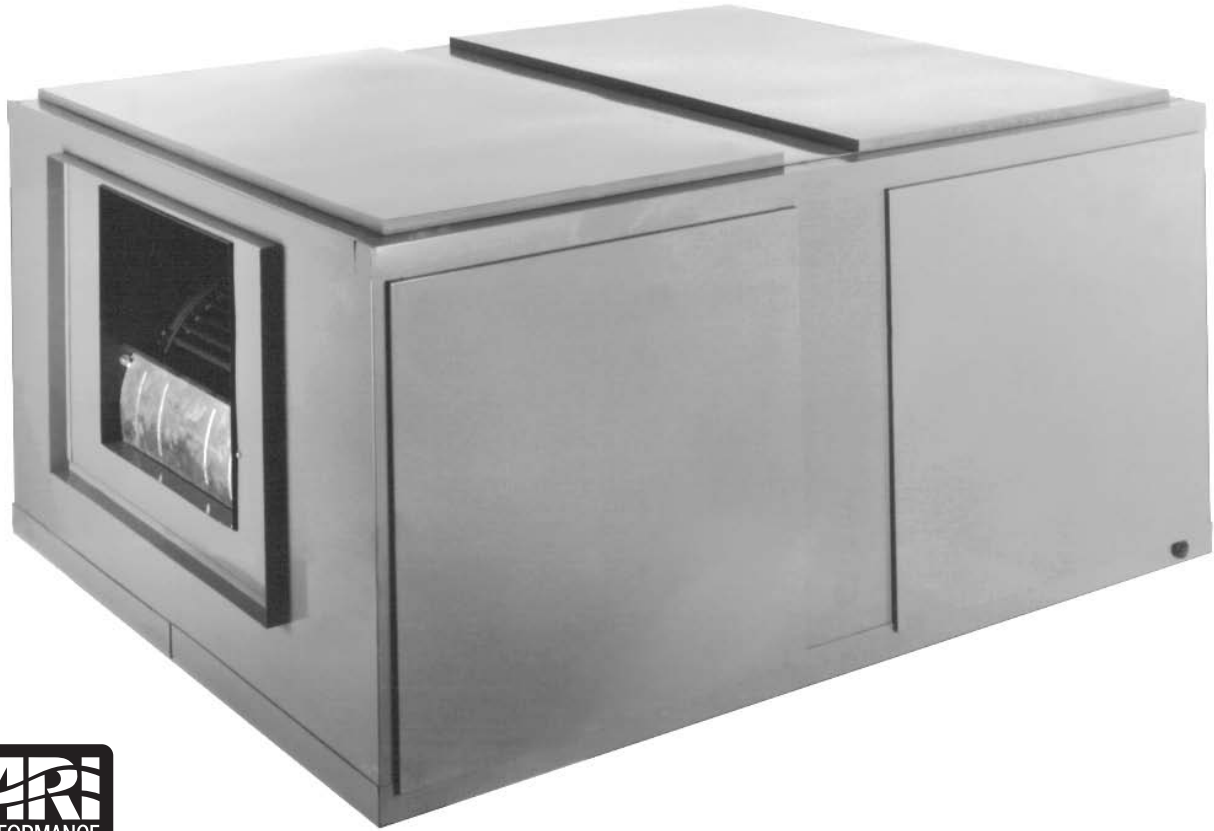


# INSTALLATION INSTRUCTIONS

## RHGL COMMERCIAL AIR HANDLERS

### NOMINAL 7.5 THROUGH 20 TON AIR CONDITIONING

### R-410A MODELS



UL listing and CSA certification on some models is in process.  
Contact your distributor for available models.



Recognize this symbol as an indication of Important Safety Information!

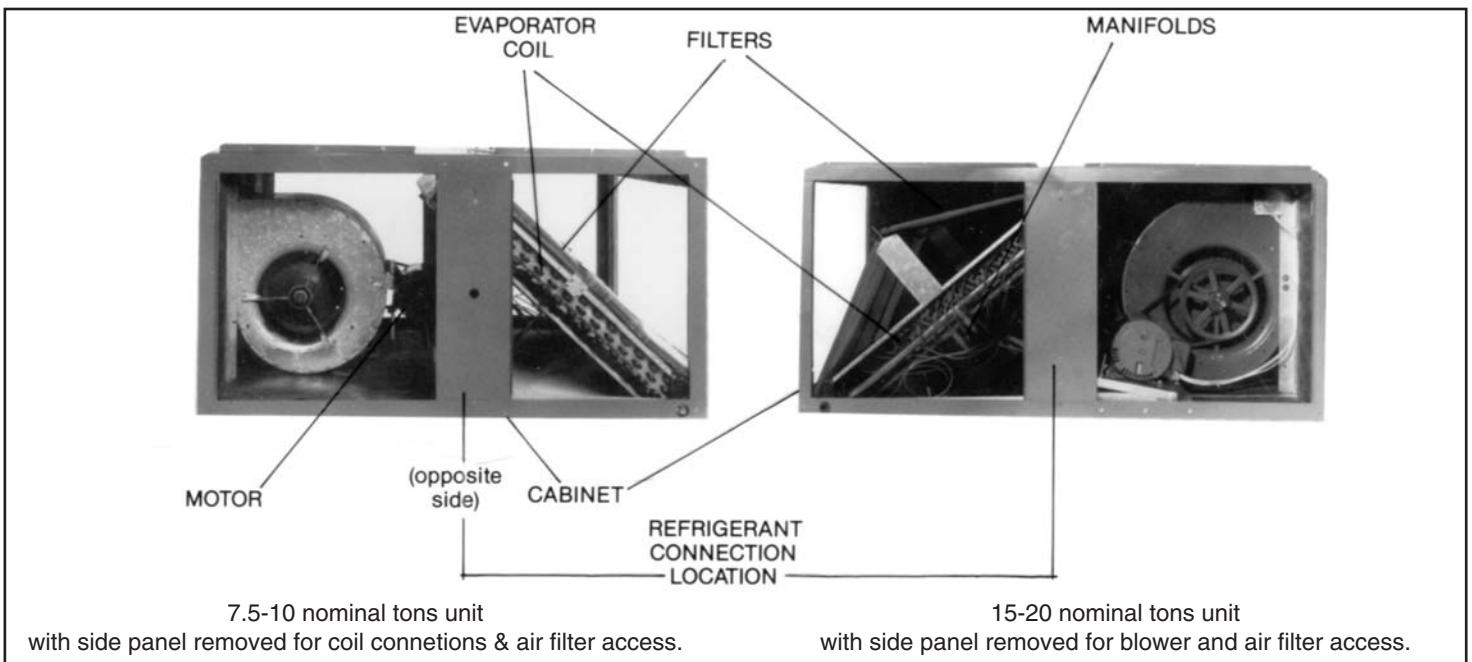
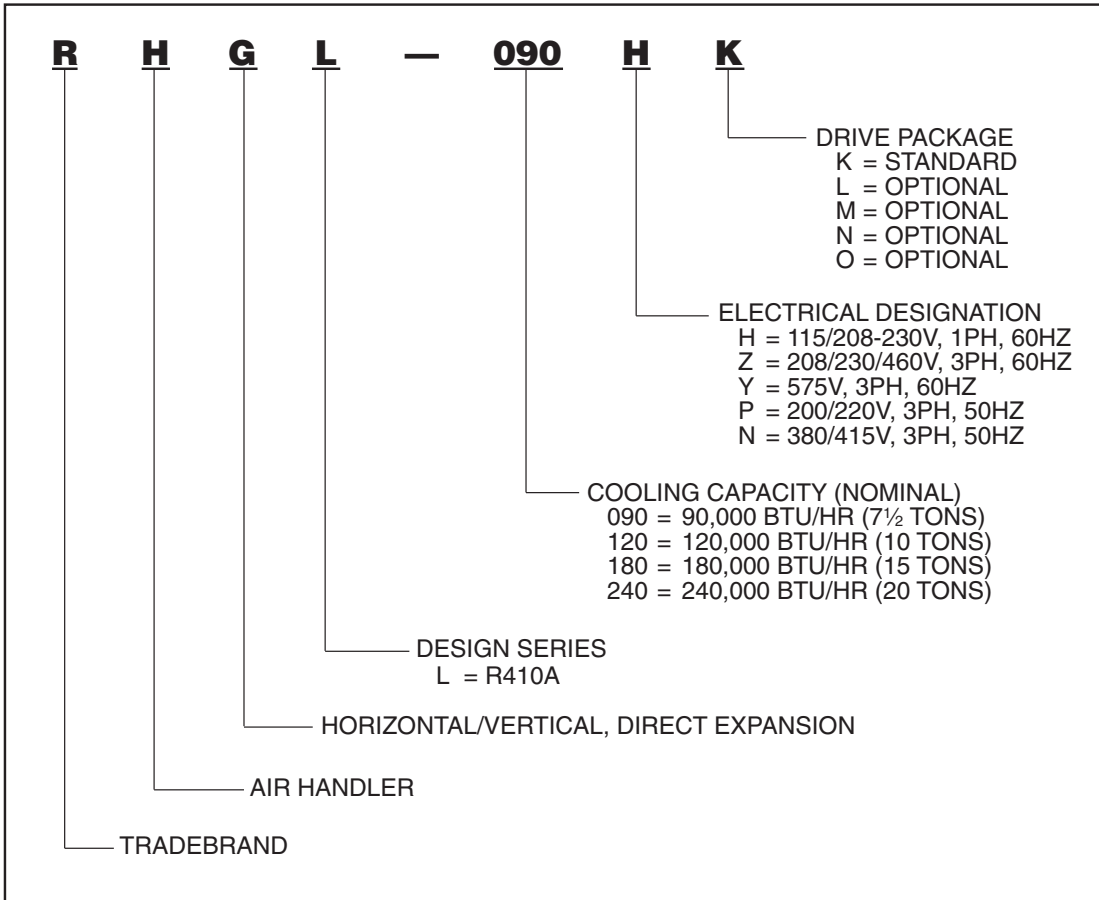
**DO NOT DESTROY**  
PLEASE READ CAREFULLY AND KEEP IN A  
SAFE PLACE FOR FUTURE REFERENCE.

**WARNING**


THESE INSTRUCTIONS ARE INTENDED AS AN AID TO QUALIFIED, LICENSED SERVICE PERSONNEL FOR PROPER INSTALLATION, ADJUSTMENT AND OPERATION OF THIS UNIT. READ THESE INSTRUCTIONS THOROUGHLY BEFORE ATTEMPTING INSTALLATION OR OPERATION. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN IMPROPER INSTALLATION, ADJUSTMENT, SERVICE OR MAINTENANCE POSSIBLY RESULTING IN FIRE, ELECTRICAL SHOCK, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

# INDEX

Introduction . . . . .	3	Installation . . . . .	16
Checking Product Received . . . . .	3	Piping . . . . .	
Standard Unit Features . . . . .	3	Refrigerant . . . . .	17
Unit Dimensions . . . . .	4-5	Drain . . . . .	18
Physical Data Table . . . . .	6	Motor, Sheave & Belts . . . . .	19
Drive Package Data . . . . .	6-13	Pre-Start Check List . . . . .	19
Low Voltage Connection . . . . .	15	Operation . . . . .	20
Branch Circuit Conductor Data . . . . .	15	Service, Maintenance & Lubrication . . . . .	20
Applications . . . . .	16		



## INTRODUCTION

 Recognize this symbol as an indication of Important Safety Information!

### **▲ WARNING**

**PROPOSITION 65: THIS APPLIANCE CONTAINS FIBERGLASS INSULATION. RESPIRABLE PARTICLES OF FIBERGLASS ARE KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.**

### **▲ WARNING**

**THE MANUFACTURER'S WARRANTY DOES NOT COVER ANY DAMAGE OR DEFECT TO THE AIR HANDLER CAUSED BY THE ATTACHMENT OR USE OF ANY COMPONENTS, ACCESSORIES OR DEVICES (OTHER THAN THOSE AUTHORIZED BY THE MANUFACTURER) INTO, ONTO OR IN CONJUNCTION WITH THE AIR HANDLER. YOU SHOULD BE AWARE THAT THE USE OF UNAUTHORIZED COMPONENTS, ACCESSORIES OR DEVICES MAY ADVERSELY AFFECT THE OPERATION OF THE AIR HANDLER AND MAY ALSO ENDANGER LIFE AND PROPERTY. THE MANUFACTURER DISCLAIMS ANY RESPONSIBILITY FOR SUCH LOSS OR INJURY RESULTING FROM THE USE OF SUCH UNAUTHORIZED COMPONENTS, ACCESSORIES OR DEVICES.**

This booklet contains the installation and operating instructions for your air handler. There are a few precautions that should be taken to derive maximum satisfaction from it. Improper installation can result in unsatisfactory operation or dangerous conditions.

Read this booklet and any instructions packaged with separate equipment required to make up the system prior to installation. Give this booklet to the owner and explain its provisions. The owner should retain this booklet for future reference.

## CHECKING PRODUCT RECEIVED

Upon receiving the unit, inspect it for any damage from shipment. Claims for damage, either shipping or concealed, should be filed immediately with the shipping company. Check the unit model number and electrical characteristics to determine if they are correct.

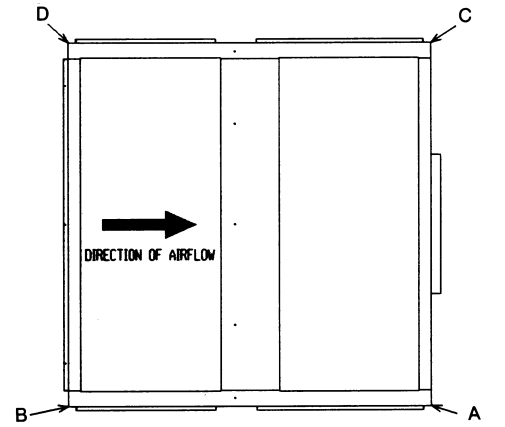
## STANDARD UNIT FEATURES

**HORIZONTAL OR VERTICAL**—All models are designed for either application and can be installed in either position as supplied from the factory.

**MANIFOLD**—All models are furnished with dual circuit manifolds for dual condensing unit application. The circuitry is so arranged to provide full face coil operation from each unit. Fittings are provided with each unit for single condensing unit application. The fittings may be installed for either right or left hand tubing connections.

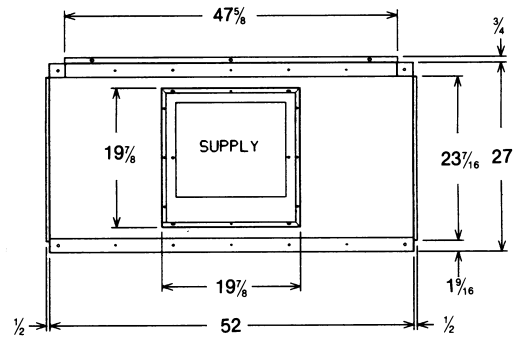
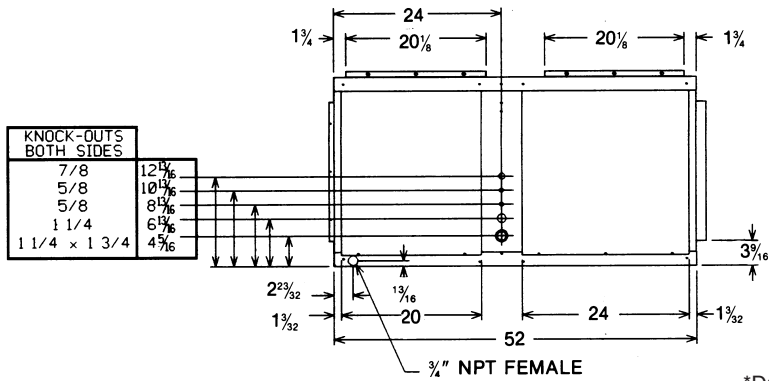
**DRAIN PAN (not visible)**—The zinc coated steel drain pan is designed to trap condensate in either vertical or horizontal installations. All pans are insulated with fiberglass insulation between the bottom of the pan and the unit and may be connected for either right or left hand drains. If unit is to be installed over a finished ceiling and in an unconditioned space, it is recommended an auxiliary drain pan be placed under the entire unit.

# UNIT DIMENSIONS 7.5 AND 10 NOMINAL TONS

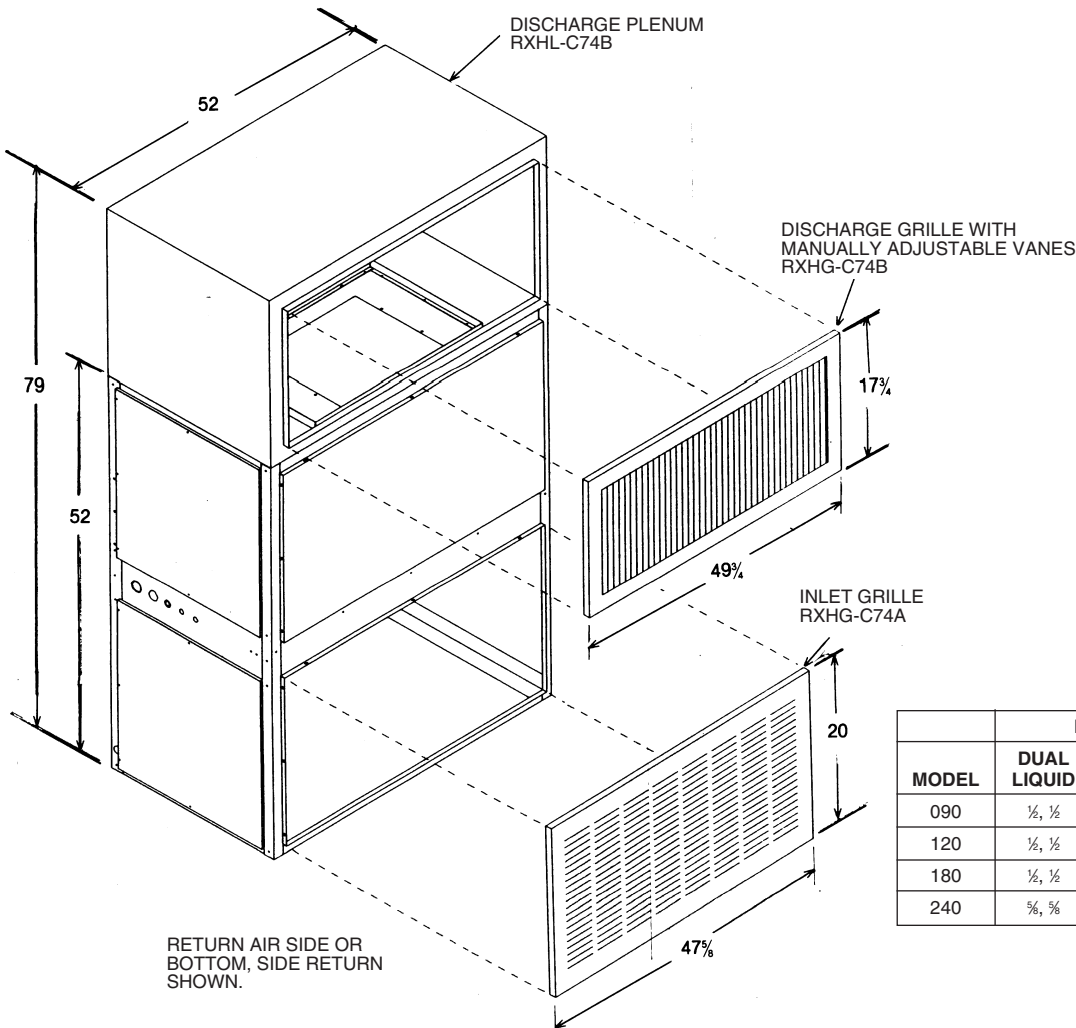


MODEL	CORNER WEIGHTS				TOTAL WEIGHT
	A	B	C	D	
7½ TON	88	78	87	77	330
10 TON	93	82	92	80	347

RETURN AIR OPENINGS = 47% WIDTH x 19% HEIGHT



\*Drain connections are provided on both sides of the drain pan. The drain can be connected to either side of the drain pan, but not both. The drain must be trapped.

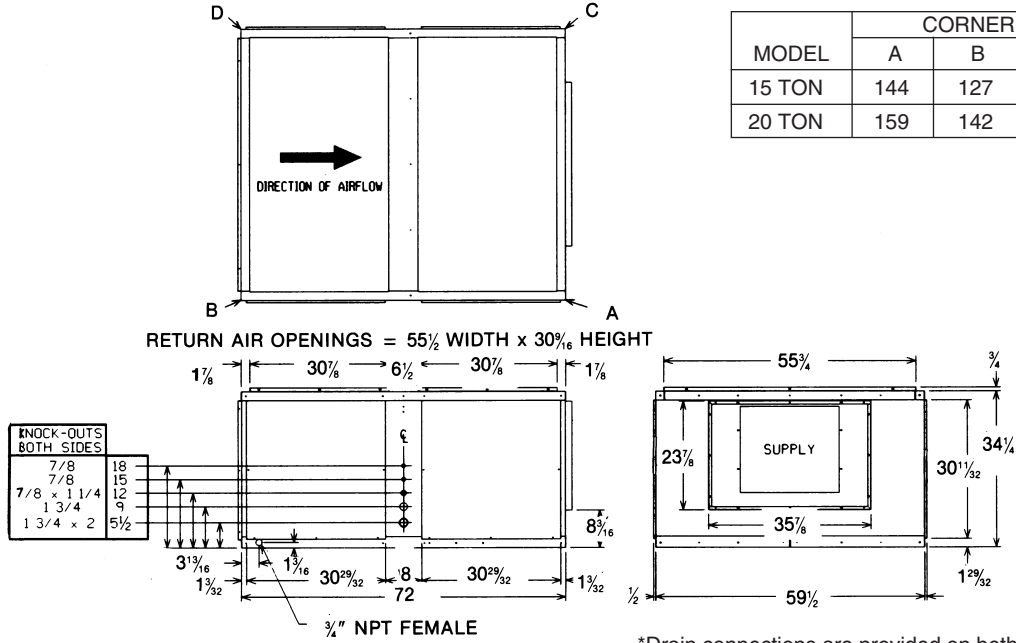


UNIT SHOWN IN VERTICAL POSITION WITH OPTIONAL INLET GRILLE AND OPTIONAL DISCHARGE PLENUM AND DISCHARGE GRILLE

RETURN AIR SIDE OR BOTTOM, SIDE RETURN SHOWN.

MODEL	REFRIGERANT STUB SIZES			
	DUAL LIQUID	DUAL SUCTION	SINGLE LIQUID	SINGLE SUCTION
090	½, ½	¾, ¾	½	1"
120	½, ½	¾, ¾	¾	1"
180	½, ½	1", 1"	¾	1"
240	¾, ¾	1", 1"	¾	1"

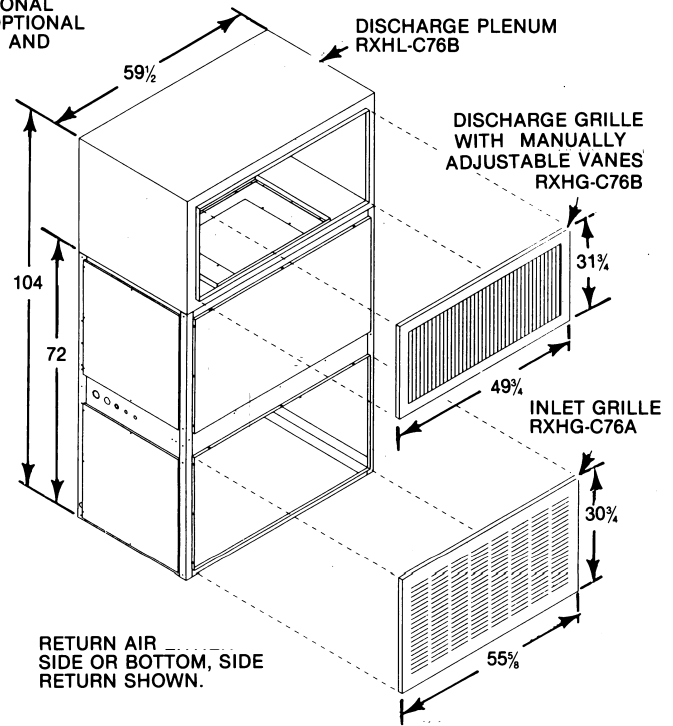
# UNIT DIMENSIONS 15 AND 20 NOMINAL TONS



MODEL	CORNER WEIGHTS				TOTAL WEIGHT
	A	B	C	D	
15 TON	144	127	117	105	495
20 TON	159	142	129	115	545

\*Drain connections are provided on both sides of the drain pan. The drain can be connected to either side of the drain pan, but not both. The drain must be trapped.

UNIT SHOWN IN VERTICAL POSITION WITH OPTIONAL INLET GRILLE AND OPTIONAL DISCHARGE PLENUM AND DISCHARGE GRILLE



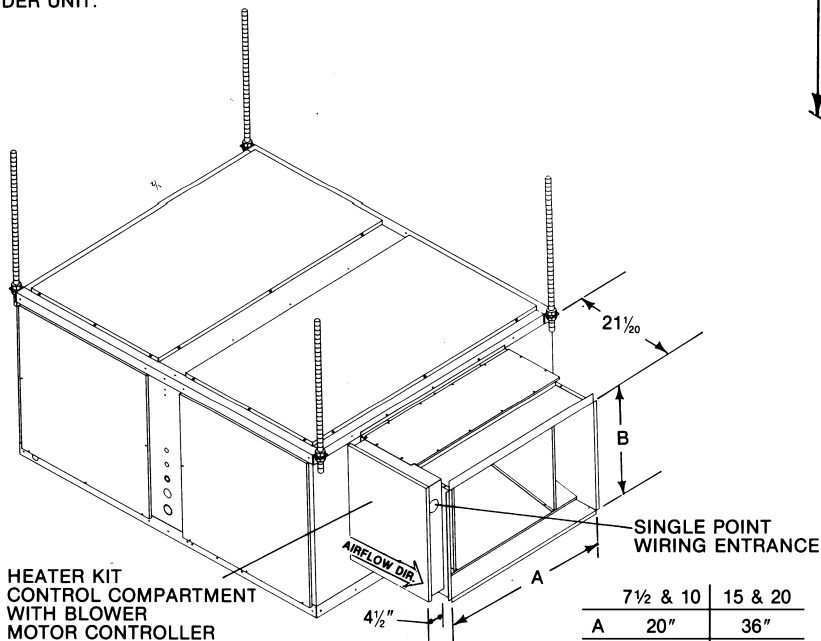
OPTIONAL ELECTRIC HEATER KIT SHOWN INSTALLED IN HORIZONTAL POSITION AND CONNECTED DIRECTLY TO THE AIR HANDLER. THE HEATER KIT MAY ALSO BE INSTALLED WITH THE AIR HANDLER SET IN THE VERTICAL POSITION. IN EITHER POSITION THE HEATER KIT CONTROL COMPARTMENT MUST BE ON THE LEFT SIDE FACING THE AIR DISCHARGE OPENING

NOTE: DISCHARGE PLENUM AND GRILLE CANNOT BE USED WITH ELECTRIC HEATER KIT

## 7 1/2, 10, 15 AND 20 TON

FOUR HEAVY GAUGE ANGLES ARE FURNISHED (SHIPPED LOOSE) FOR SUSPENDING UNITS FROM ALL FOUR CORNERS. MINIMUM OF 1/2" SUPPORT RODS ARE RECOMMENDED. IF ALL-THREAD IS USED, IT IS ALSO RECOMMENDED THAT TWO NUTS AND TWO LOCKWASHERS BE TIGHTENED SECURELY AGAINST THE SUSPENSION ANGLES.

WHEN UNITS ARE SUSPENDED AS ILLUSTRATED, HOT WATER OR STEAM COILS, MIXING BOX AND DISCHARGE AIR PLENUM CANNOT BE MOUNTED. AN ALTERNATE SUSPENSION METHOD SUCH AS ANGLES OR CHANNELS (FIELD SUPPLIED) SHOULD BE LOCATED UNDER UNIT.



	7 1/2 & 10	15 & 20
A	20"	36"
B	20"	24"

# PHYSICAL DATA TABLE

MODEL NO. RHGL-					
Cooling Size		090	120	180	240
Nominal Size (tons)		7.5	10	15	20
Nominal CFM @ Rated E.S.P.		3000 @ .25"	4000 @ .30"	6000 @ .35"	8000 @ .40"
<b>MOTOR HORSEPOWER</b>	Standard— 3450 RPM 1 phase 1750 RPM 3 phase	1 HP 1 HP	2 HP 1½ HP	2 HP	5 HP
	Optional— 1750 RPM 3 phase	1½ HP, 2 HP	2 HP, 3 HP	3 HP, 5 HP	7½ HP
Blower Size—diameter x width		12 x 12	12 x 12	18 x 15	18 x 18
Blower Shaft Diameter		¾	¾	1	1
Blower Sheave Diameter (Std.)		10	10	12	12
Motor Sheave Size Adjustment (Std.)	3450 RPM 1 phase 1750 RPM 3 phase	1.9-2.9 3.4-4.4	2.4-3.2 4.4-5.0	3.1-4.1	4.3-5.5
Belt Type & Size Std.		A-53	A-53	B-52	B-52
Coil Face Area (sq. ft.)		10.2	10.2	16.5	16.5
Coil Tube Dia.		¾	¾	¾	¾
Coil, Rows Deep-Fins Per Inch		3/15	4/15	3/13	4/15
T.X. Valve Refrigerant Control		(2) BBIZE-3-GA	(2) CBBIZE-5-GA	(2) BBIZE-6-GA	(2) BBIZE-8-GA
Filter Size (std.)* No. Req'd		(4) 16 x 25 x 1	(4) 16 x 25 x 1	(6) 20 x 25 x 1	(6) 20 x 25 x 1
<b>CABINET:</b>					
Finish		Powder Paint	Powder Paint	Powder Paint	Powder Paint
Sheet Metal		Galvanized	Galvanized	Galvanized	Galvanized
<b>Gauge; Top</b>		18	18	18	18
Sides		16	16	16	16
Bottom		18	18	18	18
Doors and Covers		20 min.	20 min.	20 min.	20 min.
<b>UNIT WEIGHTS:</b>					
Operating		330	347	495	545
Shipping		350	367	530	580
<b>OPTIONAL ACCESSORIES WEIGHTS:</b>					
Hot Water Coils		200	200	200	200
Steam Heating Coils		200	200	200	200
Inlet Grille		9	62	9	12
Discharge Plenum		38	38	38	62
Discharge Grille		15	15	15	23

\*Unit will accept 2" filters.

# DRIVE PACKAGE DATA

NOMINAL TONS	3 PH DRIVE	SHEAVE SELECTIONS*		MOTOR HP / PH	APPROXIMATE BLOWER RPM @ MOTOR SHEAVE TURNS OPEN						
		MOTOR	BLOWER		0	1	2	3	4	5	6
7.5	K	3.4-4.4	9.75	1 / 3	790	760	730	700	665	630	
	L	4.2-5.2	9.75	1 1/2 / 3	925	895	860	825	790	750	
	M	5.2-6.2	9.75	1 1/2 / 3	1125	1090	1055	1020	985	945	
	N◇	5.7-6.7	9.75	2 / 3	1195	1165	1130	1100	1065	1030	
10	K	4.0-5.0	9.75	1 1/2 / 3	885	855	825	795	760	730	
	L	4.6-5.6	9.75	2 / 3	995	960	930	895	860	825	
	M	5.2-6.2	9.75	3 / 3	1100	1060	1020	985	945	905	
	N◇	4.7-5.7	8.75	3 / 3	1225	1190	1150	1110	1070	1030	
15	O□	5.7-6.7	8.75	3 / 3	1280	1250	1220	1185	1150	1115	
	K	3.1-4.1	11.4	2 / 3	645	620	590	565	535	510	480
	L	3.7-4.7	11.4	3 / 3	730	705	680	655	630	600	570
	M	3.7-4.7	9.4	5 / 3	870	840	810	780	750	715	680
20	N#	4.8-6.0	10.4	5 / 3	985	960	935	910	885	860	835
	K	4.3-5.5	11.4	5 / 3	850	825	800	775	745	715	685
	L	4.3-5.5	10.4	7.5 / 3	995	925	895	865	835	805	780
20	M	4.3-5.5	9.4	7.5 / 3	1030	995	960	925	890	855	815
NOMINAL TONS	1 PH DRIVE	SHEAVE SELECTIONS*		MOTOR HP / PH	APPROXIMATE BLOWER RPM @ MOTOR SHEAVE TURNS OPEN						
		MOTOR	BLOWER		0	1	2	3	4	5	6
7½	K	1.9-2.9	9.75	1 / 1	1025	965	900	830	760	695	
10	K	1.9-2.9	8.75	2 / 1	1140	1070	995	920	845	770	

\*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, Belt: A-50, Motor: 2 HP, 4 Pole, 3 )

◇ Field Supplied (Motor Sheave: Browning IVP75, Blower Sheave: Browning AZ80, Belt: A-50)

□ Field Supplied (Motor Sheave: Browning IVP75, Blower Sheave: Browning AZ90, Belt: A-54)

# Field Supplied (Motor Sheave: Browning IVP65, Blower Sheave: Browning BK110, Belt: B-50)

# INDOOR BLOWER PERFORMANCE 7.5 TON (DRY COIL)

090 Z

DRIVE STD PKG CFM		E.S.P. INCHES OF WATER																				
		.1	.2	.3	.4	.5	.6	.7	.8	.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	
K	1800																					
	2000																					
	2200																					
	2400																					
	2600																					
L	2800																					
	3000																					
M	3200																					
	3400																					
N	3600																					

K = IVP50, AZ100, 1 HP  
 L = IVP60, AZ100, 1 1/2 HP  
 M = IVP68, AZ100, 1 1/2 HP  
 N = [IVP75, AZ100, Belt A-50, 2 HP] Field supplied

090 HK

DRIVE STD PKG CFM		E.S.P. INCHES OF WATER																				
		.1	.2	.3	.4	.5	.6	.7	.8	.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	
K	2200																					
	2400																					
	2600																					
	2800																					
	3000																					
L	3200																					
	3400																					
M	3600																					

K = IVP34, AZ100, 1 HP 1  
 NOTE: T.O. = Turns Open

- NOTES:
1. Standard Air @ .075 Lbs./Ft.<sup>3</sup>
  2. Operation below heavy lines require optional L drive.
  3. Motor efficiency = .85
  4. BHP = Watts x Motor Efficiency

746





## INDOOR BLOWER PERFORMANCE 15 & 20 TON (DRY COIL) 180Z

DRIVE STD PKG CFM		E.S.P. INCHES OF WATER																																							
		.1	.2	.3	.4	.5	.6	.7	.8	.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	.1	.2	.3	.4	.5	.6	.7	.8	.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
K	4000				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				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				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	
	5200				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
L	5600	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	2880	785	2985	805	3105	820	3225	835	3350	850	3490	870	3690	900	3750
	6000	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
	6400	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
M-N	6800	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	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  
 L = IVP50, BK120, 3 HP  
 M = IVP50, BK100, 5 HP  
 N = IVP65, BK110, 5 HP] Field Supplied

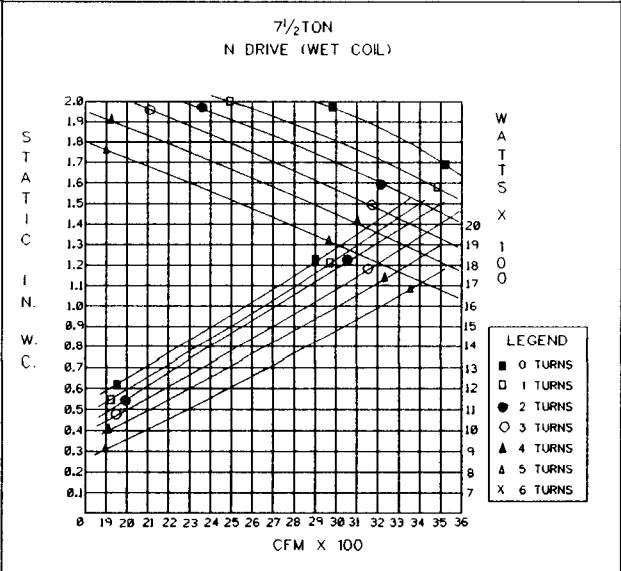
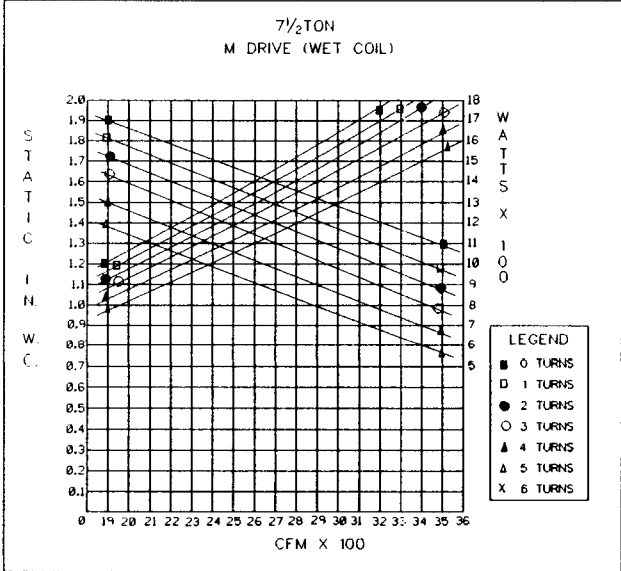
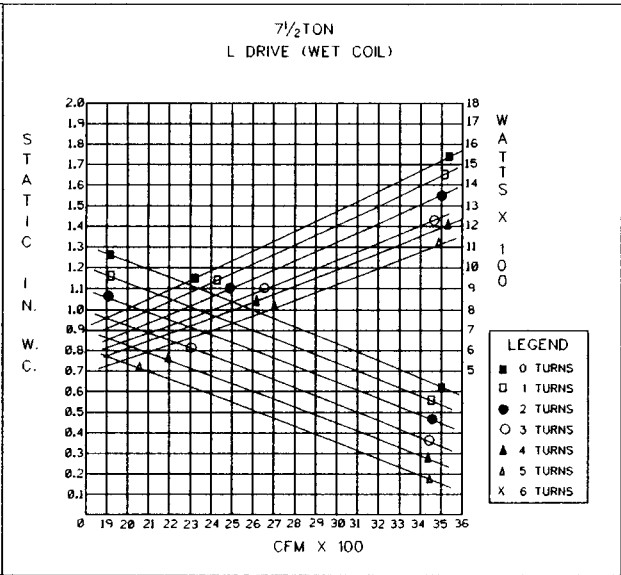
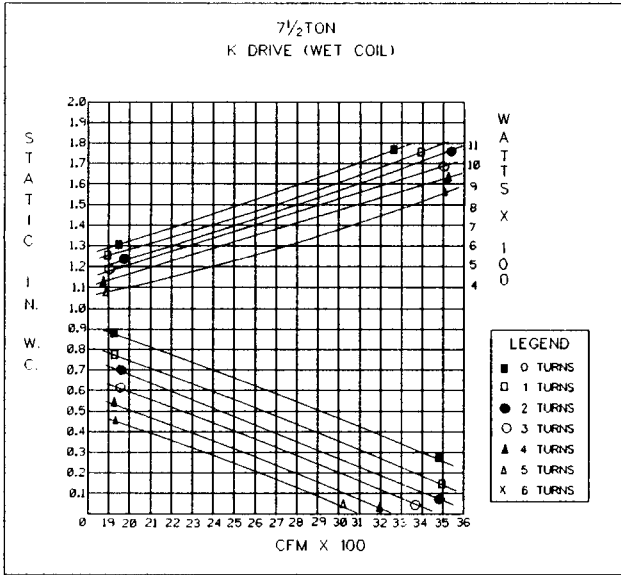
## 240Z

DRIVE STD PKG CFM		E.S.P. INCHES OF WATER																																																	
		.1	.2	.3	.4	.5	.6	.7	.8	.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	.1	.2	.3	.4	.5	.6	.7	.8	.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0										
K	6000																																																		
	6500																																																		
	7000																																																		
	7500																																																		
L	8000																																																		
	8500																																																		
M	9000	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	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	805	6080	815	6145	830	6470	840	6615	860	6720	870	6890	885	7040	900	7220	915	7430	925	7600	990	7600																												

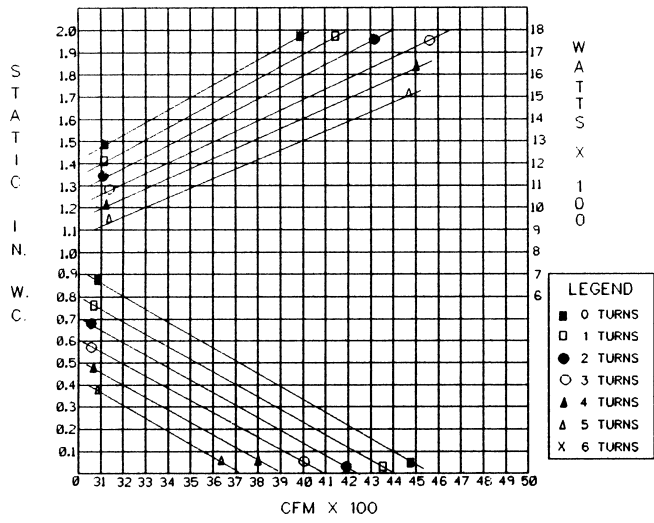
K = IVP60, BK120, 5 HP  
 L = IVP60, BK110, 7 1/2 HP  
 M = IVP60, BK100, 7 1/2 HP

**NOTES:**

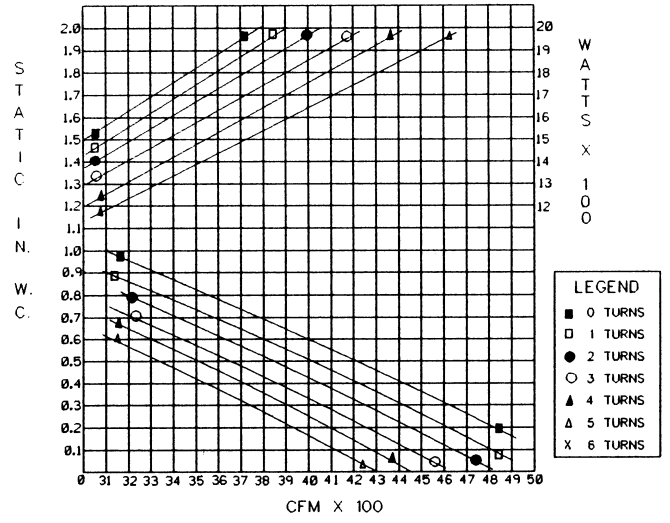
1. Standard Air @ .075 Lbs./Ft.<sup>3</sup>
2. Operation below heavy lines require optional L drive.
3. Motor efficiency = .85
4. BHP =  $\frac{\text{Watts} \times \text{Motor Efficiency}}{746}$
5. Code:  
 BHP = Brake Horsepower  
 RPM = Blower Speed



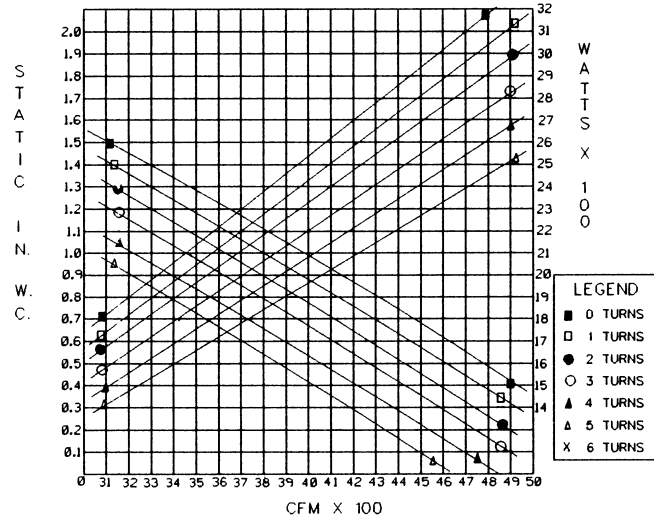
10 TON  
K DRIVE (WET COIL)



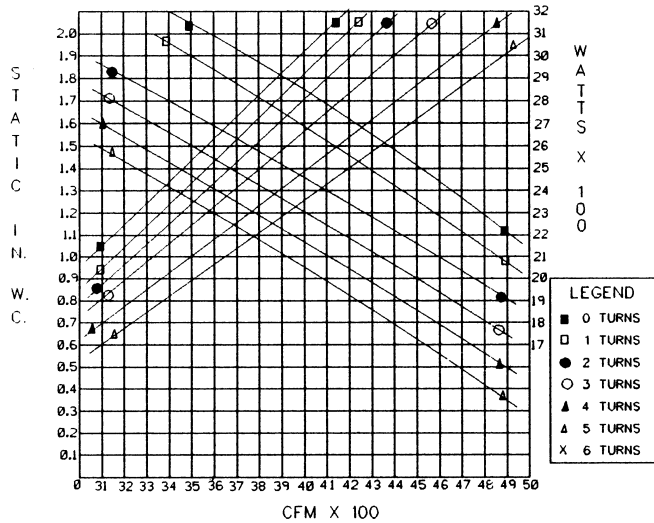
10 TON  
L DRIVE (WET COIL)



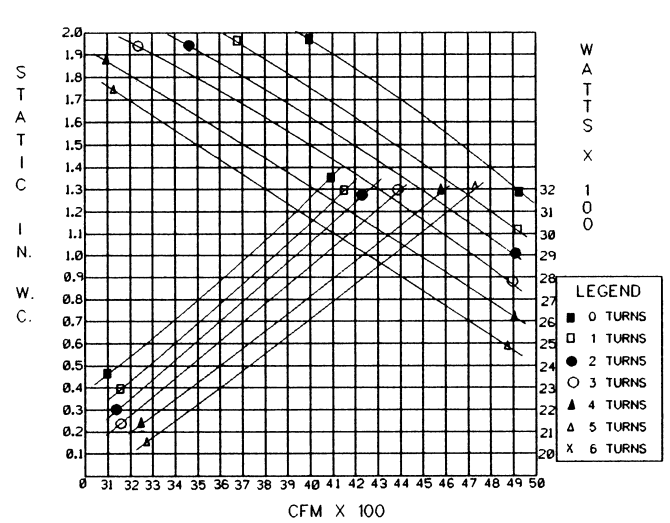
10 TON  
M DRIVE (WET COIL)



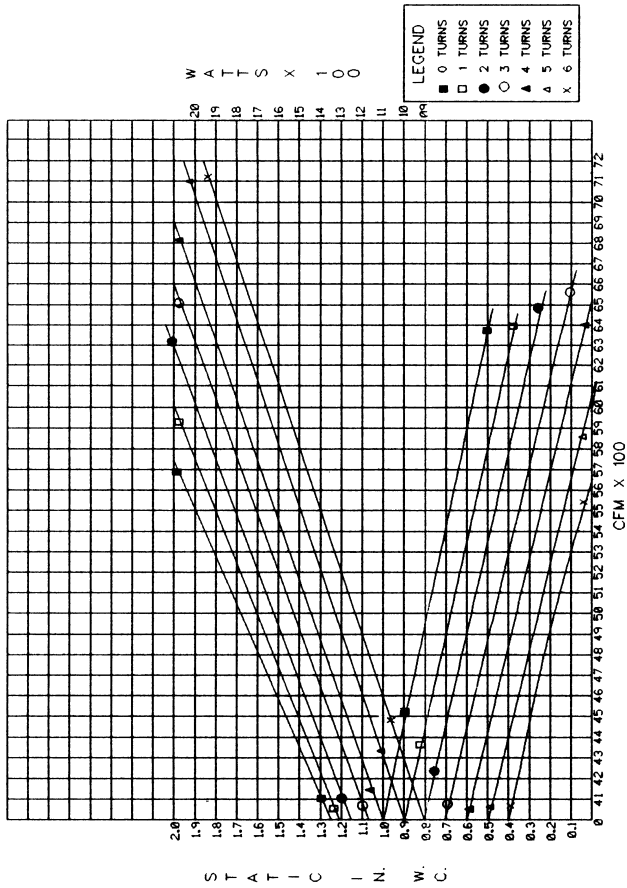
10 TON  
N DRIVE (WET COIL)



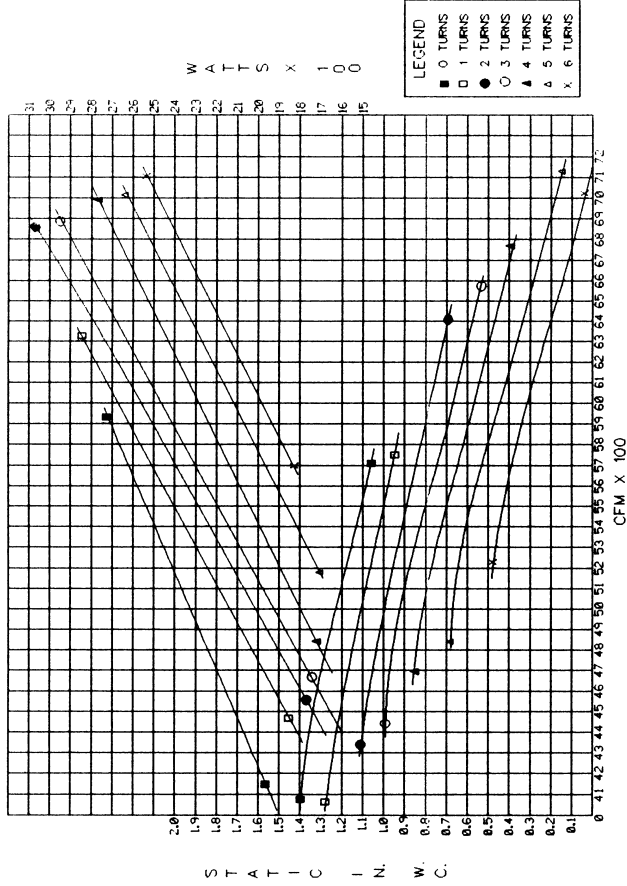
10 TON  
O DRIVE (WET COIL)



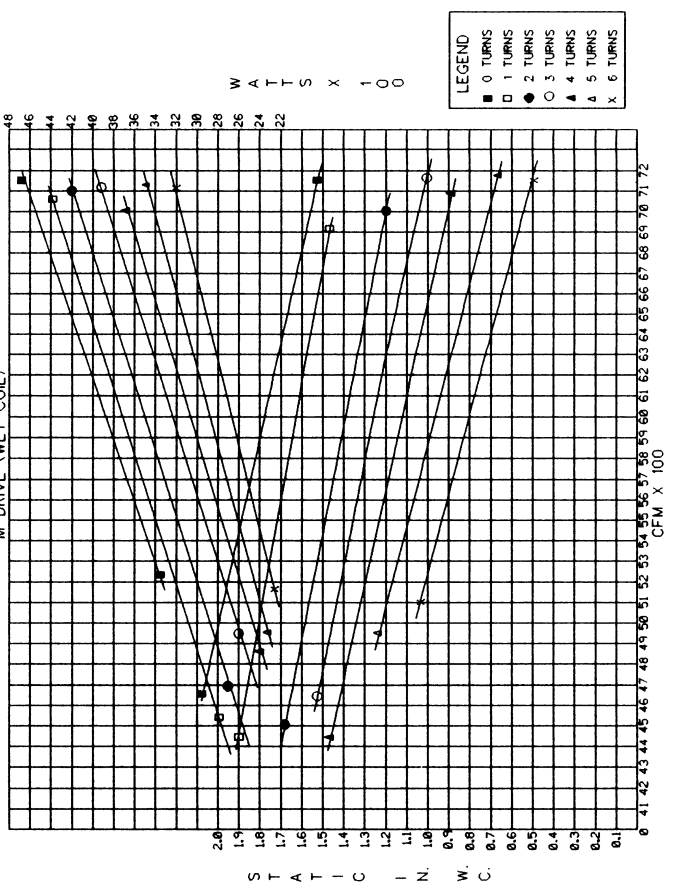
15 TON  
K DRIVE (WET COIL)



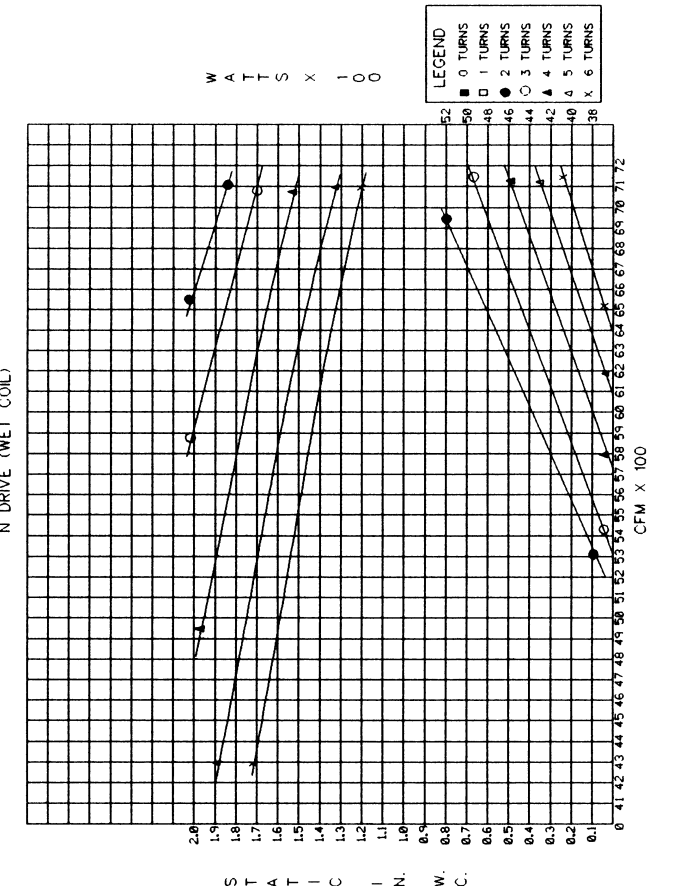
15 TON  
L DRIVE (WET COIL)

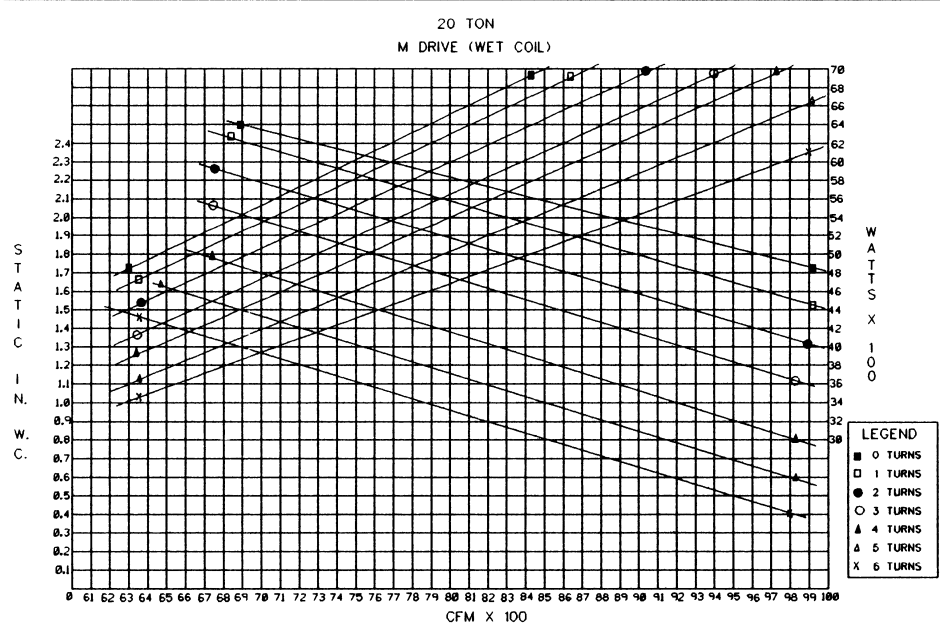
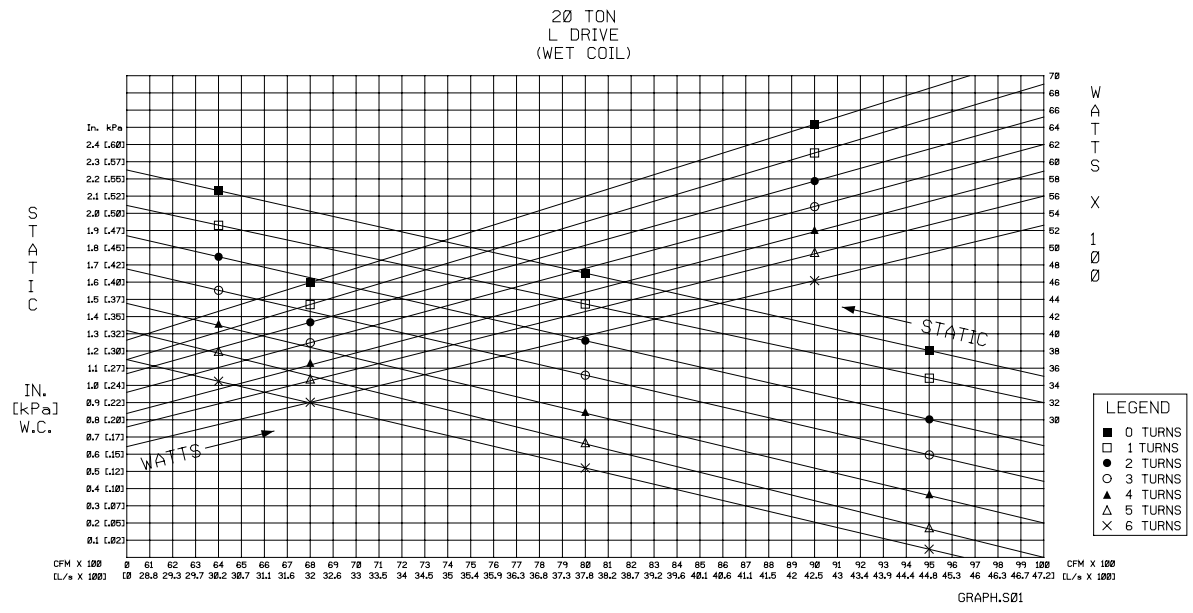
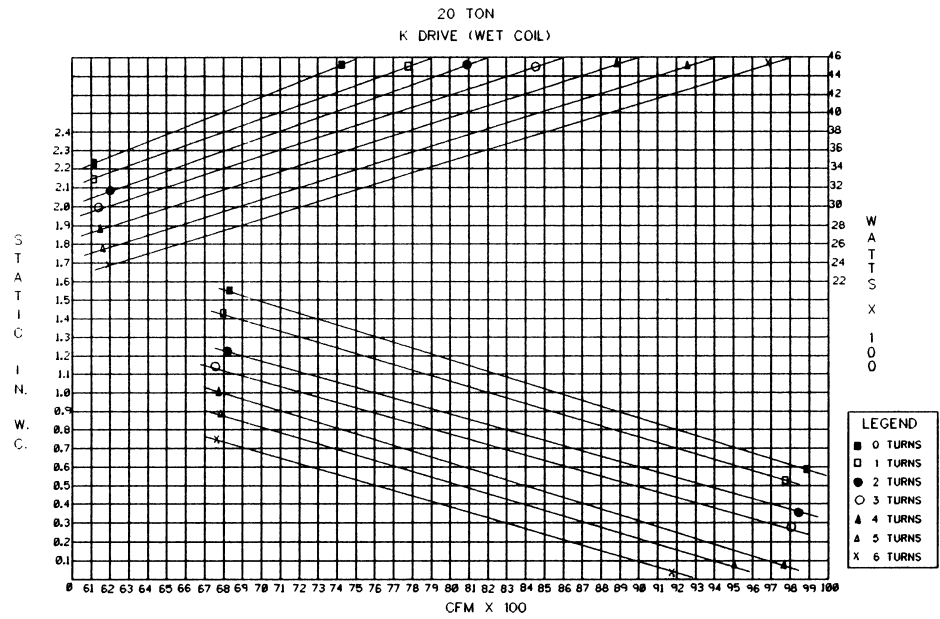


15 TON  
M DRIVE (WET COIL)

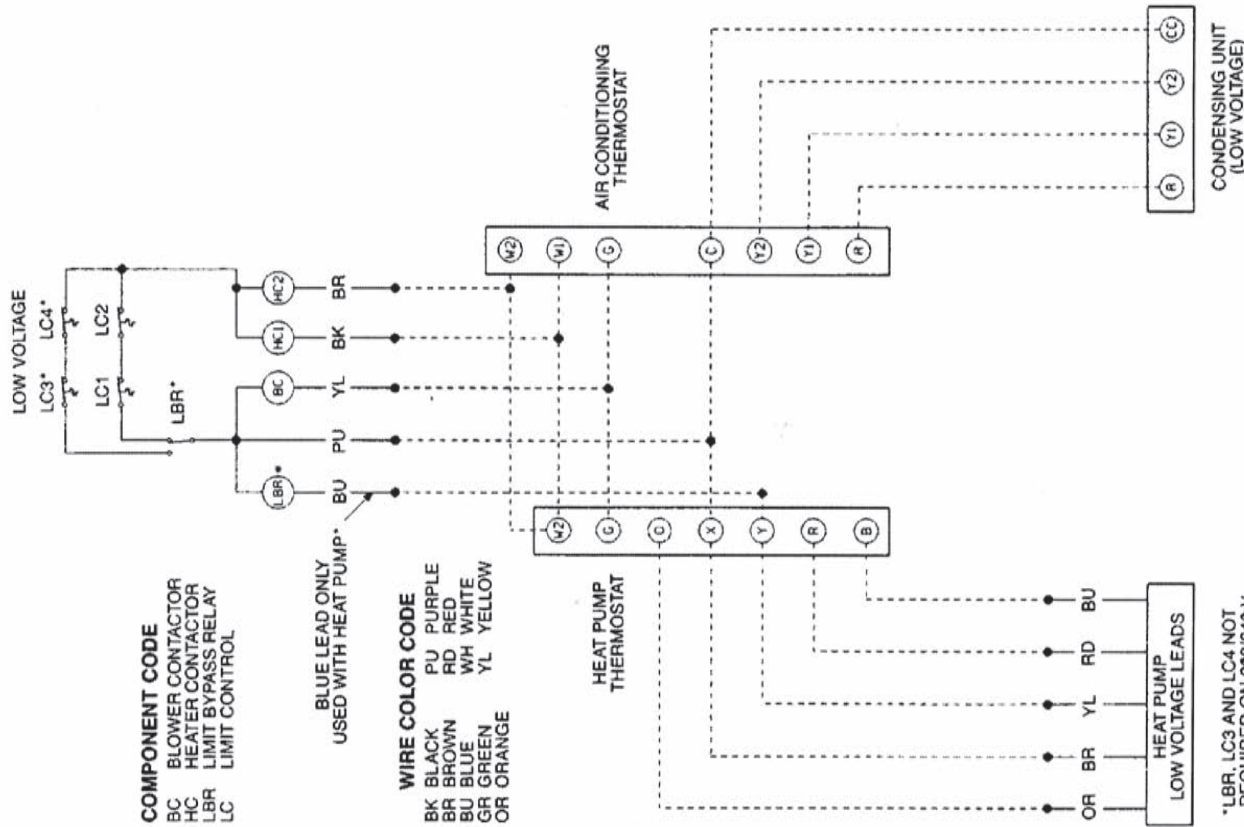


15 TON  
N DRIVE (WET COIL)





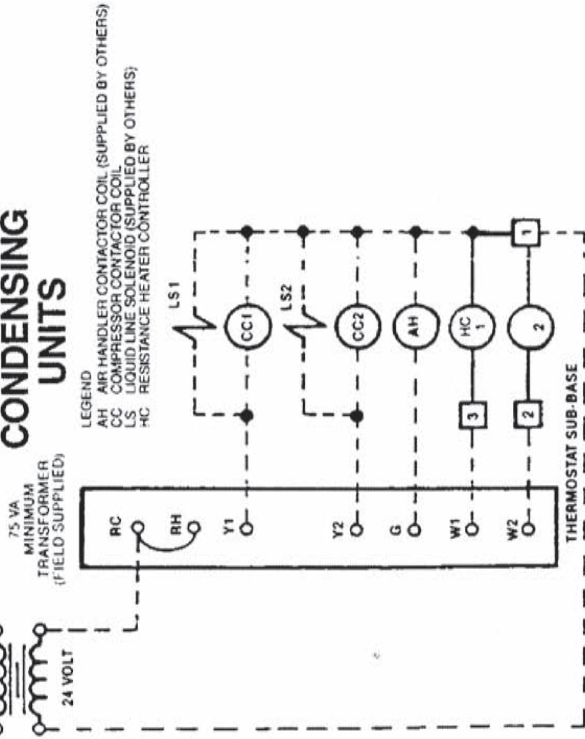
# OPTIONAL HEATER KIT



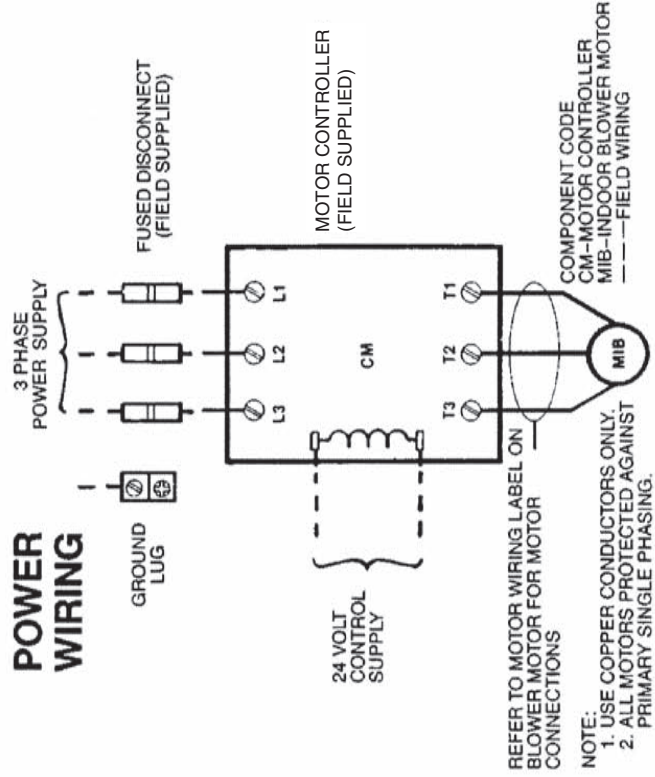
\*LBR, LC3 AND LC4 NOT REQUIRED ON 208/240 V KITS RATED 20KW & 30KW OR KITS INSTALLED ON 15 TON OR 20 TON AIR HANDLERS

# TYPICAL WIRING CONNECTIONS WITH DUAL CIRCUIT AIR HANDLER, ELECTRIC HEAT & TWO CONDENSING UNITS

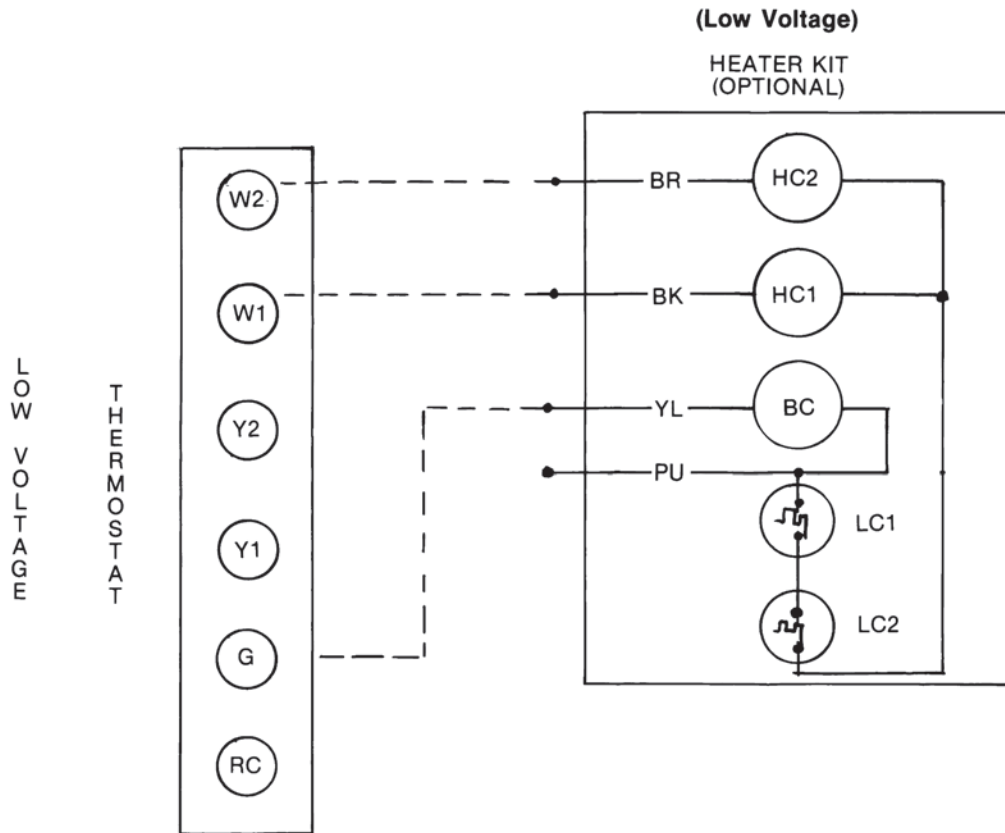
120-208-230-460 VOLT AS REQUIRED



# POWER WIRING



# TYPICAL LOW VOLTAGE CONNECTIONS



## BRANCH CIRCUIT CONDUCTOR DATA (HIGH VOLTAGE)

Air Handler Motor Horsepower, Volts, Ø	Rating Plate Amps	Motor LRA	Minimum Circuit Ampacity	Recommended Minimum Cu Wire Size/Max Run in Feet	Max Fuse or Breakers
1, 208/230, 3 Ø 1, 460, 3 Ø 1, 575, 3 Ø 1, 115/230, 1 Ø	4.0/3.6 1.8 1.4 16/8	23.9/21.6 10.8 8.4 96/48	15 15 15 20/15	#14/240 #14/400 #14/425 #12/120/#14/180	15 15 15 20/15
1½, 208/230, 3 Ø 1½, 460, 3 Ø 1½, 575, 3 Ø	5.7/5.2 2.6 2.1	34.5/31.2 15.6 12.6	15 15 15	#14/230 #14/300 #14/325	15 15 15
2, 208/230, 3 Ø 2, 460, 3 Ø 2, 575, 3 Ø 2, 115/230, 1 Ø	7.5/6/8 3.4 2.7 24/12	45.1/40.8 20.4 16.2 144/72	15 15 15 30/15	#14/165 #14/275 #14/300 #10/140 #14/120	15 15 15 30/15
3, 208/230, 3 Ø 3, 460, 3 Ø 3, 575, 3 Ø	10.6/9.6 4.8 3.9	64.1/58 26.8 23.4	15 15 15	#14/135 #14/230 #14/240	15 15 15
5, 208/230, 3 Ø 5, 460, 3 Ø 5, 575, 3 Ø	16.7/15.2 7.6 6.1	100.6/91 45.6 36.6	21/19 15 15	#10/240 #12/150 #14/185 #14/220	25/20 15 15
7½, 208/230, 3 Ø 7½, 460, 3 Ø 7½, 575, 3 Ø	24.2/22.0 11.0 9.0	146/132 66 54	30/28 15 15	#10/150 #14/135 #14/150	30/30 15 15

# FIELD INSTALLED MIXING BOX ACCESSORY

7 1/2 AND 10 ACCESSORY MODEL RXHM-BC74F

15 AND 20 ACCESSORY MODEL RXHM-BC76F

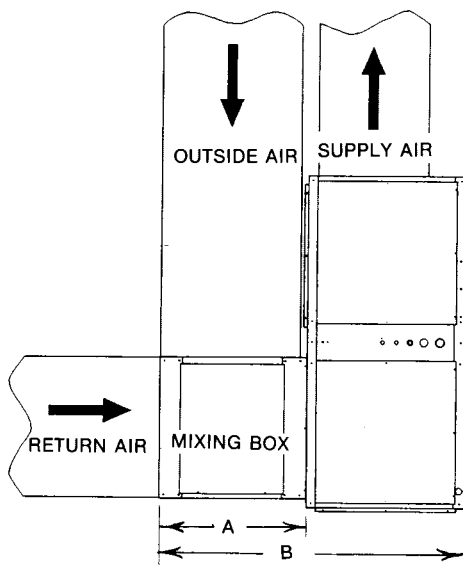
**COOLING SEASON**—Thermostat set at “Cool” and “Fan Auto,” outside air damper goes to “minimum fresh air” position when cooling thermostat closes, energizing mechanical cooling. When cooling thermostat is satisfied, mechanical cooling is de-energized, and outside air damper closes.

**INTERMEDIATE SEASON**—Same as for cooling season, except that cooling thermostat closes, starting indoor blower motor, the enthalpy control, mounted on outside air, determines if “free” cooling or mechanical cooling should be utilized. If outside air conditions are suitable for cooling, the mechanical cooling remains off and the mixed air controller modulates the damper motor to assume the proper damper position to maintain mixed air setting. If outside conditions are not suitable for cooling, then the dampers go to “minimum fresh air” position and mechanical cooling is energized.

**HEATING SEASON**—Damper always stays at “minimum fresh air” position while fan motor is operating. Outside air damper closes when blower motor is off. “Minimum fresh air” position must not allow mixed air temperatures to air handler below 50°F. during heating seasons.

**CAUTION:** Because of the possibility of freeze damage, it is not recommended that hot water or steam coils be used with the mixing box accessory, unless provision is made to shut-off the outside air duct 100% during freezing conditions.

Another possible system enhancement would be to install an air proving switch in the air handler supply duct wired in series with the compressor contactor coil (24V) which would lock out the compressor in the event of air flow failure.



### VERTICAL APPLICATION

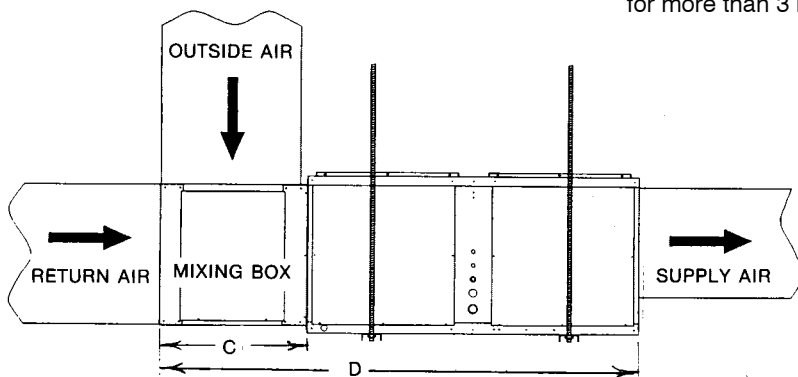
	A	B
7 1/2 and 10	27	54
15 and 20	32	67

### HORIZONTAL APPLICATION

	C	D
7 1/2 and 10	27	79
15 and 20	32	104

**NOTE:**

The bottom of the air handler should be sloped in two planes that pitch the condensate to the drain connection. The drain pan shall not leave puddles larger than 2 inches in diameter and 1/8 inch deep for more than 3 minutes.





## INSPECTION

The complete unit should be examined thoroughly upon receipt, for either hidden or apparent damage, and if necessary, a claim should be entered at once against the last carrier. It is the responsibility of the consignee to file such a claim since the unit is shipped F.O.B. Factory.

## LOCATION

The location of the unit must be determined with the following factors in mind: available electric power, plumbing facilities and ample space for arranging the refrigeration equipment, and conforming with proper duct design. In addition, provision should also be made for accessibility to service parts and for complete removal and replacement of any replaceable part.

## INSTALLATION

The construction of the building must be substantial enough to support the unit. Set the air handler on a suitable foundation so that the weight is evenly distributed. After locating the unit, shim up the side opposite the drain to allow the water to drain from the pan.

If return air duct is not used, applicable installation codes may limit this cabinet to single story buildings only.

See example of both vertical and horizontal mounting.

The units may also be suspended from the ceiling.

Supply conduit to equipment must terminate at junction box located in the unit.

NOTE: When installed in horizontal position, drain end must be 1/2" lower than leaving air end.

## REFRIGERANT PIPING

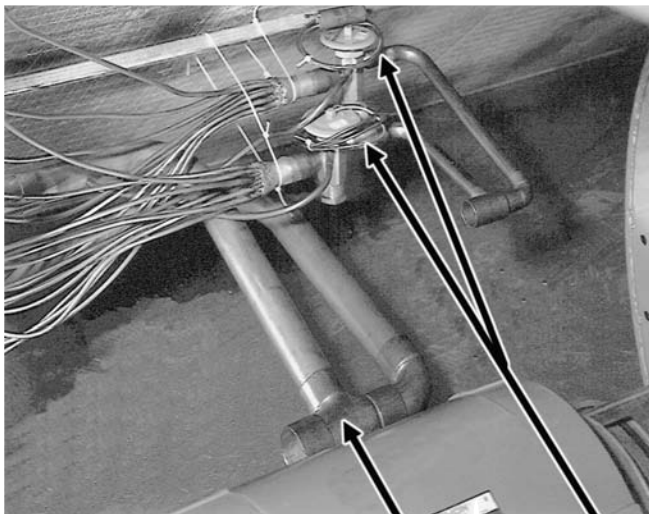
The following will be of help in accomplishing a successful installation.

1. Size liquid line for no more than 50 PSIG pressure drop.
2. Size suction lines for no more than 2° F loss which corresponds to approximately 5 PSIG pressure drop.
3. When evaporator is installed below condensing unit, do not exceed the recommended suction line O.D. This will insure adequate velocities for proper oil return.
4. Install (optional field installed) sight glass in liquid line.
5. Pitch all horizontal suction lines downward in the direction of flow.
6. When making up refrigerant piping, take every precaution to prevent dirt and moisture from entering the piping.
7. Locate the condensing unit and evaporator(s) as close together as possible to minimize piping runs.

NOTE: Refer to suction and liquid line pressure drop charts found in condensing unit literature.

PIPING SIZES 7.5-10 TONS (INCHES)				
EQUIV. LENGTH TO EVAP. (FT.)	LIQUID LINE O.D.		SUCTION LINE O.D.	
	7.5-10		7.5	10
0-50	%		1%	1%
51-100	%		1%	1%
101-150	%		1%	1%

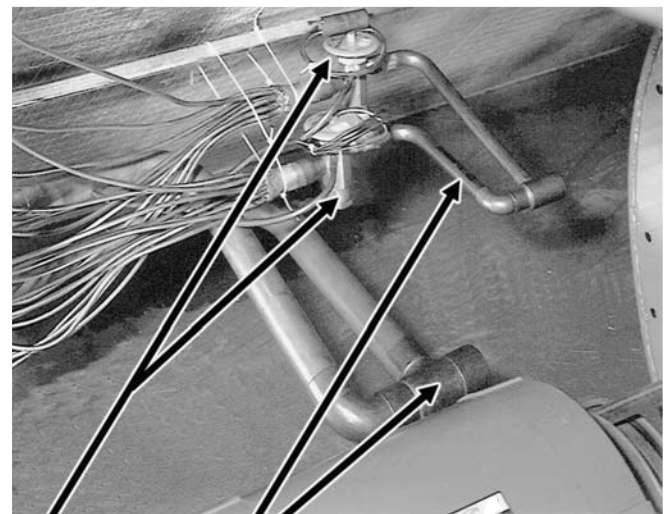
PIPING SIZES 15-20 TONS (INCHES)				
EQUIV. LENGTH TO EVAP. (FT.)	LIQUID LINE O.D.		SUCTION LINE O.D.	
	15	20	15	20
0-50	¾	7/8	1%	1%
51-100	¾	7/8	1%	2%
101-150	¾	7/8	2%	2%



RHGL-  
7½-20 TON  
[26-70 kW]

TX VALVES

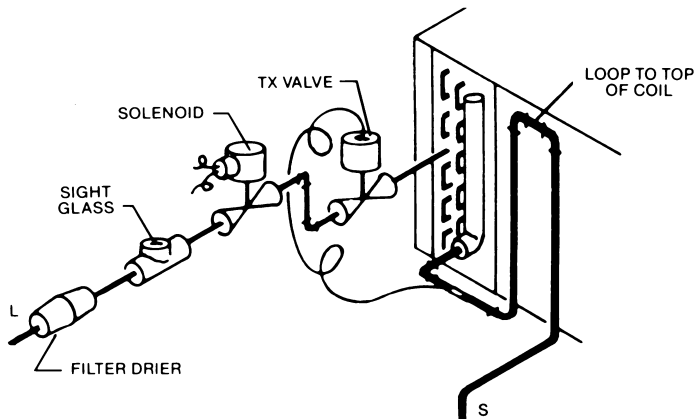
SINGLE CIRCUIT MANIFOLD  
REFRIGERANT CONNECTION  
EITHER SIDE



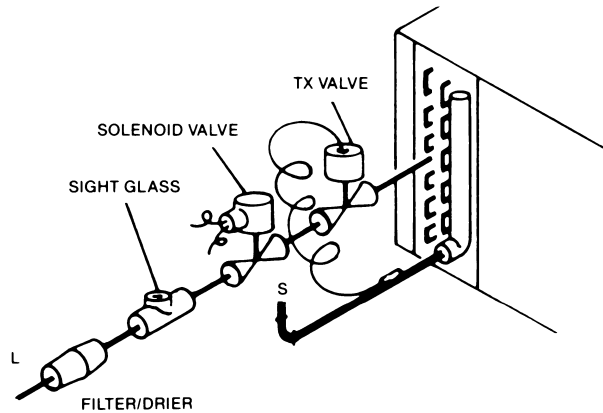
RHGL-  
7½-20 TON  
[26-70 kW]

## TYPICAL PIPING RECOMMENDATIONS

### COIL ABOVE CONDENSING UNIT



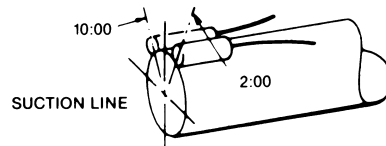
### COIL BELOW CONDENSING UNIT



NOTE: PIPING ACCESSORIES SHOWN SHOULD BE MOUNTED AS CLOSE TO AIR HANDLING UNIT AS POSSIBLE.

### INSTALLATION OF THE FEELER BULB OF THE EXPANSION VALVE

7.5 - 20 TON UNITS HAVE TWO (2) TX VALVES. THE FEELER BULB OF EACH VALVE SHOULD BE SECURED TO ITS CORRESPONDING SUCTION LINE INSIDE THE UNIT BETWEEN THE EQUALIZED TUBE AND THE TEE FITTING.



TYPICAL EXPANSION VALVE BULB LOCATIONS

#### HORIZONTAL UNITS:

LOCATE BULB BETWEEN TEN O'CLOCK AND TWO O'CLOCK ON A STRAIGHT RUN OF LINE NEAR THE EVAPORATOR.

#### VERTICAL UNITS:

IF THE BULB IS ATTACHED TO THE SUCTION LINE INSIDE THE UNIT, LOCATE IT BETWEEN EIGHT O'CLOCK AND TEN O'CLOCK (BACK SIDE) NEAR THE FIELD CONNECTION. ALWAYS SECURE THE BULB ON A CLEAN, SMOOTH SECTION OF PIPING AND INSULATE IT FROM THE SURROUNDING AMBIENT.

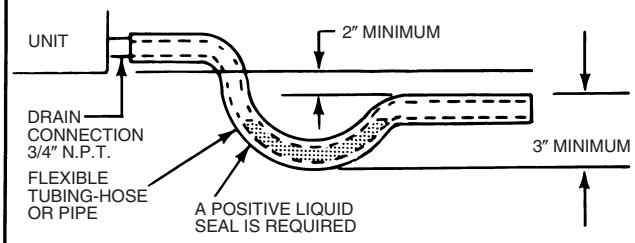
## CONDENSATE DRAIN PIPING

- Two drain couplings are provided on all models. Select either one for condensate outlet and plug the other.
- Consult local codes or ordinances for specific requirements regarding condensate drain.
- Condensate drain is open to atmosphere and must be trapped. Trap must be at least 3 inches deep and made of flexible material or fabricated to prevent freeze-up.
- If air handler is installed in a non-conditioned space, it is recommended an auxiliary drain pan be fabricated and installed under entire unit.
- Pitch the drain line at least 1/4 inch per foot away from the drain pan.
- Do not reduce the drain line size from the connection size provided on the unit.
- Do not connect the drain line to a closed sewer line.

### IMPORTANT

#### CONDENSATE DRAIN

INSTALL CONDENSATE DRAIN TRAP AS SHOWN BELOW. USE DRAIN CONNECTION SIZE OR LARGER. DO NOT OPERATE UNIT WITHOUT TRAP. UNIT MUST BE SLIGHTLY INCLINED TOWARD DRAIN.



NOTE: TWO OUTLETS ON ALL MODELS.

## MOTOR MOUNTING

One of the most critical aspects of an air handler installation is the mounting of the motor, motor sheave, fan pulley and the belts, and the adjustment of these items.

The motor base for the air handlers is raised or lowered by means of the adjusting hex nuts.

## MOTOR SHEAVE AND FAN PULLEY MOUNTING AND ADJUSTMENT

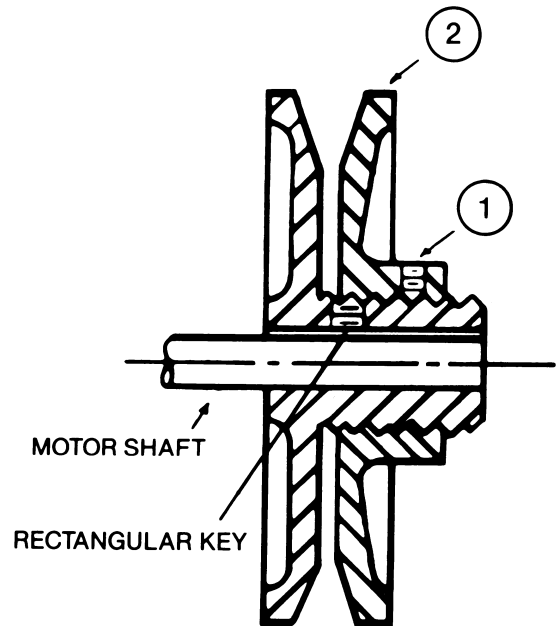
The adjustable pitch sheave which is mounted on the motor shaft controls the fan speed. To adjust the fan speed refer to figure at right, proceed as follows:

- Loosen the set screw, item 1.
- Rotate the adjustable sheave, item 2, to the desired position.
- Lock the adjustable sheave in place by tightening the set screw, item 1.

NOTE: The adjustable sheave is not to be used to adjust belt tension.

### WARNING

**BEFORE MAKING FAN ADJUSTMENTS, BE SURE THE MAIN ELECTRICAL DISCONNECT SWITCH IS IN THE "OFF" POSITION TO PREVENT POSSIBLE INJURY DUE TO ACCIDENTAL OPERATION OF THE MOTOR.**



## FAN BELT ALIGNMENT AND ADJUSTMENT

Place belt on the groove of the fan pulley and motor sheave to obtain the approximate alignment and belt tension. Remove the belt and align the fan pulley and motor sheave using a straight edge. When the pulley and sheave are properly aligned, re-install belt. Do not force or pry the belt onto the pulley and sheave. With the belt in place, adjust so

that all the slack is on one side of the drive. The belt should have from 3/4" to 1" of slack at 3 lbs. pressure. Adjust the belt to this tension, by raising or lowering the swing base via the adjusting rods and nuts.

## PRE-START CHECK LIST

- Leak test entire system.
- Check motor mounting to make sure all nuts are tight.
- Check motor sheave and fan pulley to make sure they are in proper alignment and set screws are tight.
- Check belt tension—belts should be fairly tight for the initial "start-up".
- Check bearing—collar set screws on fan shaft to make sure they are tight.
- Ball type bearings are factory lubricated and do not require additional grease before starting.
- Rotate blower shaft by hand to be sure it is free.
- Check motor and fan rotation.
- Check all screws, bolts, set screws and piping connections for tightness.
- Check drain.
- Insure that filters are in place.
- Insure all manual valves are open.
- Be sure that electrical controls and motors are properly wired and fused in accordance with applicable codes.
- Check wheel position in scrolls. See Figure 1 a and b.

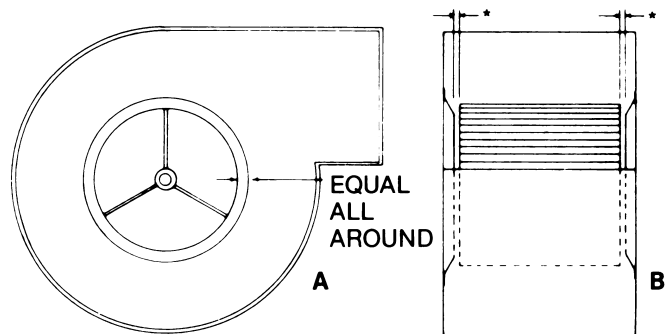


FIGURE 1 \* EQUAL

## OPERATING INSTRUCTIONS

1. Start fan motor—immediately observe noise level and secure fan motor if unusual sound is heard. Check bearings in particular for proper noise level and temperature. Be sure fans do not rub on scrolls.
2. Check fan RPM and adjust as necessary.
3. Check for motor overloading.
4. Check for proper CFM delivery.
5. Check all necessary items and controls for proper operation.
6. Insure that condensate is being properly discharged from drain pan.

## PERIODIC SERVICE AND MAINTENANCE

1. Filters—Dirty filters reduce air flow and, in turn, the capacity of the unit. Therefore, when dirty, replace or clean, depending on the type.
2. Coils—Dirt should not be permitted to build up on the fins of the coils. An air stream or water jet can be used to remove dirt and lint.
3. Check all moving parts for wear and alignment every six (6) months.
4. Check bearing-collar set screws on fan shaft to make sure they are still tight. Do this at least every six months. THIS IS VERY IMPORTANT.

### **▲ WARNING**

**BEFORE PERFORMING PERIODIC SERVICE AND MAINTENANCE, BE SURE THE MAIN ELECTRICAL DISCONNECT SWITCH IS IN THE “OFF” POSITION TO PREVENT POSSIBLE INJURY DUE TO ACCIDENTAL OPERATION OF THE MOTOR.**

## LUBRICATION

### GREASING BALL BEARINGS—MOTORS

All ball bearing motors are prelubricated and do not require the addition of grease at time of installation. However, periodic cleaning out and renewal of grease in ball bearings is necessary. Please note that extreme care must be exercised to prevent foreign matter from entering the bearing.