TRANE

General Service Bulletin

RTHA-SB-14

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Literature Change History

New

Subject: RTHA Disassembly Dimensions for Limited Access Installations

Introduction:

The purpose of this Service Bulletin is to aid in the disassembly of the RTHA units and to provide clearance dimensions for limited access installations.

Discussion:

This Service Bulletin provides instructions for removal of the compressor and starter panel. It also presents dimensions of components for limited access installations. Refer to the illustrations when performing these procedures.

Note: The Trane Company urges all HVAC servicers, working on Trane equipment and other manufacturer's products, to make every effort to eliminate, if possible, or vigorously reduce emissions of CFC, HCFC and HFC refrigerants to the atmosphere resulting from installation, operation, routine maintenance, or major service on this equipment. Always act in a responsible manner to conserve refrigerants for continued use, even when acceptable alternatives are available.

IMPORTANT NOTICE

Effective July 1, 1992, all service operations must use recovery systems to minimize losses of refrigerant to the atmosphere when servicing units with Class I and Class II refrigerants.

Class I (CFC) and Class II (HCFC) refrigerants include CFC-12, HCFC-22, CFC-500, CFC-502, CFC-11, CFC-113 and HCFC-123. Deliberate venting is prohibited by Section 608 of the Clean Air Act.

In the normal service of air conditioning systems, there are three major activities mandated by the EPA regulations: recovery, recycling and reclaiming.

1) Recovery – the act of removing refrigerant from the air conditioning unit so that losses of refrigerant to the atmosphere are minimized.

Whenever a refrigeration circuit is opened, the recovery of the refrigerant is required. If there is no reason to believe that the refrigerant is "bad", such as during service of gaskets, expansion valves or solenoid valves, the refrigerant is often returned to the unit without treatment. (Note: Always follow the equipment manufacturer's recommendations regarding replacement of unit filter driers during service.)

If there is reason to suspect that the refrigerant is bad, such as with a compressor failure, the refrigerant should either be replaced or recycled.

Recovery is also required when a piece of equipment is decommissioned. This prevents the loss of refrigerant upon disposal of the unit. The recovered refrigerant usually is sold to refrigerant reclaimers rather than reused in the customer's new equipment.

2) Recycling – the act of cleaning recovered refrigerant for use in the customer's equipment.

First, the refrigerant is boiled to separate the oil. Then it is run through a filter drier to separate moisture and acid.

Because of limited field testing capability, the quality and identity of any recycled refrigerant is suspect. For this reason, the EPA will most likely allow recycling of refrigerant only when it is returned to its original owner. Resale of the recycled refrigerant to third parties will not be allowed.

As a result, most servicers will only recycle refrigerant when the quantity of the refrigerant to be recycled and the expertise of the technician make it attractive to do so. Most suspect refrigerant will be sold to a reclaimer rather than be serviced in the field.

3) Reclaiming – the act of purifying refrigerant and testing it to ARI 700 "new" refrigerant standards. With reclamation, each batch of refrigerant undergoes extensive laboratory tests and the waste streams are disposed of according to environmental regulations.

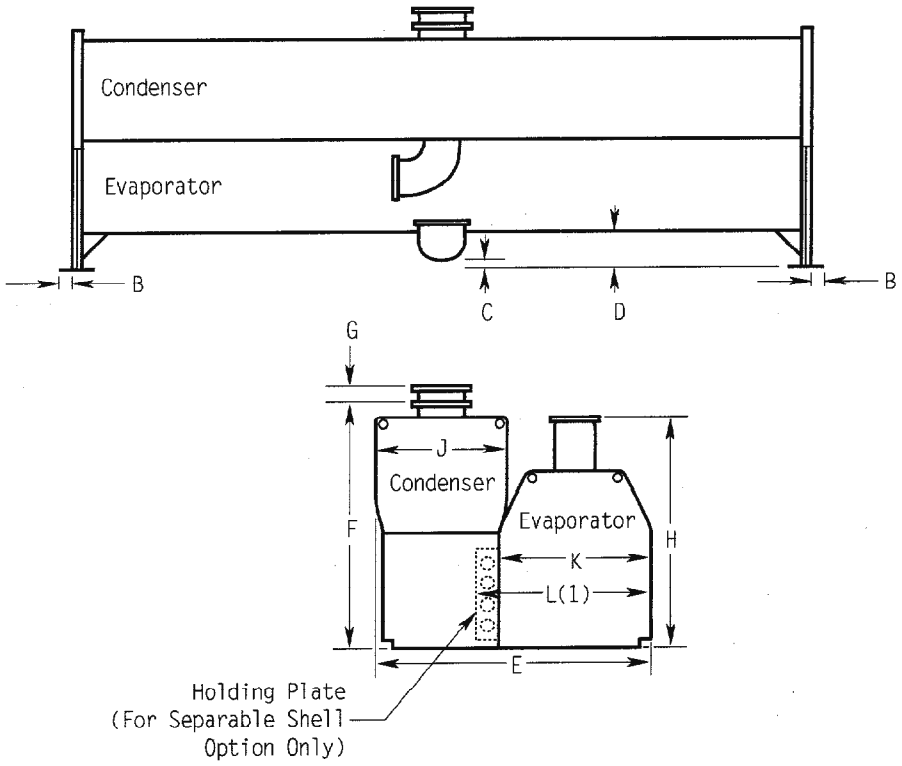
Most reclamation will be done at centralized processing facilities because of the testing, waste handling and EPA certification requirements for reclamation. The Trane Company and others offer reclamation services for most refrigerants.

Reclamation is probably the most attractive alternative for users with salvaged and suspect refrigerant.

RTHA Disassembly Dimensions For Limited Access Installations

This section contains illustrations and applicable dimensions required for disassembly of the unit and components in limited access installations.

Figure 1
Unit Dimensions



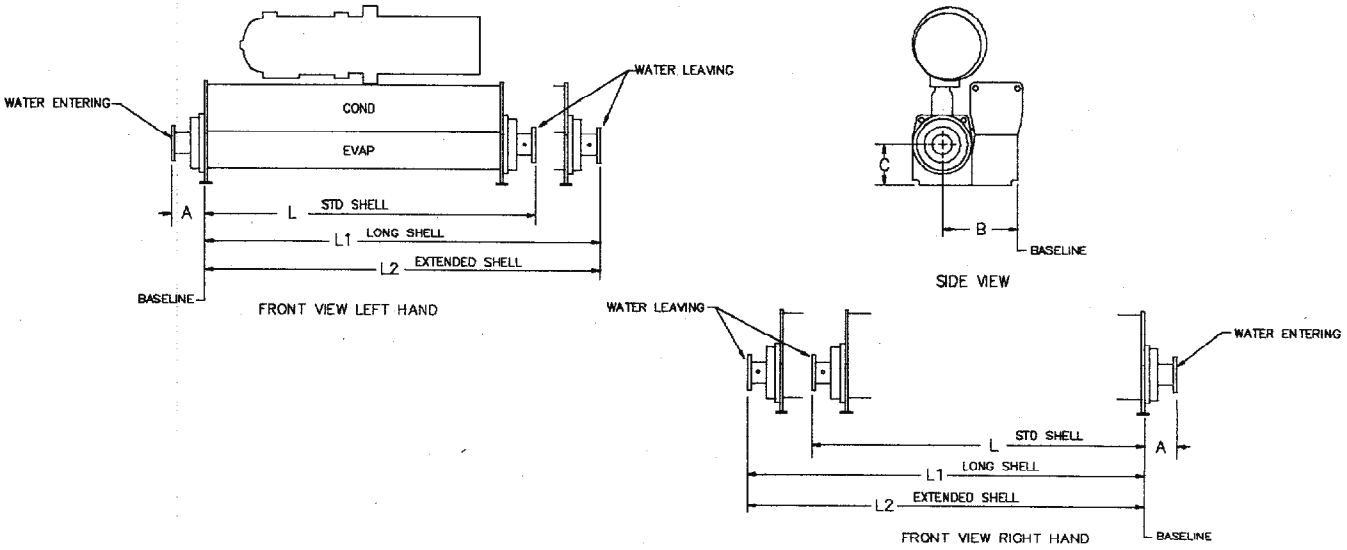
Note 1: The evaporator section is separated from the condenser section by unbolting the holding plates at each end. (For Separable shell option only)

RTHA	Shells	B	C	D	E	F	G	H	J	K	L(1)
130/150	STD	1.25	0.76	4.38	34.00	34.50	3.50	31.62	16.30	18.30	21.30
130/150	LONG	1.25	0.76	4.38	34.00	34.50	3.50	31.62	16.30	18.30	21.30
180/215	STD	1.25	0.87	5.32	42.63	41.90	4.50	37.77	19.30	21.80	24.80
180/215	LONG	1.25	0.87	5.32	42.63	41.90	4.50	37.77	19.30	21.80	24.80
180/215	EXT	1.25	0.87	5.32	47.25	48.97	4.50	41.50	21.80	24.00	27.00
255/300	STD	1.25	1.45	6.12	47.25	48.97	4.50	41.50	21.80	24.00	27.00
255/300	LONG	1.25	1.45	6.12	47.25	48.97	4.50	41.50	21.80	24.00	27.00
255/300	EXT	1.25	1.50	5.00	60.50	52.00	4.50	44.00	27.00	30.00	33.00
380/450	STD	1.50	1.50	5.00	61.00	54.00	4.50	45.00	27.00	30.00	33.00
380/450	LONG	1.50	1.50	5.00	61.00	57.00	4.50	45.00	27.00	30.75	33.75

Note:
All dimensions are in inches.
(1) For units with separable shell option.

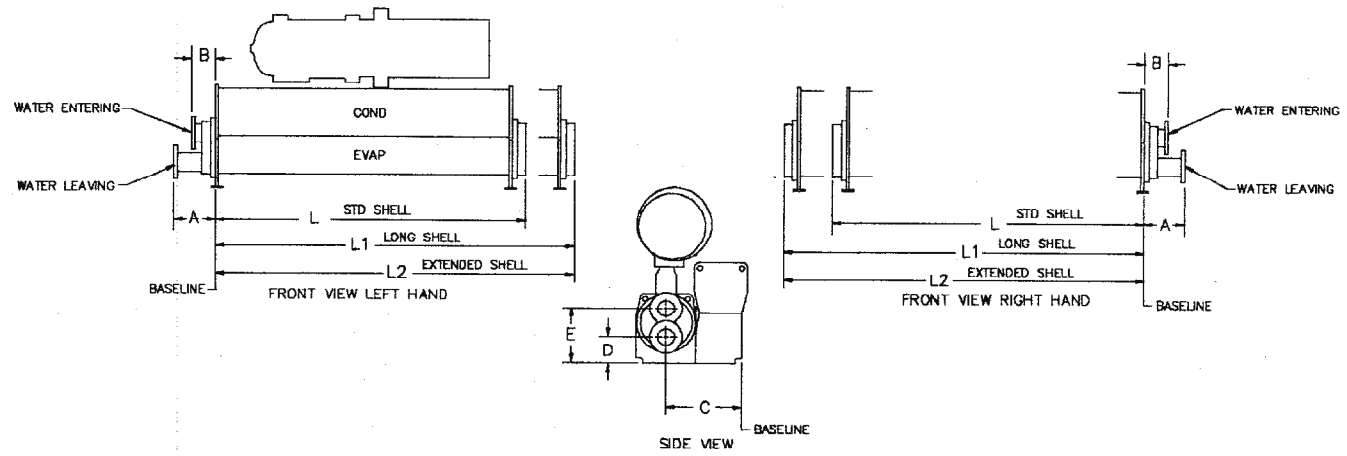
Figure 2
Evaporator Entering and Leaving Water Connections

1-Pass Evaporator Boxes (150 PSI)



	UNIT	A	B	C	L	L1	L2	PIPE SIZES	FLANGES BOLT CIRCLE	FLANGES NO. OF BOLTS	FLANGES BOLT SIZE
150 PSI	130/150 STD/LONG	10 1/8"	1'-11 1/4"	1'-0 1/2"	8'-6"	11'		6	9 1/2"	8	3/4"
	180/215 STD/LONG	10 3/4"	2'-5 5/8"	1'-3"	8'-6 1/2"	11'-0 1/2"		8	11 3/4"	8	3/4"
	180/215 EXTENDED	10 7/8"	2'-9 1/4"	1'-5"			11'-0 5/8"	10	14 1/4"	12	7/8"
	255/300 STD/LONG	10 7/8"	2'-9 1/4"	1'-5"	8'-6 5/8"	11'-0 5/8"		10	14 1/4"	12	7/8"
	255/300 EXTENDED	1'-2 1/8"	3'-6 7/8"	1'-7 7/8"			11'-4"	12	17"	12	7/8"
	380/450 STD/LONG	1'-2 1/8"	3'-6 7/8"	1'-7 7/8"	8'-10"	11'-4"		12	17"	12	7/8"

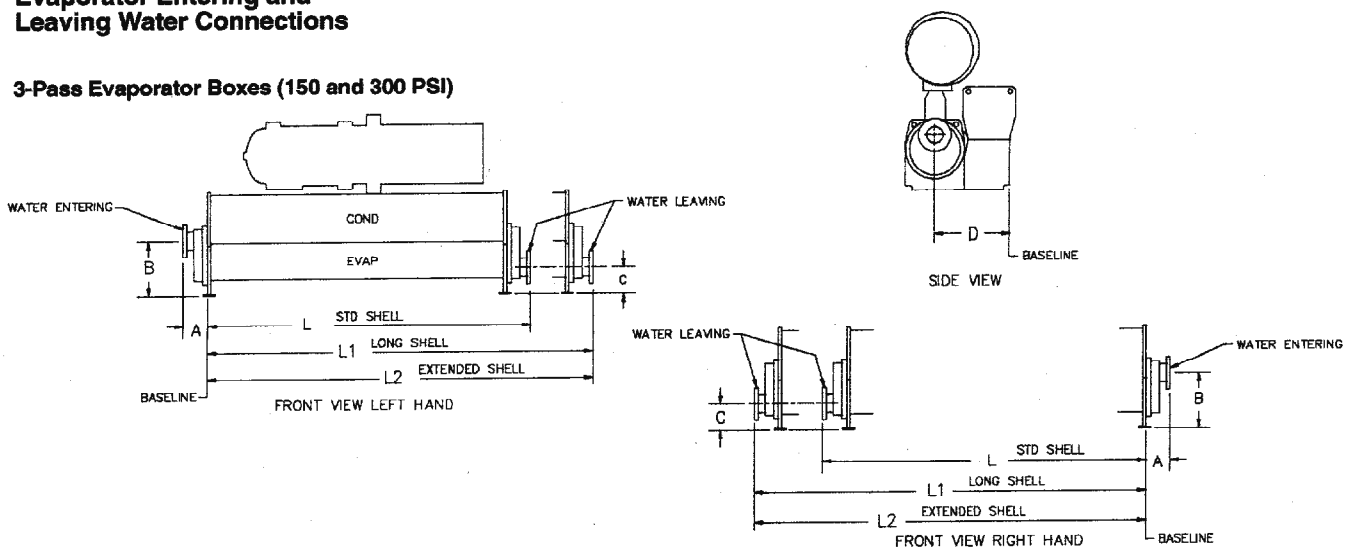
2-Pass Evaporator Boxes (150 and 300 PSI)



	UNIT	A	B	C	D	E	L	L1	L2	PIPE SIZES	FLANGES BOLT CIRCLE	FLANGES NO. OF BOLTS	FLANGES BOLT SIZE
150 PSI	130/150 STD/LONG	1'-4 1/8"	8 5/8"	1'-11 1/4"	8 1/8"	1'-4 7/8"	8'-0 1/8"	10'-6 1/8"		5	8 1/2"	8	3/4"
	180/215 STD/LONG	1'-5 1/4"	9 3/4"	2'-5 5/8"	9 3/4"	1'-8 1/4"	8'-0 7/8"	10'-6 7/8"		6	9 1/2"	8	3/4"
	180/215 EXTENDED	10"	10"	2'-9 1/4"	11"	1'-11"			10'-7 1/8"	6	9 1/2"	8	3/4"
	255/300 STD/LONG	10"	10"	2'-9 1/4"	11"	1'-11"	8'-1 1/8"	10'-7 1/8"		6	9 1/2"	8	3/4"
	255/300 EXTENDED	1'-10 1/4"	1'-1 5/8"	3'-6 7/8"	1'-1 3/8"	2'-2 3/8"			10'-9 1/8"	8	11 3/4"	8	3/4"
	380/450 STD/LONG	1'-10 1/4"	1'-1 5/8"	3'-6 7/8"	1'-1 3/8"	2'-2 3/8"	8'-3 1/8"	10'-9 1/8"		8	11 3/4"	8	3/4"
300 PSI	130/150 STD/LONG	1'-4 1/2"	9"	1'-11 1/4"	8 1/8"	1'-4 7/8"	8'-0 1/8"	10'-6 1/8"		5	9 1/4"	8	3/4"
	180/215 STD/LONG	1'-5 1/2"	10"	2'-5 5/8"	9 3/4"	1'-8 1/4"	8'-0 7/8"	10'-6 7/8"		6	10 5/8"	12	3/4"
	180/215 EXTENDED	1'-5 3/4"	10 1/4"	2'-9 1/4"	11"	1'-11"			10'-7 1/8"	6	10 5/8"	12	3/4"
	255/300 STD/LONG	1'-5 3/4"	10 1/4"	2'-9 1/4"	11"	1'-11"	8'-1 1/8"	10'-7 1/8"		6	10 5/8"	12	3/4"
	255/300 EXTENDED	1'-10 1/4"	1'-1 5/8"	3'-6 7/8"	1'-1 3/8"	2'-2 3/8"			10'-9 1/8"	8	13"	12	7/8"
	380/450 STD/LONG	1'-10 1/4"	1'-1 5/8"	3'-6 7/8"	1'-1 3/8"	2'-2 3/8"	8'-3 1/8"	10'-9 1/8"		8	13"	12	7/8"

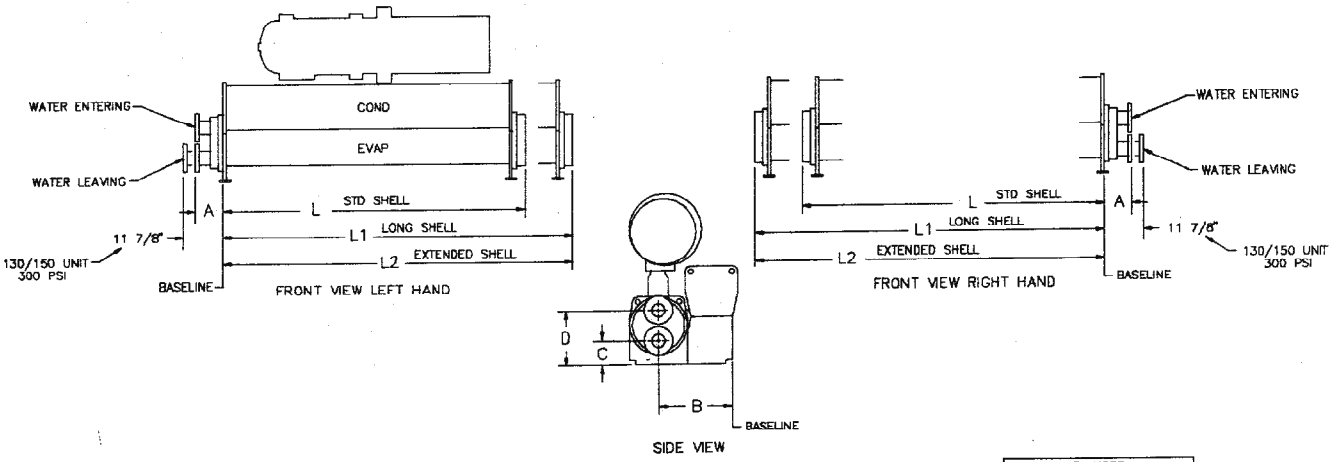
Figure 2 (Continued)
Evaporator Entering and Leaving Water Connections

3-Pass Evaporator Boxes (150 and 300 PSI)



	UNIT	A	B	C	D	L	L1	L2	PIPE SIZES	FLANGES BOLT CIRCLE	FLANGES NO. OF BOLTS	FLANGES BOLT SIZE
150 PSI	130/150 STD/LONG	7 1/2"	1'-5 3/8"	7 5/8"	1'-11 1/4"	8'-3 3/8"	10'-9 3/8"		4	7 1/2"	8	5/8"
	180/215 STD/LONG	8 3/8"	1'-9"	9"	2'-5 5/8"	8'-4 1/4"	10'-10 1/4"		5	8 1/2"	8	3/4"
	180/215 EXTENDED	8 7/8"	1'-11 1/2"	10 1/2"	2'-9 1/4"			10'-10 5/8"	5	8 1/2"	8	3/4"
	255/300 STD/LONG	8 7/8"	1'-11 1/2"	10 1/2"	2'-9 1/4"	8'-4 5/8"	10'-10 5/8"		5	8 1/2"	8	3/4"
	255/300 EXTENDED	11 1/2"	2'-3 5/8"	1'-0 1/4"	3'-6 7/8"			11'-1 3/8"	6	9 1/2"	8	3/4"
	380/450 STD/LONG	11 1/2"	2'-3 5/8"	1'-0 1/4"	3'-6 7/8"	8'-7 3/8"	11'-1 3/8"		6	9 1/2"	8	3/4"
300 PSI	130/150 STD/LONG	8 1/4"	1'-5 3/8"	7 5/8"	1'-11 1/4"	8'-4 1/4"	10'-10 1/4"		4	7 7/8"	8	3/4"
	180/215 STD/LONG	10"	1'-6 3/4"	9 1/4"	2'-5 5/8"	8'-5 3/4"	10'-11 3/4"		5	9 1/4"	8	3/4"
	180/215 EXTENDED	10 1/4"	1'-11 1/4"	10 3/4"	2'-9 1/4"			11'	5	9 1/4"	8	3/4"
	255/300 STD/LONG	10 1/4"	1'-11 1/4"	10 3/4"	2'-9 1/4"	8'-6"	11'		5	9 1/4"	8	3/4"
	255/300 EXTENDED	1'-0 3/8"	2'-3 3/8"	1'-0 3/8"	3'-6 7/8"			11'-2 1/8"	6	10 5/8"	12	3/4"
	380/450 STD/LONG	1'-0 3/8"	2'-3 3/8"	1'-0 3/8"	3'-6 7/8"	8'-8 1/8"	11'-2 1/8"		6	10 5/8"	12	3/4"

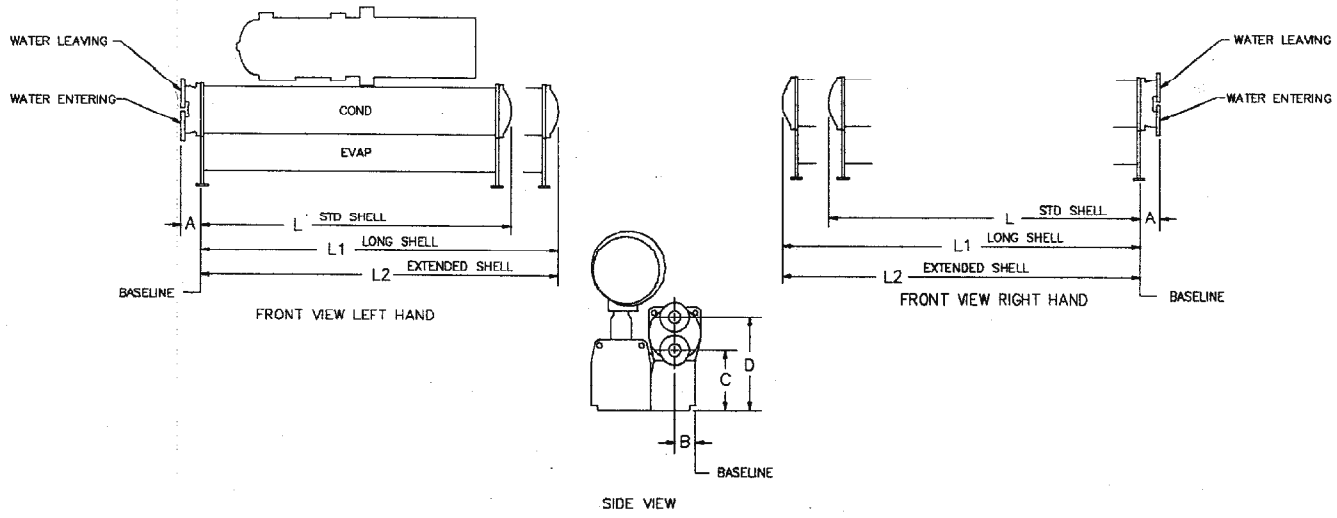
4-Pass Evaporator Boxes (150 and 300 PSI)



	UNIT	A	B	C	D	L	L1	L2	PIPE SIZES	FLANGES BOLT CIRCLE	FLANGES NO. OF BOLTS	FLANGES BOLT SIZE
150 PSI	130/150 STD/LONG	8"	1'-11 1/4"	7 5/8"	1'-5 3/8"	8'-0 1/8"	10'-6 1/8"		4	7 1/2"	8	5/8"
	180/215 STD/LONG	9 1/2"	2'-5 5/8"	9 1/4"	1'-8 3/4"	8'-0 7/8"	10'-6 7/8"		5	8 1/2"	8	3/4"
	180/215 EXTENDED	9 3/4"	2'-9 1/4"	10 7/8"	1'-11 1/4"			10'-7 1/8"	5	8 1/2"	8	3/4"
	255/300 STD/LONG	9 3/4"	2'-9 1/4"	10 7/8"	1'-11 1/4"	8'-1 1/8"	10'-7 1/8"		5	8 1/2"	8	3/4"
	255/300 EXTENDED	1'-0 1/4"	3'-6 7/8"	1'-0 5/8"	2'-3 1/8"			10'-9 1/8"	6	9 1/2"	8	3/4"
	380/450 STD/LONG	1'-0 1/4"	3'-6 7/8"	1'-0 5/8"	2'-3 1/8"	8'-3 1/8"	10'-9 1/8"		6	9 1/2"	8	3/4"
300 PSI	130/150 STD/LONG	8 1/4"	1'-11 1/4"	7 5/8"	1'-5 3/8"	8'-0 1/8"	10'-6 1/8"		4	7 7/8"	8	3/4"
	180/215 STD/LONG	10"	2'-5 5/8"	9 1/4"	1'-8 3/4"	8'-0 7/8"	10'-6 7/8"		5	9 1/4"	8	3/4"
	180/215 EXTENDED	10 1/4"	2'-9 1/4"	10 7/8"	1'-11 1/4"			10'-7 1/8"	5	9 1/4"	8	3/4"
	255/300 STD/LONG	10 1/4"	2'-9 1/4"	10 7/8"	1'-11 1/4"	8'-1 1/8"	10'-7 1/8"		5	9 1/4"	8	3/4"
	255/300 EXTENDED	1'-0 3/8"	3'-6 7/8"	1'-0 5/8"	2'-3 1/8"			10'-9 1/8"	6	10 5/8"	12	3/4"
	380/450 STD/LONG	1'-0 3/8"	3'-6 7/8"	1'-0 5/8"	2'-3 1/8"	8'-3 1/8"	10'-9 1/8"		6	10 5/8"	12	3/4"

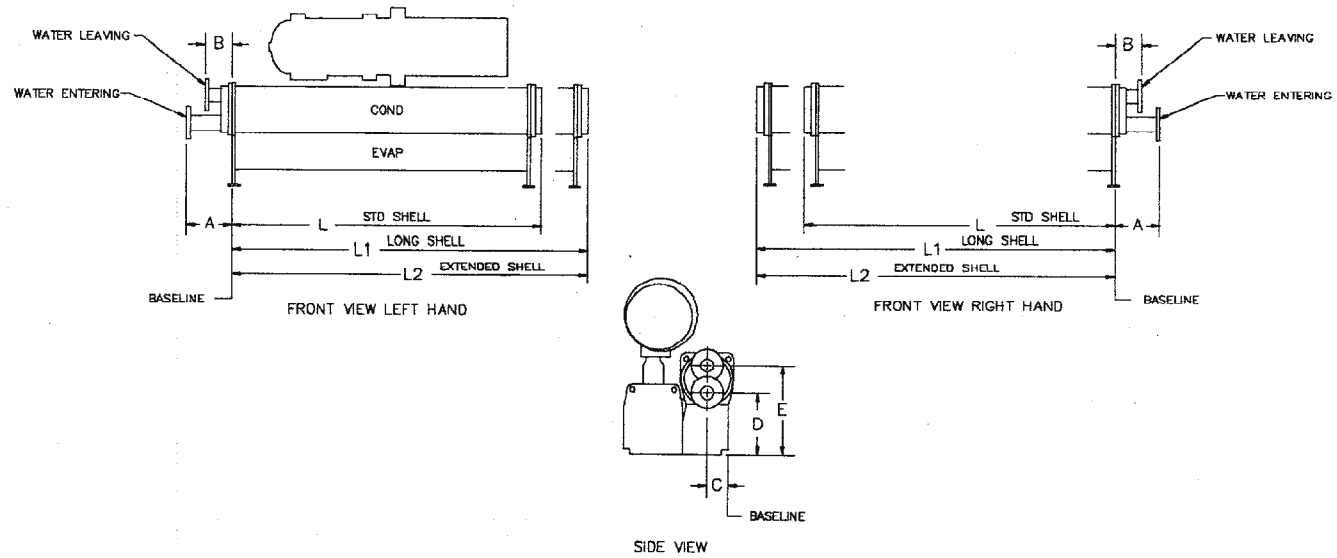
Figure 3
Condenser Entering and Leaving Water Connections

2-Pass Condenser Boxes (150 PSI)



	UNIT	A	B	C	D	L	L1	L2	PIPE SIZES	FLANGES BOLT CIRCLE	FLANGES NO. OF BOLTS	FLANGES BOLT SIZE
150 PSI	130/150 STD/LONG	6 1/8"	6 1/2"	1'-6 1/2"	2'-4 1/2"	7'-11 7/8"	10'-5 7/8"		4	7 1/2"	8	5/8"
	180/215 STD/LONG	7"	7 5/8"	1'-10"	2'-9"	8'-0 1/2"	10'-6 1/2"		5	8 1/2"	8	3/4"
	180/215 EXTENDED	7 5/8"	8 7/8"	2'-2 1/4"	3'-2 1/4"			10'-7"	6	9 1/2"	8	3/4"
	255/300 STD/LONG	7 5/8"	8 7/8"	2'-3 1/4"	3'-3 1/4"	8'-1"	10'-7"		6	9 1/2"	8	3/4"
	255/300 EXTENDED	9 5/8"	10 7/8"	2'-8 1/2"	3'-11"			10'-8 7/8"	8	11 3/4"	8	3/4"
	380/450 STD/LONG	9 5/8"	10 7/8"	2'-8 1/2"	3'-11"	1'-2 7/8"	10'-8 7/8"		8	11 3/4"	8	3/4"

2-Pass Condenser Boxes (300 PSI)



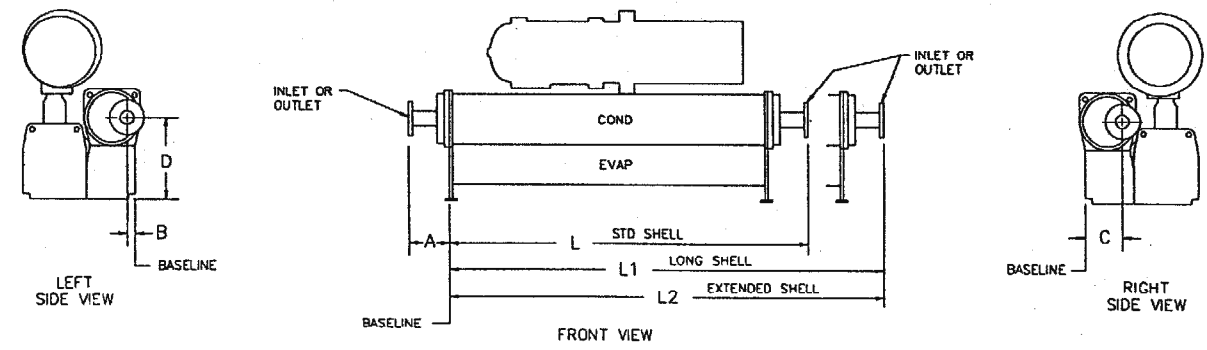
	UNIT	A	B	C	D	E	L	L1	L2	PIPE SIZES	FLANGES BOLT CIRCLE	FLANGES NO. OF BOLTS	FLANGES BOLT SIZE
300 PSI	130/150 STD/LONG	15 1/4"	8"	6 1/2"	1'-7 5/8"	2'-3 1/2"	7'-11 7/8"	10'-5 7/8"		4	7 7/8"	8	3/4"
	180/215 STD/LONG	17 1/4"	10"	7 5/8"	1'-11"	2'-8"	8'-0 7/8"	10'-6 7/8"		5	9 1/4"	8	3/4"
	180/215 EXTENDED	18 1/4"	10 3/4"	8 7/8"	2'-3 1/8"	3'-1 1/2"			10'-7 1/2"	6	10 5/8"	12	3/4"
	255/300 STD/LONG	18 1/4"	10 3/4"	8 7/8"	2'-4 1/8"	3'-2 1/2"	8'-1 1/2"	10'-7 1/2"		6	10 5/8"	12	3/4"
	255/300 EXTENDED	22 1/8"	13 3/8"	10 7/8"	2'-9 1/2"	3'-10"			10'-9 1/8"	8	13"	12	7/8"
	380/450 STD/LONG	22 1/8"	13 3/8"	10 7/8"	2'-9 1/2"	3'-10"	8'-3 1/8"	10'-9 1/8"		8	13"	12	7/8"

Figure 3 (Continued) Condenser Entering and Leaving Water Connections

3-Pass Condenser Water Boxes

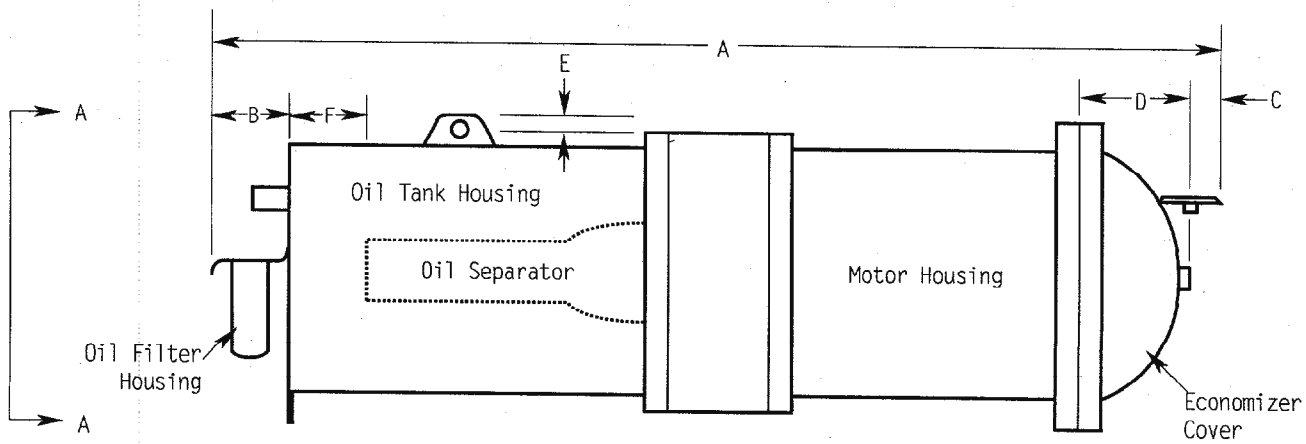
	UNIT	A	B	C	D	L	L1	L2	PIPE SIZES	FLANGES BOLT CIRCLE	FLANGES NO. OF BOLTS	FLANGES BOLT SIZE
150 PSI	180/215 STD/LONG	8 13/16"	2 7/8"	1'-0 3/8"	2'-3 1/2"	8'-4 5/8"	10'-10 5/8"		4	7 1/2"	8	5/8"
	180/215 EXTENDED	10 1/8"	2 7/8"	1'-2 7/8"	2'-8"			10'-11 15/16"	5	8 1/2"	8	3/4"
	255/300 STD/LONG	10 1/8"	2 7/8"	1'-2 7/8"	2'-9"	8'-5 15/16"	10'-11 15/16"		5	8 1/2"	8	3/4"
	255/300 EXTENDED	11 11/16"	4 1/8"	1'-5 5/8"	2'-9 7/8"			11'-1 1/2"	6	9 1/2"	8	3/4"
	380/450 STD/LONG	11 11/16"	4 1/8"	1'-5 5/8"	2'-9 7/8"	8'-7 1/2"	11'-1 1/2"		6	9 1/2"	8	3/4"

	UNIT	A	B	C	D	L	L1	L2	PIPE SIZES	FLANGES BOLT CIRCLE	FLANGES NO. OF BOLTS	FLANGES BOLT SIZE
300 PSI	180/215 STD/LONG	9 1/4"	2 7/8"	1'-0 3/8"	2'-3 1/2"	8'-5 1/16"	10'-11 1/16"		4	7 7/8"	8	3/4"
	180/215 EXTENDED	10 1/2"	2 7/8"	1'-2 7/8"	2'-8"			11'-0 5/16"	5	9 1/4"	8	3/4"
	255/300 STD/LONG	10 1/2"	2 7/8"	1'-2 7/8"	2'-9"	8'-6 5/16"	11'-0 5/16"		5	9 1/4"	8	3/4"
	255/300 EXTENDED	11 7/8"	4 1/8"	1'-5 5/8"	2'-9 7/8"			11'-1 11/16"	6	10 5/8"	12	3/4"
	380/450 STD/LONG	11 7/8"	4 1/8"	1'-5 5/8"	2'-9 7/8"	8'-7 11/16"	11'-1 11/16"		6	10 5/8"	12	3/4"

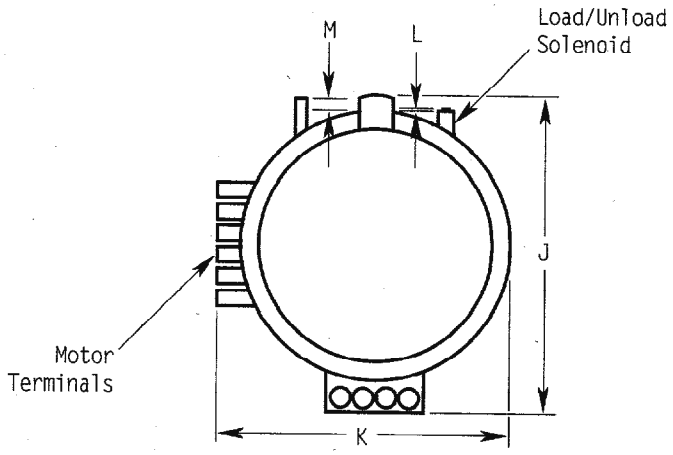


NOTE:
ENTERING AND LEAVING CONDENSER WATER CAN BE PIPED TO EITHER WATER BOX CONNECTION SINCE THE TUBE BUNDLES ARE VERTICALLY SPLIT.

Figure 4
Compressor Dimensions



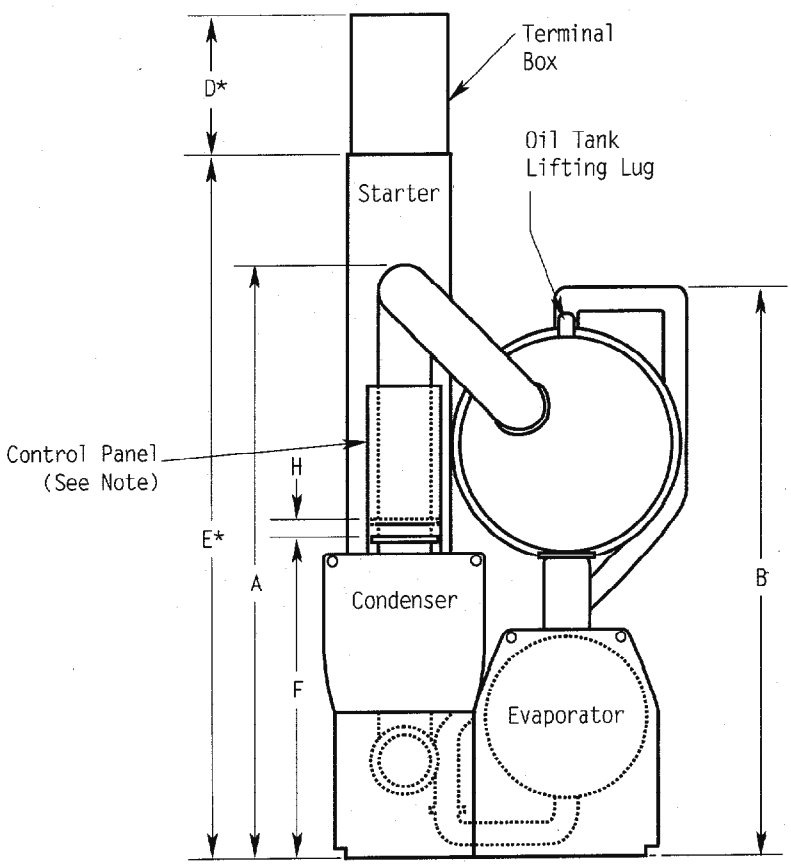
Detail A-A



RTHA	Design Sequence	A	B	C	D	E	F	J	K	L	M
130/150		83.00	6.50	2.75	9.50	1.50	6.00	27.00	24.50	1.00	2.50
180/215		89.50	6.50	2.75	9.50	1.50	5.25	30.00	25.50	1.50	2.50
255/300		89.75	6.50	2.75	9.50	1.50	4.00	34.00	30.50	1.50	2.50
380/450	(A-T)	99.00	6.50	2.75	10.25	1.50	4.25	39.00	34.00	N/A	2.00
380/450	(U-later)	103.00	6.50	2.75	10.25	1.50	8.25	39.00	34.00	N/A	2.00

Note:
All dimensions are in inches.

Figure 5
Starter Panel and Pipe Dimensions



RTHA	Shells	A	B	D*	D(1)	E*	E(1)	F	H
130/150	STD	61.50	58.25	N/A	14.00	69.50 (460/575V) 74.50 (200/230V)	63.50	34.50	3.50
130/150	Long	61.50	58.25	N/A	14.00	69.50 (460/575V) 74.50 (200/230V)	63.50	34.50	3.50
180/215	STD	71.50	66.75	14.00	14.00	74.25	70.25	42.00	4.50
180/215	Long	71.50	66.75	14.00	14.00	74.25	70.25	42.00	4.50
180/215	Ext	72.00	68.63	14.00	14.00	73.75	75.88	49.00	4.50
255/300	STD	79.50	77.25	14.00	14.00	79.87	75.88	49.00	4.50
255/300	Long	79.50	77.25	14.00	14.00	79.87	75.88	49.00	4.50
255/300	Ext	68.50	76.50	14.00	14.00	78.00	80.00	52.00	4.50
380/450	STD	68.50	79.50	14.00	14.00	80.00	80.00	54.00	4.50
380/450	Long	68.50	79.50	14.00	14.00	80.00	80.00	57.00	4.50

Notes:
*For units shipped after January 1, 1993, use dimensions D(1) and E(1).
All dimensions are in inches.
Add 1" for units with insulation.
Dimensional tolerances ± 1/4".
Control panel height from base is less than compressor height from base.
N/A indicates a terminal box is not required.

Table 1
Weights of RTHA Components

RTHA Tonnage	Shell Length	Design Sequence	Comp. (LBS)	Evap. W/O Heads	Evap. Heads (Both)	Cond. W/O Heads	Cond. Heads (Both)	Refrig. Charge	Unit Mtd. Starter	Control Panel & Ct. Access	Comp. Dis. Pipe	Inter-connecting Pipes
130/150	STD	(A-U)	2475	832	160	940	129	260	450	100	80	175
130/150	LONG	(A-U)	2475	1040	160	1170	129	330	450	100	80	175
180/215	STD	(A-U)	2950	1135	240	1240	184	370	450	100	150	225
180/215	LONG	(A-U)	2950	1439	240	1340	184	415	450	100	150	225
180/215	EXT	(A-U)	2950	2071	300	2050	250	605	450	100	200	250
255/300	STD	(A-L)	4150	1690	300	1730	250	450	450	100	200	250
255/300	STD	(M-U)	4150	1690	300	1730	250	440	450	100	200	250
255/300	LONG	(A-L)	4150	2071	300	2050	250	570	450	100	200	250
255/300	LONG	(M-U)	4150	2071	300	2050	250	605	450	100	200	250
255/300	EXT	(M-U)	4150	2990	500	3060	375	815	450	100	250	300
380/450	STD	(A-U)	5900	2440	500	2590	375	570	450	100	250	300
380/450	LONG	(A-U)	5900	2990	500	3060	375	815	450	100	250	300

Note:
For total unit weights see latest version of RTHA-IOM.
All weights are in pounds.

Table 2
Torque Values for RTHA Bolts

Item	Unit Size (Tons)	Bolt Size (mm)	Quantity Bolts	Hexhead (mm)	Max. Torque (Ft-Lbs)	Sealing Method
Discharge Line to Isolation Valve or Insert for Isolation Valve Flange	130-215	M12x40	8	19	70	O-Ring
	255-300	M12x50	8	19	70	O-Ring
	380-450	M12x50	8	19	70	O-Ring
Discharge Line to Oil Tank Housing Flange	130-150	M12x40	4	19	70	O-Ring
	180-300	M12x45	8	19	70	O-Ring
	380-450	M12x50	8	19	70	O-Ring
Economizer Line Flange to Motor Housing	130-150	M12x45	4	19	70	O-Ring
	180-215	M12x40	4	19	70	O-Ring
	255-300	M12x40	4	19	70	O-Ring
	380-450	M12x40	4	19	70	O-Ring
Liquid Line Sump Flange to Motor Housing	130-150	M12x45	8	19	70	O-Ring
	180-215	M12x45	8	19	70	O-Ring
	255-300	M12x50	16	19	70	O-Ring
	380-450	M12x50	16	19	70	O-Ring
Motor Hermetic Terminals (Spark Plugs)	130-150	N/A	6	1 1/8	50	Aluminum Washer
	180-215	N/A	6	1 3/8	175	Copper Washer
	255-300	N/A	6	1 3/8	175	Copper Washer
	380-450	N/A	6	1 3/8	175	Copper Washer
Ref. Filter Flange Stud Bolts (Inlet)	130-215	M12x115	4	19	70	O-Ring
	255-300	M12x115	4	19	70	O-Ring
	380-450	M12x115	4	19	70	O-Ring
Suction Line to Rotor Housing	130-150	M12x45	8	19	70	O-Ring
	180-215	M12x45	8	19	70	O-Ring
	255-300	M12x45	8	19	70	O-Ring
	380-450	M12x50	16	19	70	O-Ring

Note:
Coat all O-Rings and gaskets with Trane Oil-15 or Oil-31.

RTHA Compressor and Unit-Mounted Starter Removal and Replacement

Removal and replacement of the compressor and unit-mounted starter is accomplished by following the procedures outlined below. Before starting this work, be sure to have the following tools and equipment available:

- An A-frame and a hoist with a lifting capability equal to or greater than the weight of the entire compressor. Be sure to include all required safety factors. Refer to Table 1 for unit weight specifications.
- A set of metric socket wrenches
- Two, 10 mm all-thread guide pins, approximately 5 inches in length (for Starter Panel guides)
- Standard wrenches for removal of miscellaneous components

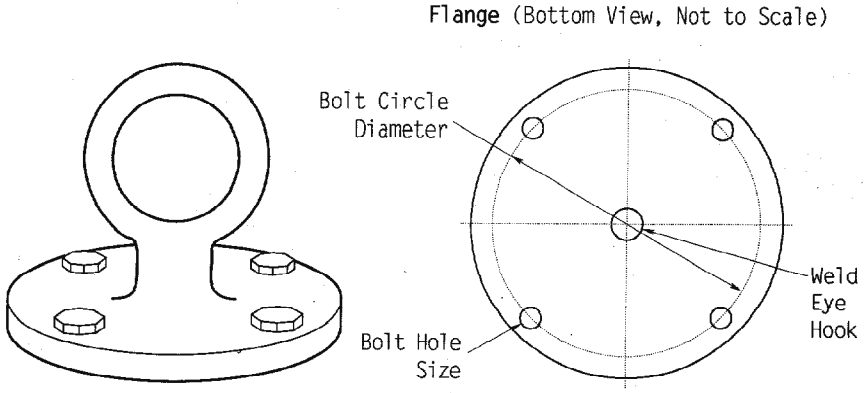
The following equipment is required if the compressor is to be removed:

- A lifting flange, as described in Figure 6. Use a local vendor for fabrication of the flange.

WARNING: The lifting flange and bolts must be capable of supporting the entire weight of the compressor.

- Two 24-inch long angle iron supports, as shown in Figure 11.
- Two, 12 mm all-thread guide pins, 2¾ inches long, for alignment of the compressor and the suction flange during reassembly. See Figure 10.
- Required compressor gasket/O-ring change-out kit. Contact Parts Identification in La Crosse, Wisconsin.
- Refrigerant recovery equipment and storage tanks.

Figure 6
Specifications for Manufacturing a Lifting Flange When Removing Compressor (Locally Manufactured)



	RTHA 130-150	RTHA 160-215	RTHA 255-300	RTHA 360-450
Bolt Circle	4.375"	4.750"	5.375"	5.875"
Bolt Holes	.551"	.551"	.551"	.551"

Notes:
Weld eye hook for lifting purposes.
All bolt holes are (14mm) 4 x equally spaced.

Starter Panel and Compressor Removal

Starter Panel Removal

The following procedures are for the removal of the unit-mounted starter or terminal box.

WARNING: To prevent injury or death, disconnect all electrical power sources prior to removal.

1. Record, tag or otherwise mark all wiring and conduit, so that it can be reconnected exactly. Disconnect from the starter panel all wiring and conduit that is required to remove the panel.

2. Remove the "T" leads from the motor terminals.

3. Install two eyebolts in the top of the starter panel. Secure these eyebolts to an overhead support to prevent the starter from dropping, possibly breaking the motor terminals.

Caution: Be sure that the weight of the starter is being supported by an appropriate lifting mechanism. Refer to Table 1.

4. Remove two of the bolts that secure the starter panel to the motor housing and insert the two 10 mm all-thread guide pins. See Figure 7.

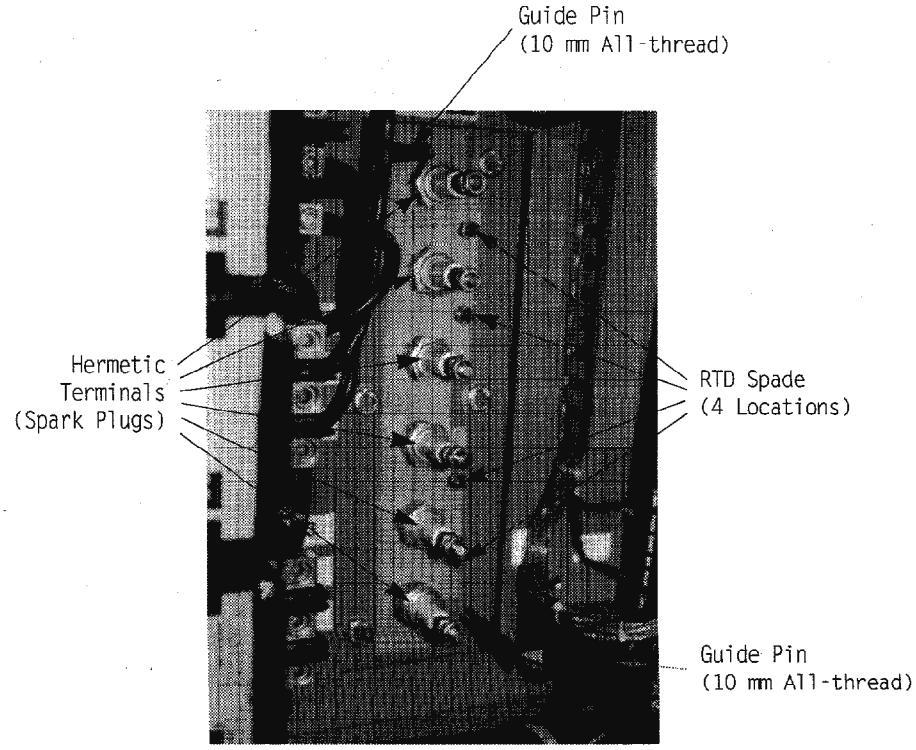
5. Remove the remaining bolts.

6. Pull the starter panel horizontally along the guide pins, until the panel clears the motor terminal plugs. Remove and secure the starter panel.

Note: If required, the control panel can be removed in the same manner. No guide pins are necessary for removal of the control panel.

Note: Follow the above steps in reverse order to reassemble the starter panel.

Figure 7
Guide Pins for Starter Removal



Compressor Removal

Preform the following prior to removing the compressor:

Position the A-frame over the entire length of the unit. Refer to Figure 9.

Caution: The A-frame must be capable of supporting the entire compressor weight. This mechanism must be equipped with safety harnesses that are capable of holding the weight of the compressor, in the event of a lifting mechanism failure.

Note: If the unit has an oil cooler installed, the cooler can be removed with the compressor.

If the unit is equipped with condenser isolation valves, perform the "Refrigerant Pumpdown Evacuation" procedure described in Section 7.1 of RLC-SG-1.

Caution: This procedure was updated from the original. Do not pumpdown the system more than one time in succession or catastrophic damage to the compressor will occur.

Note: If the unit is not equipped with condenser isolation valves, a recovery process will be required to recover all refrigerant.

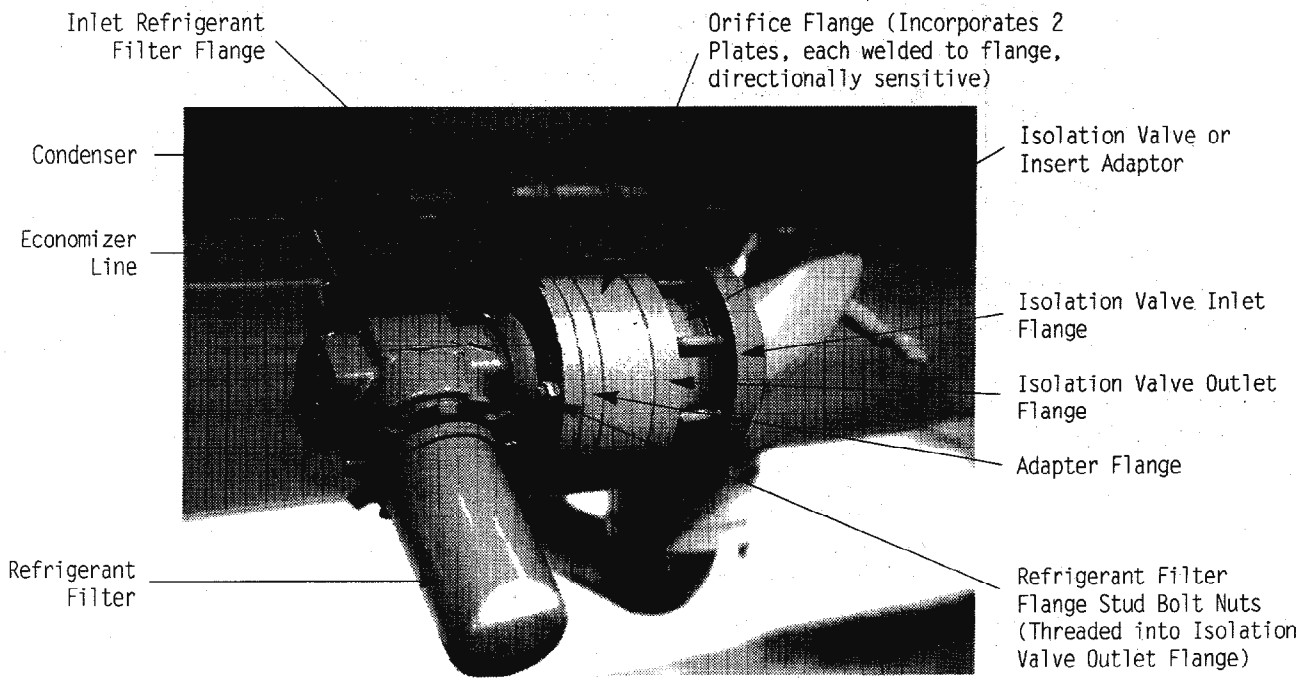
Note: Be sure to comply with state, local and federal codes when recovering refrigerant.

Caution: Water must be flowing through the tube bundles during this process. Refrigerant pressures below 65 psig can cause freezing and rupturing of the heat exchangers.

If the compressor is to be removed, perform the following steps:

1. Remove the discharge line from the compressor and the condenser.

Figure 8
Economizer Line Disassembly



2. Remove the economizer line with the refrigerant filter. See Figure 8. First, unbolt the economizer line from the top of the motor housing (flange). See Figure 12. Then, remove the economizer line and refrigerant filter by removing the stud bolt nuts at the refrigerant filter inlet flange.

Note: Upon removal of the economizer line and refrigerant filter, the orifice plates (at the inlet of the refrigerant filter flange) can shift away from the O-ring. Refer to Figure 8. Be sure to have all new orifice O-rings available for re-installation, in the event of orifice slippage.

Note: The direction of orifice plates should be marked to insure correct re-installation.

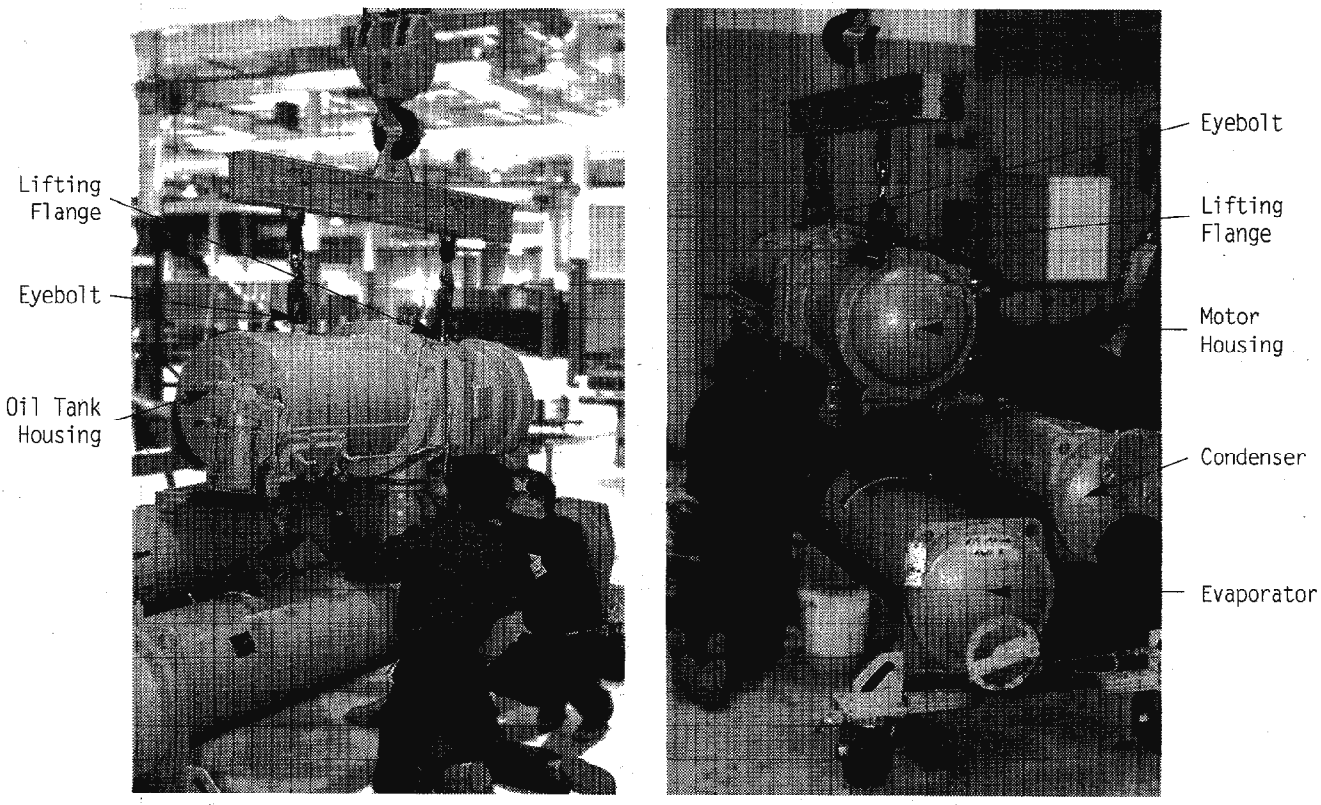
Note: Cover all openings to prevent contamination.

3. Remove the bolts from the compressor suction connection at the bottom of the rotor housing and insert the guide pins. See Figure 10.

4. Install an eyebolt (16 mm threads) into the collar located on the top of the oil tank housing (if required). This will provide one of the two required lifting points. See Figure 9.

5. Install the lifting flange on the top of the motor housing, in the holes that are used to attach the economizer line. No O-ring is required.

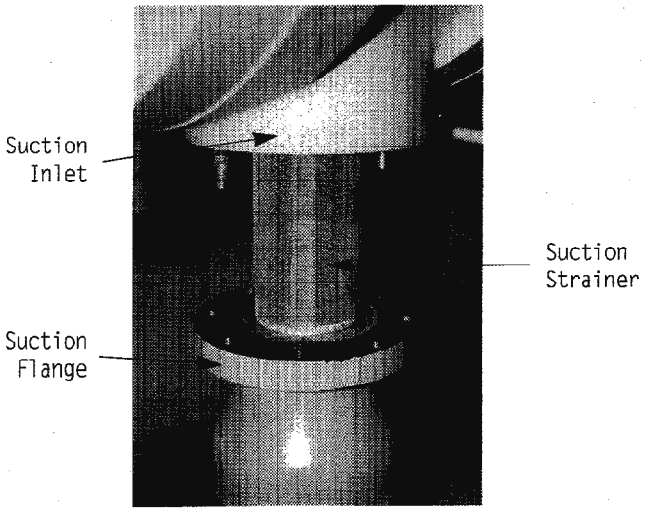
Figure 9
Removing Compressor from Unit



6. Secure the eyebolts to the lifting mechanism. See Figure 9. Install a safety harness under each end of the compressor for additional safety.

Caution: Be sure that the weight of the compressor is being supported by the A-frame. See Table 1.

Figure 10
Suction Strainer



7. Remove the bolts from the support brackets under the compressor and remove the bolts from the liquid line to motor housing flange. See Figure 12.

8. Raise the compressor directly upward approximately 10" and remove the suction strainer. Refer to Figure 10.

9. Lower the compressor to within 2 inches from the floor. Install the two angle iron supports, one on each end of the compressor, to the mounting support brackets. See Figure 11. Lower the compressor onto the floor or pallet.

To reassemble the unit, perform the above procedures in reverse order, with the following exceptions:

1. Coat all O-rings and gaskets with Oil-15 or Oil-31 prior to installation.

2. Before setting the compressor on the suction connection, insert the two 12 mm all-thread guide pins into two opposing holes in the suction inlet.

Note: The suction strainer must be centered on the evaporator suction connection flange, to ensure alignment with the recess on the compressor suction connection. See Figure 10.

3. Install and torque down all interconnecting piping before installing the support bracket bolts.

Note: Be sure the direction of the orifice plates is the same as it was before disassembly.

Note: It may be necessary to rotate the compressor, slightly, to get alignment of bolt holes on the interconnecting piping.

4. After reassembly, check for refrigerant leaks, using a suitable leak detector. Pressurize the unit to nameplate test pressure with nitrogen and some refrigerant. Use soap bubbles to verify any leaks.

5. Evacuate the unit according to procedures in Section 7.4 of RLC-SG-1.

6. Replace the proper amount of oil into the compressor charging valve. Refer to latest RTHA-IOM.

7. If the unit has condenser isolation valves, recharge as described in Section 7.1 of RLC-SG-1 by performing steps 1 thru 4 of the recharging procedure.

Note: For units with no condenser isolation valves, refer to Section 7.5 of RLC-SG-1 for recharging.

Caution: Water must be flowing through the tube bundles during this process. Refrigerant pressures below 65 psig can cause freezing and rupturing of the heat exchangers.

Parts Ordering Information

This service bulletin is informational only and does not authorize parts or labor.

Figure 11
Angle Iron Support for Compressor

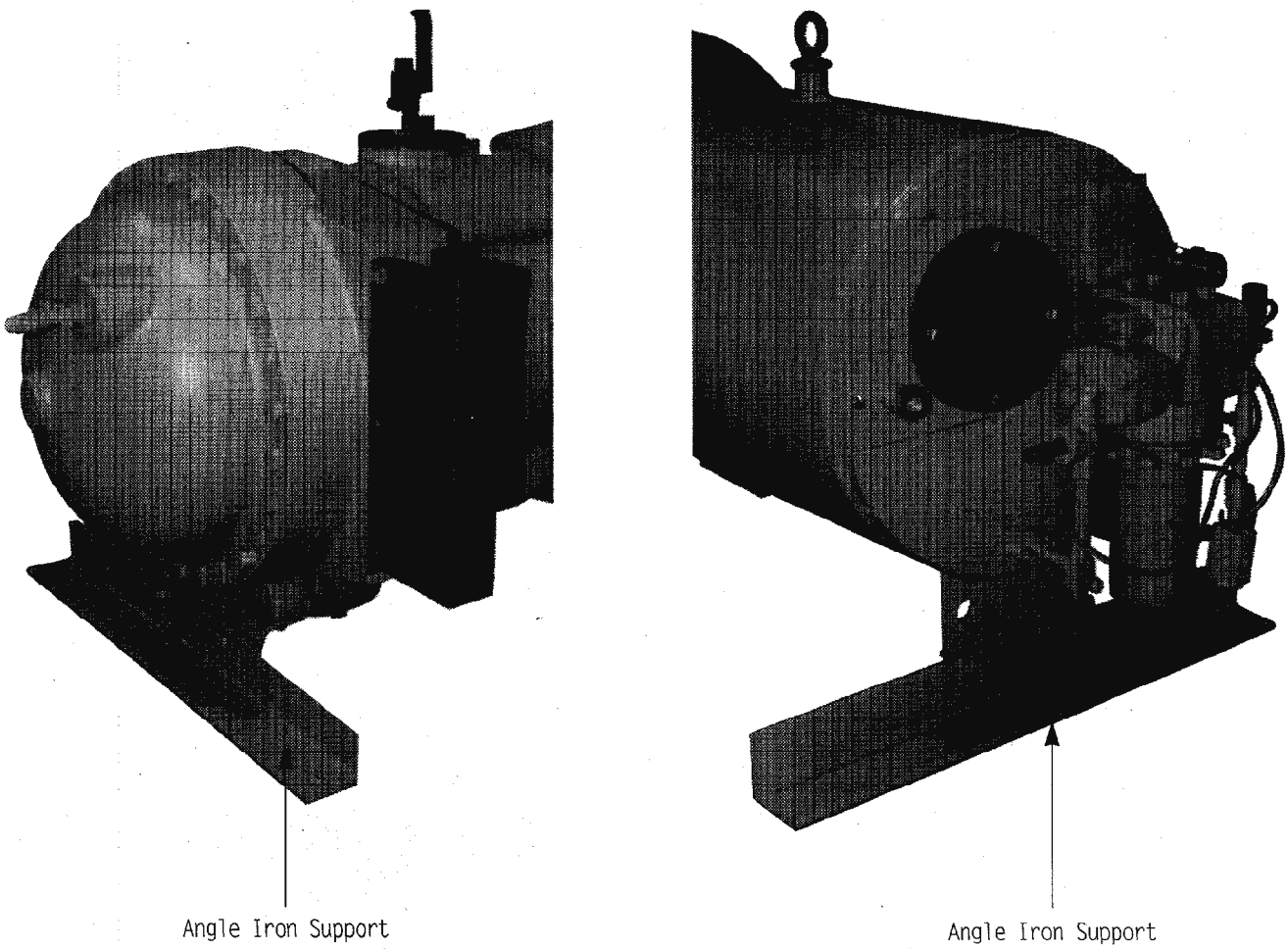


Figure 12
RTHA Component Locations