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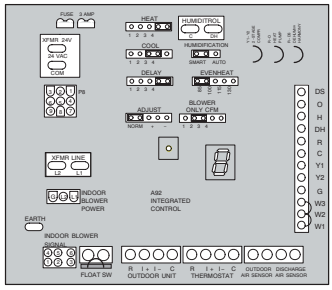
AIR HANDLER CONTROL FIELD REPLACEMENT KIT

GUIDELINES FOR AIR HANDLER CONTROL FIELD REPLACEMENT (18Y04)

AIR HANDLER CONTROL (AHC) REPLACEMENT PROCEDURE



AIR HANDLER CONTROL (AHC)

Indoor Unit NEW MAIN CONTROL Catalog Number

CBX32MV / CBX40UHV / CBA38MV – Part # 104458-01

STEP 1

TURN OFF ALL POWER TO UNIT BEFORE SERVICING
Verify **OLD CONTROL** jumper settings, links and wiring connections. Use the same settings and wiring connections for the **NEW CONTROL** . See Figure 10 for location of jumpers and loop location.

STEP 2

- Transfer **OLD CONTROL** wire connections to **NEW CONTROL**
- Remove **OLD MAIN CONTROL**
- Install **NEW MAIN CONTROL**

NOTE – If old control board had been connected to an iComfort system, the control should auto program itself. If it does not, then follow the procedure below.

Unit Size Code

See Figure 6 for details on this procedure.
Set **Unit Size Code** by following configuration procedure provided in this instruction or unit installation instructions.

Non–Communicating System

The unit will operate based on jumper and link settings on the control. All setting changes must be done at the control board. The Lennox ComfortSense® 7500 thermostat may be used, as well as other non–communicating thermostats.

MAIN CONTROL Set–up

Use the procedures provided in this instruction or that of the unit installation instruction.

Set jumpers and clip links to match parameters of equipment

(See figure 2 in this instruction for location of single character display, push button, jumpers and links.)

Configure Electric Heat

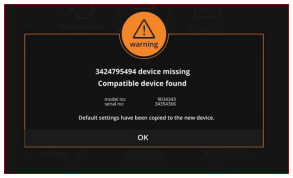
Electric heat will automatically detect and configure electric heat when 240 volt power is applied. Manual configuration of the electric heat is no longer required. (During electric heat detection, the electric heat and blower will not be energized.) See Figure 7 for additional details.

NOTE – Error code troubleshooting is included in all kit and unit installation instructions.

Communicating System

The jumper and link settings are **default settings** and ONLY control system operation if configuration settings in the thermostat are not available. A Lennox communicating thermostat must be used in communicating applications.

Configuring System



During configuration on systems with an S30 thermostat, the model and serial number will be automatically copied to the new control board. On iComfort Wi-Fi thermostats, the pop-up will confirm the model and serial number will be copied to the new control board if you press the "OK" button.

Configure Electric Heat

Electric heat will automatically detect and configure electric heat when 240 volt power is applied. Manual configuration of the electric heat is no longer required. (During electric heat detection, the electric heat and blower will not be energized.) See Figure 7 for additional details.

System Operation Configuration

Confirm or configure system operation using communicating thermostat Installer System Setup Guide.

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⚠ WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a licensed professional HVAC installer or equivalent, service agency, or the gas supplier.

⚠ CAUTION

As with any mechanical equipment, contact with sharp sheet metal edges can result in personal injury. Take care while handling this equipment and wear gloves and protective clothing.

Shipping and Packing List

Check package contents for shipping damage. Consult last carrier immediately if damage is found.

1 – Control

1 – Wiring diagram (538057-01)

General

This document provides general guidelines on field replacement of air handler control and unit configuration.

This kit replaces kits #65W70, #13Y22 and #16B27 and is backwards compatible.

Air Handler Control Removal and Installation

1 - Disconnect power to the unit.

2 - Remove unit access panel. See unit installation instruction for access panel removal procedure.

3 - Recommend removing each wire connected to the control individually and connecting to the new control. Alternate method recommended is to mark each wire as it is removed from control.

4 - Once all connections have been transferred to the new control. Remove the old control by removing the two screws securing the control mounting bracket to the control box (see figure 1). Also see Field Control Wiring on page 4.

5 - Remove the four plastic standoffs that secure the control to mounting bracket

6 - Secure the new indoor control to the mounting bracket using existing four plastic standoffs.

7 - Secure control mounting bracket to control box using existing two screws.

For Non-Communicating Applications Only

8 - Note position of all jumpers on the existing air handler control and relocate same jumpers to those positions on the new air handler control. Also see Air Handler Button, Display and Jumpers section on page 3.

9 - Configure new control for non-communicating systems using the procedures outlined in Configuring Unit on page 16. For communicating systems, refer to the communicating thermostat installation instructions for system configuration.

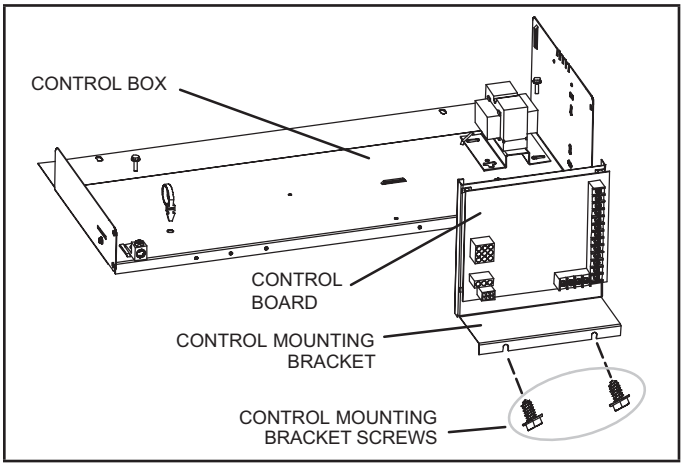


FIGURE 1. Air Handler Control Removal and Installation

IMPORTANT: Control board must be installed in proper orientation for all wiring to reconnect to the control board. Please refer to Figure 1 diagram above for control board orientation. Same orientation whether unit is configured for upflow, downflow, horizontal right or horizontal left.

IMPORTANT: Power-Robbing Thermostat Installation Notice

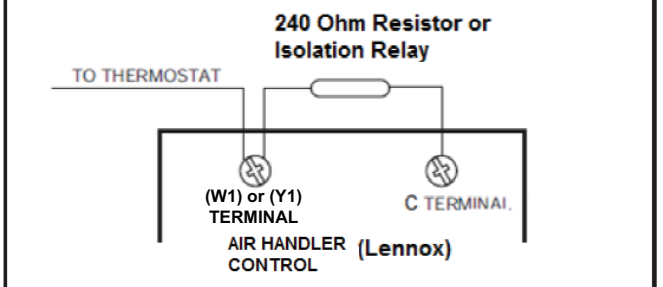
This section applies only when Lennox air handler control is used with an existing older power robbing / stealing thermostat.

A power robbing / stealing thermostat is one which does not have a dedicated “C” wire; such thermostats may use W1 or Y1 (or any other) terminal as return wire for 24V AC supply, and that terminal is referred to as a power-robbing terminal.

Field technicians can determine which terminal is being used as the power-robbing terminal by referring to the thermostat documentation.

Example:

Refer to the installation method below when the thermostat does not have a “C” wire and W1 terminal is being used as a return. Install an external 240 Ohm, 5w resistor or any isolation relay between the terminals W1 and “C” on the air handler control as shown.



NOTE – Disconnect power supply before installation.

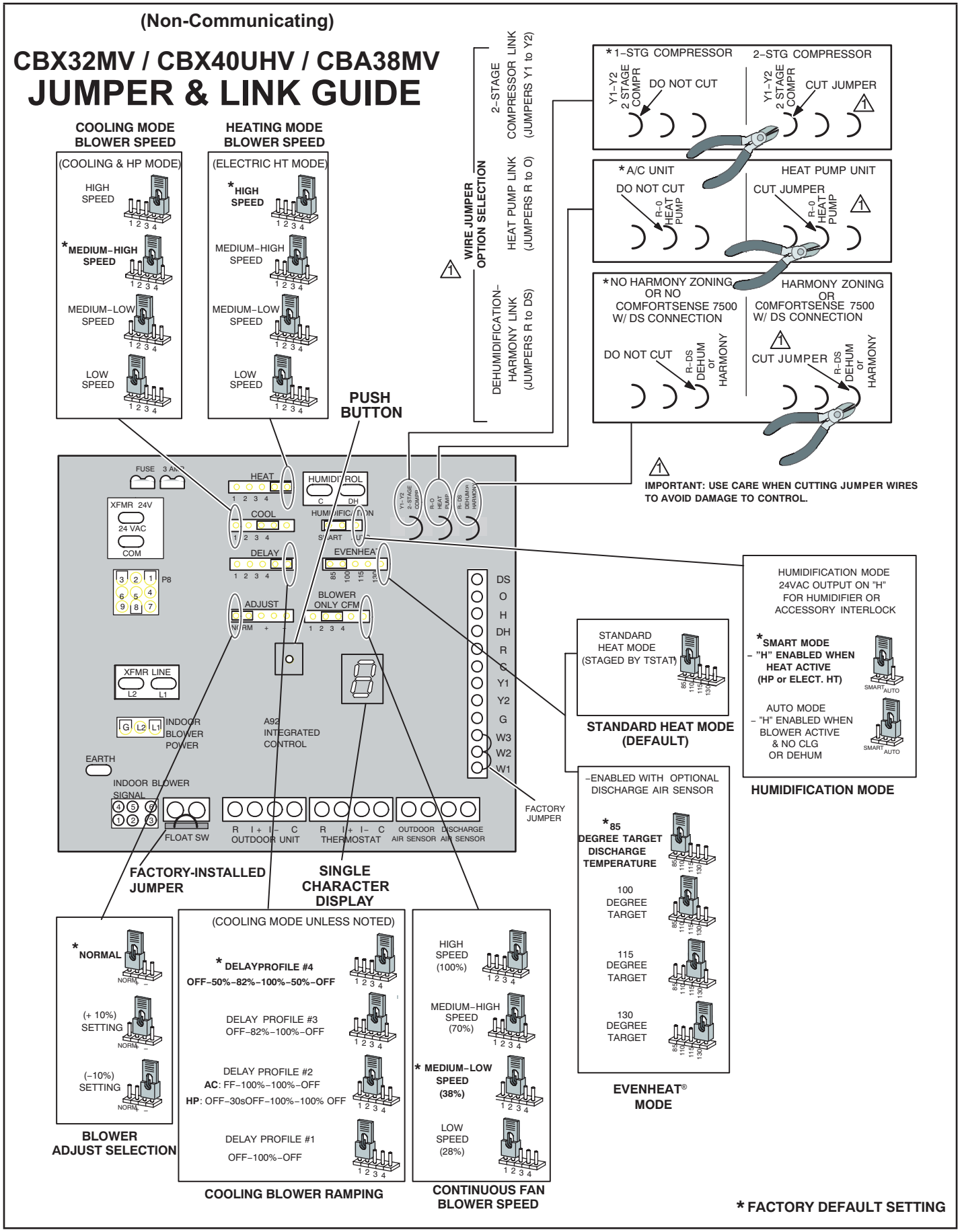


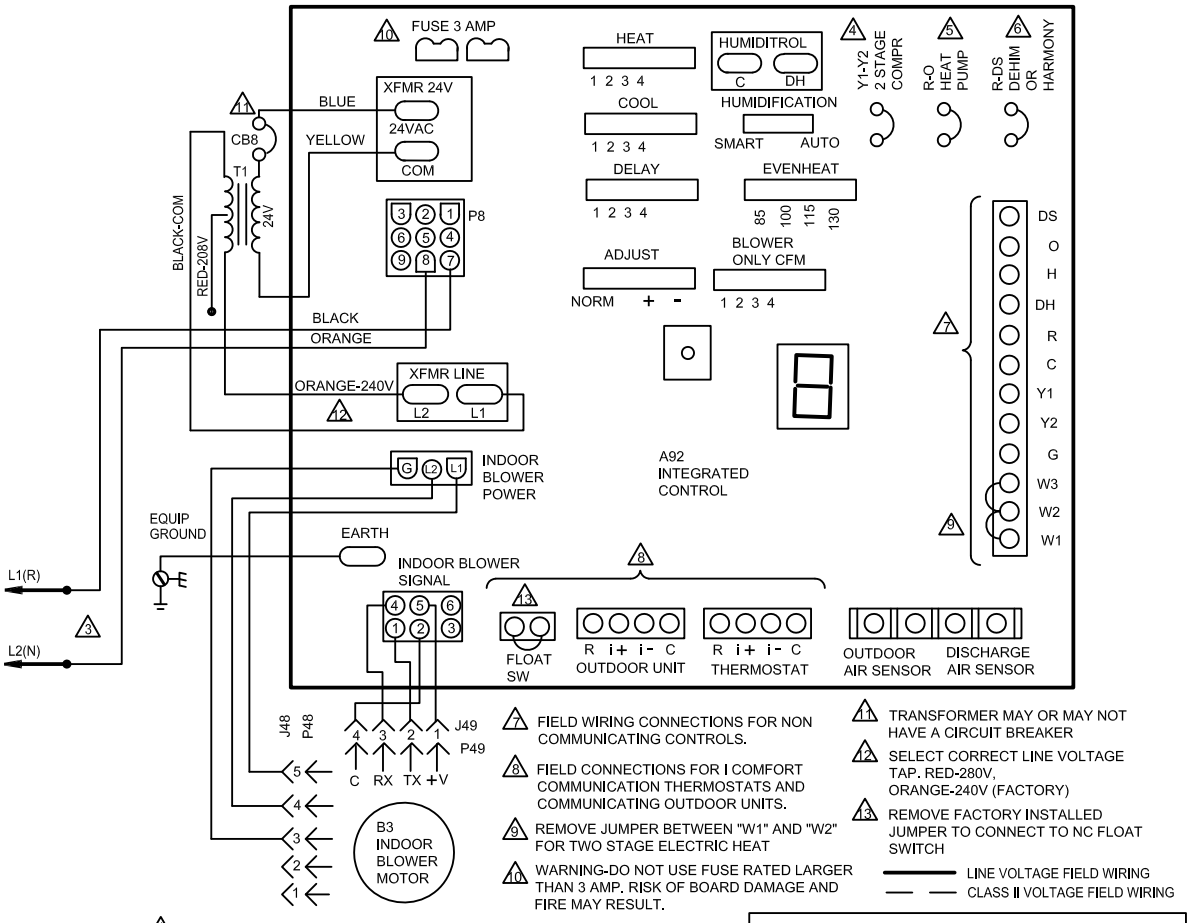
FIGURE 2. Air Handler Configuration (Non-Communicating)

Field Control Wiring

DESCRIPTION	
KEY	COMPONENT
A92	CONTROL-INTEGRATED
B3	MOTOR-BLOWER
J48	JACK-MOTOR,VARIABLE SPEED
J49	JACK-MOTOR,VARIABLE SPEED
P8	PLUG-ELECTRIC HEAT
P48	PLUG-MOTOR,VARIABLE SPEED
P49	PLUG-MOTOR,VARIABLE SPEED
T1	TRANSFORMER-CONTROL

RECOMMENDED BLOWER SPEED TAP SELECTION

MODEL	BLOWER COIL	SPEED TAP SELECTION			
		COOL		HEAT	
		CONDENSING UNIT	HEAT PUMP	CONDENSING UNIT WITH ELECTRIC HEAT ONLY	HEAT PUMP WITH ELECTRIC HEAT
CBX40UHV/ CBX32MV	-018, -024 -030, -036	PIN #3	PIN #3	PIN #4	PIN #4
	-042	PIN #3	PIN #3	PIN #3	PIN #3
	-048	PIN #2	PIN #2	PIN #1	PIN #1
	-060	PIN #3	PIN #3	PIN #1	PIN #1
	-068	PIN #3	PIN #3	PIN #4	PIN #4
CBA38MV	-018	PIN #2	PIN #2	4 MINUS	4 MINUS
	-024 -030 -036	PIN #3	PIN #3	PIN #3	PIN #3
	-042	PIN #3	PIN #3	PIN #3	PIN #3
	-048	PIN #2	PIN #2	PIN #2	PIN #2
	-060	PIN #3	PIN #3	PIN #3	PIN #3



1. REFER TO FACTORY BLOWER SPEED TAP SELECTION CHART ON UNIT FOR BLOWER SPEED INFORMATION.
2. NEC/CEC CLASS 2 3VA
3. USE COPPER CONDUCTORS ONLY. REFER TO UNIT RATING PLATE FOR MINIMUM CIRCUIT AMPACITY AND MAXIMUM OVERCURRENT PROTECTION SIZE
4. CLIP LINK "Y1" TO "Y2" FOR TWO STAGE UNIT
5. CLIP LINK "R" TO "O" WHEN HEAT PUMP IS USED
6. CLIP LINK BETWEEN "R" AND "DS" WHEN DEHUMIDIFICATION CONTROL IS USED
7. FIELD WIRING CONNECTIONS FOR NON COMMUNICATING CONTROLS.
8. FIELD CONNECTIONS FOR I COMFORT COMMUNICATION THERMOSTATS AND COMMUNICATING OUTDOOR UNITS.
9. REMOVE JUMPER BETWEEN "W1" AND "W2" FOR TWO STAGE ELECTRIC HEAT
10. WARNING-DO NOT USE FUSE RATED LARGER THAN 3 AMP. RISK OF BOARD DAMAGE AND FIRE MAY RESULT.
11. TRANSFORMER MAY OR MAY NOT HAVE A CIRCUIT BREAKER
12. SELECT CORRECT LINE VOLTAGE TAP. RED-280V, ORANGE-240V (FACTORY)
13. REMOVE FACTORY INSTALLED JUMPER TO CONNECT TO NC FLOAT SWITCH

LINE VOLTAGE FIELD WIRING
CLASS II VOLTAGE FIELD WIRING

LENNOX COILS-BLOWER COIL UNITS

CBX32MV, CBX40UHV, CBA38MV

COIL SECTION-

Supersedes

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Form No. 538057-01

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FIGURE 3. CBA38MV Air Handler Unit Typical Wiring Diagram

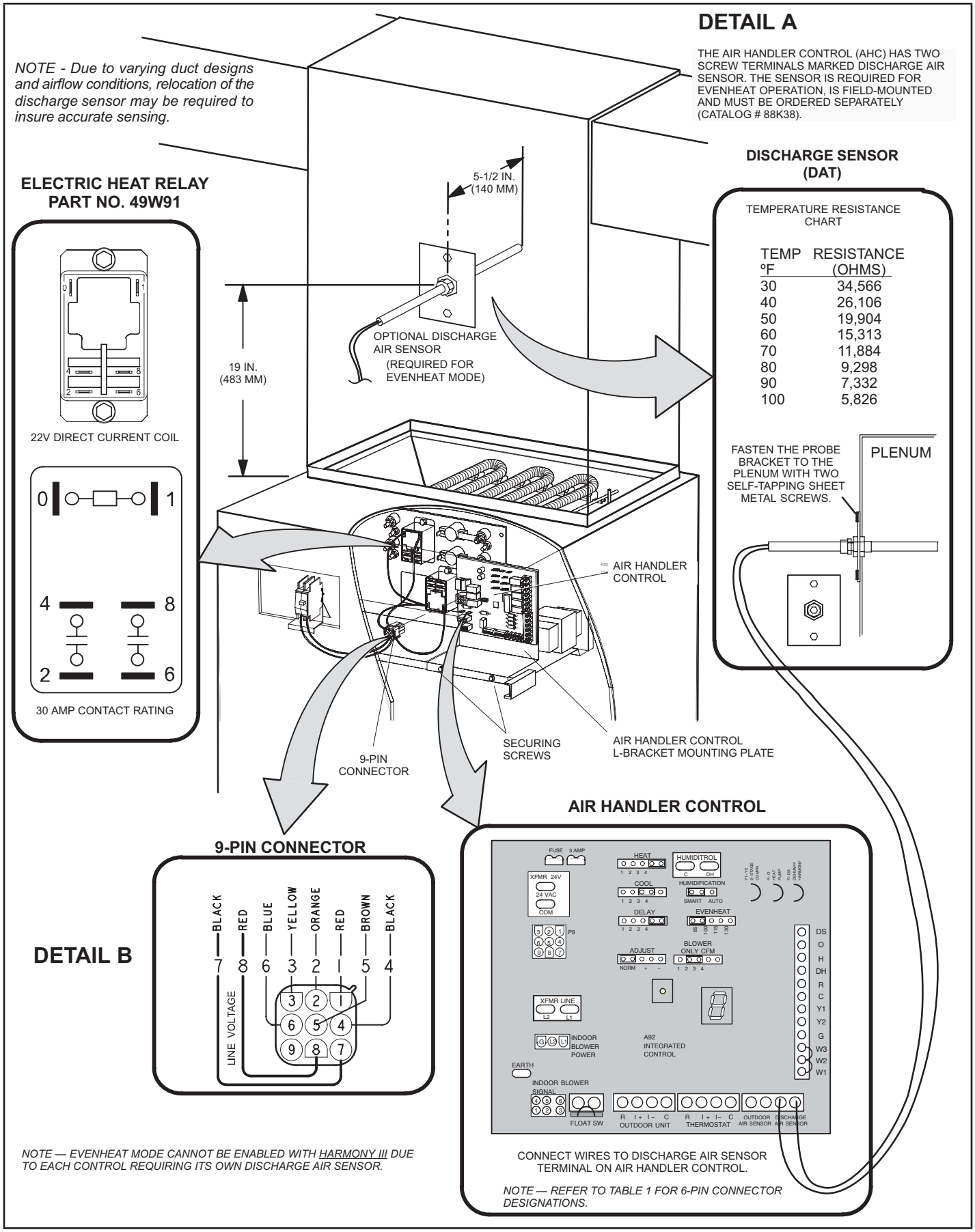

FIGURE 4. Component Connections

CONTROL AND SENSOR CONNECTION REQUIREMENTS

The following are sensor connections and wiring requirements for the discharge air and outdoor air sensors.

DISCHARGE SENSOR (DAT)

The air handler control has two screw terminals marked Discharge Air Sensor. The sensor is REQUIRED for EVENHEAT operation and is field mounted and ordered separately using Lennox Catalog # 88K38.

OUTDOOR AIR SENSOR (OAS)

This is a two screw terminal for connection to a Lennox X2658 outdoor temperature sensor. (Outdoor sensor required when setting balance point for heat pumps.)

FLOAT SWITCH

IMPORTANT – The float switch connection to monitor the condensate float switch and shut down cooling when an open float switch is detected, only applies to systems with iComfort communicating thermostats. Air handlers controlled by a conventional 24VAC thermostat must have the float switched wired in series with the the “Y” wire to the outdoor unit.

The air handler control has two screw connections for connection to a normally closed (N.C.) condensate drain float switch. When the N.C. condensate float switch contacts open, the cooling will be disabled for systems controlled by an iComfort thermostat. Alert Code E371 “Float switch Sensed open” will be displayed indicating Maintainence is required on condensate drain line. After 10 minutes, the homeowner will be alerted with a critical alert message on thermostat home screen. The alert will automatically clear when the float switch contacts close.

INDOOR BLOWER SIGNAL 6-PIN CONNECTOR (P7)

This is the connection between the air handler control and the B3 Indoor Blower Motor.

TABLE 1. Indoor Blower Signal (P7)

Position	Function / Description
1	TX
2	C
3	Not used
4	RX
5	+V
6	Not used

AIR HANDLER CONTROL 9-PIN CONNECTOR (P8)

1 - Air Handler (no electric heat) – Two wire factory harness (wired to pins 7 and 8) which provides 230 VAC power to air handler control.

2 - Air Handler (with electric heat) – Eight wire factory harness (all pin positions are wired as noted in table 2).

***NOTE** – See figure 4, Detail B for wire colors.*

TABLE 2. Electric Heat Connection (P8)

Position	Function / Description
1	Heat stage 1 relay coil
2	Heat stage 2 relay coil
3	Relay coil return
4	Heat stage 3 relay coil
5	Heat stage 4 relay coil
6	Heat stage 5 relay coil
7	L1 230VAC supply from heater kit
8	L2 230VAC supply from heater kit
9	Not used

TABLE 3. Air Handler Control Connections – Communicating

Label	Label	Function
Thermostat	**R**	24VAC
	i+	RSbus data high connection
	i-	RSbus data low connection
	C	24VAC command (ground)
Outdoor Unit	**R**	24VAC
	i+	RSbus data high connection
	i-	RSbus data low connection
	C	24VAC command (ground)
Float SW	**R**	N.C. condensate float switch connections (Systems with iComfort communicating thermostats only)
	SW	

TABLE 4. Air Handler Control Connections – Non-Communicating

Label	Function
W1	First-stage heating demand
W2	Second-stage heating demand. W1 input must be active to recognize second stage heat demand. **NOTE** – Remove factory-installed jumper for individual heat stage control.
W3	Third-stage heating demand. W1 and W2 inputs must be active to recognize third stage heat demand.
G	Indoor blower demand
Y1 and Y2	First- and second-stage cooling demands
C	24VAC common
R	24VAC power
DH	24VAC output for dehumidification for communicating systems.
H	24VAC output for humidification
O	Reversing valve demand. (Energized by thermostat in cooling mode.)
DS	Blower speed control input for non-communicating Harmony zoning or thermostat dehumidification control.
R and SW	Float switch connections. Remove factory-installed jumper to wire-in float switch.

Air Handler Control Button and Display

⚠ IMPORTANT

Before changing any clippable links or jumper settings, make sure the motor has completely stopped. Any changes will not take place while the motor is running.

PUSH BUTTON

An on-board push button is provided for the purpose of placing the Air Handler Control in different operation modes and can be used to recall stored error codes. When button is pushed and held, Air Handler Control will cycle through a menu of options depending on current operating mode. Every three seconds a new menu item will be displayed. If the button is released while that item is shown on the display, Air Handler Control will enter displayed operating mode, or execute defined operation sequence for that menu option. Once all items on menu have been displayed the menu resumes from the beginning (if button is still held).

1 - Press the diagnostic push button and hold it to cycle through a menu of options. Every three seconds a new menu item will be displayed. Release the button when the desired mode is displayed.

2 - When the solid “E” is displayed, the control enters the Error Code Recall mode. Error Code Recall mode menu options: Display will cycle through Error Codes and will automatically exit Error Code recall once the last error code has been reached; solid “≡” exits Error Code Recall mode; and solid “c” clears the error history. Must press button while flashing “c” is displayed to clear error codes. Cycling power to AHC will clear stored error codes.

3 - When the solid “-” is displayed, the control enters the applicable mode. Field configuration mode menu options: “H” electric heat stages detected; the AHC automatically detects the electric heat when power is applied and does not require “manual electric heat detection” using the push button, “A” Blower Test Mode or “P” programming or configuring unit size code. Releasing the button when solid “-” is displayed exits current active mode.

TABLE 5. AHC System Status Codes

AHC Single Character Display	Action
Letter or Number	Unit Size Code displayed represents air handler model size and capacity . See *Configuring Unit Size Codes* in figure 22.
≡	If three horizontal bars are displayed, AHC does not recognize air handler model size and capacity. See Configuring Unit Size Codes in Figure 22.
.	Idle mode (decimal point / no unit operation)
A	Cubic feet per minute (cfm) setting for indoor blower (1 second ON, 0.5 second OFF) / cfm setting for current mode displayed . Example: A 1200
C	Cooling Compressor Capacity (1 second ON, 0.5 second OFF) / % of input rate displayed/Pause/cfm setting displayed/Pause/Repeat codes on systems with iComfort communicating outdoor unit. C1 or C2 displayed /Pause/cfm setting displayed/Pause/Repeat when installed with a non-communicating outdoor unit. Example C70 or C100 with communicating outdoor unit or C1 or C2 with non-communicating outdoor units
d	Dehumidification mode (1 second ON) / 1 second OFF) / cfm setting displayed / Pause / Repeat Codes)
d F	Defrost mode. (Y, W and O call)
H	Electric Heat Stage (1 second ON, 0.5 second OFF) / 1 or 2 displayed / Pause / cfm setting displayed / Pause / Repeat codes. Example: H0 or H 1 or H2 or H3
h	Compressor Heating Capacity (1 second ON, 0.5 second OFF) / % of input rate displayed/Pause/cfm setting displayed/Pause/Repeat codes on systems with iComfort communicating outdoor unit. h1 or h2 displayed /Pause/cfm setting displayed/Pause/Repeat when installed with a non-communicating outdoor unit. Example h70 or h 100 with communicating outdoor unit or h 1 or h2 with non-communicating outdoor units
U	Discharge air sensor temperature (indoor blower must be operating) U 105

TABLE 6. AHC Configuration, Test and Error Recall (Fault and Lockout) Function

NOTE – AHC MUST BE IN IDLE MODE		
Single Character LED Display		**Action**
Solid	–	Push and hold button until solid appears, release button.
Solid	–	Push and hold button until required symbol displays. H A or P
CONFIGURING ELECTRIC HEAT SECTIONS AHC will automatically configure electric heat when 240V power is applied.		
Solid	H	Air Handler Control has been enhanced to automatically configure electric heat when the electric heat harness in connected to the air handler and 240 volt power is applied. The air handler will not energize the blower and heat stages during the automatic electric heat detection process. Releasing the push button when "H" is displayed will display the stages of electric heat that were automatically detected upon power up. Example HO, H1, H2, H3, H4, H5. H2 indicates 2 stages of electric heat were detected.
INDOOR BLOWER TEST		
Solid	A	Release push button - control cycles indoor blower on for ten seconds at 70% of maximum air for selected capacity size unit. Control will automatically exit **current active mode**.

CONFIGURING UNIT SIZE CODES		
Single Character LED Display		**Action**
Solid	P	**RELEASE** push button - This mode allows the field to select a unit size code (number or letter) that matches the air handler model size and capacity. **IMPORTANT — All field replacement controls MUST be manually configured to confirm air handler model size and capacity (non-communicating systems).**
Blinking	P	1. When the correct **Unit Size Code** is displayed, **RELEASE** push button. Selected code will flash for 10 second period. 2. During ten second period, **HOLD** push button until code stops blinking (three seconds minimum). 3. Air handler control will store code in memory and exit **current active mode**. LED display will go blank and then the **Unit Size Code** will display for 2 to 5 seconds. **NOTE** - If ten second period expires, or push button is held less than 3 seconds, control will automatically exit current active mode and go into **IDLE Mode** without storing unit size code. If this occurs, then **Unit Size Code** configuring procedure must be repeated.

TABLE 7. Seven-Segment Status Display

Idle Mode: Decimal point blinks at 1 Hz	Idle Mode: Decimal point blinks at 1 Hz (0.5 second on, 0.5 second off). Display OFF.
Soft Disabled Top & Bottom horizontal line and decimal point blink at 1 Hz	Soft Disabled: Top & Bottom horizontal line and decimal point blink at 1 Hz (0.5 second on, 0.5 second off). See additional information below this table.
O.E.M. Test Mode	All segments flashing at 2 Hz (unless error is detected)
Electrical Heating stage Shows number of currently active electric heat pilot relays.	Following string is repeated if one stage Heat is active with 850 CFM: H 1 pause A 8 5 0 pause
Compressor Cooling Capacity Shows what compressor cooling capacity is currently operating.	Compressor Cooling Capacity (1 second ON, 0.5 second OFF) / % of input rate displayed/Pause/ cfm setting displayed/Pause/Repeat codes on systems with iComfort communicating outdoor unit. C1 or C2 displayed /Pause/cfm setting displayed/Pause/Repeat when installed with a non-communicating outdoor unit. Example C70 or C100 with communicating outdoor unit or C1 or C2 with non-communicating outdoor units
Compressor Heating Capacity Shows what compressor heating capacity is currently operating.	Compressor Heating Capacity (1 second ON, 0.5 second OFF) / % of input rate displayed/Pause/ cfm setting displayed/Pause/Repeat codes on systems with iComfort communicating outdoor unit. h1 or h2 displayed /Pause/cfm setting displayed/Pause/Repeat when installed with a non-communicating outdoor unit. Example h70 or h 100 with communicating outdoor unit or h 1 or h2 with non-communicating outdoor units
Heat pump & electrical heating stage Shows current Compressor Heating Capacity and number of active electric heat pilot relays.	Following string is repeated if one stage electrical heat and second stage heat pump is active with 1600 CFM: h 100 pause H 1 pause A1600 pause
Defrost Mode Shown only while in an active defrost. (Simultaneous Y, W, and O)	Following string is repeated if defrost is active with two electrical heat stages active and 975 CFM: d f pause H 2 pause A 9 7 5 pause
Dehumidification mode Shows that the unit is providing dehumidification instead of straight cooling.	Following string is repeated if dehumidification is active with 685 CFM: d pause A 6 8 5 pause
Indoor Blower only (G demand) Shows the current CFM delivery of the main blower in actual CFM.	If indoor blower is providing 1600 CFM: following string is repeated: A 1 6 0 0 pause
Diagnostic recall Shows the last 10 stored diagnostic error codes. Initiated by a 2-second button press. Button press interrupts the current display pattern. After all codes are displayed, current display status will resume operation. Note - cycling power to the air handler will clear stored diagnostic error codes.	If first error is 250, second 231: E pause 2 5 0 pause E pause 2 3 1 Next codes (up to 10) are show using same method. If there is no error codes stored: E pause 0 0 0
Fault Memory clear	After the fault memory is cleared following string is displayed with 0.5 seconds character on/off time: 0 0 0 0 pause
Active Error in AHC Idle mode Shown all active error(s) codes	Following string is repeated if Error E125 and E201 are present: E1 2 5 pause E 2 0 1
Active Error in Run Mode Shown current status and all active error(s) codes	Following string is repeated if Error E311 is present while blower aped at 880CFM: A 8 8 0 pause E 3 1 1
DATS Any time DAT is sensed in operating range value is displayed if indoor blower is running.	Following string is repeated if three stage el. heat is active with 850 CFM & DAT is 104° F: H 3 pause A 8 5 0 pause U 1 0 4 pause

SOFT DISABLE

Steps to follow if the damper control module is displaying the soft disable code:

1 - Confirm proper wiring between all devices (Thermostat, damper control module, indoor and outdoor)

2 - Cycle power to the control that is displaying the soft disable code.

3 - Put the room thermostat through Set Up.

4 - Go to **setup / system devices / thermostat / edit / push reset**.

5 - Go to **setup / system devices / thermostat / edit / push resetAll.**

⚠ WARNING

Electric Shock Hazard. Can cause injury or death. Unit must be properly grounded in accordance with national and local codes.

Line voltage is present at all components when unit is not in operation on units with single-pole contactors. Disconnect all remote electric power supplies before opening access panel. Unit may have multiple power supplies.

TABLE 8. AHC Configuration, Test and Error Recall (Fault and Lockout) Function

ERROR CODE RECALL MODE (NOTE — CONTROL MUST BE IN IDLE MODE)		
Solid	E	To enter **Error Code Recall Mode** – PUSH and HOLD button until solid E appears, then RELEASE button. Control will display up to ten error codes stored in memory. If E000 is displayed, there are no stored error codes.
Solid	=	Error Code Recall will automatically exit after the last stored code is displayed. To exit **Error Code Recall Mode** – PUSH and HOLD button until solid three horizontal bars appear, then RELEASE button. NOTE – Error codes are not cleared.
Solid	c	To clear error codes stored in memory, continue to **HOLD** push button while the three horizontal bars are displayed. Release push button when solid **c** is displayed. Error codes are automatically cleared when 240V power is cycled off and then back on.
Blinking	c	Push and hold for one (1) second, release button. Seven-segment will display 0000 and exit error recall mode.

Table 9. Alert Codes and Troubleshooting

Initial notification of critical alerts will pop-up on the home screen and will be listed under notification menu. Minor and moderate alert codes are found only under the notification menu. Moderate alert codes are not e-mailed to Homeowners. Dealers will get an email and alert code(s) can be seen on thermostat under the installer notification section.

NOTE: *When the word **DEVICE** or **DEVICE2** is used in this table, it will be replaced on all alert code notification screens with the actual offending device name, for example, thermostat, heat pump, etc.).*

Alert Code	Inverter Flash Code	Priority Condition	Applicable Component	Actual Displayed Alert Text	Component or System Operational State and Troubleshooting Tip	How to clear alert code
10		Critical	All communicating components	Unknown Device Detected - DEVICE2	The thermostat when NOT in configuration mode has detected an unknown device. Typically the thermostat will send a command to the unknown device and place the device into a soft disable state. The soft disable control will indicate so as follows: • On air handler, furnace and outdoor controls, the soft-disabled state is displayed by double horizontal lines on seven-segment display. • On the damper control module, the green LED will flash 3 seconds on and 1 second off. • On the equipment interface module, the green LED will flash 3 seconds on and 1 second off. • A new communicating device has been added to the system since the original configuration setup was completed. • Go to **menu** > **settings** > **advanced settings** > **view dealer control center** > **equipment** and press **reset all equipment**. This will allow the system to auto-detect any Lennox communicating devices attached.	Clear alert code by reconfiguring the system.
11		Critical	All communicating components	Missing DEVICE2	The thermostat cannot find a previously installed system component. • Check all system components (devices) connections to make sure they are Lennox communicating compatible. • Cycle system power. • If problem persists, then check all system components (devices) connections to make sure they are Lennox communicating compatible. • Go to **menu** > **settings** > **advanced settings** > **view dealer control center** > **equipment** and press **reset all equipment**. This will allow the system to auto-detect any Lennox communicating components attached.	Cycle system power, and If problem persists then clear by reconfiguring the system.
12		Critical	Indoor Unit	Incomplete System	Thermostat did not find an indoor unit. Make sure there is an Lennox communicating indoor unit on the system. • Check for voltage and missing component. • Check **R**, **i+**, **i-** and **C** connections. • Ohm wires for electrical continuity. • Cycle power to both indoor unit first and then thermostat. • Verify that equipment interface module (if applicable) is configured as either an air handler or furnace when used with a non-communicating indoor unit. • Go to **menu** > **settings** > **advanced settings** > **view dealer control center** > **equipment** and press **reset all equipment**. This will allow the system to auto-detect any Lennox communicating components attached. • Replace indoor unit control if there is no response.	Automatically clears when the system detects that the issue no longer exists.

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NOTE: *When the word **DEVICE** or **DEVICE2** is used in this table, it will be replaced on all alert code notification screens with the actual offending device name, for example, thermostat, heat pump, etc.).*

Alert Code	Inverter Flash Code	Priority Condition	Applicable Component	Actual Displayed Alert Text	Component or System Operational State and Troubleshooting Tip	How to clear alert code
13		Critical	Duplicate Equipment	Duplicate Comfort Sensor ID	Thermostat found more than one outdoor unit, or more than one indoor unit, or more than one thermostat connected to the system. Thermostat will display the message “Too Many Devices of the Same Type”. • Check wiring and remove duplicate equipment. • Go to **menu** > **settings** > **advanced settings** > **view dealer control center** > **equipment** and press **reset all equipment**. This will allow the system to auto-detect any Lennox communicating components attached.	Automatically clears when the system detects that the issue no longer exists.
14		Critical	Duplicate Equipment	Too Many Devices of the Same Type	The thermostat found more than one thermostat, indoor or outdoor unit on the system. • Check wiring and remove duplicate equipment. • Go to **menu** > **settings** > **advanced settings** > **view dealer control center** > **equipment** and press **reset all equipment**. This will allow the system to auto-detect any Lennox communicating components attached.	Automatically clears when the system detects that the issue no longer exists.
31		Critical	Any Failed Communicating Component	Lost communication with DEVICE2	The applicable system component (indoor, equipment interface, damper control module or outdoor unit) has not communicated with thermostat for more than three minutes. • Check connections and voltages. • Ohm wires for electrical continuity. • If float switch is installed on air handler drain pain, check condensate line to ensure it is not clogged and tripping the float switch connected in series with **R** terminal. • Check to see if freezestat is installed.	If fault persists, then cycle power. Fault clears after communication is restored.
32		Moderate	Any malfunctioning communicating component	Asynchronous Reset DEVICE2	The applicable system component (device) is resetting itself. This issue may occur during a power outage or power fluctuation in the system. If persistent or if it coincides with the system operations then proceed with the following troubleshooting steps. • Check the power connections. • Check the amperage draw at the transformer (possible overloaded). • Check 24 VAC voltage at the system component (device). • If the fault persists after checking the connections, replace the applicable control.	To clear the alert code, go to **menu > settings > advanced settings > view dealer control center > notifications** and select the alert code and press the **clear** button.

Table 9. Alert Codes and Troubleshooting

Initial notification of critical alerts will pop-up on the home screen and will be listed under notification menu. Minor and moderate alert codes are found only under the notification menu. Moderate alert codes are not e-mailed to Homeowners. Dealers will get an email and alert code(s) can be seen on thermostat under the installer notification section.

NOTE: *When the word **DEVICE** or **DEVICE2** is used in this table, it will be replaced on all alert code notification screens with the actual offending device name, for example, thermostat, heat pump, etc.).*

Alert Code	Inverter Flash Code	Priority Condition	Applicable Component	Actual Displayed Alert Text	Component or System Operational State and Troubleshooting Tip	How to clear alert code
34		Critical	Indoor or outdoor unit	Must Program Unit Capacity for DEVICE2	The thermostat does not know the capacity (tonnage) of the indoor or outdoor unit. The applicable system component is missing the programmed unit capacity. • Remove power to thermostat before programming the unit control. • Go to applicable unit control and program the unit capacity manually (see the unit installation instruction for configuration instructions). • Once configuration is complete then reconnect thermostat wires. • Go to **menu** > **settings** > **advanced settings** > **view dealer control center** > **equipment** and press **reset all equipment**. This will allow the system to auto-detect any Lennox communicating components attached.	Automatically clears when the system detects that the issue no longer exists.
35		Critical	Any communicating components	(Incorrect Operation of DEVICE 2)	• Message sent by thermostat to unit after more than 15 minutes asking for initiating heating or cooling with no response from unit. • Message sent by thermostat to unit after more than 15 minutes asking for termination of heating or cooling with no response from unit. **Result** A communicating device in the system has been disabled due to a fault/lockout code in the unit's control. Another possible cause is electrical noise interference affecting the communicating system when the compressor contactor coil is energized. **Corrective Action:** • Communicating system: Wire a transient voltage suppressor in parallel with the compressor contactor coil terminals on the outdoor unit. • Non-communicating outdoor unit: Wire transient voltage suppressor (89W72) in parallel with compressor contactor coil or across the Y1 and C terminals on the indoor control board. ***NOTE:*** *See service and application note IAQ-10-01 for further details.* Transient Voltage Suppressor Part information: Made by Little Fuse, part number 5KP43CA bidirectional Transorb aka TVS Diode. Please contact your FTC or inside technical support for help in acquiring the transient voltage suppressor if not available in your local electronics store.	

Table 9. Alert Codes and Troubleshooting

Initial notification of critical alerts will pop-up on the home screen and will be listed under notification menu. Minor and moderate alert codes are found only under the notification menu. Moderate alert codes are not e-mailed to Homeowners. Dealers will get an email and alert code(s) can be seen on thermostat under the installer notification section.

NOTE: *When the word **DEVICE** or **DEVICE2** is used in this table, it will be replaced on all alert code notification screens with the actual offending device name, for example, thermostat, heat pump, etc.).*

Alert Code	Inverter Flash Code	Priority Condition	Applicable Component	Actual Displayed Alert Text	Component or System Operational State and Troubleshooting Tip	How to clear alert code
105		Critical	Any communicating components	Communication Problem	One of the system components has lost communication with the system. The system component (device) is unable to communicate. • S30 - Access dealer control center, select notifications icon, review alert code details to determine which device or unit has the communication problem. Review both active and cleared alerts. • Wi-Fi – Press and hold the Lennox logo on the bottom right of stat for 5 seconds to access the dealer control center. Follow the prompts to access the dealer / installer screen and select the “Alerts” tab. Review alert code details to determine which device or unit has the communication problem. Review both active and cleared alerts. • Zoning - Remove wire from smart hub to iHarmony control and just have wiring from furnace. **Troubleshooting:** • Check each control for additional codes • In most cases issues are related to electrical noise. Verify that high voltage power is separated from the low voltage communication wires. • Check for proper grounding on line voltage and low voltage wiring, transformer and equipment. • Check for incorrectly wired or loose or spliced connections between system components (devices or units). • Make sure all unused wires are tied together and taken back to the C terminal on the indoor control board as shown in the installation and setup guide. • Disconnect all wiring to other system components (except thermostat to indoor unit) and reconnect one device at a time and recommission system each time a device is reconnected until the issue is located. • Zoning: If zoning is installed and is wired directly from smart hub to iHarmony control then disconnect that wiring. Run control wiring from the iHarmony control directly to the indoor unit control. Wiring diagrams are provided in the iHarmony Installation and Setup Guide. • Float Switch: When using a float switch, use isolation relay to break common wire to outdoor unit. For testing purposes, remove float switch from the circuit. • Firmware and Accessories: Make sure that smart hub has correct firmware version for added accessory. (Example: Pure Air S and/or Apple Home Kit must have software version 3.4 or higher before it will connect to system properly. (If software is not updated in system it will cause system operation issues). • Inductive voltage from surrounding sources. Check each wire in AC mode to C on circuit board. > Good voltage is .03-.3 VAC inductive voltage is not an issue. > Acceptable can be up to .7 VAC with moderate success. > Some units have worked with up to 1.2 VAC with occasional success. > Voltage over 1.2 VAC needs to be addressed.	Automatically clears when the system detects the issue no longer exists.

Table 9. Alert Codes and Troubleshooting

Initial notification of critical alerts will pop-up on the home screen and will be listed under notification menu. Minor and moderate alert codes are found only under the notification menu. Moderate alert codes are not e-mailed to Homeowners. Dealers will get an email and alert code(s) can be seen on thermostat under the installer notification section.

NOTE: *When the word **DEVICE** or **DEVICE2** is used in this table, it will be replaced on all alert code notification screens with the actual offending device name, for example, thermostat, heat pump, etc.).*

Alert Code	Inverter Flash Code	Priority Condition	Applicable Component	Actual Displayed Alert Text	Component or System Operational State and Troubleshooting Tip	How to clear alert code
114		Moderate / Critical	Any communicating components	AC Line Frequency / Distortion Prob	In most cases the errors will have something to do with the transformer(s) phasing, input power or output loading (amperage load). For the air handler control only, alert code 114 is generated only if the measured line frequency is below 57Hz or above 63Hz and remains out of range for 10 consecutive seconds. We count power line cycles and determine line frequency every 1 second of time based on the processor's quartz crystal oscillator. We have a fair amount of filtering on when we consider a power line cycle to have occurred, so there would have to be really bad distortion for it to count an extra cycle or miss a real cycle. Voltage low enough to miss a cycle would generate an alert code 115. There are lots of events, such as power utility substation switching, that could occasionally make our power line frequency off by one count. These are rare one-time events and I don't know anything other than a generator with bad frequency that could cause problems long enough to cause this alert code. There is a frequency / distortion problem with the power to a specific system component. This alert code may indicate transformer overloading. • Check the voltage and line power frequency. • Check the generator operating frequency, if the system is running on back-up power. • Correct voltage and frequency problems. • System will resume normal operation five seconds after fault recovered. • All applicable system component outputs are disabled – moderate condition. • After 10 minutes, the priority condition is escalated – critical condition. • Damper control module will operate in central mode only until proper voltage is restored or frequency distortion is resolved – moderate condition. • If connected to iHarmony, set damper control module transformer jumper to system transformer. Check for proper wiring. Replace 40VA furnace transformer with 70VA transformer. Re-commission system. ***NOTE:*** *The unitary control (outdoor unit control board) whether it is a single, two-stage or multi-stage control is not displaying alert code 114.*	
115		Critical	Any communicating components	Low Secondary (24 VAC) Voltage	24 VAC power to a system component control is lower than the required range of 18 to 30 VAC. • Check and correct voltage. • Check for additional power-robbing system components (devices) connected to system. • This alert code may require the installation of an additional or larger VA transformer. • Damper control module will operate in non-zone mode until proper voltage is restored.	Automatically clears when the system detects the issue no longer exists.
116		Critical	Furnace or Air Handler	High Secondary (24 VAC) voltage	• Thermostat will display this code when 24 VAC power is high (18 to 30 VAC). • Will display Furnace or Air Handler High Secondary (24 VAC) voltage.	Check and correct voltage. Check for proper line voltage (120V, 240V, etc.) to equipment. Clears when control senses proper voltage.
117		Minor	Furnace or Air Handler	Poor Ground	The reporting unit has poor earth grounding. • Provide proper grounding for the system component (device). • Check for proper earth ground to the system. • Reference Service and Application Note H-01-09 for additional information	Automatically clears 30 seconds after the issue is corrected.

Table 9. Alert Codes and Troubleshooting

Initial notification of critical alerts will pop-up on the home screen and will be listed under notification menu. Minor and moderate alert codes are found only under the notification menu. Moderate alert codes are not e-mailed to Homeowners. Dealers will get an email and alert code(s) can be seen on thermostat under the installer notification section.

NOTE: *When the word **DEVICE** or **DEVICE2** is used in this table, it will be replaced on all alert code notification screens with the actual offending device name, for example, thermostat, heat pump, etc.).*

Alert Code	Inverter Flash Code	Priority Condition	Applicable Component	Actual Displayed Alert Text	Component or System Operational State and Troubleshooting Tip	How to clear alert code
120		Moderate	Any communicating components	Unresponsive DEVICE2.	There is a delay in the system component responding to the system. Typically this alert code does not cause any operational issues and will clear on its own. • This alert code is usually caused by a delay in the outdoor unit responding to the thermostat. • Leaking voltage from strands within the bundle. > Land only the **R** wire on the **R** terminal to load the bundle with 24 VAC. ► Typically only the **R** wire needs to be landed to identify if voltage is leaking. ► If voltage is present checking the other wires is informational only but not needed. ► If voltage is not present checking the other wires one at a time would be needed. > Check each loose wire in AC mode to **C** on circuit board. ► Good voltage is .03 -.3 VAC leaking voltage is not the issue. ► Acceptable can be up to .7 VAC with moderate success. ► Some units have worked with up to 1.2 VAC with occasional success. ► Voltage over 1.2 VAC needs to be addressed. ***NOTE:*** *See Service and Application Note H-01-09 for additional information.*	Automatically clears after an unresponsive system component (device) responds to any inquiry.
124		Critical	Any communicating components	Active Sub-net Controller Missing	The thermostat has lost communication with a system component for more than three minutes. System component has lost communication with the thermostat. See “4. Electrical Troubleshooting” on page <?> for assistance. • Check the wiring connections between components. • Ohm wires. • Cycle power. • Any component that is miss-wired may cause a false component code to be shown on system component. • Disconnect all wiring to other system components and check communication one at a time. ***NOTE:*** *When using a float switch, use isolation relay to break common wire to outdoor unit. For testing purposes, remove float switch from the circuit* This alert code stops all associated system operations and waits for a heartbeat message from the system component that is not communicating.	Automatically clears after communication is re-established with applicable system component (device).
125		Critical	Any communicating components	Control Hardware Problem	There is a hardware problem on a system component control. There is a control hardware problem. • Replace the control if the problem prevents operation and is persistent. • Damper control module will remain in non-zone mode (all dampers open) for five minutes after priority condition no longer exist. • Remove jumper if present on indoor unit between **R** and **W2** if equipment interface module is in use. • On the PureAir *S* control the jumper selector is missing.	Automatically clears five minutes after the issue no longer exists.

Table 9. Alert Codes and Troubleshooting

Initial notification of critical alerts will pop-up on the home screen and will be listed under notification menu. Minor and moderate alert codes are found only under the notification menu. Moderate alert codes are not e-mailed to Homeowners. Dealers will get an email and alert code(s) can be seen on thermostat under the installer notification section.

NOTE: *When the word **DEVICE** or **DEVICE2** is used in this table, it will be replaced on all alert code notification screens with the actual offending device name, for example, thermostat, heat pump, etc.).*

Alert Code	Inverter Flash Code	Priority Condition	Applicable Component	Actual Displayed Alert Text	Component or System Operational State and Troubleshooting Tip	How to clear alert code
126		Critical	Furnace, air handler or outdoor unit	Control Internal Communication Prob	There is an internal hardware problem on the system component control. In addition, if you have zoning the alert code is triggered when your zone temperature is deviating away from set point persistently. • Typically the system component control will reset itself. • Replace the system component (device) control if the problem prevents operation and is persistent.	Automatically clears 300 seconds after the issue no longer exists.
130		Moderate	Any communicating components	Configuration Jumper Missing	• Configuration jumper missing on equipment interface module. • Install the missing jumper. • Set as heat pump, furnace control or air handler control. ***NOTE:*** *This is applicable in non-communicating applications only).*	Automatically clears after the missing or incorrectly installed jumper is installed or corrected.
131		Critical	Any communicating components	Corrupted Control Parameters	System component control parameters are corrupted. • Replace the system component control if heating or cooling is not available. • Go to **menu** > **settings** > **advanced settings** > **view dealer control center** > **equipment** and press **reset all equipment**. This will allow the system to auto-detect any Lennox communicating components attached.	Will automatically clear when system component (device) passes memory self-test or system component control is replaced.
132		Critical	Any communicating components	Failed Flash CRC Check	System component control software is corrupted. • Recycle power. • If failure re-occurs, replace the system component control.	Manual system power reset is required to recover from this alert code.
180		Critical	Furnace or air handler	Outdoor Temperature Sensor Problem	The thermostat has found a problem with the outdoor temperature sensor. In normal operation after system component control recognizes sensors, the alert code will be sent if valid temperature reading is lost. • Compare outdoor sensor resistance to temperature / resistance charts in unit installation instructions. • Replace sensors pack if necessary. • At the beginning of (any) configuration, furnace, air-handler control or equipment interface module will detect the presence of the sensor(s). • If detected (reading in range), appropriate feature will be set as 'installed' and shown in the 'About' screen.	Automatically clears upon configuration, or sensing normal values.
201		Critical	Furnace or air handler	Indoor Blower Motor Problem	Lost communication with indoor blower motor. • Possible causes include power outage, brown-out, motor not powered, loose wiring, condensation on system component control without cover on breaker. • Problem may be on system component control or motor side.	Automatically clears after communication is restored.
202		Critical	Furnace or air handler	ID Blower Motor Unit Size Mismatch	The unit size code for the indoor unit and the size of blower motor do not match. Incorrect appliance unit size code selected. • Remove the thermostat from the system while applying power and reprogramming. • Check for proper configuring under unit size codes for furnace/air handler in configuration guide or in installation instructions.	Automatically clears after the correct match is detected following a reset.

Table 9. Alert Codes and Troubleshooting

Initial notification of critical alerts will pop-up on the home screen and will be listed under notification menu. Minor and moderate alert codes are found only under the notification menu. Moderate alert codes are not e-mailed to Homeowners. Dealers will get an email and alert code(s) can be seen on thermostat under the installer notification section.

NOTE: *When the word **DEVICE** or **DEVICE2** is used in this table, it will be replaced on all alert code notification screens with the actual offending device name, for example, thermostat, heat pump, etc.).*

Alert Code	Inverter Flash Code	Priority Condition	Applicable Component	Actual Displayed Alert Text	Component or System Operational State and Troubleshooting Tip	How to clear alert code
203		Critical	Furnace or air handler	Invalid Unit Code	The unit size code for the indoor unit has not been selected or set incorrectly. • Verify that the correct unit size code is configured. Unit size codes for furnace and air handler are listed in the system component configuration guide or installation instruction. • Remove the thermostat from the system while applying power and set the unit size code per instructions provided in the indoor unit installation instruction.	Automatically clears after the correct match is detected following a reset.
252		Moderate	Indoor unit or iHarmony	Discharge Air Temperature High	A discharge air-temperature is high. Perform the following: • Check temperature rise, air flow and input rate. • Check for dirty air filter(s). ***NOTE:*** *See Service and Application Note ACC-14-01 for further details.*	Automatically clears when a heat call ends successfully.
310		Moderate	Indoor unit or damper control module	Discharge Air Temp Sensor Problem	There is a discharge air temperature sensor issue. • Compare discharge temperature sensor (DATS) resistance to temperature / resistance charts in system component installation instruction. • Replace discharge air sensor if necessary. ***NOTE:*** *Confirm there is no short or open circuits in the Lennox communicating thermostat connections to any of the other components in the communication system.* ***NOTE:*** *Issues with a DATS connected to a damper control module or equipment interface model will not generate an alert code.*	Automatically clears 30 seconds after condition is detected as recovered or after system restart.
312		Minor	Furnace or air handler	Reduced/ Airflow-Indoor Blower Cutback	The indoor blower cannot provide the requested CFM due to excessive static pressure. This is a warning only alert code. • Static pressure has exceeded the capability of the blower motor. • • Possible restricted airflow - Indoor blower is running at a reduced CFM (Cutback Mode). • The variable speed motor has pre-set speed and torque limiters to protect the motor from damage caused by operating outside of design parameters (0 to 0.8” e.g. total external static pressure). • Check air filter and duct system. • To clear, replace air filter if needed or repair or add additional ducting. ***NOTE:*** *Blower motor cutbacks will not show alarm code. Duct static pressure reading must be taken.*	Automatically clears when a heating call finishes successfully.
313		Minor	Furnace, air handler and outdoor unit	Indoor/Outdoor Unit Capacity Mismatch	The indoor and outdoor unit capacities do not match. This is a warning only alert code. • Check for proper system component configuring in installation instructions. • The system will operate, but might not meet efficiency and capacity parameters.	Automatically clears when a heating call finishes successfully.

Table 9. Alert Codes and Troubleshooting

Initial notification of critical alerts will pop-up on the home screen and will be listed under notification menu. Minor and moderate alert codes are found only under the notification menu. Moderate alert codes are not e-mailed to Homeowners. Dealers will get an email and alert code(s) can be seen on thermostat under the installer notification section.

NOTE: *When the word **DEVICE** or **DEVICE2** is used in this table, it will be replaced on all alert code notification screens with the actual offending device name, for example, thermostat, heat pump, etc.).*

Alert Code	Inverter Flash Code	Priority Condition	Applicable Component	Actual Displayed Alert Text	Component or System Operational State and Troubleshooting Tip	How to clear alert code
345		Critical	Air handler, equipment interface module or heat pump	Relay O Failure	The **O** relay on the system component has failed. Either the pilot relay contacts did not close or the relay coil did not energize. • Possible **O** relay / stage 1 failure. • Pilot relay contacts did not close or the relay coil did not energize. • Replace system component (device) control. • If error is applicable to the XC25 or XP25, the outdoor control will need to be replaced.	Automatically clears after the fault recovered following reset.
346		Critical	Air handler	HP Jumper Not Removed	The heat pump configuration link is not cut on the air handler control. • Configuration link not cut on air handler control. • Cut **O** to **R**. ***NOTE:*** *This is only applicable when matching non-communicating heat pump with Lennox communicating indoor unit.*	Automatically clears when the system detects that the issue no longer exists.
347		Critical	Indoor unit or equipment interface module	Relay Y1 Failure	• Lennox communicating thermostat sends a **Y1** compressor demand to the indoor control requesting it to relay the demand to the outdoor unit. • The indoor unit communicating control will verify the presences of 24 VAC between the **Y1** and **C** on its terminals. If it does not detects the presences 24 VAC, it will trigger alert code 347. Possible cause for alert code 347 is **Y1** relay on the applicable system component has failed. Either the furnace pilot relay contacts did not close or the relay coil did not energize. • System operation will stop. • Possible **Y1** relay / stage 1 failure. • Furnace pilot relay contacts did not close or the relay coil did not energize; ***NOTE:*** *There is no input back to the applicable system component control.*	Automatically clears after reset and **Y1** input sensed.
348		Critical	Indoor unit	Relay Y2 Failure	• Lennox communicating thermostat sends a **Y2** compressor demand to the indoor control requesting it to relay the demand to the outdoor unit. • The indoor unit communicating control will verify the presences of 24 VAC between the **Y1** and **C** on its terminals. If it does not detects the presences 24 VAC, it will trigger alert code 348. Possible cause for alert code 348 is **Y2** relay on the applicable system component has failed. Either the furnace pilot relay contacts did not close or the relay coil did not energize. • Possible **Y2** relay / stage 2 failure. • Furnace pilot relay contacts did not close or the relay coil did not energize • No input back to furnace or air handler control.	Automatically clears when the system detects that the issue no longer exists.

Table 9. Alert Codes and Troubleshooting

Initial notification of critical alerts will pop-up on the home screen and will be listed under notification menu. Minor and moderate alert codes are found only under the notification menu. Moderate alert codes are not e-mailed to Homeowners. Dealers will get an email and alert code(s) can be seen on thermostat under the installer notification section.

NOTE: *When the word **DEVICE** or **DEVICE2** is used in this table, it will be replaced on all alert code notification screens with the actual offending device name, for example, thermostat, heat pump, etc.).*

Alert Code	Inverter Flash Code	Priority Condition	Applicable Component	Actual Displayed Alert Text	Component or System Operational State and Troubleshooting Tip	How to clear alert code
350		Critical	Air handler	Electric Heat Not Configured	The air handler's electric heat is not configured or incorrectly configured. • Heat call with no configured or incorrectly configured electric heat. • Check for proper configuring under Configuring Electric Heat Stages in the air handler installation instructions. ***NOTE:*** *Smart Hub MUST be removed from the system before configuring electric heat.*	Automatically clears after electrical heat detection is successful.
351		Critical	Air handler	Electric Heat Stage 1 Problem	There is an issue with the air handler's first stage electric heat. • Either the pilot relay contacts did not close or the relay coil in the electric heat section did not energize. • Possible heat section / stage 1 failure. ***NOTE:*** *Air handler will operate on heat pump first stage for the remainder of the heat call.*	Automatically clears after fault recovered.
352		Critical	Air handler	Electric Heat Stage 2 Problem	There is a issue with the air handler's second stage electric heat. Either the pilot relay contacts did not close or the relay coil in the electric heat section did not energize. ***NOTE:*** *The air-handler will operate on first stage electric heat until the issue is resolved.*	Automatically clears after fault recovered.
353		Critical	Air handler	Electric Heat Stage 3 Problem	There is a issue with the air handler's third stage electric heat. Either the pilot relay contacts did not close or the relay coil in the electric heat section did not energize. ***NOTE:*** *The air-handler will operate on first stage electric heat until the issue is resolved.*	Automatically clears after fault recovered.
354		Critical	Air handler	Electric Heat Stage 4 Problem	There is a issue with the air handler's fourth stage electric heat. Either the pilot relay contacts did not close or the relay coil in the electric heat section did not energize. ***NOTE:*** *The air-handler will operate on first stage electric heat until the issue is resolved.*	Automatically clears after fault recovered.
355		Critical	Air handler	Electric Heat Stage 5 Problem	There is an issue with the air handler's fifth stage electric heat. Either the pilot relay contacts did not close or the relay coil in the electric heat section did not energize. ***NOTE:*** *The air-handler will operate on first stage electric heat until the issue is resolved.*	Automatically clears after fault recovered.
357		Critical	Air Handler	Sequencer Stuck Closed	Air handler electric heat remains stuck energized.	Replace sequencer.
358		Critical	Air Handler	Control Error Check Jumper O to R	Jumper **O** to **R** has not been removed.	Remove jumper.
371		Moderate/ Critical	Air Handler	Float Switch Sensed Open	The float switch terminals on the AHC control sensed an open float switch and will shut off cooling when installed with an iComfort Communicating thermostat. After 10 minutes the Alert Code will escalate from a moderate code to a Critical code and will be displayed on the thermostat home screen.	Alert clears when float switch contacts close.

Table 9. Alert Codes and Troubleshooting

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NOTE: *When the word **DEVICE** or **DEVICE2** is used in this table, it will be replaced on all alert code notification screens with the actual offending device name, for example, thermostat, heat pump, etc.).*

Alert Code	Inverter Flash Code	Priority Condition	Applicable Component	Actual Displayed Alert Text	Component or System Operational State and Troubleshooting Tip	How to clear alert code
380		Moderate / Critical	Equipment interface module	Interlock Relay Failure	Interlock relay failure (furnace or air handler modes only). • Interlock relay is energized, but input is not sensed after three seconds. • There will be no heating or cooling due to this alert code – moderate condition. • De-energize interlock relay and energize after five minutes if demand is still present – critical condition.	Automatically clears after fault recovered.
381		Moderate / Critical	Equipment interface module	Interlock Relay Stuck	Interlock relay stuck (furnace or air handler modes only). • Interlock relay continuously sensed (with relay off). • There is no heating and cooling operation – moderation condition. • After 10 minutes if event still exist it will be escalated to priority condition critical.	Automatically clears 30 seconds after fault clears.
382		Moderate	Equipment interface module	Relay W1 Failure	Relay **W1** failure (furnace or air handler modes only). **W1** relay is energized but input is not sensed after three seconds.	Automatically clears when W1 relay input is sensed.
409		Moderate	Indoor line voltage/ Transformer output voltage	Secondary Voltage Below 18V	Secondary voltage for the air handler has fallen below 18VAC. If this continues for 10 minutes, the iComfort thermostat will turn off the air handler.	Alarm clears after the voltage is higher than 20VAC for 2 seconds or after a power reset.
420		Critical	Air handler or equipment interface module	Defrost Out of Control	The heat pump defrost cycle has taken more than 20 minutes to complete. • Defrost cycle lasts longer than 20 minutes. • Check heat pump operation. • This is applicable only in communicating indoor unit with non-communicating heat pump.	Automatically clears when **W1** signal is removed.

⚠ WARNING

Electric Shock Hazard.

Can cause injury or death.

Foil-faced insulation has conductive characteristics similar to metal. Be sure there are no electrical connections within 1/2" of the insulation. If the foil-faced insulation comes in contact with electrical voltage, the foil could provide a path for current to pass through to the outer metal cabinet. While the current produced may not be enough to trip existing electrical safety devices (e.g., fuses or circuit breakers), the current can be enough to cause an electrical shock hazard that could cause personal injury or death.

Air Handler Jumpers

Jumpers are used for non-communicating mode only. Use figure 2 as reference for jumper settings. If any of the referenced jumpers are missing, the air handler control will display Error code **130** as per table 9, and the air handler control will automatically use the **factory default** setting shown in figure 2)

1 - **Humidification** – Controls the status of **H** terminal on the thermostat block. Configurations are as follows:

- If jumper is installed in **SMART** Humidification position (Default), **H** terminal is active if heat demand is present and indoor blower is running.
- If jumper is installed in **AUTO** Humidification position, **H** terminal is energized whenever indoor blower is running.

2 - **EvenHeat** – Target Discharge Air Temperature selection is used to set discharge air temperatures for EvenHeat operation. See figure 2 on page 3 for settings.

***NOTE** - Optional Discharge Air Temperature Sensor, Lennox Catalog # 88K38 is REQUIRED for EVENHEAT operation and must be ordered separately.*

3 - **Blower Only CFM** – Used to select Indoor blower CFM for continuous operation. See figure 2 on page 3 for settings.

4 - **Heat** – Used to select Indoor blower CFM for electric heat by placing the jumper in proper position. Actual CFM values for different air handler sizes are shown in *Targeted CFM Tables* starting on page 12.

5 - **Cool** – Used to select cooling indoor blower CFM by placing the jumper in proper position. Actual CFM values for different air handler sizes are shown in *Targeted CFM Tables* starting on page 12.

6 - **Adjust** - Used to select the indoor blower CFM adjustment value by placing the jumper in appropriate position.See figure 2 on page 3 for settings.

- If **NORM** is selected, indoor blower runs at normal speeds.
- If **+** is selected, indoor blower runs at approximately 10% higher speed than **NORM** setting.
- If **–** is selected, indoor blower runs at approximately 10% lower speed than **NORM** setting.

If the jumper is missing, the air handler control will activate the *Configuration Jumper is Missing* alarm and will automatically use the default factory setting. See figure 2 for jumper configurations. Actual CFM values for different air handler sizes are shown in Targeted CFM Tables starting on page 12.

7 - **Delay** – Indoor blower cooling profile, delay for cooling and heat pump operations.

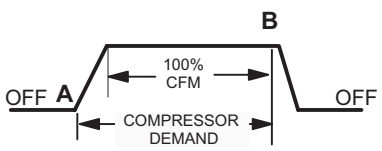
- When operating a heat pump, delay profiles 1 and 2 are only applicable.
- When operating a heat pump, and profiles 3 and 4 are selected, the air handler controll will default to profile 1.

If the jumper is missing, the air handler control will activate the *Configuration Jumper is Missing* alarm and will automatically use the default factory setting. See figure 2 for jumper configurations.

Delay Profile 1

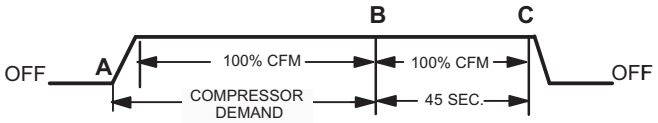
A - When cool or heat demand is initiated, motor ramps up to 100% and runs at 100% until demand is satisfied.

B - Once demand is met, motor ramps down to stop.



Delay Profile 2

Cooling – Air Conditioner and Heat Pump:

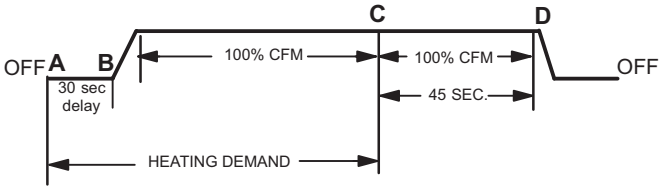


A - When cool demand is initiated, motor ramps up to 100% and runs at 100% until demand is satisfied.

B - Once demand is met, motor runs at 100% for 45 seconds.

C - C Motor ramps down to stop.

Heating – Heat Pump only:



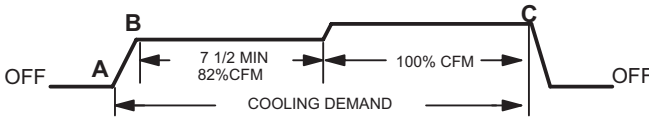
A - When heat demand is initiated, 30 seconds motor-on delay starts.

B - After the motor-on delay expires, motor ramps up to 100% and runs at 100% until demand is satisfied.

C - Once demand is met, motor runs at 100% for 45 seconds.

D - Motor ramps down to stop.

Delay Profile 3

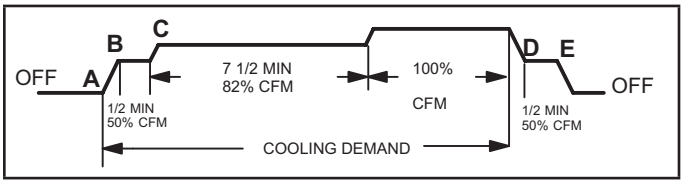


A - When cool demand is initiated, motor ramps up to 82%

B - Motor runs at 82% for approximately 7.5 minutes and then ramps up to 100% (unless the demand has been satisfied) and motor runs at 100% until demand is satisfied.

C - Once demand is met, motor ramps down to stop.

Delay Profile 4



A - When cool demand is initiated, motor ramps up to 50%.

B - Motor runs at 50% for 30 seconds and ramps up to 82%.

C - Motor runs at 82% for approximately 7.5 minutes and then ramps up to 100% (unless the demand has been satisfied) and motor runs at 100% until demand is satisfied.

D - Once demand is met, motor runs at 50% for 30 seconds.

E - Motor ramps down to stop.

DISPLAY

An on-board single character display (see figure 2 for display location) indicates general system status information such as mode of operation, indoor blower CFM and error codes. Multi-character strings are displayed with character ON for one second, OFF for 0.5 seconds and one second pause between the character groups.

Target CFM Tables

CBX32MV-018/024 BLOWER PERFORMANCE — 0 through 0.80 in. w.g. (0 through 200 Pa) External Static Pressure Range

ADJUST Jumper Setting	Jumper Speed Positions															
	HEAT Speed								COOL Speed							
	1		2		3		4		1		2		3		4	
	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
+	715	337	855	405	1000	470	1130	535	465	220	690	325	900	425	1050	495
NORM	670	315	770	365	900	425	1035	490	425	200	620	290	825	390	950	450
-	580	275	700	330	800	375	930	440	385	180	560	265	735	345	850	400

CBX32MV-024/030 BLOWER PERFORMANCE — 0 through 0.80 in. w.g. (0 through 200 Pa) External Static Pressure Range

ADJUST Jumper Setting	Jumper Speed Positions															
	HEAT Speed								COOL Speed							
	1		2		3		4		1		2		3		4	
	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
+	800	380	935	440	1070	505	1210	570	660	310	880	415	1100	520	1320	625
NORM	725	340	850	400	975	460	1100	520	600	285	800	380	1000	470	1200	565
-	655	310	765	360	880	415	990	470	540	255	720	340	900	425	1080	510

CBX32MV-036 BLOWER PERFORMANCE — 0 through 0.80 in. w.g. (0 through 200 Pa) External Static Pressure Range

ADJUST Jumper Setting	Jumper Speed Positions															
	HEAT Speed								COOL Speed							
	1		2		3		4		1		2		3		4	
	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
+	1230	580	1335	630	1445	680	1545	730	1090	515	1225	580	1380	650	1545	730
NORM	1120	530	1215	575	1315	620	1400	660	975	460	1125	530	1275	600	1400	660
-	1010	475	1185	560	1200	565	1265	595	900	425	1000	470	1135	535	1265	595

CBX32MV-048 AND CBX32MV-060 BLOWER PERFORMANCE — 0 through 0.80 in. w.g. (0 Through 200 Pa) External Static Pressure Range

ADJUST Jumper Setting	Jumper Speed Positions															
	HEAT Speed								COOL Speed							
	1		2		3		4		1		2		3		4	
	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
+	1850	875	1960	925	2090	985	2150	1015	1625	765	1820	860	2055	970	2145	1010
NORM	1705	805	1800	850	1900	895	2005	945	1425	670	1625	765	1805	850	2005	945
-	1560	735	1625	765	1720	810	1770	835	1205	570	1375	650	1555	735	1725	815

CBX32MV-068 BLOWER PERFORMANCE — 0 through 0.80 in. w.g. (0 Through 200 Pa) External Static Pressure Range

ADJUST Jumper Setting	Jumper Speed Positions															
	HEAT Speed								COOL Speed							
	1		2		3		4		1		2		3		4	
	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
+	1875	885	1975	930	2090	985	2150	1015	1640	775	1840	870	2075	980	2150	1015
NORM	1760	830	1825	860	1920	905	2030	960	1465	690	1625	765	1800	850	2000	945
-	1550	730	1650	780	1725	815	1800	850	1250	590	1390	655	1560	735	1720	810

NOTES - The effect of static pressure, filter and electric heater resistance is included in the air volumes listed.
First stage cooling air volume is 70% of COOL speed setting. Continuous blower speed is approximately 50% of COOL speed setting.
Lennox Harmony III™ Zone Control applications - minimum blower speed is 300 cfm (145 L/s)

CBX40UHV-024 BLOWER PERFORMANCE — 0 through 0.80 in. w.g. (0 Through 200 Pa) External Static Pressure Range

ADJUST Jumper Setting	Jumper Speed Positions							
	HEAT Speed				COOL Speed			
	1	2	3	4	1	2	3	4
	cfm	cfm	cfm	cfm	cfm	cfm	cfm	cfm
+	715	855	1000	1130	465	690	900	1050
NORM	670	770	900	1035	425	620	825	950
–	580	700	800	930	385	560	735	850

NOTES - The effect of static pressure, filter and electric heater resistance is included in the air volumes listed.
First stage cooling air volume is 70% of COOL speed setting. Continuous blower speed is approximately 50% of COOL speed setting.
Lennox Harmony III™ Zone Control applications - minimum blower speed is 300 cfm.

CBX40UHV-030 BLOWER PERFORMANCE — 0 through 0.80 in. w.g. (0 Through 200 Pa) External Static Pressure Range

ADJUST Jumper Setting	Jumper Speed Positions							
	HEAT Speed				COOL Speed			
	1	2	3	4	1	2	3	4
	cfm	cfm	cfm	cfm	cfm	cfm	cfm	cfm
+	800	935	1070	1210	660	880	1100	1320
NORM	725	850	975	1100	600	800	1000	1200
–	655	765	880	990	540	720	900	1080

NOTES - The effect of static pressure, filter and electric heater resistance is included in the air volumes listed.
First stage cooling air volume is 70% of COOL speed setting. Continuous blower speed is approximately 50% of COOL speed setting.
Lennox Harmony III™ Zone Control applications - minimum blower speed is 300 cfm.

CBX40UHV-036 BLOWER PERFORMANCE — 0 through 0.80 in. w.g. (0 Through 200 Pa) External Static Pressure Range

ADJUST Jumper Setting	Jumper Speed Positions							
	HEAT Speed				COOL Speed			
	1	2	3	4	1	2	3	4
	cfm	cfm	cfm	cfm	cfm	cfm	cfm	cfm
+	1230	1335	1445	1545	1090	1225	1380	1545
NORM	1120	1215	1315	1400	975	1125	1275	1400
–	1010	1185	1200	1265	900	1000	1135	1265

NOTES - The effect of static pressure, filter and electric heater resistance is included in the air volumes listed.
First stage cooling air volume is 70% of COOL speed setting. Continuous blower speed is approximately 50% of COOL speed setting.
Lennox Harmony III™ Zone Control applications - minimum blower speed is 300 cfm.

CBX40UHV-042 BLOWER PERFORMANCE — 0 through 0.80 in. w.g. (0 Through 200 Pa) External Static Pressure Range

ADJUST Jumper Setting	Jumper Speed Positions							
	HEAT Speed				COOL Speed			
	1	2	3	4	1	2	3	4
	cfm	cfm	cfm	cfm	cfm	cfm	cfm	cfm
+	1100	1320	1540	1760	1100	1320	1540	1760
NORM	1000	1200	1400	1600	1000	1200	1400	1600
–	900	1080	1260	1440	900	1080	1260	1440

NOTES - The effect of static pressure, filter and electric heater resistance is included in the air volumes listed.
First stage cooling air volume is 70% of COOL speed setting. Continuous blower speed is approximately 50% of COOL speed setting.
Lennox Harmony III™ Zone Control applications - minimum blower speed is 300 cfm.

CBX40UHV-48 AND **CBX40UHV-060** BLOWER PERFORMANCE — 0 through 0.80 in. w.g. (0 Through 200 Pa) External Static Pressure Range

ADJUST Jumper Setting	Jumper Speed Positions							
	HEAT Speed				COOL Speed			
	1	2	3	4	1	2	3	4
	cfm	cfm	cfm	cfm	cfm	cfm	cfm	cfm
+	1850	1960	2090	2150	1625	1820	2055	2145
NORM	1705	1800	1900	2005	1425	1625	1805	2005
–	1560	1625	1720	1770	1205	1375	1555	1725

NOTES - The effect of static pressure, filter and electric heater resistance is included in the air volumes listed.
First stage cooling air volume is 70% of COOL speed setting. Continuous blower speed is approximately 50% of COOL speed setting.
Lennox Harmony III™ Zone Control applications - minimum blower speed is 300 cfm.

Target CFM Tables (cont'd)

CBA38MV-018/024 BLOWER PERFORMANCE

0 through 0.80 in. w.g. External Static Pressure Range

"ADJUST" Jumper Setting	Jumper Speed Positions							
	"HEAT" Speed				"COOL" Speed			
	1	2	3	4	1	2	3	4
	cfm	cfm	cfm	cfm	cfm	cfm	cfm	cfm
+	465	690	900	1050	465	690	900	1050
NORM	425	620	825	950	425	620	825	950
-	385	560	735	850	385	560	735	850

NOTES:

- The effect of static pressure, filter and electric heater resistance is included in the air volumes listed.
- First stage cooling air volume is 70% of COOL speed settings. Continuous fan speed is approximately 28%, 38%, 70% and 100% (Jumper selectable) of the same second-stage COOL speed selected, minimum 250 cfm.
- Lennox Harmony III™ Zone Control applications - minimum blower speed if 250 cfm.

CBA38MV-030 BLOWER PERFORMANCE

0 through 0.80 in. w.g. External Static Pressure Range

"ADJUST" Jumper Setting	Jumper Speed Positions							
	"HEAT" Speed				"COOL" Speed			
	1	2	3	4	1	2	3	4
	cfm	cfm	cfm	cfm	cfm	cfm	cfm	cfm
+	660	880	1100	1320	660	880	1100	1320
NORM	600	800	1000	1200	600	800	1000	1200
-	540	720	900	1080	540	720	900	1080

NOTES:

- The effect of static pressure, filter and electric heater resistance is included in the air volumes listed.
- First stage cooling air volume is 70% of COOL speed settings. Continuous fan speed is approximately 28%, 38%, 70% and 100% (Jumper selectable) of the same second-stage COOL speed selected, minimum 250 cfm.
- Lennox Harmony III™ Zone Control applications - minimum blower speed if 250 cfm.

CBA38MV-036 BLOWER PERFORMANCE

0 through 0.80 in. w.g. External Static Pressure Range

"ADJUST" Jumper Setting	Jumper Speed Positions							
	"HEAT" Speed				"COOL" Speed			
	1	2	3	4	1	2	3	4
	cfm	cfm	cfm	cfm	cfm	cfm	cfm	cfm
+	900	1225	1380	1545	900	1225	1380	1545
NORM	810	1125	1275	1400	810	1125	1275	1400
-	730	1000	1135	1265	730	1000	1135	1265

NOTES:

- The effect of static pressure, filter and electric heater resistance is included in the air volumes listed.
- First stage cooling air volume is 70% of COOL speed settings. Continuous fan speed is approximately 28%, 38%, 70% and 100% (Jumper selectable) of the same second-stage COOL speed selected, minimum 250 cfm.
- Lennox Harmony III™ Zone Control applications - minimum blower speed if 250 cfm.

CBA38MV-042 BLOWER PERFORMANCE

0 through 0.80 in. w.g. External Static Pressure Range

"ADJUST" Jumper Setting	Jumper Speed Positions							
	"HEAT" Speed				"COOL" Speed			
	1	2	3	4	1	2	3	4
	cfm	cfm	cfm	cfm	cfm	cfm	cfm	cfm
+	1100	1320	1540	1760	1100	1320	1540	1760
NORM	1000	1200	1400	1600	1000	1200	1400	1600
-	900	1080	1260	1440	900	1080	1260	1440

NOTES:

- The effect of static pressure, filter and electric heater resistance is included in the air volumes listed.
- First stage cooling air volume is 70% of COOL speed settings. Continuous fan speed is approximately 28%, 38%, 70% and 100% (Jumper selectable) of the same second-stage COOL speed selected, minimum 450 cfm.
- Lennox Harmony III™ Zone Control applications - minimum blower speed if 450 cfm.

CBA38MV-048 BLOWER PERFORMANCE

0 through 0.80 in. w.g. External Static Pressure Range

"ADJUST" Jumper Setting	Jumper Speed Positions							
	"HEAT" Speed				"COOL" Speed			
	1	2	3	4	1	2	3	4
	cfm	cfm	cfm	cfm	cfm	cfm	cfm	cfm
+	1625	1820	2055	2145	1625	1820	2055	2145
NORM	1425	1625	1805	2005	1425	1625	1805	2005
-	1205	1375	1555	1725	1205	1375	1555	1725

NOTES:

- The effect of static pressure, filter and electric heater resistance is included in the air volumes listed.
- First stage cooling air volume is 70% of COOL speed settings. Continuous fan speed is approximately 28%, 38%, 70% and 100% (Jumper selectable) of the same second-stage COOL speed selected, minimum 450 cfm.
- Lennox Harmony III™ Zone Control applications - minimum blower speed if 450 cfm.

CBA38MV-060 BLOWER PERFORMANCE

0 through 0.80 in. w.g. External Static Pressure Range

"ADJUST" Jumper Setting	Jumper Speed Positions							
	"HEAT" Speed				"COOL" Speed			
	1	2	3	4	1	2	3	4
	cfm	cfm	cfm	cfm	cfm	cfm	cfm	cfm
+	1640	1840	2075	2150	1640	1840	2075	2150
NORM	1465	1625	1800	2000	1465	1625	1800	2000
-	1250	1390	1560	1720	1250	1390	1560	1720

NOTES:

- The effect of static pressure, filter and electric heater resistance is included in the air volumes listed.
- First stage cooling air volume is 70% of COOL speed settings. Continuous fan speed is approximately 28%, 38%, 70% and 100% (Jumper selectable) of the same second-stage COOL speed selected, minimum 450 cfm.
- Lennox Harmony III™ Zone Control applications - minimum blower speed if 450 cfm.

Unit Operating Sequences

This section details unit operating sequence for non-communicating systems. For communicating systems, see the communicating thermostat installation instruction.

TABLE 10. Air Handler with ComfortSense™ 7500 Thermostat and Single-Stage Outdoor Unit Operating Sequence

Operating Sequence		System Demand								System Response		
System Condition	Step	Thermostat Demand						Relative Humidity		Comp	Air Handler CFM (COOL)	Comments
		Y1	Y2	O	G	W1	W2	Status	D			
NO CALL FOR DEHUMIDIFICATION												
Normal Operation	1	On		On	On			Acceptable	24 VAC	High	100%	Compressor and indoor air handler follow thermostat demand
BASIC MODE (Only active on a Y1 thermostat demand)												
Normal Operation	1	On		On	On			Acceptable	24 VAC	High	100%	ComfortSense™ 7500 thermostat energizes Y1 and de-energizes D on a call for dehumidification. *NOTE — No over cooling.*
Dehumidification Call	2	On		On	On			Demand	0 VAC	High	70%	
PRECISION MODE (Operates independent of a Y1 thermostat demand)												
Normal Operation	1	On		On	On			Acceptable	24 VAC	High	100%	Dehumidification mode begins when humidity is greater than set point
Dehumidification call	2	On		On	On			Demand	0 VAC	High	70%	
Dehumidification call ONLY	1	On		On	On			Demand	0 VAC	High	70%	ComfortSense™ 7500 will keep outdoor unit energized after cooling temperature setpoint has been reach in order to maintain room humidity setpoint. *NOTE — Allow to over cool 2^0F from cooling set point.*

TABLE 11. Air Handler with ComfortSense™ 7500 Thermostat and Two-Stage Outdoor Unit Operating Sequence

Operating Sequence		System Demand								System Response		
		Thermostat Demand						Relative Humidity		Compressor	Air Handler CFM (COOL)	
System Condition	Step	Y1	Y2	O	G	W1	W2	Status	D			Comments
No Call for Dehumidification												
Normal Operation - Y1	1	On		On	On			Acceptable	24 VAC	Low	70%	Compressor and indoor air handler follow thermostat demand
Normal Operation - Y2	2	On	On	On	On			Acceptable	24 VAC	High	100%	
Room Thermostat Calls for First-Stage Cooling												
BASIC MODE (Only active on a Y1 thermostat demand)												
Normal Operation	1	On		On	On			Acceptable	24 VAC	Low	70%	ComfortSense™ 7500 thermostat energizes Y2 and de-energizes D on a call for dehumidification *NOTE — No over cooling.*
Dehumidification Call	2	On	On	On	On			Demand	0 VAC	High	70%	
PRECISION MODE (Operates independent of a Y1 thermostat demand)												
Normal Operation	1	On		On	On			Acceptable	24 VAC	Low	70%	Dehumidification mode begins when humidity is greater than set point
Dehumidification call	2	On	On	On	On			Demand	0 VAC	High	70%	
Dehumidification call ONLY	1	On	On	On	On			Demand	0 VAC	High	70%	ComfortSense™ 7500 thermostat will keep outdoor unit energized after cooling temperature setpoint has been reached in order to maintain room humidity setpoint. *NOTE — Allow to over cool 2^0F from cooling set point.*
Room Thermostat Calls for First- and Second-Stage Cooling												
BASIC MODE (Only active on a Y1 thermostat demand)												
Normal Operation	1	On	On	On	On			Acceptable	24 VAC	High	100%	ComfortSense™ 7500 thermostat energizes Y2 and de-energizes D on a call for dehumidification *NOTE — No over cooling.*
Dehumidification Call	2	On	On	On	On			Demand	0 VAC	High	70%	
PRECISION MODE (Operates independent of a Y1 thermostat demand)												
Normal Operation	1	On	On	On	On			Acceptable	24 VAC	High	100%	Dehumidification mode begins when humidity is greater than set point
Dehumidification call	2	On	On	On	On			Demand	0 VAC	High	70%	
Dehumidification call ONLY	1	On	On	On	On			Demand	0 VAC	High	70%	ComfortSense™ 7500 thermostat will keep outdoor unit energized after cooling temperature setpoint has been reached in order to maintain room humidity setpoint. *NOTE —: Allow to over cool 2^0F from cooling set point.*

Configuring Unit

This section identifies the requirements for configuring the air handler in non-communicating mode for unit size, heat mode selection and EvenHeat. For communicating configuration, see the installation instruction.

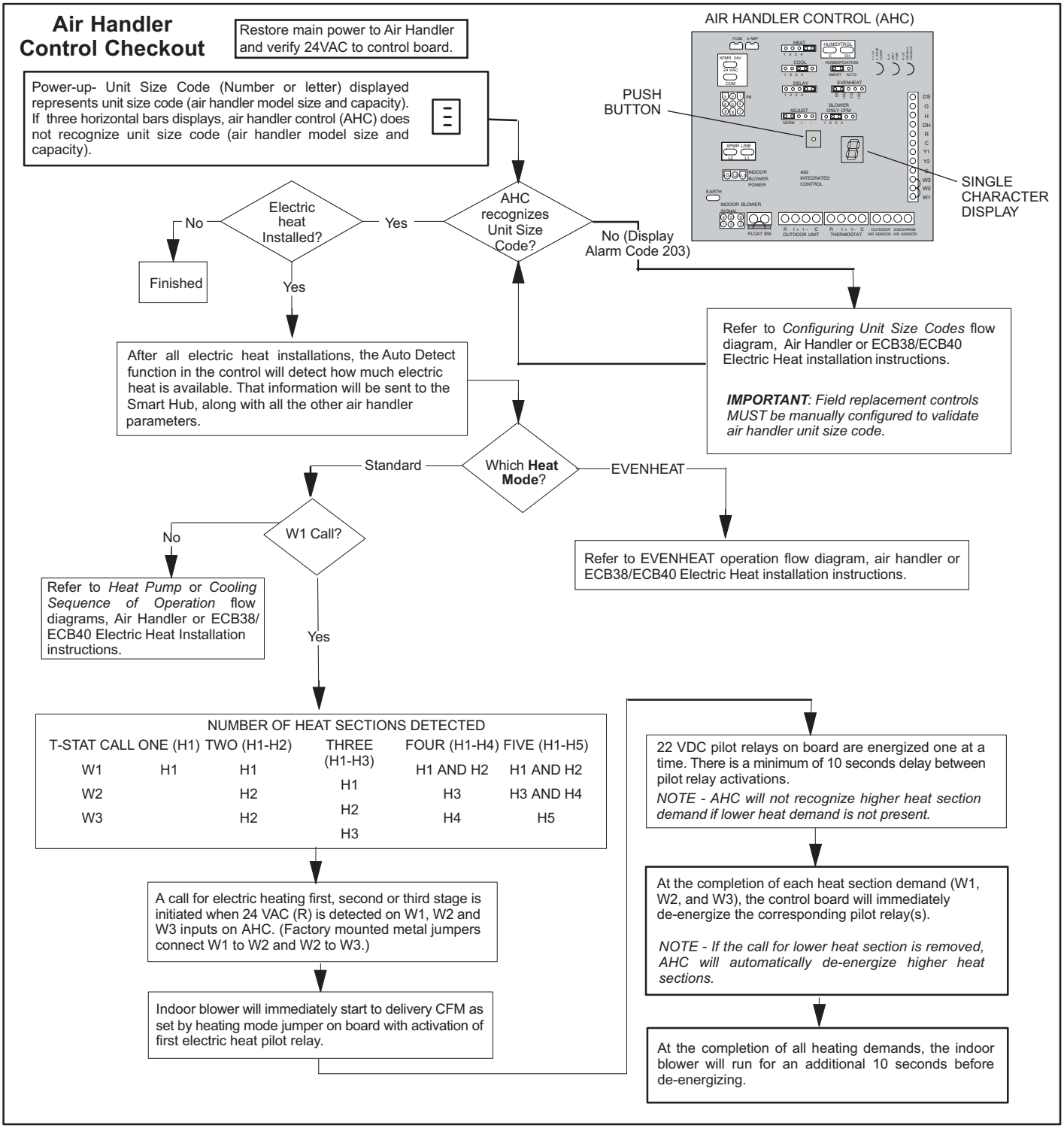


FIGURE 5

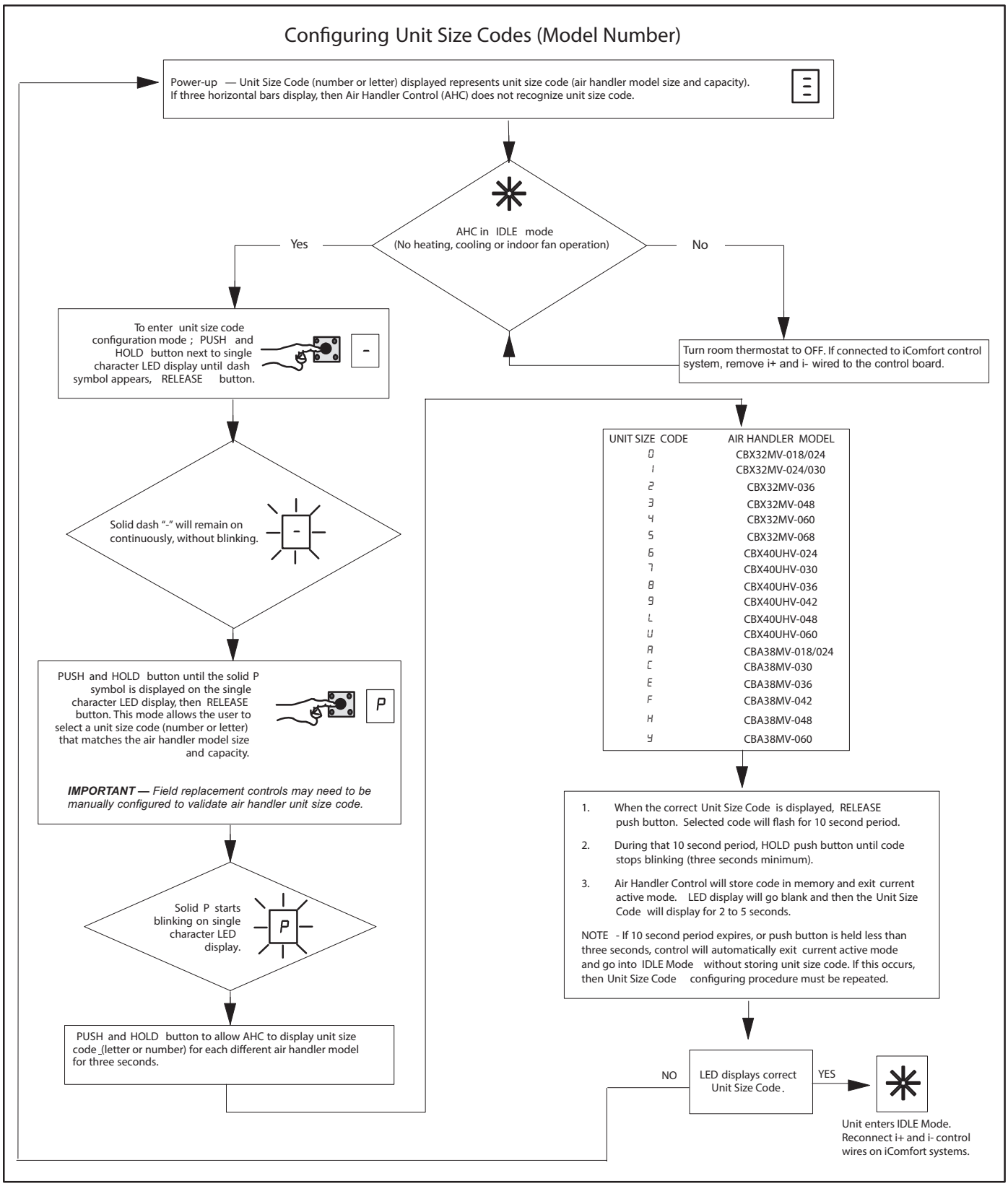
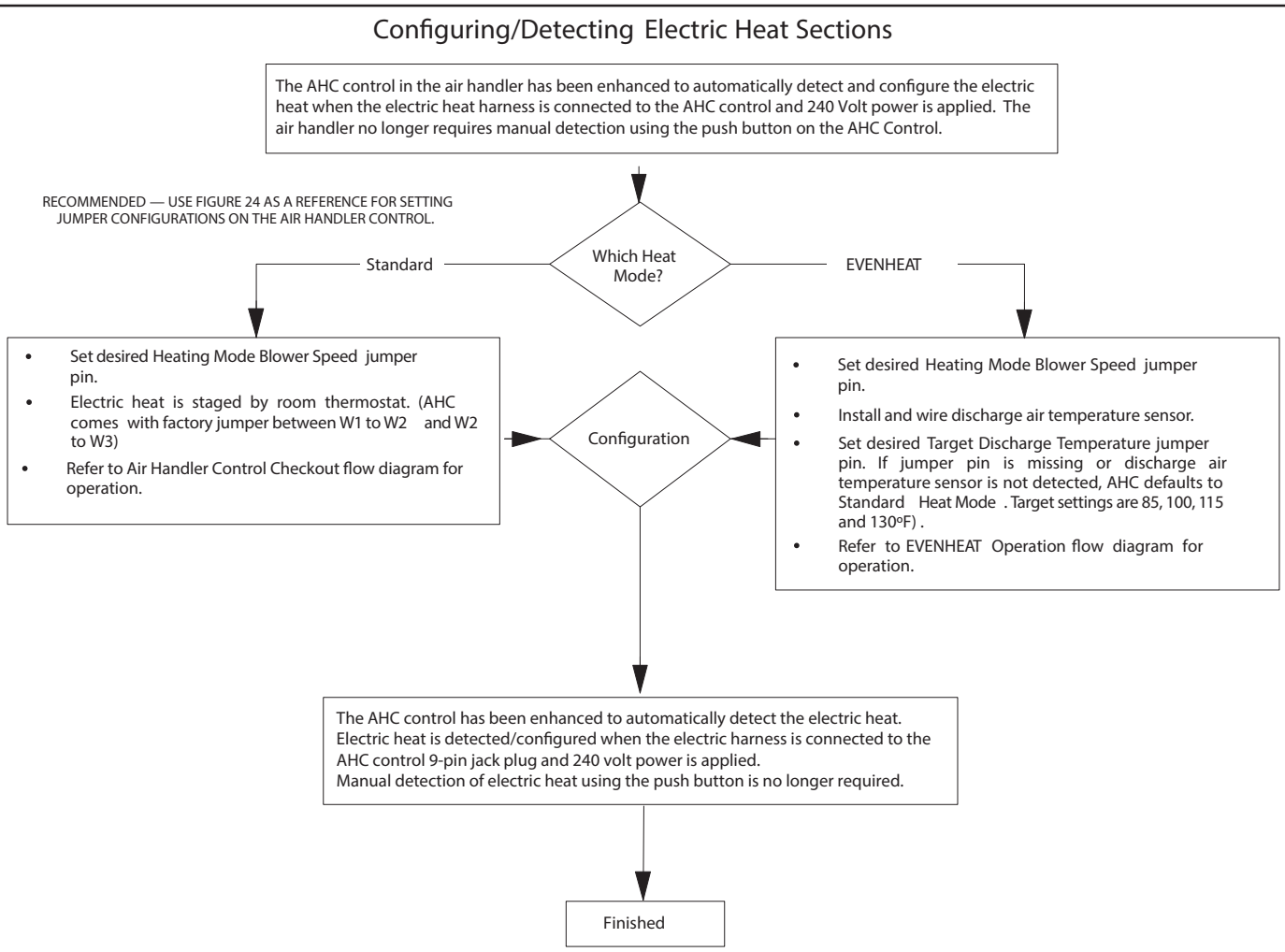


FIGURE 6. Configure Unit Size Codes



Automatic Electric Heat Detection/Configuration Notes

1. The AHC has been enhanced to automatically detect/configure the electric heat heat. Automatic electric heat detection occurs when the electric heat harness is connected to the AHC 9-pin jack plug and 240V power is applied to the air handler.

2. During automatic electric heat detection/configuration process, the AHC will NOT bring on the blower or electric heat relays.

3. Manual electric heat detection using the push button is no longer required.

4. The number of electric heat stages automatically detected can be verified by pressing the push button until "H" is displayed and then releasing the button. The display will show HO, H1, H2, H3, H4 or H5 which is the number of electric heat stages detected. Example H2 indicates 2-stages of electric heat were detected. The electric heat stages automatically detected can also be verified using iComfort thermostat> advanced settings,>dealer control center>equipment>air handler>about>Number of heating stages

5. On iComfort systems, if the air handler was installed and connected to an iComfort thermostat prior to electric heat installation, the system may need to be reconfigured using the icomfort thermostat to recognize the change in the electric heat installation.

FIGURE 7. Heat Mode Selection

EvenHeat Operation

INPUTS	OUTPUTS		
Room Thermostat Demand	**Target Discharge Air Temperature Set at 85ºF**	**Target Discharge Air Temperature Set at 100ºF**	**Target Discharge Air Temperature Set at 115ºF/130ºF**
Y1	Heat Pump First Stage	Heat Pump First Stage	Heat Pump First + First Electric Heat Section (H1)
Y1 + Y2	Heat Pump First and Second Stage	Heat Pump First and Second Stage + First Electric Heat Section (H1)	Heat Pump First and Second Stage + First Electric Heat Section (H1) + Second Electric Heat Section (H2) if number of electric heater sections detected is more than two.
Y1 + W1 and/or W2	Heat Pump First Stage + First Electric Heat Section (H1)	Heat Pump First Stage + First Electric Heat Section + Second Electric Heat Section (H2) if number of electric heater sections detected is more than two.	Heat Pump First Stage + First Electric Heat Section (H1) Second Electric Heat Section (H2) if number of electric heater sections detected is more than two.
Y1 and Y2 + W1 and/or W2	Heat Pump First and Second Stage+ First Electric Heat Section (H1)	Heat Pump First and Second Stage + First Electric Heat Section + Second Electric Heat Section (H2) if number of electric heater sections detected is more than two.	Heat Pump First and Second Stage + First Electric Heat Section (H1) Second Electric Heat Section (H2) if number of electric heater sections detected is more than two.
W1 and/or W2	First Electric Heat Section (H1)	First Electric Heat Section (H1) + Second Electric Heat Section (H2) if number of electric heater sections detected is more than two.	First Electric Heat Section (H1) + Second Electric Heat Section (H2) if number of electric heater sections detected is more than two.

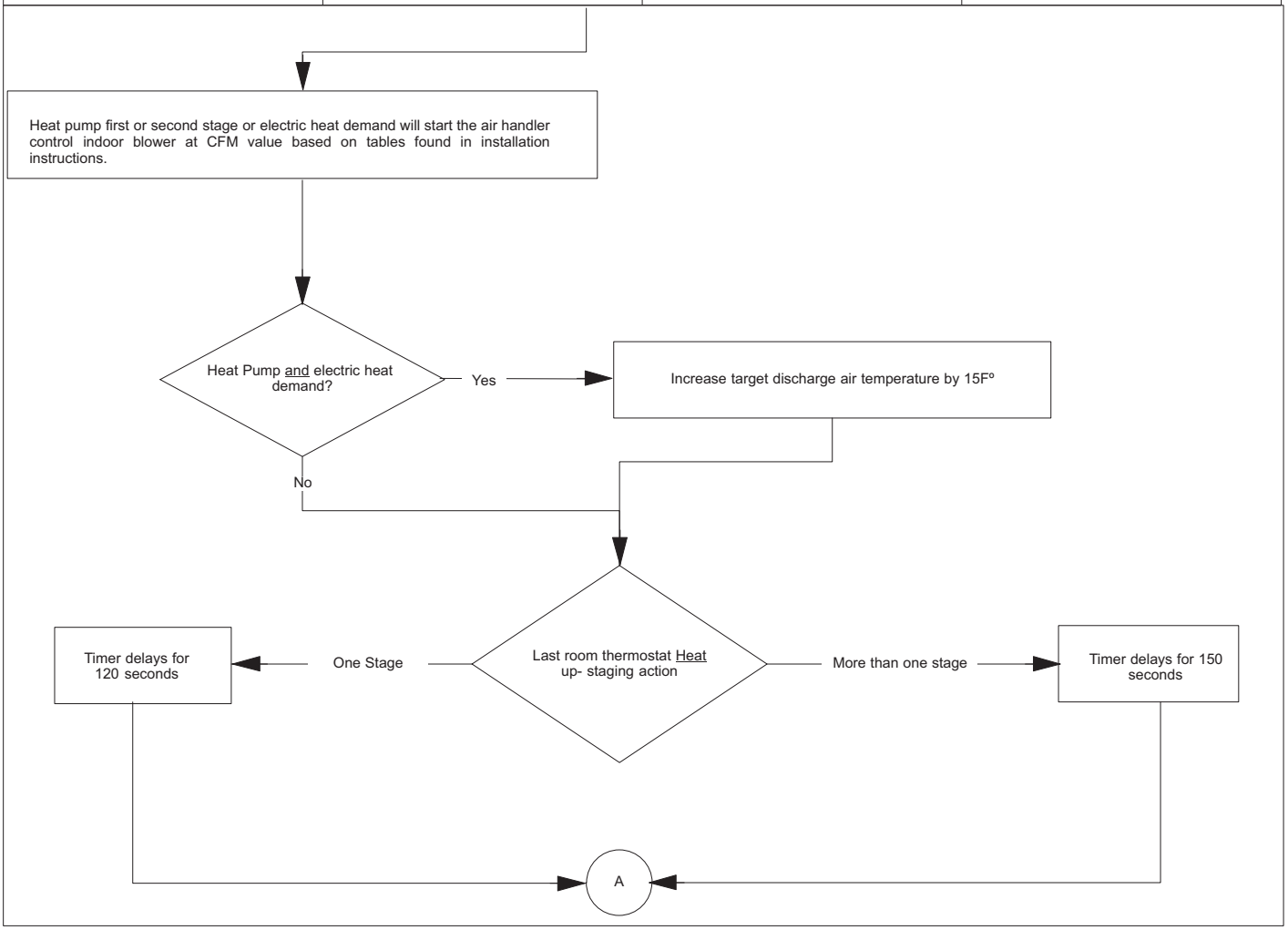


FIGURE 8. EVENHEAT Operation (1 of 2)

EVENHEAT Operation

Note 1 Activation delay

- 120 seconds if one heat stage is or deactivated
- 150 seconds if more than one stage is activated or deactivated.

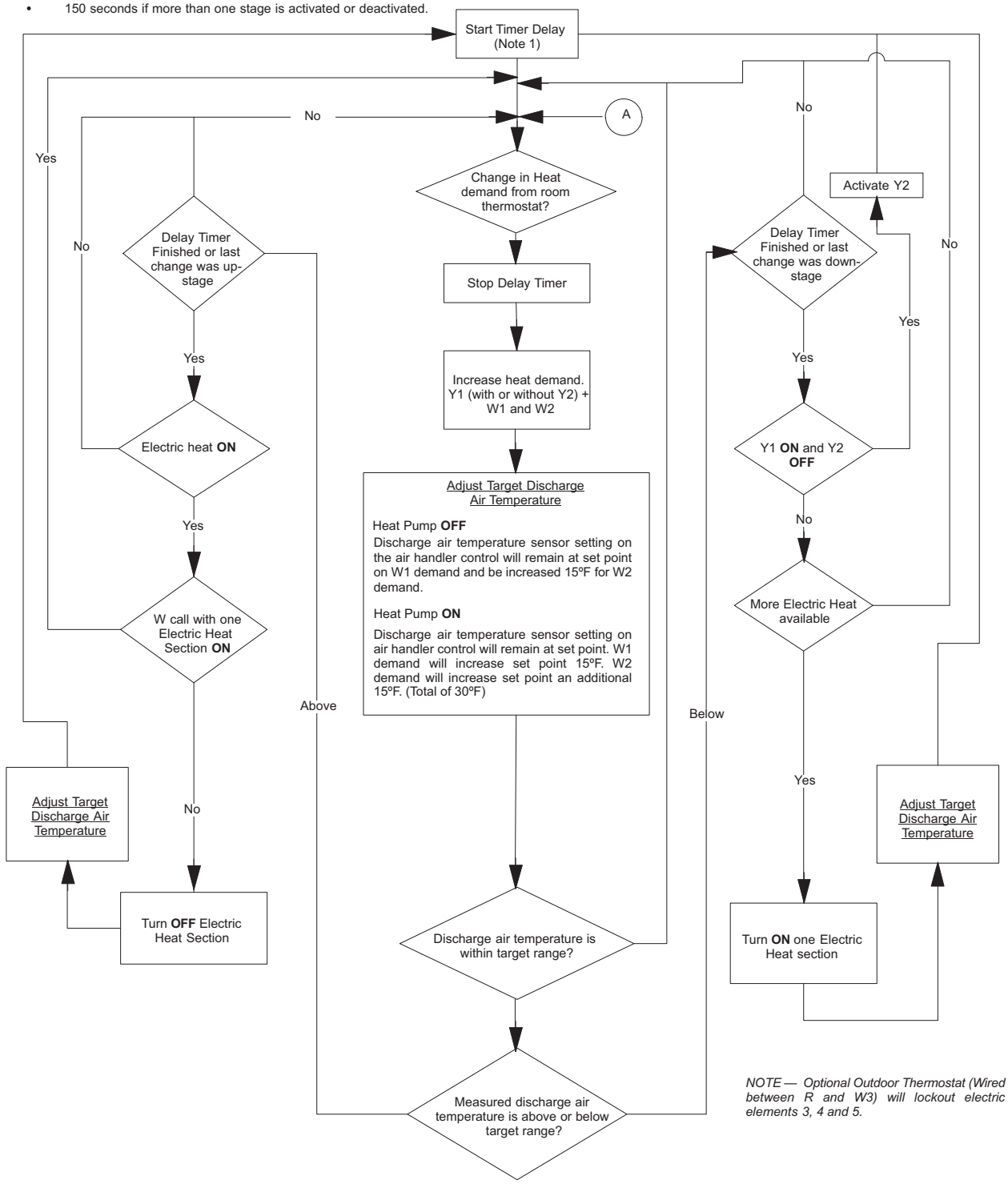


FIGURE 9. EVENHEAT Operation (2 of 2)