KCB024 through 090

The KCB packaged electric cooling units are available in standard cooling efficiency (024S, 030S, 036S, 048S, 060S. 072S, 074S and 090S). Cooling capacities range from 24,000 to 90,000 Btuh.

Optional electric heat is factory or field installed in KCB units. Electric heat operates in single stage depending on the kW input size. 7.5kW through 30 kW heat sections are available for the KCB unit.

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 equivalent), service agency or the gas supplier.

⚠CAUTION

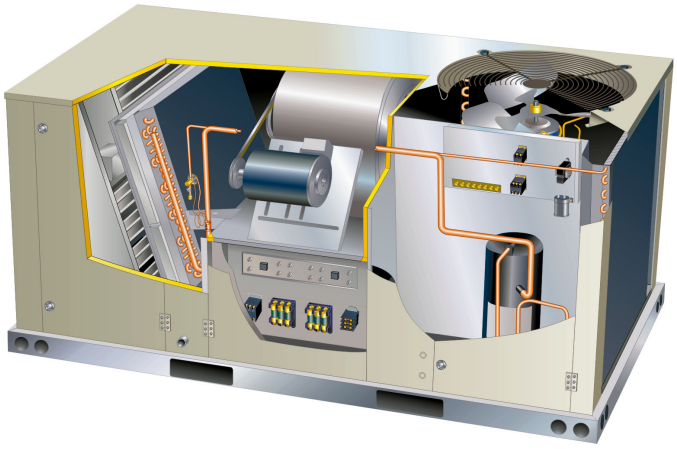
As with any mechanical equipment, contact with sharp sheet metal edges can result in personal injury. Take care while handling this equipment and wear gloves and protective clothing.

⚠IMPORTANT

The Clean Air Act of 1990 bans the intentional venting of refrigerant (CFC's and HCFC's) as of July 1, 1992. Approved methods of recovery, recycling or reclaiming must be followed. Fines and/or incarceration may be levied for non-compliance.

⚠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 furnace, the control and the technician at the same electrostatic potential. Neutralize electrostatic charge by touching hand and all tools on an unpainted unit surface, such as the gas valve or blower deck, before performing any service procedure.

Table of Contents

OPTIONS / ACCESSORIES

Item	Model No.	Catalog No.	Unit Model No. KCB 024	KCB 030	KCB 036	KCB 048	KCB 060	KCB 072	KCB 074	KCB 090
COOLING SYSTEM										
Condensate Drain Trap	PVC - C1TRAP20AD2	**76W26**	X	X	X	X	X	X	X	X
	Copper - C1TRAP10AD2	**76W27**	X	X	X	X	X	X	X	X
Conventional Fin/Tube Condenser Coil (replaces Environ™ Coil System)		Factory	O	O	O	O	O		[1] O	O
Drain Pan Overflow Switch	K1SNSR71AB1-	**74W42**	X	X	X	X	X	X	X	X
Low Ambient Kit	K1SNSR33AN2	**14D89**	X	X	X	X	X	X	X	X
Efficiency		High						O	O	O
		Standard	O	O	O	O	O		O	O
Refrigerant Type		R-410A	O	O	O	O	O	O	O	O
BLOWER - SUPPLY AIR										
Motors	Direct Drive - 0.25 hp (208/230V-1ph)	Factory	O	O						
	Direct Drive - 0.5 hp (208/230V-1ph, 208/230V-3ph, 460V-3ph, 575V-3ph)	Factory			O	O				
	Direct Drive - 0.75 hp (208/230V-1ph, 208/230V-3ph, 460V-3ph, 575V-3ph)	Factory					O			
	Belt Drive - 0.75 hp (208/230V-1ph) Standard Efficiency	Factory			O	O	O			
	Belt Drive - 1.5 hp (208/230V-1ph) Standard Efficiency	Factory			O	O	O			
	Belt Drive - 1 hp (208/230V, 460V, 575V-3ph) Standard Efficiency	Factory			O	O	O	O	[4] O	[5] O
	Belt Drive - 2 hp (208/230V, 460V, 575V-3ph) Standard Efficiency	Factory			O	O	O	O	[4] O	[5] O
	Belt Drive - 3 hp (208/230V, 460V, 575V-3ph) Standard Efficiency	Factory								[5] O
	Belt Drive - 1 hp (208/230V, 460V, 575V-3ph) (2 Speed)	Factory							[4] O	
	Belt Drive - 2 hp (208/230V, 460V, 575V-3ph) (2 Speed)	Factory							[4] O	[6] O
Drive Kits See Blower Data Tables for selection	Kit A01 - T1DRKT001-1 - 673-1010 rpm	Factory			O					
	Kit A02 - T1DRKT002-1 - 745-1117 rpm	Factory				O				
	Kit A03 - T1DRKT003-1 - 833-1250 rpm	Factory					O			
	Kit A04 - T1DRKT004-1 - 968-1340 rpm	Factory							[1] O	
	Kit A05 - T1DRKT005-1 - 897-1346 rpm	Factory			O					
	Kit A06 - T1DRKT006-1 - 1071-1429 rpm	Factory				O				
	Kit A07 - T1DRKT007-1 - 1212-1548 rpm	Factory					O			
	Kit A08 - T1DRKT008-1 - 1193-1591 rpm	Factory							[2] O	
	Kit AA01 - T1DRKT001AP1 - 522-784 rpm	Factory						O	[3] O	O
	Kit AA02 - T1DRKT002AP1 - 632-875 rpm	Factory						O	[3] O	O
	Kit AA03 - T1DRKT003AP1 - 798-1105 rpm	Factory						O	[3] O	O
	Kit AA04 - T1DRKT004AP1 - 921-1228 rpm	Factory								[7] O
CABINET										
Combination Coil/Hail Guards	C1GARD51A-1	**13R98**	X	X	X	X				
	C1GARD51AT1	**13T03**					X	X	X	
	K1GARD50AP1	**13T17**								X
Corrosion Protection			O	O	O	O	O	O	O	O
Hinged Access Panels			O	O	O	O	O	O	O	O
CONTROLS										
NOTE - Also see Conventional Thermostat Control Systems on page <?> for Additional Options.										
Smoke Detector - Supply or Return (Power board and one sensor)	C1SNSR44AP1	**53W78**	X	X	X	X	X	X	X	X
Smoke Detector - Supply and Return (Power board and two sensors)	C1SNSR43AP1	**53W79**	X	X	X	X	X	X	X	X
L Connection® Building Automation System		- - -	X	X	X	X	X	X	X	X

[1] 074S models only.
[2] 074S Belt Drive models only.
[3] 074H Belt Drive models only.
[4] KCB074B models have an optional 1hp or 2hp **Single Speed** Belt Drive; KCB074T models have an optional 1hp or 2hp **Two Speed** Belt Drive
[5] KCB090B models have an optional 1hp, 2hp or 3hp Single Speed Belt Drive
[6] KCB090T models have 2hp Two Speed Belt Drive
[7] KCB090B with 3 hp blower motor only.

NOTE - The catalog and model numbers that appear here are for ordering field installed accessories only.
OX - Field Installed or Configure to Order (factory installed)
O - Configure to Order (Factory Installed)
X - Field Installed

OPTIONS / ACCESSORIES

Item	Model No.	Catalog No.	Unit Model No. KCB 024	KCB 030	KCB 036	KCB 048	KCB 060	KCB 072	KCB 074	KCB 090
ECONOMIZER										
Standard Economizer With Outdoor Air Hood (Sensible Control) (Not for Title 24)										
Standard Economizer - Includes Barometric Relief Dampers and Combination Hood	K1ECON30A-3-	**14D90**	OX	OX	OX	OX	OX	OX	OX	OX
Standard Economizer - No Exhaust		Factory	O	O	O	O	O	O	O	O
Standard Economizer Controls (Not for Title 24)										
Single Enthalpy Control	C1SNSR64FF1	**53W64**	OX	OX	OX	OX	OX	OX	OX	OX
Differential Enthalpy Control (order 2)	C1SNSR64FF1	**53W64**	X	X	X	X	X	X	X	X
High Performance Economizer With Outdoor Air Hood (Sensible Control) (Approved for California Title 24 Building Standards / AMCA Class 1A Certified)										
High Performance Economizer - Includes Barometric Relief Dampers and Combination Hood	K1ECON32A-5	**23G22**	OX	OX	OX	OX	OX	OX	OX	OX
High Performance Economizer Controls (Not for Title 24)										
Single Enthalpy Control	C1SNSR65FF1	**23G26**	OX	OX	OX	OX	OX	OX	OX	OX
Differential Enthalpy Control (order 2)	C1SNSR65FF1	**23G26**	X	X	X	X	X	X	X	X
Economizer Accessories										
Horizontal Economizer Conversion Kit	T1HECK00AN1	**17W45**	X	X	X	X	X	X	X	X
POWER EXHAUST FAN										
Standard Static *NOTE - Field installed Power Exhaust Fan requires "Barometric Relief Dampers for Power Exhaust Kit" for field installation. See below.*	208/230V-1 or 3ph - C1PWRE10A-1P	**79W87**			X	X	X	X	X	X
	460V-3ph - C1PWRE10A-1G	**79W88**			X	X	X	X	X	X
	575V-3ph - C1PWRE10A-1J	**79W89**			X	X	X	X	X	X
BAROMETRIC RELIEF										
[1] Barometric Relief Dampers for Power Exhaust Kit	C1DAMP50A-3-	**19D42**			X	X	X	X	X	X
[2] Horizontal Barometric Relief Dampers With Exhaust Hood	LAGEDH03/15-2	**19F01**	X	X	X	X	X	X	X	X
OUTDOOR AIR										
Outdoor Air Dampers With Outdoor Air Hood										
Motorized	C1DAMP21A-1	**15D17**	OX	OX	OX	OX	OX	OX	OX	OX
Manual	C1DAMP11A-2	**15D18**	OX	OX	OX	OX	OX	OX	OX	OX
HUMIDITROL® CONDENSER REHEAT OPTION										
Humiditrol Dehumidification Option		Factory	O	O	O	O	O		[4] O	O
[3] Dehumidistat, Remote Mounted	C0SNSR30FF1L	**99N41**	X	X	X	X	X		[4] X	X
ELECTRICAL										
Voltage 60 hz	208/230V - 1 phase		O	O	O	O	O			
	208/230V - 3 phase				O	O	O	O	O	O
	460V - 3 phase				O	O	O	O	O	O
	575V - 3 phase				O	O	O	O	O	O
Disconnect	See Electrical/Electric Heat Tables for selection		OX	OX	OX	OX	OX	OX	OX	OX
GFI Service Outlets	15 amp non-powered, field-wired (208/230V, 460V only)	**74M70** LTAGFIK10/15	OX	OX	OX	OX	OX	OX	OX	OX
	20 amp non-powered, field-wired (575V only) C1GFCI20FF1	**67E01**	X	X	X	X	X	X	X	X
Weatherproof Cover for GFI	C1GFCI99FF1	**10C89**	X	X	X	X	X	X	X	X

[1] Required when Economizer is factory installed with field installed Power Exhaust Fan option.
[2] Required when Economizer is configured for horizontal airflow.
[3] A thermostat with a dehumidification output or a DDC controller with an isolated output can be used instead.
[4] 074S models only.

NOTE - The catalog and model numbers that appear here are for ordering field installed accessories only.
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OPTIONS / ACCESSORIES

Item	Model No.	Catalog No.	Unit Model No. KCB 024	KCB 030	KCB 036	KCB 048	KCB 060	KCB 072	KCB 074	KCB 090
ELECTRIC HEAT										
5 kW	208/230V- 1ph - K1EH0050A-1P	**12F06**	X	X						
7.5 kW	208/230V-1ph - T1EH0075AN1P	**14W32**	X	X	X	X	X			
	208/230V-3ph - T1EH0075AN1Y	**14W35**			X	X	X	X	X	X
	460V-3ph - T1EH0075AN1G	**14W39**			X	X	X	X	X	X
	575V-3ph - T1EH0075AN1J	**14W43**			X	X	X	X	X	X
10 kW	208/230V-1ph - T1EH0100A1P	**30W26**	X	X						
15 kW	208/230V-1ph - T1EH0150AN1P	**14W33**			X	X	X			
	208/230V-3ph - T1EH0150AN1Y	**14W36**			X	X	X	X	X	X
	460V-3ph - T1EH0150AN1G	**14W40**			X	X	X	X	X	X
	575V-3ph - T1EH0150AN1J	**14W44**			X	X	X	X	X	X
22.5 kW	208/230V-1ph - T1EH0225AN1P	**14W34**					X			
	208/230V-3ph - T1EH0225AN1Y	**14W37**					X	X	X	X
	460V-3ph - T1EH0225AN1G	**14W41**					X	X	X	X
	575V-3ph - T1EH0225AN1J	**14W45**					X	X	X	X
30 kW	208/230V-3ph - T1EH0300N-1Y	**14W38**						X	X	X
	460V-3ph - T1EH0300N-1G	**14W42**						X	X	X
	575V-3ph - T1EH0300N-1J	**14W46**						X	X	X
INDOOR AIR QUALITY										
Air Filters										
Healthy Climate® High Efficiency Air Filters Order 4 per unit	MERV 8 (16 x 20 x 2) - C1FLTR15A-1-	**54W20**	X	X	X	X				
	MERV 13 (16 x 20 x 2) - T1FLTR40A-1-	**52W37**	X	X	X	X				
	MERV 8 (20 x 20 x 2) - C1FLTR15D-1-	**54W21**					X	X	X	X
	MERV 13 (20 x 20 x 2) - C1FLTR40D-1-	**52W39**					X	X	X	X
Indoor Air Quality (Co_2) Sensors										
Sensor - Wall-mount, off-white plastic cover with LCD display	C0SNSR50AE1L	**77N39**	X	X	X	X	X	X	X	X
Sensor - Wall-mount, black plastic case, no display, rated for plenum mounting	C0SNSR53AE1L	**87N54**	X	X	X	X	X	X	X	X
CO_2 Sensor Duct Mounting Kit - for downflow applications	C0MISC19AE1-	**85L43**	X	X	X	X	X	X	X	X
Aspiration Box - for duct mounting non-plenum rated CO_2 sensor (**77N39**)	C0MISC16AE1-	**90N43**	X	X	X	X	X	X	X	X
UVC Germicidal Lamps										
[1] Healthy Climate® UVC Light Kit (208/230v-1ph)	E1UVCL10AN1-	**50W90**	X	X	X	X	X	X	X	X
CEILING DIFFUSERS										
Step-Down - Order one	RTD9-65S	**13K60**	X	X	X	X	X			
	RTD11-95S	**13K61**						X	X	X
Flush - Order one	FD9-65S	**13K55**	X	X	X	X	X			
	FD11-95S	**13K56**						X	X	X
Transitions (Supply and Return) - Order one	T1TRAN10AN1	**17W53**	X	X	X	X	X			
	T1TRAN20N-1	**17W54**						X	X	X

[1] Lamps operate on 110-230V single-phase power supply. Step-down transformer may be ordered separately for 460V and 575V units. Alternately, 110V power supply may be used to directly power the UVC ballast(s).

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

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

O - Configure to Order (Factory Installed)

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OPTIONS / ACCESSORIES

Item	Model No.	Catalog No.	Unit Model No. KCB 024	KCB 030	KCB 036	KCB 048	KCB 060	KCB 072	KCB 074	KCB 090
ROOF CURBS										
Hybrid Roof Curbs, Downflow										
8 in. height	C1CURB70A-1	**11F50**	X	X	X	X	X	X	X	[1] X
14 in. height	C1CURB71A-1	**11F51**	X	X	X	X	X	X	X	[1] X
18 in. height	C1CURB72A-1	**11F52**	X	X	X	X	X	X	X	[1] X
24 in. height	C1CURB73A-1	**11F53**	X	X	X	X	X	X	X	[1] X
Hybrid Roof Curbs, Full Perimeter, Downflow										
8 in. height	K1CURB70AP1	**11S47**								X
14 in. height	K1CURB71AP1	**11S48**								X
18 in. height	K1CURB72AP1	**11T01**								X
24 in. height	K1CURB73AP1	**11T06**								X
Adjustable Pitch Curb										
14 in. height	C1CURB55AT1	**43W27**	X	X	X	X	X	X	X	X

[1] 090 models will fit smaller roof curbs with overhang. See dimension drawing.

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

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

O - Configure to Order (Factory Installed)

X - Field Installed

SPECIFICATIONS - DIRECT DRIVE BLOWER — 2 TON | 2.5 TON

General Data		2 Ton	2.5 Ton
	Model No.	**KCB024S4D**	**KCB030S4D**
	Efficiency Type	**Standard**	**Standard**
	Blower Type	Multi-Speed Direct Drive	Multi-Speed Direct Drive
Cooling Performance	Gross Cooling Capacity - Btuh	24,600	31,000
	[1] Net Cooling Capacity - Btuh	24,000	30,000
	AHRI Rated Air Flow - cfm	810	1,000
	[2] Sound Rating Number (SRN) ((dBA)	74	74
	Total Unit Power - kW	1.9	2.4
	[1] SEER (Btuh/Watt)	14.0	14.0
	[1] EER (Btuh/Watt)	12.5	11.5
Refrigerant Charge	Refrigerant Type	R-410A	R-410A
	Environ™ Coil System	4 lbs. 1 oz.	5 lbs. 5 oz.
	Conventional Fin/Tube Coil	10 lbs. 0 oz.	10 lbs. 8 oz.
	Conventional Fin/Tube With Humiditrol® Dehumidification Option	9 lbs. 15 oz.	10 lbs. 7 oz.
Electric Heat Available		5, 7.5, 10 kW	5, 7.5, 10 kW
Compressor Type (one per unit)		Scroll	Scroll
Outdoor Coil Environ™ (Fin/Tube)	Net face area - sq. ft.	11.7 (15.6)	11.7 (15.6)
	Number of rows	1 (2)	1 (2)
	Fins per inch	23 (20)	23 (20)
Outdoor Coil Fan	Motor - (No.) HP	(1) 1/4	(1) 1/4
	Motor rpm	825	825
	Total Motor Input - watts	335	335
	Diameter - (No.) in. / No. of blades	(1) 24 - 4	(1) 24 - 4
	Total air volume - cfm	3700	3700
Indoor Coil	Net face area - sq. ft.	7.8	7.8
	Tube diameter - in.	3/8	3/8
	Number of rows	2	3
	Fins per inch	14	14
	Drain Connection (no.) and size - in.	(1) 1 NPT	(1) 1 NPT
	Expansion device type	Balanced Port Thermostatic Expansion Valve, removable power head	
Indoor Blower	Nominal Motor HP	0.25 hp	0.25 hp
	Wheel nominal diameter x width - in.	(1) 10 x 10	(1) 10 x 10
Filters	Type	Disposable	
	Number and size - in.	(4) 16 x 20 x 2	
Electrical Characteristics - 60 Hz		208/230V 1 phase	208/230V 1 phase

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

[1] AHRI Certified to AHRI Standard 210/240: 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator air; minimum external duct static pressure.

[2] Sound Rating Number (SRN) rated in accordance with test conditions included in ARI Standard 270-95.

SPECIFICATIONS - DIRECT DRIVE BLOWER — 3 TON | 5 TON

General Data	Nominal Tonnage	3 Ton	4 Ton	5 Ton
	Model No.	**KCB036S4D**	**KCB048S4D**	**KCB060S4D**
	Efficiency Type	**Standard**	**Standard**	**Standard**
	Blower Type	Multi-Speed Direct Drive	Multi-Speed Direct Drive	Multi-Speed Direct Drive
Cooling Performance	Gross Cooling Capacity - Btuh	37,300	49,700	60,900
	[1] Net Cooling Capacity - Btuh	36,000	47,500	58,500
	AHRI Rated Air Flow - cfm	1150	1560	1760
	[2] Sound Rating Number (SRN)((dBA)	74	74	83
	Total Unit Power - kW	2.9	4.1	5.0
	[1] SEER (Btuh/Watt)	14.0	14.0	14.0
	[1] EER (Btuh/Watt)	12.3	11.5	11.0
Refrigerant Charge	Refrigerant Type	R-410A	R-410A	R-410A
	Environ™ Coil System	5 lbs. 9 oz.	5 lbs. 10 oz.	8 lbs. 0 oz.
	Conventional Fin/Tube Coil	11 lbs. 3 oz.	9 lbs. 13 oz.	14 lbs. 3 oz.
	Conventional Fin/Tube With Humiditrol® Dehumidification Option	12 lbs. 7 oz.	9 lbs. 13 oz.	15 lbs. 3 oz.
Electric Heat Available		7.5, 15 kW	7.5, 15 kW	7.5, 15, 22.5 kW
Compressor Type (one per unit)		Scroll	Scroll	Scroll
Outdoor Coil Environ™ (Fin/Tube)	Net face area - sq. ft.	14.5 (15.6)	14.5 (15.6)	17.8 (19.3)
	Number of rows	1 (2)	1 (2)	1 (2)
	Fins per inch	23 (20)	23 (20)	23 (20)
Outdoor Coil Fan	Motor - (No.) HP	(1) 1/4	(1) 1/4	(1) 1/3
	Motor rpm	825	825	1075
	Total Motor Input - watts	325	325	375
	Diameter - (No.) in. / No. of blades	(1) 24 - 4	(1) 24 - 4	(1) 24 - 3
	Total air volume - cfm	3950	3950	4700
Indoor Coil	Net face area - sq. ft.	7.8	7.8	9.7
	Tube diameter - in.	3/8	3/8	3/8
	Number of rows	3	3	4
	Fins per inch	14	14	14
	Drain Connection (no.) and size - in.	(1) 1 NPT	(1) 1 NPT	(1) 1 NPT
	Expansion device type	Balanced Port Thermostatic Expansion Valve, removable power head		
Indoor Blower	Nominal Motor HP	0.5 hp	0.5 hp	0.75 hp
	Wheel nominal diameter x width - in.	(1) 10 x 10	(1) 10 x 10	(1) 11 x 10
Filters	Type	Disposable		
	Number and size - in.	(4) 16 x 20 x 2		(4) 20 x 20 x 2
Electrical Characteristics - 60 Hz		208/230V 1 phase 208/230V, 460V & 575V 3 phase	208/230V 1 phase 208/230V, 460V & 575V 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] AHRI Certified to AHRI Standard 210/240: 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator air; minimum external duct static pressure.

[2] Sound Rating Number (SRN) rated in accordance with test conditions included in ARI Standard 270-95.

SPECIFICATIONS - BELT DRIVE BLOWER — SINGLE SPEED - 3 TON | 5 TON

			3 Ton	4 Ton	5 Ton
General Data		**Nominal Tonnage**	**3 Ton**	**4 Ton**	**5 Ton**
		Model No.	**KCB036S4B**	**KCB048S4B**	**KCB060S4B**
		Efficiency Type	**Standard**	**Standard**	**Standard**
		Blower Type	Single Speed Belt Drive	Single Speed Belt Drive	Single Speed Belt Drive
Cooling Performance		Gross Cooling Capacity - Btuh	37,300	49,700	60,900
		[1] Net Cooling Capacity - Btuh	36,000	47,500	58,500
		AHRI Rated Air Flow - cfm	1150	1560	1760
		[2] Sound Rating Number (SRN) (dBA)	74	74	83
		Total Unit Power - kW	2.9	4.1	5
		[1] SEER (Btuh/Watt)	14.0	14.0	14.0
		[1] EER (Btuh/Watt)	12.3	11.5	11.0
Refrigerant Charge		Refrigerant Type	R-410A	R-410A	R-410A
		Environ™ Coil System	5 lbs. 9 oz.	5 lbs. 10 oz.	8 lbs. 0 oz.
		Conventional Fin/Tube Coil	11 lbs. 3 oz.	9 lbs. 13 oz.	14 lbs. 3 oz.
		Conventional Fin/Tube With Humiditrol® Dehumidification Option	12 lbs. 7 oz.	9 lbs. 13 oz.	15 lbs. 3 oz.
Electric Heat Available			7.5, 15 kW	7.5, 15 kW	7.5, 15, 22.5 kW
Compressor Type (one per unit)			Scroll	Scroll	Scroll
Outdoor Coil Environ™ (Fin/Tube)		Net face area - sq. ft.	14.5 (15.6)	14.5 (15.6)	17.8 (19.3)
		Number of rows	1 (2)	1 (2)	1 (2)
		Fins / inch	23 (20)	23 (20)	23 (20)
Outdoor Coil Fan		Motor - (No.) HP	(1) 1/4	(1) 1/4	(1) 1/3
		Motor rpm	825	825	1075
		Total Motor Input - watts	325	325	375
		Diameter - (No.) in. / No. of blades	(1) 24 - 4	(1) 24 - 4	(1) 24 - 4
		Total air volume - cfm	3950	3950	4700
Indoor Coil		Net face area - sq. ft.	7.8	7.8	9.7
		Tube diameter - in.	3/8	3/8	3/8
		Number of rows	3	3	4
		Fins per inch	14	14	14
		Drain Connection (no.) and size - in.	(1) 1 NPT	(1) 1 NPT	(1) 1 NPT
		Expansion device type	Balanced Port Thermostatic Expansion Valve, removable power head		
[3] **Indoor Blower & Drive Selection**	Nominal Motor HP	208/230V-1ph	0.75 hp, 1.5 hp	0.75 hp, 1.5 hp	0.75 hp, 1.5 hp
		All others voltages	1 hp, 2 hp	1 hp, 2 hp	1 hp, 2 hp
	Maximum Usable Motor HP	208/230V-1ph	0.86 hp, 1.7 hp	0.86 hp, 1.7 hp	0.86 hp, 1.7 hp
		All other voltages	1.15 hp, 2.3 hp	1.15 hp, 2.3 hp	1.15 hp, 2.3 hp
		Available Drive Kits	A01 673 - 1010 rpm A05 897 - 1346 rpm	A02 745 - 1117 rpm A06 1071 - 1429 rpm	A03 833 - 1250 rpm A07 1212 - 1548 rpm
		Wheel nominal diameter x width - in.	(1) 10 x 10	(1) 10 x 10	(1) 10 x 10
Filters		Type	Disposable		
		Number and size - in.	(4) 16 x 20 x 2		(4) 20 x 20 x 2
Electrical Characteristics - 60 Hz			208/230V 1 phase 208/230V, 460V & 575V 3 phase	208/230V, 1 phase 208/230V 460V & 575V 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] AHRI Certified to AHRI Standard 210/240: 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator air; minimum external duct static pressure.

[2] Sound Rating Number (SRN) rated in accordance with test conditions included in ARI Standard 270-95.

[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 output. If motors of comparable hp are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

SPECIFICATIONS - BELT DRIVE BLOWER — SINGLE SPEED - 6 TON

General Data	**Nominal Tonnage**	**6 Ton**	**6 Ton**
	Model No.	**KCB072H4B**	**KCB074S4B**
	Efficiency Type	**High**	**Standard**
	Blower Type	Single Speed Belt Drive	Single Speed Belt Drive
Cooling Performance	Gross Cooling Capacity - Btuh	73,500	71,000
	[1] Net Cooling Capacity - Btuh	72,000	68,000
	AHRI Rated Air Flow - cfm	1920	2150
	[2] Sound Rating Number (SRN) (dBA)	79	79
	Total Unit Power - kW	6.0	6.1
	[1] IEER	13.5	12.9
	[1] EER (Btuh/Watt)	12.0	11.2
Refrigerant Charge	Refrigerant Type	R-410A	R-410A
	Environ™ Coil System	7 lbs. 8 oz.	7 lbs. 2 oz.
	Conventional Fin/Tube Coil	- - -	14 lbs. 8 oz.
	Conventional Fin/Tube With Humiditrol® Dehumidification Option	- - -	14 lbs. 11 oz.
Electric Heat Available		7.5, 15, 22.5, 30 kW	7.5, 15, 22.5, 30 kW
Compressor Type (one per unit)		Scroll	Two-Stage Scroll
Outdoor Coil Environ™ (Fin/Tube)	Net face area - sq. ft.	17.8	17.8 (19.3)
	Number of rows	1	1 (2)
	Fins / inch	23	23 (20)
Outdoor Coil Fan	Motor - (No.) HP	(1) 1/3	(1) 1/3
	Motor rpm	1075	1075
	Total Motor Input - watts	410	375
	Diameter - (No.) in. / No. of blades	(1) 24 - 3	(1) 24 - 3
	Total air volume - cfm	4800	4700
Indoor Coil	Net face area - sq. ft.	9.72	9.72
	Tube diameter - in.	3/8	3/8
	Number of rows	4	4
	Fins per inch	14	14
	Drain Connection (no.) and size - in.	(1) 1 in. NPT	(1) 1 in. NPT
	Expansion device type	Balanced Port Thermostatic Expansion Valve, removable power head	
[3] **Indoor Blower & Drive Selection**	Nominal Motor Output	1 hp, 2 hp	1 hp, 2 hp
	Maximum Usable Motor Output (US Only)	1.15 hp, 2.3 hp	1.15 hp, 2.3 hp
	Motor - Drive Kit Number	AA01 522-784 rpm AA02 632-875 rpm AA03 798-1105 rpm	A04 968 - 1340 rpm A08 1193 - 1591 rpm
	Wheel Nominal Diameter x Width - in.	(1) 15 x 9	(1) 10 x 10
Filters	Type	Disposable	Disposable
	Number and size - in.	(4) 20 x 20 x 2	(4) 20 x 20 x 2
Electrical Characteristics - 60 Hz		208/230V, 460V or 575V - 60 hertz - 3 phase	

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

[1] AHRI Certified to AHRI Standard 340/360: 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator air; minimum external duct static pressure.

[2] Sound Rating Number (SRN) rated in accordance with test conditions included in ARI Standard 270-95.

[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 output. If motors of comparable hp are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

SPECIFICATIONS - BELT DRIVE BLOWER — TWO-SPEED - 6 TON

General Data		**Nominal Tonnage**	**6 Ton**	**6 Ton**
		Model No.	**KCB074S4T**	**KCB074H4T**
		Efficiency Type	**Standard**	**High**
		Blower Type	Two Speed Belt Drive	Two Speed Belt Drive
Cooling Performance		Gross Cooling Capacity - Btuh	71,000	72,000
		[1] Net Cooling Capacity - Btuh	68,000	69,000
		AHRI Rated Air Flow - cfm	2100	2100
		[2] Sound Rating Number (SRN) (dBA)	79	79
		Total Unit Power - kW	6.1	5.7
		[1] IEER	15.0	16.0
		[1] EER (Btuh/Watt)	11.2	12.0
Refrigerant Charge		Refrigerant Type	R-410A	R-410A
		Environ™ Coil System	7 lbs. 2 oz.	7 lbs. 2 oz.
		Conventional Fin/Tube Coil	14 lbs. 8 oz.	- - -
		Conventional Fin/Tube With Humiditrol® Dehumidification Option	14 lbs. 11 oz.	- - -
Electric Heat Available			7.5, 15, 22.5, 30 kW	7.5, 15, 22.5, 30 kW
Compressor Type (one per unit)			Two-Stage Scroll	Two-Stage Scroll
Outdoor Coil Environ™ (Fin/Tube)		Net face area - sq. ft.	17.8 (19.3)	17.8
		Number of rows	1 (2)	1
		Fins / inch	23 (20)	23
Outdoor Coil Fan		Motor - (No.) HP	(1) 1/3	(1) 1/3
		Motor rpm	1075	1075
		Total Motor Input - watts	375	375
		Diameter - (No.) in. / No. of blades	(1) 24 - 3	(1) 24 - 3
		Total air volume - cfm	4700	4700
Indoor Coil		Net face area - sq. ft.	9.72	9.72
		Tube diameter - in.	3/8	3/8
		Number of rows	4	4
		Fins per inch	14	14
		Drain Connection (no.) and size - in.	(1) 1 in. NPT	(1) 1 in. NPT
		Expansion device type	Balanced Port Thermostatic Expansion Valve, removable power head	
[3] **Indoor Blower & Drive Selection**		Nominal Motor Output	1 hp, 2 hp	1 hp, 2 hp
		Maximum Usable Motor Output (US Only)	1.15 hp, 2.3 hp	1.15 hp, 2.3 hp
		Motor - Drive Kit Number	A04 968 - 1340 rpm A08 1193-1591 rpm	AA01 522-784 rpm AA02 632-875 rpm AA03 798-1105 rpm
		Wheel Nominal Diameter x Width - in.	(1) 10 x 10	(1) 15 x 9
Filters		Type	Disposable	
		Number and size - in.	(4) 20 x 20 x 2	(4) 20 x 20 x 2
Electrical Characteristics - 60 Hz			208/230V, 460V or 575V - 60 hertz - 3 phase	

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

[1] AHRI Certified to AHRI Standard 340/360: 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator air; minimum external duct static pressure.

[2] Sound Rating Number (SRN) rated in accordance with test conditions included in ARI Standard 270-95.

[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 output. If motors of comparable hp are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

SPECIFICATIONS - BELT DRIVE BLOWER — SINGLE AND TWO-SPEED - 7.5 TON

General Data	**Nominal Tonnage**	**7.5 Ton**	**7.5 Ton**
	Model No.	**KCB090S4B**	**KCB090S4T**
	Efficiency Type	**Standard**	**Standard**
	Blower Type	Single Speed Belt Drive	Two Speed Belt Drive
Cooling Performance	Gross Cooling Capacity - Btuh	92,000	92,000
	[1] Net Cooling Capacity - Btuh	88,000	88,000
	AHRI Rated Air Flow - cfm	2250	2250
	[2] Sound Rating Number (SRN) (dBA)	79	79
	Total Unit Power - kW	8.0	8.0
	[1] IEER	12.9	14.0
	[1] EER (Btuh/Watt)	11.2	11.2
Refrigerant Charge	Refrigerant Type	R-410A	R-410A
	Environ™ Coil System	9 lbs. 4 oz.	9 lbs. 4 oz.
	Conventional Fin/Tube Coil	17 lbs. 14 oz.	17 lbs. 14 oz.
	Conventional Fin/Tube With Humiditrol® Dehumidification Option	19 lbs. 14 oz.	19 lbs. 14 oz.
Electric Heat Available		7.5, 15, 22.5, 30 kW	7.5, 15, 22.5, 30 kW
Compressor Type (one per unit)		Two-Stage Scroll	Two-Stage Scroll
Outdoor Coil Environ™ (Fin/Tube)	Net face area - sq. ft.	24.2 (27.7)	24.2 (27.7)
	Number of rows	1 (2)	1 (2)
	Fins / inch	23 (20)	23 (20)
Outdoor Coil Fan	Motor - (No.) HP	(1) 1/2	(1) 1/2
	Motor rpm	1075	1075
	Total Motor Input - watts	520	520
	Diameter - (No.) in. / No. of blades	(1) 24 - 4	(1) 24 - 4
	Total air volume - cfm	5300	5300
Indoor Coil	Net face area - sq. ft.	9.72	9.72
	Tube diameter - in.	3/8	3/8
	Number of rows	4	4
	Fins per inch	14	14
	Drain Connection (no.) and size - in.	(1) 1 in. NPT	(1) 1 in. NPT
	Expansion device type	Balanced Port Thermostatic Expansion Valve, removable power head	
[3] **Indoor Blower & Drive Selection**	Nominal Motor Output	1 hp, 2 hp, 3 hp	2 hp
	Maximum Usable Motor Output (US Only)	1.15 hp 2.3 hp, 3.45 hp	2.3 hp
	Motor - Drive Kit Number	AA01 522-784 rpm AA02 632-875 rpm AA03 798-1105 rpm [4] AA04 921-1228 rpm	AA01 522-784 rpm AA02 632-875 rpm AA03 798-1105 rpm
	Wheel Nominal Diameter x Width - in.	15 x 9	15 x 9
Filters	Type	Disposable	
	Number and size - in.	(4) 20 x 20 x 2	(4) 20 x 20 x 2
Electrical Characteristics - 60 Hz		208/230V, 460V or 575V - 60 hertz - 3 phase	

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

[1] AHRI Certified to AHRI Standard 340/360: 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator air; minimum external duct static pressure.

[2] Sound Rating Number (SRN) rated in accordance with test conditions included in ARI Standard 270-95.

[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 output. If motors of comparable hp are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

[4] 3 hp blower motor only.

BLOWER DATA — DIRECT DRIVE - 2 TON

KCB024S4D

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (economizer, wet coil, etc.) See page 25.

2 - Any field installed accessories air resistance (electric heat, duct resistance, diffuser, etc.) See page 25.

External Static Pressure (in. w.g.)	Air Volume (cfm) at Various Blower Speeds					
	208 VOLTS			230 VOLTS		
	High	Medium	Low	High	Medium	Low
2 Ton Standard Efficiency (Downflow)						**KCB024S**
0.0	1244	956	859	1414	1098	876
0.1	1226	934	820	1401	1092	870
0.2	1201	906	782	1379	1070	848
0.3	1180	877	727	1348	1039	819
0.4	1152	841	690	1318	1008	775
0.5	1118	812	634	1288	968	746
0.6	1090	768	579	1243	937	702
0.7	1048	725	505	1197	890	659
0.8	1006	667	431	1152	827	600
0.9	950	609	357	1076	749	528
1.0	839	493	248	986	623	468
2 Ton Standard Efficiency (Horizontal)						**KCB024S**
0.0	1166	910	801	1376	1071	842
0.1	1156	893	770	1342	1054	826
0.2	1136	866	734	1307	1021	808
0.3	1115	826	697	1269	982	771
0.4	1083	800	643	1232	956	734
0.5	1051	747	589	1194	903	698
0.6	1009	707	534	1137	850	662
0.7	946	668	467	1100	797	588
0.8	861	588	396	1024	744	534
0.9	736	508	319	948	652	466
1.0	560	385	237	845	549	392

BLOWER DATA — DIRECT DRIVE - 2.5 TON

KCB030S4D

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (economizer, wet coil, etc.) See page 25.

2 - Any field installed accessories air resistance (electric heat, duct resistance, diffuser, etc.) See page 25.

External Static Pressure (in. w.g.)	Air Volume (cfm) at Various Blower Speeds					
	208 VOLTS			230 VOLTS		
	High	Medium	Low	High	Medium	Low
2.5 Ton Standard Efficiency (Downflow)						**KCB030S**
0.0	1199	928	838	1379	1085	877
0.1	1229	926	813	1409	1086	872
0.2	1206	928	782	1367	1094	850
0.3	1183	881	742	1350	1047	820
0.4	1159	843	686	1321	1009	783
0.5	1136	812	643	1282	981	762
0.6	1103	766	569	1242	921	705
0.7	1046	728	496	1195	888	625
0.8	953	648	432	1134	792	583
0.9	909	584	335	1037	738	492
1.0	783	465	247	926	592	411
2.5 Ton Standard Efficiency (Horizontal)						**KCB030S**
0.0	1152	909	801	1325	1063	838
0.1	1152	893	770	1321	1048	826
0.2	1136	866	734	1288	1021	798
0.3	1104	826	697	1260	982	771
0.4	1072	787	643	1222	942	734
0.5	1041	747	589	1175	903	698
0.6	1009	707	534	1137	850	662
0.7	946	654	467	1081	797	588
0.8	861	588	396	1024	718	535
0.9	798	508	319	911	642	468
1.0	715	443	237	846	564	394

KCB036S4D | KCB048S4D

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (economizer, wet coil, etc.) See page 25.

2 - Any field installed accessories air resistance (electric heat, duct resistance, diffuser, etc.) See page 25.

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 Standard Efficiency (Downflow)									**KCB036S and KCB048S**
0.0	1938	1552	1119	2167	1772	1317	2136	1716	1212
0.1	1992	1586	1128	2167	1780	1315	2104	1728	1208
0.2	1915	1592	1137	2100	1792	1307	2052	1684	1197
0.3	1865	1536	1083	2043	1735	1266	1994	1647	1172
0.4	1813	1495	1033	1986	1678	1204	1918	1597	1134
0.5	1762	1444	976	1909	1621	1164	1861	1534	1096
0.6	1694	1391	899	1814	1535	1082	1765	1485	1059
0.7	1609	1331	817	1718	1478	1000	1689	1410	996
0.8	1471	1220	730	1603	1364	918	1613	1335	920
0.9	1368	1066	522	1488	1250	755	1498	1235	848
1.0	1108	869	402	1259	1021	640	1345	1036	763
3 and 4 Ton Standard Efficiency (Horizontal)									**KCB036S and KCB048S**
0.0	1862	1520	1070	2082	1736	1259	2085	1745	1247
0.1	1867	1530	1069	2031	1717	1246	2070	1744	1257
0.2	1804	1485	1067	1978	1672	1227	2016	1690	1225
0.3	1741	1440	1018	1907	1627	1190	1944	1643	1192
0.4	1677	1396	968	1837	1567	1128	1890	1596	1160
0.5	1614	1329	894	1749	1492	1066	1800	1533	1111
0.6	1550	1284	844	1660	1417	1016	1727	1455	1062
0.7	1455	1195	769	1554	1327	941	1655	1377	996
0.8	1329	1106	670	1448	1237	842	1511	1283	865
0.9	1202	927	496	1307	1087	718	1403	1190	784
1.0	1012	828	385	1025	973	613	1222	1002	670

KCB060S4D

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (economizer, wet coil, etc.) See page 25.

2 - Any field installed accessories air resistance (electric heat, duct resistance, diffuser, etc.) See page 25.

External Static Pressure (in. w.g.)	Air Volume (cfm) at Various Blower Speeds					
	208 VOLTS		230 VOLTS		460/575 VOLTS	
	High	Low	High	Low	High	Low
5 Ton Standard Efficiency (Downflow)						**KCB060S**
0.0	1883	1570	2074	1785	2074	1785
0.1	1871	1550	2050	1760	2050	1760
0.2	1855	1538	2018	1735	2018	1735
0.3	1828	1523	1986	1704	1986	1704
0.4	1786	1499	1937	1679	1937	1679
0.5	1759	1476	1905	1642	1905	1642
0.6	1718	1452	1856	1605	1856	1605
0.7	1676	1421	1791	1567	1791	1567
0.8	1622	1358	1726	1505	1726	1505
0.9	1539	1277	1628	1406	1628	1406
1.0	1399	- - -	1502	1300	1502	1300
5 Ton Standard Efficiency (Horizontal)						**KCB060S**
0.0	1852	1534	2046	1713	2046	1713
0.1	1844	1532	2024	1711	2024	1711
0.2	1831	1526	1998	1706	1998	1706
0.3	1800	1504	1954	1681	1954	1681
0.4	1769	1477	1918	1654	1918	1654
0.5	1722	1450	1865	1612	1865	1612
0.6	1674	1423	1812	1570	1812	1570
0.7	1627	1369	1742	1515	1742	1515
0.8	1565	1315	1672	1459	1672	1459
0.9	1470	1241	1530	1376	1530	1376
1.0	1323	- - -	1426	1242	1426	1242

KCB036S4B

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:
1 - Any factory installed options air resistance (economizer, wet coil, etc.) See page 25.
2 - Any field installed accessories air resistance (electric heat, duct resistance, diffuser, etc.) See page 25.

See page 25 for blower motors and drives and wet coil and options/accessory air resistance data.

DOWNFLOW

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
900	486	0.12	554	0.16	623	0.20	695	0.22	767	0.23	836	0.25	897	0.28	953	0.30
1000	508	0.15	576	0.19	643	0.22	713	0.24	783	0.26	848	0.28	907	0.30	961	0.33
1100	533	0.18	599	0.22	665	0.25	733	0.27	800	0.28	863	0.31	919	0.34	971	0.36
1200	560	0.21	625	0.25	689	0.28	755	0.30	820	0.32	879	0.34	932	0.37	983	0.40
1300	591	0.24	654	0.28	716	0.31	779	0.33	841	0.35	897	0.38	948	0.41	996	0.44
1400	631	0.26	690	0.30	748	0.34	807	0.36	864	0.39	916	0.42	964	0.46	1011	0.49
1500	676	0.28	729	0.33	782	0.36	835	0.40	887	0.43	935	0.47	981	0.50	1028	0.54

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
900	1004	0.33	1055	0.35	1106	0.37	1152	0.40	1193	0.43	1232	0.46	1269	0.49	1305	0.52
1000	1011	0.36	1062	0.38	1111	0.41	1157	0.43	1199	0.47	1238	0.50	1276	0.53	1311	0.56
1100	1020	0.39	1070	0.41	1118	0.44	1163	0.47	1206	0.51	1245	0.54	1282	0.58	1318	0.61
1200	1031	0.43	1079	0.45	1127	0.48	1171	0.52	1213	0.55	1252	0.59	1289	0.62	1324	0.66
1300	1044	0.47	1091	0.49	1137	0.53	1181	0.56	1221	0.60	1259	0.64	1296	0.68	1330	0.71
1400	1058	0.51	1105	0.54	1150	0.57	1191	0.61	1231	0.65	1268	0.69	1303	0.73	1337	0.77
1500	1074	0.56	1120	0.59	1163	0.63	1203	0.67	1241	0.71	1277	0.75	1312	0.79	1345	0.82

HORIZONTAL

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
900	485	0.11	554	0.14	627	0.16	703	0.18	780	0.21	841	0.23	888	0.27	935	0.30
1000	509	0.13	578	0.16	649	0.19	722	0.21	796	0.23	854	0.26	900	0.29	947	0.33
1100	537	0.16	605	0.19	674	0.21	744	0.24	813	0.26	868	0.29	913	0.33	959	0.36
1200	567	0.19	633	0.22	700	0.24	768	0.27	833	0.30	884	0.33	928	0.37	974	0.40
1300	599	0.22	664	0.25	729	0.28	793	0.30	853	0.33	902	0.37	945	0.41	990	0.44
1400	634	0.26	697	0.29	758	0.31	819	0.34	875	0.38	921	0.42	964	0.46	1008	0.49
1500	669	0.30	730	0.33	789	0.36	846	0.39	897	0.42	941	0.47	983	0.51	1028	0.54

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
900	986	0.32	1039	0.35	1090	0.37	1137	0.40	1177	0.43	1214	0.46	1248	0.49	1280	0.51
1000	997	0.35	1048	0.38	1098	0.41	1143	0.44	1184	0.47	1221	0.50	1255	0.53	1287	0.56
1100	1008	0.39	1059	0.41	1107	0.44	1150	0.47	1191	0.51	1228	0.54	1263	0.57	1295	0.60
1200	1022	0.43	1071	0.45	1117	0.48	1160	0.52	1200	0.55	1237	0.59	1271	0.62	1303	0.66
1300	1037	0.47	1085	0.50	1130	0.53	1171	0.57	1210	0.60	1246	0.64	1280	0.68	1312	0.71
1400	1054	0.52	1100	0.54	1144	0.58	1183	0.62	1221	0.66	1256	0.70	1290	0.73	1321	0.77
1500	1073	0.57	1117	0.60	1159	0.64	1197	0.67	1234	0.71	1268	0.75	1301	0.79	1332	0.83

KCB048S4B

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:
1 - Any factory installed options air resistance (economizer, wet coil, etc.) See page 25.
2 - Any field installed accessories air resistance (electric heat, duct resistance, diffuser, etc.) See page 25.

See page 25 for blower motors and drives and wet coil and options/accessory air resistance data.

DOWNFLOW

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
1200	560	0.21	625	0.25	689	0.28	755	0.30	820	0.32	879	0.34	932	0.37	983	0.40
1300	591	0.24	654	0.28	716	0.31	779	0.33	841	0.35	897	0.38	948	0.41	996	0.44
1400	631	0.26	690	0.30	748	0.34	807	0.36	864	0.39	916	0.42	964	0.46	1011	0.49
1500	675	0.28	729	0.33	782	0.36	835	0.40	887	0.43	935	0.47	981	0.50	1028	0.54
1600	718	0.31	766	0.35	814	0.40	862	0.44	910	0.48	955	0.52	1000	0.55	1046	0.59
1700	756	0.34	799	0.39	843	0.44	887	0.49	932	0.53	976	0.57	1020	0.61	1066	0.64
1800	787	0.40	828	0.45	870	0.50	912	0.55	955	0.59	999	0.63	1043	0.67	1089	0.70
1900	815	0.46	855	0.51	897	0.57	939	0.62	981	0.66	1024	0.69	1068	0.73	1113	0.76
2000	843	0.53	884	0.59	925	0.64	968	0.68	1009	0.72	1052	0.76	1095	0.79	1138	0.83
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
1200	1031	0.43	1079	0.45	1127	0.48	1171	0.52	1213	0.55	1252	0.59	1289	0.62	1324	0.66
1300	1044	0.47	1091	0.49	1137	0.53	1181	0.56	1221	0.60	1259	0.64	1296	0.68	1330	0.71
1400	1058	0.51	1105	0.54	1150	0.57	1191	0.61	1231	0.65	1268	0.69	1303	0.73	1337	0.77
1500	1074	0.56	1120	0.59	1163	0.63	1203	0.67	1241	0.71	1277	0.75	1312	0.79	1345	0.82
1600	1092	0.61	1137	0.65	1178	0.68	1216	0.72	1253	0.76	1288	0.80	1321	0.84	1354	0.88
1700	1112	0.67	1155	0.70	1193	0.75	1230	0.79	1265	0.83	1299	0.87	1332	0.91	1364	0.95
1800	1133	0.73	1174	0.77	1209	0.81	1244	0.85	1278	0.90	1311	0.94	1343	0.98	1375	1.02
1900	1156	0.80	1193	0.84	1226	0.89	1260	0.93	1293	0.97	1325	1.01	1356	1.06	1388	1.10
2000	1178	0.87	1213	0.92	1243	0.97	1275	1.02	1307	1.06	1339	1.10	1370	1.14	1402	1.18

HORIZONTAL

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
1200	567	0.19	633	0.22	700	0.24	768	0.27	833	0.30	884	0.33	928	0.37	974	0.40
1300	599	0.22	664	0.25	729	0.28	793	0.30	853	0.33	902	0.37	945	0.41	990	0.44
1400	634	0.26	697	0.29	758	0.31	819	0.34	875	0.38	921	0.42	964	0.46	1008	0.49
1500	669	0.30	730	0.33	789	0.36	846	0.39	897	0.42	941	0.47	983	0.51	1028	0.54
1600	705	0.34	763	0.37	819	0.40	873	0.43	921	0.48	963	0.52	1004	0.56	1048	0.59
1700	741	0.38	796	0.41	850	0.45	900	0.49	945	0.53	985	0.58	1026	0.62	1070	0.65
1800	776	0.43	829	0.46	880	0.51	927	0.55	970	0.60	1009	0.64	1050	0.68	1093	0.71
1900	812	0.48	862	0.52	910	0.57	955	0.62	996	0.66	1035	0.71	1076	0.74	1118	0.78
2000	847	0.54	895	0.59	941	0.64	984	0.69	1023	0.74	1062	0.78	1103	0.81	1144	0.85
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
1200	1022	0.43	1071	0.45	1117	0.48	1160	0.52	1200	0.55	1237	0.59	1271	0.62	1303	0.66
1300	1037	0.47	1085	0.50	1130	0.53	1171	0.57	1210	0.60	1246	0.64	1280	0.68	1312	0.71
1400	1054	0.52	1100	0.54	1144	0.58	1183	0.62	1221	0.66	1256	0.70	1290	0.73	1321	0.77
1500	1073	0.57	1117	0.60	1159	0.64	1197	0.67	1234	0.71	1268	0.75	1301	0.79	1332	0.83
1600	1093	0.62	1136	0.66	1175	0.70	1212	0.74	1247	0.78	1281	0.82	1313	0.86	1344	0.90
1700	1114	0.68	1155	0.72	1192	0.76	1227	0.80	1262	0.85	1295	0.89	1327	0.93	1358	0.97
1800	1136	0.75	1175	0.79	1210	0.83	1245	0.88	1278	0.92	1311	0.97	1342	1.01	1373	1.05
1900	1159	0.82	1197	0.86	1229	0.92	1263	0.97	1296	1.01	1328	1.06	1359	1.10	1390	1.14
2000	1183	0.90	1218	0.95	1249	1.01	1282	1.06	1314	1.11	1346	1.15	1377	1.20	1408	1.24

KCB060S4B

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (economizer, wet coil, etc.) See page 25.

2 - Any field installed accessories air resistance (electric heat, duct resistance, diffuser, etc.) See page 25.

See page 25 for blower motors and drives and wet coil and options/accessory air resistance data.

DOWNFLOW

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
1600	665	0.30	716	0.34	768	0.38	819	0.41	879	0.44	937	0.46	985	0.49	1022	0.52
1700	723	0.31	768	0.35	814	0.39	860	0.43	910	0.47	959	0.50	1001	0.54	1037	0.58
1800	779	0.32	818	0.37	857	0.41	897	0.46	939	0.50	980	0.55	1018	0.59	1054	0.64
1900	826	0.36	859	0.41	894	0.45	928	0.50	964	0.56	1000	0.61	1036	0.66	1072	0.70
2000	857	0.42	889	0.47	920	0.52	952	0.57	986	0.62	1020	0.68	1055	0.73	1091	0.77
2100	878	0.49	909	0.54	940	0.59	973	0.64	1006	0.70	1041	0.75	1076	0.80	1112	0.85
2200	897	0.55	929	0.61	961	0.66	994	0.72	1028	0.78	1063	0.83	1099	0.89	1134	0.93
2300	918	0.62	950	0.68	983	0.74	1017	0.80	1052	0.86	1087	0.92	1122	0.97	1157	1.02
2400	941	0.70	974	0.77	1008	0.83	1042	0.90	1077	0.96	1111	1.01	1146	1.06	1181	1.11

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
1600	1059	0.57	1098	0.61	1138	0.65	1177	0.68	1218	0.71	1257	0.75	1290	0.79	1319	0.83
1700	1074	0.62	1113	0.66	1152	0.70	1190	0.74	1231	0.77	1268	0.80	1299	0.84	1328	0.89
1800	1091	0.68	1129	0.72	1167	0.76	1205	0.80	1244	0.83	1280	0.87	1310	0.91	1338	0.95
1900	1109	0.75	1146	0.79	1183	0.82	1221	0.86	1260	0.90	1294	0.94	1323	0.98	1349	1.02
2000	1128	0.82	1164	0.86	1201	0.89	1239	0.93	1276	0.97	1310	1.01	1336	1.06	1362	1.10
2100	1148	0.89	1185	0.93	1221	0.97	1258	1.01	1294	1.05	1325	1.09	1351	1.14	1376	1.19
2200	1170	0.97	1206	1.01	1242	1.05	1277	1.09	1311	1.14	1341	1.18	1365	1.23	1390	1.28
2300	1193	1.06	1228	1.09	1262	1.14	1295	1.19	1327	1.24	1355	1.29	1380	1.33	1406	1.37
2400	1216	1.15	1250	1.19	1282	1.24	1313	1.30	1343	1.36	1371	1.40	1396	1.44	1423	1.48

HORIZONTAL

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
1600	712	0.29	758	0.32	807	0.36	855	0.39	906	0.43	955	0.46	997	0.50	1035	0.54
1700	766	0.32	808	0.36	850	0.40	892	0.44	936	0.47	978	0.51	1016	0.56	1052	0.60
1800	814	0.36	851	0.40	888	0.44	925	0.49	963	0.53	1000	0.57	1035	0.62	1071	0.66
1900	853	0.41	886	0.46	919	0.50	952	0.55	986	0.60	1021	0.64	1056	0.69	1091	0.73
2000	883	0.48	913	0.53	944	0.57	976	0.62	1009	0.67	1043	0.71	1078	0.76	1112	0.80
2100	906	0.56	936	0.60	967	0.65	999	0.70	1033	0.75	1067	0.79	1101	0.84	1135	0.88
2200	930	0.64	960	0.68	991	0.73	1024	0.78	1058	0.83	1092	0.88	1126	0.92	1160	0.96
2300	954	0.72	985	0.77	1017	0.82	1051	0.87	1085	0.92	1119	0.96	1152	1.00	1186	1.04
2400	981	0.81	1013	0.86	1046	0.91	1079	0.96	1113	1.00	1146	1.05	1180	1.09	1213	1.13

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
1600	1071	0.58	1109	0.62	1147	0.66	1186	0.69	1225	0.72	1263	0.76	1299	0.80	1334	0.83
1700	1088	0.64	1126	0.68	1164	0.72	1202	0.75	1240	0.78	1276	0.82	1311	0.86	1345	0.90
1800	1107	0.70	1143	0.74	1181	0.78	1219	0.81	1256	0.85	1291	0.89	1324	0.93	1357	0.97
1900	1126	0.77	1163	0.81	1200	0.85	1237	0.88	1273	0.92	1306	0.96	1339	1.00	1371	1.04
2000	1148	0.84	1183	0.88	1220	0.92	1257	0.96	1291	1.00	1323	1.04	1354	1.08	1385	1.12
2100	1170	0.92	1206	0.96	1242	1.00	1277	1.04	1310	1.08	1340	1.13	1371	1.17	1401	1.21
2200	1195	1.00	1230	1.04	1265	1.08	1299	1.13	1330	1.18	1359	1.23	1388	1.27	1418	1.31
2300	1220	1.08	1254	1.13	1288	1.17	1320	1.23	1350	1.28	1378	1.34	1406	1.38	1435	1.42
2400	1245	1.18	1278	1.22	1311	1.28	1341	1.33	1370	1.40	1397	1.45	1425	1.50	1454	1.54

KCB074S4B

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:
1 - Any factory installed options air resistance (economizer, wet coil, etc.) See page 25.
2 - Any field installed accessories air resistance (electric heat, duct resistance, diffuser, etc.) See page 25.

See page 25 for blower motors and drives and wet coil and options/accessory air resistance data.

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
1900	826	0.36	859	0.41	894	0.45	928	0.50	964	0.56	1000	0.61	1036	0.66	1072	0.70
2000	857	0.42	889	0.47	920	0.52	952	0.57	986	0.62	1020	0.68	1055	0.73	1091	0.77
2100	878	0.49	909	0.54	940	0.59	973	0.64	1006	0.70	1041	0.75	1076	0.80	1112	0.85
2200	897	0.55	929	0.61	961	0.66	994	0.72	1028	0.78	1063	0.83	1099	0.89	1134	0.93
2300	918	0.62	950	0.68	983	0.74	1017	0.80	1052	0.86	1087	0.92	1122	0.97	1157	1.02
2400	941	0.70	974	0.77	1008	0.83	1042	0.90	1077	0.96	1111	1.01	1146	1.06	1181	1.11
2500	966	0.79	1000	0.86	1034	0.93	1068	1.00	1103	1.06	1137	1.11	1171	1.16	1205	1.20
2600	994	0.90	1028	0.97	1062	1.04	1096	1.10	1130	1.16	1164	1.21	1197	1.26	1231	1.30
2700	1023	1.01	1057	1.08	1091	1.15	1125	1.22	1159	1.27	1192	1.32	1225	1.37	1258	1.41
2800	1053	1.13	1088	1.21	1122	1.27	1155	1.33	1188	1.39	1221	1.43	1253	1.48	1286	1.53
2900	1085	1.26	1119	1.33	1153	1.40	1186	1.45	1218	1.51	1250	1.55	1281	1.61	1313	1.66

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
1900	1109	0.75	1146	0.79	1183	0.82	1221	0.86	1260	0.90	1294	0.94	1323	0.98	1349	1.02
2000	1128	0.82	1164	0.86	1201	0.89	1239	0.93	1276	0.97	1310	1.01	1336	1.06	1362	1.10
2100	1148	0.89	1185	0.93	1221	0.97	1258	1.01	1294	1.05	1325	1.09	1351	1.14	1376	1.19
2200	1170	0.97	1206	1.01	1242	1.05	1277	1.09	1311	1.14	1341	1.18	1365	1.23	1390	1.28
2300	1193	1.06	1228	1.09	1262	1.14	1295	1.19	1327	1.24	1355	1.29	1380	1.33	1406	1.37
2400	1216	1.15	1250	1.19	1282	1.24	1313	1.30	1343	1.36	1371	1.40	1396	1.44	1423	1.48
2500	1240	1.24	1273	1.29	1302	1.36	1331	1.42	1360	1.48	1388	1.52	1414	1.55	1441	1.58
2600	1265	1.34	1296	1.40	1324	1.47	1352	1.54	1381	1.60	1408	1.64	1434	1.67	1460	1.70
2700	1291	1.46	1321	1.52	1347	1.60	1374	1.67	1403	1.72	1429	1.76	1455	1.79	1481	1.82
2800	1317	1.58	1346	1.66	1372	1.74	1399	1.80	1426	1.85	1451	1.89	1477	1.92	1503	1.95
2900	1343	1.72	1371	1.80	1397	1.88	1424	1.95	1450	1.99	1475	2.02	1500	2.05	1526	2.08

KCB074S4B

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:
1 - Any factory installed options air resistance (economizer, wet coil, etc.).
2 - Any field installed accessories air resistance (electric heat, duct resistance, diffuser, etc.)

See page 25 for blower motors and drives and wet coil and options/accessory air resistance data.

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
1900	853	0.41	886	0.46	919	0.50	952	0.55	986	0.60	1021	0.64	1056	0.69	1091	0.73
2000	883	0.48	913	0.53	944	0.57	976	0.62	1009	0.67	1043	0.71	1078	0.76	1112	0.80
2100	906	0.56	936	0.60	967	0.65	999	0.70	1033	0.75	1067	0.79	1101	0.84	1135	0.88
2200	930	0.64	960	0.68	991	0.73	1024	0.78	1058	0.83	1092	0.88	1126	0.92	1160	0.96
2300	954	0.72	985	0.77	1017	0.82	1051	0.87	1085	0.92	1119	0.96	1152	1.00	1186	1.04
2400	981	0.81	1013	0.86	1046	0.91	1079	0.96	1113	1.00	1146	1.05	1180	1.09	1213	1.13
2500	1010	0.91	1042	0.96	1075	1.00	1109	1.05	1142	1.09	1175	1.14	1207	1.18	1239	1.23
2600	1040	1.01	1073	1.05	1106	1.10	1139	1.14	1171	1.19	1203	1.23	1235	1.28	1266	1.33
2700	1072	1.10	1104	1.15	1137	1.20	1169	1.24	1201	1.29	1232	1.34	1263	1.40	1293	1.46
2800	1105	1.21	1137	1.25	1168	1.30	1200	1.35	1231	1.40	1261	1.46	1291	1.52	1321	1.59
2900	1138	1.32	1169	1.37	1200	1.42	1231	1.47	1261	1.53	1291	1.60	1321	1.66	1350	1.73

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
1900	1126	0.77	1163	0.81	1200	0.85	1237	0.88	1273	0.92	1306	0.96	1339	1.00	1371	1.04
2000	1148	0.84	1183	0.88	1220	0.92	1257	0.96	1291	1.00	1323	1.04	1354	1.08	1385	1.12
2100	1170	0.92	1206	0.96	1242	1.00	1277	1.04	1310	1.08	1340	1.13	1371	1.17	1401	1.21
2200	1195	1.00	1230	1.04	1265	1.08	1299	1.13	1330	1.18	1359	1.23	1388	1.27	1418	1.31
2300	1220	1.08	1254	1.13	1288	1.17	1320	1.23	1350	1.28	1378	1.34	1406	1.38	1435	1.42
2400	1245	1.18	1278	1.22	1311	1.28	1341	1.33	1370	1.40	1397	1.45	1425	1.50	1454	1.54
2500	1271	1.28	1303	1.33	1334	1.39	1363	1.45	1391	1.52	1418	1.57	1446	1.62	1474	1.66
2600	1297	1.39	1328	1.45	1357	1.52	1385	1.58	1412	1.64	1439	1.70	1467	1.74	1495	1.78
2700	1323	1.52	1353	1.58	1382	1.65	1409	1.72	1435	1.77	1462	1.82	1490	1.86	1517	1.90
2800	1351	1.65	1380	1.72	1407	1.78	1434	1.85	1460	1.90	1486	1.95	1513	1.99	1541	2.02
2900	1379	1.79	1407	1.86	1434	1.92	1460	1.98	1485	2.04	1511	2.08	1538	2.12	1565	2.15

KCB072H4B | KCB074H4T

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (heat section, economizer, etc.).

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

See page 25 for blower motors and drives and wet coil and options/accessory air resistance data.

Air Volume (cfm)	External Static (in.w.g.)																			
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.9		1.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1900	480	0.38	512	0.44	545	0.51	579	0.57	614	0.63	648	0.7	683	0.76	719	0.83	752	0.89	781	0.95
2000	493	0.43	525	0.49	558	0.56	592	0.62	626	0.68	659	0.75	693	0.81	728	0.88	759	0.94	788	1
2100	507	0.48	539	0.54	572	0.61	605	0.67	639	0.74	671	0.8	704	0.86	737	0.93	768	0.99	795	1.04
2200	522	0.53	554	0.6	587	0.66	619	0.73	652	0.79	684	0.86	716	0.92	747	0.98	777	1.04	803	1.1
2300	537	0.59	569	0.65	602	0.72	634	0.79	666	0.85	697	0.91	728	0.98	758	1.04	786	1.1	812	1.15
2400	553	0.65	585	0.71	617	0.78	649	0.85	680	0.91	711	0.98	740	1.04	769	1.1	796	1.15	821	1.21
2500	570	0.71	602	0.78	633	0.84	665	0.91	695	0.97	725	1.04	753	1.1	781	1.16	807	1.22	832	1.27
2600	588	0.77	619	0.84	650	0.91	680	0.97	710	1.04	739	1.1	767	1.16	793	1.22	818	1.28	842	1.33
2700	607	0.84	637	0.91	667	0.97	697	1.04	726	1.11	753	1.17	780	1.23	806	1.29	830	1.35	854	1.4
2800	626	0.91	655	0.97	684	1.04	713	1.11	741	1.18	768	1.24	794	1.3	819	1.36	842	1.42	866	1.47
2900	646	0.98	674	1.05	702	1.11	730	1.18	757	1.25	783	1.32	808	1.38	832	1.44	855	1.49	878	1.54

Air Volume (cfm)	External Static (in.w.g.)																			
	1.1		1.2		1.3		1.4		1.5		1.6		1.7		1.8		1.9		2.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1900	807	1	832	1.04	857	1.07	883	1.11	912	1.14	941	1.17	968	1.21	993	1.25	1017	1.29	1039	1.34
2000	813	1.04	838	1.08	862	1.12	889	1.15	917	1.19	945	1.22	972	1.26	997	1.3	1020	1.35	1042	1.4
2100	820	1.09	844	1.13	869	1.17	895	1.21	923	1.24	951	1.28	977	1.32	1001	1.36	1024	1.41	1046	1.46
2200	828	1.14	852	1.18	877	1.22	903	1.26	930	1.3	957	1.33	983	1.37	1006	1.42	1028	1.47	1050	1.53
2300	836	1.2	861	1.24	885	1.28	911	1.31	938	1.35	964	1.39	989	1.43	1012	1.48	1033	1.54	1054	1.6
2400	846	1.25	870	1.29	895	1.33	920	1.37	947	1.41	972	1.45	996	1.5	1018	1.55	1039	1.61	1059	1.67
2500	856	1.31	880	1.35	905	1.39	930	1.43	956	1.47	980	1.52	1003	1.57	1024	1.63	1044	1.69	1064	1.76
2600	866	1.38	891	1.42	915	1.46	940	1.5	965	1.54	988	1.59	1010	1.65	1031	1.71	1050	1.78	1069	1.84
2700	878	1.44	902	1.48	926	1.52	950	1.57	974	1.61	997	1.67	1018	1.73	1037	1.8	1056	1.87	1075	1.93
2800	889	1.51	913	1.55	937	1.59	961	1.64	984	1.69	1006	1.75	1026	1.82	1044	1.89	1063	1.96	1081	2.03
2900	902	1.58	925	1.63	949	1.67	972	1.72	994	1.78	1015	1.84	1034	1.91	1052	1.99	1069	2.06	1087	2.13

KCB072H4B | KCB074H4T

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (heat section, economizer, etc.).

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

See page 25 for blower motors and drives and wet coil and options/accessory air resistance data.

Air Volume (cfm)	External Static (in.w.g.)																			
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.9		1.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1900	507	0.55	538	0.58	571	0.6	604	0.63	639	0.66	673	0.7	707	0.74	740	0.78	772	0.82	802	0.86
2000	522	0.59	554	0.62	586	0.64	620	0.67	653	0.71	687	0.74	720	0.78	752	0.82	783	0.87	812	0.91
2100	539	0.63	571	0.66	603	0.69	636	0.72	669	0.75	702	0.79	734	0.83	765	0.88	795	0.92	823	0.97
2200	557	0.68	588	0.71	620	0.74	652	0.77	685	0.81	717	0.84	748	0.89	778	0.93	807	0.98	834	1.03
2300	576	0.73	607	0.76	638	0.79	670	0.83	701	0.86	733	0.9	763	0.95	792	0.99	820	1.04	846	1.09
2400	596	0.79	626	0.82	657	0.85	688	0.89	718	0.92	749	0.96	778	1.01	806	1.06	833	1.11	858	1.16
2500	616	0.85	645	0.88	676	0.91	706	0.95	736	0.99	765	1.03	794	1.08	821	1.13	847	1.18	871	1.23
2600	636	0.91	665	0.94	695	0.98	724	1.02	754	1.06	782	1.1	809	1.15	836	1.2	861	1.25	885	1.3
2700	657	0.97	685	1.01	714	1.04	743	1.08	771	1.13	799	1.17	826	1.22	851	1.27	875	1.32	899	1.37
2800	677	1.03	706	1.07	734	1.11	762	1.16	790	1.2	816	1.25	842	1.3	867	1.35	890	1.4	913	1.45
2900	698	1.1	726	1.14	754	1.19	781	1.23	808	1.28	834	1.33	859	1.38	883	1.43	906	1.48	928	1.54

Air Volume (cfm)	External Static (in.w.g.)																			
	1.1		1.2		1.3		1.4		1.5		1.6		1.7		1.8		1.9		2.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1900	830	0.91	857	0.95	883	0.99	910	1.04	937	1.09	964	1.13	991	1.18	1017	1.23	1042	1.28	1067	1.34
2000	839	0.96	865	1	891	1.05	917	1.09	944	1.14	970	1.19	996	1.24	1022	1.29	1047	1.34	1071	1.4
2100	849	1.02	874	1.06	900	1.11	926	1.15	952	1.2	978	1.25	1003	1.3	1028	1.35	1052	1.41	1075	1.46
2200	860	1.08	885	1.12	910	1.17	935	1.21	960	1.26	986	1.31	1010	1.36	1034	1.42	1058	1.48	1081	1.53
2300	871	1.14	895	1.19	920	1.23	945	1.28	969	1.33	994	1.38	1018	1.43	1042	1.49	1065	1.55	1087	1.61
2400	883	1.21	907	1.25	931	1.3	955	1.35	979	1.4	1003	1.45	1027	1.51	1050	1.57	1072	1.63	1094	1.69
2500	895	1.28	919	1.32	942	1.37	966	1.42	990	1.48	1013	1.53	1036	1.59	1059	1.65	1081	1.71	1102	1.78
2600	908	1.35	931	1.4	955	1.45	978	1.5	1001	1.56	1024	1.62	1046	1.68	1068	1.74	1089	1.8	1110	1.87
2700	922	1.43	945	1.48	967	1.53	990	1.59	1013	1.65	1035	1.71	1056	1.77	1078	1.84	1099	1.9	1119	1.96
2800	936	1.51	958	1.56	980	1.62	1003	1.68	1025	1.74	1046	1.8	1067	1.87	1088	1.93	1109	2	1129	2.06
2900	950	1.6	972	1.66	994	1.72	1016	1.78	1037	1.84	1058	1.91	1079	1.97	1099	2.04	1119	2.11	1139	2.17

BLOWER DATA — BELT DRIVE (SINGLE AND TWO-SPEED)- 7.5 TON (DOWNFLOW)

KCB090S4B | KCB090S4T

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (heat section, economizer, etc.).

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

See page 25 for blower motors and drives and wet coil and options/accessory air resistance data.

Air Volume (cfm)	External Static (in.w.g.)																			
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.9		1.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2400	553	0.65	585	0.71	617	0.78	649	0.85	680	0.91	711	0.98	740	1.04	769	1.10	796	1.15	821	1.21
2500	570	0.71	602	0.78	633	0.84	665	0.91	695	0.97	725	1.04	753	1.10	781	1.16	807	1.22	832	1.27
2600	588	0.77	619	0.84	650	0.91	680	0.97	710	1.04	739	1.10	767	1.16	793	1.22	818	1.28	842	1.33
2700	607	0.84	637	0.91	667	0.97	697	1.04	726	1.11	753	1.17	780	1.23	806	1.29	830	1.35	854	1.40
2800	626	0.91	655	0.97	684	1.04	713	1.11	741	1.18	768	1.24	794	1.30	819	1.36	842	1.42	866	1.47
2900	646	0.98	674	1.05	702	1.11	730	1.18	757	1.25	783	1.32	808	1.38	832	1.44	855	1.49	878	1.54
3000	666	1.06	693	1.12	721	1.19	747	1.26	774	1.33	799	1.40	823	1.46	846	1.52	868	1.57	891	1.62
3100	686	1.14	713	1.21	739	1.28	765	1.35	790	1.41	814	1.48	838	1.55	860	1.61	882	1.66	904	1.70
3200	707	1.22	732	1.29	758	1.36	783	1.43	807	1.50	830	1.57	853	1.64	874	1.70	896	1.75	918	1.79
3300	727	1.31	752	1.38	776	1.46	800	1.53	823	1.60	846	1.67	868	1.73	889	1.79	911	1.84	932	1.89
3400	747	1.41	771	1.48	794	1.55	817	1.63	840	1.70	862	1.77	883	1.83	904	1.89	925	1.94	947	1.98
3500	767	1.51	790	1.58	812	1.66	835	1.73	856	1.80	878	1.87	899	1.93	920	1.99	940	2.04	961	2.08
3600	786	1.61	808	1.69	830	1.77	852	1.84	873	1.91	894	1.98	915	2.04	935	2.09	955	2.14	975	2.19

Air Volume (cfm)	External Static (in.w.g.)																			
	1.1		1.2		1.3		1.4		1.5		1.6		1.7		1.8		1.9		2.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2400	846	1.25	870	1.29	895	1.33	920	1.37	947	1.41	972	1.45	996	1.50	1018	1.55	1039	1.61	1059	1.67
2500	856	1.31	880	1.35	905	1.39	930	1.43	956	1.47	980	1.52	1003	1.57	1024	1.63	1044	1.69	1064	1.76
2600	866	1.38	891	1.42	915	1.46	940	1.50	965	1.54	988	1.59	1010	1.65	1031	1.71	1050	1.78	1069	1.84
2700	878	1.44	902	1.48	926	1.52	950	1.57	974	1.61	997	1.67	1018	1.73	1037	1.80	1056	1.87	1075	1.93
2800	889	1.51	913	1.55	937	1.59	961	1.64	984	1.69	1006	1.75	1026	1.82	1044	1.89	1063	1.96	1081	2.03
2900	902	1.58	925	1.63	949	1.67	972	1.72	994	1.78	1015	1.84	1034	1.91	1052	1.99	1069	2.06	1087	2.13
3000	914	1.66	938	1.71	961	1.75	983	1.81	1004	1.87	1024	1.94	1042	2.01	1059	2.09	1076	2.16	1093	2.23
3100	927	1.75	950	1.79	972	1.84	994	1.90	1014	1.96	1033	2.04	1050	2.11	1067	2.19	1083	2.27	1100	2.34
3200	941	1.84	963	1.88	984	1.94	1005	2.00	1024	2.07	1042	2.14	1059	2.23	1075	2.31	1091	2.39	1107	2.46
3300	954	1.93	976	1.98	996	2.04	1016	2.10	1035	2.18	1052	2.26	1067	2.35	1083	2.43	1098	2.51	1114	2.59
3400	968	2.03	989	2.08	1008	2.14	1027	2.22	1045	2.30	1061	2.38	1076	2.47	1091	2.57	1106	2.65	1121	2.73
3500	982	2.13	1001	2.19	1020	2.26	1038	2.33	1054	2.42	1070	2.51	1084	2.61	1099	2.71	1113	2.79	1128	2.87
3600	995	2.24	1014	2.30	1031	2.38	1048	2.46	1064	2.55	1079	2.65	1093	2.76	1107	2.86	1121	2.95	1136	3.03

BLOWER DATA — BELT DRIVE (SINGLE AND TWO-SPEED)- 7.5 TON (HORIZONTAL)

KCB090S4B | KCB090S4T

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (heat section, economizer, etc.).

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

See page 25 for blower motors and drives and wet coil and options/accessory air resistance data.

Air Volume (cfm)	External Static (in.w.g.)																			
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.9		1.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2400	596	0.79	626	0.82	657	0.85	688	0.89	718	0.92	749	0.96	778	1.01	806	1.06	833	1.11	858	1.16
2500	616	0.85	645	0.88	676	0.91	706	0.95	736	0.99	765	1.03	794	1.08	821	1.13	847	1.18	871	1.23
2600	636	0.91	665	0.94	695	0.98	724	1.02	754	1.06	782	1.10	809	1.15	836	1.20	861	1.25	885	1.30
2700	657	0.97	685	1.01	714	1.04	743	1.08	771	1.13	799	1.17	826	1.22	851	1.27	875	1.32	899	1.37
2800	677	1.03	706	1.07	734	1.11	762	1.16	790	1.20	816	1.25	842	1.30	867	1.35	890	1.40	913	1.45
2900	698	1.10	726	1.14	754	1.19	781	1.23	808	1.28	834	1.33	859	1.38	883	1.43	906	1.48	928	1.54
3000	720	1.17	747	1.22	774	1.26	801	1.31	826	1.36	851	1.41	876	1.46	899	1.52	921	1.57	943	1.63
3100	741	1.25	768	1.30	794	1.35	820	1.40	845	1.45	869	1.50	893	1.56	915	1.61	937	1.67	959	1.73
3200	763	1.34	789	1.39	815	1.44	840	1.49	864	1.54	888	1.60	910	1.66	932	1.72	954	1.78	975	1.84
3300	785	1.43	811	1.48	836	1.53	860	1.59	883	1.65	906	1.71	928	1.77	950	1.83	970	1.90	991	1.96
3400	807	1.53	832	1.58	856	1.64	880	1.70	903	1.76	925	1.82	946	1.88	967	1.95	987	2.02	1007	2.09
3500	830	1.63	854	1.69	877	1.75	900	1.81	922	1.88	944	1.94	964	2.01	985	2.08	1004	2.15	1024	2.23
3600	852	1.74	876	1.81	898	1.87	921	1.94	942	2.01	963	2.07	983	2.15	1002	2.22	1022	2.29	1041	2.37

Air Volume (cfm)	External Static (in.w.g.)																			
	1.1		1.2		1.3		1.4		1.5		1.6		1.7		1.8		1.9		2.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2400	883	1.21	907	1.25	931	1.30	955	1.35	979	1.40	1003	1.45	1027	1.51	1050	1.57	1072	1.63	1094	1.69
2500	895	1.28	919	1.32	942	1.37	966	1.42	990	1.48	1013	1.53	1036	1.59	1059	1.65	1081	1.71	1102	1.78
2600	908	1.35	931	1.40	955	1.45	978	1.50	1001	1.56	1024	1.62	1046	1.68	1068	1.74	1089	1.80	1110	1.87
2700	922	1.43	945	1.48	967	1.53	990	1.59	1013	1.65	1035	1.71	1056	1.77	1078	1.84	1099	1.90	1119	1.96
2800	936	1.51	958	1.56	980	1.62	1003	1.68	1025	1.74	1046	1.80	1067	1.87	1088	1.93	1109	2.00	1129	2.06
2900	950	1.60	972	1.66	994	1.72	1016	1.78	1037	1.84	1058	1.91	1079	1.97	1099	2.04	1119	2.11	1139	2.17
3000	965	1.69	986	1.76	1008	1.82	1029	1.88	1050	1.95	1070	2.02	1091	2.08	1110	2.15	1130	2.22	1149	2.28
3100	980	1.80	1001	1.86	1022	1.93	1043	2.00	1063	2.07	1083	2.13	1103	2.20	1122	2.27	1141	2.33	1160	2.40
3200	995	1.91	1016	1.98	1036	2.05	1057	2.12	1077	2.19	1096	2.26	1116	2.33	1134	2.39	1153	2.46	1171	2.52
3300	1011	2.03	1031	2.11	1051	2.18	1071	2.25	1091	2.32	1110	2.39	1129	2.45	1147	2.52	1165	2.59	1183	2.65
3400	1027	2.16	1047	2.24	1067	2.31	1086	2.38	1105	2.45	1124	2.52	1142	2.59	1160	2.66	1178	2.72	1196	2.78
3500	1043	2.30	1063	2.38	1082	2.45	1101	2.52	1120	2.59	1138	2.66	1156	2.73	1174	2.80	1191	2.86	1208	2.92
3600	1060	2.45	1079	2.52	1098	2.60	1117	2.67	1135	2.74	1153	2.81	1170	2.87	1188	2.94	1205	3.00	1222	3.06

BLOWER DATA

BELT DRIVE KIT SPECIFICATIONS - 036-074S

Model No.	Motor HP		No. of Speeds	Drive Kits and RPM Range							
	Nominal	Maximum		A01	A02	A03	A04	A05	A06	A07	A08
036	0.75	0.86	1	673-1010	- - -	- - -	- - -	897-1346	- - -	- - -	- - -
	1	1.15	1	673-1010	- - -	- - -	- - -	897-1346	- - -	- - -	- - -
	1.5	1.7	1	673-1010	- - -	- - -	- - -	897-1346	- - -	- - -	- - -
	2	2.3	1	673-1010	- - -	- - -	- - -	897-1346	- - -	- - -	- - -
048	0.75	0.86	1	- - -	745-1117	- - -	- - -	- - -	1071-1429	- - -	- - -
	1	1.15	1	- - -	745-1117	- - -	- - -	- - -	1071-1429	- - -	- - -
	1.5	1.7	1	- - -	745-1117	- - -	- - -	- - -	1071-1429	- - -	- - -
	2	2.3	1	- - -	745-1117	- - -	- - -	- - -	1071-1429	- - -	- - -
060	0.75	0.86	1	- - -	- - -	833-1250	- - -	- - -	- - -	1212-1548	- - -
	1	1.15	1	- - -	- - -	833-1250	- - -	- - -	- - -	1212-1548	- - -
	1.5	1.7	1	- - -	- - -	833-1250	- - -	- - -	- - -	1212-1548	- - -
	2	2.3	1	- - -	- - -	833-1250	- - -	- - -	- - -	1212-1548	- - -
074S	1	1.5	2	- - -	- - -	- - -	968-1340	- - -	- - -	- - -	1193-1591
	2	2.3	2	- - -	- - -	- - -	968-1340	- - -	- - -	- - -	1193-1591

NOTE - 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.

BELT DRIVE KIT SPECIFICATIONS - 072H/074H/090S

Model No.	Motor HP		No. of Speeds	Drive Kits and RPM Range			
	Nominal	Maximum		AA01	AA02	AA03	AA04
072H	1	1.15	1	522-784	632-875	798-1105	798-1105
	2	2.3	1	522-784	632-875	798-1105	798-1105
074H	1	1.15	2	522-784	632-875	798-1105	798-1105
	2	2.3	2	522-784	632-875	798-1105	798-1105
090S4B	1	1.15	1	522-784	632-875	798-1105	- - -
	2	2.3	1	522-784	632-875	798-1105	- - -
	3	3.45	1	522-784	632-875	798-1105	921-1228
090S4T	2	2.3	2	522-784	632-875	798-1105	- - -

NOTE - 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.

OPTIONS / ACCESSORIES AIR RESISTANCE FOR 024-074 MODELS - in. w.g.

Air Volume cfm	Wet Indoor Coil			Humiditrol Coil		Economizer	Electric Heat	Filters	
	024-048	060	072/074	024-048	060, 074			MERV 8	MERV 13
800	0.01	0.01	0.01	0.00	0.00	0.04	0.01	0.04	0.05
1000	0.02	0.02	0.01	0.00	0.00	0.04	0.03	0.04	0.07
1200	0.03	0.04	0.02	0.01	0.00	0.04	0.06	0.04	0.07
1400	0.04	0.05	0.03	0.02	0.01	0.04	0.09	0.04	0.07
1600	0.05	0.06	0.04	0.03	0.02	0.04	0.12	0.04	0.07
1800	0.06	0.07	0.05	0.04	0.02	0.05	0.15	0.05	0.07
2000	0.08	0.09	0.06	0.04	0.03	0.05	0.18	0.05	0.08
2200	0.09	0.10	0.07	- - -	0.04	0.05	0.20	0.05	0.08
2400	0.10	0.12	0.08	- - -	0.04	0.05	0.22	0.05	0.08
2600	0.11	0.13	0.09	- - -	0.05	0.06	0.24	0.05	0.08
2800	0.13	0.15	0.10	- - -	0.05	0.06	0.26	0.05	0.08
3000	0.14	0.16	0.12	- - -	0.06	0.06	0.28	0.05	0.08

OPTIONS / ACCESSORIES AIR RESISTANCE FOR 090 MODELS - in. w.g.

Air Volume cfm	Wet Indoor Coil	Humiditrol Coil	Economizer	Electric Heat	Filters	
					MERV 8	MERV 13
2400	0.08	0.04	0.05	0.22	0.05	0.08
2600	0.09	0.05	0.06	0.24	0.05	0.08
2800	0.10	0.05	0.06	0.26	0.05	0.08
3000	0.11	0.06	0.06	0.28	0.05	0.08
3200	0.12	0.06	0.06	0.30	0.06	0.09
3400	0.14	0.07	0.06	0.32	0.06	0.09
3600	0.15	0.07	0.06	0.34	0.06	0.10

BLOWER DATA

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

Air Volume cfm	RTD9-65S Step–Down Diffuser			FD9-65S Flush Diffuser	RTD11-95S Step–Down Diffuser			FD11-95S 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
3200	- - -	- - - -	- - -	- - -	0.41	0.37	0.32	0.31
3400	- - -	- - - -	- - -	- - -	0.50	0.45	0.39	0.37
3600	- - -	- - - -	- - -	- - -	0.61	0.54	0.48	0.44

CEILING DIFFUSER AIR THROW DATA

Air Volume - cfm	[1] Effective Throw - ft.	
Model No.	**RTD9-65S**	**FD9-65S**
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.	**RTD11-95S**	**FD11-95S**
2600	24 - 29	19 - 24
2800	25 - 30	20 - 28
3000	27 - 33	21 - 29
3200	28 - 35	22 - 29
3400	30 - 37	22 - 30
3600	25 - 33	22 - 24

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

POWER EXHAUST FAN PERFORMANCE

Return Air System Static Pressure - in. w.g.	Air Volume Exhausted cfm
0.00	2000
0.05	1990
0.10	1924
0.15	1810
0.20	1664
0.25	1507
0.30	1350
0.35	1210

ELECTRICAL/ELECTRIC HEAT DATA — DIRECT DRIVE - 2 TON | 2.5 TON

		Model No.	**KCB024S4D**		**KCB030S4D**	
[1] Voltage - 60hz			**208/230V - 1 Ph**		**208/230V - 1 Ph**	
Compressor 1		Rated Load Amps	10.9		13.5	
		Locked Rotor Amps	60		73	
Outdoor Fan Motors (1)		Full Load Amps (total)	1.7		1.7	
Service Outlet 115V GFI (amps)			15		15	
Indoor Blower Motor		Horsepower	0.25		0.25	
		Type	Direct		Direct	
		Full Load Amps	1.8		1.8	
[2] Maximum Overcurrent Protection		Unit Only	25		30	
[3] Minimum Circuit Ampacity		Unit Only	18		21	
ELECTRIC HEAT DATA						
Electric Heat Voltage			**208V**	**240V**	**208V**	**240V**
[2] Maximum Overcurrent Protection	Unit + Electric Heat	**5 kW**	25	30	30	30
		7.5 kW	40	45	40	45
		10 kW	50	60	50	60
[3] Minimum Circuit Ampacity	Unit + Electric Heat	**5 kW**	25	29	25	29
		7.5 kW	37	42	37	42
		10 kW	48	55	48	55
ELECTRICAL ACCESSORIES						
Disconnect	Standard Access - **0-10 kW**		**20W15**	**20W15**	**20W15**	**20W15**
	Hinged Access - **0-10 kW**		**20W21**	**20W21**	**20W21**	**20W21**

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.

[1] Extremes of operating range are plus and minus 10% of line voltage.

[2] HACR type breaker or fuse.

[3] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL/ELECTRIC HEAT DATA — DIRECT DRIVE | 3 TON

		Model No.	KCB036S4D			
[1] Voltage - 60hz			208/230V - 1 Ph	208/230V - 3 Ph	460V - 3 Ph	575V - 3 Ph
Compressor		Rated Load Amps	15.3	8.7	4	3.6
		Locked Rotor Amps	70	70	31	27
Outdoor Fan Motor		Full Load Amps	1.7	1.7	1.1	0.7
Power Exhaust (1) 0.33 HP		Full Load Amps	2.4	2.4	1.3	1
Service Outlet 115V GFI (amps)			15	15	15	20
Indoor Blower Motor		Horsepower	0.5	0.5	0.5	0.5
		Type	Direct	Direct	Direct	Direct
		Full Load Amps	3.9	3.9	2	2
[2] Maximum Overcurrent Protection		Unit Only	40	25	15	15
		with (1) 0.33 HP Power Exhaust	40	25	15	15
[3] Minimum Circuit Ampacity		Unit Only	25	17	9	8
		with (1) 0.33 HP Power Exhaust	28	19	10	9

ELECTRIC HEAT DATA

Electric Heat Voltage			**208V**	**240V**	**208V**	**240V**	**480V**	**600V**
[2] Maximum Overcurrent Protection	Unit + Electric Heat	**7.5 kW**	40	45	25	30	15	15
		15 kW	80	90	45	50	30	25
[3] Minimum Circuit Ampacity	Unit + Electric Heat	**7.5 kW**	39	44	25	28	14	12
		15 kW	73	83	44	50	26	21
[2] Maximum Overcurrent Protection	Unit + Electric Heat + Power Exhaust	**7.5 kW**	45	50	30	35	20	15
		15 kW	80	90	50	60	30	25
[3] Minimum Circuit Ampacity	Unit + Electric Heat + Power Exhaust	**7.5 kW**	42	47	28	31	16	13
		15 kW	76	86	47	53	27	22

ELECTRICAL ACCESSORIES

Disconnect	Standard Access - **0-15 kW**	**20W15**	**20W15**	**20W15**	**20W15**
	Hinged Access - **0-15 kW**	**20W21**	**20W21**	**20W21**	**20W21**

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.

[1] Extremes of operating range are plus and minus 10% of line voltage.

[2] HACR type breaker or fuse.

[3] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL/ELECTRIC HEAT DATA — DIRECT DRIVE | 4 TON

		Model No.	KCB048S4D			
[1] Voltage - 60hz			208/230V - 1 Ph	208/230V - 3 Ph	460V - 3 Ph	575V - 3 Ph
Compressor	Rated Load Amps		20	11	5.5	4.7
	Locked Rotor Amps		99	86	37	34
Outdoor Fan Motor	Full Load Amps		1.7	1.7	1.1	0.7
Power Exhaust (1) 0.33 HP	Full Load Amps		2.4	2.4	1.3	1
Service Outlet 115V GFI (amps)			15	15	15	20
Indoor Blower Motor	Horsepower		0.5	0.5	0.5	0.5
	Type		Direct	Direct	Direct	Direct
	Full Load Amps		3.9	3.9	2	2
[2] Maximum Overcurrent Protection	Unit Only		50	30	15	15
	with (1) 0.33 HP Power Exhaust		50	30	15	15
[3] Minimum Circuit Ampacity	Unit Only		31	20	10	9
	with (1) 0.33 HP Power Exhaust		33	22	12	10

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	208V	240V	480V	600V
[2] Maximum Overcurrent Protection	Unit + Electric Heat	**7.5 kW**	50	50	30	30	15	15
		15 kW	80	90	45	50	30	25
[3] Minimum Circuit Ampacity	Unit + Electric Heat	**7.5 kW**	39	44	25	28	14	12
		15 kW	73	83	44	50	26	21
[2] Maximum Overcurrent Protection	Unit + Electric Heat + Power Exhaust	**7.5 kW**	50	50	30	35	20	15
		15 kW	80	90	50	60	30	25
[3] Minimum Circuit Ampacity	Unit + Electric Heat + Power Exhaust	**7.5 kW**	42	47	28	31	16	13
		15 kW	76	86	47	53	27	22

ELECTRICAL ACCESSORIES

Disconnect	Standard Access - **0-15 kW**	**20W15**	**20W15**	**20W15**	**20W15**
	Hinged Access - **0-15 kW**	**20W21**	**20W21**	**20W21**	**20W21**

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.

[1] Extremes of operating range are plus and minus 10% of line voltage.

[2] HACR type breaker or fuse.

[3] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL/ELECTRIC HEAT DATA — DIRECT DRIVE | 5 TON

		Model No.	KCB060S4D			
[1] Voltage - 60hz			208/230V - 1 Ph	208/230V - 3 Ph	460V - 3 Ph	575V - 3 Ph
Compressor		Rated Load Amps	24.4	16	7.8	5.7
		Locked Rotor Amps	144	110	52	39
Outdoor Fan Motor		Full Load Amps	1.7	1.7	0.8	0.9
Power Exhaust (1) 0.33 HP		Full Load Amps	2.4	2.4	1.3	1
Service Outlet 115V GFI (amps)			15	15	15	20
Indoor Blower Motor		Horsepower	0.75	0.75	0.75	0.75
		Type	Direct	Direct	Direct	Direct
		Full Load Amps	4.9	4.9	2.5	2.5
[2] Maximum Overcurrent Protection		Unit Only	60	40	20	15
		with (1) 0.33 HP Power Exhaust	60	40	20	15
[3] Minimum Circuit Ampacity		Unit Only	38	27	14	11
		with (1) 0.33 HP Power Exhaust	40	29	15	12

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	208V	240V	480V	600V
[2] Maximum Overcurrent Protection	Unit + Electric Heat	**7.5 kW**	60	60	40	40	20	15
		15 kW	80	90	50	60	30	25
		22.5 kW	110	125	70	80	40	35
[3] Minimum Circuit Ampacity	Unit + Electric Heat	**7.5 kW**	40	46	27	29	15	13
		15 kW	74	85	46	52	26	22
		22.5 kW	108	124	65	74	37	31
[2] Maximum Overcurrent Protection	Unit + Electric Heat + Power Exhaust	**7.5 kW**	60	60	40	40	20	15
		15 kW	80	90	50	60	30	25
		22.5 kW	125	150	70	80	40	35
[3] Minimum Circuit Ampacity	Unit + Electric Heat + Power Exhaust	**7.5 kW**	43	49	29	32	17	14
		15 kW	77	88	49	55	28	23
		22.5 kW	111	127	68	77	39	32

ELECTRICAL ACCESSORIES

Disconnect	Standard Access - **0-7.5 kW**	**20W18**	**20W18**	**20W18**	**20W18**
	15-22.5 kW	**20W19**	**20W18**	**20W18**	**20W18**
	Hinged Access - **0-7.5 kW**	**20W24**	**20W24**	**20W24**	**20W24**
	15-22.5 kW	**20W25**	**20W24**	**20W24**	**20W24**

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.

[1] Extremes of operating range are plus and minus 10% of line voltage.

[2] HACR type breaker or fuse.

[3] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL/ELECTRIC HEAT DATA — BELT DRIVE (SINGLE SPEED) | 3 TON

		Model No.	KCB036S4B							
[1] Voltage - 60hz			208/230V - 1 Ph		208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph	
Compressor		Rated Load Amps	15.3		8.7		4		3.6	
		Locked Rotor Amps	70		70		31		27	
Outdoor Fan Motor		Full Load Amps	1.7		1.7		1.1		0.7	
Power Exhaust (1) 0.33 HP		Full Load Amps	2.4		2.4		1.3		1	
Service Outlet 115V GFI (amps)			15		15		15		20	
Indoor Blower Motor		Horsepower	0.75	1.5	1	2	1	2	1	2
		Type	Belt	Belt	Belt	Belt	Belt	Belt	Belt	Belt
		Full Load Amps	7.6	11	4.6	7.5	2.1	3.4	1.7	2.7
[2] Maximum Overcurrent Protection		Unit Only	40	45	25	25	15	15	15	15
		with (1) 0.33 HP Power Exhaust	45	45	25	30	15	15	15	15
[3] Minimum Circuit Ampacity		Unit Only	29	32	18	21	9	10	7	8
		with (1) 0.33 HP Power Exhaust	31	35	20	23	10	11	8	9

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	208V	240V	208V	240V	208V	240V	480V	480V	600V	600V
[2] Maximum Overcurrent Protection	Unit + Electric Heat	**7.5 kW**	45	50	50	60	30	30	30	35	15	20	15	15
		15 kW	80	90	90	100	45	60	50	60	30	30	25	25
[3] Minimum Circuit Ampacity	Unit + Electric Heat	**7.5 kW**	44	49	48	53	26	29	29	32	14	16	12	13
		15 kW	78	88	82	92	45	51	49	55	26	27	21	22
[2] Maximum Overcurrent Protection	Unit + Electric Heat + Power Exhaust	**7.5 kW**	50	60	60	60	30	35	35	35	20	20	15	15
		15 kW	90	100	4 90	100	50	60	60	60	30	30	25	25
[3] Minimum Circuit Ampacity	Unit + Electric Heat + Power Exhaust	**7.5 kW**	47	52	51	56	29	32	32	35	16	18	13	14
		15 kW	81	91	85	95	48	54	52	58	27	29	22	23

ELECTRICAL ACCESSORIES

Disconnect	Standard Access - **0-7.5 kW**	**20W15**	**20W15**	**20W15**	**20W15**	**20W15**
	15 kW	**20W16**	**20W15**	**20W15**	**20W15**	**20W15**
	Hinged Access - **0-7.5 kW**	**20W21**	**20W21**	**20W21**	**20W21**	**20W21**
	15 kW	**20W22**	**20W21**	**20W21**	**20W21**	**20W21**

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.

[1] Extremes of operating range are plus and minus 10% of line voltage.

[2] HACR type breaker or fuse.

[3] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL/ELECTRIC HEAT DATA — BELT DRIVE (SINGLE SPEED) | 4 TON

		Model No.	KCB048S4B							
[1] Voltage - 60hz			208/230V - 1 Ph		208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph	
Compressor		Rated Load Amps	20		11		5.5		4.7	
		Locked Rotor Amps	99		86		37		34	
Outdoor Fan Motor		Full Load Amps	1.7		1.7		1.1		0.7	
Power Exhaust (1) 0.33 HP		Full Load Amps	2.4		2.4		1.3		1	
Service Outlet 115V GFI (amps)			15		15		15		20	
Indoor Blower Motor		Horsepower	0.75	1.5	1	2	1	2	1	2
		Type	Belt	Belt	Belt	Belt	Belt	Belt	Belt	Belt
		Full Load Amps	7.6	11	4.6	7.5	2.1	3.4	1.7	2.7
[2] Maximum Overcurrent Protection		Unit Only	50	50	30	30	15	15	15	15
		with (1) 0.33 HP Power Exhaust	50	60	30	35	15	15	15	15
[3] Minimum Circuit Ampacity		Unit Only	35	38	21	23	11	12	9	10
		with (1) 0.33 HP Power Exhaust	37	41	23	26	12	13	10	11

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	208V	240V	208V	240V	208V	240V	480V	480V	600V	600V
[2] Maximum Overcurrent Protection	Unit + Electric Heat	**7.5 kW**	50	50	50	60	30	30	30	35	15	20	15	15
		15 kW	80	90	90	100	45	60	50	60	30	30	25	25
[3] Minimum Circuit Ampacity	Unit + Electric Heat	**7.5 kW**	44	49	48	53	26	29	29	32	14	16	12	13
		15 kW	78	88	82	92	45	51	49	55	26	27	21	22
[2] Maximum Overcurrent Protection	Unit + Electric Heat + Power Exhaust	**7.5 kW**	50	60	60	60	30	35	35	35	20	20	15	15
		15 kW	90	100	90	100	50	60	60	60	30	30	25	25
[3] Minimum Circuit Ampacity	Unit + Electric Heat + Power Exhaust	**7.5 kW**	47	52	51	56	29	32	32	35	16	18	13	14
		15 kW	81	91	85	95	48	54	52	58	27	29	22	23

ELECTRICAL ACCESSORIES

Disconnect	Standard Access - **0-7.5 kW**	**20W15**	**20W15**	**20W15**	**20W15**	**20W15**
	15 kW	**20W16**	**20W15**	**20W15**	**20W15**	**20W15**
	Hinged Access - **0-7.5 kW**	**20W21**	**20W21**	**20W21**	**20W21**	**20W21**
	15 kW	**20W22**	**20W21**	**20W21**	**20W21**	**20W21**

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.

[1] Extremes of operating range are plus and minus 10% of line voltage.

[2] HACR type breaker or fuse.

[3] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL/ELECTRIC HEAT DATA — BELT DRIVE (SINGLE SPEED) | 5 TON

		Model No.	KCB060S4B							
[1] Voltage - 60hz			208/230V - 1 Ph		208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph	
Compressor		Rated Load Amps	24.4		16		7.8		5.7	
		Locked Rotor Amps	144.2		110		52		38.9	
Outdoor Fan Motor		Full Load Amps	1.7		1.7		0.8		0.9	
Power Exhaust (1) 0.33 HP		Full Load Amps	2.4		2.4		1.3		1	
Service Outlet 115V GFI (amps)			15		15		15		20	
Indoor Blower Motor		Horsepower	0.75	1.5	1	2	1	2	1	2
		Type	Belt	Belt	Belt	Belt	Belt	Belt	Belt	Belt
		Full Load Amps	7.6	11	4.6	7.5	2.1	3.4	1.7	2.7
[2] Maximum Overcurrent Protection		Unit Only	60	60	40	45	20	20	15	15
		with (1) 0.33 HP Power Exhaust	60	60	40	45	20	20	15	15
[3] Minimum Circuit Ampacity		Unit Only	40	44	27	30	13	14	10	11
		with (1) 0.33 HP Power Exhaust	43	46	29	32	14	16	11	12

ELECTRIC HEAT DATA

Electric Heat Voltage			**208V**	**240V**	**208V**	**240V**	**208V**	**240V**	**208V**	**240V**	**480V**	**480V**	**600V**	**600V**
[2] Maximum Overcurrent Protection	Unit + Electric Heat	**7.5 kW**	60	60	60	60	40	40	45	45	20	20	15	15
		15 kW	80	90	90	100	45	60	50	60	30	30	25	25
		22.5 kW	125	150	125	150	70	80	70	80	40	40	30	35
[3] Minimum Circuit Ampacity	Unit + Electric Heat	**7.5 kW**	44	49	48	53	27	29	30	32	14	16	12	13
		15 kW	78	88	82	92	45	51	49	55	26	27	21	22
		22.5 kW	112	127	116	131	65	74	69	78	37	39	30	31
[2] Maximum Overcurrent Protection	Unit + Electric Heat + Power Exhaust	**7.5 kW**	60	60	60	60	40	40	45	45	20	20	15	15
		15 kW	90	100	90	100	50	60	60	60	30	30	25	25
		22.5 kW	125	150	125	150	70	80	4 80	90	40	40	35	35
[3] Minimum Circuit Ampacity	Unit + Electric Heat + Power Exhaust	**7.5 kW**	47	52	51	56	29	32	32	35	16	18	13	14
		15 kW	81	91	85	95	48	54	52	58	27	29	22	23
		22.5 kW	115	130	119	134	68	77	72	81	39	40	31	32

ELECTRICAL ACCESSORIES

Disconnect	Standard Access - **0-7.5 kW**	**20W18**	**20W18**	**20W18**	**20W18**	**20W18**
	15-22.5 kW	**20W19**	**20W18**	**20W18**	**20W18**	**20W18**
	Hinged Access - **0-7.5 kW**	**20W24**	**20W24**	**20W24**	**20W24**	**20W24**
	15-22.5 kW	**20W25**	**20W24**	**20W24**	**20W24**	**20W24**

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.

[1] Extremes of operating range are plus and minus 10% of line voltage.

[2] HACR type breaker or fuse.

[3] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL/ELECTRIC HEAT DATA — BELT DRIVE (SINGLE SPEED) | 6 TON

		Model No.	KCB072H4B							
[1] Voltage - 60hz			208/230V - 3 Ph				460V - 3 Ph		575V - 3 Ph	
Compressor		Rated Load Amps	19.6				8.2		6.6	
		Locked Rotor Amps	136				66.1		55.3	
Outdoor Fan Motor		Full Load Amps	2.4				1.3		1	
Power Exhaust (1) 0.33 HP		Full Load Amps	2.4				1.3		1	
Service Outlet 115V GFI (amps)			15				15		20	
Indoor Blower Motor		Horsepower	1		2		1	2	1	2
		Type	Belt		Belt		Belt	Belt	Belt	Belt
		Full Load Amps	4.6		7.5		2.1	3.4	1.7	2.7
[2] Maximum Overcurrent Protection		Unit Only	45		50		20	20	15	15
		with (1) 0.33 HP Power Exhaust	50		50		20	20	15	15
[3] Minimum Circuit Ampacity		Unit Only	30		32		13	14	10	11
		with (1) 0.33 HP Power Exhaust	32		35		14	15	11	12

ELECTRIC HEAT DATA

Electric Heat Voltage			**208V**	**240V**	**208V**	**240V**	**480V**	**480V**	**600V**	**600V**
[2] Maximum Overcurrent Protection	Unit + Electric Heat	**7.5 kW**	45	45	50	50	20	20	15	15
		15 kW	45	60	50	60	30	30	25	25
		22.5 kW	70	80	70	80	40	40	30	35
		30 kW	90	100	90	100	50	50	40	40
[3] Minimum Circuit Ampacity	Unit + Electric Heat	**7.5 kW**	30	30	32	32	14	16	12	13
		15 kW	45	51	49	55	26	27	21	22
		22.5 kW	65	74	69	78	37	39	30	31
		30 kW	84	96	88	100	48	50	39	40
[2] Maximum Overcurrent Protection	Unit + Electric Heat + Power Exhaust	**7.5 kW**	50	50	50	50	20	20	15	15
		15 kW	50	60	60	60	30	30	25	25
		22.5 kW	70	80	80	90	40	40	35	35
		30 kW	90	100	100	110	50	60	40	45
[3] Minimum Circuit Ampacity	Unit + Electric Heat + Power Exhaust	**7.5 kW**	32	32	35	35	16	18	13	14
		15 kW	48	54	52	58	27	29	22	23
		22.5 kW	68	77	72	81	39	40	31	32
		30 kW	87	99	91	103	50	51	40	41

ELECTRICAL ACCESSORIES

Disconnect	Standard Access - **0-22.5 kW**	**20W18**	**20W18**	**20W18**	**20W18**
	30 kW	**20W19**	**20W19**	**20W18**	**20W18**
	Hinged Access - **0-22.5 kW**	**20W24**	**20W24**	**20W24**	**20W24**
	30 kW	**20W25**	**20W25**	**20W24**	**20W24**

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.

[1] Extremes of operating range are plus and minus 10% of line voltage.

[2] HACR type breaker or fuse.

[3] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL/ELECTRIC HEAT DATA — BELT DRIVE (SINGLE AND TWO SPEED) | 6 TON

		Model No.	KCB074S4B / KCB074S4T							
[1] Voltage - 60hz			208/230V - 3 Ph				460V - 3 Ph		575V - 3 Ph	
Compressor		Rated Load Amps	17.6				8.5		6.3	
		Locked Rotor Amps	136				66.1		55.3	
Outdoor Fan Motor		Full Load Amps	2.4				1.3		1	
Power Exhaust (1) 0.33 HP		Full Load Amps	2.4				1.3		1	
Service Outlet 115V GFI (amps)			15				15		20	
Indoor Blower Motor		Horsepower	1	2			1	2	1	2
		Type	Belt	Belt			Belt	Belt	Belt	Belt
		Full Load Amps	4.6	7.5			2.1	3.4	1.7	2.7
[2] Maximum Overcurrent Protection		Unit Only	45	45			20	20	15	15
		with (1) 0.33 HP Power Exhaust	45	50			20	25	15	15
[3] Minimum Circuit Ampacity		Unit Only	29	32			15	16	11	12
		with (1) 0.33 HP Power Exhaust	32	32			16	17	12	13
ELECTRIC HEAT DATA										
Electric Heat Voltage			**208V**	**240V**	**208V**	**240V**	**480V**	**480V**	**600V**	**600V**
[2] Maximum Overcurrent Protection	Unit + Electric Heat	**7.5 kW**	45	45	45	45	20	20	15	15
		15 kW	45	60	50	60	30	30	25	25
		22.5 kW	70	80	70	80	40	40	30	35
		30 kW	90	100	90	100	50	50	40	40
[3] Minimum Circuit Ampacity	Unit + Electric Heat	**7.5 kW**	29	29	32	32	15	16	12	13
		15 kW	45	51	49	55	26	27	21	22
		22.5 kW	65	74	69	78	37	39	30	31
		30 kW	84	96	88	100	48	50	39	40
[2] Maximum Overcurrent Protection	Unit + Electric Heat + Power Exhaust	**7.5 kW**	45	45	50	50	20	25	15	15
		15 kW	50	60	60	60	30	30	25	25
		22.5 kW	70	80	80	90	40	40	35	35
		30 kW	90	100	100	110	50	60	40	45
[3] Minimum Circuit Ampacity	Unit + Electric Heat + Power Exhaust	**7.5 kW**	32	32	35	35	16	18	13	14
		15 kW	48	54	52	58	27	29	22	23
		22.5 kW	68	77	72	81	39	40	31	32
		30 kW	87	99	91	103	50	51	40	41
ELECTRICAL ACCESSORIES										
Disconnect	Standard Access - **0-22.5 kW**		**20W18**	**20W18**			**20W18**		**20W18**	
		30 kW	**20W19**	**20W19**			**20W18**		**20W18**	
	Hinged Access - **0-22.5 kW**		**20W24**	**20W24**			**20W24**		**20W24**	
		30 kW	**20W25**	**20W25**			**20W24**		**20W24**	

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.

[1] Extremes of operating range are plus and minus 10% of line voltage.

[2] HACR type breaker or fuse.

[3] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL/ELECTRIC HEAT DATA — BELT DRIVE (TWO SPEED) | 6 TON

		Model No.	KCB074H4T							
[1] Voltage - 60hz			208/230V - 3 Ph				460V - 3 Ph		575V - 3 Ph	
Compressor		Rated Load Amps	17.6				8.5		6.3	
		Locked Rotor Amps	136				66.1		55.3	
Outdoor Fan Motor		Full Load Amps	2.4				1.3		1	
Power Exhaust (1) 0.33 HP		Full Load Amps	2.4				1.3		1	
Service Outlet 115V GFI (amps)			15				15		15	
Indoor Blower Motor		Horsepower	1		2		1	2	1	2
		Type	Belt		Belt		Belt	Belt	Belt	Belt
		Full Load Amps	4.6		7.5		2.1	3.4	1.7	2.7
[2] Maximum Overcurrent Protection		Unit Only	45		45		20	20	15	15
		with (1) 0.33 HP Power Exhaust	45		50		20	25	15	15
[3] Minimum Circuit Ampacity		Unit Only	29		32		15	16	11	12
		with (1) 0.33 HP Power Exhaust	32		35		16	17	12	13

ELECTRIC HEAT DATA

Electric Heat Voltage			**208V**	**240V**	**208V**	**240V**	**480V**	**480V**	**600V**	**600V**
[2] Maximum Overcurrent Protection	Unit + Electric Heat	**7.5 kW**	45	45	45	45	20	20	15	15
		15 kW	45	60	50	60	30	30	25	25
		22.5 kW	70	80	70	80	40	40	30	35
		30 kW	90	100	90	100	50	50	40	40
[3] Minimum Circuit Ampacity	Unit + Electric Heat	**7.5 kW**	29	29	32	32	15	16	12	13
		15 kW	45	51	49	55	26	27	21	22
		22.5 kW	65	74	69	78	37	39	30	31
		30 kW	84	96	88	100	48	50	39	40
[2] Maximum Overcurrent Protection	Unit + Electric Heat + Power Exhaust	**7.5 kW**	45	45	50	50	20	25	15	15
		15 kW	50	60	60	60	30	30	25	25
		22.5 kW	70	80	80	90	40	40	35	35
		30 kW	90	100	100	110	50	60	40	45
[3] Minimum Circuit Ampacity	Unit + Electric Heat + Power Exhaust	**7.5 kW**	32	32	35	35	16	18	13	14
		15 kW	48	54	52	58	27	29	22	23
		22.5 kW	68	77	72	81	39	40	31	32
		30 kW	87	99	91	103	50	51	40	41

ELECTRICAL ACCESSORIES

Disconnect	Standard Access - **0-22.5 kW**	**20W18**	**20W18**	**20W18**	**20W18**
	30 kW	**20W19**	**20W19**	**20W18**	**20W18**
	Hinged Access - **0-22.5 kW**	**20W24**	**20W24**	**20W24**	**20W24**
	30 kW	**20W25**	**20W25**	**20W24**	**20W24**

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.

[1] Extremes of operating range are plus and minus 10% of line voltage.

[2] HACR type breaker or fuse.

[3] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL/ELECTRIC HEAT DATA — BELT DRIVE (SINGLE SPEED) | 7.5 TON

		Model No.	KCB090S4B								
[1] Voltage - 60hz			208/230V - 3 Ph			460V - 3 Ph			575V - 3 Ph		
Compressor		Rated Load Amps	26.9			12			9		
		Locked Rotor Amps	164			94			65		
Outdoor Fan Motor		Full Load Amps	3			1.5			1.2		
Power Exhaust (1) 0.33 HP		Full Load Amps	2.4			1.3			1		
Service Outlet 115V GFI (amps)			15			15			20		
Indoor Blower Motor		Horsepower	1	2	3	1	2	3	1	2	3
		Type	Belt	Belt	Belt	Belt	Belt	Belt	Belt	Belt	Belt
		Full Load Amps	4.6	7.5	10.6	2.1	3.4	4.8	1.7	2.7	3.9
[2] Maximum Overcurrent Protection		Unit Only	60	70	70	30	30	30	20	20	25
		with (1) 0.33 HP Power Exhaust	70	70	70	30	30	30	20	25	25
[3] Minimum Circuit Ampacity		Unit Only	42	45	48	19	20	22	15	16	17
		with (1) 0.33 HP Power Exhaust	44	47	50	20	22	23	16	17	18

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	208V	240V	208V	240V	480V	480V	480V	600V	600V	600V
[2] Maximum Overcurrent Protection	Unit + Electric Heat	**7.5 kW**	60	60	70	70	70	70	30	30	30	20	20	25
		15 kW	60	60	70	70	70	70	30	30	30	25	25	25
		22.5 kW	70	80	70	80	80	90	40	40	40	30	35	35
		30 kW	90	100	90	100	100	110	50	50	60	40	40	45
[3] Minimum Circuit Ampacity	Unit + Electric Heat	**7.5 kW**	42	42	45	45	48	48	19	20	22	15	16	17
		15 kW	45	51	49	55	53	59	26	27	29	21	22	23
		22.5 kW	65	74	69	78	72	81	37	39	40	30	31	32
		30 kW	84	96	88	100	92	104	48	50	52	39	40	41
[2] Maximum Overcurrent Protection	Unit + Electric Heat + Power Exhaust	**7.5 kW**	70	70	70	70	70	70	30	30	30	20	25	25
		15 kW	70	70	70	70	70	70	30	30	35	25	25	25
		22.5 kW	70	80	80	90	80	90	40	40	45	35	35	35
		30 kW	90	100	100	110	100	110	50	60	60	40	45	45
[3] Minimum Circuit Ampacity	Unit + Electric Heat + Power Exhaust	**7.5 kW**	44	44	47	47	50	50	20	22	23	16	17	18
		15 kW	48	54	52	58	56	62	27	29	31	22	23	25
		22.5 kW	68	77	72	81	75	84	39	40	42	31	32	34
		30 kW	87	99	91	103	95	107	50	51	53	40	41	43

ELECTRICAL ACCESSORIES

Disconnect	Standard Access - **0-22.5 kW**	**20W18**	**20W18**	**20W18**	**20W18**		**20W18**
	30 kW	**20W19**	**20W19**	**20W19**	**20W18**		**20W18**
	Hinged Access - **0-22.5 kW**	**20W24**	**20W24**	**20W24**	**20W24**		**20W24**
	30 kW	**20W25**	**20W25**	**20W25**	**20W24**		**20W24**

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.

[1] Extremes of operating range are plus and minus 10% of line voltage.

[2] HACR type breaker or fuse.

[3] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL/ELECTRIC HEAT DATA — BELT DRIVE (TWO SPEED) | 7.5 TON

		Model No.	KCB090S4T		
[1] Voltage - 60hz			208/230V - 3 Ph	460V - 3 Ph	575V - 3 Ph
Compressor		Rated Load Amps	26.9	12	9
		Locked Rotor Amps	164	94	65
Outdoor Fan Motor		Full Load Amps	3	1.5	1.2
Power Exhaust (1) 0.33 HP		Full Load Amps	2.4	1.3	1
Service Outlet 115V GFI (amps)			15	15	20
Indoor Blower Motor		Horsepower	2	2	2
		Type	Belt	Belt	Belt
		Full Load Amps	7.5	3.4	2.7
[2] Maximum Overcurrent Protection		Unit Only	70	30	20
		with (1) 0.33 HP Power Exhaust	70	30	25
[3] Minimum Circuit Ampacity		Unit Only	45	20	16
		with (1) 0.33 HP Power Exhaust	47	22	17

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	480V	600V
[2] Maximum Overcurrent Protection	Unit + Electric Heat	**7.5 kW**	70	70	30	20
		15 kW	70	70	30	25
		22.5 kW	70	80	40	35
		30 kW	90	100	50	40
[3] Minimum Circuit Ampacity	Unit + Electric Heat	**7.5 kW**	45	45	20	16
		15 kW	49	55	27	22
		22.5 kW	69	78	39	31
		30 kW	88	100	50	40
[2] Maximum Overcurrent Protection	Unit + Electric Heat + Power Exhaust	**7.5 kW**	70	70	30	25
		15 kW	70	70	30	25
		22.5 kW	80	90	40	35
		30 kW	100	110	60	45
[3] Minimum Circuit Ampacity	Unit + Electric Heat + Power Exhaust	**7.5 kW**	47	47	22	17
		15 kW	52	58	29	23
		22.5 kW	72	81	40	32
		30 kW	91	103	51	41

ELECTRICAL ACCESSORIES

Disconnect	Standard Access - **0-22.5 kW**	**20W18**	**20W18**	**20W18**
	30 kW	**20W19**	**20W18**	**20W18**
	Hinged Access - **0-22.5 kW**	**20W24**	**20W24**	**20W24**
	30 kW	**20W25**	**20W24**	**20W24**

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.

[1] Extremes of operating range are plus and minus 10% of line voltage.

[2] HACR type breaker or fuse.

[3] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRIC HEAT CAPACITIES

Input Voltage	5 kW			7.5 kW			10 kW		
	No of Stages	kW input	Btuh Output	No of Stages	kW input	Btuh Output	No of Stages	kW input	Btuh Output
208	1	3.8	12,800	1	5.6	19,200	1	7.5	25,600
220	1	4.2	14,300	1	6.3	21,500	1	8.4	28,700
230	1	4.6	15,700	1	6.9	23,500	1	9.2	31,400
240	1	5.0	17,100	1	7.5	25,600	1	10.0	34,200
440	- - -	- - -	- - -	1	6.3	21,500	- - -	- - -	- - -
460	- - -	- - -	- - -	1	6.9	23,500	- - -	- - -	- - -
480	- - -	- - -	- - -	1	7.5	25,600	- - -	- - -	- - -
550	- - -	- - -	- - -	1	6.3	21,500	- - -	- - -	- - -
575	- - -	- - -	- - -	1	6.9	23,500	- - -	- - -	- - -
600	- - -	- - -	- - -	1	7.5	25,600	- - -	- - -	- - -

Input Voltage	15 kW			22.5 kW			30 kW		
	No of Stages	kW input	Btuh Output	No of Stages	kW input	Btuh Output	No of Stages	kW input	Btuh Output
208	1	11.2	38,400	1	16.9	57,700	1	22.5	76,800
220	1	12.6	43,000	1	18.9	64,500	1	25.2	86,000
230	1	13.8	47,000	1	20.7	70,700	1	27.5	93,900
240	1	15.0	51,200	1	22.5	76,800	1	30.0	102,400
440	1	12.6	43,000	1	18.9	64,500	1	25.2	86,000
460	1	13.8	47,000	1	20.7	70,700	1	27.5	93,900
480	1	15.0	51,200	1	22.5	76,800	1	30.0	102,400
550	1	12.6	43,000	1	18.9	64,500	1	25.2	86,000
575	1	13.8	47,000	1	20.7	70,700	1	27.5	93,900
600	1	15.0	51,200	1	22.5	76,800	1	30.0	102,400

KCB PARTS ARRANGEMENT

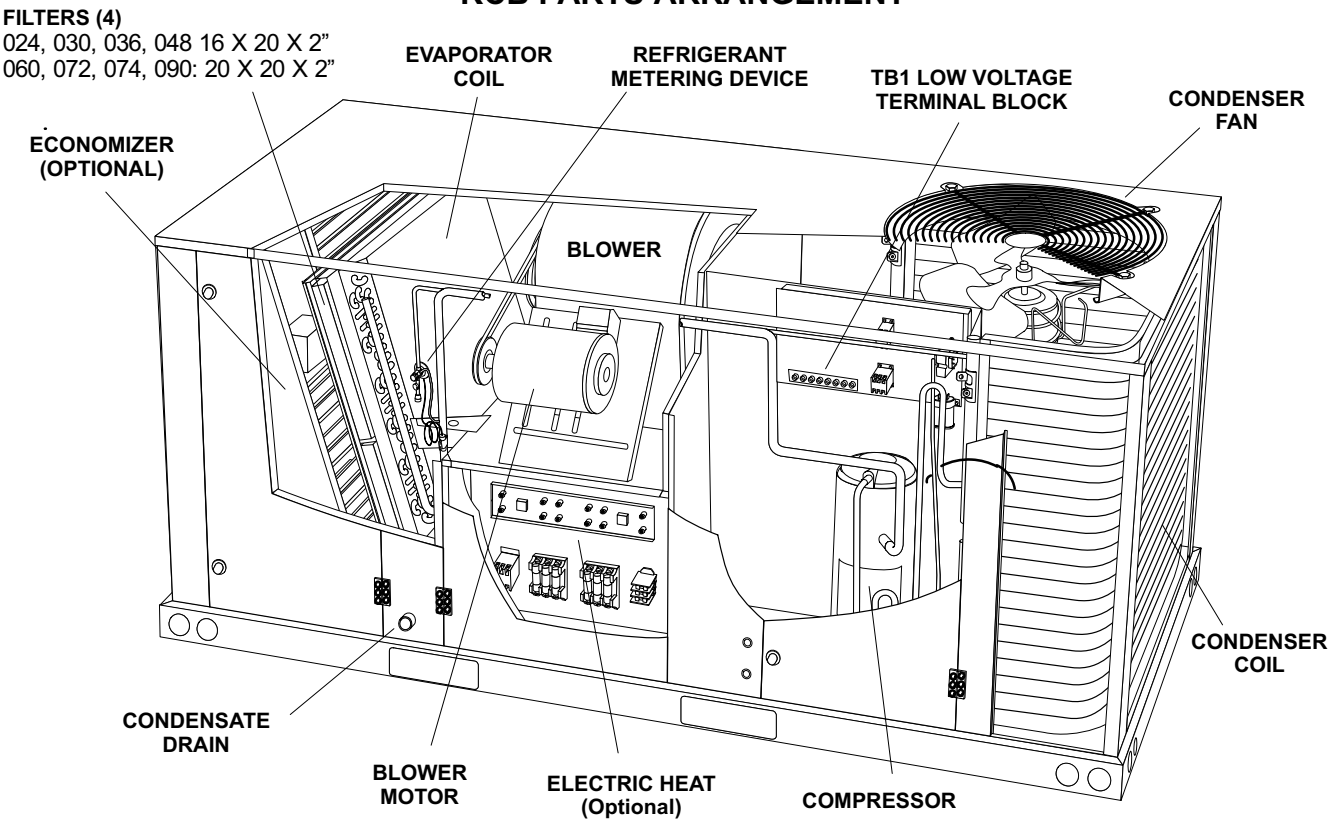


FIGURE 1

KCB CONTROL BOX

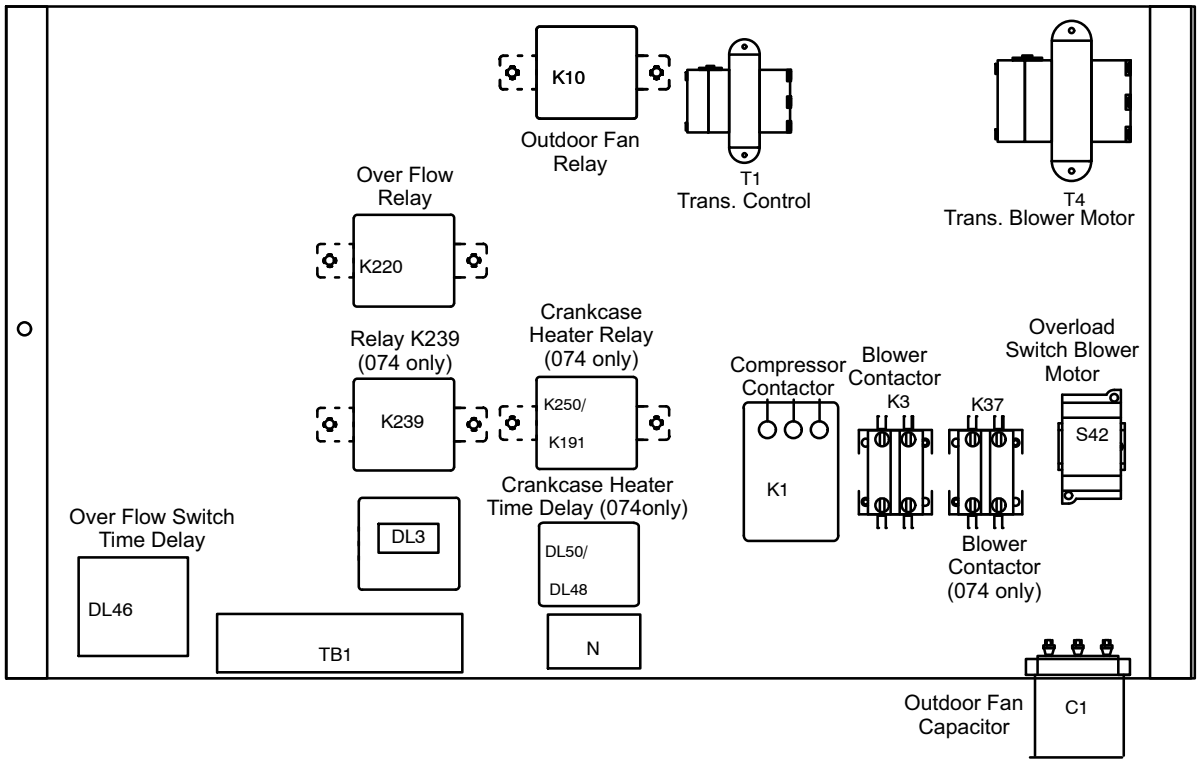


FIGURE 2

I-UNIT COMPONENTS

All 2 through 7-1/2 ton (7.5 through 21 kW) units are build to order units (BTO). The KCA/KCB unit components are shown in figure 1. All units come standard with removable unit panels. All L1, L2, and L3 wiring is color coded; L1 is red, L2 is yellow, and L3 is blue.

A-Control Box Components

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

1-Control Transformer T1

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

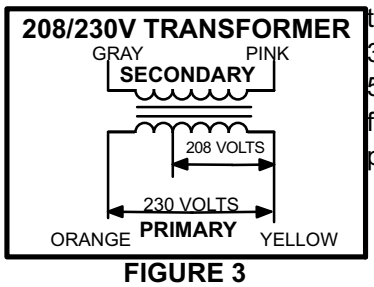


FIGURE 3

2-Transformer T4 (J voltage)

All (J) 575 voltage direct drive 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.

3-Terminal Strip TB1

All indoor thermostat connections will be to TB1 located in the control box. For thermostats without “occupied “ and “unoccupied” modes, a factory installed jumper across terminals R and OC should be in place.

4-Fan Capacitor C1 (three phase)

Fan capacitors C1 is used to assist in the start up of condenser fan B4. Ratings will be on side of capacitor or outdoor fan motor nameplate.

5-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 MF ratings. See side of capacitor for ratings.

6-Compressor Contactor K1

In all KCB units, K1 energizes compressors B1 in response to thermostat demand. Three-phase units use three-pole double-break contactors with a 24 volt coil. Single-phase units use single-pole double-break contactors with a 24 volt coil.

7-Blower Contactor K3

On three phase KCA/KCB blower motors, K3 is a two-pole double-break contactor with a 24VAC coil and on single-phase blower motors K3 is a single-pole double-break contactor with a 24 volt coil. K3 energizes the indoor blower motor B3 in response to blower demand.

8-Condenser Fan Relay K10 (G, J voltage)

Outdoor fan relay K10 is a DPDT relay with a 24VAC coil. K10 energizes condenser fan B4. K10 is used with a low ambient kit only.

9-Blower Delay DL3 &DL50 -074 Only

When second stage heat demand is satisfied DL3 causes a 180 second blower off delay.

DL50 causes a 1.5 second delay switching from high speed to low speed.

10-Relay K239 -074 Units Only

Relay K239 sends the Y1 demand “G” signal to K3 (through K250) to energize the blower on low speed and also sends the “W1” demand “G” signal to K37 (through K250) to energize the blower on high speed.

11-Relay K250 -074 Units Only

Relay K250 passes the “G” signal to contactor K3 energizing the blower on low speed. On a Y2 call K250 passes the signal to K37 energizing the blower on high speed and internal solenoid L34 energizing the compressor on high speed.

12-Blower Contactor K37 -074 Units only

On two-speed operation K37 acts as the high speed blower contactor and K3 acts as the low speed contactor in response to blower demand.

13-Crankcase Heater Delay DL48 & Crankcase Heater Relay K191

Delay DL48 and relay K191 keep crankcase heater de-energized during and immediately following compressor shut down. They ensure the crankcase heater is off while compressor is energized.

B-Cooling Components

KCB units use one cooling circuit consisting of a compressor, condenser coil and evaporator coil. See figure 4. One draw-through type condenser fan is used in all KCA/KCB units. Units are equipped with belt-drive or direct drive blowers which draw air across the evaporator during unit operation.

Cooling may be supplemented by a factory- or field-installed economizer. The evaporators are slab type. All KCB use an RFC metering device except the 072H and 074H use a thermal expansion valve (TXV). Each evaporator is also equipped with enhanced fins and rifled tubing. In all units each compressor is protected by a freezestat (S49) on the evaporator coil and a high pressure switch (S4) on the discharge line. See figure 4. A Low ambient switch (S11) is available as a field accessory for additional compressor protection.

1-Compressor B1

All KCB024/090 units use one 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.

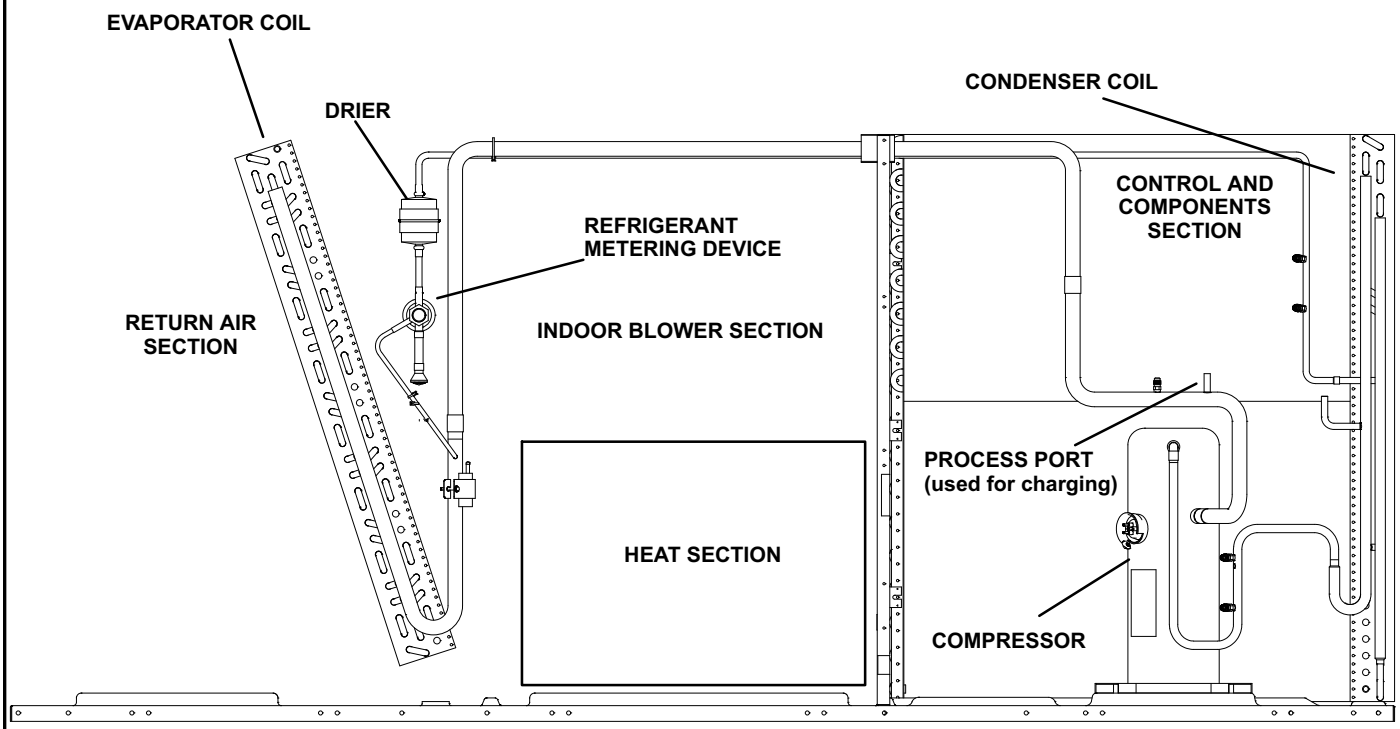
NOTE-Refer to the wiring diagram section for specific unit operation.

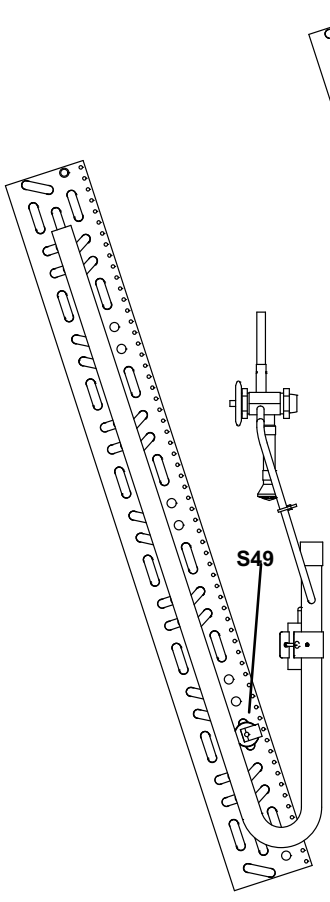
If Interlink compressor replacement is necessary, call 1-800-453-6669.

⚠ IMPORTANT

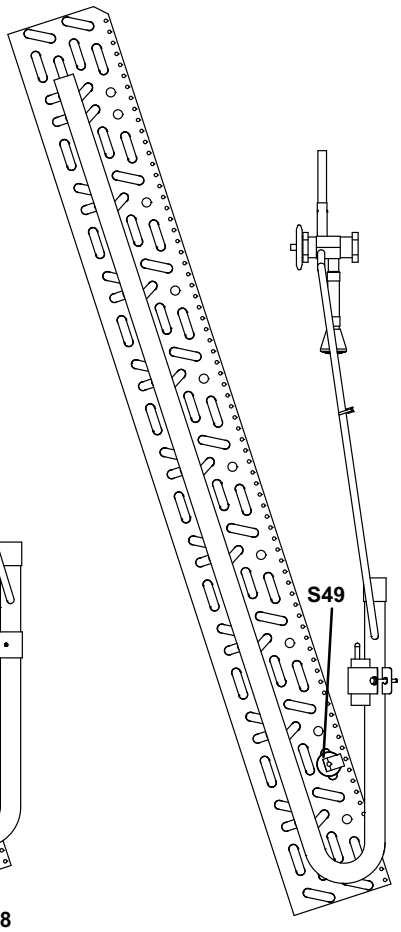
Some scroll compressors have an internal vacuum protector that will unload scrolls when suction pressure goes below 20 psig. A hissing sound will be heard when the compressor is running unloaded. Protector will reset when low pressure in system rises above 40 psig. DO NOT REPLACE COMPRESSOR.

KCB PLUMBING and COMPRESSOR

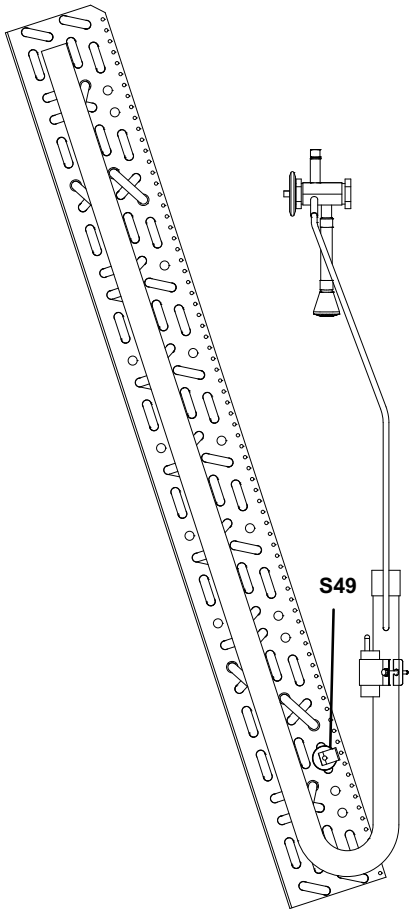




024, 030, 036, 048



072, 074



0090S & 060

FIGURE 4

2-Freezestat S49

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

The freezestat is wired in series with the compressor contactor K1. The freezestat is a SPST N.C. auto-reset switch which opens at 29°F ± 3°F (-1.7°C ± 1.7°C) on a temperature drop and closes at 58°F ± 4°F (14.4°C ± 2.2°C) on a temperature rise. To prevent coil icing, freezestats open during compressor operation to temporarily disable the respective compressor until the coil temperature rises.

If the freezestats are tripping frequently due to coil icing, check the airflow / filters , economizer position and unit charge before allowing unit back in operation. Make sure to eliminate conditions which might promote evaporator ice buildup.

3-High Pressure Switch S4

In all KCB units the high pressure switch is an auto-rest SPST N.C. switch which opens on a pressure rise. In all other units, the switch is manual re-set and operates the same as the auto re-set.

S4 is located in the compressor discharge line and wired in series with the compressor contactor coil.

When discharge pressure rises to 640 ± 20 psig (4412 ± 138 kPa) (indicating a problem in the system) the switch opens and the respective compressor is de-energized (the economizer can continue to operate). When discharge pressure drops to 475 ± 30 psig (3275 ± 206 kPa), the switch closes.

4-Low Ambient Switches S11 (optional)

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 the switch is located in each liquid line prior to the indoor coil section and is wired in series with outdoor fan B4. When S11 opens B4 is de-energized.

In G, J and M voltage units, S11 is wired in series with outdoor fan relay K10 coil and when opened breaks 24 volts to the coil, de-energizing outdoor fan B4.

When liquid pressure rises to 450 ± 10 psig (3102 ± 69 kPa), the switch closes and the condenser fan is energized. When discharge pressure in drops to 240 ± 10 psig (1655 ± 69 kPa), the switch opens and the condenser fan is de-energized. This intermittent fan operation results in higher evaporating temperature allowing the system to operate without icing the evaporator coil and losing capacity.

5-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 24VAC compressor contactor. 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).

6-Crankcase Heater HR1

090S-3 and later units: are equipped with a belly band type crankcase heater. HR1 prevents liquid migration and ensures proper compressor lubrication. It is installed around compressor B1. Crankcase heater wattage varies by compressor manufacturer.

C-Blower Compartment

1-Blower Wheels

All belt drive units use 10” x 10” (254 mm x 254 mm) blower wheels. The KCB024, 030, 036 and 048 direct drive units use 10” x 10” (254 mm x 254 mm) blower wheels also. The KCB060 direct drive units use 11” x 10” (279 mm x 254 mm) blower wheels. KCB072/074 units use a 15” x 9” (381 mm x 228 mm) blower wheel.

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. Motors are equipped with sealed ball bearings. All motor specifications are listed in the SPECIFICATIONS (table of contents) in the front of this manual. 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.

⚠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 subbase 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 - Single-Speed, Direct Drive Blowers

1- The following measurements must be made with air filters in place.

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 accessory air resistance tables. Blower performance data is based on static pressure readings taken in locations shown in figure 6.

Note - Static pressure readings can vary if not taken where shown.

3- Use figure 5 to determine the factory set blower speed.

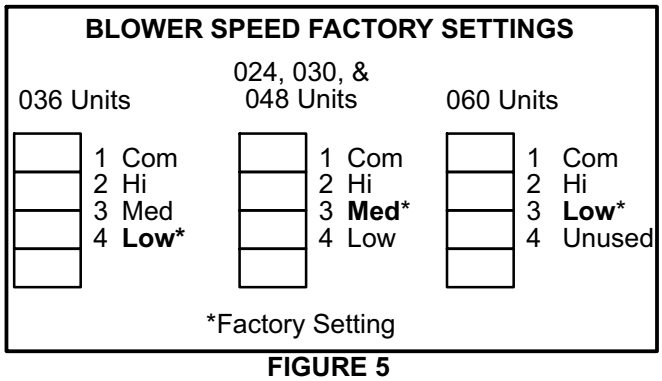


FIGURE 5

4- Use direct drive blower tables, the measured static pressure and the factory-set blower speed to determine CFM. If CFM is lower or higher than the design specified CFM, move the leads as shown in figure 7 for 208/230 volt units and figure 8 for 460/575 volt units.

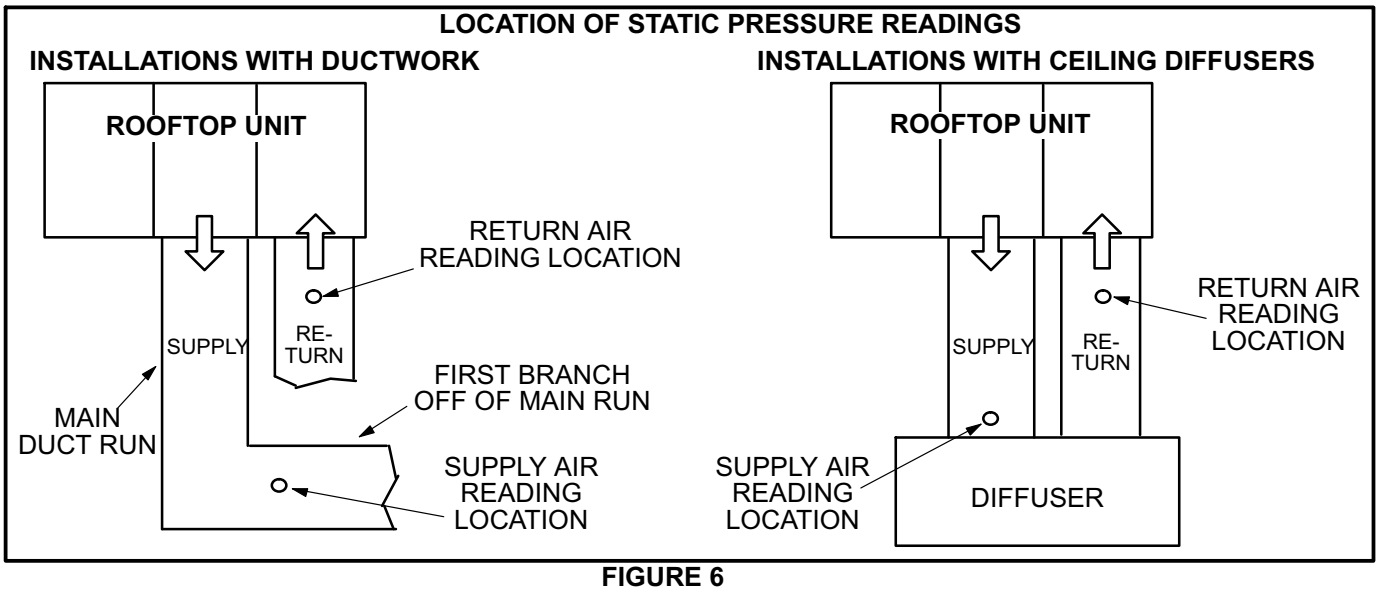


FIGURE 6

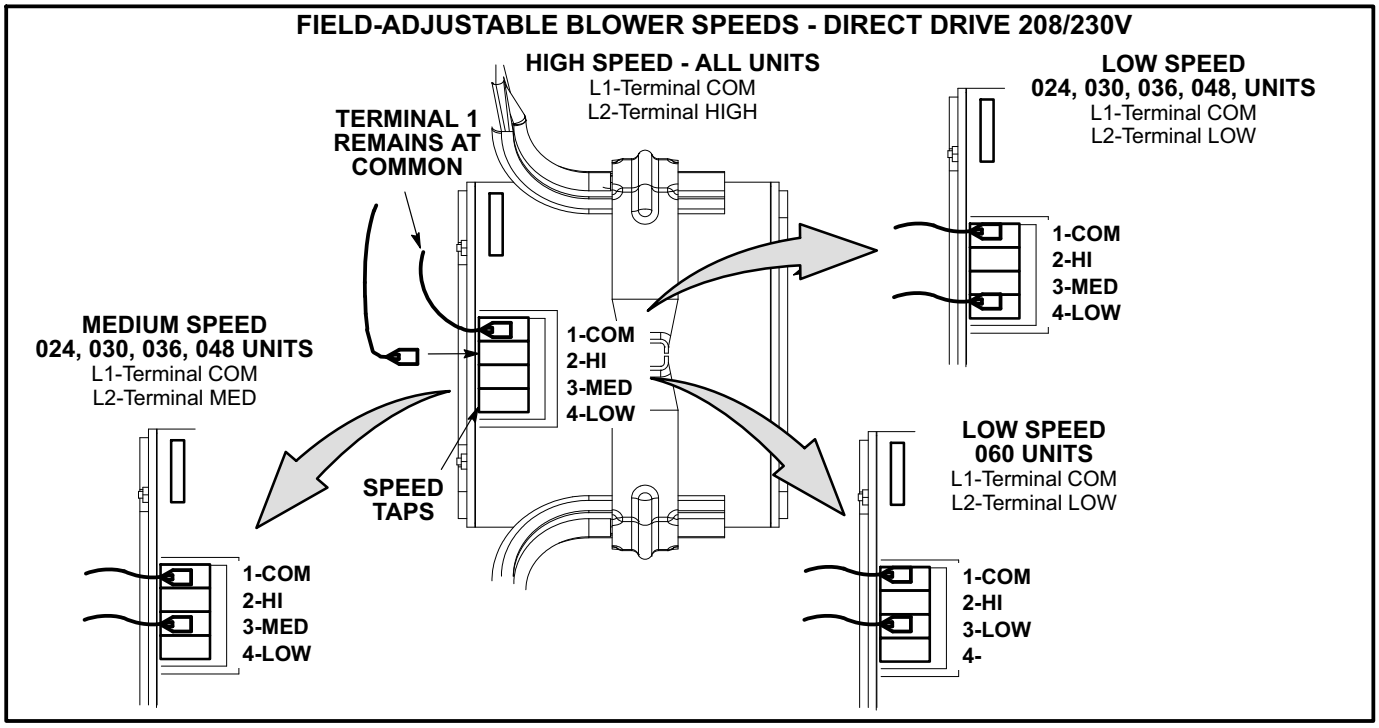


FIGURE 7

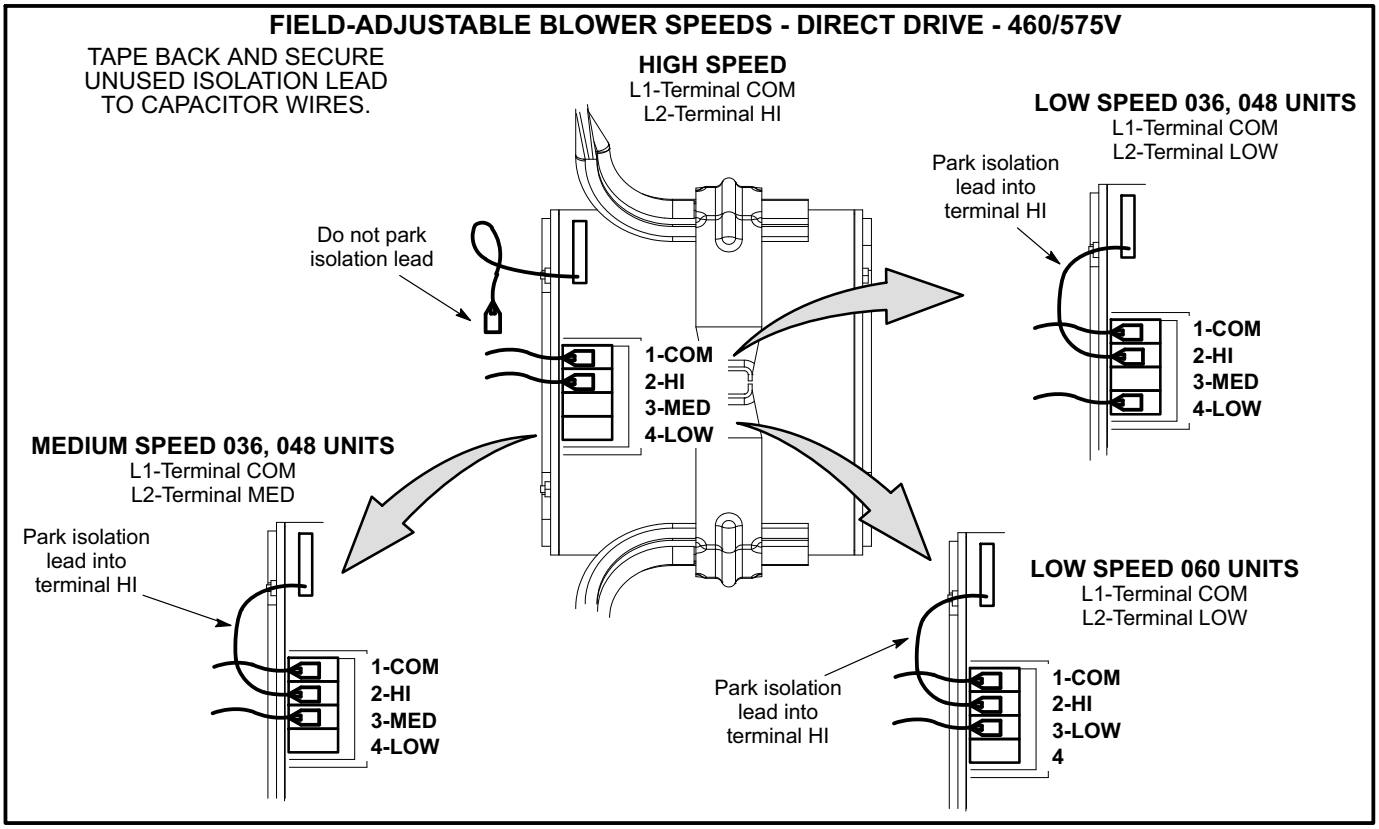


FIGURE 8

C-Determining Unit CFM - Multi-Stage, Direct Drive Blowers

1- Refer to multi-stage direct drive blower tables, the measured static pressure, and the factory-set blower speed to determine CFM.

2- If CFM is lower than the design specified CFM, move the leads as shown in figure 9 for 208/230 volt single phase units.

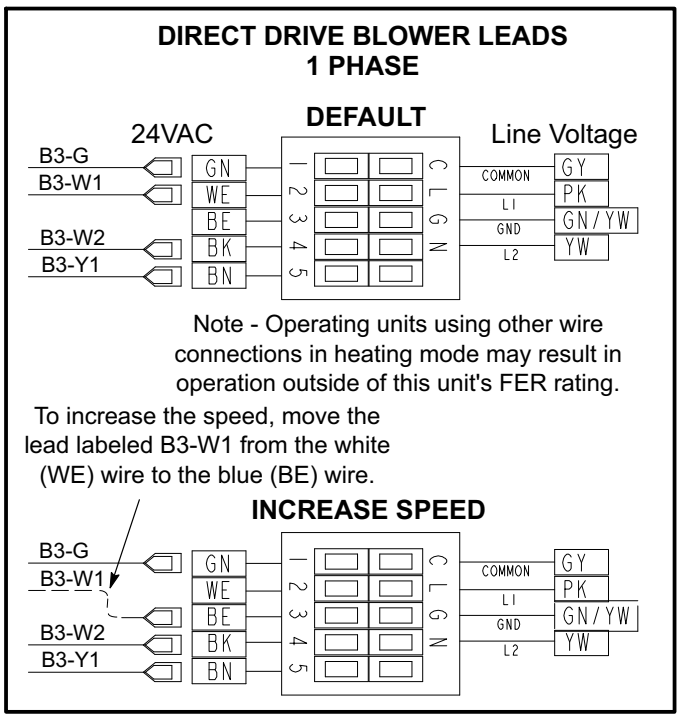


FIGURE 9

D-Determining Unit CFM - Belt Drive Blowers

IMPORTANT - KGB/KCB074, 090S4T blower (G thermostat) ***CFM MUST BE ADJUSTED IN HIGH SPEED***. Disconnect factory-installed J350 low speed connector from P350. Connectors are located near the bottom of the control box. Connect J351 high speed connector to P350. Once blower CFM is set, J350 can be reconnected to operate the blower on low during ventilation only demands. See table 1.

1- The following measurements must be made with air filters in place.

2- With all access panels in place, measure static pressure external to unit (from supply to return). Blower performance data is based on static pressure readings taken in locations shown in figure 6.

Note - Static pressure readings can vary if not taken where shown.

TABLE 1
TWO-SPEED BLOWER OPERATION
KGB/KCB074, 090S4T UNITS

Thermostat	Blower Speed
G (P350/J350)*	Low
G (P350/J351)	High
W1	High
W2	High
Y1	Low
Y2	High
Dehum	High

**Factory-installed jack/plug connection.*

3- Measure the indoor blower wheel RPM.

4- Referring to belt drive blower tables, use static pressure and RPM readings to determine unit CFM. Use the air resistance tables 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 10 Do not exceed minimum and maximum number of pulley turns as shown in table 2.

6- *KGB/KCB074S4T and 090S4T Unit Only -*
If low speed during ventilation is desired, replace J351 connector with J350.

TABLE 2
MINIMUM AND MAXIMUM PULLEY ADJUSTMENT

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

E-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 11.

1- Loosen four bolts securing motor base to mounting frame. See figure 10.

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.

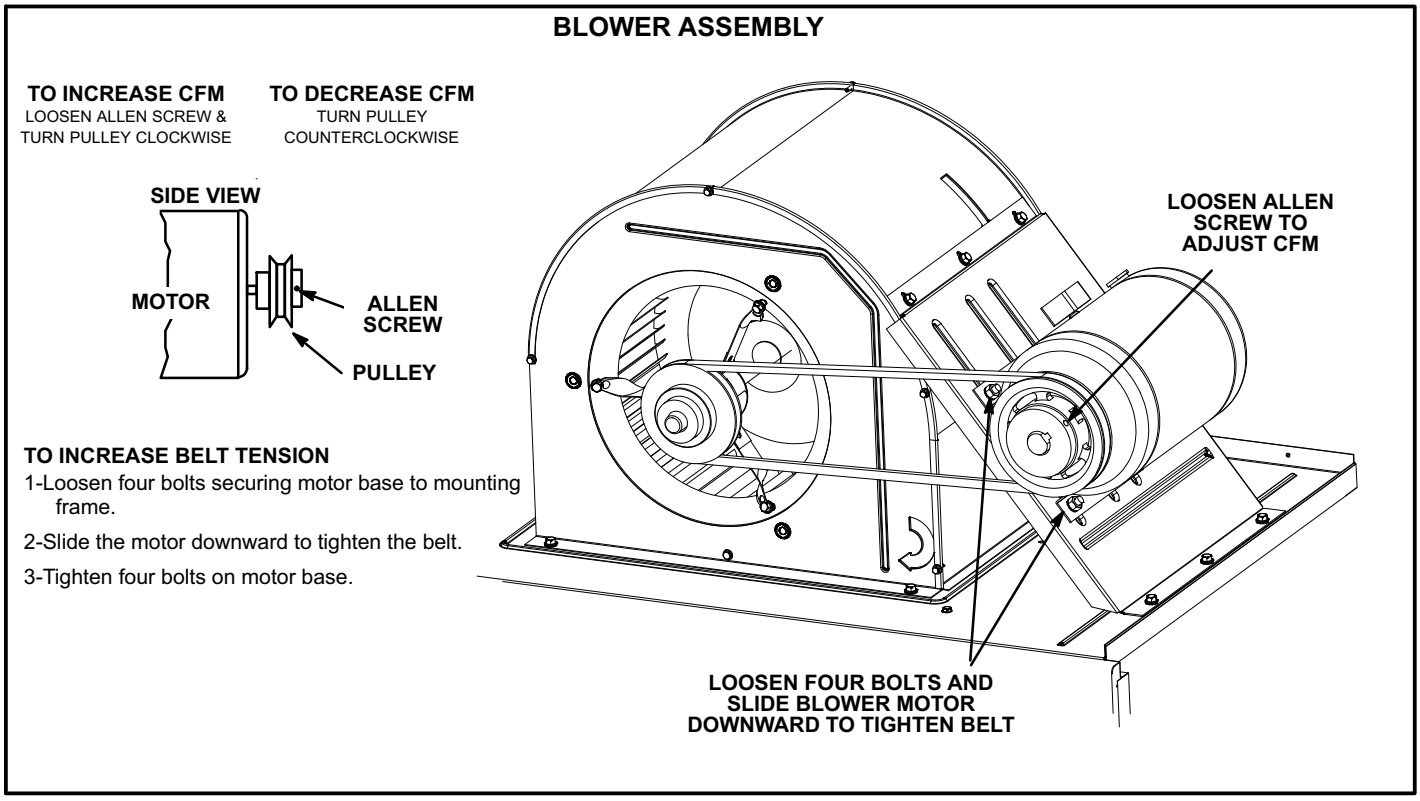


FIGURE 10

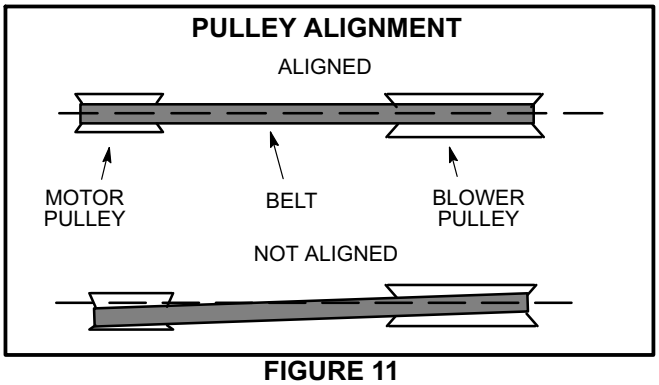


FIGURE 11

F-Blower Belt Adjustment - M Volt Units With 3 HP Blowers Equipped With A Belt Tensioner

1- Remove blower belt.

2- Remove bracket from blower housing. See figure 13.

3- Remove the screw from the back side of the bracket.

4- Move the tensioner to the appropriate adjustment hole and reinstall screw.

5- Replace bracket.

6- Replace blower belt. See figure 14.

G-Check Belt Tension - Units Not Equipped With A Belt Tensioner

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

1- Measure span length X. See figure 12.

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.

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.

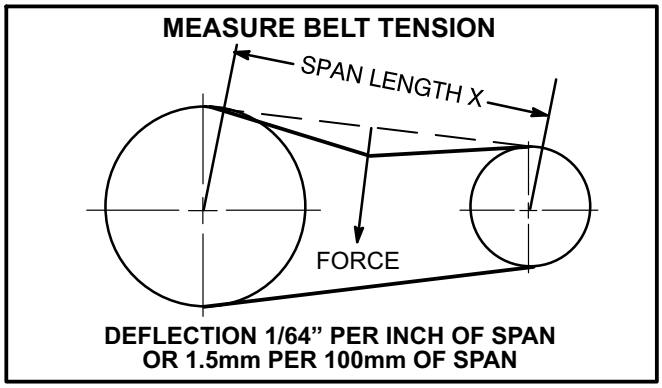


FIGURE 12

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.

H-Field-Furnished Blower Drives

For field-furnished blower drives, use belt drive blower tables to determine BHP and RPM required. Reference the drive kit specification table and manufacturer's drive number table.

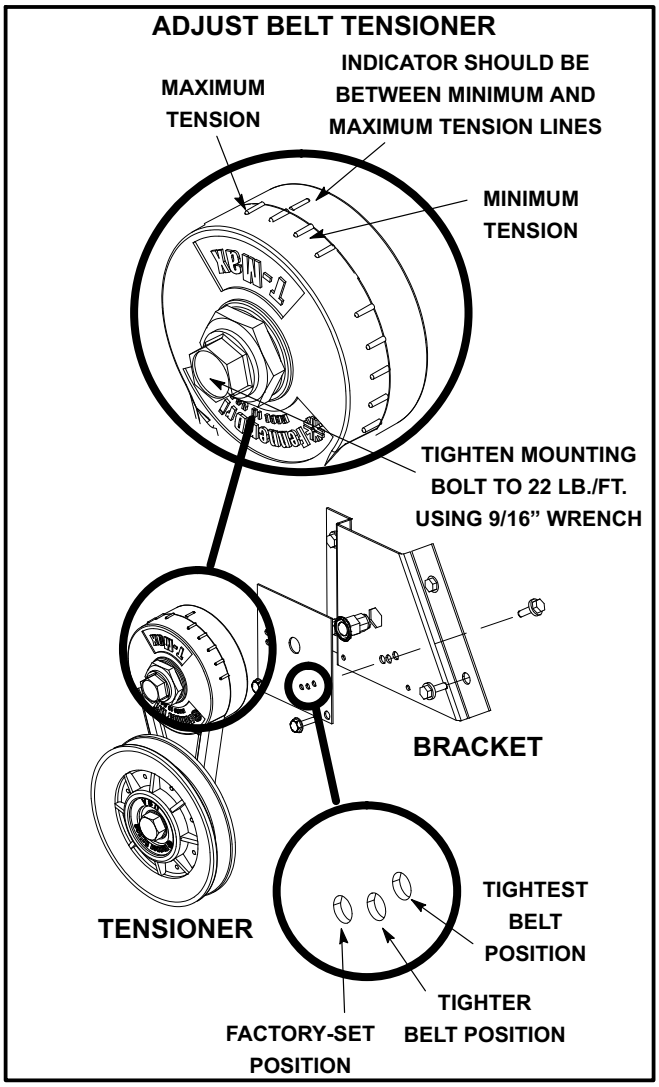


FIGURE 13

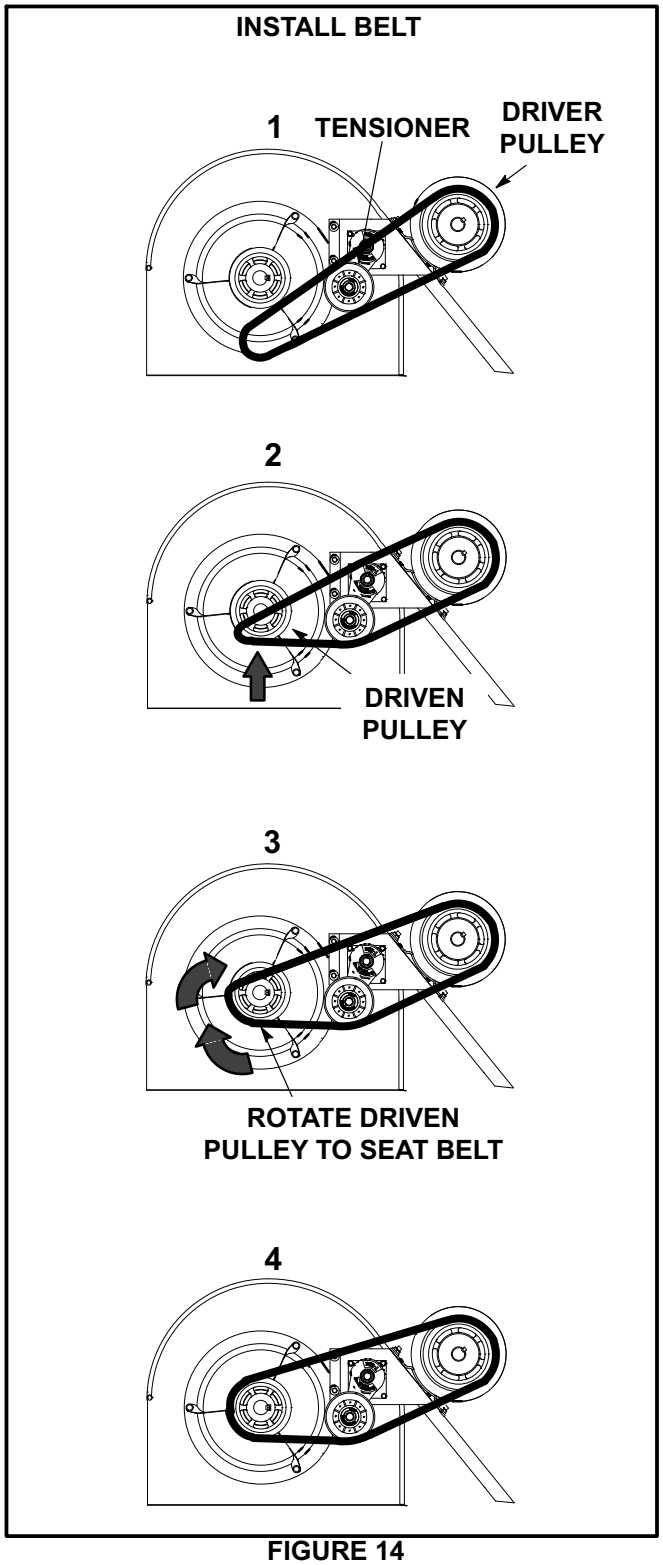


FIGURE 14

TABLE 3
DRIVE COMPONENT MANUFACTURER'S NUMBERS

	DRIVE COMPONENTS					
	MOTOR PULLEY		BLOWER PULLEY		BELTS	
Drive No.	Browning No.	OEM Part No.	Browning No.	OEM Part No.	Browning No.	OEM Part No.
A01	1VP34 X 7/8	31K6901	AK54 X 1	100244-19	A40	100245-17
A02	1VP34 X 7/8	31K6901	AK49 X 1	100244-18	A39	100245-16
A03	1VP34 X 7/8	31K6901	AK44X 1	100244-16	A39	100245-16
A04	1VP40 X 7/8	79J0301	AK49 X 1	100244-18	A41	100245-18
A05	1VP34 X 7/8	31K6901	AK41 X 1	100244-15	A38	100245-15
A06	1VP44 X 7/8	P-8-1488	AK51 X 1	18L2201	A41	100245-18
A07	1VP50 X 7/8	53J1501	AK54 X 1	100244-19	AX43	73K8201
A08	1VP44 X 7/8	P-8-1488	AK46 X 1	100244-17	A40	100245-17
AA01	1VP34 X 7/8	31K6901	AK69 X 1	37L4701	A51	13H0101
AA02*	1VP40 X 7/8	79J0301	BK80H	100788-03	A53	P-8-4951
AA03	1VP40 X 7/8	79J0301	AK59 X 1	31K6801	A50	100245-29
AA04	1VP44 X 7/8	P-8-1488	AK59 X 1	31K6801	A51	13H0101

*Split bushing supplier no.: H1; OEM no. 10073-04

D-ELECTRIC HEAT COMPONENTS

Electric heat match-ups are found in the ELECTRICAL DATA tables. See table of contents.

All electric heat sections consist of electric heating elements exposed directly to the air stream. See figure 15. See figure 16 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 4 for S15 set points. Set points are factory set and not adjustable.

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°F ± 6°F (104°C ± 3.3°C) on a temperature rise and can be manually reset when temperature falls below 160°F (71.0°C). See figure 16 for location.

ELECTRIC HEAT ELEMENTS

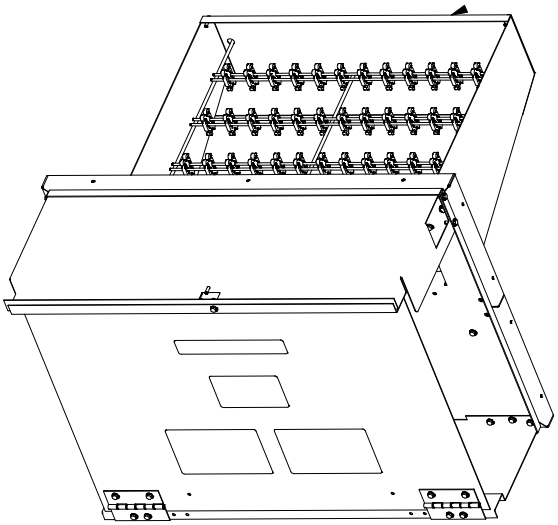


FIGURE 15

TABLE 4

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

ELECTRIC HEAT VESTIBULE PARTS ARRANGEMENT

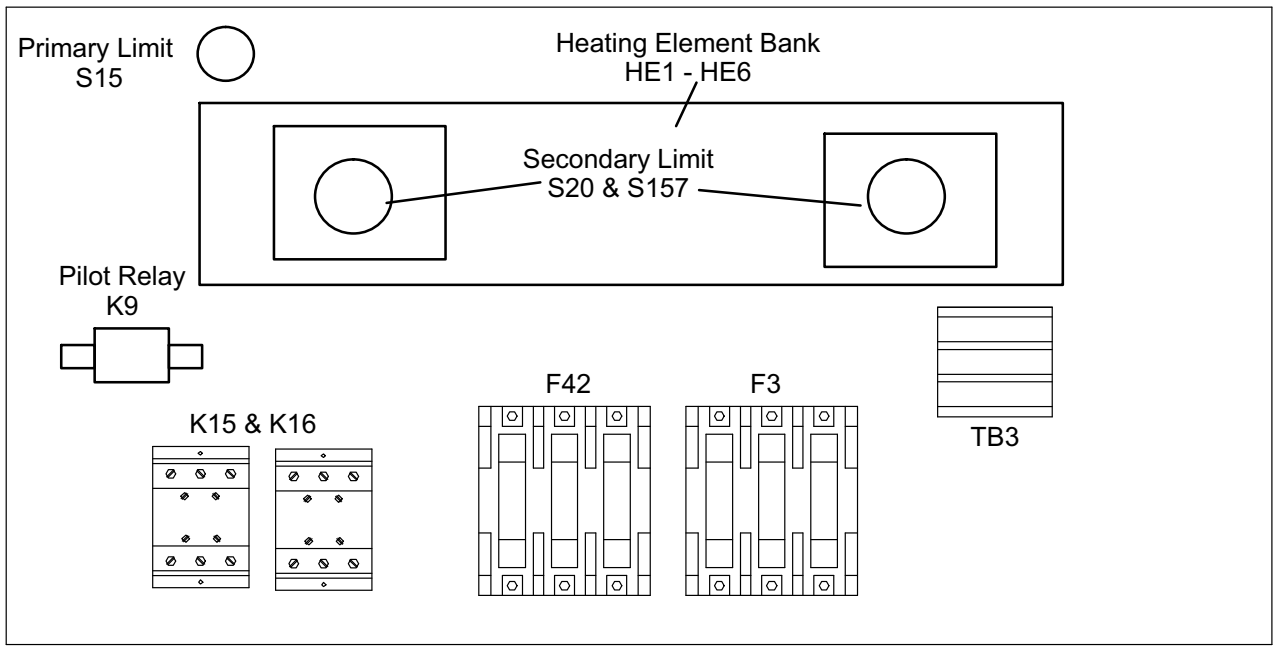


FIGURE 16

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 16.

6-Heating Elements HE1 through HE6

Heating elements are composed of helix wound bare nichrome wire exposed directly to the air stream. 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.

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 16 and table 5 show the fuses used with each electric heat section.

8-Unit Fuse Block & Fuse F4

Three line voltage fuses F4 provide short circuit and ground fault protection to all cooling components in the KCA 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 sheet metal enclosure.

9-Electric Heat Relay K9

K9 is a N.O. SPDT pilot relay intended to electrically isolate the unit's 24V circuit from the electric heat 24V circuit. K9 is energized by the indoor thermostat. K9-1 closes, energizing contactor K15.

TABLE 5

Unit	Voltage-Phase	FUSE		Qty	Qty
		F3	F42	each	total
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

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.

III-START UP - OPERATION

A-Preliminary and Seasonal Checks

1- 1- Inspect all electrical wiring, both field and factory installed for loose connections. Tighten as required. Refer to unit diagram located on inside of unit compressor access panel.

2- 2-Check to ensure that refrigerant lines are in good condition and do not rub against the cabinet or other refrigerant lines.

3- 3-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.

4- 4-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.

5- 5- Inspect and adjust blower belt (see section on Blower Compartment - Blower Belt Adjustment).

B-Cooling Start Up

Operation

1- Initiate first and second stage cooling demands according to instructions provided with thermostat.

2- *No Economizer Installed in Unit -*
A first-stage cooling demand (Y1) will energize compressor 1 and the condenser fan. An increased cooling demand (Y2) will not change operation.

Units Equipped With Economizer -
When outdoor air is acceptable, a first-stage cooling demand (Y1) will energize the economizer. An increased cooling demand (Y2) will energize compressor 1 and the condenser fan. When outdoor air is not acceptable unit will operate as though no economizer is installed.

3- Units contain one refrigerant circuit or stage.

4- Unit is charged with R-410A refrigerant. See unit rating plate for correct amount of charge.

5- Refer to Cooling Operation and Adjustment section for proper method to check refrigerant 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.

5- Make sure the connections are tight.

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

C-Safety or Emergency Shutdown

Turn off power to unit.

IV-CHARGING

A-Refrigerant Charge and Check - All-Aluminum Coil

WARNING-Do not exceed nameplate charge under any condition.

This unit is factory charged and should require no further adjustment. If the system requires additional refrigerant, *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:

IMPORTANT - Charge unit in standard cooling mode high compressor stage only.

1- Make sure outdoor coil is clean. Attach gauge manifolds and operate unit at full CFM in cooling mode with economizer disabled until system stabilizes (approximately five minutes). Make sure all outdoor air dampers are closed.

2- Compare the normal operating pressures (see table 6 through 13) to the pressures obtained from the gauges. Check unit components if there are significant differences.

3- Measure the outdoor ambient temperature and the suction pressure. Refer to the appropriate circuit charging curve to determine a target liquid temperature.

Note - Pressures are listed for sea level applications.

4- Use the same thermometer to accurately measure the liquid temperature (in the outdoor section).

- If measured liquid temperature is higher than the target liquid temperature, add refrigerant to the system.
- If measured liquid temperature is lower than the target liquid temperature, recover some refrigerant from the system.

5- Add or remove charge in increments. Allow the system to stabilize each time refrigerant is added or removed.

6- Continue the process until measured liquid temperature agrees with the target liquid temperature. Do not go below the target liquid temperature when adjusting charge. Note that suction pressure can change as charge is adjusted.

7- Example KG/KC 090: At 95°F outdoor ambient and a measured suction pressure of 130psig, the target liquid temperature is 99°F. For a measured liquid temperature of 106°F, add charge in increments until measured liquid temperature agrees with the target liquid temperature.

TABLE 6 580708-02

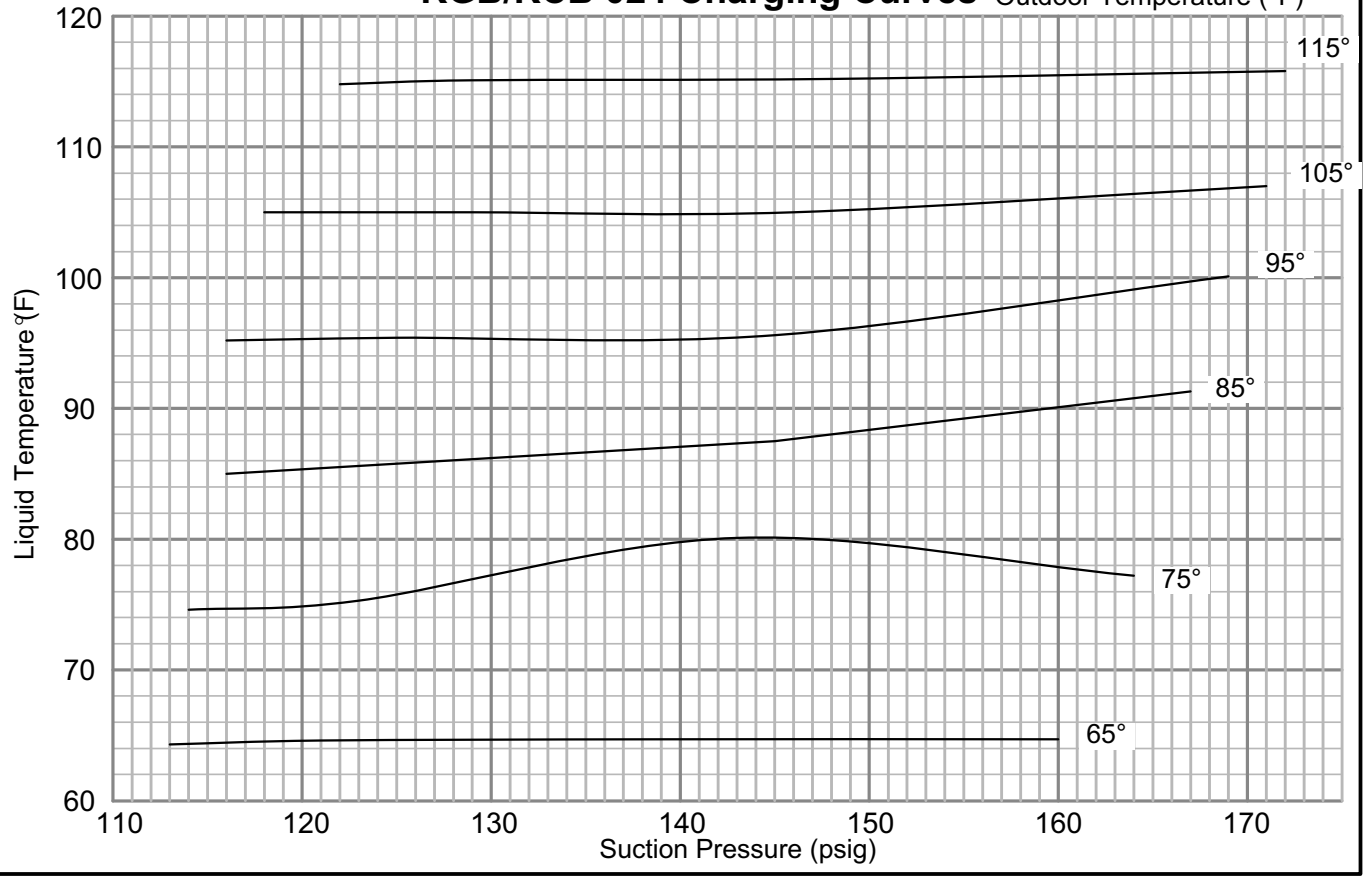
KGB/KCB024 Normal Operating Pressures											
Outdoor Coil Entering Air Temperature											
65 °F		75 °F		85 °F		95 °F		105 °F		115 °F	
Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)
113	220	114	255	116	302	116	355	118	416	122	498
121	223	123	253	145	296	125	354	129	411	129	492
139	234	143	256	145	299	145	343	146	400	148	460
160	233	164	261	167	300	169	345	171	397	172	458

TABLE 7 580709-02

KGB/KCB030 Normal Operating Pressures											
Outdoor Coil Entering Air Temperature											
65 °F		75 °F		85 °F		95 °F		105 °F		115 °F	
Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)
114	222	115	262	117	309	120	367	122	474	126	575
123	221	124	258	125	306	128	355	130	434	134	568
143	228	144	260	148	301	150	348	151	404	172	473
161	237	165	270	167	310	171	356	174	407	178	458

580708-02

KGB/KCB 024 Charging Curves Outdoor Temperature (°F)



580709-02

KGB/KCB 030 Charging Curves Outdoor Temperature (°F)

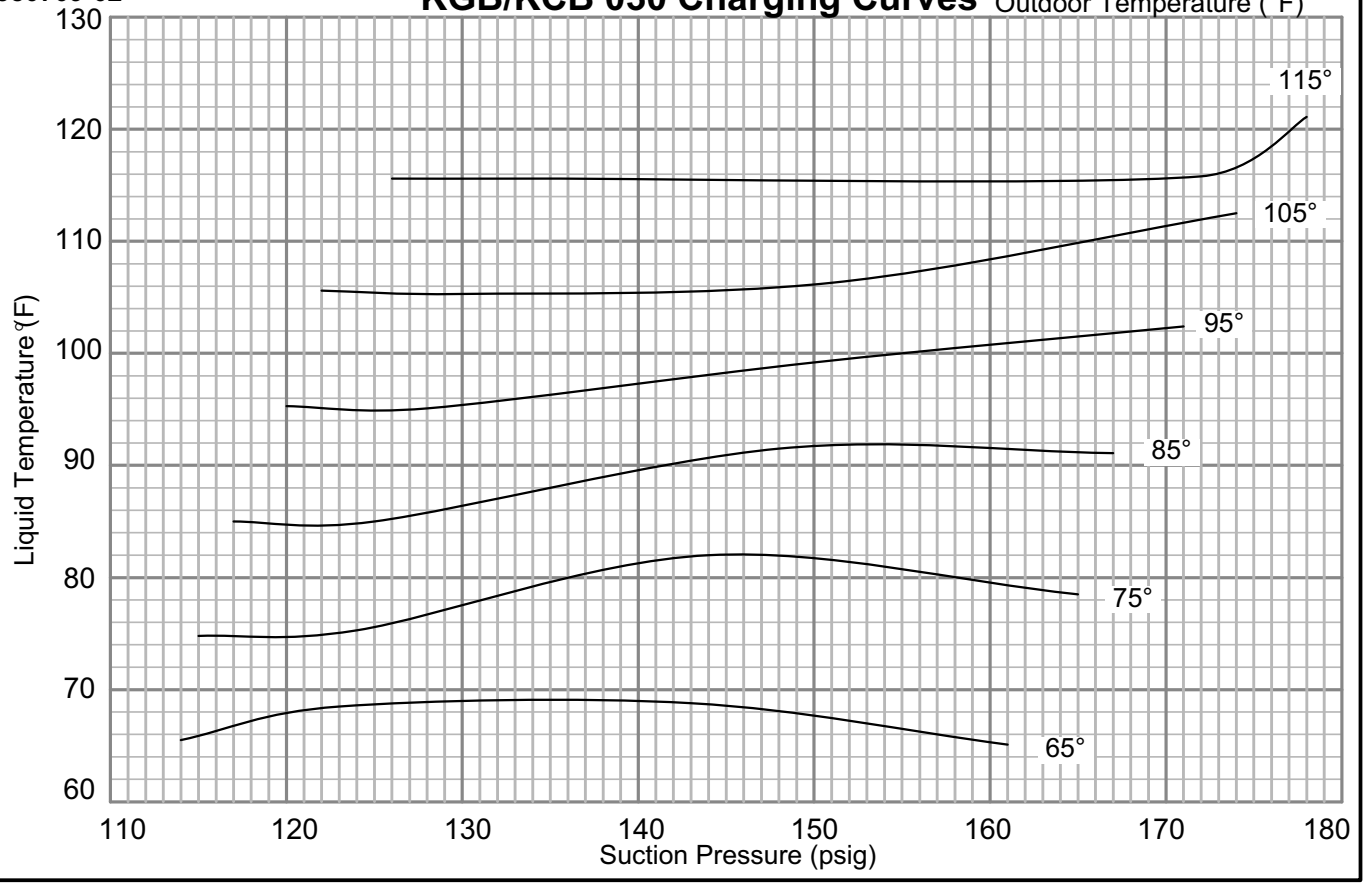


TABLE 8 580710-02

KGB/KCB036 Normal Operating Pressures											
Outdoor Coil Entering Air Temperature											
65 °F		75 °F		85 °F		95 °F		105 °F		115 °F	
Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)
113	231	115	265	117	305	118	355	120	412	123	485
122	232	124	268	126	309	129	355	130	412	132	475
137	243	141	276	144	317	146	362	149	414	151	474
152	261	157	293	162	331	166	374	169	423	172	479

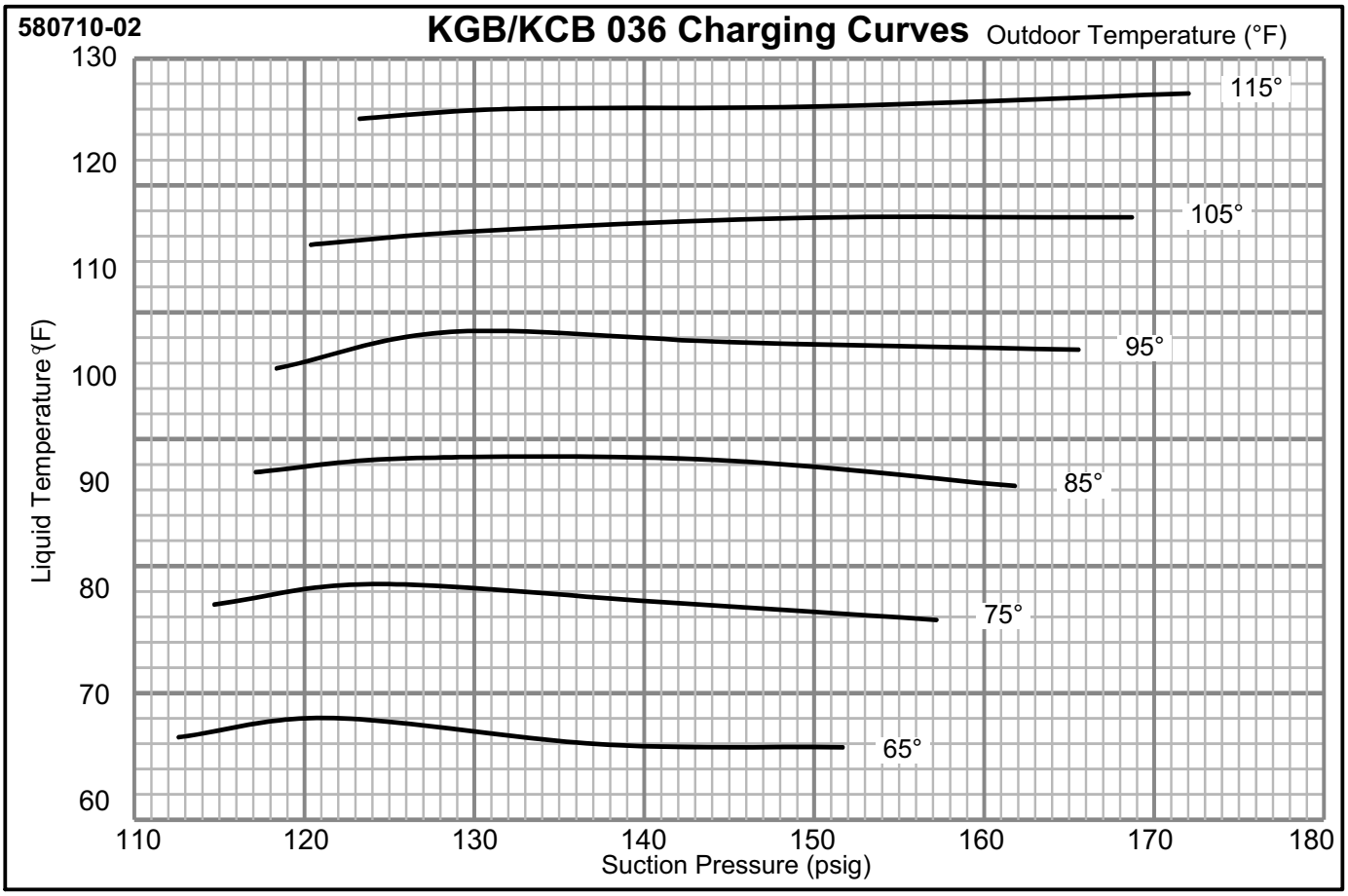


TABLE 9 580711-02

KGB/KCB048 Normal Operating Pressures											
Outdoor Coil Entering Air Temperature											
65 °F		75 °F		85 °F		95 °F		105 °F		115 °F	
Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)
110	243	112	282	112	331	114	382	116	445	118	523
119	248	120	286	122	331	122	387	126	440	128	510
134	252	138	290	140	336	142	385	144	441	147	505
153	268	156	302	160	347	164	392	167	442	171	501

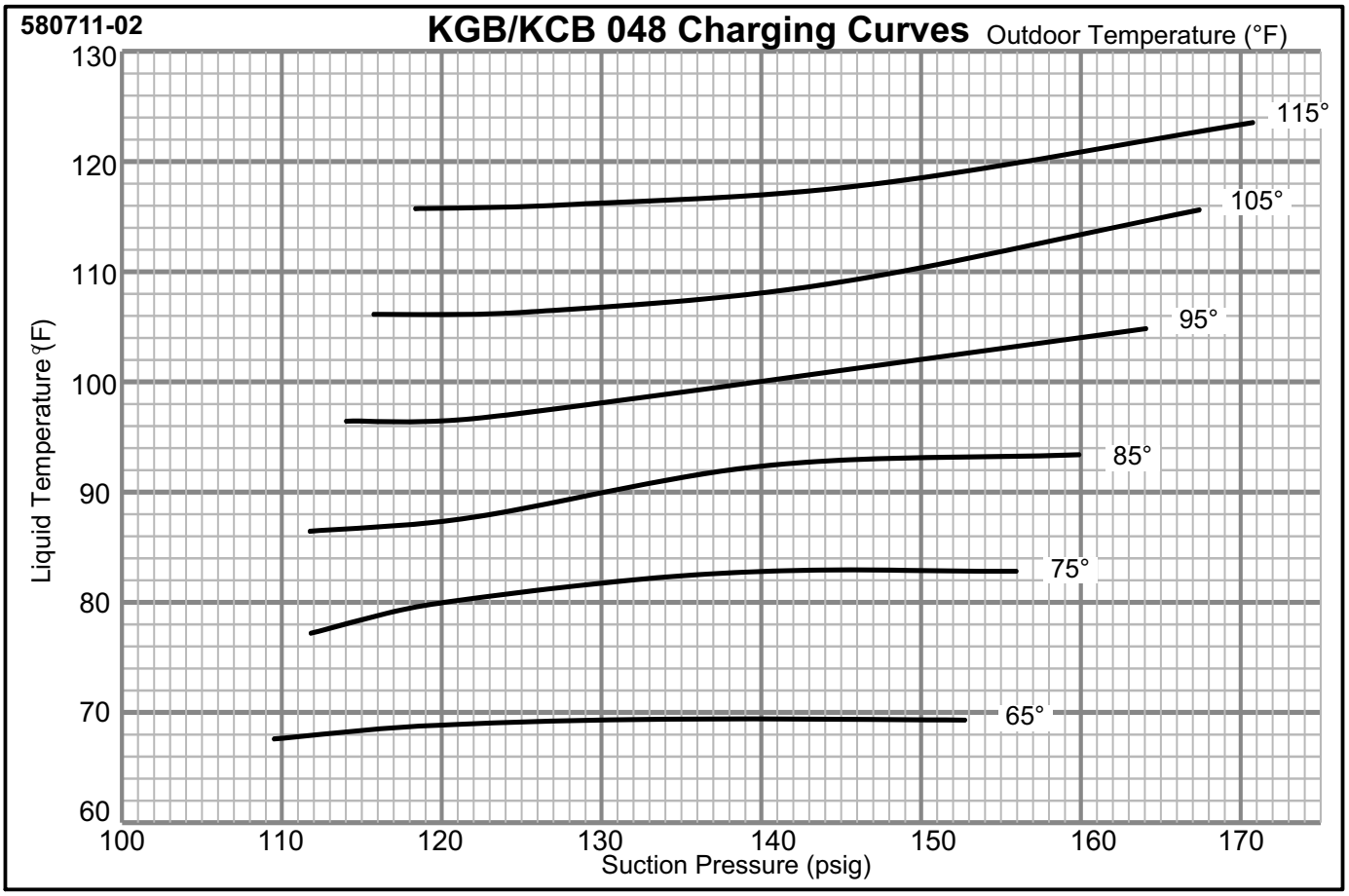


TABLE 10 580712-02

KGB/KCB 060 Normal Operating Pressures											
Outdoor Coil Entering Air Temperature											
65 °F		75 °F		85 °F		95 °F		105 °F		115 °F	
Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)
110	235	112	275	113	323	115	382	117	463	120	561
119	239	121	278	122	325	124	381	126	455	128	547
137	248	140	286	143	329	145	377	147	432	148	503
155	263	160	298	163	339	167	385	170	438	173	498

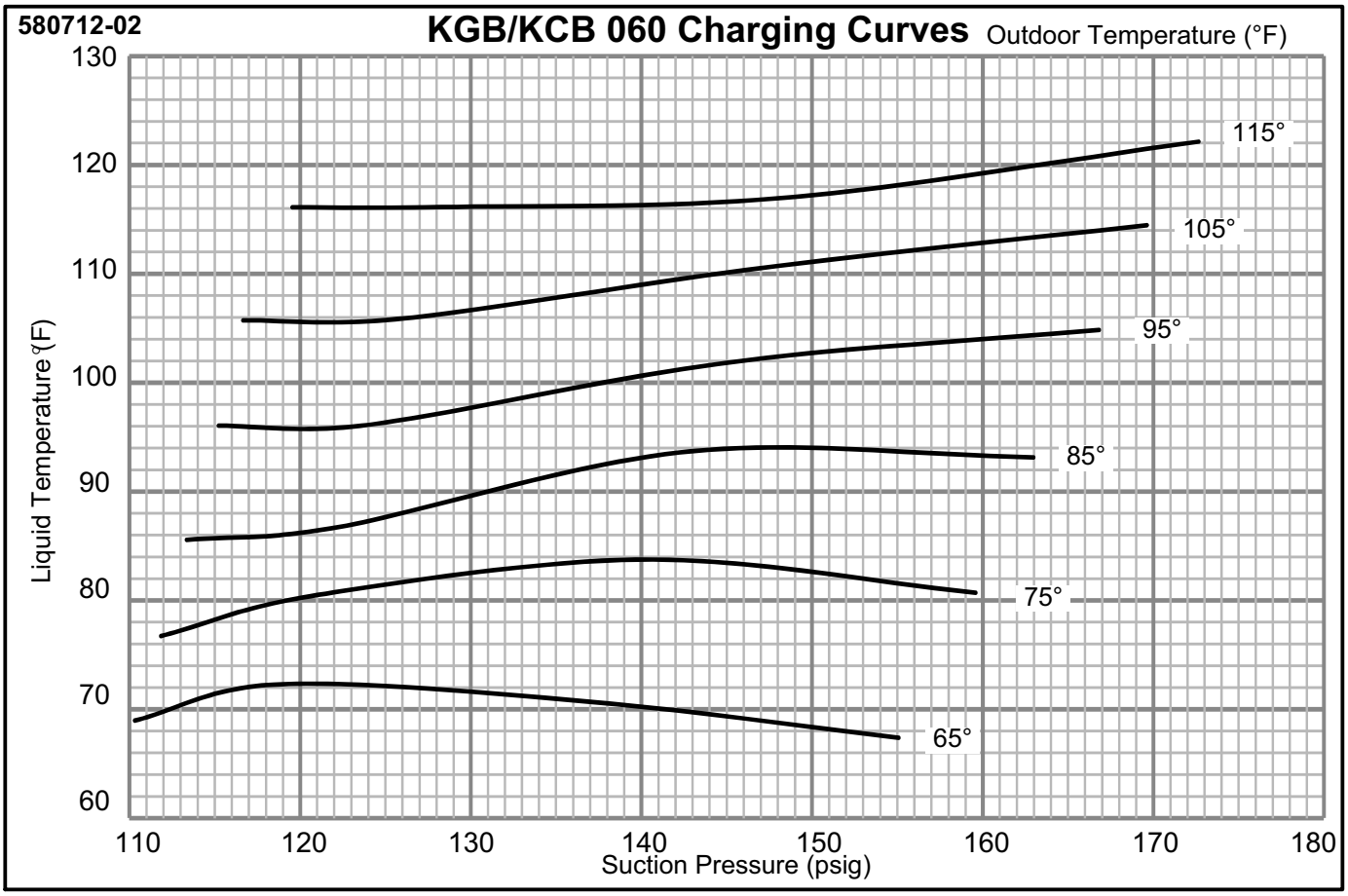


TABLE 11 580996-01

KGB/KCB 072H Normal Operating Pressures											
Outdoor Coil Entering Air Temperature											
65 °F		75 °F		85 °F		95 °F		105 °F		115 °F	
113	261	115	300	116	347	118	402	119	492	123	512
122	266	124	307	126	349	126	402	128	467	132	518
140	277	143	316	145	360	147	411	149	472	151	540
159	291	161	329	164	375	168	423	172	478	174	537

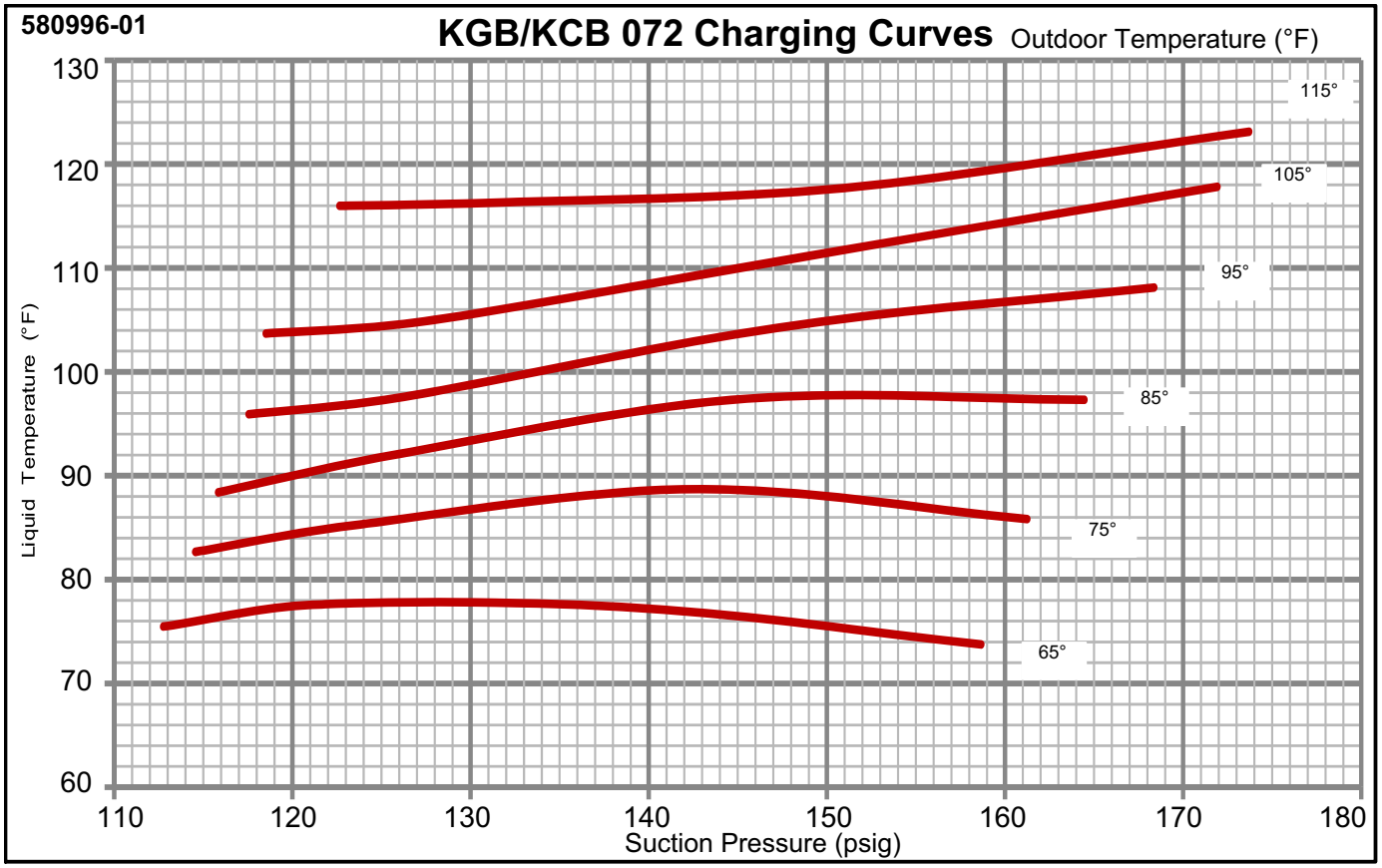


TABLE 12 580791-01

KGB/KCB 074S & H Normal Operating Pressures											
Outdoor Coil Entering Air Temperature											
65 °F		75 °F		85 °F		95 °F		105 °F		115 °F	
Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)
112	257	113	298	114	348	116	403	118	476	121	602
120	261	122	301	123	347	124	403	127	466	129	556
136	271	140	310	143	354	145	401	145	460	147	525
154	290	157	327	161	370	165	416	168	468	171	526

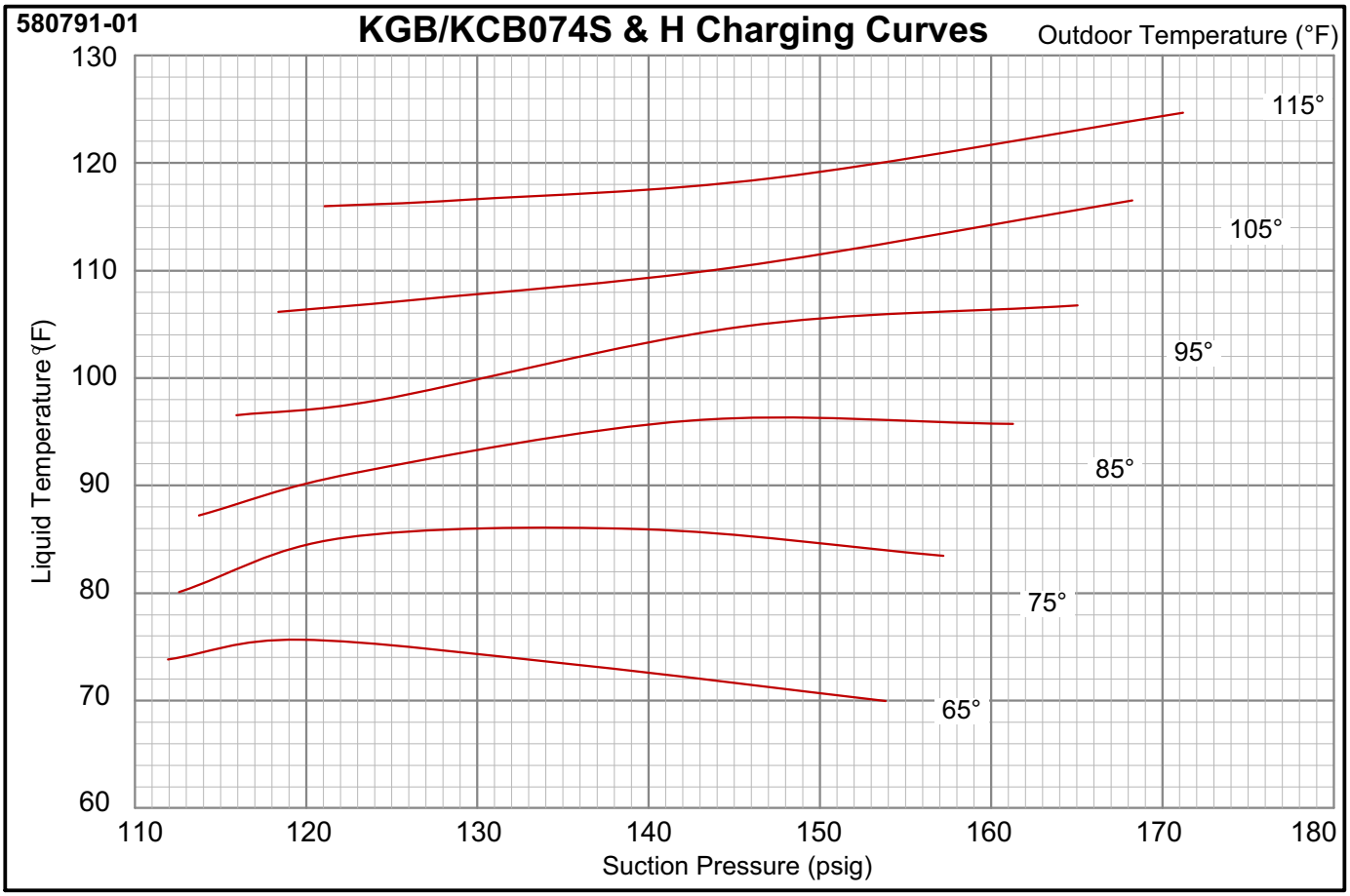
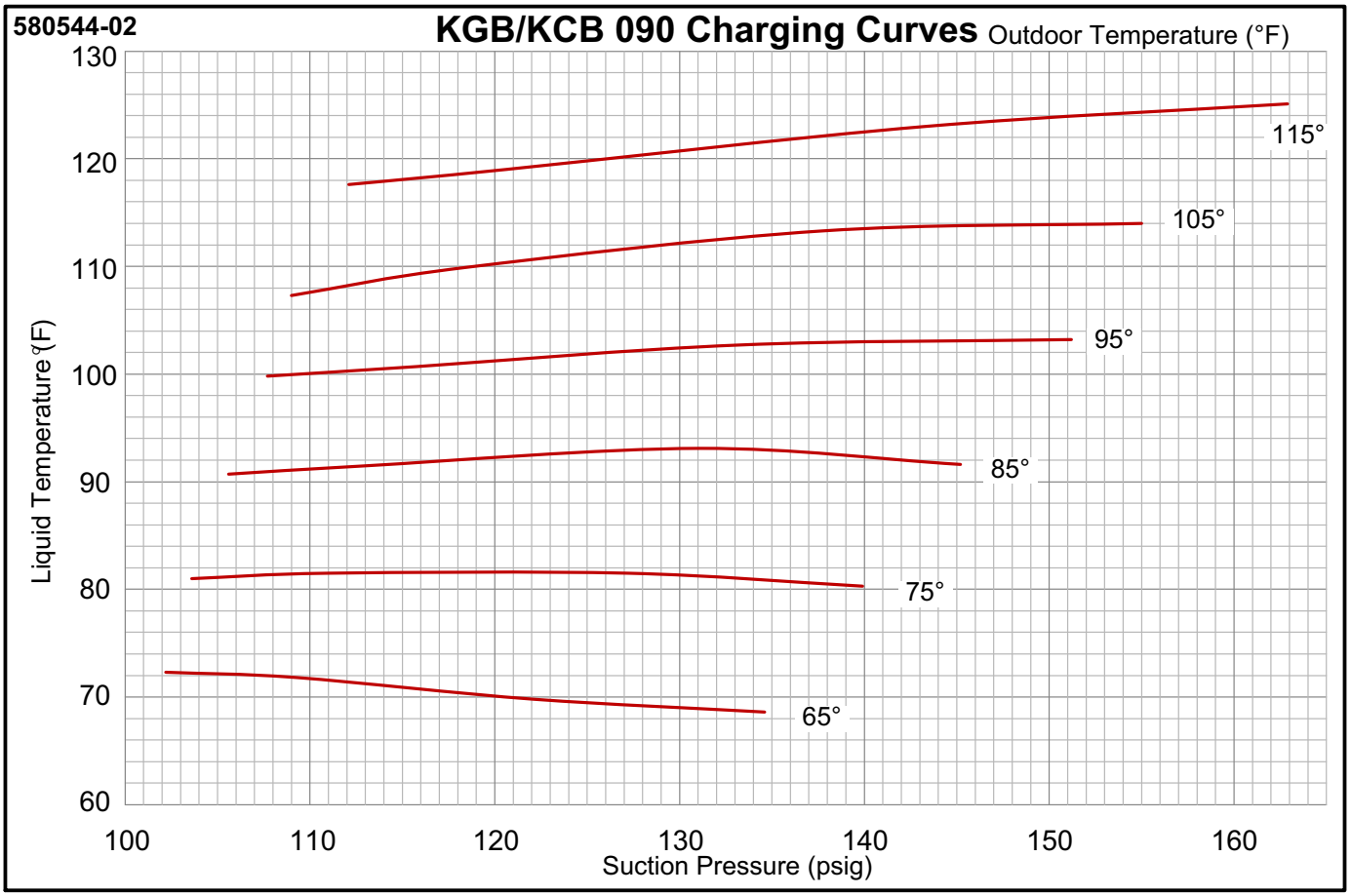


TABLE 13 580544-02

KGB/KCB 090 Normal Operating Pressures											
Outdoor Coil Entering Air Temperature											
65 °F		75 °F		85 °F		95 °F		105 °F		115 °F	
Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)
102	259	104	298	106	341	108	390	109	441	112	506
109	264	111	303	113	347	116	396	118	450	121	516
122	275	127	315	131	359	133	410	138	460	143	518
135	289	140	327	145	370	151	421	155	470	163	533



B-Refrigerant Charge and Check - Fin/Tube Coil

KG/KC 024S, 030S, 036S, 048S, 060S, 074S, 090S

WARNING-Do not exceed nameplate charge under any condition.

This unit is factory charged and should require no further adjustment. If the system requires additional refrigerant, *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:

IMPORTANT - Charge unit in standard cooling mode.

1- Attach gauge manifolds and operate unit in cooling mode with economizer disabled until system stabilizes (approximately five minutes). Make sure outdoor air dampers are closed.

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 table 14-20 to determine normal operating pressures. Pressures are listed for sea level applications at 80°F dry bulb and 67°F wet bulb return air.

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 14 580942-01
KGB/KCB024S Fin/Tube - W & W/O Reheat

Outdoor Coil Entering Air Temp	Discharge ±10psig	Suction ±5 psig
65° F	213	140
75° F	248	142
85° F	285	144
95° F	328	145
105° F	377	146
115° F	431	148

TABLE 15 580943-01
KGB/KCB030S Fin/Tube - W & W/O Reheat

Outdoor Coil Entering Air Temp	Discharge ±10psig	Suction ±5 psig
65° F	222	145
75° F	255	147
85° F	295	148
95° F	341	149
105° F	389	151
115° F	443	153

TABLE 16 580944-01
KGB/KCB036S Fin/Tube - W & W/O Reheat

Outdoor Coil Entering Air Temp	Discharge ±10psig	Suction ±5 psig
65° F	234	135
75° F	269	140
85° F	310	144
95° F	355	145
105° F	404	148
115° F	458	152

TABLE 17 580945-01
KGB/KCB048S Fin/Tube - W & W/O Reheat

Outdoor Coil Entering Air Temp	Discharge ±10psig	Suction ±5 psig
65° F	252	130
75° F	290	135
85° F	332	138
95° F	378	141
105° F	427	143
115° F	484	146

TABLE 18 580946-01
KGB/KCB060S Fin/Tube - W & W/O Reheat

Outdoor Coil Entering Air Temp	Discharge ±10psig	Suction ±5 psig
65° F	244	138
75° F	280	140
85° F	322	142
95° F	367	143
105° F	417	144
115° F	472	148

TABLE 19 580947-01
KGB/KCB074S Fin/Tube - W & W/O Reheat

Outdoor Coil Entering Air Temp	Discharge ±10psig	Suction ±5 psig
65° F	267	140
75° F	301	142
85° F	349	144
95° F	397	145
105° F	448	146
115° F	504	148

TABLE 20 580948-01
KGB/KCB090S Fin/Tube - W & W/O Reheat

Outdoor Coil Entering Air Temp	Discharge ±10psig	Suction ±5 psig
65° F	272	117
75° F	311	123
85° F	356	127
95° F	406	133
105° F	457	137
115° F	513	138

C - Charge Verification - Approach Method
(Fin/Tube Coil Continued)

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

Approach Temperature = Liquid temperature (at condenser outlet) minus ambient temperature.

2- Approach temperature should match values in table 21. An approach temperature greater than value shown indicates an undercharge. An approach temperature less than value shown indicates an overcharge.

3- The approach method is not valid for grossly over or undercharged systems. Use table 14 through 20 as a guide for typical operating pressures.

TABLE 21
APPROACH TEMPERATURE - Fin/Tube - TXV

KG/KC Unit	Liquid Temp. Minus Ambient Temp.
024S, 030S, 036S, 090S	1°F ± 1 (0.6°C ± 0.5)
048S	2°F ± 1 (1.1°C ± 0.5)
060S	3°F ± 1 (1.7°C ± 0.5)
074S	4°F ± 1 (2.2°C ± 0.5)

D - Charge Verification - Subcooling Method - AHRI Testing
(Fin/Tube Coil Continued)

1- Attach gauge manifold to the liquid line. With the economizer disabled, operate the unit in **cooling mode (at high speed on 2-speed units).**

2- Use the liquid line pressure and a PT chart to determine the saturated liquid temperature.

3- Measure the liquid line temperature at the condenser outlet.

Subcooling Temperature = Liquid Saturated Temperature Minus Liquid Temperature.

4- The subcooling temperature should be as shown in figure 22. A subcooling temperature greater than this value indicates an overcharge. A subcooling temperature less than this value indicates an undercharge.

TABLE 22
SUBCOOLING TEMPERATURE

KCB/KGB Unit	Liquid Saturated Temp. Minus Liquid Temperature
024S	7°F ± 1 (3.9°C ± 0.5)
030S	8°F ± 1 (4.4°C ± 0.5)
036S, 060S	9.5F ± 1 (5.2°C ± 0.5)
048S	11.5°F ± 1 (6.3°C ± 0.5)
074S	12.5°F ± 1 (6.9°C ± 0.5)
090S	10°F ± 1 (5.5°C ± 0.5)

V- SYSTEMS SERVICE CHECKS

A-Cooling System Service Checks

All units are factory charged and require no further adjustment; however, charge should be checked periodically using the approach method. The approach method compares actual liquid temperature with the outdoor ambient temperature. See section IV- CHARGING.

VI-MAINTENANCE

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

⚠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.

⚠CAUTION

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

A-Filters

Units are equipped with temporary filters which must be replaced prior to building occupation. See table 23 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.

TABLE 23
UNIT FILTERS

Unit	Qty	Filter Size - inches (mm)
024, 030, 036, 048	4	16 X 20 X 2 (406 X 508 X 51)
060 072, 074, 090	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.

B-Supply 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.

C-Lubrication

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

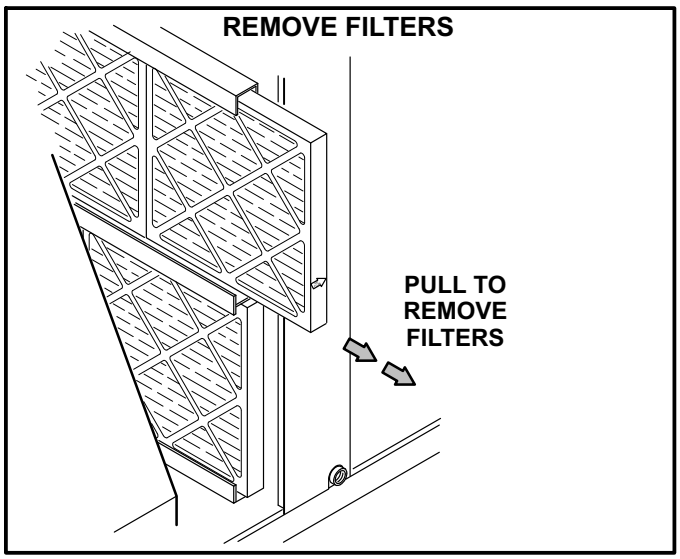


FIGURE 17

D-Evaporator Coil

Inspect and clean coil at beginning of each cooling 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-Condenser Coil

All-Aluminum Environ Coils

Clean condenser coil annually with water and inspect monthly during the cooling season.

Clean the all-aluminum coil by spraying the coil steadily and uniformly from top to bottom. Do not exceed 900 psi or a 45° angle; nozzle must be at least 12 inches from the coil face. Take care not to fracture the braze between the fins and refrigerant tubes. Reduce pressure and work cautiously to prevent damage.

VII-ACCESSORIES

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

A-T1CURB

When installing either the KCB 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 18. 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 19. Refer to the roof mounting frame installation instructions for proper plenum construction and attachment.

KCB090 units overhang the smaller (not full perimeter) roof mounting frame. See figure 20.

B-Transitions

Optional supply/return transitions T1TRAN10AN1 is available for use with the KCA/KCB 2, 2.5, 3, 4 and 5 units and the T1TRAN20N-1 is available for 6 and 7-1/2 ton units utilizing optional T1CURB roof mounting frames. Transition must be installed in the roof mounting frame before mounting the unit to the frame. Refer to the manufacturer's instructions included with the transition for detailed installation procedures.

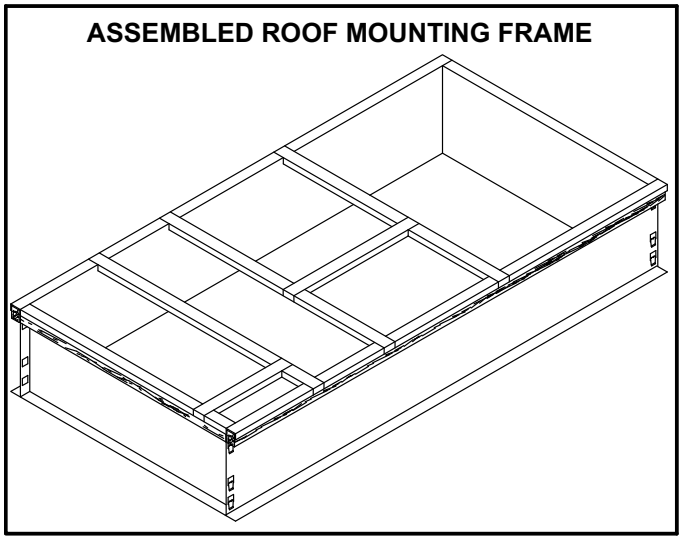


FIGURE 18

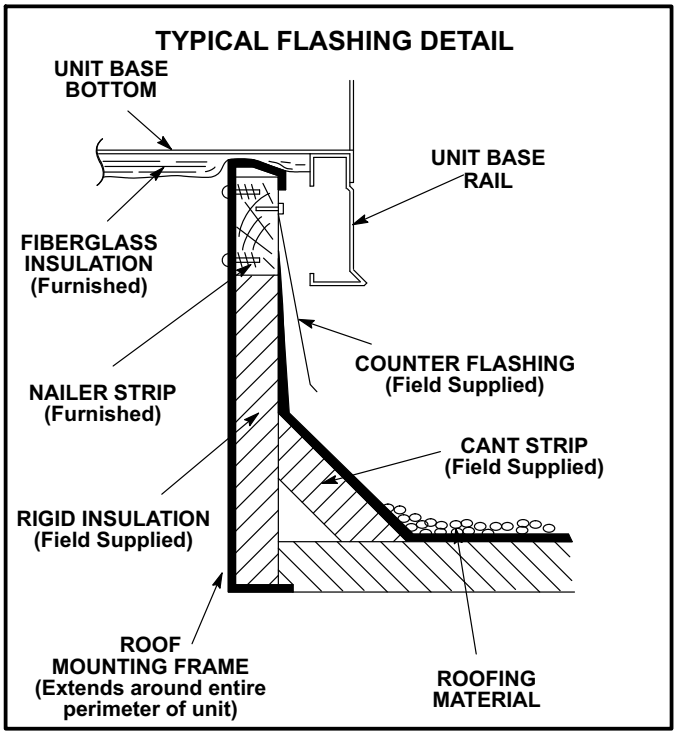


FIGURE 19

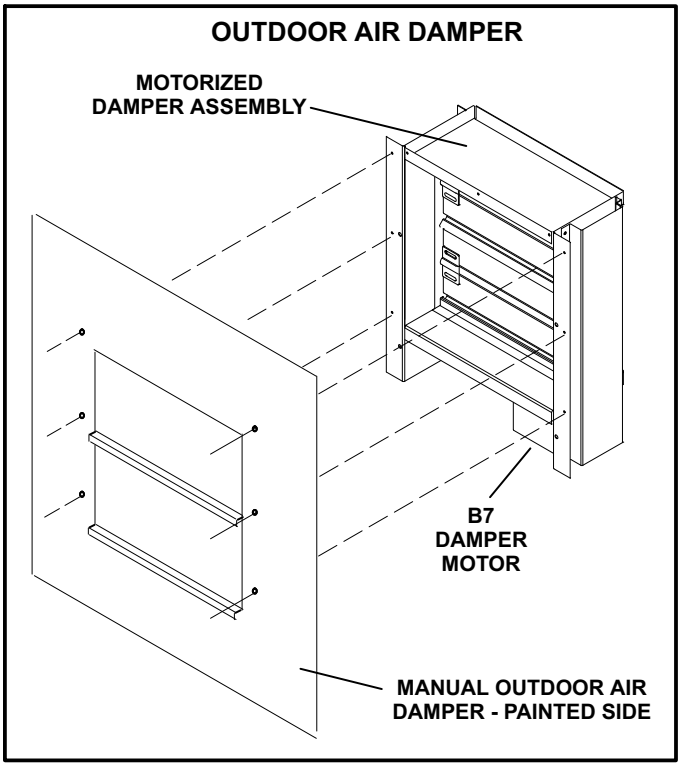


FIGURE 21

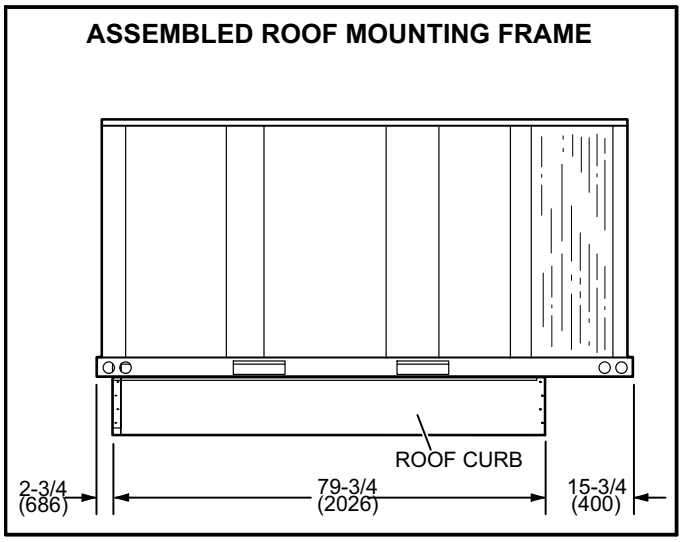


FIGURE 20

C-Outdoor Air Dampers

See Optional Accessories at the front of this manual (Table of Contents) for sizes per KCB units. Outdoor air dampers may be manually or motor (M) operated to allow up to 25 percent outside air into the system at all times (see figure 21). 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 and is available as Part No. P-8-5069.

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 KCA 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.

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.

The A6 enthalpy control is located in the economizer access area. See figure 22. The A7 enthalpy sensor is located on the division panel between horizontal supply and return air sections.

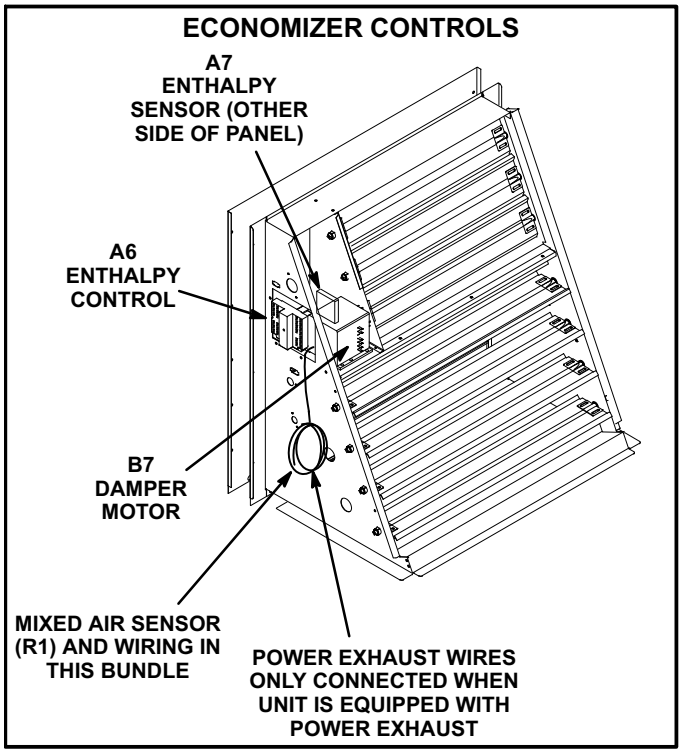


FIGURE 22

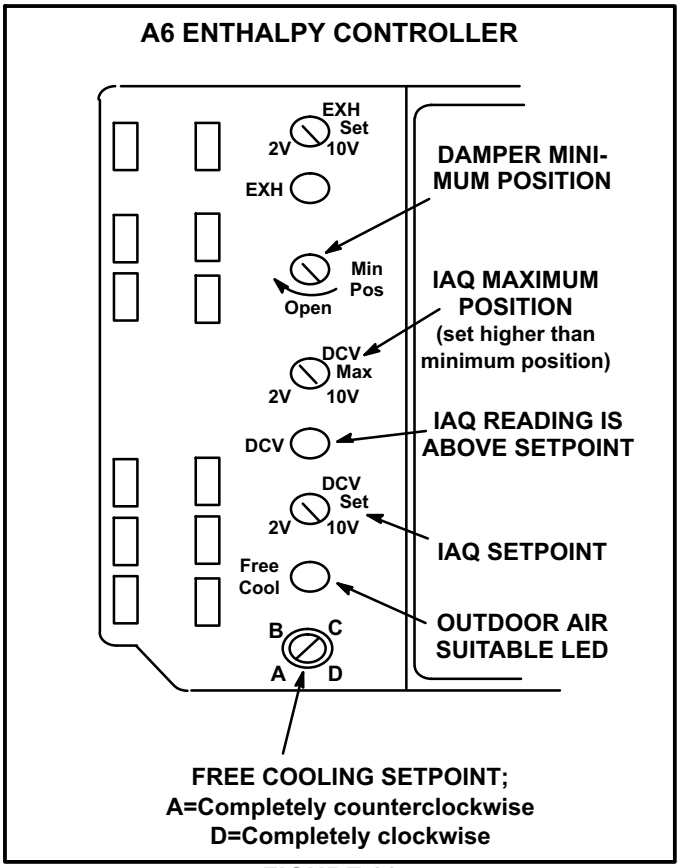


FIGURE 23

An optional IAQ sensor (A63) may be used to lower operating costs by controlling outdoor air based on CO_2 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 CO_2 level reaches DCV (IAQ) setpoint.

Refer to instructions provided with sensors for installation.

A6 Enthalpy Control LEDs

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 23.

Free Cooling Setpoint

Outdoor air is considered suitable when temperature and humidity are less than the free cooling setpoints shown in table 24. Setting A is recommended. See figure 23. 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 24
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 is factory-installed between TB1 A1 and A2 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 A45 control board TB1 terminals A1 and A2 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

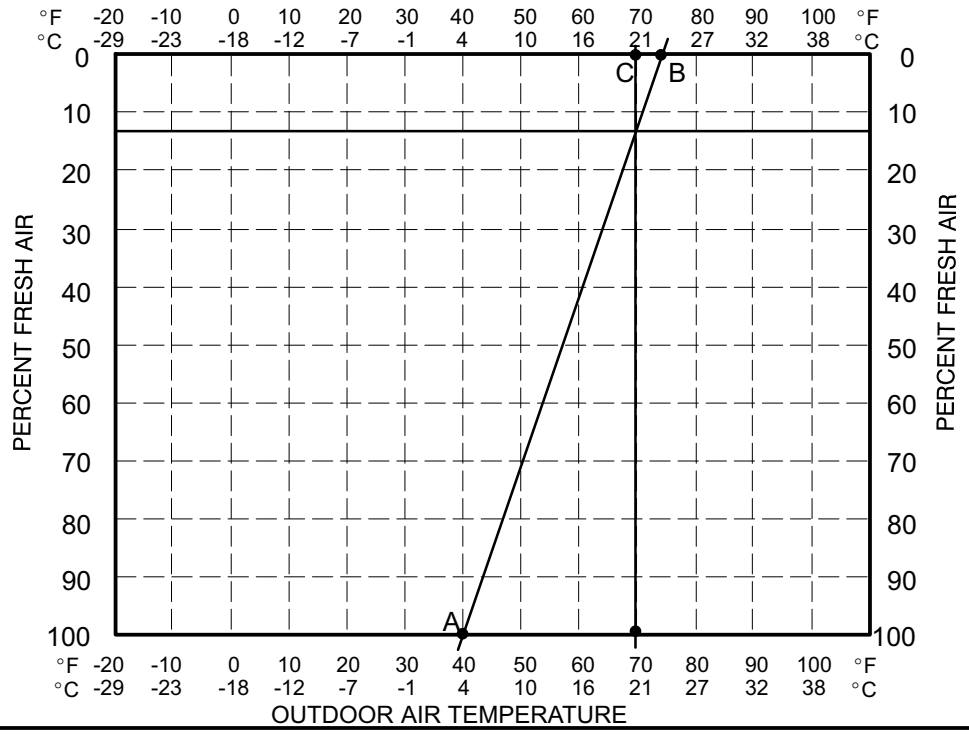
Adjust settings when an optional IAQ sensor is installed.

The DCV SET potentiometer is factory-set at approximately 50% of the potentiometer range. Using a standard 1-2000ppm CO_2 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 23.

The DCV MAX potentiometer is factory-set at approximately 50% of the potentiometer range or 6VDC. Dampers will open approximately half way when CO_2 rises above setpoint. Adjust the DCV MAX potentiometer to the approximate setting specified by the controls contractor. Refer to figure 23.

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

CHART 1
CALCULATE MINIMUM FRESH AIR PERCENTAGE



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 25 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 24. Manual damper fresh air intake percentage can be determined in the same manner.

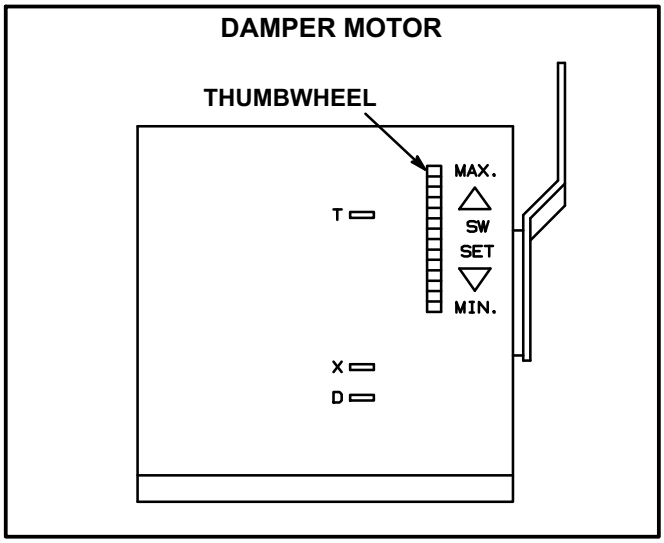


FIGURE 24

TABLE 25
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.

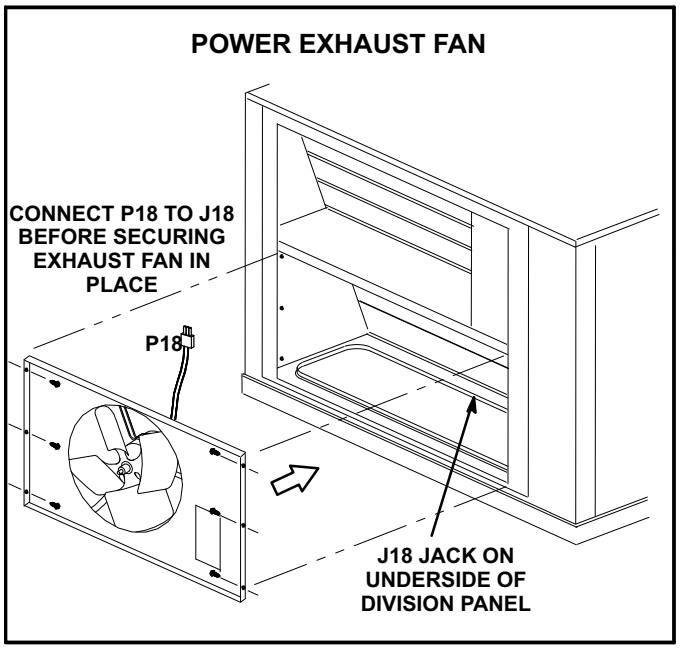


FIGURE 25

F-Power Exhaust Fans

T1PWRE10A is available for KCB 3, 4 and 5 ton units and T1PWRE10N is available for 6 and 7-1/2 ton units. Both provide exhaust air pressure relief and also run when return air dampers are closed and supply air blowers are operating. See figure 25 and installation instructions for more detail.

G-Power Exhaust Relay K65 (power exhaust units)

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

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 (CO_2) Sensor A63

The indoor air quality sensor monitors CO_2 levels and reports the levels to the economizer enthalpy control A6. Controller A6 adjusts the economizer dampers according to the CO_2 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.

J-Drain Pan Overflow Switch S149 (optional)

The overflow switch is used to interrupt cooling operation when excessive condensate collects in the drain pan. The N.O. overflow switch is controlled by K220 and DL46 relays, located in the unit control panel. When the overflow switch closes, 24VAC power is interrupted and after a five-second delay unit compressors are de-energized. Once the condensate level drops below the set level, the switch will open. After a five-minute delay the compressor will be energized.

VIII- Hot Gas Reheat

General

Hot gas reheat units provide a dehumidifying mode of operation. These units contain a reheat coil adjacent to and downstream of the evaporator coil. Reheat coil solenoid valve, L14, routes hot discharge gas from the compressor to the reheat coil. Return air pulled across the evaporator coil is cooled and dehumidified; the reheat coil adds heat to supply air. See figure 26 for reheat refrigerant routing.

L14 Reheat Coil Solenoid Valve

When room conditions close the dehumidistat switch, L14 reheat valve is energized and refrigerant is routed to the reheat coil.

Reheat Setpoint

Reheat is factory-set to energize when indoor relative humidity rises above setpoint. Reheat will terminate when the indoor relative humidity falls below or the digital output de-energizes. Turn the knob on the dehumidistat to adjust the setpoint.

Check-Out

Test hot gas reheat operation using the following procedure.

1- Make sure reheat is wired as shown in wiring section.

2- Initiate a dehumidification demand by adjusting dehumidistat setpoint knob BELOW indoor relative humidity. The blower and compressor 1 should be operating. On 074 or 090 two-speed units, the blower and/or compressor should be operating in high speed.

3- End a dehumidification demand by adjusting setpoint knob ABOVE indoor relative humidity. The blower and compressor should de-energize.

Default Reheat Operation

See table 26

TABLE 26
Reheat Operation - Default

T'Stat and/or Humidity Demand	Operation		
	024-060S	074 & 090S4B	074 & 090S4T
Reheat Only	Compressor **ON** ReheatValve **ON** Blower **ON**	Compressor **HIGH** Reheat Valve **ON** Blower **ON**	Compressor **HIGH** Reheat Valve **ON** Blower **HIGH**
Reheat & Y1*	Compressor **ON** Reheat Valve **ON** Blower **ON**	Compressor **HIGH** Reheat Valve **ON** Blower **ON**	Compressor **HIGH** Reheat Valve **ON** Blower **HIGH**
Reheat, Y1, & Y2**	Compressor **ON** ReheatValve **OFF** Blower **ON**	Compressor **HIGH** Reheat Valve **OFF** Blower **ON**	Compressor **HIGH** Reheat Valve **OFF** Blower **HIGH**

*If there is no reheat demand and outdoor air is suitable, free cooling will operate.
**If there is no reheat demand and outdoor air is suitable, free cooling and compressor 1 will operate.

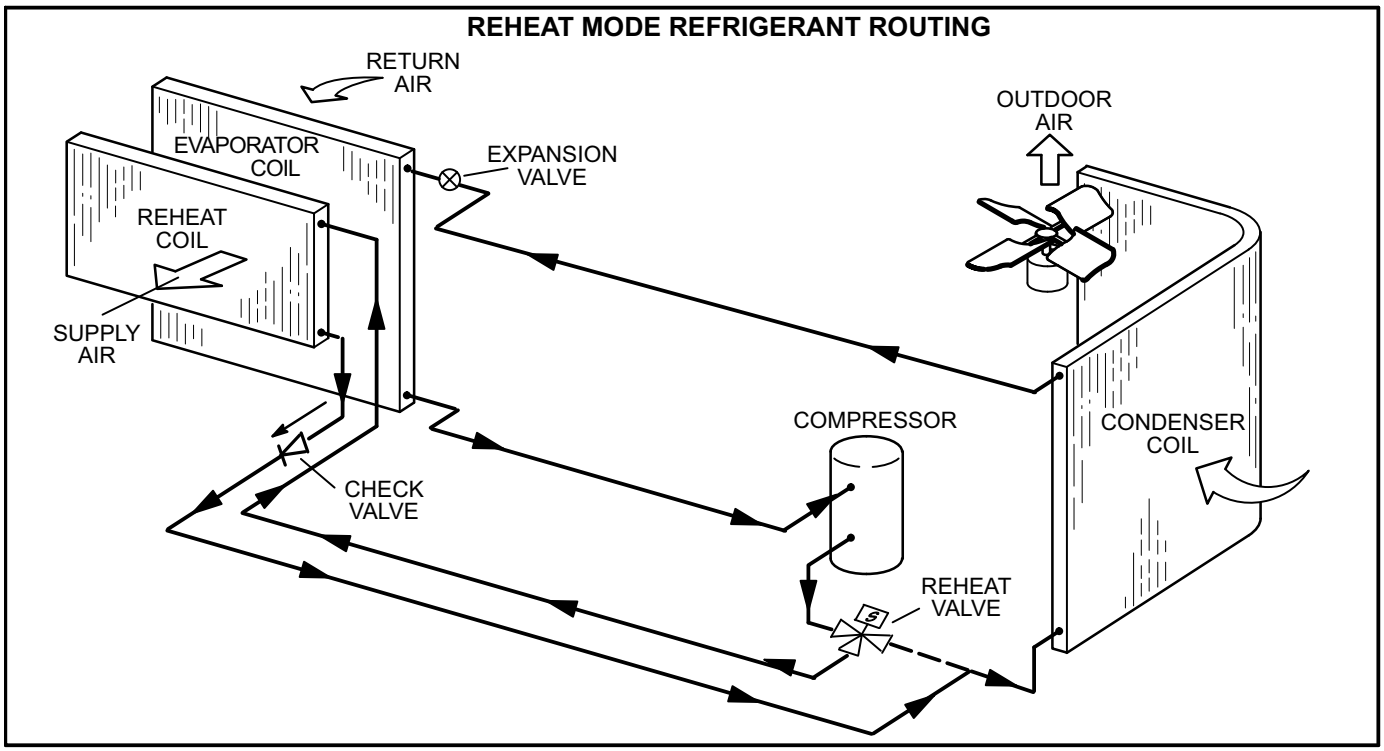
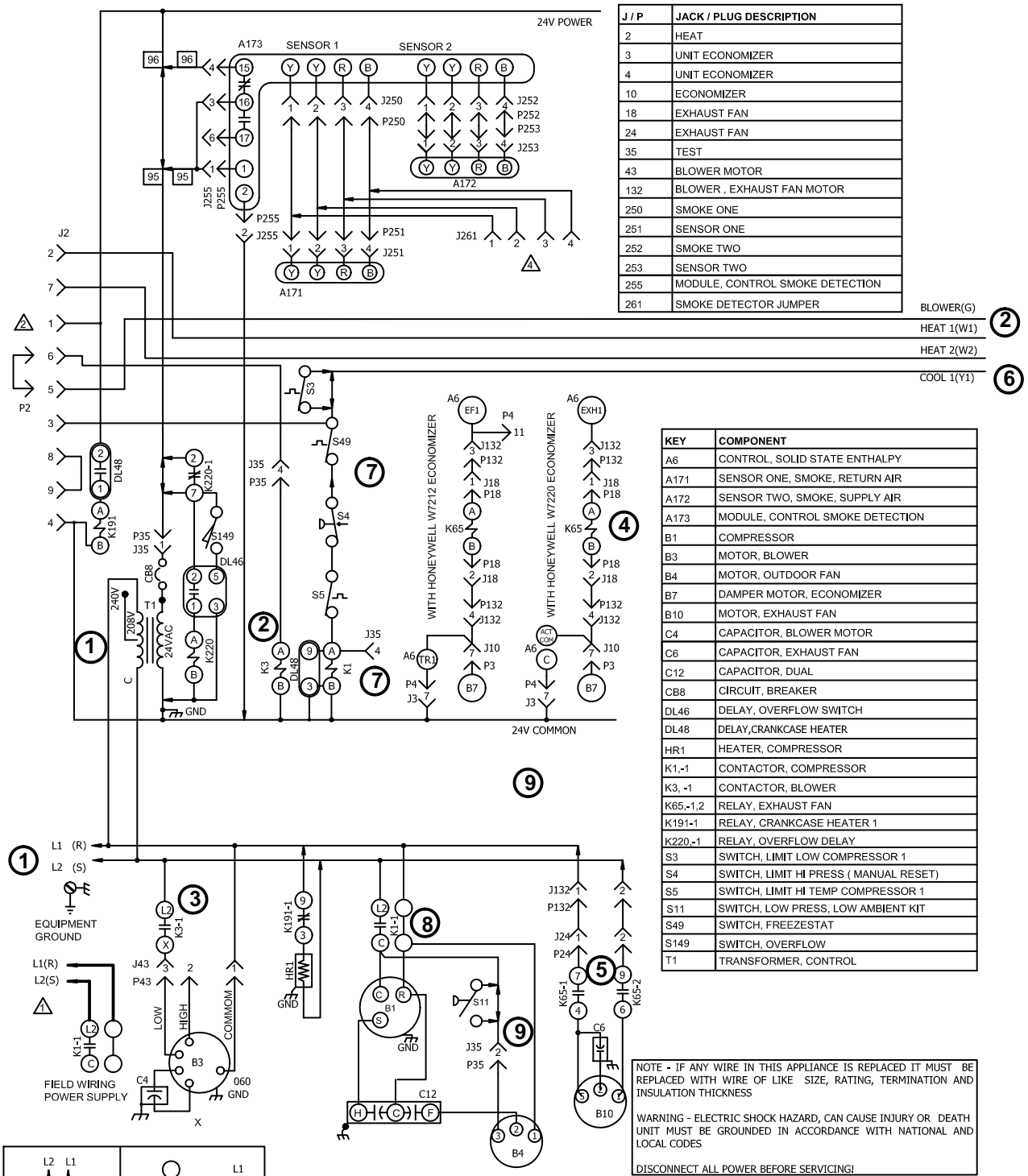


FIGURE 26

KCB024/060 P VOLTAGE UNIT DIAGRAM



J / P	JACK / PLUG DESCRIPTION
2	HEAT
3	UNIT ECONOMIZER
4	UNIT ECONOMIZER
10	ECONOMIZER
18	EXHAUST FAN
24	EXHAUST FAN
35	TEST
43	BLOWER MOTOR
132	BLOWER , EXHAUST FAN MOTOR
250	SMOKE ONE
251	SENSOR ONE
252	SMOKE TWO
253	SENSOR TWO
255	MODULE, CONTROL SMOKE DETECTION
261	SMOKE DETECTOR JUMPER

KEY	COMPONENT
A6	CONTROL, SOLID STATE ENTHALPY
A171	SENSOR ONE, SMOKE, RETURN AIR
A172	SENSOR TWO, SMOKE, SUPPLY AIR
A173	MODULE, CONTROL SMOKE DETECTION
B1	COMPRESSOR
B3	MOTOR, BLOWER
B4	MOTOR, OUTDOOR FAN
B7	DAMPER MOTOR, ECONOMIZER
B10	MOTOR, EXHAUST FAN
C4	CAPACITOR, BLOWER MOTOR
C6	CAPACITOR, EXHAUST FAN
C12	CAPACITOR, DUAL
CB8	CIRCUIT, BREAKER
DL46	DELAY, OVERFLOW SWITCH
DL48	DELAY,CRANKCASE HEATER
HR1	HEATER, COMPRESSOR
K1,-1	CONTACTOR, COMPRESSOR
K3, -1	CONTACTOR, BLOWER
K65,-1,2	RELAY, EXHAUST FAN
K191-1	RELAY, CRANKCASE HEATER 1
K220,-1	RELAY, OVERFLOW DELAY
S3	SWITCH, LIMIT LOW COMPRESSOR 1
S4	SWITCH, LIMIT HI PRESS (MANUAL RESET)
S5	SWITCH, LIMIT HI TEMP COMPRESSOR 1
S11	SWITCH, LOW PRESS, LOW AMBIENT KIT
S49	SWITCH, FREEZESTAT
S149	SWITCH, OVERFLOW
T1	TRANSFORMER, CONTROL

NOTE - IF ANY WIRE IN THIS APPLIANCE IS REPLACED IT MUST BE REPLACED WITH WIRE OF LIKE SIZE, RATING, TERMINATION AND INSULATION THICKNESS

WARNING - ELECTRIC SHOCK HAZARD, CAN CAUSE INJURY OR DEATH UNIT MUST BE GROUNDED IN ACCORDANCE WITH NATIONAL AND LOCAL CODES

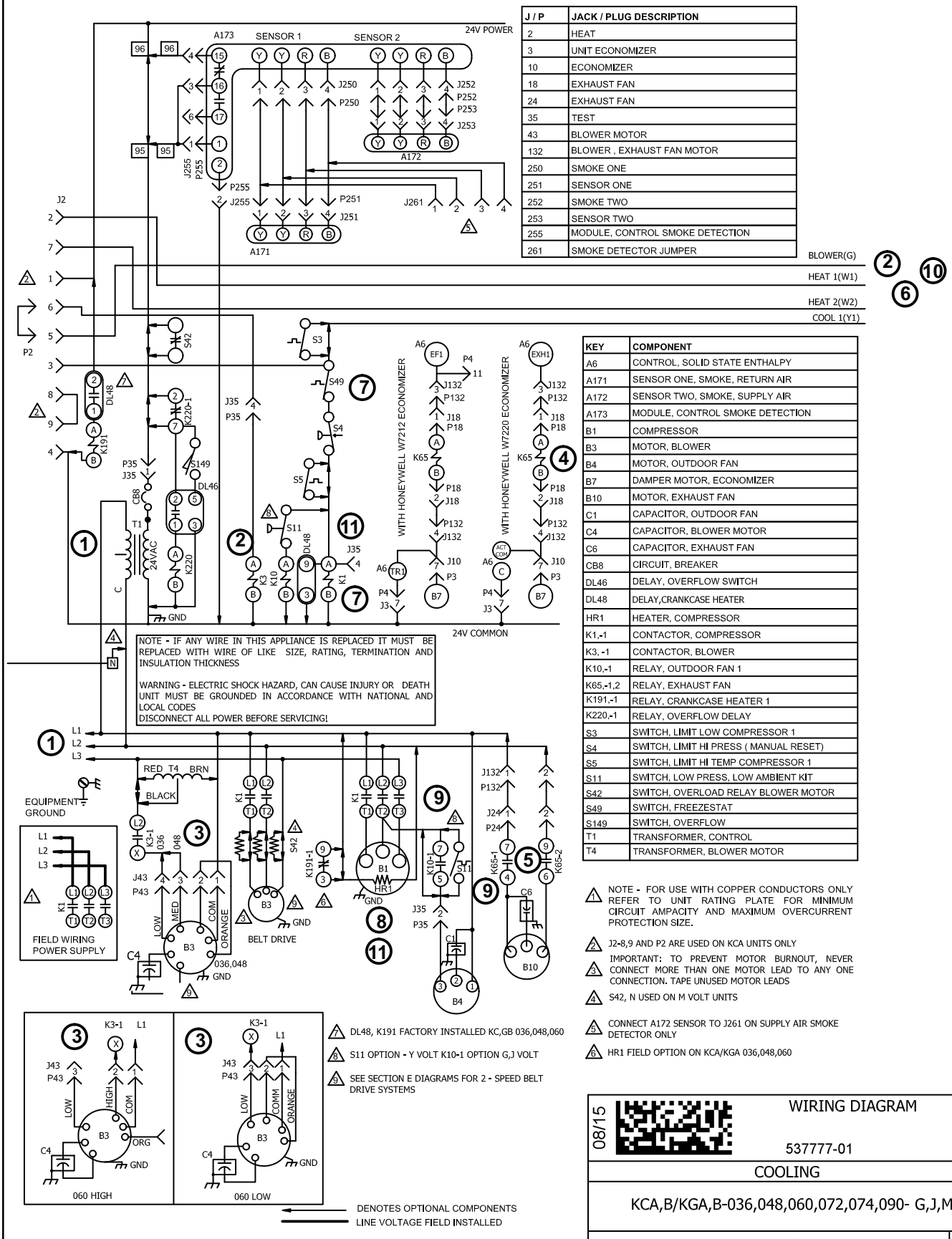
DISCONNECT ALL POWER BEFORE SERVICING!

1. NOTE - FOR USE WITH COPPER CONDUCTORS ONLY REFER TO UNIT RATING PLATE FOR MINIMUM CIRCUIT AMPACITY AND MAXIMUM OVERCURRENT PROTECTION SIZE.
2. J2-8,9 AND P2 ARE USED ON KCA UNITS ONLY
3. IMPORTANT: TO PREVENT MOTOR BURNOUT, NEVER CONNECT MORE THAN ONE MOTOR LEAD TO ANY ONE CONNECTION. TAPE UNUSED MOTOR LEADS
4. CONNECT A172 SENSOR TO J261 ON SUPPLY AIR SMOKE DETECTOR ONLY

DENOTES OPTIONAL COMPONENTS
LINE VOLTAGE FIELD INSTALLED

10/14	WIRING DIAGRAM 537778-01	10/14
COOLING		
KCB/KGB - 024,030,036,048,060 - P		
SECTION B		REV 0
Supersedes 537631-01	New Form No. 537778-01	

KCB036/090 G, J, M &Y VOLTAGE UNIT DIAGRAM



J / P	JACK / PLUG DESCRIPTION
2	HEAT
3	UNIT ECONOMIZER
10	ECONOMIZER
18	EXHAUST FAN
24	EXHAUST FAN
35	TEST
43	BLOWER MOTOR
132	BLOWER , EXHAUST FAN MOTOR
250	SMOKE ONE
251	SENSOR ONE
252	SMOKE TWO
253	SENSOR TWO
255	MODULE, CONTROL SMOKE DETECTION
261	SMOKE DETECTOR JUMPER

KEY	COMPONENT
A6	CONTROL, SOLID STATE ENTHALPY
A171	SENSOR ONE, SMOKE, RETURN AIR
A172	SENSOR TWO, SMOKE, SUPPLY AIR
A173	MODULE, CONTROL SMOKE DETECTION
B1	COMPRESSOR
B3	MOTOR, BLOWER
B4	MOTOR, OUTDOOR FAN
B7	DAMPER MOTOR, ECONOMIZER
B10	MOTOR, EXHAUST FAN
C1	CAPACITOR, OUTDOOR FAN
C4	CAPACITOR, BLOWER MOTOR
C6	CAPACITOR, EXHAUST FAN
CB8	CIRCUIT, BREAKER
DL46	DELAY, OVERFLOW SWITCH
DL48	DELAY,CRANKCASE HEATER
HR1	HEATER, COMPRESSOR
K1,-1	CONTACTOR, COMPRESSOR
K3, -1	CONTACTOR, BLOWER
K10,-1	RELAY, OUTDOOR FAN 1
K65,-1,2	RELAY, EXHAUST FAN
K191,-1	RELAY, CRANKCASE HEATER 1
K220,-1	RELAY, OVERFLOW DELAY
S3	SWITCH, LIMIT LOW COMPRESSOR 1
S4	SWITCH, LIMIT HI PRESS (MANUAL RESET)
S5	SWITCH, LIMIT HI TEMP COMPRESSOR 1
S11	SWITCH, LOW PRESS, LOW AMBIENT KIT
S42	SWITCH, OVERLOAD RELAY BLOWER MOTOR
S49	SWITCH, FREEZESTAT
S149	SWITCH, OVERFLOW
T1	TRANSFORMER, CONTROL
T4	TRANSFORMER, BLOWER MOTOR

1. NOTE - FOR USE WITH COPPER CONDUCTORS ONLY REFER TO UNIT RATING PLATE FOR MINIMUM CIRCUIT AMPACITY AND MAXIMUM OVERCURRENT PROTECTION SETTING.
2. J2-8,9 AND P2 ARE USED ON KCA UNITS ONLY
3. IMPORTANT: TO PREVENT MOTOR BURNOUT, NEVER CONNECT MORE THAN ONE MOTOR LEAD TO ANY ONE CONNECTION. TAPE UNUSED MOTOR LEADS
4. S42, N USED ON M VOLT UNITS
5. CONNECT A172 SENSOR TO J261 ON SUPPLY AIR SMOKE DETECTOR ONLY
6. HR1 FIELD OPTION ON KCA/KGA 036,048,060
7. DL48, K191 FACTORY INSTALLED KC,GB 036,048,060
8. S11 OPTION - Y VOLT K10-1 OPTION G,J VOLT
9. SEE SECTION E DIAGRAMS FOR 2 - SPEED BELT DRIVE SYSTEMS

08/15	WIRING DIAGRAM 537777-01	08/15
COOLING		
KCA,B/KGA,B-036,048,060,072,074,090- G,J,M,Y		
SECTION B		REV. 1
Supersedes 537630-01	New Form No. 537777-01	

KCB024/090 P, Y, G, J & M Voltage Sequence of Operation

Power:

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

Blower Operation:

2. Indoor thermostat terminal G energizes blower contactor K3 with 24VAC.
3. N.O. K3 closes, energizing blower B3.

Economizer Operation:

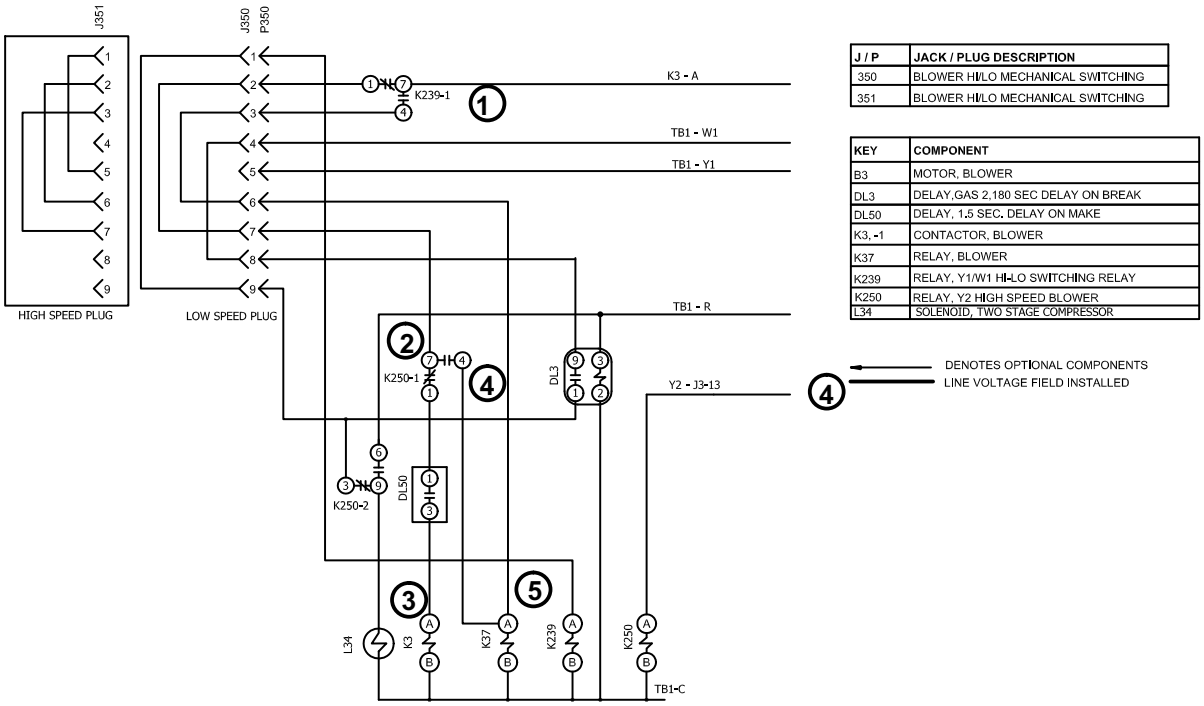
4. The economizer control module receives a demand and energizes exhaust fan relay K65 with 24VAC at 50% outside air damper open (adjustable).
5. N.O. K65-1 and N.O. K65-2 both close, energizing exhaust fan motor B10.

Cooling Demand

6. First stage cooling demand Y1 and G is energized by the thermostat. G energizes blower.
7. 24VAC is routed through TB1 to N.C. freezestat S49, and optional N.C. high pressure switch S4. Compressor contactor K1 is energized.
8. N.O. K1-1 close energizing compressor B1.
9. ***Single Phase P Voltage Units***
   Optional N.O. low ambient switch S11 closes to energize condenser fan B4.
   Three Phase Y Voltage Units
   Optional N.O. low ambient switch S11 closes to energize condenser fan B4.
   Three Phase G, J & M Voltage Units
   Optional N.O. low ambient switch S11 closes to energize condenser fan relay K10.
   N.O. contacts K10-1 close energizing condenser fan B4 .

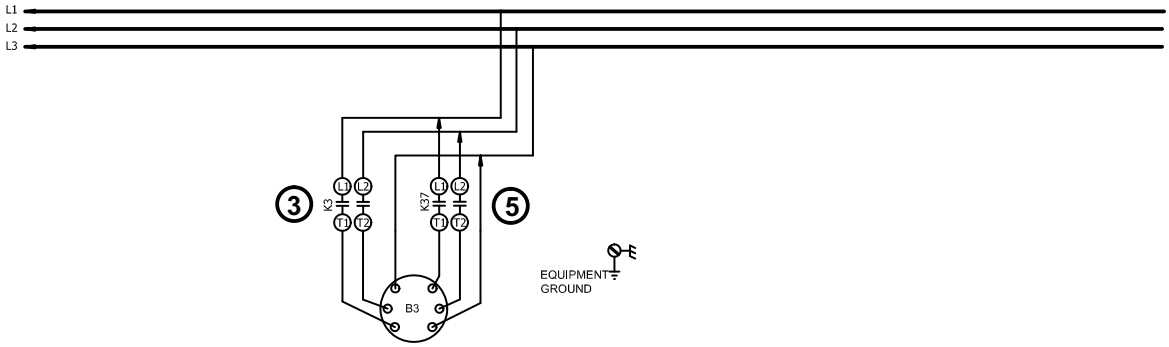
KCB-074 Two-Stage Units

10. First-stage cooling demand Y1 and G is energized by the thermostat. G energizes blower.
11. *Following from step 7* K1 energizes compressor, condenser fan and blower B1 on low speed.
12. Second-stage cooling demand Y2 energizes compressor B1, condenser fan and blower B1 on high speed.



J / P	JACK / PLUG DESCRIPTION
350	BLOWER HI/LO MECHANICAL SWITCHING
351	BLOWER HI/LO MECHANICAL SWITCHING

KEY	COMPONENT
B3	MOTOR, BLOWER
DL3	DELAY,GAS 2,180 SEC DELAY ON BREAK
DL50	DELAY, 1.5 SEC. DELAY ON MAKE
K3, -1	CONTACTOR, BLOWER
K37	RELAY, BLOWER
K239	RELAY, Y1/W1 HI-LO SWITCHING RELAY
K250	RELAY, Y2 HIGH SPEED BLOWER
L34	SOLENOID, TWO STAGE COMPRESSOR



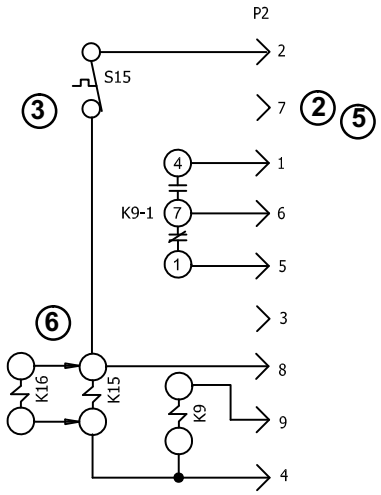
KCB-074 Two-Stage Units

1. **First-stage cooling demand Y1** and G is energized by the thermostat. G energizes blower.
2. Relay K239 directs voltage through relay K250 to energize contactor K3.
3. Blower contactor K3 energizes blower B3 on low speed.
4. **Second-stage cooling demand Y2** energizes relay K250 to redirect voltage to contactor K37
5. Contactor K37 energizes blower B3 on high speed.

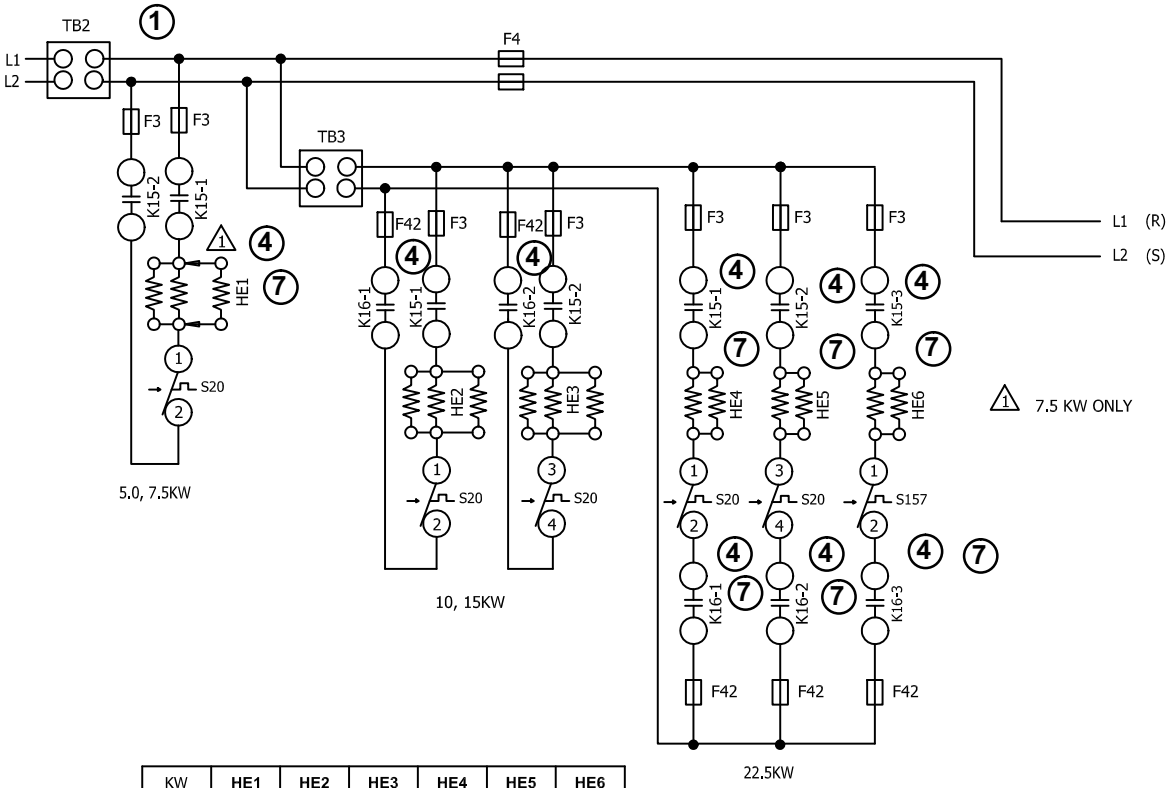
08/15	WIRING DIAGRAM 537822-01	08/15
COOLING		
2 SPEED A - BOX AND A+ - BOX - G,J,M,Y		
SECTION E		REV. 0
Supersedes	New Form No. 537822-01	

T1EH-7.5, 10, 15, 22.5 kW P VOLTAGE

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
HE4	ELEMENT, ELECTRIC HEAT 4
HE5	ELEMENT, ELECTRIC HEAT 5
HE6	ELEMENT, ELECTRIC HEAT 6
K9,-1	RELAY HEAT
K15, -1,2,3	CONTACTOR, ELECTRIC HEAT
K16, -1,2,3	CONTACTOR, ELECTRIC HEAT 2
P2	PLUG, UNIT HEAT
S15	SWITCH, LIMIT PRIMARY ELECTRIC HEAT
S20	SWITCH, LIMIT SECONDARY ELECTRIC HEAT
S157	SWITCH, LIMIT SECONDARY ELECTRIC HEAT 2
TB 2	TERMINAL STRIP, UNIT 2
TB 3	TERMINAL STRIP, ELECTRIC HEAT CIRCUIT

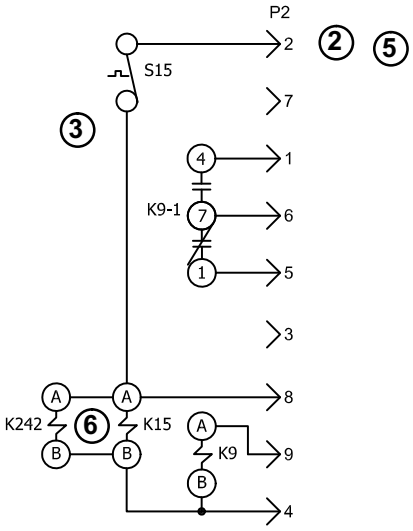


	KW	HE1	HE2	HE3	HE4	HE5	HE6
024 - 030	5.0	5.0					
	10.0		5.0	5.0			
036 - 048	7.5	7.5					
	15		7.5	7.5			
060	22.5				7.5	7.5	7.5

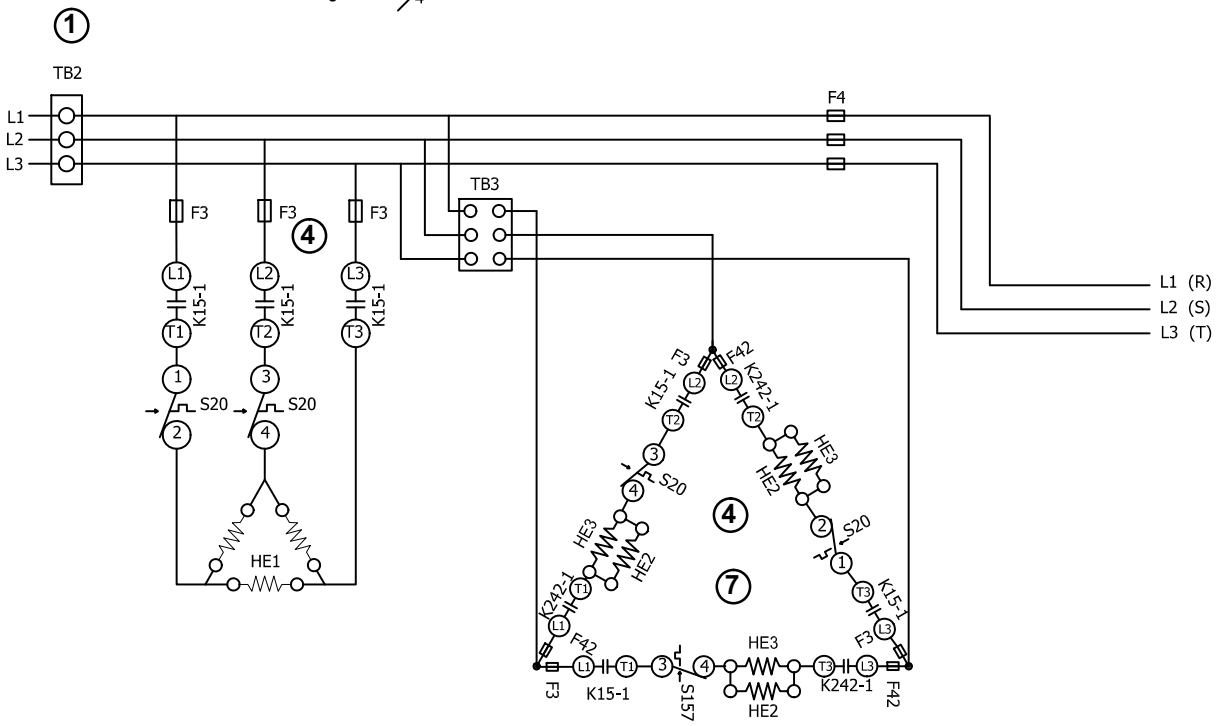
DENOTES OPTIONAL COMPONENTS

09/14	WIRING DIAGRAM 537783-01	09/14
HEATING - ELECTRIC		
T1EH - 7.5, 10, 15, 22.5 - P K1EH - 5.0 - P, A - BOX		
SECTION A		REV 0
Supersedes	New Form No. 537783-01	

T1EH-7.5, 15, 22.5, 30 Y VOLTAGE



DESCRIPTION	
KEY	DESCRIPTION
F3	FUSE, ELECTRIC HEAT
F4	FUSE, UNIT
F42	FUSE, ELECTRIC HEAT 2
HE -1	ELEMENT, ELECTRIC HEAT 1
HE -2	ELEMENT, ELECTRIC HEAT 2
HE -3	ELEMENT, ELECTRIC HEAT 3
K9,-1	RELAY - HEAT
K15,-1	CONTACTOR, ELECTRIC HEAT 1
K242,-1	CONTACTOR, ELECTRIC HEAT 1
P2	PLUG, UNIT HEAT
S15	SWITCH, LIMIT PRIMARY ELECTRIC HEAT
S20	SWITCH, LIMIT SECONDARY ELECTRIC HEAT 1
S157	SWITCH, LIMIT SECONDARY ELECTRIC HEAT 2
TB2	TERMINAL STRIP, UNIT
TB3	TERMINAL STRIP - ELECTRIC HEAT , CIRC 1

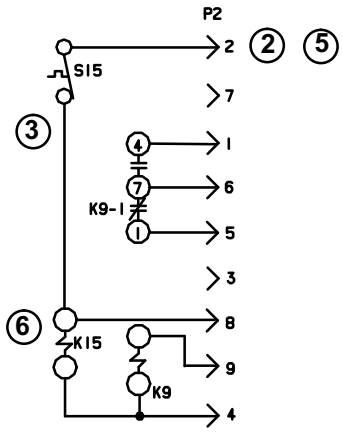


			KW	HE1	HE2	HE3
072	060	036 048	7.5	7.5		
			15	15		
			22.5		15	7.5
			30		15	15

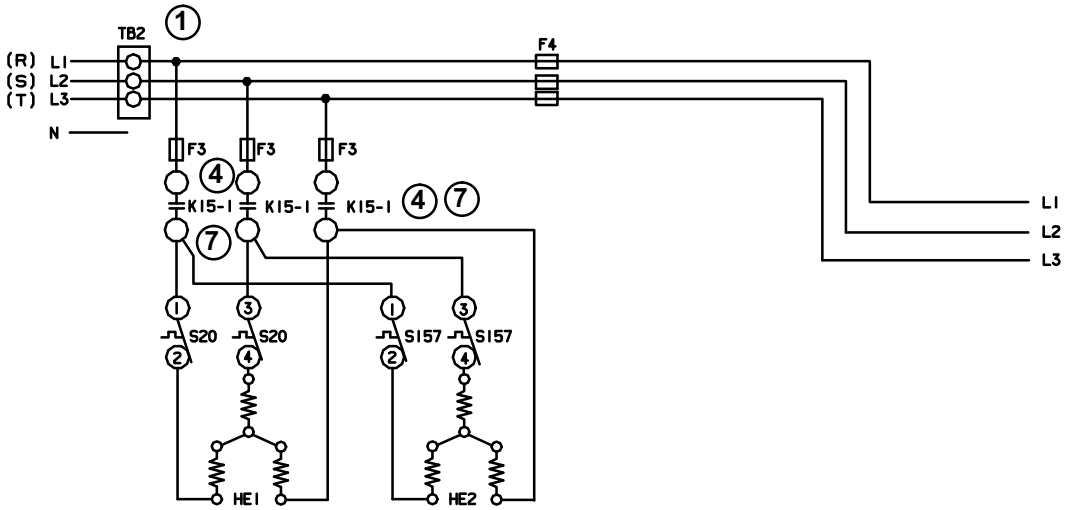
01/15	WIRING DIAGRAM 537806-01	01/15
HEATING - ELECTRIC		
TIEH - 7.5,15,22.5,30 Y		
HEATING SECTION A4		REV 0
Supersedes 535,049W	New Form No. 537806-01	

T1EHA-7.5, 15, 22.5, 30, 45 & 60kW G, J, M VOLTAGE

24V POWER



DESCRIPTION	
KEY	COMPONENT
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
SI5	SWITCH-LIMIT,PRIMARY ELECT HT
S20	SWITCH-LIMIT,SECONDARY ELECT HT
SI57	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

Litho U.S.A.

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, K16-1, K15-2 and K16-2 close energizing HE2 and HE3.
22.5kW units - K15-1, K15-2, K15-3, K16-1, K16-2, K16-3 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, K15-2, K16-1, K16-2 open de-energizing HE2 and HE3.
22.5kW units - K15-1, K15-2, K15-3, K16-1, K16-2 and K16-3 open de-energizing HE4, HE5 and HE6.

Sequence of Operation -T1EH 7.5, 15, 22.5, 30 kW - 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 K15-01 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 K15-01 open de-energizing HE2 and HE3.

Sequence of Operation -T1EH 7.5, 15, 22.5, 30 kW - Y 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 K242-1 close energizing HE2 and HE3.

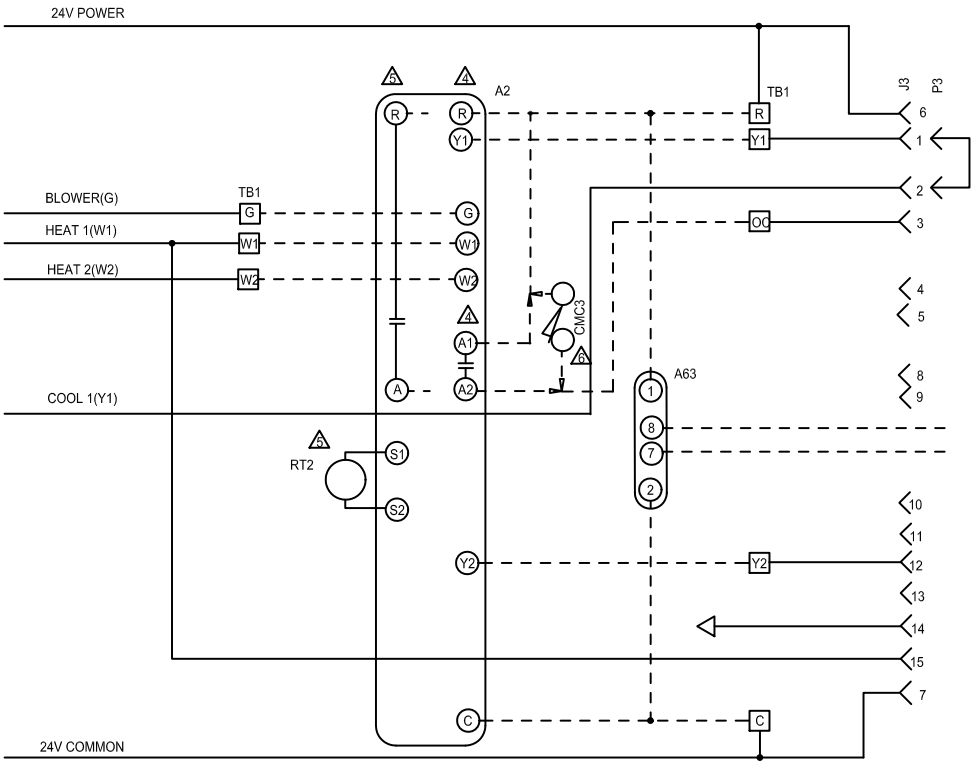
END OF FIRST STAGE HEAT:

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 K242-1 open de-energizing HE2 and HE3.

ELECTRONIC OR ELECTROMECHANICAL THERMOSTAT



KEY	COMPONENT
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

1. THERMOSTAT SUPPLIED BY USER
2. REMOVE P3 WHEN ECONOMIZER IS USED
3. J3 MAXIMUM LOAD 20VA 24VAC CLASS II
4. T7300 THERMOSTAT
5. T88220 TOUCHSCREEN THERMOSTAT
6. TIME CLOCK CONTACTS (OPT) CLOSED OCCUPIED

DESIGNATES OPTIONAL WIRING
CLASS II FIELD WIRING

06/13	WIRING DIAGRAM 537637-01	06/13
ACCESSORIES		
ELECTRONIC OR ELECTROMECHANICAL THERMOSTAT FOR K SERIES		
SECTION C		REV 0
Supersedes 537483-01	New Form No. 537637-01	

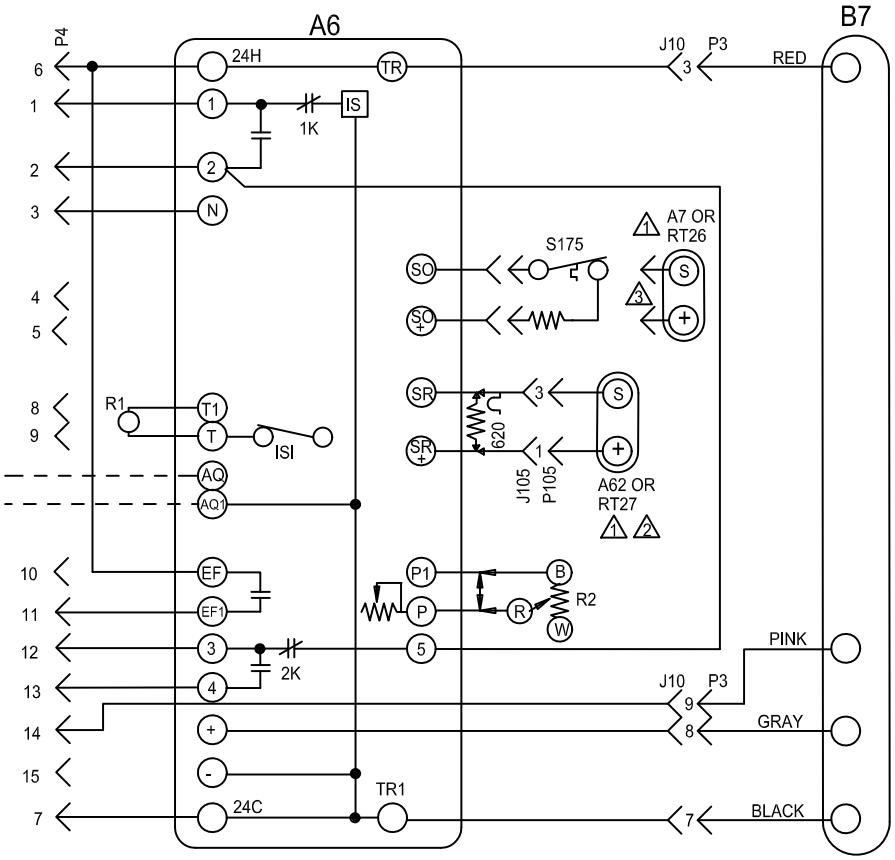
POWER:

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

OPERATION:

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

ECONOMIZER



KEY	COMPONENT
A6	CONTROL-SOLID STATE ENTHALPY
A7	SENSOR-SOLID STATE ENTHALPY
A62	SENSOR-ENTHALPY, INDOOR
B7	MOTOR-DAMPER, ECONOMIZER
J10	JACK, ECONOMIZER
P3	PLUG, 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
S175	THERMOSTAT, SENSIBLE AIR

1. RT26 AND RT27, TEMPERATURE SENSORS MAY BE USED INSTEAD OF A7 AND A62 ENTHALPY SENSORS
2. A62 ENTHALPY SENSOR OR RT27 USED FOR DIFFERENTIAL SENSING
3. OPTIONAL OUTDOOR AIR THERMOSTAT TO REPLACE RT26 SENSIBLE SENSOR

DESIGNATES OPTIONAL WIRING
CLASS II FIELD WIRING

08/15	537620-01	08/15
ACCESSORIES		
ECONOMIZER LANDMARK A-BOX		
SECTION D1		REV 1
Supersedes Form No. 537484-01	New Form No. 537620-01	

SEQUENCE OF OPERATION

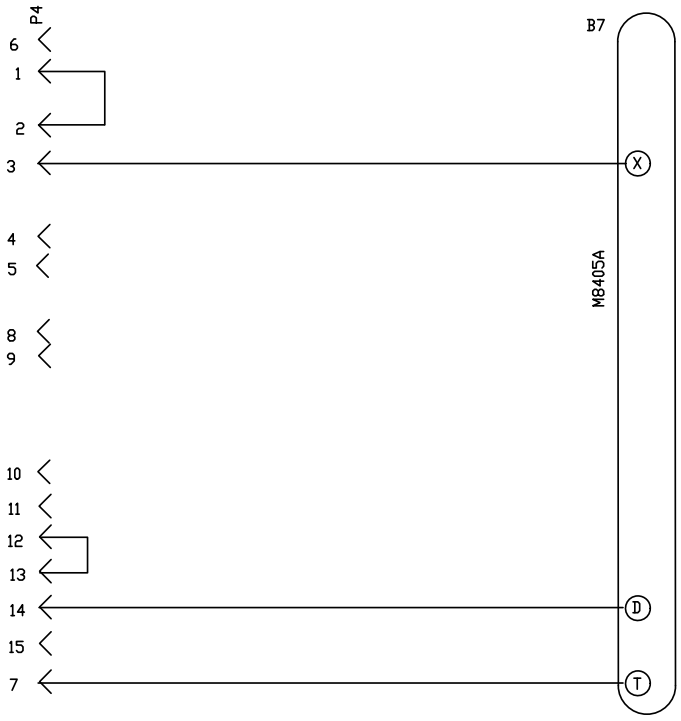
POWER:

1. Terminal strip TB1 found in the main control panel 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.

OUTDOOR AIR DAMPER



DESCRIPTION	
KEY	COMPONENT
B7	MOTOR-DAMPER, ECONOMIZER
P4	PLUG-ECONOMIZER

DESIGNATES OPTIONAL WIRING
CLASS II FIELD WIRING

WIRING DIAGRAM	11/07
ACCESSORIES	
MOTORIZED OAD FOR KCA/KGA,TCA/TGA UNITS	
ECONOMIZER SECTION D2	
Supersedes Form No.	New Form No. 534,489W

Litho U.S.A.

SEQUENCE OF OPERATION

OPERATION:

Occupied Mode

1. 24 volt signal from terminal “OC” on TB1 opens B7 dampers to minimum position.

Unoccupied Mode

2. Dampers remain closed.