



**Upgrade Manual**

**Battery & Variable Speed Controller**

**- Air Separator**



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# Battery & Variable Speed Controller

## - Air Separator

Please replace the battery as described.

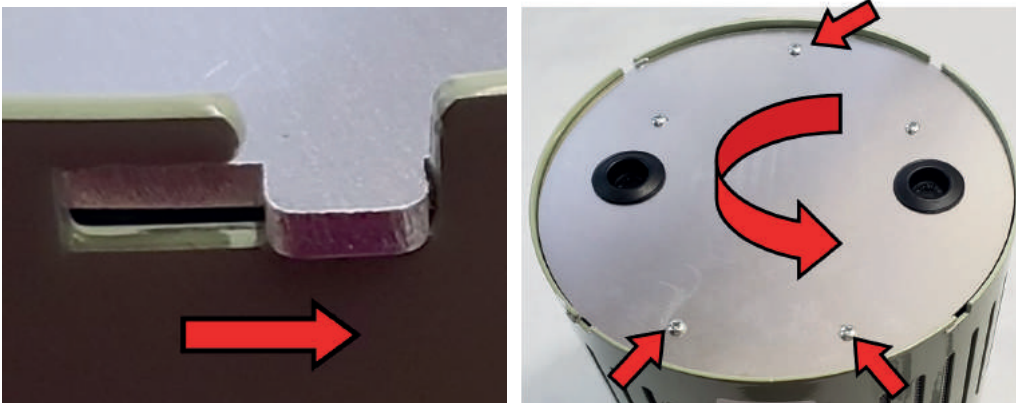
If your Air Separator currently has a variable speed function, please replace with this new controller as well.

**Make sure Air Separator is turned OFF for the entire procedure!**

### 1. Step 1: Unlock bottom plate

1.1 Turn your Air Separator upside down and remove the 3 outer most screws on bottom cover of unit (see below).

1.2 Rotate the bottom plate counter clock-wise about 1/2" to align locking tabs with slots . You can use the 2 rubber grommets to help you rotate the plate .

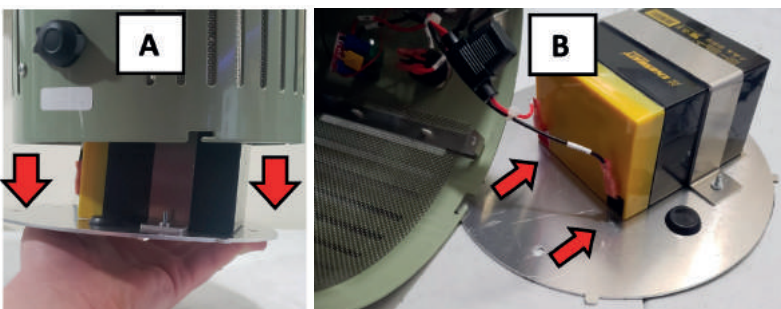


### 2. Step 2: Remove bottom plate

2.1 Place your hand on the bottom plate and rotate the whole unit upright or sideways.

2.2 Allow the bottom plate to move away/come out from the tube into your hand. DO NOT let the bottom plate fall on its own! This will damage the wiring (A).

2.3 Carefully lay down the tube beside the bottom plate on a table and un-plug the battery wires from the battery (B).



## Next steps, while the Air Separator is open:

### Step 3: Remove old controller

3.1 Remove the plastic controller knob.

3.2 Remove the nut and washer using a 10mm Deep socket or Wrench (using pliers may result in paint damage).

3.3 Remove the controller from the mounting hole from inside the tube.

3.4 \*To remove knob just pull it off. No tools required.



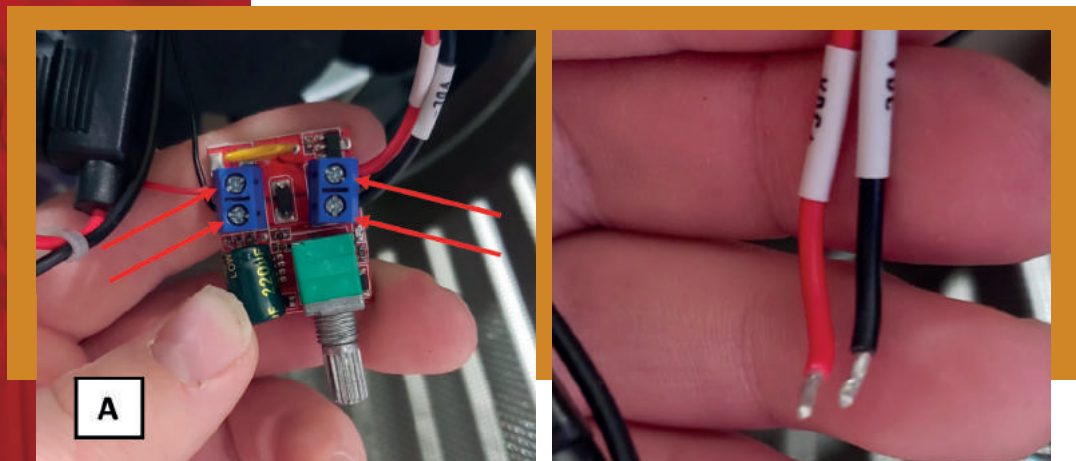
### Step 4: Disconnect old controller

**[Tip: keep the old controller as a spare part for the future, just in case]**

4.1 Loosen the 4 screws in the terminals on the top of the controller with a small Philips for Flathead screwdriver (A).

4.2 Remove wires from terminals.

4.3 It's a good idea to make note of the wire locations to assist you when re-installing them later.



## Step 5: Connect power to the new controller

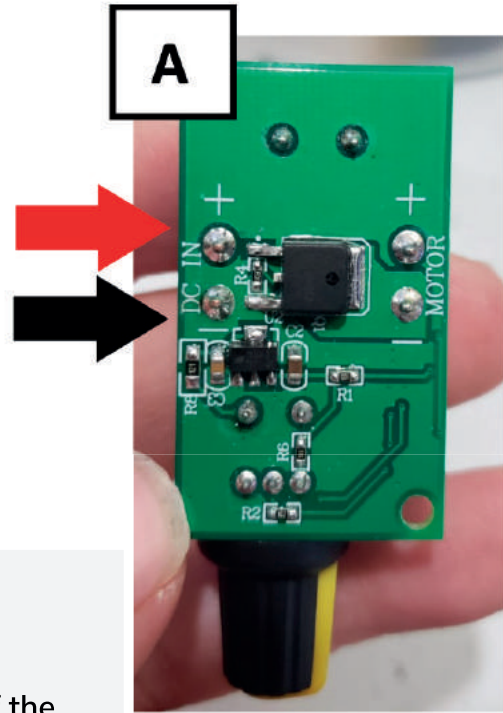
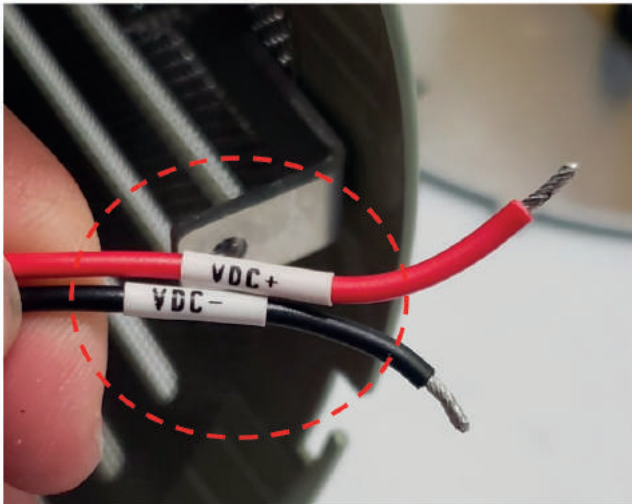
5.1 Loosen terminal screws on the “DC IN” side of the controller (A).

5.2 Connect the wires that are labeled VDC+ and VDC- to the “DC IN” side of the new controller (as shown below).

5.3 The (RED VDC+) Wire goes to (DC IN +) on the new controller.

5.4 The (BLACK VDC-) Wire Goes to (DC IN -) on the new controller.

5.5 Tighten terminal screws with screwdriver and lightly pull on the wires to make sure they are properly connected and will not come out.



## Step 6: Connect the fan to the new controller

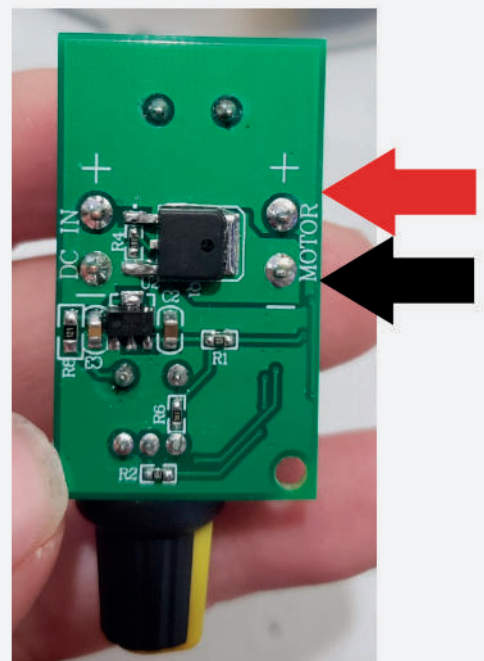
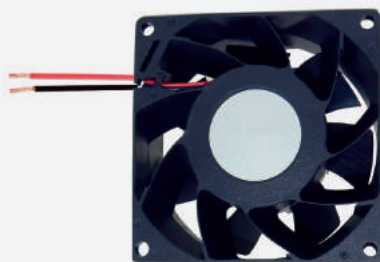
6.1 Loosen terminal screws on the “MOTOR” side of the controller (motor side shown below).

6.2 Connect the thinner wires from the fan to the “MOTOR” side of the new controller.

6.3 The (RED) Wire goes to (MOTOR +) on the new controller.

6.4 The (BLACK) Wire Goes to (MOTOR -) on the new controller.

6.5 Tighten terminal screws with screwdriver and lightly pull on the wires to make sure they are properly connected and will not come out.



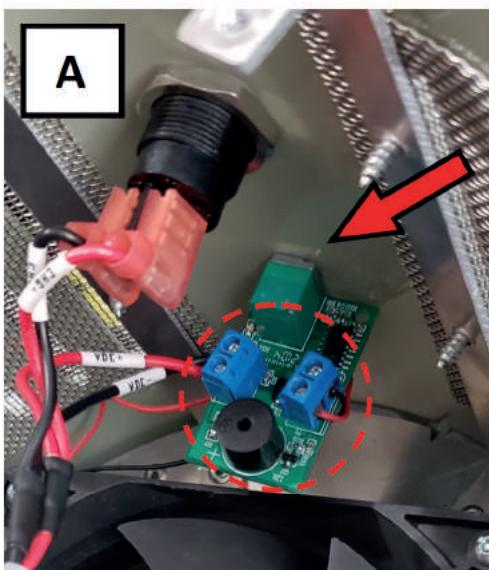
## Step 7: Install new controller

7.1 Install the controller shaft in mounting hole (A). Make sure that no wires will be able to contact/touch the fan blades during operation. Install the controller with the terminals and buzzer (marked in red circle in A) in the downward position (means buzzer pointing away from the fan blades, as shown in A).

7.2 Re-install washer and nut and hand tighten with 10mm Deep socket or Wrench. Tighten the nut just enough that the controller is solidly mounted and does not move. DO NOT OVERTIGHTEN!

7.3 Fully rotate controller shaft counter clockwise to the off position to properly align it (B).

7.4 Put plastic knob on controller shaft with the pointer facing down.



### New controller functions

- Controller will beep for approximately 2 seconds when there is 5 minutes of battery life (or less) remaining.
- Unit will automatically shut off when battery is fully depleted. It is recommended that you charge unit immediately to prevent battery damage.

**\*Please note** that turning the knob to full speed immediately upon powerup may cause battery voltage to drop rapidly resulting in a false low voltage alarm.

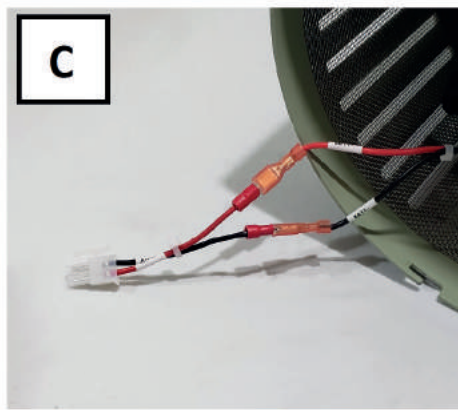
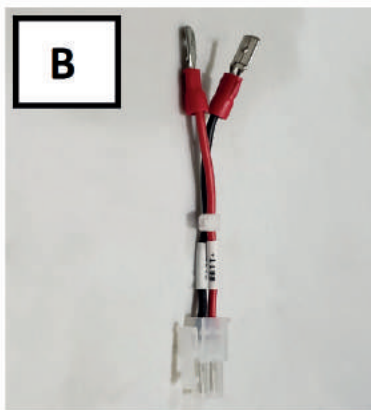
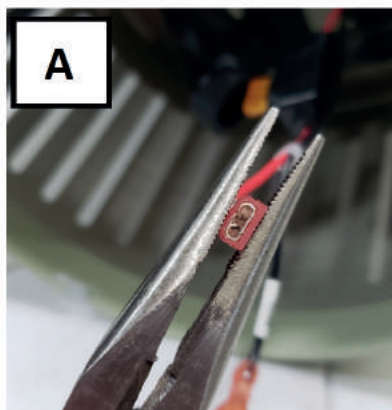
To replace battery. Please continue on next page:

## Step 8: Connect battery adapter to Air Separator harness

8.1 Use pliers to lightly compress the female wire harness terminals of the Air Separator harness (A). This will allow them to make a tight connection with the adapter.

8.2 Connect the adapter (B) to the harness terminals. Make sure matching up red to red and black to black (C).

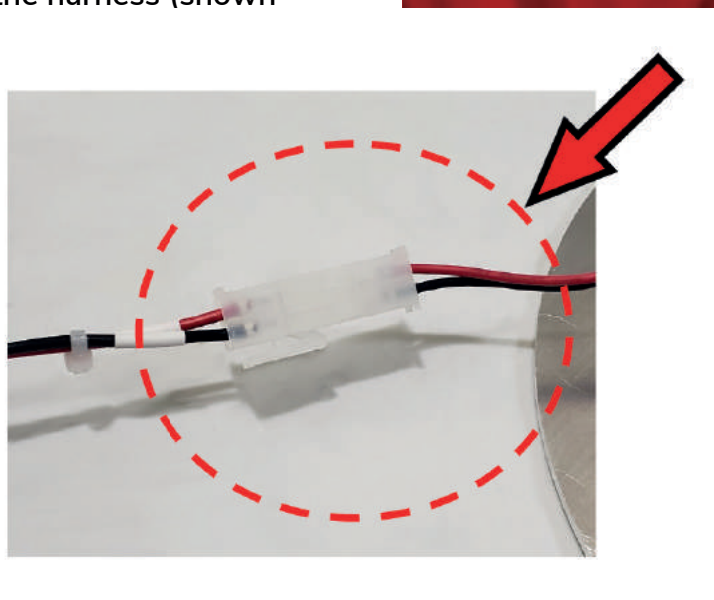
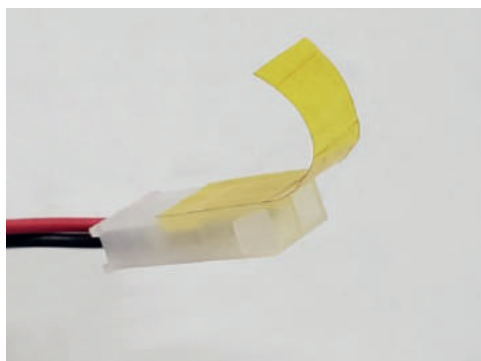
8.3 Ensure the terminals do not come apart easily. If they do you will need to compress the terminals a bit more.



## Step 9: Connect new battery

9.1 Remove protective tape from battery connector.

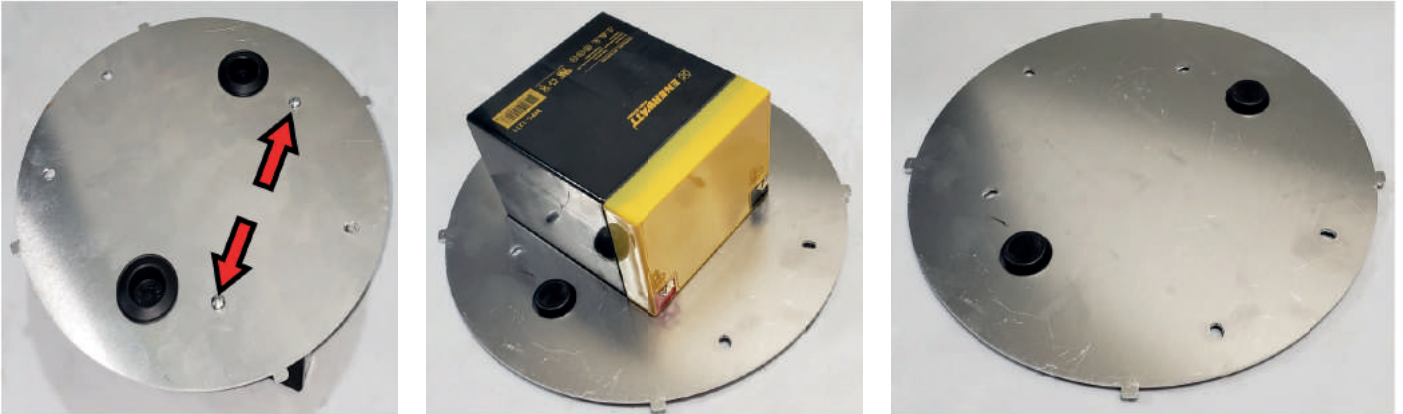
9.2 **NOTE:** Make sure Air Separator is turned off! Then: Connect the battery connector to the harness (shown below).



## Step 10: Remove old battery of the bottom plate

10.1 Remove the 2 screws that secure the square battery bracket (see below).

10.2 Remove old battery from bottom plate.



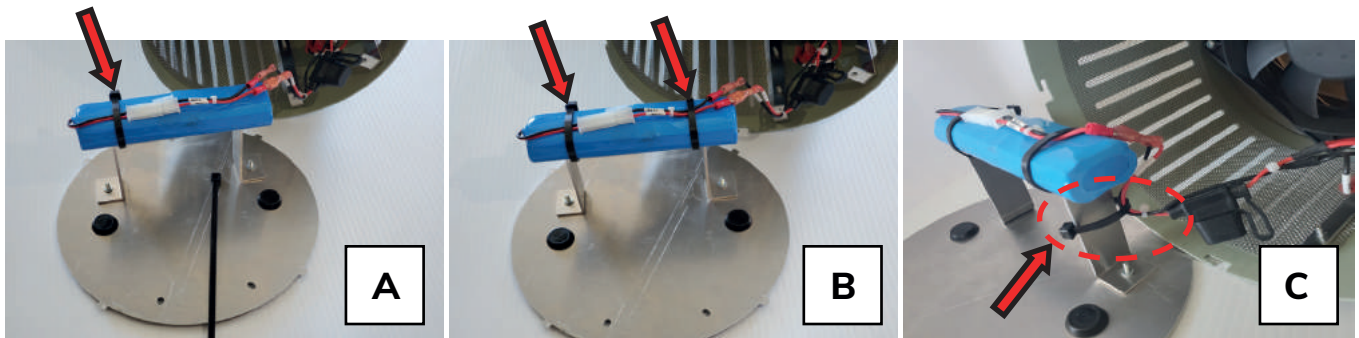
## Step 11: Mount the new battery

11.1 Re-attach the square bracket to the bottom plate with the original screws.

11.2 Place the new battery to the top of the original square battery bracket. **NOTE:** The battery has a noticeable flat side, place the battery with the flat side onto the bracket for best fit.

11.3 Mounting the battery requires to make sure the wires are laying across the top of the battery and are secured in place with both zip ties, as shown below in step A & B. (Easiest to start on the battery connector side to tie it down with first zip tie A).

11.4 Secure the harness wire to the side of the square bracket with the third zip tie to make sure the harness will not get into the fan while operating (C).



## Step 12: Re-assemble unit

12.1 Re-install bottom plate.

12.2 Insert the bottom plate carefully into the slots (slots described on page 2) and double check that the harness is not able to touch the fan blades.

12.3 Tighten original screws.

12.4 Try a test run of the Air Separator fan.







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