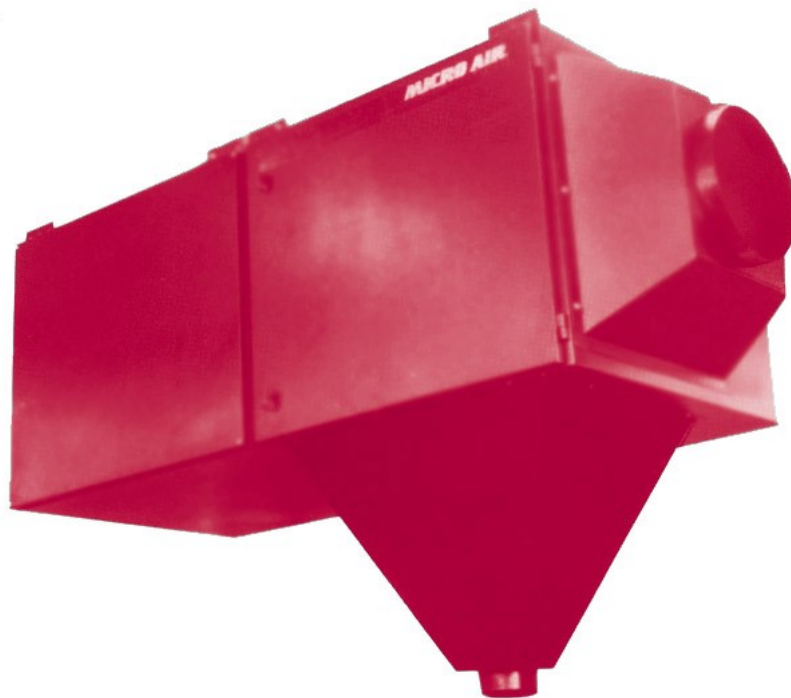


# **MICROAIR<sup>®</sup>**

## **AIR CLEANERS**



**Model MC 3000**

# **OWNER'S MANUAL**

## **CAUTION**

Read complete instructions before operating.  
Please file for future reference.

## MODEL MC 3000 SPECIFICATION

Input Volts:	208-230/430 VAC, 60Hz, 3 Phase
Max. Current:	5HP, 208/230 VAC - 15.0 Amps 5HP, 460 VAC - 7.5 Amps 7½ HP, 208/230 VAC - 20.0 Amps 7½ HP, 460 VAC - 10 Amps
Motor:	5 HP, TEFC, 3 Phase @ 1740 RPM 7 ½ HP, TEFC, 3 Phase @ 1740 RPM
Dimensions:	36" h. X 42" w. X 86" l. (2 Module) 36" h. X 42" w. X 129" l. (3 Module)
Weight:	950 lbs. (2 Module) 1200 lbs. (3 Module)
Filter Area:	4 High efficiency cartridges with 291 sq. ft. of Media per cartridge
Compressed Air:	80 psi minimum / 90 psi maximum, clean , dry air
Cleaning:	A 1/2" NPT male nipple is factory installed for attachment to shop air.

## PACKAGE CONTENTS

- 1 ea. Blower and Filter Module Assembly
- 1 ea. Owner's Manual

## UNPACKING INSTRUCTIONS

1. Remove unit from crate packaging.
2. Inspect the unit for any possible damage that may have been caused during shipping.

## ELECTRICAL CONNECTIONS

NOTE: Due to the numerous system configurations available, some of the following installation steps may not be applicable. Follow steps that directly address the specific system configuration being installed.

**CAUTION:** Typical installations require that the unit be suspended from ceiling structure. Structure must be sufficient to support at least four (4) times the maximum weight of the unit.

1. Determine the location where the unit will be installed. Be sure to allow sufficient room to access all four vertical sides of the unit for servicing and maintenance. Forty-two (42) inches minimum is recommended.
2. Suspend unit from ceiling by use of solid rod or angle brackets.

**CAUTION:** Use solid rod or steel brackets capable of supporting 750 pounds, to support the air cleaner. Hang from structural supports.

3. Support the unit at each end and where modules are coupled together (see **Figure 1**).

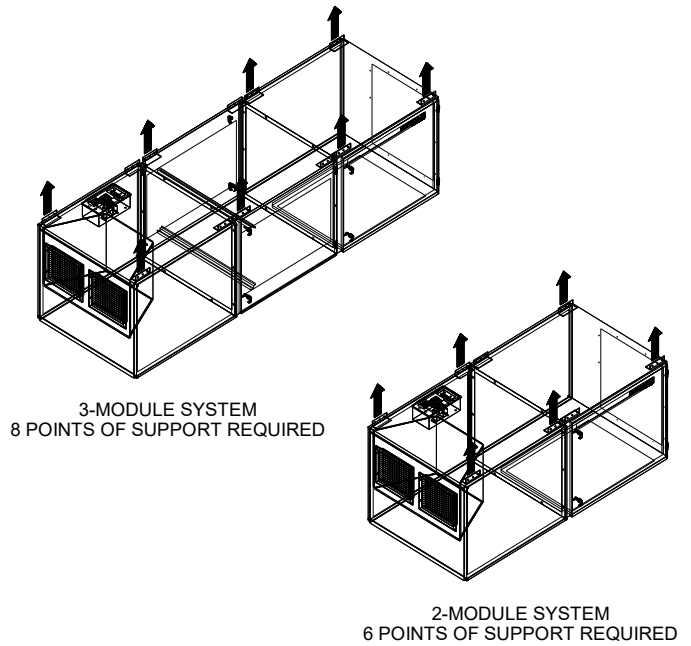


FIGURE 1

4. Once the unit is hung properly, the dust collection device (Dust Hopper or Dust Tray Assembly) may be installed. Assemble to the bottom of the MC 3000 Filter Module as shown in **Figure 2** (#8 X ½" sheet metal screws are provided for assembly).

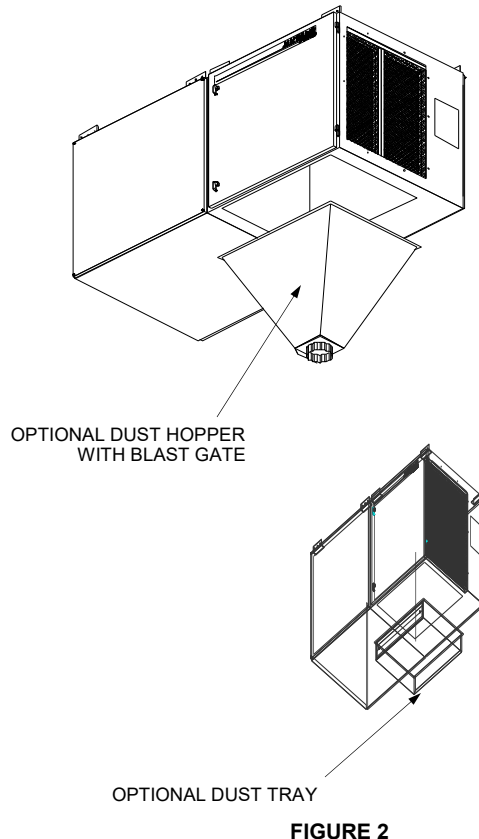


FIGURE 2

- Once the Dust Hopper is installed (if applicable), connect appropriate means to collect dust. A typical application is to use a 6" diameter flex duct extending from the dust hopper to a collection drum. **Be sure that all duct connections are air tight for best performance.**
- The MC 3000 is offered with a 16" diameter inlet collar. If applicable, connect appropriate ducting to inlet.
- The MC 3000 is offered with an optional After Filter Module that allows the use of HEPA and/or refillable charcoal filters. If purchased with HEPA filters only, no pre-installation steps are needed. Units purchased with refillable charcoal filters will require filling before operation of unit. **Failure to fill charcoal filters prior to operation may result in over current operating conditions resulting in motor shutdown.**
- Refer to "OPTIONAL AFTER FILTER" for instructions on removing and filling charcoal filters.
- During installation, permanently attach a shop air hose to the inlet located on top of the MC 3000 Blower Module.

NOTE: The unit is supplied with a 1/2" NPT male nipple. It is recommended that a pressure regulator and water trap be installed between the shop air and the MC 3000.

## ELECTRICAL INSTALLATION

**CAUTION:** Installation can cause exposure to live components. Disconnect electrical power before proceeding with installation.

- Remove electrical box cover located on top of the MC 3000 Blower Module (see **Figure 3**).

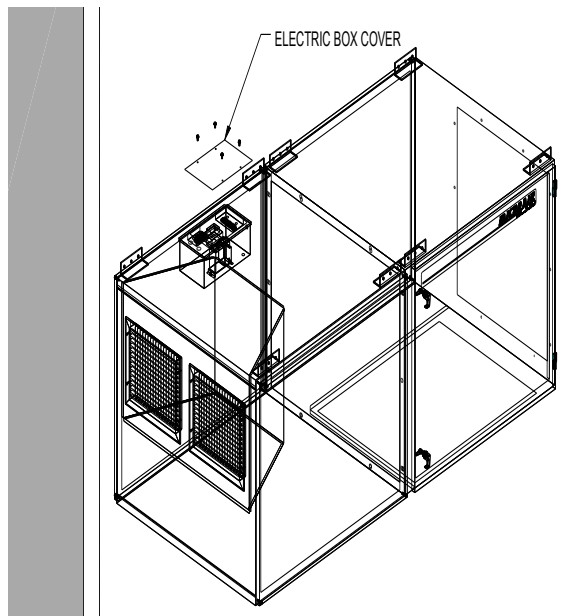


FIGURE 3

- Make connections from power supply to terminals L1, L2, and L3. Wire size should be suitable for the motor HP that was supplied for your application (5HP or 7 1/2HP). Make connections from remote start/stop switch to terminals 7 and 8 (see **Figure 4**).

NOTE: 7/8" diameter holes are provided for conduit connection of supply power and remote start/stop switch.

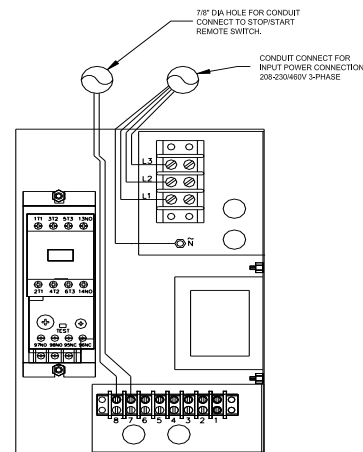


FIGURE 4

- Before re-assembling the electrical box cover, momentarily turn unit on and off via the remote start/stop switch. Note the rotation of the blower wheel. Proper rotation is shown in **Figure 5**.

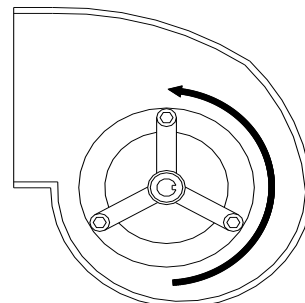


FIGURE 5

- For all air cleaners purchased with pulleys, it is strongly recommended to measure motor current during initial start up. This procedure will insure that motor is not being overloaded due to inappropriate blower RPM or overestimated static-pressure of the total system.

**IMPORTANT: MEASURE MOTOR CURRENT UPON INSTALLATION OF MC 3000. EXCESSIVE CURRENT WILL CAUSE OVERLOAD PROTECTION TO ENGAGE RESULTING IN SHUTDOWN OF SYSTEM MOTOR.**

- If motor current is higher than rated (refer to unit wiring diagram), blower RPM may need to be reduced. DO NOT continue operation. Contact your Micro Air® representative for correct pulley size.
- Re-assemble electrical box cover onto MC 3000.

## OPERATING INSTRUCTIONS

1. Turn unit on via remote start/stop switch.
2. Adjust exhaust grilles to desired direction of exhaust.
3. Once unit is activated, the automatic back-flushing will begin to operate. Operation is detected by hearing a instantaneous pulse approximately every 5 seconds. If adjustment to timing of pulses is desired, refer to "AUTO-BACKFLUSHING TIME ADJUSTMENTS."
4. Check After Pulse Timer by turning MC 3000 off. Unit should continue to pulse every 5 seconds for a duration of three (3) minutes. If adjustment to after pulse time is desired, refer to **AFTER-PULSE**.

## CARTRIDGE CLEANING OPERATION (Back-Flushing)

1. The MC 3000 is designed with an automatic Roto-Pulse system that cleans the cartridge.
2. During installation, permanently attach a shop air hose to the inlet located on top of the MC 3000 Blower Module.
3. For proper cleaning pressure, shop air should be regulated at 80 psi. maximum.
4. During normal operation, the automatic Back-Flush cleaning system is factory set to Roto-Pulse clean each cartridge in intervals of 5 seconds.
5. Once the unit is turned off, the cleaning cycle will continue for approximately 230 seconds. Do not service filters until cleaning is completed.

**CAUTION: Allow five (17) minutes down time before opening filter access door. AUTO-PULSE system is momentarily operational after unit is turned off.**

6. The Roto-Pulse cleaning operation dislodges particles from the cartridges. Particles then fall down into a dust hopper or collecting trays.
7. After continued use of the unit, the dust collection trays, dust collection drum or bucket will need to be removed and emptied. The frequency of servicing will vary depending on the type and quantity of pollutant that is collected. The dust trays (if applicable) should be emptied before the particles have accumulated to a depth of 1/2".
8. When servicing dust trays or drum, be sure to turn unit off.

## AUTO-PULSE TIMER ADJUSTMENTS

1. Turn remote start/stop switch to the off position.
2. Remove the electrical box access cover (retained by #8 hex screw), thereby exposing the timer circuit within.
3. The Sequential Timer is preset at the factory to pulse a cartridge every 5 seconds. This time can be adjusted from 1 second to 999 seconds. To adjust this time press the select button on the timer board until the off time LED is lit. Press the up/down buttons until the desired value is displayed. Press select to set the new value.
4. The Sequential Time is preset at the factory to have a pulse duration of 0.07 seconds. This time can be adjusted from 0.05 seconds to 600 seconds. To adjust this time press the select button on the timer board until the on time LED is lit. Press the up/down buttons until the desired value is displayed. Press select to set the new value. The factory has determined that 0.07 second pulse duration is the most effective, do not change this parameter without first talking to your Micro Air® representative.
5. Once adjustments have been made, replace electrical box access cover.

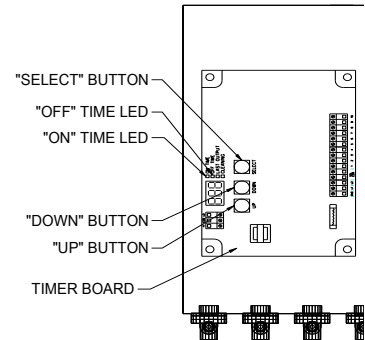
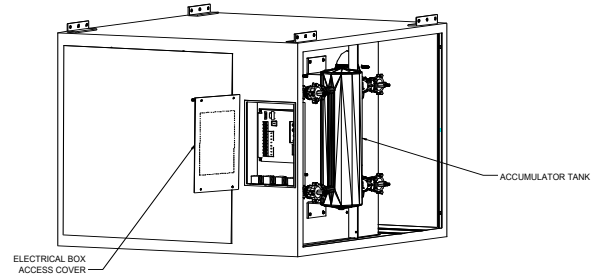


FIGURE 6

## AFTER-PULSE

The MC 3000 is equipped with an automatic after-pulse feature that operates for a period of time after the unit is turned off via the remote start/stop switch. Similar to the Sequential Timer, the After-Pulse timer can be adjusted from 0 seconds to 999 seconds. To adjust this time press the select button until the off time LED is lit. Press and hold the select button for 3 seconds. Press the up/down buttons until the desired value is displayed. Press select to set the new value.

The after-pulse operation can also be disabled by setting the time value to zero (0) seconds.

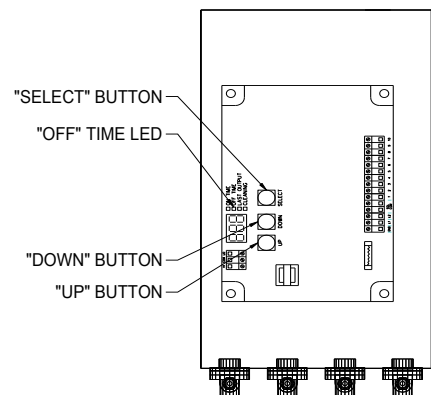


FIGURE 7

## UNITS WITH OPTIONAL AFTER FILTER MODULE

1. The MC 3000 is offered with an additional filter module that can hold up to four (4) 20" X 24" X 12" filters. The After Filter Module is pre-assembled to the MC 3000, between the Filter Module And Blower Module (see **Figure 1**).
2. The filters are held and positively sealed to a filter stop panel via adjustable filter tracks. These filter tracks are held tightly against the filters by way of thumb screws.
3. To remove filters from the After Filter Module, open the filter access door, thereby gaining access to filters. Loosen the eight (8) thumb screws that hold the filter tracks allowing the filters to slide freely, and pull filters out of Filter Module.
4. Refillable charcoal filters are shipped with charcoal separate. To fill charcoal filter, remove the charcoal filter cover (retained with six (6) screws) thereby exposing the filter slots. Carefully pour charcoal (or activated alumina) into the filter slots and reassemble charcoal filter cover to the charcoal filter (see **Figure 8**).

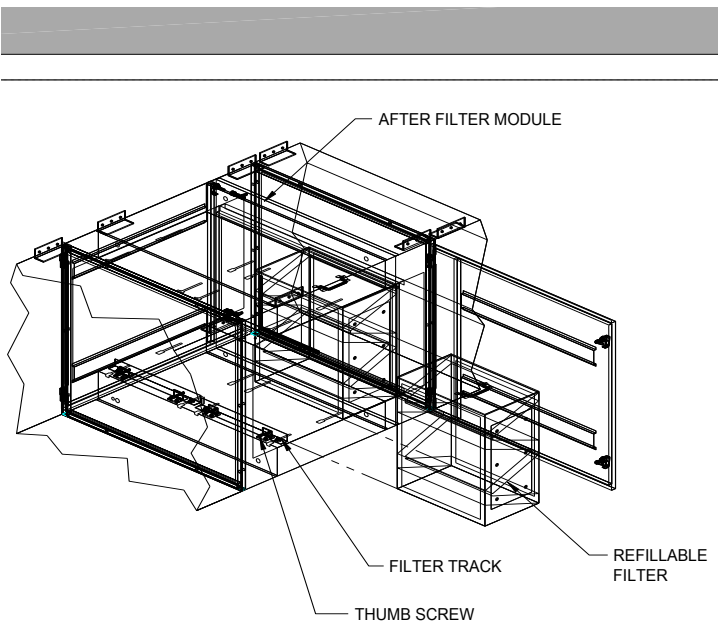


FIGURE 8

## EXTENDING CARTRIDGE LIFE

1. Cartridge life can be extended by manually blowing out the filters.
2. To manually clean the filters, remove filters from the MC 3000 and blow dust off using a hand held blow gun attached to a shop air line. Air flow should be directed from the inside of the cartridge to the outside of the cartridge.

## CARTRIDGE REPLACEMENT

1. Turn unit off. Wait until automatic cartridge backflushing stops.
2. Open cartridge filter access door.
3. Remove cartridge filters retained by plastic nut.
4. Slide new cartridge filters into cabinet and retain with plastic nuts. Inspect gasket seal on each cartridge filter when installed to detect any improper seating of seal which may result in air bypass.
5. Close filter access door. Replacement is complete.

## GENERAL MAINTENANCE

1. Occasionally check the condition of the drive belt for tightness and wear.
2. Check the blower bearings for unusual wear and the blower wheel for debris and dirt. Clean when necessary.
3. Periodically, inspect hardware for loose nuts and bolts on access doors and internal components. Tighten, if needed.
4. Periodically, inspect all wiring for loose connections and cracked insulation. Replace as needed.
5. Periodically, inspect accumulator tank, pressure lines and air valves for any air leaks. Tighten hose clamps and replace air valves and hoses as needed.

**Warning:** Do not pressurize the system until all valves are secured and compression nuts tightened. Do not attempt to remove a fitted valve if the system is still pressurized.

**CAUTION:** For your safety, wear safety glasses at all times while working on pressurized system.

# MC 3000 WIRING DIAGRAM WITH AUTOMATIC AFTER PULSE CIRCUIT

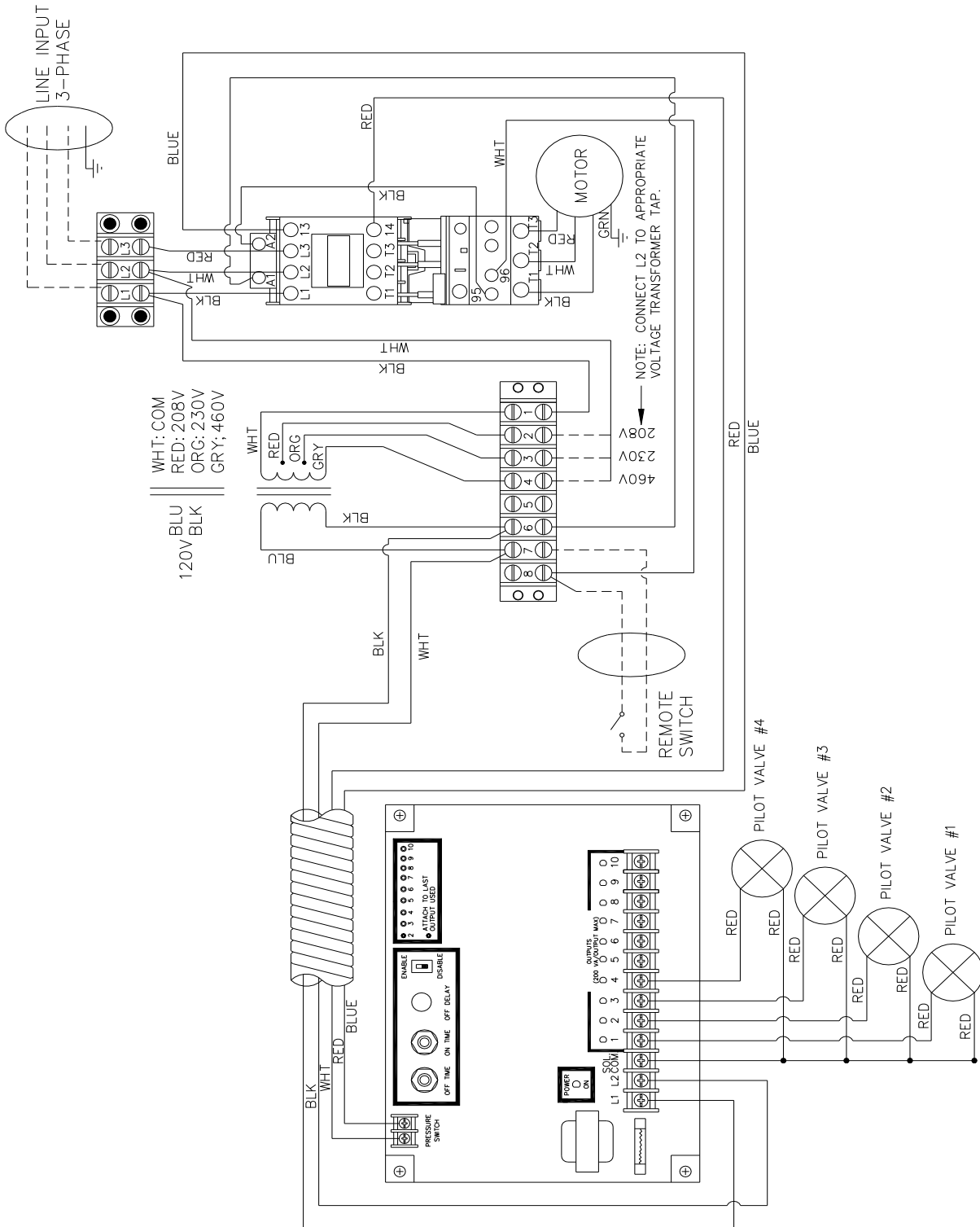


FIGURE 9

## MODEL MC 3000 PARTS LIST - FILTER MODULE

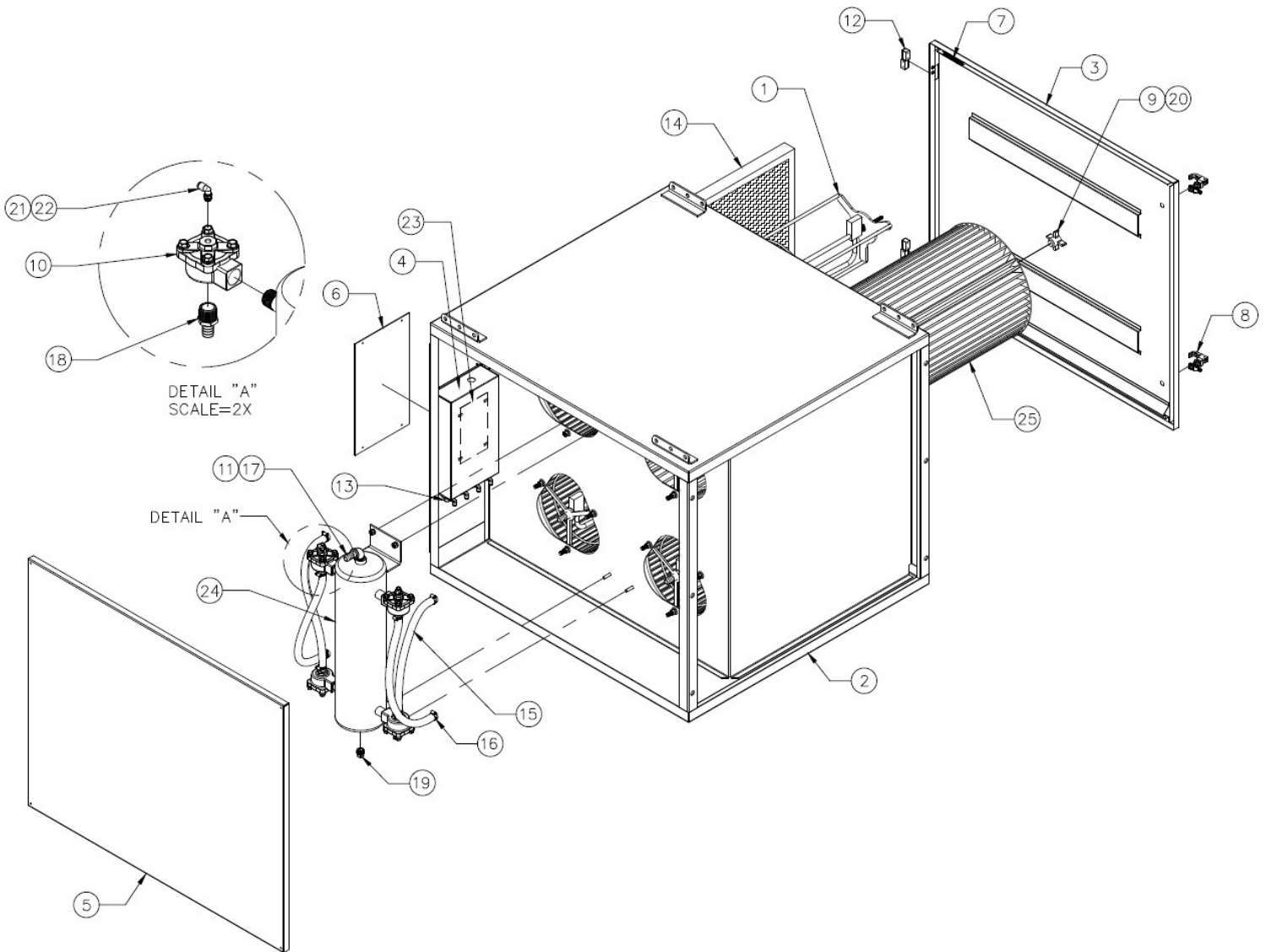


FIGURE 10

ITEM	PART NO.	DESCRIPTION	ITEM	PART NO.	DESCRIPTION
1.	36720-11	Roto Air Pulse Assembly	15.	P3403*	5/8" Air Hose
2.	36801-01	Cabinet Weldment	16.	P3411	Hose Clamp
3.	36812-01	Filter Access Panel	17.	P3413	1/2 NPT x 5/8" Male Fitting
4.	36824-01	Pulse Wiring Assembly	18.	P3585	3/4 NPT x 5/8" Male Fitting
5.	36839-01	Access Panel	19.	P3614	1/2 NPT Plug
6.	36949-01	Electrical Access Plate	20.	P3649	4-Prong Knob
7.	P1367*	1" Foam Gasket	21.	P3734*	1/4" Air Hose
8.	P1372	Door Latch	22.	P3735	1/4" Fitting, 90° Elbow
9.	P1482	Rubber Washer	23.	P3874	Timing Board
10.	P2075	Diaphragm valve	24.	P7191	Accumulator Tank
11.	P2432	1/2 NPT 90° Elbow	25.	P7400RM	80/20 Cartridge 250 ft <sup>2</sup>
12.	P2835	Door Hinge		P7403RM	80/20 Cartridge 291 ft <sup>2</sup>
13.	P3118	Pilot Valve		P7404RM	Treated Spun-bound Cart.
14.	P3243	2" Mesh Pre-Filter			

\* SPECIFY LENGTH REQUIRED

**MODEL MC 3000  
PARTS LIST - BLOWER MODULE**

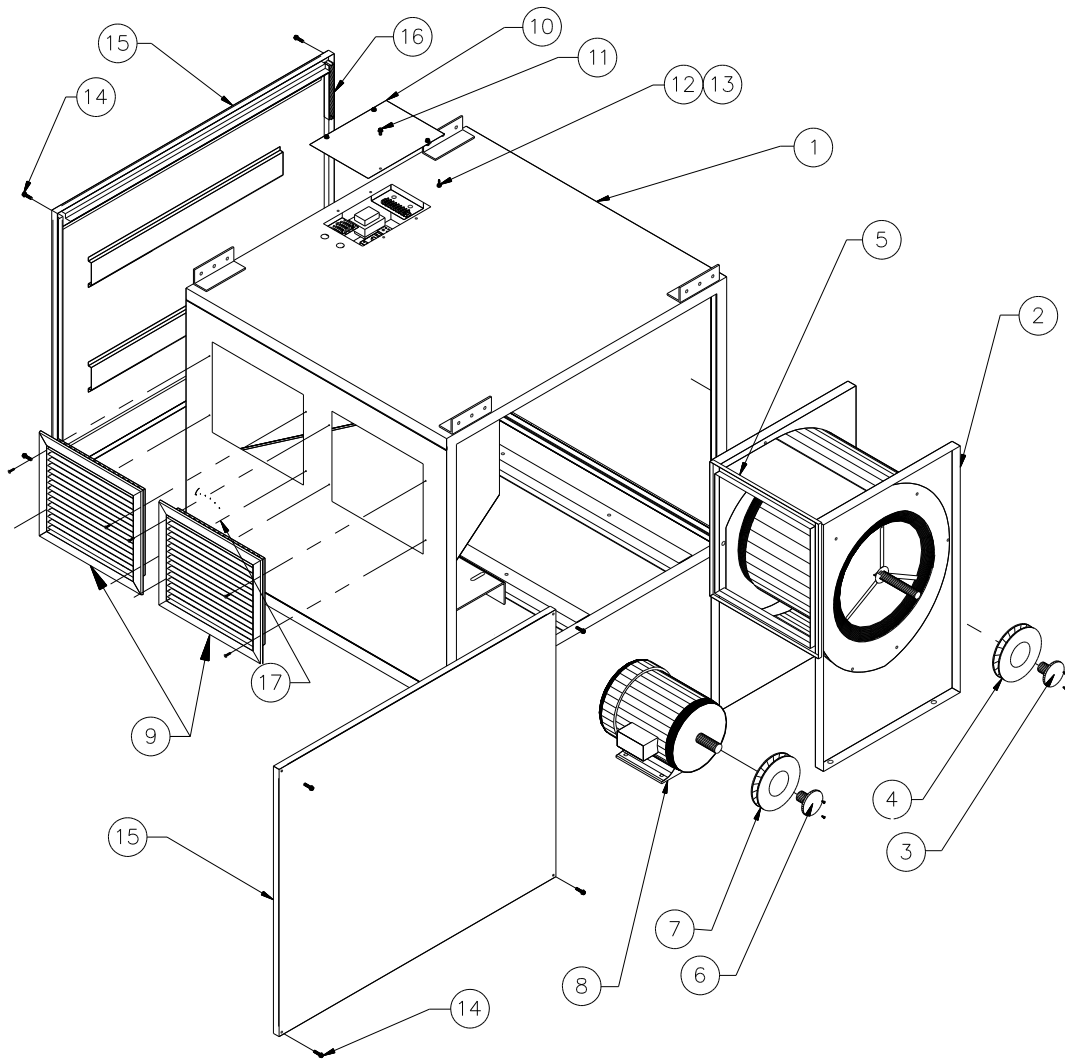


FIGURE 11

ITEM	PART NO.	DESCRIPTION	ITEM	PART NO.	DESCRIPTION
1.	36827-02	Cabinet Weldment	8.	P3253	5 HP Motor
2.	36845-02	15-11 Blower Assembly		P3395	7-1/2 HP Motor
3.	P3272	1" Bushing	9.	P1977	Exhaust Grille
4.	P3271	11.75" Pulley (1000 RPM)	10.	36911-01	Electrical Box Cover
	P3270	9.75" Pulley (1200 RPM)	11.	P3245	#12 X 1" Screw
	P3269	8.25" Pulley (1375 RPM)	12.	P3413	1/2 NPT X 5/8 Barb
	P3268	6.75" Pulley (1675 RPM)	13.	P3526	1/2" Nut
*5.	P1366	3/4" Foam Gasket	14.	P3236	#12 X 2" Screw
6.	P3273	1-1/8" Bushing	15.	36839-01	Access Panel
7.	P3267	6.45" Motor Pulley	*16.	P1367	1" Foam Gasket
			17.	P2250	Magnehelic Gauge (Optional)

\* SPECIFY LENGTH



**MODEL MC 3000  
PARTS LIST - AFTER FILTER MODULE**

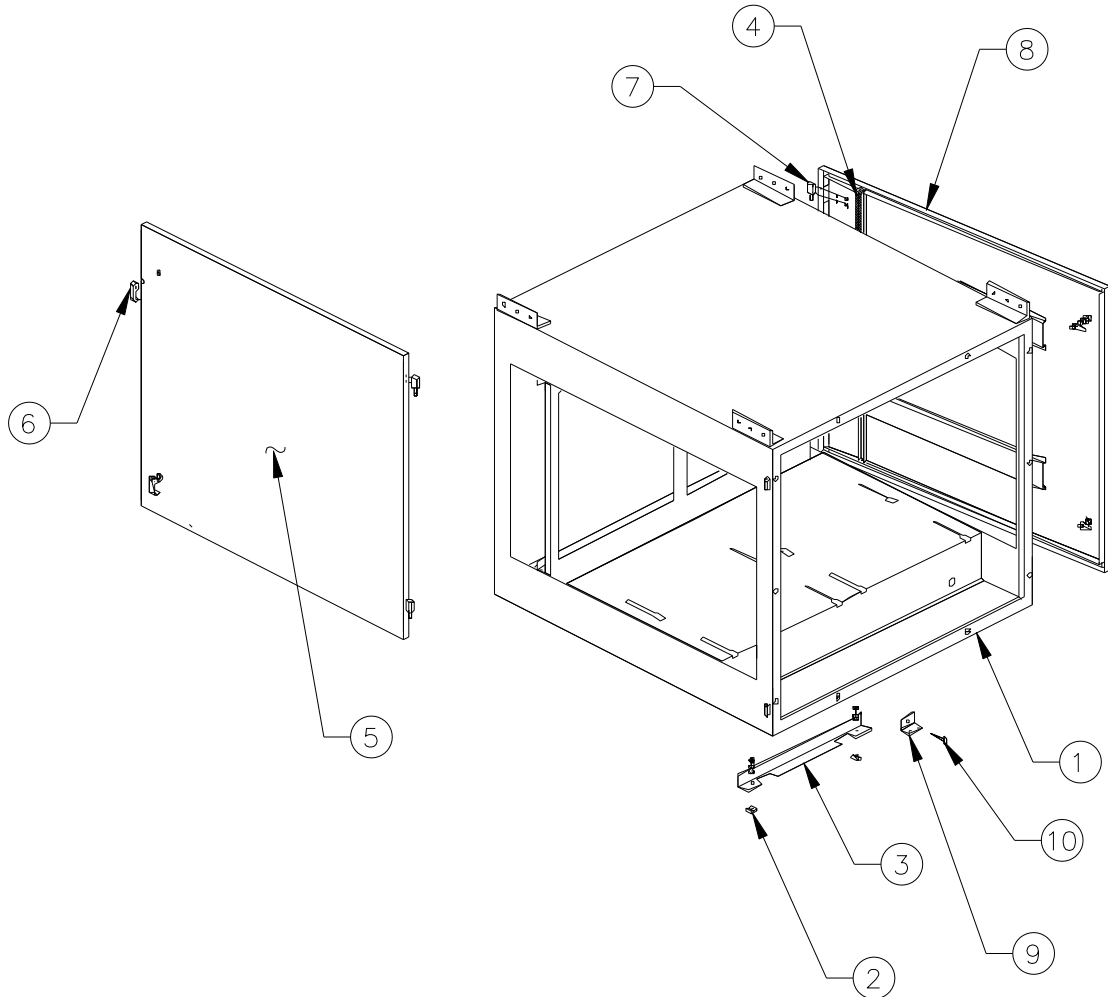


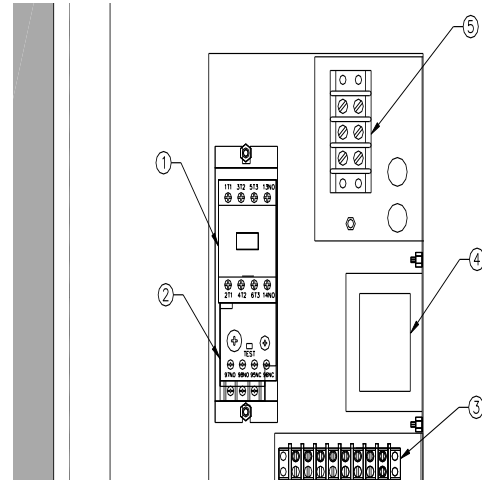
FIGURE 12

ITEM	PART NO.	DESCRIPTION	ITEM	PART NO.	DESCRIPTION
1.	36850-01	Cabinet Weldment	9.	36858-01	Screw Bracket
2.	P3251	T-Slot Nut	10.	P3274	Thumb Screw
3.	36859-01	Slide bracket	NOT SHOWN	P3275	95% HEPA 24"X20"X12"
*4.	P1367	1" Foam Gasket	NOT SHOWN	P3276	99.97% HEPA 24"X20"X12"
5.	36856-02	Left Filter Access Door	NOT SHOWN	P1488	After Filter 24"X20"X1"
6.	P1372	Door Latch	NOT SHOWN	33767-00	Refillable Charcoal Module (RCM)
7.	P2835	Door Hinge	NOT SHOWN	P1823	Activated Charcoal (20 lbs.)
8.	36856-01	Right Filter Access Door	NOT SHOWN	P1450	Purasorb (Specify Weight)

\* SPECIFY LENGTH

**PARTS LIST  
ELECTRICAL BOX ASSEMBLY**

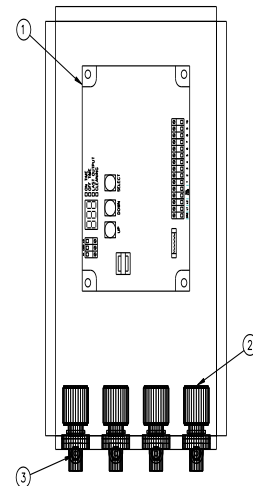
ITEM	PART NO.	DESCRIPTION
1.	P3910	Motor Starter Relay (5 HP)
	P3912	Motor Starter Relay (7½ HP)
2.	P3916	Overload Protector (208/230V - 5 HP)
	P3915	Overload Protector (460V - 5 HP & 7½ HP)
	P3916	Overload Protector (208/230V - 7½ HP)
3.	P3252	8-Conductor Terminal
4.	P1754	120V Transformer
5.	P445	Terminal Block



**FIGURE 13**

**PARTS LIST  
PULSE CIRCUIT CONTROL ASSEMBLY**

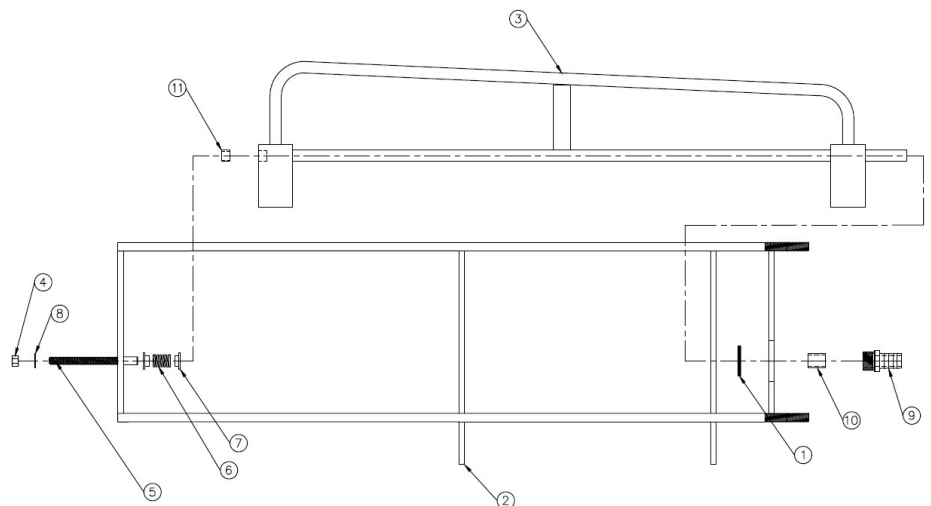
ITEM	PART NO.	DESCRIPTION
1.	P3874	Timer Board
2.	P3118	Pilot Valve
3.	P3735	Press-Lock Fitting



**FIGURE 14**

**PARTS LIST  
ROTO-PULSE ASSEMBLY**

ITEM	PART NO.	DESCRIPTION
1.	36030-04	Disk Pad
2.	36713-06	Filter Support Weldment
3.	36730-06	Roto Tube Weldment
4.	P222	5/16-18 Hex Nut
5.	P2284	Pivot Bolt
6.	P2285	Compression Spring
7.	P2286	Nylon Shoulder Washer
8.	P249	5/16 Lock Washer
9.	P3413	1/2 Male X 5/8 Barb
10.	P3595	Bearing .531X.625X.75
11.	P3602	Bearing .375X.50X.50



**FIGURE 15**

## TROUBLESHOOTING CHART

**CAUTION: BEFORE DISASSEMBLING THE UNIT OR DOING ANY INSPECTING OF THE PARTS, MAKE CERTAIN THAT THE POWER HAS BEEN CUT OFF AND THE BLOWER HAS COME TO A COMPLETE STOP. DISCONNECT AIR SUPPLY TO UNIT WHEN SERVICING. NEVER RUN THE UNIT WITH THE ACCESS DOORS OPEN OR REMOVED.**

PROBLEM	POSSIBLE CAUSE	REMEDY
Unit fails to start	Dead power line Remote switch not wired correctly Blown fuse or breaker Overload protector engaged	Check circuit and switch Check wiring diagram Check fuse or breaker Reset overload protector
Unit runs slowly or inadequate capture velocity	Wired for wrong voltage or improper rotation  Dirty filters	Check input voltage Switch L1 & L2 to reverse rotation, check wiring diagram Clean or replace filters
Continuous air noise from unit	Air leaking from hose  Air leaks through air valve	Tighten hose clamps, replace split hose Tighten valve coupler, replace valve
Vibration	Loose motor mount bolts Foreign objects in blower	Tighten bolts Remove debris from blower
Erratic pulse sequence	Loose air line to air valve Pilot valve does not fire Pilot valve solenoid sticking Improper timer settings	Press fit air line into valve Check wiring connections Replace pilot valve Refer to timer adjustment section

