



Service Facts

Split System Cooling

4TTB3018AA000A, 4TTB3024AA000A,
4TTB3030AA000A, 4TTB3036AA000A

⚠ 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.

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

PRODUCT SPECIFICATIONS

OUTDOOR UNIT	4TTB3018AA000A	4TTB3024AA000A	4TTB3030AA000A	4TTB3036AA000A
POWER CONNS. — V/PH/Hz ①	220-240/1/50	220-240/1/50	220-240/1/50	220-240/1/50
MIN. BRCH. CIR. AMPACITY	15	17	18	21
BR CIR PROT RTG - MAX. (AMPS)	25	30	30	35
COMPRESSOR	SCROLL	SCROLL	SCROLL	SCROLL
NO. USED - NO. SPEEDS	1 - 1	1 - 1	1 - 1	1 - 1
VOLTS/PH/Hz	220-240/1/50	220-240/1/50	220-240/1/50	220-240/1/50
R.L. AMPS ⑤ - L.R. AMPS	10.0 - 52.0	12.1 - 60.0	13.5 - 67.0	16.0 - 87.0
FACTORY INSTALLED				
START COMPONENTS ⑥	NO	NO	NO	NO
INSUL/SOUND BLANKET	NO	NO	NO	NO
COMPRESSOR HEAT	YES	YES	YES	YES
OUTDOOR FAN	PROPELLER	PROPELLER	PROPELLER	PROPELLER
DIA. (IN.) - NO. USED	23 - 1	23 - 1	27.6 - 1	27.6 - 1
TYPE DRIVE - NO. SPEEDS	DIRECT - 1	DIRECT - 1	DIRECT - 1	DIRECT - 1
CFM @ 0.0 IN. W.G. ②	2775	2775	3500	3500
NO. MOTORS - HP	1 - 1/6	1 - 1/6	1 - 1/5	1 - 1/5
MOTOR SPEED R.P.M.	700	700	700	700
VOLTS/PH/Hz	220-240V/1/50	220-240V/1/50	220-240V/1/50	220-240V/1/50
F.L. AMPS	1.4	1.4	0.93	0.93
OUTDOOR COIL — TYPE	SPINE FIN™	SPINE FIN™	SPINE FIN™	SPINE FIN™
ROWS - F.P.I.	1 - 24	1 - 24	1 - 24	1 - 24
FACE AREA (SQ. FT.)	16.25	16.25	24.93	24.93
TUBE SIZE (IN.)	3/8	3/8	3/8	3/8
REFRIGERANT	R-410A	R-410A	R-410A	R-410A
REFRIGERANT CONTROL	TXV/Capillary	TXV/Capillary	TXV/Capillary	TXV/Capillary
LBS — R-410A (O.D. UNIT) ③	5 LBS., 9 OZ.	5 LBS., 7 OZ.	7 LBS., 0 OZ.	7 LBS., 7 OZ.
FACTORY SUPPLIED	YES	YES	YES	YES
LINE SIZE - IN. O.D. GAS ④	3/4	3/4	3/4	7/8
LINE SIZE - IN. O.D. LIQ. ④	3/8	3/8	3/8	3/8
CHARGING SPECIFICATION				
TXV SYSTEM CHARGED TO SUBCOOL	10°F	10°F	10°F	10°F
CAPILLARY SYSTEM CHARGED TO SUPERHEAT	10°F	10°F	10°F	10°F
DIMENSIONS	H X W X D	H X W X D	H X W X D	H X W X D
CRATED (IN.)	34 x 30.1 x 33	34 x 30.1 x 33	42.4 x 35.1 x 38.7	42.4 x 35.1 x 38.7
WEIGHT				
SHIPPING (LBS.)	165	167	224	265
NET (LBS.)	138	140	182	230

TUBING INFORMATION						
LINE TYPE		REFRIGERANT TO ADD AT SPECIFIED ADDITIONAL LENGTH				
Suction	Liquid	20 ft	30 ft	40 ft	50 ft	60 ft
3/4"	3/8"	3 oz	9 oz	15 oz	21 oz	27 oz
7/8"	3/8"	3 oz	9 oz	16 oz	22 oz	28 oz

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

- ① Calculated in accordance with Natl. Elec. Codes. Only use HACR circuit breakers or fuses.
- ② Standard Air — Dry Coil — Outdoor
- ③ This value approximate. For more precise value see unit nameplate.
- ④ Max. linear length 80 ft.; Max. lift - Suction 60 ft.; Max lift - Liquid 60 ft. For greater length consult refrigerant piping software Pub. No. 32-3312-0* (* denotes latest revision).
- ⑤ 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.
- ⑥ 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

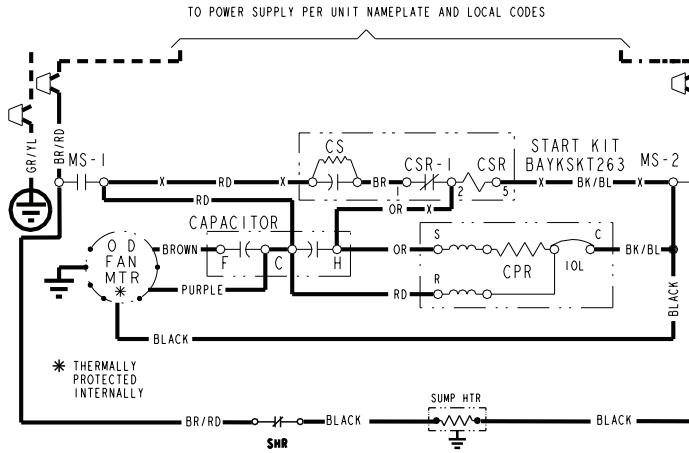
THIS INFORMATION IS INTENDED FOR USE BY INDIVIDUALS POSSESSING ADEQUATE BACKGROUNDS OF ELECTRICAL AND MECHANICAL EXPERIENCE. ANY ATTEMPT TO REPAIR A CENTRAL AIR CONDITIONING PRODUCT MAY RESULT IN PERSONAL INJURY AND OR PROPERTY DAMAGE. THE MANUFACTURER OR SELLER CANNOT BE RESPONSIBLE FOR THE INTERPRETATION 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.

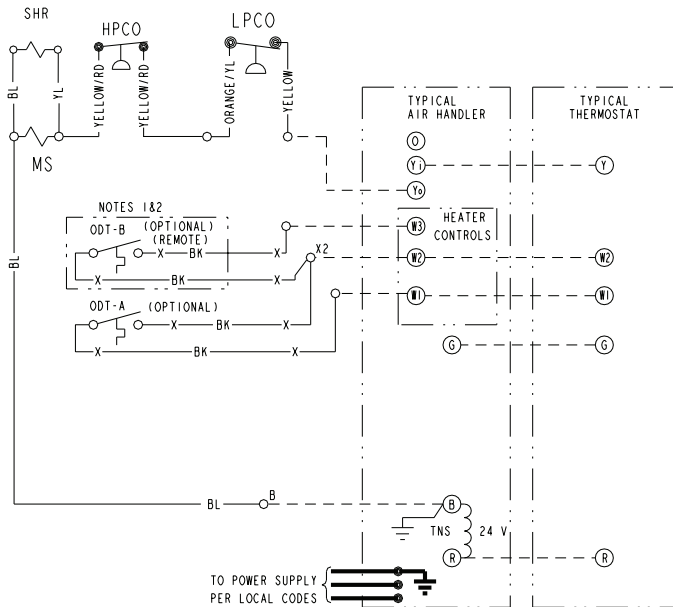
NOTICE: The manufacturer has a policy of continuous product and product data improvement and it reserves the right to change design and specifications without notice.

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 | TDL DISCHARGE LINE THERMOSTAT |
| HA HEATING ANTICIPATOR | TNS TRANSFORMER |
| HPCO HIGH PRESSURE CUTOFF SW. | TS HEATING-COOLING THERMOSTAT |
| IOI INTERNAL OVERLOAD PROTECTOR | TSH HEATING THERMOSTAT |
| ACR A/C RECTIFIER | R OPT SHUNT RESISTOR |
| | SHR SUMP HEATER RELAY |

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



- | | |
|--|---|
| <p>⚠ WARNING</p> <p>HAZARDOUS VOLTAGE!</p> <p>DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS BEFORE SERVICING.</p> <p>FAILURE TO DISCONNECT POWER BEFORE SERVICING CAN CAUSE SEVERE PERSONAL INJURY OR DEATH!</p> | <p>⚠ CAUTION</p> <p>USE COPPER CONDUCTORS ONLY!</p> <p>UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.</p> <p>FAILURE TO DO SO MAY CAUSE DAMAGE TO THE EQUIPMENT!</p> |
|--|---|

NOTES:

- IF ODT-B IS NOT USED, ADD JUMPER BETWEEN W2 & W3 AT AIR HANDLER.
- IF USED, ODT-B MUST BE MOUNTED REMOTE OF CONTROL BOX IN AN APPROVED WEATHER PROOF ENCLOSURE.
- IF ODT-A IS NOT USED, ADD JUMPER BETWEEN W1 & W2 AT AIR HANDLER.
- LOW VOLTAGE (24 V.) FIELD WIRING MUST BE 18 AWG MIN.

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.

SUBCOOLING CHARGING IN COOLING ABOVE 55°F OD AMBIENT

The manufacturer has always recommended 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.

- Subcooling (in the cooling mode) is the only recommended method of charging above 55°F ambient temperatures.
- For best results – the indoor temperature should be kept between 70°F to 80°F. Add system heat if needed.
- At startup, or whenever charge is removed or added, the system must be operated for a minimum 20 minutes to stabilize before accurate measurements can be made.
- Measure Liquid Line Temperature and Refrigerant Pressure at service valves.
- Determine total refrigerant line length, and height (lift) if indoor section is above the condenser.
- Determine the Design Subcool Charging Temperature from the unit nameplate.
- Locate this value in the appropriate column of the Subcooling Charging Table. Locate your liquid line temperature in the left column of the table, and the intersecting liquid line pressure under your nameplate 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.

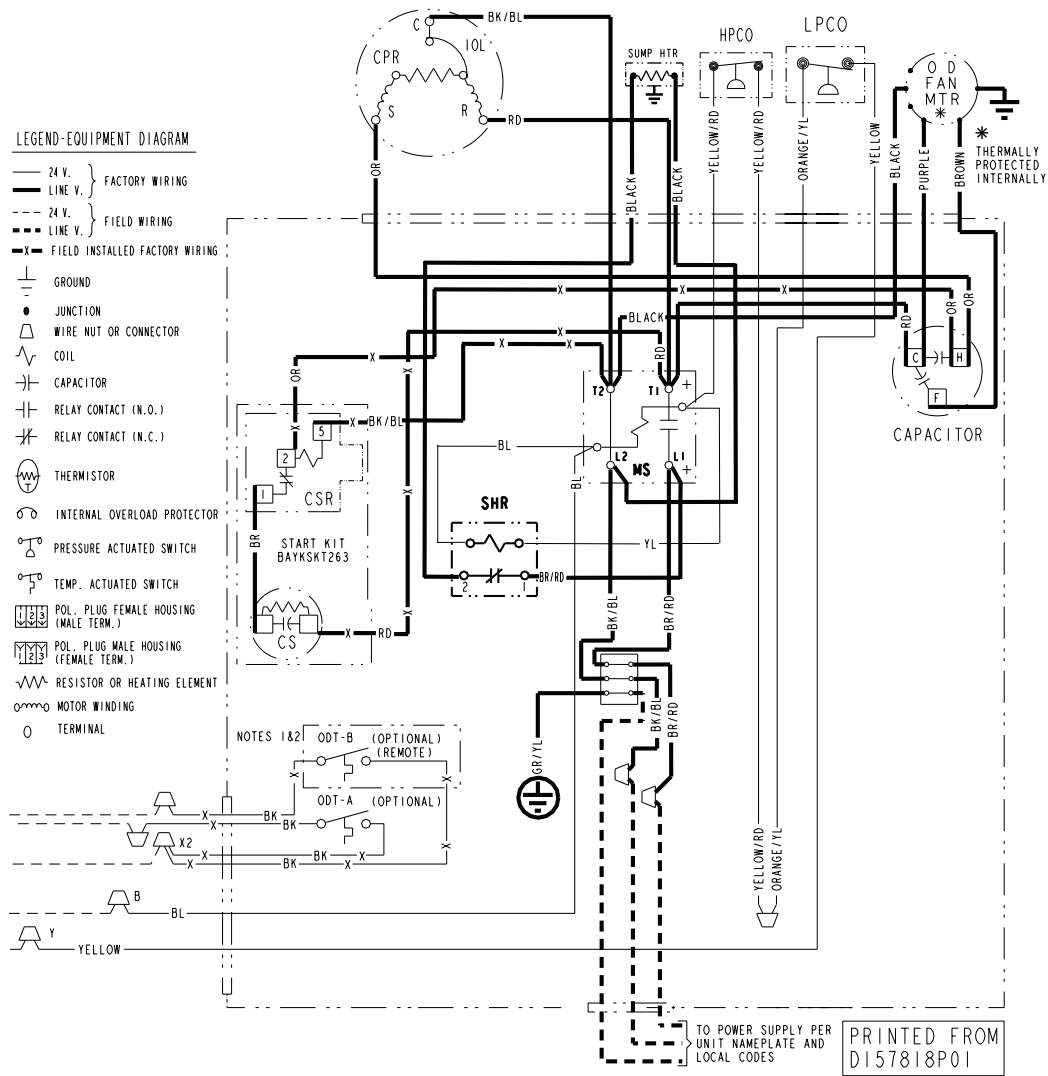
- When system is correctly charged, you can refer to System Pressure Curves to verify typical performance.

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

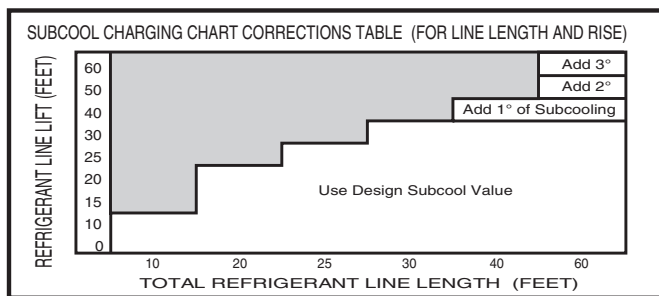
Refer to Service Facts or Installer's Guide for charging method.

From Dwg. D154557P01 Rev. 2

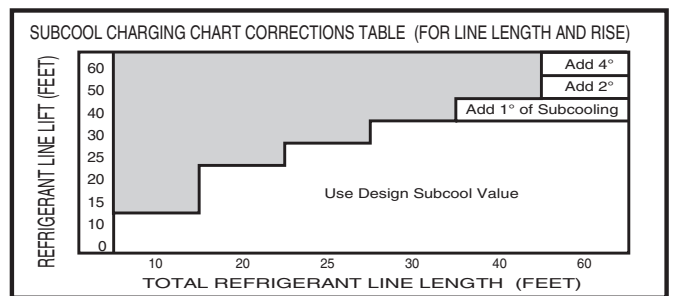
WIRING DIAGRAM



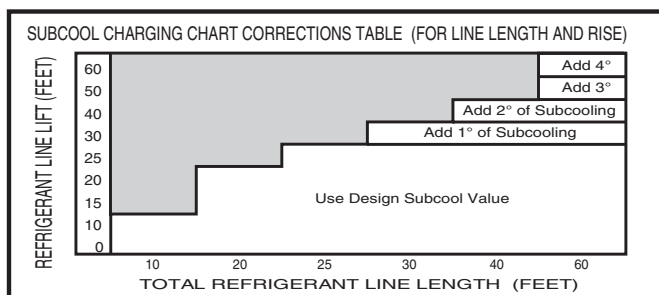
1 1/2 Ton



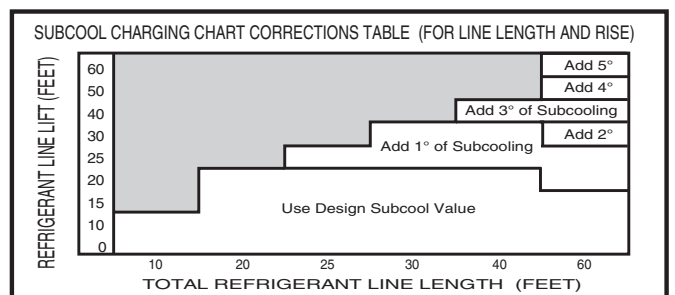
2 Ton



2 1/2 Ton

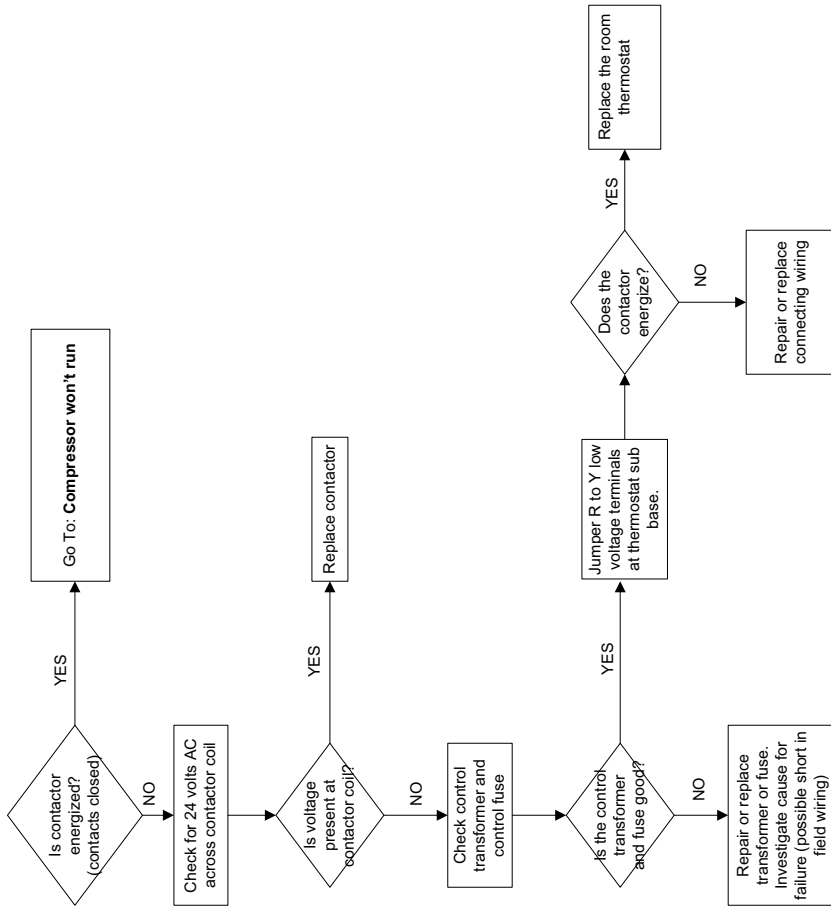


3 Ton

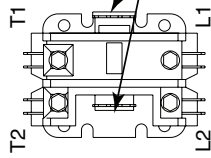


TROUBLESHOOTING

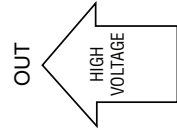
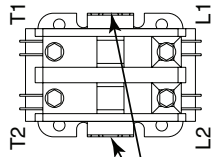
Compressor fails to start
 Contactor check



Single Pole Contactor (MS)*

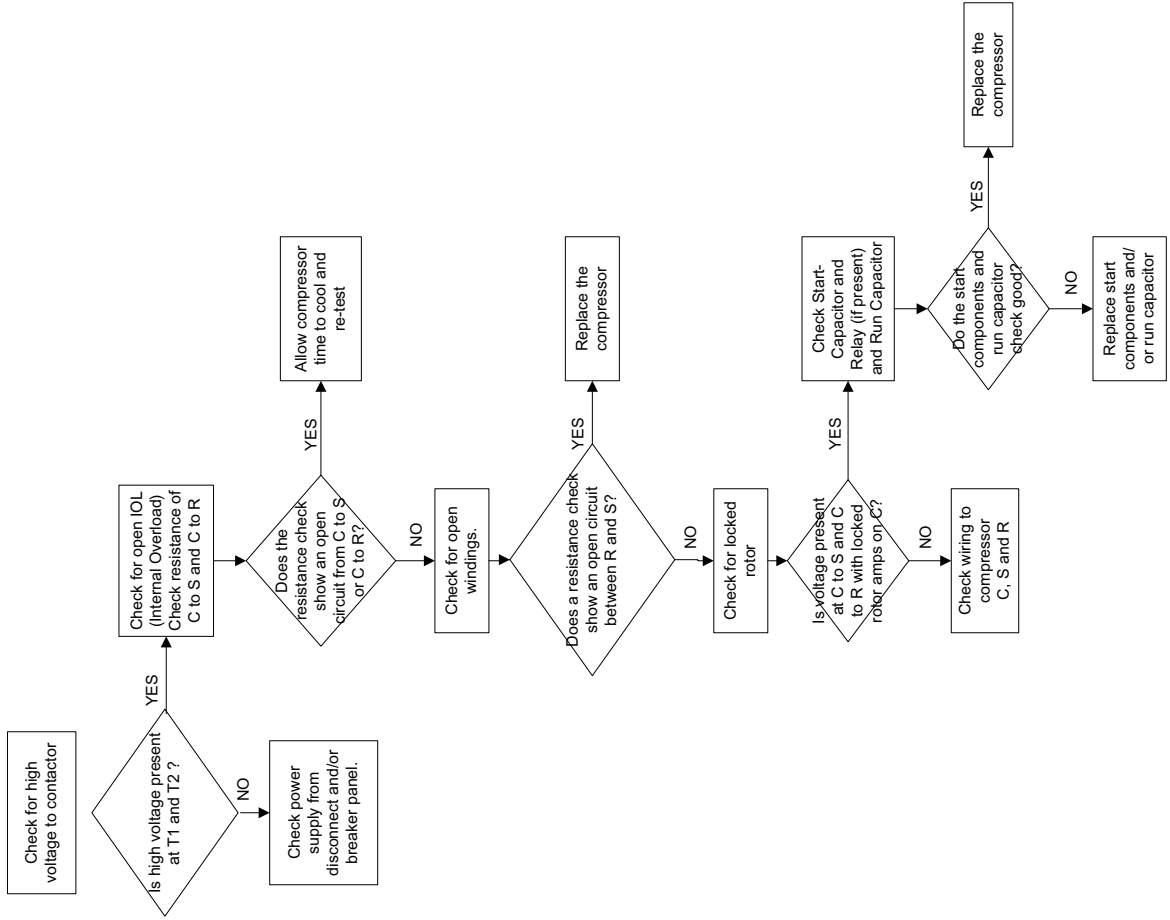


Double Pole Contactor (MS)*

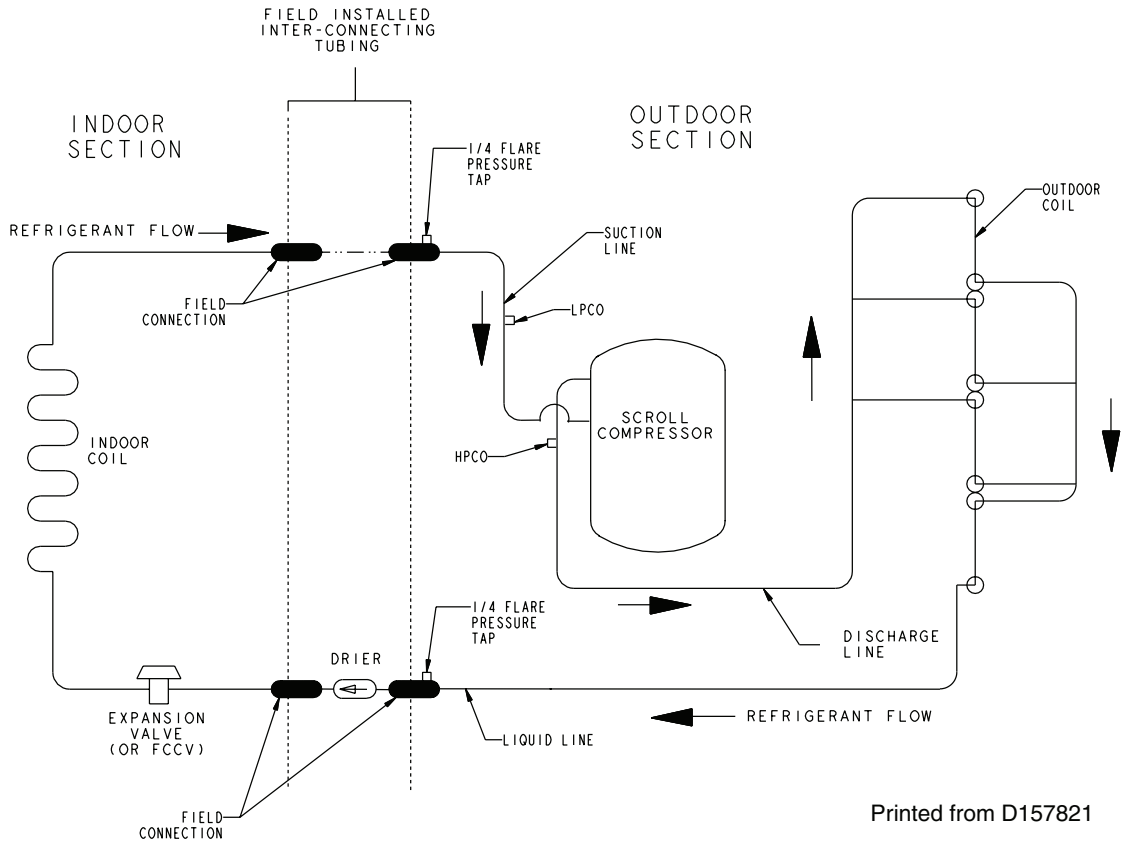


*Refer to Wiring Diagram to determine if a single pole or double pole contactor is used.

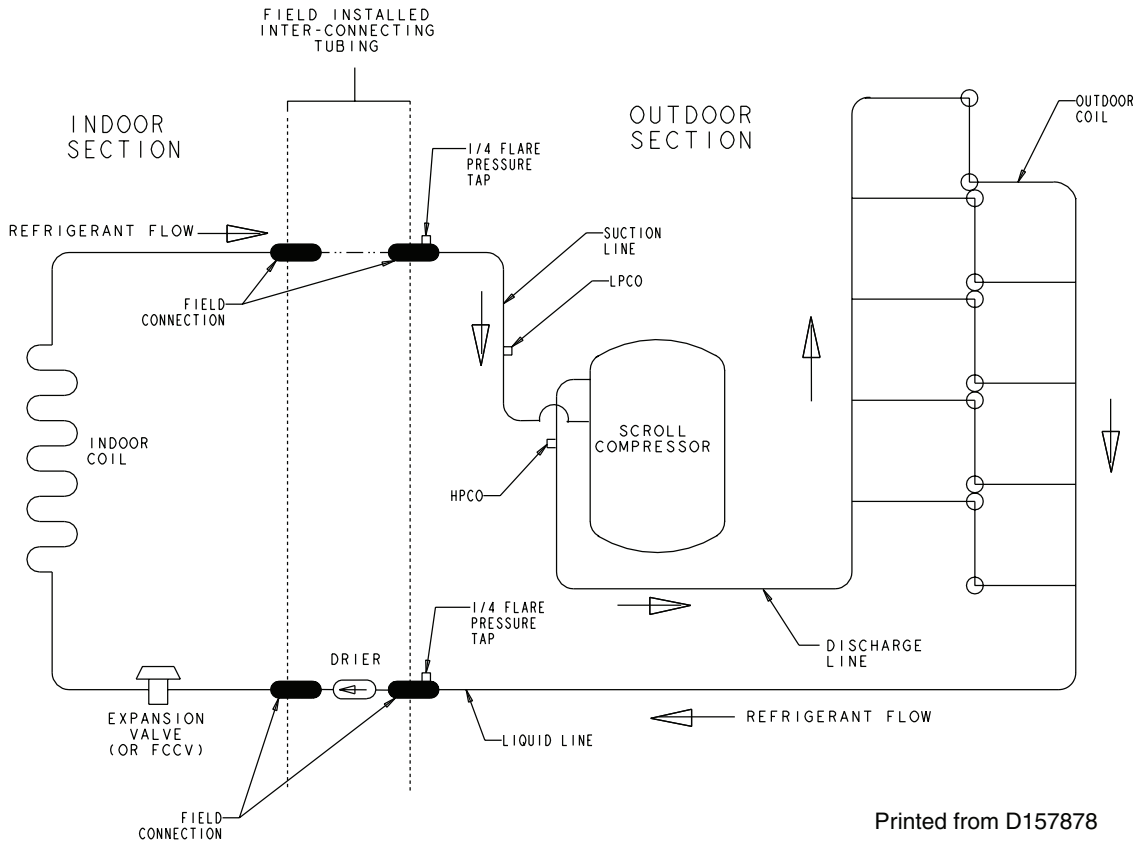
Compressor won't run
 Contactor is closed



REFRIGERANT CIRCUIT 4TTB3018AA-24AA



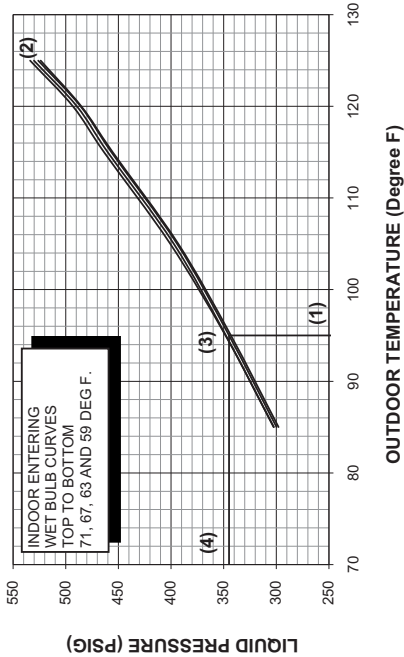
REFRIGERANT CIRCUIT 4TTB3030AA-36AA



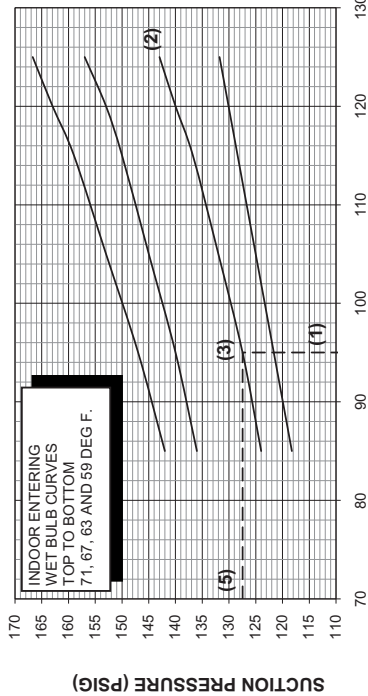
PRESSURE CURVES FOR 4TTB3018AA

MCDA18

Cooling with FCCV or Capillary Tubes



OUTDOOR TEMPERATURE (Degree F)



OUTDOOR TEMPERATURE (Degree F)

COOLING PERFORMANCE CAN BE CHECKED WHEN THE OUTDOOR TEMP IS ABOVE 85 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: (1) OUTDOOR TEMP. 95 F.
 (2) INDOOR WET BULB 63 F.
 (3) AT INTERSECTION
 (4) LIQUID PRESSURE @ 1050 CFM IS 345 PSIG
 (5) SUCTION PRESSURE @ 1050 CFM IS 127 PSIG

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

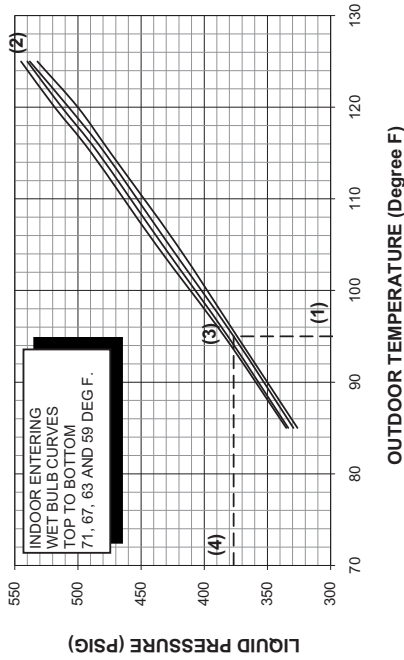
INTERCONNECTING LINES
 Suction - 3/4"
 Liquid - 3/8"

DWG.NO. 4TTB3018AA

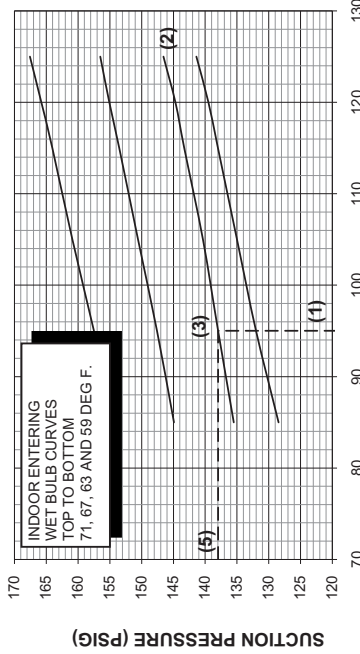
PRESSURE CURVES FOR 4TTB3024AA

MCDA24

Cooling with FCCV or Capillary Tubes



OUTDOOR TEMPERATURE (Degree F)



OUTDOOR TEMPERATURE (Degree F)

COOLING PERFORMANCE CAN BE CHECKED WHEN THE OUTDOOR TEMP IS ABOVE 85 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: (1) OUTDOOR TEMP. 95 F.
 (2) INDOOR WET BULB 63 F.
 (3) AT INTERSECTION
 (4) LIQUID PRESSURE @ 1050 CFM IS 377 PSIG
 (5) SUCTION PRESSURE @ 1050 CFM IS 138 PSIG

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

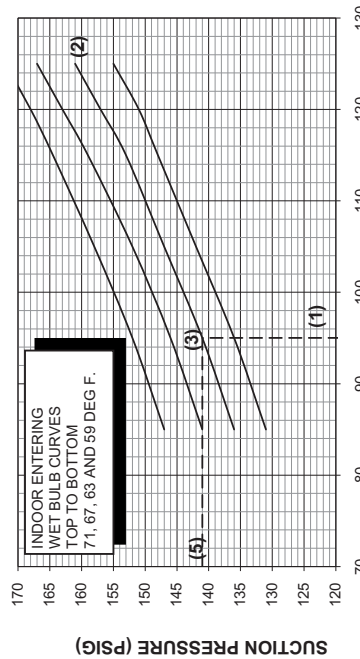
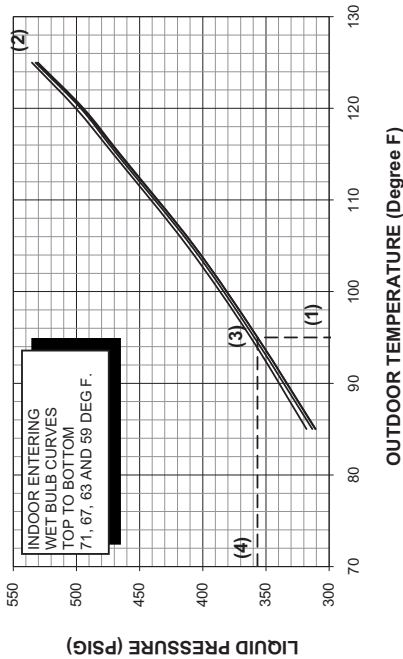
INTERCONNECTING LINES
 Suction - 3/4"
 Liquid - 3/8"

DWG.NO. 4TTB3024AA

PRESSURE CURVES FOR 4TTB3030AA

MCDA30

Cooling with FCCV or Capillary Tubes



OUTDOOR TEMPERATURE (Degree F)

COOLING PERFORMANCE CAN BE CHECKED WHEN THE OUTDOOR TEMP IS ABOVE 85 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: (1) OUTDOOR TEMP. 95 F.
 (2) INDOOR WET BULB 63 F.
 (3) AT INTERSECTION
 (4) LIQUID PRESSURE @ 1050 CFM IS 357 PSIG
 (5) SUCTION PRESSURE @ 1050 CFM IS 141 PSIG
- ACTUAL:
 LIQUID PRESSURE SHOULD BE +/- 10 PSI OF CHART
 SUCTION PRESSURE SHOULD BE +/- 3 PSIG OF CHART

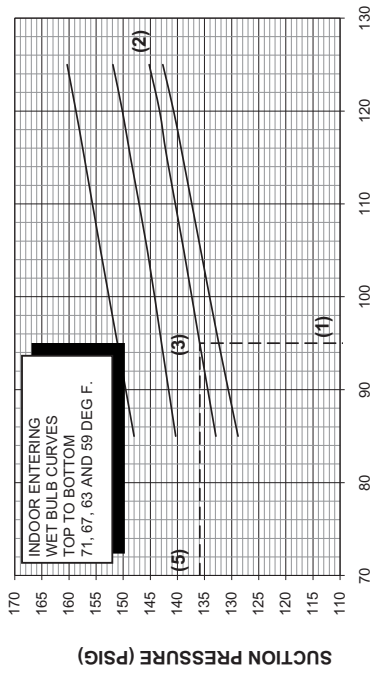
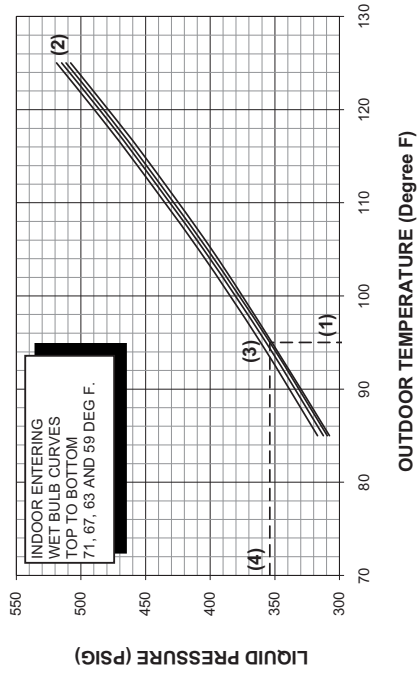
INTERCONNECTING LINES
 Suction - 3/4"
 Liquid - 3/8"

DWG.NO. 4TTB3030AA

PRESSURE CURVES FOR 4TTB3030AA

GAF2A0A36

Cooling with Thermal Expansion Valve



OUTDOOR TEMPERATURE (Degree F)

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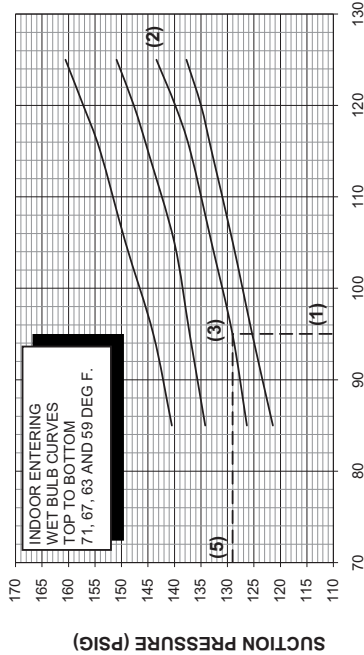
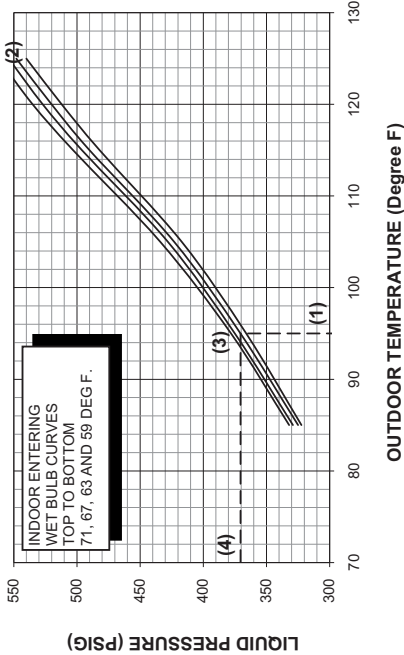
- EXAMPLE: (1) OUTDOOR TEMP. 95 F.
 (2) INDOOR WET BULB 63 F.
 (3) AT INTERSECTION
 (4) LIQUID PRESSURE @ 1050 CFM IS 354 PSIG
 (5) SUCTION PRESSURE @ 1050 CFM IS 136 PSIG
- ACTUAL:
 LIQUID PRESSURE SHOULD BE +/- 10 PSI OF CHART
 SUCTION PRESSURE SHOULD BE +/- 3 PSIG OF CHART

INTERCONNECTING LINES
 Suction - 3/4"
 Liquid - 3/8"

DWG.NO. 4TTB3030AA

PRESSURE CURVES FOR 4TTB3036AA

MCDA36
Cooling with FCCV or Capillary Tubes



OUTDOOR TEMPERATURE (Degree F)

COOLING PERFORMANCE CAN BE CHECKED WHEN THE OUTDOOR TEMP IS ABOVE 85 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.

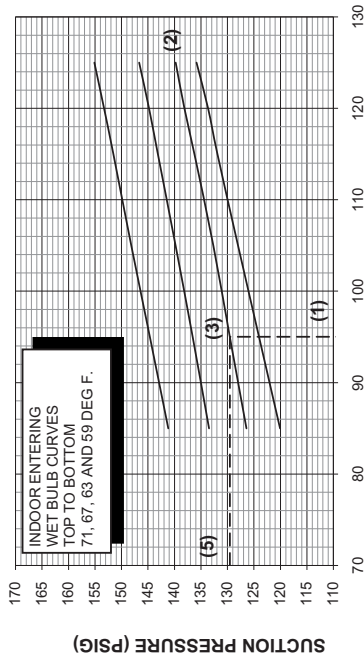
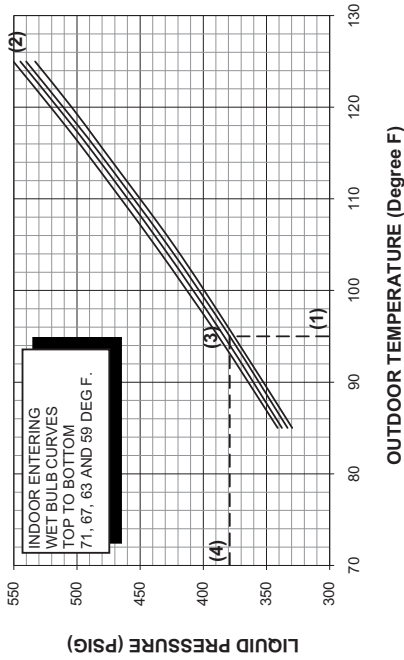
EXAMPLE: (1) OUTDOOR TEMP. 95 F.
(2) INDOOR WET BULB 63 F.
(3) AT INTERSECTION
(4) LIQUID PRESSURE @ 1060 CFM IS 371 PSIG
(5) SUCTION PRESSURE @ 1060 CFM IS 129 PSIG

INTERCONNECTING LINES
Suction - 7/8"
Liquid - 3/8"

DWG.NO. 4TTB3036AA

PRESSURE CURVES FOR 4TTB3036AA

GAF2A0A36
Cooling with Thermal Expansion Valve



OUTDOOR TEMPERATURE (Degree F)

COOLING PERFORMANCE CAN BE CHECKED WHEN THE OUTDOOR TEMP IS ABOVE 85 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: (1) OUTDOOR TEMP. 95 F.
(2) INDOOR WET BULB 63 F.
(3) AT INTERSECTION
(4) LIQUID PRESSURE @ 1060 CFM IS 379 PSIG
(5) SUCTION PRESSURE @ 1060 CFM IS 130 PSIG

INTERCONNECTING LINES
Suction - 7/8"
Liquid - 3/8"

DWG.NO. 4TTB3036AA