



Installation Instructions

RCDB - Symbio™ 800 Controls Upgrade Kit

RTAC CH530 Rotary Chiller



Model Number: RTAC

This document applies to service offering applications only.

⚠ SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.



Introduction

Read this manual thoroughly before operating or servicing this unit.

Warnings, Cautions, and Notices

Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

- ⚠ 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, could result in minor or moderate injury. It could also be used to alert against unsafe practices.
- NOTICE** Indicates a situation that could result in equipment or property-damage only accidents.

Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants.

Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

⚠ WARNING

Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury. All field wiring **MUST** be performed by qualified personnel. Improperly installed and grounded field wiring poses **FIRE** and **ELECTROCUTION** hazards. To avoid these hazards, you **MUST** follow requirements for field wiring installation and grounding as described in NEC and your local/state/national electrical codes.

⚠ WARNING

Personal Protective Equipment (PPE) Required!

Failure to wear proper PPE for the job being undertaken could result in death or serious injury. Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, **MUST** follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

- Before installing/servicing this unit, technicians **MUST** put on all PPE required for the work being undertaken (Examples; cut resistant gloves/sleeves, butyl gloves, safety glasses, hard hat/bump cap, fall protection, electrical PPE and arc flash clothing). **ALWAYS** refer to appropriate Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.
- When working with or around hazardous chemicals, **ALWAYS** refer to the appropriate SDS and OSHA/GHS (Global Harmonized System of Classification and Labeling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.
- If there is a risk of energized electrical contact, arc, or flash, technicians **MUST** put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, **PRIOR** to servicing the unit. **NEVER PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.**

⚠ WARNING**Follow EHS Policies!**

Failure to follow instructions below could result in death or serious injury.

- All Trane personnel must follow the company's Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. Where local regulations are more stringent than these policies, those regulations supersede these policies.
- Non-Trane personnel should always follow local regulations.

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Model Number Descriptions

Digit 1, 2, 3

RCD= Rotary and Scroll Chiller Control Upgrade

Digit 4 — Development Sequence

B = Symbio™ 800 Chiller Controller

Digit 5 — Controls Upgrade

A = RTHD CH530
B = RTHD RCDA
C = RTHD UC800
D = RTAF UC800
E = ACS UC800
F = CGAM CH530
G = RTAC CH530
H = RTAC RCDA
J = RTWD and RTUD CH530
K = RTHC with UCP2
L = RTHC RCRA

Digit 6 — Display Mount Option

0 = None
1 = Display Mounted on External Arm
2 = Display Mounted on Door Panel
3 = Display Without Mounting Hardware

Digit 7 — AirFi® Option

0 = Without AirFi Module
1 = With AirFi Module

Digit 8 — WiFi Option

0 = Without WiFi Module
1 = With WiFi Module

Digit 9 - LTE Option

0 = Without LTE Modem
1 = With LTE Modem

Digit 10, 11 — Design Sequence

AA = First Design Release

Digit 12 — BAS Interface

0 = BACnet® and Modbus® Included as Standard
1 = Generic BAS Controls
2 = LonTalk® Communication

Digit 13 — Reserved for Future

0 = None

Digit 14 — Flow Sensing Equipment

0 = Reuse Existing Thermal Dispersion Sensors
1 = Thermal Dispersion Sensor Upgrade

Digit 15 — Unit Voltage

A = 200/60/3
C = 230/60/3
D = 400/50/3
J = 380/60/3
4 = 460/60/3
5 = 575/60/3

Digits 16 — Energy Power Meter

0 = Without New Energy Meter
1 = One Energy Meter, 480V and Low
2 = Two Energy Meters in One Panel, 480V and Low
3 = Two Energy Meters in Two Panels, 480V and Low

Digit 17 - Global Connector Kit

0 = Without Global Connector Kit
A = With Global Connector Kit

Digit 18 - AdaptiView™ Magnet Cover

0 = No AdaptiView Magnet Cover
1 = With AdaptiView Magnet Cover

Digit 19-21 - Unit Nominal Capacity

000 = Not Required
020 = 020 Ton Nominal Capacity CGAM Unit
026 = 026 Ton Nominal Capacity CGAM Unit
030 = 030 Ton Nominal Capacity CGAM Unit
035 = 035 Ton Nominal Capacity CGAM Unit
040 = 040 Ton Nominal Capacity CGAM Unit
052 = 052 Ton Nominal Capacity CGAM Unit
060 = 060 Ton Nominal Capacity CGAM Unit
070 = 070 Ton Nominal Capacity CGAM Unit
080 = 080 Ton Nominal Capacity CGAM Unit
090 = 090 Ton Nominal Capacity CGAM Unit
100 = 100 Ton Nominal Capacity CGAM Unit
110 = 110 Ton Nominal Capacity CGAM Unit
120 = 120 Ton Nominal Capacity Unit
130 = 130 Ton Nominal Capacity Unit
140 = 140 Ton Nominal Capacity RTAC Unit
155 = 155 Ton Nominal Capacity RTAC Unit
170 = 170 Ton Nominal Capacity RTAC Unit
185 = 185 Ton Nominal Capacity RTAC Unit
200 = 200 Ton Nominal Capacity RTAC Unit
225 = 225 Ton Nominal Capacity RTAC Unit
250 = 250 Ton Nominal Capacity RTAC Unit
275 = 275 Ton Nominal Capacity RTAC Unit
300 = 300 Ton Nominal Capacity RTAC Unit
350 = 350 Ton Nominal Capacity RTAC Unit
375 = 375 Ton Nominal Capacity RTAC Unit
400 = 400 Ton Nominal Capacity RTAC Unit

450 = 450 Ton Nominal Capacity RTAC Unit

500 = 500 Ton Nominal Capacity RTAC Unit

Digit 22 - Unit Type

0 = Not Required
1 = Standard Efficiency/Performance RTAC Unit
2 = High Efficiency/Performance RTAC Unit
3 = Extra Efficiency/Performance RTAC Unit

Digit 23 - USB Waterproof Cover

0 = No Additional USB Waterproof Cover
1 = With Additional USB Waterproof Cover

Digit 24 - Potential Transformers

0 = Not Required
1 = Reuse Existing PTs
2 = Three New PTs

Digit 25 - Outdoor Air Temperature

0 = None
2 = With Outdoor Air Temperature Sensor

Digit 26 - Water Flow Measurement

0 = None
1 = Reuse Existing Differential Pressure Flow Measurement
2 = With Dual Pressure Transducer Flow Measurement

Digit 27, 28, 29 - Reserved for Future



General Information

About This Manual

This manual describes the procedures required to successfully upgrade an Tracer® CH530 DynaView™ equipped RTAC Series R® air-cooled chiller to a Tracer Symbio™ 800 display system.

Other Required Manuals

This manual must be used with the following publications:

- *Series R® Air-Cooled Helical Rotary Liquid Chillers - Installation, Operation, and Maintenance* (RTAC-SVX01*-EN)
- *AdaptiView™ Display with Symbio™ Controls, RTAC Air-Cooled Chillers User Guide* (SO-SVU002*-EN)
- *Symbio 800 Controls Upgrade for Series R™ Chillers Model RTAC - Programming Guide* (SO-SVP004*-EN)
- *BACnet® and Modbus® RTU Communication Interfaces for Trane® Rotary Chiller, Model RTAC - Integration Guide* (BAS-SVP081*-EN)
- *Tracer® CH530/CH531 Pluggable Connector System Product Code: 0064 (PART) - General Service Bulletin* (PART-SVB16*-EN)
- *LonTalk™ Communication Interface for Trane™ Chillers with Tracer AdaptiView™ Control - Hardware and Software Installation Guide* (BAS-SVP082*-EN)

Required Tools

Standard service tools are required to perform the majority of the work. Following is a partial list of field-supplied hardware/software components and special tools required to perform the display retrofit:

- RS-232 Male DB9 to female DB9 pin to pin serial cable to connect the Dynaview to a PC or laptop computer.
Notes:
 - *The cable must not be a null-modem cable.*
 - *The cable must be less than 50 feet in length.*
- Type A to Type B USB cable to connect the Tracer Symbio™ 800 controller to a PC or laptop computer.
- A PC or laptop computer equipped with the following:
 - KestrelView™ service software, version 15.0 or newer.
 - Tracer™ TU service software, version 11.8.562 or newer.
- South pole magnet screwdriver (TOL01343).
- Drill
- 7/8-inch hole saw or knockout punch
- 1-1/8-inch hole saw or knockout punch
- 1-3/8-inch knockout punch (needed for enclosure option only)

- 1-1/4-inch hole saw or knockout punch (needed for arm mount option only)
- #2 (0.221) drill bit (needed for enclosure option only)
- Q drill bit - 0.332 (needed for arm mount option only)
- 17/64-inch drill bit
- 7/16-inch wrenches/sockets
- 5/16-inch wrenches/sockets
- Standard wire crimpers
- 1/2-inch wrenches/sockets

Field-Provided Material

Some field-provided material will be required to perform the display retrofit. A list of material is provided here to help the technician to plan ahead and to avoid material shortages at the job site.

Nameplates

A Tracer® Symbio™ 800 nameplate is included in the kit and must be installed near the original nameplate on the control panel. The nameplate includes the model number and serial number, which are required when contacting Trane for support or replacement parts.

RTAC Symbio™ 800 Upgrade Kit Contents

Symbio 800/TD-7 Upgrade Kit

Kit Components — Standard

Table 1. Standard Symbio™ 800 control upgrade kit parts for RTAC (018800680100)

Part Number	Mnemonic	Description	Quantity
507130890001		Kit; Back Plate Assembly - RTAC Symbio UpgradE	1
X13690281001	KIT18459	Kit; Micro Sd Memory	1
X19210039010	MNT00715	Mount, Cable Tie Base	5
X19210028010	TIE00122	Cable Ties 0.1 X ~3.87" Long	10
X19060094010	CAB00906	Cable; 4-conductor, Twisted, 18ga	144 inch
X19010309460	WIR07827C	Wire; Insulated; 14 Awg UI 1230 Blk Awm	2 m
507119190001	SCR02582	Bolt, Ss, 1/4-20 X 1.25"	4
507118150001		Locknut, Ss, 1/4-20	4
507119200001		Sealing Washer, Ss, 1/4,	4
507118170001		Cord Grip, 3/4 Npt, Split Grommet	1
507119210001		Cord Grip, 1/2 Npt, Split Grommet	1
507119220001		Cord Grip Nut, 3/4 Npt	1
507119230001		Cord Grip Nut, 1/2 Npt	1
507117820001		Bushing, Split, 1.25	1
507119240001		Hole Plug, 11/16"	1
507119250001		Hole Plug, 1/8"	4
KIT; BACK PLATE ASSEMBLY - RTAC SYMBIO UPGRADE (507130890001)			
507131470001		Back Plate, RTAC Symbio Upgrade	1
X13500224080		RAIL; DIN Terminal Block, 35 MM, 7.50 LG	2
X22050232060	WAS00684	Washer; .219 ID X .500 OD, PI	4
X25330033410	SCR00889	Screw; Phillips Panhead 0.5 Inch Thread Rolling Zinc Plate 10-32	4
X45091639010	CAP01251	Cap; Protective Form Cap	2
X13651678002	MOD02979	Module; Unit Control Module (UCM), Symbio 800, Ships Unprogrammed	1
X13491363010	BLK01486	Terminal; Block, End Stop	2
X13550850010	PWR00147	Transformer; Power Supply; 24 Vdc 1.3 A, 120/240 Vac 1 Ph	1
X19220085030	CON00431	Connector; Housing; 4 Ckt	1



General Information

Table 2. Literature kit parts - RTAC CH530 (018800660100)

Part Number	Mnemonic	Description	Quantity
SO-SVN059*-EN		Installation Instructions - Symbio 800 Control Upgrade Kit For RTAC CH530 Chiller	1
SO-SVP004*-EN		Programming Guide - RCBD Tracer Adaptiview Symbio Upgrade RTAC Chillers	1
SO-SVU002*-EN		Operations Guide- Tracer Adaptiview Sybmio Upgrade For RTAC Chillers	1
BAS-SVP081*-EN		Integration Guide - Bacnet And Modbus Communication Interfaces	1
PART-SVB16*-EN		General Service Bulletin - Tracer® CH530/CH531 Pluggable Connector System	1
507130940001		Schematic - RTAC Symbio800 Upgrade	1
X39002341010	UN0000	Label - Blank, Wiring Diagram	1

Table 3. Nameplate (018503790100)

Part Number	Mnemonic	Description	Quantity
X39001352010		Label; Printed Nameplate W/trane Logo	1

Table 4. USB port kit contents (018800690100)

Part Number	Mnemonic	Description	Quantity
X19140818010	CAB01260	Cable; Usb B-port, 0.5 M Length	1
X19091378010	COV04756	Cover; Outdoor Expandable	1
X25330033100	SCR00891	Screw; Phillips Panhead, 0.375 in., Thread Rolling, Zinc Plate 6-32	2

Table 5. Unit mount TD-7 kit parts

Part Number	Mnemonic	Description	Quantity
TD-7 kit contents (018800330100)			
X13651571010	MOD01924	Module; TD-7 Display ^(a)	1
X19070632020	CAB01206	Sealed Ethernet Cable, 3700 MM (12 ft)	1
X19051625030	CAB01534	Pwr Cable From TD-7 To UC800 (Connector To Prepped End), 78.74-inch	1
Unit mount option kit contents (018800360100)			
507118320001		Display Enclosure Assembly	1
507119260001		Flange Head Screw, SS, 10-32 x 0.5	4
507119270001		Lock Nut, SS, 10-32	8
507119060001		Display Back Plate	1

(a) Includes screws, 7 ft ethernet cable, nameplate, Phoenix connectors, 3.25 ft. global harness.

Table 6. Generic BAS kit parts (018800050100)

Part Number	Mnemonic	Description	Quantity
X13650728070	BRD04873	Module; Dual Binary Input, Vertical Headers	1
X13650731070	BRD04875	Module; Dual Analog I/O, Vertical Headers	3
X13650806050	BRD04879	Module; Quad Relay, Vertical Headers	1
X13650733070	BRD04878	Module; Dual Relay, Vertical Headers	1
X19220085020	CON00430	Connector; Housing; 3 Ckt Term	12
X19220085030	CON00431	Connector; Housing; 4 Ckt Term	1

Table 7. Thermal dispersion flow switch kit parts (018800070100)

Part Number	Mnemonic	Description	Quantity
	BUS02149	Bushing; Black Hex Bushing 1 X 1/2; Muller PN 521\~953	1
656418010100	ADP01440	US0057, ADAPTOR; 1/2" RUBBER GASKET NPT FOR FLOW PROBE	1
X19052272002		EVT015, Wire Harness; 5-in. Micro DC cable, 25M long	1
X13651586010	KIT12480	Effector Flow Switch Kit	1

Table 8. LonTalk® kit parts (018800650100)

Part Number	Mnemonic	Description	Quantity
X13492732001	TER01833	Terminal; Block, End Stop	1
X13651697001	MOD02977	Echelon IZOT U60 Ft DIN Network Interface	1
BAS-SVP077*-EN		Integration Guide: LonTalk® Integration to CGAM With Symbio Controls	1
BAS-SVP082*-EN		Integration Guide: LonTalk® Integration to RTAC With Symbio Controls	1
BAS-SVP065*-EN		Integration Guide: LonTalk® Integration to RTWD With Symbio Controls	1

Table 9. Energy meter kit parts

Part Number	Mnemonic	Description	Quantity
Single energy meter kit (018800560100)			
X13651690001	MTR01741	Kit; BACnet® MS/TP and Modbus® RTU Power Meter and Modbus® RTU, Rope and 12 in. Rogowski Circuits	1
X13500224100	RAL01147	Rail; DIN Terminal Block, 35 MM, 6.875 LG	1
X13492732001	TER01833	Terminal; Block, End Stop	2
X19022114001	WIR12934	Cable, 3-COND 18AWG Shielded	1
X19150568040	SF-BR3-8	Terminal; Ring Tongue, 0.38-in. Stud, 14-16 AWG	3
X25330033410	SCR00889	Screw; Phillips Panhead 10-32 x 0.50	2
X22030500000	WAS00043	Lockwasher; External Tooth 0.190 NOM	2
X19220085020	CON00430	Connector; Housing; 3 Circuit Term	1
X19210039010	MNT00715	Mount, Cable Tie Base	5
Dual energy meters in one panel kit (018800710100)			
X13651690001	MTR01741	Kit; BACnet® MS/TP and Modbus® RTU Power Meter and Modbus® RTU, Rope and 12 in. Rogowski Circuits	2
X13500224100	RAL01243	Rail; DIN Terminal Block, 35 MM, 6.875 LG	1
X13492732001	TER01833	Terminal; Block, End Stop	2
X19022114001	WIR12934	Cable, 3-COND 18AWG Shielded	2
X19150568040	SF-BR3-8	Terminal; Ring Tongue, 0.38-in. Stud, 14-16 AWG	6
X25330033410	SCR00889	Screw; Phillips Panhead 10-32 x 0.50	4
X22030500000	WAS00043	Lockwasher; External Tooth 0.190 NOM	4
X19220085020	CON00430	Connector; Housing; 3 Circuit Term	1
507130900001		Bracket; RTAC Dual Energy Meter	1
X19210039010	MNT00715	Mount, Cable Tie Base	15
X13490948030	TER01334	Terminal; Block; 4P 20A 600V	3
X13490948060	PLT04051	Terminal; Block; 4P end plate	1
X13492732001	TER01833	Terminal; Block; 4P end stop	1



General Information

Table 9. Energy meter kit parts (continued)

Part Number	Mnemonic	Description	Quantity
Dual energy meters in two panels kit (018800720100)			
X13651690001	MTR01741	Kit; Bacnet MS/TP and Modbus RTU Power Meter and 3 Rogowski Flexible Core AC Current Transducers	2
X13500224100	RAL01243	Rail; DIN Terminal Block, 35 MM, 6.875 LG	2
X13492732001	TER01833	Terminal; Block, End Stop	4
X19022114001	WIR12934	Wire; 3-COND 18AWG shielded	1
X19150568040	SF-BR3-8	Terminal; 16-14 Awg Ring 3/8" Stud Package of 65 Pieces	6
X25330033410	SCR00889	screw; phillips panhead 0.5 inch thread rolling zinc plate 10-32	4
X22030500000	WAS00043	Washer; Lock, 0.190 Nom, Tooth, Flat	4
X19220085020	CON00430	Connector; Plug/screw, 3 Ckt	2
X19210039010	MNT00715	Mount, Cable Tie Base	15
X13490948030	TER01334	Terminal Block; 4P 20A 600V	3
X13490948060	PLT04051	Terminal Block; 4P End Plate	1
X13492732001	TER01833	Terminal; Block, End Stop	1
X19022114002		Wire; 3-COND 18AWG Shielded	25m
507119210001		Cord Grip, 1/2 NPT, Split Grommet	2
507119230001		Cord Grip Nut, 1/2 NPT	2

Table 10. Additional options kits

Part Number	Mnemonic	Description	Quantity
018504240100		Kit; Communication with Air-Fi®	1
X13651776002		Kit; Communication with LTE	1
X13651743002	MOD03122	Kit; Communication with Wi-Fi	1

Global Connection Harness Upgrade Kits

Table 11. Global connector kit, 2 compressor units, base lengths 15, 18 or 21 ft — 018800380100

Part Number	Mnemonic	Description	Quantity
X13790348080	TDR00354	Pressure Transducer	6
X13650726100	SEN01959	Temperature Sensor	5
X13540076010	RSN00002	Resin; Heat Conductive Compound, 4 oz.	1
KIT13723	KIT13723	4-wire Ribbon to Global Connector Adapter	15
X19051622010	CAB01146	2Y - Short Wire Harness; 1-2 Branching 500 MM +/-10MM 600V 18AWG	5
X19051622020	CAB01147	2Y - Long Wire Harness; 1-2 Branching 1000 MM +/-20MM 600V 18AWG	5
X19051622030	CAB01148	3Y Wire Harness; 1-3 Branching 500 MM +/-10MM 600V 18AWG	5
X19051623010	CAB01149	EXT-Short Wire Harness; Extension 1000 MM +/-20MM 600V 18AWG	8
X19051623020	CAB01150	EXT - Long Wire Harness; Extension 2000 MM +/-30MM 600V 18AWG	1
X19051625020	CAB01155	F to M Wire Harness; Extension 1000 MM +/-20MM 600V 20AWG	1
X19210028180	TIE00053	Tie; Wire/Cable, .06-4.0 DIA	100

Table 12. Global connector kit, 3 compressor units, base lengths 30, 36 or 39 ft — 018800390100

Part Number	Mnemonic	Description	Quantity
X13790348080	TDR00354	Pressure Transducer	8
X13650726100	SEN01959	Temperature Sensor	6
X13540076010	RSN00002	Resin; Heat Conductive Compound, 4 oz.	1
KIT13723	KIT13723	4-wire Ribbon to Global Connector Adapter	18
X19051622010	CAB01146	Wire Harness; 1-2 Branching 500 MM +/-10MM 600V 18AWG	4
X19051622020	CAB01147	Wire Harness; 1-2 Branching 1000 MM +/-20MM 600V 18AWG	6
X19051622030	CAB01148	Wire Harness; 1-3 Branching 500 MM +/-10MM 600V 18AWG	3
X19051623010	CAB01149	Wire Harness; Extension 1000 MM +/-20MM 600V 18AWG	10
X19051623020	CAB01150	Wire Harness; Extension 2000 MM +/-30MM 600V 18AWG	9
X19051625020	CAB01155	Wire Harness; Extension 1000 MM +/-20MM 600V 20AWG	2
X19210028180	TIE00053	Tie; Wire/Cable, .06-4.0 DIA	125

Table 13. Global connector kit, 4-compressor units, base lengths 39 or 45 ft — 018800400100

Part Number	Mnemonic	Description	Quantity
X13790348080	TDR00354	Pressure Transducer	10
X13650726100	SEN01959	Temperature Sensor	7
X13540076010	RSN00002	Resin; Heat Conductive Compound, 4 oz.	1
KIT13723	KIT13723	4-wire Ribbon to Global Connector Adapter	21
X19051622010	CAB01146	Wire Harness; 1-2 Branching 500 MM +/-10MM 600V 18AWG	8
X19051622020	CAB01147	Wire Harness; 1-2 Branching 1000 MM +/-20MM 600V 18AWG	11
X19051622030	CAB01148	Wire Harness; 1-3 Branching 500 MM +/-10MM 600V 18AWG	1
X19051623010	CAB01149	Wire Harness; Extension 1000 MM +/-20MM 600V 18AWG	11
X19051623020	CAB01150	Wire Harness; Extension 2000 MM +/-30MM 600V 18AWG	2
X19051625020	CAB01155	Wire Harness; Extension 1000 MM +/-20MM 600V 20AWG	2
X19210028180	TIE00053	Tie; Wire/Cable, .06-4.0 DIA	125



Installation

Check the Configuration and Setpoints in the DynaView™ Display/Controller

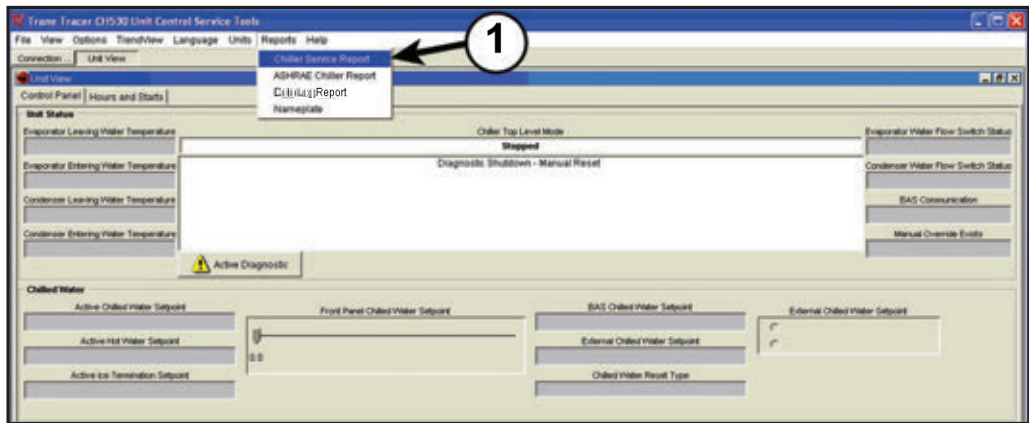
1. Check the current configuration of the DynaView™ and confirm that all settings are correct. Make any necessary changes.
2. Check the current chiller setpoints programmed into the DynaView and confirm that they are correct for the unit. Make any necessary changes.

Export the DynaView™ Configuration and Setpoints

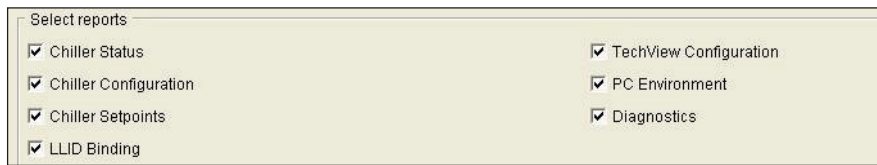
Configuration and setpoint values are exported from the DynaView™ control and used to configure the upgraded Symbio 800 controller. Using KestrelView™ on a PC or laptop computer:

1. Generate a Chiller Service report from the DynaView with Level 4 active. In the **Reports** menu, select **Chiller Service Report**.

Figure 1. KestrelView screenshot—accessing Chiller Service report



2. Select all reports and convert the report to PDF. The PDF file will be required to manually copy configuration and setpoint values with Tracer® TU once the Tracer® AdaptiView™ display and Symbio 800 are installed.



3. Verify the PDF report was printed. The PDF report will be used when configuring the upgraded Symbio 800 controller within Tracer TU.

Shutdown Power

⚠ WARNING

Hazardous Voltage w/Capacitors!

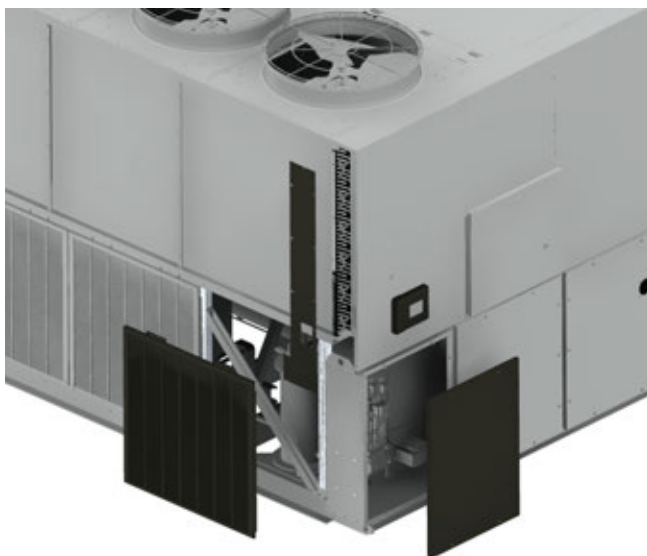
Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury. Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. For variable frequency drives or other energy storing components provided by Trane or others, refer to the appropriate manufacturer's literature for allowable waiting periods for discharge of capacitors. Verify with a CAT III or IV voltmeter rated per NFPA 70E that all capacitors have discharged.

1. Using lockout/tagout safety procedures, remove chiller main power.
2. Open all starter and control panel disconnect switches and secure them in the open position.
3. Confirm the power is off to the control panel of the chiller.

Remove the DynaView™ Display

1. Remove the louver, side, and control enclosure panels. See [Figure 2](#).
2. Remove the 4 fasteners holding the DynaView display to the Unit.
3. Unplug the 4-wire Phoenix connector from the DynaView display and remove the DynaView display from the unit.

Figure 2. Louver panel removal



Prepare Unit for Installation

⚠ WARNING

Risk of Electrocution!

Failure to follow instructions could result in death or serious injury. Before and during drilling operations ensure that all electrical cables and wires are not in the path of the drill bit.

1. Cover unit control cover back plate with plastic to prevent metal chip intrusion.

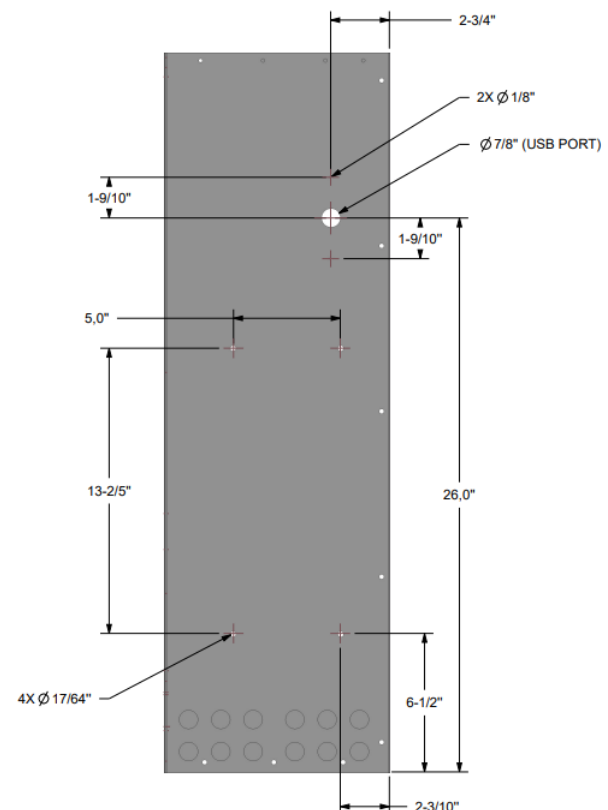
NOTICE

Equipment Damage!

Failure to prevent metal chips from lodging against or inside of the electrical components can cause them to fail when they are energized.

2. Using the template provided, mark the location of the four mounting holes required for the Symbio™ 800 back plate assembly. The lower holes are approximately 6.5-inch from the bottom of the cabinet. See [Figure 3](#), p. 13.
3. Use a 17/64-inch drill bit to drill the four holes. See [Figure 3](#).

Figure 3. Symbio 800 back plate assembly mounting hole locations



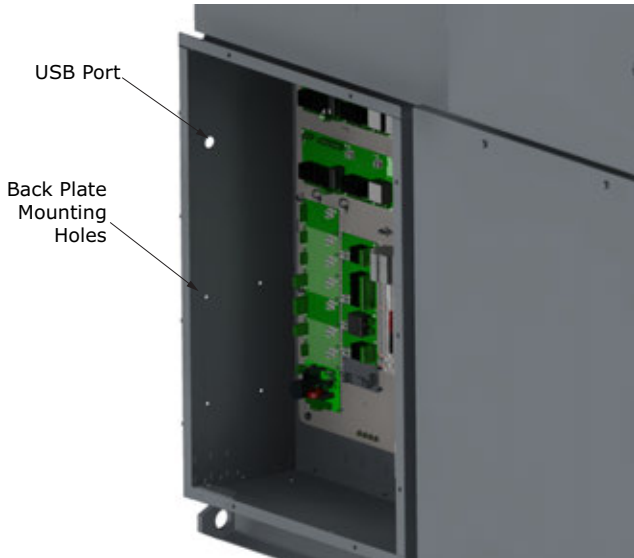
Note: The figure above is not to scale.

Installation

- On either the side or front control panel, drill one 7/8-inch hole for the USB Service Port.

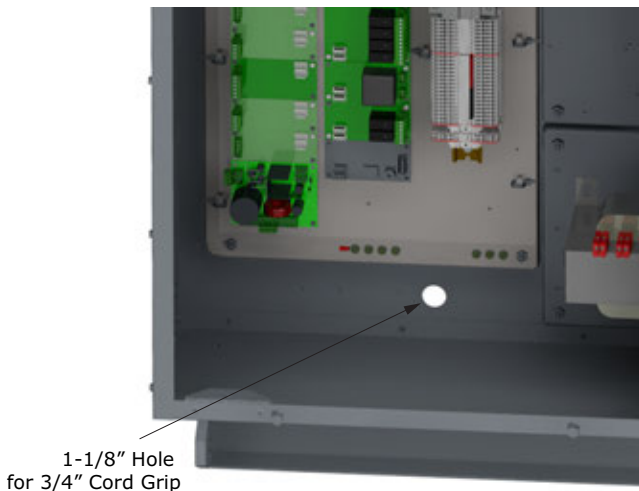
Note: Length from the USB port location to the back plate should be 18-inch or less.

Figure 4. Back plate assembly mount hole locations



- Drill a 1-1/8-inch hole in the back of the control panel, just below the control back plate. The 3/4-inch cord grip will be installed at this location. See [Figure 5, p. 14](#).

Figure 5. Hole for 3/4-inch cord grip

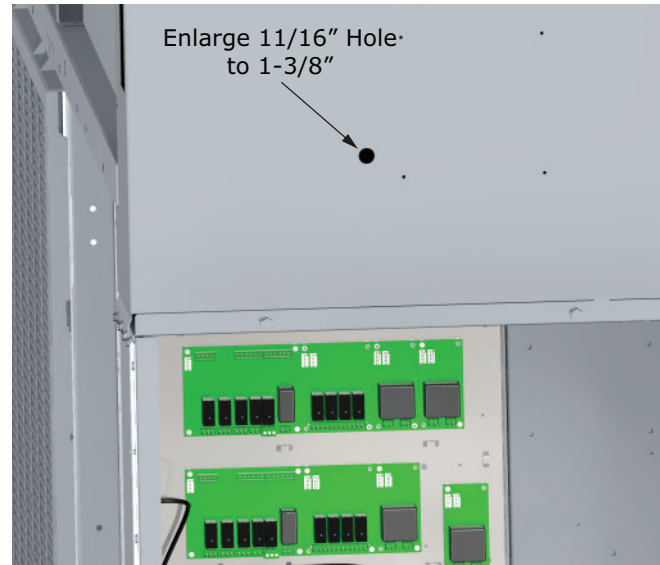


- After all holes are drilled, use a vacuum to remove any dirt, debris, or metal filings that may have accumulated inside of the control enclosure.

Install TD-7 With Enclosure

- Use a 1-3/8-inch knockout punch to enlarge the 11/16-inch diameter hole used to route the Dynaview™ cable.

Figure 6. Panel hole enlargement



- Remove the lid from the TD-7 enclosure, and temporarily install the 1-1/4-inch split grommet. Aligning the split grommet with the 1-3/8-inch hole created in the previous step, place the enclosure on the panel. Level and mark the 4 holes used to mount the enclosure.

Note: If the TD-7 enclosure will not be mounted in the same location as the DynaView, it must be within 1 foot of the DynaViews original location. Plugs are provided in the kit to cover the original DynaView mounting holes.

Figure 7. Enclosure

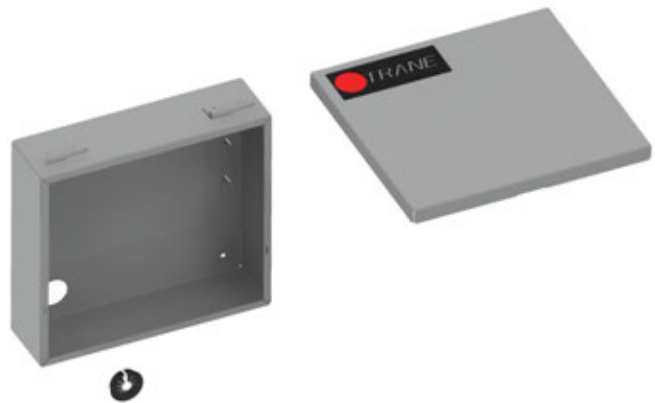
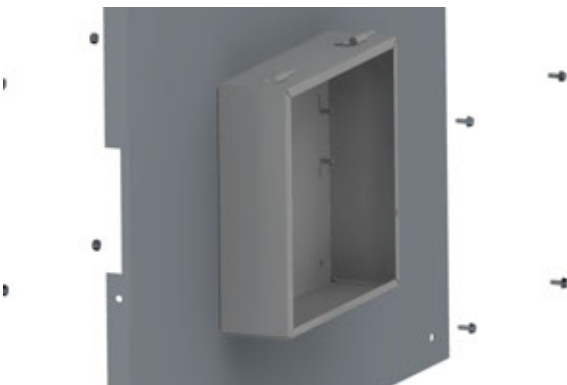


Figure 8. Leveling enclosure and hole marking



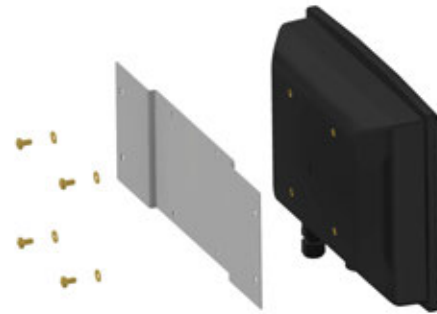
3. Remove the front panel or place a piece of wood in between the panel and condenser tubes before drilling any holes.
4. With a #2 (.221-inch) drill bit, drill the 4 holes marked in the previous step.
5. Install the TD-7 Panel to the unit with the 10-32 screws and lock nuts.

Figure 9. Enclosure to unit



6. Assemble the TD-7 to the enclosure backplate using the four brass M4 screws and washer provided in the kit.

Figure 10. TD-7 to enclosure backplate



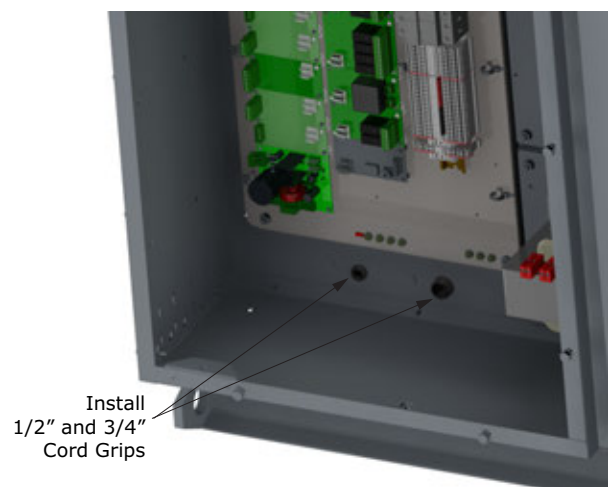
7. Assemble the TD-7 to the enclosure with #10-32 lock nuts. See [Figure 11](#).

Figure 11. Assemble the TD-7 to the enclosure



8. Connect wire extension X19051625030 and Ethernet cable X19070632020; route cables through the large hole and install the provided grommet.
9. Route TD-7 cables along the back side of the panel, through the 1/2-inch and 3/4-inch cord grips.
10. Install the cord grip split grommets and tighten nuts to seal the cords. See [Figure 12, p. 15](#).

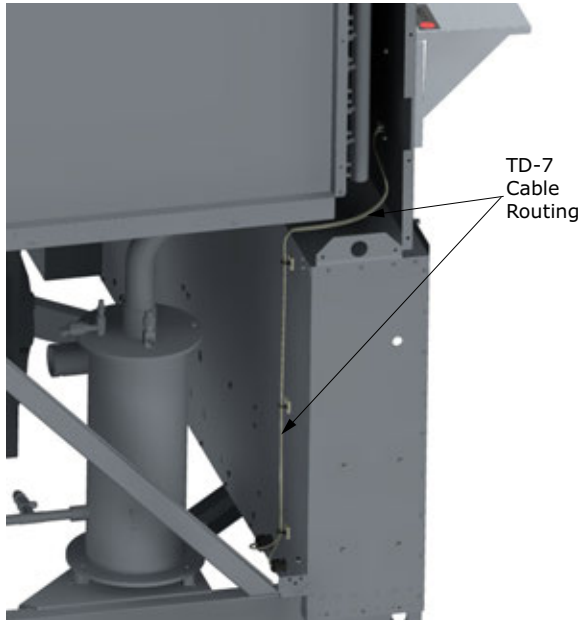
Figure 12. Cord grip



Installation

11. Secure cable with the adhesive mounted zip ties provided in the kit. See [Figure 13, p. 16](#).

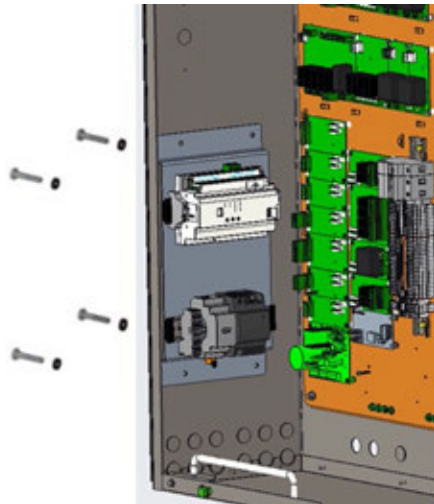
Figure 13. TD-7 cable routing



Symbio™ 800 Upgrade Assembly

- Using the 1/4-20 bolts, nuts and sealing washers secure the back plate assembly to the side panel, insert SD card into Symbio 800 controller. See [Figure 14, p. 17](#).

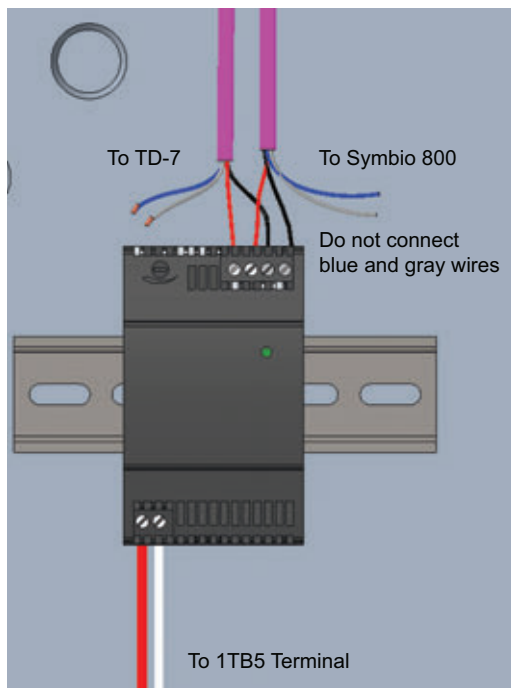
Figure 14. Back plate installation



Note: See schematic 50713094, shown in [Figure 46, p. 36](#), for the following steps.

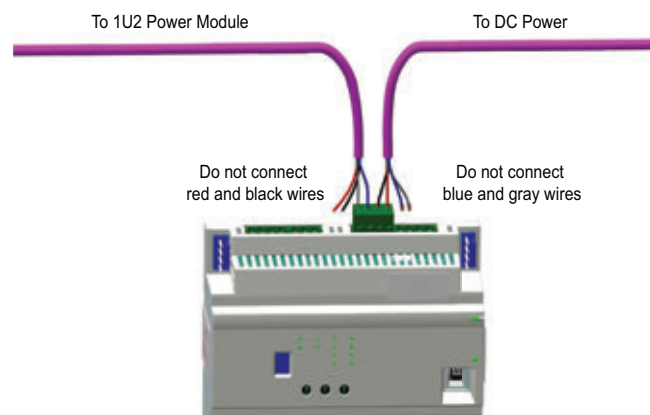
- Using the 14 AWG wire provided in the kit connect the L terminal of DC power supply to one of the terminals (1-8) on 1TB5, connect N terminal of DC power supply to one of the terminals (9-16) on 1TB5.

Figure 15. Danfoss DC power supply wiring



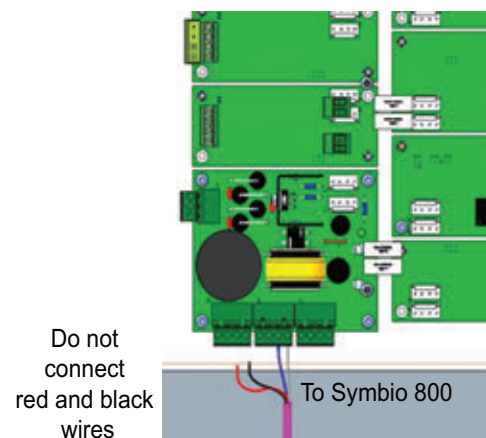
- Strip the TD-7 extension harness red and black wires, and connect to DC power supply as follows and see the following figure.
 - Red wire to 24V+
 - Black wire to 24V-
 - Do not connect blue and gray wires.
- Using the four conductor cable CAB00906 provided in kit connect Symbio 800. Run CAB00906 from Symbio 800 to DC power supply, connect red wire from Symbio 800 P3-1 to 24V+, black wire from Symbio 800 P3-2 to 24V-, do not connect blue and gray wires.

Figure 16. Symbio 800 wiring



- Run another CAB00906 from Symbio 800 to existing Trane power module 1U2. Connect blue wire from Symbio 800 P3-3 to 1U2 J4-3, gray wire from Symbio 800 P3-4 to 1U2 J4-4, do not connect red and black wires.

Figure 17. 1U2 power module wiring



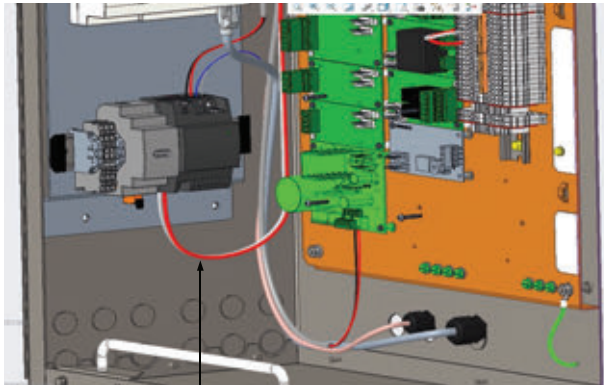
Notes:

- R* — Red wire for 24VDC
- BK* — Black wire for ground
- BL* — Blue wire for MBUS+ connection
- GR* — Gray wire for MBUS- connection

Installation

6. Connect the Ethernet cable from the TD-7 to the Symbio 800. See [Figure 18, p. 18](#).

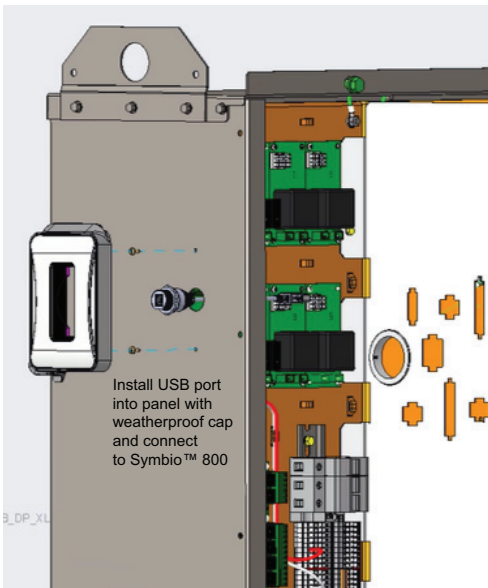
Figure 18. TD-7 communication connection



Connect Ethernet Cable
from TD-7 to Symbio 800

7. Install the USB Service port in the panel and connect to the Symbio 800. Install the USB weatherproof cover. See [Figure 19, p. 18](#).

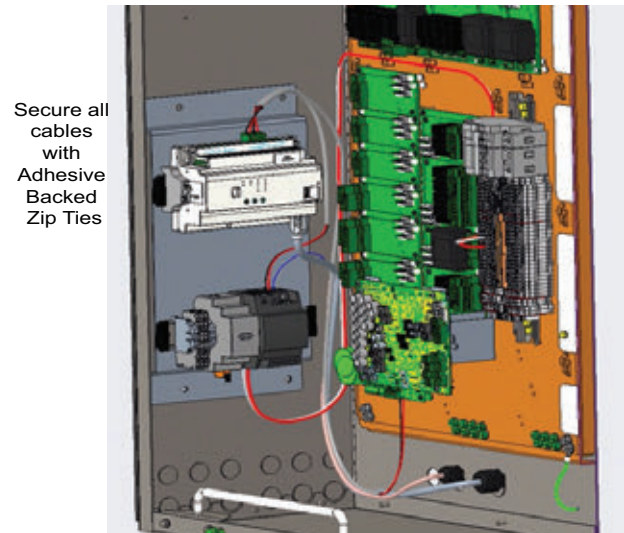
Figure 19. USB port installation



Install USB port
into panel with
weatherproof cap
and connect
to Symbio™ 800

8. Secure all cables with the adhesive backed zip ties provided in the kit. See [Figure 20, p. 18](#).

Figure 20. Secure all cables



Secure all
cables
with
Adhesive
Backed
Zip Ties

Options

Several field-installed options are available:

Generic BAS Interface

When ordered, hard-wired chiller controls are provided. Refer to [Table 6, p. 8](#) for part numbers. See unit schematic and upgrade schematic 5071-3094. Functions include:

When ordered, controls are provided for hard-wired chiller control. Functions included are as follows:

- External Baseload Command
- Ice Building Control
- External Baseload Setpoint
- RLA OUT
- Chilled Water Setpoint IN
- Customer Current Limit IN
- Ice Making Status
- Customer Programmable Relays

Tracer® Interface Control

Note: *COMM3 and COMM4 are no longer supported communication interfaces. Refer to Tracer communications options for Symbio chiller upgrade COMM.pptx (<https://hub.tranetechnologies.com/docs/doc-213561>) for more information.*

The Symbio™ 800 controls can interface with several BAS protocols, including Modbus® and BACnet® systems. See *BACnet® and Modbus Integration to Optimus™ Trane Rotary Chiller Model RTAC with Symbio™ Controls Integration Guide (RTAC-SVP0001*-EN)* for detailed instructions.

LonTalk Communication Option

For LonTalk® communication, Symbio 800 controls use a U60 LON module instead of the LCI-C LLID used with UC800 control systems. Refer to *LonTalk® Integration With Symbio Controls Integration Guide (ACC-SVN100*-EN)*.

1. Clip the U60 LON module (MOD02977) onto the DIN rail secured to the back of the door to the left of Symbio 800 controller.
2. Connect U60 LON module to Symbio 800 by the USB cable shipped with the module. Connect cable to any one of the four USB ports under the Symbio 800 controller.
3. Connect U60 LON module to BAS by shielded cable and provided terminal. The terminal is provided by U60 LON module.

Figure 21. LON module and connection



Communication Option

Symbio™ 800 controls support up to three of the following wireless interfaces at a time:

- Wi-Fi mobile - enables communication among devices on a Wi-Fi network.
- Air-Fi® module - enables Zigbee®¹ wireless communication for Trane control products that use BACnet® protocol.
- LTE 4G modem (cellular module) - connects controllers to Trane Connect for Secure Remote Access and Trane Connect Data Collection.

Wi-Fi Installation

See *Trane® Wi-Fi Module Installation Instructions (BAS-SVN042*-EN)* for more information. Install Wi-Fi module (MOD03122) as follows:

1. Drill a 1.36-inch hole at appropriate location of the unit and securely fasten the Wi-Fi module using the provided gasket and nut.
2. Using the supplied USB cable, connect the Wi-Fi module to Symbio™ 800 as follows:
 - USB Micro-B to Wi-Fi module bottom connection.
 - USB-A to any of the USB ports on the bottom of the Symbio 800 controller.

¹ ZigBee® is a registered trademark of the ZigBee Alliance.

Figure 22. Wi-Fi wiring

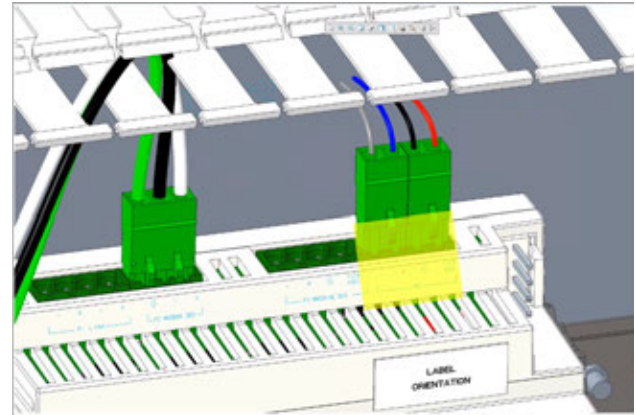
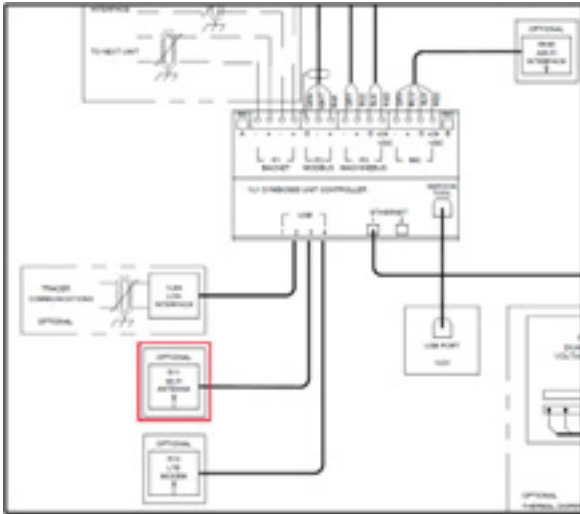


Figure 24. Air-Fi® wiring

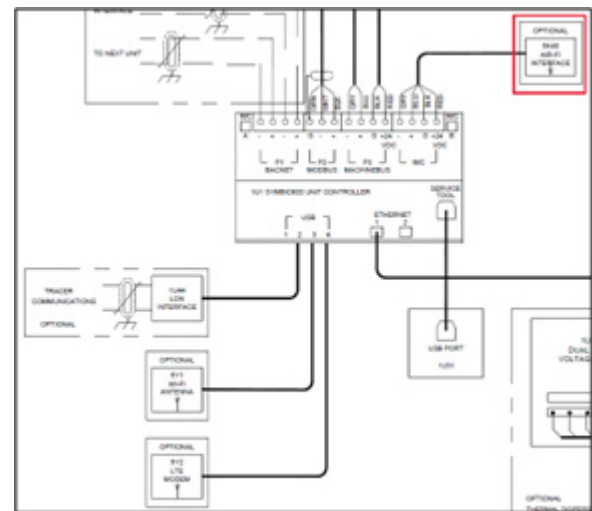
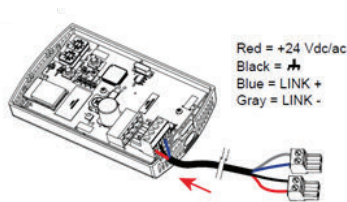
Air-Fi® Installation

See Air-Fi® Wireless System Installation, Operation, and Maintenance (BAS-SVX40*-EN) for more information.

Install Air-Fi® module (0185-0424-0100) as follows:

1. Drill a 0.87-inch hole at appropriate location of the unit and securely fasten the Air-Fi® module using the supplied M4 screw.
2. Connect Air-Fi® module to Symbio 800 using Modbus® cable as follows:
 - Remove cover of module.
 - Connect 4-wire cable into the hosing connector and plug in the Air-Fi® module.
 - Connect other end of the cable into the 2-hosing connector and connect to the IMC terminal on the Symbio 800.

Figure 23. Air-Fi® wiring terminals



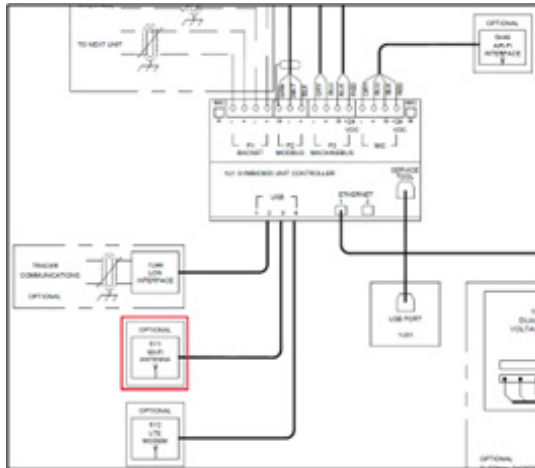
LTE Modem Installation

See Trane® USB Cellular Module Installation Instructions (BAS-SVN213*-EN) for more information.

Install LTE module (MOD03184) as follows:

1. Drill a 1.36-inch hole at appropriate location of the unit and securely fasten the LTE modem using the supplied gasket and nut.
2. Using the supplied USB cable, connect the LTE modem to Symbio 800 as follows:
 - USB Micro-B to LTE mode bottom connection.
 - USB-A to any of the USB ports on the bottom of the Symbio 800 controller.

Figure 25. LTE modem wiring



Energy Meter Option

The Trane energy meter provides high accuracy power, volt, and amp data to the controller. All data is communicated via Modbus to unit control system.

See *Energy Meter for CTV Symbio™ 800 Upgrade Systems Installation Instructions (BAS-SVN224*-EN)* for detailed information.

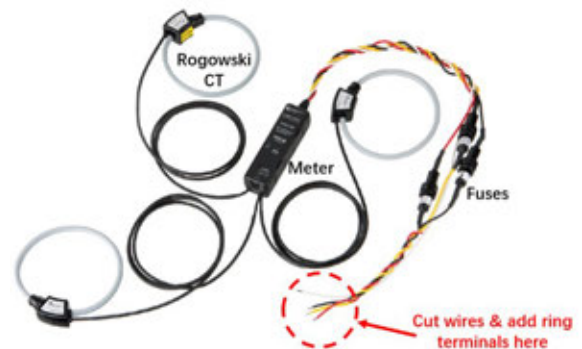
Energy meter configuration is determined by unit size and incoming power line connection type.

- Configuration 1: 2-compressors units with single point power connection require one energy meter.
- Configuration 2: 2-compressors units with dual point power connection require two energy meters, one for each power circuit.
- Configuration 3: 3- or 4-compressor units require two energy meters, one in each panel.

Figure 26. Energy meter - function keys

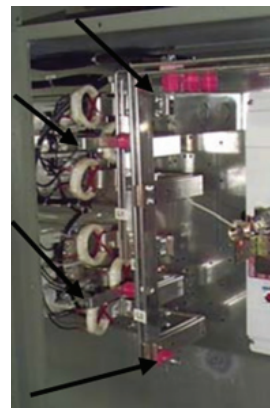


Figure 27. Energy meter - voltage wires

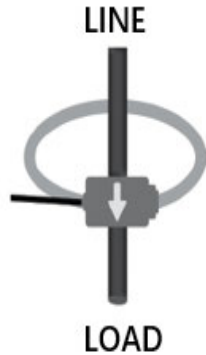


The meter is connected to line voltage up to 480 volts and is mounted in the starter cabinet. A mounting bracket is provided, and can be installed on DIN rail or directly on cabinet wall. The meter is self-powered by the unit voltage potential inputs. Install as follows:

1. Determine DIN rail location.
 - a. For configuration 1 or 3, install the on the power plate near the main circuit breaker.
 - b. For configuration 2, install the DIN rail on bracket and mount the bracket near the power plate. Alternately, the DIN rail may be installed near the main circuit breaker.
2. Clip energy meter(s) to DIN rail, and install end stop on each side of the meter. Tighten the center screw on each end stop to lock it in position.
3. Trim bare voltage wires to 12-inch long (upstream of fuse), strip, and crimp with ring terminals (X19150568040).
4. Connect energy meter wires to load side of respective circuit breaker phase L1, L2, and L3. Secure the wires on the power wire or insulation bracket to avoid contact with exposed busbar.

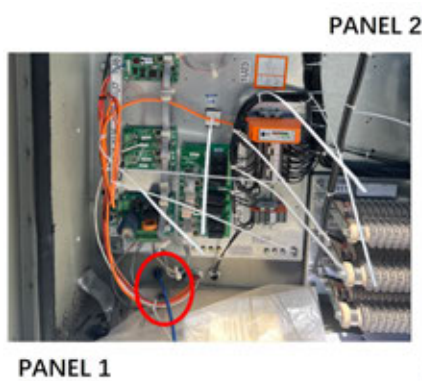


5. For each energy meter, install three Rogowski CTs to line side of the respective circuit breaker phase L1, L2, and L3. The arrow label on the CT must point toward the load.



6. Route Modbus wiring from meter to Symbio 800 controller on the back of control door. Modbus wiring is a three-conductor shielded cable.
7. For units with two power meters,
 - a. Install 1TB8 terminal blocks on the DIN rail near the Symbio 800 on control panel door.
 - b. Route individual Modbus wiring from each meter to 1TB8.
 - c. Connect 1TB8 to Symbio 800.
8. Complete connections as follows:
 - a. Black wire (BK) to SIG+
 - b. White wire (WH) to SIG-
 - c. Green wire (GN) to SIG COM
9. For configuration 3:
 - a. Drill one hole in panel 1 control section.
 - b. Drill another hole in panel 2 power section.
 - c. Install provided glands in the holds.

Figure 30. Configuration 3



- d. Route Modbus wiring from panel 2 to panel 1.

Figure 28. Configuration 1 and 3

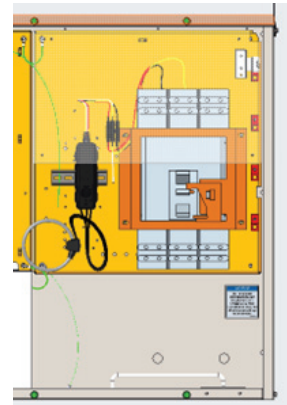


Figure 29. Configuration 2

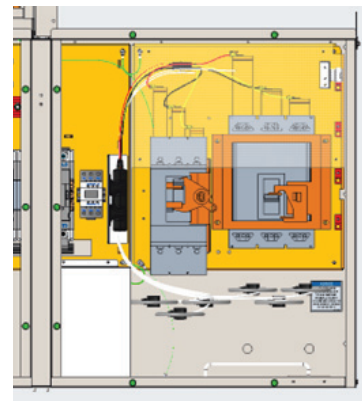


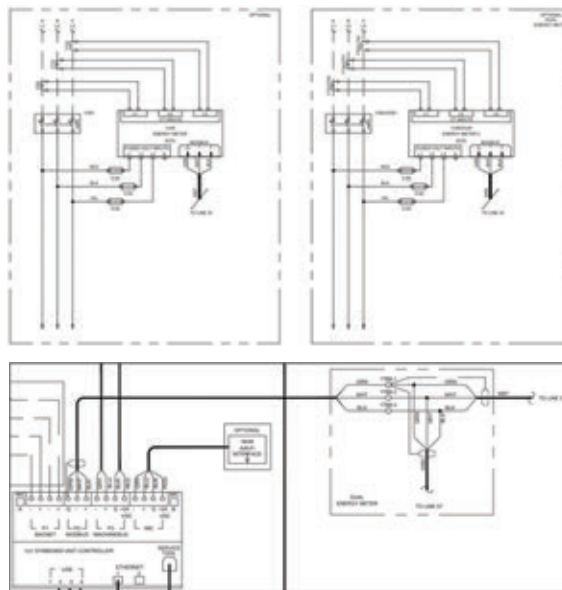
Figure 31. Configuration 3



- 10. Set power meter 1 address to 15 for Modbus® communication to Symbio™ 800.
- 11. Set power meter 2 address to 16 for Modbus communication to Symbio 800.

- 12. The end of line resistor in package is not used in Modbus connection.
- 13. Set Rogowski CT as 5kA.

Figure 32. Modbus communication wiring



Thermal Dispersion Flow Switch Upgrade

The thermal dispersion flow switch upgrade is a set of solid-state components with no moving parts or paddles to stick or break.

The kit includes an extended-length flow probe, cabinet mounted control monitor, 1/2-inch NPT adapter and 30-foot cable. The probe cable operates on low voltage and is not required to be installed in conduit. The probe system is designed for pipe diameters 4-inch and larger.

Using DIN rail find a suitable location in the control panel to mount the flow monitoring module. Complete the installation of flow sensor in accordance with the instruction. Refer to the appropriate wiring diagram and the installation manual included in the upgrade kit for specific instructions for mounting, wiring, and adjusting the switch settings.

Note: This kit is designed to replace paddle style flow switch utilizing a dual high voltage input LLID. This kit is not a drop-in replacement for the current production, low voltage input, thermal dispersion flow switch. The Water Flow Switch Type must be configured for Paddle Flow Switch-115VAC Input.

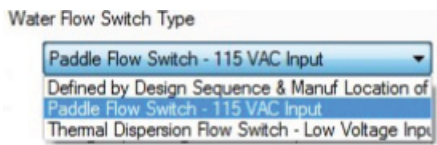


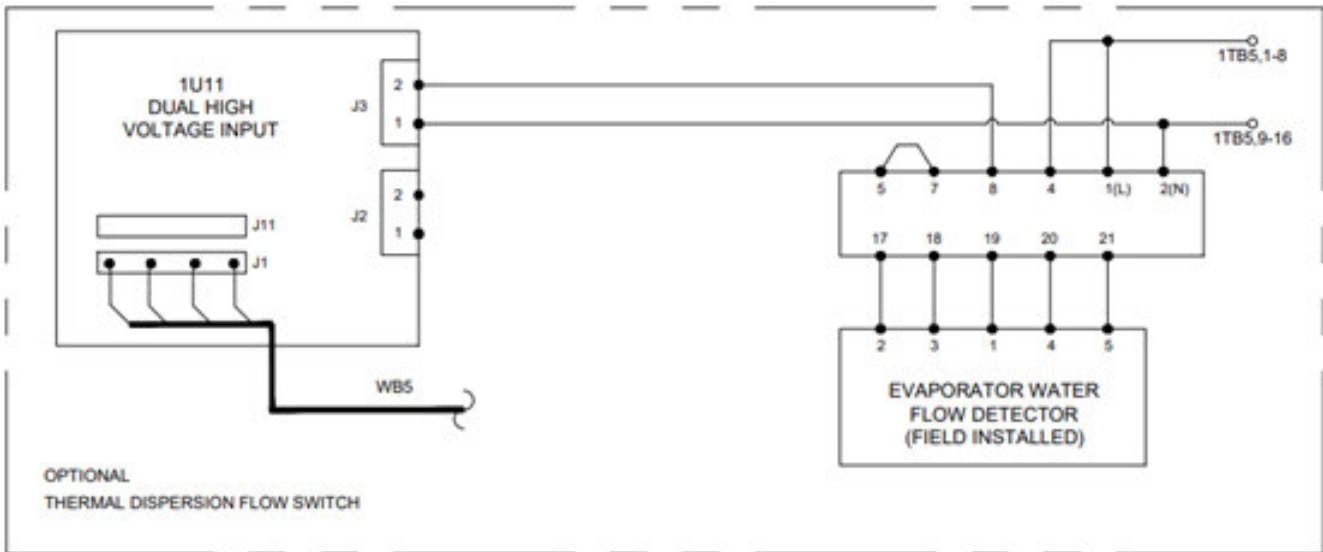
Figure 33. Flow switch in unit



Figure 34. Monitoring module in panel



Figure 35. Thermal dispersion flow switch wiring



Note: Reference schematic 5071-3094 shown in [Figure 46](#), p. 36.

Global Connector Kit

The global connector kits modify flat ribbon to global connection cabling.

See “Global Harness Routing,” p. 37 for wiring diagrams.

See Table 11, p. 11 through Table 13, p. 11 for the parts in each kit.

Transducers and Sensors

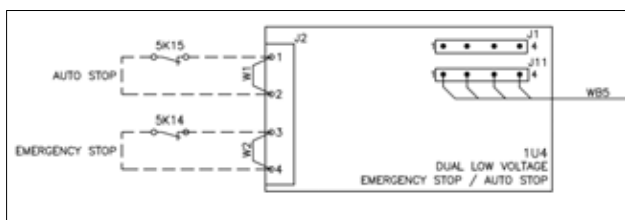
Replace existing transducers and sensors. For the EXV and liquid level sensors, install the wire harness adapter global connector to four-wire ribbon cable (KIT13723). See *Series R® Air-Cooled Helical Rotary Liquid Chillers - Installation, Operation, and Maintenance* (RTAC-SVX01*-EN), *Tracer® CH530/CH531 Pluggable Connector System Product Code: 0064 (PART) - General Service Bulletin* (PART-SVB16*-EN) and the diagrams provided in the kit.

Restore System Power

To prevent an unexpected chiller start when system power is restored, implement the appropriate preventative measure from the following list:

1. If the chiller is equipped with an external Auto Stop button, disconnect the wire from terminal J2-1 on the 1U4 LLID.
2. If the chiller is not equipped with an external Auto Stop button, disconnect the factory installed jumper wire end from terminal J2-1 on the 1U4 LLID. See Figure 36, p. 25.

Figure 36. Prevent unexpected chiller start-up before restoring power



3. Perform a final inspection of the control panel enclosure before restoring system power
 - a. Remove any tools and use a shop vacuum to remove any dirt or debris that may have been created during the installation process.
 - b. Confirm that all upgrade kit wiring has been correctly routed and that all terminal connections have been properly made.
 - c. Inspect the rest of the electrical wiring and components within the enclosure to confirm that no wiring connections were accidentally loosened or disconnected during the kit installation process.
 - d. Reinstall all panels.
4. Remove all lockout/tagout devices used at the power supply panels for the chiller equipment.

5. Warn all personnel in the area that system power is about to be restored.
6. Energize the system according to all applicable standard safety procedures.

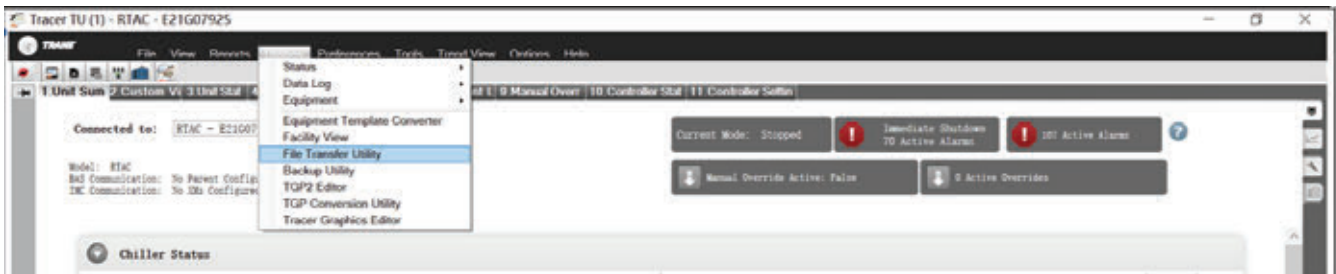
Programming the Tracer® Symbio 800

1. Configure the Symbio 800 using Tracer® TU. Refer to the KestrelView™ report and write all the programming entries in the order listed.

Note: For more information on the Tracer TU service tool, installation, operation and programming of the Symbio 800 controller, operation of the control system, and a guide to the diagnostics and troubleshooting of the control system, see the following manuals:

- *Tracer® TU Service Tool Getting Started Guide* (TTU-SVN01*-EN)
 - *Series R® Air-Cooled Helical Rotary Liquid Chillers Installation, Operation, and Maintenance Manual* (RTAC-SVX01*-EN)
 - *Symbio™ 800 Controls Upgrade for Series R™ Chillers Programming Guide* (SO-SVP004*-EN)
2. Obtain a working AC power adapter to power the technicians laptop.
 3. Connect the computer with the Tracer TU service tool software to the service port of the Tracer Symbio 800 controller with a USB type A/B cable.
 4. Open Tracer TU.

Note: The Symbio 800 ships with no software loaded. When first connecting to Tracer TU, a pop-up will provide navigation to the software download page.
 5. Select **RTAC**, and the latest version.
 6. Click the Upgrade Device button when complete. See Figure 37.

Figure 37. Application software download


- Use the Chiller Report PDF to manually copy the configuration parameters in Tracer® TU. See [Table 14](#) for mapping. After the configuration is saved, Tracer TU will

navigate to LLID Binding view. Check for red boxes, which indicate a listed device has not been bound. See [Figure 38, p. 28](#).

Table 14. Mapping table

Compressor Frame Size ^(a)	Manufacturing Location ^(b)	Unit Type (Model Number Digit 12) ^(c)	Unit Voltage ^(d)	Compressor RLA ^(e)	CT Meter Scale ^(f)
K1	Charmes	N = Standard, A = Extra Efficiency	400	51	75
K1	Charmes	H = High Efficiency	400	51	75
K2	Charmes	N = Standard, A = Extra Efficiency	400	61	75
K2	Charmes	H = High Efficiency	400	61	75
L1	Charmes	N = Standard, A = Extra Efficiency	400	75	100
L1	Charmes	H = High Efficiency	400	75	100
L2	Charmes	N = Standard, A = Extra Efficiency	400	92	100
L2	Charmes	H = High Efficiency	400	92	100
M1,M3	Curitiba, Pueblo, Taicang	H = High Efficiency	575	90	100
M1,M3	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	575	94	100
M1,M3	Curitiba, Pueblo, Taicang	H = High Efficiency	460	113	150
M1,M3	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	460	118	150
M1,M3	Curitiba, Pueblo, Taicang	H = High Efficiency	380	136	150
M1,M3	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	380	142	150
M1,M3	Curitiba, Pueblo, Taicang	H = High Efficiency	230	225	275
M1,M3	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	230	235	275
M1,M3	Curitiba, Pueblo, Taicang	H = High Efficiency	200	259	275
M1,M3	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	200	270	275
M1,M3	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	220	0	0
M1,M3	Curitiba, Pueblo, Taicang	H = High Efficiency	220	0	0
M1,M3	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	400	118	150
M1,M3	Curitiba, Pueblo, Taicang	H = High Efficiency	400	113	150
M1,M3	Charmes	N = Standard, A = Extra Efficiency	400	110.5	150
M1,M3	Charmes	H = High Efficiency	400	110.5	150
M1,M3	Charmes	H = High Efficiency	380	138	150
M1,M3	Charmes	N = Standard, A = Extra Efficiency	380	138	150
M1,M3	Charmes	H = High Efficiency	460	114	150
M1,M3	Charmes	N = Standard, A = Extra Efficiency	460	114	150
M2,M4	Curitiba, Pueblo, Taicang	H = High Efficiency	575	106	150
M2,M4	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	575	111	150
M2,M4	Curitiba, Pueblo, Taicang	H = High Efficiency	400	133	150
M2,M4	Curitiba, Pueblo, Taicang	H = High Efficiency	460	133	150
M2,M4	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	400	139	150

Table 14. Mapping table (continued)

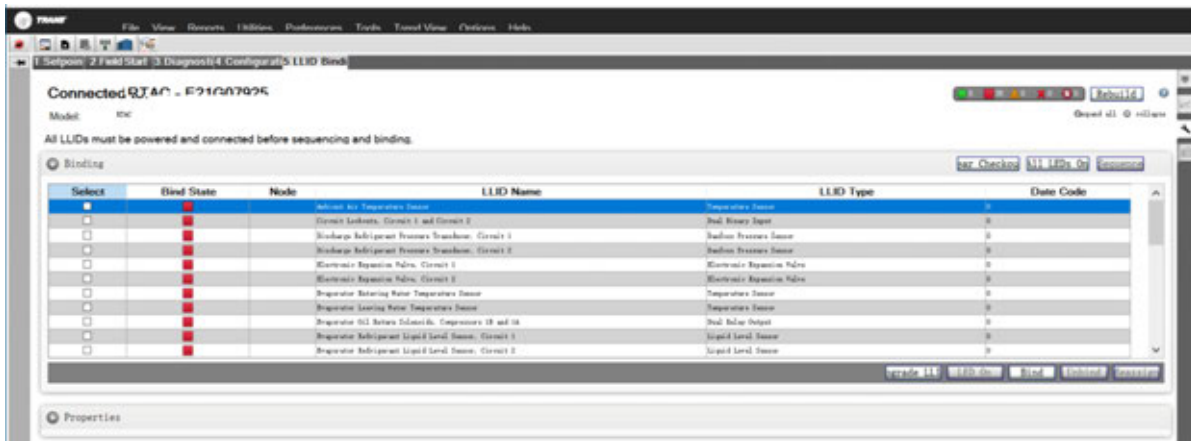
Compressor Frame Size ^(a)	Manufacturing Location ^(b)	Unit Type (Model Number Digit 12) ^(c)	Unit Voltage ^(d)	Compressor RLA ^(e)	CT Meter Scale ^(f)
M2,M4	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	460	139	150
M2,M4	Curitiba, Pueblo, Taicang	H = High Efficiency	380	161	200
M2,M4	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	380	168	200
M2,M4	Curitiba, Pueblo, Taicang	H = High Efficiency	220	240	275
M2,M4	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	220	251	275
M2,M4	Curitiba, Pueblo, Taicang	H = High Efficiency	230	265	275
M2,M4	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	230	278	400
M2,M4	Curitiba, Pueblo, Taicang	H = High Efficiency	200	305	400
M2,M4	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	200	320	400
M2,M4	Charmes	N = Standard, A = Extra Efficiency	400	136	150
M2,M4	Charmes	H = High Efficiency	400	136	150
M2,M4	Charmes	H = High Efficiency	380	163	200
M2,M4	Charmes	N = Standard, A = Extra Efficiency	380	163	200
M2,M4	Charmes	H = High Efficiency	460	134	150
M2,M4	Charmes	N = Standard, A = Extra Efficiency	460	134	150
N1,N3	Curitiba, Pueblo, Taicang	H = High Efficiency	575	130	150
N1,N3	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	575	134	150
N1,N3	Curitiba, Pueblo, Taicang	H = High Efficiency	400	162	200
N1,N3	Curitiba, Pueblo, Taicang	H = High Efficiency	460	162	200
N1,N3	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	460	168	200
N1,N3	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	400	168	200
N1,N3	Curitiba, Pueblo, Taicang	H = High Efficiency	380	196	275
N1,N3	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	380	203	275
N1,N3	Curitiba, Pueblo, Taicang	H = High Efficiency	220	291	400
N1,N3	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	220	306	400
N1,N3	Curitiba, Pueblo, Taicang	H = High Efficiency	230	324	400
N1,N3	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	230	336	400
N1,N3	Curitiba, Pueblo, Taicang	H = High Efficiency	200	373	400
N1,N3	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	200	386	400
N1,N3	Charmes	N = Standard, A = Extra Efficiency	400	162	200
N1,N3	Charmes	H = High Efficiency	400	162	200
N1,N3	Charmes	H = High Efficiency	380	202	275
N1,N3	Charmes	N = Standard, A = Extra Efficiency	380	202	275
N1,N3	Charmes	H = High Efficiency	460	166	200
N1,N3	Charmes	N = Standard, A = Extra Efficiency	460	166	200
N2,N4	Curitiba, Pueblo, Taicang	H = High Efficiency	575	155	200
N2,N4	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	575	160	200
N2,N4	Curitiba, Pueblo, Taicang	H = High Efficiency	400	194	275
N2,N4	Curitiba, Pueblo, Taicang	H = High Efficiency	460	194	275
N2,N4	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	400	200	275
N2,N4	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	460	200	275
N2,N4	Curitiba, Pueblo, Taicang	H = High Efficiency	380	235	275
N2,N4	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	380	242	275
N2,N4	Curitiba, Pueblo, Taicang	H = High Efficiency	220	344	400
N2,N4	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	220	359	400
N2,N4	Curitiba, Pueblo, Taicang	H = High Efficiency	230	388	400
N2,N4	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	230	399	400

Table 14. Mapping table (continued)

Compressor Frame Size ^(a)	Manufacturing Location ^(b)	Unit Type (Model Number Digit 12) ^(c)	Unit Voltage ^(d)	Compressor RLA ^(e)	CT Meter Scale ^(f)
N2,N4	Curitiba, Pueblo, Taicang	H = High Efficiency	200	447	500
N2,N4	Curitiba, Pueblo, Taicang	N = Standard, A = Extra Efficiency	200	459	500
N2,N4	Charmes	N = Standard, A = Extra Efficiency	400	196.5	200
N2,N4	Charmes	H = High Efficiency	400	196.5	200
N2,N4	Charmes	H = High Efficiency	380	240	275
N2,N4	Charmes	N = Standard, A = Extra Efficiency	380	240	275
N2,N4	Charmes	H = High Efficiency	460	198	200
N2,N4	Charmes	N = Standard, A = Extra Efficiency	460	198	200

- (a) For compressor frame size, see compressor nameplate or ship history.
- (b) Located in Design group in Tracer TU configuration.
- (c) See unit nameplate for model number.
- (d) Located in Tracer TU Symbio 800 group or on compressor nameplate.
- (e) Located in Tracer TU Starter group or on compressor nameplate.
- (f) Located in Tracer TU Starter group.

Figure 38. Binding view for all LLIDs



8. Validate configuration and setpoint values from the Chiller Report PDF file created from KestrelView™. Within the Chiller Report PDF file, use the search function to view the different sections.
9. After updated configuration or setpoint values, click Save. Values are updated, and the controller transitions to the LLID binding screen.

Figure 39. Navigating within the equipment utility configuration tab in Tracer TU

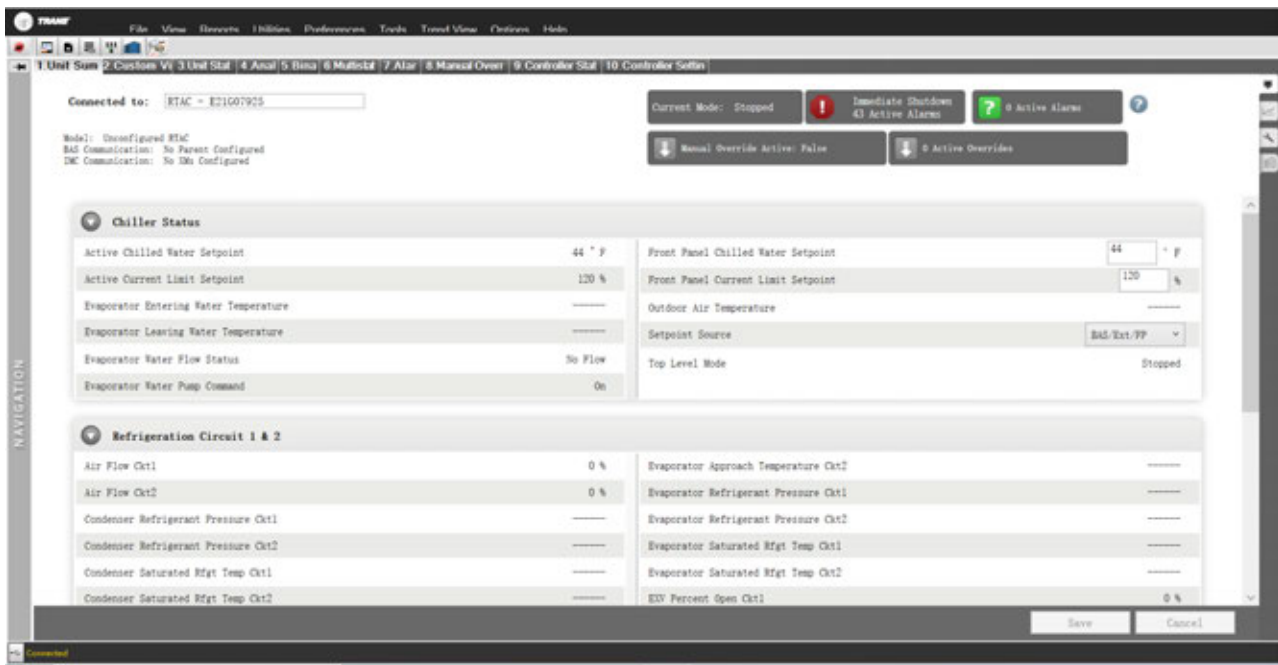
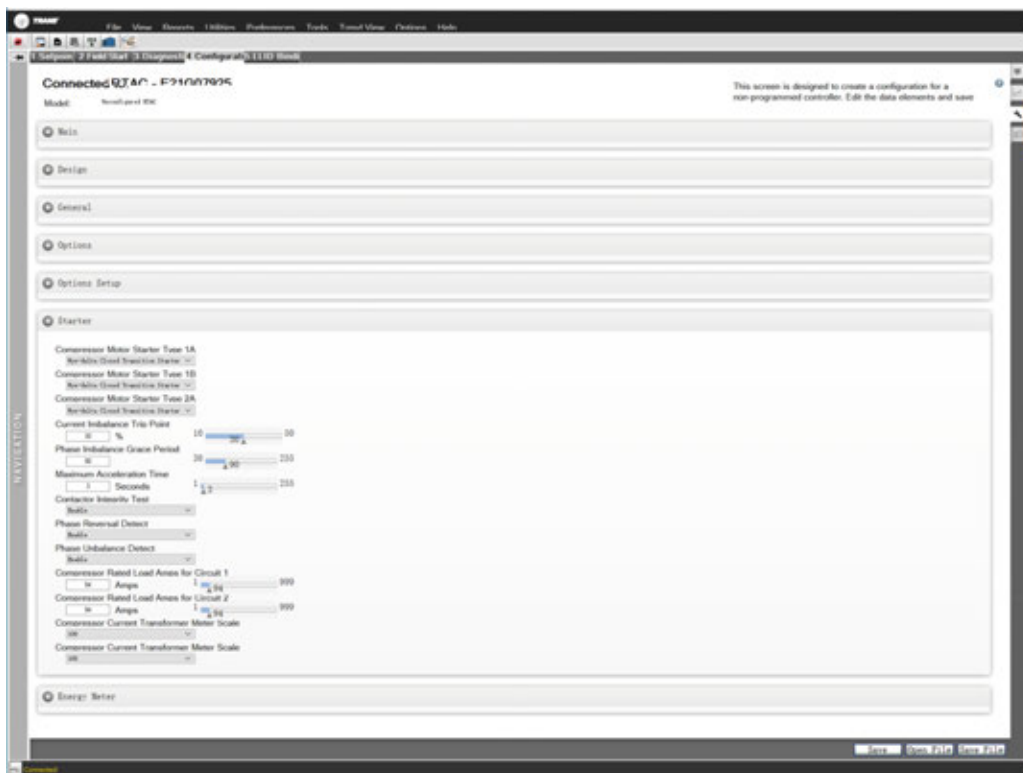


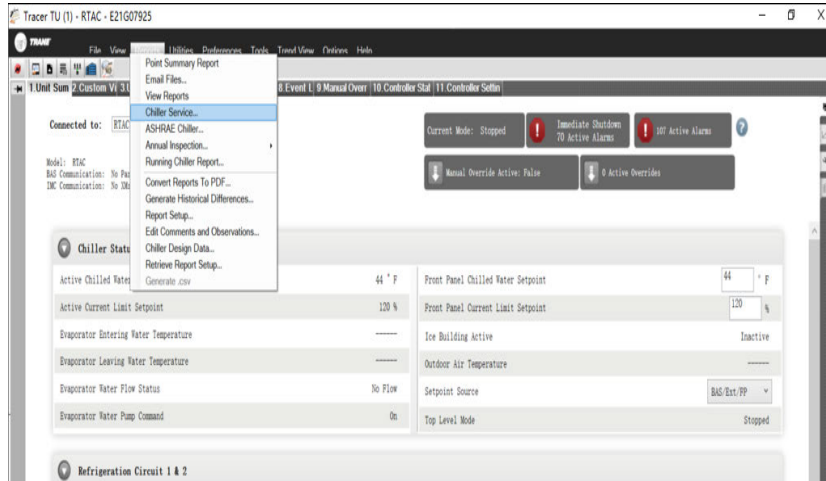
Figure 40. Location of the equipment utility tab in Tracer TU



10. In Tracer TU, save a copy of the Chiller Service Report.
From the **Reports** menu, select **Chiller Service Report**.
See [Figure 41](#), p. 30.



Figure 41. Chiller service report (Tracer TU)



11. Create a controller backup using the Tracer TU Backup Utility.

Note: This step produces backup configuration data in the case the Symbio 800 configuration becomes corrupt.

Start-Up

1. When programming is completed and saved, remove power to the control panel and disconnect the USB cable from the control panel door.
2. Restore power to the control panel. The chiller is ready for normal startup and checkout procedures. See *Series R® Air-Cooled Helical Rotary Liquid Chillers - Installation, Operation, and Maintenance (RTAC-SVX01*-EN)* for proper startup and checkout procedures.

For further questions, contact Trane Global Parts Technical Services.



Component Locations

Table 15. Global connection component index

Device	Part Number	Description
3LL1	VARIABLE	EVAPORATOR REFRIGERANT LIQUID LEVEL SENSOR, CIRCUIT 1
3PT1	X13790348080	SUCTION REFRIGERANT PRESSURE TRANSDUCER, CIRCUIT 1, COMPRESSOR 1A
3PT2	X13790348080	CONDENSER REFRIGERAND PRESSURE TRANSDUCER, CIRCUIT 1
3PT3	X13790348080	OIL PRESSURE TRANSDUCER, COMPRESSOR 1B
3PT4	X13790348080	OIL PRESSURE TRANSDUCER, COMPRESSOR 1A
3PT5	X13790348080	SUCTION REFRIGERANT PRESSURE TRANSDUCER, CIRCUIT 1, COMPRESSOR 1B
3RT1	X13650726100	OIL TEMPERATURE SENSOR, CIRCUIT 1, COMPRESSOR 1A
3RT2	X13650726100	OIL TEMPERATURE SENSOR, CIRCUIT 1, COMPRESSOR 1B
3V1	Varies ^(a)	ELECTRONIC EXPANSION VALVE, CIRCUIT 1
4LL1	Varies ^(a)	EVAPORATOR REFRIGERANT LIQUID LEVEL SENSOR, CIRCUIT 2
4PT1	X13790348080	SUCTION REFRIGERANT PRESSURE TRANSDUCER, CIRCUIT 2, COMPRESSOR 2A
4PT2	X13790348080	CONDENSER REFRIGERAND PRESSURE TRANSDUCER, CIRCUIT 2
4PT3	X13790348080	OIL PRESSURE TRANSDUCER, COMPRESSOR 2B
4PT4	X13790348080	OIL PRESSURE TRANSDUCER, COMPRESSOR 2A
4PT5	X13790348080	SUCTION REFRIGERANT PRESSURE TRANSDUCER, CIRCUIT 2, COMPRESSOR 2B
4RT1	X13650726100	OIL TEMPERATURE SENSOR, CIRCUIT 2, COMPRESSOR 2A
4RT2	X13650726100	OIL TEMPERATURE SENSOR, CIRCUIT 2, COMPRESSOR 2B
4V1	Varies ^(a)	ELECTRONIC EXPANSION VALVE, CIRCUIT 2
6RT1	X13650726100	EVAPORATOR ENTERING WATER TEMPERATURE SENSOR
6RT2	X13650726100	EVAPORATOR LEAVING WATER TEMPERATURE SENSOR
6RT3	X13650726100	AMBIENT AIR TEMPERATURE SENSOR
1622-01	X19051622010	HARNESS 2Y SHORT (500mm)
1622-02	X19051622020	HARNESS 2Y LONG (1000mm)
1622-03	X19051622030	HARNESS 3Y (500mm)
1623-01	X19051623010	HARNESS EXTENSION, SHORT (1000mm)
1623-02	X19051623010	HARNESS EXTENSION, LONG (2000mm)
1625-02	X19051622010	HARNESS FEMALE TO WIRE LEADS (1000mm)

(a) Part number varies depending on unit configuration.

Component Locations

Figure 42. Component location, 2 compressor units

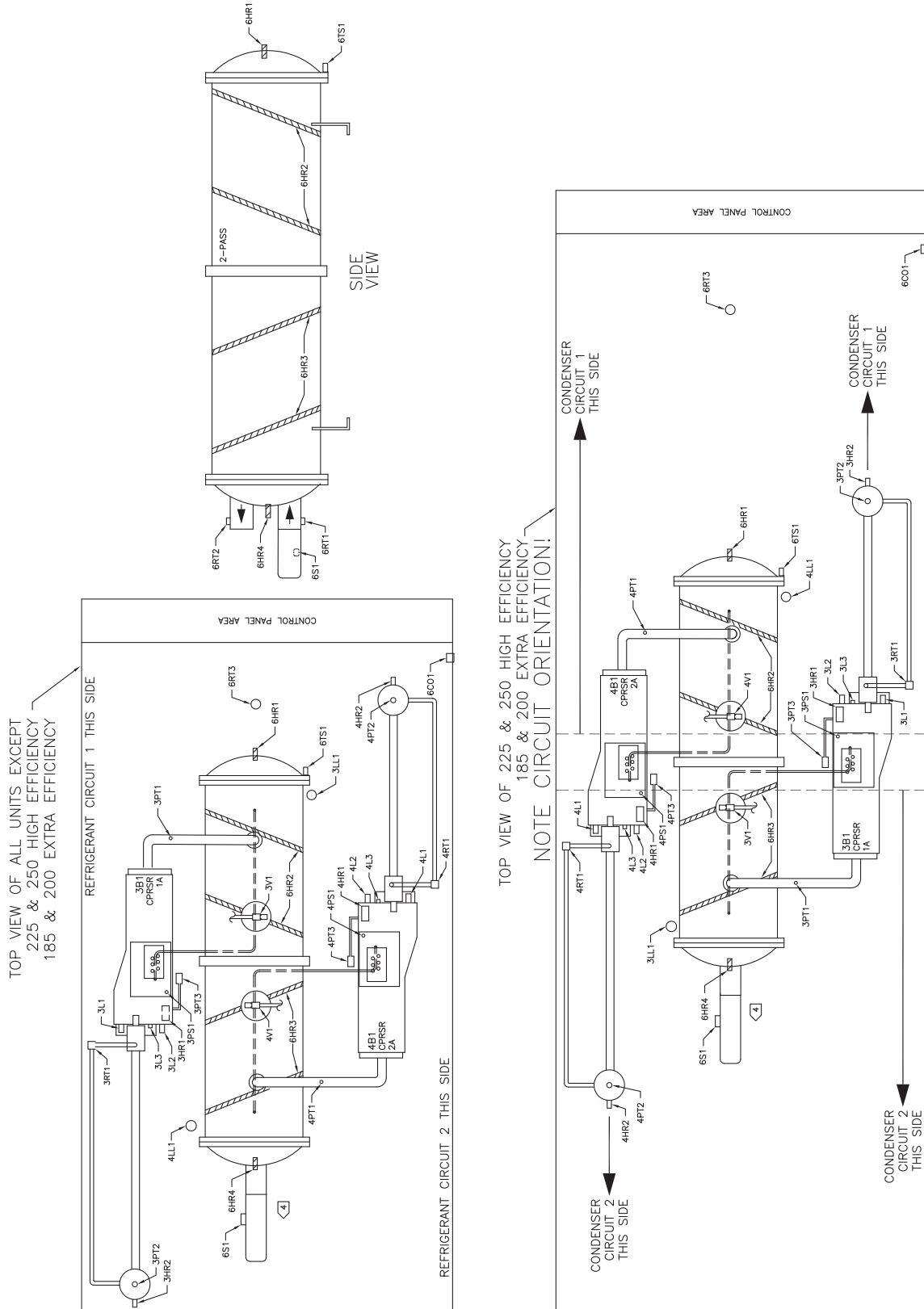
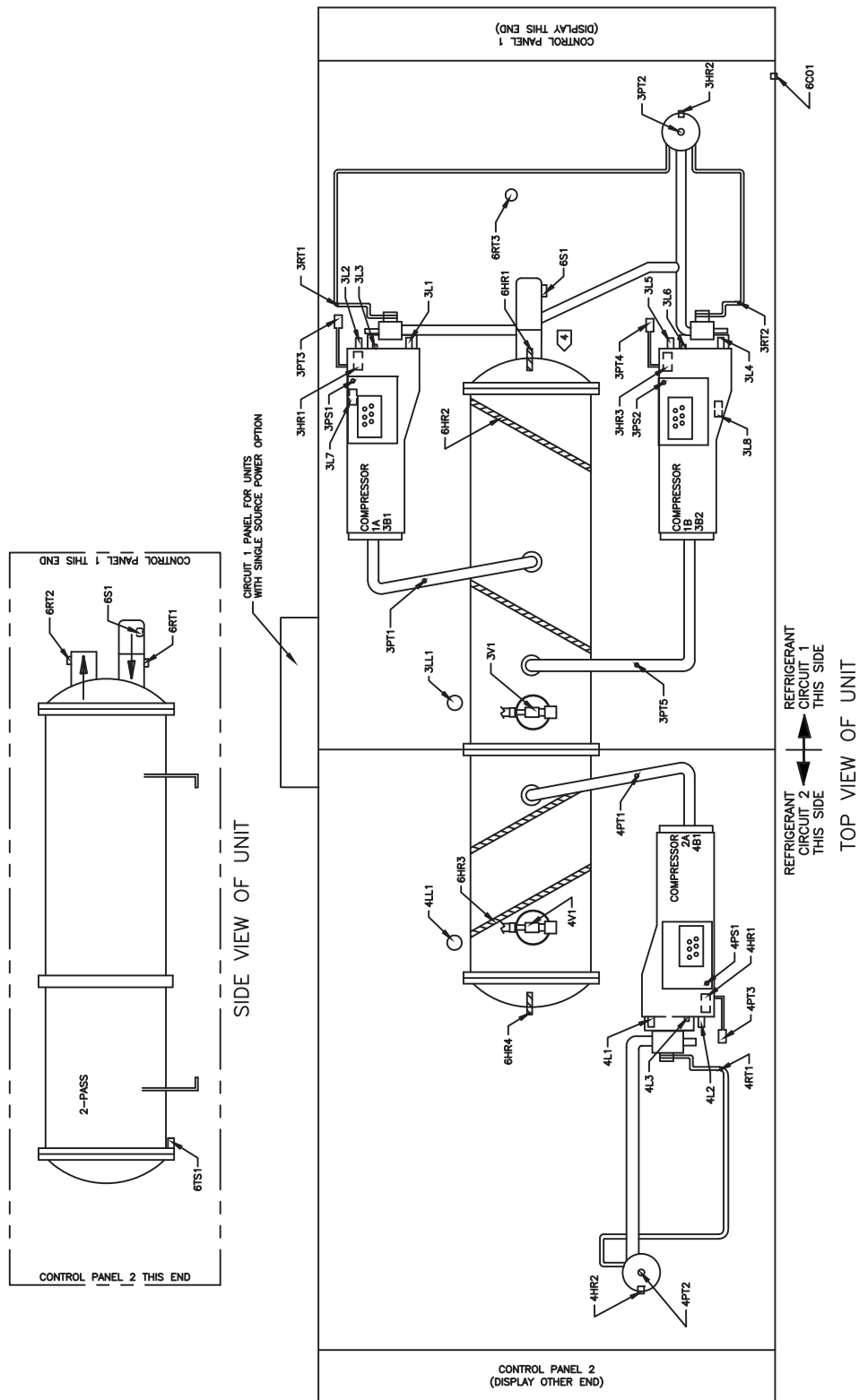


Figure 43. Component location, 3 compressor units



Component Locations

Figure 44. Component location, 4 compressor units

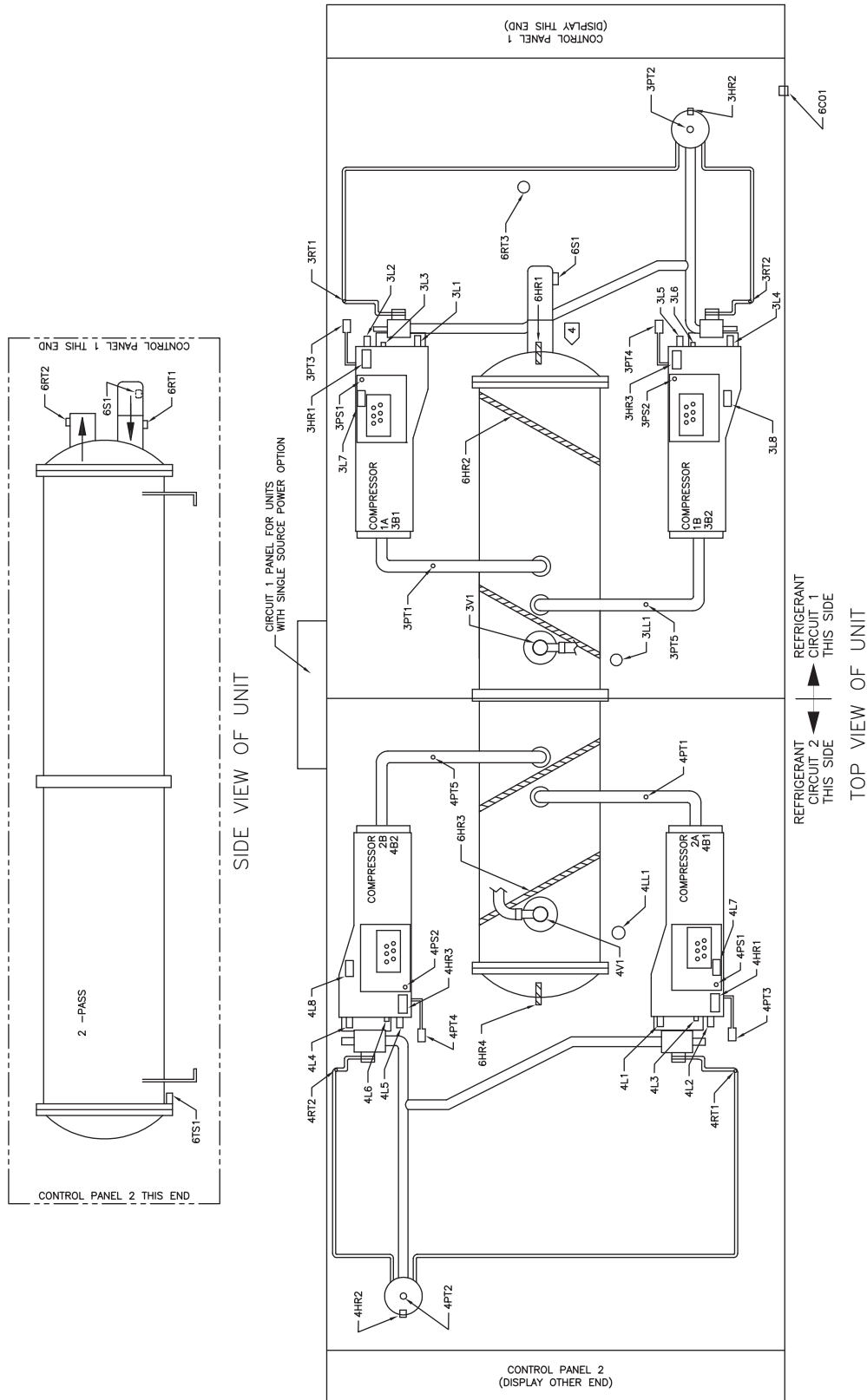
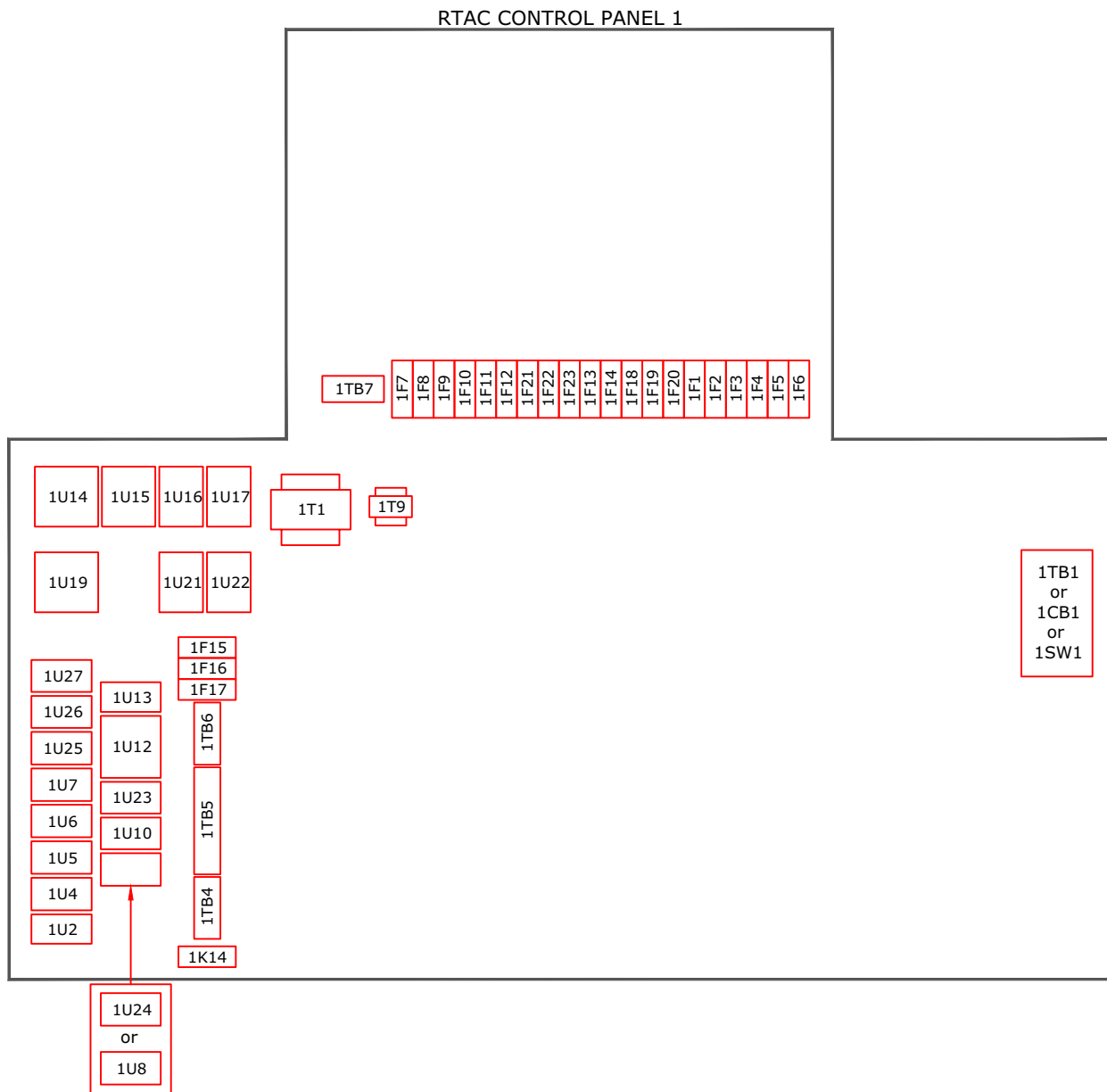


Figure 45. Component location, RTAC control panel



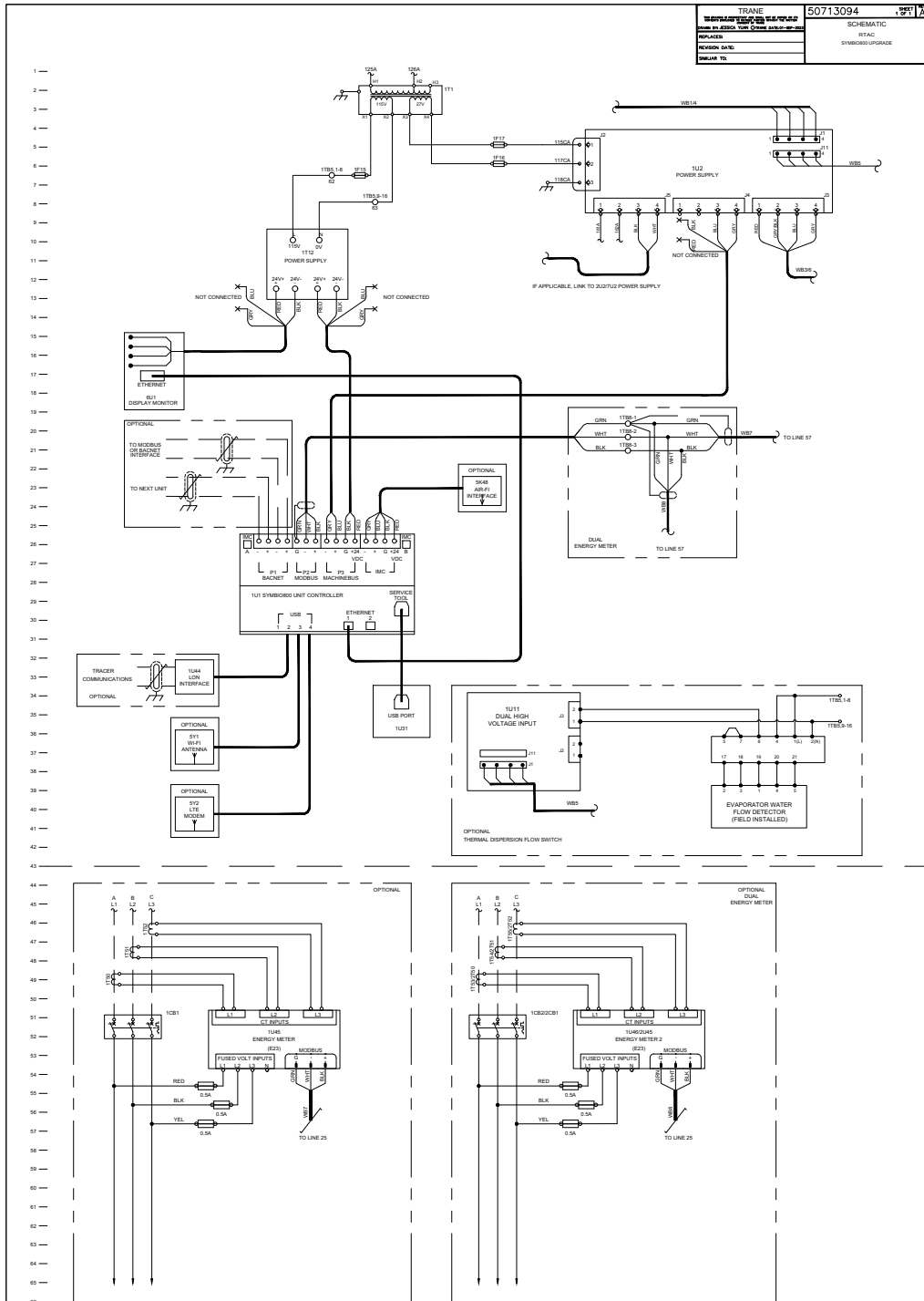


Wiring

Kit Schematic

Important: Optional effector flow switch connection at 1TB5 is 115V.

Figure 46. RTAC Symbio 800 upgrade schematic



Global Harness Routing

Figure 47. Global harness wiring diagram — 2 compressor unit, 15 foot base

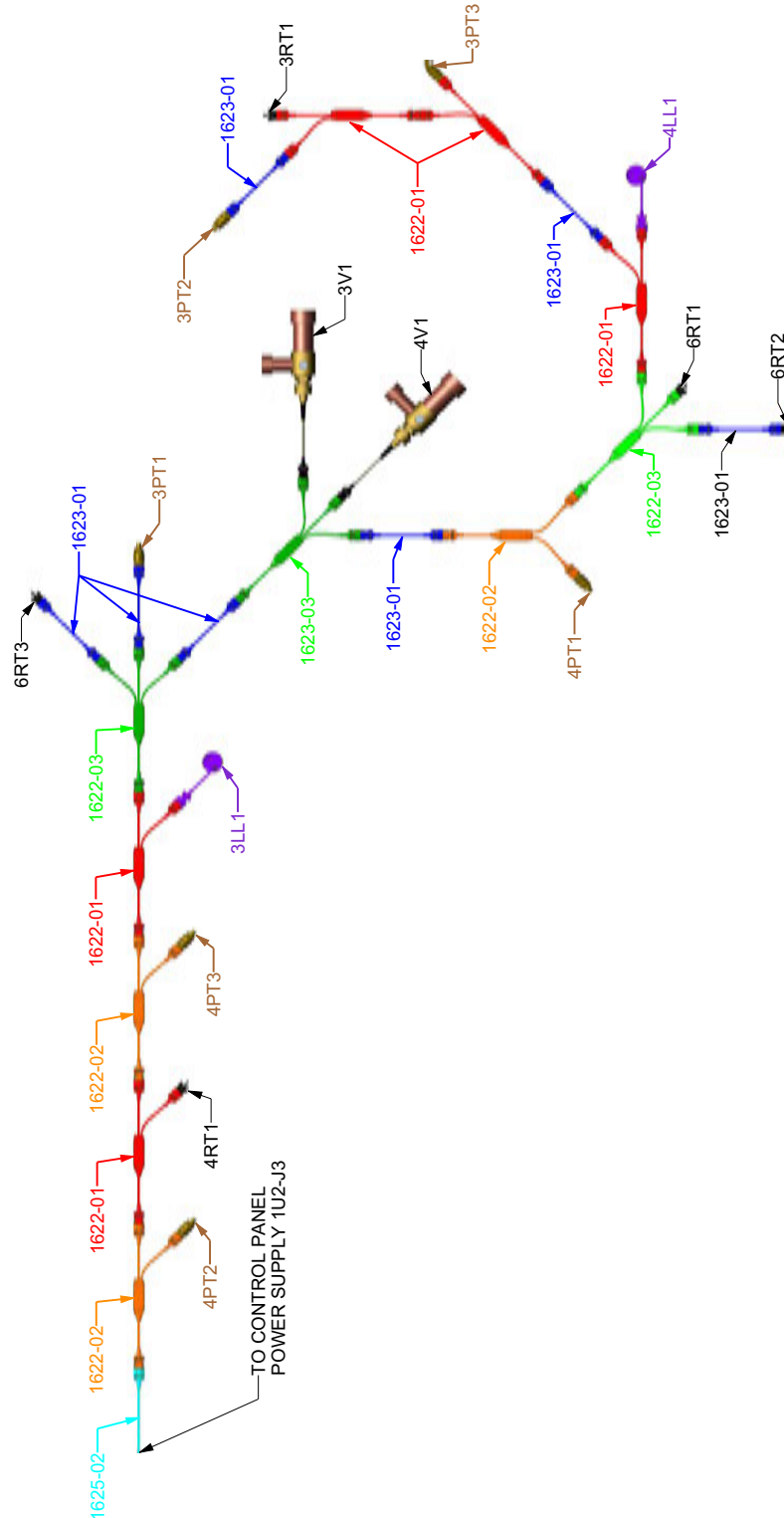


Figure 48. Global harness wiring diagram — 2 compressor unit, 18 foot base

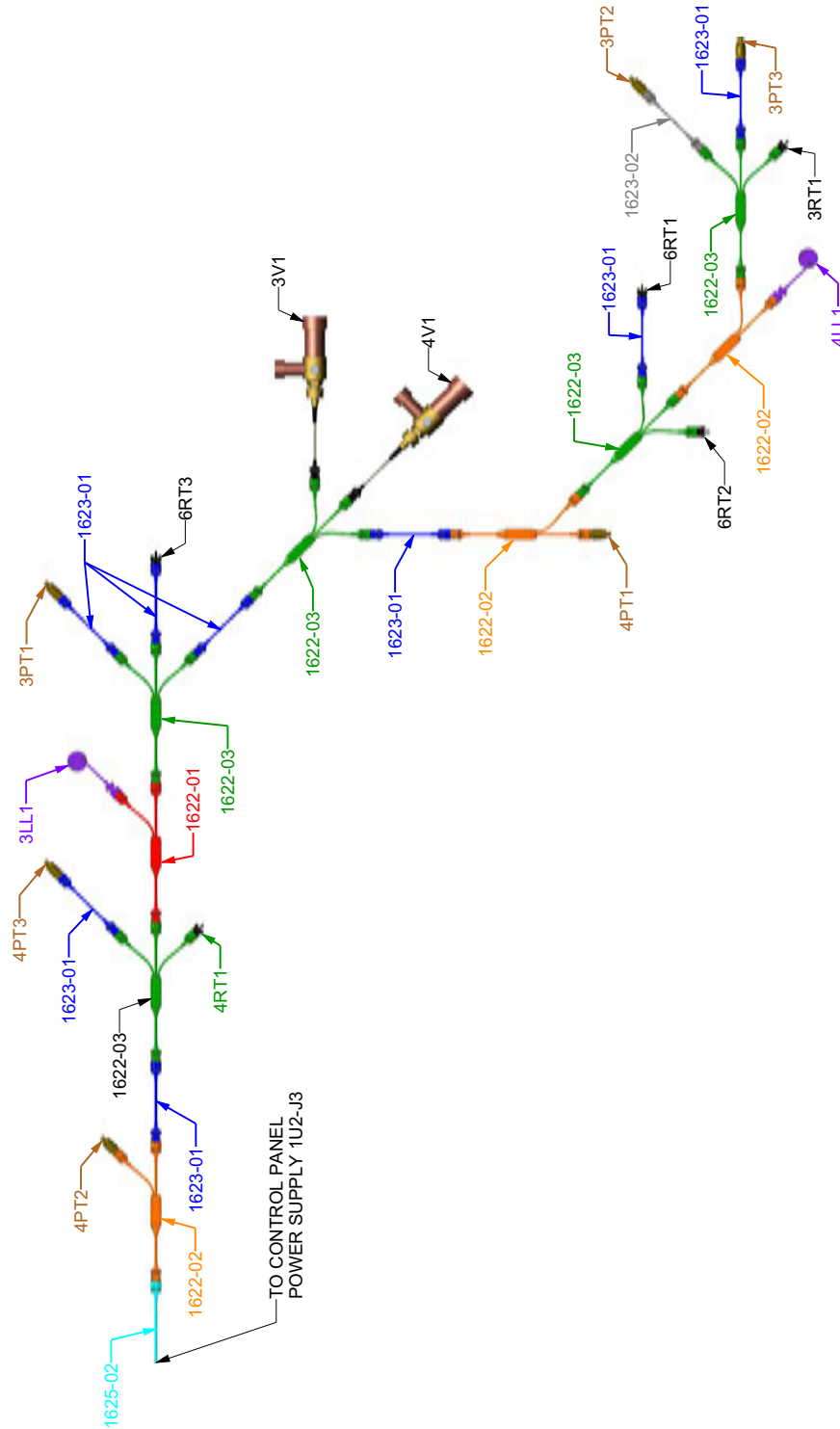


Figure 49. Global harness wiring diagram — 2 compressor unit, 21 foot base

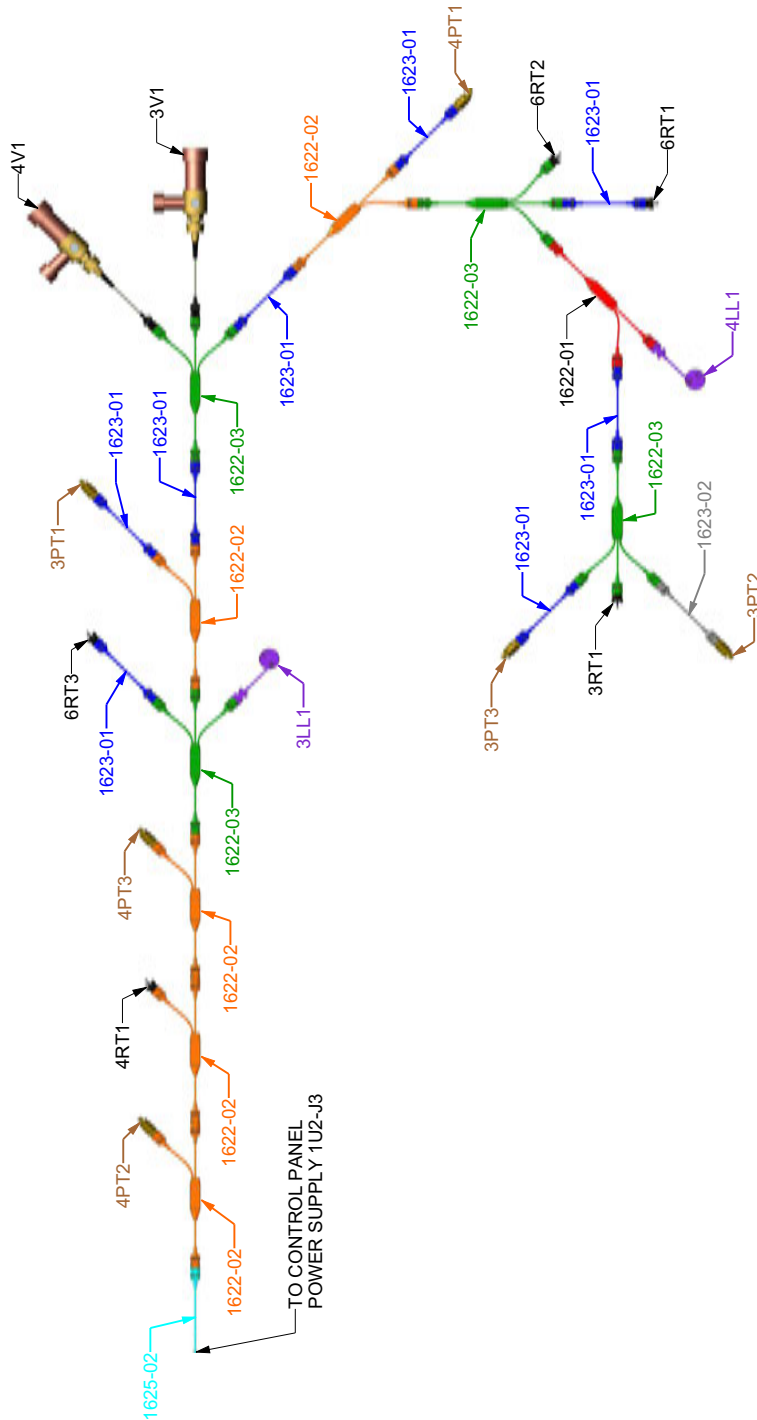


Figure 50. Global harness wiring diagram — 3 compressor unit, 2-pass, 30 foot base

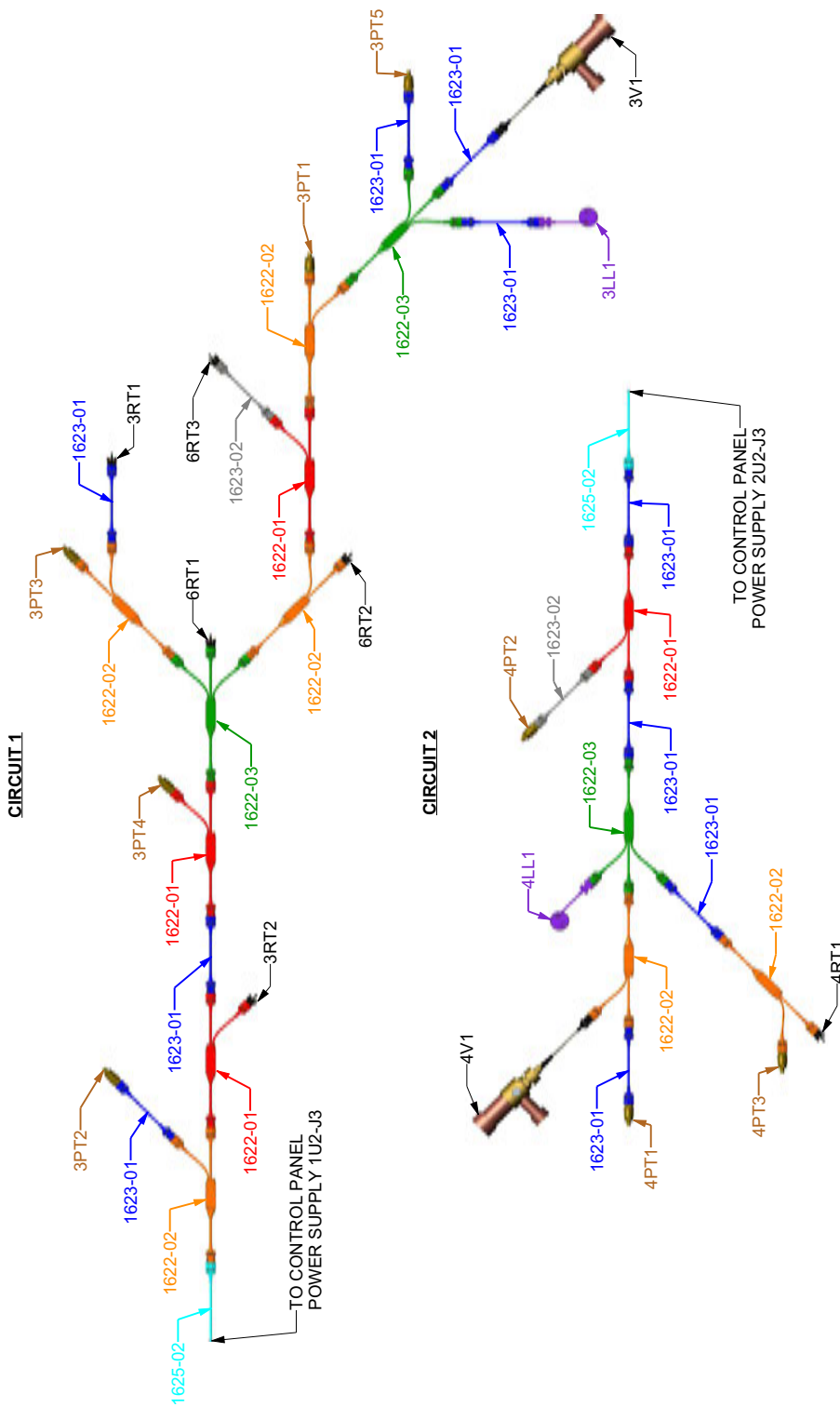


Figure 51. Global harness wiring diagram — 3 compressor unit, 3-pass, 30 foot base

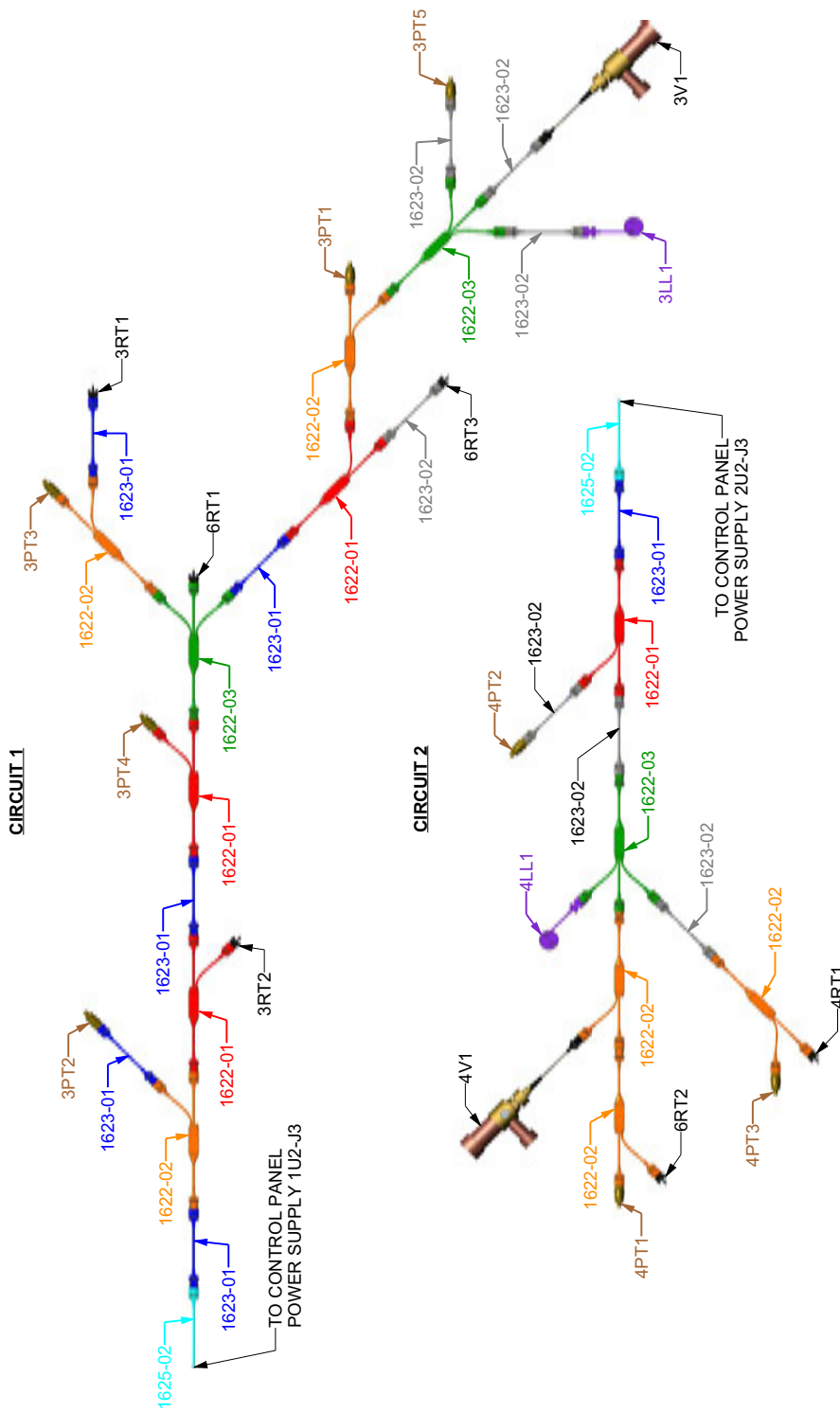


Figure 52. Global harness wiring diagram — 3 compressor unit, 2-pass, 36 foot base

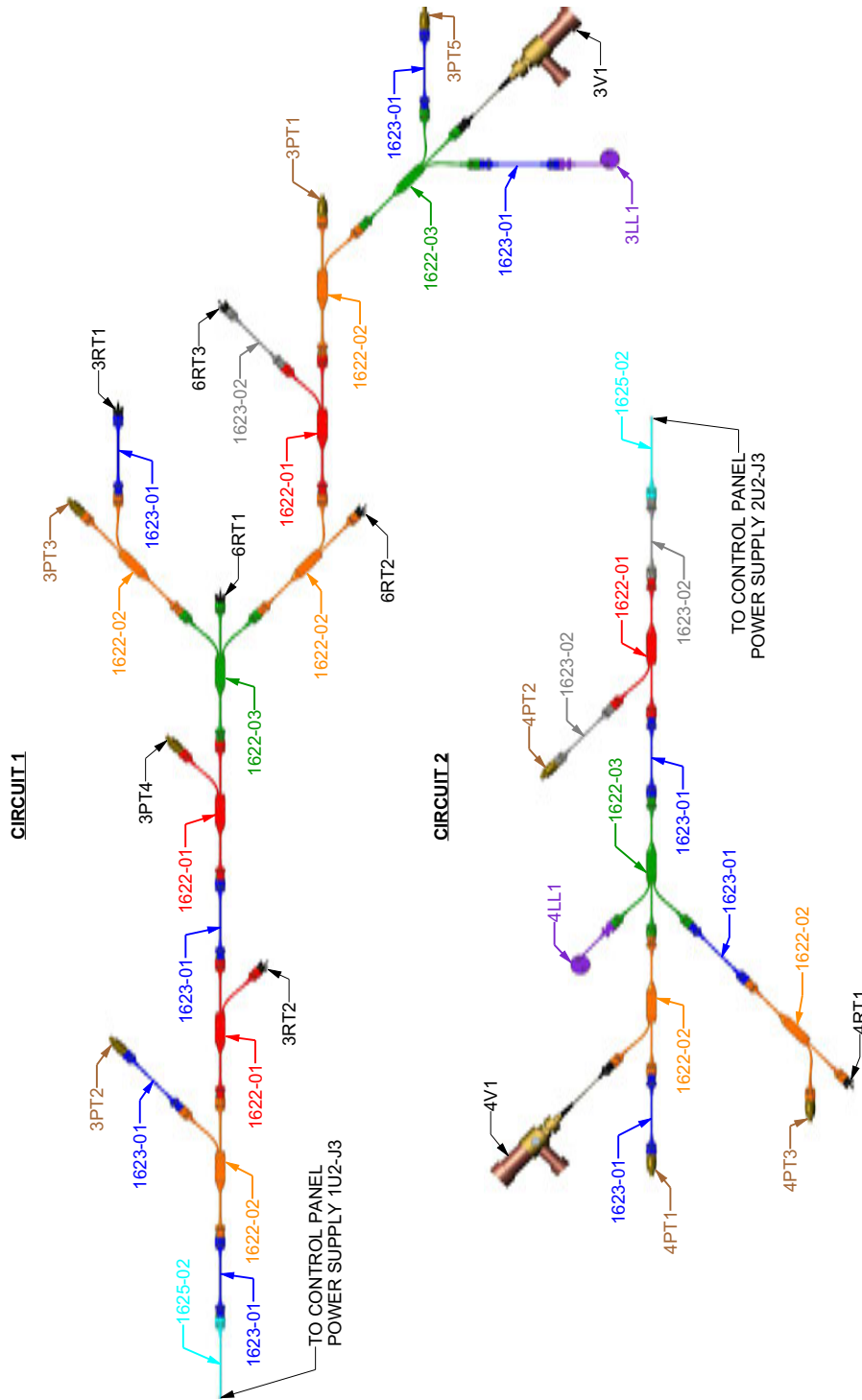


Figure 53. Global harness wiring diagram — 3 compressor unit, 3-pass, 36 foot base

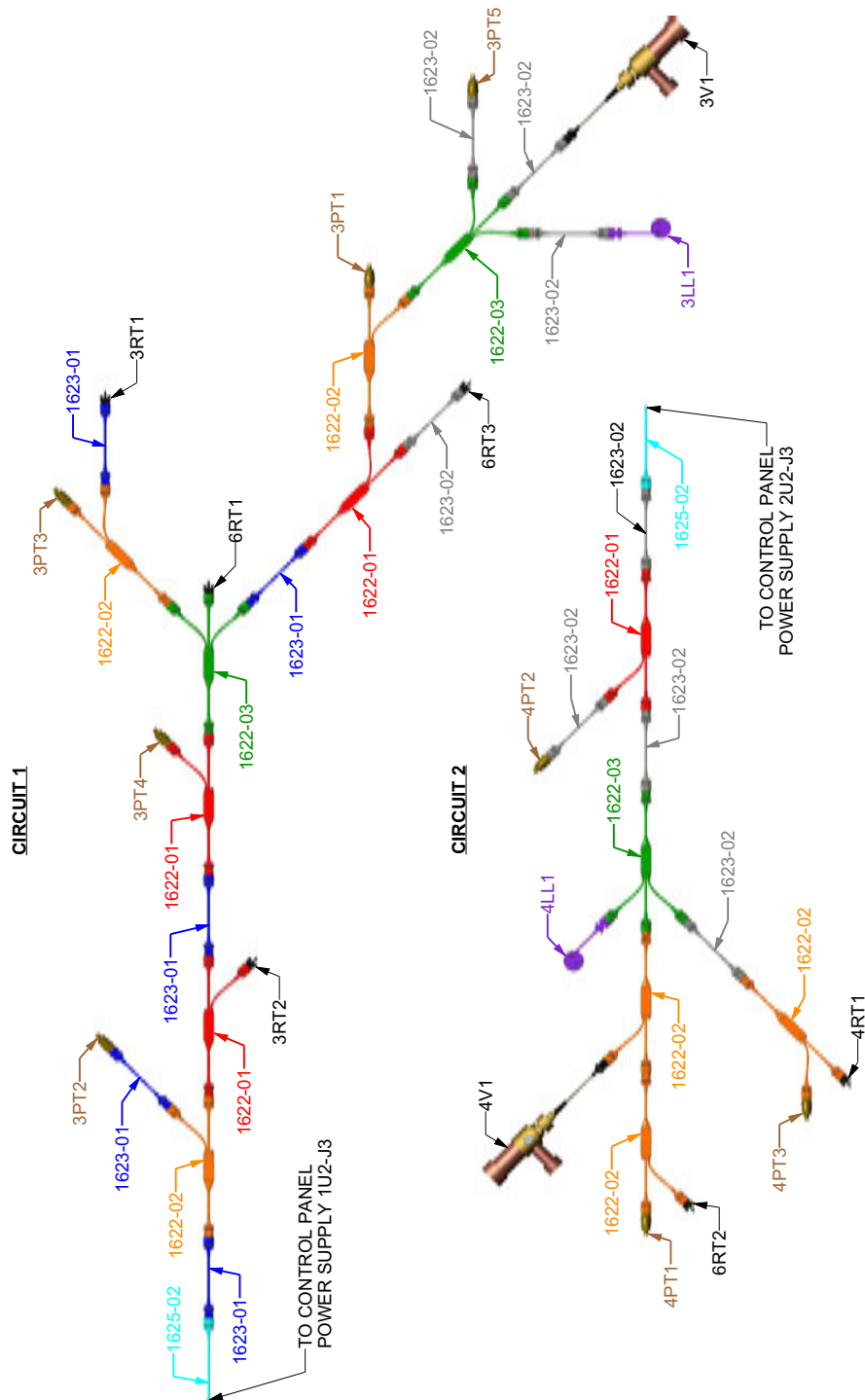


Figure 54. Global harness wiring diagram — 3 compressor unit, 2-pass, 39 foot base

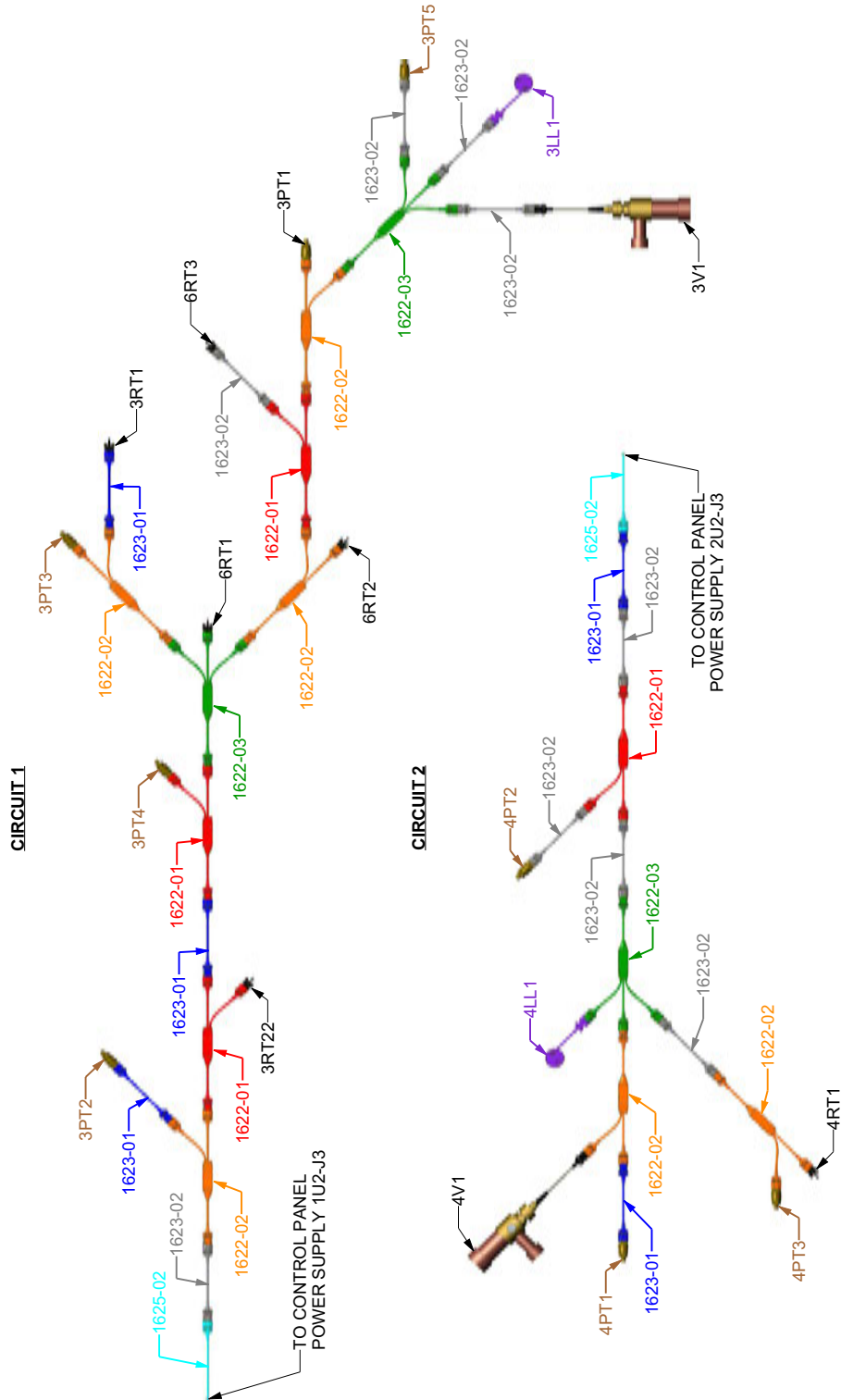


Figure 55. Global harness wiring diagram — 3 compressor unit, 3-pass, 39 foot base

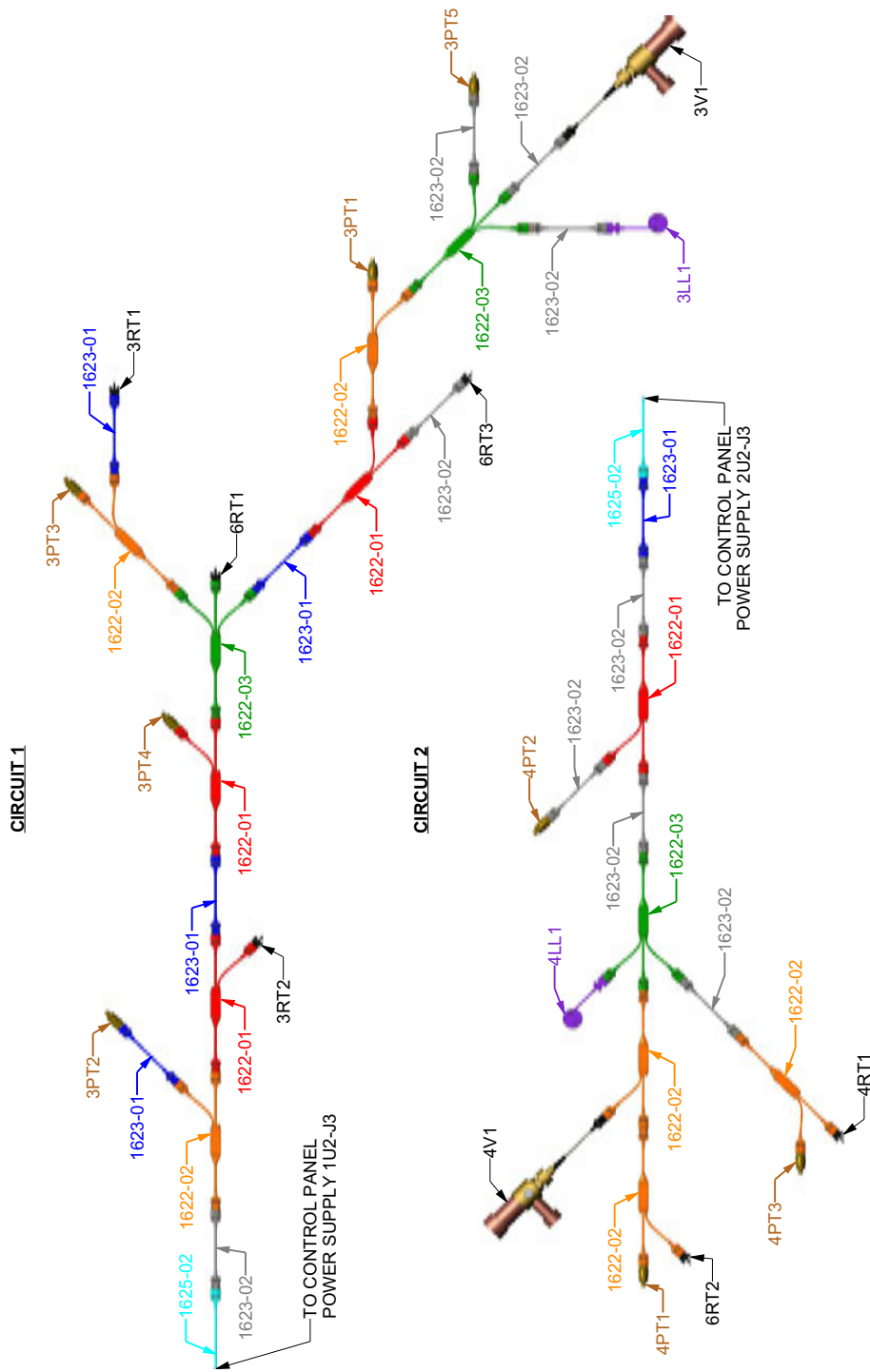


Figure 56. Global harness wiring diagram — 4 compressor unit, 2-pass, 39 foot base

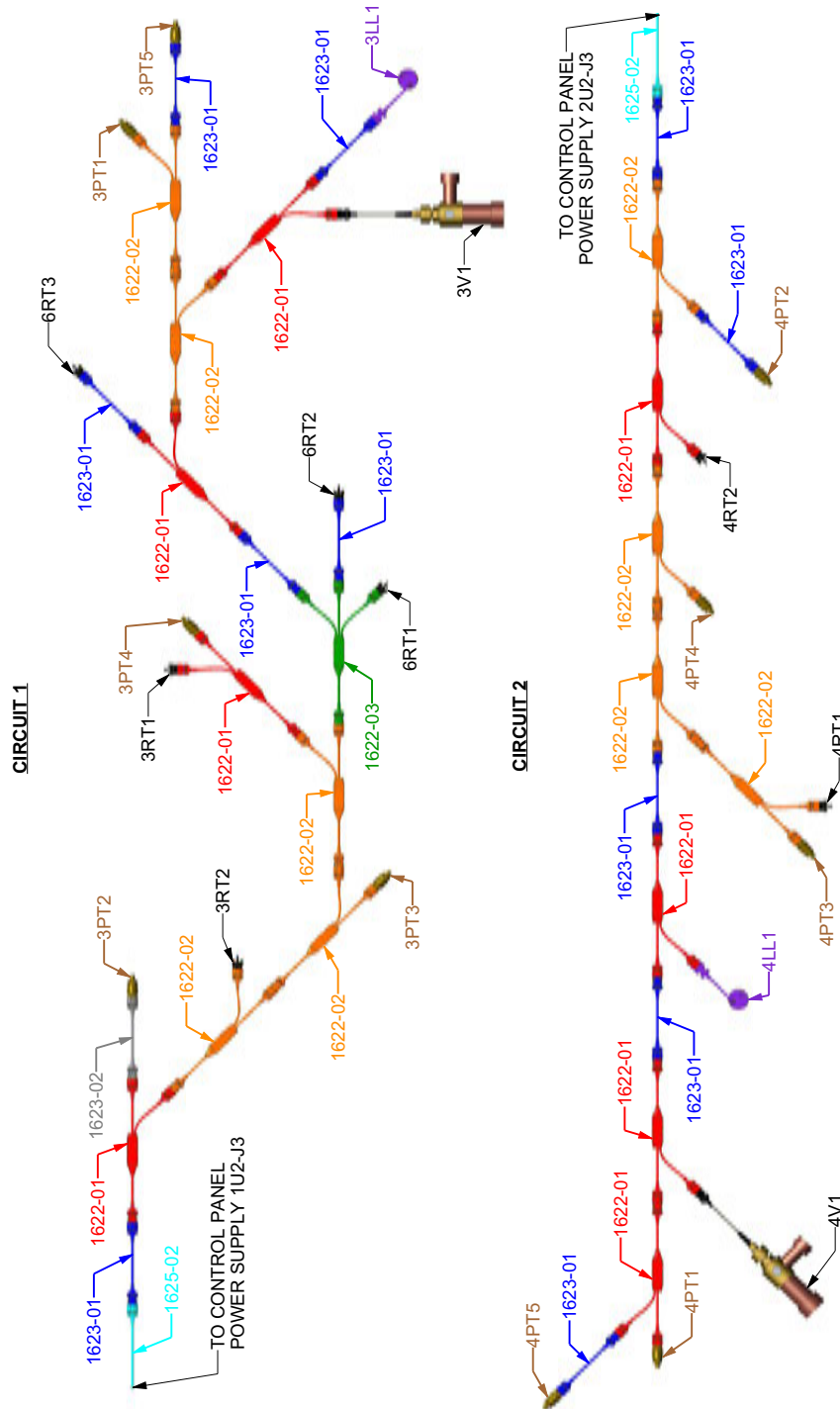


Figure 57. Global harness wiring diagram — 4 compressor unit, 3-pass, 39 foot base

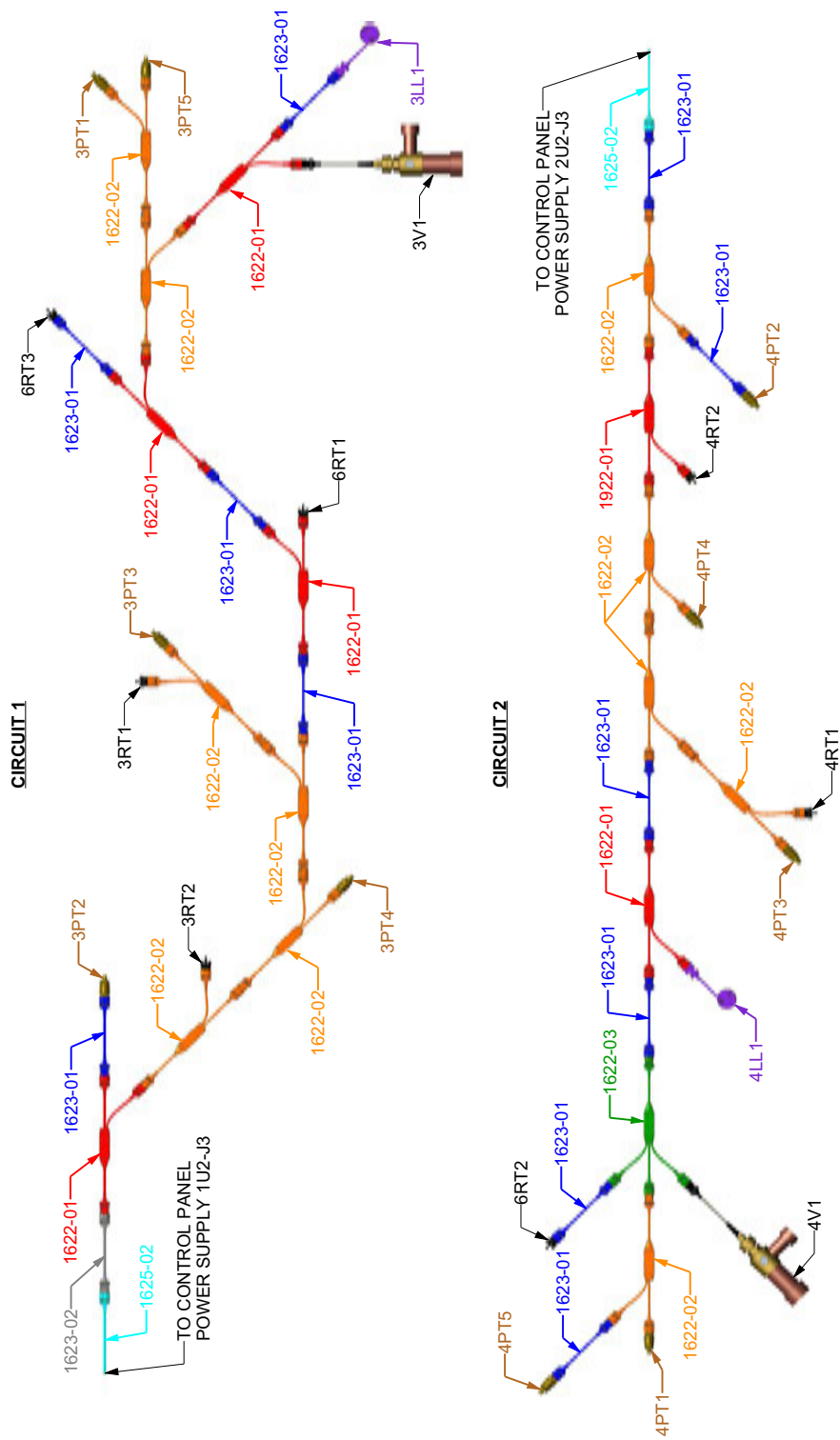
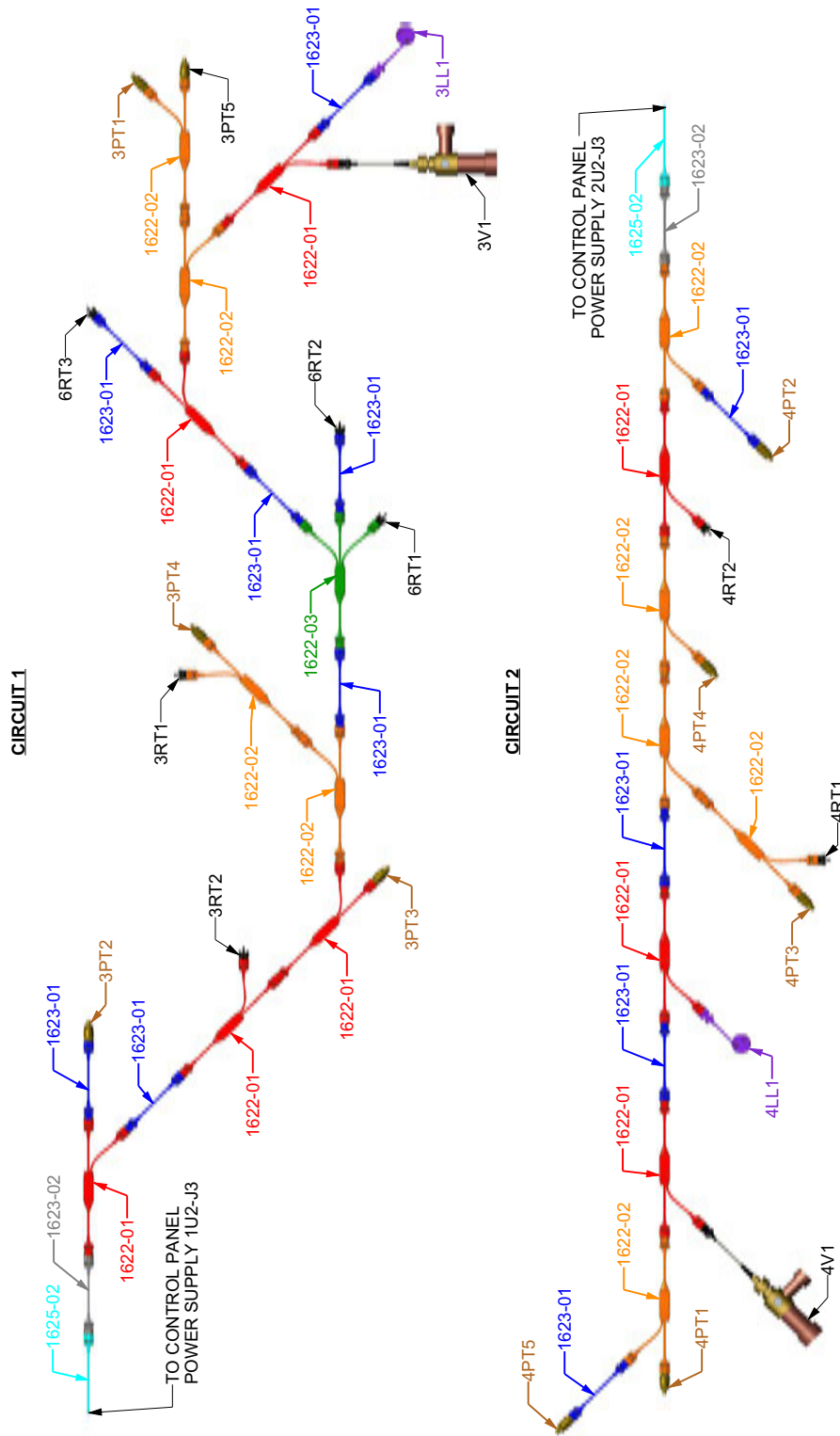


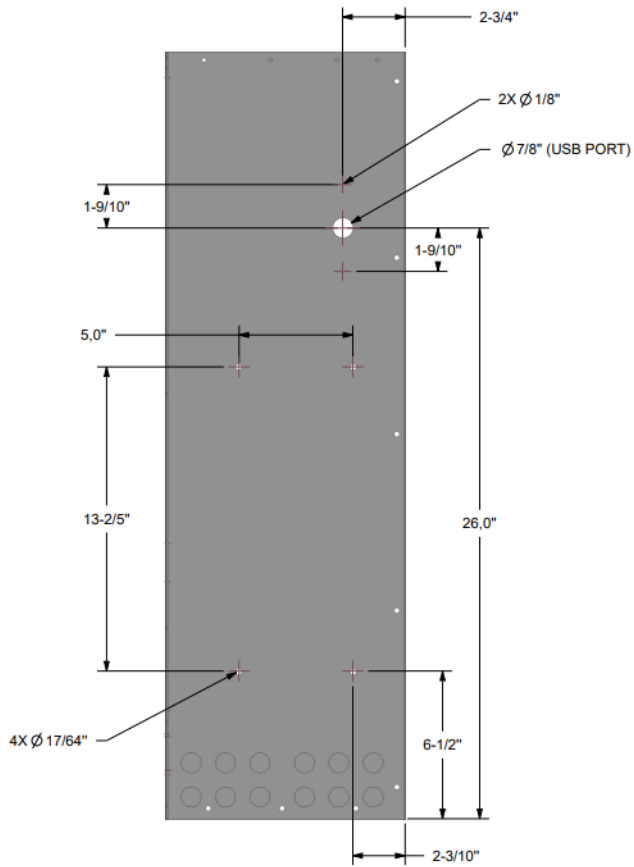
Figure 58. Global harness wiring diagram — 4 compressor unit, 2-pass, 45 foot base



Templates

- See [Figure 60](#) for modify holes template.

Figure 60. Modify holes template, mm (in.)



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