Drawing	: - TPC586
Issue	: - 2
Date	: - 28/02/23

BKOOL-24
PORTABLE ACU
OWNER'S MANUAL

www.eipl.co.uk

SAFETY INFORMATION

Children shall not play with the appliance.

This appliance can be used by children from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the application in a safe way and understand the hazards involved.

Cleaning and user maintenance shall not be made by children without supervision.

If the SUPPLY CORD is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified person in order to avoid hazard.

If the appliance is switched off at the mains power supply for any reason, the unit must be allowed to stand at rest for at least three minutes before restarting.

Due to the high pressures within the refrigeration circuit, under no circumstances must direct heat be applied to the evaporator coil in an attempt to remove the build-up of ice.

No attempt should be made to cut open any part of the refrigeration circuit due to high pressures and gas involved.

If the appliance is switched off at the mains power supply for any reason, it must be allowed to stand at rest for at least three minutes before restarting. Failure to do so may cause the appliance to blow the fuses owing to the compressor due to there being a refrigerant imbalance.

The Global Warming Potential (GWP) of refrigerants used in products manufactured by Ebac Industrial Products Ltd is as follows: -
R290 – 3
R454c – 148

For type and weight of refrigerant contained in this appliance, please refer to the product data label

Do not insert objects into any of the grilles on the machine.

Do no cover or obstruct airflow from the grilles.

Do not operate the unit with the covers removed

Do not stand on the unit

Do not attempt to lift heavy units unassisted.

Do check the plug on the unit matches the supply.

Do check the supply cord and power supply are earthed correctly

Do check the voltage selection before attempting to power up the unit (This is for dual voltage units only).

Do use a residual current device “RCD” where possible

The appliance uses R454c refrigerant gas. This gas is much kinder to the environment as it is non-toxic with zero Ozone Depletion Potential (ODP). This is a flammable gas and the following warnings should be considered:

- The appliance uses a flammable refrigerant (see unit serial plate for charge quantity). It is therefore part of a sealed system and **any servicing should only be carried out by EIPL service personnel.**
- Do not pierce / puncture the appliance at any point, even when disposing of. Before disposing all refrigerant should be evacuated and disposed of as required by local environmental laws.
- If there is any damage to the appliance, DO NOT USE and contact EIPL.
- The appliance must not be used in a potentially explosive atmosphere.
- The appliance must not be used in an aggressive atmosphere e.g. chemical environments.
- The appliance must not be used in a high dust environment.
- The appliance must not be used in a high solvent concentration atmosphere.
- The appliance should not be used or stored in a space of 4M^3 or smaller.
- Do not use the appliance in a room with any continuous source of ignition e.g. open flames or gas fires.
- R454c is an odourless gas.
- Anyone who does work on the refrigeration circuit must have the appropriate qualifications / certification issued by a national accredited organisation to ensure competence when handling flammable refrigerants.

Any parts to be replaced within the appliance should only be replaced with EIPL approved parts.

INTRODUCTION

Heat is a form of energy, cooling is a means of transferring the heat from one object to another. In the case of air conditioning, sensible heat is removed from the indoor space and replaced with cooler air, and the warm air removed is exhausted outside the space being conditioned. This process gradually reduces / maintains the inside temperature. Air Conditioning is most commonly used to achieve a more comfortable interior environment, typically for humans or animals. However, air conditioning is also used to cool rooms filled with heat-producing electronic items, such as computer server rooms. Spot Coolers allow the cool air to be directed towards specific objects or people.

An ACU consists of a motor-compressor unit, a refrigerant condenser, two air circulating fans, a refrigerated surface, a means of collecting and disposing the condensed moisture and a cabinet to house these components.

The evaporator fan draws air through the refrigerated surface cooling it and removing moisture which is collected and led away. This air is then returned to the room at a much colder temperature providing the cooling effect and with a lower relative humidity than when the air entered the unit. Continuous circulation of the room air through the ACU evaporator gradually reduces the temperature and relative humidity in the room. The condenser fan draws air over the hot condenser which keeps the refrigerated surface cold. This air stream should ideally be ducted out of the area being cooled as it will leave the unit much warmer than the air entering the unit.

A digital thermostat is included which allows for precise temperature control. A programmable display lets you set a specific desired temperature level.

The BKool24 is a rugged reliable cooling unit designed to operate effectively over a broad range of temperatures. A defrost system, controlled by the temperature controller, guarantees de-icing and thereby optimizing operation at low temperatures.

The appliance incorporates a welded steel chassis and is finished in epoxy coated steel covers for resilience to damage caused by rough handling.

UNPACKING

Carefully remove the appliance from its transit box and visually check for signs of transit damage. If there is evidence of damage DO NOT attempt to operate the appliance, call your supplier for advice. Do not discard the packing; it will be useful when transporting the dehumidifier unit in the future.

INSTALLATION

POSITIONING:

Position the appliance in the center of the room to be conditioned if at all possible. However, if a specific area needs to be cooled then place the unit and the cool air outlets over these areas.

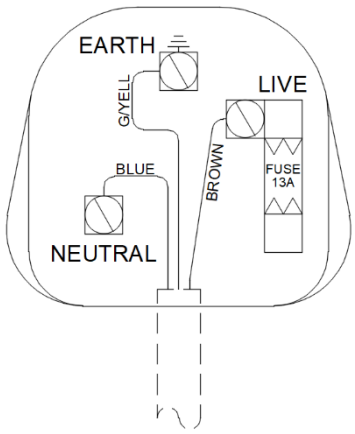
NOTE: All air inlets and outlets of the appliance must have clear space around them and not be obstructed in anyway. For correct installation and operation, the appliance must have a clearance of 0.5M from all adjacent surfaces and or structures. The unit must also be on a level surface.
Appliance shall be installed, operated and stored in a room with a floor area larger than $4M^2$.

WIRING:

Connect the power mains cable to power supply as follows: -

230V supply	
Brown	Live
Blue	Neutral
Green/Yellow	Earth (ground)

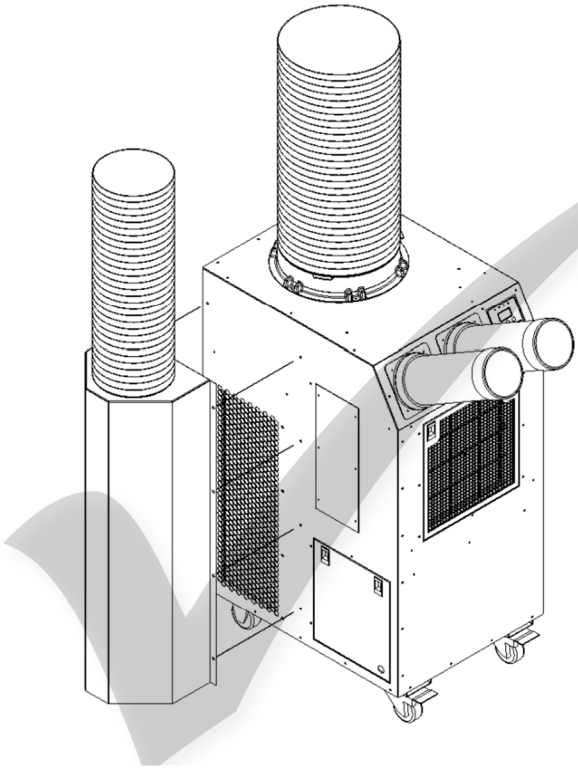
13 AMP 230V PLUG BS1363



DUCTING:

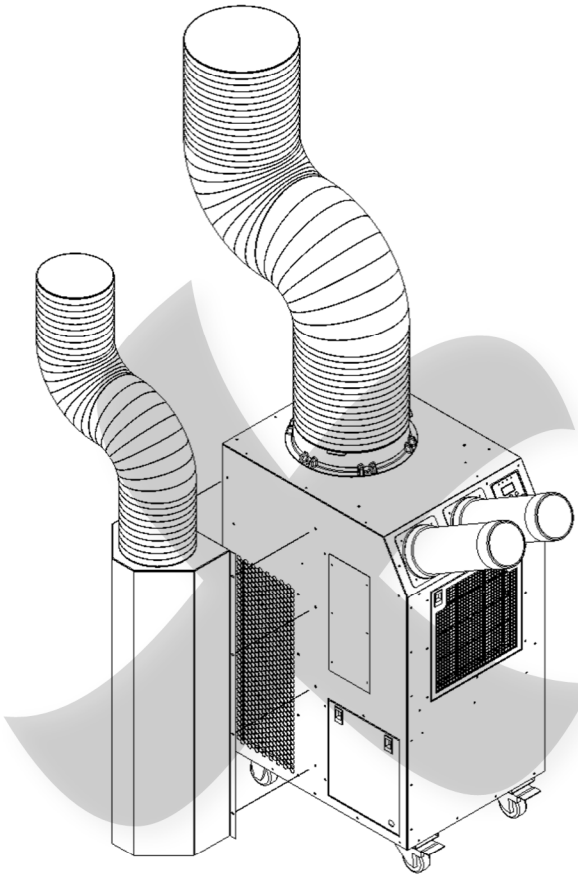
The evaporator air can be directed to a desired area with the flexible ducts provided with the ACU unit. The two flexible ducts are provided in a separate box within the unit packaging. These ducts **MUST BE FITTED** to the ACU unit **BEFORE SWITCHING THE UNIT ON**. To fit the ducts, remove the 8 off fixings located on the top sloped face around the outlet cut outs. Place the duct into position on the sloped face and then fix in place with the removed fixings.
Ideally the condenser air outlet should be ducted out of the room / area being cooled. On one of the following pages is a list of the accessories available for the ACU unit including the duct options.

CONDENSER INLET / OUTLET DUCTING:



Correct Installation

Straight ducts ONLY



Incorrect Installation

No bends

DRAINAGE:

BUCKET:
The appliance is fitted with a removable bucket as standard. This is accessible via the quick release panel located on the same side as the condenser air inlet. The bucket must be in place for the appliance to operate. This bucket collects the condensate generated by the refrigeration system and must be emptied periodically. If the container is not emptied, then a safety switch will shut the unit off once it is full. If this happens then empty the bucket and replace it, the unit will then operate as normal.

PUMP: (optional extra)
An optional extra available is a condensate pump. This is fitted in place of the bucket and collects all the condensate. As the condensate pump fills with water it will automatically activate and empty via the tube outlet which can be fed through the removable access panel, this should be connected to a water container or permanent drain. If the pump fails, then the appliance will automatically switch off. NOTE: after the pump has emptied there will still be a small amount of water standing in the pump reservoir which will leak if the appliance is not kept upright.

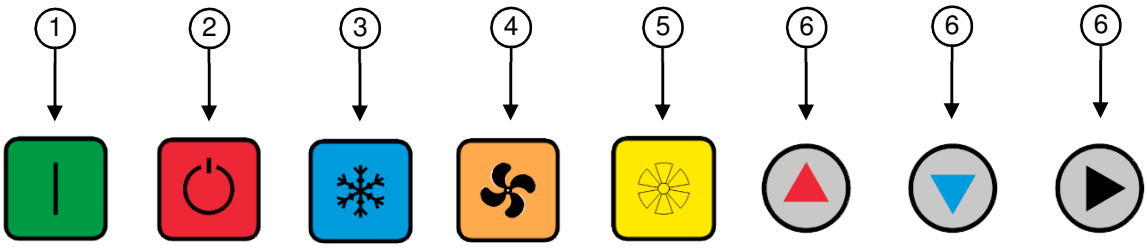
PRESSURE STATS:

The ACU unit is fitted with a low pressure stat and a high pressure stat. These pressure stats are connected to the refrigeration system and are safety devices designed to protect the refrigeration components. If one of the pressure stats are activated, then the pressure fault indicator light will illuminate and the following should be carried out.

1. Switch unit off and leave for a minimum of 5 minutes
2. Check the air inlets are not blocked.
3. Ensure that the unit is operating within specified parameters of 18°C – 35°C
4. Switch unit back on, if it restarts then the low pressure stat tripped and has re-set.
5. If the unit does not restart then switch unit off, disconnect from power supply and manually reset the high pressure switch located within the unit. Restart the unit and check for normal operation.

If the unit still does not start or has started and cuts out on pressure switches then the unit should be turned off and disconnected from the power supply. Then contact either the manufacturer, distributor or qualified personnel.

BUTTON FUNCTIONS:



1 – ON
Turns the appliance on

2 – OFF
Turns the appliance off

3 – COOLING
Select cooling mode

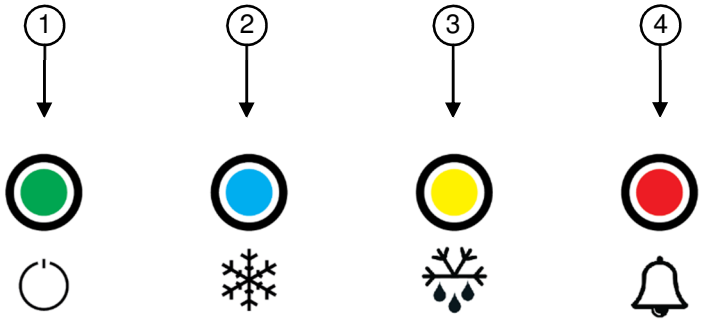
4 – RECIRCULATION (Evaporator fan only)
Select continuous evaporator fan recirculation (no cooling)

5 – PUMP PURGE
Only applicable when a pump kit has been fitted and will empty the pump when pressed. If no pump kit is fitted, then the alarm LED will still illuminate when pressed but nothing else will happen.

6 – MENU
Used to navigate the menus and adjust appliance settings

Light Functions:

The unit has four LED indicators. The following lists the functions of these lights:



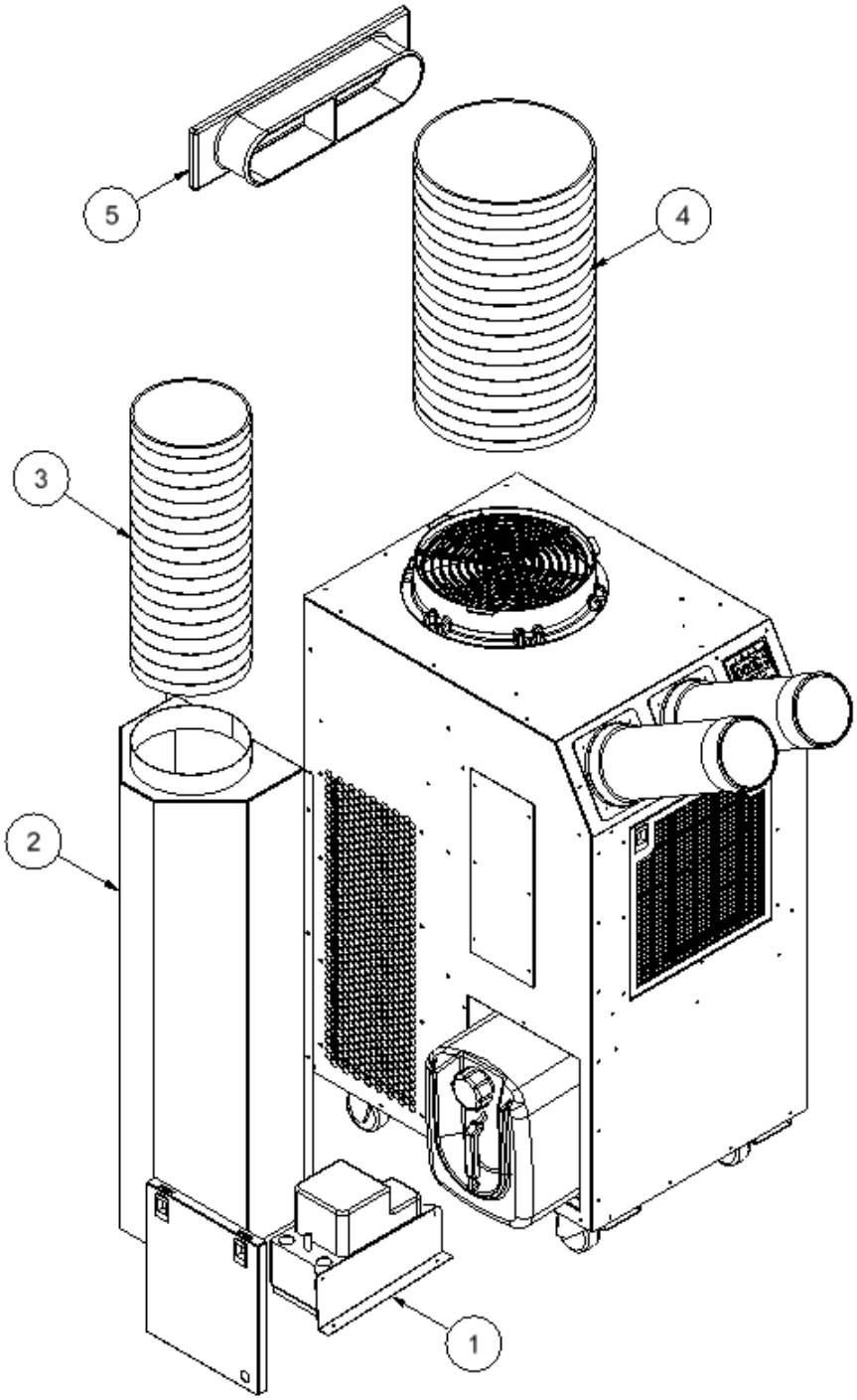
1 - ON / OFF
Green – Flashing – Standby
Green – Solid – Running

2 – COOLING
Blue – Flashing – Cooling selected (compressor not started)
Blue – Solid – Cooling (compressor started)
Yellow – Solid – Recirculation (evaporator fan only)

3 – DEFROST
Yellow – Flashing – Defrost required
Yellow – Solid – Defrost in progress

4 – FAULT
Red – Flashing – Bucket / pump fault
Red – Solid – High pressure OR low pressure fault
Green – Flashing – Pump purging (when pump kit fitted)

BKool24 ACCESSORIES:



ACCESSORIES LIST		
ITEM	PART NUMBER	DESCRIPTION
1	1097050	PUMP KIT (R407c UNITS)
1	1197050	PUMP KIT (R454c UNITS)
2	1097060	CONDENSER AIR INLET ADAPTOR
3	2092696	200mm DUCT FOR 1097060
4	2092697	300mm DUCT
5	2092678	WINDOW ADAPTOR - USED WITH 2092677

OPERATION

Once the appliance is installed turn the power supply on, then press the 'I' button, note the display will flash for approximately 1 second then show the temperature set point for approximately 12 seconds. Also all the indicator lights will illuminate for the same duration. After this brief period the display will show the room temperature and all the lights will go off. The machine is now powered up (POWER light illuminated) and ready to operate. Then carry out the following: -

- Set the temperature set point to lowest setting (18°C) as follows.
  - Press the UP and DOWN arrow keys together for 3 seconds and the display will start to flash
  - Use the UP and DOWN arrow keys to adjust the set point to 18°C
  - Press the RIGHT arrow key to save (if the RIGHT arrow key is not pressed for 3 seconds the selection is cancelled)
  - Press the cooling button to select cooling
  - Once set to 18°C and saved and with cooling selected the compressor will start and the cooling light will illuminate

Then check the following:

- Check that the compressor is running. This will happen after an approximate 6minute delay
- Leave the appliance to run for approximately 15 minutes
- Check the cooling ducts are discharging cool air. After a period of time the digital temperature display should start to decrease until the set point is reached at which point the compressor and condenser fan will stop but the evaporator fan will continue

When the unit is operated in an ambient of less than 15°C, a defrost cycle should occur. This will be at intervals of no more than every hour and will last no more than 5 minutes. The exact time is impossible to predict as the unit is fitted with a temperature sensitive defrost control. When in defrost the COOLING lamp will extinguish and the DEFROST light illuminate. After defrost the lights will switch back.

If, after carrying out the above procedures, the appliance does not appear to function properly, refer to the *Trouble Shooting* section, which follows, or contact EIPL.

ROUTINE SERVICE

WARNING:
ENSURE THE POWER CORD TO THE APPLIANCE IS DISCONNECTED BEFORE CARRYING OUT ROUTINE SERVICE. SERVICING AND REPAIR SHOULD ONLY BE CARRIED OUT BY A SUITABLY QUALIFIED PERSON.

To ensure continued full efficiency of the appliance, maintenance procedures should be performed as follows:

1. Clean the surface of the evaporator and condenser coils by blowing the dirt out from behind the fins with compressed air. Hold the nozzle of the air hose away from the coil (approx 6") to avoid damaging the fins. Alternatively, vacuum clean the coils.

WARNING:
DO NOT STEAM CLEAN THE REFRIGERATION COILS

2. Check that the fan is firmly secured to the motor shaft and that the fan rotates freely. The motor is sealed for life and does not require any lubrication

3. To check the refrigerant charge, run the appliance for 15 minutes. The evaporator coil should be evenly frost coated across its surface. At temperatures above 25°C, the coil may be covered with droplets of water rather than frost. Partial frosting accompanied by frosting of the thin capillary tubes, indicates loss of refrigerant gas or low charge.

4. Check all wiring connections.

TROUBLESHOOTING

SYMPTOM	CAUSE	REMEDY
Little or no airflow	1. Fan motor burnt out 2. Dirty refrigeration coils 3. Loose electrical wiring 4. Control temperature either set too high or controller malfunctioning	1. Replace the fan motor See *Routine Maintenance* 2. Check the wiring diagram to find fault and repair 3. Adjust temperature as required or replace
Little or no cooling effect	1. Insufficient air flow 2. Compressor fault 3. Loss of refrigerant gas	1. Check all of the above 2. Contact EIPL 3. Contact EIPL
Little or no defrost when required	1. Faulty Timer 2. Faulty bypass timer	1. Contact EIPL 2. Contact EIPL

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SPECIFICATIONS

MODEL:	11297GB-GB
COOLING CAPACITY	24000 BTU (@27°C / 60% RH)
HEIGHT:	1280mm
WIDTH:	500mm
DEPTH:	740mm
WEIGHT:	103 kg
EVAPORATOR AIRFLOW:	950 M^3/Hr
EVAPORATOR OUTLET DIA:	2 X 100mm
CONDENSER AIRFLOW:	1900 M^3/Hr
CONDENSER MAX EXTERNAL STATIC PRESSURE:	45 Pa
CONDENSER OUTLET DIA:	310mm
SOUND LEVEL:	72.3 dB(A)
POWER SUPPLY:	230V - 50Hz - 1 ph
OPERATING RANGE:	18°C – 35°C
REFRIGERANT TYPE / QTY:	R454c (See unit rating label for quantity)

APPLIANCE SPARE PARTS LIST

Part Number	Description
112972GB-GB	Appliance Number
1619522	PCB Controller
1619526	PCB Humidity Sensor
1619527	PCB Display
2013753	PCB Connecting cable – 1100mm
2029217	Mains cable
2057027	Condenser outlet vent grille
2097227	Evaporator coil
2097228	Condenser coil
2097234	Filter
2097235	Control keypad
3014368	Drain tray silicone tube
3020957	Filter dryer
3021153	High pressure cut out
3021155	Low pressure cut out
3031418	Terminal block – NTC thermistor
3031460	Terminal block – control panel
3032101	20mm open grommet
3032104	3/8” open grommet
3032118	20mm blind grommet
3033044	Bucket microswitch
3033396	NTC thermistor
3035142	Coil sensor
3035164	Humidity sensor housing
3035346	Mains in gland / terminal block
3035834	PCB jumper
3040280	Evaporator fan
3040284	Inlet ring (evaporator fan)
3040329	Condenser fan
2097229	Inlet ring (condenser fan)
3050206	Fixed castor
3050208	Swivel castor with brake
3086135	Drain tube retention clip
3088539	Quick release catch
3090753	Spring
3100704	Bucket
3100705	Bucket cap
3110461	Flexible evaporator outlet duct
3931320	Solid state relay
3931732	LED lens
3036358	Compressor capacitor
3934540	Male plug
3934541	Female socket
3934542	Plug male pin
3934543	Socket female pin
3944995	Compressor

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