



# Service Facts

## Split System Cooling 4TTR6048A1000A

**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 - DISCONNECT POWER and DISCHARGE CAPACITORS BEFORE SERVICING**

**⚠ CAUTION**  
**UNIT CONTAINS R-410A REFRIGERANT!**  
 R-410A OPERATING PRESSURE EXCEEDS THE LIMIT OF R-22. PROPER SERVICE EQUIPMENT IS REQUIRED. FAILURE TO USE PROPER SERVICE TOOLS MAY RESULT IN EQUIPMENT DAMAGE OR PERSONAL INJURY.  
**SERVICE**  
 USE ONLY R-410A REFRIGERANT AND APPROVED POE COMPRESSOR OIL.

### PRODUCT SPECIFICATIONS

<b>OUTDOOR UNIT</b> ①②	4TTR6048A1000A
<b>POWER CONNS.</b> — V/PH/HZ ③	208/230/1/60
MIN. BRCH. CIR. AMPACITY	28
BR. CIR. PROT. RTG. — MAX. (AMPS)	45
<b>COMPRESSOR</b>	CLIMATUFF® - SCROLL
NO. USED - NO. STAGES	1 - 2
VOLTS/PH/HZ	208/230/1/60
R.L. AMPS ⑦ - L.R. AMPS	21.2 - 104
FACTORY INSTALLED	
START COMPONENTS ⑧	NO
INSULATION/SOUND BLANKET	NO
COMPRESSOR HEAT	NO
<b>OUTDOOR FAN</b>	PROPELLER
DIA. (IN.) - NO. USED	27.6 - 1
TYPE DRIVE - NO. SPEEDS	DIRECT - 1
CFM @ 0.0 IN. W.G. ④	4260
NO. MOTORS - HP	1 - 1/5
MOTOR SPEED R.P.M.	825
VOLTS/PH/HZ	208/230/1/60
F.L. AMPS	1.0
<b>OUTDOOR COIL</b> — TYPE	SPINE FIN™
ROWS - F.P.I.	1 - 24
FACE AREA (SQ. FT.)	30.79
TUBE SIZE (IN.)	3/8
<b>REFRIGERANT</b>	R-410A
LBS. — R-410A (O.D. UNIT) ⑤	12 LBS.- 9 OZ.
FACTORY SUPPLIED	YES
LINE SIZE - IN. O.D. GAS ⑥	7/8
LINE SIZE - IN. O.D. LIQ. ⑥	3/8
<b>CHARGING SPECIFICATION</b>	
SUBCOOLING	8°F
<b>DIMENSIONS</b>	H X W X D
CRATED (IN.)	51.0 X 35.1 X 38.7
<b>WEIGHT</b>	
SHIPPING (LBS.)	308
NET (LBS.)	271

### TUBING INFORMATION

Tubing Sizes		Tubing Length	Additional Refrigerant
Suction	Liquid		
7/8"	3/8"	20'	3 oz.
7/8"	3/8"	30'	9 oz.
7/8"	3/8"	40'	16 oz.
7/8"	3/8"	50'	22 oz.
7/8"	3/8"	60'	28 oz.

Tubing lengths in excess of sixty (60) feet see application software.

- ① Certified in accordance with the Air-Source Unitary Air-conditioner Equipment certification program, which is based on AHRI standard 210/240. In order to achieve ARI standard rating, the indoor fan time delay on the comfort control must be enabled.
- ② Rated in accordance with AHRI standard 270.
- ③ Calculated in accordance with Natl. Elec. Codes. Use only HACR circuit breakers or fuses.
- ④ Standard Air — Dry Coil — Outdoor
- ⑤ This value approximate. For more precise value see unit nameplate.
- ⑥ Max. linear length 60 ft.; Max. lift - Suction 25 ft.; Max lift - Liquid 25 ft. For greater length consult refrigerant piping software Pub. No. 32-3312-0\* (\* denotes latest revision).
- ⑦ This value shown for compressor RLA on the unit nameplate and on this specification sheet is used to compute minimum branch circuit ampacity and max. fuse size. The value shown is the branch circuit selection current.
- ⑧ No means no start components. Yes means quick start kit components. PTC means positive temperature coefficient starter.

**⚠ CAUTION**  
**HOT SURFACE!**  
**DO NOT TOUCH TOP OF COMPRESSOR.**  
 May cause minor to severe burning.

**⚠ CAUTION**  
**CONTAINS REFRIGERANT!**  
**SYSTEM CONTAINS OIL AND REFRIGERANT UNDER HIGH PRESSURE. RECOVER REFRIGERANT TO RELIEVE PRESSURE BEFORE OPENING SYSTEM.**  
 Failure to follow proper procedures can result in personal illness or injury or severe equipment damage.

**⚠ WARNING**

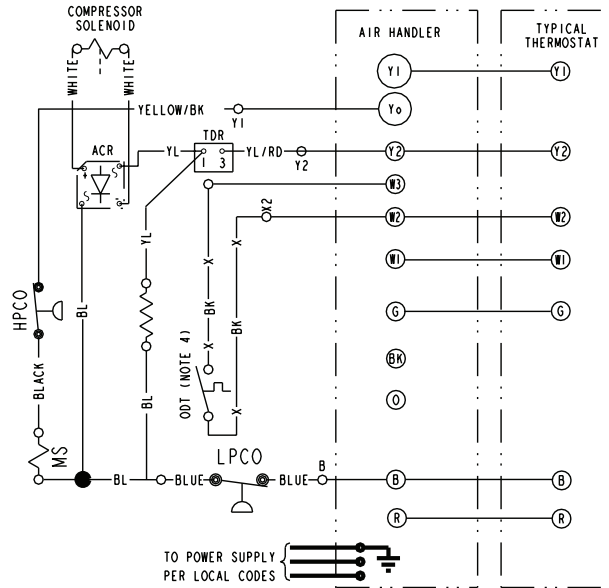
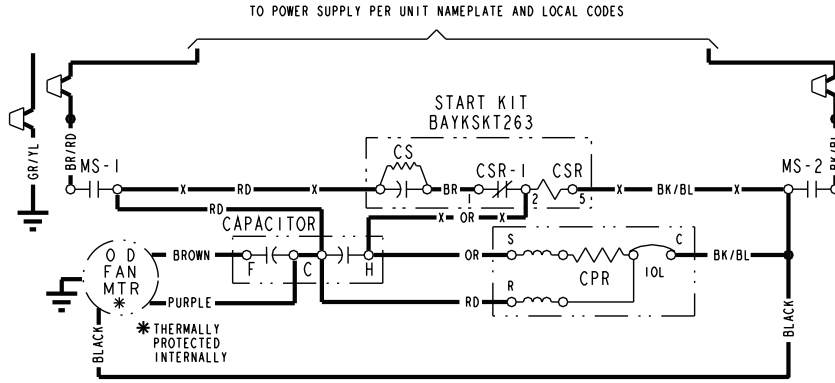
THIS INFORMATION IS INTENDED FOR USE BY INDIVIDUALS POSSESSING ADEQUATE BACKGROUNDS OF ELECTRICAL AND MECHANICAL EXPERIENCE. ANY ATTEMPT TO REPAIR A CENTRAL AIR CONDITIONING PRODUCT MAY RESULT IN PERSONAL INJURY AND OR PROPERTY DAMAGE. THE MANUFACTURER OR SELLER CANNOT BE RESPONSIBLE FOR THE INTERPRETATION OF THIS INFORMATION, NOR CAN IT ASSUME ANY LIABILITY IN CONNECTION WITH ITS USE.

**⚠ CAUTION**

RECONNECT ALL GROUNDING DEVICES. ALL PARTS OF THIS PRODUCT 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.

**NOTICE:** The manufacturer has a policy of continuous product and product data improvement and reserves the right to change design and specifications without notice.

# SCHEMATIC DIAGRAM



CA COOLING ANTICIPATOR	LPCO LOW PRESSURE CUTOFF SW.
CBS COIL BOTTOM SENSOR	MS COMPRESSOR MOTOR CONTACTOR
CF FAN CAPACITOR	ODA OUTDOOR ANTICIPATOR
CN WIRE CONNECTOR	OFT OUTDOOR FAN THERMOSTAT
CPR COMPRESSOR	ODS OUTDOOR TEMPERATURE SENSOR
CR RUN CAPACITOR	ODT OUTDOOR THERMOSTAT
CS STARTING CAPACITOR	RHS RESISTANCE HEAT SWITCH
CSR CAPACITOR SWITCHING RELAY	SC SWITCHOVER VALVE SOLENOID
DFC DEFROST CONTROL	SM SYSTEM "ON-OFF" SWITCH
F INDOOR FAN RELAY	SDL DISCHARGE LINE THERMOSTAT
HA HEATING ANTICIPATOR	TDR TIME DELAY RELAY (5 SEC DELAY ON)
HPCO HIGH PRESSURE CUTOFF SW.	TNS TRANSFORMER
IOL INTERNAL OVERLOAD PROTECTOR	TS HEATING-COOLING THERMOSTAT
ACR A/C RECTIFIER	TSH HEATING THERMOSTAT

**⚠ WARNING**  
HAZARDOUS VOLTAGE!  
DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS BEFORE SERVICING.  
FAILURE TO DISCONNECT POWER BEFORE SERVICING CAN CAUSE SEVERE PERSONAL INJURY OR DEATH!

**⚠ CAUTION**  
USE COPPER CONDUCTORS ONLY!  
UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.  
FAILURE TO DO SO MAY CAUSE DAMAGE TO THE EQUIPMENT!

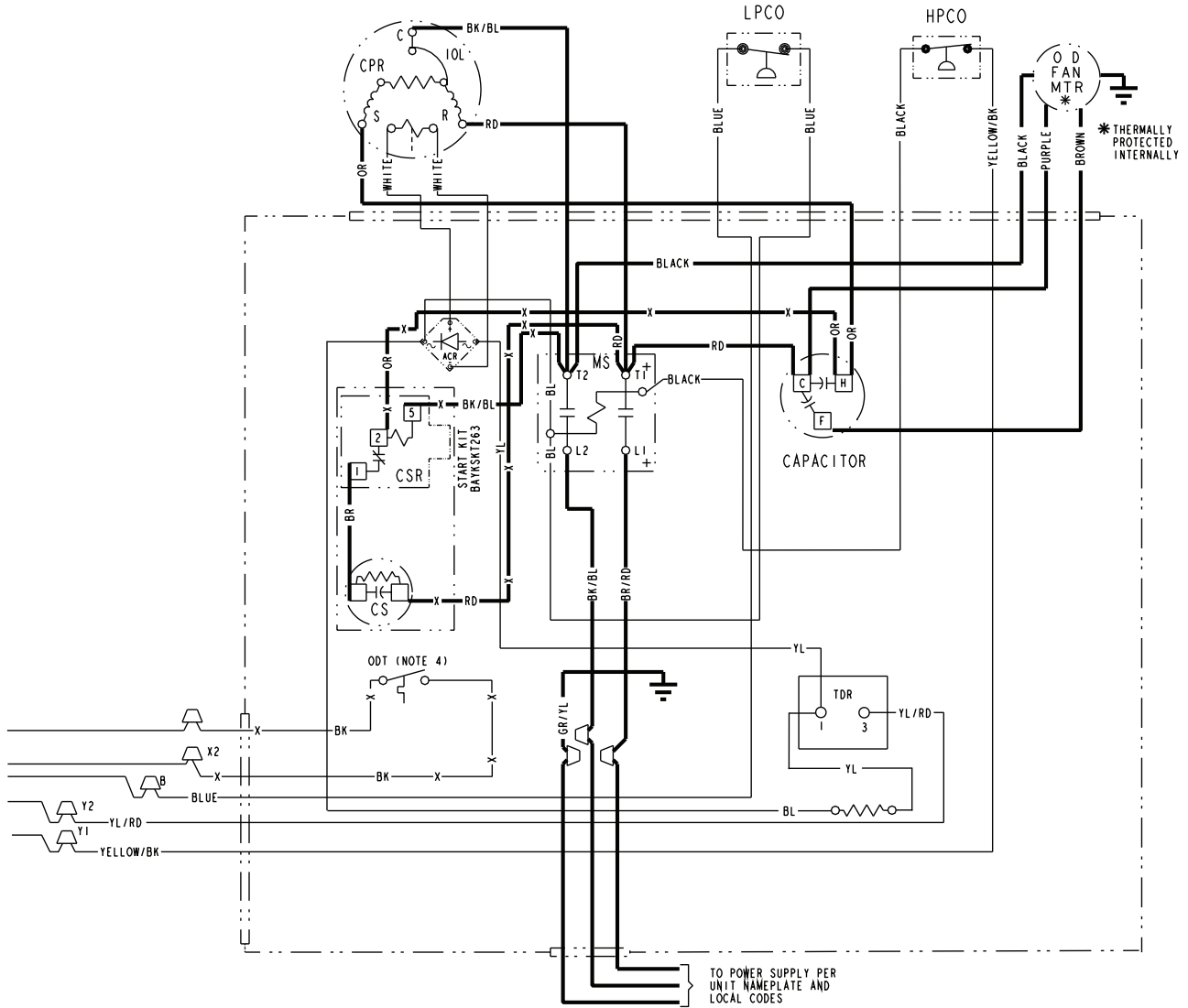
**NOTES:**

1. BE SURE POWER SUPPLY AGREES WITH EQUIPMENT NAMEPLATE.
2. POWER WIRING AND GROUNDING OF EQUIPMENT MUST COMPLY WITH LOCAL CODES.
3. LOW VOLTAGE WIRING TO BE NO. 18 AWG MINIMUM CONDUCTOR.
4. IF OUTDOOR THERMOSTAT (ODT) IS NOT USED, CONNECT W2 TO W3.
5. WITH Y1 ENERGIZED, INDOOR FAN IS 1ST STAGE AIRFLOW.
6. WITH Y1 & Y2 ENERGIZED, INDOOR FAN IS 2ND STAGE AIRFLOW.
7. SEE AIR HANDLER INSTALLER GUIDE FOR DIP SWITCH CONFIGURATIONS.

COLOR OF WIRE	
BK/BL	BLACK WIRE WITH BLUE MARKER
COLOR OF MARKER	
BK	BLACK
BL	BLUE
BR	BROWN
OR	ORANGE
RD	RED
WH	WHITE
YL	YELLOW
GR	GREEN
PR	PURPLE

FOR CANADIAN INSTALLATIONS  
POUR INSTALLATIONS CANADIENNES  
**CAUTION: NOT SUITABLE FOR USE ON SYSTEMS EXCEEDING 150V-TO-GROUND.**  
**ATTENTION: NE CONVIENT PAS AUX INSTALLATIONS DE PLUS DE 150 V A LA TERRE.**

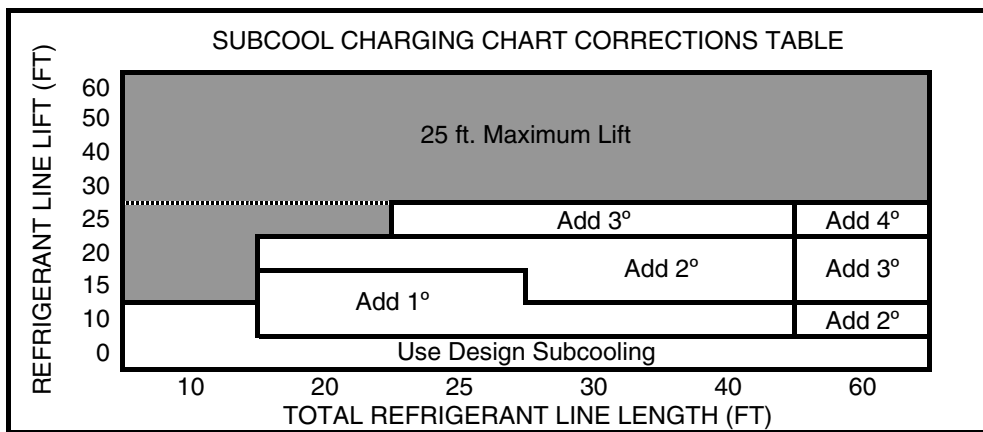
# WIRING DIAGRAM



## LEGEND-EQUIPMENT DIAGRAM

- |  |                                |  |                                       |
|--|--------------------------------|--|---------------------------------------|
|  | 24 V. LINE V. } FACTORY WIRING |  | INTERNAL OVERLOAD PROTECTOR           |
|  | 24 V. LINE V. } FIELD WIRING   |  | PRESSURE ACTUATED SWITCH              |
|  | 24 V. LINE V. }                |  | TEMP. ACTUATED SWITCH                 |
|  | GROUND                         |  | POL. PLUG FEMALE HOUSING (MALE TERM.) |
|  | JUNCTION                       |  | POL. PLUG MALE HOUSING (FEMALE TERM.) |
|  | WIRE NUT OR CONNECTOR          |  | RESISTOR OR HEATING ELEMENT           |
|  | COIL                           |  | MOTOR WINDING                         |
|  | CAPACITOR                      |  | TERMINAL                              |
|  | RELAY CONTACT (N.O.)           |  |                                       |
|  | RELAY CONTACT (N.C.)           |  |                                       |
|  | THERMISTOR                     |  |                                       |

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**MANUAL CHARGING (HIGH STAGE ONLY) IN  
COOLING BETWEEN 55°F AND 120°F OD AMBIENT**

The manufacturer recommends installing approved matched indoor and outdoor systems.

All split systems are AHRI rated with only TXV indoor systems.

The benefits of installing approved indoor and outdoor split systems are maximum efficiency, optimum performance and the best overall system reliability.

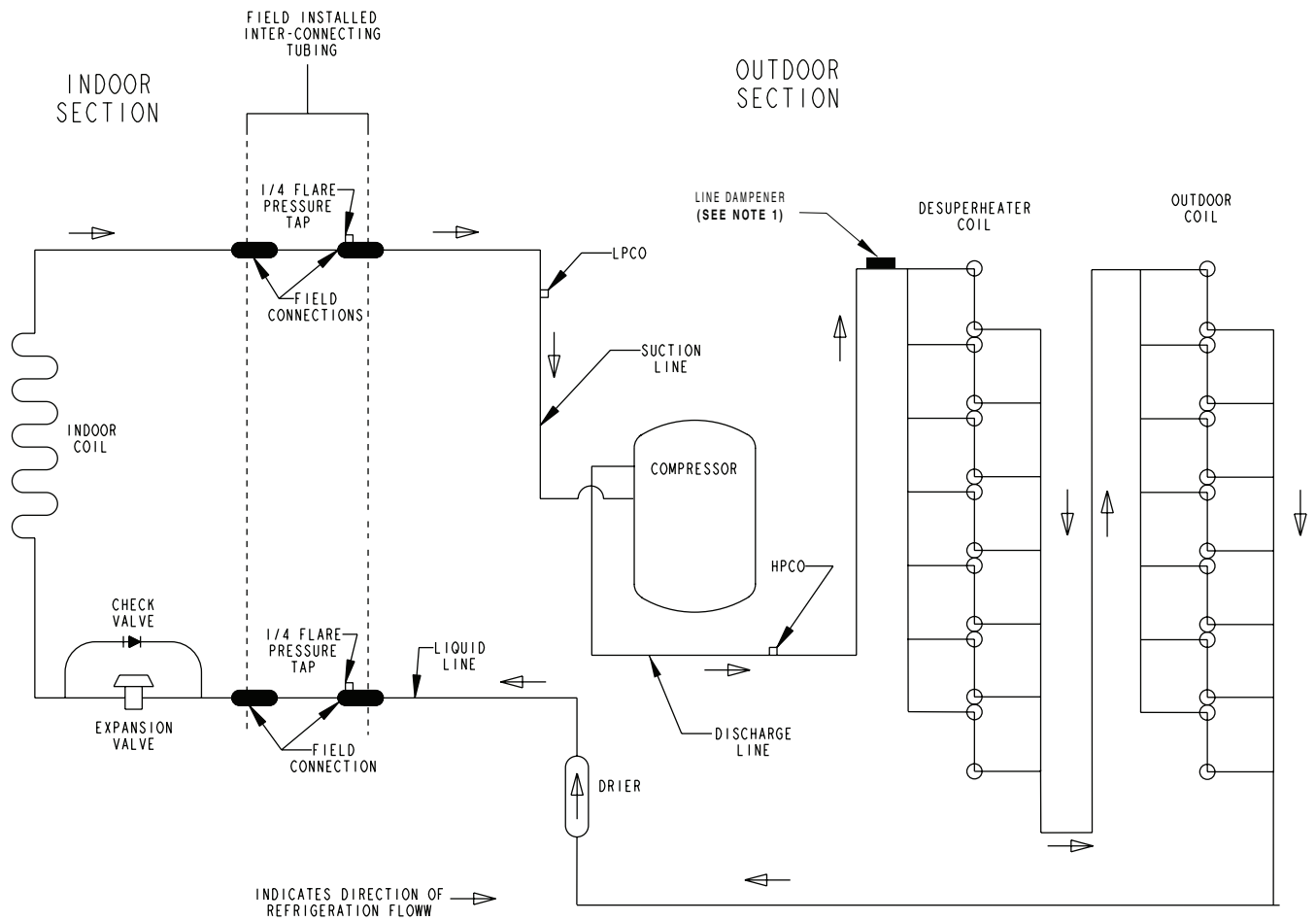
The following charging methods are therefore prescribed for systems with indoor TXVs.

1. Subcooling (in the cooling mode) is the only recommended method of charging above 55°F ambient temperatures.
2. For best results - the indoor temperature should be kept between 70°F to 80°F. Add system heat if needed.
3. At start-up, or whenever charge is removed or added, the system must be operated for a minimum twenty (20) minutes to stabilize before accurate measurements can be made.
4. Measure Liquid Line Temperature and Refrigerant Pressure at service valves.
5. Determine total refrigerant line length, and height (lift) if indoor section is above the condenser. Use the **Subcool Charging Chart Corrections Table** to calculate any additional subcooling required for your specific application.
6. Determine the Design Subcooling from the unit nameplate or Service Facts. Add any additional amount of subcooling calculated in Step 5 to the Design Subcooling to arrive at the final subcooling value.
7. Locate this value in the appropriate column of the **R-410-A Refrigerant Charging Chart**. Locate your liquid line temperature in the left column of the chart, and the intersecting liquid line pressure under your calculated subcooling value column. Add refrigerant to raise the pressure to match the chart, or remove refrigerant to lower the pressure. Again, wait twenty (20) minutes for the system conditions to stabilize before adjusting charge again.
8. When system is correctly charged, you can refer to System Pressure Curves (in Service Facts) to verify typical performance.

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

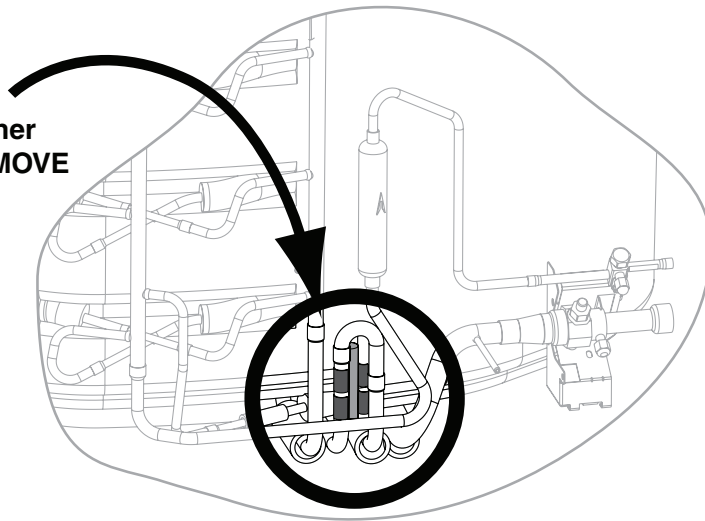
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# REFRIGERATION CIRCUITS

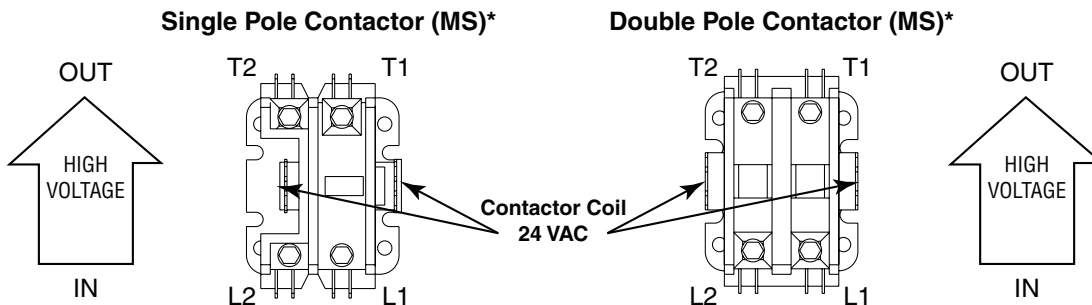
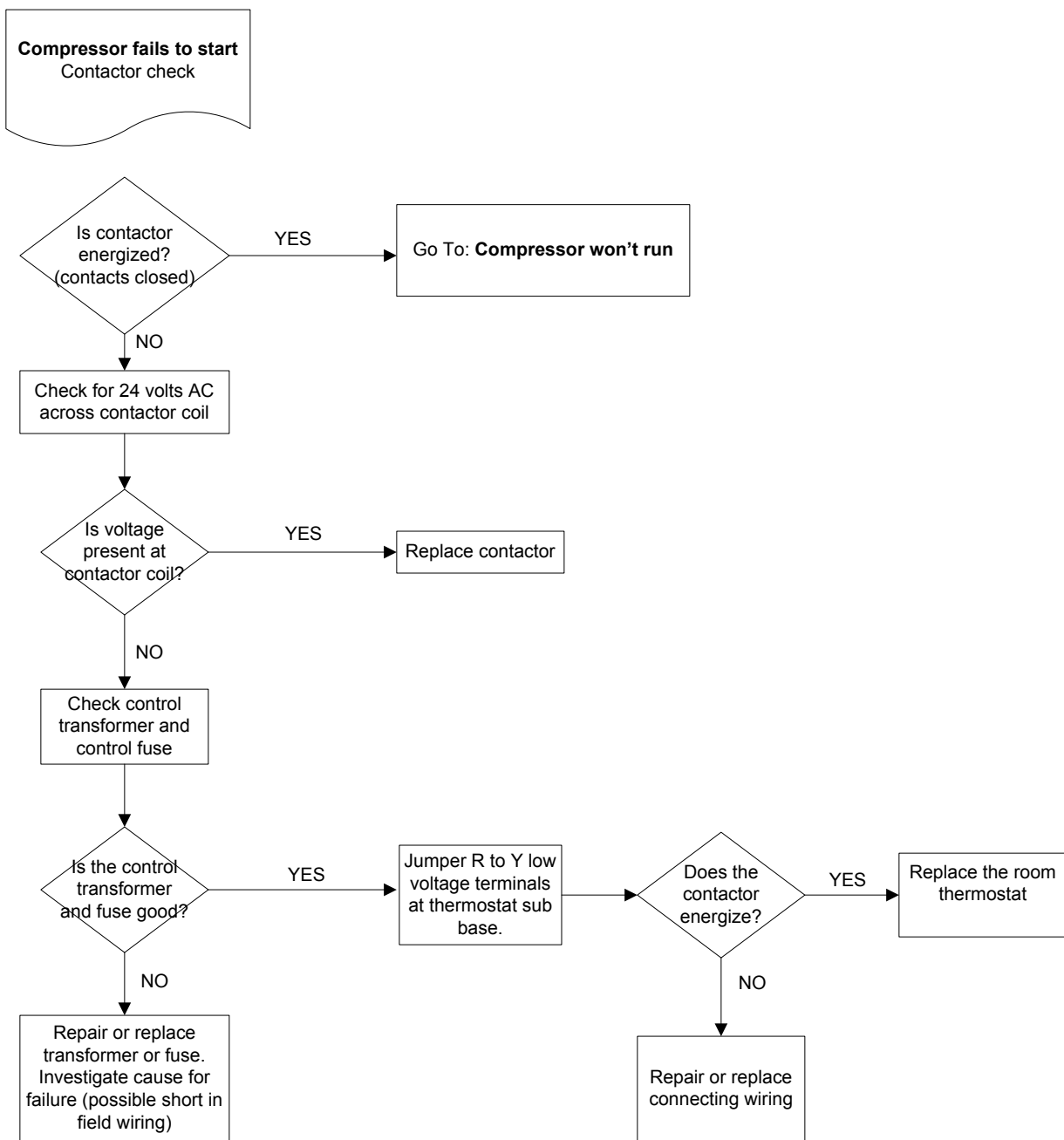


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**NOTE 1:**  
Line Dampener  
DO NOT REMOVE

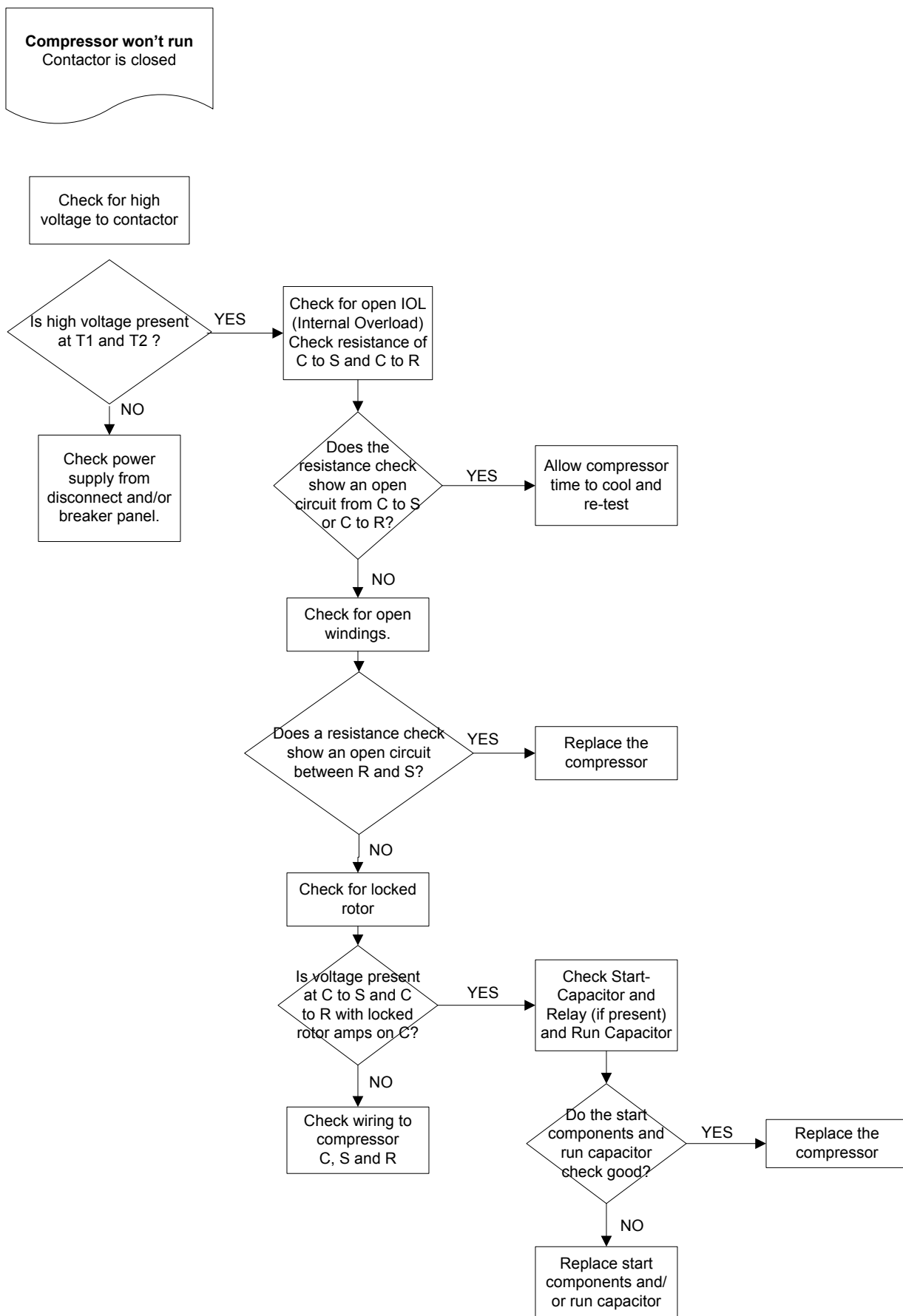


# TROUBLESHOOTING



\*Refer to Wiring Diagram to determine if a single pole or double pole contactor is used.

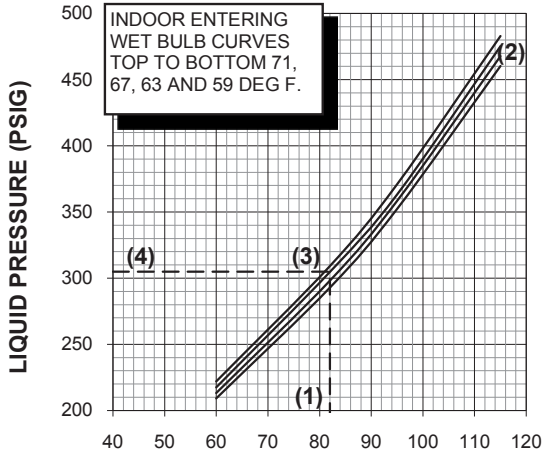
# TROUBLESHOOTING



**PRESSURE CURVES FOR 4TTR6048A1**

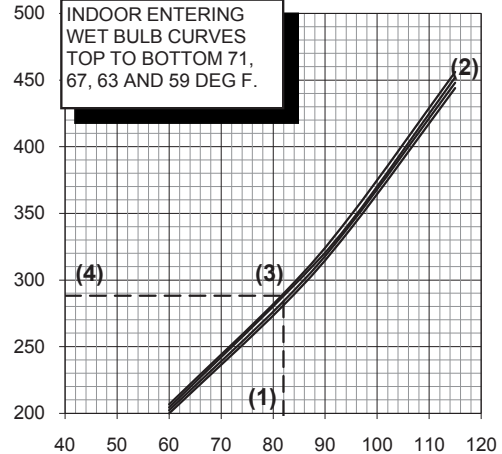
**FIRST STAGE  
TAM7A0C48H41**

Cooling with Thermal Expansion Valve

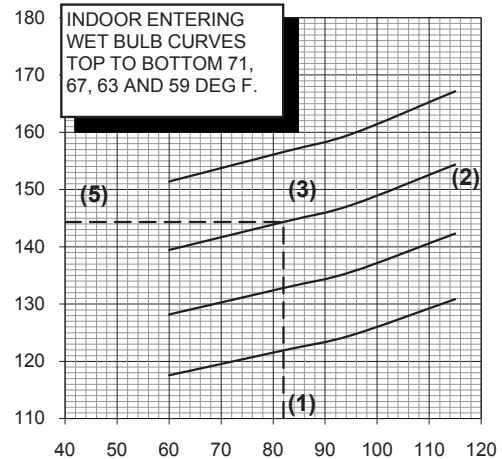
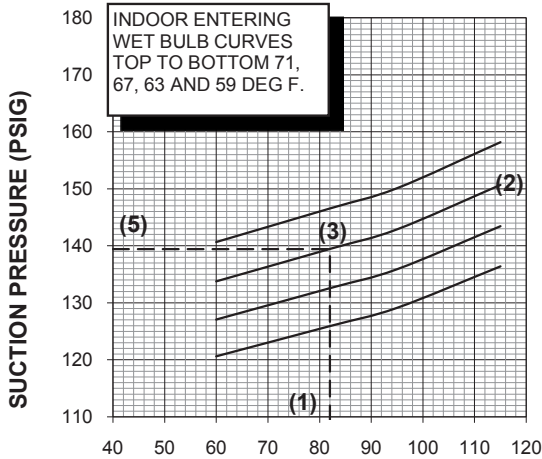


**SECOND STAGE  
TAM7A0C48H41**

Cooling with Thermal Expansion Valve



**OUTDOOR TEMPERATURE (Degree F)**



**OUTDOOR TEMPERATURE (Degree F)**

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, LIQUID 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: FIRST STAGE

- (1) OUTDOOR TEMP. 82 F.
- (2) INDOOR WET BULB 67 F.
- (3) AT INTERSECTION
- (4) LIQUID PRESSURE @ 1050 CFM IS 305 PSIG
- (5) SUCTION PRESSURE @ 1050 CFM IS 139 PSIG

EXAMPLE: SECOND STAGE

- (1) OUTDOOR TEMP. 82 F.
- (2) INDOOR WET BULB 67 F.
- (3) AT INTERSECTION
- (4) LIQUID PRESSURE @ 1400 CFM IS 288 PSIG
- (5) SUCTION PRESSURE @ 1400 CFM IS 144 PSIG

INTERCONNECTING LINES  
GAS - 7/8" O.D.  
LIQUID - 3/8" O.D.

ACTUAL:

LIQUID PRESSURE SHOULD BE +/- 10 PSI OF CHART  
SUCTION PRESSURE SHOULD BE +/- 3 PSIG OF CHART

DWG.NO. 4TTR6048A1

