

## ProSpec Underbench Fridge Series

Underbench, Salad Preparation Free-standing and Drop-in Collar, and ChefBase  
R290



PG11.UBR.4.SD

SKOPE ProSpec Underbench Fridge Series  
Fridge, Salad Preparation Free-standing and Drop-in Collar, and ChefBase  
R290  
Service Manual

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# 1 Specifications

## Models

This service manual applies to the SKOPE ProSpec Underbench models listed in Table 1. Refer to the relevant product specification sheet (available on the SKOPE website: [www.skope.com](http://www.skope.com)) for specifications.

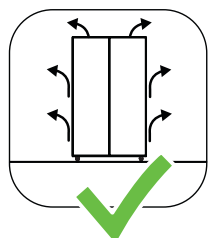
**Table 1: Fridge cabinet specifications**

Model	SKOPE ID	Cartridge
PG11.UBR.1.SD	P1BR1A-A1	ULKCNI-0062
PG11.UBR.2.SD	P1BR2A-A1	
PG11.UBR.3.SD	P1BR3A-A1	ULKCNI-0063
PG11.UBR.4.SD	P1BR4A-A1	
PG11.UBR.1.D2	P1BR1A-A3	ULKCNI-0062
PG11.UBR.1.D3	P1BR1A-A4	
PG11.UBR.2.D4	P1BR2A-A3	
PG11.UBR.2.D6	P1BR2A-A4	ULKCNI-0063
PG11.UBR.3.D6	P1BR3A-A3	
PG11.UBR.3.D9	P1BR3A-A4	
PG11.UBR.4.D8	P1BR4A-A3	
PG11.UBR.4.D12	P1BR4A-A4	URKCNI-0066
PG11.UBR.1.SD.RH	P1BR1A-B1	
PG11.UBR.2.SD.RH	P1BR2A-B1	URKCNI-0067
PG11.UBR.3.SD.RH	P1BR3A-B1	
PG11.UBR.4.SD.RH	P1BR4A-B1	URKCNI-0066
PG11.UBR.1.D2.RH	P1BR1A-B3	
PG11.UBR.1.D3.RH	P1BR1A-B4	
PG11.UBR.2.D4.RH	P1BR2A-B3	
PG11.UBR.2.D6.RH	P1BR2A-B4	URKCNI-0067
PG11.UBR.3.D6.RH	P1BR3A-B3	
PG11.UBR.3.D9.RH	P1BR3A-B4	
PG11.UBR.4.D8.RH	P1BR4A-B3	
PG11.UBR.4.D12.RH	P1BR4A-B4	ULQCNI-0074
PG21.UBR.2.SD	P2BR2A-A1	
PG21.UBR.3.SD	P2BR3A-A1	URQCNI-0075
PG21.UBR.2.SD.RH	P2BR2A-B1	
PG21.UBR.3.SD.RH	P2BR3A-B1	n.a.
PG11.CBR.1.D2	P1CR1A-L3	
PG21.CBR.2.D4	P2CR2A-L3	ULQCNI-0081
PG13.PPS.2.SD	P3SR2A-A1	
PG13.PPS.3.SD	P3SR3A-A1	URQCNI-0080
PG13.PPS.2.SD.RH	P3SR2A-B1	
PG13.PPS.3.SD.RH	P3SR3A-B1	ULQCNI-0081
PG13.PPS.DC.2.SD	P3DR2A-A1	
PG13.PPS.DC.3.SD	P3DR3A-A1	URQCNI-0080
PG13.PPS.DC.2.SD.RH	P3DR2A-B1	
PG13.PPS.DC.3.SD.RH	P3DR3A-B1	

## 2 Installation

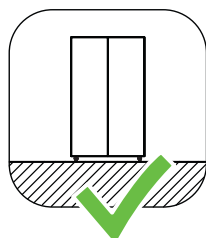
### Installation Guidelines

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



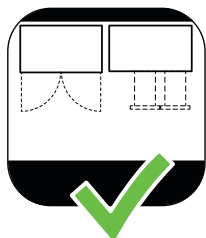
#### Ventilation

Ensure all ventilation requirements below are met.



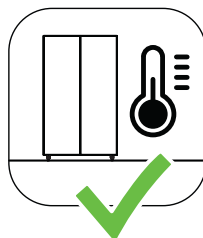
#### Surface

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



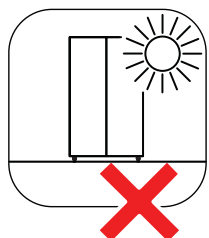
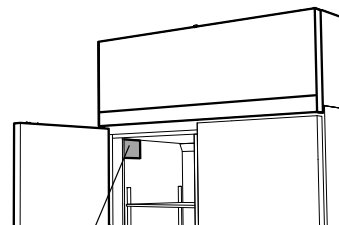
#### Door/Drawer Opening

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



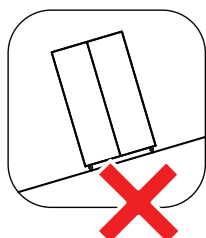
#### Climate Class

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



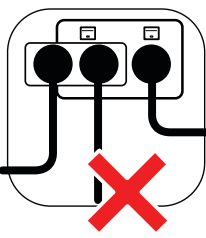
#### Sunlight

Do not install the cabinet in direct sunlight.



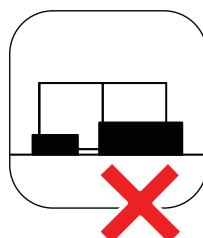
#### Uneven Surface

Do not install the cabinet on an uneven surface.



#### Power Supply

Do not overload the power supply.



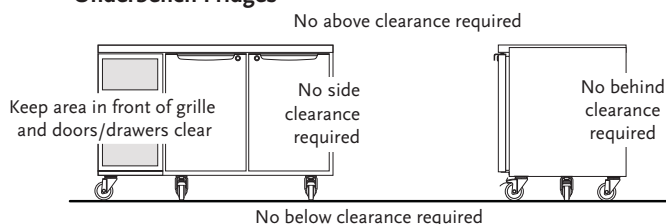
#### Blocking Ventilation

Do not store boxes or items in front of the cabinet.

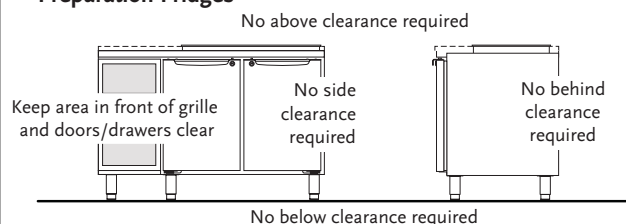
### Ventilation Requirements

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

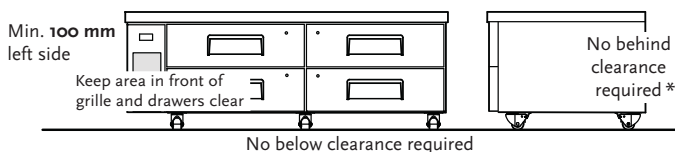
#### Underbench Fridges



#### Preparation Fridges



#### Chef Base Cabinets

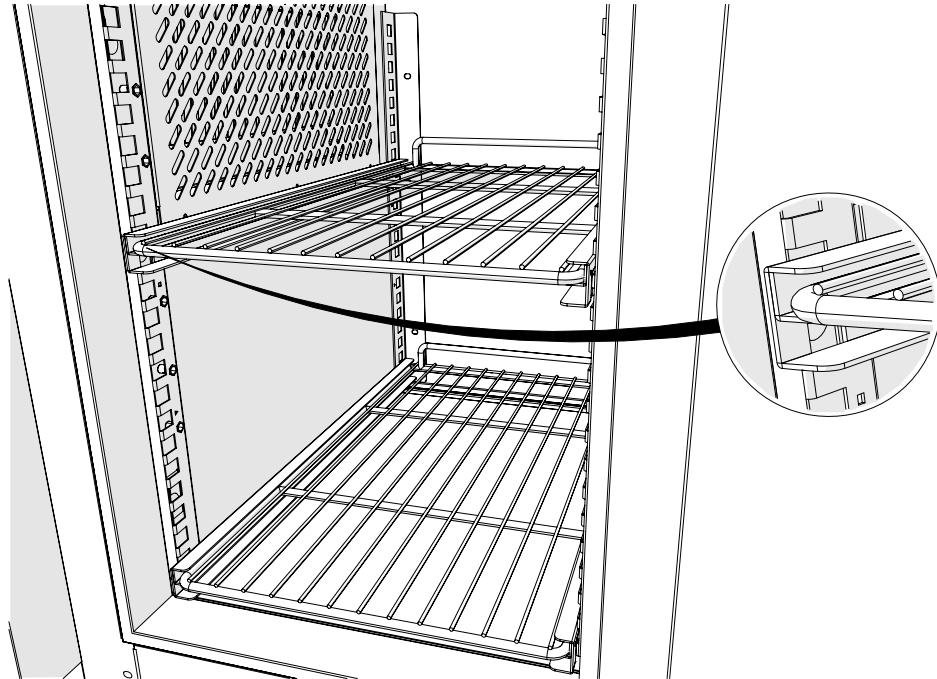


\* When installed for continuous duty in climate class 7 environment (35°C ambient/75% relative humidity), SKOPE recommends providing 50 mm clearance around the sides and back of the cabinet.

## Shelves (door cabinets only)

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Each shelf is held in place with two shelf runners, which clip into the shelf support strips.



## Cleaning Before First Use

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Clean and thoroughly sanitise the cabinet interior and food contact surfaces, such as the worktop, before first use.

- Disconnect the cabinet from the mains power supply before cleaning.
- Only use standard stainless steel cleaners suitable for food preparation areas.
- Where fitted, remove the drawers and drawer sliders when cleaning (see “Removing and Refitting Drawers” on page 17).
- Clean the outside of the cabinet as instructed in the Maintenance chapter of this service manual (see “Cabinet” on page 10).

## Power Cord

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Before final positioning of the cabinet, pull the power cord out and connect to the mains power supply.

## 3 Operation

### Electronic Controller

**Overview** The cabinet is fitted with an AoFrio SCS Connect electronic controller, which is located in the cartridge cover panel.

The electronic controller:

- regulates the cabinet's internal temperature.
- signals alarms.
- captures operational information.
- controls the lights, where fitted.

The internal temperature is set at the factory for the applicable cabinet type.

You can run the electronic controller's Service mode using the faceplate, but SKOPE strongly recommends using the SCS Connect Field app.

See [MAN80199 "SCS Connect Electronic Controller"](https://tinyurl.com/4n2dvury) (<https://tinyurl.com/4n2dvury>) for further details.

**Controller Parameters** Different controller parameter sets are used across different cabinet models. Ensure the controller is set up with the correct parameter set for the cabinet model.

**Table 2: Controller parameters**

Bays	Services location	GN size	Cabinet type	Bay type	Parameter
1	Removable cartridge	1/1	Underbench	Door	650
				Drawer	651
	Split system	1/1	Chef base	Drawer	658
2	Removable cartridge	1/1	Underbench	Door	652
				Drawer	653
	Removable cartridge	1/3	Preparation (drop-in collar)	Door	669
	Removable cartridge	1/3	Salad preparation (non-drop-in collar)	Door	669
	Removable cartridge	2/1	Underbench	Door	666
	Split system	2/1	Chef base	Drawer	659
3	Removable cartridge	1/1	Underbench	Door	654
				Drawer	655
	Removable cartridge	1/3	Preparation (drop-in collar)	Door	670
	Removable cartridge	1/3	Salad preparation (non-drop-in collar)	Door	670
	Removable cartridge	2/1	Underbench	Door	667
4	Removable cartridge	1/1	Underbench	Door	656
				Drawer	657



## Compressor

Removable cartridge and split system cabinets use an Embraco compressor which is located at the rear of the refrigeration cartridge compartment, behind the condenser. See Table 3 below for compressor specifications.

**Table 3: Fridge compressor specifications**

Gastronorm type	Cabinet type	Cartridge	Compressor
GN1/1	1- and 2-bay left hand underbench	ULKCNI-0062	EM2X3117U
	1- and 2-bay right hand underbench	URKCNI-0066	
	3- and 4-bay left hand underbench	ULKCNI-0063	EM2X3125U
	3- and 4-bay right hand underbench	URKCNI-0067	
GN2/1	2- and 3-bay left hand underbench	ULQCNI-0074	EMX3140U
	2- and 3-bay right hand underbench	URQCNI-0075	
GN1/1 and GN2/1	ChefBase	n.a.	EM2X3125U
GN1/3	Left hand preparation	ULQCNI-0081	EM2X3125U
	Right hand preparation	URQCNI-0080	

The compressor over-current protector is located inside the compressor electrics box.

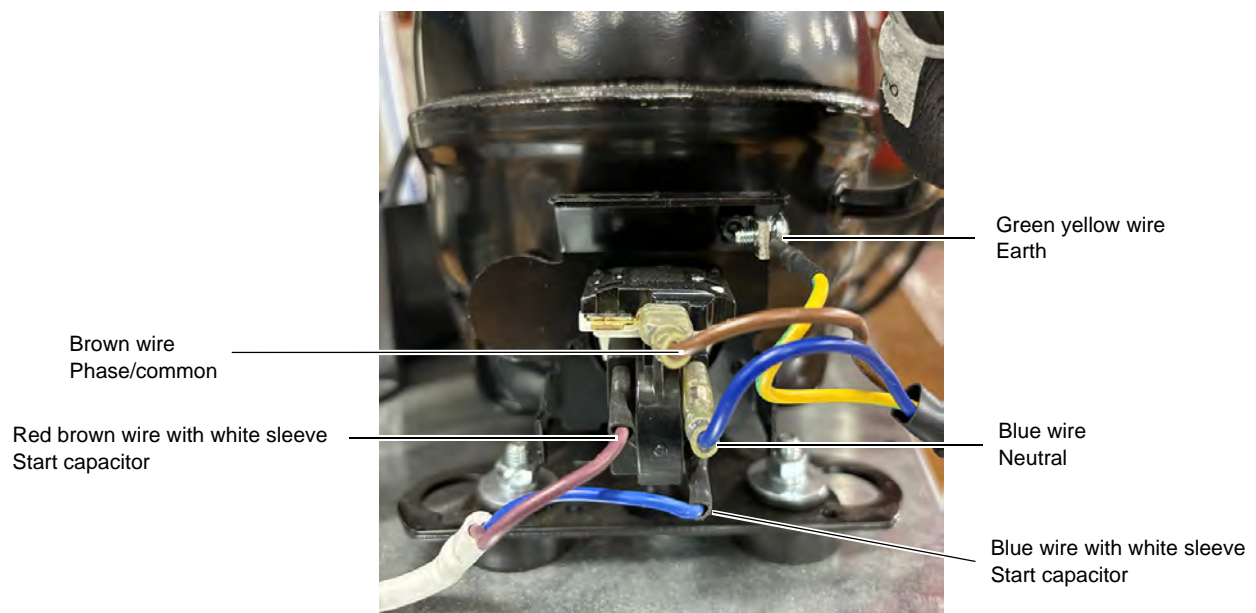
If the compressor is causing excessive noise, check the mountings to ensure there is no damage to the rubber or the washers, nuts and screws.

### IMPORTANT

To eliminate vibration noise, ensure that the condensate pipes are clamped onto base of the condensate tray.

It is important that the compressor discharge pipe is tightly clamped at the entry to the condensate tray or high frequency vibration may occur.

### Connections EM2X3117U and EM2X3125U



## EMX3140U



### Replacing the Compressor Before replacing the compressor

Check all plug connections and ensure the compressor electrics are operating correctly. The compressor must be supplied with consistent voltage 220 to 240 volts AC, 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).

#### When replacing the compressor

- If you replace a compressor, you should also replace the dryer.
- Do not leave the compressor or dryer open to air – the maximum time allowed is less than 20 minutes.
- Purge the pipes with oxygen-free nitrogen (OFN) at all times when brazing.
- To prove gas tightness, apply a high pressure drop of 1500 Kpa OFN (only) for not less than 12 hours.
- Evacuate to less than 10 Pa for more than 4 hours.
- Charge to  $\pm 1$  g of refrigerant charge on label.
- Braze process tubes closed – service valves must not be left on long term.
- Leak test the entire system as final check to confirm that no leaks are present.

## 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.

#### IMPORTANT

Do **not** use abrasive, corrosive or solvent-based cleaners, as they could damage the protective coating on the cabinet exterior.

**Condenser Coil and Filter** To ensure trouble-free performance, SKOPE strongly recommends the cleaning schedule in Table 4, which will depend on:

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

Table 4: Cleaning schedule

Timeframe	Performed by	Action
At least once a month	Owner	<b>Filter</b> Clean with a vacuum cleaner, and wash with cold water. <b>Condenser coil</b> 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	<b>Filter</b> Clean with a vacuum cleaner and wash with cold water. If necessary, discard the old filter and replace it. <b>Condenser coil</b> Comprehensive maintenance based on the condition of the coil, which may include: <ul style="list-style-type: none"> <li>• a nitrogen blow-out.</li> </ul> a PH-neutral chemical clean.

The condenser coil and air filter **must** be kept clean for efficient and reliable operation. Do **not** use hard or sharp tools to clean the coil as these may cause damage.

#### WARNING

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

The condenser coil and filter are behind the bottom louvred panel on the cartridge cover panel.

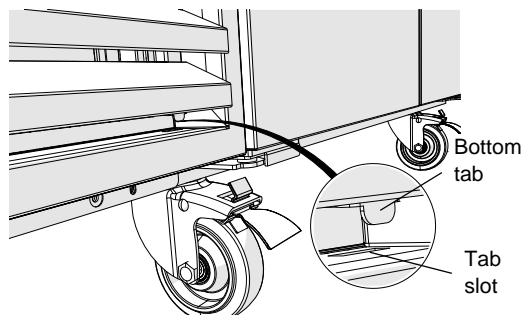


### Procedure 1: To clean the condenser coil and condenser filter

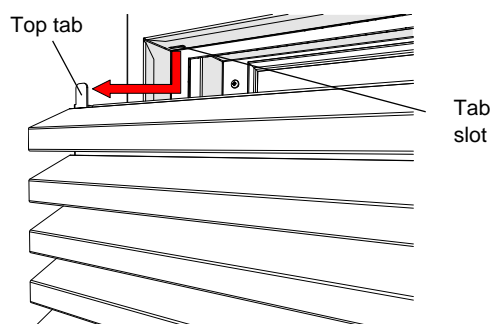
1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).

The filter is located behind the bottom louvred panel.

2. Slide the louvred panel up to allow the two tabs at the bottom to detach from the cartridge cover.

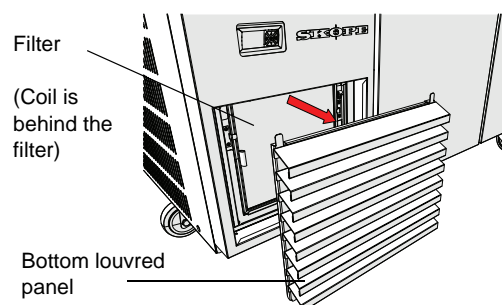


3. Slide the louvred panel back down to release the two tabs at the top.



4. Remove the bottom louvred panel from the cabinet.

5. Remove the filter.



6. Clean the filter with a vacuum cleaner, wash with cold water and shake off any excess water.
  - Do **not** apply hot water, blow-dry or place in a dishwasher.
  - If necessary, discard and refit a new filter.

7. Clean the condenser coil by brushing it with a soft brush to remove any dust and fluff.

8. Refit the condenser filter.

9. Refit the bottom louvred panel to the cartridge cover panel:
  - Insert the two tabs at the top into their slots.
  - Lift the base of the panel up and push gently forwards to slot the two tabs at the bottom of the panel into place.

**Drawers** Where fitted, remove drawers and drawer sliders for cleaning with a standard stainless steel cleaner suitable for food preparation areas. See “Removing and Refitting Drawers” on page 17.

## 4 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 2: 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 may be fitted with LED strip interior lights. Ensure the light is replaced with the same light type. Fluorescent or LED tubes cannot be used in place of LED strip lights.

**Note:** There are no interior lights in bays with drawers.

#### IMPORTANT

Replace the light with the same SKOPE OEM part.

**DO NOT** use alternative LED strip or tube lights, or fluorescent tubes.

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

- LED strip light/s
- Light driver power supply
- Interior lighting flex

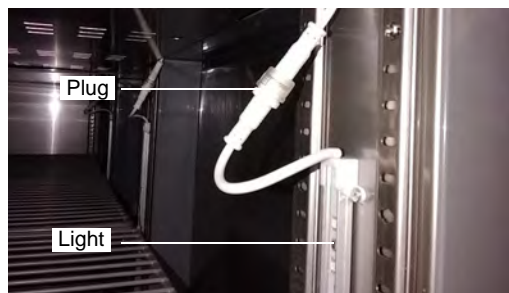
Lighting components are all non-serviceable items. If a component is faulty, remove it and replace it with a new SKOPE OEM component.

Refer to Table 19, "Cabinet and cartridge troubleshooting", on page 72 to determine which component is at fault, and the procedures over the next few pages for replacement instructions.

Ensure you disconnect the cabinet from the mains power supply before removing parts.

### Procedure 3: To replace an interior light component (door bays only)

1. Disconnect the cabinet from the mains power supply.
2. Remove the shelves from either side of the light.
3. Unplug the light.
4. Unscrew and replace the light.
5. Plug the light in and reassemble the shelves.
6. Reconnect the cabinet to the mains power supply and test for correct operation.



### Procedure 4: To replace the LED driver

1. Disconnect the cabinet from the mains power supply.
2. Remove the cartridge from the cabinet (see Procedure 14 on page 24).
3. Remove and open the electrics box:
  - Removable cartridge cabinets, see Procedure 19 on page 29.
  - Split system cabinets, see Procedure 20 on page 31.
4. Unplug, unscrew and replace the LED driver.
5. Reassemble the cabinet.
6. Reconnect the cabinet to the mains power supply and test for correct operation.

## Doors

**Adjust Door Alignment** If a door is out of alignment, realign it by loosening the top and/or bottom hinge bracket fixing screws, move the door as required, and re-tighten the hinge bracket screws.

**Door 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.

**Door Tension** The door is fitted with a torsion bar, which contains a spring, allowing the door to self-close. The torsion bar sits in the square cut-out of the bottom hinge, which sets the door closing position. The spring inside torsion bar provides loading force to keep door closed. When the door is open, the spring turns and the loading force will try to close the door.  
If door tension is lost, check that the torsion bar is installed correctly, and if necessary replace it (see Procedure 5 below).

## Removing and Refitting the Hinges and a Door

Each door is fitted with a top and bottom hinge and a torsion bar. The hinges and torsion bar are replaceable.

For ease of servicing, the door can be removed from the cabinet. You can remove the door and torsion bar leaving the bottom hinge attached to the cabinet.

To remove the bottom hinge you will need to remove the door.

### Procedure 5: To remove the hinges and a door

#### Before you start

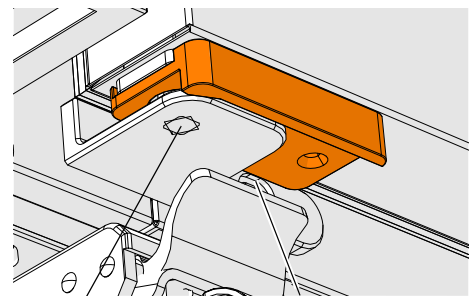
- Note that the door is under tension, with a torsion bar. It also has a “stay open” feature at 110°, where it will sit without closing which is when it is at the greatest amount of tension. It is under the least amount of tension when it is closed.
- You will need a set of Allen keys.

1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).

#### Caution

Do not put your finger between the bottom hinge and door panel, because the loading force of the torsion bar will clamp your finger there.

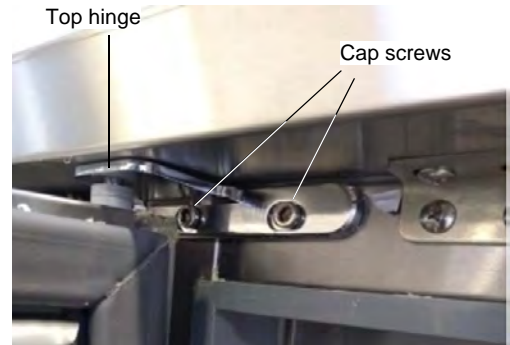
2. Using an Allen key, remove the bottom cap screw and washer from the base of the bottom hinge.



Bottom cap screw and washer

Position between bottom hinge and door panel

3. Open the door to gain access to the top hinge's cap screws.
  - Hold the door with one hand and loosen the cap screws.
  - Remove the top hinge.



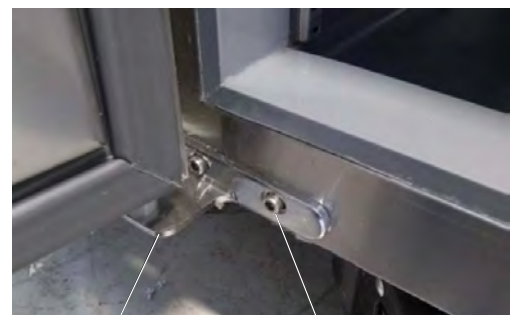
#### Important

4. Close the door as much as possible to reduce the tension.

5. Keeping the door as closed as possible:
  - Carefully lift the door up and off the bottom hinge.
  - Leave the bottom hinge attached to the cabinet.

Tension will be reduced when the door is removed from the bottom hinge if it is nearly closed.

6. If required, undo the remaining cap screws and remove the bottom hinge from the cabinet.



Bottom hinge

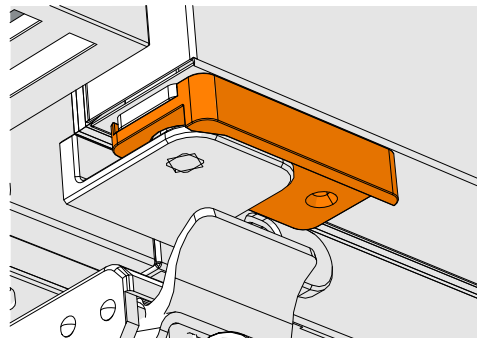
Cap screw



### Procedure 6: To refit a door

1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).

2. If necessary, refit the torsion bar, door stopper, and top and bottom hinges to the door. Ensure that the bottom hinge is fitted in the closed position so that the door can self-close correctly.



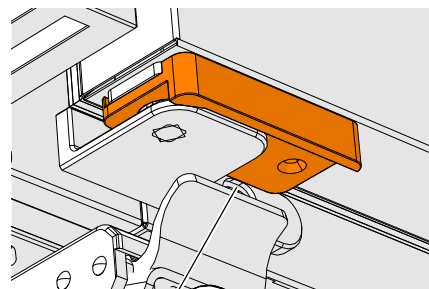
3. Ensure that you have the door stopper and all bushes and washers.

- Bush at the top of the door: 1 x screw
- Top hinge: 3 x screws
- Bottom hinge: 3 x screws
- Door stopper and bottom hinge: 1 x screw with washer
- Door stopper, torsion bar, and door: 2 x screws<sup>3</sup>
- Washers: number will vary

#### Caution

Do not put your finger between the bottom hinge and door panel, because the loading force of the torsion bar will clamp your finger there.

4. Refit the door to the cabinet including replacing all bushes and washers.



Position between bottom hinge and door panel

5. Check that the door gasket is fitted correctly and forms a complete seal with the cabinet when the door is closed. If necessary, see "Door Gasket" on page 14.



## Drawers

**Adjust Drawer Alignment** If a lock is preventing a drawer from closing properly, you can slightly adjust the drawer front both horizontally and vertically.

### Procedure 7: To adjust a drawer front horizontally or vertically

1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).

2. Loosen the screws behind the drawer's front panel.

Screws



3. Adjust the drawer as required, then re-tighten the screws.

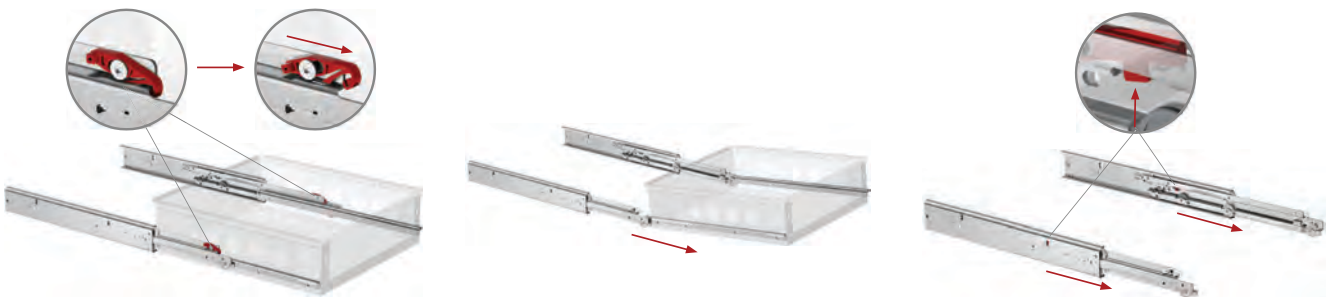
4. Reconnect the cabinet to the mains power supply and test for correct operation.

**Drawer Gasket** The one-piece drawer gasket clips into the drawer frame and runs around the perimeter of the drawer. Remove the gasket by peeling it from the drawer 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 Drawers** Pull the drawer out of the cabinet, release the latches at the side of drawer as shown below, and lift the drawer out at an angle. Remove the drawer slider by releasing the side catches as shown.

Reverse the procedure to refit drawers in the cabinet after cleaning.



## Locks

Each door or drawer is fitted with a key lock. The lock bolt can be removed and replaced. The lock is foamed into the door or drawer and cannot be removed.

### Procedure 8: To replace a lock bolt

1. Unlock and open the door or drawer.

2. Use a slotted screwdriver to remove and refit the lock bolt to the lock mechanism inside the door or drawer.



## Mounting

### Castors and Legs

The cabinet is supplied fitted with swivel castors (all cabinets) or legs (salad preparation and drop-in collar cabinets). The front castors are lockable, the rear castors are free. The castors can be replaced if necessary, or removed for plinth mounting or fitting the height-adjustable legs.

**Note:** If fitting the castors, attach the lockable castors to the front of the cabinet, and the non-locking castors to the rear.

### Procedure 9: To remove the castors

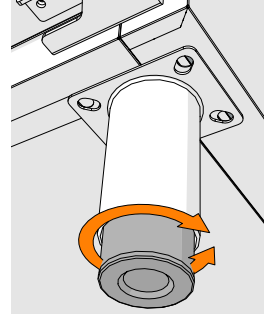
1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).
2. Raise the cabinet off the ground.

3. Unbolt the castors from the bottom of the cabinet.



#### Procedure 10: To fit the adjustable height legs

1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).
2. Raise the cabinet off the ground.
3. Fit the supplied legs into the castor mounting holes.
4. Turn the black plastic foot at the bottom of the leg anti-clockwise to raise the height.
5. Turn the black plastic foot at the bottom of the leg clockwise to lower the height.



**Plinth** The underside of the cabinet is completely flat for plinth mounting.



## Lids (preparation cabinets only)

The preparation cabinets are fitted with 100 mm deep GN1/3 stainless steel pans and sliding lids. The sliding lids are acrylic and can be cleaned in a dishwasher. The two-door cabinets have two sliding lids, and the three-door cabinets have three sliding lids.

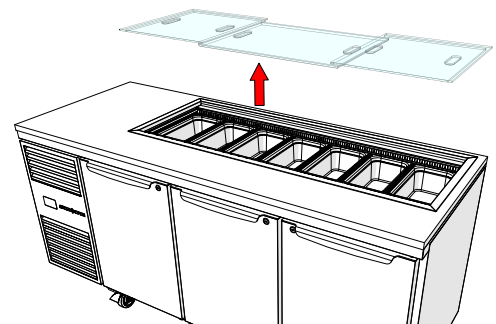
These components can be easily removed for cleaning or to fit a replacement part.

#### Procedure 11: To remove and replace a sliding lid from a drop-in collar and salad preparation cabinet

##### Before you start

There are three different lids to fit the different locations. Note each lid's position to replace it correctly.

1. To remove a lid, lift it from the well.



2. To replace a lid, put it back in the correct position, with the finger slots facing upwards.

## 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

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### Refrigeration Cartridge Assembly Removable cartridges

The SKOPE ProSpec refrigeration system for removable cartridge cabinets is an end-mounted, removable refrigeration cartridge.

For servicing or transportation, you can unplug and remove the refrigeration cartridge from the cabinet. Some minor servicing can be performed without removing the refrigeration cartridge.

### Split systems

Unlike other SKOPE cabinets, the ChefBase refrigeration system is integrated into the cabinet and can not be easily removed.

The condensing unit can be easily accessed for servicing by removing the side panels.

The evaporator can only be removed safely by de-gassing the entire unit, detaching the entire benchtop, and cutting or detaching the suction line.

If R290 repair is required, the complete cabinet must be removed and repaired in a workshop suitable for "Off-site Work".

### Removable cartridges and split systems

The cartridge must only be used on a SKOPE hydrocarbon-compliant cabinet. Refer to the cabinet rating label to see if the cabinet is suitable to 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.

Depending on the cabinet specification, the refrigeration cartridge is on the left or right hand side. The cartridge is end-specific and cannot be reversed.

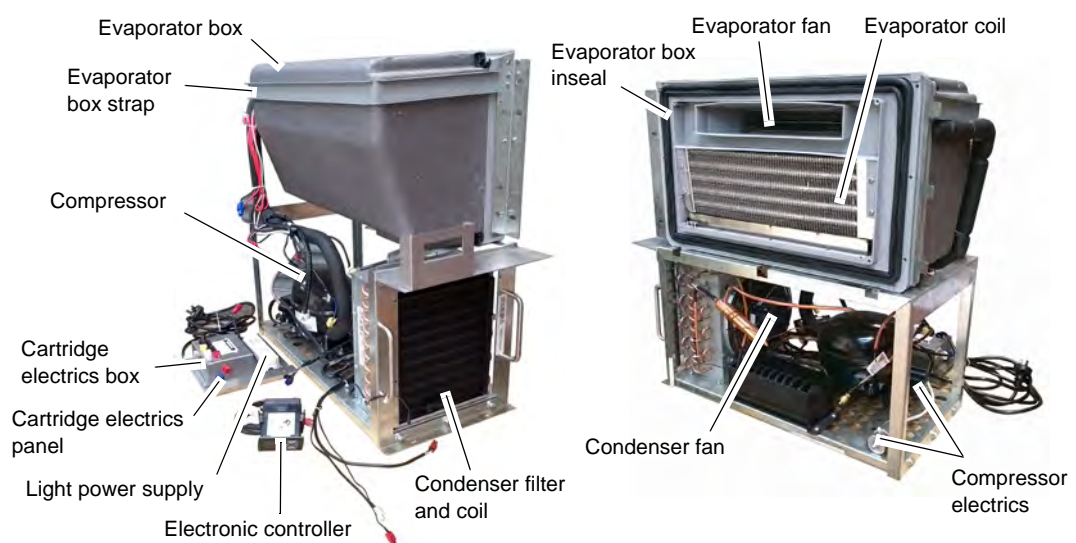
The electronic controller and electrics box (including the LED light driver power supply) are matched to the cabinet, and must be left with the cabinet when exchanging the cartridge or components. Replacement spare part cartridges are not supplied with a controller or electrics box.

For safety and compliance, only repair the cartridge with SKOPE-supplied parts made specifically for this cabinet. Other parts may appear to be suitable, but may not be approved or safe for use in this fridge.

Verify the model and basic requirements before servicing.

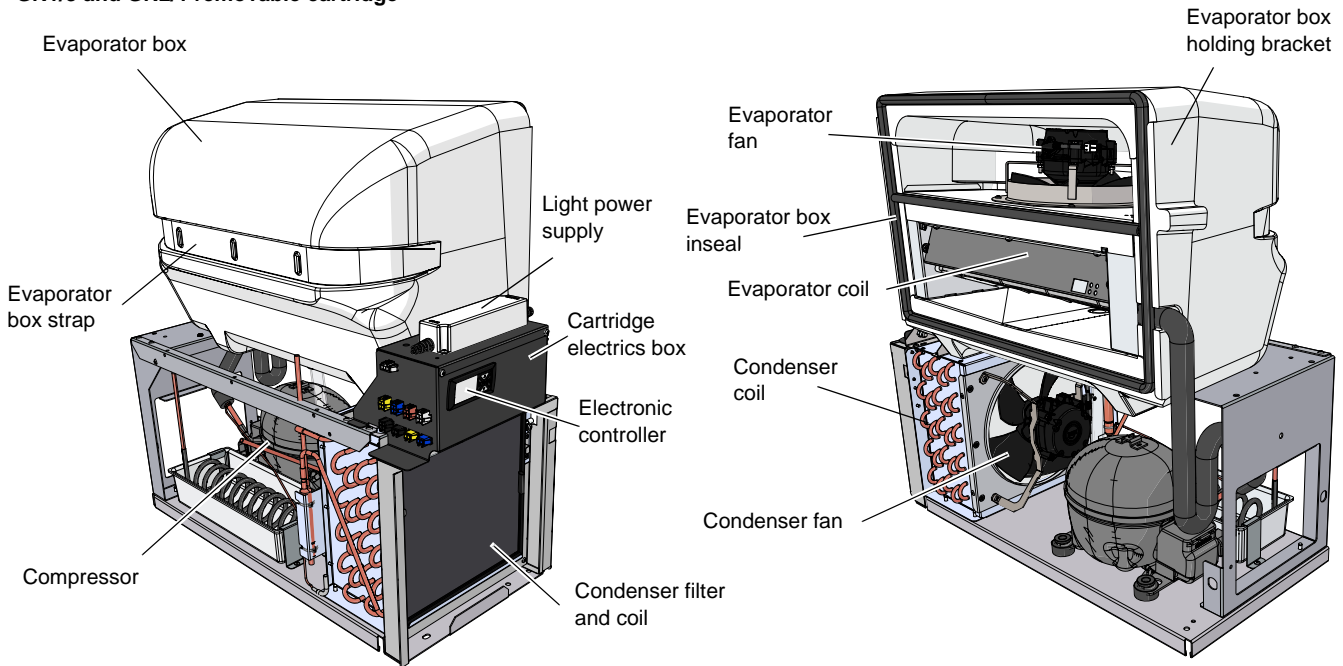
The model and serial number are both printed on the cartridge rating label attached to the front of the cartridge. Before ordering spare parts, take note of the model and serial numbers.

### GN1/1 removable cartridge





### GN1/3 and GN2/1 removable cartridge



**Cartridge Cover Panel** You can access the cartridge and the cartridge side panel by removing the cartridge cover panel.

#### Procedure 12: To remove the cartridge cover panel

##### Before you start

- You will need a Phillips head screwdriver.
- The cartridge cover panel connections include:
  - Top: 2 x tabs connecting into 2 x slots in the bottom of the benchtop
  - Bottom: 2 x Phillips head screws and 1 x flange

1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).
2. Undo the 2 x screws at the bottom of the cartridge cover panel.
3. Detach the flange by gently pulling the panel outwards from the base.
4. Slide the panel down to remove the tabs from the slots in the base of the benchtop.



## Cartridge Side Panel

You can remove and replace the side panel on the cartridge end of the cabinet.

### Procedure 13: To replace the cartridge side panel

1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).
2. Remove the cartridge cover panel (see Procedure 12 above).
3. Unscrew and remove the side panel.
  - Underbench cabinets:
    - 3 x screws at the back of the cabinet.
    - 4 x screws at the side of the cabinet.
  - ChefBase cabinets: 8 x screws at the side (none at the back)
4. Fit the replacement side panel.
5. Refit the cartridge cover panel.
6. Reconnect the cabinet to the mains power supply and check for correct operation.

## Removing the Cartridge (removable cartridge cabinets only)

**Note:** The electronic controller and electrics box (including the LED light driver power supply) are matched to the cabinet, and must be left with the cabinet when replacing the cartridge. Replacement spare part cartridges are not supplied with a controller or electrics box. Follow Procedure 14 below to remove the refrigeration cartridge from the cabinet. Ensure the cabinet is disconnected from the mains power supply before removing the cartridge.

### Procedure 14: 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 45 when making the service visit.
- You will need a:
  - Phillips head screwdriver
  - set of Allen keys

1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).
2. Cut the cable tie at the back of the cabinet to release the power cord.
3. Remove the cartridge cover panel (see Procedure 12 on page 23).
4. Unscrew the cartridge (Allen key):
  - 2 x screws at the bottom of the cartridge
  - 4 x screws on the evaporator box holding bracket
5. Partially slide the cartridge out.
  - Use the handles at the front of the cartridge, and take care of loose plugs, cables and the evaporator box inseal when sliding the cartridge.
  - Release the electrical cables on the side panel end of the cartridge by cutting the cable ties securing the cables.
6. Photograph the wiring setup for reference when refitting the cartridge.



**Procedure 14: To remove the refrigeration cartridge (continued)**

7. Unplug the cartridge from the cabinet:
  - Black 3-way plugs (heater wire cartridge sockets).
  - White 2-way plug (door sensor socket/plug)
  - Red 2-way plug (cabinet lighting plugs)
  - White 6-way plug (cartridge junction box to controller signal socket/plug)
  - Black 4-way plug (cartridge to controller power socket)
  - Orange 4-way plug (cartridge to controller power socket 1)
  - Green 4-way plug (LED lighting loom socket/plug)
8. Remove the cartridge from the cabinet.
9. If you are replacing the cartridge:
  - Detach the electrics box (see Procedure 19 on page 29).
  - Remove the electronic controller (see Procedure 27 on page 39).
10. Reverse the steps above to refit the cartridge. When refitting, ensure that:
  - the evaporator box in seal is in good condition.
  - wires and cables are clear of the cartridge when moving it.
  - all plugs and cables are re-connected to the correct socket and cable-tied back into place.
  - the cartridge is pushed fully in the cabinet and screwed back in place.  
Make sure you clip the tabs on the back of the cartridge into the slots at the back of the cabinet.
  - the cartridge cover panel is refitted to the cabinet.

**Diagnosing a  
Sealed System  
Fault  
(removable  
cartridge  
cabinets only)**

The following test (Procedure 15) is useful to do in a hydrocarbon-compliant workshop (see “Off-site Work” on page 21) to work out if an removable refrigeration system is short of gas. Always perform it 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, and applies to the cartridges listed in Table 5.

**Table 5: Applicable cartridges**

GN1/1	GN1/3	GN2/1
ULKCN1-0062	ULQCN1-0081	ULQCN1-0074
ULKCN1-0063	URQCN1-0080	ULQCN1-0075
URKCN1-0066		
URKCN1-0067		

**Procedure 15: To diagnose a sealed system fault in a removable cartridge****Before you start**

- Perform this test in either of:
  - a space set up as a hazardous area.
  - a hydrocarbon-compliant workshop (see “Off-site Work” on page 21).
- The cartridge may be fitted on the cabinet or sitting on a workbench.

1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).
2. If necessary, remove the refrigeration cartridge (see Procedure 14 above), including the controller and interior lighting flex, and place it on your workbench.

**Procedure 15: To diagnose a sealed system fault in a removable cartridge (continued)**

3. Unplug the evaporator fan motor (white 4-pin plug) from the interior lighting flex.
4. Install the door switch jumper (white 2-pin plug) into the wire harness.
5. Remove the evaporator box cover and install a blocker to prevent the condenser airflow affecting the evaporator coil.
6. Connect the refrigeration cartridge to the mains power supply and allow to run for approximately 8 minutes until the evaporator temperature stabilises.
7. Determine if the system charge is correct at typical ambient conditions around 25°C for a cartridge running on a bench. Generally, in a system with the correct refrigerant charge:
  - the entire evaporator coil and its tubes are hard frozen.
  - the suction pipe will frost back to the compressor. There should be light ice on the pipe, but no ice forming on the compressor shell.
8. Determine whether the system is short of refrigerant, or has a blocked capillary or compressor fault.
  - A dry suction could indicate shortness of gas, a blocked capillary, or a compressor fault, and further analysis may be required.
  - If there is no frost present at the evaporator coil inlet pipe, complete refrigerant loss or a blocked capillary is likely.
9. If possible, diagnose and repair the fault.
10. Reassemble the refrigeration system and test run.

**Checking  
Refrigerant  
Charge (split  
system  
cabinets only)**

Use the following frost-back test to check if the system is correctly charged with refrigerant.

**Procedure 16: To check a split system refrigerant change**

1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).
2. Unplug the evaporator fan motor (white 4-pin plug) from the cartridge electrics box.
3. Connect the cabinet back to the power supply.
4. Check to see if the suction pipe at the compressor becomes cold and starts to frost up. If it does, the cartridge is correctly charged with refrigerant.

**Defrost Cycle**

See Table 6 below for cabinet defrost types. Defrost parameters vary depending on product type, and can be reviewed in the SCS Connect Field app.

**Table 6: Defrost cycle**

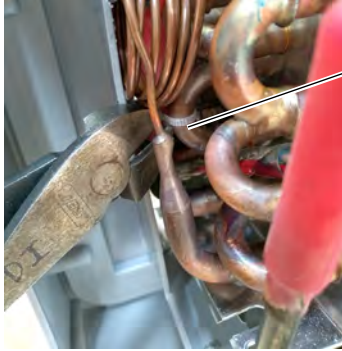
Type	Cabinet type	Defrost type
Removable cartridge	Underbench	Electric
	Preparation	Off-cycle
Split system	Chef base	Off-cycle

**Defrost GN1/1 and GN2/1 removable cartridge cabinets**

**Element** The cartridge is fitted with a defrost element which you can replace if necessary.

**(removable cartridge cabinets only)**

- GN1/1 cabinets: The element is located within the evaporator assembly, below the evaporator coil.
- GN2/1 cabinets: The element is clipped to the evaporator coil pipes through the fins of the evaporator coil.



**GN1/1 removable cartridge**

Defrost element



**GN2/1 removable cartridge**

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**Procedure 17: To replace the defrost element (GN1/1 and GN2/1 removable cartridge cabinets)**

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**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 45 when making the service visit.
- You will need a non-sparking brushless drill.
- Make sure you note the original defrost element cable’s path, e.g. via a photo.

- 
1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).
- 

*GN1/1 removable cartridge cabinets*

2. Remove the cartridge from the cabinet (see Procedure 14 on page 24).

*GN2/1 removable cartridge cabinets*

2. Remove the cartridge cover panel (see Procedure 12 on page 23).

- 
3. Remove the evaporator fan assembly (see the relevant procedure in “Evaporator Fan Assembly” on page 34).
- 

*GN1/1 removable cartridge cabinets*

4. Carefully cut the cable ties to release the defrost element from the evaporator coil and pipes.
- 

*All cabinets*

5. Trace the cable back to the cartridge electrics box, cutting cable ties as required.
- 

6. Remove the element(s).

- GN1/1 removable cartridge cabinets:
    - Drill out the rivets securing the element tray using a non-sparking brushless drill.
    - Gently remove the element tray from the evaporator coil feet, and carefully move the faulty element out from under the coil.
  - GN2/1 removable cartridge cabinets: remove the clips to release the defrost element.
- 

7. Install the replacement element(s).
- 

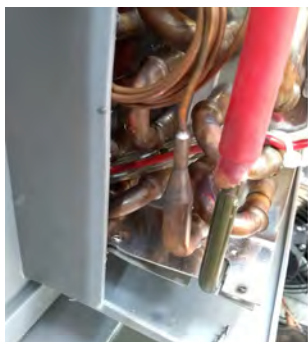
8. Position the element cable(s) along the same path as the original cable(s), and secure with cable ties as necessary.
- 

9. Reassemble the cabinet and test for correct operation.
- 
-

**Defrost GN1/1 and GN2/1 removable cartridge cabinets only**

**Element Fuses** The defrost element is fitted with two thermal fuses (one at each end of the evaporator coil). If a fuse fails, you must diagnose the reason it failed. See “Failed thermal fuse” on page 73.

If the evaporator probe fails, the defrost element thermal fuse may activate due to prolonged defrosting. Because of this, if you replace the evaporator probe, you must check the resistance of the thermal fuses, and replace them if necessary.




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**Procedure 18: To check the resistance of a thermal fuse (GN1/1 and GN2/1 removable cartridge cabinets only)**


---

**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 45 when making the service visit.

- 
1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).
  2. Remove the cartridge cover panel (see Procedure 12 on page 23).
  3. Unplug the defrost element plug from the top of the electrics box (yellow 4-way).
  4. Use a multimeter to check for resistance across the defrost element plug connections.
  5. If there is an open circuit, replace the fuse.
  6. Test and tag, as per usual procedure.
  7. Reassemble the cabinet and check for correct operation.
- 

**Cartridge Split system cabinets**

**Electrics Box (removable cartridge cabinets only)** Split system cabinets do not have a cartridge electrics box. See “Cabinet Electrics Box (split system cabinets only)” on page 30 for further details.

**Removable cartridge cabinets**

The electronic controller and electrics box (including the LED light driver power supply) are matched to the cabinet, and must be left with the cabinet when servicing or replacing the cartridge. Replacement spare part cartridges are not supplied with a controller or electrics box.

The cartridge electrics box assembly contains the:

- LED light driver power supply
- EMI filter
- panel mount socket connectors for the cartridge and cabinet

Due to the confined space within the cartridge electrics box, plugs may come loose as a result of movement and vibrations during servicing. When refitting the electrics box, take care that all plugs are securely attached to the correct sockets.



GN1/1 underbench cartridge electrics box



Left hand side (looking at the controller)



Right hand side (looking at the controller)

GN1/3 preparation cartridge and GN2/1 underbench electrics box

#### Procedure 19: To remove and open the cartridge electrics box – removable cartridge cabinets

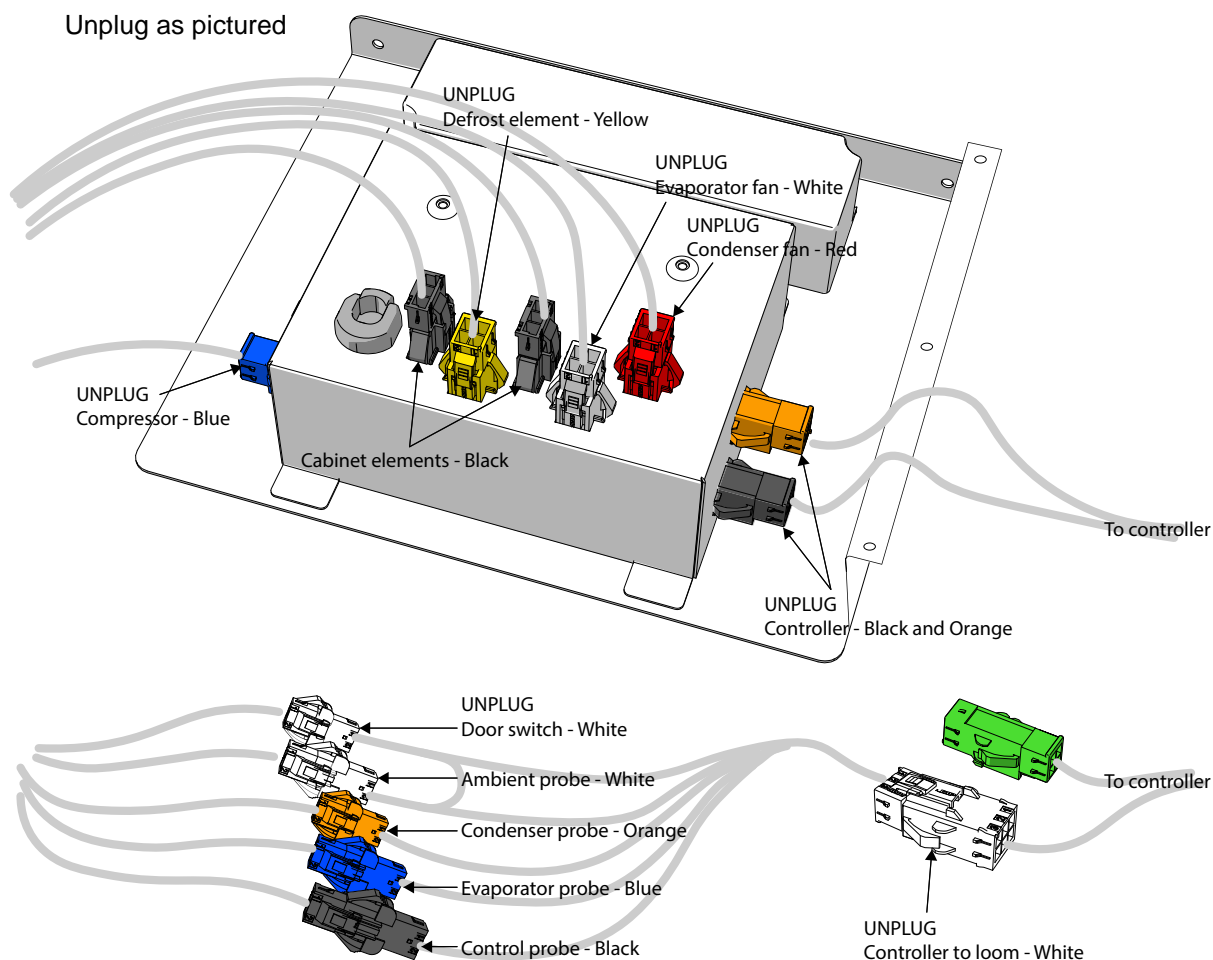
##### Before you start

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 45 when making the service visit.

1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).
2. Remove the cartridge from the cabinet (see Procedure 14 on page 24).
3. Unplug the LED driver and controller plugs.
4. Undo the 5 x screws and remove the electrics box from the cartridge.
5. To open the electrics box, undo the 4 x screws and remove the lid.

## Cabinet Electrics box and loom electrical connections

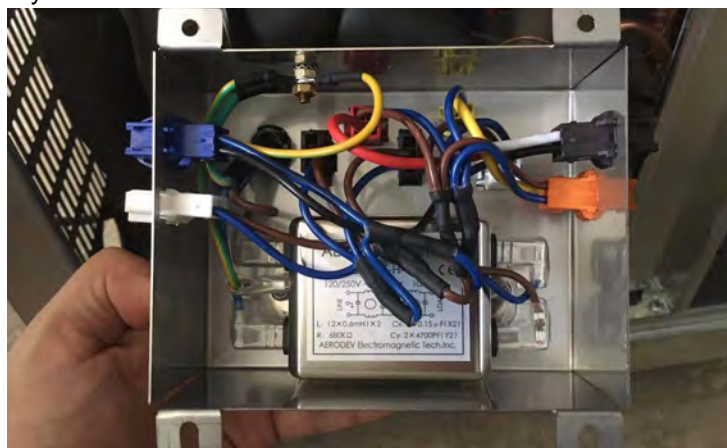
**Electrics Box (split system cabinets only)** Due to the use of limited colour connectors, 2 x red 4-way and 2 x yellow 4-way connectors have been used. **Always** check that you have joined the connections correctly, or operational faults may occur.



The electrics box is matched to the cabinet, and must be left with the cabinet when servicing the refrigeration cartridge.

The electrics box assembly contains the EMI filter and panel mount socket connectors for the integrated cartridge and cabinet.

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





**Procedure 20: To remove and open the cabinet electrics box – split system cabinets only**

**Before you start**

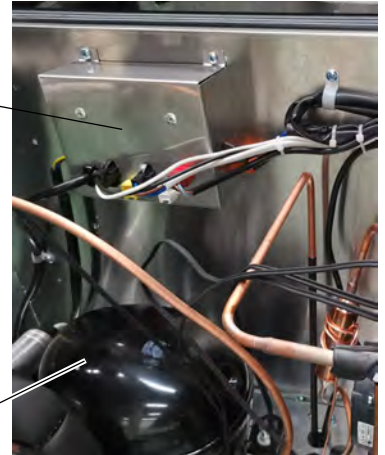
If a customer reports a “not cooling” fault, and it has been established that the cabinet is not cooling, follow the “On-site Work Procedure” on page 45 when making the service visit.

1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).
2. Remove the cartridge side panel (see Procedure 13 on page 24) to allow access to the cabinet electrics box.

3. Undo the 4 x screws, and lift the electrics box off the side panel you have removed.

Cabinet electrics box

Compressor



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



GN1/1 and GN2/1 removable cartridge and split system



GN1/3 cartridge

**IMPORTANT**

Replace the motor with the same SKOPE OEM part.

**DO NOT** use alternative parts.

If the fan stops, check all connections to ensure that no plugs have come loose.

It is important to replace the fan blade and fan motor with the same part to ensure safety, correct alignment and refrigeration performance, and compliance. Tighten the fan blade screw to the manufacturer’s recommended torque settings of 1.4 Nm.

**Procedure 21: 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 45 when making the service visit.
- Make sure you take note of the original condenser fan motor cable’s path, e.g. a photo.

1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).

<i>Cabinets with removable cartridges</i>	<i>Split system cabinets</i>
2. Remove the cartridge from the cabinet (see Procedure 14 on page 24).	2. Remove the cartridge cover panel (see Procedure 12 on page 23).
3. Remove the cartridge electrics box (see Procedure 13 on page 24).	3.1 Remove the cartridge’s side panel (see Procedure 13 on page 24). 3.2 Remove the vertical frame in the middle of the side of the cartridge compartment by unscrewing the 2 × screws on the top and 2 × screws on the bottom.
4. Unplug the condenser fan motor plug from the electrics box.	
5. Take note of the cable routing, then cut the cable ties holding the condenser fan motor cable along the cartridge, and free up the cable.	
6. Unscrew the condenser fan assembly from the condenser coil, and remove the assembly (fan motor, fan blade, and fan mounting bracket and guard) from the cartridge by lifting the guard up and out.	

**Procedure 22: To replace the condenser fan blade (removable cartridge and split system cabinets)****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 45 when making the service visit.
- Make sure you take note of the original condenser fan motor cable’s path, e.g. a photo.

1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).

2. Remove the condenser fan assembly (see Procedure 21 above).

3. Remove the screw and washer from the centre of the condenser fan blade, and lift the blade from the motor.

4. Replace it with the new blade and fix with the 12 mm flat washer and serrated head screw. Tighten the screw to the manufacturer’s recommended torque setting of 1.4 Nm.

5. Refit the condenser fan assembly to the cartridge.

6. Plug the condenser fan motor cable back into the cartridge electrics box.

7. Following the cable’s original path, secure the condenser fan motor cable with cable ties as necessary.

8. Reassemble the cabinet and test for correct operation.



**Procedure 23: To replace the condenser fan motor (removable cartridge and split system cabinets)****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 45 when making the service visit.
- Make sure you take note of the original condenser fan motor cable’s path, e.g. a photo.

1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).
2. Follow Procedure 21 on page 32 and Procedure 22 above to remove the condenser fan assembly and blade.
3. Detach the condenser fan motor from the fan mounting bracket and guard by removing the 4 x screws from the mounting bracket.
4. Fit the new condenser fan motor and reattach the fan blade with the 12 mm flat washer and serrated head screw. Tighten the screw to the manufacturer’s recommended torque setting of 1.4 Nm.
5. Refit the condenser fan assembly to the cartridge.
6. Plug in the new condenser fan motor cable:.
  - Removable cartridge cabinets: into cartridge electrics box.
  - Split system cabinets: into the cabinet electrics box.
7. Following the same path as the original cable, secure the new condenser fan motor cable with cable ties as necessary.
8. Reassemble the cabinet and test for correct operation.

**Evaporator****Split system cabinets**

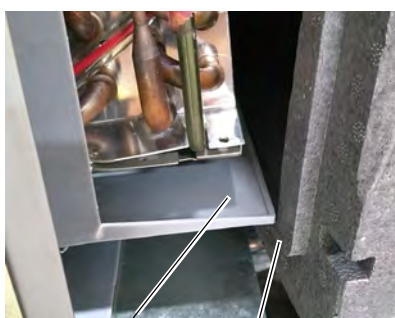
The evaporator can only be removed safely by degassing the entire unit, detaching the entire benchtop, and cutting or detaching the suction line. Split system cabinets do not have an evaporator box.

**Evaporator Box (removable cartridge cabinets only)**

The evaporator box is screwed to the evaporator assembly frame via plastic corner brackets, and is supported by a metal strap which wraps around the box and also screws onto the evaporator assembly.

When refitting the box, align the bottom first and work upwards. Take care with the plastic drain tray which could damage the box if misaligned.

Only remove the evaporator box if it is strictly necessary, not for routine maintenance.



Plastic drain tray

Bottom of the evaporator box



Plastic corner bracket

**Evaporator Fan Assembly** The evaporator fan assembly differs depending on the cabinet (see Table 7 below for specifications). It can be replaced if necessary.

If the fan stops, check all connections to ensure no plugs have come loose.

**Table 7: Evaporator fan assembly**

Type	Size	Fan	Motor	Defrost element	Coil	Shroud
Removable	GN1/1	✓	✓	✓	✓	–
	GN2/1	✓	✓	✓	✓	✓
	GN1/3	✓	✓	–	✓	✓
Split system	–	✓	✓	–	✓	–

### IMPORTANT

Replace the motor with the same SKOPE OEM part.

**DO NOT** use alternative parts.

It is important that you replace the evaporator fan assembly with the same part to ensure safety, correct alignment and refrigeration performance, and compliance.

### Removable cartridge cabinets

- GN1/1 cabinets: The assembly is fixed to the evaporator frame with screws and metal bars. To remove it, follow Procedure 24 on page 34.
- GN1/3 cabinets: The assembly is fixed to the evaporator coil. To remove it, follow Procedure 25 on page 35.
- GN2/1 cabinets: The assembly is fixed to a panel on the front of the evaporator coil. To remove it, follow Procedure 25 on page 35.

### Split system cabinets

The evaporator fan assembly is inside the cabinet. To remove it, follow Procedure 26 on page 36.

### GN1/1 removable cartridge cabinets

#### Procedure 24: To replace the evaporator fan assembly (GN1/1 removable cartridge cabinet)

##### 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 45 when making the service visit.
- Make sure you take note of the original evaporator fan motor cable’s path, e.g. a photo.

1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).
2. Remove the cartridge from the cabinet (see Procedure 14 on page 24).

3. Unscrew and remove the evaporator box strap (2 x screws at each end of the strap).



**Procedure 24: To replace the evaporator fan assembly (GN1/1 removable cartridge cabinet)**

4. Unscrew and gently remove the evaporator box (4 x screws, 1 at each corner) from the evaporator frame.



5. Remove the evaporator box from the cartridge.

6. Unplug the evaporator fan motor plug from the cartridge electrics box.

7. Take note of the cable routing, then cut the cable ties holding the evaporator fan motor cable along the cartridge.

8. Undo the 6 x screws on top of the evaporator fan assembly and remove it, along with the metal bars.



9. Fit the new evaporator fan assembly, making sure that you reattach the metal bars on the top of the assembly to the evaporator frame.

10. Refit the box.

11. Plug the new evaporator fan motor cable into the cartridge electrics box.

12. Following the same path as the original cable, secure the evaporator fan motor cable with cable ties as necessary.

13. Reassemble the cabinet and test for correct operation.

**GN1/3 and GN2/1 removable cartridge cabinets****Procedure 25: To replace the evaporator fan assembly (GN1/3 and GN2/1 removable cartridge cabinet)****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 45 when making the service visit.
- Make sure you take note of the original evaporator fan motor cable's path, e.g. a photo.

1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).
2. Remove the cartridge from the cabinet (see Procedure 14 on page 24).

3. Unplug white 4-way connector behind the evaporator box.



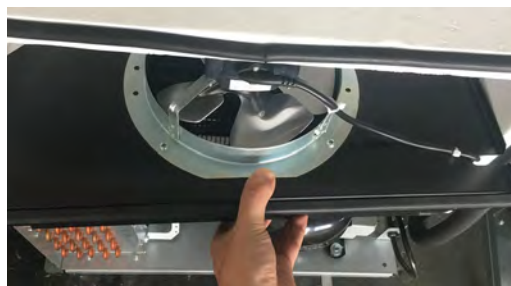
**Procedure 25: To replace the evaporator fan assembly (GN1/3 and GN2/1 removable cartridge cabinet)  
(continued)**

4. Undo the screws.
  - GN1/3: 2 x screws on the front of the coil.
  - GN2/1: 3 x screws on the bottom of the panel in front of the coil



GN1/3

5. Remove the evaporator fan assembly from the evaporator box.



GN1/3

6. Take note of the route, and cut cable ties holding the fan motor cable.
7. Fit the new evaporator fan assembly to the panel in front of the coil.
8. Plug the new evaporator fan motor cable into the cartridge electrics box.
9. Following the same path as the original cable, secure the evaporator fan motor cable with cable ties as necessary.
10. Reassemble the cabinet and test for correct operation.

### Split system cabinets

**Procedure 26: To access and replace the evaporator fan assembly (split system cabinets)**

**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 43 when making the service visit.
- Make sure you take note of the original evaporator fan motor cable's path, e.g. a photo.

1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).
2. Remove the cartridge compartment's side panel (see Procedure 13 on page 24).
3. Unscrew the top 2 x bolts on the vertical frame in the middle of the side of the cartridge compartment.

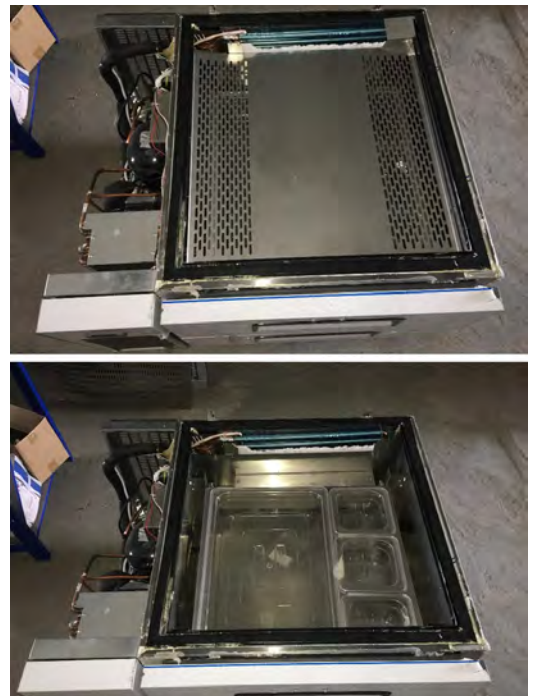
**Procedure 26: To access and replace the evaporator fan assembly (split system cabinets) (continued)**

4. Unscrew all the benchtop mounting screws on the front and rear of the cabinet, then remove the benchtop.



5. Unscrew the duct mounting screws and remove the duct.

- 1-bay ChefBase:
  - left: 2 x screws
  - right: 2 x screws
  - front: 1 x screw
- 2-bay ChefBase:
  - left: 3 x screws
  - right: 3 x screws
  - front: 6 x screw



6. Remove all drawers.

*2-bay ChefBase cabinets only*

7. Remove the drawer runners.
8. Remove the internal rear centre frame:
- top: 2 x screws
  - bottom: 4 x screws



**Procedure 26: To access and replace the evaporator fan assembly (split system cabinets) (continued)***All ChefBase cabinets*

9. Unscrew the evaporator fan shroud mounting screws.

- 1-bay ChefBase
  - top: 2 x screws
  - front: 7 x screws
- 2-bay ChefBase
  - top: 2 x screws
  - front: 11 x screws



10. Unplug the evaporator fan motor plug from the cartridge electrics box.

11. Take note of the cable routing, then cut the cable ties holding the evaporator fan motor cable.

12. Remove the evaporator fan assembly.



13. Fit the new evaporator fan assembly.

14. Plug the new evaporator fan motor cable into the cartridge electrics box.

15. Attach the new cable with cable ties as required.

16. Reassemble the cabinet and test and tag.

**Compressor** The compressor is located at the back of the refrigeration cartridge. It must be supplied with consistent voltage between 220 volts and 240 volts AC.

If considering replacing the compressor (e.g. it is not going, it is causing excessive noise, it has a distinctive hissing sound and is running with a very hot body temperature):

- check the mountings to ensure there is no damage to the rubber or the washers, nuts and screws.
- check all plug connections and ensure the electrics are operating correctly.
- 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 cartridge housing or condenser assembly.

## Electronic Controller

The electronic controller and electrics box (including the LED light driver power supply) are matched to the cabinet, and must be left with the cabinet when servicing or replacing the cartridge. Replacement spare part cartridges are not supplied with a controller or electrics box.

Different controller parameter sets are used across different cabinet models. Ensure the controller is set up with the correct parameter set for the cabinet (see Table 2, "Controller parameters", on page 8).

**Controller Location** The electronic controller is located in the cartridge cover panel in front of the refrigeration cartridge.

### Procedure 27: To access and remove the controller

1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).
2. Remove the cartridge cover panel (see Procedure 12 on page 23).
3. Remove the controller:
  - Press and hold the tabs on each side of the electronic controller to unlock it.
  - Push the controller through the front of the controller box.
4. Unplug the electronic controller from the cartridge.

**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 28: To replace the controller

#### Before you start

- Make sure you have the appropriate parameter file to load into the new controller.
  - Open SCS Connect Field app (see [MAN80199 "SCS Connect Electronic Controller"](https://tinyurl.com/4n2dvury) (<https://tinyurl.com/4n2dvury>)) and check that the parameter file is in LOCAL.
  - If it is not available in LOCAL, ensure you are connected to the internet, search for it in SERVER, and download it to LOCAL.
- You will need needle nose pliers.

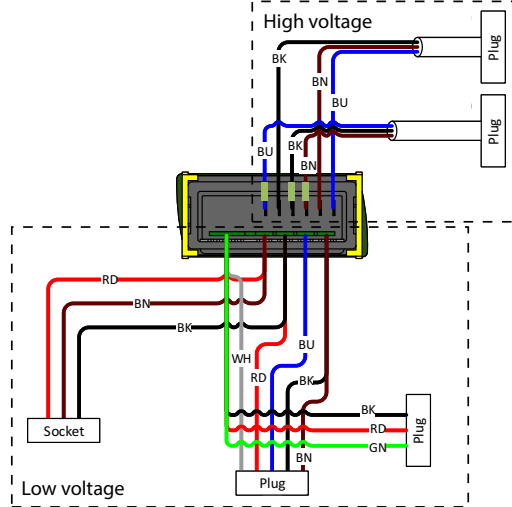
1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).
2. Access the electronic controller (see Procedure 27 on page 39).

3. Use needle nose pliers to press in and unlock the tabs, and gently remove the QC terminals at the back of the controller.



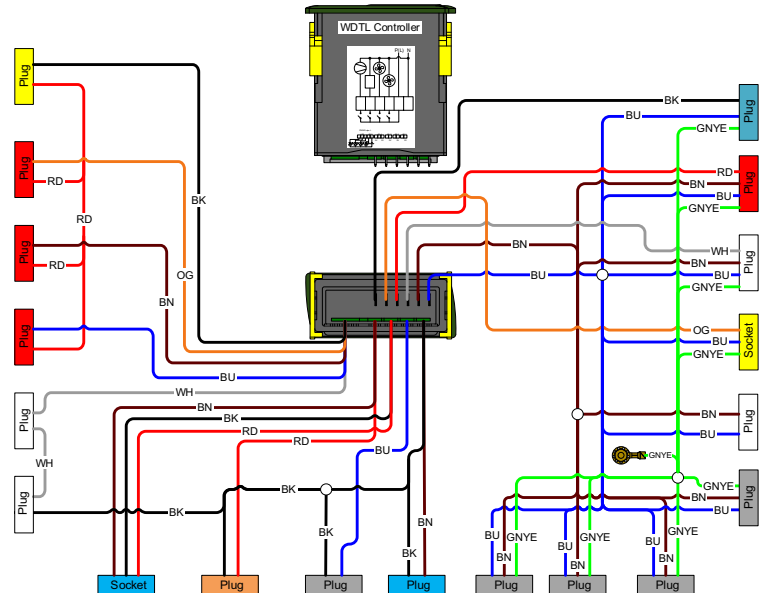
**Procedure 28: To replace the controller (continued)**

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



**Removable cartridge GN1/1 and GN2/1 cabinets and split system cabinets**

**Removable cartridge GN1/3 cabinets**



5. Reassemble the cabinet.
6. Perform an electrical safety test, and reconnect to the mains power supply.
7. Use a mobile device to connect to the controller with the SCS Connect Field app (see [MAN80199 "SCS Connect Electronic Controller"](https://tinyurl.com/4n2dvury) (<https://tinyurl.com/4n2dvury>)).
8. Navigate to the LOAD PARAMETER FILE menu.
9. Select the appropriate parameter file from LOCAL.
10. Confirm that you have the correct file, and WRITE TO SCS.
11. After WRITE TO SCS is complete, select MENU > DISCONNECT to save the parameter set on SCS Connect Field app.
12. Power cycle the controller and check that the parameter set has been applied.
13. Open SCS Connect Field app and re-connect to the controller.
14. Use instruction sheet [PRN80300 "Cabinet Setup using the SCS Field App"](#) to configure the SCS Info fields of the controller.



**Door and Drawer Switch** The cabinet is fitted with a switch above each bay, which tells the electronic controller when a door or the top drawer is opened. A small magnet on the top edge of the door or top drawer activates the switch.

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**Procedure 29: To replace the door or drawer switch**

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1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).
- 

2. Unscrew the 2 x screws and remove the switch cover.
- 

3. Unplug and replace the switch.
- 

4. Refit the cover.
- 

5. Reconnect the cabinet to the mains power supply and check for correct operation.
- 



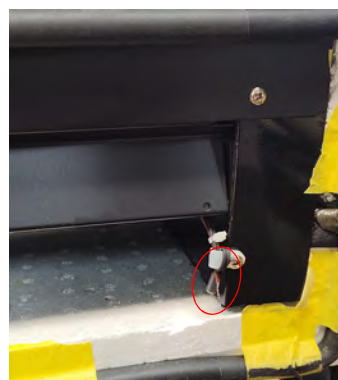
**Control Probe** The control probe is clipped to the inside of the evaporator assembly.



GN1/1 and GN2/1 removable cartridge



Split system



GN1/3 removable cartridge

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**Procedure 30: To replace the control probe**

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**Before you start**

Make sure you take note of the original control probe cable's path, e.g. a photo.

---

1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).
- 

*Removable cartridge cabinets only*

2. Remove the cartridge from the cabinet (see Procedure 14 on page 24).
- 

*All cabinets*

3. Gain access to the evaporator fan assembly (see the relevant procedure in "Evaporator Fan Assembly" on page 34).
  4. Take note of the cable routing, then carefully cut the cable ties to release the probe cable.
  5. Detach the probe from the evaporator assembly, trace it back to its connector, and unplug it.
-

**Procedure 30: To replace the control probe (continued)**

6. Replace the probe, ensuring it is:
  - in the same position as the original probe (see the relevant photograph above).
  - securely attached.
7. Following the same path as the original probe cable, fit the new probe cable with cable ties as necessary, and plug it in securely to the connector.
8. Reassemble the cabinet and test for correct operation.

**Evaporator Probe**

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



Removable cartridge GN1/1



Removable cartridge GN1/3 and GN2/1



Split system

**Removable cartridge cabinets**

If the evaporator probe fails, the defrost element thermal fuses may activate due to prolonged defrosting. Because of this, if you replace the evaporator probe, you must check the resistance of the thermal fuses and replace them if necessary (see Procedure 18 on page 28).

**Procedure 31: To replace the evaporator probe (all cabinets)****Before you start**

Make sure you take note of the original evaporator probe cable's path, e.g. a photo.

1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).
2. Remove the cartridge from the cabinet (see Procedure 14 on page 24).
3. Gain access to the evaporator fan assembly (see the relevant procedure in "Evaporator Fan Assembly" on page 34).
4. Take note of the cable routing, then carefully cut the cable ties to release the probe cable.
5. Carefully separate the fins around the probe and withdraw the probe from the evaporator coil.
6. Trace the probe cable back to its connector and unplug it.
7. Replace the probe, ensuring it is held securely, and in the same position as the original probe (see the relevant photograph above).
8. Following the same path as the original probe cable, fit the new probe cable with cable ties as necessary and plug it in securely to the connector.
9. Reassemble the cabinet and test for correct operation.

**Condenser Probe** The condenser probe is located on the side of the condenser coil.



Removable cartridge GN1/1



Removable cartridge GN1/3 and GN2/1



Split system

### Procedure 32: To replace the condenser probe

#### Before you start

Make sure you take note of the original condenser probe cable's path, e.g. a photo.

1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).

#### *Removable cartridge cabinets*

2. Remove the refrigeration cartridge (see Procedure 14 on page 24).

#### *Split system cabinets*

2. Remove the cartridge compartment's side panel (see Procedure 13 on page 24).

3. Take note of the cable routing, then carefully cut the cable ties to release the probe cable.

4. Detach the probe from the side of the condenser coil, trace back to its connector, and unplug it.

5. Replace the probe, ensuring it is:

- in the same position as the original probe on the condenser coil.
- securely attached.

6. Following the same path as the original probe cable, fit the new probe cable with cable ties as necessary, and plug it in securely to the connector.

7. Reassemble the cabinet and test for correct operation.

**Ambient Probe** The ambient probe is located in front of the condenser coil. It monitors the temperature around the refrigeration cartridge.

**Note:** The ambient probe is wired in series with the door and/or drawer switch.



### Procedure 33: To replace the ambient probe

#### Before you start

Make sure you take note of the original ambient probe cable's path, e.g. a photo.

1. Disconnect the cabinet from the mains power supply (see Procedure 2 on page 13).

#### *Removable cartridge cabinets*

2. Remove the refrigeration cartridge (see Procedure 14 on page 24).

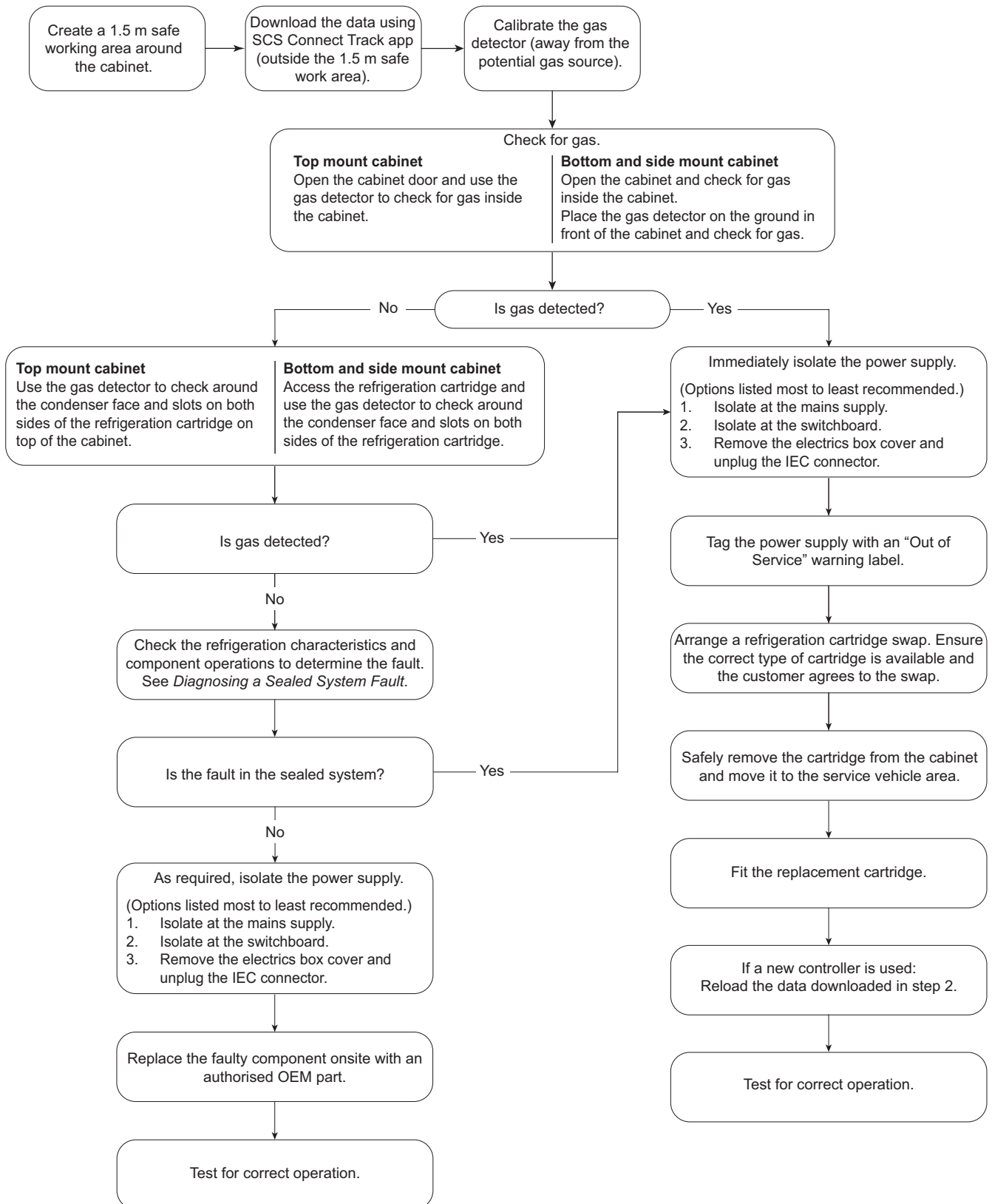
#### *Split system cabinets*

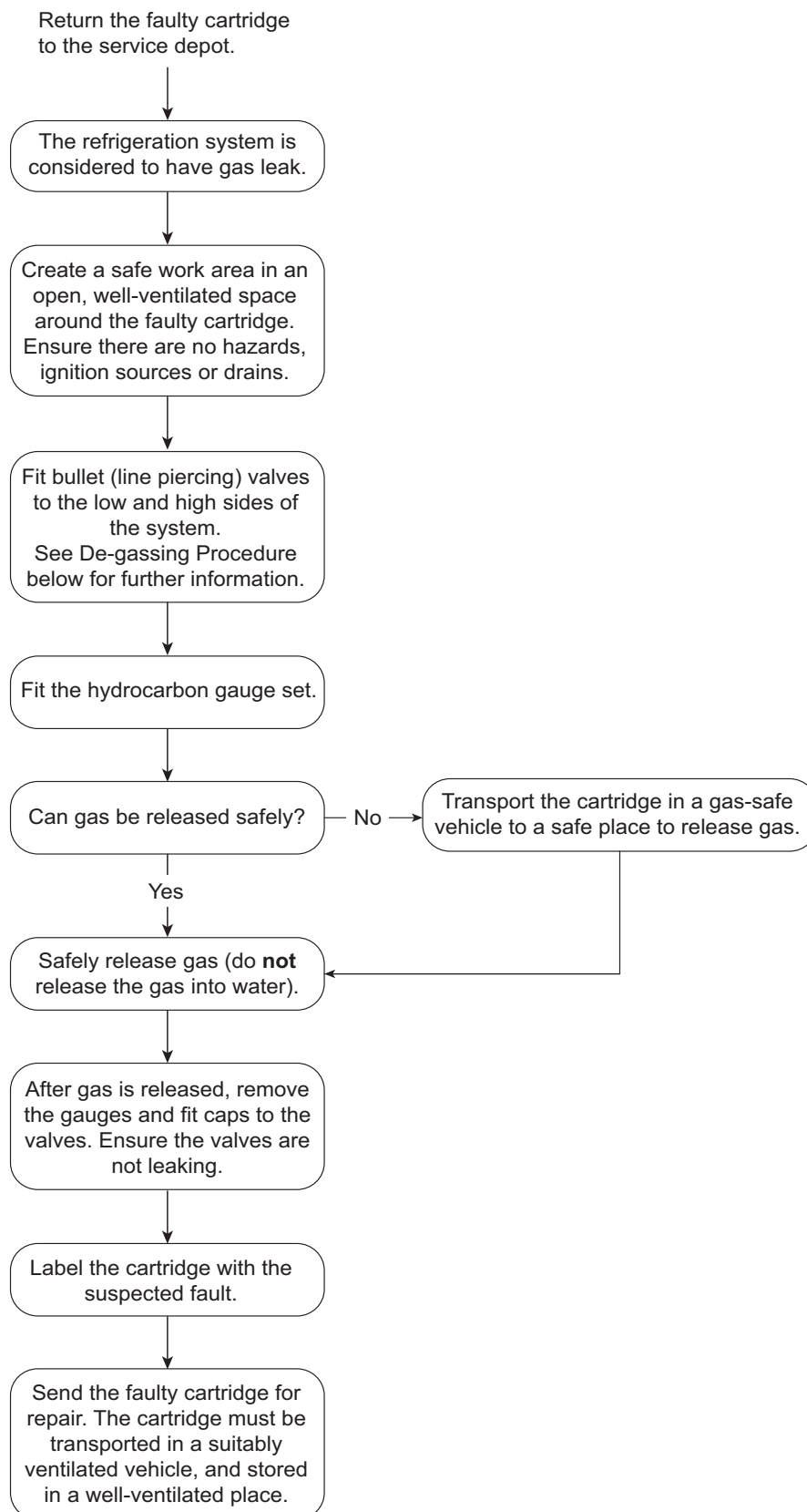
- 2.1 Remove the cartridge cover panel (see Procedure 12 on page 23).
- 2.2 Remove the cartridge's side panel (see Procedure 13 on page 24).

3. Take note of the cable routing, then carefully cut the cable ties to release the probe cable.
4. Detach the probe from in front of the condenser coil, trace it back to its connector, and unplug it.
5. Replace the probe, ensuring it is:
  - in the same position as the original probe in front of the condenser coil.
  - securely attached.
6. Following the same path as the original probe cable, fit the new probe cable with cable ties as necessary, and plug it in securely to the connector.
7. Reassemble the cabinet 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 procedures below when making the service visit.







## De-gassing Procedure

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Follow the procedure below to safely de-gas a hydrocarbon refrigeration cartridge.

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### Procedure 34: To de-gas a refrigeration cartridge

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#### Before you start

You will need:

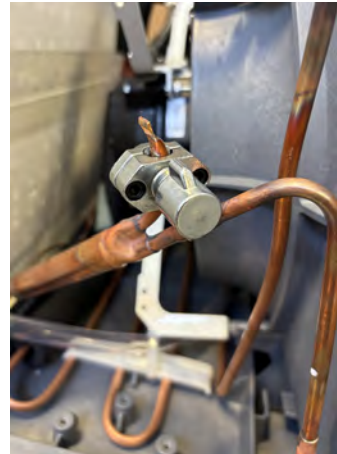
- 2 x ¼ piercing valve kits
  - Align key set
  - Hydrocarbon-rated gauge set
- 

1. Disconnect the cabinet from the mains power supply.
  2. Remove the refrigeration cartridge, and place it in a well ventilated area, away from any ignition sources, drains and populated areas.
- 

3. Install the one valve on the low side processing tube.



4. Install the one valve on the high side processing tube.

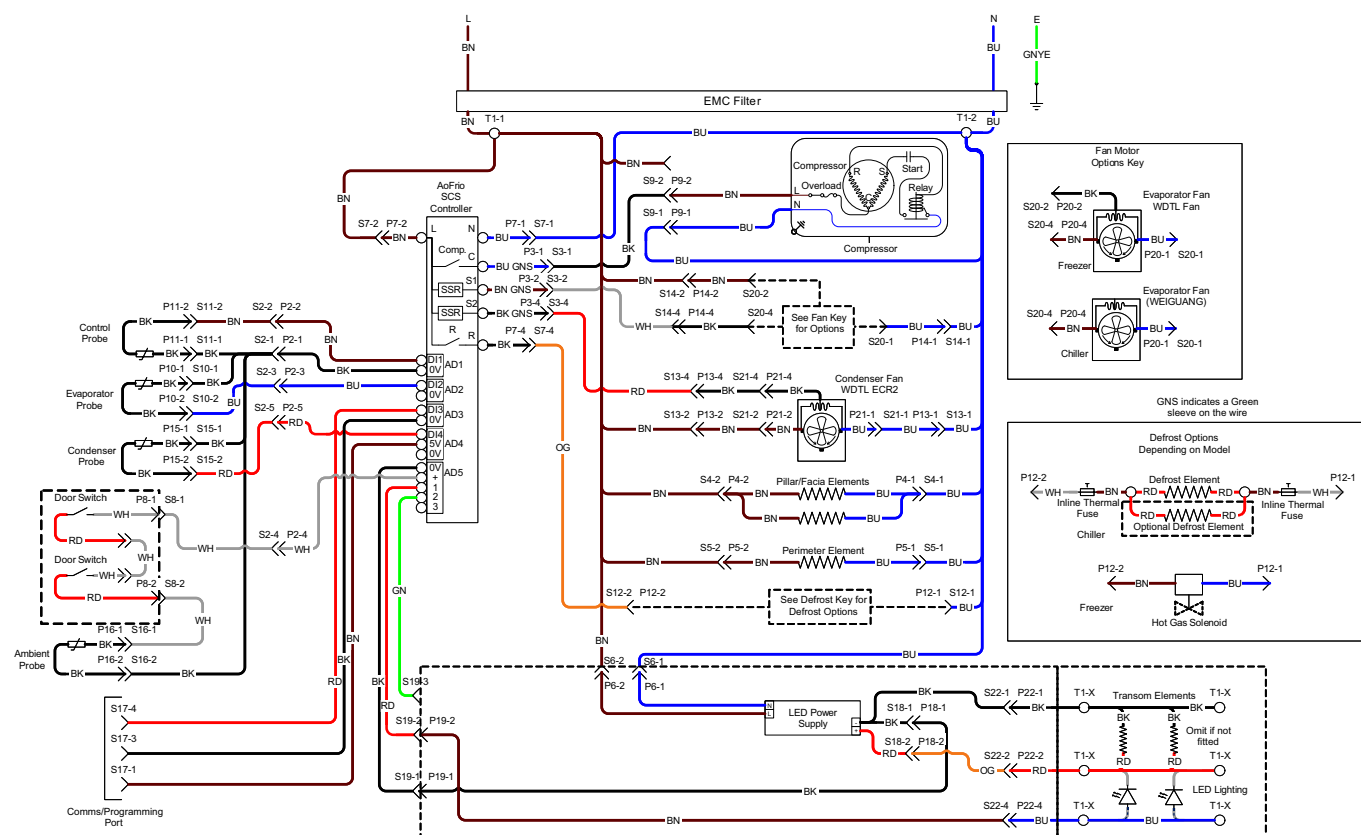


5. Connect the gauge set on the low and high sides and release the refrigerant into the atmosphere.
  6. Once all the refrigerant has been released, cap the valves and leave them in position.
  7. Complete the repairs at a hydrocarbon repair station.
  8. Once the repairs have been completed, remove all piercing valves, and return the system to a sealed state.
- 
-



## 5 Wiring

### Removable Cartridge Cabinets



#### Legend

Item	Description	Item	Description
Inlet	IEC cabinet socket/plug	S12/P12	Defrost element socket/plug (yellow 4-way)
S1/P1	Not used	S13/P13	Condenser motor unit socket/plug (red 4-way)
S2/P2	Unit junction box to controller signal socket/plug (6-way)	S14/P14	Evaporator motor unit socket/plug (white 4-way)
S3/P3	Unit to controller power socket/plug (black 4-way)	S15/P15	Condenser sensor socket/plug (orange 2-way)
S4/P4	Heater wire unit socket/plug (black 3-way)	S16/P16	Ambient sensor socket/plug (white 2-way)
S5/P5	Heater wire unit socket/plug 2 (black 3-way)	S17/P17	Programming/comms port socket (blue 4-way)
S6/P6	Light unit socket/plug (white 3-way)	S18/P18	LED driver DC output socket/plug (red 2-way)
S7/P7	Unit to controller power socket/plug 1 (orange 4-way)	S19/P19	LED lighting loom socket/plug (green 4-way)
S8/P8	Door sensor socket/plug (white 2-way)	S20/P20	Evaporator extension flex socket/plug (white 4-way)
S9/P9	Compressor unit socket/plug (blue 4-way)	S21/P21	Condenser extension flex socket/plug (red 4-way)
S10/P10	Evaporator sensor socket/plug (black 2-way)	S22/P22	Cabinet 24V DC flex socket/plug (blue 4-way)
S11/P11	Cabinet sensor socket/plug (blue 2-way)	T1	Unit terminals

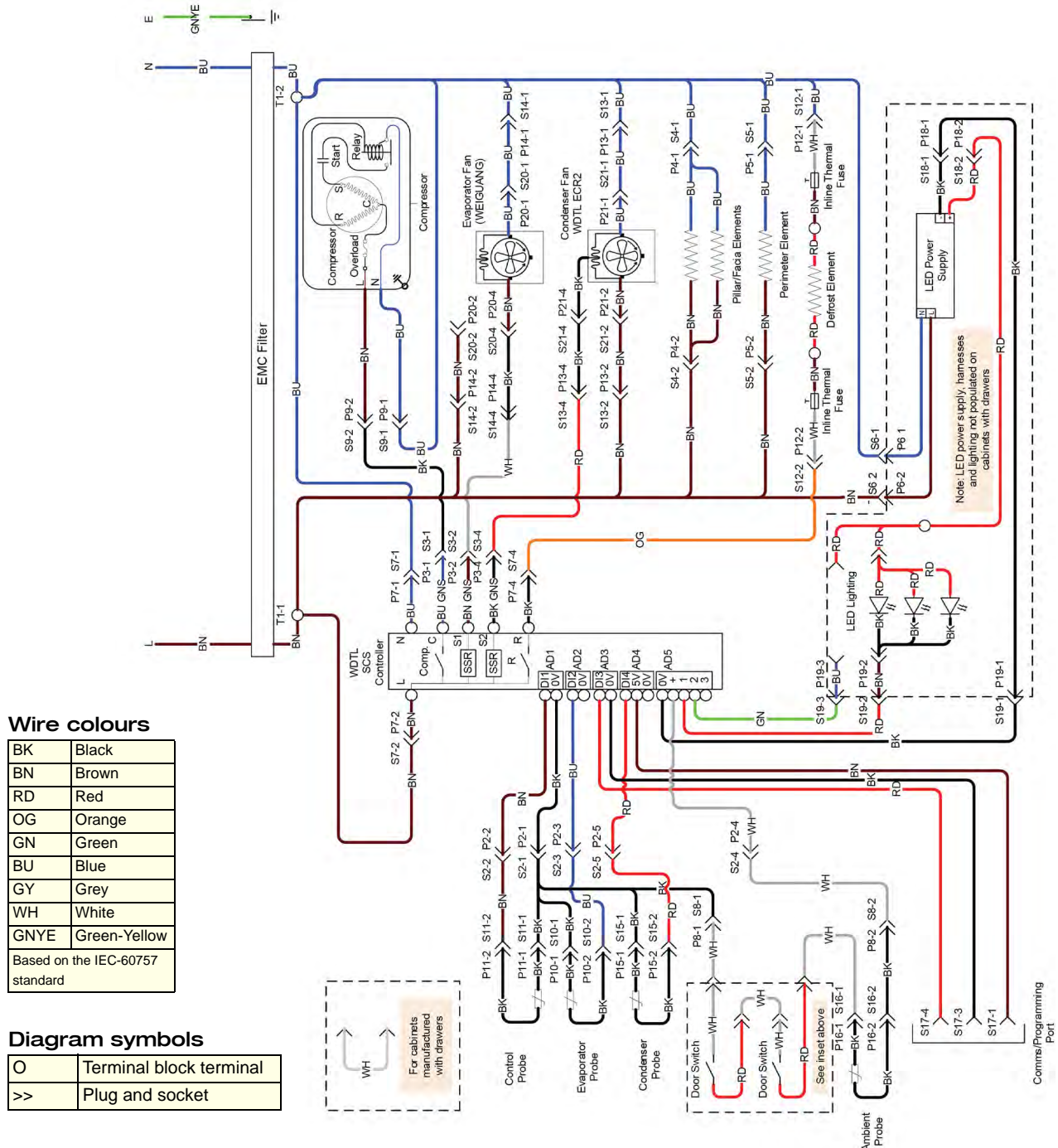
#### Wire colours

BK	Black
BN	Brown
RD	Red
OG	Orange
GN	Green
BU	Blue
GY	Grey
WH	White
GNYE	Green-Yellow
Based on the IEC-60757 standard	

#### Diagram symbols

O	Terminal block terminal
>>	Plug and socket

## Split System Cabinets



## 6 Spare Parts

### Cabinet Assembly

#### GN1/1 Removable Cartridge Underbench Cabinet

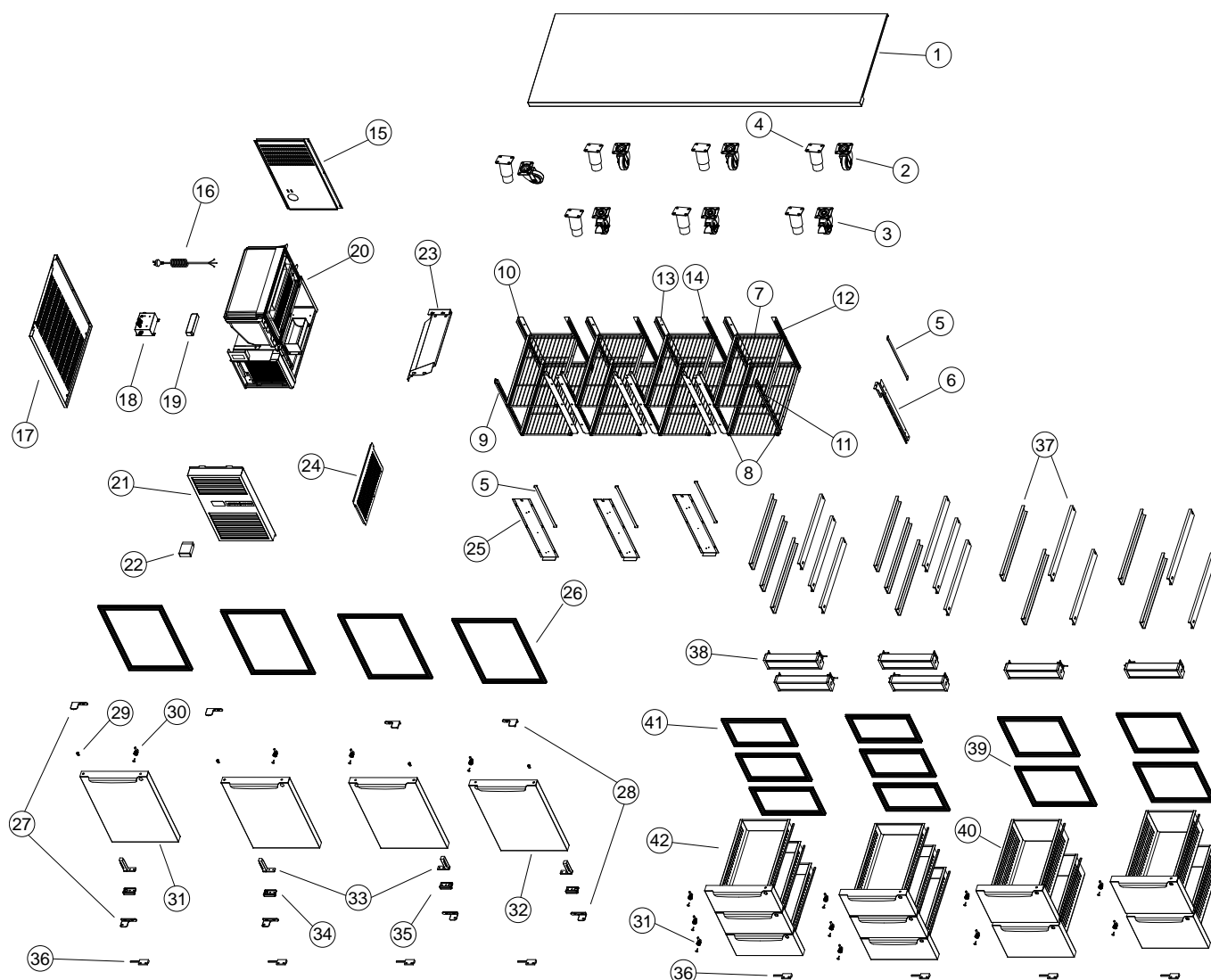


Table 8: Parts – GN1/1 removable cartridge underbench cabinet assembly: 1- and 2-bay

No.	Description	Part no.	1-bay						2-bay					
			Cartridge		Door		Drawer		Cartridge		Door		Drawer	
			Left	Right	Left	Right	2	3	Left	Right	Left	Right	2	3
1	Bench top – 1-bay – left hand	KN-SSY12814	✓											
	Bench top – 1-bay – right hand	KN-SSY12833		✓										
	Bench top – 2-bay – left hand	KN-SSY12815							✓					
	Bench top – 2-bay – right hand	KN-SSY12834								✓				
2	Castor – unbraked	KN-SXX11990			✓	✓	✓	✓			✓	✓	✓	✓
3	Castor – braked	KN-SXX11991			✓	✓	✓	✓			✓	✓	✓	✓
4	Adjustable leg	KN-SXX12132			✓	✓	✓	✓			✓	✓	✓	✓
5	LED light	KN-ELL12000			✓	✓					✓	✓		

Table 8: Parts – GN1/1 removable cartridge underbench cabinet assembly: 1- and 2-bay (continued)

No.	Description	Part no.	1-bay						2-bay					
			Cartridge		Door		Drawer		Cartridge		Door		Drawer	
			Left	Right	Left	Right	2	3	Left	Right	Left	Right	2	3
6	Wire cover – 1-door, left hand	KN-STY12845	✓											
	Wire cover – 1-door, right hand	KN-STY12846		✓										
7	Shelf 550 x 330	KN-WRK12730			✓	✓					✓	✓		
	GN1/1 shelf set – 1-door	KN-WRK12726			✓	✓								
	GN1/1 shelf set – 2-door	KN-WRK12727									✓	✓		
8	Shelf runner	KN-SSY12731			✓	✓					✓	✓		
9	Left front rail – 1-door	KN-SXX12831			✓	✓								
	Left front rail	KN-SXX12825									✓	✓		
10	Left back rail	KN-SXX12829			✓	✓					✓	✓		
11	Right front rail – 1-door	KN-SXX12832			✓	✓								
	Right front rail	KN-SXX12826									✓	✓		
12	Right back rail	KN-SXX12830			✓	✓					✓	✓		
13	Middle beam – left back rail	n.a.												
14	Middle beam – right back rail	n.a.												
15	Cartridge compartment rear panel – left hand	KN-STY12725	✓						✓					
	Cartridge compartment rear panel – right hand	KN-STY12860		✓						✓				
16	Mains flex (2 m)	KN-FLX12138	✓	✓					✓	✓				
17	Cartridge compartment side panel – left hand	KN-STY12724	✓						✓					
	Cartridge compartment side panel – right hand	KN-STY12860		✓						✓				
18	Cartridge electrics box – left hand	KN-ELZ12142	✓						✓					
	Cartridge electrics box – right hand	KN-ELZ12843		✓						✓				
19	LED power supply LPF-25	KN-ELZ12001			✓	✓					✓	✓		
20	Small refrigeration cartridge – left hand	ULKCN1-0062-P	✓						✓					
	Small refrigeration cartridge – right hand	URKCN1-0066-P		✓						✓				
21	Cartridge compartment louvred panel – left hand	KN-STY12722	✓						✓					
	Cartridge compartment louvred panel – right hand	KN-STY12723		✓						✓				
22	AoFrio electronic controller	ELZ11749-1632	✓	✓					✓	✓				
23	Duct set – left hand	KN-STY12732	✓						✓					
	Duct set – right hand	KN-SSY12837		✓						✓				
24	Return air grille – left hand	KN-SXX12102	✓						✓					
	Return air grille – right hand	KN-SXX12838		✓						✓				
25	Wire cover	KN-SSY12844									✓	✓		
26	Door gasket	KN-GKT12012			✓	✓					✓	✓		
27	Hinge set – left hand	KN-HIN12734			✓						✓			
28	Hinge set – right hand	KN-HIN12735				✓						✓		
29	Bush – top of door	KN-PLM12133			✓	✓					✓	✓		
30	Lock pin and key kit	KN-SXX12015			✓	✓	✓	✓			✓	✓	✓	✓
31	Solid door – GN1/1, left hand	KN-SDR12714-LH			✓						✓			
32	Solid door – GN1/1, right hand	KN-SDR12715-RH				✓						✓		
33	Self-closing hinge	KN-HIN12021			✓	✓					✓	✓		
34	Door stopper – left hand	KN-STY12733-LH			✓						✓			
35	Door stopper – right hand	KN-STY12733-RH				✓						✓		
36	Sensor kit	KN-ELS12013			✓	✓	✓	✓			✓	✓	✓	✓
37	Drawer slide – pair	KN-SSY12246					✓	✓					✓	✓
38	Transom	KN-SSY12704					✓	✓					✓	✓
39	Drawer gasket for 2-drawer bay	KN-GKT12740					✓						✓	
40	Drawer assembly for 2-drawer bay	KN-SSY12702					✓						✓	
41	Drawer gasket for 3-drawer bay	KN-GKT12245						✓						✓
42	Drawer assembly for 3-drawer bay	KN-SSY12703						✓						✓
–	Controller window (not shown)	PLY12470	✓	✓					✓	✓				

Table 9: Parts – GN1/1 removable cartridge underbench cabinet assembly: 3- and 4-bay

No.	Description	Part no.	3-bay						4-bay					
			Cartridge		Door		Drawer		Cartridge		Door		Drawer	
			Left	Right	Left	Right	2	3	Left	Right	Left	Right	2	3
1	Bench top – 3-bay – left hand	KN-SSY12816	✓											
	Bench top – 3-bay – right hand	KN-SSY12835		✓										
	Bench top – 4-bay – left hand	KN-SSY12817							✓					
	Bench top – 4-bay – right hand	KN-SSY12836								✓				
2	Castor – unbraked	KN-SXX11990			✓	✓	✓	✓			✓	✓	✓	✓
3	Castor – braked	KN-SXX11991			✓	✓	✓	✓			✓	✓	✓	✓
4	Adjustable leg	KN-SXX12132			✓	✓	✓	✓			✓	✓	✓	✓
5	LED light	KN-ELL12000			✓	✓					✓	✓		
6	Wire cover – 1-door, right hand	n.a.												
7	Shelf 550 x 330	KN-WRK12730			✓	✓					✓	✓		
	Shelf set – 3-door	KN-WRK12728			✓	✓								
	Shelf set – 4-door	KN-WRK12729									✓	✓		
8	Shelf runner	KN-SSY12731			✓	✓					✓	✓		
9	Left front rail	KN-SXX12825			✓	✓					✓	✓		
10	Left back rail	KN-SXX12832			✓	✓					✓	✓		
11	Right front rail	KN-SXX12826			✓	✓					✓	✓		
12	Right back rail	KN-SXX12830			✓	✓					✓	✓		
13	Middle beam – left back rail	KN-SXX12827			✓	✓					✓	✓		
14	Middle beam – right back rail	KN-SXX12828			✓	✓					✓	✓		
15	Cartridge compartment rear panel – left hand	KN-STY12725	✓						✓					
	Cartridge compartment rear panel – right hand	KN-STY12860		✓						✓				
16	Mains flex (2 m)	KN-FLX12138	✓	✓					✓	✓				
17	Cartridge compartment side panel – left hand	KN-STY12724	✓						✓					
	Cartridge compartment side panel – right hand	KN-STY12860		✓						✓				
18	Cartridge electrics box – left hand	KN-ELZ12142	✓						✓					
	Cartridge electrics box – right hand	KN-ELZ12843		✓						✓				
19	LED power supply LPF-60	KN-ELZ12002			✓	✓					✓	✓		
20	Large refrigeration cartridge – left hand	ULKCNI-0063-P	✓						✓					
	Large refrigeration cartridge – right hand	URKCNI-0067-P		✓						✓				
21	Cartridge compartment louvred panel – left hand	KN-STY12722	✓						✓					
	Cartridge compartment louvred panel – right hand	KN-STY12723		✓						✓				
22	AoFrio electronic controller	ELZ11749-1632	✓	✓					✓	✓				
23	Duct set – left hand	KN-STY12732	✓						✓					
	Duct set – right hand	KN-SSY12837		✓						✓				
24	Return air grille – left hand	KN-SXX12102	✓						✓					
	Return air grille – right hand	KN-SXX12838		✓						✓				
25	Wire cover	KN-SSY12844			✓	✓					✓	✓		
26	Door gasket	KN-GKT12012			✓	✓					✓	✓		
27	Hinge set – left hand	KN-HIN12734			✓						✓			
28	Hinge set – right hand	KN-HIN12735				✓						✓		
29	Bush – top of door	KN-PLM12133			✓	✓					✓	✓		
30	Lock pin and key kit	KN-SXX12015			✓	✓	✓	✓			✓	✓	✓	✓
31	Solid door – GN1/1, left hand	KN-SDR12714-LH			✓						✓			
32	Solid door – GN1/1, right hand	KN-SDR12715-RH				✓						✓		
33	Self-closing hinge	KN-HIN12021			✓	✓					✓	✓		
34	Door stopper – left hand	KN-STY12733-LH			✓						✓			
35	Door stopper – right hand	KN-STY12733-RH				✓						✓		
36	Sensor kit	KN-ELS12013			✓	✓	✓	✓			✓	✓	✓	✓
37	Drawer slide – pair	KN-SSY12246					✓	✓					✓	✓
38	Transom	KN-SSY12704					✓	✓					✓	✓
39	Drawer gasket for 2-drawer bay	KN-GKT12740					✓						✓	
40	Drawer assembly for 2-drawer bay	KN-SSY12702					✓						✓	
41	Drawer gasket for 3-drawer bay	KN-GKT12245						✓						✓
42	Drawer assembly for 3-drawer bay	KN-SSY12703						✓						✓
–	Controller window (not shown)	PLY12470	✓	✓					✓	✓				



## GN2/1 Removable Cartridge Underbench Cabinet

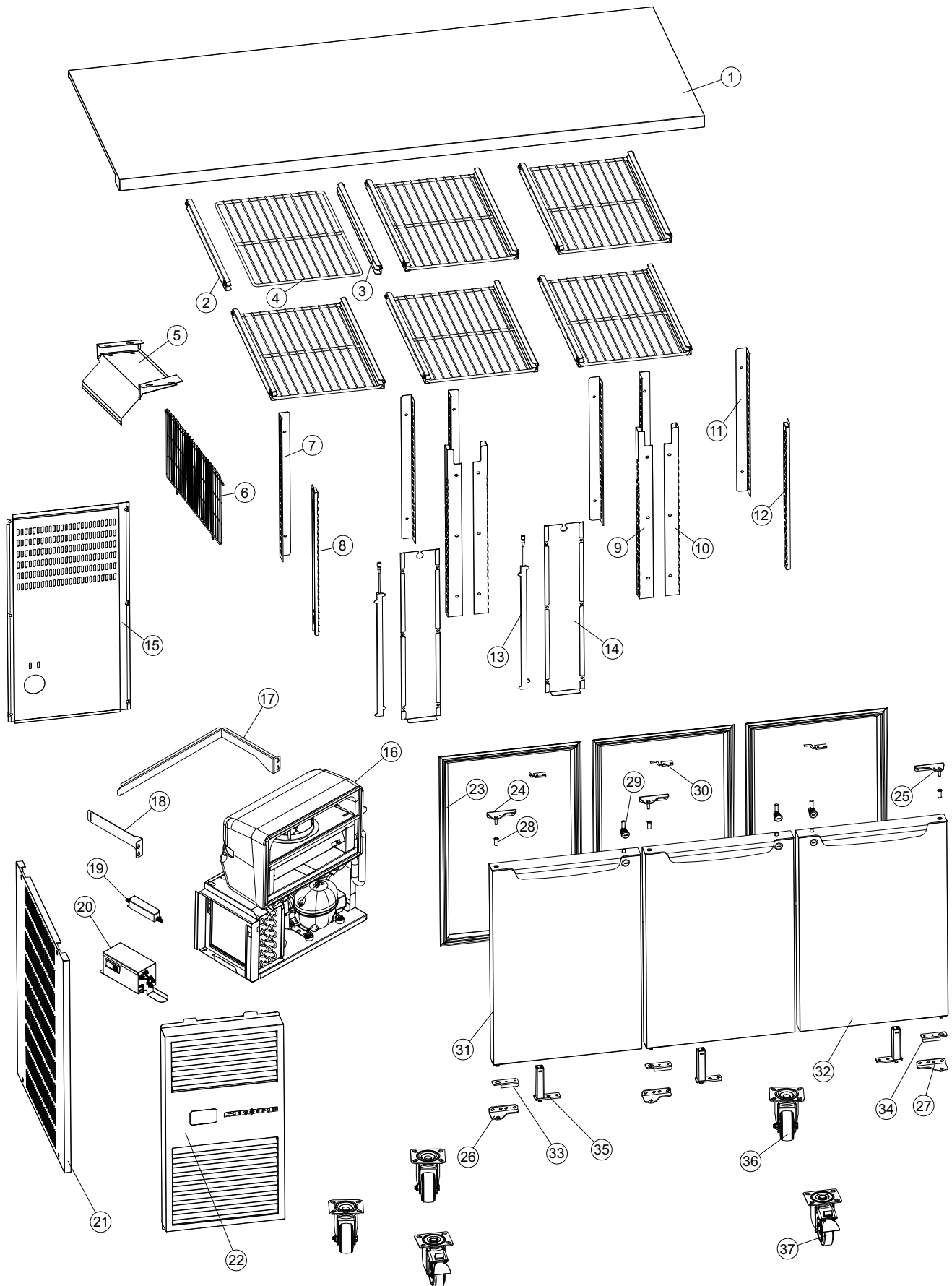


Table 10: Parts – GN2/1 removable cartridge underbench cabinet assembly

No.	Description	Part no.	2-bay				3-bay			
			Cartridge		Door		Cartridge		Door	
			Left	Right	Left	Right	Left	Right	Left	Right
1	GN2/1 benchtop – 2-door – left hand	SKC-0-180-0091-0	✓							
	GN2/1 benchtop – 2-door – right hand	SKC-0-180-0102-0		✓						
	GN2/1 benchtop – 3-door – left hand	SKC-0-180-0113-0					✓			
	GN2/1 benchtop – 3-door – right hand	SKC-0-180-0118-0						✓		
2	Shelf runner – left hand	SKC-0-180-0096-0			✓	✓			✓	✓
3	Shelf runner – right hand	SKC-0-180-0097-0			✓	✓			✓	✓
4	GN2/1 wire shelf set (per door)	SKC-2-190-0158-0			✓	✓			✓	✓
5	Duct set – left hand	SKC-0-180-0152-0	✓				✓			
	Duct set – right hand	SKC-0-180-0153-0		✓				✓		
6	Return air grille	SKC-2-190-0108-0	✓	✓			✓	✓		
7	Left back shelf support rail	SKC-2-180-0363-0			✓	✓			✓	✓
8	Left front shelf support rail	SKC-2-180-0269-0			✓	✓			✓	✓
9	Left middle back support rail	SKC-2-180-0257-0			✓	✓			✓	✓
10	Right middle back support rail	SKC-2-180-0258-0			✓	✓			✓	✓
11	Right back shelf support rail	SKC-2-180-0273-0			✓	✓			✓	✓
12	Right front shelf support rail	SKC-2-180-0271-0			✓	✓			✓	✓
13	LED light	SKC-4-050-0155-0			✓	✓			✓	✓
14	Wire cover – rear pillar	SKC-2-180-0259-0	✓	✓			✓	✓		
15	Cartridge compartment rear panel – left hand	SKC-2-180-0278-0	✓				✓			
	Cartridge compartment rear panel – right hand	SKC-2-180-0319-0		✓				✓		
16	Refrigeration cartridge – left hand	ULQCNI-0074-P	✓				✓			
	Refrigeration cartridge – right hand	URQCNI-0075-P		✓				✓		
17	Evaporator box mounting bracket – left hand rear	US08N00004	✓				✓			
	Evaporator box mounting bracket – right hand rear	US08N00009		✓				✓		
18	Evaporator box mounting bracket – left hand front	US08N00005	✓				✓			
	Evaporator box mounting bracket – right hand front	US08N00010		✓				✓		
19	LED power supply	ELZ12161			✓	✓			✓	✓
20	Cartridge electrics box – left hand	UA0300061	✓				✓			
	Cartridge electrics box – right hand	UA0300062		✓				✓		
21	Cartridge compartment side panel – left hand	SKC-2-180-0351-0	✓				✓			
	Cartridge compartment side panel – right hand	SKC-2-180-0360-0		✓				✓		
22	Cartridge compartment louvred panel – left hand	SKC-0-180-0057-0	✓				✓			
	Cartridge compartment louvred panel – right hand	SKC-0-180-0075-0		✓				✓		
23	Door gasket	SKC-2-190-0156-0			✓	✓			✓	✓
24	Hinge set – left hand, top	SKC-2-190-0119-0			✓				✓	
25	Hinge set – right hand, top	SKC-2-190-0116-0				✓				✓
26	Hinge set – left hand, bottom	SKC-2-190-0120-0			✓				✓	
27	Hinge set – right hand, bottom	SKC-2-190-0117-0				✓				✓
28	Bush – top of door	SKC-2-110-0354-0			✓	✓			✓	✓
29	Lock pin and key kit	SKC-2-006-0996-0			✓	✓			✓	✓
30	Sensor kit	KN-ELS12013			✓	✓			✓	✓
31	Solid door – GN2/1, left hand	SKC-0-180-0094-0			✓				✓	
32	Solid door – GN2/1, right hand	SKC-0-180-0092-0				✓				✓
33	Door stopper – left hand	SKC-2-190-0173-0			✓				✓	
34	Door stopper – right hand	SKC-2-190-0172-0				✓				✓
35	Self-closing hinge	SKC-2-170-0410-0			✓	✓			✓	✓
36	Castor – unbraked	SKC-2-190-0048-0			✓	✓			✓	✓
37	Castor – braked	SKC-2-190-0047-0			✓	✓			✓	✓
–	Controller window (not shown)	PLY12470	✓	✓			✓	✓		
–	Mains flex (not shown)	UW0100056	✓	✓			✓	✓		



## GN1/3 Salad Preparation Free-standing Cabinet

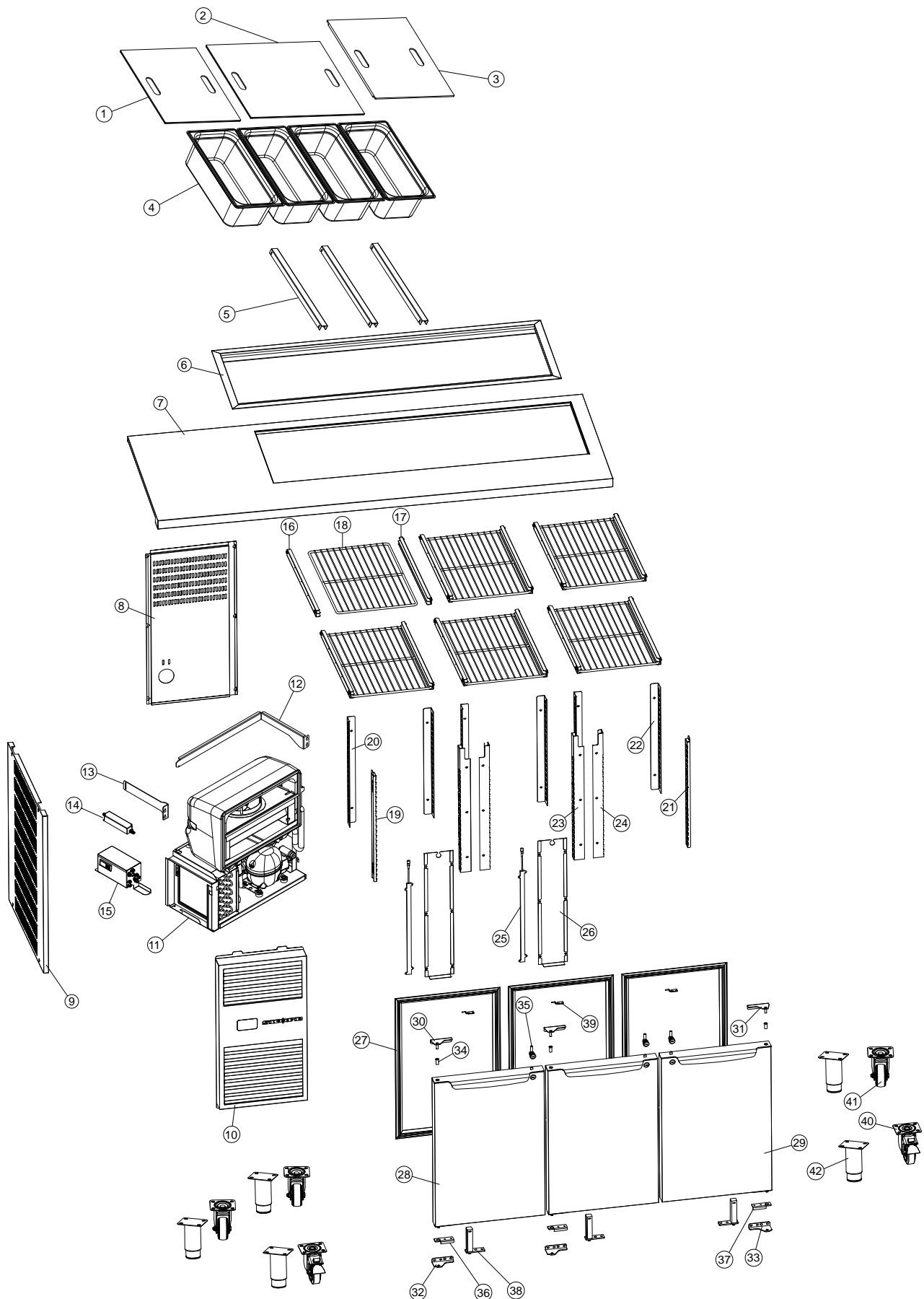


Table 11: Parts – GN1/3 salad preparation free-standing cabinet assembly

No.	Description	Part no.	2-bay				3-bay			
			Cartridge		Door		Cartridge		Door	
			Left	Right	Left	Right	Left	Right	Left	Right
1	Lid – top	PLY12777	1	1			2	2		
2	Lid – bottom (wide)	PLY12778					1	1		
3	Lid – bottom (narrow)	PLY12779	1	1						
4	GN1/3 pans (100 mm deep)	SXX12239			✓	✓			✓	✓
5	Pan holder	SSY12193			✓	✓			✓	✓
6	Drop-in collar frame top – 2-door	SKC-0-180-0147-0	✓	✓						
	Drop-in collar frame top – 3-door	SKC-0-180-0149-0					✓	✓		
7	GN1/3 benchtop – 2-door – left hand	SKC-0-180-0192-0	✓							
	GN1/3 benchtop – 2-door – right hand	SKC-0-180-0193-0		✓						
	GN1/3 benchtop – 3-door – left hand	SKC-0-180-0196-0					✓			
	GN1/3 benchtop – 3-door – right hand	SKC-0-180-0197-0						✓		
8	Cartridge compartment rear panel – left hand	SKC-2-180-0278-0	✓				✓			
	Cartridge compartment rear panel – right hand	SKC-2-180-0319-0		✓				✓		
9	Cartridge compartment side panel – left hand	SKC-2-180-0277-0	✓				✓			
	Cartridge compartment side panel – right hand	SKC-2-180-0318-0		✓				✓		
10	Cartridge compartment louvred panel – left hand	SKC-0-180-0057-0	✓				✓			
	Cartridge compartment louvred panel – right hand	SKC-0-180-0075-0		✓				✓		
11	Refrigeration cartridge – left hand	ULQCNI-0081	✓				✓			
	Refrigeration cartridge – right hand	URQCNI-0080		✓				✓		
12	Evaporator box rear mounting bracket – left	US08N00004	✓				✓			
	Evaporator box rear mounting bracket – right	US08N00009		✓				✓		
13	Evaporator box front mounting bracket – left	US08N00005	✓				✓			
	Evaporator box front mounting bracket – right	US08N00010		✓				✓		
14	LED power supply	ELZ12205	✓	✓			✓	✓		
15	Cartridge electrics box – left hand	UA0300061	✓				✓			
	Cartridge electrics box – right hand	UA0300062		✓				✓		
16	Shelf runner – left hand	SKC-0-180-0055-0			✓	✓			✓	✓
17	Shelf runner – right hand	SKC-0-180-0056-0			✓	✓			✓	✓
18	GN1/3 wire shelf set – 2-door cabinet	SKC-2-190-0121-0			✓	✓				
	GN1/3 wire shelf set – 3-door cabinet	SKC-2-190-0196-0							✓	✓
19	Left front shelf support rail	SKC-0-180-0124-0			✓	✓			✓	✓
20	Left back shelf support rail	SKC-2-180-0391-0			✓	✓			✓	✓
21	Right front shelf support rail	SKC-0-180-0125-0			✓	✓			✓	✓
22	Right back shelf support rail	SKC-2-180-0392-0			✓	✓			✓	✓
23	Left middle back support rail	SKC-2-180-0385-0			✓	✓			✓	✓
24	Right middle back support rail	SKC-2-180-0386-0			✓	✓			✓	✓
25	LED light	SKC-4-050-0155-0			✓	✓			✓	✓
26	Wire cover – rear pillar	SKC-2-180-0387-0	✓	✓			✓	✓		
27	Door gasket – 2-door cabinet	SKC-2-190-0115-0			✓	✓				
	Door gasket – 3-door cabinet	SKC-2-190-0194-0							✓	✓
28	Solid door – left hand, GN1/3, 2-bay cabinet	SKC-0-180-0051-0			✓					
	Solid door – left hand, GN1/3, 3-bay cabinet	SKC-0-180-0139-0							✓	
29	Solid door – right hand, GN1/3, 2-bay cabinet	SKC-0-180-0049-0				✓				
	Solid door – right hand, GN1/3, 2-bay cabinet	SKC-0-180-0137-0								✓

Table 11: Parts – GN1/3 salad preparation free-standing cabinet assembly (continued)

No.	Description	Part no.	2-bay				3-bay			
			Cartridge		Door		Cartridge		Door	
			Left	Right	Left	Right	Left	Right	Left	Right
30	Hinge set – left hand, top	SKC-2-190-0119-0			✓	✓			✓	✓
31	Hinge set – right hand, top	SKC-2-190-0116-0			✓	✓			✓	✓
32	Hinge set – left hand, bottom	SKC-2-190-0120-0			✓	✓			✓	✓
33	Hinge set – right hand, bottom	SKC-2-190-0117-0			✓	✓			✓	✓
34	Bush – top of door	SKC-2-110-0354-0			✓	✓			✓	✓
35	Lock pin and key kit	SKC-2-006-0996-0			✓	✓			✓	✓
36	Door stopper – left hand	SKC-2-190-0173-0			✓				✓	
37	Door stopper – right hand	SKC-2-190-0172-0				✓				✓
38	Self-closing hinge	SKC-2-170-0410-0			✓	✓			✓	✓
39	Door sensor kit	SKC-4-050-0130-0			✓	✓			✓	✓
40	Castor – braked	SKC-2-190-0212-0			✓	✓			✓	✓
41	Castor – unbraked	SKC-2-190-0211-0			✓	✓			✓	✓
42	Adjustable height leg	SKC-2-190-0205-0			✓	✓			✓	✓
–	Controller window (not shown)	PLY12470			✓	✓			✓	✓

## GN1/3 Salad Preparation Drop-in Collar Cabinet

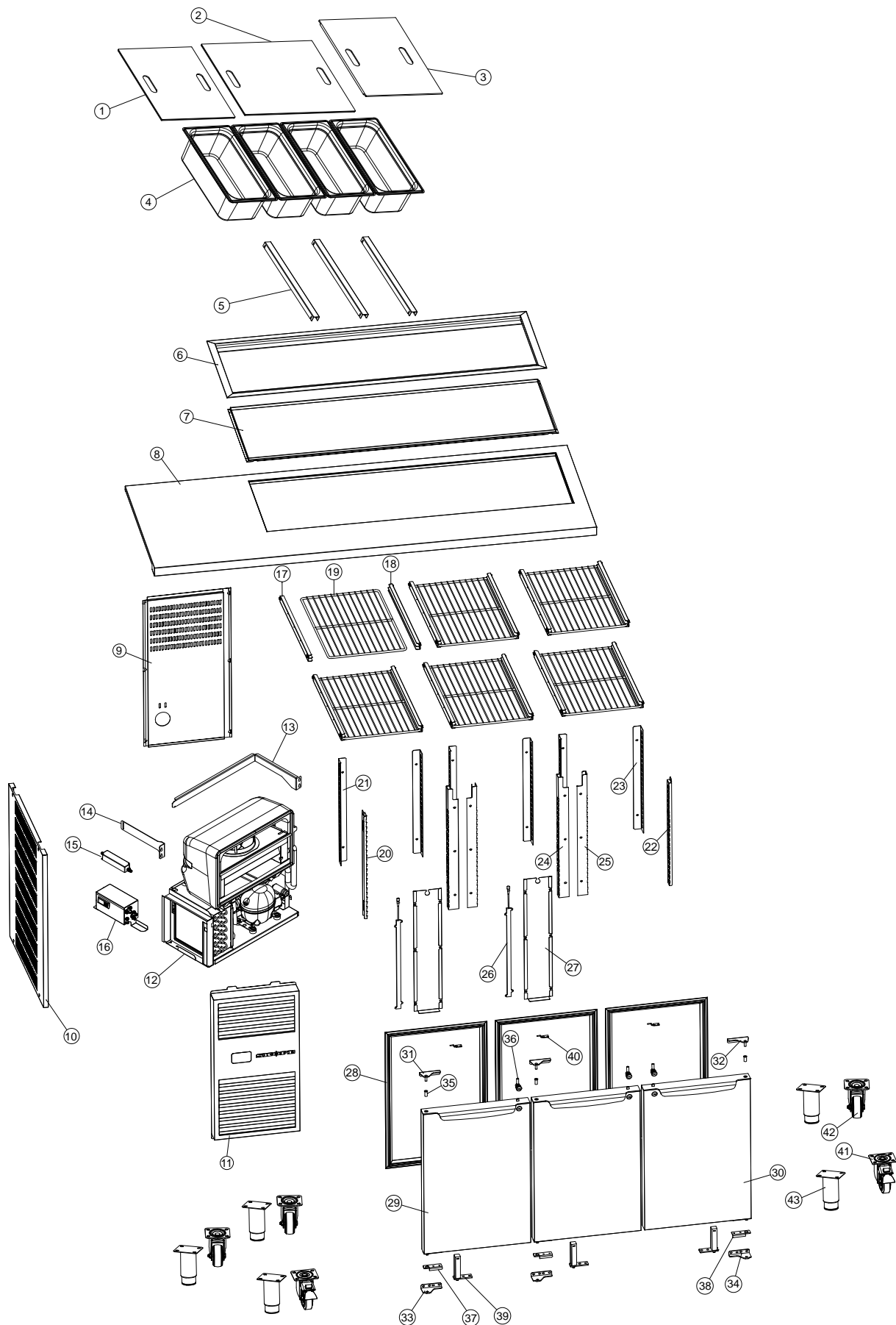


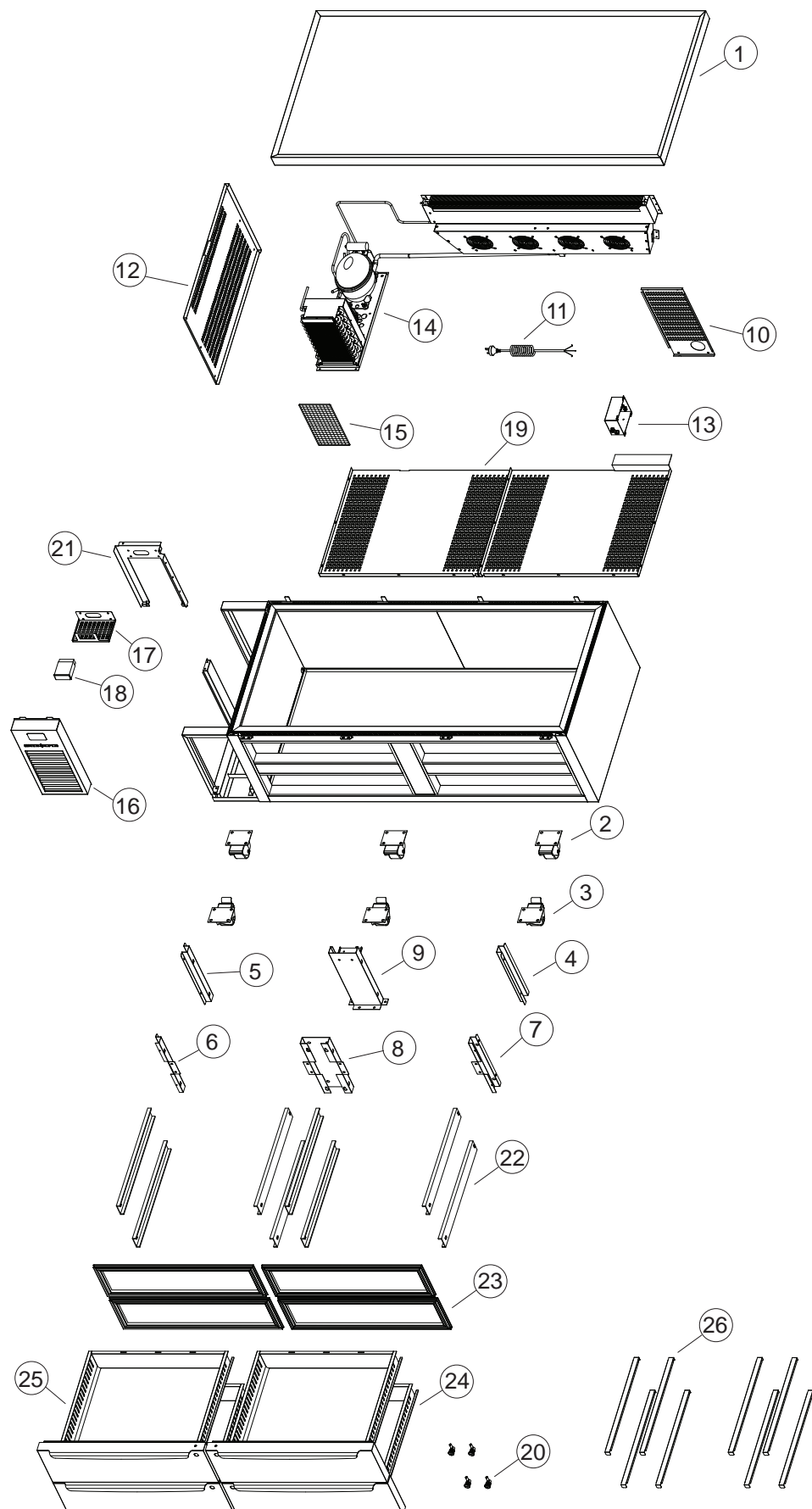
Table 12: Parts – GN1/3 salad preparation drop-in collar cabinet assembly

No.	Description	Part no.	2-bay				3-bay			
			Cartridge		Door		Cartridge		Door	
			Left	Right	Left	Right	Left	Right	Left	Right
1	Lid – top	PLY12777	1	1			2	2		
2	Lid – bottom (wide)	PLY12778					1	1		
3	Lid – bottom (narrow)	PLY12779	1	1						
4	GN1/3 pans (100 mm deep)	SXX12239			✓	✓			✓	✓
5	Pan holder	SSY12193			✓	✓			✓	✓
6	Drop-in collar frame top – 2-door	SKC-0-180-0147-0	✓	✓						
	Drop-in collar frame top – 3-door	SKC-0-180-0149-0					✓	✓		
7	Drop-in collar frame bottom – 2-door	SKC-0-180-0146-0	✓	✓						
	Drop-in collar frame bottom – 3-door	SKC-0-180-0148-0					✓	✓		
8	GN1/3 benchtop – 2-door – left hand	SKC-0-180-0136-0	✓							
	GN1/3 benchtop – 2-door – right hand	SKC-0-180-0123-0		✓						
	GN1/3 benchtop – 3-door – left hand	SKC-0-180-0145-0					✓			
	GN1/3 benchtop – 3-door – right hand	SKC-0-180-0131-0						✓		
9	Cartridge compartment rear panel – left hand	SKC-2-180-0278-0	✓				✓			
	Cartridge compartment rear panel – right hand	SKC-2-180-0319-0		✓				✓		
10	Cartridge compartment side panel – left hand	SKC-2-180-0277-0	✓				✓			
	Cartridge compartment side panel – right hand	SKC-2-180-0318-0		✓				✓		
11	Cartridge compartment louvred panel – left hand	SKC-0-180-0057-0	✓				✓			
	Cartridge compartment louvred panel – right hand	SKC-0-180-0075-0		✓				✓		
12	Refrigeration cartridge – left hand	ULQCNI-0081	✓				✓			
	Refrigeration cartridge – right hand	URQCNI-0080		✓				✓		
13	Evaporator box rear mounting bracket – left	US08N00004	✓				✓			
	Evaporator box rear mounting bracket – right	US08N00009		✓				✓		
14	Evaporator box front mounting bracket – left	US08N00005	✓				✓			
	Evaporator box front mounting bracket – right	US08N00010		✓				✓		
15	LED power supply	ELZ12205	✓	✓			✓	✓		
16	Cartridge electrics box – left hand	UA0300061	✓				✓			
	Cartridge electrics box – right hand	UA0300062		✓				✓		
17	Shelf runner – left hand	SKC-0-180-0055-0			✓	✓			✓	✓
18	Shelf runner – right hand	SKC-0-180-0056-0			✓	✓			✓	✓
19	GN1/3 wire shelf set – 2-door cabinet	SKC-2-190-0121-0			✓	✓				
	GN1/3 wire shelf set – 3-door cabinet	SKC-2-190-0196-0							✓	✓
20	Left front shelf support rail	SKC-0-180-0124-0			✓	✓			✓	✓
21	Left back shelf support rail	SKC-2-180-0391-0			✓	✓			✓	✓
22	Right front shelf support rail	SKC-0-180-0125-0			✓	✓			✓	✓
23	Right back shelf support rail	SKC-2-180-0392-0			✓	✓			✓	✓
24	Left middle back support rail	SKC-2-180-0385-0			✓	✓			✓	✓
25	Right middle back support rail	SKC-2-180-0386-0			✓	✓			✓	✓
26	LED light	SKC-4-050-0155-0			✓	✓			✓	✓
27	Wire cover – rear pillar	SKC-2-180-0387-0	✓	✓			✓	✓		
28	Door gasket – 2-door cabinet	SKC-2-190-0115-0			✓	✓				
	Door gasket – 3-door cabinet	SKC-2-190-0194-0							✓	✓
29	Solid door – left hand, GN1/3, 2-bay cabinet	SKC-0-180-0051-0			✓					
	Solid door – left hand, GN1/3, 3-bay cabinet	SKC-0-180-0139-0							✓	
30	Solid door – right hand, GN1/3, 2-bay cabinet	SKC-0-180-0049-0				✓				
	Solid door – right hand, GN1/3, 2-bay cabinet	SKC-0-180-0137-0								✓

Table 12: Parts – GN1/3 salad preparation drop-in collar cabinet assembly (continued)

No.	Description	Part no.	2-bay				3-bay			
			Cartridge		Door		Cartridge		Door	
			Left	Right	Left	Right	Left	Right	Left	Right
31	Hinge set – left hand, top	SKC-2-190-0119-0			✓	✓			✓	✓
32	Hinge set – right hand, top	SKC-2-190-0116-0			✓	✓			✓	✓
33	Hinge set – left hand, bottom	SKC-2-190-0120-0			✓	✓			✓	✓
34	Hinge set – right hand, bottom	SKC-2-190-0117-0			✓	✓			✓	✓
35	Bush – top of door	SKC-2-110-0354-0			✓	✓			✓	✓
36	Lock pin and key kit	SKC-2-006-0996-0			✓	✓			✓	✓
37	Door stopper – left hand	SKC-2-190-0173-0			✓				✓	
38	Door stopper – right hand	SKC-2-190-0172-0				✓				✓
39	Self-closing hinge	SKC-2-170-0410-0			✓	✓			✓	✓
40	Door sensor kit	SKC-4-050-0130-0			✓	✓			✓	✓
41	Castor – braked	SKC-2-190-0212-0			✓	✓			✓	✓
42	Castor – unbraked	SKC-2-190-0211-0			✓	✓			✓	✓
43	Adjustable height leg	SKC-2-190-0205-0			✓	✓			✓	✓
–	Controller window (not shown)	PLY12470			✓	✓			✓	✓

## ChefBase Cabinet





**Table 13: Parts – ChefBase cabinet assembly: 1- and 2-bay**

No.	Description	Part no.	1-bay	2-bay
1	Bench top – 1-bay	KN-SSY12433	✓	
	Bench top – 2-bay	KN-SSY12406		✓
2	Castor – unbraked	KN-SXX12408	✓	✓
3	Castor – braked	KN-SXX12407	✓	✓
4	Right back rail – 2-drawer	KN-SSY12430	✓	
	Right back rail – 4-drawer	KN-SSY12395		✓
5	Left back rail – 2-drawer	KN-SSY12429	✓	
	Left back rail – 4-drawer	KN-SSY12393		✓
6	Left front rail – 2-drawer	KN-SSY12428	✓	
	Left front rail – 4-drawer	KN-SSY12396		✓
7	Right front rail – 2-drawer	KN-SSY12427	✓	
	Right front rail – 4-drawer	KN-SSY12398		✓
8	Middle beam – front	KN-SSY12397		✓
9	Middle beam – back	KN-SSY12394		✓
10	Cartridge compartment rear panel	KN-SXX12403	✓	✓
11	Mains flex (2 m)	KN-FLX12382	✓	✓
12	Cartridge compartment side panel	KN-STY12404	✓	✓
13	Cabinet electrics box	KN-ELZ12383	✓	✓
14	Refrigeration cartridge	See Table 17 on page 70	✓	✓
15	Condenser filter	KN-FIL12387	✓	✓
16	Front louvred panel	KN-STY12813	✓	✓
17	Controller mounting plate	KN-SXX12381	✓	✓
18	AoFrio electronic controller	ELZ11749	✓	✓
19	Duct set – 1-bay	KN-SSY12432	✓	
	Duct set – 2-bay	KN-SSY12380		✓
20	Lock pin and key kit	KN-SXX12401	✓	✓
21	Condenser shield	KN-SSY12435	✓	✓
22	Drawer slide – pair	KN-STY12411	✓	✓
23	Drawer gasket – 2-drawer	KN-GKT12413	✓	✓
	Drawer gasket – 4-drawer	KN-GKT12402		
24	Drawer assembly – left hand lock	KN-SSY12811		✓
25	Drawer assembly – right hand lock	KN-SSY12859R	✓	✓
26	Pan holder	KN-SSY12447	✓	✓
–	Controller window (not shown)	PLY12470	✓	✓

## Refrigeration Cartridge Assembly

Confirm the model and serial number of the cartridge before ordering spare parts. See Table 1, "Fridge cabinet specifications", on page 5.

### GN1/1 Removable Cartridge Underbench Cartridge

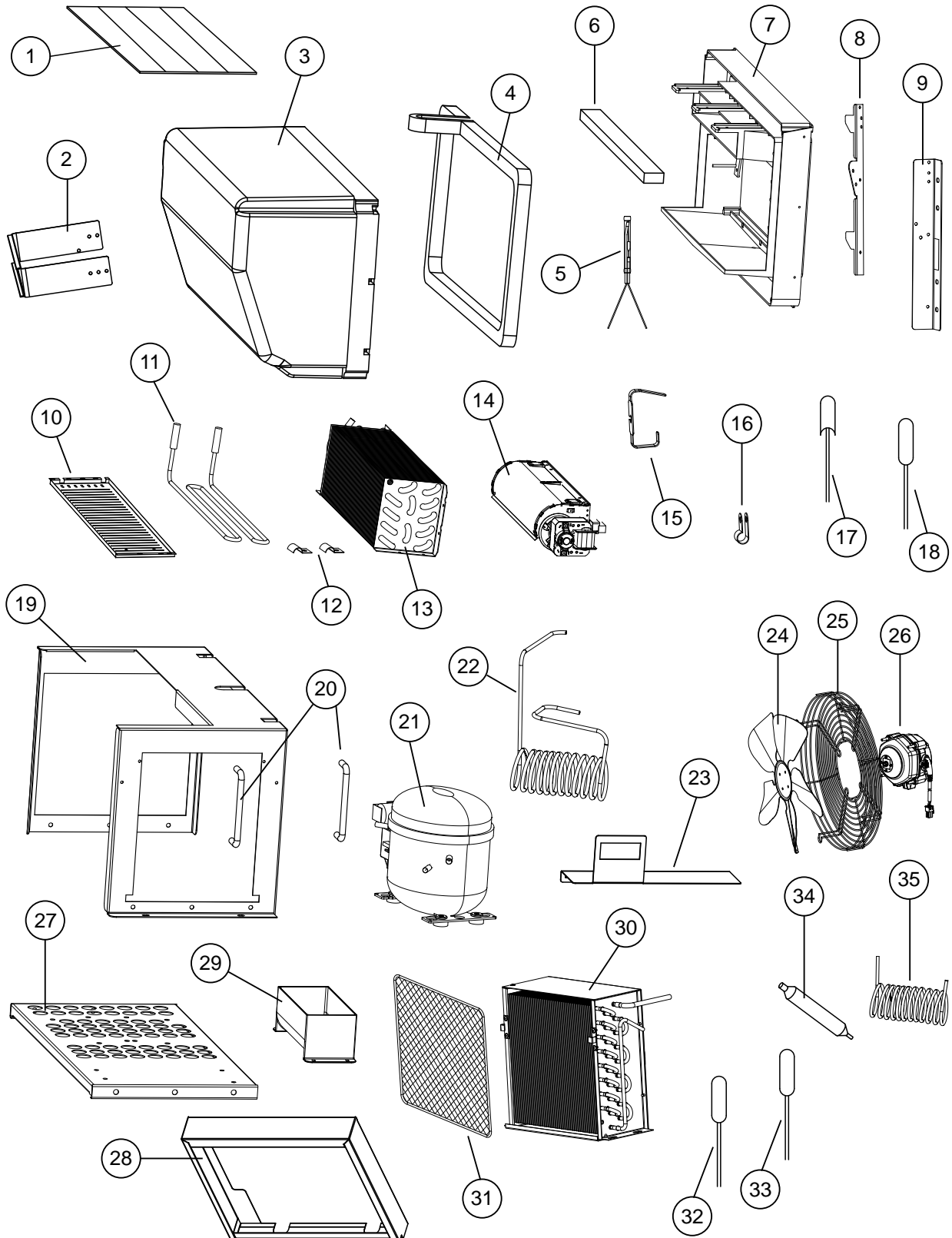


Table 14: Parts – GN1/1 underbench removable refrigeration cartridge assembly

No.	Description	Part no.	ULKCN-0062 (1 and 2-bay LH)	ULKCN-0063 (3 and 4-bay LH)	URKCN-0066 (1 and 2-bay RH)	URKCN-0067 (3 and 4-bay RH)
1	Inseal tape strip (60 x 3 x 2100)	KN-RUE12268	✓	✓	✓	✓
2	Evaporator box retaining strap	KN-SXX12128	✓	✓	✓	✓
3	Evaporator box	KN-SXX12083	✓	✓	✓	✓
4	Inseal tape strip (12 x 5 x 2000 mm)	KN-RUE12238	✓	✓	✓	✓
5	Thermal fuse	KN-ELZ12110	✓	✓	✓	✓
6	Port divider	KN-SXX12078	✓	✓	✓	✓
7	Evaporator housing	KN-SXX12077	✓	✓	✓	✓
8	Rear mounting bracket – left hand	KN-SXX12076	✓	✓		
	Rear mounting bracket – right hand	KN-SXX112842			✓	✓
9	Front mounting bracket – left hand	KN-SXX12075	✓	✓		
	Front mounting bracket – right hand	KN-SXX12841			✓	✓
10	Defrost tray	KN-SXX12082	✓	✓	✓	✓
11	Heater element – defrost (150 W)	KN-ELE12080	✓	✓	✓	✓
12	Saddle clamp	KN-SXX12267	✓	✓	✓	✓
13	Evaporator coil 4R5K372L	KN-CLS12125	✓		✓	
	Evaporator coil 5R5K372L	KN-CLS12126		✓		✓
14	Evaporator fan assembly	KN-ELM12079	✓	✓	✓	✓
15	Bracket – probe	KN-SXX12269	✓	✓	✓	✓
16	P clip	KN-SXX12266	✓	✓	✓	✓
17	Control probe	KN-ELZ12119	✓	✓	✓	✓
18	Evaporator probe	KN-ELZ12117	✓	✓	✓	✓
19	Cartridge frame – left hand	KN-SXX12120	✓	✓		
	Cartridge frame – right hand	KN-SXX12839			✓	✓
20	Cartridge handle	KN-HAN12121	✓	✓	✓	✓
21	Compressor EM2X3117U	KN-CPR12098	✓		✓	
	Compressor EM2X3125U	KN-CPR12100		✓		✓
22	Condensate line	KN-COT12130	✓	✓	✓	✓
23	Controller mounting plate – left hand	KN-SXX12122	✓	✓		
	Controller mounting plate – right hand	KN-SXX12848			✓	✓
24	Fan blade diameter 200 V28	KN-FAN12096	✓	✓	✓	✓
25	Fan guard/motor mount	KN-SXX12102	✓	✓	✓	✓
26	Fan motor ECR2-0361	ELM11309	✓	✓	✓	✓
27	Cartridge base – left hand	KN-SXX12127	✓	✓		
	Cartridge base – right hand	KN-SXX12840			✓	✓
28	Condenser air baffle – left hand	KN-SXX12851	✓	✓		
	Condenser air baffle – right hand	KN-SXX12852			✓	✓
29	Condensate tray	KN-SXX12124	✓	✓	✓	✓
30	Condenser coil 3R9K210L	KN-CLS12103	✓		✓	
	Condenser coil 4R10K210L	KN-CLS12074		✓		✓
31	Condenser filter	KN-FIL12144	✓	✓	✓	✓
32	Condenser probe	KN-ELZ12116	✓	✓	✓	✓
33	Ambient probe	KN-ELZ12118	✓	✓	✓	✓
34	Dryer (diameter 3.1 - diameter 6.2-B)	KN-DRY12107	✓	✓	✓	✓
35	Aerodev EMI filter	ELZ12166	✓	✓	✓	✓
–	Earth wire for EMI filter (not shown)	W-GNYE100-0200AIC	✓	✓	✓	✓
–	Capillary Ø1 x 3000 (not shown)	KN-COT12111	✓	✓		
	Capillary Ø1.17 x 3000 (not shown)	KN-COT12113			✓	✓

## GN2/1 Removable Cartridge Underbench Cartridge

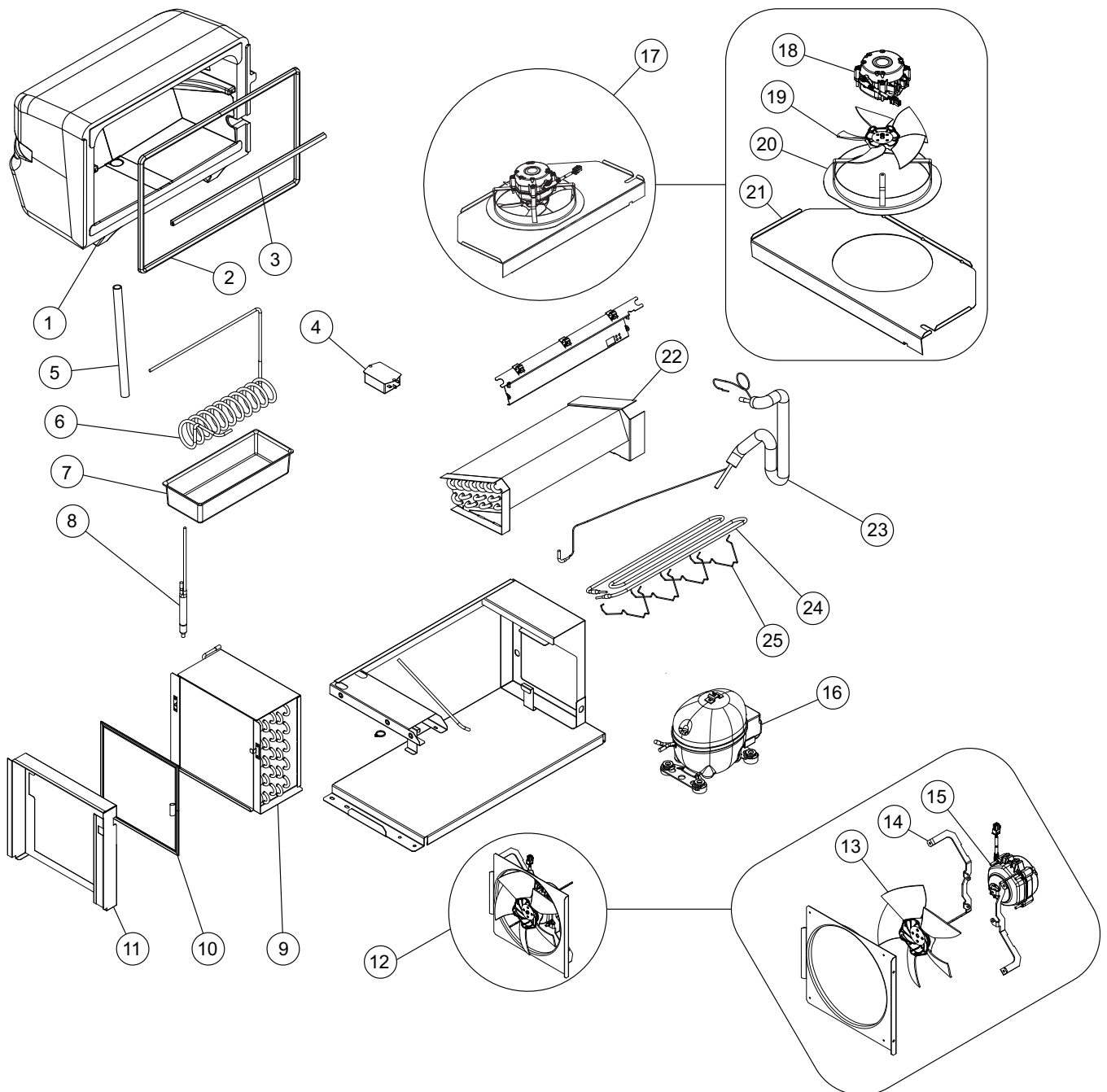
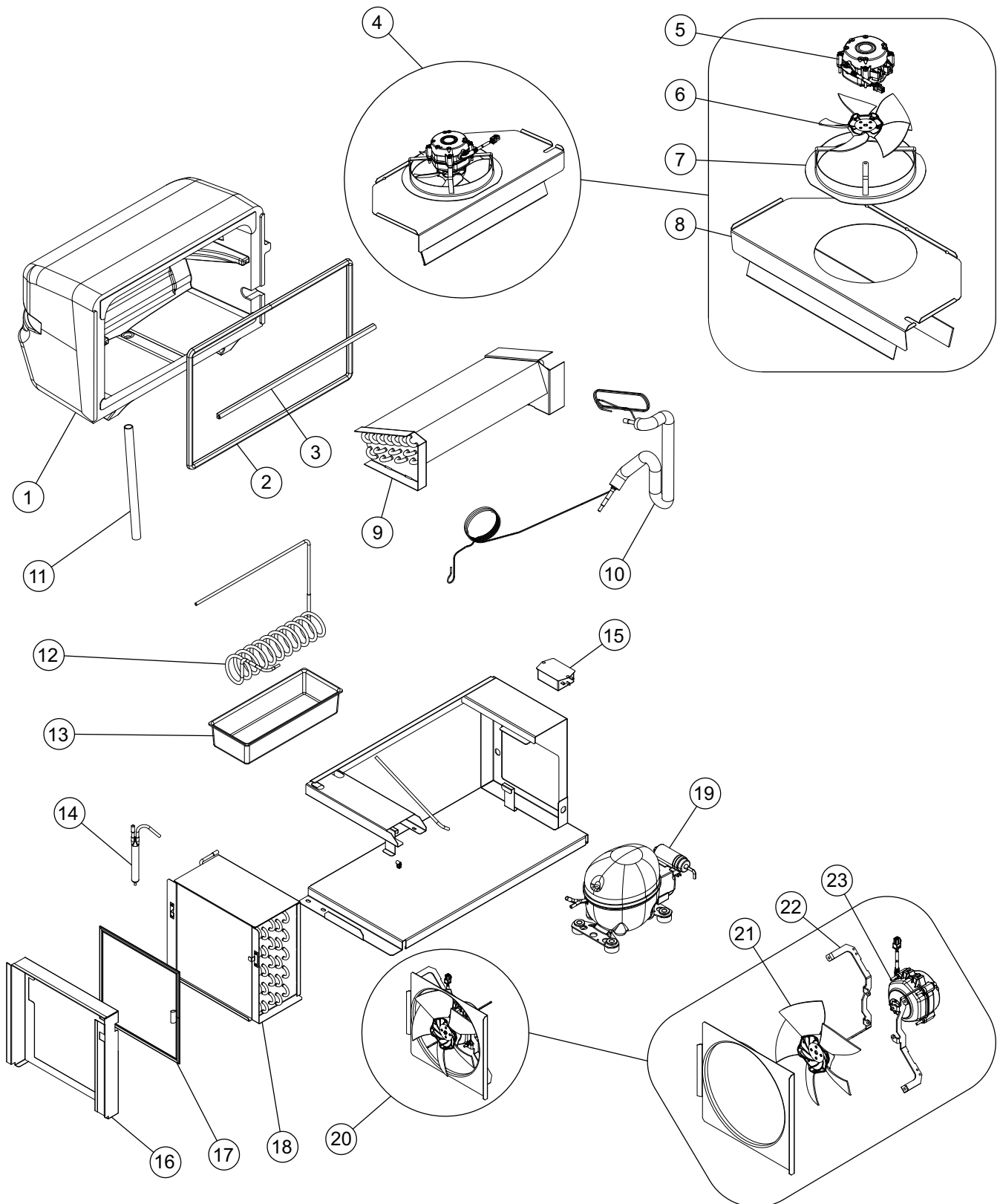


Table 15: Parts – GN2/1 underbench removable refrigeration cartridge assembly

No.	Description	Part no.	ULQCN1-0074 (left hand)	URQCN1-0075 (right hand)
	Refrigeration cartridge – left hand	ULQCN1-0074-P	✓	
	Refrigeration cartridge – right hand	URQCN1-0075-P		✓
1	Evaporator box	UP05N00024	✓	✓
2	Refrigeration cartridge D inseal set (2200 length)	RUE12210-2200	✓	✓
3	Refrigeration cartridge D inseal set (490 length)	RUE12210-490		
4	Aerodev EMI filter	ELZ12166	✓	✓
5	Drainage pipe	PLE12167-290		
6	Discharge line sub-assembly	UT03N00020	✓	✓
7	Condensate tray	UP10N00005	✓	✓
8	10 gm spun dryer	DRY11210	✓	✓
9	Condenser coil	CLS12066	✓	✓
10	Condenser filter	UP12N00001	✓	✓
11	Condenser duct shroud – left hand	US02N00028	✓	
	Condenser duct shroud – right hand	US02N00029		✓
12	Condenser fan assembly	UA0600014	✓	✓
13	Condenser fan blade Ø200 28°	FAN12481	✓	✓
14	Condenser fan mount	US01N00001	✓	✓
15	Condenser fan motor ECR2-0361	ELM11309	✓	✓
16	Compressor EMX3140U R290 9.50 cc	CPR12164	✓	✓
–	Compressor flex (not shown)	UW0100068	✓	✓
17	Evaporator fan assembly	UA0700013		
18	Evaporator fan motor ECR2-0361	ELM11858	✓	✓
19	Evaporator fan blade Ø172 28°	FAN12482	✓	✓
20	Evaporator fan mount wall ring	US01N00003	✓	✓
21	Evaporator fan shroud	US02N00034	✓	✓
22	Evaporator coil	CLS12747	✓	✓
23	Suction line assembly – left hand	UA0400039	✓	
	Suction line assembly – right hand	UA0400037		✓
24	Evaporator defrost element	ELE12749	✓	✓
25	Evaporator defrost element clip	UX02N00005	✓	✓
–	Evaporator probe (not shown)	UW0300037-150BK	✓	✓
–	Evaporator fan extension loom (not shown)	UW0100058	✓	✓
–	Condenser probe (not shown)	UW0300037-075OG	✓	✓
–	Ambient probe (not shown)	UW0300037-075WH	✓	✓
–	Control probe (not shown)	UW0300037-150BU	✓	✓
–	Earth wire for EMI filter (not shown)	W-GN1E100-0200AIC	✓	✓
–	LED driver D output loom (not shown)	UW0100057	✓	✓
–	Power connection loom (not shown)	UW0300032	✓	✓

## GN1/3 Salad Preparation Free-standing and Drop-in Collar Cartridge

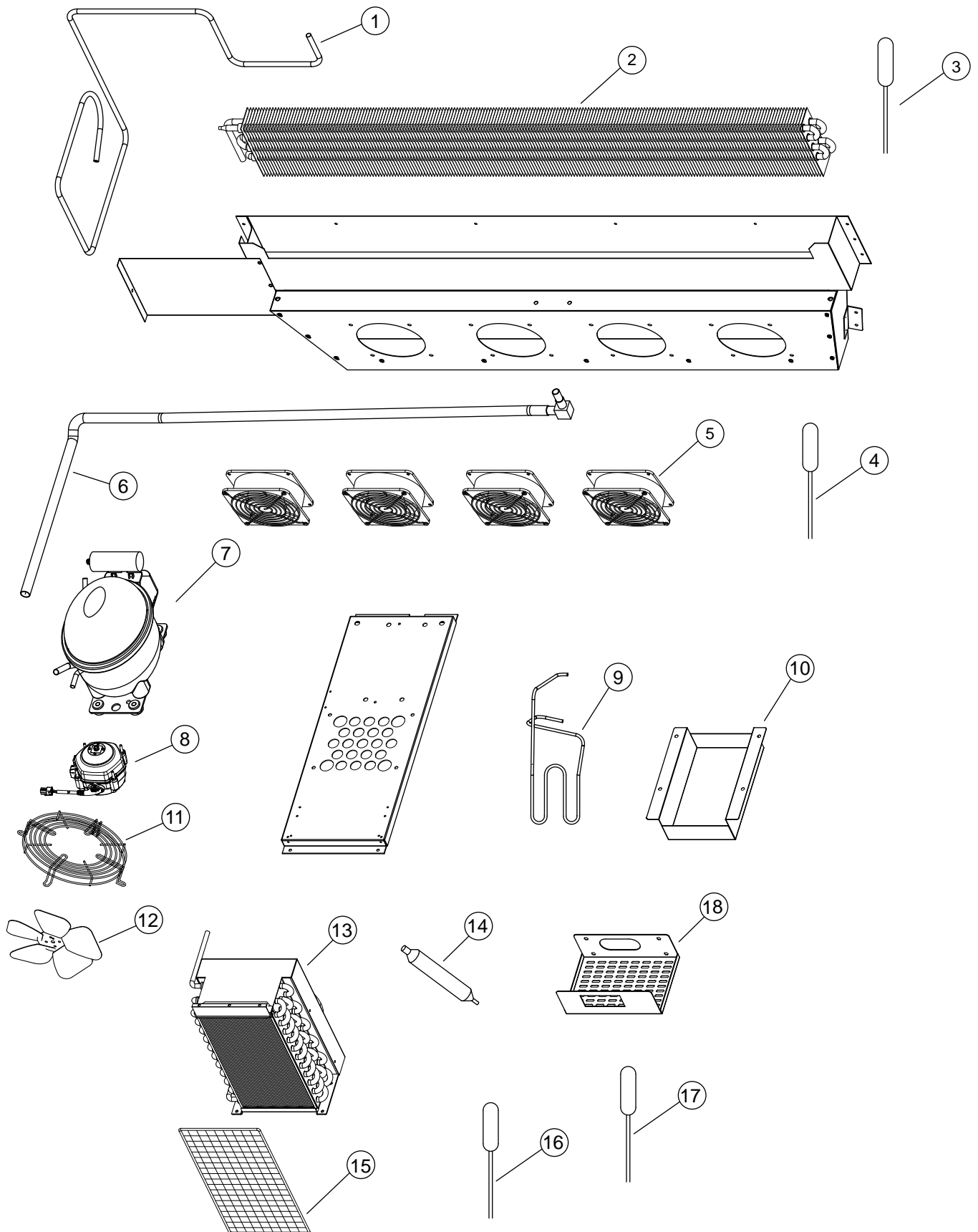


**Table 16: Parts – GN1/3 salad preparation free-standing and drop-in collar refrigeration cartridge assembly**

No.	Description	Part no.	ULQCN1-0081 (left hand)	URQCN1-0080 (right hand)
1	Evaporator box	UP05N00024	✓	✓
2	Refrigeration cartridge D inseal set (2200 length)	RUE12210-2200	✓	✓
3	Refrigeration cartridge D inseal set (490 length)	RUE12210-490	✓	✓
4	Evaporator fan assembly	US02N00010	✓	✓
5	Evaporator fan motor ECR2-0F61	ELM11858	✓	✓
–	Evaporator fan extension loom (not shown)	UW0100058	✓	✓
6	Evaporator fan blade Ø172 28°	FAN12482	✓	✓
7	Evaporator fan mount wall right	US01N00001	✓	✓
8	Evaporator fan shroud	UA0700001	✓	✓
9	Evaporator coil	CLS12065	✓	✓
10	Suction line assembly – left hand	UA0400016	✓	
	Suction line assembly – right hand	UA0400040		✓
11	Drainage pipe	PLE12167-290	✓	✓
12	Discharge line sub-assembly	UT03N00019	✓	✓
13	Condensate tray	UP10N00005	✓	✓
14	Dryer	0074180006	✓	✓
15	Aerodev EMI filter	ELZ12166	✓	✓
–	Earth wire for EMI filter (not shown)	W-GNYE100-0200AIC	✓	✓
16	Condenser duct shroud – left hand	US02N00028	✓	
	Condenser duct shroud – right hand	US02N00029		✓
17	Condenser filter	UP12N00001	✓	✓
18	Condenser coil	CLS12066	✓	✓
19	Embraco compressor NEX2180UB	CPR12717	✓	✓
–	Compressor flex (not shown)	UW0100068	✓	✓
20	Condenser fan assembly Ø200 28°	UA0600013	✓	✓
21	Condenser fan blade	FAN12481	✓	✓
22	Condenser fan mount	US01N00003	✓	✓
23	Condenser fan motor ECR2-0361	ELM11309	✓	✓
–	Ambient probe (not shown)	UW0300037-075WH	✓	✓
–	Condenser probe (not shown)	UW0300037-075OG	✓	✓
–	Control probe (not shown)	UW0300037-150BU	✓	✓
–	Evaporator probe (not shown)	UW0300037-150BK	✓	✓



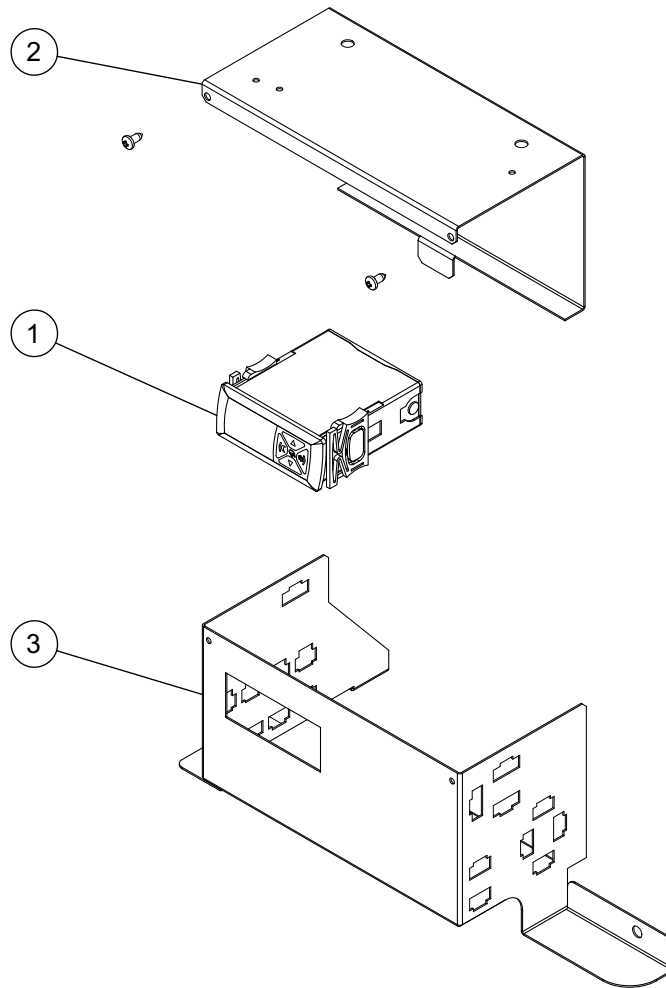
## ChefBase Cartridge



**Table 17: Parts – ChefBase refrigeration cartridge assembly**

No.	Description	Part no.
1	Suction line assembly	KN-COT12409
2	Evaporator coil (2-drawer)	KN-CLS12392
	Evaporator coil (4-drawer)	KN-CLS12378
3	Evaporator probe	KN-ELZ12117
4	Cabinet probe	KN-ELZ12119
5	Evaporator fan assembly	KN-ELM12390
6	Drain hose	KN-SXX12410
7	Compressor EM2X3125U	KN-CPR12100
8	Condenser fan motor ECR2-0361	ELM11309
9	Condensate line	KN-COT12385
10	Condensate tray	KN-ELZ12384
11	Condenser fan guard/motor mount	KN-SXX12379
12	Condenser fan blade Ø172	KN-FAN12388
13	Condenser coil	KN-CLS12391
14	Filter dryer	KN-DRY12386
15	Condenser filter	KN-FIL12387
16	Condenser probe	KN-ELZ12116
17	Ambient probe	KN-ELZ12118
18	Controller mounting plate	KN-SXX12381

## GN1/3 and GN2/1 Cartridge Electrics Box



**Table 18: GN1/3 and GN2/1 cartridge electrics box**

No.	Description	Part no.
	Cartridge electrics box – left hand	UA0300061
	Cartridge electrics box – right hand	UA0300062
1	AoFrio electronic controller	ELZ11749
2	Controller box lid	US07N00011
3	Controller box base – left hand	US07L00001
	Controller box base – right hand	US07R00001

## 7 Troubleshooting and Diagnostics

### Electronic Controller

Alarms signal unexpected operational changes in the cabinet. When an alarm is activated, use the service app for the electronic controller to help diagnose the problem, and service as necessary.

### Cabinet and Refrigeration Cartridge

For problems with the cabinet and refrigeration cartridge use Table 19.

**Table 19: Cabinet and cartridge troubleshooting**

Problem	Possible cause	Recommended action
<ul style="list-style-type: none"> <li>Cabinet not operating</li> <li>No controller display</li> </ul>	<ul style="list-style-type: none"> <li>Loss of power supply</li> <li>Loose plug</li> </ul>	<p>Check the mains power supply.</p> <p>Check that all plugs are connected correctly.</p>
<ul style="list-style-type: none"> <li>Cabinet not operating as usual</li> <li>Defrost cycle incorrect length</li> </ul>	<ul style="list-style-type: none"> <li>Incorrect parameters</li> </ul>	<p>AoFrio: Reload the parameter set. The parameter number should be on or near the electronic controller.</p>
<ul style="list-style-type: none"> <li>Fan not working</li> </ul>	<ul style="list-style-type: none"> <li>Loose plug</li> </ul>	<p>Check all plugs are connected correctly.</p>
<ul style="list-style-type: none"> <li>Lights not on</li> </ul>	<ul style="list-style-type: none"> <li>Electronic controller is in Night mode</li> </ul>	<ul style="list-style-type: none"> <li>Switch the light on while keeping the cabinet in Night mode by pressing the light button on the electronic controller faceplate.</li> <li>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.</li> </ul>
	<ul style="list-style-type: none"> <li>Light switched off</li> </ul>	<ul style="list-style-type: none"> <li>Switch the light on via the app.</li> <li>Open the door.</li> </ul>
	<ul style="list-style-type: none"> <li>Failed LED light</li> </ul>	<p>Replace the light.</p>
	<ul style="list-style-type: none"> <li>Faulty door switch</li> </ul>	<p>Check that the door switch is working. Use the app to help diagnose the problem.</p>
	<ul style="list-style-type: none"> <li>Plug not connected properly</li> </ul>	<p>Check and clean the plugs.</p>
	<ul style="list-style-type: none"> <li>Power supply fault</li> </ul>	<p>Replace the light's power supply.</p>
<ul style="list-style-type: none"> <li>Light component not working</li> </ul>	<ul style="list-style-type: none"> <li>Plug not connected properly</li> <li>Faulty light</li> </ul>	<p>Check and clean the plug connection.</p> <p>Replace the light.</p>
<ul style="list-style-type: none"> <li>Segment of light not working</li> </ul>	<ul style="list-style-type: none"> <li>Faulty light</li> </ul>	<p>Replace the light.</p>
<ul style="list-style-type: none"> <li>Excess noise vibration</li> </ul>	<ul style="list-style-type: none"> <li>Refrigeration pipes transferring vibration into the cartridge</li> </ul>	<p>Re-align the pipes to ensure they are not touching the evaporator box bottom surface, evaporator box support legs, plastic base, or condenser coil assembly.</p>

Table 19: Cabinet and cartridge troubleshooting (continued)

Problem	Possible cause	Recommended action
<ul style="list-style-type: none"> <li>Excess compressor noise</li> </ul>	<ul style="list-style-type: none"> <li>Noise variation is usual as the variable speed compressor speed changes</li> </ul>	
	<ul style="list-style-type: none"> <li>Damaged mountings</li> </ul>	Check the mountings to ensure there is no damage to the rubber, or the washers, nuts or screws.
<ul style="list-style-type: none"> <li>Compressor not operating</li> </ul>	<ul style="list-style-type: none"> <li>Compressor electrics</li> </ul>	<ul style="list-style-type: none"> <li>Check all plug connections and ensure that the compressor electrics are operating correctly.</li> <li>Make sure the compressor is supplied with consistent voltage over 220 volts.</li> <li>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).</li> </ul>
	<ul style="list-style-type: none"> <li>Failed compressor</li> </ul>	Replace the compressor.
<ul style="list-style-type: none"> <li>Frozen evaporator coil</li> </ul>	<ul style="list-style-type: none"> <li>Evaporator probe fault</li> </ul>	Replace the evaporator probe.
	<ul style="list-style-type: none"> <li>Setpoint is too cold</li> </ul>	Check and raise the setpoint.
	<ul style="list-style-type: none"> <li>Electronic controller fault</li> </ul>	Replace the controller.
	<ul style="list-style-type: none"> <li>Short of refrigerant</li> </ul>	Perform refrigeration system diagnostics and service as required.
<ul style="list-style-type: none"> <li>Failed thermal fuse</li> </ul>	<ul style="list-style-type: none"> <li>Failed evaporator probe</li> </ul>	<ul style="list-style-type: none"> <li>Replace the evaporator probe.</li> </ul>
	<ul style="list-style-type: none"> <li>Electronic controller fault</li> </ul>	<ul style="list-style-type: none"> <li>Replace the electronic controller.</li> </ul>
	<ul style="list-style-type: none"> <li>Element or fuse not in the correct position</li> </ul>	<ul style="list-style-type: none"> <li>Position the element or fuse correctly.</li> </ul>
	<ul style="list-style-type: none"> <li>Refrigeration system failure</li> </ul>	<ul style="list-style-type: none"> <li>Contact SKOPE for information on how to proceed.</li> </ul>
<ul style="list-style-type: none"> <li>Ice build-up inside the evaporator box</li> </ul>	<ul style="list-style-type: none"> <li>Leaking cartridge seal</li> </ul>	Check that the evaporator box seals are fully clamped, and the cabinet top seal is good without gaps. Micro-gaps will allow ice build-up in the cabinet.
<ul style="list-style-type: none"> <li>Power consumption is higher than expected</li> </ul>	<ul style="list-style-type: none"> <li>Excessive door opening</li> </ul>	Limit door openings.
	<ul style="list-style-type: none"> <li>Cartridge is operating too hot</li> </ul>	<ul style="list-style-type: none"> <li>Clean the condenser.</li> <li>Ensure the cabinet has good ventilation around the refrigeration cartridge.</li> <li>Ensure the cabinet is within the maximum operating temperature.</li> </ul>
	<ul style="list-style-type: none"> <li>Product is too cold</li> </ul>	Raise the setpoint.

Table 19: Cabinet and cartridge troubleshooting (continued)

Problem	Possible cause	Recommended action
<ul style="list-style-type: none"> <li>Product is too warm</li> </ul>	<ul style="list-style-type: none"> <li>Door not closing properly</li> </ul>	<ul style="list-style-type: none"> <li>Check and clean the door gasket.</li> <li>Ensure the cabinet is on a level surface.</li> </ul>
	<ul style="list-style-type: none"> <li>Excessive door opening</li> </ul>	Limit door openings.
	<ul style="list-style-type: none"> <li>Electronic controller is in Night mode</li> </ul>	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.
	<ul style="list-style-type: none"> <li>Refrigeration system error (no active fault alarm)</li> </ul>	Check the SCS Connect Field app statistics to see if and when the controller signalled a fault or alarm.
	<ul style="list-style-type: none"> <li>Cartridge is operating too hot</li> </ul>	<ul style="list-style-type: none"> <li>Ensure the cabinet has good ventilation around the refrigeration cartridge.</li> </ul>
	<ul style="list-style-type: none"> <li>Excessive refrigeration heat load</li> </ul>	<ul style="list-style-type: none"> <li>Ensure the cabinet is within the maximum operating conditions.</li> </ul>
	<ul style="list-style-type: none"> <li>Setpoint is too high</li> </ul>	Lower the setpoint.
	<ul style="list-style-type: none"> <li>The cabinet is recently loaded</li> </ul>	Allow the product time to cool down.
	<ul style="list-style-type: none"> <li>The cabinet is overstocked</li> </ul>	<ul style="list-style-type: none"> <li>Remove some product.</li> <li>Do not allow product to hang over the shelves.</li> </ul>
	<ul style="list-style-type: none"> <li>Refrigeration system error (indicated by the electronic controller)</li> </ul>	Diagnose and repair. If a system fault is found contact SKOPE for information on how to proceed.
<ul style="list-style-type: none"> <li>Moisture build up on cabinet exterior</li> </ul>	<ul style="list-style-type: none"> <li>Frequent door opening</li> </ul>	Limit door openings.
	<ul style="list-style-type: none"> <li>Door not closing properly</li> </ul>	<ul style="list-style-type: none"> <li>Check and clean the door gasket.</li> <li>Ensure the cabinet is on a level surface.</li> </ul>
	<ul style="list-style-type: none"> <li>High humidity</li> </ul>	Check the ambient operating temperature and reposition the cabinet if necessary.
<ul style="list-style-type: none"> <li>Cabinet door does not close properly</li> </ul>	<ul style="list-style-type: none"> <li>Cabinet is on an uneven surface</li> </ul>	Level the cabinet.
	<ul style="list-style-type: none"> <li>Door is obstructed</li> </ul>	Check the shelves and product.
	<ul style="list-style-type: none"> <li>Door gasket is dirty</li> </ul>	Check and clean the door gasket.
<ul style="list-style-type: none"> <li>Warm cabinet temperatures</li> <li>Compressor operating for long periods (more than 1 hour)</li> </ul>	<ul style="list-style-type: none"> <li>Blocked condenser coil</li> </ul>	Clean the condenser coil.
	<ul style="list-style-type: none"> <li>Poor ventilation around the refrigeration cartridge</li> </ul>	<ul style="list-style-type: none"> <li>Ensure the cabinet has good ventilation around the refrigeration cartridge.</li> <li>Ensure the cabinet is within the maximum operating temperature.</li> </ul>

# SKOPE Contacts

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