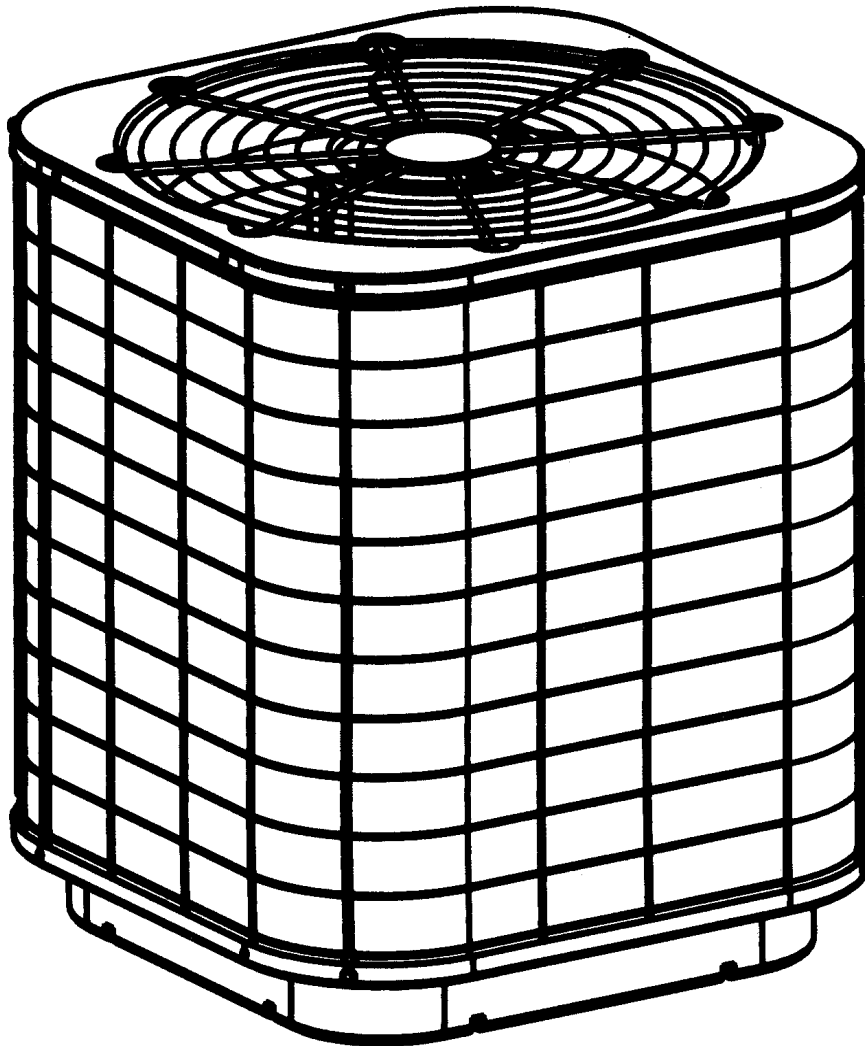


Outdoor Air Conditioner

User's Information and Installation Instructions

10 SEER Standard Efficiency Split System

These units have been designed and tested for capacity and efficiency in accordance with ARI Standards. Split System Air Conditioning units are designed for use with a wide variety of fossil fuel furnaces, electric furnaces, air handlers, and evaporator coil combinations.



These instructions are primarily intended to assist qualified individuals experienced in the proper installation of heating and/or air conditioning appliances. Some local codes require licensed installation/service personnel for this type of equipment. Read all instructions carefully before starting the installation.

USER'S INFORMATION

IMPORTANT

Read this owner information to become familiar with the capabilities and use of your appliance. Keep this with literature on other appliances where you have easy access to it in the future. If a problem occurs, check the instructions and follow recommendations given. If these suggestions don't eliminate your problem, call your servicing contractor

OPERATING INSTRUCTIONS

To Operate Your Air Conditioner for Cooling —

1. Set the thermostat system switch to COOL or AUTO and the thermostat fan switch to AUTO. (See Figure 1)
2. Set the thermostat temperature to the desired temperature level by pressing the WARMER or COOLER button. Please refer to the separate detailed thermostat user's manual for complete instructions regarding thermostat programming. The outdoor unit and indoor blower will both cycle on and off to maintain the indoor temperature at the desired cooling level.

To Operate Your Furnace for Heating —

1. Set the thermostat system switch to HEAT or AUTO and the thermostat fan switch to AUTO. (See Figure 1)
2. Set the thermostat temperature to the desired temperature level by pressing the WARMER or COOLER button. Please refer to the separate detailed user's manual for complete thermostat programming instructions. The furnace and indoor blower will cycle on and off to maintain the indoor temperature at the desired heating level.

To Shut Off Your Air Conditioner —

Set the thermostat system switch to OFF and the thermostat fan switch to AUTO. (See Figure 1)

The system will not operate, regardless of the thermostat temperature setting.

To Operate the Indoor Blower Continuously —

Set the thermostat fan switch to ON (See Figure 1)

The indoor blower will start immediately, and will run continually until the fan switch is reset to AUTO.

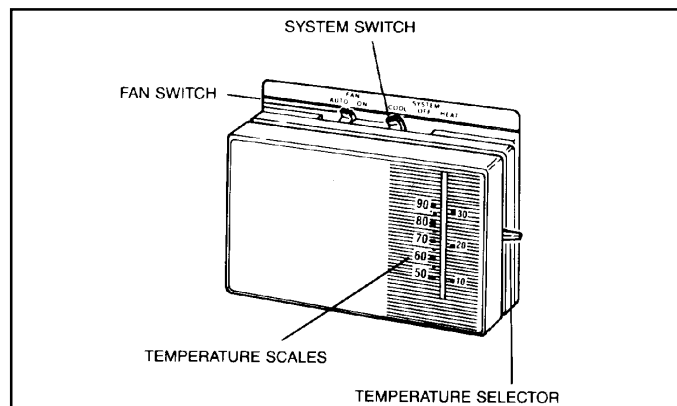


Figure 1. Typical Thermostat

The continuous indoor blower operation can be obtained with the thermostat system switch set in any position, including OFF.

The continuous indoor blower operation is typically used to circulate the indoor air to equalize a temperature unbalance due to a sun load, cooking, or fireplace operation.

To Maintain Your Air Conditioner —

⚠ CAUTION:

Be certain the electrical power to the outdoor unit and the furnace/air handler is disconnected before doing the following recommended maintenance.

1. **Regularly:**
 - a. Clean or replace the indoor air filter at the start of each heating and cooling season, and when an accumulation of dust and dirt is visible on the air filter.
 - b. Remove any leaves and grass clippings from the coil in the outdoor unit, being careful not to damage the aluminum fins.
 - c. Check for any obstruction, such as twigs, sticks, etc.

⚠ CAUTION:

Do not over-oil, or oil motors not factory-equipped with oil tubes. The compressor is hermetically "sealed" and does not require lubrication.

2. **Before Each Cooling Season:**

If the furnace/air handler blower motor and the outdoor unit fan motor(s) have oil tubes at the motor bearings, apply 10 drops of SAE No. 20 motor oil to each oil tube.

3. **Before Calling a Service Technician, Be Certain:**

- a. The unit thermostat is properly set — see "To Operate Your Air Conditioner for Cooling" and "To Operate Your Furnace for Heating."

- b. The unit disconnect fuses are in good condition, and the electrical power to the unit is turned on.

Read Your Warranty

Please read the separate warranty document completely. It contains valuable information about your system.

1. GENERAL INFORMATION

Read the following instructions completely before performing the installation.

Condensing Unit Section — Each condensing unit is shipped with a refrigerant charge adequate to operate the outdoor section with an indoor matching coil or air handler and 15 feet of refrigeration line.

NOTE: DO NOT USE ANY PORTION OF THE CHARGE FOR PURGING OR LEAK TESTING.

Matching coils and air handlers are shipped with a small holding charge to pressurize them to keep out contaminants. To release the pressure, read the indoor section of the installation instructions carefully.

Liquid and Suction Lines — Refrigerant grade copper tubing should be used when installing the system. Refrigerant suction line tubing should be fully insulated.

Field Connections for Electrical Power Supply — All wiring must comply with the current provisions of the “National Electrical Code” (ANSI C1.) and with applicable local codes having jurisdiction. Size of electrical conductors and circuit protection must be in compliance with the information listed on the outdoor unit data label.

2. SAFETY CONSIDERATIONS

Pressures Within the System — Split System Air Conditioning equipment contains liquid and gaseous refrigerant under pressure. Installation and servicing of this equipment should be accomplished by qualified, trained personnel thoroughly familiar with this type of equipment. Under no circumstances should the homeowner attempt to install and/or service the equipment without proper supervision from trained and qualified service personnel.

WARNING:

Ensure all electrical power to the unit is off prior to installing or servicing the equipment. Failure to do so may cause personal injury or death.

Labels, Tags, Precautions — When working with this equipment, follow all precautions in literature, on tags, and on labels provided with the equipment. Read and thoroughly understand the instructions provided with the equipment

prior to performing the installation and operational checkout of the equipment.

3. SITE PREPARATION

Unpacking Equipment — Remove the cardboard carton and Homeowner’s Package from the equipment.

Inspect for Damage — Inspect the equipment for damage prior to installing the equipment at the job site. Ensure coil fins are straight and, if necessary, comb fins to remove flattened and bent fins.

Preferred Location of the Outdoor Unit at the Job Site — Conduct a survey of the job site to determine the optimum location for mounting the outdoor unit. Overhead obstructions, poorly ventilated areas, and areas subject to accumulation of debris should be avoided. The outdoor unit should be installed no closer than 18 inches from the outside walls of the facility and in an area free from overhead obstructions to ensure unrestricted airflow through the outdoor unit.

Facility Prerequisites — Electrical power supplied must be adequate for proper operation of the equipment. The system must be wired and provided with circuit protection in accordance with local building codes and the National Electrical Code.

Minimum Circuit Ampacity — Electrical wiring to the equipment must be compatible and in compliance with the minimum circuit ampacity listed on the outdoor unit data label.

Maximum Fuse/Circuit Breaker Size — Circuit protection for the outdoor unit must be compatible with the maximum fuse/circuit breaker size listed on the outdoor unit data label.

4. INSTALLING THE OUTDOOR UNIT

Slab Mount — The site selected for a slab mount installation requires a stable foundation and one not subject to erosion. The slab should be level and anchored (if necessary) prior to placing the equipment on the slab.

Cantilever Mount — The cantilever mount should be designed with adequate safety factor to support the weight of the equipment, and for loads the mount is subjected to during operation. Installed equipment should be adequately secured to the cantilever mount and levelled prior to operation of the equipment.

Roof Mount — The method of mounting should be designed so as not to overload roof structures nor transmit noise to the interior of the structure. Refrigerant and electrical lines should be routed through suitably waterproofed openings to prevent water leaking into the structure.

5. INSTALLING THE INDOOR UNIT

The indoor section of the unit should be installed before proceeding with the routing of refrigerant piping. Consult the Installation Instructions of the indoor unit (i.e., air handler, fan coil unit, etc.) for details regarding installation.

6. CONNECTING REFRIGERANT TUBING BETWEEN THE INDOOR AND OUTDOOR UNIT

General Information — Once the outdoor and indoor unit placement has been determined, route the refrigerant tubing between the equipment in accordance with sound installation practices. Refrigerant tubing should be routed in a manner that minimizes the length of tubing and the number of bends in the tubing. Refrigerant tubing should be supported in a manner that the tubing will not vibrate or abrade during system operation. Tubing should be kept clean of foreign debris during installation and installation of a liquid line filter drier is recommended if cleanliness or adequacy of system evacuation is unknown or compromised. Every effort should be made by the installer to ensure that the field installed refrigerant containing components of the system have been installed in accordance with these instructions and sound installation practices so as to insure reliable system operation and longevity. The maximum recommended interconnecting refrigerant line length is 75 feet, and the vertical elevation difference between the indoor and outdoor sections should not exceed 20 feet.

Optional Equipment — Optional equipment (i.e.: filter/driers, liquid line solenoid valves, etc.) should be installed in strict accordance with the manufacturer's Installation Instructions.

For refrigerant line sets that incorporate single shot couplings only:

1. Remove protective caps from the unit and the refrigerant line couplings
2. Carefully wipe all coupling threads and seals with a clean cloth to remove any dust or foreign material which could contaminate the refrigerant system.
3. Using refrigerant oil, lightly lubricate the diaphragm, seal and threads on the male unit coupling.
4. Connect couplings as follows:
 - a. HOLD REFRIGERANT LINE IN STRAIGHT POSITION TO UNIT COUPLING AND THREAD COUPLING HALVES TOGETHER BY HAND TO INSURE PROPER CONNECTION. Hold body of the line coupling hex, with wrench, while slowly tightening the union nut until a definite resistance (bottoming out) is felt.
 - b. Mark the position of union nut (match lines on the line coupling and the unit bulk head), and then tighten the coupling an additional 1/4 turn to insure

leak-proof connection. (See Table of Torque Values for recommended torque values if a torque wrench is used.)

TABLE OF TORQUE VALUES

Coupling Size	Torque
3/8" (10 mm) Liquid Line Coupling	10 - 12 ft. lbs. (Metric: 14-16 N-m)
3/4" (19 mm) or 7/8" (22 mm) Vapor Line Coupling	34-45 ft. lbs. (Metric: 47-61 N-m)
Service Valve Cap	5-6 ft. lbs. (Metric: 7-8 N-m)

7. MAKING ELECTRICAL CONNECTIONS

WARNING:

Turn off all electrical power at the main circuit box before wiring electrical power to the outdoor unit. Failure to comply may cause severe personal injury or death.

Wiring Diagram/Schematic — A wiring diagram/schematic is located on the inside cover of the electrical box of the outdoor unit. The installer should become familiar with the wiring diagram/schematic before making any electrical connections to the outdoor unit.

Outdoor Unit Connections — The outdoor unit requires both power and control circuit electrical connections. Refer to the unit wiring diagram/schematic for identification and location of outdoor unit field wiring interfaces.

Control Circuit Wiring — The outdoor unit is designed to operate from a 24 VAC control circuit. Control circuit wiring must comply with the current provisions of the "National Electrical Code" (ANSI C1.) and with applicable local codes having jurisdiction.

Thermostat Connections — Thermostat connections should be made in accordance with the instructions supplied with the thermostat and with the instructions supplied with the indoor equipment.

Electrical Wiring — Electrical wiring must comply with the current provisions of the "National Electrical Code" (ANSI C1.) and with applicable local codes having jurisdiction. Use of rain tight conduit is recommended. Electrical conductors shall have a minimum circuit ampacity in compliance with the outdoor unit rating label. The facility shall employ electrical circuit protection at a current rating no greater than that indicated on the outdoor unit rating label.

Disconnect Switch—An electrically compatible disconnect switch must be within line of sight of the outdoor unit. This switch shall be capable of electrically de-energizing the outdoor unit.

Optional Equipment — Optional equipment requiring connection to the power or control circuits shall be wired in strict accordance with current provisions of the “National Electrical Code” (ANSI C1.), with applicable local codes having jurisdiction, and the Installation Instructions provided with the equipment. Optional Equipment (i.e., liquid line solenoid valves, hard start kits, low suction pressure cutout switch kit, high pressure cutout switch kit, refrigerant compressor crankcase heater, etc.) should be installed in strict accordance with the manufacturer’s Installation Instructions.

8. START-UP AND CHECKOUT

WARNING:

Ensure electrical power to the unit is off prior to performing the following steps. Failure to do so may cause personal injury or death.

Air Filters — Ensure air filters are clean and in place prior to operating the equipment.

Thermostat — Set the room thermostat function switch to OFF, fan switch to AUTO, and move the temperature set-point to it’s highest setting.

Prior to applying electrical power to the outdoor unit, ensure that the unit has been properly and securely grounded.

Prior to applying electricity to the outdoor unit, ensure power supply connections have been made at the facility power interface and at the outdoor unit.

Outdoor Unit — Ensure the outdoor coil and top of the unit are free from obstructions and debris, and all equipment access/control panels are in place.

Functional Checkout:

CAUTION:

If equipped with a refrigerant compressor crankcase heater, allow 24 hours prior to performing a function checkout to allow for heating of the refrigerant compressor crankcase. Failure to comply may result in damage and could cause premature failure of the system.

Indoor Blower — Set the thermostat function switch to “Cooling” and the fan switch to ON or MAN. Verify that the Indoor Blower is operating and that airflow is not restricted. Set the fan switch back to Auto.

Cooling— Gradually lower the thermostat temperature set-point below the actual room temperature and observe that the outdoor unit and indoor blower energize. Feel the air being circulated by the indoor blower and verify that it is cooler than ambient temperature. Listen for any unusual noises. If present, locate and determine the source of the noise and correct as necessary.

Optional Short Cycle Protection — With the system operating in “Cooling” mode, note the temperature setting of the thermostat, and gradually raise the set-point temperature until the outdoor unit and indoor blower de-energize. Immediately lower the set-point temperature of the thermostat to it’s original setting and verify that the indoor blower is energized and that the outdoor unit remains de-energized. Verify that, after approximately 5 minutes, the outdoor unit energizes and that the temperature of the air supplied to the facility is cooler than ambient temperature.

Heating — If provided with heating equipment, lower the thermostat temperature to the lowest obtainable setting and set the thermostat function switch to “Heating.” The indoor blower and outdoor unit should stop running. Increase the set-point temperature of the thermostat to the maximum setting. Verify that the heating equipment has been energized (i.e., fossil fuel burner operating, etc.) and that the indoor blower energizes after a short period of time. Feel the air being circulated by the indoor blower and verify that it is warmer than ambient temperature. Listen for any unusual noises. If present, locate and determine the source of the noise and correct as necessary.

Adjustment of Refrigerant Charge:

WARNING:

Split System Air Conditioning equipment contains liquid and gaseous refrigerant under pressure. Adjustment of refrigerant charge should only be attempted by qualified, trained personnel thoroughly familiar with the equipment. Under no circumstances should the homeowner attempt to install and/or service this equipment. Failure to comply with this warning could result in equipment damage, personal injury, or death.

NOTE: The Refrigerant Charging Charts are applicable to matched assemblies of our equipment and at listed airflows for the indoor coil. Assemblies of indoor coils and outdoor units not listed are not recommended and deviations from rated airflows or non-listed equipment combinations may require modifications to the expansion device(s) and refrigerant charging procedures for proper and efficient system operation.

**10 SEER SPLIT SYSTEM AIR CONDITIONER
ORIFICE USAGE**

MODEL NUMBER	RESTRICTOR	SYSTEM CHARGE
SINGLE PHASE	SIZE (IN.)	R-22 (OZ.)
1-1/2 Ton	0.053	62
2 Ton	0.060	72
2-1/2 Ton	0.067	76
3 Ton	0.073	90
3-1/2 Ton	0.077	102
4 Ton	0.082	105
5 Ton	0.093	130
THREE PHASE		
3 Ton	0.073	90
4 Ton	0.082	105
5 Ton	0.093	130

Refrigerant Charging Chart — Refer to Refrigerant Charging Charts for correct system charging and to Orifice Usage Chart for correct restrictor sizes.

Optional Equipment — A functional checkout should be performed in specific accordance with the checkout procedures supplied with the equipment.

**REFRIGERANT CHARGING CHARTS FOR
COOLING MODE OF OPERATION**

* Note: All pressures are listed in psig. and all temperatures in degrees F.



- Shaded Boxes indicate flooded conditions



- Rated Design Values. Suction Pressure will be lower than design value if indoor air flow, entering dry bulb, or entering wet bulb temperatures are lower than design.

- Discharge temperatures greater than charted values indicate a refrigerant undercharge.

1-1/2 TON	OUTDOOR TEMPERATURE (°F)															
	70		75		80		85		90		95		100		105	
Suc. Press.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.
67	169	137														
69	170	149	182	142												
71	172	160	184	152	196	147										
73	173	171	187	162	199	156	210	150								
75	173	193	189	172	202	164	213	158	224	154						
77			189	190	203	177	217	166	228	161	239	157				
79					205	189	219	177	232	168	243	163	253	160		
81							221	189	234	179	247	170	258	166	268	162
83									236	189	249	180	262	172	273	168
85											252	190	264	181	277	174
87											254	200	267	191	280	183
89													269	200	282	192
91															285	201
93																

REFRIGERANT CHARGING CHARTS FOR COOLING MODE OF OPERATION - Continued

2 TON		OUTDOOR TEMPERATURE (°F)															
		70		75		80		85		90		95		100		105	
Suc. Press.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	
67	180	141															
69	182	152	195	147													
71	183	163	197	157	210	152											
73	184	175	199	167	212	161	225	157									
75	184	196	201	177	215	170	228	165	240	162							
77			202	195	217	182	231	173	244	169	256	166					
79					219	195	233	184	248	176	260	172	272	170			
81							235	196	250	186	264	179	276	176	287	173	
83									252	197	266	189	280	182	292	179	
85											269	199	283	191	297	185	
87											271	209	285	201	299	194	
89													287	210	302	203	
91															304	212	
93																	

2-1/2 TON		OUTDOOR TEMPERATURE (°F)															
		70		75		80		85		90		95		100		105	
Suc. Press.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	
67	187	145															
69	189	157	201	151													
71	190	168	203	161	216	156											
73	191	180	206	171	219	164	231	160									
75	191	201	208	181	221	173	234	168	246	163							
77			208	199	223	185	237	176	249	171	261	167					
79					225	198	239	187	253	178	265	173	276	170			
81							241	198	255	188	269	180	281	176	292	173	
83									257	199	271	190	285	182	296	179	
85											274	200	287	192	301	184	
87											276	210	290	201	303	194	
89													292	210	306	202	
91															308	211	
93																	

3 TON		OUTDOOR TEMPERATURE (°F)															
		70		75		80		85		90		95		100		105	
Suc. Press.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	
68	181	148															
70	183	160	196	154													
72	184	171	198	164	211	159											
74	185	183	201	174	214	167	227	163									
76	185	204	203	184	217	176	230	171	243	166							
78			203	202	219	188	234	179	247	174	259	170					
80					220	201	236	190	250	181	263	176	275	173			
82							238	201	253	191	267	183	279	179	291	176	
84									255	202	269	193	284	185	296	182	
86											272	203	286	195	300	187	
88											274	213	288	204	303	197	
90													291	213	305	205	
92															308	214	
94																	

REFRIGERANT CHARGING CHARTS FOR COOLING MODE OF OPERATION - Continued

3-1/2 TON	OUTDOOR TEMPERATURE (°F)																
	70		75		80		85		90		95		100		105		
	Suc. Press.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.
67	180	158															
69	182	170	196	163													
71	183	181	198	173	212	168											
73	185	192	200	183	215	177	229	171									
75	185	214	203	193	218	185	232	179	245	175							
77			203	211	220	198	235	187	249	182	262	178					
79					221	210	237	198	253	189	266	184	279	181			
81							239	210	255	200	270	191	283	187	296	183	
83									257	210	272	201	287	193	300	189	
85											275	211	290	202	305	195	
87											277	221	292	212	307	204	
89													295	221	310	213	
91															312	222	
93																	

4 TON	OUTDOOR TEMPERATURE (°F)																
	70		75		80		85		90		95		100		105		
	Suc. Press.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.
67	180	153															
69	182	165	194	158													
71	183	176	196	168	209	162											
73	184	187	199	178	212	171	224	165									
75	184	209	201	188	214	180	227	173	239	168							
77			201	206	216	192	230	181	242	175	254	171					
79					218	204	232	192	246	183	258	177	269	173			
81							234	204	248	193	262	184	274	179	285	175	
83									250	204	264	194	278	185	289	181	
85											267	204	280	195	294	187	
87											269	214	283	204	296	196	
89													285	214	299	205	
91															301	214	
93																	

5 TON	OUTDOOR TEMPERATURE (°F)																
	70		75		80		85		90		95		100		105		
	Suc. Press.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.	Liquid Press.	Disch. Temp.
63	164	147															
65	166	159	180	153													
67	167	170	182	163	195	158											
69	169	182	184	173	198	166	211	162									
71	168	203	186	183	201	175	215	170	227	165							
73			187	201	203	187	218	178	231	173	244	169					
75					204	200	220	189	235	180	248	175	260	172			
77							222	200	237	190	252	182	265	178	277	175	
79									239	201	254	192	269	184	282	181	
81											257	202	271	194	286	186	
83											259	212	274	203	289	196	
85													276	212	291	204	
87															294	213	
89																	

**INSTALLER: PLEASE LEAVE THESE
INSTALLATION INSTRUCTIONS WITH
THE HOMEOWNER.**



707737A (Replaces 7077370)

Specifications and illustrations subject to change without notice and without incurring obligations.
Printed in U.S.A. (05/01)