Ebac Ltd
COMMERCIAL DIVISION

Drawing No.	:-	TPC251
Issue	:-	1
Date	:-	13/10/03

EBAC MODEL NEPTUNE
INDUSTRIAL DEHUMIDIFIER
OWNER'S MANUAL

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UNPACKING

Carefully remove the Neptune dehumidifier unit from its packing 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, as it will be useful when transporting the dehumidifier unit in the future.

INTRODUCTION

Designed for a wide range of applications, the Neptune/Neptune Pro dehumidifier is a super high capacity industrial unit which provides fast and efficient drying. The Neptune/Neptune Pro has a number of special features:

- Super high efficient rotary compressor
- Temperature-sensitive microprocessor controlled defrost system
- Durable epoxy powder-coated finish for resilience to damage caused by rough handling
- Rugged portable design
- Heavy duty carrying handle
- Extra long power cord
- Optional internal condensate pump
- Retractable Handle/Trolley (Neptune Pro Version)

HOW YOUR UNIT WORKS

The fan draws the moist air through the inlet grille on the back of the unit, then 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 for permanent drainage. The cold air passes through the hot condenser coil where it is fully reheated using the same energy removed during the cooling phase, plus some 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 it entered. Continuous circulation of air through the dehumidifier gradually reduces the relative humidity within the area.

SPECIFICATIONS

MODEL:	Neptune
HEIGHT:	610 mm
WIDTH:	350 mm
DEPTH:	380 mm
WEIGHT:	27 kg
OPERATING RANGE:	3ºC – 25ºC
CAPACITY:	Up to 12 Gallons
AIRFLOW:	282 CFM
COMPRESSOR:	11.0 EER 5,600 Btu/hr Rotary
POWER SUPPLY:	230V/ 50Hz / 1ph
AMPERAGE:	5 Amps
FINISH:	Powder-coated Epoxy
REFRIGERANT:	300 Grams

OPERATION

The following procedures should be followed to test the Neptune/Neptune Pro for correct operation:

1. After unpacking, examine all external features to confirm damage-free shipment. Report all defects and damage to the factory at once. Connect the electrical plug to a grounded 15 Amp electrical outlet.
2. Check dehumidification process as follows:

CAUTION: NEVER REMOVE COVERS WHILE UNIT IS OPERATING

A) Place unit on a level surface.
B) Start up by switching to "ON" position.
C) Check that air is being delivered through the front outlet grille and the compressor is running.
D) Leave the machine running for 1 hour.
E) Check to ensure there is a sign of water extraction through the condensate drain.

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 UNIT HAS BEEN SWITCHED OFF, WAIT AT LEAST FIVE MINUTES BEFORE RESTARTING.

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

SYMPTOM	CAUSE	REMEDY
Unit inoperative	1. No power to unit	1. Check the power from the power supply panel
Little or no airflow	1. Loose fan on shaft 2. Fan motor burnt out 3. Dirty refrigeration coils 4. Loose electrical wiring 5. Fuse blown or circuit breaker tripped	1. Tighten fan 2. Replace the fan motor 3. See *Routine Maintenance* Section 4. Check the wiring diagram to find fault and repair 5. Replace the fuse or reset the circuit breaker
Little or no water extraction	1. Insufficient air flow 2. Compressor fault 3. Loss of refrigerant gas	1. Check all of the above 2. Contact the Factory Service Center 3. Contact the Factory Service Center
Little or no defrost when required	1. Faulty circuit board 2. Faulty by-pass valve	1. Contact the Factory Service Center 2. Contact the Factory Service Center
Unit vibrates excessively	1. Loose compressor 2. Damaged fan	1. Tighten the nuts on the compressor mounts 2. Replace fan
Water flooding inside the machine	1. Drain pipe blocked, crimped or Frozen 2. Defective pump	1. Clear the obstruction, straighten or replace 2. Check pump for cracks or loose hoses

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NEPTUNE
SPARE PARTS LIST

DESCRIPTION	PART NUMBER
Top Cover	n/a
Compressor	3022170
Evap / Cond Coil	2139330
Solenoid Valve	3020811
Fan Blade	3040129
Fan Motor	3035797
Electronic Circuit Board	1609850
Solenoid Coil	3030422
On/Off Switch	3035914
Foot Assembly	3050307