

RETROAIRE™

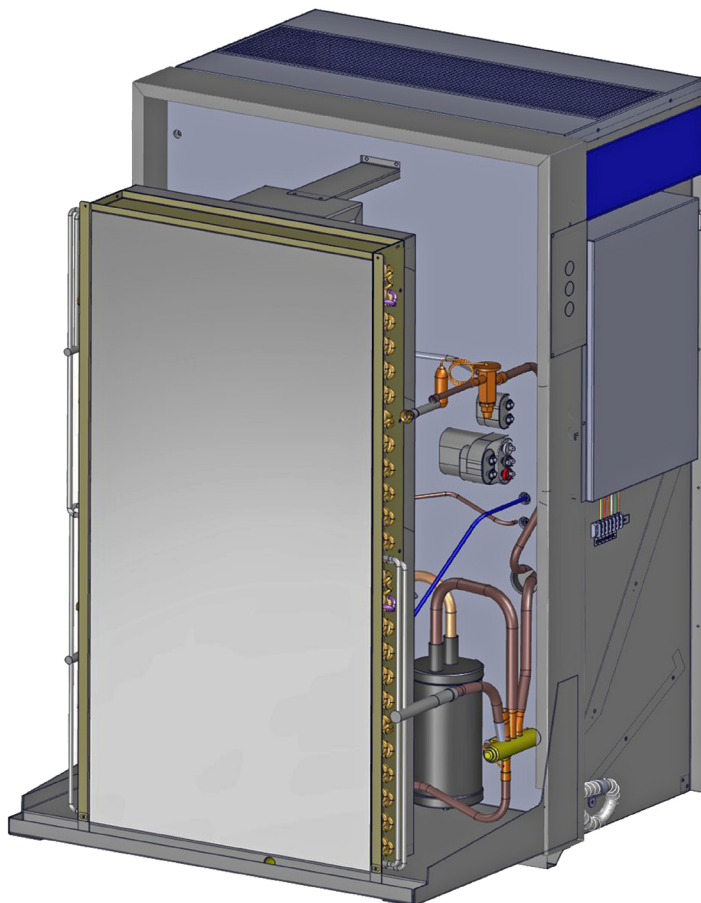
The Right Fit for Comfort

RQTH

Vertical Packaged Terminal Heat Pump

Installation, Operation & Maintenance Manual

Direct Replacement for
1.5 & 2 Ton Carrier 50QT



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TABLE OF CONTENTS

Receiving Information	3
Important Safety Information.....	4
Dimensional/Physical Data	5
General Product Information	8
Enclosure Preparation	9
RQTH Installation	10
Electrical Connections	11
Final Inspection and Start-up	12
Sequence of Operation	15
Maintenance	16
Troubleshooting.....	17
Electrical Specifications	19
Operational Performance Data.....	20
Condenser Louver Replacement.....	21

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Information and specifications outlined in this manual in effect at the time of printing of this manual. ECR International reserves the right to discontinue, change specifications or system design at any time without notice and without incurring any obligation, whatsoever.

RECEIVING INFORMATION

**Shipping damage MUST be reported to the carrier IMMEDIATELY.
Examine exterior.**

Remove cover and examine compressor and piping for signs of damage.

Inspection

Check shipment against bill of lading.

Verify equipment received as ordered.

Verify unit:

- Unit size and type correct per submittal sheet and job requirements?
- Louver color correct, if special color specified?
- Voltage correct?
- Electric heat correct capacity, if used?

Inspect each component for damage. Concealed damage **must** be reported to carrier within 15 days of receipt of shipment.

Carrier must make proper notation on delivery receipt of all damage identified and complete carrier inspection report.

Manufacturer recommends whenever possible dry run unit free standing in open area to check for any possible shipping damage to fan blower.

Purchaser must notify manufacturer's service department of all damage and is responsible for filing any necessary claims with carrier.

General Information

Installation shall be completed by qualified agency. Retain this manual for future reference.

Installer, review this manual to verify unit has been installed correctly. Run unit for one complete cycle to verify proper function.

To obtain technical service or warranty assistance during or after installation, contact your local representative.

When calling for assistance, please have following information ready:

Model Number _____

Serial Number _____

Date of installation _____

Customer Service : (800) 228-9364

IMPORTANT SAFETY INFORMATION

All field wiring shall conform to requirements of authority having jurisdiction or in absence of such requirements:

- United States - National Electrical Code, ANSI/NFPA 70
- Canada - CSA C22.1 Canadian Electrical Code Part 1.

WARNING

Fire, and electrical shock hazard. Improper installation could result in death or serious injury. Read this manual and understand all requirements before beginning installation.



**Become Familiar With Symbols
Identifying Potential Hazards.**

DANGER

Indicates a hazardous situation which, if not avoided, WILL result in death or serious injury.

WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

Indicates information which should be followed to ensure proper installation and operation.

WARNING

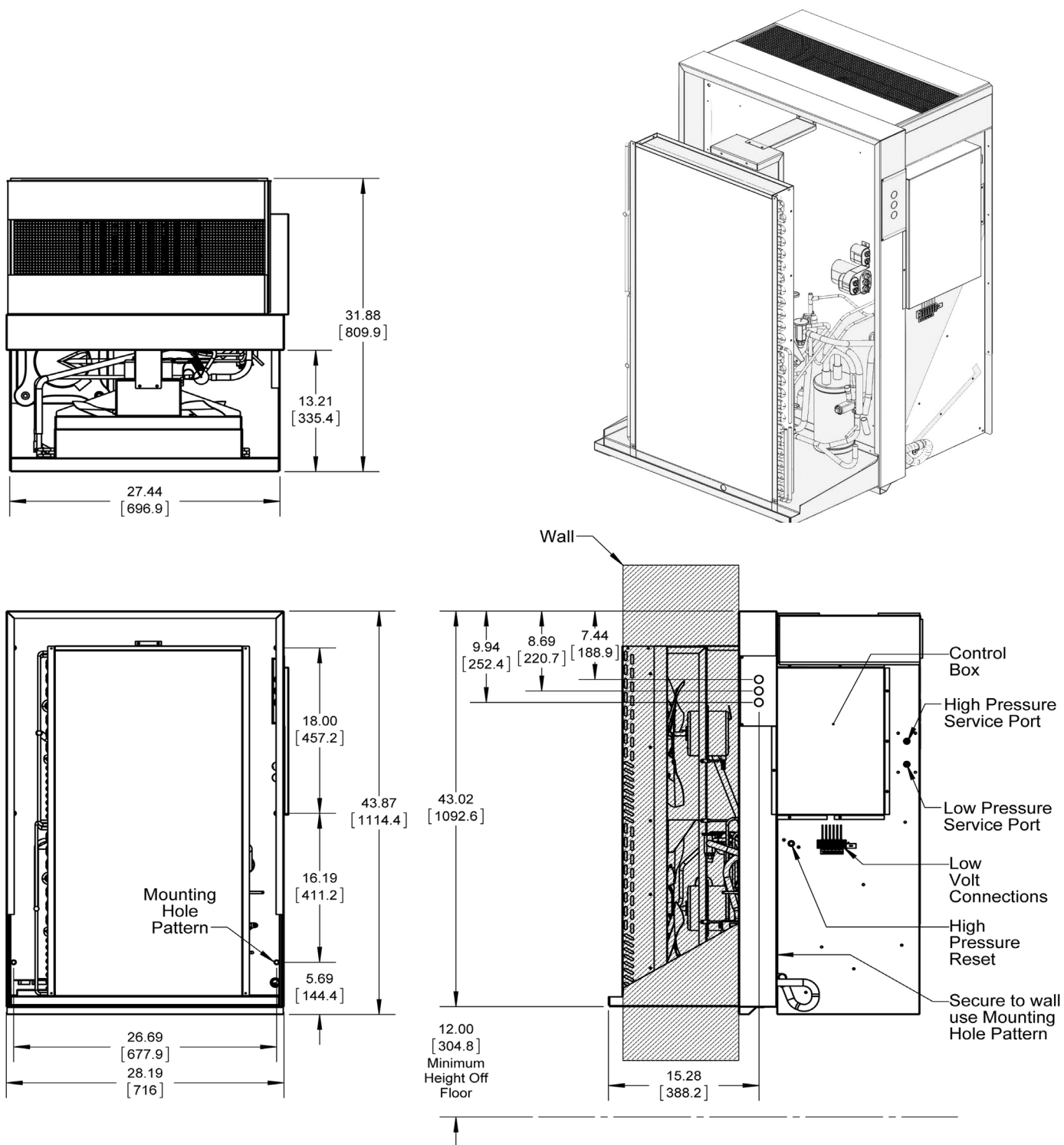
Tampering with RQTH is dangerous and could result in death or serious injury. Do not modify or change this unit.

Safety Information

- Installation by qualified personnel.
- Turn off electrical supply before servicing unit.
- Inspect all parts for damage prior to installation and start-up.
- Do not use unit if it has damaged wiring, is not working properly, or has been damaged or dropped.
- Connect to properly grounded electrical supply with proper voltage as stated on rating plate.
- Have proper over current protection (i.e. time delay fuse/HACR Breaker) as listed on Rating Plate.
- Connect unit to properly grounded electrical supply. Do not fail to properly ground this unit.

DIMENSIONAL/PHYSICAL DATA

Figure 1 - RQTH Installation Dimensions — Inches (mm) - Models 18 & 24



DIMENSIONAL/PHYSICAL DATA

Figure 2 - RQTHC/RQTH Overall Dimensions – Inches (mm) - Models 18 & 24

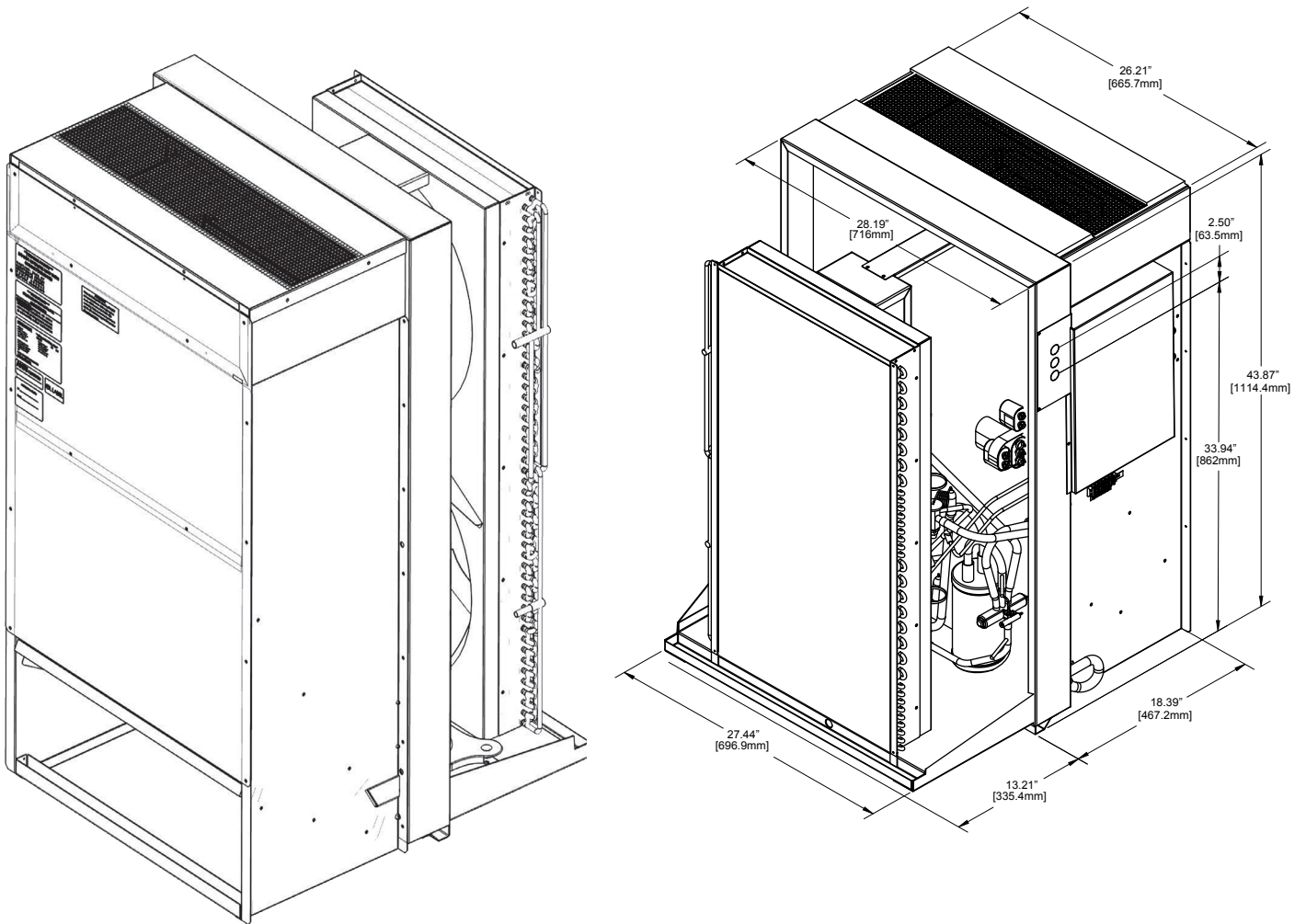
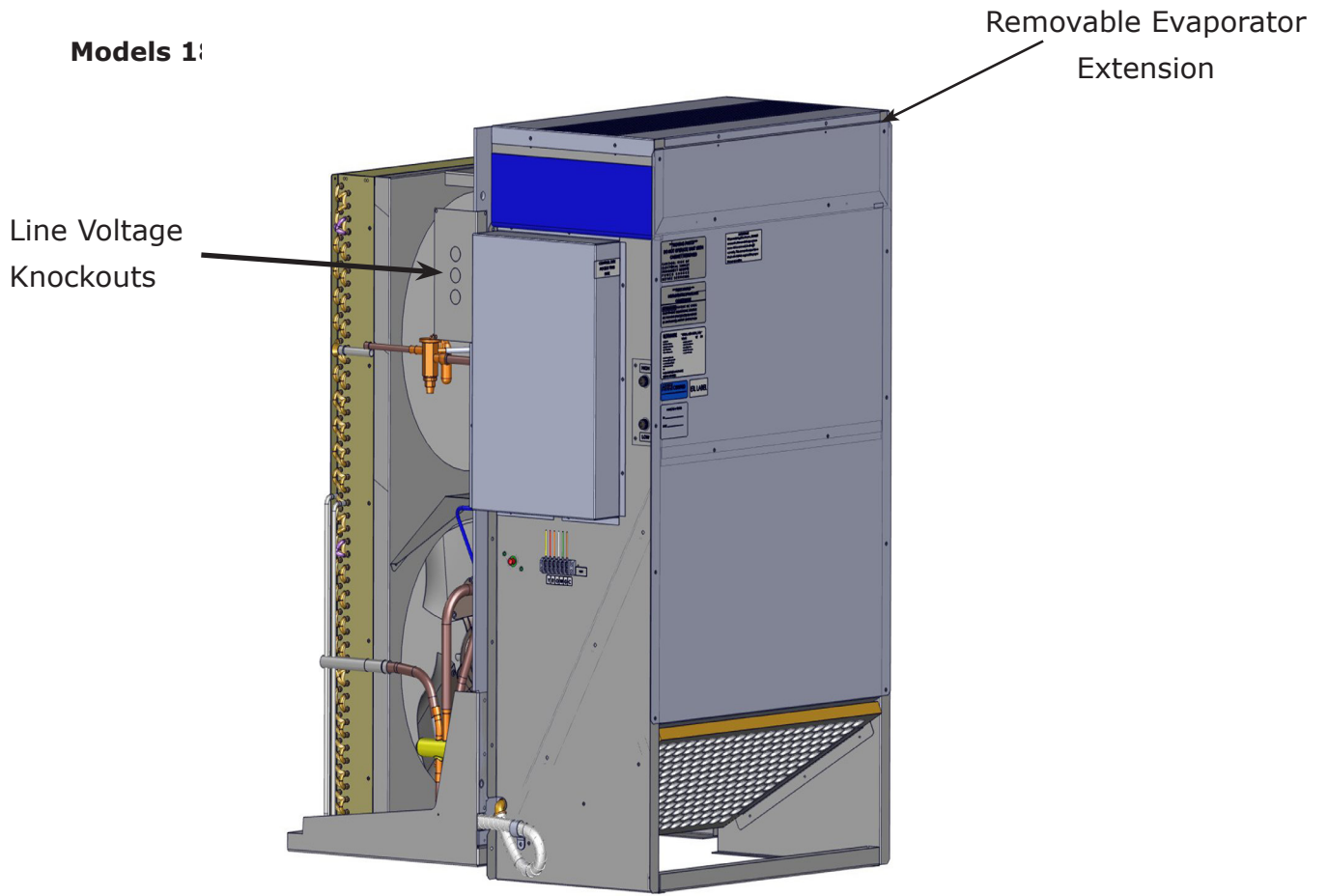


Table 1 - Dimensions, Shipping Weights, and Return Air Filter Sizes

Model	Shipping weight pounds (kg) (shipping weight = unit weight + 60 lbs (27 kg))	Return Air Filter Dimensions inches (mm) All models must have an air filter installed prior to operation.
		Chassis Mounted
18	305 (138)	16" x 24" x 1"
24	305 (138)	16" x 24" x 1"

Figure 3 - Line Voltage Routing Knock-outs Location



Line Voltage Route, See Unit Wiring Diagram For Connections

GENERAL PRODUCT INFORMATION

Product Description

- RQTH single package vertical heat pump (SPVHP).
- R-410A refrigerant.
- Custom outdoor louver required for performance.
- Insulated top-discharge indoor compartment.
- Vertical discharge allows ducting to top of room(s).
- Models can be applied in non-ducted return air applications.
- RQTH models are limited-range heat pumps. Heat pump operation will cease at approximately 40°F (4.4°C) outdoor temperature. Cooling operation will cease at approximately 25°F.

Standard Controls And Components:

- Ability to utilize one stage cooling or two stage heating thermostat for emergency heat.
- Disposable return air filter.
- **Microprocessor Control Board**
 - Random start timer prevents multiple units from simultaneous start-ups after power outage.
 - Fan purge — fan remains on for 60 seconds after heat/cool call is satisfied
 - Anti-short-cycle compressor protection prevents compressor from rapid cycling
 - Freeze protection — prevents evaporator coil freeze up, improving compressor reliability
 - Low ambient lockout prevents compressor operation in outdoor temperatures less than 40°F (4.4°C) Heating, 25°F Cooling.
 - Test operation — all timers are temporarily suppressed to allow ease of testing or troubleshooting
 - Control board LED provides self-diagnostic troubleshooting codes. See Sequence of Operation, page 15.
- **Field-Installed Accessories:**
 - Remote wall thermostat (digital 1-stage or 2-stage available).

APPLICATION LIMITATIONS

- Contact manufacturer if units will be operated in temperatures outside ranges listed below.

Table 2 Ambient Air Limitations

OUTDOOR [Ambient air temperature °F (°C)]					
COOLING				HEATING	
Minimum		Maximum		Maximum	
Dry bulb		Dry bulb		Dry bulb	
67 (19)		115 (46)		70 (24)	
INDOOR [Ambient air temperature °F (°C)]					
COOLING				HEATING	
Minimum		Maximum		Min.	Max.
Dry bulb	Wet bulb	Dry bulb	Wet bulb	Dry bulb	
67 (19)	57 (14)	90 (32)	72 (22)	50 (10)	80 (27)

ENCLOSURE PREPARATION

Proper Clearances

- Maintain minimum clearance of 6 inches, (152 mm) [models 18 & 24] between enclosure and chassis for proper air flow and sound levels.
- Maintain minimum of 6 inches (152 mm) on both sides and front for non-ducted return air applications only for service.
- Ducted return air applications require minimal spacing for service requirements.

Platform

If platform is used, height must make bottom of RQTH chassis flush with bottom inside edge of wall sleeve.

Air filter

All models must have air filter installed prior to operation. Use chassis-mounted air filter provided. For optional return air access panel, remove and discard filter from unit and install access panel with supplied filter in place.

Figure 4 - Minimum Clearances

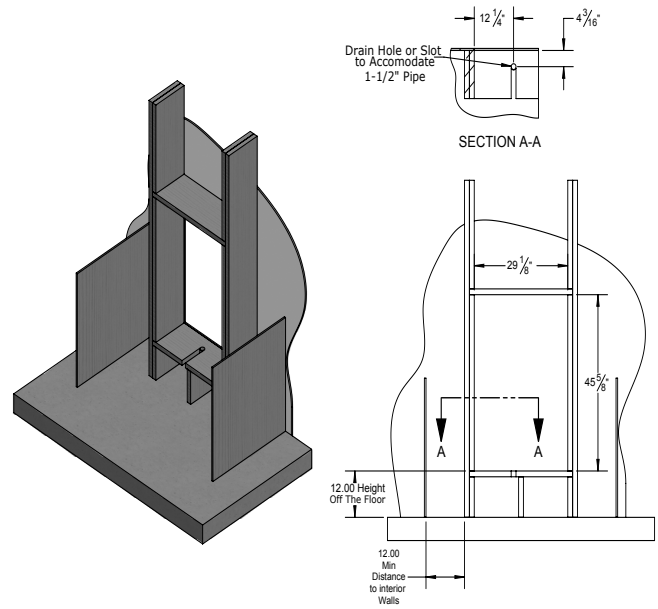


Figure 5 - Filter Placement

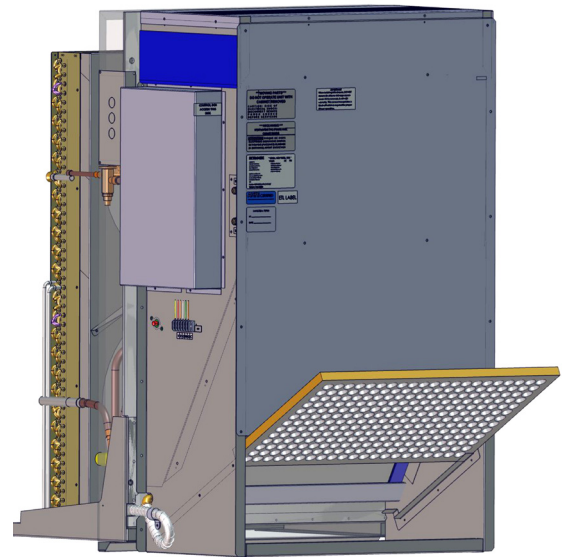
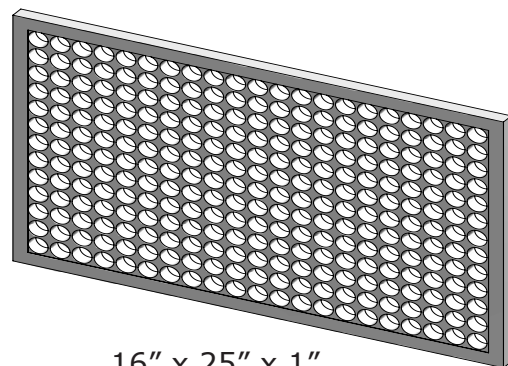


Figure 6 - Filter Dimensions



16" x 25" x 1"

RQTH INSTALLATION

Installing Into Wall Sleeve/Enclosure

⚠ DANGER

Electrical shock hazard — Verify power to existing unit (Carrier 50QT/ET) is disconnected before removing. Failure to do so will result in death or serious injury.

⚠ CAUTION

Use portable lifting device when removing old unit and to install new unit. Do not attempt to lift unit without assistance. Failure to follow these instructions could result in minor or moderate injury.

1. Remove existing unit per manufacture instructions.
2. Clean and inspect wall sleeve for corrosion, decay or damage. Repair or replace if necessary.
3. Remove and discard existing louvers and replace with suitable replacement louver. Replacement louver is necessary to achieve rated performance. See Condenser Louver Replacement page 21 for more information.
4. Apply 1" x 1" open cell foam strips to prevent outside air from entering around the chassis to room from sides and top of cabinet. Install provided strips between wall sleeve and cooling chassis. Verify a solid seal between wall and chassis. Failure to do so will result in air leakage from outdoor to indoor which may cause system problems (example: coils freezing, short cycling and constant operation). See Figure 8.

NOTICE

Carrier series use internal drain system. Verify existing drain system is in working condition and able to move condensate freely.

5. Verify internal condensate drain on replacement unit is free of any obstructions and free flowing. Pour at least 16 oz. clear water through base pan and evaporator drain pan.
6. Slide chassis into wall sleeve using lifting device. Line up guide channels with sleeve guide channels on bottom of wall sleeve.
7. Slide chassis in until center partition meets wall sleeve gasket.
8. Attach power in accordance with requirements of authority having jurisdiction or in absence of such requirements refer to ANSI/NFPA 70, Canada CSA C22.1 Canadian Electrical Code.
9. Verify all drain connections are complete before lagging bulkhead in final position.
10. Lag chassis in place using 6 lag bolts removed from removed unit or replace lag bolts if necessary.
11. Connect existing ductwork to unit. It may be necessary to remove and discard top panel. Secure unit to ductwork with foil tape.

Figure 7 - Condensate Drain Locations

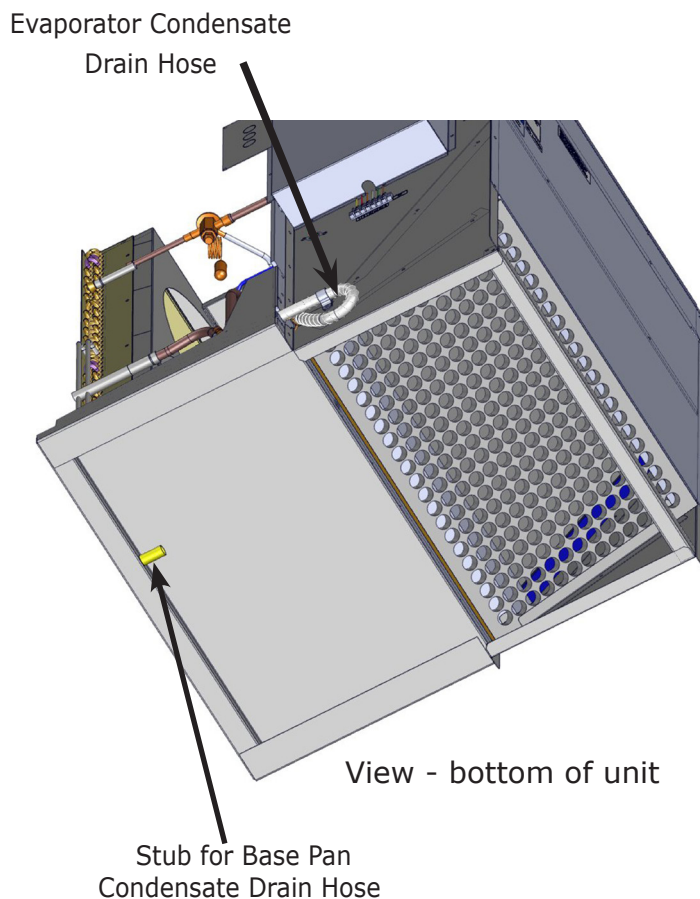
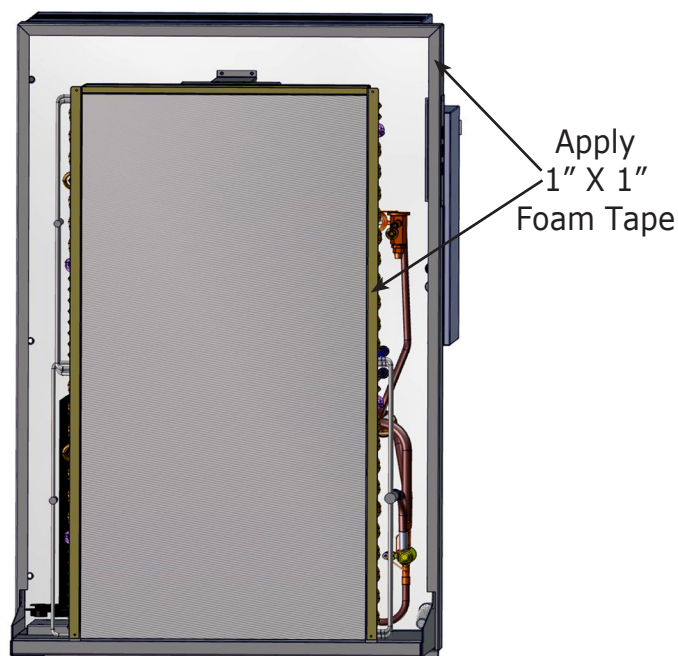


Figure 8 - Foam Tape Installation Against Wall Sleeves

View - front of unit



ELECTRICAL CONNECTIONS

Electrical Connections

⚠ WARNING

Electrical shock hazard. Disconnect all power before removing chassis, performing any cleaning, servicing, or maintenance. Failure to do so could result in death or serious injury.

Refer to wiring diagram attached to unit for wiring details. All field wiring shall conform to requirements of authority having jurisdiction or in absence of such requirements:

- United States
 - National Electrical Code, ANSI/NFPA 70
 - UL 1995 4th Addition.
- Canada
 - CSA C22.1 Canadian Electrical Code Part 1.
- Installer is responsible for ensuring RQTH units are installed in accordance with all applicable national and local codes.
- Verify rating plate for circuit ampacity.
- Size breaker(s) or fuse size(s) accordingly.
 - A. Use only HACR type breakers or time delay fuses.
 - B. Select proper wire for breaker or fuse size used.
 - C. Some units require more than one power supply.
 - D. If plug and receptacle are used, check for proper fit.
 - E. Check nameplate and wiring diagram for further instructions and wire connections.
 - F. Each unit is equipped for 24v wall thermostat connection.

NOTICE

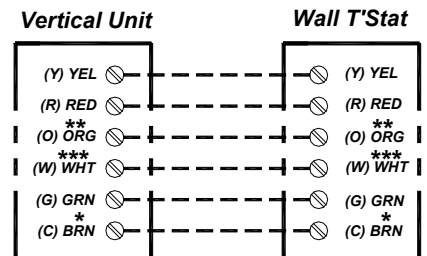
RQTH units are wired for 230v primary voltage from manufacturer. Transformer must be rewired by installer if job site voltage is 208v.

Choosing Thermostat

- ECR offers a remote thermostat that is compatible with Model RQTH 18/24. See the latest price list for available thermostats. It is important to choose a thermostat that will match the equipment you have selected. Model RQTH is compatible with a 24Vac, single stage cooling, single or two stage heating, heat pump thermostat.
- When selecting a thermostat other than those offered by ECR, select a 24Vac dry contact type thermostat which is compatible with a single stage cooling, single or two-stage heating, heat pump system.

Thermostat Wiring

RQTH 18/24 Low Voltage Thermostat Connection



* - Some thermostats do not use a "C" terminal

** - (O) Used on Heat Pump Only

*** - (W) or (W1) Used on two stage heat thermostats

CAUTION

Moving parts can cause injury. Use caution when testing unit. Failure to do so could result in minor or moderate injury.

1. Do not operate unit without filter in place or use as temporary heating/cooling source during construction.
2. Hard wire line voltage power to the unit. Refer to unit rating plate for proper voltage and amperage/fuse size.
3. Connect low voltage wires from thermostat to unit. Follow wire diagram for details.
4. Turn power on and check for proper operation.

Before Operating This Unit:

- Read and understand this manual.
- Verify electrical supply matches electrical requirements of unit, and unit is properly grounded.
- Examine control box. Verify all wire connections are secure, and control board jumpers are in proper positions. See Figure 1 page 5 and Figures 9 and 10, page 13.
- Verify indoor blower wheels and outdoor fan blades are secured to their motor shafts.
- Ensure all sheet metal panels are in place and secure.
- Verify drain stub, if used, is secure to base pan, and condensate drain is functioning properly.
- Verify chassis is properly fit to wall sleeve, and securely mounted to surrounding framing.

Heating

1. Set wall thermostat to heat mode.
2. Set thermostat above room setting.
3. After few minutes of operation, warm air should discharge from grilles.
4. Do not operate unit when panels are removed.

Cooling

1. Set wall thermostat to cool mode. Set thermostat below room temperature setting.
2. After few minutes of operation, cool air should discharge from grilles.
3. Thermostat can be set at desired setting with selector switch in heat or cool position.
4. Verify unit is level.
5. Verify room discharge air or return air is not blocked.

General

Installation and wiring shall be in accordance with requirements of authority having jurisdiction. In absence of such requirements refer to:

- USA- National Electrical Code, ANSI/NFPA 70.
- Canada - Canadian Electrical Code, Part I, CSA C22.1: Safety Standard for Electrical Installations.

Units Rated 208/230V:

- RetroAire unit is wired for 230v primary voltage from manufacturer.
- Transformer must be rewired by installer if job site voltage is 208v.
- Change transformer tap from orange to red. See wiring diagram for details. See Figure 3 page 9 for location of wiring diagram.

Setting Control Board Jumpers

Control board has two sets of factory installed jumper pins on control board, **HP** jumper and **TEST** jumper.

HP Jumper — selects heat pump or straight cooling.

Pins determine whether unit operates as straight cooling or as heat pump. See Figures 9 and 10.

- Jumper right pin to center pin for heat pump operation. Heat pump jumper is factory set and does not require filed adjustment.
- Jumper left pin to center pin for straight cooling operation.

TEST Jumper — selects normal or test mode

NOTICE

Do not leave unit operating with TEST jumper in TEST position.

- Jumper is for testing only. See Figure 9 and 11.
- When jumper pins are jumped together, all timers are eliminated (*example — anti-short cycle, purge, etc.*).
- May be used for field testing. Units are factory set with jumper on only one pin (*normal operation position*).

Figure 9 - HP Jumper (*selects heat pump or straight cooling*)

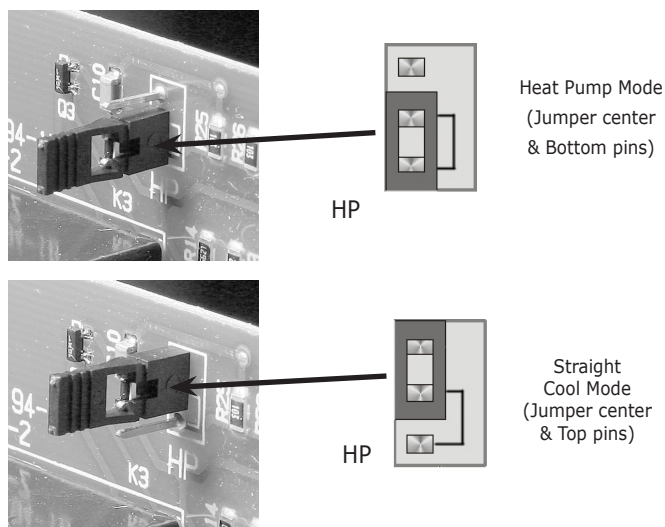


Figure 10 - TEST jumper (*selects normal or test mode*)

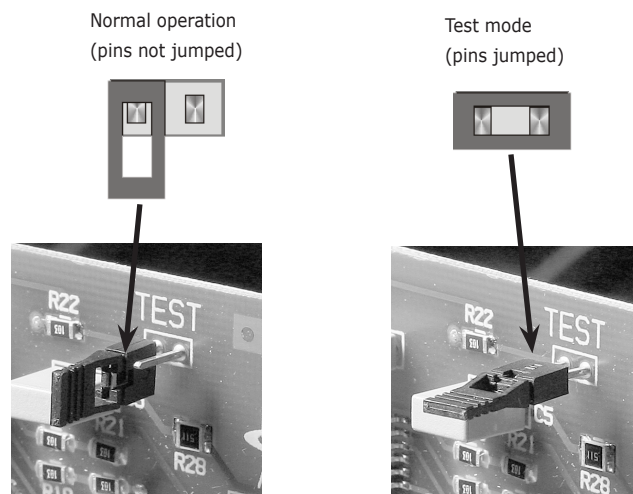
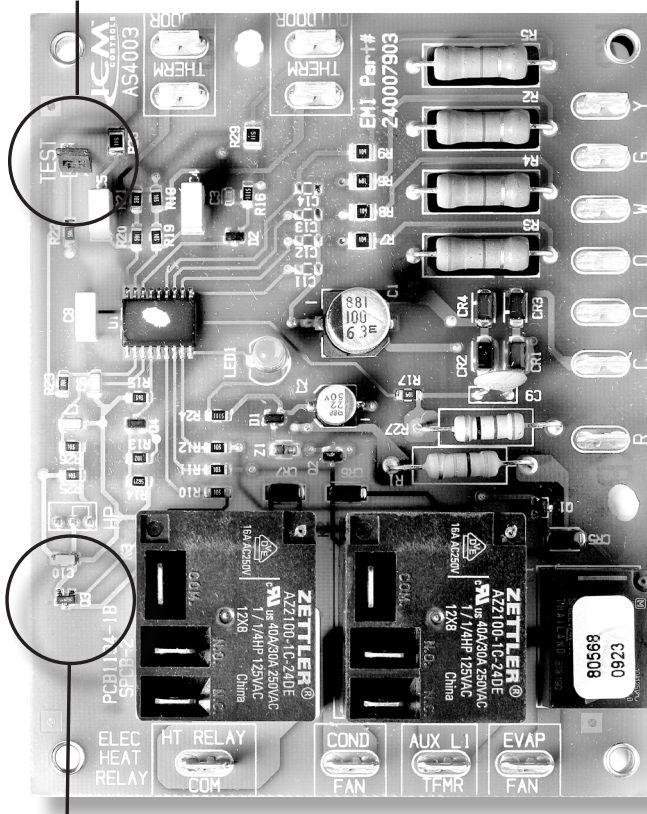


Figure 11 - Circuit Board

TEST JUMPER



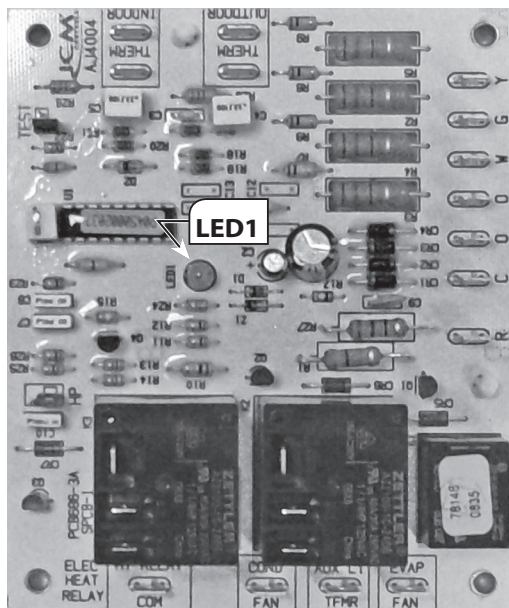
HEAT PUMP
JUMPER

Initial Power-Up Or Power Restoration

When power is applied, either for first time or after power failure, board will initialize.

- During initialization, LED1 will be lit continuously for approximately 5 seconds.
- Following initialization, random-start timer is initiated. This timer adds randomly selected 5-120 seconds to start-up sequence, reducing possibility of multiple units starting at same time.
- Once random start timer has expired, 180 second anti-short-cycle timer is initiated. LED1 blinks two-flash code. (Anti-short-cycle timer prevents compressor from rapid cycling.)
- After the anti-short-cycle timer expires, LED1 blinks a one-blink code, indicating normal operation.

Figure 12 Indicator LED1



Fan Operation

Some thermostats are equipped with an auto/on fan switch.

- When this switch is placed in the on position the indoor fan will run continuous.
- When the switch is in the auto position the indoor fan will cycle with the call for heating or cooling.

Fan Purge

After the room thermostat has been satisfied, the purge feature allows the indoor fan to remain on for an additional 60 seconds. This increases efficiency by pulling the remaining energy from the unit.

Anti-Short Cycle –Random Start Timer

The anti-short cycle timer feature will protect the compressor from short cycling. Once the room temperature is satisfied the ASCT will not allow a compressor restart until a three-minute time period has elapsed. If power is removed from the unit, an additional random time, between 5 and 120 seconds will be added to the ASCT to prevent multiple units in the same building from re-starting simultaneously.

Cooling Operation

- Place system switch in **cool** mode and adjust the setpoint temperature below room temperature.
- The compressor and fan motors will start and cooling will begin. Cooling operation will continue until room temperature falls below the setpoint temperature.
- Place setpoint temperature above room temperature. The compressor will stop while the indoor fan remains on for an additional sixty seconds.
- After the compressor de-energizes the anti-short cycle timer will prevent a re-start until after the time period has expired. LED blink code of two-flashes indicates a call for compressor during the ASCT period.
- If the outdoor temperature falls below 25°F, the unit will not run cooling operation.

Heating Operation

Single Stage Thermostat Heating Operation

- Place the system switch in **heat** mode and adjust the setpoint temperature above the room temperature.
- The compressor and fan motors will start and heating will begin. Heating operation will continue until the room temperature rises above the setpoint temperature.
- If the outdoor temperature is below approximately 40°F during a call for heating the compressor and outdoor fan will de-energize and electric heat will energize.
- Place the setpoint temperature below the room temperature. Heating will stop while the indoor fan remains on for an additional sixty seconds.
- An LED blink code of three flashes indicates a call for heat while compressor is locked out due to an outdoor coil freeze condition.
- After the compressor de-energizes the anti-short cycle timer will prevent a re-start until after the time period has expired. An LED blink code of two-flashes indicates a call for compressor during the ASCT period

Two Stage Thermostat Heating Operation

- For two stage thermostats only, place the setpoint high enough to energize second stage heating.
- The compressor will stop and the electric heat will energize. Heating operation will continue until the room temperature rises above the setpoint temperature.
- When the room temperature rises and satisfies the thermostat's second stage heating demand, the electric heat will switch off and the compressor will start in heating mode.
- When the room temperature rises above the setpoint to satisfy the thermostat's first stage heating demand the compressor will stop while the indoor fan remains on for an additional sixty seconds.

SEQUENCE OF OPERATION

- If the outdoor temperature is below approximately 40°F during a call for heating the compressor and outdoor fan will de-energize and electric heat will energize.
- The compressor and electric heat do not operate simultaneously.
- LED blink code of three flashes indicates a call for heat while compressor is locked out due to an outdoor coil freeze condition.
- LED blink code of five-flashes indicates auxiliary heat operation during a call for second stage heating.
- After the compressor de-energizes the anti-short cycle timer will prevent a re-start until after the time period has expired. An LED blink code of two-flashes indicates a call for compressor during the ASCT period.

⚠️ WARNING

Electrical shock hazard. Disconnect power to RQTH before servicing or accessing control compartment. Failure to do follow these instructions could result in death or serious injury.

NOTICE

Perform regular service and maintenance by qualified service agency at least once every 12 months to assure safe, trouble free operation and maximum efficiency.

NOTICE

Verify proper operation after servicing.

Maintenance Schedule

Manufacturer recommends performing following inspections and maintenance on monthly basis. Units installed in harsh or dirty environments will require more frequent inspections and maintenance.

Disconnect power to unit and remove necessary access panels:

- Clean or replace indoor air filter.
- Inspect chassis interior for rodent or insect infestation. Clean if necessary.
- Clean & flush condensate drain pan and chassis base pan.
- If applicable, verify condensate drain is functioning properly.
- Inspect refrigeration tubing, especially braze joints, for signs of refrigerant leaks (oil residue). Repair if necessary.
- Inspect indoor and outdoor coils. Verify dirt or debris have not collected on fins. Clean if necessary. Take care not to damage coil fins when cleaning. Use fin comb to straighten any bent fins.
- Examine control box. Verify all wire connections are secure.
- Verify indoor blower wheels and outdoor fan blades are secured to their motor shafts.
- Verify dirt or debris have not collected on indoor blower wheels and outdoor fan blades. Use vacuum and soft brush to clean if necessary.
- Verify any ductwork connected to unit is secure and free of air leaks.

Seasonal Start-Up And Maintenance

Beginning of cooling and heating seasons, complete mechanical check should be performed and maintenance/inspections performed as described below.

Disconnect power to unit and remove necessary access panels:

1. Remove access panel. Visually inspect equipment. Look for obvious changes in unit such as damaged coils or evidence of extended wear on any moving parts.
2. Check for unusual odors or leaks (examples: burnt motor windings, water, or refrigerant). Verify base pan is clean.
3. Clean or replace return air filter as needed. Check filter at least once month. Some environments may require more frequent replacement, depending on particulate in air stream.
4. Inspect all electrical connections for frayed wires and poor connections.
5. Check fan motors and blower assemblies. Verify screws and motor mounting hardware are tight.
6. Centrifugal fan blades and blower cage brush and/or vacuum as necessary.
7. Inspect both indoor and outdoor coils. Use fin comb to straighten out any damaged fins.

NOTICE

Do not use solvent based cleaner to clean coils, some solvents will produce noxious odor when unit is in operation or may deteriorate components.

8. Look for oil leaks or stains on or around all braze joints and refrigerant lines. Presence of oil here indicates potentially serious problem, such as refrigerant leak.
9. Inspect and clean drain pan and drain line(s). Use of anti-fungicide tablet to keep condensate system free from bacterial contaminants is recommended.
10. Verify unit is level for proper operation. Building and equipment may settle, causing shift in direction of condensate flow. Verify weep holes along rear flange of base pan are free of debris.
11. Air leaks may make the conditioned area uncomfortably drafty or produce noises. Visually inspect foam gasket between wall and unit, taking note of separation between air inlet for condenser and condenser coil discharge. These two areas must be sealed off from each other. If you experience poor cooling operation or erratic operation, check for air recirculation at condenser coil.
12. Replace access panels and reconnect electrical power.

TROUBLESHOOTING

⚠️ WARNING

Electrical shock hazard. Disconnect power to unit before servicing or accessing control compartment. Failure To follow these instructions could result in death or serious injury.

NOTICE

Have qualified technician conduct troubleshooting procedures.

Symptom	Suggestion
No heat or cooling	<ul style="list-style-type: none"> • Check to see if unit has power and if thermostat is satisfied. If thermostat is not satisfied, call your installing contractor or service contractor.
Thermostat calls for cooling, but cool air is not coming out of unit.	<ul style="list-style-type: none"> • Check for continuity between thermostat and unit. Verify 24Vac is present across terminals C and R. • Verify high pressure switch located in outdoor section has not been tripped. If tripped, press switch button to restart compressor. • Note: If evaporator fan is operational and all of above suggested procedures have been followed, and there is still no cooling being supplied by unit, contact trained heating and cooling professional.
Light on circuit board is blinking.	<ul style="list-style-type: none"> • Circuit board uses light for diagnostic purposes. Blinking codes are as follows: <ul style="list-style-type: none"> - 1 blink = normal operation - 2 blinks = compressor lockout (ASCT — Anti-short cycle timer) - 3 blinks = outdoor freeze condition - 4 blinks = indoor freeze condition - 5 blinks = simultaneous Y and W call (Straight cool units only)
Circuit board light is blinking 3 or 4 times, but there is no freeze condition.	<ul style="list-style-type: none"> • Verify sensors have not been damaged. Remove sensor wires from control board and make resistance measurements, compare to following sensor resistances. Indoor and outdoor coil sensor wires are labelled, as is control board. <ul style="list-style-type: none"> - 77°F = 10KOhms - 50°F = 19.9KOhms - 35°F = 30KOhms - 30°F = 34.4KOhms
Thermostat is satisfied, but fan is still running.	<ul style="list-style-type: none"> • If thermostat is set to auto mode, once thermostat is satisfied, fan will stay energized for extra 60 seconds to purge unit of excess cool or warm air in plenum. • If thermostat fan switch is set to ON, fan will stay energized regardless of whether thermostat is satisfied or not. Only way to turn fan off is to turn unit off or turn thermostat fan switch to AUTO.
Thermostat calls for heat, but no heat comes out of unit.	<ul style="list-style-type: none"> • Units equipped with electric heaters have temperature limit switch to prevent electric heater from reaching unsafe temperatures. If after calling for heating, heater is not energized, check for continuity across limit. If limit is open, replace with equivalent limit switch.
Thermostat calls for heat while in heat pump mode, but heated air is not coming out of unit.	<ul style="list-style-type: none"> • Verify unit has power or thermostat has been satisfied. If unit has power and thermostat is satisfied, turn thermostat few degrees above room temperature. • While in heat pump mode, verify thermostat is not energizing O terminal. Retroaire units are designed to work in heat pump mode when 24Vac is present across Y and C. Verify heat pump jumper on control board is jumping two pins labeled "HP". See control board jumper locations, Figure 11, Page 14. • Verify there are no freeze conditions. Refer to blinking codes question above for more information.

TROUBLESHOOTING

Indoor Motor Speed Tap Selection

- For information on indoor motor speed tap selection, please refer to "Indoor Motor Speed Tap Selection Chart" label attached to chassis of RQTH. See Table 4.
- Model, RQTH, motors are factory-wired for corresponding units as described in 230V column Table 4.
- Make speed tap changes as required by job site voltage and/or external static pressure (ESP).
- Speed tap changes may need to be changed from manufacturer settings. Manufacturer will not be liable for any system problems that could arise if motor speed is not changed to match application.

Table 3 Indoor motor speed tap selection chart

Model	ESP In. w.c. (mm w.c.)	230V	208V	197V
18, 24	0.1 (3)	Blk	Blk	Blk
	0.2 (5)			
	0.3 (8)			
Tap Key — Red (Low) — Blu (Med) — Blk (High)				

ELECTRICAL SPECIFICATIONS

Table 4 Legend For Electrical Specifications

FLA	Full Load Amps	Min	Minimum
H-WIRE	Hard Wired	MOCP	Maximum Over current Protection Device Amps (HACR-type breakers or time-delay fuses)
HA	Heater Amps	OFM	Outdoor Fan Motor
Hp	Horse Power	RLA	Rated Load Amps
Htr #	Heater Option Number (see Figure 1)	TCA	Total Cooling Amps
IFM	Indoor Fan Motor	THA	Total Heating Amps
LRA	Locked Rotor Amps	Volt	Voltage
Max	Maximum	W	Watts
MCA	Maximum Circuit Ampacity		

Table 5 RQTH 18 Electrical Specifications

Power Supply Volt 1-60		Compressor		Indoor Fan Motor		Outdoor Fan Motor		Electric Heat			Unit Electrical Ratings					
Volt	Min	RLA	LRA	FLA	Hp	FLA	Hp	Htr #	Volt	W	HA	TCA	THA	MCA	MOCP	H-Wire
208/230V	197	7.3	48	1.3	0.25	0.5	0.125	5	208	4089	19.7	9.6	21.0	26.2	30	H-Wire
									230	5000	21.7		23.0	28.8		
								7	280	5725	27.5		28.8	36.0	40	H-Wire
									230	7000	30.4		31.7	39.7		

Table 6 RQTH 24 Electrical Specifications

Power Supply Volt 1-60		Compressor		Indoor Fan Motor		Outdoor Fan Motor		Electric Heat			Unit Electrical Ratings					
Volt	Min	RLA	LRA	FLA	Hp	FLA	Hp	Htr #	Volt	W	HA	TCA	THA	MCA	MOCP	H-Wire
208/230V	197	10	58.3	1.3	0.25	0.5	0.125	7	208	5725	27.5	12.3	28.8	36.0	40	H-Wire
									230	7000	30.4		31.7	39.7		
								10	208	8178	39.3		40.6	50.8	60	H-Wire
									230	10,000	43.5		44.8	28.4		

OPERATIONAL PERFORMANCE DATA

Table 7 - Performance Data

Model	Cooling Btuh (kW)	Sensible Heat Ratio	EER	Heat Pump Btuh (kW)	COP	Air Flow vs External Static Pressure			Fresh Air Inlet Flow	Outdoor Sound Level
						Static Pressure				
						0.10 in. w.c. (2.5 mm w.c.)	0.20 in. w.c. (5.1 mm w.c.)	0.30 in. w.c. (7.6 mm w.c.)		
						CFM (L/s)	CFM (L/s)	CFM (L/s)		
RQTH18	17,000 (4.98)	0.77	9.0	15,800 (4.63)	3.0	600 (283)	550 (260)	500 (236)	60	71
RQTH24	21,500 (6.30)	0.75	9.0	21,200 (6.21)	3.0	710 (335)	650 (307)	600 (283)	60	71

CONDENSER LOUVER REPLACEMENT

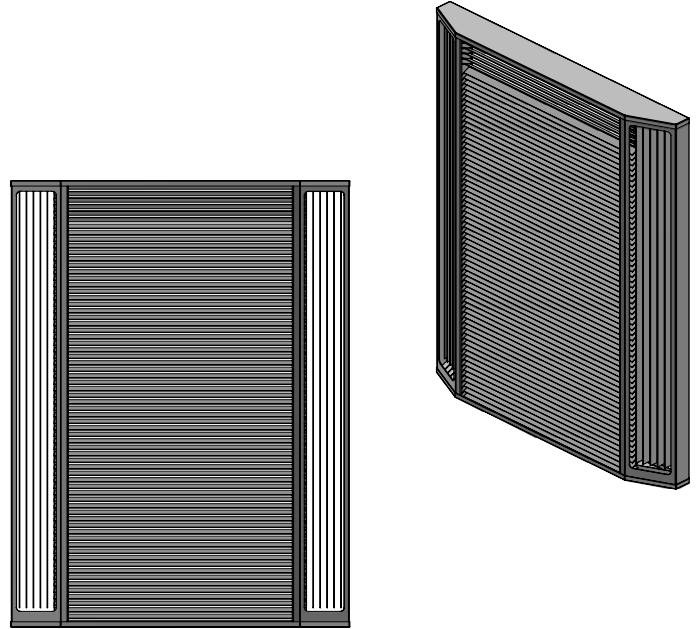
Condenser Louver Replacement

NOTICE

Use of louver other than supplied with the unit will effect efficiency and service life. Use only Louver supplied by unit manufacture for the RQTH.

- Existing Carrier wall sleeve shall be retained in all applications, provided RQTH unit is installed as required for 50QT/ET option.
- Replace condenser louver.
- Replace with required RQTH louver. See Figure 13 for louver option.

Figure 13 - Architectural, Aluminum or Painted, Bay Style, External Mount



RETROAIRE™

LIMITED PRODUCT WARRANTY

RetroAire offers to the original purchaser/owner that under normal use and maintenance for comfort cooling and conditioning applications, all **RetroAire** equipment will be free from defects in material and workmanship for a period of 12 months from the documented date of original installation or 18 months from the date of manufacture, if the documented date of original installation is not available. Unit compressors shall be free from defects in materials and workmanship under normal use and maintenance for a period 60 months from the documented date of original installation or 66 months from the date of manufacture, if the documented date of original installation is not available.

WHAT RETROAIRE WILL WARRANT:

ECR will provide a replacement for or, at the discretion of **RetroAire**, repair any functional component that proves to be defective in material or workmanship, under normal maintenance and operating conditions, within the prescribed warranty period. Said parts will be supplied via standard shipping; billed and then credited back, when the defective component is returned, at the sole discretion of **RetroAire**. However, the replacement cost shall NOT include labor or service costs to diagnose, remove, or install a warranty part, or return of defective materials, at the sole discretion of **RetroAire**.

WHAT RETROAIRE WILL NOT WARRANT:

Damages to or arising from: misapplication, improper installation or service; components not supplied or approved by **RetroAire**, including, without limitation, cabinetry, wall sleeves, louvers, internal components, equipment, or controls supplied by others; and lack of preventative maintenance such as, but not limited to, replacing air filters, general cleaning, clearing condensate drains, air flow adjustments; products manufactured or distributed by **RetroAire** but installed outside the United States and Canada; unauthorized alteration, application or improper operation; excessively corrosive installation environments; equipment usage during construction; shipping or handling.

RETROAIRE IS ALSO NOT RESPONSIBLE FOR:

Damages caused by faulty or interrupted power supply or electrical service; Damages caused by acts of God including, but not limited to, wind, hail, floods, lightning, earthquakes or other conditions beyond the control of **RetroAire**.

FURTHER LIMITATIONS:

All implied warranties of merchantability and/or fitness for any particular purpose are limited in duration to the period of the limited warranty. The rights and remedies provided herein are exclusive and constitute the entire contract. This limited warranty and any optional extended warranties are granted only to the original owner/user. This warranty becomes null and void if payment for the goods or product is in default. Warranty remedies may be withheld if the customer account is in arrears or default.

In no event shall RetroAire be liable (whether for breach of this limited warranty or contract, for strict liability for negligence, or otherwise), for any special, incidental, punitive or consequential damages, including, without limitation, damages for loss of profits, loss of goodwill, loss of time or convenience, loss of use of the product, the cost of a product rental, costs of gasoline, electricity, telephone, travel or lodging, or the loss of personal or commercial property, whether or not RetroAire has been advised of the possibility of any such damages.

In no event shall RetroAire's obligations under this limited warranty exceed the purchase price of the product.

Any repairs performed under this limited warranty shall not in any way extend the statute of limitations for claims under this limited warranty.

No agent, representative or distributor of RetroAire has any authority to alter the terms of this limited warranty in any way.

For Service or Repair:

- 1) Contact the installing contractor
- 2) Call the nearest RetroAire sales rep/distributor
- 3) Call, E-Mail or write:

RetroAire, c/o ECR International, Inc., 2201 Dwyer Avenue, Utica, NY 13501, Ph: 1-800-325-5479
Fax: 1-866-432-7329, E-Mail: info@RetroAire.com, Web: www.RetroAire.com.

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