INTRODUCTION

This manual covers only the mechancial aspects of ALR chillers equipped with the MicroTech reciprocating chiller control. All of the operating, safety control, and installation requirements of the MicroTech control **are covered** in the separate installation and maintenance bulletin IM 493, which must be consulted before startup and operation is attempted.

GENERAL DESCRIPTION

McQuay type ALR SEASONPAK air cooled water chillers are complete, self-contained automatic refrigerating units that include the latest in engineered components arranged to provide a compact and efficient unit. Each unit is completely assembled and factory wired before evacuation, charging and testing, and comes complete and ready for installation. Each unit consists of twin air cooled condensers with integral subcooler sections, multiple accessible hermetic compressors, replaceable tube dual circuit shell-and-tube evaporator, and complete refrigerant piping. Liquid line components that are included are manual liquid line shutoff valves, charging valves, filter-driers, liquid line solenoid valves, sightglass/moisture indicators, and double diaphragm hydraulic element thermal expansion valves. Other features include compressor crankcase heaters, an evaporator heater for chilled water freeze protection, recycling pumpdown during "on" or "off" seasons, compressor lead-lag switch to alternate the compressor starting sequence, and sequenced starting of compressors.

The electrical control center includes all safety and operating controls necessary for dependable automatic operation. Condenser fan motors are fused in all three conductor legs and started by their own three-pole contactors. Compressors are not fused but may be protected by optional circuit breakers, or by the field installed fused disconnect for protection.

NOMENCLATURE

INSPECTION

When the equipment is received, all items should be carefully checked against the bill of lading to insure a complete shipment. All units should be carefully inspected for damage upon arrival. All shipping damage should be reported to the carrier and a claim should be filed. The unit serial plate should be checked before unloading the unit to be sure that it agrees with the power supply available. Physical damage to unit after acceptance is not the responsibility of SnyderGeneral Corp.

NOTE: Unit shipping and operating weights are available in the physical data tables 4 and 5, pages 9 and 10.

INSTALLATION

NOTE: **Installation and maintenance are to be performed only by qualified personnel who are familiar with local codes and regulations, and experienced with this type of equipment.**

CAUTION: Sharp edges and coil surfaces are a potential injury hazard. Avoid contact with them.

HANDLING

Care should be taken to avoid rough handling or shock due to dropping the unit. Do not push or pull the unit from anything other than the base, and block the pushing vehicle away from the unit to prevent damage to the sheetmetal cabinet and end frame (see Figure 1).

Never allow any part of the unit to fall during unloading or moving as this may result in serious damage.

To lift the unit, 2⅝" diameter lifting holes are provided in the base of the unit. Spreader bars and cables should be arranged to prevent damage to the condenser coils or unit cabinet (see Figure 2).

Figure 1. Suggested Pushing Arrangement

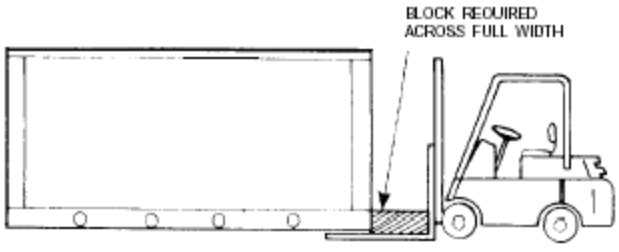


Figure 2. Suggested Lifting Arrangement

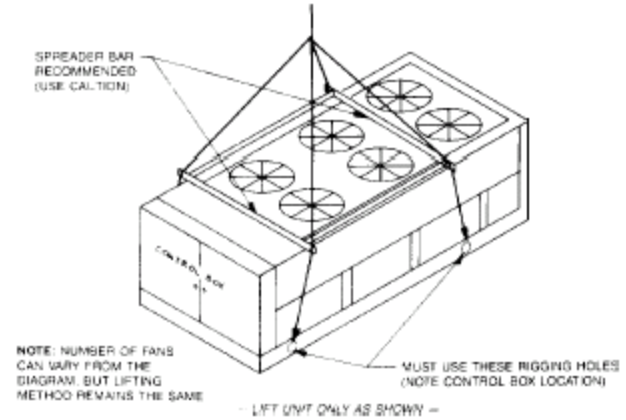


Table 5. Physical Data ALR-105C thru 195C

DATA	ALR MODEL NUMBER													
	105C		115C		125C		145C		155C		175C		195C	
	Ckt. 1	Ckt. 2	Ckt. 1	Ckt. 2	Ckt. 1	Ckt. 2	Ckt. 1	Ckt. 2	Ckt. 1	Ckt. 2	Ckt. 1	Ckt. 2	Ckt. 1	Ckt. 2
BASIC DATA														
UNIT CAPACITY @ ARI CONDITIONS, TONS (1)	102.7		113.2		122.3		137.9		153.3		167.3		187.9	
NUMBER OF REFRIGERANT CIRCUITS	2		2		2		2		2		2		2	
UNIT OPERATING CHARGE, LBS. R-22	56.1	56.1	70.2	70.2	70.4	70.4	73.2	73.2	88.5	88.5	96.5	96.5	98.8	98.8
CABINET DIMENSIONS, LxWxH, INCHES	229x83x59		229x83x92		229x83x92		229x83x92		229x83x92		263x83x92		263x83x92	
UNIT OPERATING WEIGHT, LBS.	7713		8668		8978		9087		10,153		11,436		11,658	
UNIT SHIPPING WEIGHT, LBS.	7369		8350		8659		8786		9705		11,016		11,277	
ADD'L WEIGHT IF COPPER FINNED COILS, LBS.	1103		1236		1388		1388		2080		2429		2429	
COMPRESSORS — COPELAMETIC FULLY ACCESSIBLE, SEMI-HERMETIC														
NOMINAL HORSEPOWER	35-25	35-25	35-25	35-35	35-35	35-35	40-40	40-40	50-40	50-40	50-50	50-50	60-60	60-60
NUMBER OF CYLINDERS PER COMPRESSOR	6-4	6-4	6-4	6-6	6-6	6-6	6-6	6-6	8-6	8-6	8-8	8-8	8-8	8-8
CYLINDER BORE, INCHES	2.6875	2.6875	2.6875	2.6875	2.6875	2.6875	2.9375	2.9375	Note 5	Note 5	2.6875	2.6875	2.9375	2.9375
CYLINDER STROKE, INCHES	2.1875	2.1875	2.1875	2.1875	2.1875	2.1875	2.1875	2.1875	Note 5	Note 5	2.3438	2.3438	2.3438	2.3438
OIL CHARGE PER COMPRESSOR	160-136	160-136	160-136	160-160	160-160	160-160	242-242	242-242	242-242	260-240	260-240	260-260	260-260	260-260
CAPACITY REDUCTION STEPS — PERCENT OF COMPRESSOR DISPLACEMENT														
STANDARD STAGING	0-30-60-80-100		0-27-55-73-100 or 0-27-55-82-100		0-25-50-75-100		0-17-33-42-50-75-100		0-20-41-48-54-77-100		0-19-37-44-50-75-100		0-19-37-44-50-75-100	
OPTIONAL STAGING	0-20-40-50-60-80-100		0-18-36-45-55-73-100 or 1-18-36-45-55-82-100		0-17-33-42-50-75-100		0-17-33-42-50-67-83 92-100		0-20-41-47-54-63-71 86-100		0-19-37-44-50-62-75-87-100		0-19-37-44-50-62-75-87-100	
CONDENSERS — HIGH EFFICIENCY FIN AND TUBE TYPE WITH INTEGRAL SUBCOOLER														
COIL FACE AREA, SQUARE FEET	57.8	57.8	115.6	115.6	115.6	115.6	115.6	115.6	115.6	115.6	135.0	135.0	135.0	135.0
FINNED HEIGHT x FINNED LENGTH, Inches	40x208	40x208	80x208	80x208	80x208	80x208	80x208	80x208	80x208	80x208	80x243	80x243	80x243	80x243
FINS PER INCH x ROWS DEEP	12x3	12x3	12x2	16x2	16x2	16x2	16x2	16x2	16x3	16x3	16x3	16x3	16x3	16x3
CONDENSER FANS — DIRECT DRIVE PROPELLER TYPE														
NUMBER OF FANS — FAN DIAMETER, INCHES	10 — 26		10 — 26		12 — 26		12 — 26		12 — 26		14 — 26		14 — 26	
NUMBER OF MOTORS — HORSEPOWER	10 — 1.0		10 — 1.0		12 — 1.0		12 — 1.0		12 — 1.0		14 — 1.0		14 — 1.0	
FAN AND MOTOR RPM	1100		1100		1100		1100		1100		1100		1100	
FAN TIP SPEED, FPM	7760		7760		7760		7760		7760		7760		7760	
TOTAL UNIT AIRFLOW, CFM	62,000		76,500		87,480		87,480		81,960		95,620		95,620	
DIRECT EXPANSION EVAPORATOR — BAFFLED SHELL AND THRU-TUBE														
SHELL DIAMETER, INCHES — TUBE LENGTH, FEET	14 — 10		14 — 10		14 — 10		14 — 10		16 — 10		16 — 10		16 — 10	
WATER VOLUME, GALLONS	41.3		38.2		38.2		36.1		53.7		50.3		45.6	
MAXIMUM WATER PRESSURE, PSIG (NOTE 3)	175		175		175		175		175		175		175	
HEAT RECOVERY CONDENSERS — WATER COOLED, SHELL AND TUBE TYPE														
TOTAL UNIT OPERATING CHARGE, LBS. R-22	214.5	214.5	248.3	248.3	248.5	248.5	247.2	247.2	295.4	295.4	323.4	323.4	325.8	325.8
ADD'N TO STD. UNIT SHIPPING WEIGHT, LBS.	844	844	863	863	863	863	884	884	966	966	986	986	986	986
ADD'N TO STD. UNIT OPERATING WEIGHT, LBS.	921	921	940	940	940	940	970	970	1068	1068	1088	1088	1088	1088
SHELL DIAMETER x TUBE LENGTH, INCHES	10x120	10x120	10x120	10x120	10x120	10x120	10x120	10x120	10x120	10x120	10x120	10x120	10x120	10x120
WATER VOLUME, GALLONS	9.2	9.2	9.2	9.2	9.2	9.2	10.3	10.3	12.2	12.2	12.2	12.2	12.2	12.2
MAXIMUM WATER PRESSURE, PSIG (NOTE 3)	250		250		250		250		250		250		250	

NOTES:

(1) Nominal capacity based on 95°F ambient air and 54°F/44°F water range.

(2) On an ALR-040C, a heat recovery condenser is not available on just Circuit 1. For heat recovery condensers on both circuits, add 470 lbs. to the shipping weight and 519 lbs. to the operating weight.

(3) If higher pressures are required, consult your local McQuay representative.

(4) Cylinder bore for 50 hp: 2.6875; for 40 hp: 2.9375 (inches).
Cylinder stroke for 50 hp: 2.3438; for 40 hp: 2.1875 (inches).

Figure 9. ALR Dimensional Drawings — 115C Thru 195C

All Dimensions in Inches

FOR FAN ARRANGEMENTS, SEE FIGURE 10, PAGE 15.

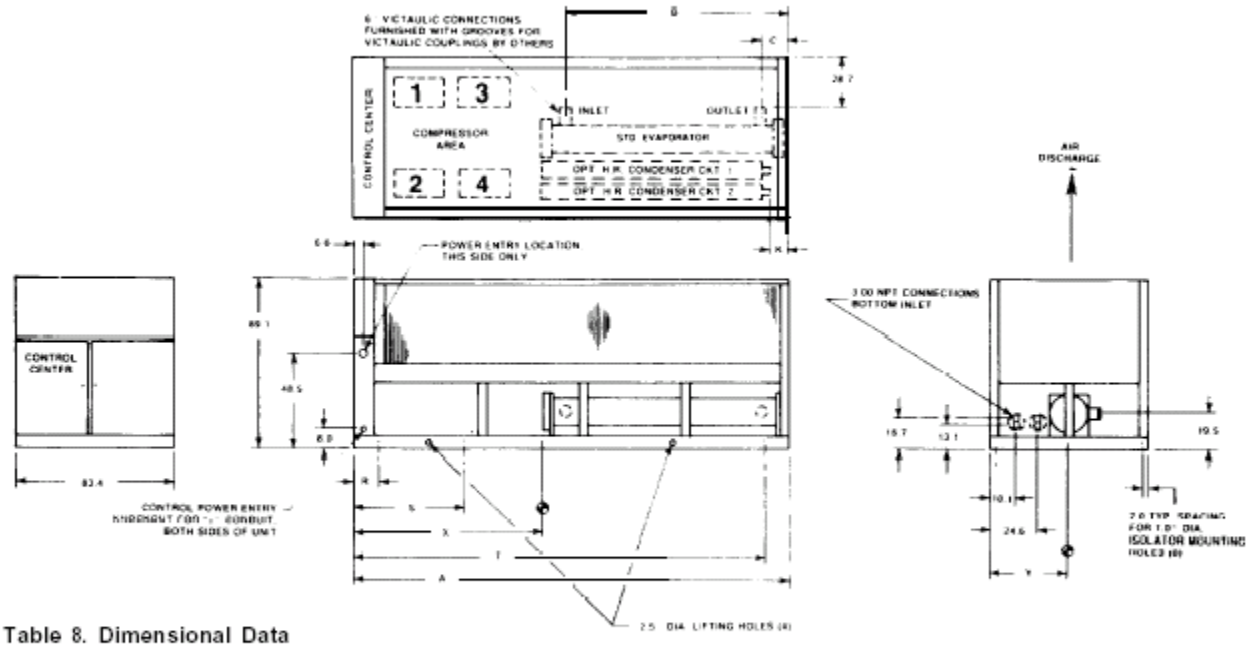


Table 8. Dimensional Data

ALR MODEL	LENGTH A	EVAPORATOR WATER CONN. (1)		K	CENTER OF GRAVITY				ISOLATOR LOCATIONS		
					STD. UNIT		OPT. H_2O COND. (2)				
		B	C		X	Y	X	Y	R	S	T
115C	228.7	117.6	13.8	0.0	109.5	41.7	118.2	37.4	13.0	58.0	215.0
125C	228.7	117.6	13.8	0.0	104.3	41.7	116.4	37.5	13.0	58.0	215.0
145C	228.7	117.6	13.8	0.0	104.9	41.7	117.1	37.4	13.0	58.0	215.0
155C	228.7	118.5	12.9	0.0	105.2	41.7	117.7	37.5	13.0	58.0	215.0
175C	263.4	153.2	47.6	32.4	114.2	41.7	123.9	37.8	13.0	95.0	249.7
195C	263.4	153.2	47.6	32.4	113.1	41.7	122.8	37.9	13.0	95.0	249.7

(1) EVAPORATOR CONNECTIONS: All connections NPS steel pipe. Connections are furnished with grooves for victaulic couplings by others.
(2) Includes both circuits.
(3) For unit sizes 175C and 195C, see note on water connections. Page 7

FIELD WIRING

Wiring must comply with all applicable codes and ordinances. Warranty is voided if wiring is not in accordance with specifications. An open fuse indicates a short, ground, or overload. Before replacing a fuse or restarting a compressor or fan motor, the trouble must be found and corrected.

Copper wire is required for all power lead terminations at the unit while either aluminum or copper can be used for all other wiring.

ALR units may be ordered with internal power wiring for either single or multiple point power connection. If single point power connection is ordered, a single large power terminal block is provided and wiring within the unit is sized in accordance with the National Electrical Code. A single field supplied disconnect is required. An optional factory mounted transformer may be provided.

If multiple point power wiring is ordered, three power connections, one per compressor circuit plus one for condenser fans and control circuit, are required and wiring within the unit is sized in accordance with the National Electrical Code. Separate field supplied disconnects are required for each of the three circuits. A single power block is provided for all of the condenser fans and the optional 115V control transformer.

It may be desirable to have the unit cooler heater on a separate disconnect switch from the main unit power supply so that the unit may be shut down without defeating the freeze protection provided by the cooler heater.

CAUTION: Internal power wiring to the compressors for the single point versus the multiple point option are different. It is imperative that the proper field wiring be installed according to the way the unit is built.

CANADIAN CSA LISTING

Canadian units which are CSA listed and are equipped for multiple point power connections have a sticker (see figure below) next to the wiring diagram in the control box. This notifies the installer that local authorities may require the unit to be connected to a single electrical power source. Check with local authorities for requirements.

NOTICE

Although this unit may be provided with options requiring more than one source of electrical supply, some electrical inspection authorities may require this unit to be connected to a single external electrical supply.

Form No. 478148B-01-0

Table 9. Wire Sizing Ampacities

ALR MODEL	3 PH, 60 HZ ELEC. POWER POWER SUPPLY ①	WIRE SIZE AMPS ④				POWER ENTRY HUB QUANTITY & DIAMETER ⑤	
		SINGLE POINT POWER SUPPLY ⑥	MULTIPLE POINT POWER SUPPLY ⑦				
			Elec. Ckt. 1 Fans & Controls	Elec. Ckt. 2 Compr. Ckt. 1	Elec. Ckt. 3 Compr. Ckt. 2	SINGLE POINT POWER SUPPLY	MULT. POINT POWER SUPPLY
040C	208	184	25.6	79	96	(1) 2"	(1) 2"
	230	184	25.6	79	96	(1) 2"	(1) 2"
	460 ⑧	93	12.8	39	49	(1) 1¼"	(1) 1½"
	575	76	12.7	33	39	(1) 1"	(1) 1¼"
050C	208	234	25.6	96	133	(1) 2½"	(1) 2½"
	230	234	25.6	96	133	(1) 2½"	(1) 2½"
	460 ⑧	118	12.8	49	66	(1) 1¼"	(1) 1½"
	575	92	12.7	39	45	(1) 1¼"	(1) 1¼"
060C	208	278	33.6	133	140	(1) 2½"	(1) 3"
	230	278	33.6	133	140	(1) 2½"	(1) 3"
	460 ⑧	140	16.8	66	70	(1) 1½"	(1) 2"
	575	108	16.7	45	56	(1) 1¼"	(1) 1½"
065C	208	292	41.6	140	140	(1) 2½"	(1) 3"
	230	292	41.6	140	140	(1) 2½"	(1) 3"
	460 ⑧	147	20.8	70	70	(1) 1½"	(1) 2"
	575	121	21.5	56	56	(1) 1¼"	(1) 2"
075C	208	384	41.6	191	191	(1) 3"	(1) 4"
	230	355	41.6	175	175	(1) 3"	(1) 4"
	460 ⑧	180	20.8	89	89	(1) 2"	(1) 2"
	575	142	21.5	68	68	(1) 1½"	(1) 2"
085C	208	412	41.6	206	206	(1) 4"	(1) 4"
	230	412	41.6	206	206	(1) 4"	(1) 4"
	460 ⑧	207	20.8	104	104	(1) 2½"	(1) 2½"
	575	169	21.5	83	83	(1) 1½"	(1) 2½"
095C	208	501	49.6	251	251	(1) 4"	(2) 2½", (1) 1"
	230	501	49.6	251	251	(1) 4"	(2) 2½", (1) 1"
	460 ⑧	249	24.8	125	125	(1) 2½"	(1) 3"
	575	205	26.8	100	100	(1) 2½"	(1) 2½"
105C	208	455	50.6	217	217	(1) 4"	(2) 2", (1) 1"
	230	455	50.6	217	217	(1) 4"	(2) 2", (1) 1"
	460 ⑧	229	25.3	109	109	(1) 2½"	(1) 2½"
	575	189	26.3	87	87	(1) 2"	(1) 2½"
115C	208	490	50.6	217	252	(1) 4"	(1)1"(1)2"(1)2½"
	230	490	50.6	217	252	(1) 4"	(1)1"(1)2"(1)2½"
	460 ⑨	246	25.3	109	126	(1) 2½"	(1) 2½"
	575	203	26.3	87	101	(1) 2"	(1) 2½"
125C	208	533	58.6	252	252	(1) 4"	(1) 1" (2) 2½"
	230	533	58.6	252	252	(1) 4"	(1) 1" (2) 2½"
	460 ⑨	267	29.3	126	126	(1) 2½"	(1) 3"
	575	222	30.7	101	101	(1) 2½"	(1) 2½"
145C	208	708	58.6	344	344	(2) 3"	(1) 1" (2) 3"
	230	652	58.6	315	315	(2) 3"	(1) 1" (2) 3"
	460 ⑨	331	29.3	160	160	(1) 3"	(1) 3"
	575	260	30.7	122	122	(1) 2½"	(1) 2½"
155C	208	735	58.6	359	359	(2) 3"	(1) 1" (2) 3"
	230	709	58.6	346	346	(2) 3"	(1) 1" (2) 3"
	460 ③	358	29.3	175	175	(1) 3"	(1) 4"
	575	286	30.7	136	136	(1) 2½"	(1) 3"
175C	208	767	66.6	371	371	(2) 3"	(1) 1" (2) 3"
	230	767	66.6	371	371	(2) 3"	(1) 1" (2) 3"
	460 ③	385	33.3	187	187	(1) 3"	(1) 4"
	575	314	35.6	149	149	(1) 3"	(1) 3½"
195C	208	926	66.6	452	452	(2) 4"	(1) 1" (2) 4"
	230	926	66.6	452	452	(2) 4"	(1) 1" (2) 4"
	460 ③	455	33.3	225	225	(1) 4"	(1) 4"
	575	373	35.6	180	180	(1) 3"	(1) 4"

NOTES:

① ALLOWABLE VOLTAGE LIMITS:
Unit Nameplate 208V/60Hz/3PH: 187V to 253V (except ALR-075C: 180V to 220V)
Unit Nameplate 230V/60Hz/3Ph: 187V to 253V (except ALR-075C: 207V to 253V)
Unit Nameplate 460V/60Hz/3Ph: 414V to 506V
Unit Nameplate 575V/60Hz/3Ph: 517V to 633V
Unit Nameplate 380V/50Hz/3Ph: 342V to 418V

② Compressor RLA values are for wire sizing purposes only and do not reflect normal operating current draw. If unit is equipped with SPEEDTROL motors, the first motor on each refrigerant circuit is a 230V single phase, 1 hp motor, with an RLA of 5.6 amps.

③ Compressor LRA for part winding start are for the first winding. If the unit is equipped with SPEEDTROL motors, the first motor on each refrigerant circuit is a 230V single phase, 1 hp motor, with an LRA of 14.5 amps.

④ Unit wire size amps are equal to 125% of the largest compressor-motor RLA plus 100% of RLA of all other loads in the circuit including control transformer. Wire size amps for separate 115V control circuit power is 10 amps for ALR-040C thru ALR-095C and 12 amps for ALR-105C thru ALR-195C.

⑤ Quantity and size of power entry hub(s) provided with unit.

⑥ Single point power supply requires a single fused disconnect to supply electrical power to the unit.

⑦ Multiple point power supply requires three independent power circuits with separate fused disconnects.

⑧ Data also applies to 380/50Hz/3Ph units.

Table 10. Compressor and Condenser Fan Motors

ALR MODEL	3 PH, 60 HZ ELEC. POWER SUPPLY ①	RATED LOAD AMPS ②		LOCKED ROTOR AMPS ③		
		FANS	COMPRESSORS	FANS (EACH)	COMPRESSORS AL START	COMPRESSORS PW START
040C	208	(4) 4.0	(1) 63, (1) 77	17.0	(1) 308, (1) 428	(1) 188, (1) 250
	230	(4) 4.0	(1) 63, (1) 77	17.0	(1) 308, (1) 428	(1) 188, (1) 250
	460 ④	(4) 2.0	(1) 31, (1) 39	9.9	(1) 154, (1) 214	(1) 84, (1) 117
	575	(4) 2.2	(1) 26, (1) 31	10.3	(1) 135, (1) 172	(1) 81, (1) 103
050C	208	(4) 4.0	(1) 77, (1) 106	17.0	(1) 428, (1) 470	(1) 250, (1) 292
	230	(4) 4.0	(1) 77, (1) 106	17.0	(1) 428, (1) 470	(1) 250, (1) 292
	460 ④	(4) 2.0	(1) 39, (1) 53	9.9	(1) 214, (1) 235	(1) 117, (1) 141
	575	(4) 2.2	(1) 31, (1) 36	10.3	(1) 172, (1) 217	(1) 103, (1) 130
060C	208	(6) 4.0	(1) 106, (1) 112	17.0	(1) 470, (1) 565	(1) 292, (1) 340
	230	(6) 4.0	(1) 106, (1) 112	17.0	(1) 470, (1) 565	(1) 292, (1) 340
	460 ④	(6) 2.0	(1) 53, (1) 56	9.9	(1) 235, (1) 283	(1) 141, (1) 156
	575	(6) 2.2	(1) 36, (1) 45	10.3	(1) 217, (1) 230	(1) 130, (1) 138
065C	208	(8) 4.0	(2) 112	17.0	(2) 565	(2) 340
	230	(8) 4.0	(2) 112	17.0	(2) 565	(2) 340
	460 ④	(8) 2.0	(2) 56	9.9	(2) 283	(2) 156
	575	(8) 2.2	(2) 45	10.3	(2) 230	(2) 138
075C	208	(8) 4.0	(2) 153	17.0	(2) 660	(2) 400
	230	(8) 4.0	(2) 140	17.0	(2) 594	(2) 340
	460 ④	(8) 2.0	(2) 71	9.9	(2) 297	(2) 170
	575	(8) 2.2	(2) 54	10.3	(2) 235	(2) 135
085C	208	(8) 4.0	(2) 165,	17.0	(2) 1070	(2) 654
	230	(8) 4.0	(2) 165	17.0	(2) 1070	(2) 654
	460 ④	(8) 2.0	(2) 83	9.9	(2) 510	(2) 330
	575	(8) 1.6	(2) 66	7.9	(2) 405	(2) 262
095C	208	(10) 4.0	(2) 201	17.0	(2) 1070	(2) 654
	230	(10) 4.0	(2) 201	17.0	(2) 1070	(2) 654
	460 ④	(10) 2.0	(2) 100	9.9	(2) 510	(2) 330
	575	(10) 1.6	(2) 80	7.9	(2) 405	(2) 262
105C	208	(10) 4.0	(2) 112, (2) 77	17.0	(2) 565, (2) 428	(2) 340, (2) 250
	230	(10) 4.0	(2) 112, (2) 77	17.0	(2) 565, (2) 428	(2) 340, (2) 250
	460 ④	(10) 2.0	(2) 56, (2) 39	9.9	(2) 283, (2) 214	(2) 156, (2) 117
	575	(10) 2.2	(2) 45, (2) 31	10.3	(2) 230, (2) 172	(2) 138, (2) 103
115C	208	(10) 4.0	(3) 112, (1) 77	17.0	(3) 565, (1) 428	(3) 340, (1) 250
	230	(10) 4.0	(3) 112, (1) 77	17.0	(3) 565, (1) 428	(3) 340, (1) 250
	460 (8)	(10) 2.0	(3) 56, (1) 39	9.9	(3) 283, (1) 214	(3) 156, (1) 117
	575	(10) 2.2	(3) 45, (1) 31	10.3	(3) 230, (1) 172	(3) 138, (1) 103
125C	208	(12) 4.0	(4) 112	17.0	(4) 565	(4) 340
	230	(12) 4.0	(4) 112	17.0	(4) 565	(4) 340
	460 (8)	(12) 2.0	(4) 56	9.9	(4) 283	(4) 156
	575	(12) 2.2	(4) 45	10.3	(4) 230	(4) 138
145C	208	(12) 4.0	(4) 153	17.0	(4) 660	(4) 400
	230	(12) 4.0	(3) 140	17.0	(4) 594	(4) 340
	460 (8)	(12) 2.0	(4) 71	9.9	(4) 297	(4) 170
	575	(12) 2.2	(4) 54	10.3	(4) 235	(4) 135
155C	208	(12) 4.0	(2) 165, (2) 153	17.0	(2) 1070, (2) 660	(2) 654, (2) 400
	230	(12) 4.0	(2) 165, (2) 140	17.0	(2) 1070, (2) 594	(2) 654, (2) 340
	460 (8)	(12) 2.0	(2) 83, (2) 71	9.9	(2) 510, (2) 297	(2) 330, (2) 170
	575	(12) 2.2	(2) 66, (2) 54	7.9	(2) 405, (2) 235	(2) 262, (2) 135
175C	208	(14) 4.0	(4) 165	17.0	(4) 1070	(4) 654
	230	(14) 4.0	(4) 165	17.0	(4) 1070	(4) 654
	460 (8)	(14) 2.0	(4) 83	9.9	(4) 510	(4) 330
	575	(14) 2.2	(4) 66	7.9	(4) 405	(4) 262
195C	208	(14) 4.0	(4) 201	17.0	(4) 1070	(4) 654
	230	(14) 4.0	(4) 201	17.0	(4) 1070	(4) 654
	460 (8)	(14) 2.0	(4) 100	9.9	(4) 510	(4) 330
	575	(14) 2.2	(4) 80	7.9	(4) 405	(4) 262

REFER TO PAGE 13 FOR ELECTRICAL DATA NOTES

EVAPORATOR FREEZE PROTECTION

All heat exchangers come equipped with thermostatically controlled heat tape. When power is applied to terminals 13 and 16, the heat tape will provide freeze protection down to −20°F. However, this should not be the only method of freeze protection. Two or more of the following must be part of system design:

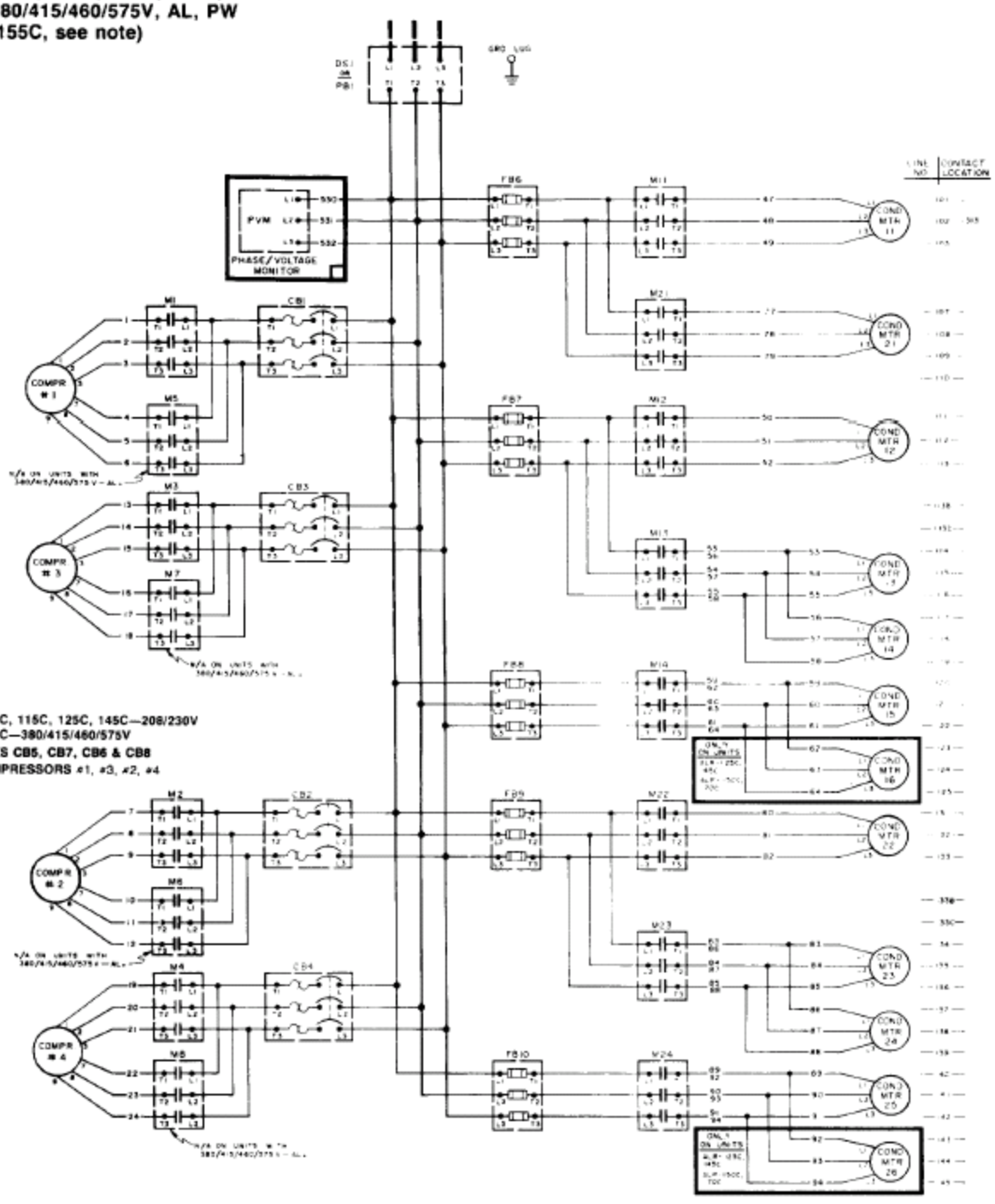
1. By continuous circulation of water through the piping and the heat exchanger.
2. By the inclusion of glycol solution in the chilled water circuit.
3. By the addition of heat and insulation to the exposed piping and heat exchanger.
4. By draining and flushing the chiller vessel with glycol during subfreezing weather.

It is the responsibility of the installing contractor and/or onsite maintenance personnel to insure that this additional protection is provided. Routine checks should be made to insure adequate freeze protection is maintained.

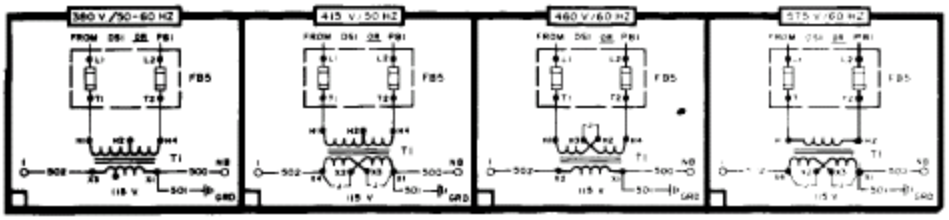
Failure to do so may result in damage to unit components that will not be considered a warranty failure.

SINGLE POINT, WITHOUT SPEEDTROL

ALR-105C, 115C, 125C, 145C, 155C
380/415/460/575V, AL, PW
(ALR-155C, see note)

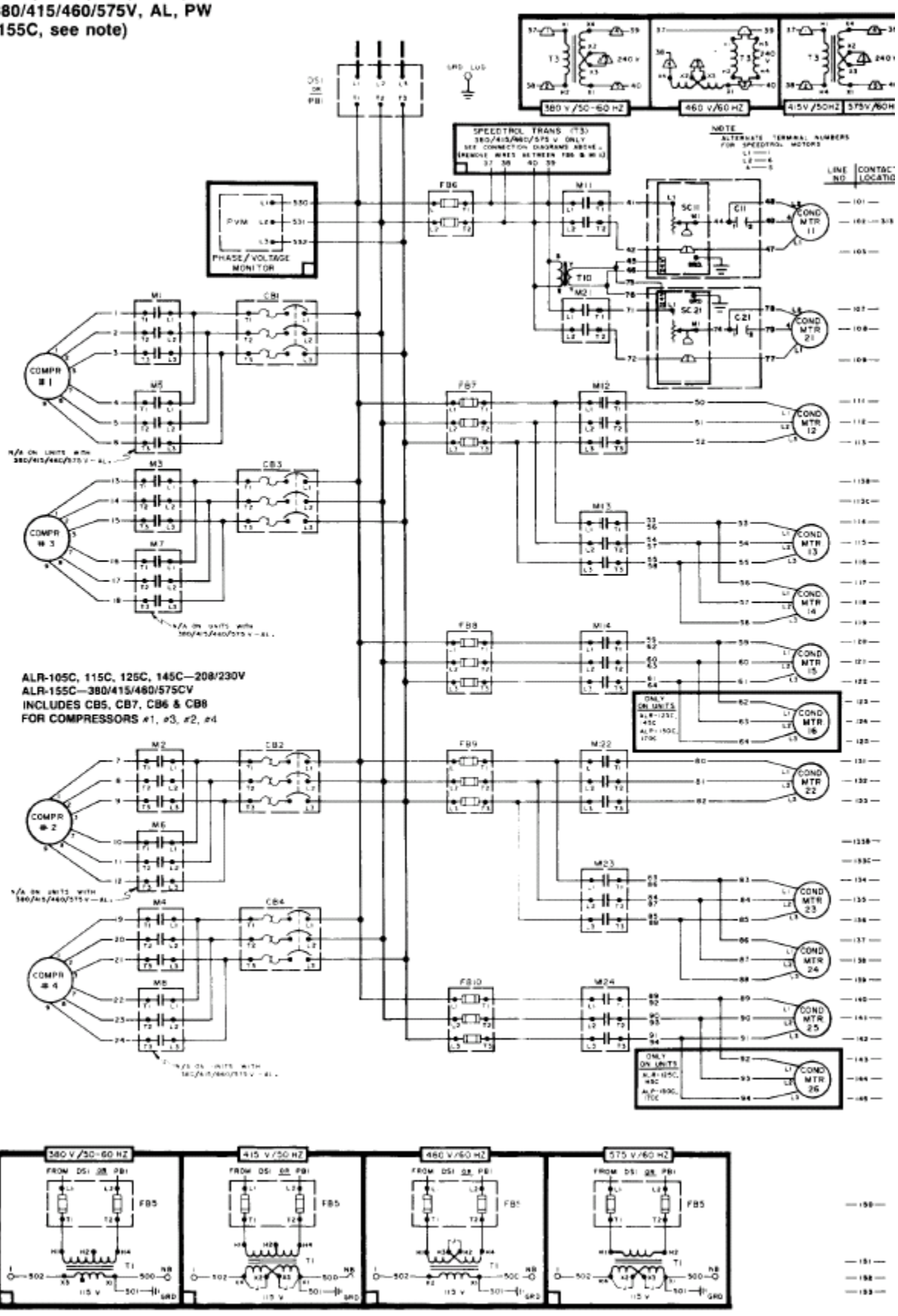


ALR-105C, 115C, 125C, 145C—208/230V
ALR-155C—380/415/460/575V
INCLUDES CB5, CB7, CB6 & CB8
FOR COMPRESSORS #1, #3, #2, #4



SINGLE POINT, WITH SPEEDTROL

ALR-105C, 115C, 125, 145C, 155C
380/415/460/575V, AL, PW
(ALR-155C, see note)



ALR-105C, 115C, 125C, 145C—208/230V
ALR-155C—380/415/460/575CV
INCLUDES CB5, CB7, CB6 & CB8
FOR COMPRESSORS #1, #3, #2, #4

MULTIPLE POINT WITHOUT SPEEDTROL

ALR-105C, 115C, 125C, 145C, 155C—208/230V, AL, PW
380/415/460/575V, AL, PW