Service Facts

Packaged Rooftop Units

6 Ton Standard Efficiency, Heat Pump

Model Numbers:
WSC072E

July 2009

RT-SVF56A-EN

Warnings, Cautions and Notices

Warnings, Cautions and Notices. Note that warnings, cautions and notices appear at appropriate intervals throughout this manual. Warnings are provided to alert installing contractors to potential hazards that could result in personal injury or death. Cautions are designed to alert personnel to hazardous situations that could result in personal injury, while notices indicate a situation that could result in equipment or property-damage-only accidents.

Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

ATTENTION: Warnings, Cautions and Notices appear at appropriate sections throughout this literature. Read these carefully.

⚠**WARNING**: Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠**CAUTION**: Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.

NOTICE: Indicates a situation that could result in equipment or property-damage-only accidents.

Important Environmental Concerns!

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants-including industry replacements for CFCs such as HCFCs and HFCs.

Responsible Refrigerant Practices!

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified. The Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

⚠WARNING
Refrigerant under High Pressure!

System contains oil and refrigerant under high pressure. Recover refrigerant to relieve pressure before opening the system. See unit nameplate for refrigerant type. Do not use non-approved refrigerants, refrigerant substitutes, or refrigerant additives. Failure to recover refrigerant to relieve pressure or the use of non-approved refrigerants, refrigerant substitutes, or refrigerant additives could result in an explosion which could result in death or serious injury or equipment damage.

⚠WARNING

R-410A Refrigerant under Higher Pressure than R-22!

The units described in this manual use R-410A refrigerant which operates at higher pressures than R-22 refrigerant. Use ONLY R-410A rated service equipment or components with these units. For specific handling concerns with R-410A, please contact your local Trane representative. Failure to use R-410A rated service equipment or components could result in equipment exploding under R-410A high pressures which could result in death, serious injury, or equipment damage.

⚠WARNING

Personal Protective Equipment (PPE) Required!

Installing/servicing this unit could result in exposure to electrical, mechanical and chemical hazards.

- **Before installing/servicing this unit, technicians MUST put on all Personal Protective Equipment (PPE) recommended for the work being undertaken. ALWAYS refer to appropriate MSDS sheets and OSHA guidelines for proper PPE.**
- **When working with or around hazardous chemicals, ALWAYS refer to the appropriate MSDS sheets and OSHA guidelines for information on allowable personal exposure levels, proper respiratory protection and handling recommendations.**
- **If there is a risk of arc or flash, technicians MUST put on all necessary Personal Protective Equipment (PPE) in accordance with NFPA70E for arc/flash protection PRIOR to servicing the unit.**

Failure to follow recommendations could result in death or serious injury.

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General Data

Table 1. General data - 6 ton - standard efficiency

	6 Tons
	WSC072E3,4,W
Cooling Performance[a]	
Gross Cooling Capacity	78,000
EER[b]	11.4
Nominal cfm/ARI Rated cfm	2,400/2,100
ARI Net Cooling Capacity	75,000
IEER[c]	13.0
System Power (kW)	6.58
Heating Performance[d]	
High Temp. Btuh Rating	71,000
System Power kW/COP	5.95/3.50
Low Temp. Btuh Rating	39,000
System Power kW/COP	5.2/2.20
HSPF (Btu/Watts-hr)	—
Compressor	
Number/Type	1/Scroll
Sound	
Outdoor Sound Rating (dB)[e]	89
Outdoor Coil - Type	Lanced
Configuration	Full Face
Tube Size (in.)	0.3125
Face Area (sq. ft.)	17.00
Rows/FPI	3/16
Refrigerant Control	Thermal Expansion Valve
Indoor Coil - Type	Lanced
Configuration	Full Face
Tube Size (in.)	0.3125
Face Area (sq. ft.)	9.89
Rows/FPI	4/16
Refrigerant Control	Orifice
Drain Connection Number/Size (in.)	1 3/4 NPT

continued on next page

Table 1. General data - 6 ton - standard efficiency (continued)

	6 Tons
	WSC072E3,4,W
Outdoor Fan - Type	Propeller
Number Used/Diameter (in.)	1/26
Drive Type/No. Speeds	Direct/1
cfm	5,800
Motor hp	0.70
Motor rpm	1,100
Indoor Fan - Type	FC Centrifugal
Number Used	1
Diameter x Width	12x12
Drive Type/Number Speeds	Belt/Variable
Motor hp (Standard/Oversized)	1.0/2.0
Motor Frame Size (Standard/Oversized)	56/56
Filters[f] - Type Furnished	Throwaway
Number Size Recommended	(4) 16x25x2
Refrigerant Charge[g]	
Pounds of R-410A	12.00

(a) Cooling performance is rated at 95°F ambient, 80°F entering dry bulb, 67°F entering wet bulb. Gross capacity does not include the effect of fan motor heat. ARI capacity is net and includes the effect of fan motor heat. Units are suitable for operation to ±20% of nominal cfm. Units are certified in accordance with the Unitary Air-Conditioner Equipment certification program, which is based on ARI Standard 340/360

(b) EER and/or SEER are rated at ARI conditions and in accordance with DOE test procedures.

(c) Integrated Efficiency Ratio (IEER) is rated in accordance with ARI Standard 340/360. The IEER rating requires that the unit efficiency be determined at 100%, 75%, 50% and 25% load (net capacity) at the specified in ARI Standard.

(d) Heating performance is rated at 47°F ambient with 43°F wet bulb , 70°F entering dry bulb, 60°F entering wet bulb. High Temp. Btuh Rating includes the effect of fan motor heat. Units are suitable for operation to ±20% of nominal cfm. Units are certified in accordance with the Unitary Air-Conditioner Equipment certification program, which is based on ARI Standard 340/360.

(e) Outdoor Sound Rating shown is tested in accordance with ARI Standard 270. For additional information refer to Table 7, p. 12.

(f) Optional 2" MERV 7 and MERV 13 filters also available.

(g) Refrigerant charge is an approximate value. For a more precise value, see unit nameplate and service instructions.

Sequence of Operation

ReliaTel Controls

These units are equipped with a microelectronic control feature, which provides operating functions that are significantly different than conventional units. It is referred to as the "ReliaTel Control System". The master module is the ReliaTel Refrigeration Module (RTRM).

The RTRM provides compressor anti-short cycle timing functions through minimum "Off" and "On" timing to increase reliability, performance and to maximize unit efficiency.

Upon power initialization, the RTRM performs self-diagnostic checks to insure that all internal controls are functioning. It checks the configuration parameters against the components connected to the system.

The LED located on the RTRM module is turned "On" within one second after power-up if all internal operations are okay.

Cooling without an Economizer

When the system is in the "Cool" MODE, the RTRM energizes relay (K3). When the normally open (K3) contacts close, the switch over valve (SOV1) are energized. When the zone temperature rises above the cooling setpoint controlband, the RTRM energizes the (K9) relay coil on the RTRM. When the (K9) relay contacts close, the compressor contactor (CC1) coil is energized provided the low pressure control (LPC1), high pressure control (HPC1) and discharge line thermostat (TDL 1) are closed. When the CC1 contacts close, compressor (CPR1) and the outdoor fan motor (ODM) starts provided the normally open (ODF) relay contacts are closed, to maintain the zone temperature to within ± 2 F of the sensor setpoint at the sensed location.

Evaporator Fan Operation

When the fan selection switch is set to the "Auto" position, the RTRM energizes the (K6) relay coil approximately 1 second after energizing the compressor contactor coil (CC1) in the cooling mode. In the heating mode, the RTRM energizes the (K6) relay coil approximately 1 second before energizing the electric heat contactors. Closing the (K6) contacts on the RTRM energizes the indoor fan relay (F) coil to start the indoor fan motor (IDM).

The RTRM de-energizes the fan relay (F) approximately 60 seconds after the cooling requirement has been satisfied to enhance unit efficiency. When the heating cycle is terminated, the indoor fan relay (F) coil is de-energized at the same time as the heater contactors.

When the fan selection switch is set to the "On" position, the RTRM keeps the indoor fan relay coil (F) energized for continuous fan motor operation.

When the unit is equipped with the optional clogged filter switch, wired between terminals J7-3 and J7-4 on the ReliaTel Options Module (RTOM), the RTRM produces an analog output if the clogged filter switch (CFS) closes for two minutes after a request for fan operation. When the system is connected to a remote panel, the "SERVICE" LED will be turned on when this failure occurs.

Low Ambient Operation

During low ambient operation, outside air temperature below 40F, the RTRM will cycle the compressor and outdoor fan motor "Off" for approximately 3 minutes after every 10 minutes of accumulated compressor run time. The indoor fan motor (IDM) will continue to operate during this evaporator defrost cycle (EDC) and the compressor and outdoor fan will return to normal operation once the defrost cycle has terminated and the compressor "Off" time delay has been satisfied.

Cooling with an Economizer

When the system is in the "Cool" MODE, the RTRM energizes relay (K3). When the normally open (K3) contacts close, the switch over valves (SOV1 & 2) are energized. The economizer is utilized to control the zone temperature providing the outside air conditions are suitable. Outside air is drawn into the unit through modulating dampers. When cooling is required and economizing is possible,

the RTRM sends the cooling request to the unit economizer actuator (ECA) to open the economizer damper. The RTRM tries to cool the zone utilizing the economizer to slightly below the zone temperature setpoint. If the mixed air sensor (MAS) senses that the mixed air temperature is below 53°F, the damper modulates toward the closed position. If the zone temperature continues to rise above the zone temperature setpoint controlband and the economizer damper is fully open, the RTRM energizes the compressor contactor (CC1).

The ECA continues to modulate the economizer damper open/closed to keep the mixed air temperature that is calculated by the RTRM.

If economizing is not possible, the ECA drives the damper to the minimum position setpoint when the indoor fan relay (F) is energized and allows mechanical cooling operation.

When the unit is equipped with the optional fan failure switch, wired between terminals J7-5 and J7-6 on the RTOM, the RTRM will stop all cooling functions and produce an analog output if the fan failure switch (FFS) does not open within 40 seconds after a request for fan operation. When the system is connected to a remote panel, the "SERVICE" LED will flash when this failure occurs.

Economizer Set-Up

Adjusting the minimum position potentiometer located on the unit economizer actuator (ECA) sets the required amount of ventilation air.

Two of the three methods for determining the suitability of the outside air can be selected utilizing the enthalpy potentiometer on the ECA, as described below:

1. Ambient Temperature - controlling the economizing cycle by sensing the outside air-dry bulb temperature. The table below lists the selectable dry bulb values by potentiometer setting.
2. Reference Enthalpy - controlling the economizer cycle by sensing the outdoor air humidity. The table below lists the selectable enthalpy values by potentiometer setting. If the outside air enthalpy value is less than the selected value, the economizer is allowed to operate.
3. Comparative Enthalpy - By utilizing a humidity sensor and a temperature sensor in both the return air stream and the outdoor air stream, the unit control processor RTRM) will be able to establish which conditions are best suited for maintaining the zone temperature, i.e. indoor conditions or outdoor conditions. The potentiometer located on the ECA is nonfunctional when both the temperature and humidity sensors are installed.

Potentiometer Setting	Dry Bulb	Enthalpy
A	73°F* (22.8C)	27 Btu/lb (63 kJ/kg)
B	70°F (21.1C)	25 Btu/lb (58 kJ/kg)
C	67°F (19.4C)	23 Btu/lb (53 kJ/kg)
D	63°F (17.2C)	22 Btu/lb (51 kJ/kg)
E	55F(12.8C)	19 Btu/lb(44 KJ/Kg)

*Factory Setting

Heating Operation

When the system switch is set to the "Heat" MODE, the RTRM energizes relay (K3). When the normally open (K3) contacts open, the switch over valves (SOV1 & 2) are de-energized. When the zone temperature falls below the heating setpoint controlband, the RTRM energizes the (K9) & (K10) relay coils on the RTRM. When the (K9) relay contacts close, the compressor contactor (CC1) coil is energized provided the low pressure control (LPC1), high pressure control (HPC1) and discharge line thermostat (TDL 1) are closed. When the CC1 contacts close, compressor (CPR1) and the outdoor fan motor (ODM) starts provided the normally open (ODF) relay contacts are closed.

The RTRM "Smart Recovery" function monitors the rate at which the zone temperature is changing every 9 minutes during the operating heating cycle. If the zone temperature is rising at a rate greater than 6 F per hour, no additional heat is requested (auxiliary electric heat). If not, the RTRM energizes the first stage auxiliary electric heat contactor (AH or AH and CH) (electric heat optional). A minimum of 10 seconds "Off" time must have elapsed between heater cycles. If mechanical heat and first stage auxiliary heat cannot provide the 6 F recovery rate, the RTRM energizes second stage auxiliary heat contactor (BH), if applicable. The RTRM continues to monitor the rate of change and stages the electric heat "Off" as it determines that the mechanical heat (compressor operation) is sufficient.

Demand Defrost

Demand defrost is a standard feature which permits defrost whenever coil icing conditions begin to significantly reduce unit capacity. To permit defrost, the outdoor temperature must be below 52 F, coil temperature must be below 33 F, and the delta temperature F must exceed a RTRM calculated value. After 30 minutes of run time under defrost permit conditions, the RTRM initiates a defrost cycle. Upon termination of this cycle, the RTRM monitors the outdoor temperature (ODT) and the coil temperature (CT) and calculates the delta temperature F (ODT - CT). This value is stored in memory and the RTRM calculates a defrost initiate value. The RTRM continually compares the delta temperature F to the defrost initiate value. Once the delta tee reaches the initiate value, a defrost cycle is initiated.

During the defrost cycle, the RTRM energizes the relay (K3), which energizes the switch over valve (SOV1) through the normally open K3 relay contacts. Then turns the outdoor fan motor (ODM) "Off" by de-energizing the (K8) relay, which de-energizes the (ODF) relay. The RTRM energizes the auxiliary electric heat contactor (AH) and (BH) (if applicable) if they are not operating, while maintaining compressor (CPR1) operation.

The defrost cycle is terminated based on the RTRM termination temperature calculation using the outdoor temperature (ODT) + 27 F. The defrost termination temperature (DTT) will typically be between 37 F and 52 F.

Emergency Heat Operation

When the system selection switch is in the "EM HEAT" MODE, and the zone temperature falls below the heating setpoint controlband, the RTRM bypasses compressor and outdoor fan operation and energizes the K1 relay located on the RTRM. When K1 relay contacts close, the first stage auxiliary electric heat contactor (AH or AH and CH) is energized. If the first stage of auxiliary electric heat can not satisfy the heating requirement, the RTRM energizes the K2 relay coil located on the RTRM. When the K2 relay contacts close, the second stage auxiliary electric heat contactor (BH) is energized. The RTRM cycles both the first and second stages of heat "On" and "Off" as required to maintain the zone temperature setpoint.

Evaporator Fan Performance

Table 2. Belt drive evaporator fan performance - 6 tons standard efficiency - WSC072E3,E4,EW dowflow airflow

	External Static Pressure (Inches of Water)																			
	.10		.20		.30		.40		.50		.60		.70		.80		.90		1.00	
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
	1-hp Standard Motor & Field Supplied Low Static Drive[a]												1-hp Standard Motor & Drive							
1920	—	—	581	0.28	636	0.34	685	0.39	732	0.45	775	0.50	815	0.55	854	0.60	892	0.66	927	0.71
2160	—	—	626	0.37	677	0.43	725	0.49	769	0.55	810	0.61	849	0.67	887	0.73	922	0.79	956	0.84
2400	620	0.42	672	0.49	720	0.55	766	0.61	807	0.68	847	0.75	885	0.81	921	0.88	956	0.95	989	1.01
2640	672	0.55	719	0.62	765	0.69	808	0.76	848	0.83	886	0.90	923	0.98	957	1.05	991	1.12	1024	1.20
2880	725	0.70	768	0.77	811	0.85	852	0.92	890	1.00	927	1.08	962	1.16	995	1.24	1028	1.32	1059	1.40

Continued

	1-hp Standard Motor & Drive										1-hp Standard Motor & Field Supplied High Static Drive or (2-hp Oversized Motor & Drive)									
1920	962	0.77	995	0.83	1026	0.89	1057	0.95	1087	1.01	1115	1.07	1143	1.13	1171	1.19	1196	1.24	1222	1.30
2160	990	0.91	1023	0.97	1054	1.04	1085	1.11	1114	1.17	1142	1.24	1170	1.30	1197	1.37	1222	1.43	1249	1.50
2400	1022	1.07	1051	1.13	1082	1.20	1112	1.28	1141	1.35	1170	1.42	1198	1.50	1224	1.57	1249	1.64	1276	1.72
2640	1055	1.27	1085	1.34	1114	1.41	1142	1.47	1169	1.54	1198	1.62	1226	1.70	1252	1.78	1278	1.86	1304	1.95
2880	1089	1.48	1119	1.56	1149	1.64	1176	1.72	1203	1.79	1229	1.87	1255	1.94	1280	2.01	1306	2.10	1331	2.19
	2-hp Oversized Motor & Drive																			

Notes:

1. For Standard Evaporator Fan Speed (rpm), reference Table 4, p. 12.
2. Data includes pressure drop due to standard filters and wet coils.
3. Refer to Table 8, p. 12 to determine additional static pressure drop due to other options/accessories.
4. 1-HP Fan Motor Heat (MBH) = 2.829xFan BHP+.4024. 2-HP Fan Motor Heat (MBH) = 3.000xFan BHP+.5000.
5. Factory supplied motors, in equipment, are definite purpose motors, specifically designed and tested to operate at all cataloged conditions.Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.

(a) Field Supplied Fan Sheave AK79 and Belt AX38 required.

Table 3. Belt drive evaporator fan performance - 6 tons standard efficiency - WSC072E3,E4,EW horizontal airflow

	External Static Pressure (Inches of Water)																			
	.10		.20		.30		.40		.50		.60		.70		.80		.90		1.00	
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
	1-hp Standard Motor & Field Supplied Low Static Drive[a]										1-hp Standard Motor & Drive									
1920	581	0.31	627	0.36	679	0.43	731	0.49	781	0.56	829	0.64	873	0.71	916	0.79	956	0.87	997	0.96
2160	631	0.42	679	0.48	728	0.56	773	0.62	820	0.70	865	0.78	907	0.85	948	0.94	987	1.02	1025	1.11
2400	690	0.56	735	0.63	778	0.70	821	0.78	862	0.86	904	0.94	944	1.03	983	1.11	1021	1.21	1058	1.30
2640	749	0.73	791	0.81	830	0.87	871	0.97	909	1.05	946	1.13	984	1.22	1022	1.32	1058	1.42	1093	1.51
2880	809	0.92	849	1.02	886	1.09	922	1.17	959	1.29	993	1.37	1027	1.46	1062	1.56	1097	1.66	1131	1.77
															2-hp Oversized Motor & Drive					

Continued

	1-hp Standard Motor & Drive										2-hp Oversized Motor & Drive									
1920	1034	1.05	1070	1.14	1105	1.24	1139	1.33	1171	1.42	1204	1.52	1234	1.62	1264	1.71	1292	1.81	1320	1.91
2160	1062	1.21	1098	1.30	1133	1.41	1166	1.51	1199	1.61	1229	1.71	1261	1.82	1290	1.93	1318	2.03	1346	2.14
2400	1093	1.40	1128	1.50	1161	1.60	1194	1.70	1227	1.81	1258	1.93	1288	2.04	1316	2.15	1346	2.27	—	—
2640	1127	1.62	1161	1.72	1193	1.82	1225	1.93	1255	2.04	1287	2.16	1315	2.27	1345	—	—	—	—	—
2880	1163	1.87	1196	1.98	1227	2.09	1257	2.20	—	—	—	—	—	—	—	—	—	—	—	—

Notes:
1. For Standard Evaporator Fan Speed (rpm), reference Table 4, p. 12.
2. Data includes pressure drop due to standard filters and wet coils.
3. Refer to Table 8, p. 12 to determine additional static pressure drop due to other options/accessories.
4. 1-HP Fan Motor Heat (MBH) = 2.829xFan BHP+.4024. 2-HP Fan Motor Heat (MBH) = 3.000xFan BHP+.5000.
5. Factory supplied motors, in equipment, are definite purpose motors, specifically designed and tested to operate at all cataloged conditions.Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.

(a) Field Supplied Fan Sheave AK79 and Belt AX38 required.

Performance Data

Table 4. Standard motor & sheave/fan speed (rpm)

Tons	Unit Model Number	Fan Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
6	WSC072E	AK59x1”	N/A	805	865	925	985	1045	1105

Note: Factory set at 3 turns open.

Table 5. Standard motor & low static drive accessory sheave/fan speed (rpm)

Tons	Unit Model Number	Fan Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
6	WSC072E	AK79x1"	N/A	581	626	671	716	761	805

Note: Factory set at 3 turns open.

Table 6. Oversized motor & drive sheave/fan speed (rpm)

Tons	Unit Model Number	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
6	WSC072E	AK44x1"	N/A	1110	1183	1256	1329	1402

Notes: Factory set at 3 turns open.

Table 7. Outdoor sound power level - dB (ref. 10 - 12 W)

	Unit Model	Octave Center Frequency								Overall
Tons	Number	63	125	250	500	1000	2000	4000	8000	dBA
6	WSC072E	91	95	90	87	84	79	75	68	89

Note: Tests follow ARI270-95.

Table 8. Static pressure drop through accessories (inches water column) - 6 tons

						Economizer with OA/RA Dampers[a]				Electric Heater Accessory (kW)[b],[c]			
	Unit Model		Standard 2"	MERV 7 2"	MERV 13	100% OA	100% RA	100% OA	100% RA	5-6	9-18	23-36	54
Tons	Number	cfm	Filters[d]	Filter	Filter	Downflow		Horizontal					
6	WSC072E	1920	0.04	0.07	0.10	0.10	0.01	0.06	0.02	—	0.01	0.02	—
6	WSC072E	2400	0.06	0.09	0.13	0.11	0.02	0.08	0.02	—	0.02	0.03	—
6	WSC072E	2880	0.09	0.12	0.15	0.13	0.04	0.10	0.04	—	0.03	0.05	—

(a) OA = Outside Air and RA = Return Air.
(b) Nominal kW ratings at 240, 480, 600 volts.
(c) Electric heaters restricted on applications below 320 cfm/Ton.
(d) Tested with standard filters. Difference in pressure drop should be considered when utilizing optional 2” MERV 7 and MERV 13 filters.

Table 9. 6 ton air temperature rise across electric heaters (°F)

kW	Stages	6 Tons 2000 cfm[a] WSC072E3, E4, EW
9.0	1	14.2
18.0	1	28.5
27.0	2	42.7
36.0	2	56.9

Notes:
1. For minimum design airflow, see airflow performance table for each unit.
2. To calculate temp rise at different airflow, use the following formula:
   Temp. rise across Electric Heater = kWx3414/ 1.08xCFM.

(a) Minimum allowable airflow with a 36 kW heater for the WSC072E is 2400 cfm in the horizontal duct configuration.

Electrical Data

Table 10. Unit wiring - standard efficiency

Tons	Unit Model Number	Voltage Range	Standard Indoor Fan Motor[a]		Oversized Indoor Fan Motor	
			MCA	Max Fuse Size or Max Circuit Breaker	MCA	Max Fuse Size or Max Circuit Breaker
6	WSC072E3	187-253	36.3	50	37.6	60
6	WSC072E4	414-506	20.3	30	20.9	30
6	WSC072EW	517-633	12.4	20	13.3	20

(a) The standard motor for 3-phase, 6 ton model is a Belt Drive Motor.

Table 11. Unit wiring with electric heat (single point connection) - standard efficiency

Tons	Unit Model Number	Heater Model Number	Heater kW Rating[a]	Control Stages	Standard Indoor Motor		Oversized Indoor Motor	
					MCA	Max Fuse Size or Max Circuit Breaker	MCA	Max Fuse Size or Max Circuit Breaker
208/230 Volts Three Phase								
6	WSC072E3	BAYHTRW309A	6.8/9.0	1	59.8/63.4	70/80	61.1/64.7	70/80
6	WSC072E3	BAYHTRW318A	13.5/18.0	1	83.2/90.4	90/100	84.5/91.7	90/100
6	WSC072E3	BAYHTRW327A	20.3/27.0	2	106.7/117.6	110/125	108.0/118.9	110/125
6	WSC072E3	BAYHTRW336A	27.0/36.0	2	130.2/144.6	150/150	131.5/145.9	150/150
480 Volts Three Phase								
6	WSC072E4	BAYHTRW409A	9.0	1	33.8	40	34.4	40
6	WSC072E4	BAYHTRW418A	18.0	1	47.4	50	48.0	50
6	WSC072E4	BAYHTRW427A	27.0	2	60.9	70	61.5	70
6	WSC072E4	BAYHTRW436A	36.0	2	74.4	80	75.0	80
575 Volts Three Phase								
6	WSC072EW	BAYHTRWW18A	18.0	1	34.0	35	34.9	35
6	WSC072EW	BAYHTRWW27A	27.0	2	44.9	45	45.8	50
6	WSC072EW	BAYHTRWW36A	36.0	2	55.6	60	56.5	60

(a) The Standard Motor for the 3-phase models is a Belt Drive Motor.

Table 12. Electrical characteristics - compressor motor and condenser motor - 60 cycle - standard efficiency

Tons	Unit Model Number	Compressor Motors							Condenser Fan Motors					
							Amps[a]						Amps[a]	
		No.	Volts	Phase	hp[b]	rpm	RLA	LRA	No.	Volts	Phase	hp	FLA	LRA
6	WSC072E3	1	208-230		5.9	3500	22.4	149.0	1	208-230	1	0.70	3.3	9.5
6	WSC072E4	1	460		5.9	3500	12.8	100.0	1	460	1	0.70	1.8	5.5
6	WSC072EW	1	575		5.9	3500	7.7	54.0	1	575	1	0.70	1.3	3.2

(a) Amp draw for each motor; multiply value by number of motors to determine total amps.
(b) hp for each compressor.

Table 13. Electrical characteristics - standard evaporator fan motor - 60 cycle - direct or belt drive standard efficiency

	Unit Model	Direct or Belt					Amps	
Tons	Number	Drive	No.	Volts	Phase	hp	FLA	LRA
6	WSC072E3	Belt Drive	1	208-230	3	1.0	4.0-5.0	24.5
6	WSC072E4	Belt Drive	1	460	3	1.0	2.5	12.3
6	WSC072EW	Belt Drive	1	575	3	1.0	1.5	11.3

Table 14. Electrical characteristics - oversized evaporator fan motor - 60 cycle - belt drive - standard efficiency

	Unit Model	Direct or Belt					Amps	
Tons	Number	Drive	No.	Volts	Phase	hp	FLA	LRA
6	WSC072E3	Belt Drive	1	208-230	3	2.0	6.3-6.2	48.0
6	WSC072E4	Belt Drive	1	460	3	2.0	3.1	24.0
6	WSC072EW	Belt Drive	1	575	3	2.0	2.4	16.8

Pressure Curves

Figure 1. WSC072E, cooling cycle pressure curve

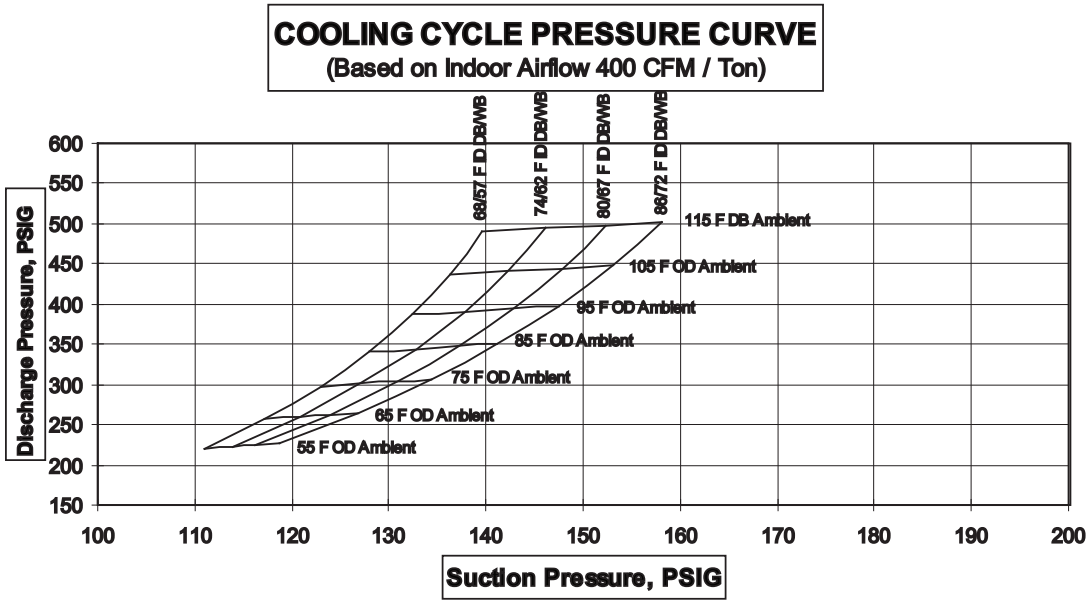


Figure 2. WSC072E, heating cycle pressure curve

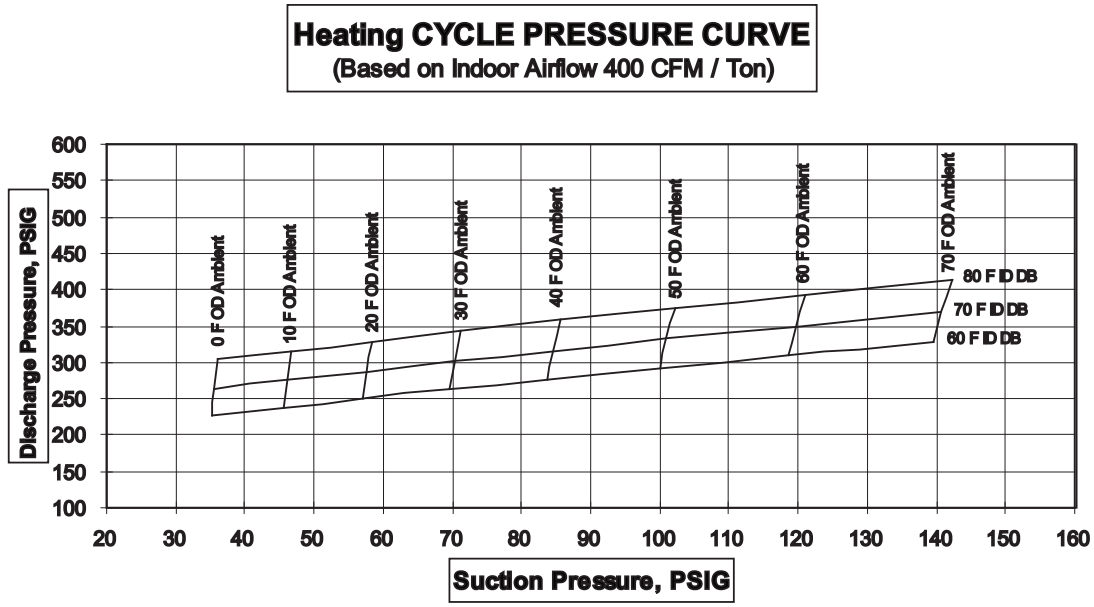
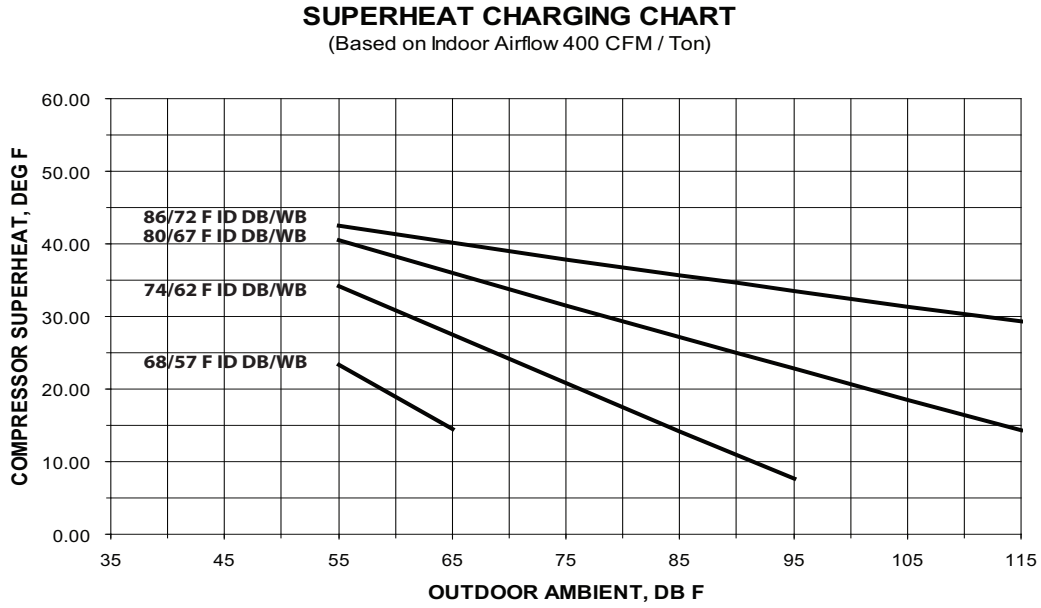


Figure 3. WSC072E - superheat charging chart



To Determine Required Superheat-
A) Plot the Outdoor Temperature onto the bottom axis of curve.
B) Move vertically to the appropriate indoor DB/WB temp. (or interpolate temp).
C) At the point of intersection, (OD & ID) read horizontally to the left for the required.

REFRIGERANT CHARGE:

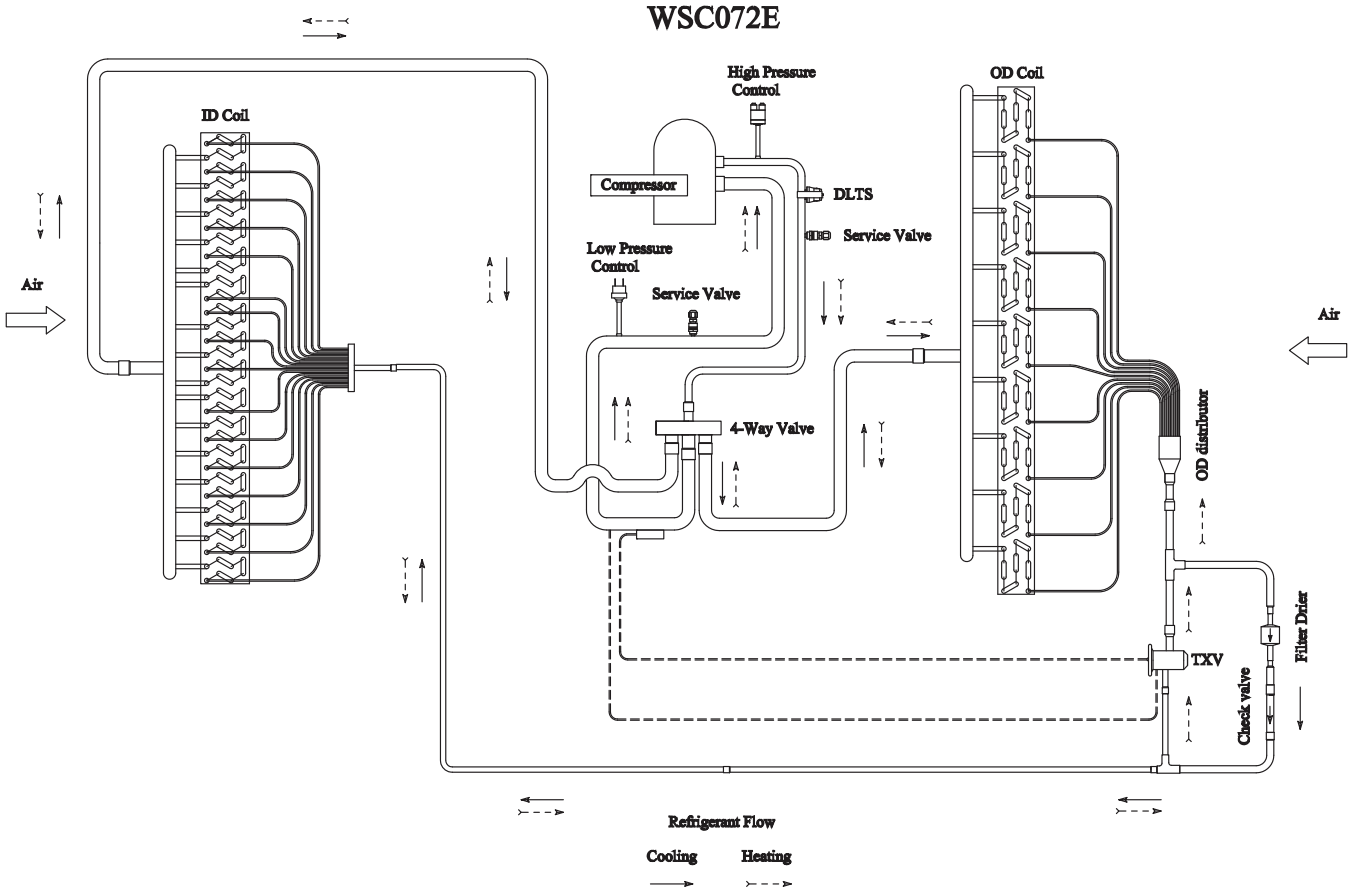
- ADD if the superheat is more than 5F above curve value.
- REDUCE if the superheat is more than 5F below curve value.
- OK if the superheat is within 5F of curve value.

Notes:

- *Do not add refrigerant if the superheat is less than 5F.*
- *Curves are based on 400CFM/Ton Indoor Airflow @ 50% R.H.*
- *System must be running at stabilized conditions before measuring superheat.*

Refrigerant Circuit

Figure 4. WSC072E



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