



Service Facts

2TWB0036-SF-1A

Library	Service Literature
Product Section	Unitary
Product	Split System Heat Pump
Model	2TWB
Literature Type	Service Facts
Sequence	2
Date	November 2005
File No.	SSP-SVF01A-EN 11/05
Supersedes	SV-UN-S/SP-2TWB0036-SF-1 11/02

Split System Heat Pump 2TWB0036A1000B

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 ①②	2TWB0036A1000B
POWER CONNS. — V/PH/HZ ③	200/230/1/60
MIN. BRCH. CIR. AMPACITY	20
BR. CIR. } MAX. (AMPS)	30
PROT. RTG. } MIN. (AMPS)	30
COMPRESSOR	CLIMATUFF®
NO. USED - NO. SPEEDS	1 - 1
VOLTS/PH/HZ	200/230/1/60
R.L. AMPS ⑦ - L.R. AMPS	14.7 - 87
FACTORY INSTALLED	
START COMPONENTS ⑧	NO
INSULATION/SOUND BLANKET	NO
COMPRESSOR HEAT	YES
OUTDOOR FAN	PROPELLER
DIA. (IN.) - NO. USED	19 - 1
TYPE DRIVE - NO. SPEEDS	DIRECT - 1
CFM @ 0.0 IN. W.G. ④	2475
NO. MOTORS - HP	1 - 1/4
MOTOR SPEED R.P.M.	1075
VOLTS/PH/HZ	200/230/1/60
F.L. AMPS	1.3
OUTDOOR COIL — TYPE	SPINE FIN™
ROWS - F.P.I.	1 - 24
FACE AREA (SQ. FT.)	11.32
TUBE SIZE (IN.)	3/8
REFRIGERANT CONTROL	EXPANSION VALVE
REFRIGERANT	
LBS. — HCFC-22 (O.D. UNIT) ⑤	5. LBS. - 15 OZ.
FACTORY SUPPLIED	YES
LINE SIZE - IN. O.D. GAS ⑥	7/8
LINE SIZE - IN. O.D. LIQ. ⑥	3/8
FCCV	
RESTRICTOR ORIFICE SIZE	.067
DIMENSIONS	H X W X D
CRATED (IN.)	33.2 x 26.7 x 30.2
WEIGHT	
SHIPPING (LBS.)	189
NET (LBS.)	169

TUBING INFORMATION

Tubing Sizes	Tubing Length	Additional Refrigerant
Suction	Liquid	
7/8"	3/8"	20'
7/8"	3/8"	30'
7/8"	3/8"	40'
7/8"	3/8"	50'
7/8"	3/8"	60'
		4 oz.
		11 oz.
		18 oz.
		25 oz.
		32 oz.

Tubing lengths in excess of eighty (80) feet see application software.

- ① Certified in accordance with the Air-Source Unitary Heat Pump Equipment certification program, which is based on ARI standard 210/240.
- ② Rated in accordance with ARI standard 270.
- ③ Calculated in accordance with Natl. Elec. Codes. Use only HACR circuit breakers or fuses.
- ④ Standard Air — Dry Coil — Outdoor
- ⑤ This value approximate. For more precise value see unit nameplate.
- ⑥ Max. linear length 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).
- ⑦ This value shown for compressor RLA on the unit nameplate and on this specification sheet is used to compute minimum branch circuit ampacity and max. fuse size. The value shown is the branch circuit selection current.
- ⑧ No means no start components. Yes means quick start kit components. PTC means positive temperature coefficient starter.

E - SPLIT HEAT PUMP

⚠ 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

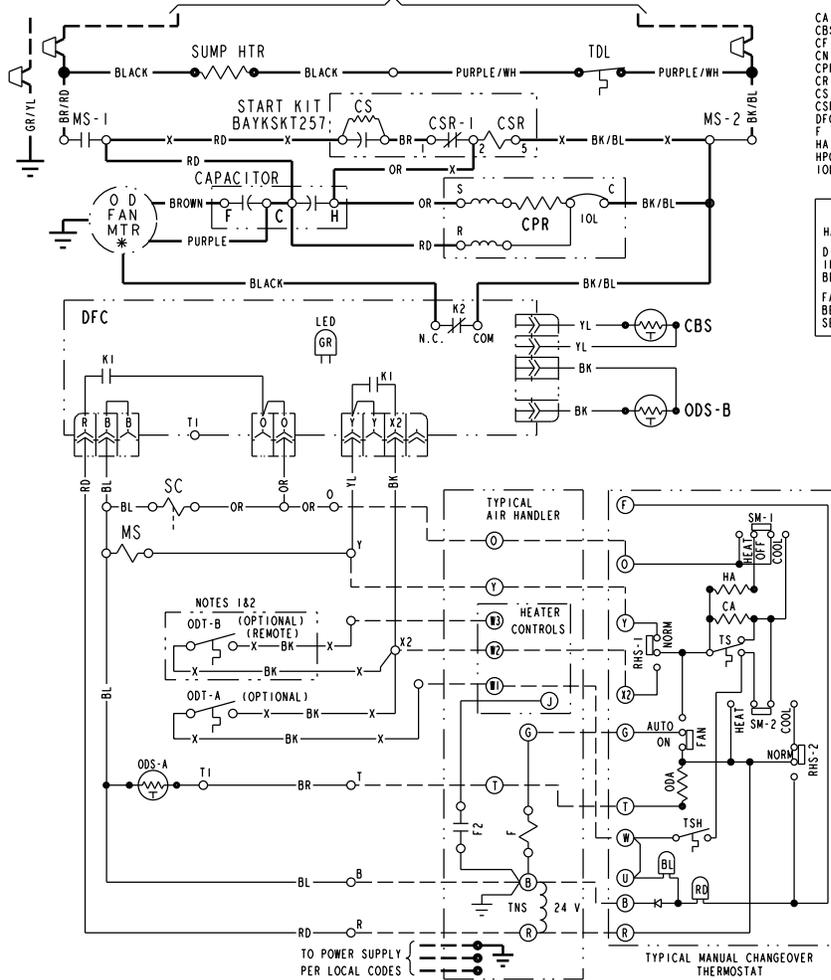
THIS INFORMATION IS INTENDED FOR USE BY INDIVIDUALS POSSESSING ADEQUATE BACKGROUNDS OF ELECTRICAL AND MECHANICAL EXPERIENCE. ANY ATTEMPT TO REPAIR A CENTRAL AIR CONDITIONING PRODUCT MAY RESULT IN PERSONAL INJURY AND OR PROPERTY DAMAGE. THE MANUFACTURER OR SELLER CANNOT BE RESPONSIBLE FOR THE INTERPRETATION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

SCHEMATIC DIAGRAM

TO POWER SUPPLY PER UNIT NAMEPLATE AND LOCAL CODES



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

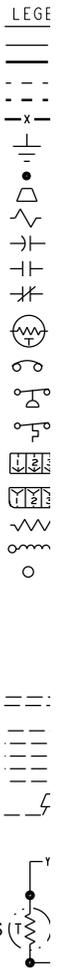
⚠ WARNING
HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS BEFORE SERVICING.
FAILURE TO DISCONNECT POWER BEFORE SERVICING CAN CAUSE SEVERE PERSONAL INJURY OR DEATH!

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

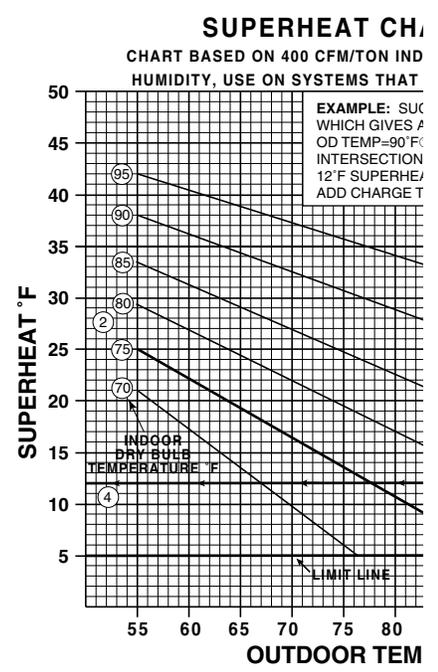
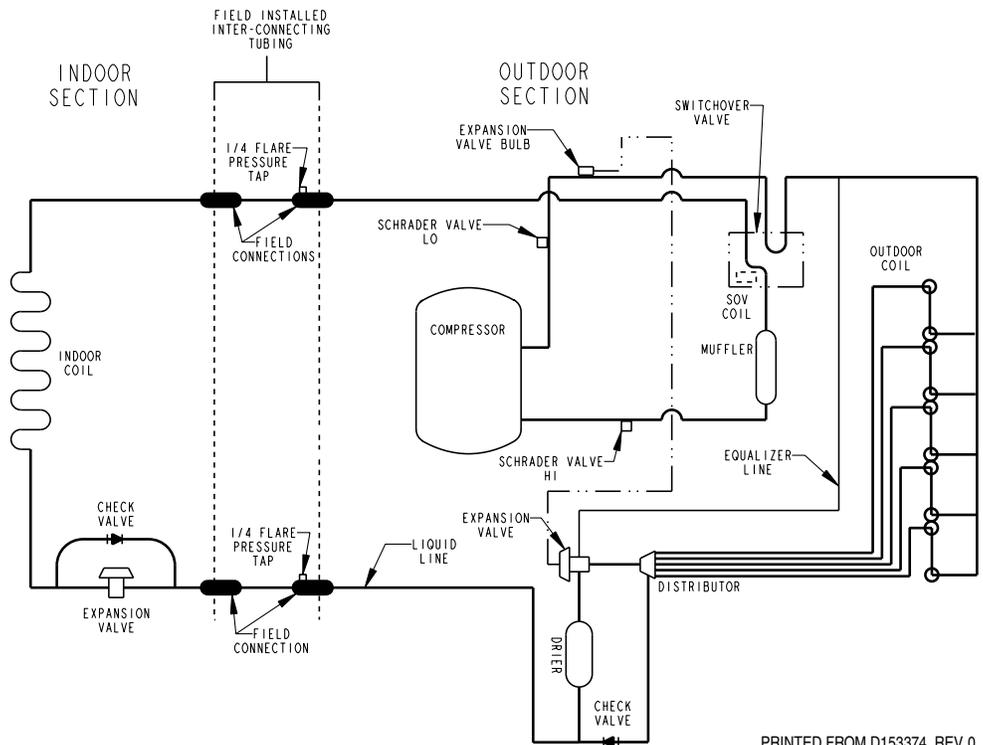
COLOR OF WIRE
BK/BL BLACK WIRE WITH BLUE MARKER
BL BLUE RD RED GR GREEN BR BROWN WH WHITE OR ORANGE YL YELLOW

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

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

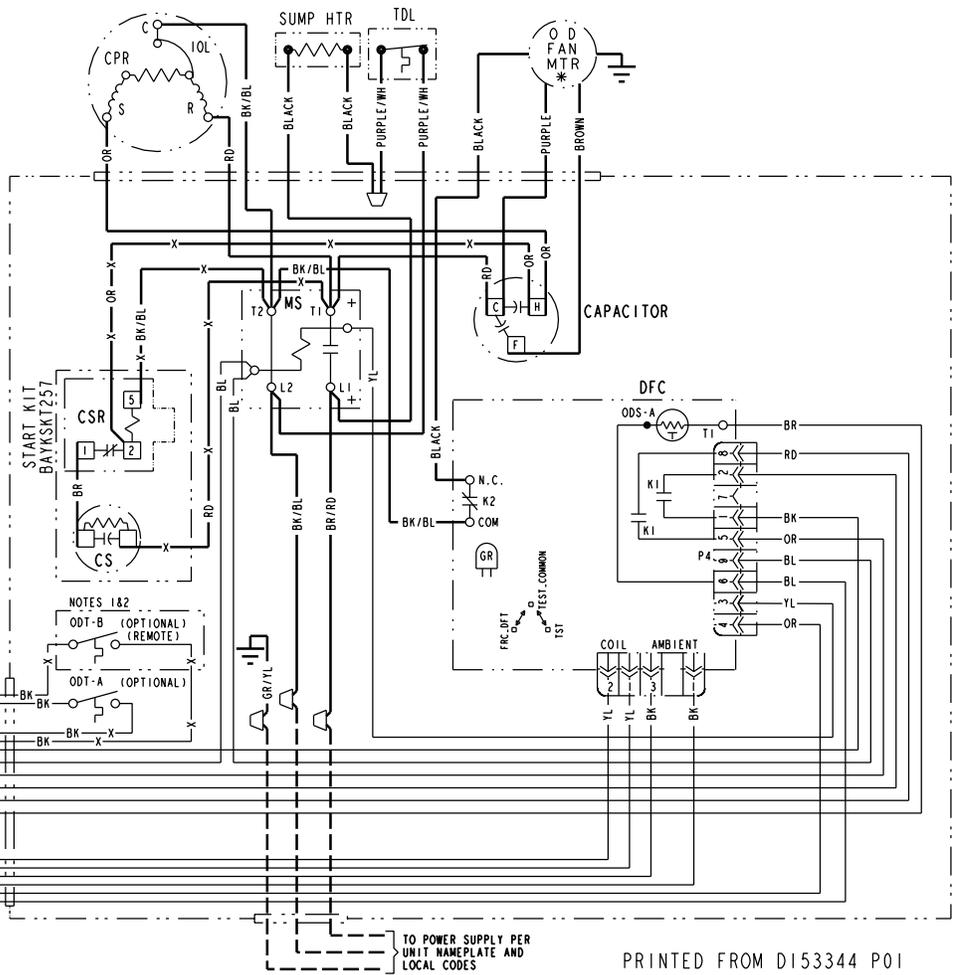
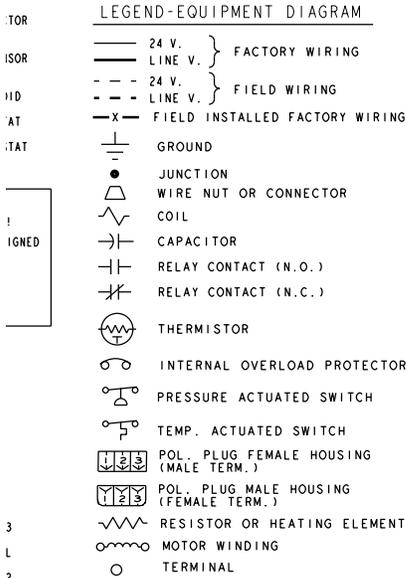


REFRIGERANT CIRCUIT



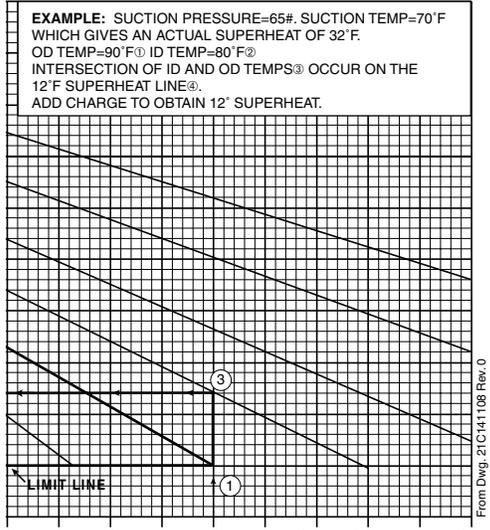
Measure suction pressure, suction temperature at table what superheat should be for the ID & OD ter operating superheat with stabilized running condit
If operating superheat is:
• within 5° chart value charge is OK
• more that 5° above chart value add refrigerant

WIRING DIAGRAM



HEAT CHARGING CHART

00 CFM/TON INDOOR AIRFLOW AND 50% RELATIVE HUMIDITY SYSTEMS THAT COOL WITH FCCV OR CAPILLARY



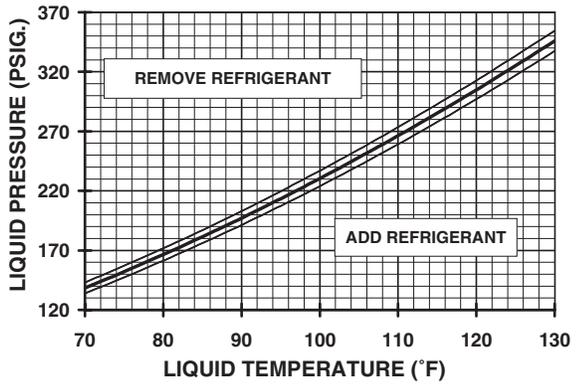
DOOR TEMPERATURE °F

ion temperature at OD quick attach, ID & OD temps. Determine from for the ID & OD temp. Example indicates 12° superheat. Determine zed running conditions.

- OK
- more than 5° below chart value remove refrigerant
- add refrigerant
- if below 5° limit line, do not add refrigerant

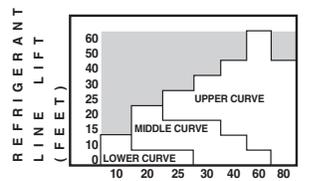
TXV REFRIGERANT CHARGING CURVE

For charging outdoor units with R-22 refrigerant at above 65°F outdoor temperature in cooling mode and with indoor TXV.



1. Measure Liquid Line Temperature and Refrigerant Pressure at service valves.
2. Determine total refrigerant pipe length and height (lift) if indoor section is above the condenser. Plot the intersection of the two points on the Curve Selection Chart to determine which curve to use.
3. Plot the pressure and temperature on the TXV Charging Curve.
4. If the lines cross above the curve remove refrigerant, if below curve add refrigerant.
5. Whenever charge is removed or added, the system must be operated for a minimum 20 minutes to stabilize before additional measurements can be made.
6. When system is correctly charged refer to System Performance Curves to verify charge and performance.

CHARGING CURVE SELECTION CHART

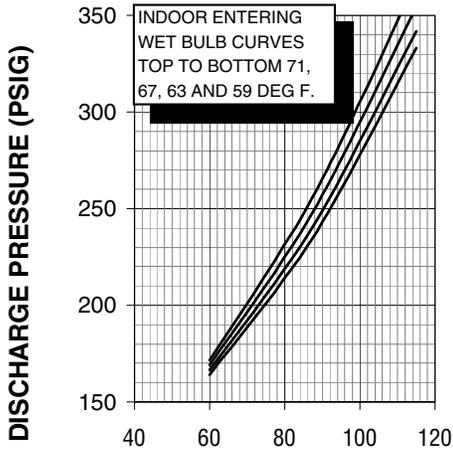


TOTAL REFRIGERANT LINE LENGTH (FEET)

PRESSURE CURVES FOR 2TWB0036A1000B

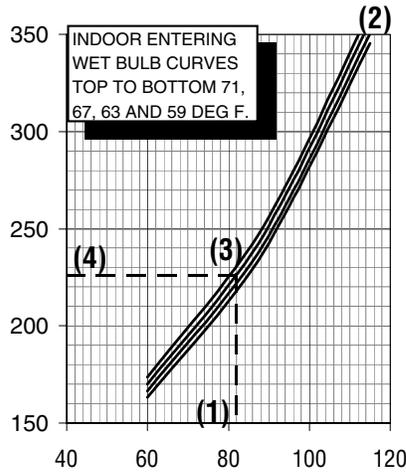
TWE036C14

Cooling with FCCV or Capillary Tubes



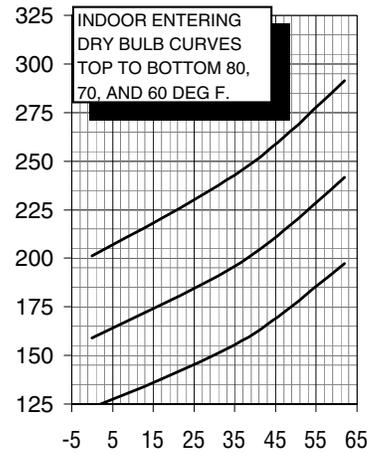
TWE036C14+TAYTXV-3

Cooling with Thermal Expansion Valve

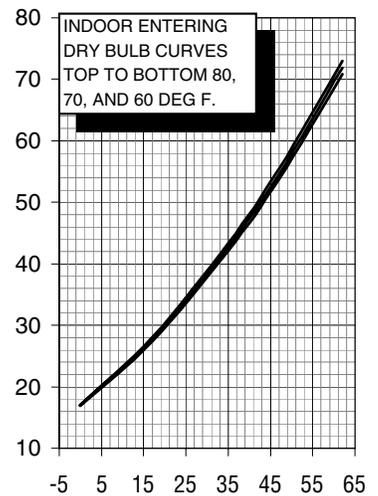
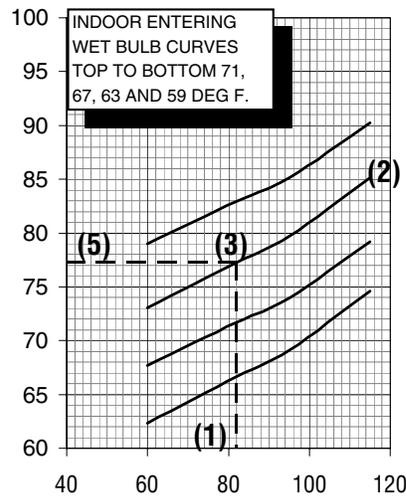
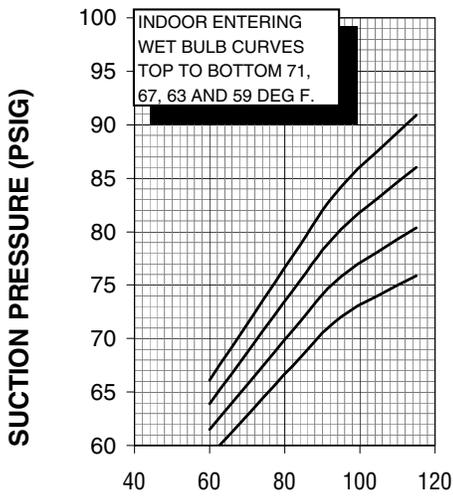


TWE036C14+TAYTXV-3

Heating



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, DISCHARGE AND SUCTION PRESSURES. ON THE PLOTS LOCATE OUTDOOR TEMPERATURE (1); LOCATE INDOOR WET BULB (2); FIND INTERSECTION OF OD TEMP. & ID W.B. (3); READ DISCHARGE OR SUCTION PRESSURE IN LEFT COLUMN (4).

- EXAMPLE: (1) OUTDOOR TEMP. 82 F.
 (2) INDOOR WET BULB 67 F.
 (3) AT INTERSECTION
 (4) DISCHARGE PRESSURE @ 1200 CFM IS 226 PSIG
 (5) SUCTION PRESSURE @ 1200 CFM IS 77 PSIG

ACTUAL:
 DISCHARGE 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.