



NOMINAL CAPACITIES:
CAH/CAHW: 9,000 - 48,000 Btuh
CAF/CAF4: 8,000 - 36,000 Btuh

GENERAL STATEMENT

IMPORTANT: The information contained in this manual is critical to the correct operation and maintenance of the EMI cassette and should be read by all persons responsible for the installation, start up and maintenance of the unit.

SAFETY: The equipment has been designed and manufactured to meet international safety standards but, like any mechanical/electrical equipment, care must be taken if you are to obtain the best results.

1. Service and maintenance of this equipment should only be carried out by skilled personnel.
2. When working with any air conditioning unit ensure that the electrical disconnect supplying the unit is switched off prior to servicing or repair work and that there is no power to any part of the equipment. In the case of a DX system, both the indoor and outdoor units should be switched off.
3. Also ensure that there are no other power feeds to the unit such as fire alarm circuits, BMS circuits, etc.
4. Electrical installation, start up and maintenance work on this equipment should be undertaken by competent and trained personnel in accordance with local relevant standards and codes of practice.

EMI DUCTLESS SPLIT SYSTEM CASSETTE EVAPORATOR

INSTALLATION MANUAL/OPERATING INSTRUCTIONS

P/N# 240-4235 Rev. 1.6 [1/05]

SPARE PARTS: For ease of identification when ordering spare parts or contacting Enviromaster International LLC about your unit, please quote the model number and serial number. This information can be found on the rating plate attached to your unit.

PRODUCT DESCRIPTION

The EMI Cassette series is available in nominal capacities of 9,000 to 48,000 Btuh in DX refrigeration and reverse cycle heat pump (CAH) or DX with hot water coil (CAHW) versions; also available are two pipe chilled water (CAF) and four pipe chilled and hot water versions (CAF4) in 8,000 to 36,000 Btuh capacities; and, depending on the model, electric heat can also be factory fitted as an option. Designed for low noise levels, easy installation and maintenance and a slimline fascia, all ensure minimum obstruction into the working environment.

CONTROLS AND COMPONENTS

LOW VOLT TRANSFORMER (Standard): 24 Volt.

ELECTRO-MECHANICAL (Standard): Thermostat options are cooling only, cooling and one stage auxiliary heat, cooling and one stage mechanical heating (heat pump system) or cooling and two stage heating (heat pump & second stage auxiliary heat). 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, etc.)

MICROPROCESSOR (Optional): A custom designed microprocessor is fitted to the cassette to enable room conditions to be maintained at a user defined setpoint. Communication to the controller is by a hand held infrared transmitter, which includes a wall mounting bracket as standard.

The microprocessor allows five operating modes. These modes are - fan only, dry cooling, cooling only, heating only and heating/cooling auto changeover for maximum versatility. A temperature setpoint between 58°F - 90°F can also be selected.

The microprocessor monitors indoor coil temperature and return air temperature. In heat pump units, a 24VAC signal from the condensing unit is also monitored to signal the indoor unit that defrost of the outdoor coil is taking place. This allows the same micro to control both heat pump and cooling only units. The receiver contains a self diagnostic feature. When a low indoor coil temperature is detected the cooling action is stopped. If a sensor fails then an alarm is

displayed on the fascia mounted receiver. The microprocessor also limits the number of compressor starts per hour to reduce wear on the compressor.

The infrared transmitter is used to switch the unit on/off, change temperature settings, fan speed, operating mode and to toggle the motorized air sweep (where fitted). The microprocessor also has a built-in clock which can be activated to enable the unit to be programmed with up to two separate operating periods for the days of the week (Mon-Fri). The clock provides On/Off unit operation and is not a night set back or occupied/unoccupied control function. Mon-Fri will operate as a 'block' of days and cannot be programmed independently of one another. Saturdays and Sundays can each be programmed with up to two separate operating periods and are programmed independently of weekdays and each other.

A fascia mounted receiver displays On/Off, cool or heat and timer/alarm status.

FILTERS: Wire framed filters are fitted. These are reusable and may be vacuum cleaned.

CONDENSATE PUMP: A condensate pump is fitted 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 should the pump become blocked or fail.

IMPORTANT: TOTAL LIFT FOR THIS PUMP IS 18" OR LESS.

AIR VANES: Air outlet vanes are manufactured from aluminum and covered with nylon flock to prevent condensation from forming. Vanes are manually adjustable on the 2 x 2 model 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 either electric heaters or a hot water coil. It is recommended that heat pumps be fitted with the electric heat option to offset the defrost cycle. Electric heaters are fitted with over-heat cut out switches.

FRESH AIR CONNECTION: Fresh air may be introduced to the unit by the addition of ducts connected to the fresh air knockouts on the Cassette case. It is usually advised that the fresh air volume is approximately 10% of the unit's published maximum air flow.

SITE INSTALLATION

UNPACKING: The cassette fascia and main chassis are supplied together for increased protection. Remove the banding straps and lift the cardboard lid. Remove the bubble wrap and polystyrene packing pieces to expose the unit. The fascia should be unpacked first by unclipping the inlet grille and

loosening the four M5 screws retaining the fascia in place. The fascia can now be slid sideways and pulled away from the chassis. When removing the Cassette chassis from the box the four corner brackets should be utilized 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 opposing sides may be blanked off.

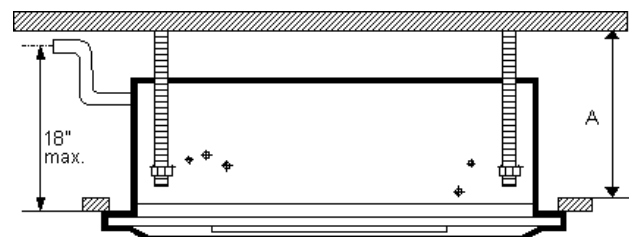
POSITIONING

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

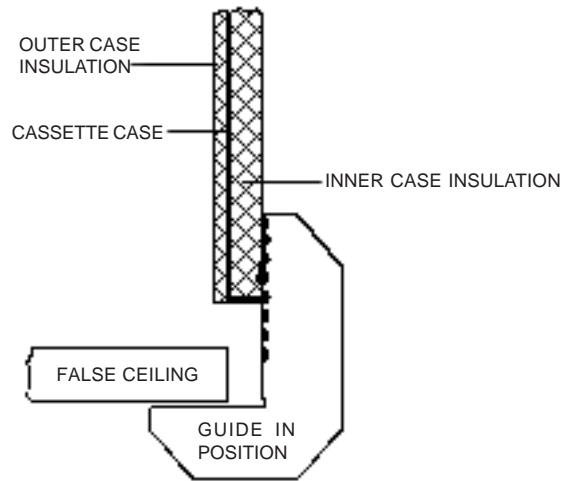
1. Pipe work, electrical connections and condensate pump access panel should be readily accessible.
2. When installing a unit with an externally mounted electrical control panel, ensure that sufficient access to the panel is provided for maintenance purposes. Access to the condensate pump access panel should be provided on all model sizes.
3. The unit should not be positioned less than 5 ft. from a wall or similar obstruction, or in a position where the discharge air could 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') in any horizontal run between Cassette and drain. Maximum condensate pump lift is 18".
6. There should be sufficient room above the false ceiling for installing the Cassette as shown below (see "dimensions" in this IOM for cabinet sizing):

Small Cabinet	A = 12-3/4" min.
Medium Cabinet	A = 11-1/2" min.
Large Cabinet	A = 13-1/2" min.

ELECTRO-MECHANICAL THERMOSTAT - 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. Therefore the installation should be selected with the following points in mind:



1. Position the thermostat approximately 5 ft. above floor level.
2. Do not position thermostat where it can be directly affected by the unit's discharge air stream.
3. Avoid external walls and drafts from windows and doors.
4. Avoid positioning near shelves and curtains as these restrict air movement.
5. Avoid heat sources (direct sunlight, heaters, dimmer switches, etc.)



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. Any slight discrepancy between the Cassette and ceiling will be taken up by the fascia foam seal.

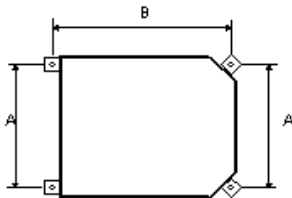
CEILING OPENING: Before beginning the installation, inspect the unit location, test the strength of the unit mountings (see "Mechanical Information" in this IOM). An opening in the false ceiling will then have to be cut to the following sizes:

Small Cabinet	23-1/4" x 23-1/4"
Medium Cabinet	33-7/8" x 33-7/8"
Large Cabinet	46 x 33-7/8"

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

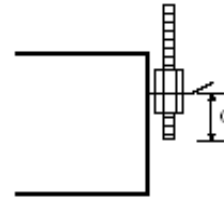
NOTE: Make sure the ceiling grid is supported separately from the Cassette. The ceiling must not be supported by any part of the Cassette unit, fascia or any associated wiring or pipe work.

The hanger bolts can now be installed (use 3/8 all thread rod) at the centers shown below:



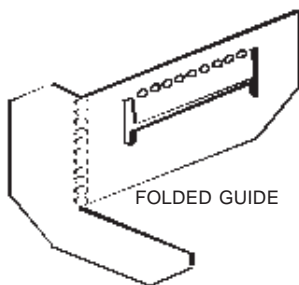
CABINET	A	B
SMALL	19-1/2"	23"
MEDIUM	29-5/8"	31-1/2"
LARGE	29-5/8"	43-11/16"

Secure unit in position with locknuts and washers on either side of the Cassette bracket. Ensure threaded rod does not protrude more than 2" (dimension C) below the mounting bracket.



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

Prepare the installation guides by folding the metal bracket by hand along the row of holes.



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

The Cassette can now be lifted onto the hanging rods and leveled at the correct distance from the ceiling with the aid of the installation guides as shown.

1. Maximum pump lift is 18".
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.



3. Condensate pipework should slope downwards in the direction of water flow with a minimum gradient of (1" per 10'). There must not be any uphill gradients other than in the first 18" of pipework from the Cassette.
4. When multiple Cassettes are connected to a common condensate drain, ensure the drain is large enough to cope with the volume of condensate from several Cassettes. It is also recommended to have an air vent in the condensate pipework to prevent any air locks.

DUCT COLLARS: Branch duct and fresh air duct collars can be attached to the Cassette chassis by following the steps below:

1. Refer to the relevant illustration for your Cassette (*pages 6 -7 in this IOM*) to become familiarized with knock-out hole locations.
2. The insulation is pre-cut to aid location and removal of the relevant section. Rub hand across surface of insulation to reveal exact location of knock-out.
3. Remove the metal knockout from the chassis.
4. Attach the duct collar to the chassis using self tapping screws.

NOTE: Branch ducts are round and 5 - 6" in diameter. Fresh Air ducts are square and 3" in diameter.

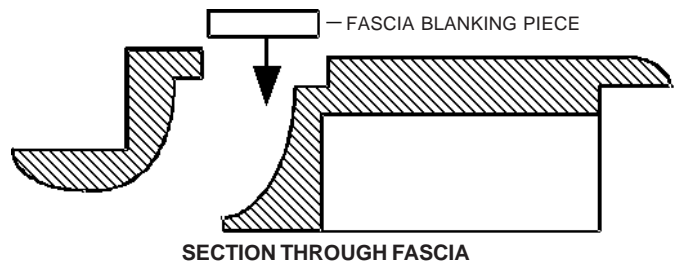
INSULATION: Refrigerant, chilled water and condensate pipes should be insulated right up to the Cassette chassis. Chilled water valves must also be insulated to prevent sweating.

ASSEMBLY: Once the services have been connected the four fascia mounting bolts can be unscrewed approximately 1" from the condensate tray support channels.

The fascia can now be unpacked ready for fitting to the Cassette chassis. Ensure the black fir tree fasteners holding the fascia polystyrene are pushed in firmly in case of transit vibration. If a fascia aperture needs blanking off, then take one of the polystyrene blanking pieces and push it into the recess in the polystyrene fascia insulation. Fit by removing the inlet grilles and filters, locating the four fascia mounting bolts on the chassis through the four keyhole brackets on the fascia and then sliding the fascia sideways until it locks into position.

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

NOTE: On electro-mechanical units, the fascia must be installed with the EMI logo along the same edge of the unit as the electrical panel. On units fitted with microprocessor controls, orient the fascia with the display panel along the same edge of the unit as the electrical panel.



Before tightening the fascia to the unit, connect the two halves of the vane motor's plug and socket connection (where applicable).

On microprocessor controlled units, ensure that the display panel cable is routed to the electrical panel and securely fastened to its connector on the microprocessor circuit board. (Refer to the unit's electrical wiring schematic). Take care to ensure that the connector is connected in the proper orientation and that the wires are not routed such that they may become trapped, cut, broken or chaffed.

The fascia can now be tightened up to the Cassette chassis until a good seal is obtained between fascia and chassis.

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

With filters in place, the inlet grilles can now be fitted to the fascia to complete the installation.

ELECTRICAL DATA

(See Appendix 1 on page 18 for wiring charts and instructions.)

All power and interconnecting wiring between units should be carried out to conform with local/national electrical codes. A fused and dedicated electrical supply of the appropriate phase, frequency and voltage should be installed by the customer. 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.

EMI equipment in its standard form is designed for an electrical supply of 208-230V, 1Ph, 60Hz. When connection to a 115V, 1Ph, 60Hz supply is necessary, a factory mounted buck boost transformer will be fitted to the unit.

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 by routing the cable through the appropriate casing hole and connecting the supply and ground cables to the unit's power terminals. On the medium and large cabinets, it will be necessary to remove the insulated condensate tray support rail, adjacent to the casing hole.

ELECTRICAL SPECIFICATIONS

STANDARD UNIT DATA		SMALL	MEDIUM	LARGE
POWER SUPPLY		230V/1PH/60HZ	230V/1PH/60HZ	230V/1PH/60HZ
FULL LOAD AMPS	A	0.4	0.6	0.9
MIN. CIRCUIT AMPACITY (MCA)	A	0.5	0.75	1.13
REC. FUSE	A	15	15	15
WITH OPTIONAL ELECTRIC HEAT ¹		SMALL	MEDIUM	LARGE
POWER SUPPLY		230V/1PH/60HZ	230V/1PH/60HZ	230V/1PH/60HZ
ELECTRIC HEAT CAPACITY	KW	1.5	3.0	5.0
HEATER AMPS	A	6.52	13.1	21.7
FULL LOAD AMPS	A	7.0	13.7	22.6
MIN. CIRCUIT AMPACITY (MCA)	A	8.8	17.1	28.3
REC. FUSE WITH HEAT	A	15	20	30
WITH OPTIONAL BOOST TRANSFORMER ²		SMALL	MEDIUM	LARGE
POWER SUPPLY		115V/1PH/60HZ	115V/1PH/60HZ	115V/1PH/60HZ
FULL LOAD AMPS	A	0.8	1.2	1.8
MIN. CIRCUIT AMPACITY (MCA)	A	1.0	1.5	2.26
REC. FUSE	A	15	15	15

(1) STANDARD UNIT FITTED WITH OPTIONAL ELECTRIC HEATING ELEMENTS. AVAILABLE WITH 230V MODEL UNITS ONLY.

(2) STANDARD UNIT FITTED WITH OPTIONAL BOOST TRANSFORMER FOR CONNECTION TO A 115V ELECTRICAL SUPPLY. ELECTRIC HEAT IS NOT AVAILABLE WITH THIS OPTION.

REFRIGERATION SYSTEM (DX UNITS)

PIPE INSTALLATION NOTES

1. When cooling only or heat pump units are being installed, it is usually only necessary to insulate the suction line. However, if the liquid line is subject to high temperature or exposed to direct sunlight, this should also be insulated.
2. Maximum equivalent pipe run should be no more than 100', with a maximum rise of 35'.
3. Horizontal pipe runs should be slightly inclined, so as to encourage oil to flow in the direction of the compressor, for better oil return.
4. Good refrigeration practices must be employed to ensure the correct pressure drop and good oil return.

PRESSURE TESTING: When installation is complete, fill the Cassette and interconnecting pipework with dry nitrogen to a pressure of 150 PSIG. Record the pressure over a period of time (a minimum period of 60 minutes should be sufficient to detect any major leaks, however, ideally 24 hours should be allowed). If there is any reduction in pressure, trace the leak and repair before conducting a further pressure test.

EVACUATION: Evacuation should be carried out with a high vacuum pump. The pump should be connected to the high and low pressure sides of the system via a gauge manifold fitted with compound gauges. A high vacuum gauge should be fitted to the system at the furthest point from the vacuum pump.

Triple evacuation should be used to ensure that all contaminants are removed or at least reduced to significantly low proportions.

The vacuum pump should be operated until a pressure of 500 microns absolute pressure is reached, at which time the vacuum pump should be stopped and the vacuum broken with oxygen free nitrogen until the pressure rises above zero.

The above operation should be repeated a second time.

The system should then be evacuated a third time but this time to 100 microns absolute pressure. After stopping the pump, open the condensing unit's service valves to break the vacuum.

START UP PROCEDURES

PRE-START: Once installation is complete it is important that the following pre-start checks are made.

1. All pipe work is complete and insulated where necessary.
2. All fans are able to rotate freely.
3. The Cassette and interconnecting pipe work have been evacuated correctly and the Condensing Unit's service valves are open (DX units only).
4. All electrical connections (both power and control) are properly terminated.
5. All condensate drains are installed correctly.
6. The power supply is of the correct voltage and frequency.
7. The units are properly grounded in accordance with current electrical codes.

START UP PROCEDURES

8. For microprocessor controlled units, check that the display panel cable is properly connected to the microprocessor main circuit board and that the jumper links are correctly set (refer to unit wiring schematic). If the links are set incorrectly, remove main power before making any changes.

9. For microprocessor controlled units, check that the battery on the main circuit board is in place and properly connected. Check also that the batteries are installed in the infrared unit.

Once the above pre-start checks have been carried out satisfactorily, the main start up operation can begin.

IMPORTANT: The jumper links referenced in step 8 must be correctly set before applying mains power, to ensure correct operation of unit. (micro units only)

START UP SHEET EXAMPLE

EMI CASSETTE - CAH/W, CAF/4		ENVIROMASTER INTERNATIONAL LLC 5780 SUCCESS DRIVE ROME, NY 13440 TEL: 1-800-228-9364 FAX: 1-800-232-9364 HTTP://WWW.ENVIROMASTER.COM	
TO BE COMPLETED IN CONJUNCTION WITH START UP PROCEDURE			
RETURN ONE COPY TO EMI AND RETAIN ORIGINAL FOR YOUR RECORDS			
TECHNICIAN:	COMPANY:	DATE:	
MODEL/SERIAL NO:	PROJECT:		
1.0 PRE START UP CHECKLIST			
1.1 UNIT CONDITION SATISFACTORY	COMMENT:		
1.2 PRESSURE TEST WITH DRY NITROGEN	INITIAL TEST PRESSURE	FINAL TEST PRESSURE	TEST DURATION
1.3 DESIGN WATER FLOW AVAILABLE IF CHILLED WATER UNIT			GPM
1.4 VOLTAGE AT OUTDOOR UNIT			V
1.5 VOLTAGE AT INDOOR UNIT			V
1.6 ELECTRICAL CONNECTIONS TIGHT			YES/NO
1.7 JUMPERS SET CORRECTLY (MICRO ONLY)			YES/NO
2.0 START UP CHECKLIST - INDOOR UNIT			
2.1 DISABLE COMPRESSOR SIGNAL			
2.2 ON/OFF WORKS			YES/NO
2.3 INDOOR UNIT: THREE FANS SPEEDS AVAILABLE (MICRO ONLY)			YES/NO
2.4 VANE SWEEP FUNCTIONS			YES/NO
2.5 TIMER FUNCTIONS OPERATE (MICRO ONLY)			YES/NO
2.6 CONDENSATE PUMP OPERATES			YES/NO
3.0 START UP CHECKLIST - OUTDOOR UNIT (REFER TO THE RELEVANT OUTDOOR UNIT MANUAL AND, IN ADDITION, NOTE THE FOLLOWING:			
3.1 OPERATING PRESSURES			
3.2 SUCTION			PSIG
3.3 DISCHARGE			PSIG
3.4 AMBIENT TEMPERATURE			°F
35. INDOOR AIR TEMPERATURE			°F

NOTE: A START UP SHEET FOR EVERY UNIT MUST BE RETURNED TO EMI TO VALIDATE THE WARRANTY.

EMI CASSETTE MECHANICAL DATA

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

CAHW TECHNICAL DATA

REFRIGERATION		09-12	15	18-24	30-36	42-48
NUMBER OF CIRCUITS		1	1	1	1	1
REFRIGERANT TYPE		R22	R22	R22	R22	R22
CABINET DIMENSIONS		09-12	15	18-24	30-36	42-48
HEIGHT		10-3/4"	9-1/2"	9-1/2"	11-1/2"	11-1/2"
WIDTH		22-1/2"	32-1/4"	32-1/4"	44-1/2"	44-1/2"
DEPTH		22-1/2"	32-1/4"	32-1/4"	32-1/4"	32-1/4"
WEIGHT		40 LBS.	64 LBS.	64 LBS.	97 LBS.	97 LBS.
FASCIA DIMENSIONS		09-12	15	18-24	30-36	42-48
HEIGHT		2-1/4"	3"	3"	3"	3"
WIDTH		25"	37"	37"	49-1/4"	49-1/4"
DEPTH		25"	37"	37"	37"	37"
WEIGHT		5 LBS.	18 LBS.	18 LBS.	21 LBS.	21 LBS.
CONNECTIONS		09-12	15	18-24	30-36	42-48
SUCTION		1/2"	1/2"	5/8"	3/4"	3/4"
LIQUID		1/4"	1/4"	3/8"	3/8"	3/8"
CONDENSATE		1/2"	1/2"	1/2"	1/2"	1/2"
BRANCH DUCT DIAMETER		5"	5"	5"	6"	6"
FRESH AIR DUCT DIAMETER		3"	3"	3"	3"	3"
HOT WATER INLET*		1/2"	1/2"	1/2"	1/2"	1/2"
HOT WATER OUTLET*		1/2"	1/2"	1/2"	1/2"	1/2"
FILTRATION		09-12	15	18-24	30-36	42-48
TYPE		WIRE FRAMED PERIFRAME				
QUANTITY		1	2	2	3	3
ARRESTANCE		0.8	0.8	0.8	0.8	0.8
CONDENSATE PUMP		09-12	15	18-24	30-36	42-48
MAXIMUM HEAD		18"	18"	18"	18"	18"
NOMINAL FLOW RATE (GPM)		0.1	0.1	0.1	0.1	0.1

*3/4" SUCTION AT EMI CONDENSER. **7/8" SUCTION AT EMI CONDENSER.

CAF4 TECHNICAL DATA

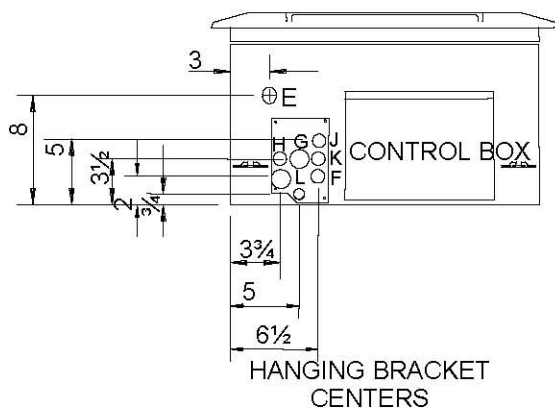
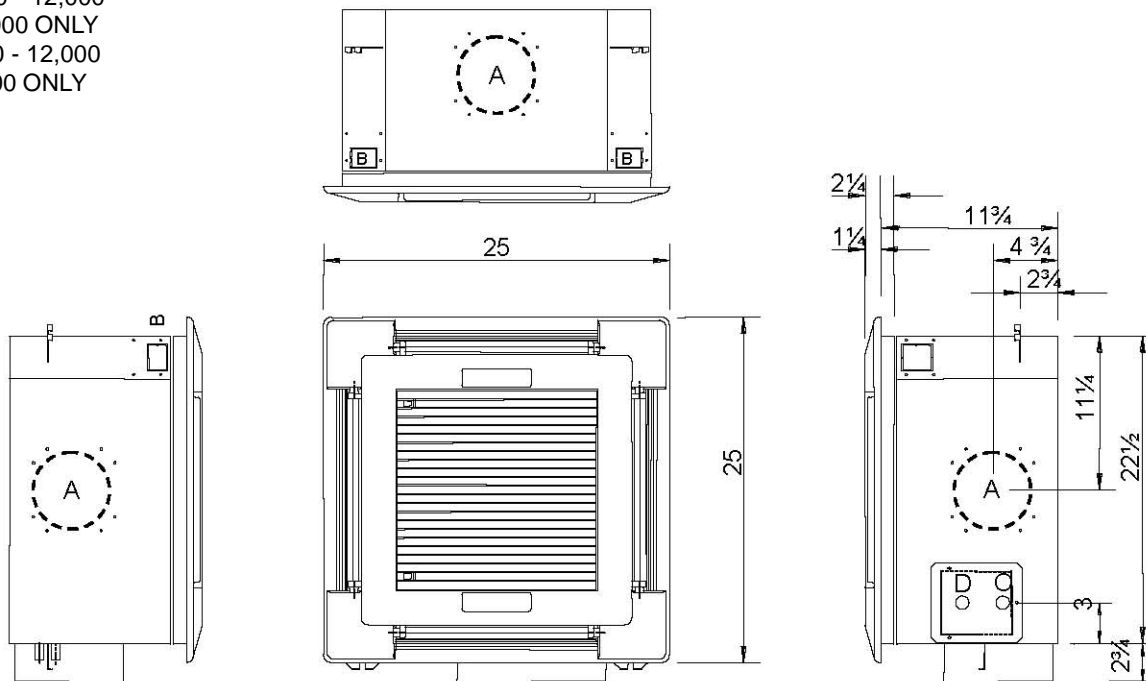
CABINET DIMENSIONS		8	12	18	20	33	36
HEIGHT		10-3/4"	9-1/2"	9-1/2"	9-1/2"	11-1/2"	11-1/2"
WIDTH		22-1/2"	32-1/4"	32-1/4"	32-1/4"	44-1/2"	44-1/2"
DEPTH		22-1/2"	32-1/4"	32-1/4"	32-1/4"	32-1/4"	32-1/4"
WEIGHT		40 LBS.	64 LBS.	64 LBS.	64 LBS.	97 LBS.	97 LBS.
FASCIA DIMENSIONS		08	12	18	20	33	36
HEIGHT		2-1/4"	3"	3"	3"	3"	3"
WIDTH		25"	37"	37"	37"	49-1/4"	49-1/4"
DEPTH		25"	37"	37"	37"	37"	37"
WEIGHT		5 LBS.	18 LBS.	18 LBS.	18 LBS.	21 LBS.	21 LBS.
CONNECTIONS		08	12	18	20	33	36
CHILLED WATER INLET		1/2"	3/4"	3/4"	3/4"	3/4"	3/4"
CHILLED WATER OUTLET		1/2"	3/4"	3/4"	3/4"	3/4"	3/4"
CONDENSATE		1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
BRANCH DUCT DIAMETER		5"	5"	5"	5"	6"	6"
FRESH AIR DUCT DIAMETER		3"	3"	3"	3"	3"	3"
HOT WATER INLET*		1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
HOT WATER OUTLET*		1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
FILTRATION		08	12	18	20	33	36
TYPE		WIRE FRAMED PERIFRAME					
QUANTITY		1	2	2	2	3	3
ARRESTANCE		0.8	0.8	0.8	0.8	0.8	0.8
CONDENSATE PUMP		08	12	18	20	33	36
MAXIMUM HEAD		18"	18"	18"	18"	18"	18"
NOMINAL FLOW RATE (GPM)		0.1	0.1	0.1	0.1	0.1	0.1

* UNITS FITTED WITH OPTIONAL HOT WATER COIL ONLY

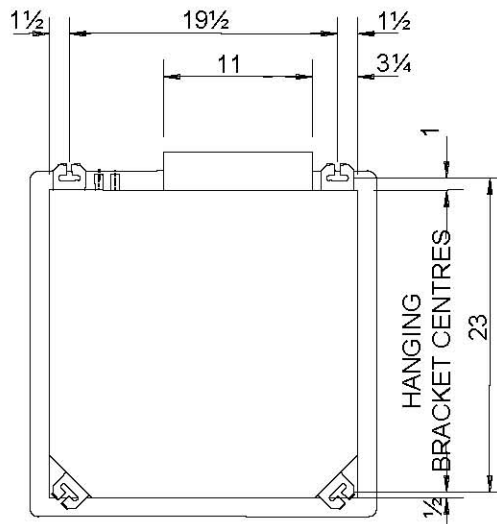
EMI CASSETTE DIMENSIONS

SMALL CABINET

- CAH 9,000 - 12,000
- CAHW 9,000 ONLY
- CAF 8,000 - 12,000
- CAF4 8,000 ONLY



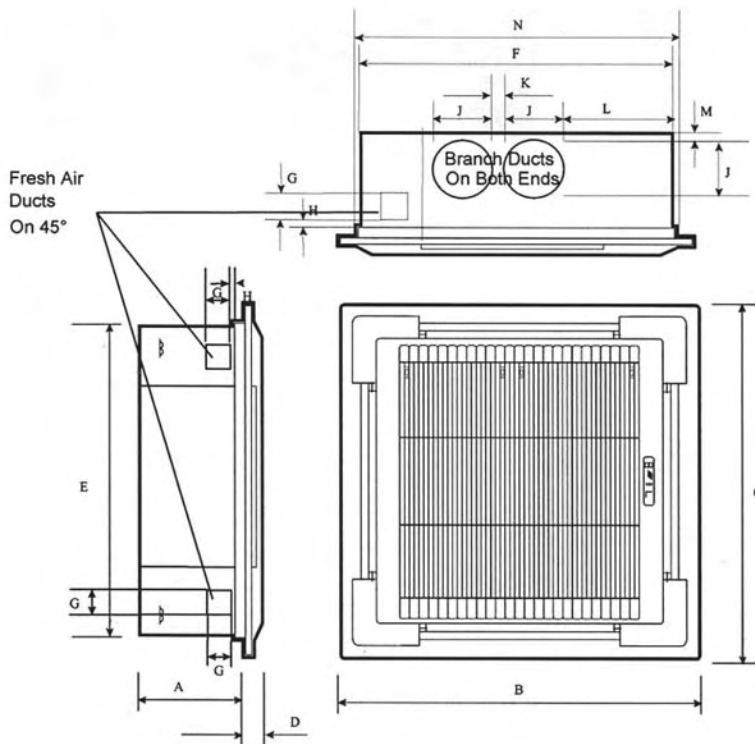
- A OPTIONAL DISCHARGE KNOCKOUT Ø 5" (3 OFF)
- B FRESH AIR INLET KNOCKOUT Ø 3" QTY. 2)
- C CONDENSATE DISCHARGE (1/2")
- D CONDENSATE SUMP INSPECTION HOLE
- E AUXILIARY DRAIN TRAY INLET TO MAIN TRAY (1/2")
- F CHILLED WATER COIL VENT
- G CAH 09/12 OUTLET (1/2")
- H CAH 09/12 INLET (1/2")
- J 1/2" LPHW INLET (CHILLED WATER)
- K 1/2" LPHW OUTLET (CHILED WATER)
- L CAH 09/12 LIQUID (1/4")



EMI CASSETTE DIMENSIONS

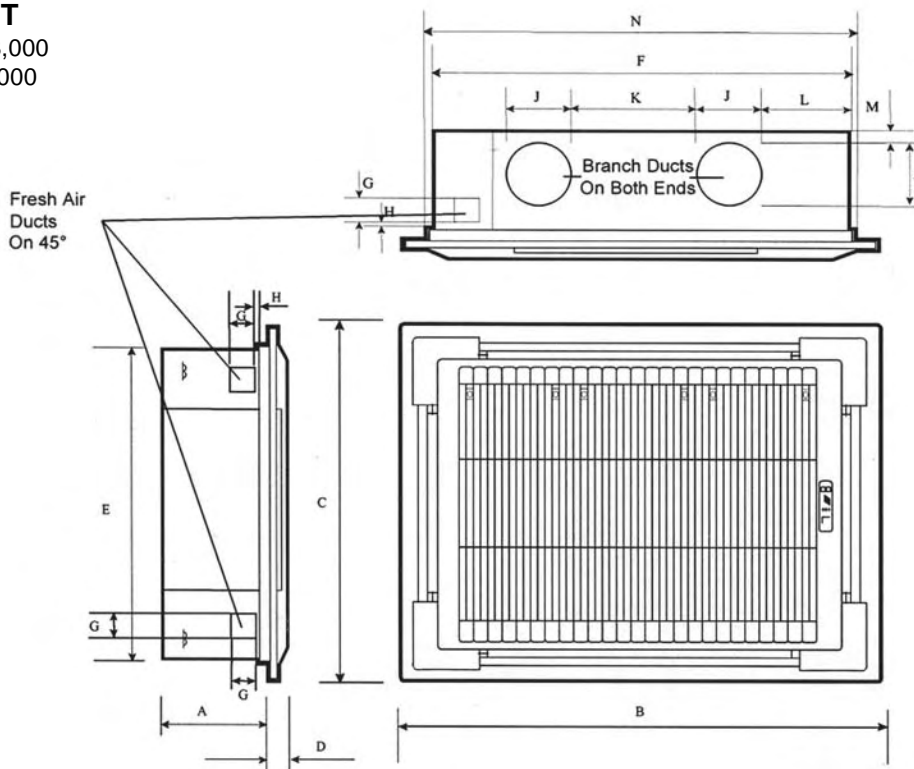
MEDIUM CABINET

- CAH 15,000 - 24,000
- CAHW 12,000 - 24,000
- CAF 18,000 - 20,000
- CAF4 12,000 - 20,000



LARGE CABINET

- CAH/W 30,000 - 48,000
- CAF/4 33,000 - 36,000



CASSETTE DIMENSIONS (INCHES)

SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N
MEDIUM	11	37	37	1 1/4	32 3/4	32 3/4	2 3/4	1/2	Ø 5	3 1/4	9 1/2	3/4	33 1/4
LARGE	13	49 1/4	37	1 1/4	32 3/4	45	2 3/4	1/2	Ø 6	13 1/4	9 1/2	3/4	45 1/2

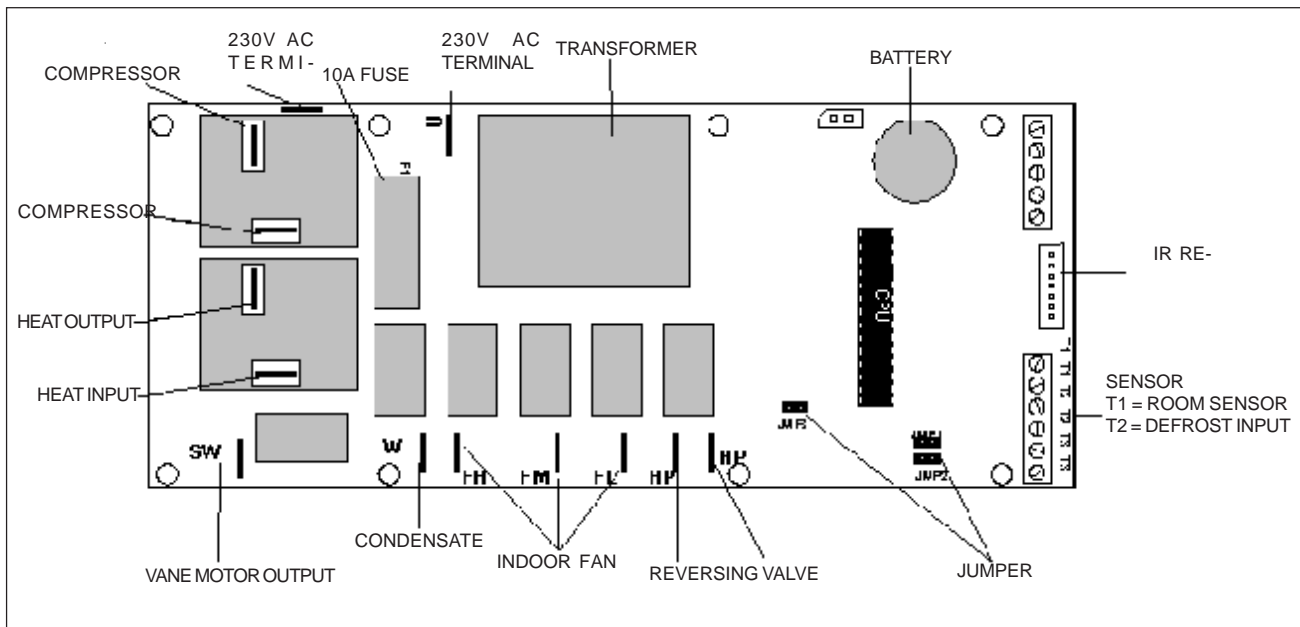
MICROPROCESSOR CONTROLLER

The following pages contain a brief overview of the optional cassette microprocessor control system and its components. The Infra-Red Remote Control manual is available from the unit manufacturer and provides a more comprehensive explanation of the operation and application of the Cassette microprocessor control system.

The microprocessor controller has built-in software to limit the number of starts per hour. This operates by having a minimum period of ten minutes between consecutive starts. A four minute delay period between the compressor stop-

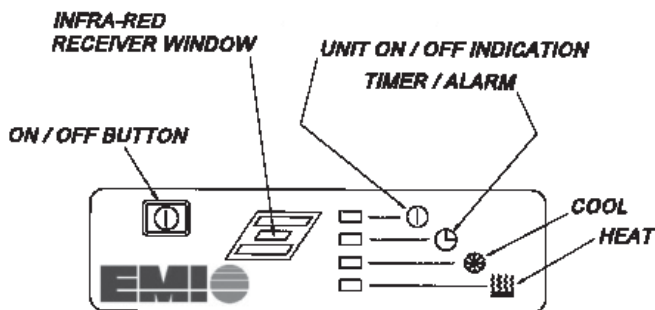
ping and starting is also included to allow refrigerant pressures to equalize between high and low sides during the compressor off period.

IMPORTANT: Before applying main power to the unit, please ensure jumper link "JMP2" is in the correct position. JMP2 should be open for DX Non-Heat Pump or Chilled Water systems and closed for Heat Pump systems. (A jumper link settings guide can be found on the Cassette unit's wiring schematic).



INFRARED RECEIVER & FASCIA DISPLAY PANEL

The infrared receiver is an extension of the control board and is located on the fascia of the unit, connected by a 7 pin plug and socket.



The green On/Off indicator will remain lit when the unit is running or will flash if heating or cooling is required but the compressor anti-cycle timer is delaying compressor operation.

Yellow indicators will illuminate to show when the unit is in "cool" or "heat" mode. These indicators will flash when the battery on the main circuit board requires changing.

The red indicator will be lit when the in-built time clock function is activated. To disable the time clock, all start/stop times must be set to 12am via the transmitter (see programming instructions in this installation manual). The red indicator is also used to diagnose operational alarms.

SELF DIAGNOSTICS: The microprocessor controller has a built-in diagnostics feature so that, in the event of an alarm, the nature of the fault can be determined. The red timer/alarm LED flashes on the fascia in a pre-determined frequency depending on the fault. These are identified below:


1. Red Timer/Alarm flashes once every second - indoor coil sensor failure, low coil temperature or condensate high level trip.
2. Red Timer/Alarm flashes once every 5 seconds - return air sensor failure.

Refer to the Troubleshooting section of this manual for further instruction on dealing with alarms.

THE INFRARED TRANSMITTER



STANDARD HAND HELD TRANSMITTER: Small, light and practically designed, the hand held transmitter takes 2 AAA batteries that can be easily fitted by removing the sliding lid on the underside of the transmitter. Please pay attention to the polarity and correct orientation of the batteries during fitting.

When using the infrared handheld transmitter, always point the transmitter head directly at the receiver. Use the On/Send button to transmit settings to the microprocessor. At the time of transmission the  symbol will display and an audible buzzer will sound if the signal has been correctly received. After changing any of the settings in the transmitter's LCD display, the new settings must be transmitted to the unit using the On/Send button before the changes will take effect.

DISPLAY INDICATORS



TRANSMIT INDICATOR

Flashes when system settings are transmitted.

MODE INDICATOR

Highlights Mode of Operation.

FAN MODE INDICATOR

Highlights Fan Speed.

CLOCK/TIMER DISPLAY

Shows current day, time, or weekly program Stop/Start times.

SETPOINT DISPLAY

Indicated temperature setpoint.

SWING INDICATOR

Indicates operation of the motorized air vanes (where fitted).

SLEEP INDICATOR

Indicates when Sleep mode is selected.

ON/SEND

Press this button to switch the unit on and transmit the system settings. The unit will confirm receipt of the adjustment by producing a short audible tone.

SELECTOR BUTTONS



MODE OF OPERATION

Selects the mode options: Heat, Cool, Auto Heat/Cool, Dry Cooling, and Fan Only.

FAN

Selects fan speed options: Low, Medium, High, and Auto.

CLK/TIMER +/-

Selects and adjusts the clock or weekly program Stop/Start times.

TEMP +/-

Adjusts temperature setpoint in intervals of 1°F between 58 - 90°F.

SLEEP

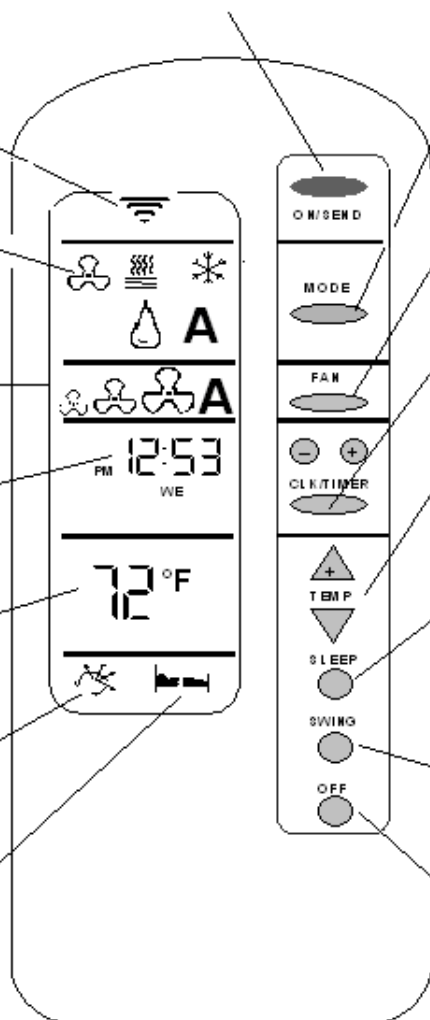
Selects/Deselects sleep mode. Using the On/Send button, the temperature setpoint will set back 2°F after 1 hour, 4°F after 2 hours.

SWING

Causes the motorized air vanes to oscillate when selected (not applicable to all models).

OFF

Switches the unit off (in certain instances the fan may be subject to a 2 minute run on time to dissipate residual heat).



SETTING UP THE BUILT-IN TIME CLOCK

HOW TO SET THE PRESENT TIME

1. Press CLK/Timer: "Clock Set" highlights.

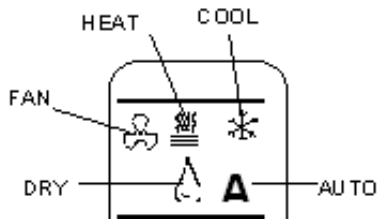
NOTE: Display will stop flashing after 15 seconds.

2. Select Hour with either (+) or (-). figure will flash.
3. Press (+) or (-) to change hour.
4. Press CLK/Timer to confirm and advance.
5. Repeat steps 3 and 4 for minutes and day of week.
6. Press CLK/Timer to confirm.



HOW TO SET COOL, HEAT, OR AUTO MODE

1. Press Mode button until desired mode is highlighted.
2. Select temperature with Temp +/- buttons (range 58°F to 90°F).
3. Select desired fan speed with Fan button.
4. Press the On/Send to switch unit on and transmit system settings.



HOW TO SET DRY MODE

Repeat Steps 1, 2, and 4.

NOTE: During the dry mode the system operates in cooling only mode and the indoor fan is fixed at low speed.

HOW TO SET FAN ONLY MODE

Repeat Steps 1, 2, and 4.

NOTE: During the fan only mode only the indoor fan will operate, cooling and heating will be disabled.

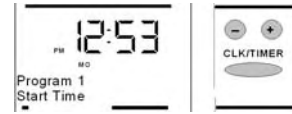
HOW TO SET THE WEEKLY PROGRAM (Monday - Friday)

1. Press CLK/Timer: twice "Program" highlights.



NOTE: Display will stop flashing after 15 seconds.

2. Select Program 1 by pressing (+) or (-). "Program 1" and "Start Time" will flash.



3. Press (+) or (-) to select and change hours.
4. Press CLK/Timer to move to minutes.
5. Repeat steps 3 and 4. "Stop Time" will flash.
6. Repeat steps 3, 4, and 5. "Program 2" and "Start Time" will flash.
7. Repeat steps 3, 4, and 5. "Send" will flash.
8. Press On/Send to switch unit on and transmit system settings.

NOTE: A small clock symbol will appear in the transmitter display and the red LED indicator on the fascia display panel will illuminate to indicate the weekly program is in operation.

HOW TO SET THE WEEKLY PROGRAM (Saturday)

1. Press CLK/Timer three times. "Program" and "SA" highlight.



NOTE: Display will stop flashing after 15 seconds.

2. Repeat as per Monday - Friday (above).

HOW TO SET THE WEEKLY PROGRAM (Sunday)

1. Press CLK/Timer four times. "Program" and "SU" highlight.

NOTE: display will stop flashing after 15 seconds.

2. Repeat as per Monday - Friday (above).

IMPORTANT: The built-in time clock provides ON/OFF functionality. The time clock does not provide occupied/unoccupied time control. Refer to the separate Infrared Controller manual for further details.

UNIT START UP - INDOOR UNIT

CONTROL CIRCUIT CHECKS (DX Units)

NOTE: Apply power to the Condensing Unit's crankcase heater for 24 hours before start up to boil off any liquid 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.

NOTE: In some models there is a two minute fan run on time to remove residual heat from the Cassette, if the unit is switched off during the heating mode.

3. On models with microprocessor controls, check that the High, Medium and Low fan speeds are operating correctly by changing the fan speed via the transmitter.
4. On models 15-48, check that the motorized vane sweep functions correctly by toggling the function on or off, either via the transmitter (micro units) or via the toggle switch on the back of the electrical panel lid (electro-mechanical units).
5. On micro controlled units, if required, check that the built-in timer function is programmed and operating correctly. When the timer is activated, the red LED on the fascia display panel should be lit.
6. Check the operation of the condensate pump by pouring 7-8 ounces of water down the pump outlet, switch the unit on, select cooling mode and the lowest possible temperature setpoint then observe the water being pumped from the Cassette.
7. Where fitted, check the operation of the hot water valve or the electric heat elements by switching the system to the heating mode and selecting the highest possible temperature setpoint.
8. Ensure that the Condensing Unit start up procedure has been carried out as detailed in the corresponding installation manual.
9. The compressor signal "Y" (disconnected from the outdoor unit in step 1) can now be reconnected and main power applied to the system.

IMPORTANT: As of 12/01/04 EMI air handlers will be manufactured with a low Volt transformer installed. At the same time, EMI outdoor condensers will be 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 a transformer is not present then one should be added to the indoor unit. If both the indoor unit and outdoor unit contain a transformer, one must be removed from the system.

CONTROL CIRCUIT CHECKS (Chilled Water Units)

A thorough pipe work check and pressure test should be performed before the Cassette controls are set up.

1. Isolate the Cassette from the chilled water supply. A system electrical check can now be carried out.
2. Switch on the indoor Cassette unit and check that the fan cycles correctly.

NOTE: In some models there is a two minute fan run on time to remove residual heat from the Cassette, if the unit is switched off during the heating mode.

3. On models with microprocessor controls, check that the High, Medium and Low fan speeds are operating correctly by changing the fan speed via the transmitter.
4. On models 15-48, check that the motorized vane sweep functions correctly by toggling the function on or off, either via the transmitter (micro units) or via the toggle switch on the back of the electrical panel lid (electro-mechanical units).
5. On micro controlled units, if required, check that the built-in timer function is programmed and operating correctly. When the timer is activated, the red LED on the fascia display panel should be lit.
6. Check the operation of the condensate pump by pouring 7-8 ounces of water down the pump outlet, switch the unit on, select cooling mode and the lowest possible temperature setpoint then observe the water being pumped from the Cassette.
7. Allow chilled water to enter the Cassette and vent air from the unit by opening the 1/4" air bleed. Retighten the bleed screw once all air has been removed.
8. Repeat steps 1-4 above for all Cassettes in the same systems.

The Cassettes are now ready for the system balance to be performed.

TROUBLESHOOTING SECTION

RED ALARM LED FLASHING AT 1 SECOND INTERVALS (*Microprocessor units only*)

POSSIBLE CAUSES/REMEDIES

FAULTY FLOAT SWITCH. See section “Condensate High Level.”

FAN TRIP. See section “Fans Will Not Run.”

INDOOR COIL SENSOR FAILURE (CONNECTED TO MICRO TERMINAL ‘T3’). After checking the above, use the unit wiring schematic to isolate the indoor coil sensor and measure the resistance. Sensor is 50K@72°F type. Check and replace if necessary.

RED ALARM LED FLASHING AT 5 SECOND INTERVALS (*Microprocessor units only*)

POSSIBLE CAUSES/REMEDIES

RETURN AIR SENSOR FAILURE (CONNECTED TO MICRO TERMINAL ‘T1’). Use the unit wiring schematic to isolate the return air sensor and measure the resistance. Sensor is 50K@72°F type. Check and replace if necessary.

UNIT WILL NOT OPERATE

POSSIBLE CAUSES/REMEDIES

NO POWER (MAIN POWER). Check power supply to the unit. For micro units, check power to the micro and check the on board micro fuse.

NO 24V CONTROL CIRCUIT POWER. For DX and chilled water systems, first check that the condensing unit is switched on, then check the 24V feed from the control transformer. If not present, check transformer windings – replace if necessary.

CONTROL CIRCUIT DISABLED BY UNIT PROTECTION DEVICE. In some models, particularly electro-mechanical units, some protection devices (such as freeze-stats, fan trips, etc) are wired in line with the 24V control circuit feed to cause the unit to shut down in an alarm condition. Use the unit’s wiring schematic to identify these devices and investigate accordingly.

INFRARED RECEIVER FAILURE (MICRO UNITS ONLY). If audible bleep is heard on signal transmission from transmitter and the green LED is lit or flashing, receiver is OK. If there are no LEDs lit and the unit will not respond to the transmitter, press the On/Off button on the fascia display panel. If the unit responds to the On/Off button receiver is OK. Check transmitter.

TRANSMITTER FAILURE (MICRO UNITS ONLY). Try new batteries first, if receiver beeps on transmitting signal, transmitter is OK. If no response press On/Off button on unit fascia. If the unit responds to the On/Off button transmitter is faulty.

MICROPROCESSOR FAILURE (MICRO UNITS ONLY). The microprocessor is the least likely component to be at fault. Investigate all other possibilities in every section of this troubleshooting guide first. Replace the micro only after all other avenues of investigation are exhausted.

WATER LEAKING FROM UNIT (See “Condensate High Level.”)

POSSIBLE CAUSES/REMEDIES

CONDENSATE PLUG LOOSE OR MISSING. Check that the rubber condensate plug is securely fitted to the underside of the unit’s polystyrene drip tray. On some models this is located underneath the fascia support rails on the pump side of the unit.

UNIT INSTALLED UNEVENLY. With fascia removed, ensure that the unit chassis is level (at the face) both front to back and left to right, to ensure correct condensate flow.

CONDENSATE DRAIN PIPING INSTALLED INCORRECTLY. Check that the site installed condensate gravity drain slopes ‘downhill’ away from the unit (See installation section of this manual for more information.)

BLOCKED/KINKED CONDENSATE PIPE. Check condensate pipework for blocks/kinks and clear as necessary. Check for a water tight connection between the PVC condensate outlet and the site installed condensate gravity drain.

CONDENSATE PUMP BLOCKED OR FAILED. Clear any blockages and ensure that power is being applied to the pump. If the pump still does not run, replace the pump.

FLOAT SWITCH FAILURE. Check that the float switch operates correctly and is properly positioned. Float switch is normally closed, opens on rise of water level.

CONDENSATE HIGH LEVEL (Red alarm LED on Micro Unit will flash at one second intervals.)

POSSIBLE CAUSES/REMEDIES

MAXIMUM PUMP LIFT EXCEEDED. Check that the condensate pump head is no greater than 18” (See installation section of this manual for more information).

BLOCKED/KINKED CONDENSATE PIPE. See section “Water Leaking From Unit.”

TROUBLESHOOTING SECTION

CONDENSATE PUMP BLOCKED OR FAILED. See section “Water Leaking From Unit”

COIL FREEZE UP. A coil freeze condition may have caused excessive condensate to collect in the drip tray. See section “Freeze Protection.”

COIL FREEZE

POSSIBLE CAUSES/REMEDIES

COOLING COIL FREEZE PROTECTION THERMOSTAT TRIPPED (AUTO-RESET WHEN FREEZE CLEARED). Freeze stat is normally closed, opens during freeze. Where fitted, the stat will disable cooling action (sometimes the entire system) during coil freeze conditions. Use the unit’s wiring schematic to investigate.

CONDENSING UNIT RUNNING WITH CASSETTE UNIT SWITCHED OFF (DX SYSTEMS ONLY). System installed such that it is possible for condensing unit to run with Cassette unit switched off. Check system wiring and disconnect switches.

DIRTY OR BLOCKED AIR FILTER. Clean/replace filters as necessary. (See maintenance instructions for more information).

SYSTEM HEAD PRESSURE SET TOO LOW. Check condensing pressure, installation of low ambient kit may be required.

LOSS OF REFRIGERANT. Check system for refrigerant leaks and repair before recharging.

NO COOLING

POSSIBLE CAUSES/REMEDIES

INCORRECT MODE SETTING (MICRO UNITS ONLY). Check that the transmitter MODE is set to Cooling or Auto Mode.

SET POINT TOO HIGH. Check the set point on the transmitter or wall mounted thermostat and adjust if necessary.

COMPRESSOR PROTECTION DELAY (MICRO UNITS ONLY). Check that the green On/Off LED is not flashing. If it is flashing, wait for ten minutes then recheck if cooling is operating (Applies to chilled water units also).

COMPRESSOR PROTECTION DELAY (ELECTRO-MECHANICAL DX UNITS ONLY). Wait for ten minutes and then recheck if cooling is operating.

DIRTY OR BLOCKED AIR FILTER. See section “Coil Freeze.”

HIGH CONDENSATE LEVEL TRIP. Drain the condensate tray and investigate. See section “Condensate high Level” erating pressures. Check filter condition. (See maintenance instructions for more information).

SENSOR FAILURE (MICRO UNITS ONLY). If any of the sensors are faulty the microprocessor will disable the cooling operation.

OUTDOOR UNIT TRIPPED. Check outdoor unit. refer to outdoor unit troubleshooting section.

FAULTY VALVE ACTUATOR (CHILLED WATER UNITS ONLY). Check cooling signal present at actuator. Check actuator by manually opening the valve. Replace actuator if necessary.

NO HEATING (HEAT PUMP)

POSSIBLE CAUSES/REMEDIES

INCORRECT MODE SETTING (MICRO UNITS ONLY). Check that the transmitter MODE is set to Heat or Auto Mode.

JUMPER LINK SETTINGS INCORRECT (MICRO UNITS ONLY). Check that JMP2 jumper link header on the microprocessor is in the “ON” position. Remove power before making changes.

SET POINT TOO LOW. Check the set point on the transmitter or wall mounted thermostat and adjust if necessary.

DEFROST MODE. Unit is defrosting the outdoor coil. Heating will continue automatically after defrosting.

COMPRESSOR PROTECTION DELAY (MICRO UNITS ONLY). Check that the green On/Off Led is not flashing. If it is flashing wait for a maximum of 10 minutes then re-check if heating is operating.

COMPRESSOR PROTECTION DELAY (ELECTRO-MECHANICAL DX UNITS ONLY). Wait for ten minutes and then re-check if cooling is operating

OUTDOOR UNIT TRIPPED – Refer to outdoor unit troubleshooting section.

INDOOR COIL TEMPERATURE TOO HIGH (MICRO UNITS ONLY) – Check refrigerant charge by measuring operating pressures. Check filter condition (See maintenance instructions for more information).

TROUBLESHOOTING SECTION

NO HEATING (Electric Heat)

POSSIBLE CAUSES/REMEDIES

INCORRECT MODE SETTING (MICRO UNITS ONLY) – Check that the transmitter Mode is set to Heat or Auto Mode.

SET POINT TOO LOW – Check the set point on the transmitter or wall mounted thermostat and adjust if necessary.

OVERHEAT CUT OUT TRIPPED – (See section “Electric Overheat.”)

Investigate cause of over heat condition.

- Possible low airflow, check filter condition. (See maintenance instructions for more information).
- Possible fan failure. Check fans. (See section “Fans Will Not Run”)

Remove power from unit and reset manual overheat cut-out by rubbing. **DO NOT PRESS!!**

Consult EMI technical support for instruction if necessary.

HEATER ELEMENT FAILED – Investigate and replace if necessary.

FAULTY HEATER RELAY – Check signals to relay and check action of relay contacts. Replace relay or PCB if necessary.

NO HEATING (Hot Water)

POSSIBLE CAUSES/REMEDIES

INCORRECT MODE SETTING (MICRO UNITS ONLY) – Check that the transmitter MODE is set to Heat or Auto Mode.

SET POINT TOO LOW – Check the set point on the transmitter or wall mounted thermostat and adjust if necessary.

BLOCKED OR DIRTY FILTERS CAUSING LOW AIRFLOW – Check filter condition (See maintenance instructions for more information).

NO HOT WATER/PUMPS FAILED – Check hot water source and supply to unit.

FAULTY VALVE/ACTUATOR – Check actuator by manually opening and closing valve, replace if faulty.

FAULTY HEATER RELAY – Check signals to relay and check action of relay contacts. Replace relay or PCB if necessary.

FANS WILL NOT RUN

POSSIBLE CAUSES/REMEDIES

LOOSE WIRE – Check all fan wire connections. Use unit’s electrical schematic to verify that fan is wired correctly.

FAULTY FAN CAPACITOR – Check fan capacitors, replace if necessary.

FAULTY FAN MOTOR – Check fan motor protector for open circuit, replace if necessary.

ELECTRIC OVERHEAT

The electric heat circuit contains one automatic reset and one manual reset overheat cut-out protection switch for each electric heat element fitted to the unit. The cut-outs are wired in line with the mains power flowing in each element and operate as described below.

AUTO CUT-OUT: If the auto cut-out trips, the electric heat is temporarily disabled until the unit temperature falls and causes the overheat cut-out to automatically reset.

MANUAL CUT-OUT: If the manual cut-out trips, the electric heat is disabled until the unit temperature falls and the overheat cut-out is manually reset. It will typically take five minutes for the unit temperature to fall sufficiently to allow the cut-out to be reset. The cut-out should only be reset by a qualified and competent electrician and with the main power switched off. Ensure the elements have cooled sufficiently.



THIS EQUIPMENT CONTAINS LIVE ELECTRICAL AND MOVING PARTS. ISOLATE ALL ELECTRICAL EQUIPMENT BEFORE ANY MAINTENANCE WORK IS CARRIED OUT!!

MAINTENANCE

EVERY 3 MONTHS: Check the air filter condition and clean if necessary (see below).

EVERY 6 MONTHS: Same as 3 months plus clean condensate tray with biocide suitable for polystyrene and clean fascia.

EVERY 12 MONTHS: Same as 6 months plus check all electrical connections for security, check condensate pump operation, and check the heating and cooling action to ensure proper operation.

FILTER REMOVAL AND CLEANING

1. Ensure the unit is isolated from the electrical supply and ensure that the fan(s) has come to a complete stop.
2. Unclip the catches along the edge of each grille and allow them to hang from the fascia by the molded plastic hinges located along the opposite edge.
3. If desired, the grilles can be removed from the fascia completely.
4. The filter can now be easily slid out of the small plastic retaining clips on the back of each grille.
5. Gently vacuum clean the filters on a medium power vacuum.
6. Replace filters by reversing steps 2 to 4.

NOTE: EMI recommends you keep at least one full set of cassette air filters as spares.

FAN REMOVAL

CAUTION: Isolate from the electrical supply before commencing work!!

1. Unclip the grille catches and remove the grille(s) from the fascia.
2. For medium and large-sized units, remove the M6 screws from the black plastic inlet ring and pull the inlet ring downwards from the condensate tray. For small units only, remove the fascia by loosening the four fascia mounting bolts and then slide the fascia horizontally until it releases from the chassis. Drain the condensate tray by removing the small black rubber drain plug, catching the condensate (if any) in a suitable container. Remove the self tapping screws securing the two insulated metal condensate tray support channels and pull the channels away from the condensate tray. Pull the condensate tray downwards away from the chassis.

3. Remove the electrical panel lid and disconnect the fan connections from within the electrical panel.
4. Rotate the fan by hand until two M6 nuts are visible through the fan mounting access holes. Remove the two nuts.
5. Rotate the fan 90° until the remaining two nuts are visible and remove while supporting the fan to prevent it from falling. The fan can now be dropped down from the unit.

CONDENSATE TRAY REMOVAL

1. Unclip the grille catches and remove the grille(s) from the fascia.
2. Remove the fascia by loosening the fascia mounting bolts and sliding the fascia horizontally until it releases from the chassis. **If unit is microprocessor controlled, remove display panel cable from within the electrical panel before removing the fascia.**
3. Remove electrical panel lid by unscrewing the single self tapper and pull the lid horizontally away from the control box.
4. On medium and large sized units, disconnect the main wiring from the incoming terminal block and disconnect the fan wires from their connection points within the electrical panel. Separate any two part connectors coming from the electrical panel.
5. Drain the condensate tray by removing the small black rubber drain plug, catching any condensate in a suitable container.
6. Remove the self tapping screws securing the two insulated metal condensate tray support channels and pull the channels away from the condensate tray. Pull the condensate tray, complete with inlet ring (on medium and large sized units only) downwards away from chassis.

CONDENSATE PUMP REMOVAL

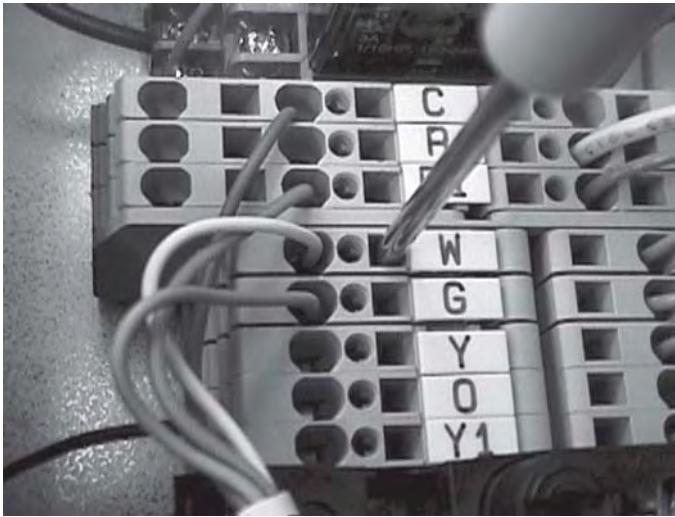
1. Disconnect condensate pump and float switch wires from inside electrical panel.
2. Unscrew the three M4 screws holding the pump inspection plate in place and pull the pump and mounting bracket away from the chassis while feeding the pump wires between condensate tray and insulation.

APPENDIX A - WIRING CHARTS AND INSTRUCTIONS

TERMINAL BLOCK INSTRUCTION FOR THE CONNECTION OF HIGH/LOW VOLTAGE WIRES

When connecting line and/or low voltage wires to the CAH terminal block(s) a 3/32-screw driver (thermostat type) is required.

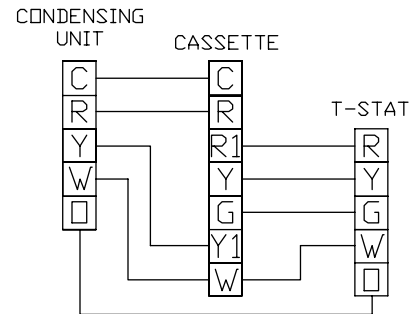
1. Insert the screwdriver into the square hole until you "hit bottom." This will open the terminal block so that it will accept your wire(s).
2. Insert the stripped wire into the oval or round hole.
3. Remove screwdriver to allow the terminal block to "clamp down" on the wire(s).



IT IS EXTREMELY IMPORTANT THAT THE WIRE(S) ARE CONNECTED PROPERLY OTHERWISE ARCING MAY RESULT IN ELECTRICAL DAMAGE OR FIRE!

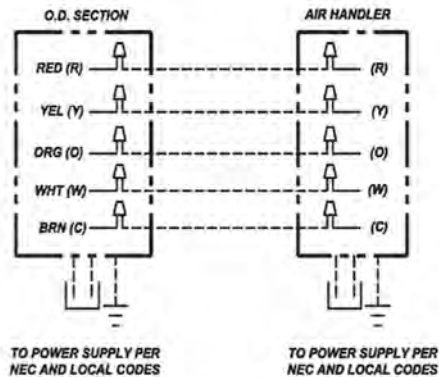
24V FIELD CONNECTIONS, DX HEATPUMP SINGLE SPEED CASSETTE

- 1 CASSETTE
- 1 CONDENSING UNIT
- 1 THERMOSTAT (SINGLE FAN SPEED)

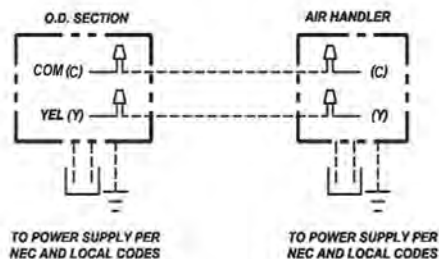


CAH 09-48 INFARED CONTROL INTERCONNECT DIAGRAM

HEATPUMP/COOLING W/ ELECTRIC HEAT



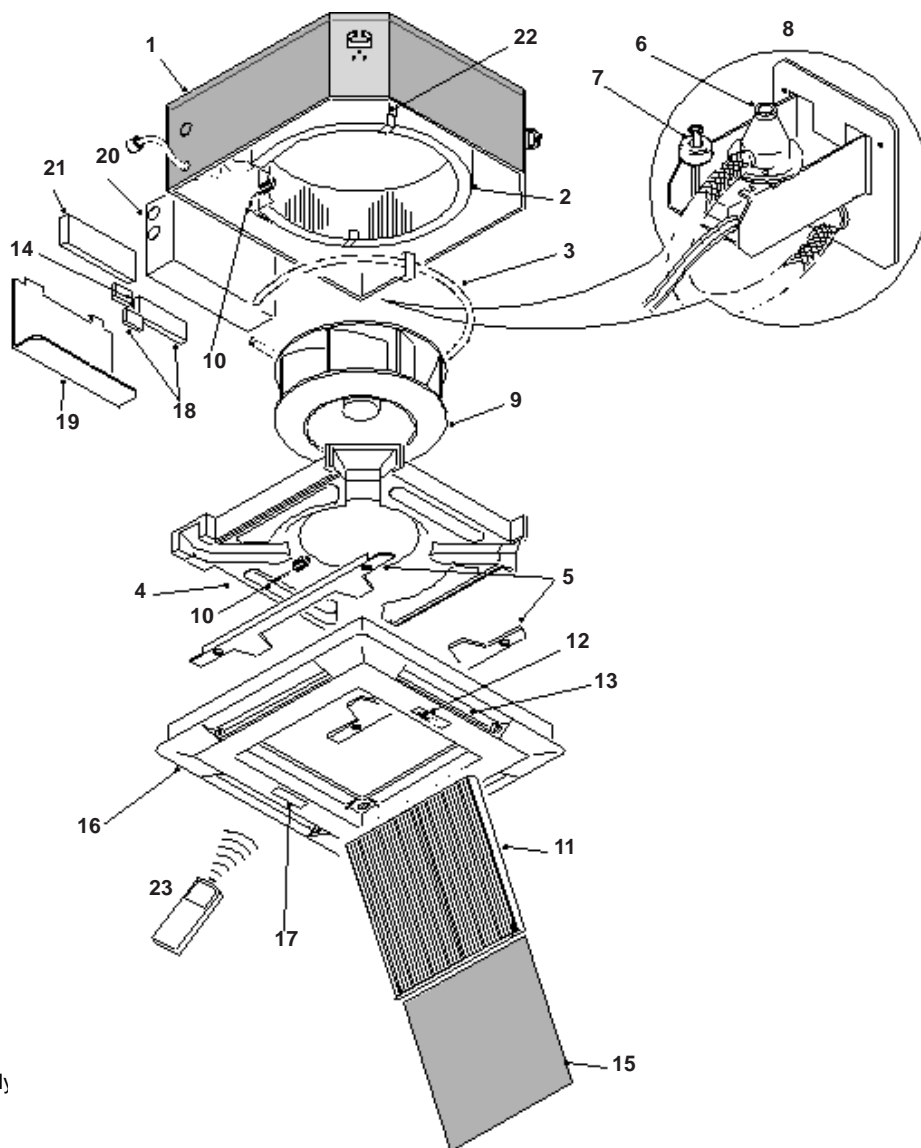
STRAIGHT COOL W/ ELECTRIC HEAT



APPENDIX B - EXPLODED UNIT DRAWING AND PARTS LIST

SMALL CABINET

- CAH 9,000 - 12,000
- CAHW 9,000 ONLY
- CAF 8,000 - 12,000
- CAF4 8,000 ONLY



1. Cassette Chassis
2. Evaporator Assembly
3. Electric Heater Element Assembly
4. Condensate Tray
5. Condensate Tray Supports (2)
6. Condensate Pump
7. High Level Switch
8. Condensate Pump Assembly
9. Fan/Motor Assembly
10. Coil/Return Air Sensors
11. Grille
12. Label
13. Air Deflector Vanes (4)
14. Freeze Protection Thermostat (DX Electro-Mechanical Version only)
15. Filter
16. Fascia Assembly
17. Receiver (Microprocessor Version)
18. Terminal Rail, Relays & Timer (Micro & Electro-Mechanical Version)
19. Control Box Lid
20. Control Box
21. PCB Controller (Microprocessor Only)
22. Coil Support Brackets
23. Remote Handset (Microprocessor Only)

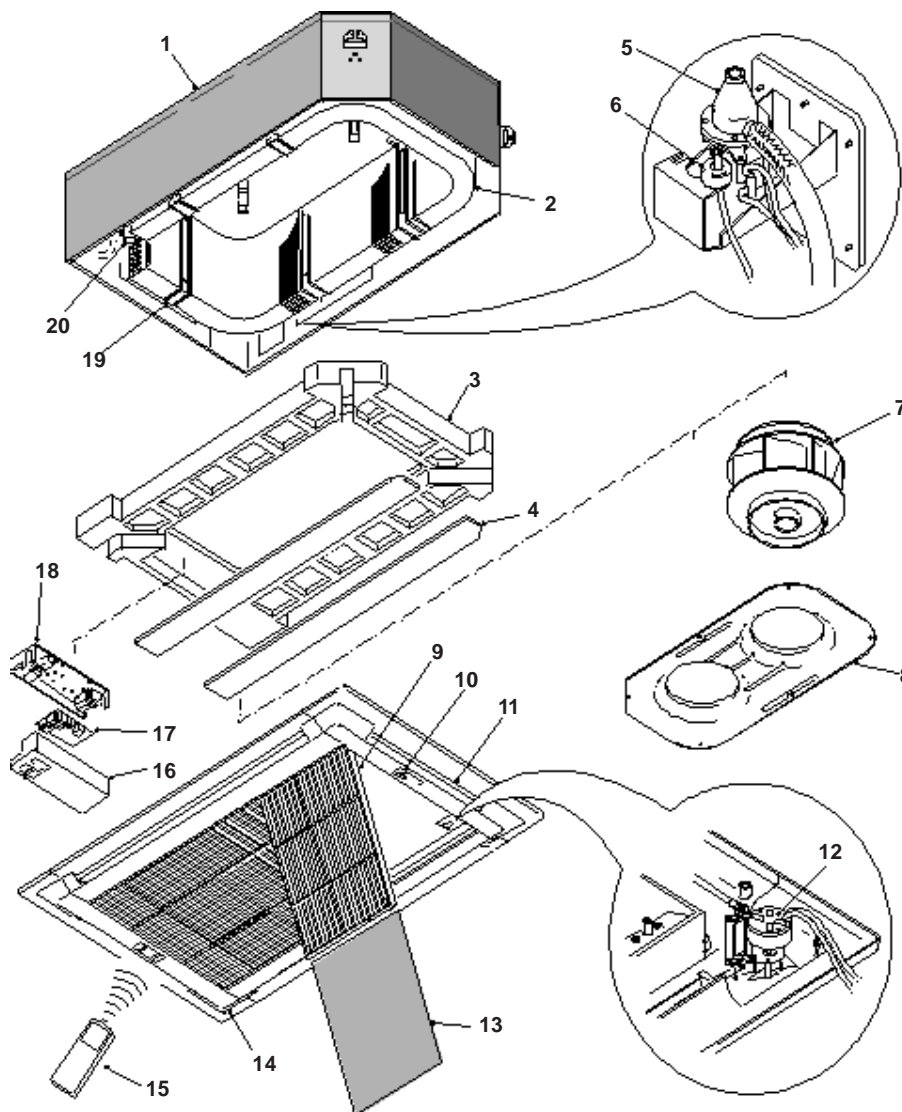
APPENDIX C - EXPLODED UNIT DRAWING AND PARTS LIST

MEDIUM CABINET

- CAH 15,000 - 24,000
- CAHW 12,000 - 24,000
- CAF 18,000 - 20,000
- CAF4 12,000 - 20,000

LARGE CABINET

- CAH/W 30,000 - 48,000
- CAF/4 33,000 - 36,000



1. Cassette Chassis
2. Evaporator Coil
3. Condensate Tray
4. Condensate Tray Support
5. Condensate Pump
6. High Level Switch
7. Fan & Motor Assembly
8. Fan Inlet Ring
9. Grille
10. Infrared Receiver
11. Vane
12. Vane Motor Assembly
13. Filter
14. Fascia
15. Remote Handset
16. Control Box Lid
17. Control Box PCB
18. Control Box
19. Coil Bracket
20. Expansion Valve



Comfort Where It Counts.

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