

CACA/CAHA CASSETTE DUCTLESS SPLIT SYSTEM EVAPORATOR

STRAIGHT COOL

Nominal Circuit Capacities:

9,000 - 12,000 - 18,000 - 24,000

30,000 - 36,000 Btuh

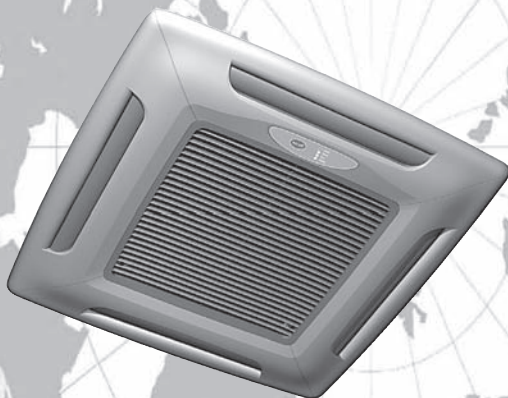
HEAT PUMP

Nominal Circuit Capacities:

9,000 - 12,000 - 18,000 - 24,000 Btuh



EMI  **AmericaSeries**

Comfort Where It Counts.



CACA/CAHA12
Model Shown

Enviromaster International LLC
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Rome, NY 13440
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An  **ECR International Brand**
An ISO 9001-2000 Certified Company 

P/N# 240006022 Rev. 1.2 [10/06]

CACA/CAHA CASSETTE HIGH EFFICIENCY EVAPORATOR

INSTALLATION, OPERATION AND MAINTENANCE MANUAL

P/N 240006022, Rev. 1.2 [10/06]

This manual is intended as an aid to a qualified service personnel for proper installation, operation, and maintenance of EMI AmericaSeries high efficiency evaporators. Carefully read these instructions before attempting installation or operation. Failure to follow these instructions may result in improper installation, operation, service, or maintenance, possibly resulting in fire, electrical shock, property damage, personal injury, or death.

Shipping Damage *MUST* be Reported to the Carrier *IMMEDIATELY!!!* Examine the exterior.

TO THE INSTALLER

EMI AmericaSeries Units are Approved for R-22 Refrigerant ONLY.

- (1) Retain this manual and warranty for future reference.
- (2) Before leaving the premises, review this manual to be sure the unit has been installed correctly and run the unit for one complete cycle to make sure it functions properly.

To obtain technical service or warranty assistance during or after the installation of this unit, check our website @ www.enviromaster.com or call your installing contractor or distributor. Our technical service department may be contacted at 1-800-228-9364.

When calling for assistance, please have the following information ready:

- Model Number _____
- Serial Number _____
- Date of installation _____

SAFETY INSTRUCTIONS

This unit has been designed and manufactured to meet international safety standards.

- ▲ Read all instructions before installing or using the EMI AmericaSeries high efficiency evaporator. Locate and install this unit only in accordance with these instructions. Use this unit only for its intended purpose as described in this manual. Care must be taken to obtain the best results.
- ▲ Check the rating plate on the EMI AmericaSeries evaporator before installation to make certain the Voltage shown is the same as the electric supply to the unit.
- ▲ The EMI AmericaSeries evaporator must be connected only to a properly grounded electrical supply. Do not fail to properly ground this unit.
- ▲ Turn off the electrical supply before servicing the EMI AmericaSeries evaporator. Ensure that there is no power to any part of the equipment and both the indoor and outdoor units are switched off.
- ▲ Do not use the EMI AmericaSeries evaporators if it has damaged wiring, is not working properly, or has been damaged or dropped.
- ▲ Follow all safety instructions in this manual and on any tags or labels on the unit.

[Save These Instructions]

WARNING

Ensure there are no power feeds to the unit such as fire alarm circuits, BMS circuits, etc.

PRODUCT DESCRIPTION

The EMI AmericaSeries Cassette Evaporator is available in three cabinet sizes with six cooling output capacities from 9,000-36,000 Btuh and four heating capacities from 9,000-24,000 Btuh. Key features include a condensate pump with safety switch and a 36" (0.9 m) lift*; electric heat is a factory installed option **ONLY (there are no field installed electric heat kits available)**; fresh air inlet and branch duct knockouts; and motorized air vanes (CACA/CAHA24 & CACA36 only). The CACA/CAHA accepts a 24 Volt thermostat control (thermostat not included). Designed for low noise levels, easy installation and maintenance and a slim line fascia, all ensure minimum intrusion into the working environment.

Due to ongoing product development, all designs and specifications are subject to change without notice.

* *Condensate pump lift measured from the base or bottom of the unit.*

This American-made CACA/CAHA Cassette Evaporator produces system SEER's meeting or exceeding 13, when matched with EMI's S1CA/S1HA single zone or S2CA dual zone side discharge condensing units or with T2CA, T3CA, or T4CA top discharge multi-zone condensing units. Refer to specifications contained in this document.

All EMI Air Handlers are backed by Enviromaster International LLC and are tested and rated in accordance with ARI standards 210/240 and UL 1995.

STANDARD FEATURES

▲ **Materials of Construction** - Galvanized steel cabinet with fire-resistant thermal and acoustic foam insulation and light grey high-impact ABS fascia. A Styro-foam drain pan with a tough fire retardant thermoplastic liner.

▲ **Air Systems:**

- Fans are backward curved impeller centrifugal design; dynamically and statically balanced; and mounted on integral mounting rails.

STANDARD FEATURES

Continued

- Single Fan models CACA/CAHA12-24 designed with fire retardant plastic or aluminum impellers.
- Twin Fan models CACA36 designed with fire retardant plastic impellers.
- Motors are multispeed, enclosed type with thermal protection and sealed life-time bearings.
- Permanent, washable filter (user accessible).
- Branch duct knockouts on three sides for remote discharge locations (using no more than two non-adjacent sides).
- Fresh air intake capability on three sides of cabinet (2 on CACA/CAHA12).
- Four plastic air vanes; motor driven with auto sweep or fixed position stop setting on models CACA/CAHA24-CACA36 (models CACA/CAHA12 equipped with manually adjusted air vanes).

▲ **Coil** - Coil is seamless, copper tubing, arranged in staggered configuration, with enhanced aluminum fins, tested to 600 psig. The tubes are mechanically expanded for secure bonding to fin shoulder.

▲ **Refrigeration Circuit** - Units are equipped with a serviceable fixed orifice expansion device and use R22 refrigerant only.

▲ **Controls and Components** (factory installed or supplied):

- Connections for 24V remote wall thermostat.
- Custom control board featuring anti-short cycle timer; 60 second post purge fan relay; and on board 30 amp electric heat relay.
- Relays and connectors to condensing unit.
- Condensate Pump with 36" (0.9 m) lift measured from base of unit.
- 24V Transformer.

▲ **System Options:**

- 24V remote wall thermostat.
- Electric Heat (@ 230V) (CACA Only)
 - 1.5 kW (CACA12)
 - 3 kW (CACA24)
 - 5 kW (CACA36)

▲▼ **Electromechanical Operation (Standard):** An optional thermostat can be obtained through EMI or your local distributor.

NOTE: make sure the thermostat is suitable for unit operation (i.e., cooling only, cooling/electric heat, heat pump.)

▲▼ **Filters:** Metal framed filters are fitted. These are reusable and may be vacuum cleaned.

▲▼ **Condensate pump:** A condensate pump is designed to carry water out of the unit. The pump is fixed to a mounting bracket which can be withdrawn from the side of the chassis and incorporates an inspection hole to allow a visual check of the pump during operation. A float switch is fitted to stop the cooling action (shut off the compressor) should the pump become blocked or fail.

IMPORTANT: Total lift for this pump is 36" (0.9 m) or less.

▲▼ **Air vanes:** Air outlet vanes are manually adjustable on the CACA/CAHA12 units or driven by an electric motor on all other model units. Where fitted, the motorized air vanes can be set to auto sweep or can be stopped in a fixed position.

▲▼ **Heating:** The cassette may be fitted with electric heaters which are equipped with over-temperature limit switches. Consult factory for available models with electric heat.

▲▼ **Fresh air connection:** fresh air may be introduced to the unit by the addition of ducts connected to the fresh air knock-outs on the Cassette case. The fresh air volume is approximately 7-10% of the unit's published maximum air flow (if more than 10% make up air is needed, a fresh air booster fan is required). Refer to *Performance Data* section of this manual for further information.

The cassette is best installed in new construction or existing construction with a suspended or false ceiling with enough clearance to accommodate concealing the piping and electrical connections to the unit.

PREPARATION FOR INSTALLATION

▲▼ **Unpacking:** The cassette fascia and main chassis are packaged together for increased protection.

- Remove the banding straps and lift the cardboard lid.
- Fascia is packed in bubble wrap and on top of the chassis (fascia is not attached to the chassis for shipping).
- Cardboard template is between the chassis and the fascia (**DO NOT** throw template away with packaging!).
- Lift the fascia and template from the box and set aside.
- Remove the Cassette chassis from the box utilizing the four corner brackets for lifting. **DO NOT** use the drain or refrigerant connections for lifting.
- In order to protect the fascia from dirt and damage, it should be returned to the box until it is ready to be installed.

▲▼ **Blanking off:** When branch ducting is to be used, two polystyrene pieces for blanking off fascia openings are included with the fascia packing. Up to two non-adjacent sides may be blanked off.

DO NOT throw the two polystyrene blanking off pieces out with packaging!

BLANKING OFF (Optional)

The fascia discharge slot(s) will need blanking off when ducts are used to channel the conditioned air to other areas. The two polystyrene blanking off strips (provided) will need to be positioned in the fascia discharge slots to direct the air to the ducts.

If the fascia discharge slot needs blanking off:

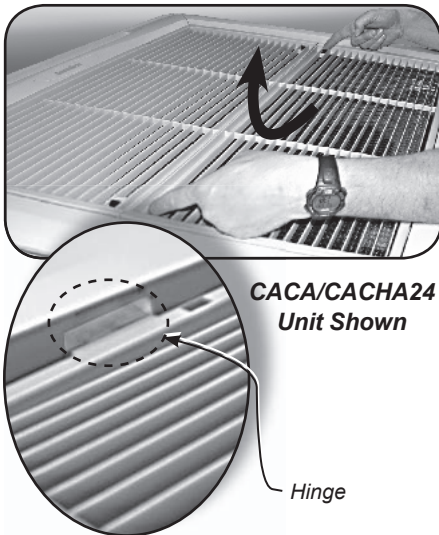
1. Remove the inlet grille(s) and filter(s).

The CACA/CAHA12 unit has is one grille and one filter.



CACA/CAHA12 Unit Shown

CACA/CAHA24 units have two hinged grills that open in the middle and two filters.



CACA/CAHA24 Unit Shown

Hinge

CACA36 Unit Not Shown

The CACA36 units have three hinged grills and three filters.

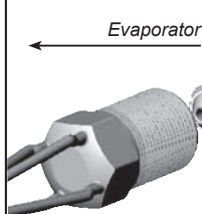
2. Once the grille(s) and filter(s) are removed turn the fascia over so the polystyrene insulation is exposed.
3. Take one of the polystyrene blanking off pieces and push it into the recess in the polystyrene fascia insulation.



Blanking-Off Pieces

NOTE: Up to two non-adjacent sides can be blanked off.

PISTON/ORIFICE INSTALLATION INSTRUCTION



Important - Replace the existing piston (**before** installing the unit) with the piston supplied in the Kit Bag: when a CACA/CAHA24 evaporator is matched with a T2CA4400, T2CA2400, T2CA8400 or T3CA9240, T3CA2240, T3CA9940 condenser which has a 24,000 Btuh compressor ("4" in the capacity decoding field) the piston will need replacement **only** on the 24,000 Btuh zone. *

EMI evaporator units contain the appropriate piston for the model. Refer to this document to determine if a change is required based on the condenser rating. If the match is **not listed** below **no piston change** is required. (See chart)

Model # Evaporator	Condenser Btuh	Factory Installed Piston-Orifice Size	Field Changeover Piston-Orifice Size
CACA/CAHA24	T2CA4400 T2CA2400 T2CA8400	.059"	.063"
CACA/CAHA24	T3CA9240 T3CA2240 T3CA9940	.059"	.063"

* "4" in the capacity decoding field = 24,000 Btuh

CACA/CAHA CASSETTE PREPARATION AND POSITIONING

POSITIONING

The Cassette installation position should be selected with the following points in mind:

1. Pipe work, electrical connections, control box and condensate pump access panels should be readily accessible. Refer to the "**CACA/CAHA Dimensions**" section in the back of this manual for dimensional drawings.
2. The unit should be positioned at least 5 ft. (1.5m) from a wall or similar obstruction. Position the unit as close to the center of the room as possible to insure air is distributed evenly.
3. Position the unit so that the discharge air does not blow directly on the thermostat.
4. The unit should not be positioned directly above any obstructions.
5. The condensate drain should have sufficient fall 1" per 10' (8mm/m) in any horizontal run between Cassette and drain. Maximum condensate pump lift is 36" (0.9m).

6. There should be a minimum 1" (25.4mm) clearance above the depth of the Cassette and the false ceiling for proper installation, shown below **Figure #1** (see the "CACA/CAHA Dimensions" section in the back of this IOM for cabinet sizing):

Figure #1

Dimension A + 1" = minimum space above the false ceiling for installation



Cabinet	Dimension A
CACA/CAHA12	11.84" (0.3 m) min.
CACA/CAHA24	12.55" (0.32 m) min.
CACA36	14.51" (0.37 m) min.

ELECTROMECHANICAL THERMOSTAT

An optional thermostat can be obtained through EMI or your local distributor. In addition to positioning the Cassette correctly, it is very important to locate the wall mounted thermostat in the optimum position to ensure good temperature control. The installation should be selected with the following points in mind:

1. Position the thermostat approximately 5 ft. (1.5m) above floor level.
2. Avoid external walls and drafts from windows and doors.
3. Avoid positioning near shelves and curtains as these restrict air movement.
4. Avoid heat sources (direct sunlight, heaters, dimmer switches, etc.)
5. Seal wiring holes in the wall behind the thermostat to avoid drafts.

MOUNTING THE CACA/CAHA CASSETTE CEILING EVAPORATOR

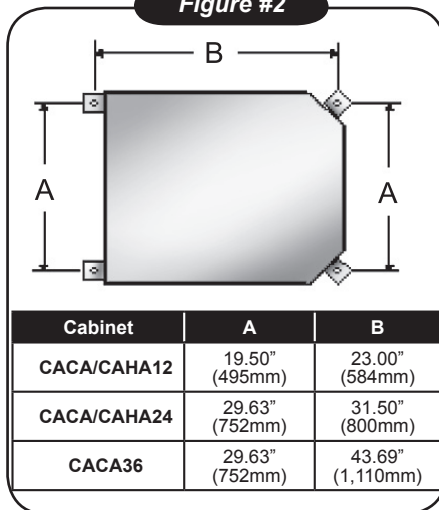
▲ Ceiling opening:

- In existing construction, remove enough ceiling panels to provide clearance space for mounting unit to ceiling joists.
- Before beginning the installation, inspect the unit location, test the strength of the ceiling joists to insure they will support the weight of the unit.
- Determine mounting method:
 - On wooden beams use threaded rods, washers, and nuts to suspend support brackets.
 - With metal structures, secure threaded rods on an existing angle or install a new support angle.
 - On newly built concrete slabs secure threaded rods with inserts and embedded bolts.
 - For previously built concrete slabs install hanging bolts with an expansion anchor.
 - Follow local building codes for required safety cables, braces, etc.

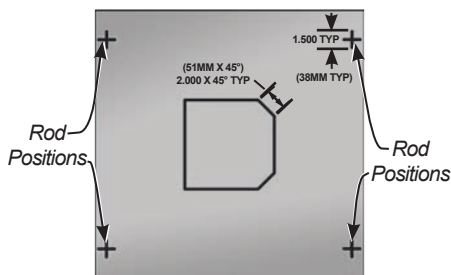
An opening in the false ceiling will have to be cut to the following sizes:

Cabinet	Opening Size
CACA/CAHA12	23 $\frac{1}{4}$ " x 23 $\frac{1}{4}$ " (591 x 591mm)
CACA/CAHA24	33 $\frac{7}{8}$ " x 33 $\frac{7}{8}$ " (860 x 860mm)
CACA36	46" x 33 $\frac{7}{8}$ " (1168 x 860mm)

Figure #2



A template for ceiling cut-out and rod positions can be found with the Cassette unit.

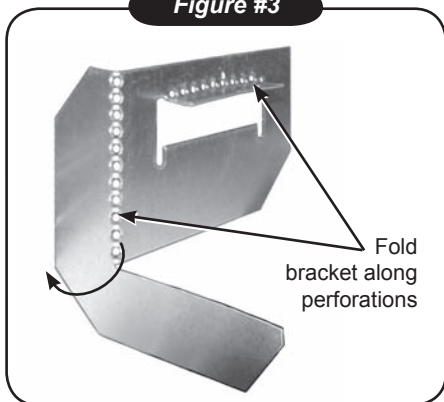


NOTE: Make sure the ceiling grid is supported separately from the Cassette. The ceiling must not be supported by any part of the Cassette unit, fascia or any associated wiring or pipe work.

1. Use the template (provided) to cut the ceiling opening and determining the rod positions.

2. Install hanger bolts using 3/8" (10mm) all thread rod at the centers shown in **Figure #2**.
3. Prepare the installation guides by folding the metal bracket by hand along the perforations, see **Figure #3**.
5. Secure unit in position with locknuts and washers on either side of the Cassette bracket.
6. Ensure threaded rod does not protrude more than 2" (51mm) below the mounting bracket.

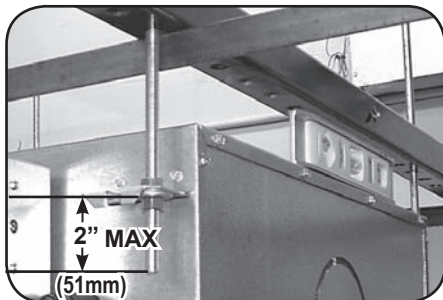
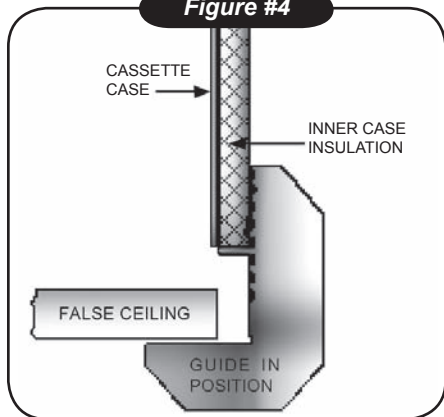
Figure #3



NOTE: If the ceiling is not level or even, it is important that the Cassette is installed level to ensure correct pump operation and to maintain fan clearances. Place a carpenter's level on the unit. A maximum slope of 1/8" (3mm) over the length of the chassis toward the condensate drain is allowed. Any slight discrepancy between the Cassette and ceiling will be taken up by the fascia foam seal.

4. Lift the Cassette onto the hanging rods. Levelled at the correct distance from the ceiling with the aid of the installation guides as shown **Figure #4**.

Figure #4



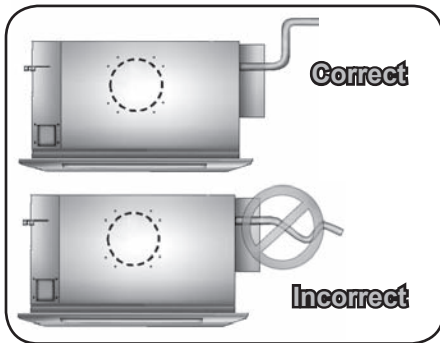
CONDENSATE PIPING AND DUCT CONNECTIONS

The unit can now be piped up in accordance with good refrigeration and/or plumbing practices.

The Cassette is supplied with a 1/2" I.D. flexible PVC hose for connection to copper or plastic drain pipework. When installing the Cassette the following points should be remembered:

1. Maximum pump lift is 36" (0.9m).
2. The highest point in the condensate pipework should be as close to the unit as possible. This prevents a large volume of water draining back into the unit when it is switched off.

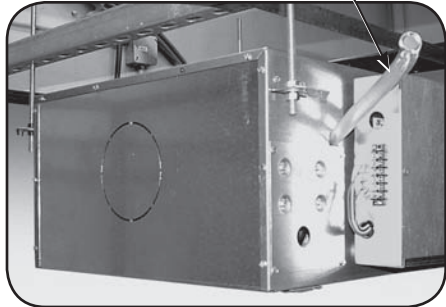
NOTE: There is a check valve at the pump discharge to prevent water from draining back into the unit. This piping technique will minimize any issues should the check valve become stuck open from airborne debris.



3. Condensate pipework should slope downwards in the direction of water flow with a minimum gradient of 1" (5mm) per 10' (1m). There must not be any uphill gradients other than in the first 36" (0.9m) of pipework from the Cassette.
4. When multiple Cassettes are connected to a common condensate drain, ensure the drain is large enough to handle the volume of condensate from several Cassettes. It is also recommended to have an air vent in the condensate pipe work to prevent any air locks.

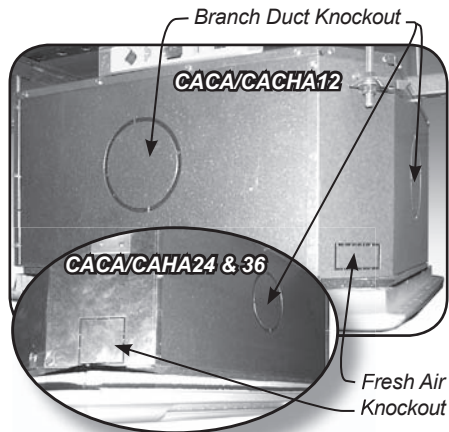
NOTE: A drain line vent may be required to prevent siphoning of water from the drain pan and associated noise.

Condensate Drain Connection



▲ **Duct collars:** Branch duct and fresh air duct collars can be attached to the Cassette chassis by following the steps below:

1. Locating the knock-out holes.



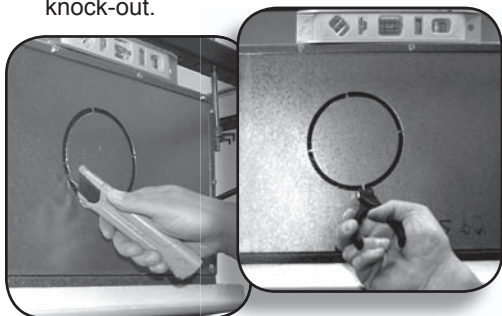
NOTES: The number of knock-outs varies depending on unit size.

- Branch duct knock-outs are 5/4" (133mm) round
- Fresh air knock-outs are 1/4" x 2/2" (32 x 64mm) rectangular on CACA/CAHA12, and 3" (76mm) square on CACA/CAHA24 & CACA36.

Recommendation: No more than 10' (3m) of branch duct or fresh air duct should be installed.

CONDENSATE PIPING AND DUCT CONNECTIONS

2. Cut the black insulation around the knock-out.



3. Snip the tabs holding the knock-out in place.
4. Remove the metal knock-out and the black insulation behind it.
5. Attach the duct collars (field supplied) to the chassis using self-tapping screws. (Repeat steps 1-5 for remaining duct work.)

REFRIGERATION PIPING

Once the unit is mounted and level the Cassette piping connections can be made.

PIPING DO'S AND DON'TS

- Avoid piping on a rainy day.
- Use refrigerant grade copper tubing.
- Use a tubing bender and avoid unnecessary bending.
- Cap ends of lines until ready for final connections.

NOTE: Refrigerant and condensate pipes should be insulated right up to the Cassette chassis.

The CACA/CAHA is equipped with a Flo-Rater/Piston Expansion device. Connections are sweat type.

The suction line (large) must be insulated the entire length with closed cell, foam tube insulation. Do not insulate the liquid line (small). Connect the outdoor unit according to the instructions supplied with unit.

All horizontal piping runs should be without dips to trap the oil and slightly inclined, so as to encourage oil flow in the direction of the compressor.

Any change in the diameter of the tubing **MUST be made at the indoor connection.** Line-set diameter is determined by the condenser valve size.

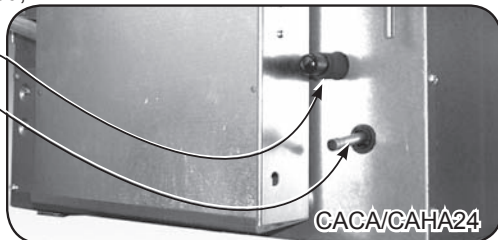
Use of a larger line can harm the compressor!

PIPE INSTALLATION NOTES

1. Maximum equivalent pipe run should be no more than 100' (30.5m), with a maximum rise of 35' (10.7m).
2. Horizontal pipe runs should be slightly inclined, so as to encourage oil to flow in the direction of the compressor, for better oil return.
3. Good refrigeration practices must be employed to ensure the correct pressure drop and good oil return.

When matching a the CACA/CAHA24 with an 18,000 Btuh condenser, the inter-connecting suction line needs to be 5/8" O.D. to match the condenser service valve connection. Therefore the 3/4" O.D. suction connection of the CACA/CAHA24 unit needs to be reduced to 5/8" at the CACA/CAHA24 unit connection to match the 5/8" line of the condenser.

Suction Line
Liquid Line

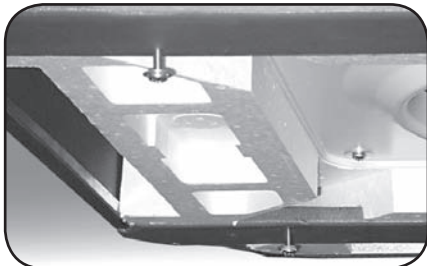


5/8" bushing goes on suction line
(Only when matched to an 18,000 Btuh condenser)

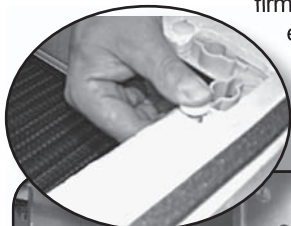
Assembly Instructions

1. To install the four fascia mounting bolts:

- Remove the bolts and washers from the supplied kit bag.
- Put washers onto the bolts.
- Screw the mounting bolt with washer into the chassis leaving approximately 1" (25mm) to hang the fascia.



2. Ensure the white panel fasteners holding the fascia polystyrene are pushed firmly in (fasteners may have loosened in transit).



3. Lift the fascia onto the chassis mounting bolts. Align the key hole brackets with the mounting bolts and slide the fascia forward to lock into position.

NOTE: The fascia only fits correctly one way. Position the fascia so that the AmericaSeries logo is on the control box end of the chassis.

4. On CACA/CAHA24 and CACA36 units connect the vane motor plug by plugging it into the socket connection on the chassis.

- Ensure that the connector is in the proper orientation.

Female vane motor plug on chassis



Male vane motor plug on fascia

- Route the wires in a way that ensures they won't become trapped, cut, broken or chaffed.

5. The fascia can now be tightened up to the Cassette chassis. ***Make sure a good seal is obtained between fascia and chassis, this is necessary to prevent recirculation.***

NOTE: Do not over tighten the bolts. To do so may cause damage to the fascia.



With filter(s) in place, the inlet grille(s) can now be installed onto the fascia.

To complete the installation adjust the louver position to 30° from plumb, this is recommended for "optimum" system performance.



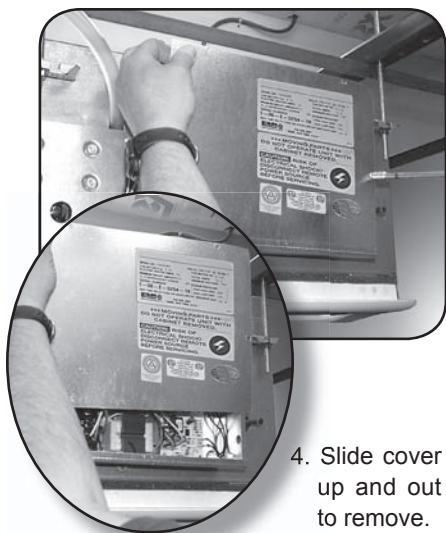
Electrical Wiring

The standard unit Voltage is 208/230V (60Hz, 1Ph). Check the unit's rating plate for your models' electrical requirements.

- The wires should be capable of carrying the maximum load current under non-fault conditions at the stipulated Voltages.
- Avoid large Voltage drops on cable runs, particularly in low Voltage wiring.
- The correct cable size must be used to ensure a Voltage drop of less than 1 Volt in the control wiring.
- Once the refrigeration pipe work is complete, the electrical supply can be connected.
- Low Volt wiring must be at least 18 AWG.

All wiring should be in accordance with the National Electric Code (NEC) and the local building codes.

1. **Make sure power is off.**
2. Inspect the existing wiring for any deficiencies such as cut or frayed wires. Replace if any such wiring is found.
3. Remove the 4 screws securing the control box cover.



4. Slide cover up and out to remove.

5. The rating plate is located on the outside of control box cover (see *Low Volt Interconnecting Wiring* section for location of wiring diagram).

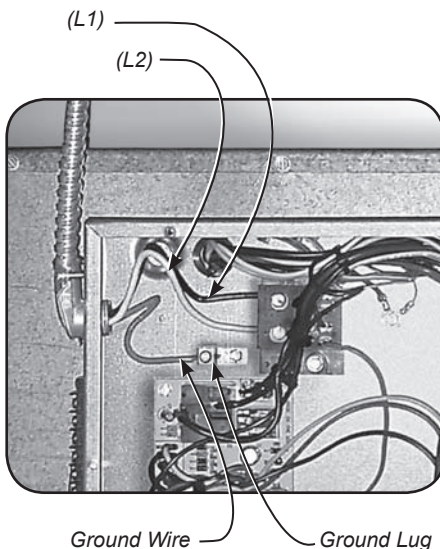
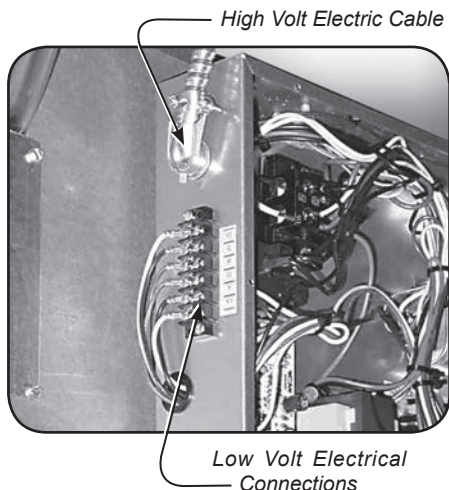


6. Check the unit rating plate for circuit ampacity and breaker or fuse size. **Use only HACR type breakers.** Select the proper wire for the ampacity rating.
7. Each unit must have a separate branch circuit protected by a fuse or breaker. Refer to the unit rating plate for the proper wire and breaker or fuse size.
8. It is also recommended that a local disconnect switch be connected within 3' of the unit. In some areas this may be a code requirement.

CACA/CAHA CASSETTE EVAPORATOR INSTALLATION INSTRUCTIONS

High Volt Electrical Wiring

1. Route the cable through the appropriate hole in the control box for the High Volt electrical wiring.



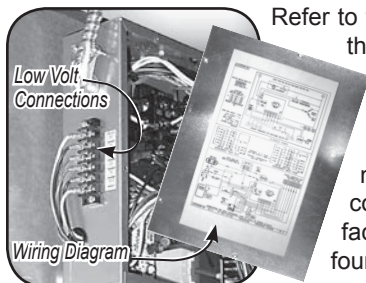
2. Secure the cable.

3. Refer to the wiring diagram (see below) to connect the ground wire to the ground lug.

4. Then refer to the wiring diagram to connect the power wire to (L1) and the other wire to (L2) at the power connector location (terminal block).

(See *"Electrical Specifications"* Section in the back of this manual for more information)

Low Volt Interconnect Wiring



Refer to the wiring diagram to connect the low Volt wiring to the appropriate terminals. The wiring diagram located on the inside of the control box cover.

Once the connections are made replace control box cover with the wiring diagram facing in and secure with the four screws.



NOTE: All low Volt interconnect wiring must be at least 18 AWG.

The 24V control transformer is located in the air handler unit. This provides low Volt control power to both the air handler and condenser. Depending on the models selected, the **low Volt** interconnect control wiring may be different.

LOW VOLTAGE INTERCONNECT WIRING

Depending on the thermostat required or selected, cooling only air handlers may utilize three to five low voltage interconnecting wires between the indoor unit, thermostat and the outdoor unit. Some thermostats do not require the use of the “C” (brown) connection. In this case, en-

sure that any unused wires are insulated to prevent them from making contact with the junction box or other metal surfaces.

If the indoor unit has electric heat then a “W” connection is required between the thermostat and the indoor unit.

Figure #5

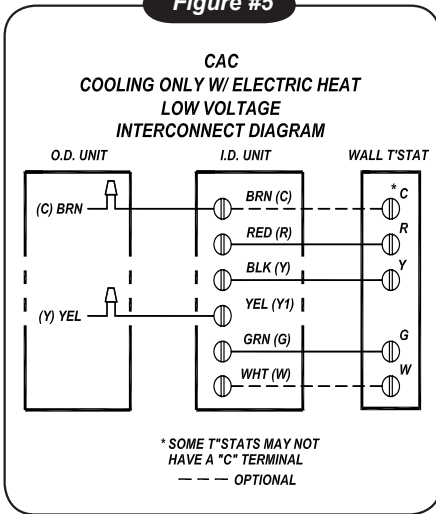
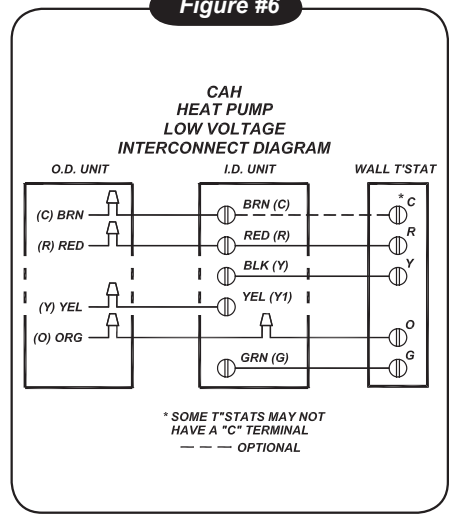


Figure #6



START-UP FOR WALL THERMOSTAT CONTROL

Refer to low voltage interconnect diagrams **Figure #5** (Cooling Only) and **Figure #6** (Heat Pump) with remote wall thermostat controls.

NOTE: Apply power to the Condensing Unit's crankcase heater for 24 hours before start up to boil off any liquid refrigerant that may be present in the compressor.

1. After 24 hours, the compressor should be isolated by removing the connection

at the “Y” terminal on the outdoor unit. Main power can now be applied to the indoor and outdoor units. A system electrical check can now be carried out.

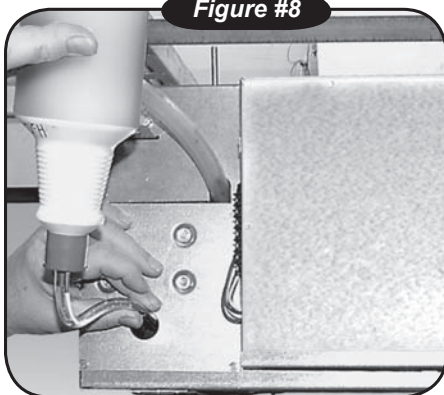
2. Switch on the indoor Cassette unit and check that the fan cycles correctly.
3. On models CACA/CAHA24 and CACA36, check that the motorized vane sweep functions correctly by toggling the function on or off, via the toggle switch on the side of the electrical box **Figure #7**.

Figure #7



Toggle Switch

Figure #8



4. For units with electric heat, check the operation of the heat elements by switching the system to the heating mode and set the room temperature above the set point.

5. Ensure that the Condensing Unit start up procedure has been carried out as detailed in the corresponding installation manual.

6. The compressor signal "Y" (disconnected in step 1) can now be reconnected and main power applied to the outdoor unit.

7. To check the operation of the condensate pump remove an adjacent ceiling tile to access the condensate pump access:

- Insert a squeeze water bottle nozzle through the opening in the condensate pump access panel and fill drain pan. Refer to **Figure #8**.

- Adding water will activate the float switch and the pump. Water must flow regularly with condensate pump energized. If water does not, check the pipe slope or see if there are any pipe restrictions.

8. Ensure that all covers, panels and filters are in place and discharge louvers are correctly positioned.

9. Turn the system power on and set the cooling mode to the lowest thermostat set point to run the compressor.

NOTE: The unit is equipped with a safety switch that will activate the pump when the condensate reaches a critical level. The safety switch will also de-energize the compressor if the water level becomes too high.

10. Repeat the above procedure for all Cassettes in the same systems.

IMPORTANT:

It is illegal to discharge refrigerant into the atmosphere. Use proper reclaiming methods and equipment when installing or servicing this unit.

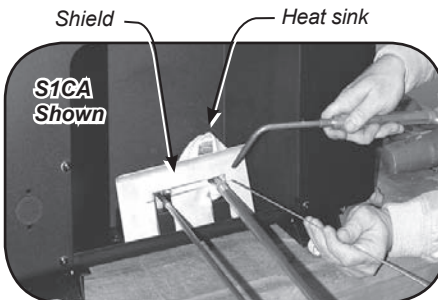
Finish all pipe connecting before proceeding to charging the system.

Follow the instructions in the outdoor unit for line evacuation, opening service valves, and final charge adjustments. Operation charts and charge tables can be found in the EMI Condenser IOMs.

1. Clean the ends of tubing and insert into fittings.

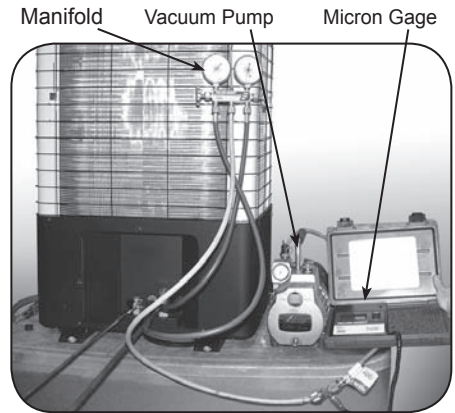


2. Protect the valves by wrapping with a wet rag "heat sink" before brazing.

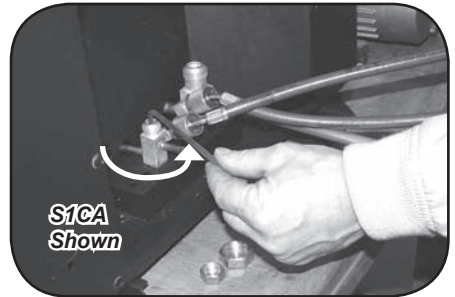


3. The use of a heat shield is recommended to protect the paint. (A heat shield can be made from scrap metal.)
4. Braze tubing into fittings.

5. Attach manifold set.



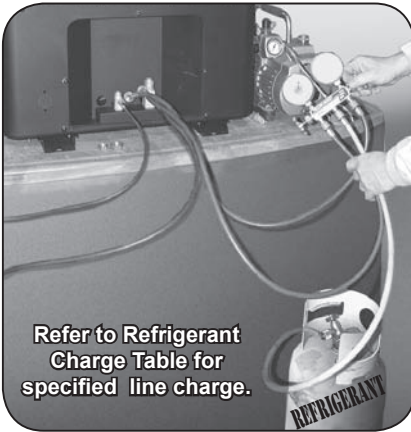
6. Evacuate line to 500 microns or less to ensure all moisture has been removed and there are no leaks.



7. Once certain of a good evacuation and leak free joints, back-seat the valves (counter-clockwise) to open and allow factory charge to fill lines and indoor unit.

Refer to Charts in condenser manual to "fine tune" the refrigerant charge.

REFRIGERANT PROCESSING



- Charge to proper weight, charge based on the length of interconnect (see below).

NOTE: Charging should be done with a dial-a-charge or weighed in with a scale.

IMPORTANT NOTES:

- To find the charge adjustment and system charge for any evaporator and tubing length:
Line Adjustment = (Line Chg/Ft) x Line Length
System Total = Factory Charge + Line Adjustment
- Round to the nearest ounce and allow for gauges and hoses.
- Use R22 refrigerant.

S1CA/S1HA REFRIGERANT CHARGE TABLE

Condenser	Evaporator Pairing	Line Chg/Ft	Factory Charge	Ref.
S1CA/S1HA9	CACA/CAHA12	.25 oz./ft (23g/m)	37 oz. (1048g)	R-22
S1CA/S1HA2	CACA/CAHA12	.25 oz./ft (23g/m)	40 oz. (1134g)	R-22
S1CA/S1HA8	CACA/CAHA24	.56 oz./ft (52g/m)	51 oz. (1446g)	R-22
S1CA/S1HA4	CACA/CAHA24	.56 oz./ft (52g/m)	65 oz. (1842g)	R-22
S1CA3	CACA36	.56 oz./ft (52g/m)	72 oz. (2041g)	R-22
S1CA6	CACA36	.56 oz./ft (52g/m)	90 oz. (2551g)	R-22

S2CA REFRIGERANT CHARGE TABLE

Condenser	Evaporator Pairing	Line Chg/Ft	Factory Charge	Ref.
S2CA99	CACA/CAHA12	.25 oz./ft (23g/m)	28 oz (794g)	R-22
S2CA22	CACA/CAHA12	.25 oz./ft (23g/m)	33 oz (936g)	R-22
S2CA92	CACA/CAHA12+CACA/CAHA12	.25 oz./ft (23g/m)	28 oz./ 33 oz. (794/936g)	R-22

TOP DISCHARGE REFRIGERANT CHARGE CHART

Circuit Capacity	Line Chg/Ft	Factory Charge	Ref.
9,000	.25 oz./ft (23g/m)	28 oz. (794g)	R-22
12,000	.25 oz./ft (23g/m)	30 oz. (850g)	R-22
18,000	.56 oz./ft (52g/m)	48 oz. (1360g)	R-22
24,000	.56 oz./ft (52g/m)	60 oz. (1701g)	R-22

REMOTE THERMOSTAT OPERATION for CACA/CAHA Ductless Split Air Handler

▲ **Choosing a Thermostat:** EMI offers several remote thermostats that are compatible with the Ductless split system air handlers. See the latest price list for a list for available thermostats. It is important to choose a thermostat that will match the equipment that you have selected. For single stage cooling or heating choose a single stage Heat/Cool thermostat.

▲ **Selecting a Thermostat "By Others"** When selecting a thermostat other than one offered by EMI, it is important to choose a 24V thermostat that matches the application. EMI equipment is compatible with most mercury bulb, digital or power stealing thermostats.

- **Cooling only with Electric Heat or Hydronic Heat** – Select a thermostat that is compatible with a cooling - electric heat system. The thermostat should have "R", "Y", "W" and "G" terminals. The thermostat may also have a "C" terminal.

- **Heat pump** – Select a thermostat that is compatible with a cooling – heat pump system. The thermostat should be a single stage cooling, single stage heating thermostat with an "R", "Y", "O" and "G" terminals. The thermostat may also have a "C" terminal.

▲ **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:** The indoor unit is equipped an electronic circuit board with a fan purge feature. After the room thermostat has been satisfied while the fan selection switch is in Auto mode, the purge feature will allow 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 Timer:** The electronic circuit board of the indoor unit also has an anti-short cycle timer (ASCT) fea-

ture designed to protect the compressor from short cycling. The ASCT is activated immediately following the off cycle of the outdoor unit. Once the room temperature is satisfied and the outdoor unit switches off, the ASCT will prevent the outdoor from restarting unit after a three-minute time period has elapsed

▲ **Cooling Operation:** After connecting the thermostat to the unit place the system switch in cool mode. Adjust the set-point temperature below the room temperature. The compressor and fan motors will start and cooling will begin.

Next, place the set-point temperature above the room temperature. The outdoor condenser will stop and if the fan selection switch is in the Auto mode, the indoor fan will remain on for an additional sixty seconds.

▲ **Electric Heat Operation (Optional For CACA Only):** Place the thermostat system switch in heat mode. Adjust the set-point temperature above the room temperature. The electric heat will energize along with the indoor fan motor. Heating will continue so long as the set-point remains above room temperature.

Next, place the set-point temperature below room temperature. The Electric heater will switch off and if the fan selection switch is in the Auto mode, the indoor fan will remain on for an additional sixty seconds.

▲ **Heat pump operation:** After connecting the thermostat to the unit, place the system switch in Heat mode. Adjust the set-point temperature above the room temperature. The compressor and fan motors will start and heating will begin. Heat pump operation will continue so long as the set point temperature is above the room temperature.

To end heating operation, place the set-point temperature below the room temperature. The outdoor condenser will stop. If the fan selection switch is in the Auto mode, the indoor fan will remain on for an additional sixty seconds.

TEST UNIT PERFORMANCE DATA SHEET

The Test Unit Performance Data sheet below is provided for use by a qualified service professional in the event that there is a problem with the unit. In order for our Technical Service Department to better serve you, please complete and have

this information ready when calling. Make sure to include the Model Number, Serial Number, Date of Installation.

Call our Technical Support Department
@ 1-800-228-9364.

Test Unit Performance Data		
	Date:	
Model Number	Technician:	
Serial Number	Mode:	Cooling
Indoor Section	Notes	
Evaporator Entering Air - DB		
Evaporator Entering Air - WB		
Evaporator Leaving Air - DB		
Evaporator Leaving Air - WB		
Outdoor Section		
Entering Air		
Leaving Air		
Temperature Split		
Operating Pressures		
Compressor Suction - PSIG		
Compressor Discharge - PSIG		
Power Input		
Compressor - Volts		
Compressor - Amps		
OD Fan Motor - Volts		
OD Fan Motor - Amps		
ID Fan Motor - Volts		
ID Fan Motor - Amps		
Total Volts		
Total Amps		
Temperatures - Degrees F°		
Compressor Suction		
Compressor Discharge		
Liquid Out Cond.		
Liquid before Expansion		
Suction out Evaporator		
Capacity Calculations		
DB - Temp Split at evap.		
Test Summary		
Compressor Superheat		
Sub Cooling		

MAINTENANCE

⚠ WARNING ⚠

Turn the **POWER OFF** to the unit before servicing or cleaning.

Service should be performed by a **qualified** service agency. An annual system check is recommended. EMI units are designed and constructed for reliability and long life with minimal maintenance. To insure peak operating efficiency:

1. Clean air filter(s) on a monthly basis:
 - a) The filter(s) are accessed by removing the air intake access grille(s).



**CACA/
CAHA12
Unit
Shown**



2. Remove the filter by carefully twisting and lifting to clear the retaining clips.



3. Lift the filter off the grille. Place filter on a flat surface and vacuum any away dust and debris (vacuum all filters and grills), also vacuum any accessible parts on the unit.



4. Replace the filter by sliding under retainer clips.

5. Or use a garden hose:

- Remove the grille and filter and hose off.
- Let filter(s) and grille(s) dry before replacing.

Allowing dust to collect on the filter will cause the unit to lose efficiency and may eventually malfunction.

6. The unit may be wiped with a damp cloth when needed.



7. Be sure to replace filters and grill before running the unit.

Note: Do not run the unit without the filter(s) or the grille(s).

TROUBLESHOOTING PROCEDURE

For CACA/CAHA Air Handlers With Remote Thermostat Controls

⚠ WARNING ⚠

All service should be performed by a qualified service technician. Before removing access panels or control covers to expose moving parts of non-insulate live electrical components for service, disconnect all high Volt power supplies to both the indoor unit and outdoor unit. Failure to do so could result in physical injury and/or electrical shock.

When troubleshooting the indoor unit, refer to the wiring diagram that is supplied with the equipment. It is located on the back of the control access panel. If unable to locate the wiring diagram call the factory technical service line at (800) 228-9364 and one can be faxed or mailed. Please have the full model and serial number available prior to calling.

EMI **America Series** evaporators are designed to operate with EMI **America Series** condensers. The evaporator (indoor unit) and condenser (outdoor unit) are to be independently connected to the electrical service panel and protected by separate time delay fuse or HACR break-

ers. (See the unit name plate for the correct breaker type and size). The indoor and outdoor units are also connected to each other via a 24V interconnect wiring. A transformer provides the low Volt power source for the controls. The number of low Volt interconnect conductors will be three to five depending on heating options and or thermostat selection. Interconnect wire should be at least 18 AWG. Refer to the unit wiring diagram for the interconnect diagram that matches your system.

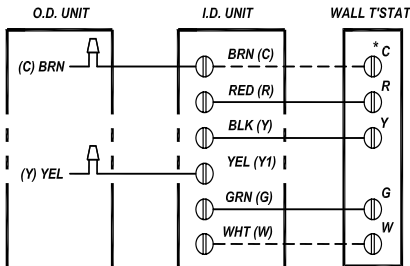
Power Supply Check

When troubleshooting any EMI product, it is important to first check the rating plate for proper field Voltage and breaker size. Using a Voltmeter check the incoming power supply to see that it agrees with the rating plate. The incoming power should not exceed the nameplate Voltage. Also, the incoming power should not be below the minimum Voltage stated on the rating plate (197V for units rated 208/230V).

A check for low Voltage power should also be made. By placing a Voltmeter across low Volt terminals "R" and "C" at the indoor unit, there should be a reading of 24 Vac.

Figure #5

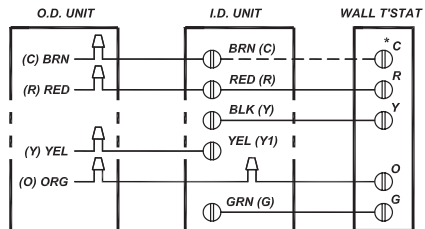
CAC COOLING ONLY W/ ELECTRIC HEAT LOW VOLTAGE INTERCONNECT DIAGRAM



* SOME T'STATS MAY NOT HAVE A "C" TERMINAL
--- OPTIONAL

Figure #6

CAH HEAT PUMP LOW VOLTAGE INTERCONNECT DIAGRAM



* SOME T'STATS MAY NOT HAVE A "C" TERMINAL
--- OPTIONAL

Low Volt Controls

▲ Cooling Only Units:

Cooling only units require 18 AWG low Volt interconnecting wires between the indoor unit, outdoor units and thermostat. Terminals designated "Y1" (yellow) and "C" (brown) of the indoor air handler should be connected to the corresponding "Y" (yellow) and "C" (brown) wires or terminals of the outdoor condenser.

Terminals "R", "Y", "G", "W" and "C" need to connect to the indoor, wall mounted thermostat.

NOTE: "W" is required for units with electric heat only. "C" may not be needed on some thermostats.

Refer to low Volt interconnect diagram interconnect diagram **Figures #5 & #6** for remote thermostat connection.

A 24V transformer located in the indoor air handler unit provides low Volt control power to both the indoor air handler and outdoor condenser. The 24V power supply can be measured by placing a meter across the "R" and "C" low Volt terminals of the air handler. The remote wall mounted thermostat will switch on and off the condenser through the yellow (Y) and black (Y1) wires. When the thermostat is calling for cooling, 24V can be measured between terminals (wires) Y and C.

The indoor unit contains an electronic anti short cycle timer feature (ASCT) that will prevent the outdoor condenser from short cycling. After the thermostat is satisfied there will be a three minute delay before the condenser is allowed to re-start. The three minute delay also occurs when line voltage is first applied.

▲ Electric Heat (Optional for CACA only):

Units with electric heat utilize a control relay located on the circuit board in the

control box. As a safety feature, an auto resetting limit switch located on the heater assembly will interrupt power to the heater should an over-temperature condition occur. Each electric heat assembly is also equipped with a one time fuse link. Should electric heat temperatures rise above the auto resetting limit switch, a non-resetting, one time fuse link will open and the heater will remain off. If this occurs the limit switch assembly must be replaced. Contact EMI technical service for a replacement.

The following current values apply when the unit is connected to a 230V power supply. These values include fan motor current. If the supply voltage is different, this will in turn affect the amp draw of the heater.

5 kW = 22.3 amps,
3 kW = 13.5 amps,
1.5 kW = 6.9 amps.

▲ Heat pump (Model CAH only): Heat pump units utilize four to five interconnecting, low Volt wires depending control setup and/or thermostat selected. Refer to the low Volt interconnect section and **Figure #6** for low Volt interconnect wiring. The transformer in the Cassette air handler provides low Volt control power to both the indoor unit and outdoor condenser.

With high Volt power supplied to the condenser, 24V can be measured across the red (R) and brown (C) wires at all times.

EMI heat pump systems utilize a reversing valve is that is energized in the cooling mode. The reversing-valve signal is provided through the orange (O) low Volt wire of the air handler or thermostat. It should remain energized constantly as long as the thermostats' system switch remains in cooling mode. To check for 24V reversing valve Voltage, at the outdoor unit, place a Voltmeter across the brown (C) and orange (O) wires while in the cooling mode. The meter should read 24 Vac.

▲ **Heating (Heat pump):**

Heat pump units will operate the compressor in heating mode while the reversing valve is de-energized. The wall thermostat will cycle the condenser through the yellow (Y) wire as it does in cooling. To check for a condenser signal, place the wall thermostat in heating mode. Next, place the set-point temperature above room temperature to call for heating. Then, with a Voltmeter check for 24 V across the yellow (Y) and brown (C) wires at the condenser.

▲ **Units with Condensate Pumps:**

EMI CACA and CAHA Cassette air handlers are equipped with an internal con-

densate pump capable of removing condensate up to a 3ft. (0.9m) vertical lift. Condensation generated by the evaporator will collect in the pumps' reservoir. When the water level is high enough, a float switch will close and energize the pump motor clearing the water from the reservoir. Should, for any reason, the water exceed the maximum preset level, a safety switch will open, thereby interrupting the (Y1) signal to the condenser. This will prevent the evaporator from generating additional condensate and flooding the unit.

Frequently Asked Questions

Q: *The system has just been installed using an EMI indoor unit and a non-EMI condenser and the unit will not operate.*

A: The Cassette air handler is manufactured with a low Volt transformer installed. EMI outdoor condensers are manufactured without a low Volt transformer. When connecting an EMI evaporator to a non-EMI condenser, check to ensure that there is a 24V control transformer in either in the indoor unit or outdoor unit. Only one transformer is required. If both the indoor unit and outdoor unit contain a transformer, one must be removed from the system.

Q: *The condenser will not start although the indoor unit appears normal. What should I do?*

A: At the indoor thermostat, make sure that the control is in cooling and the setpoint temperature is below room temperature. Next, using a Voltmeter, check for 24V across the yellow (Y) and brown (C) wires. If 24V is present then check for wiring breaks or improper connections between the indoor and outdoor units.

A: Some EMI condensers are equipped with a manual reset high-pressure switch. It

is located on the high side of the system usually on the discharge line of the compressor. To reset, simply push the red button in. If the switch was tripped there will be a "click" when it resets.

A: The Cassette air handlers are equipped with an internal condensate pump with a high level safety switch. If the condensate reaches a critical level or if power is lost to the indoor unit, the safety circuit will open and low Volt power to the condenser (terminal "Y1") will be removed. The condensate pump should be checked for obstruction. The condensate pump assembly can be removed through the side access panel. After removal, inspect the drain pan to determine if the condensate is not being removed properly from the unit. Inspect all drain lines to ensure there is no blockage preventing condensate removal.

Q: *How long will the fan run?*

A: While the unit is in cooling or heating and auto fan mode is selected, the fan will cycle with the call for cooling or heating. When the room temperature reaches setpoint temperature, the heat/cool call is dropped. The fan will

Frequently Asked Questions *Continued*

then stay on for an additional 60 sec. to purge unit of any residual energy.

Placing the fan selection switch on the wall mounted thermostat in the ON position will cause the fan to run continuously regardless of the set point temperature.

Q: *What causes my indoor unit to freeze-up?*

A: Evaporator freeze up is usually the symptom of another problem. The Cassette air handler is equipped with freeze protection to prevent freeze up from occurring. If freeze up does occur then check the following.

- Check that the freeze sensor inserted fully and snug in the coil fins. If not another location may need to be selected. Be careful not to insert the sensor directly into the coil tube rather insert the sensor between two tubes.

- Check the indoor air filter. It should be clean and free of dirt. A dirty filter will reduce airflow and efficiency. Also check that the coil is clean. If the coil is dirty then it should be cleaned using an appropriate coil cleaner or mild detergent.

- Is the equipment being operated in cooling mode when outdoor temperatures are below 65°F (18°C)? If it is, then the condenser should be fitted with low ambient control so that the proper system pressures are maintained.

- Does the system have the proper refrigerant charge? A system low on refrigerant can cause evaporator freeze-up. To check system charge you will need to contact a qualified refrigeration service technician. Refrigerant charge information can be found in IOM for the outdoor condensing unit.

CACA/CAHA PERFORMANCE DATA

NOTE: Due to EMI's ongoing product development program, all designs and specifications are subject to change without notice.

CACA/CAHA TECHNICAL DATA			
REFRIGERATION	12	24	36
Refrigerant Type	R22		
CONNECTIONS	12	24	36
Suction	½"	¾"	¾"
Liquid	¼"	⅜"	⅜"
Condensate Drain	½" I.D.	½" I.D.	½" I.D.
Branch Duct	5¼" Ø	5¼" Ø	5¼" Ø
Fresh Air Duct	1¼ x 2½"	3" x 3"	3" x 3"
FILTRATION	12	24	36
Type	Washable Mesh		
Quantity	1	2	3
Efficiency	80%		
CONDENSATE PUMP	12	24	36
Maximum Head	36" (0.9 m)**		
Min. Flow Rate	2.5 GPH (9.5 l/h)		

*Must bushdown to 5/8" interconnect for 18K system.

** Measured from bottom of unit.

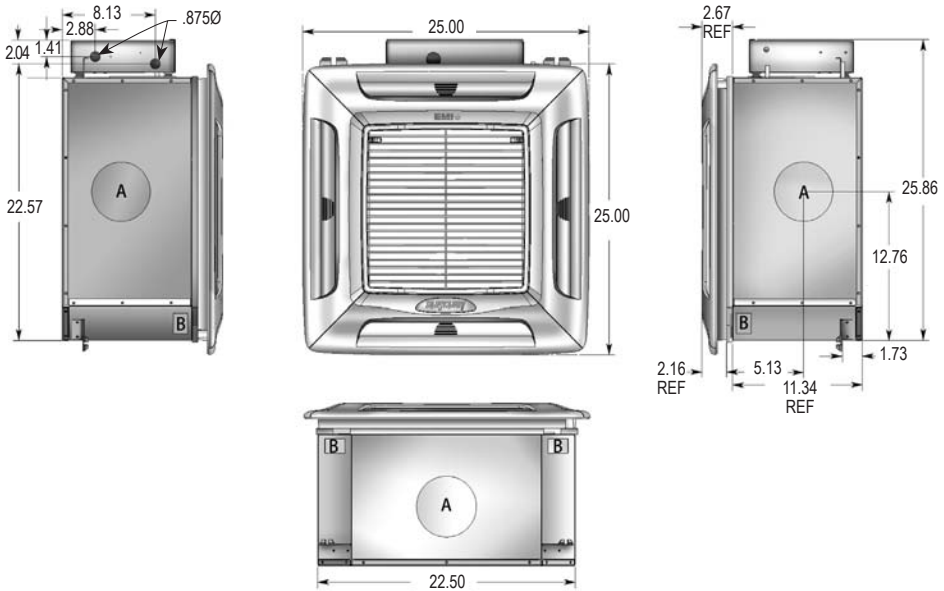
DISCHARGE AIR VOLUME "Dry Coil"		
Model	High Speed CFM	Low Speed CFM
12	380 (180 L/S)	335 (158 L/S)
24	700 (330 L/S)	620 (293 L/S)
36	1,300 (614 L/S)	1,160 (548 L/S)

INDOOR SOUND LEVELS (dBA)		
Model	High Speed	Low Speed
12	41	39
24	44	42
36	51	49

SHIPPING WEIGHT	
Model Size	Lbs.
12	70 (31.8 kg)
24	108 (49.1 kg)
36	146 (66.4 kg)

CACA/CAHA CASSETTE DIMENSIONS

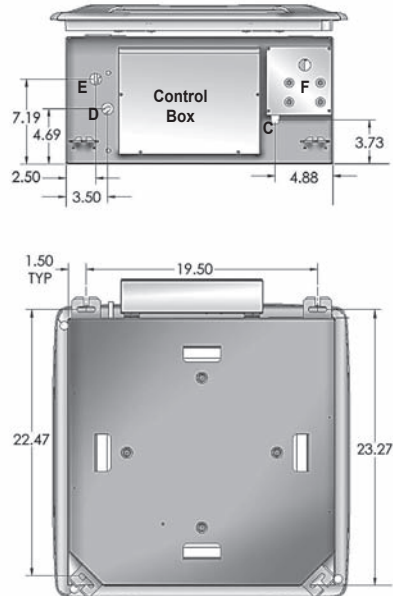
Small Cabinet • CACA/CAHA12 • 9,000-12,000 Btuh



Note: All dimensions in inches.

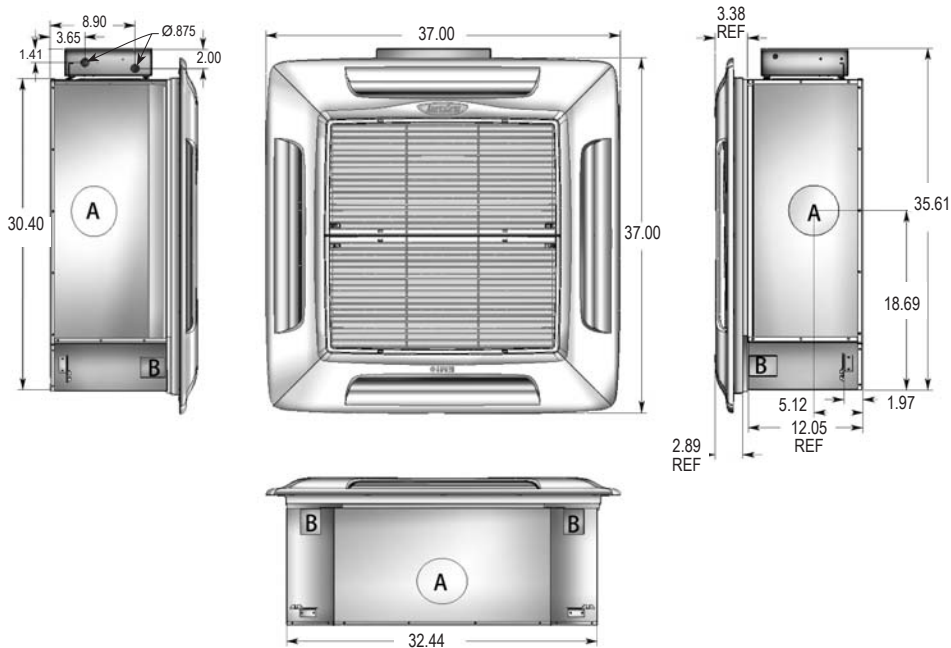
CACA/CAHA12

	FEATURE	QTY.	SIZE
A	Optional Discharge Knockout	3	5¼" Ø
B	Fresh Air Inlet Knockout	2	1¼" x 2½"
C	Condensate Discharge	1	½" Ø
D	Suction	1	½" Ø
E	Liquid	1	¼" Ø
F	Condensate Pump Access	1	-



CACA/CAHA CASSETTE DIMENSIONS

Medium Cabinet • CACA/CAHA24 • 18,000 - 24,000 Btuh

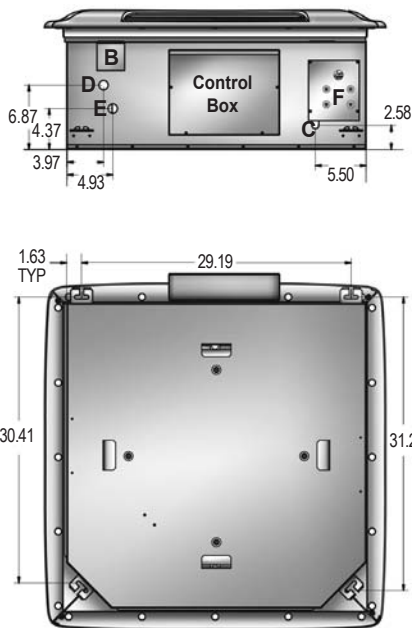


Note: All dimensions in inches.

CACA/CAHA24

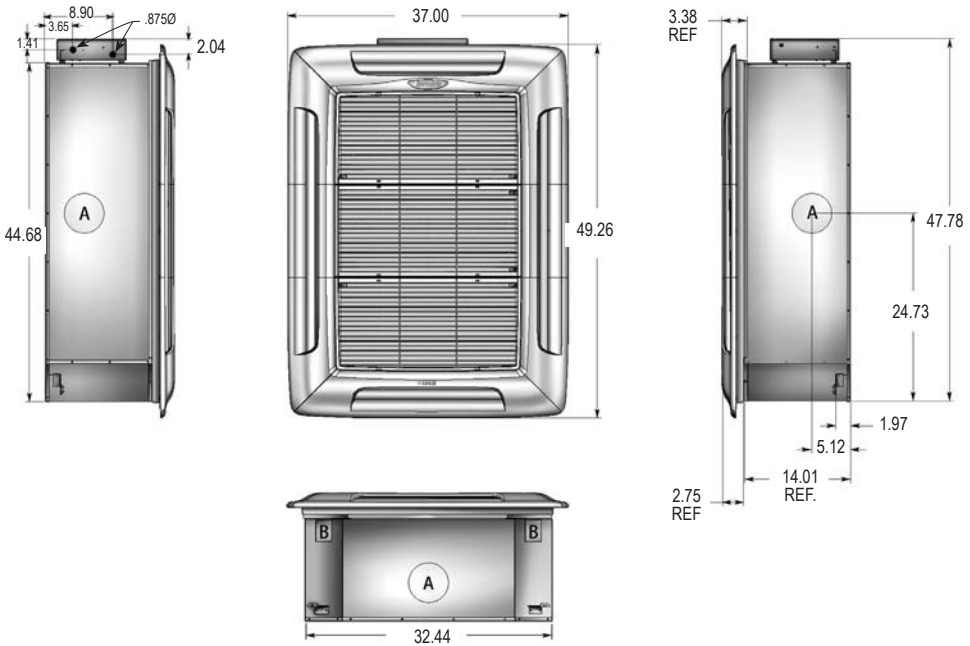
FEATURE	QTY.	SIZE
A Optional Discharge Knockout	3	5 1/4" \varnothing
B Fresh Air Inlet Knockout	3	3 x 3"
C Condensate Discharge	1	1/2" \varnothing
D Suction	1	3/4" \varnothing^*
E Liquid	1	3/8" \varnothing
F Condensate Pump Access	1	-

*18,000 Btuh must be bushed down to 3/8"



CACA/CAHA CASSETTE DIMENSIONS

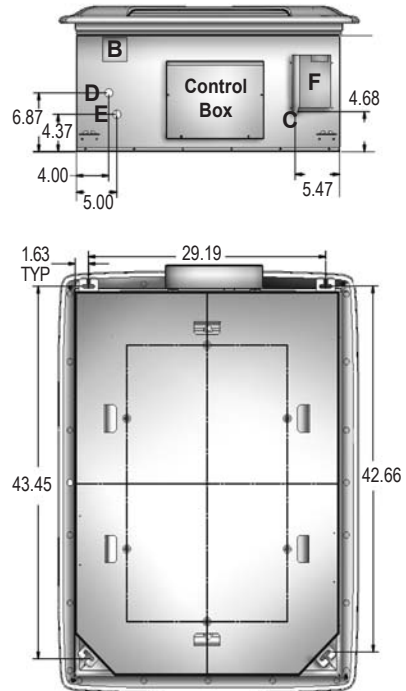
Large Cabinet • CACA36 • 30,000 - 36,000 Btuh



Note: All dimensions in inches.

CACA36

FEATURE	QTY.	SIZE
A Optional Discharge Knockout	3	5 1/4" Ø
B Fresh Air Inlet Knockout	3	3 x 3"
C Condensate Discharge	1	1/2" Ø
D Suction	1	3/4" Ø
E Liquid	1	3/8" Ø
F Condensate Pump Access	1	-



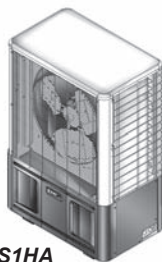
CACA/CAHA ELECTRICAL SPECIFICATIONS

NOTE: Due to EMI's ongoing product development program, all designs and specifications are subject to change without notice.

CACA/CAHA ELECTRICAL SPECIFICATIONS

Model #	Fan Motor			Elect Heat		Total AMPS	Min Volt	M.C.A.	HACR BRKR
	Volts/HZ/PH	RLA	H.P.	kW	AMPS				
CACA/CAHA12	208/230/60/1	0.35	1/10	—	—	0.4	197	0.5	15
CACA12	208/230/60/1	0.35	1/10	1.5	6.52	6.9	197	8.6	15
CACA/CAHA24	208/230/60/1	0.55	1/8	—	—	0.6	197	0.7	15
CACA24	208/230/60/1	0.55	1/8	3	13.04	13.6	197	17.0	20
CACA36	208/230/60/1	0.5, 0.5	1/10, 1/10	—	—	1.0	197	1.2	15
CACA36	208/230/60/1	0.5, 0.5	1/10, 1/10	5	21.74	22.7	197	28.3	30

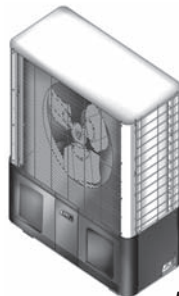
CACA/CAHA CASSETTE SYSTEM MATCHES



S1CA/S1HA
Side
Discharge



CACA/CAHA



S2CA
Side
Discharge

COOLING SYSTEMS WITH CASSETTE UNITS

Cassette	Condenser	Btuh	SEER	SHR	EER	Ref.
CACA/CAHA12	S1CA9	9,000	13.0	.79	11.7	R22
CACA/CAHA12	S1CA2	11,800	13.0	.72	12.2	R22
CACA/CAHA24	S1CA8	18,000	13.0	.76	12.3	R22
CACA/CAHA24	S1CA4	23,000	13.0	.67	11.8	R22
CACA36	S1CA3	30,000	13.5	.82	12.5	R22
CACA36	S1CA6	36,000	13.0	.74	12.6	R22



SYSTEMS WITH HEAT PUMP CASSETTE UNITS

Cassette	Condenser	Cooling Btuh	Heating Btuh	SEER	HSPF	SHR	EER	COP	Ref.
CAHA12	S1HA9	9,300	8,000	13.0	7.7	.80	12.4	3.3	R22
CAHA12	S1HA2	11,800	10,800	13.0	7.7	.72	11.4	3.4	R22
CAHA24	S1HA8	18,200	15,000	13.0	7.7	.78	12.3	3.3	R22
CAHA24	S1HA4	24,000	20,000	13.0	7.7	.69	11.7	3.3	R22



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COOLING SYSTEMS WITH S2C SIDE DISCHARGE

Cassette	Condenser	Btuh	SEER	SHR	EER	Ref.
CACA/CAHA12	S2CA99	18,000	13.0	.81	11.7	R22
CACA/CAHA12	S2CA22	23,000	13.0	.74	11.8	R22
CACA/CAHA12	S2CA92	21,000	13.0	.77	11.8	R22

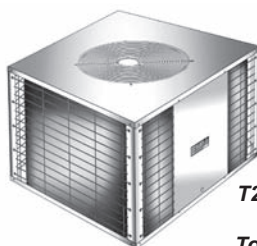


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CACA/CAHA CASSETTE SYSTEM MATCHES



CACA/CAHA



**T2CA, T3CA &
T4CA
Top Discharge**

SYSTEM OPTIONS WITH T2C TOP DISCHARGE

Cassette(s)	Condenser	Btuh	SEER	SHR	EER	Ref.
CACA/CAHA24	T2CA88	34,000	13.0	.79	11.8	R22
CACA/CAHA24	T2CA44	45,000	13.0	.69	11.7	R22
CACA/CAHA12+CACA/CAHA24	T2CA98	27,000	13.0	.82	11.8	R22
CACA/CAHA24	T2CA84	39,000	13.0	.74	11.7	R22
CACA/CAHA12+CACA/CAHA24	T2CA24	34,600	13.0	.75	11.8	R22

SYSTEM OPTIONS WITH T3C TOP DISCHARGE

Cassette(s)	Condenser	Btuh	SEER	SHR	EER	Ref.
CACA/CAHA12+CACA/CAHA24	T3CA994	40,500	13.0	.82	11.7	R22
CACA/CAHA12	T3CA999	27,000	13.0	.87	11.8	R22
CACA/CAHA12	T3CA222	36,000	13.0	.76	11.8	R22
CACA/CAHA12+CACA/CAHA24	T3CA928	39,000	13.0	.80	11.7	R22
CACA/CAHA12+CACA/CAHA24	T3CA924	43,500	13.0	.79	11.7	R22
CACA/CAHA12+CACA/CAHA24	T3CA228	42,000	13.0	.76	11.7	R22
CACA/CAHA12	T3CA922	33,000	13.0	.80	11.8	R22
CACA/CAHA12	T3CA992	30,000	13.0	.83	11.8	R22
CACA/CAHA12+CACA/CAHA24	T3CA998	36,000	13.0	.83	11.8	R22
CACA/CAHA12+CACA/CAHA24	T3CA224	46,500	13.0	.75	11.7	R22

SYSTEM OPTIONS WITH T4C TOP DISCHARGE

Cassette	Condenser	Btuh	SEER	SHR	EER	Ref.
CACA/CAHA12	T4CA9999	36,000	13.0	.87	11.8	R22
CACA/CAHA12	T4CA2222	48,000	13.0	.76	11.8	R22
CACA/CAHA12	T4CA9222	45,000	13.0	.77	11.8	R22
CACA/CAHA12	T4CA9992	39,000	13.0	.79	11.8	R22
CACA/CAHA12	T4CA9922	42,000	13.0	.82	11.8	R22



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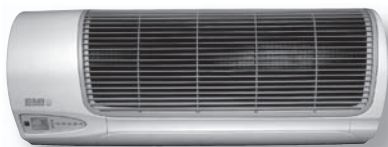


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EMI'S HIGH EFFICIENCY PRODUCT LINE

EVAPORATORS

WLCA/WLHA
High Wall Evaporator



CACA/CAHA
Cassette Evaporator

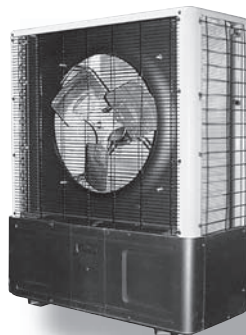


CONDENSERS

S1CA & S1HA Single Zone
Side Discharge



S2CA Dual Zone
Side Discharge



T2CA, T3CA & T4CA 2, 3 & 4 Zone
Top Discharge



