

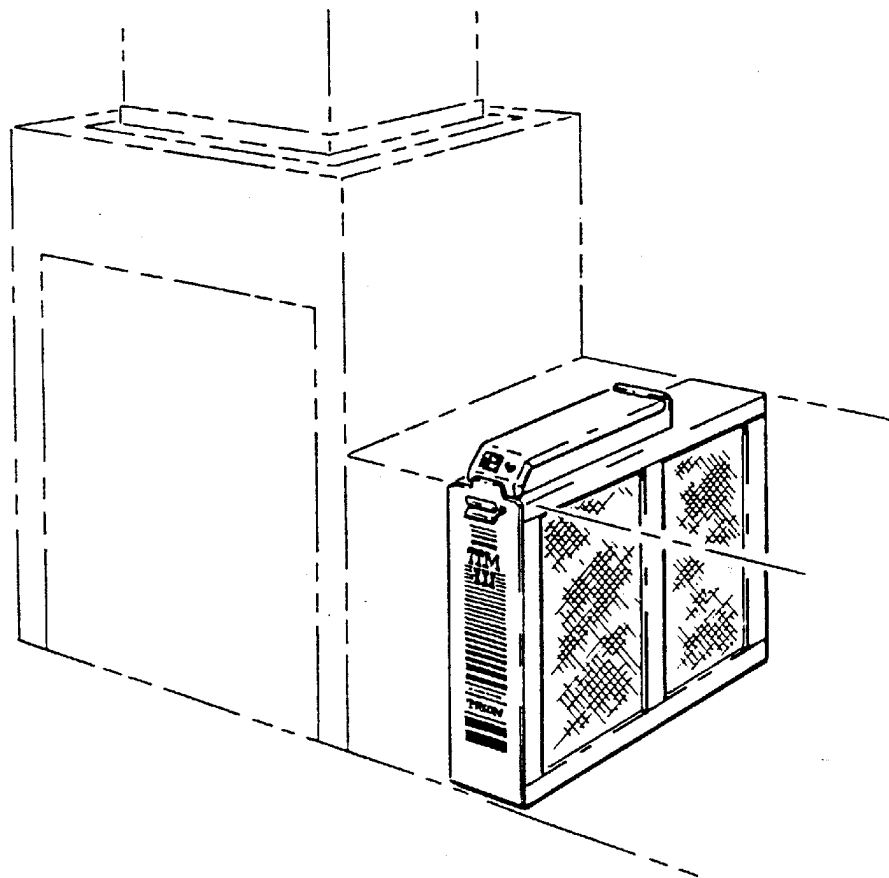


# **DUCT MOUNT**

## **ELECTRONIC AIR CLEANER**

### **MANUAL FOR**

- **INSTALLATION**
- **OPERATION**
- **SERVICE**



#### **CAUTION:**

Read rules and instructions carefully for safe operation.  
Exercise the usual precautions when working with high voltage.

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# TTM-III

## SPECIFICATIONS

MODEL	434460 (TTM-III 1400)	434461 (TTM-III 2000)
RATED CAPACITY	1400 CFM (2520 m <sup>3</sup> /hr.)	2000 CFM (3600 m <sup>3</sup> /hr.)
MAX. PRESSURE DROP	.085 in. w.g. @ 1400 CFM (21.2 Pa. @ 2520 m <sup>3</sup> /hr.)	.14 in. w.g. @ 2000 CFM (34.9 Pa. @ 3600 m <sup>3</sup> /hr.)
CELL WEIGHT	(2) 9 1/2 lbs. each (4.3 kg.)	(2) 11 lbs. each (4.9 kg.)
UNIT WEIGHT	40 lbs. (18.1 kg.)	44 lbs. (20.0 kg.)
POWER CONSUMPTION	40 watts maximum	40 watts maximum
ELECTRICAL INPUT*	120 or 24 Volts, 60/50 Hertz, 1 Phase	120 or 24 Volts, 60/50 Hertz, 1 Phase
ELECTRICAL OUTPUT	1.2 MA @ 6400 VDC (Nominal)	1.5 MA @ 6400 VDC (Nominal)
TEMPERATURE RATING	0° F (-18°C) to 150° F (65° C)	0° F (-18°C) to 150° F (65° C)

## 2 YEAR LIMITED WARRANTY

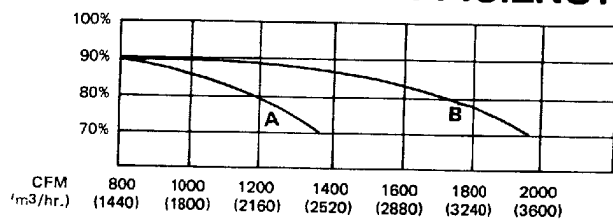
A complete statement of warranty is packed with each Trion electronic air cleaner. Copies may also be obtained by writing to Trion, Inc., Sanford, NC.

\*Ratings based on test methods prescribed by the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standards 52-76, using atmospheric air without the addition of artificial dust.

As a matter of policy, Trion constantly strives to improve its products. Therefore all models and specifications are subject to change without notice.



A-TTM-III 1400 B-TTM-III 2000 **EFFICIENCY**



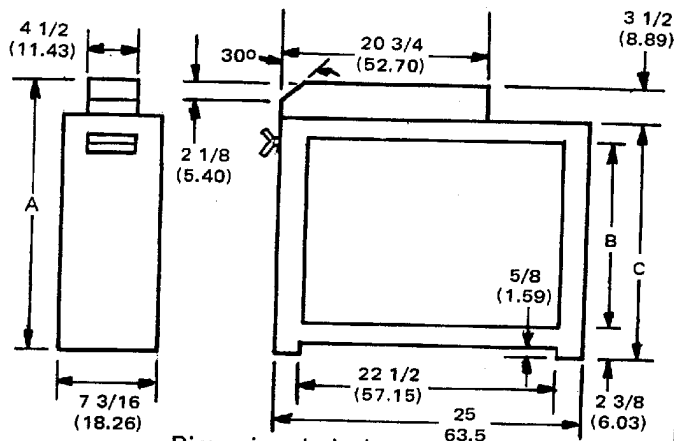
PRESSURE DROP - In. w.g.  
(Pa.)

A. .036	.04	.065	.085
(8.9)	(9.9)	(16.2)	(21.2)
B. .03	.050	.090	.140
(7.5)	(12.5)	(22.4)	(34.9)

COOLING TONS	2	2.5	3	3.5	4	4.5	5
FURNACE BTU's x 1000	80	100	120	140	160	180	200

MODEL	DIM 'A'		DIM 'B' (DUCT OPENING)		DIM 'C'	
	IN.	CM.	IN.	CM.	IN.	CM.
TTM-III 1400	19.75	50.2	13.75	34.9	16.875	42.9
TTM-III 2000	23.75	60.3	17.75	45	20.875	53

Trion TTM-III Dimensions



Dimensions In Inches  
(Centimeters In Brackets)

DISTRIBUTED BY

**TRION, INC.**

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P.O. BOX 760  
SANFORD, NORTH CAROLINA 27331-0760  
TWX 510-920-0675 • PHONE (919) 775-2201

This manual provides information for location, installation, operation and service. Before installation and use of the air cleaner, carefully read these instructions to insure maximum benefits from the unit and to avoid needless service cost that can result from improper installation.

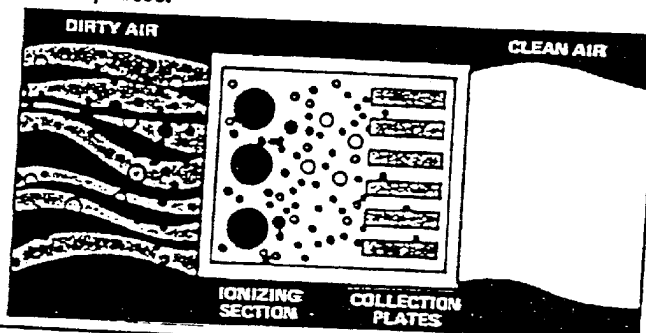
## I. INTRODUCTION

This electronic air cleaner is technically known as a two-stage electrostatic precipitator. It is designed to remove airborne particles — dust, dirt, smoke — from indoor air.

Air movement through the unit is controlled by the heating and/or air conditioning system blower. As dirty air enters the unit it passes through a pre-filter. The pre-filter strains out carpet lint, pet hair and other large particles by direct impingement.

The pre-filtered air then passes through a two-

stage electrostatic precipitator. In the first stage of electrical operation, all airborne particles, even of submicroscopic size, are electrically charged (positive) as they pass through the ionizer. In the second stage of operation, the charged particles pass into an electrical field established between a series of parallel plates, forming the negative element of the field. Here the positively charged particles are attracted to the plates.



## SPECIFICATIONS

Model	434460 (TTM-III 1400)	434461 (TTM-III 2000)	434462 (Trim T)
Rated Capacity	1400 CFM (2520 m <sup>3</sup> /hr.)	2000 CFM (3600 m <sup>3</sup> /hr.)	1400 CFM (2520 m <sup>3</sup> /hr.)
Max. Pressure Drop	.085 in. w.g. @ 1400 CFM (21.2 Pa. @ 2520 m <sup>3</sup> /hr.)	.14 in. w.g. @ 2000 CFM (34.9 Pa. @ 3600 m <sup>3</sup> /hr.)	.085 in. w.g. @ 1400 CFM (21.2 Pa. @ 2520 m <sup>3</sup> /hr.)
Cell Weight	(2) 9½ lbs. each (4.3 kg.)	(2) 11 lbs. each (4.9 kg.)	(2) 5 lbs. each (2.3 kg.)
Unit Weight	43 lbs. (19.5 kg.)	49 lbs. (22.2 kg.)	30 lbs. (13.6 kg.)
Power Consumption	48 watts maximum	48 watts maximum	48 watts maximum
Electrical Input	120 Volts, 60 Hertz, 1 Phase	120 Volts, 60 Hertz, 1 Phase	120 Volts, 60 Hertz, 1 Phase
Electrical Output	2.0 MA @ 6800 VDC	2.0 MA @ 6800 VDC	2.0 MA @ 6800 VDC

## II. PLANNING THE INSTALLATION

### Location

Because air handling systems vary greatly in arrangement and style, factors such as accessibility, ambient temperature ratings, transitions and other requirements must be carefully considered.

The unit must be readily accessible for periodic inspection and cleaning of the protective screens and electronic cells to maintain maximum efficiency and trouble-free operation. When selecting the unit location for a single pre-filter unit, allow a minimum of 25" clear space in front of the access panel and 12" of clear space above the power pack cover plate for component removal and service space. For double pre-filter unit allow a minimum of 18" clear space in front of the access panel and 12" of clear space above the power pack cover plate for component removal and service space.

The air cleaner must be wired to operate in conjunction with the system blower.

The air cleaner can only remove the airborne contaminants delivered to it by the ventilating

system. To obtain maximum efficiency, adjust the system blower controls for continuous or as near continuous operation as practical.

### Air Conditioning

Whenever possible, install the electronic air cleaner upstream of the cooling coils.

### Humidifiers

Location of the system humidifier is important to the operation of the air cleaner.

When an evaporative type humidifier is used, it may be installed between the furnace warm air duct and the return air duct without affecting the electronic air cleaner. Atomizing and spray type humidifiers should be installed downstream of the air cleaner. If it must be installed upstream, allow at least 6' between air cleaner and humidifier.

### Outdoor Air

When outdoor air is added to the return air duct, sufficient heat should be added to maintain the return air temperature at 40°F (4°C) minimum. Lower temperatures can cause ionizer wire failure under certain conditions.

**CAUTION:** Only a trained, experienced serviceman should install this electronic air cleaner. Power supply should be disconnected before installation and a thorough checkout of the unit installation should be completed before unit operation.

**THIS AIR CLEANER SHOULD NOT BE INSTALLED ON THE HOT AIR SIDE OF DUCT-TYPE SYSTEMS**

**NE PAS INSTALLER CE FILTRE ELECTROSTATIQUE DANS LE COURANT D'AIR CHAUD D'UN APPAREIL DE CHAUFFAGE**

#### Sheet Metal Installation

The electronic air cleaner is adaptable to all new or existing residential forced air furnace or cooling systems.

#### Transitions

If the air duct does not fit the air cleaner cabinet opening: (1) gradual transitions are recommended to reduce air turbulence thru the air cleaner to maximize efficiency. (2) Not more than 20° (about 4" per running foot) of expansion should be used on each side of the transition fitting.

#### Turning Vanes

If the air cleaner is installed adjacent to a 90° duct elbow, add turning vanes inside the duct to improve the air distribution across the face of the air cleaner.

### III. INSTALLATION

1. Remove unit access panel, and slide the lint screen(s) and ionizing-collecting cells out of the cabinet. Place them safely aside with the owners manual and warranty registration card.
2. Locate the cabinet in the cold air return duct so that all of the return air flows thru the unit. It may be positioned for air flow in any direction: horizontal, left or right, vertical, up or down, or at an angle to the duct work. Maintain adequate space in front of the unit (18") for component removal and above the power pack (12") for service. Holes are provided for duct work attachment. The .140" holes are sized for number eight sheet metal screws and will also accommodate a number six sheet metal screw or 1/8" rivet. If the adjoining duct work is flanged, install the screws so that the screw heads are inside the cabinet to permit easy installation of lint screen and any after filter accessory. When adjoining duct work has been secured, seal seams air tight with duct tape or caulking.
3. Reinstall the lint screen on the air entering side of the cabinet.

4. A positioning screw is located inside the bottom of the cabinet to index the installation of the ionizing-collecting cells in the proper position with respect to airflow. The screw must be installed in the hole provided closest to the air leaving side of the cabinet. Install the screw in the proper hole, seal the hole not used with duct tape and reinstall the cells. The directional arrows on the cell end plates must point in the direction of airflow.

5. Reinstall cabinet access panel.

### IV. ELECTRICAL WIRING

1. Remove power pack cover plate.
2. Wire unit to 120 volt, 60 Hertz, 1 phase supply so that the air cleaner is energized only in conjunction with system blower. (See typical diagrams.) (Page 4)

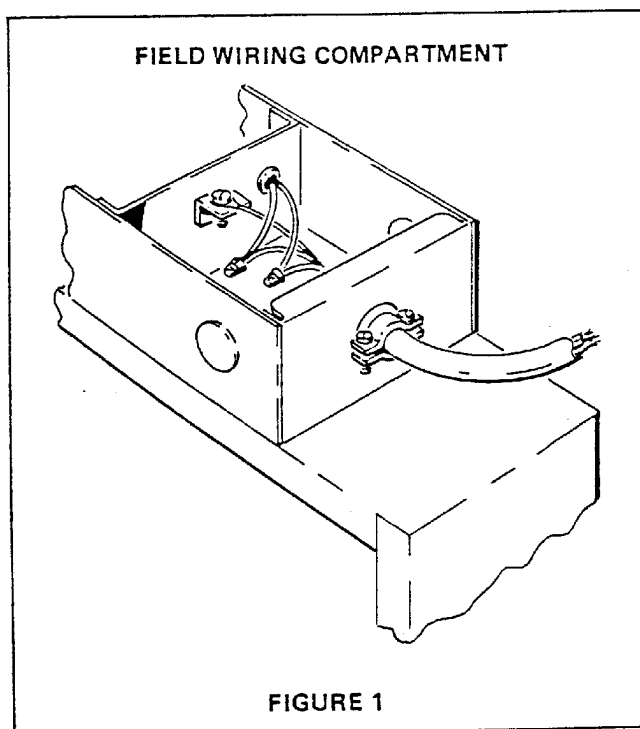


FIGURE 1

When connecting an air cleaner to operate in conjunction with a multispeed motor, a device such as a sail switch, pressure differential switch or an extra 120 VAC double pole, double throw relay must be used. (Ref. Figure 4). An air flow sensor and static switch can also be used (Ref. Figure 3), available from Trion as an optional accessory.

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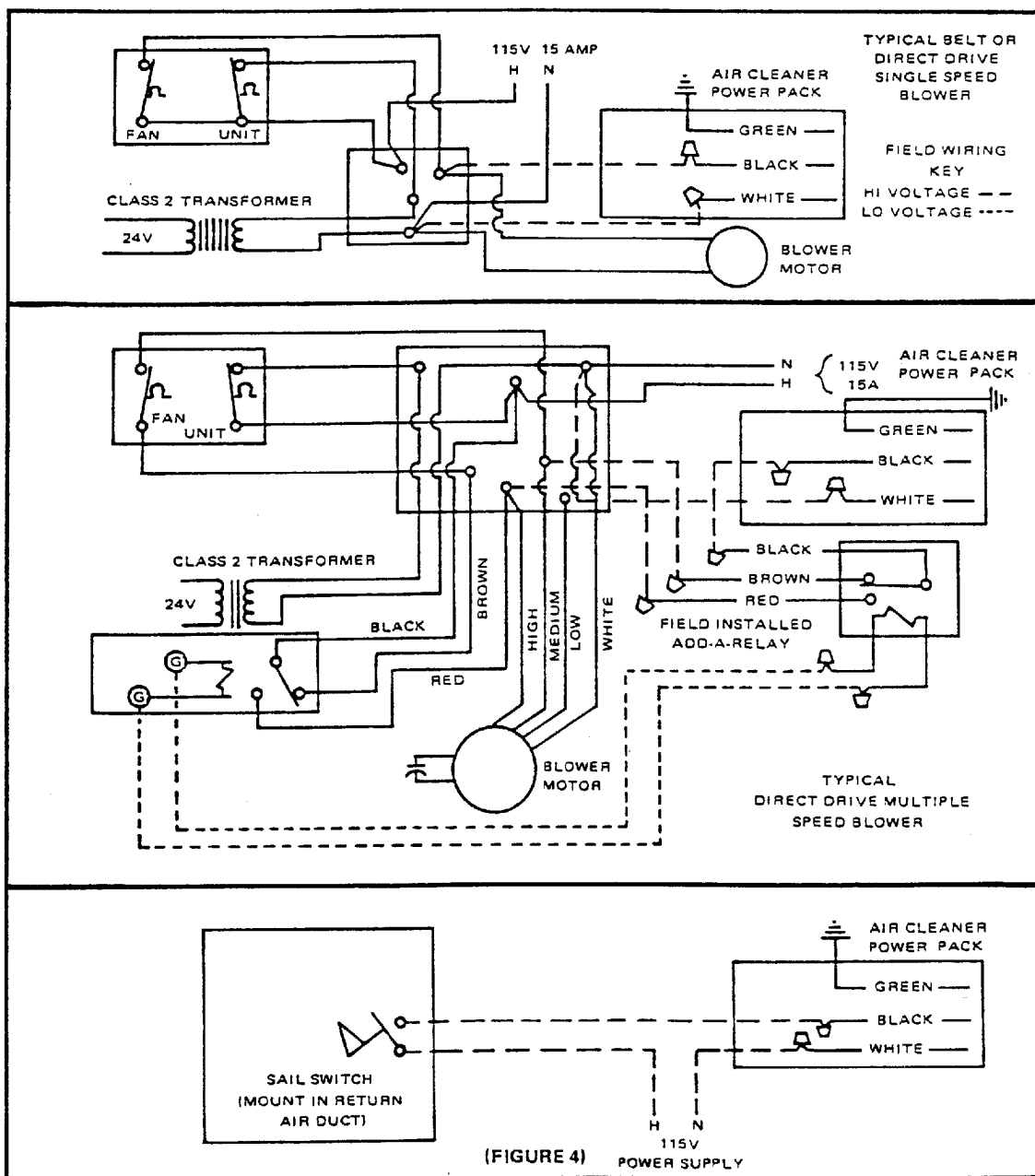
# WARNING

IMPROPER FIELD WIRING WILL VOID ALL WARRANTIES ON THIS PRODUCT.

NOTE: DIRECT WIRING TO A MULTI-SPEED BLOWER MOTOR WILL CAUSE FAILURE OF THE POWER SUPPLY IN THIS UNIT.

PLEASE REFER TO THE FOLLOWING TYPICAL WIRING DIAGRAMS FOR PROPER INSTALLATION.

REMOVE CARDBOARD PACKING INSERT FROM TOP OF COLLECTING CELLS.



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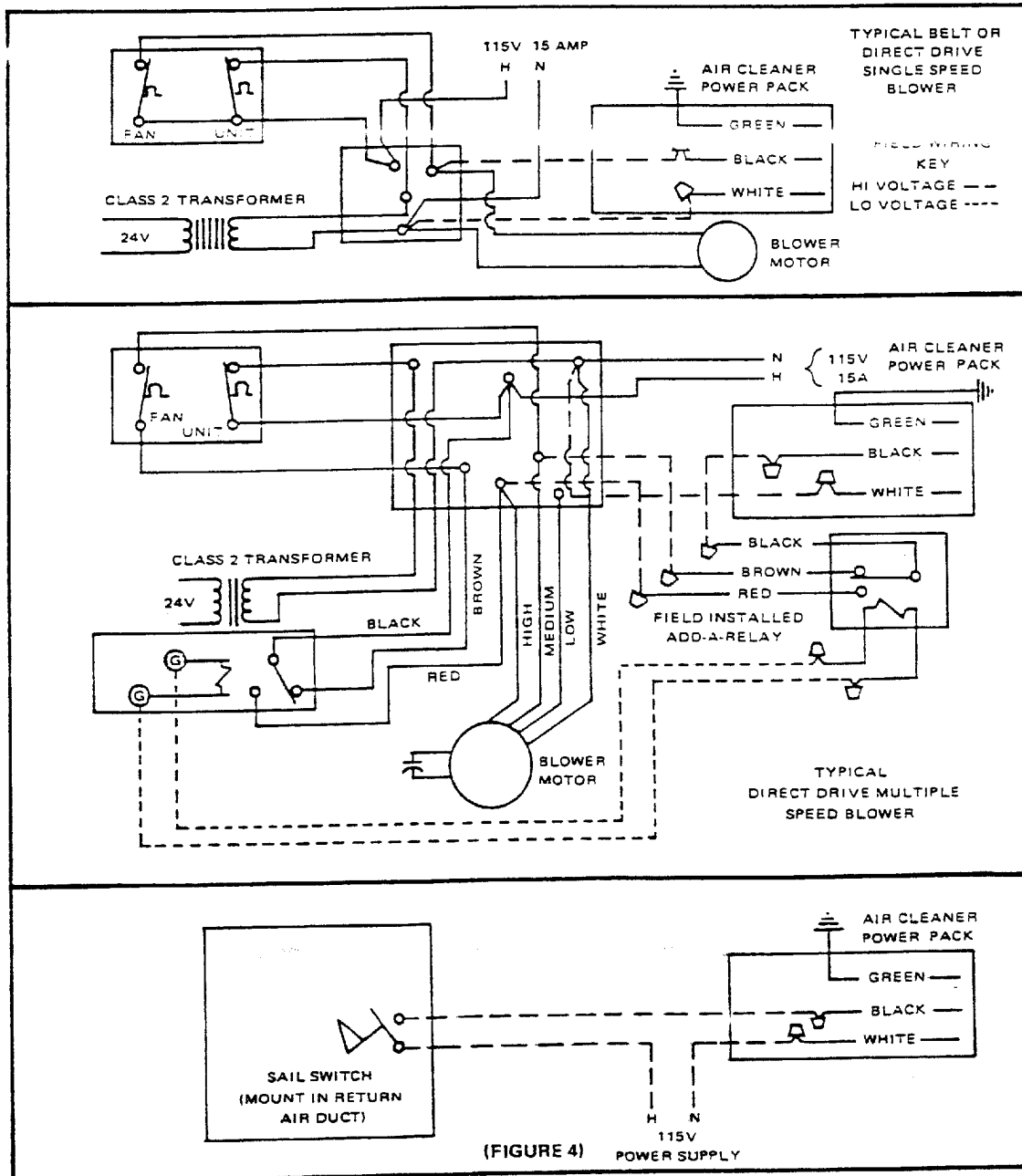
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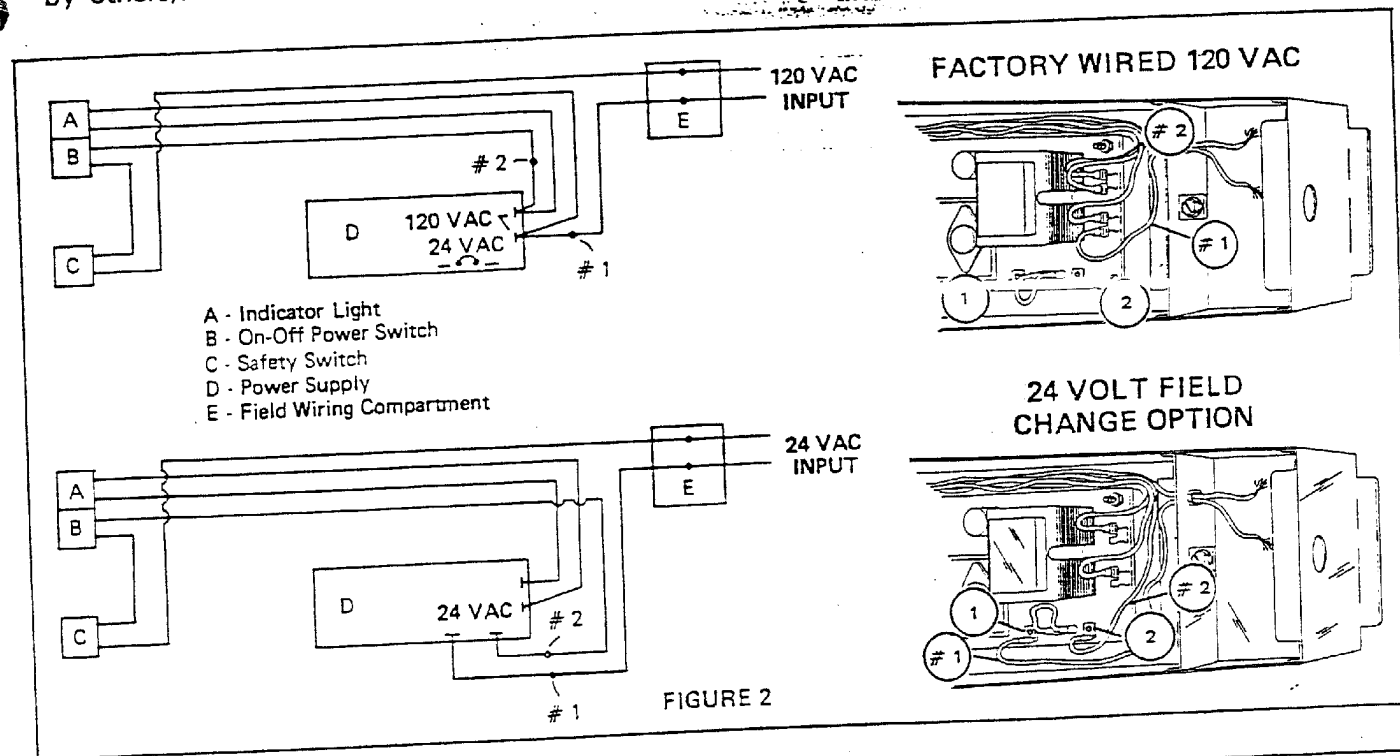


## INPUT POWER

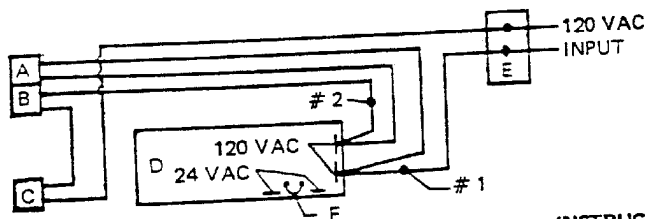
### 120 Volt To 24 Volt Conversion

3. An alternate power source for this unit is a 24 volt AC, 40 VA, Class 2 transformer (furnished by others). When the 24 volt supply is used, it is

necessary to move the two primary power leads (marked # 1 and # 2), located at the 120 VAC terminals on the power supply. Those leads must be moved to corresponding numbers on the power supply. (Ref. Figure 2)



## AIR FLOW SENSOR



### INSTRUCTIONS

1. Install air flow sensor in holes provided in high voltage barrier.
2. Replace hole plug in the bottom of the power pack enclosure with bushing.
3. Remove cell from unit and insert tube up through bushing and secure to air flow sensor.
4. Disconnect jumper from power supply and discard.
5. Connect leads from these two terminals on the power supply to the two terminals on the air flow sensor.

A - Indicator Light  
B - On-Off Power Switch  
C - Safety Switch  
D - Power Supply  
E - Field Wiring Compartment  
F - Jumper  
G - Air Flow Sensor

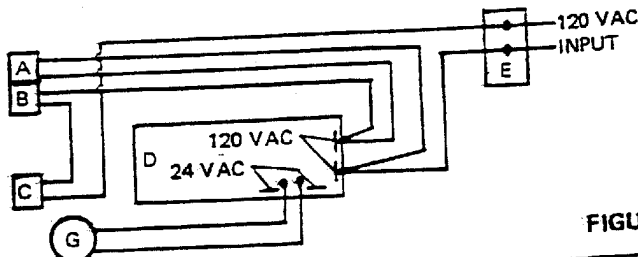
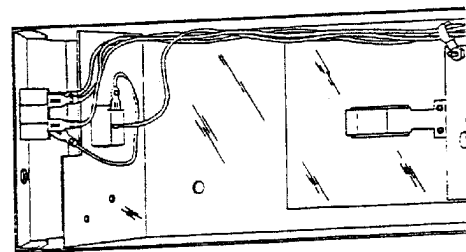
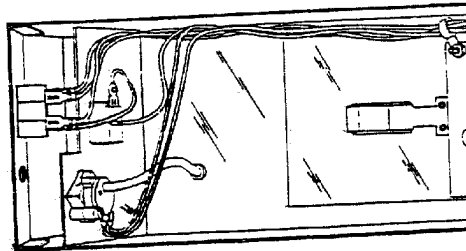


FIGURE 3

## FACTORY WIRED



## AIR FLOW SENSOR CHANGE OPTION



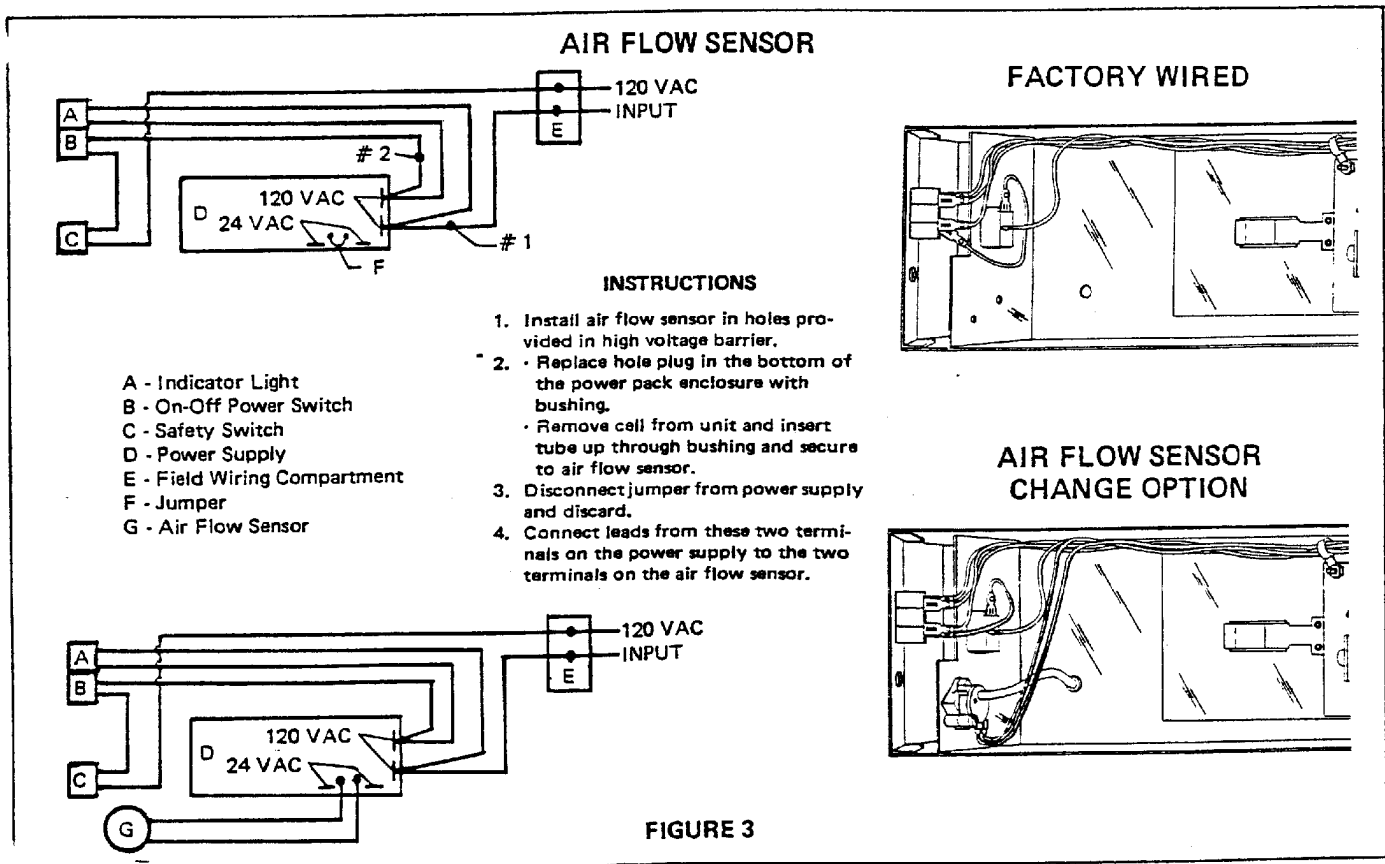
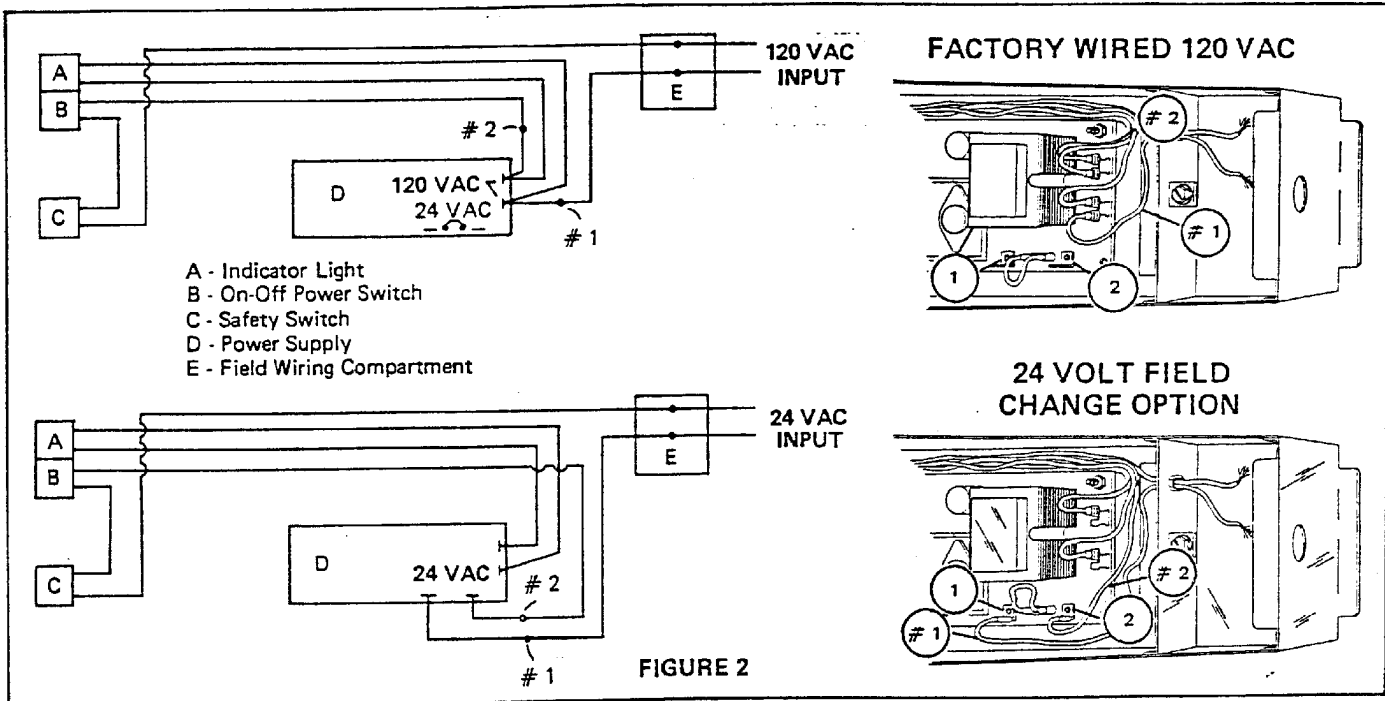


## INPUT POWER

### 120 Volt To 24 Volt Conversion

3. An alternate power source for this unit is a 24 volt AC, 40 VA, Class 2 transformer (furnished by others). When the 24 volt supply is used, it is

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## V. SYSTEM CHECK OUT

After installing the unit, move the On/Off switch to the "ON" position. (Be sure system blower is "on".)

- A. Both the On/Off indicating light (amber) and the performance indicating light (red) should now be on.
  1. On/Off indicating light shows unit has line voltage (24 or 120 volts).
  2. Performance indicating light (red) shows high voltage output.
- B. Check to see if indicating light goes out under the following conditions:
  1. When system blower is off.
  2. When the power switch is in the "OFF" position.
  3. When access panel is removed.
- C. Refer to Quick Reference Trouble Chart (Page 10) if detailed trouble shooting is required.
- D. See that owner/operator is provided with the owners manual and warranty registration card.

## VI. TROUBLE SHOOTING

The following instructions are for use by qualified personnel only:

**WARNING: THE FOLLOWING PROCEDURES WILL EXPOSE HAZARDOUS HIGH VOLTAGE. DISCONNECT POWER BEFORE PROCEEDING.**

### Recommended Service Tools

- Test light, 120 VAC Neon.
- Screw driver, 8" common with insulated handle.
- Needle nose pliers.
- Ohmmeter, 10,000 (Plus) OHM Range.
- Kilovolt meter, 10,000 (Plus) KVDC. Positive Polarity Range

### A. Indication Of Electrical Trouble

The performance indicating light (red) is wired into the circuit so that it will monitor both the primary and secondary circuits. (Electrically, the ionizing-collecting cell is a component in the secondary circuit.)

When the unit is in normal state of operation, system fan running, access door in place, control switch in the "ON" position, and the performance indicating light goes "out", there is an electrical problem. The problem may be either a shorted secondary or an open primary circuit. Although the failure of the performance indicating light itself should not be overlooked, this condition is

unusual. The light is neon and reliable.

### B. Isolating Electrical Trouble To Major Components

When the unit is in a normal state of operation and the performance indicating light goes "out", the trouble can be readily isolated to either the ionizing-collecting cells or power pack. Turn the unit "off", remove both ionizing-collecting cells, close the access panel and turn unit "on". If the light remains "off" with the cells removed, the trouble is in the power supply or in the primary circuit to the power supply.

If the performance indicating light is on — trouble is in the cells.

### C. Electrical Troubles & Their Corrections

#### 1. PRIMARY CIRCUIT CHECK

If there is supply line voltage at the service connections and no input voltage to the power supply, the outage can be located by checking operation of the safety switch and control switch as well as the interconnecting wiring, with a test light.

Refer to circuit diagram, Figure 6. If there is power to the line side of either switch, and no power on the load side when the switch is closed, the switch is defective and should be replaced.

#### CAUTION:

- EXERCISE PRECAUTION WHEN WORKING WITH HIGH VOLTAGE.
- WHEN THE CIRCUIT HAS BEEN DE-ENERGIZED, ALWAYS DISCHARGE ANY RESIDUAL CURRENT IN THE SECONDARY CIRCUIT WITH AN INSULATED HANDLE SCREWDRIVER.
- ALWAYS GROUND POWER SUPPLY AND IONIZING-COLLECTING CELL WHEN BENCH TESTING.

If performance indicating light (red) indicates a service problem, check one of the following:

There are two areas in the secondary circuit that service problems originate:

#### The Power Supply

#### The Ionizing-Collecting Cell

The cell, which is removed from the unit periodically to wash away the collected dirt, is more susceptible to physical damage through handling, than the power supply. The cell, also contains one component, the ionizing wires, which due to their function, have to be designed with a minimum of structural support and are therefore susceptible to breakage.

The power supply, like other electrical items exposed to "high voltage" is susceptible to the usual

stresses.

Trouble related to either of these two items, is readily shown by the performance indicating light (red) and can be easily and quickly isolated to one, or the other, by a simple procedure.

## POWER SUPPLY CHECK

### a. Without DC High Voltage Meter

If there is primary power to the power supply and the secondary output voltage is absent or low, the power supply is defective. A fast simple check can be made by drawing an arc, with an insulated handle screwdriver between common ground (power pack housing) and the hi-voltage output terminal (C). A good power supply will produce a pronounced arc where a defective one will produce no arc at all or a very weak one.

### b. With DC High Voltage Meter

Take reading with the high voltage meter at cell contact point. Should range 8.5 KV or higher

(without cell connected).

If voltage is above 8.5 KV, the problem is in the cell (see cell checkout procedure).

If voltage is below 8.5 KV (without cell connected), the problem is in the power supply.

Proceed as follows:

1. Check for loose wires; if loose wire found, reconnect.
2. Remove power pack from the unit.
3. If defective power supply is indicated, replace.

INPUT: The electronic air cleaner should be wired to operate only when the system blower is on.

OUTPUT: This is a high frequency solid state circuit designed for electronic air cleaners with high performance reliability.

- 2 milliamps
- $6.6 \pm .6$  KVDC (with cell connected)
- $8.8 \pm .8$  KVDC (without cell connected)

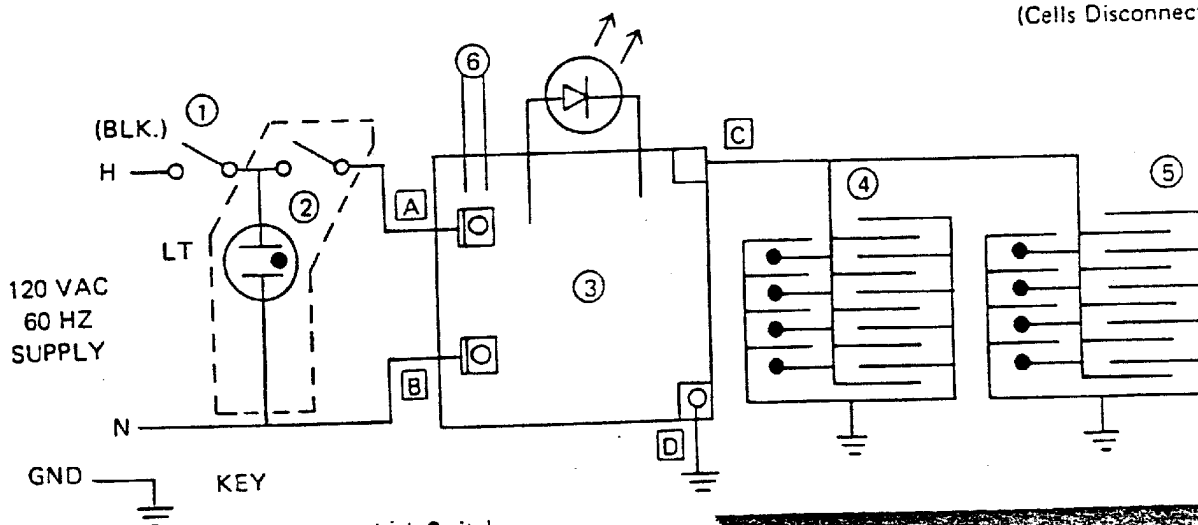
## HIGH FREQUENCY POWER SUPPLY

The following are approximate resistance values.  $\pm 20\%$

Test Points	Resistance
A to B	20 Ohms
D to C	500 Meg Ohms

The following are approximate DC output voltage at 120 VAC

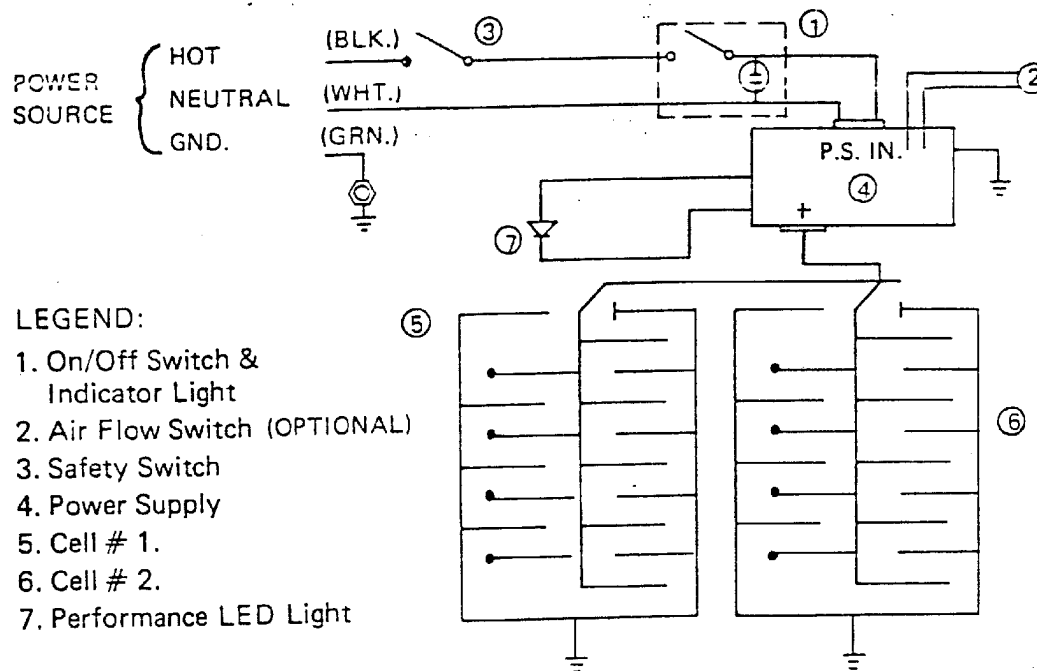
Test Points	Secondary DC Voltage
D to C	Adj. to $6600 \pm 600$ VDC (Cells Connected)
D to C	$8800$ VDC $\pm 800$ V (Cells Disconnected)



- KEY
1. Safety Interlock Switch
  2. On-Off Switch & Power Indicating Light
  3. High Frequency Power Supply
  4. Ionizing-Collecting Cell # 1
  5. Ionizing-Collecting Cell # 2
  6. Air Flow Switch (OPTIONAL)

**WARNING** When bench testing power supply always attach ground wire.

FIGURE 5



### 3. IONIZING-COLLECTING CELL CHECK

The cell is electrically energized through a contact terminal located at the top center of a cell. The ionizing wires and every other collector plate are electrically charged while each interleaving plate is grounded.

If the space between the charged and ground components is bridged with conductive or semi-conductive material, a short circuit develops. The bridging or short may be caused by damaged components or foreign material lodged between or on the components.

Most troubles in the cell can be visually detected.

### D. Other Troubles

#### THEIR SYMPTOMS AND CORRECTIONS

##### 1. ARCING NOISE

When an arcing noise is noted, it is usually located in the DC high voltage circuit. The ionizing-collecting cell is part of this circuit and normally the trouble will be found to be in the cell. The noise is caused by high voltage arcing to ground.

An occasional arcing noise is normal and inherent in all precipitators. These occasional arcs are caused by large particles of dirt in the air such as a cigarette ash, insect, etc. Constant or repeated intermittent arcing must be corrected.

CAUSES	CORRECTIONS	CAUSES	CORRECTIONS
Loose ionizing wire(s)	Repair or replace	Excessive dirt build-up	Wash
Excessively dirty cell components	Clean	Large pieces of foreign matter lodged between plates	Remove
Damaged (bent) plates of ionizing	Straighten or replace	Very dirty insulators	Clean
Defective or loose high voltage lead or contact assembly	Repair, replace	Broken ionizing wires	Remove all pieces of broken wires and replace
Improper ground	Check ground and correct if necessary	Excessively bent or misaligned components due to mishandling	Straighten or replace
		Externally broken or cracked insulators	Replace

## 2. HISSING NOISE

A hissing noise (or frying sound) usually stems from a loose high voltage connection or from an improper ground. The reduction in the designed spacing usually is caused by bends or deformities in the cell from mishandling.

Check for:

### CAUSES

### CORRECTIONS

Damaged (bent) plates of ionizer

Straighten or replace

Loose ionizing wires

Repair or replace

Defective high voltage contact assembly

Repair or replace

Dirty cell or large piece of foreign material between plates

Clean

Poor connection between cell and contact assembly

Repair

Loose high voltage wiring

Repair

Improper ground

Check and correct if necessary

## 3. HUMMING NOISE

The ionizing wires have a normal tendency to vibrate when charged. On some occasions, when atmospheric conditions are just right and the humidity is exceptionally low, the vibration is aggravated to the point where an audible hum can be noted. It is usually noted more in the northern sections of the country during the winter months. This condition can be further aggravated if the ionizing-collecting cell is very dirty. The condition is self-correcting when the relative humidity is increased or can be alleviated by washing the cell.

## 4. RADIO AND/OR TELEVISION INTERFERENCE

This trouble is not common but when occurring is usually due to either a continuous high voltage "leak or discharge", or from the absence of a good common electrical ground. Refer to checks listed under 1. Arcing Noise and 2. Hissing Noise.

## 5. WHITE DUST

One of the most difficult service calls to handle is the complaint of the presence of white dust. The majority of these complaints are from residential users. In many instances, the statement is made, "We have more dust now than we ever had". These service calls are difficult because the limitations of the installation must be explained.

White dust actually can be described as "clean dirt". Where it is noticed, an examination will show the user that it is largely lint. It is most noticeable on dark furniture, and is usually found in homes containing new furnishings such as carpeting, drapes, etc., which give off more lint than such items that have been used and cleaned for some time. The amount of lint generated is increased by activity in the air; especially by children, pets and heavy house traffic.

Visible lint particles, like cigarette ashes, are heavy as compared to the extremely small, individual dirt particles which make up cigarette smoke. Their weight causes the lint particles to "fall out" on furniture, floors, etc., just as cigarette ashes fall to the floor while cigarette smoke particles remain suspended in the air. Dirt particles, such as heavy pieces of lint or ash, which do not remain airborne, never reach the electronic air cleaner and the unit cannot remove these air particles.

Fortunately, the black, greasy dirt particles with the damaging staining power are light in weight, remain in the air stream, and do reach the electronic air cleaner. It is their removal from the air that keeps the lint clean, and therefore, more visible.

There is no question that the electronic air cleaner is capable of collecting lint in addition to other atmospheric contaminants. This is easily confirmed by examining the air entering side of the ionizing-collecting cell before it is washed. You will note that along with the black, greasy dirt collected, there are lint particles that did stay airborne long enough to reach the electronic air cleaner.

Lint from new furnishings will decrease with wear. The length of time depends on the amount and type of fabric in the furnishings and the air circulation. In some areas, a bedroom for example, a lint condition may always remain.

Normally, continuous fan operation (24 hours a day) will minimize this problem. If this cannot be accomplished, the controls should be set as near continuous fan operation as possible. In some instances the use of a two speed fan motor is advantageous.

Cold air returns should not be restricted in any manner, particularly from rooms in which lint is prevalent. If the returns in these rooms are blocked, the return air will seek another, longer path. In traveling a greater distance, lint fallout is increased.

Actually, the presence of large, clean lint particles is further proof that the air cleaner is doing its superior air cleaning job. Electronic air cleaners are dependent on the movement of air currents to

bring the dirt particles to the unit for their removal. Weighty, non-airborne particles such as cigarette ashes weigh too much to remain in the air currents while other particles, such as cigarette smoke, remain suspended and are carried to the electronic air cleaner for removal.

## 6. OZONE

Under normal operating conditions all electrostatic air cleaners produce minute quantities of ozone as an incidental by-product, as do televisions and other electrical appliances. The design of the unit has been tested and is far below the published permissible limits. The level of detection (when it is noticed) varies from individual to individual, some being more susceptible than others.

Usually a new unit will produce more ozone than one that has been in operation for several weeks. This is due to the normal amount of sharp corners or manufacturing burrs on the ionizing-collecting cell. The voltage working on these areas however, tends to round them-off, thereby they are self-correcting.

An ionizing-collecting cell that has been damaged, where the designed spacing between electrically charged and ground components has been decreased, may also produce an abnormal amount of ozone.

If there appears to be excess ozone, check for:

### CAUSES

Damaged (bent) plates  
Loose ionizing wires  
Dirty cell  
Loose high voltage connections  
Unit "ON" when system fan is not running

### CORRECTIONS

Straighten or replace  
Repair or replace  
Clean  
Repair or replace  
Set fan for continuous operation or wire so unit will operate only when system fan is running.

## VII. MAINTENANCE AND WASHING

Listed below are the instructions as stated in the Owners Manual.

## Maintenance

**When to wash:** Periodically the dirt collected by the unit must be removed. The frequency of washing will depend on the amount of dirt present in the air in the locality.

The washing frequency best suited for the unit can be determined by examining the dirt collecting components at three week intervals. As the dirt begins to collect, there will be a light film, then a very definite collection will be evident at a later examination. When there is a noticeable build-up of dirt, it is time to wash the collecting cell.

In most areas the collecting cell should be washed about every 3 months.

**NOTE:** Dirt build-up on the ionizing-collecting cell should not be confused with dirt stains. Dirt stains are normal and do not affect efficiency.

Steps for washing:

1. Turn ON/OFF indicating light switch "OFF".
2. Remove door, slide out lint screen and cells and install door.
3. Place components in automatic dishwasher, stationary tub, shower stall or over floor drain. Use hot soapy water and rinse thoroughly. As an aid to drying, rinse with clear hot water. Allow components to dry thoroughly. (Ionizing wires are easily broken. Handle the cells with care.)
4. Remove door and slide lint screen in retaining channel on air entering side of cabinet.
5. Slide cells into cabinet with directional "airflow" arrow pointing in direction of airflow.
6. Replace door.
7. Turn ON/OFF indicating light switch "ON".
8. If arcing noise occurs due to wet cells, turn ON/OFF indicating light switch "OFF" and allow more drying time. The ON/OFF indicating light switch will glow with the system blower in operation. If there are any problems, refer to the Quick Reference Trouble Chart (IX on page 10).

## VIII. ORDERING PARTS

When ordering replacement parts or spare parts, state the Unit Model No. and Serial Number. These numbers are shown on the data plate located on the inside of the access panel.

Complete parts lists are available upon request. Orders will be filled in accordance with the terms and conditions of current price sheets.

# SERVICE

## IX. QUICK REFERENCE TROUBLE CHART

Condition or Symptom	Trouble Description	Probable Location	Possible Cause	Correction
On/Off Indicating Light (Amber) Out	Open Primary Circuit	Primary Wiring  On/Off switch	No power from service connection to power supply Blower not on Loose wiring Defective wiring	Obtain power  Energize blower Repair Replace
On/Off Indicating Light (Amber) Out	Light out but unit working	Power Indicating Light	Defective Light	Replace
Performance Indicating Light (Red) Out	Short Circuit	Power Supply	Defective Power Supply	Replace
Performance Indicating Light (Red) Dim	Short Circuit	Power Supply  Cell	Defective Power Supply  Broken Ion Wire Excessive Dirt Object between plates Damaged (bent) plates Damaged (bent) ionizer Broken insulator	Replace  Remove & replace Wash Remove  Straighten or replace Straighten or replace  Replace
Cracking Noise	Objectionable Noise	Cell	Loose Ionizing Wire Dirty Cell Damaged (bent) plates Damaged (bent) ionizer	Replace Wash Straighten or replace Straighten or replace
Loud Hissing Noise	Same	Cell Hi-Voltage	Dirty Cell Loose Hi-Voltage Connection Insufficient Ground	Wash Correct  Correct
Radio and/or TV Interference	Same	Cell Hi-Voltage Connection	Improper Ground Loose Hi-Voltage Connection	Correct Correct
Odor of Ozone	Same		See page 9	

# PARTS LIST

Ref. No.	Trim-T Part No.	TTM-III 1400 Part No.	TTM-III 2000 Part No.	Part Description
1	334370-001	334370-001	334370-001	Power Pack Cover
2	331845-201	331845-201	<del>331845-201</del>	High Frequency Power Supply
3	434381-001	434381-001	434381-001	Power Pack Assembly
4	132319-001	132319-001	132319-001	Mini Switch Air Flow Sensor (Optional)
5	234861-001	234861-001	234861-001	Switch W/ Light
6	134516-001	134516-001	134516-001	LED Performance Light Assembly
7	231082-001	231082-001	231082-001	Pushbutton Switch
8	132122-001	132122-001	132122-001	Pushbutton Cap (On Safety Switch)
9	334373-001	334362-002	334362-001	Cabinet Assembly
10	<del>320297-009</del>	320297-008	320297-007	Pre-Filter
11	422167-503	422085-501	422086-501	Cell, Ionizing-Collecting <i>cell</i>
12	220111-021	220111-020	220111-029	Ionizing Wire Assembly
13	135104-001	135104-001	135104-001	Handle
14	334634-001	334632-001	334633-001	Front Panel Door Assembly
Not Shown	234458-002	234458-002	234458-002	Contact Board Assembly
Not Shown	133548-001	133548-001	133548-001	LED Mounting Clip
Not Shown	227833-005	227833-003	227833-004	Charcoal Filter (Optional)



