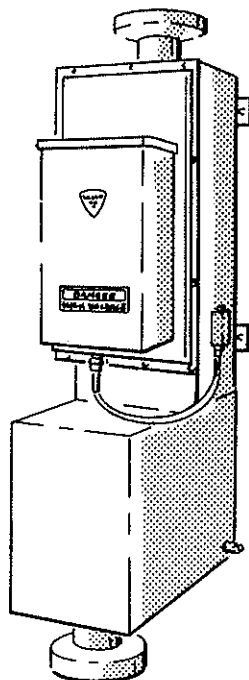




INDUSTRIAL MIST PRECIPITATOR

INSTALLATION OPERATION MAINTENANCE PARTS MANUAL



TYPE IMP MODEL 38 SERIES

TRION, INC. P.O. BOX 760, SANFORD, NORTH CAROLINA 27331-0760

INSTALLATION-OPERATION-MAINTENANCE-PARTS

INDUSTRIAL MIST PRECIPITATOR TYPE IMP MODEL 38 SERIES

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I. PRINCIPLE OF OPERATION & GENERAL DESCRIPTION

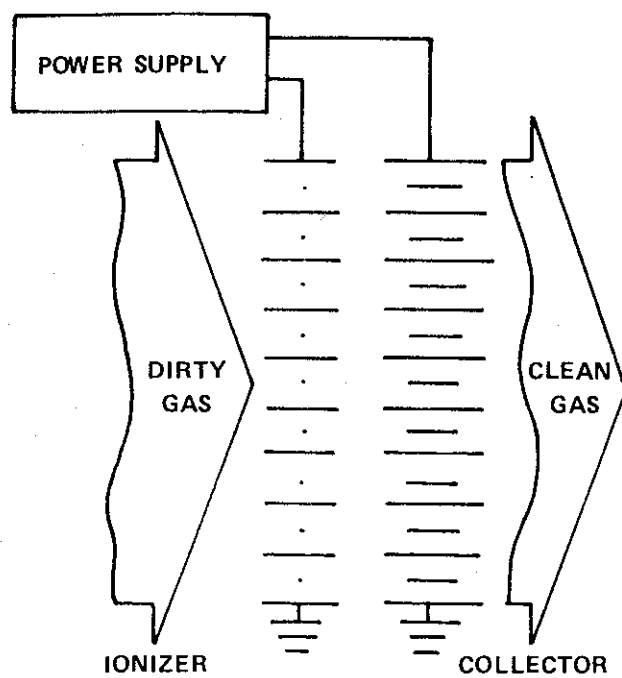
The Trion Industrial Precipitator is a two-stage, dual voltage, electronic cleaner designed to remove particulate matter from gas.

In the first stage of operation, the particles to be collected, pass through an ionizer where they are electrically charged, by a corona discharge, regardless of their size. In the second stage of operation, these charged particles pass into a collector where they are electrically attracted and collected.

The ionizer consists of electrically charged, 24 Ga. stainless steel spiked blades supported between grounded electrodes. The collector consists of a series of parallel plates arranged so that each alternate plate is electrically grounded. The charged plates are of the same polarity as the ionizing blades and charged particles so that they repel, while the grounded plates, being of opposite polarity, attract.

Three distinct functional components comprise the complete cleaner:

1. An ionizer to ionize the particulate matter in the gas.
2. A collector to collect the ionized particles.
3. A power supply to furnish the high voltage direct current required by the ionizer and collector.



Usually, this particular model series is applied to collect particulate matter in the form of mist. When collected, the particles coalesce into liquid droplets of adequate weight causing them to roll off of the vertically positioned collector plates where they drain away to a pre-designated location.

The ionizing and collecting sections are primarily constructed of aluminum, can be easily handled, and slide into the cabinet like drawers. A perforated steel baffle, located on the discharge side of the collector section, provides protection, especially on units installed with an open discharge. The baffle also slides into the cabinet like a drawer. All three of these components are accessible through a single, side mounted, access panel.

Internally, the following materials are exposed and subjected to the gas flow through the cabinet:

Aluminum	Silicone Rubber
Stainless Steel	Nylon
Mild. Steel	Glass Fiber Reinforced Polyester

The steel cabinet contains two predrilled mounting bars. Depending on the specifications, the cabinet is provided with pipe flanges, both on the inlet and the outlet for "in-line" installation or with a pipe flange on the inlet and an open outlet for free discharge installation. The inlet flange contains a flame arrestor which serves as a strainer as well as protection against any possible flaming caused by arc over in the collector. Refer to appropriate charts and drawings for weights, dimensions, arrangements and details.

The power supply is contained on the unit access panel in a weatherproof enclosure. It converts the alternating current input into the high voltage direct current necessary to energize the ionizing and collecting sections. Supply line power is connected to the unit in a weatherproof junction box and is delivered to the transformer primary through an oil proof cable connected to the enclosure through a quick connect fitting. In addition to the necessary high voltage components, the secondary contains a pilot light to indicate proper operating voltages. The circuit is protected by a Class 2 stepdown transformer in lieu of a fuse or circuit breaker.

II. INSTALLATION

A. UNPACK

Normally, the shipment is packaged in one container including the entire unit, completely assembled, and with instructions. Any shipping damage noted upon receipt should be immediately referred directly to the carrier and a claim filed. When receipt has been cleared, all crating and blocking used in shipment should be carefully removed.

B. SELECT MOUNTING LOCATION

Consideration must be given to three main points when selecting the mounting location.

1. Temperature:

The temperature of the gas flow through the precipitator must not exceed +160 degrees F and also be low enough so that all vapors and/or mists have fully condensed into particulate matter prior to entering the unit. The purpose may be defeated if warm materials pass through the unit in a gaseous state, then condense into mist down stream from the collector element. Adequate duct runs between the contaminate and precipitator, or a chill means, must be provided to lower the gas temperature to a satisfactory point. The minimum temperature to which the unit should be exposed is +20 degrees F.

2. Positioning:

Although the unit will operate in any position, it is primarily designed for vertical upflow. The important factor to keep in mind when positioning is the adequate drainage of collected materials and with the unit in the vertical upflow position, this feature is best facilitated.

3. Service Access:

Adequate space should be provided in front of the access panel for ease in access panel and internal component removal.

C. INSTALLATION OF PRECIPITATOR

1. Disconnect primary cable from power pack.
2. Remove access panel hardware and panel. Place in safe location being careful not to deform the high voltage spring contacts in the under side.
3. Remove flame arrestor, ionizer, collector and outlet baffle and place them aside with access panel.
4. The internal surfaces of the cabinet are treated with a light-weight oil to protect the unpainted metal from rust and corrosion prior to packaging for shipment. If the precipitated particles are to be reclaimed, and must be pure, the preserving oil should be thoroughly flushed away with an adequate solvent prior to mounting.

b) Refer to Drawings for mounting bolt hole dimensions.

c) Be sure flame arrestor is properly installed in inlet flange before connecting the mating flange of the adjoining duct run.

6. Thoroughly clean all installation dirt from the cabinet, then reinstall ionizer, collector and outlet baffle.

7. Reinstall and secure access panel.

D. WIRING

Connect alternating voltage as specified through a service switch, to the connections provided in the junction box located on the side of the unit. Refer to Drawing, page 14.

III. OPERATION

Energize the unit. The pilot light should glow, indicating the ionizer and collector are correctly powered. Arcing and cracking accompanied by a flickering of the pilot light may be noted when the unit is first energized. If it occurs, it is probably due to some small amount of foreign material in the system or collector and should quickly subside. If the pilot light is dim, or does not glow, when the unit is energized or prolonged, arcing occurs, refer to Trouble Shooting, page 3.

IV. MAINTENANCE

NOTE: EXERCISE THE NORMAL PRECAUTIONS WHEN WORKING WITH HIGH VOLTAGE.

The precipitator, when applied to liquid particulate matter, is self-cleaning to a degree. The continual run-off of collected material provides a cleaning action. Periodically, however, the components should be inspected and cleaned.

Depending on the type and amounts of materials collected, the various components become dirty in different periods of time. Frequent inspection after initial start-up is the best practical method to establish a routine maintenance schedule for any given material being collected.

To remove components:

- a) Disconnect primary cable at fitting on power pack.
- b) Remove access panel hardware and remove access panel. When removing and placing it down, be careful not to deform the high voltage contacts located on the under side.
- c) Pull components from cabinet. Place on smooth flat surface to avoid deforming.

Any coatings of contaminant build-up on ionizing blades can normally be removed with a small amount of solvent applied with a cloth. Exceptionally stubborn coatings on blades may require removal with very fine emery cloth, carefully used. Use emery cloth on flat surface of blade only, not on points.

When necessary, after prolonged use, the complete ionizer and collector plate sections may require a good manual cleaning. Care should be taken in handling throughout the operation. High pressure commercial spray devices (such as a car wash) usually do a good job.

Periodically, the surfaces of the components within the power pack should be wiped clean and the securement of connections checked. Access to the power supply is gained by removing the primary power cable and power pack cover.

V. TROUBLE SHOOTING

NOTE: EXERCISE THE NORMAL PRECAUTIONS WHEN WORKING WITH HIGH VOLTAGE.

A. PILOT LIGHT (LED) DIM:

1. Check to see that primary power is supplied to power supply and that LED is good.
2. If power is supplied to the power supply, and the pilot light is dim, it is an indication that there is a short circuit, either in the power supply or the ionizing-collecting elements. It can be isolated to one or the other by energizing the power supply with the ionizer and collector elements removed from the cabinet. If the light glows bright with the elements removed from the cabinet, the short is then in the ionizer or the collector sections. It can be further isolated to one or the other by energizing one at a time with the other removed.

a) Power Supply Shorts:

Pilot light dim or out with ionizing-collecting elements removed. Replace power supply.

b) Ionizer Shorts:

- (1) Bent or deformed ionizer blades. Remove and replace.
- (2) Dirty insulators. Clean.
- (3) Foreign objects between charged and ground potentials. Remove.

c) Collector Shorts:

- (1) Foreign object between plates. Remove.
- (2) Bent or deformed plates. Straighten.
- (3) Dirty insulators. Clean.

B. EXCESSIVE ARCING:

1. Loose or damaged ionizing blade. Replace.
2. Large particle of foreign material lodged between the collector plates. Remove.
3. Bent collector plates. Straighten.
4. Loose high voltage connection or deformed high voltage contact spring. Correct or replace as necessary.
5. Ionizer and/or collector excessively dirty. Refer to IV Maintenance.

C. LOW OR REDUCED EFFICIENCY:

1. Dirty ionizing blades and/or collector components. Refer to cleaning instructions under IV Maintenance.
2. Increase in gas flow above the unit rating. Reduce flow.
3. Increase in particulate concentration above unit rating. Reduce concentrations.
4. Low secondary voltage. The ionizer voltage should be - 13 KVDC +500 VDC. The collector voltage should be - 6.5 KVDC +500 VDC. The ionizer current should be between 0.5 and 1.5 MA.
5. Loose or faulty high voltage connection between power supply and ionizer-collector elements. Check secondary wiring from power supply to high voltage contact springs. Check high voltage contacts to be sure they are contacting both ionizer and collector.

VI. RECOMMENDED SPARE PARTS

ITEM	DESCRIPTION	PART NO.	QUANTITY SUGGESTED
A	Power Supply		1
	150 CFM Unit	439309-501	
	300 CFM Unit	439309-502	
	600 CFM Unit	439309-503	
B	LED	139299-001	1
C	Spring Contact	221952-001	1
D	Transformer		1
	120 VAC	239285-001	
	240 VAC	239285-002	

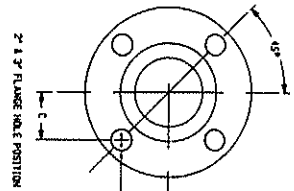
150 CFM PARTS

Trion Part Number	Wt. (lbs.)	Inlet Connector	Outlet Connector	Part Number Flame Arrestor	POWER SUPPLY	
					120 VAC	240 VAC
439057-001 -029	141	2" Flange	—	322792-001	1 0	0 1
-002 -030	145	3" Flange	—	322792-002	0 0	1 1
-003 -031	150	4" Flange	—	322791-002	1 0	0 1
-008 -036	147	2" Flange	2" Flange	322792-001	1 0	0 1
-009 -037	155	3" Flange	3" Flange	322792-002	1 0	0 1
-010 -038	165	4" Flange	4" Flange	322791-002	1 0	0 1
-015 -043	138	2" Pipe	—	—	1 0	0 1
-016 -044	141	3" Pipe	—	—	1 0	0 1
-017 -045	143	4" Pipe	—	—	1 0	0 1
-022 -050	141	2" Pipe	2" Pipe	—	1 0	0 1
-023 -051	147	3" Pipe	3" Pipe	—	1 0	0 1
-024 -052	151	4" Pipe	4" Pipe	—	1 0	0 1
-061 -062	159	6" Flange	—	322791-001	1 0	0 1
-060 -059	183	6" Flange	6" Flange	322791-001	1 0	0 1

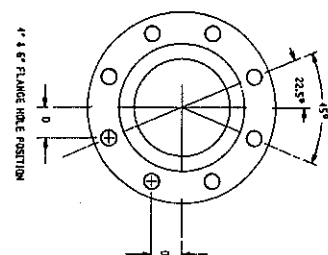
NOTE:

1. The part number for the **Ionizer Cell** for all units on this page is 422728-011.
Only one (1) is required.
2. The part number for the **Collector Cell** for all units on this page is 422729-003.
Only one (1) is required.

MODEL	INLET	OUTLET	FLAME ARRESTOR	POWER	PROTECTOR'S DIM.	W.D.	W.D.
20212-501	2"	2"	20212-501	120V 60WZ	1.55	18.25	18.25
20212-502	2"	2"	20212-502	120V 60WZ	1.55	18.25	18.25
20212-503	2"	2"	20212-503	120V 60WZ	1.55	18.25	18.25
20212-504	2"	2"	20212-504	120V 60WZ	1.55	18.25	18.25
20212-505	2"	2"	20212-505	120V 60WZ	1.55	18.25	18.25
20212-506	2"	2"	20212-506	120V 60WZ	1.55	18.25	18.25
20212-507	2"	2"	20212-507	120V 60WZ	1.55	18.25	18.25
20212-508	2"	2"	20212-508	120V 60WZ	1.55	18.25	18.25
20212-509	2"	2"	20212-509	120V 60WZ	1.55	18.25	18.25
20212-510	2"	2"	20212-510	120V 60WZ	1.55	18.25	18.25
20212-511	2"	2"	20212-511	120V 60WZ	1.55	18.25	18.25
20212-512	2"	2"	20212-512	120V 60WZ	1.55	18.25	18.25
20212-513	2"	2"	20212-513	120V 60WZ	1.55	18.25	18.25
20212-514	2"	2"	20212-514	120V 60WZ	1.55	18.25	18.25
20212-515	2"	2"	20212-515	120V 60WZ	1.55	18.25	18.25
20212-516	2"	2"	20212-516	120V 60WZ	1.55	18.25	18.25
20212-517	2"	2"	20212-517	120V 60WZ	1.55	18.25	18.25
20212-518	2"	2"	20212-518	120V 60WZ	1.55	18.25	18.25
20212-519	2"	2"	20212-519	120V 60WZ	1.55	18.25	18.25
20212-520	2"	2"	20212-520	120V 60WZ	1.55	18.25	18.25

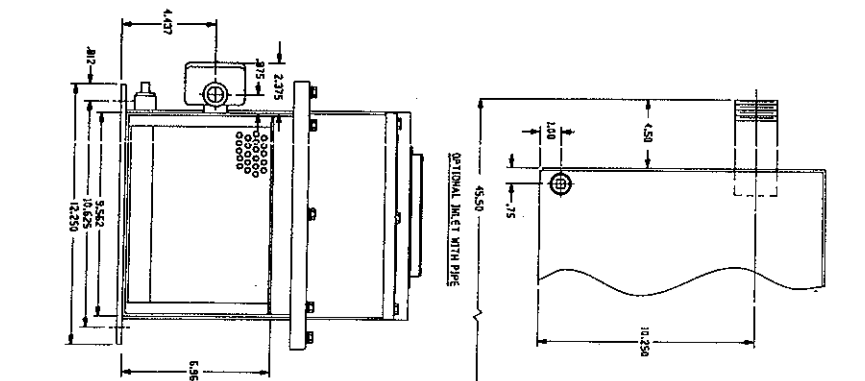
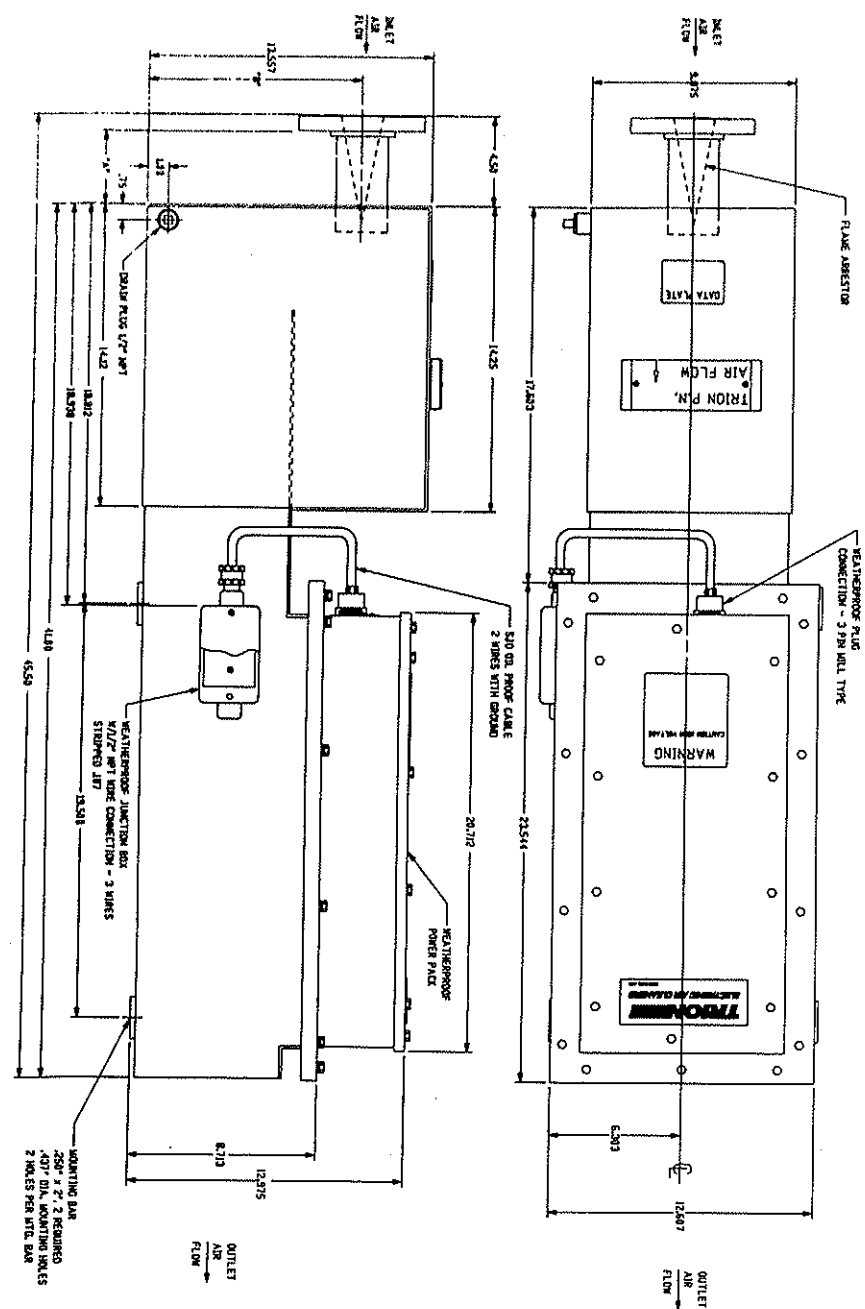


FLAME SIZE	C	BOLT CIRC. DIA.	NOSE DIA.
2"	1.679	4.750	.750
3"	2.121	5.000	.750



FLANGE SIZE: 3		BDT CIRCLE		HOLE DIA.	
4	1.435	7.580	O/A		7.58
5	1.817	9.500			.875

- NOTES:
1. OUTLET ON RAIN SHIELD MAY BE CONNECTED TO OUTLET.
 2. MOUNT FOR VERTICAL UP AIR FLOW.
 3. FLAMES SHOWN BASED ON 100% BUTANE.
 4. FLAME SHOWN FOR 100% BUTANE.



400 NEW POWER PLANT		422396	
SCALE	1/8" = 1'-0"	1/4" = 1'-0"	3/8" = 1'-0"
GRID	1'-0"	2'-0"	3'-0"
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GRID	1'-0"	2'-0"	3'-0"
GRID	1'-0"	2'-0"	3'-0"
GRID	1'-0"	2'-0"	3'-0"
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GRID	1'-0"	2'-0"	3'-0"
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GRID	1'-0"	2'-0"	3'-0"
GRID	1'-0"	2'-0"	3'-0"
GRID	1'-0"	2'-0"	3'-0"
GRID	1'-0"	2'-0"	3'-0"
GRID	1'-0"	2'-0"	3'-0"
GRID	1'-0"	2'-0"	3'-0"
GRID	1'-0"	2'-0"	3'-0"
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GRID	1'-0"	2'-0"	3'-0"
GRID	1'-0"	2'-0"	3'-0"
GRID	1'-0"	2'-0"	3'-0"
GRID	1'-0"	2'-0"	3'-0"
GRID	1'-0"	2'-0"	3'-0"
GRID	1'-0"	2'-0"	3'-0"
GRID	1'-0"	2'-0"	3'-0"
GRID	1'-0"	2'-0"	3'-0"
GRID	1'-0"	2'-0"	3'-0"
GRID	1'-0"	2'-0"	3'-0"
GRID			

150 CFM PARTS

Trion Part Number	Wt. (lbs.)	Inlet Connector	Outlet Connector	Part Number Flame Arrestor	POWER SUPPLY	
					120 VAC	240 VAC
439057-001 -029	141	2" Flange	—	322792-001	1 0	0 1
-002 -030	145	3" Flange	—	322792-002	0 0	1 1
-003 -031	150	4" Flange	—	322791-002	1 0	0 1
-008 -036	147	2" Flange	2" Flange	322792-001	1 0	0 1
-009 -037	155	3" Flange	3" Flange	322792-002	1 0	0 1
-010 -038	165	4" Flange	4" Flange	322791-002	1 0	0 1
-015 -043	138	2" Pipe	—	—	1 0	0 1
-016 -044	141	3" Pipe	—	—	1 0	0 1
-017 -045	143	4" Pipe	—	—	1 0	0 1
-022 -050	141	2" Pipe	2" Pipe	—	1 0	0 1
-023 -051	147	3" Pipe	3" Pipe	—	1 0	0 1
-024 -052	151	4" Pipe	4" Pipe	—	1 0	0 1
-061 -062	159	6" Flange	—	322791-001	1 0	0 1
-060 -059	183	6" Flange	6" Flange	322791-001	1 0	0 1

NOTE:

1. The part number for the **Ionizer Cell** for all units on this page is 422728-011.
Only one (1) is required.
2. The part number for the **Collector Cell** for all units on this page is 422729-003.
Only one (1) is required.

300 CFM PARTS

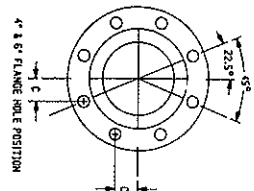
Trion Part Number	Wt. (lbs.)	Inlet Connector	Outlet Connector	Part Number Flame Arrestor	POWER SUPPLY	
					120 VAC	240 VAC
439057-004 -032	156	2" Flange	—	322792-001	1 0	0 1
-005 -033	160	3" Flange	—	322792-002	1 0	0 1
-006 -034	165	4" Flange	—	322791-002	1 0	0 1
-007 -035	174	6" Flange	—	322791-001	1 0	0 1
-011 -039	162	2" Flange	2" Flange	322792-001	1 0	0 1
-012 -040	170	3" Flange	3" Flange	322792-002	1 0	0 1
-013 -041	180	4" Flange	4" Flange	322791-002	1 0	0 1
-014 -042	198	6" Flange	6" Flange	322791-001	1 0	0 1
-018 -046	153	2" Pipe	—	—	1 0	0 1
-019 -047	156	3" Pipe	—	—	1 0	0 1
-020 -048	158	4" Pipe	—	—	1 0	0 1
-021 -049	164	6" Pipe	—	—	1 0	0 1
-025 -053	156	2" Pipe	2" Pipe	—	1 0	0 1
-026 -054	162	3" Pipe	3" Pipe	—	1 0	0 1
-027 -055	168	4" Pipe	4" Pipe	—	1 0	0 1
-028 -056	178	6" Pipe	6" Pipe	—	1 0	0 1
-057	179	4" Flange	6" Flange	322792-001	1	0
-065*		3" Pipe	3" Pipe		1	0

NOTE:

1. The part number for the **Ionizer Cell** for all units on this page is 422728-012.
Only one (1) is required.
2. The part number for the **Collector Cell** for all units on this page is 422729-002.
Only one (1) is required.

*Stainless Steel Ionizer & Collector Cell
Ionizer Part No. 431318-001
Collector Cell Part No. 431319-001

FLANGE SIZE	C	BOX 1 CIRCLE DIA.	HOLE DIA.
4"	1.435	2.500	.750
6"	1.817	2.500	.875



- A JGW 3/27/88
CO-7547-02
REVISED 1 PROGRAM
ADD NEW POWER PAC

300 CFM PARTS

Trion Part Number	Wt. (lbs.)	Inlet Connector	Outlet Connector	Part Number Flame Arrestor	POWER SUPPLY	
					120 VAC	240 VAC
439057-004 -032	156	2" Flange	—	322792-001	1 0	0 1
-005 -033	160	3" Flange	—	322792-002	1 0	0 1
-006 -034	165	4" Flange	—	322791-002	1 0	0 1
-007 -035	174	6" Flange	—	322791-001	1 0	0 1
-011 -039	162	2" Flange	2" Flange	322792-001	1 0	0 1
-012 -040	170	3" Flange	3" Flange	322792-002	1 0	0 1
-013 -041	180	4" Flange	4" Flange	322791-002	1 0	0 1
-014 -042	198	6" Flange	6" Flange	322791-001	1 0	0 1
-018 -046	153	2" Pipe	—	—	1 0	0 1
-019 -047	156	3" Pipe	—	—	1 0	0 1
-020 -048	158	4" Pipe	—	—	1 0	0 1
-021 -049	164	6" Pipe	—	—	1 0	0 1
-025 -053	156	2" Pipe	2" Pipe	—	1 0	0 1
-026 -054	162	3" Pipe	3" Pipe	—	1 0	0 1
-027 -055	168	4" Pipe	4" Pipe	—	1 0	0 1
-028 -056	178	6" Pipe	6" Pipe	—	1 0	0 1
-057	179	4" Flange	6" Flange	322792-001	1	0

NOTE:

1. The part number for the **Ionizer Cell** for all units on this page is 422728-012.
Only one (1) is required.
2. The part number for the **Collector Cell** for all units on this page is 422729-002.
Only one (1) is required.

*Stainless Steel Ionizer & Collector Cell
 Ionizer Part No. 431318-001
 Collector Cell Part No. 431319-001

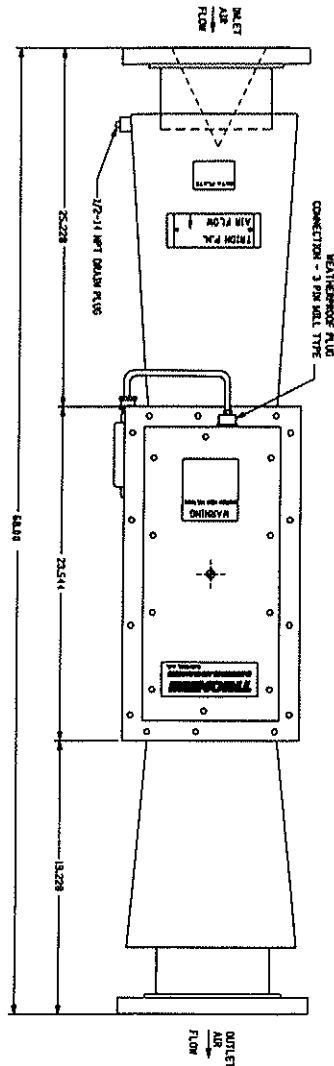
600 CFM PARTS

Trion Part Number	Wt. (lbs.)	Inlet Connector	Outlet Connector	Part Number Flame Arrestor	POWER SUPPLY	
					120 VAC	240 VAC
439057-063	355	8" Flange	8" Flange	322791-003	1	0
439057-064	355	8" Flange	8" Flange	322791-003	0	1

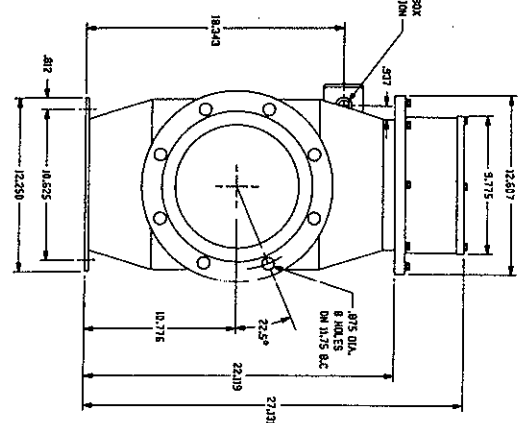
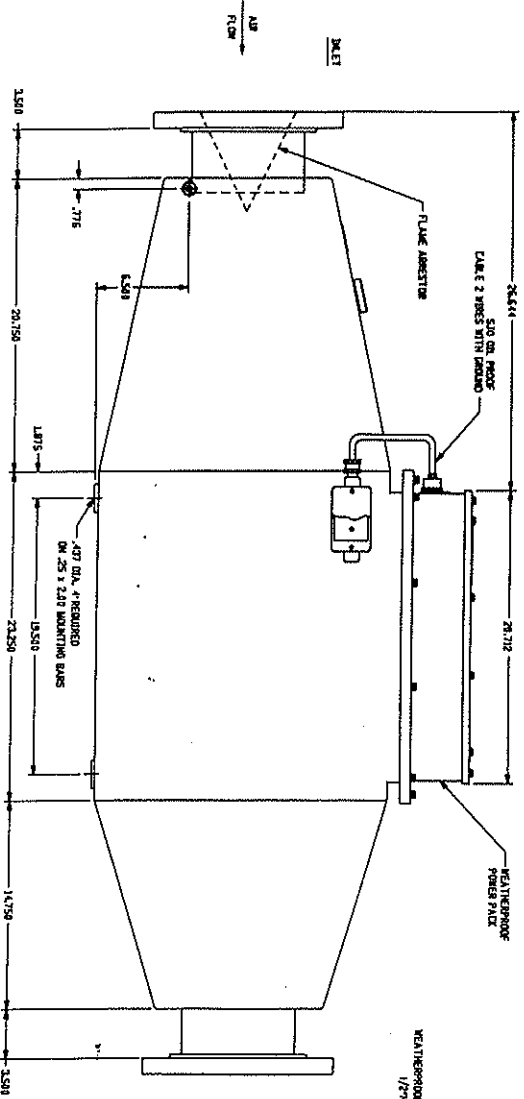
NOTE:

1. The part number for the **Ionizer Cell** for all units on this page is 422728-013.
Two (2) are required.
2. The part number for the **Collector Cell** for all units on this page is 422729-005.
Two (2) are required.

ITEM #	QTY	DESCRIPTION	UNIT	PRICE	TOTAL
1000-100	1	INLET	FLAME ARRESTOR	120.00	120.00
1000-100	1	OUTLET	FLAME ARRESTOR	120.00	120.00
1000-100	1	WEATHERPROOF FLUID	1/2" x 1/2" x 1/2"	20.00	20.00
1000-100	1	WEATHERPROOF FLUID	1/2" x 1/2" x 1/2"	20.00	20.00
1000-100	1	WEATHERPROOF FLUID	1/2" x 1/2" x 1/2"	20.00	20.00
1000-100	1	WEATHERPROOF FLUID	1/2" x 1/2" x 1/2"	20.00	20.00
1000-100	1	WEATHERPROOF FLUID	1/2" x 1/2" x 1/2"	20.00	20.00
1000-100	1	WEATHERPROOF FLUID	1/2" x 1/2" x 1/2"	20.00	20.00
1000-100	1	WEATHERPROOF FLUID	1/2" x 1/2" x 1/2"	20.00	20.00
1000-100	1	WEATHERPROOF FLUID	1/2" x 1/2" x 1/2"	20.00	20.00



- NOTES:
1. MOUNT FOR VERTICAL UP AIR FLOW.
 2. FIELD WIRING PER DRAWING 42295.
 3. INLET AND OUTLET FLANGES ARE 150 LBS. RAISED FACE.
 4. INLET OR RAIN SHIELD MAY BE CONNECTED TO OUTLET.



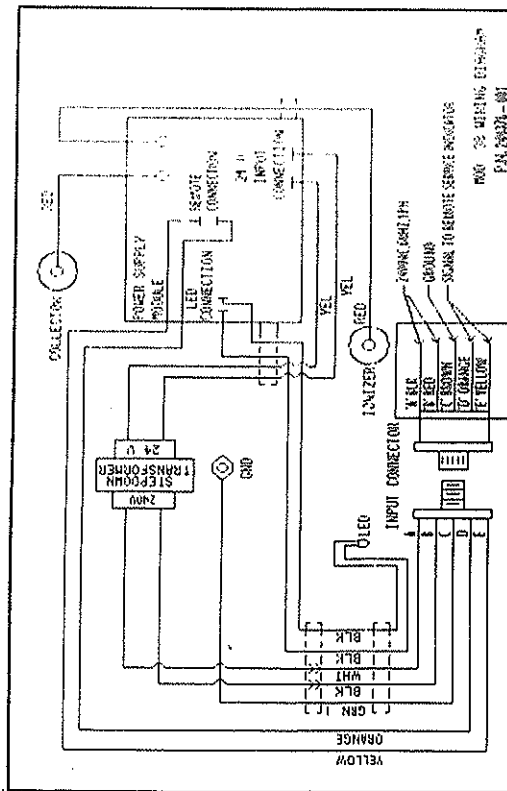
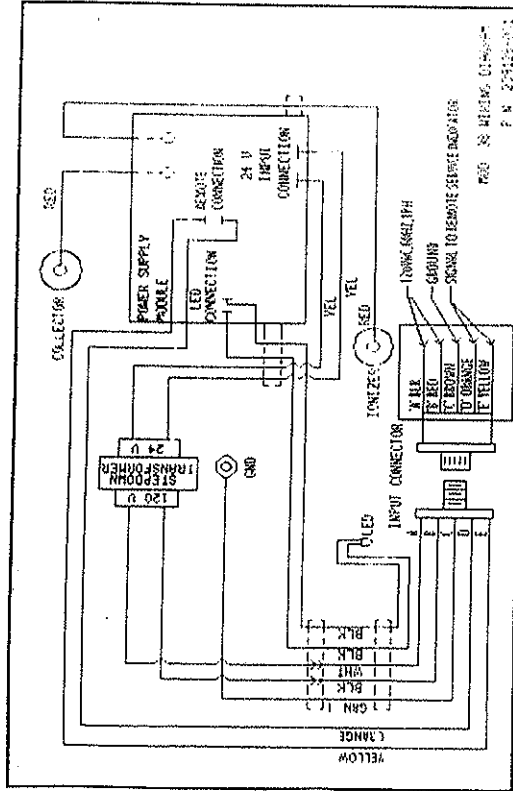
DATE	10/15/08	BY	TRION, INC.
TIME	10:00 AM	BY	TRION, INC.
LOCATION	1000-100	BY	TRION, INC.
DESCRIPTION	1000-100	BY	TRION, INC.
REVISION	1000-100	BY	TRION, INC.
DATE	10/15/08	BY	TRION, INC.
TIME	10:00 AM	BY	TRION, INC.
LOCATION	1000-100	BY	TRION, INC.
DESCRIPTION	1000-100	BY	TRION, INC.
REVISION	1000-100	BY	TRION, INC.

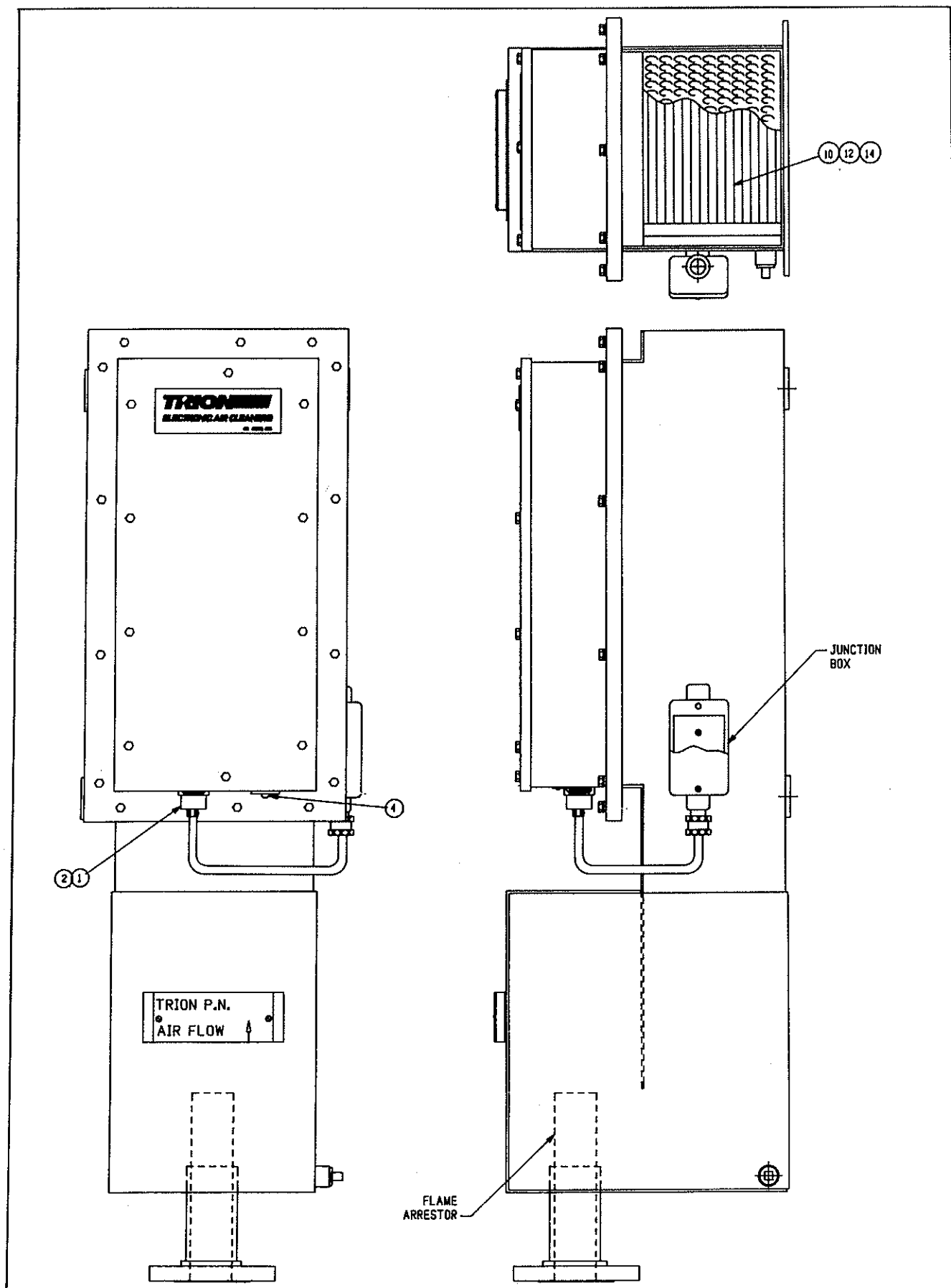
ELECTRICAL PARTS LIST and SCHEMATIC

150 CFM
300 CFM
600 CFM

QTY.	QTY.	QTY.	ITEM	TRION P.N.	DESCRIPTION
1	1	—	1	245787-002	Primary Lead and Plug Assembly
—	—	1	2	245787-001	Primary Lead and Plug Assembly
1	1	1	3	239283-002	Box Mounting Receptacle Assembly
1	1	1	4	139299-001	LED Light Assembly
1	1	1	5	239285-001	Transformer Assembly, 120V 50/60 HZ
1	1	1	6	239285-002	Transformer Assembly, 240V 50/60 HZ
2	2	2	7	221952-001	Contact
4	4	4	8	122732-002	Insulator
—	—	1	9	422728-012	Ionizer Cell
—	—	1	10	422729-002	Collector Cell
—	—	2	11	422728-013	Ionizer Cell
—	—	2	12	422729-005	Collector Cell
1	—	—	13	422728-011	Ionizer Cell
1	—	—	14	422729-003	Collector Cell
1	—	—	15	439309-501	Power Supply, 150 CFM
—	1	—	16	439309-502	Power Supply, 300 CFM
—	—	1	17	439309-503	Power Supply, 600 CFM
2	4	8	18	242037-001	Spiked Ionizer Blade
2	2	4	*	220081-001	Insulator Ionizer Cell
2	2	4	*	220146-001	Insulator Collector Cell

* Not Shown







TRION, INC.

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