

Installation Instructions

Part Numbers CAELHEAT001B00 - CAELHEAT039B00

CONTENTS

	Page
SAFETY CONSIDERATIONS	1
GENERAL	1
PRE-INSTALLATION	10
Uncrate and Inspect Shipment	10
Consider System Requirements	10
INSTALLATION	10
Step 1 — Mount Heater	10
Step 2 — Connect Ductwork	13
Step 3 — Make Electrical Connections	13
Step 4 — Outdoor Thermostat (Econostat)	22
SERVICE	22
Controls	22
High Temperature Limit Switches	22
Heater Elements	22

IMPORTANT: Read these instructions completely before attempting to install the electric heat accessory.

SAFETY CONSIDERATIONS

Installation and servicing of air-conditioning equipment can be hazardous due to system pressure and electrical components. Only trained and qualified service personnel should install, repair, or service air-conditioning equipment.

Untrained personnel can perform basic maintenance functions of cleaning coils and filters and replacing filters. All other operations should be performed by trained service personnel. When working on air-conditioning equipment, observe precautions in the literature, tags and labels attached to the unit, and other safety precautions that may apply.

Follow all safety codes, including ANSI (American National Standards Institute) Z223.1. Wear safety glasses and work gloves. Use quenching cloth for unbrazing operations. Have fire extinguisher available for all brazing operations.

It is important to recognize safety information. This is the safety-alert symbol . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, CAUTION, and NOTE. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices, which **may** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could cause personal injury or death.

Open and tag all disconnects before installing this equipment.

WARNING

PERSONAL INJURY HAZARD

Failure to follow this warning could cause personal injury.

Units equipped with the electric heat accessory may **NOT** use the discharge plenum accessory.

GENERAL

The electric heater accessories are available for 6 to 30 ton (21 to 105 kW) packaged air handlers and have nominal ratings of 5 to 70 kW. The heaters have a multi-stage, open-wire design and are mounted in a rigid frame. Safety cutouts for high temperature conditions are standard. Each heater has primary auto-reset limit switch(es) as well as secondary manual reset limit switch(es). Contactors and pilot duty switches are factory-installed with the capability to wire indoor-fan motors for single-point electrical connections. See Tables 1-4 for electrical data and unit application. See Table 5 for heater equivalency information.

Table 1 — 40RU/524J/F*S, 6-12 Ton 60 Hz Electrical Data a,b,c,d

UNIT	NOM. V-Ph-Hz	FAN MOTOR			ELECTRIC HEATER(S) ^e							POWER SUPPLY ^f	
		HP	kW	FLA	CAELHEAT ****00	Heater Voltage	Nominal Capacity (kW)	Actual Capacity (kW)			FLA (Full Load Amps)	MCA ^g (Min Ckt Amps)	MOCP ^g (Max Overcurrent Protection)
								Stage 1	Stage 2	Total			
40RU** 07-12 524J* 07-12 F*S 072-120	208-3-60	1.3 ^h	0.97	7.6	001B	208	5	3.8	—	3.8	10.4	22.5	25
		2.4 ^h	1.79	11.0	001B		5	3.8	—	3.8	10.4	26.8	35
		2.4	1.79	5.2	001B		5	3.8	—	3.8	10.4	19.5	20
		2.9	2.16	7.5	001B		5	3.8	—	3.8	10.4	22.4	25
		3.7	2.76	10.2	001B		5	3.8	—	3.8	10.4	25.8	30
	230-3-30	1.3 ^h	0.97	7.6	001B	240	5	5.0	—	5.0	12.0	24.5	25
		2.4 ^h	1.79	11.0	001B		5	5.0	—	5.0	12.0	28.8	35
		2.4	1.79	5.2	001B		5	5.0	—	5.0	12.0	21.5	25
		2.9	2.16	7.5	001B		5	5.0	—	5.0	12.0	24.4	25
		3.7	2.76	10.2	001B		5	5.0	—	5.0	12.0	27.8	30
	480-3-60	2.4	1.79	2.6	002B	480	5	5.0	—	5.0	6.0	10.8	15
		2.9	2.16	3.4	002B		5	5.0	—	5.0	6.0	11.8	15
		3.7	2.76	4.8	002B		5	5.0	—	5.0	6.0	13.5	15
	575-3-60	1.0	0.75	1.4	003B	575	5	5.0	—	5.0	5.0	8.0	15
		2.0	1.49	2.3	003B		5	5.0	—	5.0	5.0	9.2	15
		3.0	2.24	3.8	003B		5	5.0	—	5.0	5.0	11.0	15
	208-3-60	1.3 ^h	0.97	7.6	004B	208	10	7.5	—	7.5	20.8	35.6	40
		2.4 ^h	1.79	11.0	004B		10	7.5	—	7.5	20.8	39.8	40
		2.4	1.79	5.2	004B		10	7.5	—	7.5	20.8	32.6	35
		2.9	2.16	7.5	004B		10	7.5	—	7.5	20.8	35.4	40
		3.7	2.76	10.2	004B		10	7.5	—	7.5	20.8	38.8	40
	230-3-30	1.3 ^h	0.97	7.6	004B	240	10	10.0	—	10.0	24.1	39.6	40
		2.4 ^h	1.79	11.0	004B		10	10.0	—	10.0	24.1	43.8	50
		2.4	1.79	5.2	004B		10	10.0	—	10.0	24.1	36.6	40
		2.9	2.16	7.5	004B		10	10.0	—	10.0	24.1	39.4	40
		3.7	2.76	10.2	004B		10	10.0	—	10.0	24.1	42.8	50
	480-3-60	2.4	1.79	2.6	005B	480	10	10.0	—	10.0	12.0	18.3	20
		2.9	2.16	3.4	005B		10	10.0	—	10.0	12.0	19.3	20
		3.7	2.76	4.8	005B		10	10.0	—	10.0	12.0	21.0	25
	575-3-60	1.0	0.75	1.4	006B	575	10	10.0	—	10.0	10.0	14.3	15
		2.0	1.49	2.3	006B		10	10.0	—	10.0	10.0	15.4	20
		3.0	2.24	3.8	006B		10	10.0	—	10.0	10.0	17.3	20
	208-3-60	1.3 ^h	0.97	7.6	007B	208	15	11.3	—	11.3	31.3	48.6	50
		2.4 ^h	1.79	11.0	007B		15	11.3	—	11.3	31.3	52.9	60
		2.4	1.79	5.2	007B		15	11.3	—	11.3	31.3	45.6	50
		2.9	2.16	7.5	007B		15	11.3	—	11.3	31.3	48.5	50
		3.7	2.76	10.2	007B		15	11.3	—	11.3	31.3	51.9	60
	230-3-30	1.3 ^h	0.97	7.6	007B	240	15	15.0	—	15.0	36.1	54.6	60
		2.4 ^h	1.79	11.0	007B		15	15.0	—	15.0	36.1	58.9	60
		2.4	1.79	5.2	007B		15	15.0	—	15.0	36.1	51.6	60
		2.9	2.16	7.5	007B		15	15.0	—	15.0	36.1	54.5	60
		3.7	2.76	10.2	007B		15	15.0	—	15.0	36.1	57.9	60

NOTE(S):

- Electrical resistance heaters are rated at 240 v, 480 v, 575 v. To determine heater capacity (kW) at unit nameplate multiply the 240-v, 480-v, or 575-v capacity (kW) by the factor shown in the table below for the unit voltage.
- The following equation converts kW of heat energy to Btuh: kW x 3412 = Btuh.
- Heater contactor coils are 24 v and require 8 va holding current.
- All 575-v motors and single-phase motors are standard efficiency.
- Electric heaters are tested and ETL approved at maximum total external static pressure of 1.9 in. wg.
- MCA and MOCP values apply to both standard and alternate factory-supplied motors.
- Values shown are for single-point connection of electric heat accessory and air handler.
- Single-phase motors. All other motors are 3-phase.

Table 1 — 40RU/524J/F*S, 6-12 Ton 60 Hz Electrical Data ^{a,b,c,d} (cont)

SIZE	NOM. V-Ph-Hz	FAN MOTOR			ELECTRIC HEATER(S) ^e							POWER SUPPLY ^f	
		HP	kW	FLA	CAELHEAT ****00	Heater Voltage	Nominal Capacity (kW)	Actual Capacity			FLA	MCA ^g (Min Ckt Amps)	MOCP ^g (Max Overcurrent Protection)
								Stage 1	Stage 2	Total			
40RU** 07-12 524J* 07*12 F*S 072-120	480-3-60	2.4	1.79	2.6	008B	480	15	15.0	—	15.0	18.0	25.8	30
		2.9	2.16	3.4	008B		15	15.0	—	15.0	18.0	26.8	30
		3.7	2.76	4.8	008B		15	15.0	—	15.0	18.0	28.6	30
	575-3-60	1.0	0.75	1.4	009B	575	15	15.0	—	15.0	15.1	20.6	25
		2.0	1.49	2.4	009B		15	15.0	—	15.0	15.1	21.8	25
		3.0	2.24	3.8	009B		15	15.0	—	15.0	15.1	23.6	25
	208-3-60	1.3 ^h	0.97	7.6	010B	208	25	11.3	7.5	18.8	52.1	74.7	80
		2.4 ^h	1.79	11.0	010B		25	11.3	7.5	18.8	52.1	78.9	80
		2.4	1.79	5.2	010B		25	11.3	7.5	18.8	52.1	71.7	80
		2.9	2.16	7.5	010B		25	11.3	7.5	18.8	52.1	74.5	80
		3.7	2.76	10.2	010B		25	11.3	7.5	18.8	52.1	77.9	80
	230-3-60	1.3 ^h	0.97	7.6	010B	240	25	15.0	10.0	25.0	60.1	84.7	90
		2.4 ^h	1.79	11.0	010B		25	15.0	10.0	25.0	60.1	88.9	90
		2.4	1.79	5.2	010B		25	15.0	10.0	25.0	60.1	81.7	90
		2.9	2.16	7.5	010B		25	15.0	10.0	25.0	60.1	84.6	90
		3.7	2.76	10.2	010B		25	15.0	10.0	25.0	60.1	87.9	90
		2.4	1.79	2.6	011B		25	15.0	10.0	25.0	30.1	40.8	50
	480-3-60	2.9	2.16	3.4	011B	480	25	15.0	10.0	25.0	30.1	41.8	50
		3.7	2.76	4.8	011B		25	15.0	10.0	25.0	30.1	43.6	50
		1.0	0.75	1.4	012B		25	15.0	10.0	25.0	25.1	33.1	35
	575-3-60	2.0	1.49	2.3	012B	575	25	15.0	10.0	25.0	25.1	34.3	35
		3.0	2.24	3.8	012B		25	15.0	10.0	25.0	25.1	36.1	40
		2.4 ^h	1.79	11.0	013B	208	35	15.0	11.3	26.3	73.0	105.0	110
	208-3-60	2.4	1.79	5.2	013B		35	15.0	11.3	26.3	73.0	97.7	100
		2.9	2.16	7.5	013B		35	15.0	11.3	26.3	73.0	100.6	110
		3.7	2.76	10.2	013B		35	15.0	11.3	26.3	73.0	104.0	110
		2.4 ^h	1.79	11.0	013B		35	20.0	15.0	35.0	84.2	119.0	125
	230-3-60	2.4	1.79	5.2	013B	240	35	20.0	15.0	35.0	84.2	111.7	125
		2.9	2.16	7.5	013B		35	20.0	15.0	35.0	84.2	114.6	125
		3.7	2.76	10.2	013B		35	20.0	15.0	35.0	84.2	118.0	125
		2.4	1.79	2.6	014B		35	20.0	15.0	35.0	42.1	55.9	60
		2.9	2.16	3.4	014B		35	20.0	15.0	35.0	42.1	56.9	60
40RU** 08-12 524J* 08-12 F*S 091-120	480-3-60	3.7	2.76	4.8	014B	480	35	20.0	15.0	35.0	42.1	58.6	60
		2.0	1.49	2.3	015B		35	20.0	15.0	35.0	35.1	46.8	50
		3.0	2.24	3.8	015B		35	20.0	15.0	35.0	35.1	48.7	50

NOTE(S):

- Electrical resistance heaters are rated at 240-v, 480-v, 575-v. To determine heater capacity (kW) at unit nameplate multiply the 240-v, 480-v, or 575-v capacity (kW) by the factor shown in the table below for the unit voltage.
- The following equation converts kW of heat energy to Btuh: kW x 3412 = Btuh.
- Heater contactor coils are 24-v and require 8-va holding current.
- All 575-v motors and single-phase motors are standard efficiency.
- Electric heaters are tested and ETL approved at maximum total external static pressure of 1.9 in. wg.
- MCA and MOCP values apply to both standard and alternate factory-supplied motors.
- Values shown are for single-point connection of electric heat accessory and air handler.
- Single-phase motors. All other motors are 3-phase.

Table 2 — 40RU/524J/F*S, 6-12 Ton 50 Hz Electrical Data ^{a,b}

UNIT	NOM. V-Ph-Hz	FAN MOTOR			ELECTRIC HEATER(S) ^c							POWER SUPPLY ^d	
		HP	kW	FLA	CAELHEAT ****00	Heater Voltage	Nominal Capacity (kW)	Actual Capacity (kW)			FLA (Full Load Amps)	MCA ^e (Min Ckt Amps)	MOCP ^e (Max Overcurrent Protection)
								Stage 1	Stage 2	Total			
40RU** 07-12 524J 07*12 F*S 072-120	400-3-50	2.4	1.79	2.6	002B	400	5	3.5	—	3.5	5.0	9.5	15
		2.9	2.16	3.4	002B		5	3.5	—	3.5	5.0	10.5	15
		3.7	2.76	4.8	002B		5	3.5	—	3.5	5.0	15.8	20
	400-3-50	2.4	1.79	2.6	005B	400	10	6.9	—	6.9	10.0	15.8	20
		2.9	2.16	3.4	005B		10	6.9	—	6.9	10.0	16.8	20
		5.0	3.73	7.6	005B		10	6.9	—	6.9	10.0	22.0	25
	400-3-50	2.4	1.79	2.6	008B	400	15	10.4	—	10.4	15.0	22.0	25
		2.9	2.16	3.4	008B		15	10.4	—	10.4	15.0	23.0	25
		3.7	3.73	7.6	008B		15	10.4	—	10.4	15.0	28.3	30
	400-3-50	2.4	1.79	2.6	011B	400	25	10.4	6.9	17.4	25.1	34.6	25
		2.9	2.16	3.4	011B		25	10.4	6.9	17.4	25.1	35.6	40
		5.0	3.73	7.6	011B		25	10.4	6.9	17.4	25.1	40.8	50
40RU** 08-12 524J*08-12 F*S 091-120	400-3-50	2.4	1.79	2.6	014B	400	35	13.9	10.4	24.3	35.1	47.1	50
		2.9	2.16	3.4	014B		35	13.9	10.4	24.3	35.1	48.1	50
		5.0	3.73	7.6	014B		35	13.9	10.4	24.3	35.1	53.4	60

NOTE(S):

- The following equation converts kW of heat energy to Btuh: kW x 3412 = Btuh.
- Heater contactor coils are 24 v and require 8 va holding current.
- Electric heaters are tested and ETL approved at maximum total external static pressure of 1.9 in. wg.
- MCA and MOCP values apply to both standard and alternate factory supplied motors.
- Values shown are for single-point connection of electric heat accessory.

Table 3 — 40RU/54J/F*S, 12.5-30 Ton 60 Hz Electrical Heater Data a,b,c

UNIT	NOM. V-Ph- Hz	IFM TYPE	UNIT VOLTAGE		FAN MOTOR (QTY 1)			ELECTRIC HEATER(S) ^d							POWER SUPPLY ^e	
			Range		HP	kW	FLA	CAEL HEAT ****00	Heater Voltage	Nom. Cap. (kW)	Actual Capacity (kW)			FLA (Full Load Amps)	MCA (Min Ckt Amps)	MOCP (Max Overcurrent Protection)
			Min	Max							Stage 1	Stage 2	Total			
40RU**14 524J*14 F*S150	208/ 230-3- 60	STD	187	253	2.9	2.16	8.6	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	36.8/40.9	40/50
								019B	208/240	20	15/20	—	15/20	41.7/48.1	62.9/70.9	70/80
								022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	88.9/101	90/110
		MED	187	253	2.9	2.16	8.6	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	36.8/40.9	40/50
								019B	208/240	20	15/20	—	15/20	41.7/48.1	62.9/70.9	70/80
								022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	88.9/101	90/110
		HIGH	187	253	3.7	2.76	10.8	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	39.5/43.6	40/50
								019B	208/240	20	15/20	—	15/20	41.7/48.1	65.6/73.6	70/80
								022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	91.6/103.8	100/110
	460-3- 60	STD	414	506	2.9	2.16	3.8	017B	480	10	10	—	10	12	19.8	20
								020B	480	20	20	—	20	23.9	34.6	35
								023B	480	30	20	10	30	36.1	49.9	50
		MED	414	506	2.9	2.16	3.8	017B	480	10	10	—	10	12	19.8	20
								020B	480	20	20	—	20	23.9	34.6	35
								023B	480	30	20	10	30	36.1	49.9	50
		HIGH	414	506	3.7	2.76	4.9	017B	480	10	10	—	10	12	21.1	25
								020B	480	20	20	—	20	23.9	36	40
								023B	480	30	20	10	30	36.1	51.3	60
	575-3- 60	STD	518	632	3.7	2.76	4.5	018B	575	10	10	—	10	10	18.1	20
								021B	575	20	20	—	20	20.1	30.8	35
								024B	575	30	20	10	30	30.1	43.3	50
		MED	518	632	3.7	2.76	4.5	018B	575	10	10	—	10	10	18.1	20
								021B	575	20	20	—	20	20.1	30.8	35
								024B	575	30	20	10	30	30.1	43.3	50
		HIGH	518	632	5.0	3.73	8.0	018B	575	10	10	—	10	10	22.5	25
								021B	575	20	20	—	20	20.1	35.1	40
								024B	575	30	20	10	30	30.1	47.6	50
40RU**16 524J*16 F*S180	208/ 230-3- 60	STD	187	253	3.7	2.76	10.8	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	39.5/43.6	40/50
								019B	208/240	20	15/20	—	15/20	41.7/48.1	65.6/73.6	70/80
								022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	91.6/103.8	100/110
								025B	208/240	50	22.6/30	15/20	37.6/50	104.2/120.3	143.8/163.9	150/175
		MED	187	253	3.7	2.76	10.8	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	39.5/43.6	40/50
								019B	208/240	20	15/20	—	15/20	41.7/48.1	65.6/73.6	70/80
								022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	91.6/103.8	100/110
								025B	208/240	50	22.6/30	15/20	37.6/50	104.2/120.3	143.8/163.9	150/175
		HIGH	187	253	5.0	3.73	18.0	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	48.5/52.6	50/60
								019B	208/240	20	15/20	—	15/20	41.7/48.1	74.6/82.6	80/90
								022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	100.6/112.8	110/125
								025B	208/240	50	22.6/30	15/20	37.6/50	104.2/120.3	152.8/172.9	175/175
	460-3- 60	STD	414	506	3.7	2.76	4.9	017B	480	10	10	—	10	12	21.1	25
								020B	480	20	20	—	20	23.9	36	40
								023B	480	30	20	10	30	36.1	51.3	60
								026B	480	50	30	20	50	60.1	81.3	90
		MED	414	506	3.7	2.76	4.9	017B	480	10	10	—	10	12	21.1	25
								020B	480	20	20	—	20	23.9	36	40
								023B	480	30	20	10	30	36.1	51.3	60
								026B	480	50	30	20	50	60.1	81.3	90
		HIGH	414	506	5.0	3.73	9.1	017B	480	10	10	—	10	12	26.4	30
								020B	480	20	20	—	20	23.9	41.3	50
								023B	480	30	20	10	30	36.1	56.5	60
								026B	480	50	30	20	50	60.1	86.5	90
	575-3- 60	STD	518	632	3.7	2.76	4.5	018B	575	10	10	—	10	10	18.1	20
								021B	575	20	20	—	20	20.1	30.8	35
								024B	575	30	20	10	30	30.1	43.3	50
								027B	575	50	30	20	50	50.2	68.4	70
		MED	518	632	3.7	2.76	4.5	018B	575	10	10	—	10	10	18.1	20
								021B	575	20	20	—	20	20.1	30.8	35
								024B	575	30	20	10	30	30.1	43.3	50
								027B	575	50	30	20	50	50.2	68.4	70
		HIGH	518	632	5.0	3.73	8.0	018B	575	10	10	—	10	10	22.5	25
								021B	575	20	20	—	20	20.1	35.1	40
								024B	575	30	20	10	30	30.1	47.6	50
								027B	575	50	30	20	50	50.2	72.8	80

Table 3 — 40RU/54J/F*S, 12.5-30 Ton 60 Hz Electrical Heater Data ^{a,b,c} (cont)

UNIT	NOM. V-Ph- Hz	IFM TYPE	UNIT VOLTAGE		FAN MOTOR (QTY 1)			ELECTRIC HEATER(S) ^d							POWER SUPPLY ^e	
			Range		HP	kW	FLA	CAEL HEAT ****00	Heater Voltage	Nom. Cap. (kW)	Actual Capacity (kW)			FLA (Full Load Amps)	MCA (Min Ckt Amps)	MOCP (Max Overcurrent Protection)
			Min	Max							Stage 1	Stage 2	Total			
40RU**25 524J*25 F*S240	208/ 230-3- 60	STD	187	253	5.0	3.73	18.0	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	48.5/52.6	50/60
								019B	208/240	20	15/20	—	15/20	41.7/48.1	74.6/82.6	80/90
								022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	100.6/112.8	110/125
								025B	208/240	50	22.6/30	15/20	37.6/50	104.2/120.3	152.8/172.9	175/175
		MED	187	253	5.0	3.73	18.0	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	48.5/52.6	50/60
								019B	208/240	20	15/20	—	15/20	41.7/48.1	74.6/82.6	80/90
								022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	100.6/112.8	110/125
								025B	208/240	50	22.6/30	15/20	37.6/50	104.2/120.3	152.8/172.9	175/175
		HIGH	187	253	7.5	5.60	23.5	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	55.4/59.5	60/60
								019B	208/240	20	15/20	—	15/20	41.7/48.1	81.5/89.5	90/90
								022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	107.5/119.6	110/125
								025B	208/240	50	22.6/30	15/20	37.6/50	104.2/120.3	159.6/179.8	175/200
	460-3- 60	STD	414	506	5.0	3.73	9.1	017B	480	10	10	—	10	12	26.4	30
								020B	480	20	20	—	20	23.9	41.3	50
								023B	480	30	20	10	30	36.1	56.5	60
								026B	480	50	30	20	50	60.1	86.5	90
		MED	414	506	5.0	3.73	9.1	017B	480	10	10	—	10	12	26.4	30
								020B	480	20	20	—	20	23.9	41.3	50
								023B	480	30	20	10	30	36.1	56.5	60
								026B	480	50	30	20	50	60.1	86.5	90
		HIGH	414	506	7.5	5.60	15.0	017B	480	10	10	—	10	12	33.8	35
								020B	480	20	20	—	20	23.9	48.6	50
								023B	480	30	20	10	30	36.1	63.9	70
								026B	480	50	30	20	50	60.1	93.9	100
	575-3- 60	STD	518	632	5.0	3.73	8.0	018B	575	10	10	—	10	10	22.5	25
								021B	575	20	20	—	20	20.1	35.1	40
								024B	575	30	20	10	30	30.1	47.6	50
								027B	575	50	30	20	50	50.2	72.8	80
		MED	518	632	5.0	3.73	8.0	018B	575	10	10	—	10	10	22.5	25
								021B	575	20	20	—	20	20.1	35.1	40
								024B	575	30	20	10	30	30.1	47.6	50
								027B	575	50	30	20	50	50.2	72.8	80
		HIGH	518	632	7.5	5.60	10.0	018B	575	10	10	—	10	10	25	25
								021B	575	20	20	—	20	20.1	37.6	40
								024B	575	30	20	10	30	30.1	50.1	60
								027B	575	50	30	20	50	50.2	75.3	80

Table 3 — 40RU/54J/F*S, 12.5-30 Ton 60 Hz Electrical Heater Data ^{a,b,c} (cont)

UNIT	NOM. V-Ph- Hz	IFM TYPE	UNIT VOLTAGE		FAN MOTOR (QTY 1)			ELECTRIC HEATER(S) ^d							POWER SUPPLY ^e	
			Range		HP	kW	FLA	CAEL HEAT ****00	Heater Voltage	Nom. Cap. (kW)	Actual Capacity (kW)			FLA (Full Load Amps)	MCA (Min Ckt Amps)	MOCP (Max Overcurrent Protection)
			Min	Max							Stage 1	Stage 2	Total			
40RU**28 524J*28 F*S300	208/ 230-3- 60	STD	187	253	7.5	5.60	23.5	028B	208/240	20	15/20	—	15/20	41.7/48.1	81.5/89.5	90/90
								031B	208/240	40	15/20	15/20	30/40	83.4/96.2	133.6/149.6	150/150
								034B	208/240	50	22.6/30	15/20	37.6/50	104.3/120.3	159.8/179.8	175/200
								037B	208/240	70	30/40	22.6/30	52.6/70	145.9/168.4	211.8/239.9	225/250
		MED	187	253	10.0	7.46	32.0	028B	208/240	20	15/20	—	15/20	41.7/48.1	92.1/100.1	100/110
								031B	208/240	40	15/20	15/20	30/40	83.4/96.2	144.3/160.3	150/175
								034B	208/240	50	22.6/30	15/20	37.6/50	104.3/120.3	170.4/190.4	175/200
								037B	208/240	70	30/40	22.6/30	52.6/70	145.9/168.4	222.4/250.5	225/275
		HIGH	187	253	10.0	7.46	32.0	028B	208/240	20	15/20	—	15/20	41.7/48.1	92.1/100.1	100/110
								031B	208/240	40	15/20	15/20	30/40	83.4/96.2	144.3/160.3	150/175
								034B	208/240	50	22.6/30	15/20	37.6/50	104.3/120.3	170.4/190.4	175/200
								037B	208/240	70	30/40	22.6/30	52.6/70	145.9/168.4	222.4/250.5	225/275
	460-3- 60	STD	414	506	7.5	5.60	15.0	029B	480	20	20	—	20	24.1	48.9	50
								032B	480	40	20	20	40	48.1	78.9	80
								035B	480	50	30	20	50	60.1	93.9	100
								038B	480	70	40	30	70	84.2	124	125
		MED	414	506	10.0	7.46	16.0	029B	480	20	20	—	20	24.1	50.1	60
								032B	480	40	20	20	40	48.1	80.1	90
								035B	480	50	30	20	50	60.1	95.1	100
								038B	480	70	40	30	70	84.2	125.3	150
		HIGH	414	506	10.0	7.46	16.0	029B	480	20	20	—	20	24.1	50.1	60
								032B	480	40	20	20	40	48.1	80.1	90
								035B	480	50	30	20	50	60.1	95.1	100
								038B	480	70	40	30	70	84.2	125.3	150
	575-3- 60	STD	518	632	7.5	5.60	10.0	030B	575	20	20	—	20	20.1	37.6	40
								033B	575	40	20	20	40	40.2	62.8	70
								036B	575	50	30	20	50	50.2	75.3	80
								039B	575	70	40	30	70	70.3	100.4	110
		MED	518	632	10.0	7.46	13.0	030B	575	20	20	—	20	20.1	41.4	50
								033B	575	40	20	20	40	40.2	66.5	70
								036B	575	50	30	20	50	50.2	79	80
								039B	575	70	40	30	70	70.3	104.1	110
		HIGH	518	632	10.0	7.46	13.0	030B	575	20	20	—	20	20.1	41.4	50
								033B	575	40	20	20	40	40.2	66.5	70
								036B	575	50	30	20	50	50.2	79	80
								039B	575	70	40	30	70	70.3	104.1	110

Table 3 — 40RU/54J/F*S, 12.5-30 Ton 60 Hz Electrical Heater Data ^{a,b,c} (cont)

UNIT	NOM. V-Ph- Hz	IFM TYPE	UNIT VOLTAGE		FAN MOTOR (QTY 1)			ELECTRIC HEATER(S) ^d							POWER SUPPLY ^e	
			Range		HP	kW	FLA	CAEL HEAT ****00	Heater Voltage	Nom. Cap. (kW)	Actual Capacity (kW)			FLA (Full Load Amps)	MCA (Min Ckt Amps)	MOCP (Max Overcurrent Protection)
			Min	Max							Stage 1	Stage 2	Total			
40RU**30 524J*30 F*S336	208/ 230-3- 60	STD	187	253	10.0	7.46	32.0	028B	208/240	20	15/20	—	15/20	41.7/48.1	92.1/100.1	100/110
								031B	208/240	40	15/20	15/20	30/40	83.4/96.2	144.3/160.3	150/175
								034B	208/240	50	22.6/30	15/20	37.6/50	104.3/120.3	170.4/190.4	175/200
								037B	208/240	70	30/40	22.6/30	52.6/70	145.9/168.4	222.4/250.5	225/275
		MED	187	253	10.0	7.46	32.0	028B	208/240	20	15/20	—	15/20	41.7/48.1	92.1/100.1	100/110
								031B	208/240	40	15/20	15/20	30/40	83.4/96.2	144.3/160.3	150/175
								034B	208/240	50	22.6/30	15/20	37.6/50	104.3/120.3	170.4/190.4	175/200
								037B	208/240	70	30/40	22.6/30	52.6/70	145.9/168.4	222.4/250.5	225/275
		HIGH	187	253	10.0	7.46	32.0	028B	208/240	20	15/20	—	15/20	41.7/48.1	92.1/100.1	100/110
								031B	208/240	40	15/20	15/20	30/40	83.4/96.2	144.3/160.3	150/175
								034B	208/240	50	22.6/30	15/20	37.6/50	104.3/120.3	170.4/190.4	175/200
								037B	208/240	70	30/40	22.6/30	52.6/70	145.9/168.4	222.4/250.5	225/275
	460-3- 60	STD	414	506	10.0	7.46	16.0	029B	480	20	20	—	20	24.1	50.1	60
								032B	480	40	20	20	40	48.1	80.1	90
								035B	480	50	30	20	50	60.1	95.1	100
								038B	480	70	40	30	70	84.2	125.3	150
		MED	414	506	10.0	7.46	16.0	029B	480	20	20	—	20	24.1	50.1	60
								032B	480	40	20	20	40	48.1	80.1	90
								035B	480	50	30	20	50	60.1	95.1	100
								038B	480	70	40	30	70	84.2	125.3	150
		HIGH	414	506	10.0	7.46	16.0	029B	480	20	20	—	20	24.1	50.1	60
								032B	480	40	20	20	40	48.1	80.1	90
								035B	480	50	30	20	50	60.1	95.1	100
								038B	480	70	40	30	70	84.2	125.3	150
	575-3- 60	STD	518	632	10.0	7.46	13.0	030B	575	20	20	—	20	20.1	41.4	50
								033B	575	40	20	20	40	40.2	66.5	70
								036B	575	50	30	20	50	50.2	79	80
								039B	575	70	40	30	70	70.3	104.1	110
		MED	518	632	10.0	7.46	13.0	030B	575	20	20	—	20	20.1	41.4	50
								033B	575	40	20	20	40	40.2	66.5	70
								036B	575	50	30	20	50	50.2	79	80
								039B	575	70	40	30	70	70.3	104.1	110
		HIGH	518	632	10.0	7.46	13.0	030B	575	20	20	—	20	20.1	41.4	50
								033B	575	40	20	20	40	40.2	66.5	70
								036B	575	50	30	20	50	50.2	79	80
								039B	575	70	40	30	70	70.3	104.1	110

NOTE(S):

- Electrical resistance heaters are rated at 240 v, 480 v, 575 v. To determine heater capacity (kW) at unit nameplate multiply the 240-v, 480-v, or 575-v capacity (kW) by the factor shown in the table below for the unit voltage.
- The following equation converts kW of heat energy to Btuh: kW x 3412 = Btuh.
- Heater contactor coils are 24 v and require 8 va holding current.
- Electric heaters are tested and ETL approved at maximum total external static pressure of 1.9 in. wg.
- MCA and MOCP values apply to both standard and alternate factory supplied motors.

HEATER RATING VOLTAGE	ACTUAL HEATER VOLTAGE AT SITE										
	200	208	230	240	400	440	460	480	550	575	600
240	0.694	0.751	0.918	1	—	—	—	—	—	—	—
480	—	—	—	—	0.694	0.84	0.918	1	—	—	—
575	—	—	—	—	—	—	—	—	0.915	1	1.089

Table 4 — 40RU/54J/F*S, 12.5-30 Ton 50 Hz Electrical Heater Data^{a,b}

UNIT	NOM. V-Ph-Hz	IFM TYPE	UNIT VOLTAGE		FAN MOTOR (QTY 1)			ELECTRIC HEATER(S) ^c							POWER SUPPLY ^d	
			Range		HP	kW	FLA	CAEL HEAT ****00	Heater Voltage	Nom. Cap. (kW)	Actual Capacity (kW)			FLA (Full Load Amps)	MCA (Min Ckt Amps)	MOCP (Max Overcurrent Protection)
			Min	Max							Stage 1	Stage 2	Total			
40RU**14 524J*14 F*S150	400-3-50	STD	360	440	2.9	2.16	3.8	017B	400	10	6.9	—	6.9	10	17.3	20
								020B	400	20	13.9	—	13.9	20	29.8	30
								023B	400	30	13.9	6.9	20.8	30.1	42.4	50
								026B	400	50	20.8	13.9	34.7	50.1	67.4	70
		MED	360	440	2.9	2.16	3.8	017B	400	10	6.9	—	6.9	10	17.3	20
								020B	400	20	13.9	—	13.9	20	29.8	30
								023B	400	30	13.9	6.9	20.8	30.1	42.4	50
								026B	400	50	20.8	13.9	34.7	50.1	67.4	70
		HIGH	360	440	3.7	2.76	4.9	017B	400	10	6.9	—	6.9	10	18.6	20
								020B	400	20	13.9	—	13.9	20	31.1	35
								023B	400	30	13.9	6.9	20.8	30.1	43.8	50
								026B	400	50	20.8	13.9	34.7	50.1	68.8	70
40RU**16 524J*16 F*S180	400-3-50	STD	360	440	3.7	2.76	4.9	017B	400	10	6.9	—	6.9	10	18.6	20
								020B	400	20	13.9	—	13.9	20	31.1	35
								023B	400	30	13.9	6.9	20.8	30.1	43.8	50
								026B	400	50	20.8	13.9	34.7	50.1	68.8	70
		MED	360	440	3.7	2.76	4.9	017B	400	10	6.9	—	6.9	10	18.6	20
								020B	400	20	13.9	—	13.9	20	31.1	35
								023B	400	30	13.9	6.9	20.8	30.1	43.8	50
								026B	400	50	20.8	13.9	34.7	50.1	68.8	70
		HIGH	360	440	5.0	3.73	9.1	017B	400	10	6.9	—	6.9	10	23.9	25
								020B	400	20	13.9	—	13.9	20	36.4	40
								023B	400	30	13.9	6.9	20.8	30.1	49	50
								026B	400	50	20.8	13.9	34.7	50.1	74	80
40RU**25 524J*25 F*S240	400-3-50	STD	360	440	5.0	3.73	9.1	017B	400	10	6.9	—	6.9	10	23.9	25
								020B	400	20	13.9	—	13.9	20	36.4	40
								023B	400	30	13.9	6.9	20.8	30.1	49	50
								026B	400	50	20.8	13.9	34.7	50.1	74	80
		MED	360	440	5.0	3.73	9.1	017B	400	10	6.9	—	6.9	10	23.9	25
								020B	400	20	13.9	—	13.9	20	36.4	40
								023B	400	30	13.9	6.9	20.8	30.1	49	50
								026B	400	50	20.8	13.9	34.7	50.1	74	80
		HIGH	360	440	7.5	5.60	15.0	017B	400	10	6.9	—	6.9	10	31.3	35
								020B	400	20	13.9	—	13.9	20	43.8	50
								023B	400	30	13.9	6.9	20.8	30.1	56.4	60
								026B	400	50	20.8	13.9	34.7	50.1	81.4	90
40RU**28 524J*30 F*S300	400-3-50	STD	360	440	7.5	5.60	15.0	029B	400	20	13.9	—	13.9	20	43.8	50
								032B	400	40	13.9	13.9	27.8	40.1	68.9	70
								035B	400	50	20.8	13.9	34.7	50.1	81.4	90
								038B	400	70	27.8	20.8	48.6	70.2	106.5	110
		MED	360	440	10.0	7.46	16.0	029B	400	20	13.9	—	13.9	20	45	50
								032B	400	40	13.9	13.9	27.8	40.1	70.1	80
								035B	400	50	20.8	13.9	34.7	50.1	82.6	90
								038B	400	70	27.8	20.8	48.6	70.2	107.8	110
		HIGH	360	440	10.0	7.46	16.0	029B	400	20	13.9	—	13.9	20	45	50
								032B	400	40	13.9	13.9	27.8	40.1	70.1	80
								035B	400	50	20.8	13.9	34.7	50.1	82.6	90
								038B	400	70	27.8	20.8	48.6	70.2	107.8	110
40RU**30 524J*30 F*S336	400-3-50	STD	360	440	10.0	7.46	16.0	029B	400	20	13.9	—	13.9	20	45	50
								032B	400	40	13.9	13.9	27.8	40.1	70.1	80
								035B	400	50	20.8	13.9	34.7	50.1	82.6	90
								038B	400	70	27.8	20.8	48.6	70.2	107.8	110
		MED	360	440	10.0	7.46	16.0	029B	400	20	13.9	—	13.9	20	45	50
								032B	400	40	13.9	13.9	27.8	40.1	70.1	80
								035B	400	50	20.8	13.9	34.7	50.1	82.6	90
								038B	400	70	27.8	20.8	48.6	70.2	107.8	110
		HIGH	360	440	10.0	7.46	16.0	029B	400	20	13.9	—	13.9	20	45	50
								032B	400	40	13.9	13.9	27.8	40.1	70.1	80
								035B	400	50	20.8	13.9	34.7	50.1	82.6	90
								038B	400	70	27.8	20.8	48.6	70.2	107.8	110

NOTE(S):

- The following equation converts kW of heat energy to Btuh: kW x 3412 = Btuh.
- Heater contactor coils are 24 v and require 8 va holding current.
- Electric heaters are tested and ETL approved at maximum total external static pressure of 1.9 in. wg.
- MCA and MOCP values apply to both standard and alternate factory supplied motors.

Table 5 — Heater Equivalency Table

Volt-Ph-Hz	HEATER PART NO.
208/240-3-60	CAELHEAT001B00
	CAELHEAT004B00
	CAELHEAT007B00
	CAELHEAT010B00
	CAELHEAT013B00
	CAELHEAT016B00
	CAELHEAT019B00
	CAELHEAT022B00
	CAELHEAT025B00
	CAELHEAT028B00
	CAELHEAT031B00
	CAELHEAT034B00
	CAELHEAT037B00
	CAELHEAT002B00
	CAELHEAT005B00
480-3-60	CAELHEAT008B00
	CAELHEAT011B00
	CAELHEAT014B00
	CAELHEAT017B00
	CAELHEAT020B00
	CAELHEAT023B00
	CAELHEAT026B00
	CAELHEAT029B00
	CAELHEAT032B00
	CAELHEAT035B00
	CAELHEAT038B00
	CAELHEAT003B00
	CAELHEAT006B00
	CAELHEAT009B00
	CAELHEAT012B00
575-3-60	CAELHEAT015B00
	CAELHEAT018B00
	CAELHEAT021B00
	CAELHEAT024B00
	CAELHEAT027B00
	CAELHEAT030B00
	CAELHEAT033B00
	CAELHEAT036B00
	CAELHEAT039B00

The electric heat accessory can be used in vertical applications or horizontally suspended applications. For all applications, the installer must allow adequate clearance for access to the heater control box.

PRE-INSTALLATION

Uncrate and Inspect Shipment

Remove unit packaging and inspect shipment for damage. File claim with shipping company if unit is damaged or incomplete.

Consider System Requirements

Consult local building and electrical codes and the NEC (National Electrical Code, U.S.A.) for special installation requirements.

Allow sufficient clearance around the heater for airflow, wiring, and service after mounting on the base unit. Use the minimum clearances shown in Fig. 1. Note that the rear clearance for base units with heaters must be increased from that of base units without heaters to allow access to the heater limit switches.

IMPORTANT: When the electric heater accessory is used on air-handling units in heat pump systems, the minimum airflow requirement through the heater is 400 cfm per ton (54 L/s per kW).

INSTALLATION

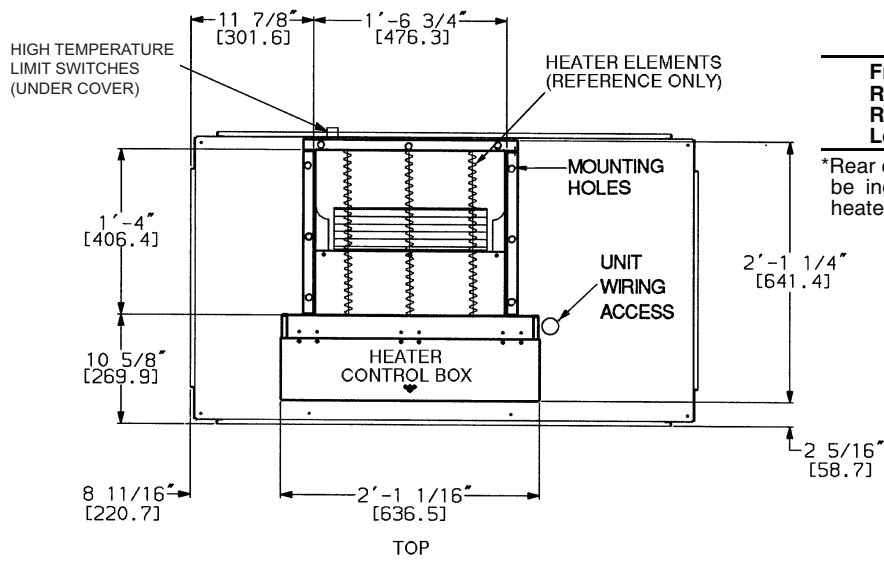
Step 1 — Mount Heater

The heaters must be mounted on the supply duct(s) of the air handler for blow-thru operation, as shown in Fig. 1. Do not install the duct flanges shipped with the unit. Mount the heater as follows:

1. Remove screws from fan deck surrounding the blower outlets (supply ducts). Retain screws.
2. Place heater on top of unit with heater control box facing front.
3. Reinstall screws through the heater frame's inner flanges and into the fan deck. Tighten screws.

NOTE: Figure 1 shows vertical installations. For horizontal unit installations, the procedure for mounting the electric heat accessory is similar to the preceding steps; ensure that the heater control box faces down after the heater is installed on the unit.

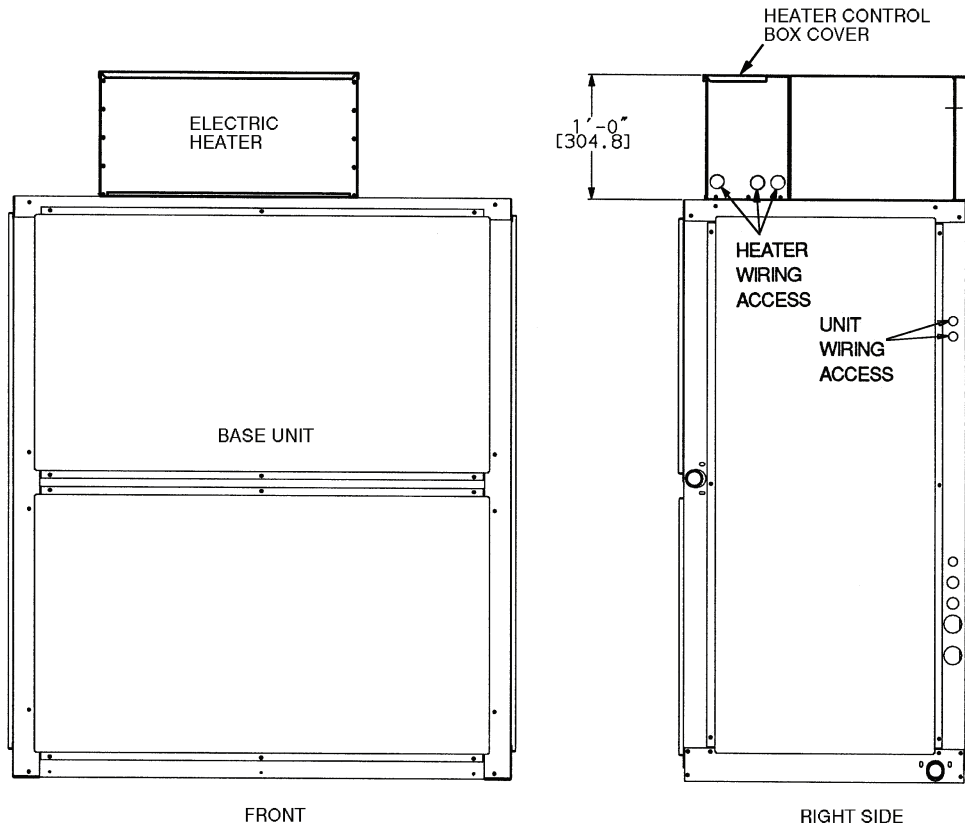
6 To 10 Ton (21 to 35 kW) Units



RECOMMENDED UNIT SERVICE CLEARANCES

Front	2'-6" (762 mm)
Rear*	2'-6" (762 mm)
Right Side	2'-6" (762 mm)
Left Side	2'-6" (762 mm)

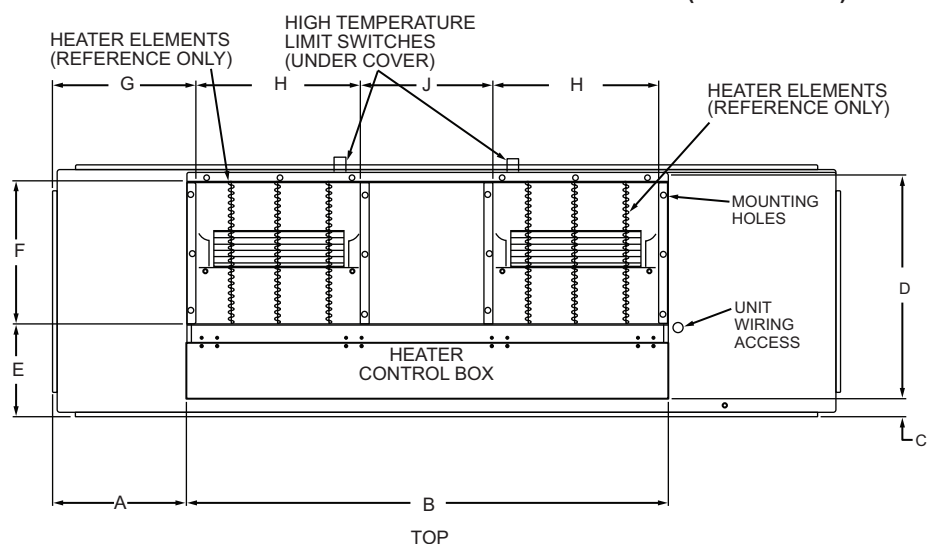
*Rear clearance for base units with heaters must be increased from that of base units without heaters to allow service access.



NOTE: Dimensions in [] are millimeters.

Fig. 1 — Electric Heater Mounted on Unit

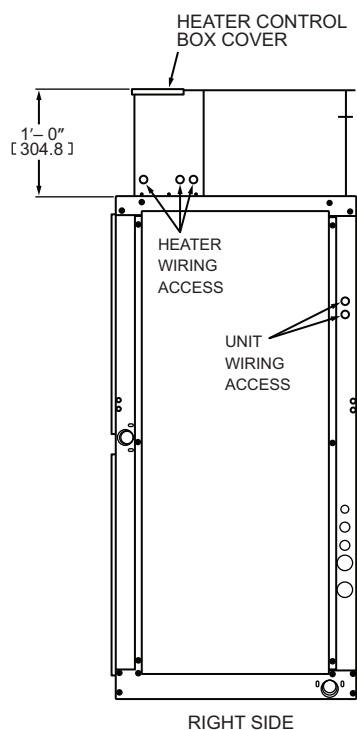
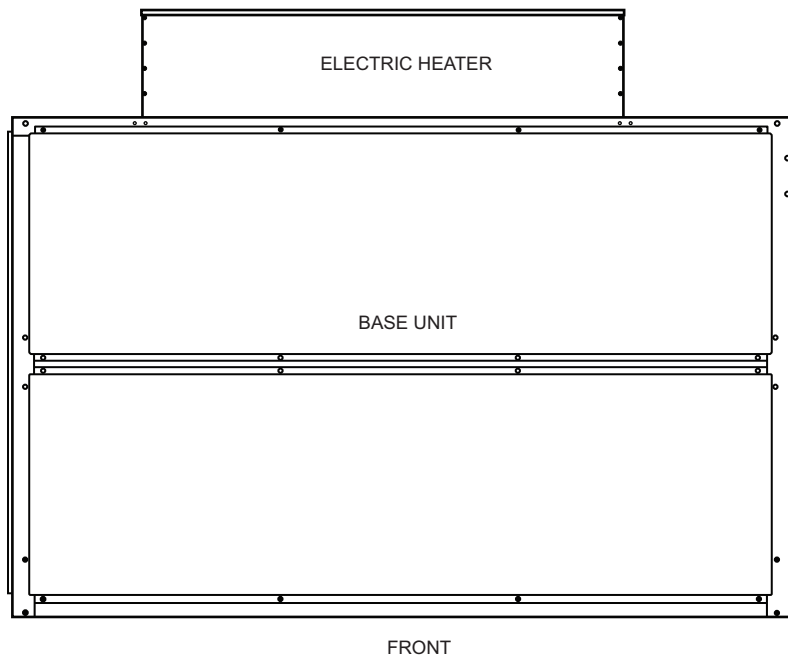
12-1/2 To 30 Ton (43 to 105 kW) Units



RECOMMENDED UNIT SERVICE CLEARANCES

Front	2'-6" (762 mm)
Rear*	2'-6" (762 mm)
Right Side	2'-6" (762 mm)
Left Side	2'-6" (762 mm)

*Rear clearance for base units with heaters must be increased from that of base units without heaters to allow service access.



NOTE: Dimensions in [] are millimeters.

DIMENSIONS

UNIT SIZES	A	B	C	D	E	F	G	H	J
12-20 Tons	1' 3-1/4" [387.4]	4' 6-3/8" [1381.1]	2-5/16" [58.7]	2' 1-1/4" [641.4]	10-5/8" [269.9]	1'-4" [406.4]	1' 4-5/16" [414.3]	1' 6-3/4" [476.3]	1' 7/8" [327.0]
25 and 30 Tons	1' 3-5/16" [389.6]	5' 4-7/16" [1647.7]	2-1/16" [52.3]	2' 6-3/16" [766.8]	1' 1/4" [311.2]	1'-7" [482.6]	1' 4-5/16" [414.0]	1' 10" [558.8]	1' 4-7/16" [448.8]

Fig. 1 — Electric Heater Mounted on Unit (cont)

Step 2 — Connect Ductwork

Connect supply duct to the unit and heater assembly as follows:

1. Size the supply air ductwork according to the discharge opening(s) in the top of the heater. (See Fig. 1.) A 1-in. (25 mm) flange is provided on each heater discharge for securing the ductwork.
2. Connect the supply ductwork to the heater discharge openings in the top of the heater using field-supplied screws. A flexible duct connector is recommended. Provide an access panel in the supply duct to allow service access to the heater elements. (See Fig. 2.)
3. Insulate the outside of the heater (Fig. 3) except the control box, which has internal insulation. Insulation is required to minimize condensation when the unit is in the Cooling mode and to provide additional protection from hot surfaces when the unit is in the Heating mode. Also insulate the supply duct connected to the heater as required by the base unit installation instructions.

Step 3 — Make Electrical Connections

Refer to Fig. 4 for wire routing, Fig. 5-8 for typical heater wiring, and Fig. 9 and 10 for typical heater control box component layouts for connections. Wire the electric heater and unit assembly as follows:

1. Open heater control box cover and remove unit right side access panel.
2. Using correctly sized field-supplied power wire selected from Tables 1-4 and matching conduit, connect heater terminals TB1-L1, L2, and L3 through heater control box to fused disconnect as shown in Fig. 4.
3. Using correctly sized field-supplied power wire selected from Tables 1-4 and matching conduit, run wire from heater to opening in top of unit fan deck or openings in corner post.
4. Run field-supplied control wiring through heater control box to opening in top of unit fan deck or openings in corner post.
5. Run power wiring (see Step 3) inside unit through access hole in bottom of unit control box. Remove unit control box cover.

6. Connect heater terminals TB1-L1, L2, and L3 to unit circuit breaker terminal block or fan contactor terminals 11, 12, and 13 using no. 10 ring terminals. (See Fig. 5 and 6.)
7. Connect control wiring (see Step 4) from heater terminal connections W1, W2, and C to the unit's TB1 terminals with the same labels, as shown in Fig. 7 and 8.
8. Close heater control box panel and re-install unit right side panel.

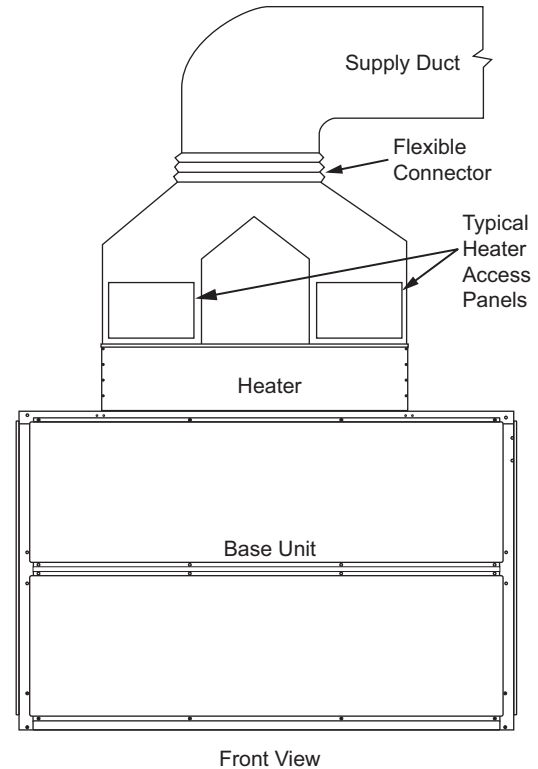


Fig. 2 — Typical Ductwork Installation
12-1/2 to 30 Ton (43 to 105 kW) Unit Shown

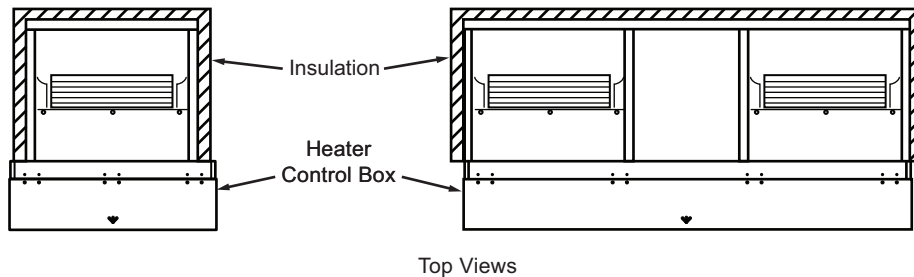


Fig. 3 — Heater Insulation

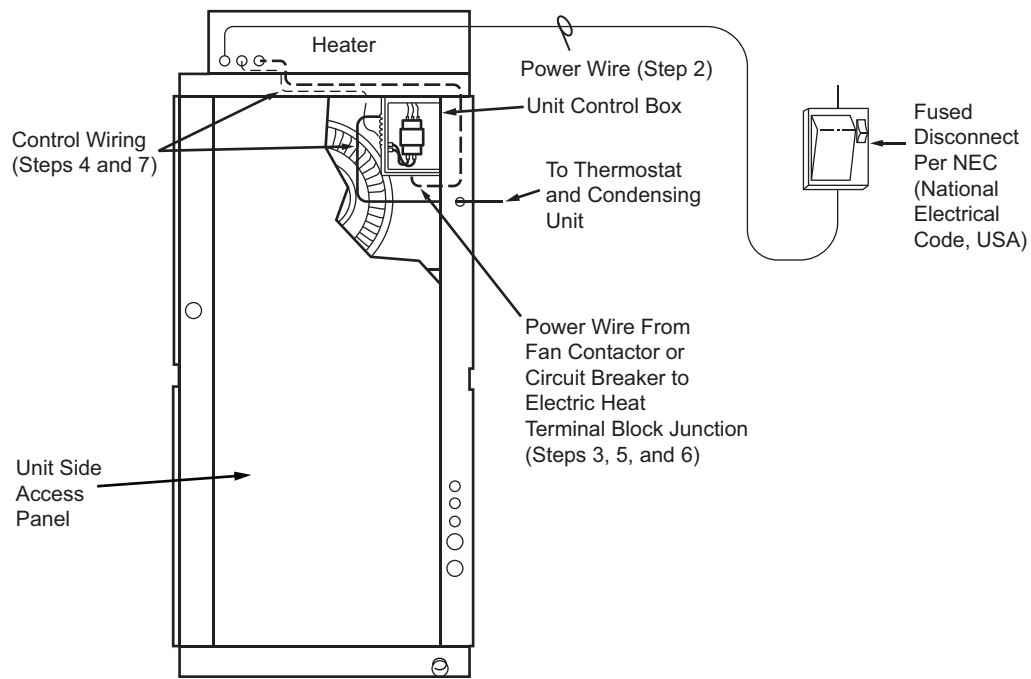
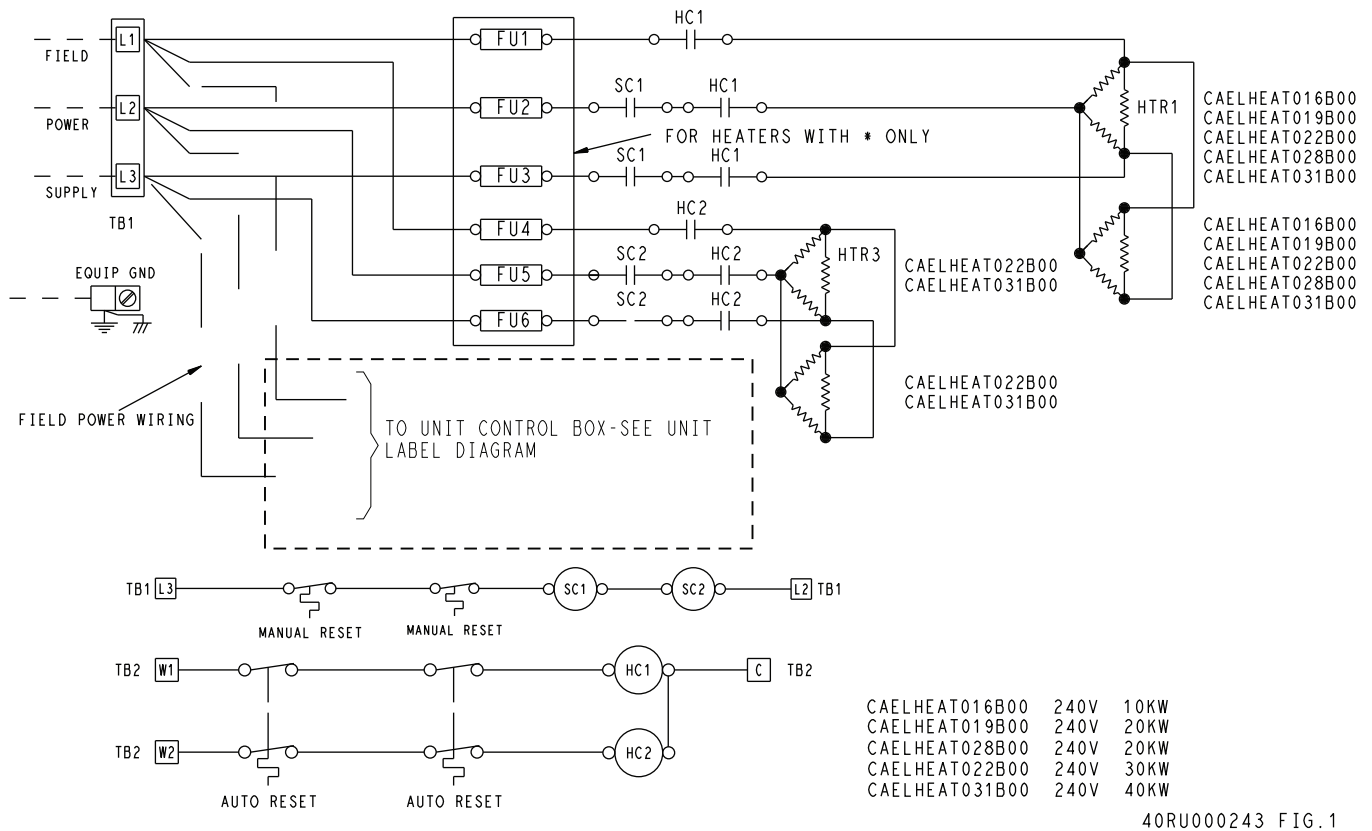
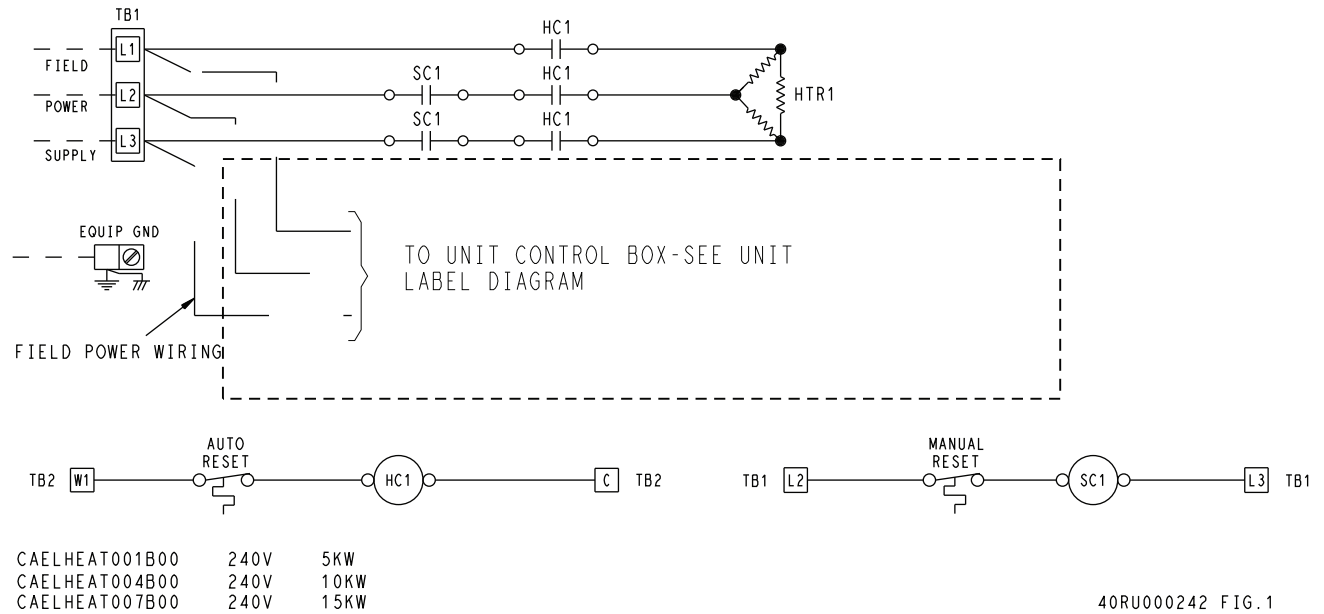


Fig. 4 — Wire Routing

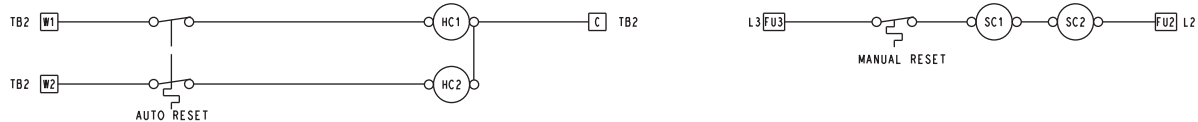
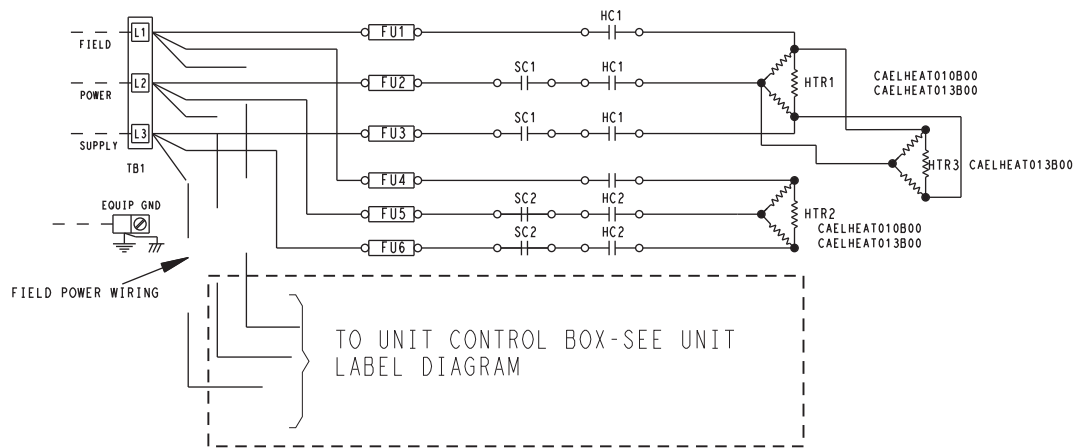


LEGEND

EQUIP GND — Equipment Ground
FU — Fuse
HC — Heater Contactor
HTR — Heater Elements
IFC — Indoor Fan Contactor
IFM — Indoor Fan Motor
TB — Terminal Block Connection

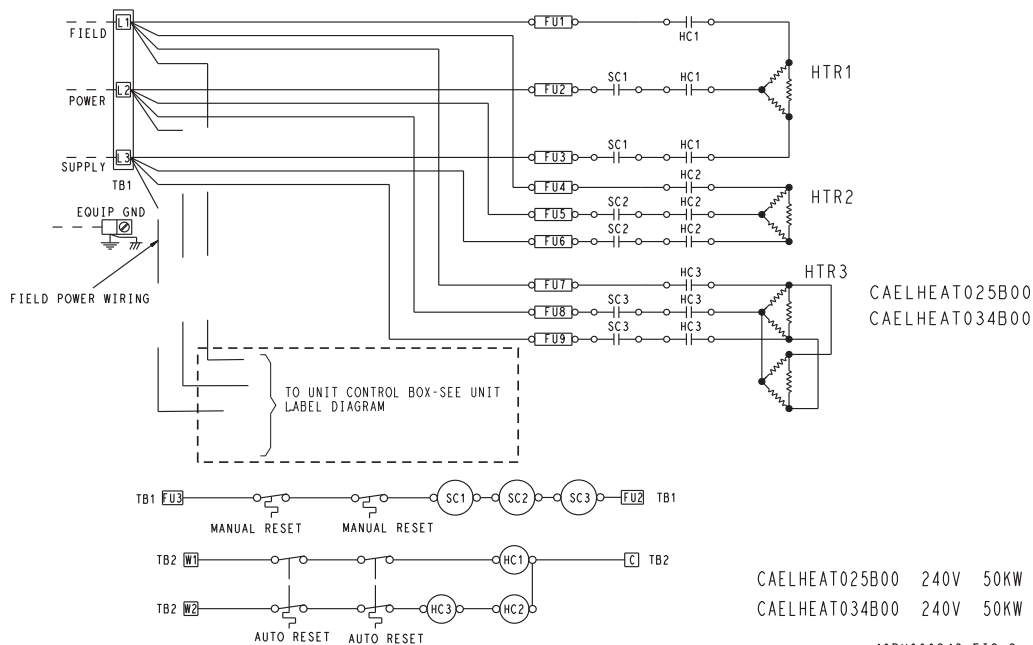
Terminal Block Connection
 Marked Connection
 Unmarked Connection
 High Temperature Limit Switch (Auto or Manual Reset)
 Factory Wiring
 Field Wiring

Fig. 5 — Wiring Diagrams, 240-v Electric Heat Accessories
 (See Heater Equivalency Table)



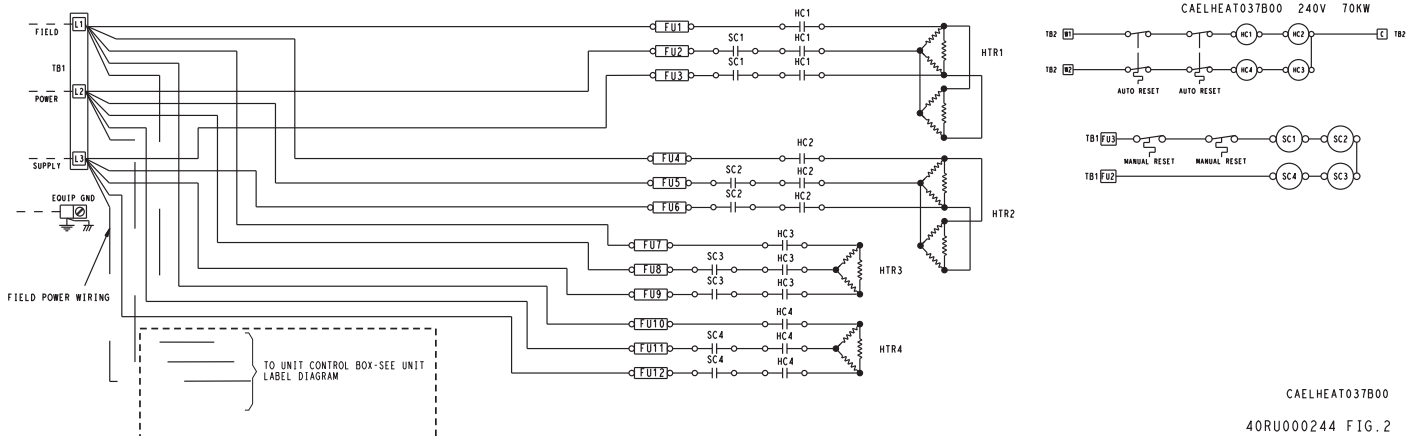
CAELHEAT010B00 240V 25KW
CAELHEAT013B00 240V 35KW

40RU000242 FIG. 2



CAELHEAT025B00 240V 50KW
CAELHEAT034B00 240V 50KW

40RU000243 FIG. 2



CAELHEAT037B00

40RU000244 FIG. 2

**Fig. 5 — Wiring Diagrams, 240-v Electric Heat Accessories
(See Heater Equivalency Table) (cont)**

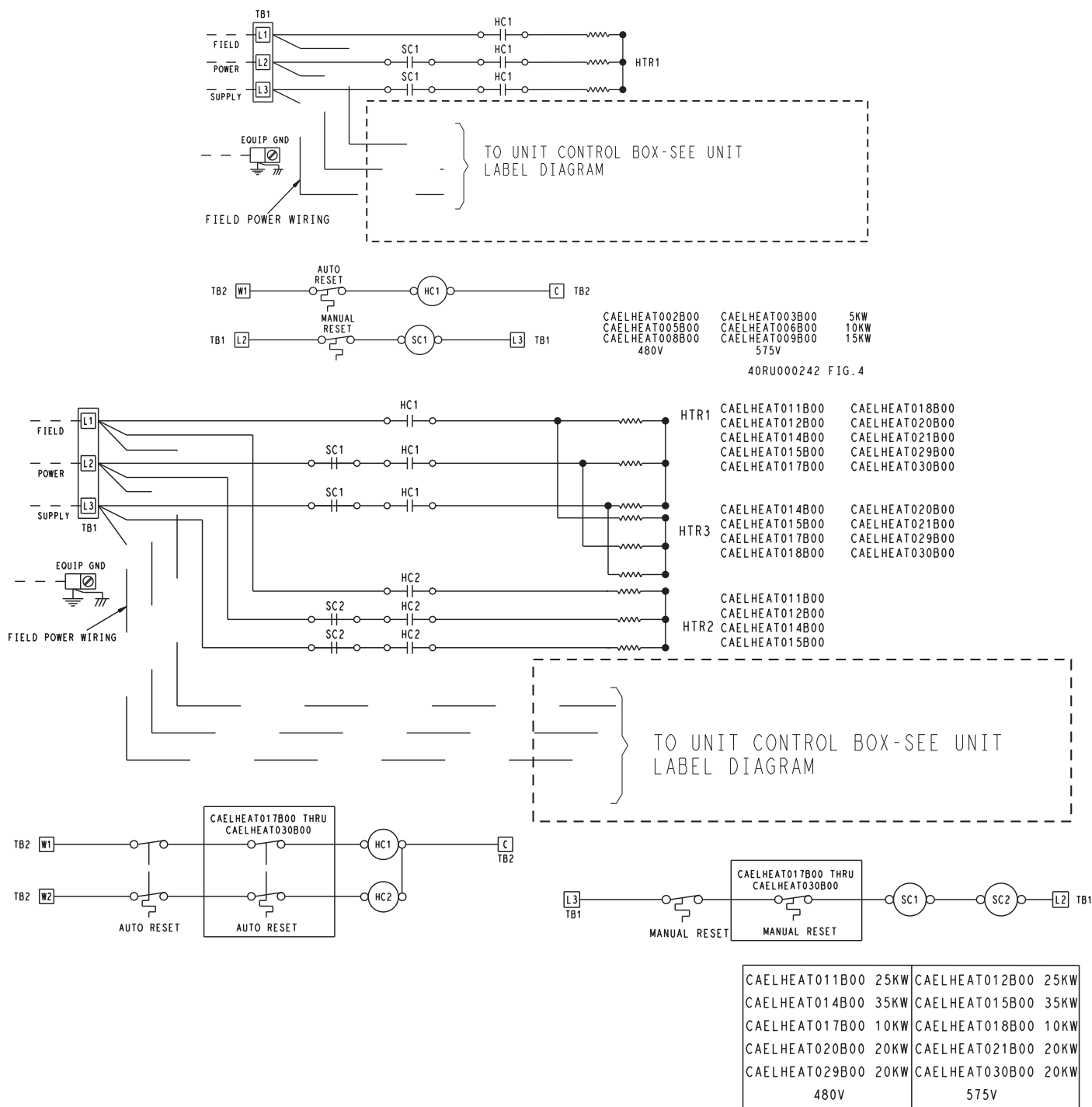
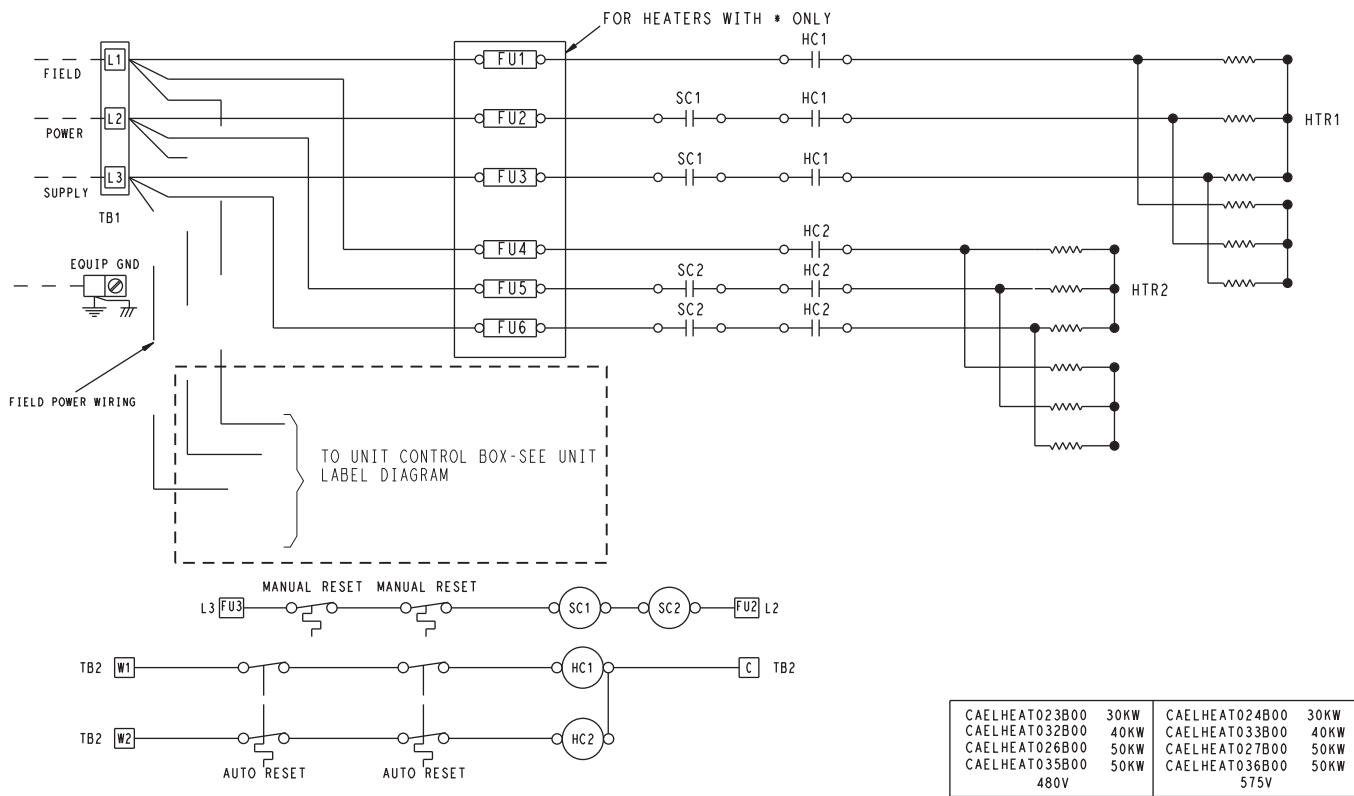
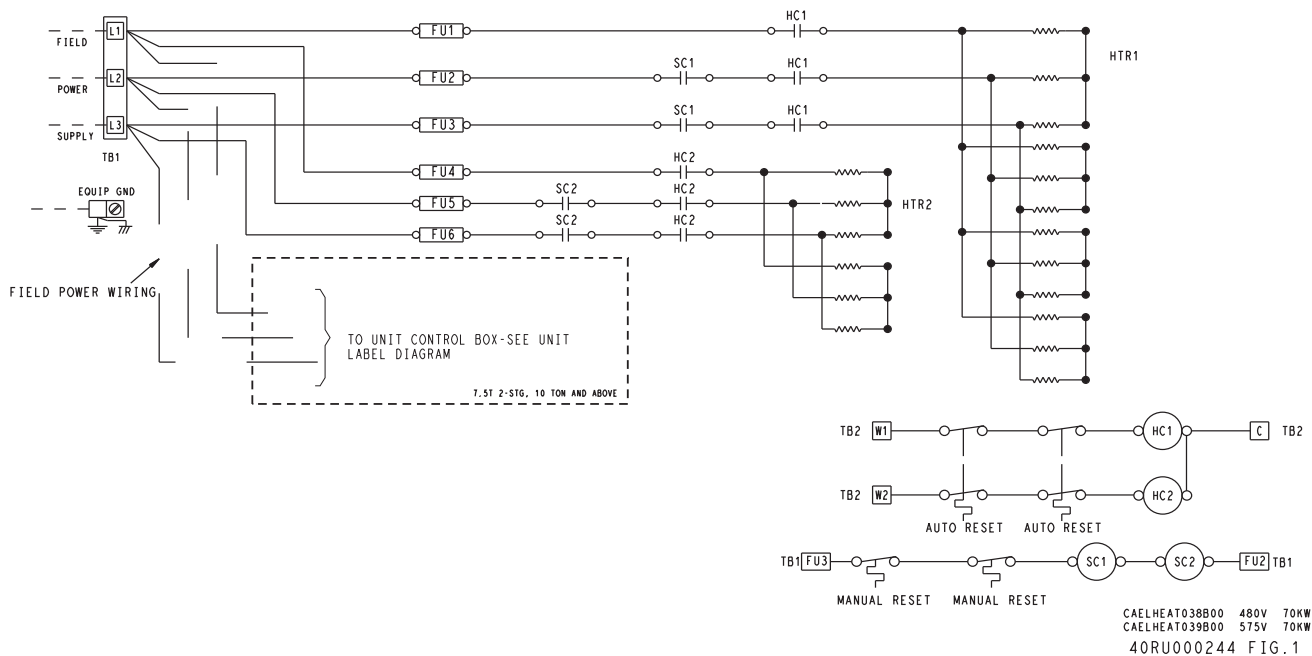


Fig. 6 — Wiring Diagrams, 480-v and 575-v Electric Heat Accessories

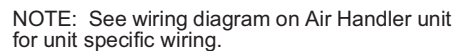


40RU000243 FIG. 3

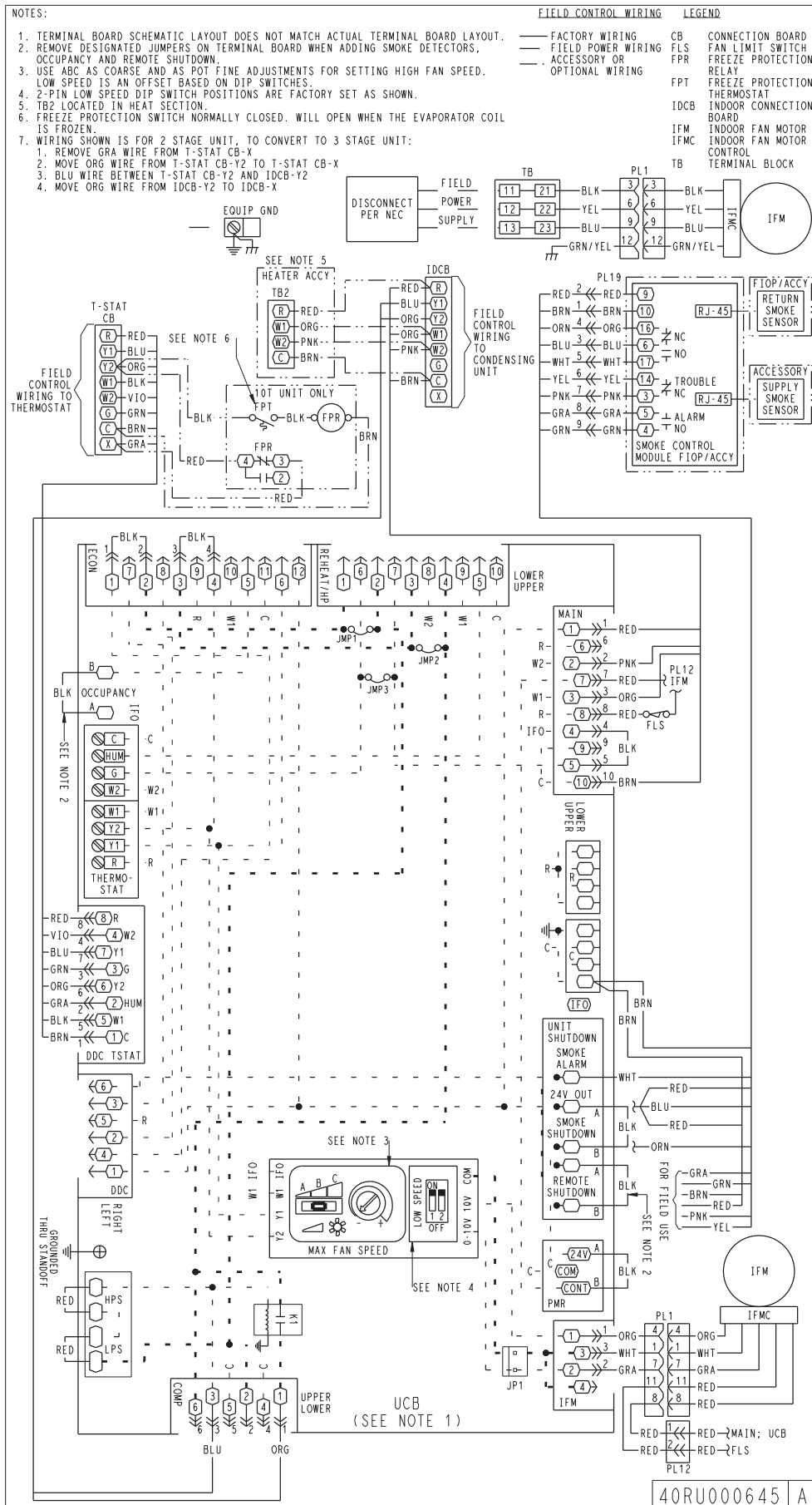


40RU000244 FIG. 1

Fig. 6 — Wiring Diagrams, 480-v and 575-v Electric Heat Accessories (cont)



19



NOTE: See wiring diagram on Air Handler unit for unit specific wiring.

Fig. 8 — Electric Heat and Control Wiring (with UCB Board)

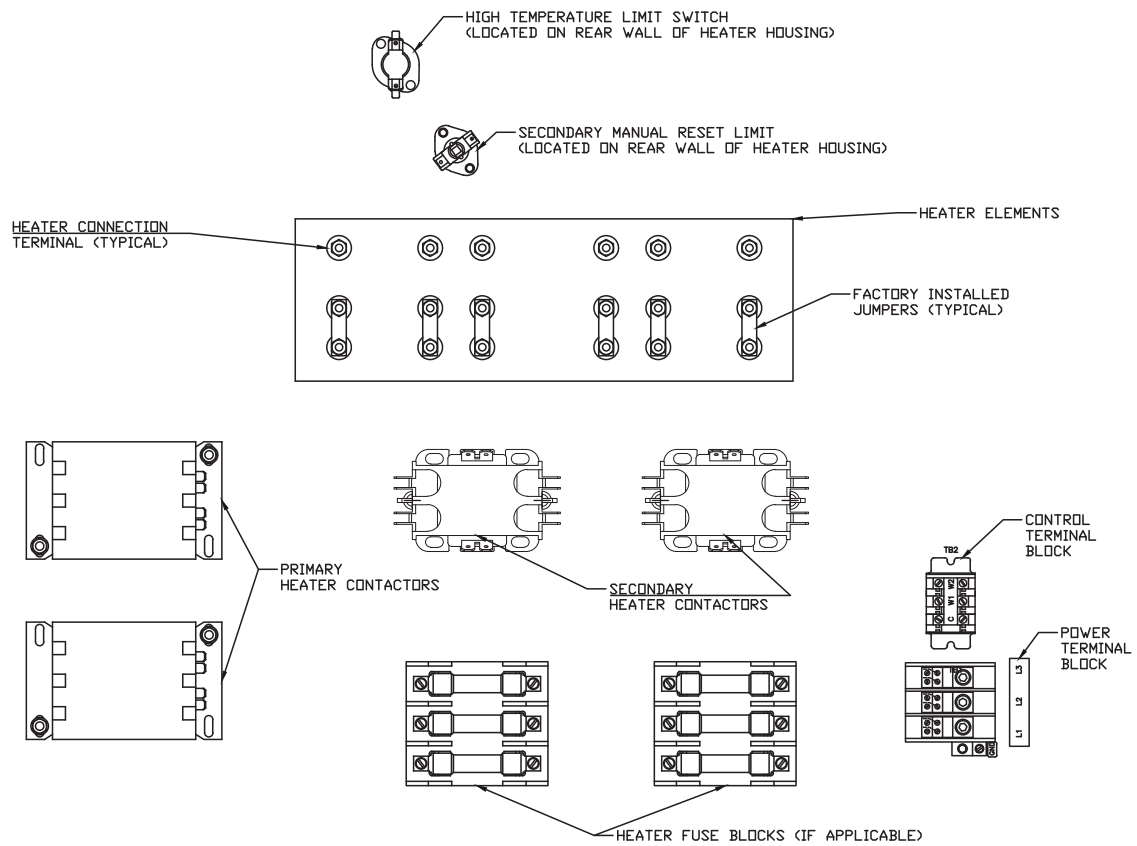


Fig. 9 — Typical Heater Control Box Component Layout for 6 to 10 Ton (21 to 35 kW) Units

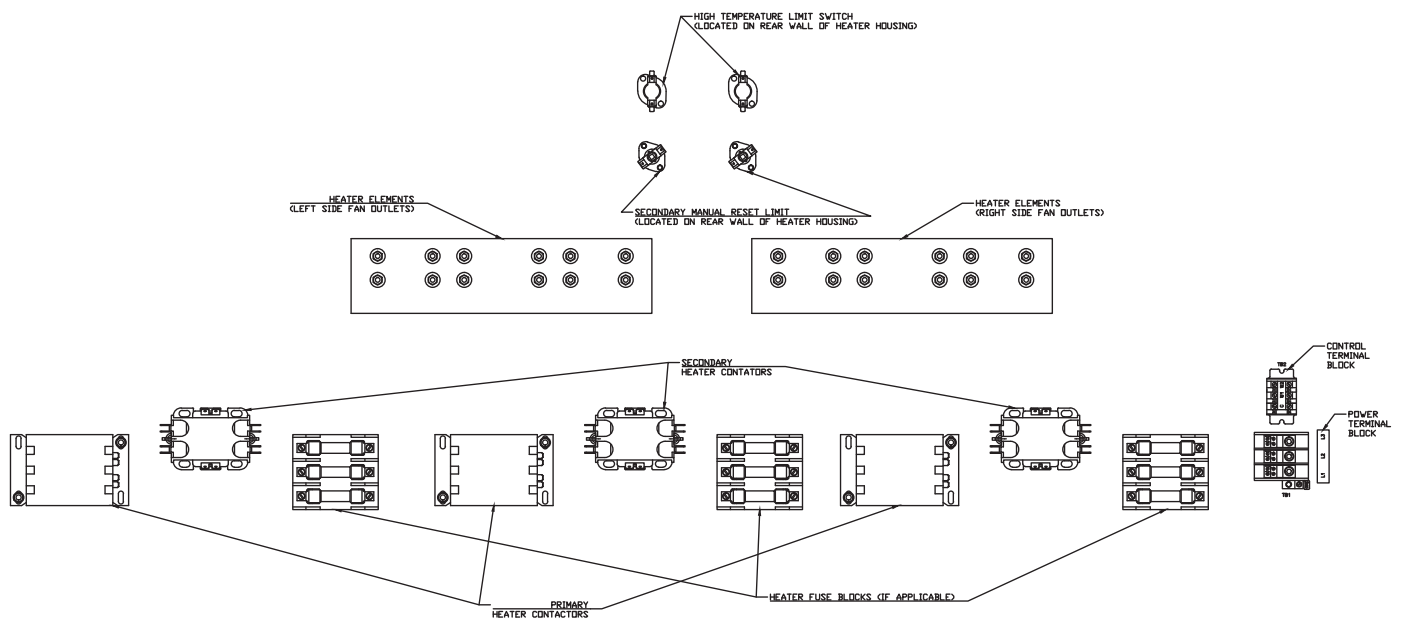


Fig. 10 — Typical Heater Control Box Component Layout for 12-1/2 to 30 Ton (43 to 105 kW) Units

Step 4 — Outdoor Thermostat (Econostat)

The outdoor thermostat accessory, Part No. HH22YA070, is offered by Replacement Components Division in packages of 3. (See Fig. 11.) The thermostat makes contact on a drop in temperature to permit the strip heat to come on at a predetermined temperature, provided the room thermostat is on the second step of heating. Refer to the instructions packaged with thermostats. Follow these suggestions when installing:

1. Mount thermostats as close to heater assembly as practical.
2. Run capillary tubes to outdoors and mount thermostat bulbs in a permanently shaded location so they sense true outdoor temperature.

NOTE: The capillary tube connecting each bulb and the thermostat is 72-in. (1829 mm) long.

3. Refer to the application data and the heat balance of the building for the correct thermostat settings and set thermostats progressively lower for each stage of strip heat.

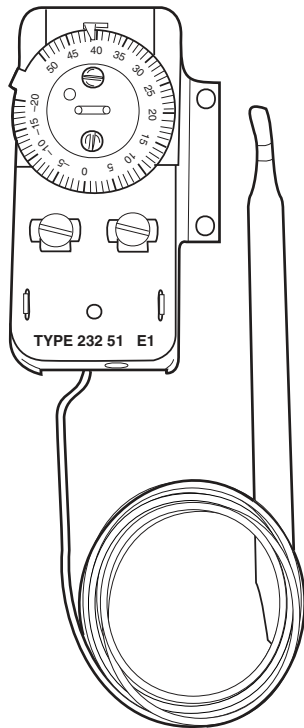


Fig. 11 — Outdoor Thermostat

SERVICE

Controls

Access to the heater contactor(s), fuses (if applicable), and terminal blocks may be gained through the control box hinged top cover panel. (See Fig. 1.) Figures 9 and 10 show typical heater control box component layouts.

High Temperature Limit Switches

All the accessory heaters use a combination of automatic reset limit switch(es) (primary) and manual reset limit switch(es) (secondary). The heaters use either a single pole single throw (SPST) or a double pole single throw (DPST) automatic reset limit switch(es). See the heater wiring diagram to see how many and which type of automatic reset limit switch(es) are used in a given heater. All limit switches are located on the rear wall of the heater assembly. (See Fig. 1.)

If a problem with the limit switch(es) is suspected, remove the switch(es) and test the switch set points. Tables 6 and 7 show the correct set points.

Table 6 — High Temperature Automatic Reset Limit Switch Set Points

UNIT SIZE	CUT-OUT — °F (°C)	CUT-IN — °F (°C)
6 to 10 Ton (21 to 35 kW)	115 (46.1)	85 (29.4)
12-1/2 to 20 Ton (43 to 70 kW)	140 (60.0) ^a	90 (32.2) ^a
25 and 30 Ton (87 and 105 kW)	130 (54.4)	80 (26.7) ^a

NOTE(S):

- a. 10 kW heater on the 12-1/2 to 20 Ton (43 to 70 kW) units has a cut-out of 130°F (54.4°C) and cut-in of 80°F (26.7°C).

Table 7 — High Temperature Manual Reset Limit Switch Set Points

UNIT SIZE	OPEN — °F (°C)
6 to 10 Ton (21 to 35 kW)	140 (60.0)
12-1/2 to 20 Ton (43 to 70 kW)	150 (65.6)
25 and 30 Ton (87 and 105 kW)	150 (65.6)

NOTE(S): The manual reset limit switch cannot be reset until the switch has cooled below the open set point.

Access to the switch(es) is gained by removing screws and the limit switches cover on the outside rear of the heater assembly. Sufficient clearance must be provided for service access. See recommended clearances in Fig. 1. Where this is not possible, the entire heater must be removed from the unit in order to replace the limit switches. Each limit switch is attached with two (2) self-tapping screws. The wire connections are made with quick-connect terminals.

Heater Elements

The heater element assemblies are located above each fan discharge opening. When installing ductwork, be sure to provide an access panel to allow heater element servicing. (See Fig. 2.) If this is not possible, it will be necessary to remove a section of the supply duct or the entire heater assembly to service the heater elements.

