



UT-ID 0.1.6-19

Installing the UNITEC Cab Air
Purifier VP-761152

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PUBLICATION CATALOGING DATA

First Issue:	August 2020
Revision	
Master Index Control Number:	
Part Number:	UT-ID 0.1.6-19

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Table of Contents

How Bipolar Ionization Cleans the Air of Pollutants.....	2
Ordering from Unitec Parts	2
Installation	3
Installing the Cab Air Purifier Example	5
Options for Different Types of Fans	7
AAA24720T6 Type Fan	7
Nylube X12F9.....	8
Appendix A: Part Numbers	10

How Bipolar Ionization Cleans the Air of Pollutants

Much like sunlight does in the atmosphere, Plasma Air technology produces a natural bioclimate rich in positive and negative oxygen ions. The negative ions contain an extra electron, while the positive ions are missing an electron resulting in an unstable condition. To re-stabilize, these bipolar ions seek out atoms and molecules in the air to trade electrons with, effectively neutralizing particulate matter, bacteria and virus cells, odorous gases, aerosols, and VOCs.

Ordering from Unitec Parts

- If your elevator has a properly functioning fan with air flow directed inward, or capability of reversing the airflow, order **part number VP-761152**.
- If your elevator does not have a fan or needs a new fan, order from Unitec Parts **part numbers VP-761152** and **AAA24720T6** (the 120VAC – single speed cab fan assembly).

Pre-Conditions, Scope of Work

- The existing elevator cab must have both a 120VAC fan and the airflow directed by that fan from outside to inside the elevator.
NOTE: If your existing fan carries a voltage other than 120VAC, there are still options, but contact UNITEC.
- If your existing elevator **does not** have a cab fan now, UNITEC can offer a fan, but all wiring, keyswitch and circuit provision for such newly installed fans must be handled locally by a trained mechanic.
- If a new fan is added to the existing elevator, or a new fan installed in place of a presently non-functional fan, a 4-inch hole must be present or incorporated in an appropriate location in the cab for the new fan. The airflow direction of the fan must be from outside the elevator to the inside.
- The new cab air purifier is then mounted to the existing or new fan.

Installation

The UNITEC cab air purifier p/n VP-761152 works on 120VAC, must be coupled with an existing fan, and works on just about any cab configuration where the air is blown into the cab rather than exhausted from it. For most newer Otis installations, it is as easy as removing the existing fan assembly, drilling out the rivets holding the fan to the housing and turning the fan around, so it now blows into the cab. Reattach the fan and then attach the ionizer to the fan housing. Wire the device to the existing fan power source and then reinstall the fan to the cab. There is an inline 1/2-amp fuse for the ionizer, so place it for easy access.

Tests were conducted using a new installation G2S cab and fan (p/n AAA24720AB1) on a 200-fpm car. The fan, when unrestricted, will move an adequate amount of air for the cab air purifier to supply the recommended number of ions per cm^3 to be effective.

Since there are many different types of fans used, we could not possibly test each type. We have, however, included three most common examples. What's important to remember is that the ionizer works best when air is drawn across, or blown over, and then into the cab.

If the cab uses a squirrel cage type of fan, consider changing it to one of the recommended types. Squirrel cage type fans do lend themselves well to being reversed, so air blows into the cab.

Several factors, such as car speed, fan location, and stack affect within the building can influence the efficiency of the ionizer.

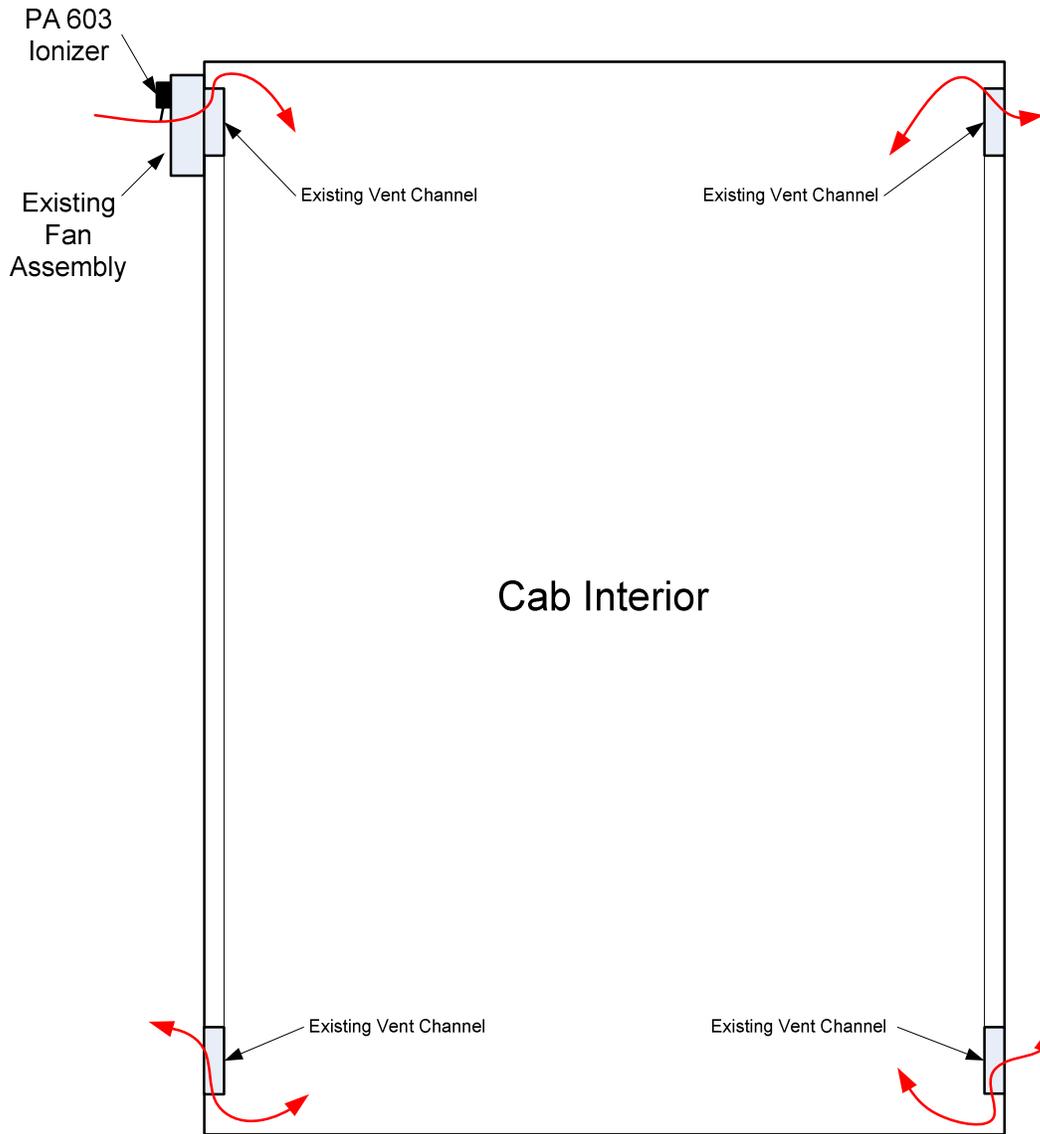


Figure 1: New Construction G2S Cab

Installing the Cab Air Purifier Example

For New Equipment G2S cab (others to be similar), follow these steps to install the ionizer.

1. Gain control of the elevator.
2. Gain access to the car top, then open the main line disconnect. **Lock out, tag out, and test and verify.**
3. Locate the building feed for the car lighting and fan circuit and turn off the breaker. **Lock out, tag out, and test and verify.**
4. Remove the panel on the right rear corner of the car top to gain access to the fan wiring.
5. Use a 13 mm wrench to remove the two bolts holding the fan assembly to the side wall of the cab at the right rear corner.
6. Remove the grommet and wires where they pass through the cab wall.
7. Use a 3/16 in. drill bit to drill out the rivets holding the fan motor to the housing.
8. Reverse the fan motor and reattach it to the housing with 3/16 in. rivets or other suitable fasteners such as 10-32 or M5 hardware.
9. Locate the ionizer as shown in Figure 2 and mark the two mounting holes. Try to locate the device so the antenna wires are directly over two of the square vent holes.

NOTE: Make sure the antennas are spaced away from the fan housing. They cannot be allowed to short out against the fan housing or any other conductive surface. If necessary, they can be bent away from the housing slightly.
10. Mount the ionizer using suitable 10/32 or M5 hardware.
11. Drill a 5/16 hole in the location shown below the ionizer and install the grommet.
12. Once the ionizer is mounted, run the wires from it through the grommet and inside the housing with the existing fan wires (see Figure 2).
13. Reinstall the fan and the grommet with all the wires running through it.
14. Splice the wires for the ionizer into the wires for the fan using a suitable method, such as the Wago 221-413 lever nut splicing connector (see Figure 3).
15. Reinstall the access panel on the car top.
16. Remove the LOTO and turn on the main line and car lighting circuit breakers.

17. Access the car top and verify that the fan is working and the green LED on the ionizer is on.
18. Return the car to normal service.



Figure 2: Ionizer Mounted to AAA24720AB1 Fan Housing



Figure 3: Wago 221-413 Lever Nut Splicing Connector

Options for Different Types of Fans

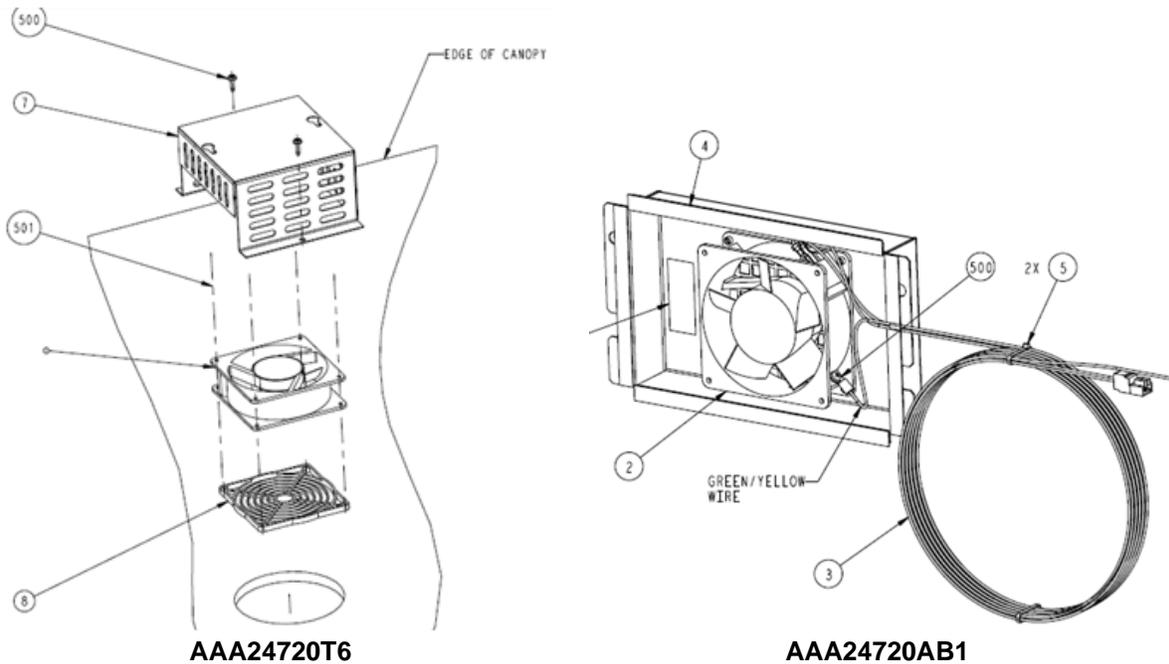


Figure 4: Example of Existing or New Fan to be Installed

AAA24720T6 Type Fan

Another option would be to use the p/n AAA24720T6 fan assembly and mount the ionizer to the inside cover. This fan assembly could be adapted to just about any cab and only requires a 4 in. hole. When mounting the ionizer to the cover of the fan assembly, space the ionizer 1/2 in. off the cover to allow better airflow across the antennas (see Figure 5).

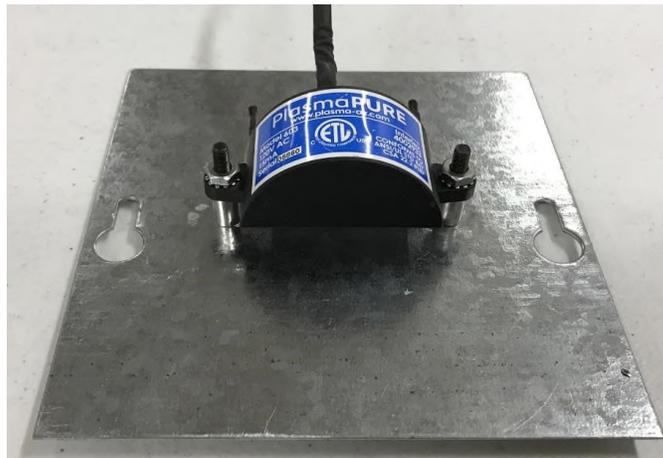


Figure 5: Ionizer Mounted to the Cover of an AAA24720T6 Fan Assembly

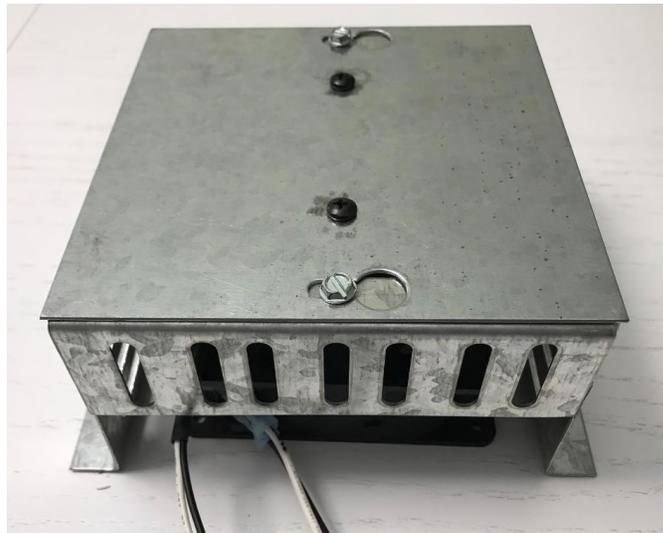


Figure 6: AAA24720T6 Fan Assembly

Nylube X12F9

The ionizer can be mounted directly to the side of the Nylube fan by using 10/32 hardware or by zip tying it directly to the housing close enough to the wiring junction box in order to limit the amount of exposed wiring. Always mount the ionizer to the side of the fan so the antennas are pointing down to limit the possibility of something accidentally contacting them. Since most Nylube fans are designed to exhaust the air from the cab, replace the fan blade with the type that blows air into the cab. See Appendix A for the replacement blade part number. Wire the ionizer into the low speed circuit, which is the black and white wire, and run it on low speed. If it is a large cab or the customer prefers to run the fan at high speed, then the white wire of the ionizer will go to the red wire of the fan. Another option would be to add a second ionizer and wire it to the high-speed circuit so that one of the ionizers is powered while the fan is operating.



Figure 7: NYLBX12F9 Nylube Fan with Air Purifier

Appendix A: Part Numbers

The following table lists all part numbers this document mentions.

Table 1: Related Part Numbers

Description	Part Number
Cab Air Purifier 120 Volt AC	VP-761152
Otis Fan Assembly, 120VAC (min fan rating = 53 CFM)	AAA24720AB1
Otis Fan Assembly, 120VAC (min fan rating = 53 CFM)	AAA24720T6
Nylube Two-Speed Fan Assembly, 120VAC	NYLBX12F9
Mounting Hardware 10-32/M5 (Obtain Locally)	---
Nylon Wire Ties 7 in.	AAA652AA7
Wago Splicing Lever Nut Connector (pack of 50)	COMM221-413
Wago Splicing Lever Nut Connector (Single)	AAA303EP206
5/16 in. Grommet (McMaster Carr)	9600K39
1/2 in. Aluminum Spacer (McMaster Carr)	92510A645
4 in. Hole Saw (McMaster Carr)	4066A56
Abor with Pilot Drill (McMaster Carr)	4066A63
Nylube Fan 12 in. (X = Exhaust)	NYLBX12F9
Reversing Blade for Nylube X12F9 Fan	NYLB2146
Nylube Fan 12 in. (P = Pressure)	NYLBP12F9
Stainless Steel Grille for 12 in. Nylube Fan	NYLB1600