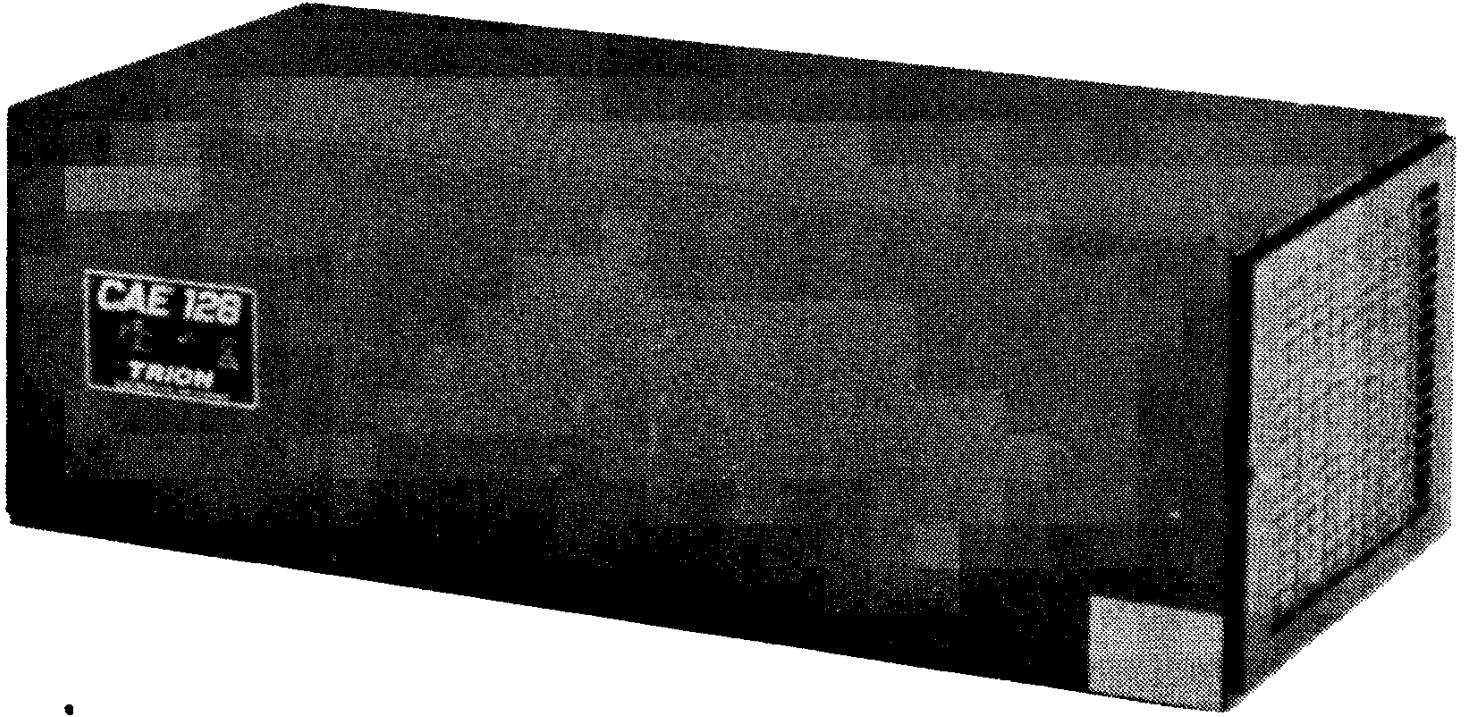


# CAE 128



Manual for:

Installation • Operation • Maintenance

**TRION<sup>®</sup>**

## SPECIFICATIONS

### CAE 128

CFM: 630 - 1150 Variable

565 - 890 With Carbon Filter Option

**Sound Rating:** 44 dBA to 65 dBA

**Efficiency:** Up To 98%

**Input Voltage:** 120 VAC, 60 HZ

**Input Consumption:** 585 Watts Nominal, 6.1 amps

**Weight:** 160 lbs.

**Dimensions:** 20"W x 14 1/2"H x 43"L

**Motor:** 1/3 HP, Thermally Protected

**Control:** Variable Speed Switch

**After-filter:** Carbon Partial Bypass Design, Disposable (Optional)

**Power Supply Output:** 6.4 - 6.7 KVDC @ 1.2 mA

## PRINCIPLES OF OPERATION

The TRION Model CAE 128 consists of four basic components:

- 1) A cabinet for housing all components
- 2) A blower for moving the air
- 3) Electrical wiring
- 4) Collecting components

The air in any room contains millions of various particulates. The composition of the particles will vary depending on the environment. These air contaminants may be in the form of smoke, atmospheric dust, small particles of grease or liquids. The particle size may range from as minute as .03 micron up to anything light enough to remain airborne. (A micron is one millionth of a meter or 1/25,400").

The CAE 128 utilizes the principle of Electronic Precipitation. Air is forced in through the metal mesh prefilter which traps lint and the larger particulate. The remaining particles pass into a strong electrical field (ionizing section) where they receive an electrical charge. These charged particles pass into a collector plate section made up of a series of equally spaced parallel plates. Each alternate plate is charged with the same polarity as the particles, which repel, while the interleaving plates are grounded, which attract and collect. The CAE 128 has two ionizer/collector cells in series. The above process is repeated in the second cell. This allows for increased air velocities with higher collection efficiencies.

## DUCTING APPLICATION

The Model CAE 128 Air Cleaner is designed for a very limited duct system or no duct system. The duct system must be carefully designed so that the air cleaner can handle the required amount of air with minimal

external static pressure. The direct drive blowers cannot be modified by increasing blower speed or using a larger motor to correct for error in duct design. Capture hoods and duct design information may be obtained from the Industrial Ventilation Handbook.

When connecting ductwork, provision must be made for removing the filter elements. Access to the internal components is gained through the air intake panel.

## NEW UNIT INSPECTION

Immediately upon receiving the unit, carefully examine the carton for damage during transit. If unit is damaged, contact the last carrier for filing claim and your TRION distributor.

While uncartoning the unit, look for concealed shipping damage. If there is damage, it should be reported to the last carrier for filing claim and your TRION distributor.

## PREPARATION AND INSTALLATION

This manual should be carefully read before starting the preparation and installation of the air cleaner.

The installation should conform to all local ordinances associated with building codes and electrical codes required for the unit. Authorities having jurisdiction should be consulted before installation is made. If there are no local codes, the installation should conform to the National Electrical Code.

For maximum air cleaning efficiency, your air cleaner should be located as specified by your TRION distributor.

The Model CAE 128 is recommended for use in a dry particulate collection environment.

The unit can be either wall-mounted or chain-hung. Four 1/4 dia. eyebolts, flat washers and nuts are supplied with the unit. Optional wall mount brackets are available from your TRION distributor.

**NOTE:** Remove the ionizer/ collector cells from the cabinet for easier handling.

The following materials are needed to suspend the unit from the ceiling:

- A. 2/0 chain minimum rated at 240 lbs. working load.
- B. 12 lap links.
- C. Four 1/4 dia. eyebolts, flat washers and nuts are supplied with the unit. (Optional wall mount brackets are available from your TRION distributor.)
- D. 4 - 3" adjustable turnbuckles with eyebolts.

**CAUTION:** NO LESS THAN FOUR CHAINS MAY BE USED TO SUSPEND UNIT FROM CEILING. CHAINS

**SHOULD NOT ANGLE FROM CEILING TO UNIT MORE THAN 15 DEGREES. FOR WALL MOUNTING USE THE BRACKET KIT SUPPLIED BY YOUR TRION DISTRIBUTOR.**

1. Remove the ionizer/ collector cells from unit by turning the screw on the door counterclockwise, open the door and lift it gently from hinge slots. Remove ionizer/ collector cells. Handle with care to prevent damage to wires or cell plates.
2. Locate, remove and discard 4 round head allen screws on top of the CAE 128 cabinet. Thread one nut on each eyebolt; add lock and flat washers; screw the eyebolt into the threaded weld nut in each corner of the top panel. Adjust eyebolts and tighten the nuts. The eyebolt should not project more than 1 " into the unit.
3. Secure the chain over head by wrapping chains around beam or joist and securing with a lap link (**total of 4 chains**).
4. Fasten the four turnbuckles, if used, to the eyebolts at each corner of the unit using four lap links. Fasten the remaining lap links to the free end of the turnbuckles.
5. Screw the turnbuckles out to approximately  $\frac{1}{2}$  full extension.
6. Raise unit up to chains and fasten lap links to chains. Adjust turnbuckles until unit is level.
7. Re-install the pre-filter and ionizer/ collector cells.

## **WALL BRACKET MOUNTING**

1. Remove access door and ionizer/ collector cells from the unit. Refer to step 1 of "Preparation and Installation."
2. Mark the location of wall studs where the air cleaner is to be mounted.
3. Position one of the wall brackets adjacent to the wall stud where the air cleaner is to be installed, mark the location for mounting bolts. Bracket should be behind the air cleaner when the installation is complete. Repeat the same procedure for the second bracket making sure they are level to each other.
4. Drill  $1\frac{1}{4}$ " dia. holes at the marked locations approximately  $1\frac{1}{2}$ " deep into the wall and stud.
5. Mount the brackets with lag bolts provided and tighten securely. Pull moderately on the bracket to insure mounting is secure.
6. Place the air cleaner on the brackets and center. Drill pilot holes into the bottom of the air cleaner cabinet using the holes in the wall brackets as a guide. Install the 4 screws provided to secure the unit to the brackets.
7. Re-install the pre-filter and ionizer/ collector cells.

For alternate installation methods, contact your local TRION distributor:

**CAUTION: DO NOT TAKE CHANCES. IF YOU ARE UNSURE ABOUT THE PRECEDING METHOD, STOP THE INSTALLTION UNTIL YOU ARE SATISFIED THAT THE METHOD OR PROCEDURE IS CORRECT.**

The Model CAE 128 is shipped with a power cord suitable for plugging into a standard 3-wire, 115 volt wall outlet (see Wiring Diagram). The outlet must have available 15 amps at 120 volts for proper operation. The power cord must be protected against damage.

**CAUTION: DO NOT REMOVE THE THIRD PRONG ON THE POWER CORD. THIS UNIT (AS WITH MOST ELECTRICAL APPLIANCES) MUST BE GROUNDED FOR SAFE, SURE OPERATION.**

If air discharge is required to be left-to- right instead of std. right-to-left, remove 4 screws in the CAE 128 name plate, rotate it 180° and replace screws. Unit can now be turned over for installation.

## **UNIT OPERATION**

Plug the Model CAE 128 unit into a standard wall receptacle. If the receptacle is not of the 3-wire grounded type, an adapter can be purchased at any local electrical supply dealer.

To turn the unit ON, rotate the knob clockwise, The speed controller allows a wide range of adjustment in the air-flow through the unit. The CAE 128 has a built-in safety interlock switch to prevent operation with the door screw not securely in place.

An arcing or snapping noise may be present upon start up but should cease after a short period of time. The snap from time to time is an indication the air cleaner has collected a large particle of dust, lint or other pollutant from the air, a good indication the air cleaner is cleaning the air as it should.

**CAUTION: IONIZER I COLLECTOR EXHIBITS VERY HIGH VOLTAGE WHEN THE UNIT IS OPERATING. DO NOT BY-PASS THE SAFETY SWITCH AS ELECTRICAL SHOCK WILL RESULT. UNPLUG THE POWER CORD WHEN SERVICING OR OPENING THE ACCESS DOOR.**

## **MAINTENANCE**

Properly designed equipment such as your TRION Electronic Air Cleaner requires a minimum amount of attention to maintain good operating condition. Normal preventive maintenance can be performed by you, or your local TRION Distributor may offer a maintenance and cleaning contract at a nominal charge. Contact him for details.

**CAUTION:** ALWAYS DISCONNECT THE POWER SOURCE BEFORE WORKING ON OR NEAR THE MOTOR OR ITS WIRING ASSEMBLY. IF THE POWER DISCONNECT POINT IS OUT OF SIGHT, LOCK IT IN THE OPEN POSITION AND TAG. TO PREVENT UNEXPECTED APPLICATION OF POWER.

The Model CAE 128 collecting components consist of pre-filter, ionizer/ collector cells, and/or optional carbon after-filter.

Filters are accessible from the air intake panel of the unit allowing simple, fast replacement. See Step 1 of "Preparation and Installation" for ionizer/ collector cell removal.

The filter elements require cleaning frequently. (Some environments may require cleaning monthly.) Failure to clean these components on a regular basis will adversely affect the performance of your air cleaner.

When checking the ionizer/ collector cells, turn the unit off and wait approximately 3 minutes before attempting to remove the assembly. This will allow any residual electrical charge to drain from the cell.

#### **FILTER, IONIZER/COLLECTOR CELLS- CLEANING AND INSPECTION**

1. Turn the unit off.
2. Note the orientation of the ionizer/ collector cells in the cabinet.
3. Slide the ionizer/ collector cells out of the unit.

**CAUTION:** THE IONIZER/ COLLECTOR CELLS WEIGH 14 LBS. EACH.

4. Remove the pre-filter from the cells.

**CAUTION:** IN THE FOLLOWING STEPS, DO NOT PRY BETWEEN THE CELL PLATES WITH SCREWDRIVERS, PLIERS, ETC. THIS WILL BEND THE PLATES, CAUSING THE CELL TO ARC AND SNAP CONTINUOUSLY.

5. Clean the ionizer/ collector cell and pre-filter by rinsing with hot water. Then immerse them in a good commercial grade detergent mixed with water. (Make CERTAIN the detergent will not harm aluminum or cause any residue build-up.) A special formulated detergent, Tri-Dex, is available from your local TRION Distributor.

For best results, the cleaning solution should be 120° to 160° temperature. The components should be soaked in the solution for 1 1/2 to 2 hours (longer if extremely dirty).

Another method of cleaning the components is to

place them in a dishwasher and wash them for 2 to 3 cycles, again using a good dishwashing detergent. More frequent cleaning will often eliminate the requirement of 2 or 3 cleaning cycles.

After cleaning the cells, inspect it for bent plates, broken ionizer wires, and any foreign objects. Bent plates are difficult to repair. If the air cleaner has a continuous arcing or snapping noise with the ionizer/collector cells installed, a bent plate is the possible cause.

Models having motors with oil cups require periodic lubrication. Use SAE 20 non-detergent motor oil every six months. Motors with ball bearings do not require lubrication.

#### **CLEANING AND INSPECTION OF CABINET**

While the ionizer/ collector cells and pre-filters are soaking, an inspection of the cabinet should be made. Remove all foreign debris and dirt accumulation inside the cabinet. Check for dirt accumulation on the blower wheel blades and clean if there is a build-up. Inspect all wiring for loose connections and cracked insulation. Clean high voltage contacts, insulators, connections and wires. Tighten or replace if required.

Clean the exterior of the cabinet and louvered grill with a spray detergent and soft rag.

After re-installing all components into the cabinet, switch unit to High or Low Speed as required. The blower motor should start and the indicator light should be On. The red light shows that there is high voltage from the power supply.

An occasional snapping or arcing indicates there is high voltage from the power supply. For further check, observe the air leaving the unit. If it is not being cleaned, there is a shorted condition within the ionizer/ collector cell. Remove the ionizer/ collector cells from the unit and thoroughly inspect them. Things to look for are broken ionizer wires, dirty or wet insulators, and trapped pockets of water deep within the assemblies. If nothing appears wrong with the ionizer/ collector cells, re-install them into the cabinet and refer to the "Troubleshooting Chart".

#### **REPLACEMENT PARTS ORDERING INFORMATION**

The following pages contain Exploded Views and Bill of Material for the TRION Model CAE 128. Use these pages to determine the part numbers of items which are needed.

To order repair parts, contact your local TRION Distributor.

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

## Information

## Located

Unit Model Number

Name Plate

Unit Serial Number

ID Plate Inside cabinet

Part Number & Description

Exploded Views

## TROUBLESHOOTING

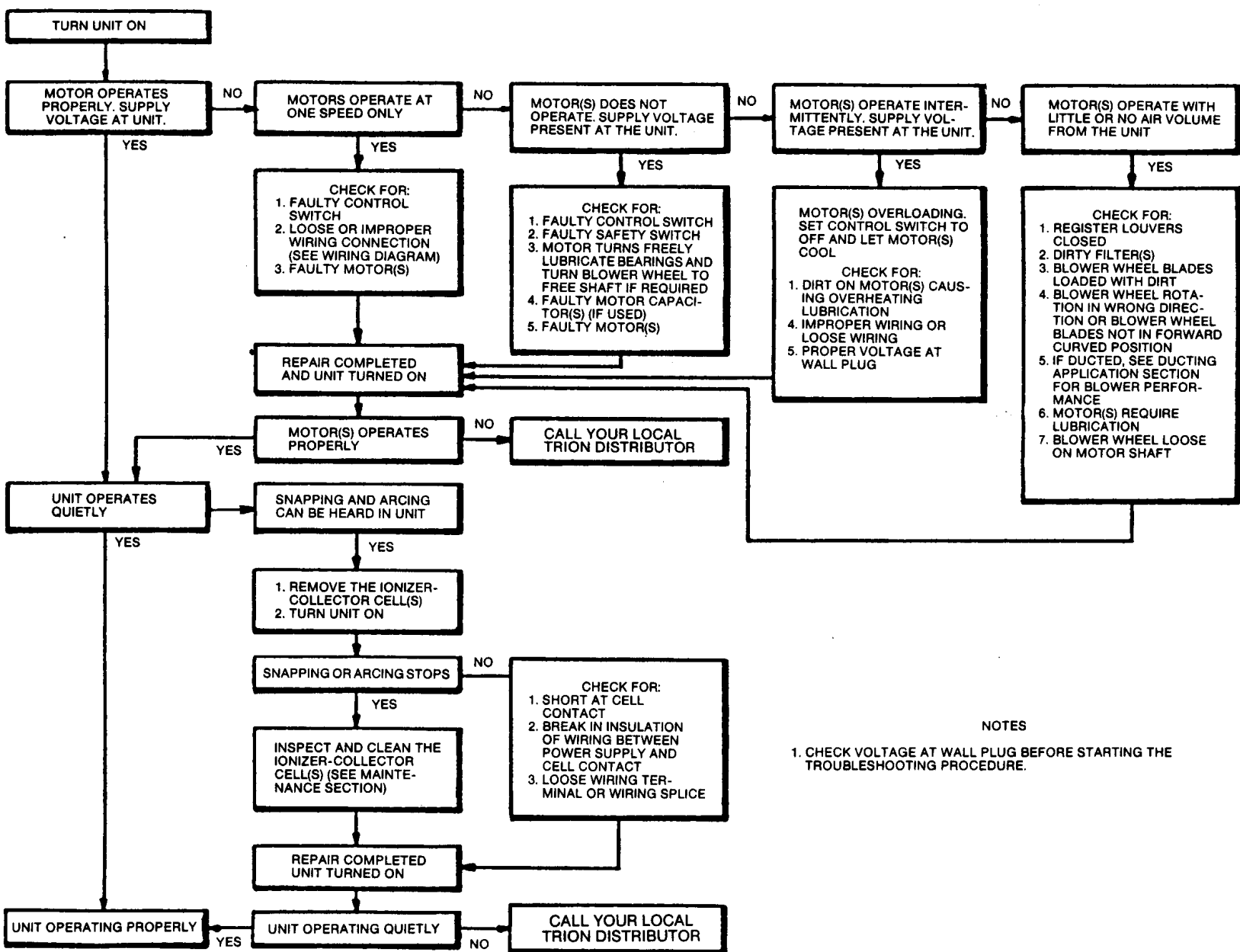
**WARNING: THE FOLLOWING INSTRUCTIONS ARE FOR USE BY QUALIFIED PERSONNEL. THE FOLLOWING PROCEDURES WILL EXPOSE HAZARDOUS ELECTRICAL COMPONENTS. DISCONNECT THE AIR CLEANER BEFORE PROCEEDING.**

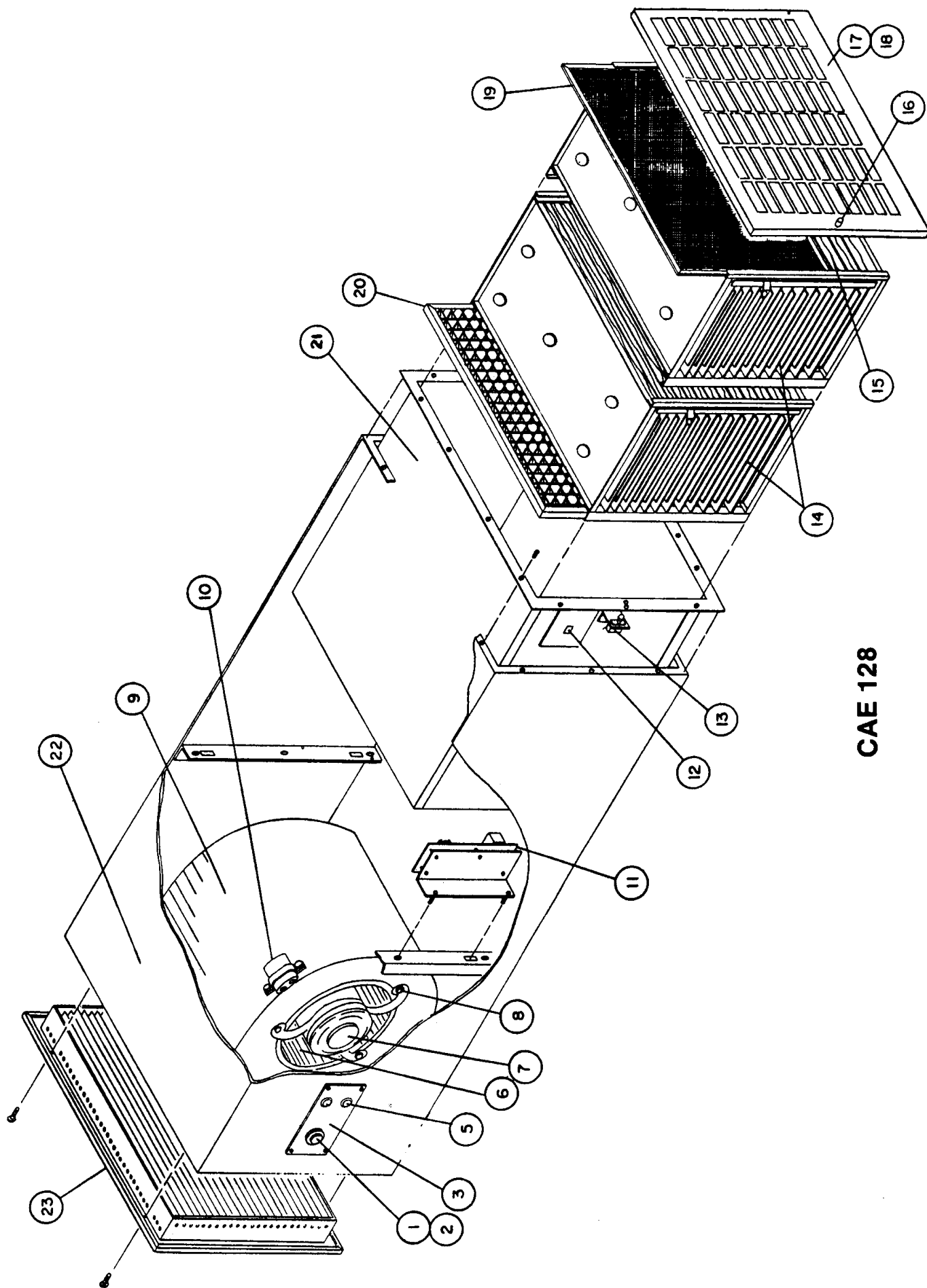
All TRION Air Cleaners are designed to give the user continued, trouble-free service. However, as with all mechanical equipment, breakdowns do occur.

Troubleshooting chart below 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

## TROUBLESHOOTING PROCEDURE





CAE 128

# CAE 128 CABINET ASSEMBLY

Ref. No.	Part Number	Description
1	72015-0000-0010	Speed Control
2	122861-001	Knob
3	240467-001	Label or CAE 128 Name Plate
5	140374-001	Red Light Assembly
6	62000-0012-13	Blower (Wheel& Housing)
7	244977-001	Motor 120V, 60 HZ, 1/3 HP
8	240501-001	Bracket, Motor to Blower Housing
9	1100-1200-0001	Motor Blower Assembly
10	129040-001	Capacitor
11	342718-003	Power Supply
12	346004-001	Contact Board Assy. 2 req.
13	132311-001	Safety Switch
14	440284-001	Ionizer/Collector Cell 2 req.
15	220111-020	Ionizer Wire 12/cell
16	90000-0020-01	Knurled Thumb Screw
17	224779-027	Gasket (25")
18	440288-001	Cell Door
19	224451-017	Aluminum Mesh Pre-Filter
20	69000-0001-9913	Carbon After-Filter (opt.)
21	440476-001	Cell Box
22	440477-001	Cabinet
23	750-8001-00	Register or outlet
	246215-001	Power Cord (not shown)
	750-1000-09	Wall Bracket Kit (opt. not shown)

