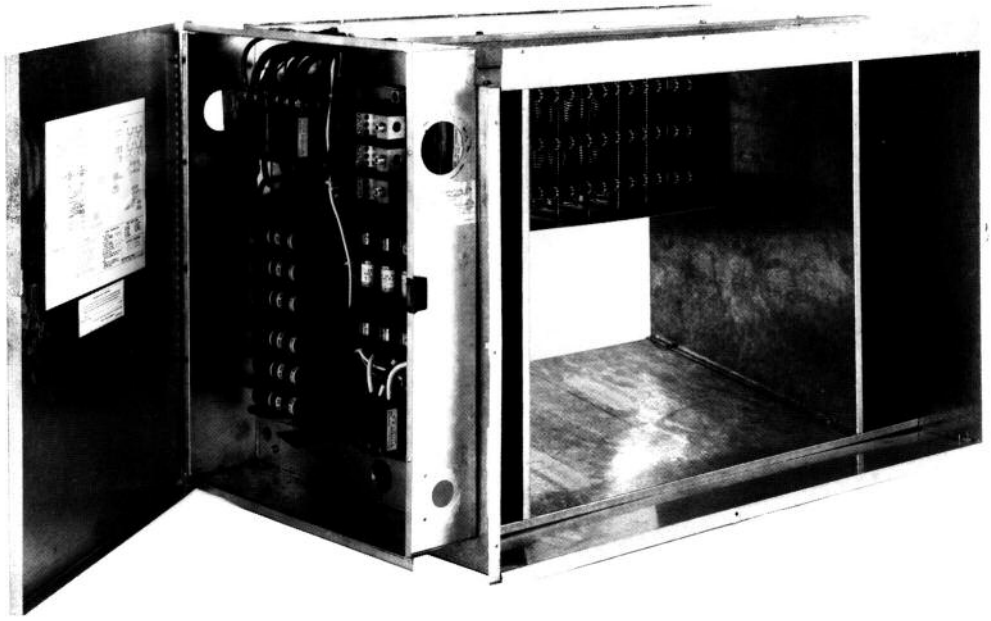
AUXILIARY ELECTRIC HEATER KITS FOR 7.5, 10, 15 AND 20 TON COMMERCIAL AIR HANDLERS RXHE-CE, DE



WARNING: *THIS ACCESSORY IS TO BE INSTALLED BY A QUALIFIED, LICENSED SERVICE PERSON. TO AVOID UNSATISFACTORY OPERATION OR DAMAGE TO THE PRODUCT AND POSSIBLE UNSAFE CONDITIONS, INCLUDING ELECTRICAL SHOCK, REFRIGERANT LEAKAGE AND FIRE, THE INSTALLATION INSTRUCTIONS PROVIDED WITH THIS ACCESSORY MUST BE STRICTLY FOLLOWED AND THE PARTS SUPPLIED USED WITHOUT SUBSTITUTION. DAMAGE TO THE PRODUCT RESULTING FROM NOT FOLLOWING THE INSTRUCTIONS OR USING UNAUTHORIZED PARTS MAY BE EXCLUDED FROM THE MANUFACTURER'S PRODUCT WARRANTY COVERAGE.*

INTRODUCTION

The information contained in these instructions has been prepared to assist in the **proper** installation and operation of the auxiliary electric heaters. Improper installations, or installations not made in accordance with these instructions, can result in unsatisfactory operation and/or dangerous conditions, and are not covered by the unit warranty.

READ these instructions prior to installation or operation of auxiliary electric heaters.

CHECKING PRODUCT RECEIVED

Upon receiving heaters, inspect them for any damage from shipment. Claims for damage should be filed immediately with the shipping company.

CHECK heater kit model number to determine if it is the correct one for your unit and is the model desired.

WARNING: ONLY ELECTRIC HEATER KITS SUPPLIED BY THIS MANUFACTURER AS DESCRIBED IN THIS PUBLICATION HAVE BEEN DESIGNED, TESTED, AND HAVE NECESSARY APPROVALS INCLUDING UNDERWRITERS LABORATORY (U.L.) AND CSA FOR USE WITH THIS UNIT. USE OF ANY OTHER MANUFACTURED ELECTRIC HEATERS INSTALLED ON THE UNIT MAY CAUSE HAZARDOUS CONDITIONS RESULTING IN PROPERTY DAMAGE, FIRE, OR BODILY INJURY.

POWER SUPPLY AND CONTROL CIRCUITS

POWER SUPPLY

CAUTION: *When heaters are installed in a previously installed basic unit, field supply conductors, supply circuit fuses or disconnects may need replacement due to the larger load requirements.*

All wiring should conform to the National Electrical Code as well as applicable local codes.

The power supply wiring can be connected through one side of the heater control box. A conduit opening is supplied for the maximum wire size to be used with any unit. Use reducing washers for smaller conduit sizes.

See the wiring diagram and the name plate on the heater for internal or supply circuit overcurrent protection. Either fuses or HACR circuit breakers may be used in the supply circuit.

Only copper supply wiring may be used.

WARNING: THE UNIT MUST BE ELECTRICALLY GROUNDED IN ACCORDANCE WITH LOCAL CODES OR THE NATIONAL ELECTRICAL CODE, ANSI/NFPA 70-1987. (C.E.C. in Canada)

CONTROL SUPPLY

The low voltage control supply is furnished from the condensing unit low voltage terminal block. Factory provided #18 AWG pigtail leads are provided to be interconnected with the remote condensing unit and thermostat. Reference heater wiring diagram.

THERMOSTAT

Some thermostats, whether single or two-stage, have an adjustable heat anticipator. For proper adjustment, add the current draw in amperes of all components controlled by the particular stage. Set the anticipator to this total. See the instructions packed with the thermostat for specific information.

Heat anticipator settings for heaters in this series should be .4 amperes for each stage on heaters rated 40 KW and less.

APPLICATION

The auxiliary electric resistance heater kits are designed for installation directly on the air handler discharge flange.

All kits are installed in the blower discharge air flow. The clearance to combustible material of the heater is “1” inch and the first three (3) feet of duct is “1” inch.

OPERATION

The heater kits have an instant on/instant off control system. For heater kit capacity, see Table A.

MOUNTING INSTRUCTIONS

1. **WARNING: IF AIR HANDLER UNIT IS ALREADY INSTALLED, DISCONNECT ELECTRICAL POWER BEFORE HEATER KIT INSTALLATION.**
2. Remove blower/motor access door (left hand door facing blower discharge) which gives access to the blower motor “J” box.
3. An electrical knockout is provided on the blower discharge panel approximately 2½″ to the left side of the discharge duct flange. Remove this knockout and cut out the thermal insulation on the inside of the cabinet around the opening.
4. Mount the heater kit on the air handler duct flange with the heater control compartment located on the left hand side facing the blower discharge opening. Do not attempt to orient the heater in any other position.
5. Install the 3″ long by 1½″ conduit nipple between the heater control compartment and the air handler through the hole noted in step No. 3.
6. Install two conduit lock nuts on the inside of both cabinets and the other two on the outside of both cabinets. Install the two plastic bushings on both ends of the conduit nipple.
7. Route the three blower motor leads from the blower motor contactor inside the heater kit through the conduit nipple to the blower motor “J” box inside the air handler.
8. Connect low voltage pigtail leads to appropriate thermostat terminals — reference wiring diagram.

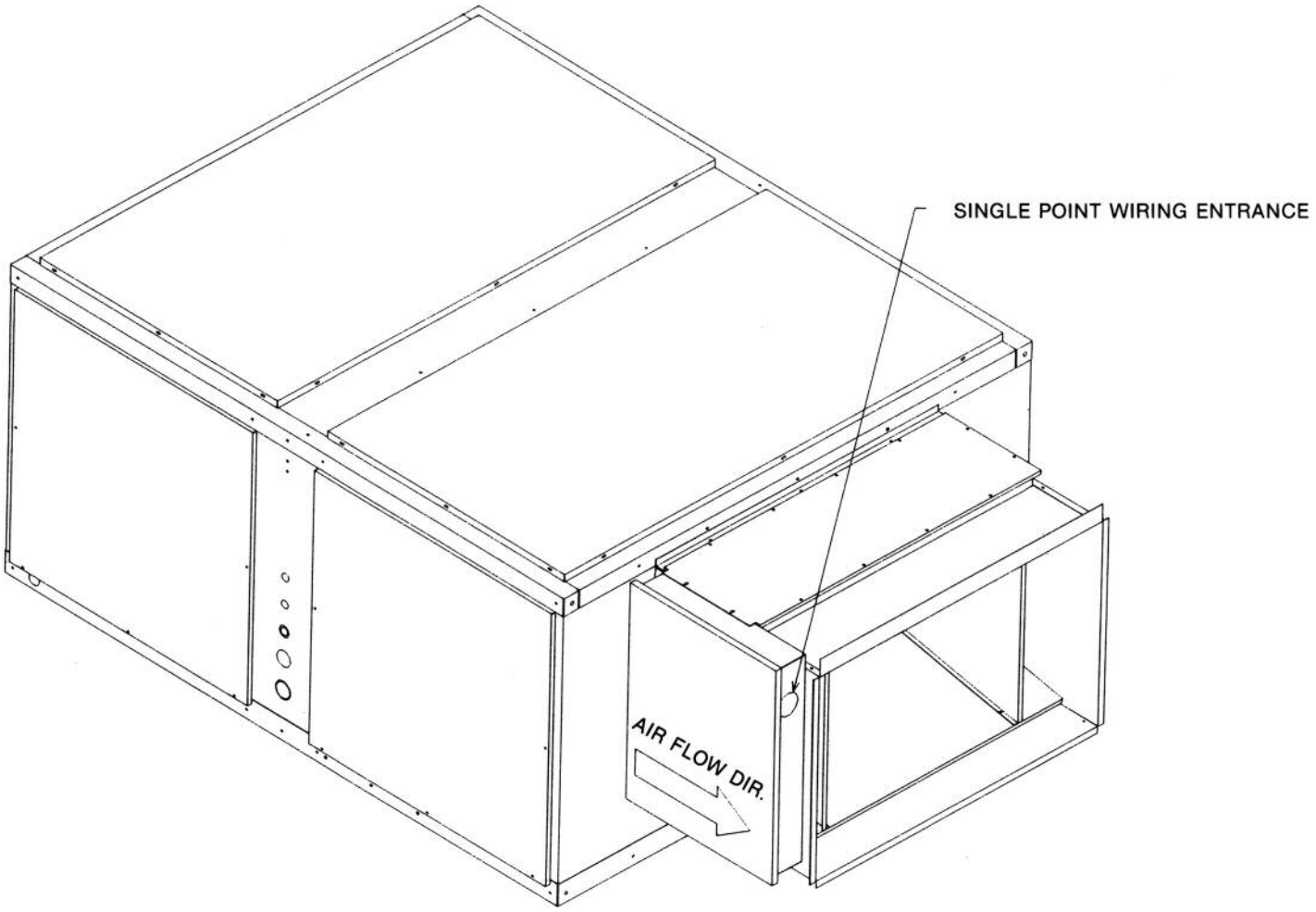


FIGURE 1. HEATER KIT INSTALLED TO AIR HANDLER

TABLE A. ELECTRICAL CHARACTERISTICS

Heater Kit Model	Air Handler Application Nom. Tonnage	Voltage, Hz	Amps Heater Only	Heater Kit Capacity, kW	Minimum Circuit Ampacity	Max Fuse or HACR Braker Size
RXHE-DE020CA	7.5 & 10	208/240, 60	43.1/48.9	15.6/20.2	67/73	70/80
RXHE-DE030CA	7.5 & 10	208/240, 60	60.8/70.2	22.0/29.6	89/100	90/100
RXHE-DE020DA	7.5 & 10	460, 60	24.7	20.2	37	40
RXHE-DE030DA	7.5 & 10	460, 60	35.0	29.7	50	50
RXHE-CE030CC	15 & 20	208/240, 60	60.0/70.0	21.6/28.8	105/115	110/125
RXHE-CE040CC	15 & 20	208/240, 60	83.0/96.0	30/40	134/148	150/150
RXHE-CE030DC	15 & 20	460, 60	35.0	28.8	58	60
RXHE-CE040DC	15 & 20	460, 60	48.0	40.0	74	80

TABLE B. DRIVE PACKAGE DATA

NOMINAL TONS [kW]	DRIVE PACKAGE	— BELT	SHEAVE SELECTIONS*, IN. [mm]			MOTOR	APPROX. BLOWER RPM @ MOTOR SHEAVE TURNS OPEN							
			MOTOR/BORE		BLOWER	HP [W]/PHASE	0	1	2	2.5	3	4	5	6
7.5 [26]	K	4L530	3.4-4.4-5/8	[86-112-16]	9.75 [248]	1 [746]/3Ø	790	760	730	715	700	665	630	—
	K	4L480	1.9-2.9	[48-74]	9.75 [248]	1 [746]/1Ø	1025	965	900	—	830	760	695	—
	L	4L530	4.2-5.2-5/8	[107-132-16]	9.75 [248]	1.5 [1119]/3Ø	925	895	860	845	825	790	750	—
	M	4L550	5.2-6.2-5/8	[132-157-16]	9.75 [248]	1.5 [1119]/3Ø	1125	1090	1055	—	1020	985	945	—
	◇N	4L550	5.7-6.7-7/8	[145-170-22]	9.75 [248]	2 [1491]/3Ø	1195	1165	1130	—	1100	1065	1030	—
10 [35]	J+	4L530	3.4-4.4	[86-112]	9.75 [248]	1.5 [1119]/3Ø	790	760	725	—	690	660	630	—
	K	4L530	4.0-5.0-5/8	[102-127-16]	9.75 [248]	1.5 [1119]/3Ø	885	855	825	—	795	760	730	—
	K	4L480	1.9-2.9	[48-74]	8.75 [222]	2 [1491]/1Ø	1140	1070	995	—	920	845	770	—
	L	4L540	4.6-5.6-7/8	[117-142-22]	9.75 [248]	2 [1491]/3Ø	995	960	930	—	895	860	825	—
	M	4L550	5.2-6.2-7/8	[132-157-22]	9.75 [248]	3 [2237]/3Ø	1125	1090	1055	—	1020	985	945	—
	▯N	4L530	4.7-5.7-7/8	[119-145-22]	7.75 [197]	3 [2237]/3Ø	1225	1190	1150	—	1110	1070	1030	—
	□O	4L540	5.7-6.7-7/8	[145-170-22]	8.75 [222]	3 [2237]/3Ø	1280	1250	1220	—	1185	1150	1115	—
15 [53]	K	BP-52	3.1-4.1-7/8	[79-104-22]	11.4 [290]	2 [1491]/3Ø	645	620	590	—	565	535	510	480
	L	BP-52	3.7-4.7-7/8	[94-119-22]	11.4 [290]	3 [2237]/3Ø	730	705	680	—	655	630	600	570
	M	BP-45	3.7-4.7-1 1/8	[94-119-29]	9.4 [239]	5 [3729]/3Ø	870	840	810	—	780	750	715	680
	#N	BP-50	4.8-6.0-1 1/8	[122-152-29]	10.4 [264]	5 [3729]/3Ø	985	960	935	—	910	885	860	835
20 [70]	K	BP-50	4.3-5.5-1 1/8	[109-140-29]	11.4 [290]	5 [3729]/3Ø	850	825	800	—	775	745	715	685
	L	BP-48(2)	4.3-5.5-1 3/8	[109-140-35]	10.4 [264]	7.5 [5593]/3Ø	955	925	895	—	865	835	805	780
	M	BP-47(2)	4.3-5.5-1 3/8	[109-140-35]	9.4 [239]	7.5 [5593]/3Ø	1030	995	960	—	925	890	855	815

*Actual pitch diameter in inches. Minimum and maximum pitch diameter shown for adjustable motor sheave. ◇ Field Supplied (Motor Sheave: Browning IVP75, Blower Sheave: Browning AZ100, Motor: 2HP [1491 W], 4 Pole 3Ø). Δ Field Supplied (Motor Sheave: Browning IVP65, Blower Sheave: Browning AZ80). □ Field Supplied (Motor Sheave: Browning IVP75, Blower Sheave: Browning AZ90). # Field Supplied (Motor Sheave: Browning IVP65, Blower Sheave: Browning BK110). + Field Supplied (Motor Sheave: Browning IVP50, Blower Sheave: Browning AZ100). Factory sheave settings are shown in bold print. The K, L, and M drives are available from the factory. The J, N, and O drives are not available from the factory and these sheaves and belts must be field supplied. A motor change is not required. The field supplied sheaves and belts are standard shelf items that are readily available from local equipment supply houses. The chart above gives the necessary specifications for these field supplied sheaves and belts.

[ ] Designates Metric Conversions

INDOOR BLOWER PERFORMANCE (DRY COIL)

TABLE C. RHGE-075 Z/Y, RHGG/RHGL-090 Z/Y

DRIVE PKG	STD CFM	E.S.P.—INCHES OF WATER [kPa]																																							
		.1 [0.02]		.2 [0.05]		.3 [0.07]		.4 [0.10]		.5 [0.12]		.6 [0.15]		.7 [0.17]		.8 [0.20]		.9 [0.22]		1.0 [0.25]		1.1 [0.27]		1.2 [0.30]		1.3 [0.32]		1.4 [0.35]		1.5 [0.37]		1.6 [0.40]		1.7 [0.42]		1.8 [0.45]		1.9 [0.47]		2.0 [0.50]	
		RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W
K	1800 [850 L/s]	—	—	—	—	—	—	—	—	—	—	645	420	670	460	690	500	725	560	825	630	860	670	890	700	925	740	965	760	990	805	1020	840	1050	895	1080	925	1110	985	1115	1010
	2000 [944 L/s]	—	—	—	—	—	—	—	—	645	405	675	470	690	515	730	555	800	645	835	695	865	730	900	770	930	810	975	840	1000	870	1030	915	1060	980	1090	1015	1125	1070	1120	1080
	2200 [1038 L/s]	—	—	—	—	—	—	—	—	670	490	680	540	720	580	785	640	810	715	840	765	870	820	910	870	950	880	980	920	1010	975	1040	1025	1070	1080	1105	1125	1100	1140	1130	1210
	2400 [1133 L/s]	—	—	—	—	—	—	650	510	690	570	720	610	770	670	800	755	830	805	860	870	895	925	930	970	970	985	995	1030	1030	1080	1055	1160	1080	1200	1120	1270	1125	1265	1140	1350
L	2600 [1227 L/s]	—	—	—	—	635	545	675	620	715	665	750	720	780	795	810	865	850	930	885	990	915	1045	960	1060	985	1105	1010	1155	1040	1230	1065	1290	1110	1345	1115	1350	1135	1445	1160	1510
	2800 [1321 L/s]	—	—	630	595	665	665	705	720	740	775	775	850	800	920	830	985	865	1060	905	1130	975	1140	975	1190	1000	1250	1030	1320	1060	1400	1090	1450	1095	1455	1120	1530	1150	1615	1180	1700
M	3000 [1416 L/s]	630	660	660	730	695	775	730	840	770	920	800	995	830	1060	860	1145	890	1220	935	1230	965	1285	995	1345	1020	1405	1050	1505	1080	1560	1110	1640	1115	1650	1140	1740	1170	1815	1195	1885
	3200 [1510 L/s]	660	810	695	860	725	920	765	1000	795	1070	825	1140	855	1225	890	1315	920	1370	960	1385	985	1445	1015	1530	1040	1620	1070	1685	1085	1695	1115	1780	1135	1875	—	—	—	—	—	—
N	3400 [1605 L/s]	690	940	725	1000	760	1090	790	1155	820	1225	850	1325	885	1410	915	1460	950	1485	980	1570	1010	1660	1030	1680	1045	1745	1075	1830	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	3600 [1699 L/s]	720	1120	750	1185	790	1250	820	1315	850	1430	885	1520	915	1590	945	1605	975	1695	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

K = IVP50, AZ100, 1 HP [766 W] L = IVP60, AZ100, 1½ HP [1119 W] M = IVP68, AZ100, 1½ [1119 W] HP N = IVP75, AZ100, 2 HP [1491 W] [Field Supplied]
NOTE: Bold lines separate K, L, M and N drives respectively.

TABLE D. RHGE-075 HK, RHGG/RHGL-090 HK

DRIVE PKG	STD CFM	E.S.P.—INCHES OF WATER [kPa]																																							
		.1 [0.02]		.2 [0.05]		.3 [0.07]		.4 [0.10]		.5 [0.12]		.6 [0.15]		.7 [0.17]		.8 [0.20]		.9 [0.22]		1.0 [0.25]		1.1 [0.27]		1.2 [0.30]		1.3 [0.32]		1.4 [0.35]		1.5 [0.37]		1.6 [0.40]		1.7 [0.42]		1.8 [0.45]		1.9 [0.47]		2.0 [0.50]	
		RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W
K	2200 [1038 L/s]											700 5	720	745 4.3	780	790 3.7	850	820 3.2	910	860 2.7	970	885 2.3	1020	920 1.8	1080	945 1.3	1165														
	2400 [1133 L/s]											720 4.7	800	760 4.1	870	805 3.5	935	840 3	1010	870 2.5	1065	895 2.1	1120	930 1.6	1195	955 1.1	1285														
	2600 [1227 L/s]									695 5	810	730 4.5	880	780 3.8	975	820 3.2	1045	860 2.7	1115	890 2.3	1175	920 1.8	1240																		
	2800 [1321 L/s]									730 4.5	945	765 4	1020	810 3.4	1105	835 3	1170	870 2.5	1245																						
	3000 [1416 L/s]							725 4.6	1015	755 4.1	1090	795 3.5	1175	830 3	1260																										
	3200 [1510 L/s]					710 4.7	1090	750 4.1	1175	790 3.6	1260																														
	3400 [1605 L/s]			710 4.7	1180	750 4.1	1290																																
	3600 [1699 L/s]	710 4.6	1280																																				

K = IVP34, AZ100, 1 HP [746 W] 1Ø
NOTES: T.O. = Turns Open
1. Standard air @ .075 lbs/ft³
2. Operation below heavy lines require optional drives.
3. Motor efficiency = .70
4. BHP = WATTS x MOTOR EFFICIENCY / 746
5. BHP = Brake Horsepower
RPM = Blower Speed

TABLE E. RHGE-100 HK, RHGG/RHGL-120 HK

DRIVE PKG	STD CFM	E.S.P.—INCHES OF WATER [kPa]																																							
		.1 [0.02]		.2 [0.05]		.3 [0.07]		.4 [0.10]		.5 [0.12]		.6 [0.15]		.7 [0.17]		.8 [0.20]		.9 [0.22]		1.0 [0.25]		1.1 [0.27]		1.2 [0.30]		1.3 [0.32]		1.4 [0.35]		1.5 [0.37]		1.6 [0.40]		1.7 [0.42]		1.8 [0.45]		1.9 [0.47]		2.0 [0.50]	
		RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W
K	3000 [1416 L/s]									780 5	1110	820 4.4	1200	860 4	1280	895 3.5	1350	930 3	1440	960 2.6	1500	980 2.3	1545	1005 2	1590	1035 1.5	1670	1060 1	1780	1090 .5	1870	1120 0	1960								
	3200 [1510 L/s]							780 5	1200	820 4.4	1270	850 4.1	1360	890 3.6	1440	910 3.2	1520	950 2.8	1595	980 2.4	1660	1005 2	1730	1030 1.5	1820	1055 1.1	1915	1080 .6	2030	1115 .1	2130										
	3400 [1605 L/s]					775 5	1130	790 4.8	1330	840 4.2	1440	880 3.7	1530	900 3.3	1620	945 2.8	1705	970 2.5	1780	1000 2	1880	1025 1.6	1955	1050 1.1	2080	1070 .6	2190	1110 .1	2325												
	3600 [1699 L/s]			775 5	1400	805 4.6	1465	835 4.2	1545	870 3.8	1630	900 3.3	1725	930 3	1800	960 2.5	1890	990 2.1	2005	1020 1.6	2110	1045 1.1	2230	1070 .6	2380																
	3800 [1793 L/s]	770 5	1510	810 4.6	1580	830 4.2	1655	865 3.8	1725	900 3.4	1840	920 3	1930	960 2.5	2030	985 2.1	2155	1015 1.6	2285																						
	4000 [1888 L/s]	805 4.6	1695	825 4.2	1770	860 3.8	1860	900 3.3	1975	920 3	2075	955 2.5	2205	980 2.1	2315																										
	4200 [1982 L/s]	830 4.2	1890	865 3.7	2000	900 3.3	2095	930 2.9	2240	960 2.4	2365																														
	4400 [2077 L/s]	870 3.6	2145	900 3.2	2275																																				
	4600 [2171 L/s]																																								
	4800 [2265 L/s]																																								

K = IVP34, AZ90, 2 HP [1491 W] 1Ø
NOTES: T.O. = Turns Open
1. Standard air @ .075 lbs/ft³
2. Operation below heavy lines require optional drives.
3. Motor efficiency = .70
4. BHP = WATTS x MOTOR EFFICIENCY / 746
5. BHP = Brake Horsepower
RPM = Blower Speed

TABLE F. RHGE-100 ZY, RHGG/RHGL-120 Z/Y

DRIVE PKG	STD CFM	E.S.P.—INCHES OF WATER [kPa]																																					
		.1 [0.02]		.2 [0.05]		.3 [0.07]		.4 [0.10]		.5 [0.12]		.6 [0.15]		.7 [0.17]		.8 [0.20]		.9 [0.22]		1.0 [0.25]		1.1 [0.27]		1.2 [0.30]		1.3 [0.32]		1.4 [0.35]		1.5 [0.37]		1.6 [0.40]		1.7 [0.42]		1.8 [0.45]		1.9 [0.47]		2.0 [0.50]	
		RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W
J K L M N O	2400 [1133 L/s]	—	—	—	—	—	—	650	510	690	570	720	610	760	670	790	755	815	805	845	860	875	940	920	1125	955	1110	990	1200	1000	1320	1040	1350	1080	1490	1100	1630	1130	1670	1150	1700
	2600 [1227 L/s]	—	—	—	—	635	545	675	620	715	665	750	720	780	795	810	860	830	910	860	990	890	1070	930	1150	960	1230	995	1310	1020	1400	1060	1460	1100	1510	1120	1680	1140	1730	1160	1790
	2800 [1321 L/s]	—	—	630	595	665	665	705	720	740	775	775	850	795	915	825	975	855	1075	885	1165	915	1210	950	1285	980	1370	1000	1450	1040	1530	1080	1590	1120	1650	1130	1720	1150	1800	1175	1880
	3000 [1416 L/s]	630	660	660	730	695	775	730	880	755	940	790	1005	825	1065	855	1130	885	1190	920	1290	955	1380	980	1425	1010	1500	1035	1620	1065	1690	1100	1750	1110	1800	1140	1880	1160	1920	1185	1980
	3200 [1510 L/s]	660	810	695	860	730	950	750	1005	785	1080	815	1150	850	1225	880	1285	910	1390	950	1470	975	1540	1010	1620	1030	1740	1065	1820	1095	1880	1095	1890	1125	1985	1155	2045	1175	2090	1190	2160
	3400 [1605 L/s]	690	940	725	1000	745	1090	780	1160	810	1240	845	1320	875	1390	910	1500	945	1590	970	1650	995	1725	1025	1860	1055	1940	1055	1900	1080	1975	1110	2095	1140	2185	1165	2245	1180	2270	1200	2315
	3600 [1699 L/s]	730	1100	745	1175	780	1250	810	1340	845	1435	875	1510	905	1620	945	1715	960	1780	990	1855	1020	1995	1050	2080	1080	2160	1080	2165	1105	2225	1135	2325	1155	2400	1175	2460	1195	2510	1220	2575
	3800 [1793 L/s]	745	1265	780	1350	810	1455	840	1550	875	1630	905	1740	940	1840	955	1905	990	2050	1025	2145	1045	2225	1075	2315	1075	2270	1100	2390	1130	2495	1150	2590	1170	2650	1190	2710	1220	2770	1265	2895
	4000 [1888 L/s]	780	1465	810	1575	850	1690	880	1780	910	1880	940	2010	970	2110	990	2180	1020	2300	1050	2400	1075	2490	1075	2445	1100	2570	1130	2690	1145	2785	1170	2855	1185	2920	1215	2985	1260	3090	1275	3165
	4200 [1982 L/s]	825	1750	855	1840	885	1925	920	2060	940	2160	965	2260	995	2365	1025	2470	1050	2560	1080	2680	1080	2685	1100	2795	1130	2890	1150	3000	1165	3080	1190	3145	—	—	—	—	—	—	—	—
	4400 [2077 L/s]	845	1925	905	2100	925	2195	950	2320	970	2430	995	2550	1030	2650	1050	2755	1055	2760	1085	2855	1100	2985	1130	3115	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	4600 [2171 L/s]	915	2225	930	2375	955	2495	980	2620	1010	2750	1030	2840	1035	2950	1055	2960	1080	3070	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	4800 [2265 L/s]	930	2555	960	2680	985	2810	1015	2940	1035	3040	1035	3045	1055	3180	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	5000 [2360 L/s]	960	2870	990	3010	1020	3135	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

J =IVP50, AZ100, 1½ HP [1119 W] (Field Supplied)
K = IVP56, AZ100, 1½ HP [1119 W]
L = IVP62, AZ100, 2 HP [1491 W]
M = IVP68, AZ100, 3 HP [2237 W]
N = IVP65, AZ80, 3 HP [2237] [Field Supplied]
O = IVP75, AZ90, 3 HP [2237 W] [Field Supplied]
NOTE: Bold lines separate J, K, L, M, N and O drives respectively.

[ ] Designates Metric Conversions

TABLE G. RHGE-150 Z/Y, RHGG/RHGL-180 Z/Y

DRIVE PKG	STD CFM	E.S.P.—INCHES OF WATER [kPa]																																					
		.1 [0.02]		.2 [0.05]		.3 [0.07]		.4 [0.10]		.5 [0.12]		.6 [0.15]		.7 [0.17]		.8 [0.20]		.9 [0.22]		1.0 [0.25]		1.1 [0.27]		1.2 [0.30]		1.3 [0.32]		1.4 [0.35]		1.5 [0.37]		1.6 [0.40]		1.7 [0.42]		1.8 [0.45]		1.9 [0.47]		2.0 [0.50]	
		RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W
K	4000 [1888 L/s]	—	—	—	—	—	—	480	950	510	1020	540	1090	565	1165	595	1250	620	1320	645	1400	665	1575	690	1740	710	1860	730	1960	735	2220	765	2155	800	2255	820	2340	835	2435	850	2600
	4400 [2077 L/s]	—	—	—	—	—	—	505	1090	530	1175	560	1250	585	1325	610	1385	635	1485	655	1650	680	1770	700	1945	725	2035	735	2100	755	2225	785	2340	810	2430	825	2525	840	2645	855	2750
	4800 [2265 L/s]	—	—	—	—	495	1185	520	1275	550	1355	575	1440	595	1520	620	1600	645	1700	665	1880	690	2015	710	2170	730	2290	745	2350	775	2470	795	2575	815	2690	830	2790	845	2895	860	3100
L	5200 [2454 L/s]	—	—	490	1300	515	1385	545	1485	565	1550	590	1660	615	1760	635	1850	660	2050	685	2170	705	2320	725	2460	740	2540	770	2655	790	2770	810	2890	825	3000	840	3120	855	3265	870	3365
	5600 [2643 L/s]	490	1420	515	1505	540	1620	560	1700	590	1820	610	1905	635	2080	660	2240	680	2365	700	2510	720	2665	740	2740	765	2860	785	2985	805	3105	820	3225	835	3350	850	3490	870	3690	900	3750
	6000 [2832 L/s]	510	1640	530	1750	560	1860	590	1950	610	2165	630	2270	660	2450	675	2570	695	2725	720	2905	740	2975	765	3100	780	3220	800	3355	815	3480	835	3620	850	3755	865	3850	895	3885	910	4035
M-N	6400 [3020 L/s]	530	1900	555	1980	590	2255	610	2370	630	2470	655	2660	675	2800	695	2965	720	3180	735	3255	760	3360	775	3485	800	3630	820	3750	830	3890	850	4035	865	4130	890	4150	905	4270	920	4440
	6800 [3209 L/s]	570	2370	590	2455	610	2575	625	2670	655	2870	675	3030	700	3055	720	3175	740	3350	760	3485	780	3620	800	3750	815	3880	830	4020	845	4160	865	4320	890	4430	905	4595	920	4755	935	4935
	7200 [3398 L/s]	590	2685	610	2800	630	2945	650	3100	680	3195	700	3310	720	3450	745	3610	720	3745	780	3910	800	4040	820	4230	830	4345	845	4470	865	4630	890	4790	905	4985	920	5150	—	—	—	—

K = IVP44, BK120, 2 HP [1491 W]
L = IVP50, BK120 3 HP [2237 W]
M = IVP50, BK100, 5 HP [3729 W]
N = IVP65, BK110, 5 HP [3729 W] [Field Supplied]
NOTE: Bold lines separate K, L, M and N drives respectively.

TABLE H. RHGE-200 Z/Y, RHGG/RHGL-240 Z/Y

DRIVE PKG	STD CFM	E.S.P.—INCHES OF WATER [kPa]																																					
		.1 [0.02]		.2 [0.05]		.3 [0.07]		.4 [0.10]		.5 [0.12]		.6 [0.15]		.7 [0.17]		.8 [0.20]		.9 [0.22]		1.0 [0.25]		1.1 [0.27]		1.2 [0.30]		1.3 [0.32]		1.4 [0.35]		1.5 [0.37]		1.6 [0.40]		1.7 [0.42]		1.8 [0.45]		1.9 [0.47]		2.0 [0.50]	
		RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W
K	6000 [2832 L/s]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	695	2295	715	2525	740	2675	755	2820	780	2975	800	2950	820	3100	840	3180	865	3380	875	3475	890	3590	910	3690
	6500 [3068 L/s]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	695	2560	710	2745	730	2850	755	3000	775	3165	805	3270	825	3365	845	3495	865	3700	880	3800	895	3930	910	4030	930	4125
	7000 [3304 L/s]	—	—	—	—	—	—	—	—	—	—	—	—	695	2865	710	2990	730	3130	755	3285	775	3450	790	3530	825	3710	845	3865	865	4020	875	4915	895	4270	910	4360	930	4530	950	4625
	7500 [3540 L/s]	—	—	—	—	—	—	—	—	—	—	695	3190	720	3350	735	3490	760	3675	780	3800	805	4000	830	4080	850	4245	865	4370	880	4520	895	4620	910	4785	930	4920	950	5090	965	5340
	8000 [3776 L/s]	—	—	—	—	—	—	685	3430	700	3560	725	3720	740	3875	760	4060	785	4240	815	4355	835	4545	850	4635	870	4775	880	4915	900	5055	915	5200	935	5360	955	5550	965	5810	980	5985
L-M	8500 [4012 L/s]	—	—	—	—	690	3805	715	4000	730	4155	750	4325	770	4500	790	4700	820	4795	840	4925	850	5065	870	5215	890	5365	905	5495	920	5645	935	5775	950	6120	970	6310	980	6480	1000	6645
	9000 [4248 L/s]	685	4070	700	4240	720	4440	735	4615	760	4790	780	4995	815	5165	830	5300	850	5435	865	5570	880	5720	895	5860	910	6060	925	6170	940	6370	955	6660	975	6860	990	7040	1010	7240	1025	7500
	9500 [4484 L/s]	700	4730	720	4940	785	5325	800	5500	820	5670	835	5790	850	5920	865	6060	880	6210	895	6370	905	6530	925	6700	940	6850	950	7140	965	7335	985	7520	—	—	—	—	—	—	—	—
	10000 [4719 L/s]	805	6080	815	6145	830	6470	840	6615	860	6720	870	6890	885	7040	900	7220	915	7430	925	7600	990	7600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

K = IVP60, BK120, 5 HP [3729 W]
L = 2VP60, 2BK110 7½ HP [5593 W]
M = 2VP60, 2BK100, 7½ HP [5593 W]
NOTES: 1. Bold lines separate K, L and M drives respectively.
2. Standard air @ .075 lbs/ft³ [m²]
3. Operation below heavy lines require optional drives.
4. Motor efficiency = .85
5. BHP = $\frac{\text{WATTS x MOTOR EFFICIENCY}}{746}$
6. BHP = Brake Horsepower
RPM = Blower Speed

[ ] Designates Metric Conversions

TABLE I. COMPONENT AIR RESISTANCE — 7½ & 10 TON — CFM

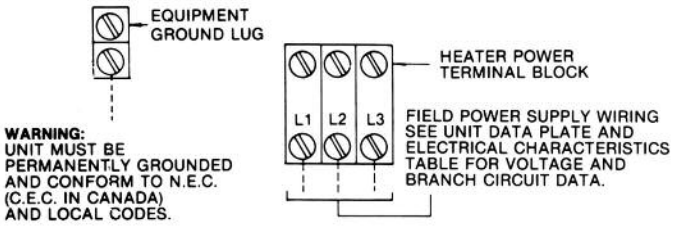
Elec. Heaters	1800	2200	2600	3000	3400	3800	4200	4600	5000
20 KW, 30 KW	.060	.100	.140	.160	.230	.320	.410	.500	.600
Mixing Box (R.A. Damper Open)	.060	.080	.012	.024	.038	.053	.068	.080	.095

TABLE J. COMPONENT AIR RESISTANCE — 15 TON — CFM

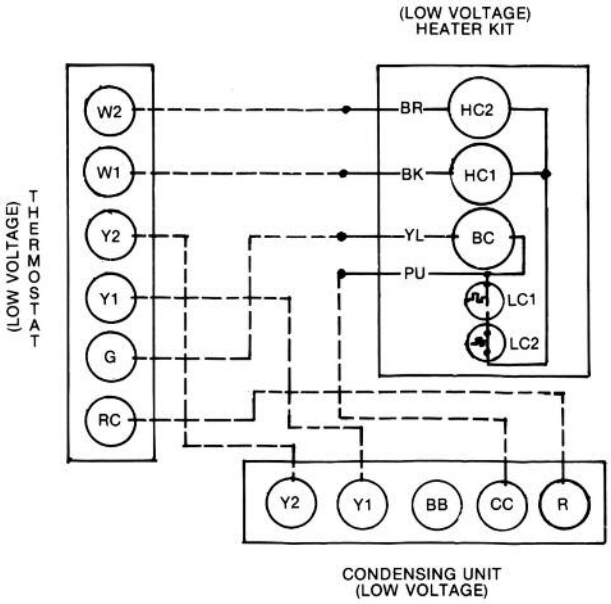
Elec. Heaters	4000	4400	4800	5200	5600	6000	6400	6800	7200
30 KW	.175	.187	.200	.215	.230	.250	.275	.305	.350
40 KW	.290	.320	.350	.380	.410	.450	.495	.550	.600
Mixing Box (R.A. Damper Open)	.030	.037	.044	.052	.061	.071	.091	.102	.110

TABLE K. COMPONENT AIR RESISTANCE — 20 TON — CFM

Elec. Heaters	6400	6800	7200	7600	8000	8400	8800	9200	9600
30 KW	.220	.230	.240	.260	.280	.300	.320	.340	.370
40 KW	.360	.390	.420	.450	.490	.530	.570	.610	.650
Mixing Box (R.A. Damper Open)	.095	.102	.110	.115	.121	.126	.128	.135	.142



FIELD POWER SUPPLY CONNECTIONS



FIELD 24 VOLT CONTROL WIRING CONNECTIONS
FIGURE 2. WIRING

GROUNDING

- **WARNING: THE UNIT MUST BE ELECTRICALLY GROUNDED IN ACCORDANCE WITH LOCAL CODES OR THE NATIONAL ELECTRIC CODE. ANSI/NFPA 70-1987. (C.E.C. in Canada)**
- A grounding lug is provided near the power terminal block for a ground wire.
- Grounding may be accomplished by grounding the power line conduit to the heater kit and connecting the factory furnished conduit nipple between the heater kit and air handler. Make sure the conduit nut locking teeth have pierced the insulating paint film of the blower panel.

CONTROL WIRING (CLASS II)

- Low voltage control wiring should not be run in conduit with power wiring, unless Class 1 wire of proper voltage rating is used. Route thermostat cable or equivalent single leads of adequate size colored wire from thermostat subbase terminals through to heater kit low voltage pigtail leads.
- Do not short thermostat wires since this may blow fuse in control transformer.

TABLE L

FIELD WIRE SIZE FOR 24 VOLT THERMOSTAT CIRCUITS

Thermostat Load - Amps	SOLID COPPER WIRE - AWG.					
3.0*	16	14	12	10	10	10
2.5	16	14	12	12	10	10
2.0	18	16	14	12	12	10
1.5	18	16	14	14	12	12
	50	100	150	200	250	300
	Length of Run - Feet**					

NOTE: Load on thermostat will be 1.5 amps as unit is shipped. Installer needs to determine amps required for accessories added in the field.
*Amp capacity of control transformer.
**Wire length equals twice the run distance.

THERMOSTAT

A two-stage heating thermostat with matching switching sub-base may be ordered as an accessory. Thermostats are available in either automatic or manual changeover. The thermostat should be mounted on an inside wall about five feet above the floor in a location where it will not be affected by the sun, or drafts from open doors or other sources. Install level; and after installation, check the thermostat calibration and recalibrate if necessary.

ELECTRIC HEAT

Heat anticipator settings on heaters should be .4 amps for each stage.

WARNING: AFTER COMPLETION OF WIRING, CHECK ALL ELECTRICAL CONNECTIONS, INCLUDING FACTORY WIRING WITHIN THE UNIT, AND MAKE SURE ALL CONNECTIONS ARE TIGHT. REPLACE AND SECURE ALL ELECTRICAL BOX COVERS AND ACCESS DOORS BEFORE LEAVING UNIT OR TURNING ON POWER TO CIRCUIT SUPPLYING UNIT.

WARNING: ONLY ELECTRIC HEATER KITS SUPPLIED BY THIS MANUFACTURER AS DESCRIBED IN THIS PUBLICATION HAVE BEEN DESIGNED, TESTED, AND EVALUATED BY A NATIONALLY RECOGNIZED SAFETY TESTING AGENCY FOR USE WITH THIS UNIT. USE OF ANY OTHER MANUFACTURED ELECTRIC HEATERS INSTALLED WITHIN THE UNIT MAY CAUSE HAZARDOUS CONDITIONS RESULTING IN PROPERTY DAMAGE, FIRE, OR BODILY INJURY.

SERVICE

HEATER CONTACTOR (HC)

The contactors are magnetic type. They have low voltage (24V) coils and are controlled directly by the thermostat.

LIMIT CONTROL

Limit controls are located in the element mounting plate of the elements.

These controls are automatic reset types which prevent the unit from overheating in case of a malfunction. If replacement becomes necessary, they must be replaced with the same type and same temperature specification.

LINE LIMITS (LL)

The line limits are wired into the beginning of each element as a back up protection to a malfunction of the low voltage limit control.

These controls are non-resettable and must be replaced if they should ever function. Replacements must be the same type and temperature ratings as originally supplied by the factory.

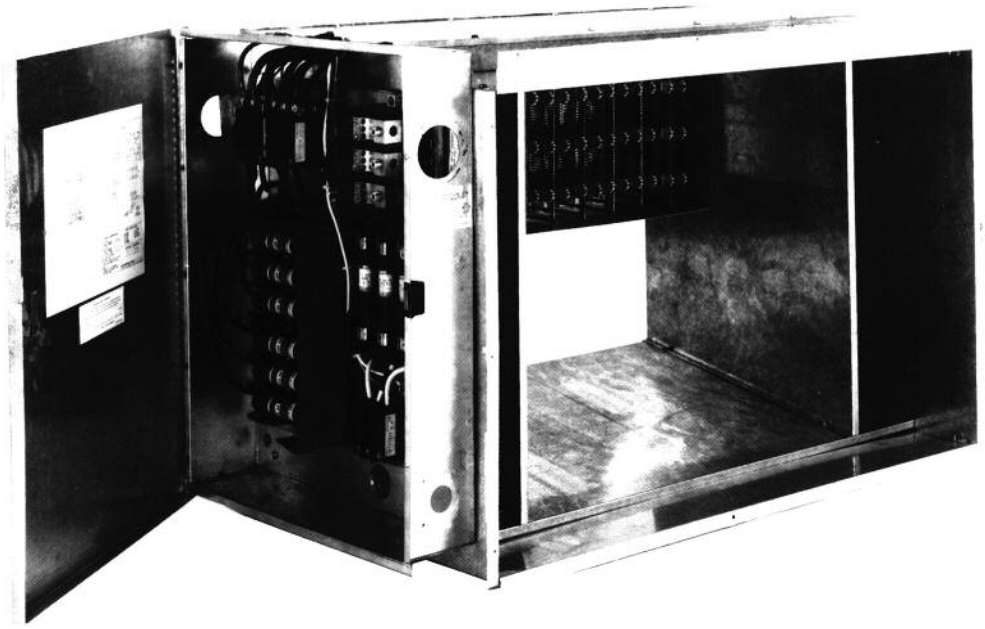


FIGURE 3. TYPICAL ELECTRIC HEAT CONTROL BOX