# RMEI-Series

## Portable Dehumidifiers

### CD35EI | Moisture Removal | 17 ppd

### IOM Manual

# CD35 / CD35P

# INDUSTRIAL DEHUMIDIFIER

# OWNER'S MANUAL

# CD35

# PACKAGE CONTENTS

| Item | Description | Quantity |
|---|---|---|
| 10186DG-US | Dehumidifier | 1 |
| TPC225 | Manual | 1 |

# CD35P

# PACKAGE CONTENTS

| Item | Description | Quantity |
|---|---|---|
| 10186DP-US | Dehumidifier | 1 |
| 3086144 | Quick release hose coupling | 1 |
| 3944110 | PVC Tube – 3/8” I/D | 7.8M |
| TPC225 | Manual | 1 |

# INTRODUCTION

Designed for a wide range of applications, the CD35 is a rugged, compact unit which incorporates its own tank for collected moisture with an automatic shutoff once the tank is fully. Offices, shops, houses, restaurants and storerooms can be protected by this simple answer to humidity control.

The CD35 has a number of special features:

- Adjustable humidistat
- “Hot Gas” defrost system with solid state controller
- Whisper-quiet fan
- Water tank with “full” indicator lamp
- All galvanized interior
- Exterior epoxy powder-coated finish
- Four independent heavy-duty castors
- Fully enclosed coils

The fan draws the moist air through the cold evaporator coil, which cools the air below its dew point. Moisture forms on the evaporator coil and is collected in the condensate tray, which is equipped with a permanent drain. The cooled air then passes through the hot condenser coil where it is reheated using the same energy removed during the cooling phase, plus the additional heat generated by the compressor. The air is, therefore, discharged from the dehumidifier at a slightly higher temperature with a lower absolute humidity than that which entered. Continuous circulation of air through the dehumidifier gradually reduces the relative humidity within the area.

The CD35 dehumidifier is a rugged, reliable drying unit designed to operate effectively over a broad range of temperature and humidity conditions. An active hot gas defrost system, controlled by an electronic timer, guarantees positive de-icing, thereby optimizing operation at low temperatures.

The unit incorporates a welded and galvanized steel chassis and is finished in an epoxy coating for resilience to damage caused by rough handling.

The CD35 dehumidifier is fitted with an adjustable humidistat to enable you to select the level of dryness that you desire.

## SPECIFICATIONS

| | |
|---|---|
| **MODEL:** | Ebac CD35 / CD35P |
| **HEIGHT:** | 22” |
| **WIDTH:** | 13.5” |
| **DEPTH:** | 14” |
| **WEIGHT:** | CD35 – 57 lbs<br>CD35P – 63 lbs |
| **AIRFLOW:** | 170 CFM |
| **POWER SUPPLY:** | 110V/ 60Hz/ 1 ph |
| **CURRENT (MAX):** | CD35 – 4 A<br>CD35P – 5 A |
| **FAN MOTOR:** | 1/50 HP MagneTek<br>Totally Enclosed |
| **COMPRESSOR:** | ¼ HP Heavy Duty Fully<br>Hermetic Tecumseh |
| **CONTROL:** | Adjustable Humidistat |
| **REFRIGERANT:** | R-134a |
| **REF. CHARGE:** | 0.17Kg |
| **CONSTRUCTION:** | 18 AWG Epoxy Power<br>Coated galvanized<br>steel |
| **FEATURES:** | Hot Gas Defrost down<br>to 33 Deg. F |

*"This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. The refrigeration system is hermetically sealed.*

*The Global Warming Potential (GWP) of refrigerants used in products manufactured by Ebac Industrial Products Ltd is as follows*

*R134a – 1300*
*R407c – 1610*

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

## FEATURES

**The Adjustable Humidistat:** The adjustable humidistat enables you to maintain the required level of dryness within a room. The humidistat switches off the CD35 when the relative humidity falls to the level predetermined by the position of the humidistat control.

**The Water Tank:** When the water tank has reached its capacity, a float mechanism will activate a microswitch lever and switch off the machine. The container-full indicator will also illuminate.

Before emptying the water container, disconnect the power supply and allow the dryer to stand for five minutes. Remove the container from the rear of the unit and when emptied, replace, taking care to ensure that the float mechanism is correctly positioned. Restart unit as instructed in the following Operation section of this manual.

## UNPACKING & INSTALLATION

After removing the CD35 from its shipping container, visually check for signs of damage. If there is evidence of damage, do not operate. Call your supplier for advice. Do not discard the packing as it will be useful when transporting the machine in the future.

Wiring: Connect the power cord to a grounded single phase, 15 Amp fused, standard household wall socket.

## POSITIONING

**Single Room:** Position the CD35 in the center of the room to be dried. However, if a damp patch is particularly apparent, the outlet grille should be directed towards it. If the CD35 cannot be positioned centrally, a minimum space of 6” should be allowed around the dryer.

**Several Rooms**: To dry a number of rooms simultaneously with the most efficiency, the dryer as to be positioned between the rooms. Ensure that all doors are left ajar allowing a patch for the air to circulate to the unit. An auxiliary circulation fan would be helpful.

# SPECIAL FEATURES (where fitted)

## CONDENSATE PUMP:

The CD-35 dehumidifier unit can be fitted, either in the factory, or as retro-fit, with a condensate pump. This condensate pump will allow the unit to run unattended, with the condensate run off to a permanent drain and can be used up to 13 feet (4 meters), below the level of a permanent condensate drainage point.

## HUMIDISTAT CONTROL:

The CD-35 dehumidifier unit is fitted with a control humidistat which measures the relative humidity of the air within the room. The humidistat incorporates a pointer and scale, which can be adjusted, and set to a relative humidity level that is acceptable to maintain the required conditions within the room. The humidistat controls the on/off function of the dehumidifier. When the relative humidity of the air in the room falls below the set point of the humidistat the dehumidifier will switch off, but when the relative humidity of the air starts to rise again and passes the set point the unit will switch on. The humidistat is used for the on/off function as it is a cost effective method which ensures power is only used when needed.

## TEMPERATURE CONTROLLED DEVICE:

The CD-35 dehumidifier unit is fitted with a temperature sensitive device which operates in conjunction with the defrost control. In normal operation the defrost control will come into operation every 45 minutes. This is to ensure that there will be no build up of ice at lower temperatures. At very low temperatures it is still possible for the defrost device not to clear the ice completely from the evaporator coil. To ensure that even at these very low temperatures all the ice is cleared from the coil, the temperature control device will stop the fan (preventing air movement). This will increase the temperature of the evaporator coil even higher, causing all the ice to melt from the coil during the defrost mode. Where year round conditions need to be maintained, the dehumidifier unit will have to operate across a wider range of temperatures. To ensure that the dehumidifier unit operates at its most efficient, the temperature control device will restrict the defrost operation to the times when the ambient temperature falls below 25°C.

**WARNING:**

- 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 unit 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. Failure to do so may cause the unit to blow the fuses owing to the compressor due to there being a refrigerant imbalance.

## ROUTINE MAINTENANCE

**WARNING:**
ENSURE THAT THE POWER CORD TO THE MACHINE HAS BEEN DISCONNECTED BEFORE CARRYING OUT ROUTINE MAINTENACE ON ITEMS 1, 2, 3, AND 4.

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

Removal of the cover is achieved by means of four screws at the sides of the unit at base level. With the cover removed all maintenance can be carried out.

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"/150 mm) to avoid damaging the fins. Alternatively, vacuum clean the coils.

**WARNING:**
DO NOT STEAM CLEAN REFRIGERATION COILS

2. Check that the fan is firmly secured to the motor shaft and that the fan rotates freely. Using mobile DD heavy medium oil, lubricate the motor bearing with 10 drops every 6 months.

3. To check the refrigerant charge, run the unit for 15 minutes and briefly remove the cover. The evaporator coil should be evenly frost coated across its surface. At temperatures above 20°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.

**IF ANY OF THE PRECEDING PROBLEMS OCCUR, CONTACT THE EBAC SERVICE CENTER PRIOR TO CONTINUED OPERATION OF THE UNIT TO PREVENT PERMANENT DAMAGE.**

## REPAIRS

1. Should an electrical component fail, consult the Factory Service Center to obtain the proper replacement part.

2. If refrigerant gas is lost from the machine, it will be necessary to use a refrigeration technician to correct the fault. Contact the Factory Service Center prior to initiating this action.

   Any competent refrigeration technician will be able to service the equipment. The following procedure must be used:

   a. The source of the leak must be determined and corrected.

   b. The machine should be thoroughly evacuated before recharging.

   c. The unit must be recharged with refrigerant measured accurately by weight.

   d. For evacuation and recharging of the machine, use the crimped and brazed charging stub attached to the side of the refrigerant compressor.

      The charging stub should be crimped and rebrazed after servicing. **NEVER** allow permanent service valves to be fitted to any part of the circuit. Service valves may leak causing further loss of refrigerant gas.

3. The refrigerant compressor fitted to the dehumidifier is a durable unit that should give many years of service. Compressor failure can result from the machine losing its refrigerant gas. The compressor can be replaced by a competent refrigeration technician.

   Failure of the compressor can be confirmed by the following procedure:

   a. Establish that power is present at the compressor terminals using a voltmeter.

   b. With the power disconnected, check the continuity of the internal winding by using meter across the compressor terminals. An open circuit indicates that the compressor should be replaced.

   c. Check that the compressor is not grounded by establishing that a circuit does not exist between the compressor terminals and the shell of the compressor.

# TROUBLESHOOTING

| SYMPTOM | CAUSE | REMEDY |
|---|---|---|
| **Unit inoperative** | 1. No power to unit | 1. Check the power from power supply panel |
| **Little or no airflow** | 1. Loose fan on shaft<br>2. Fan motor burnt out<br>3. Dirty refrigeration coils<br>4. Loose electrical wiring | 1. Tighten fan<br>2. Replace the fan motor<br>3. See *Routine Maintenance* Section<br>4. Check the wiring diagram to find fault and repair |
| **Little or no water extraction** | 1. Insufficient air flow<br>2. Compressor fault<br>3. Loss of refrigerant gas<br>4. Blocked filter dryer | 1. Check all of the above<br>2. Contact the Factory Service Center<br>3. Contact the Factory Service Center<br>4. Contact the Factory Service Center |
| **Little or no defrost when required** | 1. Faulty timer<br>2. Faulty by-pass valve | 1. Contact the Factory Service Center<br>2. Contact the Factory Service Center |
| **Unit vibrates excessively** | 1. Loose compressor<br>2. Damaged fan | 1. Tighten the nuts on the compressor mounts<br>2. Replace fan |
| **Water flooding inside the machine** | 1. Drain pipe blocked/frozen<br>2. Drain pipe too high<br>3. Crimped or blocked tubing<br>4. Defective Pump | 1. Clear the obstruction<br>2. Ensure that no section of the drain hose is above the level of the water outlet<br>3. Straighten, clear, or replace tubing<br>4. Replace pump |
| **Hissing noise from the machine** | 1. Machine defrosting – normal operation | N/A |

# CD35

## SPARE PARTS LIST

| Part Number | Description |
|---|---|
| 1018611 | EVAP COIL ASSY |
| 1137907 | WATER CONTAINER |
| 2013865 | MICROSWITCH SUPPORT |
| 2013866 | MICROSWITCH LEVER |
| 2017707 | HUMIDEX 7 KNOB |
| 2131107 | HUMIDEX DRAIN TRAY |
| 2131147 | CONDENSER COIL |
| 3014272 | CAPILLIARY TUBE .031 Already Cut |
| 3020811 | BY-PASS VALVE |
| 3020937 | FILTER DRYER |
| 3033033 | MICROSWITCH |
| 3035145 | HUMIDISTAT |
| 3035346 | PANEL MOUNTED TERMINAL BLOCK |
| 3036636 | RED LAMP ASSY |
| 3040181 | FAN BLADE |
| 3050216 | CASTOR |
| 1617990 | PCB |
| 2141095 | MAINS POWER CABLE |
| 3021518 | COMPRESSOR BOX COVER |
| 3021543 | OHP |
| 3021544 | RELAY |
| 3022147 | COMPRESSOR |
| 3030421 | SOLENOID COIL |
| 3035773 | MOTOR |
| 2018641 | EVAPORATOR COIL |
| 1600500 | PCB (Pre-95 Model) |
| 3030275 | 110V RELAY (Pre-95 Model) |
| 2013837 | DRAIN TRAY |

# HEAVY DUTY

# CD35

# DEHUMIDIFIER

# USER MANUAL

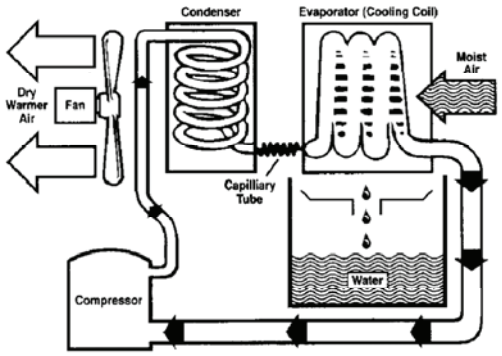
## INTRODUCTION

Your Ebac Dehum d f er s packed n a p ast c wrapper – p ease ensure that t s d sposed of safe y and where t w not be a danger to ch dren

Your Ebac Heavy Duty Dehum d f er s des gned to he p dry f ooded or damp areas. Idea where natura dry ng s just too s ow. Dry ng w th a dehum d f er enab es fast dry ng w thout prob ems assos ated w th heat dry ng p aster, etc can crack.

## HOW YOUR DEHUMIDIFIER WORKS

Your dehum d f er draws n the mo st a r, coo ng t to a temperature where excess mo sture w condense, thereby remov ng the excess mo sture. Th s n turn dr es anyth ng n the mmed ate area wh ch s damp. The mo sture s co ected n the water conta ner. The a r s rewarmed and passed back approx mate y 2 C warmer.



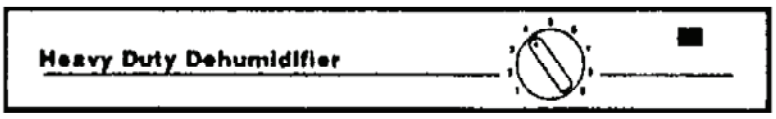

## OPERATING YOUR DEHUMIDIFIER

The amount of mo sture removed by your dehum d f er w vary accord ng to the cond t ons n wh ch t s operat ng. For examp e, operat ng n very co d temperatures w reduce water extract on eve s.
The t me taken to dry an area w depend on the s ze of area to be dr ed and eve of mo sture to beg n w th. To ach eve max mum benef t form your dehum d f er, you shou d ensure :-

a) It s permanent y connected to the ma ns and contro ed v a the Hum d stat
b) It s not sw tched off for ong per ods of t me due to an ncorrect sett ng of the Hum d stat or because the conta ner s fu .
c) Door to areas not to be dr ed are kept c osed.
d) Externa doors and w ndows are kept c osed as much as poss b e.

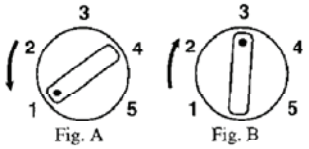
## CONTROLS

Your dehum d f er s f tted w th an adjustab e hum d stat and conta ner fu nd cator.




## SWITCHING ON YOUR DEHUMIDIFIER

Before connect ng t to the ma ns you shou d ensure that the hum d stat s turned fu y ant -c ockw se (f g A). Once connected to the ma ns power, the hum d stat contro shou d be turned c ockw se unt you hear the un t operate (f g B)
To protect the compressor, you shou d a ow 5 m nutes between sw tch ng the dehum d f er off and on aga n.



### OPERATING THE HUMIDISTAT

The hum d stat works n a s m ar way to a centra heat ng thermostat, but nstead of measur ng temperature, t measures the amount of mo sture n the a r. You may se ect the eve of mo sture you requ re (known as Re at ve Hum d ty) and the un t w operate to ach eve that eve and then sw tch off.
As a genera gu de, the h gher the sett ng the ower the Re at ve Hum d ty w be before the mach ne sw tches off. Therefore the mach ne w operate onger to ach eve th s.
If the dehum d f er sw tches off and dry ng s not comp ete t s poss b e that the hum d stat sett ng s too ow and may need ncreas ng (f g C.). Converse y, f you no onger have condensat on and the un t s st operat ng, then the hum d stat sett ng may need reduc ng (f g D.)

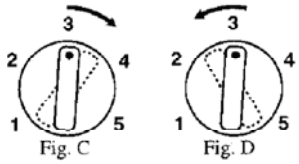


Fig. C Fig. D

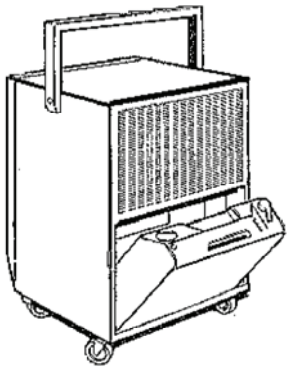
### DEFROST OPERATION

At certa n temperatures, the water taken freezes onto the p pes ns de your dehum d f er and therefore needs to be defrosted. Th s mode features an automat c defrost wh ch w c ear any ce bu d up.

## USER MAINTENANCE

### EMPTYING THE WATER CONTAINER

When the water conta ner s fu an nterna f oat mechan sm w sw tch the un t off. Th s s nd cated by the um nat on of the “fu ” ght on the front contro pane . The water conta ner s at the rear of the un t. To empty the conta ner, carefully remove the water container. When emptied replace



### PERMANENT DRAINAGE

When your dehum d f er s to be used constant y n one area, t can be f tted to dra n cont nuous y, e m nat ng the need to empty the water conta ner. Idea when the property s to be eft unoccup ed.
For th s you w need a ength of PVC tub ng, 18mm externa d ameter X 12mm nterna d ameter and a hose c p of the same s ze. D sconnect your dehum d f er from the power supp y before f tt ng permanent dra nage.
Remove the water conta ner and pass the tube through the ho e n the base of the dehum d f er. P ace the hose c p on the tub ng and push the tub ng over the out et on the unders de of the dra n tray and fasten the hose c p. DO NOT over t ghten the c p or t may crack the dra n tray. The water conta ner shou d not be rep aced wh st the dra nage k t s n use.

### USE OF PERMANENT DRAINAGE

When n use tub ng shou d be run to a su tab e dra nage po nt, ensur ng that the tube doesn t r se above the dra n tray, otherw se f ood ng may occur.

## IF YOUR DEHUMIDIFIER FAILS TO OPERATE

1. Check that the p ug s fu y pushed nto the socket and s sw tched on.
2. Check w th some other e ectr ca dev ce that the wa socket s " ve". If t s not, contact a qua f ed e ectr c an.
3. Check the fuse n the p ug. If you rep ace the fuse, ref t w th a 13Amp fuse.
4. Check the hum d stat contro s turned c ockw se.
5. Check that the water conta ner s not fu .

Shou d none of the above remed es work, then d sconnect from the ma ns. Contact the he p ne on 01388 664400. DO NOT attempt to repa r the un t or unscrew the outer cas ng.

## ELECTRICAL CONNECTION

If the app ance s f tted w th a p ug for wh ch your socket s unsu tab e, then t shou d be cut off and an appropr ate p ug f tted.

Th s app ance comp es w th the suppress on requ rements of the EEC d rect on 82/199/EEC as embod ed n BS800:1988.

IMPORTANT:- The w res n th s ma ns ead are co oured n accordance w th the fo ow ng code:-

| | |
|---|---|
| Green & Ye ow | Earth |
| B ue | Neutra |
| Brown | L ve |

As the co ours of the w res n the ma ns ead of th s app ance may not correspond w th the co oured mark ngs dent fy ng the term na s n your own p ug, proceed as fo ows:

The w re wh ch s co oured Green and Ye ow must be connected to the term na n the p ug wh ch s marked w th the etter E or by the Earth Symbo or co oured Green and Ye ow. The w re wh ch s co oured B ue must be connected to the term na n the p ug wh ch s marked w th the etter N or co oured B ack. The w re wh ch s co oured Brown must be connected to the term na wh ch s marked w th the etter L or co oured Red.

You must d spose of the non rew reab e p ug once t has been removed from the f ex b e cord. It s dangerous to attempt to nsert the p ug nto any e ectr ca socket e sewhere n the house. If the f ex b e cord becomes damaged t must be rep aced by an dent ca cord.

## CHANGING THE FUSE

On y 13 Amp fuses that are ASTA approved to BS1362 shou d be used.

The fuse cover must be ref tted after rep acement of the fuse. In the event of the fuse cover be ng ost or damaged, the p ug must not be used unt a rep acement s obta ned. Rep acement fuse covers, wh ch must be co oured BLACK, are obta nab e from e ectr ca reta ers.

**WARNING – THIS APPLIANCE MUST BE EARTHED**

## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| CD35 | 230V/50Hz/1 Phase |
| He ght | 550 mm |
| W dth | 345 mm |
| Depth | 350 mm |
| We ght | 26 kg |
| M n Operat ng Temperature | 1 C |
| Max Operat ng Temperature | 35 C |
| Water Extract on (24hrs) 32 C / 90%RH | 10 |
| Max Power Consumpt on 32 C / 90%RH | 250 W |
| Max Runn ng Current | 2 A |
| Fuse Rat ng (UK) | 13 A |

## WARNINGS

- Th s app ance can be used by ch dren from 8 years and above and persons w th reduced phys ca , sensory or menta capab t es or ack of exper ence and know edge f they have been g ven superv s on or nstruct on concern ng use of the app cat on n a safe way and understand the hazards nvo ved.
- Ch dren sha not p ay w th the app ance.
- C ean ng and user ma ntenance sha not be made by ch dren w thout superv s on.
- If the SUPPLY CORD s damaged, t must be rep aced by the manufacturer, ts serv ce agent or s m ar y qua f ed person n order to avo d hazard.
- Th s product conta ns f uor nated greenhouse gases covered by the Kyoto Protoco . The refr gerat on system s hermet ca y sea ed.
- The G oba Warm ng Potent a (GWP) of refr gerants used n products manufactured by Ebac Industr a Products Ltd s as fo ows
  R134a – 1300
  R407c – 1610
- For type and we ght of refr gerant conta ned n th s un t, p ease refer to the product data abe
- Due to the h gh pressures w th n the refr gerat on c rcu t, under no c rcumstances must d rect heat be app ed to the evaporator co n an attempt to remove the bu d-up of ce.
- No attempt shou d be made to cut open any part of the refr gerat on c rcu t due to h gh pressures and gas nvo ved.
- If the un t s sw tched off at the ma ns power supp y for any reason, the un t must be a owed to stand at rest for at east three m nutes before restart ng.
- For correct nsta at on and operat on the un t n et and out et must have a c earance of 0.5M from a adjacent surfaces and or structures.
- Do not remove the front or rear pane s
- Th s mach ne shou d be serv ced by qua f ed Ebac personne or other persons hav ng techn ca competence serv c ng refr gerat on equ pment fo ow ng the nstruct ons n the Ebac serv ce manua .
- Ebac serv ce manua s and spares sts are ava ab e upon request by contact ng your oca Ebac d str butor.
- Never operate the un t n a bathroom or sw mm ng poo area
- Do not poke objects nto any of the gr es on the mach ne.
- Do not cover or obstruct the a r n et or out et.
- When runn ng, the no se eve of th s mach ne s ess than 70dba
- Th s mach ne comp es w th the e ectromagnet c compat b ty 1992 regu at ons.
- Th s mach ne has been manufactured n the Un ted K ngdom.
- Ensure th s un t s protected by a 15A C rcu t

# HEAVY DUTY

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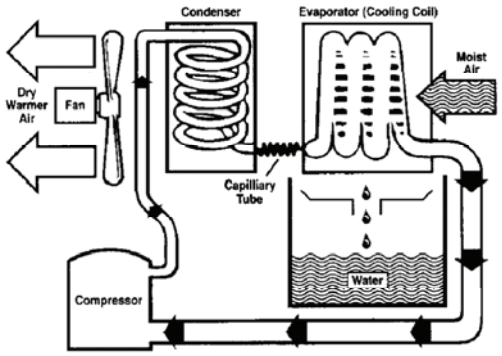


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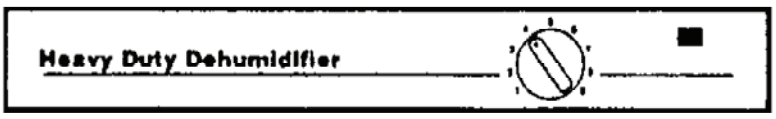
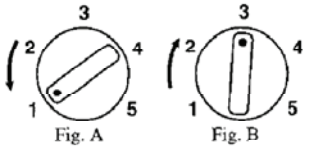



## SWITCHING ON YOUR DEHUMIDIFIER

Before connect ng t to the ma ns you shou d ensure that the hum d stat s turned fu y ant -c ockw se (f g A). Once connected to the ma ns power, the hum d stat contro shou d be turned c ockw se unt you hear the un t operate (f g B)
To protect the compressor, you shou d a ow 5 m nutes between sw tch ng the dehum d f er off and on aga n.



## OPERATING THE HUMIDISTAT

The hum d stat works n a s m ar way to a centra heat ng thermostat, but nstead of measur ng temperature, t measures the amount of mo sture n the a r. You may se ect the eve of mo sture you requ re (known as Re at ve Hum d ty) and the un t w operate to ach eve that eve and then sw tch off.
As a genera gu de, the h gher the sett ng the ower the Re at ve Hum d ty w be before the mach ne sw tches off. Therefore the mach ne w operate onger to ach eve th s.
If the dehum d f er sw tches off and dry ng s not comp ete t s poss b e that the hum d stat sett ng s too ow and may need ncreas ng (f g C.). Converse y, f you no onger have condensat on and the un t s st operat ng, then the hum d stat sett ng may need reduc ng (f g D.)

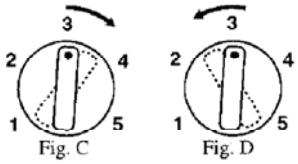


Fig. C Fig. D

## DEFROST OPERATION

At certa n temperatures, the water taken freezes onto the p pes ns de your dehum d f er and therefore needs to be defrosted. Th s mode features an automat c defrost wh ch w c ear any ce bu d up.

# USER MAINTENANCE

## EMPTYING THE WATER CONTAINER

As the condensate pump f s w th water t w automat ca y act vate and empty v a the tube out et ocated at the back of the dehum d f er, th s shou d be connected to a water conta ner or permanent dra n. If the pump fa s then the dehum d f er w automat ca y sw tch off and the warn ng nd cator on the contro s pane w um nate. NOTE: after the pump has empt ed there w st be a sma amount of water stand ng n the pump reservo r wh ch w eak f the dehum d f er s not kept upr ght.

## PERMANENT DRAINAGE

When your dehum d f er s to be used constant y n one area, t can be f tted to dra n cont nuous y, e m nat ng the need to empty the water conta ner. Idea when the property s to be eft unoccup ed.
For th s you w need a ength of PVC tub ng, 18mm externa d ameter X 12mm nterna d ameter and a hose c p of the same s ze. D sconnect your dehum d f er from the power supp y before f tt ng permanent dra nage.
Remove the water conta ner and pass the tube through the ho e n the base of the dehum d f er. P ace the hose c p on the tub ng and push the tub ng over the out et on the unders de of the dra n tray and fasten the hose c p. DO NOT over t ghten the c p or t may crack the dra n tray. The water conta ner shou d not be rep aced wh st the dra nage k t s n use.

## USE OF PERMANENT DRAINAGE

When n use tub ng shou d be run to a su tab e dra nage po nt, ensur ng that the tube doesn t r se above the dra n tray, otherw se f ood ng may occur.

## IF YOUR DEHUMIDIFIER FAILS TO OPERATE

1. Check that the p ug s fu y pushed nto the socket and s sw tched on.
2. Check w th some other e ectr ca dev ce that the wa socket s " ve". If t s not, contact a qua f ed e ectr c an.
3. Check the fuse n the p ug. If you rep ace the fuse, ref t w th a 13Amp fuse.
4. Check the hum d stat contro s turned c ockw se.
5. Check that the water conta ner s not fu .

Shou d none of the above remed es work, then d sconnect from the ma ns. Contact the he p ne on 01388 664400. DO NOT attempt to repa r the un t or unscrew the outer cas ng.

## ELECTRICAL CONNECTION

If the app ance s f tted w th a p ug for wh ch your socket s unsu tab e, then t shou d be cut off and an appropr ate p ug f tted.

Th s app ance comp es w th the suppress on requ rements of the EEC d rect on 82/199/EEC as embod ed n BS800:1988.

IMPORTANT:- The w res n th s ma ns ead are co oured n accordance w th the fo ow ng code:-

| | |
|---|---|
| Green & Ye ow | Earth |
| B ue | Neutra |
| Brown | L ve |

As the co ours of the w res n the ma ns ead of th s app ance may not correspond w th the co oured mark ngs dent fy ng the term na s n your own p ug, proceed as fo ows:

The w re wh ch s co oured Green and Ye ow must be connected to the term na n the p ug wh ch s marked w th the etter E or by the Earth Symbo or co oured Green and Ye ow. The w re wh ch s co oured B ue must be connected to the term na n the p ug wh ch s marked w th the etter N or co oured B ack. The w re wh ch s co oured Brown must be connected to the term na wh ch s marked w th the etter L or co oured Red.

You must d spose of the non rew reab e p ug once t has been removed from the f ex b e cord. It s dangerous to attempt to nsert the p ug nto any e ectr ca socket e sewhere n the house. If the f ex b e cord becomes damaged t must be rep aced by an dent ca cord.

## CHANGING THE FUSE

On y 13 Amp fuses that are ASTA approved to BS1362 shou d be used.

The fuse cover must be ref tted after rep acement of the fuse. In the event of the fuse cover be ng ost or damaged, the p ug must not be used unt a rep acement s obta ned. Rep acement fuse covers, wh ch must be co oured BLACK, are obta nab e from e ectr ca reta ers.

**WARNING – THIS APPLIANCE MUST BE EARTHED**

## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| CD35P | 230V/50Hz/1 Phase |
| He ght | 550 mm |
| W dth | 345 mm |
| Depth | 350 mm |
| We ght | 26 kg |
| M n Operat ng Temperature | 1 C |
| Max Operat ng Temperature | 35 C |
| Water Extract on (24hrs) 32 C / 90%RH | 10 |
| Max Power Consumpt on 32 C / 90%RH | 250 W |
| Max Runn ng Current | 2 A |
| Fuse Rat ng (UK) | 13 A |
| Pump Capac ty | 3.2 |

## WARNINGS

- Th s app ance can be used by ch dren from 8 years and above and persons w th reduced phys ca , sensory or menta capab t es or ack of exper ence and know edge f they have been g ven superv s on or nstruct on concern ng use of the app cat on n a safe way and understand the hazards nvo ved.
- Ch dren sha not p ay w th the app ance.
- C ean ng and user ma ntenance sha not be made by ch dren w thout superv s on.
- If the SUPPLY CORD s damaged, t must be rep aced by the manufacturer, ts serv ce agent or s m ar y qua f ed person n order to avo d hazard.
- Th s product conta ns f uor nated greenhouse gases covered by the Kyoto Protoco . The refr gerat on system s hermet ca y sea ed.
- The G oba Warm ng Potent a (GWP) of refr gerants used n products manufactured by Ebac Industr a Products Ltd s as fo ows
  R134a – 1300
  R407c – 1610
- For type and we ght of refr gerant conta ned n th s un t, p ease refer to the product data abe
- Due to the h gh pressures w th n the refr gerat on c rcu t, under no c rcumstances must d rect heat be app ed to the evaporator co n an attempt to remove the bu d-up of ce.
- No attempt shou d be made to cut open any part of the refr gerat on c rcu t due to h gh pressures and gas nvo ved.
- If the un t s sw tched off at the ma ns power supp y for any reason, the un t must be a owed to stand at rest for at east three m nutes before restart ng.
- For correct nsta at on and operat on the un t n et and out et must have a c earance of 0.5M from a adjacent surfaces and or structures.
- Do not remove the front or rear pane s
- Th s mach ne shou d be serv ced by qua f ed Ebac personne or other persons hav ng techn ca competence serv c ng refr gerat on equ pment fo ow ng the nstruct ons n the Ebac serv ce manua .
- Ebac serv ce manua s and spares sts are ava ab e upon request by contact ng your oca Ebac d str butor.
- Never operate the un t n a bathroom or sw mm ng poo area
- Do not poke objects nto any of the gr es on the mach ne.
- Do not cover or obstruct the a r n et or out et.
- When runn ng, the no se eve of th s mach ne s ess than 70dba
- Th s mach ne comp es w th the e ectromagnet c compat b ty 1992 regu at ons.
- Th s mach ne has been manufactured n the Un ted K ngdom.
- Ensure th s un t s protected by a 15A C rcu t

# RMEI-Series

## Portable Dehumidifiers

RM40EI | Moisture Removal | 17 ppd

IOM Manual

# RM40

# INDUSTRIAL DEHUMIDIFIER

# OWNER'S MANUAL

# RM40

# PACKAGE CONTENTS

| Item | Description | Quantity |
|---|---|---|
| 10187MG-US | Dehumidifier | 1 |
| 3086144 | Quick release hose coupling | 1 |
| 3944110 | PVC Tube – 3/8” I/D | 7.8M |
| TPC470 | Manual | 1 |

# INTRODUCTION

Designed for a wide range of applications, the RM40 is a rugged, industrial unit, which utilizes an energy-efficient compressor and a compact portable design to provide easy efficient drying.

The fan draws the moist air through the cold evaporator coil, which cools the air below its dew point. Moisture forms on the evaporator coil and is collected in the condensate tray, which is equipped with a permanent drain. The cooled air then passes through the hot condenser coil where it is reheated using the same energy removed during the cooling phase, plus the additional heat generated by the compressor. The air is, therefore, discharged from the dehumidifier at a slightly higher temperature with a lower absolute humidity than that which entered. Continuous circulation of air through the dehumidifier gradually reduces the relative humidity within the area.

The RM40 dehumidifier is a rugged, reliable drying unit designed to operate effectively over a broad range of temperature and humidity conditions. An active hot gas defrost system, controlled by an electronic timer, guarantees positive de-icing, thereby optimizing operation at low temperatures.

The unit incorporates a rotational moulded polyethylene shell resilient to damage caused by rough handling.

## SPECIFICATIONS

| | |
|---|---|
| **MODEL:** | 10187MG-US |
| **HEIGHT:** | 24.2” (615 mm) |
| **WIDTH:** | 15” (382 mm) |
| **DEPTH:** | 14.4” (365 mm) |
| **WEIGHT:** | 57lbs (26 kg) |
| **AIRFLOW:** | 88.3CFM (150 $M^3$/Hr) |
| **POWER SUPPLY:** | 110V/ 60Hz/ 1 ph |
| **FINISH:** | Rotational Moulded polyethylene |
| **OPERATING RANGE:** | 37°F – 95°F |
| **REFRIGERANT:** | R134a (6.1oz (173g)) |

*"This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. The refrigeration system is hermetically sealed.*

*The Global Warming Potential (GWP) of refrigerants used in products manufactured by Ebac Industrial Products Ltd is as follows*

*R134a – 1300*
*R407c – 1610*

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

# OPERATION

After unpacking, examine all external features to confirm damage-free shipment. Report all defects and damage at once.

Before connecting it to the mains you should ensure that the humidistat is turned fully anti-clockwise. Connect to a grounded 15A standard household electrical outlet then the humidistat control should be turned clockwise until you hear the unit operate. To protect the compressor, you should allow 5 minutes between switching the dehumidifier off and on again.

## OPERATING THE HUMIDISTAT

The humidistat works in a similar way to a central heating thermostat, but instead of measuring temperature, it measures the amount of moisture in the air. You may select the level of moisture you require (known as Relative Humidity) and the unit will operate to achieve that level and then switch off. As a general guide, the higher the setting the lower the Relative Humidity will be before the machine switches off. Therefore the machine will operate longer to achieve this. If the dehumidifier switches off and drying is not complete it is possible that the humidistat setting is too low and may need increasing. Conversely, if you no longer have condensation and the unit is still operating, then the humidistat setting may need reducing.

## EMPTYING THE WATER CONTAINER

When the water container is full an internal float mechanism will switch the unit off. This is indicated by the illumination of the “full” light on the front control panel. The water container is at the rear of the unit. To empty the container, carefully remove the water container. When emptied replace

## PERMANENT DRAINAGE

When your dehumidifier is to be used constantly in one area, it can be fitted to drain continuously, eliminating the need to empty the water container. Ideal when the property is to be left unoccupied.
For this you will need a length of PVC tubing, 10mm internal diameter. Disconnect your dehumidifier from the power supply before fitting permanent drainage. Remove the water container; remove the blind grommet on the back face of the unit and then the blanking bung from the drainage point visible through the hole. Feed tubing through hole where grommet was located and onto the visible drain point. Lastly fit the blanking bung to the drain point on the underside of the drain tray. The water container can be replaced whilst the drainage kit is in use for safe storage

## USE OF PERMANENT DRAINAGE

When in use tubing should be run to a suitable drainage point, ensuring that the tube doesn't rise above the drain tray, otherwise flooding may occur.

## CHECK DEHUMIDIFICATION PROCESS AS FOLLOWS:

**CAUTION:**
DO NOT REMOVE COVERS WHEN UNIT IS IN OPERATION

1. Place unit on a level surface.
2. Start up unit by switching to "I" and humidistat fully clockwise
3. Check that the compressor is running.
4. Leave the machine running for 15 minutes.
5. Observe the evaporator coils through the rear grille, to confirm frost formation or weeping.
    - If the air temperature is below 25°C, an even coating of frost should cover the entire evaporator coil.
    - If the air temperature is above 25°C, frost and/or droplets of condensed water should cover the entire evaporator coil.

6. When the unit is operated in ambient of less than 15°C, a defrost cycle should occur approximately every hour. The exact time is impossible to predict as the unit is fitted with a temperature sensitive defrost control.

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

**CAUTION:**
ONCE THE UNIT HAS BEEN SWITCHED OFF, WAIT AT LEAST FIVE MINUTES BEFORE RESTARTING.

# ROUTINE SERVICE

**WARNING:**
ENSURE THAT THE POWER CORD TO THE MACHINE HAS BEEN DISCONNECTED BEFORE CARRYING OUT ROUTINE SERVICE. THE SERVICING AND REPAIR OF THIS UNIT SHOULD ONLY BE CARRIED OUT BY A SUITABLY QUALIFIED PERSON.

To ensure continued full efficiency of the dehumidifier, service 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 to avoid damaging the fins. Alternatively, vacuum clean the coils.

**WARNING:**
DO NOT STEAM CLEAN REFRIGERATION COILS

2. Check that the fan rotates freely. **The fan motor is sealed for life and therefore does not need oiling.**

3. To check the refrigerant charge, run the unit for 15 minutes and observe the evaporator coil. It should be evenly coated with frost 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, including mains cable for damage or loose connections.

5. In order to check the defrost operation, the unit needs to be operated in an ambient temperature of less than 15℃ for at least 1 hour. When operated In this condition the unit should defrost at least once every hour. The defrost mode can be monitored by observing the ice melting on the coil face, prior to defrost the face will show a white coating of frost, which should clear during defrost

# REPAIRS

1. Should an electrical component fail, consult the Factory Service Center to obtain the proper replacement part.

2. If refrigerant gas is lost from the machine, it will be necessary to use a refrigeration technician to correct the fault. Contact the Factory Service Center prior to initiating this action.

   Any competent refrigeration technician will be able to service the equipment. The following procedure must be used:

   a. The source of the leak must be determined and corrected.

   b. The machine should be thoroughly evacuated before recharging.

   c. The unit must be recharged with refrigerant measured accurately by weight.

   d. For evacuation and recharging of the machine, use the crimped and brazed charging stub attached to the side of the refrigerant compressor.

      The charging stub should be crimped and rebrazed after servicing. **NEVER** allow permanent service valves to be fitted to any part of the circuit. Service valves may leak causing further loss of refrigerant gas.

3. The refrigerant compressor fitted to the dehumidifier is a durable unit that should give many years of service. Compressor failure can result from the machine losing its refrigerant gas. The compressor can be replaced by a competent refrigeration technician.

   Failure of the compressor can be confirmed by the following procedure:

   a. Establish that power is present at the compressor terminals using a voltmeter.

   b. With the power disconnected, check the continuity of the internal winding by using meter across the compressor terminals. An open circuit indicates that the compressor should be replaced.

   c. Check that the compressor is not grounded by establishing that a circuit does not exist between the compressor terminals and the shell of the compressor.

# TROUBLESHOOTING

| SYMPTOM | CAUSE | REMEDY |
|---|---|---|
| **Unit inoperative** | 1. No power to unit<br>2. Mains cable damaged. | 1. Check the power from power supply panel.<br>2. Contact the Factory Service Center |
| **Little or no airflow** | 1. Fan motor burnt out<br>2. Dirty refrigeration coils<br>3. Loose electrical wiring | 1. Replace the fan motor<br>2. See *Routine Maintenance* Section<br>3. Check the wiring diagram to find fault and repair |
| **Little or no water extraction** | 1. Insufficient air flow<br>2. Compressor fault<br>3. Loss of refrigerant gas | 1. Check all of the above<br>2. Contact the Factory Service Center<br>3. Contact the Factory Service Center |
| **Little or no defrost when required** | 1. Faulty timer<br>2. Faulty by-pass valve | 1. Contact the Factory Service Center<br>2. Contact the Factory Service Center |
| **Unit vibrates excessively** | 1. Loose compressor<br>2. Damaged fan | 1. Tighten the nuts on the compressor mounts<br>2. Replace fan |
| **Water flooding inside the machine** | 1. Drain pipe blocked/frozen<br>2. Drain pipe too high<br>3. Crimped or blocked tubing | 1. Clear the obstruction<br>2. Ensure that no section of the drain hose is above the level of the water outlet<br>3. Straighten, clear, or replace tubing |

# RM40
# SPARE PARTS LIST

| NUMBER | DESCRIPTION | PART NUMBER | QUANTITY |
|---|---|---|---|
| 1 | Timer | 1617990 | 1 |
| 2 | Condenser coil | 2131147 | 1 |
| 3 | Evaporator coil | 1018611 | 1 |
| 4 | Drain tray | 2018705 | 1 |
| 5 | Filter | 1019712 | 1 |
| 6 | Capillary | 3014250 | 1.64ft |
| 7 | Solenoid valve | 3020836 | 1 |
| 8 | Filter dryer | 3020937 | 1 |
| 9 | Solenoid coil | 3030451 | 1 |
| 10 | On/Off switch | 3035914 | 1 |
| 11 | Fan Motor | 3035773 | 1 |
| 12 | Fan Blade | 3040181 | 1 |
| 13 | Castor | 3050205 | 4 |
| 14 | Compressor | 3022147 | 1 |
| 15 | Water Container Assy | 1137907 | 1 |
| 16 | Bucket Micro Switch | 3033033 | 1 |
| 17 | Humidistat Knob | 2018644 | 1 |
| 18 | Bucket Full Lens | 3032271 | 1 |
| 19 | Bucket Full Light | 3036636 | 1 |
| 20 | Humidistat | 3035158 | 1 |
| 21 | Mains Cable | 2141095 | 1 |
| 22 | Front Grille | 2018704 | 1 |

# WARNINGS

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.

Children shall not play with the appliance.

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.

This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. The refrigeration system is hermetically sealed.

The Global Warming Potential (GWP) of refrigerants used in products manufactured by Ebac Industrial Products Ltd is as follows
R134a – 1300
R407c – 1610

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

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 unit 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.

For correct installation and operation the unit inlet and outlet must have a clearance of 0.5M from all adjacent surfaces and or structures.

# RM40

# INDUSTRIAL DEHUMIDIFIER

# OWNER'S MANUAL

# INTRODUCTION

Designed for a wide range of applications, the RM40 is a rugged, industrial unit, which utilizes an energy-efficient compressor and a compact portable design to provide easy efficient drying.

The fan draws the moist air through the cold evaporator coil, which cools the air below its dew point. Moisture forms on the evaporator coil and is collected in the condensate tray, which is equipped with a permanent drain. The cooled air then passes through the hot condenser coil where it is reheated using the same energy removed during the cooling phase, plus the additional heat generated by the compressor. The air is, therefore, discharged from the dehumidifier at a slightly higher temperature with a lower absolute humidity than that which entered. Continuous circulation of air through the dehumidifier gradually reduces the relative humidity within the area.

The RM40 dehumidifier is a rugged, reliable drying unit designed to operate effectively over a broad range of temperature and humidity conditions. An active hot gas defrost system, controlled by an electronic timer, guarantees positive de-icing, thereby optimizing operation at low temperatures.

The unit incorporates a rotational moulded polyethylene shell resilient to damage caused by rough handling.

# SPECIFICATIONS

| | |
|---|---|
| **MODEL:** | 10187MG-GB |
| **HEIGHT:** | 615 mm |
| **WIDTH:** | 382 mm |
| **DEPTH:** | 365 mm |
| **WEIGHT:** | 26 kg |
| **AIRFLOW:** | 185 $M^3$/Hr |
| **POWER SUPPLY:** | 230V/ 50Hz/ 1 ph |
| **FINISH:** | Rotational Moulded polyethylene |
| **OPERATING RANGE:** | 3℃ – 35℃ |
| **REFRIGERANT:** | R410a (140g) |

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# OPERATION

After unpacking, examine all external features to confirm damage-free shipment. Report all defects and damage at once.

Before connecting it to the mains you should ensure that the humidistat is turned fully anti-clockwise. Connect to a grounded 13A electrical outlet then the humidistat control should be turned clockwise until you hear the unit operate. To protect the compressor, you should allow 5 minutes between switching the dehumidifier off and on again.

## OPERATING THE HUMIDISTAT

The humidistat works in a similar way to a central heating thermostat, but instead of measuring temperature, it measures the amount of moisture in the air. You may select the level of moisture you require (known as Relative Humidity) and the unit will operate to achieve that level and then switch off. As a general guide, the higher the setting the lower the Relative Humidity will be before the machine switches off. Therefore the machine will operate longer to achieve this. If the dehumidifier switches off and drying is not complete it is possible that the humidistat setting is too low and may need increasing. Conversely, if you no longer have condensation and the unit is still operating, then the humidistat setting may need reducing.

## EMPTYING THE WATER CONTAINER

When the water container is full an internal float mechanism will switch the unit off. This is indicated by the illumination of the “full” light on the front control panel. The water container is at the rear of the unit. To empty the container, carefully remove the water container. When emptied replace

## PERMANENT DRAINAGE

When your dehumidifier is to be used constantly in one area, it can be fitted to drain continuously, eliminating the need to empty the water container. Ideal when the property is to be left unoccupied.
For this you will need a length of PVC tubing, 10mm internal diameter. Disconnect your dehumidifier from the power supply before fitting permanent drainage. Remove the water container; remove the blind grommet on the back face of the unit and then the blanking bung from the drainage point visible through the hole. Feed tubing through hole where grommet was located and onto the visible drain point. Lastly fit the blanking bung to the drain point on the underside of the drain tray. The water container can be replaced whilst the drainage kit is in use for safe storage

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    - If the air temperature is below 25°C, an even coating of frost should cover the entire evaporator coil.
    - If the air temperature is above 25°C, frost and/or droplets of condensed water should cover the entire evaporator coil.

6. When the unit is operated in ambient of less than 15°C, a defrost cycle should occur approximately every hour. The exact time is impossible to predict as the unit is fitted with a temperature sensitive defrost control.

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

**CAUTION:**
ONCE THE UNIT HAS BEEN SWITCHED OFF, WAIT AT LEAST FIVE MINUTES BEFORE RESTARTING.

# ROUTINE SERVICE

**WARNING:**
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**WARNING:**
DO NOT STEAM CLEAN REFRIGERATION COILS

2. Check that the fan rotates freely. **The fan motor is sealed for life and therefore does not need oiling.**

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5. In order to check the defrost operation, the unit needs to be operated in an ambient temperature of less than 15℃ for at least 1 hour. When operated In this condition the unit should defrost at least once every hour. The defrost mode can be monitored by observing the ice melting on the coil face, prior to defrost the face will show a white coating of frost, which should clear during defrost

# REPAIRS

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2. If refrigerant gas is lost from the machine, it will be necessary to use a refrigeration technician to correct the fault. Contact the Factory Service Center prior to initiating this action.

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   a. The source of the leak must be determined and corrected.

   b. The machine should be thoroughly evacuated before recharging.

   c. The unit must be recharged with refrigerant measured accurately by weight.

   d. For evacuation and recharging of the machine, use the crimped and brazed charging stub attached to the side of the refrigerant compressor.

      The charging stub should be crimped and rebrazed after servicing. **NEVER** allow permanent service valves to be fitted to any part of the circuit. Service valves may leak causing further loss of refrigerant gas.

3. The refrigerant compressor fitted to the dehumidifier is a durable unit that should give many years of service. Compressor failure can result from the machine losing its refrigerant gas. The compressor can be replaced by a competent refrigeration technician.

   Failure of the compressor can be confirmed by the following procedure:

   a. Establish that power is present at the compressor terminals using a voltmeter.

   b. With the power disconnected, check the continuity of the internal winding by using meter across the compressor terminals. An open circuit indicates that the compressor should be replaced.

   c. Check that the compressor is not grounded by establishing that a circuit does not exist between the compressor terminals and the shell of the compressor.

# TROUBLESHOOTING

| SYMPTOM | CAUSE | REMEDY |
|---|---|---|
| **Unit inoperative** | 1. No power to unit<br>2. Mains cable damaged. | 1. Check the power from power supply panel.<br>2. Contact the Factory Service Center |
| **Little or no airflow** | 1. Fan motor burnt out<br>2. Dirty refrigeration coils<br>3. Loose electrical wiring | 1. Replace the fan motor<br>2. See *Routine Maintenance* Section<br>3. Check the wiring diagram to find fault and repair |
| **Little or no water extraction** | 1. Insufficient air flow<br>2. Compressor fault<br>3. Loss of refrigerant gas | 1. Check all of the above<br>2. Contact the Factory Service Center<br>3. Contact the Factory Service Center |
| **Little or no defrost when required** | 1. Faulty timer<br>2. Faulty by-pass valve | 1. Contact the Factory Service Center<br>2. Contact the Factory Service Center |
| **Unit vibrates excessively** | 1. Loose compressor<br>2. Damaged fan | 1. Tighten the nuts on the compressor mounts<br>2. Replace fan |
| **Water flooding inside the machine** | 1. Drain pipe blocked/frozen<br>2. Drain pipe too high<br>3. Crimped or blocked tubing | 1. Clear the obstruction<br>2. Ensure that no section of the drain hose is above the level of the water outlet<br>3. Straighten, clear, or replace tubing |

# RM40
# SPARE PARTS LIST

| NUMBER | DESCRIPTION | PART NUMBER | QUANTITY |
|---|---|---|---|
| 1 | Timer | 1619506 | 1 |
| 2 | Refrigerant coil set | 2018743 | 1 |
| 3 | Drain tray | 2018705 | 1 |
| 4 | Filter | 1019712 | 1 |
| 5 | Capillary | 3014251 | 1.64ft |
| 6 | Solenoid valve | 3020836 | 1 |
| 7 | Filter dryer | 3020937 | 1 |
| 8 | Solenoid coil | 3030452 | 1 |
| 9 | On/Off switch | 3035914 | 1 |
| 10 | Fan Motor | 3947013 | 1 |
| 11 | Fan Blade | 3947014 | 1 |
| 12 | Castor | 3050205 | 4 |
| 13 | Compressor | 3944953 | 1 |
| 14 | Water Container Assy | 1137907 | 1 |
| 15 | Bucket Micro Switch | 3033033 | 1 |
| 16 | Humidistat Knob | 2018644 | 1 |
| 17 | Bucket Full Lens | 3032271 | 1 |
| 18 | Bucket Full Light | 3032272 | 1 |
| 19 | Humidistat | 3035158 | 1 |
| 20 | Mains Cable | 2141002 | 1 |
| 21 | Front Grille | 2018704 | 1 |

# WARNINGS

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.

Children shall not play with the appliance.

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.

This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. The refrigeration system is hermetically sealed.

The Global Warming Potential (GWP) of refrigerants used in products manufactured by Ebac Industrial Products Ltd is as follows
R134a – 1300
R407c – 1610

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

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 unit 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.

For correct installation and operation the unit inlet and outlet must have a clearance of 0.5M from all adjacent surfaces and or structures.

# RM40P

# INDUSTRIAL DEHUMIDIFIER

# OWNER'S MANUAL

# RM40

# PACKAGE CONTENTS

| Item | Description | Quantity |
|---|---|---|
| 10187MP-US | Dehumidifier | 1 |
| 3086144 | Quick release hose coupling | 1 |
| 3944110 | PVC Tube – 3/8” I/D | 7.8M |
| TPC473 | Manual | 1 |

# INTRODUCTION

Designed for a wide range of applications, the RM40P is a rugged, industrial unit, which utilizes an energy-efficient compressor and a compact portable design to provide easy efficient drying.

The fan draws the moist air through the cold evaporator coil, which cools the air below its dew point. Moisture forms on the evaporator coil and is collected in the condensate tray, which is equipped with a permanent drain. The cooled air then passes through the hot condenser coil where it is reheated using the same energy removed during the cooling phase, plus the additional heat generated by the compressor. The air is, therefore, discharged from the dehumidifier at a slightly higher temperature with a lower absolute humidity than that which entered. Continuous circulation of air through the dehumidifier gradually reduces the relative humidity within the area.

The RM40P dehumidifier is a rugged, reliable drying unit designed to operate effectively over a broad range of temperature and humidity conditions. An active hot gas defrost system, controlled by an electronic timer, guarantees positive de-icing, thereby optimizing operation at low temperatures.

The unit incorporates a rotational moulded polyethylene shell resilient to damage caused by rough handling.

The unit also incorporates an integral pump which will remove the condensate from the unit.

# SPECIFICATIONS

| | |
|---|---|
| **MODEL:** | 10187MP-US |
| **HEIGHT:** | 24.2” (615 mm) |
| **WIDTH:** | 15” (382 mm) |
| **DEPTH:** | 14.4” (365 mm) |
| **WEIGHT:** | 57lbs (26 kg) |
| **AIRFLOW:** | 88.3CFM (150 $M^3$/Hr) |
| **POWER SUPPLY:** | 110V/ 60Hz/ 1 ph |
| **FINISH:** | Rotational Moulded polyethylene |
| **OPERATING RANGE:** | 37°F – 95°C |
| **REFRIGERANT:** | R134a (6.1oz (173g)) |

*"This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. The refrigeration system is hermetically sealed.*

*The Global Warming Potential (GWP) of refrigerants used in products manufactured by Ebac Industrial Products Ltd is as follows*

*R134a – 1300*
*R407c – 1610*

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

# OPERATION

After unpacking, examine all external features to confirm damage-free shipment. Report all defects and damage at once.

Connect the drainage outlet to a suitably sized hose and run the hose to a permanent drain.

Before connecting it to the mains you should ensure that the humidistat is turned fully anti-clockwise. Connect to a grounded 15A standard household electrical outlet then the humidistat control should be turned clockwise until you hear the unit operate. To protect the compressor, you should allow 5 minutes between switching the dehumidifier off and on again.

## OPERATING THE HUMIDISTAT

The humidistat works in a similar way to a central heating thermostat, but instead of measuring temperature, it measures the amount of moisture in the air. You may select the level of moisture you require (known as Relative Humidity) and the unit will operate to achieve that level and then switch off. As a general guide, the higher the setting the lower the Relative Humidity will be before the machine switches off. Therefore the machine will operate longer to achieve this. If the dehumidifier switches off and drying is not complete it is possible that the humidistat setting is too low and may need increasing. Conversely, if you no longer have condensation and the unit is still operating, then the humidistat setting may need reducing.

**CHECK DEHUMIDIFICATION PROCESS AS FOLLOWS:**

**CAUTION:**
DO NOT REMOVE COVERS WHEN UNIT IS IN OPERATION

1. Place unit on a level surface.
2. Start up unit by switching to "I" and humidistat fully clockwise
3. Check that the compressor is running.
4. Leave the machine running for 15 minutes.
5. Observe the evaporator coils through the rear grille, to confirm frost formation or weeping.
    - If the air temperature is below 25°C, an even coating of frost should cover the entire evaporator coil.
    - If the air temperature is above 25°C, frost and/or droplets of condensed water should cover the entire evaporator coil.

6. When the unit is operated in ambient of less than 15°C, a defrost cycle should occur approximately every hour. The exact time is impossible to predict as the unit is fitted with a temperature sensitive defrost control.

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

**CAUTION:**
ONCE THE UNIT HAS BEEN SWITCHED OFF, WAIT AT LEAST FIVE MINUTES BEFORE RESTARTING.

# ROUTINE SERVICE

**WARNING:**
ENSURE THAT THE POWER CORD TO THE MACHINE HAS BEEN DISCONNECTED BEFORE CARRYING OUT ROUTINE SERVICE. THE SERVICING AND REPAIR OF THIS UNIT SHOULD ONLY BE CARRIED OUT BY A SUITABLY QUALIFIED PERSON.

To ensure continued full efficiency of the dehumidifier, service 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 to avoid damaging the fins. Alternatively, vacuum clean the coils.

**WARNING:**
DO NOT STEAM CLEAN REFRIGERATION COILS

2. Check that the fan rotates freely. **The fan motor is sealed for life and therefore does not need oiling.**

3. To check the refrigerant charge, run the unit for 15 minutes and observe the evaporator coil. It should be evenly coated with frost 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, including mains cable for damage or loose connections.

5. In order to check the defrost operation, the unit needs to be operated in an ambient temperature of less than 15℃ for at least 1 hour. When operated In this condition the unit should defrost at least once every hour. The defrost mode can be monitored by observing the ice melting on the coil face, prior to defrost the face will show a white coating of frost, which should clear during defrost

# REPAIRS

1. Should an electrical component fail, consult the Factory Service Center to obtain the proper replacement part.

2. If refrigerant gas is lost from the machine, it will be necessary to use a refrigeration technician to correct the fault. Contact the Factory Service Center prior to initiating this action.

   Any competent refrigeration technician will be able to service the equipment. The following procedure must be used:

   a. The source of the leak must be determined and corrected.

   b. The machine should be thoroughly evacuated before recharging.

   c. The unit must be recharged with refrigerant measured accurately by weight.

   d. For evacuation and recharging of the machine, use the crimped and brazed charging stub attached to the side of the refrigerant compressor.

      The charging stub should be crimped and rebrazed after servicing. **NEVER** allow permanent service valves to be fitted to any part of the circuit. Service valves may leak causing further loss of refrigerant gas.

3. The refrigerant compressor fitted to the dehumidifier is a durable unit that should give many years of service. Compressor failure can result from the machine losing its refrigerant gas. The compressor can be replaced by a competent refrigeration technician.

   Failure of the compressor can be confirmed by the following procedure:

   a. Establish that power is present at the compressor terminals using a voltmeter.

   b. With the power disconnected, check the continuity of the internal winding by using meter across the compressor terminals. An open circuit indicates that the compressor should be replaced.

Check that the compressor is not grounded by establishing that a circuit does not exist between the compressor terminals and the shell of the compressor.

# TROUBLESHOOTING

| SYMPTOM | CAUSE | REMEDY |
|---|---|---|
| **Unit inoperative** | 1. No power to unit<br>2. Mains cable damaged. | 1. Check the power from power supply panel.<br>2. Contact the Factory Service Center |
| **Little or no airflow** | 1. Fan motor burnt out<br>2. Dirty refrigeration coils<br>3. Loose electrical wiring | 1. Replace the fan motor<br>2. See *Routine Maintenance* Section<br>3. Check the wiring diagram to find fault and repair |
| **Little or no water extraction** | 1. Insufficient air flow<br>2. Compressor fault<br>3. Loss of refrigerant gas | 1. Check all of the above<br>2. Contact the Factory Service Center<br>3. Contact the Factory Service Center |
| **Little or no defrost when required** | 1. Faulty timer<br>2. Faulty by-pass valve | 1. Contact the Factory Service Center<br>2. Contact the Factory Service Center |
| **Unit vibrates excessively** | 1. Loose compressor<br>2. Damaged fan | 1. Tighten the nuts on the compressor mounts<br>2. Replace fan |
| **Water flooding inside the machine** | 1. Drain pipe blocked/frozen<br>2. Drain pipe too high<br>3. Crimped or blocked tubing | 1. Clear the obstruction<br>2. Ensure that no section of the drain hose is above the level of the water outlet<br>3. Straighten, clear, or replace tubing |

# RM40P
# SPARE PARTS LIST

| NUMBER | DESCRIPTION | PART NUMBER | QUANTITY |
|---|---|---|---|
| 1 | Timer | | 1 |
| 2 | Condenser coil | 2131147 | 1 |
| 3 | Evaporator coil | 1018611 | 1 |
| 4 | Drain tray | 2018705 | 1 |
| 5 | Filter | 1019712 | 1 |
| 6 | Capillary | 3014250 | 1.64ft |
| 7 | Solenoid valve | 3020836 | 1 |
| 8 | Filter dryer | 3020937 | 1 |
| 9 | Solenoid coil | 3030451 | 1 |
| 10 | On/Off switch | 3035914 | 1 |
| 11 | Fan Motor | 3035773 | 1 |
| 12 | Fan Blade | 3040181 | 1 |
| 13 | Castor | 3050205 | 4 |
| 14 | Compressor | 3022147 | 1 |
| 15 | Condensate Pump | 3160156 | 1 |
| 17 | Humidistat Knob | 2018644 | 1 |
| 18 | Pump Fault Lens | 3032271 | 1 |
| 19 | Pump Fault Light | 3036636 | 1 |
| 20 | Humidistat | 3035158 | 1 |
| 21 | Mains Cable | 2141095 | 1 |
| 22 | Front Grille | 2018704 | 1 |

# WARNINGS

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.

Children shall not play with the appliance.

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.

This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. The refrigeration system is hermetically sealed.

The Global Warming Potential (GWP) of refrigerants used in products manufactured by Ebac Industrial Products Ltd is as follows
R134a – 1300
R407c – 1610

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

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 unit 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.

For correct installation and operation the unit inlet and outlet must have a clearance of 0.5M from all adjacent surfaces and or structures.

# RM40P

# INDUSTRIAL DEHUMIDIFIER

# OWNER'S MANUAL

# INTRODUCTION

Designed for a wide range of applications, the RM40P is a rugged, industrial unit, which utilizes an energy-efficient compressor and a compact portable design to provide easy efficient drying.

The fan draws the moist air through the cold evaporator coil, which cools the air below its dew point. Moisture forms on the evaporator coil and is collected in the condensate tray, which is equipped with a permanent drain. The cooled air then passes through the hot condenser coil where it is reheated using the same energy removed during the cooling phase, plus the additional heat generated by the compressor. The air is, therefore, discharged from the dehumidifier at a slightly higher temperature with a lower absolute humidity than that which entered. Continuous circulation of air through the dehumidifier gradually reduces the relative humidity within the area.

The RM40P dehumidifier is a rugged, reliable drying unit designed to operate effectively over a broad range of temperature and humidity conditions. An active hot gas defrost system, controlled by an electronic timer, guarantees positive de-icing, thereby optimizing operation at low temperatures.

The unit incorporates a rotational moulded polyethylene shell resilient to damage caused by rough handling.

The unit also incorporates an integral pump which will remove the condensate from the unit.

# SPECIFICATIONS

| | |
|---|---|
| **MODEL:** | 10187MP-GB |
| **HEIGHT:** | 615 mm |
| **WIDTH:** | 382 mm |
| **DEPTH:** | 365 mm |
| **WEIGHT:** | 26 kg |
| **AIRFLOW:** | 185 $M^3$/Hr |
| **POWER SUPPLY:** | 230V/ 50Hz/ 1 ph |
| **FINISH:** | Rotational Moulded polyethylene |
| **OPERATING RANGE:** | 3°C – 35°C |
| **REFRIGERANT:** | R410a (140g) |

*"This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. The refrigeration system is hermetically sealed.*

*The Global Warming Potential (GWP) of refrigerants used in products manufactured by Ebac Industrial Products Ltd is as follows*

*R134a – 1300*
*R407c – 1610*

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

# OPERATION

After unpacking, examine all external features to confirm damage-free shipment. Report all defects and damage at once.

Connect the drainage outlet to a suitably sized hose and run the hose to a permanent drain.

Before connecting it to the mains you should ensure that the humidistat is turned fully anti-clockwise. Connect to a grounded 13A electrical outlet then the humidistat control should be turned clockwise until you hear the unit operate. To protect the compressor, you should allow 5 minutes between switching the dehumidifier off and on again.

## OPERATING THE HUMIDISTAT

The humidistat works in a similar way to a central heating thermostat, but instead of measuring temperature, it measures the amount of moisture in the air. You may select the level of moisture you require (known as Relative Humidity) and the unit will operate to achieve that level and then switch off. As a general guide, the higher the setting the lower the Relative Humidity will be before the machine switches off. Therefore the machine will operate longer to achieve this. If the dehumidifier switches off and drying is not complete it is possible that the humidistat setting is too low and may need increasing. Conversely, if you no longer have condensation and the unit is still operating, then the humidistat setting may need reducing.

**CHECK DEHUMIDIFICATION PROCESS AS FOLLOWS:**

**CAUTION:**
DO NOT REMOVE COVERS WHEN UNIT IS IN OPERATION

1. Place unit on a level surface.
2. Start up unit by switching to “I” and humidistat fully clockwise
3. Check that the compressor is running.
4. Leave the machine running for 15 minutes.
5. Observe the evaporator coils through the rear grille, to confirm frost formation or weeping.
    - If the air temperature is below 25°C, an even coating of frost should cover the entire evaporator coil.
    - If the air temperature is above 25°C, frost and/or droplets of condensed water should cover the entire evaporator coil.

6. When the unit is operated in ambient of less than 15°C, a defrost cycle should occur approximately every hour. The exact time is impossible to predict as the unit is fitted with a temperature sensitive defrost control.

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

**CAUTION:**
ONCE THE UNIT HAS BEEN SWITCHED OFF, WAIT AT LEAST FIVE MINUTES BEFORE RESTARTING.

## ROUTINE SERVICE

**WARNING:**
ENSURE THAT THE POWER CORD TO THE MACHINE HAS BEEN DISCONNECTED BEFORE CARRYING OUT ROUTINE SERVICE. THE SERVICING AND REPAIR OF THIS UNIT SHOULD ONLY BE CARRIED OUT BY A SUITABLY QUALIFIED PERSON.

To ensure continued full efficiency of the dehumidifier, service 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 to avoid damaging the fins. Alternatively, vacuum clean the coils.

**WARNING:**
DO NOT STEAM CLEAN REFRIGERATION COILS

2. Check that the fan rotates freely. **The fan motor is sealed for life and therefore does not need oiling.**

3. To check the refrigerant charge, run the unit for 15 minutes and observe the evaporator coil. It should be evenly coated with frost 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, including mains cable for damage or loose connections.

5. In order to check the defrost operation, the unit needs to be operated in an ambient temperature of less than 15℃ for at least 1 hour. When operated In this condition the unit should defrost at least once every hour. The defrost mode can be monitored by observing the ice melting on the coil face, prior to defrost the face will show a white coating of frost, which should clear during defrost

# REPAIRS

1. Should an electrical component fail, consult the Factory Service Center to obtain the proper replacement part.

2. If refrigerant gas is lost from the machine, it will be necessary to use a refrigeration technician to correct the fault. Contact the Factory Service Center prior to initiating this action.

   Any competent refrigeration technician will be able to service the equipment. The following procedure must be used:

   a. The source of the leak must be determined and corrected.

   b. The machine should be thoroughly evacuated before recharging.

   c. The unit must be recharged with refrigerant measured accurately by weight.

   d. For evacuation and recharging of the machine, use the crimped and brazed charging stub attached to the side of the refrigerant compressor.

      The charging stub should be crimped and rebrazed after servicing. **NEVER** allow permanent service valves to be fitted to any part of the circuit. Service valves may leak causing further loss of refrigerant gas.

3. The refrigerant compressor fitted to the dehumidifier is a durable unit that should give many years of service. Compressor failure can result from the machine losing its refrigerant gas. The compressor can be replaced by a competent refrigeration technician.

   Failure of the compressor can be confirmed by the following procedure:

   a. Establish that power is present at the compressor terminals using a voltmeter.

   b. With the power disconnected, check the continuity of the internal winding by using meter across the compressor terminals. An open circuit indicates that the compressor should be replaced.

   c. Check that the compressor is not grounded by establishing that a circuit does not exist between the compressor terminals and the shell of the compressor.

# TROUBLESHOOTING

| SYMPTOM | CAUSE | REMEDY |
|---|---|---|
| **Unit inoperative** | 1. No power to unit<br>2. Mains cable damaged. | 1. Check the power from power supply panel.<br>2. Contact the Factory Service Center |
| **Little or no airflow** | 1. Fan motor burnt out<br>2. Dirty refrigeration coils<br>3. Loose electrical wiring | 1. Replace the fan motor<br>2. See *Routine Maintenance* Section<br>3. Check the wiring diagram to find fault and repair |
| **Little or no water extraction** | 1. Insufficient air flow<br>2. Compressor fault<br>3. Loss of refrigerant gas | 1. Check all of the above<br>2. Contact the Factory Service Center<br>3. Contact the Factory Service Center |
| **Little or no defrost when required** | 1. Faulty timer<br>2. Faulty by-pass valve | 1. Contact the Factory Service Center<br>2. Contact the Factory Service Center |
| **Unit vibrates excessively** | 1. Loose compressor<br>2. Damaged fan | 1. Tighten the nuts on the compressor mounts<br>2. Replace fan |
| **Water flooding inside the machine** | 1. Drain pipe blocked/frozen<br>2. Drain pipe too high<br>3. Crimped or blocked tubing | 1. Clear the obstruction<br>2. Ensure that no section of the drain hose is above the level of the water outlet<br>3. Straighten, clear, or replace tubing |

# RM40P
# SPARE PARTS LIST

| NUMBER | DESCRIPTION | PART NUMBER | QUANTITY |
|---|---|---|---|
| 1 | Timer | 1619506 | 1 |
| 2 | Refrigerant Coil Set | 2018743 | 1 |
| 3 | Drain tray | 2018705 | 1 |
| 4 | Filter | 1019712 | 1 |
| 5 | Capillary | 3014251 | 1.64ft |
| 6 | Solenoid valve | 3020836 | 1 |
| 7 | Filter dryer | 3020937 | 1 |
| 8 | Solenoid coil | 3030452 | 1 |
| 9 | On/Off switch | 3035914 | 1 |
| 10 | Fan Motor | 3947013 | 1 |
| 11 | Fan Blade | 3947014 | 1 |
| 12 | Castor | 3050205 | 4 |
| 13 | Compressor | 3944953 | 1 |
| 14 | Condensate Pump | 3160155 | 1 |
| 15 | Humidistat Knob | 2018644 | 1 |
| 16 | Pump Fault Lens | 3032271 | 1 |
| 17 | Pump Fault Light | 3032272 | 1 |
| 18 | Humidistat | 3035158 | 1 |
| 19 | Mains Cable | 2141002 | 1 |
| 20 | Front Grille | 2018704 | 1 |

# WARNINGS

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.

Children shall not play with the appliance.

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.

This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. The refrigeration system is hermetically sealed.

The Global Warming Potential (GWP) of refrigerants used in products manufactured by Ebac Industrial Products Ltd is as follows
R134a – 1300
R407c – 1610

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

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 unit 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.

For correct installation and operation the unit inlet and outlet must have a clearance of 0.5M from all adjacent surfaces and or structures.

# RMEI-Series

## Portable Dehumidifiers

RM85EI | Moisture Removal | 70 ppd

IOM Manual

# RM85

# INDUSTRIAL DEHUMIDIFIER

# OWNER'S MANUAL

# RM85

# PACKAGE CONTENTS

| Item | Description | Quantity |
|---|---|---|
| 10560RG-US | Dehumidifier | 1 |
| 3086144 | Quick release hose coupling | 1 |
| 3944110 | PVC Tube – 3/8” I/D | 7.8M |
| TPC408 | Manual | 1 |

# INTRODUCTION

Designed for a wide range of applications, the RM85 is a rugged, industrial unit, which utilizes an energy-efficient compressor and a compact portable design to provide easy efficient drying.

The RM85 has a number of special features:

- High efficiency rotary compressor
- EIPL's "**Hot Gas**" defrost system
- Hours run meter
- Integral pump out system
- Provision for permanent drainage
- Extra long power cord
- Robust rotational moulded polyethylene housing
- Separate outlets allowing dry air to be ducted

The fan draws the moist air through the cold evaporator coil, which cools the air below its dew point. Moisture forms on the evaporator coil and is collected in the condensate tray, which is equipped with a permanent drain. The cooled air then passes through the hot condenser coil where it is reheated using the same energy removed during the cooling phase, plus the additional heat generated by the compressor. The air is, therefore, discharged from the dehumidifier at a slightly higher temperature with a lower absolute humidity than that which entered. Continuous circulation of air through the dehumidifier gradually reduces the relative humidity within the area.

The RM85 dehumidifier is a rugged, reliable drying unit designed to operate effectively over a broad range of temperature and humidity conditions. An active hot gas defrost system, controlled by an electronic timer, guarantees positive de-icing, thereby optimizing operation at low temperatures.

The unit incorporates a rotational moulded polyethylene shell resilient to damage caused by rough handling.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

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.

# SPECIFICATIONS

| | |
|---|---|
| **MODEL:** | 10560rg-us |
| **HEIGHT:** | 37.2” (945mm) |
| **WIDTH:** | 21.5” (545mm) |
| **DEPTH:** | 19.4” (492mm) |
| **WEIGHT:** | 99 lbs (45 Kg) |
| **AIRFLOW:** | 230 CFM (390 M3/hr) |
| **POWER SUPPLY:** | 110V/ 60Hz/ 1 ph |
| **FINISH:** | Rotational Moulded polyethylene |
| **OPERATING RANGE:** | 33°F – 95°F |
| **REFRIGERANT:** | R-407c (17.6 oz) |

*"This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. The refrigeration system is hermetically sealed.*

*The Global Warming Potential (GWP) of refrigerants used in products manufactured by Ebac Industrial Products Ltd is as follows*

*R134a – 1300*
*R407c – 1610*

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

# OPERATION

The following procedures should be followed to test the RM85 for correct operation:

1. After unpacking, examine all external features to confirm damage-free shipment. Report all defects and damage at once. Connect the power cable to a grounded 15 Amp electrical outlet.

2. Check dehumidification process as follows:

**CAUTION:**
DO NOT REMOVE COVERS WHEN UNIT IS IN OPERATION

A. Place unit on a level surface.
B. Start up unit by switching to “I”.
C. Check that the compressor is running.
D. Leave the machine running for 15 minutes.
E. Observe the evaporator coils through the front grille, to confirm frost formation.

   i. If the air temperature is below 78°F, an even coating of frost should cover the entire evaporator coil.
   ii. If the air temperature is above 78°F, frost and/or droplets of condensed water should cover the entire evaporator coil.

F. When the unit is operated in ambient of less than 59°F, a defrost cycle should occur approximately every hour. The exact time is impossible to predict as the unit is fitted with a temperature sensitive defrost control.

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

**CAUTION:**
ONCE THE UNIT HAS BEEN SWITCHED OFF, WAIT AT LEAST FIVE MINUTES BEFORE RESTARTING.

After using the RM85, turn it off for five minutes to allow the condensate on the coils to drain into the pump reservoir, then press the momentary pump purge switch for twenty to thirty seconds to evacuate the water from the pump reservoir.

## ROUTINE MAINTENANCE

**WARNING:**
ENSURE THAT THE POWER CORD TO THE MACHINE HAS BEEN DISCONNECTED BEFORE CARRYING OUT ROUTINE MAINTNENANCE ON ITEMS 1, 2, 3, 4 & 5

To ensure continued full efficiency of the dehumidifier, 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 to avoid damaging the fins. Alternatively, vacuum clean the coils.

**WARNING:**
DO NOT STEAM CLEAN REFRIGERATION COILS

2. Check that the fan rotates freely. **The fan motor is sealed for life and therefore does not need oiling.**

3. To check the refrigerant charge, run the unit for 15 minutes and observe the evaporator coil. It should be evenly frost coated across its surface. At temperatures above 78°F, 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.

5. In order to check the defrost operation, the unit needs to be operated in an ambient temperature of less than 59°F for at least 1 hour. When operated In this condition the unit should defrost at least once every hour. The defrost mode can be monitored by observing the ice melting on the coil face, prior to defrost the face will show a white coating of frost, which should clear during defrost

**IF ANY OF THE PRECEDING PROBLEMS OCCUR, CONTACT THE EBAC SERVICE CENTER PRIOR TO CONTINUED OPERATION OF THE UNIT TO PREVENT PERMANENT DAMAGE.**

# REPAIRS

1. Should an electrical component fail, consult the Factory Service Center to obtain the proper replacement part.

2. If refrigerant gas is lost from the machine, it will be necessary to use a refrigeration technician to correct the fault. Contact the Factory Service Center prior to initiating this action.

   Any competent refrigeration technician will be able to service the equipment. The following procedure must be used:

   a. The source of the leak must be determined and corrected.

   b. The machine should be thoroughly evacuated before recharging.

   c. The unit must be recharged with refrigerant measured accurately by weight.

   d. For evacuation and recharging of the machine, use the crimped and brazed charging stub attached to the side of the refrigerant compressor.

      The charging stub should be crimped and rebrazed after servicing. **NEVER** allow permanent service valves to be fitted to any part of the circuit. Service valves may leak causing further loss of refrigerant gas.

3. The refrigerant compressor fitted to the dehumidifier is a durable unit that should give many years of service. Compressor failure can result from the machine losing its refrigerant gas. The compressor can be replaced by a competent refrigeration technician.

   Failure of the compressor can be confirmed by the following procedure:

   a. Establish that power is present at the compressor terminals using a voltmeter.

   b. With the power disconnected, check the continuity of the internal winding by using meter across the compressor terminals. An open circuit indicates that the compressor should be replaced.

   c. Check that the compressor is not grounded by establishing that a circuit does not exist between the compressor terminals and the shell of the compressor.

# TROUBLESHOOTING

| SYMPTOM | CAUSE | REMEDY |
|---|---|---|
| **Unit inoperative** | 1. No power to unit | 1. Check the power from power supply panel |
| **Little or no airflow** | 1. Fan motor burnt out<br>2. Dirty refrigeration coils<br>3. Loose electrical wiring | 1. Replace the fan motor<br>2. See *Routine Maintenance* Section<br>3. Check the wiring diagram to find fault and repair |
| **Little or no water extraction** | 1. Insufficient air flow<br>2. Compressor fault<br>3. Loss of refrigerant gas | 1. Check all of the above<br>2. Contact the Factory Service Center<br>3. Contact the Factory Service Center |
| **Little or no defrost when required** | 1. Faulty timer<br>2. Faulty by-pass valve | 1. Contact the Factory Service Center<br>2. Contact the Factory Service Center |
| **Unit vibrates excessively** | 1. Loose compressor<br>2. Damaged fan | 1. Tighten the nuts on the compressor mounts<br>2. Replace fan |
| **Water flooding inside the machine** | 1. Drain pipe blocked/frozen<br>2. Drain pipe too high<br>3. Crimped or blocked tubing | 1. Clear the obstruction<br>2. Ensure that no section of the drain hose is above the level of the water outlet<br>3. Straighten, clear, or replace tubing |

# RM85
# SPARE PARTS LIST

| NUMBER | DESCRIPTION | PART NUMBER | QUANTITY |
|---|---|---|---|
| 1 | Timer | 1619508 | 1 |
| 2 | Condenser coil | 2029322 | 1 |
| 3 | Evaporator coil | 2029323 | 1 |
| 4 | Cable & Tube wrap | 2056002 | 2 |
| 5 | Drain tray | 2056003 | 1 |
| 6 | Filter | 2056004 | 1 |
| 7 | Capillary | 3014254 | 2 X 2ft |
| 8 | Solenoid valve | 3020837 | 1 |
| 9 | Filter dryer | 3020909 | 1 |
| 10 | Compressor | 3022198 | 1 |
| 11 | Defrost Relay | 3030269 | 1 |
| 12 | Solenoid coil | 3030451 | 1 |
| 13 | Hour meter | 3030779 | 1 |
| 14 | Run capacitor | 3030908 | 1 |
| 13 | On/Off switch | 3035914 | 1 |
| 14 | Power Relay | 3036157 | 1 |
| 16 | Pump purge switch | 3036779 | 1 |
| 17 | Fan | 3040277 | 1 |
| 18 | Fan inlet ring | 3040283 | 1 |
| 19 | Wheel | 3050124 | 2 |
| 20 | Rubber foot | 3101436 | 2 |
| 21 | Condensate pump | 3160150 | 1 |

# DUAL VOLTAGE RM85
# INDUSTRIAL DEHUMIDIFIER
# OWNER'S MANUAL

## INTRODUCTION

Designed for a wide range of applications, the RM85 is a rugged, industrial unit, which utilizes an energy-efficient compressor and a compact portable design to provide easy efficient drying.

The RM85 has a number of special features:

- High efficiency rotary compressor
- EIPL's "**Hot Gas**" defrost system
- Hours run meter
- Integral pump out system
- Provision for permanent drainage
- Robust rotational moulded polyethylene housing
- Extra long power cord
- Separate outlets allowing dry air to be ducted

The fan draws the moist air through the cold evaporator coil, which cools the air below its dew point. Moisture forms on the evaporator coil and is collected in the condensate tray, which is equipped with a permanent drain. The cooled air then passes through the hot condenser coil where it is reheated using the same energy removed during the cooling phase, plus the additional heat generated by the compressor. The air is, therefore, discharged from the dehumidifier at a slightly higher temperature with a lower absolute humidity than that which entered. Continuous circulation of air through the dehumidifier gradually reduces the relative humidity within the area.

The RM85 dehumidifier is a rugged, reliable drying unit designed to operate effectively over a broad range of temperature and humidity conditions. An active hot gas defrost system, controlled by an electronic timer, guarantees positive de-icing, thereby optimizing operation at low temperatures.

The unit incorporates a rotational moulded polyethylene shell resilient to damage caused by rough handling.

The unit is fitted with a transformer which will allow the unit to operate on either 110volts or 230volts 1ph 50Hz power supply. The unit is factory set at 110 volts.

All electrical components within the unit are rated for 110volts, for safety reasons.

The unit can easily be adjusted to operate from a 230 volt power supply as follows:

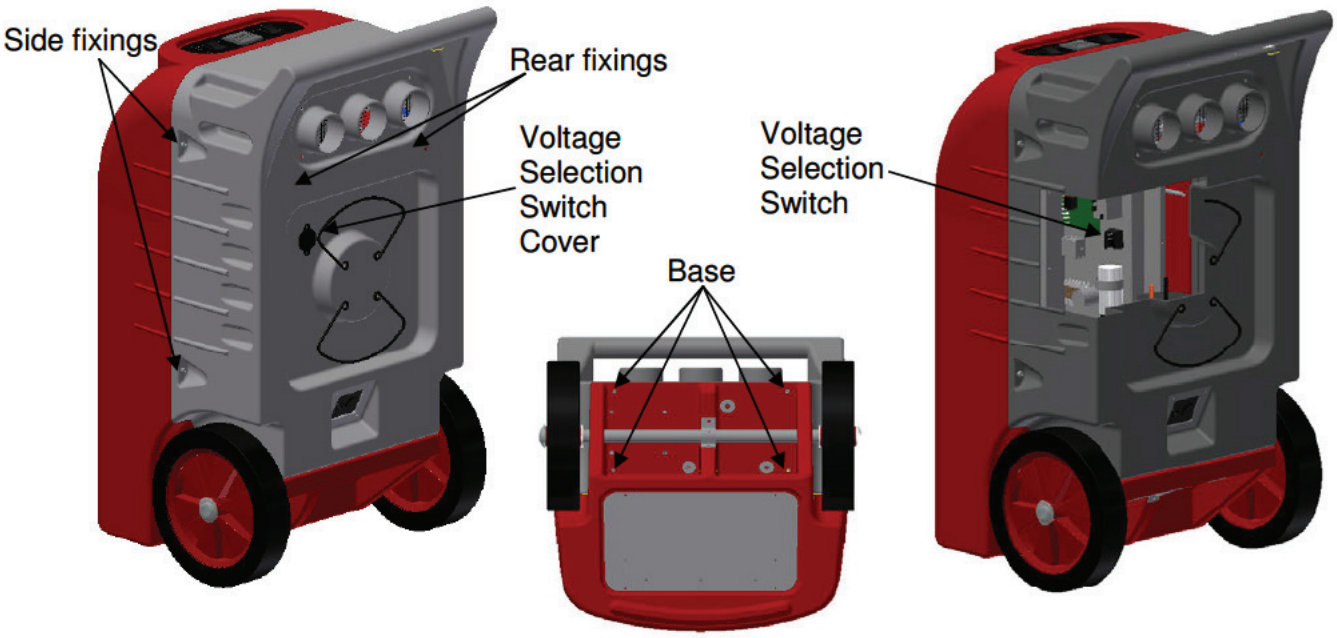
**Warning: ensure the unit is switched OFF and isolated form the supply.**

The voltage selector switch is located at the rear of the machine – see diagram on Page 4.
Remove the lower screw and swing the cover to one side to reveal the access hole. The switch lever can be seen through the hole. Using a flat blade screwdriver move the switch lever down to the 230 volt position. (If 110 volt is required the switch lever must be in the upper position)
Once the required voltage has been selected, refit the cover and tighten the lower fixing screw.
The dehumidifier is now ready to be connected to the required power supply.

## BACK SHELL REMOVAL

To remove the back shell and access the voltage selection switch please carry out the following steps.

- Locate 2 off cap headed bolts on back of unit and remove
- Locate 2 off cap headed studs on right hand side of unit and remove
- Locate 2 off cap headed studs on left hand side of unit and remove
- Locate 4 off cap headed studs on base of unit and remove
- Once studs are removed the back shell will lift off the unit. The unit will remain free standing once back shell is removed
- The voltage selection switch is located on the rear of the electrical panel hanging from the fan deck. Choose the correct voltage for the mains supply your unit will be connected to. WARNING: selecting the incorrect voltage for the mains supply being used may damage the unit.
- Once correct voltage is selected, place back onto unit
- Re-fit 4 off cap headed bolts to base
- Re-fit 2 off cap head bolts to right hand side of unit
- Re-fit 2 off cap headed bolts to left hand side of unit
- Re-fit 2 off cap headed bolts to rear of unit
- Ensure all bolts are replaced and tightened correctly before moving unit.



# SPECIFICATIONS

| | |
|---|---|
| **MODEL:** | 10560RD-GB |
| **HEIGHT:** | 945 mm |
| **WIDTH:** | 545 mm |
| **DEPTH:** | 492 mm |
| **WEIGHT:** | 48 kg |
| **AIRFLOW:** | 390 $M^3$/Hr |
| **POWER SUPPLY:** | 230V/115V / 50Hz/ 1 ph |
| **FINISH:** | Rotational Moulded polyethylene |
| **OPERATING RANGE:** | 3ºC – 35ºC |
| **REFRIGERANT:** | R407c (500g) |

*"This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. The refrigeration system is hermetically sealed.*

*The Global Warming Potential (GWP) of refrigerants used in products manufactured by Ebac Industrial Products Ltd is as follows*

*R134a – 1300*
*R407c – 1610*

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

## OPERATION

The following procedures should be followed to test the RM85 for correct operation:

1. After unpacking, examine all external features to confirm damage-free shipment. Report all defects and damage at once. Ensure the correct voltage has been selected. Connect the drainage outlet to a suitably sized hose and run the hose to a permanent drain

2. Check dehumidification process as follows:

**CAUTION:**
DO NOT REMOVE COVERS WHEN UNIT IS IN OPERATION

A. Place unit on a level surface.

B. Start up unit by switching to “I”.

C. Check that the compressor is running.

D. Leave the machine running for 15 minutes.

E. Observe the evaporator coils through the front grille, to confirm frost formation.

i. If the air temperature is below 25ºC, an even coating of frost should cover the entire evaporator coil.

ii. If the air temperature is above 25ºC, frost and/or droplets of condensed water should cover the entire evaporator coil.

F. When the unit is operated in ambient of less than 15°C, a defrost cycle should occur approximately every hour. The exact time is impossible to predict as the unit is fitted with a temperature sensitive defrost control.

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

**CAUTION:**
ONCE THE UNIT HAS BEEN SWITCHED OFF, WAIT AT LEAST FIVE MINUTES BEFORE RESTARTING.

**After using the RM85, turn it off for five minutes to allow the condensate on the coils to drain into the pump reservoir, then turn it back on and press the momentary purge switch for twenty to thirty seconds to evacuate the water from the pump reservoir.**

## ROUTINE SERVICE

**WARNING:**
ENSURE THAT THE POWER CORD TO THE MACHINE HAS BEEN DISCONNECTED BEFORE CARRYING OUT ROUTINE SERVICE. THE SERVICING AND REPAIR OF THIS UNIT SHOULD ONLY BE CARRIED OUT BY A SUITABLY QUALIFIED PERSON.

To ensure continued full efficiency of the dehumidifier, 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 to avoid damaging the fins. Alternatively, vacuum clean the coils.

**WARNING:**
DO NOT STEAM CLEAN REFRIGERATION COILS

2. Check that the fan rotates freely. **The fan motor is sealed for life and therefore does not need oiling.**

3. To check the refrigerant charge, run the unit for 15 minutes and observe the evaporator coil It 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, including mains cable for damage or loose connections.

5. In order to check the defrost operation, the unit needs to be operated in an ambient temperature of less than 15°C for at least 1 hour. When operated In this condition the unit should defrost at least once every hour. The defrost mode can be monitored by observing the ice melting on the coil face, prior to defrost the face will show a white coating of frost, which should clear during defrost

**IF ANY OF THE PRECEDING PROBLEMS OCCUR, CONTACT THE EBAC SERVICE CENTER PRIOR TO CONTINUED OPERATION OF THE UNIT TO PREVENT PERMANENT DAMAGE.**

## REPAIRS

1. Should an electrical component fail, consult the Factory Service Center to obtain the proper replacement part.

2. If refrigerant gas is lost from the machine, it will be necessary to use a refrigeration technician to correct the fault. Contact the Factory Service Center prior to initiating this action.

   Any competent refrigeration technician will be able to service the equipment. The following procedure must be used:

   a. The source of the leak must be determined and corrected.

   b. The machine should be thoroughly evacuated before recharging.

   c. The unit must be recharged with refrigerant measured accurately by weight.

   d. For evacuation and recharging of the machine, use the crimped and brazed charging stub attached to the side of the refrigerant compressor.

      The charging stub should be crimped and rebrazed after servicing. **NEVER** allow permanent service valves to be fitted to any part of the circuit. Service valves may leak causing further loss of refrigerant gas.

3. The refrigerant compressor fitted to the dehumidifier is a durable unit that should give many years of service. Compressor failure can result from the machine losing its refrigerant gas. The compressor can be replaced by a competent refrigeration technician.

   Failure of the compressor can be confirmed by the following procedure:

   a. Establish that power is present at the compressor terminals using a voltmeter.

   b. With the power disconnected, check the continuity of the internal winding by using meter across the compressor terminals. An open circuit indicates that the compressor should be replaced.

   c. Check that the compressor is not grounded by establishing that a circuit does not exist between the compressor terminals and the shell of the compressor.

# TROUBLESHOOTING

| SYMPTOM | CAUSE | REMEDY |
|---|---|---|
| **Unit inoperative** | 1. No power to unit<br>2. Mains cable damaged. | 1. Check the power from power supply panel.<br>2. Contact the Factory Service Center |
| **Little or no airflow** | 1. Fan motor burnt out<br>2. Dirty refrigeration coils<br>3. Loose electrical wiring | 1. Replace the fan motor<br>2. See *Routine Maintenance* Section<br>3. Check the wiring diagram to find fault and repair |
| **Little or no water extraction** | 1. Insufficient air flow<br>2. Compressor fault<br>3. Loss of refrigerant gas | 1. Check all of the above<br>2. Contact the Factory Service Center<br>3. Contact the Factory Service Center |
| **Little or no defrost when required** | 1. Faulty timer<br>2. Faulty by-pass valve | 1. Contact the Factory Service Center<br>2. Contact the Factory Service Center |
| **Unit vibrates excessively** | 1. Loose compressor<br>2. Damaged fan | 1. Tighten the nuts on the compressor mounts<br>2. Replace fan |
| **Water flooding inside the machine** | 1. Drain pipe blocked/frozen<br>2. Drain pipe too high<br>3. Crimped or blocked tubing | 1. Clear the obstruction<br>2. Ensure that no section of the drain hose is above the level of the water outlet<br>3. Straighten, clear, or replace tubing |

# RM85

# SPARE PARTS LIST

| NUMBER | DESCRIPTION | PART NUMBER | QUANTITY |
|---|---|---|---|
| 1 | Timer | 1619508 | 1 |
| 2 | Condenser coil | 2029322 | 1 |
| 3 | Evaporator coil | 2029323 | 1 |
| 4 | Cable & Tube wrap | 2056002 | 2 |
| 5 | Drain tray | 2056003 | 1 |
| 6 | Filter | 2056004 | 1 |
| 7 | Capillary | 3014254 | 2 X 2ft |
| 8 | Solenoid valve | 3020837 | 1 |
| 9 | Filter dryer | 3020909 | 1 |
| 10 | Compressor | 3022198 | 1 |
| 11 | Defrost Relay | 3030269 | 1 |
| 12 | Voltage selection capacitor | 3030375 | 1 |
| 13 | Solenoid coil | 3030451 | 1 |
| 14 | Hour meter | 3030779 | 1 |
| 15 | Transformer | 3031061 | 1 |
| 16 | Voltage selection switch | 3032301 | 1 |
| 16 | Run capacitor | 3030908 | 1 |
| 17 | On/Off switch | 3035914 | 1 |
| 18 | Power Relay | 3036157 | 1 |
| 19 | Pump purge switch | 3036779 | 1 |
| 20 | Fan | 3040277 | 1 |
| 21 | Fan inlet ring | 3040283 | 1 |
| 22 | Wheel | 3050124 | 2 |
| 23 | Rubber foot | 3101436 | 2 |
| 24 | Condensate pump | 3160150 | 1 |

# WARNINGS

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.

Children shall not play with the appliance.

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.

This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. The refrigeration system is hermetically sealed.

The Global Warming Potential (GWP) of refrigerants used in products manufactured by Ebac Industrial Products Ltd is as follows
R134a – 1300
R407c – 1610

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

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 unit 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.

For correct installation and operation the unit inlet and outlet must have a clearance of 0.5M from all adjacent surfaces and or structures.

# RMEI-Series

## Portable Dehumidifiers

RM4500EI | Moisture Removal | 150 ppd

IOM Manual

# RM4500

# INDUSTRIAL DEHUMIDIFIER

# OWNER'S MANUAL

# RM4500

# PACKAGE CONTENTS

| Item | Description | Quantity |
|---|---|---|
| 10570RG-US | Dehumidifier | 1 |
| 3086144 | Quick release hose coupling | 1 |
| 3944110 | PVC Tube – 3/8” I/D | 7.8M |
| TPC427 | Manual | 1 |

# INTRODUCTION

Designed for a wide range of applications, the RM4500 is a rugged, industrial unit, which utilizes an energy-efficient compressor and a compact portable design to provide easy efficient drying.

The RM4500 has a number of special features:

- High efficiency rotary compressor
- EIPL's "**Hot Gas**" defrost system
- Hours run meter
- Integral pump out system
- Provision for permanent drainage
- Extra long power cord
- Robust rotational moulded polyethylene housing

The fan draws the moist air through the cold evaporator coil, which cools the air below its dew point. Moisture forms on the evaporator coil and is collected in the condensate tray, which is equipped with a permanent drain. The cooled air then passes through the hot condenser coil where it is reheated using the same energy removed during the cooling phase, plus the additional heat generated by the compressor. The air is, therefore, discharged from the dehumidifier at a slightly higher temperature with a lower absolute humidity than that which entered. Continuous circulation of air through the dehumidifier gradually reduces the relative humidity within the area.

The RM4500 dehumidifier is a rugged, reliable drying unit designed to operate effectively over a broad range of temperature and humidity conditions. An active hot gas defrost system, controlled by an electronic timer, guarantees positive de-icing, thereby optimizing operation at low temperatures.

The unit incorporates a rotational moulded polyethylene shell resilient to damage caused by rough handling.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

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.

# SPECIFICATIONS

| | |
|---|---|
| **MODEL:** | 10570RG-US |
| **HEIGHT:** | 44” (1115mm) |
| **WIDTH:** | 25” (625mm) |
| **DEPTH:** | 28” (710mm) |
| **WEIGHT:** | 170 lbs (77 Kg) |
| **AIRFLOW:** | 350 CFM (600 M3/hr) |
| **POWER SUPPLY:** | 110V/ 60Hz/ 1 ph |
| **FINISH:** | Rotational Moulded polyethylene |
| **OPERATING RANGE:** | 33°F – 95°F |
| **REFRIGERANT:** | R-407c (22.9 oz) |

*"This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. The refrigeration system is hermetically sealed.*

*The Global Warming Potential (GWP) of refrigerants used in products manufactured by Ebac Industrial Products Ltd is as follows*

*R134a – 1300*
*R407c – 1610*

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

# OPERATION

The following procedures should be followed to test the RM4500 for correct operation:

1. After unpacking, examine all external features to confirm damage-free shipment. Report all defects and damage at once. Connect the power cable to a grounded 15 Amp electrical outlet.

2. Check dehumidification process as follows:

**CAUTION:**
DO NOT REMOVE COVERS WHEN UNIT IS IN OPERATION

A. Place unit on a level surface.
B. Start up unit by switching to “I”.
C. Check that the compressor is running.
D. Leave the machine running for 15 minutes.
E. Observe the evaporator coils through the front grille, to confirm frost formation.

   i. If the air temperature is below 78°F, an even coating of frost should cover the entire evaporator coil.
   ii. If the air temperature is above 78°F, frost and/or droplets of condensed water should cover the entire evaporator coil.

F. When the unit is operated in ambient of less than 59°F, a defrost cycle should occur approximately 20 mins. The exact time is impossible to predict as the unit is fitted with a temperature sensitive defrost control.

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

**CAUTION:**
ONCE THE UNIT HAS BEEN SWITCHED OFF, WAIT AT LEAST FIVE MINUTES BEFORE RESTARTING.

After using the RM4500, turn it off for five minutes to allow the condensate on the coils to drain into the pump reservoir, then press the momentary pump purge switch for twenty to thirty seconds to evacuate the water from the pump reservoir.

## ROUTINE MAINTENANCE

**WARNING:**
ENSURE THAT THE POWER CORD TO THE MACHINE HAS BEEN DISCONNECTED BEFORE CARRYING OUT ROUTINE MAINTNENANCE ON ITEMS 1, 2, 3, 4 & 5

To ensure continued full efficiency of the dehumidifier, 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 to avoid damaging the fins. Alternatively, vacuum clean the coils.

**WARNING:**
DO NOT STEAM CLEAN REFRIGERATION COILS

2. Check that the fan rotates freely. **The fan motor is sealed for life and therefore does not need oiling.**

3. To check the refrigerant charge remove the front cover, run the unit for 15 minutes and observe the evaporator coil. It should be evenly frost coated across its surface. At temperatures above 78°F, 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.

5. In order to check the defrost operation, the unit needs to be operated in an ambient temperature of less than 59°F for at least 1 hour. When operated In this condition the unit should defrost at least once 20 mins. The defrost mode can be monitored by observing the ice melting on the coil face, prior to defrost the face will show a white coating of frost, which should clear during defrost

**IF ANY OF THE PRECEDING PROBLEMS OCCUR, CONTACT THE EBAC SERVICE CENTER PRIOR TO CONTINUED OPERATION OF THE UNIT TO PREVENT PERMANENT DAMAGE.**

# REPAIRS

1. Should an electrical component fail, consult the Factory Service Center to obtain the proper replacement part.

2. If refrigerant gas is lost from the machine, it will be necessary to use a refrigeration technician to correct the fault. Contact the Factory Service Center prior to initiating this action.

   Any competent refrigeration technician will be able to service the equipment. The following procedure must be used:

   a. The source of the leak must be determined and corrected.

   b. The machine should be thoroughly evacuated before recharging.

   c. The unit must be recharged with refrigerant measured accurately by weight.

   d. For evacuation and recharging of the machine, use the crimped and brazed charging stub attached to the side of the internal pipework.

      The charging stub should be crimped and rebrazed after servicing. **NEVER** allow permanent service valves to be fitted to any part of the circuit. Service valves may leak causing further loss of refrigerant gas.

3. The refrigerant compressor fitted to the dehumidifier is a durable unit that should give many years of service. Compressor failure can result from the machine losing its refrigerant gas. The compressor can be replaced by a competent refrigeration technician.

   Failure of the compressor can be confirmed by the following procedure:

   a. Establish that power is present at the compressor terminals using a voltmeter.

   b. With the power disconnected, check the continuity of the internal winding by using meter across the compressor terminals. An open circuit indicates that the compressor should be replaced.

   c. Check that the compressor is not grounded by establishing that a circuit does not exist between the compressor terminals and the shell of the compressor.

# TROUBLESHOOTING

| SYMPTOM | CAUSE | REMEDY |
|---|---|---|
| **Unit inoperative** | 1. No power to unit | 1. Check the power from power supply panel |
| **Little or no airflow** | 1. Fan motor burnt out<br>2. Dirty refrigeration coils<br>3. Loose electrical wiring | 1. Replace the fan motor<br>2. See *Routine Maintenance* Section<br>3. Check the wiring diagram to find fault and repair |
| **Little or no water extraction** | 1. Insufficient air flow<br>2. Compressor fault<br>3. Loss of refrigerant gas | 1. Check all of the above<br>2. Contact the Factory Service Center<br>3. Contact the Factory Service Center |
| **Little or no defrost when required** | 1. Faulty timer<br>2. Faulty reversing valve | 1. Contact the Factory Service Center<br>2. Contact the Factory Service Center |
| **Unit vibrates excessively** | 1. Loose compressor<br>2. Damaged fan | 1. Tighten the nuts on the compressor mounts<br>2. Replace fan |
| **Water flooding inside the machine** | 1. Drain pipe blocked/frozen<br>2. Drain pipe too high<br>3. Crimped or blocked tubing | 1. Clear the obstruction<br>2. Ensure that no section of the drain hose is above the level of the water outlet<br>3. Straighten, clear, or replace tubing |

# RM4500
# SPARE PARTS LIST

| NUMBER | DESCRIPTION | PART NUMBER | QUANTITY |
|---|---|---|---|
| 1 | Timer | 1619508 | 1 |
| 2 | Condenser coil | 2057025 | 1 |
| 3 | Evaporator coil | 2057024 | 1 |
| 4 | Filter | 2057031 | 1 |
| 5 | Capillary | 3014249 | 2 X 30” |
| 6 | Solenoid valve | 3020833 | 1 |
| 7 | Filter dryer | 3020957 | 1 |
| 8 | Compressor | 3944938 | 1 |
| 9 | Solenoid coil | 3030453 | 1 |
| 10 | Hour meter | 3030779 | 1 |
| 11 | Run capacitor | 3036354 | 1 |
| 12 | On/Off switch | 3035924 | 1 |
| 13 | Power Relay | 3036157 | 1 |
| 14 | Pump purge switch | 3036779 | 1 |
| 15 | Fan | 3040281 | 1 |
| 16 | Fan inlet ring | 2057003 | 1 |
| 17 | Duct attachment | 2057004 | 1 |
| 18 | Grille | 2057005 | 1 |
| 19 | Wheel | 3050124 | 2 |
| 20 | Condensate pump | 3160155 | 1 |
| 21 | Heat Exchanger | 1057002 | 1 |

# RM4500

# INDUSTRIAL DEHUMIDIFIER

# OWNER'S MANUAL

# INTRODUCTION

Designed for a wide range of applications, the RM4500 is a rugged, industrial unit, which utilizes an energy-efficient compressor and a compact portable design to provide easy efficient drying.

The RM4500 has a number of special features:

- High efficiency rotary compressor
- EIPL's "Reverse Cycle" defrost system
- Hours run meter
- Integral pump out system
- Provision for permanent drainage
- Extra long power cord
- Robust rotational moulded polyethylene housing

The fan draws the moist air through the cold evaporator coil, which cools the air below its dew point. Moisture forms on the evaporator coil and is collected in the condensate tray, which is equipped with a permanent drain. The cooled air then passes through the hot condenser coil where it is reheated using the same energy removed during the cooling phase, plus the additional heat generated by the compressor. The air is, therefore, discharged from the dehumidifier at a slightly higher temperature with a lower absolute humidity than that which entered. Continuous circulation of air through the dehumidifier gradually reduces the relative humidity within the area.

The RM4500 dehumidifier is a rugged, reliable drying unit designed to operate effectively over a broad range of temperature and humidity conditions. An active hot gas defrost system, controlled by an electronic timer, guarantees positive de-icing, thereby optimizing operation at low temperatures.

The unit incorporates a rotational moulded polyethylene shell resilient to damage caused by rough handling.

# SPECIFICATIONS

| | |
|---|---|
| **MODEL:** | 10570RG-GB |
| **HEIGHT:** | 1115 mm |
| **WIDTH:** | 625 mm |
| **DEPTH:** | 710 mm |
| **WEIGHT:** | 77 kg |
| **AIRFLOW:** | 600 $M^3$/Hr |
| **POWER SUPPLY:** | 230V/ 50Hz/ 1 ph |
| **FINISH:** | Rotational Moulded polyethylene |
| **OPERATING RANGE:** | 3°C – 35°C |
| **REFRIGERANT:** | R407c (650g) |

*"This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. The refrigeration system is hermetically sealed.*

*The Global Warming Potential (GWP) of refrigerants used in products manufactured by Ebac Industrial Products Ltd is as follows*

*R134a – 1300*
*R407c – 1610*

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

# OPERATION

The following procedures should be followed to test the RM4500 for correct operation:

1. After unpacking, examine all external features to confirm damage-free shipment. Report all defects and damage at once. Connect the power cable to a grounded 13 Amp electrical outlet. Connect the drainage outlet to a suitably sized hose and run the hose to a permanent drain.

2. Check dehumidification process as follows:

**CAUTION:**
DO NOT REMOVE COVERS WHEN UNIT IS IN OPERATION

A. Place unit on a level surface.
B. Start up unit by switching to “I”.
C. Check that the compressor is running.
D. Leave the machine running for 1 Hour.
E. Operate the pump purge switch and ensure water is pumped out of the condensate outlet tube located on the back of the unit.

F. When the unit is operated in ambient of less than 15℃, a defrost cycle should occur approximately every 20mins. The exact time is impossible to predict as the unit is fitted with a temperature sensitive defrost control.

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

**CAUTION:**
ONCE THE UNIT HAS BEEN SWITCHED OFF, WAIT AT LEAST FIVE MINUTES BEFORE RESTARTING.

After using the RM4500, turn it off for five minutes to allow the condensate on the coils to drain into the pump reservoir, then turn it back on and press the momentary purge switch for twenty to thirty seconds to evacuate the water from the pump reservoir.

## ROUTINE SERVICE

**WARNING:**
ENSURE THAT THE POWER CORD TO THE MACHINE HAS BEEN DISCONNECTED BEFORE CARRYING OUT ROUTINE SERVICE. THE SERVICING AND REPAIR OF THIS UNIT SHOULD ONLY BE CARRIED OUT BY A SUITABLY QUALIFIED PERSON.

To ensure continued full efficiency of the dehumidifier, 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 to avoid damaging the fins. Alternatively, vacuum clean the coils.

**WARNING:**
DO NOT STEAM CLEAN REFRIGERATION COILS

2. Check that the fan rotates freely. **The fan motor is sealed for life and therefore does not need oiling.**

3. To check the refrigerant charge remove front cover and run the unit for 15 minutes and observe the evaporator coil. It should be evenly coated with frost 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, including mains cable for damage or loose connections.

5. In order to check the defrost operation, the unit needs to be operated in an ambient temperature of less than 15℃ for at least 20mins. When operated In this condition the unit should defrost at least once every hour. The defrost mode can be monitored by observing the ice melting on the coil face, prior to defrost the face will show a white coating of frost, which should clear during defrost

**IF ANY OF THE PRECEDING PROBLEMS OCCUR, CONTACT THE EBAC SERVICE CENTER PRIOR TO CONTINUED OPERATION OF THE UNIT TO PREVENT PERMANENT DAMAGE.**

## REPAIRS

1. Should an electrical component fail, consult the Factory Service Center to obtain the proper replacement part.

2. If refrigerant gas is lost from the machine, it will be necessary to use a refrigeration technician to correct the fault. Contact the Factory Service Center prior to initiating this action.

   Any competent refrigeration technician will be able to service the equipment. The following procedure must be used:
   a. The source of the leak must be determined and corrected.

   b. The machine should be thoroughly evacuated before recharging.

   c. The unit must be recharged with refrigerant measured accurately by weight.

   d. For evacuation and recharging of the machine, use the crimped and brazed charging stub attached to the side of the internal pipework.

      The charging stub should be crimped and rebrazed after servicing. **NEVER** allow permanent service valves to be fitted to any part of the circuit. Service valves may leak causing further loss of refrigerant gas.

3. The refrigerant compressor fitted to the dehumidifier is a durable unit that should give many years of service. Compressor failure can result from the machine losing its refrigerant gas. The compressor can be replaced by a competent refrigeration technician.

   Failure of the compressor can be confirmed by the following procedure:
   a. Establish that power is present at the compressor terminals using a voltmeter.

   b. With the power disconnected, check the continuity of the internal winding by using meter across the compressor terminals. An open circuit indicates that the compressor should be replaced.

   c. Check that the compressor is not grounded by establishing that a circuit does not exist between the compressor terminals and the shell of the compressor.

# TROUBLESHOOTING

| SYMPTOM | CAUSE | REMEDY |
|---|---|---|
| **Unit inoperative** | 1. No power to unit<br>2. Mains cable damaged. | 1. Check the power from power supply panel.<br>2. Contact the Factory Service Center |
| **Little or no airflow** | 1. Fan motor burnt out<br>2. Dirty refrigeration coils<br>3. Loose electrical wiring | 1. Replace the fan motor<br>2. See *Routine Maintenance* Section<br>3. Check the wiring diagram to find fault and repair |
| **Little or no water extraction** | 1. Insufficient air flow<br>2. Compressor fault<br>3. Loss of refrigerant gas | 1. Check all of the above<br>2. Contact the Factory Service Center<br>3. Contact the Factory Service Center |
| **Little or no defrost when required** | 1. Faulty timer<br>2. Faulty reversing valve | 1. Contact the Factory Service Center<br>2. Contact the Factory Service Center |
| **Unit vibrates excessively** | 1. Loose compressor<br>2. Damaged fan | 1. Tighten the nuts on the compressor mounts<br>2. Replace fan |
| **Water flooding inside the machine** | 1. Drain pipe blocked/frozen<br>2. Drain pipe too high<br>3. Crimped or blocked tubing | 1. Clear the obstruction<br>2. Ensure that no section of the drain hose is above the level of the water outlet<br>3. Straighten, clear, or replace tubing |

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| 3 | Evaporator coil | 2057024 | 1 |
| 4 | Filter | 2057031 | 1 |
| 5 | Capillary | 3014249 | 2 X 30” |
| 6 | Solenoid valve | 3020833 | 1 |
| 7 | Filter dryer | 3020957 | 1 |
| 8 | Solenoid coil | 3030454 | 1 |
| 9 | Hour meter | 3030778 | 1 |
| 10 | On/Off switch | 3035924 | 1 |
| 11 | Power Relay | 3036188 | 1 |
| 12 | Run capacitor | 3036337 | 1 |
| 13 | Pump purge switch | 3036779 | 1 |
| 14 | Fan | 3040282 | 1 |
| 15 | Fan inlet ring | 2057003 | 1 |
| 16 | Duct attachment | 2057004 | 1 |
| 17 | Grille | 2057005 | 1 |
| 18 | Wheel | 3050124 | 2 |
| 19 | Condensate pump | 3160151 | 1 |
| 20 | Compressor | 3944934 | 1 |
| 21 | Heat exchanger | 1057002 | 1 |

# WARNINGS

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.

Children shall not play with the appliance.

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.

This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. The refrigeration system is hermetically sealed.

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R407c – 1610

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

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 unit 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.

For correct installation and operation the unit inlet and outlet must have a clearance of 0.5M from all adjacent surfaces and or structures.