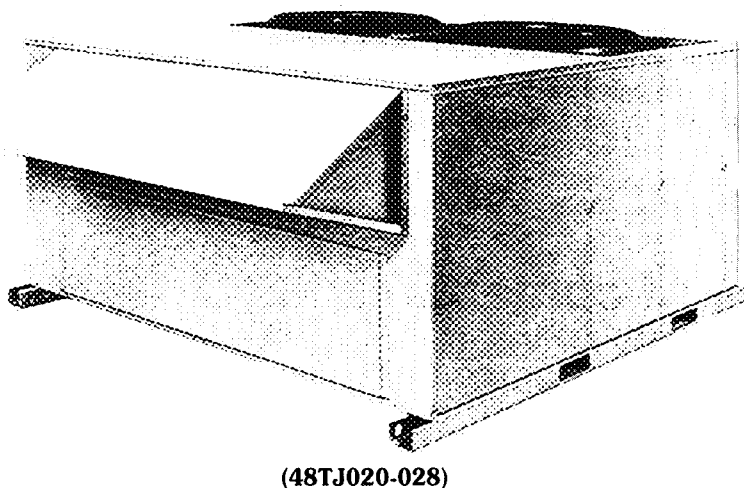
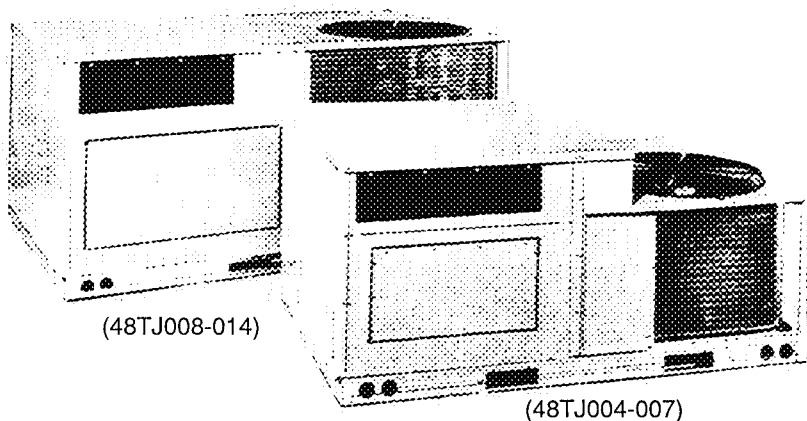




Product Data

48TJ004-028 Single-Package Rooftop Units Electric Cooling/Gas Heating

3 to 25 Nominal Tons



Single-Package Rooftop Units with:

- Alumagard™ heat exchanger coating
- Induced-draft fan
- Turbo-tubular™ heat exchangers
- Galvanized steel cabinet with Carrier Weather Armor® coating
- Return-air filters
- Commercial strength base rails (full perimeter on 004-014)
- Hinged filter access door (004-014)
- Corrosion-resistant sloped condensate pan
- Single power entry to unit
- Commercial duty motors with permanently lubricated bearings
- Standard cooling operation at outdoor ambient temperatures as low as 25 F
- Meets ASHRAE Standard 62

Features/Benefits

Compact, vertical discharge units convert to horizontal discharge (48TJ016-028 require accessory adapter curb), combining installation flexibility with efficient performance and easy maintenance.

Easy installation and conversion

All units are shipped in the vertical discharge configuration for fit-up to standard roof curbs. (Two different curb sizes fit unit sizes 004-007 and 008-014, respectively, and 2 curb sizes are offered for 016-028 units [one size for high-heat 024 and 028 units, and one size for all others]) The contractor can order and install the roof curb early in the construction stage, before decisions on size requirements are made

All units feature formed baserail design with forklift slots and rigging holes for easier maneuvering and 48TJ004-006 units have operating weights under 500 lb. Packaging protects the unit during shipment and storage.

The units can be easily converted from a vertical to a horizontal discharge configuration either by interchanging the panels supplied with the unit (004-014) or by using either of the horizontal supply/return adapter curb assemblies (016-028).

Convenient duct openings in the 48TJ016-028 unit basepans permit side-by-side or concentric duct connections (see Application data section) without requiring internal unit modification.

The new, sloped condensate pan on 004-014 units permits either an external side condensate drain (outside the roof curb) or an internal bottom drain (inside the roof curb). Both options require an external, field-supplied P-trap. Also, the new condenser coil grille (available on the 004-007 units as a field-installed accessory or a factory-installed option) provides a metal plate as an alternate location for the field-supplied disconnect, if desired.

The 48TJ units were designed with service technicians in mind. The single-row condenser coils on the 48TJ004-006 units simplify the cleaning process. The efficient in-shot burners and all ignition components are contained in an easily removable, compact assembly. In addition, the 48TJ004-014 units have an integrated gas unit controller board which simplifies troubleshooting through its built-in diagnostic function. The 48TJ004-014 units also have a standard filter access door, which permits tool-less filter changes, and provides an opening for outdoor-air accessories.

Simple electrical connections

Terminal boards, located in the base unit control box, facilitate connections to room thermostat, outdoor thermostat(s), and economizer. Service panels are quickly removed, permitting easy servicing.

Thru-the-curb service connections (standard on 48TJ016-028 units, accessory on 48TJ004-014 units) allow power and control wiring to be routed through the curb, minimizing roof penetrations. Both power and control connections are made on

the same side of the unit to simplify installation.

Proven compressor reliability

Design techniques feature computer-programmed balance between compressor, condenser, and evaporator. Carrier-specified hermetic (004-014, 020, and 024 units) and semi-hermetic (016 and 028 units) compressors are equipped with compressor overcurrent and overtemperature protection to ensure dependability. Crankcase heaters (016 and 028 units) prevent refrigerant dilution of oil during off cycles and ensure proper lubrication at start-up to prolong compressor life. Crankcase heaters are not necessary on 004-014 and 020, 024 units due to high-side crankcase design (007, 014, 020, 024) and low refrigerant charge levels (004-014). Carrier's exclusive Acutrol™ metering device precisely controls refrigerant flow, preventing slugging and flood-back, while maintaining optimum unit performance.

Durable, dependable construction

Produced for durability in any climate, the weather-resistant cabinets are designed with Carrier Weather Armor® coating. The cabinets are made of pre-painted, galvanized steel for long life and attractive appearance.

Integrated economizers and outdoor air

During a first stage call for cooling, if the outdoor-air temperature is below the control changeover set point, the discharge-air sensor modulates the economizer outdoor-air damper open to achieve the changeover set point. When second-stage cooling is called

for, the compressor is energized in addition to the economizer. If the outdoor-air temperature is above the changeover set point, the first stage of compression is activated and the economizer stays at vent position. Economizer operation is controlled by Accusensor™ I dry-bulb thermostat that senses outdoor-air temperature. Accessory upgrade kits include Accusensor II solid-stage enthalpy control and Accusensor III differential enthalpy control.

The Varislide™ type economizer on the 48TJ004-014 units has a reliable sliding plate damper which is easily adjusted for 100% outdoor air, 100% return air, or any proportions of mixed air.

For units without economizer, year-round ventilation is enhanced by a manual outdoor-air damper (ordered as standard on 48TJ016-028, ordered as an accessory on 48TJ004-014 units). The damper can be preset to admit up to 25% outdoor air.

Quiet, efficient operation and dependable performance

Compressors have vibration isolation for extremely quiet operation. Efficient fan and motor design permits operation at very low sound levels.

The 48TJ008-028 units offer high energy efficiency and lower utility costs through part-load operation using 2 stages of cooling.

Quiet and efficient operation is provided by belt-driven evaporator fans (standard on all units over 5 tons). The belt-driven evaporator-fan with variable-pitch pulleys allows adjustment to available static pressure to meet the job requirements of even the most demanding applications.

Table of contents

	Page
Features/Benefits	1-3
Model Number Nomenclature	3
ARI Capacity Ratings	4,5
Physical Data	6-11
Options and Accessories	12,13
Base Unit Dimensions	14-17
Accessory Dimensions	18-21
Selection Procedure	21
Performance Data	22-47
Electrical Data	48,49
Typical Piping and Wiring	50,51
Typical Wiring Schematics	52,53
Controls	54,55
Application Data	55,56
Guide Specifications	57-62

Increased operating efficiency is achieved through computer-designed coils featuring staggered copper tubes. Fins are ripple-edged for strength and double waved for higher heat transfer.

Turbo-tubular™ gas heat exchangers optimize heat transfer for improved efficiency. The tubular design permits hot gases to make multiple passes across the path of the supply air. In addition, turbulators inside the heat exchanger tube act as baffles, forcing the hot gases to stay in close contact with the cell walls and improving heat transfer. The extra thick Alumagard™ heat exchanger coating provides corrosion resistance and ensures long life.

The unsightly appearance of flue stacks is eliminated and the effects of winds on heating operations are diminished by the induced draft combustion system. The inducer fan draws hot combustion gas through the heat exchanger at the optimum rate for the

most effective heat transfer. The heat exchanger operates under negative pressure, preventing flue gas leakage into the indoor air.

During the heating mode, the evaporator-fan relay automatically starts the evaporator fan after the heat exchanger warms up. This prevents cold air from entering the supply duct system when the conditioned space is calling for heat.

On the 48TJ004-014 units, the direct-spark ignition system saves operating expense when compared to pilot ignition systems. No crossover tube is required, therefore no sooting or pilot fouling problems can occur.

All 48TJ standard units are designed for natural gas, but an accessory LP (liquid propane) conversion kit is available for the 48TJ004-014 units if required.

Safety is built in

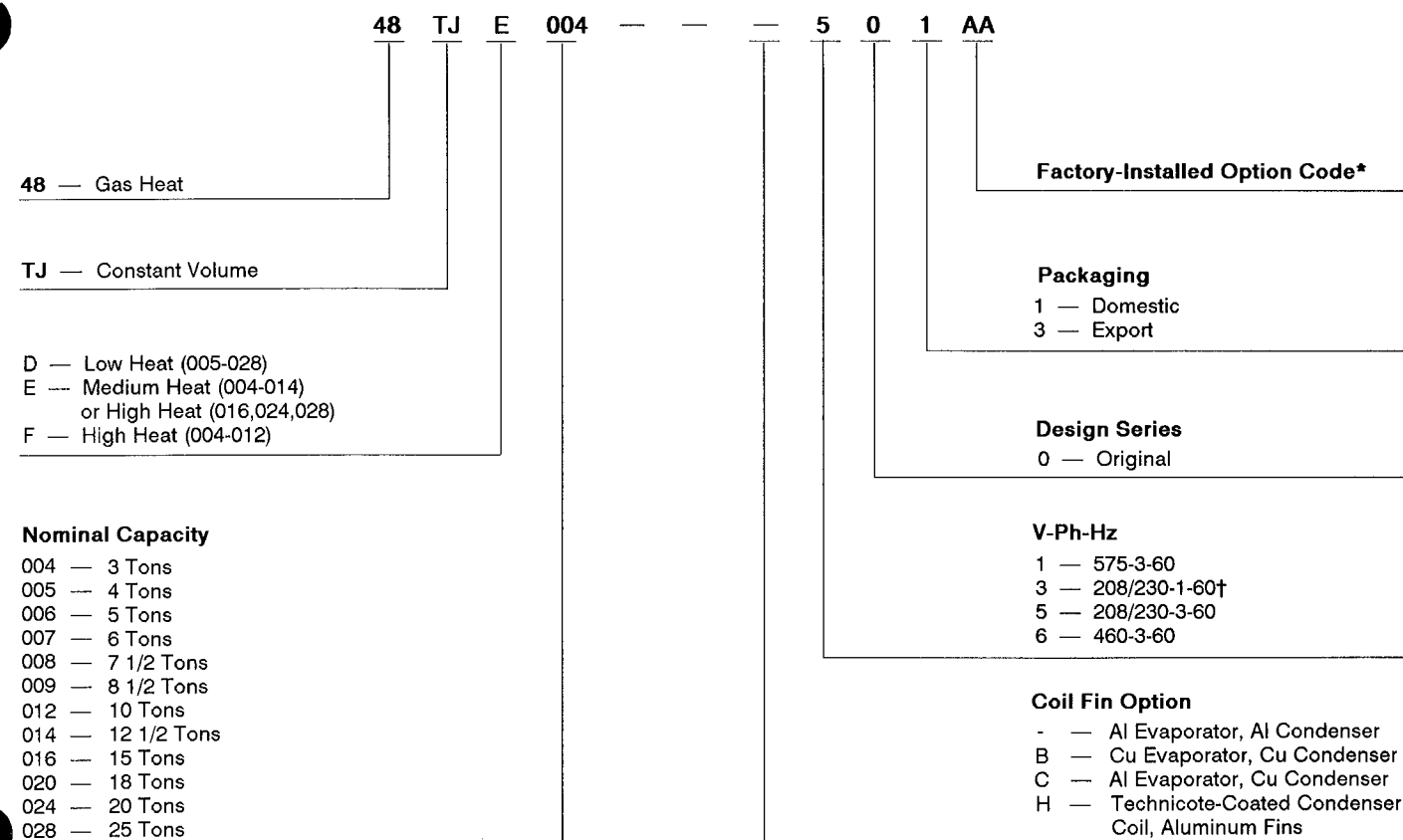
The 48TJ016-028 units have an intermittent pilot ignition. Runaway gas conditions are prevented and safe

operation is guaranteed. The pilot flame is proven at the burner farthest from the ignition source, instead of at the ignition source itself. The main gas valve will not open if the pilot flame malfunctions and fails to reach the sensor.

All 48TJ units have a flame rectification sensor to quickly sense the burner (48TJ004-014) or pilot (48TJ016-028) flame and ignite burners almost immediately. Fast shut-down is a certainty since the sensor reacts quickly to any flame outage or system failure.

Safety is also assured due to the heating safety controls which will shut down the unit if there is a problem. If excessive temperatures develop, limit switches shut off the gas valve. The rollout switch deenergizes the gas valve in the event of a flame rollout. On the 48TJ016-028 units, the pressure switch shuts down the main gas valve in case of insufficient combustion air.

Model number nomenclature



LEGEND

Al — Aluminum
Cu — Copper
FIOP — Factory-Installed Option

*Refer to 48TJ price pages for 48TJ FIOP code table
 †Single phase is available on 5-ton and smaller units

ARI capacity ratings



UNIT 48TJ	NOMINAL TONS	STANDARD CFM	NET COOLING CAPACITY (Btuh)	TOTAL kW	SEER*		EER	SOUND RATING (Bels)
					Belt Drive	Direct Drive		
004	3	1200	35,000	4.0	10.0	9.7	8.7	8.2
005	4	1600	47,000	5.5	10.0	9.7	8.6	8.2
006	5	2000	57,000	6.7	10.0	9.7	8.5	8.2

UNIT 48TJ	NOMINAL TONS	STANDARD CFM	NET COOLING CAPACITY (Btuh)	TOTAL kW	EER	SOUND RATING (Bels)	IPLV
007	6	2100	70,000	7.9	8.9	8.4	†
008	7½	3000	86,000	9.7	8.9	8.8	9.10
009	8½	3000	98,000	11.0	8.9	8.8	9.30
012	10	4000	117,000	13.1	8.9	8.8	9.00
014	12½	4500	142,000	16.5	8.6	8.8	8.85

UNIT 48TJ	NOMINAL TONS	NET COOLING CAPACITY (Btuh)	TOTAL kW	EER	IPLV
016	15	180,000	20.9	8.6	10.60
020	18	194,000	22.8	8.6	8.20
024	20	220,000	25.9	8.5	8.30
028	25	268,000	31.4	8.5	8.40

LEGEND

ARI — Air Conditioning and Refrigeration Institute
Bels — Sound Levels (1 bel = 10 decibels)
db — Dry Bulb
EER — Energy Efficiency Ratio
IPLV — Integrated Part-Load Values
SEER — Seasonal Energy Efficiency Ratio
Wb — Wet Bulb

*Applies only to units with capacity of 65,000 Btuh or less.

†The IPLV only applies to two-stage cooling units

NOTES:

1. Rated in accordance with ARI Standards 210/240-89 or 360-86 (for 014-028) and 270-84
2. The 48TJ028 is beyond the scope of the ARI certification program.
3. Ratings are net values, reflecting the effects of circulating fan heat.
4. Ratings are based on



Cooling Standard: 80 F db, 67 F wb indoor entering-air temperature and 95 F db air entering outdoor unit

IPLV Standard: 80 F db, 67 F wb indoor entering-air temperature and 80 F db outdoor entering-air temperature.



HEATING CAPACITIES AND EFFICIENCIES

UNIT 48	HEATING INPUT (Btuh) Stage 2/Stage 1	OUTPUT CAPACITY (Btuh)	TEMPERATURE RISE (F)	AFUE (%)	STEADY-STATE EFFICIENCY (%)	CALIFORNIA SEASONAL EFFICIENCY (%)
TJE004	74,000	59,200	25-55	80.0	80.0	77.2
TJF004	115,000/82,000	92,000	55-85	80.0	80.0	76.7
TJD005	74,000	59,200	25-55	80.0	80.0	77.2
TJE005	115,000	92,000	35-65	80.0	80.0	77.1
TJF005	150,000/120,000	120,000	50-80	80.0	80.0	76.9
TJD006	74,000	59,200	25-55	80.0	80.0	77.2
TJE006	115,000	92,000	35-65	80.0	80.0	77.1
TJF006	150,000/120,000	120,000	50-80	80.0	80.0	76.9
TJD007	74,000	59,200	25-55	80.0	80.0	77.2
TJE007	115,000	92,000	35-65	80.0	80.0	77.1
TJF007	150,000/120,000	120,000	50-80	80.0	80.0	76.9
TJD008	125,000	100,000	20-50	80.0	80.0	75.8
TJE008	180,000/120,000	144,000	35-65	80.0	80.0	77.1
TJF008	225,000/180,000	180,000	45-75	80.0	80.0	77.1
TJD009	125,000	100,000	20-50	80.0	80.0	75.8
TJE009	180,000/120,000	144,000	35-65	80.0	80.0	77.1
TJF009	225,000/180,000	180,000	45-75	80.0	80.0	77.1
TJD012	180,000/120,000	144,000	35-65	80.0	80.0	77.1
TJE012	225,000/180,000	180,000	35-65	80.0	80.0	77.1
TJF012	250,000/200,000	200,000	40-70	80.0	80.0	76.4
TJD014	225,000/180,000	180,000	35-65	80.0	80.0	77.1
TJE014	250,000/200,000	200,000	40-70	80.0	80.0	76.4

LEGEND

AFUE — Annual Fuel Utilization Efficiency

NOTE: NOx levels are 40 nanograms/joule with the accessory NOx reduction kit (004-014)

HEATING CAPACITIES AND EFFICIENCIES (cont)

UNIT 48	HEATING INPUT (Btuh) Stage 2/Stage 1*	OUTPUT CAPACITY (Btuh)	TEMPERATURE RISE (F)	STEADY-STATE EFFICIENCY (%)
TJD016	231,000/115,500	185,000	25-55	80.0
TJE016	270,000/115,500	216,000	25-55	80.0
TJD020,024	270,000/115,500	216,000	15-45	80.0
TJE024	485,000/242,500	388,000	35-65	80.0
TJD028	270,000/115,500	216,000	15-45	80.0
TJE028	485,000/242,500	388,000	35-65	80.0

*All units are 2-stage heat.

Physical data — 48TJ004-007



UNIT SIZE		004E/F	005D/E/F	006D/E/F	007D/E/F
NOMINAL CAPACITY (tons)		3	4	5	6
OPERATING WEIGHT (lb)					
Unit					
AI/AI*		460	470	490	565
AI/Cu*		465	476	497	576
Cu/Cu*		468	482	505	587
Economizer		34	34	34	34
Roof Curb		115	115	115	115
COMPRESSOR		Hermetic			
Quantity		1	1	1	1
Oil (oz)		50	50	50	54
REFRIGERANT TYPE		R-22			
Operating Charge (lb-oz)					
Circuit 1		3-6	4-11	5-13	7-10
Circuit 2		—	—	—	—
CONDENSER COIL		Enhanced Copper Tubes, Aluminum Lanced Fins			
Rows...Fins/in.		1 17	1 17	1 17	2 17
Total Face Area (sq ft)		7.36	11.39	13.19	10.42
CONDENSER FAN		Propeller Type			
Nominal Cfm		3500	4000	4000	4000
Quantity...Diameter (in.)		1 ..22.0	1 22.0	1 ..22.0	1 22.0
Motor Hp...Rpm		1/4 ..1100	1/4 1100	1/4 1100	1/4 ..1100
Watts Input (Total)		325	325	325	325
EVAPORATOR COIL		Enhanced Copper Tubes, Aluminum Double-Wavy Fins, Acutrol™ Feed Device			
Rows...Fins/in.		2...15	2...15	3 15	4 15
Total Face Area (sq ft)		4 17	5.5	5 5	5 5
EVAPORATOR FAN		Centrifugal Type			
Quantity...Size (in.)		1 10 x 10	1 ..10 x 10	1 11 x 10	1 ..10 x 10
Type Drive		1 10 x 10	1 ..10 x 10	1 ..10 x 10	—
Type Drive	Std	Direct	Direct	Direct	Belt
	Alt	Belt	Belt	Belt	—
Nominal Cfm		1200	1600	2000	2400
Motor Hp		—	—	—	—
Maximum Continuous Bhp	Std	—	—	—	—
	Alt	—	—	—	—
Motor Frame Size		34	75	1 20	2 40
Motor Frame Size	Std	1 00	1 00	1 80	—
	Alt	48	48	48	56
Nominal Rpm High/Low	Std	48	48	48	—
	Alt	—	—	—	—
Fan Rpm Range		860/800	1075/970	1075/970	—
Fan Rpm Range	Std	—	—	—	—
	Alt	—	—	—	1070-1460
Motor Bearing Type		760-1000	835-1185	900-1300	—
Maximum Allowable Rpm		Ball	Ball	Ball	Ball
Motor Pulley Pitch Diameter Min/Max (in.)		2100	2100	2100	2100
Nominal Motor Shaft Diameter (in.)	Std	—	—	—	2 8/3 8
	Alt	1 9/2.9	1.9/2 9	2.4/3 4	—
Fan Pulley Pitch Diameter (in.)	Std	1/2	1/2	1/2	5/8
	Alt	1/2	1/2	1/2	—
Nominal Fan Shaft Diameter (in.)		—	—	—	4 5
Belt, Quantity...Type...Length (in.)	Std	4 5	4 0	4 5	—
	Alt	—	—	—	—
Pulley Center Line Distance (in.)		1...A . 34	1 ..A. 34	1 A. .34	1 A ..40
Speed Change per Full Turn of Movable Pulley Flange (rpm)	Std	—	—	—	—
	Alt	10.0-12.4	10.0-12.4	14.7-15 5	14.7-15 5
Movable Pulley Maximum Full Turns From Closed Position		—	—	—	80
Factory Setting	Std	48	70	80	—
	Alt	—	—	—	5
Factory Speed Setting (rpm)		5	5	5	3
Factory Speed Setting (rpm)	Std	—	—	—	—
	Alt	3	3	3	1225
Fan Shaft Diameter at Pulley (in.)		856	975	1060	—
		1/2	1/2	1/2	1/2

(Table continued on next page)

UNIT SIZE	004E/F	005D/E/F	006D/E/F	007D/E/F
FURNACE SECTION				
Rollout Switch Cutout Temp (F)	195	195	195	195
Burner Orifice Diameter (in. ...drill size)				
Natural Gas Std	113 33	113. 33/ 113. .33/ .129. 30	.113 33/ 113 33/ 129 30	113 33/ 113. 33/ 129 30
Liquid Propane Alt	089 43	.089. 43/.089 43/ 102. 38	.089.. 43/ 089 . 43/ 102.. 38	089 43/ 089 43/ 102...38
Pilot Orifice Diameter (Quantity) in. ...drill size				
Natural Gas Std	—	—	—	—
Liquid Propane Alt	—	—	—	—
Thermostat Heat Anticipator Setting (amps)				
208/230 v Stage 1	.14	14	14	14
Stage 2	.14	.14	14	14
460 v Stage 1	.14	14	.14	14
Stage 2	.14	14	14	14
Gas Input (Btuh) Stage 1	74,000/82,000	74,000/115,000/120,000	74,000/115,000/120,000	74,000/115,000/120,000
Stage 2	—/115,000	—/—/150,000	—/—/150,000	—/—/150,000
Efficiency (Steady State) (%)	80	80	80	80
Temperature Rise Range	25-55/55-85	25-55/35-65/50-80	25-55/35-65/50-80	25-55/35-65/50-80
Manifold Pressure (in. wg)				
Natural Gas Std	3 5	3 5	3 5	3 5
Liquid Propane Alt	3.5	3.5	3.5	3.5
Gas Valve Quantity	1	1	1	1
Field Gas Connection Size (in.)	1/2	1/2	1/2	1/2
HIGH-PRESSURE SWITCH (psig)†				
Standard Compressor		450 ± 50		500 ± 50
Internal Relief (Differential)				
Cutout		428		428
Reset (Auto.)		320		320
LOW-PRESSURE SWITCH (psig)†				
Cutout		7 ± 3		
Reset (Auto.)		22 ± 7		
FREEZE PROTECTION THERMOSTAT (F)†				
Opens		30 ± 5		
Closes		45 ± 5		
OUTDOOR-AIR INLET SCREENS				
Quantity...Size (in.)		Cleanable		
		1 20 x 24 x 1		
RETURN-AIR FILTERS				
Quantity...Size (in.)		Throwaway		
		2. 16 x 25 x 2		

LEGEND

Al — Aluminum
Bhp — Brake Horsepower
Cu — Copper

*Evaporator coil fin material/condenser coil fin material

†Requires an optional or accessory controls kit

**Weight of 14-in. roof curb.

††On 48TJ020-028 units, Circuit 1 consists of lower portion of condenser coil and lower portion of evaporator coil, and Circuit 2 is the upper portion of both coils

|| Rollout switch is manual reset.

¶The alternate motor is not available on 575-v units

***The 48TJ028 unit requires 2-in. industrial-grade filters capable of handling face velocities of up to 625 ft/min (such as American Air Filter no. 5700 or equivalent)

NOTE: The 48TJ004-014 units have a loss-of-charge/low-pressure switch (accessory) located in the liquid line. The 48TJ016-028 units have a low-pressure switch (standard) located in the suction line

Physical data — 48TJ008-014



UNIT SIZE		008D/E/F	009D/E/F	012D/E/F	014D/E
NOMINAL CAPACITY (tons)		7½	8½	10	12½
OPERATING WEIGHT (lb)					
Unit					
Al/Al*		870	880	1035	1050
Al/Cu*		881	896	1057	1077
Cu/Cu*		893	907	1080	1100
Economizer		44	44	44	44
Roof Curb		143	143	143	143
COMPRESSOR		Hermetic			
Quantity		2	2	2	2
Oil (oz)		50 ea	50 ea	50 ea	54 ea
REFRIGERANT TYPE		R-22			
Operating Charge (lb-oz)					
Circuit 1		7-0	7-0	9-7	9-13
Circuit 2		5-12	6-2	8-6	8-3
CONDENSER COIL		Enhanced Copper Tubes, Aluminum Lanced Fins			
Rows...Fins/in.		1 .17	2 .17	2 17	2 17
Total Face Area (sq ft)		20.50	14 25	19.86	25.00
CONDENSER FAN		Propeller Type			
Nominal Cfm		6500	6500	7000	7200
Quantity...Diameter (in.)		1 26	1 26	1 26	1...26
Motor Hp...Rpm		¾ 1100	¾ 1100	¾ 1100	¾ 1100
Watts Input (Total)		950	950	950	950
EVAPORATOR COIL		Enhanced Copper Tubes, Aluminum Double-Wavy Fins, Acutrol™ Feed Device			
Rows...Fins/in.		3 .15	3 15	3 15	4 .15
Total Face Area (sq ft)		8 0	8 0	10 0	11 1
EVAPORATOR FAN		Centrifugal Type			
Quantity...Size (in.)		1 15 x 15	1 15 x 15	1 15 x 15	1 .15 x 15
Alt		1 .15 x 15	—	1 15 x 15	1 .15 x 15
Type Drive		Std Belt	Belt	Belt	Belt
Alt		Belt	—	Belt	Belt
Nominal Cfm		3000	3400	4000	5000
Motor Hp		Std —	—	—	—
Alt		—	—	—	—
Maximum Continuous Bhp		Std 2 40	2 40	2 40	4.20
Alt		—	—	2.90	4.90
Motor Frame Size		Std 56	56	56	56
Alt		—	—	56	56
Nominal Rpm High/Low		—	—	—	—
Fan Rpm Range		Std 590-840	685-935	685-935	860-1080
Alt		685-935	—	835-1085	900-1260
Motor Bearing Type		Ball	Ball	Ball	Ball
Maximum Allowable Rpm		2100	2100	2100	2100
Motor Pulley Pitch Diameter Min/Max (in.)		Std 2 4/3 4	2 8/3 8	2 8/3 8	4 0/5 0
Alt		2 8/3 8	—	3 4/4 4	3 1/4 1
Nominal Motor Shaft Diameter (in.)		Std 5/8	5/8	5/8	5/8
Alt		—	—	7/8	7/8
Fan Pulley Pitch Diameter (in.)		Std 7 0	7 0	7.0	8 0
Alt		7 0	—	7.0	5 9
Nominal Fan Shaft Diameter (in.)		—	—	—	—
Belt, Quantity...Type...Length (in.)		Std 1 . A . 48	1 A .48	1 A . 51	1 .A 51
Alt		1 . A 51	—	1 A . 57	1 BX 46
Pulley Center Line Distance (in.)		Std 16 75-19.25	16 75-19 25	15 85-17 50	15 85-17 50
Alt		16.75-19 25	—	15 85-17 50	15 85-17 50
Speed Change per Full Turn of		Std 50	50	50	44
Movable Pulley Flange (rpm)		Alt 50	—	50	50
Movable Pulley Maximum Full Turns		Std 5	5	5	5
From Closed Position		Alt 5	—	5	6
Factory Setting		Std 5	5	5	5
Alt		5	—	5	6
Factory Speed Setting (rpm)		Std 590	685	685	860
Alt		685	—	835	900
Fan Shaft Diameter at Pulley (in.)		1	1	1	1

(Table continued on next page)

UNIT SIZE	008D/E/F	009D/E/F	012D/E/F	014D/E
FURNACE SECTION				
Rollout Switch Cutout Temp (F)	195	195	195	195
Burner Orifice Diameter (in. ...drill size)				
Natural Gas Std	120 31	120 31	120 31/120 ..31/ 129 30	120. 31/ 129 30
Liquid Propane Alt	096 41	096 ..41	096 41/ 096 41/ 102 .38	.096 41/.102...38
Pilot Orifice Diameter (Quantity) in. ...drill size				
Natural Gas Std	—	—	—	—
Liquid Propane Alt	—	—	—	—
Thermostat Heat Anticipator Setting (amps)				
208/230 v Stage 1	.14	.14	.14	.14
Stage 2	.20	.20	.20	.20
460 v Stage 1	.14	.14	.14	.14
Stage 2	.20	.20	.20	.20
Gas Input (Btuh) Stage 1	125,000/120,000/180,000	125,000/120,000/180,000	120,000/180,000/200,000	180,000/200,000
Stage 2	—/180,000/225,000	—/180,000/225,000	180,000/225,000/250,000	225,000/250,000
Efficiency (Steady State) (%)	80	80	80	80
Temperature Rise Range	20-50/35-65/45-75	20-50/35-65/45-75	35-65/35-65/40-70	35-65/40-70
Manifold Pressure (in. wg)				
Natural Gas Std	3.5	3.5	3 5	3 5
Liquid Propane Alt	3 5	3.5	3 5	3 5
Gas Valve Quantity	1	1	1	1
Field Gas Connection Size (in.)	1/2/3/4/3/4	1/2/3/4/3/4	3/4/3/4/3/4	3/4/3/4
HIGH-PRESSURE SWITCH (psig)†				
Standard Compressor Internal Relief (Differential)		450 ± 50		500 ± 50
Cutout		428		428
Reset (Auto.)		320		320
LOW-PRESSURE SWITCH (psig)†				
Cutout		7 ± 3		
Reset (Auto.)		22 ± 7		
FREEZE PROTECTION THERMOSTAT (F)†				
Opens		30 ± 5		
Closes		45 ± 5		
OUTDOOR-AIR INLET SCREENS				
Quantity...Size (in.)		Cleanable 1. 20 x 25 x 1 1 ..16 x 25 x 1		
RETURN-AIR FILTERS				
Quantity...Size (in.)	4.. 16 x 20 x 2	4 16 x 20 x 2	4 20 x 20 x 2	4...20 x 20 x 2

LEGEND

Al — Aluminum
Bhp — Brake Horsepower
Cu — Copper

*Evaporator coil fin material/condenser coil fin material

†Requires an optional or accessory controls kit

**Weight of 14-in. roof curb

††On 48TJ020-028 units, Circuit 1 consists of lower portion of condenser coil and lower portion of evaporator coil, and Circuit 2 is the upper portion of both coils

||Rollout switch is manual reset.

*The alternate motor is not available on 575-v units

***The 48TJ028 unit requires 2-in. industrial-grade filters capable of handling face velocities of up to 625 ft/min (such as American Air Filter no. 5700 or equivalent).

NOTE: The 48TJ004-014 units have a loss-of-charge/low-pressure switch (accessory) located in the liquid line. The 48TJ016-028 units have a low-pressure switch (standard) located in the suction line.

Physical data — 48TJ016-028



UNIT SIZE	016D/E		020D	024D/E	028D/E
	208/230,460 v	575 v			
NOMINAL CAPACITY (tons)	15		18	20	25
OPERATING WEIGHT (lb)					
Unit					
Al/Al*	1570/1590		1850	1850/2031	2234/2413
Al/Cu*	1650/1670		1980	1980/2161	2364/2543
Cu/Cu*	1730/1750		2090	2090/2271	2474/2653
Economizer	110		110	110	110
Roof Curb**	200		200	200/213	200/213
COMPRESSOR	Semi-Hermetic			Hermetic	Semi-Hermetic
Quantity	1		2	2	2
Oil (oz)	130		65 ea	65 ea	152 ea
REFRIGERANT TYPE	R-22				
Operating Charge (lb-oz)					
Circuit 1††	22 4		15-8	15-8	16-12
Circuit 2	—		15-8	15-8	15-12
CONDENSER COIL	Enhanced Copper Tubes, Aluminum Lanced or Copper Fins				
Rows...Fins/in.	3 13 6		4...15	4 15	4...15
Total Face Area (sq ft)	18 9		22.2	22 2	22 2
CONDENSER FAN	Propeller Type				
Nominal Cfm	12,000		14,200	14,200	14,200
Quantity...Diameter (in.)	2 26		2...30	2 ...30	2 30
Motor Hp...Rpm	1 . 1075		1 .1075	1...1075	1...1075
Watts Input (Total)	3550		3400	3400	3400
EVAPORATOR COIL	Copper Tubes, Aluminum or Copper Plate Fins				
Rows...Fins/in.	3.. 14.3		4 15	4 . 15	4.. 15
Total Face Area (sq ft)	16 5		17 9	17.9	17 9
EVAPORATOR FAN	Centrifugal Type				
Quantity...Size (in.)	2...10 x 10	2...10 x 10	2 .12 x 12	2 ..12 x 12	2. 12 x 12
Type Drive	Belt	Belt	Belt	Belt	Belt
Nominal Cfm	6000	6000	7200	8000	10,000
Motor Hp	3 7	3 0	5	7½	10
Maximum Continuous Bhp	4 25	3 45	5 90	8 7 [208/230,575 v]	10 2 [208/230,575 v]
Motor Frame Size	56H	56H	184T	9 5 [460 v]	11 8 [460 v]
Nominal Rpm High/Low	—	—	—	213T	215T
Fan Rpm Range	1194-1526	896-1161	1047-1251	1238-1494	1323-1579
Motor Bearing Type	Ball	Ball	Ball	Ball	Ball
Maximum Allowable Rpm	1550	1550	1550	1550	1550
Motor Pulley Pitch Diameter Min/Max (in.)	3.4/4 4	4 0/5 0	4 9/5.9	5 4/6.4	5.8/7 0
Nominal Motor Shaft Diameter (in.)	7/8	7/8	1 1/8	1 3/8	1 3/8
Fan Pulley Pitch Diameter (in.)	5.2	4 9	8.4	7 9	7 9
Nominal Fan Shaft Diameter (in.)	1 3/16	1 3/16	1 7/16	1 7/16	1 7/16
Belt, Quantity...Type...Length (in.)	1 ..AX .42	1 . BX 38	1 BX .50	1 BX ..50	1.. BX . 51
Pulley Center Line Distance (in.)	13 5-15 5	13 5-15 5	13 3-14 8	14 6-15.4	14 6-15 4
Speed Change per Full Turn of Movable Pulley Flange (rpm)	66	54	34	43	43
Movable Pulley Maximum Full Turns From Closed Position	5	5	6	6	6
Factory Setting	3.5	3 5	3	3	3
Factory Speed Setting (rpm)	1293	975	1149	1366	1451
Fan Shaft Diameter at Pulley (in.)	1 3/16	1 3/16	1 7/16	1 7/16	1 7/16

UNIT SIZE	016D/E	020D	024D/E	028D/E
FURNACE SECTION				
Rollout Switch Cutout Temp (F)¶	190	190	190	190
Burner Orifice Diameter (in. ...drill size)				
Natural Gas	Std 113 33	113. 33	113 33	.113 .33
Liquid Propane	Alt —	—	—	—
Pilot Orifice Diameter (Quantity) in. ...drill size				
Natural Gas	Std (1) .055. 54/ (1) .055. .54, (1) .041...59	(1) .055. 54 (1) .041. 59	(1) .055 . 54, (1) .041 . 59/ (2) .070.. 50	(1) .055 . 54, (1) .041 . 59/ (2) .070 . 50
Liquid Propane	Alt —	—	—	—
Thermostat Heat Anticipator Setting (amps)				
208/230 v Stage 1	.98	.98	.98	.98
Stage 2	.44	.44	.44	.44
460 v Stage 1	1.20	1.20	1.20	1.20
Stage 2	.44	.44	.44	.44
Gas Input (Btuh) Stage 1	115,500/115,500	115,500	115,500/242,500	115,500/242,500
Stage 2	231,000/270,000	270,000	270,000/485,000	270,000/485,000
Efficiency (Steady State) (%)	80	80	80	80
Temperature Rise Range	25-55/25-55	15-45	15-45/35-65	15-45/35-65
Manifold Pressure (in. wg)				
Natural Gas	Std 3.5	3.5	3.5	3.5
Liquid Propane	Alt —	—	—	—
Gas Valve Quantity	2	2	2	2
Field Gas Connection Size (in.)	¾	¾	¾	¾
HIGH-PRESSURE SWITCH (psig)				
Standard Compressor	—			
Internal Relief (Differential)				
Cutout	426			
Reset (Auto.)	320			
LOW-PRESSURE SWITCH (psig)				
Cutout	7			
Reset (Auto.)	22			
FREEZE PROTECTION THERMOSTAT (F)				
Opens	30 ± 5			
Closes	45 ± 5			
OUTDOOR-AIR INLET SCREENS				
Quantity...Size (in.)	Cleanable 2 20 x 25 x 1 1 20 x 20 x 1			
RETURN-AIR FILTERS				
Quantity...Size (in.)	Throwaway¶ 4 20 x 20 x 2 4.. 16 x 20 x 2			
	2 ..20 x 20 x 2			
	3 ..16 x 20 x 2			
	2 . 16 x 25 x 2			

LEGEND

Al — Aluminum
Bhp — Brake Horsepower
Cu — Copper

*Evaporator coil fin material/condenser coil fin material

†Requires an optional or accessory controls kit

**Weight of 14-in. roof curb

††On 48TJ020-028 units, Circuit 1 consists of lower portion of condenser coil and lower portion of evaporator coil, and Circuit 2 is the upper portion of both coils.

‡ Rollout switch is manual reset.

‡†The 48TJ028 unit requires 2-in. industrial-grade filters capable of handling face velocities of up to 625 ft/min (such as American Air Filter no. 5700 or equivalent)

NOTE: The 48TJ004-014 units have a loss-of-charge/low-pressure switch (accessory) located in the liquid line. The 48TJ016-028 units have a low-pressure switch (standard) located in the suction line.

Options and accessories



ITEM	OPTION*	ACCESSORY†
Integrated Economizer (Includes Hood for 004-014 Units)	X	X
Manual Outdoor-Air Damper (004-014)	X	X
Controls Upgrade Kit (004-014)	X	X
Condenser Coil Grille (004-014)	X	X
Alternate Drive (008)	X	
Alternate Motor and Drive (004-006, 012,014)	X	
Two-Position Damper		X
Barometric Relief Damper (016-028)		X
Roof Curbs (Vertical Discharge)		X
Horizontal Discharge Adapter Curbs (016-028)		X
Remote Control Panel		X
Thermostat and Subbase		X
Power Exhaust (016-028)		X
25 F Low-Ambient Kit (016,028)		X
Winter Start Time-Delay Relay (020-028)		X
Motormaster® Head Pressure Control (Speed Control) (004-007 and 016)		X
Motormaster II Head Pressure Control (Fan Cycling) (004-014)		X
Motormaster III Head Pressure Cocontrol (Speed Control) (020-028)		X
Time Guard® II Control Circuit		X
Thru-the-Curb Service Connections (004-014)		X
Electronic Programmable Thermostat		X
Accusensor™ II Enthalpy Control (004-014)		X
Accusensor III Enthalpy Sensor		X
Condenser Coil Hail Guard Assembly (004-014)		X
LP (Liquid Propane) Conversion Kit (004-014)		X
Flue Shield (004-014)		X
NO _x Reduction Kit (004-014)		X
Flue Discharge Deflector (004-014)		X
External 1-in. Filter Package (004-014)		X

*Factory installed

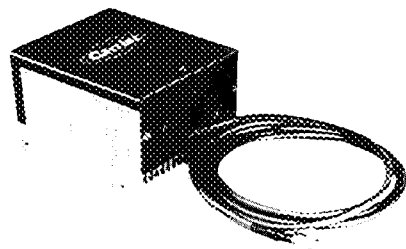
†Field installed

NOTES:

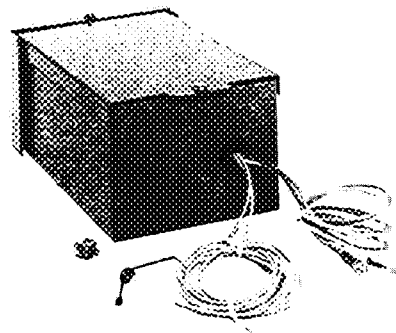
- 1 The manual outdoor-air damper is ordered as standard on 48TJ016-028 units without an economizer
- 2 Refer to 48/50TJ price pages for accessory/FIOP package information

HEAD PRESSURE CONTROL

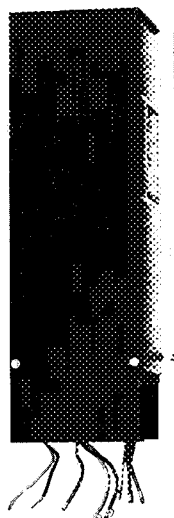
The 48TJ004-014, 020, and 024 standard units are designed to operate in cooling at outdoor temperatures down to 25 F, the standard 48TJ016 operates down to 40 F, and the standard 48TJ028 unit operates down to 48 F. With accessory Motormaster (48TJ004-007 and 016) control (condenser-fan speed modulation) or Motormaster II (48TJ004-014) control (condenser-fan cycling) or Motormaster III (48TJ020-028) control (condenser fan speed modulation) units can operate at outdoor temperatures down to -20 F*. The head pressure controls, which mount in the condenser section, control the condenser-fan motor to maintain correct condensing temperature.



Motormaster
(004-007 and
016)



Motormaster II
(004-014)

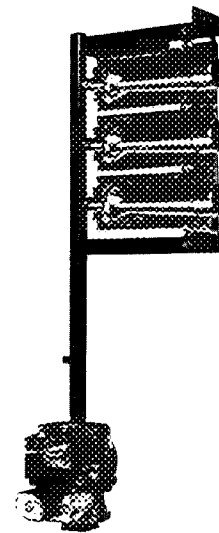


Motormaster III
(020-028)

TIME GUARD II CONTROL

Time Guard II control automatically prevents compressor from restarting for at least 5 minutes after a shutdown. Accessory prevents short cycling of compressor if thermostat is changed rapidly. Time Guard II control mounts in the control compartment of unit.

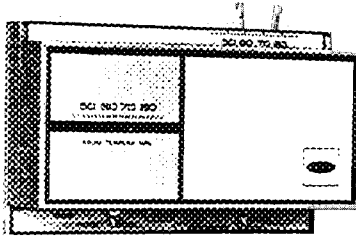
LIQUID PROPANE (LP) CONVERSION KIT (004-007 SHOWN)



The LP conversion kit allows the unit to utilize a liquid propane fuel supply in areas where natural gas is unavailable.

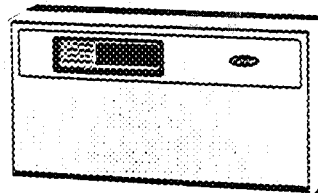
*48TJ016-028 units require both the accessory low-ambient kit and accessory Motormaster control to operate down to -20 F.

THERMOSTAT

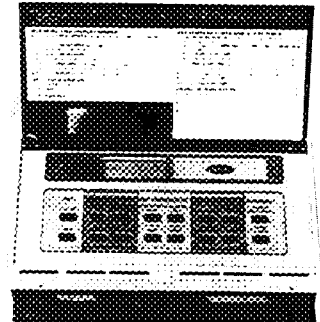


Zone thermostat (24 v) provides one- or 2-stage cooling for control of unit. Matching subbases are available with or without tamperproof switches and automatic changeover

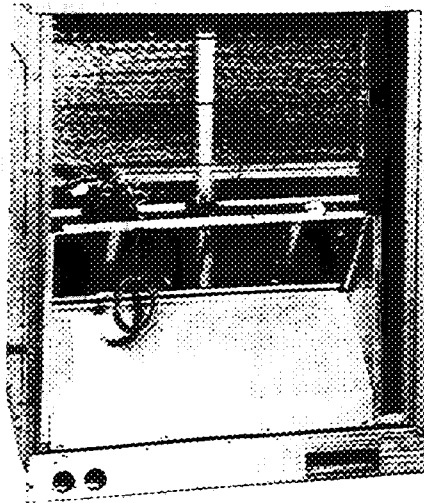
ELECTRONIC PROGRAMMABLE THERMOSTAT



Electronic programmable thermostat provides efficient temperature control by allowing you to program heating and cooling setbacks and setups with provisions for week-ends and holidays. Accessory remote sensing package is also available to provide tamperproof control in high traffic spaces



VARISLIDE™ ECONOMIZER (004-014)

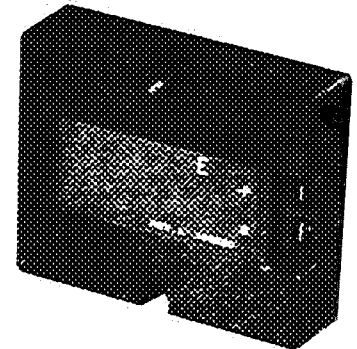


Exclusive Varislide economizer damper design saves energy while providing economical and reliable cooling. A sliding plate on the face of the economizer controls the amount of outdoor air entering the system. Closed, it provides a leakproof seal which prevents ambient air from seeping in or conditioned air from seeping out. It can be adjusted easily for 100% outdoor air or any proportions of mixed air. Like the base unit, the economizer is converted easily for horizontal discharge applications

ACCUSENSOR™ II (004-014 Only)



ACCUSENSOR™ III



Accusensor economizer controls help provide efficient, economical economizer operation. Accusensor II solid-state enthalpy control includes the logic and one sensor to calculate both dry- and wet-bulb of the outdoor air to provide an accurate enthalpy reading on 004-014 units. It then decides when to energize the economizer based on this reading. The 016-028 unit economizer provides the decision-making function internally, and requires one Accusensor III sensor for solid-state enthalpy control. Accusensor III differential enthalpy sensor compares outdoor temperature and humidity to return-air temperature and humidity and determines the most economical mixture of air (when purchased in addition to solid-state enthalpy control)

Carrier

	CONNECTION SIZES
A	1 1/16" Dia [27] Field Power Supply Hole
B	3/4"-14 NPT Condensate Drain
C	1/2"-14 NPT Gas Connection

7. Units may be installed on combustible floors made from wood or Class A, B, or C roof covering material if set on baserail



Base unit dimensions — 48TJ008-014



UNIT	STD. UNIT WEIGHT		ECONOMIZER WEIGHT		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		"H"		"J"		"K"		"L"	
	Lb	Kg	Lb	Kg	Lb	Kg	Lb	Kg	Lb	Kg	Lb	Kg	Ft-in	mm	Ft-in	mm	Ft-in	mm	Ft-in	mm
48TJF/TJE/TJD008	870	395	44	20	189	86	161	73	239	109	280	127	2-0 ¹¹ / ₁₆	632	3-5 ¹ / ₁₆	1050	2-9 ¹ / ₁₆	856	2- 2 ¹ / ₁₆	672
48TJF/TJE/TJD009	880	399	44	20	191	87	163	74	242	110	284	129	1-2 ¹ / ₁₆	378	3-5 ¹ / ₁₆	1050	2-9 ¹ / ₁₆	856	2- 2 ¹ / ₁₆	672
48TJF/TJE/TJD012	1035	469	44	20	225	102	192	87	285	129	333	151	1-2 ¹ / ₁₆	378	4-1 ¹ / ₁₆	1253	3-0 ³ / ₁₆	924	2-10 ¹ / ₁₆	875
48TJE/TJD014	1050	476	44	20	228	103	195	88	289	131	338	153	1-2 ¹ / ₁₆	378	4-1 ¹ / ₁₆	1253	3-0 ³ / ₁₆	924	2-10 ¹ / ₁₆	875

CONNECTION SIZES	
A	1 ³ / ₈ " Dia [35] Field Power Supply Hole
B	2-1 ¹ / ₂ " Dia [64] Power Supply Knock-Out
C	1 ³ / ₄ " Dia [44] Charging Port Hole
D	7 ¹ / ₈ " Dia [22] Field Control Wiring Hole
E	3 ⁴ / ₄ " — 14 NPT Condensate Drain
F	1 ¹ / ₂ " — 14 NPT Gas Connection 48TJD008,009 3 ⁴ / ₄ " — 14 NPT Gas Connection 48TJE/F008,009, 48TJD/E012,014, 48TJF012
G	2" Dia [51] Power Supply Knock-Out

NOTES:

1 Dimensions in [] are in millimeters

2 Center of gravity

3 Direction of airflow

4 On vertical discharge units, ductwork to be attached to accessory roof curb only. For horizontal discharge units field-supplied flanges should be attached to horizontal discharge openings, and all ductwork should be attached to the flanges.

5 Minimum clearance (local codes or jurisdiction may prevail):
a Between unit, flue side and combustible surfaces, 48 inches. (Minimum clearance to combustibles, flue side, is 18 in. for units with accessory flue discharge deflector.)

b Bottom of unit to combustible surfaces (when not using curb) 1 in. for all TJF and TJE014 units

Bottom of base rail to combustible surfaces (when not using curb) 0 in. for TJD, TJE units.

c Condenser coil, for proper airflow, 36 in. one side, 12 in. the other. The side getting the greater clearance is optional.

d Overhead, 60 in. to assure proper condenser fan operation.

e Between units, control box side, 42 in. per NEC (National Electrical Code)

f Between unit and ungrounded surfaces, control box side, 36 in. per NEC

g Between unit and block or concrete walls and other grounded surfaces, control box side, 42 in. per NEC

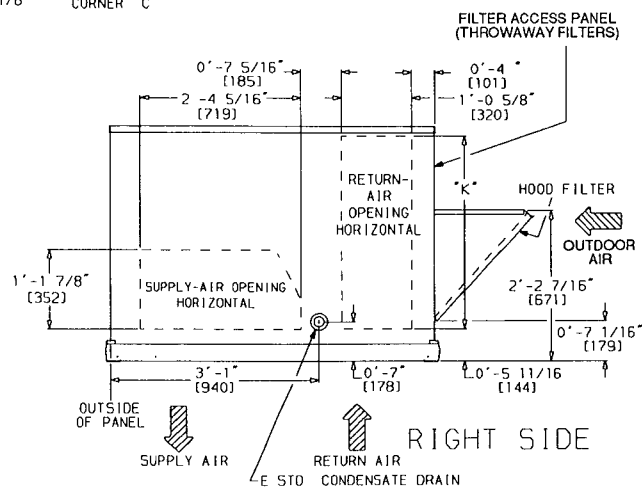
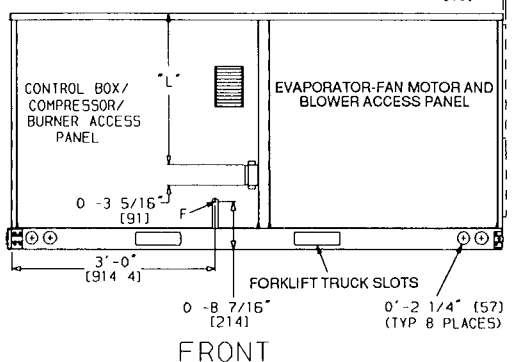
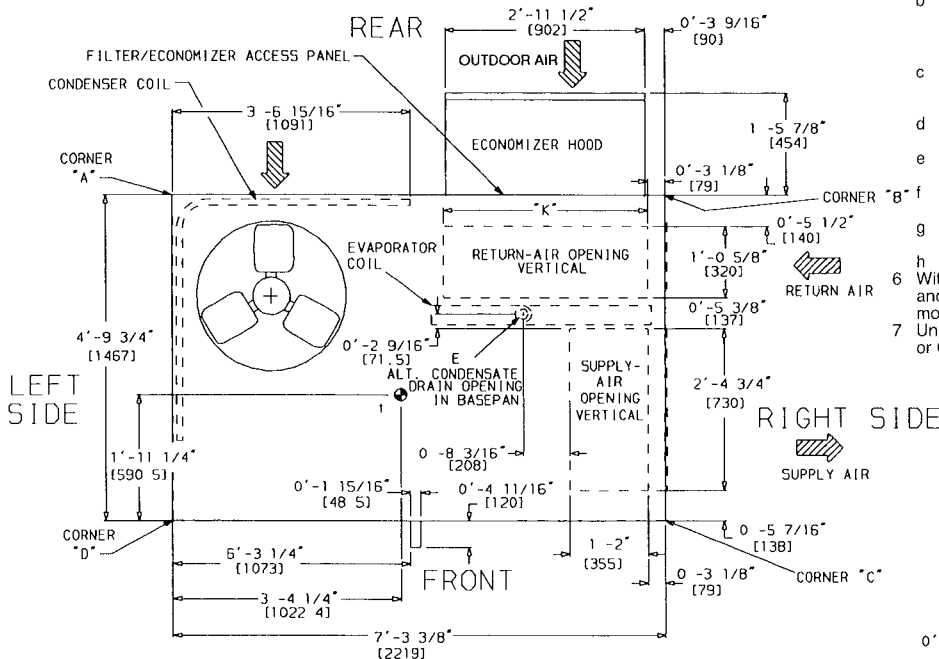
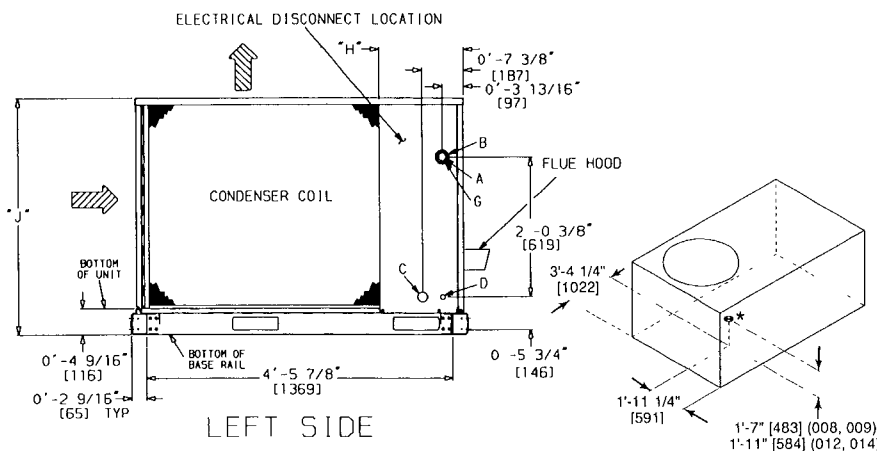
h Horizontal supply and return end, 0 inches

6 With the exception of the clearance for the condenser coil and combustion side as stated in Notes 5a, b, and c, a removable fence or barricade requires no clearance.

7 Units may be installed on combustible floors made from wood or Class A, B, or C roof covering material if set on base rail.

*Indicates vertical center of gravity

†Indicates horizontal center of gravity

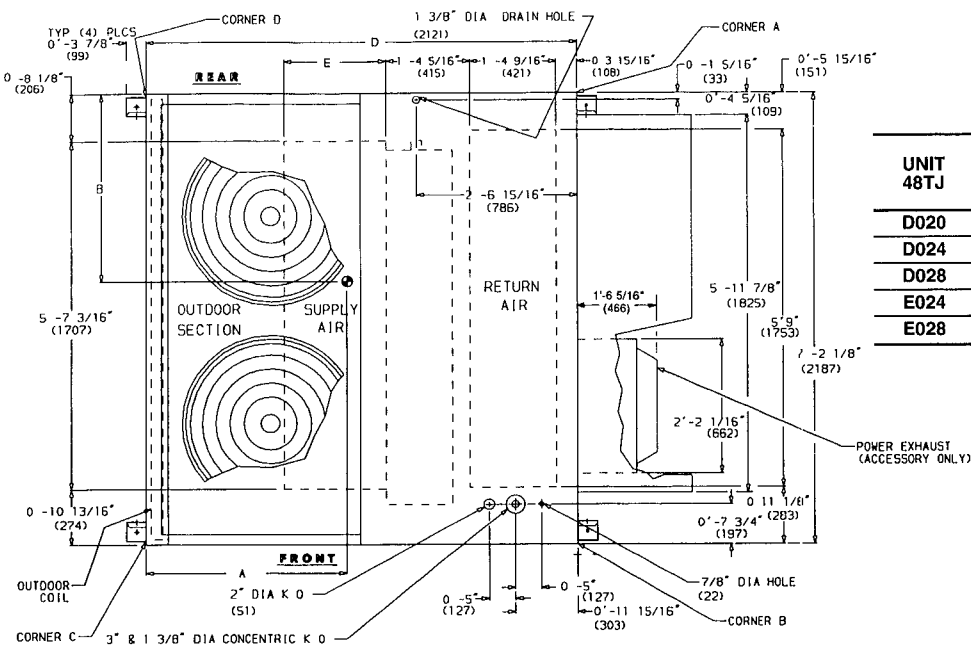


Base unit dimensions — 48TJ020-028

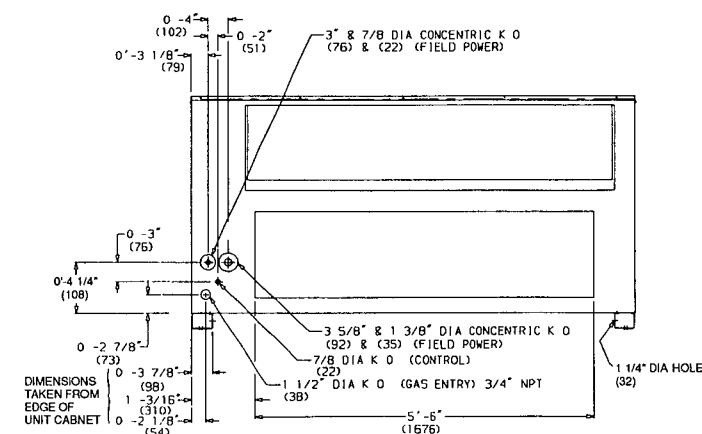
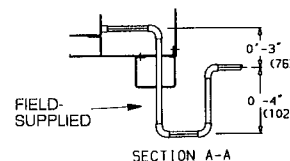
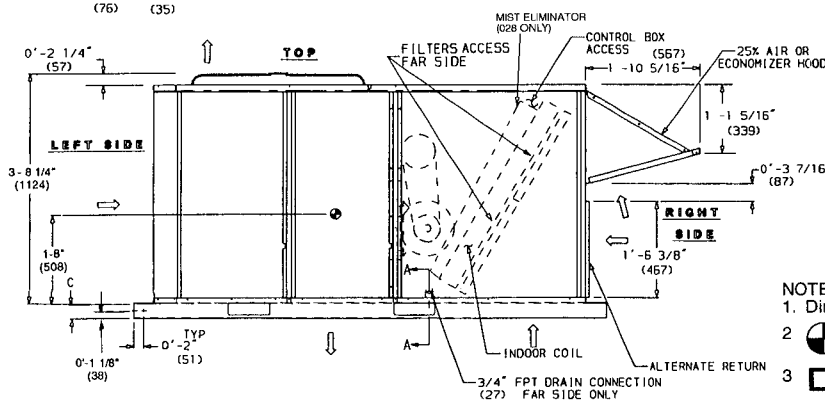


UNIT 48	CORNER WEIGHT*								DIMENSIONS									
	A		B		C		D		A		B		C		D		E	
	Lb	Kg	Lb	Kg	Lb	Kg	Lb	Kg	Ft.-in.	mm	Ft.-in.	mm	Ft.-in.	mm	Ft.-in.	mm	Ft.-in.	mm
TJD020	495	225	483	219	362	164	511	232	3-3	991	3-7	1092	0-3	76	6-11 1/2	2121	1-7 13/16	504
TJD024	495	225	483	219	362	164	511	232	3-3	991	3-7	1092	0-3	76	6-11 1/2	2121	1-7 13/16	504
TJE024	431	196	421	191	494	224	685	311	4-2	1270	3-4	1016	0-4 1/2	114	8- 7 1/4	2623	3-3 5/8	1006
TJD028	523	237	541	245	574	260	596	270	3-3	991	3-7	1092	0-3	76	6-11 1/2	2121	1-7 13/16	504
TJE028	465	211	486	220	725	329	737	334	4-2	1270	3-5	1041	0-4 1/2	114	8- 7 1/4	2623	3-3 5/8	1006

*Weights are for unit only and do not include options or crating



UNIT 48TJ	MAXIMUM SHIPPING WEIGHT	
	Lb	Kg
D020	2131	967
D024	2131	967
D028	2514	1140
E024	2441	1094
E028	2793	1267



NOTES:

- Dimensions in () are in millimeters
- Center of gravity
- Direction of airflow
- Ductwork to be attached to accessory roof curb only
- Minimum clearance:
 - Rear: 7'0" (2134) for coil removal. This dimension can be reduced to 4'0" (1219) if conditions permit coil removal from the top.
 - 4'0" (1219) to combustible surfaces, all four sides (includes between units).
 - Left side: 4'0" (1219) for proper condenser coil airflow
 - Front: 4'0" (1219) for control box access
 - Right side: 4'0" (1219) for proper operation of damper and power exhaust (if so equipped)
 - Top: 6'0" (1829) to assure proper condenser fan operation
 - Bottom: 14" (356) to combustible surfaces (when not using curb)
 - Control box side: 3'0" (914) to ungrounded surfaces (non-combustible)
 - Control box side: 3'6" (1067) to block or concrete walls, or other grounded surfaces
 - Local codes or jurisdiction may prevail
- With the exception of clearance for the condenser coil and the damper/power exhaust as stated in Note No 5, a removable fence or barricade requires no clearance
- Dimensions are from outside of corner post. Allow 0\"/>

Accessory dimensions



ROOF CURB – 48TJ004-007

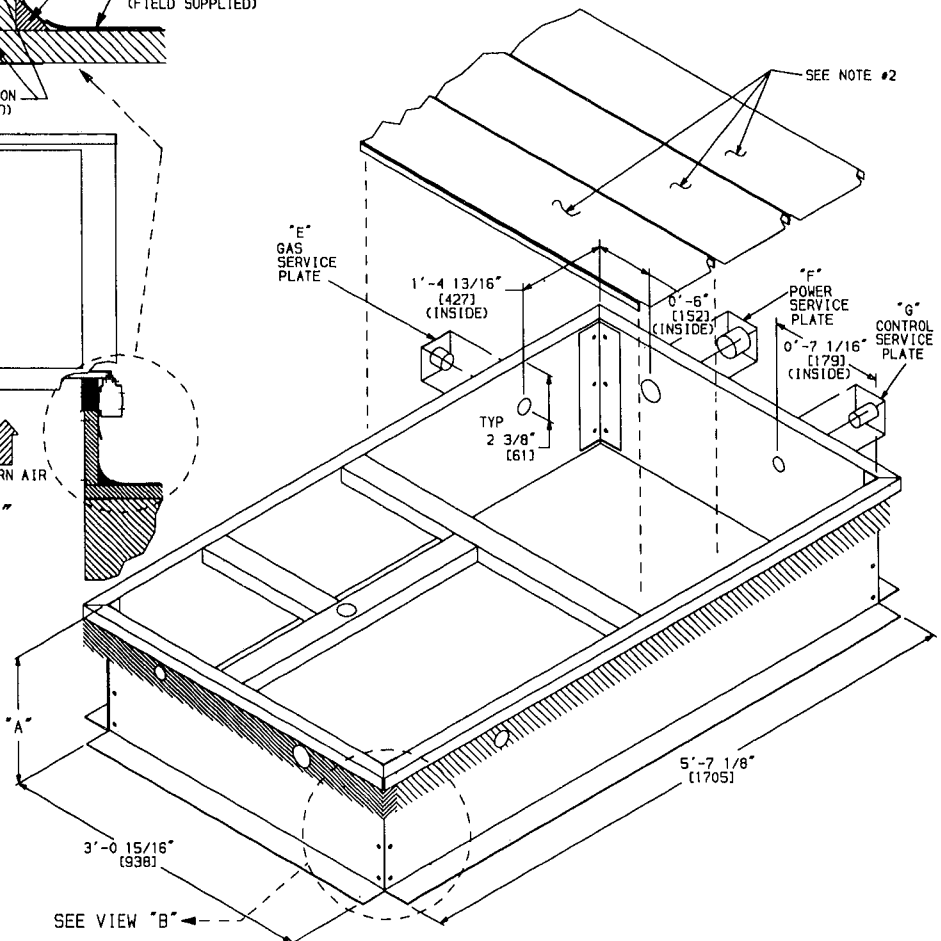
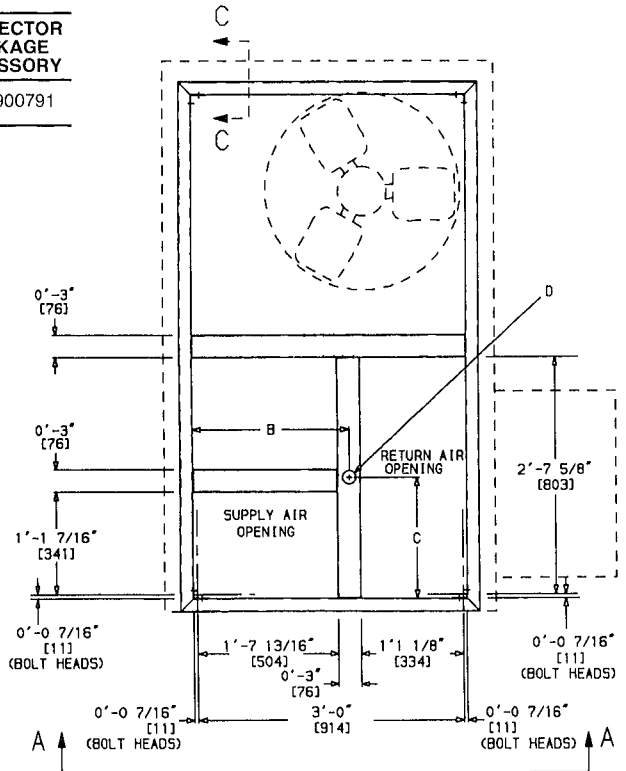
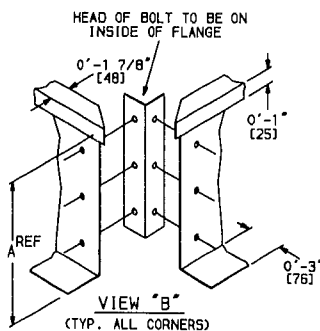
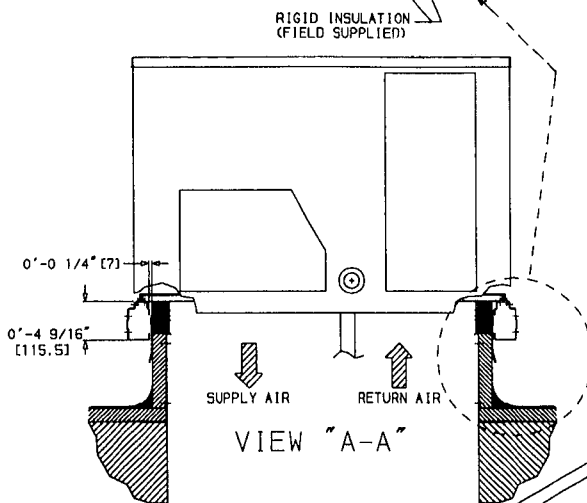
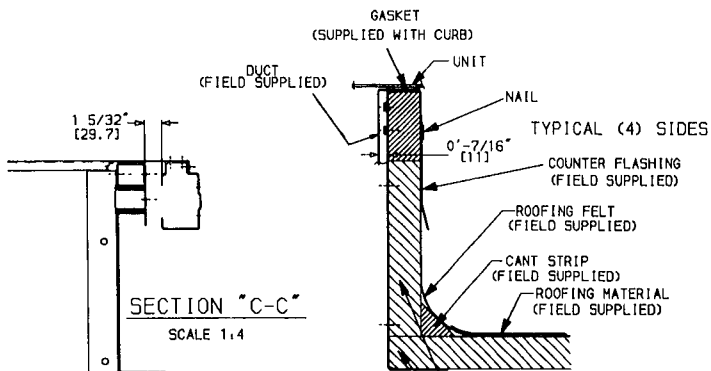
Service Plate Sizes

UNIT SIZE	B	C	D ALT DRAIN HOLE	"E" GAS	"F" POWER	"G" CONTROL	CONNECTOR PACKAGE ACCESSORY
48TJ004-007	1'-9 11/16" [551]	1'-4" [406]	1 3/4" [44.5]	3/4" NPT	3/4" NPT	3/4" NPT	50DJ900791

ROOF CURB ACCESSORY	"A"	UNIT SIZE
50DJ900771	1'-2" [356]	48TJ004-007

NOTES:

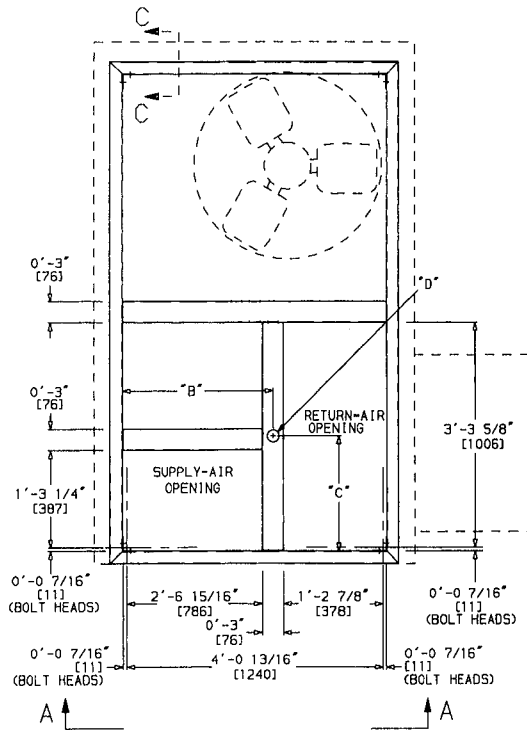
- 1 Roof curb accessory is shipped unassembled
- 2 Insulated panels
- 3 Dimensions in [] are in millimeters
- 4 Roof Curb: galvanized steel
- 5 Attach ductwork to curb (Flanges of duct rest on curb)
- 6 Service clearance is 4 ft on each side
- 7 Direction of airflow



ROOF CURB – 48TJ008-014

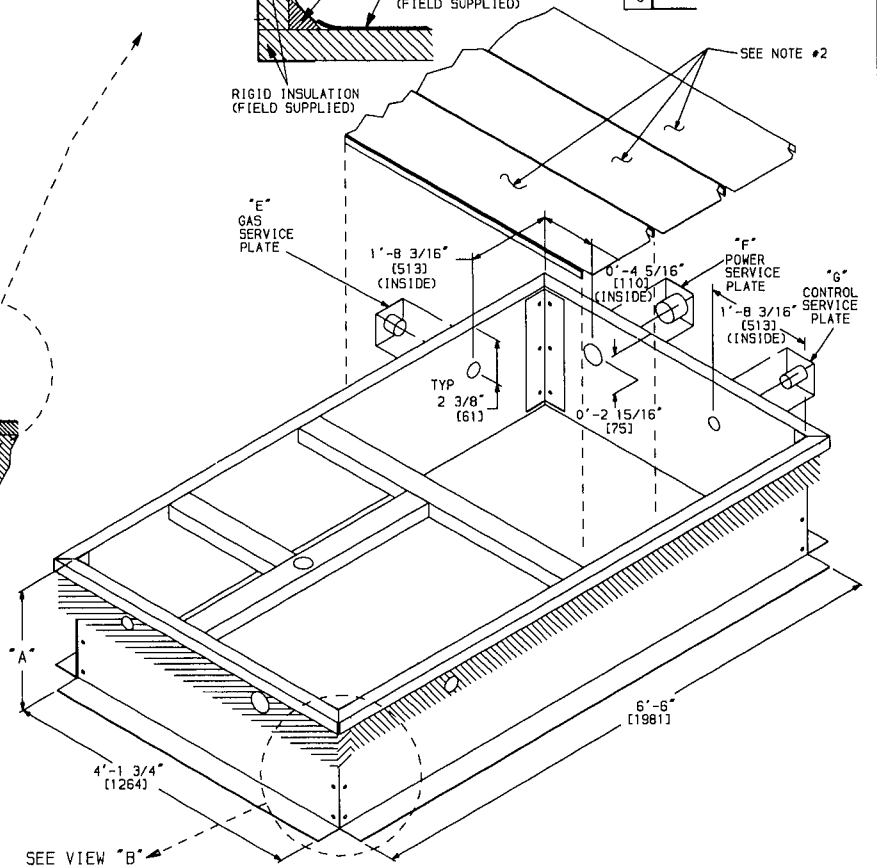
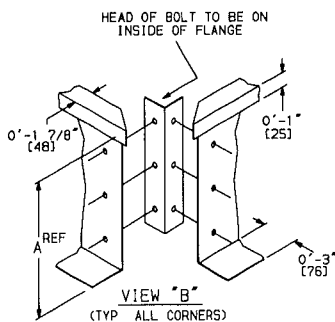
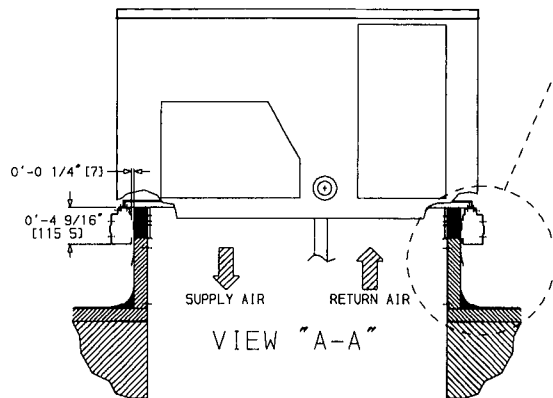
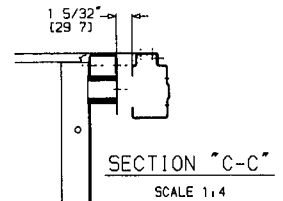
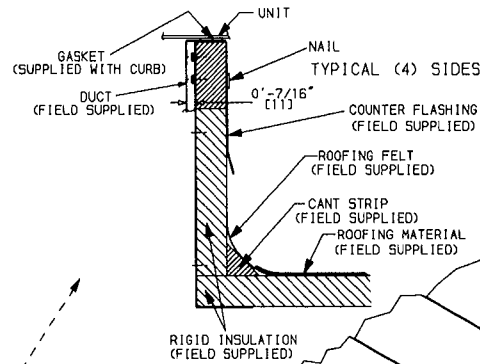
ROOF CURB ACCESSORY	A	UNIT SIZE
50DJ901371	1'-2" [356]	48TJ008-014
50DJ901381	2'-0" [610]	

SERVICE PLATE SIZES							
UNIT SIZE	"B"	"C"	"D" ALT DRAIN HOLE	"E" GAS	"F" POWER	"G" CONTROL	CONNECTOR PACKAGE ACCESSORY
48TJ008-014	2'-8 7/16" [827]	1'-10 15/16" [583]	1 3/4" [44.5]	3/4" NPT	1" NPT	3/4" NPT	50DJ901551



NOTES:

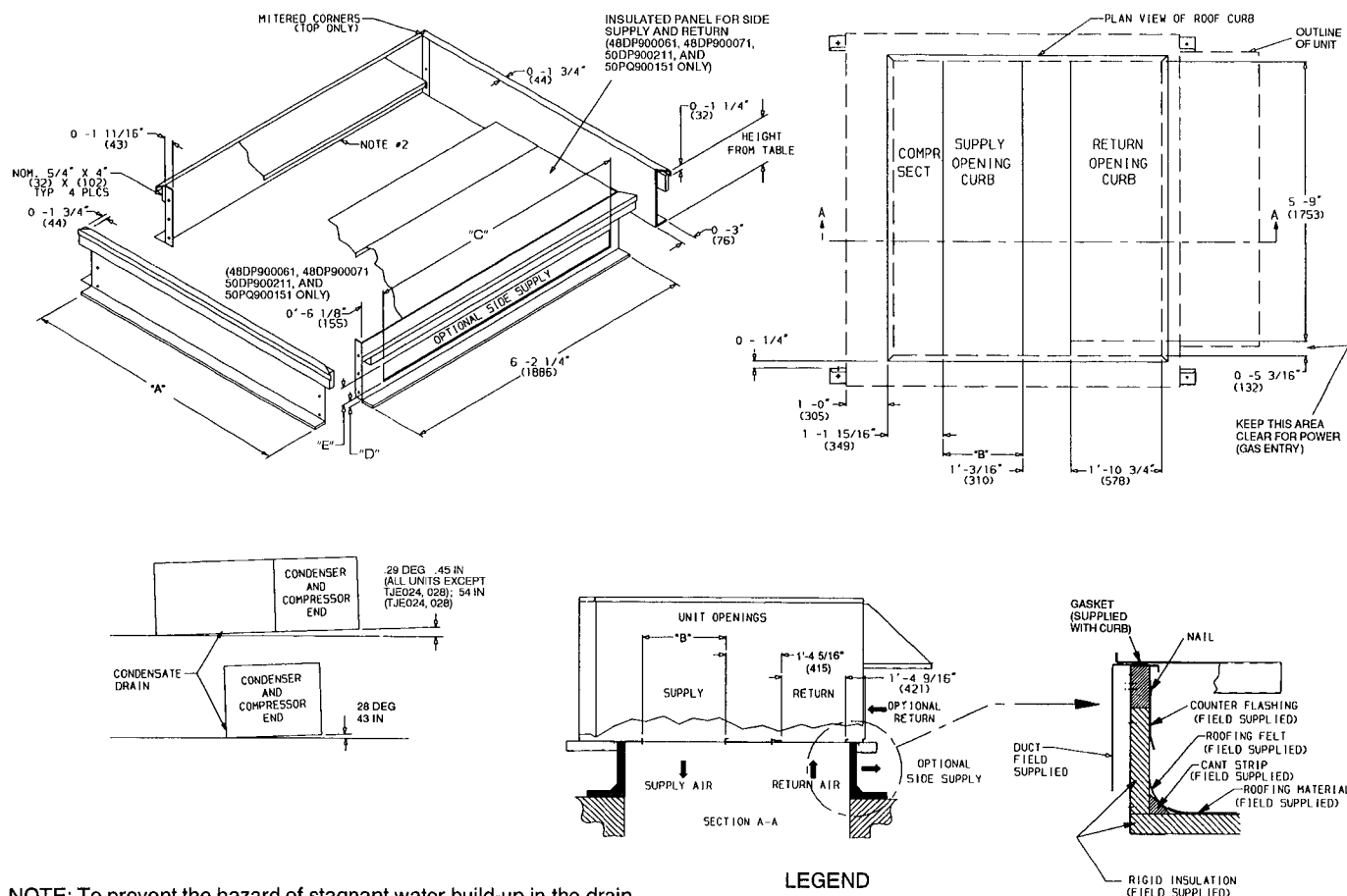
- 1 Roof curb accessory is shipped unassembled
- 2 Insulated panels: 1" thick polyurethane foam, 1 3/4 lb density
- 3 Dimensions in [] are in millimeters
- 4 Roof curb: 16 gage steel
- 5 Attach ductwork to curb (Flanges of duct rest on curb.)
- 6 Service clearance 4' on each side
- 7 Direction of airflow



Accessory dimensions (cont)



ROOF CURB — 48TJ016-028



NOTE: To prevent the hazard of stagnant water build-up in the drain pan of the indoor-air section, unit can only be pitched as shown

LEGEND

COMPR SECT. — Compressor Section

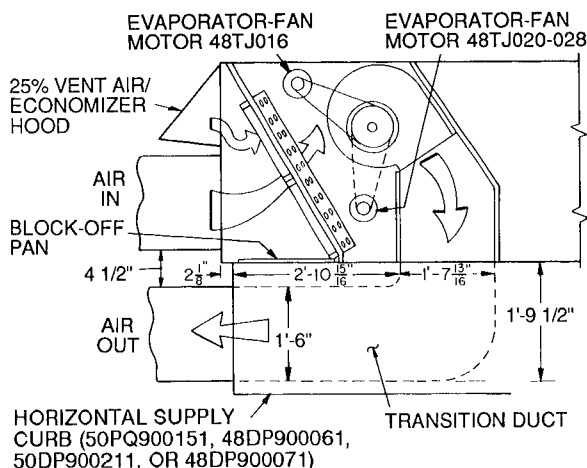
NOTES:

1. Roof curb accessory is shipped unassembled
2. Insulated panels, 1/2-in thick neoprene-coated, 2 lb density.
3. Dimensions in () are in millimeters
4. Direction of airflow
5. Roof curb: 18 gage steel.
6. Attach all ductwork to roof curb.
7. Field installation of sidewall insulation is mandatory.

ACCESSORY PACKAGE NO.	CURB HEIGHT	DESCRIPTION	"A"	"B"	"C"	"D"	"E"
50PQ900221	1'-2" (355)	Standard Curb — 14" High	5'-7 1/16" (1703)	1'-7 13/16" (503)	—	—	—
50PQ900141	2'-0" (610)	Standard Curb for Units Requiring High Installation	5'-7 1/16" (1703)	1'-7 13/16" (503)	—	—	—
50PQ900151	2'-0" (610)	Horizontal Supply and Return Curb	5'-7 1/16" (1703)	1'-7 13/16" (503)	5'-6" (1676)	0'-2 1/2" (64)	1'-6" (457)
50DP900211	1'-11" (584)	Pre-Assembled, High-Static, Horizontal Adapter Curb	5'-7 1/16" (1703)	1'-7 13/16" (503)	6'-2" (1880)	0'-6 1/4" (159)	1'-2 5/8" (371)
48DP900041*	1'-2" (355)	Standard Curb — 14" High	7'-2 13/16" (2205)	3'-3 5/8" (1006)	—	—	—
48DP900051*	2'-0" (610)	Standard Curb for Units Requiring High Installation	7'-2 13/16" (2205)	3'-3 5/8" (1006)	—	—	—
48DP900061*	2'-0" (610)	Horizontal Supply and Return Curb	7'-2 13/16" (2205)	3'-3 5/8" (1006)	5'-6" (1676)	0'-2 1/2" (64)	1'-6" (457)
48DP900071*	1'-11" (584)	Pre-Assembled, High-Static, Horizontal Adapter Curb	7'-2 13/16" (2205)	3'-3 5/8" (1006)	6'-2" (1880)	0'-6 1/4" (159)	1'-2 5/8" (371)

*For high-heat applications

HORIZONTAL SUPPLY/RETURN CURB – 48TJ016-028



NOTE: For horizontal adapter curb part no. 50PQ900151 and 48DP900061, a field-supplied transition duct is required. For preassembled horizontal adapter curb part no. 50DP900211 and 48DP900071, the accessory kit includes a factory-designed, high-static transition duct.

Selection procedure (with 48TJE016 example)

I Determine cooling and heating requirements at design conditions.

Given

Required Cooling Capacity 170,000 Btuh
Sensible Heat Capacity 114,000 Btuh
Required Heating Capacity 200,000 Btuh
Condenser Entering Air Temp 95 F (Summer)
Evaporator Entering Air Temp 80 F edb,

67 F ewb
Evaporator Air Quantity 4,500 cfm
External Static Pressure 0.6 in. wg
Electrical Characteristics (V-Ph-Hz) 460-3-60

Vertical discharge unit with optional economizer required

edb — Entering dry-bulb
ewb — Entering wet-bulb

II Select unit based on required cooling capacity.

Enter Cooling Capacities table for 48TJE016 (page 24) at condenser entering temperature 95 F, evaporator air entering at 4,500 cfm and 67 F wb. The 48TJE016 unit will provide a total cooling capacity of 179,000 Btuh and a sensible heating capacity of 120,000 Btuh. For air entering evaporator at temperatures other than 80 F edb, calculate sensible heat capacity correction as required using the formula in the notes following the Cooling Capacities tables.

NOTE: Unit ratings are gross capacities and do not include the effect of evaporator-fan motor heat. To calculate net capacities, see Step V.

III Select heating capacity of unit to provide design condition requirements.

In the Heating Capacities and Efficiencies table (page 5) note that the 48TJE016 will provide an output capacity of 216,000 Btuh, which is adequate for the given application.

IV Determine fan speed and power requirements at design conditions.

Before entering the Fan Performance tables, calculate the total static pressure required based on unit components. From the given and the Accessory/FIOP Economizer Static Pressure table on page 40 (number derived through interpolation) find

External static pressure	0.60 in. wg
Economizer static pressure	0.04 in. wg
Total static pressure	0.64 in. wg

Enter the Fan Performance table 48TJE016 at 4,500 cfm and 0.64 in. wg external static pressure. By interpolation, find that the rpm is 1003 and the watts are 1334.

V Determine net cooling capacity.

Cooling capacities are gross capacities and do not include indoor (evaporator) fan motor (IFM) heat. Use the watts input power to the motor in the Fan Performance data tables.

IFM Watts = 1334

Determine net cooling capacity using the following formula

Net capacity = Gross capacity – IFM heat
= 179,000 Btuh – 1334 (3.412 $\frac{\text{Btuh}}{\text{Watts}}$)
= 179,000 Btuh – 4552 Btuh
= 174,448 Btuh

Net sensible capacity = 120,000 Btuh – 4552 Btuh
= 115,448 Btuh

The calculations show that a 48TJE016 unit with the standard motor and drive is the correct selection for the given conditions.

Performance data



COOLING CAPACITIES

48TJ004 (3 TONS)

Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF								
		900/0.11			1200/0.14			1500/0.17		
		Air Entering Evaporator — Ewb (F)								
		72	67	62	72	67	62	72	67	62
75	TC	42.8	38.9	35.0	44.8	40.8	37.0	45.8	41.9	38.2
	SHC	20.0	24.5	28.7	21.8	27.5	32.8	23.0	30.0	36.0
	kW	2.91	2.81	2.70	2.99	2.88	2.78	3.02	2.92	2.82
85	TC	40.8	36.9	33.3	42.5	38.7	35.0	43.6	39.9	36.1
	SHC	19.4	23.7	27.9	21.0	26.8	31.8	22.6	29.7	35.1
	kW	3.14	3.01	2.90	3.20	3.08	2.97	3.24	3.14	3.02
95	TC	38.7	34.9	31.4	40.4	36.5	33.0	41.4	37.6	34.1
	SHC	18.6	22.9	27.0	20.3	26.2	30.9	22.0	28.8	34.0
	kW	3.35	3.21	3.09	3.42	3.29	3.16	3.47	3.35	3.22
105	TC	36.5	32.8	29.2	38.1	34.3	30.9	39.0	35.2	32.4
	SHC	17.8	22.1	25.9	19.6	25.2	29.8	21.2	28.0	32.3
	kW	3.55	3.41	3.27	3.63	3.49	3.35	3.68	3.54	3.43
115	TC	34.3	30.7	26.9	35.7	32.1	28.8	36.5	32.9	30.6
	SHC	17.0	21.3	24.8	19.0	24.4	28.8	20.5	27.1	30.6
	kW	3.76	3.60	3.45	3.84	3.68	3.54	3.88	3.74	3.64

48TJ006 (5 TONS)

Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF								
		1500/0.07			2000/0.09			2500/0.12		
		Air Entering Evaporator — Ewb (F)								
		72	67	62	72	67	62	72	67	62
75	TC	71.0	63.8	55.4	74.5	67.2	59.2	76.5	69.7	62.1
	SHC	33.9	41.5	47.9	37.4	47.4	55.8	40.6	52.8	61.8
	kW	5.04	4.82	4.62	5.20	4.97	4.76	5.29	5.06	4.87
85	TC	69.2	61.0	54.2	72.9	65.6	57.2	75.2	68.1	61.5
	SHC	33.4	40.5	47.3	37.0	46.9	54.9	40.1	52.3	61.3
	kW	5.50	5.27	5.02	5.66	5.41	5.18	5.75	5.50	5.29
95	TC	65.5	56.6	50.4	69.4	60.9	53.1	71.2	63.3	57.8
	SHC	32.1	38.8	45.6	35.8	45.3	52.6	39.1	50.9	57.8
	kW	5.88	5.62	5.37	6.01	5.76	5.53	6.12	5.87	5.67
105	TC	61.9	53.1	47.1	65.4	56.6	50.5	67.1	58.8	54.5
	SHC	30.8	37.5	44.1	34.5	43.7	50.2	37.9	49.3	54.5
	kW	6.25	5.99	5.72	6.38	6.13	5.91	6.50	6.23	6.06
115	TC	58.2	49.7	43.7	61.4	52.3	47.8	63.0	54.3	51.2
	SHC	29.5	36.1	42.5	33.2	42.1	47.8	36.7	47.6	51.2
	kW	6.63	6.35	6.08	6.75	6.49	6.29	6.88	6.59	6.46

48TJ005 (4 TONS)

Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF								
		1200/0.12			1600/0.15			2000/0.18		
		Air Entering Evaporator — Ewb (F)								
		72	67	62	72	67	62	72	67	62
75	TC	57.9	53.1	48.3	60.4	55.9	51.3	62.2	57.3	52.9
	SHC	27.2	33.3	39.2	29.4	37.2	44.8	31.4	40.3	49.1
	kW	4.07	3.93	3.79	4.17	4.03	3.90	4.24	4.08	3.96
85	TC	55.7	50.8	45.3	57.7	53.4	48.5	59.4	55.0	50.2
	SHC	26.4	32.5	37.8	28.4	36.7	43.6	30.5	40.3	47.9
	kW	4.40	4.24	4.08	4.47	4.35	4.20	4.54	4.42	4.25
95	TC	52.9	48.1	42.5	55.2	50.7	45.7	56.7	52.0	47.4
	SHC	25.5	31.5	36.4	27.6	35.8	42.2	29.7	39.2	46.7
	kW	4.70	4.54	4.36	4.78	4.63	4.47	4.87	4.70	4.56
105	TC	50.1	45.3	39.8	52.3	47.6	42.8	53.6	48.9	44.9
	SHC	24.4	30.3	35.1	26.7	34.5	40.7	28.8	38.1	44.6
	kW	5.00	4.81	4.62	5.10	4.91	4.73	5.17	4.99	4.84
115	TC	47.3	42.6	37.2	49.3	44.6	40.0	50.5	45.9	42.4
	SHC	23.4	29.2	33.7	25.9	33.3	39.3	27.8	37.1	42.4
	kW	5.30	5.07	4.88	5.42	5.19	4.99	5.48	5.28	5.12

48TJ007 (6 TONS)

Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF								
		1800/0.06			2400/0.09			3000/0.11		
		Air Entering Evaporator — Ewb (F)								
		72	67	62	72	67	62	72	67	62
75	TC	86.6	80.0	73.6	90.8	84.1	77.2	93.2	86.6	79.7
	SHC	42.2	52.3	62.2	46.5	59.6	71.6	50.1	66.4	78.7
	kW	5.48	5.33	5.21	5.59	5.44	5.29	5.66	5.51	5.35
85	TC	84.1	77.4	71.0	87.8	81.2	74.5	90.1	83.5	77.3
	SHC	41.4	51.3	61.1	45.5	58.6	70.3	49.4	65.4	76.7
	kW	6.17	6.00	5.85	6.27	6.11	5.94	6.35	6.19	6.02
95	TC	81.6	74.7	68.5	84.8	78.2	71.8	87.0	80.4	74.8
	SHC	40.6	50.3	60.0	44.6	57.8	69.1	48.7	64.5	74.7
	kW	6.86	6.67	6.49	6.95	6.77	6.59	7.03	6.86	6.69
105	TC	78.4	71.8	65.6	81.6	74.9	68.9	83.3	76.9	72.1
	SHC	39.4	49.2	58.7	43.5	56.4	67.4	47.4	63.1	72.0
	kW	7.60	7.39	7.20	7.72	7.50	7.31	7.77	7.59	7.41
115	TC	75.1	68.7	62.5	78.0	71.5	66.1	79.5	73.3	69.3
	SHC	38.1	47.9	57.2	42.3	55.1	65.5	46.3	61.6	69.2
	kW	8.36	8.14	7.93	8.49	8.25	8.06	8.55	8.33	8.18

NOTES:

- 1 Direct interpolation is permissible. Do not extrapolate.
- 2 The following formulas may be used:

$$t_{ldb} = t_{edb} - \frac{\text{sensible capacity (Btuh)}}{1.10 \times \text{cfm}}$$

$$t_{lwb} = \text{Wet-bulb temperature corresponding to enthalpy of air leaving evaporator coil } (h_{lwb})$$

$$h_{lwb} = h_{ewb} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{cfm}}$$

Where: h_{ewb} = Enthalpy of air entering evaporator coil

- 3 The SHC is based on 80 F edb temperature of air entering evaporator coil. Below 80 F edb, subtract (corr factor x cfm) from SHC. Above 80 F edb, add (corr factor x cfm) to SHC.
Correction Factor = $1.10 \times (1 - BF) \times (edb - 80)$

Standard Ratings

LEGEND

BF	—	Bypass Factor
Edb	—	Entering Dry-Bulb
Ewb	—	Entering Wet-Bulb
kW	—	Compressor Motor Power Input
Ldb	—	Leaving Dry-Bulb
Lwb	—	Leaving Wet-Bulb
SHC	—	Sensible Heat Capacity (1000 Btuh) Gross
TC	—	Total Capacity (1000 Btuh) Gross

COOLING CAPACITIES (cont)

48TJ008 (7½ TONS)

Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF								
		2250/0.09			3000/0.012			3750/0.15		
		Air Entering Evaporator — Ewb (F)								
		72	67	62	72	67	62	72	67	62
75	TC	107.4	99.5	91.2	112.6	104.1	96.2	115.0	106.9	99.9
	SHC	53.2	66.5	78.9	59.1	75.9	91.2	63.6	84.4	99.8
	kW	7.25	6.91	6.57	7.49	7.13	6.78	7.59	7.26	6.95
85	TC	99.2	91.5	83.4	103.2	95.8	88.2	105.5	98.3	92.0
	SHC	49.6	62.1	73.4	54.3	70.7	84.7	58.7	76.6	91.9
	kW	7.67	7.35	7.01	7.86	7.54	7.22	7.97	7.66	7.39
95	TC	94.1	86.4	78.3	98.3	90.5	83.0	100.5	93.0	87.4
	SHC	47.8	60.0	71.0	53.0	68.9	81.8	57.6	76.7	87.4
	kW	8.18	7.84	7.50	8.40	8.05	7.72	8.51	8.16	7.92
105	TC	88.6	80.9	72.8	92.3	84.6	78.3	94.3	87.0	82.7
	SHC	46.0	57.8	68.1	51.2	66.7	77.6	55.8	74.5	82.6
	kW	8.69	8.32	7.98	8.89	8.52	8.21	9.00	8.65	8.44
115	TC	83.3	75.4	67.1	86.3	78.8	73.5	88.0	81.0	77.9
	SHC	44.0	55.7	65.4	49.3	64.5	73.5	54.1	72.3	77.8
	kW	9.20	8.80	8.46	9.38	8.99	8.71	9.48	9.12	8.95

48TJ009 (8½ TONS)

Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF								
		2550/0.08			3000/0.10			4250/0.13		
		Air Entering Evaporator — Ewb (F)								
		72	67	62	72	67	62	72	67	62
75	TC	121.2	111.6	102.8	124.7	115.9	107.3	128.9	120.9	112.2
	SHC	58.8	71.9	85.0	62.1	78.4	94.8	68.0	89.3	107.4
	kW	7.88	7.60	7.35	7.98	7.72	7.49	8.12	7.89	7.63
85	TC	114.9	106.7	97.7	119.7	110.8	102.0	123.8	115.1	106.8
	SHC	55.7	70.0	82.7	60.6	76.8	92.2	66.6	87.4	104.4
	kW	8.46	8.21	7.91	8.64	8.34	8.06	8.79	8.50	8.24
95	TC	110.4	101.1	92.6	113.7	104.8	96.6	117.9	109.1	101.6
	SHC	54.6	67.5	80.3	58.4	74.4	89.7	64.8	85.3	100.3
	kW	9.14	8.78	8.48	9.26	8.93	8.64	9.43	9.10	8.84
105	TC	104.6	95.8	87.0	107.4	99.2	90.8	110.8	102.7	96.1
	SHC	52.6	65.4	78.1	56.1	72.6	86.5	62.3	82.7	95.2
	kW	9.74	9.37	8.98	9.86	9.53	9.16	10.02	9.68	9.40
115	TC	97.6	89.8	81.7	101.3	92.6	85.2	104.2	96.0	90.8
	SHC	49.6	62.9	75.3	54.1	69.5	83.3	60.2	79.7	90.3
	kW	10.24	9.88	9.49	10.45	10.02	9.69	10.61	10.20	9.96

Standard Ratings

LEGEND

BF	—	Bypass Factor
Edb	—	Entering Dry-Bulb
Ewb	—	Entering Wet-Bulb
kW	—	Compressor Motor Power Input
Ldb	—	Leaving Dry-Bulb
Lwb	—	Leaving Wet-Bulb
SHC	—	Sensible Heat Capacity (1000 Btuh) Gross
TC	—	Total Capacity (1000 Btuh) Gross

48TJ012 (10 TONS)

Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF								
		3000/0.08			4000/0.11			5000/0.14		
		Air Entering Evaporator — Ewb (F)								
		72	67	62	72	67	62	72	67	62
75	TC	143.3	129.9	112.7	150.0	138.1	121.2	153.4	142.3	129.9
	SHC	70.1	86.0	99.2	77.2	98.1	115.6	83.9	109.6	128.5
	kW	9.59	9.24	8.91	9.81	9.47	9.16	9.94	9.60	9.29
85	TC	136.5	119.5	103.4	143.5	129.2	112.1	147.7	134.4	121.8
	SHC	67.8	82.2	94.9	74.9	95.4	110.8	81.4	107.2	121.7
	kW	10.30	9.93	9.57	10.48	10.16	9.80	10.68	10.28	10.02
95	TC	129.3	111.3	96.4	136.3	120.4	106.1	140.6	124.5	115.3
	SHC	65.3	79.0	91.3	72.7	92.7	106.1	78.9	104.4	115.2
	kW	11.03	10.63	10.25	11.25	10.85	10.49	11.40	11.02	10.75
105	TC	122.7	104.9	91.1	129.1	112.8	101.1	133.0	117.2	109.9
	SHC	62.9	76.5	88.2	70.3	89.8	101.1	76.8	101.4	109.8
	kW	11.74	11.34	10.93	11.97	11.55	11.24	12.14	11.73	11.50
115	TC	116.1	98.4	85.6	122.0	105.1	96.2	125.3	109.7	104.4
	SHC	60.4	73.9	85.2	67.8	86.8	96.1	74.6	98.4	104.4
	kW	12.46	12.04	11.62	12.69	12.26	11.98	12.87	12.44	12.25

48TJ014 (12½ TONS)

Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF								
		3750/0.10			5000/0.12			6250/0.15		
		Air Entering Evaporator — Ewb (F)								
		72	67	62	72	67	62	72	67	62
75	TC	173.7	161.4	145.7	181.0	168.5	154.3	184.0	173.4	161.3
	SHC	85.4	106.6	125.7	93.1	120.7	145.4	101.1	134.2	159.8
	kW	10.88	10.64	10.41	11.07	10.80	10.58	11.14	10.92	10.66
85	TC	168.5	156.4	140.1	175.6	163.4	148.6	179.3	167.8	156.6
	SHC	83.6	104.7	123.1	91.7	119.2	142.4	99.9	132.7	155.7
	kW	12.15	11.89	11.59	12.34	12.06	11.78	12.45	12.17	11.90
95	TC	163.5	151.5	134.6	170.0	158.3	142.9	174.6	162.2	152.0
	SHC	81.9	102.9	120.6	90.3	117.7	139.4	98.6	131.1	151.7
	kW	13.41	13.14	12.77	13.60	13.32	12.98	13.76	13.43	13.14
105	TC	157.2	144.3	127.8	163.5	151.1	136.1	167.7	155.4	145.8
	SHC	79.6	100.1	117.3	88.3	115.2	134.0	96.2	128.8	145.7
	kW	14.82	14.50	14.09	15.02	14.71	14.37	15.17	14.84	14.55
115	TC	150.5	136.7	121.5	156.5	142.5	129.0	160.4	147.0	138.6
	SHC	77.3	97.1	114.2	86.0	112.0	128.2	94.1	125.6	138.6
	kW	16.30	15.92	15.46	16.50	16.15	15.82	16.65	16.29	16.02

NOTES:

1 Direct interpolation is permissible. Do not extrapolate.

2 The following formulas may be used:

$$t_{ldb} = t_{edb} - \frac{\text{sensible capacity (Btuh)}}{1.10 \times \text{cfm}}$$

$$t_{lwb} = \text{Wet-bulb temperature corresponding to enthalpy of air leaving evaporator coil (h}_{lwb}\text{)}$$

$$h_{lwb} = h_{ewb} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{cfm}}$$

Where: h_{ewb} = Enthalpy of air entering evaporator coil

3 The SHC is based on 80 F edb temperature of air entering evaporator coil.

Below 80 F edb, subtract (corr factor x cfm) from SHC.

Above 80 F edb, add (corr factor x cfm) to SHC.

Correction Factor = $1.10 \times (1 - BF) \times (edb - 80)$

Performance data (cont)



COOLING CAPACITIES (cont)

48TJ016 (15 TONS)										
Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF								
		4500/0.06			6000/0.08			7500/0.10		
		Air Entering Evaporator — Ewb (F)								
		72	67	62	72	67	62	72	67	62
75	TC	190.0	176.0	165.0	194.0	181.0	169.0	199.0	186.0	171.0
	SHC	88.9	111.6	135.9	97.2	126.9	155.7	104.4	140.4	170.1
	KW	16.20	15.80	15.40	16.30	16.00	15.60	16.70	16.20	15.80
85	TC	204.0	187.0	169.0	210.0	194.0	177.0	215.0	199.0	184.0
	SHC	97.4	122.0	145.0	106.0	139.0	168.0	115.0	154.0	183.0
	KW	15.90	15.40	14.90	16.10	15.70	15.20	16.40	15.90	15.50
95	TC	197.0	179.0	155.0	204.0	187.0	166.0	209.0	191.0	178.0
	SHC	96.0	120.0	139.0	104.0	137.0	163.0	114.0	152.0	177.0
	KW	17.20	16.60	15.90	17.50	17.00	16.40	17.80	17.20	16.80
105	TC	189.0	169.0	142.0	197.0	178.0	155.0	200.0	182.0	169.0
	SHC	92.9	116.0	132.0	103.0	134.0	154.0	112.0	150.0	169.0
	KW	18.50	17.80	17.10	18.90	18.30	17.60	19.10	18.50	18.00
115	TC	180.0	154.0	128.0	186.0	163.0	144.0	191.0	170.0	158.0
	SHC	90.2	110.0	125.0	101.0	129.0	144.0	111.0	146.0	158.0
	KW	19.90	19.00	18.30	20.20	19.40	18.90	20.50	19.70	19.30
125	TC	154.0	125.0	103.0	158.0	133.0	120.0	164.0	142.0	132.0
	SHC	78.8	93.6	106.2	89.1	111.6	120.6	99.0	127.8	132.0
	KW	23.70	22.40	21.70	23.90	22.80	22.40	24.30	23.20	22.90

48TJ020 (18 TONS)													
Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF											
		5000/0.045			6000/0.06			7000/0.075			8000/0.085		
		Air Entering Evaporator — Ewb (F)											
		72	67	62	72	67	62	72	67	62	72	67	62
75	TC	238.0	217.0	198.0	242.0	222.0	203.0	247.0	228.0	207.0	251.0	231.0	211.0
	SHC	110.0	137.0	161.0	116.0	147.0	175.0	122.0	156.0	189.0	128.0	166.0	201.0
	kW	15.90	15.60	15.10	16.00	15.70	15.30	16.10	15.70	15.40	16.20	15.90	15.50
85	TC	232.1	210.2	188.4	235.7	214.8	193.8	239.3	219.3	199.3	242.1	225.7	203.8
	SHC	108.8	132.8	156.1	114.2	143.5	170.8	119.6	154.2	185.5	125.6	166.5	197.7
	kW	17.34	16.96	16.46	17.48	17.13	16.63	17.62	17.29	16.81	17.74	17.34	16.96
95	TC	223.0	202.9	179.5	227.5	206.6	184.8	232.1	210.2	190.1	235.7	218.4	195.0
	SHC	105.8	129.9	153.3	112.0	140.6	167.2	118.2	151.2	181.0	124.5	163.8	193.2
	kW	18.96	18.50	17.82	19.12	18.64	18.01	19.28	18.77	18.20	19.43	18.83	18.37
105	TC	212.0	192.0	167.5	216.6	196.6	172.6	221.1	201.1	177.7	225.7	203.8	184.6
	SHC	101.9	125.9	147.7	108.6	136.9	161.5	115.2	147.9	175.4	121.7	158.4	184.6
	kW	20.48	19.93	19.09	20.66	20.11	19.38	20.84	20.29	19.67	20.93	20.48	19.96
115	TC	202.9	178.0	153.2	206.6	183.5	159.8	210.2	188.9	166.3	212.9	192.4	174.6
	SHC	98.3	120.8	144.1	105.0	132.2	155.2	111.7	143.6	166.2	118.1	154.3	174.6
	kW	21.84	21.20	20.48	22.11	21.48	20.84	22.39	21.75	21.20	22.48	21.93	21.48
125	TC	192.0	168.0	141.0	195.0	173.0	149.0	198.0	179.0	158.0	201.0	181.0	167.0
	SHC	95.0	117.0	140.0	101.0	128.0	149.0	107.0	139.0	158.0	114.0	150.0	167.0
	kW	23.30	22.60	21.80	23.50	22.80	22.20	23.70	22.90	22.60	23.80	23.10	22.80

Standard ratings

LEGEND

BF — Bypass Factor
Edb — Entering Dry-Bulb
Ewb — Entering Wet-Bulb
kW — Compressor Motor Power Input
Ldb — Leaving Dry-Bulb
Lwb — Leaving Wet-Bulb
SHC — Sensible Heat Capacity (1000 Btuh) Gross
TC — Total Capacity (1000 Btuh) Gross

NOTES:

- 1 Direct interpolation is permissible. Do not extrapolate
- 2 The following formulas may be used:

$$t_{ldb} = t_{edb} - \frac{\text{sensible capacity (Btuh)}}{1.10 \times \text{cfm}}$$

$$t_{lwb} = \text{Wet-bulb temperature corresponding to enthalpy of air leaving evaporator coil } (h_{lwb})$$

$$h_{lwb} = h_{ewb} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{cfm}}$$

Where: h_{ewb} = Enthalpy of air entering evaporator coil

- 3 SHC is based on 80 F edb temperature of air entering evaporator coil
Below 80 F edb, subtract (corr factor x cfm) from SHC
Above 80 F edb, add (corr factor x cfm) to SHC

BYPASS FACTOR (BF)	ENTERING AIR DRY-BULB TEMP (F)					
	79	78	77	76	75	under 75
	81	82	83	84	85	over 85
	Correction Factor					
.05	1.04	2.07	3.11	4.14	5.18	Use formula shown below
.10	98	1.96	2.94	3.92	4.90	
.20	87	1.74	2.62	3.49	4.36	
.30	76	1.53	2.29	3.05	3.82	

Interpolation is permissible

$$\text{Correction Factor} = 1.10 \times (1 - \text{BF}) \times (\text{edb} - 80)$$

COOLING CAPACITIES (cont)

48TJ024 (20 TONS)													
Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF											
		6000/0.06			7000/0.075			8000/0.085			9000/0.095		
		Air Entering Evaporator — Ewb (F)											
		72	67	62	72	67	62	72	67	62	72	67	62
75	TC	266 0	244 0	223 0	228 0	250 0	271 0	276 0	254 0	232 0	236 0	257 0	276 0
	SHC	127.5	161.0	192.6	207.9	171.8	133.8	140.7	182.4	221.0	233 0	192.2	147 3
	kW	17 55	17 20	16 79	16 94	17 30	17 68	17 80	17 42	17 04	17 14	17 50	17 80
85	TC	259 0	236 0	213 0	263 0	241 0	219 0	266.0	248 0	224 0	269 0	252 0	229 0
	SHC	125.5	157.7	187.7	131.4	169.5	203.9	138.0	183.0	217.3	145.0	193 0	227.0
	kW	19 21	18 82	18 28	19 36	19 00	18 47	19 49	19 06	18 64	19.56	19 17	18 81
95	TC	250 0	227 0	203 1	255 0	231 0	208 9	259 0	240 0	214 3	262 0	246 0	220 0
	SHC	123 1	154.5	183.7	129 9	166.2	198 9	136.8	180.0	212 3	142.7	189.0	220.0
	kW	21 01	20 48	19 79	21 19	20 63	20 00	21 35	20 69	20 19	21 48	20 82	20 48
105	TC	238 0	216 0	189 7	243 0	221 0	195 3	248 0	224 0	202 9	250 0	226 0	210 9
	SHC	119.3	150 4	177 5	126 6	162 5	192 7	133 7	174.1	202 9	140.0	184.8	210 9
	kW	22 70	22 10	21 30	22 90	22 30	21 62	23 00	22 50	21 93	23 20	21 60	22.12
115	TC	227 0	201 6	175 6	231 0	207 6	182 8	234 0	211 4	191 9	237 0	214.6	200 1
	SHC	115.4	145 3	170.5	122.8	157 8	182 6	129.8	169 6	191.9	136 5	180 2	200.1
	kW	24 30	23 60	22 90	24 60	23 90	23.30	24 70	24 10	23 60	24 90	24 10	23 80
125	TC	214 3	190 5	164 2	218 0	196 2	173 6	221 0	198 8	184 0	223 0	200 7	191 0
	SHC	111.0	141 0	163.8	117.9	153.2	173.6	125.4	164.4	184.0	131.6	174.9	191.0
	kW	25 80	25 00	24 40	26 00	25 20	24 80	26 20	25 40	25 00	26 40	25 50	25.30

48TJ028 (25 TONS)													
Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF											
		7000/0.03			8750/0.05			10,000/0.07			11,250/0.09		
		Air Entering Evaporator — Ewb (F)											
		72	67	62	72	67	62	72	67	62	72	67	62
75	TC	323.9	299.4	275.8	331.3	312.7	288.4	336.1	319.8	294.7	342.6	322.5	300.0
	SHC	159.4	195.2	230.6	170.1	216.5	259.1	177.6	231.1	276.8	186.6	242.9	292.6
	kW	21.10	20.50	19.90	21.30	20.90	20.20	21.50	21.10	20.40	21.70	21.20	20.50
85	TC	315.3	290.4	264.3	326.9	303.2	278.0	333.7	309.1	285.0	335.1	314.2	291.1
	SHC	156.3	191.7	224.9	168.4	213.2	254.9	177.5	226.9	273.8	184.4	240.7	288.4
	kW	22.70	22.10	21.30	23.10	22.50	21.80	23.30	22.70	22.00	23.30	22.80	22.20
95	TC	304.1	277.4	243.1	315.3	290.1	263.8	320.4	295.6	271.1	324.1	300.6	279.4
	SHC	152.0	186.5	215.2	165.0	208.5	248.0	173.0	222.4	266.4	181.6	236.5	279.4
	kW	24.80	24.00	23.20	25.20	24.50	23.50	25.40	24.60	23.80	25.50	24.80	24.10
105	TC	291.2	261.4	224.8	300.9	274.2	242.1	305.7	280.3	252.3	309.8	284.8	266.3
	SHC	147.2	179.7	206.6	159.9	201.8	237.3	168.3	216.8	252.3	176.8	231.1	266.3
	kW	26.90	25.80	25.00	27.20	26.30	25.40	27.40	26.60	25.80	27.60	26.80	26.00
115	TC	274.6	237.9	207.6	285.9	251.5	222.6	291.3	258.4	237.7	293.9	267.5	247.1
	SHC	140.9	170.0	198.6	154.9	193.2	222.6	164.1	208.7	237.7	163.0	224.3	247.1
	kW	28.80	27.80	26.80	29.40	28.20	27.40	29.60	28.50	27.70	29.70	28.50	28.10
125	TC	254.5	214.9	184.3	266.7	230.9	206.7	272.0	236.0	220.8	276.1	240.0	231.1
	SHC	133.3	160.8	184.3	148.0	185.1	206.7	157.5	200.2	220.8	166.6	214.4	231.1
	kW	30.90	29.90	28.90	31.40	30.20	29.60	31.70	30.50	29.90	31.90	30.80	30.30

LEGEND

BF	—	Bypass Factor
Edb	—	Entering Dry-Bulb
Ewb	—	Entering Wet-Bulb
kW	—	Compressor Motor Power Input
Ldb	—	Leaving Dry-Bulb
Lwb	—	Leaving Wet-Bulb
SHC	—	Sensible Heat Capacity (1000 Btuh) Gross
TC	—	Total Capacity (1000 Btuh) Gross

NOTES:

- 1 Direct interpolation is permissible. Do not extrapolate.
- 2 The following formulas may be used:

$$l_{db} = t_{edb} - \frac{\text{sensible capacity (Btuh)}}{1.10 \times \text{cfm}}$$

$$t_{lwb} = \text{Wet-bulb temperature corresponding to enthalpy of air leaving evaporator coil } (h_{lwb})$$

$$h_{lwb} = h_{ewb} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{cfm}}$$

Where: h_{ewb} = Enthalpy of air entering evaporator coil

- 3 SHC is based on 80 F edb temperature of air entering evaporator coil. Below 80 F edb, subtract (corr factor x cfm) from SHC. Above 80 F edb, add (corr factor x cfm) to SHC.

BYPASS FACTOR (BF)	ENTERING AIR DRY-BULB TEMP (F)					
	79	78	77	76	75	under 75
	81	82	83	84	85	over 85
.05	1.04	2.07	3.11	4.14	5.18	Use formula shown below
.10	.98	1.96	2.94	3.92	4.90	
.20	.87	1.74	2.62	3.49	4.36	
.30	.76	1.53	2.29	3.05	3.82	

Interpolation is permissible.

$$\text{Correction Factor} = 1.10 \times (1 - \text{BF}) \times (\text{edb} - 80)$$

Performance data (cont)



FAN PERFORMANCE – VERTICAL DISCHARGE UNITS

48TJ004 (3 TONS) – STANDARD MOTOR (DIRECT DRIVE)												
Airflow (Cfm)	Low Speed						High Speed					
	208 V			230, 460, 575 V			208 V			230, 460, 575 V		
	Esp	Bhp	Watts	Esp	Bhp	Watts	Esp	Bhp	Watts	Esp	Bhp	Watts
900	0.49	0.21	253	0.50	0.23	277	0.51	0.26	307	0.55	0.31	363
1000	0.42	0.23	270	0.43	0.25	292	0.43	0.27	321	0.51	0.32	374
1100	0.37	0.24	287	0.38	0.26	307	0.39	0.28	335	0.46	0.33	385
1200	0.33	0.26	304	0.33	0.27	323	0.34	0.29	349	0.40	0.34	397
1300	0.27	0.27	321	0.28	0.29	338	0.28	0.31	364	0.34	0.34	408
1400	0.20	0.29	338	0.23	0.30	354	0.25	0.32	378	0.29	0.35	420
1500	0.16	0.30	355	0.18	0.31	369	0.20	0.33	392	0.23	0.36	431

LEGEND

Bhp — Brake Horsepower Input to Fan

Esp — External Static Pressure (in wg)

NOTES:

- 1 Values include losses for filters, unit casing, and wet coils. See page 45 for accessory/FIOP static pressure information.
- 2 Extensive motor and electrical testing on these units ensures that the full range of the motor can be utilized with confidence. Using your

fan motors up to the wattage ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected. See Evaporator-Fan Motor Performance table on page 47 for additional information.

- 3 Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify.

48TJ004 (3 TONS) – ALTERNATE MOTOR (BELT DRIVE)

Airflow Cfm	External Static Pressure (in. wg)																	
	0.1			0.2			0.3			0.4			0.5			0.6		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
900	581	0.12	119	673	0.18	179	736	0.22	219	805	0.25	249	865	0.29	288	911	0.34	338
1000	644	0.19	189	709	0.22	219	782	0.28	279	835	0.30	298	900	0.35	348	937	0.38	378
1100	687	0.22	219	746	0.26	259	806	0.30	298	867	0.35	348	929	0.40	398	964	0.40	398
1200	733	0.26	259	785	0.32	318	843	0.35	348	903	0.41	408	960	0.47	467	994	0.50	497
1300	754	0.29	288	826	0.38	378	891	0.43	428	942	0.48	477	991	0.53	527	1047	0.60	597
1400	810	0.35	348	868	0.45	448	937	0.51	507	984	0.57	567	1032	0.62	617	1067	0.67	666
1500	841	0.42	418	911	0.53	527	985	0.61	607	1029	0.66	656	1073	0.72	716	1109	0.77	766

48TJ004 (3 TONS) – ALTERNATE MOTOR (BELT DRIVE)

Airflow Cfm	External Static Pressure (in. wg)																	
	0.7			0.8			0.9			1.0			1.1			1.2		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
900	957	0.39	388	988	0.43	428	1039	0.47	448	1061	0.51	487	1083	0.54	527	1105	0.58	567
1000	992	0.44	438	1039	0.49	487	1061	0.55	507	1088	0.60	547	1111	0.66	587	1136	0.72	627
1100	1013	0.49	487	1068	0.55	547	1091	0.61	577	1109	0.66	607	1127	0.73	637	1145	0.80	666
1200	1045	0.56	557	1090	0.64	637	1109	0.68	647	1156	0.73	676	1203	0.81	706	1250	0.86	736
1300	1075	0.64	637	1122	0.70	696	1152	0.76	716	1190	0.82	756	1228	0.87	796	1266	0.94	836
1400	1110	0.73	726	1160	0.78	766	1181	0.83	806	1237	0.88	845	1293	0.94	885	1349	0.99	925
1500	1150	0.78	816	1190	0.84	855	1225	0.89	895	1271	0.95	945	1317	1.00	995	1382	1.05	1044

LEGEND

Bhp — Brake Horsepower Input to Fan

Watts — Input Watts to Motor

NOTES

- 1 **Boldface** indicates a field-supplied drive is required. (See Note 3).
- 2 **Shading** indicates field-supplied motor and drive are required.
- 3 Alternate motor drive range is 760 to 1000 rpm. All other rpms require a field-supplied drive.
- 4 Values include losses for filters, unit casing, and wet coils. See page 45 for accessory/FIOP static pressure information.

- 5 Maximum continuous bhp is 1.0 and the maximum continuous watts are 1000. Extensive motor and electrical testing on these units ensures that the full range of the motor can be utilized with confidence. Using your fan motors up to the wattage ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected. See Evaporator-Fan Motor Performance table on page 47 for additional information.

- 6 Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify.
- 7 Interpolation is permissible. Do not extrapolate.

FAN PERFORMANCE – VERTICAL DISCHARGE UNITS (cont)

48TJ007 (6 TONS) – STANDARD MOTOR (BELT DRIVE)																		
Airflow (Cfm)	External Static Pressure (in. wg)																	
	0.1			0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1800	942	0.70	646	978	0.66	700	1063	0.82	771	1147	0.97	891	1248	1.20	1081	1322	1.33	1190
1900	982	0.80	739	1023	0.78	779	1097	0.91	843	1175	1.11	1006	1266	1.29	1156	1356	1.47	1310
2000	1022	0.91	835	1068	0.90	867	1132	1.01	924	1218	1.23	1106	1303	1.41	1258	1397	1.52	1353
2100	1063	0.99	916	1115	1.00	998	1180	1.17	1056	1261	1.35	1207	1340	1.53	1361	1428	1.66	1473
2200	1104	1.13	1039	1159	1.15	1081	1214	1.28	1148	1310	1.52	1353	1375	1.63	1447	1459	1.80	1595
2300	1130	1.26	1156	1202	1.29	1140	1248	1.38	1233	1358	1.69	1499	1410	1.72	1526	1488	1.93	1709
2400	1174	1.37	1258	1237	1.41	1224	1292	1.55	1378	1392	1.81	1604	1460	1.90	1683	1532	2.14	1892
2500	1201	1.48	1361	1272	1.53	1335	1335	1.71	1517	1427	1.94	1718	1518	2.16	1910	1575	2.35	2076
2600	1246	1.62	1491	1320	1.68	1482	1368	1.81	1604	1458	2.06	1823	1562	2.42	2136	1620	2.59	2283
2700	1285	1.75	1613	1361	1.82	1595	1400	1.91	1691	1490	2.19	1936	1602	2.64	2325	1666	2.85	2504
2800	1304	1.87	1726	1402	1.95	1639	1439	2.08	1840	1543	2.43	2145	1642	2.86	2512	—	—	—
2900	1345	2.07	1910	1446	2.16	1814	1477	2.16	1989	1585	2.65	2335	—	—	—	—	—	—
3000	1378	2.26	2084	1489	2.36	2032	1523	2.52	2223	1596	2.73	2444	—	—	—	—	—	—

48TJ007 (6 TONS) – STANDARD MOTOR (BELT DRIVE)									
Airflow (Cfm)	External Static Pressure (in. wg)								
	1.2			1.4			1.6		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1800	1395	1.46	1301	1475	1.56	1387	1542	1.71	1517
1900	1430	1.58	1404	1504	1.69	1499	1556	1.82	1613
2000	1459	1.67	1482	1532	1.82	1613	1588	1.97	1744
2100	1489	1.80	1595	1567	1.99	1761	1626	2.16	1910
2200	1528	1.95	1726	1603	2.17	1919	1666	2.37	2093
2300	1561	2.13	1884	1637	2.35	2076	1718	2.54	2272
2400	1584	2.28	2015	1671	2.55	2243	1758	2.70	2467
2500	1639	2.53	2232	1723	2.72	2405	—	—	—
2600	1675	2.73	2436	—	—	—	—	—	—
2700	—	—	—	—	—	—	—	—	—
2800	—	—	—	—	—	—	—	—	—
2900	—	—	—	—	—	—	—	—	—
3000	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Esp — Input Watts to Motor

NOTES:

- Boldface** indicates field-supplied drive is required. (See Note 3)
- Shading** indicates field-supplied motor and drive required
- Alternate motor drive range is 1070 to 1460 rpm. All other rpms require a field-supplied drive
- Values include losses for filters, units casing, and wet coils. See page 45 for accessory/FIOP static pressure information

- Maximum continuous bhp is 2.40 and the maximum continuous watts are 2120. Extensive motor and electrical testing on these units ensures that the full range of the motor can be utilized with confidence. Using your fan motors up to the wattage ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected. See Evaporator-Fan Motor Performance table on page 47 for additional information
- Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify.
- Interpolation is permissible. Do not extrapolate

Performance data (cont)



FAN PERFORMANCE – VERTICAL DISCHARGE UNITS (cont)

48TJ008 (7½ TONS) – STANDARD MOTOR (BELT DRIVE)															
Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2200	506	0.52	539	586	0.72	692	656	0.95	875	718	1.18	1064	776	1.43	1275
2250	514	0.55	562	593	0.76	723	662	0.99	907	724	1.22	1097	781	1.78	1318
2300	521	0.57	577	600	0.79	747	668	1.02	932	730	1.26	1131	786	1.50	1335
2400	536	0.63	623	613	0.85	795	680	1.09	989	741	1.34	1199	796	1.59	1413
2500	551	0.69	669	626	0.93	859	693	1.17	1056	753	1.43	1275	808	1.69	1499
2550	559	0.72	692	634	0.97	891	700	1.21	1089	759	1.48	1318	814	1.74	1543
2600	567	0.75	716	641	1.00	916	706	1.25	1123	764	1.52	1353	819	1.79	1587
2700	582	0.83	779	655	1.08	981	719	1.34	1199	776	1.61	1430	831	1.89	1674
2800	598	0.90	835	670	1.17	1056	732	1.43	1275	789	1.71	1517	842	2.00	1770
2900	614	0.98	899	684	1.25	1123	745	1.53	1361	802	1.81	1604	854	2.11	1866
3000	630	1.07	973	699	1.35	1207	759	1.63	1447	815	1.92	1700	866	2.23	1971
3100	646	1.16	1047	714	1.45	1292	773	1.74	1543	828	2.04	1805	878	2.35	2076
3200	662	1.26	1131	729	1.55	1378	787	1.86	1648	841	2.16	1910	891	2.48	2188
3300	679	1.36	1216	744	1.66	1473	801	1.98	1753	854	2.29	2023	904	2.61	2300
3400	695	1.47	1310	759	1.78	1578	816	2.10	1858	867	2.42	2136	917	2.75	2420
3500	712	1.59	1413	774	1.90	1683	830	2.23	1971	881	2.56	2257	930	2.90	2546
3600	729	1.71	1517	790	2.03	1796	845	2.37	2093	895	2.71	2386	943	3.05	2670
3700	745	1.84	1630	805	2.17	1919	860	2.52	2223	909	2.87	2521	956	3.22	2807
3750	754	1.91	1691	813	2.24	1980	866	2.59	2283	917	2.95	2587	963	3.30	2870

48TJ008 (7½ TONS) – STANDARD MOTOR (BELT DRIVE)									
Airflow (Cfm)	External Static Pressure (in. wg)								
	1.2			1.4			1.6		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2200	838	1.78	1578	898	2.21	1954	935	2.58	2275
2250	841	1.81	1604	902	2.25	1989	939	2.60	2292
2300	843	1.83	1621	905	2.28	2015	943	2.62	2309
2400	849	1.88	1665	910	2.31	2041	952	2.74	2411
2500	859	1.96	1735	912	2.31	2050	963	2.81	2470
2550	864	2.01	1779	915	2.34	2067	968	2.81	2479
2600	869	2.06	1823	918	2.37	2093	973	2.81	2487
2700	880	2.17	1919	927	2.47	2180	976	2.84	2495
2800	892	2.29	2023	938	2.58	2275	983	2.92	2562
2900	903	2.42	2136	949	2.71	2386	993	3.03	2653
3000	915	2.54	2240	961	2.85	2504	1003	3.17	2767
3100	926	2.67	2352	972	3.00	2629	1015	3.32	2896
3200	938	2.81	2470	983	3.14	2743	1026	3.47	3002
3300	950	2.95	2587	995	3.30	2870	—	—	—
3400	963	3.10	2710	1007	3.45	2987	—	—	—
3500	976	3.25	2831	—	—	—	—	—	—
3600	988	3.41	2956	—	—	—	—	—	—
3700	—	—	—	—	—	—	—	—	—
3750	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

NOTES:

- 1 Boldface** indicates field-supplied drive required (See Note 4)
- 2 Shading** indicates alternate drive required.
- 3 Shading** indicates field-supplied motor and drive required.
- Standard drive range is 590 to 840 rpm. Alternate drive range is 685 to 935 rpm. All other rpms require a field-supplied drive.
- Values include losses for filters, unit casing, and wet coils. See page 45 for accessory/FIOP static pressure information

- Maximum continuous bhp is 2.40 and the maximum continuous watts are 2120. Extensive motor and electrical testing on these units ensures that the full range of the motor can be utilized with confidence. Using your fan motors up to the wattage ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected. See Evaporator-Fan Motor Performance table on page 47 for additional information
- Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify
- Interpolation is permissible. Do not extrapolate

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

48TJ009 (8½ TONS) — STANDARD MOTOR (BELT DRIVE)															
Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2550	559	0.72	692	634	0.97	891	700	1.21	1089	759	1.48	1318	814	1.74	1543
2600	567	0.75	716	641	1.00	916	706	1.25	1123	764	1.52	1353	819	1.79	1587
2700	582	0.83	779	655	1.08	981	719	1.34	1199	776	1.61	1430	831	1.89	1674
2800	598	0.90	835	670	1.17	1056	732	1.43	1275	789	1.71	1517	842	2.00	1770
2900	614	0.98	899	684	1.25	1123	745	1.53	1361	802	1.81	1604	854	2.11	1866
3000	630	1.07	973	690	1.35	1207	759	1.63	1447	815	1.92	1700	866	2.23	1971
3100	646	1.16	1047	714	1.45	1292	773	1.74	1543	828	2.04	1805	878	2.35	2076
3200	662	1.26	1131	729	1.55	1378	787	1.86	1648	841	2.16	1910	891	2.48	2188
3300	679	1.36	1216	744	1.66	1473	801	1.98	1753	854	2.29	2023	904	2.61	2300
3400	695	1.47	1310	759	1.78	1578	816	2.10	1858	867	2.42	2136	917	2.75	2420
3500	712	1.59	1413	774	1.90	1683	830	2.23	1971	881	2.56	2257	930	2.90	2546
3600	729	1.71	1517	790	2.03	1796	845	2.37	2093	895	2.71	2386	943	3.05	2670
3700	745	1.84	1630	805	2.17	1919	860	2.52	2223	909	2.87	2521	956	3.22	2807
3750	754	1.91	1691	813	2.24	1980	868	2.59	2283	917	2.95	2587	963	3.30	2870
3800	762	1.98	1753	821	2.31	2041	875	2.66	2343	924	3.03	2653	970	3.38	2933
3900	779	2.12	1875	836	2.46	2171	890	2.82	2479	938	3.19	2783	—	—	—
4000	796	2.27	2006	852	2.61	2300	905	2.98	2612	953	3.37	2925	—	—	—
4100	813	2.42	2136	868	2.78	2445	920	3.15	2751	—	—	—	—	—	—
4200	830	2.59	2283	884	2.95	2587	935	3.33	2894	—	—	—	—	—	—
4250	839	2.68	2360	890	3.04	2661	—	—	—	—	—	—	—	—	—
4300	847	2.76	2428	900	3.13	2735	—	—	—	—	—	—	—	—	—

48TJ009 (8½ TONS) — STANDARD MOTOR (BELT DRIVE)									
Airflow (Cfm)	External Static Pressure (in. wg)								
	1.2			1.4			1.6		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2550	864	2.01	1779	915	2.34	2067	968	2.81	2479
2600	869	2.06	1823	918	2.37	2093	973	2.81	2487
2700	880	2.17	1919	927	2.47	2180	976	2.84	2495
2800	892	2.29	2023	938	2.58	2275	983	2.92	2562
2900	903	2.42	2136	949	2.71	2386	993	3.03	2653
3000	915	2.54	2240	961	2.85	2504	1003	3.17	2767
3100	926	2.67	2352	972	3.00	2629	1016	3.32	2886
3200	938	2.81	2470	983	3.14	2743	1026	3.47	3002
3300	950	2.95	2587	995	3.30	2870	—	—	—
3400	963	3.10	2710	1007	3.45	2987	—	—	—
3500	976	3.25	2831	—	—	—	—	—	—
3600	988	3.41	2956	—	—	—	—	—	—
3700	—	—	—	—	—	—	—	—	—
3750	—	—	—	—	—	—	—	—	—
3800	—	—	—	—	—	—	—	—	—
3900	—	—	—	—	—	—	—	—	—
4000	—	—	—	—	—	—	—	—	—
4100	—	—	—	—	—	—	—	—	—
4200	—	—	—	—	—	—	—	—	—
4250	—	—	—	—	—	—	—	—	—
4300	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

NOTES

- Boldface** indicates field-supplied drive required. (See Note 3)
- Shading** indicates field-supplied motor and drive required.
- Standard drive range is 685 to 935 rpm. All other rpms require a field-supplied drive.
- Values include losses for filters, unit casing, and wet coils. See page 45 for accessory/FIOP static pressure information.

- Maximum continuous bhp is 2.4 and maximum continuous watts are 2120. Extensive motor and electrical testing on these units ensures that the full range of the motor can be utilized with confidence. Using your fan motors up to the wattage ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected. See Evaporator-Fan Motor Performance table on page 47 for additional information.
- Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify.
- Interpolation is permissible. Do not extrapolate.

Performance data (cont)



FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

48TJ012 (10 TONS) — STANDARD AND ALTERNATE MOTORS (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			1.0			1.2		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	592	0.76	723	661	0.93	859	722	1.09	989	779	1.26	1131	829	1.42	1267	880	1.58	1404
3100	607	0.83	779	676	1.01	924	734	1.17	1056	791	1.34	1199	840	1.51	1344	890	1.68	1491
3200	622	0.90	835	690	1.09	989	746	1.25	1123	803	1.43	1275	852	1.60	1422	900	1.77	1569
3300	638	0.98	899	705	1.17	1056	759	1.33	1190	815	1.52	1353	864	1.70	1508	910	1.88	1665
3400	653	1.06	965	719	1.26	1131	772	1.43	1275	826	1.62	1439	876	1.81	1604	921	1.98	1753
3500	669	1.15	1039	733	1.35	1207	786	1.53	1361	838	1.72	1526	888	1.91	1691	933	2.10	1858
3600	684	1.24	1114	747	1.44	1284	800	1.64	1456	850	1.82	1613	900	2.03	1796	945	2.22	2014
3700	700	1.33	1190	760	1.54	1370	814	1.75	1552	863	1.92	1700	912	2.14	1892	957	2.34	2117
3800	715	1.43	1275	774	1.64	1456	828	1.86	1648	875	2.04	1805	924	2.26	1997	969	2.47	2230
3900	731	1.54	1370	787	1.74	1543	843	1.98	1753	888	2.16	1910	936	2.38	2151	981	2.60	2344
4000	747	1.64	1456	801	1.85	1639	857	2.10	1858	902	2.30	2032	948	2.51	2265	993	2.74	2469
4100	763	1.76	1560	816	1.97	1744	872	2.23	1971	916	2.44	2203	960	2.64	2380	1005	2.88	2596
4200	778	1.88	1665	831	2.10	1884	886	2.36	2084	929	2.58	2326	972	2.78	2505	1016	3.03	2735
4300	794	2.00	1770	846	2.23	1971	900	2.50	2256	943	2.73	2460	985	2.93	2642	1028	3.17	2866
4400	810	2.13	1884	861	2.37	2093	913	2.64	2380	958	2.89	2505	999	3.09	2791	1040	3.32	3010
4500	826	2.27	2006	876	2.52	2273	927	2.78	2505	973	3.04	2744	1012	3.26	2952	—	—	—
4600	842	2.41	2177	892	2.67	2406	940	2.92	2633	987	3.21	2904	—	—	—	—	—	—
4700	858	2.55	2300	907	2.83	2551	954	3.08	2782	1002	3.38	3068	—	—	—	—	—	—
4800	874	2.70	2433	922	2.99	2698	968	3.24	2933	—	—	—	—	—	—	—	—	—
4900	890	2.86	2578	938	3.16	2857	—	—	—	—	—	—	—	—	—	—	—	—
5000	906	3.03	2735	953	3.33	3020	—	—	—	—	—	—	—	—	—	—	—	—

48TJ012 (10 TONS) — STANDARD AND ALTERNATE MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)											
	1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	924	1.73	1534	970	1.89	1736	1019	2.00	1828	1066	2.30	2082
3100	935	1.84	1695	977	2.00	1828	1026	2.17	1971	1070	2.44	2203
3200	946	1.95	1786	987	2.11	1920	1029	2.28	2065	1075	2.51	2265
3300	957	2.06	1878	998	2.23	2022	1037	2.40	2169	1082	2.58	2326
3400	967	2.17	1971	1009	2.35	2125	1047	2.53	2282	1087	2.70	2433
3500	976	2.29	2074	1020	2.48	2238	1058	2.66	2397	1095	2.84	2560
3600	986	2.41	2177	1030	2.61	2353	1069	2.80	2523	1106	2.98	2688
3700	998	2.54	2291	1039	2.74	2469	1081	2.94	2651	1117	3.13	2829
3800	1010	2.67	2406	1049	2.87	2587	1091	3.08	2782	1128	3.29	2981
3900	1022	2.81	2533	1060	3.02	2726	1100	3.23	2923	—	—	—
4000	1034	2.96	2670	1072	3.17	2866	1110	3.38	3068	—	—	—
4100	1046	3.11	2810	1084	3.32	3010	—	—	—	—	—	—
4200	1058	3.26	2952	—	—	—	—	—	—	—	—	—
4300	—	—	—	—	—	—	—	—	—	—	—	—
4400	—	—	—	—	—	—	—	—	—	—	—	—
4500	—	—	—	—	—	—	—	—	—	—	—	—
4600	—	—	—	—	—	—	—	—	—	—	—	—
4700	—	—	—	—	—	—	—	—	—	—	—	—
4800	—	—	—	—	—	—	—	—	—	—	—	—
4900	—	—	—	—	—	—	—	—	—	—	—	—
5000	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

NOTES

- Boldface** indicates field-supplied drive required (See Note 4.)
- Shading** indicates alternate motor and/or drive required
- Shading** indicates field-supplied motor and drive required
- Standard drive range is 685 to 935 rpm. Alternate drive range is 835 to 1085 rpm. All other rpms require a field-supplied drive
- Values include losses for filters, unit casing, and wet coils. See page 45 for accessory/FIOP static pressure information.

- Maximum continuous bhp is 2.4 for the standard motor and 2.9 for the alternate motor. Maximum continuous watts are 2120 for the standard motor and 2615 for the alternate motor. Extensive motor and electrical testing on these units ensures that the full range of the motor can be utilized with confidence. Using your fan motors up to the wattage ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected. See Evaporator-Fan Motor Performance table on page 47 for additional information
- Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify
- Interpolation is permissible. Do not extrapolate.

FAN PERFORMANCE – VERTICAL DISCHARGE UNITS (cont)

48TJ014 (12½ TONS) – STANDARD AND ALTERNATE MOTORS (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3700	729	1.36	1259	790	1.58	1440	847	1.79	1615	902	2.06	1845	955	2.29	2044
3800	745	1.46	1340	805	1.69	1531	861	1.89	1700	915	2.17	1940	967	2.41	2149
3900	761	1.56	1423	820	1.80	1624	875	2.01	1802	928	2.29	2044	979	2.55	2272
4000	777	1.67	1514	836	1.92	1725	889	2.14	1914	941	2.40	2140	991	2.68	2387
4100	793	1.79	1615	851	2.05	1836	904	2.27	2027	955	2.52	2246	1004	2.82	2512
4200	810	1.91	1717	867	2.18	1948	918	2.41	2149	968	2.65	2361	1017	2.96	2638
4300	826	2.04	1828	883	2.32	2070	933	2.55	2272	982	2.79	2485	1030	3.11	2773
4400	842	2.17	1940	898	2.46	2193	948	2.70	2405	996	2.93	2611	1043	3.25	2901
4500	859	2.31	2061	914	2.60	2316	962	2.85	2539	1010	3.09	2755	1056	3.40	3037
4600	876	2.45	2184	930	2.76	2459	977	3.01	2683	1024	3.26	2910	1070	3.55	3175
4700	892	2.60	2316	945	2.91	2593	992	3.18	2837	1039	3.43	3065	1083	3.71	3322
4800	909	2.77	2468	961	3.07	2737	1008	3.36	3001	1053	3.61	3230	1097	3.88	3479
4900	926	2.93	2611	977	3.24	2891	1024	3.54	3166	1068	3.80	3405	1111	4.06	3646
5000	942	3.11	2773	993	3.41	3047	1039	3.73	3341	1080	3.99	3581	1125	4.25	3822
5100	959	3.29	2937	1009	3.60	3221	1055	3.92	3516	1097	4.19	3767	1139	4.46	4018
5200	976	3.47	3101	1025	3.78	3387	1071	4.12	3702	1112	4.40	3962	1153	4.67	4214
5300	993	3.67	3285	1041	3.98	3572	1086	4.33	3897	1127	4.61	4158	1168	4.90	4428
5400	1010	3.87	3470	1057	4.18	3757	1102	4.54	4093	1142	4.84	4372	1182	5.13	4642
5500	1027	4.07	3655	1073	4.39	3953	1118	4.76	4298	1157	5.07	4586	1197	5.36	4856
5600	1043	4.29	3860	1090	4.61	4158	1133	4.99	4512	1173	5.31	4810	1211	5.61	5087
5700	1060	4.51	4065	1106	4.83	4363	1149	5.22	4726	1189	5.55	5032	—	—	—
5800	1077	4.74	4279	1122	5.07	4586	1165	5.45	4939	—	—	—	—	—	—
5900	1094	4.98	4503	1139	5.31	4810	1181	5.70	5170	—	—	—	—	—	—
6000	1111	5.22	4726	1155	5.55	5032	—	—	—	—	—	—	—	—	—
6100	1128	5.48	4967	—	—	—	—	—	—	—	—	—	—	—	—
6200	1145	5.74	5207	—	—	—	—	—	—	—	—	—	—	—	—

48TJ014 (12½ TONS) – STANDARD AND ALTERNATE MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)								
	1.4			1.6			1.8		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3700	1060	2.80	2494	1108	3.05	2719	1152	3.27	2919
3800	1070	2.94	2620	1118	3.19	2846	1163	3.44	3074
3900	1079	3.07	2737	1128	3.34	2983	1173	3.60	3221
4000	1089	3.22	2873	1137	3.49	3120	1183	3.76	3368
4100	1100	3.36	3001	1147	3.65	3267	1193	3.93	3525
4200	1110	3.51	3138	1157	3.81	3414	1202	4.09	3674
4300	1121	3.67	3285	1167	3.97	3562	1212	4.27	3841
4400	1133	3.84	3442	1178	4.14	3720	1222	4.44	3999
4500	1144	4.00	3590	1188	4.31	3878	1232	4.62	4167
4600	1157	4.19	3767	1199	4.49	4046	1242	4.81	4344
4700	1169	4.38	3943	1210	4.68	4223	1252	5.00	4521
4800	1181	4.58	4130	1222	4.87	4400	1263	5.20	4707
4900	1194	4.77	4307	1234	5.09	4605	1274	5.40	4893
5000	1207	4.97	4493	1247	5.30	4800	1286	5.62	5097
5100	1220	5.18	4689	1259	5.52	5004	—	—	—
5200	1233	5.38	4874	1272	5.74	5207	—	—	—
5300	1246	5.58	5060	—	—	—	—	—	—
5400	—	—	—	—	—	—	—	—	—
5500	—	—	—	—	—	—	—	—	—
5600	—	—	—	—	—	—	—	—	—
5700	—	—	—	—	—	—	—	—	—
5800	—	—	—	—	—	—	—	—	—
5900	—	—	—	—	—	—	—	—	—
6000	—	—	—	—	—	—	—	—	—
6100	—	—	—	—	—	—	—	—	—
6200	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

NOTES

1 **Boldface** indicates field-supplied drive required (See Note 4)

2 **Shading** indicates alternate motor and/or drive required

3 **Shading** indicates field-supplied motor and drive required

4 Standard drive range is 860 to 1080 rpm. Alternate drive range is 900 to 1260 rpm. All other rpms require a field-supplied drive

5 Values include losses for filters, unit casing, and wet coils. See page 45 for accessory/FIOP static pressure information

- Maximum continuous bhp is 4.20 for the standard motor and 4.90 for the alternate motor. Maximum continuous watts are 3775 for the standard motor and 4400 for the alternate motor. Extensive motor and electrical testing on these units ensures that the full range of the motor can be utilized with confidence. Using your fan motors up to the wattage ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected. See Evaporator-Fan Motor Performance table on page 47 for additional information.
- Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify.
- Interpolation is permissible. Do not extrapolate.

**NOTE: FAN PERFORMANCE DATA TABLES FOR 48TJ016-028
UNITS ARE ON PAGES 42-44.**

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS

48TJ004 (3 TONS) — STANDARD MOTOR (DIRECT DRIVE)

Airflow (Cfm)	Low Speed						High Speed					
	208 v			230, 460, 575 v			208 v			230, 460, 575 v		
	Esp	Bhp	Watts	Esp	Bhp	Watts	Esp	Bhp	Watts	Esp	Bhp	Watts
900	0.54	0.21	253	0.57	0.23	277	0.55	0.26	307	0.60	0.31	363
1000	0.49	0.23	270	0.51	0.25	292	0.52	0.27	321	0.53	0.32	374
1100	0.43	0.24	287	0.45	0.26	307	0.46	0.28	335	0.49	0.33	385
1200	0.39	0.26	304	0.40	0.27	323	0.38	0.29	349	0.43	0.34	397
1300	0.33	0.27	321	0.35	0.29	338	0.35	0.31	364	0.36	0.34	408
1400	0.26	0.29	338	0.28	0.30	354	0.29	0.32	378	0.32	0.35	420
1500	0.21	0.30	355	0.23	0.31	369	0.24	0.33	392	0.25	0.36	431

LEGEND

Bhp — Brake Horsepower Input to Fan
Esp — External Static Pressure (in wg)

NOTES:

1. Values include losses for filters, unit casing, and wet coils. See page 45 for accessory/FIOP static pressure information.
2. Extensive motor and electrical testing on these units ensures that the

full range of the motor can be utilized with confidence. Using your fan motors up to the wattage ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected. See Evaporator-Fan Motor Performance table on page 47 for additional information.

3. Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify.

48TJ004 (3 TONS) — ALTERNATE MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)																	
	0.1			0.2			0.3			0.4			0.5			0.6		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
900	526	0.06	70	584	0.08	99	656	0.12	139	734	0.22	219	818	0.25	269	875	0.27	269
1000	570	0.09	109	627	0.13	149	738	0.19	189	800	0.26	259	848	0.29	288	895	0.31	308
1100	614	0.13	149	670	0.16	189	758	0.23	229	812	0.29	288	863	0.32	308	914	0.35	348
1200	658	0.16	189	710	0.23	229	780	0.28	279	840	0.32	318	889	0.36	358	938	0.40	398
1300	703	0.20	239	752	0.27	269	808	0.32	318	868	0.37	368	916	0.41	408	963	0.45	448
1400	725	0.29	288	776	0.31	308	845	0.38	378	891	0.42	418	937	0.47	467	983	0.51	507
1500	755	0.33	328	816	0.38	378	870	0.43	428	924	0.48	477	969	0.53	527	1014	0.58	577

48TJ004 (3 TONS) — ALTERNATE MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)																	
	0.7			0.8			0.9			1.0			1.1			1.2		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
900	924	0.32	308	953	0.35	348	989	0.38	388	1028	0.42	438	1074	0.45	487	1120	0.50	537
1000	936	0.35	348	977	0.39	388	1020	0.44	438	1064	0.48	477	1124	0.52	537	1185	0.55	597
1100	960	0.39	388	1005	0.43	428	1052	0.49	487	1100	0.52	527	1163	0.56	587	1225	0.60	647
1200	988	0.45	448	1038	0.50	497	1076	0.53	527	1136	0.59	577	1201	0.61	647	1266	0.64	716
1300	1012	0.51	507	1061	0.56	557	1094	0.61	607	1172	0.65	647	1239	0.69	716	1306	0.72	786
1400	1027	0.56	557	1071	0.60	597	1108	0.67	666	1208	0.70	706	1278	0.75	786	1347	0.79	865
1500	1056	0.63	627	1097	0.68	676	1117	0.70	696	1245	0.74	776	1315	0.80	865	1385	0.85	955

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

NOTES:

1. **Boldface** indicates field-supplied drive required. (See Note 2.)
2. Alternate motor drive range is 760 to 1000 rpm. All other rpms require field-supplied drive.
3. Values include losses for filters, unit casing, and wet coils. See page 45 for accessory/FIOP static pressure information.
4. Maximum continuous bhp is 1.00 and maximum continuous watts are 1000. Extensive motor and electrical testing on these units ensures

that the full range of the motor can be utilized with confidence. Using your fan motors up to the wattage ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected. See Evaporator-Fan Motor Performance table on page 47 for additional information.

5. Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify.
6. Interpolation is permissible. Do not extrapolate.

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

48TJ005 (4 TONS) — STANDARD MOTOR (DIRECT DRIVE)

Airflow (Cfm)	Low Speed						High Speed					
	208 v			230, 460, 575 v			208 v			230, 460, 575 v		
	Esp	Bhp	Watts	Esp	Bhp	Watts	Esp	Bhp	Watts	Esp	Bhp	Watts
1200	0.75	0.41	458	0.81	0.45	506	0.87	0.51	572	0.92	0.56	632
1300	0.68	0.42	471	0.74	0.46	521	0.79	0.52	589	0.85	0.58	651
1400	0.60	0.45	503	0.66	0.49	556	0.71	0.54	616	0.77	0.60	681
1500	0.51	0.47	536	0.58	0.52	593	0.64	0.56	631	0.70	0.62	698
1600	0.42	0.49	557	0.49	0.54	616	0.56	0.58	654	0.63	0.64	723
1700	0.32	0.52	584	0.39	0.57	646	0.48	0.60	678	0.55	0.66	750
1800	0.21	0.54	610	0.29	0.60	674	0.41	0.62	698	0.48	0.68	772
1900	0.09	0.56	629	0.18	0.62	696	0.33	0.64	720	0.41	0.70	796
2000	—	—	—	0.06	0.65	731	0.26	0.66	744	0.33	0.73	823

LEGEND

Bhp — Brake Horsepower Input to Fan
Esp — External Static Pressure (in. wg)

NOTES:

- Values include losses for filters, unit casing, and wet coils. See page 45 for accessory/FIOP static pressure information.
- Extensive motor and electrical testing on these units ensures that the

full range of the motor can be utilized with confidence. Using your fan motors up to the wattage ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected. See Evaporator-Fan Motor Performance table on page 47 for additional information.

- Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify.

48TJ005 (4 TONS) — ALTERNATE MOTOR (BELT DRIVE)

481J005 (4 TONS) — ALTERNATE MOTOR (BELT DRIVE)																					
Airflow (Cfm)	External Static Pressure (in. wg)																				
	0.1			0.2			0.3			0.4			0.6			0.7			0.8		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1200	569	0.18	189	641	0.23	242	701	0.29	299	761	0.34	357	859	0.46	483	901	0.52	546	943	0.58	609
1300	604	0.22	231	673	0.28	294	731	0.34	352	788	0.39	410	887	0.52	546	928	0.59	615	968	0.65	683
1400	640	0.27	284	705	0.33	347	761	0.39	410	817	0.45	473	914	0.59	620	955	0.66	688	996	0.72	757
1500	676	0.32	336	738	0.38	399	793	0.45	468	847	0.51	536	940	0.65	683	982	0.73	767	1024	0.81	851
1600	713	0.38	399	772	0.44	462	825	0.51	536	877	0.58	609	967	0.73	767	1009	0.81	851	1051	0.89	935
1700	750	0.45	473	806	0.51	536	857	0.59	615	908	0.66	693	997	0.81	851	1037	0.90	940	1077	1.01	1030
1800	788	0.52	546	841	0.59	620	890	0.67	704	939	0.75	788	1026	0.91	956	1065	1.01	1040	1104	1.07	1124
1900	826	0.60	630	876	0.68	714	924	0.76	799	971	0.84	883	1056	1.01	1061	1094	1.10	1151	1132	1.18	1240
2000	864	0.70	735	912	0.77	809	958	0.86	898	1004	0.94	988	1087	1.12	1177	1125	1.21	1271	1162	1.30	1366

48TJ005 (4 TONS) — ALTERNATE MOTOR (BELT DRIVE)

48TJ005 (4 TONS) — ALTERNATE MOTOR (BELT DRIVE)																					
Airflow (Cfm)	External Static Pressure (in. wg)																				
	0.9			1.0			1.1			1.2			1.4			1.6			1.8		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1200	987	0.64	652	1030	0.70	695	1068	0.79	792	1106	0.87	889	1134	0.98	998	1189	1.12	1138	1245	1.21	1358
1300	1006	0.71	709	1044	0.77	736	1086	0.84	833	1128	0.91	930	1183	1.10	1052	1226	1.23	1215	1297	1.35	1406
1400	1033	0.79	797	1069	0.86	838	1104	0.93	925	1139	1.01	1012	1218	1.14	1090	1286	1.34	1282	1320	1.48	1463
1500	1060	0.88	891	1095	0.95	930	1129	1.02	1022	1162	1.09	1114	1228	1.24	1186	1303	1.40	1339	1343	1.63	1530
1600	1087	1.01	1001	1123	1.05	1073	1156	1.13	1150	1185	1.20	1226	1250	1.35	1291	1319	1.51	1444	1382	1.68	1607
1700	1114	1.07	1108	1151	1.15	1185	1183	1.23	1262	1215	1.31	1339	1276	1.48	1415	1334	1.54	1569	1398	1.80	1722
1800	1141	1.17	1221	1178	1.26	1318	1211	1.35	1390	1243	1.43	1461	1303	1.61	1540	1359	1.78	1702	1418	1.95	1865
1900	1168	1.28	1371	1204	1.37	1502	1238	1.47	1548	1271	1.56	1594	1330	1.74	1664	1386	1.93	1846	1439	2.11	2018
2000	1197	1.39	1485	1231	1.48	1604	1265	1.59	1666	1298	1.69	1727	1358	1.89	1808	1413	2.08	1989	1466	2.27	2171

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

NOTES:

- Boldface** indicates field-supplied drive required. (See Note 3)
- Shading** indicates field-supplied motor and drive required.
- Alternate motor drive range 835 to 1185 rpm. All other rpms require a field-supplied drive.
- Values include losses for filters, unit casing, and wet coils. See page 45 for accessory/FIOP static pressure information.

- Maximum continuous bhp is 1.00 and the maximum continuous watts are 1000. Extensive motor and electrical testing on these units ensures that the full range of the motor can be utilized with confidence. Using your fan motors up to the wattage ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected. See Evaporator-Fan Motor Performance table on page 47 for additional information.
- Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify.
- Interpolation is permissible. Do not extrapolate.

Performance data (cont)



FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

48TJ006 (5 TONS) — STANDARD MOTOR (DIRECT DRIVE)

Airflow (Cfm)	Low Speed						Medium Speed						High Speed					
	208 V			230, 460, 575 V			208 V			230, 460, 575 V			208 V			230, 460, 575 V		
	Esp	Bhp	Watts	Esp	Bhp	Watts	Esp	Bhp	Watts	Esp	Bhp	Watts	Esp	Bhp	Watts	Esp	Bhp	Watts
1500	0.74	0.67	750	1.06	0.71	791	1.07	0.70	782	1.27	0.76	845	1.26	0.79	875	1.33	0.85	949
1600	0.54	0.70	780	0.90	0.74	824	0.92	0.74	821	1.13	0.79	883	1.14	0.82	913	1.22	0.89	988
1700	0.34	0.73	810	0.75	0.77	857	0.77	0.77	861	1.00	0.83	921	1.01	0.85	950	1.11	0.92	1027
1800	0.14	0.75	839	0.59	0.80	891	0.62	0.81	900	0.87	0.86	959	0.89	0.88	988	1.00	0.96	1066
1900	—	—	—	0.44	0.83	924	0.47	0.84	940	0.74	0.90	997	0.77	0.92	1025	0.89	0.99	1105
2000	—	—	—	0.28	0.86	957	0.32	0.88	979	0.61	0.93	1035	0.64	0.95	1063	0.78	1.03	1144
2100	—	—	—	0.13	0.89	990	0.17	0.91	1018	0.48	0.96	1073	0.51	0.99	1101	0.67	1.06	1183
2200	—	—	—	—	—	—	0.02	0.95	1058	0.35	1.00	1111	0.39	1.02	1138	0.56	1.10	1222
2300	—	—	—	—	—	—	—	—	—	0.22	1.03	1149	0.26	1.06	1176	0.45	1.13	1261
2400	—	—	—	—	—	—	—	—	—	0.09	1.07	1187	0.14	1.09	1213	0.34	1.17	1300
2500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.23	1.20	1340

LEGEND

Bhp — Brake Horsepower Input to Fan
Esp — External Static Pressure (in. wg)

NOTES:

- Values include losses for filters, unit casing, and wet coils. See page 45 for accessory/FIOP static pressure information.
- Extensive motor and electrical testing on these units ensures that the

full range of the motor can be utilized with confidence. Using your fan motors up to the wattage ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected. See Evaporator-Fan Motor Performance table on page 47 for additional information.

- Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify.

48TJ006 (5 TONS) — ALTERNATE MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)																	
	0.1			0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1500	730	0.34	357	789	0.40	420	896	0.53	557	990	0.67	704	1072	0.83	872	1153	1.00	1051
1600	770	0.40	420	826	0.46	483	931	0.61	641	1020	0.75	788	1101	0.91	956	1178	1.09	1145
1700	811	0.47	494	865	0.54	567	966	0.69	725	1051	0.84	883	1133	1.01	1061	1205	1.18	1240
1800	852	0.55	578	905	0.62	651	1002	0.78	820	1084	0.93	977	1163	1.10	1156	1235	1.29	1355
1900	894	0.54	567	945	0.72	757	1037	0.88	925	1119	1.04	1093	1194	1.21	1271	1266	1.40	1471
2000	936	0.74	778	984	0.82	862	1072	0.98	1030	1154	1.16	1219	1226	1.33	1397	1297	1.53	1608
2100	978	0.85	893	1024	0.93	977	1108	1.10	1156	1192	1.29	1355	1259	1.47	1545	1327	1.66	1744
2200	1021	0.97	1019	1064	1.05	1103	1145	1.22	1282	1225	1.43	1503	1294	1.62	1702	1359	1.80	1902
2300	1064	1.10	1156	1104	1.18	1240	1183	1.36	1429	1260	1.57	1650	1330	1.78	1870	1392	1.97	2070
2400	1107	1.24	1303	1145	1.32	1387	1222	1.45	1524	1296	1.73	1818	1365	1.94	2036	1426	2.15	2259
2500	1150	1.39	1460	1186	1.48	1555	1262	1.68	1765	1331	1.89	1986	1400	2.12	2227	1461	2.34	2459

48TJ006 (5 TONS) — ALTERNATE MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)											
	1.2			1.4			1.6			1.8		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1500	1221	1.17	1229	1256	1.30	1366	1283	1.32	1387	1303	1.22	1282
1600	1252	1.27	1334	1311	1.45	1524	1340	1.58	1660	1330	1.61	1692
1700	1278	1.37	1439	1345	1.57	1650	1397	1.76	1849	1424	1.89	1986
1800	1303	1.48	1555	1371	1.69	1776	1433	1.90	1996	1480	2.09	2196
1900	1330	1.59	1671	1396	1.80	1902	1460	2.03	2133	1517	2.25	2364
2000	1362	1.73	1818	1422	1.94	2038	1485	2.16	2270	1544	2.40	2522
2100	1393	1.87	1965	1452	2.08	2185	1510	2.31	2427	1570	2.55	2674
2200	1423	2.02	2122	1483	2.24	2354	1538	2.46	2585	1594	2.71	2821
2300	1454	2.18	2291	1515	2.41	2532	1571	2.64	2758	1623	2.88	2976
2400	1485	2.36	2480	1544	2.59	2721	1604	2.84	2947	1657	3.07	3152
2500	1518	2.55	2679	1574	2.78	2905	1633	3.03	3134	1692	3.28	3345

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

NOTES:

- 1 Boldface** indicates field-supplied drive required (See Note 3)
- 2 Shading** indicates field-supplied motor and drive required
- Alternate motor drive range 900 to 1300 rpm. All other rpms require a field-supplied drive.
- Values include losses for filters, unit casing, and wet coils. See page 45 for accessory/FIOP static pressure information.

- Maximum continuous bhp is 1.80 and maximum continuous watts are 1921. Extensive motor and electrical testing on these units ensures that the full range of the motor can be utilized with confidence. Using your fan motors up to the wattage ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected. See Evaporator-Fan Motor Performance table on page 47 for additional information.

- Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify.
- Interpolation is permissible. Do not extrapolate.

FAN PERFORMANCE – HORIZONTAL DISCHARGE UNITS (cont)

48TJ007 (6 TONS) – STANDARD MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (In. wg)																	
	0.1			0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1800	885	0.63	623	942	0.73	700	1047	0.90	835	1139	1.05	956	1193	1.14	1031	1276	1.30	1165
1900	928	0.73	700	982	0.83	779	1084	1.02	932	1160	1.11	1006	1223	1.24	1114	1301	1.38	1233
2000	971	0.84	787	1022	0.94	867	1121	1.12	1014	1188	1.22	1097	1254	1.36	1216	1329	1.44	1284
2100	1015	0.97	891	1063	1.10	998	1140	1.18	1064	1196	1.27	1140	1272	1.45	1292	1354	1.58	1404
2200	1060	1.10	998	1104	1.20	1081	1159	1.23	1106	1229	1.41	1258	1306	1.53	1361	1363	1.70	1508
2300	1104	1.25	1123	1130	1.27	1140	1196	1.37	1224	1264	1.56	1387	1340	1.66	1473	1397	1.86	1648
2400	1138	1.30	1165	1174	1.37	1224	1245	1.57	1396	1305	1.63	1447	1373	1.84	1630	1440	1.95	1726
2500	1183	1.43	1275	1201	1.50	1335	1284	1.65	1465	1338	1.75	1552	1402	1.99	1761	1469	2.04	1805
2600	1210	1.58	1404	1246	1.67	1482	1312	1.76	1560	1366	1.96	1735	1435	2.10	1858	1494	2.19	1936
2700	1254	1.76	1560	1285	1.80	1595	1354	1.95	1726	1403	2.14	1892	1474	2.21	1954	1536	2.46	2171
2800	1274	1.82	1613	1304	1.85	1639	1374	2.12	1875	1459	2.25	1989	1514	2.42	2126	1570	2.66	2243
2900	1318	1.95	1726	1345	2.05	1814	1412	2.32	2050	1496	2.54	2240	1529	2.61	2200	1603	2.87	2521
3000	1362	2.20	1945	1378	2.30	2032	1451	2.40	2119	1534	2.66	2343	1560	2.81	2470	1611	3.01	2648

48TJ007 (6 TONS) – STANDARD MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (In. wg)								
	1.2			1.4			1.6		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1800	1341	1.40	1250	1413	1.55	1378	1474	1.58	1404
1900	1374	1.53	1361	1437	1.62	1439	1490	1.67	1482
2000	1396	1.66	1473	1460	1.68	1491	1509	1.77	1569
2100	1413	1.75	1552	1475	1.73	1534	1529	1.92	1700
2200	1434	1.81	1604	1487	1.85	1639	1554	2.07	1831
2300	1459	1.88	1665	1520	2.07	1831	1576	2.24	1980
2400	1502	2.06	1823	1552	2.24	1980	1604	2.42	2136
2500	1524	2.24	1980	1585	2.42	2136	1638	2.60	2292
2600	1552	2.40	2119	1616	2.63	2317	1671	2.80	2462
2700	1584	2.61	2300	1646	2.83	2467	1706	2.97	2653
2800	1624	2.95	2504	1677	2.99	2661	—	—	—
2900	1671	3.03	2725	—	—	—	—	—	—
3000	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

NOTES:

- Boldface** indicates field-supplied drive required. (See Note 3.)
- Shading** indicates field-supplied motor and drive required.
- Alternate motor drive range: 1070 to 1460 rpm. All other rpms require a field-supplied drive.
- Values include losses for filters, unit casing, and wet coils. See page 45 for accessory/FIOP static pressure information.

- Maximum continuous bhp is 2.4 and maximum continuous watts are 2120. Extensive motor and electrical testing on these units ensures that the full range of the motor can be utilized with confidence. Using your fan motors up to the wattage ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected. See Evaporator-Fan Motor Performance table on page 47 for additional information.
- Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify.
- Interpolation is permissible. Do not extrapolate.

Performance data (cont)



FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

48TJ008 (7½ TONS) — STANDARD MOTOR (BELT DRIVE)																		
Airflow (Cfm)	External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			0.9			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2200	499	0.50	524	580	0.70	677	652	0.94	867	717	1.17	1056	748	1.30	1165	779	1.43	1275
2250	507	0.53	547	586	0.73	700	658	0.97	891	722	1.22	1097	752	1.34	1199	783	1.46	1301
2300	513	0.55	562	592	0.76	723	663	1.00	916	727	1.26	1131	756	1.38	1224	786	1.49	1327
2400	528	0.60	600	606	0.83	779	674	1.06	965	738	1.34	1199	766	1.46	1301	795	1.58	1404
2500	542	0.66	646	619	0.90	835	686	1.13	1022	748	1.41	1258	777	1.55	1370	806	1.68	1491
2550	550	0.69	669	627	0.94	867	692	1.17	1056	754	1.45	1292	783	1.60	1413	812	1.74	1543
2600	557	0.72	692	634	0.97	891	698	1.21	1089	759	1.49	1327	787	1.64	1456	816	1.79	1587
2700	573	0.79	747	648	1.05	956	711	1.29	1156	770	1.58	1404	798	1.73	1534	827	1.88	1665
2800	588	0.86	803	662	1.13	1022	723	1.38	1233	782	1.66	1473	809	1.82	1613	837	1.98	1753
2900	604	0.94	867	676	1.21	1089	737	1.48	1318	794	1.76	1560	821	1.92	1700	848	2.08	1840
3000	620	1.02	932	690	1.30	1165	750	1.58	1404	806	1.86	1648	832	2.02	1788	849	2.18	1927
3100	636	1.11	1006	704	1.39	1241	764	1.69	1499	818	1.97	1744	844	2.13	1884	870	2.29	2023
3200	652	1.21	1089	718	1.49	1327	778	1.80	1595	831	2.09	1849	856	2.25	1980	882	2.40	2119
3300	668	1.31	1173	732	1.59	1413	793	1.92	1700	844	2.21	1954	869	2.37	2093	894	2.53	2232
3400	684	1.41	1258	747	1.70	1508	807	2.04	1805	857	2.35	2076	882	2.51	2206	907	2.66	2343
3500	701	1.53	1361	762	1.82	1613	821	2.16	1910	871	2.48	2188	895	2.64	2326	919	2.80	2462
3600	717	1.65	1465	777	1.94	1718	835	2.29	2023	885	2.63	2317	908	2.79	2453	932	2.95	2587
3700	733	1.77	1569	792	2.07	1831	849	2.42	2136	899	2.78	2445	922	2.95	2579	945	3.11	2718
3750	742	1.84	1630	800	2.14	1892	856	2.49	2197	907	2.86	2512	929	3.03	2653	952	3.20	2719

48TJ008 (7½ TONS) — STANDARD MOTOR (BELT DRIVE)									
Airflow (Cfm)	External Static Pressure (in. wg)								
	1.2			1.4			1.6		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2200	839	1.78	1578	905	2.21	1954	951	2.57	2266
2250	843	1.81	1604	908	2.25	1989	955	2.59	2283
2300	846	1.84	1630	910	2.25	2015	959	2.61	2300
2400	853	1.88	1665	912	2.31	2041	967	2.68	2360
2500	859	1.94	1718	919	2.37	2093	971	2.73	2403
2550	864	1.99	1761	920	2.39	2110	974	2.76	2428
2600	868	2.04	1805	921	2.41	2136	976	2.78	2445
2700	878	2.16	1910	928	2.45	2162	983	2.88	2529
2800	889	2.29	2023	937	2.57	2266	986	2.91	2554
2900	900	2.41	2128	947	2.70	2377	993	3.01	2637
3000	910	2.52	2223	958	2.85	2504	1002	3.15	2751
3100	920	2.64	2326	968	2.99	2620	1012	3.30	2870
3200	931	2.76	2428	979	3.13	2735	1023	3.47	3002
3300	942	2.89	2537	989	3.26	2839	1034	3.63	3121
3400	954	3.02	2645	1000	3.40	2948	1044	3.79	3237
3500	966	3.15	2751	1011	3.55	3062	1054	3.94	3340
3600	978	3.30	2870	1022	3.69	3165	1065	4.10	3445
3700	990	3.45	2987	1034	3.84	3272	1076	4.26	3544
3750	997	3.54	3055	1040	3.93	3333	1082	5.27	3609

LEGEND

- Bhp** — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

NOTES

- Boldface** indicates field-supplied drive required (See Note 4)
- Shading** indicates alternate drive required
- Shading** indicates field-supplied motor and drive required
- Standard drive range is 590 to 840 rpm. Alternate drive range is 685 to 935 rpm. All other rpms require a field-supplied drive.
- Values include losses for filters, unit casing, and wet coils. See page 45 for accessory/FIOP static pressure information
- Maximum continuous bhp is 2.4 and maximum continuous watts are 2120. Extensive motor and electrical testing on these units ensures that the full range of the motor can be utilized with confidence. Using your fan motors up to the wattage ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected. See Evaporator-Fan Motor Performance table on page 47 for additional information
- Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify
- Interpolation is permissible. Do not extrapolate



FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

48TJ009 (8½ TONS) — STANDARD MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			0.9			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2550	550	0.69	669	627	0.94	867	692	1.17	1056	754	1.45	1292	783	1.60	1413	812	1.74	1543
2600	557	0.72	692	634	0.97	891	698	1.21	1089	759	1.49	1327	787	1.64	1456	816	1.79	1587
2700	573	0.79	747	648	1.05	956	711	1.29	1156	770	1.58	1404	798	1.73	1534	827	1.88	1665
2800	588	0.86	803	662	1.13	1022	723	1.38	1233	782	1.66	1473	809	1.82	1613	837	1.98	1753
2900	604	0.94	867	676	1.21	1089	737	1.48	1318	794	1.76	1560	821	1.92	1700	848	2.08	1840
3000	620	1.02	932	690	1.30	1165	750	1.58	1404	806	1.86	1648	832	2.02	1788	849	2.18	1927
3100	636	1.11	1006	704	1.39	1241	764	1.69	1499	818	1.97	1744	844	2.13	1884	870	2.29	2023
3200	652	1.21	1089	718	1.49	1327	778	1.80	1595	831	2.09	1849	856	2.25	1980	882	2.40	2119
3300	668	1.31	1173	732	1.59	1413	793	1.92	1700	844	2.21	1954	869	2.37	2093	894	2.53	2232
3400	684	1.41	1258	747	1.70	1508	807	2.04	1805	857	2.35	2076	882	2.51	2206	907	2.66	2343
3500	701	1.53	1361	762	1.82	1613	821	2.16	1910	871	2.48	2188	895	2.64	2326	919	2.80	2462
3600	717	1.65	1465	777	1.94	1718	835	2.29	2023	885	2.63	2317	908	2.79	2453	932	2.95	2587
3700	733	1.77	1569	792	2.07	1831	849	2.42	2136	899	2.78	2445	922	2.95	2579	945	3.11	2718
3750	742	1.84	1630	800	2.14	1892	856	2.49	2197	907	2.86	2512	929	3.03	2653	952	3.20	2719
3800	750	1.90	1683	807	2.21	1954	863	2.56	2257	914	2.93	2571	936	3.11	2847	958	3.28	2854
3900	767	2.04	1805	822	2.35	2076	877	2.71	2386	928	3.09	2702	950	3.27	2979	972	3.45	2987
4000	783	2.18	1927	838	2.50	2208	891	2.86	2512	942	3.26	2839	964	3.45	3187	986	3.63	3121
4100	800	2.34	2067	854	2.66	2343	905	3.02	2645	956	3.43	2971	978	3.62	3244	1000	3.81	3251
4200	817	2.49	2197	869	2.82	2479	920	3.19	2783	970	3.60	3099	992	3.80	3256	1015	4.00	3380
4250	826	2.58	2275	877	2.91	2554	928	3.28	2854	977	3.69	3165	999	3.80	3306	1022	4.10	3445
4300	834	2.66	2343	885	3.00	2629	935	3.37	2925	984	3.78	3230	1006	3.99	3313	1029	4.20	3508

48TJ009 (8½ TONS) — STANDARD MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)								
	1.2			1.4			1.6		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2550	864	1.99	1761	920	2.39	2110	974	2.76	2428
2600	868	2.04	1805	921	2.41	2136	976	2.78	2445
2700	878	2.16	1910	928	2.45	2162	983	2.88	2529
2800	889	2.29	2023	937	2.57	2266	986	2.91	2554
2900	900	2.41	2128	947	2.70	2377	993	3.01	2637
3000	910	2.52	2223	958	2.85	2504	1002	3.15	2751
3100	920	2.64	2326	968	2.99	2620	1012	3.30	2870
3200	931	2.76	2428	979	3.13	2735	1023	3.47	3002
3300	942	2.89	2537	989	3.26	2839	1034	3.63	3121
3400	954	3.02	2645	1000	3.40	2948	1044	3.79	3237
3500	966	3.15	2751	1011	3.55	3062	1054	3.94	3340
3600	978	3.30	2870	1022	3.69	3165	1065	4.10	3445
3700	990	3.45	2987	1034	3.84	3272	1076	4.26	3544
3750	997	3.54	3055	1040	3.93	3333	1082	5.27	3609
3800	1003	3.62	3114	1045	4.01	3387	1087	4.43	3643
3900	1015	3.80	3244	1057	4.18	3495	1098	4.60	3733
4000	1028	3.99	3373	1070	4.36	3603	1110	4.78	3820
4100	1042	4.18	3495	1082	4.56	3713	1122	4.97	3902
4200	1055	4.38	3614	1095	4.76	3811	1134	5.16	3971
4250	1062	4.49	3675	1102	4.87	3860	1140	5.27	4006
4300	1069	4.59	3728	1108	4.98	3906	1147	5.38	4036

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

NOTES:

- 1 Boldface** indicates field-supplied drive required (See Note 3)
- Shading** indicates field-supplied motor and drive required
- Standard drive range is 685 to 935 rpm. All other rpms require a field-supplied drive.
- Values include losses for filters, unit casing, and wet coils. See page 45 for accessory/FICP static pressure information.

- Maximum continuous bhp is 2.4 and maximum continuous watts are 2120. Extensive motor and electrical testing on these units ensures that the full range of the motor can be utilized with confidence. Using your fan motors up to the wattage ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected. See Evaporator-Fan Motor Performance table on page 47 for additional information.
- Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify.
- Interpolation is permissible. Do not extrapolate.

Performance data (cont)



FAN PERFORMANCE – HORIZONTAL DISCHARGE UNITS (cont)

48TJ012 (10 TONS) – STANDARD AND ALTERNATE MOTORS (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			1.0			1.2		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	552	0.68	661	632	0.87	810	701	1.05	956	761	1.22	1097	816	1.36	1216	871	1.54	1370
3100	565	0.74	708	644	0.93	859	711	1.12	1014	772	1.31	1173	825	1.45	1292	879	1.63	1447
3200	578	0.81	763	656	1.00	916	723	1.20	1081	782	1.39	1241	835	1.55	1378	887	1.71	1517
3300	591	0.88	818	668	1.08	973	734	1.28	1148	793	1.47	1310	845	1.65	1465	895	1.80	1595
3400	605	0.96	883	680	1.16	1047	745	1.36	1216	803	1.56	1387	856	1.75	1552	904	1.91	1691
3500	619	1.04	948	691	1.23	1106	755	1.44	1284	813	1.65	1465	867	1.86	1648	914	2.03	1796
3600	633	1.13	1022	703	1.31	1173	766	1.52	1353	824	1.74	1543	877	1.97	1744	924	2.15	1901
3700	648	1.23	1106	714	1.39	1241	777	1.61	1430	835	1.85	1639	887	2.07	1831	935	2.28	2015
3800	662	1.33	1190	726	1.51	1310	789	1.72	1526	846	1.95	1726	897	2.18	1927	946	2.40	2169
3900	677	1.44	1284	738	1.61	1387	801	1.82	1613	857	2.06	1823	908	2.29	2023	956	2.53	2282
4000	692	1.55	1378	750	1.73	1473	813	1.94	1718	868	2.17	1919	918	2.40	2119	967	2.66	2397
4100	707	1.67	1482	762	1.84	1560	825	2.05	1814	878	2.28	2015	929	2.53	2282	977	2.78	2505
4200	722	1.80	1595	775	1.97	1656	837	2.16	1910	889	2.40	2119	941	2.66	2397	987	2.91	2624
4300	737	1.94	1718	787	2.09	1761	848	2.27	2006	900	2.52	2273	952	2.80	2523	999	3.04	2744
4400	752	2.08	1840	800	2.21	1875	860	2.39	2110	912	2.66	2397	962	2.93	2642	1008	3.19	2885
4500	768	2.24	1980	814	2.35	1989	871	2.51	2265	924	2.80	2523	973	3.07	2772	1019	3.34	3029
4600	783	2.40	2119	827	2.50	2121	883	2.64	2380	937	2.95	2661	983	3.21	2904	—	—	—
4700	799	2.56	2309	841	2.64	2291	894	2.77	2496	949	3.10	2800	994	3.36	3049	—	—	—
4800	814	2.74	2469	855	2.80	2424	906	2.91	2624	961	3.26	2952	—	—	—	—	—	—
4900	—	—	—	868	2.90	2578	918	3.05	2754	972	3.40	3088	—	—	—	—	—	—
5000	—	—	—	883	3.10	2735	931	3.21	2904	—	—	—	—	—	—	—	—	—

48TJ012 (10 TONS) – STANDARD AND ALTERNATE MOTORS (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)											
	1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	918	1.67	1482	967	1.89	1736	1010	2.09	1903	1063	2.46	2221
3100	928	1.78	1478	973	1.94	1778	1018	2.17	1971	1070	2.51	2265
3200	937	1.90	1745	981	2.04	1861	1026	2.26	2048	1075	2.57	2318
3300	946	2.00	1828	991	2.16	1963	1032	2.32	2099	1080	2.64	2380
3400	953	2.10	1912	1000	2.29	2074	1041	2.44	2203	1083	2.65	2389
3500	961	2.20	1997	1009	2.41	2177	1051	2.57	2318	1090	2.74	2469
3600	970	2.32	2099	1017	2.53	2282	1061	2.72	2451	1099	2.88	2596
3700	980	2.45	2212	1024	2.64	2380	1069	2.87	2587	1109	3.03	2735
3800	989	2.58	2326	1033	2.76	2487	1077	2.99	2698	1118	3.20	2895
3900	1000	2.73	2460	1042	2.91	2624	1085	3.12	2819	1127	3.36	3049
4000	1010	2.87	2587	1052	3.06	2763	1093	3.24	2933	—	—	—
4100	1021	3.02	2726	1062	3.22	2914	1102	3.41	3097	—	—	—
4200	1032	3.17	2866	1072	3.38	2971	—	—	—	—	—	—
4300	1042	3.32	3010	—	—	—	—	—	—	—	—	—
4400	—	—	—	—	—	—	—	—	—	—	—	—
4500	—	—	—	—	—	—	—	—	—	—	—	—
4600	—	—	—	—	—	—	—	—	—	—	—	—
4700	—	—	—	—	—	—	—	—	—	—	—	—
4800	—	—	—	—	—	—	—	—	—	—	—	—
4900	—	—	—	—	—	—	—	—	—	—	—	—
5000	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

NOTES:

- 1. Boldface** indicates field-supplied drive required (See Note 4)
- Shading** indicates alternate motor and/or drive required
- Shading** indicates field-supplied motor and drive required.
- Standard drive range is 685 to 935 rpm. Alternate drive range is 835 to 1085 rpm. All other rpms require a field-supplied drive
- Values include losses for filters, unit casing, and wet coils. See page 45 for accessory/FIOP static pressure information
- Maximum continuous bhp is 2.4 for the standard motor and 2.9 for the alternate motor. Maximum continuous watts are 2120 for the standard motor and 2615 for the alternate motor. Extensive motor and electrical testing on these units ensures that the full range of the motor can be utilized with confidence. Using your fan motors up to the wattage ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected. See Evaporator-Fan Motor Performance table on page 47 for additional information.
- Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify.
- Interpolation is permissible. Do not extrapolate.

FAN PERFORMANCE – HORIZONTAL DISCHARGE UNITS (cont)

48TJ014 (12½ TONS) – STANDARD AND ALTERNATE MOTORS (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3700	677	1.20	1129	748	1.43	1316	810	1.65	1498	869	1.89	1700	928	2.17	1940
3800	691	1.28	1194	761	1.52	1390	822	1.75	1582	880	1.98	1776	937	2.28	2035
3900	705	1.37	1267	773	1.62	1473	834	1.86	1674	891	2.08	1862	947	2.39	2131
4000	720	1.47	1349	786	1.71	1548	847	1.97	1768	902	2.19	1957	957	2.50	2228
4100	734	1.56	1423	800	1.82	1641	860	2.09	1871	914	2.31	2061	967	2.60	2316
4200	749	1.66	1506	813	1.92	1725	873	2.21	1974	926	2.44	2175	978	2.71	2414
4300	764	1.77	1598	826	2.04	1828	886	2.33	2079	938	2.57	2290	989	2.83	2521
4400	779	1.88	1691	840	2.16	1931	899	2.46	2193	951	2.71	2414	1000	2.96	2638
4500	793	1.99	1785	854	2.28	2035	912	2.59	2307	963	2.86	2548	1012	3.09	2755
4600	808	2.11	1888	868	2.42	2158	925	2.73	2459	975	3.00	2674	1024	3.25	2901
4700	822	2.24	2000	882	2.56	2281	937	2.86	2548	988	3.16	2819	1036	3.42	3056
4800	837	2.37	2114	896	2.71	2414	950	3.00	2674	1001	3.32	2964	1048	3.59	3212
4900	852	2.51	2237	910	2.86	2548	963	3.15	2810	1014	3.48	3111	1060	3.76	3368
5000	867	2.65	2361	924	3.01	2683	977	3.30	2946	1027	3.65	3267	1073	3.94	3535
5100	882	2.79	2485	938	3.17	2828	990	3.46	3092	1040	3.82	3424	1085	4.12	3702
5200	896	2.95	2629	952	3.33	2973	1003	3.63	3248	1053	4.00	3590	1098	4.30	3869
5300	911	3.11	2773	967	3.50	3129	1017	3.80	3405	1066	4.18	3757	1111	4.50	4055
5400	926	3.27	2919	981	3.68	3294	1030	3.98	3572	1079	4.35	3916	1124	4.70	4270
5500	940	3.44	3074	995	3.86	3461	1044	4.17	3748	1092	4.54	4093	1137	4.91	4437
5600	955	3.62	3239	1010	4.04	3627	1058	4.38	3943	1105	4.73	4270	1150	5.12	4633
5700	970	3.80	3405	1024	4.23	3804	1072	4.59	4139	1118	4.93	4456	1163	5.34	4837
5800	985	3.99	3581	1039	4.42	3981	1086	4.80	4335	1131	5.14	4652	1176	5.56	5041
5900	1000	4.18	3757	1053	4.62	4167	1100	5.02	4540	1144	5.36	4856	—	—	—
6000	1015	4.39	3953	1068	4.83	4363	1114	5.25	4754	1158	5.58	5060	—	—	—
6100	1030	4.59	4139	1083	5.04	4558	1128	5.48	4967	—	—	—	—	—	—
6200	1046	4.81	4344	1097	5.26	4763	1142	5.71	5180	—	—	—	—	—	—

48TJ014 (12½ TONS) – STANDARD AND ALTERNATE MOTORS (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)								
	1.4			1.6			1.8		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3700	1036	2.68	2387	1080	2.90	2548	1114	3.07	2737
3800	1046	2.81	2503	1092	3.05	2719	1129	3.25	2901
3900	1055	2.94	2620	1102	3.20	2855	1143	3.42	3056
4000	1064	3.07	2737	1112	3.34	2983	1155	3.59	3212
4100	1072	3.20	2855	1121	3.49	3120	1165	3.76	3368
4200	1081	3.34	2983	1130	3.64	3256	1175	3.92	3516
4300	1090	3.48	3111	1139	3.79	3396	1185	4.08	3664
4400	1100	3.63	3248	1148	3.94	3535	1194	4.25	3822
4500	1109	3.78	3387	1157	4.09	3674	1203	4.42	3981
4600	1119	3.93	3525	1166	4.26	3832	1212	4.58	4130
4700	1129	4.09	3674	1175	4.43	3990	1221	4.76	4298
4800	1139	4.24	3813	1185	4.60	4148	1230	4.93	4456
4900	1150	4.38	3943	1194	4.77	4307	1239	5.12	4633
5000	1161	4.54	4093	1204	4.95	4475	1248	5.31	4810
5100	1172	4.71	4251	1214	5.13	4642	1257	5.51	4995
5200	1183	4.91	4419	1225	5.29	4791	1267	5.70	5170
5300	1194	5.08	4596	1236	5.47	4958	—	—	—
5400	1206	5.29	4791	1247	5.65	5124	—	—	—
5500	1218	5.52	4958	—	—	—	—	—	—
5600	1230	5.75	5124	—	—	—	—	—	—
5700	—	—	—	—	—	—	—	—	—
5800	—	—	—	—	—	—	—	—	—
5900	—	—	—	—	—	—	—	—	—
6000	—	—	—	—	—	—	—	—	—
6100	—	—	—	—	—	—	—	—	—
6200	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

NOTES

- 1 Boldface** indicates field-supplied drive required (See Note 4.)
- 2 Shading** indicates alternate motor and/or drive required
- 3 Shading** indicates field-supplied motor and drive required
- Standard drive range is 860 to 1080 rpm. Alternate drive range is 900 to 1260 rpm. All other rpms require a field-supplied drive
- Values include losses for filters, unit casing, and wet coils. See page 45 for accessory/FIOP static pressure information

- Maximum continuous bhp is 4.2 for the standard motor and 4.9 for the alternate motor. The maximum continuous watts are 3775 for the standard motor and 4400 for the alternate motor. Extensive motor and electrical testing on these units ensures that the full range of the motor can be utilized with confidence. Using your fan motors up to the wattage ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected. See Evaporator-Fan Motor Performance table on page 47 for additional information
- Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify
- Interpolation is permissible. Do not extrapolate

Performance data (cont)



FAN PERFORMANCE — 48TJ016-028 UNITS

48TJ016 (15 TONS) — STANDARD MOTOR (BELT DRIVE); 208/230-V AND 460-V UNITS

Airflow (Cfm)	External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			1.0			1.2		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
4500	801	1 05	933	890	1 26	1119	971	1 46	1297	1050	1 67	1483	1125	1 88	1670	1200	2 12	1883
4800	843	1 25	1110	928	1 47	1306	1006	1 68	1492	1081	1 90	1687	1153	2 13	1892	1223	2 36	2096
5100	885	1 47	1306	968	1 70	1510	1043	1 93	1714	1114	2 16	1918	1183	2 40	2131	1250	2 64	2345
5400	927	1 71	1519	1008	1 95	1732	1080	2 20	1954	1148	2 44	2167	1214	2 69	2389	1279	2 94	2611
5700	971	1 98	1758	1049	2 24	1989	1118	2 50	2220	1134	2 75	2442	1247	3 01	2673	1309	3 28	2913
6000	1016	2 28	2025	1091	2 55	2265	1158	2 83	2513	1222	3 10	2753	1282	3 36	2984	1342	3 64	3233
6300	1059	2 60	2309	1133	2 89	2567	1198	3 17	2815	1259	3 46	3073	1318	3 74	3321	1375	4 02	3570
6600	1104	2 96	2629	1174	3 26	2895	1239	3 56	3162	1297	3 86	3428	1355	4 15	3686	—	—	—
6900	1150	3 35	2975	1218	3 67	3259	1281	3 98	3535	—	—	—	—	—	—	—	—	—
7200	1194	3 77	3348	1260	4 10	3641	—	—	—	—	—	—	—	—	—	—	—	—
7500	1238	4 23	3758	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

48TJ016 (15 TONS) — STANDARD MOTOR (BELT DRIVE); 208/230-V AND 460-V UNITS

AIRFLOW (Cfm)	External Static Pressure (in. wg)											
	1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
4500	1275	2 39	2123	1349	2 70	2398	1421	3 03	2691	1490	3 39	3011
4800	1293	2 62	2327	1364	2 92	2593	1433	3 24	2877	1501	3 59	3188
5100	1316	2 90	2575	1382	3 18	2824	1448	3 49	3099	1514	3 86	3428
5400	1342	3 20	2842	1403	3 47	3082	1466	3 77	3348	1529	4 16	3694
5700	1370	3 54	3144	1429	3 81	3384	1487	4 11	3650	—	—	—
6000	1401	3 92	3481	1458	4 20	3730	—	—	—	—	—	—
6300	—	—	—	—	—	—	—	—	—	—	—	—
6600	—	—	—	—	—	—	—	—	—	—	—	—
6900	—	—	—	—	—	—	—	—	—	—	—	—
7200	—	—	—	—	—	—	—	—	—	—	—	—
7500	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

NOTES:

1 Factory shipped motor drive range is 1194 to 1526 rpm Other rpms require a field-supplied drive

2 Static pressure losses (i.e., economizer, electric heater) must be added to external static pressure before entering Fan Performance table See page 45 for accessory/FIOP static pressure information

3 Interpolation is permissible Do not extrapolate

4 Maximum continuous bhp is 4 25 and the maximum continuous watts are 3775 Extensive motor and drive testing on these units ensures that the full horsepower range of the motor can be utilized with confidence Using your fan motors up to the watts rating shown will not result in nuisance tripping or premature motor failure Unit warranty will not be affected

48TJ016 (15 TONS) — STANDARD MOTOR (BELT DRIVE); 575-V UNITS

Airflow (Cfm)	External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			1.0			1.2		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
4500	801	1 05	933	890	1 26	1119	971	1 46	1297	1050	1 67	1483	1125	1 88	1670	1200	2 12	1883
4800	843	1 25	1110	928	1 47	1306	1006	1 68	1492	1081	1 90	1687	1153	2 13	1892	1223	2 36	2096
5100	885	1 47	1306	968	1 70	1510	1043	1 93	1714	1114	2 16	1918	1183	2 40	2131	1250	2 64	2345
5400	927	1 71	1519	1008	1 95	1732	1080	2 20	1954	1148	2 44	2167	1214	2 69	2389	1279	2 94	2611
5700	971	1 98	1758	1049	2 24	1989	1118	2 50	2220	1134	2 75	2442	1247	3 01	2673	1309	3 28	2913
6000	1016	2 28	2025	1091	2 55	2265	1158	2 83	2513	1222	3 10	2753	1282	3 36	2984	—	—	—
6300	1059	2 60	2309	1133	2 89	2567	1198	3 17	2815	—	—	—	—	—	—	—	—	—
6600	1104	2 96	2629	1174	3 26	2895	—	—	—	—	—	—	—	—	—	—	—	—
6900	1150	3 35	2975	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

48TJ016 (15 TONS) — STANDARD MOTOR (BELT DRIVE); 575-V UNITS

AIRFLOW (Cfm)	External Static Pressure (in. wg)											
	1 4			1 6			1 8			2 0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
4500	1275	2 39	2123	1349	2 70	2398	1421	3 03	2691	1490	3 39	3011
4800	1293	2 62	2327	1364	2 92	2593	1433	3 24	2877	—	—	—
5100	1316	2 90	2575	1382	3 18	2824	—	—	—	—	—	—
5400	1342	3 20	2842	—	—	—	—	—	—	—	—	—
5700	—	—	—	—	—	—	—	—	—	—	—	—
6000	—	—	—	—	—	—	—	—	—	—	—	—
6300	—	—	—	—	—	—	—	—	—	—	—	—
6600	—	—	—	—	—	—	—	—	—	—	—	—
6900	—	—	—	—	—	—	—	—	—	—	—	—
7200	—	—	—	—	—	—	—	—	—	—	—	—
7500	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

NOTES:

1 Factory shipped motor drive range is 896 to 1161 rpm Other rpms require a field-supplied drive

2 Static pressure losses (i.e., economizer, electric heater) must be added to external static pressure before entering Fan Performance table See page 45 for accessory/FIOP static pressure information

3 Interpolation is permissible Do not extrapolate

4 Maximum continuous bhp is 3 45 and the maximum continuous watts are 3065 Extensive motor and drive testing on these units ensures that the full horsepower range of the motor can be utilized with confidence Using your fan motors up to the watts rating shown will not result in nuisance tripping or premature motor failure Unit warranty will not be affected



FAN PERFORMANCE — 48TJ016-028 UNITS (cont)

48TJ020 (18 TONS) — STANDARD MOTOR (BELT DRIVE)

Airflow (CFM)	External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			1.0			1.2		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
5000	669	1.10	1019	772	1.40	1291	870	1.80	1582	963	2.10	1903	1052	2.50	2251	1137	2.90	2623
5500	717	1.40	1292	813	1.80	1585	905	2.10	1892	992	2.50	2223	1076	2.90	2680	1157	3.30	2962
6000	767	1.80	1617	858	2.20	1932	944	2.50	2256	1026	2.90	2600	1104	3.30	2967	1181	3.80	3358
6500	817	2.20	1992	903	2.60	2329	985	3.00	2673	1062	3.40	3031	1136	3.80	3410	1209	4.30	3811
7000	869	2.70	2427	950	3.10	2787	1028	3.50	3151	1102	3.90	3527	1172	4.40	3919	1241	4.80	4331
7200	889	2.94	2624	969	3.34	2993	1046	3.74	3366	1118	4.18	3749	1187	4.64	4147	1255	5.08	4564
7500	920	3.30	2919	998	3.70	3303	1073	4.10	3689	1143	4.60	4083	1210	5.00	4490	1275	5.50	4914
8000	973	3.90	3476	1047	4.30	3886	1119	4.80	4294	1186	5.30	4708	1250	5.70	5131	—	—	—
8500	1026	4.60	4102	1097	5.10	4635	1166	5.60	4967	—	—	—	—	—	—	—	—	—
9000	1079	5.40	4800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

48TJ020 (18 TONS) — STANDARD MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)											
	1.3			1.4			1.6			1.8		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
5000	1178	3.15	2820	1218	3.40	3016	1295	3.80	3425	1369	4.30	3849
5500	1196	3.55	3164	1234	3.80	3366	1309	4.20	3789	1381	4.70	4229
6000	1218	4.00	3565	1255	4.20	3772	1327	4.70	4206	1396	5.20	4658
6500	1244	4.50	4022	1279	4.70	4233	1348	5.20	4677	1415	5.80	5139
7000	1275	5.05	4547	1308	5.30	4762	—	—	—	—	—	—
7200	1288	5.33	4783	—	—	—	—	—	—	—	—	—
7500	1307	5.75	5135	—	—	—	—	—	—	—	—	—
8000	—	—	—	—	—	—	—	—	—	—	—	—
8500	—	—	—	—	—	—	—	—	—	—	—	—
9000	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan

Watts — Input Watts to Motor

NOTES:

1 Factory shipped motor drive range is 1047 to 1251 rpm. Other rpms require a field-supplied drive.

2 Static pressure losses (i.e., economizer, electric heater) must be added to external static pressure before entering Fan Performance table. See page 45 for accessory/FIOP static pressure information.

3 Interpolation is permissible. Do not extrapolate.

4 Maximum continuous bhp is 5.9 and the maximum continuous watts are 5180. Extensive motor and drive testing on these units ensures that the full horsepower range of the motor can be utilized with confidence. Using your fan motors up to the watts rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.

48TJ024 (20 TONS) — STANDARD MOTOR (BELT DRIVE)

Airflow (CFM)	External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			1.0			1.2		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
6000	767	1.80	1617	858	2.20	1932	944	2.50	2256	1026	2.90	2600	1104	3.30	2967	1181	3.80	3358
6500	817	2.20	1992	903	2.60	2329	985	3.00	2673	1062	3.40	3031	1136	3.80	3410	1209	4.30	3811
7000	869	2.70	2427	950	3.10	2787	1028	3.50	3151	1102	3.90	3527	1172	4.40	3919	1241	4.80	4331
7500	920	3.30	2919	998	3.70	3303	1073	4.10	3689	1143	4.60	4083	1210	5.00	4490	1275	5.50	4914
8000	973	3.90	3476	1047	4.30	3886	1119	4.80	4294	1186	5.30	4708	1250	5.70	5131	1313	6.20	5569
8500	1026	4.60	4102	1097	5.10	4635	1166	5.60	4967	1231	6.00	5401	1292	6.50	5843	1352	7.00	6297
9000	1079	5.40	4800	1147	5.90	5257	1214	6.40	5714	1276	6.90	6171	1336	7.40	6632	1393	7.90	7102
9500	1133	6.20	5576	1199	6.80	6058	1263	7.30	6540	1323	7.90	7018	1381	8.40	7500	1436	8.90	7988
10,000	1188	7.20	6432	1250	7.80	6939	1313	8.30	7444	1371	8.90	7946	1426	9.50	8449	—	—	—

48TJ024 (20 TONS) — STANDARD MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)											
	1.4			1.6			1.8			1.9		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
6000	1255	4.20	3772	1327	4.70	4206	1396	5.20	4658	1431	5.45	4884
6500	1279	4.70	4233	1348	5.20	4677	1415	5.80	5139	1449	6.10	5370
7000	1308	5.30	4762	1373	5.80	5215	1437	6.40	5686	1469	6.70	5922
7500	1339	6.00	5356	1401	6.50	5818	1462	7.00	6298	1493	7.25	6538
8000	1373	6.70	6024	1433	7.30	6495	1493	7.80	6966	1523	8.05	7202
8500	1410	7.60	6765	1467	8.10	7248	1524	8.70	7731	—	—	—
9000	1449	8.50	7584	1503	9.00	8033	—	—	—	—	—	—
9500	1488	9.40	8403	—	—	—	—	—	—	—	—	—
10,000	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan

Watts — Input Watts to Motor

NOTES:

1 **Boldface** indicates additional capability of the 460-v motor.

2 Factory shipped motor drive range is 1238 to 1494 rpm. Other rpms require a field-supplied drive.

3 Static pressure losses (i.e., economizer) must be added to external static pressure before entering Fan Performance table. See page 45 for accessory/FIOP static pressure information.

4 Interpolation is permissible. Do not extrapolate.

5 Maximum continuous bhp is 8.7 for 208/230 and 575-v units and 9.5 for 460-v units. The maximum continuous watts are 7915 for the 208/230 and 575-v units and 8640 for the 460-v units. Extensive motor and drive testing on these units ensures that the full horsepower range of the motor can be utilized with confidence. Using your fan motors up to the watts rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.

Performance data (cont)



FAN PERFORMANCE — 48TJ016-028 (cont)

48TJ028 (25 TONS) — STANDARD MOTOR (BELT DRIVE)

Airflow (CFM)	External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			0.9			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
7,500	962	3.39	3123	1039	3.81	3507	1111	4.23	3895	1179	4.66	4295	1212	4.89	4503	1245	5.11	4710
8,000	1017	4.04	3717	1091	4.48	4126	1160	4.93	4536	1225	5.38	4954	1256	5.62	5170	1287	5.85	5386
8,500	1072	4.76	4385	1143	5.23	4818	1209	5.70	5250	1271	6.18	5688	1302	6.42	5913	1332	6.66	6137
9,000	1128	5.57	5129	1196	6.07	5587	1260	6.56	6042	1320	7.06	6501	1348	7.32	6735	1377	7.57	6968
9,500	1185	6.47	5955	1250	6.99	6437	1311	7.51	6915	1369	8.03	7395	1396	8.30	7638	1424	8.56	7881
10,000	1241	7.45	6865	1304	8.00	7372	1363	8.55	7873	1419	9.09	8376	1445	9.37	8629	1472	9.64	8882
10,500	1298	8.54	7865	1359	9.12	8396	1415	9.69	8921	1469	10.26	9446	1495	10.55	9710	1521	10.83	9973
11,000	1355	9.72	8956	1414	10.33	9512	1469	10.93	10,062	1521	11.52	10,609	—	—	—	—	—	—
11,250	1384	10.36	9540	1441	10.97	10,107	1495	11.58	10,668	—	—	—	—	—	—	—	—	—

48TJ028 (25 TONS) — STANDARD MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.3			1.4			1.6			1.8		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
7,500	1309	5.58	5143	1341	5.83	5370	1372	6.08	5597	1434	6.59	6067	1494	7.12	6558
8,000	1349	6.33	5833	1379	6.59	6065	1409	6.84	6297	1467	7.36	6779	—	—	—
8,500	1390	7.17	6600	1419	7.43	6839	1447	7.68	7077	1504	8.22	7571	—	—	—
9,000	1433	8.08	7446	1461	8.35	7692	1488	8.62	7938	—	—	—	—	—	—
9,500	1478	9.10	8378	1505	9.37	8626	—	—	—	—	—	—	—	—	—
10,000	1524	10.20	9396	1550	10.48	9653	—	—	—	—	—	—	—	—	—
10,500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
11,000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
11,250	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

NOTES:

- Boldface** indicates additional capability of the 460-v motor.
- Factory shipped motor drive range is 1323 to 1579 rpm. Other rpms require a field-supplied drive.
- Static pressure losses (i.e., economizer) must be added to external static pressure before entering Fan Performance table. See page 45 for accessory/FIOP static pressure information.

- Interpolation is permissible. Do not extrapolate.
- Fan performance is based on wet coils, clean filters, and casing losses.
- Maximum continuous bhp is 10.2 for 208/230 and 575-v units and 11.8 for 460-v units. The maximum continuous watts are 9510 for the 208/230 and 575-v units and 11,000 for the 460-v units. Extensive motor and drive testing on these units ensures that the full horsepower range of the motor can be utilized with confidence. Using your fan motors up to the watts rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.

AIR QUANTITY LIMITS

UNIT 48TJ	MINIMUM CFM	MAXIMUM CFM
016	4500	7,500
020	5400	9,000
024	6000	10,000
028	7500	11,250

SOUND POWER (Total Unit) — 48TJ004-014

UNIT 48TJ	SOUND RATING (60 Hz)	OCTAVE BANDS							
		63	125	250	500	1000	2000	4000	8000
004-006	8.2 Bels	56.8	75.8	72.4	72.9	74.8	75.4	71.3	69.1
007	8.4 Bels	56.0	69.8	72.9	75.9	78.3	76.5	72.6	67.9
008,009	8.8 Bels	83.2	87.4	83.5	82.8	83.0	77.7	71.8	67.0
012	8.8 Bels	97.6	90.4	85.7	84.8	83.9	77.5	71.3	65.8
014	8.8 Bels	83.7	87.2	83.4	82.8	83.0	77.7	71.8	67.0

Bels — Sound Levels (1 bel = 10 decibels)

ACCESSORY/FIOP ECONOMIZER STATIC PRESSURE (in. wg)

UNIT 48TJ	UNIT VOLTAGE	CFM	ECONOMIZER PRESSURE DROP*	FACTORY-ASSEMBLED HORIZONTAL ADAPTER CURB PRESSURE INCREASE†
004-007	All	900	.05	—
		1,200	.05	
		1,400	.05	
		1,600	.05	
		1,800	.05	
		2,000	.05	
		2,200	.05	
		2,400	.05	
		2,600	.05	
008-014	All	2,200	.02	—
		2,500	.02	
		3,000	.03	
		3,500	.04	
		4,000	.05	
		4,500	.06	
		5,000	.07	
		5,500	.08	
		6,000	.09	
016	All	4,000	.03	0 68
		5,000	.05	0 65
		6,000	.07	0 60
		7,500	.10	0 45
020-028	All	6,000	.07	0 60
		7,200	.09	0 48
		9,000	.11	0 30
		10,000	.12	0 26
		11,250	.13	0 24

FIOP — Factory-Installed Option

*The static pressure must be added to external static pressure. The result and the evaporator entering-air cfm should then be used with the fan performance table to determine blower rpm, bhp, and watts

†The static pressure must be deducted from external static pressure. The result and the evaporator entering-air cfm should then be used with the Fan Performance table to determine blower rpm, bhp, and watts

NOTE: The factory-assembled horizontal adapter curb substantially improves 48TJ016-028 fan performance (by the amount of static pressure listed)

FAN RPM AT MOTOR PULLEY SETTINGS* — 48TJ004-028

UNIT 48TJ	MOTOR PULLEY TURNS OPEN												
	0	½	1	1½	2	2½	3	3½	4	4½	5	5½	6
004†	1000	976	952	928	904	880	856	832	808	784	760	—	—
005†	1185	1150	1115	1080	1045	1010	975	940	905	870	835	—	—
006†	1300	1260	1220	1180	1140	1100	1060	1020	980	940	900	—	—
007**	1460	1420	1380	1345	1305	1265	1225	1185	1150	1110	1070	—	—
008**	840	815	790	765	740	715	690	665	635	615	590	—	—
008††	935	910	885	860	835	810	785	760	735	710	685	—	—
009**	935	910	885	860	835	810	785	760	735	710	685	—	—
012**	935	910	885	860	835	810	785	760	735	710	685	—	—
012†	1085	1060	1035	1010	985	960	935	910	885	860	835	—	—
014**	1080	1060	1035	1015	990	970	950	925	905	880	860	—	—
014†	1260	1220	1185	1155	1130	1100	1075	1045	1015	990	960	930	900
016(208/230,460 v)**	1526	1492	1459	1426	1393	1360	1326	1293	1260	1227	1194	—	—
016(575 v)**	1161	1134	1108	1081	1055	1028	1002	975	949	922	896	—	—
020**	1251	1234	1217	1200	1183	1166	1149	1132	1115	1098	1081	1064	1047
024**	1494	1472	1451	1430	1408	1387	1366	1345	1323	1302	1281	1259	1238
028**			1536	1515	1493	1472	1451	1430	1408	1387	1366	1344	1323

*Approximate fan rpm shown

†Indicates alternate motor and drive package.

**Indicates standard motor and drive package

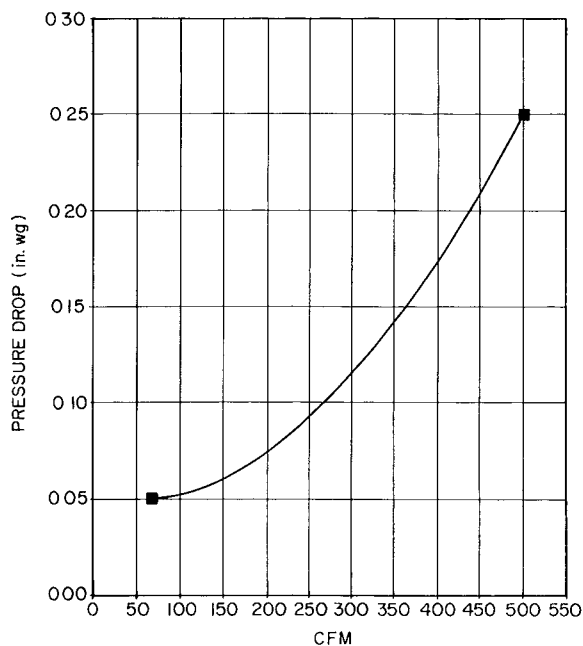
††Indicates alternate drive package only.

||Do not run this fan at less than 1 full turn open, as it will exceed the maximum allowable rpm of 1550

Performance data (cont)



ECONOMIZER BAROMETRIC RELIEF DAMPER CHARACTERISTICS - 48TJ004-014



ALTITUDE COMPENSATION* - 48TJ004-007

ELEVATION (Ft)	74,000 AND 115,000 BTUH NOMINAL INPUT		150,000 BTUH NOMINAL INPUT	
	Natural Gas Orifice Size†	Liquid Propane Orifice Size†	Natural Gas Orifice Size†	Liquid Propane Orifice Size†
0-2,000	33	43	30	38
2,000	34	43	30	39
3,000	35	44	31	40
4,000	36	44	32	41
5,000	36	44	33	42
6,000	37	45	34	43
7,000	37	45	35	43
8,000	38	46	36	44
9,000	39	47	37	44
10,000	41	48	38	45
11,000	43	48	39	45
12,000	44	49	40	46
13,000	44	49	41	47
14,000	45	50	42	47

*As the height above sea level increases, there is less oxygen per cubic foot of air. Therefore, heat input rate should be reduced at higher altitudes.

†Orifices available through your local Carrier distributor

ALTITUDE COMPENSATION* - 48TJ008-014

ELEVATION (Ft)	125,000, 180,000, AND 225,000 BTUH NOMINAL INPUT		250,000 BTUH NOMINAL INPUT	
	Natural Gas Orifice Size†	Liquid Propane Orifice Size†	Natural Gas Orifice Size†	Liquid Propane Orifice Size†
0-2,000	31	41	30	38
2,000	32	42	30	39
3,000	32	42	31	40
4,000	32	42	32	41
5,000	33	43	33	42
6,000	34	43	34	43
7,000	35	44	35	43
8,000	36	44	36	44
9,000	37	45	37	44
10,000	38	46	38	45
11,000	39	47	39	45
12,000	40	47	40	46
13,000	41	48	41	47
14,000	42	48	42	47

*As the height above sea level increases, there is less oxygen per cubic foot of air. Therefore, heat input rate should be reduced at higher altitudes.

†Orifices available through your local Carrier distributor

ALTITUDE COMPENSATION* - 48TJ016-028

ELEVATION (Ft)	NATURAL GAS Orifice Size†
0-2,000	33
2,000	35
3,000	35
4,000	36
5,000	36
6,000	37
7,000	38
8,000	38
9,000	40
10,000	41
11,000	43
12,000	44
13,000	44
14,000	45

*As the height above sea level increases, there is less oxygen per cubic foot of air. Therefore, heat input rate should be reduced at higher altitudes.

†Orifices available through your Carrier distributor.

ALTITUDE DERATING FACTOR* - 48TJ004-028

ELEVATION (Ft)	MAXIMUM HEATING VALUE (Btu/ft³)
0-2,000	1,100
2,001-3,000	1,050
3,001-4,000	1,000
4,001-5,000	950
5,001-6,000	900

*Derating of the unit is not required unless the heating value of the gas exceeds the values listed in the table above, or if the elevation exceeds 6000 ft. Derating conditions must be 4% per thousand ft above sea level. For example, at 4000 ft, if the heating value of the gas exceeds 1000 Btu/ft³, the unit will require a 16% derating. For elevations above 6000 ft, the same formula applies. For example, at 7000 ft, the unit will require a 28% derating of the maximum heating value per the National Fuel Gas Code.

EVAPORATOR-FAN MOTOR PERFORMANCE

UNIT 48TJ	EVAPORATOR-FAN MOTOR	UNIT VOLTAGE	MAXIMUM ACCEPTABLE CONTINUOUS BHP*	MAXIMUM ACCEPTABLE OPERATING WATTS	MAXIMUM AMP DRAW
004	Standard	208/230	0.34	440	2.9
		460			1.4
		575			1.4
	Alternate	208/230	1.00	1000	3.9
		460			2.3
		575			2.3
005	Standard	208/230	0.75	850	3.5
		460			1.8
		575			1.8
	Alternate	208/230	1.00	1000	3.9
		460			2.3
		575			2.3
006	Standard	208/230	1.20	1340	5.9
		460			3.2
		575			3.2
	Alternate	208/230	1.80	1921	8.9
		460			4.7
		575			4.7
007	Standard	208/230	2.40	2120	6.1
		460			2.7
		575			2.7
008	Standard	208/230	2.40	2120	6.1
		460			2.7
		575			2.7
009	Standard	208/230	2.40	2120	6.1
		460			2.7
		575			2.7
012	Standard	208/230	2.40	2120	6.1
		460			2.7
		575			2.7
	Alternate	208/230	2.90	2615	7.9
		460			3.6
		575			3.6
014	Standard	208/230	4.20	3775	12.6
		460			5.7
		575			5.7
	Alternate	208/230	4.90	4400	15.0
		460			7.4
		575			7.4
016	Standard	208/230	4.25	3775	10.5
		460			4.8
		575			3.9
020	Standard	208/230	5.90	5180	15.8
		460			7.9
		575			6.0
024	Standard	208/230	8.70	7915	22.0
		460	9.50	8640	13.0
		575	8.70	7915	10.0
028	Standard	208/230	10.20	9510	28.0
		460	11.80	11,000	14.6
		575	10.20	9510	13.0

LEGEND

Bhp — Brake Horsepower

*Extensive motor and electrical testing on these units ensures that the full horsepower range of the motors can be utilized with confidence

Using your fan motors up to the horsepower ratings shown in this table will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.

Electrical data — 48TJ004-014



UNIT 48TJ	NOMINAL V-PH-HZ	IFM TYPE	VOLTAGE RANGE		COMPR (each)		OFM		IFM	COMBUSTION FAN MOTOR	POWER SUPPLY		DISCONNECT SIZE*	
			Min	Max	RLA	LRA	Hp	FLA			FLA	MCA	MOCPT†	FLA
004 (3 Tons)	208/230 (single phase)	Std	187	254	16.9	86.7	¼	1.4	2.8	57	25.3/25.3	35/35	24/24	97/97
		Alt							3.9		26.4/26.4	35/35	26/26	102/102
	208/230 (3 phase)	Std	187	254	11.7	65.1	¼	1.4	2.8	57	18.8/18.8	25/25	18/18	76/76
		Alt							3.9		19.9/19.9	25/25	20/20	80/80
	460 (3 phase)	Std	414	508	5.1	32.8	¼	0.8	1.3	30	8.5	15	8	38
		Alt							2.1		9.3	15	9	41
	575 (3 phase)	Std	518	632	4.1	37.0	¼	0.8	1.3	30	6.4	15	6	32
		Alt							2.1		6.7	15	7	32
005 (4 Tons)	208/230 (single phase)	Std	187	254	23.0	110.0	¼	1.4	3.5	57	33.7/33.7	40/40	32/32	122/122
		Alt							3.9		34.1/34.1	40/40	33/33	125/125
	208/230 (3 phase)	Std	187	254	15.3	92.0	¼	1.4	3.5	57	24.0/24.0	30/30	23/23	104/104
		Alt							3.9		24.4/24.4	30/30	24/24	107/107
	460 (3 phase)	Std	414	508	7.0	46.0	¼	0.8	1.8	30	11.4	15	11	52
		Alt							2.1		11.7	15	11	54
	575 (3 phase)	Std	518	632	5.8	44.0	¼	0.8	1.8	30	9.3	15	9	49
		Alt							2.1		9.6	15	9	51
006 (5 Tons)	208/230 (single phase)	Std	187	254	28.3	141.0	¼	1.4	5.9	57	42.7/42.7	50/50	41/41	155/155
		Alt							8.5		45.3/45.3	60/60	44/44	169/169
	208/230 (3 phase)	Std	187	254	17.7	110.0	¼	1.4	5.9	57	29.4/29.4	35/35	29/29	124/124
		Alt							8.5		32.0/32.0	40/40	32/32	138/138
	460 (3 phase)	Std	414	508	8.6	55.0	¼	0.8	3.2	30	14.8	20	15	63
		Alt							4.5		16.1	20	16	70
	575 (3 phase)	Std	518	632	6.4	44.0	¼	0.8	3.2	30	11.2	15	11	50
		Alt							4.5		12.2	15	12	56
007 (6 Tons)	208/230 (3 phase)	Std	187	254	22.3	146.0	¼	1.4	5.8	57	35.1/35.1	40/40	34/34	190/190
	460 (3 phase)	Std	414	508	11.2	73.0	¼	0.8	2.6	30	17.4	20	17	95
	575 (3 phase)	Std	518	632	8.9	62.0	¼	0.8	2.6	30	13.8	15	13	80
008 (7½ Tons)	208/230 (3 phase)	Std	187	254	13.6	73.4	¾	3.8	5.8	57	40.2/40.2	45/45	42/42	206/206
	460-3-60 (3 phase)	Std	414	508	6.2	37.7	¾	1.9	2.6	30	18.5	20	19	105
	575-3-60 (3 phase)	Std	518	632	4.9	31.0	¾	1.9	2.6	30	14.6	15	15	86
009 (8½ Tons)	208/230 (3 phase)	Std	187	254	15.8	92.0	¾	3.8	5.8	57	45.2/45.2	50/50	47/47	243/243
	460 (3 phase)	Std	414	508	7.4	46.0	¾	1.9	2.6	30	21.0	25	22	122
	575 (3 phase)	Std	518	632	5.9	44.0	¾	1.9	2.6	30	16.8	20	18	112
012 (10 Tons)	208/230 (3 phase)	Std	187	254	17.9	110.0	¾	3.8	2.6	57	49.5/49.9	60/60	52/52	279/279
		Alt							5.4		55.7/55.7	70/70	59/59	322/322
	460 (3 phase)	Std	414	508	8.6	55.0	¾	1.9	2.6	30	23.9	30	25	140
		Alt							5.4		26.7	30	28	161
	575 (3 phase)	Std	518	632	6.4	44.0	¾	1.9	2.6	30	18.0	25	19	112
		Alt							5.4		20.2	35	21	129
014 (12½ Tons)	208/230 (3 phase)	Std	187	254	22.9	146.0	¾	3.8	12.0	57	66.0/66.0	80/80	69/69	394/394
		Alt			21.6				15.0		69.0/69.0	80/80	73/73	418/418
	460 (3 phase)	Std	414	508	11.9	73.0	¾	1.9	5.4	30	34.1	40	36	197
		Alt							7.5		36.1	40	38	209
	575 (3 phase)	Std	518	632	9.5	62.0	¾	1.9	5.4	30	27.2	35	29	165
		Alt							7.5		28.9	35	31	174

UNIT 48TJ	NOMINAL VOLTAGE (60 Hz)	IFM TYPE	VOLTAGE RANGE		COMPRESSOR				OFM			IFM		COMBUSTION FAN MOTOR**	POWER SUPPLY	
					NO. 1		NO. 2									
			Min	Max	RLA	LRA	RLA	LRA	Qty	Hp	FLA (ea)	Hp	FLA	FLA	MCA	MOCP†
016 (15 Tons)	208/230 (3 phase)	Std	187	254	61 0	266	—	—	2	1	5 4	3 7	12 0/12 0	90	99/99	150/150
	460 (3 phase)	Std	414	508	28 6	120	—	—	2	1	2 7	3 7	5 4	30	46	70
	575 (3 phase)	Std	518	632	22 9	96	—	—	2	1	2 6	3 0	3 8	90	38	60
020 (18 Tons)	208/230 (3 phase)	Std	187	254	34 5	239	28 3	205	2	1	5 5	5	16 7/15 2	57	99/98	125/125
	460 (3 phase)	Std	414	508	17 0	119	14 4	104	2	1	2 8	5	7 6	30	49	60
	575 (3 phase)	Std	518	632	15 2	111	11 4	78	2	1	3 4	5	6 1	57	43	50
024 (20 Tons)	208/230 (3 phase)	Std	187	254	34 5	239	28 3	205	2	1	5 5	7½	24 2/22 0	57	107/104	125/125
	460 (3 phase)	Std	414	508	17 0	119	14 4	104	2	1	2 8	7½	11 0	30	52	60
	575 (3 phase)	Std	518	632	15 2	111	11 4	78	2	1	3 4	7½	9 0	57	46	60
028 (25 Tons)	208/230 (3 phase)	Std	187	254	43 6	228	43 6	228	2	1	5.5	10	30 8/28 0	57	140/137	175/175
	460 (3 phase)	Std	414	508	22 1	114	22 1	114	2	1	2 8	10	14 0	30	69	90
	575 (3 phase)	Std	518	632	17 9	91	17 9	91	2	1	3 4	10	11 0	57	57	70

LEGEND

CSA — Canadian Standards Association
FLA — Full Load Amps
HACR — Heating, Air Conditioning and Refrigeration
IFM — Indoor (Evaporator) Fan Motor
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps
MOCP — Maximum Overcurrent Protection
NEC — National Electrical Code
OFM — Outdoor (Condenser) Fan Motor
RLA — Rated Load Amps

*Used to determine minimum disconnect size per NEC.

†Fuse or HACR circuit breaker

**The 48TJ024 and 028 high-heat units have 2 combustion-fan motors

2 Unbalanced 3-Phase Supply Voltage

Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the following formula to determine the percent voltage imbalance

% Voltage Imbalance

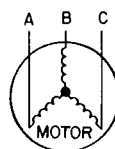
$$= 100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$

Example: Supply voltage is 460-3-60

AB = 452 v

BC = 464 v

AC = 455 v



$$\text{Average Voltage} = \frac{452 + 464 + 455}{3}$$

$$= \frac{1371}{3}$$

$$= 457$$

NOTE: The 575-v 48TJ004-014 units are CSA only.

Determine maximum deviation from average voltage

(AB) 457 - 452 = 5 v

(BC) 464 - 457 = 7 v

(AC) 457 - 455 = 2 v

Maximum deviation is 7 v

Determine percent voltage imbalance

$$\% \text{ Voltage Imbalance} = 100 \times \frac{7}{457}$$

$$= 1.53\%$$

This amount of phase imbalance is satisfactory as it is below the maximum allowable 2%

IMPORTANT: If the supply voltage phase imbalance is more than 2%, contact your local electric utility company immediately



004-014 Only



016-028 Only



016-028 Only



004-014 Only

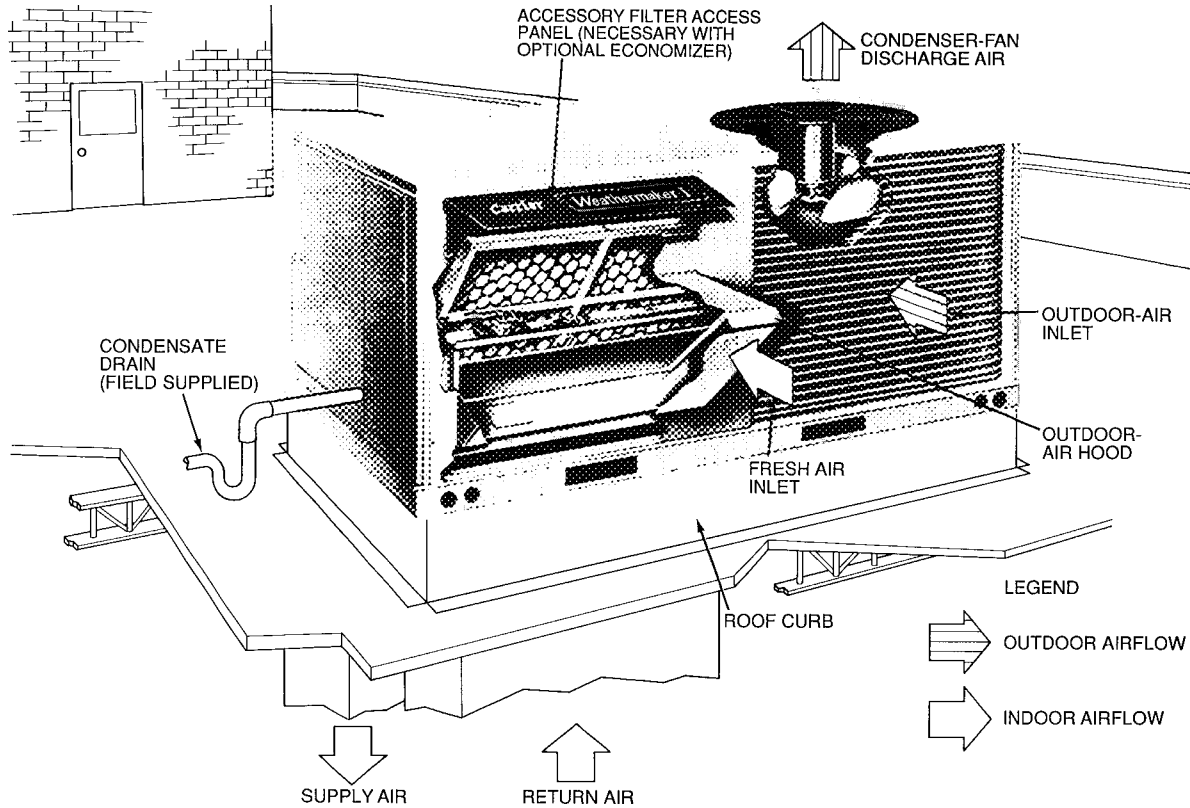
NOTES:

- In compliance with NEC requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the overcurrent protective device for the unit shall be fuse or HACR breaker. Canadian units may be fuse or circuit breaker.

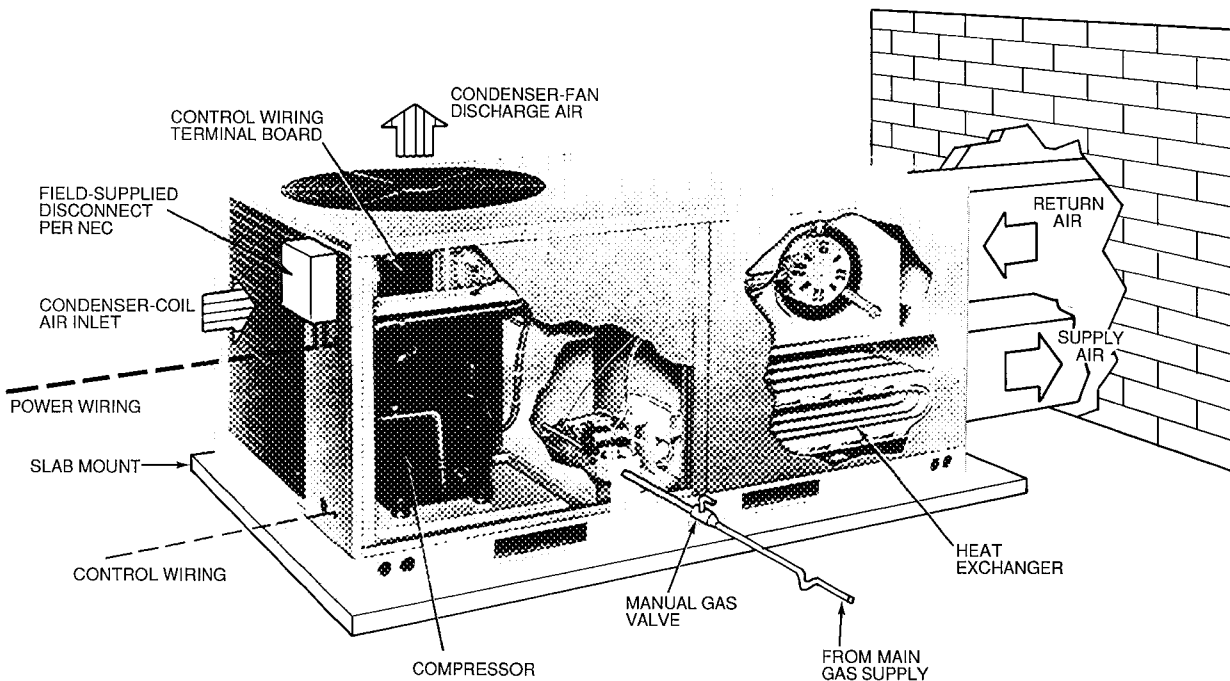
Typical piping and wiring — 48TJ004-014 (008-014 shown)



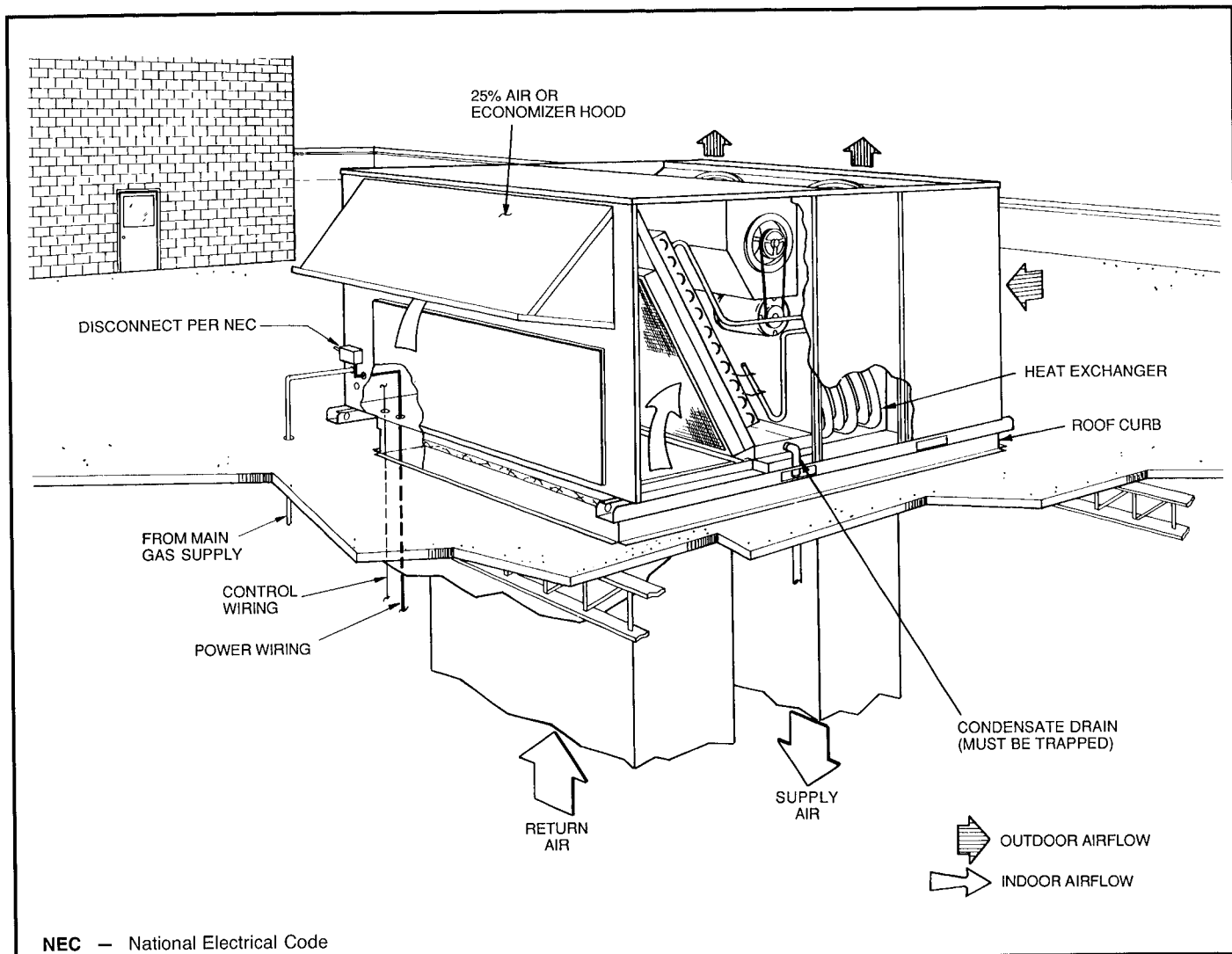
VERTICAL DISCHARGE DUCTING



HORIZONTAL DISCHARGE DUCTING



NEC — National Electrical Code



NEC — National Electrical Code

LEGEND FOR TYPICAL CONTROL WIRING SCHEMATICS

AHA — Adjustable Heat Anticipator
BKR W/AT — Breaks with Amp Turns
C — Contactor, Compressor
CB — Circuit Breaker
CC — Cooling Compensator
CH — Crankcase Heater
CLO — Compressor Lockout
CLS — Compressor Lockout Switch
COMP — Compressor Motor
CR — Control Relay
CT — Current Transformer
DM — Damper Motor
DU — Dummy Terminal
EC — Enthalpy Control
EQUIP — Equipment
FPT — Freeze Protection Thermostat
FU — Fuse
GND — Ground
HPS — High-Pressure Switch
HR — Heat Relay
HV — High Voltage
I — Ignitor
ICP — Ignitor Control Pack
IDM — Induced-Draft Motor
IDR — Induced-Draft Relay

IFC — Indoor-Fan Contactor
IFCB — Indoor-Fan Circuit Breaker
IFM — Indoor-Fan Motor
IFR — Indoor-Fan Relay
IGC — Integrated Gas Unit Controller
IP — Internal Protector
L — Light
LOR — Lockout Relay
LPS — Loss-of-Charge/ Low-Pressure Switch
LS — Limit Switch
MAT — Mixed-Air Thermostat
MGV — Main Gas Valve
NC — Normally Closed
NO — Normally Open
OAT — Outdoor-Air Thermostat
OFC — Outdoor-Fan Contactor
OFM — Outdoor-Fan Motor
PGV — Pilot Gas Valve
PL — Plug
PRI — Primary
PS — Pressure Switch
QT — Quadruple Terminal
R — Relay
RS — Rollout Switch
SN — Sensor
SW — Switch

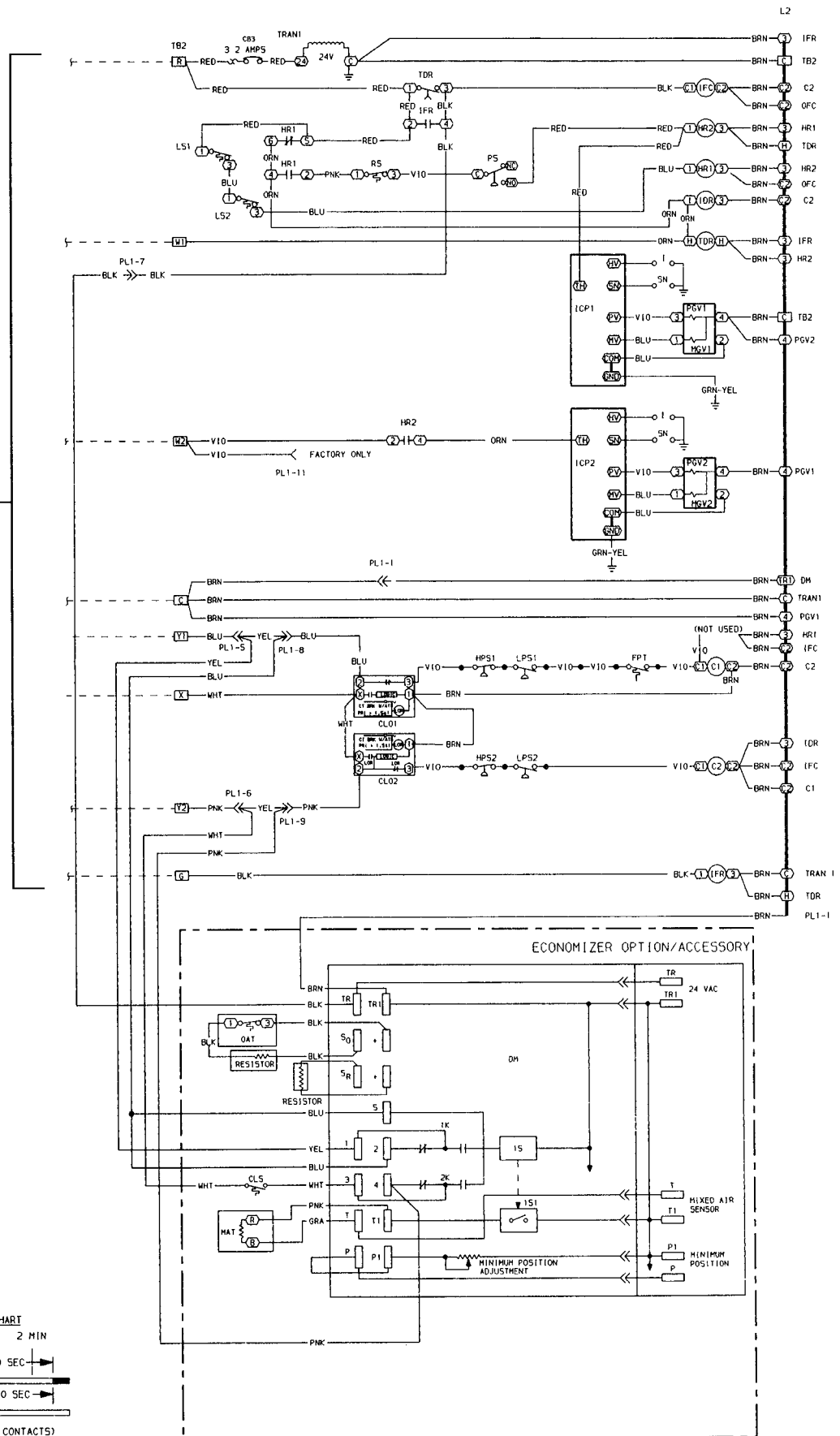
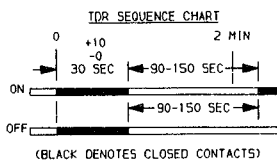
TB — Terminal Block
TC — Thermostat Cooling
TDR — Time Delay Relay
TH — Thermostat Heating
TRAN — Transformer
 Terminal (Marked)
 Terminal (Unmarked)
 Terminal Block
 Splice
 Splice (Marked)
 Factory Wiring
 Field Control Wiring
 Field Power Wiring
 Accessory or Optional Wiring
 To Indicate Common Potential Only, Not To Represent Wiring



Typical wiring schematic — 48TJ016-028



TO FIELD SUPPLIED
THERMOSTAT SEE
APPLICATION DATA
SECTION FOR MORE
DETAILS



Operating sequence

Cooling, units without economizer — When thermostat calls for cooling, terminals G and Y1 are energized. The indoor (evaporator) fan contactor (IFC) and compressor contactor no. 1 (C1) are energized, and evaporator-fan motor (IFM), compressor no. 1 (48TJ004-014 and 020-028) or unloaded compressor (48TJ016), and condenser fan start. The condenser-fan motor runs continuously while unit is cooling. For units with 2 stages of cooling, if the thermostat calls for a second stage of cooling by energizing Y2, compressor contactor no. 2 (C2) is energized and compressor no. 2 starts (48TJ008-014 and 020-028), or compressor no. 1 runs fully loaded (48TJ016).

Heating, units without economizer (48TJ004-014) — When the thermostat calls for heating, terminal W1 is energized. In order to prevent thermostat short-cycling, the unit is locked into the Heating mode for at least 1 minute when W1 is energized. The induced-draft motor (IDM) is then energized and the burner ignition sequence begins. The indoor (evaporator) fan motor (IFM) is energized 45 seconds after a flame is ignited. On units equipped for two stages of heat, when additional heat is needed, W2 is energized and the high-fire solenoid on the main gas valve (MGV) is energized. When the thermostat is satisfied and W1 is deenergized, the IFM stops after a 45-second time-off delay.

Heating, units without economizer (48TJ016-028)

NOTE. The 48TJ016-028 units have 2 stages of heat.

Set thermostat system switch at HEAT or AUTO position and set fan switch to AUTO position for heating.

When first-stage thermostat calls for heat, time-delay relay for evaporator fan begins timer sequence. Induced-draft relay closes, and induced-draft motor starts.

Draft pressure switch closes and pilot valve no. 1 opens, allowing gas to flow to the first-stage pilot. Spark ignitor ignites pilot flame. Sensor detects flame and the main gas valve no. 1 opens. Gas flows to main burners and first-stage burners ignite. Spark igniter turns off.

When sequence is complete, time-delay relay closes and evaporator fans start.

SECOND STAGE — 48TJD016-028 LOW-HEAT AND 48TJE016 HIGH-HEAT UNITS — With an additional heating call, the second-stage thermostat closes. (The control relay closes during the first stage of operation.) Pilot valve no. 2 opens, and the spark ignitor ignites pilot. The sensor detects a flame and energizes main gas valve coil no. 2, opening main gas valve no. 2. Gas flows to the main burners, and the second stage burners ignite. The spark ignitor turns off.

When the second-stage thermostat is satisfied, the second-stage gas valve closes.

When the first-stage thermostat is satisfied, the first-stage gas valve closes. The induced-draft motor turns off, the time relay opens, and the timer sequence begins. When the sequence is complete, the evaporator-fan motor turns off.

SECOND-STAGE — 48TJE024,028 HIGH-HEAT UNITS — With an additional heating call, the second-stage thermostat closes. (The control relay closes during the first stage of operation.) The second-stage induced-draft relay closes, and the second-stage induced-draft motor starts.

The second-stage draft pressure switch closes and pilot valve no. 2 opens, allowing gas to flow to the second-stage pilot. Spark ignitor ignites pilot flame. The sensor detects the flame, and main gas valve no. 2 opens. Gas flows to main burners and second-stage burners ignite. Spark ignitor turns off.

When the second-stage thermostat is satisfied, the second-stage gas valve closes and the second-stage induced-draft motor turns off.

When the first-stage thermostat is satisfied, the first-stage gas valve closes. The first-stage induced-draft motor turns off, the time relay opens, and the timer sequence begins. When the sequence is complete, the evaporator-fan motor turns off.

Cooling, units with economizer (48TJ004-014) — When the outdoor-air temperature is above the OAT (outdoor-air thermostat) setting and the room thermostat calls for cooling, compressor contactor no. 1 is energized to start compressor no. 1 and the outdoor (condenser) fan motor (OFM). The indoor (evaporator) fan motor (IFM) is energized and the economizer damper moves to the minimum position. Upon a further call for cooling, compressor contactor no. 2 will be energized, starting compressor no. 2 (008-014 only). After the thermostat is satisfied, the damper moves to the fully closed position when using an auto fan or to the minimum position when using a continuous fan.

When the outdoor-air temperature is below the OAT setting and the thermostat calls for cooling, the economizer dampers move to the minimum position. If the supply-air temperature is above 57 F, the damper continues to open until it reaches the fully open position or until the supply-air temperature drops below 52 F.

When the supply-air temperature falls to between 57 F and 52 F, the damper will remain at an intermediate open position. If the supply-air temperature falls below 52 F, the damper will modulate closed until it reaches the minimum position or until the supply-air temperature is above 52 F. When the thermostat is satisfied, the damper will move to the fully closed position when using an auto fan or to the minimum position when using a continuous fan.

If the outdoor air alone cannot satisfy the cooling requirements of the conditioned space, economizer cooling is integrated with mechanical cooling, providing second-stage cooling. Compressor no. 1 and the condenser fan will be energized and the position of the economizer damper will be determined by the supply-air temperature. Compressor no. 2 is locked out.

When the second stage of cooling is satisfied, the compressor and OFM will be deenergized. The damper position will be determined by the supply-air temperature.

After a 30-second delay, the IFM shuts off. If the thermostat fan selector switch is in the ON position, the IFM will run continuously.

Cooling, units with economizer (48TJ016-028) — Upon a call for cooling, when outdoor ambient is above the temperature control setting, the economizer damper moves to VENT position. The compressors and evaporator and condenser fans energize.

Upon a first call for cooling, when outdoor ambient is below the temperature control setting, the evaporator fan starts and the economizer opens to maintain 53 F leaving-air temperature. The compressors remain off.

Upon a second-stage call for cooling, compressor no. 1 is energized and mechanical cooling is integrated with economizer cooling. If the outdoor-air temperature drops below 50 F, a cooling lockout switch prevents the compressors from running.

When supply-air temperature drops below a fixed set point, the economizer damper modulates to maintain the temperature at the fixed set point.

A freeze protection thermostat (FPT) is located on the evaporator coil. It detects frost build-up and turns off the compressors, allowing the coil to clear. Once frost has melted, the compressors can be reenergized.

Heating, units with economizer (48TJ004-014) — When the thermostat calls for heating, terminal W1 is energized. In order to prevent thermostat short-cycling, the unit is locked into the Heating mode for at least 1 minute when

W1 is energized. The induced-draft motor is then energized and the burner ignition sequence begins. The indoor (evaporator) fan motor (IFM) is energized 45 seconds after a flame is ignited and the damper moves to the minimum position. On units equipped for two stages of heat, when additional heat is needed, W2 is energized and the high-fire solenoid on the main gas valve (MGV) is energized. When the thermostat is satisfied and W1 is deenergized, the IFM stops after a 45 second time-off delay. The economizer damper then moves to the fully closed position. When using continuous fan, the damper will remain in the minimum position.

Heating, units with economizer (48TJ016-028) — Outdoor-air damper stays at VENT position while evaporator fan is operating. Refer to Heating, units without economizer section on page 54 for remainder of operating sequence.

Application data

Ductwork (48TJ004-014) — Secure vertical discharge ductwork to roof curb. For horizontal discharge applications, attach ductwork to unit, or field-supplied flanges can be attached to horizontal discharge openings and all ductwork attached to flanges.

Ductwork (48TJ016-028) — Ductwork should be attached to the curb on all units. Interior installation may proceed before unit is set in place on roof. If ductwork will be attached to the unit, do not drill in condensate drain pan area — leaks may result. See figures on page 56 for information on field-installed concentric ductwork when applicable.

To convert from vertical discharge to horizontal discharge (48TJ004-014):

1. Remove economizer to gain access to return duct opening.
2. Move the horizontal discharge duct opening covers to the vertical discharge openings.
3. Rotate economizer 90 degrees (until the economizer motor faces the condenser section).
4. Rotate the barometric relief damper 90 degrees (economizer only).
5. Install block-off plate over the opening on the access panel.

IMPORTANT: On 48TJ004-014 horizontal applications equipped with economizer, the air filters **MUST** be installed external to the unit, or economizer will have to be partially removed.

Thru-the-curb service connections — Roof curb connections allow field power wires, control wires, and gas supply to enter through the roof curb opening.

Thermostat — Use of 2-stage cooling thermostat is recommended for all units. A 2-stage cooling thermostat is required on units with accessory economizer to provide integrated cooling.

Heating-to-cooling changeover — All units are automatic changeover from heating to cooling when automatic changeover thermostat and subbase are used.

Airflow — Units are draw-thru on cooling and blow-thru on heating.

Maximum airflow — To minimize the possibility of condensate blow-off from evaporator, airflow through units should not exceed 500 cfm/ton on 004-024 units, and 11,250 cfm on 028 units.

Minimum airflow — The minimum airflow for cooling is 300 cfm/ton.

Minimum ambient cooling operation temperature (48TJ004-014) — The cooling temperature for size 004-014 standard units is 25 F. With accessory Motormaster® control (for unit sizes 004-007) or Motormaster II control (for unit sizes 004-014), units can operate at outdoor temperatures down to -20 F.

Minimum ambient cooling operation temperature (48TJ016-028) — Units are designed to operate at outdoor temperatures down to 40 F for 48TJ016, 25 F for 48TJ020 and 024, and 48 F for 48TJ028. To operate at lower outdoor-air temperatures, see Minimum-Ambient Temperature Cooling Operation table on next page for operating limits.

Maximum operating outdoor-air temperature — For cooling, this temperature is 115 F.

High altitude — A change to the gas orifice may be required at high altitudes. Refer to Altitude Compensation charts on page 46.

Minimum temperature — Air entering the heat exchanger in heating is 50 F continuous and 45 F intermittent.

Internal unit design — Due to Carrier's internal unit design (draw-thru over the motor), air path, and specially designed motors, the full horsepower (maximum continuous bhp) listed in the Physical Data table and the notes following each Fan Performance table can be utilized with extreme confidence.

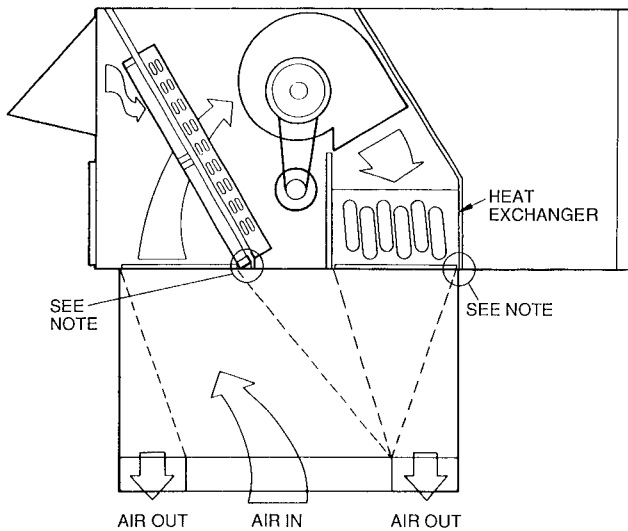
Using Carrier motors with the values listed in the Physical and Fan Performance Data tables *will not* result in nuisance tripping or premature motor failure. The unit warranty will not be affected.

MINIMUM-AMBIENT TEMPERATURE COOLING OPERATION

UNIT 48TJ	OUTDOOR COOLING TEMPERATURE (F)			
	Base Unit	With Accessory 25 F Low-Ambient Kit	With Accessory 25 F Low-Ambient Kit and Motormaster® Head Pressure Control	With Motormaster III Head Pressure Control and 2 Accessory Winter Start Time-Delay Relays
016	40	25	-20	—
020,024	25	—	—	-20
028	48	25*	—	-20

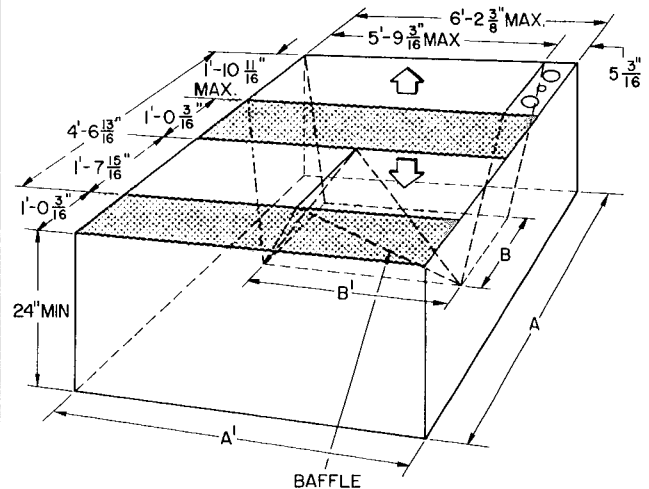
*Also need 1 accessory winter start time-delay relay

CONCENTRIC DUCT AIR DISTRIBUTION (48TJ016-028 ONLY)



NOTE: Do not drill in this area; damage to basepan may result in water leak

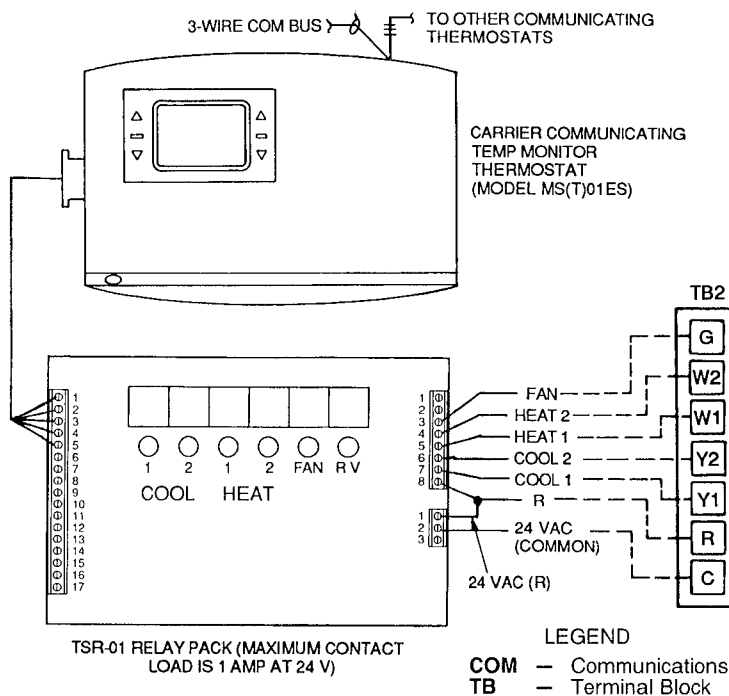
CONCENTRIC DUCT DETAILS (48TJ016-028 ONLY)



NOTE: Dimensions A, A' and B, B' are obtained from field-supplied ceiling diffuser

Shaded area indicates block-off panels

FIELD THERMOSTAT WIRING



Packaged Rooftop Electric Cooling Unit with Gas Heat — Constant Volume Application

HVAC Guide Specifications

Size Range **3 to 12½ Tons, Nominal (Cooling)**
74,000 — 250,000 Btuh, Nominal
(Input Heating)

Carrier Model Numbers. **48TJD**
48TJE
48TJF

Part 1 — General

1 01 SYSTEM DESCRIPTION

- A. Outdoor rooftop mounted, electrically-controlled heating and cooling unit utilizing a hermetic compressor for cooling duty and gas combustion for heating duty. Unit shall discharge supply air vertically or horizontally as shown on contract drawings

1 02 QUALITY ASSURANCE

- A. Unit shall be rated in accordance with ARI Standards 210/240 or 360 and 270. Designed in accordance with UL Standard 1995.
- B. Unit shall be designed to conform to ASHRAE 15, latest revision.
- C. Unit shall be UL-tested and certified in accordance with ANSI Z21.47 Standards and UL and CSA certified as a total package.
- D. Roof curb shall be designed to conform to NRCA Standards
- E. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation
- F. Unit casing shall be capable of withstanding Federal test method Standard No. 141 (Method 6061) 500-hour salt spray test

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Unit shall be stored and handled per manufacturer's recommendations

Part 2 — Products

2 01 EQUIPMENT (STANDARD)

A. General

Factory assembled, single-piece heating and cooling unit. Contained within the unit enclosure shall be all factory wiring, piping, controls, refrigerant charge (R-22), and special features required prior to field start-up

B. Unit Cabinet.

- 1. Unit cabinet shall be constructed of galvanized steel, bonderized and coated with a prepainted baked enamel finish on all externally exposed surfaces.
- 2. Evaporator fan compartment interior cabinet surfaces shall be insulated with a minimum ½-in thick, flexible fiberglass insulation, coated on the air side Aluminum foil-faced fiberglass insulation shall be used in the gas heat compartment
- 3. Cabinet panels shall be easily removable for servicing

- 4. Holes shall be provided in the base rails for rigging shackles to facilitate maneuvering and overhead rigging
- 5. Unit shall have a factory-installed condensate drain pan made of a non-corrosive material, providing a minimum ¾-in. connection.
- 6. Unit shall have a factory-installed filter access door to provide filter access with no panel or screw removal.

C Fans

1. Evaporator Fan

- a. Fan shall be direct or belt driven as shown on the equipment drawings. Belt drive shall include an adjustable-pitch motor pulley.
- b. Fan wheel shall be double-inlet type with forward-curved blades.
- c. Bearings shall be sealed, permanently lubricated ball-bearing type for longer life and lower maintenance.

- 2. Evaporator fan shall be made from steel with a corrosion-resistant finish and shall be dynamically balanced

- 3. Condenser fan shall be of the direct-driven propeller type and shall discharge air vertically

- 4. Condenser fan shall have aluminum blades riveted to corrosion-resistant steel spiders and shall be dynamically balanced.

- 5. Induced-draft blower shall be of the direct-driven, single inlet, forward-curved centrifugal type, made from steel with a corrosion-resistant finish and shall be dynamically balanced.

D Compressor(s)

- 1. Fully hermetic type, internally protected
- 2. Factory rubber shock mounted and internally spring mounted for vibration isolation
- 3. On independent circuits (008-014).

E. Coils:

- 1. Evaporator and condenser coils shall have aluminum plate fins mechanically bonded to copper tubes with all joints brazed
- 2. Tube sheet openings shall be belled to prevent tube wear
- 3. Evaporator coil shall be of the full face active design.

F Heating Section

- 1. Induced-draft combustion type with energy saving direct-spark ignition system and redundant main gas valve
- 2. The heat exchanger shall be of the tubular-section type constructed of a minimum of 20-gage steel coated with a nominal 1.2 mil aluminum-silicone alloy for corrosion resistance.
- 3. Burners shall be of the in-shot type constructed of aluminum-coated steel
- 4. All gas piping shall enter the unit cabinet at a single location

G Refrigerant Components:

Refrigerant circuit components shall include

1. Acutrol™ feed system
2. Refrigerant strainer.
3. Service gage connections on suction, discharge, and liquid lines

H Filter Section:

1. Standard filter section shall consist of factory-installed, low velocity, throwaway 2-in thick fiber-glass filters of commercially available sizes
2. Filter face velocity shall not exceed 320 fpm at nominal airflows
3. Filter section should use only one size filter

I Controls and Safeties:

1. Unit Controls:

Unit shall be complete with self-contained low-voltage control circuit protected by an auto-reset device.

2. Safeties

- a. Unit shall incorporate compressor overtemperature and overcurrent safety devices to shut off compressor.
- b. Heating section shall be provided with the following minimum protections
 - 1) High-temperature limit switch
 - 2) Induced-draft motor speed sensor.
 - 3) Flame rollout switch
 - 4) Flame proving controls

J. Operating Characteristics

1. Unit shall be capable of starting and running at 115 F ambient outdoor temperature, meeting maximum load criteria of ARI Standard 210/240 or 360
2. Compressor with standard controls shall be capable of operation down to 25 F ambient outdoor temperature

K Electrical Requirements

All unit power wiring shall enter unit cabinet at a single factory-predrilled location

L. Motors:

1. Compressor motors shall be cooled by refrigerant gas passing through motor windings and shall have line break thermal and current overload protection.
2. Evaporator-fan motor shall have permanently lubricated bearings and inherent automatic-reset thermal overload protection.
3. Totally enclosed condenser-fan motor shall have permanently lubricated bearings, and inherent automatic-reset thermal overload protection
4. Induced-draft motor shall have permanently lubricated sealed bearings and inherent automatic-reset thermal overload protection

M Special Features:

Certain features are not applicable when the features designated * are specified. For assistance in amending the specifications, contact your local Carrier Sales Office

1. Roof Curb.

- a. Formed galvanized steel with wood nailer strip and capable of supporting entire unit weight.
- b. Allows for installing and securing ductwork to curb prior to mounting unit on the curb.

* 2 Integrated Economizer

- a. Integrated type capable of simultaneous economizer and compressor operation
- b. Includes all hardware and controls to provide cooling with outdoor air
- c. Equipped with a single sliding-plate, gravity relief, low-leakage type damper
- d. Capable of introducing up to 100% outdoor air.

* 3 Manual Outdoor-Air Damper

Manual damper package shall consist of damper, birdscreen, and rainhood which can be preset to admit up to 25% outdoor air for year round ventilation.

* 4 Two-Position Damper:

- a. Two-position damper package shall include single blade damper and motor. Admits up to 25% outdoor air
- b. Damper shall close upon indoor fan shutoff.

* 5 Solid-State Enthalpy Control.

- a. For use with economizer package only
- b. Capable of sensing outdoor-air heat content (temperature and humidity) and control economizer cut-in point to have minimum heat content air passing over the evaporator coil for most efficient system operation

* 6 Differential Enthalpy Sensor

- a. For use with economizer only
- b. Capable of comparing heat content (temperature and humidity) of outdoor air and return air and controlling economizer cut-in point at the most economical level

* 7 Head Pressure Control Package

Consists of solid-state control and condenser-coil temperature sensor to maintain condensing temperature between 90 F and 110 F at outdoor ambient temperatures down to -20 F by either condenser-fan speed modulation (004-007) or condenser-fan cycling (004-014)

- * 8. Remote Control Panel:
Panel shall be a decorative, indoor, wall-mounted panel consisting of:
 - a Two-stage heat/2-stage cool thermostat.
 - b. Automatic changeover.
 - c System switch with HEAT-COOL-AUTO - OFF settings
 - d. Fan switch with ON-AUTO settings
 - e. Indicator lights for HEAT-COOL-FAN operation.
 - f Three unused indicator lights for field use.
- 9 LP (Liquid Propane) Gas Conversion Kit
Package shall contain all the necessary hardware and instructions to convert a standard natural gas unit for use with liquefied propane gas
- * 10 Thru-the-Curb Service Connections:
Allow gas and electrical connections to be brought to the unit through the roof curb.
- * 11. Electronic Programmable Thermostat
Capable of using deluxe full-featured electronic thermostat
- * 12. Flue Shield.
Provides protection from the hot sides of the gas flue hood.
- * 13. Thermostat and Subbase:
Provides staged cooling and heating automatic (or manual) changeover, fan control, and indicator light.
- 14. Condenser Coil Hail Guard Assembly
Hail guard shall protect against damage from hail and flying debris.
- 15. NO_x Reduction Kit.
Package shall contain all necessary hardware and instructions to convert a standard natural gas unit to reduce the nitrous oxide (NO_x) emissions to a level of 40 nanograms/joule.
- 16. Controls Upgrade Kit
Kit shall contain high-pressure, loss-of-charge/low-pressure, and freeze protection switches. It shall mount on factory-installed Schrader fittings
- 17. Alternate Motor(s) and Drive(s)
Alternate motor(s) and drive(s) shall be factory-installed to provide additional performance range.
- 18. Flue Discharge Deflector
Flue discharge deflector directs unit exhaust vertically instead of horizontally.
- 19. External Filter Package:
 - a For use with economizer on horizontal applications.
 - b Package shall contain all necessary hardware and instructions to install filter external to the unit
- 20. Condenser Coil Grille
The grille protects the condenser coil from damage by large objects without increasing unit clearances.
- 21. Compressor Cycle Delay
Unit shall be prevented from restarting for minimum of 5 min after shutdown.

Packaged Rooftop Electric Cooling Unit with Gas Heat — Constant Volume Application

HVAC Guide Specifications

Size Range: **15 to 25 Tons, Nominal (Cooling)**
115,500 — 485,000 Btuh, Nominal
(Input Heating)

Carrier Model Numbers: **48TJD**
48TJE

Part 1 — General

1.01 SYSTEM DESCRIPTION

- A Unit is an outdoor rooftop mounted, electrically controlled heating and cooling unit utilizing a reciprocating semi-hermetic (016,028) or hermetic (020,024) compressor(s) for cooling duty and gas combustion for heating duty. Supply air shall be discharged downward or horizontally (with horizontal supply/return adapter curb assembly), as shown on contract drawings. Standard unit shall include a manual outdoor-air inlet.

1.02 QUALITY ASSURANCE

- A Unit (016-024) shall be rated in accordance with ARI Standards 270 and 360 and designed in accordance with UL Standard 1995

NOTE The 48TJ028 is beyond the scope of the ARI certification program.

- B Unit shall be designed to conform to ASHRAE 15.
- C Unit shall be ETL-tested and certified in accordance with ANSI Z21.47 Standards as a total package
- D Unit shall be certified by Warnock Hersey
- E Roof curb shall be designed to conform to NRCA Standards
- F Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation
- G Unit casing shall be capable of withstanding Federal test method Standard No. 141 (Method 6061) 500-hour salt spray test

1.03 DELIVERY, STORAGE, AND HANDLING

- A Unit shall be stored and handled per manufacturer's recommendations

Part 2 — Products

2.01 EQUIPMENT (STANDARD)

A. General:

The 48TJ unit shall be a factory assembled, single-piece heating and cooling unit. Contained within the unit enclosure shall be all factory wiring, piping, controls, refrigerant charge (R-22), and special features required prior to field start-up

B Unit Cabinet

- 1. Unit cabinet shall be constructed of galvanized steel, bonderized and coated with a prepainted baked enamel finish.

- 2. Indoor blower compartment interior surfaces shall be insulated with a minimum 1/2-in. thick insulation coated on the air side. Aluminum foil-faced fiberglass insulation shall be used in the gas heat compartment.
- 3. Cabinet panels shall be easily removable for servicing
- 4 Filters shall be accessible through an access panel
- 5 Holes shall be provided in the base rails for rigging shackles to facilitate overhead rigging.
- 6. Unit shall have a factory-installed internal condensate drain connection and a sloped condensate pan.

C. Fans:

- 1 Indoor blower (evaporator fan):
 - a Fan shall be belt driven. Belt drive shall include an adjustable pulley
 - b. Fan wheel shall be made from steel with a corrosion resistant finish. It shall be a dynamically balanced, double-inlet type with forward-curved blades.
- 2 Condenser fan shall be of the direct-driven propeller type, with corrosion-resistant blades riveted to corrosion-resistant steel supports. It shall be dynamically balanced and discharge air upwards.
- 3. Induced-draft blower shall be of the direct-driven, single inlet, forward-curved, centrifugal type. It shall be made from steel with a corrosion-resistant finish and shall be dynamically balanced.

D Compressor(s):

- 1 The reciprocating semi-hermetic or hermetic compressor(s) has factory-installed external spring vibration isolation (016,028), or shall be factory rubber-shock mounted and internally spring mounted (020,024) for vibration isolation.
- 2. Factory-installed crankcase heater prevents refrigerant dilution of oil (016,028).
- 3. The semi-hermetic compressor shall have unloading capability (016 only)
- 4 On independent circuits (020-028).

E. Coils

Standard evaporator and condenser coils shall have copper or aluminum plate fins mechanically bonded to seamless copper tubes with all joints brazed.

F Heating Section:

- 1 Induced-draft combustion type with energy saving direct-spark ignition system and redundant main gas valve.
- 2 The heat exchanger shall be of the tubular-section type constructed of a minimum of 20-gage steel coated with a nominal 1.2 mil aluminum-silicone alloy for corrosion resistance
- 3. Burners shall be of the in-shot type constructed of aluminum-coated steel.
- 4. All gas piping shall enter the unit at a single location.

G Refrigerant Components.

Refrigerant circuit components shall include

- 1 Fixed expansion device with filter driers
- 2 Service gage connection on suction, discharge, and liquid lines.
3. Acutrol™ feed system

H. Filter Section

Standard filter section shall consist of 2 sizes of factory-installed 2-in thick throwaway fiberglass filters of commercially available sizes.

I Controls and Safeties.

1 Unit Controls

- a Economizer control (optional)
- b. Capacity control (2-step)
- c. Unit shall be complete with self-contained low-voltage control circuit

2 Safeties:

- a Unit shall incorporate a solid-state compressor lockout which provides reset capability at the space thermostat, should any of the following safety devices trip and shut off compressor:
 - 1) Compressor overtemperature, overcurrent
 - 2) Low-pressure switch.
 - 3) Freezestat (evaporator coil).
 - 4) High-pressure switch
- b Supply-air thermostat shall be located in the unit.
- c Heating section shall be provided with the following minimum protections
 - 1) High-temperature limit switch
 - 2) Induced-draft pressure switch
 - 3) Flame rollout switch (manual reset)
 - 4) Flame proving controls.
 - 5) Redundant gas valve(s)

J. Operating Characteristics

- 1 Unit shall be capable of starting and running at 115 F ambient outdoor temperature per maximum load criteria of ARI Standard 360.
- 2 Unit with standard controls will operate in cooling to 40 F on 48TJ016 units, to 25 F ambient on 020 and 024 units, and to 48 F ambient on 028 units.
- 3 Unit provided with fan time delay to prevent cold air delivery

K Electrical Requirements

All unit power wiring shall enter unit cabinet at a single location

L Motors:

- 1 The 48TJ016 and 028 compressor motors shall be of the refrigerant cooled type with thermal and calibrated circuit breaker overload protection. The 48TJ020 and 024 compressor motors shall be cooled by refrigerant passing through motor windings and shall have line break thermal and current overload protection
- 2 All fan motors shall have permanently lubricated, sealed bearings and inherent automatic-reset thermal overload protection or manual reset calibrated circuit breakers

M Special Features

Certain features are not applicable when the features designated * are specified. For assistance in amending the specifications, your local Carrier Sales Office should be contacted.

1 Roof Curb

- a Formed of 18-gage galvanized steel with wood nailer strip and capable of supporting entire unit weight.
- b Allows for installing and securing ductwork to curb prior to mounting unit on the curb

* 2 Integrated Economizer

- a Integrated type capable of simultaneous economizer and compressor operation to provide cooling with outdoor air
- b. Equipped with low-leakage dampers not to exceed 3% leakage, at 1.0 in wg pressure differential
- c Capable of introducing up to 100% outdoor air
- d Equipped with dry-bulb temperature control to govern economizer changeover

* 3 Two-Position Damper

Two-position damper package shall include single blade damper and motor. Admits up to 25% outdoor air, and shall close upon unit shutoff

4 Accessory Compressor Cycle Delay

Compressor shall be prevented from restarting for a minimum of 5 minutes after shutdown.

* 5. Thermostat and Subbase

To provide staged heating and cooling in addition to automatic (or manual) changeover and fan control

* 6 Barometric Relief Damper Package

- a Package shall include damper, seals, hardware, and hoods to relieve excess internal pressure.
- b Damper shall close due to gravity upon unit shutdown

- * 7 Power Exhaust:
Package shall include an exhaust fan, motor, and damper for vertical flow units with economizer to control overpressurization of building.
- * 8. Head Pressure Control Package
Consists of an accessory outdoor-air package and a solid-state control with condenser coil temperature sensor for controlling condenser-fan motor speed to maintain condensing temperature between 90 F and 100 F at outdoor ambient temperature down to -20 F
- 9. 25 F Low-Ambient Kit:
When used allows 016 and 028 units to operate at lower outdoor ambient temperatures
- * 10 Differential Enthalpy Sensor.
 - a. For use with economizer only
 - b Capable of comparing heat content (temperature and humidity) of outdoor air and indoor air and controlling economizer cut-in point at the most economical level.
- * 11 Remote Control Panel:
Panel shall be a decorative, indoor, wall-mounted panel consisting of
 - a Two-stage heat/2-stage cool thermostat
 - b Automatic changeover
 - c. System switch with HEAT-COOL-AUTO.-OFF settings
 - d. Fan switch with ON-AUTO. settings
 - e Ventilation control for remote variation of the amount of outdoor-air intake.
 - f Indicator lights for HEAT-COOL-FAN operation
 - g. Three unused indicator lights for field use
- * 12 Electronic Programmable Thermostat
Capable of using deluxe full-featured electronic thermostat.
- 13 Winter Start Time-Delay Relay:
Used in conjunction with the accessory 25 F low-ambient kit (028) or head pressure control device (020-028), permits operation in cooling at lower outdoor ambient temperatures.

