Electrostatic Air Cleaners

For Commercial & Industrial Applications

(B Model)

Revised 13 Jul 2018

General Information

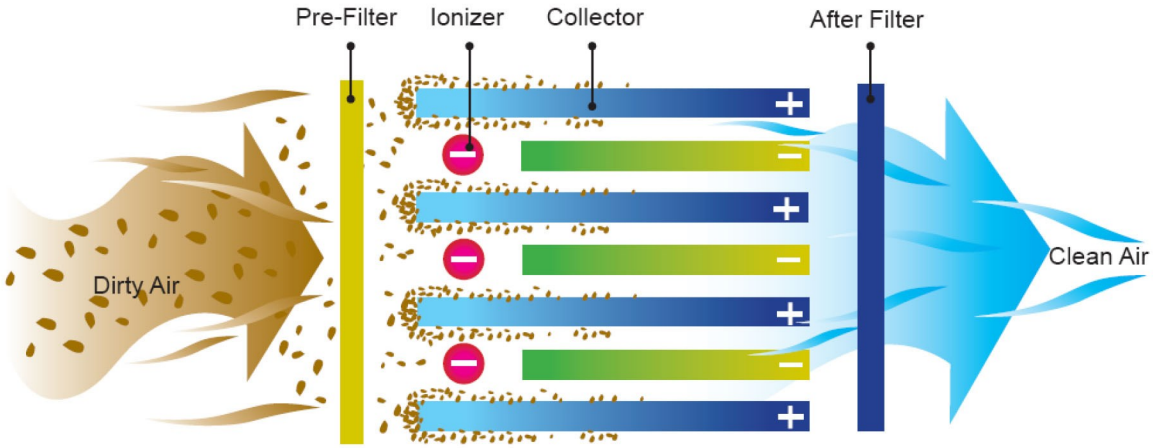
Please read this manual carefully before starting the installation of the air cleaner.

Installation should conform to all local laws and ordinances associated with building and electrical codes. Local authorities should be consulted if necessary.

Model	Voltage	HP/ Watts	Amps (Max)	Ionizer Voltage Collector Voltage
RY2500B	230Vac, 50Hz,Single Phase 120Vac, 60Hz, Single Phase	50 Watts	0.5A 1A	12KVDC 6KVDC
RY5000B	230Vac, 50Hz,Single Phase 120Vac, 60Hz, Single Phase	90Watts	1.0A 2.0A	12KVDC 6KVDC
RY7500B	230Vac, 50Hz,Single Phase 120Vac, 60Hz, Single Phase	120Watts	1.5A 3.0A	12KVDC 6KVDC
RY10,000B	230Vac, 50Hz,Single Phase 120Vac, 60Hz, Single Phase	130Watts	1.55A 3.1A	12KVDC 6KVDC
RB2400B	230Vac, 50Hz,Single Phase	1.15KW	6.7A	12KVDC 6KVDC
RB4800B	230Vac, 50Hz,Single Phase	1.19KW	7.2A	12KVDC 6KVDC

How Rydair Electrostatic Air Cleaner Work:

Contaminated air is drawn by the blower fan through a washable metal pre-filter which traps large dust particles. The remaining particles, some as small as 0.01 microns, pass into a strong electrical field (ionizing section) where the particulate receives an electrical charge. The charged particles then pass into a collector plate section made up of a series of equally spaced parallel plates. Each alternate plate is charges with the same polarity as the particles, which repel, while the interleaving plates are grounded, which attract and collect the contaminants. The contaminants are held in these plates until they are washed away. RydAir Electrostatic Air Cleaner traps both wet and dry particulates.



Polluted air is drawn into the electrostatic cells by belt driven blower for RB2400B and RB4800B. RY2500B and RY5000B requires external fan to move polluted air into the unit.

INSTALLTION:

RydAiR Electrostatic Air Cleaners may be installed in various ways: Free Hanging, Frame Mounted or Seated on floor platform. Whichever method is used, please ensure you comply with local ordinances and practices.

The RY and RB series are designed to allow for multiple units to be stacked on top of each other to achieve the required air volume. Each unit has a drain hole sump , so an insulation / padding of 10mm must be provided in between the units when they are stacked on top of each other.

Remove Ionizer cells and pre-filters before installation. The units may be flipped over 180 degrees to ensure correct airflow. When the unit in flipped over, ensure that the cell access door cover is also changed to have the ventilation louvers facing downwards. The cover can be opened by unscrewing the 4 nuts at the back of the cell access door.

When installing the units care should be taken to ensure that there is adequate clearance for the cell access door to be opened and cells to be removed for maintenance. This is especially important in tight areas or when the units are installed inside or above false ceilings.

The RB models are designed for stand alone applications as well as for limited duct system applications. Ducts cannot be too long and must be carefully designed to minimize external static pressure in order to move the required amount of air through the unit.

Ducting, when attached to the unit air intake area or blower outlet collar, must be properly attached and gasket or caulked to prevent air leakage. To maintain optimum efficiency, the total air volume must be distributed evenly across the entire surface of the air intake area of the unit.

For proper sizing and installation of hoods and ducts, please refer to the Industrial Ventilation handbook, or consult your ***RydAiR*** distributor who may be able to provide advice on this matters.

WARNING: This unit is operating on high voltage. Please exercise extra precaution when working with this unit and ensure you comply with local electrical codes

PREPARING TO START UP MACHINE :

When installation is completed, ensure that the cell is clear of debris before inserting them into the machine.
Ensure that power is properly connected to the machine's junction box.

OPERATION:

When the unit is turn on there may be a crackling or arcing sound. This is normal as dust is being sucked into the cells which is now energized at 12KV.

The indicator lights will come on and they indicate the following:

Green Light is on: Unit is functioning normally

Red Light Flickers: Unit is arcing/crackling as some dust is being trapped. Flickering should stop after a short while.

Both Red and Green Lights On: Cell is dirty. Maintenance/cleaning of cells is required.

Red Light On: Power Pack automatically turned off due to prolonged usage without maintenance/ cleaning of cells.

Maintenance:

Warning High Voltage: Risk of Electric shock

To reduce risk of electric shock, do not perform any other servicing other than contained in this manual, unless you are qualified to do so.

1. To switch off & disconnect power supply input into the unit.
2. Open the cell access door. Used the plastic handle screw driver to ground both H.T. & L.T. terminals to discharge the residue static charge in the cells.
3. Remove pre-filter
4. Remove cell(s)
5. Remove oil/grease from the base of the unit by scooping it up or with paper towels.
6. Soak pre-filter and cells in detergent water. Alkaline degreasers may be used.
7. Wash the pre-filters & cells with clean water. Used the medium pressure gun (below 90bar).
8. Rinse pre-filters and cells thoroughly and let dry. Inspect for bent plates or broken tungsten ionizing wires.
9. Care should be taken during the washing process, so as not to damage the ionizing tungsten wires.
10. Check & tighten any loosen screws/ nuts/ H.T. & L.T. contacts if any.
11. Leave cells and pre-filters to drip-dry in open area or use blower fan to dry up both parts.
12. Replace the pre-filters and cells, ensuring that they are in the correct airflow position.
13. Close cell access door.
14. Power up the unit.
15. If arcing occurs, the cells may still be damp. Turn off unit and allow cells to dry .

To ensure optimum efficiency, the cells must be cleaned periodically. Failure to do so may cause damage to the cells as well as making it a fire hazard.

Frequency of cleaning is dependent on the level of usage as well as the type of contaminants collected. Periodic inspection of the unit to determine cleaning frequency is recommended .

Service Maintenance Guide for RY Series RydAir Electrostatic Air Cleaners:

Please note that the maintenance service only can performed by the trained & qualified service personnel only

1) Before perform the maintenance service, turn on the machine to check & note whether the machine is in normal operation or any faulty signal shown.

2) Be sure to turn-off power supply before attended to open the cells access door.

3) To unscrew both knobs on the access door evenly until the door open.

4) Use the screw driver to short circuit the collecting cell H.T. terminals to ground for discharge the residue static charge before attend to touch the cells.

5) To clear of excessive oil or dust on the door or the edge of main housing first before attend to retrieve the dirty cells & pre-filters.

6) To retrieve both dirty pre-filter & cell for transport back the workshop for chemical cleaning, service & testing.

7) To clean up all oil & dust in the housing.

8) To clean up all oil stain/ dust on the access door & both H.T. contacts on the door with detergent.

9) To check door rubber seal for wear & tear, to replace if necessary.

10) To install the cleaned pre-filters & cells into the cleaned housing. Ensure to place the cells in the correct position as below:

    i) Both H.T. contacts on each cell must be in the right position to contact with other cell's H.T. contacts.
    ii) The cell nearest to the door H.T. terminal must be in the position to contact with H.T. contact on the access door.
    iii) The ionizing section on the cell must be at the inlet side of the dirty air.

11) Close the cell access door, screw in both knobs evenly until the access door close properly with the housing.

12) Turn on the power to run the Air Cleaner, ensure the green indicator light is on, and the red indicator light is off, i.e. the machine is in normal operation.

13) To clean up the exterior of the machine.

---END---

Service Maintenance Guide for RB Series RydAir Electrostatic Air Cleaners:

Please note that the maintenance service only can performed by the trained & qualified service personnel only

1) Before perform the maintenance service, turn on the machine to check & note whether the machine is in normal operation or any faulty signal shown.

2) Be sure to turn-off power supply before attended to open the cells access door.

3) To unscrew both knobs on the access door evenly until the door open.

4) Use the screw driver to short circuit the collecting cell terminal to ground for discharge the residue static charge before attend to touch the cells.

5) To clear of excessive oil or dust on the door or the edge of main housing first before retrieve the dirty cells & pre-filters.

6) To retrieve both dirty pre-filter & cell for transport back the workshop for chemical cleaning, service & testing.

7) To clean up all oil & dust in the housing.

8) To clean up all oil stain/ dust on the access door & both H.T. contacts on the door with detergent.

9) To Check the fan belt for wear & tear, to replace it if reached the life span.

10) To check the motor & fan whether have any abnormal noisy while turning for defects.

11) To check the tightness for the fan bolt, if too loose, adjust it to the correct tightness.

12) To check all the rubber mountings on both motor and fan mounting for wear & tear, to replace it if necessary.

13) To check all bolt & nuts for both pulleys, motor & fan, ensure all bolt & nuts are fastened.

14) To check rubber seal for doors for wear & tear, to replace if necessary.

15) To install the cleaned pre-filters & cells into the cleaned housing. Ensure to place the cells in the correct position as below:

    i) Both H.T. contacts on each cell must be in the right position to contact with other cell's H.T. contacts.
    ii) The cell nearest to the door H.T. terminal must be in the position to contact with H.T. contact on the access door.
    iii) The ionizing section on the cell must be at the inlet side of the dirty air.

16) Close the cell access door, screw in both knobs evenly until the access door close properly with the housing.

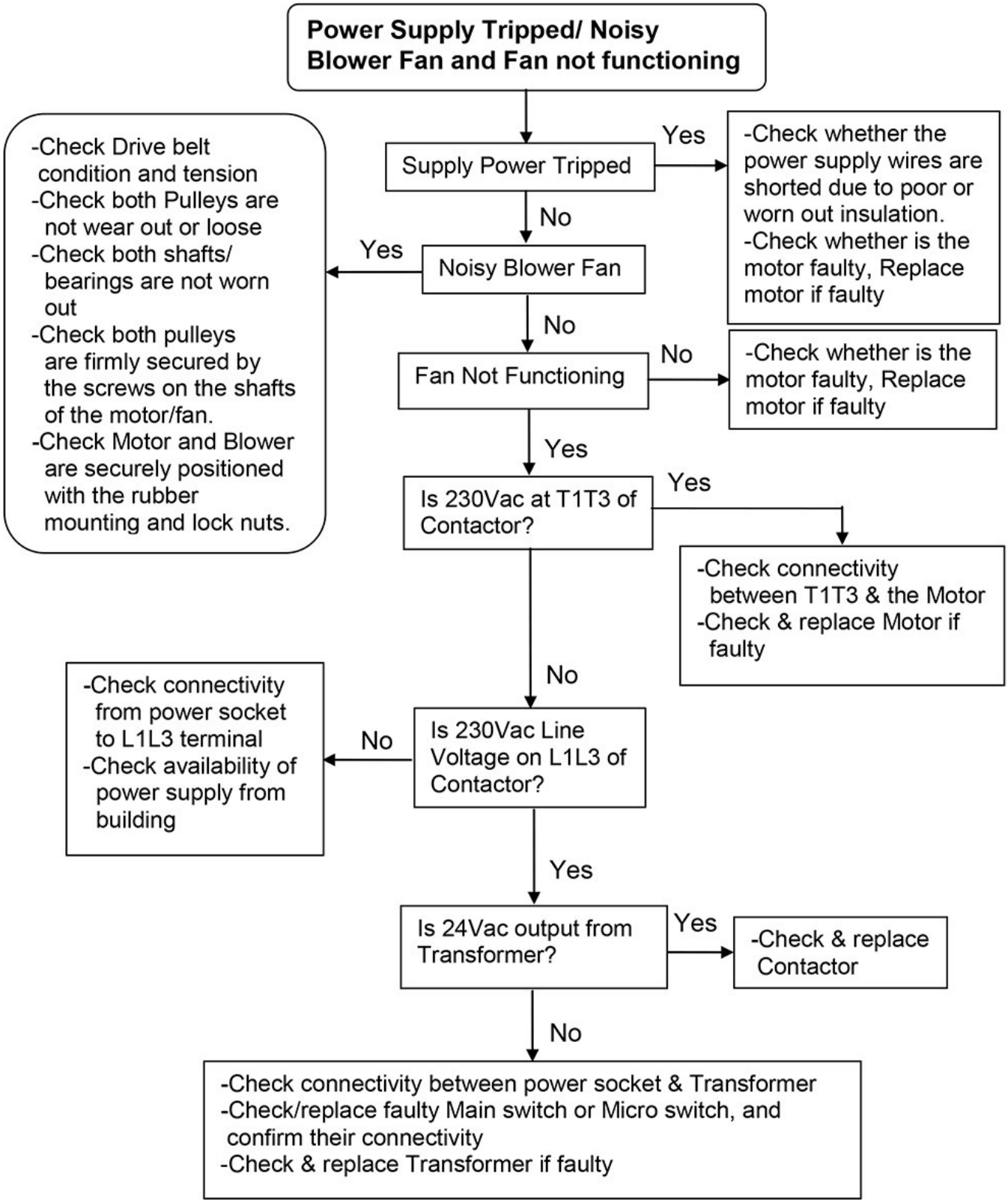
17) Turn on the power to run the Air Cleaner, ensure the green indicator light is on, and the red indicator light is off, i.e. the machine is in normal operation.

18) To check the motor & fan whether have any abnormal noise while working. To replace if necessary.

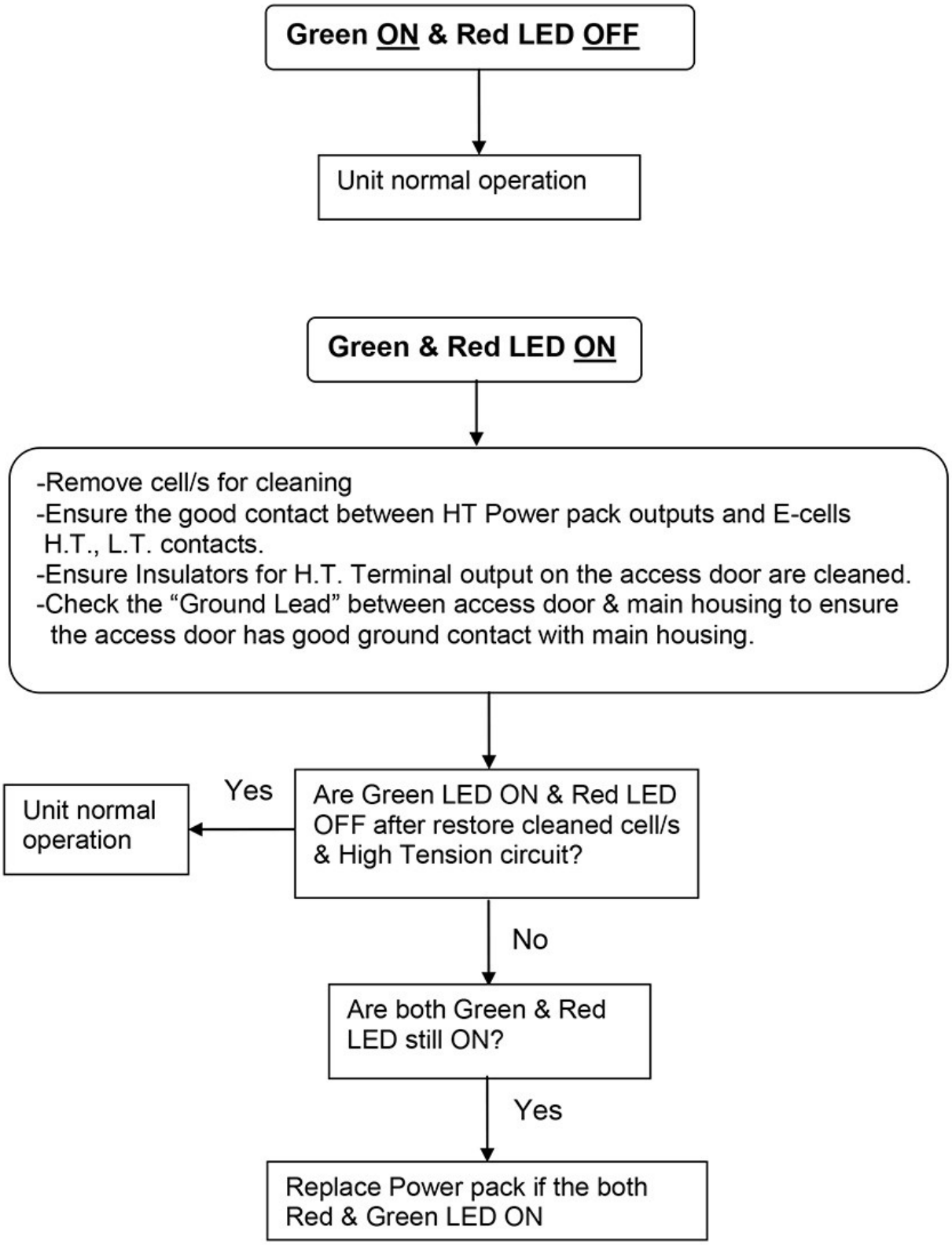
19) To clean up the exterior of the machine.

---END---

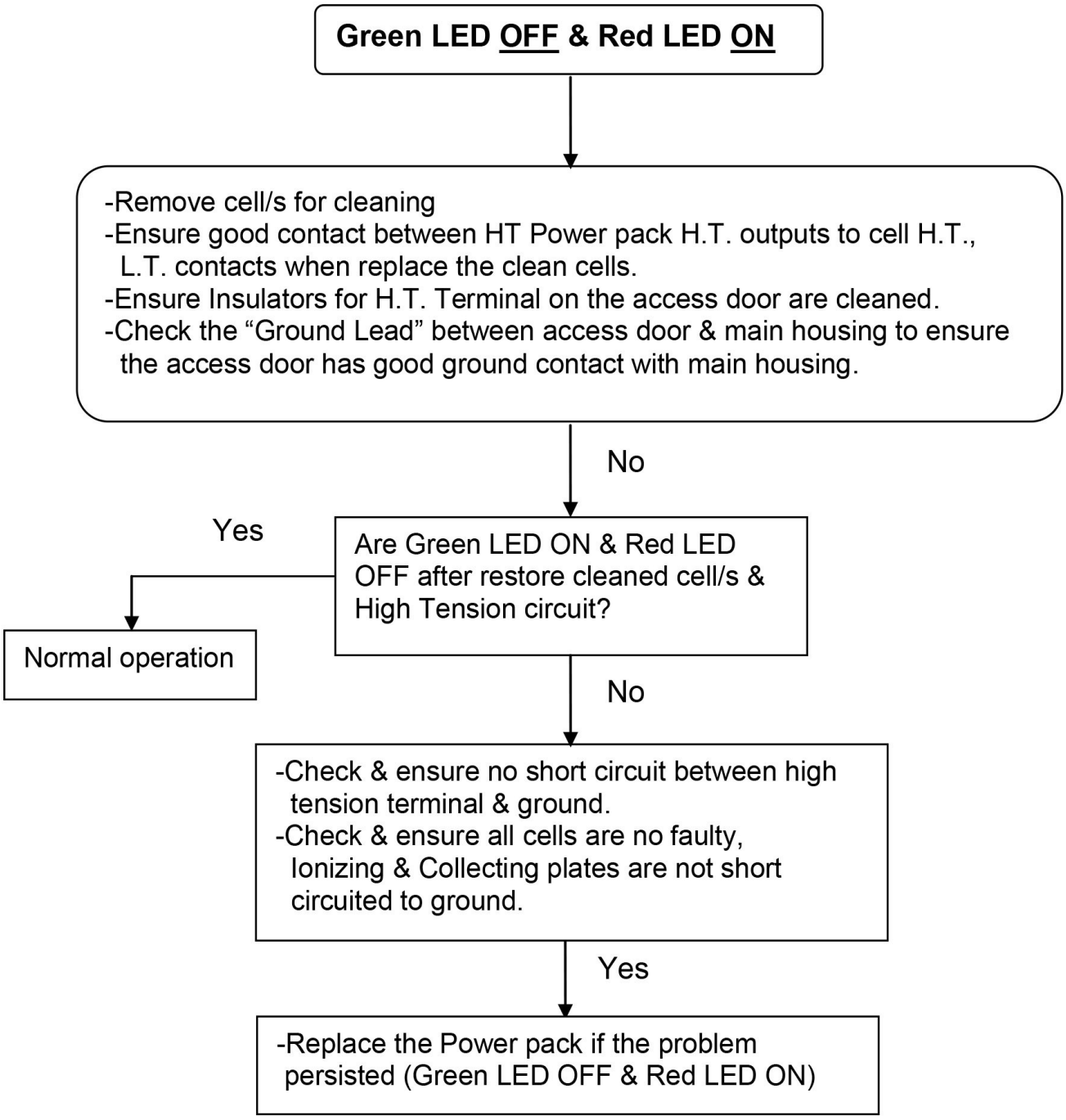
Trouble Shooting – Blower Section



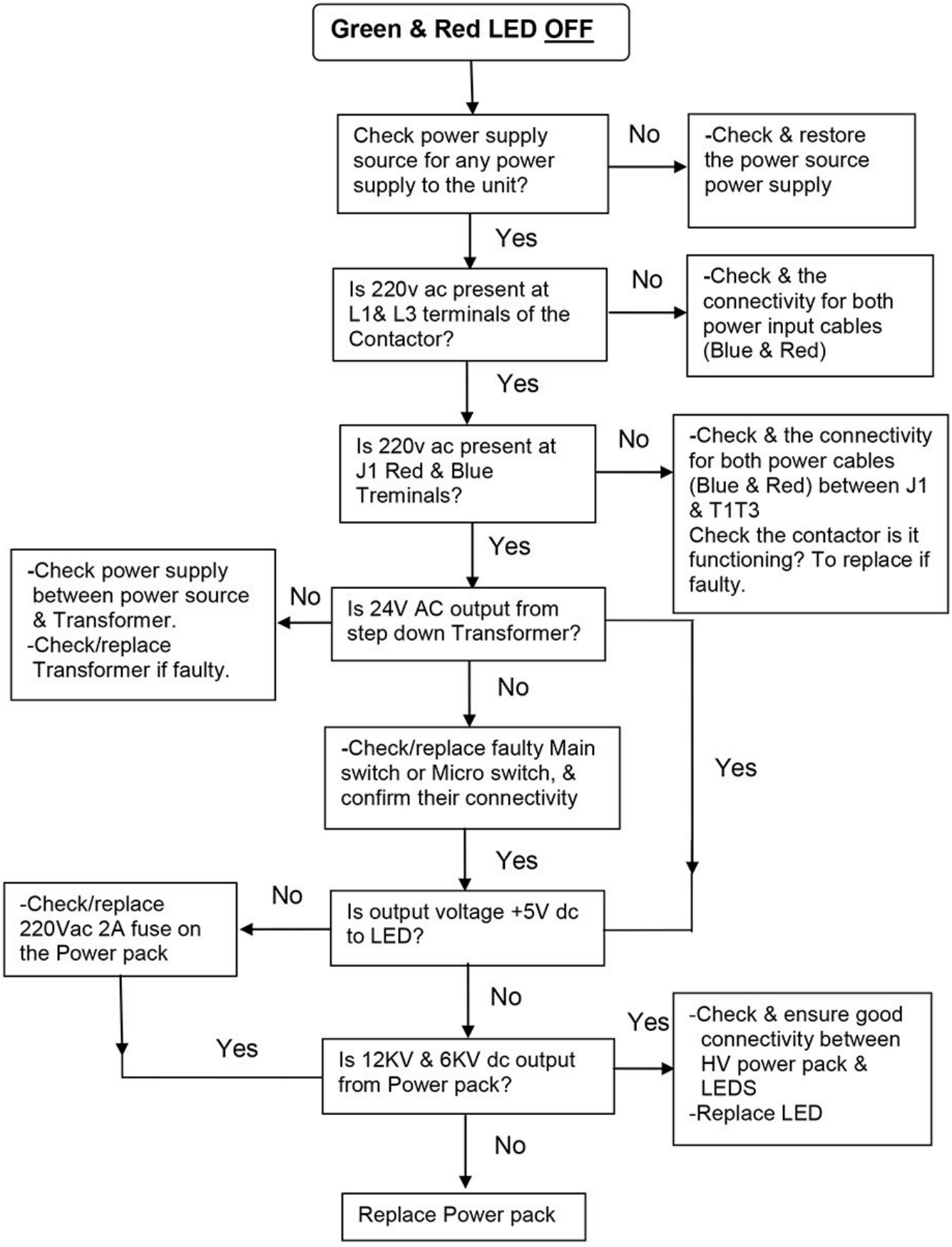
Trouble Shooting – Control Panel LED Indication-1

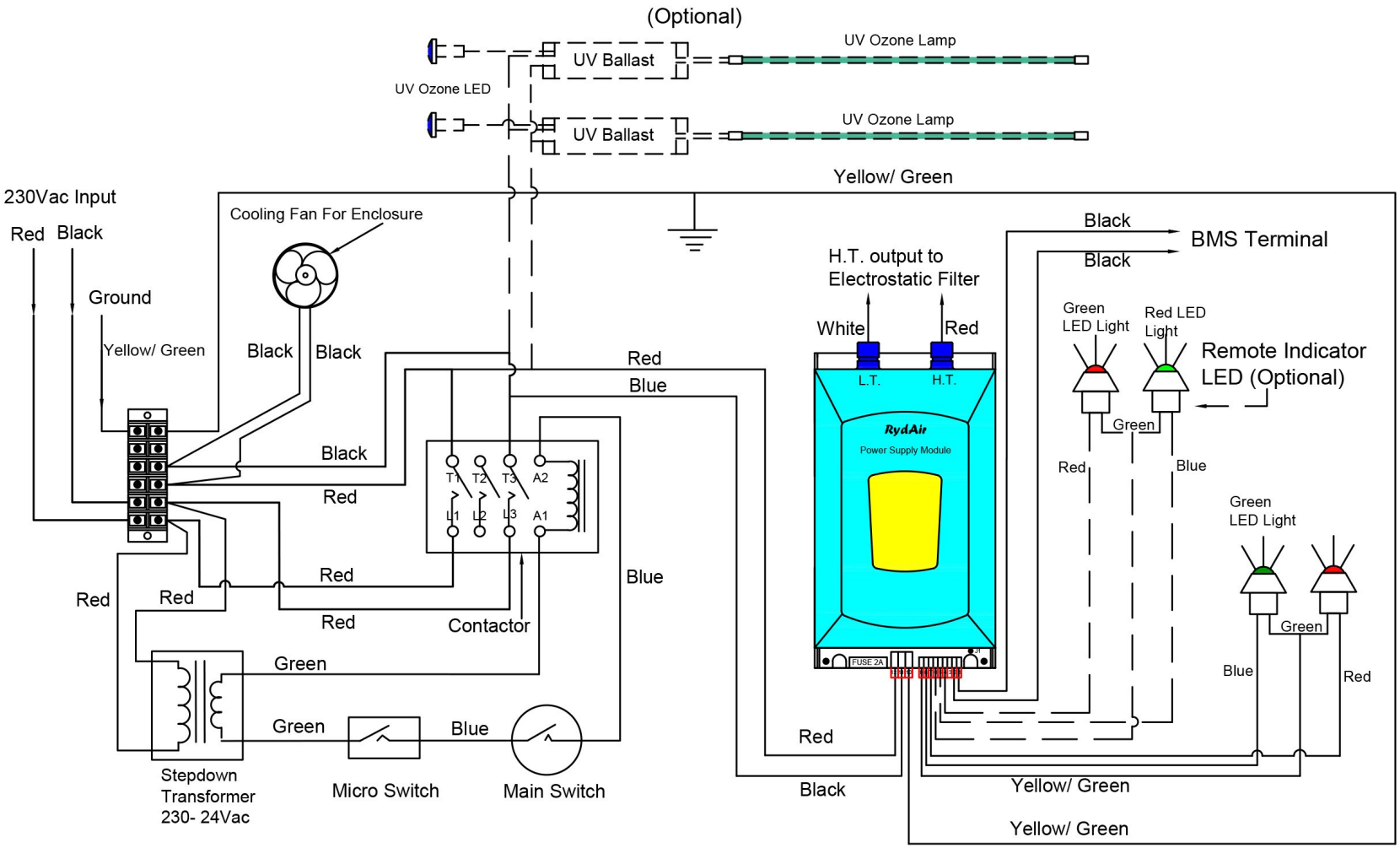


Trouble Shooting – Control Panel LED Indication-2



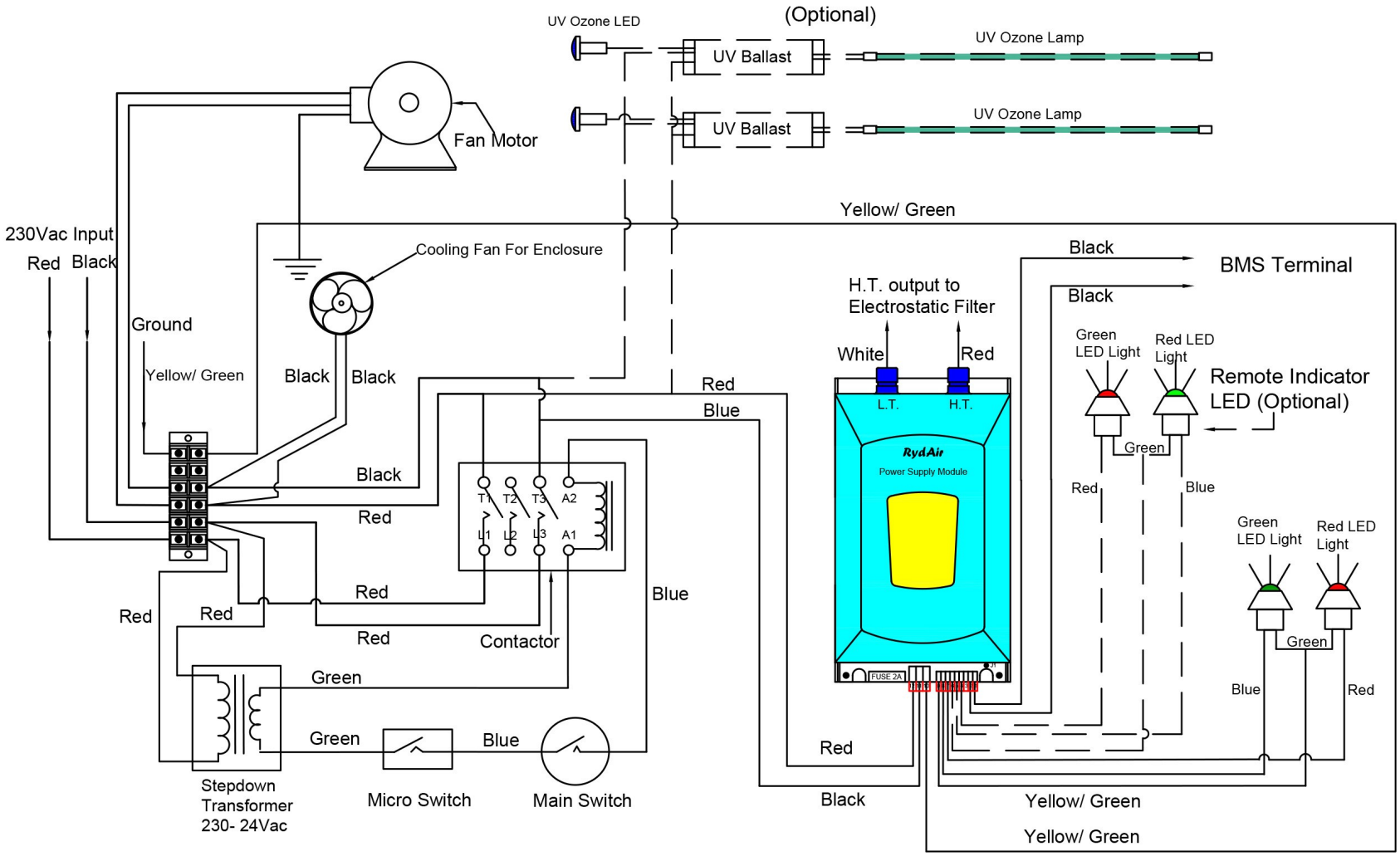
Trouble Shooting – Control Panel LED Indication-3





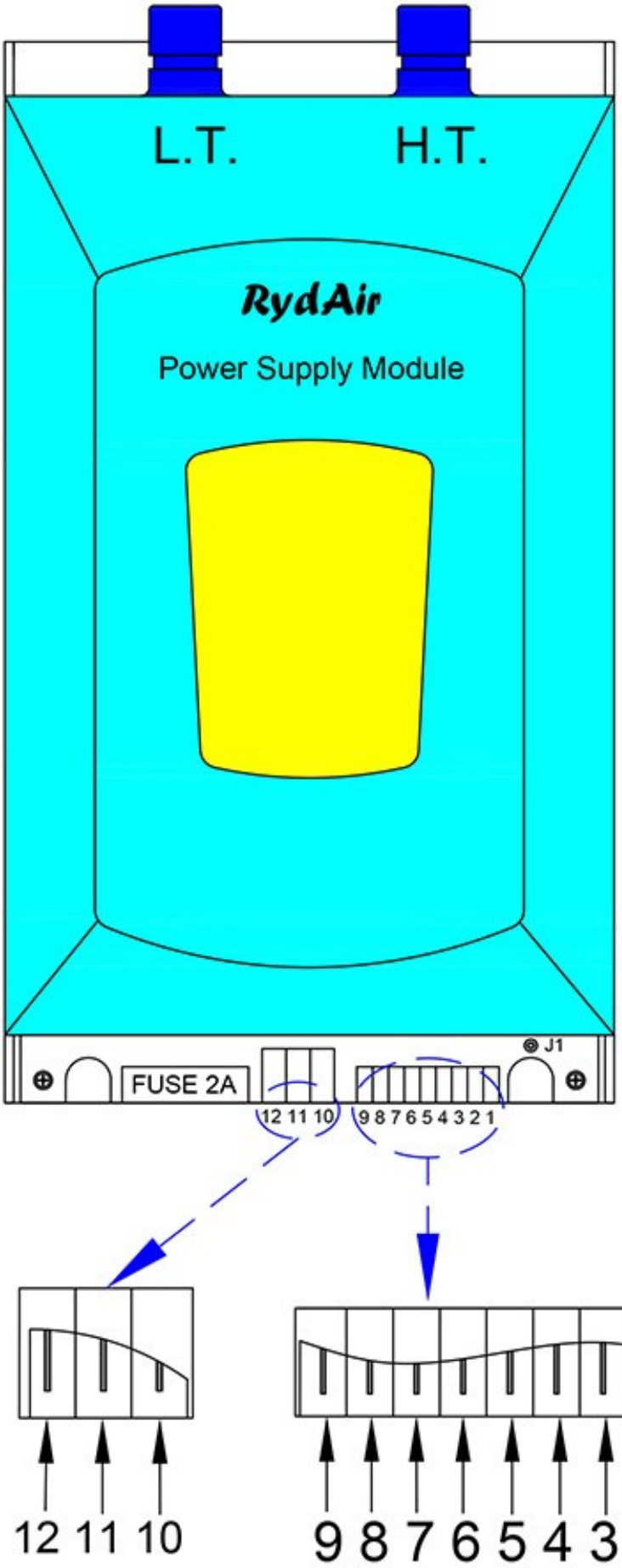
RydAir RY7500B, RY5000B & RY2500B c/w Ozone Lamp Circuit Diagram

Red LED Light	Green LED Light	Remarks
Off	ON	Normal Operation mode
ON	ON	Cell dirty- Cleaning required
ON	Off	1) Powerpack output H.T. voltage triped, cell cleaning required before the H.T. can be restored. 2) Cell H.T. contacts Do Not Contact with powerpack H.T. output Terminal Contacts.
Off	Off	System faulty, Please call for Service
BMS Relay Contract Rating		1A 24Vdc / 120Vac
Date:		1 Dec 2015



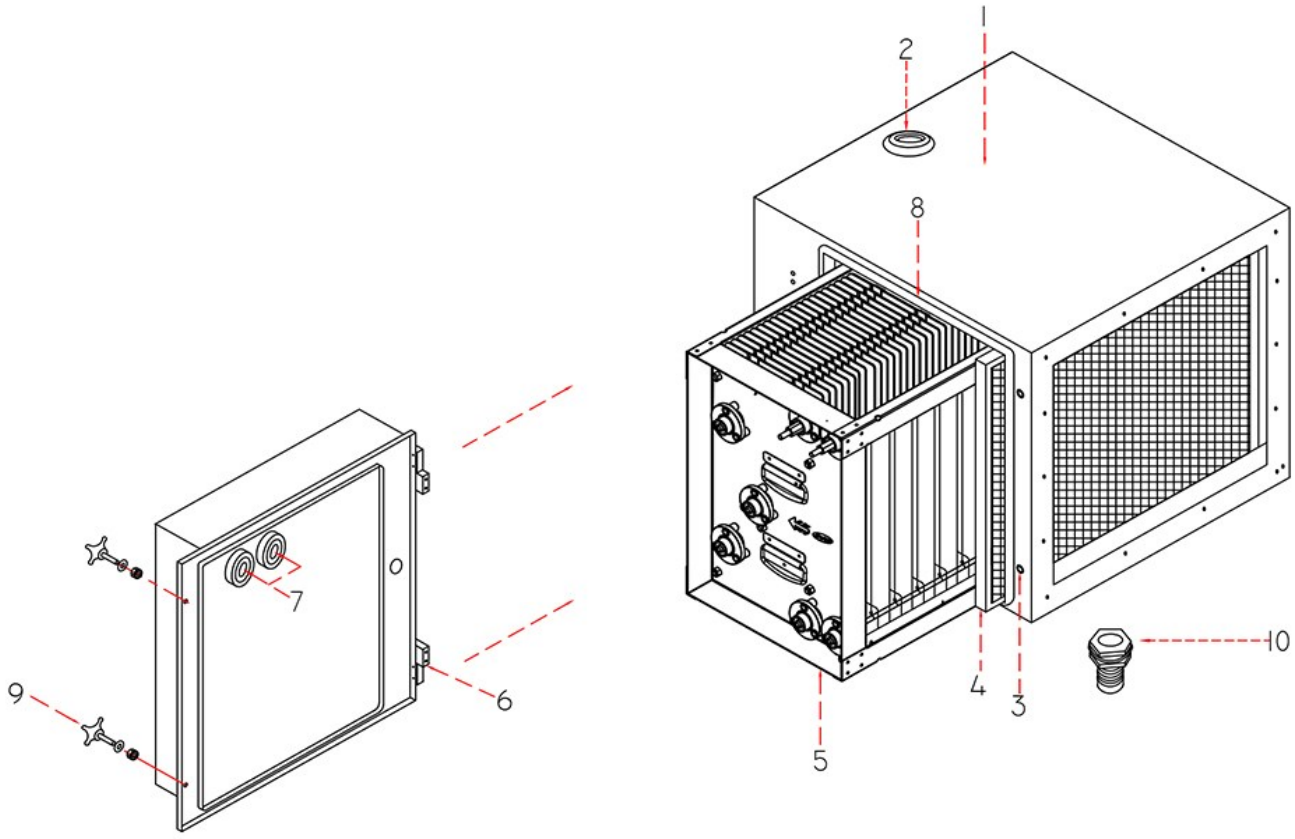
RydAir RB2400B & RB4800B Circuit Diagram

Red LED Light	Green LED Light	Remarks
Off	ON	Normal Operation mode
ON	ON	Cell dirty- Cleaning required
ON	Off	1) Powerpack output H.T. voltage triped, cell cleaning required before the H.T. can be restored. 2) Cell H.T. contacts Do Not Contact with powerpack H.T. output Terminal Contacts.
Off	Off	System faulty, Please call for Service
BMS Relay Contract Rating		1A 24Vdc / 120Vac
Date:		1 Dec 2015

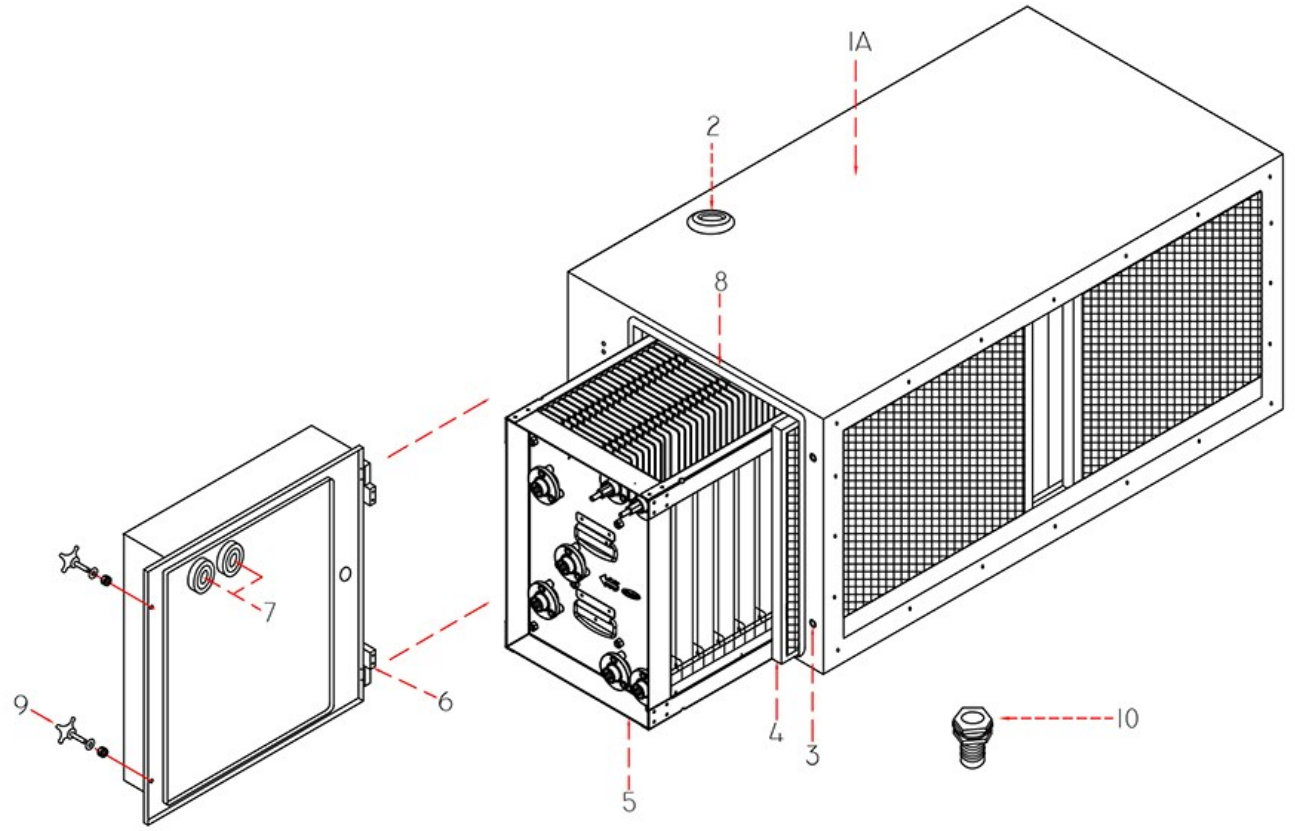


BMS Signal Configuration			
	Red LED	Green LED	Terminal 1 & 2
Normal Operation	OFF	ON	OPEN
Faults	ON	OFF	CLOSE
BMS Relay Contact Rating	1A 24VDC/ 120VAC		

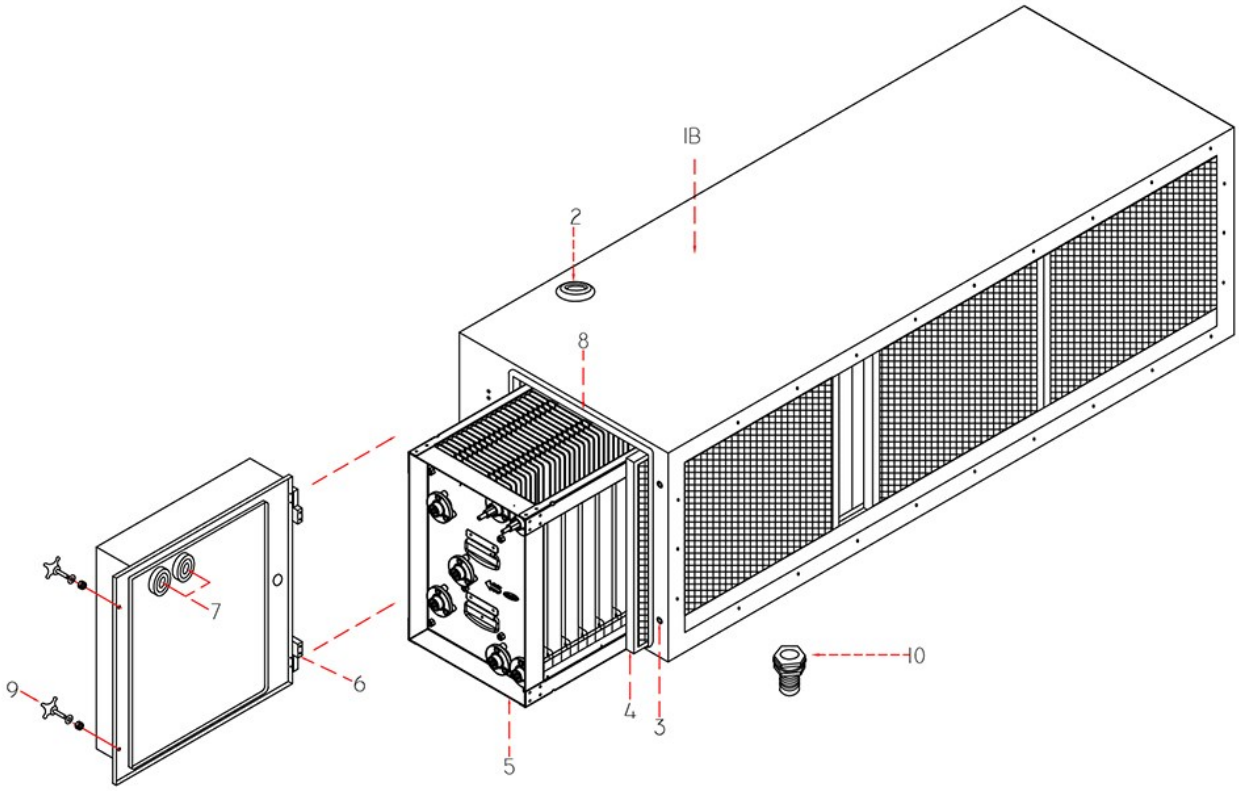
Pins Configuration for RYB (BCF-105RY-2) Power pack	
Pin No.	Functions
1 & 2	BMS Terminal
3	No Connection
4	LED Red (Extension)
5	LED Green (Extension)
6	Common Terminal
7	LED Red
8	LED Green
9	Common Terminal
Power Supply 230Vac	
10	Ground
11	Neutral
12	Line



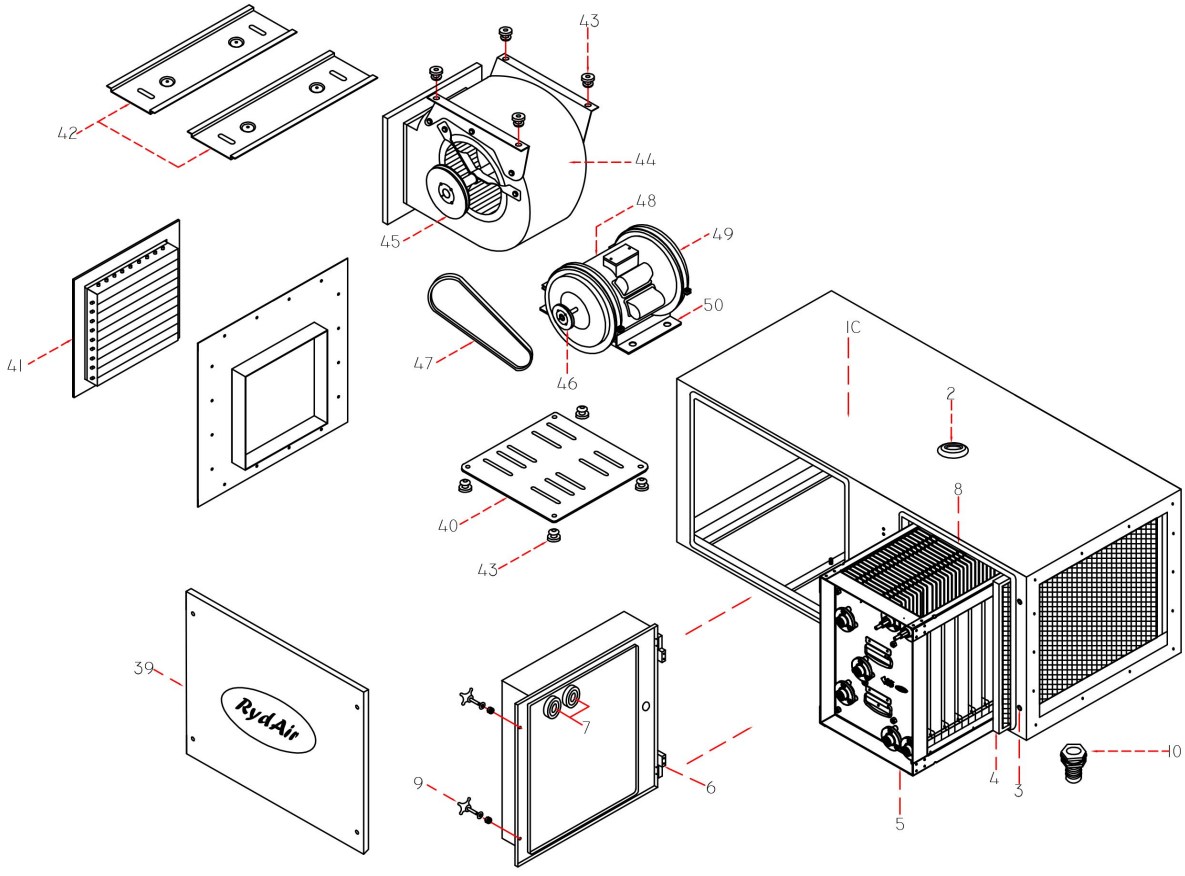
Rydair Electronic Air Cleaner Model RY2500B



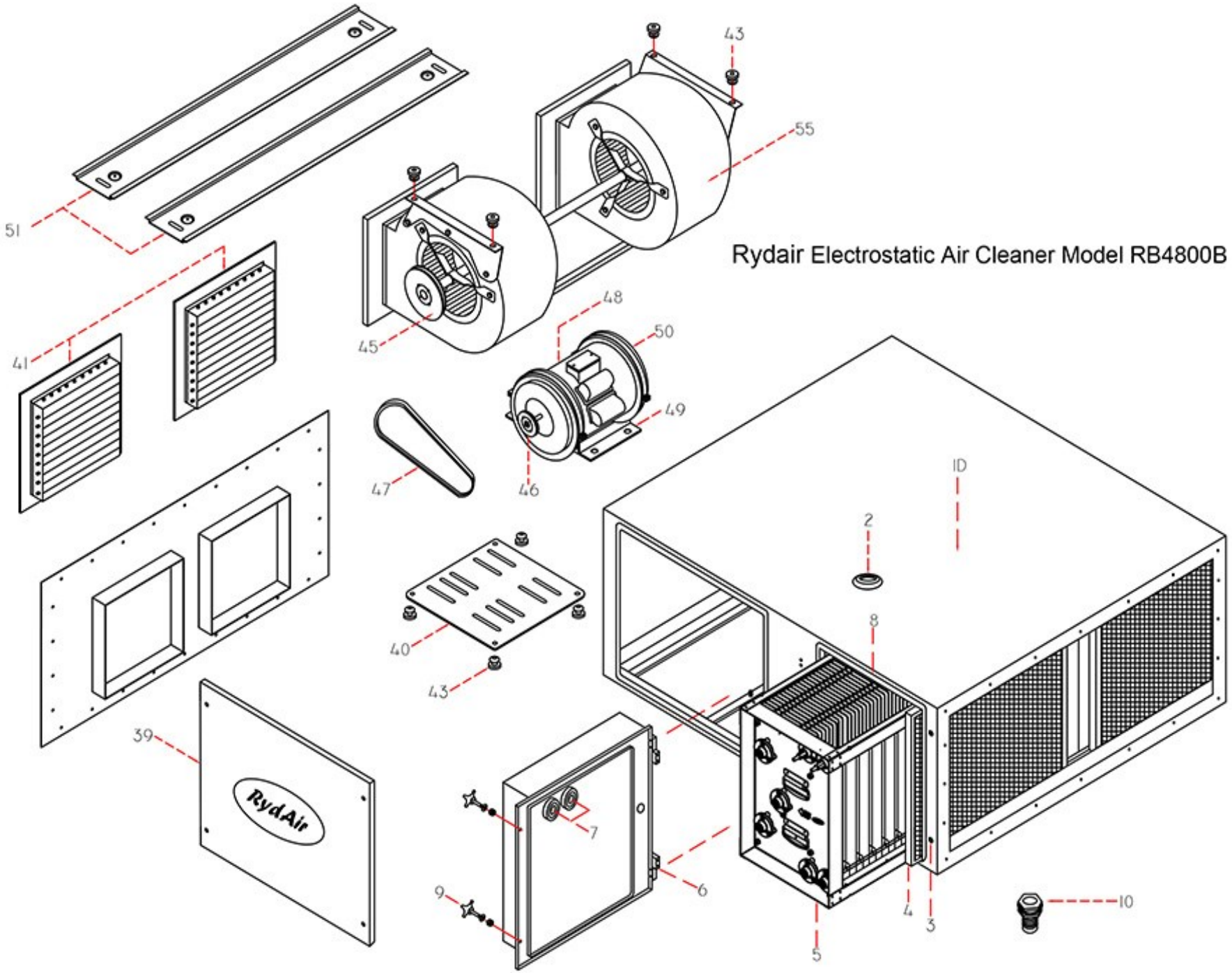
Rydair Electrostatic Air Cleaner Model RY5000B



Rydair Electrostatic Air Cleaner Model RY7500B



Rydair Electronic Air Cleaner Model RB2400B


Rydair Electrostatic Air Cleaner Model RB4800B
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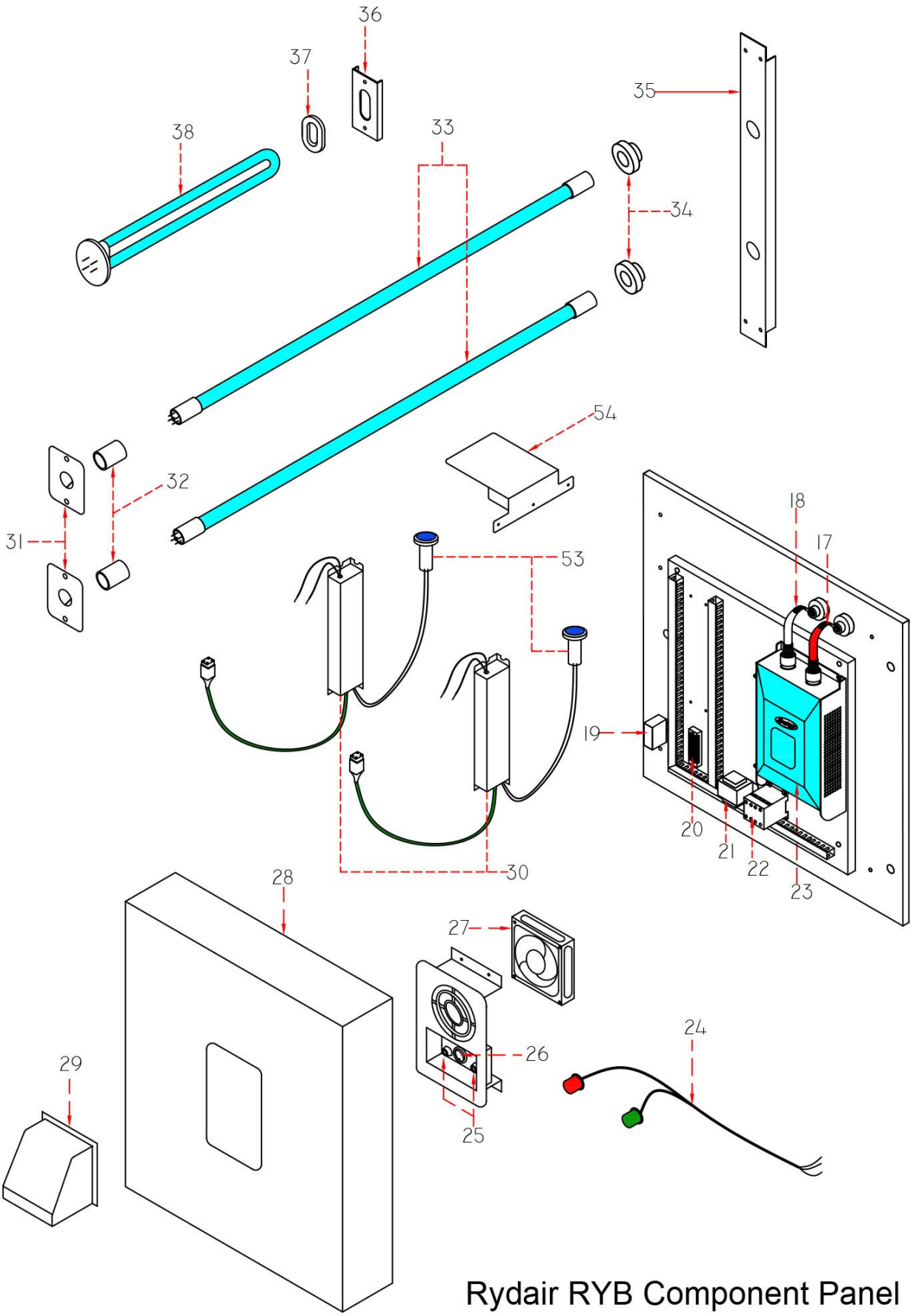
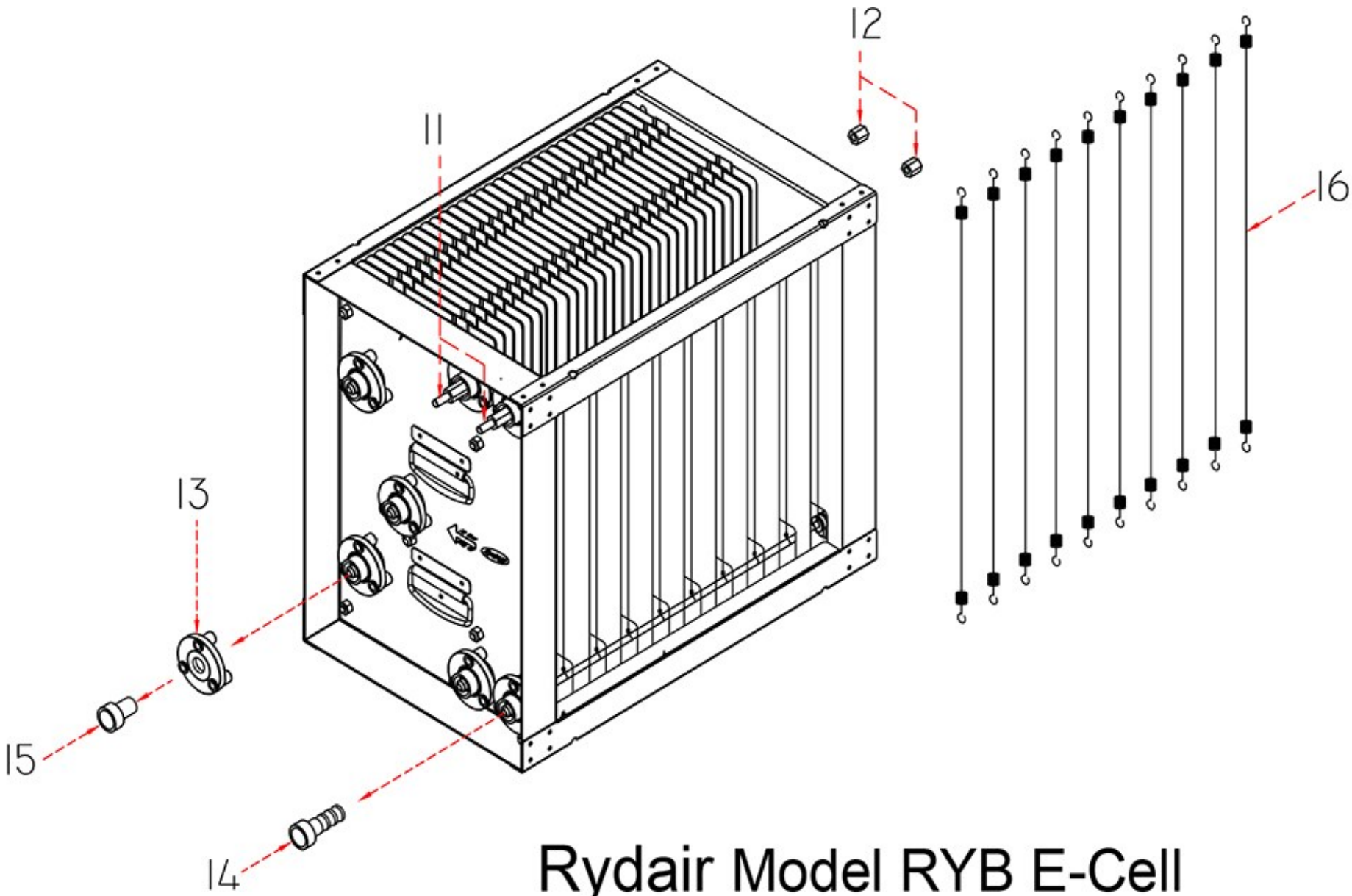
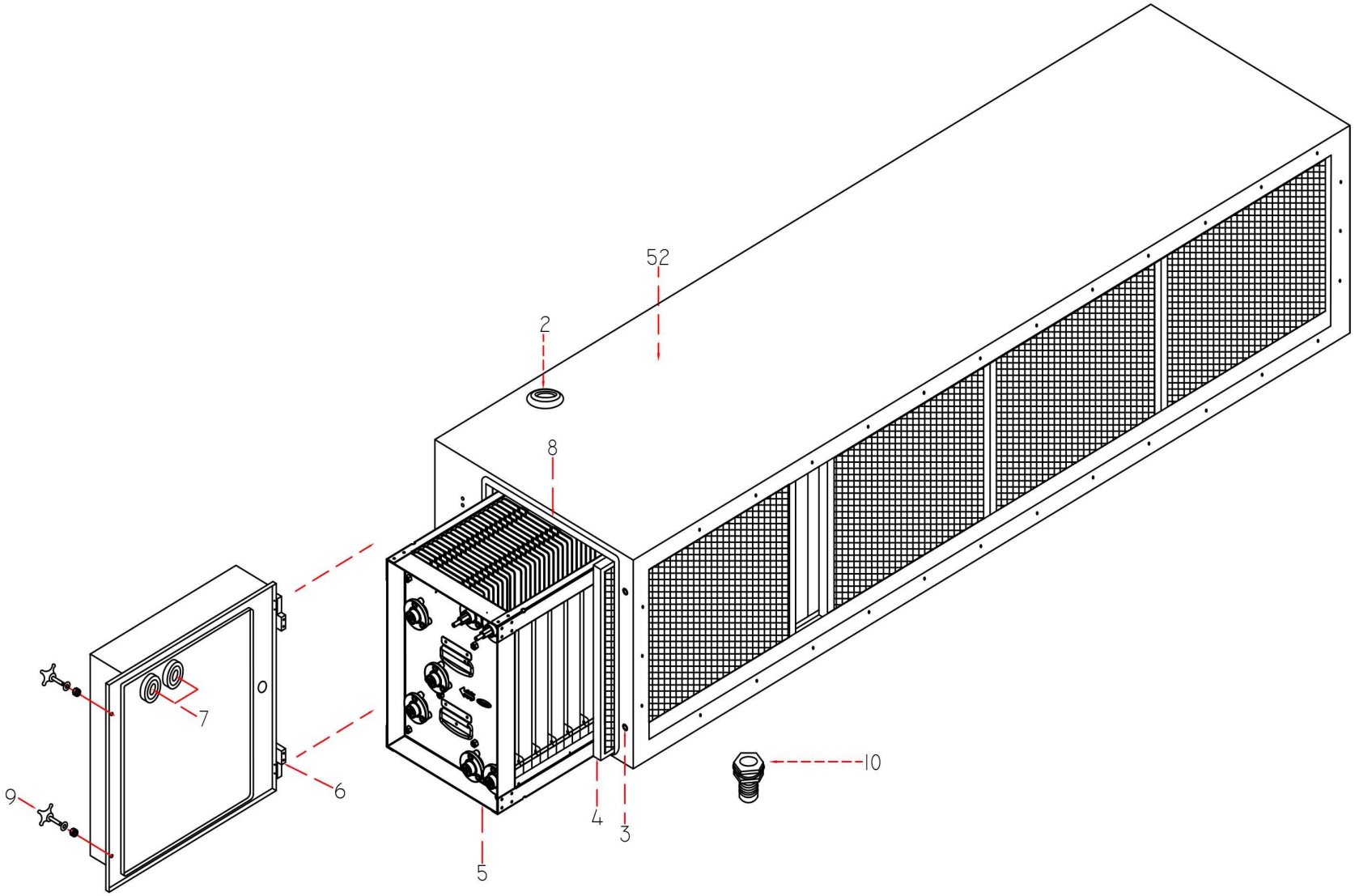


Rydair RYB Component Panel



Rydair Model RYB E-Cell



Rydair Electrostatic Air Cleaner Model RY10000B

Parts Catalogue: Rydair "B" Models

Date: 06 Jun 2017

No	Parts Description	Part No	Quantity					
			RY 2500B	RY 5000B	RY 7500B	RB 2400B	RB 4800B	RY 10000B
1	Rydair Electrostatic Air Cleaner Unit Model RY2500B (230Vac 50/60Hz)	11-9005-00						
1*	Rydair Electrostatic Air Cleaner Unit Model RY2500B (100Vac 60Hz)	11-9006-00						
1A	Rydair Electrostatic Air Cleaner Unit Model RY5000B (230Vac 50/60Hz)	10-9003-00						
1A*	Rydair Electrostatic Air Cleaner Unit Model RY5000B (100Vac 60Hz)	10-9004-00						
1B	Rydair Electrostatic Air Cleaner Unit Model RY7500B (230Vac 50/60Hz)	19-9001-00						
1B*	Rydair Electrostatic Air Cleaner Unit Model RY7500B (100Vac 60Hz)	19-9002-10						
1C	Rydair Electrostatic Air Cleaner Unit Model RB2400B (230Vac 50/60Hz)	13-9005-00						
1D	Rydair Electrostatic Air Cleaner Unit Model RB4800B (230Vac 50/60Hz)	12-9003-00						
2	Drain Plug Cap	60-S000-00	2	2	2	2	2	2
3	Cage Nuts (M6)	60-0009-00	2	2	2	2	2	2
4	Pre-Filter (550W x 475H x 20T)	50-0024-00	1	2	3	1	2	4
5	Electrostatic Filter Assembly (9 Wires) Size 340D x 476H x 547L	50-0025-00	1	2	3	1	2	4
6	Access Door Hinges Assembly- E cell	60-0001-03	2	2	2	2	2	2
7	Insulator assembly for H.T/L.T. Terminal- Door	40-0004-04	2	2	2	2	2	2
8	Access Door Gasket Set- E-cell	60-0010-00	1	1	1	1	1	1

No	Parts Description	Part No	Quantity					
			RY 2500B	RY 5000B	RY 7500B	RB 2400B	RB 4800B	RY 10000B
9	Door Knobs (50)	60-0011-00	2	2	2	2	2	2
10	Oil Drain Adaptor Assy (Optional)	60-0008-00	1#	1#	1#	1#	1#	1#
11	H.T./L.T. Contact-Front -(34/11)	50-0027-00	2	4	6	2	4	8
12	H.T./L.T. Contact-Rear -(20)	50-0028-00	2	4	6	2	4	8
13	E-Cell Insulator Assembly	50-0036-00	14	28	42	14	28	56
14	E-Cell H.T. Insulator Sleeve	50-0037-00	4	8	12	4	8	16
15	E-Cell L.T. Insulator Sleeve	50-0038-00	10	20	30	10	20	40
16	Ionising Wire Assembly (380L)	50-0026-00	9	18	27	18	18	36
17	H.T. Output Cable Red (180)	40-0017-00	1	1	1	1	1	1
18	L.T. Output Cable White (180)	40-0018-00	1	1	1	1	1	1
19	Micro Switch (Plunger Type)	40-0013-00	1	1	1	1	1	1
20	Terminal Block 6 ways	40-0007-00	1	1	1	1	1	1
21	Step-down Transformer 230/24Vac 50Hz (20VA)	40-0022-00	1	1	1	1	1	1
21A*	Step-down Transformer 100/24Vac 60Hz (20VA)	40-0016-17	1*	1*	1*	N.A.	N.A.	1*
22	Contactor 24Vac Coil	40-0009-16	1	1	1	1	1	1
23	High Frequency Power Supply 220V/ 50/ 60Hz(105RY-2)	40-0048-00	1	1	1	1	1	1

No	Parts Description	Part No	Quantity					
			RY 2500B	RY 5000B	RY 7500B	RB 2400B	RB 4800B	RY 10000B
24	Indicator LED Assembly (Green & Red)	40-0002-00	1	1	1	1	1	1
25	Indicator LED Housing	40-0008-19	2	2	2	2	2	2
26	ON/ Off Switch	40-0011-20	1	1	1	1	1	1
27	Panel Cooling Fan 230Vac (50/ 60Hz)	40-0010-18	1	1	1	1	1	1
27A*	Panel Cooling Fan 100Vac (50/ 60Hz)	40-0013-17	1	1	1	N.A.	N.A.	1
28	Door Cover	10-0006-00	1	1	1	1	1	1
29#	Rain Shield (Optional)	60-S007-21	1	1	1	1	1	1
30#	Ballast UV Ozone ULB-S-08-95-0 (w/ Socket)	40-0022-00	1	2	2	1	2	2
31#	Mounting Bracket Type 1 Ozone Lamp	30-0037-00	N.A.	2	2	N.A.	2	2
32#	Silicone Rubber Type 1 Mounting Ozone Lamp	60-0013-00	N.A.	2	2	N.A.	2	2
33#	UV Ozone Lamp 846mm (33") (Optional) (UVAGHO846T5VH)	40-0023-00	N.A.	2	N.A.	N.A.	3	N.A.
33A#	UV Ozone Lamps 1148mm (45") (Optional) (UVAGHO1148T5VH)	40-0024-00	N.A.	N.A.	2	N.A.	N.A.	2
34#	Silicone Rubber Mounting Type 2 Ozone Lamp (Optional)	60-0044-00	N.A.	2	2	N.A.	2	2
35#	Support Bracket Ozone Lamp (Optional)	30-0038-00	N.A.	1	1	N.A.	1	1
36#	Mounting Bracket Type 2 Ozone Lamp (Optional)	30-0039-00	1	N.A.	N.A.	1	N.A.	N.A.
37#	Silicone Rubber Mounting Type 3 Ozone Lamp (Optional)	60-0014-00	1	N.A.	N.A.	1	N.A.	N.A.
38#	UV Ozone Lamp 415mm (GU22-415T5VH/HO-R) (Optional)	40-0025-00	1	N.A.	N.A.	1	N.A.	N.A.

No	Parts Description	Part No	Quantity					
			RY 2500B	RY 5000B	RY 7500B	RB 2400B	RB 4800B	RY 10000B
39	Access Door Assy- Fan Housing	10-0008-00	N.A.	N.A.	N.A.	1	1	N.A.
40	Mounting Plate- Motor	30-0014-12	N.A.	N.A.	N.A.	1	1	N.A.
41#	Exhaust Grill (Double Deflection type 300 x 300) (Optional)	20-0002-00	N.A.	N.A.	N.A.	1	2	N.A.
42	Adjustable Mounting Bracket- Fan (370L mm)	30-0040-00	N.A.	N.A.	N.A.	2	N.A.	N.A.
43	Rubber Mounting Fan & Motor	60-0006-07	N.A.	N.A.	N.A.	8	8	N.A.
44	Centrifugal Fan Assembly (F/C Single)	30-0032-00	N.A.	N.A.	N.A.	1	N.A.	N.A.
45	Pulley- Fan side SPA 150-1	30-0034-01	N.A.	N.A.	N.A.	1	1	N.A.
46	Pulley- Motor side SPA 100-1	30-0011-11	N.A.	N.A.	N.A.	1	1	N.A.
47	Drive Belt -A42	30-0022-10	N.A.	N.A.	N.A.	1	1	N.A.
48	Motor Single Phase 230Vac 50/60Hz 1.5 horse power 4 poles	40-S000-13	N.A.	N.A.	N.A.	1	1	N.A.
49	Motor Housing Mounting Rubber (Set of 2 pcs)	60-0015-00	N.A.	N.A.	N.A.	1	1	N.A.
50	Motor Housing Mounting Bracket	30-0041-00	N.A.	N.A.	N.A.	1	1	N.A.
51	Adjustable Mounting Bracket- Fan (858L mm)	30-0042-00	N.A.	N.A.	N.A.	N.A.	1	N.A.
52	Rydair Electrostatic Air Cleaner Unit Model RY10000B	19-9006-00						
53#	LED Indicator Lamp UV Ozone (Optional)	40-0047-00	1	2	2	1	1	2
54#	UV Shield (Optional)	60-0043-00	2	2	2	2	2	2
55	Centrifugal Fan Assembly (F/C Twin)	30-0031-00					1	
Note:(1) Item (*) for 100Vac power supply only, (2) Item (#) is Optional Item								

Importance Note:

2 Cap Plugs provided must insert on to the Top & Bottom of the machine housing before installation