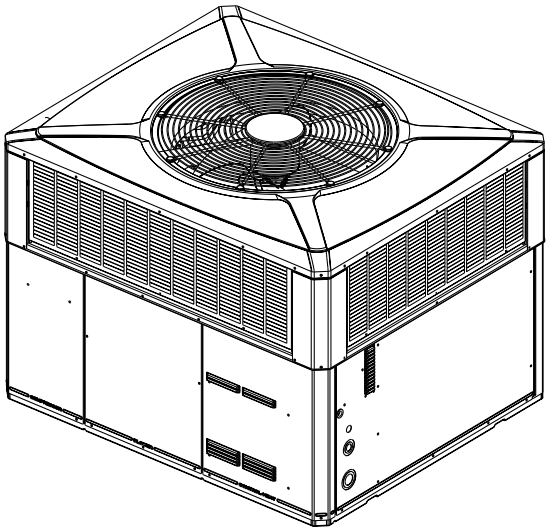
# Service Facts

## Single Packaged Heat Pump

5WCC4048A1000A



***Note:*** *"Graphics in this document are for representation only. Actual model may differ in appearance."*

**⚠ SAFETY WARNING**

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

October 2024

**5WCC4048A-SF-1A-EN**

# SAFETY SECTION

***Important:*** *This document contains a wiring diagram, a parts list, and service information. This is customer property and is to remain with this unit. Please return to service information pack upon completion of work.*

**⚠ WARNING**

**HAZARDOUS VOLTAGE!**

**Failure to follow this Warning could result in property damage, severe personal injury, or death.**

**Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized.**

**⚠ WARNING**

**SAFETY AND ELECTRICAL HAZARD!**

**Failure to follow this Warning could result in property damage, severe personal injury, or death.**

**These servicing instructions are for use by qualified personnel only. To reduce the risk of electrical shock, do not perform any servicing other than that contained in these operating instructions unless you are qualified to do so.**

**⚠ CAUTION**

**GROUNDING REQUIRED!**

**Failure to inspect or use proper service tools may result in equipment damage or personal injury.**

**Reconnect all grounding devices. All parts of this product that are capable of conducting electrical current are grounded. 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.**

**⚠ CAUTION**

**SHARP EDGE HAZARD!**

**Failure to follow this Caution could result in property damage or personal injury.**

**Be careful of sharp edges on equipment or any cuts made on sheet metal while installing or servicing.**

**⚠ WARNING**

**UNIT CONTAINS R-454B REFRIGERANT!**

**Proper service equipment is required. Failure to use proper service tools may result in equipment damage or personal injury.**

**⚠ WARNING**

**SERVICE!**

**USE ONLY R-454B REFRIGERANT AND APPROVED COMPRESSOR OIL.**

**⚠ WARNING**

**LEAK DETECTION SYSTEM!**

**LEAK DETECTION SYSTEM installed. Unit must be powered except for service.**

**⚠ WARNING**

**SAFETY HAZARD!**

**Children should be supervised to ensure that they do not play with the appliance.**

**⚠ WARNING**

**SAFETY HAZARD!**

**This appliance is not to be used by persons (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety.**

**⚠ WARNING**

**SAFETY HAZARD!**

**Operating the unit without the access panels properly installed may result in severe personal injury or death.**

**Do not operate the unit without the evaporator fan access panel or evaporator coil access panel in place.**

**⚠ WARNING**

**RISK OF FIRE!**

**Flammable refrigerant used. To be repaired only by trained service personnel. Do not puncture refrigerant tubing.**

**Dispose of refrigerant in accordance with federal and/or local regulations.**

**⚠ WARNING**

**WARNING!**

**This product can expose you to chemicals including lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.**

***Important:*** *Wear appropriate gloves, arm sleeve protectors and eye protection when servicing or maintaining this equipment.*

***Important:*** *Air filters and media wheels or plates shall meet the test requirements in UL 900.*

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# Product Specifications

| MODEL | 5WCC4048A1000A |
|---|---|
| RATED Volts/PH/Hz | 208–230/1/60 |
| Performance Cooling BTUH [a] | 48000 |
| Indoor Airflow (CFM) | 1655 |
| Power Input (KW) | 4.34 |
| EER2/SEER2 (BTU/Watt-Hr.) [b] | 11.0/13.4 |
| Sound Power Rating [dB(A)] [c] | 72.50 |
| **PERFORMANCE HEATING** | |
| (High Temp.) BTUH | 45000 |
| Power Input (KW) | 3.93 |
| (Low Temp.) BTUH | 29400 |
| Power Input (KW) | 3.66 |
| HSPF2 (BTUH/Watt-Hr) | 6.7 |
| **POWER CONN**. — V/Ph/Hz | 208–230/1/60 |
| Min. Brch. Cir. Ampacity [d] | 36 |
| Fuse Size — Max. (amps) | 50 |
| Fuse Size — Recmd. (amps) | 50 |
| **COMPRESSOR** | SCROLL |
| VOLTS/PH/HZ | 208–230/1/60 |
| R.L. Amps — L.R. Amps | 22.4 / 126 |
| **OUTDOOR COIL — TYPE** | SPINE FIN |
| Rows/F.P.I | 2 / 24 |
| Face Area (sq. ft.) | 20.54 |
| Tube Size (in.) | 3/8 |
| Refrigerant Control | EXPANSION VALVE |
| **INDOOR COIL — TYPE** | PLATE FIN |
| Rows/F.P.I | 3 / 15 |
| Face Area (sq. ft.) | 5.0 |
| Tube Size (in.) | 3/8 |
| Refrigeration Control | EXPANSION VALVE |
| Drain Conn. Size (in.) | 3/4 FEMALE NPT |
| **OUTDOOR FAN — TYPE** | PROPELLER |

| MODEL | 5WCC4048A1000A |
|---|---|
| DIA. (IN.) | 28.3 |
| DRIVE/NO. SPEEDS | DIRECT/ 1 |
| CFM @ 0.0 in. w.g. [e] | 4400 |
| Motor — HP/R.P.M | 1/4 / 825 |
| Volts/Ph/Hz | 208–230/1/60 |
| F.L. Amps/L.R Amps | 1.5 / 3.07 |
| **INDOOR FAN — TYPE** | CONSTANT TORQUE ECM |
| Dia. x Width (in.) | 10.62 X 10.62 |
| Drive/No. Speeds | DIRECT/ 4 |
| CFM @ 0.0 in. w.g. [f] | SEE FAN PERF TABLE |
| Motor — HP/R.P.M. | 3/4 / 1050 |
| Volts/Ph/Hz | 208–230/1/60 |
| F.L. Amps | 6.0 |
| **FILTER / FURNISHED** | NO |
| Type Recommended | THROWAWAY |
| Recmd. Face Area (sq. ft) [g] | 5.3 |
| **REFRIGERANT** | R-454B |
| Charge (lbs.) | 7.00 |
| **CHARGING SPECIFICATIONS** | |
| Subcooling | 12° F |
| **DIMENSIONS** | H X W X L |
| Crated (in.) | 50 X 47 X 62 |
| **WEIGHT** | |
| Shipping (lbs.) / Net (lbs.) | 535 / 431 |

(a) Rated in accordance with AHRI Standard 210/240.
(b) Rated in accordance with D.O.E. test procedure.
(c) Sound Power values are not adjusted for AHRI 270–95 tonal corrections.
(d) Calculated in accordance with currently prevailing Nat'l Electrical Code.
(e) Standard Air — Dry Coil — Outdoor.
(f) Standard Air — Dry Coil — Indoor
(g) Filters must be installed in return air stream. Square footages listed are based on 300 f.p.m. face velocity. If permanent filters are used size per manufacturer's recommendation with a clean resistance of 0.05" W.C.

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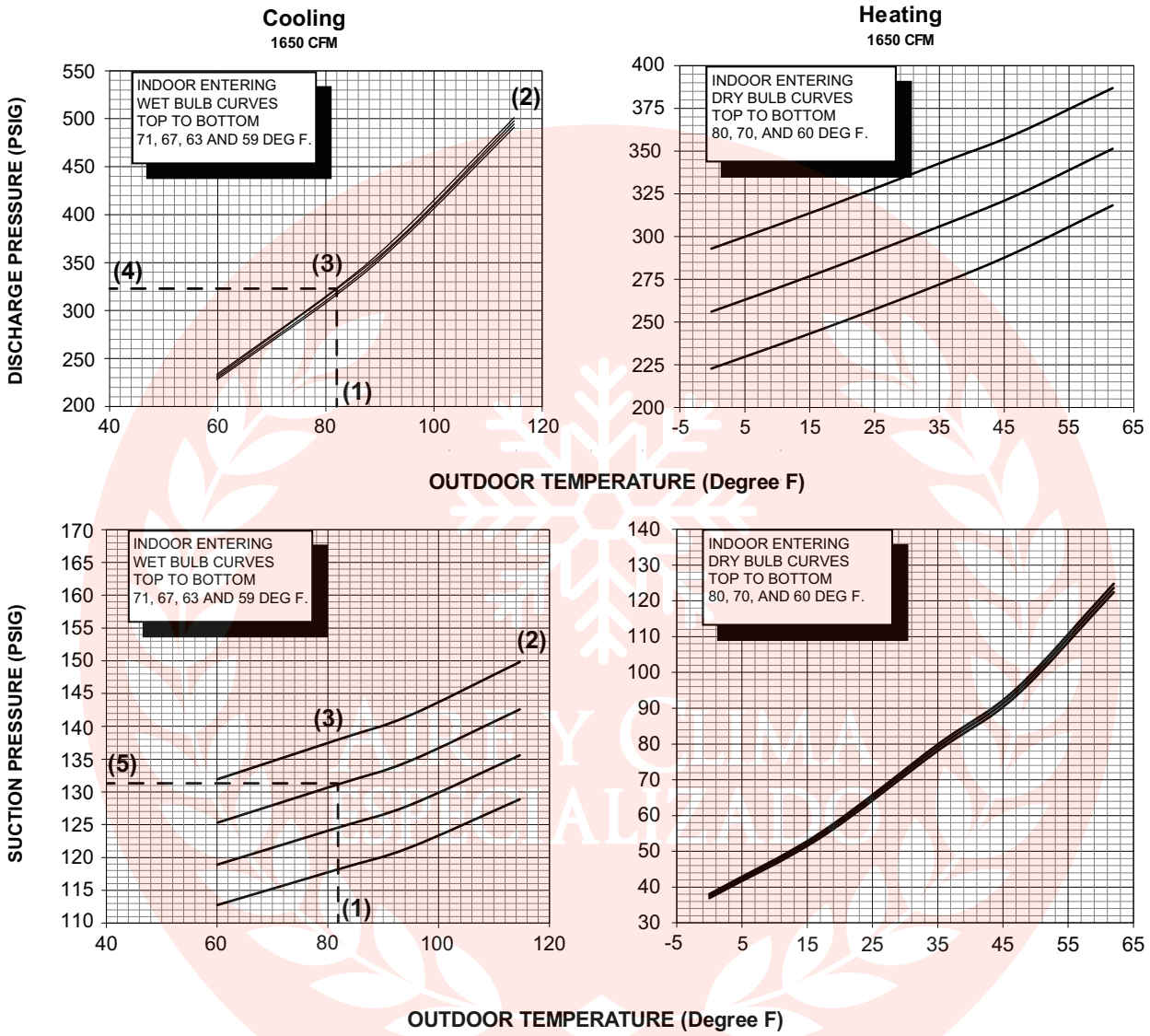
# Pressure Curves

**Figure 1. PRESSURE CURVES FOR 5WCC4048**




**COOLING PERFORMANCE CAN BE CHECKED WHEN THE OUTDOOR TEMP IS ABOVE 65 DEG F.**

TO CHECK COOLING PERFORMANCE, SELECT THE PROPER INDOOR CFM, ALLOW PRESSURES TO STABILIZE. MEASURE INDOOR WET BULB TEMPERATURE, OUTDOOR TEMPERATURE, DISCHARGE AND SUCTION PRESSURES. ON THE PLOTS LOCATE OUTDOOR TEMPERATURE (1); LOCATE INDOOR WET BULB (2); FIND INTERSECTION OF OD TEMP. & ID W.B. (3); READ DISCHARGE OR SUCTION PRESSURE IN LEFT COLUMN (4).

EXAMPLE: (1) OUTDOOR TEMP. 82 F.
(2) INDOOR WET BULB 67 F.
(3) AT INTERSECTION
(4) DISCHARGE PRESSURE @ 1650 CFM CFM IS 323 PSIG.
(5) SUCTION PRESSURE @ 1650 CFM CFM IS 131 PSIG.

ACTUAL:
DISCHARGE PRESSURE SHOULD BE +/- 10 PSI OF CHART
SUCTION PRESSURE SHOULD BE +/- 3 PSIG OF CHART

DWG.NO. 5WCC4048

# Charging in Cooling above 55°F OD Ambient

If servicing the equipment requires system evacuation, then re-charge the system to the weight specified on the nameplate. Verify the system subcooling using the Subcooling Charging Table and, if necessary, adjust the charge using the procedure below.

1. For best results — the indoor temperature should be kept between 70°F to 80°F. Add system heat if needed.
2. Whenever charge is removed or added, the system must be operated for a minimum of 20 minutes to stabilize before accurate measurements can be made.
3. Measure Liquid Line Temperature and Refrigerant Pressure at service valved in the compressor compartment.
4. Locate your liquid line temperature in the left column of the table, and the intersecting liquid line pressure under the subcool value column, Add refrigerant to raise the pressure to match the table, or remove refrigerant to lower the pressure. Again, wait 20 minutes for the system conditions to stabilize before adjusting charge again.

***Note:*** *System charge shall never be more than 110% or less than 90% of nameplate charge. If specified subcooling cannot be achieved within those charge bounds, contact your Field Service Representative.*

5. When system is correctly charged, you can refer to System Pressure Curves to verify typical performance.

### CHARGING BELOW 55°F

Evacuate system and weigh in nameplate charge or use factory charge. Correct subcooling may be verified when the temperature is above 55°F.

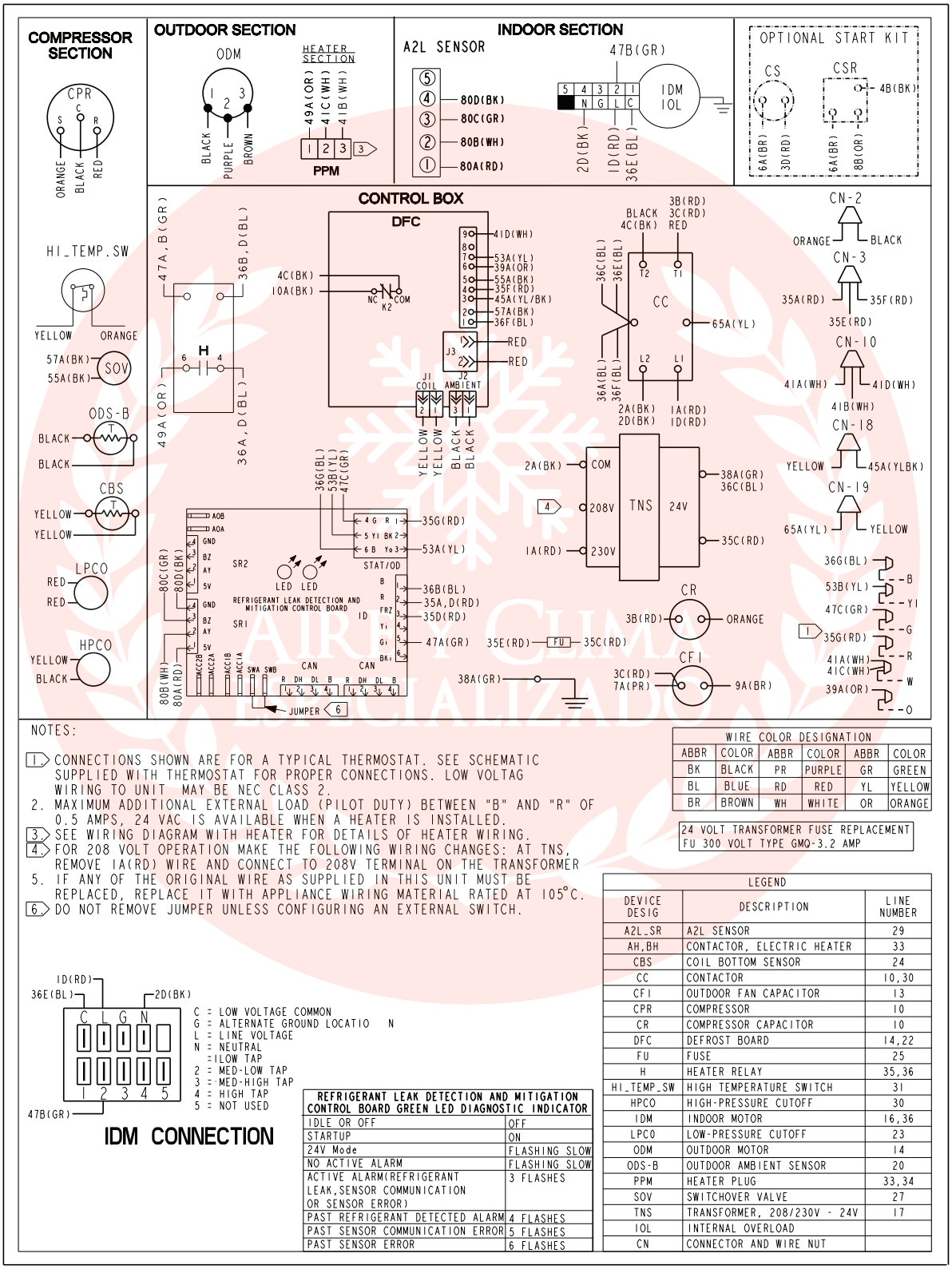
| R-454B REFRIGERANT CHARGING CHART | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LIQUID TEMP (°F) | DESIGN SUBCOOLING (°F) | | | | | | | | |
| | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| | LIQUID GAGE PRESSURE (PSI) | | | | | | | | |
| 55 | 164 | 167 | 170 | 172 | 175 | 178 | 181 | 184 | 187 |
| 60 | 178 | 181 | 184 | 187 | 190 | 194 | 197 | 200 | 203 |
| 65 | 193 | 197 | 200 | 203 | 206 | 210 | 213 | 217 | 220 |
| 70 | 210 | 213 | 217 | 220 | 223 | 227 | 230 | 234 | 238 |
| 75 | 227 | 230 | 234 | 238 | 241 | 245 | 249 | 252 | 256 |
| 80 | 245 | 249 | 252 | 256 | 260 | 264 | 268 | 272 | 276 |
| 85 | 264 | 268 | 272 | 276 | 280 | 284 | 288 | 292 | 297 |
| 90 | 284 | 288 | 292 | 297 | 301 | 305 | 309 | 314 | 318 |
| 95 | 305 | 309 | 314 | 318 | 323 | 327 | 332 | 336 | 341 |
| 100 | 327 | 332 | 336 | 341 | 346 | 351 | 355 | 360 | 356 |
| 105 | 351 | 355 | 360 | 365 | 370 | 375 | 380 | 385 | 390 |
| 110 | 375 | 380 | 385 | 390 | 396 | 401 | 406 | 412 | 417 |
| 115 | 401 | 406 | 412 | 417 | 422 | 428 | 433 | 439 | 445 |
| 120 | 428 | 433 | 439 | 445 | 450 | 456 | 462 | 468 | 474 |
| 125 | 456 | 462 | 468 | 474 | 480 | 486 | 492 | 498 | 504 |

### Charging Below 55°F OD Ambient in Heating Only

1. The Subcool Charging Method in cooling is NOT recommended below 55°F outdoor ambient.
2. The only recommended method of charging at outdoor ambients below 55°F, is to weigh in the charge in the heating mode.
3. Use Nameplate charge.
4. Check liquid line temperature and pressure (at the OD valves) to obtain a minimum of the subcooling shown in the subcooling table.
5. Add charge if the minimum subcooling as shown in the table is not obtained with the nameplate charge.
6. It is important to return in the spring or summer to accurately charge the system in the cooling mode at outdoor ambients above 55°F.

# Wiring Diagrams

**Figure 2. 5WCC4048A1**



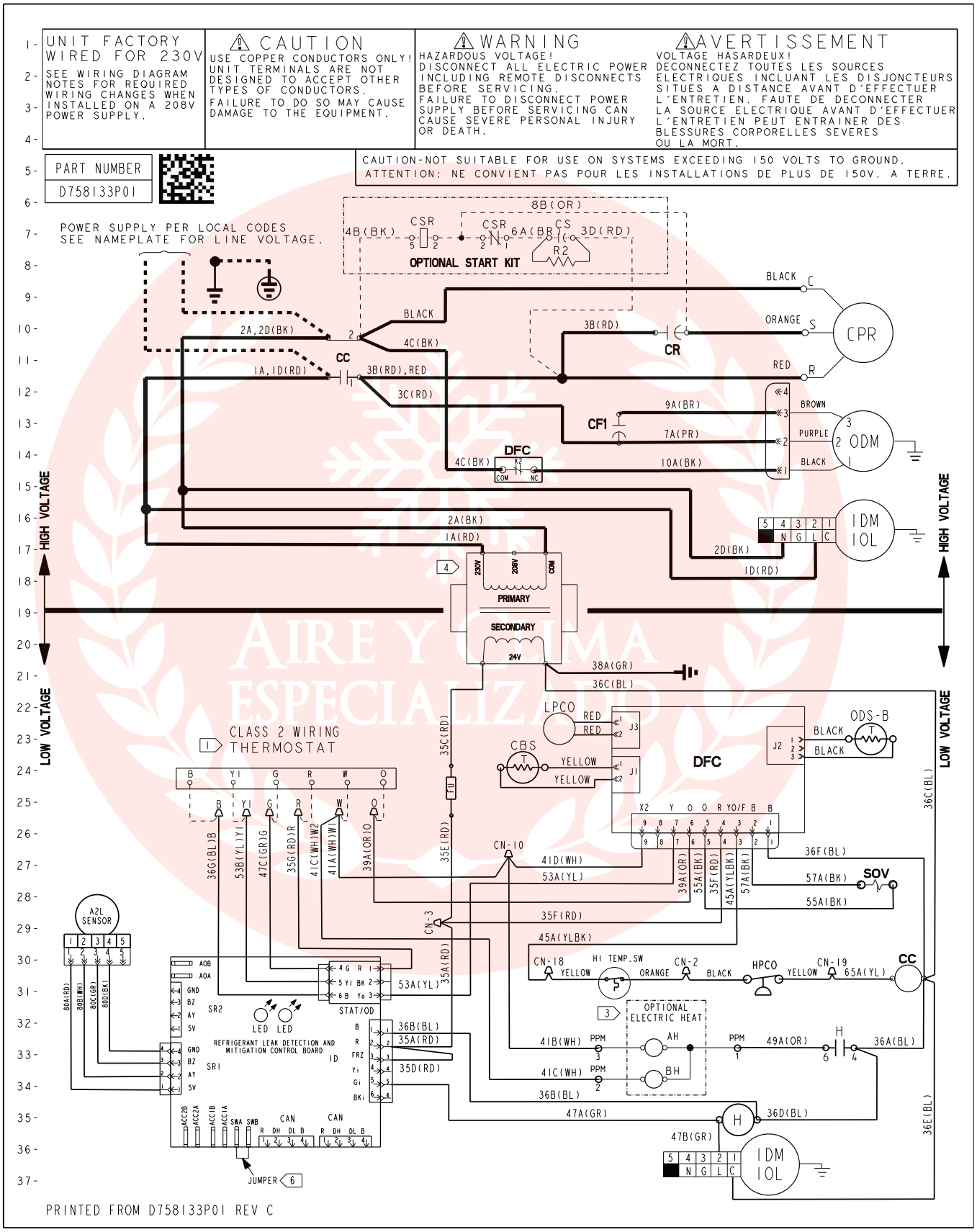

| WIRE COLOR DESIGNATION | | | | | |
|---|---|---|---|---|---|
| ABBR | COLOR | ABBR | COLOR | ABBR | COLOR |
| BK | BLACK | PR | PURPLE | GR | GREEN |
| BL | BLUE | RD | RED | YL | YELLOW |
| BR | BROWN | WH | WHITE | OR | ORANGE |

24 VOLT TRANSFORMER FUSE REPLACEMENT
FU 300 VOLT TYPE GMQ-3.2 AMP

| REFRIGERANT LEAK DETECTION AND MITIGATION CONTROL BOARD GREEN LED DIAGNOSTIC INDICATOR | |
|---|---|
| IDLE OR OFF | OFF |
| STARTUP | ON |
| 24V Mode | FLASHING SLOW |
| NO ACTIVE ALARM | FLASHING SLOW |
| ACTIVE ALARM(REFRIGERANT LEAK,SENSOR COMMUNICATION OR SENSOR ERROR) | 3 FLASHES |
| PAST REFRIGERANT DETECTED ALARM | 4 FLASHES |
| PAST SENSOR COMMUNICATION ERROR | 5 FLASHES |
| PAST SENSOR ERROR | 6 FLASHES |

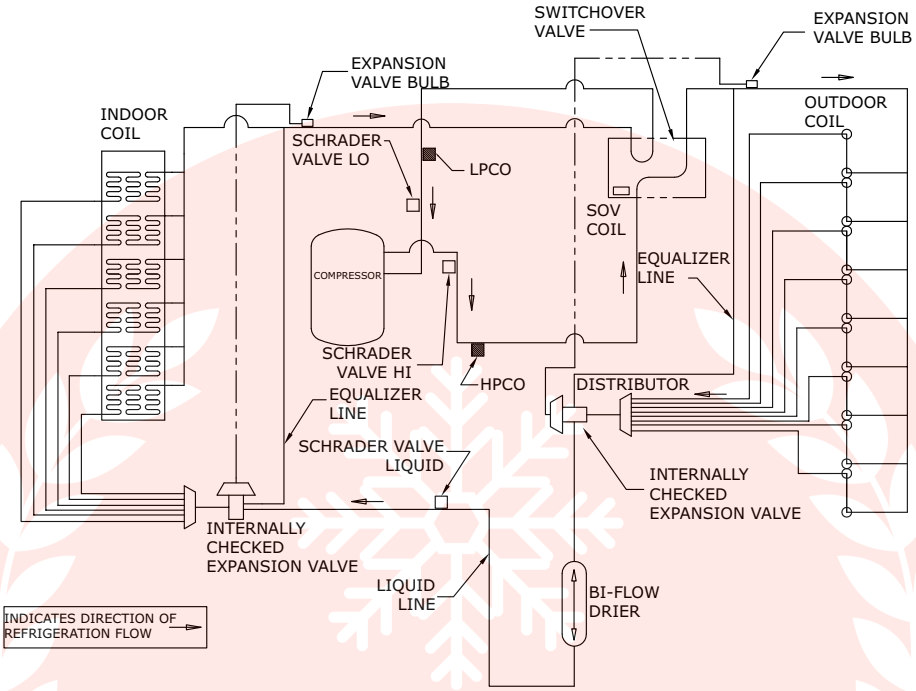
| LEGEND | | |
|---|---|---|
| DEVICE DESIG | DESCRIPTION | LINE NUMBER |
| A2L_SR | A2L SENSOR | 29 |
| AH,BH | CONTACTOR, ELECTRIC HEATER | 33 |
| CBS | COIL BOTTOM SENSOR | 24 |
| CC | CONTACTOR | 10,30 |
| CFI | OUTDOOR FAN CAPACITOR | 13 |
| CPR | COMPRESSOR | 10 |
| CR | COMPRESSOR CAPACITOR | 10 |
| DFC | DEFROST BOARD | 14,22 |
| FU | FUSE | 25 |
| H | HEATER RELAY | 35,36 |
| HI_TEMP_SW | HIGH TEMPERATURE SWITCH | 31 |
| HPCO | HIGH-PRESSURE CUTOFF | 30 |
| IDM | INDOOR MOTOR | 16,36 |
| LPCO | LOW-PRESSURE CUTOFF | 23 |
| ODM | OUTDOOR MOTOR | 14 |
| ODS-B | OUTDOOR AMBIENT SENSOR | 20 |
| PPM | HEATER PLUG | 33,34 |
| SOV | SWITCHOVER VALVE | 27 |
| TNS | TRANSFORMER, 208/230V - 24V | 17 |
| IOL | INTERNAL OVERLOAD | |
| CN | CONNECTOR AND WIRE NUT | |

**Figure 3. 5WCC4048A1**

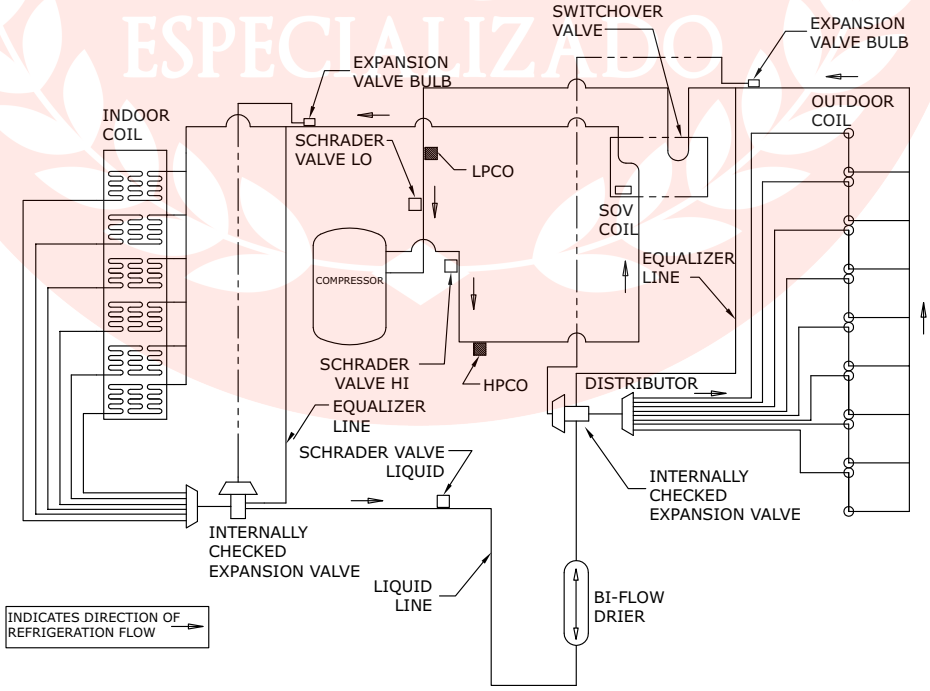


# Refrigerant Circuit

## COOLING




## HEATING

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# Sequence of Operation

### General

Operation of the system heating and cooling cycles is automatic when the system is in the HEAT or COOL functions (the optional automatic changeover thermostat, when in the AUTO position, automatically changes to heat or cool with an appropriate room temperature change). The fan switch can be placed in the ON position, causing continuous evaporator (indoor) fan operation or placed in the AUTO position causing fan operation to coincide with heating or cooling run cycles.

### Cooling Mode

Note that the TSH and TSC are contacts that are internal to the indoor thermostat.

With the disconnect switch is in the ON position, current is supplied to the control transformer. The cooling cycle is enabled through the low voltage side of the control transformer to the "R" terminal on the indoor thermostat. With the system switch in the AUTO position and **TSC-1** contacts closed, power is supplied to the "**O**" terminal on the indoor thermostat to the switch-over valve coil **(SOV)**. This energizes the switch-over valve **(SOV)** and places it in the cooling position (it is in the heating position when de-energized).

When the indoor temperature rises 1–1/2 degrees, **TSC-2** contacts close, supplying power to the "**Y**" terminal on the indoor thermostat, and to the compressor contactor **(CC)**. This starts the outdoor fan motor and compressor. The **TSC-2** contacts also provide power to the "**G**" terminal which provides power to the indoor fan motor.

### Heating Mode

With the disconnect switch in the ON position, current is supplied to the control transformer. Starting at the "**R**" terminal on the indoor thermostat, current goes through the system switch (which is in AUTO position) to the TSH-1 contacts. When closed, these contacts supply power to terminal "**Y**" on the indoor thermostat. Power is provided from "**Y**" to the compressor contactor **(CC)** which starts the compressor and outdoor fan motor. The indoor thermostat contact **TSH-1** also provides power to "**G**" terminal on the indoor thermostat energizing the indoor fan motor.

### Supplementary Heat

The supplementary electric heat is brought on when the indoor temperature drops 1–1/2 degrees below the thermostat setting. **TSH-2** contacts close providing power to the "**W**" terminal on the indoor thermostat and to the supplementary heater control circuit. An outdoor thermostat may have been added to disallow the second stage (if provided) of electric heat above a selected outdoor temperature. If the outdoor temperature falls below the setting on the outdoor thermostat this additional heater stage will come on. When the outdoor air temperature rises, and the outdoor T-stat setpoint is reached, the system will revert back to first stage electric heating.

When the indoor ambient is satisfied, **TSH-2** contacts will open and the unit will revert back to the compressor only heating mode and then off. For **emergency heat** (use of supplementary electric heat only), and emergency **(EMERG)** heat switch is provided within the thermostat. When placed in the emergency heat position, it will disable the compressor, bypass the outdoor thermostats, if provided, and engage the supplementary electric heaters and indoor fan.

### Demand Defrost Operation

During the heating cycle, the outdoor coil may require a defrost cycle which is determined by the demand defrost control **(DFC)**. This control continuously measures the outdoor coil temperature **(CBS)** and the outdoor ambient temperature **(ODS-B)** and calculates the difference or delta-T measurement. When the calculated delta-T is met, the demand defrost control **(DFC)** opens the circuit to the outdoor fan motor **(ODM)** and energizes the switch-over valve **(SOV)**, placing the unit in the cooling mode to defrost the outdoor coil. The outdoor coil temperature sensor **(CBS)** terminates the defrost cycle, or times out after fifteen minutes in defrost, the **(DFC)** energizes the outdoor fan motor **(ODM)** and twelve seconds later de-energizes the **(SOV)**, which returns the unit to the heating mode. Supplementary electric heat, if provided, is brought on to control indoor temperature during the defrost cycle.

# Maintenance

## Owner Maintenance

Some of the periodic maintenance functions of the unit can be performed by the owner; this includes replacing the disposable or cleaning the permanent air filters, cleaning the unit cabinet, cleaning the condenser coil, and conducting a general unit inspection on a regular basis.

### Filters

When the system is in constant operation, inspect the filters at least once each month.

If the unit has disposable-type filters, replace them with new filters of the same type and size. **Do not attempt to clean disposable filters.**

Permanent-type filters can be cleaned by washing them with a mild detergent and water. Make sure that the filters are thoroughly dry before reinstalling them in the unit (or duct system).

***Note:*** *It may be necessary to replace permanent filters annually if washing fails to clean the filter or if the filter shows signs of deterioration. Be sure to use the same type and size as was originally installed.*

### Condenser Coil

Be sure to keep all vegetation and debris away from the condenser coil area.

## Service Maintenance

**Cooling Season**

To keep the unit operating safely and efficiently, the manufacturer recommends that a qualified service technician check the entire system at least once each year or sooner if needed. The service technician should examine these areas of the unit:

- filters (for cleaning or replacement)
- motors and drive system components
- economizer gaskets (for possible replacement)
- safety controls (for mechanical cleaning)
- electrical components and wiring (for possible replacement and connection tightness)
- condensate drain (for proper sealing and cleaning)
- unit duct connections (to see that they are physically sound and sealed to the unit casing)
- unit mounting support (for structural integrity)
- the unit (for obvious unit deterioration)

**Heating Season**

Complete the following unit inspections and service routines at the beginning of each heating season.

- Visually inspect the unit to ensure that the airflow required for combustion and condenser coil is not obstructed from the unit.
- Inspect the control panel wiring to verify that all electrical connections are tight and that the wire insulation is intact.

## Defrost Control

### Defrost Control

The demand defrost control measures heat pump outdoor ambient temperature with a sensor located outside the outdoor coil. A second sensor located on the outdoor coil is used to measure the coil temperature. The difference between the ambient and the colder coil temperature is the difference or delta-T measurement. This delta-T measurement is representative of the operating state and relative capacity of the heat pump system. Measuring the change in delta-T determines the need for defrost. The coil sensor also serves to sense outdoor coil temperature for termination of the defrost cycle.

### Fault Detection

A fault condition is indicated by the flashing Fault LED light on the defrost control board located inside the heat pump control box.

In normal operation, the status LED will flash once each second when idle or twice each second with a call for heating or cooling.

### PIN Identification

1. TEST_COMMON (Shorting any of the other pins to this pin causes the function of the other pin to be executed. Leaving this pin open results in the normal mode of operation).
2. FRC_DFT = Forced Defrost (Short TEST_COMMON to this pin speeds up all defrost. Remove the short after defrost initiates.

### Defrost Control Checkout

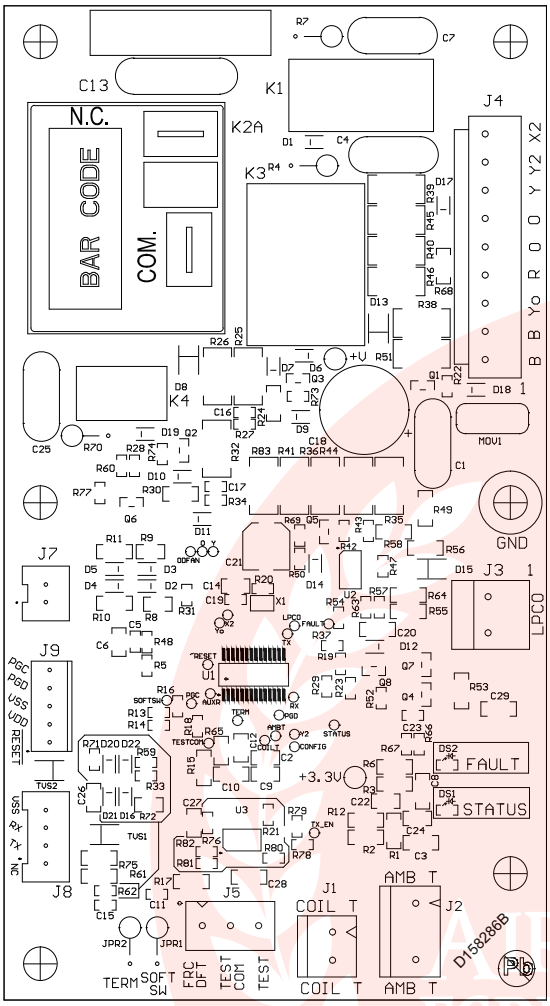
Normal operation requires:

a. Status LED on board flashing 1 time/second in standby or 2 times/second with a call for heating or cooling.

b. 24V AC between R & B

c. 24V AC between Y, Y0 & B with unit operating

d. Defrost initiation when FRC_DFT pin is shorted to TEST_COMMON pin.




### Test Sensors

Measure the temperature the subject sensor is exposed to.If the sensor is mounted on a tube, place the lead on an Annie A-8 (or equiv.) temperature tester on the same tube near the sensor and insulate the bulb.

Unplug the sensor and measure the resistance with a good quality ohmmeter (Simpson 260 or equiv.). Read the value as quickly as possible to prevent the meter current from changing the resistance reading.

Using the chart in Table 1, p. 12, locate (as close as possible) the actual sensor temperature. The measured resistance should be relatively close to the resistance value shown in the chart.

**Table 1. Defrost Control Thermistor Table**

| TEMP °F | TEMP °C | THERMISTOR RESISTANCE (OHMS) | Vo (Volts) |
|---|---|---|---|
| -15.00 | -26.11 | 135976 | 2.50 |
| -10.00 | -23.33 | 115112 | 2.40 |
| -5.00 | -20.56 | 97745 | 2.29 |
| 0.00 | -17.78 | 83247 | 2.17 |
| 5.00 | -15.00 | 71108 | 2.05 |
| 10.00 | -12.22 | 60916 | 1.93 |
| 15.00 | -9.44 | 52333 | 1.81 |
| 20.00 | -6.67 | 45076 | 1.69 |
| 25.00 | -3.89 | 38927 | 1.56 |
| 30.00 | -1.11 | 33703 | 1.45 |
| 35.00 | 1.67 | 29253 | 1.33 |
| 40.00 | 4.44 | 25452 | 1.22 |
| 45.00 | 7.22 | 22198 | 1.12 |
| 50.00 | 10.00 | 19405 | 1.02 |
| 55.00 | 12.78 | 17002 | 0.93 |
| 60.00 | 15.56 | 14930 | 0.85 |
| 65.00 | 18.33 | 13138 | 0.77 |
| 70.00 | 21.11 | 11586 | 0.70 |
| 75.00 | 23.89 | 10238 | 0.63 |
| 80.00 | 26.67 | 9065 | 0.57 |
| 85.00 | 29.44 | 8043 | 0.52 |
| 90.00 | 32.22 | 7150 | 0.47 |
| 95.00 | 35.00 | 6368 | 0.42 |
| 100.00 | 37.78 | 5682 | 0.38 |
| 105.00 | 40.56 | 5079 | 0.35 |
| 110.00 | 43.33 | 4548 | 0.31 |
| 115.00 | 46.11 | 4079 | 0.28 |
| 120.00 | 48.89 | 3665 | 0.26 |
| 125.00 | 51.67 | 3298 | 0.23 |
| 130.00 | 54.44 | 2972 | 0.21 |
| 135.00 | 57.22 | 2683 | 0.19 |

Example:

Sensor temp. = 19°F
Measured Resistance = 46K ohms
This sensor is good since the measured value is relatively close to the chart value.

**Table 2. Demand Defrost Quick Specifications**

| COMPRESSOR | SCROLL | SCROLL |
|---|---|---|
| MNEMONIC NO<br>CNT | 07824 | 07825 |
| GROUP NOMENCLATURE [a] | G01 / G04 / G06 | G02 / G07 |
| SUPERSEDURE<br>CNT | NA | NA |
| OD FAN TYPE – PSC/ECM | PSC | ECM |
| | 1-SPD | 1-SPD |
| DEFROST ENABLED: Y = ON<br>COIL TEMPERATURE = | ≤52° F [b] | ≤52° F |
| DEFROST PERMIT: Y = ON<br>COIL TEMPERATURE = | ≤32° F | ≤32° F |
| MIN DEFROST TIME (MINUTES) | 1 | 1 |
| TARGET DEFROST TIME (MINUTES) | 4 | 4 |
| MAX TIME OVERRIDE (MINUTES) | 15 | 15 |
| DEFROST TERMINATE COIL TEMPERATURE (Factory Setting) | 47° F | 47° F |
| DEFROST HI TERMINATE COIL TEMPERATURE (Cut Jumper 2) | 70° F | 70° F |
| SOV SWITCH-OVER DELAY<br>AFTER DEFROST TERM. (SECONDS) | 12 | 12 |
| DEFEAT SWITCH-OVER DELAY (SECONDS) (Cut Jumper 2) | 0 | 0 |
| LOW AMBIENT HEAT PUMP LOCK OUT | -7° F | -7° F |
| LOW AMBIENT HEAT PUMP RESUME | 3° F | 3° F |
| LPCO INPUT TO CONTROL | YES | YES |
| LPCO BYPASS IN/OUT DEFROST (MINUTES) | 3 | 3 |

[a] GROUP suffix for drawing number D159982
[b] ≤ (EQUAL OR LESS THAN)

**Table 3. LED Fault Codes**

| LED FAULT CODES | FAULT DESCRIPTION | DEFROST CONTROL BEHAVIOR |
|---|---|---|
| 1 FLASH | Ambient Temp Sensor is out of range (open/ shorted) | Initiate a 15 minute forced Defrost after every 60 minutes of runtime. See Note 1 & 2 |
| 2 FLASH | Coil Temp Sensor is out of range (open/shorted) | Initiate a 15 minute forced Defrost after every 60 minutes of runtime. See Note 2 |
| 3 FLASH | Low Pressure Switch is open | 3 flash goes away when/if LPCO closes |
| 4 FLASH | Hard Lock Out (can only be cleared with power cycle) | Occurs after 9th trip of LPCO. Note 6 |
| 5 FLASH | Soft Lock Out | 5 flash goes away after soft lockout periods expires. See Note 2 |
| 6 FLASH | Defrost cycles too close together | Heating Short Cycle Fault triggers 6 flash & 5 flash codes. Follow Soft Lock-out sequence until Hard Lock-out (4 flash) or can clear if conditions no longer exist |
| 7 FLASH | In Timed Defrost mode. Check Ambient sensor placement and verify SOV is operating properly. | Implied sensor fault (calibration/range) set after defrost and reset after 15 minutes run time after defrost. See Note 4 |

**Table 3. LED Fault Codes (continued)**

| LED FAULT CODES | FAULT DESCRIPTION | DEFROST CONTROL BEHAVIOR |
|---|---|---|
| 8 FLASH | In Timed Defrost mode. Check Coil sensor placement and verify SOV is operating properly. | Outdoor temperature is below -7° F. See Note 5. |
| 9 FLASH | Low Ambient Soft Lock-out Outdoor temperature dropped below 3°F. (OFF at -7° F/ ON at 3°F) | Outdoor temperature is below -7° F. See Note 5. |

1. Initiate Adaptive/Timed Defrost so long as Coil Temp Sensor is functional. Monitor actual time in defrost and add or reduce run time until next forced defrost based on achieving a 4 minute (+/- 1) defrost period.
2. This Defrost control utilizes a safety method called “Inferred LPCO”. If both Coil Temp Sensor and Ambient Temp Sensor have failed, initiate a 15 minute forced defrost after every 60 minutes of run time. This is in conjunction with the normal Low Pressure trip definitions. An “Inferred LPCO” trip is defined as: A heating cycle that enters defrost in 15 minutes or less and then enters another defrost in the same heating call within 15 minutes of the last

defrost call -does not complete a learning algorithm. This could be caused by a condenser fan motor failure or other reasons. The first soft lockout occurs on the 4th defrost that was entered before the learning routine could complete in the same heating call. It is announced with a 5 flash and a 6 flash fault. After this first 15 minute soft lockout, the system will return to normal operation. Should this continue operating in this manner, there will be a 30 minute soft lockout and so on. At the end of the lockout process, if a hard lock is necessary —a flash will be announced and system operation is interrupted. If the ambient temperature climbs above 40 degrees F for more than 30 minutes, this clears this fault count and resumes normal operation.

3. Do not track if Y cycles off or if defrost takes 15 minutes (Max Time Override). Ambient Sensor reading is monitored at the end of defrost and should not deviate more than +/-5° F. Ambient Sensor must report a lower temperature than the Coil Sensor immediately after defrost (Coil Sensor should always be higher than Ambient Sensor when defrost terminates).
4. Do not track if Y cycles off or if defrost takes 15 minutes (Max Time Override). Coil Sensor reading is monitored at the end of defrost and reading must be less than Ambient Sensor after 15 minutes of run time.
5. Once ambient drops to -7° F or lower, wait 5 minutes before soft lockout begins. During soft lock out the Y signal passes through to the X2 output. Resume operation when ambient temperature rises to 3° F or higher and after a 15 minute soft lockout period expires.
6. During Hard Lockout, the X2 relay opens so that the Y signal does not pass through.

| LPCO Inferred LPCO | HEATING Mode | Flash Code |
|---|---|---|
| 1st Trip | 15 minute soft lock-out period | 5 and 6 flash |
| 2nd Trip | 30 minute soft lock-out period | 5 and 6 flash |
| 3rd Trip | 45 minute soft lock-out period | 5 and 6 flash |
| 4th - 8th Trip | 18 hour soft lock-out period | 5 and 6 flash |
| 9th Trip [a] | Hard lock-out | 4 flash |

[a] If LPCO is open, a 3 flash can accommodate any of the faults above and will clear when the LPCO closes.

| LPCO | COOLING Mode | Flash Code |
|---|---|---|
| 1st Trip | 15 minute soft lock-out period | 5 and 6 flash |
| 2nd Trip | 30 minute soft lock-out period | 5 and 6 flash |
| 3rd Trip | 45 minute soft lock-out period | 5 and 6 flash |
| 4th - 8th Trip | 18 hour soft lock-out period | 5 and 6 flash |
| * Once the LPCO closes, the 3 flash fault will not continue showing — only 5 flash if in the soft lock-out period. | | |

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# Indoor Fan Performance

| 5WCC4048A | | EXTERNAL STATIC PRESSURE (IN.WG) Horizontal Airflow [Down Airflow] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Motor Speed** | | **0.0** | **0.1** | **0.2** | **0.3** | **0.4** | **0.5** | **0.6** | **0.7** | **0.8** | **0.9** | **1** |
| LOW | Watts | 359 [367] | 371 [378] | 383 [390] | 404 [412] | 406 [414] | 418 [426] | 429 [438] | 440 [449] | - | - | - |
| | CFM | 1649 [1632] | 1616 [1600] | 1581 [1565] | 1516 [1501] | 1509 [1494] | 1475 [1460] | 1441 [1427] | 1408 [1394] | - | - | - |
| MED-LOW [a] | Watts | - | 475 [485] | 487 [497] | 499 [509] | 512 [522] | 524 [534] | 537 [548] | 549 [560] | 563 [574] | - | - |
| | CFM | - | 1803 [1785] | 1774 [1756] | 1742 [1725] | 1709 [1692] | 1678 [1661] | 1644 [1628] | 1612 [1596] | 1578 [1562] | - | - |
| MED-HIGH | Watts | - | - | 536 [547] | 559 [570] | 562 [573] | 575 [586] | 588 [600] | 600 [612] | 612 [625] | - | - |
| | CFM | - | - | 1789 [1771] | 1731 [1713] | 1724 [1707] | 1693 [1676] | 1661 [1645] | 1630 [1614] | 1600 [1584] | - | - |
| HIGH | Watts | - | - | - | - | 601 [613] | 613 [625] | 631 [644] | 643 [656] | 647 [660] | - | - |
| | CFM | - | - | - | - | 1806 [1788] | 1769 [1751] | 1728 [1711] | 1688 [1671] | 1652 [1635] | - | - |

***Note:*** *Airflow must not exceed 1800 CFM due to condensate blowoff.*

[a] Factory Default Settings.

# MCB Code Table

| Condition | Green LED | Amber LED |
|---|---|---|
| Idle or Off | Off | Off |
| Startup | On | On |
| No Active Alarm | Slow Flash | On |
| Active Alarm (Refrigerant Leak, Sensor Communication Error, or Sensor Error) | 3 Flash | On |
| Past Refrigerant Detected Alarm | 4 Flash | On |
| Past Sensor Communication Error | 5 Flash | On |
| Past Sensor Error | 6 Flash | On |

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# Troubleshooting Chart

**P-PRIMARY CAUSES / S-SECONDARY CAUSES**

| SYSTEM FAULTS | Power Supply | High Voltage Wiring | Compr. IOL | Run Capacitor | Start capacitor | Start Relay | Contactor Contacts | Low Voltage Wiring | Control Transformer | Contactor Coil | Low Voltage Fuse | Stuck Compressor | Ineffecient Compressor | Refrigerant Undercharge | Refrigerant Overcharge | Excessive Evap. Load | Noncondensables | Restricted O.D. Airflow | O.D. Air Recirculation | TXV Stuck Open | Low Superheat | High Superheat | Restricted I.D. Airflow | Ref. Circuit Restrictions | Mitigation System |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **REFRIGERANT CIRCUIT** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Liquid Pressure too High | | | | | | | | | | | | | | | P | | S | P | S | | | | | S | |
| Liquid Pressure too Low | | | | | | | | | | | | | S | P | | | | | | S | | S | | S | |
| Suction Pressure too High | | | | | | | | | | | | | S | | P | P | | | | S | S | | | | |
| Suction Pressure too Low | | | | | | | | | | | | | | S | | | | | | | | S | P | S | |
| Liquid Refrigerant Floodback (TXV System) | | | | | | | | | | | | | | | | | | | | S | S | | P | | |
| I.D. Coil Frosting | | | | | | | | | | | | | | P | | | | | | | S | | P | S | |
| Compressor Runs Inadequate or No Cooling | | | | | | | | | | | | | S | P | | P | S | S | S | | | S | P | S | |
| **ELECTRICAL** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Compressor & O.D. Fan Do Not Start | P | P | | | | | S | S | P | P | P | | | | | | | | | | | | | | P |
| Compressor will not Start but O.D. Fan Runs | | P | S | P | P | P | | | | | | S | | | | | | | | | | | | | |
| O.D. Fan will Not Start | | P | | P | | | | | | | | | | | | | | | | | | | | | |
| Compressor Hums but will Not Start | | P | | P | P | P | S | | | | | S | | | | | | | | | | | | | |
| Compressor Cycles on IOL | | P | S | P | P | P | S | | | | | P | S | P | S | S | S | S | S | | | S | | S | |
| I.D. Blower willnot Start | P | S | | | | | | S | P | | P | | | | | | | | | | | | | | |

# Important Product Information

Packaged Unit Serial Number_____

Packaged Unit Model Number_____

Date of Installation_____

Dealer_____

**Service Information**

Call your installing dealer if the unit is inoperative. Before you call, always check the following to be sure service is required:

1. Be sure the main switch that supplies power to the unit is in the ON position.
2. Replace any burned-out fuses or reset circuit breakers.
3. Be sure the thermostat is properly set.

Service Phone _____

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Supersedes (New)

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