

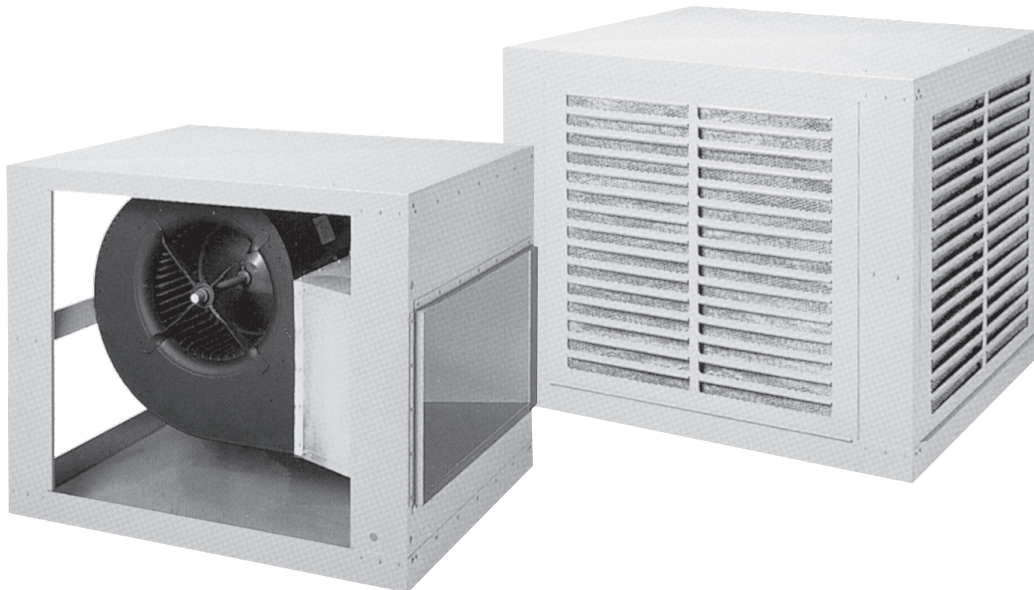
ARES[®]

AIR REPLACEMENT ENGINEERED SYSTEMS

owner's manual

Make-up Air Blower and/or Evaporative Cooler

(Models SC1/SC2/SC3, SE1/SE2, DC1/DC2 and DE1/DE2)
Installation • Operation • Maintenance



(800)-288-0892

3328 Interurban Road
Denison, TX 75020

Fax (903) 463-1235 • www.aresmakeupair.com • info@aresmakeupair.com

CAUTION: Read and Save These Instructions.

Form #MABEV0312

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General Information

TO INSURE PROPER OPERATION AND MAINTENANCE OF ARES SC1/SC2/SC3, SE1/SE2, DC1/DC2 and DE1/DE2 MODELS, PLEASE READ AND UNDERSTAND THIS MANUAL THOROUGHLY. Where necessary, the following information will be indented and paraphrased.

NOTE: Information pertaining to special instructions regarding the care and use of the ARES models. The nomenclature is as follows:SC/SE/DC/DE

- SC = Blower horizontal discharge with filtered inlet louvers
- DC = Blower pointed down through the pan with filtered inlet louvers
- SE = Blower horizontal discharge with evaporative cooling media and louvered intake
- DE = Blower pointed down through the pan with evaporative cooling media

CAUTION: Information intended to indicate situations which may cause immediate or future damage to the ARES SC/SE/DC/DE models.

WARNING: Advice against improper use or procedures which may result in bodily injury for which ARES will accept no responsibility.

WARNING: TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:

- a. Use this unit in the manner intended by the manufacturer. If you have questions, contact the manufacturer.
- b. Before servicing or cleaning unit, switch power off at service panel and lock the service disconnecting means to prevent power from being switched on accidentally. When service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.
- c. Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction.

WARNING: To Reduce the Risk of Electric Shock, Do Not Use This Fan With Any Solid State Speed Control Device.

AVERTISSEMENT: Ne Convient Pas à Des Régulateurs de Vitesse à Semi-Conducteurs.

All information illustrations and specifications contained in this manual are based on the latest product information available at the time of printing. ARES reserves the right to make changes at the time, without notice, in specifications and models and also to discontinue models. ARES also reserves the right to change any specifications or parts at any time without incurring any obligation to equip the same on models manufactured prior to date of such change.

The continuing accuracy of this manual cannot be guaranteed.

All illustrations used in this manual may not depict actual models or equipment and are intended as representative views for reference only.

Future supplement sheets will be added or deleted as necessary.

Prints or system details located in this manual are for instructional purposes only and do not represent

actual or scale drawings.

PRE-INSTALLATION

CODES

Check all applicable codes regulations and permits for installation requirements. Installation must comply with utility regulations and local codes as well as those of the National Fire Protection Associations 90A or 90B as applicable.

NOTE: Building of safety codes may require that exhaust fans be interlocked with the make-up air unit. This requirement is satisfied with an optional ARES exhaust fan control relay assembly or interface panel.

UNIT INSPECTION

Check unit for shipping damage. If damage is found, report it immediately to the carrier and file a damage claim.

ROOF LOAD

Roof load-bearing capacity must be adequate to handle the operating weight of the make-up air unit. To spread this load over additional roof joints and to support the unit above accumulated rainwater, 8" mounted rails are frequently used.

Check roof loading and structure for support. Approximate operating weights are shown below.

BLOWER	HOISTING WEIGHT (Approx. lbs.)	OPERATION WEIGHT (lbs.)	AVG. ROOF LOADING (PSF)
SE1/DE1	470	612	44.8
SC1/DC1	470	470	34.4
SE2/DE2	490	632	46.2
SC2/DC2	490	490	35.8
SC3	525	525	30.5

Hoisting weight includes crate. Operating weight includes water. Hoisting eyes are included to lift the make-up air unit to the roof.

LOCATION

1. In a roof installation, units should be installed level on a roof curb, rails or roof stand (minimum 4" high) to allow ventilation beneath the unit. Adequate space for a water drain connection is required beneath the sump pan of the cooling section, which is also a 4" minimum.
2. If adequate air supply volume is provided, the unit may also be installed on a sidewall. Exact location will depend upon building construction and the placement of ceiling registers and ducts. These should be placed carefully to provide maximum distribution of make-up before it is drawn into the exhaust systems.
3. Install the unit as close as possible to the supply register to minimize duct system resistance (total external static pressure loss through the duct.)
4. Be sure the unit's capacity is equivalent to the demands of the systems.
5. Duct velocity should not exceed 1500 FPM.
6. Do not install unit near plumbing vent pipes and exhaust stacks.

- Natural air circulation must be permitted around the unit at all times.

NOTE: Provide a minimum of 36" clearance at all times around the unit for service access to Filters, Blower, and Motor and for air circulation.

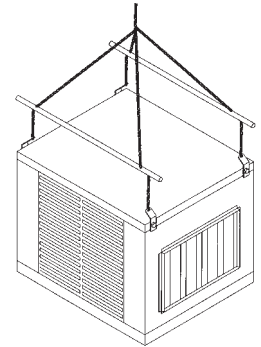
- A suitable electrical disconnect switch needs to be installed somewhere in plain view of the equipment for servicing purposes (this is not a code requirement in all localities, it is a safety recommendation).

HOISTING EYE INSTALLATION

Remove the blower pad frames.

Position the hoisting eyes on corners of the unit with the angle towards the center of the unit. (See illustration at right)

Run the bolt through the unit housing and hoisting eye, then attach the nut. (See illustration at right).



INSTALLATION

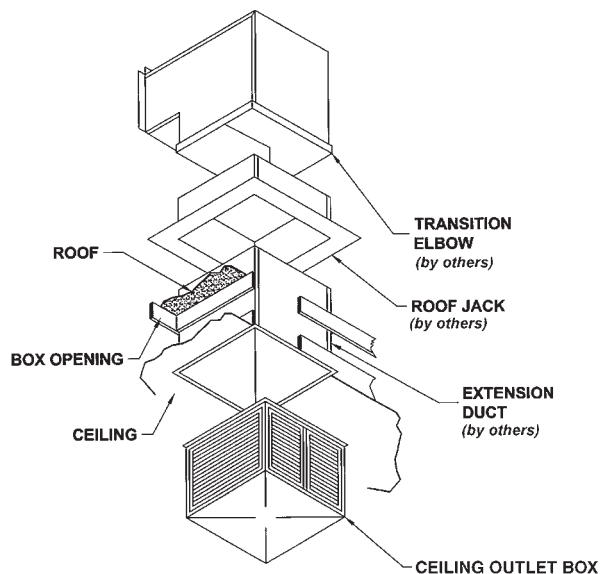
DUCTWORK

- Sizing and layout of ductwork and outlets should provide maximum uniform airflow throughout the area. Make-up air should be introduced at a location inside the area, but as far away from existing exhaust hoods as possible to permit conditioned air to flow throughout the entire area before reaching the exhaust zone, or unless connected to an engineered make-up air system.
- Ductwork must be adequately sized and designed for minimum resistance (static pressure) to provide required airflow. Check rating plate for minimum allowable CFM.
- To avoid pressure losses, all short radius rectangular elbows should have turning vanes, offsets should not be avoided, and small ducts and takeoffs should be undersized.
- Main supply duct normally consists of a rectangular vane elbow at the unit and vertical duct extension, both pieces having the same dimensions as the unit discharge opening. The ductwork gauge size must be according to local codes. Ceiling registers should be the fixed type (if adjustable, modify so full closing is not possible). (See illustration below)

CEILING REGISTER

With the make-up air unit in place on the floor, and the framed roof opening installed:

- Position roof jack over the opening.
- Caulk and attach the transition elbow to the unit with a flexible connection.
- Push the extension duct up until it slides through the roof jack into the transition elbow (the bottom flange of the extension duct should fit flush with ceiling). Seal, caulk and secure into place.
- In the building, center the box over the opening and secure it.
- Protect outdoor ductwork with weatherproof insulation material.
- This is ARES recommendation but you should always check local codes in your area.



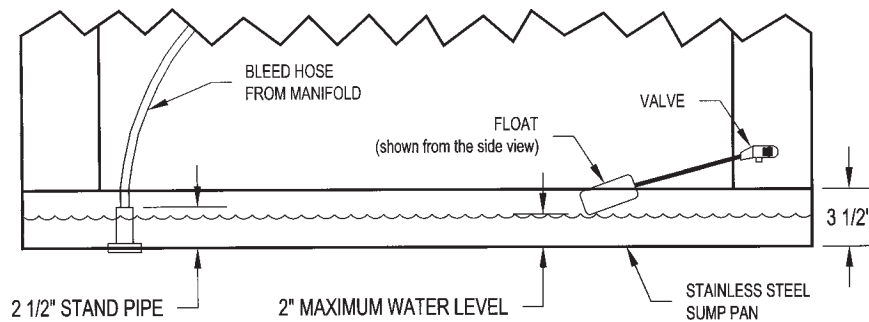
SE AND DE EVAPORATIVE COOLING

WATER SUPPLY: Water is circulated by a sump pump to troughs above the cooling media. It then flows by gravity through “V” shaped slots and saturates the cooling filters. A float valve assembly replaces water lost by evaporation. To avoid build up of organic minerals and salts in the sump, an adjustable bleed-off valve directs a small stream of water through the overflow drain. An optional fill and drain kit, which consists of a 3-way valve, 2-way valve and relay itemized for freeze protection of the Make-up Air Unit water line, is available for field installation.

CAUTION: Damage caused by not correctly installing and servicing the bleed-off pipe is not covered by the ARES warranty.

Use an inside cold water line that has not passed through a water softening system because salts will create additional maintenance and upkeep.

1. Install a 1/2" water piping to the right front support leg of the unit. Include a convenient shut-off valve and provisions for draining to prevent freezing in the piping layout.
2. Install the overflow standpipe in the sump drain (supplied with the unit).
3. Install a drain line between the overflow standpipe (in the sump drain) to a suitable drain (check local codes).
4. Install float valve assembly through the hole provided in the blower-cooler unit and adjust it so the water level is approximately 2" deep in the sump pan. (See illustration below).



CAUTION: Damage caused by incorrect water level in sump pan is not covered by the ARES warranty.

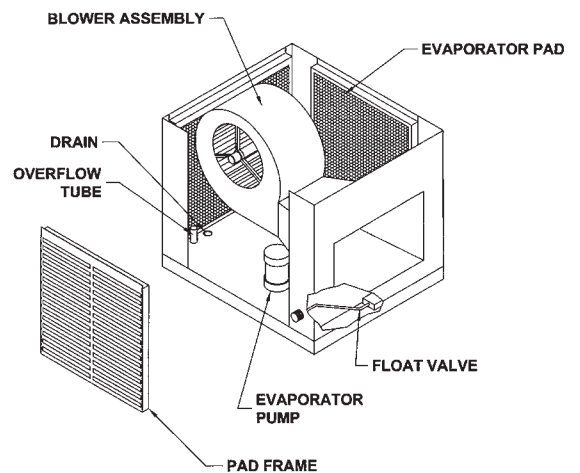
5. Adjust the bleed valve to bypass the main water line to rid the system of organic and mineral deposits. (See illustration above)

ELECTRICAL INSTALLATION

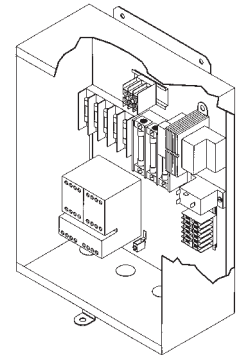
1. Check the electrical ratings stamped on the serial plate to be sure they are correct for use with available electricity.

CAUTION: Damage caused by incorrect power supply is not covered by the ARES warranty.

2. The installed unit must conform to all codes and regulations applying to the job site including requirements of State and local agencies. All wiring, grounding and connections must comply with the most current version of the National Electric Code. Permits should be obtained prior to installation.
3. External controls must be provided to start and stop the fan motor and pump (E models only). An external mounted starter should be used for motors.



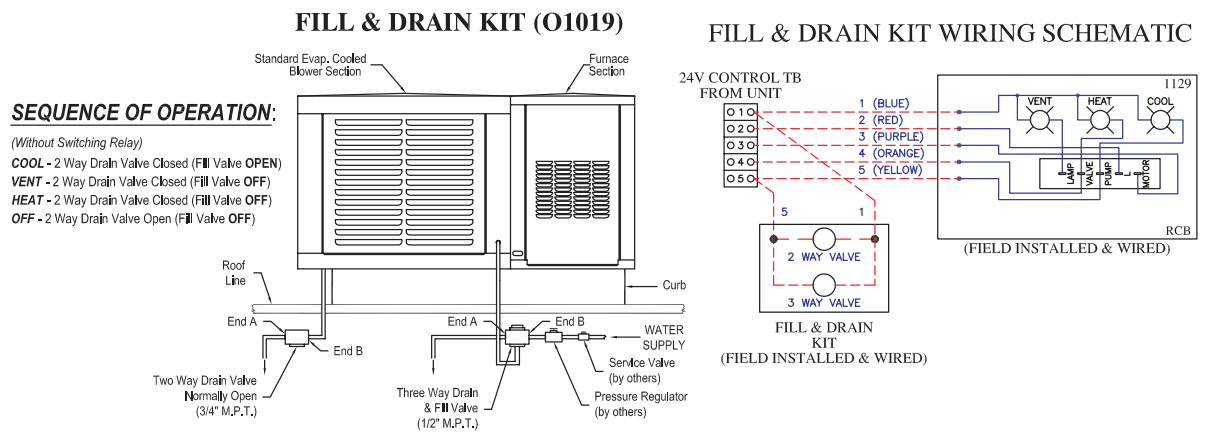
4. Connect power to the motor leads provided. See nameplate for proper voltage and frequency.
5. Check the blower for proper rotation. Interchanging any 2 leads on 3-phase model only may reverse rotation. Check motor nameplate for single phase.
6. On cooling models, connect the pump leads to the appropriate power supply. See nameplate for the proper motor voltage.



OPTIONAL ACCESSORIES

The interface panel provides pilot duty switching circuits for interlock operation of exhaust fans with make-up air units for one or two speeds. (See illustration at right).

The fill and drain kit provides filling and draining of the sump pan. (See illustration below)



SEQUENCE OF OPERATION:

- (Without Switching Relay)*
- COOL** - 2 Way Drain Valve Closed (**Fill Valve OPEN**)
 - VENT** - 2 Way Drain Valve Closed (**Fill Valve OFF**)
 - HEAT** - 2 Way Drain Valve Closed (**Fill Valve OFF**)
 - OFF** - 2 Way Drain Valve Open (**Fill Valve OFF**)

OPERATION

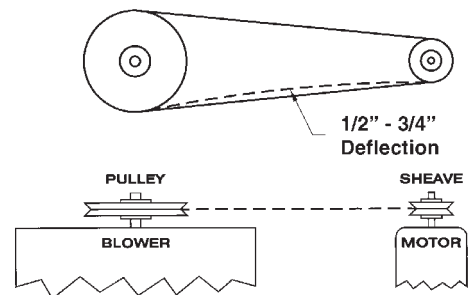
INITIAL START-UP

1. Check electrical power against the unit's nameplate.
2. Check airflow through the unit.
3. Re-check that the stand pipe and bleed-off kit have been correctly installed. The adjustable motor sheave should be adjusted to provide the correct blower wheel RPM to attain the airflow at the inherent system resistance. Adjust the sheave so the airflow is at or above the minimum shown on the nameplate. See illustration at right.

4. Check belt tension and alignment. When installing the belt or adjusting tension, loosen the four motor mounting bolts and reposition the motor until the belt can be deflected 1/2" to 3/4" for each foot of belt between the pulley and sheave. (See illustration at right)

NOTE: Never adjust the belt tension by changing the setting of the motor sheave. This setting was determined to provide the correct blower speed for the given CFM and system static pressure.

5. If ductwork has been installed and unusual static pressure is encountered, the pulley settings may be changed, providing the blower ampere ratings are not exceeded as indicated on the unit nameplate.



TROUBLE SHOOTING GUIDE

1. **If unit is inoperative, check:**
 - a. Circuit breakers
 - b. Line fuses
 - c. Voltage at starter
2. **If insufficient cooling occurs, check:**
 - a. Visually check pump operation.
 - b. Water system obstructions.
3. **If low airflow occurs, check:**
 - a. Blower belts slipping
 - b. Improper motor sheave setting
 - c. Evaporator or filter pads plugged up
 - d. Excessive ductwork resistance
 - e. Blower motor horsepower too low for requirements.
4. **If there is mineral buildup on evaporative pads, check: (Evaporative only SE and DE)**
 - a. Insufficient bleed off water
 - b. Bleed line plugged
 - c. Insufficient water over pads (hardness of water may necessitate more frequent cleaning and/or pad replacement).

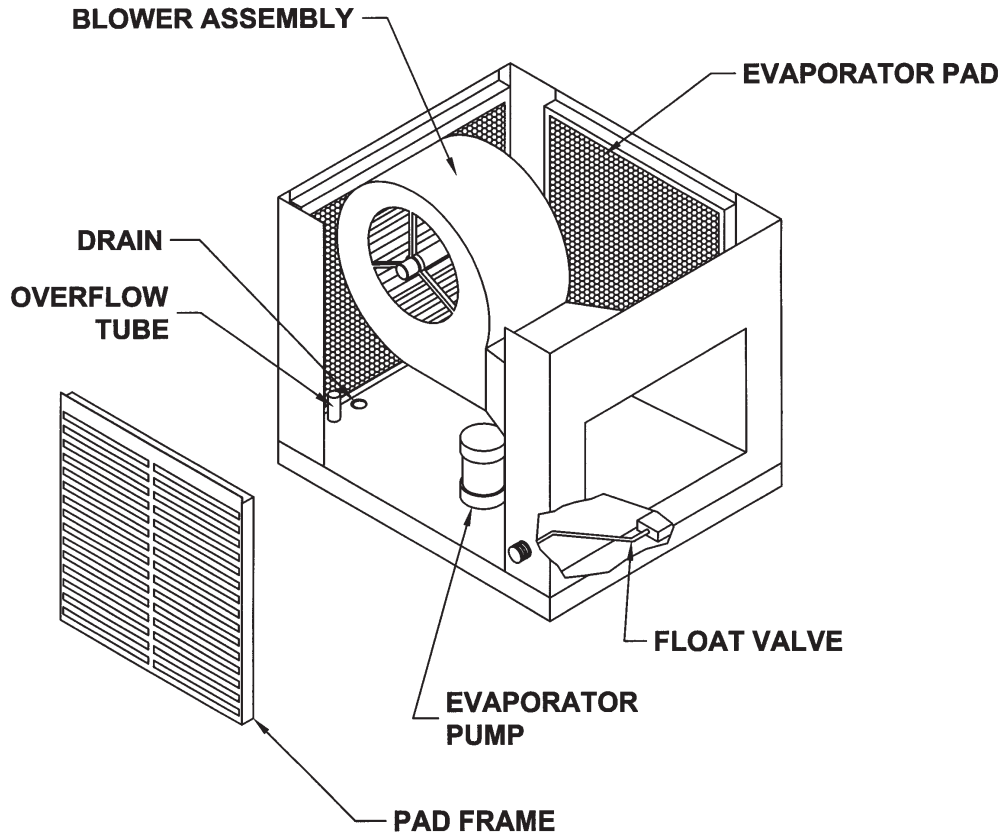
MAINTENANCE AND CLEANING FOR EVAPORATIVE COOLING UNITS

WARNING: Use care when working around live voltage, failure to do so may result in severe injury or death for which ARES will not be responsible.

CAUTION: Automatically Operated Device - To Reduce the Risk of Injury, Disconnect From Power Supply Before Servicing.

1. The reservoir pan should be drained and cleaned at least once every cooling season and before every winter operation; clean pans more often if water conditions require it.
 - a. Remove the overflow standpipe and allow water to drain.
 - b. Clean out all sediment and if necessary, paint bare metal or scratches with protective paint or undercoating.
 - c. Water distribution troughs must be unobstructed.
2. Inspect cooling filter media monthly for mineral deposits (in hard water areas, mineral salts will build up quickly).

Be sure filter media is clean and does not obstruct airflow during winter operations.
3. The need for changing filter pads more frequently varies with locality, particularly areas where dust, alkali and other foreign matter accumulate in the pads.
 - a. To change filter pads, use ARES filter pads #987360 Coolpad or O5915 Glacier-Cor® for evaporative cooling.
 - b. Lay louvered panels on a flat surface with wire filter retainers face up.
 - c. Remove the center frame support and the filter retainers by pressing down on each end of the retainers to disengage hooks from the holes in the pad frame.
 - d. Remove and discard used filter pads. Clean and paint all bare surfaces as needed. Check slots in the water distribution trough to be sure that they are open and free of obstructions. Evaporative units only (See illustration on next page top right).
 - e. Install a new filter pad in the frame. Check that the pad is of uniform thickness and completely fills the frame to avoid air bypass.

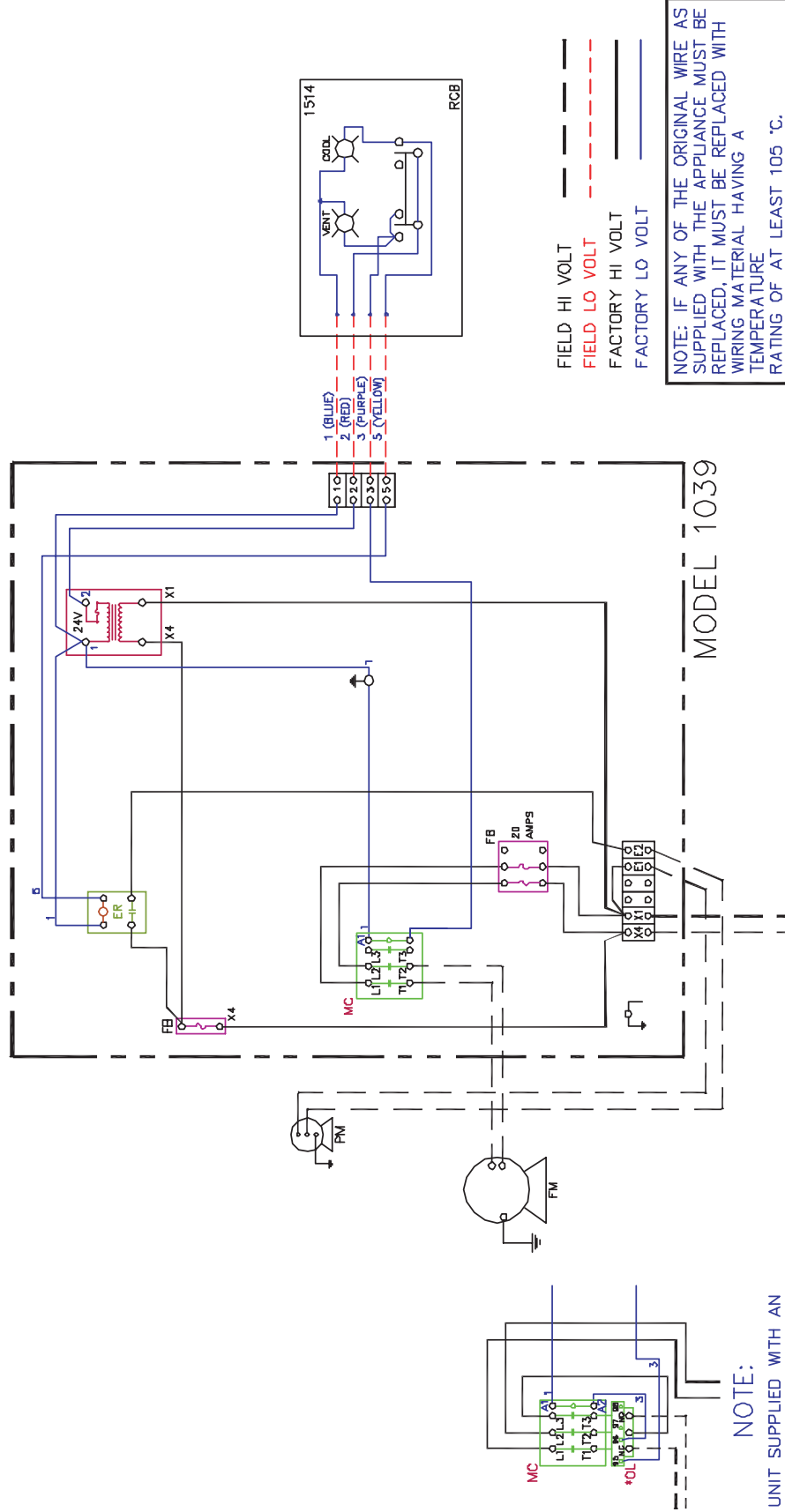


- f. Reinstall the wire filter retainer in the holes provided on the pad frame.
 - g. For evaporative cooling units, presoak the pads (already reassembled in the frame) with water thoroughly for several minutes before reinstalling. This soaking conditions the surface and the fibers of the pads, increasing water absorbability and filter performance in the evaporative cooling process.
 - h. Correct belt adjustment is important as it cuts power consumption and prolongs the life of the belt and motor.
 - i. When adjusting the belt tension, loosen the four motor mounting bolts and adjust the motor until the belt can be deflected 1/2" to 3/4" for each foot of belt between the pulley and sheave.
- WARNING: Never tighten the belt by adjusting the motor sheave.**
- j. The blower motor, blower shaft bearings and recirculating pump on evaporative cooling units, should be oiled twice a year with SAE 20 weight oil.

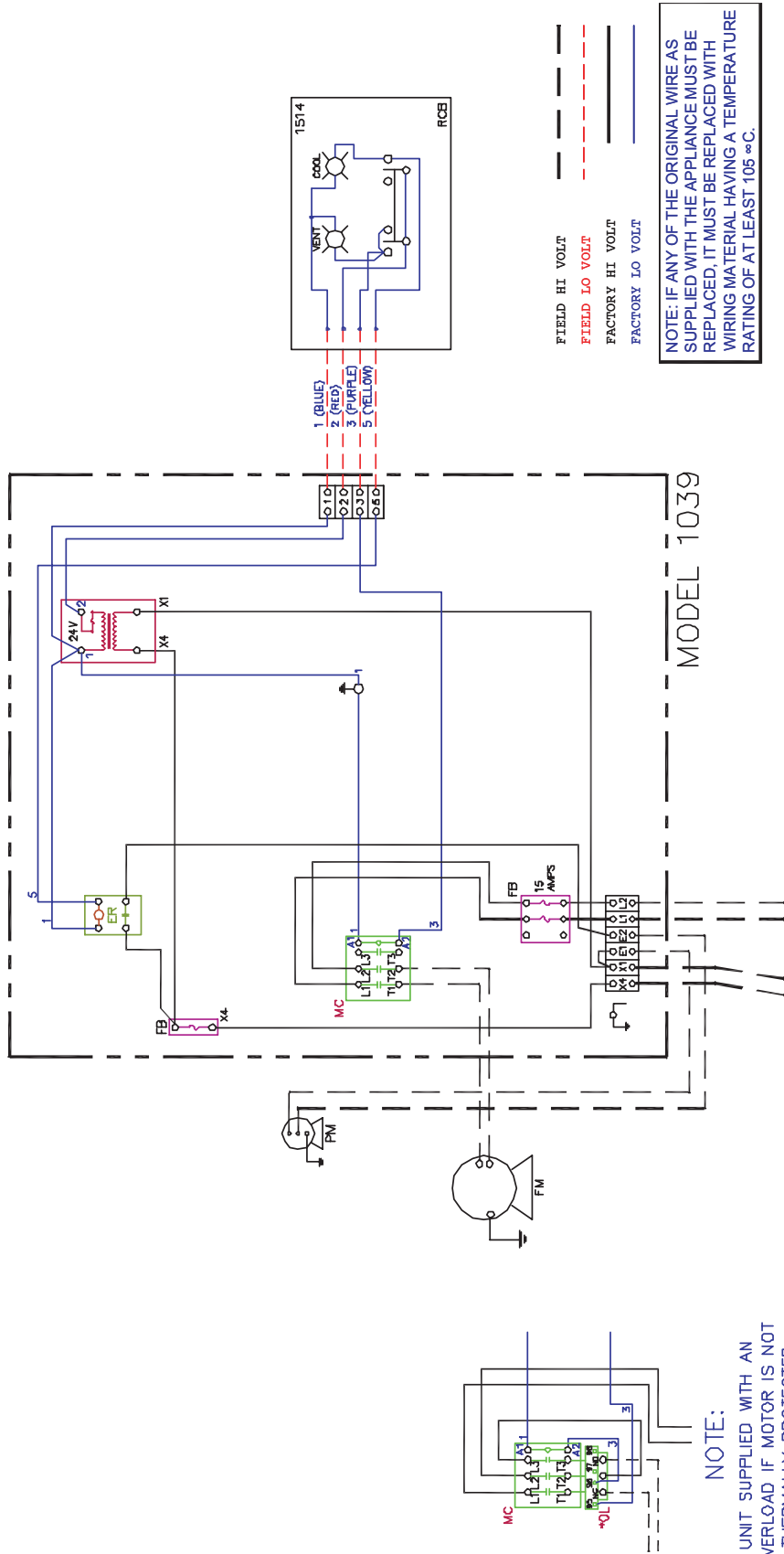
Preventative Maintenance Chart

MAINTENANCE ITEMS	QUARTERLY	HEATING SEASON	COOLING SEASON
STANDARD EVAPORATIVE COOLERS			
Evap/filter media	Check and clean.	Check and clean.	Check and clean. Replace if necessary. Replace every 5 yrs.
Evap pump/basket			Clean before start of season. Check for operation.
Evaporator pan	Check and clean.	Drain and clean.	Clean and fill.
Float valve assembly	Check operation.	Turn off water supply.	Turn on water and check for proper adjustment, 2" in pan.
Bleed off valve	Check for clogging.		Assure proper placement in drain overflow pipe.
Belt adjustment	Check tension, wear and adjustment.	Adjust as needed.	Adjust as needed.
Water distribution manifold	Clean and flush.	Be sure to turn off water supply & drain water from system.	Clean & flush. Make sure all distribution points are free of any obstructions.
Blower motor	Check amp draw, belt tension & wear.	Check amp draw and oil bearings.	Check amp draw & oil bearings.
Drives, bearings & pulleys	Check alignment & bearing wear.	Check alignment & bearing wear.	Check alignment & bearing wear.
Fill & drain kits	Check corrosion & leaks.	Ensure drain valve opens, draining pan.	Ensure fill valve opens, filling pan.

ARES UNIT
TYPICAL STANDARD EVAPORATIVE UNIT
115/1



ARES UNIT
TYPICAL STANDARD EVAPORATIVE COOLER
208/230/1



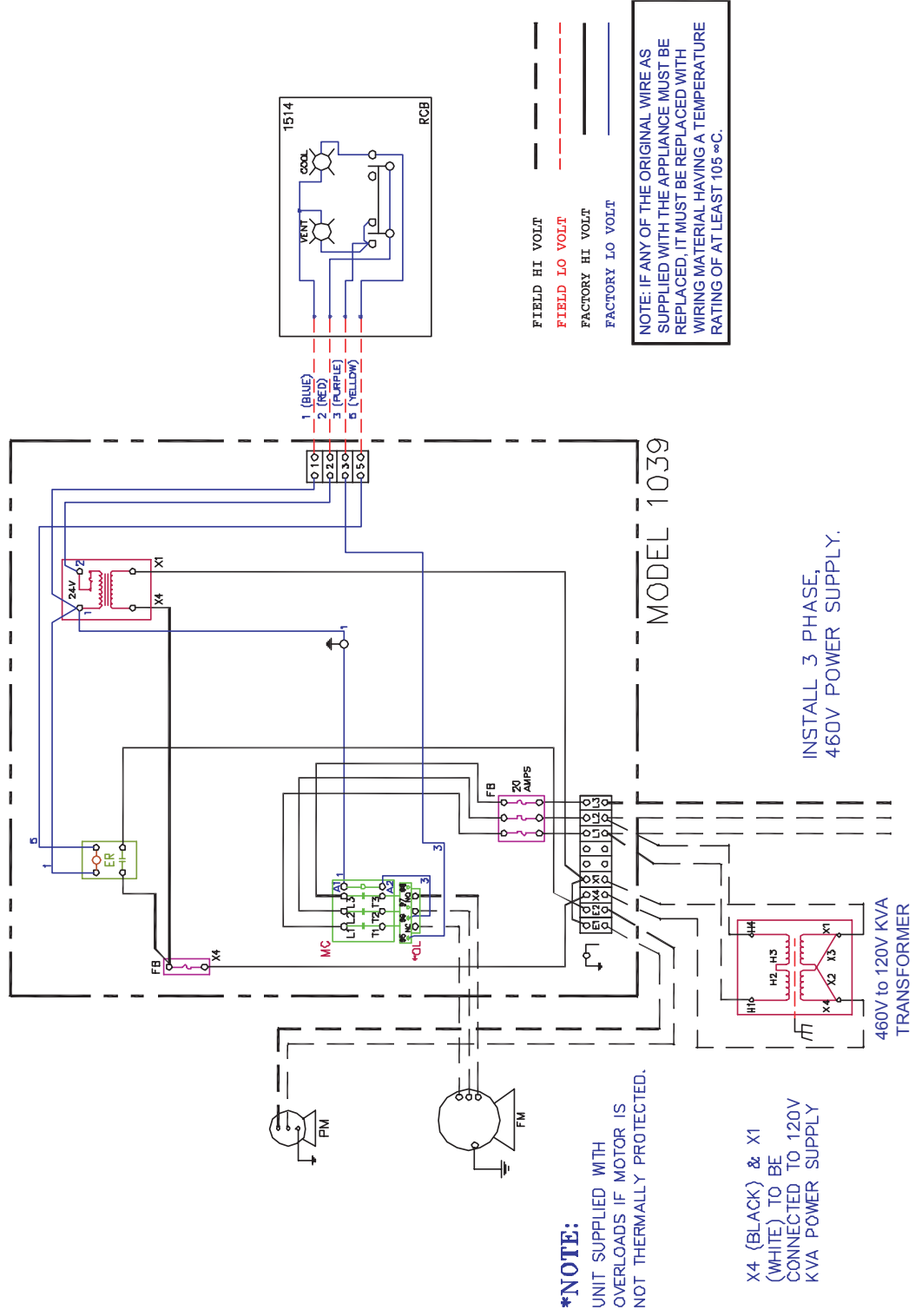
NOTE:
UNIT SUPPLIED WITH AN OVERLOAD IF MOTOR IS NOT THERMALLY PROTECTED.

NOTE:
SWITCHING THE POLARITY OF X4 (BLACK) & X1 (WHITE) 120V POWER SUPPLY MAY CAUSE HSI MODULE LOCKOUT.

X4 (BLACK) & X1 (WHITE) TO BE CONNECTED TO 120V POWER SUPPLY.

INSTALL PROPER 1 PHASE VOLTAGE. 208V OR 230V POWER SUPPLY.

ARES UNIT
TYPICAL STANDARD EVAPORATIVE UNIT
208/230/460/3



Parts List

PART NO. DESCRIPTION

O5195	2" Glacier-Cor Media Replacement Assembly
O7400	Pad Frame Assembly (includes Coolpad)
987060	Motor Base
990075	Pump CP6500
980390	Pump Basket
981665	Float Valve
987360	Coolpad Filter 36" X 34"
989635	Blower 15 X 15 Assembly
990715	Blower 18 X 18 Assembly
986400	1/2 HP 115/230V, 1 Phase, 1 Speed
986405	1/2 HP 208/230-460V, 3 Phase, 1 Speed
986420	1/2 HP 115/230V, 1 Phase, 1 Speed
986425	1/2 HP 208/230-460V, 3 Phase, 1 Speed
986450	1 HP 115/230V, 1 Phase, 1 Speed
986455	1 HP 208/230-460V, 3 Phase, 1 Speed
986490	1-1/2 HP 115/230V, 1 Phase, 1 Speed
986500	1-1/2 HP 208/230-460V, 3 Phase, 1 Speed
984520	2 HP 208/230-460V, 3 Phase, 1 Speed
986515	2 HP 115/230V, 1 Phase, 1 Speed
986540	3 HP 208/230-460V, 3 Phase, 1 Speed
986565	5 HP 208/230-460V, 3 Phase, 1 Speed
986570	7-1/2 HP 208/230-460V, 3 Phase, 1 Speed

Service and Ordering Information

1. ORDERING

For prompt and accurate handling of your order, always include: (See Owner's Registration Reference Sheet Page 16)

- a. Serial number on unit part
- b. Model number of unit
- c. Part number
- d. Part name
- e. Voltage
- f. Owner and property location
- g. Date installed (See Owner Registration in the back of this manual)

Shipment may be delayed without proper information.

If unit is in warranty, replacement part will be billed and shipped. Credit will be issued when the part in question is returned, inspected and found defective under normal usage (call the Service Department at ARES® for instructions).

2. TERMS AND CONDITIONS

Price changes: All prices will be shipped C.O.D. for customers without an open account.

Returns: Written authority must be obtained before returning any merchandise. All returned merchandise must be shipped prepaid and is subject to a handling charge.

Damaged merchandise: Notify the carrier in the event of damaged shipments, whether apparent at the time of delivery or concealed damage is discovered after unpacking. File your complaint with the carrier, not the factory. ARES' responsibility ceases when shipment is accepted by a reliable carrier for delivery.

Taxes: Any taxes or other government charge upon production, sale and/or shipment of merchandise sold hereunder, not imposed by Federal, State, or Municipal authorities, or hereafter becoming effective, shall be added to the price herein provided, and shall be paid by the buyer.

ALL SHIPMENTS F.O.B., Denison, TX

TO ORDER PARTS OR OBTAIN SERVICE INFORMATION, OR A PRINTED COPY OF THIS MANUAL, CONTACT:

ARES®

(800)-288-0892

3328 Interurban Road

Denison, TX 75020

Fax (903) 463-1235

Limited Warranty

Packaged Make-up Air and Blower Units

Model No. _____ Serial No. _____

Voltage _____ Date Installation completed _____

ARES extends this warranty to the original owner of this make-up air unit, providing it is installed according to factory instructions, the warranty card is completely filled out and returned to the factory, and the unit is used under normal conditions.

Length and Coverage of Warranty

The manufacturer will provide free replacement for any part which fails as a result of a defect in material or workmanship during the first year after the date of installation (or 18 months from date of shipment; whichever comes first). The cost of labor and transportation is not included in this offer.

Standard evaporative cooling stainless steel pans and optional unit casings have a 15 year no rust through warranty.

Exemptions of Warranty Coverage

- A. The manufacturer is not responsible for any damage caused by a defect in material or workmanship. This includes, but is not limited to misuse, abuse, improper installation and transportation or handling damage.
- B. Where applicable, the manufacturer is not responsible for any consequential damage resulting from any malfunction.
- C. The manufacturer is not responsible for the cost of labor and transportation that may be required to replace the parts covered in Section 1 on this warranty.
- D. This packaged make-up air unit must be installed outdoors only. Indoor installation, alterations, disassembly of unit, or any rewiring other than factory recommended wiring voids this warranty.
- E. "Rust Warranty" does NOT cover "White Rust" resulting from dried calcium deposit build up on cabinet parts, or damage resulting from lack of regular, routine maintenance.

Obtaining Warranty Service

Please contact installing contractor, servicing contractor and/or the selling agency from whom you purchased the unit. If you cannot locate them, contact ARES®, 3328 Interurban Road, Denison, TX 75020. Phone: (800)-288-0892; fax: (903)-463-1235 or by email at info@aresmakeupair.com.

Any warranty that may be implied from this purchase is hereby limited to the one-year duration of this warranty. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

What to do in case of unsatisfactory warranty service.

Please write the ARES® Service Department. Include your name, address and zip code, name of agency from whom unit was purchased, the model and serial number of the unit, date of purchase and a description of the problem.

Any warranty that may be implied from this purchase is hereby limited to the one year duration of this warranty. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may be apply for you.

This warranty gives you specific legal rights, and you may also have rights which may vary from state to state.

Parts may be ordered from the ARES Service Dept. by contacting by phone at (800)-288-0892. You may also contact us by fax at (903)-463-1235 or by email at info@aresmakeupair.com.

**OWNER REGISTRATION
REFERENCE SHEET**

For

ARES®**Packaged Make-up Air Units
(fill out at time of installation)****DO NOT REMOVE FROM THIS MANUAL**

Model No. _____ Serial No. _____

Customer's Name _____

Address _____

Installer's Name _____

Address _____

Installed at _____

Installation Date _____

Remarks _____

ARES®**(800)-288-0892**

3328 Interurban Road • Denison, TX 75020

Fax (903) 463-1235 • www.aresmakeupair.com • info@aresmakeupair.com

Warranty Registration

This sheet should be filled in and mailed to the factory within 15 days following installation.

Owner: _____
 Address: _____
 Phone: _____
 Installer: _____
 Address: _____
 Phone: _____
 In Service Date: _____

SUPPLY

Model: _____
 Serial No.: _____
 Belt Size: _____
 Drive Pulley Size: _____
 Wheel Pulley Size: _____
 Motor HP: _____
 Voltage: _____
 Phase: _____
 Fuse Size: _____
 Overload Setting: _____
 Motor Amps RTD: _____
 Actual: _____

Are belts aligned properly	Yes _____	No _____
Are set screws and locking collars tight	Yes _____	No _____
Unusual wheel alignment or vibration	Yes _____	No _____
Is heat exchanger working properly	Yes _____	No _____
Are Evap. pads working properly	Yes _____	No _____
Are unit bases properly installed	Yes _____	No _____
System operational without further adjustment	Yes _____	No _____

System requires following corrections: _____

System demonstrated to

System inspected by

ARES
3328 Interurban Road
Denison, TX 75020
ATTN: WARRANTY DEPT

Place
Postage
Here