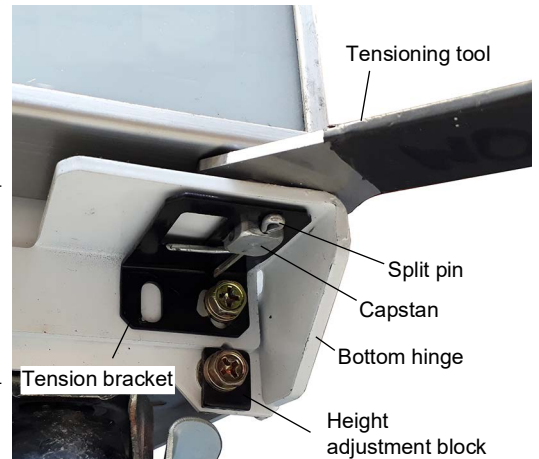
Procedure 18: To adjust the door tension

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

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 gently close, with the gasket forming an airtight seal with the cabinet.

Replacing the Torsion Bar When the door tension can no longer be adjusted, replace the torsion bar.

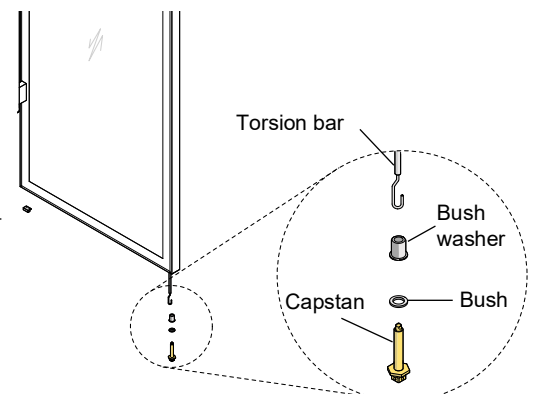
Procedure 19: To replace the torsion bar

1. Remove the door from the cabinet (see page 25).

2. Lever the capstan, bush and bush washer from the bottom of the door, and unhook from the torsion bar.

Note: The torsion bar cannot easily be removed from the door. Cut the old torsion bar and push it into the door frame.

3. Fit the capstan, bush and bush washer to the new torsion bar, and fit this assembly into the bottom of the door.

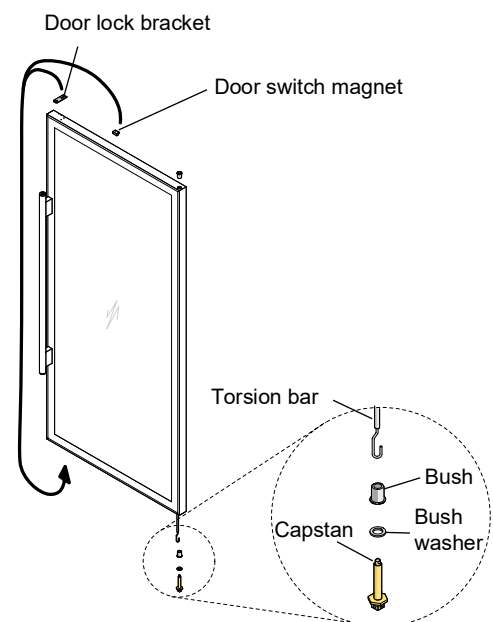


4. Refit the door (see page 25).

Hinge Reversal The single door cabinet is supplied with the door hinged on the right hand side. If required, the hinge can be swapped to the left hand side. Some spare parts are required to complete the procedure, and are available in the left hand hinge kit (see page 51).

Procedure 20: To reverse the door hinging

1. Remove the door from the cabinet (see page 25).
2. Remove the door lock bracket from the top of the cabinet.
3. Remove the bottom hinge, tension bracket and height adjustment block. Retain the tension bracket and height adjustment block (these are fitted to the opposite side once the door is refitted). The bottom hinge can be discarded.
4. Unplug the door switch cable from the cabinet. The door switch is fitted to the door switch bracket, above the door.
5. Fit the new bottom hinge.
6. Remove the door lock bracket from the door, and fit to the opposite end.
7. Remove the bush and retain for the other end of the door.
8. Remove the capstan, bush and bush washer, and unhook from the torsion bar.
Note: The torsion bar cannot easily be removed from the door. Push the torsion bar into the door frame.
9. Fit the capstan, bush and bush washer to the new torsion bar, and fit this assembly to the opposite end of the door.
10. Fit the bush (retained from step 7) to the end of the door, opposite the capstan.
11. Remove the door switch magnet from the end of the door, and fit to the opposite end.
Note: Ensure the magnet is orientated correctly and does not protrude past the frame edge.
12. Refit the door (see page 25).



13. Apply the SKOPE logo label to the top left hand corner of the door. Use the label backing to align the label as pictured.



14. Apply the blanking labels over the upside down logos at the bottom of the door.



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 SKOPE-supplied parts specifically for this appliance may be used for repairs. 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.

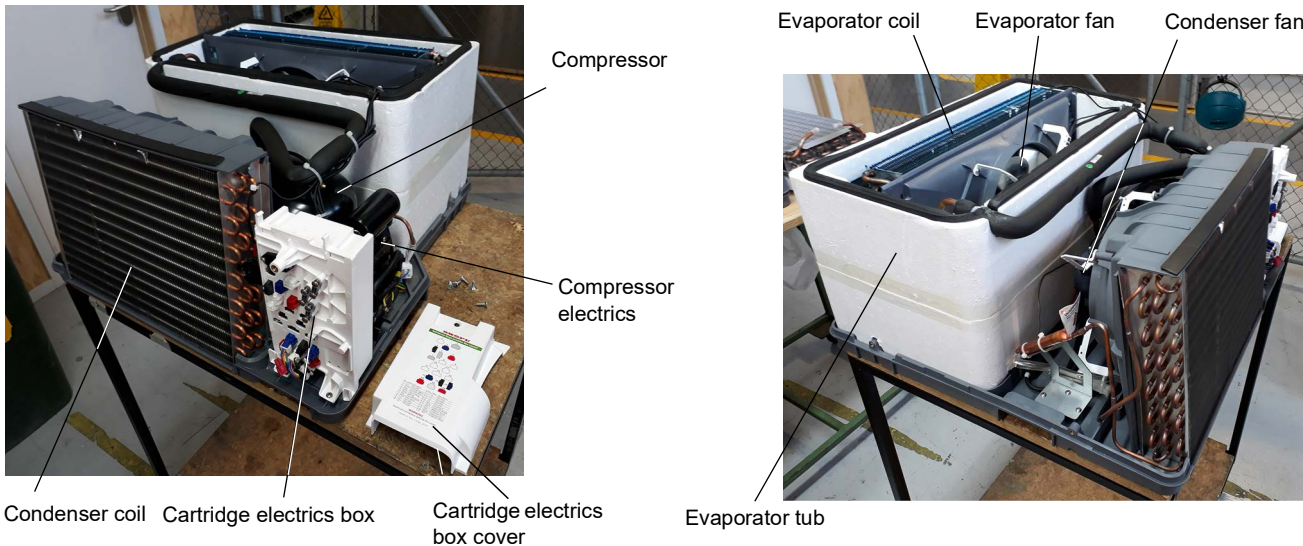
The rating label **MUST** state refrigerant as R290. If the label states a different refrigerant, or does **not** state a refrigerant, it is **not** suitable for a hydrocarbon cartridge.

WARNING

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

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

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



Specifications for the model are in the following table. Verify model and basic requirements before servicing.

Table 8: Cartridge specifications

Cartridge model	UTHCNI-0010 (spare part number: HB0070832517)
Compressor	Wanbao FN90M
Compressor capacity	740 watts
Refrigerant / Charge	R290/99 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 44 when making the service visit.

Diagnostics The following diagnostic test is useful for workshop diagnosis of a short of gas situation. Perform the test before opening the refrigeration system.

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

Note: These diagnostic procedures are indicative only.

Procedure 21: Refrigeration system diagnostic test**Before you start**

Ensure you are in a suitable workshop (see page 29).

1. Disconnect the cabinet from the mains power supply.
2. Remove the refrigeration cartridge (see Procedure 22, "To remove the refrigeration cartridge").
3. Remove the cartridge cover (see page 35).
4. Place cartridge on bench and connect service probe to red plug on 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 table below details the frost stop point on a correctly charged system running on the bench.

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 20mm from compressor
40°C	Dry	Dry	Sweating 50mm from compressor

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

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

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

Removing the Cartridge Follow the instruction sheet attached to the back of the sign panel, or the steps below to remove the refrigeration cartridge from the cabinet. Ensure the cabinet is disconnected from the power supply before removing the cartridge.

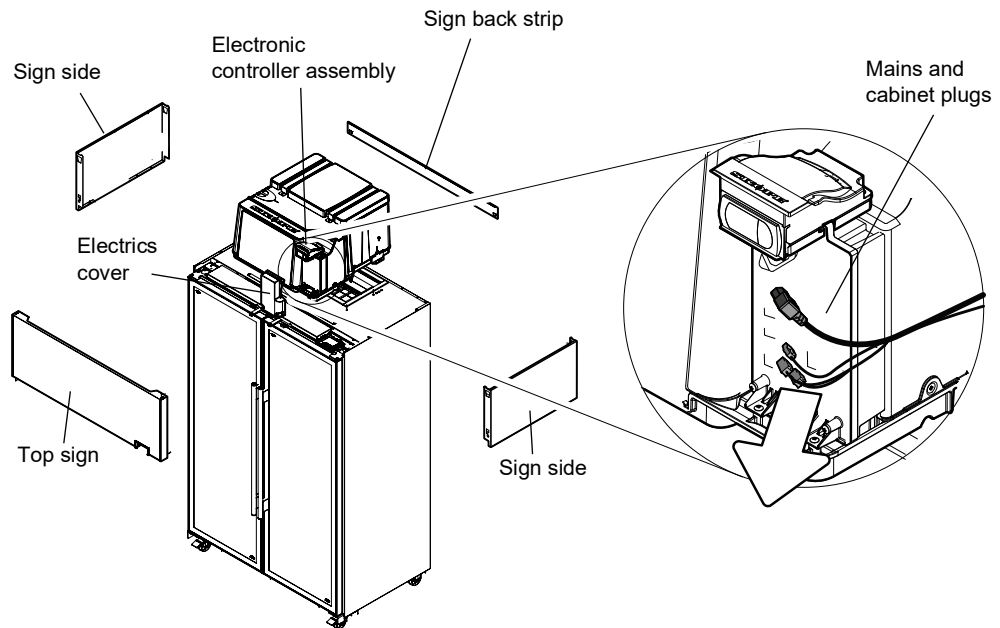
The cartridge is heavy and requires a minimum of two people to lift from the cabinet. Steps or a platform about one metre high are suggested to allow the cartridge to be safely lifted, carried and put down at waist height.

Procedure 22: To remove the refrigeration cartridge

1. Disconnect the cabinet from the mains power supply.
2. Remove the top sign. If fitted with key locks, open the door/s and unscrew the sign from the brackets below the sign.
3. Detach the electronic controller assembly from the top of the cabinet, and clip it onto the top of the cartridge.
4. Remove electrics cover and unplug the mains supply plug and cabinet plugs.
5. **Note:** The cartridge plugs (plugs feeding into the cartridge) and electronic controller plugs (plugs feeding to the electronic controller assembly) do not need to be unplugged.

Procedure 22: To remove the refrigeration cartridge (continued)

6. Remove the sign back strip. **Note:** If necessary the sign sides can also be removed.
7. Undo the two cartridge fixing screws (one on each side of the cartridge) and lift the cartridge off the cabinet.
8. When refitting the cartridge, ensure that the:
 - gasket on the top of the cabinet is in good condition.
 - mains and cabinet plugs are reconnected.
 - electrics cover is refitted.
 - cartridge is re-fixed in place.



Replacing the Cartridge The SKOPE ActiveCore refrigeration cartridge is interchangeable between bottom and top mount hydrocarbon (R290) ActiveCore fridges.

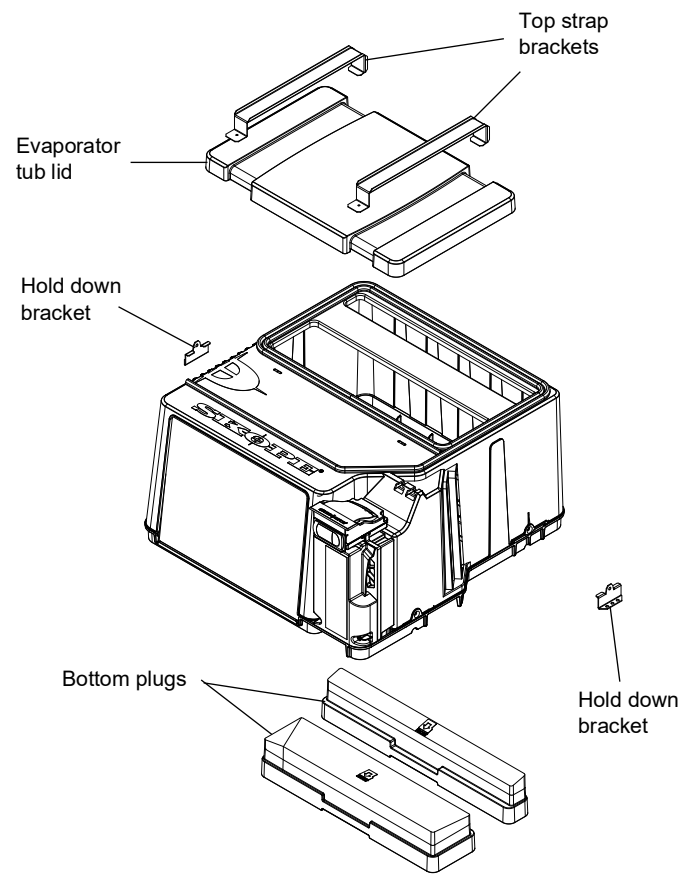
WARNING

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

When changing from a bottom mount fridge to a top mount fridge, an evaporator lid, strap brackets and hold down brackets must be fitted to seal the top of the evaporator tub, and to fix the cartridge to the top of the cabinet.

New spare part refrigeration cartridges supplied by SKOPE are not supplied with the evaporator tub lid, top strap brackets and hold down brackets. When replacing a faulty top mount refrigeration cartridge, keep these parts for use on the new spare part 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 54 for spare part numbers.



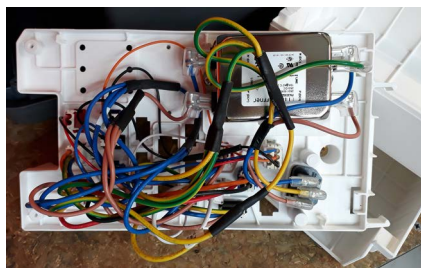
Procedure 23: To replace a cartridge

1. Disconnect the cabinet from the mains power supply.
2. Remove the existing cartridge (see page 31).
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.

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 diagram over the page or label on the electrics box cover for socket connection identification.

Due to the confined space within the cartridge electrics box, plugs may come loose as a result of movement and vibrations. Take care when refitting to ensure all plugs are securely attached to the correct sockets.



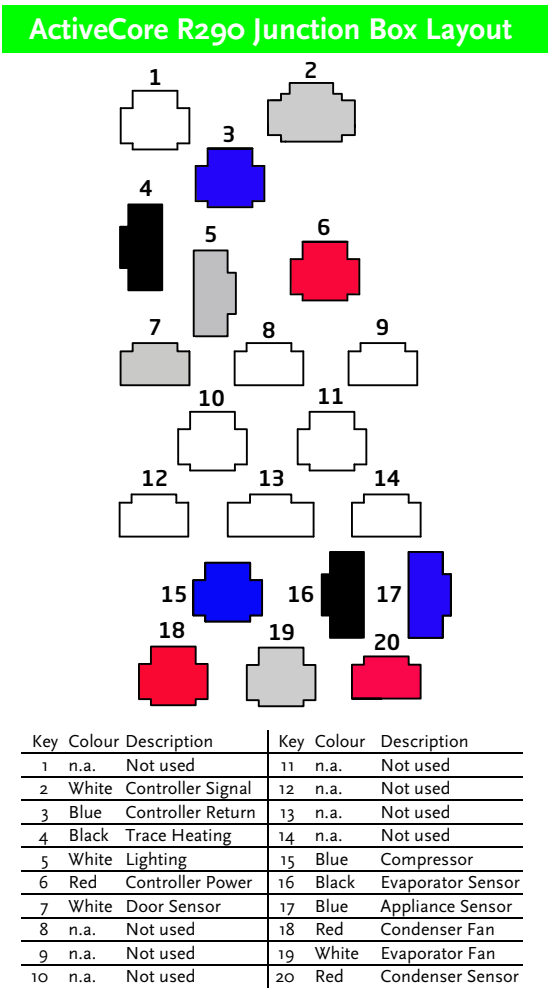
Procedure 24: To remove and open the cartridge electrics box assembly

- 1. Disconnect the cabinet from the mains power supply.
- 2. If present, 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.



- 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.



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

Procedure 25: To remove the cartridge cover

1. Disconnect the cabinet from the mains power supply.
2. Remove the refrigeration cartridge (see page 31).

3. Unscrew the four machine screws from the sides of the refrigeration cartridge and lift the cover off the cartridge.



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

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. Fan blades should be tightened to the fan motor manufacturer recommended torque settings (shown in the table below).

Table 9: Fan motor manufacturer recommended torque settings

Fan motor manufacturer	Torque setting
AoFrio	1.5 Nm

Procedure 26: To access and remove the condenser fan assembly

1. Disconnect the cabinet from the mains power supply.
2. Remove the refrigeration cartridge (see page 31).
3. Remove the cartridge cover (see page 35).
4. Open the electrics box and unplug the condenser fan motor plug (see page 33).

5. Cut the cable ties holding the cables along the cartridge, and free up the condenser fan motor cable.



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

Procedure 27: To replace the condenser fan blade

1. Remove the condenser fan assembly (see above).
2. Remove the screw and washer from the centre of the fan blade, and lift the blade from the motor.
3. Replace new blade and fix with 12mm flat washer and serrated head screw. Tighten the blade to fan motor manufacturer recommended torque setting.
4. Reassemble the cartridge and test.

Procedure 28: To replace the condenser fan motor

1. Remove the condenser fan assembly and the fan blade (see above).
2. Unplug the fan flexible cord from the electrics box (see page 33).
3. Detach the fan motor from the fan mounting brackets by removing the four screws from the mounting bracket.
4. Fit new motor and reattach fan blade with 12mm flat washer and serrated head screw. Tighten the blade to 1.5Nm.
5. Reassemble the cartridge, ensuring all cables are neatly cable tied away from the fan blade, and 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 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 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 fan blade and/or fan motor is replaced with the same part to ensure safety, correct alignment and refrigeration performance, and compliance. Fan blades should be tightened to the fan motor manufacturer recommended torque settings (shown in the table below).

Table 10: Fan motor manufacturer recommended torque settings

Fan motor manufacturer	Torque setting
AoFrio	1.5 N m

Procedure 29: To access the evaporator fan assembly

1. Disconnect the cabinet from the mains power supply.
2. Remove the refrigeration cartridge (see page 31).
3. Remove the refrigeration cartridge cover.

Procedure 29: To access the evaporator fan assembly (continued)

4. Free up cables from the putty on the evaporator tub perimeter.
5. Cut cable ties to release control probe from the fan bracket.

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

**Procedure 30: To replace the evaporator fan blade**

1. Disconnect the cabinet from the mains power supply.
2. Remove the refrigeration cartridge (see page 31).
3. Gain access to the evaporator fan assembly (see above).
4. Remove the screw and washer from the centre of the fan blade, and lift the blade from the motor.
5. Fit new blade, ensuring it is centred within the evaporator shroud. Tighten the blade to fan motor manufacturer recommended torque setting (1.5 Nm).
6. Reassemble the cartridge and test for correct operation.

Procedure 31: To replace the evaporator fan motor

1. Follow the above steps to access the evaporator fan assembly and remove the fan blade.
2. Free the fan flexible cord by cutting the cable ties, trace the cable back to the connector (near the compressor electrics) and unplug.
3. Detach the fan motor from the fan mounting brackets by removing the four screws from the mounting bracket.
4. Attach to the replacement motor. Ensure that the flexible cord points towards the bottom of the evaporator tub once reinstalled. Take care to re-cable tie the fan and temperature probe flexible cords back onto the mounting bracket (to prevent high frequency vibration).
5. Fit fan blade, ensuring it is centred within the evaporator shroud. Tighten the blade to 1.5 Nm.
6. Reassemble the cartridge and test for correct operation.

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

Before replacing the compressor, check all plug connections and ensure the compressor electrics are operating correctly (see "Compressor Electrics" on page 38). The compressor must be supplied with consistent voltage over 220 volts, ensure the voltage does not drop at start-up. If the voltage does drop, ensure the refrigeration cartridge has a direct power supply

(not from a multi-box or extension cord). Generally a faulty compressor may have a distinct hissing sound and run with a very hot body temperature.



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.

To access the compressor electrics, remove the refrigeration cartridge (see page 31) and cartridge cover (see page 35). The capacitor unclips from the relay cover, and the relay cover unclips from the compressor.

Electronic Controller

Controller Location

The electronic controller is located within the electronic controller box assembly.



Procedure 32: To access the controller

1. Disconnect the cabinet from the mains power supply.
2. Open the electronic controller box assembly by undoing the two fixing screws at the rear of the assembly.

Note: On one-door cabinets it is necessary to move the refrigeration cartridge back to access the controller box assembly.

Replacing the Controller

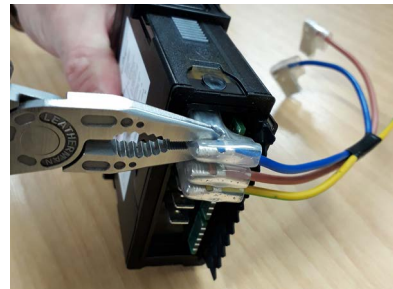
Follow the steps below to replace the controller.

Note: Replacement spare part electronic controllers are not supplied with the parameter set loaded. This must be loaded via the SCS Connect Field app after replacing the controller. Internet access may be required.

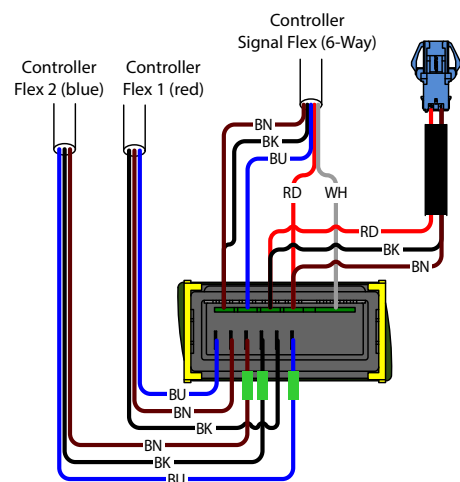
Procedure 33: To replace the controller

1. Disconnect the cabinet from the mains power supply.
2. Access the electronic controller (see "Controller Location" on page 38).

3. Remove the cable clamps, then use needle nose pliers to press in and unlock the tabs at the back of the electronic controller, and gently remove the QC terminals.



4. Fit the new replacement controller, and connect up the terminals at the back of the controller. Fit low voltage terminals before high voltage terminals.



5. Reassemble the controller box and cabinet, perform electrical safety test as required, and reconnect to the power supply.
6. Use a mobile device to connect to the controller with the SCS Connect Field app (see "SCS Connect Field App" on page 14).
7. Navigate to the LOAD PARAMETER FILE menu.
8. Select the appropriate parameter file from LOCAL. If not available in LOCAL, search for the parameter file in SERVER (internet access required), and download to LOCAL.
9. Confirm correct file and WRITE TO SCS.
10. After WRITE TO SCS is complete, select MENU DISCONNECT to save parameter set on SCS.

Procedure 33: To replace the controller (continued)

11. Power cycle the controller and check that correct parameter set has been applied
12. Power cycle the controller and check that correct parameter set has been applied
13. Set up controller and cabinet links as required:
 - **Corporate:**
The service tech must link to the controller to the cabinet serial number in the SCS Connect Field app.
 - **General Market:**
The owner must set up SKOPE-connect (if in use).

Door Switch The cabinet is fitted with a door switch above each door, which tells the electronic controller when a door is opened. A small magnet in the door frame activates the switch. A cable connects the switch to the electronic controller via an inline connector on top of the cabinet.

Procedure 34: To remove the door switch

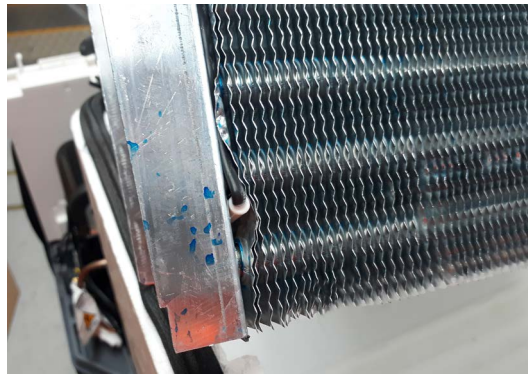
1. Disconnect the cabinet from the mains power supply.
2. Disconnect the door switch cable plug from the inline connector on top of the cabinet.
3. Unscrew the two fixing screws from the door switch and remove.
4. Fit the replacement door switch and connect via the inline connector.

Control Probe The control probe is cable tied to a bracket on the evaporator fan motor bracket (see image below).

**Procedure 35: To replace the control probe**

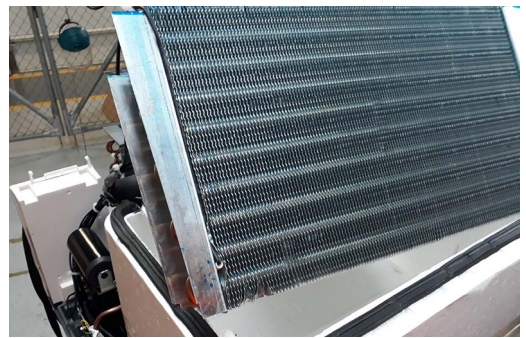
1. Remove the evaporator fan assembly (see page 36).
2. Detach the probe from the evaporator fan shroud bracket and trace the probe cable back to the cartridge electrics box and unplug (see page 32).
3. Following the same path as the original probe, fit the new probe with cable ties as necessary. Ensure the probe cable is securely plugged into the rear of the cartridge junction 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.

Evaporator Probe The evaporator probe is located within the evaporator coil. It controls the refrigeration system defrost initiation and termination.

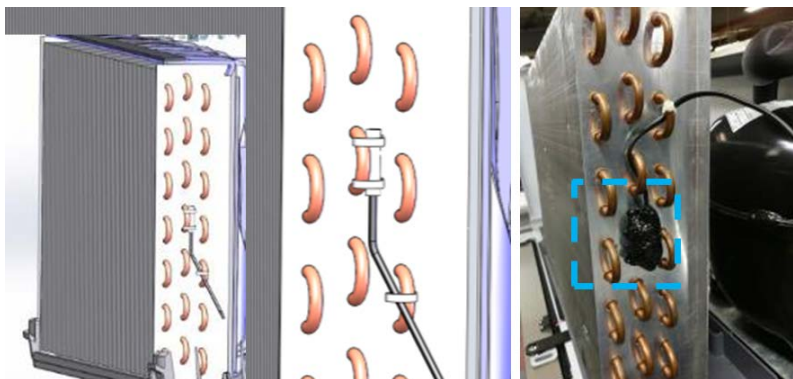


Procedure 36: To replace the evaporator probe

1. Disconnect the cabinet from the mains power supply.
 2. Remove the refrigeration cartridge (see page 31).
 3. Remove the cartridge cover (see page 35).
 4. Remove the evaporator fan assembly (see page 36).
-
5. Remove both pieces of putty securing the pipes and cables on the evaporator tub perimeter.
-
6. Carefully lift the coil up and out of the evaporator tub. Take care of pipes and cables when lifting out.
-
7. Detach the probe from the side of the evaporator coil, and trace the probe cable back to the cartridge electrics box, cutting cable ties as required, and unplug (see page 32).
 8. Following the same path as the original probe, run the new probe to the evaporator coil and secure with cable ties. Locate the probe in the same location as the original probe (against the side of the coil above the bottom pipe as pictured above). Plug the probe cable securely into the electrics box.
 9. Reassemble the cartridge and test for correct operation.
-



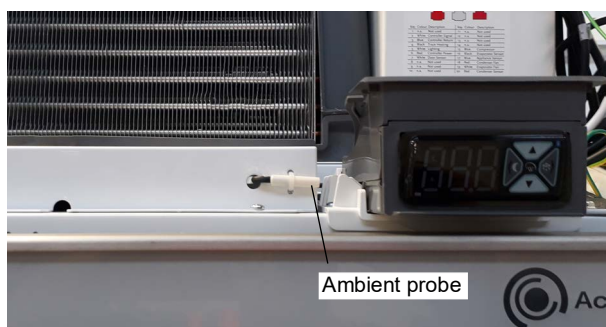
Condenser Probe The condenser probe is located on the side of the condenser coil. It monitors condenser temperature.



Procedure 37: To replace the condenser probe

1. Disconnect the cabinet from the mains power supply.
2. Remove the refrigeration cartridge (see page 31).
3. Remove the cartridge cover (see page 35).
4. Detach the probe from the side of the condenser coil, and trace the probe cable back to the cartridge electrics box, cutting cable ties as required, and unplug (see page 32).
5. Following the same path as the original probe, run the new probe to the condenser coil and secure with cable ties. Locate the probe in the same location as the original probe (as pictured above) and insulate with cork tape. Plug the probe cable securely into the electrics box.
6. Reassemble the cartridge and test for correct operation.

Ambient Probe The ambient probe is located above the door. It monitors the temperature around the refrigeration cartridge. **Note:** The ambient probe is wired in series with the door switch.



Procedure 38: To replace the ambient probe

1. Disconnect the cabinet from the power supply (see page 21).
 2. Remove the front panel assembly.
-

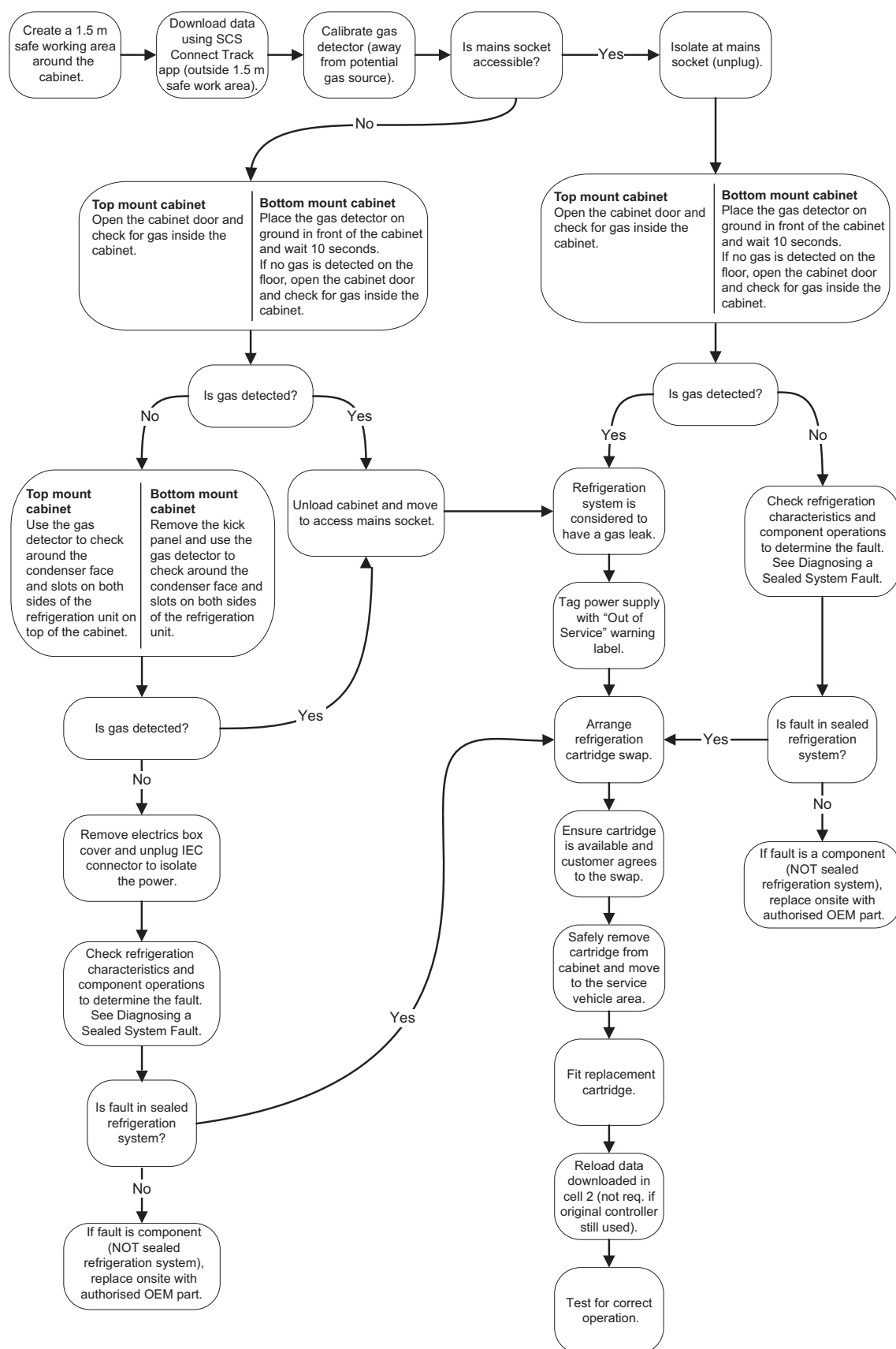
3. Detach the refrigeration cartridge and carefully push back or remove to allow access to the cabinet electrics cover.



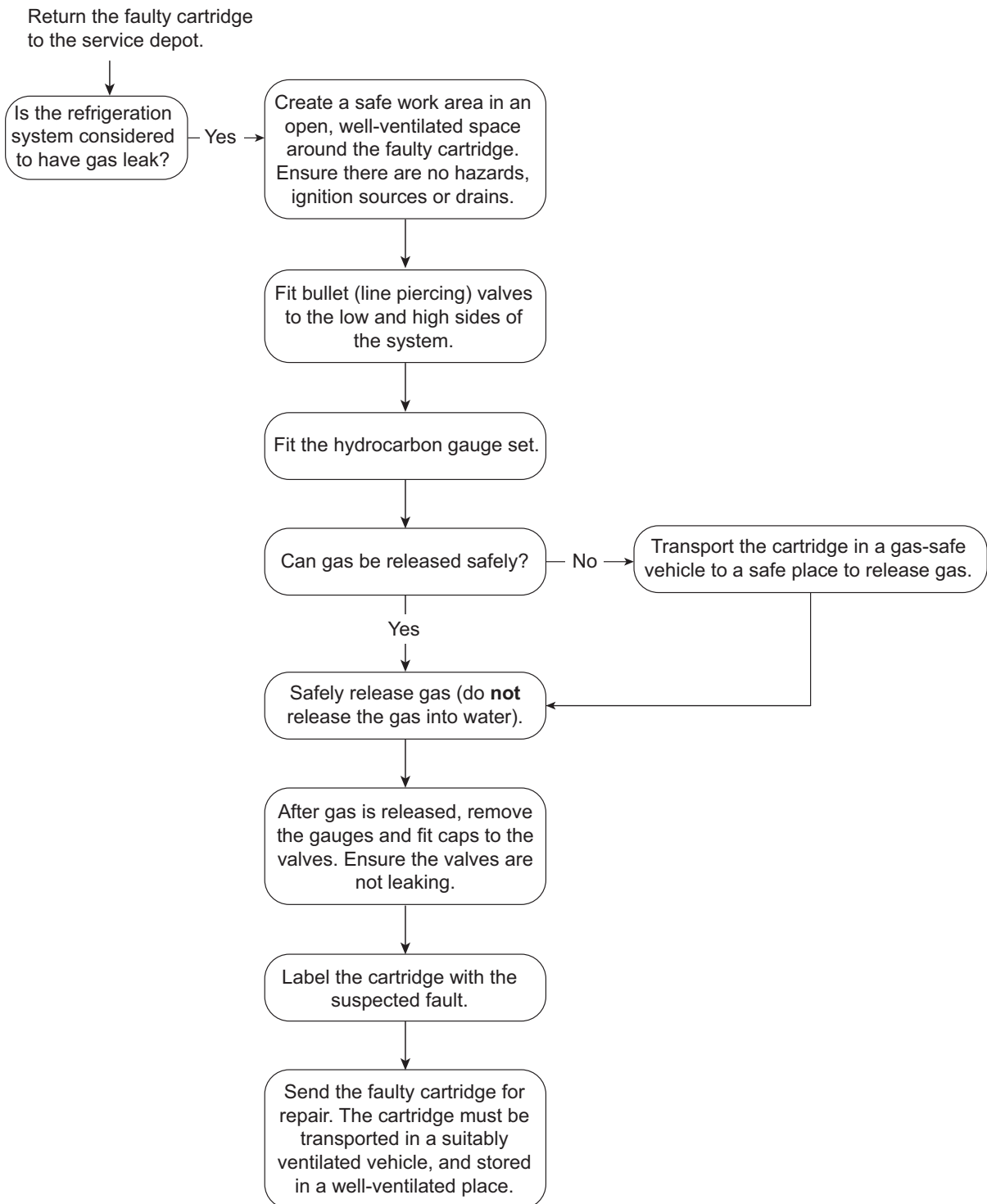
4. Unscrew the cabinet electrics cover.
 5. Detach the probe from the electrics cover, and trace the probe cable back to the connector, cutting cable ties as required, and unplug.
 6. Fit the new probe and secure with cable ties. Ensure the probe is located in the same location as the original probe (as pictured above).
 7. Reassemble the cartridge and test for correct operation.
-
-

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.

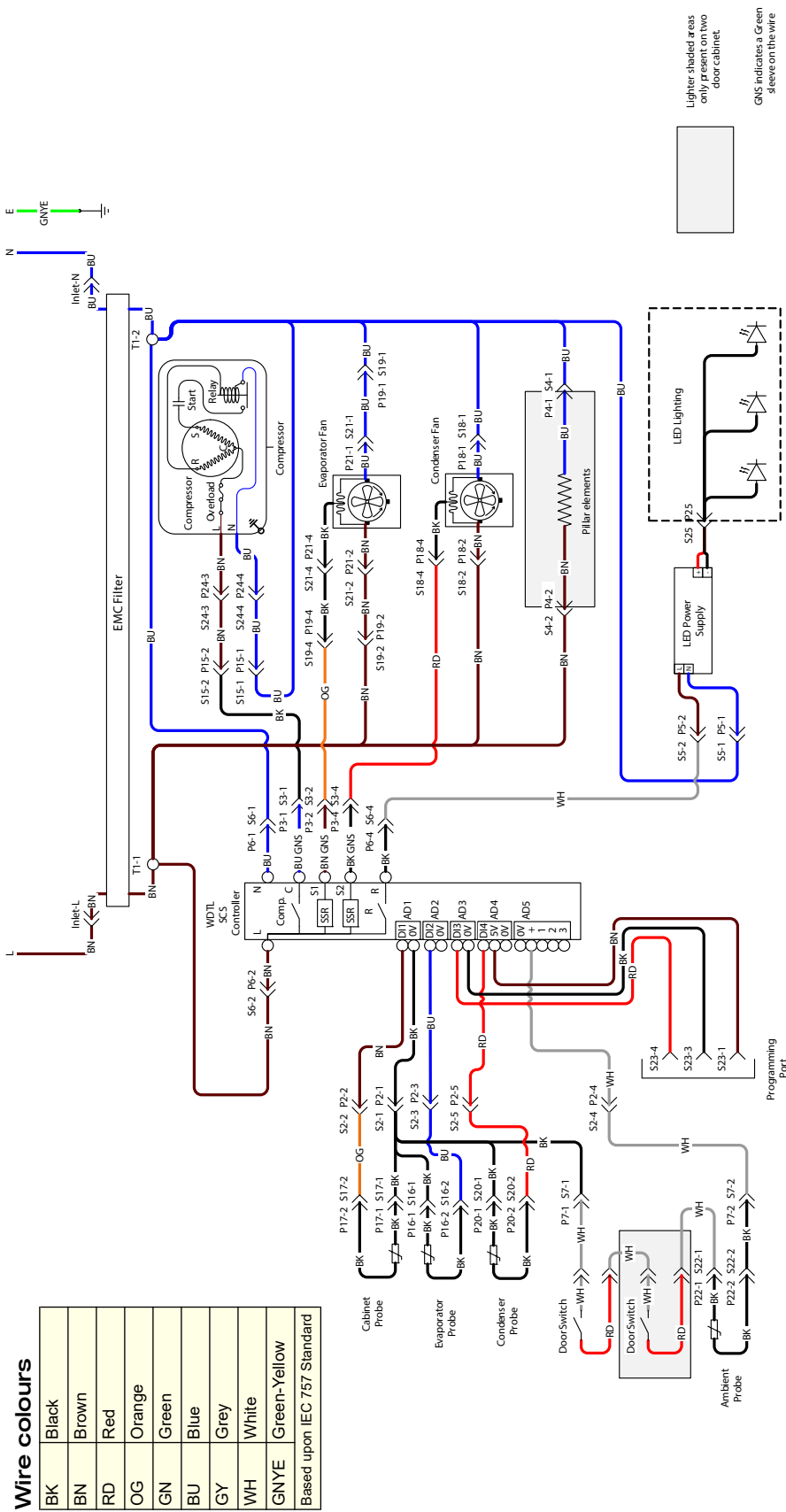


On-site Work Procedure (continued)



6 Wiring

Model: TME650/1000N-A Series



7 Spare Parts

Main Assembly

TME650N-A Series

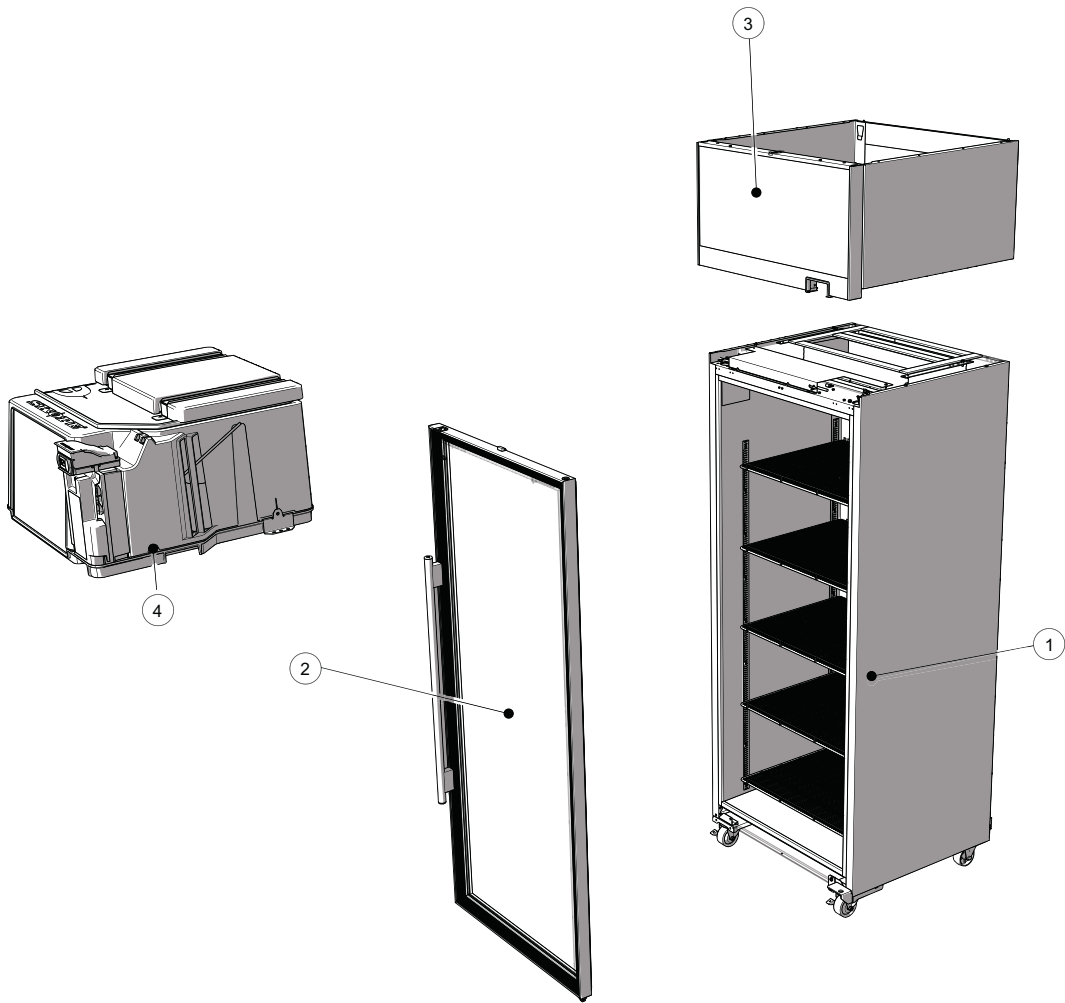


Table 11: Parts – Main assembly: TME650N series

No.	Description	Page
1	Cabinet assembly	Page 49
2	Door assembly	Page 51
3	Sign assembly	Page 52
4	Cartridge assembly	Page 54

TME1000N-A Series

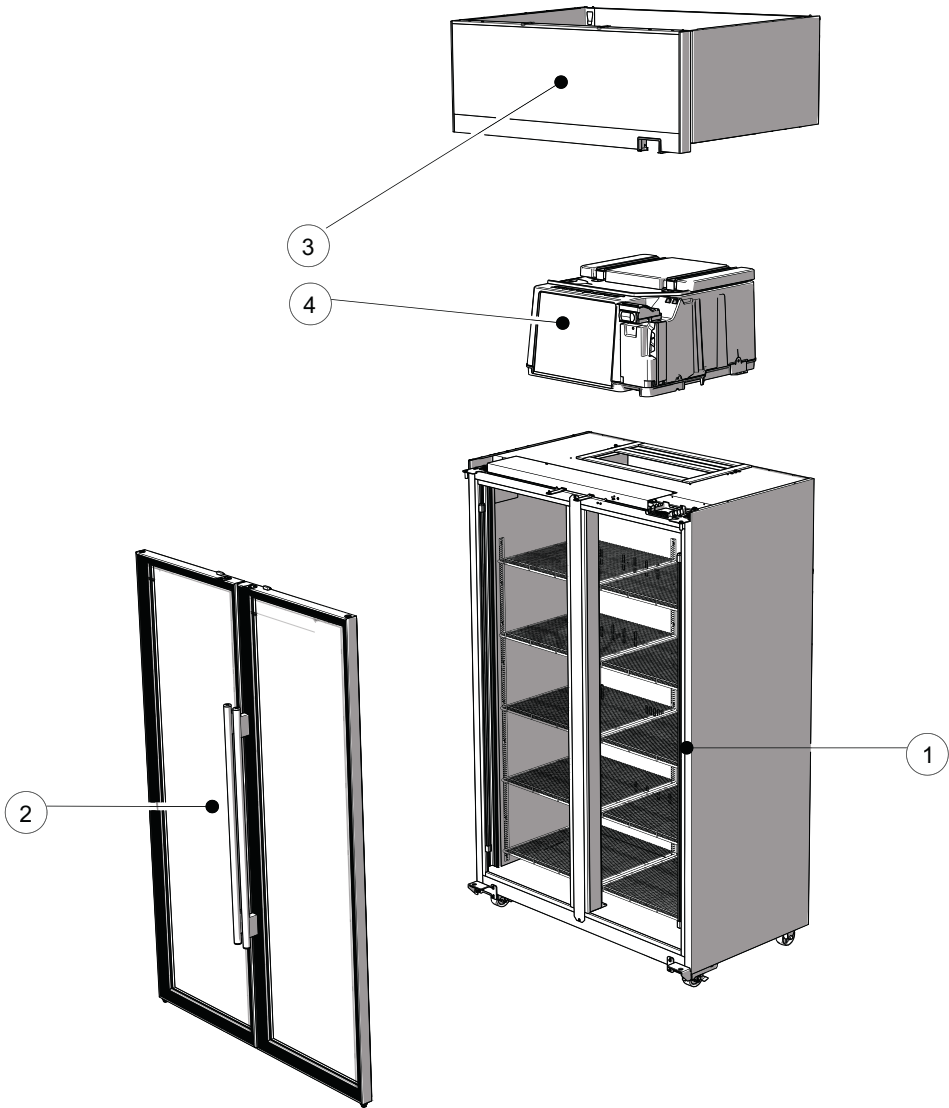


Table 12: Parts – Main assembly: TME1000N series

No.	Description	Page
1	Cabinet assembly	Page 49
2	Door assembly	Page 51
3	Sign assembly	Page 52
4	Cartridge assembly	Page 54

Cabinet Assembly

TME650N-A Series

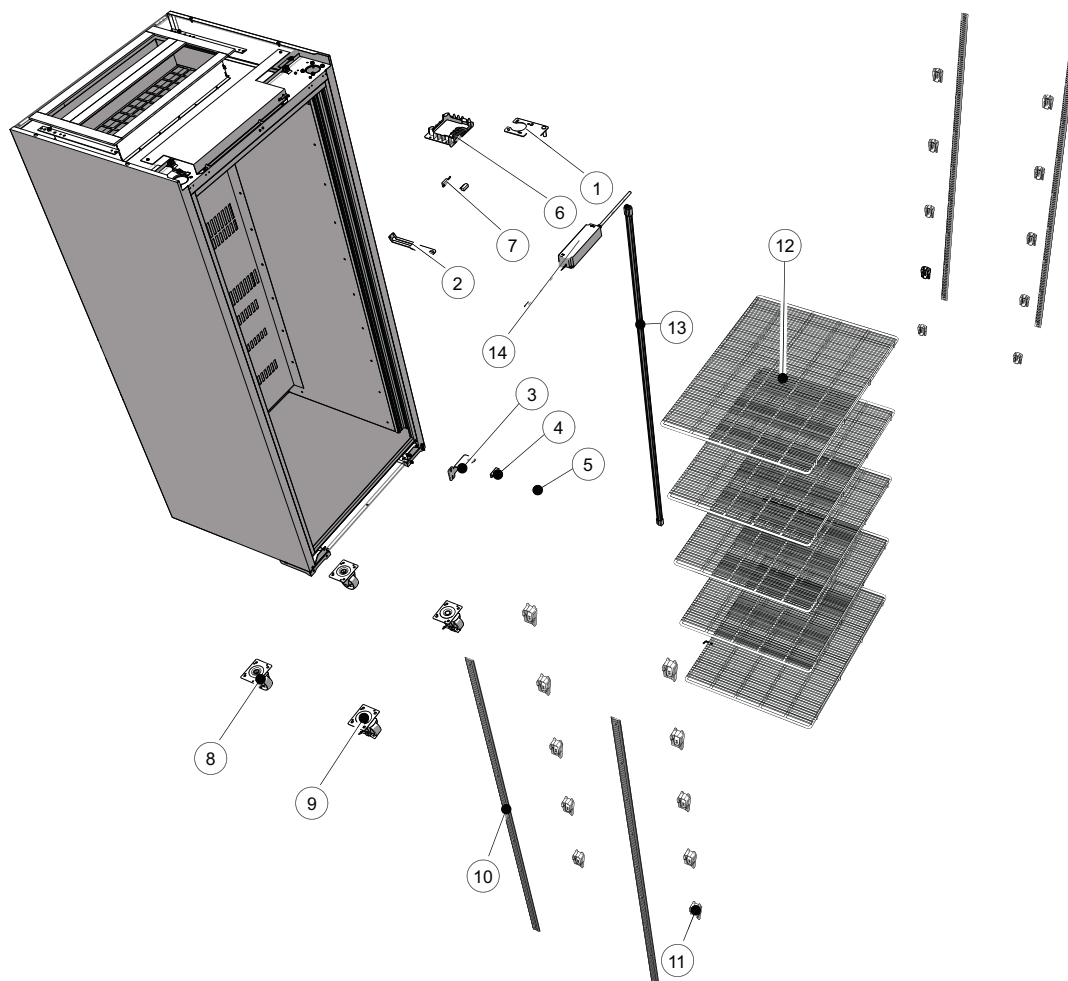


Table 13: Parts – Cabinet assembly: TME650N series

No.	Description	Page		
		Unpainted/standard	Colour: White	Colour: Black
1	Top hinge – right hand	–	HB0070110582B	–
2	Door lock bracket – cabinet piece	–	HB0070206938	–
3	Bottom hinge – right hand	–	HB0070110851	–
4	Tension bracket	–	–	HB0070110580
5	Height adjustment block lock nut	–	–	HB0070110581
6	Controller clip	–	HB0070206333	–
7	Door sensor assembly (includes magnet)	HB0074091496	–	–
8	Rear castor	HB0070105066	–	–
9	Front castor lockable	HB0070105065	–	–
10	Shelf support strip	HB0070110331	–	–
11	Shelf clip	–	HB0070205867	–
12	Wire shelf	–	HB0070110864	–
13	LED light	ELL11771	–	–
14	Light power supply	ELZ11239	–	–

Note: Check the part colour before ordering. If the colour differs from the list above, state the specific colour when ordering.

TME1000N-A Series

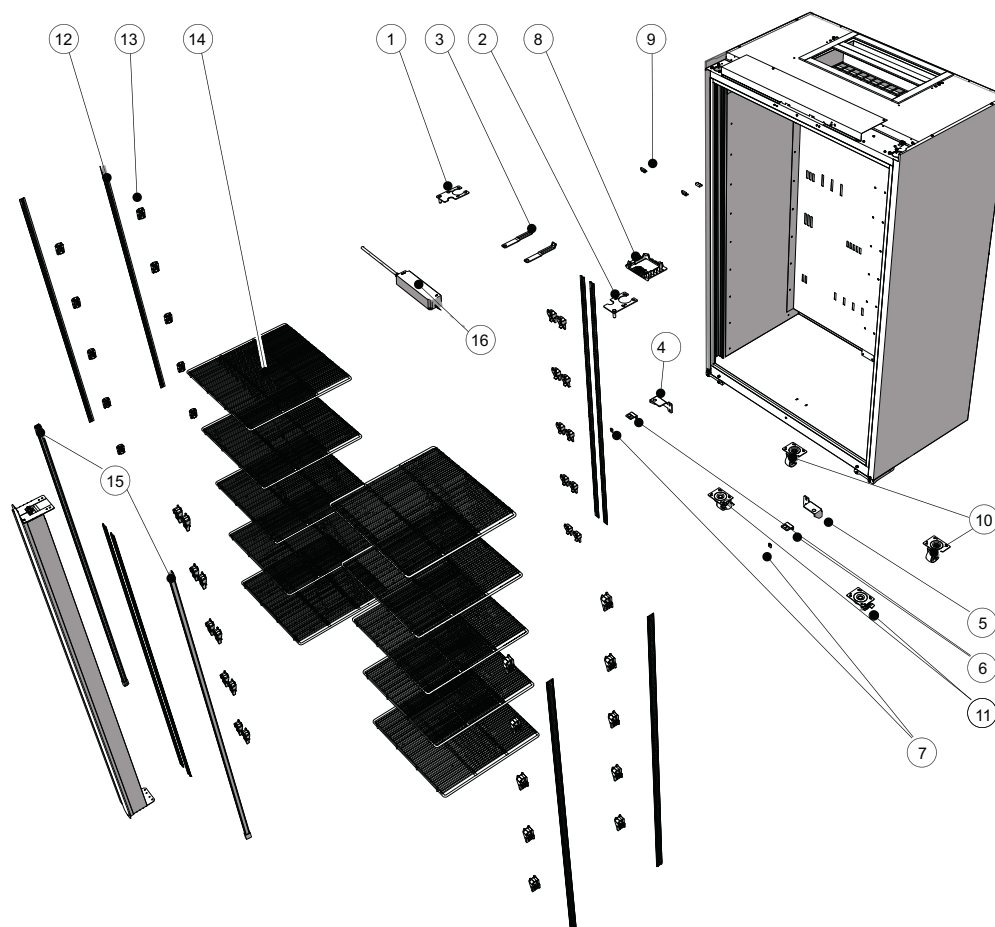


Table 14: Parts – Cabinet assembly TME1000N series

No.	Description	Part No.		
		Unpainted/standard	Colour: White	Colour: Black
1	Top hinge – left hand	–	HB0070110583B	
2	Top hinge – right hand	–	HB0070110582B	
3	Door lock bracket – cabinet piece	–	HB0070206938	
4	Bottom hinge – left hand	–	HB0070110850	
5	Bottom hinge – right hand	–	HB0070110851	
6	Tension bracket	–	–	HB0070110580
7	Height adjustment block	–	–	HB0070110581
8	Controller clip	–	HB0070206333	
9	Door sensor assembly (includes magnet)	HB0074091496	–	–
10	Rear castor	HB0070105066	–	–
11	Front castor lockable	HB0070105065	–	–
12	Shelf support strip	HB0070110331	–	–
13	Shelf clip	–	HB0070205867	–
14	Wire shelf – split (10 per cabinet)	–	HB0070110862	–
	Wire shelf – wide (5 per cabinet)	–	HB0070110863	–
15	LED light	ELL11771	–	–
16	Light power supply	ELZ11239	–	–

Note: Check the part colour before ordering. If the colour differs from the list above, state the specific colour when ordering.

Glass Door Assembly

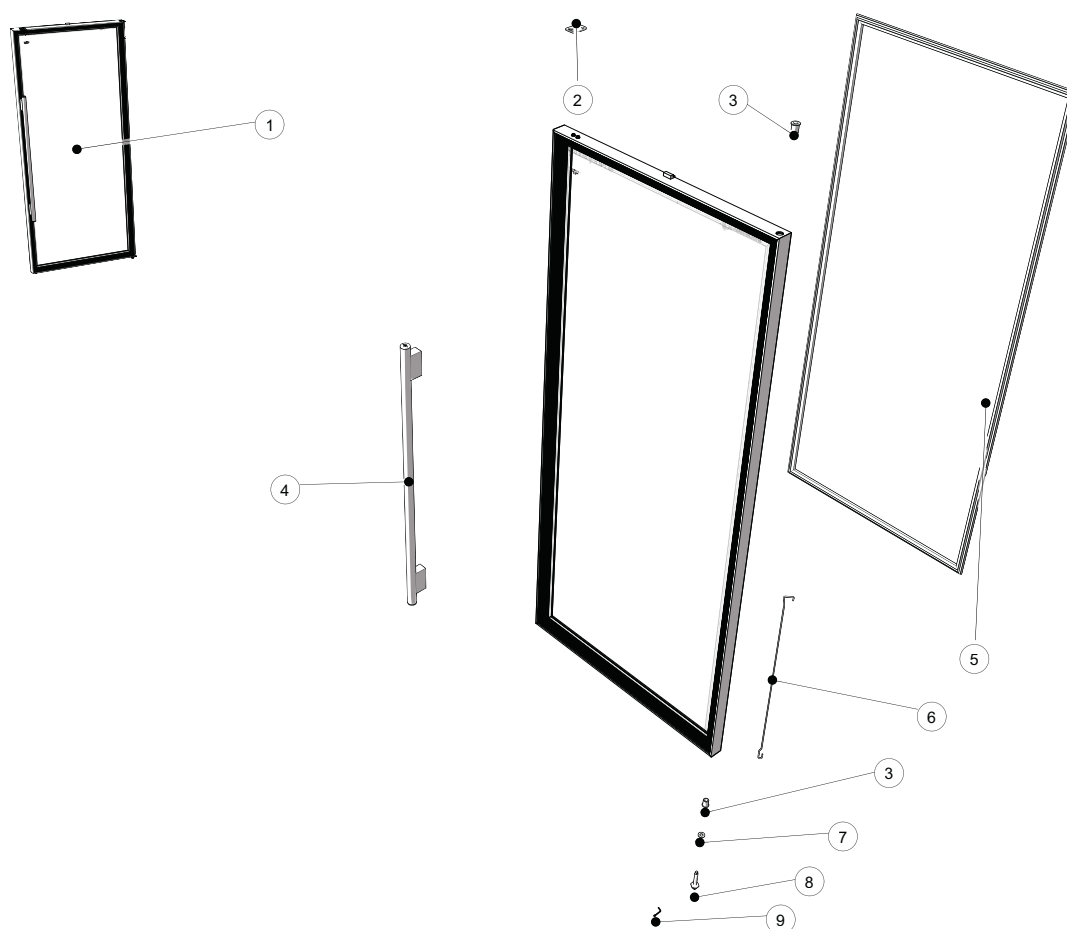


Table 15: Parts – Glass door assembly

No.	Description	SKOPE Part No.		
		Unpainted/standard	Colour: White	Colour: Black
1	TME650N door assembly – right hand	–	HB0070832242	–
	TME1000N door assembly – right hand	–	HB0070832243	–
	TME1000N door assembly – left hand	–	HB0070832244	–
2	Door lock bracket – door piece	–	HB0070111623	–
3	Bush	PLM5075	–	–
4	Door handle	–	HAN11195/0844-AS (silver, for white door)	–
5	TME650N magnetic gasket	GKT0432SK	–	–
	TME1000N magnetic gasket	GKT0572SK	–	–
6	Torsion bar	REF5014	–	–
7	Bush washer	PLM11298	–	–
8	Capstan	TUR11299	–	–
9	Split pin	FAS5076	–	–
–	Hinge reversal kit (right to left hand, single door only) (not shown)	–	SM65BYN/D100-32	SM65BYN/D100-49

Note: Check the part colour before ordering. If the colour differs from the list above, state the specific colour when ordering.

Sign Assembly

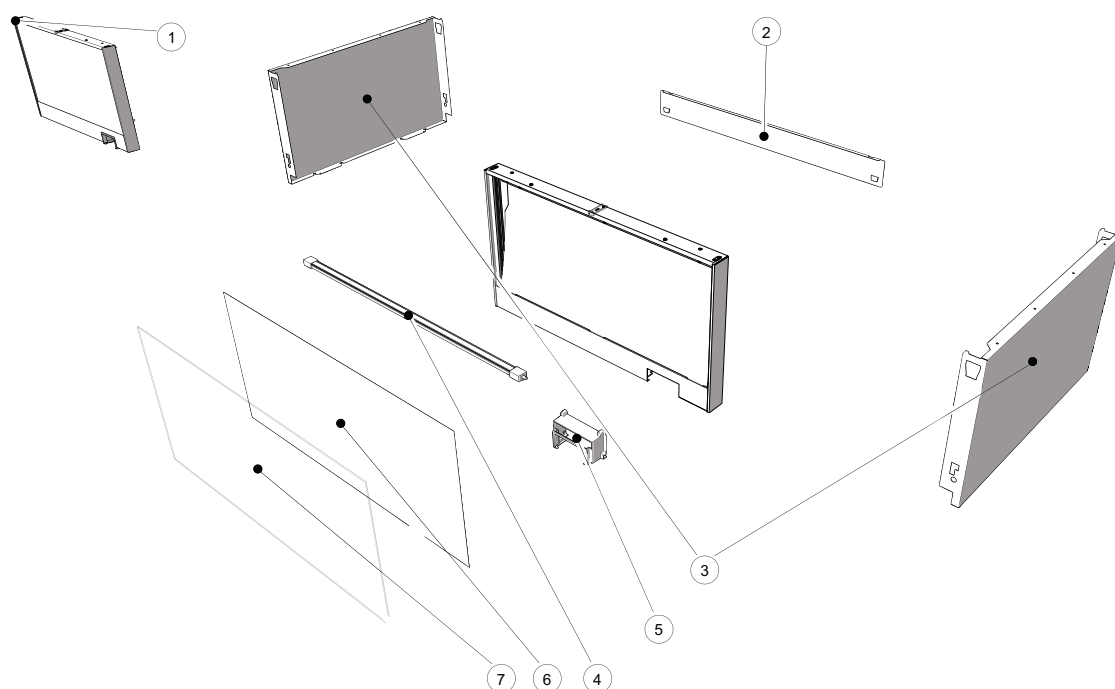


Table 16: Parts – Sign assembly: TME650N-AC

No.	Description	SKOPE Part No.
1	Lit sign assembly	SM65BYN/T61
	Non-lit sign assembly (sign replacement panel)	HB0070825987
2	Sign back strip	HB0070110813
3	Sign side	SM65BV/182
4	Sign light bar (lit-sign)	ELL 11772
5	Controller surround	HB0070206332
6	Sign panel (opal) (lit-sign)	PLY11242-MT65
7	Sign panel (transparent) (lit-sign)	HB0070206409

Table 17: Parts – Sign assembly: TME1000N-AC

No.	Description	SKOPE Part No.
1	Lit sign assembly	SM10BYN/T61
	Non-lit sign assembly (sign replacement panel)	HB0070825986
2	Sign back strip	HB0070110812
3	Sign side	SM65BV/182
4	Sign light bar (lit-sign)	ELL 11773
5	Controller surround	HB0070206332
6	Sign panel (opal) (lit-sign)	PLY11242-MT10
7	Sign panel (transparent) (lit-sign)	HB0070206408

Note: Check the part colour before ordering. If the colour differs from the list above, state the specific colour when ordering.

Cartridge Assembly – UTHCNI-0010

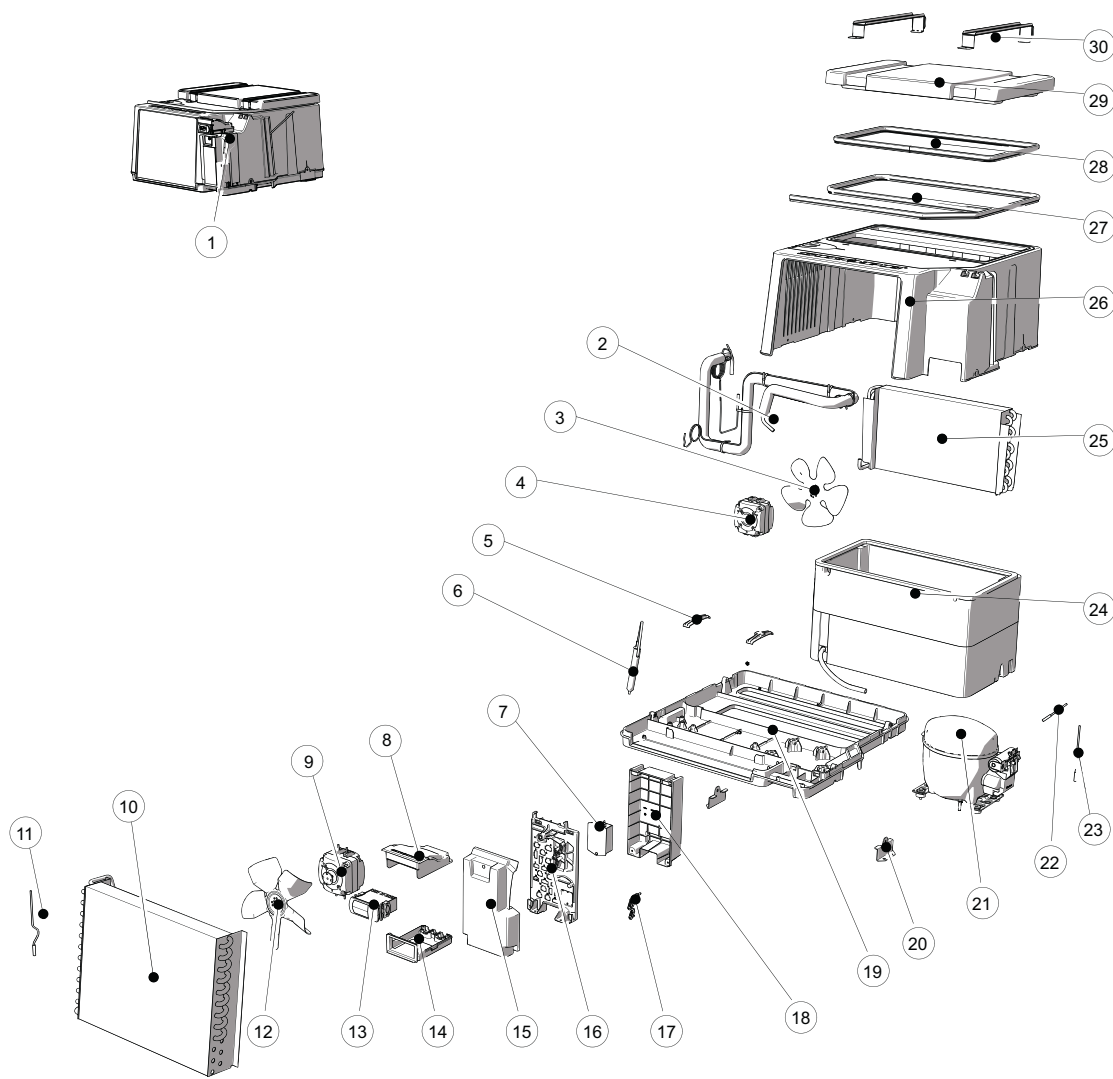


Table 18: Parts – Cartridge assembly: UTHCNI-0010

No.	Description	SKOPE Part No.
1	Cartridge assembly*	HB0070832517A
2	Suction line assembly	HB0070702718
3	Evaporator fan blade	HB0074000313A
4	Evaporator fan motor	ELM11309
–	Evaporator fan shroud (not shown)	HB0070206123
5	Condensate pipe support	HB0070110674
6	Drier	HB0074180006
7	EMI filter	HB0074600001
8	Controller box cover	HB0070206126
9	Condenser fan motor	ELM11309
10	Condenser coil	HB0070702720
11	Condenser temperature probe	HB0070401693B
12	Condenser fan blade	HB0074000313
–	Condenser fan shroud (not shown)	HB0070206124
13	W/Drive SCS Connect electronic controller	ELZ11749-1626
14	Controller box base	HB0070206125
15	Cartridge electrics box enclosure front	HB0070207012A
16	Cartridge electrics box enclosure	HB0070207014
–	Electrical box assembly – ActiveCore R290 Fridge (not shown)	HB0070833377
17	Cable clamp	HB0070206127
18	Cartridge electrics box enclosure rear	HB0070207013A
19	Cartridge plastic bottom	HB0070206212B
20	Hold down bracket	HB0070110815A
21	Compressor – Wanbao FN90M	HB0074000848
22	Control temperature probe	HB0070400542
23	Evaporator temperature probe	HB0070400506
24	Evaporator box	HB0070510928A
25	Evaporator coil	HB0070702232
26	Cartridge plastic top cover	HB0070206133
27	Cartridge gasket seal 2306 mm	PLE11052-2306
28	Cartridge gasket seal 1571 mm	PLE11052-1571
29	Evaporator box lid	HB0070511356
30	Top metal strap bracket	HB0070110816
–	Ambient temperature probe (not shown)	HB0070401693B
–	Mains power cord (not shown)	HB0070400636
–	TME650N Light loom (not shown)	SM65BYN/X05
–	TME1000N Light loom (not shown)	SM10BYN/X05
–	Controller wire loom – blue (not shown)	HB0070401063
–	Controller wire loom – red (not shown)	HB0070401062
–	Controller wire loom – white (not shown)	HB0070401111

***Note:** When ordered as a spare part, the refrigeration cartridge does not include evaporator box lid, top metal strap bracket and hold down bracket. If required, these items must be ordered in addition to the refrigeration cartridge (items 22, 31 and 32).

8 Maintenance

Routine Cleaning

Cabinet Wipe the inside and outside of the cabinet with a damp cloth, taking care to keep moisture away from electrical parts. As with any maintenance, ensure the cabinet is unplugged from the power supply before cleaning.

Condenser Coil To ensure trouble-free performance, the condenser coil must be kept clean. We strongly urge monthly cleaning with a soft brush to remove dust and fluff. A more thorough cleaning is required by qualified service personnel every six months. The condenser coil **must** be kept clean for efficient and reliable operation.

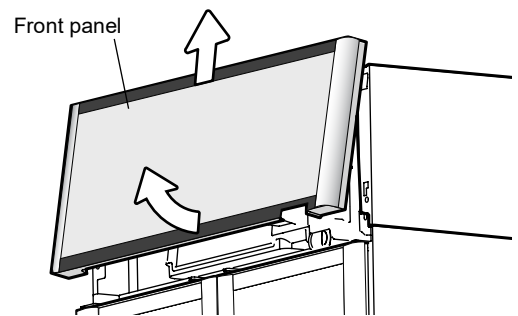
WARNING

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

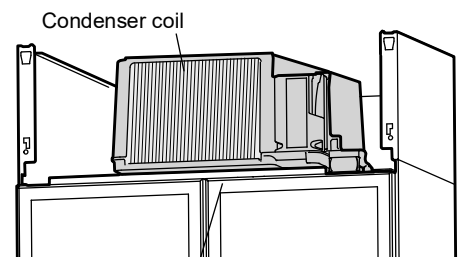
Procedure 39: To clean the condenser coil and optional condenser filter

1. Disconnect the cabinet from the mains power supply.

2. Remove the front panel from the top of the cabinet by swinging it out and off. Lit sign front panels will also need to be unplugged.



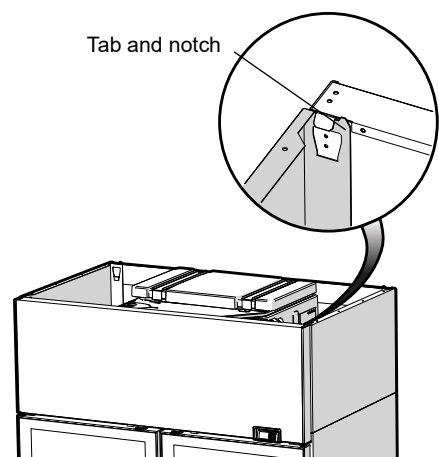
3. Brush the condenser coil with a soft brush to remove any dust and fluff.



4. Refit the sign panel 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.



9 Troubleshooting

Electronic Controller

Alarms signal unexpected operational changes in the cooler. When an alarm is activated, use the electronic controller app to assist with fault diagnosis and service as necessary. See page 16 for information.

Cabinet and Refrigeration Cartridge

For problems with the cabinet and refrigeration cartridge use the following table.

Table 19: Troubleshooting

Problem	Possible cause	Repair
<ul style="list-style-type: none"> Cabinet not operating No controller display 	<ul style="list-style-type: none"> Loss of power supply Loose plug in electrics box 	<ul style="list-style-type: none"> Check mains power supply. Check all plugs in electrics box are connected correctly.
<ul style="list-style-type: none"> Sign and/or Interior lights not on 	<ul style="list-style-type: none"> Electronic controller is in Night mode. Light switched off. Electronic controller displays alarm indicating a refrigeration system error. Failed LED light. 	<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 Day-Night button on the electronic controller faceplate, or hold the door open for 10 seconds. Switch light on via button on the electronic controller faceplate. Diagnose and repair. If system fault found, return to SKOPE. Service light.
<ul style="list-style-type: none"> Excess noise vibration 	<ul style="list-style-type: none"> Refrigeration pipes transferring vibration into the cartridge 	<ul style="list-style-type: none"> Re-align pipes.
<ul style="list-style-type: none"> Frozen evaporator coil 	<ul style="list-style-type: none"> Set-point is too cold 	<ul style="list-style-type: none"> Check and raise.
	<ul style="list-style-type: none"> Evaporator probe fault. 	<ul style="list-style-type: none"> Check and replace evaporator probe.
	<ul style="list-style-type: none"> Controller fault 	<ul style="list-style-type: none"> Replace controller.
	<ul style="list-style-type: none"> Short of refrigerant 	<ul style="list-style-type: none"> Perform refrigeration system diagnostics (see page 30) and service as required.
<ul style="list-style-type: none"> Power consumption is higher than expected 	<ul style="list-style-type: none"> Cartridge operating too hot Cabinet door is opened excessively Product too cold 	<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. Ensure door is closed more often. Raise setpoint

Table 19: Troubleshooting (continued)

Problem	Possible cause	Repair
<ul style="list-style-type: none"> Product is too warm. 	<ul style="list-style-type: none"> Frequent door opening. Recently loaded Door not closing properly. Refrigeration cartridge operating too hot. Excessive door opening or refrigeration heat load. Setpoint is too high 	<ul style="list-style-type: none"> Limit door openings. Allow time for the product to cool down. Check and clean door gasket. Ensure the cabinet has good ventilation around the refrigeration cartridge. Ensure the cabinet is within the maximum operating conditions. Lower the setpoint.
<ul style="list-style-type: none"> Moisture build up on door or exterior. 	<ul style="list-style-type: none"> High humidity. Frequent door opening. Door not closing properly. 	<ul style="list-style-type: none"> Check ambient operating temperature and reposition the cabinet if necessary. Limit door openings. Check and clean door gasket.
<ul style="list-style-type: none"> Cabinet door does not shut properly. 	<ul style="list-style-type: none"> Cabinet is on an uneven surface. Door is obstructed. 	<ul style="list-style-type: none"> Level the cabinet. Check shelves and product.
<ul style="list-style-type: none"> Warm cabinet temperatures Compressor operating for long periods (more than 1 hour) 	<ul style="list-style-type: none"> Blocked condenser Poor ventilation around refrigeration cartridge 	<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.

SKOPE Contacts

SKOPE Industries Limited

ABN: 73 374 418 306

AU: 1800 121 535

NZ: 0800 947 5673

skope@skope.com

www.skope.com