Service Facts

Split System Cooling

4TTA3030AD000A, 4TTA3036AD000A, 4TTA3042AD000A, 4TTA3048AD000A, 4TTA3060AD000A

⚠ 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	4TTA3030AD000A	4TTA3036AD000A	4TTA3042AD000A	4TTA3048AD000A	4TTA3060AD000A
POWER CONNS. — V/PH/HZ ①	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50
MIN. BRCH. CIR. AMPACITY	9	11	12	12	14
BR CIR PROT RTG – MAX. (AMPS)	15	19	21	21	25
COMPRESSOR	SCROLL	SCROLL	SCROLL	SCROLL	SCROLL
NO. USED - NO. SPEEDS	1 - 1	1 - 1	1 - 1	1 - 1	1 - 1
VOLTS/PH/HZ	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50
R.L. AMPS ⑤ - L.R. AMPS	6.1 - 38.0	6.7 - 43.0	6.9 - 52.0	7.6 - 51.5	8.9 - 67.1
FACTORY INSTALLED					
START COMPONENTS ⑥	NO	NO	NO	NO	NO
INSUL/SOUND BLANKET	NO	NO	NO	NO	NO
COMPRESSOR HEAT	YES	YES	YES	YES	YES
OUTDOOR FAN	PROPELLER	PROPELLER	PROPELLER	PROPELLER	PROPELLER
DIA. (IN.) - NO. USED	27.6 - 1	27.6 - 1	27.6 - 1	27.6 - 1	27.6 - 1
TYPE DRIVE - NO. SPEEDS	DIRECT - 1	DIRECT - 1	DIRECT - 1	DIRECT - 1	DIRECT - 1
CFM @ 0.0 IN. W.G. ②	3525	3525	3525	3980	3980
NO. MOTORS - HP	1 - 1/6	1 - 1/6	1 - 1/6	1 - 1/6	1 - 1/6
MOTOR SPEED R.P.M.	700	700	700	700	700
VOLTS/PH/HZ	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50
F.L. AMPS	0.7	0.7	0.7	0.7	0.7
OUTDOOR COIL — TYPE	SPINE FIN™	SPINE FIN™	SPINE FIN™	SPINE FIN™	SPINE FIN™
ROWS - F.P.I.	1 - 24	1 - 24	1 - 24	1 - 24	1 - 24
FACE AREA (SQ. FT.)	24.93	24.93	27.86	30.79	30.79
TUBE SIZE (IN.)	3/8	3/8	3/8	3/8	3/8
REFRIGERANT	R-410A	R-410A	R-410A	R-410A	R-410A
REFRIGERANT CONTROL	TXV/Capillary	TXV/Capillary	TXV/Capillary	TXV/Capillary	TXV/Capillary
LBS — R-410A (O.D. UNIT) ③	7 LBS., 11 OZ.	8 LBS., 8 OZ.	8 LBS., 6 OZ.	9 LBS., 13 OZ.	9 LBS., 14 OZ.
FACTORY SUPPLIED	YES	YES	YES	YES	YES
LINE SIZE - IN. O.D. GAS ④	3/4	7/8	7/8	7/8	7/8
LINE SIZE - IN. O.D. LIQ. ④	3/8	3/8	3/8	3/8	3/8
CHARGING SPECIFICATION					
TXV SYS CHGD TO SUBCOOL	10°F	10°F	10°F	10°F	10°F
CAPILLARY SYS CHGD TO SUPERHEAT	10°F	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	H X W X D
CRATED (IN.)	42.4 x 35.1 x 38.7	42.4 x 35.1 x 38.7	46.4 x 35.1 x 38.7	51 x 35.1 x 38.7	51 x 35.1 x 38.7
WEIGHT					
SHIPPING (LBS.)	217	254	277	292	297
NET (LBS.)	182	219	240	255	260

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

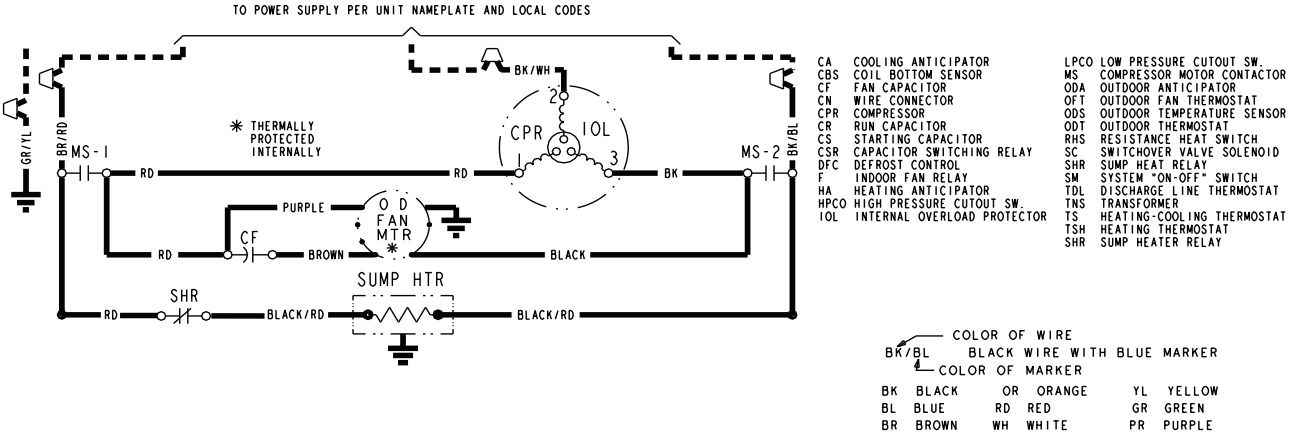
THIS INFORMATION IS INTENDED FOR USE BY INDIVIDUALS POSSESSING ADEQUATE BACKGROUNDS OF ELECTRICAL AND MECHANICAL EXPERIENCE. ANY ATTEMPT TO REPAIR A CENTRAL AIR CONDITIONING PRODUCT MAY RESULT IN PERSONAL INJURY AND OR PROPERTY DAMAGE. THE MANUFACTURER OR SELLER CANNOT BE RESPONSIBLE FOR THE INTERPRETATION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

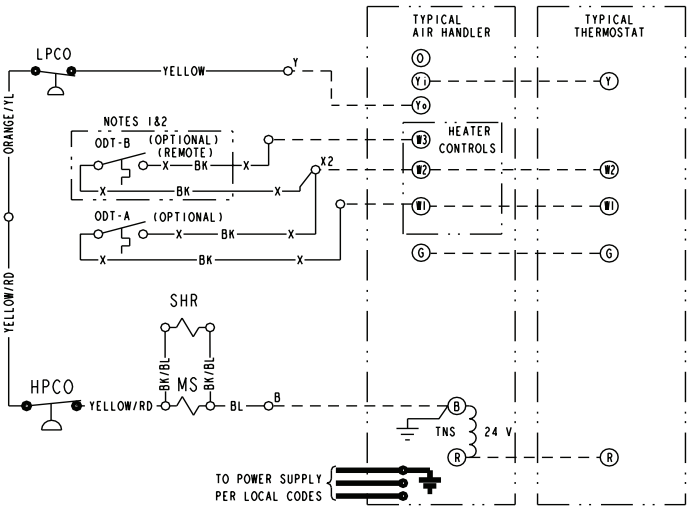
⚠ CAUTION

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





⚠ WARNING	⚠ CAUTION
HAZARDOUS VOLTAGE! DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS BEFORE SERVICING. FAILURE TO DISCONNECT POWER BEFORE SERVICING CAN CAUSE SEVERE PERSONAL INJURY OR DEATH!	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. 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.
2. IF ODT-A IS NOT USED, ADD JUMPER BETWEEN W1 & W2 AT AIR HANDLER.
3. LOW VOLTAGE (24 V.) FIELD WIRING MUST BE 18 AWG MIN.

NOTE
THREE PHASE MOTOR (S) FACTORY SUPPLIED IN THIS EQUIPMENT PROTECTED UNDER PRIMARY SINGLE-PHASE CONDITIONS.

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.

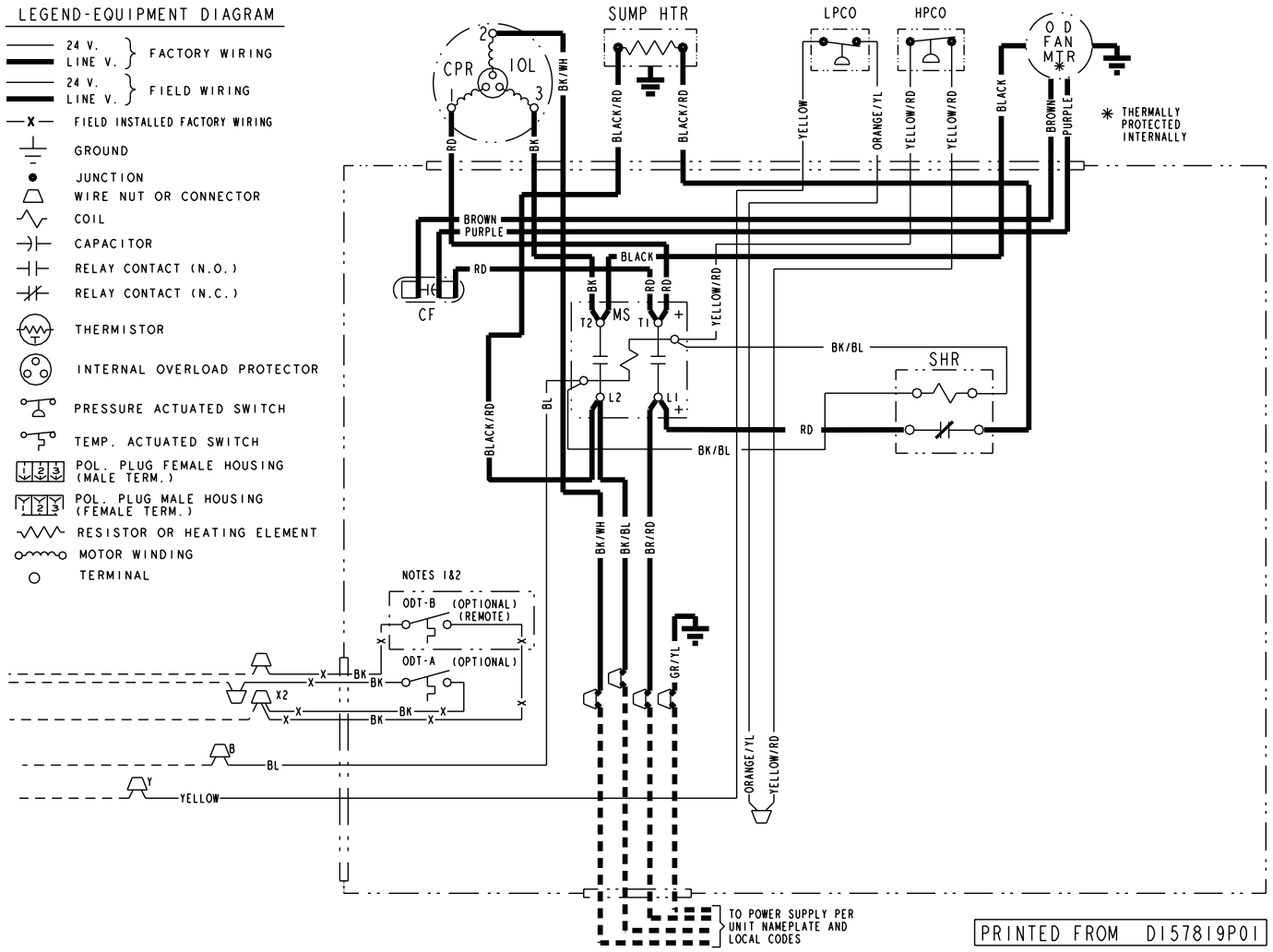
1. Subcooling (in the cooling mode) is the only recommended method of charging above 55°F ambient temperatures.
2. For best results – the indoor temperature should be kept between 70°F to 80°F. Add system heat if needed.
3. At startup, or whenever charge is removed or added, the system must be operated for a minimum 20 minutes to stabilize before accurate measurements can be made.
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.
6. Determine the Design Subcool Charging Temperature from the unit nameplate.
7. 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.
8. When system is correctly charged, you can refer to System Pressure Curves to verify typical performance.

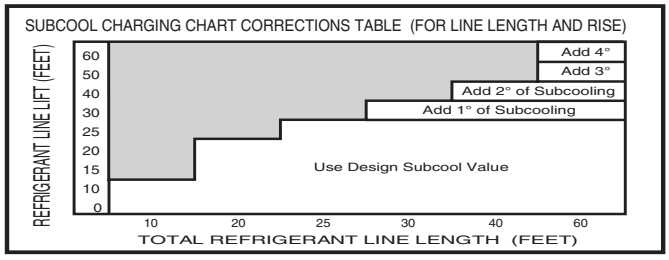
R-410A REFRIGERANT CHARGING CHART

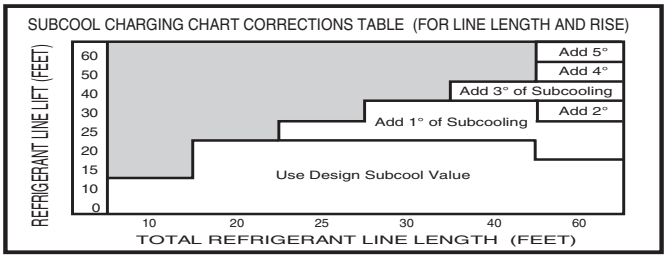
LIQUID TEMP (°F)	DESIGN SUBCOOLING (°F)						
	8	9	10	11	12	13	14
	LIQUID GAGE PRESSURE (PSI)						
55	179	182	185	188	191	195	198
60	195	198	201	204	208	211	215
65	211	215	218	222	225	229	232
70	229	232	236	240	243	247	251
75	247	251	255	259	263	267	271
80	267	271	275	279	283	287	291
85	287	291	296	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.							

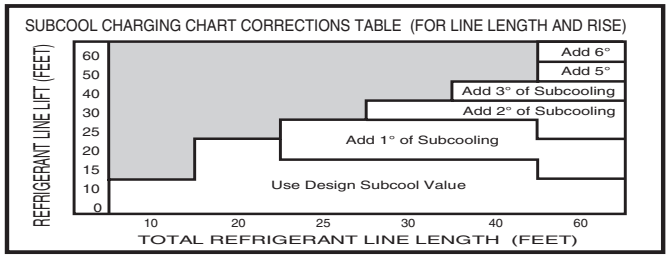
From Dwg. D154557P01 Rev. 2

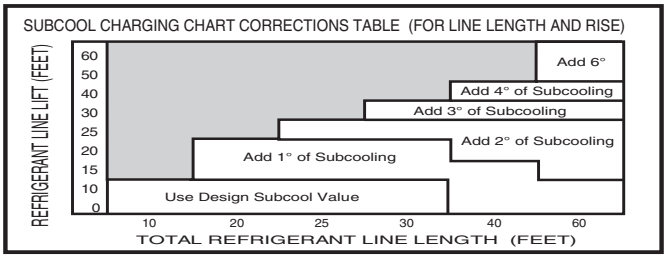
WIRING DIAGRAM

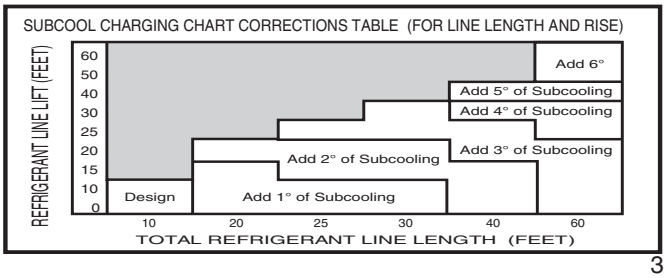




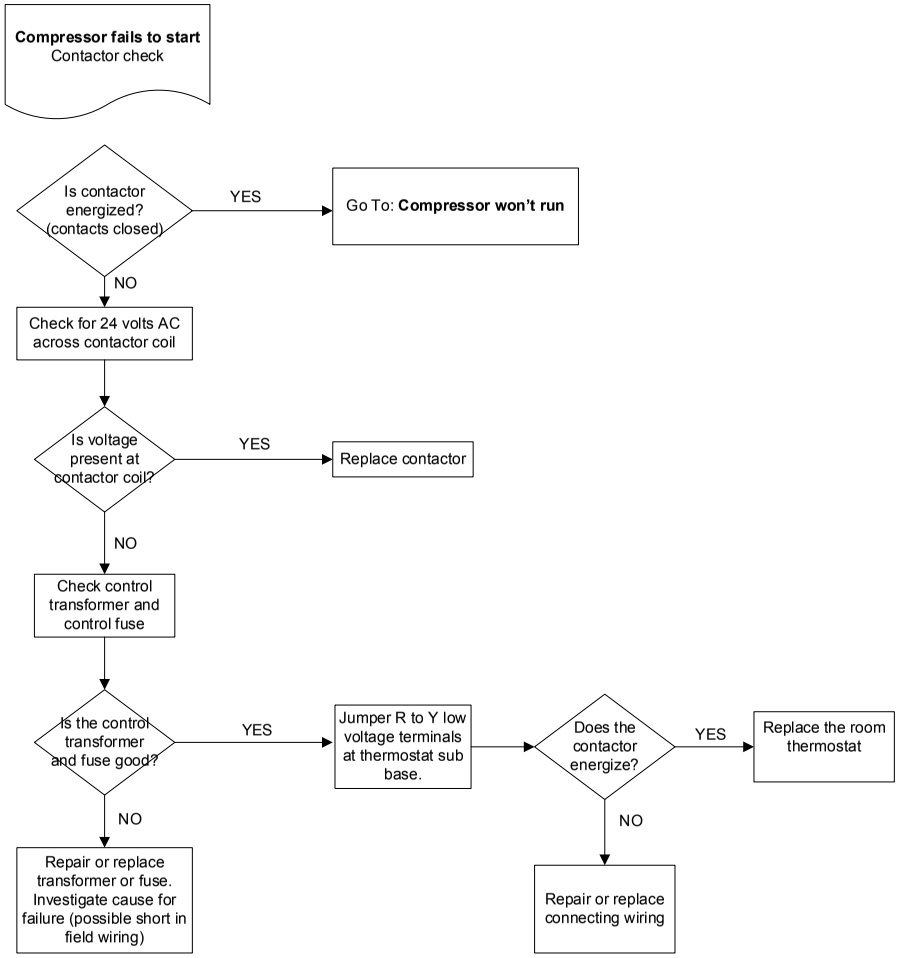


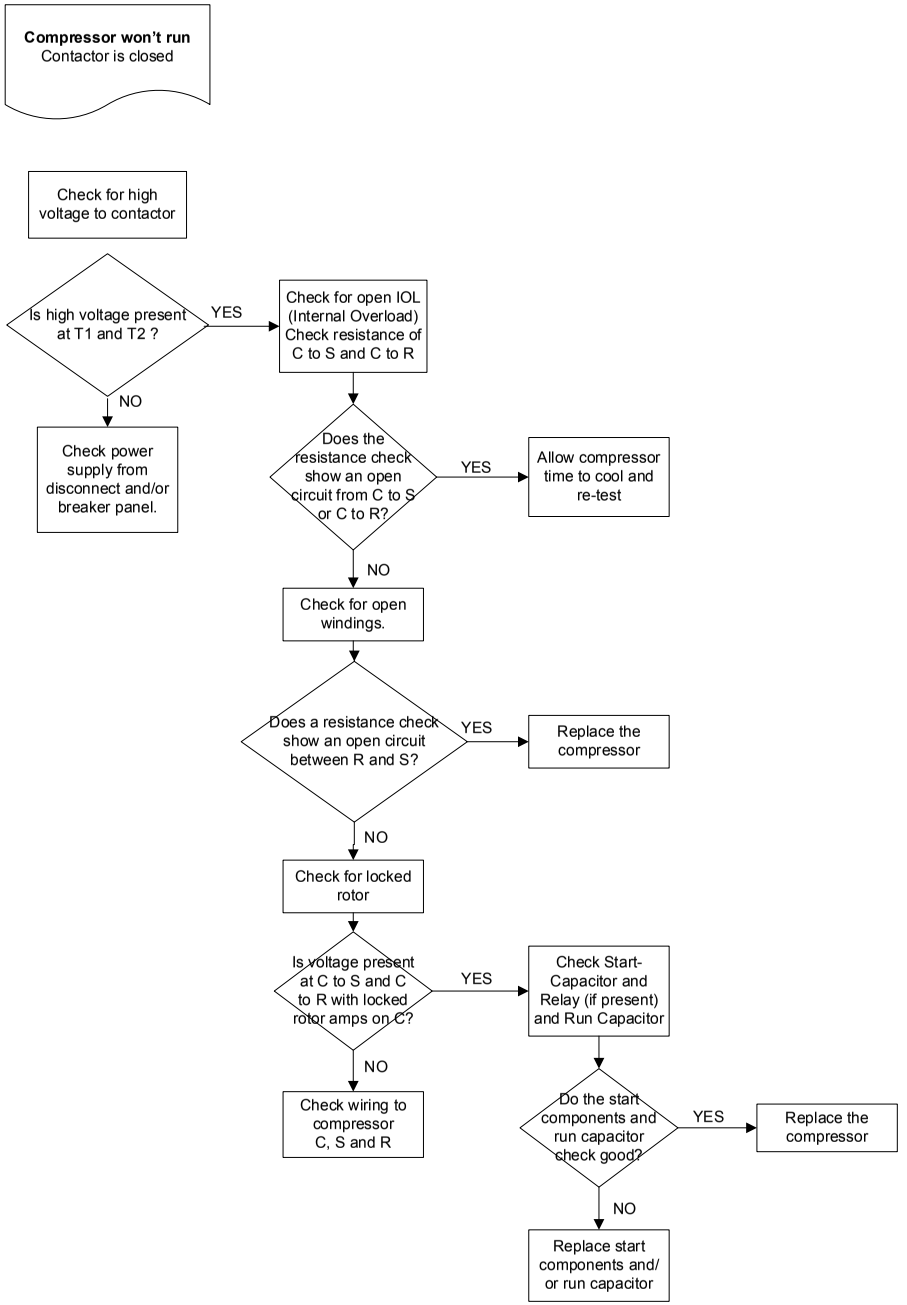


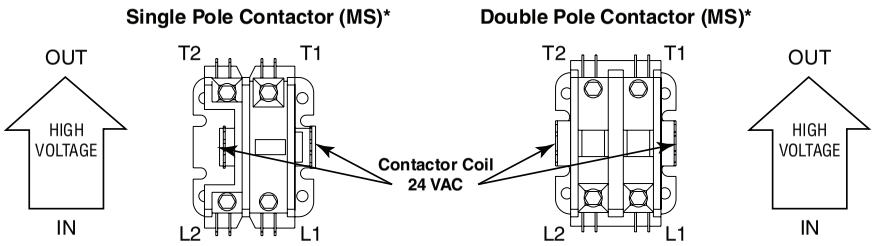




TROUBLESHOOTING

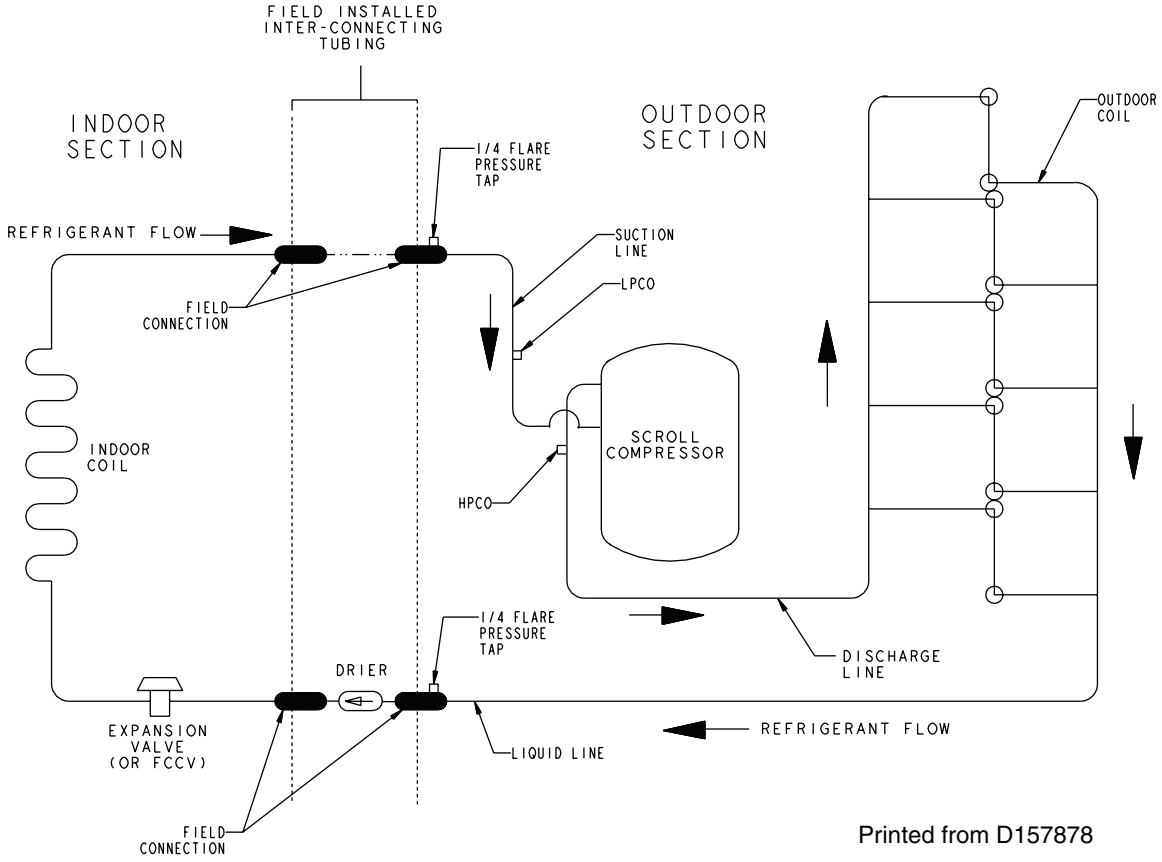






*Refer to Wiring Diagram to determine if a single pole or double pole contactor is used.

REFRIGERANT CIRCUIT 4TTA3030AD, 036AD, 42AD



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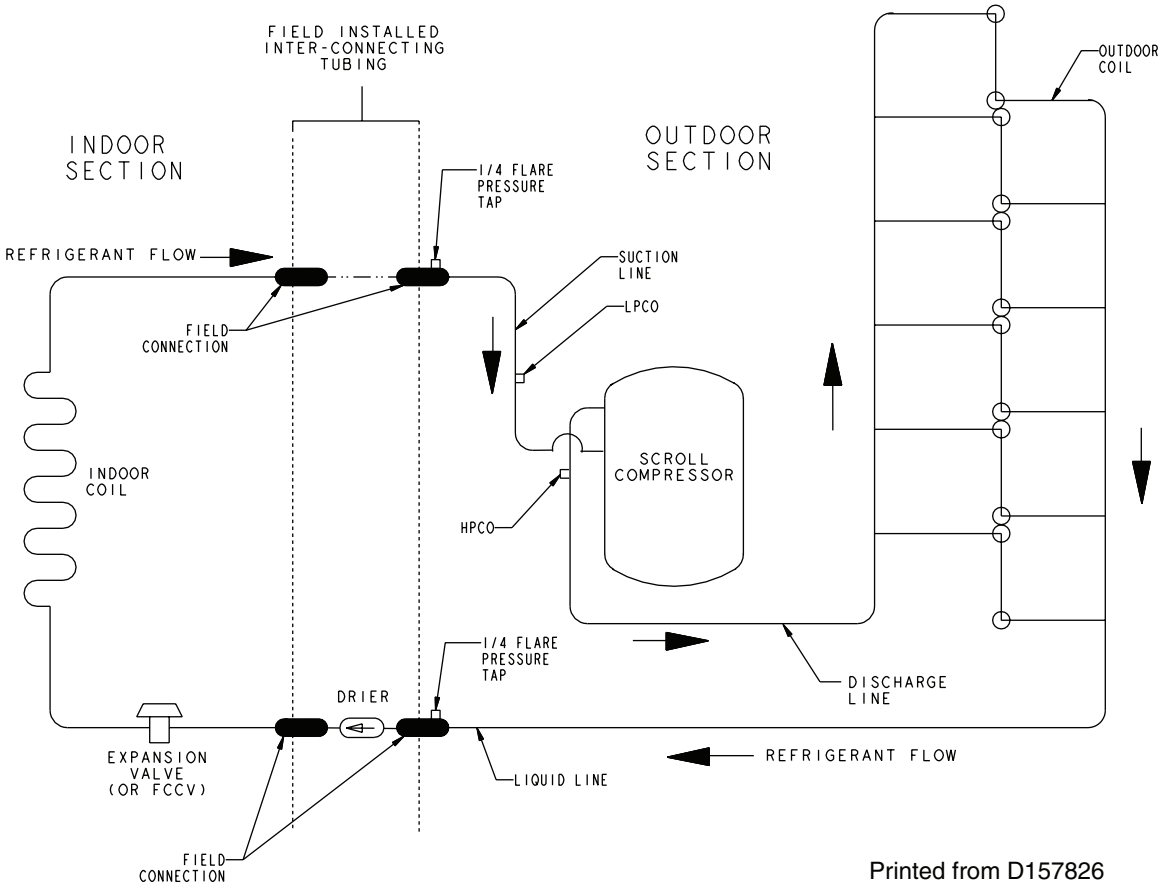
REFRIGERANT CIRCUIT 4TTA3048AD/060AD



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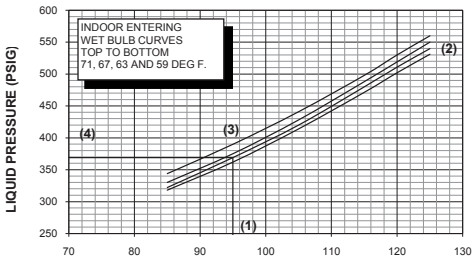
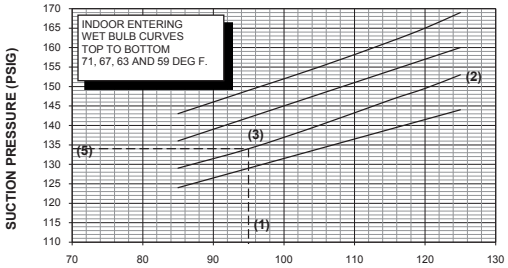
PRESSURE CURVES FOR 4TTA3030AD

MCDA30
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 @ 980 CFM IS 369 PSIG
(5) SUCTION PRESSURE @ 980 CFM IS 134 PSIG

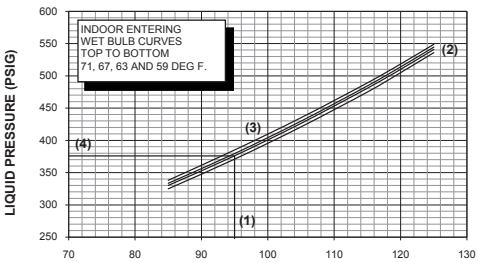
ACTUAL:
LIQUID PRESSURE SHOULD BE +/- 10 PSI OF CHART
SUCTION PRESSURE SHOULD BE +/- 3 PSIG OF CHART

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

DWG.NO. 4TTA3030AD

PRESSURE CURVES FOR 4TTA3030AD

GAF2A0A36
Cooling with Thermal Expansion Valve



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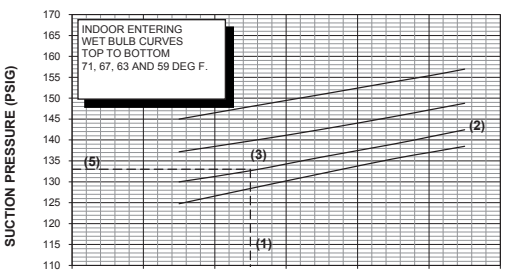

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EXAMPLE: (1) OUTDOOR TEMP. 95 F.
(2) INDOOR WET BULB 63 F.
(3) AT INTERSECTION
(4) LIQUID PRESSURE @ 975 CFM IS 376 PSIG
(5) SUCTION PRESSURE @ 975 CFM IS 133 PSIG

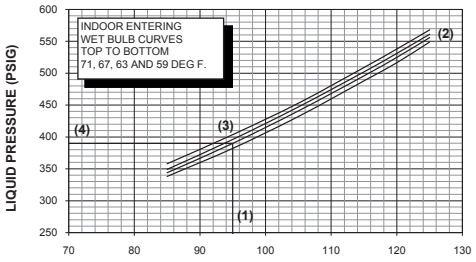
ACTUAL:
LIQUID PRESSURE SHOULD BE +/- 10 PSI OF CHART
SUCTION PRESSURE SHOULD BE +/- 3 PSIG OF CHART

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

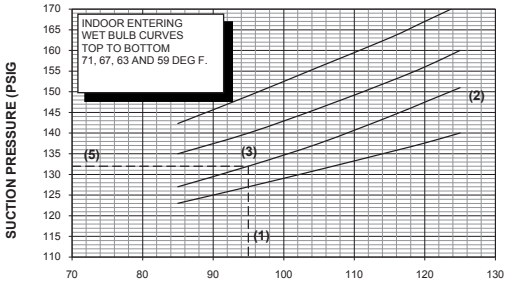
DWG.NO. 4TTA3030AD

PRESSURE CURVES FOR 4TTA3042AD

MCDB42
Cooling with FCCV or Capillary Tubes



OUTDOOR TEMPERATURE (Degree F)



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 @ 1259 CFM IS 390 PSIG
(5) SUCTION PRESSURE @ 1259 CFM IS 132 PSIG

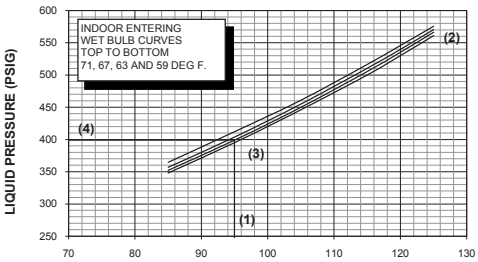
ACTUAL:
LIQUID PRESSURE SHOULD BE +/- 10 PSI OF CHART
SUCTION PRESSURE SHOULD BE +/- 3 PSIG OF CHART

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

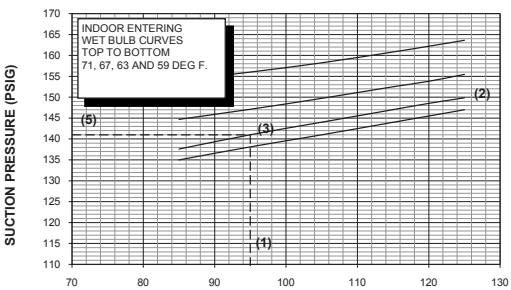
DWG.NO. 4TTA3042AD

PRESSURE CURVES FOR 4TTA3042AD

GAT2A0A48
Cooling with Thermal Expansion Valve



OUTDOOR TEMPERATURE (Degree F)



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 @ 1581 CFM IS 399 PSIG
(5) SUCTION PRESSURE @ 1581 CFM IS 141 PSIG

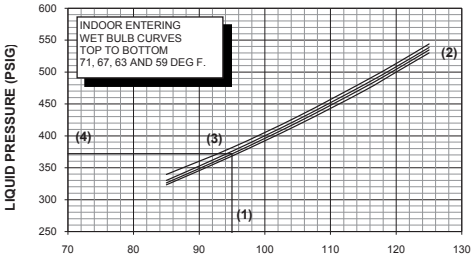
ACTUAL:
LIQUID PRESSURE SHOULD BE +/- 10 PSI OF CHART
SUCTION PRESSURE SHOULD BE +/- 3 PSIG OF CHART

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

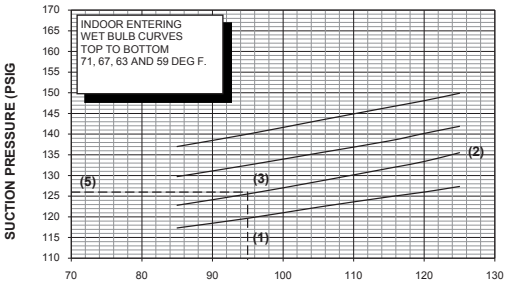
DWG.NO. 4TTA3042AD

PRESSURE CURVES FOR 4TTA3036AD

GAF2A0A36
Cooling with Thermal Expansion Valve



OUTDOOR TEMPERATURE (Degree F)



OUTDOOR TEMPERATURE (Degree F)

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

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EXAMPLE: (1) OUTDOOR TEMP. 95 F.
(2) INDOOR WET BULB 63 F.
(3) AT INTERSECTION
(4) LIQUID PRESSURE @ 975 CFM IS 372 PSIG
(5) SUCTION PRESSURE @ 975 CFM IS 126 PSIG

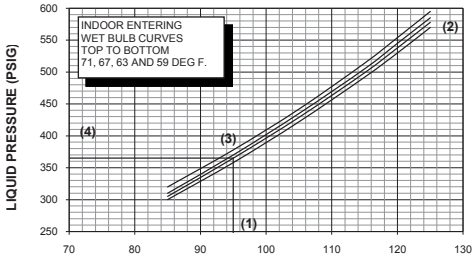
ACTUAL:
LIQUID PRESSURE SHOULD BE +/- 10 PSI OF CHART
SUCTION PRESSURE SHOULD BE +/- 3 PSIG OF CHART

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

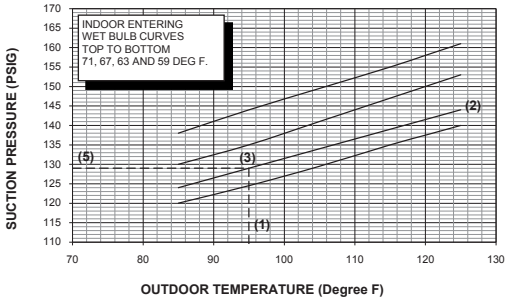
DWG.NO. 4TTA3036AD

PRESSURE CURVES FOR 4TTA3036AD

MCDA36
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 @ 1082 CFM IS 365 PSIG
(5) SUCTION PRESSURE @ 1082 CFM IS 129 PSIG

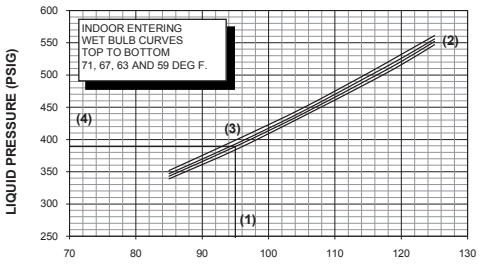
ACTUAL:
LIQUID PRESSURE SHOULD BE +/- 10 PSI OF CHART
SUCTION PRESSURE SHOULD BE +/- 3 PSIG OF CHART

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

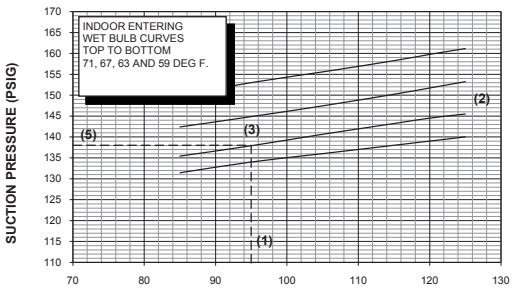
DWG.NO. 4TTA3036AD

PRESSURE CURVES FOR 4TTA3048AD

GAT2A0A48
Cooling with Thermal Expansion Valve



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 @ 1581 CFM IS 389 PSIG
(5) SUCTION PRESSURE @ 1581 CFM IS 138 PSIG

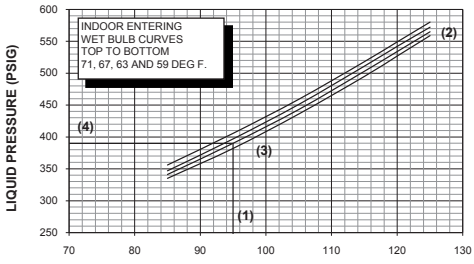
ACTUAL:
LIQUID PRESSURE SHOULD BE +/- 10 PSI OF CHART
SUCTION PRESSURE SHOULD BE +/- 3 PSIG OF CHART

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

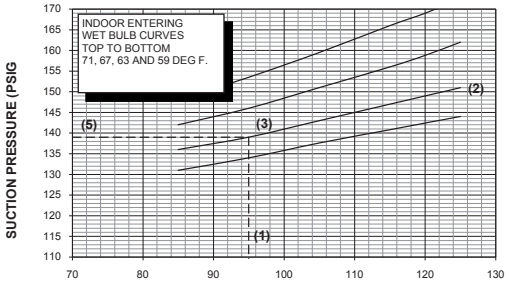
DWG.NO. 4TTA3048AD

PRESSURE CURVES FOR 4TTA3048AD

MCDB48
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 @ 1369 CFM IS 390 PSIG
(5) SUCTION PRESSURE @ 1369 CFM IS 134 PSIG

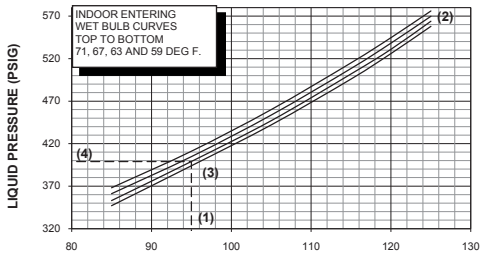
ACTUAL:
LIQUID PRESSURE SHOULD BE +/- 10 PSI OF CHART
SUCTION PRESSURE SHOULD BE +/- 3 PSIG OF CHART

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

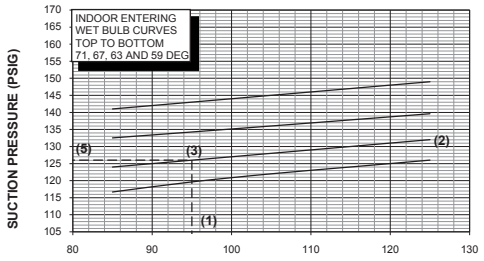
DWG.NO. 4TTA3048AD

PRESSURE CURVES FOR 4TTA3060AD

MCDB60
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 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: (1) OUTDOOR TEMP. 95 F.
(2) INDOOR WET BULB 63 F.
(3) AT INTERSECTION
(4) LIQUID PRESSURE @ 1525 CFM IS 399 PSIG
(5) SUCTION PRESSURE @ 1525 CFM IS 126 PSIG

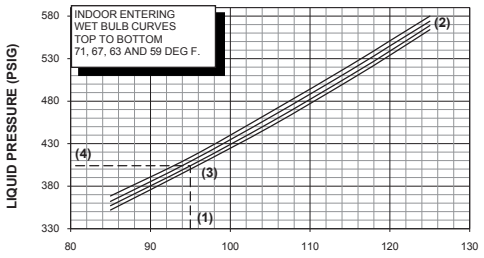
ACTUAL:
LIQUID PRESSURE SHOULD BE +/- 10 PSI OF CHART
SUCTION PRESSURE SHOULD BE +/- 3 PSIG OF CHART

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

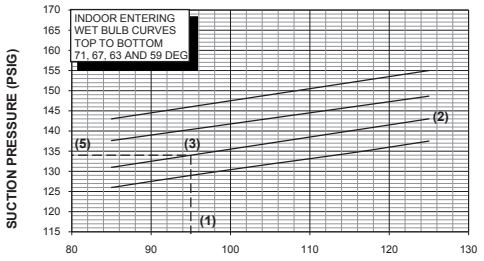
DWG.NO. 4TTA3060AD

PRESSURE CURVES FOR 4TTA3060AD

GAF2A0A60
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: (1) OUTDOOR TEMP. 95 F.
(2) INDOOR WET BULB 63 F.
(3) AT INTERSECTION
(4) LIQUID PRESSURE @ 1750 CFM IS 134 PSIG
(5) SUCTION PRESSURE @ 1750 CFM IS 404 PSIG

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

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

DWG.NO. 4TTA3060AD

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

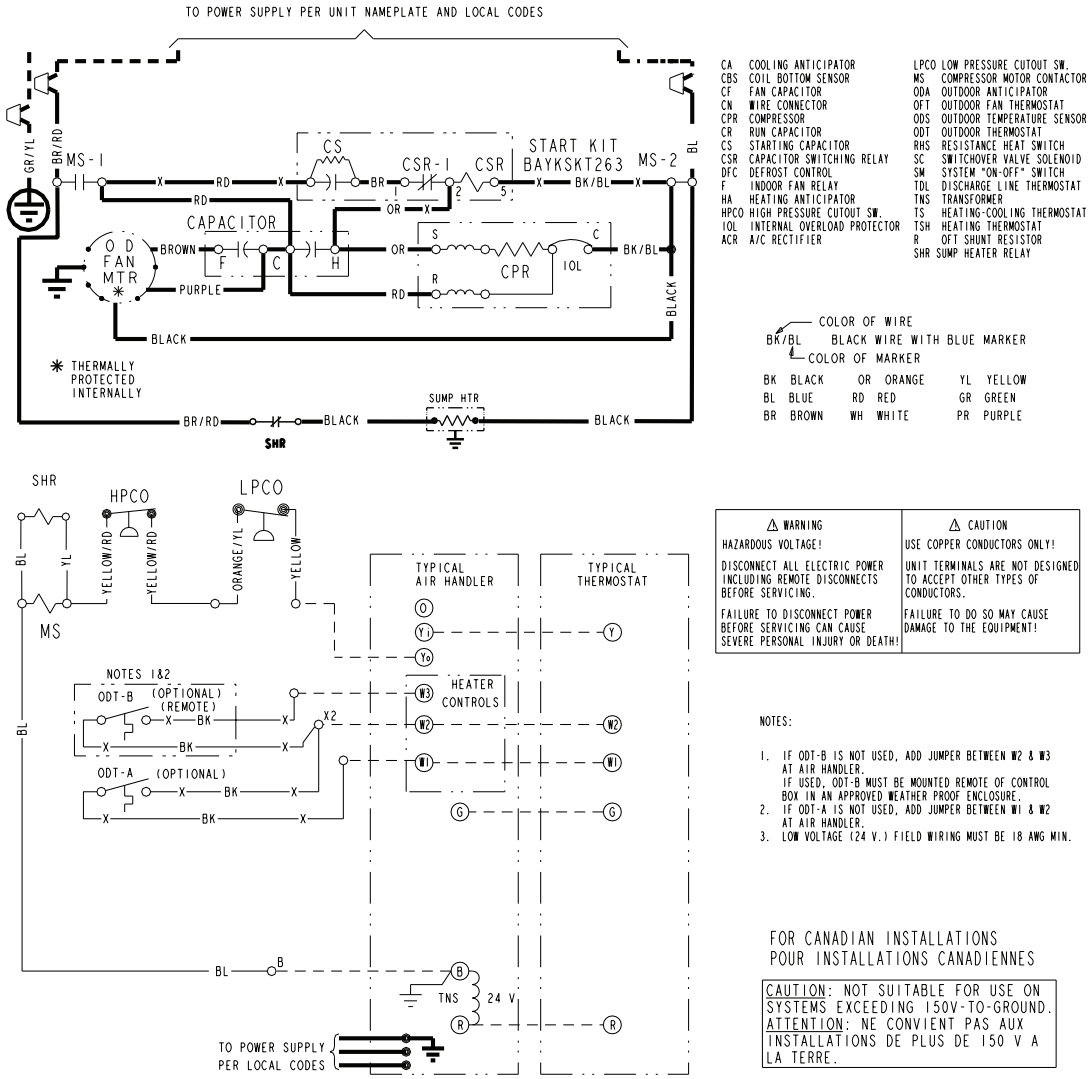
THIS INFORMATION IS INTENDED FOR USE BY INDIVIDUALS POSSESSING ADEQUATE BACKGROUNDS OF ELECTRICAL AND MECHANICAL EXPERIENCE. ANY ATTEMPT TO REPAIR A CENTRAL AIR CONDITIONING PRODUCT MAY RESULT IN PERSONAL INJURY AND OR PROPERTY DAMAGE. THE MANUFACTURER OR SELLER CANNOT BE RESPONSIBLE FOR THE INTERPRETATION 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 CUTOUT 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	SW	SYSTEM "ON-OFF" SWITCH
F	INDOOR FAN RELAY	TDL	DISCHARGE LINE THERMOSTAT
HA	HEATING ANTICIPATOR	TNS	TRANSFORMER
HPCO	HIGH PRESSURE CUTOUT SW.	TS	HEATING-COOLING THERMOSTAT
IOL	INTERNAL OVERLOAD PROTECTOR	TSH	HEATING THERMOSTAT
ACR	A/C RECTIFIER	R	OFT SHUNT RESISTOR
		SHR	SUMP HEATER RELAY

COLOR OF WIRE
BK/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

⚠ WARNING	⚠ CAUTION
HAZARDOUS VOLTAGE! DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS BEFORE SERVICING. FAILURE TO DISCONNECT POWER BEFORE SERVICING CAN CAUSE SEVERE PERSONAL INJURY OR DEATH!	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. 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.
2. IF ODT-A IS NOT USED, ADD JUMPER BETWEEN W1 & W2 AT AIR HANDLER.
3. 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.

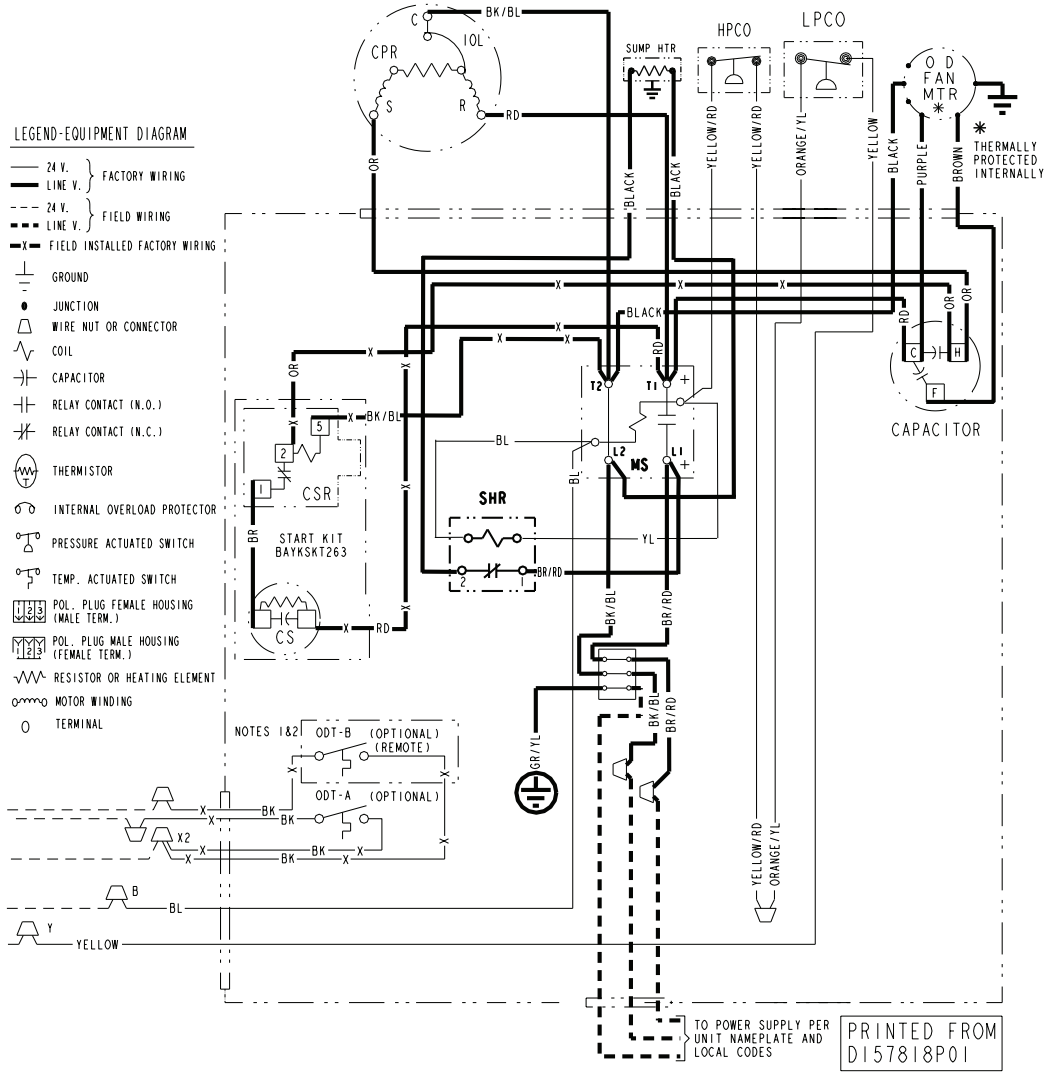
1. Subcooling (in the cooling mode) is the only recommended method of charging above 55°F ambient temperatures.
2. For best results – the indoor temperature should be kept between 70°F to 80°F. Add system heat if needed.
3. At startup, or whenever charge is removed or added, the system must be operated for a minimum 20 minutes to stabilize before accurate measurements can be made.
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.
6. Determine the Design Subcool Charging Temperature from the unit nameplate.
7. 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.
8. When system is correctly charged, you can refer to System Pressure Curves to verify typical performance.

R-410A REFRIGERANT CHARGING CHART

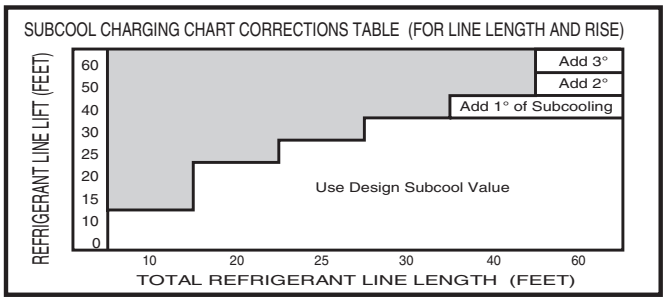
LIQUID TEMP (°F)	DESIGN SUBCOOLING (°F)						
	8	**9**	**10**	**11**	**12**	**13**	**14**
	LIQUID GAGE PRESSURE (PSI)						
55	179	182	185	188	191	195	198
60	195	198	201	204	208	211	215
65	211	215	218	222	225	229	232
70	229	232	236	240	243	247	251
75	247	251	255	259	263	267	271
80	267	271	275	279	283	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

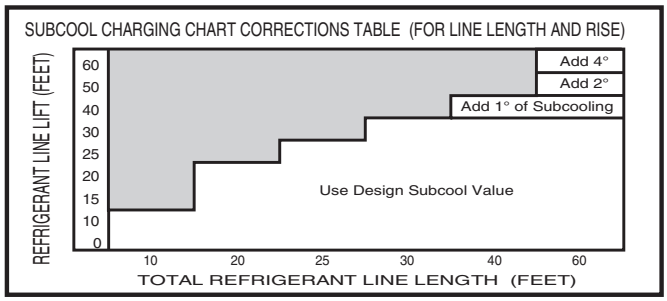
WIRING DIAGRAM



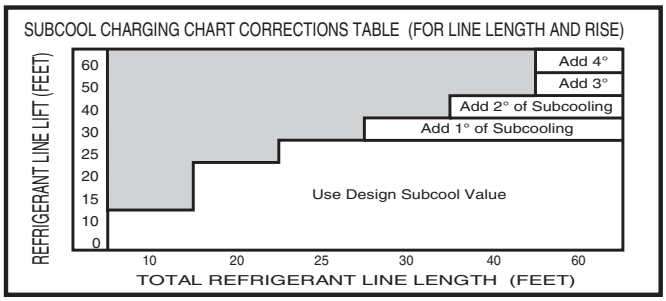
1 1/2 Ton



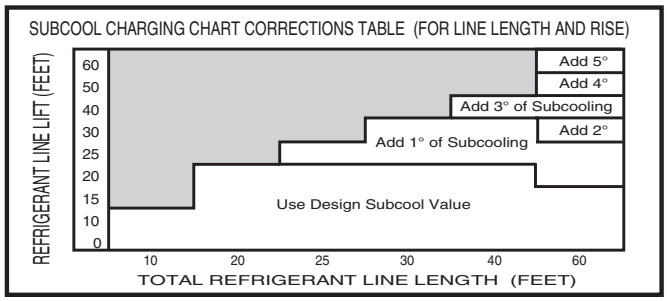
2 Ton



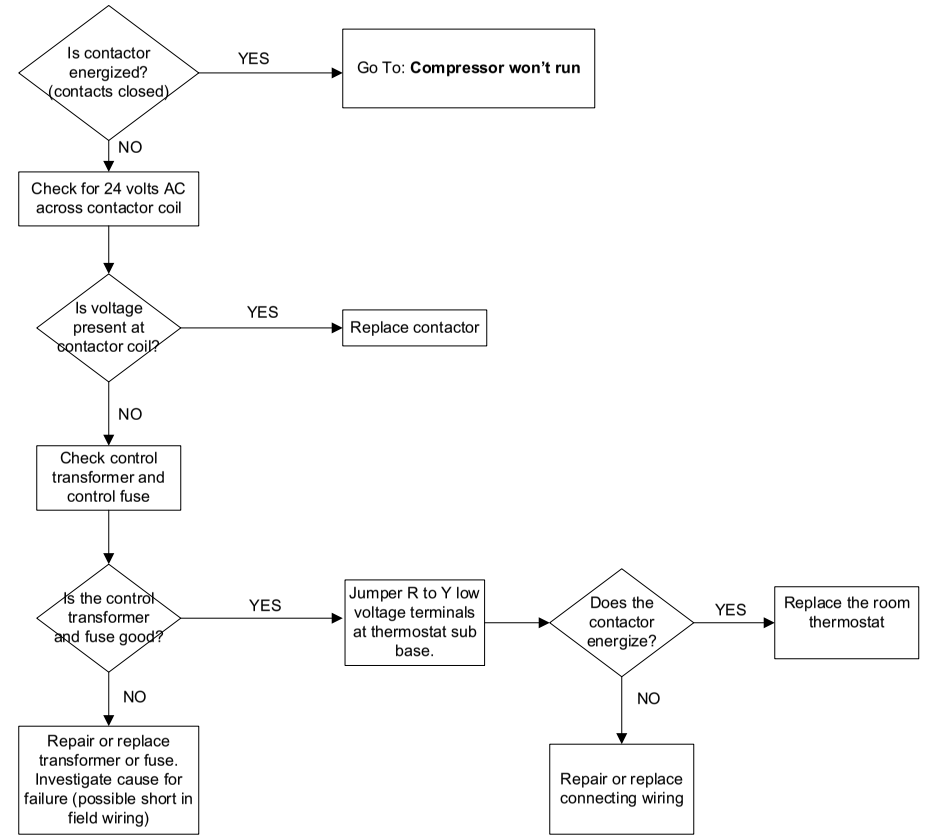
2 1/2 Ton



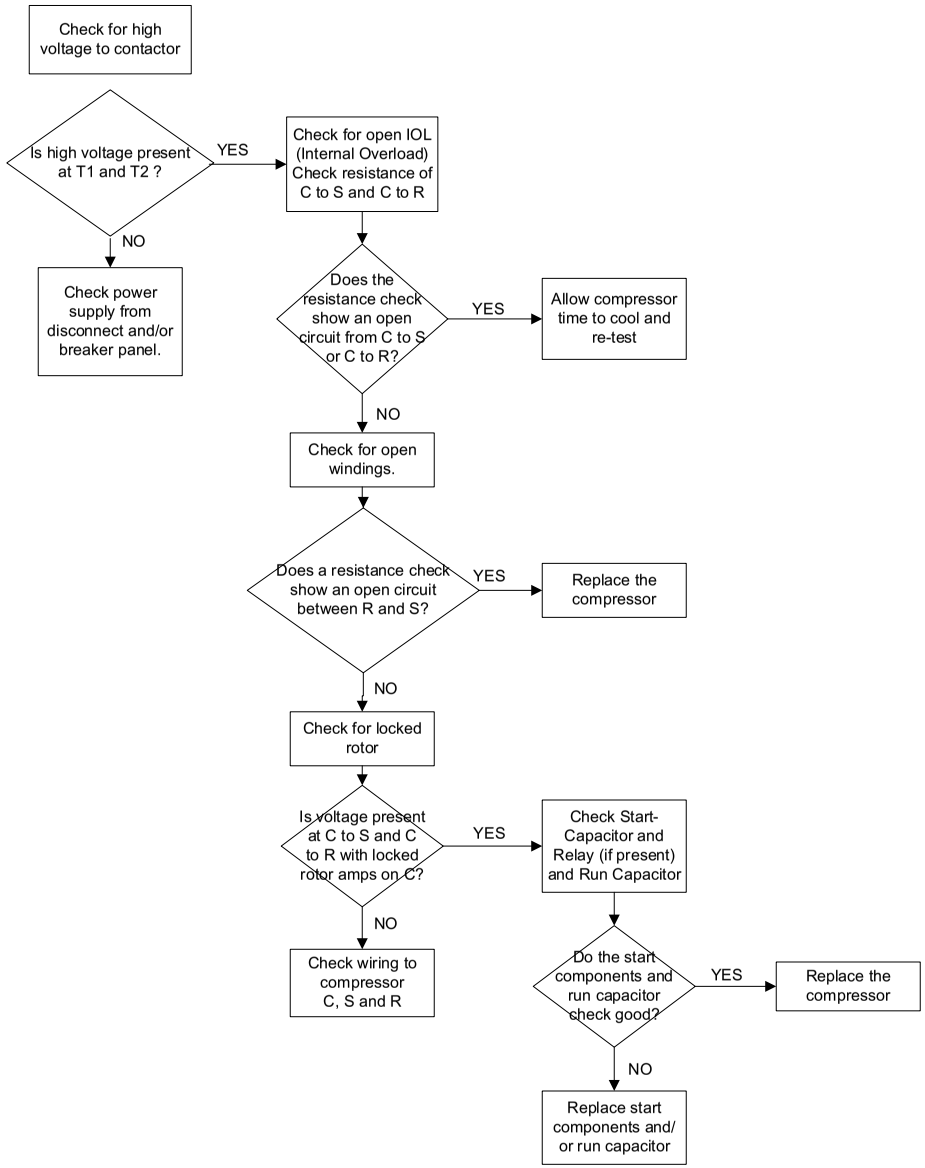
3 Ton



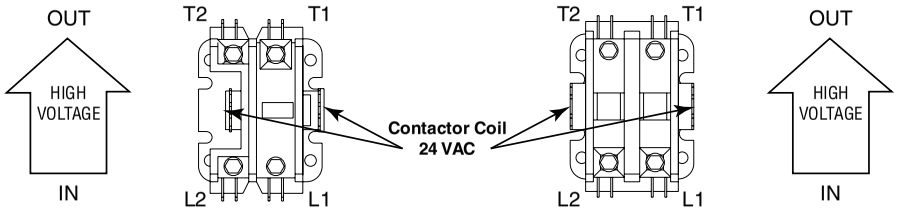
Compressor fails to start
Contactor check



Compressor won't run
Contactor is closed

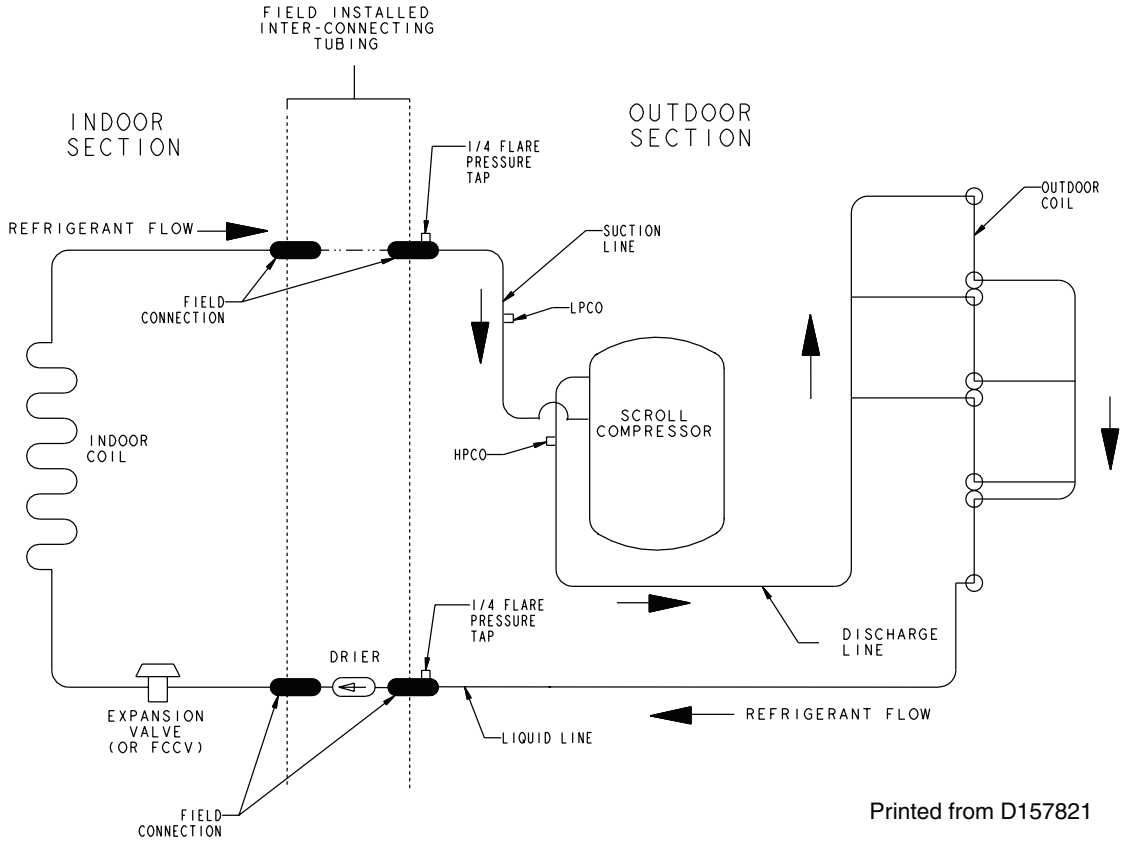


Single Pole Contactor (MS)* **Double Pole Contactor (MS)***



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

REFRIGERANT CIRCUIT 4TTB3018AA-24AA



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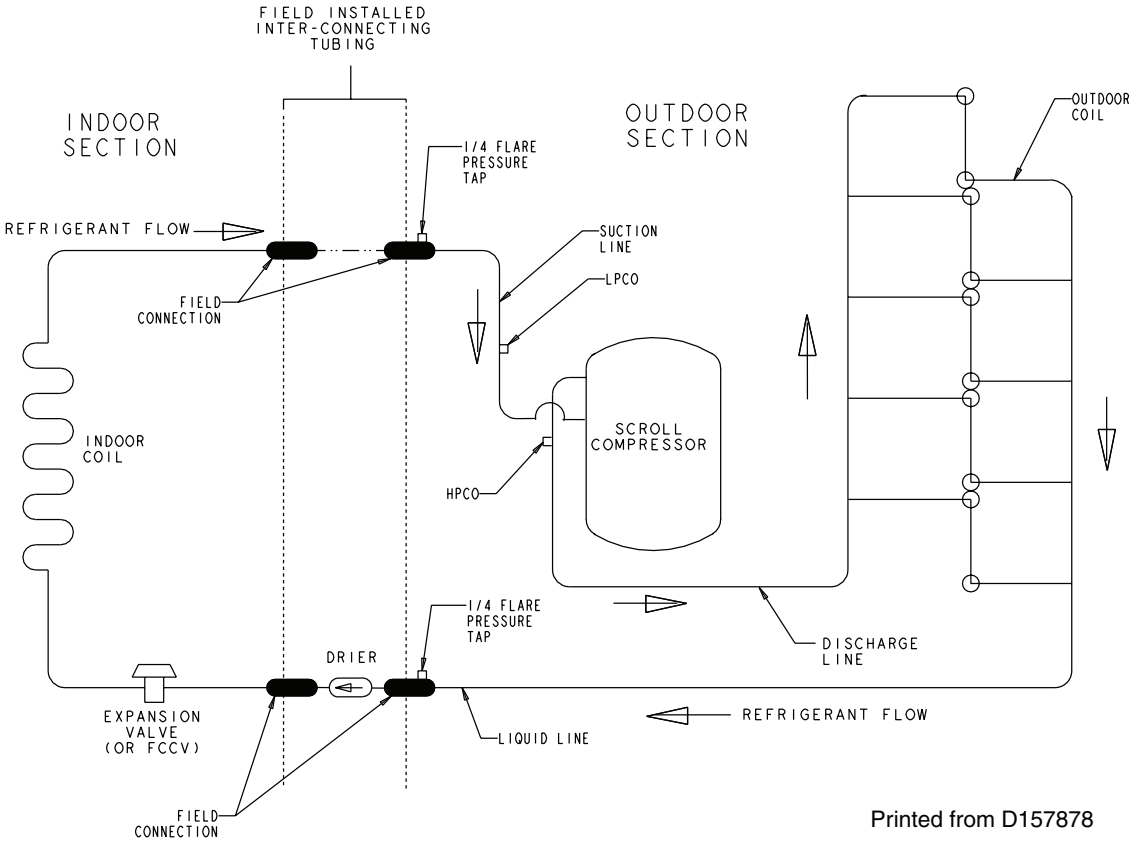
REFRIGERANT CIRCUIT 4TTB3030AA-36AA



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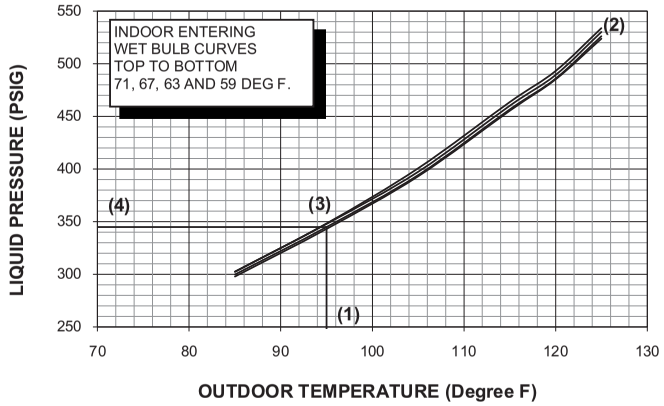
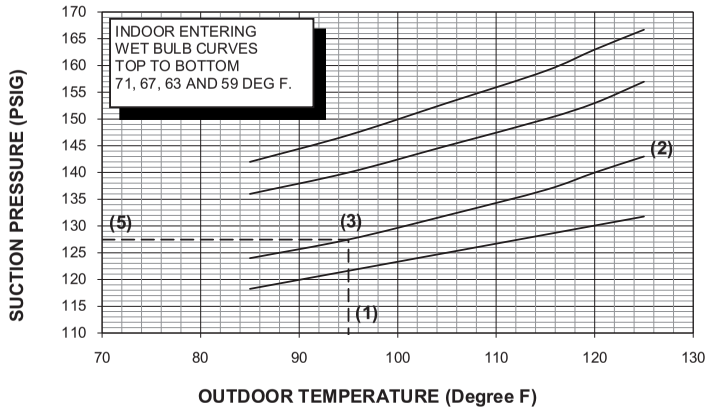
PRESSURE CURVES FOR 4TTB3018AA

MCDA18
Cooling with FCCV or Capillary Tubes





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

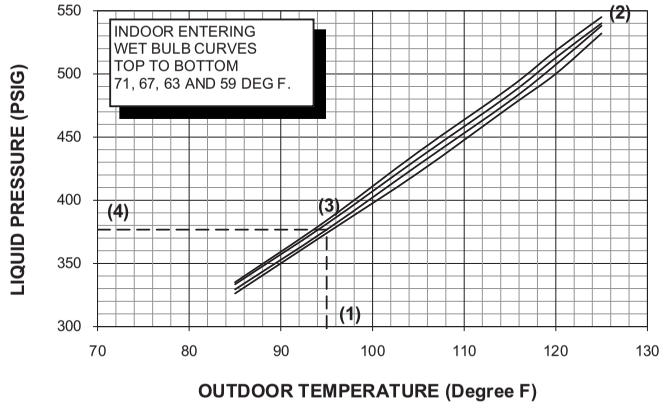
ACTUAL:
LIQUID PRESSURE SHOULD BE +/- 10 PSI OF CHART
SUCTION PRESSURE SHOULD BE +/- 3 PSIG OF CHART

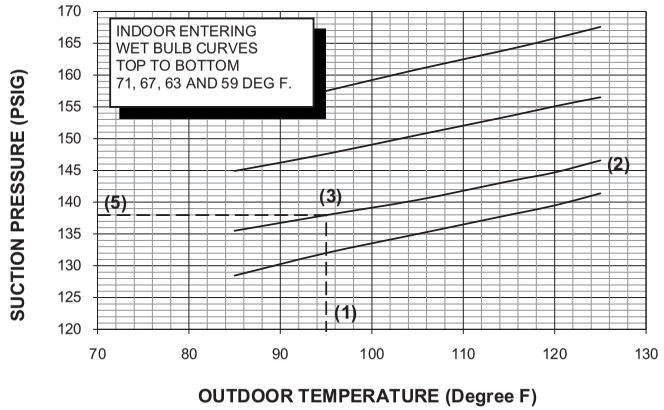
INTERCONNECTING LINES
Suction - 3/4"
Liquid - 3/8"

DWG.NO. 4TTB3018AA

PRESSURE CURVES FOR 4TTB3024AA

MCDA24
Cooling with FCCV or Capillary Tubes





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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 377 PSIG
(5) SUCTION PRESSURE @ 1050 CFM IS 138 PSIG

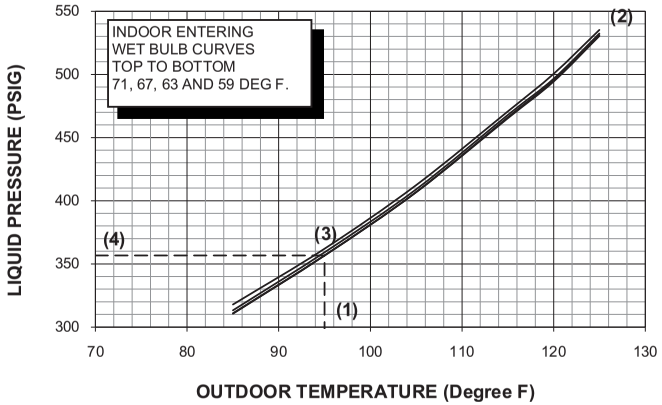
ACTUAL:
LIQUID PRESSURE SHOULD BE +/- 10 PSI OF CHART
SUCTION PRESSURE SHOULD BE +/- 3 PSIG OF CHART

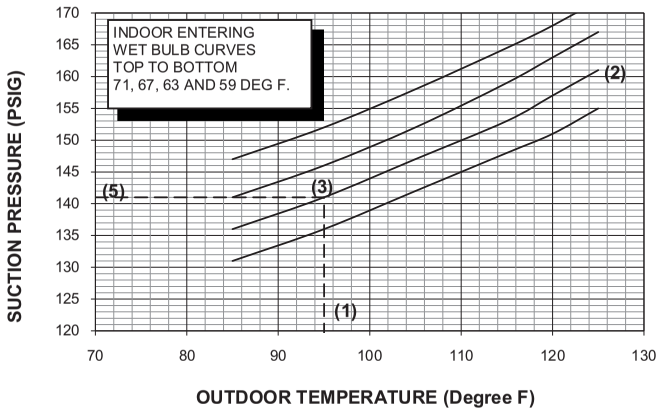
INTERCONNECTING LINES
Suction - 3/4"
Liquid - 3/8"

DWG.NO. 4TTB3024AA

PRESSURE CURVES FOR 4TTB3030AA

MCDA30
Cooling with FCCV or Capillary Tubes





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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 357 PSIG
(5) SUCTION PRESSURE @ 1050 CFM IS 141 PSIG

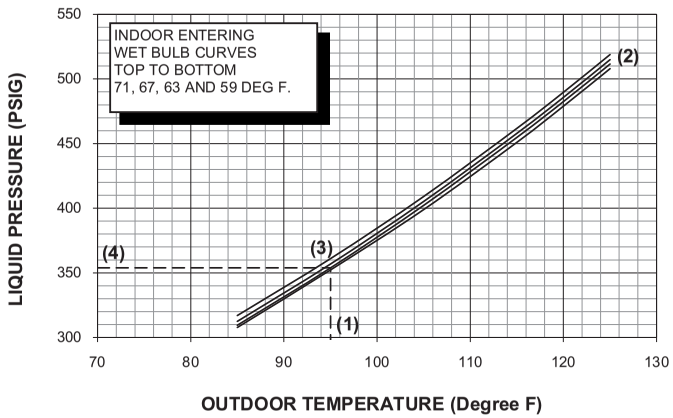
ACTUAL:
LIQUID PRESSURE SHOULD BE +/- 10 PSI OF CHART
SUCTION PRESSURE SHOULD BE +/- 3 PSIG OF CHART

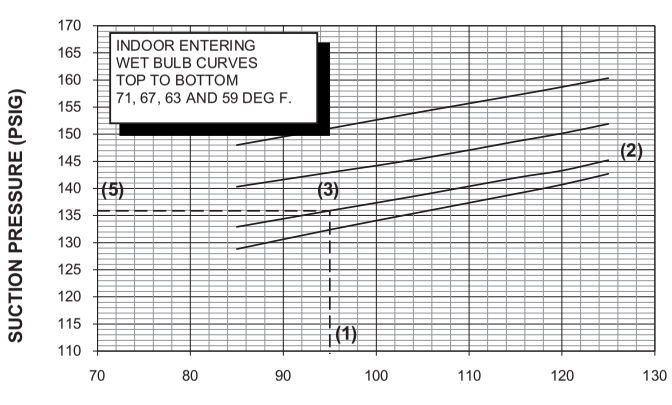
INTERCONNECTING LINES
Suction - 3/4"
Liquid - 3/8"

DWG.NO. 4TTB3030AA

PRESSURE CURVES FOR 4TTB3030AA

GAF2A0A36
Cooling with Thermal Expansion Valve





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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

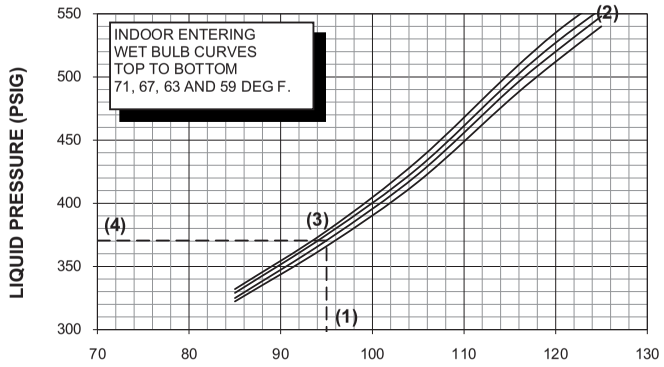
ACTUAL:
LIQUID PRESSURE SHOULD BE +/- 10 PSI OF CHART
SUCTION PRESSURE SHOULD BE +/- 3 PSIG OF CHART

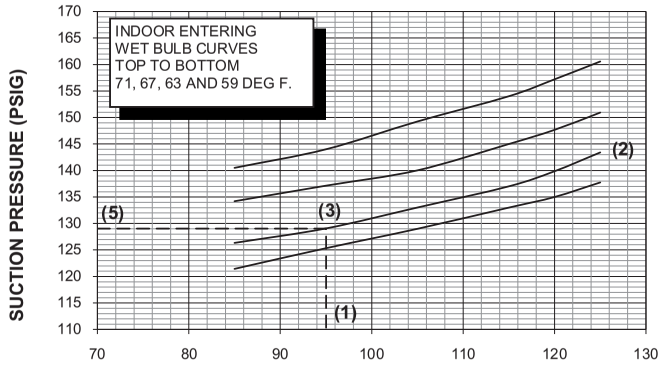
INTERCONNECTING LINES
Suction - 3/4"
Liquid - 3/8"

DWG.NO. 4TTB3030AA

PRESSURE CURVES FOR 4TTB3036AA

MCDA36
Cooling with FCCV or Capillary Tubes





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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 371 PSIG
(5) SUCTION PRESSURE @ 1050 CFM IS 129 PSIG

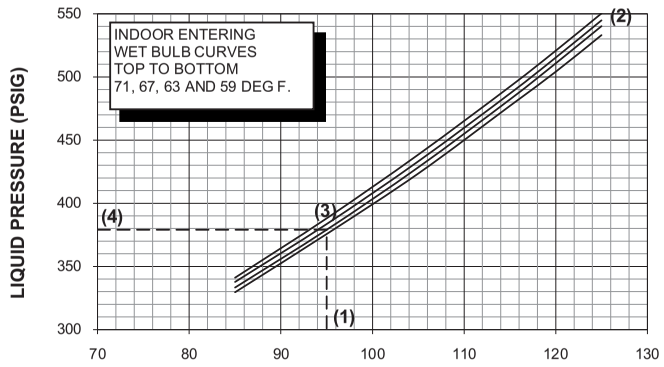
ACTUAL:
LIQUID PRESSURE SHOULD BE +/- 10 PSI OF CHART
SUCTION PRESSURE SHOULD BE +/- 3 PSIG OF CHART

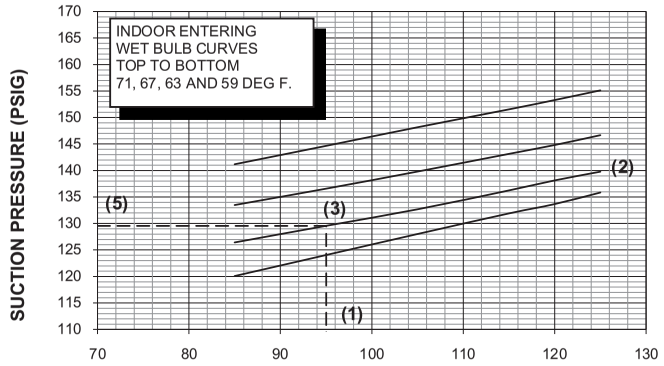
INTERCONNECTING LINES
Suction - 7/8"
Liquid - 3/8"

DWG.NO. 4TTB3036AA

PRESSURE CURVES FOR 4TTB3036AA

GAF2A0A36
Cooling with Thermal Expansion Valve





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EXAMPLE: (1) OUTDOOR TEMP. 95 F.
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ACTUAL:
LIQUID PRESSURE SHOULD BE +/- 10 PSI OF CHART
SUCTION PRESSURE SHOULD BE +/- 3 PSIG OF CHART

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

DWG.NO. 4TTB3036AA

TRANE®

Installer's Guide

Condensing Units

4TTB3018AA–36AA

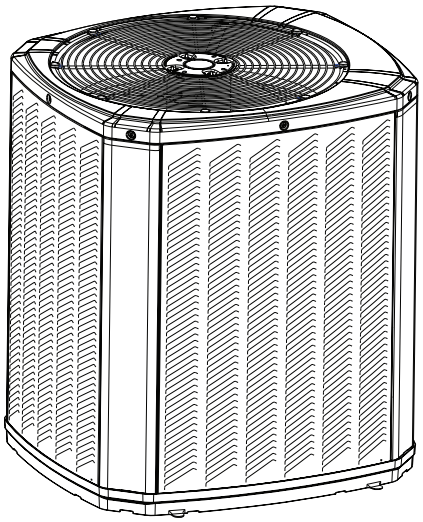
ALL phases of this installation must comply with NATIONAL, STATE AND LOCAL CODES

IMPORTANT — This Document is customer property and is to remain with this unit. Please return to service information pack upon completion of work.

These instructions do not cover all variations in systems or provide for every possible contingency to be met in connection with the installation. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to your installing dealer or local distributor.

Note: The manufacturer recommends installing only approved matched indoor and outdoor systems. Some of the benefits of installing approved matched indoor and outdoor split systems are maximum efficiency, optimum performance and the best overall system reliability.

Table of Contents



Section 1. Safety

⚠ 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 manufacture or seller cannot be responsible for the interpretation of this information, nor can it assume any liability in connection with its use.

⚠ WARNING

These units use R-410A refrigerant which operates at 50 to 70% higher pressures than R-22. Use only R-410A approved service equipment. Refrigerant cylinders are painted a “Rose” color to indicate the type of refrigerant and may contain a “dip” tube to allow for charging of liquid refrigerant into the system. All R-410A systems use a POE oil that readily absorbs moisture from the atmosphere. To limit this “hygroscopic” action, the system should remain sealed whenever possible. If a system has been open to the atmosphere for more than 4 hours, the compressor oil must be replaced. Never break a vacuum with air and always change the driers when opening the system for component replacement. For specific handling concerns with R-410A and POE oil reference Retrofit Bulletins SS-APG006-EN and APP-APG011-EN.

⚠ WARNING

UNIT CONTAINS R-410A REFRIGERANT!
R-410A operating pressures exceed 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.

⚠ WARNING

Extreme caution should be exercised when opening the Liquid Line Service Valve. Turn counterclockwise until the valve stem just touches the rolled edge. No torque is required. Failure to follow this warning will result in abrupt release of system charge and may result in personal injury and /or property damage.

⚠ WARNING

LIVE ELECTRICAL COMPONENTS!
During installation, testing, servicing, and troubleshooting of this product, it may be necessary to work with live electrical components. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

⚠ CAUTION

If using existing refrigerant lines make certain that all joints are brazed, not soldered.

⚠ CAUTION

Scroll compressor dome temperatures may be hot. Do not touch the top of compressor; it may cause minor to severe burning.

Section 2. Unit Location Considerations

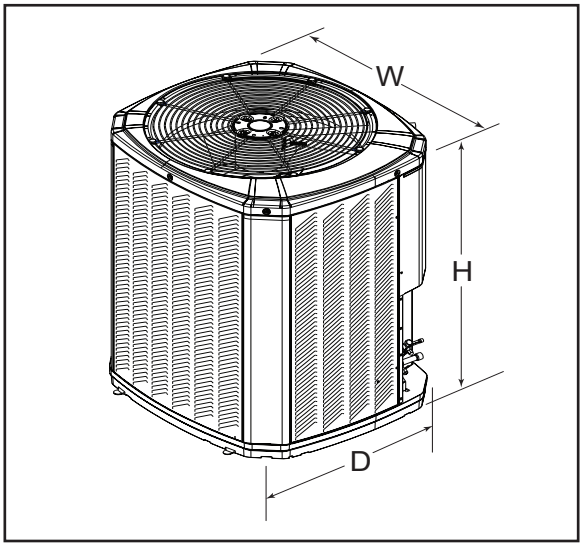
2.1 Unit Dimensions and Weight

Table 2.1

Unit Dimensions and Weight		
Models	H x D x W (in)	Weight* (lb)
4TTB3018AA	29 x 30 x 33	138
4TTB3024AA	29 x 30 x 33	140
4TTB3030AA	37 x 34 x 37	189
4TTB3036AA	37 x 34 x 37	230
* Weight values are estimated.		

When mounting the outdoor unit on a roof, be sure the roof will support the unit's weight.

Properly selected isolation is recommended to alleviate sound or vibration transmission to the building structure.



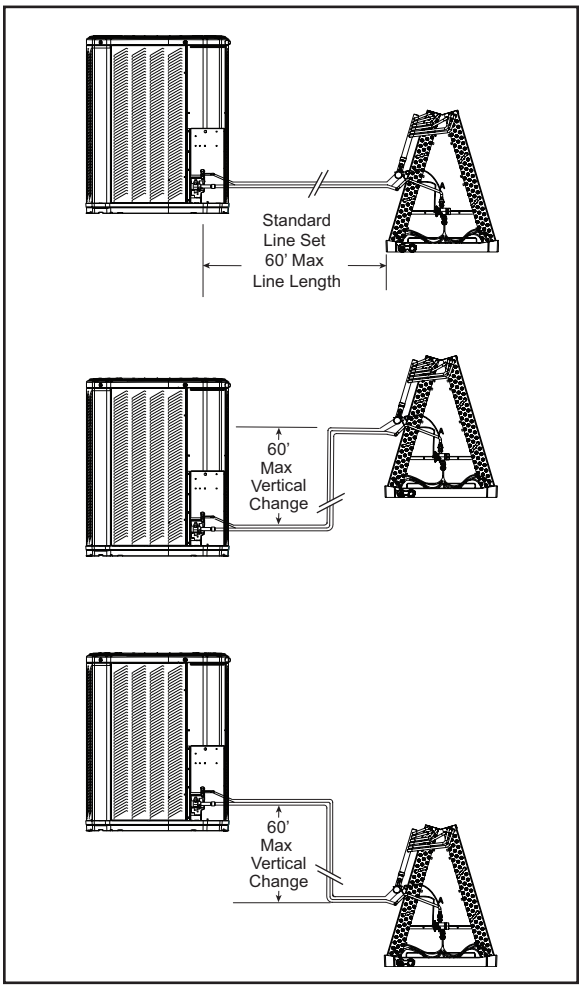
2.2 Refrigerant Piping Limits

1. The maximum length of refrigerant lines from outdoor to indoor unit should NOT exceed sixty (60) feet.

2. The maximum vertical change should not exceed sixty (60) feet.

3. Service valve connection diameters are shown in Table 5.1.

Note: For line lengths greater than sixty (60) feet, Refer to Refrigerant Piping Application Guide, SS-APG006-EN or Refrigerant Piping Software Program, 32-3312-03 (or latest revision).

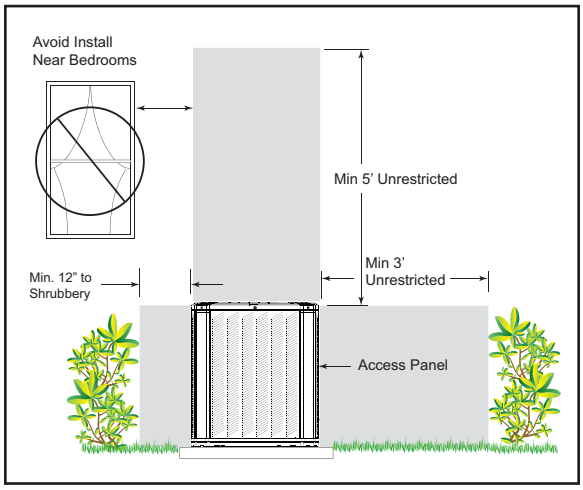


2.3 Suggested Locations for Best Reliability

Ensure the top discharge area is unrestricted for at least five (5) feet above the unit.

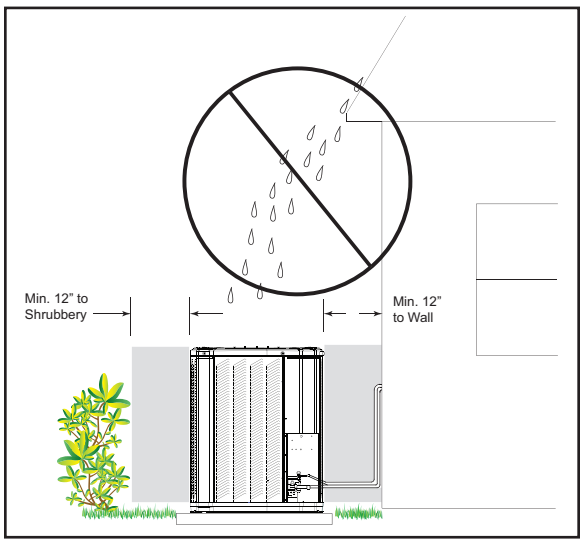
Three (3) feet clearance must be provided in front of the control box (access panels) and any other side requiring service.

Do not locate close to bedrooms as operational sounds may be objectionable.



Position the outdoor unit a minimum of 12” from any wall or surrounding shrubbery to ensure adequate airflow.

Outdoor unit location must be far enough away from any structure to prevent excess roof runoff water from pouring directly on the unit.



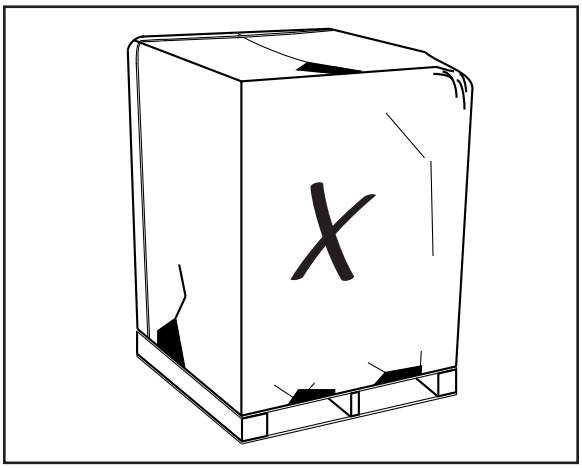
2.4 Coastal Considerations

If installed within one mile of salt water, including seacoasts and inland waterways, models without factory supplied Seacoast Salt Shields require the addition of BAYSEAC001 (Seacoast Kit) at installation time. Please refer to Seacoast Application Guide.

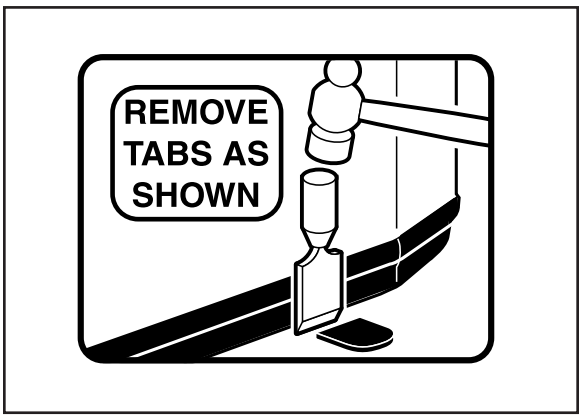
Section 3. Unit Preparation

3.1 Prepare The Unit For Installation

STEP 1 - Check for damage and report promptly to the carrier any damage found to the unit.



STEP 2 - To remove the unit from the pallet, remove tabs by cutting with a sharp tool.



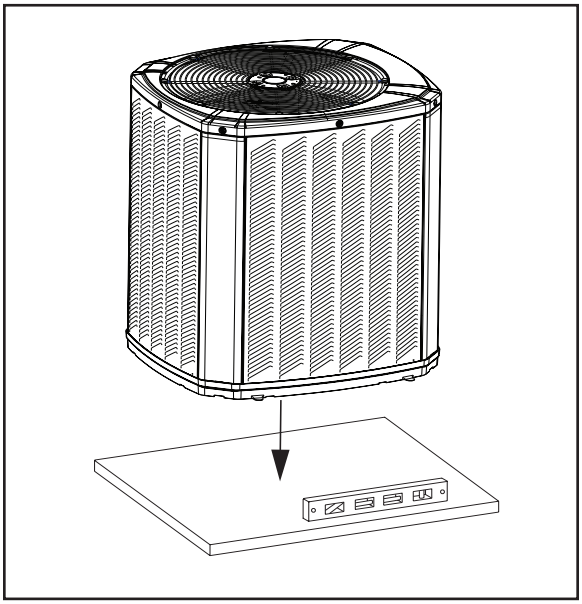
Section 4. Setting the Unit

4.1 Pad Installation

When installing the unit on a support pad, such as a concrete slab, consider the following:

- The pad should be at least 1” larger than the unit on all sides.
- The pad must be separate from any structure.
- The pad must be level.
- The pad should be high enough above grade to allow for drainage.
- The pad location must comply with National, State, and Local codes.

For other applications refer to Application Guide.



Section 5. Refrigerant Line Considerations

5.1 Refrigerant Line and Service Valve Connection Sizes

Table 5.1

	Line Sizes		Service Valve Connection Sizes	
Model	Vapor Line	Liquid Line	Vapor Line Connection	Liquid Line Connection
4TTB3018AA	3/4	3/8	3/4	3/8
4TTB3024AA	3/4	3/8	3/4	3/8
4TTB3030AA	3/4	3/8	3/4	3/8
4TTB3036AA	7/8	3/8	7/8	3/8

5.2 Factory Charge

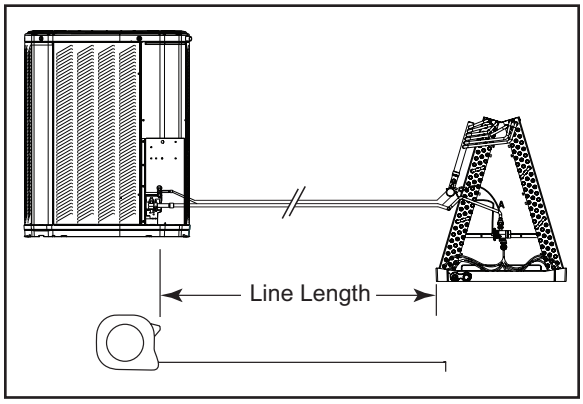
Outdoor condensing units are factory charged with the system charge required for the outdoor condensing unit, twenty five (25) feet of tested connecting line, and the smallest indoor evaporative coil match. **If connecting line length exceeds twenty five (25) feet and/or a larger indoor evaporative coil is installed, then final refrigerant charge adjustment is necessary.**

5.3 Required Refrigerant Line Length

Determine required line length and lift. You will need this later in STEP 2 of Section 14.

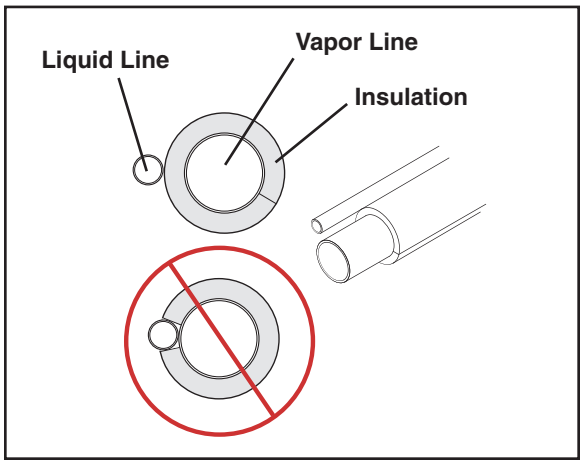
Total Line Length = _____ Ft.

Total Vertical Change (lift) = _____ Ft.



5.4 Refrigerant Line Insulation

Important: *The Vapor Line must always be insulated. DO NOT allow the Liquid Line and Vapor Line to come in direct (metal to metal) contact.*



5.5 Reuse Existing Refrigerant Lines

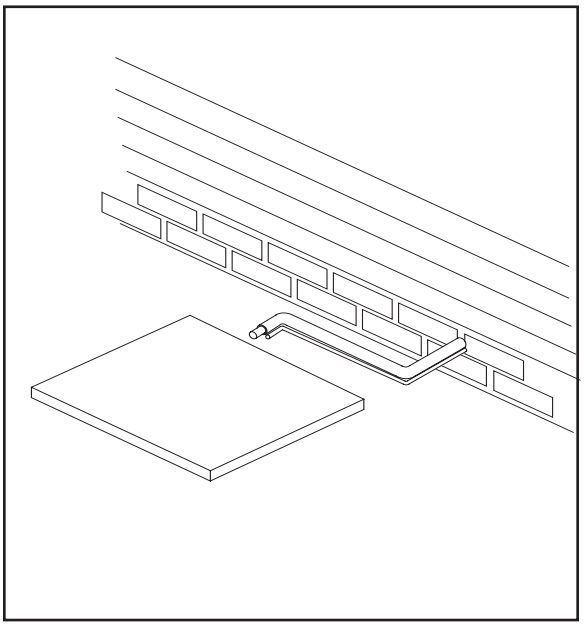
⚠ CAUTION

If using existing refrigerant lines make certain that all joints are brazed, not soldered.

For retrofit applications, where the existing indoor evaporator coil and/or refrigerant lines will be used, the following precautions should be taken:

- Ensure that the indoor evaporator coil and refrigerant lines are the correct size.
- Ensure that the refrigerant lines are free of leaks, acid, and oil.

Important: *For more information see publication numbers SS-APG006-EN and APP-APG011-EN.*



Section 6. Refrigerant Line Routing

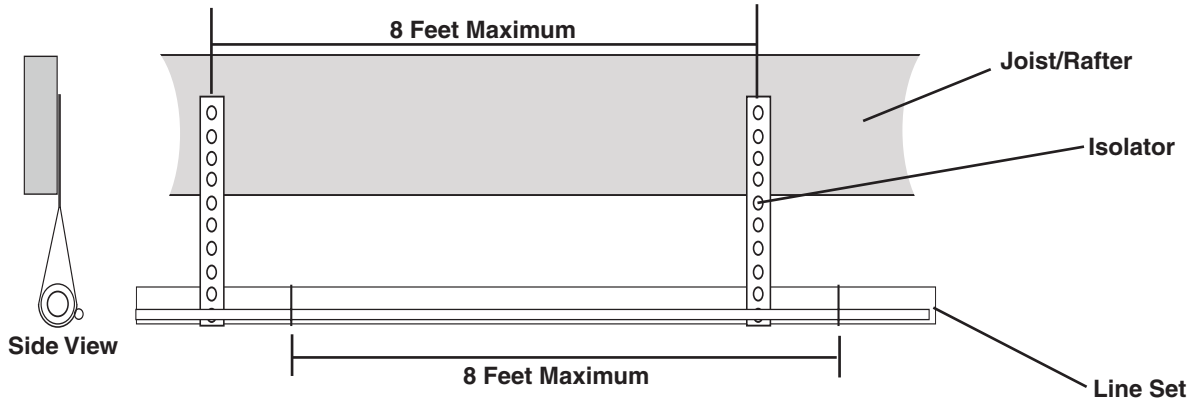
6.1 Precautions

Important: *Take precautions to prevent noise within the building structure due to vibration transmission from the refrigerant lines.*

Comply with National, State, and Local Codes when isolating line sets from joists, rafters, walls, or other structural elements.

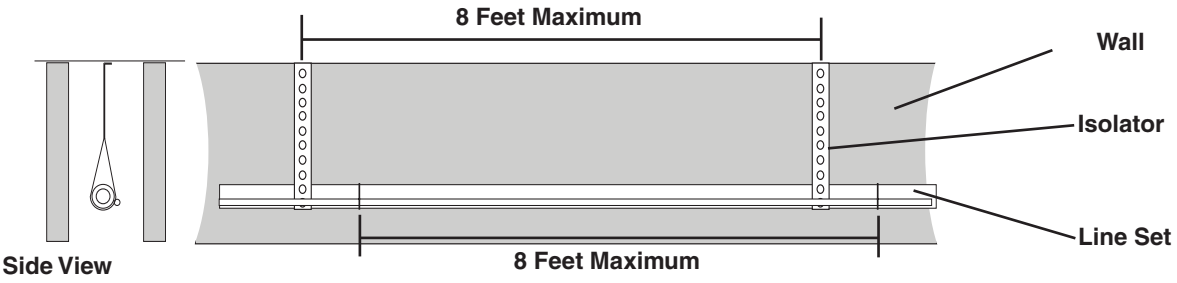
For Example:

- When the refrigerant lines have to be fastened to floor joists or other framing in a structure, use isolation type hangers.
- Isolation hangers should also be used when refrigerant lines are run in stud spaces or enclosed ceilings.
- Where the refrigerant lines run through a wall or sill, they should be insulated and isolated.
- Isolate the lines from all ductwork.
- Minimize the number of 90° turns.



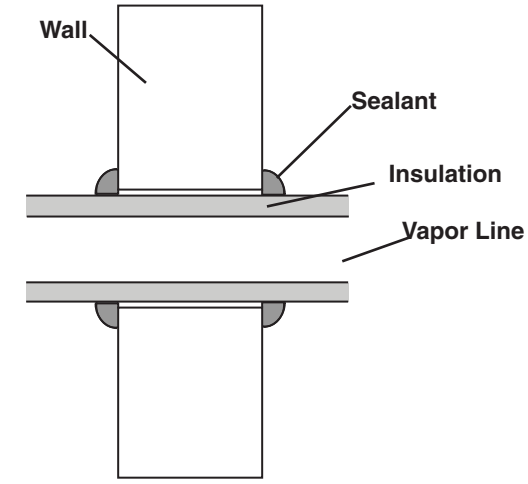
Secure Vapor line from joists using isolators every 8 ft. Secure Liquid Line directly to Vapor line using tape, wire, or other appropriate method every 8 ft.

Isolation From Joist/Rafter

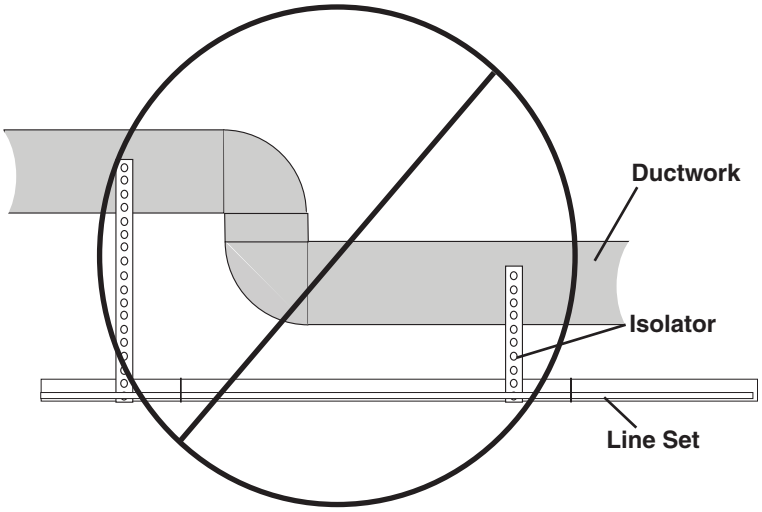


Secure Vapor Line using isolators every 8 ft. Secure Liquid Line directly to Vapor Line using tape, wire, or other appropriate method every 8 ft.

Isolation In Wall Spaces



Isolation Through Wall

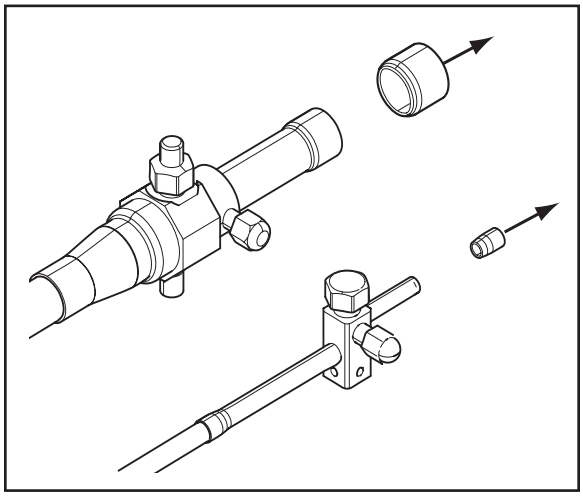


DO NOT hang line sets from ductwork

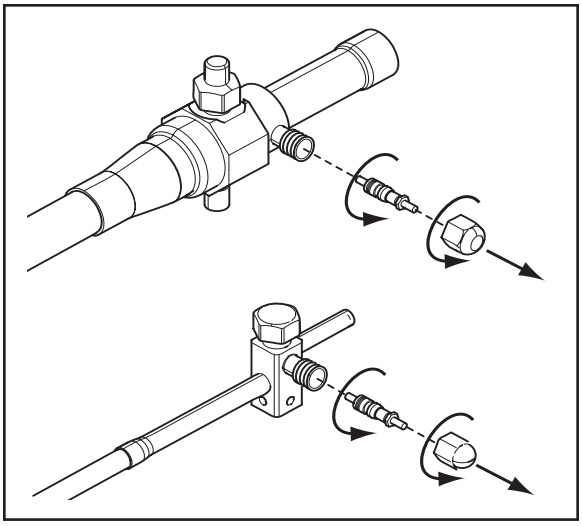
Section 7. Refrigerant Line Brazing

7.1 Braze The Refrigerant Lines

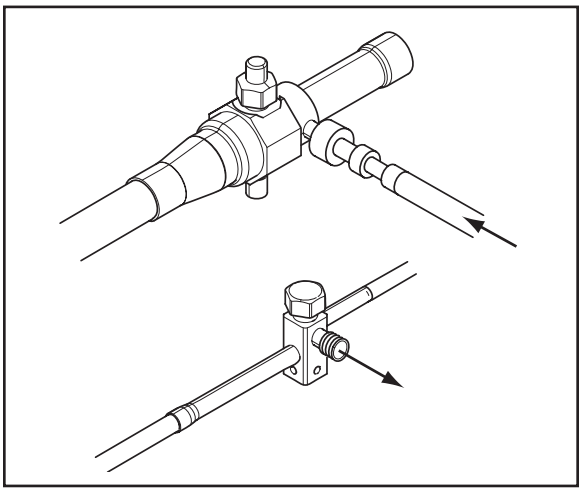
STEP 1 - Remove caps or plugs. Use a deburing tool to debur the pipe ends. Clean both internal and external surfaces of the tubing using an emery cloth.



STEP 2 - Remove the pressure tap cap and valve cores from both service valves.



STEP 3 - Purge the refrigerant lines and indoor coil with dry nitrogen.



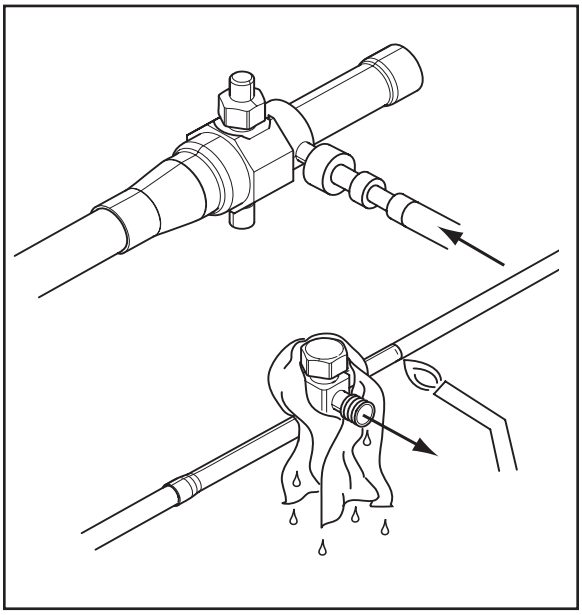
STEP 4 - Wrap a wet rag around the valve body to avoid heat damage and continue the dry nitrogen purge.

Braze the refrigerant lines to the service valves.

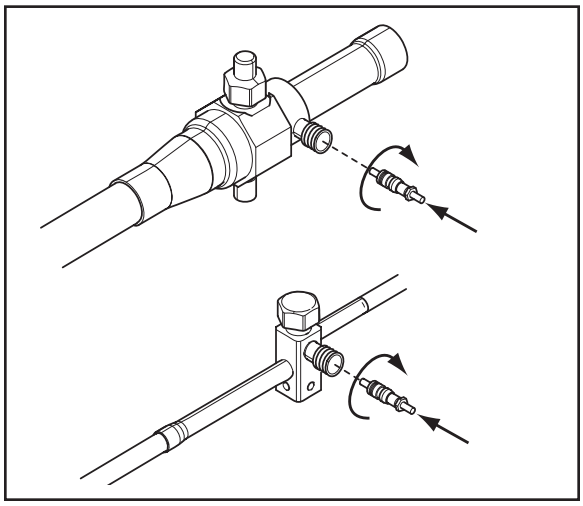
Continue the dry nitrogen purge. Do not remove the wet rag until all brazing is completed.

Important: Remove the wet rag before stopping the dry nitrogen purge.

NOTE: **Precautions should be taken to avoid heat damage to basepan during brazing. It is recommended to keep the flame directly off of the basepane.**



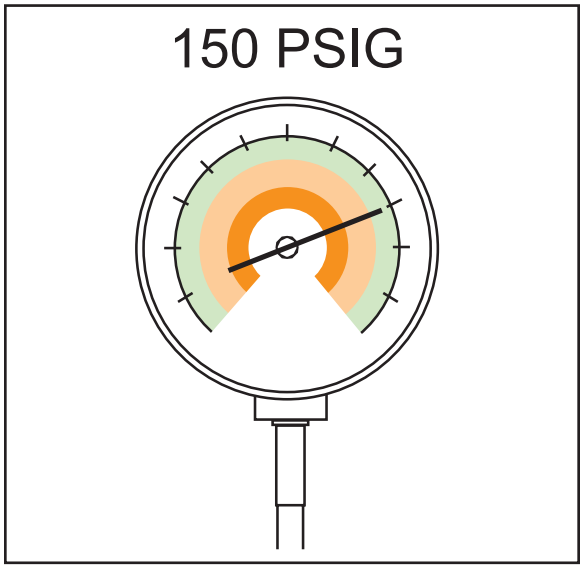
STEP 5 - Replace the pressure tap valve cores after the service valves have cooled.



Section 8. Refrigerant Line Leak Check

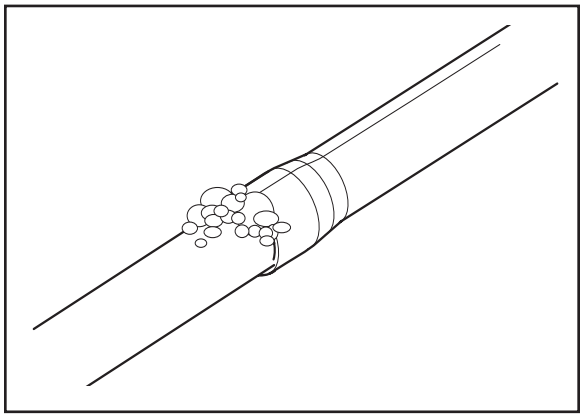
8.1 Check For Leaks

STEP 1 - Pressurize the refrigerant lines and evaporator coil to 150 PSIG using dry nitrogen.



STEP 2 - Check for leaks by using a soapy solution or bubbles at each brazed location.

Remove nitrogren pressure and repair any leaks before continuing.

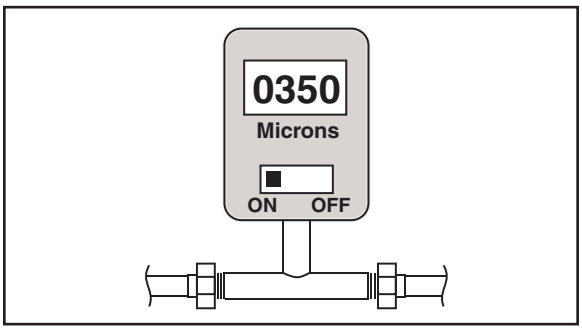


Section 9. Evacuation

9.1 Evacuate the Refrigerant Lines and Indoor Coil

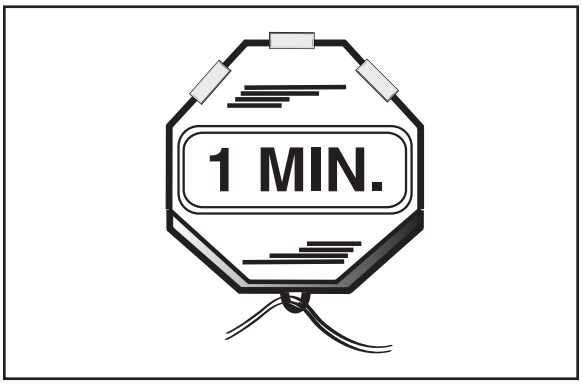
Important: *Do not open the service valves until the refrigerant lines and indoor coil leak check and evacuation are complete.*

STEP 1 - Evacuate until the micron gauge reads no higher than 350 microns, then close off the valve to the vacuum pump.



STEP 2 - Observe the micron gauge. Evacuation is complete if the micron gauge does not rise above 500 microns in one (1) minute.

Once evacuation is complete blank off the vacuum pump and micron gauge, and close the valves on the manifold gauge set.



Section 10. Service Valves

10.1 Open the Gas Service Valve

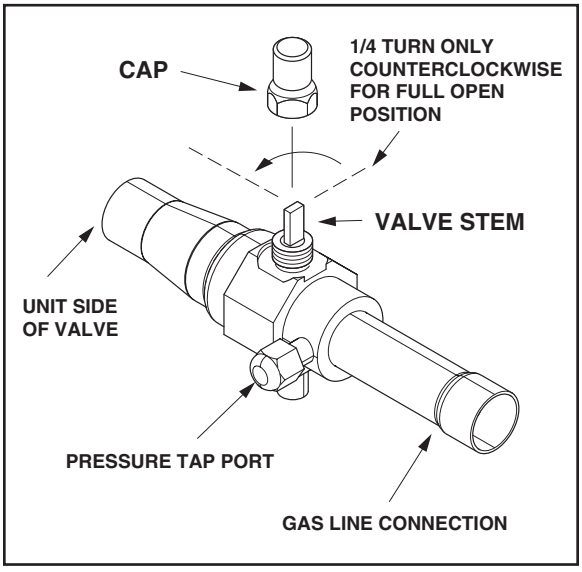
Important: *Leak check and evacuation must be completed before opening the service valves.*

NOTE: Do not vent refrigerant gases into the atmosphere

STEP 1 - Remove valve stem cap.

STEP 2 - Using an adjustable wrench, turn valve stem 1/4 turn counterclockwise to the fully open position.

STEP 3 - Replace the valve stem cap to prevent leaks. Tighten finger tight plus an additional 1/6 turn.



10.1 Open the Liquid Service Valve

⚠ WARNING

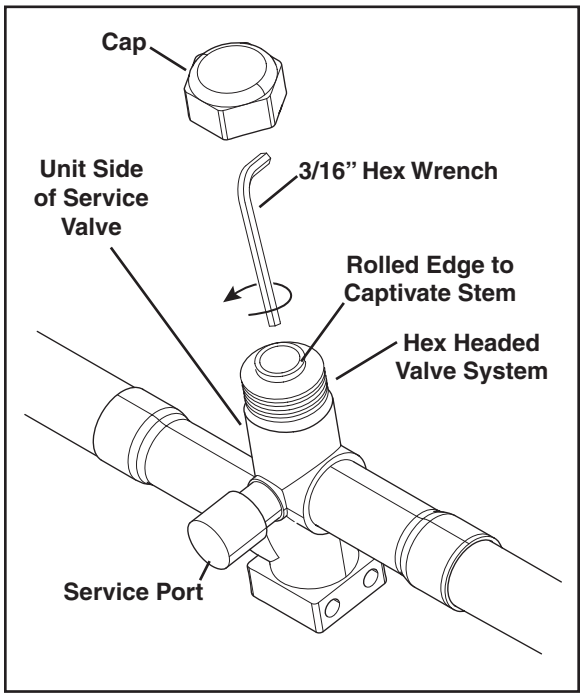
Extreme caution should be exercised when opening the Liquid Line Service Valve. Turn counterclockwise until the valve stem just touches the rolled edge. No torque is required. Failure to follow this warning will result in abrupt release of system charge and may result in personal injury and /or property damage.

Important: *Leak check and evacuation must be completed before opening the service valves.*

STEP 1 - Remove service valve cap.

STEP 2 - Fully insert 3/16" hex wrench into the stem and back out counterclockwise until valve stem just touches the rolled edge (approximately five (5) turns.)

STEP 3 - Replace the valve cap to prevent leaks. Tighten finger tight plus an additional 1/6 turn.



Section 11. Electrical - Low Voltage

11.1 Low Voltage Maximum Wire Length

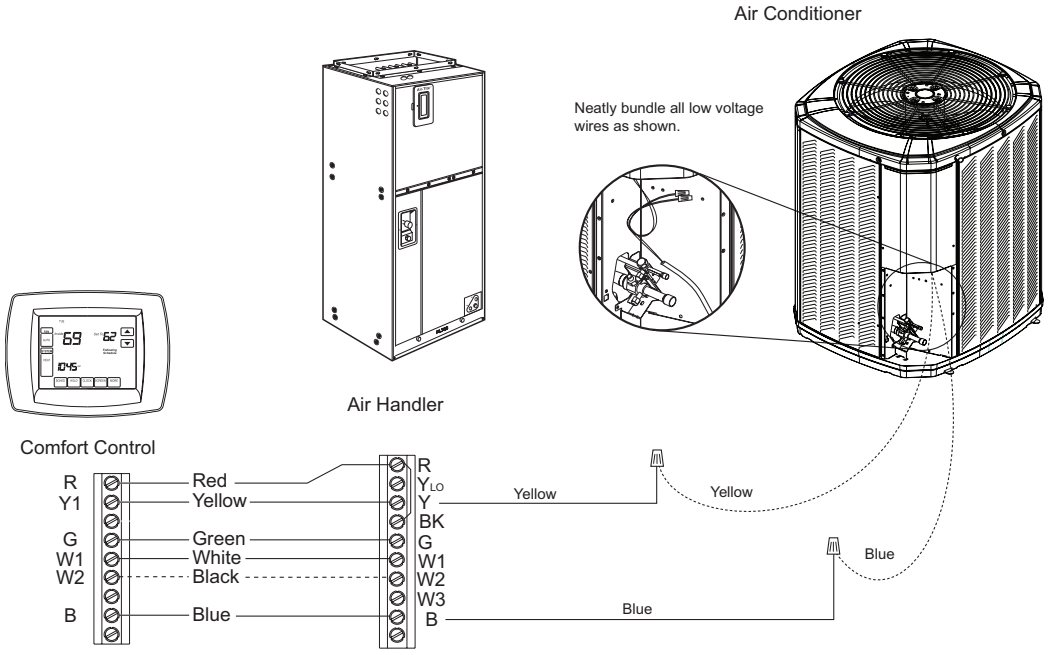
Table 11.1 defines the maximum total length of low voltage wiring from the outdoor unit, to the indoor unit, and to the thermostat.

Table 11.1

24 VOLTS	
WIRE SIZE	MAX. WIRE LENGTH
18 AWG	150 Ft.
16 AWG	225 Ft.
14 AWG	300 Ft.

11.2 Low Voltage Hook-up Diagrams

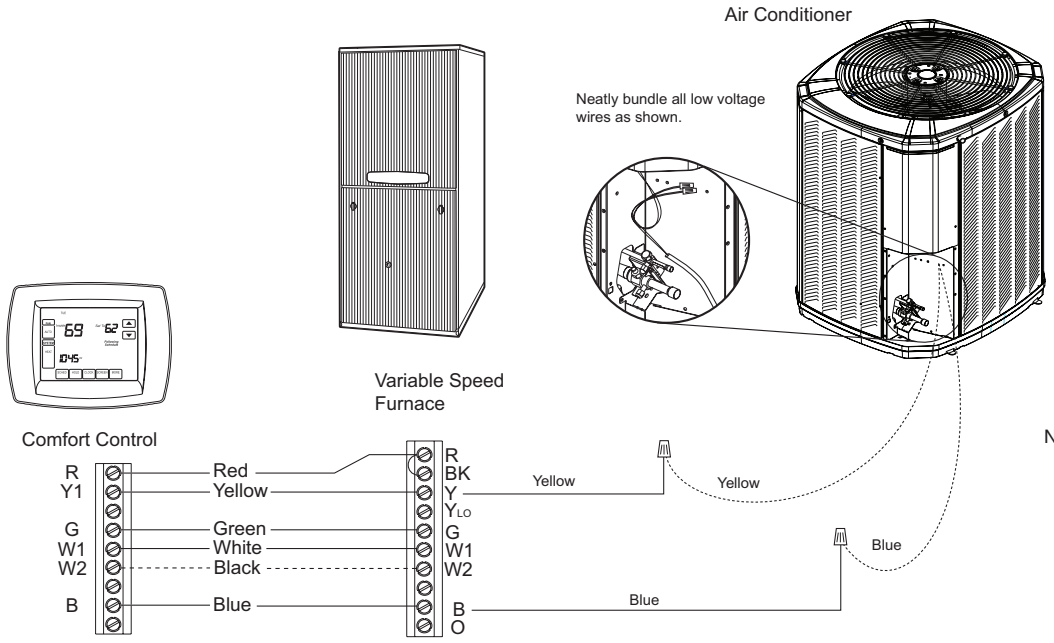
Air Handler Hook-up Diagram



Notes:

1. If electric heat does not have 3rd contactor (CH), connect a jumper wire from W3 to W2. If electric heat does not have 2nd contactor (BH), connect a jumper wire from W2 to W1.
2. Ylo and BK may not be present on unit.

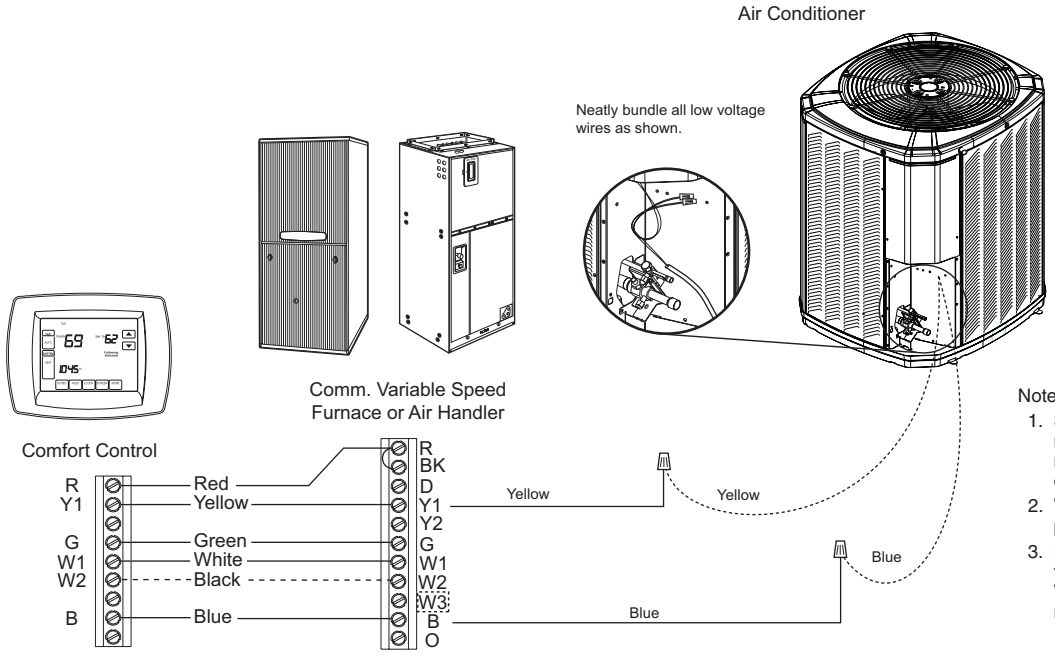
Variable Speed Furnace Hook-up Diagram



Notes:

1. If single stage heating thermostat is used, jumper W1-W2 on furnace terminal strip.

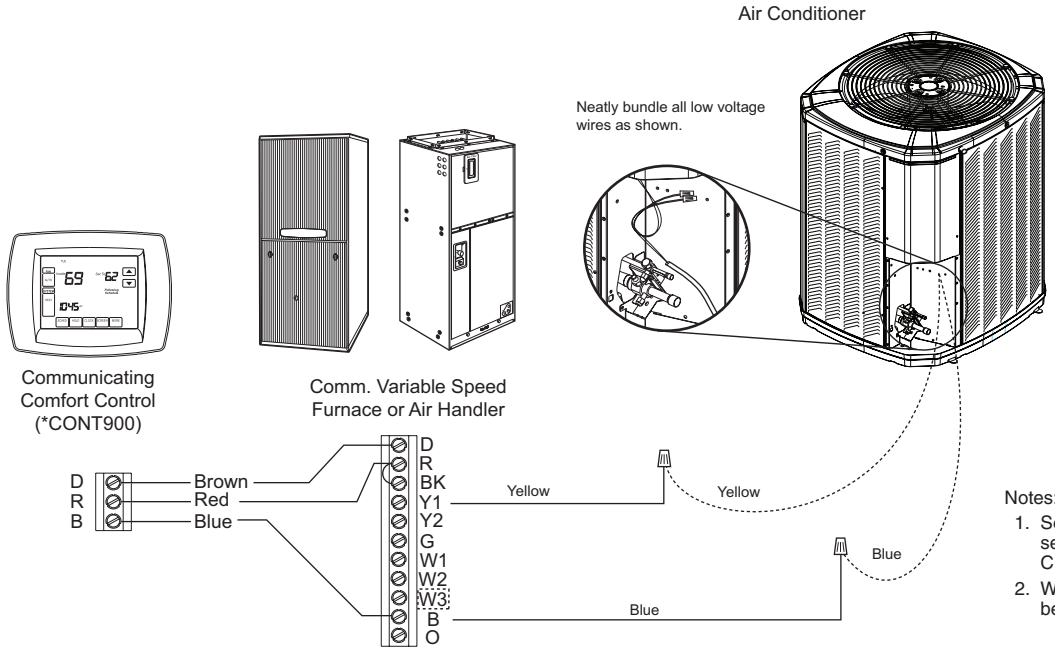
Communicating Indoor Unit with 24 V Control Hook-up Diagram



Notes:

1. See User Interface setup menu for 24 VAC control mode and cooling CFM options.
2. W3 terminal may not be present on unit.
3. If single stage heating thermostat is used, jumper W1-W2 on furnace terminal strip.

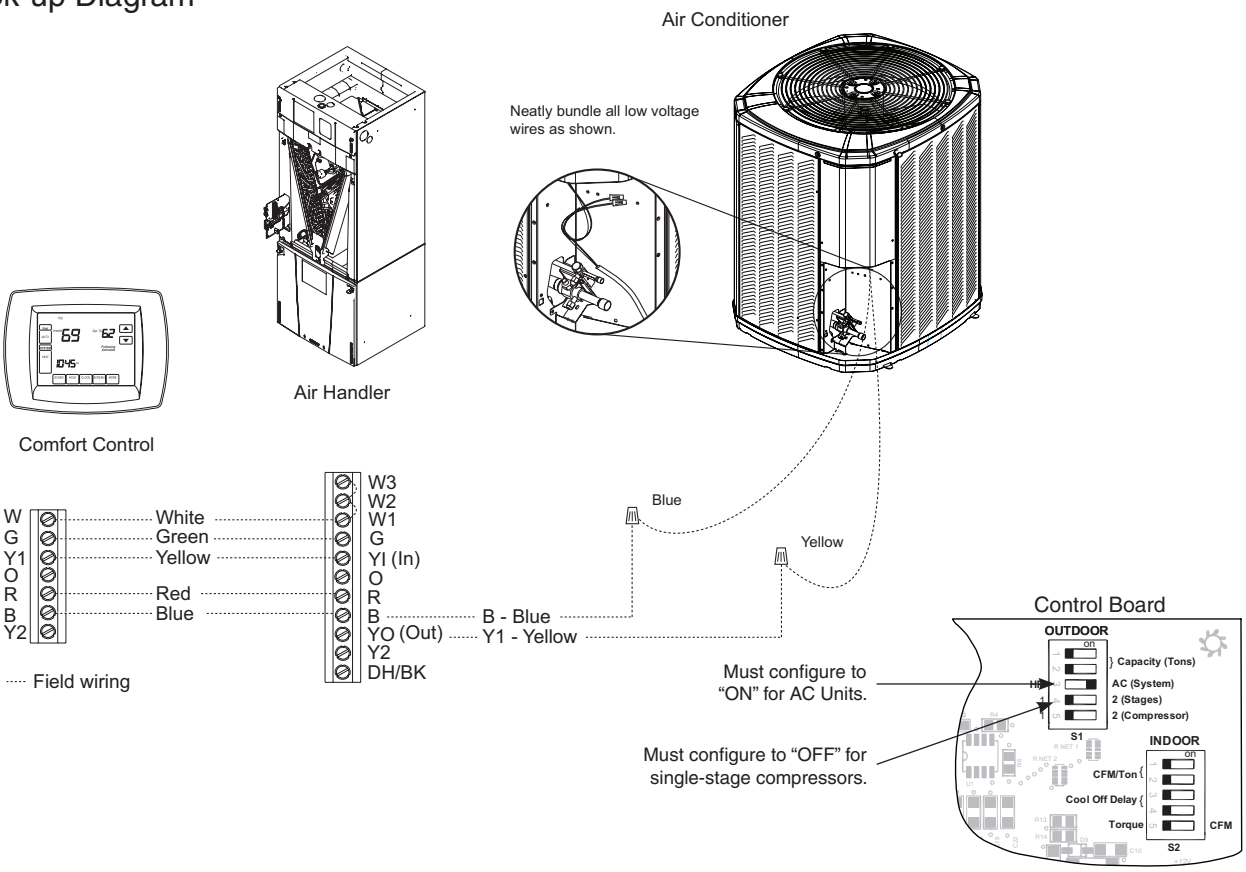
Communicating Indoor Unit in Comm. Mode Hook-up Diagram



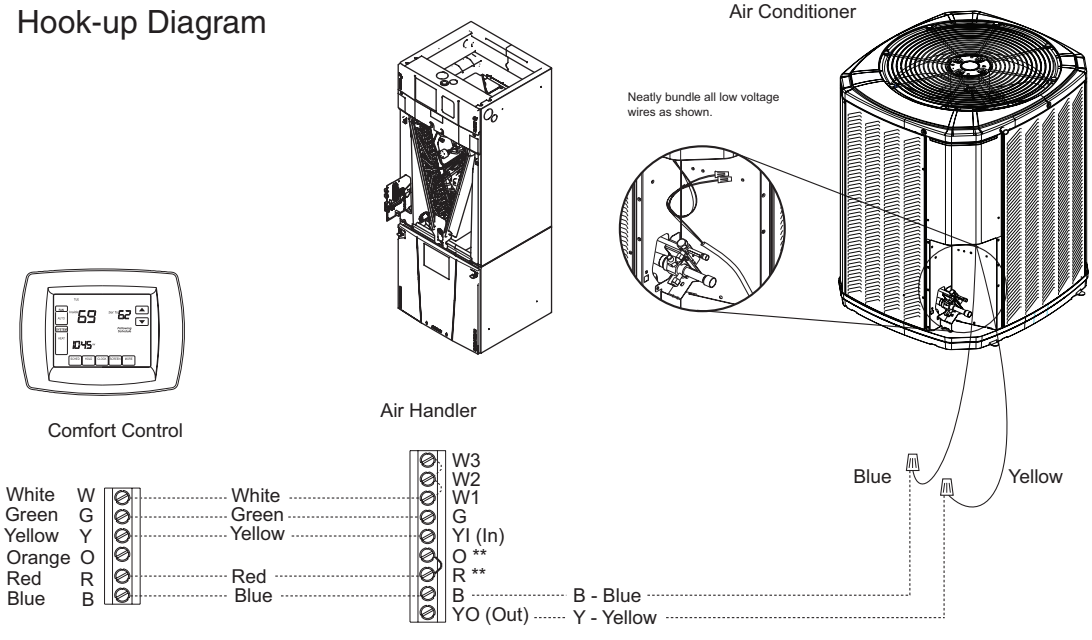
Notes:

1. See User Interface setup menu for cooling CFM options.
2. W3 terminal may not be present on unit.

*AM7 Air Handler Hook-up Diagram



GAM5 Air Handler Hook-up Diagram



1. * For multiple stages of electric heat, jumper W1, W2, and W3 together if comfort control has only one stage of heat.
2. ** R to O jumper must be in place as shown for cooling only, non-heat pump systems for proper operation.
3. Yi and Yo connections must be made as shown for freeze protection and internally mounted condensate overflow circuits to work properly.
4. Internally mounted condensate switch is optional and must be ordered separately.
5. If 3rd party condensate overflow switches are installed, they should be wired in series between YO and Y to the outdoor unit.

Section 12. Electrical - High Voltage

12.1 High Voltage Power Supply

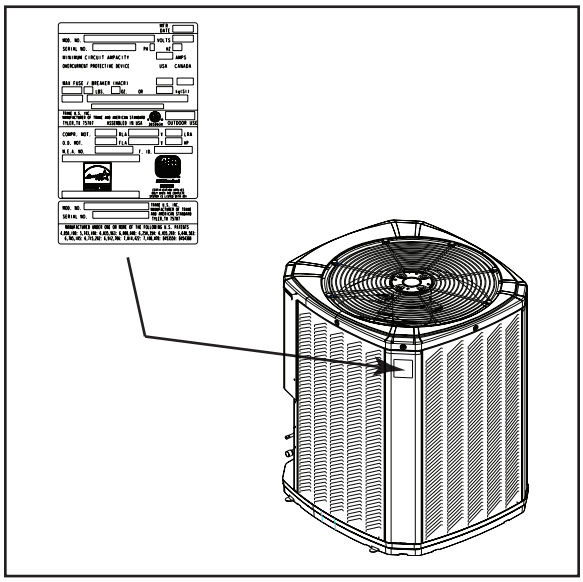
⚠ WARNING

LIVE ELECTRICAL COMPONENTS!
During installation, testing, servicing, and troubleshooting of this product, it may be necessary to work with live electrical components. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

The high voltage power supply must agree with the equipment nameplate.

Power wiring must comply with national, state, and local codes.

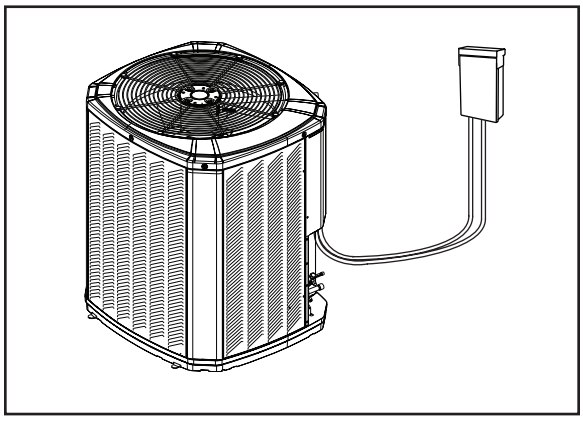
Follow instructions on unit wiring diagram located on the inside of the control box cover and in the Service Facts document included with the unit.



12.2 High Voltage Disconnect Switch

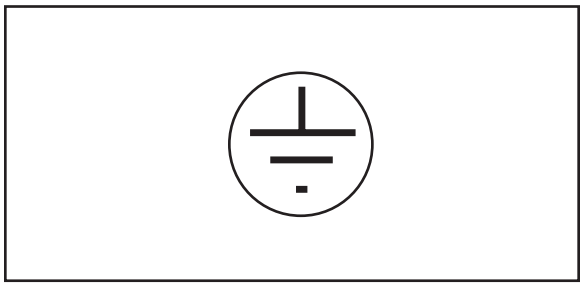
Install a separate disconnect switch at the outdoor unit.

For high voltage connections, flexible electrical conduit is recommended whenever vibration transmission may create a noise problem within the structure.



12.3 High Voltage Ground

Ground the outdoor unit per national, state, and local code requirements.

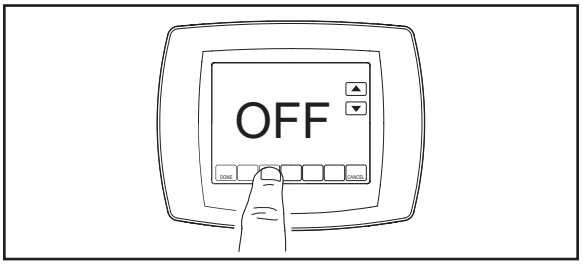


Section 13. Start Up

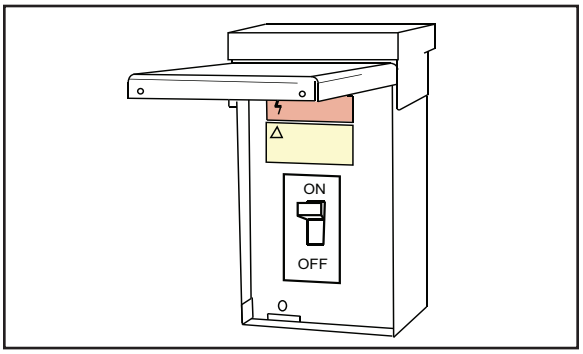
13.1 System Start Up

STEP 1 - Ensure Sections 7 through 12 have been completed.

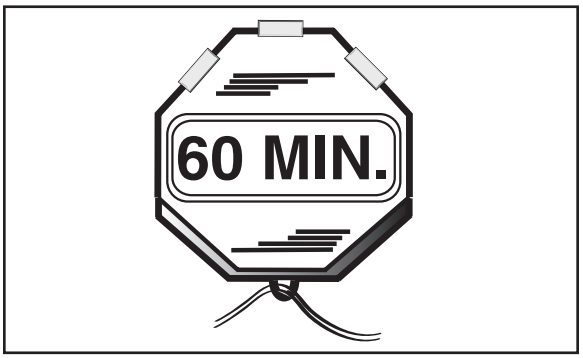
STEP 2 - Set System Thermostat to OFF.



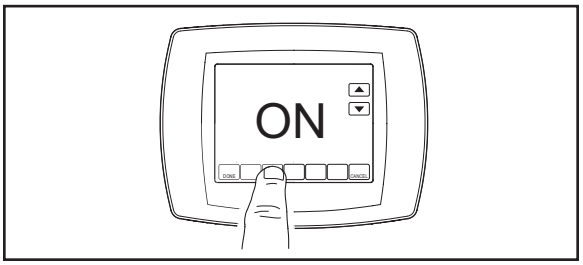
STEP 3 - Turn on disconnect(s) to apply power to the indoor and outdoor units.



STEP 4 - Wait one (1) hour before starting the unit if compressor crankcase heater accessory is used and the Outdoor Ambient is below 70ºF.



STEP 5 - Set system thermostat to ON.

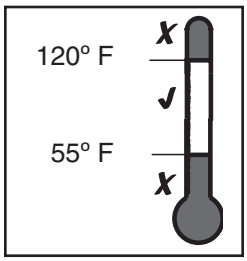


Section 14. System Charge Adjustment

14.1 Temperature Measurements

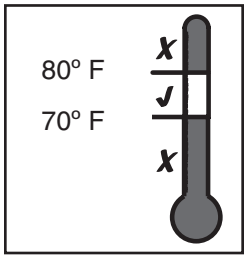
STEP 1 - Check the outdoor temperatures.

Subcooling (in cooling mode) is the only recommended method of charging above 55° F ambient outdoor temperature.



Outdoor Temp

For best results the indoor temperature should be kept between 70° F to 80° F.



Indoor Temp

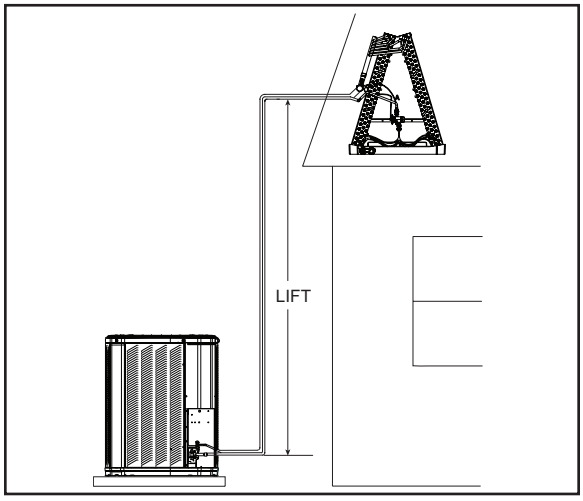
Note: It is important to return in the spring or summer to accurately charge the system in the cooling mode when outdoor ambient temperature is above 55° F.

14.2 Subcooling Charging in Cooling (Above 55° F Outdoor Temp.)

STEP 1 - Use the refrigerant line total length and lift measurements from Section 5.3.

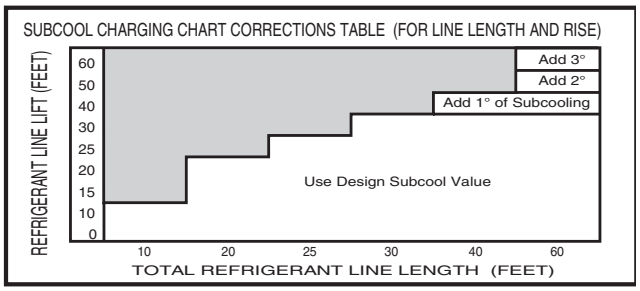
Total Line Length = _____ Ft.

Vertical Change (Lift) = _____ Ft.

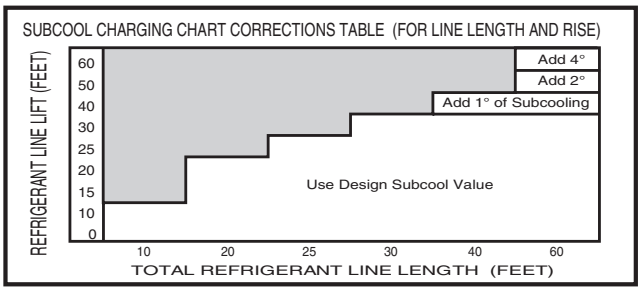


STEP 2 - Determine the final subcooling value using total Line Length and Lift measured in STEP 1 and the charts below.

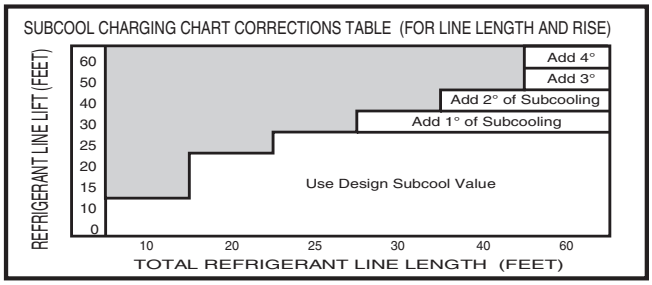
1 1/2 Ton



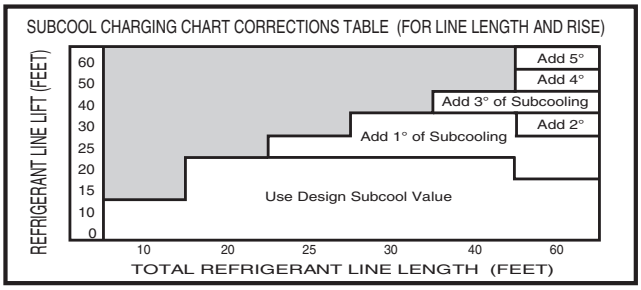
2 Ton



2 1/2 Ton



3 Ton



Design Subcooling Value = _____° F
(from nameplate or Service Facts)

Subcooling Correction = _____° F

Final Subcooling Value = _____° F

STEP 3 - Stabilize the system by operating for a minimum of 20 minutes.

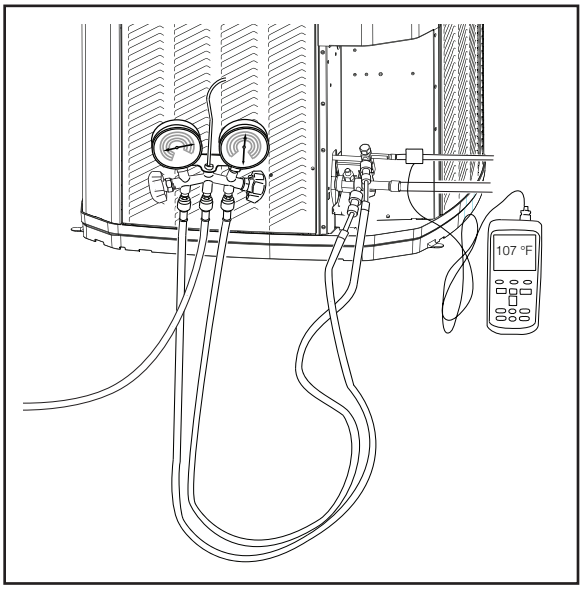
At startup, or whenever charge is removed or added, the system must be operated for a minimum of 20 minutes to stabilize before accurate measurements can be made.

STEP 4 - Measure the liquid line temperature and pressure at the outdoor unit's service valve.

Measured Liquid Line Temp = _____ ° F

Liquid Gage Pressure = _____ PSI

Final Subcooling Value = _____ ° F



STEP 5 - Use the final subcooling value, refrigerant temperature and pressure from STEP 4, to determine the proper liquid gage pressure using Table 14.2.

Example: Assume a 12° F Final Subcooling value and liquid temp of 90° F.

1. Locate 12° F Final Subcooling in Table 14.2.
2. Locate the Liquid Temperarature (90° F) in the left column.
3. The Liquid Gage Pressure should be approximately 327 PSI. (This is the shown as the intersection of the Final Subcooling column and the Liquid Temperature row.

Table 14.2

R-410A REFRIGERANT CHARGING CHART							
LIQUID TEMP (°F)	FINAL 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

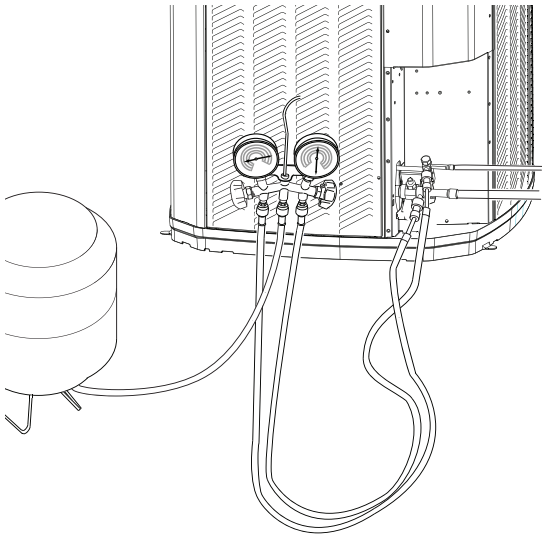
From Dwg. D154557P01 Rev. 3

STEP 6 - Adjust refrigerant level to attain proper gage pressure.

Add refrigerant if the Liquid Gage Pressure is lower than the chart value.

1. Connect gages to refrigerant bottle and unit as illustrated.
2. Purge all hoses.
3. Open bottle.
4. Stop adding refrigerant when liquid line temperature and Liquid Gage Pressure matches the charging chart Final Subcooling value.

Recover refrigerant if the Liquid Gage Pressure is higher than the chart value.



STEP 7 - Stabilize the system.

1. Wait 20 minutes for the system condition to stabilize between adjustments.

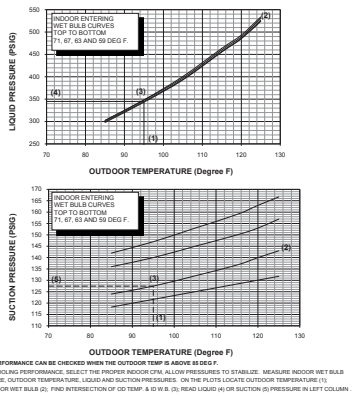
Note: When the Liquid Line Temperature and Gage Pressure approximately match the chart, the system is properly charged.

2. Remove gages.
3. Replace service port caps to prevent leaks. Tighten finger tight plus an additional 1/6 turn.

STEP 8 - Verify typical performance.

Refer to System Pressure Curves in the Service Facts to verify typical performance.

(Example only - see Service Facts)



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 .

STEP 9 - Record System Information for reference.

Record system pressures and temperatures after charging is complete.

Outdoor model number = _____

Measured Outdoor Ambient = _____ ° F

Measured Indoor Ambient = _____ ° F

Measured Liquid Line Temp = _____ ° F

Measured Suction Line Temp = _____ ° F

Liquid Gage Pressure = _____ PSI

Suction Gage Pressure = _____ PSI

Section 15. Checkout Procedures and Troubleshooting

15.1 Operational And Checkout Procedures

Final phases of this installation are the unit Operational and Checkout Procedures. To obtain proper performance, all units must be operated and charge adjustments made.

Important: *Perform a final unit inspection to be sure that factory tubing has not shifted during shipment. Adjust tubing if necessary so tubes do not rub against each other when the unit runs. Also be sure that wiring connections are tight and properly secured.*

CHECKOUT PROCEDURE

After installation has been completed, it is recommended that the entire system be checked against the following list:

1. Leak check refrigerant lines. ..... [ ]
2. Properly insulate suction lines and fittings..... [ ]
3. Properly secure and isolate all refrigerant lines..... [ ]
4. Seal passages through masonry. If mortar is used, prevent mortar from coming into direct contact with copper tubing. ..... [ ]
5. Verify that all electrical connections are tight..... [ ]
6. Observe outdoor fan during on cycle for clearance and smooth operation..... [ ]
7. Be sure that indoor coil drain line drains freely. Pour water into drain pan..... [ ]
8. Be sure that supply registers and return grilles are open and unobstructed..... [ ]
9. Be sure that a return air filter is installed. ..... [ ]
10. Be sure that the correct airflow setting is used. (Indoor blower motor) ..... [ ]
11. Operate complete system in each mode to ensure safe operation..... [ ]

15.2 Troubleshooting

SYSTEM FAULTS		WHAT TO CHECK MODE	HIGH VOLTAGE POWER SUPPLY	COMPRESSOR WIRING	RUN CAPACITOR IOL	START CAPACITOR	CONTACTOR START RELAY	CONTACTOR CONTACTS	LOW VOLTAGE WIRING	CONTROL TRANSFORMER	THERMOSTAT	CONTACTOR COIL	LOW VOLTAGE FUSE	STUCK COMPRESSOR	INEFFICIENT COMP.	REF. UNDERCHARGE	REF. OVERCHARGE	EXCESSIVE EVAP. LOAD	NONCONDENSABLES	RES. O.D. AIRFLOW	O.D. AIR RECIRCULATION	TXV/EEV STUCK OPEN	SUPERHEAT	REF. CIR. RESTRICTIONS	RES. I.D. AIRFLOW	SOV LEAKING	SOV COIL DEFECTIVE	CHECK VALVE LEAKING	*DEFROST RELAY DEF.	DEFROST CONTROL DEF.
REFRIGERANT CIRCUIT																													
Head Pressure Too High	C																P	P	S	P	S				S				
	H																P	P	S					P	S				
Head Pressure Too Low	C														S	P						S	S		S	S	S	P	
	H														S	P						S	S		S	S		P	
Suction Pressure Too High	C														S		P	P					S			P		P	
	H														S								S			P			
Suction Pressure Too Low	C															P							S	P	S		S		
	H															P				S	S		S		S				
Liquid Refrig. Floodback (TXV/EEV)	C																					P						P	
	H																					P						P	
Liquid Refrig. Floodback (Cap. Tube)	C																P			S	S		S	P					
	H																P			S	S		S				S		
I.D. Coil Frosting	C															P				S	S								
	H																												
Compressor Runs Inadequate or No Cooling/Htg	C														S	P		S	S				S	P	S	S	S	S	
	H														S	P			S				S	P	S	S		S	
ELECTRICAL																													
Compressor & O.D. Fan Won't Start	C	P	P						S	P	S	P	P																
	H	P	P						S	P	S	P	P																
Compressor Will Not Start But O.D. Fan Runs	C		P	S	P	S	S	S						P															
	H		P	S	P	S	S	S						P															
O.D. Fan Won't Start	C		P		P			S																					
	H		P		P			S																					
Compressor Hums But Won't Start	C				P	S	S	S						P															
	H				P	S	S	S						P															
Compressor Cycles on IOL	C		P	S	P	S	S	S						P	S	P	P	S		S	S		S			S			
	H		P	S	P	S	S	S						P	S	P	P	S		S			S	P		S			
I.D. Blower Won't Start	C	P	P						S	P	S		S																
	H	P	P						S	P	S		S																
DEFROST																													
Unit Won't Initiate Defrost	C																												
	H																										P	P	P
Defrost Terminates on Time	C																												
	H															P													P
Unit Icing Up	C																												
	H															P				S	S			S			P		P

C - Cooling H - Heating P - Primary Causes S - Secondary Causes * - 3 Phase Only

TRANE®
6200 Troup Highway
Tyler, TX 75707

06/13
18-AC102D1-1

Installer's Guide

Condensing Units

4TTA3030AD–060AD

ALL phases of this installation must comply with NATIONAL, STATE AND LOCAL CODES

IMPORTANT — This Document is customer property and is to remain with this unit. Please return to service information pack upon completion of work.

These instructions do not cover all variations in systems or provide for every possible contingency to be met in connection with the installation. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to your installing dealer or local distributor.

Note: The manufacturer recommends installing only approved matched indoor and outdoor systems. Some of the benefits of installing approved matched indoor and outdoor split systems are maximum efficiency, optimum performance and the best overall system reliability.

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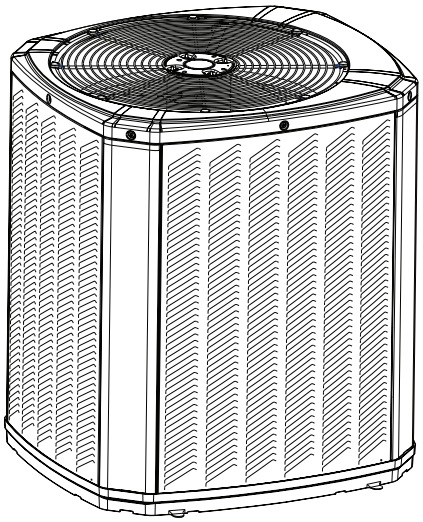


Section 1. Safety

⚠ 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 manufacture or seller cannot be responsible for the interpretation of this information, nor can it assume any liability in connection with its use.

⚠ WARNING

These units use R-410A refrigerant which operates at 50 to 70% higher pressures than R-22. Use only R-410A approved service equipment. Refrigerant cylinders are painted a “Rose” color to indicate the type of refrigerant and may contain a “dip” tube to allow for charging of liquid refrigerant into the system. All R-410A systems use a POE oil that readily absorbs moisture from the atmosphere. To limit this “hygroscopic” action, the system should remain sealed whenever possible. If a system has been open to the atmosphere for more than 4 hours, the compressor oil must be replaced. Never break a vacuum with air and always change the driers when opening the system for component replacement. For specific handling concerns with R-410A and POE oil reference Retrofit Bulletins SS-APG006-EN and APP-APG011-EN.

⚠ WARNING

UNIT CONTAINS R-410A REFRIGERANT!
R-410A operating pressures exceed 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.

⚠ WARNING

Extreme caution should be exercised when opening the Liquid Line Service Valve. Turn counterclockwise until the valve stem just touches the rolled edge. No torque is required. Failure to follow this warning will result in abrupt release of system charge and may result in personal injury and /or property damage.

⚠ WARNING

LIVE ELECTRICAL COMPONENTS!
During installation, testing, servicing, and troubleshooting of this product, it may be necessary to work with live electrical components. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

⚠ CAUTION

If using existing refrigerant lines make certain that all joints are brazed, not soldered.

⚠ CAUTION

Scroll compressor dome temperatures may be hot. Do not touch the top of compressor; it may cause minor to severe burning.

Section 2. Unit Location Considerations

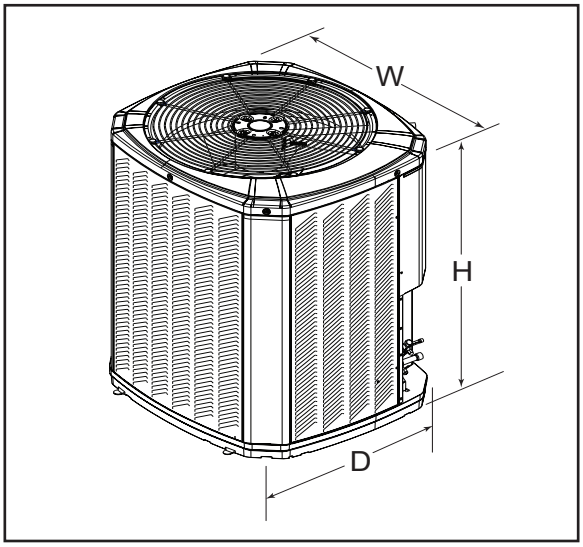
2.1 Unit Dimensions and Weight

Table 2.1

Unit Dimensions and Weight		
Models	H x D x W (in)	Weight* (lb)
4TTA3030AD	37 x 34 x 37	182
4TTA3036AD	37 x 34 x 37	219
4TTA3042AD	41 x 34 x 37	240
4TTA3048AD	45 x 34 x 37	255
4TTA3060AD	45 x 34 x 37	260
* Weight values are estimated.		

When mounting the outdoor unit on a roof, be sure the roof will support the unit's weight.

Properly selected isolation is recommended to alleviate sound or vibration transmission to the building structure.



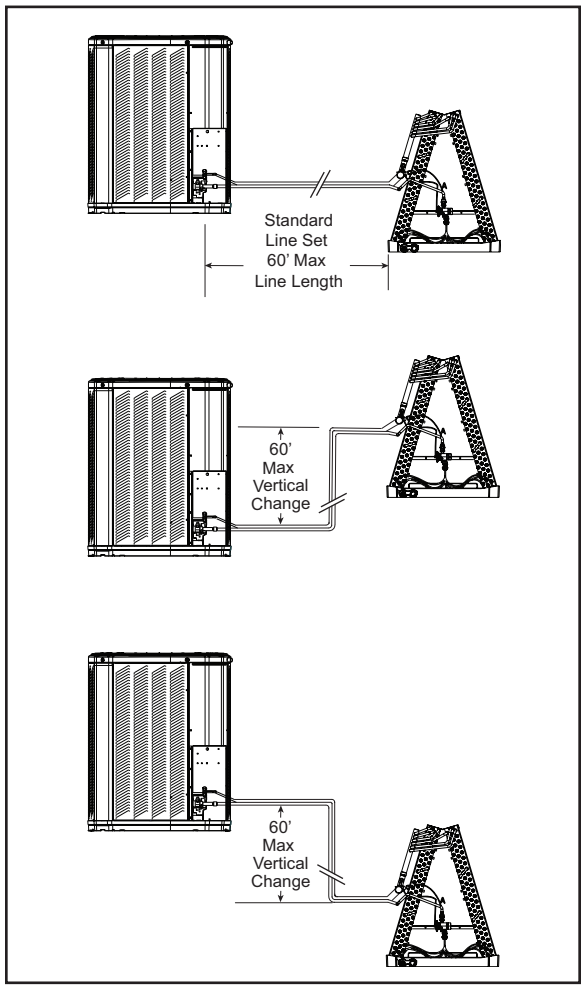
2.2 Refrigerant Piping Limits

1. The maximum length of refrigerant lines from outdoor to indoor unit should NOT exceed sixty (60) feet.

2. The maximum vertical change should not exceed sixty (60) feet.

3. Service valve connection diameters are shown in Table 5.1.

Note: For line lengths greater than sixty (60) feet, Refer to Refrigerant Piping Application Guide, SS-APG006-EN or Refrigerant Piping Software Program, 32-3312-03 (or latest revision).

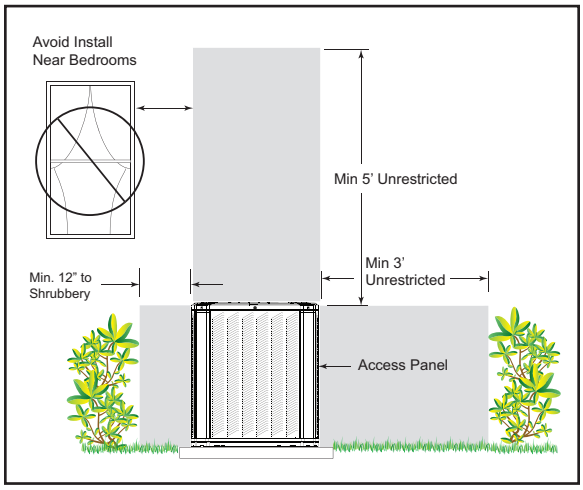


2.3 Suggested Locations for Best Reliability

Ensure the top discharge area is unrestricted for at least five (5) feet above the unit.

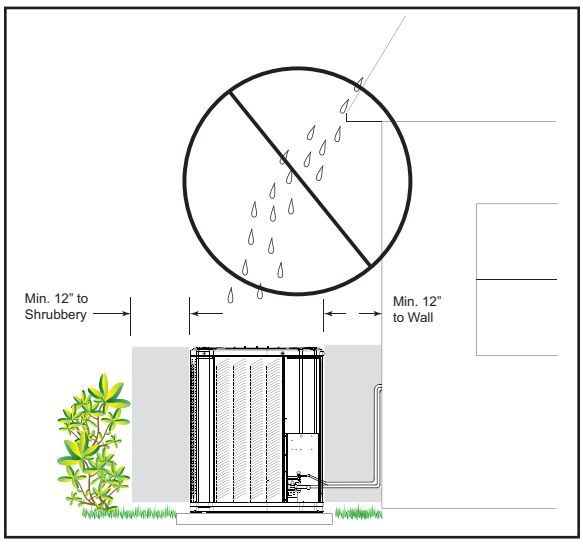
Three (3) feet clearance must be provided in front of the control box (access panels) and any other side requiring service.

Do not locate close to bedrooms as operational sounds may be objectionable.



Position the outdoor unit a minimum of 12” from any wall or surrounding shrubbery to ensure adequate airflow.

Outdoor unit location must be far enough away from any structure to prevent excess roof runoff water from pouring directly on the unit.



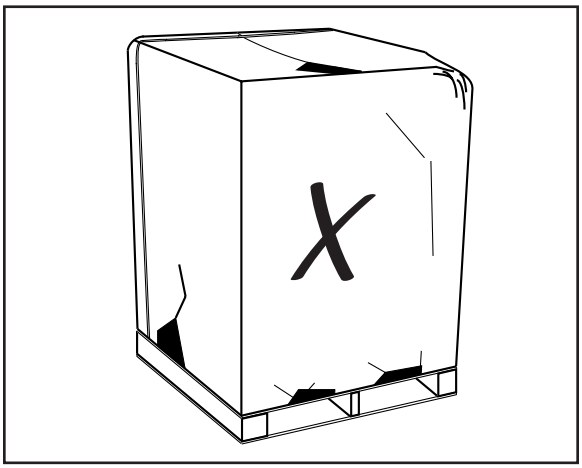
2.4 Coastal Considerations

If installed within one mile of salt water, including seacoasts and inland waterways, models without factory supplied Seacoast Salt Shields require the addition of BAYSEAC001 (Seacoast Kit) at installation time. Please refer to Seacoast Application Guide.

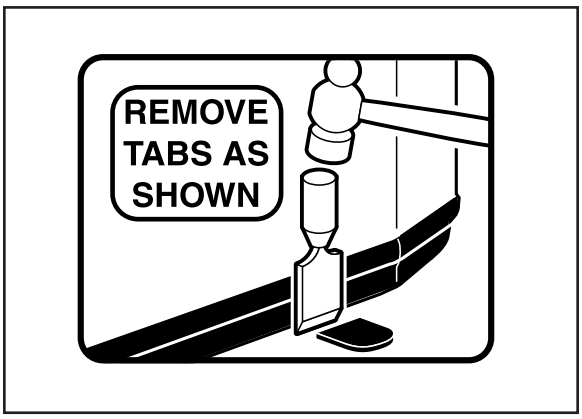
Section 3. Unit Preparation

3.1 Prepare The Unit For Installation

STEP 1 - Check for damage and report promptly to the carrier any damage found to the unit.



STEP 2 - To remove the unit from the pallet, remove tabs by cutting with a sharp tool.



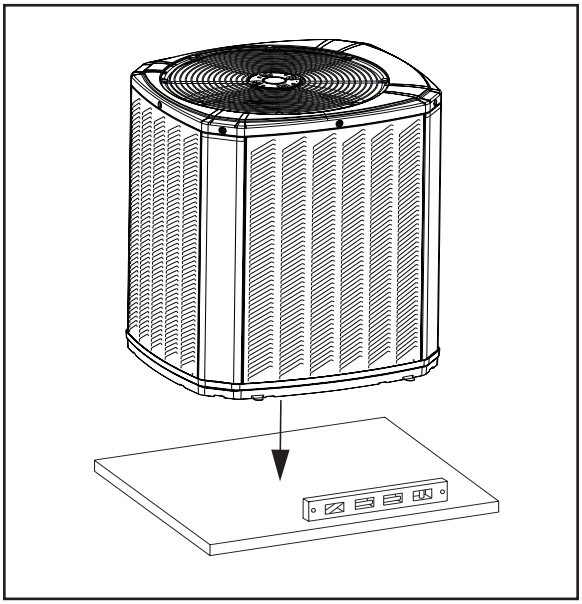
Section 4. Setting the Unit

4.1 Pad Installation

When installing the unit on a support pad, such as a concrete slab, consider the following:

- The pad should be at least 1” larger than the unit on all sides.
- The pad must be separate from any structure.
- The pad must be level.
- The pad should be high enough above grade to allow for drainage.
- The pad location must comply with National, State, and Local codes.

For other applications refer to Application Guide.



Section 5. Refrigerant Line Considerations

5.1 Refrigerant Line and Service Valve Connection Sizes

Table 5.1

	Line Sizes		Service Valve Connection Sizes	
Model	Vapor Line	Liquid Line	Vapor Line Connection	Liquid Line Connection
4TTA3030AD	3/4	3/8	3/4	3/8
4TTA3036AD	7/8	3/8	7/8	3/8
4TTA3042AD	7/8	3/8	7/8	3/8
4TTA3048AD	7/8	3/8	7/8	3/8
4TTA3060AD	7/8	3/8	7/8	3/8

5.2 Factory Charge

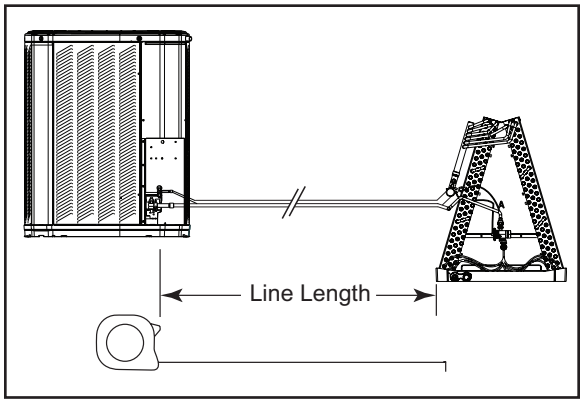
Outdoor condensing units are factory charged with the system charge required for the outdoor condensing unit, twenty five (25) feet of tested connecting line, and the smallest indoor evaporative coil match. **If connecting line length exceeds twenty five (25) feet and/or a larger indoor evaporative coil is installed, then final refrigerant charge adjustment is necessary.**

5.3 Required Refrigerant Line Length

Determine required line length and lift. You will need this later in STEP 2 of Section 14.

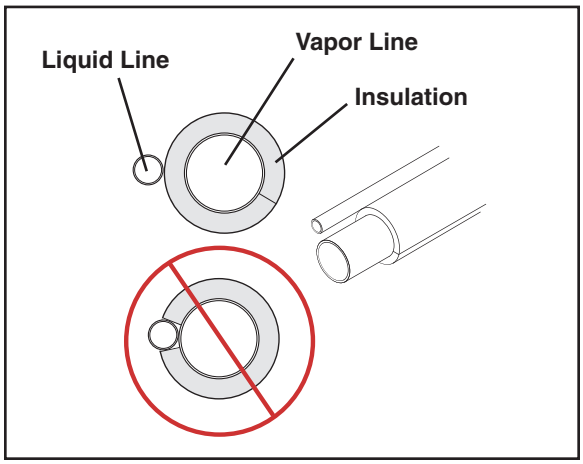
Total Line Length = _____ Ft.

Total Vertical Change (lift) = _____ Ft.



5.4 Refrigerant Line Insulation

Important: *The Vapor Line must always be insulated. DO NOT allow the Liquid Line and Vapor Line to come in direct (metal to metal) contact.*



5.5 Reuse Existing Refrigerant Lines

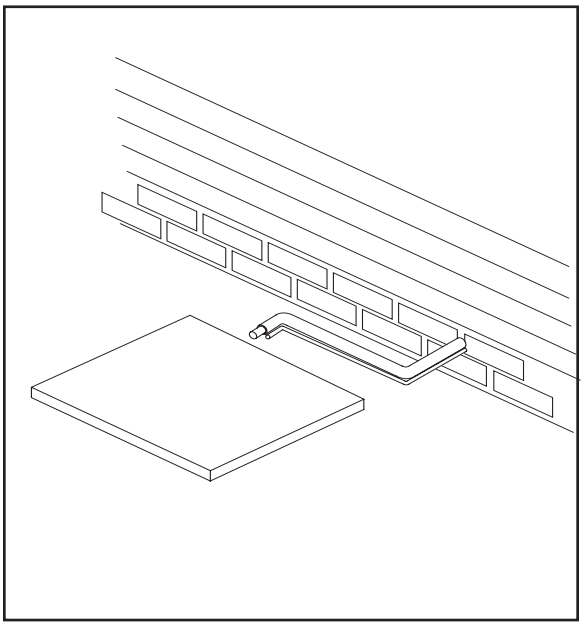
⚠ CAUTION

If using existing refrigerant lines make certain that all joints are brazed, not soldered.

For retrofit applications, where the existing indoor evaporator coil and/or refrigerant lines will be used, the following precautions should be taken:

- Ensure that the indoor evaporator coil and refrigerant lines are the correct size.
- Ensure that the refrigerant lines are free of leaks, acid, and oil.

Important: *For more information see publication numbers SS-APG006-EN and APP-APG011-EN.*



Section 6. Refrigerant Line Routing

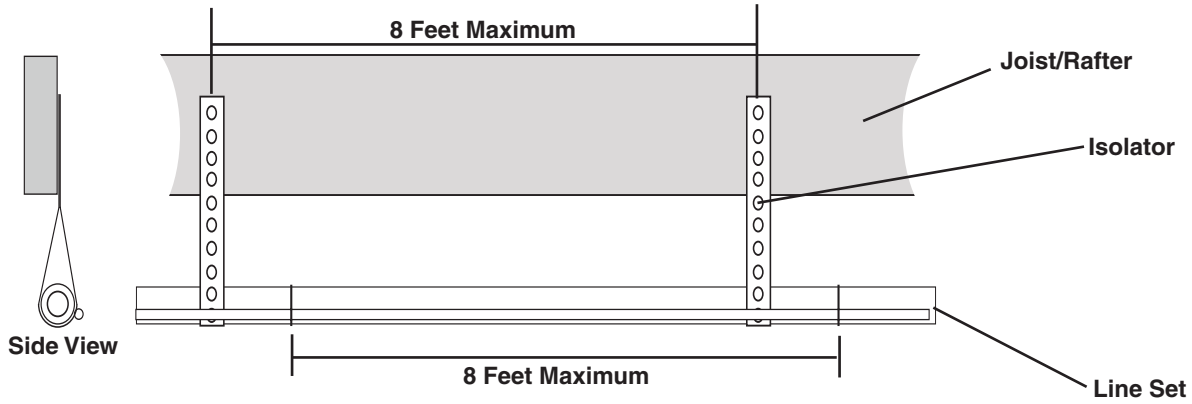
6.1 Precautions

Important: *Take precautions to prevent noise within the building structure due to vibration transmission from the refrigerant lines.*

Comply with National, State, and Local Codes when isolating line sets from joists, rafters, walls, or other structural elements.

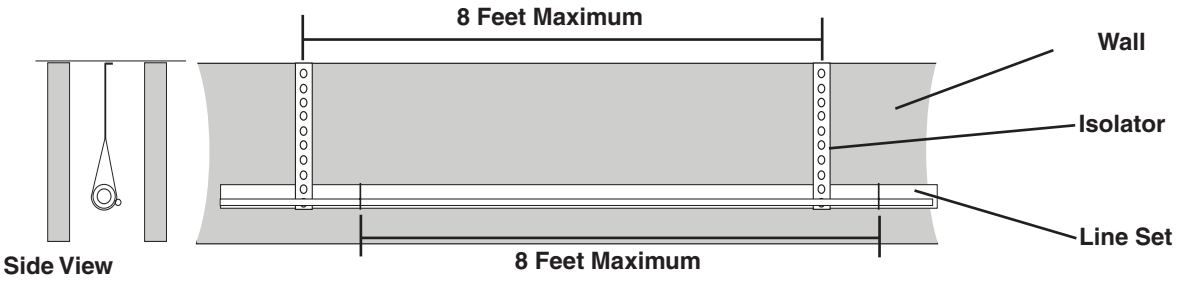
For Example:

- When the refrigerant lines have to be fastened to floor joists or other framing in a structure, use isolation type hangers.
- Isolation hangers should also be used when refrigerant lines are run in stud spaces or enclosed ceilings.
- Where the refrigerant lines run through a wall or sill, they should be insulated and isolated.
- Isolate the lines from all ductwork.
- Minimize the number of 90° turns.



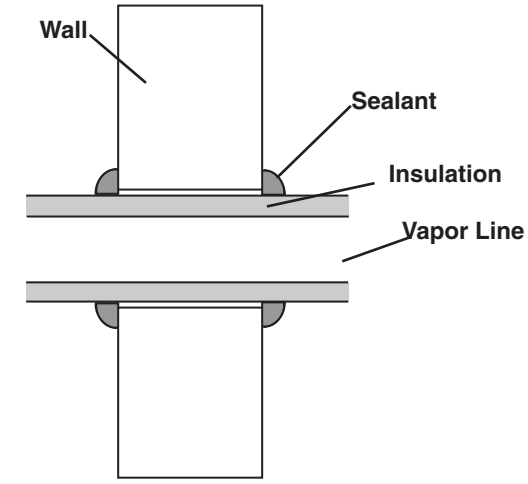
Secure Vapor line from joists using isolators every 8 ft. Secure Liquid Line directly to Vapor line using tape, wire, or other appropriate method every 8 ft.

Isolation From Joist/Rafter

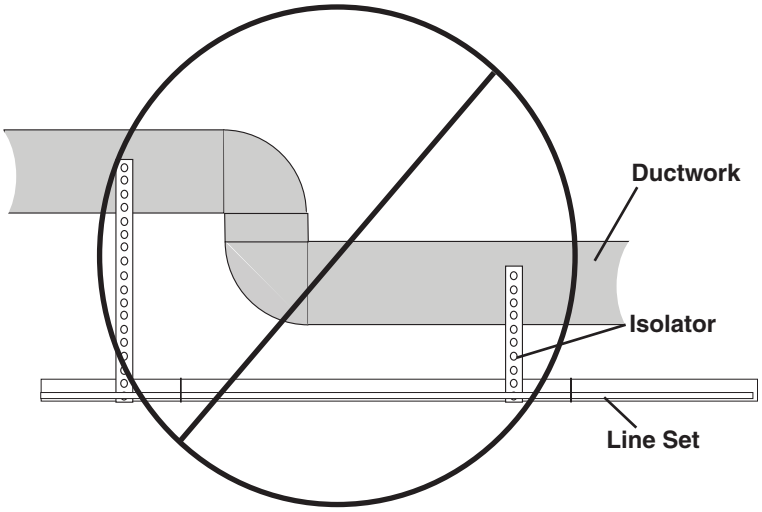


Secure Vapor Line using isolators every 8 ft. Secure Liquid Line directly to Vapor Line using tape, wire, or other appropriate method every 8 ft.

Isolation In Wall Spaces



Isolation Through Wall

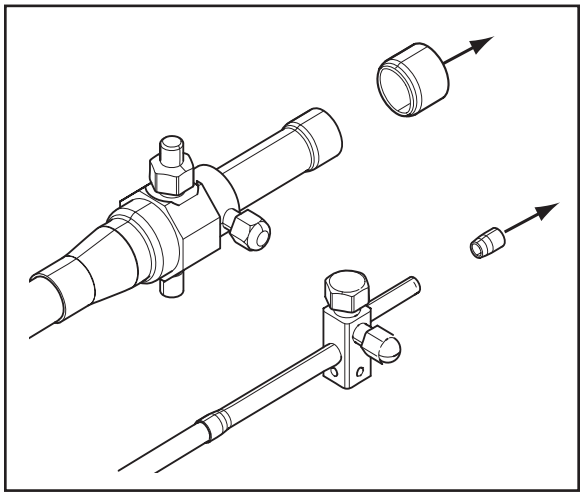


DO NOT hang line sets from ductwork

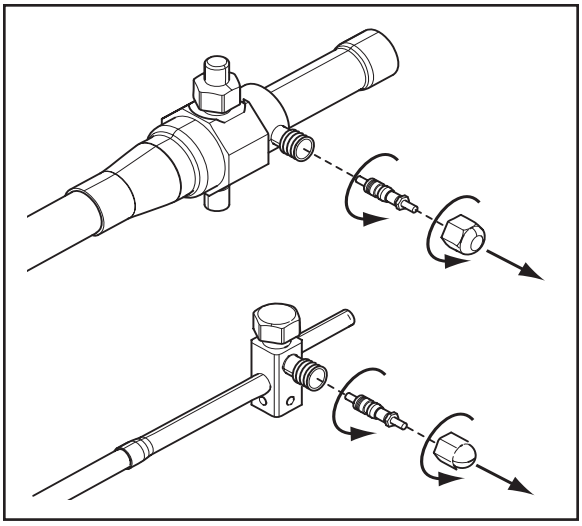
Section 7. Refrigerant Line Brazing

7.1 Braze The Refrigerant Lines

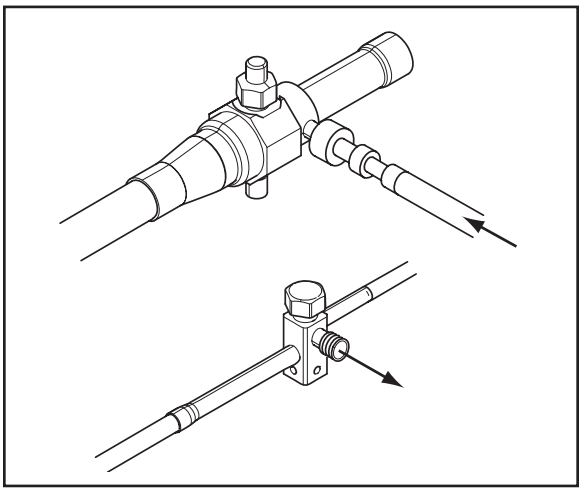
STEP 1 - Remove caps or plugs. Use a deburing tool to debur the pipe ends. Clean both internal and external surfaces of the tubing using an emery cloth.



STEP 2 - Remove the pressure tap cap and valve cores from both service valves.



STEP 3 - Purge the refrigerant lines and indoor coil with dry nitrogen.



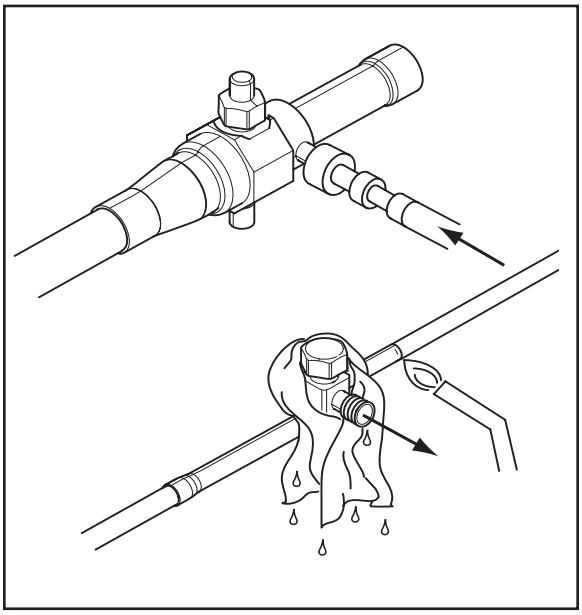
STEP 4 - Wrap a wet rag around the valve body to avoid heat damage and continue the dry nitrogen purge.

Braze the refrigerant lines to the service valves.

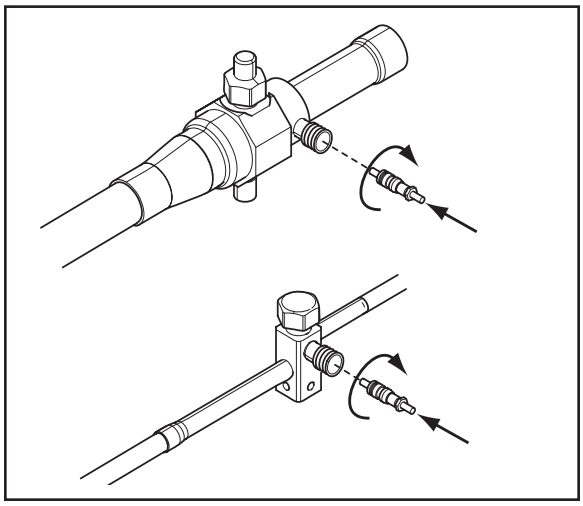
Continue the dry nitrogen purge. Do not remove the wet rag until all brazing is completed.

Important: Remove the wet rag before stopping the dry nitrogen purge.

NOTE: **Precautions should be taken to avoid heat damage to basepan during brazing. It is recommended to keep the flame directly off of the basepane.**



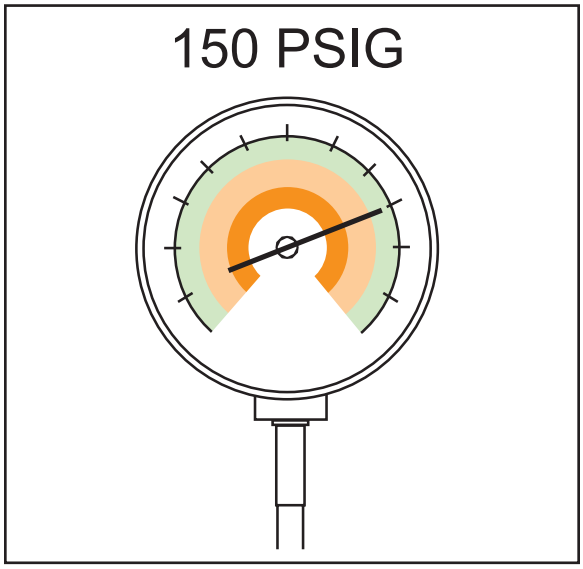
STEP 5 - Replace the pressure tap valve cores after the service valves have cooled.



Section 8. Refrigerant Line Leak Check

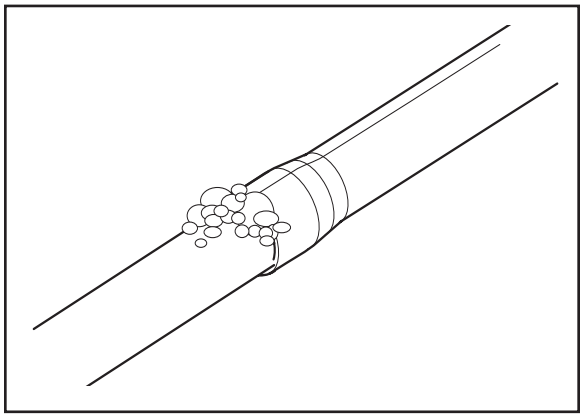
8.1 Check For Leaks

STEP 1 - Pressurize the refrigerant lines and evaporator coil to 150 PSIG using dry nitrogen.



STEP 2 - Check for leaks by using a soapy solution or bubbles at each brazed location.

Remove nitrogren pressure and repair any leaks before continuing.

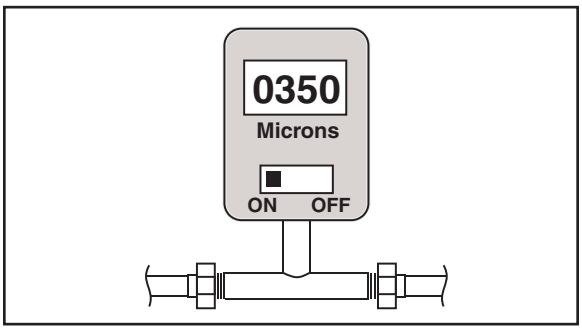


Section 9. Evacuation

9.1 Evacuate the Refrigerant Lines and Indoor Coil

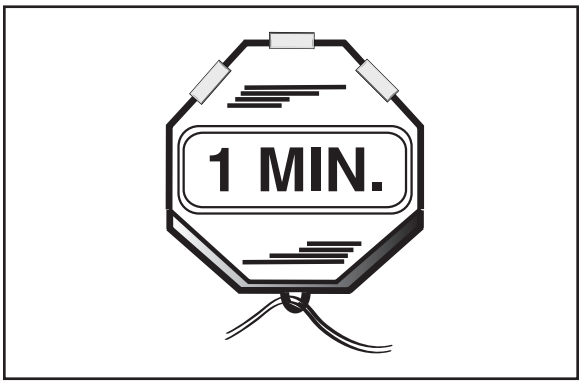
Important: *Do not open the service valves until the refrigerant lines and indoor coil leak check and evacuation are complete.*

STEP 1 - Evacuate until the micron gauge reads no higher than 350 microns, then close off the valve to the vacuum pump.



STEP 2 - Observe the micron gauge. Evacuation is complete if the micron gauge does not rise above 500 microns in one (1) minute.

Once evacuation is complete blank off the vacuum pump and micron gauge, and close the valves on the manifold gauge set.



Section 10. Service Valves

10.1 Open the Gas Service Valve

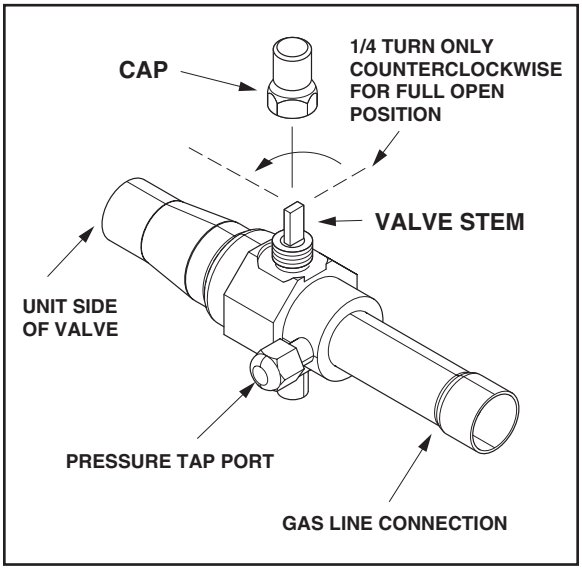
Important: *Leak check and evacuation must be completed before opening the service valves.*

NOTE: Do not vent refrigerant gases into the atmosphere

STEP 1 - Remove valve stem cap.

STEP 2 - Using an adjustable wrench, turn valve stem 1/4 turn counterclockwise to the fully open position.

STEP 3 - Replace the valve stem cap to prevent leaks. Tighten finger tight plus an additional 1/6 turn.



10.1 Open the Liquid Service Valve

⚠ WARNING

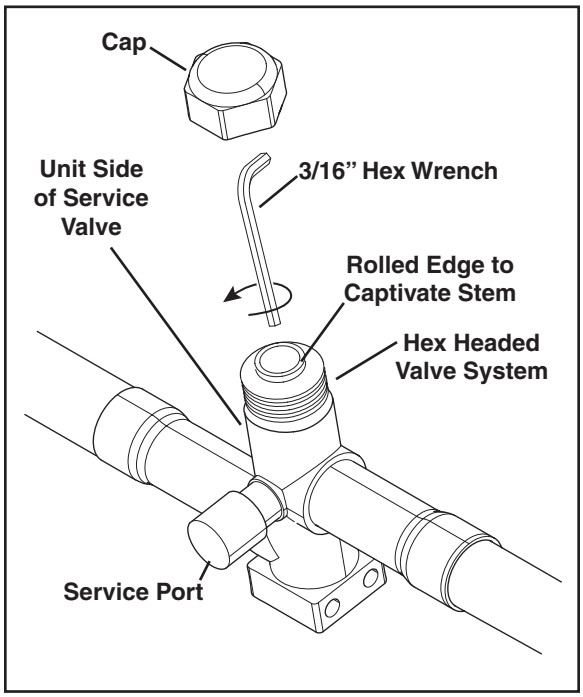
Extreme caution should be exercised when opening the Liquid Line Service Valve. Turn counterclockwise until the valve stem just touches the rolled edge. No torque is required. Failure to follow this warning will result in abrupt release of system charge and may result in personal injury and /or property damage.

Important: *Leak check and evacuation must be completed before opening the service valves.*

STEP 1 - Remove service valve cap.

STEP 2 - Fully insert 3/16" hex wrench into the stem and back out counterclockwise until valve stem just touches the rolled edge (approximately five (5) turns.)

STEP 3 - Replace the valve cap to prevent leaks. Tighten finger tight plus an additional 1/6 turn.



Section 11. Electrical - Low Voltage

11.1 Low Voltage Maximum Wire Length

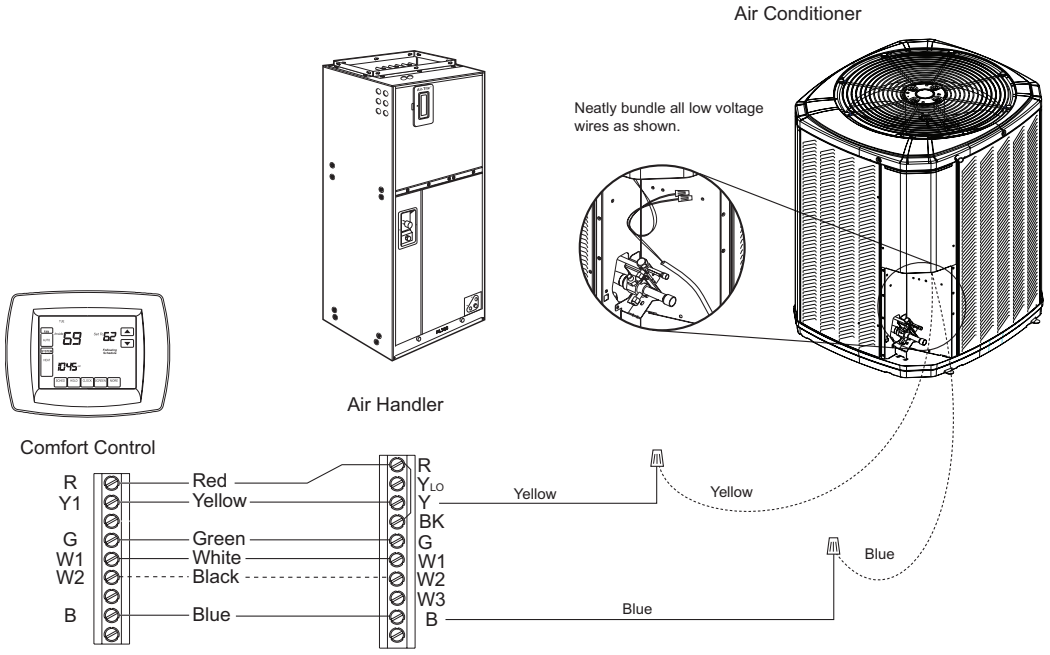
Table 11.1 defines the maximum total length of low voltage wiring from the outdoor unit, to the indoor unit, and to the thermostat.

Table 11.1

24 VOLTS	
WIRE SIZE	MAX. WIRE LENGTH
18 AWG	150 Ft.
16 AWG	225 Ft.
14 AWG	300 Ft.

11.2 Low Voltage Hook-up Diagrams

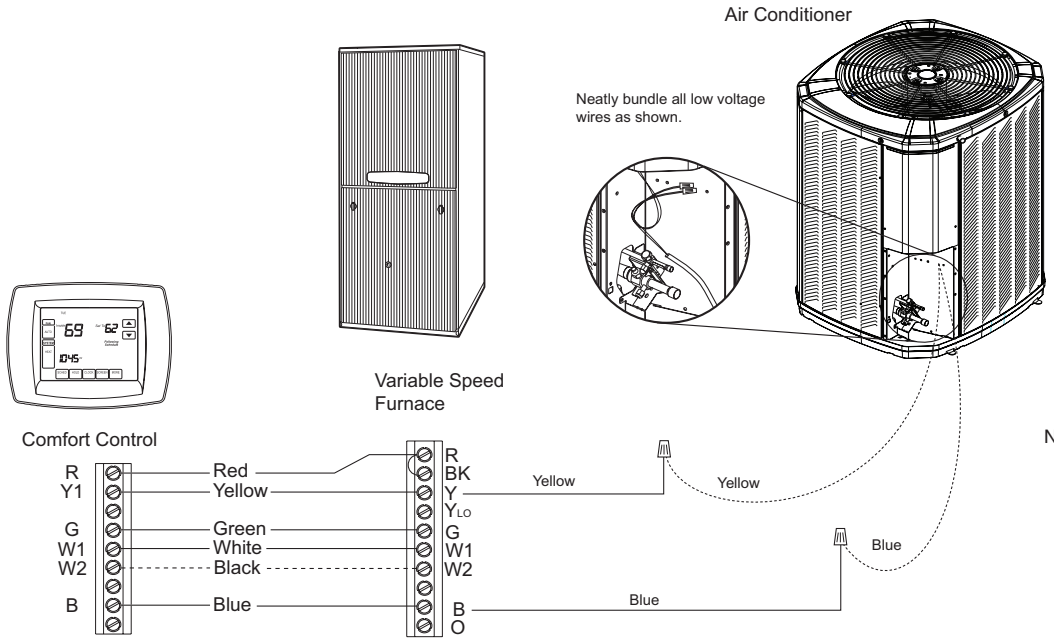
Air Handler Hook-up Diagram



Notes:

1. If electric heat does not have 3rd contactor (CH), connect a jumper wire from W3 to W2. If electric heat does not have 2nd contactor (BH), connect a jumper wire from W2 to W1.
2. Ylo and BK may not be present on unit.

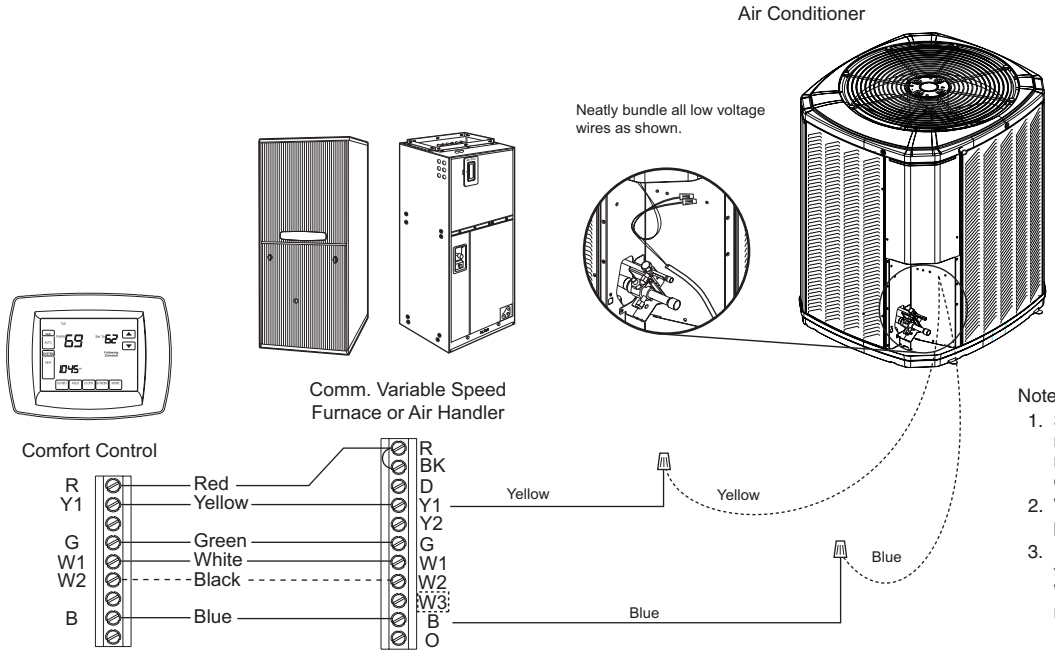
Variable Speed Furnace Hook-up Diagram



Notes:

1. If single stage heating thermostat is used, jumper W1-W2 on furnace terminal strip.

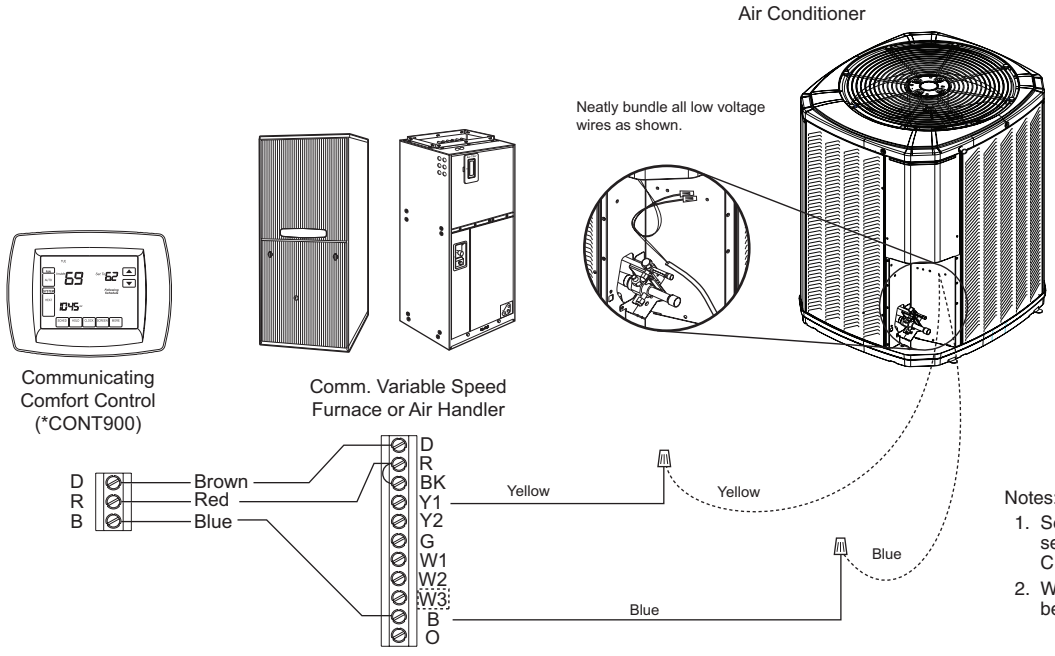
Communicating Indoor Unit with 24 V Control Hook-up Diagram



Notes:

1. See User Interface setup menu for 24 VAC control mode and cooling CFM options.
2. W3 terminal may not be present on unit.
3. If single stage heating thermostat is used, jumper W1-W2 on furnace terminal strip.

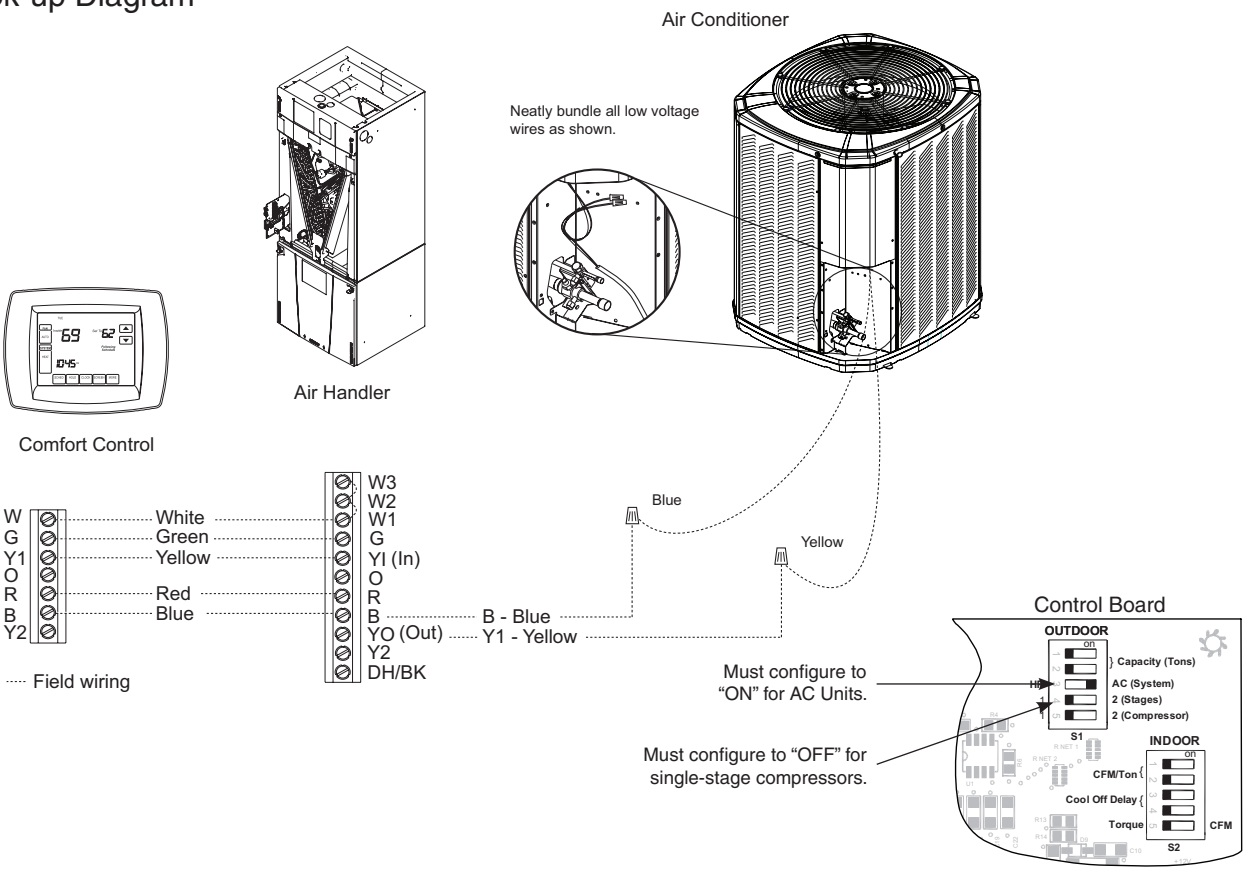
Communicating Indoor Unit in Comm. Mode Hook-up Diagram



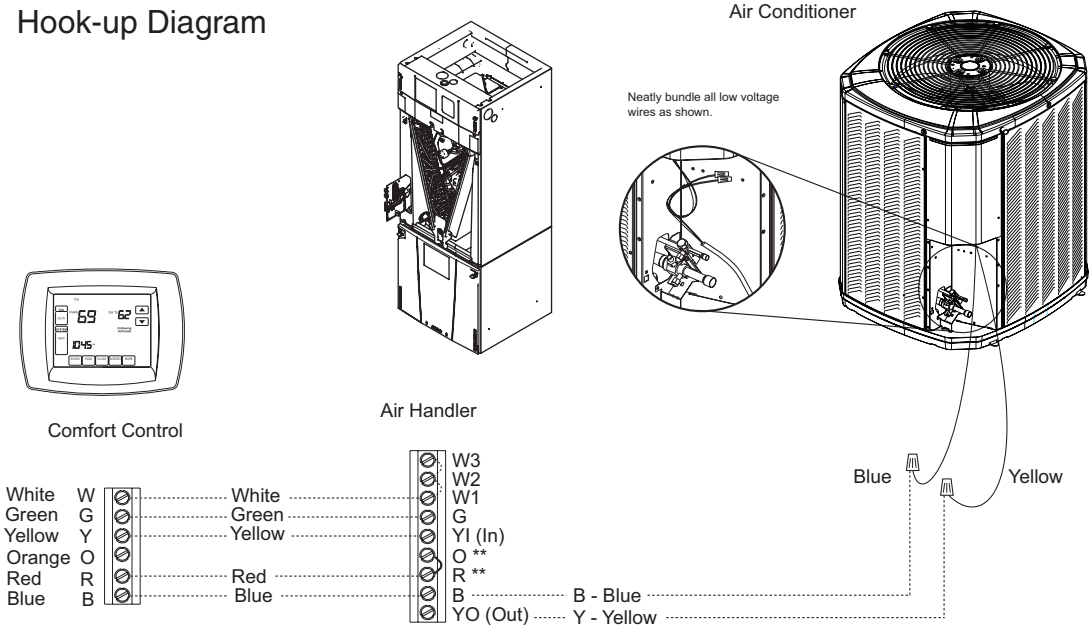
Notes:

1. See User Interface setup menu for cooling CFM options.
2. W3 terminal may not be present on unit.

*AM7 Air Handler Hook-up Diagram



GAM5 Air Handler Hook-up Diagram



1. * For multiple stages of electric heat, jumper W1, W2, and W3 together if comfort control has only one stage of heat.
2. ** R to O jumper must be in place as shown for cooling only, non-heat pump systems for proper operation.
3. Yi and Yo connections must be made as shown for freeze protection and internally mounted condensate overflow circuits to work properly.
4. Internally mounted condensate switch is optional and must be ordered separately.
5. If 3rd party condensate overflow switches are installed, they should be wired in series between YO and Y to the outdoor unit.

Section 12. Electrical - High Voltage

12.1 High Voltage Power Supply

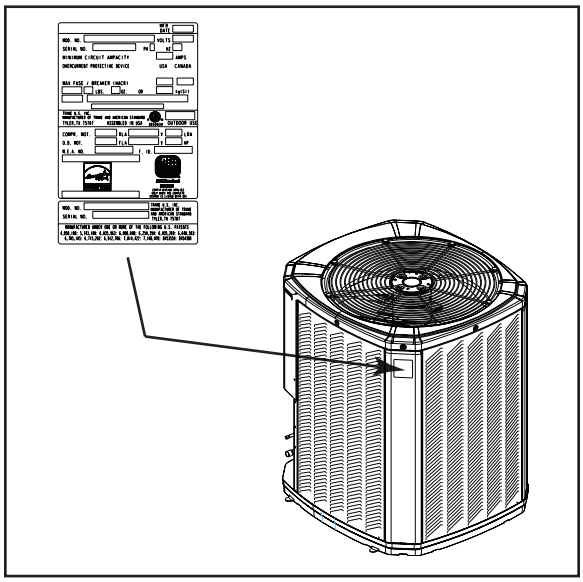
⚠ WARNING

LIVE ELECTRICAL COMPONENTS!
During installation, testing, servicing, and troubleshooting of this product, it may be necessary to work with live electrical components. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

The high voltage power supply must agree with the equipment nameplate.

Power wiring must comply with national, state, and local codes.

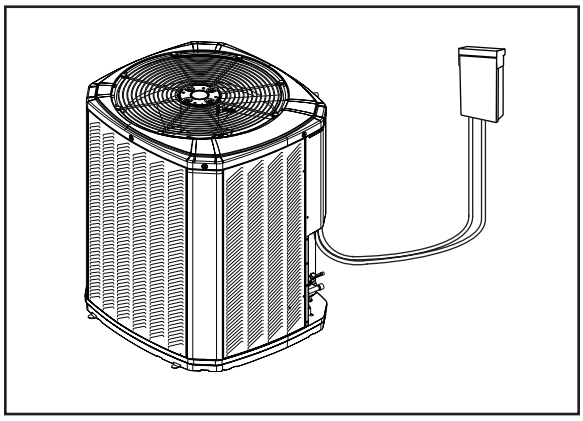
Follow instructions on unit wiring diagram located on the inside of the control box cover and in the Service Facts document included with the unit.



12.2 High Voltage Disconnect Switch

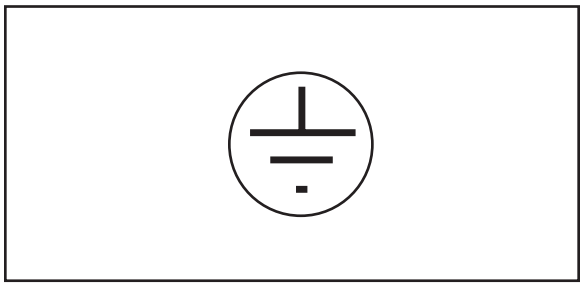
Install a separate disconnect switch at the outdoor unit.

For high voltage connections, flexible electrical conduit is recommended whenever vibration transmission may create a noise problem within the structure.



12.3 High Voltage Ground

Ground the outdoor unit per national, state, and local code requirements.

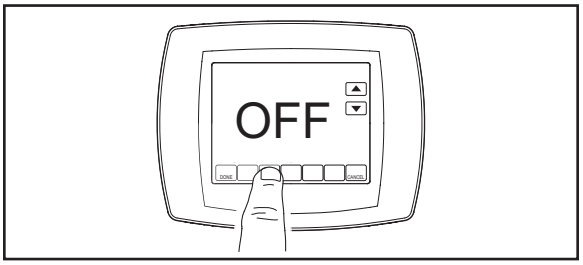


Section 13. Start Up

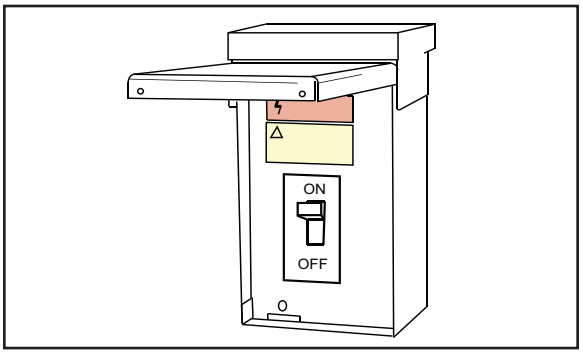
13.1 System Start Up

STEP 1 - Ensure Sections 7 through 12 have been completed.

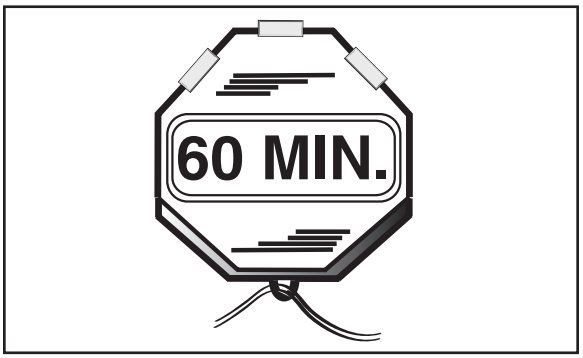
STEP 2 - Set System Thermostat to OFF.



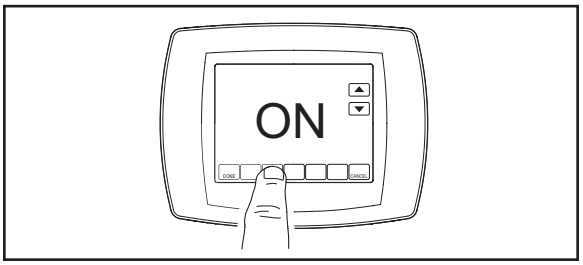
STEP 3 - Turn on disconnect(s) to apply power to the indoor and outdoor units.



STEP 4 - Wait one (1) hour before starting the unit if compressor crankcase heater accessory is used and the Outdoor Ambient is below 70ºF.



STEP 5 - Set system thermostat to ON.

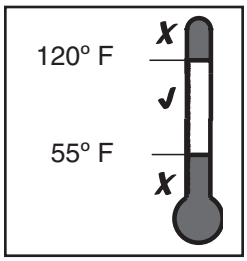


Section 14. System Charge Adjustment

14.1 Temperature Measurements

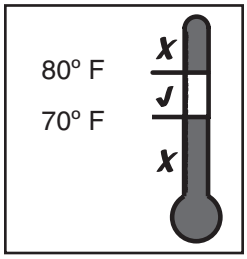
STEP 1 - Check the outdoor temperatures.

Subcooling (in cooling mode) is the only recommended method of charging above 55° F ambient outdoor temperature.



Outdoor Temp

For best results the indoor temperature should be kept between 70° F to 80° F.



Indoor Temp

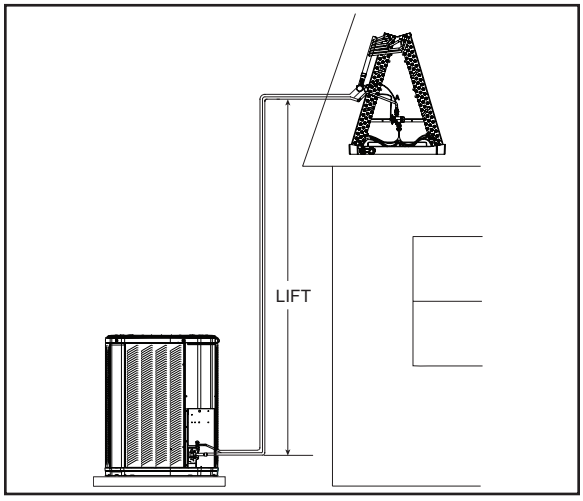
Note: It is important to return in the spring or summer to accurately charge the system in the cooling mode when outdoor ambient temperature is above 55° F.

14.2 Subcooling Charging in Cooling (Above 55° F Outdoor Temp.)

STEP 1 - Use the refrigerant line total length and lift measurements from Section 5.3.

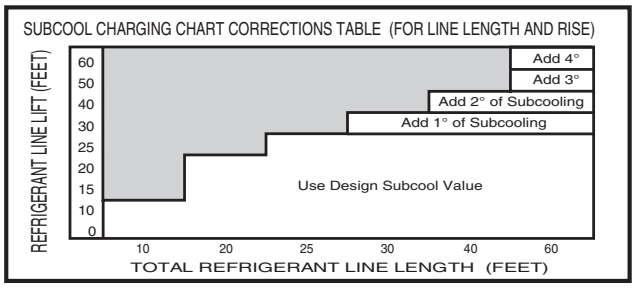
Total Line Length = _____ Ft.

Vertical Change (Lift) = _____ Ft.

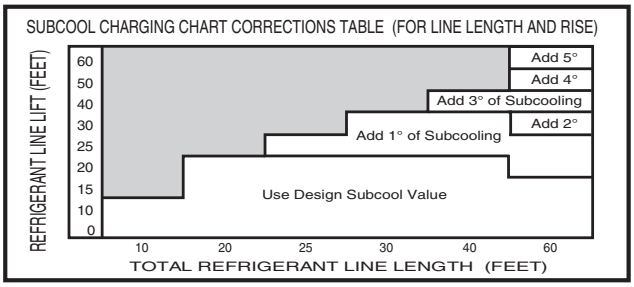


STEP 2 - Determine the final subcooling value using total Line Length and Lift measured in STEP 1 and the charts below.

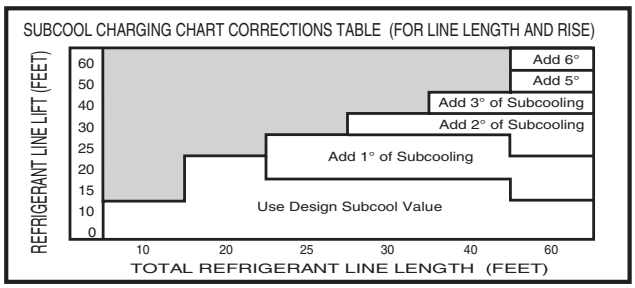
2 1/2 Ton



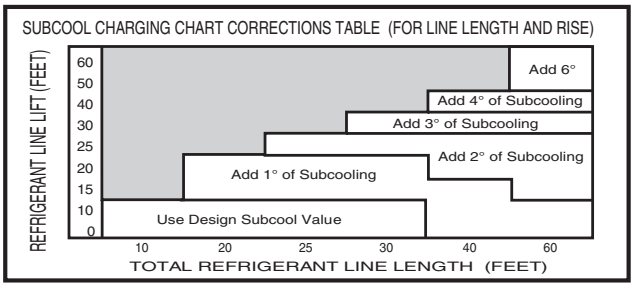
3 Ton



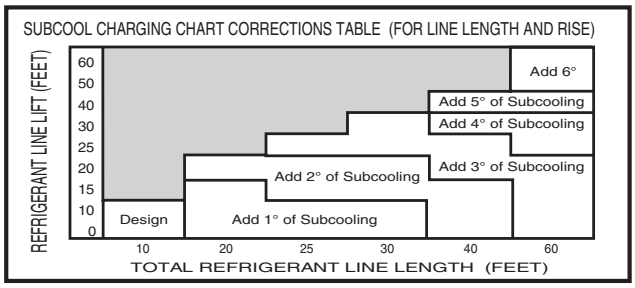
3 1/2 Ton



4 Ton



5 Ton



Design Subcooling Value = _____° F
(from nameplate or Service Facts)

Subcooling Correction = _____° F

Final Subcooling Value = _____° F

STEP 3 - Stabilize the system by operating for a minimum of 20 minutes.

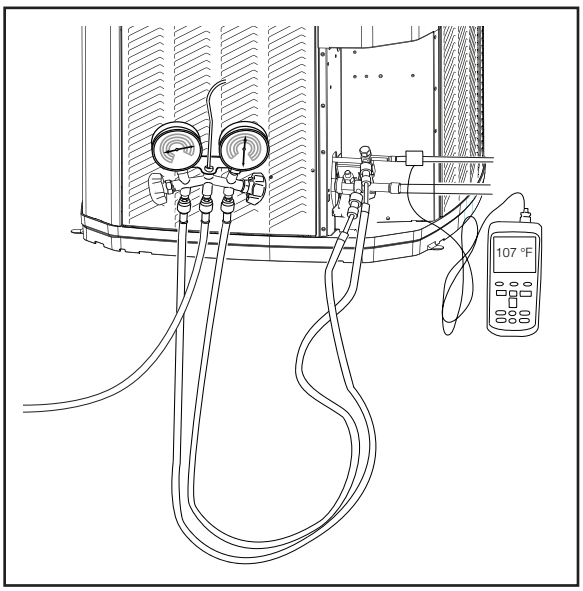
At startup, or whenever charge is removed or added, the system must be operated for a minimum of 20 minutes to stabilize before accurate measurements can be made.

STEP 4 - Measure the liquid line temperature and pressure at the outdoor unit's service valve.

Measured Liquid Line Temp = _____ ° F

Liquid Gage Pressure = _____ PSI

Final Subcooling Value = _____ ° F



STEP 5 - Use the final subcooling value, refrigerant temperature and pressure from STEP 4, to determine the proper liquid gage pressure using Table 14.2.

Example: Assume a 12° F Final Subcooling value and liquid temp of 90° F.

1. Locate 12° F Final Subcooling in Table 14.2.
2. Locate the Liquid Temperarature (90° F) in the left column.
3. The Liquid Gage Pressure should be approximately 327 PSI. (This is the shown as the intersection of the Final Subcooling column and the Liquid Temperature row.

Table 14.2

R-410A REFRIGERANT CHARGING CHART							
LIQUID TEMP (°F)	FINAL 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

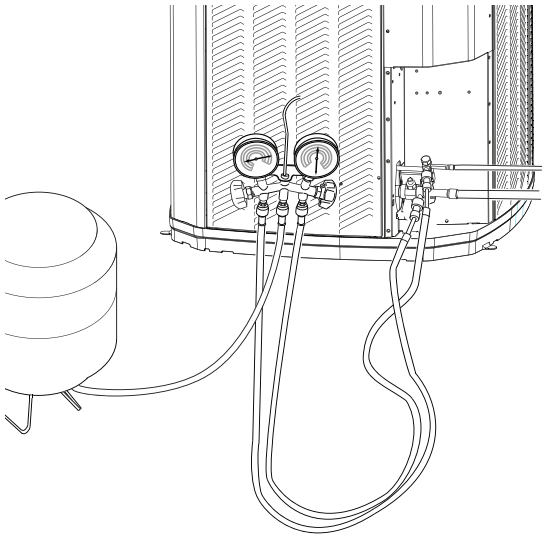
From Dwg. D154557P01 Rev. 3

STEP 6 - Adjust refrigerant level to attain proper gage pressure.

Add refrigerant if the Liquid Gage Pressure is lower than the chart value.

1. Connect gages to refrigerant bottle and unit as illustrated.
2. Purge all hoses.
3. Open bottle.
4. Stop adding refrigerant when liquid line temperature and Liquid Gage Pressure matches the charging chart Final Subcooling value.

Recover refrigerant if the Liquid Gage Pressure is higher than the chart value.



STEP 7 - Stabilize the system.

1. Wait 20 minutes for the system condition to stabilize between adjustments.

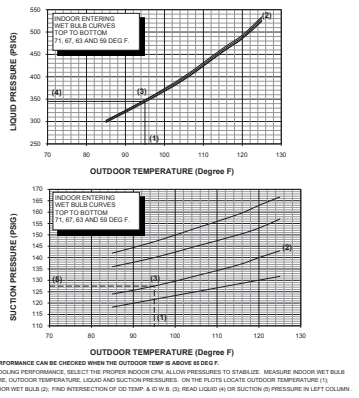
Note: When the Liquid Line Temperature and Gage Pressure approximately match the chart, the system is properly charged.

2. Remove gages.
3. Replace service port caps to prevent leaks. Tighten finger tight plus an additional 1/6 turn.

STEP 8 - Verify typical performance.

Refer to System Pressure Curves in the Service Facts to verify typical performance.

(Example only - see Service Facts)



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 .

STEP 9 - Record System Information for reference.

Record system pressures and temperatures after charging is complete.

Outdoor model number = _____

Measured Outdoor Ambient = _____ ° F

Measured Indoor Ambient = _____ ° F

Measured Liquid Line Temp = _____ ° F

Measured Suction Line Temp = _____ ° F

Liquid Gage Pressure = _____ PSI

Suction Gage Pressure = _____ PSI

Section 15. Checkout Procedures and Troubleshooting

15.1 Operational And Checkout Procedures

Final phases of this installation are the unit Operational and Checkout Procedures. To obtain proper performance, all units must be operated and charge adjustments made.

Important: *Perform a final unit inspection to be sure that factory tubing has not shifted during shipment. Adjust tubing if necessary so tubes do not rub against each other when the unit runs. Also be sure that wiring connections are tight and properly secured.*

CHECKOUT PROCEDURE

After installation has been completed, it is recommended that the entire system be checked against the following list:

1. Leak check refrigerant lines. ..... [ ]
2. Properly insulate suction lines and fittings..... [ ]
3. Properly secure and isolate all refrigerant lines..... [ ]
4. Seal passages through masonry.
   If mortar is used, prevent mortar from coming into direct contact with copper tubing. ..... [ ]
5. Verify that all electrical connections are tight..... [ ]
6. Observe outdoor fan during on cycle for clearance and smooth operation..... [ ]
7. Be sure that indoor coil drain line drains freely. Pour water into drain pan..... [ ]
8. Be sure that supply registers and return grilles are open and unobstructed..... [ ]
9. Be sure that a return air filter is installed. ..... [ ]
10. Be sure that the correct airflow setting is used. (Indoor blower motor) ..... [ ]
11. Operate complete system in each mode to ensure safe operation..... [ ]

15.2 Troubleshooting

SYSTEM FAULTS		WHAT TO CHECK MODE	HIGH VOLTAGE POWER SUPPLY	COMPRESSOR WIRING	RUN CAPACITOR IOL	START CAPACITOR	START RELAY	CONTACTOR CONTACTS	LOW VOLTAGE WIRING	CONTROL TRANSFORMER	THERMOSTAT	CONTACTOR COIL	LOW VOLTAGE FUSE	STUCK COMPRESSOR	INEFFICIENT COMP.	REF. UNDERCHARGE	REF. OVERCHARGE	EXCESSIVE EVAP. LOAD	NONCONDENSABLES	RES. O.D. AIRFLOW	O.D. AIR RECIRCULATION	TXV/EEV STUCK OPEN	SUPERHEAT	REF. CIR. RESTRICTIONS	RES. I.D. AIRFLOW	SOV LEAKING	SOV COIL DEFECTIVE	CHECK VALVE LEAKING	*DEFROST RELAY DEF.	DEFROST CONTROL DEF.
REFRIGERANT CIRCUIT																														
Head Pressure Too High	C																P	P	S	P	S				S					
	H																P	P	S					P	S					
Head Pressure Too Low	C													S	P							S	S		S	S	S	P		
	H													S	P							S	S		S	S		P		
Suction Pressure Too High	C													S		P	P						S			P		P		
	H													S									S			P				
Suction Pressure Too Low	C														P								S	P	S		S			
	H														P					S	S		S		S					
Liquid Refrig. Floodback (TXV/EEV)	C																					P						P		
	H																					P						P		
Liquid Refrig. Floodback (Cap. Tube)	C															P				S	S		S	P						
	H															P				S	S		S				S			
I.D. Coil Frosting	C														P					S	S									
	H																													
Compressor Runs Inadequate or No Cooling/Htg	C													S	P		S	S					S	P	S	S	S	S		
	H													S	P			S					S	P	S	S		S		
ELECTRICAL																														
Compressor & O.D. Fan Won't Start	C	P	P					S	P	S	P	P																		
	H	P	P					S	P	S	P	P																		
Compressor Will Not Start But O.D. Fan Runs	C		P	S	P	S	S	S					P																	
	H		P	S	P	S	S	S					P																	
O.D. Fan Won't Start	C		P		P			S																						
	H		P		P			S																						
Compressor Hums But Won't Start	C				P	S	S	S					P																	
	H				P	S	S	S					P																	
Compressor Cycles on IOL	C		P	S	P	S	S	S					P	S	P	P	S		S	S		S			S				
	H		P	S	P	S	S	S					P	S	P	P	S		S			S	P		S				
I.D. Blower Won't Start	C	P	P					S	P	S		S																		
	H	P	P					S	P	S		S																		
DEFROST																														
Unit Won't Initiate Defrost	C																													
	H																										P		P	P
Defrost Terminates on Time	C																													
	H														P															P
Unit Icing Up	C																													
	H													P				S	S			S			P			P		

C - Cooling H - Heating P - Primary Causes S - Secondary Causes * - 3 Phase Only

TRANE®
6200 Troup Highway
Tyler, TX 75707

Air Handlers, Heat Pumps and Air Conditioners – Owner's Guide

Congratulations on the purchase of your new outdoor unit. Your outdoor unit is designed to work with a matched indoor unit creating a system that delivers years of dependable service and performance.

Proper Maintenance*

Your system requires maintenance and repair by a properly trained service technician. "Do-it-yourself" repairs on an in-warranty unit may void your warranty.

Other than performing the simple maintenance recommended below, you should not attempt to make any adjustments or repairs to your system. Your dealer can assist you with questions or problems.

1) Replace the air filter(s)

A clean filter saves you money by helping ensure top system efficiency.

When replacing your filter(s), always use the same size and type that was originally supplied or consult with your dealer for recommendations. Be sure to replace it with the arrows pointing in the direction of the airflow.

Where disposable filters are used, they must be replaced every month with the same size as originally supplied. Clean or replace your filter twice a month during seasons when the unit runs more often.

Ask your dealer where the filter is located in your system and how to service it.

2) Maintain free outdoor coil airflow

Efficient operation of your system depends on the free flow of air over outdoor unit's coil.

Do not plant flowers or shrubbery right next to the unit. Also, make sure that nothing is stacked against the sides of the unit or draped over it.

Buildup of snow and ice can restrict airflow. As soon as possible after accumulation, clean snow from the area around the outdoor unit.

3) Clean the finish

To keep your system looking new for years, clean the enamel finish with soap and water. For stubborn grease spots, use a household detergent. Do not use lacquer thinner or other synthetic solvents as they may damage the finish.

4) Call your dealer for additional routine maintenance

Your system should be inspected at least once per year by a properly trained service technician.

Ask your dealer about economical service or preventative maintenance agreements that cover seasonal inspections. **Optional extended warranties are also available.**

⚠ WARNINGS

1. Disconnect all electrical power to the indoor air handler or furnace before removing access panels to perform any maintenance. Disconnect power to both the indoor and outdoor units. NOTE: There may be more than one electrical disconnect switch. Electric shock can cause personal injury or death.
2. Improper installation, adjustment, alteration, service, maintenance, or use can cause explosion, fire, electrical shock, or other conditions which may cause personal injury or property damage. Consult a qualified installer or service agency for information or assistance.

⚠ CAUTIONS

1. To prevent injury, death, or property damage, read and follow all instructions and warnings, including labels shipped with or attached to unit before operating your new outdoor system.
2. Although special care has been taken to minimize sharp edges in the construction of your unit, be extremely careful when handling parts or reaching into the unit.
3. Condensate drains should be checked and cleaned periodically to assure condensate can drain freely from coil to drain. If condensate cannot drain freely, water damage could occur.
4. If heating system is not operational during the cold weather months, provisions must be taken to prevent freeze-up of all water pipes and water receptacles. This is very important during times of vacancy.

IMPORTANT: If the indoor air exceeds 60% relative humidity or simply feels uncomfortably humid, it is recommended that the indoor fan only be used in the AUTO mode.

***Visit our website or ask your dealer for more information on:**

- System operation
- Troubleshooting\Maintenance
- Optimizing system performance\Energy savings
- Warranties and Product Registration

Before you call for service, check the following:

Problem	Possible cause	Remedy
Insufficient heating or cooling	a. dirty filters b. air not circulating freely c. blocked outdoor coil	a. clean or replace b. check supply registers and return grills for blockage c. clear away leaves or other debris
Failure to operate	a. power off b. open circuit breaker or burned-out fuses c. improperly adjusted thermostat	a. make sure main switch is in ON position b. reset circuit breaker, or replace burned-out fuses c. check setting, adjust thermostat
Auxiliary heat indicator on	When outdoor temperature falls, intermittent lighting is normal	Monitor light. If it stays on continuously when above 30°F, or if it comes on when 50°F outdoors, call for service.
No Heating or Cooling – Blower does not operate	Blower door removed or ajar	Close door securely to restore power to blower
Unusual Noise		Call your local servicer

Product Registration

Registered Limited Warranty terms are available if the product is registered within 60 days of installation. If the product is not registered within 60 days of installation, the Base Limited Warranty terms will apply.

Registration can be completed online. Please take a few moments to record the following information to ensure your product registration process is quick and easy:

Indoor Unit Model No: _____ Serial No: _____

Outdoor Unit Model No: _____ Serial No: _____

Thermostat Model Number _____

Installation/Startup Date _____ _____

Dealer _____

Dealer Service Phone _____

Doc. 32-5084-01