



## **Model FM 1000**

Electronic & Media Air Cleaner

### **Installation Operation Service**

Please read these instructions carefully for trouble free operation and to get the most out of your purchase. For further information concerning this project, contact your local Trion representative



A **FEDDERS** INDOOR AIR QUALITY COMPANY

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## SPECIFICATIONS

### FM 1000 Electrostatic

**Input Voltage:** 120 V, 60 HZ, 1 PH  
**Amp Draw:** 3.1 Max.  
**Unit Weight:** 108 lbs.  
**Air Output:** 600, 800 and 1100 CFM (nominal)  
**Options:**  
1. Charcoal After Filter  
2. Remote Discharge

### FM 1000 Media

**Input Voltage:** 120 V, 60 HZ, 1 PH  
**Amp Draw:** 4.0 Max  
**Unit Weight:** 88 lbs.  
**Air Output:** 400, 500 and 650 CFM (nominal)  
**Options:**  
1. Charcoal After Filter  
2. Remote Discharge

This manual provides information for location, installation, operation and service of the FM 1000 E & M. 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 result from improper installation.

### FM 1000 E ELECTROSTATIC

The FM 1000 E electronic air cleaner is technically known as a two-stage electrostatic precipitator. It is designed to remove airborne particles, dust, dirt, smoke or other indoor air pollutants.

Air movement through the unit is controlled by its own blower system. As dirty air enters the unit, it passes through a pre-filter, which removes 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 established between a series of parallel plates that collect airborne particulate.

### FM 1000M MEDIA FILTER

The FM 1000M with media filtration instead of an Ionizer/Collector cell utilizes the same type pre-filter but a mechanical media or fabric main filter to trap airborne pollutants in the filter fibers. As more pollutants are collected, the efficiency of the media filter is increased to a point where air delivery from the unit is reduced and effective air cleaning does not take place. It is then time

to change the filter and wash the pre-filter. (From 1 to 4 months, depending on the application).

The media main filter and charcoal after-filter are disposable when dirty. Replace with new filters from your authorized Trion Representative.

### OPERATION CONTROL SWITCH

The 3 position control switch located on the exposed side of the installed unit, controls the operation of the power supply and the speed of the fan: Low, Medium or High. (Power Supply not needed on FM 1000 Media Unit).

### LED LIGHTS (Red not used on FM 1000M)

The green LED indicates the unit has electrical power and the switch has been turned to one of the 3 positions.

The Red LED indicates High Voltage (approximately 6800 VDC) is supplied to the Ionizer / Collector cell. (Red not used on Media unit).

### FILTER ACCESS

The filter access screws located on the access door of the unit hold the access door closed, and are designed to automatically disconnect electrical power when the access door is opened (Item 6, Page 5). The access door may be removed for convenience of unit installation and cleaning once in operation.

### INSTALLATION

Read instructions carefully before beginning installation.

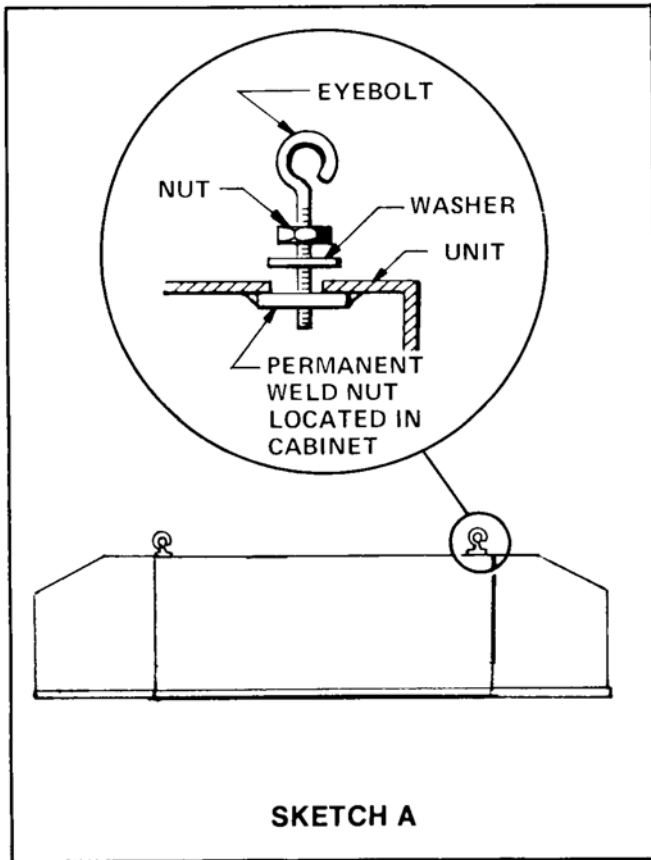
**CAUTION:**  
**ELECTRONIC AIR CLEANERS CANNOT BE USED IN AREAS WHERE COMBUSTIBLE GASES OR VAPORS ARE PRESENT. USE GLOVES DURING INSTALLATION TO PREVENT POSSIBLE INJURY FROM EXPOSED METAL.**

### T-BAR CEILING INSTALLATION

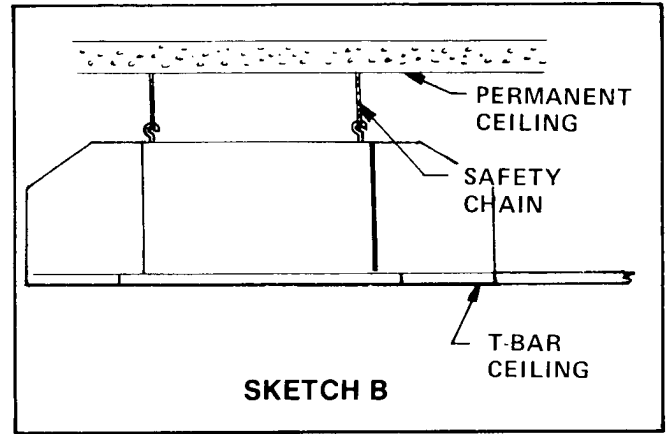
DO NOT INSTALL THE UNIT IN A T-BAR CEILING UNLESS THE UNIT CAN BE SECURED TO THE PERMANENT CEILING OR CEILING JOIST, BEAMS, ETC. AS DESCRIBED HEREIN.

1. Installer must provide the 2/0 chain or other hanger material as required.
2. Carefully unpack the unit and check for damage incurred in shipment. Report any damage to the freight carrier and your TRION Representative immediately.

- Open Filter access door and remove it. Also remove both collector cells or media filter and set aside being careful not to damage either.
- Install eyebolts provided with unit as shown in Sketch A.



- Select mounting location as near to the center of the area to be cleaned or at the point recommended by your TRION Representative. Remove a section of ceiling tile.
- Attach a length of safety chain (2.0 Min.) or equivalent rod, cable or other hanger material to each of the four eyebolts. Fasten securely. See Sketch A.
- Lift unit into place and support while securing to permanent ceiling, ceiling joist, etc. (See Sketch B)



**CAUTION:**  
DO NOT ALLOW FULL WEIGHT OF UNIT TO REST ON T-BAR CEILING.

- Install mounting trim brackets to each side to fill in the gap between the unit and T-Bar.
- Connect electrical power to the unit. See Wiring Diagram.
- If optional carbon filter is used, remove filter from plastic bag and install in the guide rails provided inside the cabinet behind the main filter. Replace the main filter and pre-filter / door assembly. Close the door and secure by turning the quarter turn fasteners clockwise with a coin or screwdriver. The unit is now ready for operation.

The following information will be required for prompt delivery of repair parts:

Description	Located
1. Unit model number	Inside door
2. Unit serial number	Inside door
3. Part number and description	Exploded views.

When a part number is not listed, give the above information and include the item number from the exploded views.

## MAINTENANCE AND WASHING

### MAINTENANCE

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

The washing frequency best suited for your unit can be determined by examining the dirt collected components at three week intervals. As the dirt begins to collect, you

will notice 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.

In most areas the collecting cell should be washed every 12 weeks.

**NOTE:**

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

**STEPS FOR WASHING (Electronic Units Only)**

1. Switch control switch "OFF".
2. Remove pre-filter and cell.
3. Place components in automatic dishwasher, stationary tub, shower stall or over floor drain. Use hot soapy water and rinse thoroughly. (Ionizing wires are easily broken. Handle the cells with care.)
4. Replace pre-filter and cell.
5. Close cell access door.
6. Switch control switch to "ON".  
If arcing noise occurs due to wet cells, turn switch off and allow more drying time.  
If there are any problems, refer to the service check list.

**FM 1000E ELECTROSTATIC TROUBLESHOOTING**

THE FOLLOWING INSTRUCTIONS ARE FOR USE BY QUALIFIED PERSONNEL.

**WARNING:**

THE FOLLOWING PROCEDURES WILL EXPOSE HAZARDOUS LIVE PARTS. DISCONNECT THE AIR CLEANER BEFORE PROCEEDING.

All TRION Electronic Air Cleaners are manufactured to give the user continued trouble-free service. However, as with all mechanical equipment breakdowns do occur.

The Troubleshooting Chart on this page will enable the user to pinpoint the cause of most problems. Refer to the Ordering Information section for replacement parts.

Before troubleshooting the unit, refer to the Wiring Diagram; check for proper wiring connections and the

input line voltage. A minimum voltage of 108 VAC is required.

After assembling and installing the unit, turn the control switch to one of the 3 positions.

1. The unit's green "on" light should now be on indicating the unit has line voltage.
2. The voltage to the cell light (red) should be on indicating high voltage is being sent from the power supply to the cell. (Not on FM 1000 Media).

**ARCING (SNAPPING OR CRACKING NOISE)**

*Does not apply to FM 1000 Media*

An occasional arcing noise may be emitted from the air cleaner. This is normal and is caused by an exceptionally large piece of dirt or other matter entering the collecting cell. An arcing noise may also be noted after cell washing. If this occurs and is consistent, allow more time for the cell to dry. Refer to Troubleshooting Chart.

**CAUTION:**

TRUBLESHOOTING WILL EXPOSE HAZARDOUS LIVE PARTS. DISCONNECT POWER BEFORE PROCEEDING. ALLOW THE CELL TO DISCHARGE AT LEAST 2 MINUTES AFTER POWER HAS BEEN TURNED OFF TO INSURE THERE IS NO RESIDUAL CHARGE.

**FM 1000 MEDIA TROUBLESHOOTING**

THE FOLLOWING INSTRUCTIONS ARE FOR USE BY QUALIFIED PERSONNEL.

**WARNING:**

THE FOLLOWING PROCEDURES WILL EXPOSE HAZARDOUS LIVE PARTS. DISCONNECT THE AIR CLEANER BEFORE PROCEEDING.

All TRION Air Cleaners are manufactured to give the user continued, trouble-free service. However, as with all mechanical equipment, breakdowns do occur.

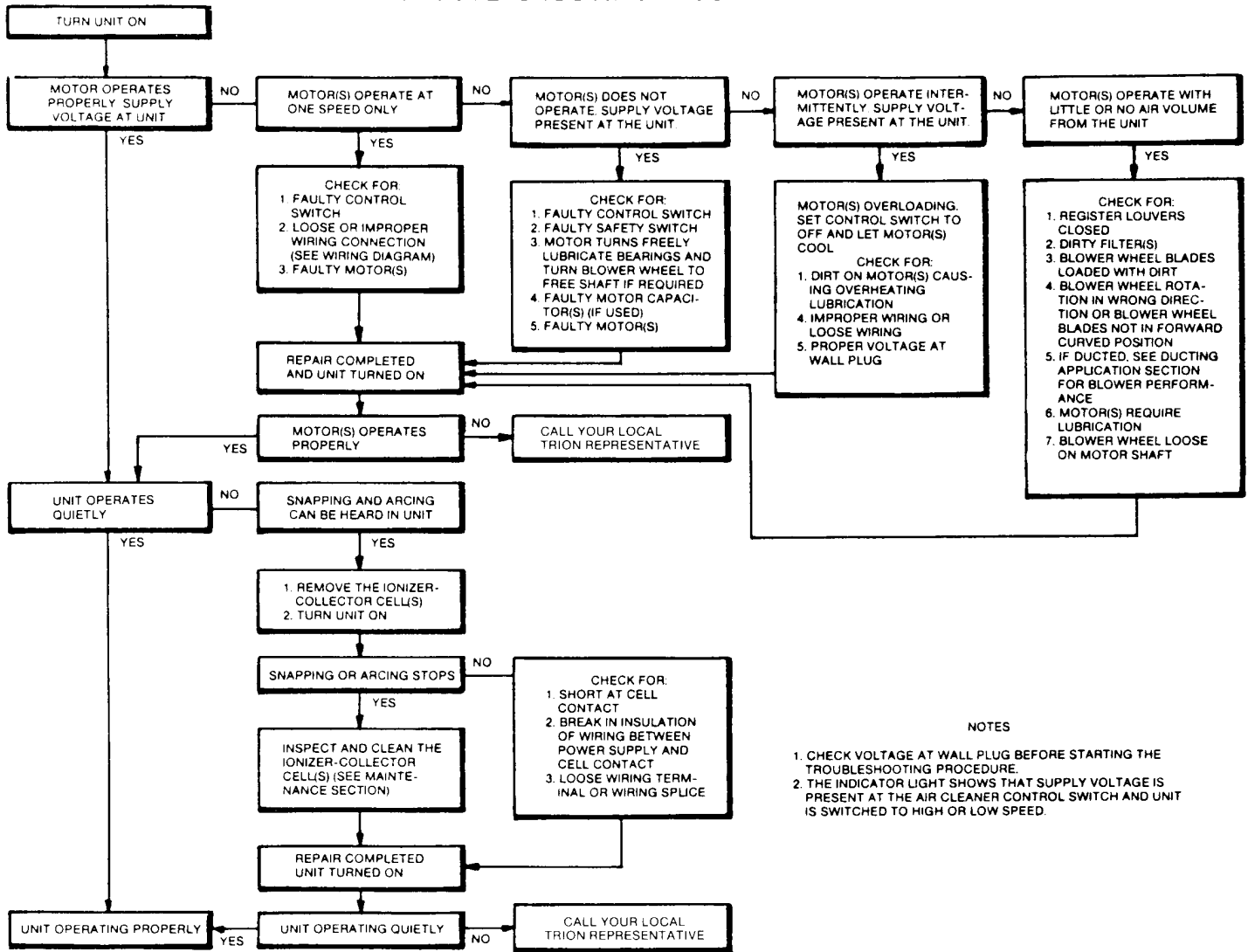
Troubleshooting the unit is very easy as there are only three electrical components in the unit; the motor with the capacitor, the speed controller, and a light.

## TROUBLESHOOTING

PROBLEM	SOLUTION
Unit does not operate Light not on	<ol style="list-style-type: none"><li>1. Check 120 VAC input power</li><li>2. Broken lead in power cord</li><li>3. Bad speed controller</li></ol>
Light on Blower does not run	<ol style="list-style-type: none"><li>1. Broken wire between the speed controller and the motor</li><li>2. Bad motor capacitor</li><li>3. Bad motor</li></ol>



## TROUBLESHOOTING PROCEDURE



### NOTES

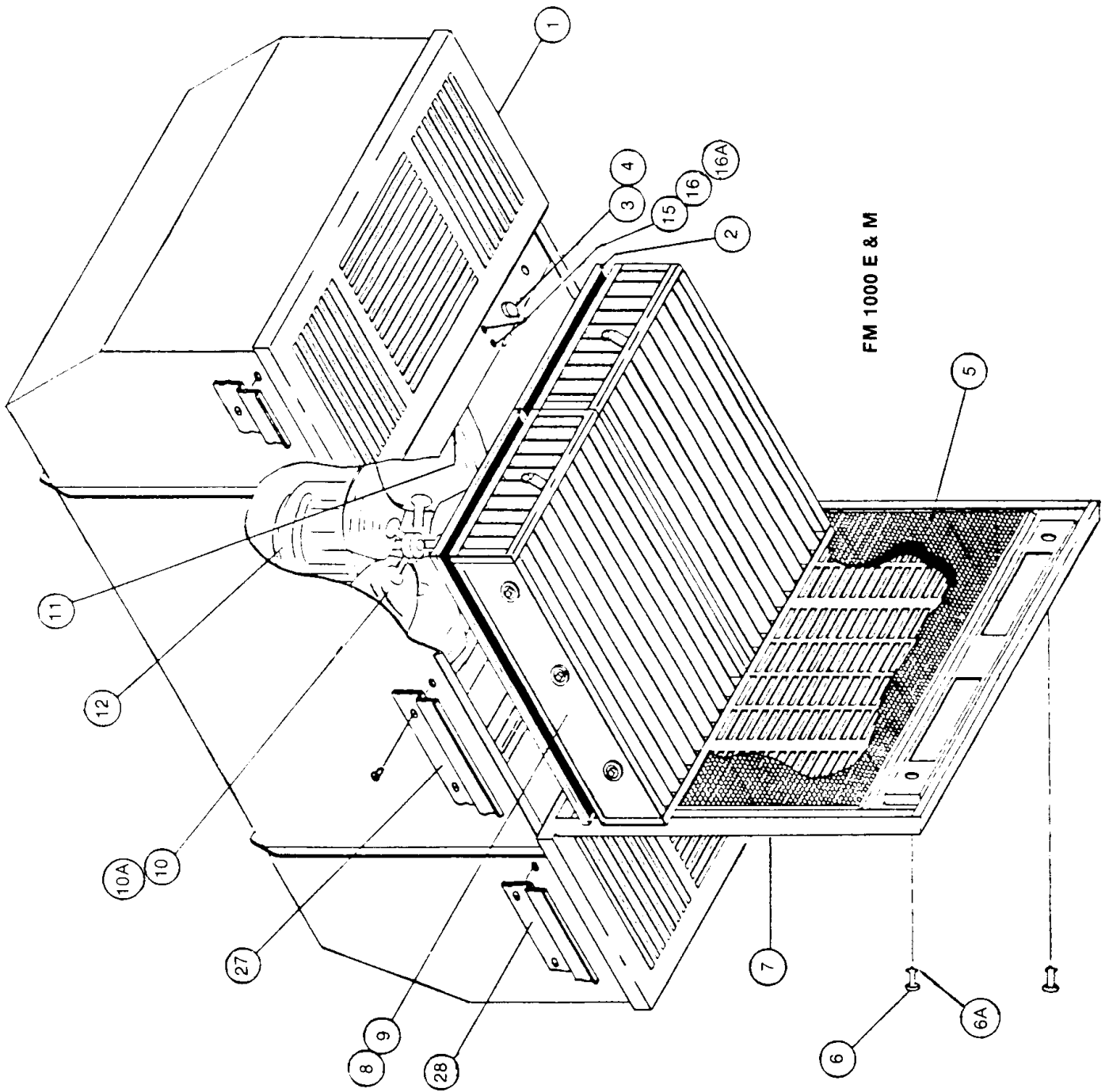
1. CHECK VOLTAGE AT WALL PLUG BEFORE STARTING THE TROUBLESHOOTING PROCEDURE.
2. THE INDICATOR LIGHT SHOWS THAT SUPPLY VOLTAGE IS PRESENT AT THE AIR CLEANER CONTROL SWITCH AND UNIT IS SWITCHED TO HIGH OR LOW SPEED.

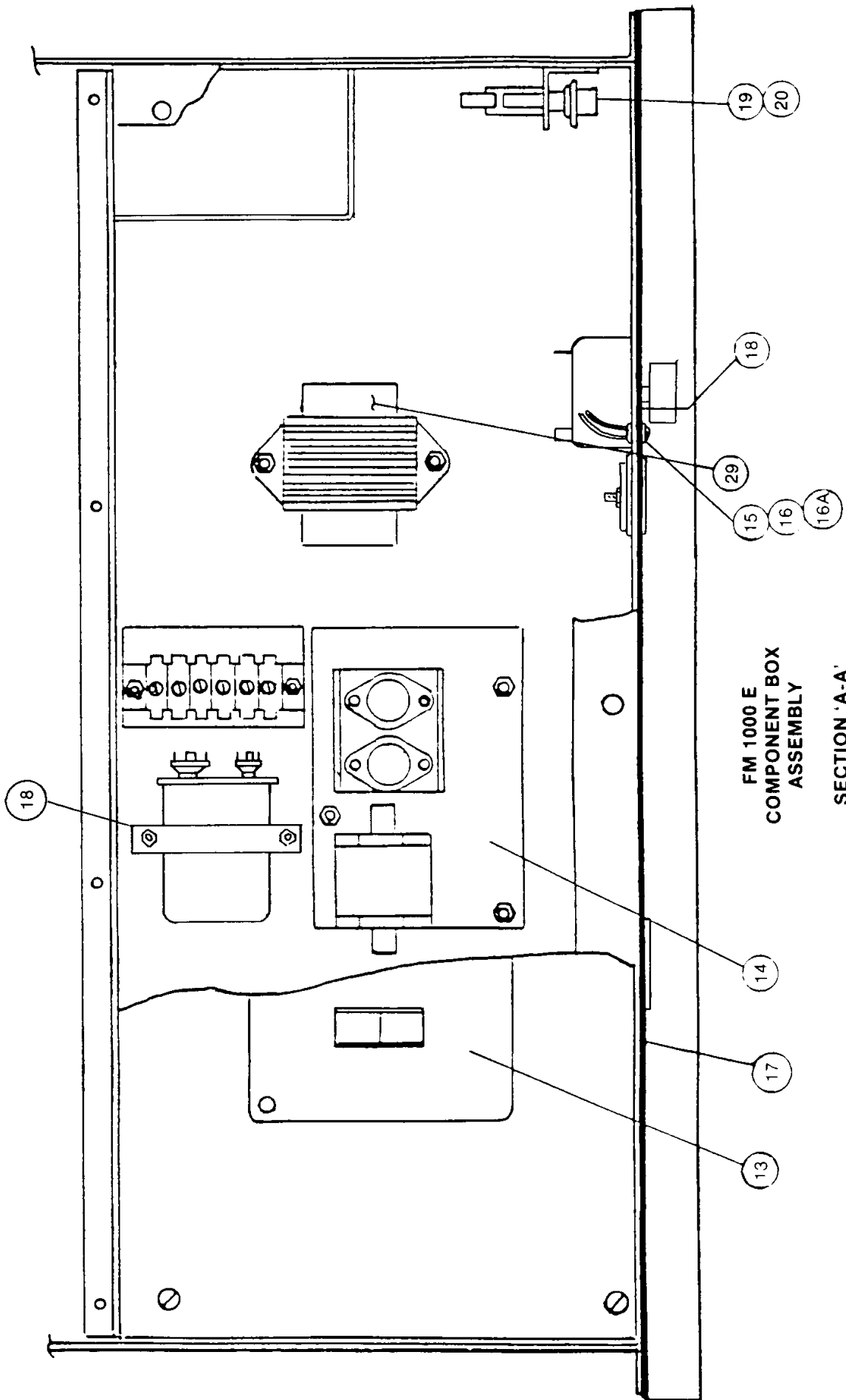
## FM 1000 E & M Unit Assembly Parts List

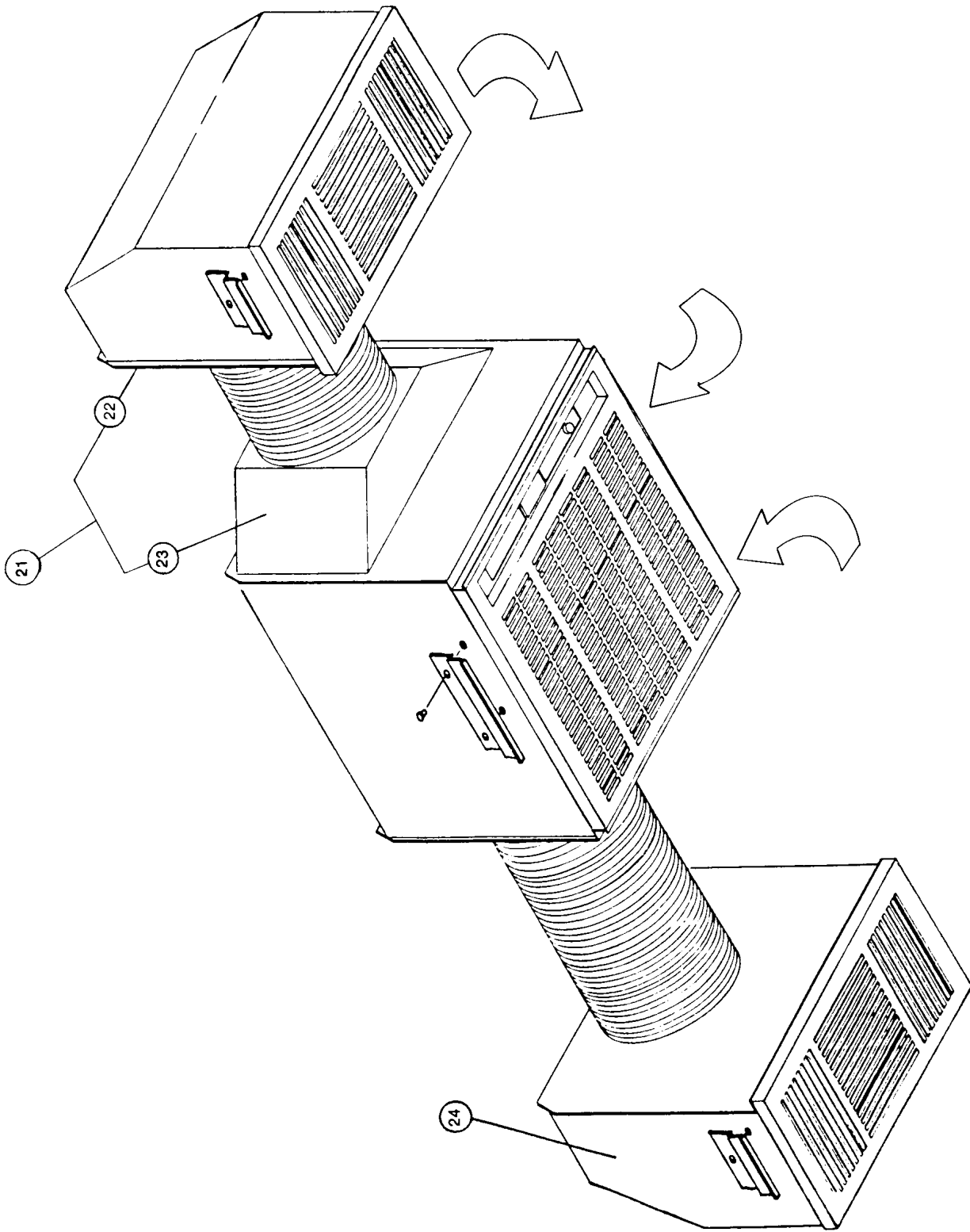
Item	Part Number	Description
1	440549-001	Discharge grill (2 req.)
2	227833-006	Charcoal afterfilter (2 req.)
3	228276-001	Switch, 3 speed rotary
4	139999-001	Knob, switch
4A	244223-001	Label, control switch ESP (not shown)
4B	244224-001	Label, control switch Media (not shown)
5	240550-001	Pre-filter, aluminum mesh
6	120034-506	Machine screw (2 req.)

6A	244225-004	Retainer (2 req.)
6B	120456-001	Nylon Washer (2 req.) (not shown)
7	440541-001	Access door
8	422086-504	Ionizer/collector cell (electrostatic)
9	340553-001	Pleated media filter (Media)
10	140551-001	4 blade fan (electrostatic)
10A	140552-001	5 blade fan (Media)
11	240537-001	Collector cell latch
12	340623-001	Motor
13	234458-006	High voltage contact board assy. (2 req)
14	341677-601F	Circuit board power supply
15	134516-013	LED light assy. (red electrostatic)
16	134516-007	LED light assy. (green electrostatic)
16A	140568-002	LED light assy. (green media)
17	240060-001	Name Plate (ESP)
17A	2400061-001	Name plate (Media)
18	129040-003	Capacitor
19	132322-001	Cap, Switch
20	132311-001	Safety Switch
21	440734-001	Remote discharge kit-less duct-Includes Items 22 & 23
22	340564-001	Plenum inlet adaptor (remote only) (2)
23	440559-001	Cabinet outlet adapter (remote only) (2)
24	340546-001	Outlet plenum
25	220111-029	Ionizer wire assy. (10 req.)
26	140569-001	Resistor assy. (Media only, not shown)
27	340659-001	Positioning bracket (Long 2 req.)
28	340660-001	Positioning bracket (Short 4 req.)
29	240636-001	Step down transformer





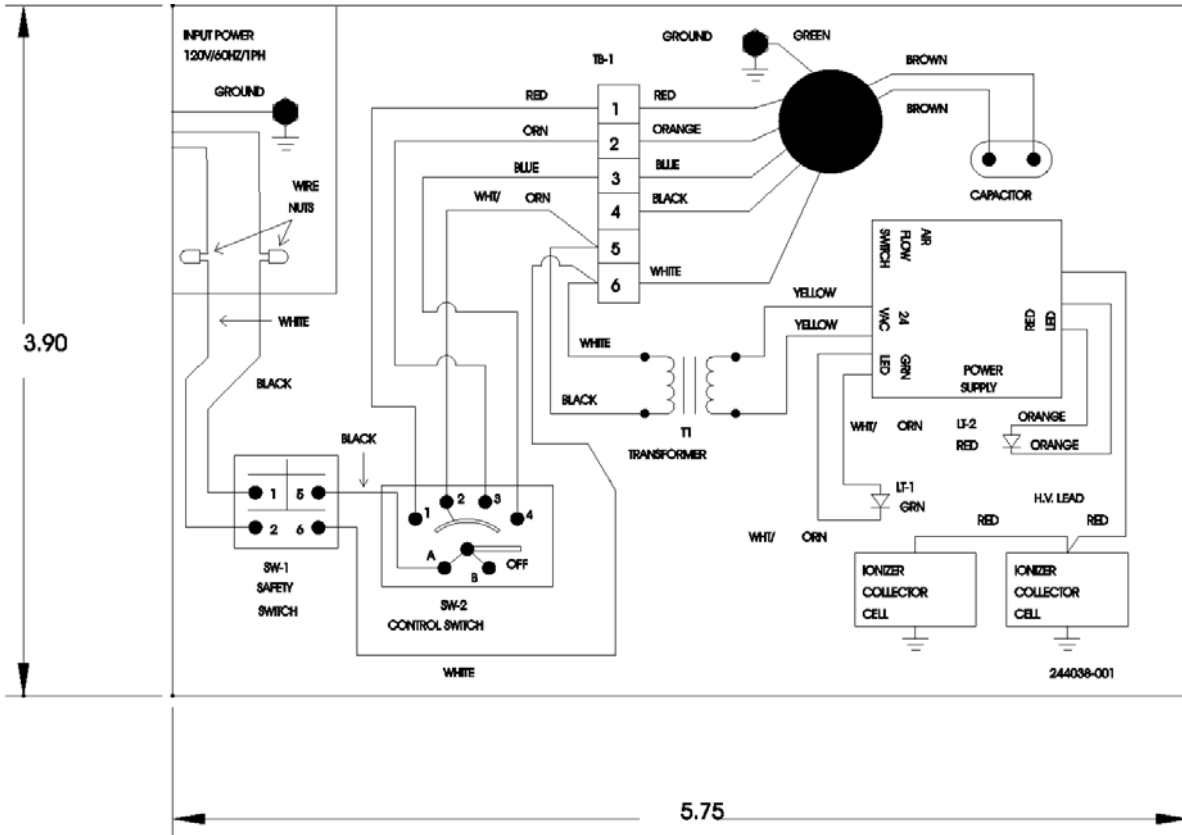


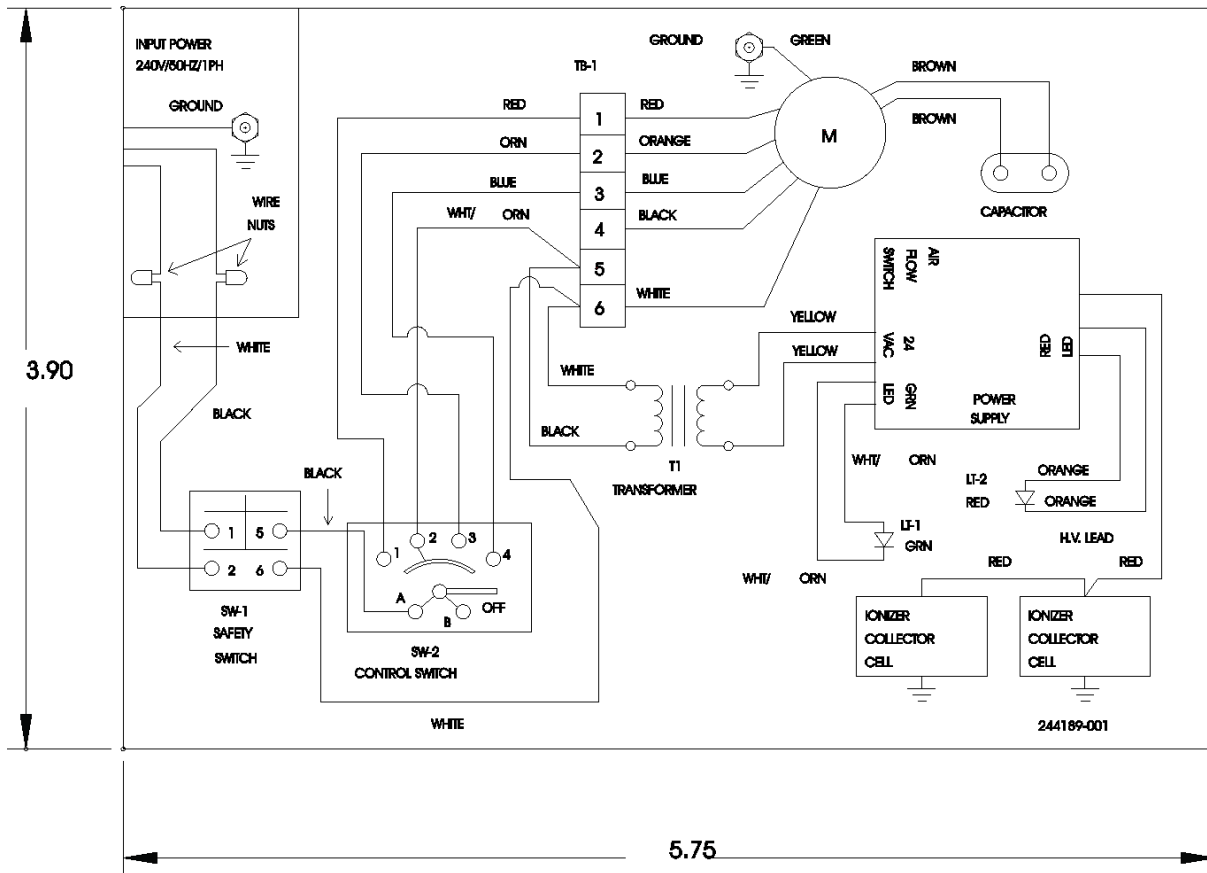


### TYPICAL ARRANGEMENT WITH REMOTE DISCHARGE PLENUMS

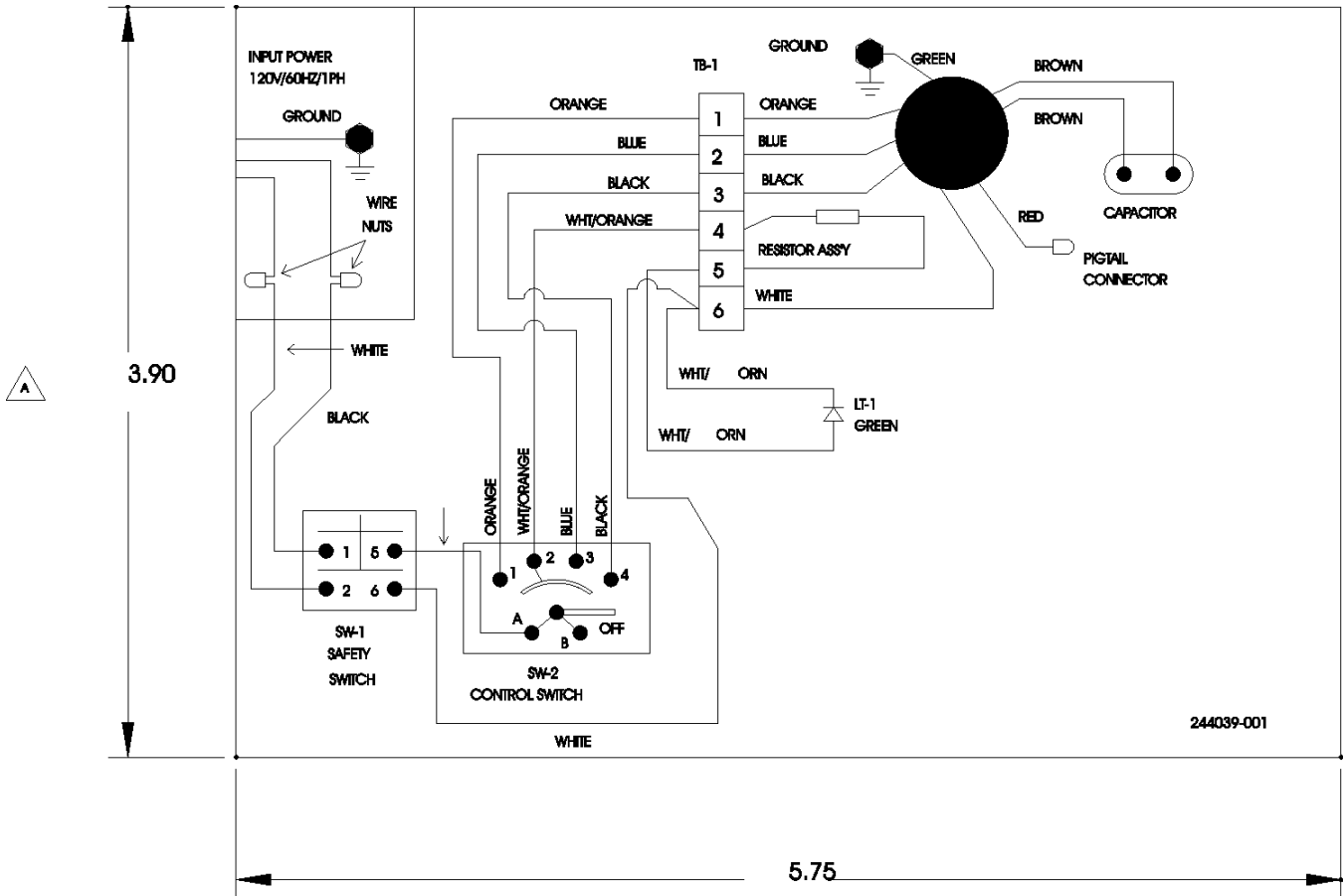
Discharge plenums may be placed up to 25 feet from unit.  
For maximum air flow, Trion recommends placing the discharge units within 8-10 feet of the units.

# FM 1000E Wiring Diagram





# FM 1000M Wiring Diagram



## WARRANTY

All Trion air cleaners are warranted for component failure and workmanship for a period of three years after purchase. Do not return defective parts without prior permission from the factory. Contact your local Trion Distributor or Trion Customer Service Department at 1-800-884-002 or Fax 1-800-458-2379 to obtain material return authorizations and service information.



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