



**TRANE®**

# General Service Bulletin

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## RTHD

### Separable Shell Procedures

Order Number: **RTHD-SVB02B-EN**

Date: July 2004

Pueblo Built Units Only

#### Introduction

The RTHD units can be disassembled for applications with limited access. This bulletin covers the disassembly and reassembly instructions for the RTHD units.

**NOTICE:** Warnings and Cautions appear at appropriate sections throughout this literature. 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.

#### Discussion

This bulletin will cover the procedures for removing the starter/control panel, compressor, oil separators and all interconnecting piping plus separating the evaporator and condenser.



## Refrigerant Handling

### **⚠ WARNING**

#### **Contains Refrigerant!**

**System contains oil and refrigerant under high pressure. Recover refrigerant to relieve pressure before opening the system. See unit nameplate for refrigerant type. Do not use non-approved refrigerants, refrigerant substitutes, or refrigerant additives.**

**Failure to follow proper procedures or the use of non-approved refrigerants, refrigerant substitutes, or refrigerant additives could result in death or serious injury or equipment damage.**

If the entire unit must be disassembled be certain to follow each section in order. Attempting to split the chiller in two halves will result in an assembly that is top heavy.

### **⚠ Warning**

#### **Moving Unit!**

**Do not split the unit into two halves with the compressor still mounted. The one half is top heavy and will tip upon trying to move. Failure to follow recommendations above could result in death or serious injury or equipment only damage.**

It is assumed that electrical power has not been in any way connected to the unit control/starter panel.

## Dimensions and Weights

Refer to the following tables and figures to determine which components need to be removed to allow access into the mechanical room.

## Refrigerant and Oil Removal

Prior to disassembly, the refrigerant needs to either be isolated in the condenser or removed from the system. The oil needs to be removed from the system also.

There is an option to ship the unit with a nitrogen charge. With this option the unit still ships with the entire oil charge and approximately 20 psi nitrogen. Refer to the sales order to determine how the unit was ordered.

### **Refrigerant Isolation**

If the unit has isolation valves, use the following steps to store the charge in the condenser.

1. Close the butterfly valve(s) on the top of the condenser.
2. Close the large angle valve at the bottom of the condenser.
3. Close the two (2) service valves at the back of the condenser that have 1/4" lines tied to the oil sump and the gas pump.
4. Connect one end of a refrigerant hose to the bottom of the evaporator on the evaporator charging valve and the other end to a liquid transfer pump. From the



liquid transfer pump, connect another hose to the 5/8" charging valve on bottom of the condenser.

5. After the liquid is in the condenser, remove the vapor using the same connection points and a recovery system.

### **Refrigerant Removal**

If no isolation valves are installed, remove the entire charge from the system.

1. Open all valves.
2. Connect a liquid transfer pump to the 5/8" charging valve on the evaporator.
3. Use the same point to remove the vapor.

### **CAUTION**

#### **POE Oil!**

**The POE oil used in the system is very hygroscopic. To insure the oil does not absorb too much water, store in a clean and dry metal container that is sealed.**

#### **Oil Charge Removal**

Regardless of where the refrigerant is stored, the oil needs to be removed from the system and stored in a sealed metal container.

1. Energize the master oil solenoid valve to allow oil to drain from the oil lines into the oil sump.
2. Drain the oil from the oil charging valve located at the bottom of the oil sump.



## Starter/Control Panel Removal

The refrigerant and oil does not need to be removed for this process. If the starter/control panel needs to be removed as well as removal of the refrigerant, the two processes can occur simultaneously.

NOTE: While the refrigerant and oil is being removed, preparation for removing the starter panel can begin.

1. Label and record all wiring and conduit so that it can be reconnected correctly.
2. Disconnect LLID buss at the power supply module (1A2).  
If separating the condenser and evaporator, remove discharge sensor and tie it to the condenser buss.
3. Cut the buss between the condenser and evaporator.  
**Important: Cut the buss at a 45° angle**
4. Remove coils from the load and unload solenoids, gas pump fill and drain solenoid and the master oil solenoid.
5. Remove the oil heater.
6. Coil the flexible conduit and wire tie them to the back of the panel.
7. Oil optical sensor on the lube system - disconnect the cable inside the panel and coil the cable up at the lube circuit near the sensor. Label each of the four leads as they are removed from the terminals.
8. Remove the high pressure switch and coil the flexible conduit up wire tie to the back of the control panel.  
**Important: Verify that the HPC depresses the schraeder valve when it is reinstalled.**
9. Label and remove the motor terminal leads.

Note: The plastic terminal cover used in the factory are available from service parts. The part number for the cover is BLK01009.

### CAUTION

#### Motor Terminals!

**When loosening retaining nuts on the motor terminals use backup wrench to avoid applying excessive torque to the motor terminals. Failure to use backup wrench may cause terminals to develop a leak path between the copper conductor and porcelain.**

**DO NOT hit the motor terminals when removing the starter/control panel. If the motor terminals are cracked or develop a leak, the entire compressor must be removed and opened to repair the terminals.**

10. Install two 1/2" eyebolts on the top of the starter/control panel. Secure the eyebolts to an overhead support to avoid dropping the panel on the motor terminals.
11. Remove two of the bolts that secure the starter panel to the motor housing and insert two M10 all thread guide pins. These are located near T1 and T6 compressor motor terminals.



12. Remove the remaining bolts.
13. Lift the panel only about 1/8" to unload the weight of the panel from the five isolators located under the panel. Be careful not to lift the panel too much causing the panel cutout to hit the motor terminals.
14. Pull the starter/control panel horizontally along the guide pins, until the panel clears the motor terminal plugs.
15. Lower and secure the starter/control panel.
16. Follow the steps in reverse to reassemble the starter/control panel.



## Compressor Removal

If the compressor needs to be removed, first follow the "Refrigerant and Oil Removal" procedures and the "Starter/Control Panel Removal" then proceed with the steps outlined below.

1. Cut the oil return line between the gas pump and the filter inlet at a convenient location. Plan to rebraze later. Tie the end of this line to the evaporator assembly to prevent it from getting bent or otherwise damaged.
2. Cut oil line - one for the oil injection line and a second for the bearing feed line. Temporarily plug the flange openings to keep debris out.
3. Disconnect the oil return line at the compressor by loosening the nut and set the line assembly aside.
4. Disconnect the joint for the oil injection line under the compressor by loosening the nut, and set the line aside.
5. Remove the twelve suction flange bolts at the evaporator.  
NOTE: The suction line assembly will remain bolted to the compressor and be removed with the compressor.
6. Remove the shipping bolts from under the compressor. There are four (except on B compressors, which use three) located above the discharge end support.
7. Remove the three isolator bolts under the discharge end of the compressor, and the two isolator bolts under the motor housing.
8. Unbolt and remove both discharge pipes running between the compressor and the oil separators.
9. Install three M16 shoulder pattern eye bolts on the top side of the compressor. Make sure that they are properly seated and aligned. Follow recommended lift height as shown as "g" on page 12.
10. Lift the compressor/suction line assembly from the evaporator shell.

### CAUTION

#### **Machined Surfaces!**

**Take care in providing some protection for the machined surface on the suction line flange. Provide blocks under the compressor rotor and motor housings, sufficient to keep the compressor from resting on the suction flange.**

## Uncouple the Evaporator and Condenser Shell Assemblies

### **⚠ Warning** **Moving Unit**

**Do not split the unit into two halves with the compressor still mounted. The one half is top heavy and will tip upon trying to move. Failure to follow recommendations above could result in death or serious injury or equipment only damage.**

Refer to the tables and figures through out this bulletin, for weights and dimensions.

### **Separating the Evaporator and the Condenser**

All sections prior must be completed entirely before attempting this procedure.

1. If an oil cooler is present, disconnect the 7/8" copper line, which is located between the oil cooler outlet and the evaporator. A hex fitting can be loosened at the evaporator.
2. Disconnect the gas pump vapor line at the condenser service valve connection. Carefully tie the end of this line to the evaporator to keep it from getting bent or damaged.

Note: If charge is being stored in the condenser using the isolation valve option, the gas pump valve will already be closed.

3. Disconnect the oil return line near the filter inlet. Tie this line to the evaporator shell so that it is not bent or otherwise damaged. This will need to be rebrazed later.
4. Unbolt and remove the liquid line from the EXV and from the condenser.  
NOTE: If the refrigerant charge is being stored in the condenser unbolt the liquid line from the service valve. Otherwise, unbolt the line from the condenser outlet connection.
5. Unbolt the shell supports connecting both shells together. The condenser shell / oil separator assembly is now able to be moved away from the evaporator shell assembly.
6. The evaporator and condenser shells have holes near the top of both tubesheets so that a 4-point lifting procedure can be used.



# Component Weights

The easiest way to move the components into the equipment room, or final location for the installation, is to set the components on carts and roll them into place. If stairwells are involved more creative ideas for installation may be required. Overhead hoists may be used to pick up the compressor, the evaporator, the condenser and the liquid/vapor separator tank

## ⚠ WARNING

### Heavy Objects!

**Do not use cables (chains or slings) except as shown. Each of the cables (chains or slings) used to lift the unit must be capable of supporting the entire weight of the unit. The cables (chains or slings) must be rated for overhead lifting applications with an acceptable working load limit. Lifting cables (chains or slings) may not be of the same length. They may need to be adjust for an even unit lift. Other lifting arrangements may cause equipment or property-only damage. Failure to properly lift unit could result in death or serious injury or equipment or property- only damage. See details below.**

### Lifting

If the components must be lifted use the following:

- 3 point lift on compressor, using overhead lifting approved and rated materials
- 4 point lift on evaporator and condenser, using overhead lifting approved and rated materials

Component weights are listed in the following table

| Unit Description | Comp lbs (kg)  | Evap Without heads lbs (kg) | 150 PSIG Evap Heads lbs (kg) | Cond Without heads lbs (kg) | 150 PSIG Cond Heads lbs (kg) | Both Oil Sep. lbs (kg) | Oil Sump lbs (kg) | Ref. Charge lbs (kg) | Oil Charge No Oil Cooler/ With Oil Cooler lbs (kg) | Starter/ Control lbs (kg) | Inter-connecting piping, supports, etc. lbs (kg) | Unit Shipping Weight lbs (kg) |
|------------------|----------------|-----------------------------|------------------------------|-----------------------------|------------------------------|------------------------|-------------------|----------------------|----------------------------------------------------|---------------------------|--------------------------------------------------|-------------------------------|
| E3G3G3           | 5750<br>(2608) | 5432<br>(2464)              | 934<br>(424)                 | 4105<br>(1862)              | 460<br>(209)                 | 557<br>(253)           | 111<br>(50)       | 700<br>(318)         | 88/96<br>(40/44)                                   | 550<br>(249)              | 958<br>(435)                                     | 19653<br>(8915)               |
| E3F2F3           | 5750<br>(2608) | 4537<br>(2058)              | 587<br>(266)                 | 2861<br>(1298)              | 345<br>(156)                 | 557<br>(253)           | 111<br>(50)       | 625<br>(284)         | 80/88<br>(36/40)                                   | 550<br>(249)              | 945<br>(429)                                     | 16956<br>(7691)               |
| E3D2E2           | 5750<br>(2608) | 3173<br>(1439)              | 488<br>(221)                 | 2295<br>(1041)              | 345<br>(156)                 | 557<br>(253)           | 94<br>(43)        | 475<br>(215)         | 48/56<br>(22/25)                                   | 550<br>(249)              | 937<br>(425)                                     | 14720<br>(6677)               |
| D3G3G3           | 5600<br>(2540) | 5432<br>(2464)              | 934<br>(424)                 | 4105<br>(1862)              | 460<br>(209)                 | 557<br>(253)           | 111<br>(50)       | 700<br>(318)         | 88/96<br>(40/44)                                   | 550<br>(249)              | 963<br>(437)                                     | 19508<br>(8849)               |
| D3F2F3           | 5600<br>(2540) | 4537<br>(2058)              | 587<br>(266)                 | 2861<br>(1298)              | 345<br>(156)                 | 557<br>(253)           | 111<br>(50)       | 625<br>(284)         | 80/88<br>(36/40)                                   | 550<br>(249)              | 959<br>(435)                                     | 16820<br>(7630)               |

**All weights ± 5%**

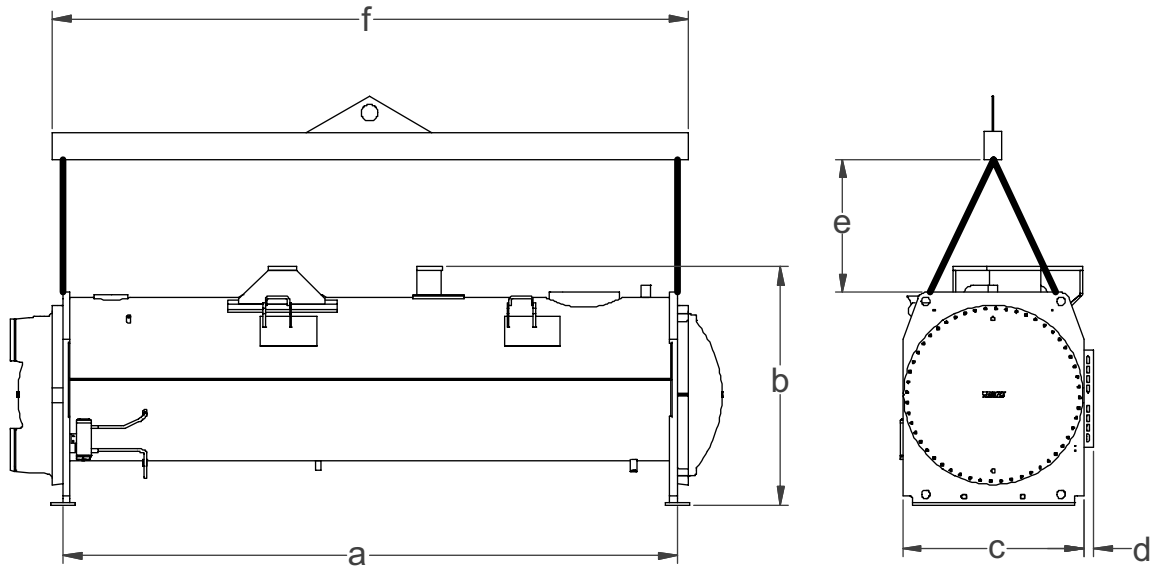




| Unit Description | Comp lbs (kg)  | Evap Without heads lbs (kg) | 150 PSIG Evap Heads lbs (kg) | Cond Without heads lbs (kg) | 150 PSIG Cond Heads lbs (kg) | Both Oil Sep. lbs (kg) | Oil Sump lbs (kg) | Ref. Charge lbs (kg) | Oil Charge No Oil Cooler/ With Oil Cooler lbs (kg) | Starter/ Control lbs (kg) | Inter-connecting piping, supports, etc. lbs (kg) | Unit Shipping Weight lbs (kg) |
|------------------|----------------|-----------------------------|------------------------------|-----------------------------|------------------------------|------------------------|-------------------|----------------------|----------------------------------------------------|---------------------------|--------------------------------------------------|-------------------------------|
| D3D2E2           | 5600<br>(2540) | 3173<br>(1439)              | 488<br>(221)                 | 2295<br>(1041)              | 345<br>(156)                 | 557<br>(253)           | 94<br>(43)        | 475<br>(215)         | 48/56<br>(22/25)                                   | 550<br>(249)              | 929<br>(421)                                     | 14562<br>(6605)               |
| D2G3G3           | 5600<br>(2540) | 5432<br>(2464)              | 934<br>(424)                 | 4105<br>(1862)              | 460<br>(209)                 | 557<br>(253)           | 111<br>(50)       | 700<br>(318)         | 88/96<br>(40/44)                                   | 550<br>(249)              | 963<br>(437)                                     | 19508<br>(8849)               |
| D2F2F3           | 5600<br>(2540) | 4537<br>(2058)              | 587<br>(266)                 | 2861<br>(1298)              | 345<br>(156)                 | 557<br>(253)           | 111<br>(50)       | 625<br>(284)         | 80/88<br>(36/40)                                   | 550<br>(249)              | 959<br>(435)                                     | 16820<br>(7630)               |
| D2D2E2           | 5600<br>(2540) | 3173<br>(1439)              | 488<br>(221)                 | 2295<br>(1041)              | 345<br>(156)                 | 557<br>(253)           | 94<br>(43)        | 475<br>(215)         | 48/56<br>(22/25)                                   | 550<br>(249)              | 929<br>(421)                                     | 14562<br>(6605)               |
| D1G2G2           | 5600<br>(2540) | 5242<br>(2378)              | 934<br>(424)                 | 3932<br>(1784)              | 460<br>(209)                 | 557<br>(253)           | 111<br>(50)       | 700<br>(318)         | 88/96<br>(40/44)                                   | 550<br>(249)              | 925<br>(420)                                     | 19107<br>(8667)               |
| D1F1F2           | 5500<br>(2495) | 4170<br>(1892)              | 587<br>(266)                 | 2725<br>(1236)              | 345<br>(156)                 | 557<br>(253)           | 111<br>(50)       | 625<br>(284)         | 80/88<br>(36/40)                                   | 550<br>(249)              | 929<br>(421)                                     | 16187<br>(7342)               |
| D1D1E1           | 5500<br>(2495) | 3163<br>(1435)              | 488<br>(221)                 | 2275<br>(1032)              | 345<br>(156)                 | 557<br>(253)           | 94<br>(43)        | 475<br>(215)         | 48/56<br>(22/25)                                   | 550<br>(249)              | 940<br>(426)                                     | 14443<br>(6551)               |
| C2F2F3           | 4940<br>(2241) | 4537<br>(2058)              | 587<br>(266)                 | 2861<br>(1298)              | 345<br>(156)                 | 557<br>(253)           | 111<br>(50)       | 625<br>(284)         | 80/88<br>(40/44)                                   | 550<br>(249)              | 959<br>(435)                                     | 16168<br>(7334)               |
| C2D3E3           | 4940<br>(2241) | 3232<br>(1466)              | 488<br>(221)                 | 2397<br>(1087)              | 345<br>(156)                 | 557<br>(253)           | 94<br>(43)        | 490<br>(222)         | 48/56<br>(22/25)                                   | 550<br>(249)              | 853<br>(387)                                     | 14002<br>(6351)               |
| C2D4E4           | 4940<br>(2241) | 2758<br>(1251)              | 488<br>(221)                 | 1838<br>(834)               | 345<br>(156)                 | 557<br>(253)           | 94<br>(43)        | 490<br>(222)         | 48/56<br>(22/25)                                   | 550<br>(249)              | 856<br>(388)                                     | 12972<br>(5884)               |
| C1E1F1           | 4940<br>(2241) | 3461<br>(1570)              | 488<br>(221)                 | 2790<br>(1266)              | 345<br>(156)                 | 557<br>(253)           | 111<br>(50)       | 525<br>(238)         | 80/88<br>(36/40)                                   | 550<br>(249)              | 863<br>(391)                                     | 14718<br>(6676)               |
| C1D5E4           | 4940<br>(2241) | 2745<br>(1245)              | 488<br>(221)                 | 1838<br>(834)               | 345<br>(156)                 | 557<br>(253)           | 94<br>(43)        | 490<br>(222)         | 48/56<br>(22/25)                                   | 550<br>(249)              | 870<br>(395)                                     | 12973<br>(5885)               |
| C1D6E5           | 4950<br>(2245) | 2632<br>(1194)              | 488<br>(221)                 | 1748<br>(793)               | 345<br>(156)                 | 557<br>(253)           | 94<br>(43)        | 490<br>(222)         | 48/56<br>(22/25)                                   | 550<br>(249)              | 870<br>(395)                                     | 12780<br>(5797)               |
| B2C2D2           | 2830<br>(1284) | 2403<br>(1090)              | 387<br>(176)                 | 1948<br>(884)               | 257<br>(117)                 | 279<br>(127)           | 111<br>(50)       | 490<br>(222)         | 36/44<br>(16/20)                                   | 550<br>(249)              | 654<br>(297)                                     | 9953<br>(4515)                |
| B2B2B2           | 2830<br>(1284) | 2152<br>(976)               | 387<br>(176)                 | 1752<br>(795)               | 257<br>(117)                 | 279<br>(127)           | 94<br>(43)        | 410<br>(186)         | 36/44<br>(16/20)                                   | 550<br>(249)              | 647<br>(293)                                     | 9402<br>(4265)                |
| B1C1D1           | 2830<br>(1284) | 2325<br>(1055)              | 387<br>(176)                 | 1913<br>(868)               | 257<br>(117)                 | 279<br>(127)           | 111<br>(50)       | 490<br>(222)         | 36/44<br>(16/20)                                   | 550<br>(249)              | 651<br>(295)                                     | 9837<br>(4462)                |
| B1B1B1           | 2830<br>(1284) | 2084<br>(945)               | 387<br>(176)                 | 1712<br>(777)               | 257<br>(117)                 | 279<br>(127)           | 94<br>(43)        | 410<br>(186)         | 36/44<br>(16/20)                                   | 550<br>(249)              | 645<br>(293)                                     | 9292<br>(4215)                |

All weights ± 5%

## RTHD Evaporator Dimensions

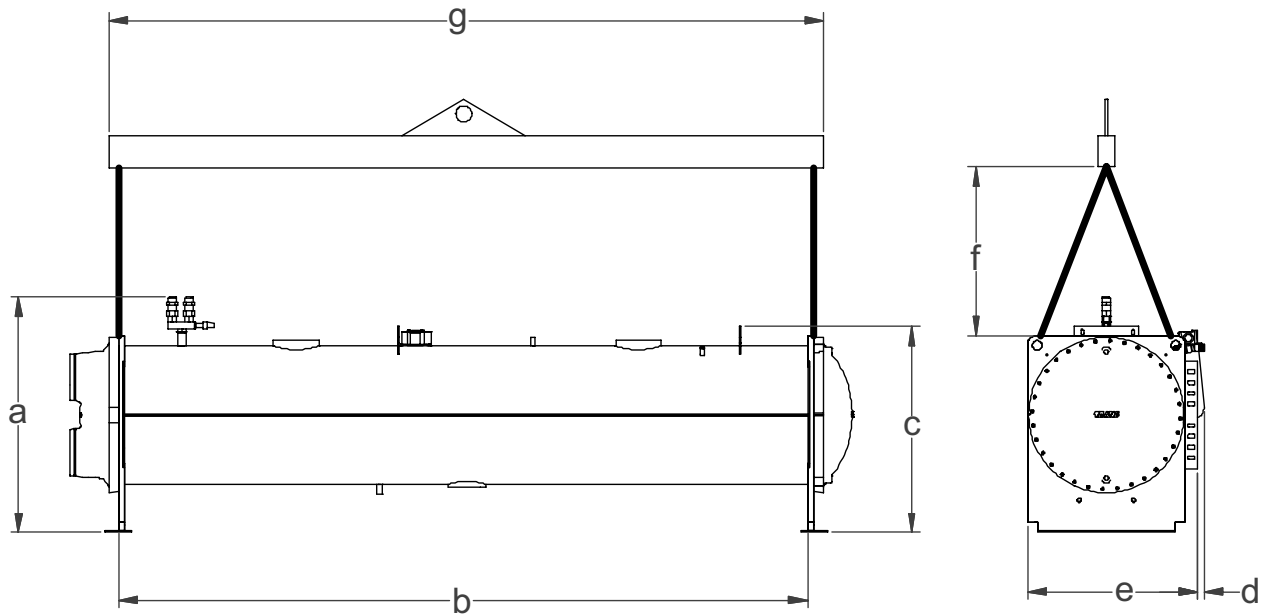


Evaporator Frame Size (model # digit 14)

| Dim | Description                                              | G inches (mm)   | F inches (mm)   | E inches (mm)   | D inches (mm)   | C inches (mm)   | B inches (mm)   |
|-----|----------------------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| a   | Length of barrel from tubesheet to tubesheet             | 125.9<br>(3198) | 125.9<br>(3198) | 125.9<br>(3198) | 107.7<br>(2734) | 125.9<br>(3198) | 107.7<br>(2734) |
| b   | From bottom of tubesheet to highest welded support       | 48.9<br>(1243)  | 45.1<br>(1147)  | 45.1<br>(1145)  | 45.1<br>(1145)  | 45.7<br>(1161)  | 45.7<br>(1161)  |
| c   | Width of tubesheet                                       | 37.3<br>(946)   | 32.4<br>(823)   | 29.0<br>(737)   | 29.0<br>(737)   | 26.7<br>(678)   | 26.7<br>(678)   |
| d   | From tubesheet to outside edge of welded bolt plate      | 2.1<br>(52)     | 4.5<br>(114)    | 8.0<br>(203)    | 8.0<br>(203)    | 5.8<br>(148)    | 5.8<br>(148)    |
| e   | Minimum height from tubesheet to lifting bar             | 93.0<br>(2362)  | 95.9<br>(2436)  | 101.5<br>(2578) | 83.0<br>(2108)  | 101.5<br>(2578) | 83.0<br>(2108)  |
| f   | Minimum length of lifting bar to perform four point lift | 36<br>(914)     | 36<br>(914)     | 36<br>(914)     | 36<br>(914)     | 36<br>(914)     | 36<br>(914)     |

Dimensions ± 0.5 inches

## RTHD Condenser Dimensions

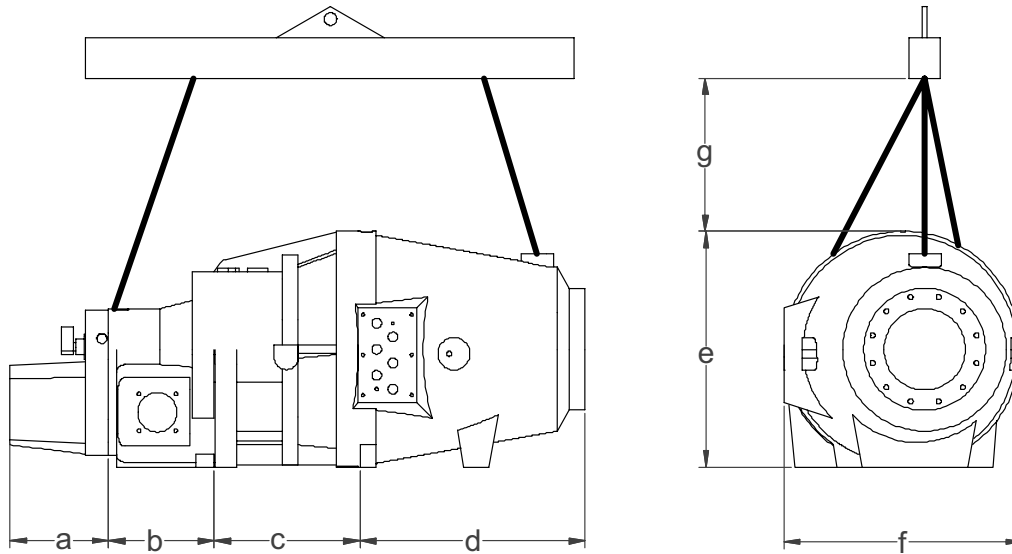


**Condenser Frame Size (model # digit 21)**

| Dim | Description                                                                                                                      | G<br>inches<br>(mm) | F<br>inches<br>(mm) | E<br>inches<br>(mm) | D<br>inches<br>(mm) | B<br>inches<br>(mm) |
|-----|----------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| a   | From bottom of tubesheet to top of relief valves                                                                                 | 43.7<br>(1110)      | 39.9<br>(1013)      | 39.9<br>(1013)      | 36.7<br>(932)       | 36.7<br>(932)       |
| b   | Length of barrel from tubesheet to tubesheet                                                                                     | 129.5<br>(3289)     | 118.0<br>(2997)     | 97.5<br>(2477)      | 118.0<br>(2997)     | 97.5<br>(2477)      |
| c   | From bottom of tubesheet to top of oil separator support                                                                         | 38.3<br>(973)       | 34.5<br>(876)       | 34.5<br>(876)       | 31.1<br>(790)       | 31.1<br>(790)       |
| d   | From edge of bolt plate to outer edge of oil filter                                                                              | 1.0<br>(25)         | 1.0<br>(25)         | 1.0<br>(25)         | 3.4<br>(86)         | 3.4<br>(86)         |
| e   | Width of condenser from edge of tubesheet to edge of bolt plate<br>Note: Bolt plate is welded to vessels and can not be removed. | 31.8<br>(808)       | 29.6<br>(752)       | 29.6<br>(752)       | 24.8<br>(630)       | 28.8<br>(732)       |
| f   | Minimum height from tubesheet to lifting bar                                                                                     | 99.5<br>(2527)      | 88.0<br>(2235)      | 67.5<br>(1715)      | 93.7<br>(2379)      | 67.5<br>(1715)      |
| g   | Minimum length of lifting bar to perform four point lift                                                                         | 36<br>(914)         | 36<br>(914)         | 36<br>(914)         | 36<br>(914)         | 36<br>(914)         |

**Dimensions ± 0.5 inches**

## RTHD Compressor Dimensions



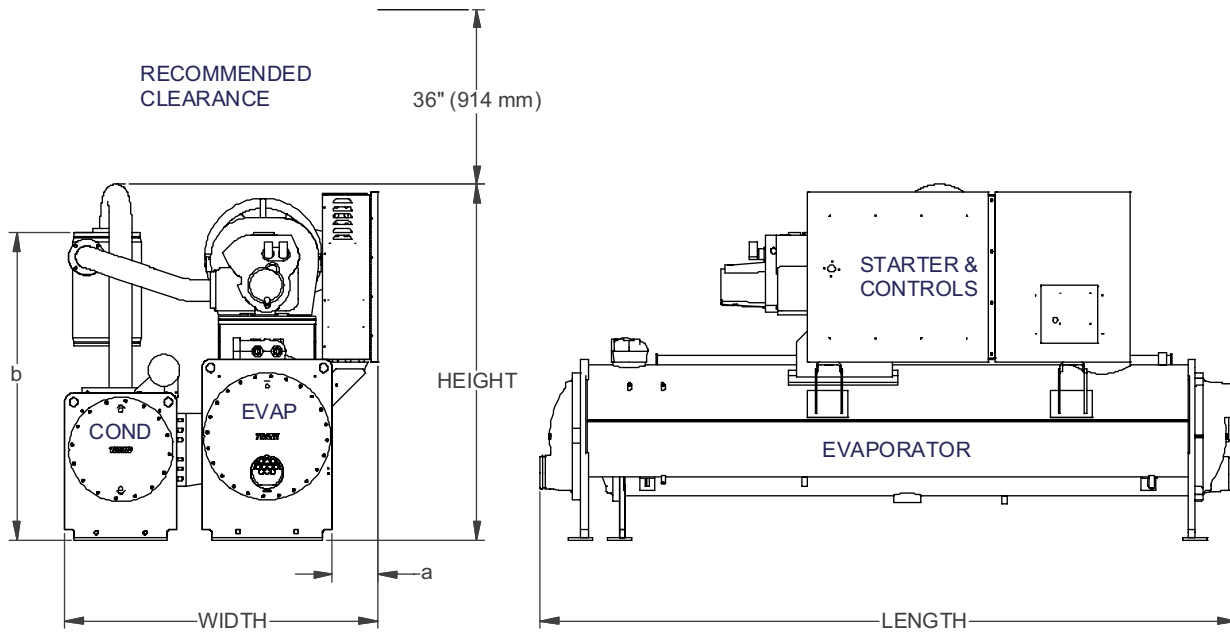
Compressor Frame Size (model # digit 6)

| Dim | Description                                   | B<br>inches<br>(mm) | C<br>inches<br>(mm) | D<br>inches<br>(mm) | E<br>inches<br>(mm) |
|-----|-----------------------------------------------|---------------------|---------------------|---------------------|---------------------|
| a   | Length of piston housing                      | 10.3<br>(262)       | 11.0<br>(279)       | 12.0<br>(305)       | 12.1<br>(307)       |
| b   | Length of bearing housing                     | 11.0<br>(279)       | 13.0<br>(330)       | 13.5<br>(343)       | 13.0<br>(330)       |
| c   | Length of rotor housing                       | 14.0<br>(356)       | 16.1<br>(409)       | 17.6<br>(447)       | 20.3<br>(516)       |
| d   | Length of motor housing                       | 24.3<br>(617)       | 25.0<br>(635)       | 28.0<br>(711)       | 28.0<br>(711)       |
| e   | Height of compressor                          | 24.0<br>(610)       | 29.0<br>(737)       | 29.0<br>(737)       | 29.0<br>(737)       |
| f   | Width of compressor                           | 24.3<br>(617)       | 29.0<br>(737)       | 29.8<br>(757)       | 29.2<br>(742)       |
| g   | Minimum height from compressor to lifting bar | 36<br>(914)         | 36<br>(914)         | 36<br>(914)         | 36<br>(914)         |

Dimensions ± 0.5 inches

# RTHD Unit Dimensions

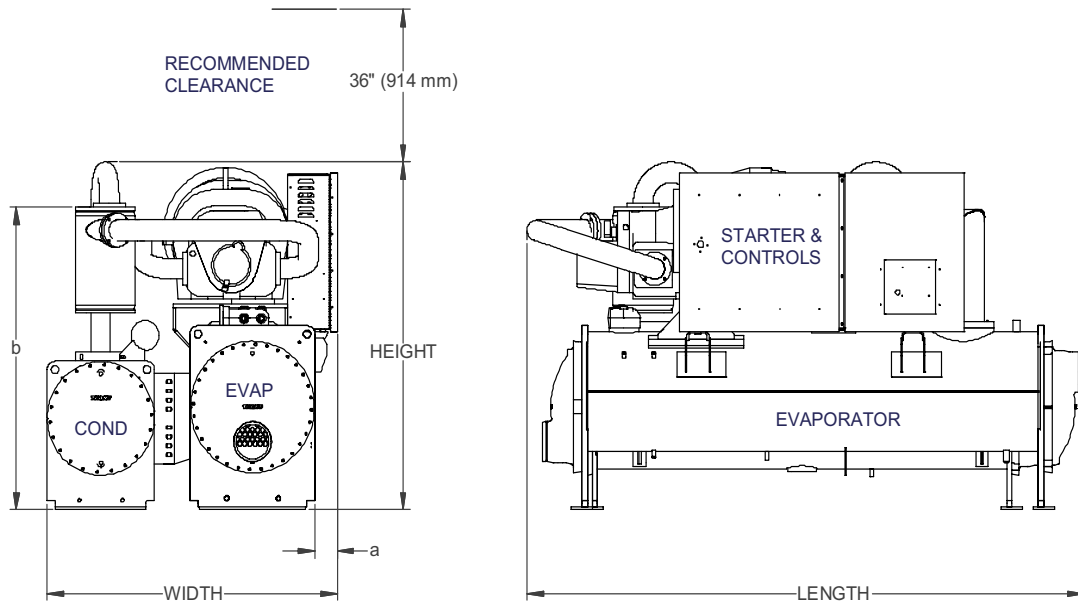
## Dimensions for BBB and BCD Units



| Compressor Code<br>(Digits 6 & 7) | Evaporator Code<br>(Digits 14 & 15) | Condenser Code<br>(Digits 21 & 22) | Length<br>inches<br>(mm) | Width<br>inches<br>(mm) | Height<br>inches<br>(mm) | a<br>(From tubesheet to<br>edge of control panel)<br>inches<br>(mm) | b<br>(From floor to top<br>of oil separator)<br>inches<br>(mm) |
|-----------------------------------|-------------------------------------|------------------------------------|--------------------------|-------------------------|--------------------------|---------------------------------------------------------------------|----------------------------------------------------------------|
| B1                                | B1                                  | B1                                 | 125<br>(3175)            | 65<br>(1651)            | 75<br>(1905)             | 9.3<br>(236)                                                        | 62.9<br>(1598)                                                 |
| B1                                | C1                                  | D1                                 | 143<br>(3632)            | 65<br>(1651)            | 75<br>(1905)             | 9.3<br>(236)                                                        | 62.9<br>(1598)                                                 |
| B2                                | B2                                  | B2                                 | 125<br>(3175)            | 65<br>(1651)            | 75<br>(1905)             | 9.3<br>(236)                                                        | 62.9<br>(1598)                                                 |
| B2                                | B2                                  | D2                                 | 143<br>(3632)            | 65<br>(1651)            | 75<br>(1905)             | 9.3<br>(236)                                                        | 62.9<br>(1598)                                                 |

Dimensions are based on 3 pass evap and 2 pass condenser with LH/RH water connections. Refer to submittals for exact job site configuration.

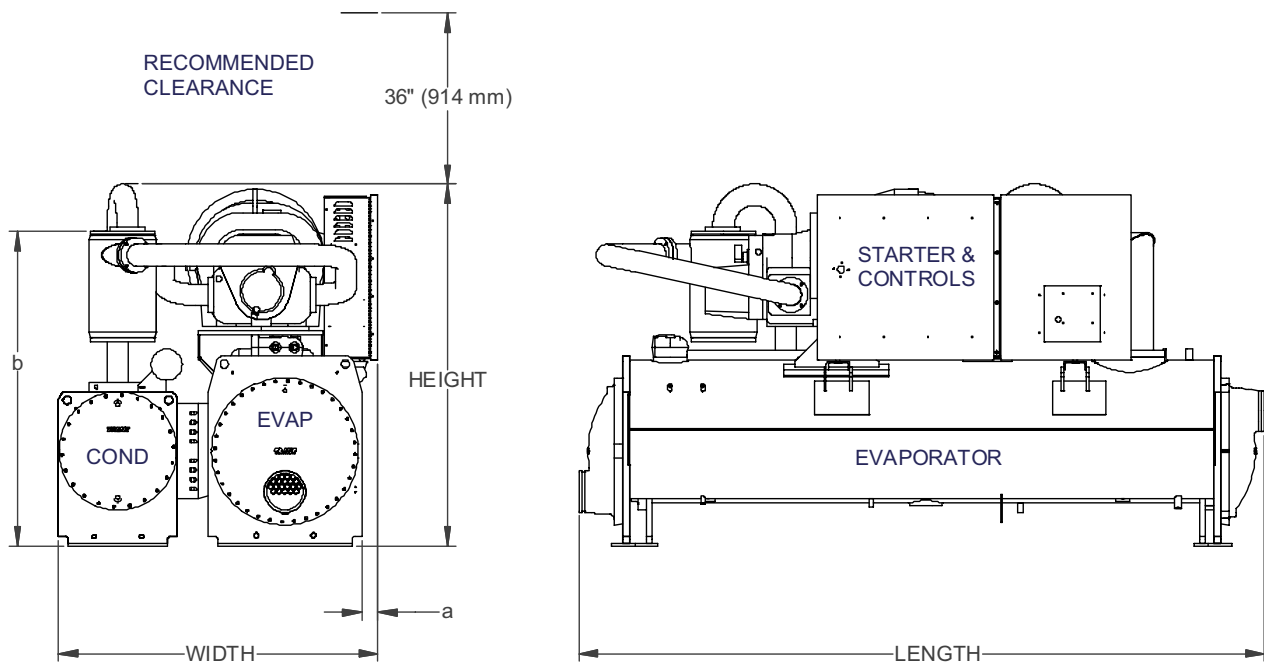
## Dimensions for EDE, DDE and CDE Units



| Compressor Code (Digits 6 & 7) | Evaporator Code (Digits 14 & 15) | Condenser Code (Digits 21 & 22) | Length inches (mm) | Width inches (mm) | Height inches (mm) | a (From tubesheet to edge of control panel) inches (mm) | b (From floor to top of oil separators) inches (mm) |
|--------------------------------|----------------------------------|---------------------------------|--------------------|-------------------|--------------------|---------------------------------------------------------|-----------------------------------------------------|
| C1                             | D6                               | E5                              | 130<br>(3302)      | 68<br>(1727)      | 77<br>(1956)       | 5.2<br>(132)                                            | 66.3<br>(1684)                                      |
| C1                             | D5                               | E4                              | 130<br>(3302)      | 68<br>(1727)      | 77<br>(1956)       | 5.2<br>(132)                                            | 66.3<br>(1684)                                      |
| C2                             | D4                               | E4                              | 130<br>(3302)      | 68<br>(1727)      | 77<br>(1956)       | 5.2<br>(132)                                            | 66.3<br>(1684)                                      |
| C2                             | D3                               | E3                              | 130<br>(3302)      | 68<br>(1727)      | 77<br>(1956)       | 5.2<br>(132)                                            | 66.3<br>(1684)                                      |
| D1                             | D1                               | E1                              | 130<br>(3302)      | 68<br>(1727)      | 77<br>(1956)       | 5.2<br>(132)                                            | 66.3<br>(1684)                                      |
| D2                             | D2                               | E2                              | 130<br>(3302)      | 68<br>(1727)      | 77<br>(1956)       | 5.2<br>(132)                                            | 66.3<br>(1684)                                      |
| D3                             | D2                               | E2                              | 130<br>(3302)      | 68<br>(1727)      | 77<br>(1956)       | 5.2<br>(132)                                            | 66.3<br>(1684)                                      |
| E3                             | D2                               | E2                              | 130<br>(3302)      | 68<br>(1727)      | 77<br>(1956)       | 5.2<br>(132)                                            | 66.3<br>(1684)                                      |

**Dimensions are based on 3 pass evap and 2 pass condenser with LH/RH water connections. Refer to submittals for exact job site configuration.**

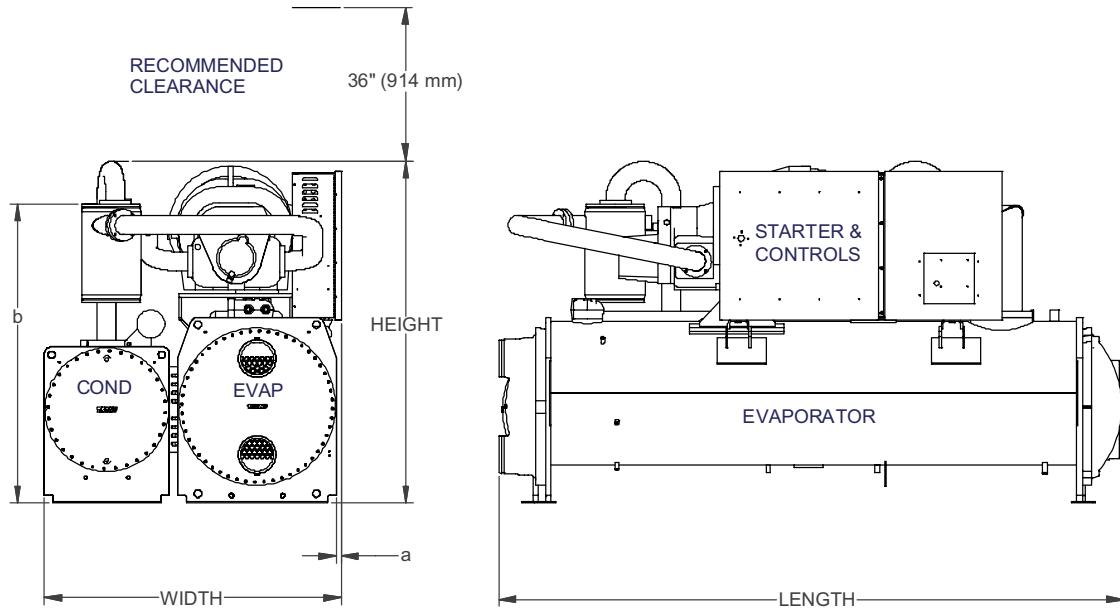
## Dimensions for CEF, CFF DFF and EFF Units



| Compressor Code<br>(Digits 6 & 7) | Evaporator Code<br>(Digits 14 & 15) | Condenser Code<br>(Digits 21 & 22) | Length<br>inches<br>(mm) | Width<br>inches<br>(mm) | Height<br>inches<br>(mm) | a<br>(From tubesheet to<br>edge of control panel)<br>inches<br>(mm) | b<br>(From floor to top<br>of oil separators)<br>inches<br>(mm) |
|-----------------------------------|-------------------------------------|------------------------------------|--------------------------|-------------------------|--------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|
| C1                                | E1                                  | F1                                 | 145<br>(3683)            | 68<br>(1727)            | 77<br>(1956)             | 5.2<br>(132)                                                        | 66.3<br>(1684)                                                  |
| C2                                | F2                                  | F3                                 | 145<br>(3683)            | 69<br>(1753)            | 77<br>(1956)             | 3.5<br>(89)                                                         | 66.3<br>(1684)                                                  |
| D1                                | F1                                  | F2                                 | 145<br>(3683)            | 69<br>(1753)            | 77<br>(1956)             | 3.5<br>(89)                                                         | 66.3<br>(1684)                                                  |
| D2                                | F2                                  | F3                                 | 145<br>(3683)            | 69<br>(1753)            | 77<br>(1956)             | 3.5<br>(89)                                                         | 66.3<br>(1684)                                                  |
| D3                                | F2                                  | F3                                 | 145<br>(3683)            | 69<br>(1753)            | 77<br>(1956)             | 3.5<br>(89)                                                         | 66.3<br>(1684)                                                  |
| E3                                | F2                                  | F3                                 | 145<br>(3683)            | 69<br>(1753)            | 77<br>(1956)             | 3.5<br>(89)                                                         | 66.3<br>(1684)                                                  |

**Dimensions are based on 3 pass evap and 2 pass condenser with LH/RH water connections. Refer to submittals for exact job site configuration.**

## Dimensions for DGG and EGG Units



| Compressor Code<br>(Digits 6 & 7) | Evaporator Code<br>(Digits 14 & 15) | Condenser Code<br>(Digits 21 & 22) | Length<br>inches<br>(mm) | Width<br>inches<br>(mm) | Height<br>inches<br>(mm) | a<br>(From tubesheet to<br>edge of control panel)<br>inches<br>(mm) | b<br>(From floor to top<br>of oil separators)<br>inches<br>(mm) |
|-----------------------------------|-------------------------------------|------------------------------------|--------------------------|-------------------------|--------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|
| D1                                | G2                                  | G2                                 | 147<br>(3734)            | 71<br>(1803)            | 81<br>(2057)             | 1.1<br>(28)                                                         | 70.1<br>(1781)                                                  |
| D2                                | G3                                  | G3                                 | 147<br>(3734)            | 71<br>(1803)            | 81<br>(2057)             | 1.1<br>(28)                                                         | 70.1<br>(1781)                                                  |
| D3                                | G3                                  | G3                                 | 147<br>(3734)            | 71<br>(1803)            | 81<br>(2057)             | 1.1<br>(28)                                                         | 70.1<br>(1781)                                                  |
| E3                                | G3                                  | G3                                 | 147<br>(3734)            | 71<br>(1803)            | 81<br>(2057)             | 1.1<br>(28)                                                         | 70.1<br>(1781)                                                  |

**Dimensions are based on 4 pass evap and 2 pass condenser with LH/RH water connections. Refer to submittals for exact job site configuration.**



## Reassembly

Once the unit is completely dis-assembled, it should be stored and moved with all ports, connections and openings sealed. This can be done with tape and plastic. The tighter the unit is sealed, the less moisture will need to be removed on reassembly.

While reassembling the unit, follow all previous procedures in reverse. Use new o-rings and gaskets on all joints after thoroughly cleaning each flange.

### CAUTION

#### Equipment Damage!

**Be certain to remove all coverings from connections prior to reassembling.**

### Sealants

Use Tight or Loc-tite 515 on all threaded connections on reassembling.

Lightly coat all o-rings with the unit POE oil (OIL00048) on reassembly.

### Evacuation

Once the unit is completely re-assembled, test the unit for any leaks. Pressurize the unit with 100 psi of nitrogen and a trace of HFC-134a. Leak test all joints and confirm all leaks with a soap bubble test.

Once all leaks are repaired, connect a vacuum pump and pull the system down to 500 microns.

Once the system has pulled down, perform a standing rise test for at least one hour. The pressure should not rise anymore than 150 microns, if the pressure does rise more than 150 microns there is either a leak or moisture in the system.



## Torque Values

| Compressor Connection Point                                     | Family (Digit 6) | Size                                               | Qty                    | Max Hex Head Size                | Torque (ft-lbs)            | Sealing Material             |
|-----------------------------------------------------------------|------------------|----------------------------------------------------|------------------------|----------------------------------|----------------------------|------------------------------|
| Discharge line(s) leaving compressor                            | E, D & C         | M12 X 50 mm                                        | 8                      | 19 mm                            | 65                         | O-ring                       |
|                                                                 | B                | M12 X 50 mm                                        | 4                      | 19 mm                            | 65                         | O-ring                       |
| Discharge line(s) entering oil separator(s)                     | E, D & C         | M12 X 65 mm with nut                               | 8                      | 19 mm                            | 65                         | O-ring                       |
|                                                                 | B                | M12 X 65 mm with nut                               | 4                      | 19 mm                            | 65                         | O-ring                       |
| Discharge line(s) leaving oil separator(s)                      | E, D & C         | M12 X 40 mm                                        | 8                      | 19 mm                            | 65                         | O-ring                       |
|                                                                 | B                | M12 X 40 mm                                        | 4                      | 19 mm                            | 65                         | O-ring                       |
| Discharge line(s) entering condenser (without isolation valves) | E, D & C         | M12 X 40 mm                                        | 16                     | 19 mm                            | 65                         | O-ring                       |
|                                                                 | B                | M12 X 40 mm                                        | 8                      | 19 mm                            | 65                         | O-ring                       |
| Discharge line(s) entering condenser (with isolation valves)    | E, D & C         | M12 X 100 mm                                       | 16                     | 19 mm                            | 65                         | Isolation valve soft seat    |
|                                                                 | B                | M12 X 100 mm                                       | 8                      | 19 mm                            | 65                         | Isolation valve soft seat    |
| Liquid line entering condenser (without isolation valves)       | E, D & C         | 5/8-11 X 2                                         | 4                      | 15/16                            | "125                       | Gasket                       |
|                                                                 | B                | 5/8-11 X 1-3/4                                     | 4                      | 15/16                            | "125                       | Gasket                       |
| Liquid line entering isolation valve (with isolation valves)    | E, D & C         | 3/4-10 X 2-1/2                                     | 4                      | 1-1/8                            | "150                       | Gasket                       |
|                                                                 | B                | 5/8-11 X 1-3/4                                     | 4                      | 15/16                            | "125                       | Gasket                       |
| Isolation valve to condenser (with isolation valves)            | E, D & C         | 5/8-11 X 5                                         | 4                      | 15/16                            | "125                       | Gasket                       |
|                                                                 | B                | 5/8-11 X 4-1/4                                     | 4                      | 15/16                            | "125                       | Gasket                       |
| Liquid line entering EXV housing                                | E, D, C & B      | M12 X 40 mm                                        | 4                      | 19 mm                            | 65                         | O-ring                       |
| EXV housing to evaporator                                       | E, D, C & B      | M12 X 130 mm                                       | 3                      | 19 mm                            | 65                         | O-ring                       |
| Suction line leaving evaporator                                 | E, D & C         | M16 X 55 mm                                        | 12                     | 24 mm                            | 125                        | O-ring                       |
|                                                                 | B                | M12 X 50 mm                                        | 16                     | 19 mm                            | 65                         | O-ring                       |
| Suction line entering compressor                                | E, D & C         | M16 X 60 mm                                        | 12                     | 24 mm                            | 125                        | O-ring                       |
|                                                                 | B                | M12 X 50 mm                                        | 16                     | 19 mm                            | 65                         | O-ring                       |
| Oil line(s) leaving oil separator(s)                            | E, D & C         | 1-7/8-12 X 2-12 (adapter)<br>2-12 (nut)            | 2 (adapter)<br>2 (nut) | 2-1/8" (adapter)<br>2-1/4" (nut) | 120 (adapter)<br>105 (nut) | O-ring boss/o-ring face seal |
|                                                                 | B                | 1-7/8-12 X 2-12 (adapter)<br>2-12 (nut)            | 1 (adapter)<br>1 (nut) | 2-1/8" (adapter)<br>2-1/4" (nut) | 120 (adapter)<br>105 (nut) | O-ring boss/o-ring face seal |
| Oil line(s) entering oil sump                                   | E, D, C & B      | Braze joint                                        |                        |                                  |                            |                              |
| Oil line leaving oil sump                                       | E, D, C & B      | Braze joint                                        |                        |                                  |                            |                              |
| Oil line entering oil cooler (if applicable)                    | E, D, C & B      | Braze joint                                        |                        |                                  |                            |                              |
| Oil cooler refrigerant line leaving liquid line (if applicable) | E, D, C & B      | Braze joint                                        |                        |                                  |                            |                              |
| Oil cooler refrigerant line entering oil cooler (if applicable) | E, D, C & B      | Braze joint                                        |                        |                                  |                            |                              |
| Oil cooler refrigerant line leaving oil cooler (if applicable)  | E, D, C & B      | Braze joint                                        |                        |                                  |                            |                              |
| Oil cooler refrigerant line entering evaporator (if applicable) | E, D, C & B      | 1-5/16-12 X 1-7/16-12 (adapter)<br>1-7/16-12 (nut) | 1 (adapter)<br>1 (nut) | 1-1/2" (adapter)<br>1-5/8" (nut) | 110 (adapter)<br>100 (nut) | O-ring boss/o-ring face seal |
| Oil line leaving oil cooler (if applicable)                     | E, D, C & B      | Braze joint                                        |                        |                                  |                            |                              |

| Compressor Connection Point                      | Family (Digit 6) | Size                                                 | Qty                            | Max Hex Head Size                    | Torque (ft-lbs)            | Sealing Material             |
|--------------------------------------------------|------------------|------------------------------------------------------|--------------------------------|--------------------------------------|----------------------------|------------------------------|
| Oil line entering oil filter                     | E, D & C         | 1-5/16-12 X 1-11/16-12 (adapter)<br>1-11/16-12 (nut) | 1 (adapter)<br>1 (nut)         | 1-7/8" (adapter)<br>1-7/8" (nut)     | 110 (adapter)<br>100 (nut) | O-ring boss/o-ring face seal |
|                                                  | B                | 1-5/16-12X1-7/16-12(adapter)<br>1-7/16-12 (nut)      | 1 (adapter)<br>1 (nut)         | 1-1/2" (adapter)<br>1-5/8" (nut)     | 110 (adapter)<br>100 (nut) | O-ring boss/o-ring face seal |
| Oil line leaving oil filter                      | E, D & C         | 1-5/16-12 X 1-11/16-12 (adapter)<br>1-11/16-12 (nut) | 1 (adapter)<br>1 (nut)         | 1-7/8"<br>(0adapter)<br>1-7/8" (nut) | 110 (adapter)<br>100 (nut) | O-ring boss/o-ring face seal |
|                                                  | B                | 1-5/16-12X1-7/16-12(adapter)<br>1-7/16-12 (nut)      | 1 (adapter)<br>1 (nut)         | 1-1/2" (adapter)<br>1-5/8" (nut)     | 110 (adapter)<br>100 (nut) | O-ring boss/o-ring face seal |
| Oil line entering compressor (bearing injection) | E, D, C & B      | 1-5/16-12X1-7/16-12(adapter)<br>1-7/16-12 (nut)      | 1 (adapter)<br>1 (nut)         | 1-1/2" (adapter)<br>1-5/8" (nut)     | 110 (adapter)<br>100 (nut) | O-ring boss/o-ring face seal |
| Oil line entering compressor (rotor injection)   | E, D, C & B      | 1-5/16-12X1-7/16-12(adapter)<br>1-7/16-12 (nut)      | 1 (adapter)<br>1 (nut)         | 1-1/2" (adapter)<br>1-5/8" (nut)     | 110 (adapter)<br>100 (nut) | O-ring boss/o-ring face seal |
| Oil line leaving evaporator                      | E, D, C & B      | Braze joint                                          |                                |                                      |                            |                              |
| Oil line entering & leaving gas pump check valve | E, D, C & B      | 1-3/16-12                                            | 1                              | 1-3/8                                | "100                       | O-ring face seal             |
| Oil line leaving gas pump                        | E, D, C & B      | Braze joint                                          |                                |                                      |                            |                              |
| Gas pump oil line entering & leaving oil filter  | E, D, C & B      | Braze joint                                          |                                |                                      |                            |                              |
| Gas pump oil line entering compressor            | E, D, C & B      | 1-5/16-12X1-7/16-12(adapter)<br>1-7/16-12 (nut)      | 1 (adapter)<br>1 (nut)         | 1-1/2" (adapter)<br>1-5/8" (nut)     | 110 (adapter)<br>100 (nut) | O-ring boss/o-ring face seal |
| Gas pump hot gas line leaving condenser          | E, D, C & B      | Braze joint                                          |                                |                                      |                            |                              |
| Gas pump hot gas line entering gas pump          | E, D, C & B      | Braze joint                                          |                                |                                      |                            |                              |
| Gas pump vent line leaving gas pump              | E, D, C & B      | Braze joint                                          |                                |                                      |                            |                              |
| Gas pump vent line entering evap                 | E, D, C & B      | 7/8-14 X 1-14 (adapter)<br>(nut)                     | 1-14<br>1 (adapter)<br>1 (nut) | 1-1/16"<br>(adapter)<br>1-1/8" (nut) | 60 (adapter)<br>55 (nut)   | O-ring boss/o-ring face seal |

## Parts Ordering

Refer to the table below for a list of part numbers available.

| Unit Description               | Kit Description | Part Number | Qty Per Unit |
|--------------------------------|-----------------|-------------|--------------|
| B - Frame Compressors          | RTHD seal kit   | KIT09118    | 1            |
| C, D and E - Frame Compressors | RTHD seal kit   | KIT09119    | 1            |

**Unit Description - refers to digit 6 of the unit model number.**

To obtain the parts identified in this bulletin, order from your local Trane Service Parts Center.

## Questions

Contact the Product Technical Service department in Pueblo, Colorado with questions regarding this Service Bulletin. They can be reached at [techservicepueblo@trane.com](mailto:techservicepueblo@trane.com).



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|                         |                               |
|-------------------------|-------------------------------|
| Literature Order Number | RTHD-SVB02B-EN                |
| File Number             | SL-RF-RLC-RTHD-SVB02B-EN-0704 |
| Supersedes              | RTHD-SVB02A-EN                |
| Stocking Location       | Electronic Only               |

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