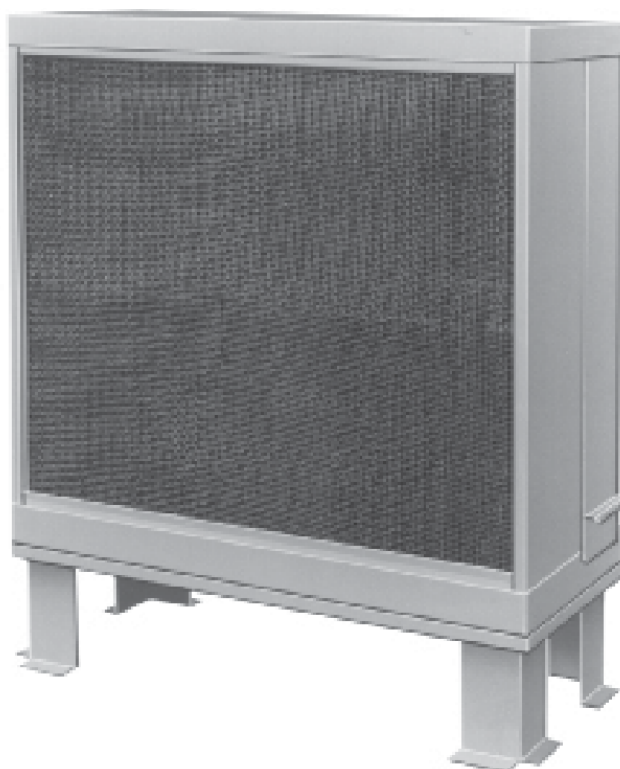


EVAPORATIVE COOLING MODULE INSTALLATION, OPERATION, AND MAINTENANCE

DISCONTINUED MODEL REC



⚠ DANGER ⚠

- Improper installation, adjustment, alteration, service, or maintenance can cause property damage, injury or death.
- Read the installation, operation, and maintenance instructions thoroughly before installing or servicing this equipment.
- Disconnect the power before servicing the cooling module. Failure to do so can cause electrical shock, personal injury, or death.

DO NOT DESTROY. PLEASE READ CAREFULLY. KEEP IN A SAFE PLACE FOR FUTURE REFERENCE.

Table of Contents

1.0 General.....	2	6.0 Maintenance and Service	9
1.1 General Information	2	6.1 Media Pads.....	9
1.2 Warranty	2	6.2 Water Feed Line & PVC Distribution Piping	10
1.3 Installation Preparation Check List	2	6.3 Water Pump and Inlet Basket Screen	10
2.0 Dimensions.....	3	6.4 Troubleshooting Chart	11
3.0 Mechanical.....	3	APPENDIX.....	11
3.1 Assembly Instructions.....	3	Dimensions - Model REC 360.....	11
3.2 Water Flow Controls and Connections	5	Cross-Reference Application Chart.....	11
5.0 Adjust Water Flow Over Media.....	8	Pressure Drop Table - REC Sizes 40-180	12
4.0 Electrical Connections	8	Index.....	12
		INSTALLATION RECORD	12

1.0 General

1.1 General Information

Model REC Evaporative Cooling Module is designed as a free standing module with duct flanges for connection **upstream** from an air moving device. The Model REC cooling module may be connected to an indirect-fired makeup air system, a Model ADF, ADFH, or RDF direct-fired makeup air system, a blower cabinet, or to some other type of indirect-fired system or blower cabinet within the allowable CFM range. Model REC is not recommended for connection to direct-fired makeup air systems other than Models ADF, ADFH, or RDF.

IMPORTANT: Do NOT connect a Model REC to a blow-through system.

NOTE: This product and these instructions are designed for use in an outdoor installation. The module may be adapted to an indoor makeup air application.

1.2 Warranty

For warranty information, refer to the warranty form included in the "Owner's Envelope".

1.3 Installation Preparation Check List

- ☐ Make certain the installation complies with all local, utility, and national building and safety regulations and codes.
- ☐ Check module for shipping damage. If damage is found, document the damage with the transporting agency and immediately contact your Distributor.
- ☐ Check base package against parts list below:

Description	40	50	60	70	80	90	180	360
Side Support				(2)107227				(4)107227
Front & Rear Support	(2)106086	(2)106087	(2)106088	(2)106089	(2)106090	(2)107235		(4)107235
Leg (2 pcs per leg)				(8)107236				(16)107236
Duct Connection Angle	(1)106095	(1)106096	(1)106097	(1)106098	(1)106099	(1)106100	(1)111501	(2)111501
Hardware: (10 each Sizes 40-180; 20 each Size 360) 1/4-20x3/4" Lg Cap Screw, P/N 16246, and 1/4-20 Hex Nut, P/N 10650								

In addition, the following parts for making electrical and water connections may be shipped in the bottom pan of the evaporative cooling module.

Qty	P/N	Description
1	105945	1/4" Hose I.D. x 1/2" N.P.T. Bleed Line Fitting (not used with AquaSaver timed metering system)
2	16835	Bushings, Heyco #SR-7W-2

- ☐ If optional equipment will be field installed (Moisture Elimination Pads for Size 180 or 360 and/or a Drain and Fill or Freeze Protection Kit for any size), parts will be shipped separately. Check to be sure that options are available for installation.
- ☐ If the REC evaporative cooling module is being added to an existing makeup air system, make certain that the system has sufficient motor capacity for the increased static pressure. (See Appendix, page 12.)
- ☐ Make certain the roof (or supporting structure) is capable of handling the additional load of a cooling module with a full reservoir. (See weights in table.)

Weight of Evaporative Cooling Module with Wet Media and Full Reservoir

REC Size and Type of Media	40		50		60		70		80		90		180		360*	
	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg
12" (305mm) cellulose	184	83	212	96	237	108	270	122	295	134	318	144	431	195	862	390
12" (305mm) glass fiber	201	91	230	104	261	118	296	134	305	138	350	159	514	233	1028	466

* A Size 360 is two separate Size 180 evaporative cooling modules.

- Make certain the roof is level and free of debris where cooling module will be mounted. Do not mount directly on soft tar roofs where the legs could sink and tilt the cooler. Provide a level, weather-resistant, solid wood or metal base under the cooling module support legs.
- Make certain that there will be adequate clearance between the bottom of the reservoir and the roof or platform to allow for drain and overflow pipe connections.

2.0 Dimensions

FIGURE 1 - Dimensions of Model REC - inches (mm)

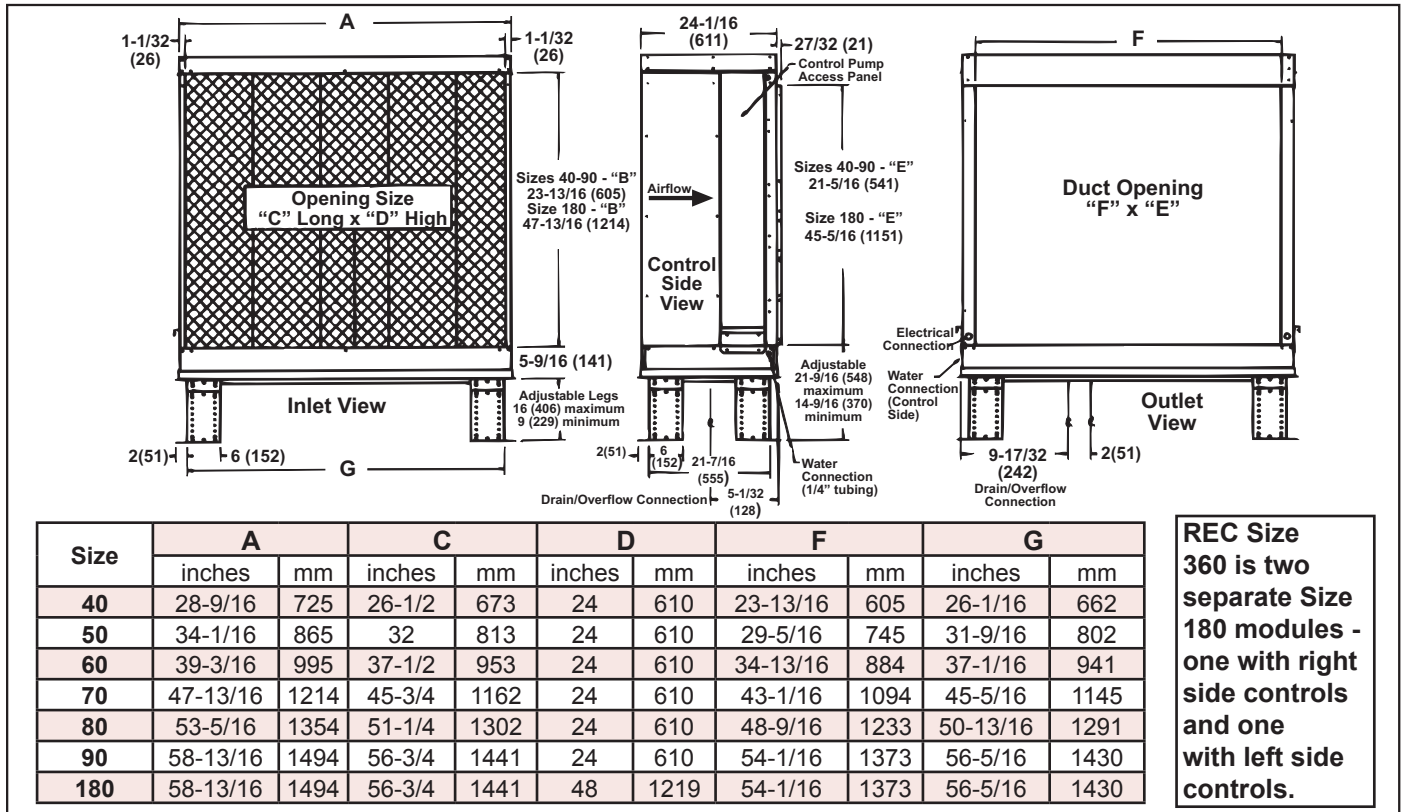
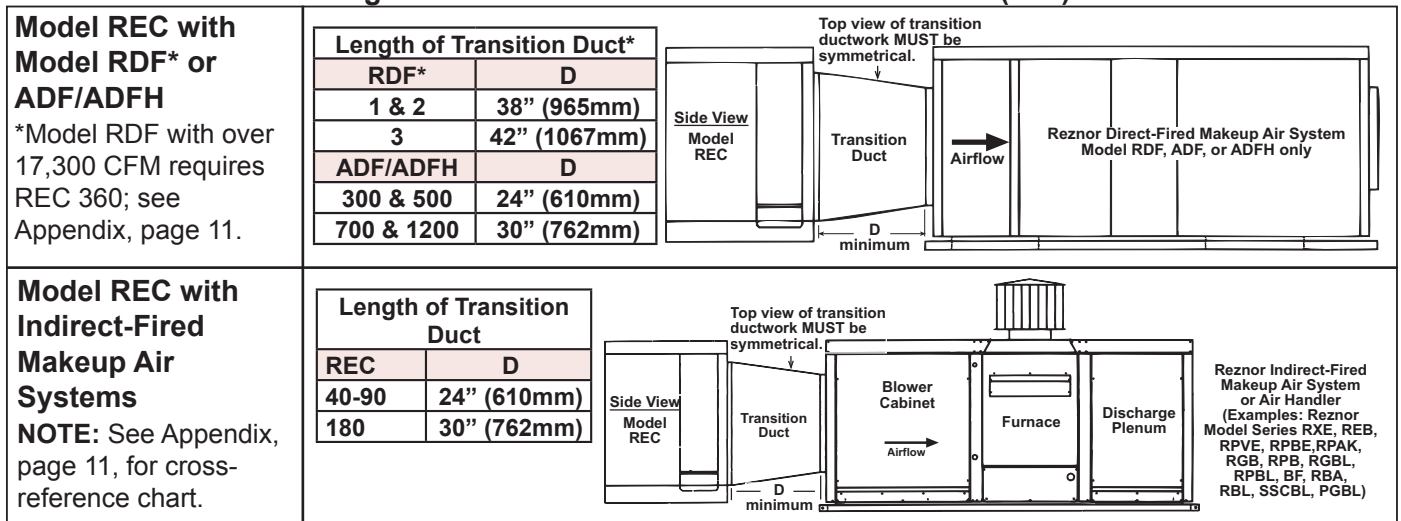


FIGURE 2 - Minimum Length of Field-Installed Transition Duct - inches (mm)



3.0 Mechanical

NOTE: If installing a Size 360 which is two Size 180 modules, refer to **FIGURE 17**, Appendix, page 11, and repeat assembly instructions for both modules.

3.1 Assembly Instructions

Be sure all preparations have been made. Review Preparation Check List in Paragraph 1.3. Verify that all factory and field-supplied parts are available.

3.1.1 Base, Cooling Module, and Transition Duct

Assemble Legs - Using four bolts and nuts per leg, fasten two "halves" together. Leg will have a top and bottom flange. Repeat for all four legs. (See **FIGURE 3A**.) Adjust legs to appropriate height and tighten bolts securely.

3.0 Mechanical (cont'd)

3.1 Assembly Instructions (cont'd)

3.1.1 Base, Cooling Module, and Transition Duct (cont'd)

Determine Base Location and Attach Rails - Position the four assembled legs in a rectangular pattern corresponding to the size of the cooling module (**FIGURE 1**). Consider minimum length of transition duct (**FIGURE 2**) when positioning the cooling module base. Depending on the type of roof, it may be necessary to set the legs on a weather-resistant, solid wood, or metal base. Module must be level.

Place rail sides on the **inside** of the top flange of the leg assemblies. Using the bolts and nuts provided, bolt the side rail to the top three holes located on the legs just below the top flange. Repeat on the remaining three legs. Tighten nuts securely.

Place the rail ends on the **inside** of the top flange of the leg assemblies. Bolt the end rail to the top three holes located on the legs just below the top flange. Repeat on the remaining three legs. Tighten nuts securely.

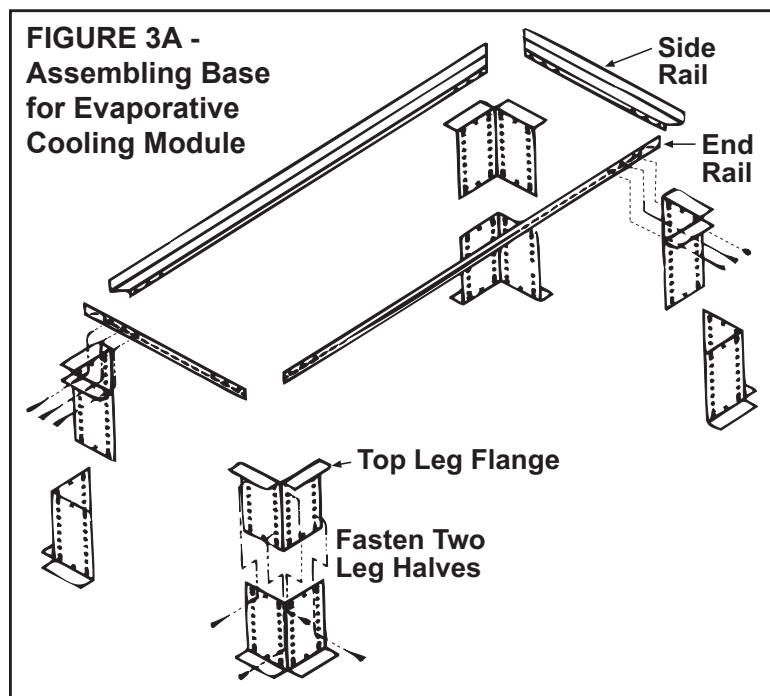


FIGURE 3B - Assembled Base for Model REC Evaporative Cooling Module



Adjustable Leg Height
16" (406mm) Maximum
9" (229mm) Minimum

Add the Cooling Module - Carefully lift the pre-assembled evaporative cooling module from both ends and place into the center of the base assembly being sure the airflow direction is correct.

Cooling module must be level and all bolts in the base must be secure.

Transition Duct - Connect the evaporative cooling module to the blower by means of a field-supplied transition duct. See **FIGURE 2** for minimum length of field-supplied ductwork. From a top view, the transition duct must be symmetrical to the evaporative cooling module. The evaporative cooling module is equipped with duct flanges for connection of ductwork.

3.1.2 Installation Instructions for Optional Moisture Elimination Pad, Option ASA1 - **REC** Size 180 and Size 360

Field Installed Components - Moisture Elimination Pad for REC 180 and 360		
Qty*	P/N	Description
2	106049	Pad with Frame and Screen
11	11813	Sheetmetal Screws
4	107248	Catch Pad Clamp

*Double quantities for Size 360 which is two Size 180 modules.

If optional moisture elimination pads are included, they will be factory installed on Sizes 40-90. On Sizes 180 and 360, the optional moisture elimination pads are shipped separately for field installation. Follow these installation instructions. On Size 360, procedure applies to both modules. If not field installing this option, continue to Paragraph 3.2.

Media pads must be removed to install the moisture elimination pads. Check the parts with the list on the left. Follow the instructions in **FIGURES 4A, 4B, and 4C** to remove the media, install the moisture elimination pads, and reassemble the unit.

Remove Media Pads (**FIGURE 4A**)

- 1) Remove the three sheetmetal screws that hold the top pad retainer. Release the top pad retainer from the cooling module.
- 2) Remove the three sheetmetal screws that hold the bottom pad retainer. Release the bottom pad retainer from the cooling module.
- 3) Disengage the screen retainers from the sides of the media. Remove the inlet screen from the cooling module.
- 4) Slide all media pads horizontally away from cooling module until clear of bottom reservoir pan.

FIGURE 4A - Removing (and Re-Installing) Media Pads

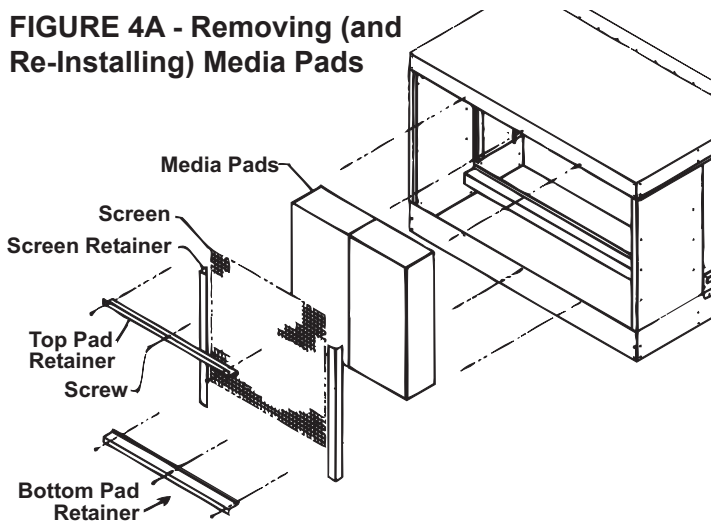
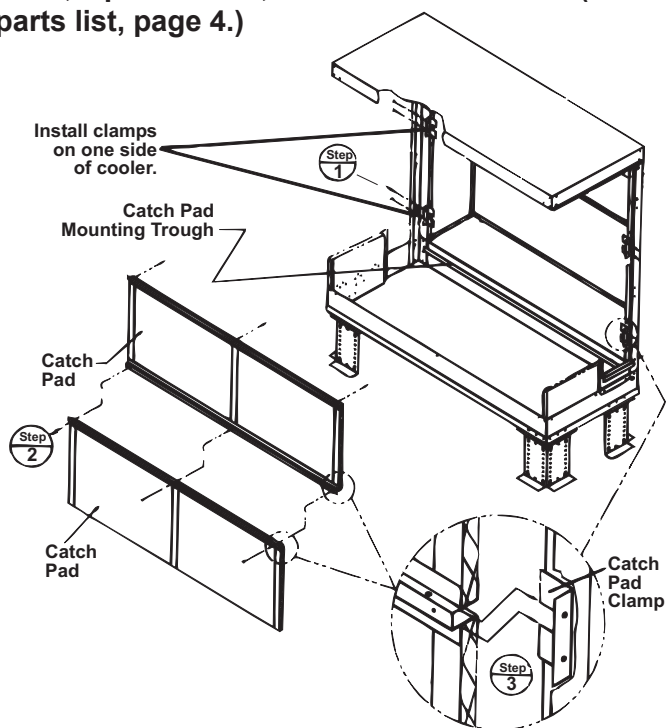


FIGURE 4B - Install Moisture Elimination Catch Pads, Option ASA1, on Sizes 180 and 360 (See parts list, page 4.)

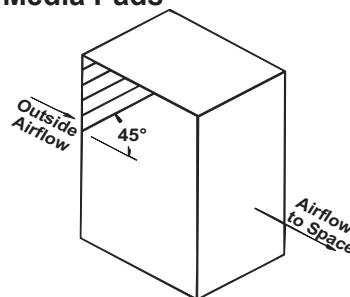


Install Moisture Elimination Pads (FIGURE 4B)

- 1) Prepare module by attaching two catch pad clamps to one side of the cooler's front legs. Screw through the legs into the clamp with four of the #10 x 1/2" long sheetmetal screws.
- 2) Prepare catch pads by assembling them together. Use three of the #10 x 1/2" long sheetmetal screws.
- 3) Guide the catch pad assembly through the inlet of the cooling module and place the bottom of the lower pad into the catch pad mounting trough. The screen part of the catch pad assembly should always be facing the attached air mover. Slip the catch pad assembly into the two slots located in the catch pad clamps installed in Step (1).
- 4) With the pads in place, complete the assembly by sliding one of the two remaining clamps over the middle seam where the assembled catch pads meet. Slip the other clamp over the top catch pad frame and fasten both clamps to the cooling module leg using sheetmetal screws.

After completing installation of the moisture elimination pads as shown in **FIGURE 4B**, re-install the media pads removed in **FIGURE 4A**. Refer to **FIGURE 4C** before re-installing media pads.

FIGURE 4C - Airflow Direction through the Media Pads



Reverse Steps in **FIGURE 4A** to replace the media. Media must be installed with the airflow direction as shown here.

IMPORTANT: Cooling media is made up of two different sheets of cooling material. Each has its own unique angle. When replacing the cooling media, BE CERTAIN the 45° angle slopes downward toward the incoming outside air. If the media is not installed properly, water blowoff from the media pads will occur.

3.2 Water Flow Controls and Connections

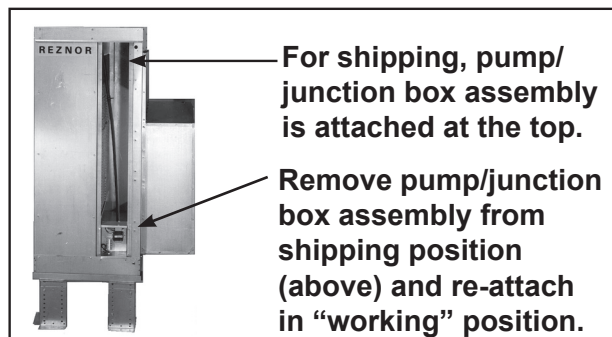
3.2.1 Water Flow Controls

Water flow is controlled by either a float and recirculating pump system or a timed metering system. Follow the instructions for the type of controls on the evaporative cooling module being installed. Float and recirculating pump type controls are identified on the wiring diagram as **Option ECD2**. AquaSaver timed metering controls are identified as **Option ECD1**.

3.2.2 Re-position Pump Assembly (Opt ECD2, float & pump only.)

FIGURE 5 - Re-position the pump/junction assembly.

To avoid shipping damage, the pump/junction box assembly is attached to the top of the side panel for shipment. Support the pump and remove the four screws that hold the assembly in position. Re-position the assembly as shown in **FIGURE 5**, and attach using the same screws.



3.0 Mechanical (cont'd)

3.2 Water Flow Controls and Connections (cont'd)

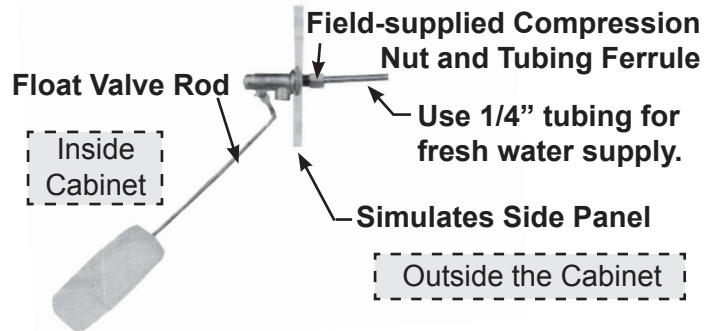
WARNING: Water reservoir (outdoor systems) must be drained and pump motor turned off when outside temperature falls below 32°F (0°C). DO NOT operate pump without water in the reservoir.

3.2.3 Inlet Water and Drain Connections

Inlet Water - All Cooling Modules - Install a manual water shutoff upstream of the inlet, at a convenient non-freezing location, to allow the water supply to be turned on and off. If necessary, install a bleed line between the manual valve and the cooling module inlet to allow drainage of the line between the shutoff valve and the cooling module.

Pump and Float Controls - A float valve (**FIGURE 6**) maintains the appropriate water level in the reservoir. Use a field-supplied 1/4" diameter tubing with a compression nut and tubing ferrule to connect the fresh water supply to the inlet of the float valve. Place nut and ferrule over tubing and insert tubing into the float valve stem. Tighten nut securely.

FIGURE 6 - Connect Fresh Water Supply to Inlet of the Float Valve (module with float and recirculating pump controls)



An optional automatic fill and drain kit (Option CT1, CT2, or CT3) will automatically release supply water to the cooling module when a call for cooling is made and will drain all water from the reservoir when the cooling switch is deactivated or a cooling thermostat is satisfied. Fill and drain kits are field-installed. If installing an optional fill and drain kit, see **FIGURE 9**, and follow the instructions that apply. Consult the wiring diagram for electrical connections.

AquaSaver Timed Metering Control System - If the cooling module is equipped with a microprocessor timed metering system, connect a 1/2" water line to the fitting on the side of the cooling module (**FIGURE 7**).

Due to various water pressures and installation conditions, the water supply line may bang abruptly when the solenoid valve in the system closes. This banging can be minimized by installing a water hammer arrestor in the supply line. If installing an optional water hammer arrestor, select an indoor (above 32°F/0°C) location, either horizontal or vertical, in line with and as close to the solenoid valve as possible. Follow the manufacturer's instructions to install and maintain the water hammer arrestor.

A freeze protection kit is available for a module with a timed control system. It includes a two-way valve and is shipped separately for field installation. See **FIGURE 9**.

Drain and Overflow Connections - All cooling modules are equipped with an overflow and drain fitting. The fittings are in the cabinet bottom and come complete with a locknut and a sealing gasket. Check these fittings for tightness before installing the overflow and drain piping. The drain and overflow fitting will accommodate a 3/4" garden hose thread and is tapped with a 1/2" female pipe thread for iron pipe.

Bleed Line Connection (pump and float controls only) - Using the 1/4" I.D. x 1/2" N.P.T. nylon bleed line fitting (shipped in evaporative cooler bottom pan; see checklist in Paragraph 1.3), thread the fitting into the female adapter on the distribution pipe. The hose barb will protrude from the side of the cabinet (See **FIGURE 8**). Attach a field-supplied 1/4" I.D. hose to the barb and run to the nearest drain. Discharging a quantity of water by "bleed off" will limit the concentration of undesirable minerals in the water being circulated through the cooling module. Minerals build up because evaporation only releases "pure water vapor" causing the concentration of contaminants in the water to increase as the evaporation process continues to occur. The minerals accumulate on the media, in the water lines, on the pump, and in the reservoir.

Adequate bleed off is important to maintaining an efficiently operating evaporative cooling system.

FIGURE 7 - Electrical Box (cover removed) and Water Connection on Module with AquaSaver Controls

Microprocessor Control Location - AquaSaver System

1/2" Supply Line Connection

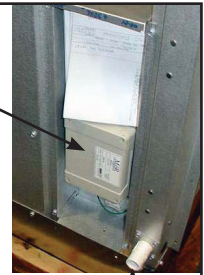
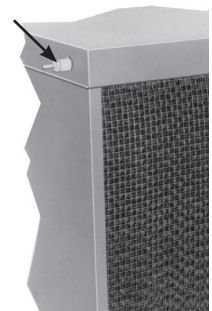
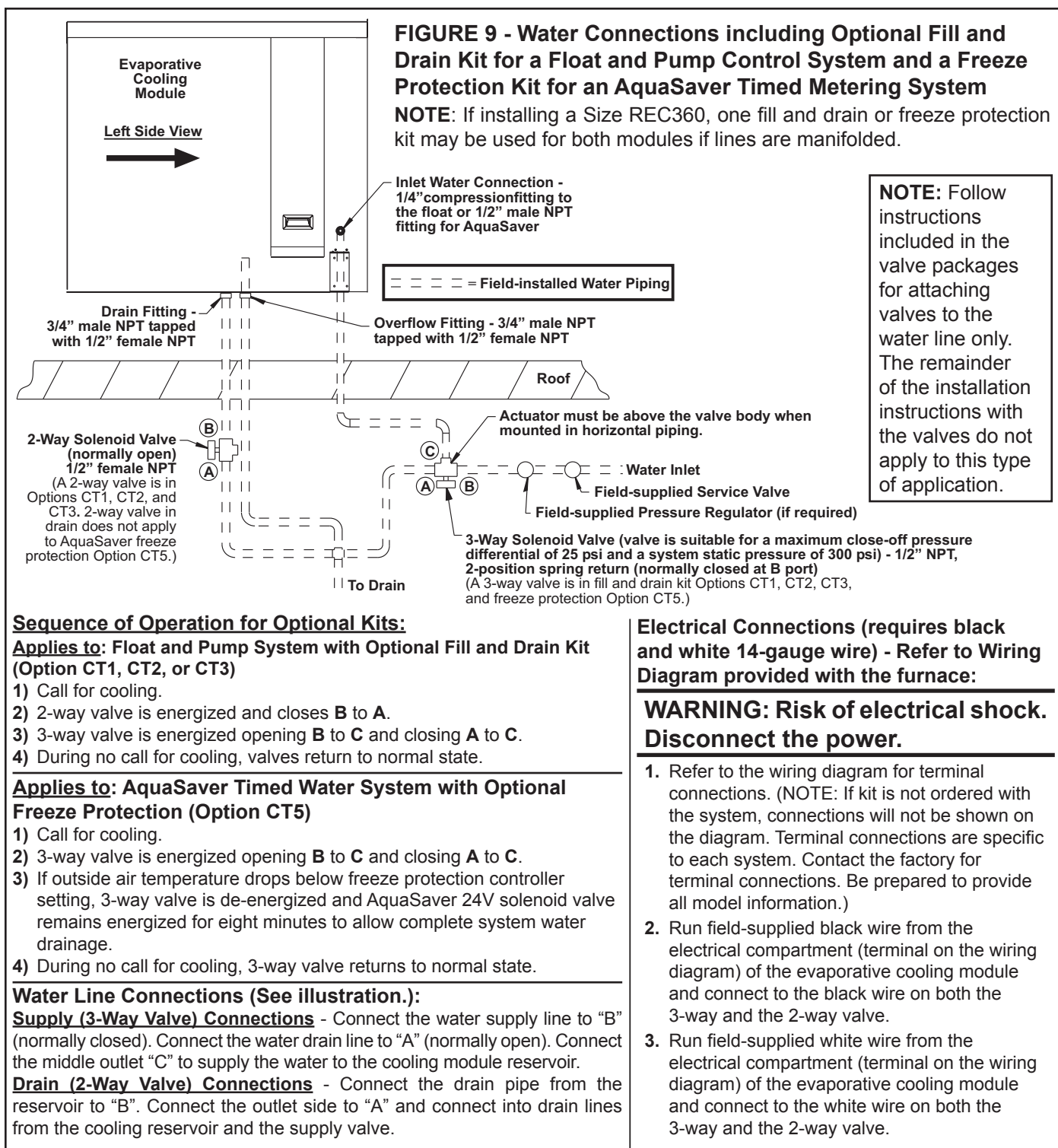


FIGURE 8 - Bleed Line Fitting (float and pump controls)

Install bleed line fitting (fitting is shipped in the bottom pan of the evaporative cooling module).





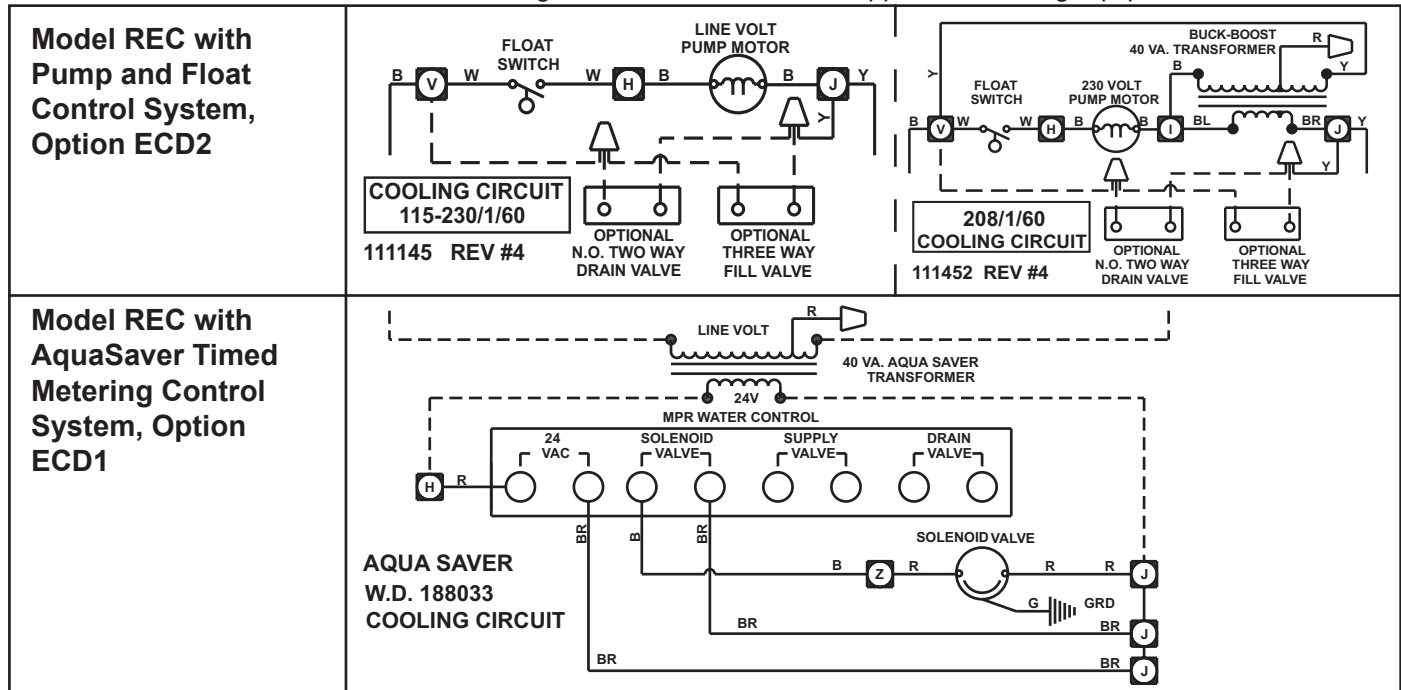
Filling and Adjusting the Water Level in the Reservoir (module equipped with pump and float controls only)

– Turn on the water supply. Check for a good flow. When the float valve (**FIGURE 6**) shuts off the water supply, measure the water depth. The depth of the water should be approximately 3". It may be necessary to adjust the float valve to obtain the proper water level or to free the float valve from obstructions. To adjust the float valve, simply bend the float valve rod upward to raise the water level or downward to lower the water level.

Check for Water Leaks - All Modules - The reservoir was water tested but should be checked again for small leaks. If any leaks are present, dry the reservoir and apply a field-supplied waterproof silicone sealer around corners and welds. Proper water flow over the evaporative cooling media is critical to extend the life and maintain the efficiency of the pads.

4.0 Electrical Connections

FIGURE 10 - Wiring Diagrams for Evaporative Cooling Module

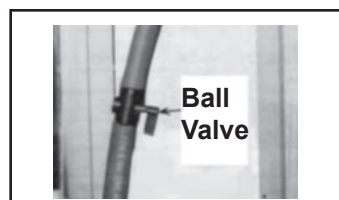


5.0 Adjust Water Flow Over Media

WARNING: Adjust ball valve only when power is disconnected from the unit. Failure to do so can cause electrical shock, personal injury or death.

CAUTION: Do not flood the media pads with extreme quantities of water for long periods as this will cause premature breakdown of the media. An even flow from top to bottom of the media with the least amount of water is all that is required to assure maximum efficiency and media life span. More water does NOT provide more evaporation or more cooling.

FIGURE 11 - Disconnect power; adjust the water flow with the ball valve.



Float and Pump Control System - Using the ball valve (FIGURE 11), located in the middle of the length of hose running from the pump to the sprinkler pipe inlet, adjust the valve handle to allow the flow to completely dampen the media pads from top to bottom.

Operate the unit watching the water flow. After 15 minutes with the blower in operation, the water should have completely dampened the pads but should not be flowing off the entering side of the media. If water is flowing off the entering side of the media, turn the system off, disconnect the power, and reduce the entering water flow.

AquaSaver Timed Metering Control System - NOTE: Water flow and pad wetting time should be adjusted at maximum airflow and wet bulb depression to assure complete wetting of the media at the extreme operating conditions.

In addition to adjusting water flow, the timing of the water on/off cycle can be adjusted. Adjustments are correct when 1) the water rises from the holes in the sprinkler pipe (See FIGURE 12A) consistently along the entire pipe length, 2) the media pads wet evenly after a few "ON" cycles (no dry spots or dry streaks), and 3) a slight amount of excess water collects at the drain at the completion of the "ON" cycle.

1) AquaSaver Water Flow Adjustment - Using the ball valve illustrated in FIGURE 12B, adjust the water flow depending on the pad height. See FIGURE 12A.

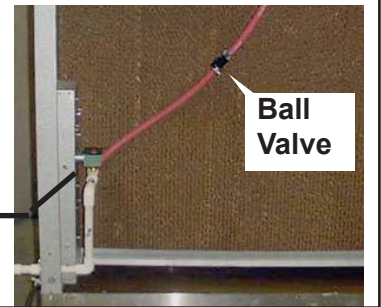
**FIGURE 12A -
Adjust Water Flow
with the Ball Valve
in FIGURE 12B.**



Pad Height	A = Water rise from PVC Sprinkler Pipe
24" (610mm)	1/8" to 1/2" (3 to 13mm)
48" (1219mm)	1/4" to 1/2" (6 to 13mm)

**FIGURE 12B -
AquaSaver Water
Line showing
Solenoid Valve
and Ball Valve**

Solenoid
Valve



2) AquaSaver Timer Adjustment - At any given temperature, the media pads should completely wet from top to bottom during the ON cycle. The microprocessor has three preset timing settings based on media size. The appropriate setting is selected by changing the position of the suitcase jumper at J2 on the microprocessor. Remove the cover and check the setting (See **FIGURE 13**).

If the jumper is at the appropriate location for the media ("S" for 24" or "M" for 48"), replace the cover. If the jumper needs to be moved, move it to the appropriate setting.

The setting will go into effect when the power is restored. Check the "ON" timing; the media pads should be wet from top to bottom during the ON cycle.

If the preset timing is not suitable for the application, follow the instructions supplied with the microprocessor to change the calibration of the "ON" and/or "OFF" cycle.

NOTE: Prior to 2003 the AquaSaver timed cycle was controlled by a mechanical timer. Turn the adjustment screw clockwise to increase the ON time or counterclockwise to decrease the ON time. One complete turn will adjust the cycle by 12-14 seconds.

**FIGURE 13 -
AquaSaver
Microprocessor
Control in the
Junction Box**



	S	M	L
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
	12-36"	37-48"	49-72"
	(305-914mm)	(940-1219mm)	(1245-1829mm)
	Media Height	Media Height	Media Height

6.0 Maintenance and Service

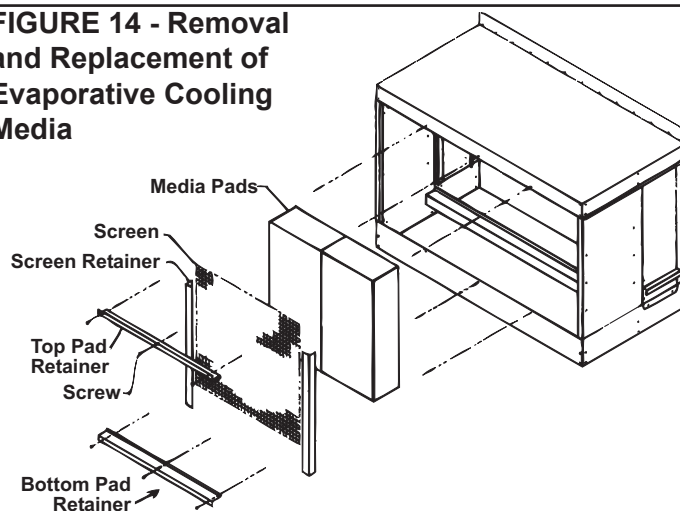
WARNING:
Disconnect all
power to the unit
before doing any
maintenance. Failure
to do so may cause
electrical shock,
personal injury or
death.

6.1 Media Pads

Over time, excessive amounts of mineral deposits will begin to build up on the media. Annually, scale and dirt should be washed off the entering surface of the media. Remove the pad retainers and screen. Clean the media using a garden hose, mild soap, and a soft bristled brush. When the media becomes too clogged with mineral deposits and dirt that it cannot be cleaned, the pads should be replaced. The average pad life is approximately three cooling seasons.

Select the correct replacement part numbers and order replacement media pads from your Distributor. Follow the instructions on page 10 to remove and replace pads as shown in **FIGURE 14**

**FIGURE 14 - Removal
and Replacement of
Evaporative Cooling
Media**

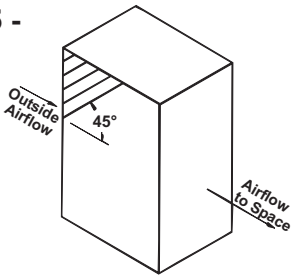


REC	Media Pad Size	Qty	Replacement P/N	
			12" Cellulose	12" Glass Fiber
40	24x12	2	106021	106029
	24x2-3/8	1	106022	106030
50	24x12	2	106021	106029
	24x7-7/8	1	106023	106031
60	24x12	3	106021	106029
	24x1-3/8	1	106024	106032
70	24x12	3	106021	106029
	24x9-5/8	1	106025	106033
80	24x12	4	106021	106029
	24x2-7/8	1	106026	106034
90	24x12	4	106021	106029
	24x8-5/8	1	106027	106035
180	48x12	4	107194	107201
	48x8-5/8	1	107195	107202
360	48x12	8	107194	107201
	48x8-5/8	2	107195	107202

6.0 Maintenance and Service (cont'd)

Instructions for Replacing Evaporative Cooling Media Pads

FIGURE 15 - Airflow Direction through Media Pad



IMPORTANT: Cooling media is made up of two different sheets of cooling material. Each has its own unique angle. When replacing the cooling media, BE CERTAIN the 45° angle slopes downward toward the incoming outside air. If the media is not installed properly, water blowoff from the media pads will occur.

1. Remove the three sheetmetal screws that hold the top pad retainer in place. Release the top pad retainer from the cooling module.
2. Remove the three sheetmetal screws that hold the bottom pad retainer in place. Release the bottom pad retainer from the cooling module.
3. Disengage the screen retainers from the sides of the media. Disengage the inlet screen from the media pads and remove from the cooling module.
4. Slide all media pads horizontally away from the cooling module until clear of bottom reservoir pan. Dispose of properly.
5. Replace media by sliding media pads over both support rails until back stop is encountered. Media **MUST** be placed with air flow as shown in **FIGURE 15** (left).
6. Center screen on the incoming air side of the media.
7. Replace the two side screen retainers by fitting them between the side of the media pad and the side of the cooling module. The retainers should fit snugly, pinching the screen against the media pads.
8. Replace the bottom pad retainer by securing the retainer between the pad and the reservoir pan. Fasten with the three sheetmetal screws removed in Step 2.
9. Replace the top pad retainer by securing the retainer between the pad and the top of the cooling module. Fasten with the three sheetmetal screws removed in Step 1.

6.2 Water Feed Line and PVC Distribution Piping

Annually, the water supply line and the PVC water distribution pipe should be flushed of debris and contaminants. Remove the media pads following the instructions above. Remove the water feed line from the downstream side of the ball valve. On a float and pump system, unscrew the water bleed line barbed hose fitting.

Force a fresh water supply up through the water inlet hose and thoroughly flush the distribution pipe.

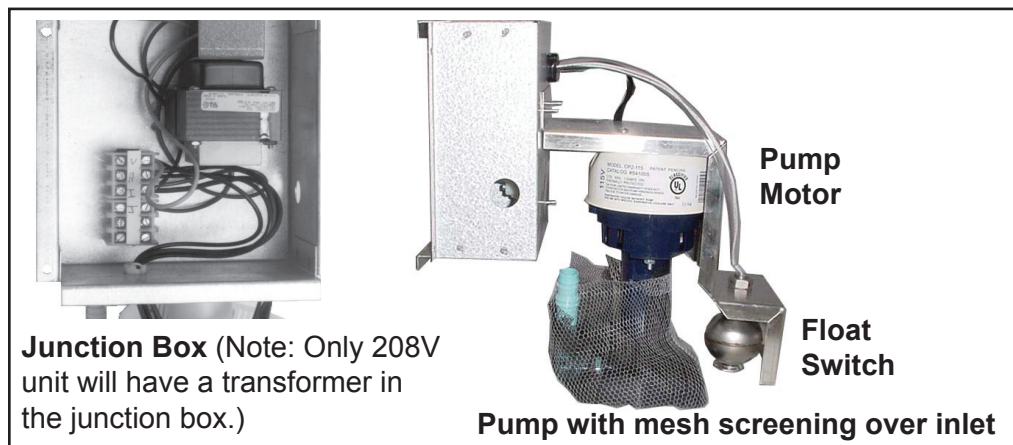
6.3 Water Pump and Inlet Basket Screen (float and pump control system)

WARNING: Do not expose pump motor or any part of the electrical box to water. Evaporative cooling pump is NOT submersible.

Annually, the pump and inlet screening or basket should be removed, disassembled and cleaned.

1. Disconnect the power supply to the unit.
2. Remove the junction box door and disconnect the two power supply wires from the terminal block inside the junction box.
3. Disconnect the water feed line hose from the upstream side of the ball valve.
4. Unscrew the four sheetmetal screws holding the junction box to the cooling module. Remove the assembled junction box, pump, and float switch as one piece.
5. Either remove the screening or dislodge the inlet basket from the pump and clean any buildup of debris and dirt. Carefully remove the base cover plate from the bottom of the pump. Using a mild soap solution, wash all deposits from the inside of the pump and remove all debris from the impeller.
6. Reassemble the pump. Replace the parts in exact reverse order, being careful that everything is returned to its proper position.

FIGURE 16 - Remove Junction Box, Pump and Float Switch as an Assembly



6.4 Troubleshooting Chart

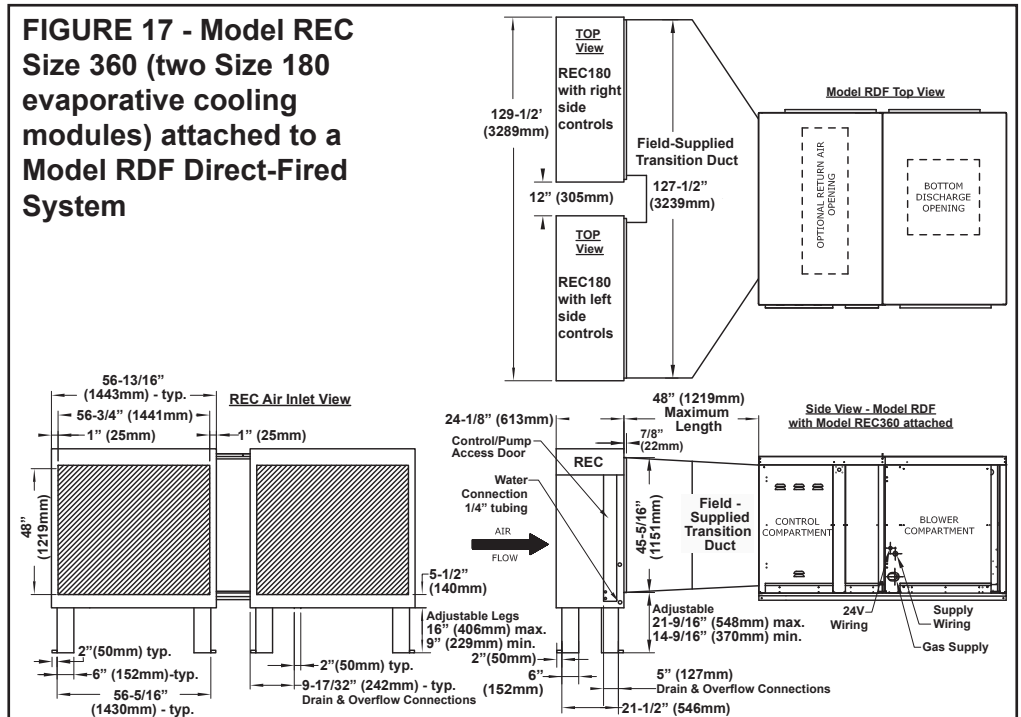
WARNING: Disconnect the power before servicing the cooling module. Failure to do so can cause electrical shock, personal injury, or death.

PROBLEM	PROBABLE CAUSE	REMEDY
Pump doesn't run – Unit is calling for cooling (i.e. console control switch is in cool or summer position) and reservoir is full .	1. Electrical connections (low voltage)	1. Verify all electrical connections. Verify correct voltage at pump terminals H & J in REC junction box. See wiring diagram and Paragraph 4.0.
	2. Electric float switch.	2. Check position of the actuators on the electric float switch.
	3. Dirty pump.	3. Clean pump. See Paragraph 6.0.
	4. Defective pump.	4. Replace pump.
Required water level (3") not being maintained (pump & float control system)	1. Float valve	1. Adjust float valve. See Paragraph 3.2.3.
	2. Optional drain and fill valves	2. Check valves for proper operation. See FIGURE 9 .
	3. Incorrect overflow pipe nipple (should be 3-1/2").	3. Replace pipe nipple.
	4. Drain leaking.	4. Tighten drain fittings
Water running off of media pads	1. Excessive water flow	1. Adjust ball valve in distribution line. See Paragraph 5.0.
	2. Media pads need cleaned or replaced	2. Clean or replace media pads. See Paragraph 6.1.
Water not distributing evenly	1. Distribution line clogged.	1. Flush distribution line. See Paragraph 6.2.
	2. Holes in distribution line turned	2. Check position of distribution line. Holes should be spraying upward toward diffuser. If not positioned with holes toward top, adjust position of line.
	3. Pump not running on correct voltage.	3. Check voltage at pump terminal in cooling module junction box
Media pads becoming clogged and discolored quickly (scale and salt deposits)	1. Bleedoff line clogged or inadequate bleedoff (pump & float control system)	1. Clean bleed line. See Paragraph 3.2.3. A uniform buildup of minerals on the entering air face of the media indicates insufficient bleedoff. Increase the rate until the mineral deposits dissipate.
	2. Excessive water flow.	2. Reduce flow by adjusting ball valve in distribution line. See Paragraph 5.0.
Water blowoff from media pads or water being pulled from reservoir.	1. Media pads installed incorrectly.	1. Install media pads correctly. See Paragraph 6.1.
	2. Requires moisture elimination pad (over 600 FPM).	2. Install moisture elimination pad. Follow instructions, Paragraph 3.1.2.
	3. Water level not 3" (pump & float system).	3. See second problem listed (Required water level not being maintained)

APPENDIX

Dimensions - Model REC 360

FIGURE 17 - Model REC Size 360 (two Size 180 evaporative cooling modules) attached to a Model RDF Direct-Fired System



Cross-Reference Application Chart

Model Packaged Makeup Air System or Blower Cabinet	REC
RGB/RPB 75, 100, 125; RDF-1-20	40
RGB/RPB 150, 175; RDF-1-40; ADF/ADFH 300; RBA Blower Cabinet	50
RGB/RPB 200, 225	60
RGB/RPB 250, 300; RDF-1-50, -1-65; ADF/ADFH 500	70
RGB/RPB 350	80
RGB/RPB 400	90
RBL Blower Cabinet; All Sizes of RBL/RPBL/SSCBL/PGBL; All Sizes of RDF-2; ADF/ADFH 1200; RDF-3 up to 17,730 CFM	180
RDF Models 11,000 to 28,000 CFM	360

Appendix (cont'd) Pressure Drop Table - REC Sizes 40 - 180

REC	CFM	Pressure Drop		REC	CFM	Pressure Drop		REC	CFM	Pressure Drop		REC	CFM	Pressure Drop	
		12" Media	Moisture Elimination Pad*			12" Media	Moisture Elimination Pad*			12" Media	Moisture Elimination Pad*			12" Media	Moisture Elimination Pad*
40	575	0.02	N/A	60	1550	0.06	N/A	80	2750	0.1	0.06	180	3100	0.02	0.01
	1000	0.06	N/A		2000	0.08	0.05		3500	0.16	0.09		4000	0.04	0.02
	1500	0.12	N/A		2500	0.14	0.08		4000	0.2	0.12		5000	0.06	0.04
	2000	0.2	0.11		3000	0.2	0.12		4500	0.26	0.15		6000	0.08	0.05
	2500	0.32	0.17		3500	0.26	0.16		5000	0.32	0.19		7000	0.1	0.07
	3000	0.44	0.25		4000	0.36	0.21		5500	0.38	0.23		8000	0.14	0.1
	3500	0.6	0.34		4500	0.46	0.27		6000	0.44	0.27		9000	0.18	0.12
	4000	0.8	0.44		5000	0.56	0.33		6500	0.52	0.32		10000	0.22	0.15
50	1175	0.04	N/A	70	5500	0.68	0.4	90	7000	0.62	0.37		11000	0.26	0.18
	1500	0.08	N/A		5800	0.74	0.48		7500	0.7	0.42		12000	0.3	0.21
	2000	0.12	0.08		1950	0.06	0.04		8000	0.8	0.48		13000	0.36	0.25
	2500	0.2	0.12		2500	0.1	0.06		3100	0.1	0.05		14000	0.42	0.29
	3000	0.28	0.17		3000	0.14	0.09		3500	0.12	0.07		15000	0.5	0.33
	3500	0.4	0.24		3500	0.2	0.12		4000	0.16	0.1		16000	0.56	0.38
	4000	0.52	0.31		4000	0.26	0.18		4500	0.2	0.12		17000	0.64	0.43
	4500	0.64	0.39		4500	0.36	0.2		5000	0.24	0.15		18000	0.72	0.48
	5000	0.8	0.48		5000	0.4	0.25		5500	0.3	0.18				
					5500	0.5	0.3		6000	0.36	0.21				
					6000	0.58	0.35		6500	0.42	0.25				
					6500	0.68	0.41		7000	0.48	0.29				
					7000	0.8	0.48		7500	0.56	0.33				
									8000	0.64	0.38				
									8500	0.72	0.43				
									8800	0.76	0.48				

* Moisture elimination catch pad (Option ASA1) is required above 600 FPM.
600 FPM = REC 40 w/2600 CFM; 50 w/3200 CFM; 60 w/3700; 70 w/4500 CFM;
80 w/5200 CFM; 90 w/5600 CFM; and 180 w/11200 CFM.

Index

A

Adjust Water Flow Over Media 8
Airflow Direction 5
AquaSaver timed metering controls 5
AquaSaver Timed Metering System 6
AquaSaver Timer Adjustment 9
AquaSaver Water Flow Adjustment 8

B

Ball Valve 8
Base 3
Bleed Line Connection 6
Bleed Line Fitting 6

C

Cross-Reference Application Chart 11

D

Dimensions 3
Dimensions - Model REC 360 11
Distributor 12
Drain 6

E

Electrical Connections 7, 8

F

Fill & Drain Kit (Opts CT1, CT2, CT3) 7
Filling and Adjusting 7
Float and Pump Control System 8
Float & recirculating pump controls 5
Float Valve 6
Freeze Protection (Option CT5) 7

G

General 2

I

Inlet Water 6
INSTALLATION RECORD 12
Installer 12

J

Junction Box 10

L

Leg Height 4
Legs 3

M

Maintenance 9
Media 9
Microprocessor Control 6, 9
Model 12
Moisture Elimination Pad 4, 5
Overflow Connections 6
Preparation Check List 2
Pressure Drop Table 12
Pump and Float Controls 6
Pump & Float System, Option ECD2 8
Pump/junction box assembly 5

R

Replacing Evaporative Cooling Media Pads 10
Re-position Pump Assembly 5

S

Serial No. 12

T

Timed Metering Control System 6, 8
Timed Metering Control System, Option ECD1 8
Timer Adjustment 9
Transition Duct 3, 4
Troubleshooting Chart 11

V

Drain (2-Way Valve) 7
Supply (3-Way Valve) 7

W

Warranty 2
Water Connections 5
Water Feed Line 10
Water Leaks 7
Water Level 7
Water Pump 10
Weight 2
Wiring Diagrams 8

INSTALLATION RECORD (TO BE COMPLETED BY INSTALLER)

Model	Serial No.	Date of Installation	Notes
	Installer	Distributor	
Name			
Company			
Address			
Phone No.			

For more information on Reznor HVAC products:

- **Contact your local Reznor representative at 1-800-695-1901**
- **Refer to the technical specifications, manuals, and consumer materials found at www.reznorhvac.com**

