ION DISTRIBUTION UNIT
USER'S GUIDE

Part Number **ACA4800GU-1**

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Cleaning the Air We Breathe in Flight

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ION DISTRIBUTION UNIT

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ION DISTRIBUTION UNIT

SPECIFICATIONS

ION Delivery System

Bipolar Ionization Unit

110 VOLT
1/2 HP MOTOR
2 SPEED
1,700 RPM
23 POUNDS
Part Number ACA4800GU-1

2,800 CFM
4.5 AMP BLOWER
25'18 AWG CORD
GROUND PLUG

Electron Volt Potential: <12

Output: Up to 2 million positive (H+) and negative (O2-) ions

Pressure Drop: 0.05"W.C. @5,000 FPM

Electrode Material: carbon fiber

Tempurature Range: -65°C to +85°C

Humidity Range: 0-99% non-condensing

Does not produce ozone

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ION DISTRIBUTION UNIT

Double Unit Configuration:

Extreme care must be used entering the cabin with the ION DISTRIBUTION UNIT (IDU). Do not damage the IDU or interior.

Unit 1 should be placed in the aisle near the bulkhead facing forward. Place unit in the 45° operational position *(see chart below)*.

Unit 2 should be placed 180° from unit 1 facing aft. Maintain the recommended 45° operational position *(see chart below)*.

Each unit should be plugged directly into a 110V dedicated grounded power supply. If a direct power supply is not available, 2 separate grounded, outdoor-rated, 16 gauge or higher extension cords may be used when properly plugged into a grounded 110V dedicated power supply. When the IDU is plugged in, the ionizer display will illuminate and cycle "GPS," "0000," "ON." This means the ionizer is producing +/- ions.

Turn on both ION DISTRIBUTION UNITS and allow to cycle for 1 hour. Exit the aircraft ensuring that all doors are tightly closed. It is important for both areas to reach a target of 6000 ions/cm³.

Unplug ION DISTRIBUTION UNITS and remove from craft. Store in a dry, contaminant free location for future use.

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ION DISTRIBUTION UNIT

Single Unit Configuration:

Extreme care must be used entering the cabin with the ION DISTRIBUTION UNIT (IDU). Do not damage the IDU or interior.

Unit should be placed in the center of the forward bulkhead facing forward. Place unit in the 45° operational position *(see chart below)*

Unit should be plugged directly into 110V grounded power supply. If a direct power supply is not available, a grounded, outdoor rated, 16 gauge or higher extension cord may be used when properly plugged into a grounded 110V power supply. When the IDU is plugged in, the ionizer display will illuminate and cycle "GPS," "0000," "ON." This means the ionizer is producing +/- ions.

Turn on IDU power switch and allow to cycle for 1 hour. Exit the aircraft ensuring that all doors are tightly closed. It is important for entire forward area to reach a target of 6000 IONs/cm³.

After the forward area reaches its target time / ion count, turn off machine and rotate 180° to aft facing position. Maintain the recommended 45° operational position *(see chart below)*.

Turn on IDU power switch and allow to cycle for 1 hour. Exit the aircraft ensuring that all doors are tightly closed. It is important for entire aft area to reach a target of 6000 ions/cm³.

Unplug ION DISTRIBUTION UNITS and remove from craft. Store in a dry contaminant free location for future use.

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Air Ion Counter

Part Number AIC2MJ *(Sold separately)*

Product Description:

The Air Ion Counter is a handheld meter designed to measure ion density–the number of ions per cubic centimeter **(ions/cc)** in air. It measures this number separately for positive and negative ions **(+ and – ions are usually present simultaneously)**. This instrument is a true ion density meter, based on a Gerdien-Tube **(Gerdien Condenser)** design, and it contains a fan which pulls air through the meter at a calibrated rate. The standard model measures up to 2 million ions/cc **(for comparison, out-door air typically has 100 to 1000 ions/cc, both + and -)**. The 2 million range is sufficient for almost all situations.

1. MOVE TO A LOCATION WHERE NO IONIZATION IS BEING PRODUCED **(Outside of the treatment area)** with Ion Counter OFF **(the center dial)**.
2. Polarity toggle switch in the Neutral position **(middle position)**.
3. Measure toggle switch in the Standby position **(bottom position)**.
4. Turn knob switch **(at the bottom of the counter)** to 19.99 position.
5. Allow Counter to reset to near 0.00 on screen. **(0.07 to 0.00)**. This will recalibrate the meter to Zero so the readings you receive will not include the naturally occurring existing positive/negative ions in the test. If the unit reads above 0.07 after 30 seconds, you can manually adjust the meter to within the suggested rage of 0.00-0.07 using the "Offset" dial.
6. At the same time flip both the polarity toggle switch and the measure toggle switch UP. You are now reading positive background ion counts. It will start at 1 but will drop steadily **(normally 0.20 to 2.00)** in 10 to 15 seconds. When the Counter has settled somewhere in this range then move to the area [close proximity] of the ACA Component under test. SET UP COMPLETE.
7. Turn ON the Power to the ACA Component and then…
8. Make certain the ACA Component is ON. The ACA Component has a green LED Light to indicate ionization is being produced.
9. The Ion Counter should rise to read +1 **[when held near the ACA Component]** within a very short time. **(10 to 30 seconds)**. However, any reading above 6.00 is acceptable to pass at the lowest setting.
10. After you are satisfied with the positive reading flip the Polarity toggle switch to the negative position. Do not move any of the other switches on the Ion Counter.
11. The Ion counter should read -1 within a very short time **(10 to 30 seconds).** If there are sufficient negative ions the reading on the screen may never move or show anything other than -1. This is fully acceptable as the test for the negative ion count verification. You can turn the range dial to see the number of positive/negative ions in the area being tested. As you adjust the dial remember you are now changing to a higher multiple of ions, the value displayed is times 1000 ions/cm3, and each position of the dial changes the value times 10.

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ION DISTRIBUTION UNIT

Maintenance and Storage

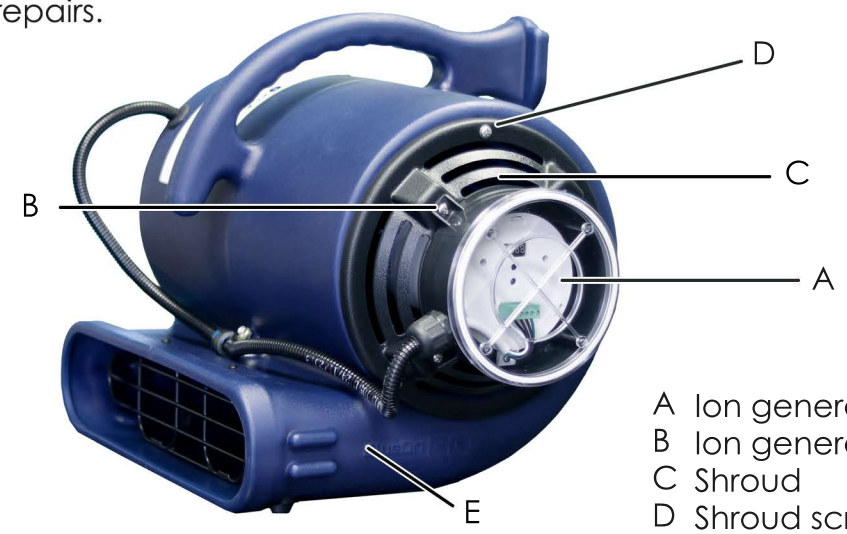
The ION DISTRIBUTION UNIT is a precision machine with an advanced bipolar ion generator and many moving parts. The unit should be unplugged at all times when not in use.

This IDU should be carefully wiped down after each use with a mild cleaner. Do not spray unit directly. Spraying unit directly may cause damage to the ion generator or fan motor. Spray cleaner on soft microfiber or cotton towel. Wipe gently until all contaminants are removed. Use extra caution around the ION generator.

Closely inspect the IDU before and after each use. Check ion generator attaching hardware to make sure ion generator does not come loose from blower housing.
If ion generator should come loose from blower housing, unplug the machine immediately.
Visually inspect the IDU to see if the (A) shroud is loose from the blower housing or (B) ion generator is loose from the shroud.

If (A), carefully tighten 3 the phillips screws. Be careful not to over-tighten as you may cause damage to the blower housing requiring further repairs.

If (B), unplug IDU. Remove the 3 phillips screws holding shroud to blower unit. Carefully pull shroud away from blower housing. Using an 11/32 wrench or socket on the inside and phillips screwdriver on the outside, carefully tighten all 4 nylon locknuts that hold ion generator to shroud. Reattach shroud to blower by carefully tightening 3 phillips screws. Be careful not to over-tighten as you may cause damage to the blower housing requiring further repairs.



A Ion generator
B Ion generator attaching screws (4)
C Shroud
D Shroud screws (3)
E Blower unit

Special precautions should be taken while handling the IDU to make sure you do not bump it causing damage to the IDU or the area around it.

The unit should be unplugged at all times when not in use and should be stored in a clean, dry environment away from the all elements including excessive heat, moisture and direct sunlight. The shipping box should be kept for storage or shipping to other sites. The cord should be securely wrapped around the handle to avoid damage to both the ion generator and blower motor.

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ATTENTION! Read all safety rules carefully before operating the ION DISTRBUTION UNIT
Please retain this manual for future reference.
NEVER operate this unit when flammable materials or vapors are present
- electrical devices produce arcs or sparks which may cause a fire or an explosion.
NEVER operate this unit unattended.

- Read and understand this manual and all labels on the ION DISTRBUTION UNIT before operating.
- Use product only as described in this manual.
- To reduce the risk of electric shock, do not expose to rain, immerse in or use in standing water.
- Store indoors only.
- Use only with GFCI-protected outlets.
- Electrical appliances can ignite flammable vapors or dust. Do not use near combustible liquids, gases or dusts.
- Do not leave plugged into outlet when not in use or when servicing. Turn off before unplugging.
- To reduce the risk of stirring up and inhaling toxic vapors, do not use near toxic or hazardous materials.
- Never operate with safety grills removed.
- This unit has an automatically-operated protective device which may shut down the unit during operation. Unplug before servicing or cleaning.
- Do not use with solid state speed control device.
- Do not allow to be used as a toy. Close attention is necessary when used by or near children.
- Do not unplug by pulling on cord. To unplug, grasp the plug, not the cord.
- Do not use with damaged cord, plug or other parts.
- Call customer service if your ION DISTRBUTION UNIT is not working as it should, has missing parts, has been dropped, damaged, left outdoors or dropped into water.
- Do not pull or carry by cord, use cord as handle, close a door on cord, or pull cord around sharp edges or corners. Keep cord away from heated surfaces.
- Do not run cord under carpeting. Do not cover cord with throw rugs, runners or similar coverings.
- Do not route cord under furniture or appliances. Arrange cord away from traffic area and where it will not be tripped over.
- Do not handle plug, switch or the air mover with wet hands.
- Do not put any object into air intake openings.
- Keep hair, loose clothing, fingers and all parts of the body away from openings and moving parts.
- Direct air discharge only at work area. Do not direct air at bystanders.

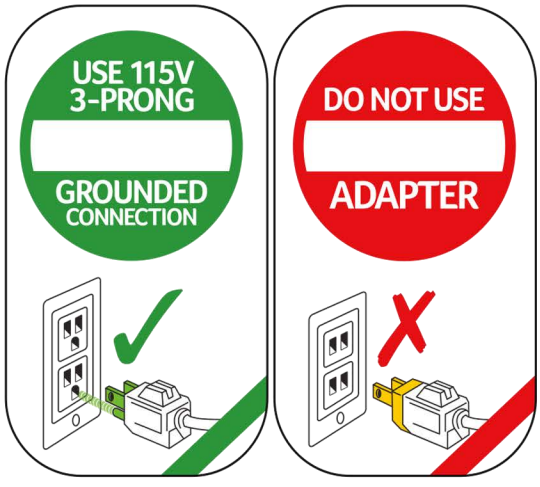
CAUTION:
- For dusty operations, wear dust mask.
- Do not move or carry air mover when it is operating.
- Only operate on a level and stable surface to prevent it from falling and possibly causing injury or damage to unit.

WARNING!
To reduce the risk of electric shock, connect only to a GFCI protected outlet. Do not expose to water.

CAUTION:
- This ION DISTRBUTION UNIT has an automatic motor shutoff device. It may restart without notice.
- To reduce the risk of injury, unplug before servicing.

WARNING! Improper connection of the equipment-grounding conductor can result in the risk of an electric shock. Check with a qualified electrician or service person if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with the appliance. If plug does not fit the outlet, have a proper outlet installed by a qualified electrician

NOTE: The use of a temporary adapter is not permitted.



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The ION DISTRIBUTION UNIT uses Bipolar Ionization technology designed to provide clean air and sanitized surfaces in enclosed environments.

Part Number ACA4800GU-1

How it Works:

The Ion Distribution Unit is not a filter. The Ion Distribution Unit electronically creates positive and negative ions from hydrogen and oxygen molecules in the water vapor present in the air. This replicates nature's cleaning process with nothing else added. These ions have the property of clustering around micro particles, gases, airborne mold spores, viruses and bacteria. As this occurs, a natural reaction takes place on the cell membrane surface of airborne biological(s) where they rob the harmful biological of a hydrogen atom. As a result, the pathogens are inactivated and odors are disassembled naturally. The pathogen will not be able to reproduce and will quickly die and the odors are converted to virtually pure air thereby eliminating the threat of the pathogens and odors to human health and comfort.

Airborne and Surface Fungi:

The positive (H+) and negative (O2-) ions cluster together on the surface of airborne fungi, causing a natural reaction that results in the creation of OH groups called hydroxyls. The hydroxyls take a hydrogen molecule from the cell wall of an airborne fungi particle. This inhibits the growth and or infestation of mold and in turn [as a by benefit] controls the musty odors related to mold growth (sour sock smell). This process is a replication of nature's method for inactivating airborne fungi with nothing else added.

Airborne and Surface Virus:

The positive (H+) and negative (O2-) ions surround the hemagglutinin (surface proteins that form on organisms and trigger infections) and change into OH groups called hydroxyls. These groups take a hydrogen molecule from the hemagglutinin and change it into water (H2O). The ions destroy the virus surface structure. It envelops the structure of the virus on a molecular level. As a result, the virus cannot infect even if it enters the body. This process is a replication of nature's method for inactivating airborne and surface viruses with nothing else added.

Airborne and Surface Allergens:

The positive (H+) and negative (O2-) ions surround the allergen and change into hydroxyls. The hydroxyls then deactivate the molecules of the IgE antibody-binding site of the allergen. No allergic symptoms occur even if allergens enter the body. This process is a replication of nature's method for inactivating airborne and surface allergens with nothing else added.

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ION DISTRIBUTION UNIT Warranty

ACA / International AERO Engineering warrants this product to be free from defects in materials or workmanship under normal use. All warranty periods begin on the date of original delivery and are for the duration, in years, listed below. If a part fails due to defect during the applicable warranty period ACA / International AERO Engineering will repair or replace, at ACA / International AERO Engineering's discretion, the defective part at no charge. Except as otherwise stated herein, those are ACA / International AERO Engineering's exclusive obligations under this warranty for product failure. All warranties in this document are subject to all provisions, conditions, limitations and exclusions listed below.

Limited warranty — Available on qualifying models only, see chart below for list of covered models and duration of warranty. Available to original purchaser only and is non-transferable. If the blower or Ion Generator fails due to manufacturer defect during the limited warranty time period, ACA / International AERO Engineering will repair or replace, the unit at ACA / International AERO Engineering's discretion. Proof of purchase will be required. Limited warranty replacements are subject to review and verification by an ACA / International AERO Engineering representative. The remaining balance of the original unit's standard warranty will be transferred to the replacement unit. This limited warranty is subject to all provisions, conditions, limitations and exclusions listed below.

PRODUCT FAMILY	MODEL	WARRANTY (BLOWER & ION GENERATOR)
ION DISTRIBUTION UNIT	ACA4800GU-1	*1 YEAR
		*Extended Warranty Available

The ION DISTRIBUTION UNIT is warrantied for a period of 1 year to the original purchaser from that date of delivery.

LEGAL REQUIREMENTS - The owner must notify the company in writing, by certified or registered letter to ACA / International AERO Engineering, Warranty Claims, 9058 Rosecrans Ave. Bellflower, CA 90706, of any defect or complaint with the product, stating the defect or complaint and a specific request for repair, replacement, or other correction of the product under warranty, mailed at least thirty (30) days before pursuing any legal rights or remedies.

*See full warranty for additional details

For more information
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