HARISON®

USER'S MANUAL

INDUSTRIAL DEHUMIDIFIER

MODEL: HD-150B/HD-192B/HD-504B

2012

CONTENTS

Thanks for your purchasing our dehumidifier

- Please read the manual carefully before using it, and keep it in a suitable storage for reference.
- Please entrust professionals to install the unit in order to guarantee operating the unit correctly and safely.
- The unit must be earthed reliably.

1. GENERAL

1.1. Introduction

Harison dehumidifiers provide an effective and efficient solution to humidity control. Harison HD-series dehumidifier are designed for large airflow of 900, 2,500 and 4,500m3/h.

Model HD-series computer-control dehumidifier, meticulously designed by our company, is the most advanced one in the range. They are used to remove water content from the air and decrease the humidity automatically. They have elegant appearance, compact structure and complete functions. They are widely used in scientific research, industry, communication, medical health centers, commodity storage, underground engineering and reference room, archive establishment, warehouses, etc. For preventing instruments, meters, communication equipment, commodity, reference materials from getting damp, rusty, mildew, rot and causing damage.

The equipment has a computer-control, it is sensitive to the relative humidity, can controls the humidity accurately. User can select as the requirement to the relative humidity by which the power consumption is minimised. Besides, it can defrost automatically thus can be used normally in low temperature environment, and can be operated easily.

Suitable environment-temperature : $5^oC \sim 40^oC$, relative humidity $\leq 90\%$

1.2 Warranty

The warranty period is 12 months from the date of equipment commissioning.

The warranty is limited to free replacement and shipping of any faulty part, or sub-assembly which has failed due to poor quality or manufacturing errors. All claims must be supported by evidence that the failure has occurred within the warranty period, and that the unit has been operated within the designed parameters specified.

All warranty claims must specify the unit/type number and the serial number. These details are printed on the unit identification plate.

1.3. Responsibility for safety

Every care has been taken in the design and manufacture of HD-series dehumidifier to ensure that they meet the safety requirements listed by federal codes. However, the individual operating or working on any machinery is primarily responsible for:

* Personal safety, safety of other personnel, and the machinery.
* Correct utilisation of the machinery in accordance with relevant procedures.

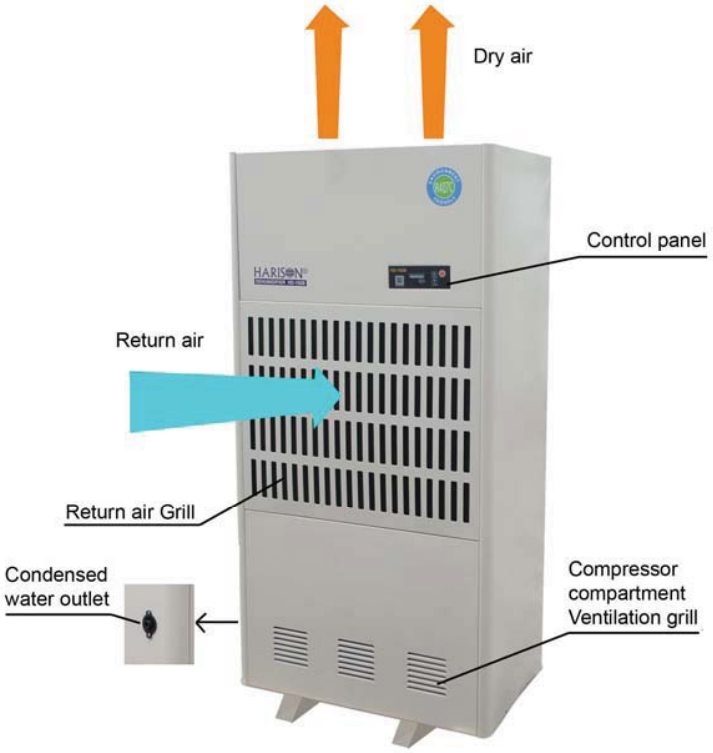
The contents of this manual include suggested best working practices and procedures. These are issued for guidance only, they do not take precedence over the above stated individual responsibility and/or local safety regulations.

2. PRODUCT DESCRIPTION

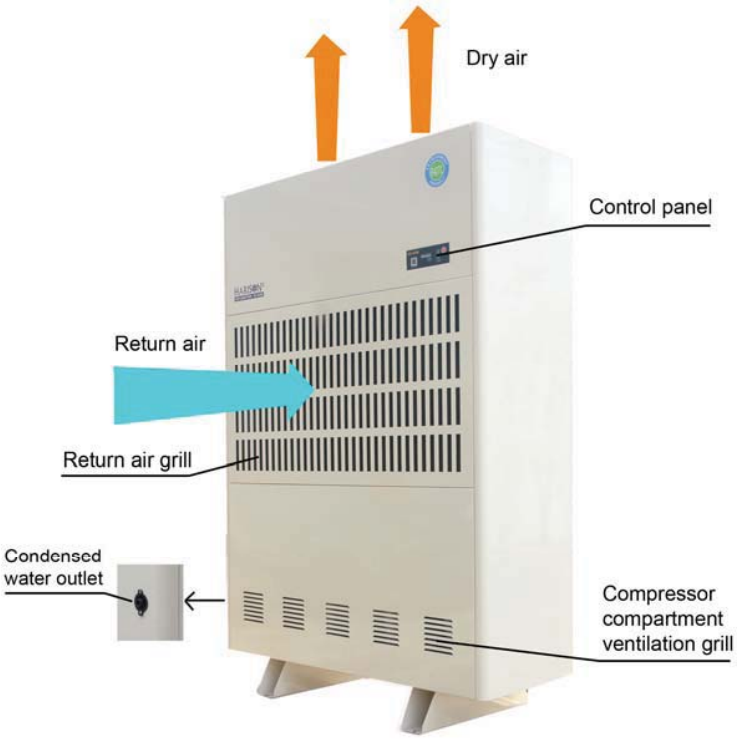
2.1 Outer component identification

HD-150B

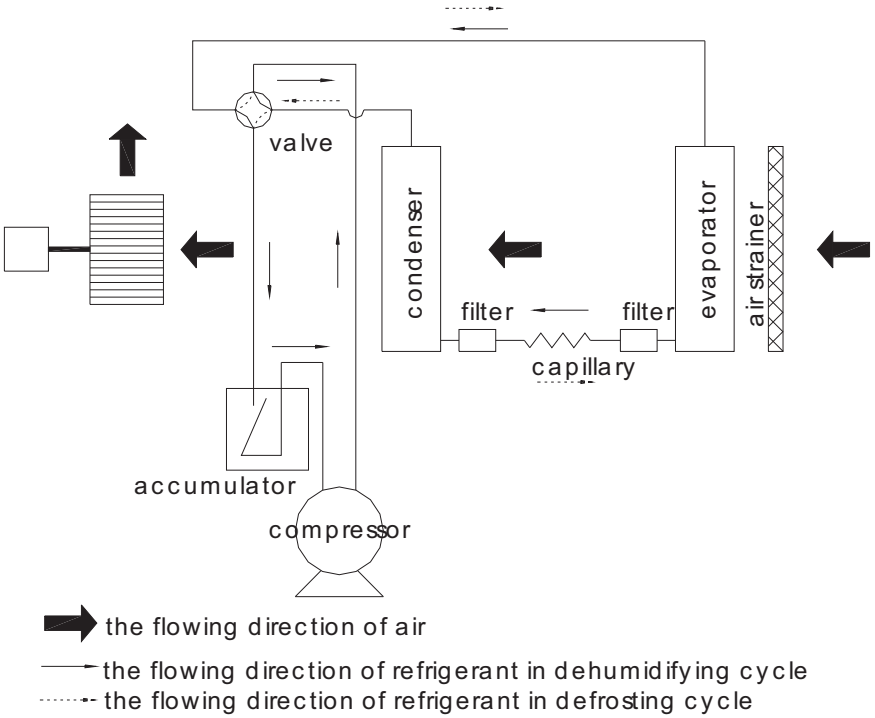
HD-192B



HD-504B



2.2. Working Principle



Main components are: high efficient compressor, accumulator, magnetic flow control valve, evaporator coil, condenser coil, capillary tube, centrifugal fan, temperature sensor, humidity sensor and electrical wiring.

a. Working principle

When dehumidifier is switched on, the compressor starts to work. The compressor draws in low-pressure and low-temperature refrigerant gas from evaporator, and compresses it into high-temperature and high-pressure gas. This gas enters into condenser and is condensed into liquid, giving out heat. Then through capillary, this liquid is throttled into the evaporator, absorbs heat from the air and is evaporated into gas. This gas is drawn into the compressor through air intake pipe. Just in this way the refrigeration cycle is completed. Such a cycle repeats time and again, and refrigeration is achieved.

b. Dehumidifying cycle

The centrifugal fan draws humid air into the evaporator through air filter, then the air is cooled down. When the surface temperature of the evaporator is lower than the dew-point temperature of the air, the water vapor in the air is condensed and drained out of the machine. The dehumidified air is then heated by the condenser and is discharged into the room by the centrifugal fan. Thus, the air goes through the cycle and the water in the air gets condensed so as to achieve dehumidification.

c. Defrosting cycle

When the environment temperature is lower (5°C - 18°C) during running, the surface of the evaporator will be frosted due to lower temperature. The computer will judge and send the defrosting command automatically as the situation. After defrosting, the dehumidifier will turn back to run normally. In the way of " dehumidifying-defrosting-dehumidifying ", the machine can work normally in lower temperature environment.

d. Safety devices and function

In order to protect the unit from severe damage during operation the unit is equipped with such a safety features such as: low pressure cut-off, compressor overload protection, defrost cycle, main short-circuit fuse.

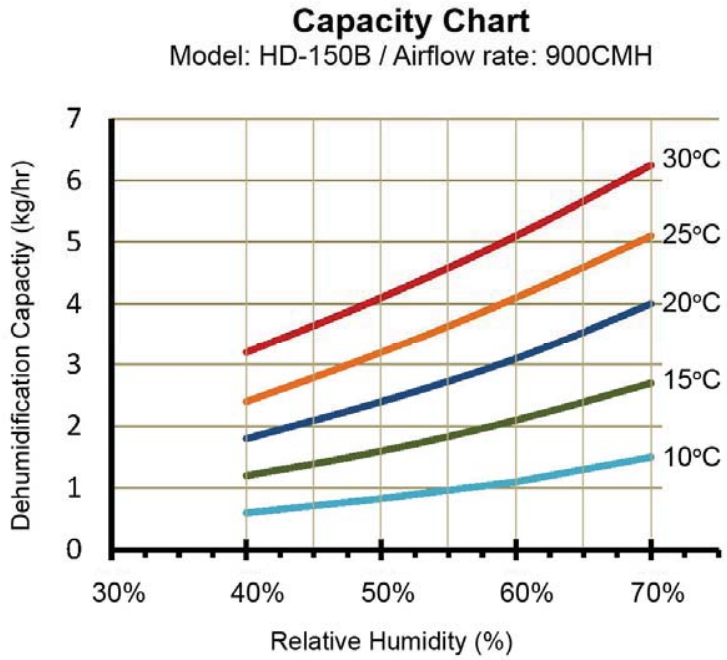
2.3. Technical parameters

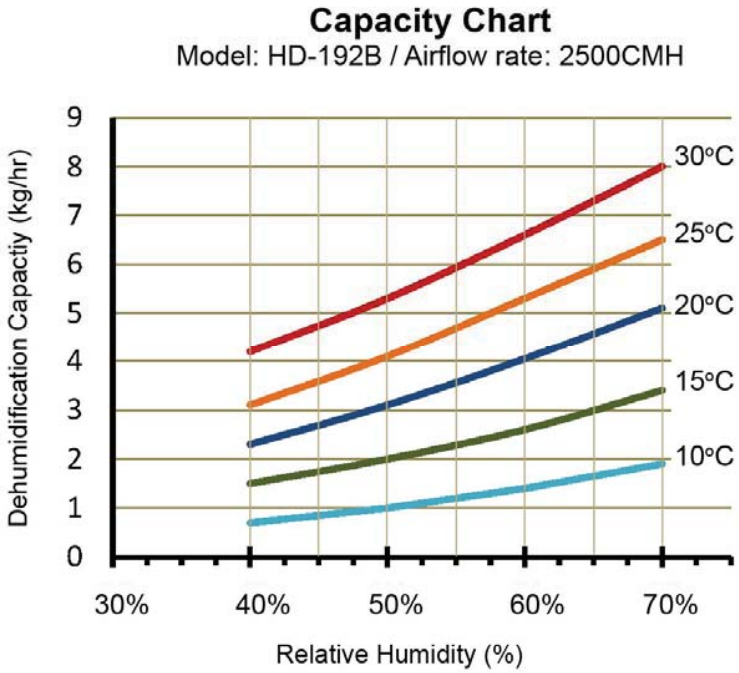
Model	**Unit**	**HD150B**	**HD192B**	**HD504B**
Dehumidification Capacity	Kg/h	6.25	8	21
Rated Airflow	CMH	900	2,500	4,500
Power source	V	1Ph/220V/50Hz	3Ph/380V/50Hz	
Rated power	kW	1.6	4.12	8.5
Rated current	A	8.4	7.6	15.4
Noise level	dB(A)	57	59	70
Refrigerant / Charge	R407C	1.45kg	1.9kg	3.2kg
Suction pressure	MPa	1.0	1.0	1.0
Discharge pressure	MPa	2.5	2.5	2.5
Dimensions (W x D x H)	mm	597 x 355 x 973	776 x 471 x 1629	1225 x 520 x 1761
Weight	Kg	60	150	235

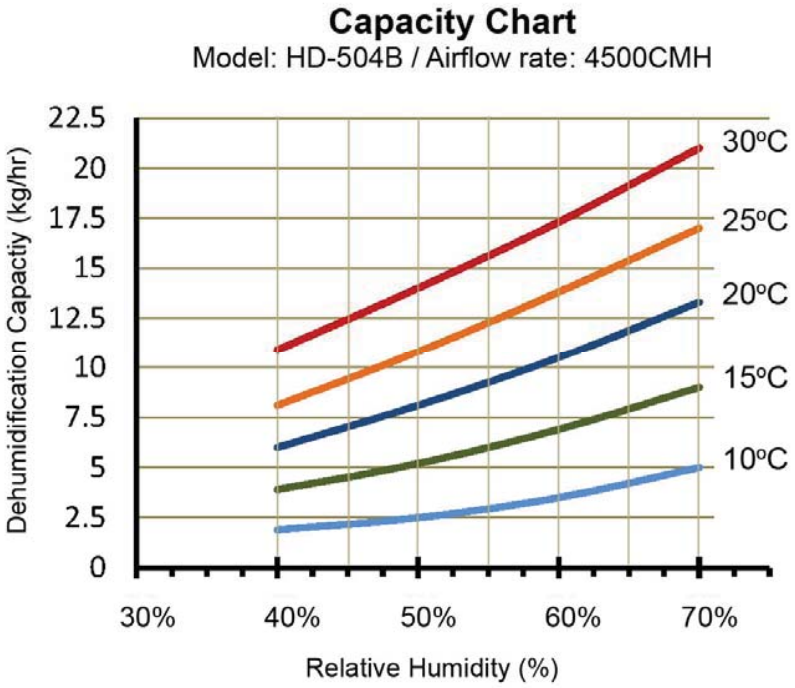
Note :
Nominal working condition : 27.0°C (DB), 22.77°C (WB)
Low temperature working condition : 5.0°C (DB), 2.1°C (WB)

Notice :
Please use this unit under the specified environment and temperature condition strictly.
The use life will be shorten if exceeding the working condition for a long time in using.

2.4. Dehumidification capacity curve







3. INSTALLATION

3.1. Delivery and storage

To ensure consistent quality and maximum reliability, each dehumidifier is inspected prior to leaving the factory. If the dehumidifier is to be put into storage, prior to installation, the following precautions should be observed:

- The dehumidifier must be protected from physical damage
- The dehumidifier must be stored under cover and protected from dust, frost and rain.

Inspection
Remove the shipment packing and inspect unit to ensure that no damage has occurred during transportation and storage. Any visible damage must be reported to nearest Harison representative.

3.2 Installation Environment

(1) The unit should be installed stably. There should be one meter of space in front of the inflow and outflow. There should be no large obstacle around it.
(2) The machine set should be far from heat source and inflammable gas.
(3) The condensed water could be drained out of the room or into a pail.
(4) It is advisable to not to install it in a place of heavy dust or serious pollution.

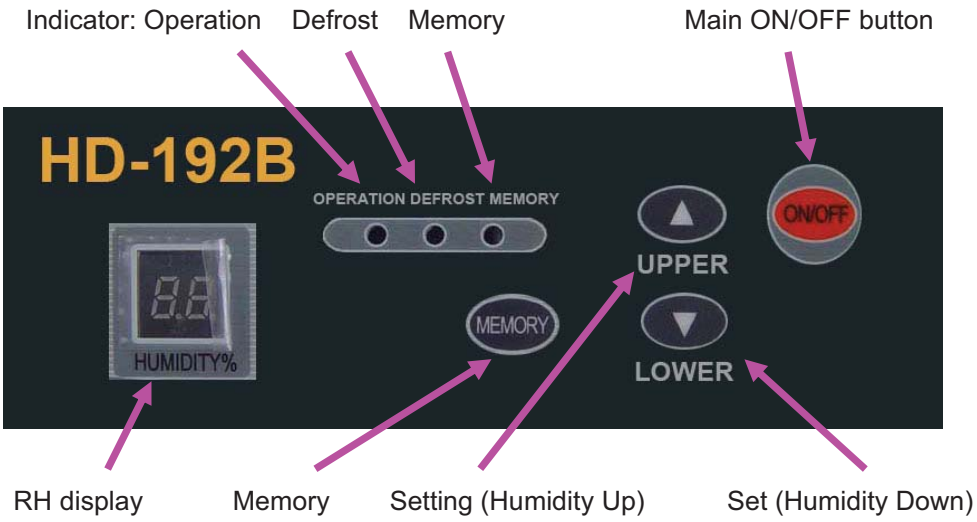
3.3. Power source

(1) The power should be supplied with a special wire.
(2) Provide automatic air-break switch.
(3) There should be reliable electrical grounding.

3.4. Installing

(1) Skilled professional personnel should perform maintenance of the unit.
(2) Parking inclination of the unit should not exceed 10^{o}.

4. OPERATION



Control panel (same for three models)

Instruction of keys

1.ON/OFF: Press ON/OFF, the unit runs in a circulation “ON-OFF-ON”.

2.Humidity up and down: Press “humidity up and down” for once, the set humidity increase or decrease for 1%. Press the key for 1.5 seconds and the setting value increase or decrease by 1% continuously with the speed 5 points per second.

3.Memory Key: Press the memory key and the memory indicator light on to start the function of memory when power cuts off. Press the memory key again; the memory indicator dies to shut off the function of memory when power cut off.

Start on

1. Plug on, the unit gives off “di”.

2. Press“ON/OFF”, the running indicator lights on, and the humidity display window lights on to display the previous set humidity. The initial setting humidity is 60% and 3 seconds later the humidity display window light on to display current humidity.

3. Press humidity up or down key to adjust the humidity needed. If the setting humidity is 3% less than current humidity, the unit runs; if the set humidity is 3% more than current humidity, the unit stops running.

4. When setting humidity is less than 30%, the unit dehumidify continuously, and the humidity display window displays“CO”.

Shut off
Press “ON/OFF”when the unit is running, the unit stops running and all indicators die.

Notice:

1. When setting humidity is higher than current humidity, the unit will not run.
2. When dehumidifying, the fan motor and compressor must run at least for 3 minutes, once the compressor start on. Forbid to restart the compressor again within 3 minutes after shut off.
3. When working in low temperature, the unit judges the system temperature automatically to defrost. When defrosting, the defrosting indicator lights on, the fan motor runs but compressor shuts off automatically.
4. When pressing the memory key, the controller will record current humidity even if power off. And the unit will run under previous mode after power supplied again.
5. The humidity display window displays the humidity from 30% to 90%.
6. Keep unplug if do not use the unit for long time.
7. Power supplies for HD-192B; HD504B have phase and phase protecting function, when out-connecting 3-phase are not connected rightly with machine's enactment, all the buttons on control panel are out of use, moisture window show “E5”, please exchange the phase or check power,then operate the unit again.
9.When wire switch on three phase power source,zero line first,live line second or zero and live lines together.

5. MAINTENANCE

Switch off the power source before maintenance. Pull out the plug from the socket.

Due to the accumulation of dusts, the air filter should be cleaned to avoid effecting dehumidifying and going wrong periodically, at least once a month. If the dusts are more in the environment, it should be cleaned every week, even every day.

Clean the air filter

When cleaning, gently tap the air filter or remove the dust with a vacuum cleaner, or you can put the air filter in warm water ($\leq 40^{o}C$, add a little neutral detergent) to wash it or to brush it, and then wash with clear water.

Attention

a. The air filter should not be exposed directly to sun of fire, to avoid deforming.
b. The air filter should be fixed before starting the dehumidifier.

Warning :

The use life will be prolonged if checking, maintaining periodically. Please send professional person to damage.

6. TROUBLES AND COUNTERMEASURES

Phenomenon	analysis of causes	Countermeasures
Machine does not run.	Power failure Power source is not switched on not well plugged Fuse is broken	 Switch on the power source plug in Replace the fuse after removing troubles
Machine can not dehumidify or the effect is bad.	Air filter dusted Air inlet and outlet obstructed door or window is open Refrigerant leakage	Clean the air filter Remove the obstacle Close the door and the window, shade the sun with curtains, etc. Contact dealer and repair it
Water leakage	Machine inclined backward Drain pipe is blocked	Level the unit Remove the front panel and wipe off dirt from the pipe
"POWER/PROTECTION" light flashes.	The temperature sensor is open circuit or short circuit.	Replace the temperature sensor
Machine can not defrost	The temperature sensor is loosening. The valve is damaged.	Fix the temperature sensor well Replace the valve

If the troubles have not been removed yet, please contact the dealer.

When the dehumidifier is starting or stopping, the sound of the cycling of refrigerant does not mean a trouble.

It is normal that hot wind is discharged the air outlet.

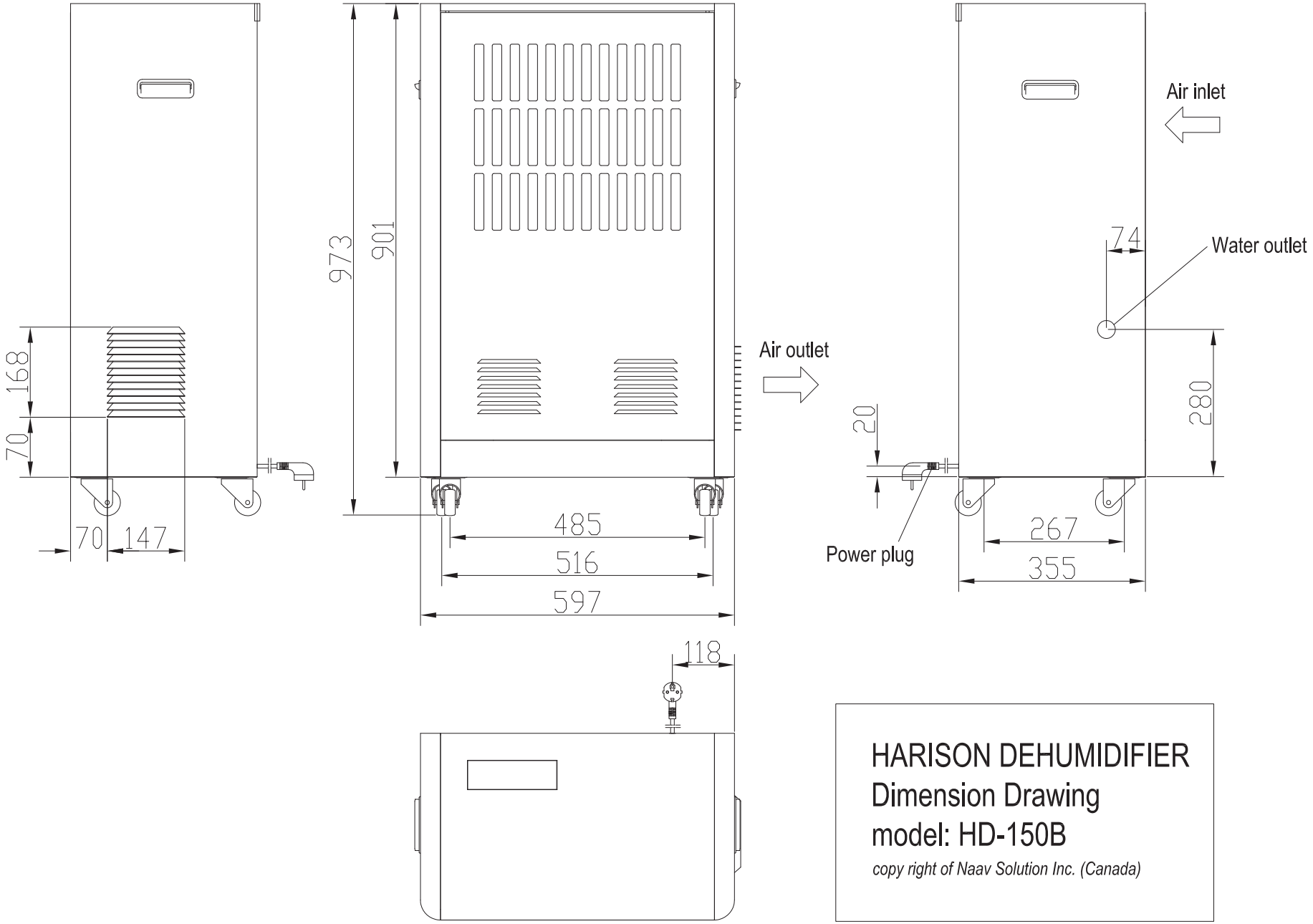
Notice
Please switch off the power source after stopping.
Must be grounded reliably when installing.
Please keep this manual in a suitable storage for reference.

PLEASE CONTACT YOUR NEAREST HARISON SUPPLIER FOR ANY TECHNICAL ASSISTANCE !

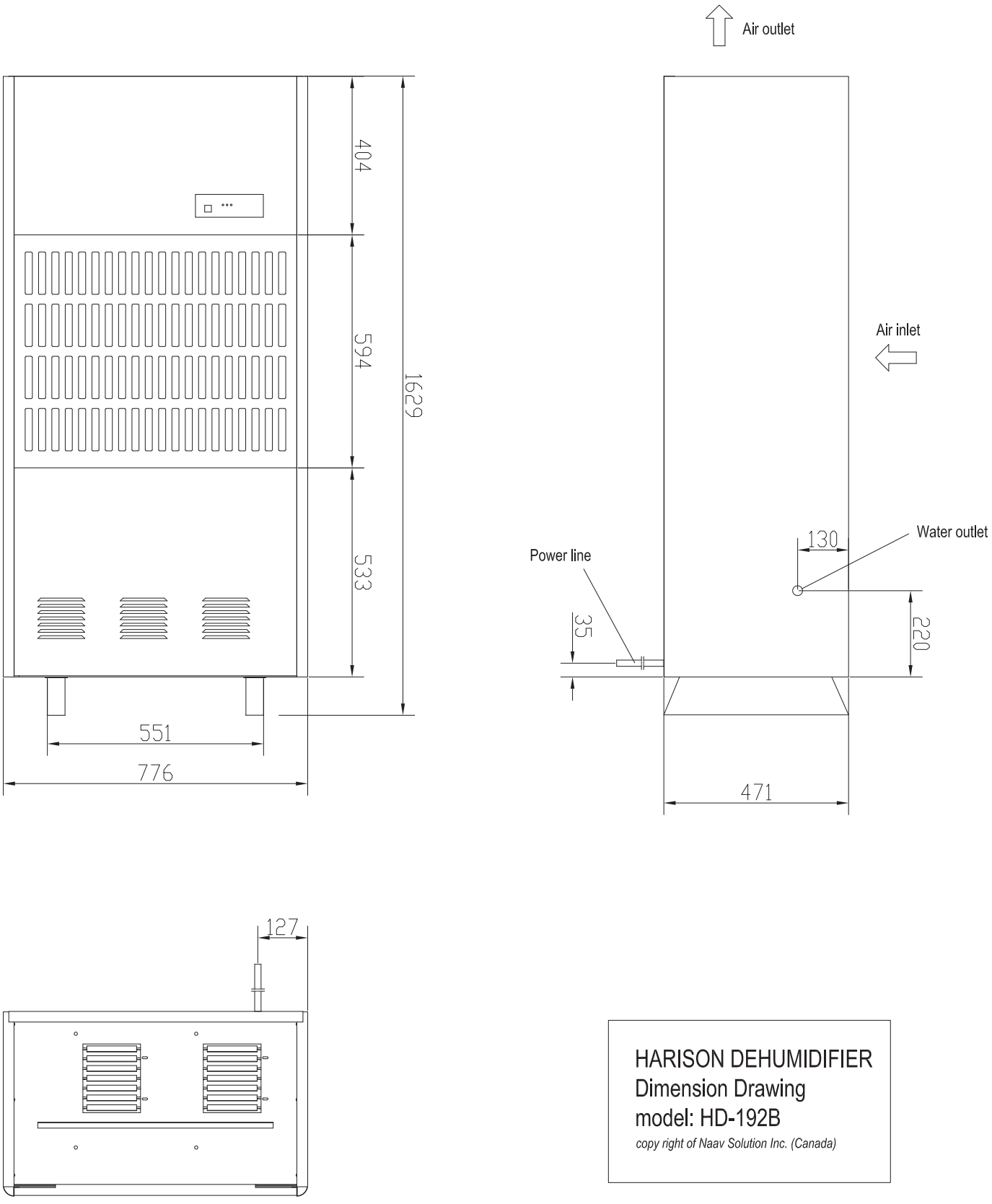
Appendix

1. Detail Dimension Drawing

2. Parts Identication Drawing and Spare Part List



HARISON DEHUMIDIFIER
Dimension Drawing
model: HD-150B



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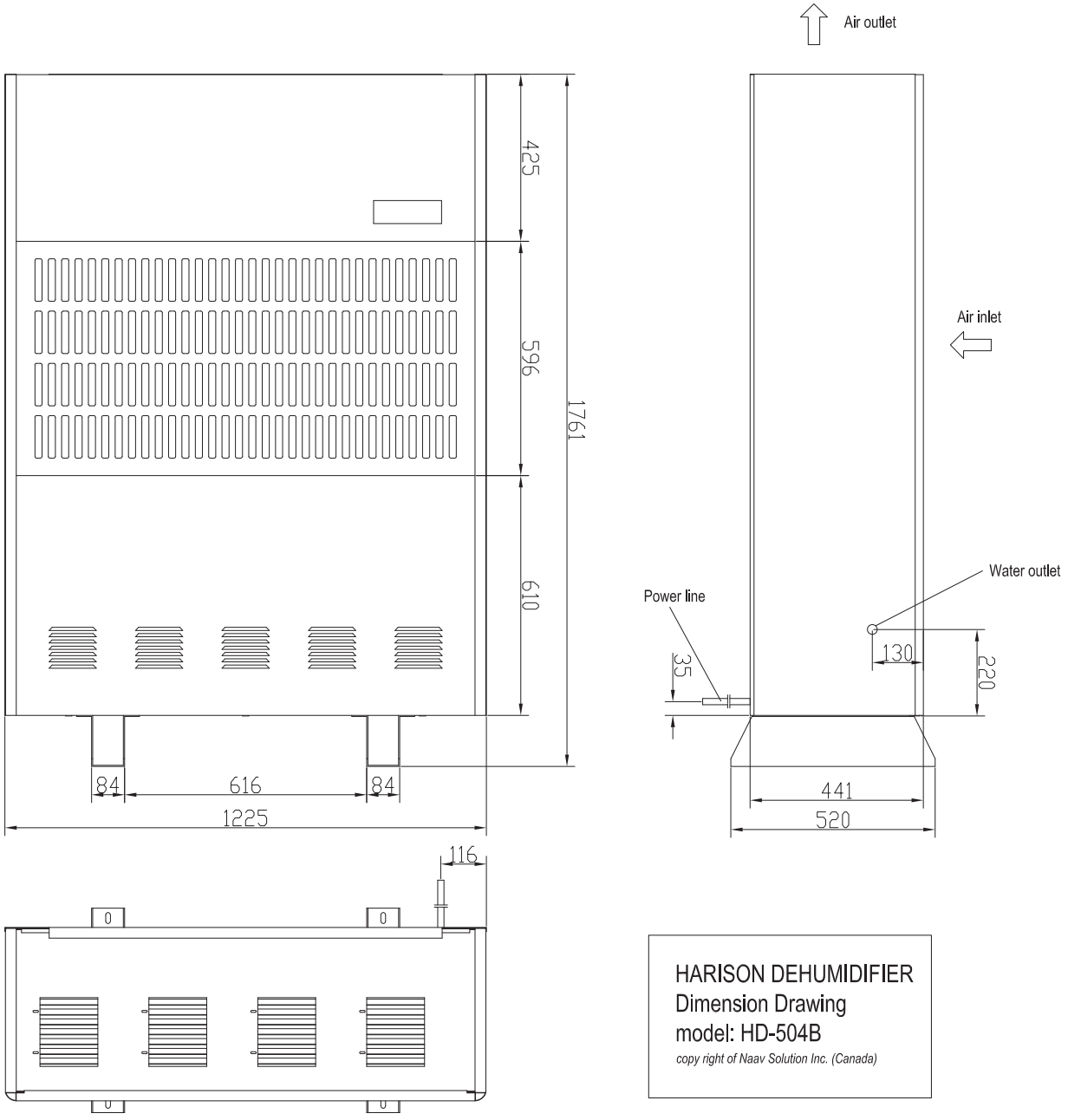
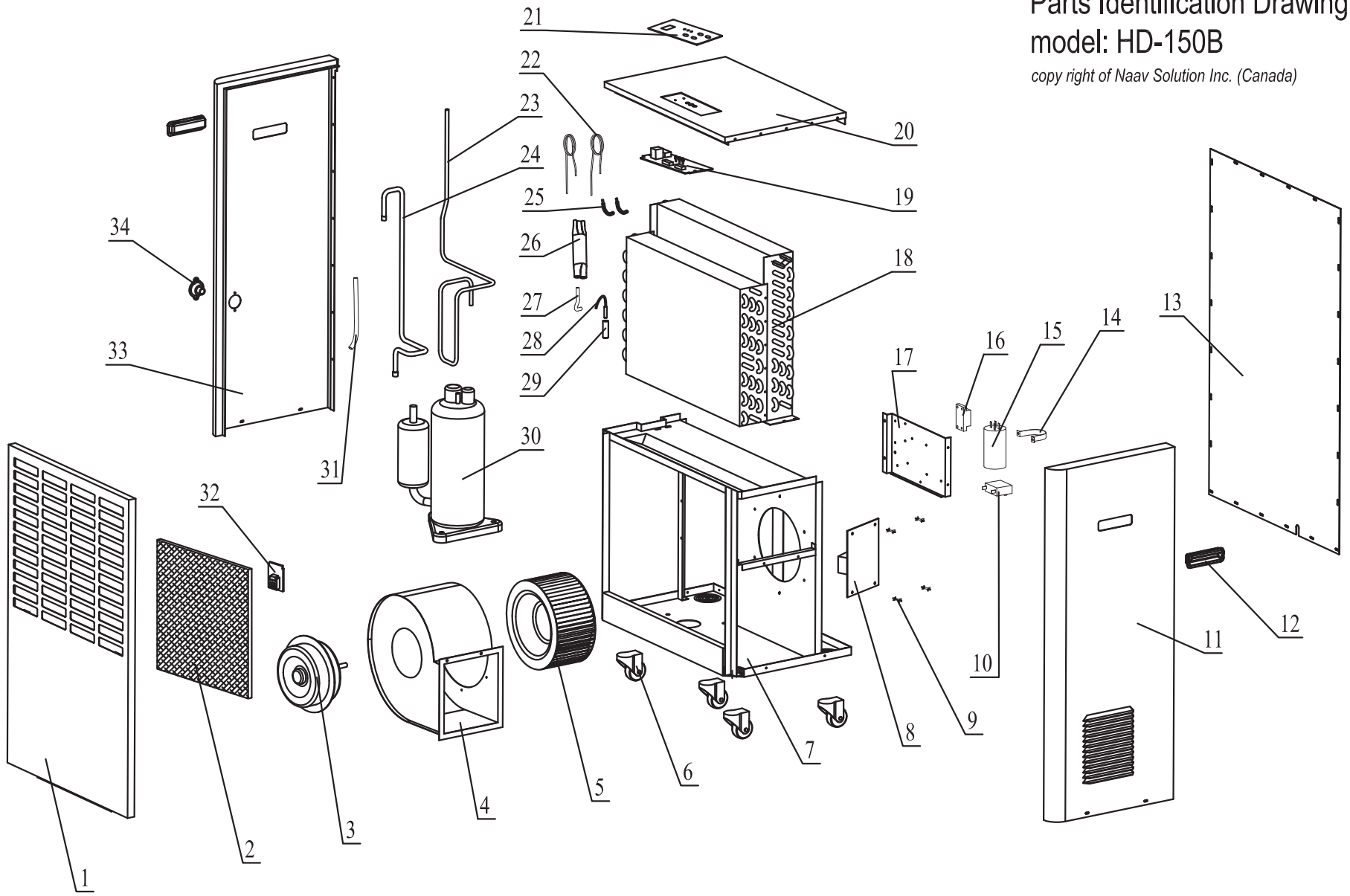
Dimension Drawing
model: HD-192B



HARISON DEHUMIDIFIER
Dimension Drawing
model: HD-504B

HARISON DEHUMIDIFIER
Parts Identification Drawing
model: HD-150B

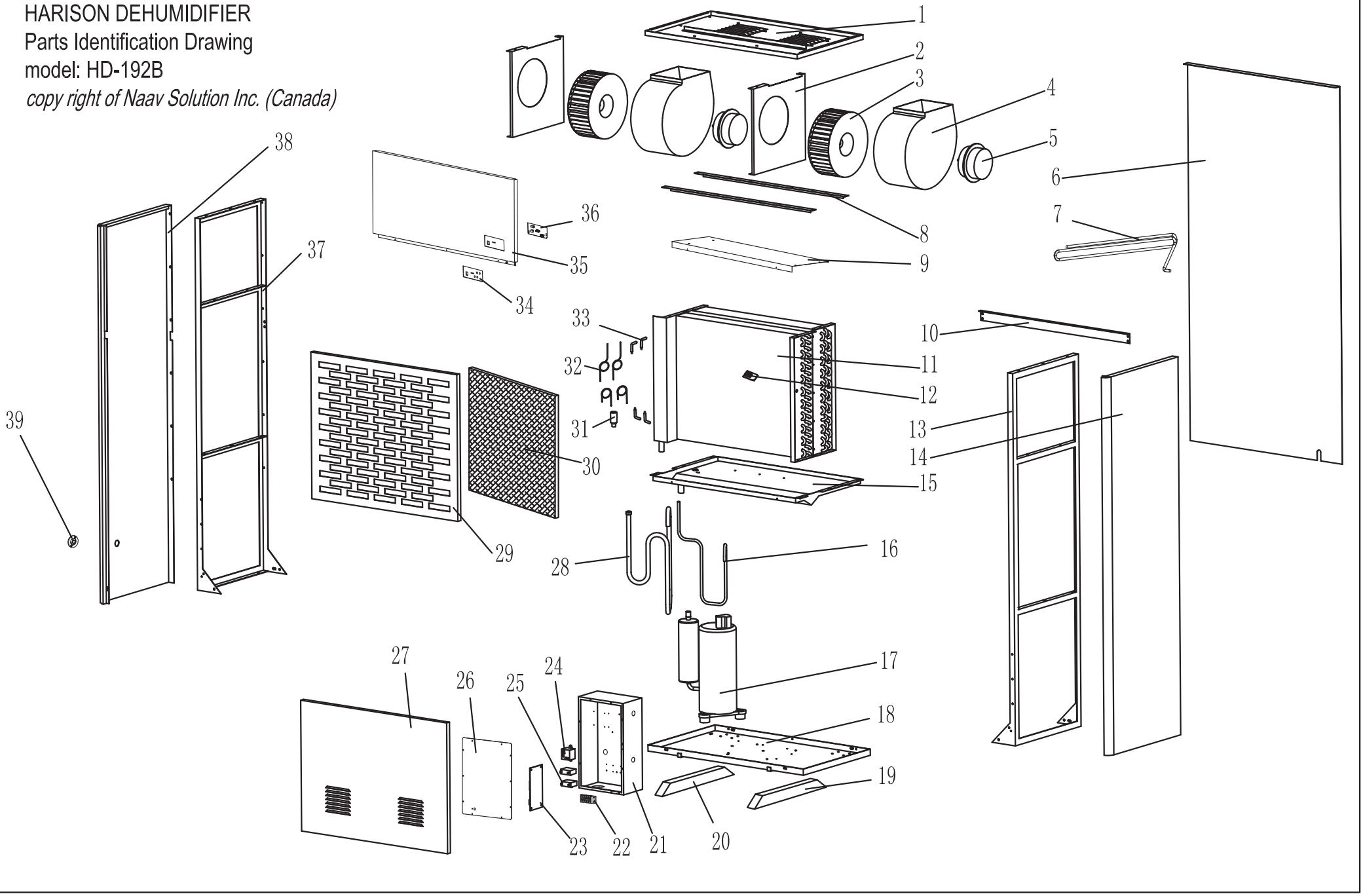


PARTS LIST

HD150B

NO.	Description	Quantity
1	Air intake grid	1
2	Filter net	1
3	Fan motor	1
4	Scroll casing	1
5	Fan blade	1
6	Castor	4
7	Base subassembly	1
8	Main control board	1
9	Main control board fixture	1
10	Fan capacitor	1
11	Right-side panel	1
12	Handle	2
13	Back panel	1
14	Capacitor clamp	1
15	Compressor motor capacitor	1
16	Three seats wire holder	1
17	Electrical board	1
18	Evaporator and condenser	1
19	Display board	1
20	Top cover panel	1
21	Film switch	1
22	Capillary tube	2
23	High pressure tube	1
24	Low pressure tube	1
25	Refrigerant in tube 1	2
26	Filter	1
27	Refrigerant out tube 1	1
28	Defrost sensor	1
29	Temperature sensor tube	1
30	Compressor	1
31	Water out tube	1
32	Humidity sensor	1
33	left-side panel	1
34	Drainage connector	1

HARISON DEHUMIDIFIER
Parts Identification Drawing
model: HD-192B

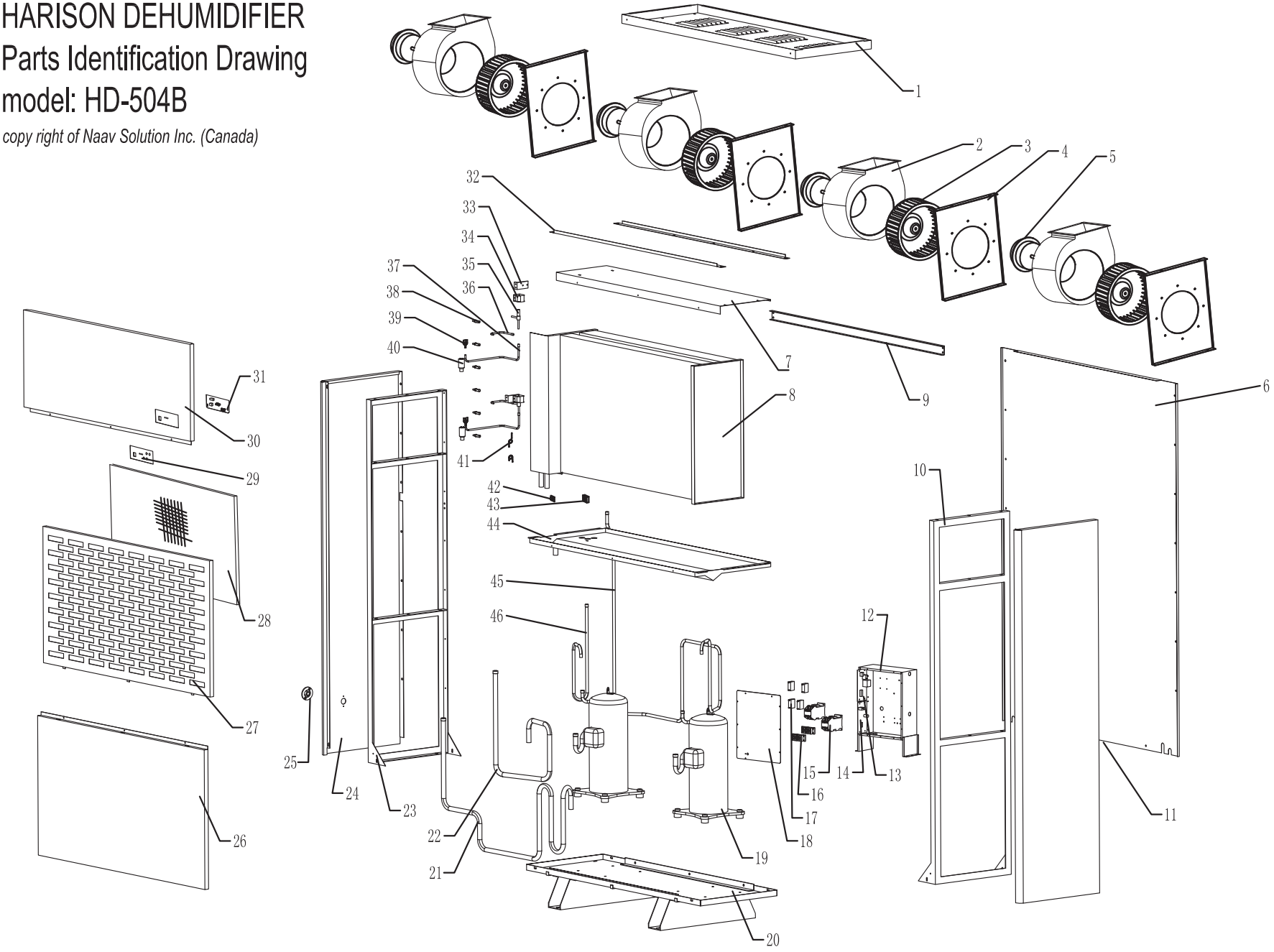


PARTS LIST

HD192B

NO.	Description	Quantity
1	Top cover	1
2	Fan Mounting plate	2
3	Fan blade	2
4	Scroll casing	2
5	Fan motor	2
6	Back panel	1
7	Power cord	1
8	Fan motor support	2
9	Condenser cover	1
10	Fixed board	1
11	Evaporator and condenser	1
12	Humidity sensor	1
13	Right support	1
14	Right panel	1
15	Drip tray	1
16	High pressure tube	1
17	Compressor	1
18	Chassis	1
19	Castor Ⅰ	2
20	Castor Ⅱ	2
21	Electrical box	1
22	Wire holder	1
23	Main control board	1
24	AC contactor	1
25	Capacitor	2
26	Electrical box cover	1
27	Front lower panel	1
28	Low pressure tube	1
29	Air intake grid	1
30	Filter net	1
31	Filter	1
32	Capillary tube	4
33	Refrigerant in tube	4
34	Film switch	1
35	Front upper panel	1
36	Display board	1
37	left support	1
38	left panel	1
39	Water out connector	1

HARISON DEHUMIDIFIER
Parts Identification Drawing
model: HD-504B



PARTS LIST

HD504B

NO.	Description	Quantity
1	Top cover	1
2	Scroll casing	4
3	Fan blade	4
4	Mounting board	4
5	Fan motor	4
6	Back panel	1
7	Condenser cover	1
8	Evaporator and condenser subassembly	1
9	Support Brace Ⅱ	1
10	Right brace	1
11	Right panel	1
12	Electrical box	1
13	Main control board A	1
14	Main control board B	1
15	AC contactor	2
16	Five seat wire holder	2
17	Fan capacitor	4
18	Electrical box cover	1
19	Compressor	2
20	Base plate subassembly	1
21	Return tube for compressor A	1
22	Return tube for compressor B	1
23	Left brace	1
24	Left panel	1
25	Drainage connector	1
26	Front lower panel	1
27	Air intake grid	1
28	Filter net	1
29	Film switch	1
30	Front upper panel	1
31	Display board	1
32	Fan motor brace	2
33	Electromagnetic valve mounting	2
34	Electromagnetic valve coil	2
35	Electromagnetic valve	2
36	Electromagnetic valve air-in tube	2
37	Electromagnetic valve air-out tube	2
38	Manifold tube	6
39	Defrost tritorium	2
40	Tritorium	2
41	Capillary tube	12
42	Humidity sensor	1
43	Sensor box	1
44	Water tray	1
45	Exhause tube for compressor A	1
46	Exhause tube for compressor B	1

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Made Thailand