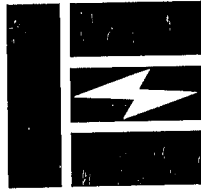


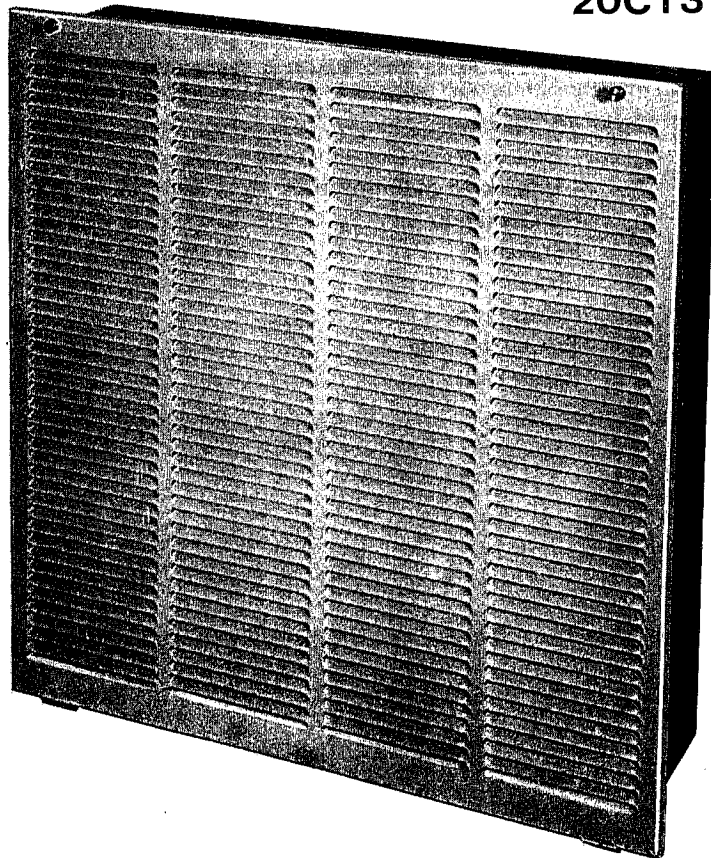
# EMERSON



## THRU-THE-WALL ELECTRONIC AIR CLEANER

INSTALLATION  
OPERATION  
SERVICE

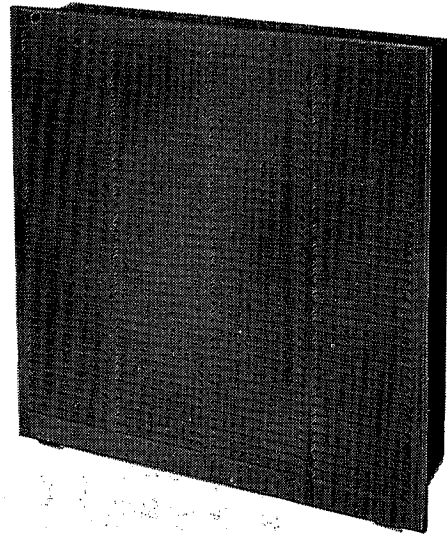
Model Nos. 10C13T-41002  
14C13T-41002  
20C13T-41002



# INTRODUCTION

Thru-the-Wall electronic air cleaners are designed to provide maximum air cleaning in applications where a single central return air duct is employed, or where the central heating or air conditioning is in a limited access area. The Thru-the-Wall units may be installed in the wall such as in closet installations or in the ceiling with attic type installations.

This manual contains essential information for locating, installing, operating and servicing your electronic air cleaner. Before installing and using your air cleaner, be sure to read these instructions carefully and observe them in order to derive the maximum benefits from the superior performance built into the unit and help to avoid needless service costs that result from causes the manufacturer cannot control and cannot be covered in the warranty.



The units are available in three models:

Model TTW-10 designed for an air volume of up to 1,000 CFM

Model TTW-14 designed for an air volume of up to 1,400 CFM

Model TTW-20 designed for an air volume of up to 2,000 CFM

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## HOW YOUR AIR CLEANER WORKS (See figure 1.)

Dirt laden air enters the unit from the room. It passes through the screen (A) first where large particles (hair, lint, etc.) are trapped. Smaller particles (smoke, dust, pollen, etc.) pass through this screen and enter the Ionizing Section (B). Here each tiny particle receives a positive electrical charge. These charged particles then enter the Collection Section (C) which consists of a series of aluminum plates . . . alternate plates are charged positive.

The positive charged particles are repelled by the positive plates and attracted to the negative plates where they are collected — just as a magnet attracts iron filings.

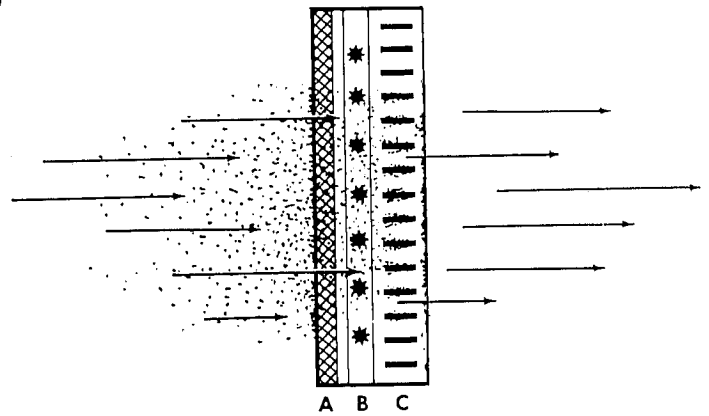


Figure 1

## UNPACKING AND INSPECTION

1. Unpack and carefully remove air cleaner from carton.
2. Stand air cleaner upright on floor.
3. Release two knurled screws (FIG. 2) at upper edge of grille, open grille and slide it out of hinges at bottom by moving it to the left.
4. Rotate two screen retainer latches either left or right to clear screen. Lift screen out.
5. Remove three screws, one at each end and one at center of electrical enclosure cover and remove cover.
6. Grasp the two spring clips at the points (A, FIG. 3) and pull the cell out at the bottom. The collection cell will move outward approximately three inches where it will be retained by the safety spring clip at location (B, FIG. 3). Depress this safety spring clip to free the cell at the bottom.
7. Grasp the cell at both sides and tilt it rearward at the top to slide the retaining pins out of their slots and lift the cell out of the cabinet. Place cell in a safe location.

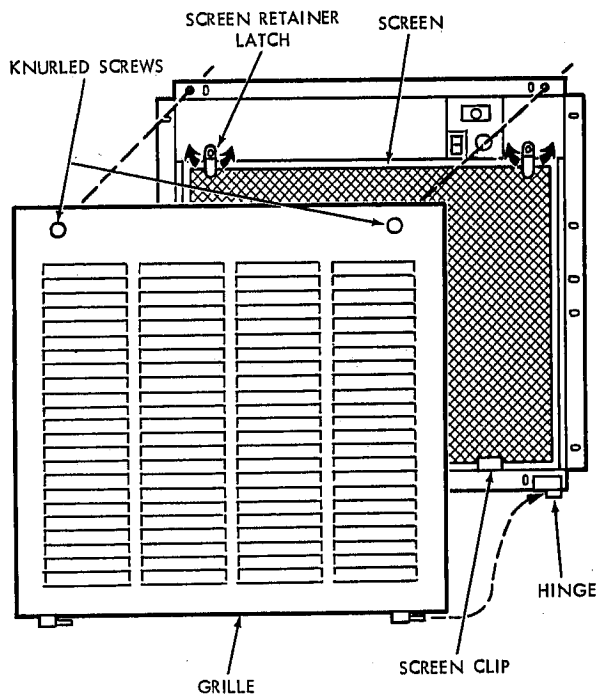


Figure 2

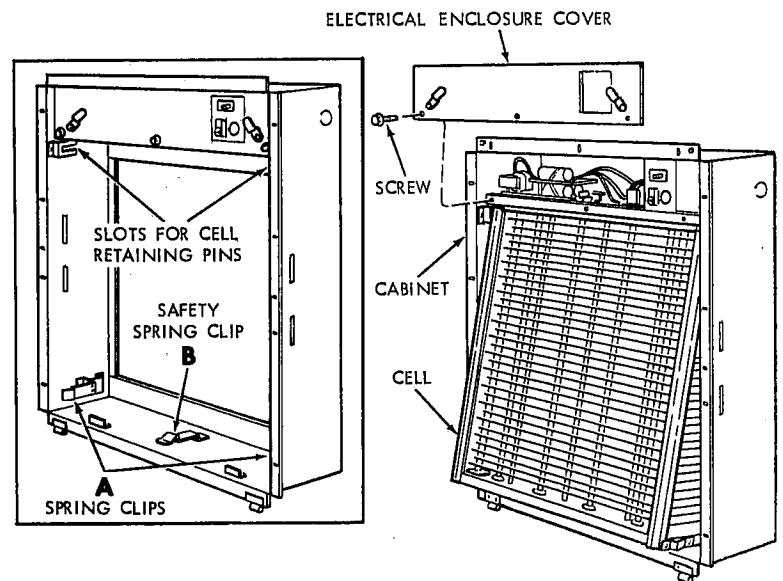
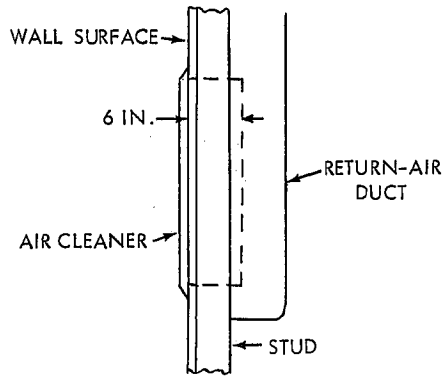


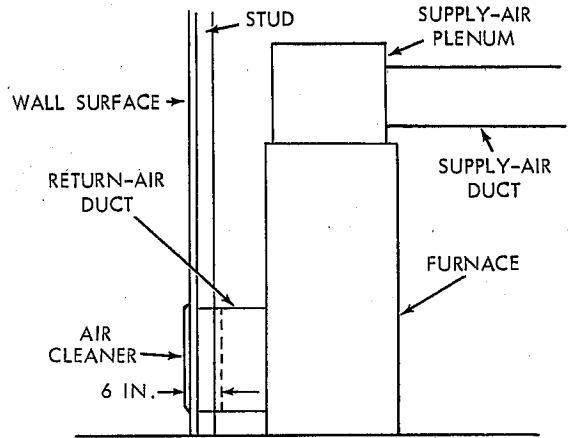
Figure 3

# PREINSTALLATION



TYPICAL WALL LOCATION

Figure 4



TYPICAL INSTALLATION USING DUCT EXTENSION

Figure 5

## LOCATING THE AIR CLEANER

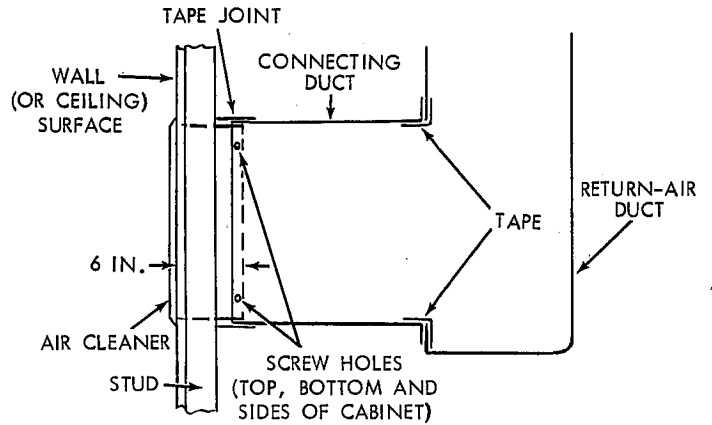
Your thru-the-wall Electronic Air Cleaner is mounted at the return-air duct inlet. (See figures 4 through 7.) It works equally well in either high or low wall installations, or in the ceiling. It can be used with any type of forced-air heating or cooling system.

In most cases, return-air ducts are located just inside the wall (or ceiling) grille. When the air cleaner is flush mounted it will extend through the wall cutout and into the return-air duct. If the return-air duct is located at a distance from the wall (or ceiling), extend a connecting duct to the rear of air cleaner frame with sheet metal screws.

**NOTE:** Always tape all ductwork joints with duct tape to prevent dirt-laden air from entering ducts.

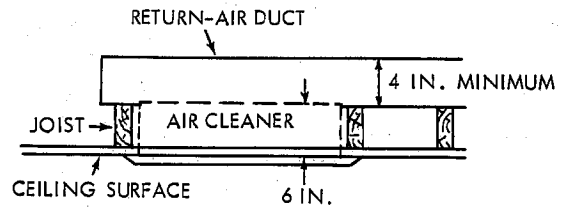
After deciding upon the exact location, make sure of the following before cutting out wall or ceiling area:

1. Exact location of return-air duct behind the wall (or ceiling).
2. Location is free of obstructions, such as steel support beams, piping or electric wiring.
3. Access to inner area for wiring connections.
4. Return-air duct is deep enough to accommodate air cleaner (6 inches, see figures 4 through 8.)
5. Enough room is left at a corner or wall offset to permit installation of the grille. (See figure 8.)



TYPICAL INSTALLATION USING DUCT EXTENSION

Figure 6



TYPICAL CEILING LOCATION

Figure 7

DIM.	1000 CFM	1400 CFM	2000 CFM
A	16-15/16	23-7/8	28-7/8
B	9-7/16	16-7/16	21-7/16
C	18-7/16	25-3/8	30-3/8
D	19	26	31

Refer to page 2 for model numbers and CFM cross references.

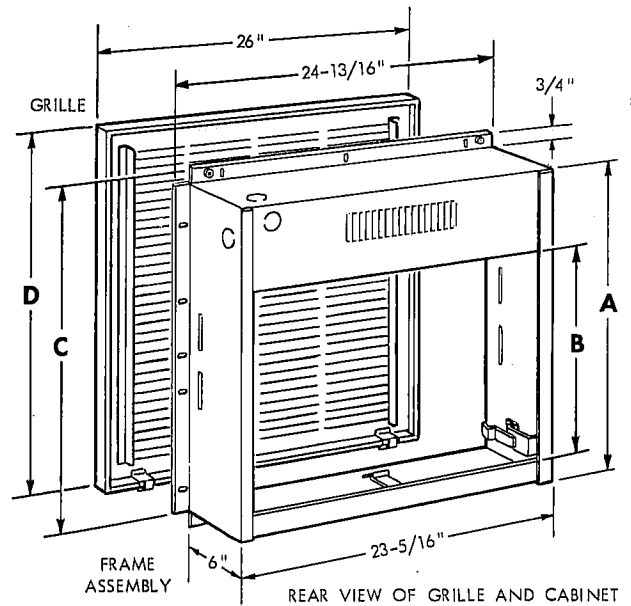


Figure 8

## MECHANICAL INSTALLATION

Remember that allowance must be made for the grille to swing down so that the cell can be removed by pulling it straight out of the cabinet. (Figure 9).

## DUCT WORK CONNECTION

If the duct work to be used is larger or smaller than the recommended framing sizes, a transition should be installed between the duct work and the air cleaner to insure maximum filtering efficiency. The expansion or contraction rate of the transition should not exceed the ratio of 1 to 3. (See figure 10)

Once the duct connection to the framing is completed, the air cleaner frame (cabinet) may be inserted into the framing cavity.

Before inserting the cabinet, one of the three knockouts (figure 15) should be removed for insertion of the 120 VAC input wiring.

After properly positioning the cabinet, it may be fastened to the framing either by using the mounting holes in the inside walls of the cabinet or the mounting holes in the front flanges of the unit.

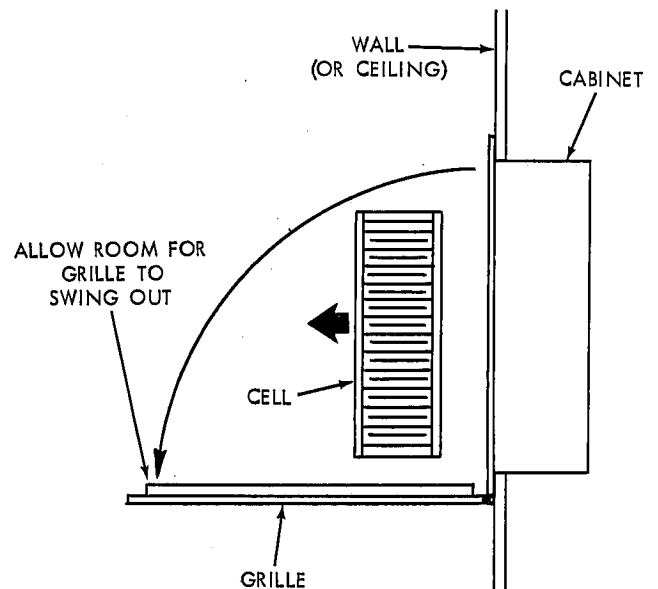
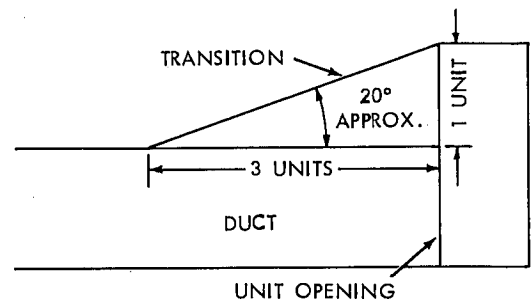


Figure 9



TRANSITIONING TO CABINET

Figure 10

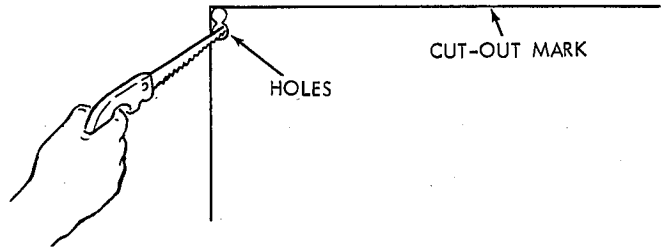
# INSTALLATION

**CAUTION: READ INSTRUCTIONS COMPLETELY BEFORE STARTING THE INSTALLATION.**

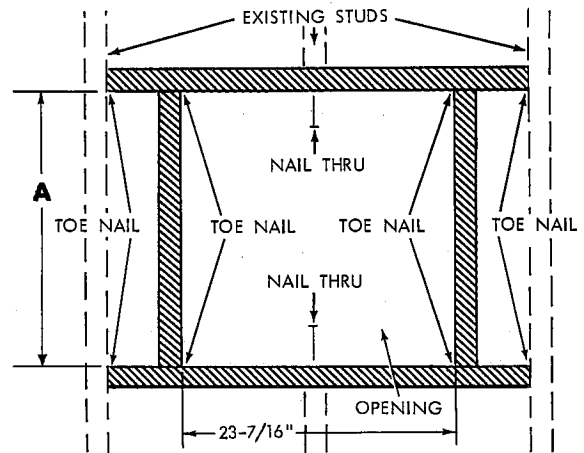
1. Mark the cutout area. (See figures 8 and 12 through 14 for dimensions.)
2. Drill holes at the corners of area to be cut out to permit insertion of saw blade. (See figure 11.)
3. Carefully saw out wall or ceiling area exactly as marked. Remember the frame flange is only 3/4-inch wide. It will not cover an oversize or irregular cutout.
4. Figures 12, 13 and 14 show several possible situations that will be apparent when the cutout is finished. With standard stud spacing you will run into either one or two studs. They must be cut and the section removed at air cleaner location.
5. Install headers all around air cleaner opening (four sides). This will provide good support of air cleaner and restore the original wall strength. Use basic concepts shown in figures 12 through 14 if your wall differs from the diagrams shown.

**NOTE:** The same method for framing the air cleaner cutout can be applied to ceiling joists, when a ceiling installation is required.

6. Cut out required opening in return-air duct. The duct cutout should fit air cleaner cabinet as closely as possible. If duct is more than six inches from wall surface, install a connecting duct between air cleaner cabinet and existing duct. (See figures 5 and 6.)
7. Slide the frame assembly into the finished cutout. Make sure it fits properly, then remove it.



**Figure 11**

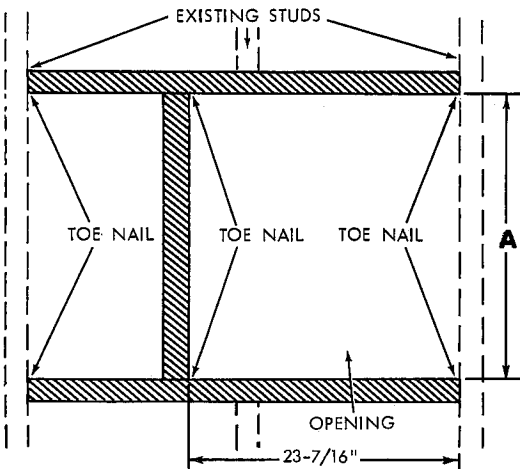


ADD STRINGERS AND HEADERS AT SHADED LOCATIONS

**Figure 12**

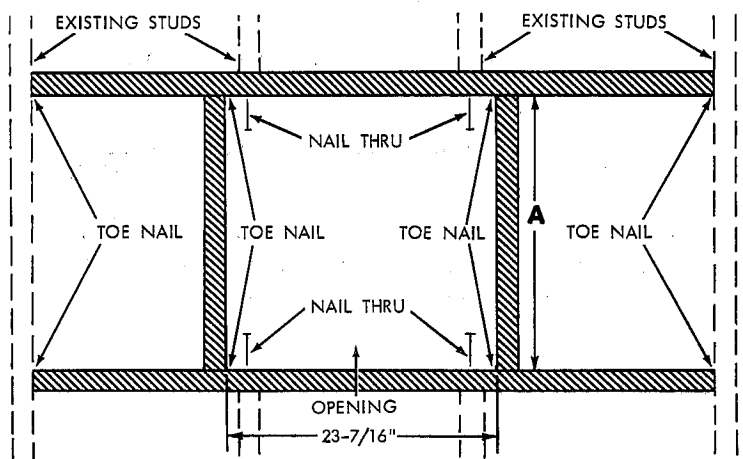
\*Dimension "A" in figures 12 through 14 are as follows:

- 1000 CFM = 17"
- 1400 CFM = 24"
- 2000 CFM = 29"



ADD STRINGERS AND HEADER AT SHADED LOCATIONS

**Figure 13**



ADD STRINGERS AND HEADERS AT SHADED LOCATIONS

**Figure 14**

8. Prepare air-cleaner cabinet for electrical connection as follows:
  - a. Determine location of power supply source which will dictate the location of electrical wiring.
  - b. Three knockouts (figure 15) are located in upper right-hand corner of cabinet. A built-in "J" type junction box is included. Secure wiring with accepted hardware.
  - c. The usual knockout location is at upper rear of cabinet. If an obstruction, prohibits this location, use either of the two other knockouts.
  - d. Allow at least 10 inches of wire lengths on inside of cabinet for connection to air-cleaner wires.
9. Connect air-cleaner to existing wiring.

Wiring to the air cleaner must comply with local electrical codes. For this reason, specific wiring instructions are not given. The color coding of wires out of the female power receptacle are white and black. They should be matched to wires of the same color from electrical power source (figure 18). Connect ground wire from power source directly to the green grounding wire provided in the junction box area.

This Thru-the-Wall electronic air cleaner is equipped with a solid state Air Flow monitor (figure 16) that will automatically turn your air cleaner ON or OFF whenever the furnace fan is running.

10. Install frame assembly in wall opening:
  - a. Slide air cleaner cabinet into wall opening.
  - b. Secure the cabinet in opening with nails, or screws, through the 12 holes provided in face of flange (figure 17), or through holes in cabinet walls.

**CAUTION:** On ceiling installations, be sure to use all 12 flange holes to support full weight of air cleaner.

  - c. If an extension duct is required, install it now.
  - d. Reach through air cleaner cabinet and tape all joints made into ductwork.

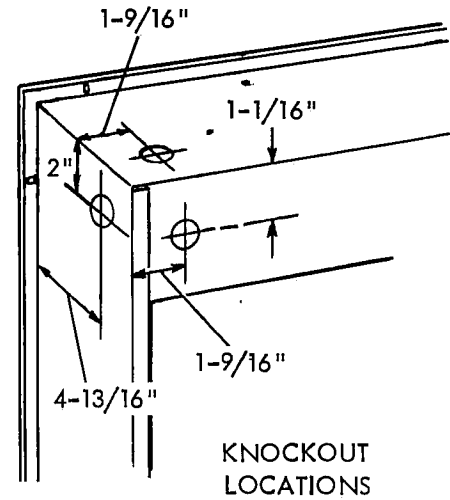


Figure 15

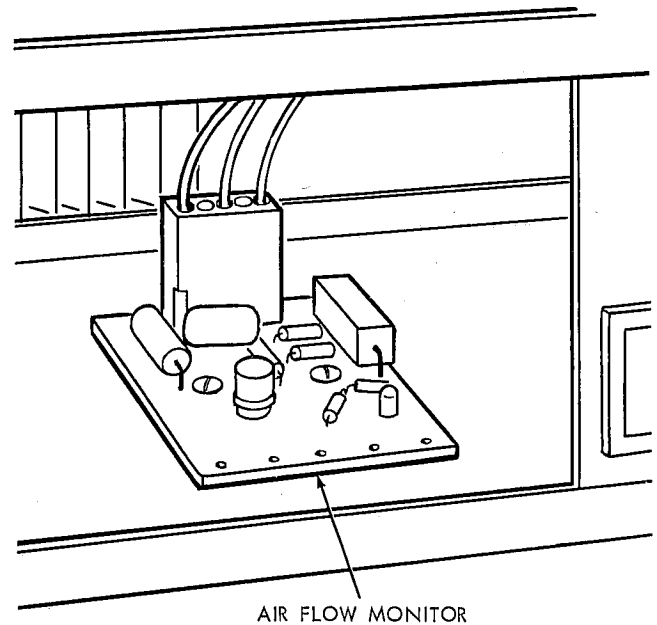


Figure 16

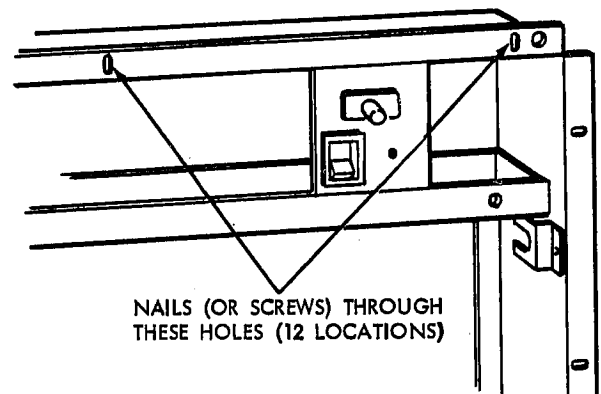


Figure 17

11. Connect Power Wires.

- a. Connect black and white wires from power supply to corresponding black and white wires in the air cleaner junction box. (See figure 18.)
- b. Connect ground wire (green or bare wire) from power source to green grounding wire in junction box.
- c. Install electrical enclosure cover with three screws. (See figure 2.)

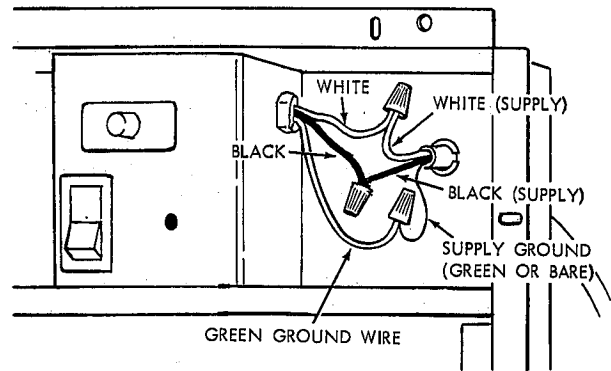


Figure 18

12. Install the cell.

- a. Grasp the cell firmly, holding it at a slight angle with the cabinet (out at bottom). The arrow on top of cell should point inward.
- b. Insert cell at the top and engage retaining pins (FIG. 19) into their respective cell-retaining slots, then slide cell outward until retaining pins are at bottoms of slots.
- c. Allow cell to swing inward at the bottom, pushing slightly until it "clicks" over the safety spring clip at bottom center of cabinet.
- d. Continue to push cell inward at bottom until it latches into the spring clips (one at each side of cabinet). Make sure both clips are latched. (See FIG. 19).

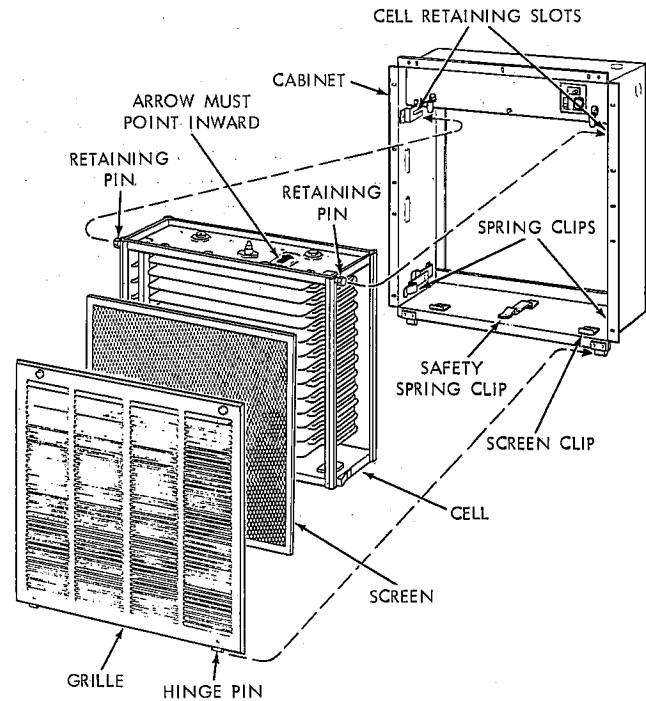


Figure 19

13. Install screen and grille.

- a. Drop screen behind two screen clips at bottom of cabinet and fasten at upper edge with two spring retainer latches. (See FIG. 2)
- b. Engage pins at lower edge of grille into their mating hinges. Slide grille toward the right until hinge pins are fully seated.
- c. Leave grille open until after operational tests have been performed.

**CAUTION:** When installing the cell on ceiling installations, make sure it is latched securely in cell frame before releasing it. (See figure 20.)

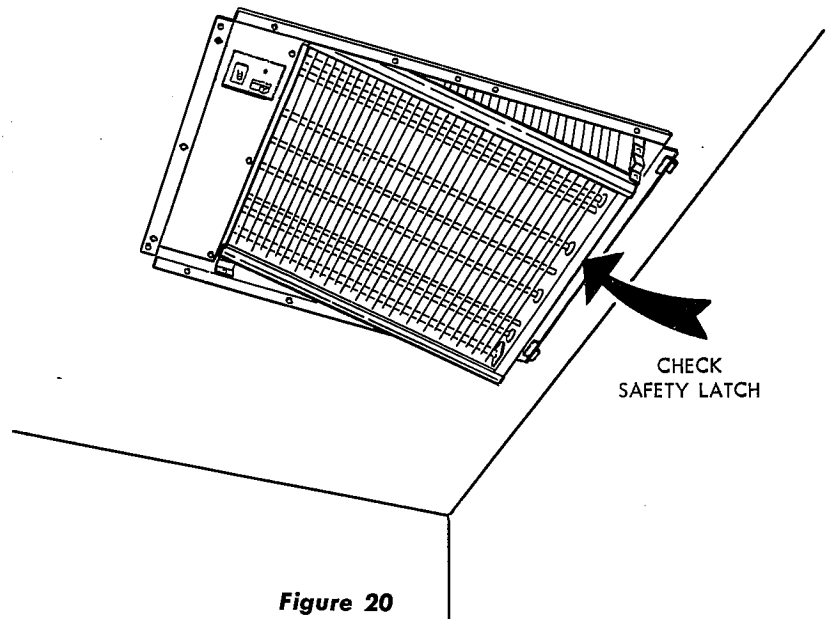


Figure 20



# OPERATION

1. Turn on furnace or air conditioner to get air flow through the duct.
2. Press the lower section of "ON-OFF" rocker switch (Figure 21).
3. Close the grille by rotating into position on the cabinet (fig. 19). Lock in position with two knurled screws.

**NOTE:** Your air cleaner is equipped with an air sensing device. It may provide a short delay before the operating light comes on.

**IMPORTANT** — Occasionally, you will hear a sharp snapping sound (called arcing) coming from the air cleaner. Arcing is a normal phenomenon. It can result from the collection of especially large particles. It occurs more often in a new installation. Later on, arcing may occur when the cell has become loaded with dirt and needs washing, or when still damp after washing. The presence (or absence) of this sound normally does not mean that the unit is defective.

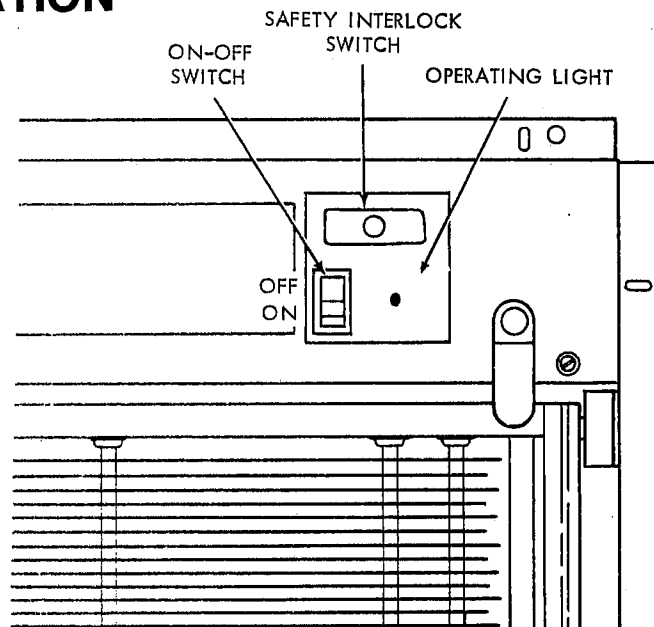


Figure 21

# MAINTENANCE

## WASHING CELL AND SCREEN

**NOTE:** For top performance your electronic air cleaner should be cleaned at least every two months, or more often in areas of extreme air-borne dust.

1. Remove two knurled screws and open the grille.
2. Push "ON-OFF" rocker switch at top to turn it off. (Figure 21). Wait 15 seconds.
3. Rotate two screen retainer latches either left or right to clear screen. Lift screen out.
4. Release the two retaining spring clips (one at each side, Figure 22) and pull cell outward until it is stopped by the safety spring clip at bottom center of cabinet.
5. Release safety spring clip and pull cell outward at bottom until it swings free.
6. Tilt cell outward at bottom and slide it inward at the top to release the two retaining pins from their slots in cabinet. Place cell in a safe location.

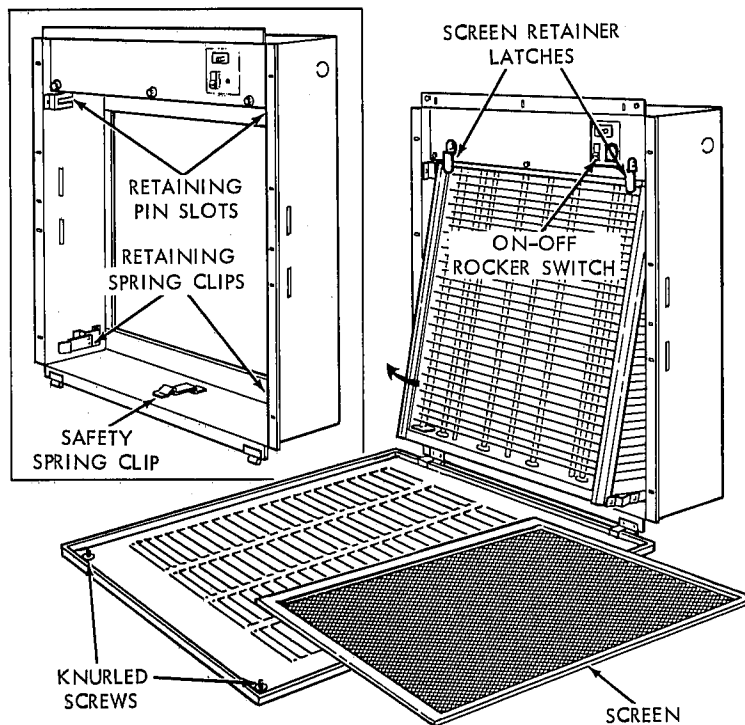
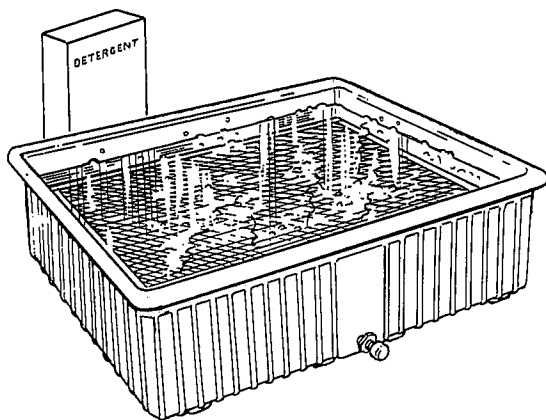
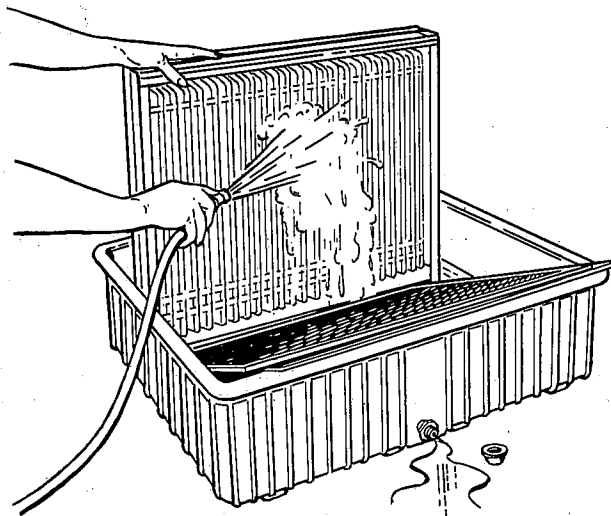


Figure 22



**Figure 23**



**Figure 24**

**7. PREPARE THE WASH WATER:**

- a. Place enough hot water in a suitable wash container (figure 23) to cover the cell.
- b. Dissolve four ounces of automatic dishwasher detergent, such as Calgonite, in the water. Liquid detergents used to wash dishes by hand are not strong enough for good cleaning.
- c. Shake the screen gently outside the house to remove heavy dirt collections.

**8. SOAK:**

- a. Lay the cell in the container and allow it to soak for thirty minutes.
- b. Then slosh the cell up and down in the solution until it appears clean. Remove cell from container.
- c. Then slosh the screen up and down in the solution until clean. Drain out the dirty water.

**9. RINSE:**

- a. Hold cell upright in container.
- b. With a hose, rinse with warm water. (See figure 24.)
- c. The hose nozzle should be held approximately ten inches from cell plates and at a slight angle for better cleaning effect. Rinse both sides of cell until water is clear.

- d. Flush cell frame along edges to dislodge any trapped dirt or lint.
- e. Flush and rinse screen on both sides.
- f. Stand cell and screen up and allow them to drain for 2 hours.

**10. INSTALL CELL**

**CAUTION:** When installing the cell in a ceiling installation, make sure it is latched securely in place before releasing it (Figure 20).

- a. Grasp the cell firmly, holding it a slight angle with the cabinet (out at bottom). The arrow on top of cell should point inward.
- b. Insert cell at the top and engage retaining pins (Figure 19) into their respective cell-retaining slots, then slide cell outward until retaining pins are at bottoms of slots.
- c. Allow cell to swing inward at the bottom, pushing slightly until it "clicks" over the safety spring clip at bottom center of cabinet.
- d. Continue to push cell inward at bottom until it latches into the spring clips (one at each side of cabinet). Make sure both clips are latched. (See Figure 19).
- e. Press the lower section of the "ON-OFF" switch to turn unit on.
- f. Replace the screen. Close the grille and secure it with the two knurled screws.

## REPLACING AN IONIZING WIRE

If one or more ionizing wires in the cell should break, usually caused by accidental damage, it can be replaced as follows:

1. Remove all pieces of broken wire. Make sure supports at each end are in good condition and not bent out of shape.
2. Hook the wire at one end onto the support.
3. Hold a finger against the support at other end (Figure 25) and hold ionizing wire between thumb and forefinger as shown. Press on spring and push on wire loop until it slips over end of support. Make sure wire is securely anchored at each end.

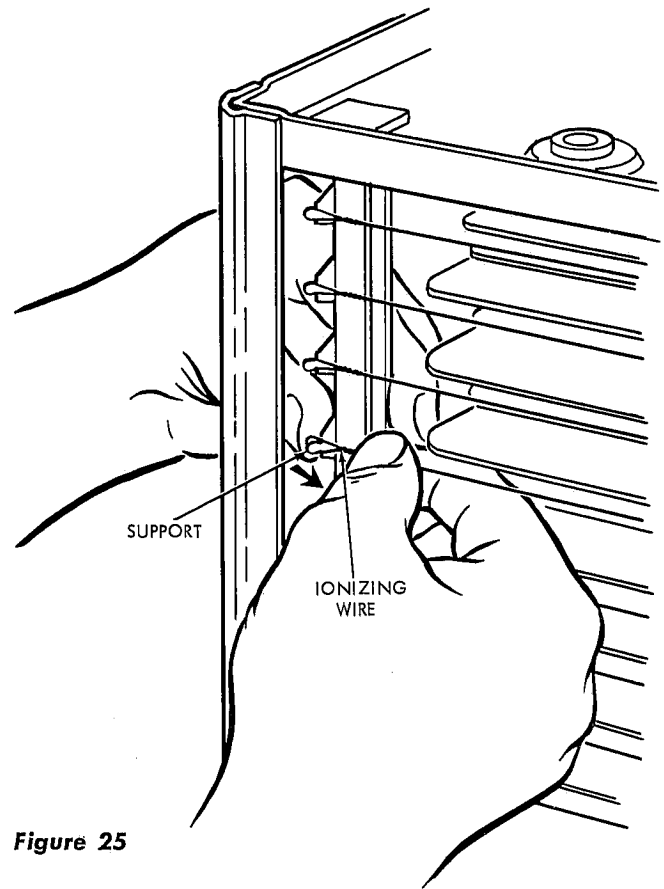


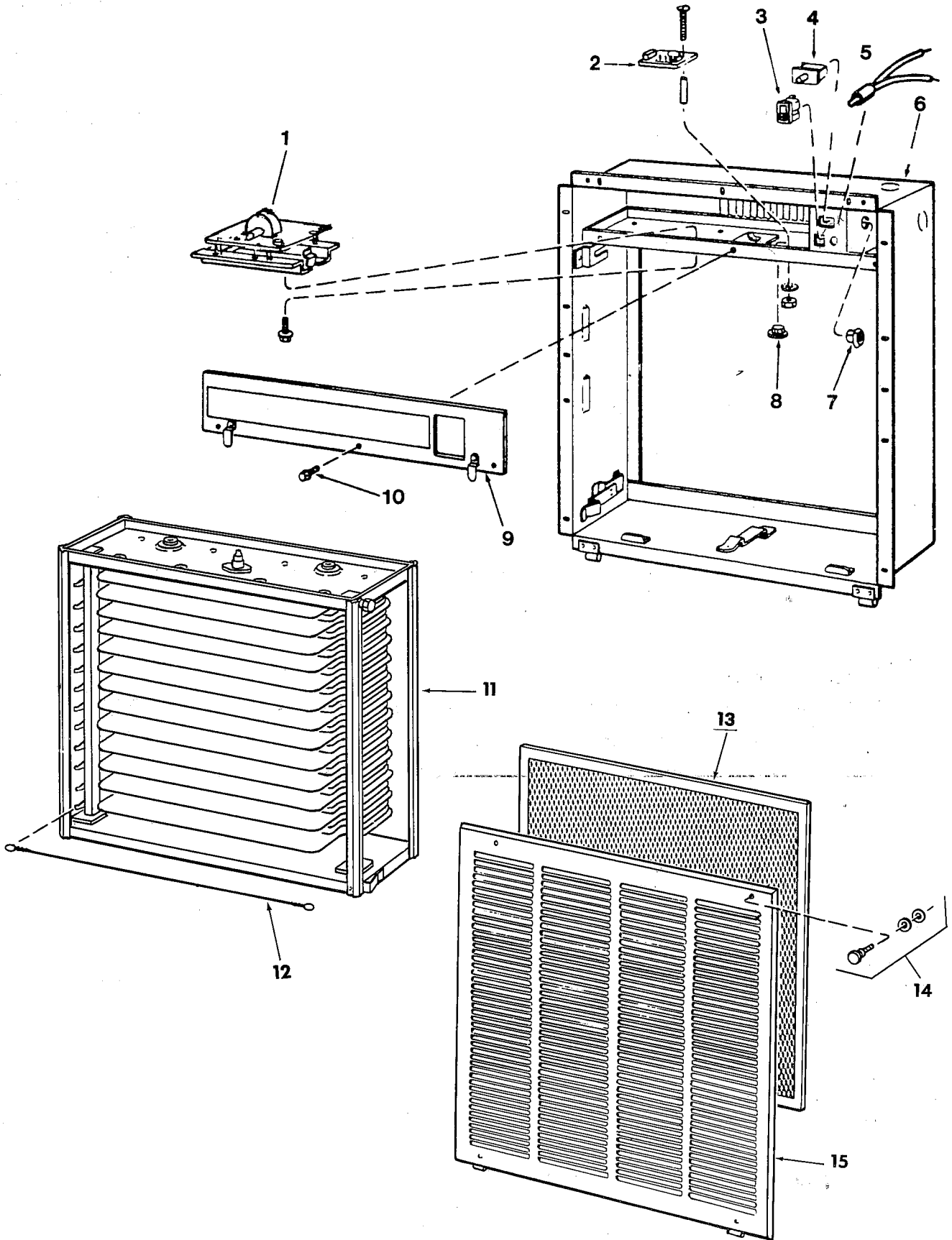
Figure 25

## Service hints...

**“The following instructions are for use by qualified personnel. WARNING: The following procedures will expose hazardous live parts. Disconnect electrical power to air cleaner before proceeding.”**

INDICATION	CORRECTIVE PROCEDURES
ON-OFF Switch Light on —Operating Light on.	1. Electric power is being supplied to the air cleaner and the unit is functioning.
ON-OFF Switch Light off —Operating Light off.	1. Electric power is not being supplied to the air cleaner. a. See that system fan is operating. b. Check fuse or circuit breaker in main circuit control box. c. Check ON-OFF switch for ON position.
ON-OFF Switch Light on —Operating Light off.	1. Large foreign object might be lodged between collective plate of cell. a. Remove cell and wash thoroughly.  2. Broken ionizing wire. a. Install a new wire as outlined above.  3. Malfunction in electric power supply. a. Notify your Service Man.

# REPAIR PARTS



**Model Nos. 10C13T-41002  
14C13T-41002  
20C13T-41002**

WHEN ORDERING REPAIR PARTS, ALWAYS GIVE THE FOLLOWING INFORMATION AS SHOWN IN THIS LIST.

1. The PART NUMBER
2. The PART DESCRIPTION
3. The MODEL NUMBER
4. The NAME OF ITEM – Electronic Air Cleaner

Always Order by "Part Number" . . . Never by "Item No."

Item No.	Description	PART NO.		
		10C13T	14C13T	20C13T
1	Power Supply Assembly . . . . .	F858-0707	F858-0706	F858-0705
2	Air Switch Assembly (Includes Spacer and Screws) . . . . .	F859-0292	F859-0292	F859-0292
3	Switch (ON-OFF) . . . . . <i>-0189</i>	<del>F876-0202</del>	<del>F876-0202</del>	<del>F876-0202</del>
4	Switch (Safety) . . . . .	F876-0199	F876-0199	F876-0199
5	Operating Light . . . . .	F844-0135	F844-0135	F844-0135
6	Main Cabinet . . . . .	F808-0337	F808-0335	F808-0336
7	Strain Relief . . . . .	F888-0073	F888-0073	F888-073
8	Bushing, Sensor . . . . .	F888-0072	F888-0072	F888-0072
9	Cover, Electrical Enclosure w/label . . . . .	F857-0360	F857-0360	F857-0360
10	**Screw, "Type B" SMS No. 8 x 1/2 . . . . .	—	—	—
11	Cell Assembly . . . . .	F811-0267	F811-0265	F811-0266
12	Ionizing Wire . . . . .	F843-0775	F843-0775	F843-0775
13	Pre-filter . . . . .	F825-0260	F825-0261	F825-0262
14	Screw, with Washer . . . . .	F870-0026	F870-0026	F870-0026
15	Grille . . . . .	F831-0095	F831-0096	F831-0097
†	Manual . . . . .	846-0262	846-0262	846-0262

\*\*Standard Hardware Item—May be Purchased Locally.

† Not Shown

# WHITE-RODGERS



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