



# 2TWB0012-SF-1A

## Service Facts

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-2TWB0012-SF-1 12/02

### Split System Heat Pump 2TWB0012A1000B

**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	2TWB0012A1000B
<b>POWER CONNS.</b> — V/PH/HZ ③	200/230/1/60
MIN. BRCH. CIR. AMPACITY	10
BR. CIR. } MAX. (AMPS)	15
PROT. RTG. } MIN. (AMPS)	15
<b>COMPRESSOR</b>	CLIMATUFF®
NO. USED - NO. SPEEDS	1 - 1
VOLTS/PH/HZ	200/230/1/60
R.L. AMPS ⑦ - L.R. AMPS	7.5 - 42
FACTORY INSTALLED	
START COMPONENTS ⑧	NO
INSULATION/SOUND BLANKET	NO
COMPRESSOR HEAT	YES
<b>OUTDOOR FAN</b>	PROPELLER
DIA. (IN.) - NO. USED	19 - 1
TYPE DRIVE - NO. SPEEDS	DIRECT - 1
CFM @ 0.0 IN. W.G. ④	1575
NO. MOTORS - HP	1 - 1/15
MOTOR SPEED R.P.M.	825
VOLTS/PH/HZ	200/230/1/60
F.L. AMPS	.60
<b>OUTDOOR COIL</b> — TYPE	SPINE FIN™
ROWS - F.P.I.	1 - 24
FACE AREA (SQ. FT.)	9.72
TUBE SIZE (IN.)	3/8
REFRIGERANT CONTROL	EXPANSION VALVE
<b>REFRIGERANT</b>	
LBS. — HCFC-22 (O.D. UNIT) ⑤	4 LBS. - 9 OZ.
FACTORY SUPPLIED	YES
LINE SIZE - IN. O.D. GAS ⑥	5/8
LINE SIZE - IN. O.D. LIQ. ⑥	1/4
<b>FCCV</b>	
RESTRICTOR ORIFICE SIZE	.047
<b>DIMENSIONS</b>	H X W X D
CRATED (IN.)	30.1 x 26.7 x 30.2
<b>WEIGHT</b>	
SHIPPING (LBS.)	169
NET (LBS.)	150

#### TUBING INFORMATION

Tubing Sizes		Tubing Length	Additional Refrigerant
Suction	Liquid		
5/8"	1/4"	20'	1 oz.
5/8"	1/4"	30'	4 oz.
5/8"	1/4"	40'	7 oz.
5/8"	1/4"	50'	9 oz.
5/8"	1/4"	60'	12 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.**

#### ⚠ 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.

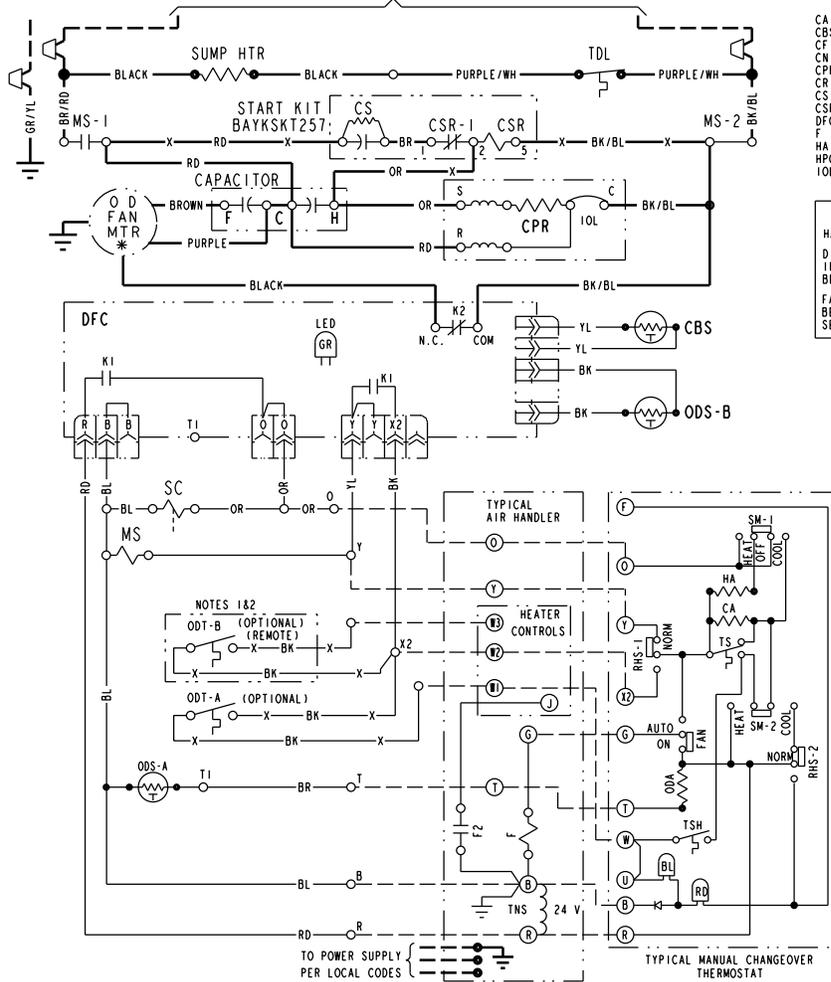
#### ⚠ WARNING

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.

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

# 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          | TNS TRANSFORMER                |
| HPCO HIGH PRESSURE CUTOFF SW.   | TS HEATING-COOLING THERMOSTAT  |
| IOL INTERNAL OVERLOAD PROTECTOR | TSH HEATING THERMOSTAT         |

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

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

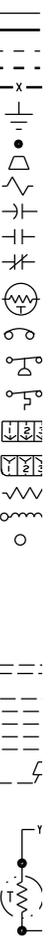
- COLOR OF WIRE**  
BK/BL BLACK WIRE WITH BLUE MARKER  
— COLOR OF MARKER
- |          |           |           |
|----------|-----------|-----------|
| BK BLACK | OR ORANGE | YL YELLOW |
| BL BLUE  | RD RED    | GR GREEN  |
| BR BROWN | WH WHITE  | PR PURPLE |

**NOTES:**

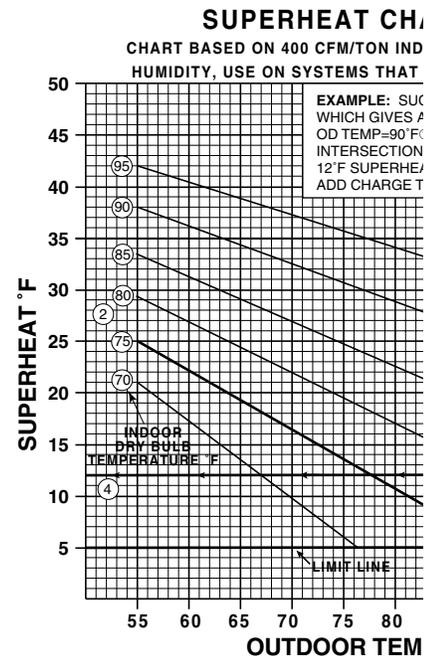
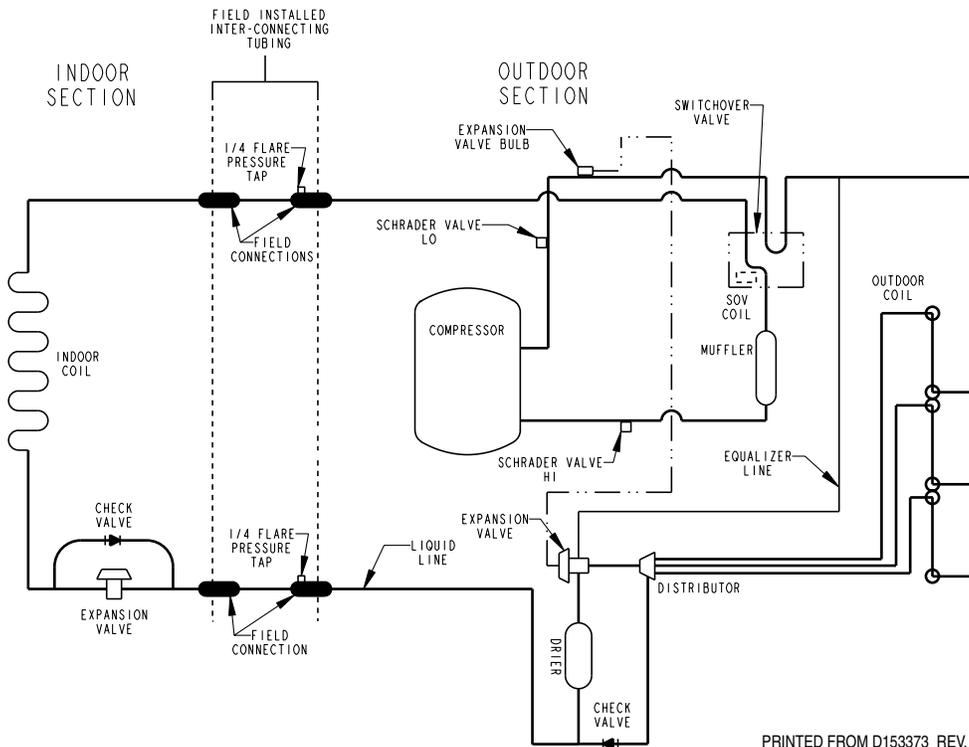
- IF ODT-B IS NOT USED, ADD JUMPER BETWEEN W2 & W3 AT AIR HANDLER. IF USED, ODT-B MUST BE MOUNTED REMOTE OF CONTROL BOX IN AN APPROVED WEATHER PROOF ENCLOSURE.
- IF ODT-A IS NOT USED, ADD JUMPER BETWEEN W1 & W2 AT AIR HANDLER.
- LOW VOLTAGE (24 V.) FIELD WIRING MUST BE 18 AWG MIN.

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.**

**LEGE**

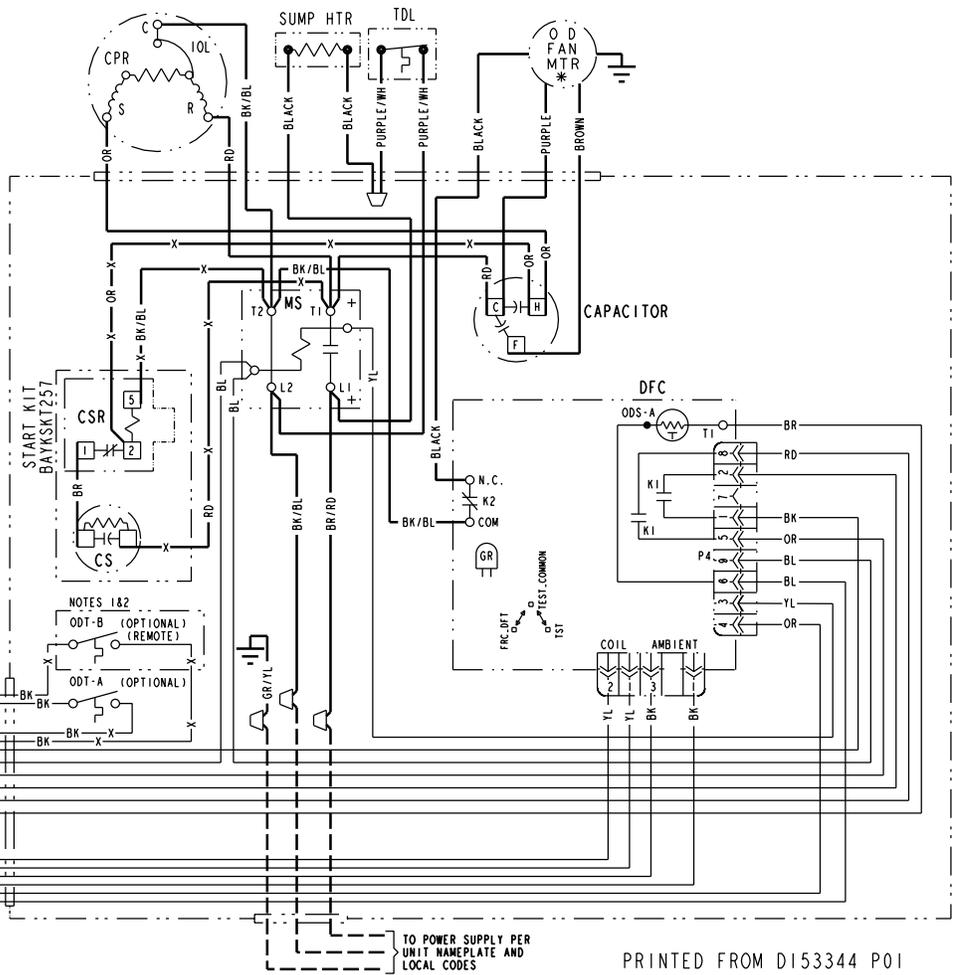
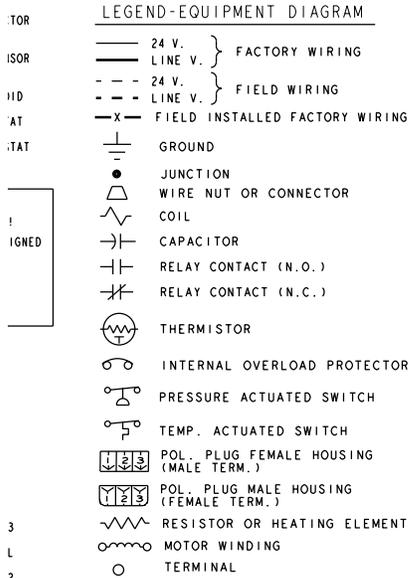


# REFRIGERANT CIRCUIT



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

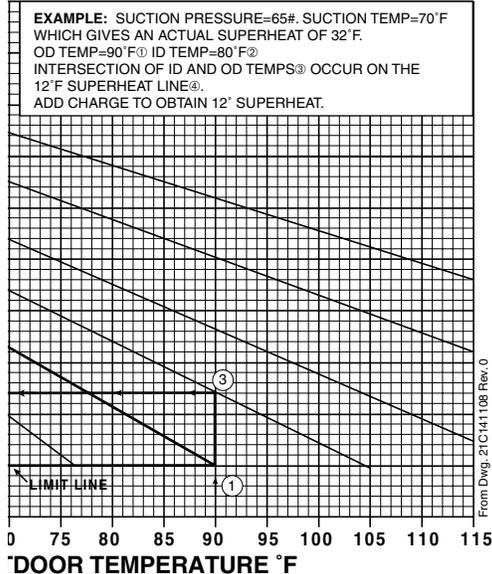
WIRING DIAGRAM



PRINTED FROM D153344 P01

**HEAT CHARGING CHART**

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

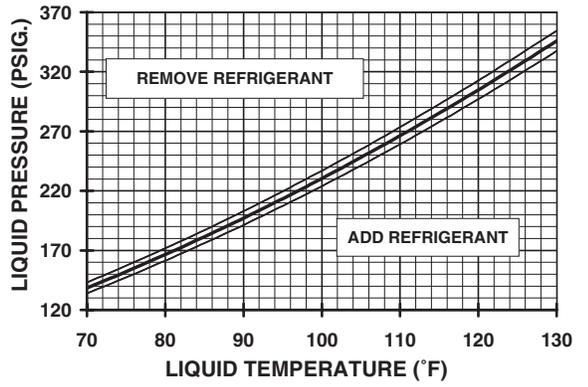


ion temperature at OD quick attach, ID & OD temps. Determine from for the ID & OD temp. Example indicates 12° superheat. Determine zed running conditions.

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

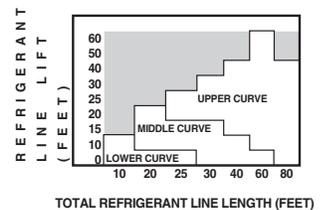
**TXV REFRIGERANT CHARGING CURVE**

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.

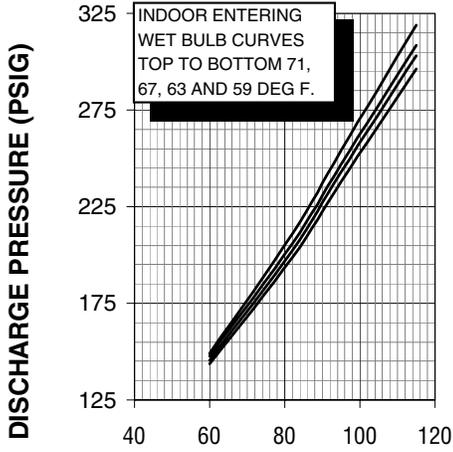
**CHARGING CURVE SELECTION CHART**



# PRESSURE CURVES FOR 2TWB0012A1000B

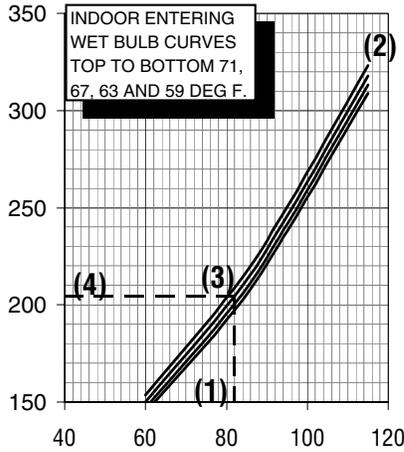
## TWE018C14

Cooling with FCCV or Capillary Tubes



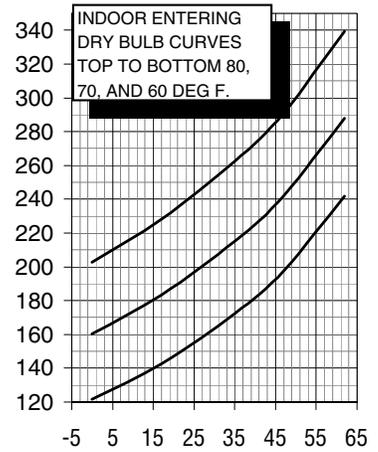
## TWE018C14+TAYTXV-3

Cooling with Thermal Expansion Valve

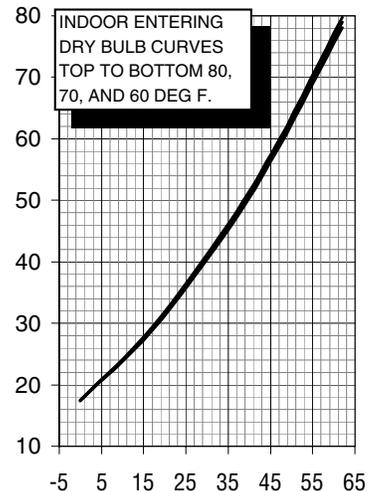
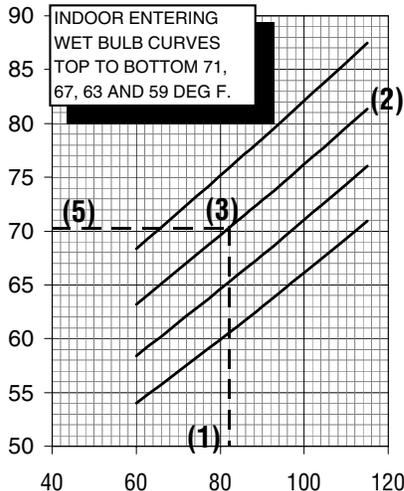
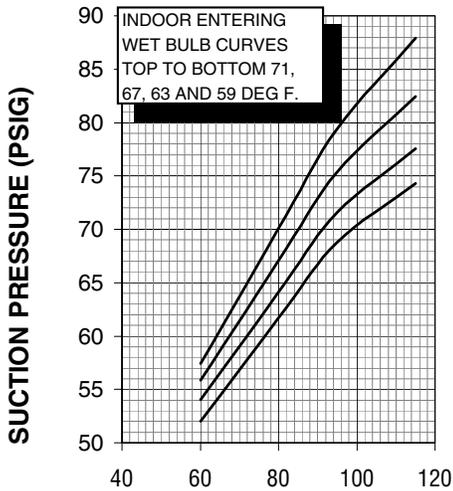


## TWE018C14+TAYTXV-3

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 @ 400 CFM IS 204 PSIG  
 (5) SUCTION PRESSURE @ 400 CFM IS 70 PSIG

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

INTERCONNECTING LINES  
 GAS - 5/8" O.D.  
 LIQUID - 1/4" O.D.