

GE Appliances

Technical Service Guide

July 2016

2016 Zoneline Air Conditioner

265 VOLT MODELS

AZ45E07EA__1 AZ45E12EA__1

AZ65H07EA__1 AZ65H12EA__1

AZ45E09EA__1 AZ45E15EA__1

AZ65H09EA__1 AZ65H15EA__1



GE Appliances
Louisville, Kentucky 40225

31-9257

Safety Information



IMPORTANT SAFETY NOTICE

The information in this service guide is intended for use by individuals possessing adequate backgrounds of electrical, electronic, and mechanical experience. Any attempt to repair a major appliance may result in personal injury and property damage. The manufacturer or seller cannot be responsible for the interpretation of this information, nor can it assume any liability in connection with its use.

WARNING

To avoid personal injury, disconnect power before servicing this product. If electrical power is required for diagnosis or test purposes, disconnect the power immediately after performing the necessary checks.

RECONNECT ALL GROUNDING DEVICES

If grounding wires, screws, straps, clips, nuts, or washers used to complete a path to ground are removed for service, they must be returned to their original position and properly fastened.

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Safety Requirements

GE Factory Service Employees are required to use safety glasses with side shields, safety gloves and steel toe shoes for all repairs.



Steel Toed Work Boot



Electrically Rated Glove and
Dyneema® Cut Resistant
Glove Keeper



Dyneema® Cut Resistant
Glove



Cut Resistant Sleeve(s)



Plano Type Safety Glasses



Brazing Glasses



Safety Glasses must be ANSI
Z87.1-2003 compliant



Prior to disassembly of the Zoneline to access components, GE Factory Service technicians are REQUIRED to follow the Lockout / Tagout (LOTO) 6 Step Process:

Step 1 Plan and Prepare	Step 4 Apply LOTO device and lock
Step 2 Shut down the appliance	Step 5 Control (discharge) stored energy
Step 3 Isolate the appliance	Step 6 "Try It" verify that the appliance is locked out

Additional Safety Requirements



System Pressures

Technicians with R-22 experience will need to become familiar working with high and low side pressures that are much higher when using R-410A. A typical R-22 system operates normally with a high side pressure of approximately 260 psi @ 120°F condensing temperature, and a low side pressure of approximately 76 psi @ 45°F evaporator saturation temperature.

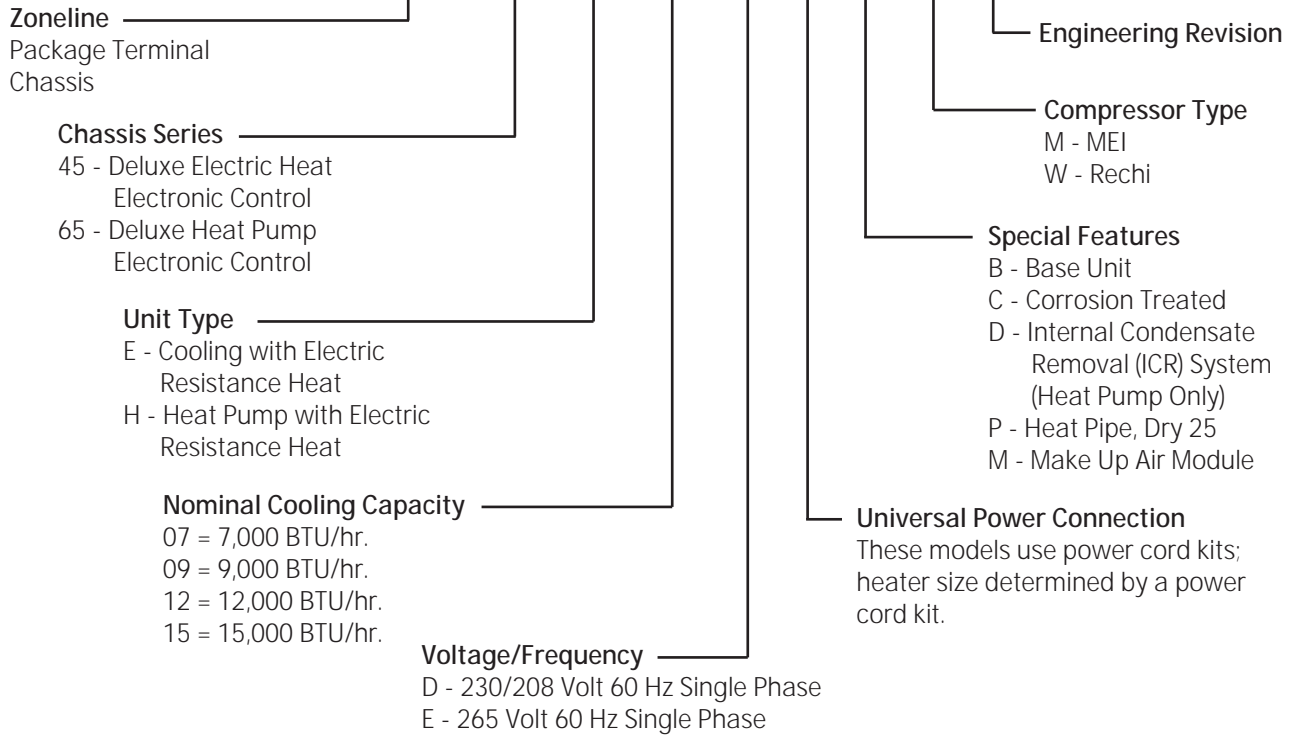
A normally operating R-410A system with the same condensing temperature of 120°F and 45°F evaporator saturation temperature will have a high side pressure of approximately 500 psi, and a low side pressure of approximately 150 psi.

Tools Required

- 5/16" socket or drive (most screws are 5/16" hex head)
- 1/4" socket or drive (ground screws and control assembly use 1/4" machine thread screws)
- 3/8" socket or drive (for outdoor fan blade removal)
- 4 mm Allen wrench (for indoor fan blade removal)
- Volt-Ohm meter
- Amp probe
- Needlepoint meter leads
- Sealed system and R-410A recovery equipment
- Thermal paste - WX5X8927
- Extension needed for condenser shroud screws
- Voltage rated pliers (for discharging the capacitor)

Nomenclature

A Z 4 5 E 0 9 D A B W 1



The nomenclature breaks down and explains what the letters and numbers mean in the model number.

Serial Number

The first two characters of the serial number identify the month and year of manufacture. The letter designating the year repeats every 12 years.

Example: LA123456S = June, 2013

A – JAN	2024 – Z
D – FEB	2023 – V
F – MAR	2022 – T
G – APR	2021 – S
H – MAY	2020 – R
L – JUN	2019 – M
M – JUL	2018 – L
R – AUG	2017 – H
S – SEP	2016 – G
T – OCT	2015 – F
V – NOV	2014 – D
Z – DEC	2013 – A



Model Serial location

Mini Manual location

Introduction

Zonelines are packaged room air conditioners that provide cooling and heating for residential and commercial properties. Available in 7,000, 9,000, 12,000 and 15,000 BTU models. Accessories are available to duct conditioned air into an adjoining room.

The newly designed Zonelines are dimensionally the same size as older models, and will fit into existing wall cases.

Operation is similar to previous models, but with a totally new electrical and mechanical design.

Features

Example of features of a AZ65H09DAM with Make Up Air Module:

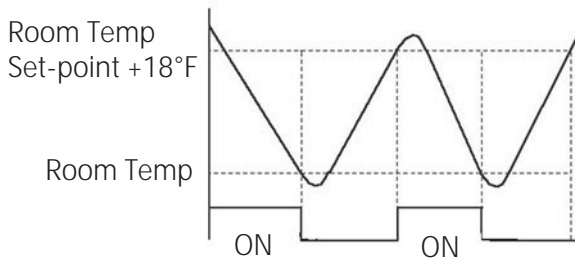
- **Makeup Air:** Supplies 35 CFM of continuous, conditioned fresh make up air
- **Cooling Capacity:** 9,100 BTU @ 230 volts – 8,800 BTU @ 208 volts
- **Energy Efficiency:** 11.0 EER , on average over 8% more efficient than other brands
- **Dehumidification:** Conditions incoming air above 55% relative humidity
- **Reverse Cycle Heat:** 8,300 BTU @ 230 volts – 8,100 BTU @ 208 volts
- **Heat Pump Efficiency:** 3.7 COPS
- **Quiet Operation:** Baked on mastic, cross flow blower and two DC fan motors for quieter operation
- **Heat and Freeze Sentinels:** Prevents room from over-heating or freezing
- **Boost Heat Option:** Provides supplemental resistance heat during heat pump mode
- **Electronic Temperature Limiting:** Prevents over-cooling or over-heating of room
- **Electronic Touch Controls:** Tactile buttons with LED display

Operation

Cooling

AZ4500	In the cooling mode, the compressor, indoor fan and outdoor fan run.
AZ6500	In the cooling mode, the compressor, indoor fan and outdoor fan run. The reversing valve is energized throughout the entire cooling cycle.

For both AZ4500 and AZ6500, once the compressor comes on in cooling, it will pull the room temperature down to the thermostat setting.



Fan pulsing for temperature checking after compressor shut-off when not in class 2 mode:

- The Zoneline will pulse the indoor fan periodically when it is not on a remote thermostat and set to cyclic cooling.
- The system will wait 6 minutes after the compressor shuts off, then will pulse the indoor fan, pulling air across the air thermistor for a duration of 30 seconds.
- Should the first 2 minute pulse not activate the Zoneline, the system will continue pulsing until cooling is needed.
- Each pulse of the fan is running at low speed, no matter what setting the user has chosen.

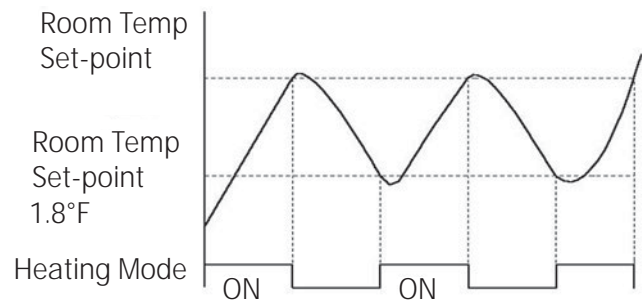
Heating

AZ4500	In the heating mode, AS4500 shall utilize the built-in resistance heater, running with the indoor fan at one of two speeds determined by the Fan Speed selection.
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Resistance heater output is not determined by software. It is determined by hardware (power cord amperage rating).

Temperature control in the heating mode is done by cycling the resistance heater under control of the room air thermistor, or the room thermostat (if in Class 2 mode).

Whenever the room temperature is 1.8°F below the temperature setting, the control will energize the heating cycle and remain in operation until the room temperature reaches the temperature setting. At this point, the Zoneline will turn off the heating cycle.



(Continued next page)

AZ6500

When an AZ6500 Zoneline is in the heating mode, the resistance heater or the compressor runs with the appropriate fans. The control shall be capable of independently switching power for two resistance heater loads. Each of the two heater loads can be made up of different heating elements, but the elements will be tied together in parallel. There are three stages of operation associated with the heating mode:

- **Stage 1:** Heating due to heat pump (compressor) - both fans on.
- **Stage 2:** Heating due to heat pump (compressor) and supplemental 1000 Watt resistance heater (Heater A) with both fans on. (This mode can also be activated via aux set mode to run in place of stage 1 heating). This auxiliary setting is known as Boost Heat, and essentially disables stage 1 heating which is replaced by stage 2 heating. When this mode is active, it will run when the Zoneline is being controlled via the Zoneline control panel, or when a remote wall thermostat is connected and calling for heat pump. It will override stage 1 heating in both cases. ***NOTE:** Any time the Zoneline enters stage 2 heating mode, it should continue heating in this mode until the room temperature is satisfied. If the room offset increases, then stage 3 heating will be engaged.
- **Stage 3:** Heating due to resistance heater (Heater A, B and C) - indoor fan only on.

NOTE: Any time the Zoneline enters stage 3 heating mode, it will continue heating in this mode until the room temperature is satisfied, regardless of indoor room temperature offset or outdoor temperature conditions. The Zoneline can then resume normal heating operation modes of stage 1 or stage 2 heating upon the next call for heat.

NOTE: In low fan speed, the Zoneline shall only activate heater A and B to allow for a maximum heater output of 3800 W. A, B, and C output is only available in high speed. **Heat Pump Mode and Heater B shall never be on at the same time.**

Upon initial start-up or resumption after a power interruption, stage 3 (Heater A and Heater B) are energized at full power to generate heat until the room temperature rises to the temperature setting, regardless of the outdoor temperature.

Automatic changeover between the compressor and the heating elements is utilized.

In order to keep the compressor from stalling out when trying to start against the high side refrigerant pressure, the control circuit has a built-in automatic time delay to allow the internal pressure to equalize. The control circuit will not try to start the compressor until it has been off for 3 minutes. To minimize compressor cycling, the control has a built-in minimum compressor run time of 3 minutes (+/- 10 seconds). Even if the thermostat is satisfied, or the indoor temperature is dropping, the compressor will run for a minimum of 3 minutes. The Zoneline can switch to stage 2 heating, but must wait until the 3 minutes of compressor run time is satisfied before switching to stage 3 heating.

- **FIRST STAGE HEAT (HEAT PUMP ONLY)**

Once heating initializes, the room temperature will start to rise. The compressor will run until the temperature rises 0.9°F above the temperature control set point, at which time the compressor will shut down. If the outdoor ambient temperature is less than 25°F, stage 1 heating will be disabled and only stage 3 heating will energize. This is also the case for the remote wall thermostat. When the outdoor ambient temperature is greater than 46°F, the Zoneline runs at First Heat (Heat Pump).

- **SECOND STAGE HEAT (HEAT PUMP + HEAT A) - Boost Heat mode**

When either the room temperature falls from the setting by greater than 1.8°F, or the outdoor temperature is lower than 25°F, stage 2 heating will be disabled and only stage 3 heating will energize.

If the outdoor temperature is above 25°F, the control will energize stage 2 heating. Stage 2 heating will continue to operate until the room temperature exceeds the temperature control set point by 0.9°F, at which time the heater and the compressor will stop.

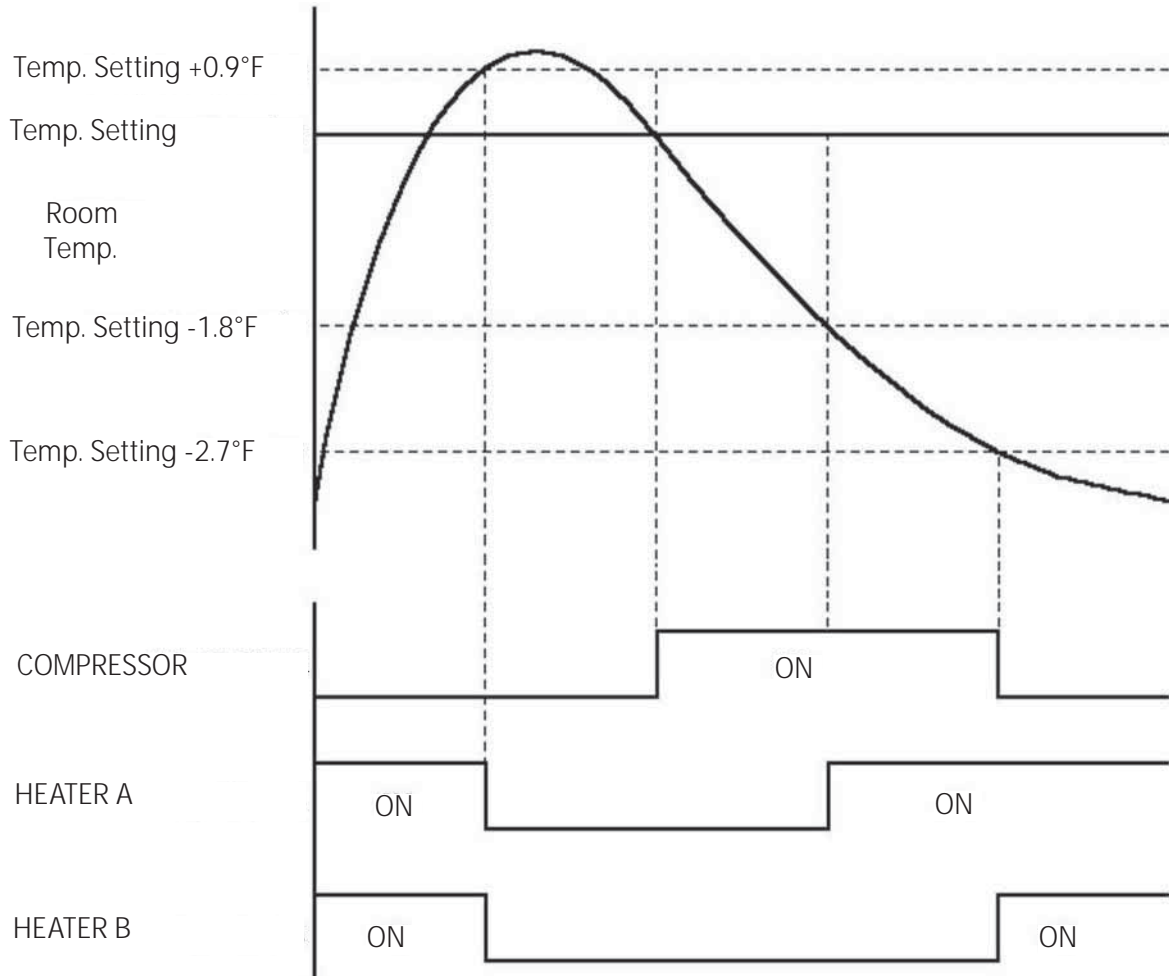
NOTE: Second stage heat is not utilized in class 2 mode. Unless aux set "boost heat" is selected. Stage 2 heating will operate when the thermostat calls for stage 1 heating.

(Continued next page)

- **THIRD STAGE HEAT (HEATERS A AND B ONLY)**

When the room temperature falls below 2.7°F from the temperature control set point, the heat pump operation will stop. Stage 3 heating is activated (based on power cord) for all outdoor temperatures, except for I2R lock out conditions. I2R lockout prohibits all resistance heating and will only allow heat pump and boost heating. Stage 3 will continue to operate until the room temperature exceeds the temperature control set point by 0.9°F, at which time the heaters will shut down.

Stage Heating Mode Logic for AZ6500 Series



All Heat Pump Lockout Mode

AZ6500 Series ONLY

The All Heat Pump Lockout Mode is controlled through the auxiliary set mode. When this auxiliary set button is on, the control will run in electric resistance heat (Stage 3) mode only, with the heat pump operation (Stage 1 and 2 heating) off. When the auxiliary set button mode is OFF, the heat pump is allowed.

The heat pump lockout mode is utilized in the Class 2 mode.

NOTE: If heat pump lockout mode and boost heat mode are both selected as active in the auxiliary settings, the heat pump lockout mode takes priority, and the heat pump modes remain off.

Boost Heat Mode

AZ6500 Series ONLY

When the boost heat auxiliary set button is enabled and the outdoor temperature is above 25°F, the first stage heat (heat pump only) is locked out.

It shall be controlled through an auxiliary set button mode. Staged heating selection logic and Resistance Heat Lock-Out mode have priority over this function.

This boost heat setting is used to provide supplementary heat to the heat pump operation in conditions where the heat pump only operation (first stage heat) is not sufficient to maintain a consistent comfortable room temperature for the consumer.

Fan Only Mode - All models

In the Fan Only mode, the indoor fan runs continuously at the fan speed selected (High or Low). All other loads are de-energized.

Fan Cycle Operation

There are two Fan Cycle auxiliary settings. These modes are utilized to switch between a CONTINUOUS setting, and the fan motor continues to operate even when the compressor or the electric heater cycles ON/OFF. In the CYCLE setting, the indoor fan cycles ON/OFF with the heating and cooling functions.

When the Class 2 Mode is selected, the fan motor is controlled by the remote wall thermostat, independent of positions of Fan Cycle auxiliary set button modes.

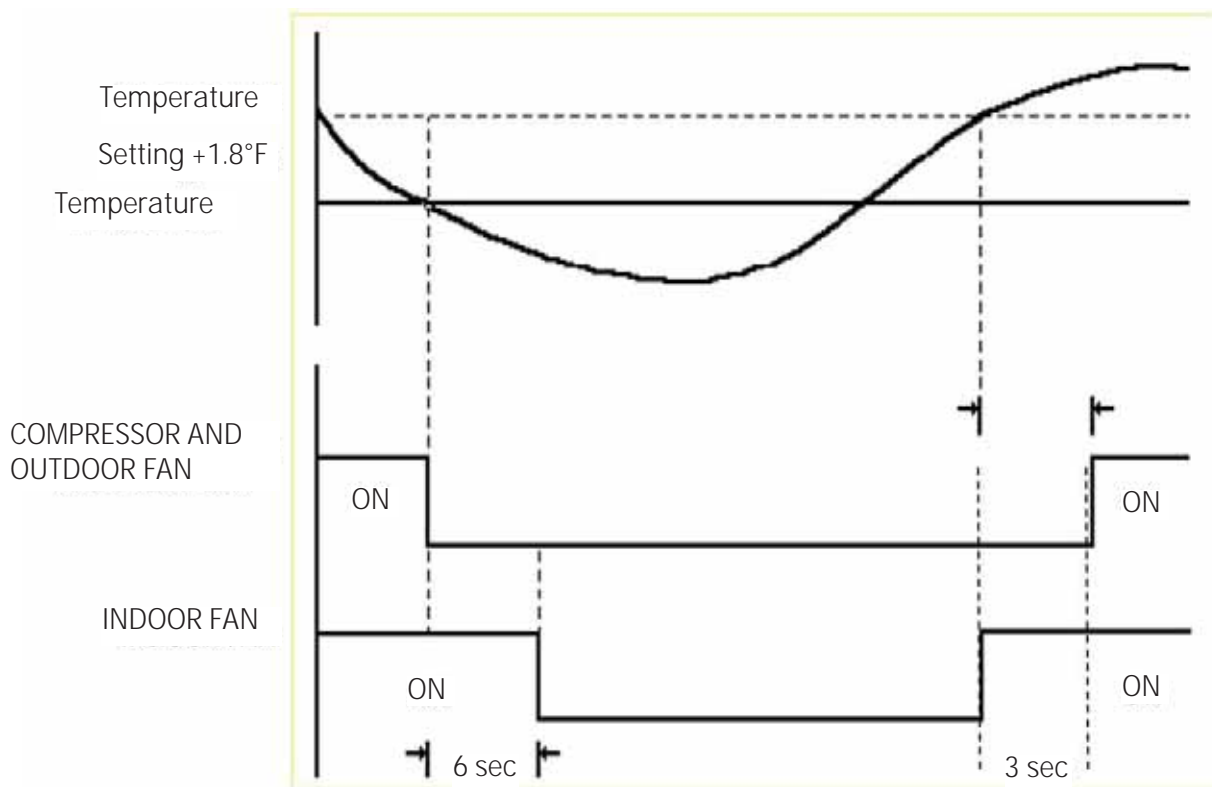
Fan Cycle - Cooling Mode

The indoor fan runs for a short period of time, approximately 3 seconds, before the compressor and outdoor fan are turned on.

The indoor and outdoor fan runs continuously for a short period of time, approximately 30 seconds, after the compressor and outdoor fan are turned OFF.

In the cooling mode, the indoor fan is designed to operate at two different speeds. If the control happens to be in the compressor restart delay (allowing the internal pressure to equalize before turning the compressor ON), the indoor fan turns ON in the normal sequence as shown in the figure below. The outdoor fan and compressor turn ON at the end of the restart delay.

In the Class 2 mode, the indoor fan shall be controlled directly by the remote thermostat.

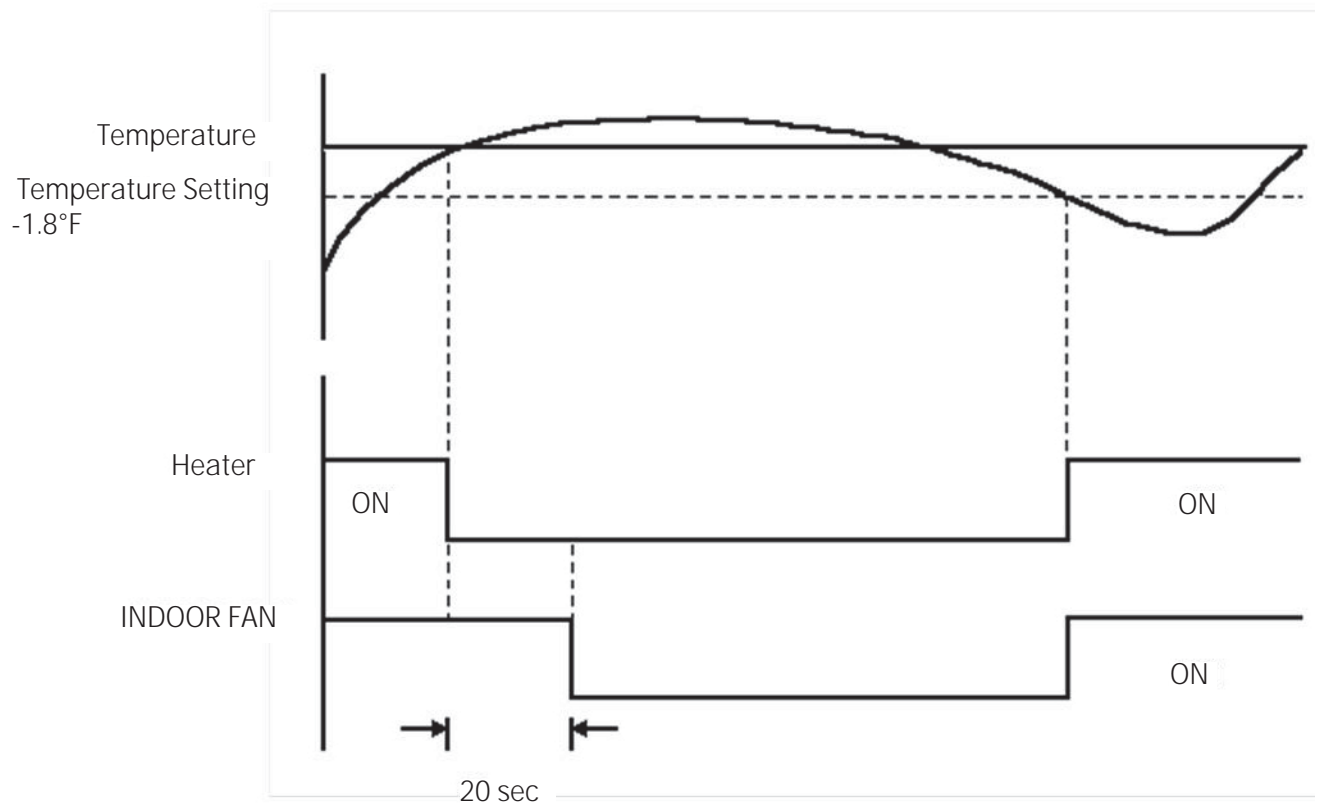


Fan Cycle - Resistance Heating Mode

The indoor fan and heaters are turned ON at the same time. The indoor fan is turned OFF a short period of time later, approximately 20 seconds, after the heaters are de-energized as shown in the graph below. In the OFF mode, the indoor fan shall continue to operate for 6 seconds after the user has stopped the Zoneline, in order to dissipate the heat inside the Zoneline.

In the heating mode, the indoor fan shall be designed to operate at two different speeds (RPM).

Fan Cycle - Resistance Heating Mode

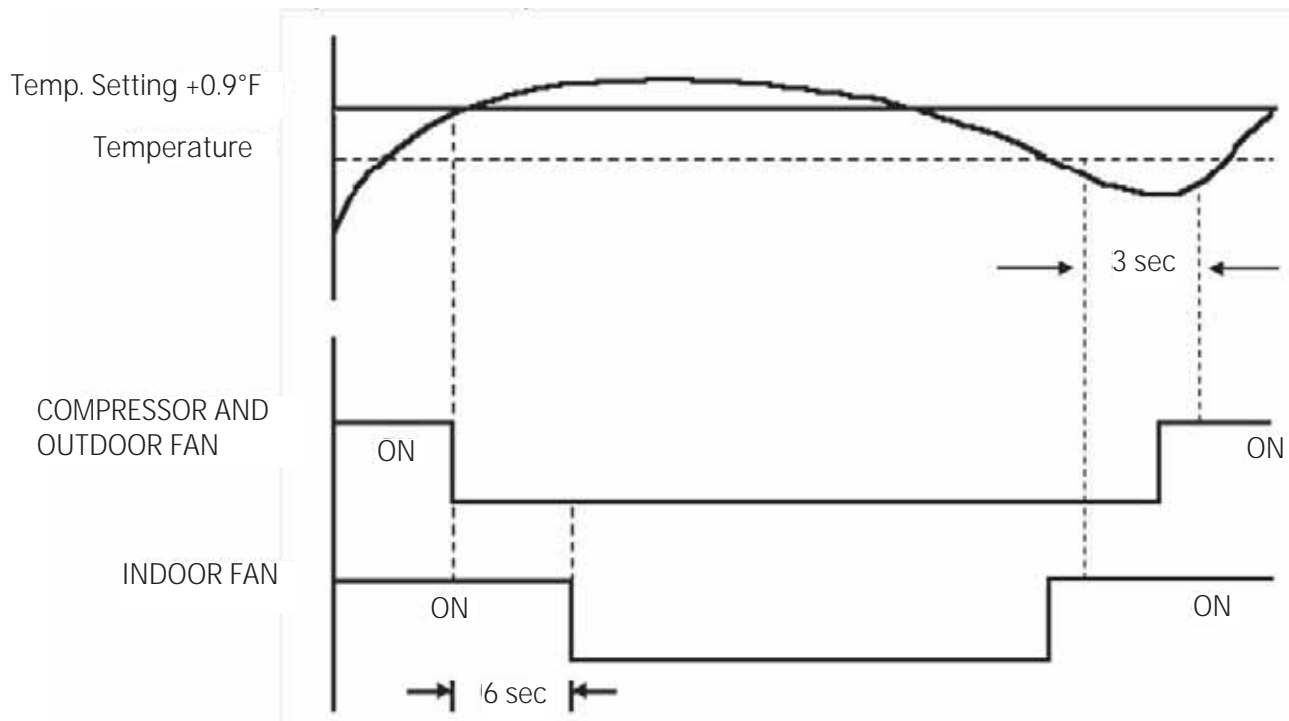


Fan Cycle - Heat Pump Mode

AZ6500 Series ONLY

The outdoor fan and the compressor are turned ON at the same time. The indoor fan is turned on 3 seconds before the compressor and outdoor fan is turned ON. The indoor fan is then turned OFF for 6 seconds after the compressor and outdoor fan are turned OFF.

Fan Cycle - Heat Pump Mode



Constant Fan

In Constant Fan mode, the Zoneline operates in High fan mode regardless of fan setting.

The constant fan feature allows the fan to operate even when the Zoneline is set in the OFF position. This will allow continuous air circulation in the room even if the Zoneline is turned off. This function shall be made available as a selectable option through the use of an auxiliary set button mode. The selection of this function will override the CDC provision.

Fan Operation

Both fan motors are variable speed DC fan motors with RPM feedback and regulation control. Any time a fan is energized, the control checks that the fan reaches the target RPM speed +/- 150 RPMs. If the target cannot be met, the fan motor will shut down for 15 minutes, and will set a fault code. It will then reattempt to run every 15 minutes. If the fan motor reaches the proper RPM, the fault code will clear. If the error does not clear, the fault code shall be stored in memory and the Zoneline will function as follows:

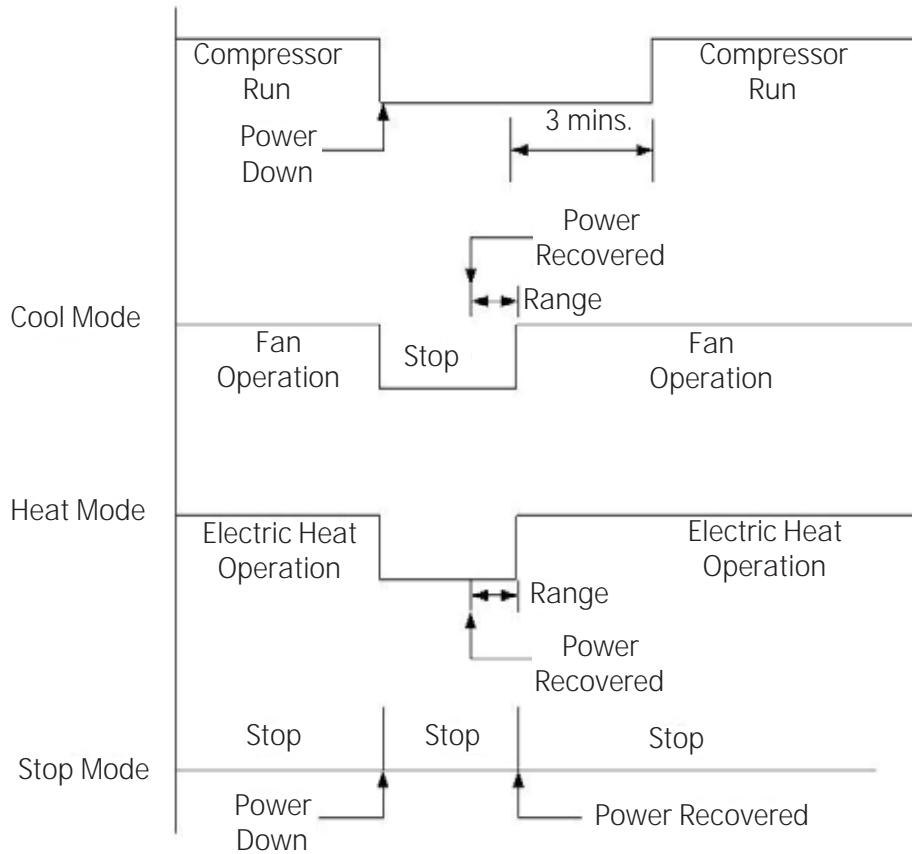
- For detected indoor fan failures, the Zoneline will cease all operation until the next try to energize the fan.
- For detected outdoor fan failures, the Zoneline will revert to stage 3 heating (if it is trying to run in stage 1 or stage 2 heating). The Zoneline will then the run indoor fan only if it is trying to run in cooling mode.

Random Restart

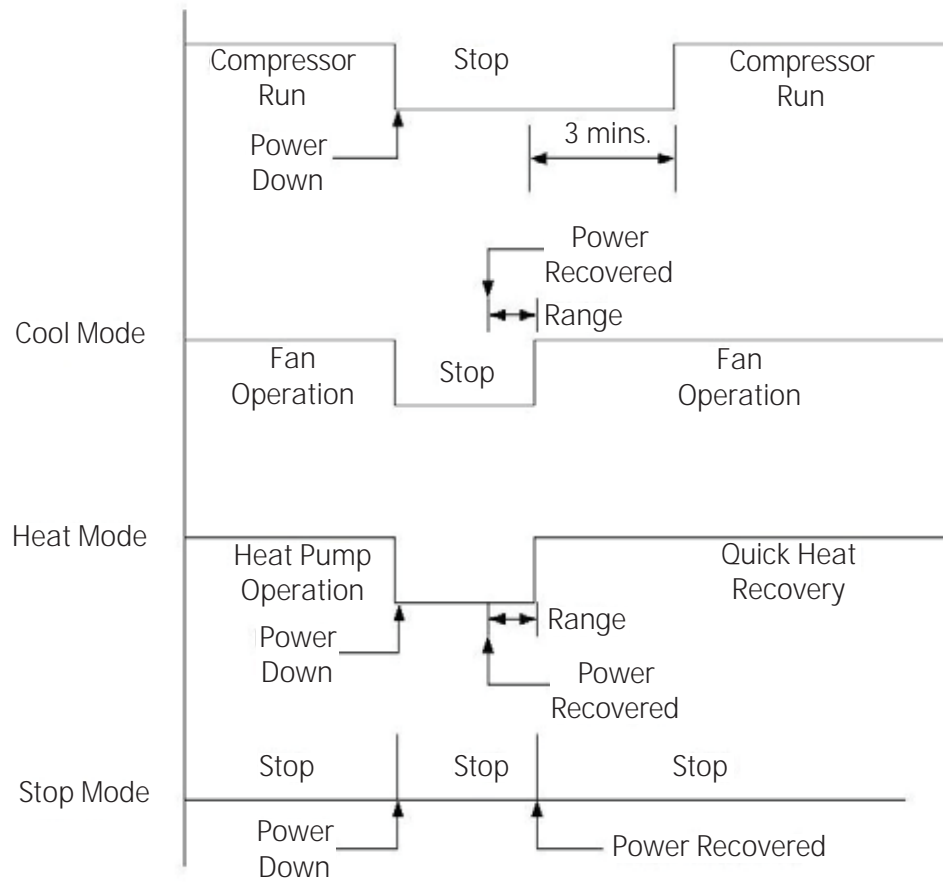
The start-up condition for the different modes is shown in the following two diagrams (Random Restart for AZ4500 Series and Random Restart for AZ6500 Series). This function allows for the random restart of Zonelines in the event of a power outage. The restart delay will reduce the initial inrush current from the building to help prevent a second power outage. The controls will revert to settings established prior to the outage.

The Random Restart function is effective in the Class 2 mode.

Random Restart for AZ4500 Series



Random Restart for AZ6500 Series



Per the random function generator at power up, the range is defined such that each control will power up the Zoneline randomly over a 3 to 20 seconds timing period.

Freeze Prevention for Indoor Coil (Cooling)

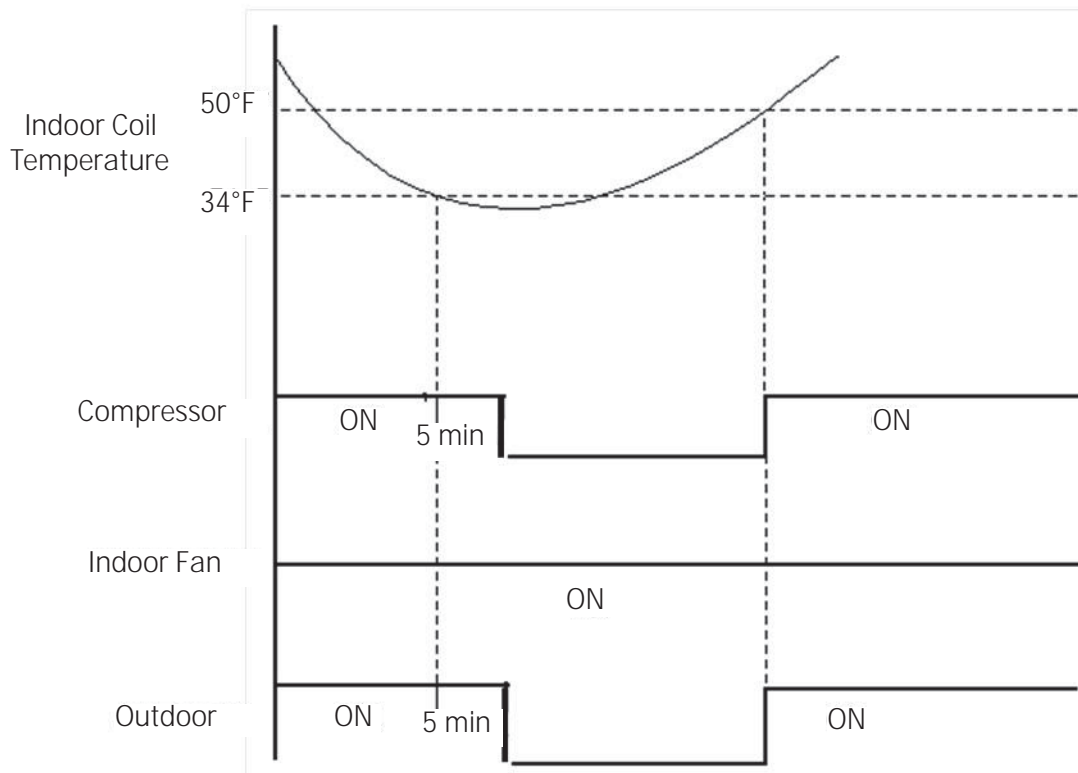
(Cooling Mode)

During the cooling operation, if the temperature of the indoor coil falls below 34°F for a period of approximately 5 minutes, the compressor will shut off. This will prevent the indoor coil from freezing. The compressor will start running again when the coil temperature reaches 50°F or above.

The safety restarting function will prevent the compressor restarting if the minimum 3 minute shutdown time period has not elapsed. The indoor fan motor will continuously operate during this coil freezing prevention mode.

The indoor coil freeze prevention function is also available in the Class 2 mode.

Freeze Prevention for Indoor



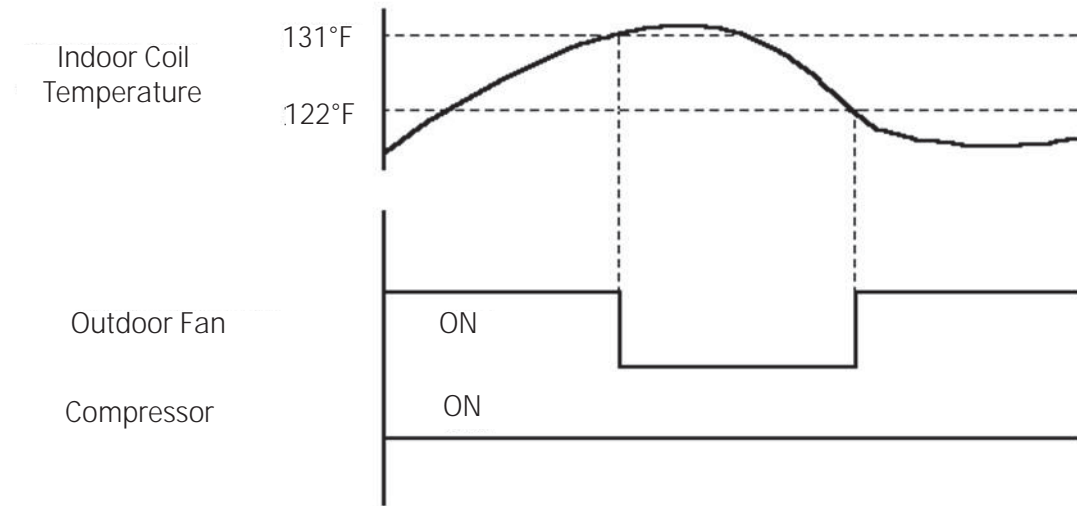
Indoor Coil Overheat Protection

Heat Pump Operation

The Overheat Protection is only on the AZ6500 series.

The Overheat Protection system protects the Zoneline from overworking when the outdoor temperature is too high for heat pump operation. The temperature of the indoor coil is monitored and if it rises above 131°F, the control stops the outdoor fan. The Zoneline will resume normal operation when the coil temperature is less than 122°F.

Indoor Coil Overheat Protection



Reverse Cycle Defrosting Heat Pump Mode

Reverse Cycle Defrost shall be controlled as a function of compressor run time and outdoor coil temperature.

a) Defrost Enable

The reverse cycle defrost shall begin when either:

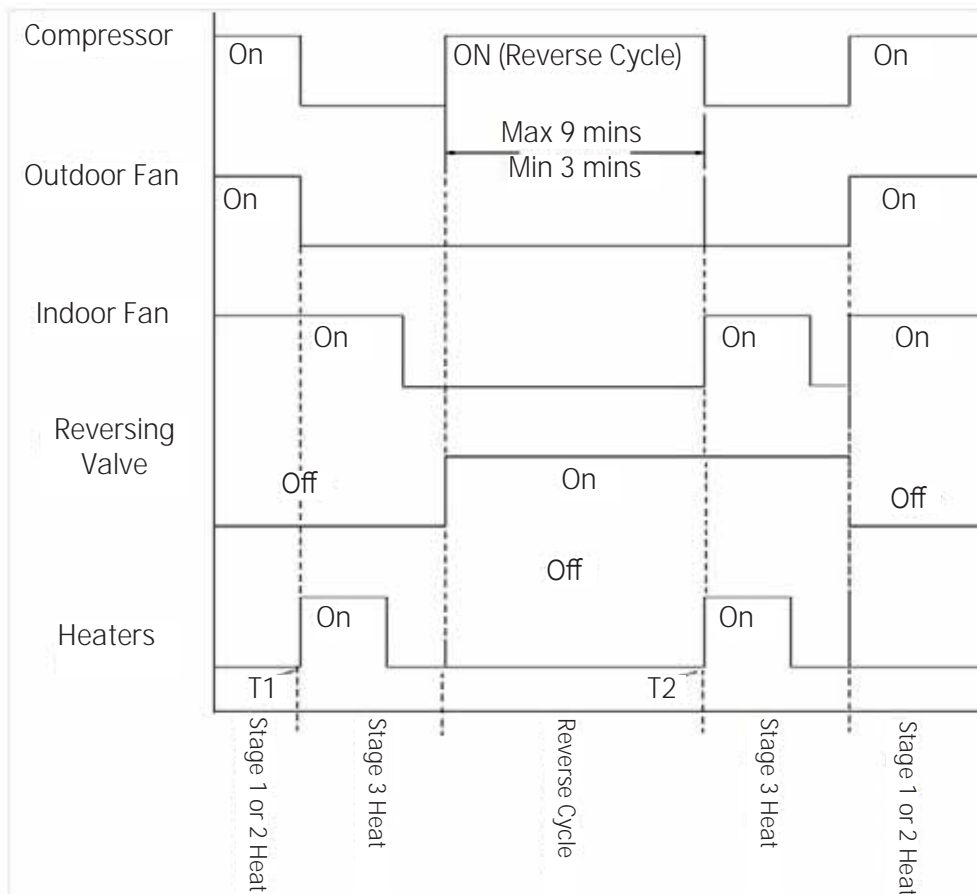
1. The control detects that the outdoor coil temperature has remained below 14°F for more than 3 minutes.
- OR-
2. The accumulated run time of the compressor is greater than 3 hours, provided that the outdoor temperature stays below 32°F.

b) Defrost Operating Sequence

When either conditions is detected (outdoor coil remaining below 14°F for more than 3 minutes OR the accumulated run time of the compressor is greater than 3 hours, provided that the outdoor temperature stays below 32°F) the Zoneline will initiate a reverse cycle defrost. The following steps comprise the reverse cycle defrost:

1. Immediately stop heat pump operation
2. Run stage 3 heating until room temperature is satisfied.
3. Run reverse cycle defrost (cooling mode without fans) until the outdoor coil temperature reaches 62°F or 9 minutes of defrost time.
4. Run a stage 3 heating cycle to satisfy room temperature
5. Resume normal heating mode logic.

REVERSE CYCLE DEFROST



Internal Condensate Removal Control

Internal Condensate Removal Control (AZ6500 Only)

The Internal Condensate Removal (ICR) function is utilized to drip the condensation from the base pan onto the indoor coil to evaporate it when the compressor is running during the heat pump operation.

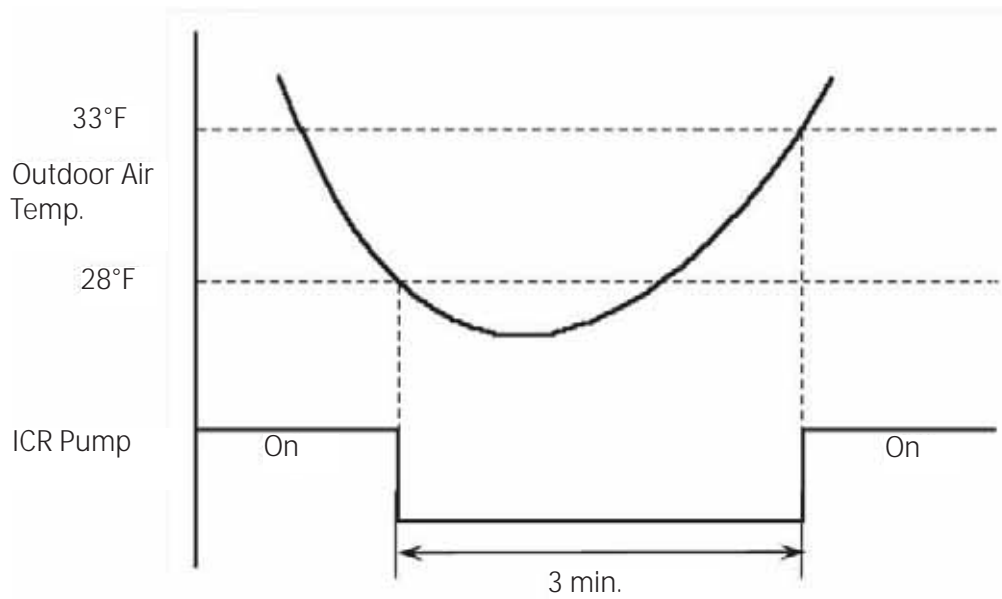
During heat pump operation, the ICR system pumps condensate water from the Zoneline base-pan into a collector tray, positioned above the indoor coil.

The collected condensate will then drain from the tray onto the warm indoor coil where it is evaporated into the room atmosphere. If an excessive amount of condensate water is pumped to the indoor side, the excess amount is routed back to the outdoor portion of the Zoneline base-pan.

The ICR function works in tandem with heat pump compressor operation, except in case of Reverse Cycle Defrosting.

The ICR function can be utilized in the Class 2 mode.

ICR Pump Operation



Heat Sentinel Mode

To prevent the room from overheating (Zoneline must be powered), cooling is energized when the indoor temperature is sensed to be 85°F to maintain room temperature below 85°F in any operation mode except heating mode. The Heat Sentinel mode is disabled when the room temperature reaches 80°F. The indoor fan runs at high speed. An auxiliary set mode is provided to enable the heat sentinel mode. If the auxiliary mode is in the OFF position, the heat sentinel function is disabled. The factory default of the heat sentinel mode is OFF.

Freeze Sentinel Mode

To prevent the room from freezing, the electric heater is energized to maintain the room temperature above 41°F regardless of any operation mode.

The freeze sentinel mode is disabled when the room temperature reaches 46°F.

The indoor fan runs at high speed. An auxiliary set mode is provided to enable the freeze sentinel mode. If the auxiliary mode is in the OFF position, the freeze sentinel function is disabled. The factory default of the mode is ON.

Control Lock Out

The control panel can be locked out from allowing the user to change the operating mode of the Zoneline.

While the Zoneline is operating in the desired mode, press and hold the "Display on/off" button for 10 seconds to lock the control to this setting.

The display will flash the mode LED and temperature and then go dormant. Any key press after this will result in the mode LED and temperature to flash 5 times and then go dormant. Pressing the "Display on/off" button for 10 seconds will unlock the control and resume normal operation.

The Zoneline will come back on in the locked mode if power is lost and restored.

Auxiliary Controls

The RED auxiliary set control is located behind the room cabinet, below the user interface.

There are 10 different modes that can be set using the auxiliary set button.

To change modes, press red AUX SET button. "AU" appears on the display. Press the MODE button on the control until the first digit in the display shows the number corresponding to the desired mode being changed. Press the up (+) or down (-) to make the HEAT or COOL selection where applicable. Press the AUX SET button to confirm the selections once all changes have been made.

Aux Set

Aux Set - Press AUX when in STOP mode

This menu allows the user to set up various configurations, the display has a number 0 in the left digit, and the setting in the right digit. The heat and cool LED's are also used.

- On entry the display shows **AU**.
- Pressing **MODE** steps through the entries.
- +/- changes the value.
- **AUX** saves and exits the set up.

Entry	Selection	
1 Cool	Smart fan cooling	- Cycle - Continuous
1 Heat	Smart fan heating	- Cycle - Continuous
2	Temperature unit	F / C
3 Cool	Freeze sentinel	- Off - On
3 Heat	Heat sentinel	- Off - On
4	Constant fan	- Off - On
5 Cool	Temperature limit	Cooling temperature limits
		0: 60 - 85
		1: 64 - 85
		2: 66 - 85 - Factory Setting
		3: 68 - 85
		4: 70 - 85
		5: 72 - 85
		6: 74 - 85
		7: 76 - 85
5 Heat	Temperature limit	Heating temperature limits
		0: 60 - 65
		1: 60 - 70
		2: 60 - 72
		3: 60 - 74
		4: 60 - 76
		5: 60 - 78 - Factory Setting
		6: 60 - 80
		7: 60 - 85
6	External thermostat	- Off - On (also known as class 2)
7	Duct mode	- Off - On
8	All I2R mode (AZ65)	- Off - On
9	Boost heat (AZ65)	- Off - On

Central Desk Control (CDC - Field Supplied)

The Central Desk Control is a feature that allows the Zoneline to be made operable/inoperable from a remote location. Operation of the feature requires that an ON/OFF switch at the remote location be wired to the two CDC terminals on the control panel of the Zoneline. When the remote switch is CLOSED, the Zoneline cannot be operated in the FAN, COOL, or HEAT modes by the control. The Freeze Sentinel and the Heat Sentinel features remain operable.

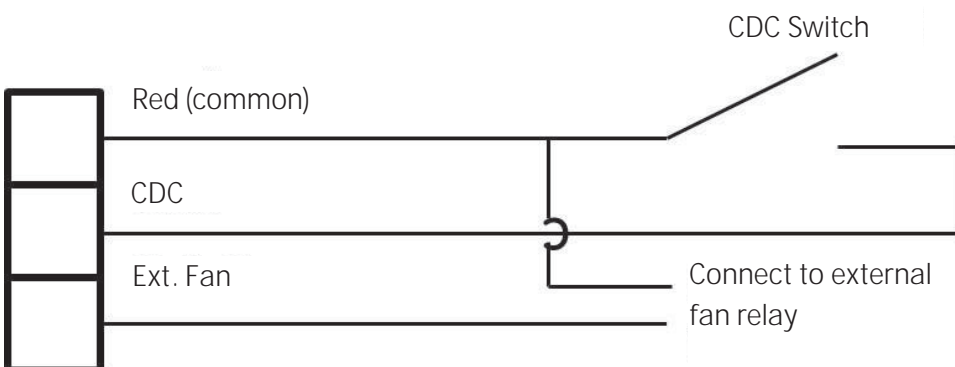
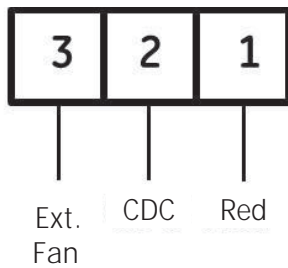
When the remote switch is OPEN, the Zoneline is fully operational by the control.

The RAKCDC accessory must be used with a Central Desk Control system. No "common busing" is permitted. In other words, one switch and two wires per Zoneline.

External Fan (Field Installed)

When connected, an auxiliary or external fan can be controlled with the indoor fan motor on the Zoneline. Connections provide 24 VAC to energize a remote relay.

The RAKCDC accessory must be used when using an external fan.



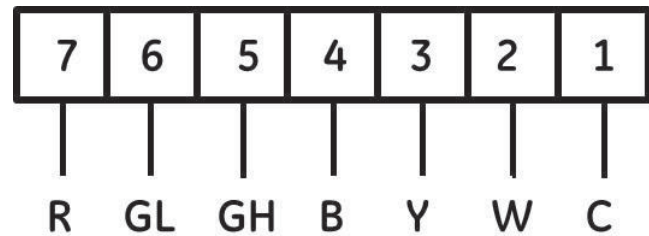
Remote Thermostat

The Remote Thermostat Connectors are included with each Zoneline (Part #: WP26X20983).

When connected to a remote thermostat, the indoor air temperature sensing is shifted from the Zoneline to the remote thermostat. For this reason, the Zoneline will operate slightly different when connected to a remote thermostat.

IMPORTANT: The Zoneline thermostat connections provide 24 VAC only. If using a digital/electronic wall thermostat, it must be set to 24 VAC setting (see the installation instructions that accompany the wall thermostat).

NOTICE: Damage to a wall thermostat or to the Zoneline electronics can result from improper connections. No line voltage connections should be made to any circuit. Isolate all wires in the building from line voltage.



- R 24 VAC RED
- GL Low indoor fan TAN
- GH High indoor fan GREEN
- B Reversing valve BLUE
- Y Compressor YELLOW
- W Resistance Heat WHITE
- C Common BLACK

Controls

Main Board - Front Cover

The new Zonline series uses a MAIN board that contains the microprocessor. It processes the information input from the USER interface or wall thermostat, the thermistors, and fan motors feedback. It then activates the associated relays for the selected cycle. The MAIN board also has a DC power supply to provide the needed DC voltage to run the indoor and outdoor fan motors.

Personality is programmed into the board at the time of manufacture.

Service MAIN boards will have a "dip" switch to allow it to be set-up for the proper Zonline model it will be installed in.

USER INTERFACE

12 pin

Unused

CDC

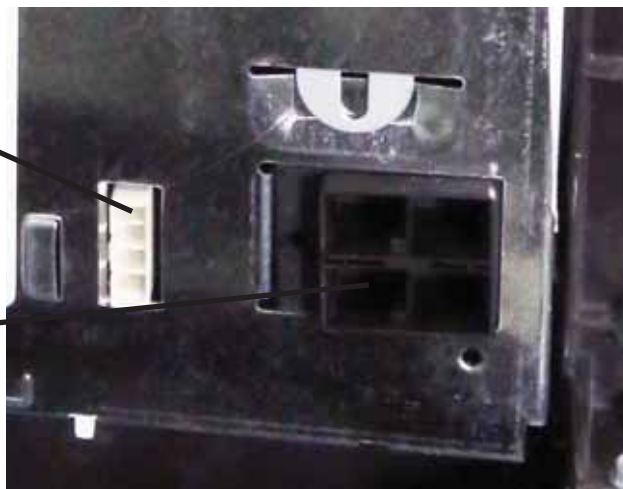
REMOTE
THERMOSTAT

RJ-45

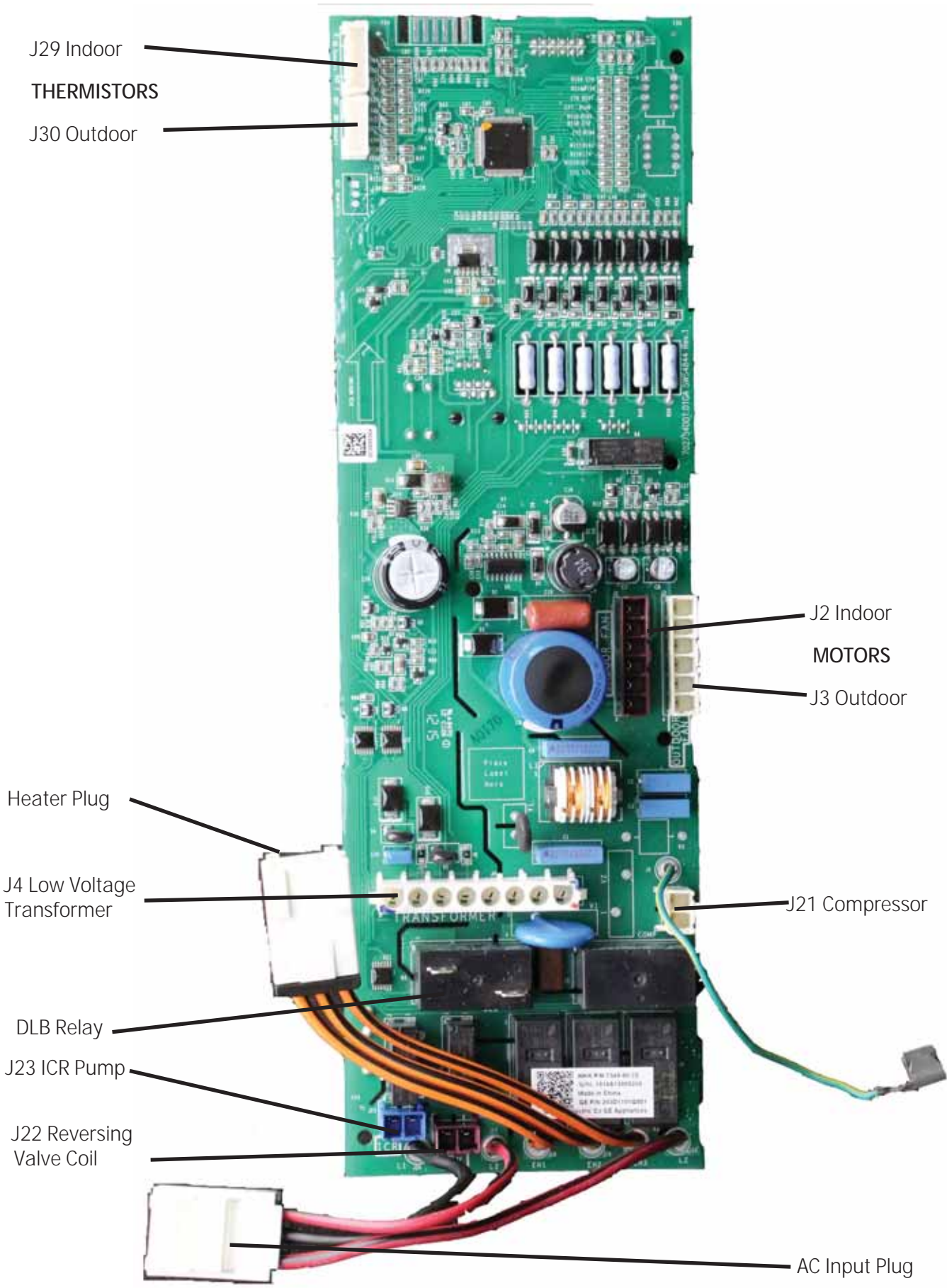


HEATER PERSONALITY

AC input



Main Board



Component Checks at Main Board

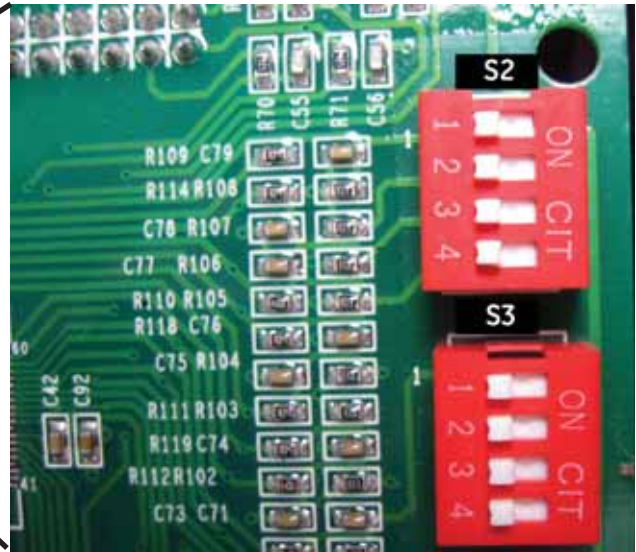
Thermistors	
	INDOOR
	J29 pin 1 and pin 2 AIR range 7k ohms to 64k ohms
	Pin 3 and pin 4 COIL range 10.5k ohms to 95k ohms
	Pin 5 and pin 6 OUTLET range 35k ohms to 300k ohms
	OUTDOOR
	J30 pin 1 and pin 2 AIR range 3k ohms to 28.5k ohms
	Pin 4 and pin 5 COIL range 3k ohms to 28.5k ohms
Indoor Fan Motor	*
	J2 pin 1 and pin 2 blue to yellow ∞
	Pin 3 and pin 4 white to black 38.5k ohms approximately
	pin 3 through pin 6 white to red ∞
	pin 4 through 6 black to red ∞
Outdoor Fan Motor	*
	J3 pin 1 and pin 2 blue to yellow ∞
	Pin 3 and pin 4 white to black 47k ohms approximately
	Pin 3 through pin 6 white to red 8meg ohms approximately
	Pin 4 through pin 6 black to red ∞
ICR Pump	
	J23 pin 1 and pin 2 yellow to yellow ~ 335 ohms (265 models)
Thermal fuse/In-line fuse	
	J21 pin 1 to black on Capacitor .001 ohms
Reversing Valve Coil	
	J22 pin 1 to pin 2 blue to blue ~ 3.23k ohms (265 models)
Heaters (230/208 models)	
	Plug blue to brown on relay 26 ohms
	Plug brown to brown on relay 46 ohms
	Plug yellow to brown on relay 65 ohms

NOTE: ALL RESISTANCES SHOWN ARE APPROXIMATIONS

* DC Motors - Resistances should read very high if at all, lower readings indicate a defective motor.

Service Main Board

Service Main Board



No model number is programmed into the service board, so it must be configured using the on-board DIP switches.

Switch Position	Meaning
S2-1	Off = heat pump On = air conditioner
S2-2	BTU setting
S2-3	BTU setting
S2-4	Make-up air module fitted
S3-1	Heat pipe option fitted
S3-2	Indoor outlet thermistor fitted
S3-3	Not used
S3-3	Not used

The BTU setting for S2-2 and S2-3 is as follows:

Switch Position	Meaning
S2-2 = Off S2-3 = Off	15k BTU
S2-2 = On S2-3 = Off	12k BTU
S2-2 = Off S2-3 = On	9k BTU
S2-2 = On S2-3 = On	7k BTU

User Interface

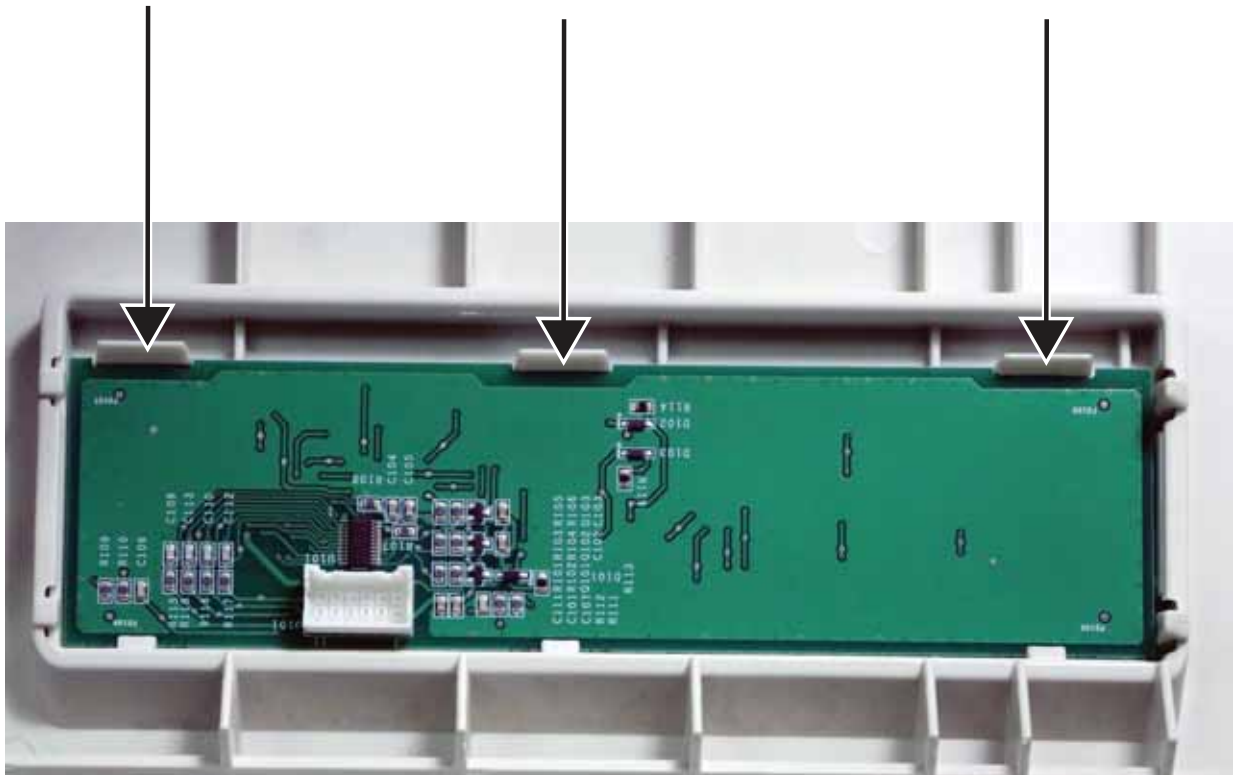
The USER interface is just a display board with tactile push button switches. There aren't any processors contained on this board.

There is a ferrite bead that the harness connecting the boards wraps around to minimize Electro-Magnetic Interference (EMI).

Three screws secure the User Interface/Control assembly to the chassis. Once removed, the control slides to the right.



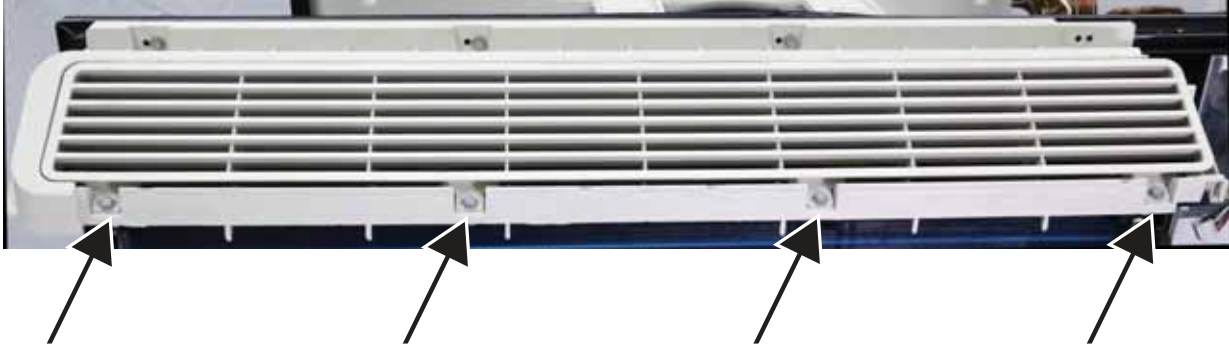
Three tabs secure the User Interface board to the control assembly.



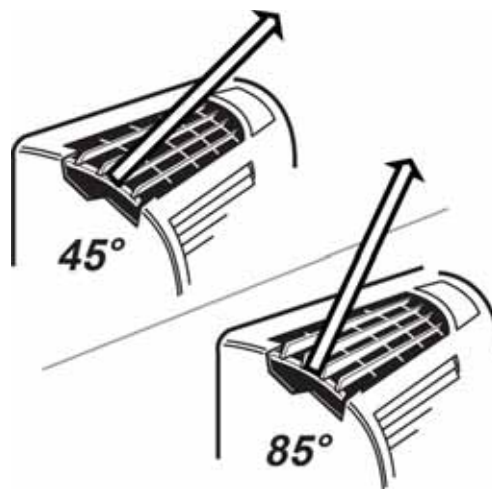
Components

Louvers

The louver assembly is shipped from the factory with the airflow set to 45° from horizontal. To change the airflow to 85° from horizontal, remove the four screws and rotate the louver assembly and reinstall screws.



Factory set with the airflow set to 45°



Modified airflow to 85°

Thermistors

Thermistors provide temperature feedback to the main board to maintain proper room temperature and operating conditions of the sealed system. On heat pump models (AZ65), thermistors also provide outdoor air temperature and outdoor coil temperature in order for the main board to operate the Zoneline by the most efficient means.

Low Voltage Transformer

A separate transformer provides low voltage for the main board and also the wall thermostat. A built-in resettable fuse circuit is enclosed in the transformer; this prevents the transformer from becoming defective if the wires are shorted.

RJ-45

A RJ-45 connector is mounted to the printed circuit side of the main control board to provide a way to easily update software or to hook up other monitoring devices. It is accessible by removing the front cover of the Zoneline.

Fan Motors

Both the indoor and outdoor fan motors are DC motors driven by the main board, and provide speed feedback to the main board for proper speed confirmation.

Heater

All models of the new Zoneline have one three-bank heater assembly. They have two thermal switches to protect the circuit; one is a cycling thermal switch and the other is a "one-shot" thermal switch.

Sealed System

As with any refrigeration system, Zonelines have an indoor coil, compressor and refrigerant metering device (capillary tubes). A drier is part of the sealed system now included from the factory.

Additionally, on heat pump models (AZ65), a reversing valve to switch the flow of refrigerant and a check valve to balance the system are parts of the sealed system.

A "tank" is part of some sealed systems in the Zoneline models. The tank allows for expansion of the refrigerant, where required.

NOTE: A new drier **MUST** be installed anytime a sealed system is repaired.

A thermal fuse in line with the compressor L2 circuit, to protect the housing area. The compressor circuit is still protected with an overload in the compressor cover.

Power Cords

265 volt models must be wired directly to the house supply. See the **New Accessories** section in this service guide for sub-base assembly parts.

In addition, the 20 and 30 amp cords will have a separate heater enabling jumper that plugs into the main control board which limits the heater wattage according to house supply limitations. If this jumper is not connected the heater circuit will be limited to 15 amp operation.

ICR Pump

On some Zoneline models, an internal Condensate Pump is mounted into the outer base pan. As with previous ICR models, this pump is designed to pump condensate water, which accumulates from the outdoor coil when in heat pump mode, up to the top of the indoor coil and allows the water to trickle down the coil to evaporate. This process cuts down on excessive water flowing out of the rear of the Zoneline and adds moisture to the indoor air.

Make Up Air Module

Some models will have a separate module that conditions air from the outside before it enters the room through the duct door. This module consists of an R134a dehumidifier with all the components enclosed into one package. This is not a serviceable part, and is replaced as a complete module assembly. This is a new requirement of building codes in some areas.

Reversing Valve Solenoid

See **Sealed System Heat Pump** section in this service guide.

Thermistors Indoor

All 265 volt Zonline models have two indoor thermistors which are attached to the indoor coil, and an outlet air thermistor attached to the air deflector.

The indoor air thermistor is mounted on the front of the coil to sample the incoming room air.



The indoor coil thermistor is mounted on the right side of the coil in a copper well to sample the coil temperature.



The outlet air thermistor is mounted on the air deflector to sample the outgoing air temperature.



Indoor Thermistor Resistance (ohms)

°F	AIR	COIL	OUTLET
10	63,260	94,900	296,800
30	34,620	51,940	169,800
32	32,860	49,330	161,500
50	19,970	29,960	99,480
70	11,950	17,930	59,700
90	7,320	10,970	36,990

Thermistors Outdoor

All Zonline heat pump models have two outdoor thermistors.

One outdoor thermistor is attached to the outdoor coil, and one outdoor thermistor is set into the base assembly, enabling it to monitor outdoor air temperature.



Outdoor Thermistors Resistance (ohms)

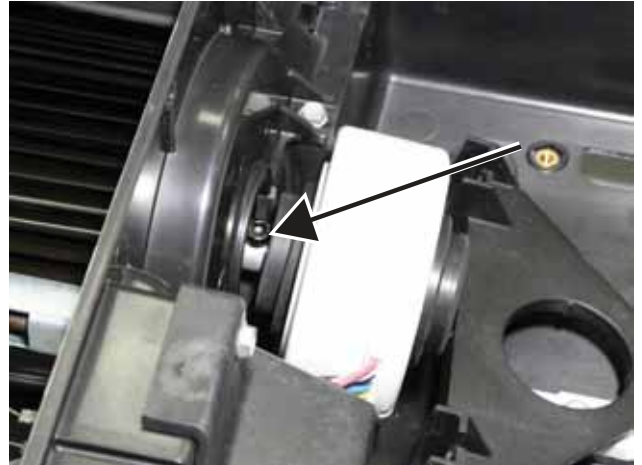
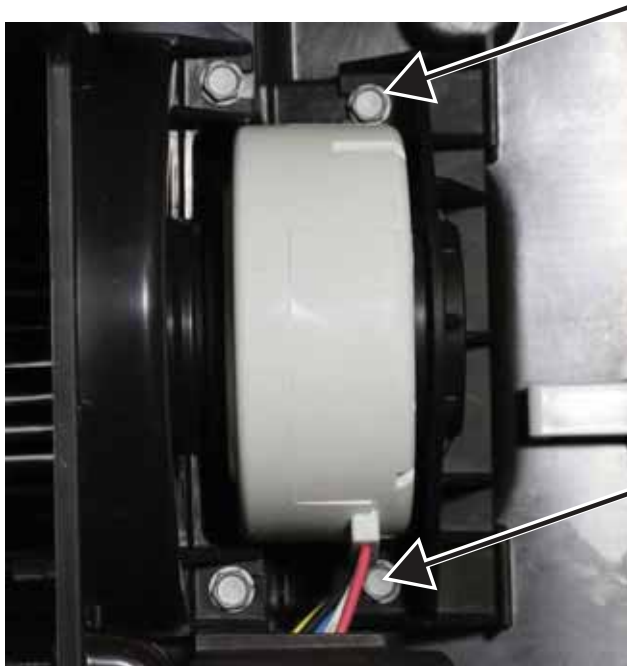
°F	AIR	COIL
10	28030	28030
30	15340	15340
32	14570	14570
50	8850	8850
70	5300	5300
90	3280	3280

Indoor Fan Motor

The indoor fan motor turns a blower wheel, which is attached to the motor shaft with a 4 mm Allen screw. The opposite end of the blower wheel inserts into a bearing assembly.

The main board supplies high voltage DC to drive the fan motor and receives speed feedback from the motor.

The motor is secured with a bracket and two screws.



NOTE: If the blower should disengage the bearing on the left side, the end cap will have to be removed and the bearing repositioned on the shaft.

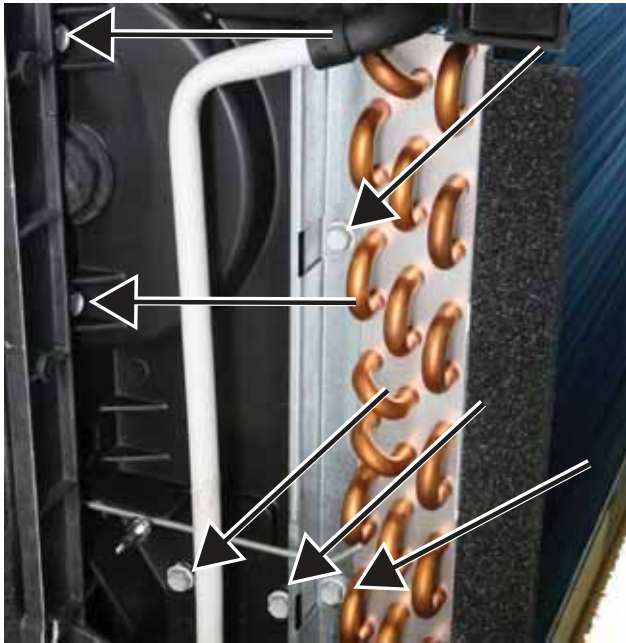
Indoor Blower Wheel

The indoor blower wheel is attached to the motor shaft with a 4 mm Allen screw. The opposite end of the blower wheel inserts into a bearing assembly.



End Cap and Indoor Fan Blower Bearing

Remove six screws to remove the end cap to access the bearing assembly. Two screws are used to secure the bracket attached to the indoor coil and end cap.



End Cap and Indoor Fan Blower Bearing Components



Proper Bearing Placement



NOTE: When reinstalling bearing, ensure the shaft goes directly into the bearing assembly. The above image shows proper placement of bearing. Failure to install properly will result in a noise complaint.



Outdoor Fan Motor Shroud

The outdoor fan shroud provides proper airflow through the outdoor coil and also supports the outdoor fan motor.



The outdoor fan shroud and motor assembly are attached to the base pan and outdoor coil assembly with twelve screws and a "sleeve" that slides over the shroud and outdoor coil assembly.

NOTE: An extension will make accessing the lower screws easier.

Slide the "sleeve" up to separate the shroud and outdoor coil assembly.



Outdoor Fan Motor

The outdoor fan motor turns a slinger fan blade, which is attached to the motor shaft with a 3/8 in. regular thread nut.



The motor is secured to the outdoor shroud with four 5/16 in. hex head bolts.



NOTE: If the wire clip below the motor breaks, secure the wire to the support with a wire tie.

Heater

The heater assembly sets on the base pan and is secured by two screws on the left end cap.

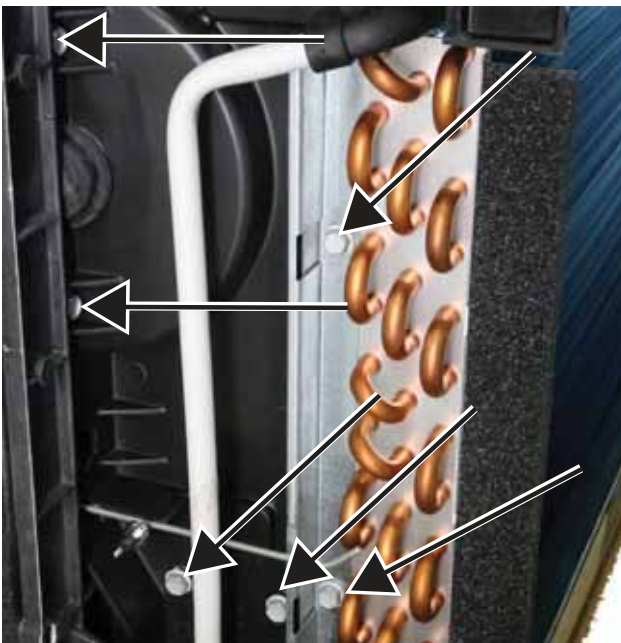


The thermal cut-outs are part of the heater assembly. They can be replaced separately if needed.



Heater Assembly Removal

Remove six screws to remove the end cap to access the heater assembly. Two screws are used to secure the bracket attached to the indoor coil and end cap. After disconnecting the wire harness from the board and removing one ground screw, the heater assembly will slide out of the left side of the Zoneline.



Heater assembly

Power Cords

All new cords are required for both series of Zonelines, as they are redesigned to eliminate AC jumper wires.

15 amp – No DC Harness



20 amp – Single Wire DC Harness



30 amp – Double Wire DC Harness



ICR System

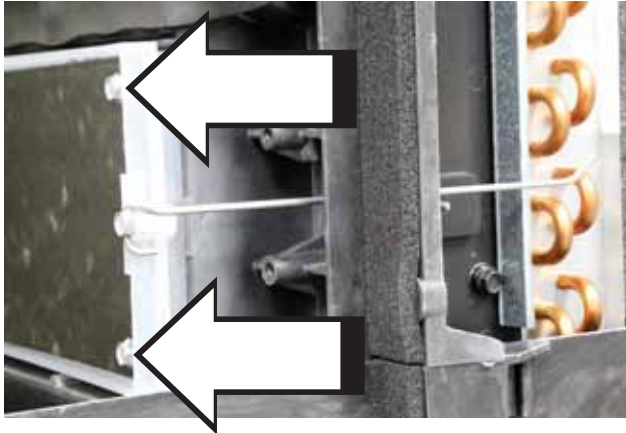
The Internal Condensate Removal (ICR) system consists of a small pump that is driven by the main board. The board supplies line voltage to the pump. Defrost water that is collected in the rear base pan is pumped up into a trough that rests along the length of the indoor coil. Water from the trough drips down the indoor coil to add moisture to the indoor air and to reduce the amount of water in the base pan.



*ONLY during Heat Pump Mode.

Damper Door

The damper door feature allows outside air into the room. The door is secured with two screws from the factory that must be removed upon installation if the customer would like to use this feature. The damper assembly consists of a door, filter, rod and wing nut. The wing nut can be loosened and the rod may be slid back which opens the door. It then can be locked into place by tightening the wing nut.



Make Up Air Module

The make up air module feature allows outside air to be "conditioned" before entering the room.

The module is secured with two screws and tabbed into a base plate mounted to the base pan. Some new zoning regulations require that incoming air be conditioned.

The module is a small dehumidifier and will be replaced as an assembly. It is classified as an accessory.



An ON/OFF switch and compressor test switch are mounted to the front control.

The module is designed to turn off the compressor when temperature is below 50°F.

The make up air module will turn on when the outdoor relative humidity is above 55%, and turns off when the relative humidity is below 50%, this is done by the outdoor humidistat located on the module.



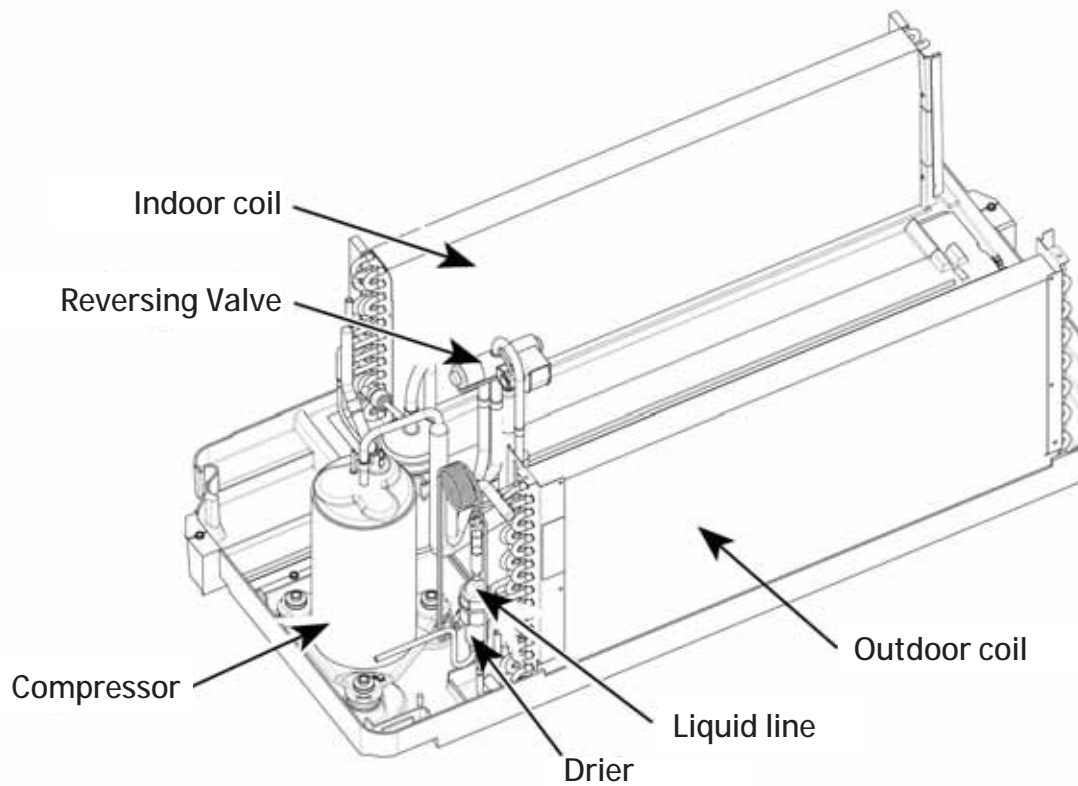
If troubleshooting the make up air module with an amp probe, the amperage should be between 3/4's and 1 amp, measured on the **blue** wire of the make up air module harness. This is dependent upon the line voltage.



Sealed System



Complete - cooling only - sealed system with all other components removed



Install a new drier in the liquid line tube between the outdoor coil and the capillaries

Sealed System Heat Pump

9,000 BTU heat pump model shown.

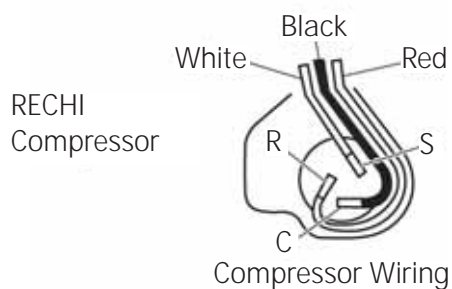
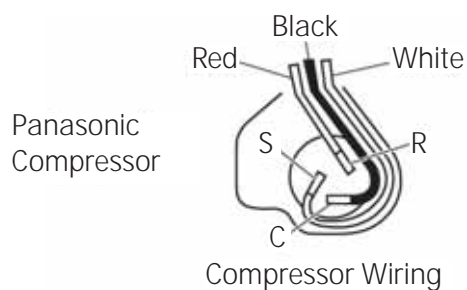


Compressor Check - Wiring

CAUTION: Risk of injury. Keep head clear of terminal area when cover is removed.

Keep head clear of terminal area when cover is removed.

Check windings first. If open or grounded, **DO NOT** apply power to the compressor terminals.



Sealed System Heat Pump Components

Reversing Valve

On heat pump models, the refrigerant flow direction is controlled by the reversing valve assembly. In the cooling mode, the main board supplies line voltage to the solenoid coil, which causes the valve to switch flow direction. With no voltage applied to the solenoid coil, the valve will be in the heating mode.



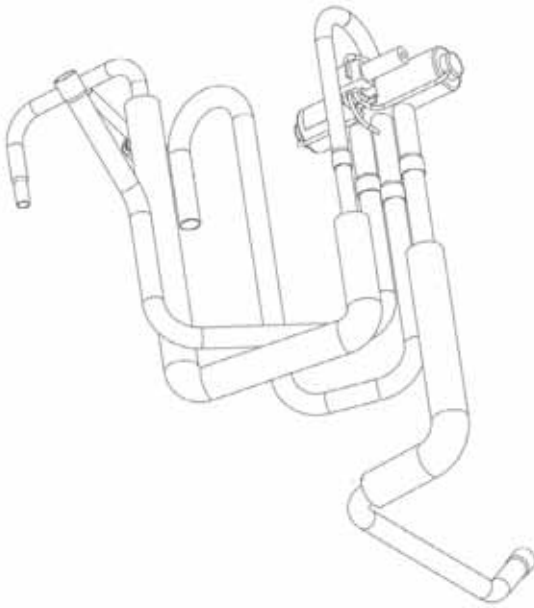
**Shown with solenoid removed.*



The solenoid coil attaches to the valve body with a 5/16 in. hex head bolt. The 265 volt coil has **blue** wires and measures approximately ~ 3.23k ohms ohms.

(Continued next page)

Sealed System Common



NOTE: Reversing valve assemblies will come complete with tubing, so excess heat will not be applied to the valve body.

Tank

On 7k and 9k heat pump models, a receiver tank is included in the sealed system. This tank is soldered to the outdoor coil return line tube.



Check Valve

The check valve allows the flow of refrigerant one way unimpeded, but in heat pump mode it closes and forces the refrigerant to go through an additional length of capillary tube. This helps balance the refrigerant system.



NOTE: Care must be taken when soldering in the new check valve. Thermal paste and a damp rag must be used on the middle portion of the assembly to prevent thermal damage to the internal check ball assembly.

Drier

All Zonelines will now have a drier factory installed. The drier must be replaced anytime sealed system repairs are performed.

NOTE: Driers are vacuumed packed and should only be opened when it is being installed. Driers opened and left to the open air become saturated and should be discarded if not used within 45 minutes.



Heat Pump Drier Kit

(includes check valve, drier, capillary jumper and process stub)

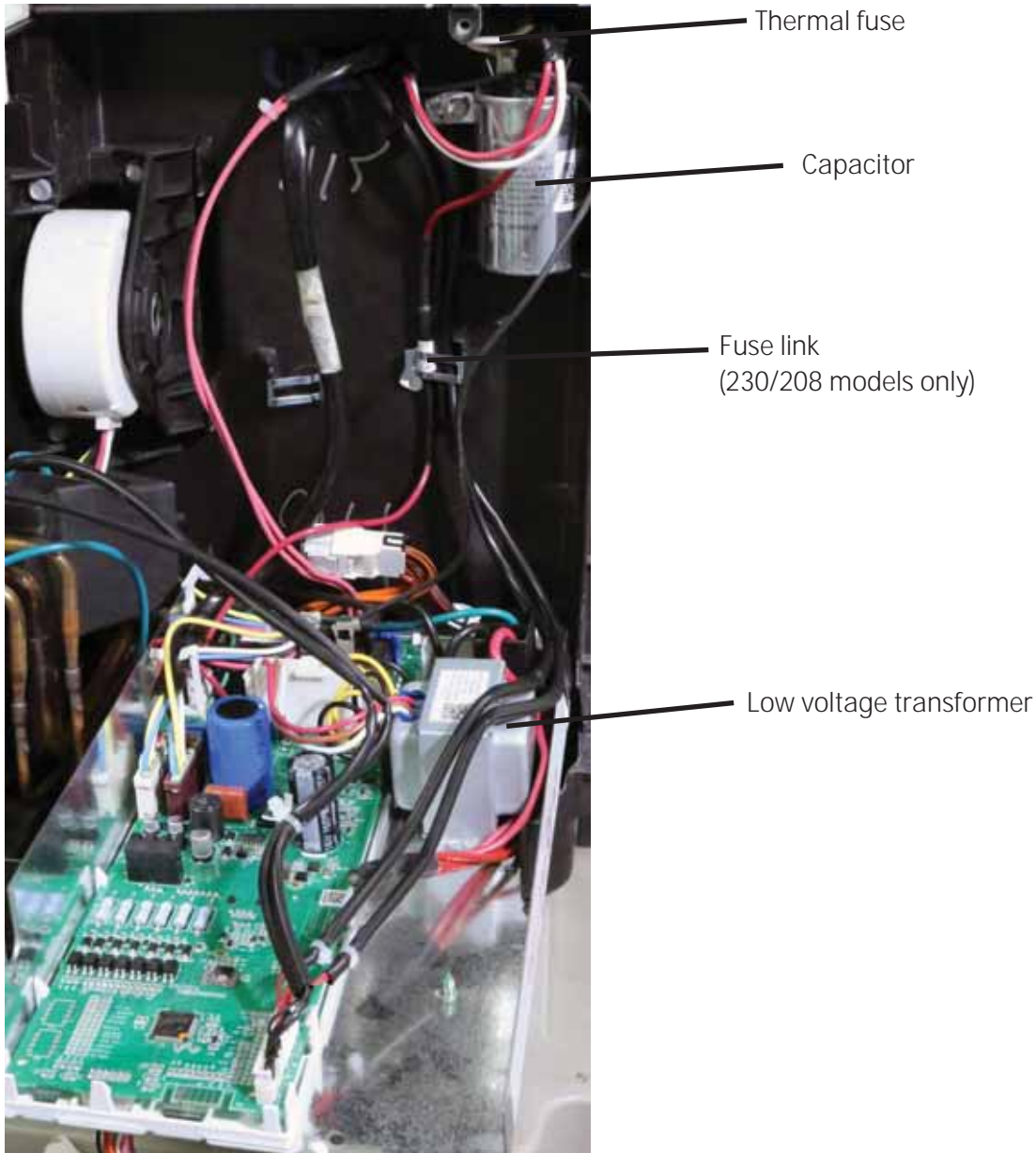
Pressure Switch - (Early production models)

Since R410a has a much higher operating pressures, a pressure switch has been added to the compressor discharge line and will remove power to the compressor if the sealed system pressure becomes too high. After further field testing it was determined that the pressure switch was not required. The pressure switch will be bypassed electrically if it fails open. It will also be removed from the sealed system if it causes refrigerant noise. A kit will be used for either scenario (**Part #:** WP56X21582).

Thermal Cut-Out

In addition to the pressure switch, which is in series with the compressor L1 wiring, a thermal fuse to protect the housing area is in line to the compressor L2 wiring. The compressor circuit is still protected with an overload in the compressor cover.

Electrical



Thermal fuse: The thermal fuse is in-line with the compressor wiring and comes only as a complete harness assembly.

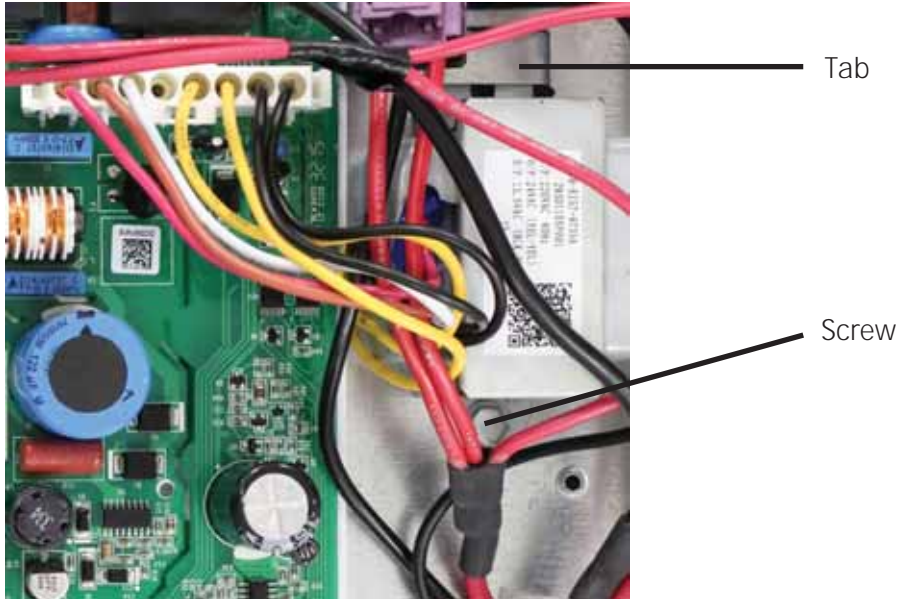
Capacitor: The capacitor assists the compressor starting and lowers the running current.

WARNING: Be sure to discharge the capacitor with proper insulated pliers and electrically rated gloves before attempting service.

For a compressor not starting, if the capacitor is suspected, it is recommended to substitute a known good capacitor of the same value in its place.

Low Voltage Transformer

The low voltage transformer mounts to the control console with one screw and tab. One harness connector plugs into the main board.



The same transformer is used in all Zoneline models: 208/230 and 265 volt models.

The 208/230 volt models use **white** to **red** for line input and **black** to **black** for 24 VAC output.

Resistance	WHITE to RED 125 ohms \pm 15%
	BLACK to BLACK .71 ohms - .85 ohms MAX

The 265 volt models use **white** to **brown** for line input and **yellow** to **yellow** for 24 VAC output.

Resistance	WHITE to BROWN 154 ohms \pm 15%
	YELLOW to YELLOW 3.2 ohms - 3.85 ohms MAX

Condensate Removal

The water that is collected through the normal process of air conditioning is collected in the rear base pan. To aid in dissipating this water, the outdoor fan blade has a ring around the blade that picks up the water and "slings" it onto the outer coil. This assists in removing heat from the coil when the Zoneline is in cooling mode.



If water that is collected off the indoor coil is not draining back to the base pan, clean the drain trough exit located on the left side of the trough.



When operating in the heat pump mode, defrost water is also collected in base pan, but because outdoor temperatures may drop below freezing the water level could cause the outdoor fan blade to freeze in the pan. To prevent this from occurring, a thermostatically operated drain pan plug is utilized. Located in the base pan, when the air temperature is above 65°F it is closed; and opens when the temperature drops below 45°F, lowering the water level in the base pan.



Fault Codes

Fault Code Display Mode

While the Zoneline is in the OFF mode, press and hold the FAN button with the AUX SET button simultaneously to enter into the Fault Code Display Mode. The Zoneline will then display all active Fault codes held in memory, showing each one for 3 seconds, flashing on/off.

If no codes are present, the display will show "--", flashing every 3 seconds on/off.

The Fault Code Display Mode will display all Fault codes 3 times and then after 30 additional seconds the Zoneline reverts to OFF mode. Pressing AUX will clear the stored faults, but it will not exit the Fault Code menu. Any other button press takes Zoneline out of this mode.

Fault Code Number	Fault Meaning	Effect On Operation While Fault Is ACTIVE	Fault Reset Time
F1	Indoor fan fault: Fan motor is not moving at commanded speed after 90 seconds of drive voltage.	No Resistance heating, fan, heat pump or cooling available.	Fault clears after 10 minutes.
F2	Outdoor fan fault: Fan motor is not moving at commanded speed after 90 seconds of drive voltage.	No heat pump or cooling available. Resistance heating and fan only.	Fault clears after 10 minutes.
F3	External thermostat wiring: Applied signal is not valid and has been constant for 30 seconds.	No external control of fans, heat or cooling. Internal control operation only.	Clears once a valid signal is received.
F4	Indoor thermistor fault: One of the indoor thermistors is not reading valid temperatures. Valid range is -10°F to 140°F.	No resistance heating, fan, heat pump or cooling available. Fan only.	Clears once a valid signal is received.
F5	Outdoor thermistor fault: One of the outdoor thermistors is not reading valid temperatures. Valid range is -30°F to 140°F.	No cooling or heat pump operation. Resistance heating or fan only.	Clears once a valid signal is received.
F6	Compressor fault: No temperature change has been detected after 1 minute of running.	No effect.	Fault clears after 3 minutes.

Fault Code Number	Fault Meaning	Effect on operation while fault is ACTIVE	Fault reset time
F7	Reversing valve fault: Temperature change not happening as control expects after 1 minute of running.	No cooling or heat pump operation. Resistance heating or fan only.	Fault clears after 3 minutes.
F8	Software fault	No effect	
F9	Indoor coil freeze fault: The temperature of the indoor coil has fallen below the freeze threshold 34°F.	The compressor is shut down until the coil temperature recovers.	Fault clears once the indoor coil temperature rises above 50°F.
F10	Heat pump over-temperature fault: The temperature of the indoor coil is over 131°F.	The outdoor fan motor is shut down until the coil temperature recovers.	Fault clears once the indoor coil temperature drops below 122°F.
F11	Inlet air temperature: Indoor air thermistor warmer than 95°F.	Shut off compressor and resistance heat operation until inlet thermistor temperature drops below 85°F.	Fault clears once the air temperature drops below 85°F.
F12	UI board fault: The main board does not detect the user interface board.	No effect	Fault clears once the UI board is detected.
F13	Heater airflow fault: The main board detects too low of indoor fan speed.	No resistance heat or heat pump available.	Fault clears after 10 minutes.
F14*	Make up air module fan fault	No effect	
F15*	Make up air module compressor fault	No effect	
F16*	Make up air module communications fault	No effect	
F17	Outlet air thermistor fault: The outlet thermistor is not reading valid temperatures, thermistor is open, not plugged in or is shorted.	No resistance heat.	Fault clears when the thermistor valve is in range.
F18	Outlet air temperature overheat: The outlet thermistor is reading a temperature above 170°F.	No resistance heat.	Fault clears when thermistor reads below 85°F.

* Future fault codes

(Continued next page)

Fault Code Number	Fault Meaning	Effect on operation while fault is ACTIVE	Fault reset time
F19*	<p>Make-up Air Module Outdoor Thermistor Fault</p> <p>The MUAM outdoor thermistor is not reading valid temperatures (the thermistor is not plugged in or is shorted resulting in out of bound ADC readings). This fault is never cleared.</p>	No effect	
20*	<p>Make-up Air Module Indoor Coil Thermistor Fault</p> <p>The MUAM indoor coil thermistor is not reading valid temperatures (the thermistor is not plugged in or is shorted resulting in out of bound ADC readings). This fault is never cleared.</p>	No effect	
21*	<p>Make-up Air Module Humidity Thermistor Fault</p> <p>The MUAM Humidity thermistor is either reading invalid relative humidity, or invalid temperature. This fault is never cleared.</p>	No effect	
22*	<p>Make-up Air Module Coil Frost</p> <p>If the coil temperature drops below 34° F, the coil frost fault is set. Once the temperature rises above 50° F, the fault will be cleared. When the fault is set, the compressor will be forced off.</p>	MUAM compressor is turned off by MUAM.	

* Future fault codes

Service Mode

Service Mode

While Zoneline is in OFF mode, press and hold the "+" and "-" buttons simultaneously with the AUX SET button to enter into this mode.

All LED's light up to indicate entered into mode.

These modes can entered even if the Zoneline is in class 2 mode.

Service Mode times out after 15 minutes of inactivity.

Minimum run times are not applicable in this mode. Compressor delay start times in service mode shall be 10 minutes.

NOTE: Fault codes are stored in this mode but do not intervene with the Zoneline operation.

Press the Mode button to cycle through the run modes.

Press +/- to toggle on/off.

AZ4500

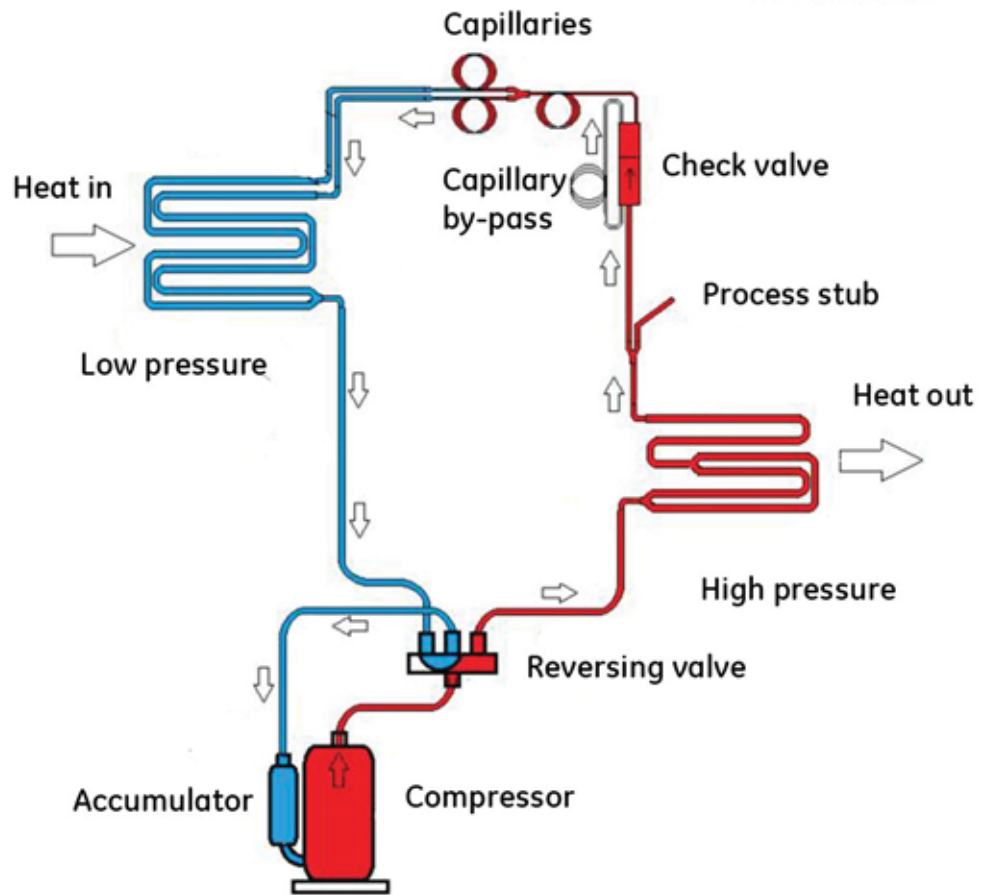
1. **"CL"**: Cooling. Compressor, Indoor Fan, and Outdoor fan are energized. Fan speed is high.
2. **"EH"**: Electric heat. Electric heater (all relays) and Indoor Fan are energized. Fan speed is high.
3. **"IF"**: Indoor Fan only. Indoor fan is energized. Fan speed is high.
4. **"OF"**: Outdoor Fan only. Outdoor fan is energized. Fan speed is high.
5. **"S1"**: Indoor Ambient Air Thermistor - temperature will be displayed between -9°F and 99°F on screen after the Zoneline has been in this mode for 10 seconds. (If no thermistor is detected, "--" will be displayed).
6. **"S2"**: Indoor Coil Thermistor - temperature will be displayed between -9°F and 99°F on screen after the Zoneline has been in this mode for 10 seconds.
7. **"S5"**: Indoor Outlet Air Thermistor – temperature will be displayed between -9°F and 99°F.
8. **"UI"**: UI Test - Run the LED test sequence.
9. **"So"**: Software version is displayed.

AZ6500

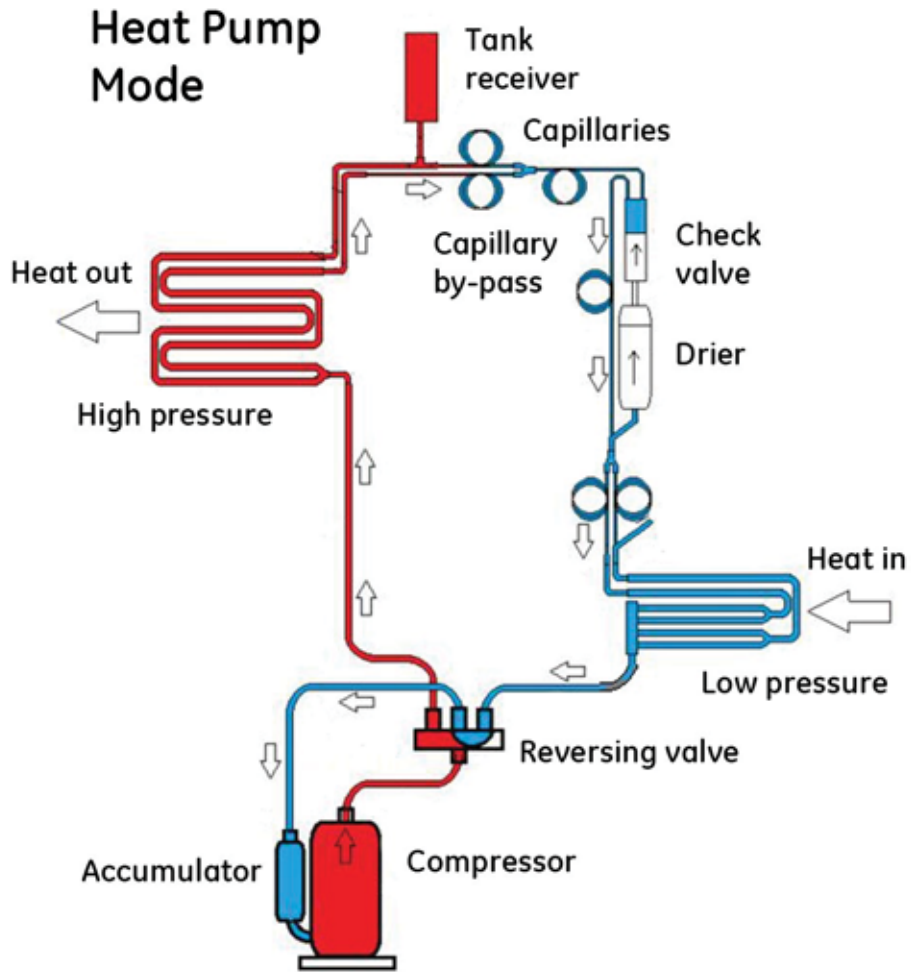
1. **"CL"**: Cooling. Compressor, Indoor Fan, reversing valve, and Outdoor fan are energized. Fan speed is high.
2. **"HP"**: Heat Pump. Compressor, Indoor Fan, and Outdoor fan are energized, reversing valve is not energized. Fan speed is high.
3. **"EH"**: Electric Heat. Electric heater (all relays) and Indoor Fan are energized. Fan speed is high.
4. **"IF"**: Indoor Fan only. Indoor fan is energized. Fan speed is high.
5. **"OF"**: Outdoor Fan only. Outdoor Fan is energized. Fan speed is high.
6. **"IC"**: ICR Pump - Pump only is activated. If equipped.
7. **"dE"**: Defrost - Reverse cycle defrost (cooling without any fans) is activated to melt ice on outdoor coil.
8. **"S1"**: Indoor Ambient Air Thermistor - temperature will be displayed between -9°F and 99°F on screen after the Zoneline has been in this mode for 10 seconds. (If no thermistor is detected, "--" will be displayed).
9. **"S2"**: Indoor Coil Thermistor - temperature will be displayed between -9°F and 99°F on screen after the Zoneline has been in this mode for 10 seconds.
10. **"S3"**: Outdoor Air Thermistor - temperature will be displayed between -9°F and 99°F on screen after the Zoneline has been in this mode for 10 seconds.
11. **"S4"**: Outdoor Coil Thermistor - temperature will be displayed between -9°F and 99°F on screen after the Zoneline has been in this mode for 10 seconds.
12. **"S5"**: Indoor Outlet Air Thermistor – temperature will be displayed between -9°F and 99°F.
13. **"Ui"**: UI test - Run the LED test sequence.
14. **"So"**: Software version is displayed.

Sealed System – Refrigerant Flow Cooling

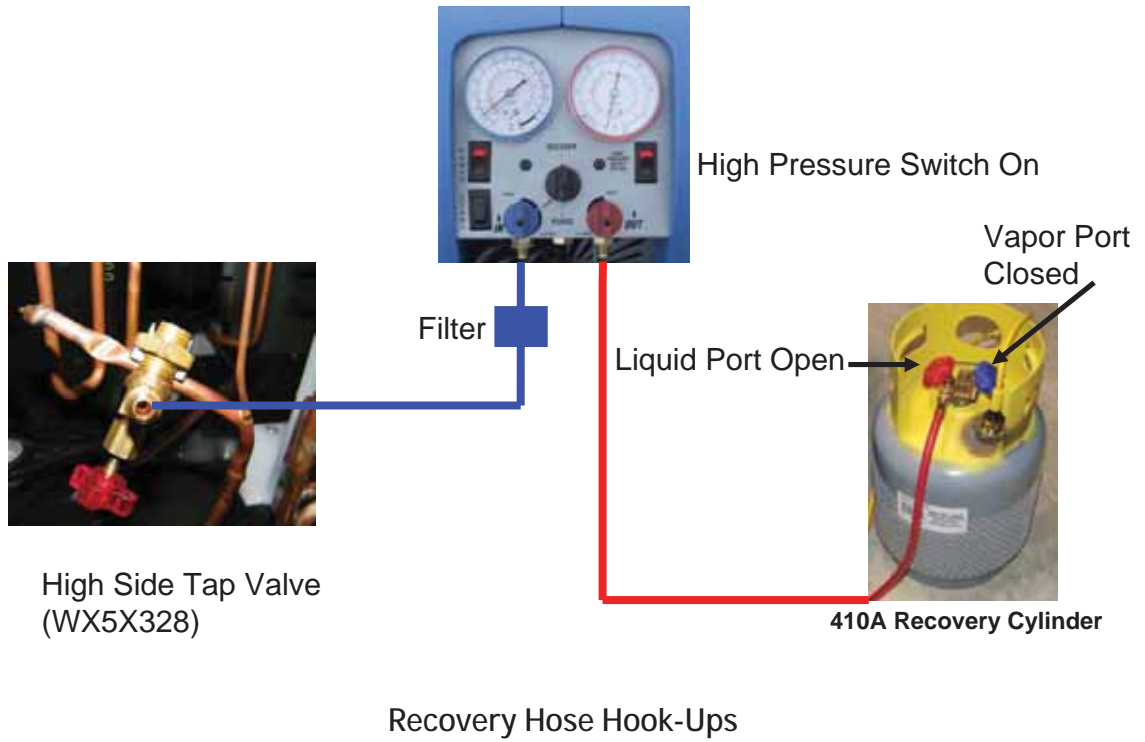
COOLING MODE



Sealed System – Refrigerant Flow Heating

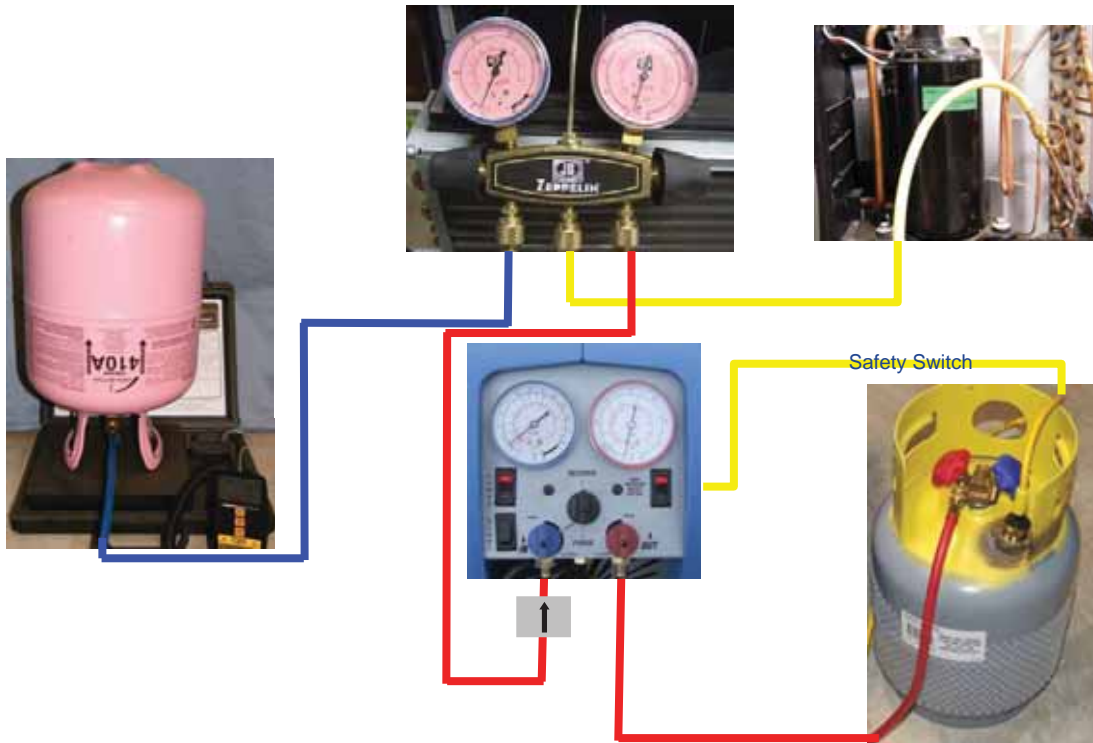


Recovery Process



Complete charging and recovery information for R410A is available in Service Guide 31-9192.

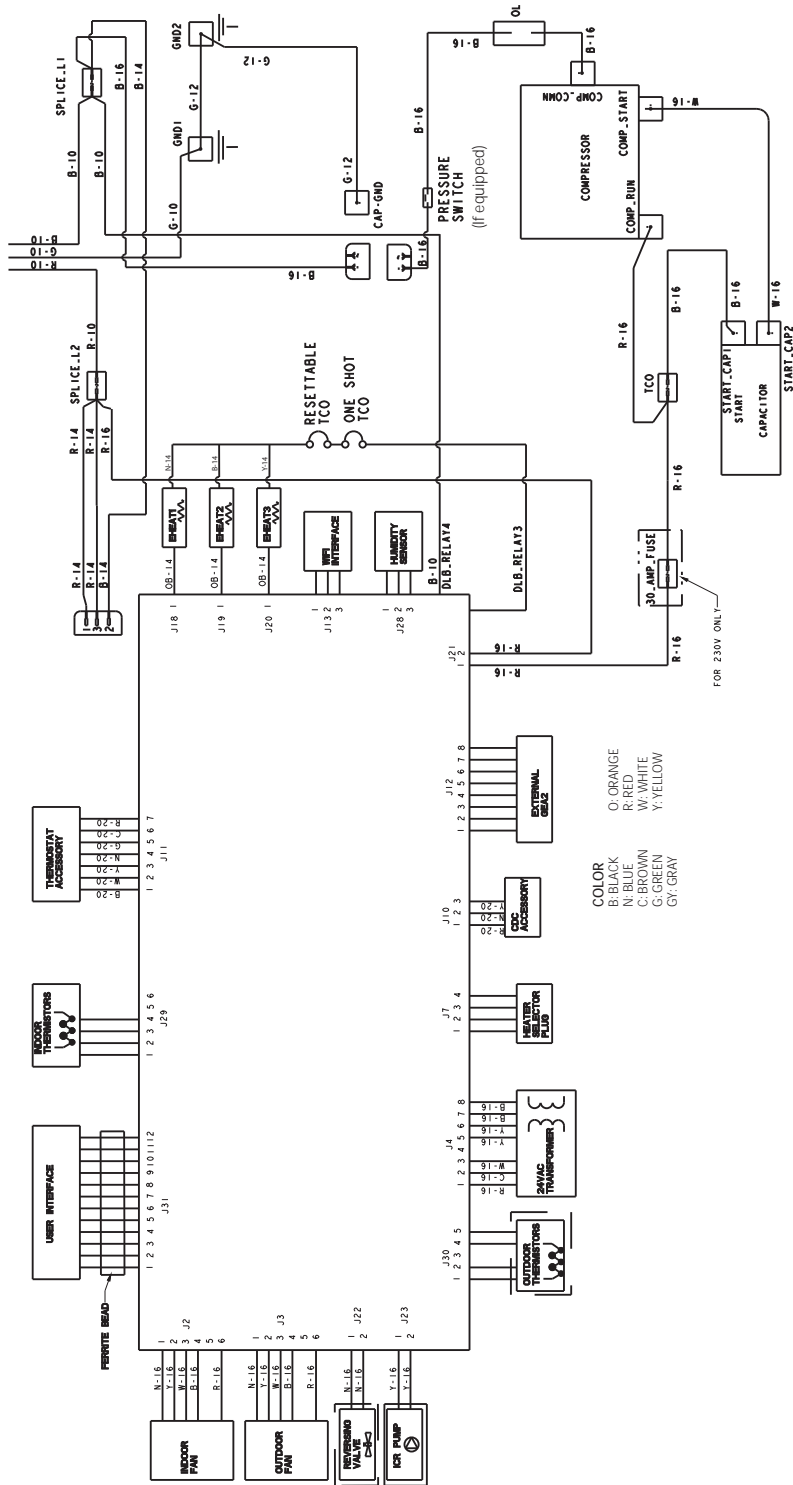
Charging Summary



Charging Hose Hook-Ups

Complete charging and recovery information for R410A is available in Service Guide 31-9192.

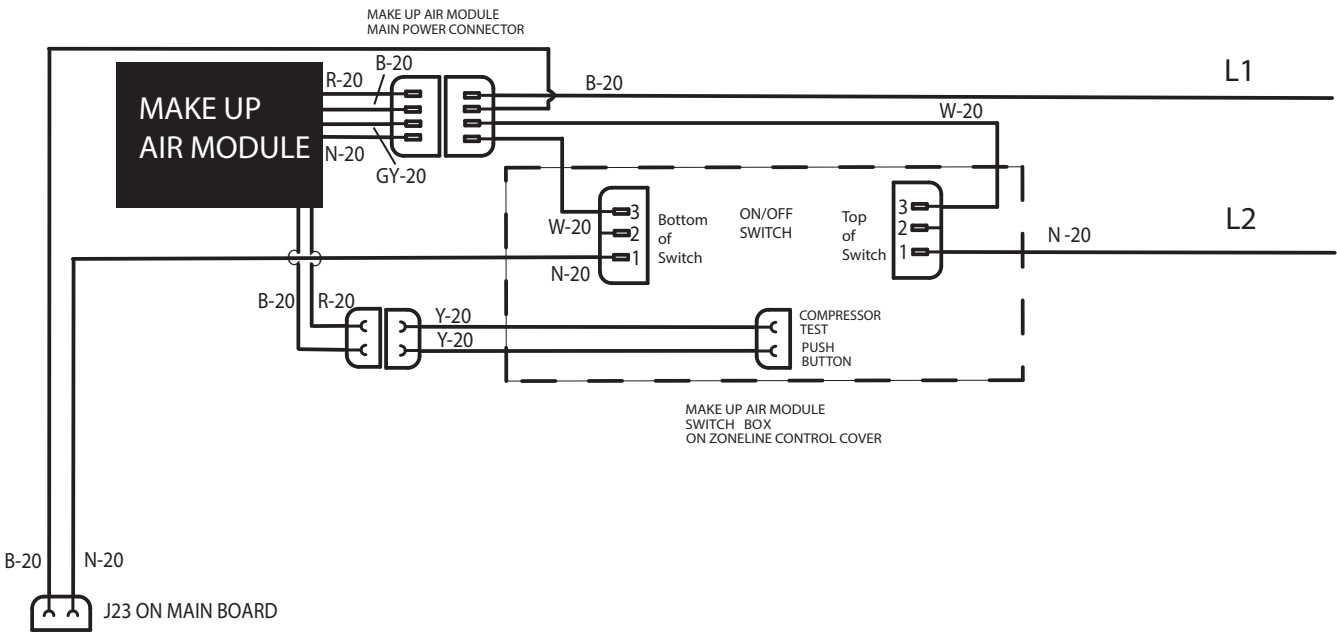
Schematic/Wiring Diagram



Schematic/Wiring Diagram

The fans always run, when the power switch is ON, but the compressor cycles on/off during the following conditions:

1. The Module is designed to turn the compressor system off when below 50°F.
2. Dehumidification Range: The compressor turns on at outdoor RH% above 55% and turns off below 50% RH, measured at the outdoor humidistat (located on the module).



New Accessories

RAK204D15PA	Sub-Base, 208/230-v, 15-A, w/ Power Cord
RAK204D20PA	Sub-Base, 208/230-v, 20-A, w/ Power Cord
RAK204D30PA	Sub-Base, 208/230-v, 30-A, w/ Power Cord
RAK315P	LCDI Power Cord, 208/230-v, 15-A
RAK320P	LCDI Power Cord, 208/230-v, 20-A
RAK330P	LCDI Power Cord, 208/230-v, 30-A
RAK315SP	Short, non-LCDI Sub-base Power Cord, 208/230-v, 15A, includes junction box
RAK320SP	Short, non-LCDI Sub-base Power Cord, 208/230-v, 20A, includes junction box
RAK330SP	Short, non-LCDI Sub-base Power Cord, 208/230-v, 30A, includes junction box
RAK315D	Direct Connect Pigtail, 208/230-v, 15-A, includes junction box
RAK320D	Direct Connect Pigtail, 208/230-v, 20-A, includes junction box
RAK330D	Direct Connect Pigtail, 208/230-v, 30-A, includes junction box
RAK515P	Short Power Cord, 265-v, 15-A
RAK520P	Short Power Cord, 265-v, 20-A
RAK530P	Short Power Cord, 265-v, 30-A
RAK515D	Direct Connect Pigtail, 265-v, 15-A
RAK520D	Direct Connect Pigtail, 265-v, 20-A
RAK530D	Direct Connect Pigtail, 265-v, 30-A
RAK6053	Duct Adaptor for AZ45/65 series Zonelines
RAK7013	Duct Adaptor for AZ45/65 series Zoneline, Repl. AP6 A_B Zonelines
RAK7023	Duct transition for AZ45/65 series Zonelines, repl. AZC 1st gen Sanyo models
RAA64	Room Front Air Filters for AZ45/65 series Zonelines (10 pairs per box)
RAF454	Room Front for AZ45/65 series Zonelines
RAKCDC	3-pin connector for CDC and External Fan applications
RAK4002C	Electrical junction box for direct connection applications
RAB7116B	16" deep steel wall sleeve, color change
RAB7124B	24" deep steel wall sleeve, color change
RAB71B	Standard steel wall sleeve, color change
RAB77B	SMC wall sleeve, color change

Warranty



All warranty service provided by our Factory Service Centers or an authorized Customer Care® technician. To schedule service, visit us on-line at GEAppliances.com, or call 800.GE.CARES (800.432.2737). For service in Canada, contact Gordon Williams Corp. at 1.888.209.0999. Please have serial number and model number available when calling for service.

*Staple your receipt here.
Proof of the original purchase date is needed to obtain service under the warranty.*

<i>For The Period Of:</i>	<i>GE Appliances Will Replace:</i>
One Year <i>From the date of the original purchase</i>	Any part of the air conditioner which fails due to a defect in materials or workmanship. During this limited one-year warranty. GE will also provide, free of charge, all labor and related service cost to replace the defective part.
Five Year <i>From the date of the original purchase</i>	Sealed Refrigeration System, if any part of the sealed refrigeration system (the compressor, condenser, evaporator and all connecting tubing, including the make up air module) should fail due to a defect in materials or workmanship. During this limited five-year warranty. GE will also provide, free of charge, all labor and related service cost to replace the defective part.
Second through Fifth Year <i>From the date of the original purchase</i>	Fan Motors, Switches, Thermostat, Heater, Heater Protectors, Compressor Overload, Solenoids, Circuit Boards, Auxiliary Controls, Thermistors, Freeze Sentinel, Frost Controls, ICR Pump, Capacitors, Varistors, and Indoor Blower Bearings, if any of these parts should fail due to a defect in materials or workmanship. During this additional four-year limited warranty, the customer will be responsible for any labor and related service costs.

What GE Will Not Cover:

- **Service trips to your site to teach you how to use the product.**
- **Improper installation, delivery or maintenance.**
If you have an installation problem, or if the air conditioner is of improper cooling capacity for the intended use, contact your dealer or installer. You are responsible for providing adequate electrical connecting facilities.
- **In commercial locations, labor necessary to move the Zoneline to a location where it is accessible for service by an individual technician.**
- **Failure or damage resulting from corrosion due to installation in an environment containing corrosive chemicals.**
- **Replacement of fuses or resetting of circuit breakers.**
- **Failure of the product resulting from modifications to the product or due to unreasonable use, including failure to provide reasonable and necessary maintenance.**
- **Failure or damage resulting from corrosion due to installation in a coastal environment, except for models treated with special factory-applied anti-corrosion protection as designated in the model number.**
- **Damage to product caused by improper power supply voltage, accident, fire, flood, or acts of God.**
- **Incidental or consequential damage caused by possible defects with this appliance.**
- **Damage caused after delivery.**
- **Product not accessible to provide required service.**

EXCLUSION OF IMPLIED WARRANTIES – Your sole and exclusive remedy is product repair as provided in this Limited Warranty. Any implied warranties, including the implied warranties of merchantability or fitness for a particular purpose, are limited to one year or the shortest period allowed by law.

This warranty is extended to the original purchaser and any succeeding owner for products purchased for use within the USA and Canada. If the product is located in an area where service by a GE Authorized Servicer is not available, you may be responsible for a trip charge or you may be required to bring the product to an Authorized GE Service location for service. In Alaska, the warranty excludes the cost of shipping or service calls to your site.

Some states do not allow the exclusion or limitation of incidental or consequential damages. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state or province to province. To know what your legal rights are, consult your local, state or provincial consumer affairs office or your state's Attorney General.

Warrantor: GE Appliances, Louisville, KY 40225

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