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# TRION T5200 Air Boss Owner's Manual

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# TRION<sup>®</sup>

Indoor Air Quality



READ AND SAVE THESE INSTRUCTIONS

**Air Boss<sup>®</sup> Model T5200**  
Custom Packaged  
Electronic Air Cleaner

Electrostatic Precipitators for Commercial & Industrial Applications

# Air Boss® Model T5200

## Air Treatment Systems

### Table of Contents

<b>Specifications</b> .....	2
<b>Preparation for Installation</b> .....	2
New Unit Inspection.....	2
Operation.....	2
How It Operates.....	2
Unit Operation.....	2
Ducting Application.....	3
<b>Installation</b> .....	3
Liquid Aerosol Installation.....	4
Electrical Installation.....	4
<b>Maintenance</b> .....	4
Cleaning.....	5
Washing Ionizing/Collecting Cells.....	5
Inspections.....	5
<b>Replacement Parts Ordering</b> .....	6
<b>Warranty</b> .....	6
<b>Troubleshooting Guide</b> .....	6
Troubleshooting Diagram.....	7
<b>Diagrams/Exploded View Figures</b> .....	8
Figure 1 - T5200 Unit Assembly.....	8
Figure 2 - T5200 Enclosure Assembly.....	9
Figure 3 - T5200 Blower Motor Assembly (2HP and 3HP).....	10
Figure 4 - T5200 Blower Motor Assembly (5HP).....	11
Figure 5 - Ionizer/Collector Cell.....	12
Figure 6 - T5200 Blower Curve.....	13
Figure 7 - Wiring Diagram.....	14

## Specifications

Power Requirements		
Voltage	HP	AMPS (Max)
230V, 60 HZ, 3 PH.	2	6.8
230V, 60 HZ, 3 PH.	3	9.7
460V, 60 HZ, 3 PH.	2	3.4
460V, 60 HZ, 3 PH.	3	4.9
575V, 60 HZ, 3 PH.	2	3.2
208V, 60 HZ, 3 PH.	2	6.8
230V, 60 HZ, 3 PH.	5	14.4
460V, 60 HZ, 3 PH.	5	7.2

## Preparation for 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.

### SAFETY NOTE

**Factory designed access to all electrically charged high voltage components contain electrical interlocks for the safety of operating personnel. Any additional access that may be provided in the system, where there is access to high voltage, must be equipped with such interlocks. Interlocks are readily available from the factory.**

The 575V, 3 Phase unit does not have internal motor overload protection. The installer must provide overload protection in accordance with National Electrical Code, Canadian Electrical Code, Part 1 or other applicable electrical codes.

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

The unit can be either wall-mounted or chain-hung.

Model T5200

Eyebolts can be supplied by TRION.

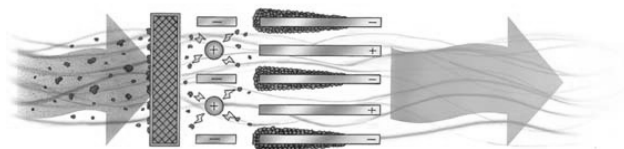
### New Unit Inspection

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

While unpacking the unit, look for concealed shipping damage. If there is damage, it should be reported to the last carrier for claim filing.

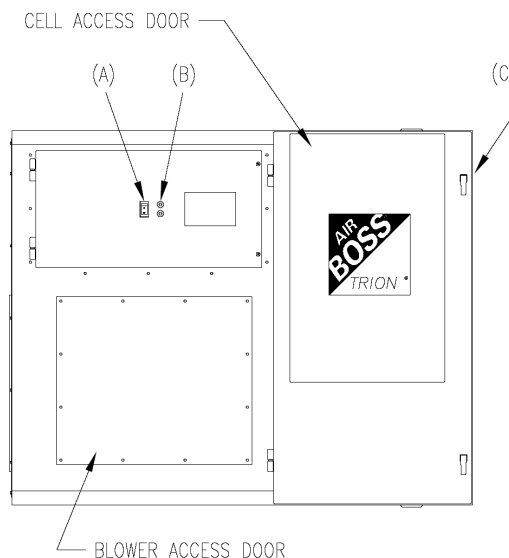
### How It Operates

Polluted air is drawn into the unit by the belt driven blower on the T5200 unit. After passing through a pre-filter, the particles in the air are given an electrical charge supplied by the power supply. As the particles enter the collector cells, these charged particles are attracted to and collected on grounded collecting plates.



Typical Electronic Cell Operation

### Unit Operation



**Control Switch (A):** The control switch is located on the cell access door. It controls the operation of the

power pack and the belt driven blower. The control switch should be in the “OFF” position when the cell access door is open for maintenance of the unit.

**Indicating Light (B):** The light located adjacent to the control switch is an indicator of the performance of your electronic air cleaner. When the control switch is “ON”, the blower should operate and the indicator light should glow. If the light does not glow or if it continually flickers and is accompanied with a continual snapping or arcing noise, the air cleaner requires attention and may need to be cleaned.

**Cell Access Door Latches (C):** The cell access door latches are located on the door near the intake end of the unit. To open the cell access door, lift and turn the latches counter clockwise.

**Arcing (snapping or cracking noise):** An occasional arcing noise may be emitted from the air cleaner. This is a normal occurrence caused by exceptionally large pieces of dirt, etc., entering the collecting elements. In addition, an arcing noise accompanied by a flickering of the indicating light may be noticed after washing the cells. Should this occur, allow more drying time. Also, see “Troubleshooting Chart”, for additional causes of arcing.

The louvers on the grill are adjustable so the direction of airflow can be controlled as desired.

**NOTE:** The unit is equipped with an interlock switch for your safety. The unit will not operate if the cell access door is not closed securely.

**NOTE:** The blower access door is not protected by an interlock switch. Do not attempt to operate the unit unless the door is fastened securely.

### Ducting Application

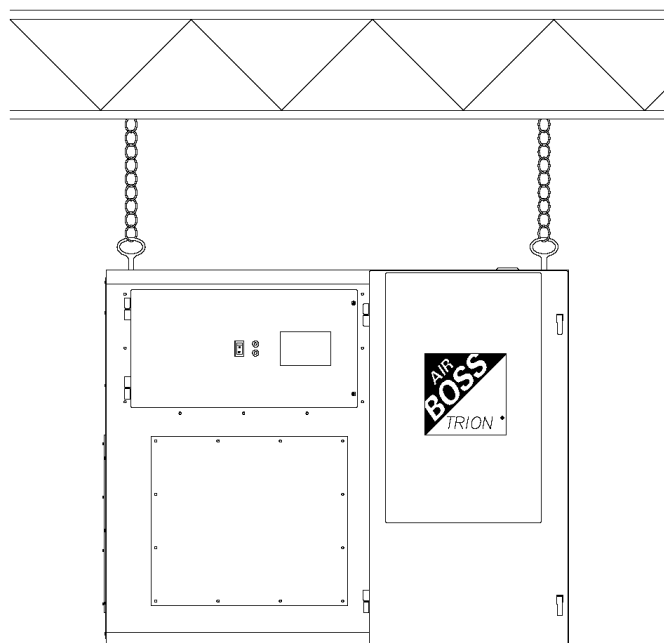
The T5200 air cleaner is designed for free hanging applications or for limited duct system applications. The duct systems must be carefully designed to keep the external static pressure to a minimum while still moving the required amount of air. Some added static pressure can be overcome by adjusting the blower drive pulleys or using a more powerful motor. Capture hoods and duct design information may be obtained from the Industrial Ventilation Handbook or from your local TRION representative.

To maintain the selected cleaning efficiency, it is important to ensure that the total air volume (capacity in CFM) is uniformly distributed across the entire face area of the unit. The prefilters provide some resistance to effect even air distribution. However, since most air ducts are designed to handle air velocities greater than the rated velocity of the air cleaner, it is necessary to properly transition any attached ducting. If possible, a contraction ratio of 1 in 3 (approximately 20 degrees) should be maintained. If space prohibits, turning vanes, air baffles, or other means may be utilized. Ducting – where attached to the cabinet collars – should be gasketed, caulked or otherwise made watertight.

## Installation

1. Carefully unpack unit from shipping crate and examine for damage in shipment.
2. Remove ionizer/collector cell(s), pre-filters and after-filters.
3. Attach 600 pound test chain to the ceiling joist using:
  - Wood joist – 1/2” –13 eye bolts
  - Metal joist – wrap chain around joist at least twice and secure with 600 pound test connecting link
4. Chain should be cut to allow the unit to hang from a predetermined height from the floor. (Usually 10-12 feet).
5. The unit is equipped with a locator dimple in each corner on the top and bottom and (1) each on the approximate mid point edge of the top and bottom.. Using the dimples as a guide, drill (6) 19/32” dia. Holes that will be required for mounting the eye bolts, which are attached to the suspension chain.
6. Screw a 1/2”-13 x 1-1/4” long eye bolt (or larger) in each hole. The T5200 unit is supplied with weld nuts at each dimple location.
7. Using 1/2” connecting links, attach unit to chain. Use turnbuckles on diagonally opposite chains.
 

**NOTE:** Foul threads on turnbuckles after leveling unit to ensure that the turnbuckle will not “back off” or loosen and cause the unit to fall.
8. The units can be suspended with the direction of airflow from the right to left. If a left to right airflow is desired, the unit may be flipped over and the eyehooks installed in what was originally the bottom.



**Typical Chain Supported Installation**

### Liquid Aerosol Application Instructions

The unit is equipped with a drain hole sized to accept a 1/2" NPT fitting.

For the collection of liquid contaminant:

1. Install drain fitting to allow for the attachment of a liquid collection cup or drain hose. A drain fitting is available from your representative. An "S" trap is required in the drain hose to ensure proper drainage of the collected liquid.
2. Raise the front corner of the unit, opposite of the drain corner, 1/2" to enable the collected liquid to flow to the drain sump.

Contaminants to be collected – such as oils in vaporous state – must be condensed into particulate form prior to entering the ionizing-collecting cells in order to maintain the anticipated efficiency. Gases, vapors or any non-particulate cannot be precipitated and will therefore pass through the air cleaner. Any condensing that takes place downstream from the air cleaner defeats the purpose. Similarly, heavy concentrations of water vapor, or other matter that becomes highly conductive when condensed, must be prevented from entering and/or condensing in the collecting elements to prevent electrical arc over and shorting.

### Electrical Installation

All units must be wired directly into the terminal block in the component box on the access door side of the unit. Use NEC Class I wiring methods. Size branch circuit protection in accordance with the NEC. Refer to the appropriate enclosed wiring diagram in the attached figures.

**WARNING**  
**EXERCISE ALL THE NORMAL PRECAUTIONS WHEN WORKING WITH HIGH VOLTAGE AND COMPLY WITH NEC AND ALL APPROPRIATE LOCAL CODES.**

### Checkout for System Start-Up

When the installation has been completed, assure that the equipment is ready for start-up by checking the following:

- All construction debris is removed from the ionizing-collecting cells, drain connections and ductwork.
- The drain line from the TRION drain basin is clear and completely connected to its point of termination.
- Supply line power is available and electrical wiring is completed to the junction box.

### Maintenance

The following instructions are for use by qualified personnel.

**WARNING**  
**RISK OF ELECTRIC SHOCK**  
**These servicing instructions are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.**

**SAFETY NOTE**

Factory designed access to all electrically charged high voltage components contain electrical interlocks for the safety of operating personnel. Any additional access that may be provided in the system, where there is access to high voltage, must be equipped with such interlocks. Interlocks are readily available from the factory.

**Washing Ionizing/Collecting Cells**

**WARNING**

**DO NOT USE HIGH PRESSURE STEAM CLEANING EQUIPMENT TO CLEAN CELLS. THE EXCESSIVE HEAT AND PRESSURE WILL CAUSE THE PLATES TO WARP AND IN TURN POSSIBLY CAUSE EXCESSIVE ARCING.**

**Cleaning**

The pre-filters and ionizer/collector cells should be removed periodically and soaked in a solution of hot water and TRION Tridex detergent for 2 to 4 hours, rinsed thoroughly, and then air dried completely before reinstalling in the unit.

The frequency of cleaning is dependent on the type of contaminant being collected. Liquid aerosol requires less cleaning while welding smoke may require more frequent cleaning.

The unit should be kept clean to maintain the maximum collection efficiency.

1. Turn the control switch "OFF" and disconnect power to the unit.
2. Open the cell access door.
3. Remove ionizer/collector cells and wash in HOT detergent water. If the collected contaminant is of extremely dry nature, it can be blown off the cells with a pressure hose or gently tapping the end plate of the cell.
4. Remove the mechanical pre-filter. Remove collected dust or lint by vacuuming or brushing. Wash with warm, soapy water.
5. Rinse all components thoroughly in warm, clear water and allow to drip dry completely.
6. Replace pre-filter and ionizer/collector cells. Ensure the airflow arrows point in the direction of airflow (towards the blower).
7. Close the access door and reconnect power to the unit.
8. Turn control switch to "ON". If arcing occurs or the indicating light flickers, the components may still be damp. Turn the unit OFF and allow the cells to dry completely.

**NOTE:** TRION Tridex Detergent is specially formulated for use with TRION electronic air cleaners. Use of other cleaners and detergents, not specifically approved by TRION, can cause possible failures in the unit and will void any and all warranties on our equipment.

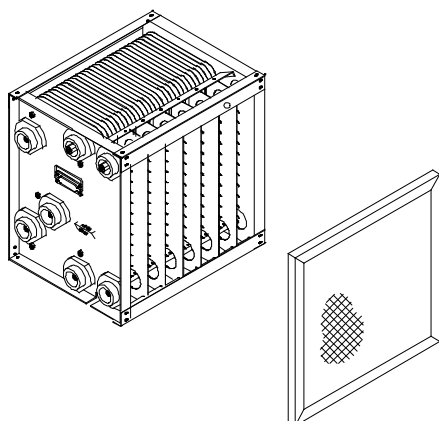
**Inspections**

The motor and blower on TRION T5200 air cleaners have sealed ball bearings and never need lubricating.

Belt tension should be checked periodically. When a moderate force is applied to the belt midway between the pulleys, the belt should deflect approximately 1/2".

**CAUTION**

**Having too much tension on the belts will shorten the belt life and place undue stress on the motor and blower bearings.**



## Replacement Parts Ordering

The following pages contain exploded views and Bills of Material for the Model T5200. Use these pages to determine the part numbers of the items needed. To order parts contact your local TRION representative and provide the following information:

1. Unit Model number – located on the data label near the junction box.
2. Part Number and description – from exploded views.

## Warranty

TRION Electronic Air Cleaners come with a 3 Year Limited Warranty on units and a 1 Year Limited Warranty on replacement parts. Labor is NOT included. DO NOT RETURN DEFECTIVE PARTS WITHOUT RECEIVING A MATERIAL RETURN AUTHORIZATION NUMBER FROM THE FACTORY.

Seller warrants the equipment of its manufacture to be free from defects in workmanship and material for a period of three (3) years after shipment or if applicable – three (3) years after initial startup of equipment, whichever occurs first. This warranty is limited, however, to the repair or replacement of defective equipment, which is returned, freight prepaid, to Seller's factory.

This limited warranty does not apply to any part or component that is damaged in transit or when handling, has been subject to misuse, negligence or accident, has not been installed, operated or serviced according to Seller's instructions, or has been operated beyond the factory-rated capacity or has been altered in any way.

Seller's liability is limited to replacement of defective parts or components and does not include any cost of labor (including, but not limited to, labor required to remove and/or reinstall any defective part) other than TRION factory labor.

TRION shall not be responsible for loss of use of any product, loss of time, inconvenience, or damage to other equipment or any other indirect or consequential damage with respect to property whether as a result of breach of warranty, neglect or otherwise.

THE WARRANTIES AND LIABILITIES SET FORTH ABOVE ARE IN LIEU OF ALL OTHER WARRANTIES

AND LIABILITIES, EXPRESSED OR IMPLIED, IN LAW OR IN FACT, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE.

The foregoing shall constitute the total liability of Seller in the case of defective performance of all or any of the equipment or services provided to Buyer. Buyer agrees to accept and hereby accepts the foregoing as the sole and exclusive remedy for any breach or alleged breach of warranty by Seller.

## Troubleshooting Guide

### T5200 Problems and Possible Causes

1. High Voltage Indicating Light Out
  - Power not connected
  - Control switch "Off"
  - Cell access door not fully closed
  - Broken cell insulator
  - Extremely dirty cells
  - Service panel not secured in place
2. Excessive arcing noise after washing
  - Collector elements still wet – Allow more drying time
  - See "Continuous arcing noise" below
3. Continuous arcing noise and flickering indicating light
  - Extremely dirty collector plates
  - Bent collector plates
  - Large piece of material lodged between cell plates
4. Contaminant Bypass
  - Velocity of airflow is too high through unit
  - Collector plates not grounded
  - Collector cell not making solid connection to access door and high voltage contact.

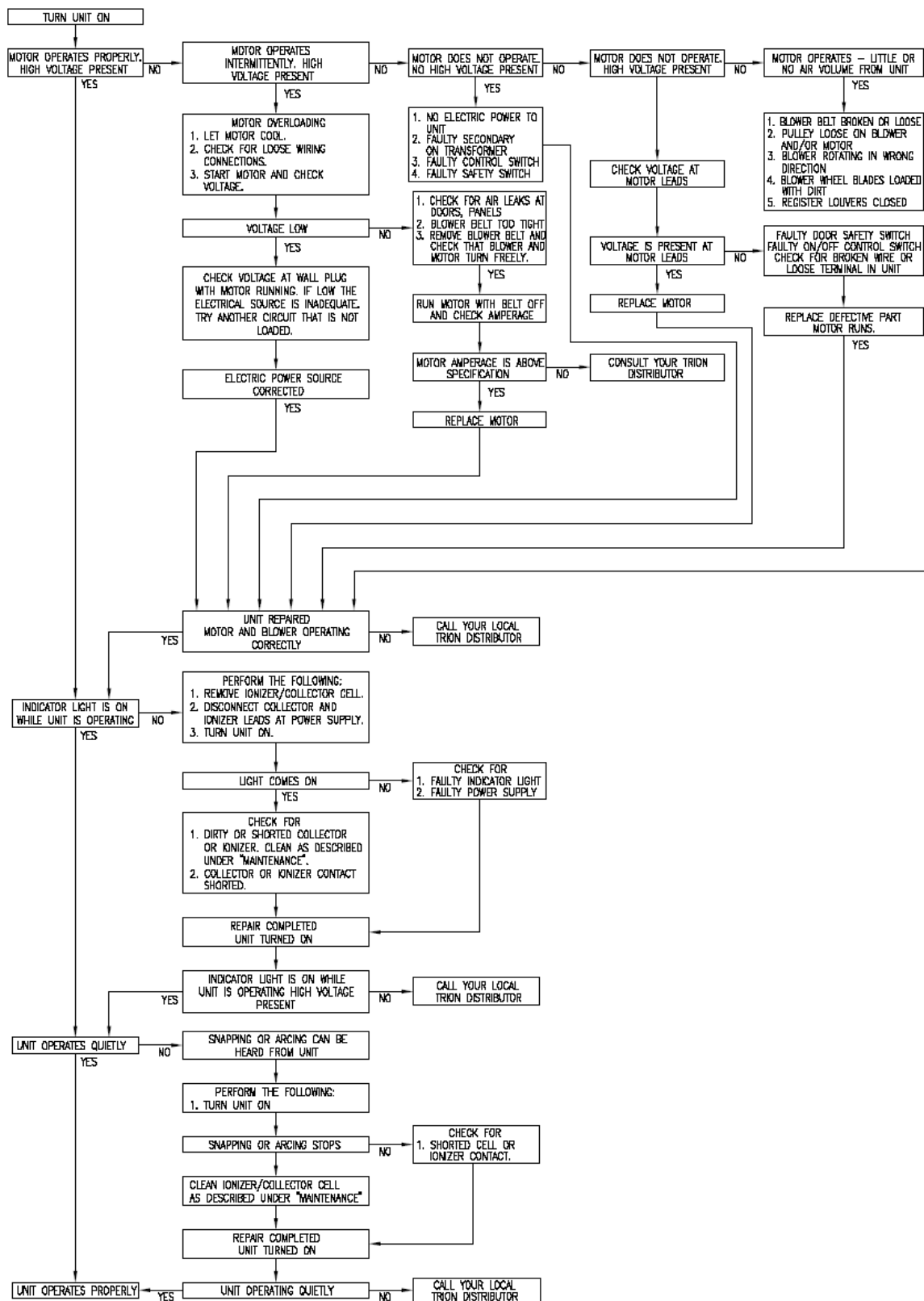
### T5200 Troubleshooting Guide

The troubleshooting chart, shown on the next page, will enable the user to pinpoint the cause of most problems. Refer to the Ordering Information for replacement parts. Before performing any troubleshooting, ensure the correct input line voltage is present.

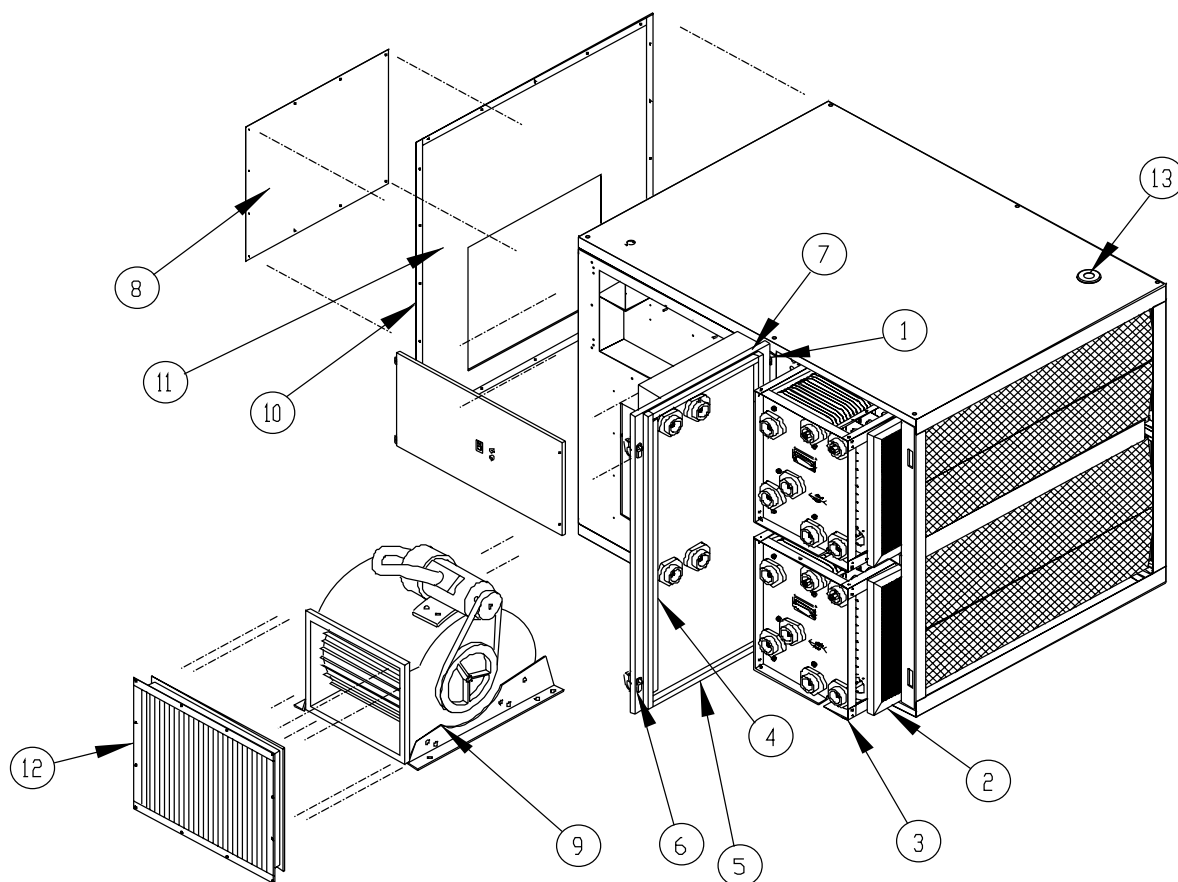
#### WARNING

**Factory designed access to all electrically charged high voltage components contain electrical interlocks for the safety of operating personnel. Always unplug the unit while performing service within the cabinet.**

## Troubleshooting Chart

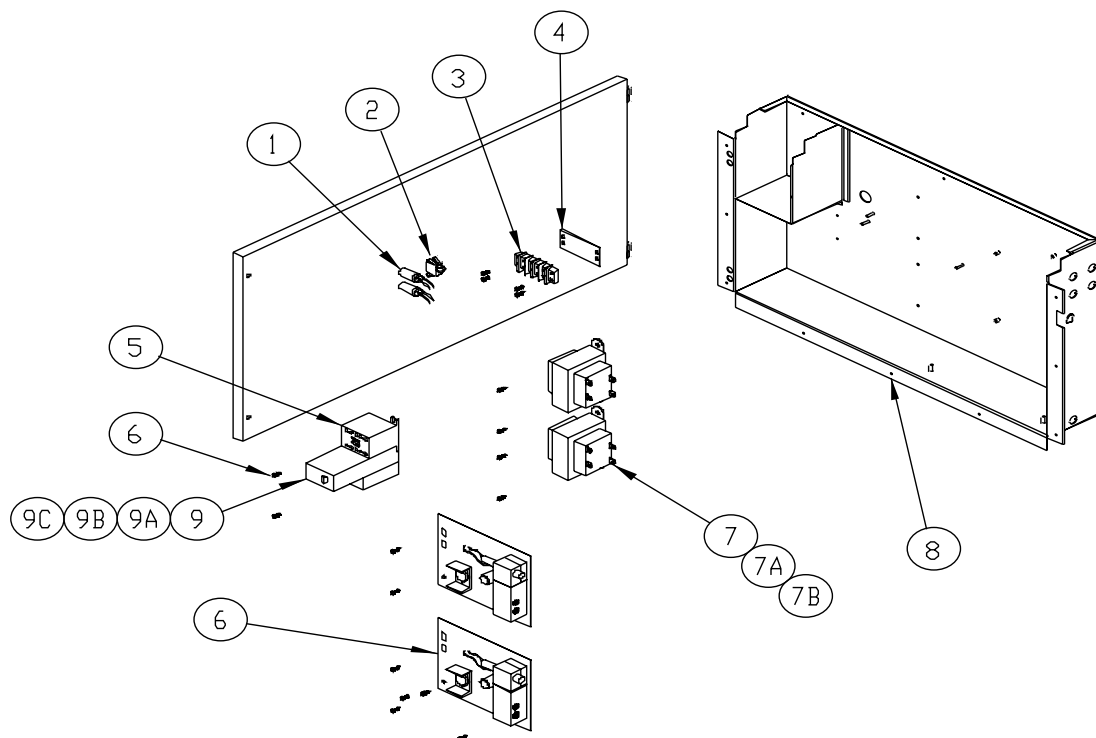


T5200 Unit Assembly



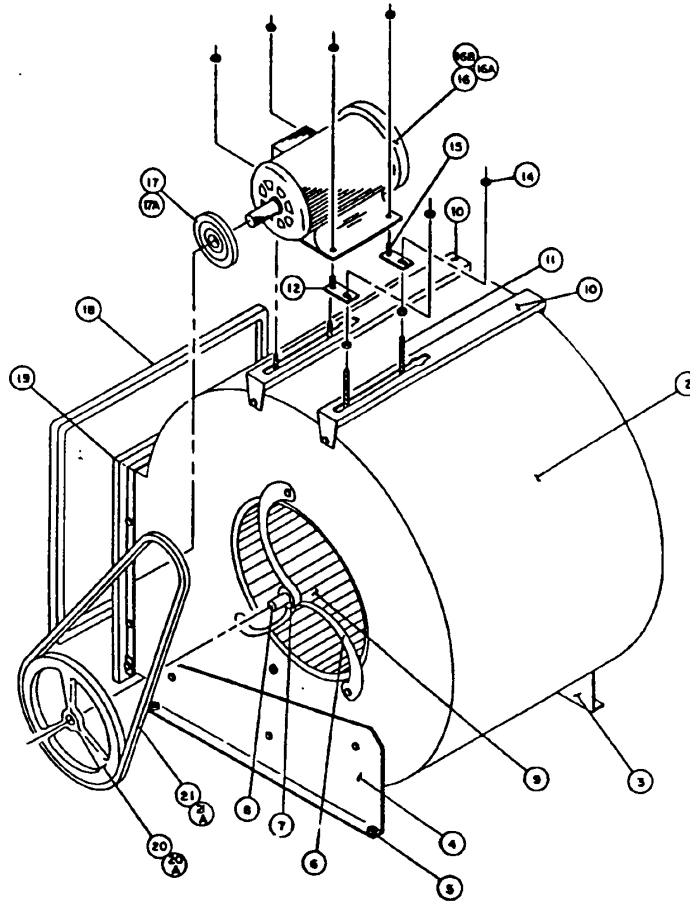
ITEM	PART NO.	DESCRIPTION
1	146442-001	Hinge
2	224451-006	Aluminum Mesh Filter
3	450568-001	Ionizing-Collecting Cell
4	126737-031	Adhesive Back Gasket
5	126737-034	Adhesive Back Gasket
6	334562-005	Draw Latch
7	350378-001	Cell Door Assembly
8	338423-001	Blower Access Cover
9	438449-001	Blower Assembly, 2 HP (208/230/460v-50/60 Hz/3 PH)
9A	438449-002	Blower Assembly, 2 HP (575v/60Hz/3 PH)
9B	438449-003	Blower Assembly, 3HP (208/230/460-50/60 Hz - 3PH)
10	224779-006	Gasket Adhesive Back
11	338429-001	Exhaust Endcover
12	242372-002	Grill Assembly
13	247962-002	Cap Plug

T5200 Enclosure Assembly



ITEM	PART NO.	DESCRIPTION
1	241101-014	Indicator Light
2	243765-001	Switch
3	221442-004	Terminal Block
4	221443-004	Terminal Block Marker Strip
5	253725-001	Contactor
6	347891-026	Power Supply Assembly
7	248655-005	Transformer 120/208/240V-24
7A	248655-004	Transformer 480V-24
7B	248655-007	Transformer 575V-24
8	450376-001	Component Box, Welded
9	243862-008	Overload Relay 1.8 - 2.7A
9A	243862-009	Overload Relay 2.7 - 4.0A
9B	243862-010	Overload Relay 4.0 - 6.0A
9C	243862-012	Overload Relay 7.5 -9.0A

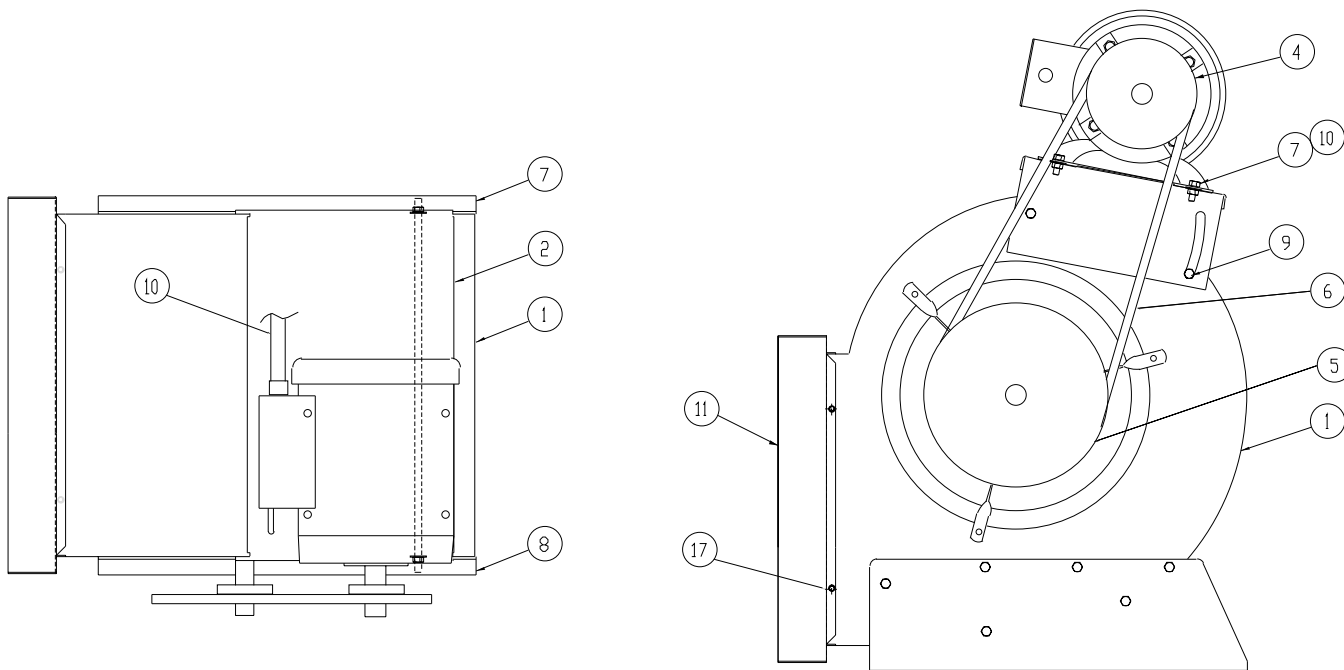
T5200 Motor/Blower Assembly



ITEM	PART NO.	DESCRIPTION
1	335025-001	Blower Assembly (2HP) includes items 2-10
1A	340599-001	Blowerless Motor (3HP) includes items 2-10
2	335025-101	Housing (must be redrilled for 3HP motor)
3	335025-107	Mounting Angle (foot) L.H.
4	335025-108	Mounting Angle (foot) R.H.
5	335025-109	Isolator (4 required)
6	335025-102	Bearing Bracket Segment (6 required)
7	335025-105	Bearing (2 required)
8	335025-106	Shaft
9	335025-104	Blower Wheel
10	335025-111	Motor Mounting Bracket (2 required)
11	220008-260	Hex HD Machine Screw
12	137591-001	Adjusting Screw Bracket
14	90000-0003-01	Flanged Locknut
15	220008-253	Hex HD Machine Screw

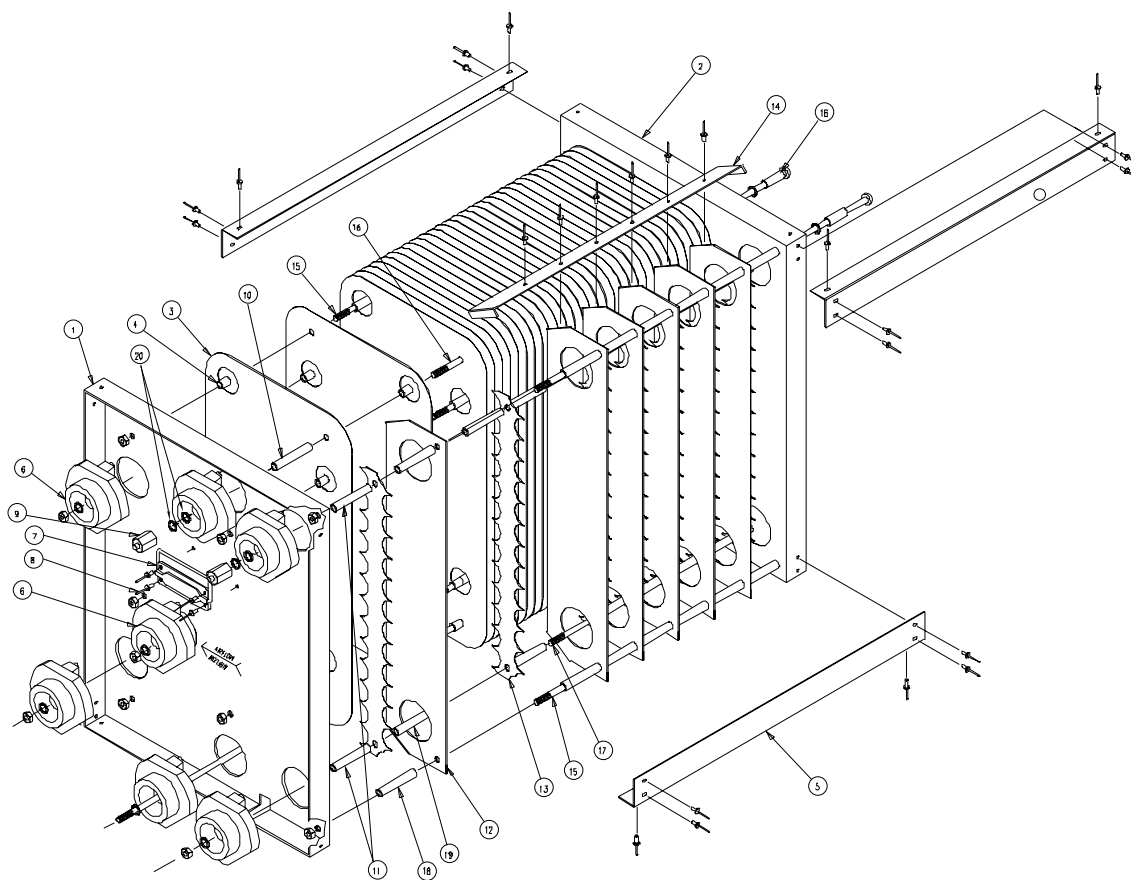
ITEM	PART NO.	DESCRIPTION
16	124885-008	Motor, 2 HP, 208/230/460V, 50/60 Hz, 3PH
16A	124885-010	Motor, 3 HP, 208/230/460V, 60 Hz, 3PH
16B	124885-011	Motor, 2 HP, 575V, 60 Hz, 3PH
17	125699-019	Sheave (pulley) (2 HP) Variable Pitch
17A	125699-020	Sheave (pulley) (3 PH) Variable Pitch
18	224779-028	Gasket, 3/4" x 11/13" x 7"
19	338464-001	Flange (2 required)
20	124053-030	Blower Sheave or Pulley (2 HP)
20A	124053-009	Blower Sheave or Pulley (3 HP)
21	234887-004	Belt, A-53 (2 HP)
21A	234887-038	Belt, A-47 (3 HP)

T5200 Motor/Blower Assembly



ITEM	TRION PART NO.	DESCRIPTION
1	359344-001	MODIFIED BLOWER
2	259337-001	MOTOR MOUNT
3	140367-001	MOTOR 5 HP 230/460/60/3 - 184T
3A	345515-132	MOTOR 5 HP 575/60/3 - 184T
4	125699-014	VARIABLE PITCH SHEAVE 5.7 - 6.7 P.D.
4A	125699-021	VARIABLE PITCH SHEAVE 5.4 - 6.6 P.D.
5	124053-041	BLOWER SHEAVE 9.0 P.D.
5A	124053-062	BLOWER SHEAVE 7.9 P.D.
6	234887-008	A BELT - A57 - 58.3 P.D.
6A	323215-060	B BELT - B53 - 54.8 P.D.
7	359330-001	MOUNTING BRACKET R.H.
8	359330-002	MOUNTING BRACKET L.H.
9	159339-001	THREADED ROD, 3/8"
10	121707-002	FLEX CONDUIT 1/2"
11	256232-001	BLOWER GASKET FLANGE

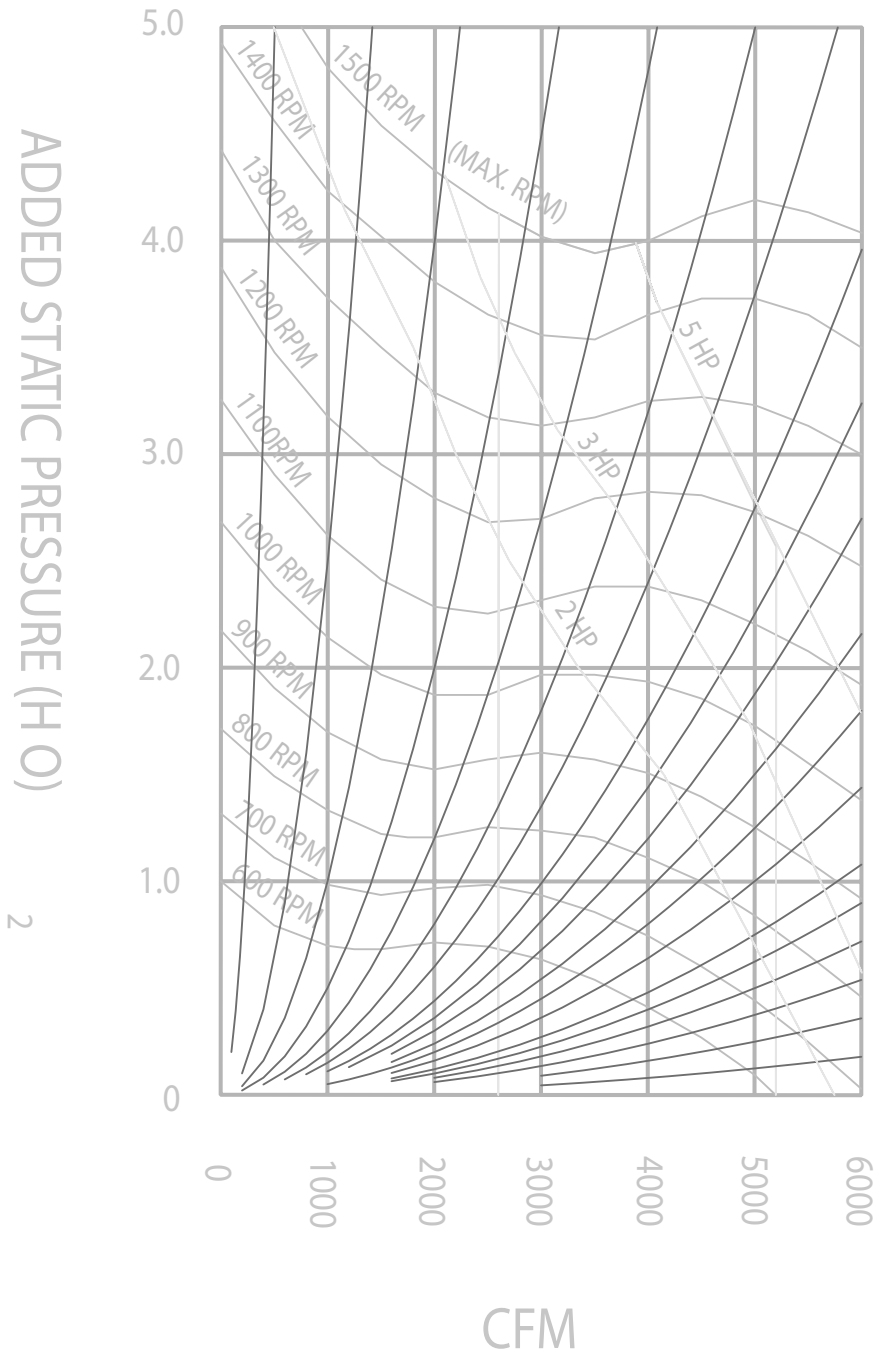
Ionizer/Collector Cell



ITEM	TRION PART NO.	DESCRIPTION
1	450551-001	End Plate (L.H.)
2	450551-002	End Plate (R.H.)
3	226555-001	High Voltage & Ground Plate
4	220107-070	Spacer
5	247924-002	Cell Brace
6	352212-002	Insulator
7	124537-001	Handle
8	220976-044	Rivet
9	147704-002 (ENGLISH) 147704G-002 (METRIC)	Contact Contact
10	220107-111	Spacer
11	220107-112	Spacer, Spike To Insulator

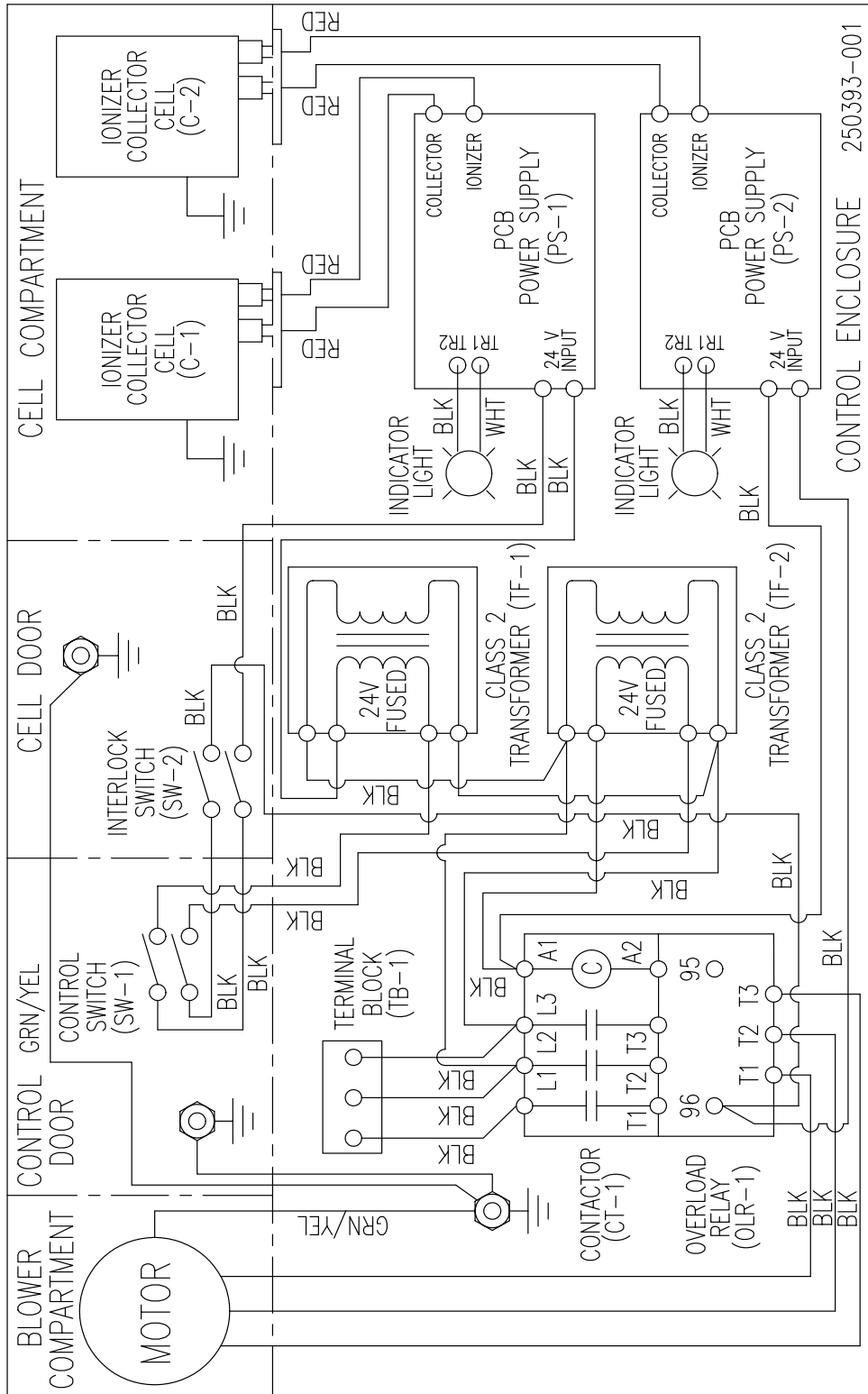
ITEM	TRION PART NO.	DESCRIPTION
12	247782-001	Ionizer Ground Plate
13	347892-001	Spiked Ionizer Blade
14	250567-001	Brace
15	233137-031 (ENGLISH) 233137G-031 (METRIC)	Tie Rod Tie Rod
16	233137-030 (ENGLISH) 233137G-030 (METRIC)	Tie Rod Tie Rod
17	233137-015 (ENGLISH) 233137G-015 (METRIC)	Tie Rod Tie Rod
18	220107-109	Spacer, Ionizer Ground
19	220107-110	Spacer, Spike
20	121993-006	Fiber Washer

T5200 Blower Curve



T5200

T5200 Wiring Diagram



CONTROL ENCLOSURE 250393-001



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