Air Boss MP 600M

Vertical Air Flow Mist Precipitator

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.

TRION®
air purification systems

A FEDDERS INDOOR AIR QUALITY COMPANY

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DESCRIPTION

The Trion MP 600M air cleaner is designed to capture machine tool fluids, metal dust and smoke for clean air filtration. It can be mounted to a wall, frame, platform, or directly on the machine tool. Mist, dust, and smoke are drawn from each machine through an external duct into the air cleaner. A self-draining Impinger removes the heavy mist and droplets (including water soluble fluids), and the remaining contaminates are captured by the pre-filter and the primary filter. Clean air is returned to the plant through the vertical discharge. The air cleaner operates at 95-99.97% efficiency at the rated 600 CFM airflow.

NEW UNIT INSPECTION

At the time the unit is received, all shipping containers and their contents should be examined for damage. Any damage occurring in shipment must be immediately reported to the carrier, an inspection report completed and a claim filed at the receiving point. The unit cabinet is shipped completely assembled

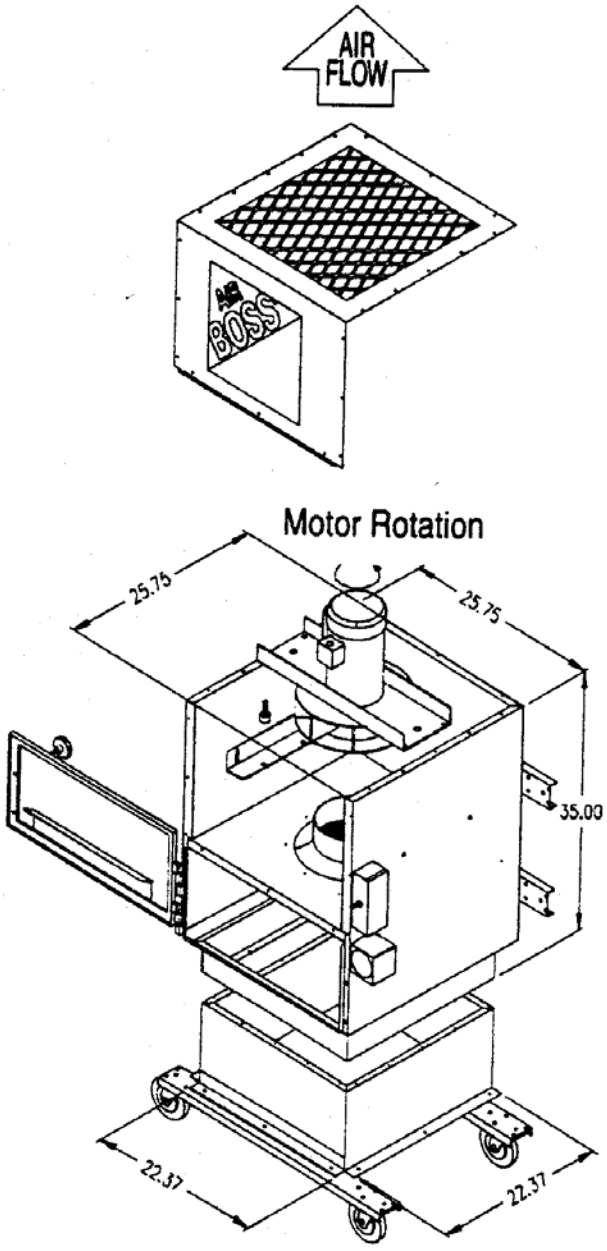
POSITION AIR CLEANER CABINET

To reduce weight for ease in handling, remove the pre-filters, main filters and place them safely aside. Position the cabinet in the designated location giving consideration to following points:

(a) Provide sufficient clearance in front of the access doors for mechanical filter replacement. A minimum of 26” is required (see figure 2).
(b) Level the cabinet to assure proper drainage from the drain pan.
(c) Unless specific design features have been prearranged, the direction of air flow through th e cabinet may be from any side or upward through the bottom. When the filters are reinstalled, the directional arrows on the filters must concur with airflow through the cabinet. If mist suppressors have been specified, they are to be installed on the air entering side of the unit.

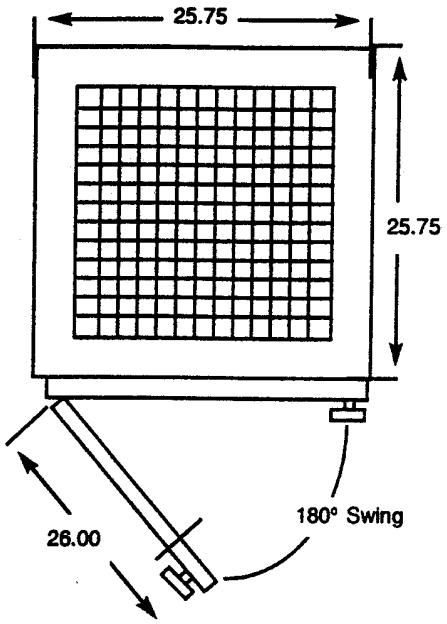
After the cabinet has been properly located, it may be secured into place at the mounting pads either by bolting or welding.

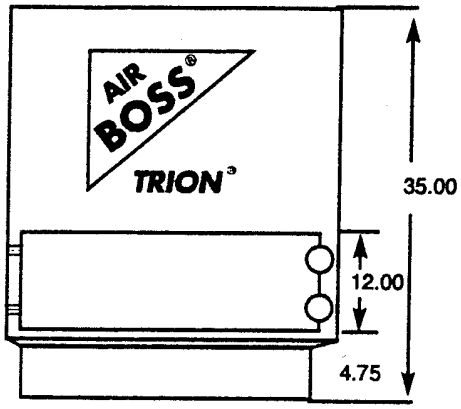
Figure 1 - MP 600M High Static



SPECIFICATIONS	STANDARD MP 600M	OPTIONAL MP600M and High Static			
Voltage	115	208-230	208-230/460	575	115/230
Phase	1	1	3	3	1
HZ	60	60	60	60	60
AMPS	17	9.4-8.5	4.9-4.6/2.3	1.9	8.0-4.0
Motor	½ hp	1 ½ hp	1 ½ hp	1 ½ hp	½ hp
CFM	600	600	600	600	600
Shipping Weight	175 lbs	225 lbs.	225 lbs.	225 lbs.	225 lbs.

Figure 2 – Dimension and Access Data





(Optional Plenum not shown)

GENERAL SAFETY INFORMATION

WARNING: RISK OF ELECTRIC SHOCK
These serving 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.

1. Read this manual thoroughly before beginning the installation of this unit.
2. Conference to all local ordinances associated with building codes and electrical codes is required prior to beginning installation of this 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.

CAUTION:
The weight of the air cleaner is 150 lbs. Any mounting arrangement must be able to support this weight. Failure to determine if mounting is sufficient may result in damage or injury within the area.

INSTALLATION

Prior to beginning installation, select the location for the air cleaner. The air cleaner should be located as close to the contaminant source as possible. The air enters the air cleaner from the bottom (or specified side with inlet plenum as viewed from the access door side) and discharges vertically through the grille in the cabinet top panel. Do not obstruct the air flow from the unit. Maintain at least 18 inches (45 cm) clearance above the unit.

MOUNTING

WALL OR VERTICAL SUPPORT MOUNTED

1. Four (4) tapped holes are provided in the cabinet back. Bars may be mounted to the cabinet with existing hard ware. The MP600M can then be mounted to the wall or vertical support stand (not provided) with 3/8” hardware (not provided).
2. The inlet plenum is equipped with a ½” half coupling to connect drain piping. Plumbing should be routed to the collection point to facilitate drainage.
3. Affix duct(s) or elbow fitting(s) or flex hose(s) to the inlet plenum flange collar using hose clamps or other similar connection method. (Clamps, elbows and/or duct are not provided).

CAUTION:
When using flex duct connections with other than straight runs of duct, 45 degree elbows should be used to connect ducting to flanged collars to maximize air flow.

ENCLOSED MACHINING CENTER DIRECT MOUNT

1. When mounting directly to an enclosed machining center ensure there is 53" (135 cm) clearance above the enclosure and structure integrity is sufficient to support the MP 600M.
2. Open the filter access door and remove all the filtering elements. Set these components aside until the installation is complete.
3. Prepare an outlet opening on the top of he enclosed machining center (8" minimum to 20" maximum diameter opening).
4. Center the MP600M over opening and secure to the enclosure with self-drilling/self-tapping screws or other similar method in accordance with local codes. No additional duct connections or drain plumbing is required on this type of installation.

ARM ASSEMBLY (OPTIONAL) MOUNTING

Mount the arm assembly(s) to the arm connection collar on the inlet plenum in accordance with the mounting instructions provided in the arm assembly kit.

TRAPEZE MOUNT

1. Four (4) through holes are provided in the inlet plenum bottom flange to which two (2) mounting channels are affixed with 3/8" hardware (not provided).
2. The MP600M can be suspended from overhead with chains or 3/8" diameter (minimum) rods (not provided).
3. The inlet plenum is equipped with a ½" half coupler to connect drain piping. Plumbing should be routed to the collection point to facilitate drainage (P – trap not Required).
4. Affix duct(s) or elbow fitting(s) or flex hose(s) to the inlet plenum flange collar using hose clamps or other similar connection method (not provided).

MINI-HELIC GAUGE (Optional Mounting)

1. Gauge may be mounted directly on MP600M unit or may be remotely mounted for improved visibility.
2. Gauge may be connected to measure entire system static pressure or only pressure drop across filter section.
3. All hardware, components and detailed installation instructions are included in gauge kit option.

Figure 3 - MP 600M Wall Mounted with 8" Arm Assembly and Drain Pipe

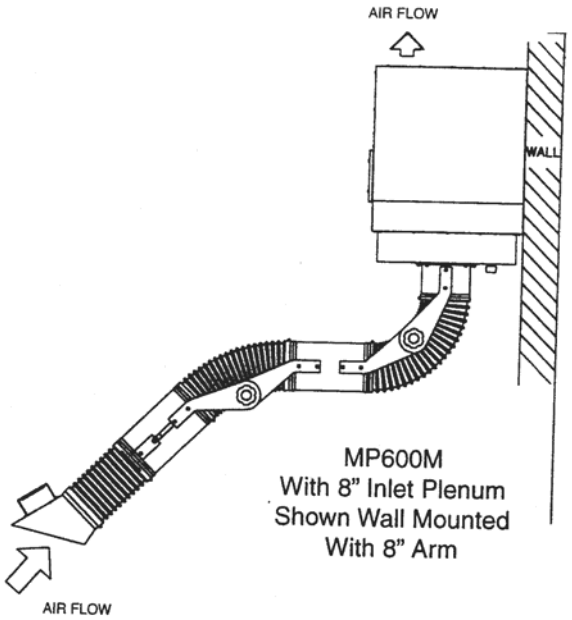
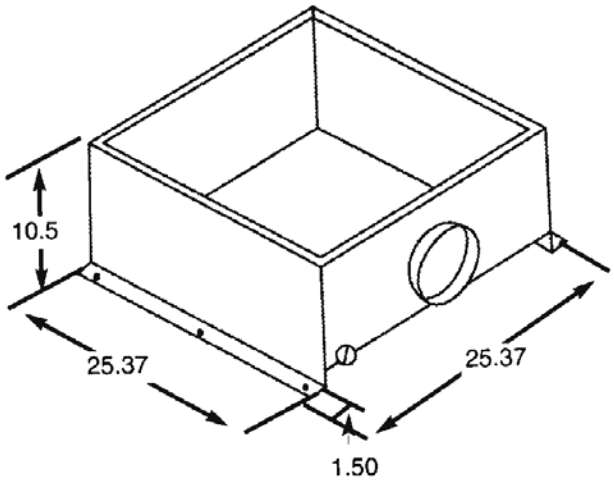
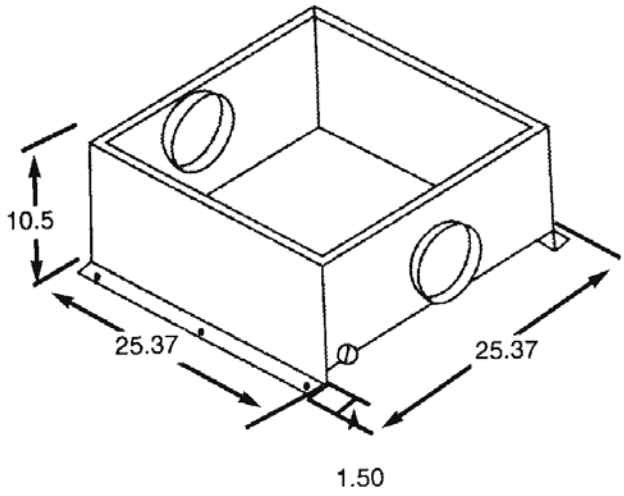


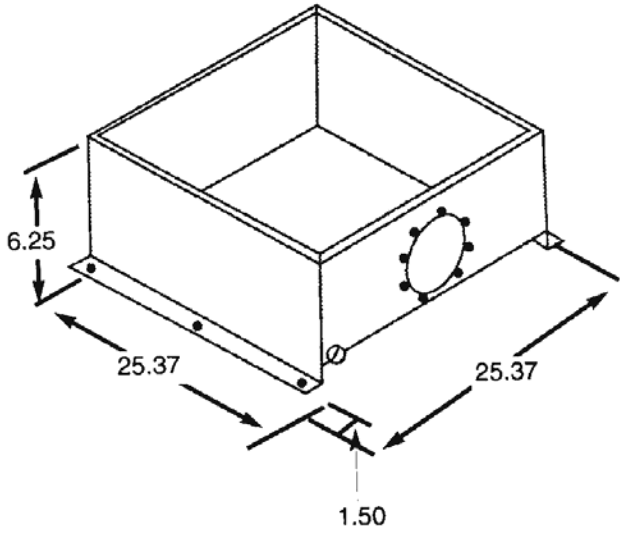
Figure 4 - MP 600M Inlet Plenum and Stand Options

(1) 8" hose connection

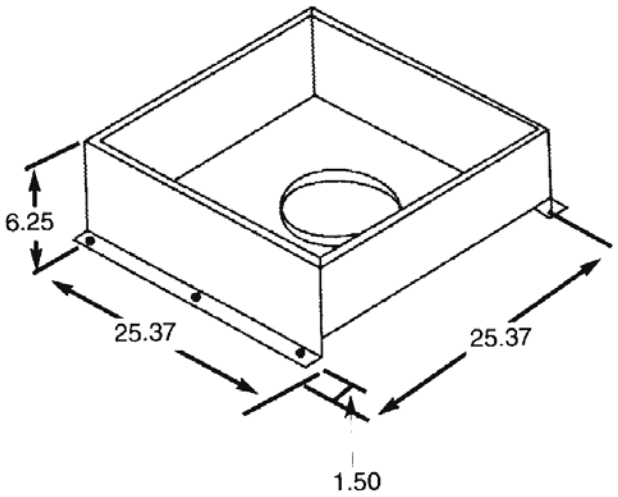


(2) 6" hose connection 180°





(1) 8" arm conn.



(1) 8" hose conn. bottom

Figure 5 – Wiring Diagrams for Model MP 600M

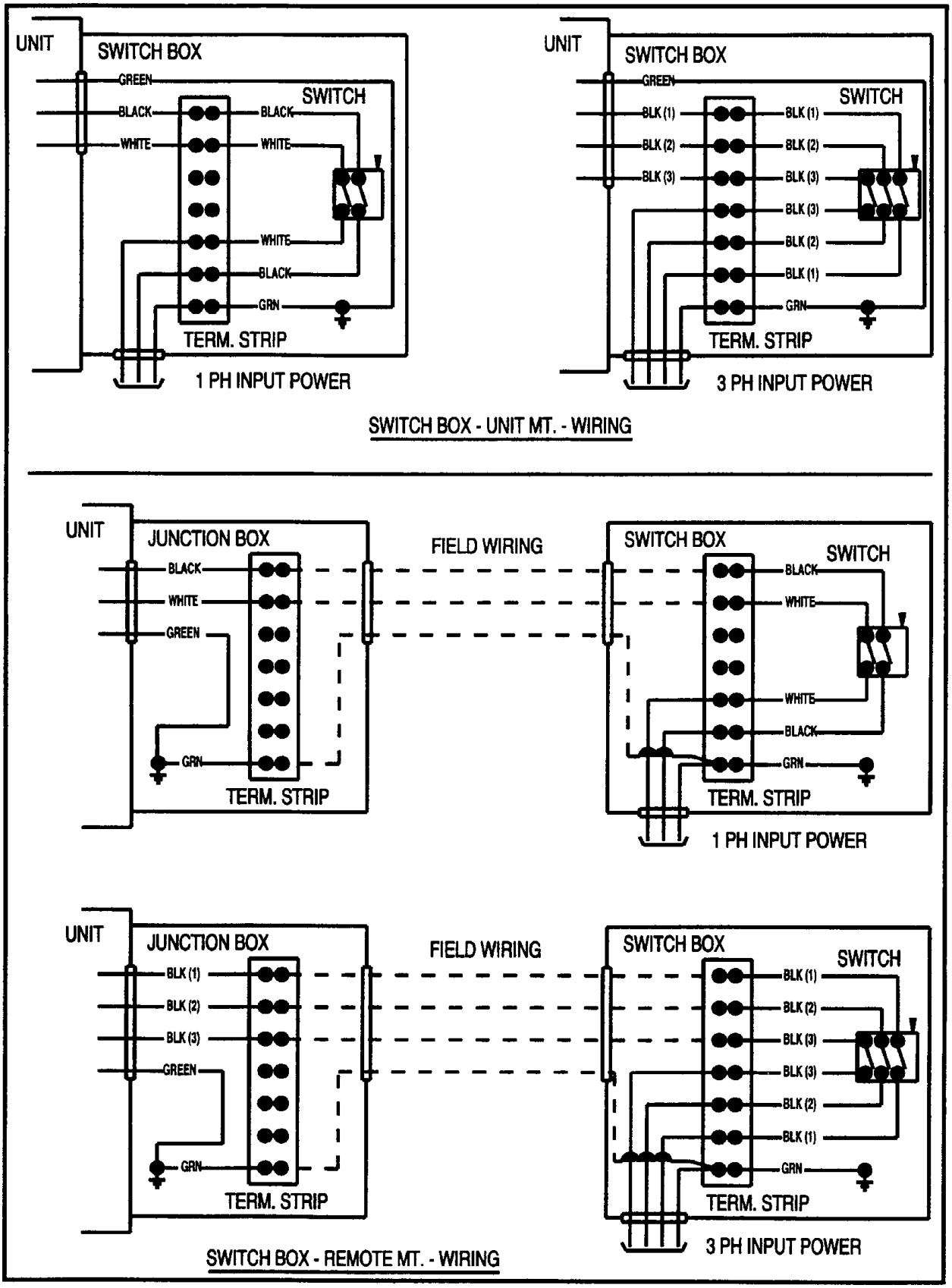
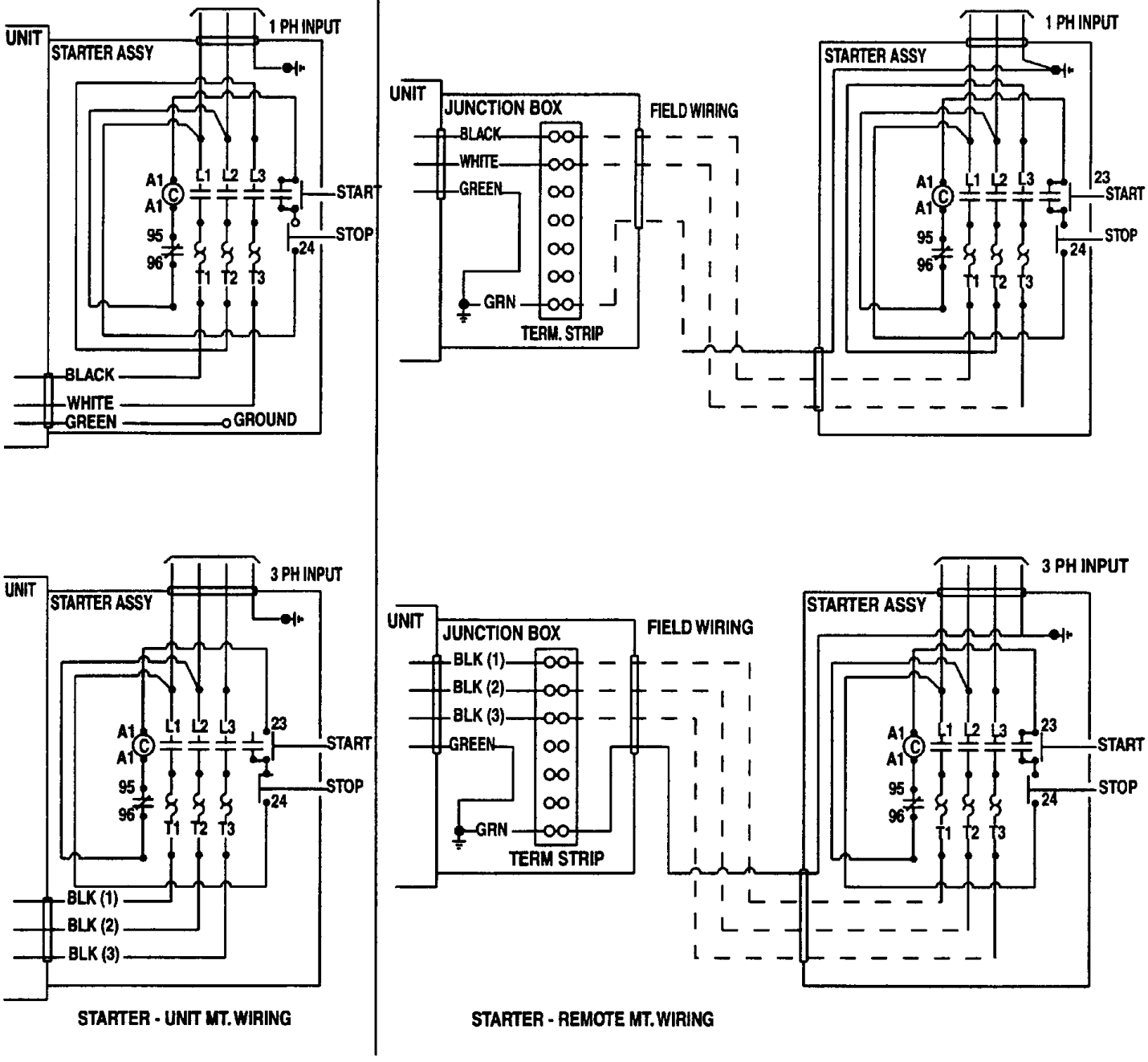


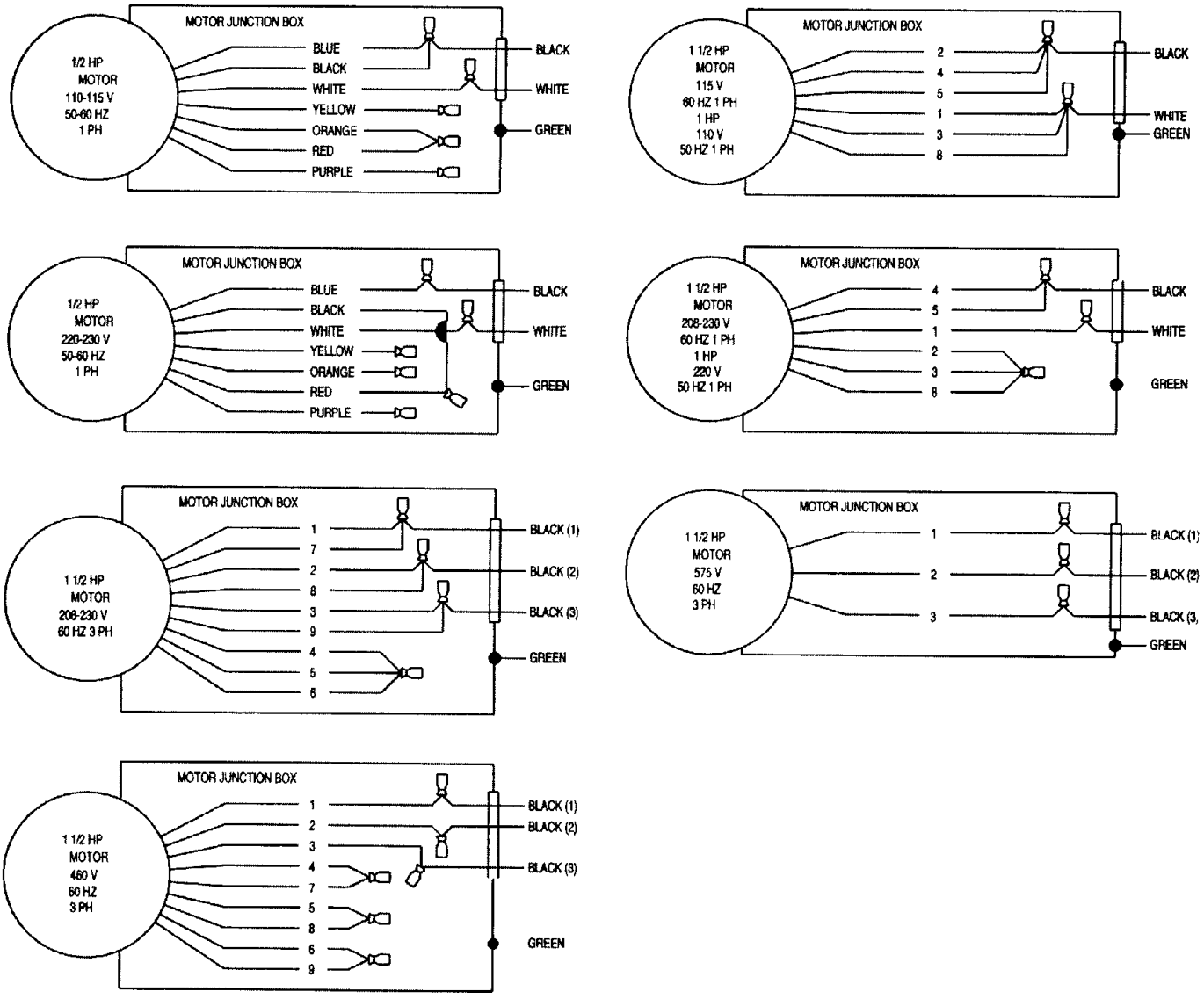
Figure 6 – Wiring Diagram



STARTER - UNIT MT. WIRING

STARTER - REMOTE MT. WIRING

Figure 6A – Motor Wiring Diagram



The MP600M is wired directly from the power source with 20 amps minimum, service utilizing 3 wire grounded cable, (115-208-230-460-575/60/3) for single 208-230/60/1, phase service and 4 wire grounded cable for 3 phase service, routed through appropriate conduit (See figure 5 wiring diagram). All wiring must be connected in accordance with local electrical codes.

The conduit is connected to the cabinet junction box, or motor starter enclosure on the top-right front corner of unit.

OPERATION

To start the air cleaner, close the access door and activate the ON-OFF control switch to ON. The blower motor should start.

Blower Rotation (3 phase power only)
By looking down through the MP600M discharge grille confirm blower rotation agrees with rotation label on motor mount. If rotation is incorrect reverse two (2) input power leads connections in the junction box, switch box or motor starter enclosure. Again verify correct blower rotation.

FILTER CHANGE (MINI-HELIC GAUGE) INDICATOR (OPTIONAL) OPERATION

Change filter according to the pressure drop across the filter. A minihelic gauge with a range from 0-5" water column is optional for reading filter pressure.

Estimated Filter Change Pressure

Main Filter Both Filters	Change Pre-filter Estimated	Recommended Final Estimated
95%	1.8"w.c.	3.1"w.c.
HEPA	1.8"w.c.	3.1"w.c.

NOTE:
These readings will vary slightly due to altitude and temperature.

Upon installation of the unit, note the initial pressure reading and record in the table above. Check daily and replace pre-filter at the reading shown in the table. Pressure should return to near the initial pressure reading. When the pressure reading, with new pre-filter, shows little improvement (less than 0.1") allow unit to run until recommended final pressure is reached. At that point, both pre-filter and main filter should be replaced. Impinger models will have greater pressure initially than standard models.

Once a pattern is established, the pre-filters can be replaced on a calendar basis with the main filter being replaced when the gauge reads "Recommended Final" in the Table. For example, if the unit takes 6 weeks to go from initial reading to 1.8" w.c., the pre-filter would then be replaced every 6 weeks until no change occurred in the pressure reading when the pre-filter is replaced. At that point, the unit would be allowed to run until 3.1" w.c. and both filters replaced.

NOTE:
The unit can continue to run beyond the 3.1" w.c. pressure reading; however, airflow will be reduced further.

CAUTION:
To check internal components, disconnect power source to unit to prevent accidental shock.

MAINTENANCE

Precision equipment will require a minimum amount of maintenance to keep it in operating condition. You can perform all normal preventative maintenance. If you are unfamiliar with the terminology used in the in the following sections, refer to the Parts List (Figure 7-A).

CLEANING AND INSPECTION

Cleaning of Impinger, and inspection and replacement of pre-filter and main filter.

CAUTION:
Always disconnect the power source before working on or near any electrical component. If the disconnect point is out of sight, lock it in the proper position and tag to prevent unexpected application of power.

1. Turn unit off.
2. Open access door by turning door latches counter clockwise.
3. Remove filter element, pre-filter and impinger assembly or pre-filter support.
4. Clean impinger by first rinsing with warm to hot water, then immerse in a commercial grade detergent. Trion recommends our specially formulated Tridex detergent to provide maximum cleaning efficiency on air cleaning equipment. For best results, the cleaning solution should be 140ºF to 160ºF. The impinger should be soaked in the solution for 1½ to 2 hours (longer if extremely dirty).

NOTE:
Using non-factory approved detergents can cause damage to the metal surface.

5. While impinger is soaking, make the following inspections:

A. Thoroughly inspect the main and pre-filter for holes, tears or any other condition that might allow air to leak through or around the filter. Replace the filters if any damage is found.
B. Inspect the cabinet. Remove all foreign debris and dirt accumulation inside the cabinet.
C. Check for dirt accumulation on the blower wheel blades and clean if there is a buildup.
D. Bearings of blower motor should be checked for signs of unusual wear.
E. If liquids are being collected, check the drain fittings for proper drainage.
F. Check rubber gasketing and adhesion of gasketing to cabinet surfaces.

6. When soaking of impinger is complete, rinse with clean water and allow to dry.
7. Reinstall impinger and filters into the unit.
8. Switch unit on at the control switch. The blower should start.
9. If the air flow is now adequate to draw the contaminant being collected off the process, it will not be necessary to replace the main filter. If, however, the air flow remains unsatisfactory, replace the main and pre-filter.

TROUBLESHOOTING CHART

SYMPTOM	POSSIBLE CAUSES	CORRECTIVE ACTION
Failure to start (motor does not start when unit is turned on	1. Proper power not reaching unit 2. Loose electrical connections 3. Defective control switch 4. Defective Motor	1. Check that unit is connected to live power line with good fuses, and that the voltage at the unit is correct 2. Check; tighten if necessary 3. Replace control switch 4. Replace motor/ blower assembly
Motor / Blower operates with little or no air volume	1. Dirty or dogged filters 2. Discharge grille obstructed 3. Blower wheel blades loaded with dirt 4. Blower wheel loose on motor shaft 5. Incorrect voltage 6. Dirty or dogged impinger 7. Motor rotation incorrect	1. Replace filters 2. Clean or remove obstruction 3. Clean blower wheel blades 4. Tighten blower wheel on shaft 5. Supply correct line voltage 6. Clean impinger 7. Reverse 2 of the 3 input power leads (3 Phase only)
Blow Through / Bypass	1. Filter ruptured or torn 2. Gasket missing or damaged 3. Filter saturated or damaged	1. Replace filter 2. Install or repair 3. Replace filter

Figure 7 – MP 600M Unit Assembly

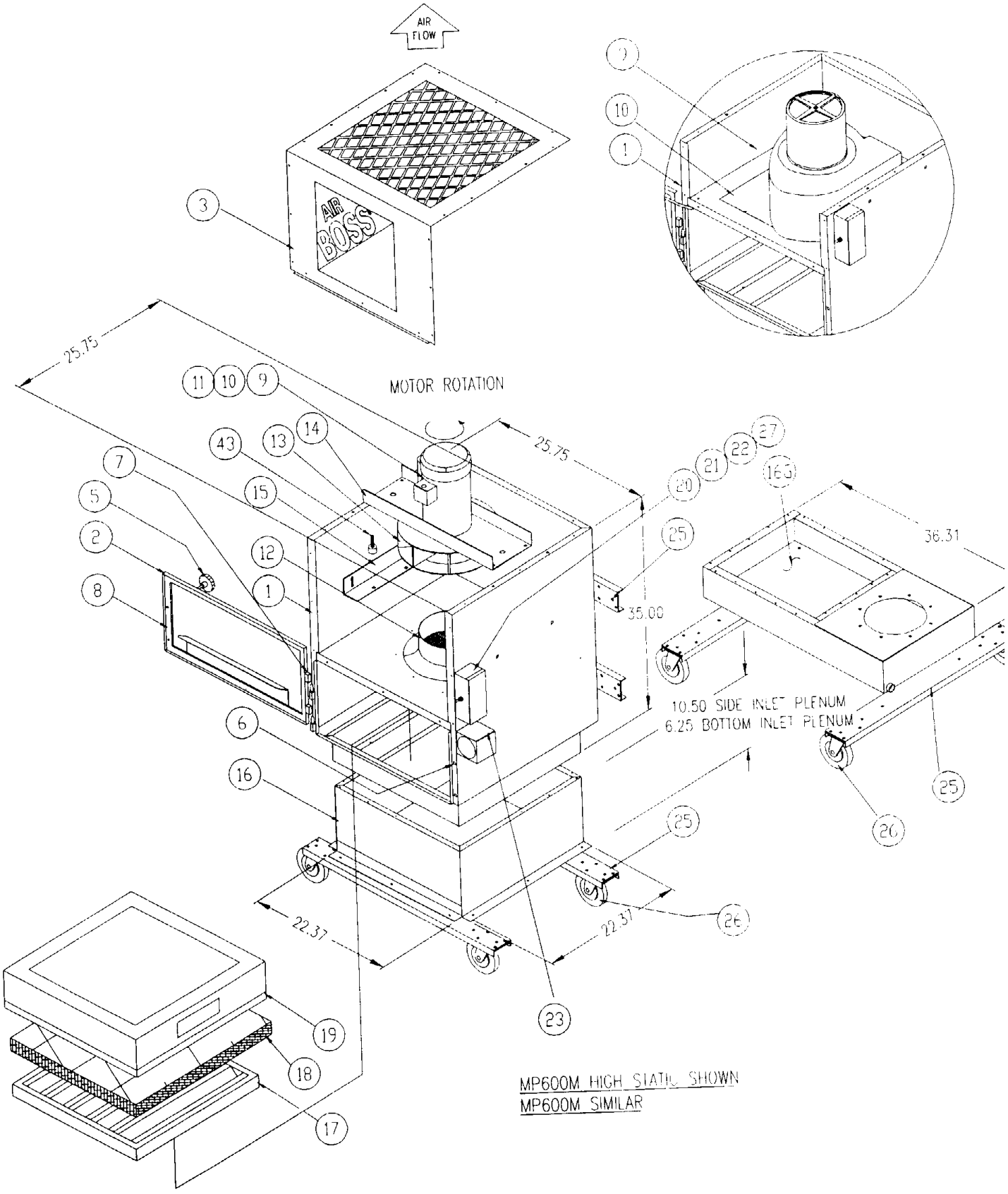
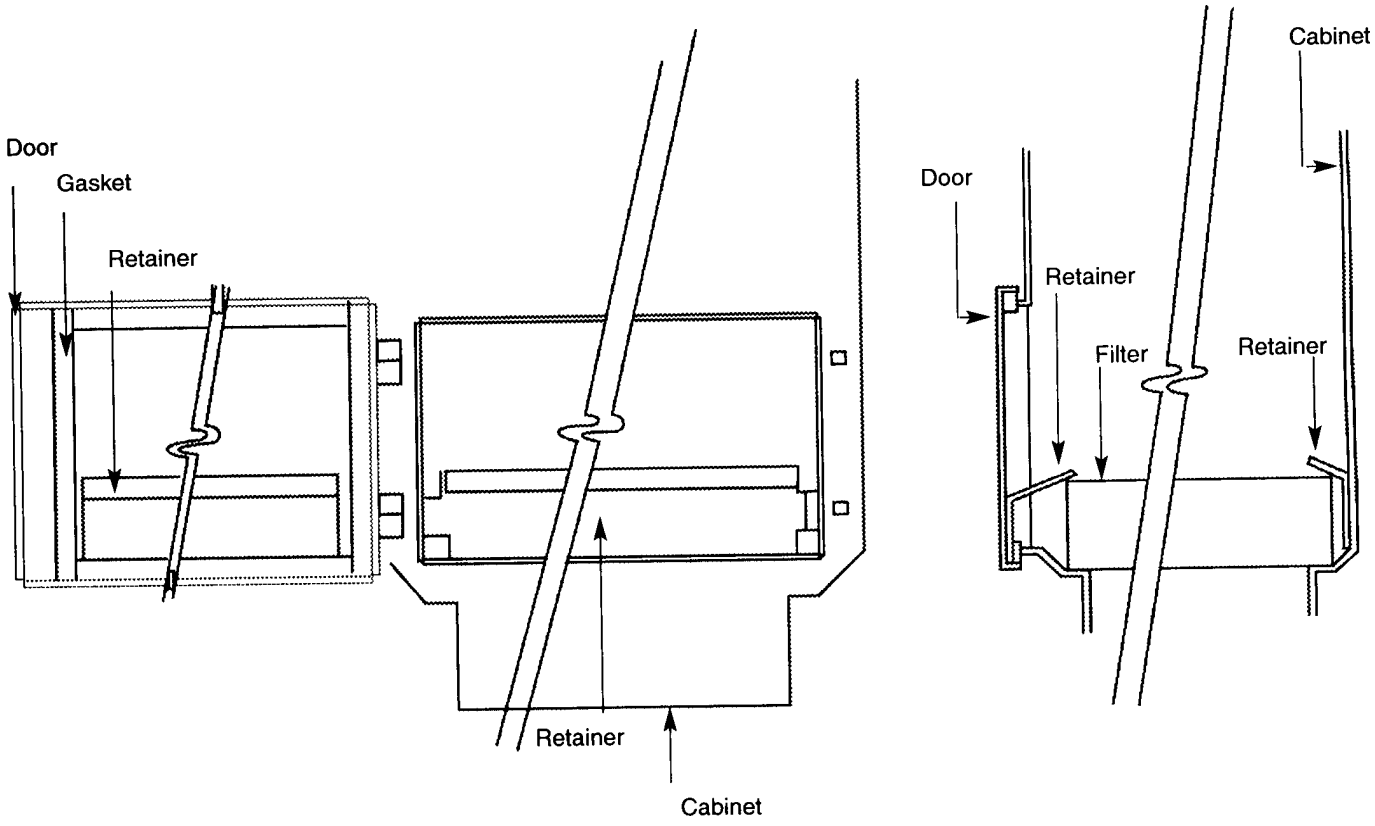


Figure 7A – Unit Assembly Parts List

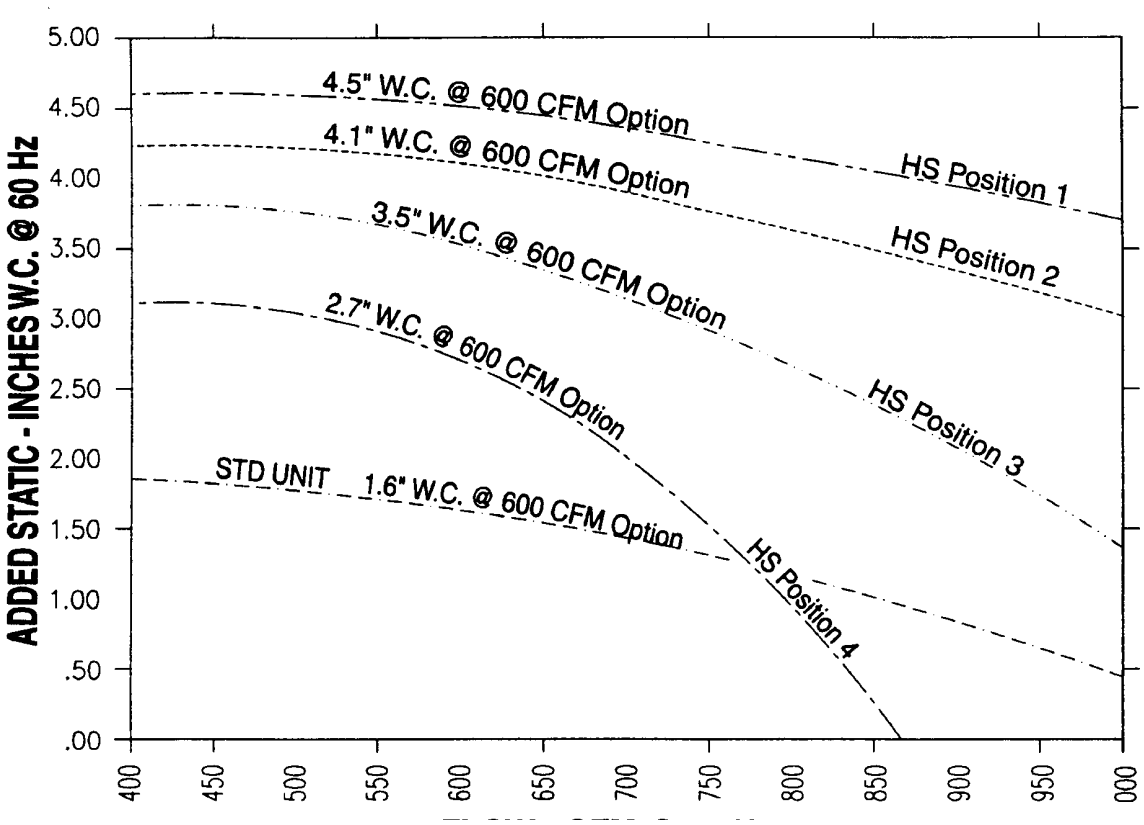
MP 600M	MP 600M HS				
Qty	Qty	Item	Part No.	Description	Remarks
1	1	1	353613-001	Cabinet Assembly	
1	1	2	354477-001	Access Door	
1	1	3	253619-001	Blower Housing Cover	
2	2	5	248956-002	Clamping Knob	
2	2	6	321449-002	Nut Retainer	
2	2	7	146442-002	Hinge	
6'	6'	8	224779-015	Gasket ¼" x 1"	
1	-	9	247350-101	Blower Motor Assembly 120/240/50-60/1	Feature & Option
1	-	10	253631-001	Adapter Plate	Feature & Option
-	1	11A	150825-001	Motor 115/208/-230/60/1	Feature & Option
-	1	11B	150825-003	Motor 208-230/460/60/3	Feature & Option
-	1	11C	150825-004	Motor 575/60/3	Feature & Option
-	1	11D	150825-005	Motor 110/220/50/1	Feature & Option
-	1	11E	150825-006	Motor 220/380-440/50/3	Feature & Option
-	1	12	250819-007	Inlet Cone	Feature & Option
-	1	13	250837-102	Blower Wheel	Feature & Option
-	1	14	253617-001	Motor Mount	Feature & Option
-	2	15	253621-001	Motor Adjusting Angle	Feature & Option
1	1	16A	353622-001	Plenum 1 – 8" Hose	Feature & Option
1	1	16B	353622-002	Plenum 2 – 6" Hose @ 90º	Feature & Option
1	1	16C	353622-003	Plenum 2 – 6" Hose @ 180º	Feature & Option
1	1	16D	353622-004	Plenum 2 – 6" Hose @ 0º	Feature & Option
1	1	16E	353622-005	Plenum 1 – 8" Arm @ Bottom	Feature & Option
1	1	16F	353622-006	Plenum 1 – 8" Hose @ Bottom	Feature & Option
1	1	16G	354988-001	Plenum 1 – 8" Arm @ Side	Feature & Option
1	1	17A	246901-011	Impinger	Feature & Option
1	1	17B	248533-001	Pre-Filter Support	Feature & Option
1	1	18A	148534-001	Synthetic Filter - 22¼ x 22¼ x 2	Feature & Option
1	1	18B	224451-022	Aluminum Mesh	Feature & Option
1	1	19A	248535-008	Filter 55%, 30 SF – Special Order	Feature & Option
1	1	19B	248535-007	Filter 65%, 30 SF – Special Order	Feature & Option
1	1	19C	248535-006	Filter 85%, 30 SF – Special Order	Feature & Option
1	1	19D	248535-005	Filter 95%, 30 SF – Special Order	Feature & Option
1	1	19E	248535-004	Filter 65%, 54 SF – Special Order	Feature & Option
1	1	19F	248535-003	Filter 85%, 54 SF – Special Order	Feature & Option
1	1	19G	248535-002	Filter 95%, 70 SF – Stock	Feature & Option
1	1	19H	248535-001	Filter 99.97% DOP, 90 SF – Stock	Feature & Option
1	1	19J	248535-009	Filter 95% DOP – Stock	Feature & Option
-	1	20A	253625-002	Switch Box Assembly 1Ø	Feature & Option
-	1	20B	253625-003	Switch Box Assembly 1Ø w/ Cord	Feature & Option
-	1	20C	253625-004	Switch Box Assembly 3Ø	Feature & Option
-	1	20D	355032-006	Compact Starter 110-120/50-60/1	Feature & Option
-	1	20E	355032-007	Compact Starter 220-240/50-60/1	Feature & Option
-	1	20F	355032-008	Compact Starter 208/60/1	Feature & Option
-	1	20G	355032-009	Compact Starter 208/60/3	Feature & Option
-	1	20H	355032-010	Compact Starter 220-230/50-60/3	Feature & Option
-	1	20I	355032-011	Compact Starter 380/50/3	Feature & Option
-	1	20J	355032-012	Compact Starter 440-460/50-60/3	Feature & Option
-	1	20K	355032-013	Compact Starter 575/60/3	Feature & Option
1	-	21A	253625-002	Switch Box Assembly 1Ø	Feature & Option
1	-	21B	253625-003	Switch Box Assembly 1Ø w/ Cord	Feature & Option
REF	REF	22	253625-001	Junction Box Assembly	Feature & Option
1	1	23A	253763-001	Gauge Kit System	Feature & Option
1	1	23B	253763-002	Gauge Kit Filter	Feature & Option
1	1	23C	253763-003	Gauge Kit System – Remote	Feature & Option
1	1	23D	253763-004	Gauge Kit Filter – Remote	Feature & Option
1	1	24A	354970-001	Arm Assembly 8" x 10"	Feature & Option
1	1	25	253761-001	Mounting Bar	Feature & Option
1	1	26	60000-0003-01-00	Swivel Caster	Feature & Option
REF	REF	27A	238001-002	Toggle Switch 1Ø	Feature & Option
REF	REF	27B	238001-003	Toggle Switch 3Ø	Feature & Option
1	1	28	254643-001	Stand	Not Shown
-	4	29	145541-003	Vibration Isolator	

Figure 8 – Filter Locking Mechanism



- Access opening increased 3.5” height
- 16 GA tapered filter retainer welded in door and cabinet rear
- As door closes, filter gasket is compressed and seal is made

Figure 9 – System Performance Curves (without Filters)



Flow – CFM @ 60 Hz

Added Static @ Filter	600 CFM	1000 m^3/hr
Filter	**Inches W.C.**	**Pascals**
99.97% DOP HEPA	1.00	250
95% DOP	0.35	87
90-95% ASHRAE	0.20	50
80-85% ASHRAE	0.15	37
60-65% ASHRAE	0.10	25
45-55% ASHRAE	0.05	13
Impinger	0.15	37
Aluminum Mesh Pre-Filter	0.05	13
Glass Pre-Filter	0.00	1

** To determine performance with various filter combinations, add total static of filters (from table)

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 of Fax 1-800-458-2379 to obtain material return authorizations and service information.

TRION®
air purification systems

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