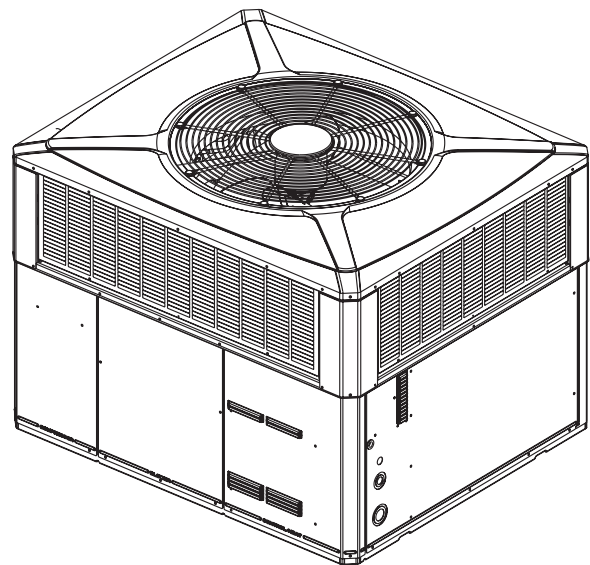


# Service Facts

## Single Packaged Cooling/Electric Heat

4TCC4036A1000A



**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.

# 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.

## ⚠ WARNING

### UNIT CONTAINS R-410A REFRIGERANT!

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

R-410A operating pressure exceeds the limit of R-22. Proper service equipment is required. Service using only R-410A Refrigerant and approved POE compressor oil.

## ⚠ 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

### 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](http://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.

# Product Specifications

<b>MODEL</b>	4TCC4036A1000A
RATED Volts/PH/Hz	208-230/1/60
Performance Cooling BTUH <sup>(a)</sup>	37000
Indoor Airflow (CFM)	1190
Power Input (KW)	3.08
EER/SEER (BTU/Watt-Hr.) <sup>(b)</sup>	12.0 / 14.00
Sound Power Rating [dB(A)] <sup>(c)</sup>	69.3
<b>POWER CONN. — V/Ph/Hz</b>	208-230/1/60
Min. Brch. Cir. Ampacity <sup>(d)</sup>	24.5
Fuse Size — Max. (amps)	40
Fuse Size — Recmd. (amps)	40
<b>COMPRESSOR</b>	SCROLL
VOLTS/PH/HZ	208-230/1/60
R.L. Amps — L.R. Amps	15.4 / 83.9
<b>OUTDOOR COIL — TYPE</b>	SPINE-FIN
Rows/F.P.I	2 / 24
Face Area (sq. ft.)	15.49
Tube Size (in.)	3/8
<b>INDOOR COIL — TYPE</b>	MCHE
Rows/F.P.I	2 / 16
Face Area (sq. ft.)	2.7
Tube Size (in.)	1.0
Refrigeration Control	EXPANSION VALVE
Drain Conn. Size (in.)	3/4 FEMALE NPT
<b>OUTDOOR FAN — TYPE</b>	PROPELLER
DIA. (IN.)	23.4
DRIVE/NO. SPEEDS	DIRECT / 1
CFM @ 0.0 in. w.g. <sup>(e)</sup>	3080

Motor — HP/R.P.M	1 / 5 / 825
Volts/Ph/Hz	208-230/1/60
F.L. Amps/L.R Amps	1.1 / 2.0
<b>INDOOR FAN — TYPE</b>	CONSTANT TORQUE ECM
Dia. x Width (in.)	10.62 X 10.62
Drive/No. Speeds	DIRECT / 3
CFM @ 0.0 in. w.g. <sup>(f)</sup>	SEE FAN PERF TABLE
Motor — HP/R.P.M.	1/2 / 1050
Volts/Ph/Hz	208-230/1/60
F.L. Amps	4.1
<b>FILTER / FURNISHED</b>	NO
Type Recommended	THROWAWAY
Recmd. Face Area (sq. ft) <sup>(g)</sup>	4.0
<b>REFRIGERANT</b>	R-410
Charge (lbs.)	7.2
<b>CHARGING SPECIFICATIONS</b>	
Subcooling	11°
<b>DIMENSIONS</b>	H X D X W
Crated (in.)	48 X 45 X 52
<b>WEIGHT</b>	
Shipping (lbs.) / Net (lbs.)	453 / 379

<sup>(a)</sup> Rated in accordance with AHRI Standard 210/240.

<sup>(b)</sup> Rated in accordance with D.O.E. test procedure.

<sup>(c)</sup> Sound Power values are not adjusted for AHRI 270-95 tonal corrections.

<sup>(d)</sup> Calculated in accordance with currently prevailing Nat'l Electrical Code.

<sup>(e)</sup> Standard Air — Dry Coil — Outdoor.

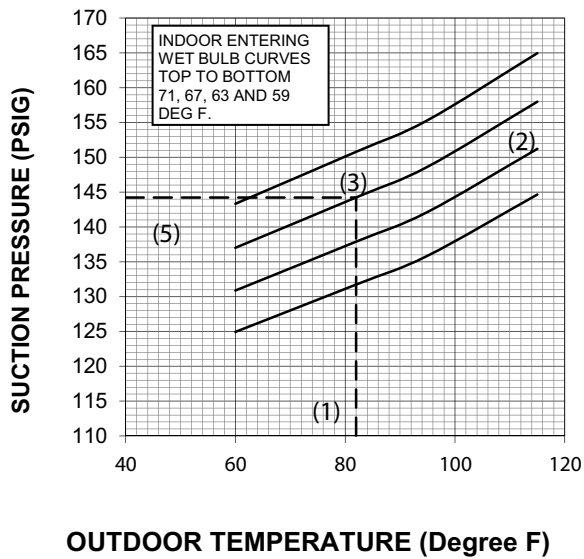
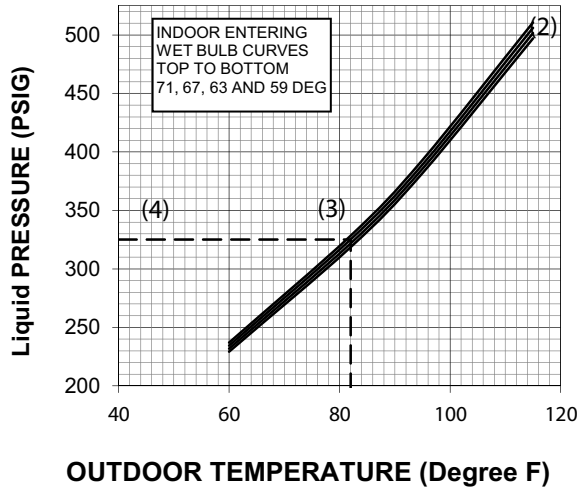
<sup>(f)</sup> Standard Air — Dry Coil — Indoor

<sup>(g)</sup> 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.

# Pressure Curves

Figure 1. 4TCC4036A1

## Cooling



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 LIQUID (4) OR SUCTION (5) PRESSURE IN LEFT COLUMN.

EXAMPLE: (1) OUTDOOR TEMP. 82 F.  
 (2) INDOOR WET BULB 67 F.  
 (3) AT INTERSECTION  
 (4) DISCHARGE PRESSURE @ 1200 CFM CFM IS 326 PSIG.  
 (5) SUCTION PRESSURE @ 1200 CFM CFM IS 144 PSIG.

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

DWG.NO. 4TCC4036A1

# Sequence of Operation

## General

Operation of the system cooling (and optional heating) cycles is controlled by the comfort control. Once the comfort control is set to either the HEAT or COOL, unit operation is automatic. The optional automatic changeover comfort control, when set to AUTO, automatically changes to heat or cool with sufficient room temperature change.

With the unit disconnect closed, voltage is supplied to the unit control transformer and the crankcase heater (if provided). On single phase units, the crankcase heater is an option that is field installed.

## Cooling Mode

With the comfort control set to COOL and the fan set to AUTO, the compressor contactor (CC) and the indoor fan motor (IDM) are energized.

The energized compressor contactor (CC) completes the circuit to the compressor (CPR) and a secondary circuit to the outdoor fan motor (ODM). If the compressor safety controls are closed, the compressor (CPR) will operate with the outdoor fan motor (ODM). The indoor fan motor (IDM) will operate. The comfort control will continue to cycle the compressor and fans to maintain the desired temperature.

With the fan switch set to ON, the indoor fan motor (IDM) will continue to run regardless of compressor and condenser fan operation. Continuous fan mode during cooling operation may not be appropriate in humid climates. If the indoor air exceeds 60% relative humidity or simply feels uncomfortably humid, it is recommended that the fan only be used in the AUTO mode.

## Heating Mode

Heating mode uses electric heaters, which are installed separately. Refer to the Supplemental Electric Heaters Installer's Guide for additional information.

On a call for heat, power from the comfort control is received at "W1," which energizes the "AH" contactor coil. The "AH" contactor closes, powering the heater provided all element limits are closed.

If two stages of heat are provided and additional heat is required, the comfort control's second stage "W2" circuit is energized powering the "BH" contactor coil.

**Note:** The comfort control must be configured to provide a "G" signal to energize the indoor fan during the heating mode.

**Table 1. Pressure Drop for Electric Heater**

AIRFLOW CFM	NUMBER OF RACKS	
	1	2
	AIR PRESSURE DROP INCHES W.G.	
600	.003	-
800	.004	-
1000	.005	.007
1200	.006	.008
1400	.007	.009
1600	.008	.01
2000	.01	.02
From Dwg. No. 21A730642		

## Sequence of Operation

### Indoor Fan Performance (230v)

**Table 2. Horizontal Airflow**

4TCC4036A1		EXTERNAL STATIC PRESSURE (IN. WG)										
MOTOR SPEED		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
COOLING — LOW	WATTS	247	254	262	269	277	285	291	300	311	-	-
	CFM	1131	1092	1058	1022	983	942	899	857	804	-	-
COOLING — MED	WATTS	339	350	358	366	374	383	391	399	386	-	-
	CFM	1256	1223	1193	1167	1136	1101	1065	1026	955	-	-
COOLING — HIGH	WATTS	471	479	488	497	506	499	454	406	-	-	-
	CFM	1402	1372	1344	1316	1289	1241	1144	1025	-	-	-

**Table 3. Down Airflow**

4TCC4036A1		EXTERNAL STATIC PRESSURE (IN. WG)										
MOTOR SPEED		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
COOLING — LOW	WATTS	246	255	263	271	278	285	293	301	312	-	-
	CFM	1124	1087	1053	1016	978	938	895	852	800	-	-
COOLING — MED	WATTS	343	351	359	367	376	384	392	400	379	-	-
	CFM	1249	1216	1185	1155	1122	1089	1054	1016	934	-	-
COOLING — HIGH	WATTS	476	485	493	501	508	488	449	398	-	-	-
	CFM	1390	1357	1329	1301	1273	1212	1125	1008	-	-	-

# 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.

<b>R-410A REFRIGERANT CHARGING CHART</b>									
<b>Refer to Service Facts or Installer's Guide for charging method</b>									
LIQUID TEMP (°F)	DESIGN SUBCOOLING (°F)								
	6	8	9	10	11	12	13	14	16
	LIQUID GAGE PRESSURE (PSI)								
55	174	179	182	185	188	191	195	198	205
60	189	195	198	201	204	208	211	215	222
65	205	211	215	218	222	225	229	232	240
70	222	229	232	236	240	243	247	251	259
75	240	247	251	255	259	263	267	271	279
80	259	267	271	275	279	283	287	291	301
85	279	287	291	296	300	304	309	313	323
90	301	309	313	318	322	327	331	336	347
95	323	331	336	341	346	351	355	360	371
100	347	355	360	365	370	376	381	386	398
105	371	381	386	391	396	402	407	413	425
110	398	407	413	418	424	429	435	441	454
115	425	435	441	446	452	458	464	470	484
120	454	464	470	476	482	488	495	501	516
125	484	495	501	507	514	520	527	533	549

From Dwg. D154557P01

# Wiring Diagrams

Figure 2. 4TCC4024 – 4042 Models

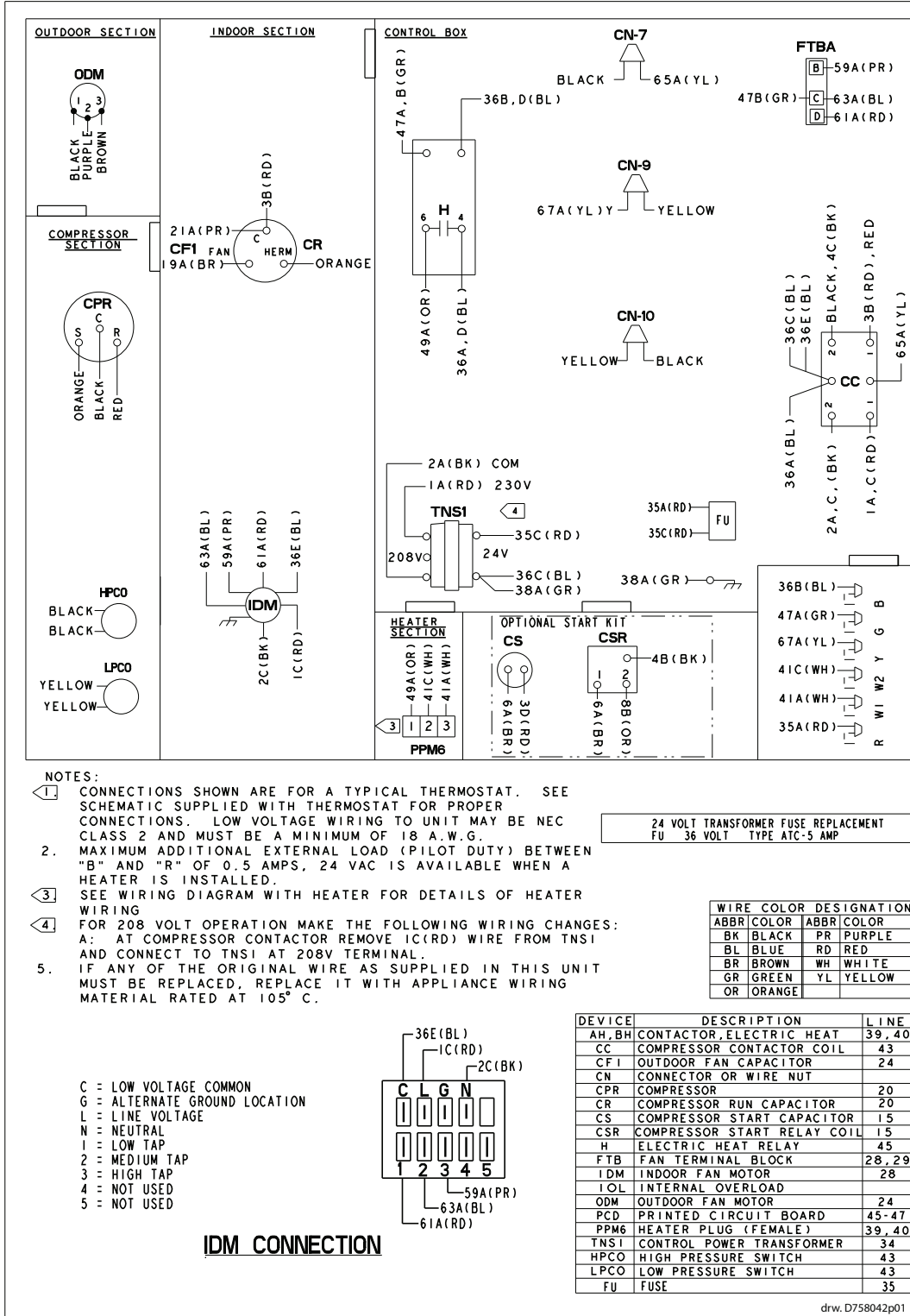
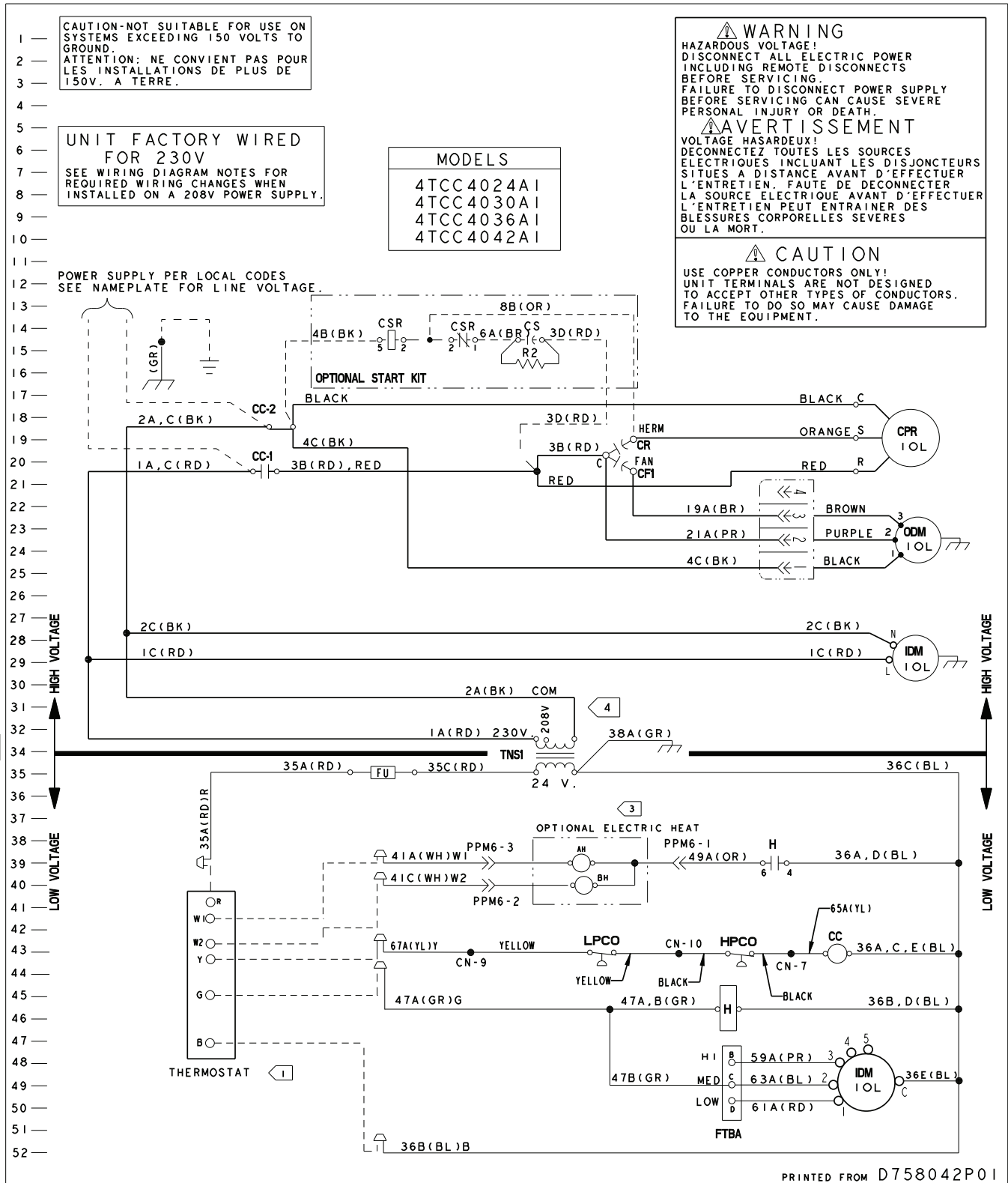
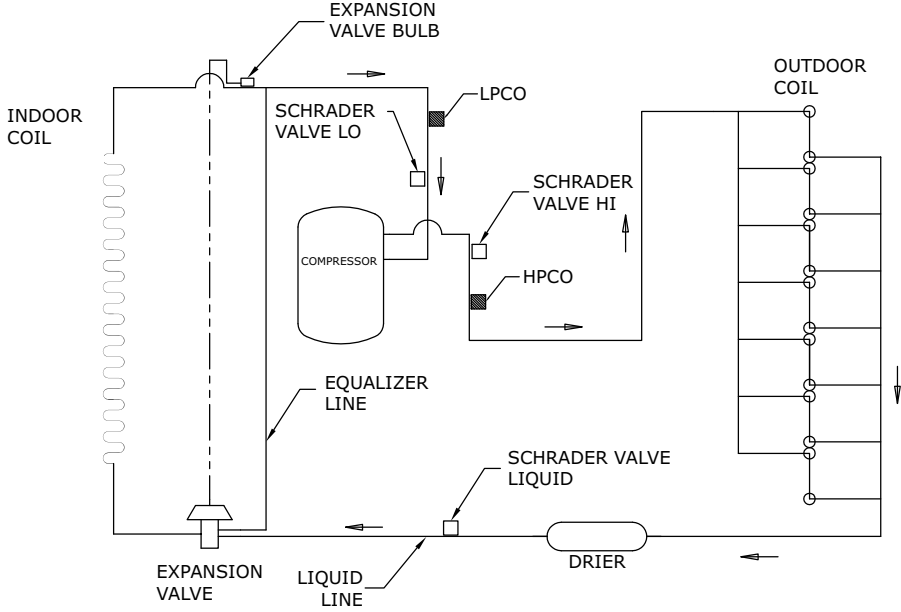




Figure 3. 4TCC4024 – 4042 Models Pg 2



# Refrigerant Circuit



INDICATES DIRECTION OF REFRIGERATION FLOW →

# Troubleshooting Chart

## P-PRIMARY CAUSES / S-SECONDARY CAUSES

SYSTEM FAULTS	Power Supply	High Voltage Wiring	Compr. IOL	Run Capacitor	Start capacitor	Start Relay	Contactors 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
<b>REFRIGERANT CIRCUIT</b>																								
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
<b>ELECTRICAL</b>																								
Compressor & O.D. Fan Do Not Start	P	P					S	S	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 will not Start	P	S						S	P		P													

# Important Product Information

Registering your products helps provide you with one of the strongest manufacturer limited warranties available. To register, go to the manufacturer's website or contact your dealer. You will need the serial number, model number, and installation date for each product being registered. Your dealer may have included these

on your invoice or can provide a list for you to use. Please take a few moments to record the following information to ensure your product registration process is quick and easy:

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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