

**EBAC MODEL SPP6A  
DEHUMIDIFIER  
OWNER'S MANUAL**

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## UNPACKING

Carefully remove the SPP6A Dehumidifier unit from its transit box and visually check for signs of transit damage. If there is evidence of damage DO NOT attempt to operate the unit, call your supplier for advice. Do not discard the packing, it will be useful when transporting the dehumidifier unit in the future.

## INTRODUCTION

Dehumidifiers remove moisture from the air that is circulating through the unit.

The resulting reduction of relative humidity helps prevent rust, rot, mould, mildew and condensation within the room, or other enclosed spaces where the dehumidifier is used.

A dehumidifier consists of a motor-compressor unit, a refrigerant condenser, an air circulating fan, a refrigerated surface, a means of collecting and disposing the condensed moisture and a cabinet to house these components.

The fan draws air through the refrigerated surface and cools it below its dew point, removing moisture which is collected and led away. The cool air then passes the hot condenser, where it is reheated. With the addition of other radiated heat the air is discharged into the room at a higher temperature but lower relative humidity than when the air entered the unit. Continuous circulation of the room air through the dehumidifier unit gradually reduces the relative humidity in the room.

The SPP6A Dehumidifier is a robust, compact unit designed to control the humidity in the enclosed space in which it is placed.

The unit is thermally protected and will switch off for a period if the maximum operating temperature of 50°C is exceeded.

The SPP6A has been designed for the exacting conditions which can prevail in the medium to long term storage of mobile shelters and vehicles. It combines lightness and compactness with high reliability and strength.

Handles contribute to its portability.

A Dehumidifier stand (Part Number 1137500) is available to provide both a level platform and an easy working height for the operational personnel.

The gas which is used inside the hermetically sealed refrigeration circuit is R134A, which contains no chics and has therefore a zero ozone depletion factor.

BUT under no circumstances should this gas be released into the atmosphere, the unit should be serviced by trained personnel who will re-claim any of the unwanted gas.

## SPECIFICATIONS

<b>MODEL:</b>	SPP6A
<b>LENGTH:</b>	447mm
<b>WIDTH:</b>	340mm
<b>HEIGHT:</b>	255mm
<b>WEIGHT:</b>	28 Kg (Typically)
<b>PAINT FINISH:</b>	Light Grey
<b>POWER SUPPLY:</b>	115v $\pm$ 10%, 1 ph / 60Hz
<b>POWER RATING:</b>	250-300W
<b>AIRFLOW:</b>	250 M <sup>3</sup> /HR
<b>CONSTRUCTION:</b>	Welded 1.2m steel chassis and covers
<b>PORTABILITY:</b>	Two folding carrying handles.
<b>POWER CABLE LENGTH:</b>	10 Meters
<b>WATER DRAINAGE:</b>	12mm outlet spigot

## MONITOR BOX

<b>LENGTH:</b>	120mm
<b>WIDTH:</b>	80mm
<b>DEPTH:</b>	55mm
<b>3 NEON INDICATING LAMPS</b>	
<b>CONSTRUCTION:</b>	ABS/ Polycarbonate enclosure designed in accordance with IP65 standards.

## WATER EXTRACTION DUTY

TEMPERATURE °C	HUMIDITY %	WATER EXTRACTION L/24HR
0	70	0.6
10	70	1.8
20	70	3.5
30	70	5.2
40	70	7.0
55	40	7.0
44	95	12.0

## INSTALLATION

### POSITIONING:

Position the dehumidifier unit in the center of the room to be conditioned if at all possible. However if a damp patch is particularly apparent the outlet grille should be directed towards it.

NOTE: Both inlet grille and outlet grille of the dehumidifier unit must have clear space around them and not be obstructed in anyway.

### WIRING:

Connect the power mains cable/plug of the dehumidifier unit to a 15 Amp power supply. As follows:-

115 Volt Supply

Brown	Live
Blue	Neutral
Green/Yellow	Earth (ground)

### DRAINAGE:

Connect a 12.5mm inside diameter hose to the condensate outlet pipe (positioned centrally, beneath the air inlet grille). Secure the hose using a worm drive clip. The hose should at no point be raised higher than the outlet pipe. Failure to observe this requirement will result in flooding of the dehumidifier unit.

## OPERATION

The operation of the dehumidifier is to remove moisture from the air by having it condense on the cold tubes of the evaporator coil. The air then passes over the hot condenser coil and returns to the conditioned space slightly warmer and dryer than when it entered the dehumidifier unit.

### AIR MOVING SYSTEM:

Air is drawn in through the inlet grille at the rear of the dehumidifier (below the handle) and over the two heat exchanges (evaporator/condenser coils) under the influence of the axial fan, which is driven by the motor. The operation of the fan motor is to run continuously whenever power is supplied to the dehumidifier. The fan motor used in the dehumidifier unit is induction protected i.e. the motor is able to take stalled current without burning out the motor windings.

### DEFROST OPERATION:

If the ambient temperature of the room in which the dehumidifier unit is conditioning falls below 15°C ice will form on the evaporator coil as the air is passed over it, after a time this build up of ice on the evaporator coil will effect the efficiency of the unit, on its ability to maintain the required set conditions for the room.

The SPP6A is therefore fitted with a defrost control device. This defrost control device is timed to operate every 40mins, at which time, for approximately 8mins the high pressure gas is diverted by means of a by-pass valve to enter the evaporator coil. The effect of this high pressure gas entering the evaporator coil is to melt any build up of ice on this coil. The melted ice is collected and disposed of by means of the condensate tube.

### HIGH TEMPERATURE CUTOFF:

The SPP6A dehumidifier has been designed to work in ambient conditions of 10°C and 50°C. Should the temperature in the room become excessive a thermostat within the compressor casing will open and dehumidifying will stop, until the thermostat resets itself.

### 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.

## SPECIAL FEATURES

## **CONTROL AND WARNING INDICATOR HUMIDISTAT**

The SPP6A dehumidifier unit is fitted with a control panel fixed to the outside of the dehumidifier cabinet, the panel incorporates two humidistats, which measure the relative humidity of the air within the room/space. The first humidistat incorporates a pointer and a scale, and is adjustable to a set point.

The second humidistat has no pointer or scale, and is pre-set and fixed at the factory at the customers requested set point.

### **FIRST HUMIDISTAT**

The humidistat controls the on/off function of the dehumidifier unit, when the relative humidity of the air in the room/space falls below the set point of the humidistat the dehumidifier unit will switch off, but when the relative humidity of the air within the room/space rises above the set point of the humidistat the dehumidifier unit will switch on.

### **SECOND HUMIDISTAT**

This humidistat which is factory pre-set at 60%RH is connected to a warning indicating system. This warning indicating system will be monitored by the customer and will indicate that the relative humidity of the air within the room has risen above the pre-set 60%RH level due to a fault, either with the dehumidifier unit or due to some other circumstance and requires attention of a service engineer.

## **TEMPERATURE CONTROLLED DEFROST**

The SPP6A dehumidifier unit is fitted with temperature sensitive device which will operate in conjunction with the defrost control. In normal operation the defrost control will come into operation every 40 minutes, this is to ensure that there will be no build up of ice at lower temperatures, but 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 operates at its most efficient this temperature sensitive device will restrict the defrost operation to the times when the evaporator coil is at -2°C.

## **INDICATOR BOX**

The indicator box, which is sealed against water ingress, is connected to the dehumidifier in the mains input cable, it has three indicating lamps mounted under a transparent front panel.

## **AMBER LAMP**

This indicates that the dehumidifier unit is in stand by mode ( the relative humidity within the room/space is below the set point of the Control humidistat) and mains power is applied.

### **GREEN LAMP**

This indicates that the dehumidifier unit is operating (the relative humidity within the room/space is above the set point of the Control humidistat). The relative humidity above which the dehumidifier unit will operate can be set by adjusting the humidistat knob, which is positioned on the inside of the dehumidifier unit.

### **RED LAMP**

This indicates that the relative humidity within the room/space has risen above the pre-set 60% RH of the second humidistat and requires attention of a service engineer.

## **ROUTINE MAINTENANCE**

**WARNING: ENSURE THAT THE POWER CORD TO THE MACHINE HAS BEEN DISCONNECTED BEFORE CARRYING OUT ROUTINE MAINTENANCE ON ITEMS 1, 2, 4, 5, AND 6.**

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 (approx 6") 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. **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 briefly remove the cover. The evaporator coil should be evenly frost coated across its surface. At temperatures above 25°C, the coil may be covered with droplets of water rather than frost. Partial frosting accompanied by frosting of the thin capillary tubes, indicates loss of refrigerant gas or low charge.
4. Check all wiring connections.
5. To check the operation of the defrost system, switch the machine on and leave it running for approximately 45 minutes. The machine will then enter "Hot Gas" defrost mode for approximately 4 minutes before returning to normal operation. If the unit will not defrost, the printed circuit timer board may be defective or the by-pass valve may be inoperable.

**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

<u>SYMPTOM</u>	<u>CAUSE</u>	<u>REMEDY</u>
<b>Little or no airflow</b>	<ol style="list-style-type: none"> <li>1. Loose fan on shaft</li> <li>2. Fan motor burnt out</li> <li>3. Dirty refrigeration coils</li> <li>4. Loose electrical wiring</li> <li>5. Control humidistat either set too high or malfunctioning</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten fan</li> <li>2. Replace the fan motor</li> <li>3. See <i>Routine Maintenance</i> Section</li> <li>4. Check the wiring diagram to find fault and repair</li> <li>5. Contact the Factory Service Center</li> </ol>
<b>Little or no dehumidifying effect</b>	<ol style="list-style-type: none"> <li>1. Insufficient air movement</li> <li>2. Compressor not running:-               <ol style="list-style-type: none"> <li>a) No power supply to compressor</li> <li>b) Compressor tripped on internal overload – allow reset time of two hours</li> <li>c) Compressor burnt out</li> <li>d) Loss of refrigerant (resulting in hot compressor)</li> <li>e) Humidistat either set too high or malfunctioning</li> <li>f) Blocked filter dryer</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>1. Check all of the above</li> <li>2. Contact the Factory Service Center</li> </ol>

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## SPP6A SPARE PARTS LIST

<u>DESCRIPTION</u>	<u>PART NUMBERS</u>
	<u>1139800</u>
Compressor	3022143
Compressor OH Protector	3021538
Comp Relay	3021528
Comp Box Cover	3021518
Condenser Coil	3020740
Evaporator Coil	1135707
Filter Dryer	3020937
Fan Motor	3035767
Fan Blade	3040101
Drain Tube	3014338
Worm Drive Clip	3086101
Clip Nut	3080501
Control Humidistat	3031528
Indicator Humidistat	2135727
Male Contacts	3033814
Male insert	3033809
Indicator Box	1135710
Cable Gland	3032511
Cable Gland Nut	3032512
Hood	3033811
Female Insert	3033810
Cable Seal	3033813
Indicator Housing	2135713
Female Contact	3033815
Green Neon	3036637
Red Neon	3036636
Mains Cable	3031225
Control Cable	3031227
Bypass Valve	3020811
Solenoid Coil	3030421
Frostat	3031516
Timer	1618200
PCB Mounting Clips	3101413