

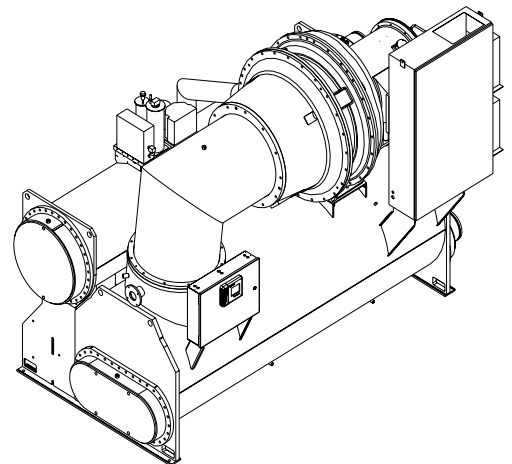
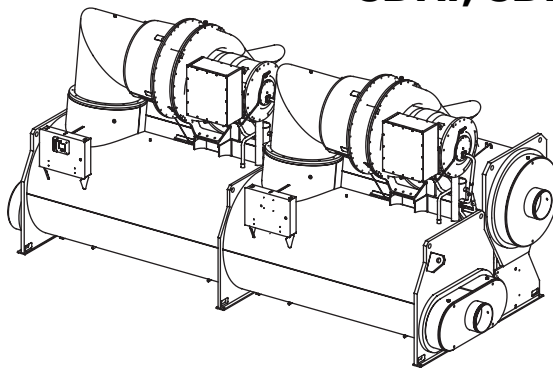


TRANE®

Installation - Disassembly and Reassembly Units

Water-Cooled CenTraVac™ Liquid Chiller With CH530 Controls

50 and 60 Hertz, CVHE, CVHF, CVHG,
CDHF, CDHG





Warnings and Cautions

Warnings and Cautions

Notice that warnings and cautions appear at appropriate intervals throughout this manual. Warnings are provided to alert installing contractors to potential hazards that could result in personal injury or

death, while cautions are designed to alert personnel to conditions that could result in equipment damage.

Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

NOTICE: Warnings and Cautions appear at appropriate sections throughout this manual. Read these carefully.

⚠ WARNING – Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION – Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

CAUTION – Indicates a situation that may result in equipment or property-damage-only accidents.

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General Information

Change history

Product information was updated to include:

- CenTraVac product line up to 3950 tons;
- unit-mounted, medium-voltage starter dimensional data;
- instructions for reassembling the motor cooling and lubrication lines using brazed couplings (versus unions); and
- shell-separating instructions.

Contractor responsibilities

- Equipment handling/lifting and rigging
- Reassembling the chiller
- Replacing all gaskets with new gaskets or o-rings and sealing compound.
- Reconnecting electrical connections
- Spot painting the chiller if necessary
- Keeping the interior covered when disassembling and reassembling the chiller, to protect the chiller from destroying elements such as grit, dust, high humidity, etc.,
- Chiller reassembly:
 1. Changing the compressor oil.
 2. Evacuating the chiller under 1000 microns.
 3. Recharging it with dry nitrogen to 5 psig.
 4. Replacing and/or repairing insulation.

Table 1. Metric conversion chart

Multiply	By	To Obtain
ft-lbf	1.3558	Newton-meter
lbf	.4536	kg
in	25.4000	mm

General Information

Table 2. Dimensional data for Figure 1. Applies to single-compressor model CVHE, CVHF and CVHG CenTraVac™ Chillers, in inches

MODL	NTONS	SHELL SIZE	CPSZ	A	B	C	D	E	F	G	H	J	K	L	M	N
CVHE	190-270 ²	032	032	68.3	45.7	N/A	N/A	82.5	48.9	49.7	70.8	45.5	53.1	39.6	34.5	60.0
	230-320	050	032	77.0	53.6	N/A	N/A	82.5	48.9	52.4	77.1	45.5	52.2	45.6	38.6	64.6
	300-420 ²	050	050	77.0	52.7	N/A	N/A	79.4	51.3	54.3	77.1	45.5	52.7	45.6	38.6	62.8
	360-500	080	050	92.0	77.1	101.3	42.0	79.4	51.3	58.4	93.8	45.5	62.1	62.0	44.3	79.0
CVHF	350-485	050	048	77.0	52.7	N/A	N/A	79.4	51.3	54.4	77.1	45.5	52.2	45.6	38.6	64.6
		080	048	92.0	75.7	101.3	42.0	79.4	51.3	59.0	93.8	45.5	62.1	62.0	44.3	79.0
	555-640	050	064	77.0	52.7	N/A	N/A	82.5	52.7	57.6	77.1	45.5	52.2	45.6	38.6	66.4
		080	064	92.4	74.6	101.3	42.0	82.5	52.7	62.8	93.8	44.7	62.1	62.4	44.3	79.0
	650-910	080	091	92.0	76.5	101.3	42.0	78.5	54.3	66.8	93.8	45.5	63.9	62.0	44.3	75.9
		142	091	99.8	82.6	111.0	6	78.5	54.3	66.6	105.5	46.9	69.8	64.2	46.0	82.3
		142	127	99.8	84.0	111.0	6	77.5	54.3	68.1	105.5	46.9	69.8	64.2	46.0	82.3
	1060-1280	210	127	108.2	96.1	116.0	6	77.5	54.3	68.1	110.9	50.5	81.5	69.9	50.5	92.7
		250	127	122.6	100.2	121.9	6	81.2	54.3	68.1	116.4	54.5	87.6	78.4	56.6	97.8
	1470-1720	210	172	108.2	92.8	N/A	N/A	92.6	63.1	75.7	110.9	50.5	78.2	69.9	50.5	92.7
		250	172	122.6	97.0	N/A	N/A	92.6	63.1	75.7	116.4	54.5	84.5	78.4	56.6	97.8
	CVHG	480-565 ²	050	056	77.0	52.3	N/A	N/A	95.3	52.7	57.6	77.1	45.5	52.2	45.6	38.6
080			056	92.0	74.6	101.3	42.0	95.3	52.7	62.8	93.8	45.5	62.1	62.0	44.3	75.9
670-780 ²		080	078	92.0	76.5	101.3	42.0	95.0	54.3	66.6	93.8	45.5	63.9	62.0	44.3	75.9
		142	078	99.8	83.0	111.0	6	95.0	54.3	66.6	105.5	46.9	69.8	64.2	46.0	82.3
920-1067 ²		142	092	99.8	84.0	111.0	6	93.5	54.3	68.1	105.5	46.9	69.8	64.2	46.0	82.3
		210	092	108.2	96.1	116.0	6	93.5	54.3	68.1	110.9	50.5	81.5	69.9	50.5	92.7

MODL	NTONS	SHELL SIZE	CPSZ	P	R	S	T	U	V	W	USID	UXL	USID	405 & 608A RCAFD		810 & 1215A RCAFD	
											USTR		USTR	Y1	Y2	Y1	Y2
CVHE	190-270 ²	032	032	66.8	29.7	17.0	23.5	70.3	93.7	47.1	79.9	N/A	49.3	94.9	45.1	N/A	N/A
	230-320	050	032	66.8	29.7	17.0	23.5	82.1	98.4	63.4	94.2	N/A	57.6	101.2	49.7	N/A	N/A
	300-420 ²	050	050	66.8	29.8	17.3	24.5	82.1	98.4	63.4	92.5	N/A	55.9	101.2	64.4	N/A	N/A
	360-500	080	050	66.8	29.8	17.3	24.5	95.4	114.7	83.6	92.5	N/A	55.9	101.2	64.4	N/A	N/A
CVHF	350-485	050	048	66.8	29.0	16.3	26.5	82.1	100.0	N/A	92.5	N/A	55.9	101.2	64.4	N/A	N/A
		080	048	66.8	29.0	16.3	26.5	95.4	114.7	N/A	92.5	N/A	55.9	101.2	64.4	N/A	N/A
	555-640	050	064	66.8	32.4	19.9	28.5	82.1	103.3	63.4	93.3	N/A	56.7	106.4	69.8	N/A	N/A
		080	064	66.0	33.6	21.2	28.5	96.0	116.0	82.5	93.3	N/A	56.7	117.6	84.1	N/A	N/A
	650-910	080	091	66.8	30.5	17.8	28.5	95.4	114.7	82.5	93.3	N/A	56.7	119.3	85.7	126.9	93.3
		142	091	68.2	30.5	17.8	28.5	117.1	121.1	84.5	93.3	N/A	56.7	130.3	77.3	144.0	91.1
		142	127	68.2	30.5	17.8	30.0	117.1	121.1	84.5	93.3	N/A	56.7	130.3	77.3	144.0	91.1
	1060-1280	210	127	71.8	N/A	21.1	30.0	126.4	133.0	92.8	93.3	N/A	56.7	N/A	N/A	152.4	95.9
		250	127	75.8	N/A	18.6	32.4	138.9	137.0	N/A	93.3	N/A	56.7	N/A	N/A	160.1	99.6
	1470-1720	210	172	71.8	N/A	25.8	32.8	126.4	137.0	N/A	N/A	N/A	56.7	N/A	N/A	152.4	95.9
		250	172	75.8	N/A	23.3	32.8	138.9	141.4	N/A	N/A	N/A	56.7	N/A	N/A	160.1	99.6
	CVHG	480-565 ²	050	056	66.8	32.4	19.9	28.5	82.1	103.3	63.4	93.3	N/A	56.7	N/A	N/A	N/A
080			056	66.8	33.6	21.2	28.5	95.6	115.8	82.5	93.3	N/A	56.7	N/A	N/A	N/A	N/A
670-780 ²		080	078	66.8	33.5	21.1	32.4	95.6	114.7	82.5	93.3	N/A	56.7	N/A	N/A	N/A	N/A
		142	078	68.2	27.8	17.8	32.4	117.1	121.1	84.5	93.3	N/A	56.7	N/A	N/A	N/A	N/A
920-1067 ²		142	092	68.2	27.8	17.8	32.4	117.1	121.1	84.5	93.3	N/A	56.7	N/A	N/A	N/A	N/A
		210	092	71.8	33.5	21.1	32.4	126.4	133.0	92.8	93.3	N/A	56.7	N/A	N/A	N/A	N/A

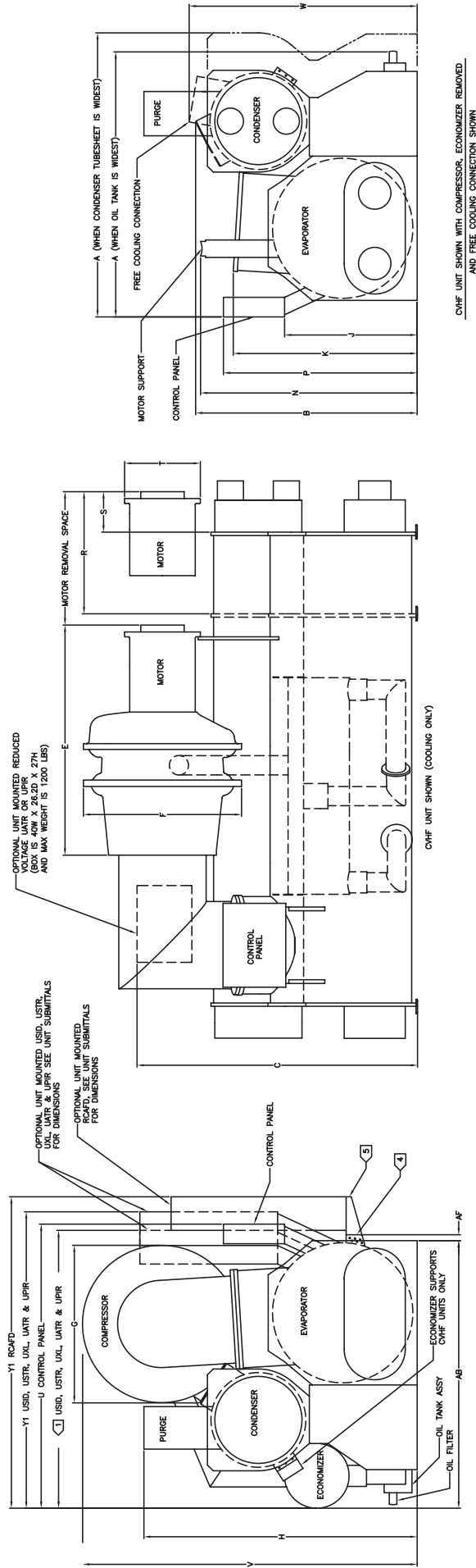
NOTES:

- 1 UNIT MOUNTED STARTER DOES NOT EXTEND BEYOND THE CONTROL PANEL.
- 2 AFD'S ARE NOT AVAILABLE ON 50 HERTZ CHILLERS.
- 3 SEE UNIT MOUNTED STARTER CHART.
- 4 BRACKETS AND SUPPORTS ARE WELDED TO EVAPORATOR ON 405 & 608A RCAFD.
- 5 SUPPORTS CAN BE UNBOLTED FROM BRACKETS WHICH ARE WELDED TO EVAPORATOR ON 810 & 1215A RCAFD.
- 6 DOES NOT EXTEND BEYOND CONDENSER TUBESHEET.
- 7. ALL DIMENSIONS +/- .5 INCH.

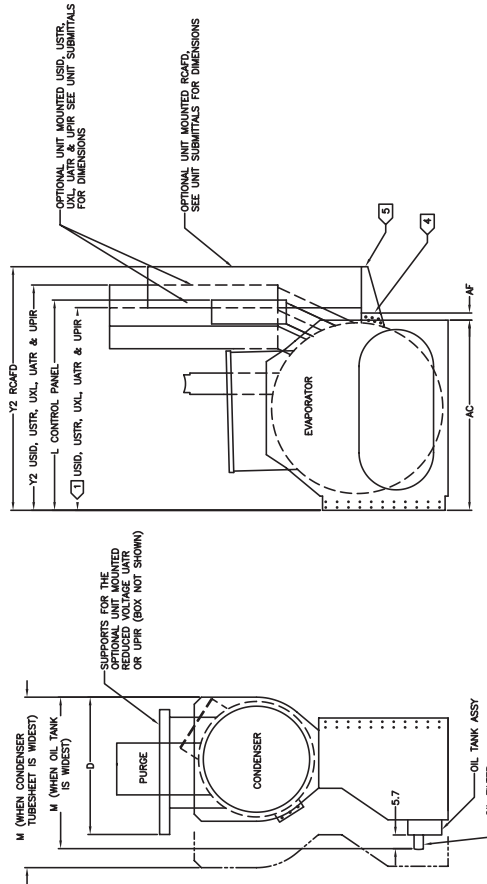
NOTE:

- USID = UNIT MOUNTED SOLID STATE STARTER
- USTR = UNIT MOUNTED WYE-DELTA STARTER
- UXL = UNIT MOUNTED ACROSS-THE-LINE STARTER
- RCAFD = UNIT MOUNTED REFRIGERANT COOLED ADAPTIVE FREQUENCY DRIVE
- UATR = UNIT MOUNTED AUTO-TRANSFORMER
- UPIR = UNIT MOUNTED PRIMARY REACTOR

6 **Figure 1. Dimensional drawing for single compressor model CVHE, CVHF, and CVHG Cen Tra Vac™ Chillers (Model CVHF cooling only unit shown)**



CVHF UNIT SHOWN WITH COMPRESSOR, ECONOMIZER REMOVED AND FREE COOLING CONNECTION SHOWN



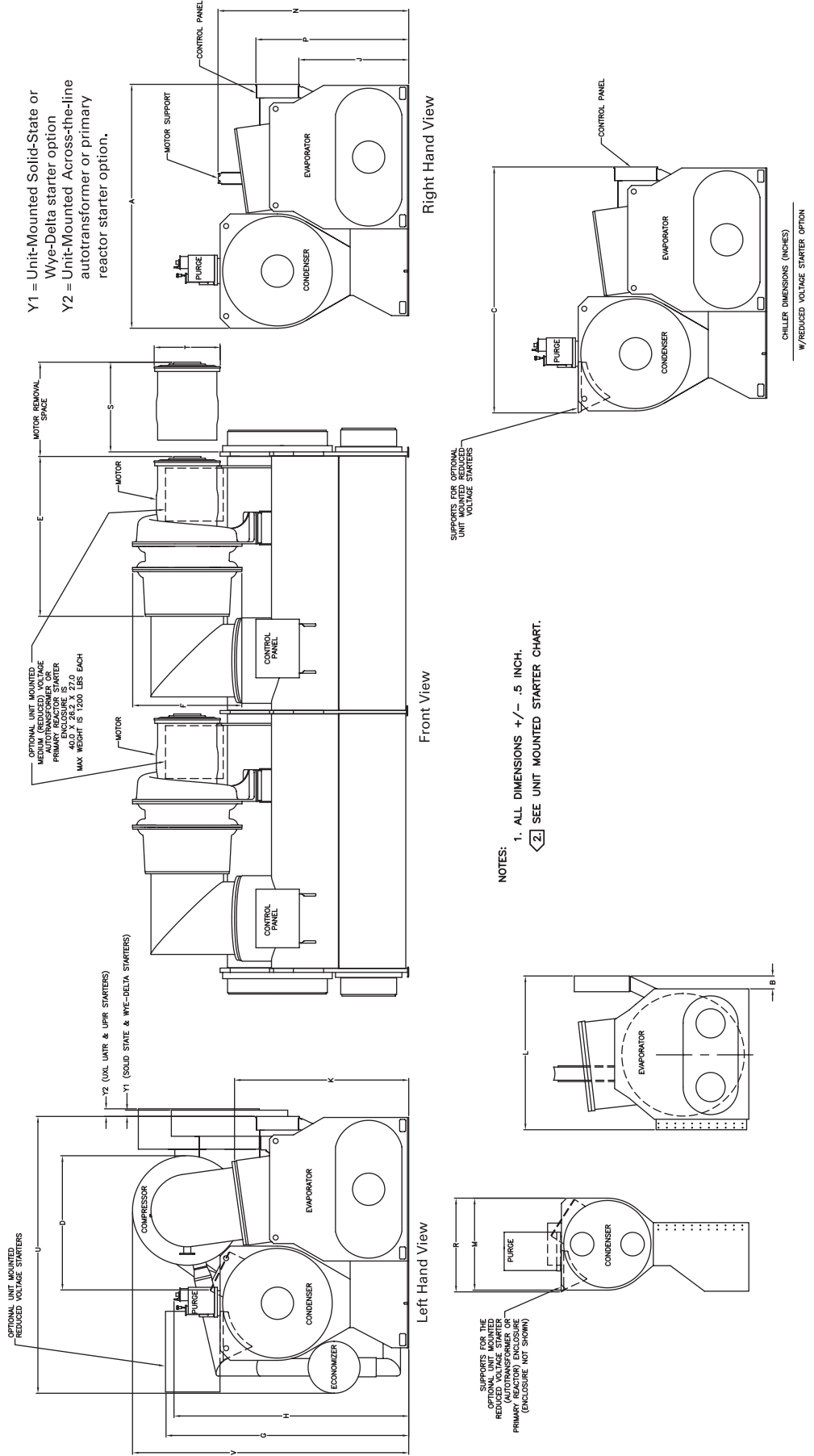
CVHF UNIT SHOWN (COOLING ONLY) WITH COMPRESSOR AND ECONOMIZER REMOVED SHELL SEPARATION DIMENSIONS

SHELL SIZE	CPSZ	UNIT MOUNTED REFRIGERANT COOLED ADAPTIVE FREQUENCY DRIVE				810 & 1215A ROAFD	
		408 & 608A ROAFD	AB	AC	AF	AB	AF
032	032	65.7	35.0	N/A	N/A	N/A	N/A
050	032	78.1	37.0	N/A	N/A	N/A	N/A
050	048	78.1	37.0	N/A	N/A	N/A	N/A
060	048	88.2	54.6	N/A	N/A	N/A	N/A
060	050	78.1	41.5	N/A	N/A	N/A	N/A
060	050	88.2	54.6	N/A	N/A	N/A	N/A
060	064	78.1	41.5	N/A	N/A	N/A	N/A
060	064	88.2	54.6	N/A	N/A	N/A	N/A
060	091	88.2	54.6	88.2	54.6	54.6	4.8
142	091/127	112.0	59.0	112.0	59.0	59.0	4.6
210	127/172	N/A	N/A	129.2	67.7	3.9	3.9
250	127/172	N/A	N/A	141.7	76.2	3.2	3.2

Table 3. Dimensional data for Figure 2, dual compressor model CDHF and CDHG CenTraVac™ chillers, in inches

MODL	COMP SIZE	SHELL SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V	Y1	Y2
CDHF	1500-2000 (QTY OF 2)	2100 DUPLX	109.1	1.5	109.9	66.6	78.5	54.3	116.0	110.9	50.2	81.0	70.6	50.5	94.2	71.8	51.3	45.0	28.5	126.4	132.8	2	2
	2100-2500 (QTY OF 2)	2500 DUPLX	122.6	2.2	123.3	68.0	81.2	54.3	120.6	116.4	54.5	86.2	78.6	56.8	97.8	75.8	57.5	37.0	32.4	138.9	136.9	2	2
CDHG	1250-1750 (QTY OF 2)	2100 DUPLX	109.1	1.5	109.9	66.6	95.0	54.3	116.0	110.9	50.2	81.3	70.6	50.5	94.2	71.8	51.3	45.0	32.4	126.4	132.8	2	2
	2150 (QTY OF 2)	2500 DUPLX	122.6	2.2	123.3	68.0	94.0	54.3	120.6	116.4	54.5	80.7	78.6	56.8	97.8	75.8	57.5	37.0	32.4	138.9	136.9	2	2
CDHF	3000 (QTY OF 2)	250M DUPLX	122.6	2.2	N/A	76.3	92.3	63.1	N/A	116.4	54.5	84.3	78.6	56.8	96.8	75.8	N/A	37.0	33.3	138.9	141.3	N/A	N/A
	3500 (QTY OF 2)	250X DUPLX	122.6	2.2	N/A	76.3	92.3	63.1	N/A	116.4	54.5	84.3	78.6	56.8	96.8	75.8	N/A	37.0	33.3	138.9	141.3	N/A	N/A

Figure 2. Dimensional drawing for dual compressor model CDHF and CDHG CenTraVac™ Chillers





General Information

Table 4. Dimensional data for chillers with unit-mounted starters (applies to Figure 1)

SHELL SIZE	NTONS	VOLTAGE	CPKW/HP	Y1		Y2	
				USID USTR	UXL UATR	USID USTR	UXL UATR
080	CVHF 350, 410, 485	208-600	204, 331, 257, 287	103.4	N/A	69.8	N/A
		208-600	323, 361, 403, 453	Note 1	N/A	Note 1	N/A
		2300-6600	204, 231, 257, 387, 323 361, 403, 453	N/A	100.7	N/A	67.1
080	CVHE 360, 400, 450, 500 (60 Hz)	208-600 (60 Hz)	204, 231, 257, 387 (60 Hz)	103.4	N/A	69.8	N/A
		380-415 (50 Hz)	193, 215, 242 (50 Hz)				
		208-600 (60 Hz)	323, 361, 403, 453 (60 Hz)	Note 1	N/A	Note 1	N/A
080	CVHE 300, 330, 370, 420 (50 Hz)	380-415 (50 Hz)	270, 301, 337, 379 (50 Hz)	N/A	100.7	N/A	67.1
		2300-6600 (60 Hz)	204, 231, 257, 387, 323, 361, 403, 453 (60 Hz)				
		3300-6600 (50 Hz)	193, 215, 242, 270, 301, 337, 379 (50 Hz)	N/A	100.7	N/A	67.1
080	CVHG 480, 565	380-415	215, 242	103.8	N/A	70.2	N/A
		3300	270, 301, 337, 379, 433, 489, 548	Note 1	N/A	Note 1	N/A
		6000, 6600	215, 242, 270, 301, 337, 379, 433, 489, 548	N/A	102.0	N/A	68.4
		6000, 6600	433	N/A	102.0	N/A	68.4
080	CVHF 555, 640	6000, 6600	489, 548	N/A	103.5	N/A	69.9
		208-600	231, 257, 287	103.8	N/A	70.2	N/A
		2300-6600	323, 361, 403, 453, 512, 588	Note 1	N/A	N/A	N/A
		380-415	231, 257, 287, 323, 361, 403, 453, 512, 588	N/A	102.0	N/A	68.4
080	CVHG 670, 780	3300-6600	270, 301, 337, 379, 433, 489, 548, 621	101.3	N/A	67.7	N/A
		3300	270, 301, 337, 379, 433	N/A	108	N/A	74.4
		380-415	489, 548	N/A	108	N/A	74.4
		3300	716	102.7	N/A	69.1	N/A
080	CVHF 650, 770, 910	6000-6600	621, 716	N/A	108.7	N/A	75.1
		6000-6600	489, 548, 621	N/A	108.7	N/A	75.1
		6000-6600	716	N/A	111.3	N/A	77.7
		380-600	323, 361, 403, 453, 512, 588, 653, 745	101.3	N/A	67.7	N/A
		2300-6600	323, 361, 403, 453, 512	N/A	108	N/A	74.4
		2300-4160	588, 653	N/A	108	N/A	74.4
		380-600	856, 957	102.7	N/A	69.1	N/A
6600	588, 653	N/A	108.7	N/A	75.1		
2300-6600	745	N/A	108.7	N/A	75.1		
2300-4160	856, 957	N/A	108.7	N/A	75.1		

NOTES:

- ① UNIT MOUNTED STARTER DOES NOT EXTEND BEYOND THE CONTROL PANEL.
- ② AFD IS NOT AVAILABLE ON 50 CYCLE MACHINES.
- ③ OIL TANK ASSEMBLY DOES NOT EXTEND BEYOND CONDENSER TUBESHEET.
- ④ SEE UNIT MOUNTED STARTER CHART.
- ⑤ DOES NOT EXTEND BEYOND CONDENSER TUBESHEET.
- ⑥ AFD MOUNTING BRACKET IS WELDED TO EVAPORATOR.
- 7. ALL DIMENSIONS +/- .5 INCH.

General Information

Table 4. Dimensional data for chillers with unit-mounted starters (continued) (applies to Figure 1)

SHELL SIZE	NTONS	VOLTAGE	CPKW/HP	Y1		Y2		
				USID USTR	UXL UATR UPIR	USID USTR	UXL UATR UPIR	
142	CVHF 650, 770, 910	380-600	323, 361, 403, 453, 512, 588, 653, 745	Note 1	N/A	Note 1	N/A	
		2300-6600	323, 361, 403, 453, 512	N/A	119.1	N/A	66.1	
		2300-4160	588, 653	N/A	119.1	N/A	66.1	
		380-600	856, 957	Note 1	N/A	Note 1	N/A	
		6600	588, 653	N/A	120.6	N/A	67.6	
		2300-6600	745	N/A	120.6	N/A	67.6	
	142	CVHF 1060, 1280	2300-4160	856, 957	N/A	120.6	N/A	67.6
			380-600	512, 588, 653, 745	Note 1	N/A	Note 1	N/A
			2300-6600	512	N/A	119.1	N/A	66.1
			2300-4160	588, 653	N/A	119.1	N/A	66.1
			380-600	856, 957	Note 1	N/A	Note 1	N/A
			6600	588, 653	N/A	120.6	N/A	67.6
142		CVHG 670, 780	2300-6600	745	N/A	120.6	N/A	67.6
			2300-4160	856, 957	N/A	120.6	N/A	67.6
			440-600	1062	Note 1	N/A	Note 1	N/A
			6600	856, 957, 1062	Note 1	122.4	Note 1	69.4
			2300-4160	1062, 1228	Note 1	122.4	Note 1	69.4
			380-415	270, 301, 337, 379, 433, 489, 548, 621	Note 1	N/A	Note 1	N/A
	142	CVHG 920	3300-6600	270, 301, 337, 379, 433	N/A	119.1	N/A	66.1
			3300	489, 548	N/A	119.1	N/A	66.1
			380-415	716	Note 1	N/A	Note 1	N/A
			3300	716	N/A	120.6	N/A	67.6
			6000-6600	489, 548	N/A	120.6	N/A	67.6
			3300-6600	621	N/A	120.6	N/A	67.6
142		CVHG 920	6000-6600	716	N/A	122.4	N/A	69.4
			380-415	433, 489, 548, 621	Note 1	N/A	Note 1	N/A
			3300-6600	433	N/A	119.1	N/A	66.1
			3300	489, 548	N/A	119.1	N/A	66.1
			380-415	716, 799	Note 1	N/A	Note 1	N/A
			6000-6600	489, 548	N/A	120.6	N/A	67.6
142	CVHG 920	3300-6600	621	N/A	120.6	N/A	67.6	
		3300	716, 799	N/A	120.6	N/A	67.6	
		380-415	892	Note 1	N/A	Note 1	N/A	
		6000-6600	716, 799	N/A	122.4	N/A	69.4	
		3300	892	N/A	122.4	N/A	69.4	
		3300	892	N/A	122.4	N/A	69.4	

NOTES:

- 1 UNIT MOUNTED STARTER DOES NOT EXTEND BEYOND THE CONTROL PANEL.
 - 2 AFD IS NOT AVAILABLE ON 50 CYCLE MACHINES.
 - 3 OIL TANK ASSEMBLY DOES NOT EXTEND BEYOND CONDENSER TUBESHEET.
 - 4 SEE UNIT MOUNTED STARTER CHART.
 - 5 DOES NOT EXTEND BEYOND CONDENSER TUBESHEET.
 - 6 AFD MOUNTING BRACKET IS WELDED TO EVAPORATOR.
7. ALL DIMENSIONS +/- .5 INCH.



General Information

Table 4. Dimensional data for chillers with unit-mounted starters (continued) (applies to Figure 1)

SHELL SIZE	NTONS	VOLTAGE	CPKW/HP	Y1		Y2	
				USID USTR	UXL UATR	USID USTR	UXL UATR
210	CVHF 1060, 1280	380-600	512, 588, 653, 745	Note 1	N/A	Note 1	N/A
		2300-6600	512	N/A	126.6	N/A	70.1
		2300-4160	588, 653	N/A	126.6	N/A	70.1
		380-600	856, 957	Note 1	N/A	Note 1	N/A
		6600	588, 653	N/A	128.1	N/A	71.6
		2300-6600	745	N/A	128.1	N/A	71.6
		2300-4160	856, 957	N/A	128.1	N/A	71.6
		380-600	1062	Note 1	N/A	Note 1	N/A
		6600	856, 957, 1062	N/A	129.9	N/A	73.4
		2300-4160	1228	N/A	129.9	N/A	73.4
		380-415	433, 489, 548, 621	Note 1	N/A	Note 1	N/A
		3300-6600	433	N/A	126.6	N/A	70.1
210	CVHG 920, 1067	3300	489, 548	N/A	126.6	N/A	70.1
		380-415	716, 799	Note 1	N/A	Note 1	N/A
		6000-6600	489, 548	N/A	128.1	N/A	71.6
		3300-6600	621	N/A	128.1	N/A	71.6
		3300	716, 799	N/A	128.1	N/A	71.6
		380-415	892	Note 1	N/A	Note 1	N/A
		6000-6600	716, 799	N/A	129.9	N/A	73.4
		3300	892	N/A	129.9	N/A	73.4

NOTES:

- ① UNIT MOUNTED STARTER DOES NOT EXTEND BEYOND THE CONTROL PANEL.
 - ② AFD IS NOT AVAILABLE ON 50 CYCLE MACHINES.
 - ③ OIL TANK ASSEMBLY DOES NOT EXTEND BEYOND CONDENSER TUBESHEET.
 - ④ SEE UNIT MOUNTED STARTER CHART.
 - ⑤ DOES NOT EXTEND BEYOND CONDENSER TUBESHEET.
 - ⑥ AFD MOUNTING BRACKET IS WELDED TO EVAPORATOR.
7. ALL DIMENSIONS +/- .5 INCH.

General Information

Table 4. Dimensional data for chillers with unit-mounted starters (continued) (applies to Figure 2)

SHELL SIZE	NTONS	VOLTAGE	CPKW/HP	Y1	Y2
210D	CDHF 1500, 2000	380, 440, 460, 480, 575, 600	403, 453, 512, 588, 653, 745, 856, 957	9.2	N/A
		2300, 2400, 3300, 4160, 6600	403, 453, 512	N/A	11.4
		2300, 2400, 3300, 4160	588, 653	N/A	12.9
		2300, 2400, 3300, 4160	745, 856, 957	N/A	12.9
	CDHG 1250, 1750	6600	588, 653, 745	N/A	12.9
		380, 400, 415	301, 337, 379, 433, 489, 548, 621, 716	9.2	N/A
		3300, 6000, 6600	301, 337, 379, 433	N/A	11.4
		3300	489, 548	N/A	11.4
		6000, 6600	489, 548	N/A	12.9
		3300, 6000, 6600	621, 716	N/A	12.9
250D	CDHF 2100, 2500	380, 440, 460, 480, 575, 600	512, 588, 653, 745, 856, 957, 1062, 1228	3.1	N/A
		2300, 2400, 3300, 4160	512, 588, 653	N/A	.5
		6600	512	N/A	2.0
		2300, 2400, 3300, 4160	745, 856, 957	N/A	2.0
	CDHG 2150	6600	588, 653, 745	N/A	3.8
		2300, 2400, 3300, 4160	1062, 1228	N/A	3.8
		6600	856, 957, 1062	N/A	3.8
		380, 400, 415	433, 489, 548, 621, 716, 799, 892	3.1	N/A
		3300	433, 489, 548	N/A	5.5
		6000, 6600	433	N/A	5.5
250D	CDHG 2150	3300	621, 716, 799	N/A	6.0
		6000, 6600	489, 548, 621,	N/A	6.0
		3300	892	N/A	6.0
		6000, 6600	716, 799	N/A	5.8
		6000, 6600	716, 799	N/A	5.8
		6000, 6600	716, 799	N/A	5.8

NOTES:

- 1 UNIT MOUNTED STARTER DOES NOT EXTEND BEYOND THE CONTROL PANEL.
- 2 AFD IS NOT AVAILABLE ON 50 CYCLE MACHINES.
- 3 OIL TANK ASSEMBLY DOES NOT EXTEND BEYOND CONDENSER TUBESHEET.
- 4 SEE UNIT MOUNTED STARTER CHART.
- 5 DOES NOT EXTEND BEYOND CONDENSER TUBESHEET.
- 6 AFD MOUNTING BRACKET IS WELDED TO EVAPORATOR.
- 7. ALL DIMENSIONS +/- .5 INCH.



General Information Weights

Table 5. Compressor and motor weights, in pounds

MODL	NTON Range	CPKW	VOLT	HRTZ	Compressor and Motor Weight ¹
CVHE	190 - 270	242	6600	50	7294
CVHE	230 - 320	287	4160	60	7266
CVHE	300 - 420	379	6600	50	8185
CVHE	360 - 500	453	6600	60	8803
CVHF	350 - 485	453	6600	60	7963
CVHF	555 - 640	588	480	60	8431
CVHF	650 - 910	957	2300	60	9900
CVHF	1060 - 1280	1228	4160	60	10597
CVHF	1470 - 1720	1340	2400	60	13932
CVHG	480 - 565	489	6600	50	10000
CVHG	670 - 780	621	6600	50	11311
CVHG	920 - 1067	621	6600	50	12151
CDHF	1500 - 2000	745	460	60	9498
CDHF	2100 - 2500	1062	460	60	10334
CDHF	3000	1340	2400	60	13911
CDHF	3500	1340	2400	60	13911
CDHG	1250 - 1750	621	6600	50	11311
CDHG	2150	621	6600	50	12151

¹This is the maximum compressor weight with the largest motor and does not include the weight of the suction elbow.

Table 6. Waterbox weights, in pounds

Unit	Shell Size	WB Pressure	Npass	Waterbox Weights			
				Evaporator		Condenser	
				Marine	NonMarine	Marine	NonMarine
CVHE	32	150	2	619	418	499	274
CVHE	50	150	2	958	630	698	399
CVHF	50	150	2	958	630	698	399
CVHF	80	150	2	1860	1166	1442	1032
CVHF	142	150	2	2409	1528	3643	2760
CVHF	210	150	2	4165	3080	4819	3874
CVHF	250	150	2	5162	3806	N/A	N/A
CDHF	250D	150	1	6518	3806	7090	4900
CDHF	250M	150	1	6308	3806	7058	4900
CDHF	250X	150	1	6308	3806	7058	4900
CVHE	032S	300	2	653	452	644	440
CVHE	032L	300	2	653	452	644	440
CVHF	050S	300	2	1061	712	1328	978
CVHF	050L	300	2	1061	712	1328	978
CVHF	080S	300	2	2490	1528	2565	1722
CVHF	080L	300	2	2490	1528	2565	1722
CVHF	142M	300	2	3701	2364	N/A	N/A
CVHF	142L	300	2	3701	2364	5330	3648
CVHF	142E	300	2	3701	2364	N/A	N/A
CVHF	210L	300	2	6403	4424	7319	5710
CVHF	250E	300	2	8343	5732	N/A	N/A
CVHF	250L	300	2	N/A	N/A	11442	6846
CDHF	250D	300	1	10954	5732	11442	6846
CDHF	250M	300	1	10618	5736	11146	6846
CDHF	250X	300	1	10618	5736	11146	6846

General Information Weights

Table 7. Evaporator and condenser bundle weights¹, in pounds

Unit	Shell Size	Bundle Size	Evaporator ³	Condenser ²
CVHE	032S	320	2641	1992
CVHE	032L	320	3302	2384
CVHF	050S	500	3996	2784
CVHF	050L	500	4945	3443
CVHF	080S	800	6891	4072
CVHF	080L	800	8503	5161
CVHF	142M	1420	10393	N/A
CVHF	142L	1420	11216	8263
CVHF	142E	1420	12106	N/A
CVHF	210L	2100	13787	10837
CVHF	250E	2500	18769	N/A
CDHF	210D	2100	21055	17828
CDHF	250D	2500	22959	20065
CDHF	250M	2500	26682	22782
CDHF	250X	2500	29598	25362

¹Bundle weights are for the maximum bundle size for chiller family with TECU .28" tubes.

²Condenser Weight Include : Condenser + Oil Tank + Purge + Legs

³Evaporator Weight Include : Evaporator + Control Panel + Legs

Purge Weight = 140
 Oil Tank Weight = 350
 Control Panel = 60

Table 8 - Economizer weights, in pounds

Unit	Shell Size	# of Circ	Economizer	
			Without Free Cooling	With Free Cooling
CVHE	032S	1	404	564
CVHE	032L	1	404	564
CVHE	050S	1	635	1105
CVHE	050L	1	635	1105
CVHF	050S	1	420	890
CVHF	050L	1	420	890
CVHF	080S	1	976	1296
CVHF	080L	1	976	1296
CVHF	142M	1	878	1348
CVHF	142L	1	878	1348
CVHF	142E	1	878	1348
CVHF	210L	1	878	1348
CVHF	250E	1	878	N/A
CDHF	250D	2	878	N/A
CDHF	250M	2	862	N/A
CDHF	250X	2	862	N/A



Disassembly/ Reassembly

CH530 Wiring Disassembly

In order to separate shells, remove the purge and remove the compressor, various unit mounted sensors (frame LLID's) will have to be removed or have their buss wires cut to allow the disassembly. If possible, the best method is to remove the sensor and carefully coil up the wire after labeling the device and its location to aid in reinstallation. The exception is the entering and leaving water temperature sensors for the condenser and evaporator. These sensors have a special plug attached to the buss wiring, which allows easy disconnection and reconnection. Other temperature sensors can be removed and coiled up with the buss wiring to allow easy reinstallation. Pressure sensors are not as easy to remove, since they use a pipe thread which has sealant applied to the threads and were leak checked at assembly. For these type sensors (LLID's), it may be easier to cut the buss wiring and reinstall using a buss splice. Note: only cut IPC buss in the flat, straight wire sections (for flat-and-twist wire). Do not cut in the twisted areas. Cut the buss in an area where access is available for crimping the connectors during reassembly.

Separable shell units ship from the factory with extra buss wire, connectors and caps to allow splices to be made (allows technician to decide where best to cut the buss wiring to allow splicing). A buss repair kit is available from Trane

Parts under part number KIT07957. This kit contains 2 connectors, 4 caps, glue and 2 feet of wire. A special tool made for Trane to crimp the connectors is available as Trane part number TOL01559. If splicing just a few connections, it may be more cost effective to use a parallel pliers, such as a Robogrip. These work satisfactory if care is taken to evenly crimp the connection but may require some practice to become proficient at making good joints. The special crimp tool works excellent for doing multiple crimp connections with little practice being required to make a good connection and is recommended if multiple splicing connections are required.

Disassembly of Chillers With Heat Recovery

Use the following steps when disassembling chillers with auxiliary or heat recovery condenser shells to reduce the vertical clearance required for the chiller installation.

1. Support the auxiliary or heat recovery condenser with rigging using the lifting holes on the tube sheets. Do not lift the shell; simply support it to avoid slipping as the bolts are removed from the connecting flanges.
2. Remove the bolts from the flanges on the interconnecting piping and flanges connecting the auxiliary heat recovery condenser and condenser tube sheets.
3. Remove the bolts from the flanges on the interconnecting piping and the flanges connecting the shells.

4. Lift the condenser clear of the unit.
5. Reassemble the condenser in the reverse order. Be sure to install new gaskets at the appropriate joints.
6. Torque all bolts to specifications listed in the "Bolt Torques" table of this manual.
7. Remove and coil up sensors.

Disassembly of Chillers With Free Cooling

Use the following steps on free cooling units to reduce the vertical clearance required for chiller installation.

1. Support the piping and free cooling valve between the condenser and suction elbow with rigging similar to that used for removing the suction elbow. Do not lift the piping; simply support it to avoid slipping as the bolts are removed from the connecting flanges. (Typical rigging for lifting the suction elbow can be seen in Figure 14.)
2. Remove the bolts from the flanges.
3. Lift the piping clear of the unit.
4. Reassemble the piping in the reverse order. Be sure to install new gaskets at the appropriate joints.
5. Torque all bolts to torque specifications listed in this manual. See Table 7.

Disassembly/ Reassembly

CAUTION

Removal of Compressor Motor Assembly!

The compressor motor assembly must not be removed from the chiller unless special doweling has been installed at the factory. Doweling must be installed to prevent the interstage casings from shifting.

If the compressor/motor assembly is lifted without doweling installed, the internal components may shift. It will then be necessary to disassemble and then reassemble the compressor making sure that all internal clearances and specifications are proper. If the internal components shift and the chiller is started, serious compressor damage may result. If doweling is not factory installed, and it is necessary to install doweling, contact the local Trane Service Company. The compressor discharge flange and mounting foot are also doweled at the factory to provide proper alignment during reassembly.

1. Figures 3, 4, and 5 show factory installed compressor doweling. If components are not factory doweled, doweling must be installed before proceeding. Contact the local Trane Service Company.
2. Disconnect the inlet vane linkage.
 - a. Disconnect the rod end bearings connecting the inlet vane operator levers to the guide vane links. See Figures 6 and 7. Leave the rod end bearing connecting the guide vane links to the main drive levers attached.

Note: Be sure not to rotate the rod end bearings on the shaft as this will alter the inlet guide vane operations and compressor performance.

- b. Remove the cotter pin securing the vane operator stud to the vane drive and slide the stud out of the main drive. See Figure 8.
 - c. Remove the hex head bolts securing the vane drive support assemblies to the compressor castings and remove the main drive and inlet vane levers from the compressor as a unit. See Figure 8.
 - d. Remove the hex head bolts securing the vane actuator assembly to the compressor and remove the actuator assembly from the compressor.
3. Disconnect all external vent lines, motor cooling supply and drain lines, and oil supply and drain lines which are connected to the compressor and compressor motor. Sand all paint off the points where cuts are to be made. Use a tubing cutter to insure that cuts are smooth and square. Figures 9, 10, 11 and 12 illustrate these lines and where the cuts should be made. Couplings will be used to reconnect the lines when reassembling the chiller. Cap open lines to prevent entry of foreign material.
4. Remove the control panel if necessary. Also, disconnect and remove the unit mounted starter, if so equipped.
5. Remove the economizer vent pipe flange bolts at the compressor connection. See the Economizer Removal section for instructions.
6. Install lifting plates (not furnished by Trane) on top of the compressor volute flanges. See Figure 13.

Each plate must be secured by three of the volute flange bolts. The lifting plates are to be fabricated from 1-1/2 inch steel plates.
7. Remove the suction elbow.
 - a. Use a sling to support the suction elbow. Apply slight lifting pressure. See Figure 14.
 - b. Remove the bolts from the control mounting bracket on the back of the control panel.
 - c. Remove the suction elbow bolts at the compressor and evaporator connections.
 - d. Lift the suction elbow from the chiller being careful to not damage flange surface.
 - e. Install protective covers on the evaporator and compressor connections. Plastic, along with duct tape makes an adequate cover as long as no heavy objects are set on the openings. Alternatively, wooden or metal disks may be used. See Figure 15.
8. Support the compressor/motor assembly as shown in Figure 13. Do not lift the assembly; simply support the assembly to prevent it from slipping as the compressor foot and discharge connection flange bolts are removed.
9. Remove the compressor/motor assembly. Remove the locating dowel pins from the compressor foot and discharge flange connections. This can be accomplished by removing the nut on the dowel pin, placing a bushing on the pin and then reinstalling the nut. See Figures 4 and 5.

Disassembly/ Reassembly

Figure 3. Compressor dowelings on casings

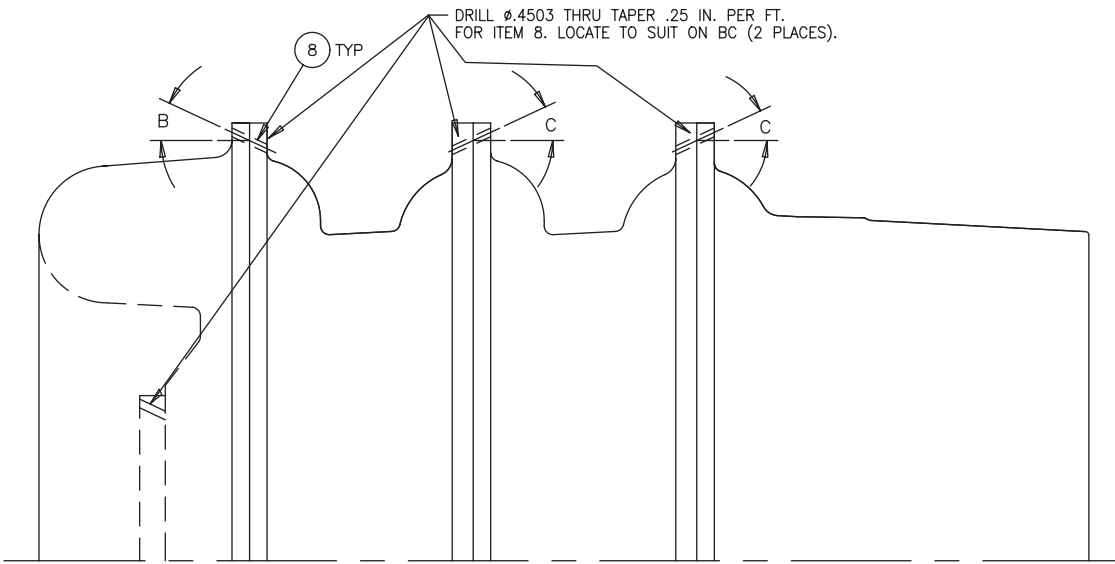
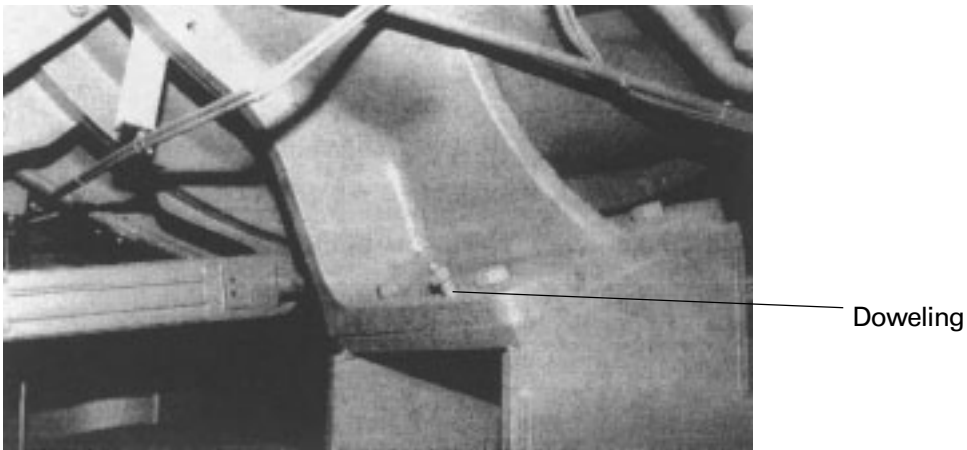


Figure 4. Compressor doweling on foot



Disassembly/ Reassembly

Figure 5. Compressor doweling on discharge flange

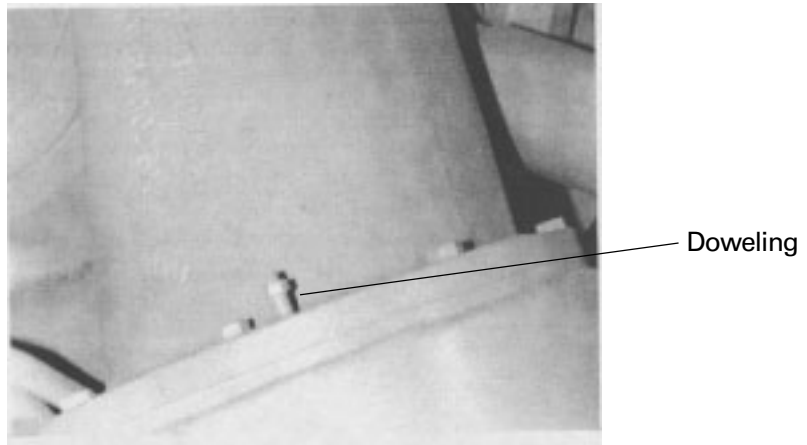


Figure 6. First stage vane operator lever on suction cover



Figure 7. Interstage inlet vane operator lever



Disassembly/ Reassembly

Figure 8. Typical inlet vane operator mechanism

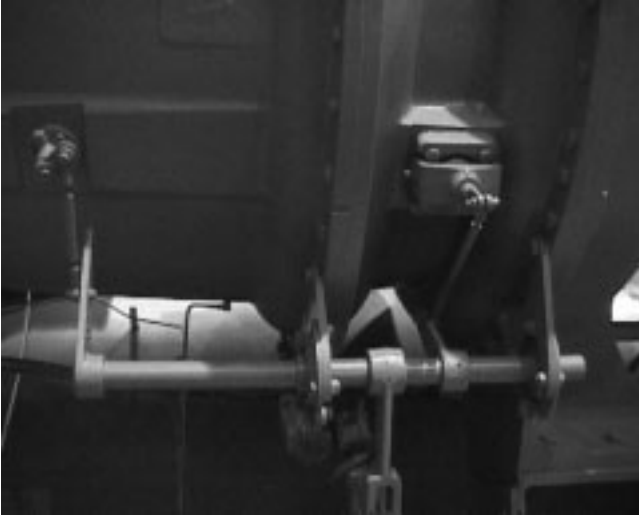
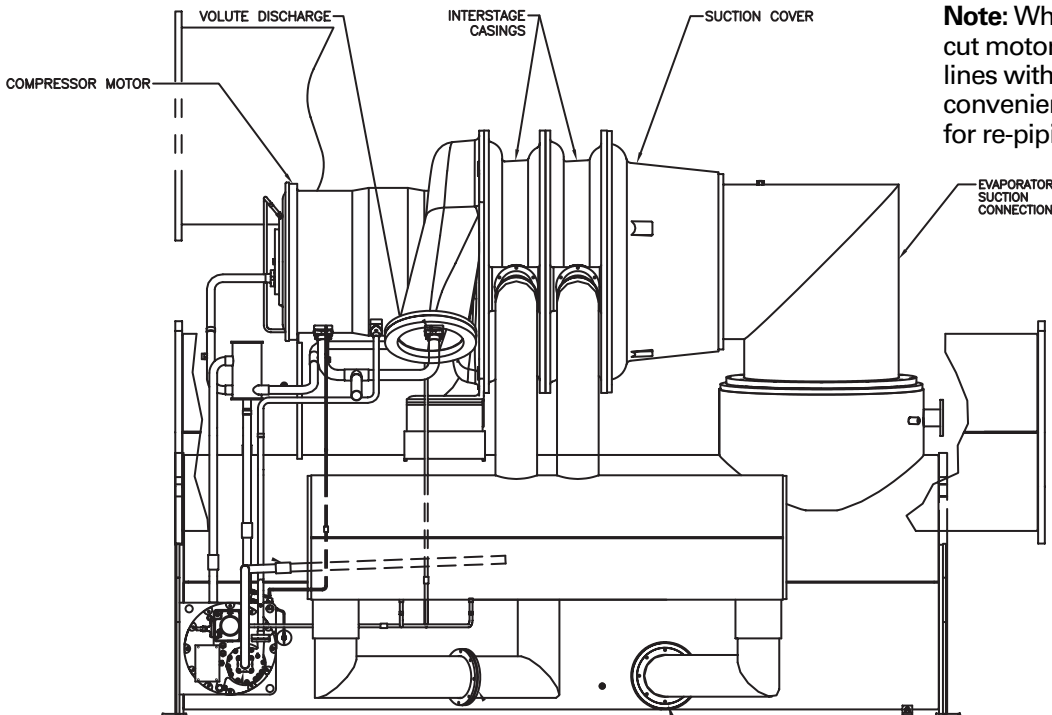


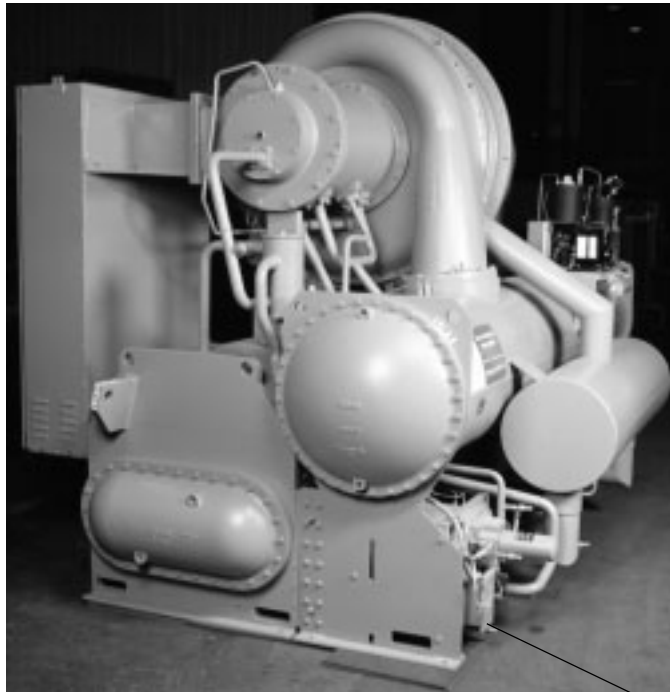
Figure 9. Typical motor cooling supply and drain lines



Note: When flanges are not present, cut motor cooling supply and drain lines with tubing cutter in a convenient location. Use coupling for re-piping.

Disassembly/ Reassembly

Figure 10. Lubrication system: supply, drain and vent lines



Oil Tank Assembly

Figure 11. Typical motor cooling lines



Disassembly/ Reassembly

Figure 12. Oil drain line and motor support

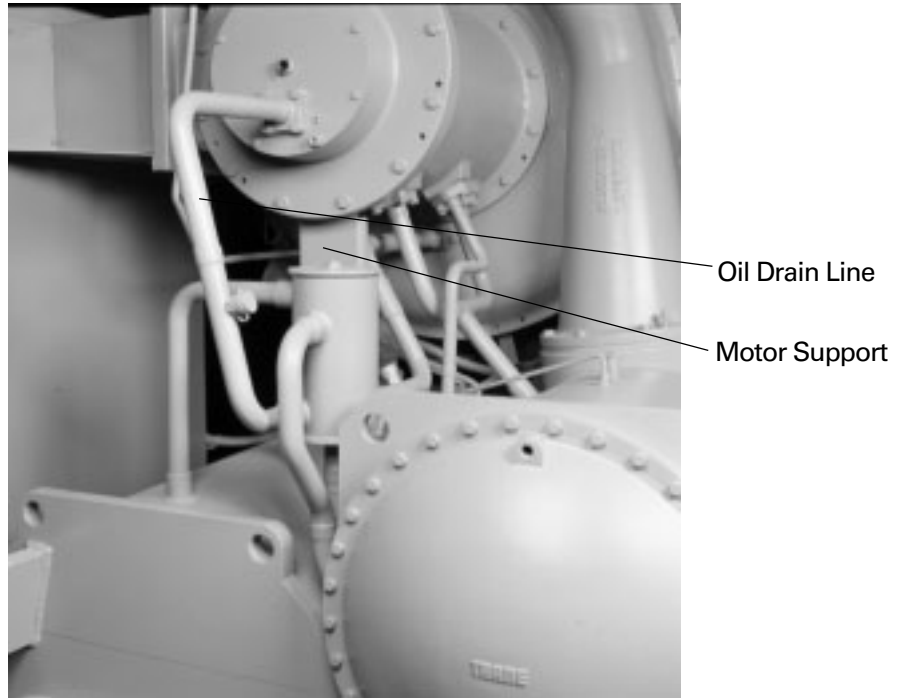
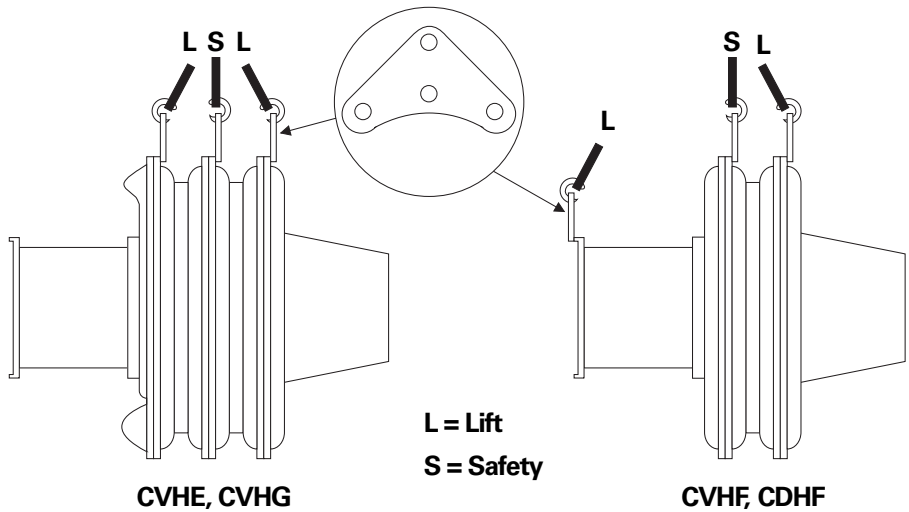


Figure 13. Rigging the compressor/motor assembly

Note: CVHE 200 thru 500 tons require 3 mounting holes, plate to volute. CVHE 800 thru 1280, CVHF 800, CDHF require 4 mounting holes, plate to volute.



Disassembly/ Reassembly

Figure 14. Lifting the suction elbow

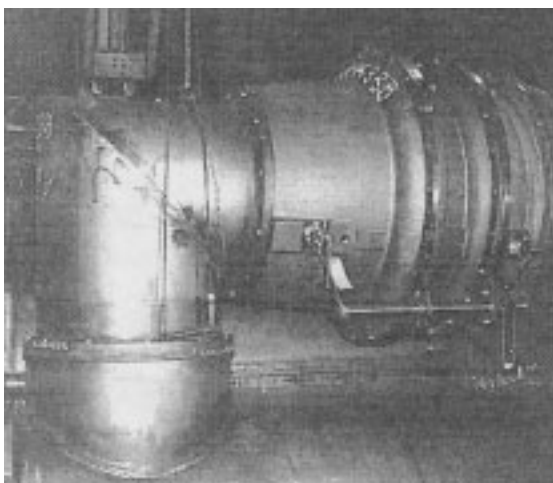
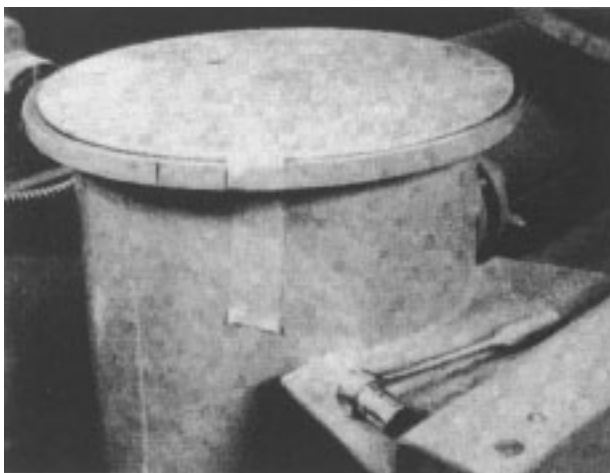


Figure 15. Protective cover on open flange connections



Disassembly/ Reassembly

Economizer Removal

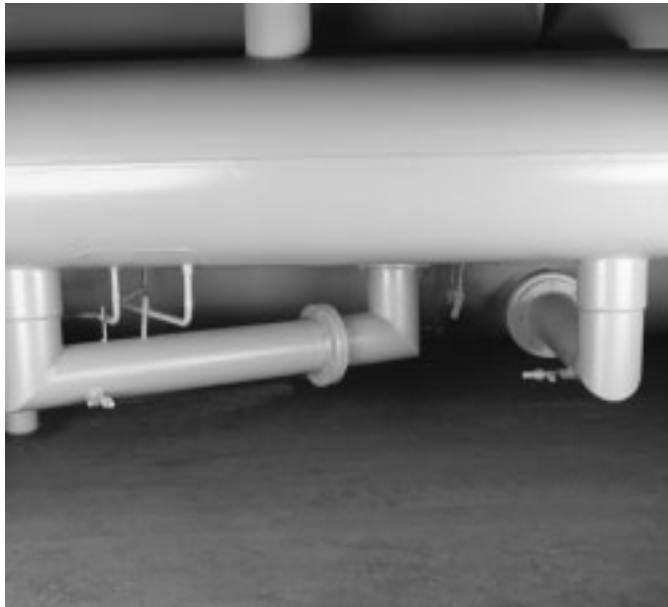
Use the following steps to remove the economizer if additional horizontal clearance is required.

1. Support the weight of the economizer with a movable floor jack. Do not lift the economizer; simply support it. See Figure 16. Economizer weights are provided in Figure 1. It is recommended that larger size economizers be lifted using overhead rigging.
2. If the unit has insulation, remove the insulation and loosen the bolts on the condenser liquid line flange. See Figure 17. Do not remove the bolts at this time. Cut the motor cooling drain line(s) if present and cut entering and leaving 5/8 inch OD copper oil cooler lines. Refer to Figure 9.
3. Loosen the bolts on the evaporator liquid line flange. This connection is near the bottom of the evaporator. See Figure 18. Do not remove the bolts at this time.
4. Economizers are connected to the condenser shell via a bolted flange. See Figure 17. Remove the bolts at this flanged connection.
5. Loosen the economizer vent pipe bolts which secure the vent pipes to the compressor interstage castings (unless the compressor has already been removed to gain vertical clearance.)

Figure 16. Removing the economizer



Figure 17. Condenser liquid line flange



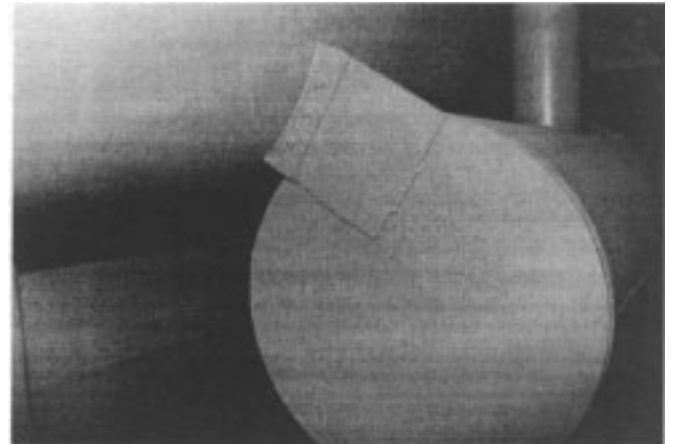
Disassembly/ Reassembly

6. Remove the bolts from the condenser and evaporator liquid line connection flanges. Adjust the floor jack as necessary to support the weight of the economizer. If the vent pipe bolts have already been removed, **two people should steady the economizer on the floor jack as the liquid line bolts are removed.**
7. Remove the economizer vent pipe flange bolts to loosen the economizer; refer to Figure 16. When the bolts are free, back the economizer away from the chiller. The economizer may tend to rotate off the jack towards the chiller. **Be prepared to offset the rotation.**
8. Remove the economizer orifice plates and **mark them** so they are reinstalled in their original position.
The orifice with the **greatest** number of holes is to be located between the economizer and the evaporator. The orifice with **fewer** holes is to be located between the condenser and economizer.
9. Move the economizer away from the chiller and set it on a pallet. Cover all openings to prevent the entry of foreign material into the economizer, condenser and compressor.
10. Use the reverse order to reassemble the economizer on the chiller. Be sure to install new gaskets at the appropriate joints.
11. Torque all bolts to specifications listed in this manual. See Table 3.

Figure 18. Evaporator liquid line flange



Figure 19. Economizer/shell connection



Disassembly/ Reassembly

Control Panel Removal

Use the following steps to remove the control panel if additional horizontal clearance is required.

1. Mark and disconnect incoming wiring to the control panel.
2. Remove the bolts from the bottom of the panel which secure the panel to the lower mounting bracket.

3. Loosen the bolts on the back of the panel which secure the panel to the top (suction elbow) mounting bracket. Refer to Figure 20.
4. Two people will be needed to lift the panel clear of the chiller. Steady the panel as the top retaining bolts are removed. Then lift the panel clear. Store the panel in a clean dry area.
5. Use the reverse order to reassemble the control panel.

Unit Mounted Starter Removal

Additional horizontal and vertical clearances may be obtained by removing the unit mounted starter on chillers so equipped. See Figure 21. The following procedure assumes the chiller is new and has never been installed and therefore there is no electrical power connected to the chiller.

1. Mark and disconnect the power wiring at the compressor motor terminal lugs inside the starter panel.

Figure 20. Control panel mounting bracket

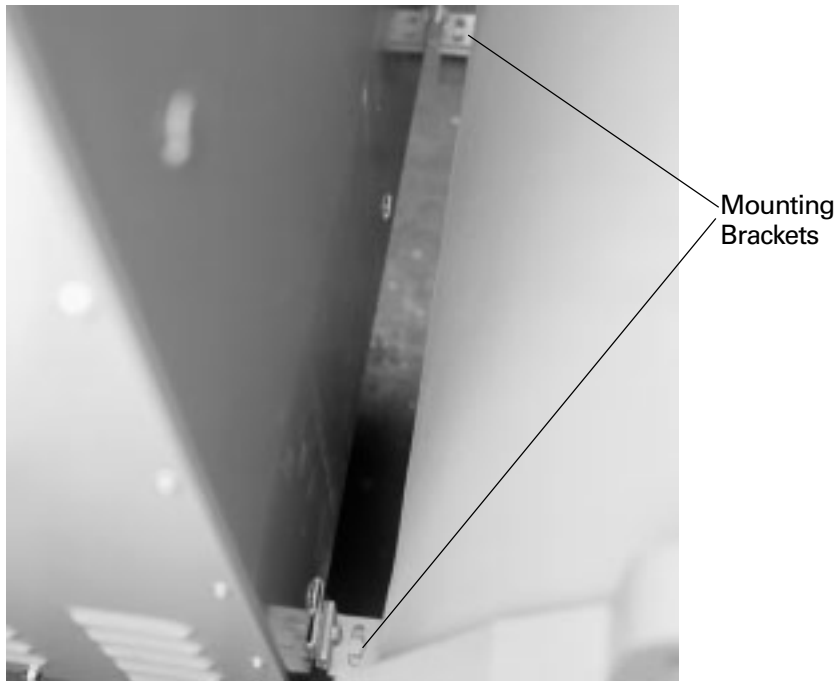


Figure 21. Unit mounted starter



Disassembly/ Reassembly

Figure 22. Unit mount starter mounting bracket



2. Mark and disconnect control wiring entering the starter panel. Remove the control wiring conduit from the starter panel.
3. Remove the bolts securing the bottom of the starter to the brackets on the evaporator.
4. For moving the starter panel away from the chiller, it is recommended that a fork truck be used. Position the truck so that it is ready to take up the weight of the starter panel. The panel weighs approximately 725 pounds. The panel is top heavy and must be adequately secured before moving.

⚠ WARNING

Use Extreme Care When Moving Heavy Components!
Failure to use caution could result in death or serious injury due to components dropping on personnel.

5. Loosen the bolts which hold the starter to the flange on the motor. Steady the starter panel as the retaining bolts are removed because the panel will tip forward. See Figure 22.
6. Support the weight of the starter panel with the fork truck and carefully remove the starter panel from the chiller. Store the panel in a clean dry area free of any corrosive agents. When ready, reassemble the panel on the chiller in reverse order.

Condenser/Evaporator Disassembly

After the compressor assembly has been removed on separable shell units, the condenser and evaporator shells can be taken apart at flanged connections to reduce the horizontal clearance required for the chiller installation.

1. Ensure that condenser and evaporator shells are securely supported on level ground. If not, shim under the bases.
2. Support the condenser with rigging using the lifting holes on the tube sheets. See Figure 23. Do not lift the shell, simply support it to avoid slipping as the bolts are removed from the connecting flange.
3. Remove the bolts from the flanges connecting the Evaporator tube sheet and Condenser Shell support. See Figure 24. Then remove the bolts from the flanges connecting the shells.

Note: Some small shell combinations do not have flanged connections between shells.

4. Remove the two dowel pins located in the flange on each end of the shell tube sheet connections and lift the condenser clear of the evaporator.
5. Reassemble the evaporator and condenser shells in the reverse order.
6. Torque all bolts to specifications in this manual. See Table 3.

Disassembly/ Reassembly

Figure 23. Separable shell unit - end view

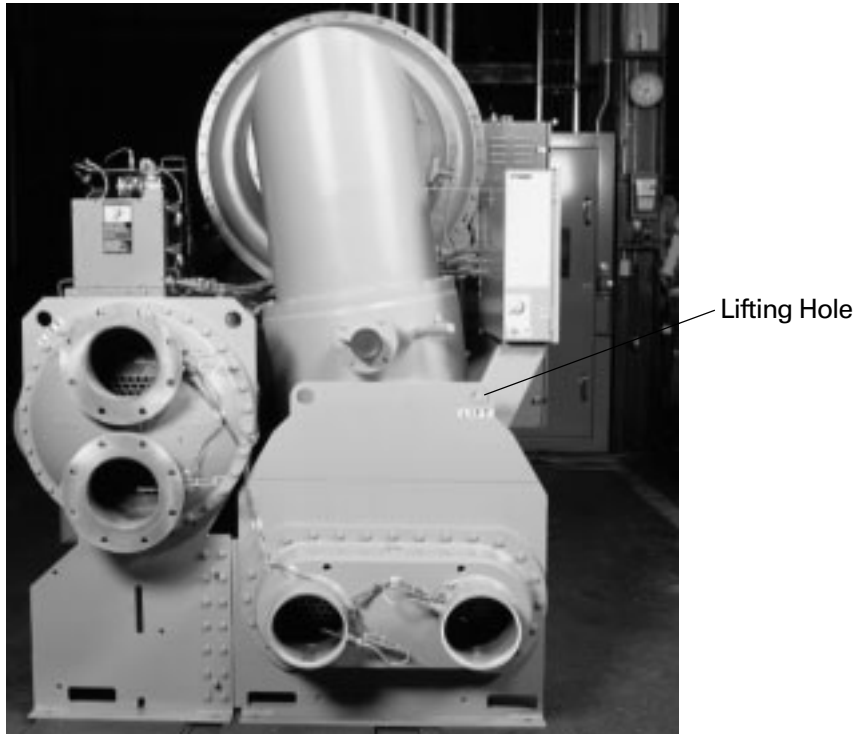
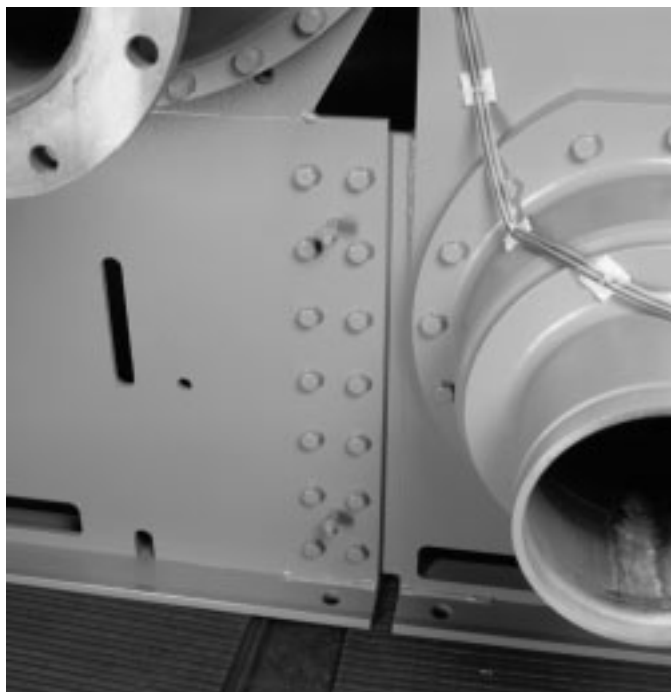


Figure 24. Separable shell flange connection



Disassembly/ Reassembly

Purge Unit Removal

Additional vertical clearance may be gained by removing the purge assembly from the top of the condenser.

1. Disconnect and mark all piping and wiring attached to the purge unit. Sand all paint off at points and use a tubing cutter where cuts are to be made. See Figures 25 and 26.
2. Remove the fasteners connecting the purge unit base to its mounting bracket.
3. Lift the purge unit clear of the chiller and store in a clean dry area.
4. Reassemble the purge unit in reverse order.

Figure 25. Purge unit



Figure 26. Purge unit details



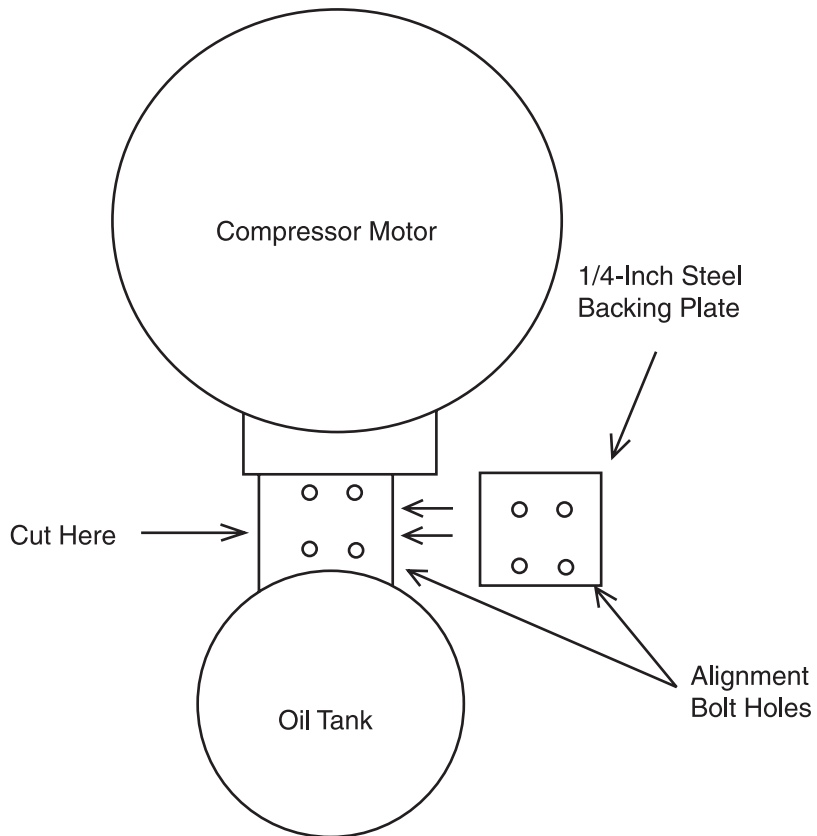
Disassembly/ Reassembly

Compressor Motor Mount

The height of the compressor motor mount can be reduced if additional vertical clearance is required. Use the following procedure.

1. Before cutting off the motor mount, first fabricate a 1/4-inch steel backing plate.
 - a. Cut the backing plate to shape and clamp it to the motor mount.
 - b. Drill four 1/4-inch holes through the motor mount and the backing plate as shown in Figure 27. These holes with bolts or roll pins installed will be used to align the components during reassembly.
 - c. Remove the backing plate.
2. Using an oxyacetylene torch, cut the mount as shown in Figure 27.
3. During reassembly, use the backing plate with bolts or roll pins to locate the pieces properly. It is recommended to weld the mount and backing plate in place.

Figure 27. Motor support details



Disassembly/ Reassembly

Compressor/Motor Reassembly

It is very important to remove used O-rings and gaskets and clean joints before reassembling the compressor with new O-rings and gaskets. A typical reassembly kit is shown in Figure 28. Use the following procedure to reattach the compressor/motor assembly to the chiller.

1. Remove the protective covers on all compressor, condenser, and evaporator connections. Clean all mating surfaces using LocTite "Chisel" cleaner. Make sure that all old sealing compound is removed from O-ring grooves. Use LocTite "N" primer for final surface preparation.
2. Install a new O-ring on the compressor discharge connection mating surfaces. Use LocTite 515 "Gasket Eliminator" to lubricate the O-ring and provide additional sealing. This is the only sealing compound recommended by Trane for use on O-ring joints.

It is manufactured by the LocTite Corporation and is available through refrigeration, plumbing and automotive supply houses, as well as Trane Service Companies.

To use this sealing compound, apply a light bead (approximately 1/8" in diameter) to the O-ring groove, insert the O-ring and then apply a light bead to the O-ring. Also apply a 1/8" bead of sealing compound between the O-ring groove and the bolt hole circle. The parts can now be assembled.

3. Lift the compressor/motor assembly into place. Insert the bolts in the compressor foot and discharge flange connections. Before tightening any of these bolts, reinstall the dowel pins in the compressor foot and discharge flange.

4. Tighten the compressor foot and discharge flange bolts. See Table 3 for bolt torques.
5. Install and tighten the motor mount bolts. See bolt torque specifications in Table 3.
6. Remove the lifting equipment.
7. Set up dial indicators on the compressor end of the compressor/motor assembly. See Figure 29. The dial indicators are used to monitor horizontal and vertical movement of the compressor/motor assembly when the suction elbow retaining bolts are tightened. Support the dial indicators from the condenser or from a floor stand.
8. Clean the suction elbow flange surfaces and O-ring grooves per Step 1. For the evaporator to suction elbow joint, use LocTite 515 per Step 2. For the suction elbow to compressor joint, use 1/8" Gortex joint sealant placed approximately 1/8" in board of the O-ring groove. This is used in addition to the O-ring. As an option, LocTite 515 may be used per Step 2 in place of Gortex. However, great care must be taken to prevent the sealant from entering the first stage GIV housing.
9. Lift the suction elbow into place using a sling.
10. Install the suction elbow retaining bolts. Tighten the retaining bolts only "hand tight".
11. Tighten two retaining bolts, 180 degrees apart at the compressor connection. Then tighten two bolts, 180 degrees apart at the evaporator connection. Alternate between connections until all retaining bolts are tight. Monitor the Dial indicators to insure that

there is no more than 0.010 inches of compressor movement. If there is more movement than this, loosen all of the bolts, "zero" the dial indicators and repeat the procedure. Table 3 illustrates the bolt tightening sequence and provides bolt torque specifications.

12. Reconnect the economizer vent pipes. Be sure to clean the mating surfaces and use new gaskets on the connections. Tighten the flange bolts just enough so that the gasket material just begins to extrude from between the flanges.
13. Reinstall all other chiller components which were removed. Reconnect the inlet vane linkages.
14. Torque all bolts to specifications listed in this manual. See Table 3.
15. Reconnect the compressor/motor oil supply and return lines and the motor cooling lines. These lines were cut previously and should now be rejoined using the supplied couplings.

Except as noted below, brazing with the following filler metals is to be used:

Braze all copper-to-copper joints with A.W.S. BcuP-6 filler metal. Braze all copper-to-brass joints with A.W.S. BcuP-6 filler metal using white or black brazing flux. Braze all other joints with A.W.S. Bag-28 filler metal. Be sure to bleed dry nitrogen through the lines while brazing to prevent the formation of oxides which can contaminate the oil and refrigerant systems.

Disassembly/ Reassembly

Special Note: Silver Soldering with 96% Sn-4% Ag (for example J.W. Harris Co. Stay-Brite) shall be used to replace brazing when the heat from brazing would be detrimental to the immediate or nearby parts. For example: 1) joints next to threaded joints in which the copper or brass threads become too soft and/or Loctite loses its sealing capability due to excess heat; 2) joints next to valves in which the valves cannot be taken apart or are not recommended for brazing.

After the chiller has been moved to the equipment room and reassembled, the final installation procedures (including piping, wiring, evacuation, leak testing and charging) may be completed. The chiller may then be started under the supervision of a Trane service engineer.

For additional information regarding compressor disassembly and reassembly, refer to the following manuals, CVHE-SB-10 and CTV-SB-91A.

Figure 28. Reassembly Kit



Disassembly/ Reassembly

Figure 29. Suction elbow flange bolt

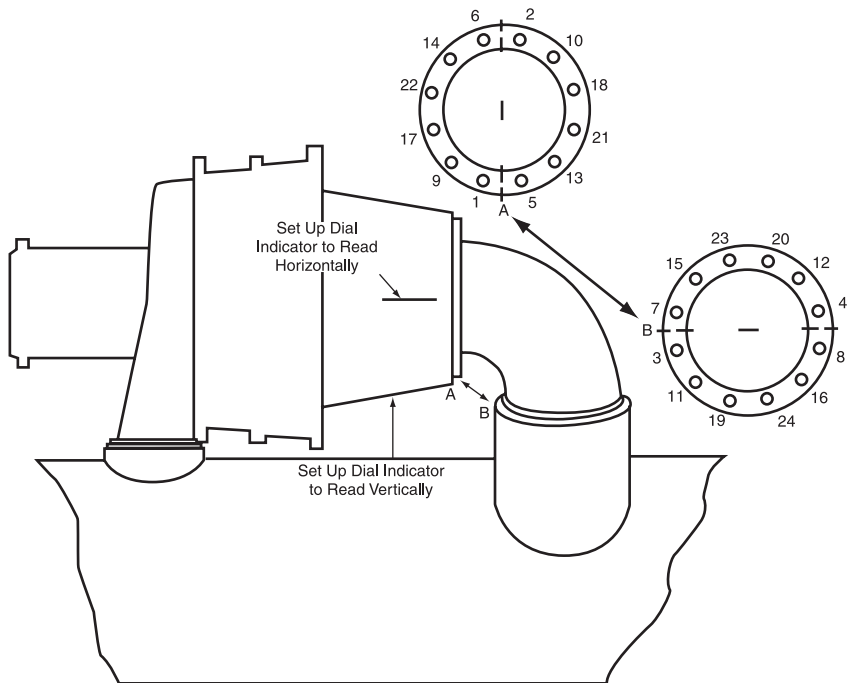


Table 11. Bolt torques

Non-Gasketed Joints Bolt Torques

Bolt Size	Torque
1/2-in.	70 Ft.-Lbs.
5/8-in.	150 Ft.-Lbs.
3/4-in.	250 Ft.-Lbs.

All Other Metal Joints (O-Ring Joints) Shall Use the Following Torques

Bolt Size	Torque in Ft. Lbs.	
	Min.	Max.
1/4-in.	5	7
5/16-in.	11	15
3/8-in.	20	27
1/2-in.	55	75
5/8-in.	120	165
3/4-in.	200	280
1-in.	400	550

All Joints with Flat Elastomeric Gaskets Shall Use the Following Bolt Torque

Bolt Size	Torque in Ft. Lbs.	
	Min.	Max.
5/16-in.	8	12
3/8-in.	12	18
1/2-in.	33	50
5/8-in.	70	90
3/4-in.	105	155



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Stocking Location	Inland

Trane Company has a policy of continuous product and product data improvement and reserves the right to change design and specifications without notice.

Only qualified technicians should perform the installation and servicing of equipment referred to in this publication.