



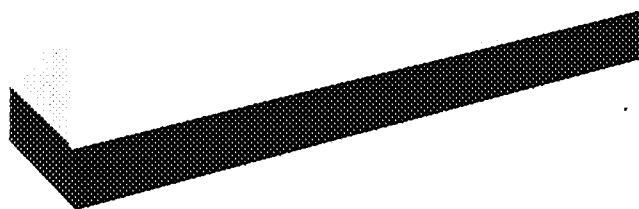
Water Source Heat Pumps

Console Models 50KQ

Nominal Capacities:

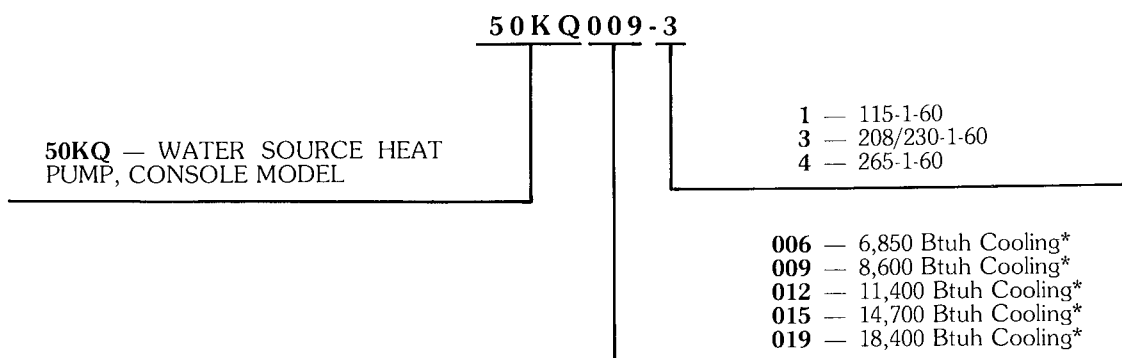
Cooling: 6,850–18,400 Btuh

Heating: 8,300–23,000 Btuh



Product Data

Model number nomenclature



*Nominal capacities @ 230 volts

Features

Choose Carrier Model 50KQ console water source heat pumps for systems that require perimeter applications of quiet, energy-efficient cooling and heating units. Five popular sizes are available with a wide range of options and accessories to tailor the product to your specific application needs (see Options and Accessories Table and Guide Specifications).

Efficient — With EER's to 11.4 and C O P.'s to 3.7, the 50KQ unit is a wise, energy-efficient choice with the promise of exceptionally low operating costs.

Easy-to-install — The compact, 25-in. tall 50KQ fits under any window. Chassis is reversible, so units can be installed either right- or left-hand configuration by

simply rotating the unit and locating the front panel afterward at the jobsite. This feature simplifies ordering, installing, stocking, servicing, and also eliminates the worry over last minute piping changes. Units are factory charged with refrigerant and controls are prewired at the factory to speed installation time, lower labor costs.

Designed-in quiet — Sleek and stylish unit design features acoustically insulated cabinet, chassis-isolated compressor mounted outside the airstream, and rigid, high-quality cabinet and chassis construction.

Reliability — Units are ARI certified and UL listed, and backed by Carrier's extended warranty plans.

ARI CAPACITY RATINGS

UNIT 50KQ	VOLTAGE*	COOLING				HEATING			NOMINAL	
		TC	SHC	Watts	EER	TC	Watts	C.O.P.	Cfm	GPM
006	115 208/230 265	6,850	5,225	649	10.6	8,300	675	3.6	270	1.9
009	115 208/230 265	8,600	6,230	814	10.6	10,500	915	3.4	300	2.3
012	208/230 265	11,400	7,750	1,089	10.5	13,000	1,130	3.4	350	3.0
015	208/230 265	14,700	10,250	1,295	11.4	16,600	1,325	3.7	450	3.8
019	208/230 265	18,400	12,000	1,610	11.4	23,000	1,830	3.7	450	4.7

Cfm — Cubic Feet/Minute
C.O.P. — Coefficient of Performance
EER — Energy Efficiency Ratio
GPM — Gallons (U.S.)/Minute
SHC — Sensible Heat Capacity (Btuh)
TC — Total Capacity (Btuh)
Watts — Power Input

*Capacities shown are for 115, 230, and 265-volts. For capacities at 208 volts, subtract 200 Btuh.

Rated in accordance with ARI Standard 320-85.

Cooling Standard: 80 F db, 67 F wb indoor entering air temperature and 85 F entering, 95 F leaving water temperature.

Heating Standard: 70 F db indoor entering air temperature and 70 F entering water temperature.



→ Options and accessories

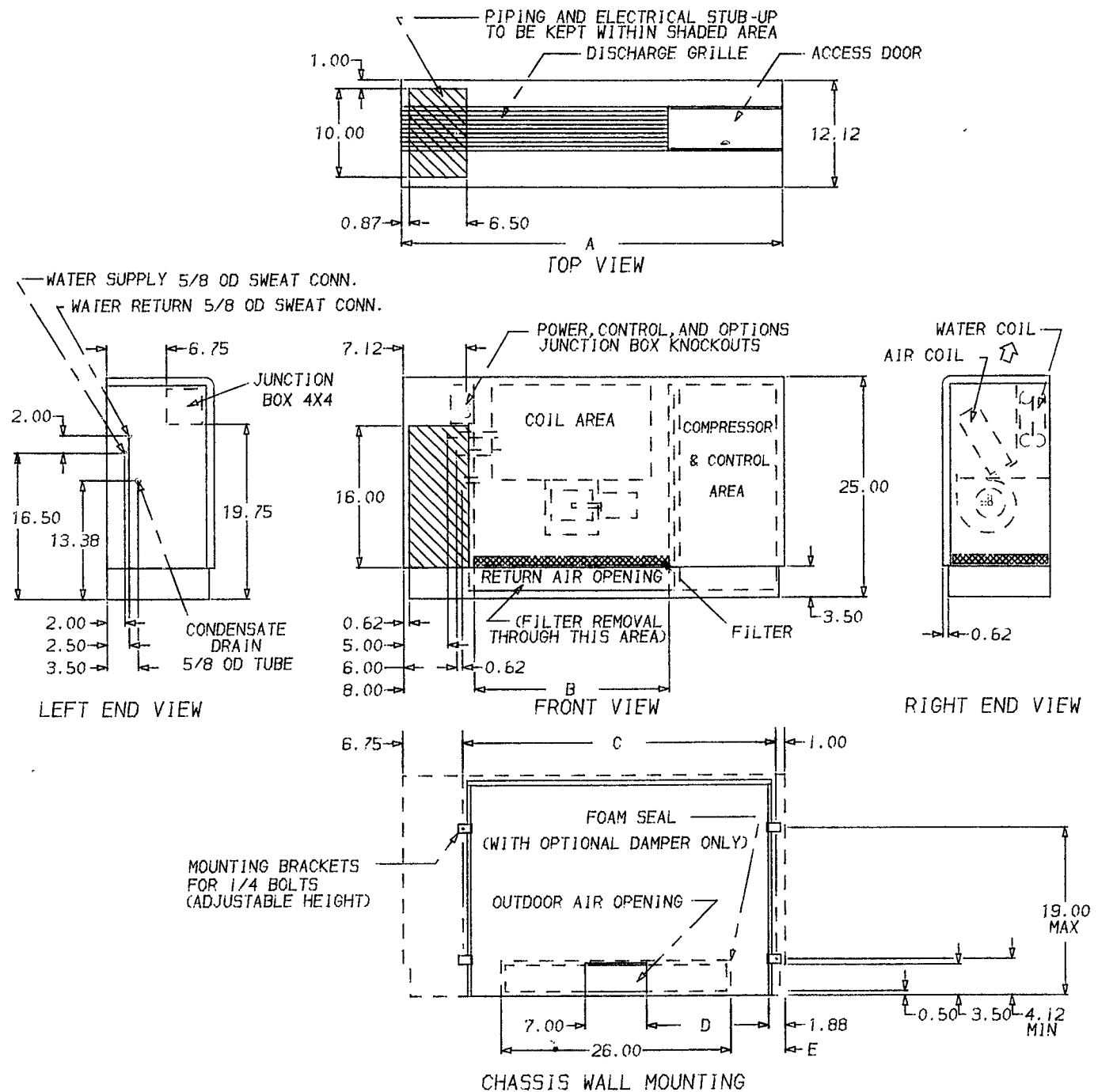
ITEM	OPTION	ACCESSORY
Unit-Mounted Automatic Changeover Thermostat	X	
Remote-Mounted Wall Thermostat, Automatic and Manual Changeover	X	
Unit Mounted:		
Night Setback with Setback Thermostat, Relay and Setback Button	X	
Night Setback with Setback Thermostat and Relay for 24-volt setback signal field-supplied	X	
Night Setback Relay only for 24-volt setback signal field-supplied	X	
Night Setback Override Timer	X	
Manual Damper	X	
Motorized Damper	X	
Warranty Option I (1st Year Labor Allowance on Refrigerant Circuit Repairs)	X	
Warranty Option II (2nd — 5th Year Parts and Labor Allowance on Refrigerant Circuit Repairs)	X	
Remote Automatic Changeover Thermostat, 24-volt		X
Remote Manual Changeover Thermostat, 24-volt		X
Supply/Return Hose Kit		X
Condensate Hose Kit		X
Shutoff (Gate) Valves		X
Balancing (Ball) Valves		X
Central Water Loop Controller		X
Microprocessor-Based System Controller		X
Outdoor Air Damper Boxes		X

→ Physical data

UNIT 50KQ	006	009	012	015	019
R-22 CHARGE (lb-oz)* Refrigerant Control	0-14	0-15	1-1 Capillary Tube	1-9	2-4
FAN					
Diameter (in)	6 $\frac{5}{16}$	6 $\frac{5}{16}$	6 $\frac{5}{16}$	6 $\frac{5}{16}$	6 $\frac{5}{16}$
Width (in)	6 $\frac{1}{2}$	6 $\frac{1}{2}$	4 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$
Motor Hp	$\frac{1}{20}$	$\frac{1}{20}$	$\frac{1}{20}$	$\frac{1}{20}$	$\frac{1}{20}$
Motor Rpm (nominal)	1000	1000	1000	1000	1000
COIL					
Face Area (sq ft)	1.0	1.25	1.25	1.67	1.67
Rows (no.)	2	2	3	3	4
OPERATING WEIGHT (lb)	130	140	160	175	190
SHIPPING WEIGHT (lb)	145	155	180	195	210
FILTER SIZE (in.) l x w x $\frac{1}{2}$ thick Disposable	21 $\frac{3}{4}$ x 10 $\frac{1}{2}$			33 $\frac{3}{4}$ x 10 $\frac{1}{2}$	

* Factory charged

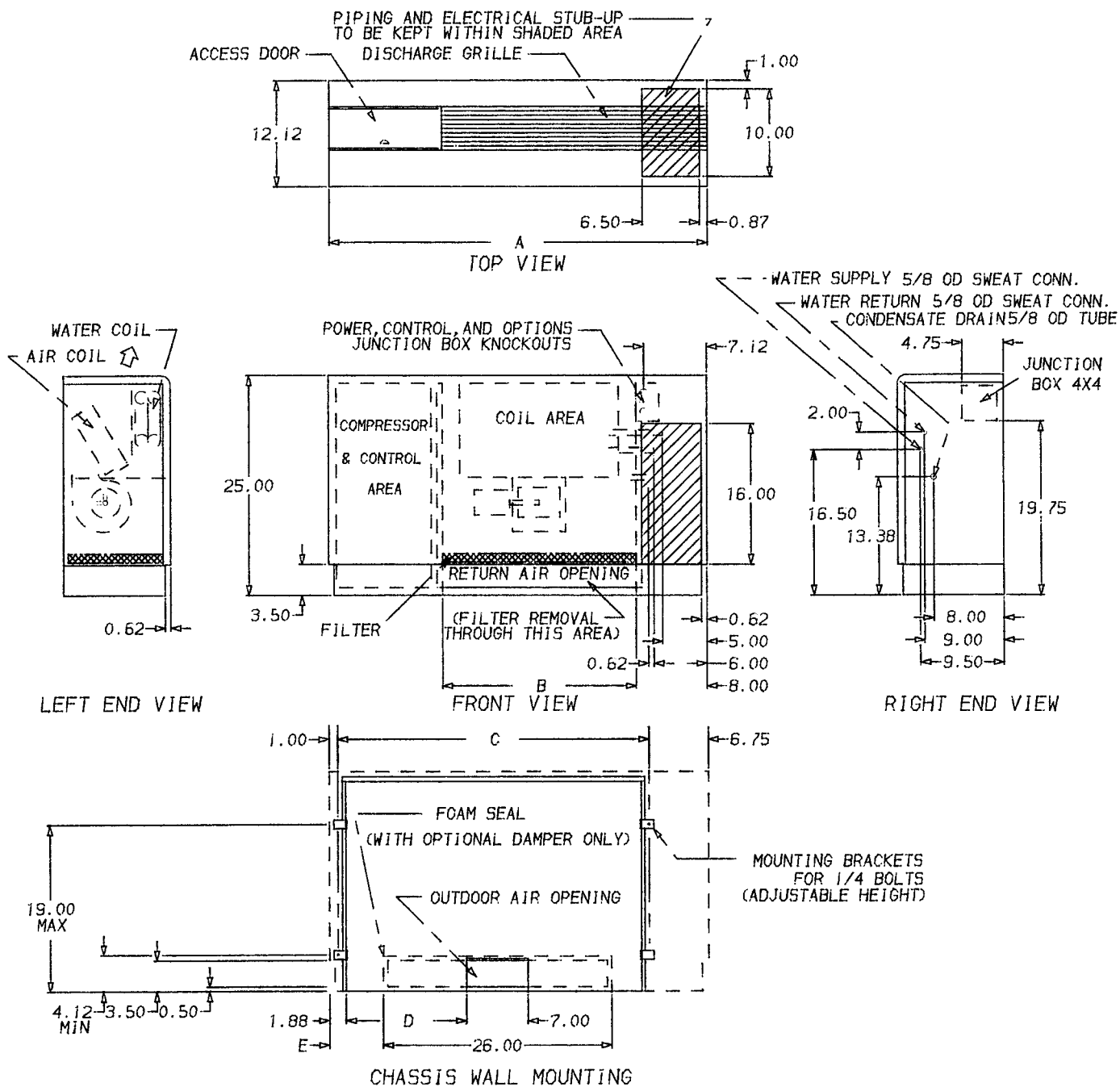
Dimensions (in.) — Left-hand stub-up



NOTE → Direction of airflow

UNIT 50KQ	A	B	C	D	E
006,009,012	43	22	34 88	13 5	5 88
015,019	55	34	46 88	19 5	11 88

Dimensions (in.) — Right-hand stub-up



NOTE: → Direction of airflow

UNIT 50KQ	A	B	C	D	E
006,009,012	43	22	34.88	13.5	5.88
015,019	55	34	46.88	19.5	11.88

Selection procedure (with example)

I Determine job requirements.

Given

Total Cooling Load 11,700 Btuh
Sensible Heat Load 8,200 Btuh
Total Heating Load 12,314 Btuh
Indoor Air Quantity 350 Cfm
Indoor Coil Air Temp — Ent Wet-Bulb 70 F
Indoor Coil Air Temp — Ent Dry-Bulb
(summer) 85 F
Indoor Coil Air Temp — Ent Dry-Bulb
(winter) 65 F
Water Temp Ent Heat Exchanger
(cooling) 90 F
Water Temp Ent Heat Exchanger
(heating) 60 F
Water Flow Rate (Gpm) 3.0

II Determine unit location.

Given: Unit needed for perimeter zone.

Select: Model 50KQ console unit.

III Select Model 50KQ which meets cooling requirements.

Enter Cooling and Heating Capacities table for nominal 350 cfm unit, Model 50KQ012, at 90 F EWT and 3.0 gpm. Find a TC of 11,046 Btuh, an SHC of 7,605 Btuh, a THR of 14,889 Btuh, with 1,126 watts power input.

IV Apply Cooling Performance Corrections Factors to determine values at given conditions.

A. Enter Correction Factors table for Model 50KQ012 at 70 F ent wet bulb, 85 F ent dry bulb and find these factors

TC — 1.043
SHC — 1.066
THR — 1.038
Power Input — 1.024

B. Use the factors to compute the values at the given conditions.

tabular value x correction factor
= corrected value

$$11,046 \times 1.043 = 11,521 \text{ Btuh (TC)}$$

$$7,605 \times 1.066 = 8,107 \text{ Btuh (SHC)}$$

$$14,889 \times 1.038 = 15,455 \text{ Btuh (THR)}$$

$$1,126 \times 1.024 = 1,153 \text{ Watts (Power Input)}$$

These values meet the given cooling requirements.

V Obtain heating performance of selected unit.

Re-enter the Cooling and Heating Capacities table for Model 50KQ012 at 60 F EWT and 3.0 gpm. Find a TC of 12,335 Btuh, SHC of 8,642 Btuh, with 1,082 watts power input

VI Apply Heating Correction Factors (from Note 3) to determine capacity at given conditions.

A. Enter table at 65 F ent dry-bulb and find factor of 1.02.

B. Compute capacity at given conditions:

tabular value x correction factor
= corrected value

$$12,335 \times 1.02 = 12,582 \text{ Btuh (TC)}$$

This meets the heating requirements given.

VII Determine water pressure drop for selected unit.

Enter Water Pressure Drop table for Model 50KQ012 at 3.0 gpm. By interpolation, find pressure drop of 11.4 ft wg.

Performance data

50KQ006

COOLING AND HEATING CAPACITIES

EWT (F)	WATER FLOW (Gpm)	COOLING				HEATING		
		TC (Btuh)	SHC (Btuh)	THR (Btuh)	Power Input (Watts)	TC (Btuh)	THA (Btuh)	Power Input (Watts)
60	1.0	7,617	5,520	9,603	581	7,646	5,449	643
	1.9	7,870	5,608	9,787	561	7,738	5,523	647
	2.0	7,878	5,608	9,793	561	7,748	5,536	647
65	1.0	7,419	5,432	9,463	598	7,893	5,659	654
	1.9	7,673	5,520	9,643	577	8,002	5,750	659
	2.0	7,680	5,549	9,648	576	8,014	5,760	660
70	1.0	7,221	5,373	9,325	616	8,175	5,893	668
	1.9	7,474	5,461	9,502	594	8,302	5,995	675
	2.0	7,482	5,461	9,507	593	8,316	6,007	676
75	1.0	7,022	5,286	9,191	635	8,491	6,146	687
	1.9	7,276	5,373	9,363	611	8,637	6,259	696
	2.0	7,283	5,403	9,369	610	8,652	6,271	697
80	1.0	6,823	5,227	9,059	655	8,839	6,414	710
	1.9	7,077	5,315	9,228	630	8,997	6,539	720
	2.0	7,085	5,315	9,223	629	9,013	6,551	721
85	1.0	6,624	5,139	8,927	674	9,202	6,697	733
	1.9	6,879	5,227	9,095	649	9,380	6,832	746
	2.0	6,886	5,256	9,100	648	9,398	6,845	747
90	1.0	6,425	5,080	8,798	695	9,596	6,991	763
	1.9	6,680	5,168	8,964	669	9,795	7,135	779
	2.0	6,687	5,168	8,969	668	9,815	7,149	781

EWT — Entering Water Temperature
Gpm — Gallons (U S)/Minute
SHC — Sensible Heat Capacity
TC — Total Capacity
THA — Total Heat of Absorption
THR — Total Heat Rejection

BOLDFACE — Continuous operation not recommended

NOTES:

- Interpolation is permissible. Do not extrapolate.
- Capacities shown are for 230 and 265 volts. For capacities at 208 volts, subtract 200 Btuh.
- Heating Correction Factors:

Entering Air Temperature (F)	60	65	70	75	80
Heating Capacity	1.04	1.02	1.00	0.98	0.97

COOLING PERFORMANCE CORRECTION FACTORS

50KQ006

Ent Air Temp (F) Wet Bulb	TC	SHC					THR	Power Input
		Ent Air Temp (F) Dry Bulb						
		75	80	85	90	95		
61	.854	1.035	1.124	1.124	1.124	1.124	.882	.970
64	.924	.903	1.137	1.216	1.216	1.216	.939	.984
67	1.000	.771	1.000	1.234	1.316	1.316	1.000	1.000
70	1.081	.640	.868	1.103	1.331	1.423	1.065	1.015
73	1.169	.502	.731	.965	1.200	1.428	1.135	1.031
76	1.262	.365	.600	.828	1.063	1.291	1.211	1.051
79	1.362	.228	.462	.691	.925	1.154	1.292	1.074

WATER PRESSURE DROPS (ft)

50KQ006

Gpm	1.0	1.2	1.4	1.6	1.8	2.0
Pressure Drop	4.6	6.6	8.9	11.5	14.5	17.8

Performance data (cont)

50KQ009

COOLING AND HEATING CAPACITIES

EWT (F)	WATER FLOW (Gpm)	COOLING				HEATING		
		TC (Btuh)	SHC (Btuh)	THR (Btuh)	Power Input (Watts)	TC (Btuh)	THA (Btuh)	Power Input (Watts)
60	1.1	9,414	6,542	12,021	763	9,676	6,737	860
	2.3	9,927	6,738	12,435	735	9,835	6,861	871
	3.0	10,051	6,803	12,541	729	9,911	6,920	876
65	1.1	9,158	6,445	11,817	779	9,998	6,987	882
	2.3	9,656	6,640	12,210	748	10,167	7,117	893
	3.0	9,778	6,673	12,310	742	10,248	7,179	899
70	1.1	8,901	6,347	11,616	795	10,329	7,240	904
	2.3	9,386	6,542	11,988	762	10,502	7,376	915
	3.0	9,505	6,575	12,085	756	10,583	7,441	920
75	1.1	8,645	6,249	11,418	812	10,655	7,498	924
	2.3	9,115	6,445	11,772	778	10,835	7,639	936
	3.0	9,231	6,477	11,864	771	10,921	7,707	941
80	1.1	8,387	6,152	11,222	830	10,987	7,758	945
	2.3	8,888	6,347	11,606	796	11,178	7,907	958
	3.0	8,958	6,380	11,647	788	11,270	7,978	964
85	1.1	8,171	6,087	11,076	851	11,329	8,023	968
	2.3	8,617	6,249	11,397	814	11,531	8,178	982
	3.0	8,729	6,282	11,483	806	11,628	8,252	988
90	1.1	7,913	5,989	10,886	871	11,680	8,292	992
	2.3	8,346	6,152	11,191	833	11,894	8,454	1,007
	3.0	8,455	6,184	11,273	825	11,996	8,530	1,015

EWT — Entering Water Temperature
Gpm — Gallons (U S)/Minute
SHC — Sensible Heat Capacity
TC — Total Capacity
THA — Total Heat of Absorption
THR — Total Heat Rejection

BOLDFACE — Continuous operation not recommended

NOTES:

- 1 Interpolation is permissible. Do not extrapolate.
- 2 Capacities shown are for 230 and 265 volts. For capacities at 208 volts, subtract 200 Btuh.
- 3 Heating Correction Factors:

Entering Air Temperature (F)	60	65	70	75	80
Heating Capacity	1.04	1.02	1.00	0.98	0.97

COOLING PERFORMANCE CORRECTION FACTORS

50KQ009								
Ent Air Temp (F) Wet Bulb	TC	SHC					THR	Power Input
		Ent Air Temp (F) Dry Bulb						
		75	80	85	90	95		
61	.919	1.064	1.267	1.267	1.267	1.267	.934	.981
64	.956	.924	1.139	1.318	1.318	1.318	.964	.989
67	1.000	.780	1.000	1.220	1.379	1.379	1.000	1.000
70	1.053	.646	.861	1.081	1.296	1.452	1.043	1.014
73	1.115	.506	.726	.941	1.162	1.376	1.094	1.030
76	1.187	.372	.592	.807	1.027	1.242	1.152	1.043
79	1.270	.238	.458	.673	.893	1.108	1.219	1.061

WATER PRESSURE DROPS (ft)

50KQ009						
Gpm	1.1	1.5	1.9	2.3	2.7	3.0
Pressure Drop	1.2	2.2	3.5	5.0	6.9	8.5

Performance data (cont)

50KQ012

COOLING AND HEATING CAPACITIES

EWT (F)	WATER FLOW (Gpm)	COOLING				HEATING		
		TC (Btuh)	SHC (Btuh)	THR (Btuh)	Power Input (Watts)	TC (Btuh)	THA (Btuh)	Power Input (Watts)
60	1 7	12,607	8,213	15,906	966	12,112	8,472	1,066
	3 0	13,127	8,403	16,251	915	12,335	8,642	1,082
	4 0	13,171	8,441	16,282	911	12,469	8,743	1,091
65	1 7	12,253	8,061	15,667	1,000	12,418	8,704	1,087
	3 0	12,810	8,289	16,046	948	12,658	8,885	1,105
	4 0	12,809	8,289	16,028	943	12,802	8,992	1,116
70	1 7	11,941	7,947	15,479	1,036	12,741	8,947	1,111
	3 0	12,449	8,137	15,799	981	12,999	9,138	1,130
	4 0	12,491	8,175	15,828	977	13,155	9,253	1,143
75	1 7	11,587	7,833	15,245	1,071	13,080	9,198	1,137
	3 0	12,087	8,023	15,555	1,016	13,358	9,402	1,158
	4 0	12,130	8,023	15,584	1,011	13,525	9,523	1,172
80	1 7	11,233	7,681	15,012	1,107	13,437	9,460	1,165
	3 0	11,769	7,871	15,365	1,053	13,734	9,675	1,189
	4 0	11,811	7,905	15,392	1,049	13,914	9,804	1,204
85	1 7	10,920	7,567	14,830	1,145	13,809	9,726	1,195
	3 0	11,407	7,757	15,126	1,089	14,127	9,955	1,222
	4 0	11,449	7,757	15,154	1,085	14,320	10,092	1,238
90	1 7	10,564	7,415	14,596	1,181	14,198	10,006	1,228
	3 0	11,046	7,605	14,889	1,126	14,524	10,245	1,253
	4 0	11,087	7,643	14,916	1,121	14,714	10,389	1,267

EWT — Entering Water Temperature
Gpm — Gallons (U S)/Minute
SHC — Sensible Heat Capacity
TC — Total Capacity
THA — Total Heat of Absorption
THR — Total Heat Rejection

BOLDFACE — Continuous operation not recommended

NOTES:

- Interpolation is permissible. Do not extrapolate.
- Capacities shown are for 230 and 265 volts. For capacities at 208 volts, subtract 200 Btuh.
- Heating Correction Factors:

Entering Air Temperature (F)	60	65	70	75	80
Heating Capacity	1 04	1 02	1 00	0 98	0 97

COOLING PERFORMANCE CORRECTION FACTORS

50KQ012								
Ent Air Temp (F) Wet Bulb	TC	SHC					THR	Power Input
		Ent Air Temp (F) Dry Bulb						
		75	80	85	90	95		
61	.959	1.089	1.295	1.411	1.411	1.411	.964	.979
64	.972	.939	1.145	1.346	1.430	1.430	.976	.986
67	1.000	.794	1.000	1.201	1.407	1.471	1.000	1.000
70	1.043	.659	.865	1.066	1.272	1.473	1.038	1.024
73	1.103	.528	.734	.935	1.141	1.347	1.088	1.044
76	1.183	.408	.609	.815	1.021	1.222	1.156	1.074
79	1 277	287	493	694	900	1 101	1 237	1 114

WATER PRESSURE DROPS (ft)

50KQ012						
Gpm	1 7	2 2	2 7	3 1	3 6	4 0
Pressure Drop	3 8	6 3	9 4	12 2	16 4	20 1

Performance data (cont)

50KQ015

COOLING AND HEATING CAPACITIES

EWT (F)	WATER FLOW (Gpm)	COOLING				HEATING		
		TC (Btuh)	SHC (Btuh)	THR (Btuh)	Power Input (Watts)	TC (Btuh)	THA (Btuh)	Power Input (Watts)
60	2.0	16,107	10,764	20,002	1,141	15,687	11,361	1,267
	3.8	16,843	11,073	20,496	1,070	15,967	11,582	1,284
	5.0	17,056	11,125	20,644	1,051	16,099	11,685	1,293
65	2.0	15,681	10,609	19,727	1,185	15,977	11,589	1,285
	3.8	16,410	10,867	20,203	1,111	16,276	11,823	1,304
	5.0	16,622	10,970	20,346	1,090	16,418	11,934	1,313
70	2.0	15,256	10,455	19,457	1,230	16,282	11,828	1,304
	3.8	15,977	10,712	19,918	1,154	16,603	12,078	1,325
	5.0	16,188	10,815	20,056	1,133	16,755	12,195	1,335
75	2.0	14,830	10,300	19,192	1,277	16,604	12,079	1,325
	3.8	15,544	10,558	19,639	1,199	16,945	12,342	1,348
	5.0	15,754	10,661	19,773	1,177	17,107	12,466	1,359
80	2.0	14,404	10,145	18,926	1,324	16,940	12,338	1,348
	3.8	15,111	10,403	19,366	1,246	17,292	12,617	1,369
	5.0	15,319	10,455	19,497	1,223	17,454	12,748	1,378
85	2.0	13,978	9,991	18,655	1,370	17,279	12,606	1,369
	3.8	14,768	10,248	19,098	1,295	17,641	12,900	1,388
	5.0	14,885	10,300	19,225	1,271	17,813	13,039	1,398
90	2.0	13,551	9,785	18,835	1,416	17,620	12,883	1,387
	3.8	14,244	10,042	18,824	1,341	18,004	13,193	1,409
	5.0	14,450	10,145	18,955	1,320	18,186	13,339	1,419

EWT — Entering Water Temperature
Gpm — Gallons (U S)/Minute
SHC — Sensible Heat Capacity
TC — Total Capacity
THA — Total Heat of Absorption
THR — Total Heat Rejection

BOLDFACE — Continuous operation not recommended

NOTES:

- 1 Interpolation is permissible. Do not extrapolate.
- 2 Capacities shown are for 230 and 265 volts. For capacities at 208 volts, subtract 200 Btuh.
- 3 Heating Correction Factors:

Entering Air Temperature (F)	60	65	70	75	80
Heating Capacity	1.04	1.02	1.00	0.98	0.97

COOLING PERFORMANCE CORRECTION FACTORS

50KQ015

Ent Air Temp (F) Wet Bulb	TC	SHC					THR	Power Input
		Ent Air Temp (F) Dry Bulb						
		75	80	85	90	95		
61	.951	1.081	1.292	1.362	1.362	1.362	957	978
64	.968	.933	1.139	1.350	1.386	1.386	972	986
67	1.000	.789	1.000	1.206	1.417	1.432	1.000	1.000
70	1.049	.655	.861	1.072	1.278	1.489	1.041	1.015
73	1.114	.522	.733	.944	1.150	1.361	1.096	1.035
76	1.198	.398	.609	.815	1.026	1.237	1.167	1.062
79	1.301	.280	.491	.697	.908	1.114	1.254	1.100

WATER PRESSURE DROPS (ft)

50KQ015

Gpm	2.0	2.6	3.2	3.8	4.4	5.0
Pressure Drop	1.8	3.0	4.4	6.2	8.3	10.6

Performance data (cont)

50KQ019

COOLING AND HEATING CAPACITIES

EWT (F)	WATER FLOW (Gpm)	COOLING				HEATING		
		TC (Btuh)	SHC (Btuh)	THR (Btuh)	Power Input (Watts)	TC (Btuh)	THA (Btuh)	Power Input (Watts)
60	2.4	20,530	12,869	25,370	1,418	20,380	14,679	1,670
	4.7	20,977	13,064	25,699	1,383	21,088	15,238	1,713
	6.0	21,226	13,162	25,884	1,364	21,337	15,438	1,728
65	2.4	20,000	12,625	24,990	1,462	21,270	15,384	1,724
	4.7	20,461	12,820	25,320	1,423	22,021	15,984	1,768
	6.0	20,710	12,918	25,502	1,403	22,293	16,199	1,785
70	2.4	19,470	12,430	24,619	1,508	22,182	16,111	1,778
	4.7	19,944	12,625	24,951	1,466	23,001	16,753	1,830
	6.0	20,194	12,723	25,129	1,445	23,299	16,983	1,850
75	2.4	18,940	12,186	24,256	1,557	23,138	16,859	1,839
	4.7	19,427	12,381	24,590	1,512	24,031	17,545	1,900
	6.0	19,678	12,527	24,764	1,490	24,356	17,791	1,923
80	2.4	18,409	11,990	23,899	1,608	24,138	17,626	1,907
	4.7	18,910	12,186	24,236	1,560	25,110	18,357	1,978
	6.0	19,162	12,283	24,407	1,536	25,464	18,620	2,005
85	2.4	17,878	11,746	23,549	1,661	25,184	18,412	1,983
	4.7	18,392	11,990	23,888	1,610	26,239	19,190	2,065
	6.0	18,645	12,088	24,057	1,585	26,624	19,469	2,096
90	2.4	17,347	11,551	23,202	1,715	26,276	19,217	2,068
	4.7	17,874	11,746	23,546	1,661	27,420	20,042	2,161
	6.0	18,128	11,893	23,713	1,636	27,838	20,339	2,197

EWT — Entering Water Temperature
Gpm — Gallons (U.S.)/Minute
SHC — Sensible Heat Capacity
TC — Total Capacity
THA — Total Heat of Absorption
THR — Total Heat Rejection

BOLDFACE — Continuous operation not recommended

NOTES:

- 1 Interpolation is permissible. Do not extrapolate.
- 2 Capacities shown are for 230 and 265 volts. For capacities at 208 volts, subtract 200 Btuh.
- 3 Heating Correction Factors:

Entering Air Temperature (F)	60	65	70	75	80
Heating Capacity	1.04	1.02	1.00	0.98	0.97

COOLING PERFORMANCE CORRECTION FACTORS

50KQ019

Ent Air Temp (F) Wet Bulb	TC	SHC					THR	Power Input
		Ent Air Temp (F) Dry Bulb						
		75	80	85	90	95		
61	928	1 069	1 258	1 424	1 424	1 424	941	982
64	960	939	1 127	1 311	1 472	1 472	967	990
67	1 000	812	1 000	1 184	1.373	1.534	1.000	1.000
70	1.050	.689	.877	1.061	1.250	1.438	1.041	1.011
73	1 112	570	.759	.947	1.131	1.319	1.091	1.021
76	1 185	456	644	828	1 016	1 205	1 151	1 036
79	1 271	341	529	718	902	1 090	1 221	1 056

WATER PRESSURE DROPS (ft)

50KQ019

Gpm	2.4	3.1	3.9	4.7	5.3	6.0
Pressure Drop	1.9	3.1	4.9	7.0	8.9	11.3

Electrical data

UNIT 50KQ	VOLTAGE (1-60 Hz)	COMPRESSOR		FAN	MIN CIRCUIT AMPS	MAX FUSE AMPS
		RLA	LRA	FLA		
006	115	5.1	29.8	0.9	7.3	15
	208/230	2.7	15.9	0.5	3.9	15
	265	2.4	12.3	0.4	3.4	15
009	115	6.2	40.0	0.9	8.7	15
	208/230	3.5	20.0	0.5	4.9	15
	265	2.7	16.0	0.4	3.8	15
012	208/230	4.6	31.2	1.3	7.1	15
	265	4.1	27.0	1.2	6.4	15
015	208/230	5.4	31.2	1.3	8.1	15
	265	4.3	27.0	1.2	6.6	15
019	208/230	7.8	43.0	1.3	11.1	20
	265	6.9	39.5	1.2	9.8	20



FLA — Full Load Amps
LRA — Locked Rotor Amps
RLA — Rated Load Amps

Typical wiring schematics

UNIT OPERATION

Heating/Cooling — Thermostat cycles compressor to maintain thermostat setting. Reversing valve is energized in heating mode.

Room Fan — With fan switch in ON position, fan runs continuously. In AUTO position, fan cycles on demand for heat or cool.

Reset Relay — Opens circuit upon high refrigerant pressure or low water temperature. To reset, unit power can be shut off at thermostat or main power source and then turned back on.

Changeover — Automatic or manual changeover is dependent upon the type of thermostat purchased.

VOLTAGES

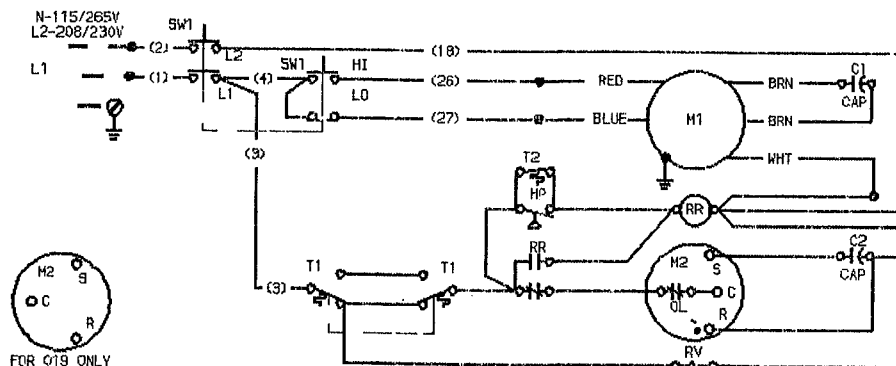
NAMEPLATE VOLTAGE	NOMINAL VOLTAGE
208 v	208 v
230 v	240 v
265 v	277 v

208/230 units are factory wired for 230. When power supplied is 208 volts, change transformer connections as shown on the unit wiring diagram.

HI-SPEED LEAD CONNECTION

UNIT 50KQ	LEAD COLOR
006	Black
009	Black
012	Blue
015	Blue
019	Blue

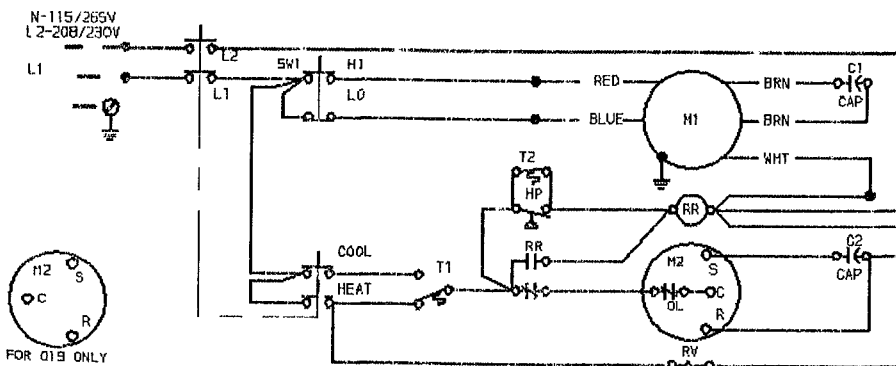
UNIT-MOUNTED AUTO. CHANGEOVER THERMOSTAT



LEGEND

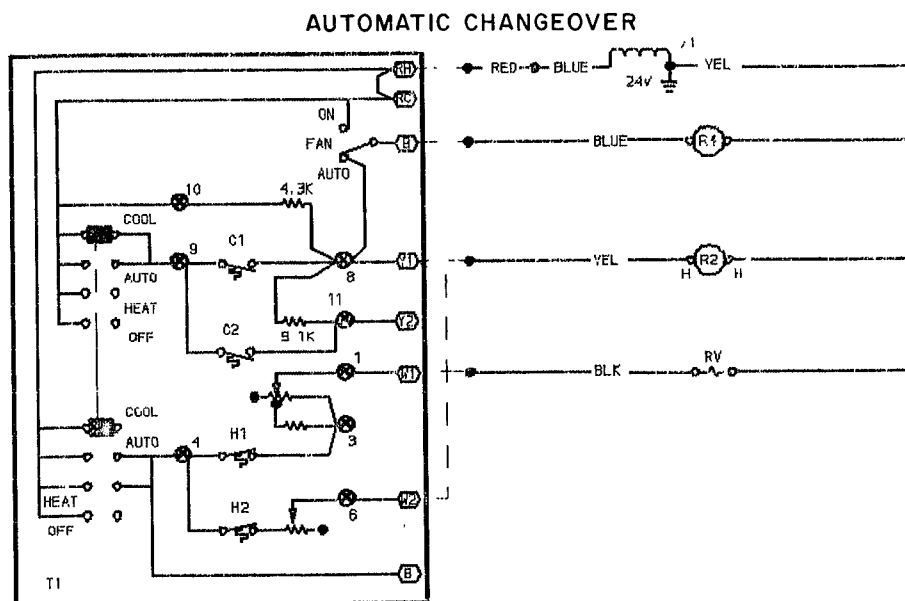
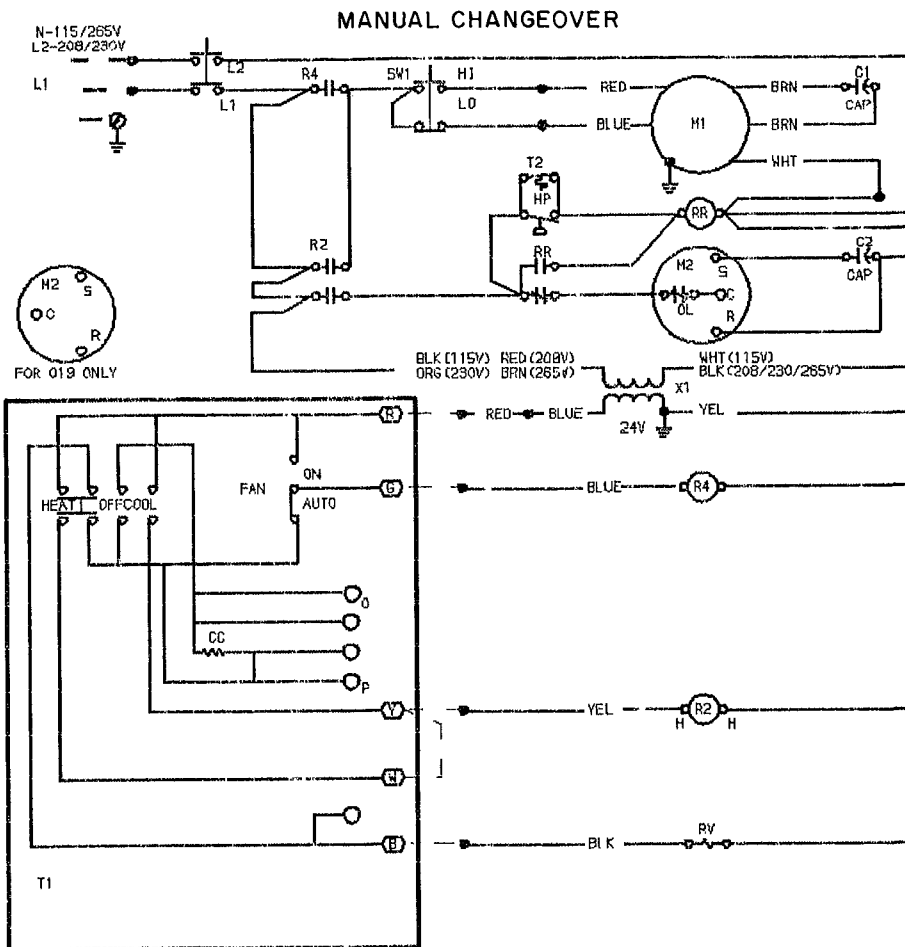
C1 — Fan Capacitor
C2 — Compressor Capacitor
HP — High-Pressure Switch
M1 — Fan Motor
M2 — Compressor
OL — Compressor Overload
R2 — Compressor Relay
R4 — Fan Relay
RR — Reset Relay
RV — Reversing Valve
SW1 — Fan Switch
T1 — Room Thermostat
T2 — Low Temperature Protection
X1 — Transformer

UNIT-MOUNTED MANUAL CHANGEOVER THERMOSTAT



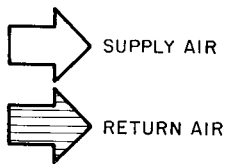
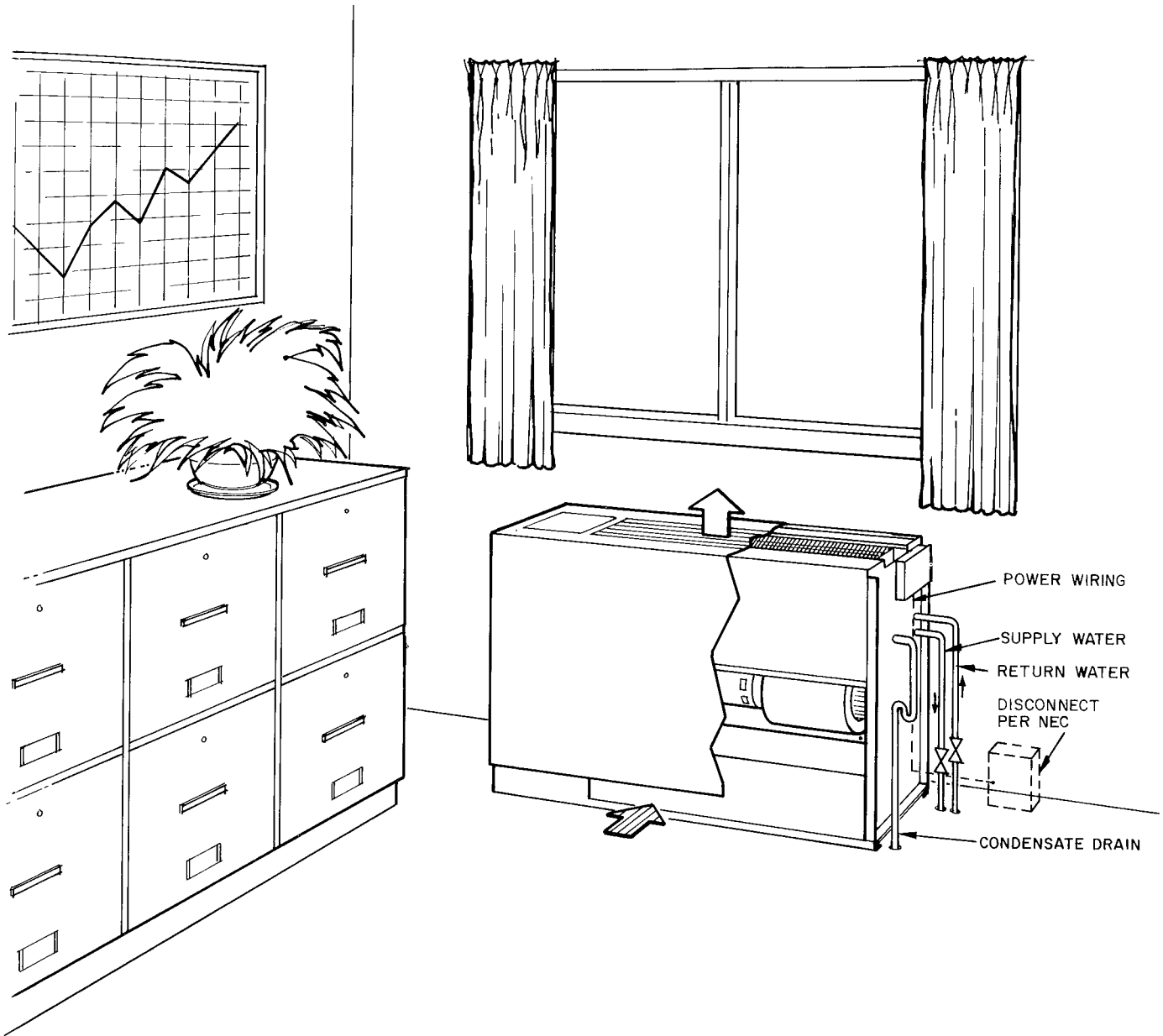
Typical wiring schematics (cont)

REMOTE-MOUNTED THERMOSTAT



NOTE: For wiring details regarding night setback controls and motorized dampers, refer to installation instructions

Typical piping and wiring



NOTES:

- 1 Wiring and piping are general guides only. They are not intended for a specific application.
- 2 Console cabinet will extend over piping, wiring, and disconnect.
- 3 Units are capable of field conversion to change water and electrical connections from right hand to left hand or vice versa by removing cabinet, relocating sheet metal panel on chassis, rotating chassis and reinstalling cabinet.

Guide specifications

Furnish and install Model 50KQ console-type water source heat pumps where shown on plans with capacities as listed in the schedule

All units must carry ARI certification per Standard 320 and be listed by a nationally recognized safety testing laboratory such as (UL) Underwriters Laboratory. Minimum acceptable energy efficiency ratio (EER) at ARI conditions shall be 10.5 for any size. Minimum acceptable coefficient of performance (C.O.P.) at ARI conditions shall be 3.4 for any size. Units shall be suitable for entering water in the 60-90 F range

Cabinet shall be heavy gage structurally formed steel construction with a 5-stage phosphatizing and cleaning treatment followed by a glossy alkyd melamine baked enamel finish. Cabinet shall include a unit access door for user control access and steel bar stock type discharge grille with 15 degree vertical deflection for maximum air circulation. Units cabinet shall be field reversible for either left-hand or right-hand piping and electrical connections without factory modifications. Heat pump chassis shall interface with either left-hand or right-hand configuration with no modification.

Heat pump chassis shall rest directly on the floor. Compressors shall be mounted to the bottom of the chassis to attenuate noise transmission/vibration. Subbase mounted chassis configuration shall not be acceptable. Chassis shall contain a sealed factory-assembled refrigerant circuit consisting of a fully hermetic motor compressor, air-to-refrigerant finned tube coil, capillary metering device, pilot operated refrigerant reversing valve with easily replaced external electric solenoid (energized only in heating mode), water-to-refrigerant tube-in-tube heat exchanger, safety cutouts and all interconnecting refrigerant tubing.

Compressor shall be a 3500 rpm hermetic type with internal and external vibration isolator mounting, and be a PSC-type motor with overloads

Water-to-refrigerant heat exchanger shall be coaxial tube-in-tube type with water flowing through inner-serpentine coil suitable for 450 psig working pressure, and arranged so that air is not trapped in the coil

Air-to-refrigerant heat exchanger shall be constructed of 3/8-in. seamless staggered copper tubes with .006-in. thick corrugated aluminum fins, 12 or 14 fins per in. and circuited for optimum performance.

Integral safety controls shall be supplied to include a high-pressure refrigerant cutout switch and freeze-stat for low water temperature protection. The low water temperature protection device shall be of the direct sensing type, immersed in the leaving water side of the water-to-refrigerant heat exchanger for accurate temperature sensing. Suction pressure-type controls are not acceptable

Blowers shall be of the multi-speed design, and PSC type with internal overload protection. All blower motors shall be direct-connected to double width, double inlet fan wheels selected for efficient, quiet operation.

Factory-wired and mounted control panel shall be supplied within the unit chassis, complete with an electrical control circuit that includes safety devices, relays, pushbutton switch, and unit mounted thermostat

(standard manual changeover) with system switching OFF-HI-LOW-HEAT-COOL

→ **Filter** shall be provided, 1/2-in. nominal thickness (disposable). Filter shall be replaceable without removing the front panel of the cabinet.

Options

Unit-Mounted Automatic Changeover Thermostat — Thermostat shall be a unit-mounted, automatic changeover type, and shall have 3 buttons consisting of OFF-HI-LOW, accessible through the control door of cabinet

Utilization with a remote wall-mounted thermostat shall include 24-volt relays for proper operation of compressor, fan and reversing valve solenoid coil.

Remote-Mounted Thermostat — Thermostat shall be a 24-volt wall-mounted type

Manual changeover — The thermostat shall be manual changeover type with OFF-HEAT-COOL system selector switch and ON-AUTO fan selector switch

Automatic changeover — The thermostat shall be a automatic changeover type with OFF-HEAT-COOL-AUTO. system selection switch and ON-AUTO. fan selector switch.

Unit-Mounted Energy Savings Control

Night setback with pushbutton relay — Controls shall contain a night setback relay with button and independent setback thermostat. When night setback button is depressed, night setback thermostat cycles fan and compressor to maintain setback temperature of 52 F

Night setback w/setback thermostat and relay — Controls shall contain a night setback relay and independent setback thermostat. When setback relay receives a 24-volt field-supplied signal, night setback thermostat cycles fan and compressor to maintain setback temperature of 52 F

Night setback relay only — Controls shall contain a night setback relay only. When relay receives a 24-volt field-supplied signal, unit is controlled on field-supplied independent night setback thermostat

Night setback override timer — Control shall only contain an adjustable 0-5 hour manual override timer. When timer activated, unit shall operate only on day thermostat setting.

Unit-Mounted Fresh Air Dampers

Motorized damper — Unit shall have provisions for electrical damper control. When in day (occupied) mode, damper door shall open, when in setback (unoccupied) mode, damper shall close

Manual damper — Unit shall have provisions for a manual damper control. Activation of damper door will be at selected times and non-related to electrical inputs.

Extended warranty

Option I shall be provided from unit manufacturer and provide first-year labor allowance on refrigerant circuit repairs.

Option II shall be provided from unit manufacturer and provide second through fifth-year labor allowance for refrigerant circuit repairs

Guide specifications (cont)

Accessories

Supply/return hose kit shall be a 1/2-in. diameter x 18-in. long EPDM tube with one 1/2-in. MPT adapter on one end and one 1/2-in. sweat elbow on the other. Hose and fittings must have a maximum working pressure of 300 psig.

Condensate hose kit shall be a 1/2 in. inside diameter x long clear PVC tube with one clamp located on each end.

Gate valve shall be a UL-listed cast iron body type with O-ring packing. Connection shall be via a 1/2-in. NPT female fitting.

Ball valve shall be a UL-listed brass body, ball and stem type with teflon seats and seals. Connection shall be via a 1/2-in. NPT female fitting.

Central water loop control panel shall be provided by unit manufacturer for reliable, accurate, and automatic control of heat rejector (tower), heat supplier

(boiler) and circulating pumps. Panel shall include visual and audible alarms, temperature indication, and safety cutouts for emergency shutdown. A master contact shall provide an interlock for a central system controller to de-energize all units in the event of abnormal conditions. Available options shall include outdoor temperature reset, test simulation hits, flow switches, temperature sensors and remote repeater panels.

Microprocessor based — system controller shall be provided by unit manufacturer for monitoring and energy savings functions. Signal transmission shall be via hard wire, 1-way or 2-way power line communication. Control function includes time of day and holiday scheduling, night setback, demand limiting, central start/stop, optimal start-up, status-monitoring using LCD's, 30-day temperature display, electrical and peak demand displays.