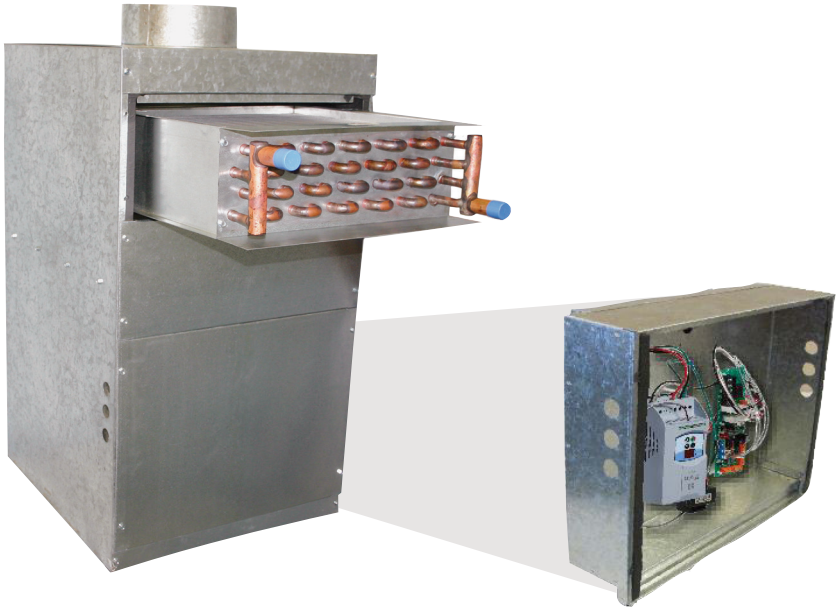
Small Duct High Velocity Heating, Cooling and Home Comfort Systems

WEG-HEB

External Circuit Box c/w WEG Variable Speed Drive Installation



For the Installation of:

Part Name	Description		Part Number
HE-B Electrical Box w/ 110v WEG Controller	Upgrade for HE-51/71/101 Air Handlers (110v power)	WEG Non-Zoning Controller, HEB Circuit Board, Transformer in Galvanized Box	40120500101

Part Name	Description		Part Number
HE-B Electrical Box w/ 220v WEG Controller	Upgrade for HE-51/71/101Air Handlers (220v power)	WEG Non-Zoning Controller, HEB Circuit Board, Transformer in Galvanized Box	40120502101

Manufactured By

HE-B External Circuit Box Installation

IMPORTANT - Before you begin, ensure input voltage of WEG Controller matches line input voltage to air handler.

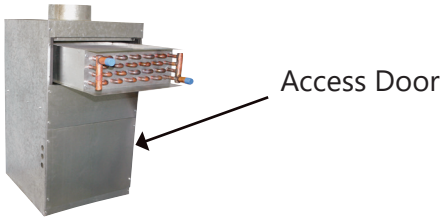


Fig. 1 - Air Handler

1. Turn off power to the air handler, and allow 5 minutes for power stored in capacitors to dissipate. Remove large access door from air handler. (Fig. 1)

2. Unplug motor plug from control board and remove from L-Shaped box. Plastic grommet can be removed by squeezing the sides with needle nose pliers. (Fig. 2)

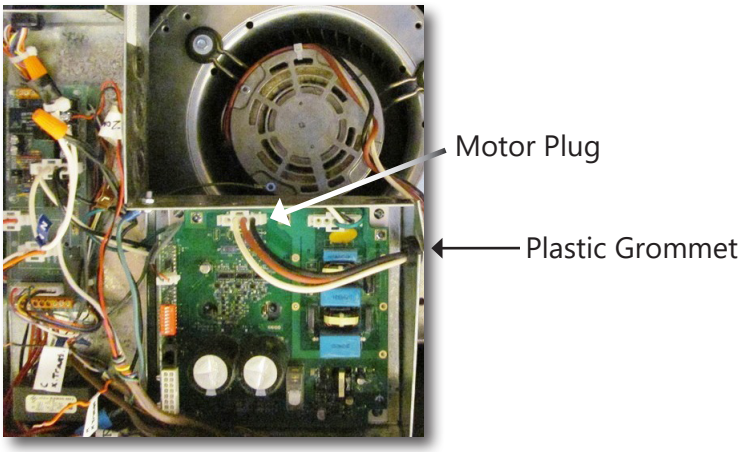


Fig. 2 - L-Shaped Box

3. Disconnect motor ground wire from L-Shape box. Using existing machine bolt, connect motor ground wire to provided ground wire extension. (Figs. 3a-3c)

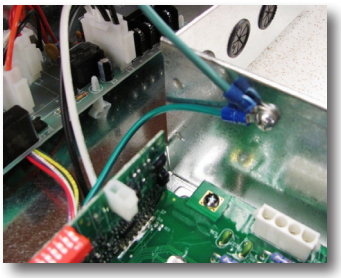


Fig. 3a

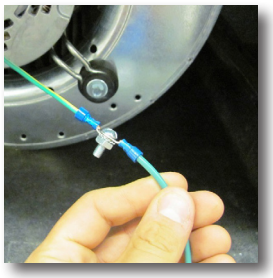


Fig. 3b

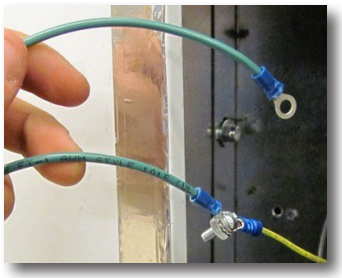


Fig. 3c

4. Insert ground wire extension into 4-prong motor plug. (Figs. 4a, 4b)

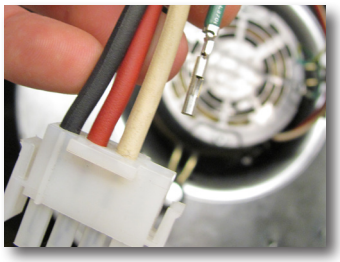


Fig. 4a - Ground Wire Extension

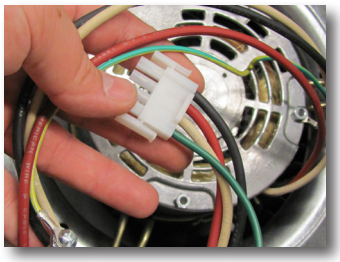


Fig. 4b - Motor Plug

5. Remove all thermostat and power wiring from the air handler. Undo screw on L-Shape box and remove box from air handler. (Fig. 5a)

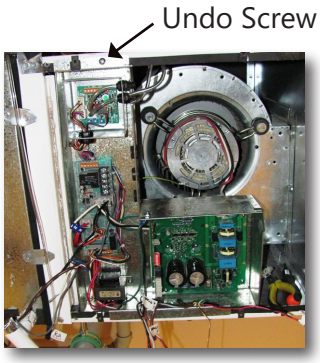


Fig. 5a - Undo Screw

HE-B External Circuit Box Installation

6. Plug in the 4-prong motor plug (male) into the female connection on the bottom side of the external box. (Figs. 6a-6c)

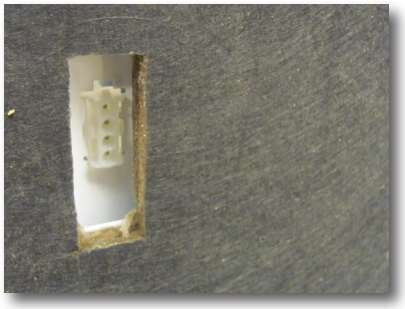


Fig. 6a

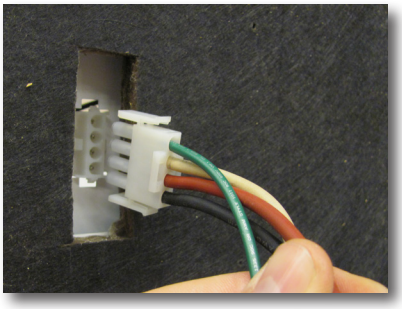


Fig. 6b

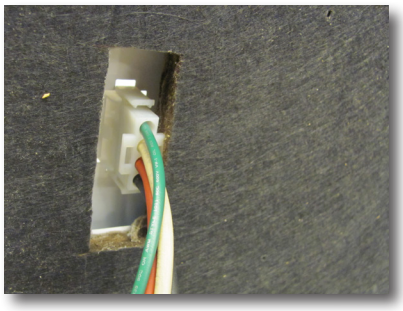


Fig. 6c

7. Using 5/16" nut driver, secure external box to air handler in place of the large door, using screws provided in all four corner holes. (Fig. 7)

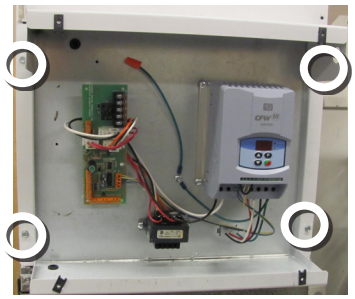


Fig.7

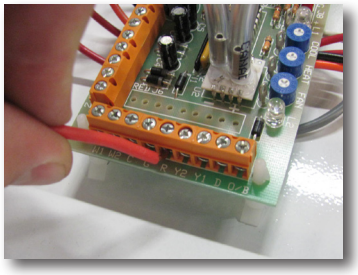


Fig. 8a

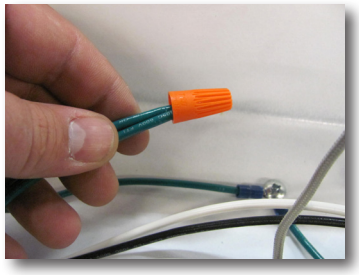


Fig.8b

8. Re-wire thermostat connections, line in and ground wires to the air handler. (Figs. 8a, 8b)

9. Double check that all wires and wiring harnesses are connected. (Fig. 9)

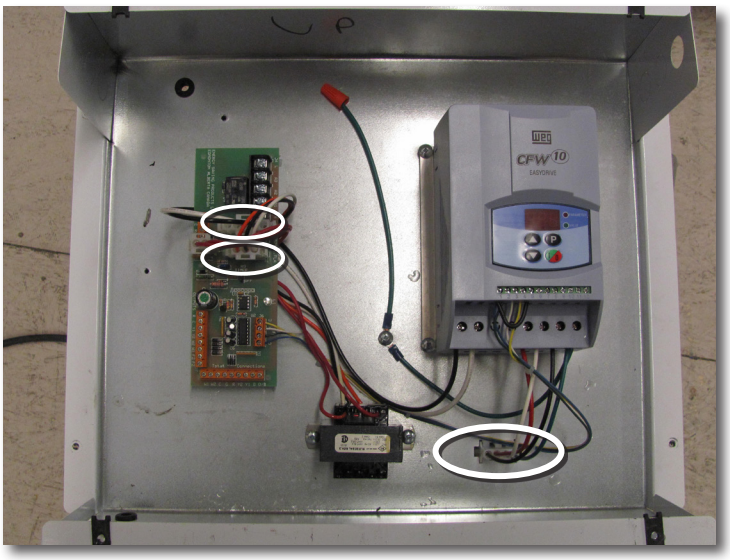


Fig. 9

10. Install large door on newly installed box. (Fig. 10)

Fig. 10

CFW300 HE-B / LV-B / VFD POWER INPUT: 110-127/1/50-60

NOTE: CFW10 HAS SLIGHTLY DIFFERENT APPEARANCE - TERMINALS AND WIRING ARE THE SAME

THERMOSTAT CONNECTIONS
R - 24 VAC OUTPUT
W1 - FIRST STAGE HEAT
W2 - SECOND STAGE HEAT (OR SINGLE STAGE)
Y1 - FIRST STAGE COOLING
Y2 - SECOND STAGE COOLING (OR SINGLE STAGE)
C - 24 VAC COMMON
G - THERMOSTAT FAN SWITCH
D - DEHUMIDIFICATION SPEED
O/B - HEATPUMP REVERSING

EMERGENCY DISCONNECT
C - 24 VAC COMMON
C - 24 VAC COMMON
Ro - 24 VAC OUTPUT
Ri - 24 VAC INPUT

AUXILIARY HEATING RELAY
N - NEUTRAL
L - LINE VOLTAGE
A1 - AUXILIARY NORMALLY OPEN
A2 - AUXILIARY NORMALLY CLOSED
A3 - AUXILIARY COMMON

24 VAC OUTPUT CONNECTIONS
FZ - FREEZE STAT (FOR Y2)
FZ - FREEZE STAT (FOR Y2)
W1 - HEATING (W1) 24 VAC OUTPUT
W2 - HEATING (W2) 24 VAC OUTPUT
Y2 - CONDENSING UNIT 24 VAC OUTPUT
Y1 - CONDENSING UNIT 24 VAC OUTPUT
C - 24 VAC COMMON
R - 24 VAC OUTPUT

JUMPER PIN SETTINGS
H1 EMERGENCY DISCONNECT: REMOVE PIN IF WIRED TO EMERGENCY DISCONNECT.
H3 TIMER: AUXILIARY RELAY TIMER (SEE NOTES).

LED LIGHT INDICATORS
LED - GREEN LIGHT, PUMP TIMER

PUMP TIMER STATUS
ON: (ACTIVE)
ON: (INACTIVE)
OFF:
2 SECONDS

FAN SPEED ADJUSTMENT (COOLING, HEATING OR RECIRCULATION FAN)
- POWER FAN COIL UNIT.
- **ENSURE ALL OUTLETS ARE OPEN.**
- ENERGIZE THE THERMOSTAT SETTING TO BE ADJUSTED. (COOLING, HEATING OR RECIRCULATION FAN).
- ON THE WEG - **"CFW300"** PRESS THE PARAMETER BUTTON (P) UNTIL THE PARAMETER LIGHT (RED) IS ILLUMINATED.
- USING THE ARROW BUTTONS SCROLL DOWN TO PARAMETER **"000".**
- PRESS THE PARAMETER BUTTON (P) AGAIN TO ENTER THE PARAMETER **"000".**
- CHANGE **P 000** TO A VALUE OF **"005"**. THIS UNLOCKS THE DRIVE AND ALLOWS YOU TO CHANGE OTHER PARAMETERS.
- ONCE PARAMETER **"000"** IS SET TO A VALUE OF **"005"** THE DRIVE IS UNLOCKED THE FAN SPEEDS CAN BE ADJUSTED VIA PARAMETERS **128, 129, 130 AND 131**.

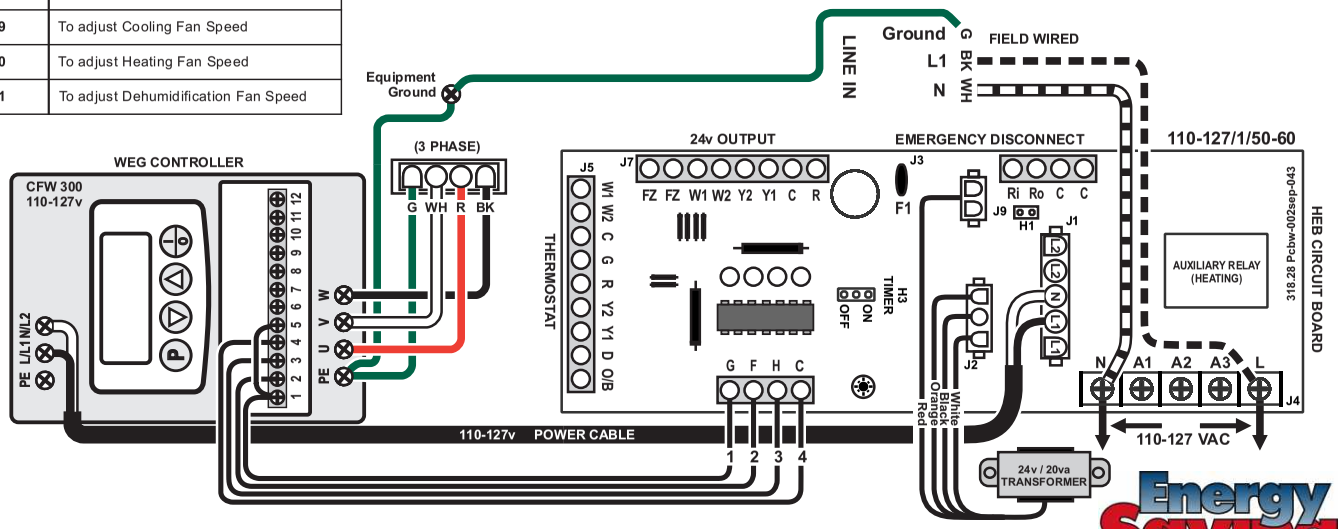
► **00.0 HZ** IS THE MINIMUM SPEED - **66.0HZ** IS THE MAXIMUM SPEED.

Useful Parameters

P 000	**To unlock drive change value to "005"**
P 002	To display Hz output
P 030 (CFW10= P 008)	Drive Heatsink Temperature
P 128	To adjust Constant Fan Speed
P 129	To adjust Cooling Fan Speed
P 130	To adjust Heating Fan Speed
P 131	To adjust Dehumidification Fan Speed

CAUTION
FOR SINGLE STAGE COOLING OPERATION USE Y2 OTHERWISE THE FREEZESTAT WILL BE BYPASSED

NOTES:
1) USE THERMOSTAT FAN SWITCH TO DISABLE/ENABLE CONTINUOUS FAN.
2) 'C' TERMINAL ON THERMOSTAT (COMMON) IS NOT NEEDED FOR SOME THERMOSTATS CONSULT THERMOSTAT INSTRUCTIONS FOR DETAILS.
3) W1 AND W2 ACTIVATES AUXILIARY RELAY (A3) ON CALL AND CAN BE USED WITH A1 AND/OR A2 AS DRY CONTACTS, ARMED 24VAC FROM THE 'R' TERMINAL, OR ARMED 110v FROM THE 'L' TERMINAL.
4) AUXILIARY HEATING RELAY TIMER ACTIVATES CIRCUIT FOR 5 MINUTES EVERY 24 HOURS STARTING WHEN POWER IS APPLIED TO THE UNIT.
5) SEE INSTALLATION MANUAL FOR MORE DETAILED WIRING DIAGRAMS.
6) **FOR SINGLE STAGE COOLING OPERATION USE Y2, OTHERWISE THE FREEZE STAT WILL BE BYPASSED.**
7) FAILURE TO SET PROPER AIR FLOW AND/OR OPERATION OF THE SYSTEM MAY RESULT IN DAMAGE TO EQUIPMENT.
8) FAILURE TO READ AND FOLLOW ALL INSTRUCTIONS CAREFULLY BEFORE INSTALLATION COULD CAUSE PERSONAL INJURY AND/OR PROPERTY DAMAGE.
9) ENSURE THAT THE FILTER IS KEPT CLEAN AT ALL TIMES.
10) MOTOR HAS PERMANENT LUBE BEARINGS AND DOES NOT REQUIRE OILING.
11) WARRANTY VOID IF FAN COIL UNIT IS USED DURING CONSTRUCTION.



REFER TO COMPLETE COMMISSIONING REPORT PRIOR TO NORMAL OPERATION. REPORT IS AVAILABLE WITH THE INSTALLATION MANUAL OR ONLINE AT **WWW.HI-VELOCITY.COM.**

Energy Saving PRODUCTS LTD

HE-B/LV-B 110V
102020

HE-B Air Handler 110v - HEB Circuit Board/CFW300 WEG Wiring Diagram

PLEASE NOTE: CFW10 has slightly different appearance, terminals and wiring are the same.

Hi-Velocity Systems
www.hi-velocity.com

Module HEB-WEG
External Circuit Box Installation 4/16)

Module HEB-WEG
External Circuit Box Installation 5/16)

Hi-Velocity Systems
www.hi-velocity.com

HE-B Air Handler 220v - HEB Circuit Board/CFW300 WEG Wiring Diagram

PLEASE NOTE: CFW10 has slightly different appearance, terminals and wiring are the same.

Hi-Velocity Systems

CFW300 HE-B / LV-B / VFD POWER INPUT: 208-240/1/50-60

NOTE: CFW10 HAS SLIGHTLY DIFFERENT APPEARANCE - TERMINALS AND WIRING ARE THE SAME

THERMOSTAT CONNECTIONS

R - 24 VAC OUTPUT
W1 - FIRST STAGE HEAT
W2 - SECOND STAGE HEAT (OR SINGLE STAGE)
Y1 - FIRST STAGE COOLING
Y2 - SECOND STAGE COOLING (OR SINGLE STAGE)
C - 24 VAC COMMON
G - THERMOSTAT FAN SWITCH
D - DEHUMIDIFICATION SPEED
O/B - HEATPUMP REVERSING

EMERGENCY DISCONNECT

C - 24 VAC COMMON
C - 24 VAC COMMON
Ro - 24 VAC OUTPUT
Ri - 24 VAC INPUT

AUXILIARY HEATING RELAY

N - NEUTRAL
L - LINE VOLTAGE
A1 - AUXILIARY NORMALLY OPEN
A2 - AUXILIARY NORMALLY CLOSED
A3 - AUXILIARY COMMON

24 VAC OUTPUT CONNECTIONS

FZ - FREEZE STAT (FOR Y2)
FZ - FREEZE STAT (FOR Y2)
W1 - HEATING (W1) 24 VAC OUTPUT
W2 - HEATING (W2) 24 VAC OUTPUT
Y2 - CONDENSING UNIT 24 VAC OUTPUT
Y1 - CONDENSING UNIT 24 VAC OUTPUT
C - 24 VAC COMMON
R - 24 VAC OUTPUT

JUMPER PIN SETTINGS

H1 EMERGENCY DISCONNECT: REMOVE PIN IF WIRED TO EMERGENCY DISCONNECT.
H3 TIMER: AUXILIARY RELAY TIMER (SEE NOTES).

LED LIGHT INDICATORS

LED - GREEN LIGHT, PUMP TIMER

PUMP TIMER STATUS	
ON: (ACTIVE)	☀ — ☀ —
ON: (INACTIVE)	— ☀ —
OFF:	———

2 SECONDS

FAN SPEED ADJUSTMENT (COOLING, HEATING OR RECIRCULATION FAN)

- POWER FAN COIL UNIT.
- **ENSURE ALL OUTLETS ARE OPEN.**
- ENERGIZE THE THERMOSTAT SETTING TO BE ADJUSTED. (COOLING, HEATING OR RECIRCULATION FAN).
- ON THE WEG - **"CFW300"** PRESS THE PARAMETER BUTTON (P) UNTIL THE PARAMETER LIGHT (RED) IS ILLUMINATED.
- USING THE ARROW BUTTONS SCROLL DOWN TO PARAMETER **"000".**
- PRESS THE PARAMETER BUTTON (P) AGAIN TO ENTER THE PARAMETER **"000".**
- CHANGE **P 000** TO A VALUE OF **"005"**. THIS UNLOCKS THE DRIVE AND ALLOWS YOU TO CHANGE OTHER PARAMETERS.
- ONCE PARAMETER **"000"** IS SET TO A VALUE OF **"005"** THE DRIVE IS UNLOCKED THE FAN SPEEDS CAN BE ADJUSTED VIA PARAMETERS **128, 129, 130 AND 131**.

► **00.0 HZ** IS THE MINIMUM SPEED - **66.0HZ** IS THE MAXIMUM SPEED.

Useful Parameters

P 000	**To unlock drive change value to "005"**
P 002	To display Hz output
P 030 (CFW10= P 008)	Drive Heatsink Temperature
P 128	To adjust Constant Fan Speed
P 129	To adjust Cooling Fan Speed
P 130	To adjust Heating Fan Speed
P 131	To adjust Dehumidification Fan Speed

CAUTION
FOR SINGLE STAGE COOLING OPERATION USE Y2 OTHERWISE THE FREEZESTAT WILL BE BYPASSED

NOTES:

1) USE THERMOSTAT FAN SWITCH TO DISABLE/ENABLE CONTINUOUS FAN.
2) 'C' TERMINAL ON THERMOSTAT (COMMON) IS NOT NEEDED FOR SOME THERMOSTATS CONSULT THERMOSTAT INSTRUCTIONS FOR DETAILS.
3) W1 AND W2 ACTIVATES AUXILIARY RELAY (A3) ON CALL AND CAN BE USED WITH A1 AND/OR A2 AS DRY CONTACTS, ARMED 24VAC FROM THE 'R' TERMINAL, OR ARMED 110v FROM THE 'L' TERMINAL.
4) AUXILIARY HEATING RELAY TIMER ACTIVATES CIRCUIT FOR 5 MINUTES EVERY 24 HOURS STARTING WHEN POWER IS APPLIED TO THE UNIT.
5) SEE INSTALLATION MANUAL FOR MORE DETAILED WIRING DIAGRAMS.
6) **FOR SINGLE STAGE COOLING OPERATION USE Y2, OTHERWISE THE FREEZE STAT WILL BE BYPASSED.**
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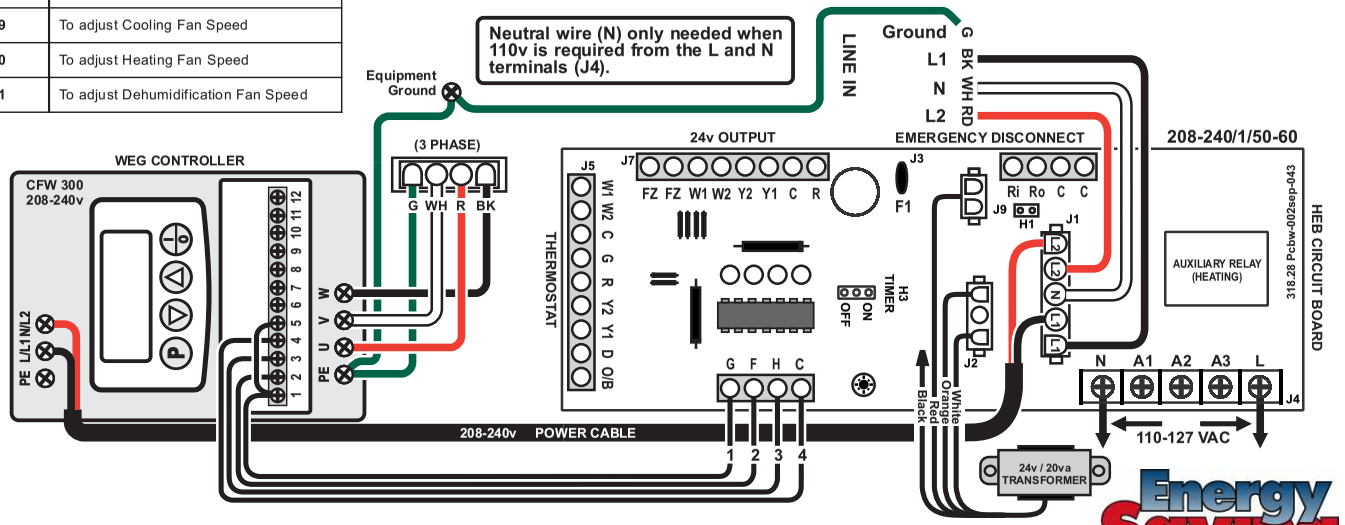
8) FAILURE TO READ AND FOLLOW ALL INSTRUCTIONS CAREFULLY BEFORE INSTALLATION COULD CAUSE PERSONAL INJURY AND/OR PROPERTY DAMAGE.
9) ENSURE THAT THE FILTER IS KEPT CLEAN AT ALL TIMES.
10) MOTOR HAS PERMANENT LUBE BEARINGS AND DOES NOT REQUIRE OILING.
11) WARRANTY VOID IF FAN COIL UNIT IS USED DURING CONSTRUCTION.



REFER TO COMPLETE COMMISSIONING REPORT PRIOR TO NORMAL OPERATION. REPORT IS AVAILABLE WITH THE INSTALLATION MANUAL OR ONLINE AT **WWW.HI-VELOCITY.COM.**

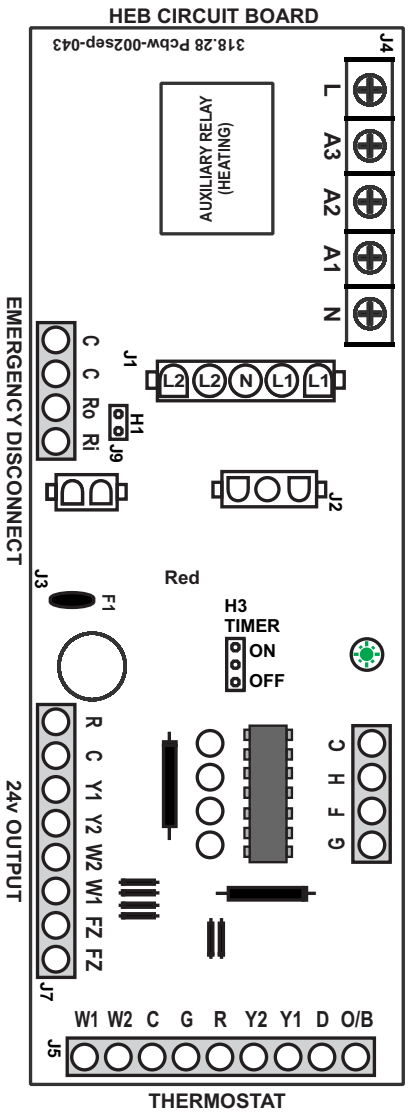
Energy Saving PRODUCTS LTD

HE-B/LV-B 220V
102020

Quick Reference Guide

Quick System Setting Reference

	Hertz Output	Outlet Velocity	Static Pressure
Cooling Mode:	55-66 Hz	1250-1400 FPM	0.8-1.2"wc
Heating Mode:	45-66 Hz	1100-1400 FPM	0.6-1.2"wc
Constant Fan:	25-35 Hz	500-900 FPM	0.2-0.5"wc



Note:
- Hertz will be displayed on the Variable Frequency Drive digital display.
- Outlet velocity is based on ideal noise levels.
- Static Pressure reading must be taken perpendicular to airflow, minimum of 18" away from supply air collar of air handler.
- Quick references should only be used to roughly set air handler, not to be used as primary set up method.

Jumper Pin Settings

H1 Emergency Disconnect:	(Remove pin to activate)
H3 Timer:	Activates auxiliary relay for 5 min every 24 hours.

CFW300 WEG - Useful Parameters

P000	**To unlock drive change to 5**
P002	**To display Hz output**
P030 (CFW10 - P008)	**Drive Heatsink Temperature**
P128	**To adjust constant fan speed**
P129	**To adjust cooling fan speed**
P130	**To adjust heating fan speed**
P131	**To adjust dehumidification fan speed**

LED Description

LED 1 (Green Light) - Pump timer

See page 30 of the HE-B Installation Manual for fan speed adjustment instructions

PUMP TIMER STATUS
ON: (ACTIVE)
ON: (INACTIVE)
OFF:
2 SECONDS

= Light On
= Light Off

System Commissioning & Set-up

Determining Preliminary System Information

To set the air handler, the required airflow capacity must be determined for each operating mode. The required CFM/Ton is 250, 200, and 125 for Cooling, Heating and Recirculation Fan respectively. Divide the total CFM required for each fan speed by the total number of outlets. Keep in mind that each HE outlet represents two 2" outlets, and 2" outlets represent one. This will provide the average CFM per outlet. After all airflow capacities have been determined, convert the Airflow per outlet to Velocity per Outlet. This will make setting the air handler easier. Do this by dividing CFM per outlet by 0.022. This will provide FPM per 2" outlet. Divide CFM per outlet by 0.021 to provide FPM per HE outlet. Determining velocities per outlet for HE and 2" is important. The ideal outlet velocity that is calculated on page 2 & 3 of the commissioning report will be used when setting the airflow of the system. After the average outlet has been determined, the calculated ideal velocity per outlet will be what the average outlet should be set at.

Fan Speed Adjustment

- Power Air Handler Unit
- Ensure all outlets are open
- Energize the thermostat setting to be adjusted. (Cooling, Heating or Recirculation Fan)
- On the WEG Drive Press the Parameter button (P) until the parameter light (red) is illuminated
- Using the arrow buttons scroll down to Parameter "000"
- Press the Parameter button (P) again to enter the Parameter "000"
- Change P000 to a value of "005". This unlocks the drive and allows you to change other parameters
- Once parameter "000" is set to a value of "005" the drive is unlocked and the fan speeds can be adjusted via Parameters 128, 129, 130 and 131.

► 00.0 HZ is the minimum speed - 66.0HZ is the maximum speed

► Parameter 128 (P128) is to set the constant fan speed (G)

► Parameter 129 (P129) is to set the cooling speed (Y1 & Y2)

► Parameter 130 (P130) is to set the heating speed (W1 & W2)

► Parameter 131 (P131) is to set the Dehumidification speed (D)

- Fan speeds have been set in the factory for nominal CFM output. To ensure that supply airflow is sufficient for the specific application the speeds may need to be fine-tuned and confirmed via an airflow test. See the section "Finding Average Outlet & Fine Tuning the Fan Speeds" on pg. 30 of the HE-B Installation manual for details on the factory recommended method of setting airflow.

Finding Average Outlet & Fine Tuning the Fan Speeds

With the preliminary adjustment set, fine tuning the fan speeds may commence. With the power on, all zone dampers opened, and the cooling speed energized, allow the fan 45 seconds to fully ramp up. Once the fan is fully ramped up, record velocity readings from all of the outlets (FPM or Knots). These outlet locations and velocity readings can be recorded on page 4 of the commissioning report. Ensure HE outlet velocities are recorded in section A (HE) of the chart and 2" outlet velocity are recorded in section B (2") of the chart. When all outlet velocity reading have been recorded, pick a section (A or B) with the most outlets. Total all velocities in that section, and divide that number by the number of outlets in the section selected. This provides a true average velocity of that selected section. Now that the average velocity of one section (HE or 2") has been determined, select one outlet in that section to make your average outlet. Now that we know what type of outlet our average is (HE or 2"), we can go back to the "Determining Preliminary System Information" section on pages 2 & 3 of the commissioning report and select the FPM per outlet that is specific to the type of average outlet we have.

Use the average outlet to fine tune the system by matching the average outlet's velocity (FPM per outlet) to the velocity per outlet that was determined for each fan speed.

For full and proper tuning of the fan speeds, repeat the above process for heating and recirculation fan. The same average outlet that was determined in cooling mode can be used again for tuning the other modes.

When tuning is complete, change WEG parameter back to P002, this displays hertz output to the motor.

Important Notes:

• Initial adjustment of the fan speed for cooling, heating and recirculation fan must be done with all dampers in the open position, to verify maximum load capacities.

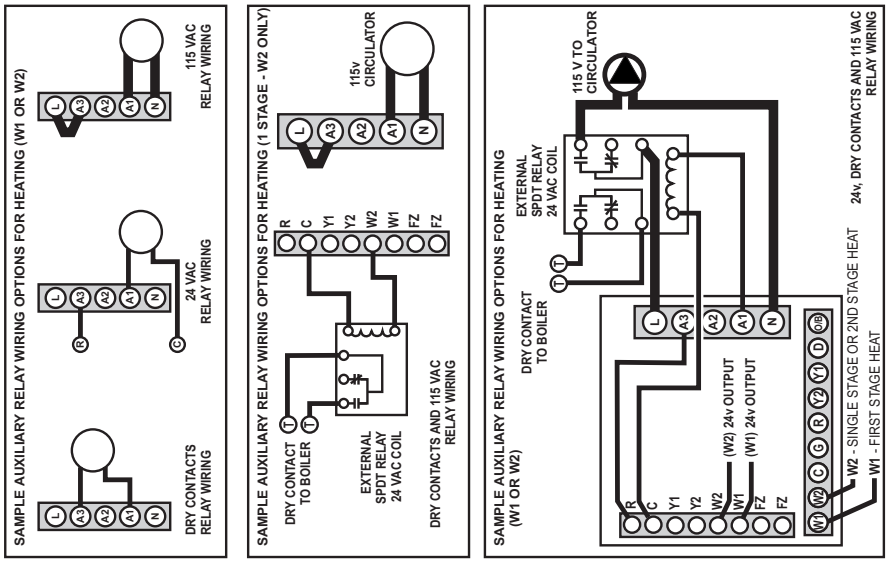
• To find outlet CFM:

Multiply Knots by 2.2 for 2", and by 4.2 for HE

Multiply FPM by 0.022 for 2" and by 0.042 for HE

HE-B Air Handler - Extended Wiring Diagrams

Extended wiring diagrams for the various applications the Hi-Velocity HE-B model can be used for. If you do not find the wiring configuration you require, please call the technical department at Energy Saving Products Ltd. for further assistance.



FOR SINGLE STAGE OPERATION USE W2 & Y2 TERMINALS

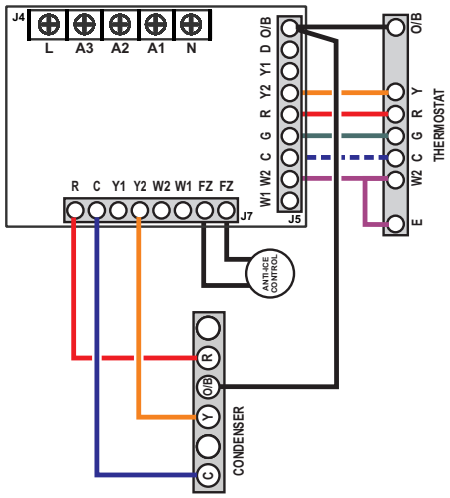
N - NEUTRAL
L - LINE VOLTAGE
A1 - AUXILIARY NORMALLY OPEN
A2 - AUXILIARY NORMALLY CLOSED
A3 - AUXILIARY COMMON

FZ - FREEZE STAT
FZ - FREEZE STAT
W1 - HEATING (W1) 24V OUTPUT
W2 - HEATING (W2) 24V OUTPUT
Y2 - CONDENSING UNIT (Y2) 24V OUTPUT
Y1 - CONDENSING UNIT (Y1) 24V OUTPUT
C - 24 VAC COMMON
R - 24 VAC OUTPUT

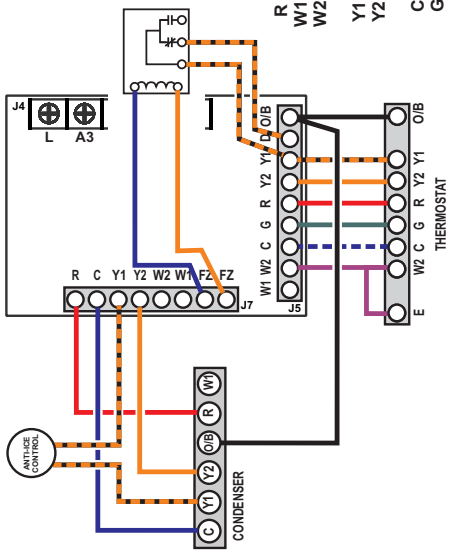
R - 24 VAC OUTPUT
W1 - FIRST STAGE HEAT
W2 - SECOND STAGE HEAT (OR SINGLE STAGE)
Y1 - FIRST STAGE COOLING
Y2 - SECOND STAGE COOLING (OR SINGLE STAGE)
C - 24 VAC COMMON
G - THERMOSTAT FAN SWITCH
D - PRIORITY (RUNS AT W SPEED)
O/B - HEATPUMP REVERSING VALVE

HE-B-Extended-Wiring-Pg-1-082

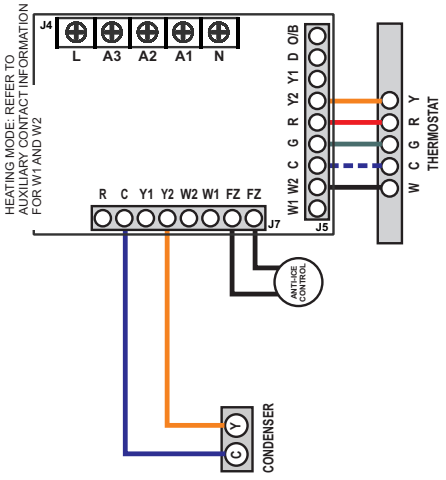
1 Stage Cooling 2 Stage Heating Heatpump



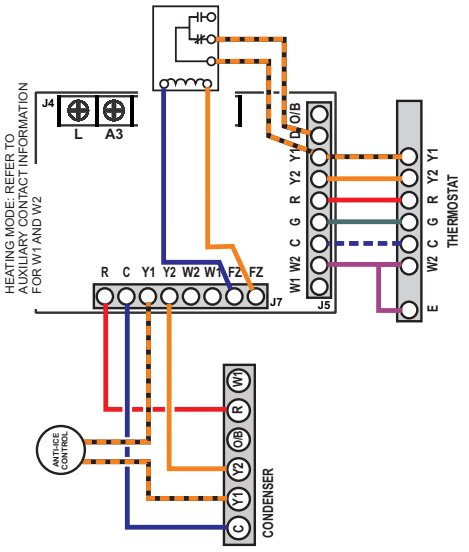
2 Stage Cooling 3 Stage Heating Heatpump



1 Stage Cooling 1 Stage Heating



2 Stage Cooling 1 Stage Heating

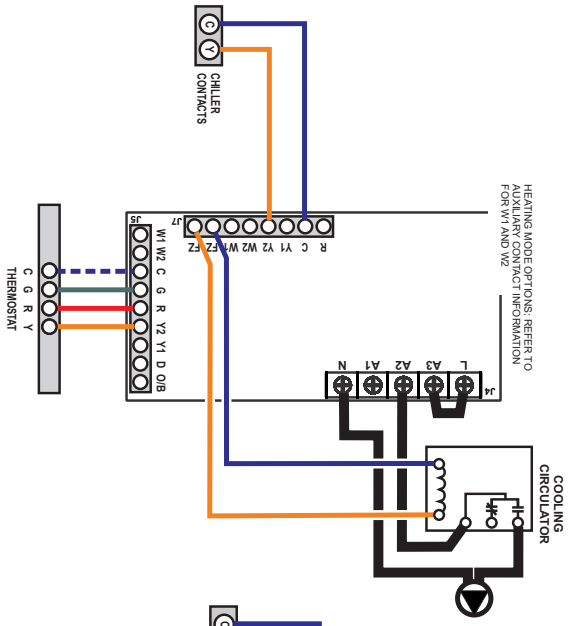


HE-B Air Handler - Extended Wiring Diagrams

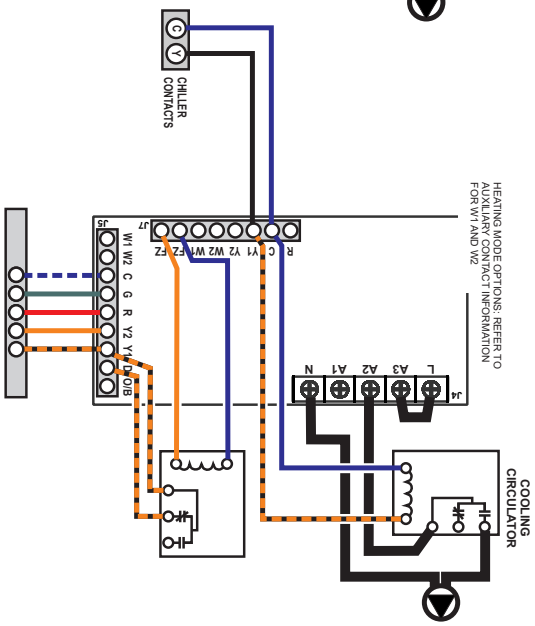
Extended wiring diagrams for the various applications the Hi-Velocity HE-B model can be used for. If you do not find the wiring configuration you require, please call the technical department at Energy Saving Products Ltd. for further assistance.

CHILLED WATER WIRING

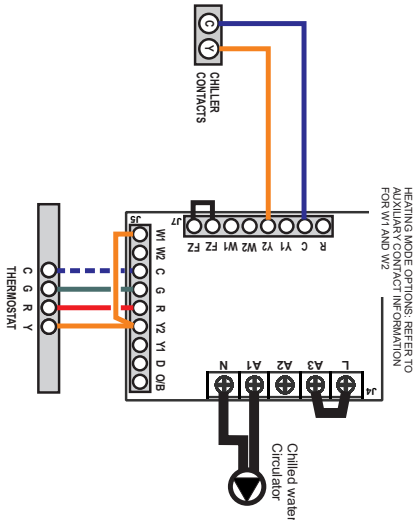
1 Stage Cooling c/w chilled water circulator



2 Stage Cooling c/w chilled water circulator



1 Stage Cooling (Only) c/w chilled water circulator



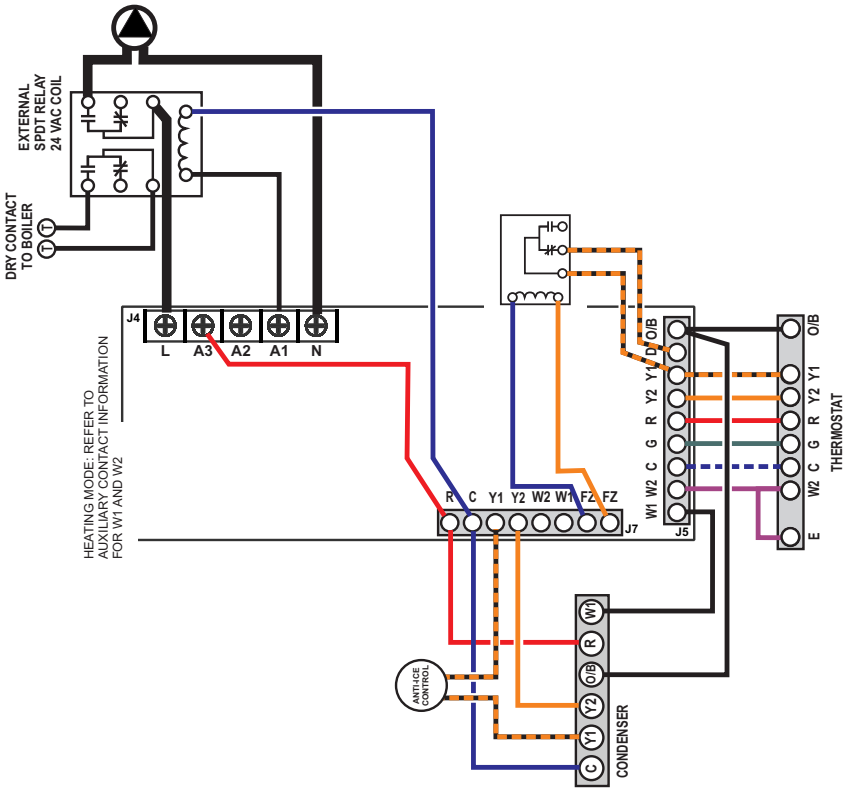
HE-B-Ext

HE-B Air Handler - Extended Wiring Diagrams

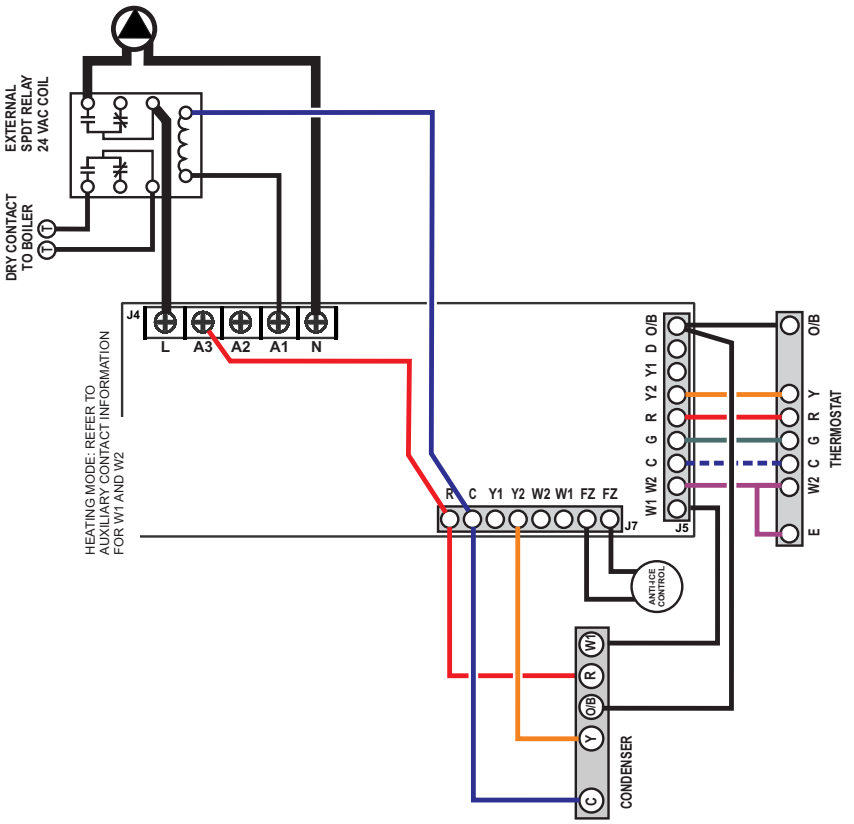
Extended wiring diagrams for the various applications the Hi-Velocity HE-B model can be used for. If you do not find the wiring configuration you require, please call the technical department at Energy Saving Products Ltd. for further assistance.

HEAT PUMP C/W CONDENSER DEFROST CYCLE - BOILER BACK-UP

2 Stage Cooling 3 Stage Heating
Heat pump c/w condenser defrost cycle



1 Stage Cooling 2 Stage Heating
Heat pump c/w condenser defrost cycle



HE-B-Extended-Wiring-Pg-3-082615

Troubleshooting - Motor Running Too Fast

Start

1. **Jumper desired Tstat setting** with R on the HEB Circuit Board *(Figs. 001-002)*
2. **Power** Air Handler
3. Verify that **Main Supply Voltage** is present on the HEB Circuit Board between the **L and N terminals** *(Fig. 003)*
4. **Supply Power** present?
   - N → Inspect **Supply Voltage**
     - Return to ***Step 4***
     - Replace **Transformer**
   - Y
5. Verify that **24VAC** is present between **R & C** on the HEB circuit board *(Fig. 004)*
   - N → Ensure **Transformer** is connected properly
     - Y → Return to ***Step 4***
     - N → Replace **Transformer**
   - Y
6. Verify that **24VAC** is present between **C & desired T-Stat** setting
   - N → Ensure that **Jumper** is installed correctly *(Fig. 002)*
     - Y → **Call Technical Support Toll Free 1-888-652-2219**
     - N → **Install Jumper** and return to ***Step 6***
   - Y
7. **Input Voltage** and **T'Stat function** on HEB is functioning correctly → Turn off **Supply Power,** connect **Transformer**, turn on **Power** - Return to ***Step 5***
8. Verify that **the control signal** section of HEB is functioning properly
9. Ensure the **G, F, H & C terminals on terminal strip "J6"** are connected to the correct corresponding terminals.
   - **G** goes to **terminal 1** of WEG
   - **F** goes to **terminal 2** of WEG
   - **H** goes to **terminal 3** of WEG
   - **C** goes to **terminal 4** of WEG
   - Jumper between **1 & 5** *(Fig. 005)*

   N → Correct the wiring to the **WEG Controller** and return to **Step 9**

   Y
10. Depending on what setting was jumpered in **Step 1**, confirm you have the right voltages at terminals **G, F, H** & **C**
11. **Heating (W & W2)**
    -0.7VDC between ground **(G) & F**
    -0.7VDC between ground **(G) & H**
    -12.3VDC between ground **(G) & C**
    Cooling (Y1 & Y2)
    -0.7VDC between ground **(G) & F**
    -0.7VDC between ground **(G) & C**
    -12.3VDC between ground **(G) & H**
    Fan (G)
    -0.7VDC between ground **(G) & F**
    -12.3VDC between ground **(G) & C**
    -12.3VDC between ground **(G) & H**
    Dehumidification (D)
    -0.7VDC between ground **(G) & F**
    -0.7VDC between ground **(G) & C**
    -0.7VDC between ground **(G) & H**
    (Fig. 006)

    N → **Call Technical Support Toll Free 1-888-652-2219**

    Y
12. Refer to **Pgs 5-6** of this manual to set hertz output for all fan speeds

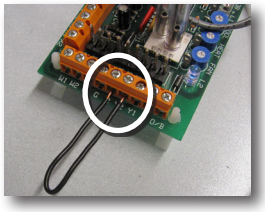


Fig. 001

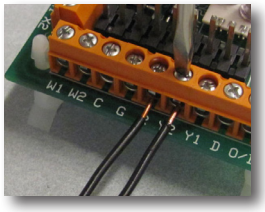


Fig. 002

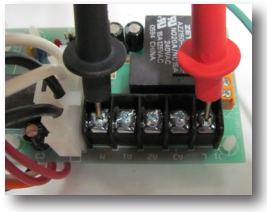


Fig. 003

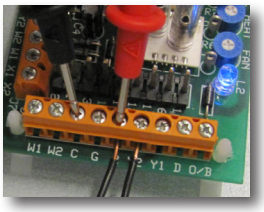


Fig. 004

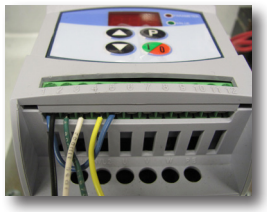


Fig. 005

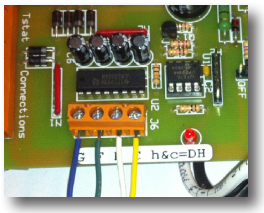


Fig. 006

Troubleshooting - Motor Running Too Slow/Motor Not Running

Start

1. **Jumper desired Tstat setting** with **R** on the HEB Circuit Board ***(Fig. 001)***
2. **Unplug Motor Leads** and test resistance (ohms) between windings ***(Figs. 002 & 003)***

   Resistance should be **equal** between all **Windings**. Black to Red, Black to White and Red to White. **Resistance** should be: **6.5 - 10.5 ohms**

   If **Resistance** is outside of the acceptable range (6.5 - 10.5 ohms) or uneven across any winding legs, **call Technical Support Toll Free @ 1-888-652-2219** - If **Resistance** is acceptable, re-connect **Motor Leads** and continue to ***Step 3***

3. **Power** Air Handler
4. Verify that **Main Supply Voltage** is present on the HEB Circuit Board between the **L and N Terminals** ***(Fig. 004)***
5. **Supply Power** Present?
   - **N** → Inspect **Supply Voltage** - Return to ***Step 5***
   - **Y**
6. Verify that **24VAC** is present between **R & C** on the HEB Circuit Board ***(Fig. 005)***
   - **N** → Ensure **Transformer** is connected properly
     - **Y** → Replace **Transformer**
     - **N** → Turn off **Supply Power**, connect transformer, turn on power - Return to ***Step 6***
   - **Y**
7. Verify that **24VAC** is present between **C & desired T-Stat** setting
   - **N** → Ensure that **Jumper** is installed correctly ***(Fig. 001)***
     - **Y** → **Call Technical Support Toll Free 1-888-652-2219**
     - **N** → Install **Jumper** and return to ***Step 7***
   - **Y**
8. **Input Voltage** and **T'Stat section** on HEB is functioning correctly
9. Verify that **the Control Signal** section of HEB is functioning properly
10. Ensure the **G, F, H & C terminals on terminal strip J6** are connected to the correct corresponding terminals.
    - **G** goes to **terminal 1** of WEG
    - **F** goes to **terminal 2** of WEG
    - **H** goes to **terminal 3** of WEG
    - **C** goes to **terminal 4** of WEG
    - Jumper between **1 & 5**

    (Fig. 006)

    N → Correct the wiring to the **WEG Controller** and return to **Step 9**

    Y
11. Depending on what setting was jumpered in **Step 1**, confirm you have the right voltages at terminals **G, F, H** & **C**
12. **Heating (W & W2)**
    -0.7VDC between ground **(G) & F**
    -0.7VDC between ground **(G) & H**
    -12.3VDC between ground **(G) & C**
    Cooling (Y1 & Y2)
    -0.7VDC between ground **(G) & F**
    -0.7VDC between ground **(G) & C**
    -12.3VDC between ground **(G) & H**
    Fan (G)
    -0.7VDC between ground **(G) & F**
    -12.3VDC between ground **(G) & C**
    -12.3VDC between ground **(G) & H**
    Dehumidification (D)
    -0.7VDC between ground **(G) & F**
    -0.7VDC between ground **(G) & C**
    -0.7VDC. between ground **(G) & H**

    (Fig. 007)

    N → **Call Technical Support Toll Free 1-888-652-2219**

    Y → Refer to **Pgs 5-6** of this manual to set hertz output for all fan speeds

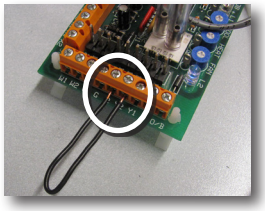


Fig. 001

Fig. 002

Fig. 003

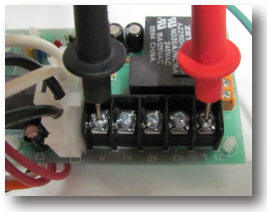


Fig. 004

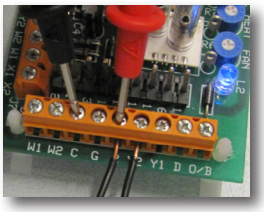


Fig. 005

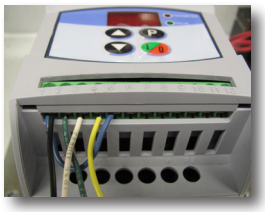


Fig. 006

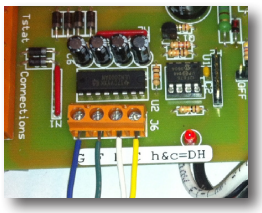
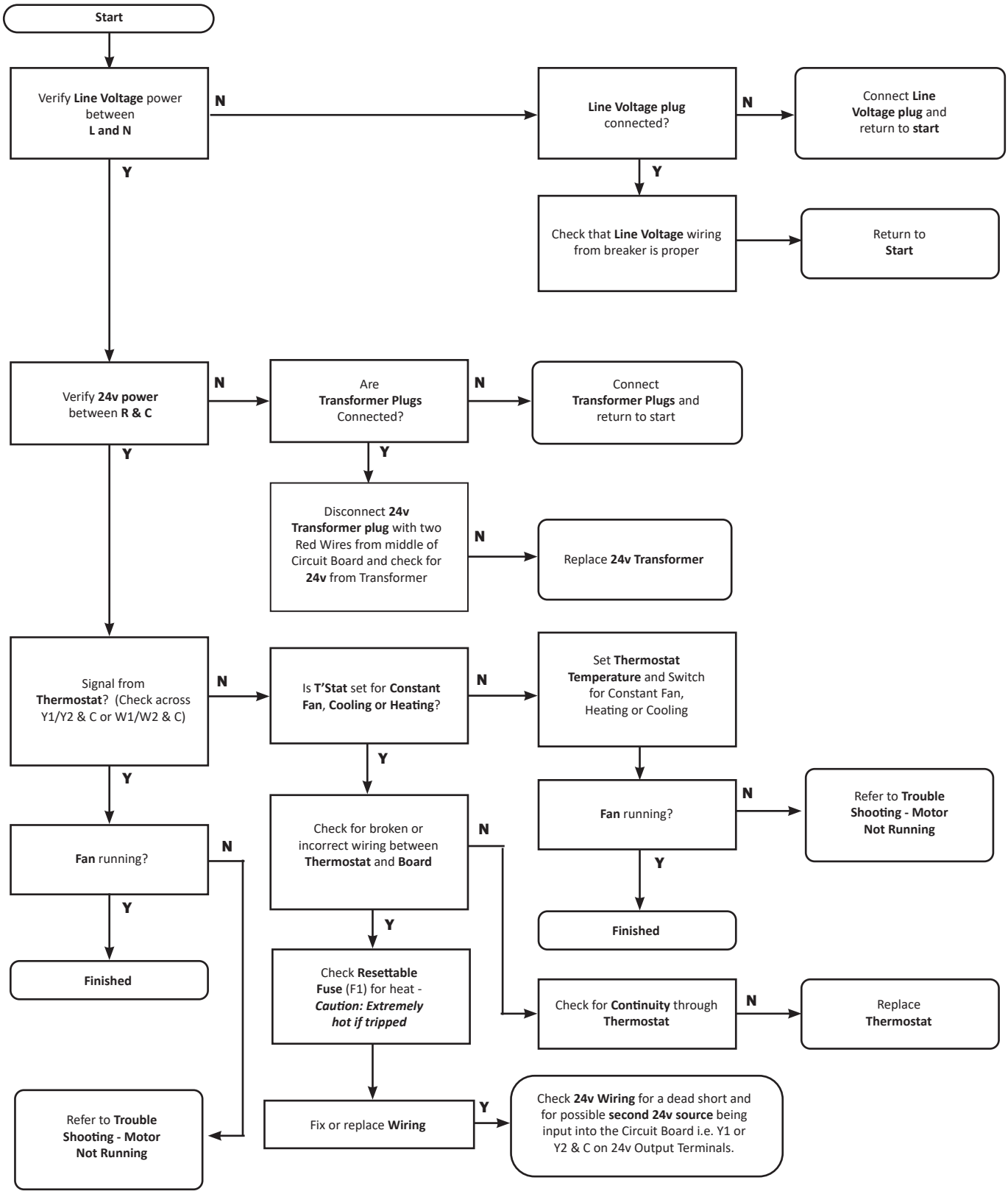
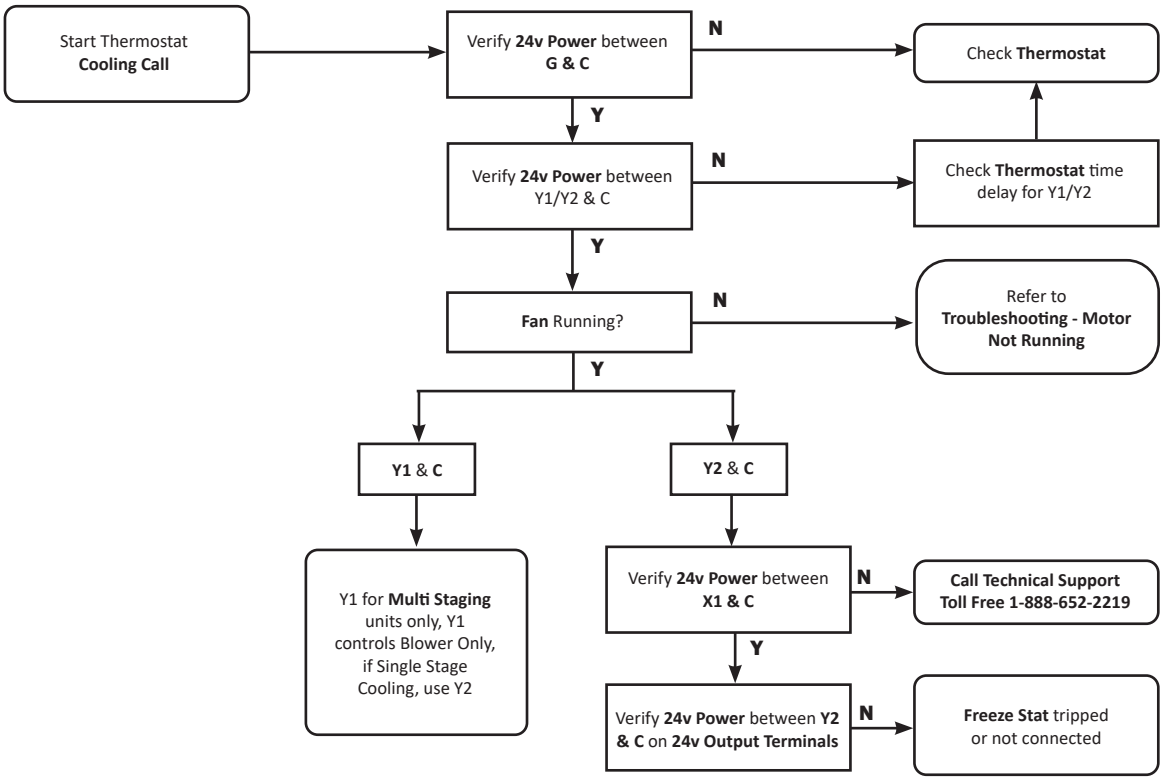


Fig. 007

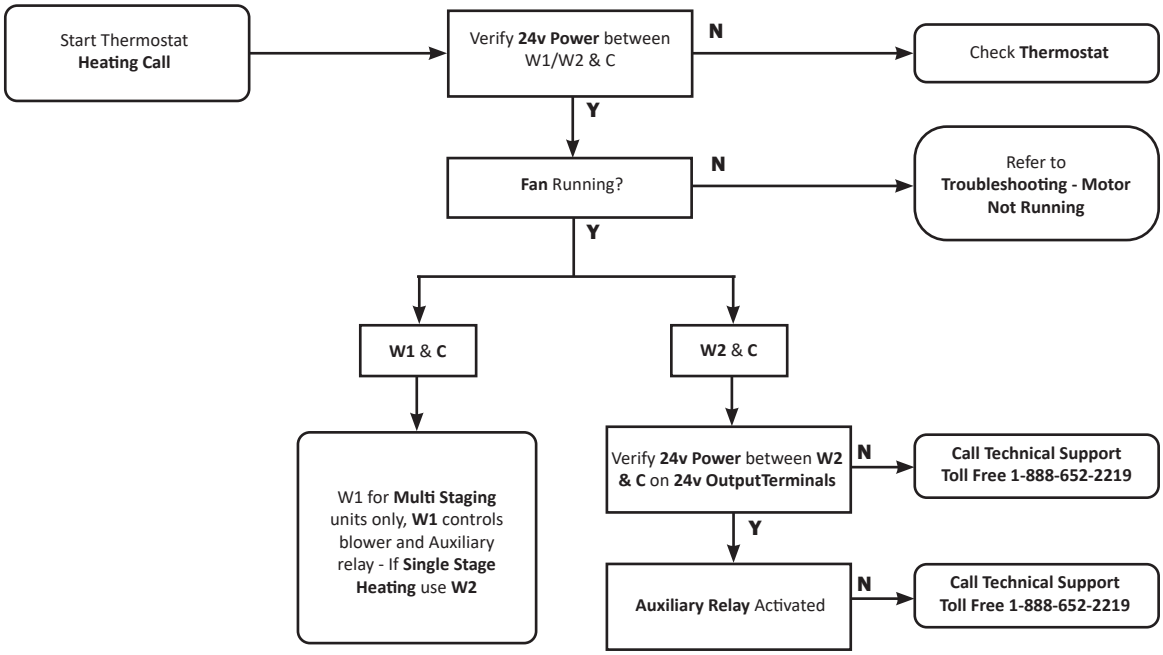
Troubleshooting - 24Volt Thermostat to CEB Circuit Board



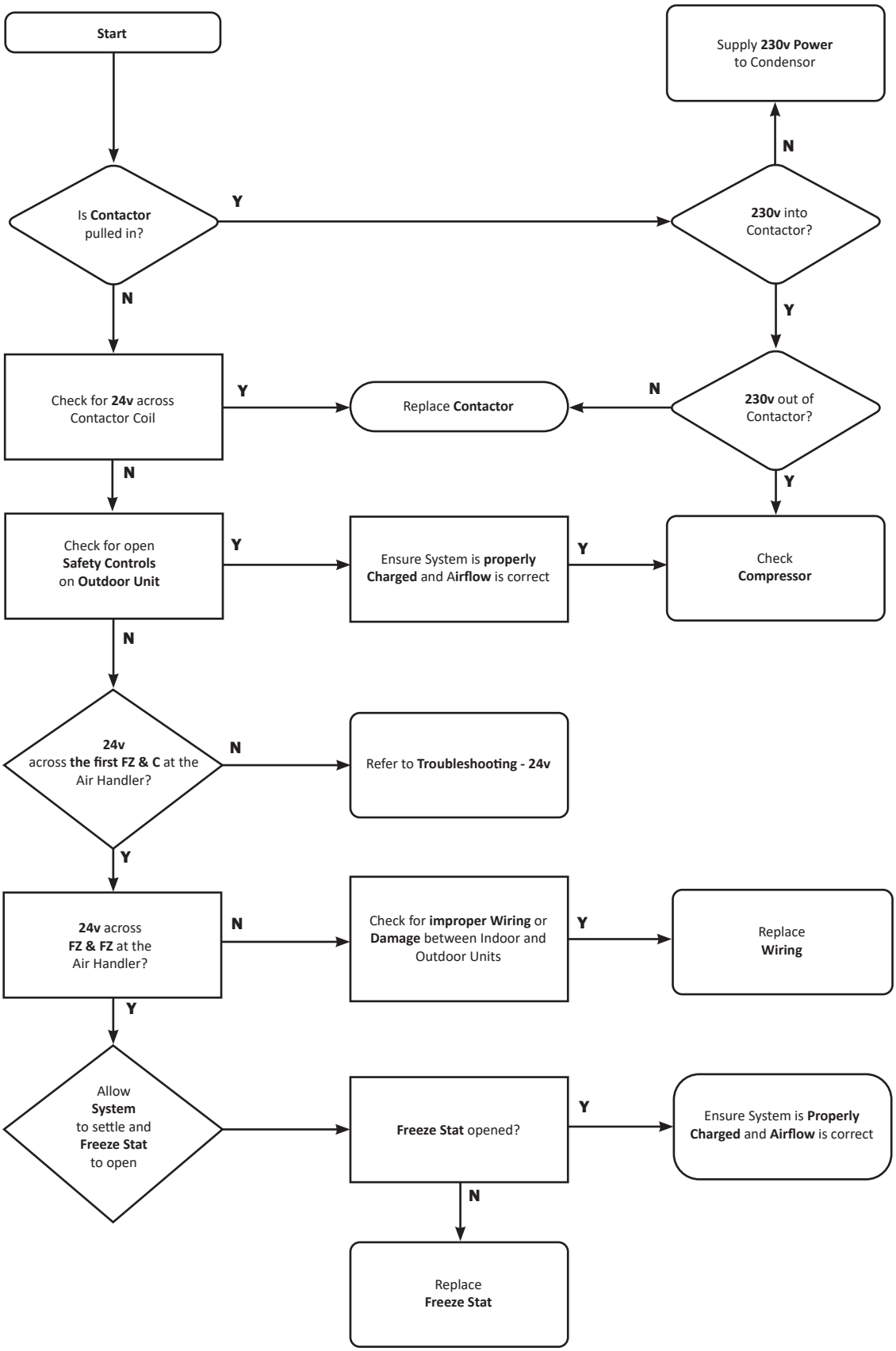
Troubleshooting - Cooling 24 Volt Circuit Board



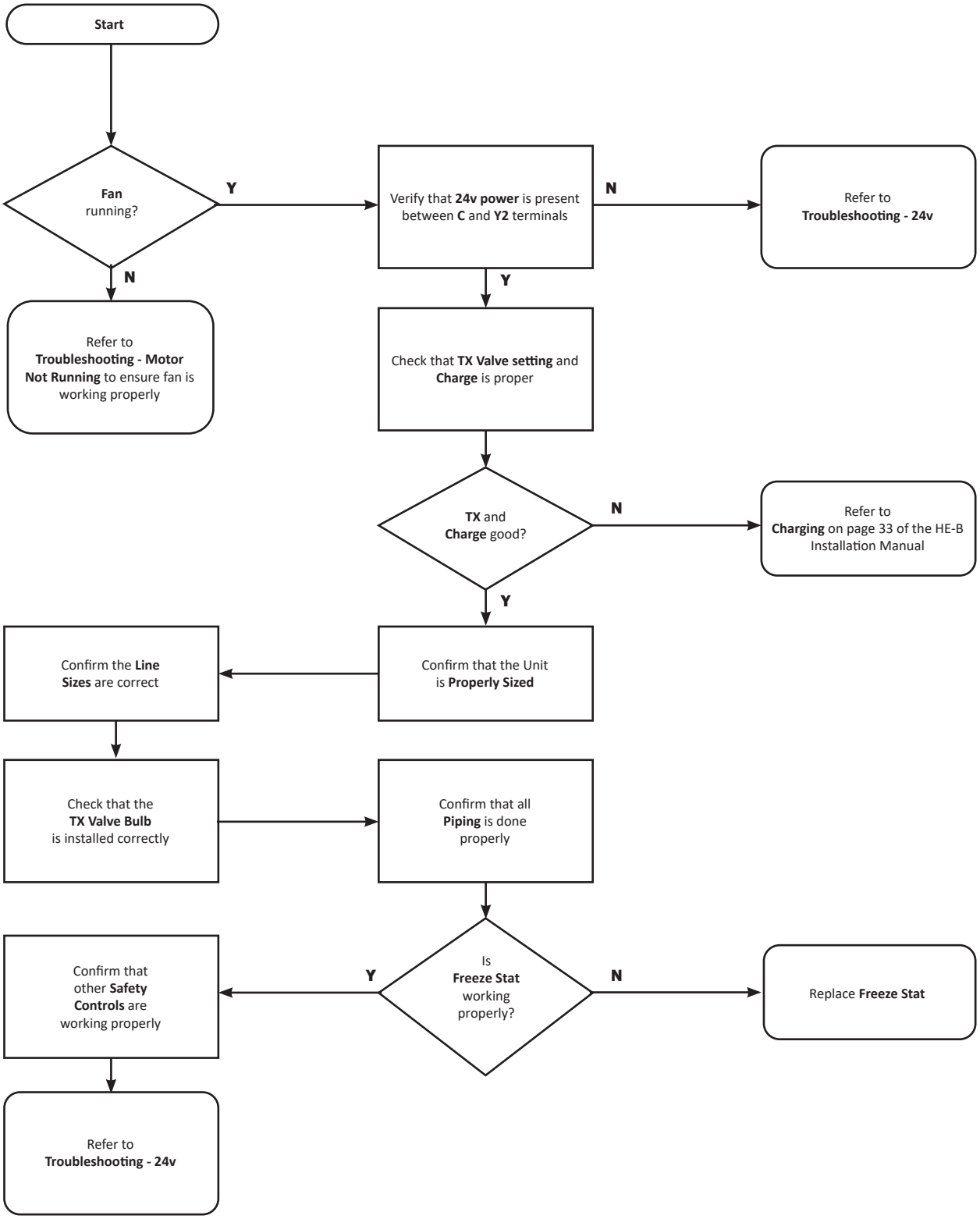
Trouble Shooting: Heating 24 Volt Circuit Board



Troubleshooting - Outdoor Unit - Electrical



Troubleshooting - Short Cycling



NOTES

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.

For all of your Heating, Cooling and Indoor Air Quality needs, the Hi-Velocity System is the right choice for you!

Hi-Velocity Systems™

Small Duct Heating, Cooling and IAQ Systems

Build Smart, Breathe *Easy*

Hi-Velocity HE-Z Air Handlers, Green Technology

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Toll Free: 1-888-652-2219

www.hi–velocity.com