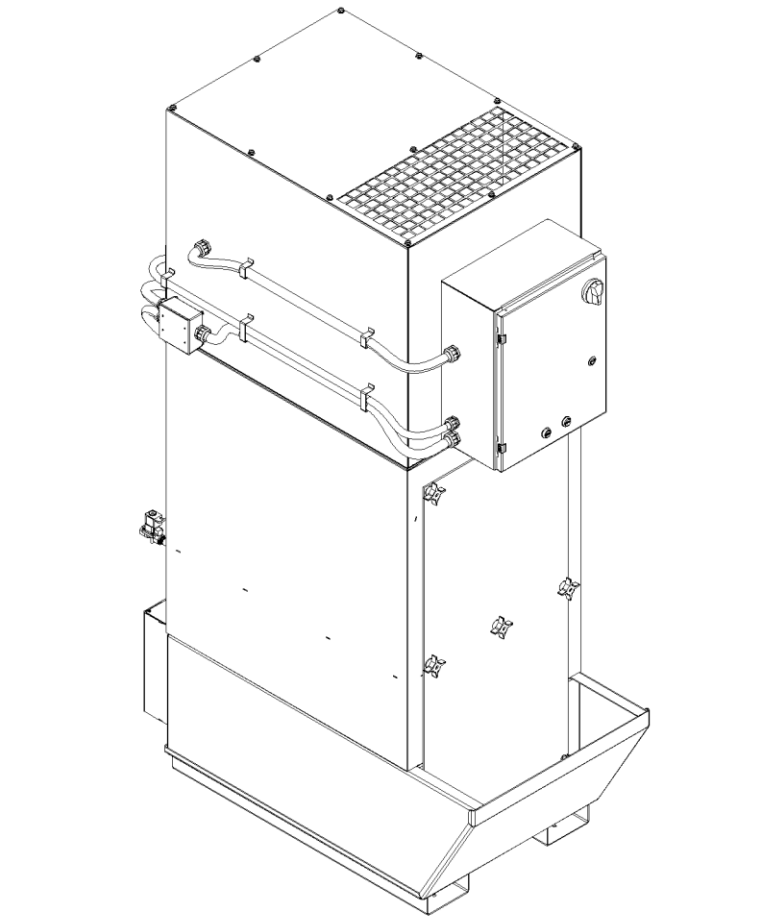
MODEL WC2500

Installation and Operation Manual



This manual contains specific cautionary statements relative to worker safety. Read this manual thoroughly and follow as directed. It is impossible to list all of the hazards of dust control equipment. It is important that use of the equipment be discussed with a Micro-Air Representative. Persons involved with the equipment or systems should be instructed how to operate in a safe manner.

MICRO AIR
www.microaironline.com

WARNINGS:

Installation can cause exposure to live components. Disconnect electrical power before proceeding with installation. Proper Lock Out / Tag Out procedures should be used. All electrical work must be done by a qualified electrician according to Local, State and National codes.

Avoid mixing combustible materials, such as aluminum with dust generated from grinding ferrous metals due to the potential of a chemical reaction in the dust collector.

Under no conditions should the persons operating the dust collector be allowed to put any biological matter or trash into the sump of any dust collector system.

All users of Micro-Air Equipment should comply with all National and Local Fire Codes and/or other appropriate codes when determining the location and operation of dust control equipment.

Improper installation or operation of this equipment can cause damage to equipment and / or injury to personnel. The installation / operation manual must be read and followed in its entirety.

WC5000 SPECIFICATIONS:

Input Voltage:	230/460V, 60 Hz, 3-Phase
Motor:	7.5HP, 3-Phase, TEFC Motor, 3600 RPM
Maximum Current:	230V – 18.4 Amps 460V – 9.2 Amps
Sump Operating Level:	10.0” - motor off
Overall Dimensions:	86” H x 26” W x 56” D
Sump Capacity:	At Normal Operation: 45 gallons Maximum: 50 gallons
Weight empty:	665 lbs.

EQUIPMENT / TOOLS REQUIRED:

Equipment and tools needed for proper installation will include the following:

- Crane or Lift Truck
- Pipe Wrench
- Screw Driver
- Socket Wrenches

PRE-OPERATING INSTRUCTIONS:

The Micro Air WC2500 may be shipped on multiple skids.

1. Inspect every skid for any visible damage that may have occurred during shipment. Report any damage to the delivery carrier.
2. Remove the shipping crate, shipping straps and plastic wrap from unit. Discard shipping materials.
3. Additional equipment that may be shipped separately includes:

HEPA After-Filter Kit	A-Frame Assembly
Photohelic Kit	Dual A-Frame Assembly
Magnehelic Kit	Electrical Box
Silencer Assembly	Exhaust Panels

ASSEMBLY OF UNIT:

1. Determine the location where the unit is to be installed. Be sure to allow sufficient room to access the unit for servicing and maintenance.
2. Using a forklift, remove the air cleaner from the shipping skid.
3. Carefully place the air cleaner into the desired location.
4. Install any optional after filter housings that were ordered (pages 7-11).
5. Connect the fill control valve to potable water source via the provided ½" FNPT connection (See FIG. 1).
6. Connect the control box to 3-phase supply power via the rotary disconnect switch.
7. Confirm proper blower rotation. If the blower rotates backwards, interchange two of the motor supply connections (L1 and L2) and re-check the blower rotation.
8. Manually fill the sump to a depth of 10". This can be done by pressing the green manual override button on the fill valve, or by separate hose supply.

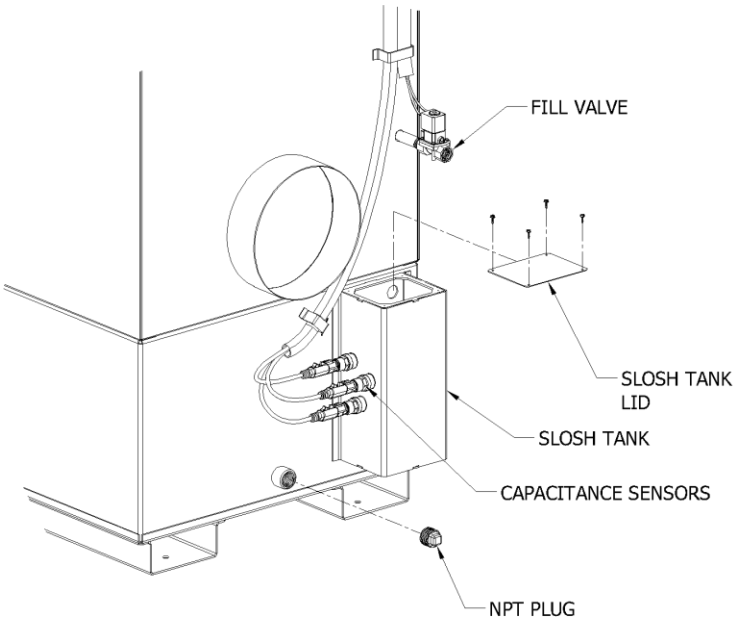


FIG. 1

UNIT OPERATION:

THIS UNIT REQUIRES A MINUMUM OF 4.0 INWC OF EXTERNAL STATIC PRESSURE TO OPERATE. IF THIS CONDITION IS NOT MET THE RISK OF EXHAUSTING WATER WILL BE PRESENT.

Starting and Stopping:

1. To Start the unit press the button labeled START.
2. To Stop the unit press the button labeled STOP.

Sump Level Control:

The level of the sump is controlled via direct measurement with capacitance sensors mounted on the slosh tank. When sensors are accessed for periodic cleaning it is imperative that the access plate be replaced with a positive seal prior to restarting the unit. Failure to do so can result in overfill.

Fill Valve Operation:

The fill valve is normally closed and only active when signaled by the “FILL” sensor that water is needed in the sump. In the event of a loss of power the fill valve is designed to remain in the closed position. The Green manual bypass button on the fill valve is to be used at start-up and not for normal operations.

Interlocks:

A Low Level and Motor Running (N.O.) dry contact interlock is provided as per NFPA requirements. They allow for the safe interface with the controller of the dust producing equipment. When the wet collector is operating properly under normal conditions they allow the dust producing equipment to be operated normally. If an adverse condition is present at the wet collector they will prevent the operation of the dust producing equipment.

GENERAL MAINTENANCE:

Motor:

No lubrication is required for the motor due to it being a permanently lubricated design.

Blower Wheel:

Periodically visually inspect for any material build-up. If material build-up is detected, clean the blower wheel. A mild degreasing compound such as simple green may be used.

1. Stop the unit. Using approved lock-out / tag-out procedures de-energize the unit.
2. Remove the side blower access panel.
3. Coat the blower wheel with a mild de-greasing compound (ex. Simple green).
4. Wipe off all build-up from blower wheel and interior of blower housing.
5. Reinstall the blower access panel.
6. Energize the unit.
7. Start the unit, and confirm there is no excessive vibration. If vibration is present repeat steps 1 through 6.

Capacitance Sensors:

Periodically remove the slosh tank access cover and wipe off the tips of the capacitance sensors. The periodicity will vary depending on the specific application.

1. Stop the unit. Using approved lock-out / tag-out procedures de-energize the unit.
2. Remove the Slosh tank access panel.
3. With a shop rag gently clean off the sensing tips of the sensors. Do not use any cleaning agent or solvent.
4. Remove any sludge or materials from the bottom of the slosh tank.
5. Reinstall the slosh tank access panel, ensuring a positive seal.
6. Energize the unit.

Mist Eliminator Filters:

The unit is equipped with four (2) Chevron type mist eliminator filters. The filters require periodic cleaning to ensure proper operation. The service interval will vary depending on the specific application.

1. Stop the unit. Using approved lock-out / tag-out procedures de-energize the unit.
2. Remove the sump access panel (Lexan door).
3. Gently shake the mist eliminator filters while still in the filter track to remove excess water.
4. Remove the mist eliminator filter.
5. In a separate washing area coat the mist eliminator filter with a mild de-greasing compound (ex. Simple green).
6. Using a water hose with spray nozzle wash the mist eliminator filter until clean.
7. Replace the filter into the unit and reinstall the access panel.
8. Energize the unit.
9. Start the unit.

WARNING: Use of a power washer may damage the mist eliminator filters and is not recommended.

Water Sump Baffles:

The internal baffles that agitate the water in the unit during operation will develop material build-up periodically. At quarterly intervals, the baffles should be visually inspected and cleaned if build-up is detected. It is recommended that this take place prior to cleaning the sump as the build-up typically is wiped into the sump. In most cases the cleaning of build-up can be accomplished with clean potable water and a shop towel. In some instance use of a non-abrasive sponge (such as scotch brite) will speed up the process of removal.

1. Stop the unit.

2. Remove the sump access panel (Lexan door).
3. Working from the top of the sump enclosure downward wipe off all internal baffles until clean. Pay particular attention to the perforated metal baffle near the bottom of the enclosure.
4. Rinse with fresh water as needed.
5. Replace the sump access panel.
6. Start the unit.

⚠ **WARNING: Proper PPE is required for any maintenance on the inside of the cabinet. Interior edges are sharp and can lacerate unprotected skin. Micro Air recommends cut resistant gloves, and sleeves along with safety glasses at a minimum.**

Water Sump Sludge:

Collected particles will naturally form a sludge in the sump as the particles agglomerate and settle out. The sump should be cleaned out periodically as required. The sump sludge level should not exceed 0.75" or depth. The periodicity of maintenance varies by process and can range from daily to quarterly.

Method 1:

1. Stop the unit.
2. Remove the sump access panel (Lexan door).
3. Place a metal 5 gallon bucket under the front lip on the water sump.
4. Insert the supplied sump rake into the water sump with the open pocket facing down at the rear bottom of the sump.
5. Slowly drag the rake to the front of the sump and up the inclined wall. Pause near the top lip to allow water to drain back into the sump.
6. Once the water has drained sweep the sludge over the sump lip directly into the metal 5 gallon bucket.
7. Repeat this process until the entire sump bottom has been cleaned.
8. Replace the sump access panel.
9. Start the unit.

Method 2:

This method utilizes an industrial rated filtered wet sump vacuum. DO NOT use a standard shop vacuum, as it is not rated for this operation and can lead to injury, fire, or explosion.

1. Stop the unit.
2. Remove the sump access panel (Lexan door).
3. Place the vacuum in suction and strain configuration and remove entire contents of the sump.
4. Place the vacuum in the feed configuration and pump the strained water back into the sump.
5. Dump the strainer basket into a metal 5 gallon bucket.
6. Replace the sump access panel.
7. Start the unit.

Storage of strained / collected sludge:

Place the filled metal bucket in a segregated well ventilated portion of the building or outdoors. Cover the bucket with a vented metal lid and allow to dry prior to discarding or recycling.

Water Sump Odors:

The sump will not develop odors except in the event that a biologic contaminate has entered the system. In the event that an odor develops it can be treated by adding Bromine tablets directly to the sump. It is highly recommended that a floating tablet feeder is used outside of the agitated airstream to prevent adding more Bromine than is necessary to treat the water. Under most circumstances only 1 tablet is required. The target range for Bromine residual level is 2 ppm.

A-FRAME INSTALLATION PROCEDURE

This kit includes:

ITEM	PART NO.	DESCRIPTION	QTY.
1	34632-01	A-Frame Assembly	1 ea.
2	P2551	5/16-18 x 1” SS Hex Bolt	8 ea.
3	P2553	SS Lock Washer	8 ea.
4	P2552	SS Flat Washer	8 ea.
5	P3686	3/16” x 1” Foam	77 in.

INSTALLATION:

1. Remove A-Frame Assembly from skid and inspect for any possible damage incurred during shipping.
2. Install self-adhesive backed foam as shown.
3. Place the A-Frame Assembly on top of the unit.
4. Install and tighten the qty. (8) bolts, washers, and lock washers.

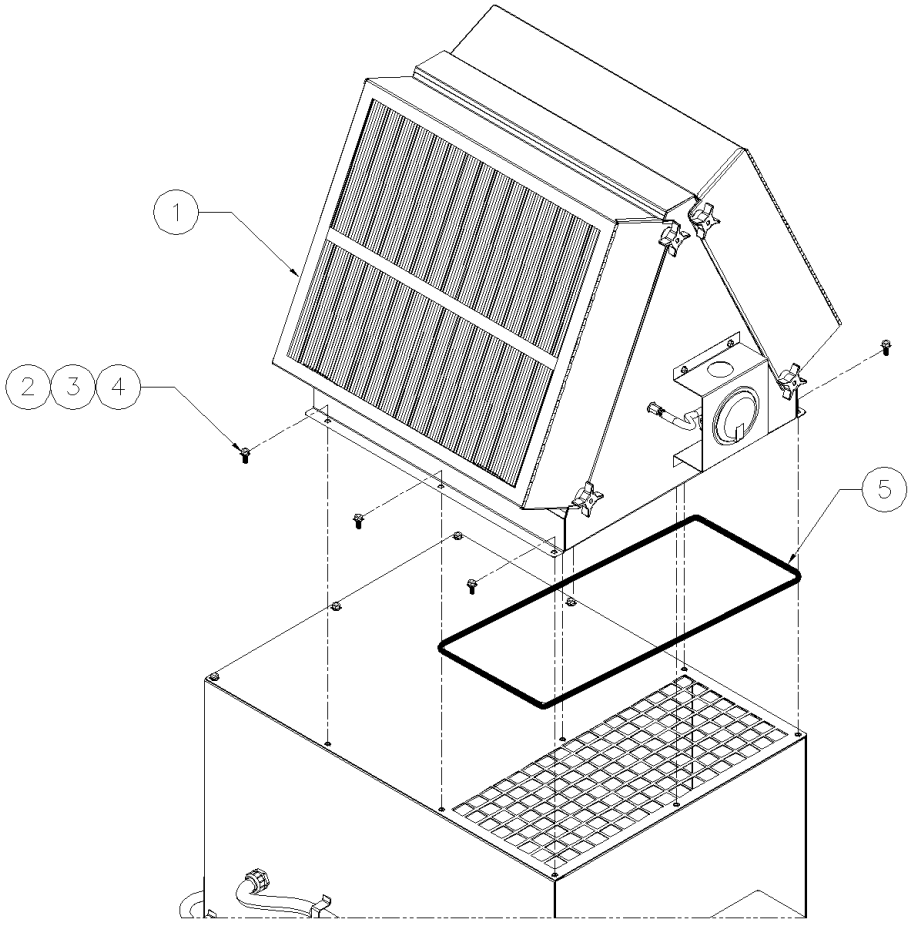


FIG. 6

DUAL A-FRAME INSTALLATION PROCEDURE

This kit includes:

ITEM	PART NO.	DESCRIPTION	QTY.
1	34633-01	Dual A-Frame Assembly	1 ea.
2	P2551	5/16-18 x 1” SS Hex Bolt	8 ea.
3	P2553	SS Lock Washer	8 ea.
4	P2552	SS Flat Washer	8 ea.
5	P3686	3/16” x 1” Foam	77 in.

INSTALLATION:

1. Remove Dual A-Frame Assembly from skid and inspect for any possible damage incurred during shipping.
2. Install self-adhesive backed foam as shown.
3. Place the A-Frame Assembly on top of the unit.
4. Install and tighten the qty. (8) bolts, washers, and lock washers.

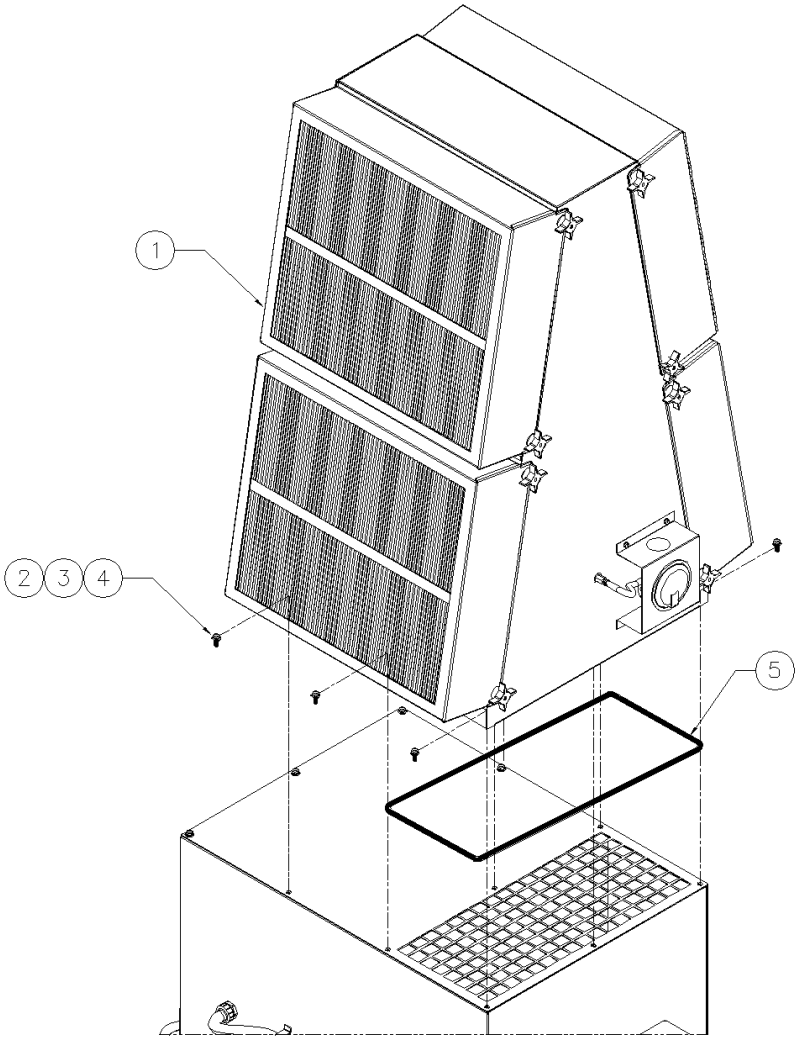


FIG. 7

SILENCER INSTALLATION PROCEDURE

This kit includes:

ITEM	PART NO.	DESCRIPTION	QTY.
1	34626-01	Silencer Assembly	1 ea.
2	P2551	5/16-18 x 1” SS Hex Bolt	8 ea.
3	P2553	SS Lock Washer	8 ea.
4	P2552	SS Flat Washer	8 ea.
5	P3686	3/16” x 1” Foam	78 in.

INSTALLATION:

1. Remove Silencer plenums from skid and inspect for any possible damage incurred during shipping.
2. Install self-adhesive backed foam as shown.
3. Place the Silencer Assembly on top of the unit.
4. Install and tighten the exterior qty. (8) bolts, washers, and lock washers.
5. Repeat steps 2 through 4 for second Silencer Assembly.

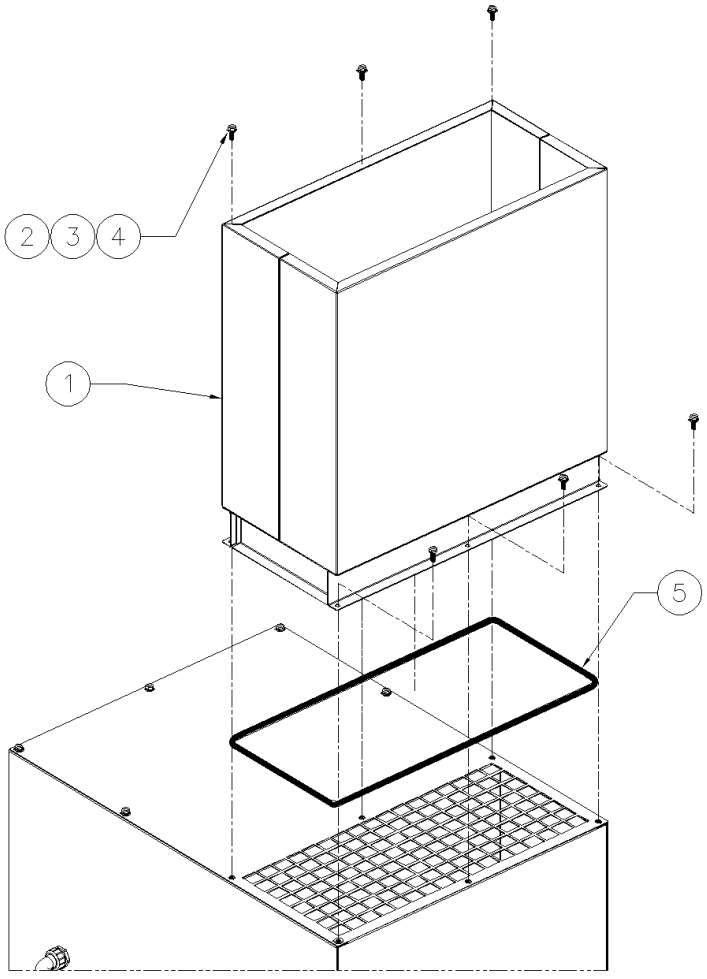


FIG. 8

HEPA AFTER FILTER INSTALLATION PROCEDURE

This kit includes:

ITEM	PART NO.	DESCRIPTION	QTY.
1	34623-01	HEPA Plenum	1 ea.
2	34674-02	HEPA Plenum Bracket	1 ea.
3	38295-03	SS Magnehelic Assembly	1 ea.
4	P2551	5/16-18 x 1” SS Hex Bolt	10 ea.
5	P2553	SS Lock Washer	8 ea.
6	P2552	SS Flat Washer	10 ea.
7	P3686	3/16” x 1” Foam	77 in.
8	P2101	99.97% HEPA Filter	1 ea.

INSTALLATION:

1. Install magnehelic bracket and gauge to front of unit with included qty. (4) self-tapping screws.
2. Drill port hole approximately 0.425” in diameter above the electrical box, center of unit.
3. Install MNPT and FNPT barbs with qty (2) washers to port hole and connect clear tubing to magnehelic gauge.
4. Remove HEPA Plenums from skid and inspect for any possible damage incurred during shipping.
5. Install self-adhesive backed foam as shown.
6. Place the HEPA Plenum on top of the unit.
7. Install and tighten qty. (8) bolts, washers, and lock washers.
8. Place the HEPA filters on top of the HEPA Plenum.
9. Place the HEPA Plenum Bracket over the HEPA filter and align holes with those in the HEPA Plenum.
10. Install and tighten qty. (2) bolts and washers.

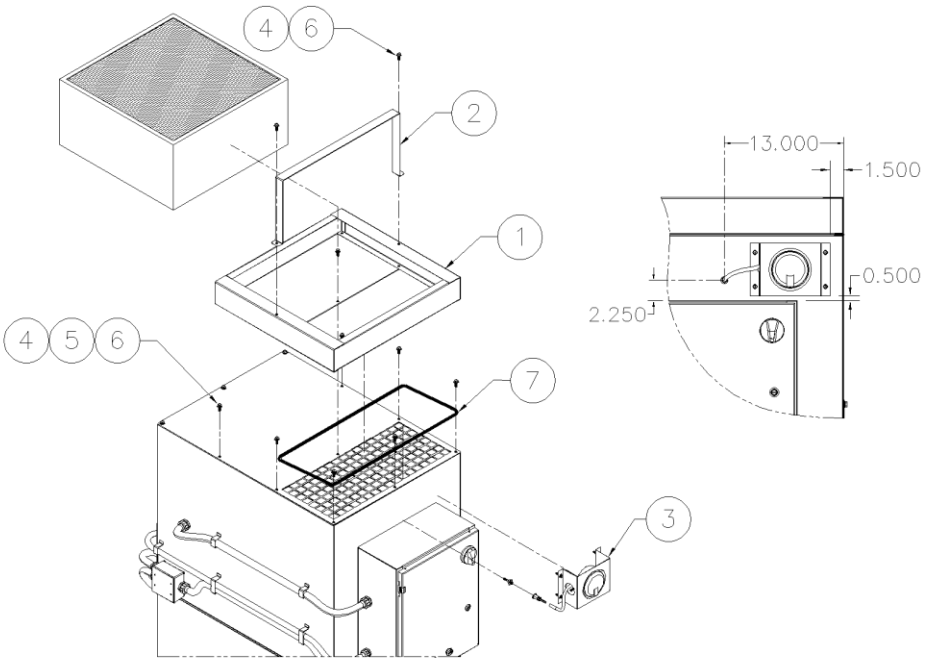


FIG. 9

WIRING SCHEMATIC

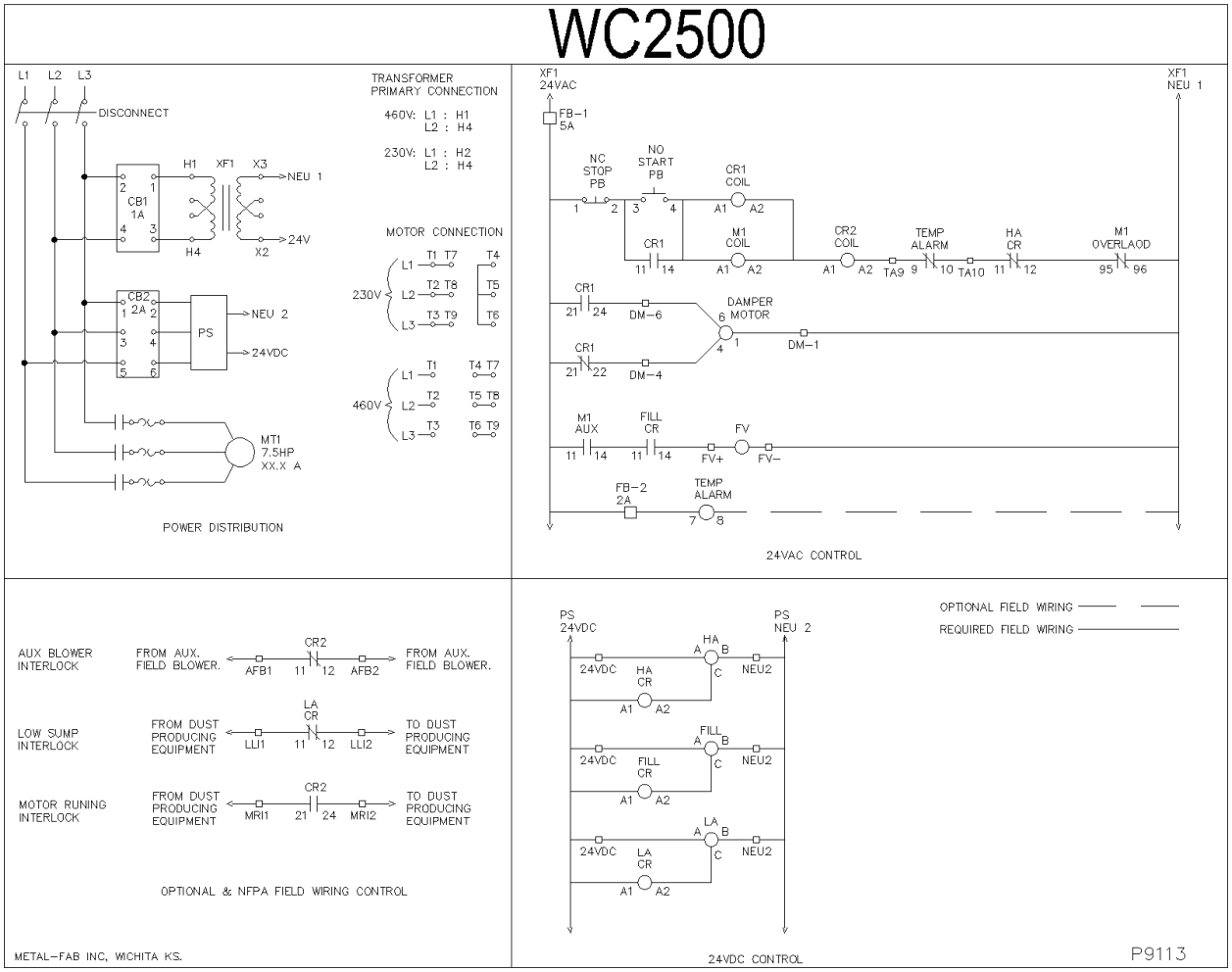


FIG. 10

TROUBLESHOOTING:

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. NEVER run the unit with the access door opened or the panels removed.

PROBLEM	POSSIBLE CAUSE	REMEDY
Unit fails to start	No incoming power	Check the circuit and switch
	Blown breaker or fuse	Replace fuse or throw breaker
	Loose wire in terminal box	Reconnect wire
	Burned out motor	Replace motor
	Primary voltage to motor contactor is below 10% tolerance	Take steps to increase voltage to primary
	Tripped overload (3 Phase only)	Reset overload protector
	High or low alarm sump sensor dirty	Clean sensor probe with cloth
	High or low alarm sump sensor failed	Replace failed capacitance sensor
Unit runs slowly, Inadequate capture	Wired for wrong voltage	Check input voltage Check wiring diagram
	Blower wheel rotating backwards	Check wiring diagram Switch L1 & L2 (3 Phase only)
	Dirty Mist-X filters	Service, Clean filters
	Sump level too high	Remove water to normal level, investigate cause of high level
Vibration	Loose motor mounting bolts	Tighten bolts
	Foreign objects in blower/ Build-up on blower wheel	Remove debris from blower
	Motor bearing failed	Replace Motor
Low sump water level	Fill sensors dirty	Clean sensor probe with cloth
	Fill sensors failed	Replace failed capacitance sensor
	Fill valve solenoid failed	Replace fill valve solenoid

High sump water level	Fill sensors dirty	Clean sensor probe with cloth
	Fill sensors failed	Replace failed capacitance sensor
	Slosh tank lid not sealed	Reinstall slosh tank lid, ensure positive seal
	Build up on fill valve seat	Repair or replace fill valve
Sump overflow	High alarm sensor dirty	Clean sensor probe with cloth
	High alarm sensor failed	Replace failed capacitance sensor
	Slosh tank lid not sealed	Reinstall slosh tank lid, ensure positive seal
	Build up on fill valve seat	Repair or replace fill valve
	Fill sensor dirty	Clean sensor probe with cloth
	Fill sensor failed	Replace failed capacitance sensor

CAB PARTS LIST:

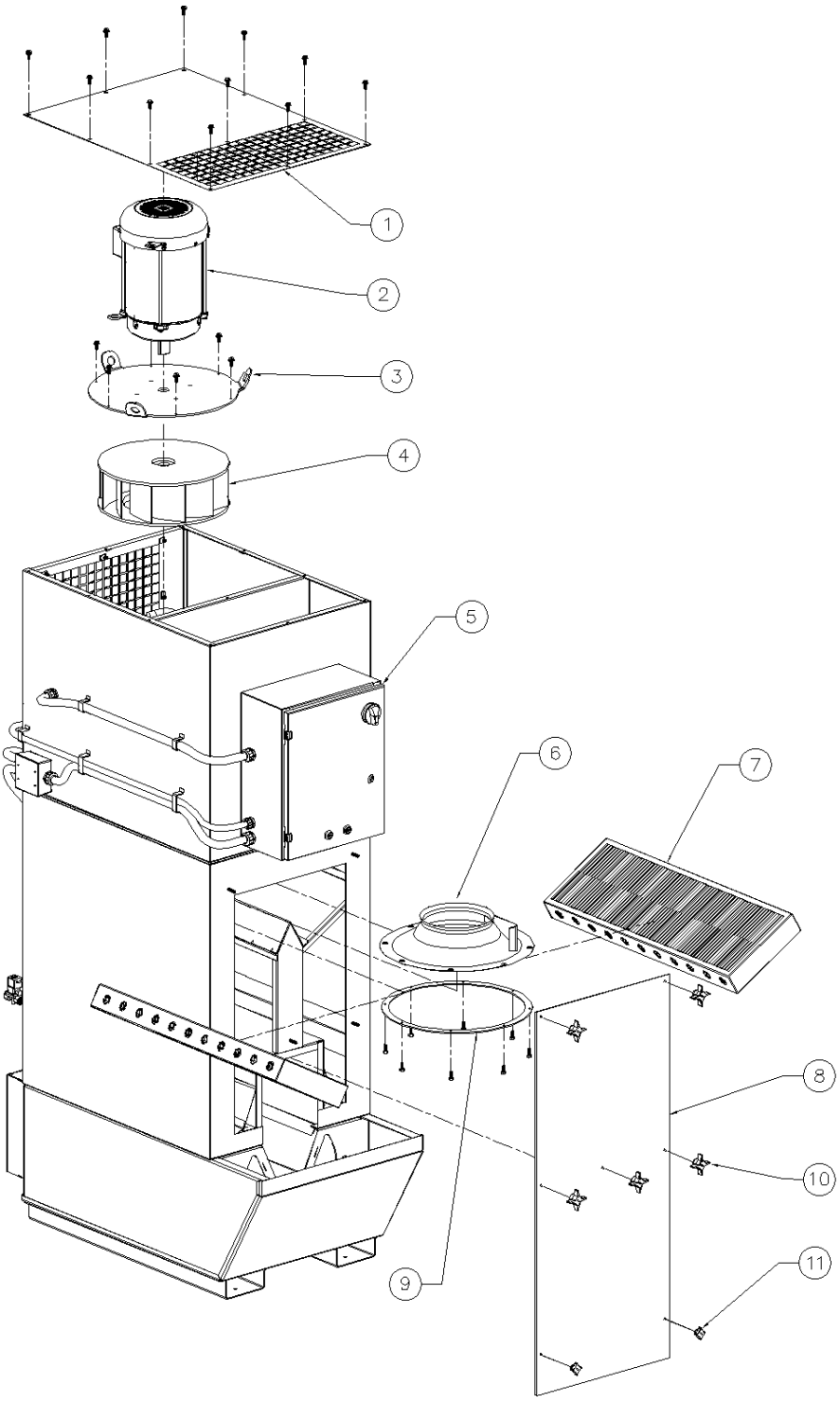


FIG. 11

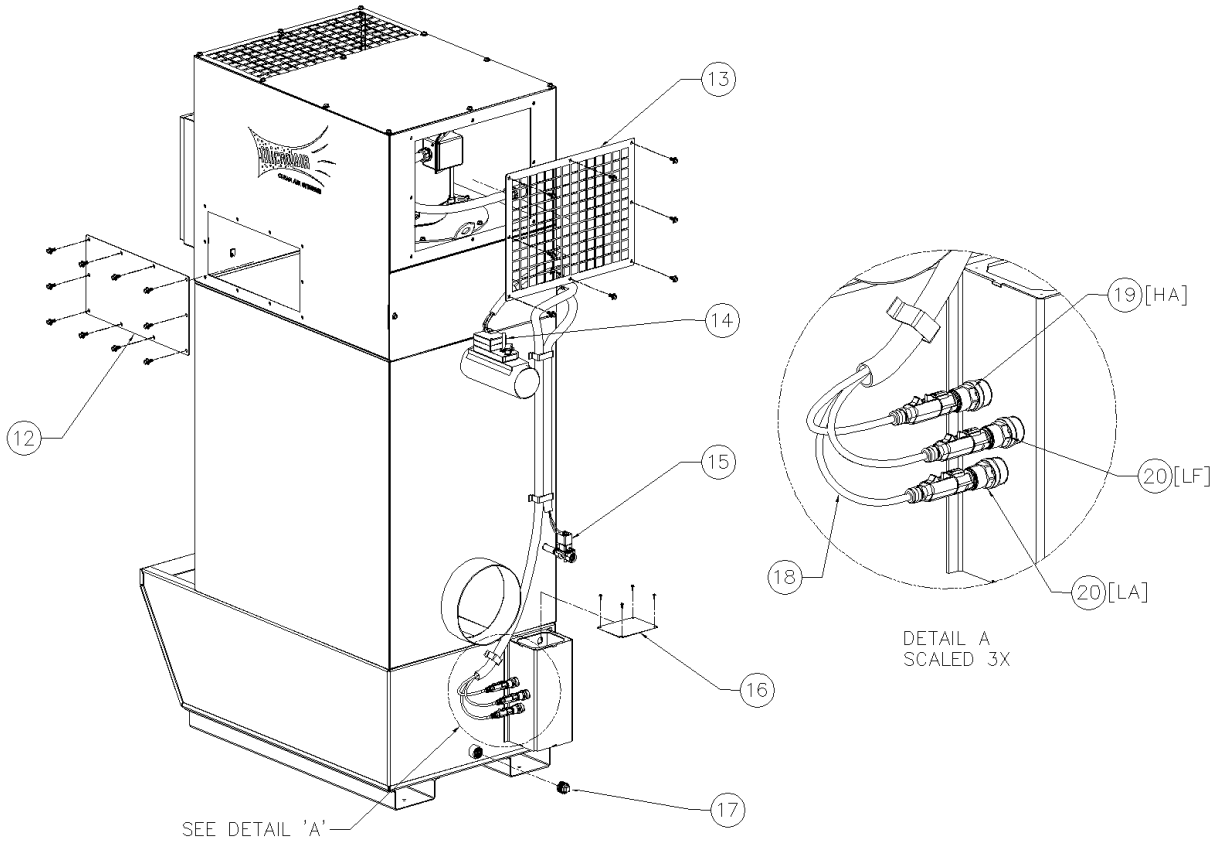


FIG. 12

CAB PARTS LIST:

ITEM	PART NO.	DESCRIPTION
1	34669-03	Exhaust Panel
2	P7326	7.5HP Motor
3	34670-02	Motor Plate
4	P9105	Blower Wheel
5	P9117	230V Electrical Box
	P9118	460V Electrical Box
6	P9106	Inlet Cone
7	P9101	Mist-X Filter
8	P9110	Lexan Panel
9	P9108	Inlet Cone
10	P3649	4-Prong Knob
11	P9154	SS 4-Prong Knob
12	34669-06	Blower Access Panel
13	34669-09	Motor Access Grille
14	P2574	4” Zone Valve
15	P2573	1/2” NPT Fill Valve

ITEM	PART NO.	DESCRIPTION
16	P2573	1/2” NPT Fill Vale
17	34669-01	Slosh Tank Lid
18	P9134	Cap. Sensor (Wet)
19/20	P9133	Cap. Sensor (Dry)

Notes:
Serial Number:
Supply Voltage:
Date Installed:
Installed By:

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