

Lo-Vel@city Systems

LV Installation Manual



Includes:

- LV-50
- LV-70
- LV-120
- LV-140

Manufactured By
Energy Saving Products Ltd.

INSTALLATION, OPERATING, AND MAINTENANCE MANUAL

LO-V UNIT INSTALLATION INSTRUCTIONS

Lo-V fancoils, by ENERGY SAVING PRODUCTS LTD., can be installed in the Hi-Boy, Horizontal, or Counter-Flow positions by rotating the motor oil port to vertical. The unit location should be chosen to maximize mechanical room space and minimize piping runs. Ensure that the piping, wiring, or mounting system does not hinder access to the front of the fancoil.

Water connections are 1/2" Cu Sweat for the LV-50, and 3/4" Cu Sweat for models LV-70, LV-120, and LV-140. All lines should be piped as to not restrict use of the access doors or filter section. Zone valves are to be normally closed, spring return valves, and be connected to the two terminals at the bottom of the board marked **ZONE VALVE**. There are two terminals marked **FREEZE STAT** for a refrigeration anti-ice control on the bottom terminal strip. If an anti-ice control is not used, a jumper wire must be installed in its place to complete the cooling circuit. The two 24v terminals marked **COND UNIT** are to be connected to the outdoor condensing unit or to a chilled water zone valve. For wiring diagrams, see page 5.

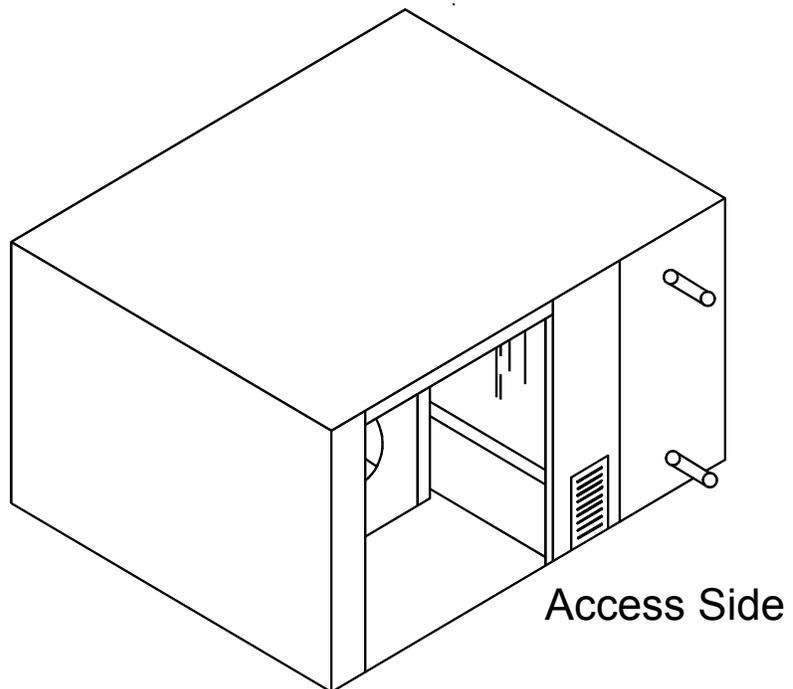
Lo-V fancoils are factory wired for constant air circulation to take full advantage of humidification and air filtration equipment. Low speed can be turned off at the option of the installing contractor by disconnecting the low speed motor wire, or by installing a variable speed controller.

CLEARANCES:

In order to maintain and service the fancoil unit, the minimum clearances required are:

LV-50	18"
LV-70	21"
LV-120	29"
LV-140	29"

Clearance is only needed on the access side, however, ensure that there is a small space between the unit and any other surface to prevent vibration transfer.



LV Fan Coil Specifications

Model	LV-50	LV - 70	LV - 120	LV - 140
Hot Water Heating				
Coil Type	6 row/10 FPI	6 row/10 FPI	6 row/10 FPI	6 row/10 FPI
BTUH @ 190°F E.W.T	74,300	98,900	148,700	177,000
BTUH @ 180°F E.W.T	68,000	90,500	136,100	162,000
BTUH @ 170°F E.W.T	61,600	82,100	123,500	147,000
BTUH @ 160°F E.W.T	55,400	73,800	110,900	132,000
BTUH @ 150°F E.W.T	49,100	65,400	98,400	117,000
BTUH @ 140°F E.W.T	42,800	57,100	85,900	102,100
BTUH @ 130°F E.W.T	36,600	48,800	76,400	87,300
GPM Flow ratings	5	6	10	10
Pressure Drop FT. H ₂ O	3	5	7	7
Chilled Water Cooling				
Coil Type	6 row/10 FPI	6 row/10 FPI	6 row/10 FPI	6 row/10 FPI
(WCM Modules in cooling Mode)				
BTUH @ 44°F E.W.T.	22,547	34,486	50,968	56,100
BTUH @ 42°F E.W.T.	24,149	37,046	54,761	60,237
GPM Flow ratings	5	6	10	10
Pressure Drop FT. H ₂ O	3	5	7	7
(WCM Modules in Heating Mode)				
BTUH @ 110°F E.W.T.	23,400	31,200	46,900	56,200
BTUH @ 120°F E.W.T.	29,000	38,800	58,300	70,000
GPM Flow ratings	5	6	10	10
Pressure Drop FT. H ₂ O	3	5	7	7
Refrigerant Cooling				
(RPM-E Modules)				
BTUH Refrigerant TX Cooling (tons)	1.5 - 2.0	2.5 - 3.0	3.5 - 4.0	4.0 - 5.0
C.F.M. @ 0.5" E.S.P.	750	1000	1500	2000
Horse Power	1/3	1/3	1/3	1/2
R.P.M.	1075	1075	1075	1625
AMPS @ 115/1/60	4.2	4.2	4.2	7.5
Slo-Blo Fuse AMP's	2	2	2	2
Supply Air Size	10" x 16"	15" x 16"	21" X 16"	21" x 16"
Shipping Weight	70 lbs	95 lbs	115 lbs	115 lbs
Fan Coil Size	Length Width Height	32" 14" 18"	32" 19" 18"	32" 25" 18"

Note:

All ratings based on:

- 65°F entering air temperature
- 80°F/67°F entering air temperature for cooling
- Ratings based on water ONLY and will be reduced with glycol

All dimensions may vary +/- by up to 0.5 of an inch.

Smaller condensers may be matched to the fan coil when needed, TXV to be matched with condenser size.

Models LV-50 and LV-70 are factory wired for medium motor operating speed.

Matching Coils

Refrigerant Coils

RPM-E-50, RPM-E-70, RPM-E-100

Chilled Water Coils

WCM-50, WCM-70, WM-100

Hot Water Coils

HWC-50, HWC-70, HWC-100

Lo-Velocity Fancoils

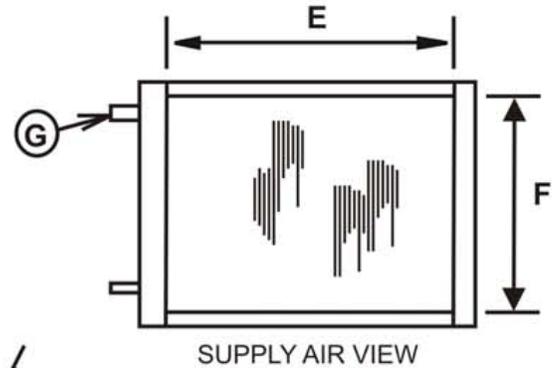
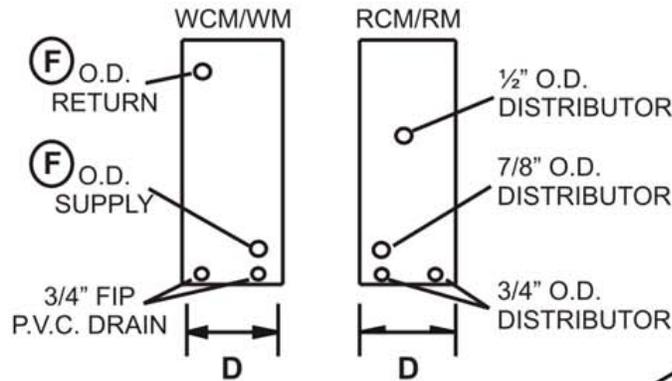
Model	A	B	C	E	F	G
LV-50	14 1/4	18 1/2	32 1/2	10 1/4	16 3/8	1/2
LV-70	19 1/2	18 1/2	32 1/2	15 1/2	16 3/8	3/4
LV-120	25 1/2	18 1/2	32 1/2	21 1/2	16 3/8	3/4
LV-140	25 1/2	18 1/2	32 1/2	21 1/2	16 3/8	3/4

Cooling Modules

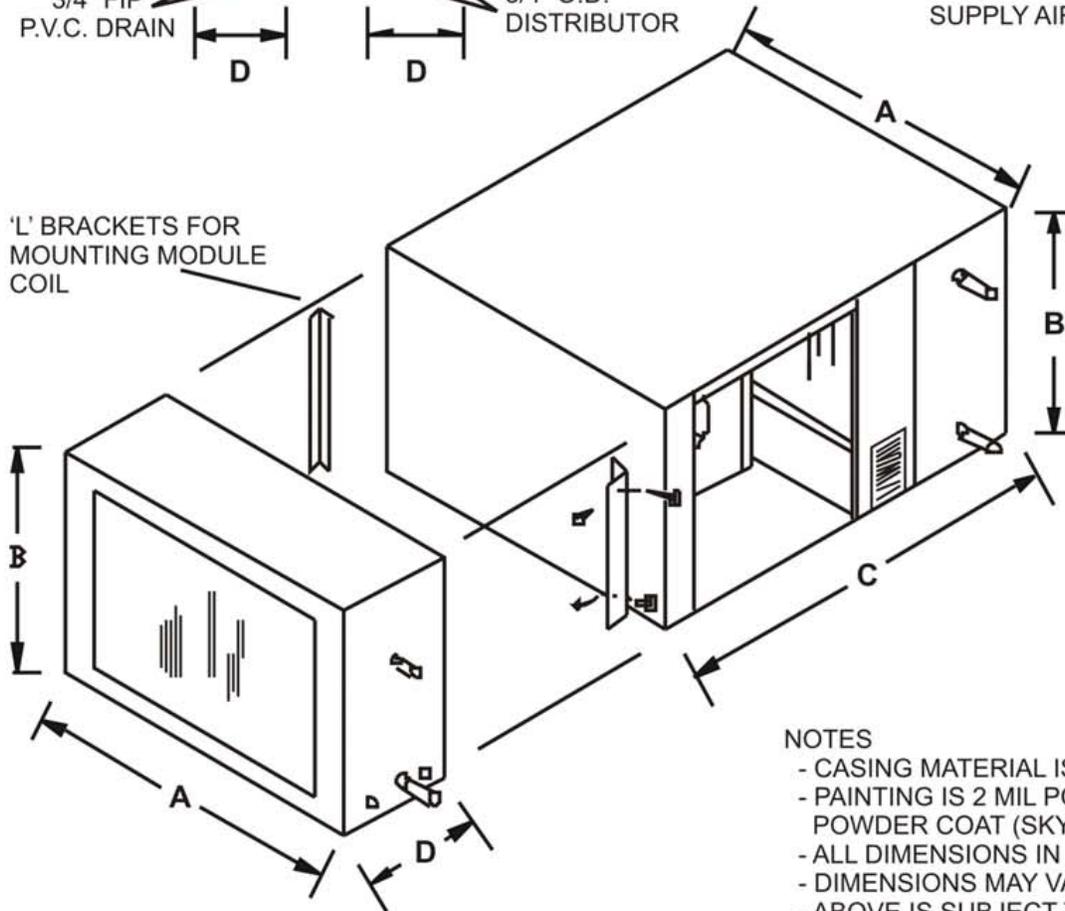
Model	A	B	D	F
RCM-50	14 1/4	18 1/2	10 1/4	
RCM-70	19 1/4	18 1/2	10 1/4	
RM-100	25 1/2	18 1/2	7 1/4	
WCM-50	14 1/4	18 1/2	10 1/4	3/4
WCM-70	19 1/4	18 1/2	10 1/4	3/4
WM-100	25 1/2	18 1/2	7 1/4	3/4

RM-100 and WM-100 are to be used with LV-120/140

COIL MODULE CONNECTIONS



'L' BRACKETS FOR MOUNTING MODULE COIL



NOTES

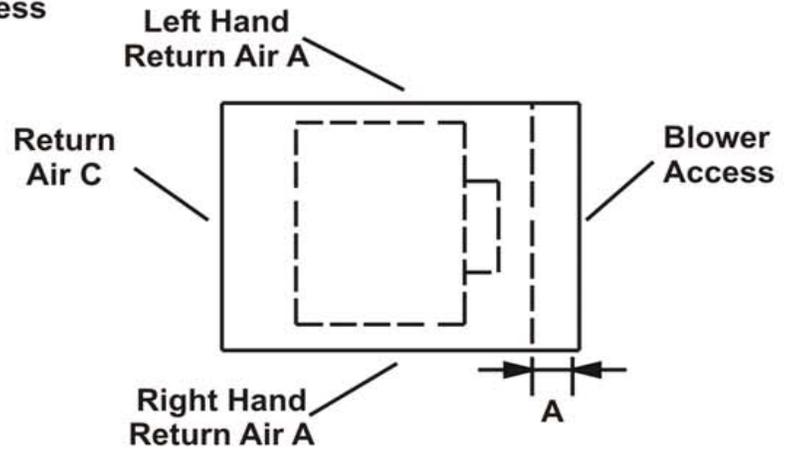
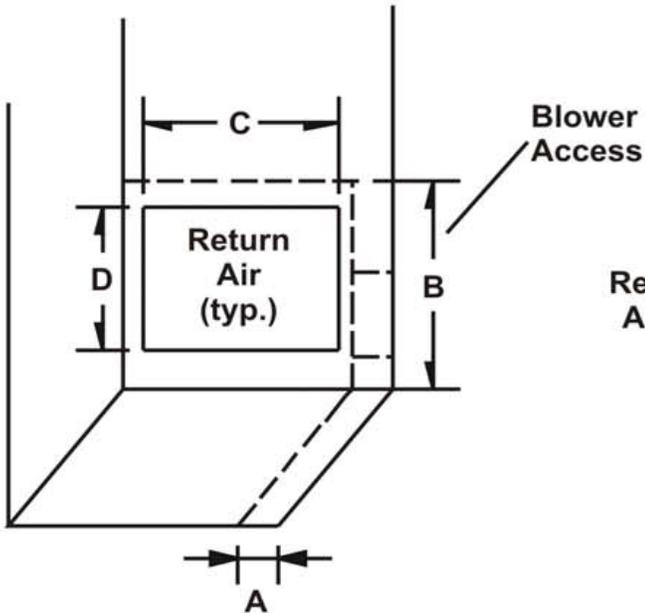
- CASING MATERIAL IS 22 GA
- PAINTING IS 2 MIL POLYESTER POWDER COAT (SKY WHITE)
- ALL DIMENSIONS IN INCHES
- DIMENSIONS MAY VARY BY 1/4
- ABOVE IS SUBJECT TO CHANGE WITHOUT NOTICE"

Lo-Velocity Fancoils

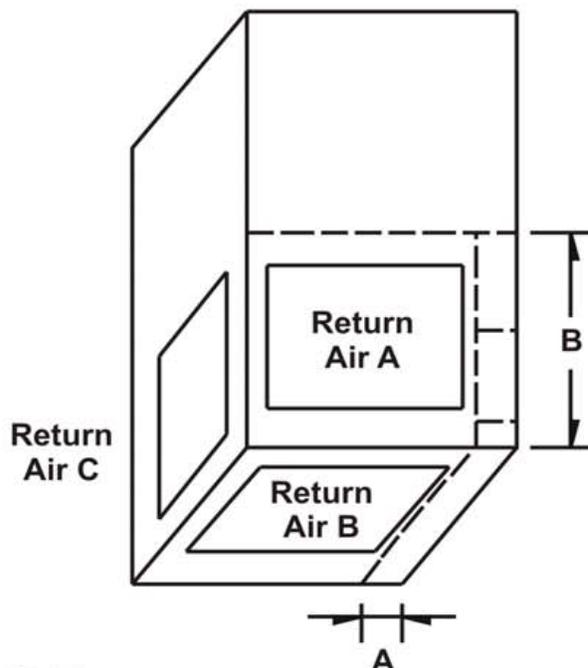
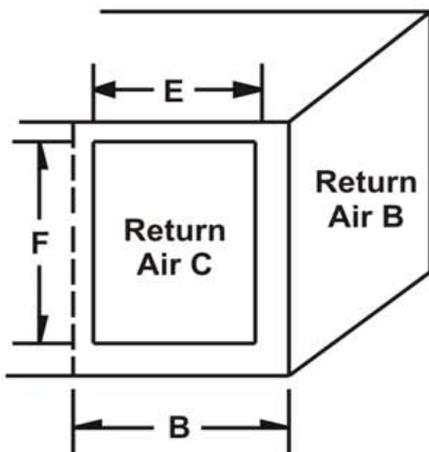
MODEL	A	B	C	D	E	F
LV - 50	3.5	16.5	9.5	14.25	9.5	14.25
LV - 70	3.5	16.5	14.5	14.25	14.5	14.25
LV - 120	3.5	16.5	20.5	14.25	N/A	N/A
LV - 140	3.5	16.5	20.5	14.25	N/A	N/A

Notes:

- Model LV-120/140 cannot use return air "C"
- Do Not cut past the center plate or electrical box (Dim A & B)
- Return Air "A" can be either left hand or right hand
- All Dimensions are in inches
- Not to scale
- Above is subject to change without notice



Rear View (Return Air B)

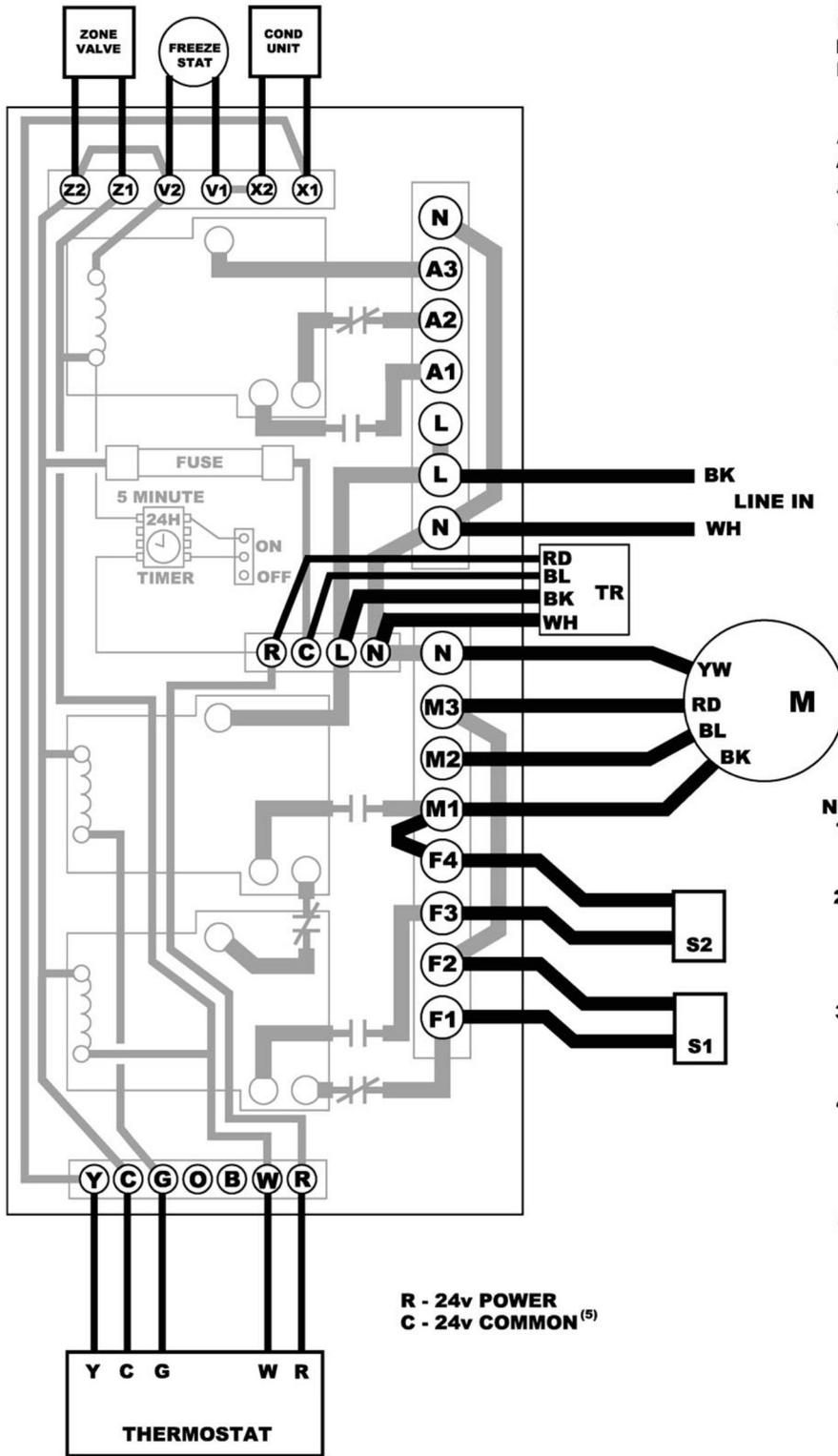


Printed Circuit Board Wiring

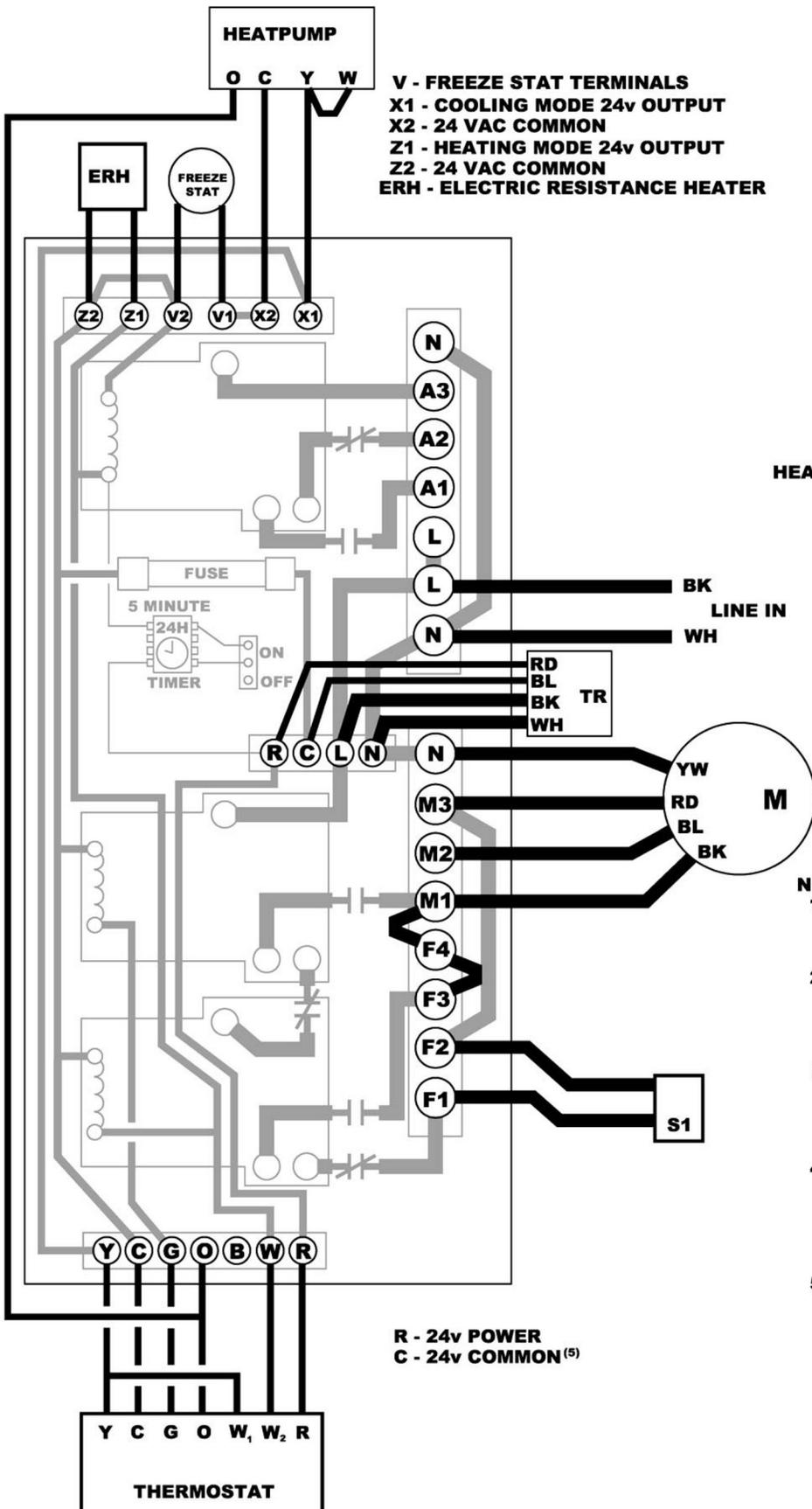
V - FREEZE STAT TERMINALS
 X1 - COOLING MODE 24v OUTPUT
 X2 - 24 VAC COMMON
 Z1 - HEATING MODE 24v OUTPUT
 Z2 - 24 VAC COMMON

M1 - MOTOR HIGH SPEED
 M2 - MOTOR MEDIUM SPEED
 M3 - MOTOR LOW SPEED
 S1 - CONSTANT FAN CONTROL
 S2 - HEATING SPEED CONTROL
 F1 - CONSTANT FAN CONTROL TO RELAY ⁽¹⁾
 F2 - CONSTANT FAN CONTROL TO MOTOR
 F3 - HEATING SPEED CONTROL TO RELAY ⁽²⁾
 F4 - HEATING SPEED CONTROL TO MOTOR ⁽³⁾
 N - 115/1/60 NEUTRAL
 L - 115/1/60 LINE
 A1 - AUXILIARY NORMALLY OPEN
 A2 - AUXILIARY NORMALLY CLOSED
 A3 - AUXILIARY COMMON ⁽⁴⁾

YW - YELLOW (NEUTRAL)
 RD - RED
 BL - BLUE
 BK - BLACK
 WH - WHITE
 M - MOTOR
 TR - 20 VA TRANSFORMER
 (115 VAC PRIMARY, 24V SECONDARY)



- NOTES:**
- 1) CONSTANT FAN CONTROL OR JUMPER WIRE MUST BE USED TO COMPLETE THE F1 TO F2 CIRCUIT
 - 2) HEATING SPEED CONTROL OR JUMPER WIRE MUST BE USED TO COMPLETE THE F3 TO F4 CIRCUIT. HEATING SPEED CONTROL IS NOT TO BE USED ON ELECTRIC HEAT SYSTEMS.
 - 3) TERMINAL F4 REQUIRES AN EXTERNAL JUMPER TO TERMINAL M1 FOR HIGH SPEED HEATING OR M2 FOR MEDIUM SPEED HEATING
 - 4) AUXILIARY RELAY COMMON(A3) CAN BE USED WITH A1 AND/OR A2 AS DRY CONTACTS, ARMED 24v FROM THE 'R' TERMINAL, OR ARMED 115v FROM THE 'L' TERMINAL
 - 5) 'C' TERMINAL ON THERMOSTAT IS NOT NEEDED FOR SOME THERMOSTATS. CONSULT THERMOSTAT INSTRUCTIONS FOR DETAILS.



V - FREEZE STAT TERMINALS
 X1 - COOLING MODE 24v OUTPUT
 X2 - 24 VAC COMMON
 Z1 - HEATING MODE 24v OUTPUT
 Z2 - 24 VAC COMMON
 ERH - ELECTRIC RESISTANCE HEATER

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HEATPUMP NOTES:

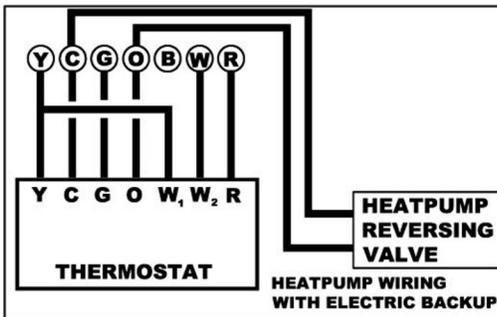
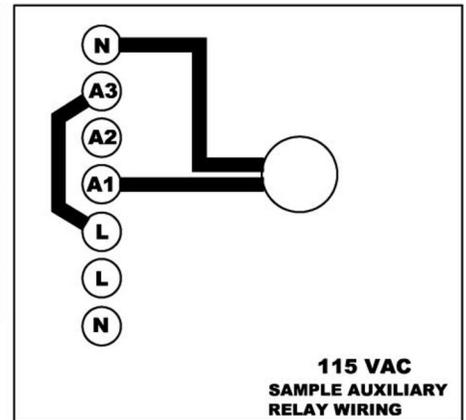
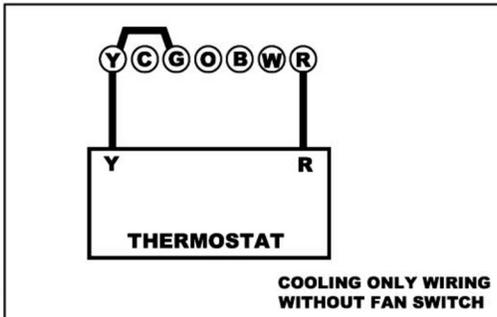
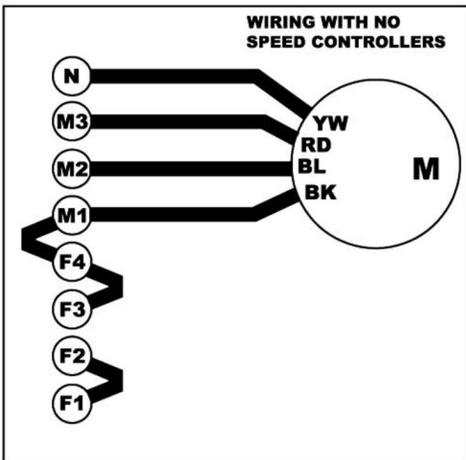
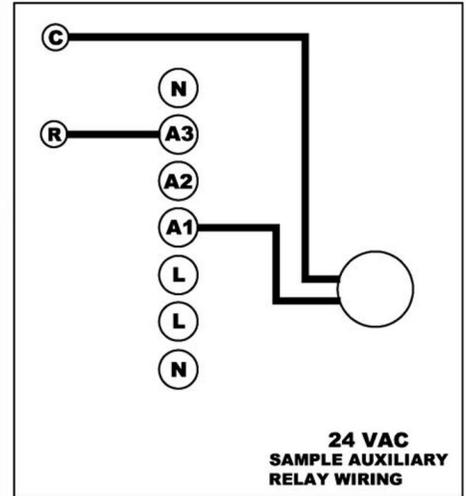
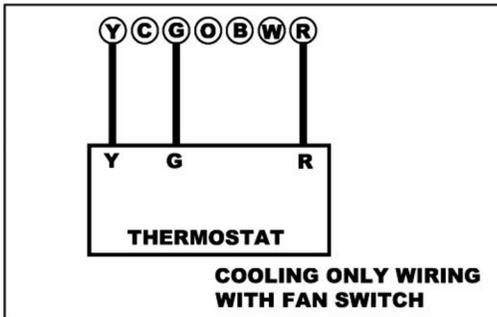
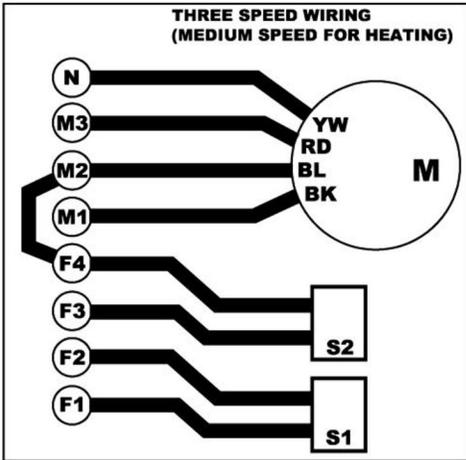
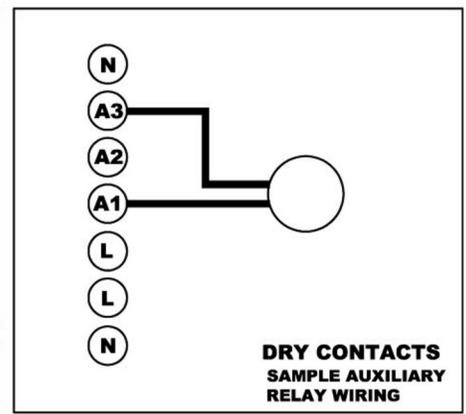
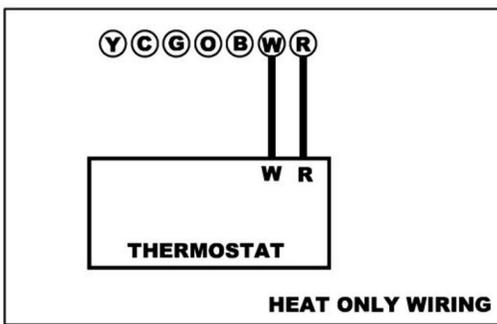
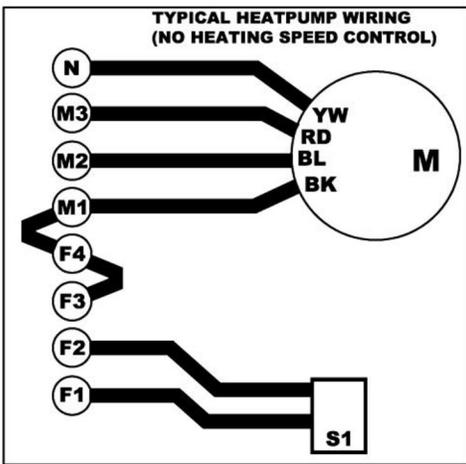
- HEATING SPEED CONTROL IS NOT TO BE USED ON ELECTRIC HEAT SYSTEMS.
- REMOVE STATIC PRESSURE PLATE FROM BLOWER DISCHARGE WHEN INSTALLING THE ELECTRIC COIL.
- DEPENDING ON THE REVERSING VALVE, SOME HEATPUMP UNITS REQUIRE 'B' INSTEAD OF 'O' CONNECTIONS ON BOTH THE THERMOSTAT AND THE OUTDOOR UNIT. CONSULT YOUR HEATPUMP MANUAL TO SEE IF THIS IS REQUIRED.
- TIMER CIRCUIT CAN BE DISABLED WHEN USING A HEATPUMP AND ELECTRIC BACKUP HEAT

NOTES:

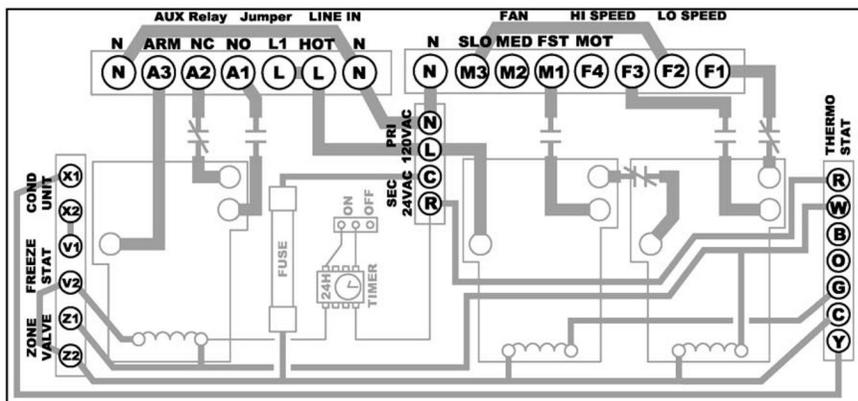
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- 3) TERMINAL F4 REQUIRES AN EXTERNAL JUMPER TO TERMINAL M1 FOR HIGH SPEED HEATING OR M2 FOR MEDIUM SPEED HEATING
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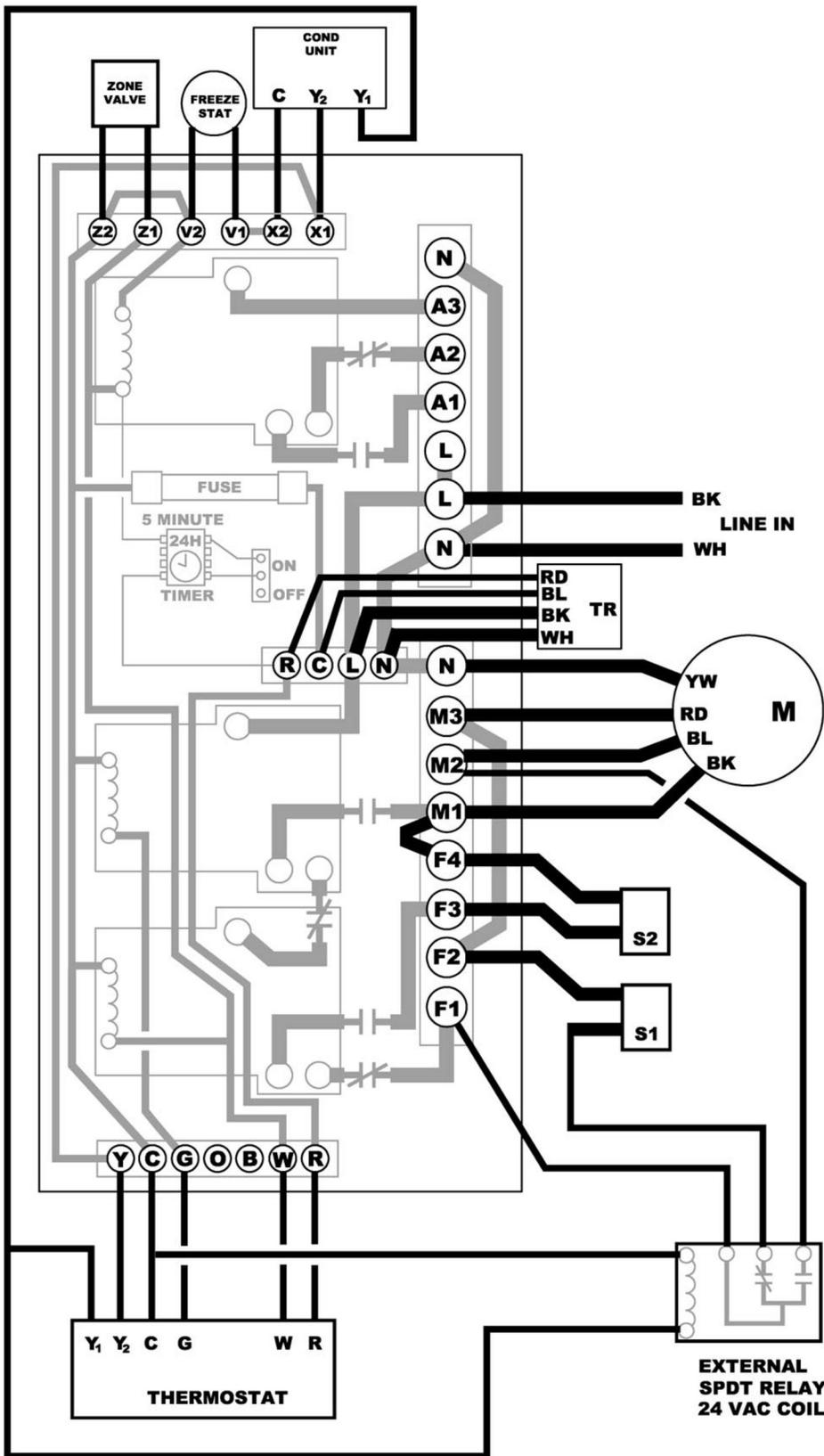
HEATPUMP WIRING

PCBW-017
 APR. 2004
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**SEE HEATPUMP WIRING PAGE FOR MORE
DETAILED HEATPUMP INFORMATION**





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(115 VAC PRIMARY, 24V SECONDARY)
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- F2 - CONSTANT FAN CONTROL TO MOTOR
- F3 - HEATING SPEED CONTROL TO RELAY
- F4 - HEATING SPEED CONTROL TO MOTOR
- N - 115/1/60 NEUTRAL
- L - 115/1/60 LINE
- A1 - AUXILIARY NORMALLY OPEN
- A2 - AUXILIARY NORMALLY CLOSED
- A3 - AUXILIARY COMMON⁽⁴⁾

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- R - 24v POWER
- C - 24v COMMON⁽⁵⁾
- V - FREEZE STAT TERMINALS
- X1 - COOLING MODE 24v OUTPUT
- X2 - 24 VAC COMMON
- Z1 - HEATING MODE 24v OUTPUT
- Z2 - 24 VAC COMMON

WARRANTY

One year limited warranty. The heat exchanger, motor, controls, and wiring are free from defects in workmanship for one year from date of purchase.

Two year limited warranty. The electrical strip heater is free from defects in workmanship for two years from date of purchase

This warranty applies only to the fan coil unit and does not include connections, attachments, and other products or materials furnished by the installer. This warranty applies only to the first purchaser at retail and excludes any damages caused by changes, relocation to, or installation in a new site. This warranty does not cover any defects caused by failure to follow the installation and operating instructions furnished with the fan coil, local building codes, and good industry standards. Failure to correctly install the fan coil, or material related to the unit, may result in improper system performance and/or damages and will void this warranty.

TERMS AND CONDITIONS

- Any repair performed under warranty must be approved by Energy Saving Products Ltd. for this warranty to be valid.
- The manufacturer is not liable for any other damages, personal injury, or any other losses of any nature.
- The liability of the manufacturer is limited to and shall not exceed the cost of replacement parts and shall not include transportation to and from the factory, and field labour.
- Inoperative parts must be returned with serial number, purchase date, and a detailed description of the entire problem with an ESP RMA Form.
- This warranty replaces all other warranties expressed or implied.

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www.hi-velocity.com

Energy Saving Products Ltd., established in 1983, manufactures the **Hi-Velocity Systems™** product line for residential, commercial and multi-family markets. Our facilities house Administration, Sales, Design, Manufacturing, as well as Research & Development complete with an in-house test lab. Energy Saving Products prides itself on Customer Service and provides design services and contractor support.

***Comfort from floor to ceiling,
Satisfaction from room to room,***

with

Hi-Velocity
Systems™

It's not just a dream, it's reality.



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Fax: (780) 453-1932
Toll Free: 1-888-652-2219