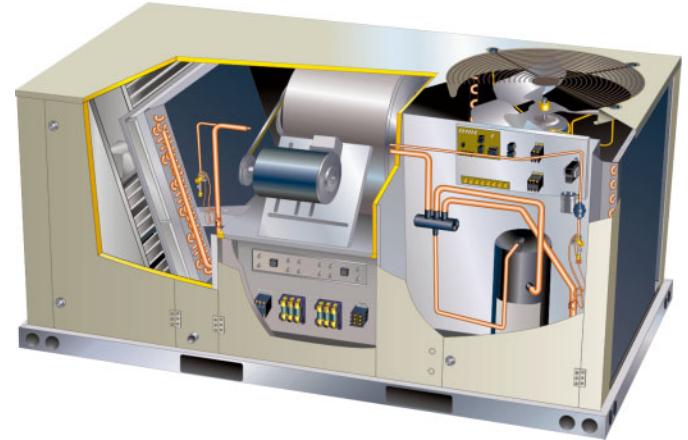


The THA commercial heat pump is available in 2, 2.5, 3, 4, 5, and 6 ton capacities. The THA024/072 refrigerant systems utilize one compressor, one reversing valve and other parts common to a heat pump. Optional auxiliary electric heat is factory or field installed in THA units. Electric heat operates in single stage. 7.5kW through 30kW heat sections are available for the THA heat pump.

Information contained in this manual is intended for use by qualified service technicians only. All specifications are subject to change. Procedures outlined in this manual are presented as a recommendation only and do not supersede or replace local or state codes.

If the unit must be lifted for service, rig unit by attaching four cables to the holes located in the unit base rail (two holes at each corner). Refer to the installation instructions for the proper rigging technique.



⚠ WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a licensed professional installer or service agency.

⚠ WARNING



Electric shock hazard. Can cause injury or death. Before attempting to perform any service or maintenance, turn the electrical power to unit OFF at disconnect switch(es). Unit may have multiple power supplies.

ELECTROSTATIC DISCHARGE (ESD) Precautions and Procedures

⚠ CAUTION

Electrostatic discharge can affect electronic components. Take precautions during unit installation and service to protect the unit's electronic controls. Precautions will help to avoid control exposure to electrostatic discharge by putting the unit, the control and the technician at the same electrostatic potential. Neutralize electrostatic charge by touching hand and all tools on an unpainted unit surface before performing any service procedure.

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OPTIONAL ACCESSORIES

Item			Catalog No.	024	030	036	048	060B	060S	072
COOLING SYSTEM										
Condensate Drain Trap	PVC - LTACDKP03/07	37K69		x	x	x	x	x	x	x
	Copper - LTACDKC03/07	45K67		x	x	x	x	x	x	x
Compressor Crankcase Heater	208/230V-1 or 3ph - T1CCHT01AN1P	95M07		x	x	x	x	x	x	x
	208/230V-3ph - T1CCHT01A-1Y	21W36				¹ x				
	460V-3ph - T1CCHT01A-1G	21W37				¹ x				
	460V-3ph - T1CCHT01AN1G	95M08				x	x	x	x	x
	575V-3ph - T1CCHT01AN1J	95M09				x	x	x	x	x
Low Ambient Kit	T1SNSR13AN1	95M06		x	x	x	x	x	x	x
Efficiency	Standard			○	○	○	○	○	○	○
	Basic					○	○	○	○	
High Pressure Switch	T1SNSR14AN1	20W89		x	x	x	x	x	x	x
Refrigerant Type	R-22			○	○	○	○	○	○	○
Blower – SUPPLY AIR										
Motors	Direct Drive - 0.25 hp			○	○					
	Direct Drive - 0.5 hp					○	○			
	Direct Drive - 0.75 hp							○		
	Belt Drive - 1.5 hp Standard Efficiency					○	○	○	○	○
	² Belt Drive - 2 hp Standard Efficiency					○	○	○	○	○
Drive Kits See Blower Data Tables for selection	Drive Kit # 1 - T1DRKT001-1 - 673-1010 rpm	20W81				⊗				
	Drive Kit # 2 - T1DRKT002-1 - 745-1117 rpm	20W82					⊗			
	Drive Kit # 3 - T1DRKT003-1 - 833-1250 rpm	20W83						⊗	⊗	
	Drive Kit # 4 - T1DRKT004-1 - 968-1340 rpm	20W84								⊗
	Drive Kit # 5 - T1DRKT005-1 - 897-1346 rpm	20W85				⊗				
	Drive Kit # 6 - T1DRKT006-1 - 1071-1429 rpm	20W86					⊗			
	Drive Kit # 7 - T1DRKT007-1 - 1212-1548 rpm	20W87						⊗	⊗	
	Drive Kit # 8 - T1DRKT008-1 - 1193-1591 rpm	20W88								⊗
CABINET										
Coil Guards	T1GARD20A-1	17W87		x	x	x	x	x		
	T1GARD20N-1	17W88							x	x
Corrosion Protection				○	○	○	○	○	○	○
Hail Guards	T1GARD10A-1	17W89		x	x	x	x	x		
	T1GARD10N-1	17W90							x	x
Hinged Access Panels				○	○	○	○	○	○	○
CONTROLS										
Dirty Filter Switch	COSWCH00AE-1	30K48		x	x	x	x	x	x	x
Smoke Detector - Return	T1SNSR41AN1	94M18		x	x	x	x	x	x	x
Indoor Air Quality										
Indoor Air Quality (CO₂) Sensors										
Sensor - white case CO ₂ display	C0SNSR50AS1L	77N39		x	x	x	x	x	x	x
Sensor - duct-mount, black case, no display	C0SNSR53AE1L	87N54		x	x	x	x	x	x	x
CO ₂ Sensor Duct Mounting Kit	C0MISC19AE1-	85L43		x	x	x	x	x	x	x

NOTE - The model numbers that appear here are for ordering field installed accessories only.

⊗ - Field Installed or Configure to Order (factory installed)

○ - Configure to Order (Factory Installed)

¹ 036B models only

X - Field Installed

² 2 hp blower motor is not available for 208/230V-1ph applications.

OPTIONAL ACCESSORIES

			Catalog No.	024	030	036	048	060B	060S	072
ECONOMIZER										
Economizer										
Economizer, Single Enthalpy Control Order Outdoor Air Hood Separately	T1ECON30A-1	16W86	⊗	⊗	⊗	⊗	⊗			
	T1ECON30N-1	16W89							⊗	⊗
Horizontal Economizer Conversion Kit	T1HECK00AN1	17W45	x	x	x	x	x	x	x	x
Outdoor Air Hood	T1HOOD30A-1	16W87	⊗	⊗	⊗	⊗	⊗			
	T1HOOD30N-1	16W90							⊗	⊗
Economizer Controls										
Differential Enthalpy Sensor	T1SNSR60AN1	17W71	x	x	x	x	x	x	x	x
Single Temperature Control	TASEK10/15	76M37	x	x	x	x	x	x	x	x
Differential Temperature Control	Order 2 - TASEK10/15	76M37	x	x	x	x	x	x	x	x
ELECTRICAL										
Disconnect	See Electrical/Electric Heat Tables for selection		x	x	x	x	x	x	x	x
Voltage 60 hz	208/230V - 1 phase		○	○	○	○	○	○		
	208/230V - 3 phase				○	○	○	○		○
	460V - 3 phase				○	○	○	○		○
	575V - 3 phase				○	○	○	○		○
GFI Service Outlets	LTAGFIK10/15	74M70	x	x	x	x	x	x	x	x
ELECTRIC HEAT										
7.5 kW	208/230V-1ph - T1EH0075AN1P	14W32	x	x	x	x	x	x	x	x
	208/230V-3ph - T1EH0075AN1Y	14W35			x	x	x	x		x
	460V-3ph - T1EH0075AN1G	14W39			x	x	x	x		x
	575V-3ph - T1EH0075AN1J	14W43			x	x	x	x		x
10 kW	208/230V-1ph - T1EH0100A1P	30W26	x	x						
15 kW	208/230V-1ph - T1EH0150AN1P	14W33			x	x	x	x		x
	208/230V-3ph - T1EH0150AN1Y	14W36			x	x	x	x		x
	460V-3ph - T1EH0150AN1G	14W40			x	x	x	x		x
	575V-3ph - T1EH0150AN1J	14W44			x	x	x	x		x
22.5 kW	208/230V-1ph - T1EH0225AN1P	14W34					x	x		x
	208/230V-3ph - T1EH0225AN1Y	14W37					x	x		x
	460V-3ph - T1EH0225AN1G	14W41					x	x		x
	575V-3ph - T1EH0225AN1J	14W45					x	x		x
30 kW	208/230V-3ph - T1EH0300N-1Y	14W38								x
	460V-3ph - T1EH0300N-1G	14W42								x
	575V-3ph - T1EH0300N-1J	14W46								x
ELECTRIC HEAT ACCESSORIES/OPTIONS – See Electrical/Electric Heat Tables for selection										
			Unit Fuse Block	x	x	x	x	x	x	x

NOTE - The model numbers that appear here are for ordering field installed accessories only.

⊗ - Field Installed or Configure to Order (factory installed)

○ - Configure to Order (Factory Installed)

x - Field Installed.

SPECIFICATIONS - DIRECT DRIVE BLOWER

General Data	Nominal Tonnage	2 Ton	2.5 Ton
	Model No.	THA024S2D	THA030S2D
	Efficiency Type	Standard	Standard
Cooling Performance	Gross Cooling Capacity - Btuh	25,000	30,000
	¹ Net Cooling Capacity - Btuh	24,000	28,600
	ARI Rated Air Flow - cfm	800	980
	Total Unit Power - kW	2.0	2.4
	¹ SEER (Btuh/Watt)	13.0	13.0
	¹ EER (Btuh/Watt)	12	11.8
Refrigerant	Type	R-22	R-22
	Charge Furnished	12 lbs. 0 oz.	12 lbs. 0 oz.
Heating Performance	Total High Heating Capacity - Btuh	25,600	30,000
	Total Unit Power - kW	2.1	2.4
	¹ COP	3.7	3.7
	¹ HSPF - Region IV (Region V)	7.7(6.7)	7.7(6.7)
	Total Low Heating Capacity - Btuh	15,000	17,800
	Total Unit Power - kW	1.9	2.2
	COP	2.3	2.4
Electric Heating Options		See Electric Heat Tables Beginning Page 20	
Compressor Type (no.)		Scroll (1)	Scroll (1)
Outdoor Coil	Net face area - sq. ft.	15.6	15.6
	Tube diameter - in.	3/8	3/8
	Number of rows	2.0	2.0
	Fins / inch	20	20
Outdoor Coil Fan	Motor HP	1/4	1/4
	Motor rpm	825	825
	Total motor watts	250	250
	Diameter - in. / No. of blades	24 - 3	24 - 3
	Total air volume - cfm	3300	3300
Indoor Coil	Net face area - sq. ft.	7.78	7.78
	Tube diameter - in.	3/8	3/8
	Number of rows	3	3
	Fins / inch	14	14
	Drain Connection (no. and size) - in.	(1) 3/4 NPT	(1) 3/4 NPT
Indoor Blower	Expansion device type	Balanced Port Thermostatic Expansion Valve, removeable power head	
	Nominal Motor HP	.25	.25
	Wheel nom. diameter x width - in.	10 x 10	10 x 10
Filters	Type	Disposable	
	Number and size - in.	(4) 16 x 20 x 2	
Electrical Characteristics - 60 hz		208/230V - 1 phase	

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

¹ Certified in accordance with the USE certification program, which is based on ARI Standard 210/240.

Cooling Ratings - 95°F outdoor air temperature and 80°F db/67°F wb entering indoor coil air.

High Temperature Heating Ratings - 47°F db/43°F wb outdoor air temperature and 70°F entering indoor coil air.

Low Temperature Heating Ratings - 17°F db/15°F wb outdoor air temperature and 70°F entering indoor coil air.

² Sound Rating Number rated in accordance with test conditions included in ARI Standard 270.

SPECIFICATIONS - DIRECT DRIVE BLOWER

General Data	Nominal Tonnage	3 Ton		4 Ton		5 Ton
	Model No.	THA036B2D	THA036S2D	THA048B2D	THA048S2D	THA060B2D
	Efficiency Type	Basic	Standard	Basic	Standard	Basic
Cooling Performance	Gross Cooling Capacity - Btuh	37,400	37,000	49,100	50,000	63,400
	¹ Net Cooling Capacity - Btuh	36,000	35,600	47,000	48,000	60,000
	ARI Rated Air Flow - cfm	1,200	1,160	1,500	1,750	2,000
	Total Unit Power - kW	3.6	3.0	5	4.3	6.7
	¹ SEER (Btuh/Watt)	11.0	13.5	11.0	13.0	10.0
	¹ EER (Btuh/Watt)	10.0	12	9.6	11.2	9.4
Refrigerant	Type	R-22	R-22	R-22	R-22	R-22
	Charge Furnished	7 lbs. 8 oz.	13 lbs. 12 oz.	7 lbs. 12 oz.	13 lbs. 0 oz.	10 lbs. 12 oz.
Heating Performance	Total High Heating Capacity - Btuh	35,000	34,200	47,000	44,500	62,000
	Total Unit Power - kW	3.1	2.9	4.3	3.6	6.1
	¹ COP	3.3	3.5	3.2	3.6	3.0
	¹ HSPF - Region IV (Region V)	7.2(6.3)	7.7(6.7)	7.2(6.2)	7.7(6.7)	6.6(6.0)
	Total Low Heating Capacity - Btuh	21,000	20,800	27,000	28,400	40,000
	Total Unit Power - kW	2.8	2.7	3.6	3.5	5.6
	COP	2.2	2.3	2.2	2.4	2.1
Electric Heating Options		See Electric Heat Tables Beginning Page 20				
Compressor Type (no.)		Scroll (1)	Scroll (1)	Scroll (1)	Scroll (1)	Scroll (1)
Outdoor Coil	Net face area - sq. ft.	15.6	15.6	15.6	15.6	15.6
	Tube diameter - in.	3/8	3/8	3/8	3/8	3/8
	Number of rows	1.0	2.0	1.24	2.0	2.0
	Fins / inch	20	20	20	20	20
Outdoor Coil Fan	Motor HP	1/4	1/4	1/4	1/4	1/3
	Motor rpm	825	825	825	825	1075
	Total motor watts	250	250	250	250	390
	Diameter - in. / No. of blades	24 - 3	24 - 3	24 - 3	24 - 3	24 - 3
	Total air volume - cfm	3,700	3,300	3,600	3,300	4,300
Indoor Coil	Net face area - sq. ft.	7.78	7.78	7.78	7.78	7.78
	Tube diameter - in.	3/8	3/8	3/8	3/8	3/8
	Number of rows	2	3	2	4	2
	Fins / inch	14	14	14	14	14
	Drain Connection (no. and size) - in.	(1) 3/4 NPT	(1) 3/4 NPT	(1) 3/4 NPT	(1) 3/4 NPT	(1) 3/4 NPT
	Expansion device type	Balanced Port Thermostatic Expansion Valve, removeable power head				
Indoor Blower	Nominal Motor HP	.5	.5	.5	.5	.75
	Wheel nom. diameter x width - in.	10 x 10	10 x 10	10 x 10	10 x 10	11 x 10
Filters	Type	Disposable				
	Number and size - in.	(4) 16 x 20 x 2				
Electrical Characteristics - 60 hz		208/230V & 460V 3 phase	208/230V 1 phase 208/230V, 460V & 575V 3 phase	208/230V & 460V 3 phase	208/230V 1 phase 208/230V, 460V & 575V 3 phase	208/230V & 460V 3 phase

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

¹ Certified in accordance with the USE certification program, which is based on ARI Standard 210/240.

Cooling Ratings - 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19°C) wb entering indoor coil air.

High Temperature Heating Ratings - 47°F (8°C) db/43°F (6°C) wb outdoor air temperature and 70°F (21°C) entering indoor coil air.

Low Temperature Heating Ratings - 17°F (-8°C) db/15°F (-9°C) wb outdoor air temperature and 70°F (21°C) entering indoor coil air.

² Sound Rating Number rated in accordance with test conditions included in ARI Standard 270.

SPECIFICATIONS - BELT DRIVE BLOWER

General Data		Nominal Tonnage	3 Ton		4 Ton	
		Model No.	THA036B2B	THA036S2B	THA048B2B	THA048S2B
		Efficiency Type	Basic	Standard	Basic	Standard
Cooling Performance	Gross Cooling Capacity - Btuh	37,400	37,000	49,100	50,000	
	¹ Net Cooling Capacity - Btuh	36,000	35,600	47,000	48,000	
	ARI Rated Air Flow - cfm	1,200	1,160	1,500	1,750	
	Total Unit Power - kW	3.6	3.0	5	4.3	
	¹ SEER (Btuh/Watt)	11.0	13.5	11.0	13.0	
	¹ EER (Btuh/Watt)	10.0	12.0	9.6	11.2	
Refrigerant		Type	R-22	R-22	R-22	R-22
		Charge Furnished	7 lbs. 8 oz.	13 lbs. 12 oz.	7 lbs. 12 oz.	13 lbs. 0 oz,
Heating Performance	Total High Heating Capacity - Btuh	35,000	34,200	47,000	44,500	
	Total Unit Power - kW	3.1	2.9	4.3	3.6	
	1 COP	3.3	3.5	3.2	3.6	
	HSPF - Region IV (Region V)	7.2(6.3)	7.7(6.7)	7.2(6.2)	7.7(6.7)	
	Total Low Heating Capacity - Btuh	21,000	20,800	27,000	28,400	
	Total Unit Power - kW	2.8	2.7	3.6	3.5	
	COP	2.2	2.3	2.2	2.4	
Electric Heating Options		See Electric Heat Tables Beginning Page 20				
Compressor Type (no.)		Scroll (1)	Scroll (1)	Scroll (1)	Scroll (1)	
Outdoor Coil	Net face area - sq. ft.	15.6	15.6	15.6	15.6	
	Tube diameter - in.	3/8	3/8	3/8	3/8	
	Number of rows	1.0	2.0	1.24	2.0	
	Fins / inch	20	20	20	20	
Outdoor Coil Fan	Motor HP	1/4	1/4	1/4	1/4	
	Motor rpm	825	825	825	825	
	Total motor watts	250	250	250	250	
	Diameter - in. / No. of blades	24 - 3	24 - 3	24 - 3	24 - 3	
	Total air volume - cfm	3,700	3,300	3,600	3,300	
	Indoor Coil	Net face area - sq. ft.	7.78	7.78	7.78	7.78
Tube diameter - in.		3/8	3/8	3/8	3/8	
Number of rows		2	3	2	4	
Fins / inch		14	14	14	14	
Drain Connection (no. and size) - in.		(1) 3/4 NPT	(1) 3/4 NPT	(1) 3/4 NPT		
Expansion device type		Balanced Port Thermostatic Expansion Valve, removeable power head				
³ Indoor Blower & Drive Selection		Nominal Motor HP	1.5 hp, ⁴ 2 hp			
	Maximum Usable Motor HP	1.72 hp, 2.3 hp				
	Wheel nom. diameter x width - in.	10 x 10				
	Available Drive Kits	kit #1 - 673 - 1010 rpm	kit #4 - 968 - 1340 rpm	kit #7 - 1212 - 1548 rpm		
		kit #2 - 745 - 1117 rpm	kit #5 - 897 - 1346 rpm	kit #8 - 1193 - 1591 rpm		
kit #3 - 833 - 1250 rpm		kit #6 - 1071 - 1429 rpm				
Filters		Type	Disposable			
		Number and size - in.	(4) 16 x 20 x 2			
Electrical Characteristics - 60 hz		208/230V & 460V 3 phase	208/230V 1 phase 208/230V, 460V & 575V 3 phase	208/230V & 460V 3 phase	208/230V 1 phase 208/230V, 460V & 575V 3 phase	

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

¹ Certified in accordance with the USE certification program, which is based on ARI Standard 210/240.

Cooling Ratings - 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19°C) wb entering indoor coil air.

High Temperature Heating Ratings - 47°F (8°C) db/43°F (6°C) wb outdoor air temperature and 70°F (21°C) entering indoor coil air.

Low Temperature Heating Ratings - 17°F (-8°C) db/15°F (-9°C) wb outdoor air temperature and 70°F (21°C) entering indoor coil air.

² Sound Rating Number rated in accordance with test conditions included in ARI Standard 270.

³ Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

⁴ 2 hp blower motor is not available for 208/230V-1phase applications.

SPECIFICATIONS - BELT DRIVE BLOWER

General Data	Nominal Tonnage Model No. Efficiency Type	5 Ton		6 Ton
		THA060B2B Basic	THA060S2B Standard	THA072S2B Standard
Cooling Performance	Gross Cooling Capacity - Btuh	63,400	64,500	74,000
	Net Cooling Capacity - Btuh	¹ 60,000	¹ 62,000	² 71,000
	ARI Rated Air Flow - cfm	2,000	2,000	2,400
	Total Unit Power - kW	6.7	5.3	6.7
	SEER (Btuh/Watt)	¹ 10.0	¹ 13.0	---
Refrigerant	EER (Btuh/Watt)	¹ 9.4	¹ 11.6	² 10.6
	Type	R-22	R-22	R-22
Heating Performance	Charge Furnished	10 lbs. 12 oz.	15 lbs. 0 oz.	14 lbs. 8 oz.
	Total High Heating Capacity - Btuh	62,000	59,000	73,000
Electric Heating Options	Total Unit Power - kW	6.1	4.8	5.9
	COP	¹ 3.0	¹ 3.6	² 3.6
	HSPF - Region IV (Region V)	6.6(6.0)	7.7(6.7)	---
	Total Low Heating Capacity - Btuh	40,000	31,400	42,000
	Total Unit Power - kW	5.6	4.0	5.4
Compressor Type (no.)	COP	¹ 2.1	¹ 2.3	² 2.3
	See Electric Heat Tables Beginning Page 20			
Outdoor Coil	Net face area - sq. ft.	15.6	19.27	19.27
	Tube diameter - in.	3/8	3/8	3/8
	Number of rows	2.0	2.00	2.00
	Fins / inch	20	20	20
Outdoor Coil Fan	Motor HP	1/3	1/3	1/3
	Motor rpm	1075	1075	1075
	Total motor watts	390	405	405
	Diameter - in. / No. of blades	24 - 3	24 - 3	24 - 3
	Total air volume - cfm	4,300	4,800	4,800
Indoor Coil	Net face area - sq. ft.	7.78	9.7	9.7
	Tube diameter - in.	3/8	3/8	3/8
	Number of rows	2	4	4
	Fins / inch	14	14	14
Indoor Blower & Drive Selection	Drain Connection (no. and size) - in.	(1) 3/4 NPT		
	Expansion device type	Balanced Port Thermostatic Expansion Valve, removeable power head		
	Nominal Motor HP	1.5 hp, ⁵ 2 hp		
	Maximum Usable Motor HP	1.72 hp, 2.3 hp		
Filters	Wheel nom. diameter x width - in.	10 x 10		
	Available Drive Kits	kit #1 - 673 - 1010 rpm	kit #4 - 968 - 1340 rpm	kit #7 - 1212 - 1548 rpm
		kit #2 - 745 - 1117 rpm	kit #5 - 897 - 1346 rpm	kit #8 - 1193 - 1591 rpm
		kit #3 - 833 - 1250 rpm	kit #6 - 1071 - 1429 rpm	
Electrical Characteristics - 60 hz	Type	Disposable		
	Number and size - in.	(4) 16 x 20 x 2	(4) 20 x 20 x 2	
Electrical Characteristics - 60 hz		208/230V & 460V 3 phase	208/230V 1 phase 208/230V, 460V & 575V 3 phase	208/230V, 460V & 575V 3 phase

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

¹ Certified in accordance with the USE certification program, which is based on ARI Standard 210/240.

Cooling Ratings - 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19°C) wb entering indoor coil air.

High Temperature Heating Ratings - 47°F (8°C) db/43°F (6°C) wb outdoor air temperature and 70°F (21°C) entering indoor coil air.

Low Temperature Heating Ratings - 17°F (-8°C) db/15°F (-9°C) wb outdoor air temperature and 70°F (21°C) entering indoor coil air.

² Certified in accordance with the ULE certification program, which is based on ARI Standard 340/360.

Cooling Ratings - 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19°C) wb entering indoor coil air.

High Temperature Heating Ratings - 47°F (8°C) db/43°F (6°C) wb outdoor air temperature and 70°F (21°C) entering indoor coil air.

Low Temperature Heating Ratings - 17°F (-8°C) db/15°F (-9°C) wb outdoor air temperature and 70°F (21°C) entering indoor coil air.

³ Sound Rating Number rated in accordance with test conditions included in ARI Standard 270.

⁴ Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor hp required. Maximum usable hp of motors furnished are shown. In Canada, nominal motor hp is also maximum usable motor hp. If motors of comparable hp are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

⁵ 2 hp blower motor is not available for 208/230V-1phase applications.

BLOWER DATA - DIRECT DRIVE (2 - 2.5 TON)

Blower tables include resistance for base unit with wet indoor coil & 2 in. disposable air filters in place.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (economizer, etc.) See Page 19.

2 - Any field installed accessories air resistance (electric heat, duct resistance, diffuser, etc.) See Page 19

External Static Pressure (in. w.g.)	Air Volume (cfm) at Various Blower Speeds					
	208 VOLTS			230 VOLTS		
	High	Medium	Low	High	Medium	Low
2 and 2.5 Ton Standard Efficiency (Down-Flow)				THA024S and THA030S		
0.0	1230	975	845	1425	1125	910
0.1	1220	940	815	1395	1110	875
0.2	1205	910	775	1375	1085	845
0.3	1185	880	730	1350	1055	815
0.4	1155	845	680	1320	1010	780
0.5	1115	800	---	1280	955	740
0.6	1060	750	---	1225	895	690
0.7	985	685	---	1150	830	---
0.8	890	---	---	1050	755	---
0.9	770	---	---	920	680	---
1.0	---	---	---	760	---	---
2 and 2.5 Ton Standard Efficiency (Horizontal)				THA024S and THA030S		
0.0	1165	925	800	1350	1065	865
0.1	1155	895	770	1325	1055	830
0.2	1140	865	735	1300	1030	800
0.3	1125	835	695	1280	1000	770
0.4	1095	800	645	1250	955	740
0.5	1055	760	---	1215	905	700
0.6	1005	710	---	1160	850	655
0.7	935	650	---	1090	785	---
0.8	845	---	---	995	720	---
0.9	730	---	---	875	645	---
1.0	---	---	---	720	---	---

BLOWER DATA - DIRECT DRIVE (3 - 4 TON)

Blower tables include resistance for base unit with wet indoor coil & 2 in. disposable air filters in place.

FOR ALL UNITS ADD:

- 1 - Any factory installed options air resistance (electric heat, economizer, etc.) See Page 19
- 2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.) See Page 19

External Static Pressure (in. w.g.)	Air Volume (cfm) at Various Blower Speeds								
	208 VOLTS			230 VOLTS			460/575 VOLTS		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
3 and 4 Ton Basic Efficiency (Down-Flow)					THA036B and THA048B				
0.0	2025	1635	1145	2225	1845	1330	2125	1750	1220
0.1	1965	1605	1145	2140	1805	1325	2075	1715	1215
0.2	1910	1575	1135	2070	1770	1305	2025	1680	1205
0.3	1855	1545	1105	2010	1730	1275	1975	1640	1185
0.4	1800	1500	1055	1950	1680	1225	1915	1595	1155
0.5	1740	1445	995	1885	1620	1165	1850	1540	1105
0.6	1665	1370	910	1805	1540	1085	1770	1475	1040
0.7	1575	1280	810	1705	1440	990	1680	1400	950
0.8	1460	1165	---	1580	1315	---	1570	1310	---
0.9	1325	1025	---	1425	1155	---	1445	1210	---
1.0	1160	---	---	1230	---	---	1300	---	---
3 and 4 Ton Basic Efficiency (Horizontal)					THA036B and THA048B				
0.0	1920	1560	1090	2110	1760	1265	2125	1770	1265
0.1	1855	1525	1090	2025	1715	1255	2055	1720	1245
0.2	1805	1490	1075	1955	1675	1235	1990	1675	1230
0.3	1755	1455	1045	1900	1635	1205	1930	1635	1210
0.4	1700	1415	1000	1840	1585	1165	1865	1590	1180
0.5	1640	1355	940	1775	1525	1100	1795	1535	1130
0.6	1560	1280	855	1690	1440	1020	1715	1465	1050
0.7	1455	1180	750	1580	1330	920	1620	1370	935
0.8	1325	1050	---	1435	1180	---	1500	1240	---
0.9	1155	885	---	1245	995	---	1365	1075	---
1.0	940	---	---	1000	---	---	1195	---	---
3 Ton Standard Efficiency (Down-Flow)					THA036S				
0.0	1990	1625	1145	2175	1825	1330	2100	1735	1220
0.1	1935	1595	1145	2100	1790	1320	2050	1705	1215
0.2	1885	1565	1130	2040	1755	1300	2000	1665	1205
0.3	1830	1530	1095	1980	1710	1265	1945	1625	1180
0.4	1775	1485	1050	1915	1660	1215	1885	1575	1145
0.5	1710	1425	980	1850	1595	1150	1815	1520	1095
0.6	1630	1350	900	1765	1510	1070	1735	1450	1025
0.7	1540	1255	800	1660	1405	975	1640	1375	940
0.8	1425	1140	---	1535	1280	---	1530	1285	---
0.9	1285	1000	---	1375	1120	---	1405	1185	---
1.0	1125	---	---	1180	---	---	1260	---	---
3 Ton Standard Efficiency (Horizontal)					THA036S				
0.0	1890	1545	1090	2060	1740	1265	2085	1745	1260
0.1	1830	1515	1090	1990	1700	1255	2020	1700	1240
0.2	1780	1480	1070	1930	1660	1230	1960	1660	1225
0.3	1730	1445	1040	1870	1615	1200	1900	1620	1205
0.4	1675	1400	995	1810	1565	1150	1835	1575	1170
0.5	1610	1340	930	1740	1500	1090	1760	1515	1115
0.6	1530	1260	845	1650	1410	1010	1680	1440	1035
0.7	1420	1160	745	1535	1295	905	1580	1340	915
0.8	1290	1025	---	1385	1150	---	1460	1210	---
0.9	1120	865	---	1195	965	---	1320	1045	---
1.0	910	---	---	960	---	---	1155	---	---

BLOWER DATA - DIRECT DRIVE (4 - 5 TON)

Blower tables include resistance for base unit with wet indoor coil & 2 in. disposable air filters in place.

FOR ALL UNITS ADD:

- 1 - Any factory installed options air resistance (electric heat, economizer, etc.) See Page 19.
- 2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.) See Page 19.

External Static Pressure (in. w.g.)	Air Volume (cfm) at Various Blower Speeds								
	208 VOLTS			230 VOLTS			460/575 VOLTS		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
4 Ton Standard Efficiency (Down-Flow)									THA048S
0.0	1965	1615	1150	2135	1810	1325	2075	1725	1220
0.1	1910	1585	1145	2070	1775	1315	2025	1690	1215
0.2	1860	1555	1125	2010	1740	1290	1975	1650	1200
0.3	1810	1515	1090	1950	1695	1255	1920	1610	1175
0.4	1750	1465	1035	1890	1635	1200	1855	1555	1135
0.5	1685	1405	970	1815	1565	1135	1785	1500	1085
0.6	1600	1325	885	1730	1480	1055	1700	1430	1015
0.7	1505	1230	785	1620	1375	955	1605	1350	925
0.8	1390	1115	---	1490	1245	---	1495	1260	---
0.9	1250	975	---	1330	1085	---	1365	1160	---
1.0	1085	---	---	1135	---	---	1220	---	---
4 Ton Standard Efficiency (Horizontal)									THA048S
0.0	1865	1535	1090	2025	1725	1260	2055	1730	1255
0.1	1810	1505	1085	1960	1685	1250	1995	1685	1240
0.2	1765	1470	1065	1905	1645	1225	1935	1650	1220
0.3	1710	1430	1035	1845	1600	1190	1870	1605	1200
0.4	1655	1385	985	1785	1545	1140	1805	1555	1160
0.5	1585	1320	915	1710	1475	1075	1730	1495	1100
0.6	1495	1240	835	1615	1380	990	1645	1410	1015
0.7	1390	1135	730	1495	1265	890	1545	1310	895
0.8	1250	1000	---	1340	1115	---	1425	1175	---
0.9	1080	835	---	1150	930	---	1285	1010	---
1.0	875	---	---	915	---	---	1115	---	---
External Static Pressure (in. w.g.)	208 VOLTS		230 VOLTS		460/575 VOLTS				
	High	Low	High	Low	High	Low			
5 Ton Basic Efficiency (Down-Flow)						THA060B			
0.0	2180		1670		2300		1745		
0.1	2145		1655		2180		1710		
0.2	2110		1650		2090		1690		
0.3	2080		1640		2035		1680		
0.4	2045		1630		1995		1670		
0.5	2005		1610		1965		1655		
0.6	1960		1580		1940		1635		
0.7	1905		1540		1905		1600		
0.8	1835		1480		1855		1545		
0.9	1750		1405		1780		1465		
1.0	1645		---		1670		---		
5 Ton Basic Efficiency (Horizontal)						THA060B			
0.0	2070		1600		2285		1800		
0.1	2030		1600		2225		1800		
0.2	1990		1595		2170		1790		
0.3	1945		1580		2120		1775		
0.4	1900		1555		2070		1745		
0.5	1850		1525		2020		1710		
0.6	1795		1480		1965		1660		
0.7	1730		1425		1895		1600		
0.8	1650		1360		1820		1525		
0.9	1560		1280		1730		1440		
1.0	1460		---		1620		---		

BLOWER DATA - BELT DRIVE (3 - TON)

Blower tables include resistance for base unit with wet indoor coil & 2 in. disposable air filters in place.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (electric heat, economizer, etc.) See Page 19.

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.) See Page 19.

Then determine from table the blower motor output and drive required.

0.10 to 0.80 in. w.g.					3 Ton Basic Efficiency (Down-Flow)										THA036B			
Air Volume (cfm)	External Static (in.w.g.)																	
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80			
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP		
	Field Furnished				Low Static – Drive Kit #1										Drive Kit #5			
900	480	0.10	590	0.15	690	0.25	780	0.30	860	0.40	935	0.55	1005	0.65	1065	0.75		
1000	510	0.10	610	0.20	705	0.25	790	0.35	870	0.45	945	0.55	1010	0.65	1075	0.80		
1100	540	0.15	635	0.20	720	0.30	805	0.35	880	0.45	955	0.60	1020	0.70	1085	0.85		
1200	570	0.15	660	0.25	740	0.30	820	0.40	895	0.50	965	0.60	1030	0.75	1095	0.85		
1300	605	0.20	685	0.25	765	0.35	840	0.45	910	0.55	980	0.65	1045	0.80	1105	0.90		
1400	640	0.25	715	0.30	790	0.40	860	0.50	930	0.60	995	0.70	1055	0.85	1115	0.95		
1500	675	0.30	745	0.35	815	0.45	880	0.55	950	0.65	1010	0.75	1070	0.90	1130	1.00		
0.90 to 1.60 in. w.g.					3 Ton Basic Efficiency (Down-Flow)										THA036B			
Air Volume (cfm)	External Static (in.w.g.)																	
	0.90		1.0		1.10		1.20		1.30		1.40		1.50		1.60			
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP		
	High Static – Drive Kit #5										Field Furnished							
900	1125	0.90	1185	1.00	1240	1.15	1290	1.30	1340	1.45	1390	1.60	1435	1.75	1480	1.95		
1000	1135	0.90	1190	1.05	1245	1.20	1300	1.35	1350	1.50	1395	1.65	1440	1.80	1485	1.95		
1100	1145	0.95	1200	1.10	1255	1.25	1305	1.40	1355	1.55	1405	1.70	1450	1.85	1495	2.05		
1200	1155	1.00	1210	1.15	1265	1.30	1315	1.45	1365	1.60	1410	1.75	1460	1.95	1505	2.10		
1300	1165	1.05	1220	1.20	1270	1.35	1325	1.50	1375	1.65	1420	1.80	1465	2.00	1510	2.15		
1400	1175	1.10	1230	1.25	1280	1.40	1335	1.55	1380	1.70	1430	1.90	1475	2.05	1520	2.25		
1500	1185	1.15	1240	1.30	1295	1.45	1345	1.60	1390	1.80	1440	1.95	1485	2.15	1530	2.30		
0.10 to 0.80 in. w.g.					3 Ton Basic Efficiency (Horizontal)										THA036B			
Air Volume (cfm)	External Static (in.w.g.)																	
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80			
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP		
	Field Furnished						Low Static – Drive Kit #1											
900	475	0.10	565	0.15	650	0.20	725	0.30	800	0.35	870	0.45	930	0.55	990	0.65		
1000	510	0.10	590	0.15	665	0.25	740	0.30	815	0.40	880	0.50	940	0.60	1000	0.70		
1100	545	0.15	615	0.20	690	0.25	760	0.35	825	0.40	890	0.50	950	0.60	1010	0.75		
1200	585	0.20	650	0.25	715	0.30	780	0.40	845	0.45	905	0.55	965	0.65	1020	0.75		
1300	625	0.25	680	0.30	740	0.35	800	0.40	860	0.50	920	0.60	980	0.70	1030	0.80		
1400	665	0.30	715	0.35	770	0.40	830	0.50	885	0.55	940	0.65	995	0.75	1045	0.85		
1500	705	0.35	750	0.40	805	0.45	855	0.55	910	0.60	960	0.70	1010	0.80	1065	0.90		
0.90 to 1.60 in. w.g.					3 Ton Basic Efficiency (Horizontal)										THA036B			
Air Volume (cfm)	External Static (in.w.g.)																	
	0.90		1.0		1.10		1.20		1.30		1.40		1.50		1.60			
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP		
	High Static – Drive Kit #5										Field							
900	1045	0.75	1100	0.90	1150	1.00	1195	1.10	1240	1.25	1285	1.40	1325	1.50	1365	1.65		
1000	1055	0.80	1105	0.90	1155	1.05	1205	1.15	1250	1.30	1295	1.45	1335	1.55	1375	1.70		
1100	1065	0.85	1115	0.95	1165	1.10	1215	1.20	1260	1.35	1305	1.50	1345	1.60	1385	1.75		
1200	1075	0.90	1125	1.00	1175	1.15	1220	1.25	1270	1.40	1310	1.55	1355	1.70	1395	1.80		
1300	1085	0.90	1135	1.05	1185	1.20	1230	1.30	1275	1.45	1320	1.60	1365	1.75	1405	1.90		
1400	1100	1.00	1150	1.10	1195	1.25	1240	1.35	1285	1.50	1330	1.65	1370	1.80	1415	1.95		
1500	1115	1.05	1160	1.15	1210	1.30	1255	1.45	1295	1.55	1340	1.70	1380	1.85	1420	2.00		

BLOWER DATA - BELT DRIVE (3 - TON)

Blower tables include resistance for base unit with wet indoor coil & 2 in. disposable air filters in place.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (electric heat, economizer, etc.) See Page 19.

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.) See Page 19.

Then determine from table the blower motor output and drive required.

0.10 to 1.00 in. w.g.				3 Ton Standard Efficiency (Down-Flow)										THA036S			
Air Volume (cfm)	External Static (in.w.g.)																
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	
	Field Furnished				Low Static – Drive Kit #1												Kit 5
900	485	0.10	595	0.15	690	0.20	780	0.30	860	0.40	930	0.50	1000	0.60	1065	0.75	
1000	520	0.10	615	0.20	705	0.25	790	0.35	870	0.45	945	0.55	1010	0.65	1075	0.75	
1100	550	0.15	640	0.20	725	0.30	805	0.35	885	0.45	955	0.55	1020	0.70	1085	0.80	
1200	585	0.20	665	0.25	745	0.30	825	0.40	900	0.50	965	0.60	1030	0.70	1095	0.85	
1300	620	0.20	695	0.30	770	0.35	845	0.45	915	0.55	980	0.65	1045	0.75	1105	0.90	
1400	660	0.25	730	0.35	795	0.40	865	0.50	935	0.60	995	0.70	1060	0.80	1120	0.95	
1500	695	0.30	760	0.40	825	0.45	890	0.55	955	0.65	1015	0.75	1075	0.85	1135	1.00	

0.90 to 1.60 in. w.g.				3 Ton Standard Efficiency (Down-Flow)										THA036S			
Air Volume (cfm)	External Static (in.w.g.)																
	0.90		1.0		1.10		1.20		1.30		1.40		1.50		1.60		
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	
	High Static – Drive Kit #5										Field Furnished						
900	1125	0.85	1180	1.00	1230	1.10	1285	1.25	1330	1.35	1380	1.50	1425	1.65	1465	1.80	
1000	1130	0.90	1190	1.00	1240	1.15	1295	1.30	1340	1.40	1390	1.60	1435	1.75	1475	1.85	
1100	1140	0.90	1200	1.05	1250	1.20	1300	1.35	1350	1.50	1400	1.65	1445	1.80	1485	1.95	
1200	1150	0.95	1210	1.10	1260	1.25	1310	1.40	1360	1.55	1410	1.70	1455	1.85	1495	2.00	
1300	1165	1.00	1220	1.15	1270	1.30	1320	1.45	1370	1.60	1415	1.75	1465	1.90	1505	2.05	
1400	1175	1.05	1230	1.20	1280	1.35	1330	1.50	1380	1.65	1425	1.80	1470	1.95	1515	2.15	
1500	1190	1.15	1240	1.25	1295	1.40	1345	1.55	1390	1.70	1435	1.90	1480	2.05	1525	2.20	

0.10 to 0.80 in. w.g.				3 Ton Standard Efficiency (Horizontal)										THA036S		
Air Volume (cfm)	External Static (in.w.g.)															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Furnished					Low Static – Drive Kit #1										
900	480	0.10	570	0.15	655	0.20	735	0.30	810	0.35	875	0.45	940	0.55	1000	0.65
1000	520	0.15	595	0.15	675	0.25	750	0.30	820	0.40	890	0.50	950	0.60	1010	0.70
1100	555	0.15	625	0.20	695	0.25	765	0.35	835	0.45	900	0.50	960	0.60	1020	0.75
1200	595	0.20	660	0.25	725	0.30	790	0.40	850	0.45	915	0.55	975	0.65	1030	0.75
1300	635	0.25	690	0.30	750	0.35	810	0.40	870	0.50	930	0.60	990	0.70	1045	0.80
1400	675	0.30	730	0.35	785	0.40	840	0.50	895	0.55	950	0.65	1005	0.75	1060	0.85
1500	720	0.35	765	0.40	815	0.45	870	0.55	920	0.60	970	0.70	1025	0.80	1075	0.95

0.90 to 1.60 in. w.g.				3 Ton Standard Efficiency (Horizontal)												THA036S	
Air Volume (cfm)	External Static (in.w.g.)																
	0.90		1.0		1.10		1.20		1.30		1.40		1.50		1.60		
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	
	High Static – Drive Kit #5															Field	
900	1055	0.75	1105	0.90	1155	1.00	1200	1.10	1245	1.25	1285	1.35	1325	1.50	1365	1.60	
1000	1065	0.80	1115	0.90	1165	1.05	1210	1.15	1255	1.30	1300	1.40	1340	1.55	1380	1.70	
1100	1075	0.85	1125	0.95	1175	1.10	1220	1.20	1265	1.35	1310	1.50	1350	1.60	1395	1.75	
1200	1085	0.90	1135	1.00	1185	1.15	1235	1.25	1280	1.40	1320	1.55	1365	1.70	1405	1.85	
1300	1095	0.95	1145	1.05	1195	1.20	1245	1.30	1290	1.45	1330	1.60	1375	1.75	1415	1.90	
1400	1110	1.00	1160	1.10	1210	1.25	1255	1.40	1300	1.50	1340	1.65	1385	1.80	1425	1.95	
1500	1125	1.05	1175	1.15	1220	1.30	1265	1.45	1310	1.60	1355	1.75	1395	1.85	1435	2.05	

BLOWER DATA - BELT DRIVE (4 - TON)

Blower tables include resistance for base unit with wet indoor coil & 2 in. disposable air filters in place.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (electric heat, economizer, etc.) See Page 19.

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.) See Page 19.

Then determine from table the blower motor output and drive required.

0.10 to 0.80 in. w.g.														4 Ton Basic Efficiency (Down-Flow)														THA048B	
Air Volume (cfm)	External Static (in.w.g.)																												
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80														
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP													
	Field Furnished						Low Static – Drive Kit #2																						
1200	570	0.15	655	0.20	735	0.30	815	0.35	885	0.45	955	0.55	1015	0.65	1075	0.75													
1300	605	0.20	680	0.25	760	0.30	830	0.40	900	0.50	965	0.60	1030	0.70	1090	0.80													
1400	640	0.25	710	0.30	785	0.35	855	0.45	920	0.55	985	0.65	1045	0.75	1100	0.85													
1500	675	0.25	740	0.35	810	0.40	875	0.50	940	0.60	1000	0.70	1060	0.80	1115	0.90													
1600	710	0.30	775	0.40	835	0.45	900	0.55	960	0.65	1020	0.75	1080	0.85	1135	0.95													
1700	745	0.40	805	0.45	865	0.50	925	0.60	985	0.70	1040	0.80	1095	0.90	1150	1.05													
1800	785	0.45	840	0.50	895	0.60	955	0.70	1010	0.80	1065	0.90	1115	1.00	1170	1.10													
1900	820	0.50	875	0.60	930	0.65	980	0.75	1035	0.85	1090	0.95	1140	1.10	1190	1.20													
2000	860	0.60	910	0.65	960	0.75	1010	0.85	1065	0.95	1115	1.05	1165	1.15	1210	1.30													
0.90 to 1.60 in. w.g.														4 Ton Basic Efficiency (Down-Flow)														THA048B	
Air Volume (cfm)	External Static (in.w.g.)																												
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60														
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP													
	High Static – Drive Kit #6												Field Furnished																
1200	1135	0.85	1190	1.00	1240	1.10	1290	1.25	1340	1.35	1385	1.50	1430	1.65	1475	1.80													
1300	1145	0.90	1200	1.05	1250	1.15	1300	1.30	1350	1.45	1395	1.55	1440	1.70	1485	1.85													
1400	1160	0.95	1210	1.10	1260	1.20	1310	1.35	1360	1.50	1405	1.65	1450	1.75	1490	1.90													
1500	1170	1.00	1225	1.15	1275	1.30	1325	1.40	1370	1.55	1415	1.70	1460	1.85	1500	2.00													
1600	1185	1.10	1235	1.20	1285	1.35	1335	1.50	1380	1.60	1425	1.75	1470	1.90	1515	2.10													
1700	1200	1.15	1255	1.30	1300	1.40	1350	1.55	1395	1.70	1440	1.85	1480	2.00	1525	2.15													
1800	1220	1.25	1270	1.35	1315	1.50	1365	1.65	1410	1.80	1450	1.90	1495	2.10	1535	2.25													
1900	1240	1.30	1285	1.45	1335	1.60	1380	1.75	1420	1.85	1465	2.00	1505	2.15	1550	2.35													
2000	1260	1.40	1305	1.55	1350	1.70	1395	1.80	1440	2.00	1480	2.10	1520	2.25	1560	2.45													
0.10 to 0.80 in. w.g.														4 Ton Basic Efficiency (Horizontal)														THA048B	
Air Volume (cfm)	External Static (in.w.g.)																												
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80														
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP													
	Field Furnished						Low Static – Drive Kit #2																						
1200	580	0.15	645	0.20	710	0.25	770	0.35	835	0.40	895	0.50	950	0.55	1005	0.65													
1300	620	0.20	675	0.25	735	0.30	795	0.35	855	0.45	910	0.50	965	0.60	1020	0.70													
1400	660	0.25	710	0.30	765	0.35	820	0.40	875	0.50	930	0.55	985	0.65	1035	0.75													
1500	700	0.30	745	0.35	800	0.40	850	0.50	900	0.55	950	0.60	1000	0.70	1050	0.80													
1600	740	0.35	785	0.40	830	0.45	880	0.55	930	0.60	975	0.70	1025	0.80	1070	0.85													
1700	780	0.45	820	0.50	865	0.55	910	0.60	955	0.70	1000	0.75	1045	0.85	1090	0.95													
1800	820	0.50	860	0.55	900	0.60	945	0.70	985	0.75	1030	0.85	1070	0.90	1115	1.00													
1900	860	0.60	900	0.65	940	0.70	980	0.80	1020	0.85	1060	0.95	1100	1.00	1140	1.10													
2000	905	0.70	940	0.75	975	0.80	1015	0.90	1050	0.95	1090	1.05	1130	1.10	1165	1.20													
0.90 to 1.60 in. w.g.														4 Ton Basic Efficiency (Horizontal)														THA048B	
Air Volume (cfm)	External Static (in.w.g.)																												
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60														
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP													
	Kit 2		High Static – Drive Kit #6																										
1200	1060	0.75	1110	0.85	1155	0.95	1205	1.05	1245	1.15	1290	1.30	1330	1.40	1370	1.55													
1300	1070	0.80	1120	0.90	1165	1.00	1210	1.10	1255	1.20	1300	1.35	1340	1.45	1380	1.60													
1400	1085	0.85	1130	0.95	1180	1.05	1225	1.15	1265	1.25	1310	1.40	1350	1.50	1390	1.65													
1500	1100	0.90	1145	1.00	1190	1.10	1235	1.20	1280	1.35	1320	1.45	1360	1.60	1400	1.70													
1600	1115	0.95	1160	1.05	1205	1.15	1250	1.30	1290	1.40	1330	1.50	1370	1.65	1410	1.80													
1700	1135	1.05	1180	1.15	1220	1.25	1265	1.35	1305	1.50	1345	1.60	1385	1.75	1425	1.85													
1800	1155	1.10	1200	1.20	1240	1.35	1280	1.45	1320	1.55	1360	1.70	1400	1.80	1435	1.95													
1900	1180	1.20	1220	1.30	1260	1.40	1300	1.55	1340	1.65	1375	1.75	1415	1.90	1450	2.05													
2000	1205	1.30	1245	1.40	1280	1.50	1320	1.65	1355	1.75	1395	1.90	1430	2.00	1465	2.15													

BLOWER DATA - BELT DRIVE (4 - TON)

Blower tables include resistance for base unit with wet indoor coil & 2 in. disposable air filters in place.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (electric heat, economizer, etc.) See Page 19.

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.) See Page 19.

Then determine from table the blower motor output and drive required.

0.10 to 0.80 in. w.g.																4 Ton Standard Efficiency (Down-Flow)																THA048S	
Air Volume (cfm)	External Static (in.w.g.)																																
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80																		
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP													
	Field Furnished				Low Static – Drive Kit #2																												
1200	590	0.15	670	0.20	745	0.30	820	0.35	890	0.45	955	0.50	1020	0.60	1080	0.70																	
1300	630	0.20	700	0.25	770	0.30	840	0.40	910	0.45	970	0.55	1035	0.65	1090	0.75																	
1400	670	0.25	735	0.30	800	0.35	865	0.45	930	0.50	990	0.60	1050	0.70	1105	0.80																	
1500	705	0.30	765	0.35	830	0.40	890	0.50	950	0.55	1010	0.65	1070	0.75	1125	0.85																	
1600	745	0.35	800	0.40	860	0.50	920	0.55	975	0.65	1030	0.70	1085	0.80	1140	0.90																	
1700	785	0.40	840	0.50	895	0.55	945	0.60	1000	0.70	1055	0.80	1110	0.90	1160	1.00																	
1800	825	0.50	875	0.55	925	0.60	980	0.70	1030	0.80	1080	0.85	1130	0.95	1180	1.05																	
1900	865	0.55	915	0.65	960	0.70	1010	0.80	1060	0.85	1105	0.95	1155	1.05	1205	1.15																	
2000	910	0.65	950	0.70	995	0.80	1045	0.90	1090	0.95	1135	1.05	1180	1.15	1230	1.25																	
0.90 to 1.60 in. w.g.																4 Ton Standard Efficiency (Down-Flow)																THA048S	
Air Volume (cfm)	External Static (in.w.g.)																																
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60																		
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP													
	High Static – Drive Kit #6														Field																		
1200	1135	0.80	1185	0.90	1235	1.00	1285	1.15	1330	1.25	1375	1.35	1420	1.50	1460	1.60																	
1300	1145	0.85	1200	0.95	1250	1.05	1300	1.20	1345	1.30	1390	1.45	1435	1.55	1475	1.70																	
1400	1160	0.90	1215	1.00	1265	1.15	1310	1.25	1355	1.35	1400	1.50	1445	1.60	1485	1.75																	
1500	1175	0.95	1225	1.05	1275	1.20	1325	1.30	1370	1.45	1415	1.55	1460	1.70	1500	1.85																	
1600	1195	1.05	1245	1.15	1290	1.25	1340	1.40	1385	1.50	1430	1.65	1470	1.75	1510	1.90																	
1700	1210	1.10	1260	1.20	1305	1.35	1355	1.45	1400	1.60	1440	1.70	1485	1.85	1525	2.00																	
1800	1230	1.20	1275	1.30	1325	1.40	1370	1.55	1415	1.70	1455	1.80	1500	1.95	1540	2.10																	
1900	1250	1.25	1295	1.40	1340	1.50	1385	1.65	1430	1.75	1470	1.90	1515	2.05	1555	2.20																	
2000	1275	1.35	1320	1.50	1360	1.60	1405	1.75	1445	1.85	1490	2.00	1530	2.15	1570	2.30																	
0.10 to 0.80 in. w.g.																4 Ton Standard Efficiency (Horizontal)																THA048S	
Air Volume (cfm)	External Static (in.w.g.)																																
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80																		
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP													
	Field Furnished				Low Static – Drive Kit #2																												
1200	600	0.20	660	0.20	725	0.25	790	0.35	855	0.40	915	0.50	975	0.60	1030	0.70																	
1300	640	0.20	695	0.25	755	0.30	815	0.40	875	0.45	935	0.55	990	0.60	1045	0.70																	
1400	685	0.25	735	0.30	790	0.35	845	0.45	900	0.50	955	0.60	1005	0.65	1060	0.75																	
1500	725	0.35	770	0.35	820	0.40	870	0.50	925	0.55	975	0.65	1025	0.75	1075	0.80																	
1600	770	0.40	810	0.45	855	0.50	905	0.55	950	0.60	1000	0.70	1050	0.80	1095	0.90																	
1700	810	0.45	850	0.50	895	0.55	935	0.65	980	0.70	1030	0.80	1075	0.85	1120	0.95																	
1800	855	0.55	890	0.60	930	0.65	970	0.70	1015	0.80	1055	0.85	1100	0.95	1145	1.05																	
1900	900	0.65	935	0.70	970	0.75	1010	0.80	1050	0.90	1090	0.95	1130	1.05	1170	1.15																	
2000	940	0.75	975	0.80	1010	0.85	1045	0.90	1085	1.00	1120	1.05	1160	1.15	1195	1.25																	
0.90 to 1.60 in. w.g.																4 Ton Standard Efficiency (Horizontal)																THA048S	
Air Volume (cfm)	External Static (in.w.g.)																																
	0.90		1.0		1.10		1.20		1.30		1.40		1.50		1.60																		
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP													
	High Static – Drive Kit #6																																
1200	1080	0.75	1130	0.85	1180	1.00	1225	1.10	1265	1.20	1305	1.30	1345	1.40	1385	1.55																	
1300	1095	0.80	1145	0.90	1190	1.00	1235	1.15	1280	1.25	1320	1.35	1360	1.50	1400	1.60																	
1400	1110	0.85	1160	1.00	1205	1.10	1250	1.20	1295	1.30	1335	1.45	1375	1.55	1415	1.70																	
1500	1125	0.90	1175	1.05	1220	1.15	1265	1.25	1305	1.35	1350	1.50	1390	1.65	1430	1.75																	
1600	1145	1.00	1190	1.10	1235	1.20	1280	1.35	1320	1.45	1365	1.60	1405	1.70	1440	1.80																	
1700	1165	1.05	1210	1.15	1255	1.30	1295	1.40	1335	1.50	1380	1.65	1415	1.75	1455	1.90																	
1800	1185	1.15	1230	1.25	1270	1.35	1315	1.50	1355	1.60	1395	1.75	1430	1.85	1470	2.00																	
1900	1210	1.25	1250	1.35	1290	1.45	1330	1.55	1370	1.70	1410	1.80	1450	1.95	1485	2.10																	
2000	1235	1.35	1275	1.45	1315	1.55	1355	1.70	1390	1.80	1430	1.95	1465	2.05	1500	2.20																	

BLOWER DATA - BELT DRIVE (5 - TON)

Blower tables include resistance for base unit with wet indoor coil & 2 in. disposable air filters in place.

FOR ALL UNITS ADD: 1 - Any factory installed options air resistance (electric heat, economizer, etc.) See Page 19.

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.) See Page 19.

Then determine from table the blower motor output and drive required.

0.10 to 0.80 in. w.g. 5 Ton Basic Efficiency (Down-Flow) THA060B												
Air Volume (cfm)	External Static (in.w.g.)											
	0.10		0.20		0.30		0.40		0.50		0.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Furnished						Low Static – Drive Kit #3					
1600	705	0.30	765	0.35	825	0.40	880	0.50	935	0.55	990	0.60
1700	740	0.35	800	0.40	855	0.50	910	0.55	960	0.60	1010	0.70
1800	780	0.40	835	0.50	885	0.55	940	0.60	990	0.70	1035	0.75
1900	815	0.50	870	0.55	920	0.60	970	0.70	1015	0.75	1065	0.85
2000	855	0.55	905	0.60	950	0.70	1000	0.75	1045	0.85	1090	0.90
2100	890	0.65	940	0.70	985	0.80	1030	0.85	1075	0.95	1120	1.00
2200	930	0.70	975	0.80	1020	0.85	1065	0.95	1105	1.05	1145	1.10
2300	970	0.80	1010	0.90	1055	0.95	1095	1.05	1135	1.15	1175	1.20
2400	1005	0.90	1050	1.00	1090	1.10	1130	1.15	1170	1.25	1210	1.35

0.90 to 1.60 in. w.g. 5 Ton Basic Efficiency (Down-Flow) THA060B												
Air Volume (cfm)	External Static (in.w.g.)											
	0.90		1.00		1.10		1.20		1.30		1.40	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Low Static – Drive Kit #3				High Static – Drive Kit #7							
1600	1135	0.85	1185	0.95	1230	1.00	1275	1.10	1315	1.20	1355	1.30
1700	1155	0.90	1200	1.00	1245	1.10	1290	1.20	1330	1.30	1370	1.35
1800	1175	1.00	1220	1.10	1265	1.15	1305	1.25	1345	1.35	1385	1.45
1900	1200	1.10	1240	1.15	1280	1.25	1325	1.35	1365	1.45	1400	1.55
2000	1220	1.15	1260	1.25	1300	1.35	1340	1.45	1380	1.55	1420	1.65
2100	1245	1.25	1285	1.35	1325	1.45	1360	1.55	1400	1.65	1440	1.75
2200	1270	1.40	1310	1.50	1345	1.55	1385	1.65	1420	1.75	1460	1.90
2300	1295	1.50	1335	1.60	1370	1.70	1405	1.80	1445	1.90	1480	2.00
2400	1320	1.60	1360	1.70	1395	1.80	1430	1.90	1465	2.05	1500	2.15

0.10 to 0.80 in. w.g. 5 Ton Basic Efficiency (Horizontal) THA060B												
Air Volume (cfm)	External Static (in.w.g.)											
	0.10		0.20		0.30		0.40		0.50		0.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Furnished						Low Static – Drive Kit #3					
1600	735	0.35	780	0.40	825	0.45	875	0.50	925	0.55	975	0.65
1700	775	0.40	815	0.45	860	0.50	905	0.55	955	0.65	1000	0.70
1800	815	0.50	855	0.55	895	0.60	940	0.65	985	0.70	1025	0.80
1900	855	0.55	895	0.60	935	0.65	975	0.75	1015	0.80	1055	0.85
2000	895	0.65	935	0.70	970	0.75	1010	0.80	1045	0.90	1085	0.95
2100	940	0.75	970	0.80	1005	0.85	1045	0.90	1080	1.00	1115	1.05
2200	980	0.85	1010	0.90	1045	0.95	1080	1.05	1115	1.10	1150	1.20
2300	1020	0.95	1050	1.00	1085	1.10	1115	1.15	1150	1.20	1185	1.30
2400	1065	1.10	1095	1.15	1125	1.20	1155	1.30	1185	1.35	1215	1.45

0.90 to 1.60 in. w.g. 5 Ton Basic Efficiency (Horizontal) THA060B												
Air Volume (cfm)	External Static (in.w.g.)											
	0.90		1.00		1.10		1.20		1.30		1.40	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Low Static – Drive Kit #3						High Static – Drive Kit #7					
1600	1120	0.90	1165	1.00	1210	1.10	1255	1.20	1295	1.30	1340	1.40
1700	1135	0.95	1180	1.05	1225	1.15	1270	1.25	1310	1.35	1350	1.45
1800	1155	1.00	1200	1.10	1240	1.20	1285	1.30	1325	1.45	1365	1.55
1900	1180	1.10	1220	1.20	1260	1.30	1300	1.40	1340	1.50	1380	1.65
2000	1205	1.20	1245	1.30	1280	1.40	1320	1.50	1360	1.60	1395	1.70
2100	1230	1.30	1265	1.40	1305	1.50	1340	1.60	1380	1.70	1415	1.80
2200	1255	1.40	1290	1.50	1330	1.60	1365	1.70	1400	1.85	1435	1.95
2300	1285	1.55	1320	1.65	1355	1.75	1385	1.85	1420	1.95	1455	2.05
2400	1315	1.70	1345	1.75	1380	1.90	1415	2.00	1445	2.10	1480	2.20

BLOWER DATA - BELT DRIVE (5 - TON)

Blower tables include resistance for base unit with wet indoor coil, & 2 in. disposable air filters in place.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (larger gas heat section, economizer, etc.) See Page 19.

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.) See Page 19.

Then determine from table the blower motor output and drive required.

0.10 to 0.80 in. w.g.														5 Ton Standard Efficiency (Down-Flow)														THA060S			
Air Volume (cfm)	External Static (in.w.g.)																														
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80																
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP															
	Field Furnished						Low Static – Drive Kit #3																								
1600	675	0.30	730	0.35	785	0.40	835	0.45	885	0.50	935	0.60	985	0.65	1030	0.70															
1700	710	0.35	760	0.40	815	0.45	860	0.50	910	0.60	960	0.65	1005	0.70	1050	0.80															
1800	745	0.45	795	0.50	845	0.55	890	0.60	935	0.65	980	0.70	1025	0.80	1070	0.85															
1900	780	0.50	830	0.55	875	0.60	920	0.65	965	0.75	1010	0.80	1050	0.85	1090	0.95															
2000	820	0.60	865	0.65	905	0.70	950	0.75	990	0.80	1035	0.90	1075	0.95	1115	1.05															
2100	855	0.65	900	0.70	940	0.80	980	0.85	1020	0.90	1060	1.00	1100	1.05	1140	1.15															
2200	890	0.75	935	0.80	970	0.85	1010	0.95	1050	1.00	1090	1.10	1130	1.15	1165	1.25															
2300	930	0.85	970	0.90	1005	1.00	1045	1.05	1080	1.10	1120	1.20	1155	1.25	1190	1.35															
2400	965	0.95	1005	1.05	1040	1.10	1075	1.15	1115	1.25	1150	1.30	1185	1.40	1220	1.50															
0.90 to 1.60 in. w.g.														5 Ton Standard Efficiency (Down-Flow)														THA060S			
Air Volume (cfm)	External Static (in.w.g.)																														
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60																
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP															
	Low Static – Drive Kit #3								High Static – Drive Kit #7																						
1600	1075	0.80	1120	0.85	1160	0.95	1200	1.05	1240	1.10	1280	1.20	1320	1.30	1355	1.35															
1700	1090	0.85	1135	0.95	1175	1.00	1215	1.10	1255	1.20	1295	1.30	1330	1.35	1365	1.45															
1800	1110	0.95	1155	1.00	1195	1.10	1230	1.20	1270	1.25	1310	1.35	1345	1.45	1380	1.55															
1900	1135	1.05	1170	1.10	1210	1.20	1250	1.25	1285	1.35	1325	1.45	1360	1.55	1395	1.65															
2000	1155	1.10	1195	1.20	1230	1.30	1270	1.35	1305	1.45	1340	1.55	1375	1.65	1410	1.75															
2100	1180	1.20	1215	1.30	1250	1.40	1290	1.45	1325	1.55	1360	1.65	1395	1.75	1425	1.85															
2200	1200	1.30	1240	1.40	1275	1.50	1310	1.60	1345	1.70	1380	1.80	1410	1.85	1445	1.95															
2300	1225	1.45	1260	1.50	1295	1.60	1330	1.70	1365	1.80	1400	1.90	1430	2.00	1465	2.10															
2400	1255	1.55	1285	1.65	1320	1.75	1355	1.85	1385	1.90	1420	2.05	1450	2.10	1480	2.20															
0.10 to 0.80 in. w.g.														5 Ton Standard Efficiency (Horizontal)														THA060S			
Air Volume (cfm)	External Static (in.w.g.)																														
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80																
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP															
	Field		Low Static – Drive Kit #3																												
1600	785	0.40	845	0.45	900	0.50	955	0.55	1010	0.65	1060	0.70	1110	0.80	1160	0.90															
1700	825	0.45	880	0.50	935	0.60	990	0.65	1040	0.70	1090	0.80	1135	0.85	1185	0.95															
1800	865	0.50	920	0.60	975	0.65	1020	0.75	1070	0.80	1120	0.90	1165	0.95	1210	1.05															
1900	910	0.60	960	0.70	1010	0.75	1060	0.85	1105	0.90	1150	1.00	1195	1.05	1240	1.15															
2000	950	0.70	1000	0.80	1050	0.85	1095	0.95	1140	1.00	1185	1.10	1225	1.15	1265	1.25															
2100	995	0.80	1040	0.90	1085	0.95	1130	1.05	1175	1.15	1215	1.20	1260	1.30	1300	1.40															
2200	1040	0.95	1085	1.00	1125	1.10	1170	1.15	1210	1.25	1250	1.35	1290	1.40	1330	1.50															
2300	1080	1.05	1125	1.15	1165	1.20	1205	1.30	1245	1.40	1285	1.45	1325	1.55	1360	1.65															
2400	1125	1.20	1165	1.25	1205	1.35	1245	1.45	1285	1.55	1320	1.60	1360	1.70	1395	1.80															
0.90 to 1.60 in. w.g.														5 Ton Standard Efficiency (Horizontal)														THA060S			
Air Volume (cfm)	External Static (in.w.g.)																														
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60																
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP															
	Drive Kit #3		High Static – Drive Kit #7																												
1600	1210	0.95	1255	1.05	1305	1.15	1350	1.30	1395	1.40	1440	1.55	1485	1.65	1530	1.80															
1700	1230	1.05	1275	1.15	1320	1.25	1365	1.35	1410	1.45	1455	1.60	1495	1.70	1540	1.85															
1800	1255	1.15	1300	1.25	1340	1.35	1385	1.45	1425	1.55	1470	1.70	1510	1.80	1550	1.95															
1900	1280	1.25	1325	1.35	1365	1.45	1405	1.55	1445	1.65	1485	1.75	1525	1.90	1565	2.00															
2000	1310	1.35	1350	1.45	1390	1.55	1430	1.65	1470	1.75	1505	1.85	1545	2.00	1585	2.15															
2100	1340	1.50	1375	1.55	1415	1.65	1455	1.80	1490	1.90	1530	2.00	1565	2.10	1605	2.25															
2200	1370	1.60	1405	1.70	1445	1.80	1480	1.90	1515	2.00	1555	2.15	1590	2.25	1625	2.40															
2300	1400	1.75	1435	1.85	1470	1.95	1510	2.05	1545	2.20	1580	2.30	1615	2.40	1650	2.55															
2400	1430	1.90	1465	2.00	1505	2.15	1535	2.20	1570	2.35	1605	2.45	1640	2.60	1675	2.70															

BLOWER DATA - BELT DRIVE (6 - TON)

Blower tables include resistance for base unit with wet indoor coil & 2 in. disposable air filters in place.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (electric heat, economizer, etc.) See Page 19.

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.) See Page 19.

Then determine from table the blower motor output and drive required.

0.10 to 0.80 in. w.g.

6 Ton Standard Efficiency (Down-Flow)

THA072S

Air Volume (cfm)	External Static (in.w.g.)															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Furnished										Low Static – Drive Kit #4					
1900	775	0.45	820	0.50	870	0.55	915	0.65	965	0.70	1010	0.75	1060	0.85	1105	0.90
2000	810	0.55	855	0.60	900	0.65	945	0.70	990	0.75	1035	0.85	1080	0.90	1125	1.00
2100	850	0.60	890	0.65	935	0.75	975	0.80	1020	0.85	1060	0.95	1105	1.00	1145	1.10
2200	885	0.70	925	0.75	965	0.80	1005	0.90	1045	0.95	1090	1.05	1130	1.10	1170	1.20
2300	920	0.80	960	0.85	1000	0.90	1035	1.00	1075	1.05	1115	1.15	1155	1.20	1195	1.30
2400	960	0.90	995	0.95	1030	1.05	1070	1.10	1105	1.15	1145	1.25	1180	1.30	1220	1.40
2500	995	1.00	1030	1.10	1065	1.15	1100	1.20	1135	1.30	1175	1.35	1210	1.45	1245	1.50
2600	1035	1.15	1065	1.20	1100	1.25	1135	1.35	1170	1.40	1205	1.50	1240	1.60	1275	1.65
2700	1070	1.30	1100	1.35	1135	1.40	1170	1.50	1200	1.55	1235	1.65	1265	1.70	1300	1.80
2800	1105	1.40	1140	1.50	1170	1.55	1200	1.65	1235	1.70	1265	1.80	1295	1.85	1330	1.95
2900	1145	1.60	1175	1.65	1205	1.70	1235	1.80	1265	1.85	1295	1.95	1330	2.05	1360	2.10

0.90 to 1.60 in. w.g.

6 Ton Standard Efficiency (Down-Flow)

THA072S

Air Volume (cfm)	External Static (in.w.g.)															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Low Static – Kit #4				High Static – Drive Kit #8											
1900	1150	1.00	1190	1.10	1235	1.20	1275	1.25	1315	1.35	1355	1.45	1395	1.55	1435	1.65
2000	1165	1.10	1210	1.15	1250	1.25	1290	1.35	1330	1.45	1370	1.55	1410	1.65	1445	1.75
2100	1190	1.15	1230	1.25	1270	1.35	1310	1.45	1350	1.55	1385	1.65	1425	1.75	1460	1.85
2200	1210	1.25	1250	1.35	1290	1.45	1325	1.55	1365	1.65	1400	1.75	1440	1.85	1475	1.95
2300	1235	1.40	1270	1.45	1310	1.55	1345	1.65	1385	1.75	1420	1.85	1455	1.95	1490	2.05
2400	1255	1.50	1295	1.60	1330	1.65	1365	1.75	1400	1.85	1440	2.00	1475	2.10	1505	2.20
2500	1280	1.60	1315	1.70	1355	1.80	1390	1.90	1425	2.00	1455	2.10	1490	2.20	1525	2.30
2600	1310	1.75	1340	1.85	1375	1.95	1410	2.05	1445	2.15	1480	2.25	1510	2.35	1545	2.45
2700	1335	1.90	1370	2.00	1400	2.10	1435	2.20	1465	2.30	1500	2.40	1530	2.50	1565	2.60
2800	1360	2.05	1395	2.15	1425	2.25	1460	2.35	1490	2.45	1520	2.55	1555	2.65	1585	2.80
2900	1390	2.20	1420	2.30	1450	2.40	1485	2.50	1515	2.60	1545	2.70	1575	2.85	1605	2.95

BLOWER DATA - BELT DRIVE (6 - TON)

Blower tables include resistance for base unit with wet indoor coil & 2 in. disposable air filters in place.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (electric heat, economizer, etc.) See Page 19.

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.) See Page 19.

Then determine from table the blower motor output and drive required.

0.10 to 0.80 in. w.g.

6 Ton Standard Efficiency (Horizontal)

THA072S

Air Volume (cfm)	External Static (in.w.g.)															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Furnished				Low Static – Drive Kit #4											
1900	905	0.60	955	0.65	1000	0.70	1045	0.75	1090	0.85	1135	0.90	1175	0.95	1215	1.05
2000	945	0.65	995	0.75	1040	0.80	1085	0.85	1125	0.95	1170	1.00	1210	1.05	1250	1.15
2100	990	0.75	1035	0.85	1080	0.90	1120	0.95	1160	1.05	1205	1.10	1240	1.20	1280	1.25
2200	1030	0.85	1075	0.95	1115	1.00	1160	1.10	1200	1.15	1235	1.25	1275	1.30	1310	1.40
2300	1075	1.00	1115	1.05	1155	1.15	1195	1.20	1235	1.30	1275	1.35	1310	1.45	1345	1.50
2400	1115	1.10	1155	1.20	1195	1.25	1235	1.35	1275	1.45	1310	1.50	1345	1.60	1380	1.70
2500	1160	1.25	1200	1.35	1235	1.40	1275	1.50	1310	1.60	1345	1.65	1380	1.75	1415	1.85
2600	1205	1.40	1240	1.50	1275	1.55	1315	1.65	1350	1.75	1385	1.85	1415	1.90	1450	2.00
2700	1245	1.55	1285	1.65	1320	1.75	1355	1.85	1390	1.95	1420	2.00	1455	2.10	1485	2.20
2800	1290	1.75	1325	1.85	1360	1.95	1395	2.00	1425	2.10	1460	2.20	1490	2.30	1520	2.40
2900	1335	1.95	1365	2.00	1400	2.10	1435	2.20	1465	2.30	1500	2.40	1530	2.50	1560	2.60

0.90 to 1.60 in. w.g.

6 Ton Standard Efficiency (Horizontal)

THA072S

Air Volume (cfm)	External Static (in.w.g.)															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	High Static – Drive Kit #8															
1900	1255	1.10	1295	1.15	1335	1.25	1370	1.30	1405	1.40	1440	1.45	1475	1.55	1510	1.65
2000	1285	1.20	1325	1.30	1360	1.35	1395	1.45	1430	1.50	1465	1.60	1500	1.70	1530	1.75
2100	1315	1.35	1355	1.40	1390	1.50	1425	1.55	1460	1.65	1490	1.70	1525	1.80	1555	1.90
2200	1350	1.45	1385	1.55	1420	1.65	1455	1.70	1485	1.80	1520	1.85	1550	1.95	1585	2.05
2300	1380	1.60	1415	1.70	1450	1.75	1480	1.85	1515	1.95	1545	2.00	1580	2.10	1610	2.20
2400	1415	1.75	1450	1.85	1480	1.90	1515	2.00	1545	2.10	1575	2.20	1605	2.25	1635	2.35
2500	1450	1.95	1480	2.00	1515	2.10	1545	2.20	1575	2.25	1605	2.35	1635	2.45	1665	2.55
2600	1480	2.10	1515	2.20	1545	2.25	1575	2.35	1605	2.45	1635	2.55	1665	2.65	1695	2.75
2700	1520	2.30	1550	2.40	1580	2.45	1610	2.55	1640	2.65	1670	2.75	1695	2.85	1725	2.95
2800	1555	2.50	1585	2.60	1615	2.70	1645	2.80	1670	2.85	1700	2.95	1730	3.05	1760	3.20
2900	1590	2.70	1620	2.80	1650	2.90	1675	3.00	1705	3.10	1735	3.20	1760	3.30	1790	3.40

FACTORY INSTALLED BELT DRIVE KIT SPECIFICATIONS

Motor hp		RPM Range							
Nominal	Maximum	Drive 1	Drive 2	Drive 3	Drive 4	Drive 5	Drive 6	Drive 7	Drive 8
1.5	1.7	673 - 1010	745 - 1117	833 - 1250	968 - 1340	897 - 1346	1071 - 1429	1212 - 1548	1193 - 1591
2	2.3								

*Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor hp required. Maximum usable hp of motors furnished are shown. In Canada, nominal motor hp is also maximum usable motor hp. If motors of comparable hp are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

MINIMUM AIR FLOW WITH ELECTRIC HEAT UNITS

Kw	CFM	
	Downflow	Horizontal
30	2250	2050
22.5	1750	1800
15	1250	1350
7.5	1050	1200

BLOWER DATA / ACCESSORIES

POWER EXHAUST FANS PERFORMANCE

Return Air System Static Pressure in. w.g.	Air Volume Exhausted - cfm											
	T1PWRE10A						T1PWRE10N					
	208V			230V, 460V and 575V			208V			230V, 460V and 575V		
	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
0	1290	1300	1320	1300	1305	1295	3545	3915	4230	3880	4135	4340
0.1	1045	1055	1055	1040	1050	1055	2880	3215	3580	3255	3550	3755
0.2	805	805	815	805	810	810	2290	2665	3055	2710	3010	3240
0.3	580	580	600	595	590	585	1735	2175	2605	2200	2500	2770
0.4	390	405	400	405	400	410	1165	1660	2175	1685	2010	2325
0.5	245	315	215	240	255	300	530	1045	1710	1120	1510	1885
0.6	155	340	35	90	165	290	---	250	1160	470	990	1420
0.7	145	515	---	---	140	400	---	---	470	---	430	915

OPTIONS / ACCESSORIES AIR RESISTANCE - in. w.g.

Air Volume cfm	Economizer	Electric Heat
800	0.04	0.01
1000	0.04	0.03
1200	0.04	0.06
1400	0.04	0.09
1600	0.04	0.12
1800	0.05	0.15
2000	0.05	0.18
2200	0.05	0.20
2400	0.05	0.22
2600	0.06	0.24
2800	0.06	0.26
3000	0.06	0.28

CEILING DIFFUSERS AIR RESISTANCE (in. w.g.)

Air Volume cfm	RTD9-65 Step-Down Diffuser			FD9-65 Flush Diffuser	RTD11-95 Step-Down Diffuser			FD11-95 Flush Diffuser
	2 Ends Open	1 Side & 2 Ends Open	All Ends & Sides Open		2 Ends Open	1 Side & 2 Ends Open	All Ends & Sides Open	
800	0.15	0.13	0.11	0.11	---	---	---	---
1000	0.19	0.16	0.14	0.14	---	---	---	---
1200	0.25	0.20	0.17	0.17	---	---	---	---
1400	0.33	0.26	0.20	0.20	---	---	---	---
1600	0.43	0.32	0.20	0.24	---	---	---	---
1800	0.56	0.40	0.30	0.30	0.13	0.11	0.09	0.09
2000	0.73	0.50	0.36	0.36	0.15	0.13	0.11	0.10
2200	0.95	0.63	0.44	0.44	0.18	0.15	0.12	0.12
2400	---	---	---	---	0.21	0.18	0.15	0.14
2600	---	---	---	---	0.24	0.21	0.18	0.17
2800	---	---	---	---	0.27	0.24	0.21	0.20
3000	---	---	---	---	0.32	0.29	0.25	0.25

MINIMUM AIR FLOW WITH ELECTRIC HEAT

Kw	CFM	
	Downflow	Horizontal
30	2250	2050
22.5	1750	1800
15	1250	1350
7.5	1050	1200

CEILING DIFFUSER AIR THROW DATA

Air Volume - cfm	¹ Effective Throw - ft.	
Model No.	RTD9-65	FD9-65
800	10 - 17	14 - 18
1000	10 - 17	15 - 20
1200	11 - 18	16 - 22
1400	12 - 19	17 - 24
1600	12 - 20	18 - 25
1800	13 - 21	20 - 28
2000	14 - 23	21 - 29
2200	16 - 25	22 - 30
Model No.	RTD11-95	FD11-95
2600	24 - 29	19 - 24
2800	25 - 30	20 - 28
3000	27 - 33	21 - 29

¹ Effective throw based on terminal velocities of 75 ft. per minute.

ELECTRICAL / ELECTRIC HEAT DATA

2 AND 2.5 TON STANDARD EFFICIENCY		THA024S	THA030S
Voltage - 60hz		208/230V-1ph	208/230V-1ph
Compressor	Rated Load Amps	10.3	12.2
	Locked Rotor Amps	56	67
Outdoor Fan Motor	Full Load Amps	1.7	1.7
	Locked Rotor Amps	3.1	3.1
Service Outlet 115V GFI		15	15
Indoor Blower Motor	Horsepower	.25	.25
	Rated Load Amps	1.7	1.7
	Locked Rotor Amps	2.2	2.2
¹ Maximum Overcurrent Protection	Unit Only	25	30
	7.5 kW	60	60
	10 kW	70	80
² Minimum Circuit Ampacity	Unit Only	17	19
	7.5 kW	56	58
	10 kW	69	71
Unit Fuse Block		28W68	28W69
Disconnect Kit	Hinged - 0-10 kW	20W21	20W21
	Standard Access - 0-10 kW	20W15	20W15

ELECTRICAL / ELECTRIC HEAT DATA

3 TON BASIC EFFICIENCY

THA036B

Voltage - 60hz			208/230V - 3ph			460V-3ph		
Compressor	Rated Load Amps		10.3			5.1		
	Locked Rotor Amps		77.0			39.0		
Outdoor Fan Motor	Full Load Amps		1.7			1.1		
	Locked Rotor Amps		3.1			2.2		
Power Exhaust Fan	Horsepower		.75			.75		
	Full Load Amps		5.0			2.2		
	Locked Rotor Amps		7.8			3.4		
Service Outlet 115V GFI			15			15		
Indoor Blower Motor	Horsepower		.5	1.5	2	.5	1.5	2
	Rated Load Amps		3.1	5.7	7.5	2.2	2.8	3.4
	Locked Rotor Amps		6.8	40	46.9	5.2	20	20.4
¹ Maximum Overcurrent Protection	with power	0 kW	30	35	35	15	15	15
	exhaust	7.5 kW	50	50	50	25	25	25
		15 kW	70	80	80	35	35	40
	less power exhaust		25	30	30	15	15	15
² Minimum Circuit Ampacity	with power	0 kW	23	26	28	12	13	14
	exhaust	7.5 kW	46	48	50	24	24	25
		15 kW	68	71	73	35	35	36
	less power exhaust		18	21	23	10	11	11
Unit Fuse Block	with power exhaust	C1F4F030AN1Y	C1F4F035AN1Y		C1F4F015AN1J			
	less power exhaust	C1F4F025AN1Y	C1F4F030AN1Y		C1F4F015AN1J			
Disconnect	Standard Access Panel	T2DISC080A-1			T2DISC080A-1			
	Hinged Access	T2DISC080AH1			T2DISC080AH1			

3 TON STANDARD EFFICIENCY

THA036S

Voltage - 60hz			208/230V-1ph			208/230V-3ph			460V-3ph			575V-3ph		
Compressor	Rated Load Amps		13.5			9.6			4.5			3.6		
	Locked Rotor Amps		73.0			63.0			31.0			24.8		
Outdoor Fan Motor	Full Load Amps		1.7			1.7			1.1			0.7		
	Locked Rotor Amps		3.1			3.1			2.2			1.3		
Power Exhaust Fan	Horsepower		3/4			3/4			3/4			3/4		
	Full Load Amps		5.0			5.0			2.2			1.5		
	Locked Rotor Amps		7.8			7.8			3.4			2.9		
Service Outlet 115V GFI			15			15			15			15		
Indoor Blower Motor	Horsepower		.5	1.5		.5	1.5	2	.5	1.5	2	.5	1.5	2
	Rated Load Amps		3.1	11.5		3.1	5.7	7.5	1.5	2.8	3.4	1.5	2.4	2.7
	Locked Rotor Amps		6.8	55		6.8	40	46.9	3.8	20	20.4	3.8	15	16.2
¹ Maximum Overcurrent Protection	with power	0 kW	40	45		30	30	35	15	15	15	15	15	15
	exhaust	7.5 kW	70	80		45	50	50	25	25	25	20	20	20
		15 kW	110	125		70	70	80	35	35	35	30	30	30
	less power exhaust		35	40		25	25	30	15	15	15	15	15	15
² Minimum Circuit Ampacity	with power	0 kW	27	36		22	25	27	11	12	13	9	10	10
	exhaust	7.5 kW	66	75		45	47	49	22	23	24	18	19	19
		15 kW	105	114		67	70	72	33	35	35	27	28	28
	less power exhaust		22	31		17	20	22	9	10	11	7	8	8
Unit Fuse Block	with power exhaust		C1F4F040AN1 P	C1F4F045AN1 P		C1F4F030AN1Y		C1F4F035AN1 Y	C1F4F015AN1J			C1F4F015AN1J		
	less power exhaust		C1F4F035AN1 P	C1F4F040AN1 P		C1F4F025AN1Y		C1F4F030AN1 Y	C1F4F015AN1J			C1F4F015AN1J		
Disconnect	Standard Access Panel	0-7.5 kW 15 kW	T2DISC080A-1 T2DISC150A-1			T2DISC080A-1 T2DISC080A-1			T2DISC080A-1 T2DISC080A-1			T2DISC080A-1 T2DISC080A-1		
	Hinged Access Panel	0-7.5 kW 15 kW	T2DISC080AH1 T2DISC150AH1			T2DISC080AH1 T2DISC080AH1			T2DISC080AH1 T2DISC080AH1			T2DISC080AH1 T2DISC080AH1		

NOTE - Extremes of operating range are plus and minus 10% of line voltage.

¹ HACR type breaker or fuse.² Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL / ELECTRIC HEAT DATA

4 TON BASIC EFFICIENCY

THA048B

Voltage - 60hz			208/230V - 3ph			460V-3ph		
Compressor	Rated Load Amps		14.7			7.1		
	Locked Rotor Amps		91.0			50.0		
Outdoor Fan Motor	Full Load Amps		1.7			1.1		
	Locked Rotor Amps		3.1			2.2		
Power Exhaust Fan	Horsepower		.75			.75		
	Full Load Amps		5.0			2.2		
	Locked Rotor Amps		7.8			3.4		
Service Outlet 115V GFI			15			15		
Indoor Blower Motor	Horsepower		.5	1.5	2	.5	1.5	2
	Rated Load Amps		3.1	5.7	7.5	2.2	2.8	3.4
	Locked Rotor Amps		6.8	40	46.9	5.2	20	20.4
¹ Maximum Overcurrent Protection	with power exhaust	0 kW	40	45	45	20	20	20
		7.5 kW	60	60	60	30	30	30
		15 kW	80	80	80	40	40	40
	less power exhaust		35	40	40	15	15	20
² Minimum Circuit Ampacity	with power exhaust	0 kW	29	31	33	15	15	16
		7.5 kW	51	54	56	26	27	27
		15 kW	74	76	78	37	38	39
	less power exhaust		24	26	28	13	13	14
Unit Fuse Block	with power exhaust	C1F4F040AN1Y	C1F4F045AN1Y			C1F4F020AN1J		
	less power exhaust	C1F4F035AN1Y	C1F4F040AN1Y			C1F4F015AN1J		C1F4F020AN1J
Disconnect	Standard Access Panel		T2DISC080A-1			T2DISC080A-1		
	Hinged Access		T2DISC080AH1			T2DISC080AH1		

4 TON STANDARD EFFICIENCY

THA048S

Voltage - 60hz			208/230V-1ph		208/230V-3ph			460V-3ph			575V-3ph		
Compressor	Rated Load Amps		18.3		12.4			6.4			4.8		
	Locked Rotor Amps		109.0		88.0			44.0			34.0		
Outdoor Fan Motor	Full Load Amps		1.7		1.7			1.1			0.7		
	Locked Rotor Amps		3.1		3.1			2.2			1.3		
Power Exhaust Fan	Horsepower		.75		.75			.75			.75		
	Full Load Amps		5.0		5.0			2.2			1.5		
	Locked Rotor Amps		7.8		7.8			3.4			2.9		
Service Outlet 115V GFI			15		15			15			15		
Indoor Blower Motor	Horsepower		.5	1.5	.5	1.5	2	.5	1.5	2	.5	1.5	2
	Rated Load Amps		3.1	11.5	3.1	5.7	7.5	1.5	2.8	3.4	1.5	2.4	2.7
	Locked Rotor Amps		6.8	55	6.8	40	46.9	3.8	20	20.4	3.8	15	16.2
¹ Maximum Overcurrent Protection	with power exhaust	0 kW	50	50	35	40	40	15	20	20	15	15	15
		7.5 kW	80	90	50	60	60	25	30	30	20	20	20
		15 kW	125	125	80	80	80	40	40	40	30	30	30
	less power exhaust		45	50	30	35	35	15	15	15	15	15	15
² Minimum Circuit Ampacity	with power exhaust	0 kW	33	42	26	28	30	13	15	15	10	11	11
		7.5 kW	72	81	48	51	53	25	26	26	19	20	20
		15 kW	111	120	71	74	75	36	37	38	28	29	29
	less power exhaust		28	37	21	23	25	11	12	13	9	10	10
Unit Fuse Block	with power exhaust		C1F4F050AN1P		C1F4F035AN1Y	C1F4F040AN1Y		C1F4F015AN1J	C1F4F020AN1J		C1F4F015AN1J		
	less power exhaust		C1F4F045AN1P	C1F4F050AN1P	C1F4F030AN1Y	C1F4F035AN1Y		C1F4F015AN1J			C1F4F015AN1J		
Disconnect	Standard Access	0-7.5 kW	T2DISC080A-1		T2DISC080A-1			T2DISC080A-1			T2DISC080A-1		
		15 kW	T2DISC150A-1		T2DISC080A-1			T2DISC080A-1			T2DISC080A-1		
	Hinged Access	0-7.5 kW	T2DISC080AH1		T2DISC080AH1			T2DISC080AH1			T2DISC080AH1		
		15 kW	T2DISC150AH1		T2DISC080AH1			T2DISC080AH1			T2DISC080AH1		

NOTE - Extremes of operating range are plus and minus 10% of line voltage.

¹ HACR type breaker or fuse.² Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL / ELECTRIC HEAT DATA

5 TON BASIC EFFICIENCY

THA060B

Voltage - 60hz			208/230V - 3ph			460V-3ph		
Compressor	Rated Load Amps		18.6			9.0		
	Locked Rotor Amps		128.0			63.0		
Outdoor Fan Motor	Full Load Amps		2.4			1.3		
	Locked Rotor Amps		4.7			2.4		
Power Exhaust Fan	Horsepower		.75			.75		
	Full Load Amps		5.0			2.2		
	Locked Rotor Amps		7.8			3.4		
Service Outlet 115V GFI			15			15		
Indoor Blower Motor	Horsepower		.75	1.5	2	.75	1.5	2
	Rated Load Amps		4.2	5.7	7.5	2.2	2.8	3.4
	Locked Rotor Amps		9.6	40	46.9	5.2	20	20.4
¹ Maximum Overcurrent Protection	with power	0 kW	50	50	50	25	25	25
	exhaust	7.5 kW	70	70	70	30	35	35
		15 kW	80	90	90	40	45	45
		22.5 kW	110	110	110	60	60	60
	less power exhaust		45	45	50	20	20	20
² Minimum Circuit Ampacity	with power	0 kW	35	37	39	17	18	19
	exhaust	7.5 kW	58	59	61	29	29	30
		15 kW	80	82	84	40	41	41
		22.5 kW	103	104	106	51	52	53
	less power exhaust		30	32	34	15	16	16
Unit Fuse Block	with power exhaust		C1F4F050AN1Y			C1F4F025AN1J		
	less power exhaust		C1F4F045AN1Y C1F4F050AN1Y			C1F4F020AN1J		
Disconnect	Standard	0-15kW	T2DISC080A-1			T2DISC080A-1		
	Access Panel	22.5 kW	T2DISC150A-1			T2DISC080A-1		
	Hinged Access	0-15kW	T2DISC080AH1			T2DISC080AH1		
	Panel	22.5 kW	T2DISC150AH1			T2DISC080AH1		

5 TON STANDARD EFFICIENCY

THA060S

Voltage - 60hz			208/230V-1ph	208/230V-3ph		460V-3ph		575V-3ph	
Compressor	Rated Load Amps		25.0	17.3		6.7		5.8	
	Locked Rotor Amps		148.0	123.0		49.5		40.0	
Outdoor Fan Motor	Full Load Amps		2.4	2.4		1.3		1.0	
	Locked Rotor Amps		4.7	4.7		2.4		1.9	
Power Exhaust Fan	Horsepower		.75	.75		.75		.75	
	Full Load Amps		5.0	5.0		2.2		1.5	
	Locked Rotor Amps		7.8	7.8		3.4		2.9	
Service Outlet 115V GFI			15	15		15		15	
Indoor Blower Motor	Horsepower		1.5	1.5	2	1.5	2	1.5	2
	Rated Load Amps		11.5	5.7	7.5	2.8	3.4	2.4	2.7
	Locked Rotor Amps		55	40	46.9	20	20.4	15	16.2
¹ Maximum Overcurrent Protection	with power	0 kW	70	50	50	20	20	15	15
	exhaust	7.5 kW	100	70	70	30	30	25	25
		15 kW	150	80	90	40	40	35	35
		22.5 kW	175	110	110	50	50	40	40
	less power exhaust		70	45	45	15	15	15	15
² Minimum Circuit Ampacity	with power	0 kW	51	35	37	15	16	13	13
	exhaust	7.5 kW	90	58	60	26	27	22	22
		15 kW	129	80	82	38	38	31	31
		22.5 kW	168	103	105	49	50	40	40
	less power exhaust		46	30	32	13	14	11	11
Unit Fuse Block	with power exhaust		C1F4F070AN1P	C1F4F050AN1Y		C1F4F020AN1J		C1F4F015AN1J	
	less power exhaust		C1F4F070AN1P	C1F4F045AN1Y		C1F4F015AN1J		C1F4F015AN1J	
Disconnect	Standard	7.5-15kW	T2DISC150N-1	T2DISC080N-1		T2DISC080N-1		T2DISC080N-1	
	Access Panel	22.5 kW	N/A	T2DISC150N-1		T2DISC080N-1		T2DISC080N-1	
	Hinged Access	7.5-15kW	T2DISC150NH1	T2DISC080NH1		T2DISC080NH1		T2DISC080NH1	
	Panel	22.5 kW	N/A	T2DISC150NH1		T2DISC080NH1		T2DISC080NH1	

NOTE - Extremes of operating range are plus and minus 10% of line voltage.

¹ HACR type breaker or fuse.² Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL / ELECTRIC HEAT DATA

6 TON STANDARD EFFICIENCY

THA072S

Voltage - 60hz			208/230V-3ph		460V-3ph		575V-3ph	
Compressor	Rated Load Amps		18.6		9.0		7.4	
	Locked Rotor Amps		156.0		70.0		54.0	
Outdoor Fan Motor	Full Load Amps		2.4		1.3		1.0	
	Locked Rotor Amps		4.7		2.4		1.9	
Power Exhaust Fan	Horsepower		.75		.75		.75	
	Full Load Amps		5.0		2.2		1.5	
	Locked Rotor Amps		7.8		3.4		2.9	
Service Outlet 115V GFI			15		15		15	
Indoor Blower Motor	Horsepower		1.5	2	1.5	2	1.5	2
	Rated Load Amps		5.7	7.5	2.8	3.4	2.4	2.7
	Locked Rotor Amps		40	46.9	20	20.4	15	16.2
¹ Maximum Overcurrent Protection	with power exhaust	0 kW	50	50	25	25	20	20
		7.5 kW	70	70	35	35	25	25
		15 kW	90	90	45	45	35	35
		22.5 kW	110	110	60	60	45	45
		30 kW	150	150	70	70	60	60
	less power exhaust		50	50	20	25	20	20
² Minimum Circuit Ampacity	with power exhaust	0 kW	37	39	18	19	15	15
		7.5 kW	59	61	29	30	24	24
		15 kW	82	84	41	41	33	33
		22.5 kW	105	106	52	52	42	42
		30 kW	127	129	63	64	51	51
	less power exhaust		32	34	16	16	13	13
³ Unit Fuse Block	with power exhaust		C1F4F050AN1Y		C1F4F025AN1J		C1F4F020AN1J	
	less power exhaust		C1F4F050AN1Y		C1F4F020A N1J	C1F4F025A N1J	C1F4F020AN1J	
Disconnect	Standard Access Panel	0-15kW	T2DISC080N-1		T2DISC080N-1		T2DISC080N-1	
		22.5-30kW	T2DISC150N-1		T2DISC080N-1		T2DISC080N-1	
	Hinged Access Panel	0-15kW	T2DISC080NH1		T2DISC080NH1		T2DISC080NH1	
		22.5-30kW	T2DISC150NH1		T2DISC080NH1		T2DISC080NH1	

NOTE - Extremes of operating range are plus and minus 10% of line voltage.

¹ HACR type breaker or fuse.² Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.³ Only used with electric heat.

ELECTRIC HEAT CAPACITIES

Input Voltage	7.5 kW			10 kW			15 kW			22.5 kW			30 kW		
	No of Steps	kW input	Btuh Output	No of Steps	kW input	Btuh Output	No of Steps	kW input	Btuh Output	No of Steps	kW input	Btuh Output	No of Steps	kW input	Btuh Output
208	1	5.6	19,200	1	7.5	25,600	1	11.2	38,200	1	16.9	57,700	1	22.5	76,800
220	1	6.3	21,500	1	8.4	28,700	1	12.6	43,000	1	18.9	64,500	1	25.2	86,000
230	1	6.9	23,500	1	9.2	31,400	1	13.8	47,000	1	20.7	70,700	1	27.5	93,900
240	1	7.5	25,600	1	10.0	34,200	1	15.0	51,200	1	22.5	76,800	1	30.0	102,400
440	1	6.3	21,500	---	---	---	1	12.6	43,000	1	18.9	64,500	1	25.2	86,000
460	1	6.9	23,500	---	---	---	1	13.8	47,000	1	20.7	70,700	1	27.5	93,900
480	1	7.5	25,600	---	---	---	1	15.0	51,200	1	22.5	76,800	1	30.0	102,400
550	1	6.3	21,500	---	---	---	1	12.6	43,000	1	18.9	64,500	1	25.2	86,000
575	1	6.9	23,500	---	---	---	1	13.8	47,000	1	20.7	70,700	1	27.5	93,900
600	1	7.5	25,600	---	---	---	1	15.0	51,200	1	22.5	76,800	1	30.0	102,400

THA PARTS ARRANGEMENT

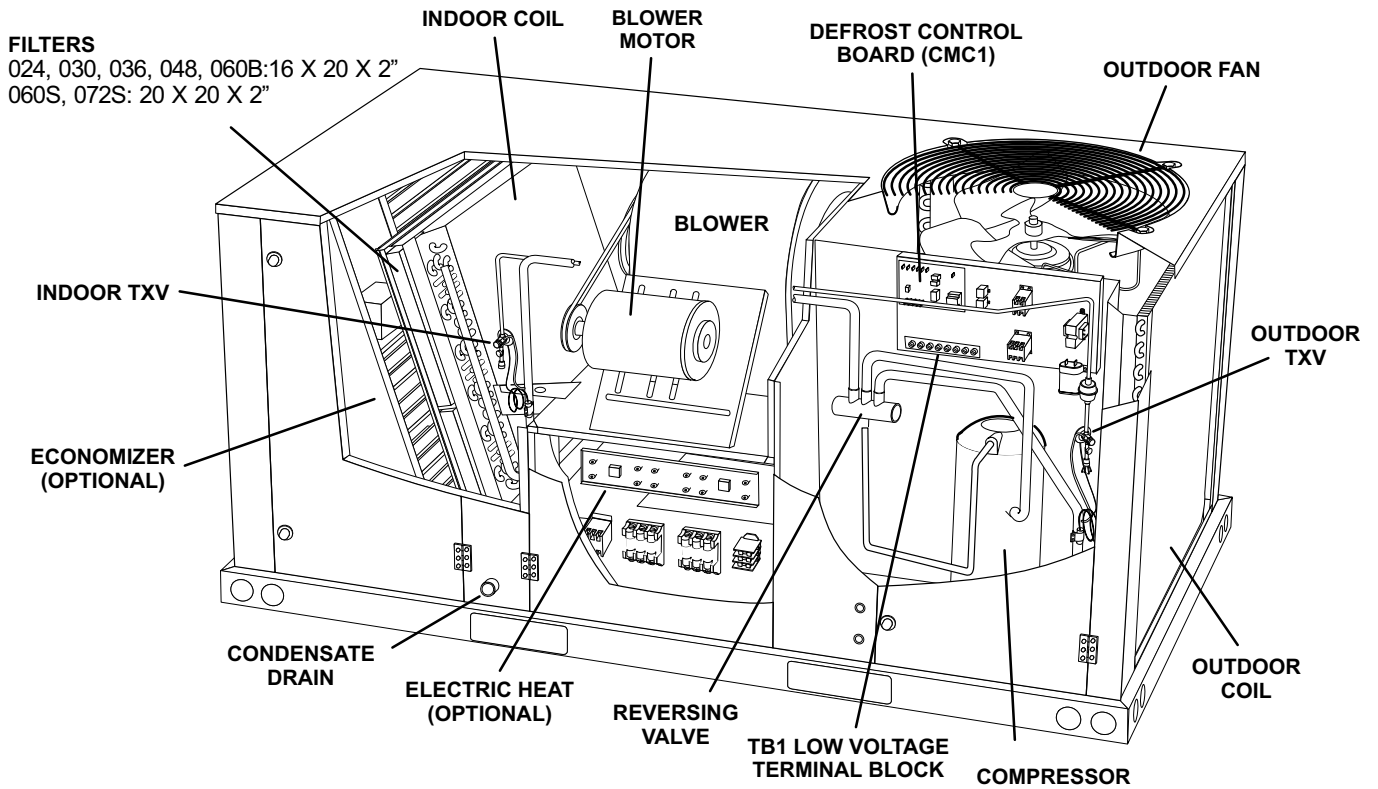


FIGURE 1

THA CONTROL BOX

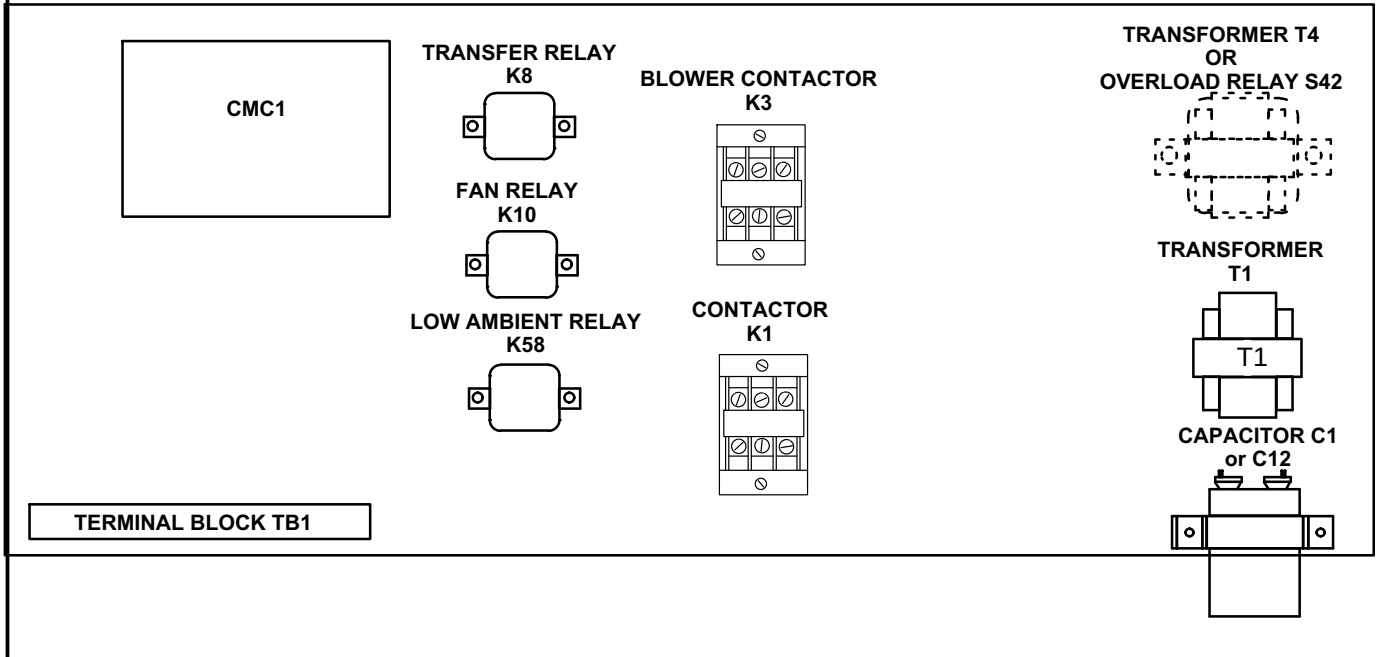


FIGURE 2

I-UNIT COMPONENTS

The THA unit parts arrangement are shown in figure 1. All L1, L2, and L3 wiring is color coded; L1 is red, L2 is yellow, and L3 is blue. See wiring diagrams in the back of this manual for complete call out of components.

A-Control Box Components

THA control box components are shown in figure 2. The control box is located in the upper portion of the compressor compartment.

1-Terminal Strip TB1

All indoor thermostat connections will be to TB1 located in the control box.

2-Transformer T1

All THA series units use a single line voltage to 24VAC transformer mounted in the control box. Transformer supplies power to control circuits in the unit. The transformer is rated at 70VA and is protected by a 3.5 amp circuit breaker (CB8). The 208/230 (Y) voltage transformers

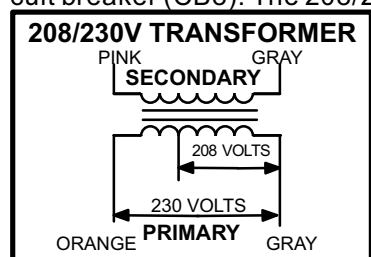


FIGURE 3

ers use two primary voltage taps as shown in figure 3, while 460 (G) and 575 (J) voltage transformers use a single primary voltage tap.

3-Outdoor Fan Capacitor C1 (Y, G, J & M)

Fan capacitors C1 is used to assist in the start up of condenser fan motor B4. Capacitor ratings will be on outdoor fan motor nameplate.

4-Dual Capacitor C12 (Single Phase)

A single dual capacitor is used for both the outdoor fan and compressor (see unit diagram). The fan side and the compressor side have different MFD ratings. See side of capacitor for ratings.

5-Compressor Contactor K1

K1 is a 24V line voltage contactor used to energize the compressor and in some cases (P and Y voltage) condenser fan in response to thermostat demand. Single phase units use single-pole double break contactors and three phase units use three-pole double break contactors.

6-Low Ambient Kit Relay K58

(option used with S11 low ambient switch)

Low ambient relay K58 is a N.C.DPDT relay with a 24V coil wired in parallel with reversing valve L1. When L1 is energized in the cooling cycle, K58 is also energized opening K58-1. Therefore, K58-1 is always closed during heating demand bypassing S11. This allows the fan to operate during the heating demand and cycle during the cooling demand.

7-Blower Contactor K3

Blower contactor K3 is used in all units. K3 has a 24V coil used to energize the indoor blower motor in response to blower demand. In single phase units K3 is a single-pole contactor and in three phase units K3 is a two-pole contactor.

8-Transfer Relay K8

K8 is a two-pole relay with a 24V coil used to de-energize the reversing valve during a heat call. On a first stage heat call K8-1 closes de-energizing the reversing valve and K8-2 closes energizing Y1 on the CMC1 board. Without K8 the reversing valve would remain energized at all times.

9-Outdoor Fan Relay K10 G, J & M Voltage

Outdoor fan relay K10 is a DPDT relay switch with a 24VAC coil. K10 energizes condenser fan motor B4 in response to a heating or cooling demand.

10-Transformer T4 (J voltage)

All (J) 575 voltage units use transformer T4 mounted in the control box. T4 is a line voltage to 460V to power the indoor blower. It is connected to line voltage and is powered at all times.

11-Overload Relay S42 (M Voltage)

Motor overload relay S42 is used on M voltage 50 hertz units equipped with belt drive blower motors. The relay is connected in line with the blower motor to monitor the current flow to the motor. When the relay senses an overload condition, a set of normally closed contacts open which discontinues the 24V circuit to the unit in turn shutting the unit down.

12-Defrost Control CMC1

The THA defrost system includes two components: a defrost thermostat and a defrost control.

Defrost Thermostat (Defrost Switch S6)

The defrost thermostat is located on the liquid line between the outdoor check/expansion valve and the distributor. When defrost thermostat senses 42°F (5.5°C) or cooler, the thermostat contacts close and send a signal to the defrost control board to start the defrost timing. It also terminates defrost when the liquid line warms up to 70°F (21°C).

Defrost Control

The defrost control board includes the combined functions of a time/temperature defrost control, defrost relay and diagnostic LEDs.

The control provides automatic switching from normal heating operation to defrost mode and back. During compressor cycle (call for defrost), the control accumulates compressor run times at 30-, 60-, or 90-minute field-adjustable intervals. If the defrost thermostat is closed when the selected compressor run time interval ends, the defrost relay is energized and defrost begins.

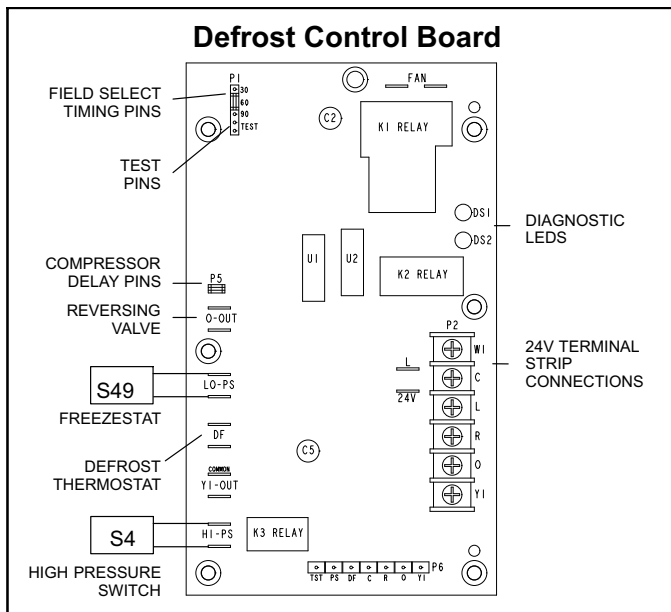


FIGURE 4

Defrost Control Timing Pins

Each timing pin selection provides a different accumulated compressor run time period for one defrost cycle. This time period must occur before a defrost cycle is initiated. The defrost interval can be adjusted to 30, 60 or 90 minutes (see figure 4). The defrost timing jumper is factory-installed to provide a 60-minute defrost interval. If the timing selector jumper is not in place, the control defaults to a 90-minute defrost interval. The maximum defrost period is 14 minutes and cannot be adjusted.

A TEST option is provided for troubleshooting. **The TEST mode may be started any time the unit is in the heating mode and the defrost thermostat is closed or jumpered.** If the jumper is in the TEST position at power-up, the control will ignore the test pins. When the jumper is placed across the TEST pins for two seconds, the control will enter the defrost mode. If the jumper is removed before an additional 5-second period has elapsed (7 seconds total), the unit will remain in defrost mode until the defrost thermostat opens or 14 minutes have passed. If the jumper is not re-

moved until after the additional 5-second period has elapsed, the defrost will terminate and the test option will not function again until the jumper is removed and re-applied.

Compressor Delay

The defrost board has a field-selectable function to reduce occasional sounds that may occur while the unit is cycling in and out of the defrost mode. The compressor will be cycled off for 30 seconds going in and out of the defrost mode when the compressor delay jumper is removed.

NOTE - The 30-second compressor feature is ignored when the defrost test pins are jumpered.

Time Delay

The timed-off delay is five minutes long. The delay helps to protect the compressor from short-cycling in case the power to the unit is interrupted (demand met for example) or a pressure switch opens. The delay is bypassed by placing the timer select jumper across the TEST pins for 0.5 seconds.

Pressure Switch Circuit

The defrost control incorporates two pressure switch circuits. An optional high pressure switch (S4) is connected to the board's HI PS terminals (see figure 4). The board also includes terminals LO PS for a freezestat (S49) or low pressure switch (S87). Switches are shown in the unit wiring diagram. During a single demand cycle, the defrost control will lock out the unit after the fifth time that the circuit is interrupted by any switch wired to the control board. In addition, the diagnostic LEDs will indicate a locked-out switch after the fifth occurrence of an open pressure switch (see Table 1). The unit will remain locked out until power to the board is interrupted, then re-established or until the jumper is applied to the TEST pins for 0.5 seconds.

NOTE - The defrost control board ignores input from the LO PS terminals as follows:

during the TEST mode,

during the defrost cycle,

during the 90-second start-up period,

and for the first 90 seconds each time the reversing valve switches heat/cool modes.

Diagnostic LEDs

The defrost board uses two LEDs for diagnostics. The LEDs flash a specific sequence according to the condition.

TABLE 1

Defrost Control Board Diagnostic LED		
Mode	Green LED (DS2)	Red LED (DS1)
No power to control	OFF	OFF
Normal operation / power to control	Simultaneous Slow FLASH	
Anti-short cycle lockout	Alternating Slow FLASH	
Low pressure switch, freezestat fault	OFF	Slow FLASH
Low pressure switch, freezestat lockout	OFF	ON
High pressure switch fault	Slow FLASH	OFF
High pressure switch lockout	ON	OFF

THA PLUMBING and S49 FREEZESTAT LOCATION

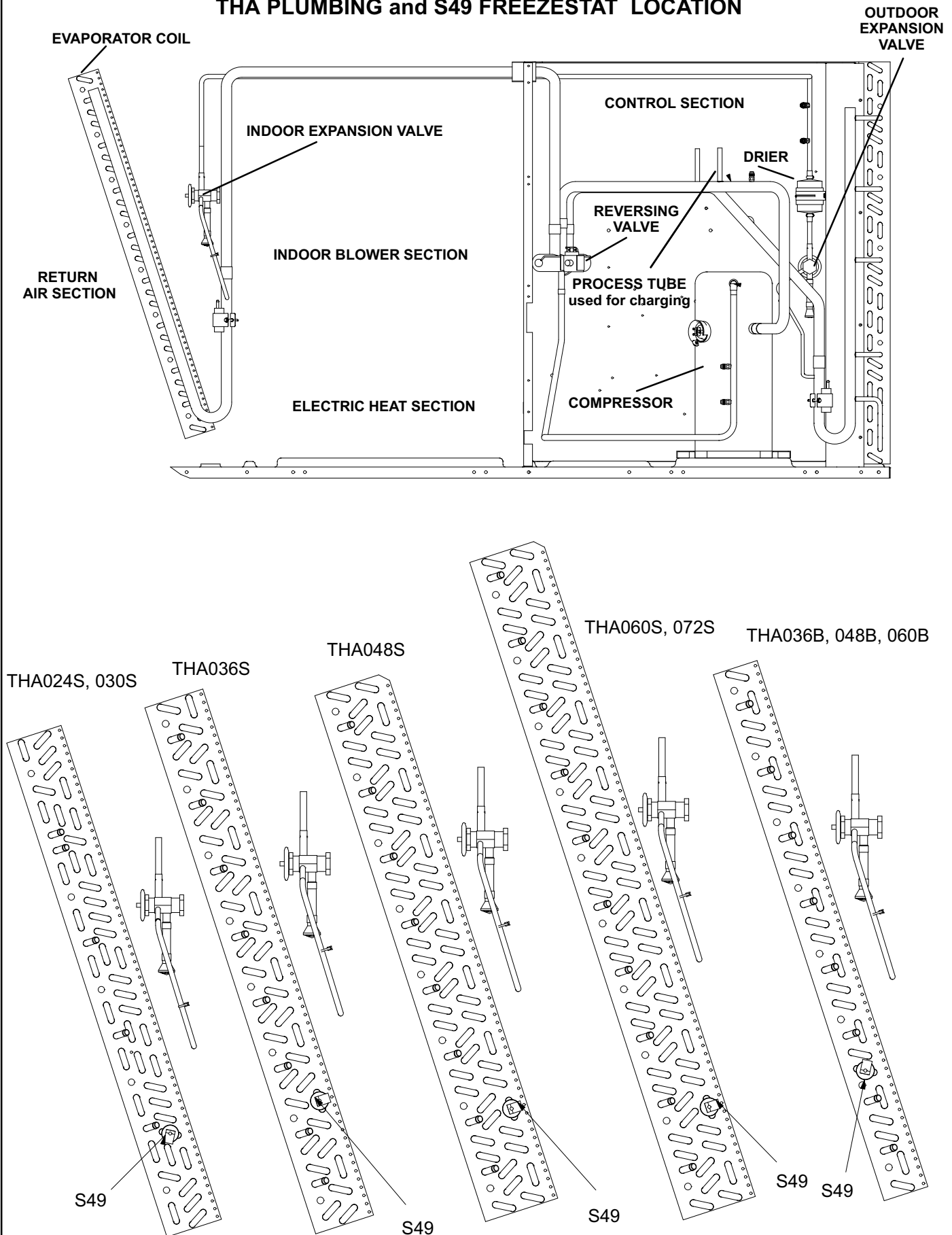


FIGURE 5

B-Cooling Components

THA units use one cooling circuit consisting of a compressor, outdoor coil and indoor coil. See figure 5. Units are equipped with one draw-through type condenser fan. All units are equipped with indoor blowers which draw air across the indoor coil during unit operation. THA units have three condensate drain locations: front, back and bottom of unit. See unit installation instructions for more detail.

Cooling may be supplemented by a factory or field-installed economizer. The indoor coils are slab type. Each indoor coil uses a thermostatic expansion valve as the primary expansion device. Each indoor coil is also equipped with enhanced fins and rifled tubing. In all units the compressor is protected by a freezestat S49 (on each indoor coil). A high pressure switch (S4) and low ambient switch (S84) are available as an option for additional compressor protection.

1-Compressor B1

All THA024/072 units use scroll compressor. See “SPECIFICATIONS” and “ELECTRICAL DATA” (table of contents) or compressor nameplate for compressor specifications.

WARNING

Electrical shock hazard. Compressor must be grounded. Do not operate without protective cover over terminals. Disconnect power before removing protective cover. Discharge capacitors before servicing unit. Failure to follow these precautions could cause electrical shock resulting in injury or death.

Each compressor is energized by a corresponding compressor contactor.

NOTE-Refer to the wiring diagram section for specific unit operation.

2-Freezestat S49

Each unit is equipped with a low temperature switch (freezestat) located on the return bend of the indoor coil.

The freezestat is wired to “LO PS” on the CMC1 board and is a SPST N.C. auto-reset switch which opens at $29^{\circ}\text{F} \pm 3^{\circ}\text{F}$ ($-1.7^{\circ}\text{C} \pm 1.7^{\circ}\text{C}$) on a temperature drop and closes at $58^{\circ}\text{F} \pm 4^{\circ}\text{F}$ ($14.4^{\circ}\text{C} \pm 2.2^{\circ}\text{C}$) on a temperature rise. To prevent coil icing, the freezestat opens during compressor operation to temporarily disable the compressor until the coil warms sufficiently to melt any accumulated frost.

If the freezestat is tripping frequently due to coil icing, check the unit charge, airflow and filters before allowing unit back in operation. Make sure to eliminate conditions which might promote indoor coil ice buildup.

3-High Pressure Switch S4 (option)

The high pressure switch is an auto reset SPST N.C. switch which opens on a pressure rise. The switch is located in the compressor discharge line and is wired to “HI PS” on the CMC1 board.

When discharge pressure rises to 450 ± 10 psig (3103 ± 69 kPa) (indicating a problem in the system) the switch opens and the CMC1 board de-energizes the compressor (the economizer can continue to operate). S4 will close when pressure drops back to 300 psig (2068 kPa).

4-Low Ambient Switch S11 (option)

The low ambient switch is an auto-reset SPST N.O. pressure switch which allows for mechanical cooling operation at low outdoor temperatures. In all models a switch is located in the liquid line prior to the indoor coil section.

In the P and Y voltage units S11 is wired in series with the K1 contactor and the CMC1 board fan contacts. In G, J and M voltage units S11 in series with outdoor fan relay K10 and low ambient relay K58 (if used).

When liquid pressure rises to 275 ± 10 psig (1896 ± 69 kPa), the switch closes and the condenser fan is energized. When discharge pressure in drops to 150 ± 10 psig (1034 ± 69 kPa), the switch opens and the condenser fan in that refrigerant circuit is de-energized. This intermittent fan operation results in higher evaporating temperature allowing the system to operate without icing the indoor coil and losing capacity.

5-Reversing Valve L1

A refrigerant reversing valve with a 24 volt solenoid coil is used to reverse refrigerant flow during unit operation in all THA units. The reversing valve is connected in the vapor line of the refrigerant circuit. The reversing valve coil is energized during cooling demand and during defrost.

Reversing valve L1 is controlled by the CMC1 board and transfer relay K8 in response to cooling demand or by defrost.

6-Filter Drier (all units)

THA units have a filter drier located in the liquid line of each refrigerant circuit at the exit of each condenser coil (outdoor coil in THA units). The drier removes contaminants and moisture from the system.

7-Low Temperature Switch S3 (optional) (compressor monitor)

S3 is a SPST bimetal thermostat which opens on temperature drop. It is wired in line with the indoor thermostat and transfer relay K8. In the cooling mode, when outdoor temperature drops below 40°F (4.5°C) the switch opens and de-energizes the compressor. When the compressor is de-energized the cooling demand is handled by the economizer. The switch automatically resets when outdoor temperature rises to 50°F (10°C).

8-Condenser Fan Motor B4

See specifications section of this manual for specifications of condenser fan B4. B4 is energized by contactor K1 in P and Y voltage units and K10 in G, J and M units. All motors are ball bearing type single-phase motors. The fans may be removed for servicing and cleaning by removing the fan grilles.

9-Crankcase Heater HR1 & Thermostat S40

All units have a crankcase heater. HR1 prevents migration of liquid refrigeration into the compressor and ensures proper compressor lubrication.

S40 is a N.C. thermostat located on the discharge line which opens when discharge line temperature rises above 94°F (34°C). When S40 opens the crankcase heater is de-energized. The thermostat closes when discharge line temperature drops below 74°F (23°C) energizing the crankcase heater.

C-Blower Compartment

THA036, 048, and 060B units are equipped with either direct drive or belt drive blowers. THA024S and 030S units are equipped with direct drive blowers only and THA060S and THA072 units are available with belt drive blowers only. See unit nameplate for blower type. The blower compartment in all THA036/072 units is located between the evaporator coil and the compressor compartment.

1-Blower Wheels

All belt drive units use 10" x 10" (254 mm x 254 mm) blower wheels. The THA024, 030, 036 and 048 direct drive units use 10" x 10" (254 mm x 254 mm) blower wheels also. The THA060B direct drive units use 11" x 10" (279 mm x 254 mm) blower wheels.

2-Indoor Blower Motor Capacitor C4

All single phase blower motors are PSC and requires a run capacitor. Ratings may vary from each motor. See motor nameplate for capacitor ratings.

3-Indoor Blower Motor B3

All direct drive units use single phase PSC motors. Belt drive units use single or three phase motors (same as supply voltage). CFM adjustments on belt drive units are made by adjusting the motor pulley (sheave). CFM adjustments on direct drive units are made by changing speed taps. Belt drive motors are equipped with sealed ball bearings. Direct drive motors are equipped with sleeve bearings. Units may be equipped with motors manufactured by various manufacturers, therefore electrical FLA and LRA specifications will vary. See unit rating plate for information specific to your unit.

OPERATION / ADJUSTMENT

! IMPORTANT

Three phase scroll compressors must be phased sequentially for correct compressor and blower rotation. Follow "COOLING START-UP" section of installation instructions to ensure proper compressor and blower operation.

A-Blower Operation

Initiate blower demand at thermostat according to instructions provided with thermostat. Unit will cycle on thermostat demand. The following steps apply to applications using a typical electro-mechanical thermostat.

- 1- Blower operation is manually set at the thermostat sub-base fan switch. With fan switch in **ON** position, blowers will operate continuously.
- 2- With fan switch in **AUTO** position, the blowers will cycle with demand. Blowers and entire unit will be off when system switch is in **OFF** position.

B-Determining Unit CFM - Direct Drive Blowers

- 1- The following measurements must be made with air filters in place and no cooling demand.
- 2- With all access panels in place, measure static pressure external to unit (from supply to return). Add any additional air resistance for options and accessories shown in air resistance table on Page 19.
- 3- Use figure 6 to determine the factory set blower speed.

BLOWER SPEED FACTORY SETTINGS								
036 Units			024, 030, 048 Units			060 Units		
☐	1	Com	☐	1	Com	☐	1	Com
☐	2	Hi	☐	2	Hi	☐	2	Hi
☐	3	Med	☐	3	Med*	☐	3	Low*
☐	4	Low*	☐	4	Low	☐	4	Unused
*Factory Setting								

FIGURE 6

- 4- Use the blower tables starting on Page 8, the measured static pressure, and the factory-set blower speed to determine CFM. If CFM is lower than the design specified CFM, move the lead from speed tap 3 or 4 to speed tap 2. See figure 7.

Note - Speed tap 3 can be used on 036 units if speed tap 2 delivers more CFM than required by design specification. For 460/575V units, remove the isolation lead from speed tap 2 before moving the wire to speed tap 2. Tape the exposed end of the isolation lead and secure away from other components.

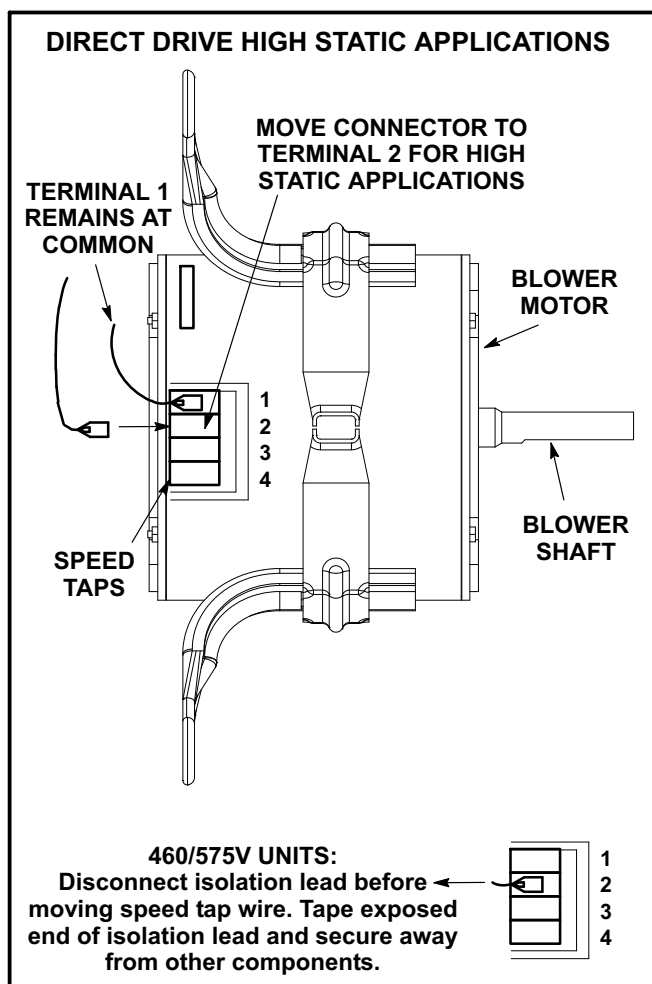


FIGURE 7

C-Determining Unit CFM - Belt Drive Blowers

- 1- The following measurements must be made with air filters in place and no cooling demand.
- 2- With all access panels in place, measure static pressure external to unit (from supply to return).
- 3- Measure the indoor blower wheel RPM.
- 4- Referring to the blower tables starting on Page 8 use static pressure and RPM readings to determine unit CFM. Use air resistance table on Page 19 when installing units with any of the options or accessories listed.
- 5- The blower RPM can be adjusted at the motor pulley. Loosen Allen screw and turn adjustable pulley clockwise to increase CFM. Turn counterclockwise to decrease CFM. See figure 8. Do not exceed minimum and maximum number of pulley turns as shown in table 2.

**TABLE 2
MINIMUM AND MAXIMUM PULLEY ADJUSTMENT**

Belt	Min. Turns Open	Max. Turns Open
A Section	No minimum	5

D-Blower Belt Adjustment

Maximum life and wear can be obtained from belts only if proper pulley alignment and belt tension are maintained. Tension new belts after a 24-48 hour period of operation. This will allow belt to stretch and seat grooves. Make sure blower and motor pulley are aligned as shown in figure 9.

- 1- Loosen four bolts securing motor base to mounting frame. See figure 8.
- 2- *To increase belt tension -*
Slide blower motor downward to tighten the belt. This increases the distance between the blower motor and the blower housing.
- 3- *To loosen belt tension -*
Slide blower motor upward to loosen the belt. This decreases the distance between the blower motor and the blower housing.
- 4- Tighten four bolts securing motor base to the mounting frame.

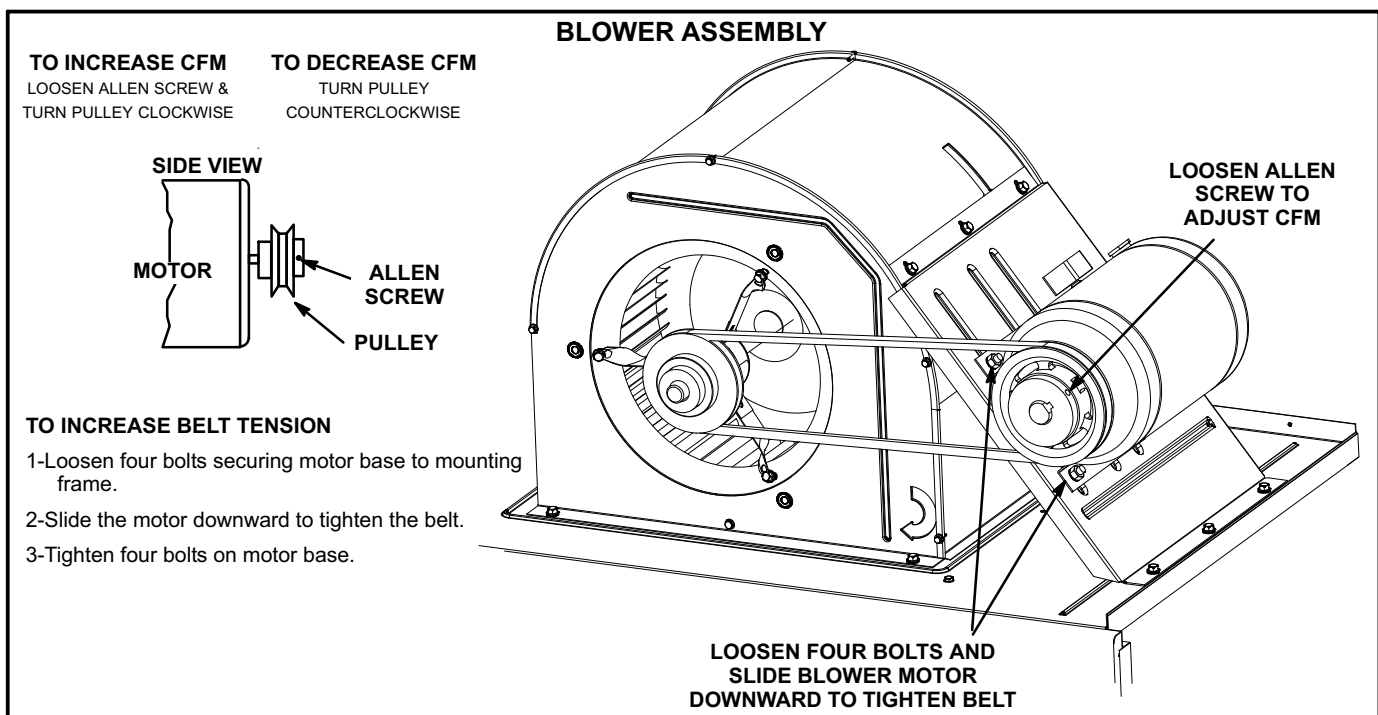


FIGURE 8

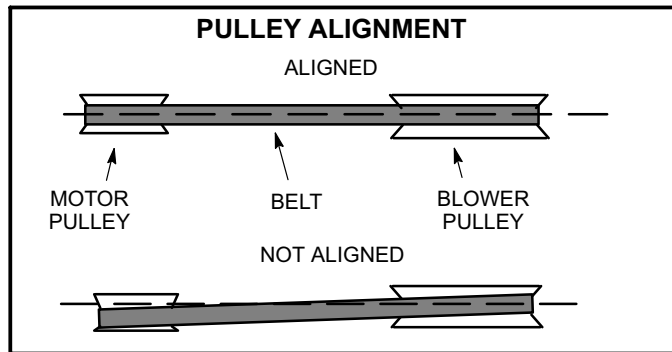


FIGURE 9

E-Check Belt Tension

Overtensioning belts shortens belt and bearing life. Check belt tension as follows:

- 1- Measure span length X. See figure 10.
- 2- Apply perpendicular force to center of span (X) with enough pressure to deflect belt 1/64" for every inch of span length or 1.5mm per 100mm of span length.

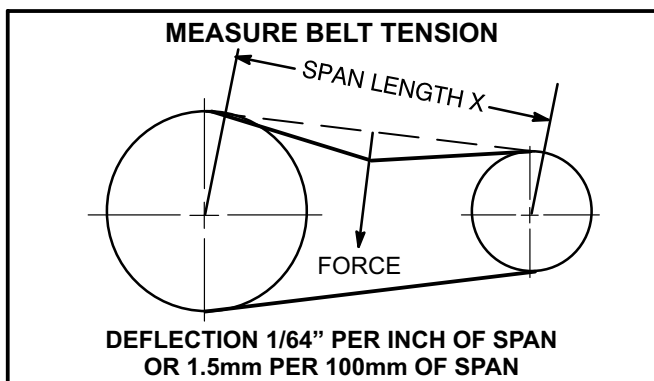


FIGURE 10

Example: Deflection distance of a 40" span would be 40/64" or 5/8".

Example: Deflection distance of a 400mm span would be 6mm.

- 3- Measure belt deflection force. For a used belt, the deflection force should be 5 lbs. (35kPa). A new belt deflection force should be 7 lbs. (48kPa).

A force below these values indicates an undertensioned belt. A force above these values indicates an overtensioned belt.

F-Field-Furnished Blower Drives

See blower data tables for field-furnished blower drives to determine BHP and RPM required. See drive kit table on Page 18 to determine the drive kit number.

D-Optional Electric Heat Components

Electric heat matchups are found in the ELECTRICAL DATA tables. See table of contents.

All electric heat sections consist of electric heating elements exposed directly to the airstream. See figure 11. See figure 12 for vestibule parts arrangement.

1-Contactors K15, K16

All contactors are double break and either single, double or three pole (see diagram) and equipped with a 24VAC coil. The coils in the K15 and K16 contactors are energized by the indoor thermostat. In all units K15 energizes the heating elements, while in the 22.5 kW units, K15 and K16 energize the heating elements simultaneously.

2-High Temperature Limits S15 (Primary)

S15 is a SPST N.C. auto-reset thermostat located on the back panel of the electric heat section above the heating elements. S15 is the high temperature limit for the electric heat section. When S15 opens, indicating a problem in the system, contactor K15 is de-energized (including K16 in 22.5 kW units). When K15 is de-energized, all stages of heat are de-energized. See table 3 for S15 set points. Set points are factory set and not adjustable.

TABLE 3

Unit kW (Voltage)	S15 Opens ° F	S15 Closes ° F
7.5 (Y, G, J, P)	160	120
10 (P)	170	130
15 (Y)	170	130
15 (G, J, P)	160	120
22.5 (Y, G, J)	160	120
22.5 (P)	150	110
30 (Y, G, J)	150	110

3-High Temperature Limit S20 and S157 (Secondary)

S20 and S157 are SPST N.C. manual-reset thermostat s. S20 and S157 are wired in series with the heating elements. See T1EH wiring diagrams. When either limit opens K15 and K16 are de-energized. When the contactors are de-energized, all stages of heat are de-energized. The thermostat is factory set to open at $220^{\circ}\text{F} \pm 6^{\circ}\text{F}$ ($104^{\circ}\text{C} \pm 3.3^{\circ}\text{C}$) on a temperature rise and can be manually reset when temperature falls below 160°F (71.0°C). See figure 12 for location.

4-Terminal Strip TB2

Terminal strip TB2 is used for single point power installations only. TB2 distributes power to TB3. Units with multi-point power connections will not use TB2.

5-Terminal Strip TB3

P and Y voltage units are equipped with terminal strip TB3. Electric heat line voltage connections are made to TB3, which distributes power to the electric heat components and is located on the vestibule. See figure 12.

6-Heating Elements HE1 through HE6

Heating elements are composed of helix wound bare nichrome wire exposed directly to the airstream. Three elements are connected in a three-phase arrangement. The elements in 208/230V units are connected in a "Delta" arrangement. Elements in 460 and 575V units are connected in "Wye" arrangement. Each stage is energized independently by the corresponding contactors located on the electric heat vestibule panel. Once energized, heat transfer is instantaneous. High temperature protection is provided by primary and redundant high temperature limits and overcurrent protection is provided by fuses.

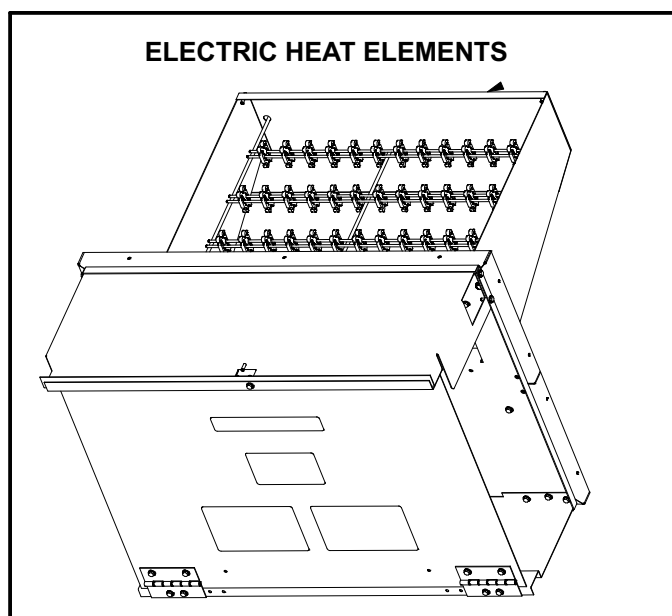


FIGURE 11

7-Fuse F3 and F42

Fuse F3 and F42 are housed in a fuse block which holds two or three fuses. Each F3 fuse is connected in series with each leg of electric heat. Figure 12 and table 4 show the fuses used with each electric heat section.

8-Unit Fuse Block & Fuse F4

Unit fuses F4 provide short circuit and ground fault protection to all cooling components in the THA units with electric heat. The fuses are rated in accordance with the amperage of the cooling components. The F 4 fuse block is located inside a sheetmetal enclosure.

TABLE 4

Unit	Voltage-Phase	FUSE		Qty each	Qty total
		F3	F42		
T1EH0075	208/230V-1P	40 A-250V	----	2	2
	208/230V-3P	25 A-250V	----	3	3
	460V-3P	15 A-600V	----	3	3
	575V-3P	15 A-600V	----	3	3
T1EH0010	208/230V-1P	30 A-250V	30A-250V	2	2
T1EH0015	208/230V-1P	40 A-250V	40A-250V	2	4
	208/230V-3P	50 A-250V	----	3	3
	460V	25 A-600V	----	3	3
	575V	20 A-600V	----	3	3
T1EH00225	208/230V-1P	40 A-250V	40A-250V	3	6
	208/230V-3P	45 A-250V	45A-250V	3	6
	460V-3P	35 A-600V	----	3	3
	575V-3P	30 A-600V	----	3	3
T1EH0300	208/230V-3P	60 A-250V	60A-250V	3	6
	460V-3P	50 A-600V	----	3	3
	575V-3P	40 A-600V	----	3	3

ELECTRIC HEAT VESTIBULE

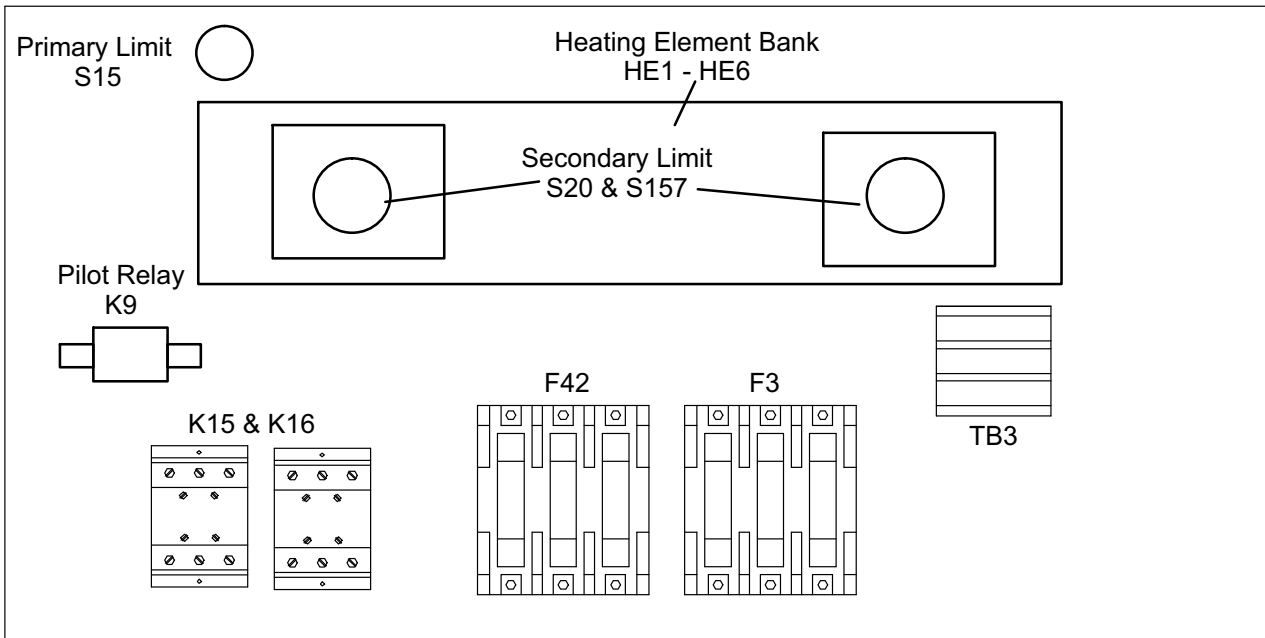


FIGURE 12

II-PLACEMENT AND INSTALLATION

Make sure the unit is installed in accordance with the installation instructions and all applicable codes. See accessories section for conditions requiring use of the optional roof mounting frame (T1CURB).

III-START UP - OPERATION

Refer to startup directions and refer closely to the unit wiring diagram when servicing. See unit nameplate for minimum circuit ampacity and maximum fuse size.

A-Preliminary and Seasonal Checks

- 1- Make sure the unit is installed in accordance with the installation instructions and applicable codes.
- 2- Inspect all electrical wiring, both field and factory installed for loose connections. Tighten as required. Refer to unit diagram located on inside of unit control box cover.
- 3- Check to ensure that refrigerant lines are in good condition and do not rub against the cabinet or other refrigerant lines.
- 4- Check voltage at the disconnect switch. Voltage must be within the range listed on the nameplate. If not, consult the power company and have the voltage corrected before starting the unit.
- 5- Recheck voltage and amp draw with unit running. If voltage is not within range listed on unit nameplate, stop unit and consult power company. Refer to unit nameplate for maximum rated load amps.
- 6- Inspect and adjust blower belt (see section on Blower Compartment - Blower Belt Adjustment).

B-Heating Start Up

- 1- Set thermostat or temperature control device to initiate a first-stage heating demand.

A first-stage heating demand (W1) will energize compressor 1 and the outdoor fan.

Note - L1 reversing valve is de-energized in the heating mode.

THA Units With Optional Electric Heat -

An increased heating demand (W2) will energize electric heat. Electric heat is also energized during the defrost cycle to maintain discharge air temperature.

C-Cooling Start Up

IMPORTANT

If unit is equipped with a crankcase heater. Make sure heater is energized 24 hours before unit start-up to prevent compressor damage as a result of slugging.

- 1- Set thermostat or temperature control device fan switch to **AUTO** or **ON**. Set thermostat or temperature control device to initiate a first-stage cooling demand.

A Y1 cooling demand will energize L1 reversing valve and the compressor.

Units With Optional Economizer -

The optional economizer will start on a Y1 cooling demand when outdoor air enthalpy is suitable.

- 2- Refrigerant circuits are factory charged with R-22 refrigerant. See unit rating plate for correct amount of charge.

Three Phase Scroll Compressor Voltage Phasing

Three phase scroll compressors must be phased sequentially to ensure correct compressor and blower rotation and operation. Compressor and blower are wired in phase at the factory. Power wires are color-coded as follows: line 1-red, line 2-yellow, line 3-blue.

- 1- Observe suction and discharge pressures and blower rotation on unit start-up.
- 2- Suction pressure must drop, discharge pressure must rise, and blower rotation must match rotation marking.

If pressure differential is not observed or blower rotation is not correct:

- 3- Disconnect all remote electrical power supplies.
- 4- Reverse any two field-installed wires connected to the line side of K1 contactor. Do not reverse wires at blower contactor.

Make sure the connections are tight.

Discharge and suction pressures should operate at their normal start-up ranges.

IV- SYSTEMS SERVICE CHECKS

Refrigerant Charge and Check

WARNING-Do not exceed nameplate charge under any condition.

This unit is factory charged and should require no further adjustment. If the system requires charge, **reclaim the charge, evacuate the system, and add required nameplate charge.**

NOTE - System charging is not recommended below 60°F (15°C). In temperatures below 60°F (15°C), the charge **must** be weighed into the system.

If weighing facilities are not available, or to check the charge, use the following procedure:

- 1- Attach gauge manifolds and operate unit in cooling mode until system stabilizes (approximately five minutes).
- 2- Check each system separately with all stages operating.
- 3- Use a thermometer to accurately measure the outdoor ambient temperature.
- 4- Apply the outdoor temperature to tables 5 through 13 to determine normal operating pressures.
- 5- Compare the normal operating pressures to the pressures obtained from the gauges. Minor variations in these pressures may be expected due to differences in installations. Significant differences could mean that the system is not properly charged or that a problem exists with some component in the system. **Correct any system problems before proceeding.**
- 6- If discharge pressure is high, remove refrigerant from the system. If discharge pressure is low, add refrigerant to the system.
 - Add or remove charge in increments.
 - Allow the system to stabilize each time refrigerant is added or removed.
- 7- Use the following approach method along with the normal operating pressures to confirm readings.

TABLE 5
THA024S NORMAL OPERATING PRESSURES

Outdoor Coil Entering Air Temp	Dis. ± 10 psig	Suct. ± 5 psig
65°F	141	82
75°F	163	84
85°F	189	85
95°F	219	86
105°F	252	87
115°F	289	89

TABLE 6
THA030S NORMAL OPERATING PRESSURES

Outdoor Coil Entering Air Temp	Dis. ± 10 psig	Suct. ± 5 psig
65°F	146	81
75°F	167	82
85°F	194	84
95°F	227	85
105°F	261	87
115°F	298	89

TABLE 7
THA036B NORMAL OPERATING PRESSURES

Outdoor Coil Entering Air Temp	Dis. ± 10 psig	Suct. ± 5 psig
65°F	169	81
75°F	196	82
85°F	226	84
95°F	259	85
105°F	296	86
115°F	336	87

TABLE 8
THA036S NORMAL OPERATING PRESSURES

Outdoor Coil Entering Air Temp	Dis. ± 10 psig	Suct. ± 5 psig
65° F	154	83
75° F	178	83
85° F	205	84
95° F	236	86
105° F	269	88
115° F	306	89

TABLE 9
THA048B NORMAL OPERATING PRESSURES

Outdoor Coil Entering Air Temp	Dis. ± 10 psig	Suct. ± 5 psig
65° F	185	76
75° F	212	78
85° F	242	80
95° F	276	81
105° F	312	82
115° F	351	84

TABLE 10
THA048S NORMAL OPERATING PRESSURES

Outdoor Coil Entering Air Temp	Dis. ± 10 psig	Suct. ± 5 psig
65° F	171	86
75° F	197	86
85° F	227	88
95° F	259	89
105° F	295	90
115° F	335	91

**TABLE 11
THA060B NORMAL OPERATING PRESSURES**

Outdoor Coil Entering Air Temp	Dis. ± 10 psig	Suct. ± 5 psig
65° F	174	68
75° F	201	71
85° F	232	73
95° F	267	77
105° F	305	80
115° F	346	84

**TABLE 12
THA060S NORMAL OPERATING PRESSURES**

Outdoor Coil Entering Air Temp	Dis. ± 10 psig	Suct. ± 5 psig
65° F	163	81
75° F	189	82
85° F	217	84
95° F	250	85
105° F	285	86
115° F	323	88

**TABLE 13
THA072S NORMAL OPERATING PRESSURES**

Outdoor Coil Entering Air Temp	Dis. ± 10 psig	Suct. ± 5 psig
65° F	173	70
75° F	203	76
85° F	234	81
95° F	267	84
105° F	304	86
115° F	343	87

C-Charge Verification - Approach Method

- 8- Using the same thermometer, compare liquid temperature to outdoor ambient temperature.

Approach Temperature = Liquid temperature minus ambient temperature.

- 9- Approach temperature should match values in table 14. An approach temperature greater than value shown indicates an undercharge. An approach temperature less than value shown indicates an overcharge.
- 10- Do not use the approach method if system pressures do not match pressures in tables 5 through 13. The approach method is not valid for grossly over or under-charged systems.

**TABLE 14
APPROACH TEMPERATURE**

Unit	Liquid Temp. Minus Ambient Temp.
024S	7°F ± 1 (3.9°C ± 0.5)
030S	8°F ± 1 (4.4°C ± 0.5)
036B	8°F ± 1 (4.4°C ± 0.5)
036S	7°F ± 1 (3.9°C ± 0.5)
048B	16°F ± 1 (8.9°C ± 0.5)
048S	10°F ± 1 (5.6°C ± 0.5)
060B	12°F ± 1 (6.7°C ± 0.5)
060S	6°F ± 1 (3.3°C ± 0.5)
072S	11°F ± 1 (6.1°C ± 0.5)

V-MAINTENANCE

The unit should be inspected once a year by a qualified service technician.

⚠ WARNING

Product contains fiberglass wool.

Disturbing the insulation in this product during installation, maintenance, or repair will expose you to fiberglass wool. Breathing this may cause lung cancer. (Fiberglass wool is known to the State of California to cause cancer.)

Fiberglass wool may also cause respiratory, skin, and eye irritation.

To reduce exposure to this substance or for further information, consult material safety data sheets available from address shown on unit nameplate or contact your supervisor.

⚠ CAUTION

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

A-Lubrication

All motors are lubricated at the factory. No further lubrication is required.

B-Filters

Units are equipped with temporary filters which need to be replaced before the building is occupied. See table 15 for correct filter size. Refer to local codes or appropriate jurisdiction for approved filters.

Approved filters should be checked monthly and replaced when necessary. Take note of air flow direction marking on filter frame when reinstalling filters. See figure 13.

⚠ WARNING

Units are shipped from the factory with temporary filters. Replace filters before building is occupied. Damage to unit could result if filters are not replaced with approved filters. Refer to appropriate codes.

**TABLE 15
UNIT FILTERS**

Unit	Qty	Filter Size - inches (mm)
024, 030, 036, 048, 060B	4	16 X 20 X 2 (406 X 508 X 51)
060S, 072	4	20 X 20 X 2 (508 X 508 X 51)

NOTE-Filters must be U.L.C. certified or equivalent for use in Canada.

C-Supply Air Blower Wheel

Annually inspect supply air blower wheel for accumulated dirt or dust. Turn off power before attempting to remove access panel or to clean blower wheel.

D-Indoor Coil

Inspect and clean coil at beginning of each cooling and heating season. Clean using mild detergent or commercial coil cleanser. Flush coil and condensate drain with water taking care not to get insulation, filters and return air ducts wet.

E-Outdoor Coil

Clean outdoor coil annually with detergent or commercial coil cleaner and inspect monthly during the cooling season.

Outdoor coils are made of single and two formed slabs. On units with two slabs, dirt and debris may become trapped between the slabs. To clean between slabs, carefully separate coil slabs and wash them thoroughly. See figure 14. Flush coils with water following cleaning.

Note - Remove all screws and gaskets prior to cleaning procedure and replace upon completion.

F-Filter Drier

The unit is equipped with a biflow filter drier. If replacement is necessary, order another of like design.

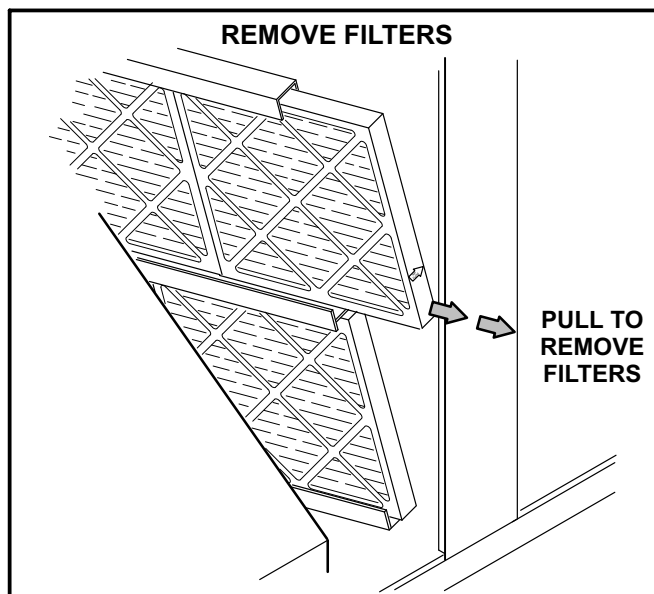
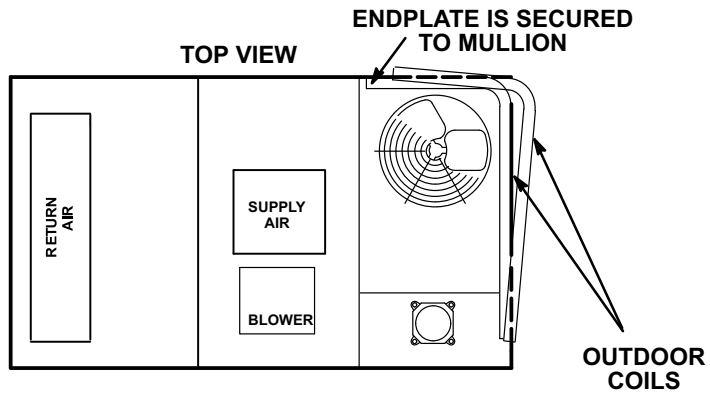


FIGURE 13

CLEAN OUTDOOR COIL



- 1- Remove screws securing coil end plate to mullion.
- 2- Remove clips connecting coils slabs and separate slabs 3-4" (76-102mm).
- 3- Clean coils with detergent or commercial coil cleaner.
- 4- Rinse thoroughly with water and reassemble.

FIGURE 14

VI-ACCESSORIES

The accessories section describes the application of most of the optional accessories which can be factory or field installed to the THA units.

A-T1CURB

When installing either the THA units on a combustible surface for downflow discharge applications, the T1CURB 8 inch, 14-inch, 18 inch or 24-inch height roof mounting frame is used. The roof mounting frames are recommended in all other applications but not required. If the units are not mounted on a flat (roof) surface, they **MUST** be supported under all edges and under the middle of the unit to prevent sagging. The units **MUST** be mounted level within 1/16" per linear foot or 5mm per meter in any direction.

The assembled mounting frame is shown in figure 15. Refer to the roof mounting frame installation instructions for details of proper assembly and mounting. The roof mounting frame **MUST** be squared to the roof and level before mounting. Plenum system **MUST** be installed before the unit is set on the mounting frame. Typical roof curbing and flashing is shown in figure 16. Refer to the roof mounting frame installation instructions for proper plenum construction and attachment.

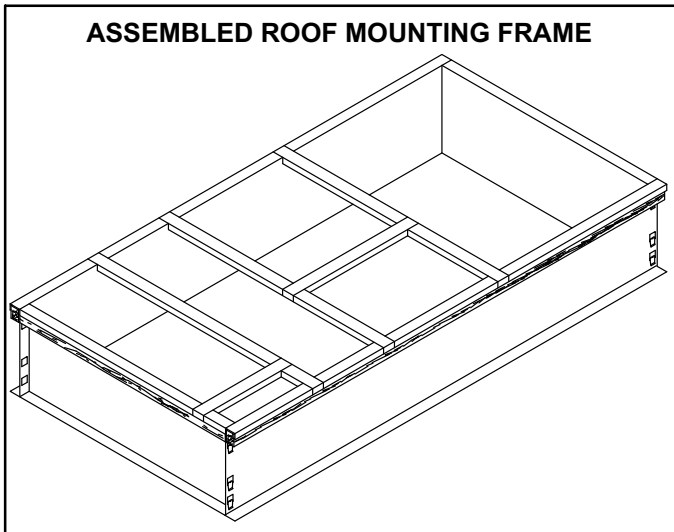


FIGURE 15

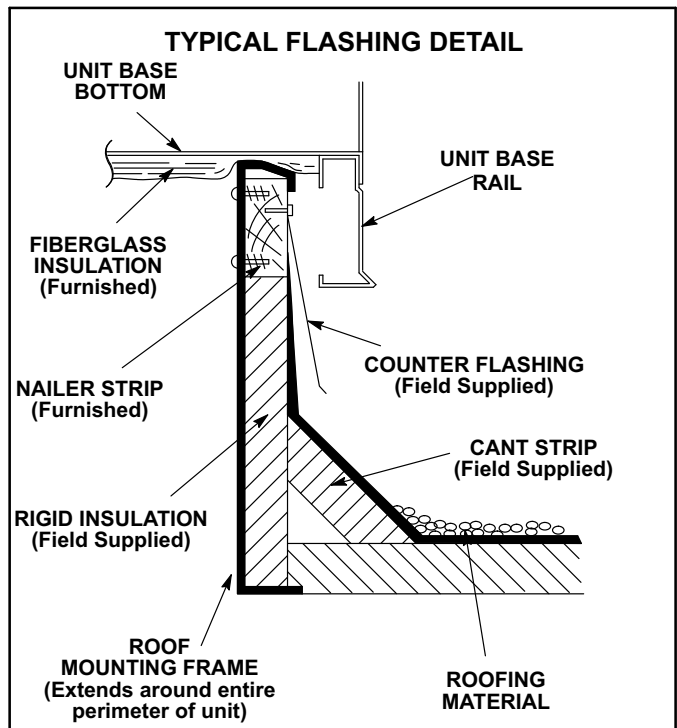


FIGURE 16

B-Transitions

Optional supply/return transitions T1TRAN10AN1 is available for use with the THA 2, 2.5, 3, 4 and 5 units and the T1TRAN20N-1 is available for the 6 ton units utilizing optional T1CURB roof mounting frames. Transition must be installed in the mounting frame before mounting the unit to the frame. Refer to the manufacturer's instructions included with the transition for detailed installation procedures.

C-Outdoor Air Dampers

T1DAMP11A-1 is available for THA024, 030 036, 048 and 060B units and T1DAMP11N-1 is available for the THA060S and 072S units. Both sets include the outdoor air hood. A motorized kit (T1DAMP21AN1) can be ordered separately for all THA unit sizes. The dampers may be manually or motor (M) operated to allow up to 25 percent outside air into the system at all times (see figure 17). Washable filter supplied with the outdoor air dampers can be cleaned with water and a mild detergent. It should be sprayed with Filter Handicoater when dry prior to reinstallation. Filter Handicoater is R.P. Products coating no. 418.

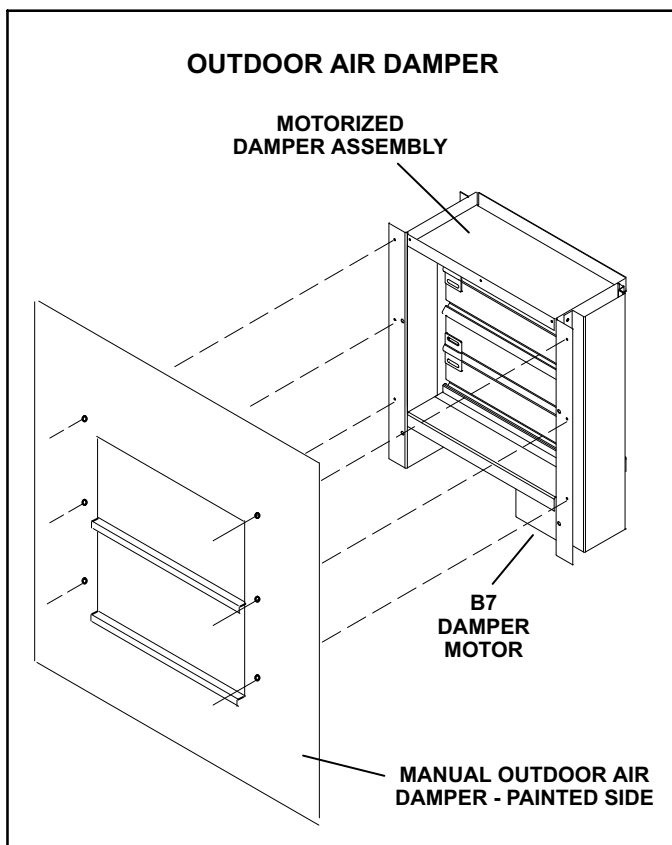


FIGURE 17

D-Supply and Return Diffusers (all units)

Optional flush mount diffuser/return FD9-65 and FD11-95 and extended mount diffuser/return RTD9-65 and RTD11-95 are available for use with all THA units. Refer to manufacturer's instructions included with transition for detailed installation procedures.

E-Economizer

(Field or Factory Installed)

Unit may contain an optional factory-installed economizer equipped with an A6 enthalpy control and an A7 outdoor enthalpy sensor. The modulating economizer opens fully to use outdoor air for free cooling when temperature is suitable and opens to minimum position during the occupied time period.

The A6 enthalpy control is located in the economizer access area. See figure 18. The A7 enthalpy sensor is located on the division panel between horizontal supply and return air sections.

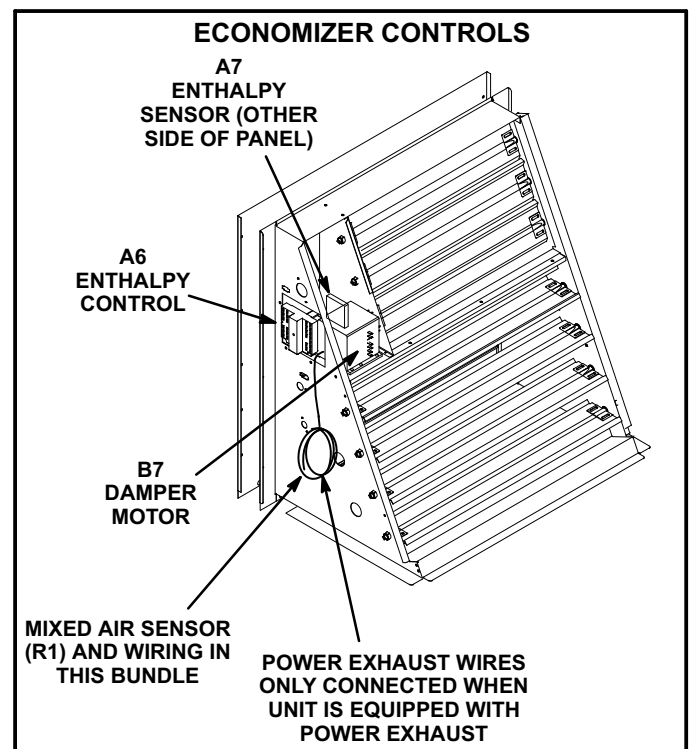


FIGURE 18

Optional Sensors

An optional differential sensor (A62) may be used with the A7 outdoor sensor to compare outdoor air enthalpy to return air enthalpy. When the outdoor air enthalpy is below the return air temperature, outdoor air is used for free cooling.

Mixed air sensor (R1) is used to modulate dampers to 55°F (13°C) discharge air.

An optional IAQ sensor (A63) may be used to lower operating costs by controlling outdoor air based on CO₂ level or room occupancy (also called demand control ventilation or DCV). Damper minimum position can be set lower than traditional minimum air requirements; dampers open to traditional ventilation requirements when CO₂ level reaches DCV (IAQ) setpoint.

Refer to instructions provided with sensors for installation.

A6 Enthalpy Control LED's

A steady green Free Cool LED indicates that outdoor air is suitable for free cooling.

When an optional IAQ sensor is installed, a steady green DCV LED indicates that the IAQ reading is higher than setpoint requiring more fresh air. See figure 19.

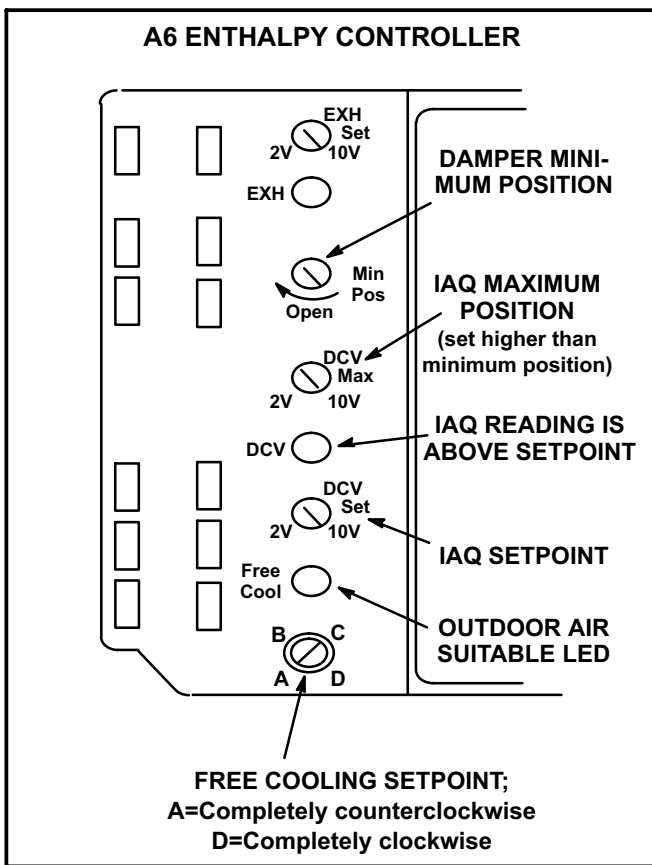


FIGURE 19

Free Cooling Setpoint

Outdoor air is considered suitable when temperature and humidity are less than the free cooling setpoints shown in table 16. Setting A is recommended. See figure 19. At setting A, free cooling will be energized when outdoor air is approximately 73°F (23°C) and 50% relative humidity. If indoor air is too warm or humid, lower the setpoint to B. At setting B, free cooling will be energized at 70°F (21°C) and 50% relative humidity.

When an optional A62 differential sensor is installed, turn A6 enthalpy control free cooling setpoint potentiometer completely clockwise to position “D”.

TABLE 16
ENTHALPY CONTROL SETPOINTS

Control Setting	Free Cooling Setpoint At 50% RH
A	73° F (23° C)
B	70° F (21° C)
C	67° F (19° C)
D	63° F (17° C)

Damper Minimum Position

NOTE - A jumper must be installed between TB1 R and OC terminals to maintain occupied status (allowing minimum fresh air). When using an electronic thermostat or energy management system with an occupied/unoccupied feature, remove jumper.

1- Set thermostat to occupied mode if the feature is available. Make sure jumper is in place between TB1 terminals R and OC if using a thermostat which does not have the feature.

2- Rotate MIN POS SET potentiometer to approximate desired fresh air percentage.

Note - Damper minimum position can be set lower than traditional minimum air requirements when an IAQ sensor is specified. Dampers will open to DCV MAX setting (if CO₂ is above setpoint) to meet traditional ventilation requirements.

3- Measure outdoor air temperature. Mark the point on the bottom line of chart 1 and label the point “A” (40°F, 4°C shown).

4- Measure return air temperature. Mark that point on the top line of chart 1 and label the point “B” (74°F, 23°C shown).

5- Measure mixed air (outdoor and return air) temperature. Mark that point on the top line of chart 1 and label point “C” (70°F, 21°C shown).

6- Draw a straight line between points A and B.

7- Draw a vertical line through point C.

8- Draw a horizontal line where the two lines meet. Read the percent of fresh air intake on the side.

9- If fresh air percentage is less than desired, adjust MIN POS SET potentiometer higher. If fresh air percentage is more than desired, adjust MIN POS SET potentiometer lower. Repeat steps 3 through 8 until calculation reads desired fresh air percentage.

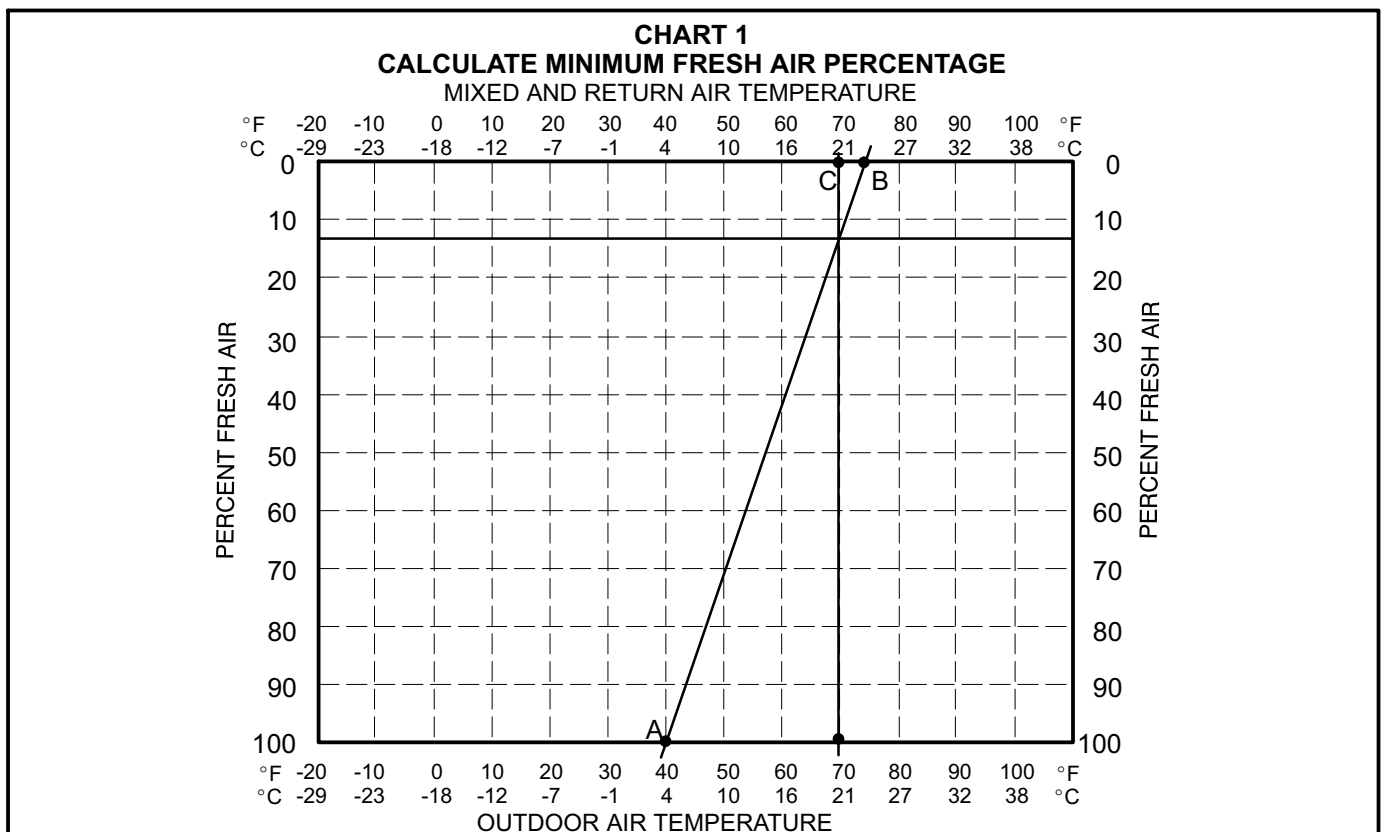
DCV Set and Max Settings

Adjust settings when an optional IAQ sensor is installed.

The DCV SET potentiometer is factory-set at approximately 50% of the potentiometer range. Using a standard 1-2000ppm CO₂ sensor, dampers will start to open when the IAQ sensor reads approximately 1000ppm. Adjust the DCV SET potentiometer to the approximate setting specified by the controls contractor. Refer to figure 19.

The DCV MAX potentiometer is factory-set at approximately 50% of the potentiometer range or 6VDC. Dampers will open approximately half way when CO₂ rises above setpoint. Adjust the DCV MAX potentiometer to the approximate setting specified by the controls contractor. Refer to figure 19.

Note - DCV Max must be set higher than economizer minimum position setting for proper demand control ventilation.



Economizer Operation

The occupied time period is determined by the thermostat or energy management system.

Outdoor Air Not Suitable:

During the unoccupied time period dampers are closed.

During the occupied time period a cooling demand will open dampers to minimum position and mechanical cooling functions normally.

During the occupied time period dampers will open to DCV MAX when IAQ reading is above setpoint (regardless of thermostat demand or outdoor air suitability).

Outdoor Air Suitable:

See table 17 for economizer operation with a standard two-stage thermostat.

During the occupied period, dampers will open to DCV MAX when IAQ reading is above setpoint (regardless of thermostat demand or outdoor air suitability). DCV MAX will NOT override damper full-open position. When an R1 mixed air sensor for modulating dampers is installed, DCV MAX may override damper free cooling position when occupancy is high and outdoor air temperatures are low. If R1 senses discharge air temperature below 45°F (7°C), dampers will move to minimum position until discharge air temperature rises to 48°F (9°C).

B-Outdoor Air Dampers

Optional manual and motorized outdoor air dampers provide fresh outdoor air. The motorized damper assembly opens to minimum position during the occupied time period and remains closed during the unoccupied period. Manual damper assembly is set at installation and remains in that position.

Set damper minimum position in the same manner as economizer minimum position. Adjust motorized damper position using the thumbwheel on the damper motor. See figure 20. Manual damper fresh air intake percentage can be determined in the same manner.

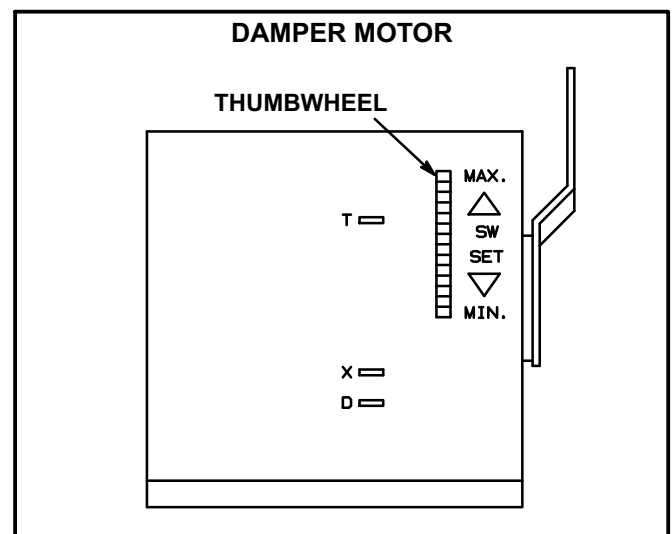


FIGURE 20

TABLE 17
ECONOMIZER OPERATION

OUTDOOR AIR IS SUITABLE FOR FREE COOLING – FREE COOL LED “ON”

THERMOSTAT DEMAND	DAMPER POSITION		MECHANICAL COOLING
	UNOCCUPIED	OCCUPIED	
OFF	CLOSED	CLOSED	NO
G	CLOSED	MINIMUM	NO
Y1	OPEN*	OPEN*	NO
Y2	OPEN*	OPEN*	STAGE 1

*Dampers will modulate to maintain 55°F (13°C) supply air when an R1 mixed air sensor is installed.

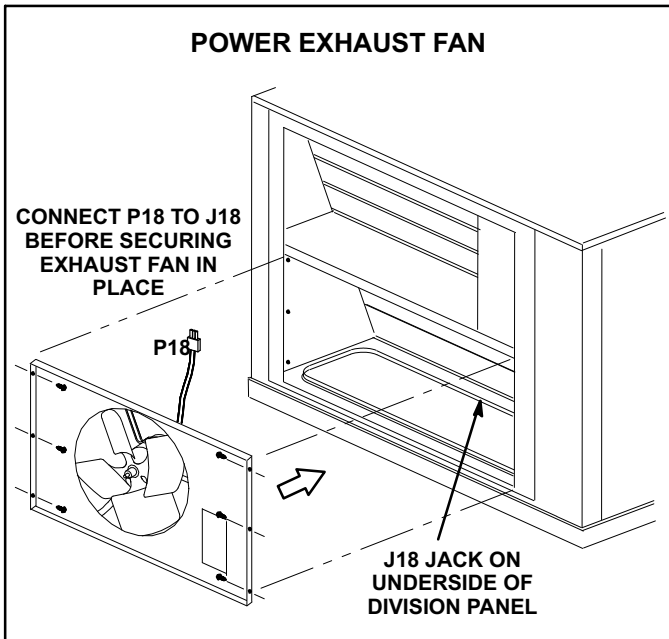


FIGURE 21

F-Power Exhaust Relay K65 (PED units)

Power exhaust relay K65 is a N.O. DPDT relay with a 24VAC coil. K65 is used in all THA units equipped with the optional power exhaust dampers. K65 is energized by the economizer control panel (A6), after the economizer dampers reach 50% open (adjustable on control A6). When K65 closes, the exhaust fan B10 is energized.

G-Power Exhaust Fans

T1PWRE10A available for THA036, 048 and 060B units and T1PWRE10N available for 060S and 072S units, provide exhaust air pressure relief and also run when return air dampers are closed and supply air blowers are operating. See figure 21 and installation instructions for more detail.

H-Dirty Filter Switch S27

The dirty filter switch senses static pressure increase indicating a dirty filter condition. The switch is N.O. and closes at 1" W.C. (248.6 Pa) The switch is mounted in the filter section on the left unit mullion.

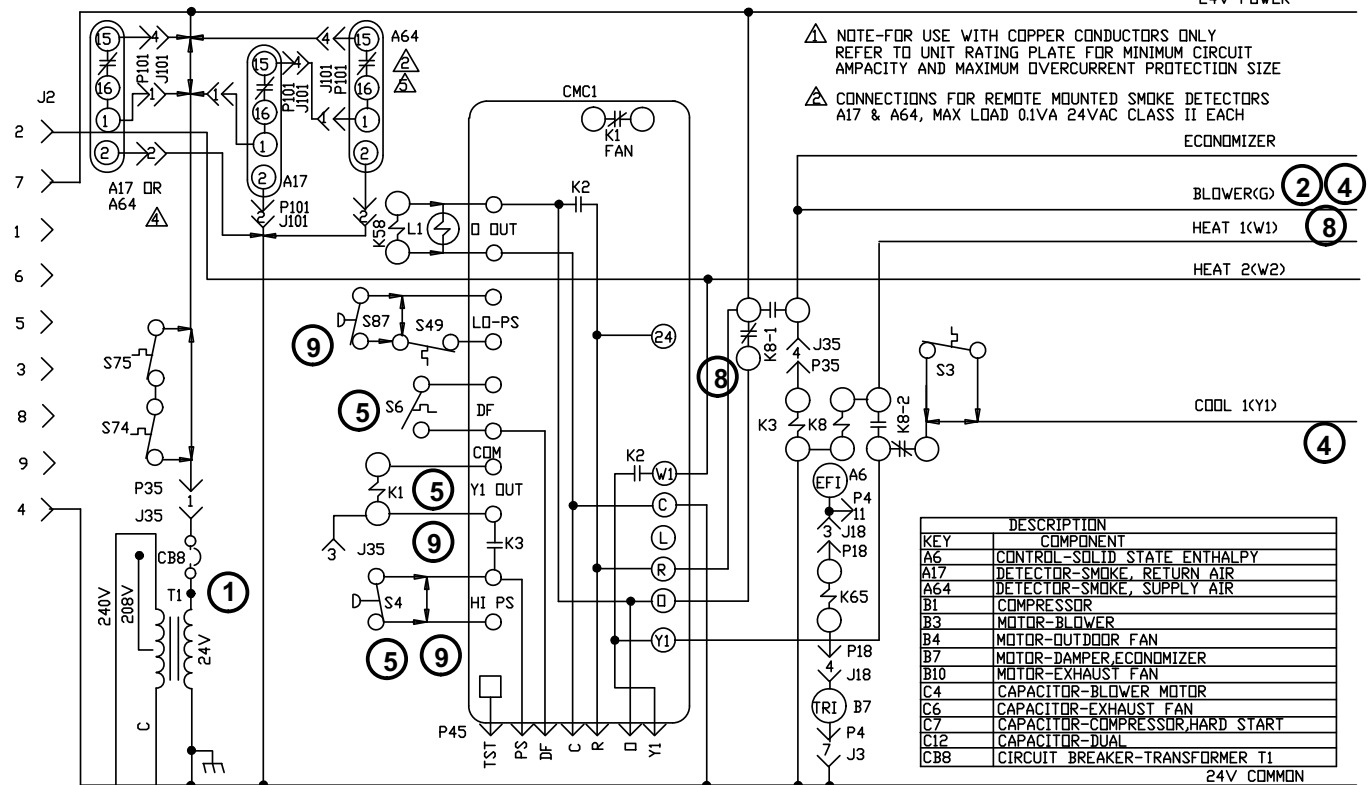
I-Indoor Air Quality (CO₂) Sensor A63

The indoor air quality sensor monitors CO₂ levels and reports the levels to the economizer enthalpy control A6. Controller A6 adjusts the economizer dampers according to the CO₂ levels. The sensor is mounted next to the indoor thermostat or in the return air duct. Refer to the indoor air quality sensor installation instructions for proper adjustment.

VII- WIRING DIAGRAMS / SEQUENCE OF OPERATION

THA024, 036, 048, 060 P Voltage

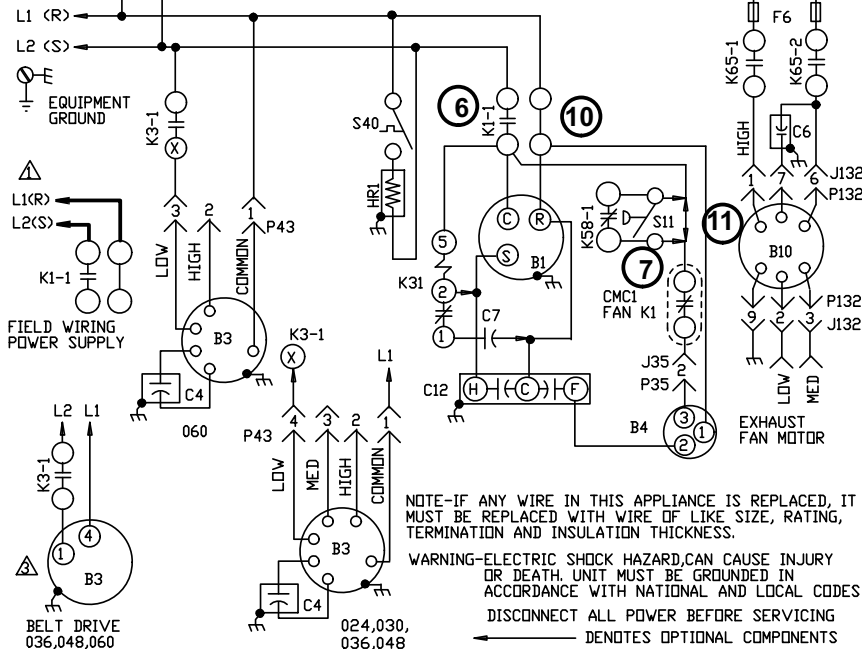
24V POWER



IMPORTANT: TO PREVENT MOTOR BURNOUT, NEVER
CONNECT MORE THAN ONE MOTOR LEAD TO ANY
ONE CONNECTION. TAPE UNUSED MOTOR LEADS

A17 ONLY OR A64 ONLY HOOKUP

A17 AND A64 HOOKUP

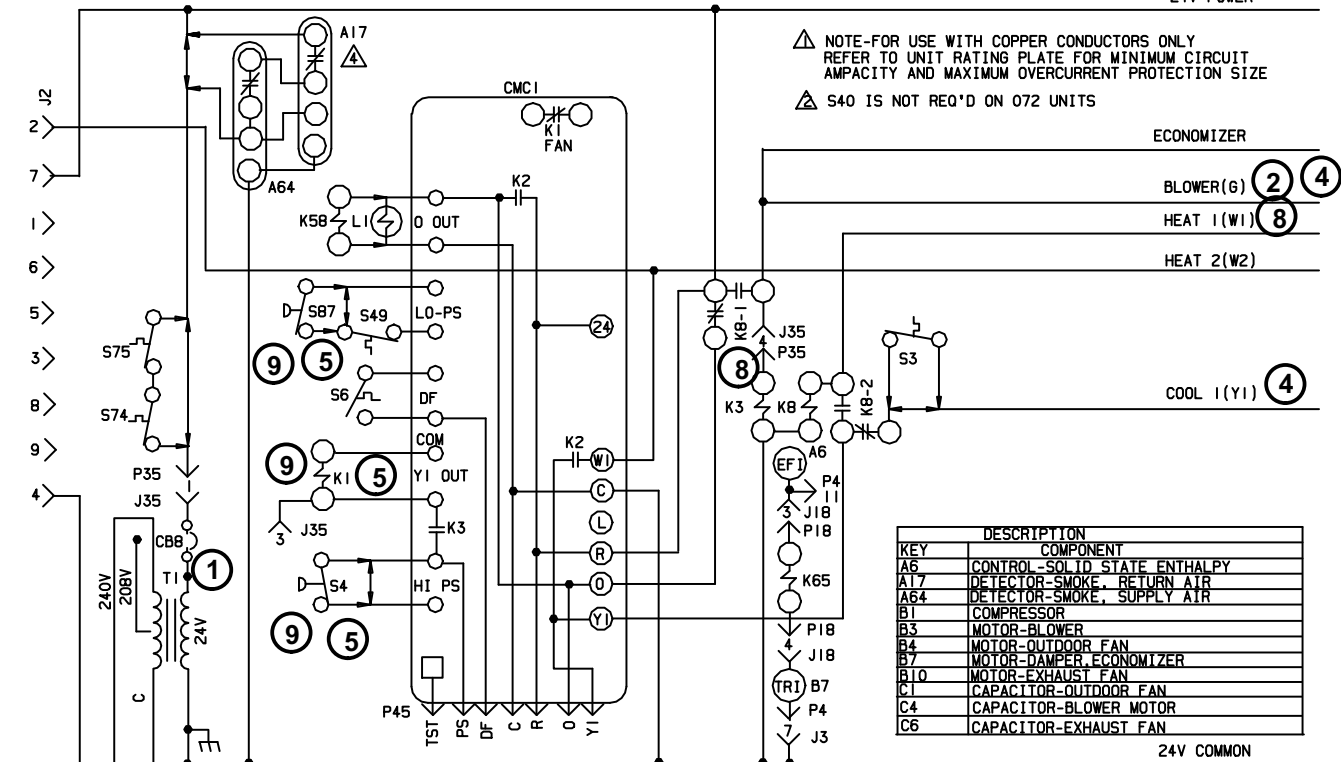


CMC1	TIMER-DEFROST, COMPRESSOR 1
F6	FUSE-EXHAUST FAN
HR1	HEATER COMPRESSOR
J2	JACK-HEAT
J3	JACK-UNIT ECONOMIZER
J18	JACK-EXHAUST FAN
J35	JACK-TEST
J132	JACK-BLOWER,EXHAUST FAN MOTOR
K1,-1	CONTACTOR-COMPRESSOR
K3,-1	CONTACTOR-BLOWER
K8,-1,2	RELAY-TRANSFER 1
K31	RELAY-HARD START KIT
K58,-1	RELAY-LOW AMBIENT KIT
K65,-1,2	RELAY-EXHAUST FAN
L1	VALVE-REVERSING
P4	PLUG-ECONOMIZER
P18	PLUG-EXHAUST FAN
P35	PLUG-TEST
P43	PLUG-BLOWER MOTOR
P45	PLUG-INPUT
P132	PLUG-BLOWER,EXHAUST FAN MOTOR
S3	SWITCH-LIMIT,LOW COMP 1 /COMPRESSOR MONITOR
S4	SWITCH-LIMIT,HI PRESS(MANUAL RESET)
S6	SWITCH-DEFROST, COMPRESSOR 1
S11	SWITCH-LOW PRESS,LOW AMB KIT
S40	THERMOSTAT-CRANKCASE
S49	SWITCH-FREEZESTAT
S74	SWITCH-FIRESTAT 1
S75	SWITCH-FIRESTAT 2
S87	SWITCH-LOW PRESS, COMPRESSOR 1
T1	TRANSFORMER-CONTROL

WIRING DIAGRAM 1/07	
COOLING UNITS-PACKAGED	
THA-024,030,036,048,060-1-P	
208-230/60/1	
COOLING SECTION B33	
Supersedes Form No.	New Form No.
	535,025W
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THA036, 048, 060, 072 Y Voltage

24V POWER



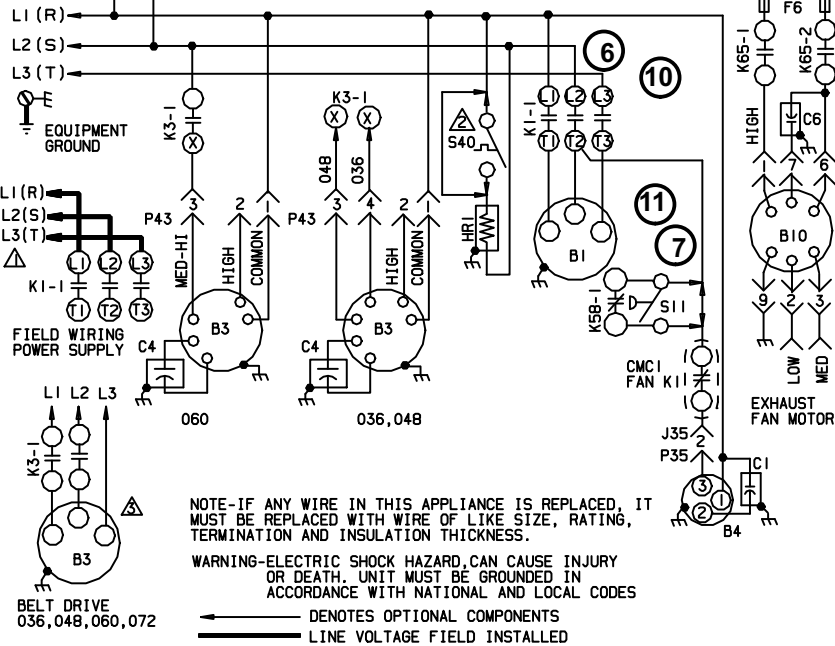
IMPORTANT: TO PREVENT MOTOR BURNOUT, NEVER
CONNECT MORE THAN ONE MOTOR LEAD TO ANY
ONE CONNECTION. TAPE UNUSED MOTOR LEADS

CONNECTIONS FOR REMOTE MOUNTED SMOKE DETECTORS
A17 & A64, MAX LOAD 0.1VA 24VAC CLASS II EACH

DISCONNECT ALL POWER BEFORE SERVICING

KEY	DESCRIPTION
A6	CONTROL-SOLID STATE ENTHALPY
A17	DETECTOR-SMOKE, RETURN AIR
A64	DETECTOR-SMOKE, SUPPLY AIR
B1	COMPRESSOR
B3	MOTOR-BLOWER
B4	MOTOR-OUTDOOR FAN
B7	MOTOR-DAMPER, ECONOMIZER
B10	MOTOR-EXHAUST FAN
C1	CAPACITOR-OUTDOOR FAN
C4	CAPACITOR-BLOWER MOTOR
C6	CAPACITOR-EXHAUST FAN

C88	CIRCUIT BREAKER-TRANSFORMER T1
CMC1	TIMER-DEFROST, COMPRESSOR 1
F6	FUSE-EXHAUST FAN
HRI	HEATER, COMPRESSOR
J2	JACK-HEAT
J3	JACK-UNIT ECONOMIZER
J18	JACK-EXHAUST FAN
J35	JACK-TEST
J132	JACK-BLOWER, EXHAUST FAN MOTOR
K1,-1	CONTACTOR-COMPRESSOR
K3,-1	CONTACTOR-BLOWER
K9,-1,2	RELAY-TRANSFER 1
K58,-1	RELAY-LOW AMBIENT KIT
K65,-1,2	RELAY-EXHAUST FAN
L1	VALVE-REVERSING
P4	PLUG-ECONOMIZER
P18	PLUG-EXHAUST FAN
P35	PLUG-TEST
P43	PLUG-BLOWER MOTOR
P45	PLUG-INPUT
P132	PLUG-BLOWER, EXHAUST FAN MOTOR
S3	SWITCH-LIMIT, LOW COMP 1
S4	SWITCH-LIMIT, HI PRESS (MANUAL RESET)
S6	SWITCH-DEFROST, COMPRESSOR 1
S11	SWITCH-LOW PRESS, LOW AMB KIT
S40	THERMOSTAT-CRANKCASE
S49	SWITCH-FREEZE/STAT
S74	SWITCH-FIRE/STAT 1
S75	SWITCH-FIRE/STAT 2
S87	SWITCH-LOW PRESS, COMPRESSOR 1
T1	TRANSFORMER-CONTROL

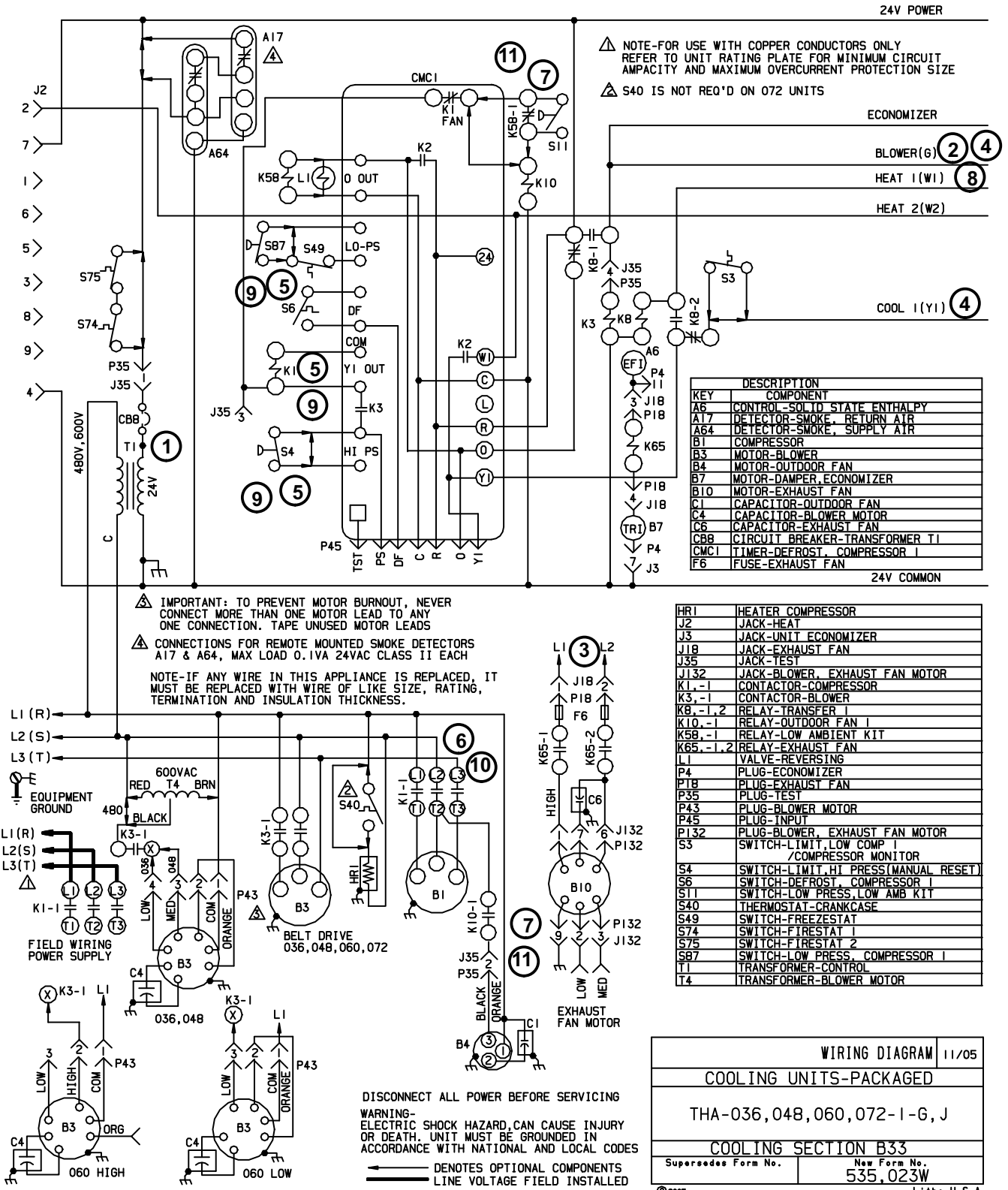


WIRING DIAGRAM 11/05	
COOLING UNITS-PACKAGED	
THA-036, 048, 060, 072-1-Y	
208-230/60/3	
COOLING SECTION B33	
Supersedes Form No.	New Form No.
	535,026W

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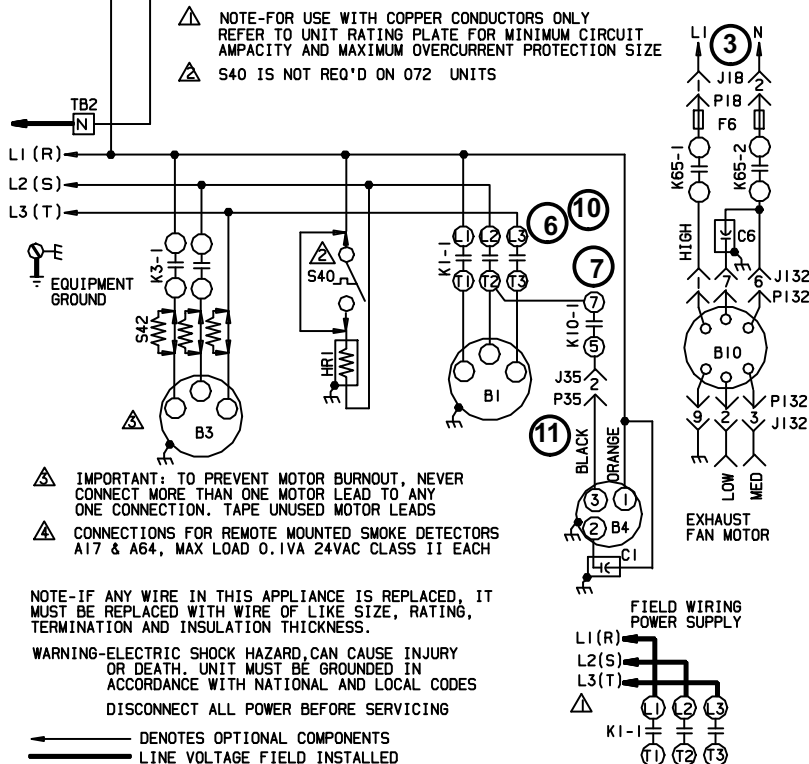
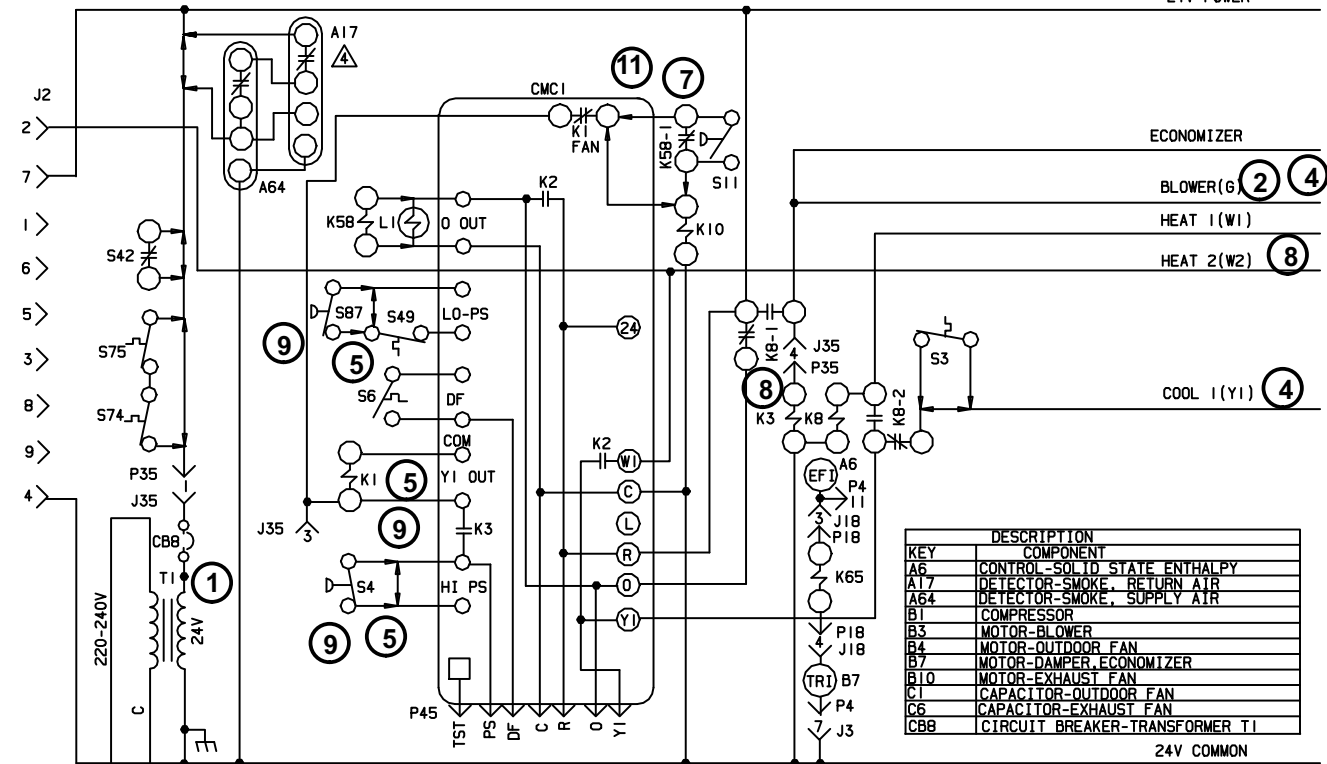
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THA036, 048, 060, 072 G, J Voltage



THA036, 048, 060, 072 M Voltage

24V POWER



CMC1	TIMER-DEFROST, COMPRESSOR 1
F6	FUSE-EXHAUST FAN
HR1	HEATER COMPRESSOR
J2	JACK-HEAT
J3	JACK-UNIT ECONOMIZER
J18	JACK-EXHAUST FAN
J35	JACK-TEST
J132	JACK-BLOWER, EXHAUST FAN MOTOR
K1-1	CONTACTOR-COMPRESSOR
K3-1	CONTACTOR-BLOWER
K8-1,2	RELAY-TRANSFER 1
K10-1	RELAY-OUTDOOR FAN 1
K58-1	RELAY-LOW AMBIENT KIT
K65-1,2	RELAY-EXHAUST FAN
L1	VALVE-REVERSING
P2	PLUG-HEAT
P4	PLUG-ECONOMIZER
P18	PLUG-EXHAUST FAN
P35	PLUG-TEST
P45	PLUG-INPUT
P132	PLUG-BLOWER, EXHAUST FAN MOTOR
S3	SWITCH-LIMIT LOW COMP 1
	/COMPRESSOR MONITOR
S4	SWITCH-LIMIT HI PRESS(MANUAL RESET)
S6	SWITCH-DEFROST, COMPRESSOR 1
S11	SWITCH-LOW PRESS, LOW AMB KIT
S40	THERMOSTAT-CRANKCASE
S42	SWITCH-OVERLOAD, RELAY, BLWR MTR
S49	SWITCH-FREEZE/STAT
S74	SWITCH-FIRE/STAT 1
S75	SWITCH-FIRE/STAT 2
S87	SWITCH-LOW PRESS, COMPRESSOR 1
T1	TRANSFORMER-CONTROL
TB2	TERMINAL STRIP-UNIT

WIRING DIAGRAM 11/05	
COOLING UNITS-PACKAGED	
THA-036, 048, 060, 072-1-M	
380-420/50/3	
COOLING SECTION B33	
Supersedes Form No.	New Form No.
	535,024W

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SEQUENCE OF OPERATION THA024/072

Power:

1. Line voltage from unit disconnect energizes transformer T1. T1 provides 24VAC power to terminal strip TB1 found in the control box. TB1 provides 24VAC to the unit cooling, heating and blower controls.

Blower Operation:

2. Indoor thermostat terminal "G" energizes contactor K3. K3 closes, energizing blower B3.

Economizer Operation:

3. The EXH (power exhaust set point) found on the face of A6, is factory set at approximate 50% of the dial range. Economizer control module A6 receives a demand and opens outside dampers 50%. Power exhaust fan relay K65 is energized 30 seconds after dampers are 50% open. K65-1 and K65-2 close, energizing power exhaust fan B10.

Cooling Demand

Cooling demand energizes Y1 and G in the thermostat. G energizes blower (see step 2.)

4. Indoor thermostat COOLING mode energizes reversing valve L1.
5. CMC1 proves N.C. freezestat S49 and optional N.C. high pressure switch S4 to energize compressor contactor K1.
6. K1 closes energizing compressor B1.
7. *P and Y Voltage*
Line voltage is routed through optional N.O. low ambient pressure switch S11 and optional low ambient kit K58 to energize outdoor fan B4.
G, J and M Voltage
24VAC passes through optional N.O. low pressure switch S11 and optional low ambient kit K58 to energize outdoor fan relay K10. N.O. contacts K10-1 close energizing outdoor fan B4.

First Stage Heat

NOTE: On heating demand after unit has been in cooling mode, indoor thermostat in HEATING mode will de-energize reversing valve L1.

8. Heating demand energizes W1 in the thermostat. Relay K8 is energized. N.C. K8-1 opens, de-energizing reversing valve L1.
9. CMC1 proves N.C. high pressure switches S4 and N.C. freezestats S49. Compressor contactor K1 is energized.
10. K1 closes energizing compressor B1.
11. *P and Y Voltage*

Line voltage from CMC1 is routed through optional N.C. low ambient switch S11 to energize outdoor fan B4.

G, J and M Voltage

24VAC passes through optional N.O. low pressure switch and optional low ambient switch K58 to energize outdoor fan relay K10. K10-1 closes energizing outdoor fan B4.

Second Stage Heat (electric heat):

12. Second stage heat demand energizes W2 in the thermostat.

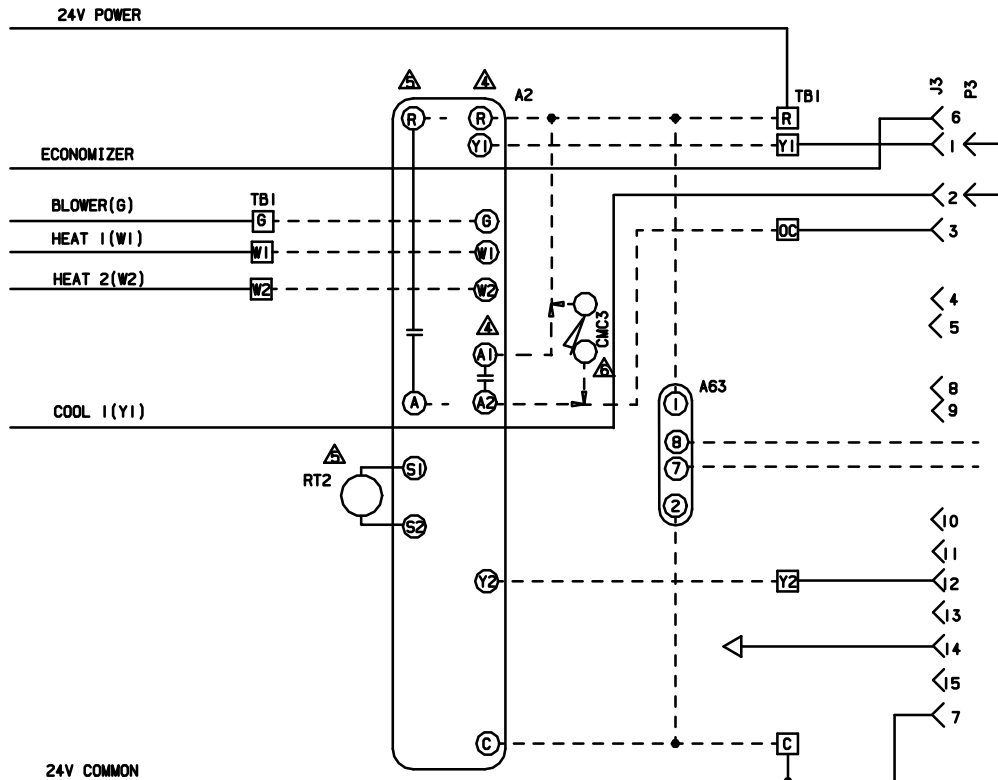
See sequence of operation for electric heat.

Defrost Mode:

DEFROST MODE:

13. When a defrost cycle is initiated, the control energizes the reversing valve solenoid and turns off the condenser fan. The control will also put 24VAC on the "W1" (auxiliary heat) line. The unit will stay in this mode until either the defrost thermostat (S6) temperature is above the termination temperature of 70°, the defrost time of 14 minutes has been completed, or the room thermostat demand cycle has been satisfied. If the room thermostat demand cycle terminates the cycle, the defrost cycle will be held until the next room thermostat demand cycle. If the defrost thermostat (S6) temperature is still below the termination temperature, the control will continue the defrost cycle until the cycle is terminated in one of the methods mentioned above.

ELECTRONIC OR ELECTROMECHANICAL THERMOSTAT



KEY	DESCRIPTION
A2	SENSOR-ELECTRONIC
A63	SENSOR-CO2
CMC3	CLOCK-TIME
J3	JACK-UNIT ECONOMIZER
P3	PLUG-LESS ECONOMIZER
RT2	SENSOR-REMOTE THERMOSTAT
TB1	TERMINAL STRIP-CLASS II VOLTAGE

- △ THERMOSTAT SUPPLIED BY USER
- △ REMOVE P3 WHEN ECONOMIZER IS USED
- △ J3 MAXIMUM LOAD 20VA 24VAC CLASS II
- △ T7300 THERMOSTAT
- △ T88220 TOUCHSCREEN THERMOSTAT
- △ TIME CLOCK CONTACTS (OPT) CLOSED OCCUPIED

————— DESIGNATES OPTIONAL WIRING
 - - - - - CLASS II FIELD WIRING

WIRING DIAGRAM 11/05	
ACCESSORIES	
ELECTRONIC OR ELECTROMECHANICAL THERMOSTAT "T" SERIES UNITS	
A BOX	
ECONOMIZER SECTION C1	
Supersedes Form No.	New Form No. 535,057W

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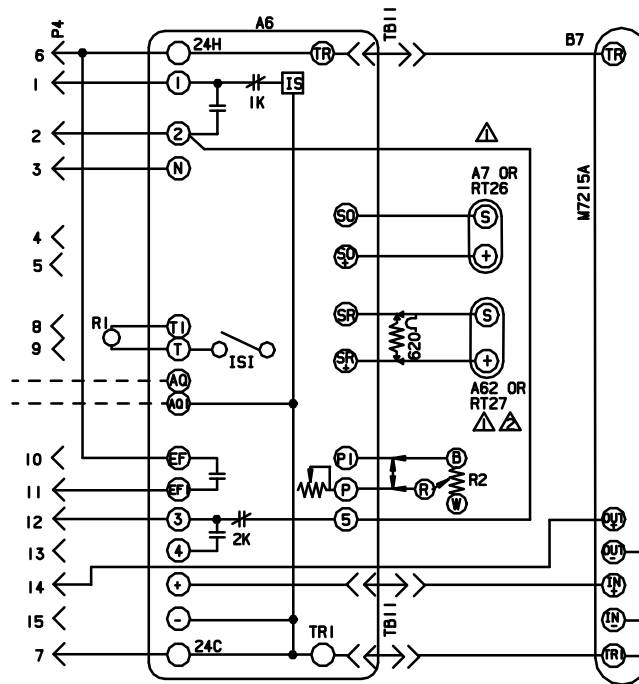
POWER:

- Terminal strip TB1 found in the main control box supplies thermostat components with 24VAC.

OPERATION:

- TB1 receives data from the electronic thermostat A2 (Y1, Y2, W1, W2, G) and energizes the appropriate components for heat or cool demand.

“T” SERIES ECONOMIZER



KEY	DESCRIPTION
A6	CONTROL-SOLID STATE ENTHALPY
A7	SENSOR-SOLID STATE ENTHALPY
A62	SENSOR-ENTHALPY, INDOOR
B7	MOTOR-DAMPER, ECONOMIZER
P4	PLUG-ECONOMIZER
R1	SENSOR-MIXED AIR OR SUPPLY AIR
R2	POT-MINIMUM POSITION
RT26	SENSOR-OUTDOOR AIR TEMP
RT27	SENSOR-INDOOR AIR TEMP
TB1	TERMINAL STRIP

- △ A62 ENTHALPY SENSOR OR RT27 USED FOR DIFFERENTIAL SENSING
- △ RT26 AND RT27, TEMPERATURE SENSORS MAY BE USED INSTEAD OF A7 AND A62 ENTHALPY SENSORS

— DESIGNATES OPTIONAL WIRING
 - - - CLASS II FIELD WIRING

WIRING DIAGRAM	11/05
ACCESSORIES	
ECONOMIZER FOR TCA/TGA UNITS	
A BOX	
ECONOMIZER SECTION D1	
Supersedes Form No.	New Form No.
	535,059W

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SEQUENCE OF OPERATION

POWER:

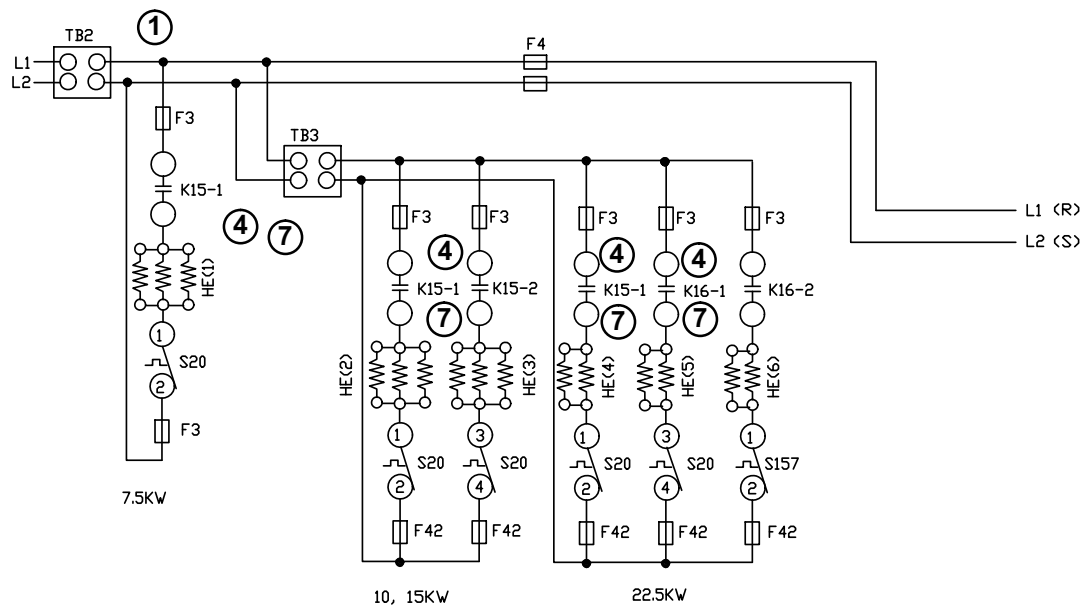
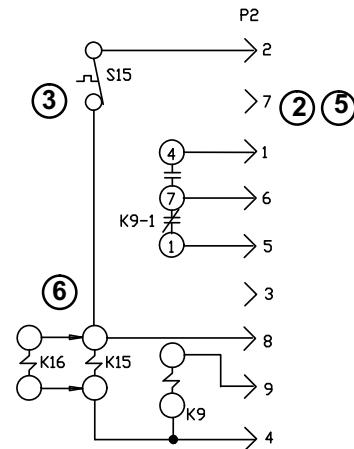
1. Terminal strip TB1 found in the main control box energizes the economizer components with 24VAC.

OPERATION:

2. Enthalpy sensor A7 and A62 (if differential enthalpy is used) communicates to the economizer control module A6 when to power the damper motor B7.
3. Economizer control module A6 supplies B7 with 0 - 10 VDC to control the positioning of economizer.
4. The damper actuator provides 2 to 10 VDC position feedback.

24V POWER

DESCRIPTION	
KEY	COMPONENT
F3	FUSE-ELECTRIC HEAT
F4	FUSE-UNIT
F42	FUSE-ELECTRIC HEAT 2
HE1	ELEMENT-ELECTRIC HEAT 1
HE2	ELEMENT-ELECTRIC HEAT 2
HE3	ELEMENT-ELECTRIC HEAT 3
HE4	ELEMENT-ELECTRIC HEAT 4
HE5	ELEMENT-ELECTRIC HEAT 5
HE6	ELEMENT-ELECTRIC HEAT 6
K9,-1	RELAY-HEAT
K15,-1,2	CONTACTOR-ELECTRIC HEAT 1
K16,-1,2	CONTACTOR-ELECTRIC HEAT 2
P2	PLUG-UNIT HEAT
S15	SWITCH-LIMIT,PRIMARY ELECT HT
S20	SWITCH-LIMIT,SECONDARY ELECT HT
S157	SWITCH-LIMIT,SECONDARY ELECT HT 2
TB2	TERMINAL STRIP-UNIT
TB3	TERMINAL STRIP-ELECTRIC HEAT,CIRC 1



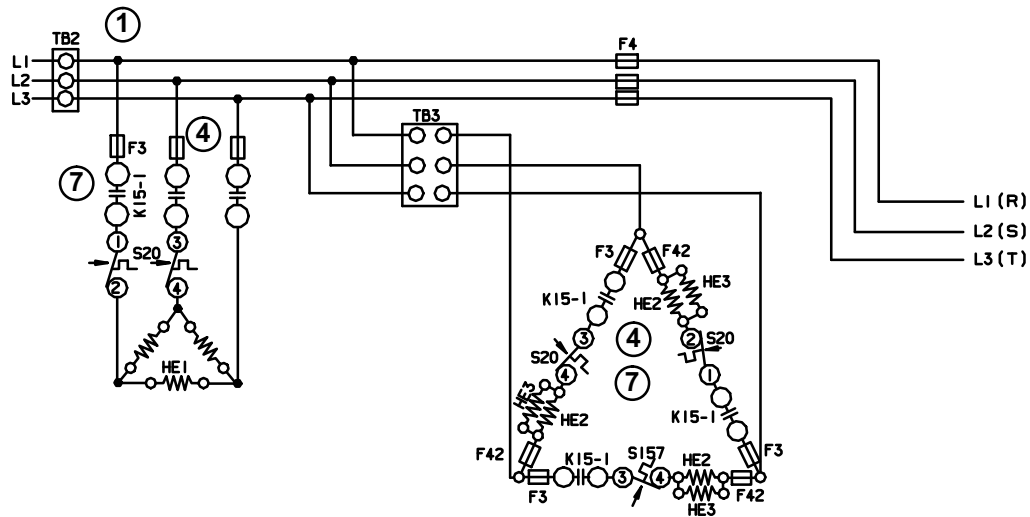
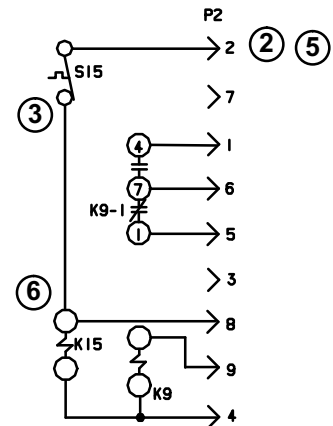
060	036 048	KW	HE1	HE2	HE3	HE4	HE5	HE6
		7.5	7.5	5	5			
		10		7.5	7.5			
		15				7.5	7.5	7.5
		22.5						

WIRING DIAGRAM		3/07
HEATING-ELECTRIC		
TIEH-7.5,10,15,22.5-P		
A BOX		
HEATING SECTION A3		
Supersedes Form No.	New Form No. 535,048W	
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T1EHA-7.5, 15, 22.5, 30kW Y VOLTAGE THA SERIES UNITS

24V POWER

KEY	DESCRIPTION
F3	FUSE-ELECTRIC HEAT
F4	FUSE-UNIT
F42	FUSE-ELECTRIC HEAT 2
HE1	ELEMENT-ELECTRIC HEAT 1
HE2	ELEMENT-ELECTRIC HEAT 2
HE3	ELEMENT-ELECTRIC HEAT 3
K9-1	RELAY-HEAT
K15-1	CONTACTOR-ELECTRIC HEAT 1
P2	PLUG-UNIT HEAT
S15	SWITCH-LIMIT, PRIMARY ELECT HT
S20	SWITCH-LIMIT, SECONDARY ELECT HT
S157	SWITCH-LIMIT, SECONDARY ELECT HT 2
TB2	TERMINAL STRIP-UNIT
TB3	TERMINAL STRIP-ELECTRIC HEAT, CIRC 1



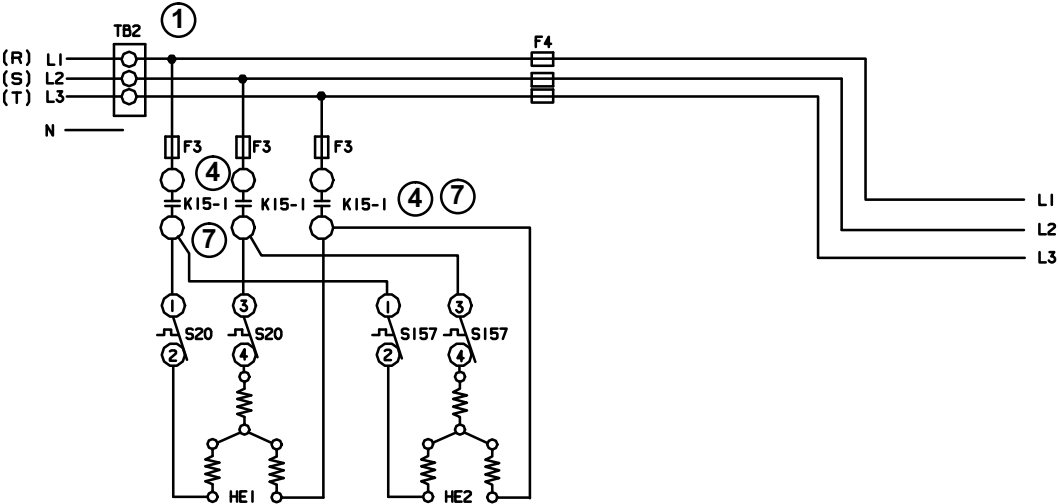
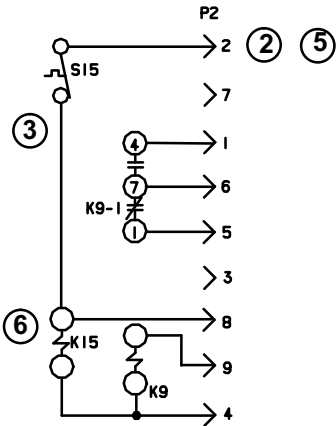
072	060	036	048
KW	HE1	HE2	HE3
7.5	7.5	15	7.5
15	15	15	15
22.5			
30			

WIRING DIAGRAM	9/05
HEATING-ELECTRIC	
T1EH-7.5, 15, 22.5, 30-Y	
HEATING SECTION A4	
Supersedes Form No.	New Form No.
	535,049W
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T1EHA-7.5, 15, 22.5, 30, 45 & 60kW G, J, M VOLTAGE THA SERIES UNITS

24V POWER

KEY	DESCRIPTION
F3	FUSE-ELECTRIC HEAT
F4	FUSE-UNIT
HE1	ELEMENT-ELECTRIC HEAT 1
HE2	ELEMENT-ELECTRIC HEAT 2
K9,-1	RELAY-HEAT
K15,-1	CONTACTOR-ELECTRIC HEAT 1
P2	PLUG-UNIT HEAT
S15	SWITCH-LIMIT,PRIMARY ELECT HT
S20	SWITCH-LIMIT,SECONDARY ELECT HT
S157	SWITCH-LIMIT,SECONDARY ELECT HT 2
TB2	TERMINAL STRIP-UNIT



072	060	036	048	KW	HE1	HE2
				7.5	7.5	
				15	15	
				22.5	15	7.5
				30	15	15

WIRING DIAGRAM		9/05
HEATING-ELECTRIC		
T1EH-7.5, 15, 22.5, 30-G, J, M		
A BOX		
HEATING SECTION A2		
Supersedes Form No.	New Form No.	
	535.047W	
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Sequence of Operation -T1EH 7.5, 10, 15, 22.5- P Voltage

HEATING ELEMENTS:

- 1 - Terminal Strip TB2 is energized when the unit disconnect closes. TB2 supplies line voltage to electric heat elements HE1 and TB3. TB3 supplies line voltage to HE2 through HE6. Elements are protected by fuses F3 and F42.

FIRST STAGE HEAT:

- 2 - Heating demand initiates at W1 in thermostat.
- 3 - 24VAC is routed from the indoor thermostat through N.C. primary limit S15. Electric heat contactor K15 and heat relay K9 are energized. K9 energizes blower contactor K3 and economizer.
- 4 - *7.5kW units* - N.O. contacts K15-1 close energizing HE1.
10kW 15kW units - K15-1 and K15-2 close energizing HE2 and HE3.
22.5kW units - K15-1, K16-1 and K16-2 close energizing HE4, HE5 and HE6.

END OF FIRST STAGE HEAT:

- 5 - Heating demand is satisfied. Terminal W1 in the thermostat is de-energized.
- 6 - Electric heat contactor K15 is de-energized.
- 7 - *7.5kW units* - N.O. contacts K15-1 open de-energizing HE1.
15kW units - K15-1 and K15-2 open de-energizing HE2 and HE3.
22.5kW units - K15-1, K16-1 and K16-2 open de-energizing HE4, HE5 and HE6.

Sequence of Operation -T1EH 7.5, 15, 22.5, 30 kW - Y, G, J and M Voltage

HEATING ELEMENTS:

- 1 - Terminal Strip TB2 is energized when the unit disconnect closes. TB2 supplies line voltage to electric heat elements HE1 and TB3. TB3 supplies line voltage to HE2 and HE3. Elements are protected by fuses F3 and or F42.

FIRST STAGE HEAT:

- 2 - Heating demand initiates at W1 in thermostat.
- 3 - 24VAC is routed from the indoor thermostat through N.C. primary limit S15. Electric heat contactor K15 and heat relay K9 are energized. Heat relay K9 energizes blower contactor K3 and economizer.
- 4 - *7.5kW and 15kW units* - N.O. contacts K15-1 close energizing HE1.
22.5kW and 30kW units - N.O. contacts K15-1 close energizing HE2 and HE3.

END OF FIRST STAGE HEAT:

- 5 - Heating demand is satisfied. Terminal W1 in the thermostat is de-energized.
- 6 - Electric heat contactor K15 is de-energized.
- 7 - *7.5kW and 15kW units* - N.O. contacts K15-1 open de-energizing HE1.
22.5kW and 30kW units - N.O. contacts K15-1 open de-energizing HE2 and HE3.