



Wiring Manual

Series R[®] Helical Rotary Liquid Chillers



⚠ 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.



Warnings, Cautions and Notices

Warnings, Cautions and Notices. Note that warnings, cautions and notices appear at appropriate intervals throughout this manual. Warnings are provide to alert installing contractors to potential hazards that could result in death or personal injury. Cautions are designed to alert personnel to hazardous situations that could result in personal injury, while notices indicate a situation that could result in equipment or property-damage-only accidents.

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

Read this manual thoroughly before operating or servicing this unit.

ATTENTION: Warnings, Cautions and Notices 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, 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

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-including industry replacements for CFCs such as HCFCs and HFCs.

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. 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!

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 electrical codes. Failure to follow code could result in death or serious injury.

⚠ WARNING

Personal Protective Equipment (PPE) Required!

Installing/servicing this unit could result in exposure to electrical, mechanical and chemical hazards.

- Before installing/servicing this unit, technicians **MUST** put on all Personal Protective Equipment (PPE) recommended for the work being undertaken. **ALWAYS** refer to appropriate MSDS sheets and OSHA guidelines for proper PPE.
- When working with or around hazardous chemicals, **ALWAYS** refer to the appropriate MSDS sheets and OSHA guidelines for information on allowable personal exposure levels, proper respiratory protection and handling recommendations.
- If there is a risk of arc or flash, technicians **MUST** put on all Personal Protective Equipment (PPE) in accordance with NFPA 70E or other country-specific requirements for arc flash protection, **PRIOR** to servicing the unit.

Failure to follow recommendations could result in death or serious injury.

⚠ WARNING**Hazardous Voltage w/Capacitors!**

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 an appropriate voltmeter that all capacitors have discharged. Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

For additional information regarding the safe discharge of capacitors, see PROD-SVB06A-EN

NOTICE:**Use Copper Conductors Only!**

Unit terminals are not designed to accept other types of conductors. Failure to use copper conductors could result in equipment damage.

Introduction

Revision Summary

RTHD-SVE01A-EN (24 April 2013)

New manual lists RTHD wiring diagrams.

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Wiring Schematics

This document provides typical field connection diagrams, electrical schematics for the RTHD units. See RTHD-SVX01*-EN for Installation, Operation and Maintenance information.

Note: *The drawings in this section are provided for reference only. These diagrams may not reflect the actual wiring of your unit. For specific electrical connection and schematic information, always refer to the wiring diagrams that were shipped with the unit.*

Unit Electrical Data

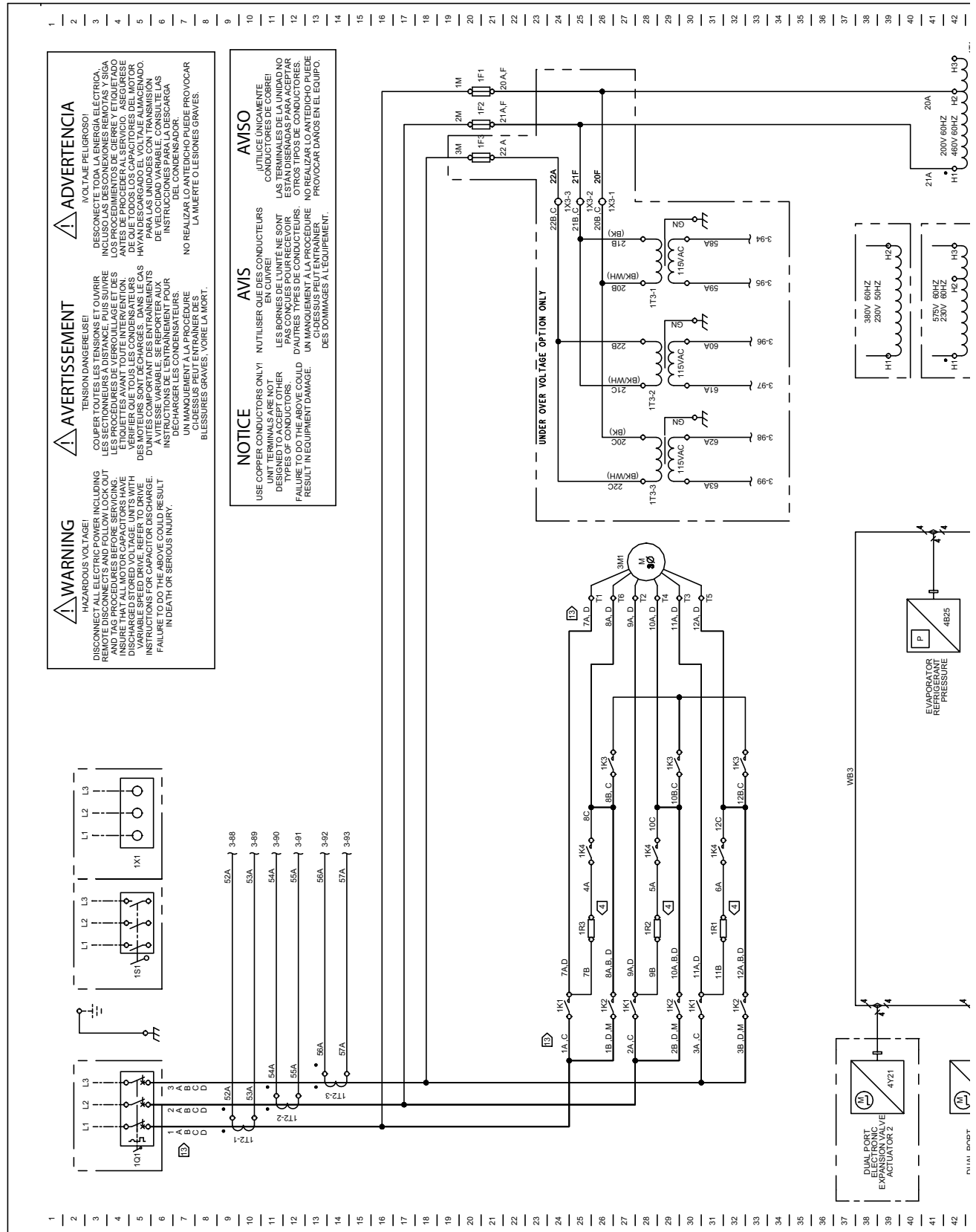
To determine the specific electrical characteristics of a particular chiller, see the nameplates mounted on the units.

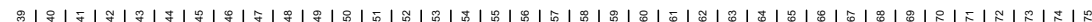
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Unit Electrical Data





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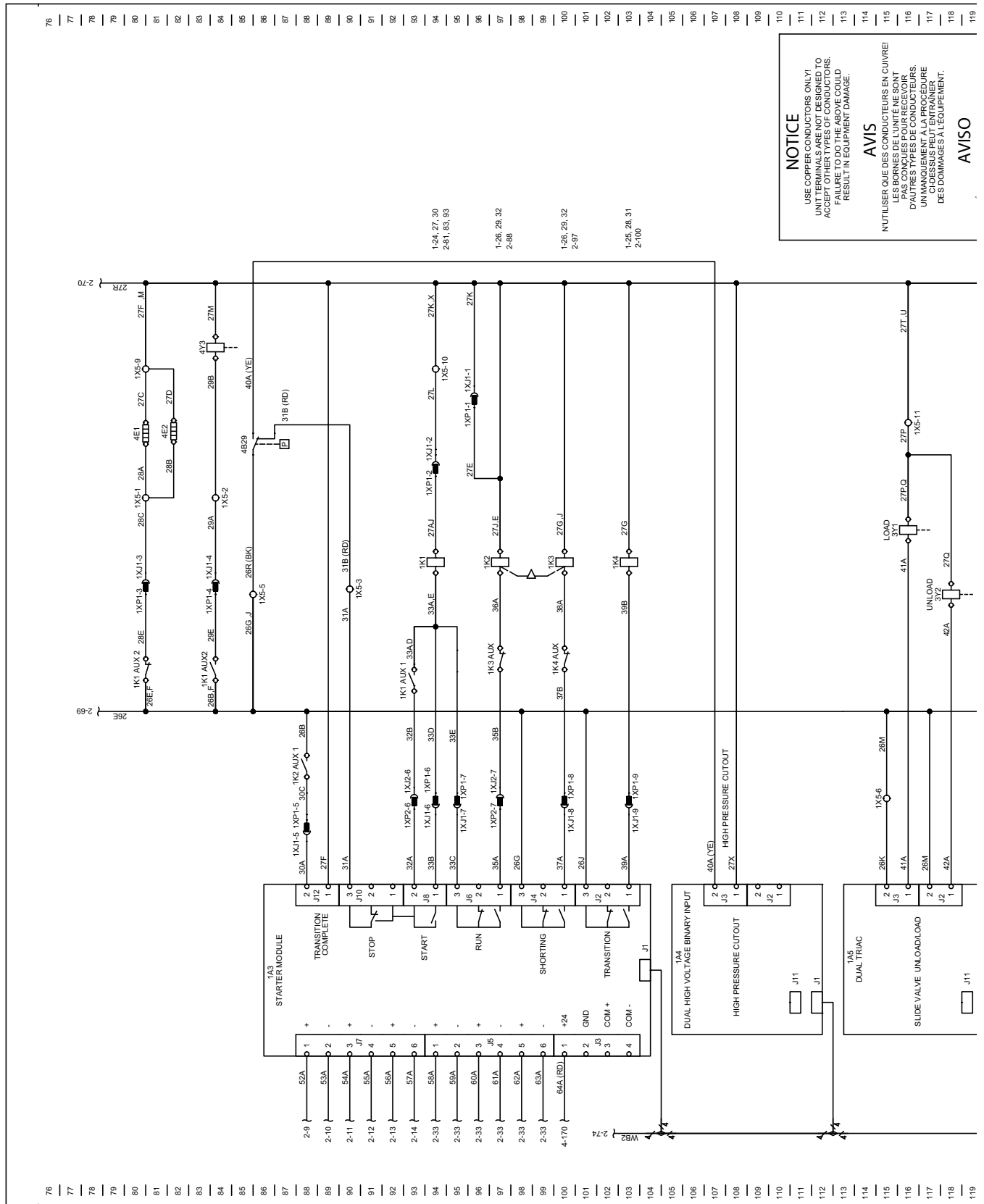
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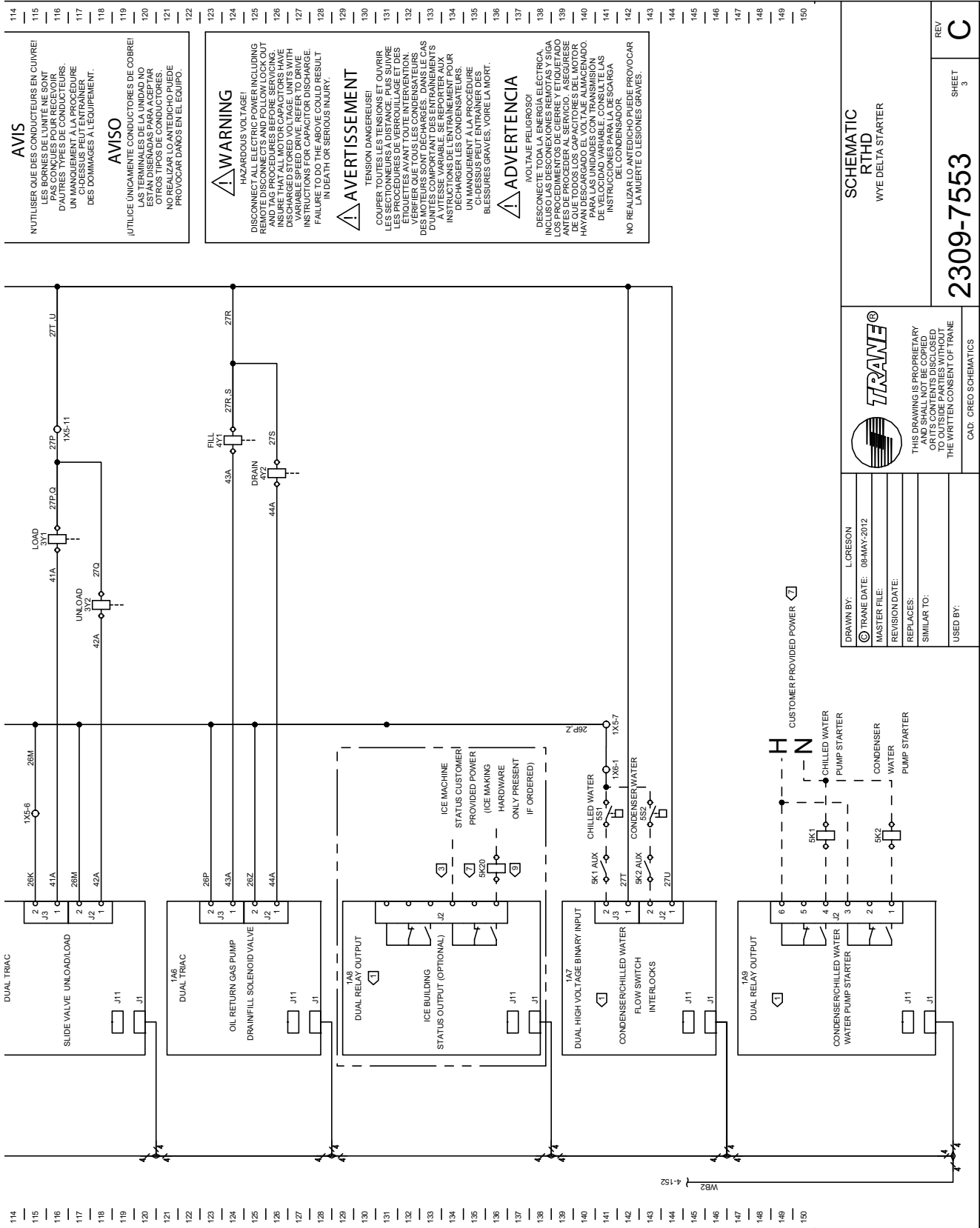
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CAD: CREO SCHEMATICS



Unit Electrical Data





AVIS

NUTILISER QUE DES CONDUCTEURS EN CUIVRE!
LES BORNES DE L'UNITÉ NE SONT PAS CONÇUES POUR ACCEPTER D'AUTRES TYPES DE CONDUCTEURS. UN MANQUEMENT À LA PROCÉDURE CI-DESSUS PEUT ENTRAÎNER DES DOMMAGES À L'ÉQUIPEMENT.

AVISO

¡UTILICE ÚNICAMENTE CONDUCTORES DE COBRE!
LAS TERMINALES DE LA UNIDAD NO ESTÁN DISEÑADAS PARA ACEPTAR OTROS TIPOS DE CONDUCTORES. NO REALIZAR LO ANTERIOR PUEDE PROVOCAR DAÑOS EN EL EQUIPO.

⚠ WARNING

HAZARDOUS VOLTAGE! INCLUDING DISCONNECTS, REMOTE LOCK OUT AND TAG PROCEDURES BEFORE SERVICING. INSURE THAT ALL MOTOR CAPACITORS HAVE BEEN DISCHARGED. ALWAYS WITH VARIABLE SPEED DRIVE, REFER TO DRIVE INSTRUCTIONS FOR CAPACITOR DISCHARGE FAILURE TO DO THE ABOVE COULD RESULT IN DEATH OR SERIOUS INJURY.

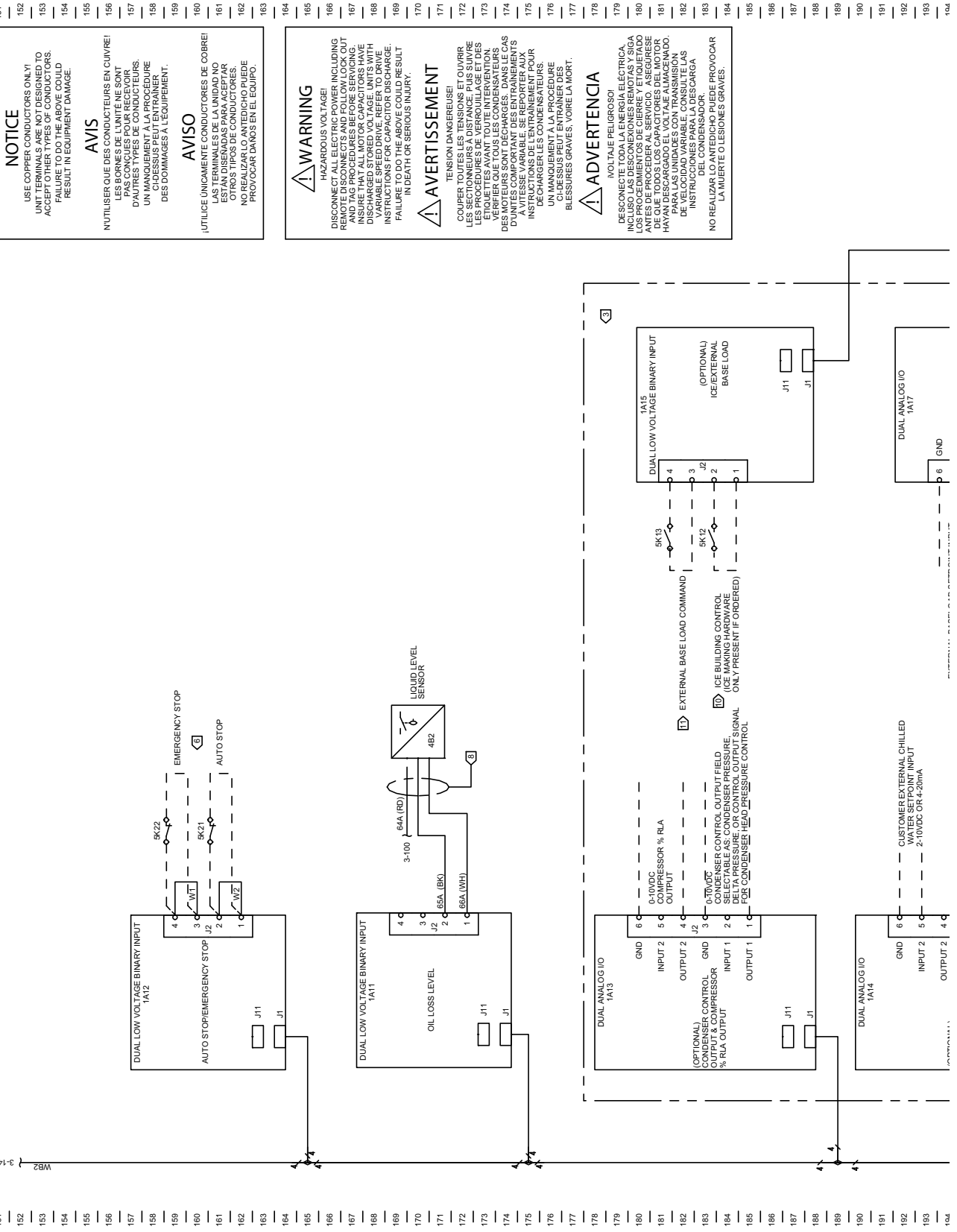
⚠ AVERTISSEMENT

TENSION DANGEREUSE! COUPER TOUTES LES TENSIONS ET OUVRIRE LES SECTIONNEURS À DISTANCE. PUIS SUIVRE LES PROCÉDURES DE VERROUILLAGE À DISTANCE ET ÉTIQUETTER AVANT TOUTE INTERVENTION. VÉRIFIER QUE TOUTS LES CONDENSATEURS DES MOTEURS SONT DÉCHARGÉS. DANS LE CAS D'UN VÉRIFIQUEUR À VITESSE VARIABLE, SE RÉFÉRER AUX INSTRUCTIONS DE L'ENTRAÎNEMENT POUR DÉCHARGER LES CONDENSATEURS. UN MANQUEMENT À LA PROCÉDURE CI-DESSUS PEUT ENTRAÎNER DES DOMMAGES GRAVES, VOIRE LA MORT.

⚠ ADVERTENCIA

VOLTAJE PELIGROSO! DESCONECTAR TODA LA ENERGÍA ELÉCTRICA, INCLUIDAS LAS DESCONECTACIONES Y LOS PROCEDIMIENTOS DE CIERRE Y ETIQUETADO ANTES DE PROCEDER AL SERVICIO. ASEGÚRESE DE QUE TODOS LOS CONDENSADORES DE LOS MOTORES SEAN DESCARGADOS. EN EL CASO DE UN VERIFICADOR DE VELOCIDAD VARIABLE, CONSULTE LAS INSTRUCCIONES DE LA UNIDAD PARA LA CARGA DEL CONDENSADOR.

NO REALIZAR LO ANTERIOR PUEDE PROVOCAR LA MUERTE O LESIONES GRAVES.



NOTICE
USE COPPER CONDUCTORS ONLY!
UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS. FAILURE TO DO THE ABOVE COULD RESULT IN EQUIPMENT DAMAGE.

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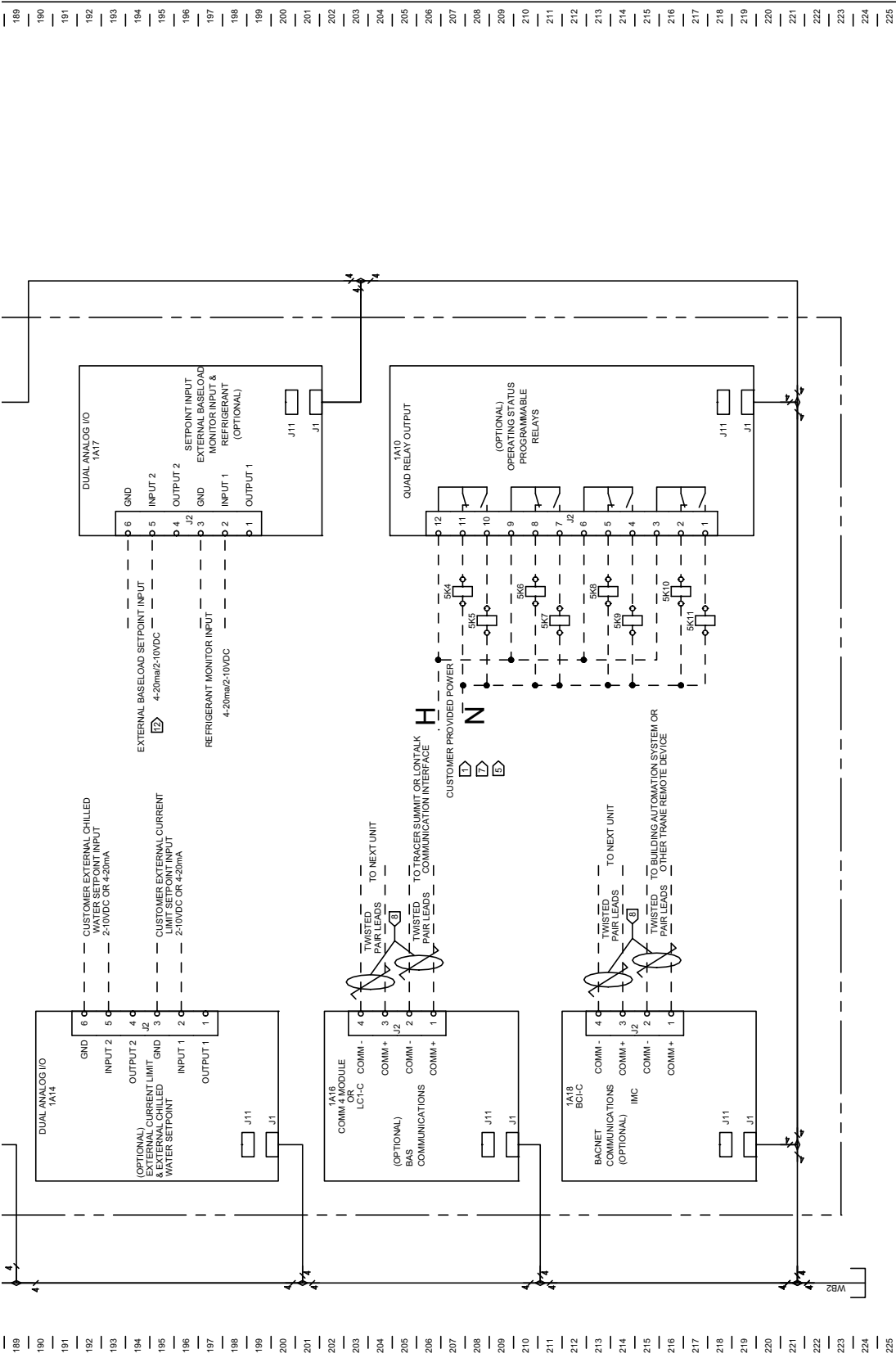
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WARNING
HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS AND FOLLOW LOCK OUT AND TAG PROCEDURES BEFORE SERVING. INSURE THAT ALL POWER SOURCES ARE DISCHARGED STORED VOLTAGE. UNITS WITH VARIABLE SPEED DRIVE, REFER TO DRIVE INSTRUCTIONS FOR CAPACITOR DISCHARGE. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN DEATH OR SERIOUS INJURY.

AVERTISSEMENT
TENSION DANGEREUSE!
COUPER TOUTES LES TENSIONS ET OUVRIRE LES DISCONNECTS À DISTANCE AVANT DE SERVIR. VÉRIFIER QUE TOUTES LES CONDUITES SONT DÉCHARGÉES. LES UNITÉS À VITESSE VARIABLE, SE REPORTER AUX INSTRUCTIONS POUR LE CONDENSATEUR POUR LE DÉCHARGEMENT DES CAPACITÉS. LE MANQUEMENT À LA PROCÉDURE DES BLESSURES GRAVES, VOIRE LA MORT.

ADVERTENCIA
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NO REALIZAR LO ANTERIOR PUEDE PROVOCAR LA MUERTE O LESIONES GRAVES.



SCHEMATIC
RTHD
WYE DELTA STARTER



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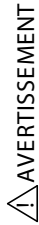
TRANE®

Unit Electrical Data



WARNING

HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER INCLUDING REFRIGERANT SYSTEMS BEFORE SERVICING. INSURE THAT ALL MOTOR CAPACITORS HAVE DISCHARGED STORED VOLTAGE. UNITS WITH DISCHARGED CAPACITORS MAY CONTAIN A FAILURE TO DO THE ABOVE COULD RESULT IN DEATH OR SERIOUS INJURY.



AVERTISSEMENT

TENSION DANGEREUSE!
COUPER TOUTES LES TENSIONS ET OUVRIR LES RESSORTS DES CIRCUITS DE REFRIGÉ- RANTS AVANT LE SERVICE. S'ASSURER QUE LES PROCÉDURES DE VERRIQUAGE ET D'ÉTIQUETAGE DES CONDENSATEURS SONT SUIVIES. LES UNITÉS AVEC DES CONDENSATEURS DÉCHARGÉS PEUVENT CONTENIR DES TENSIONS STOCKÉES. LE MANQUE D'UN DES ÉLÉMENTS CI-DESSUS PEUT ENTRAÎNER DES BLESSURES GRAVES, VOIRE LA MORT.



ADVERTENCIA

DESCONECTE TODA LA ENERGÍA ELÉCTRICA, INCLUIDA LA DE LOS REFRIGERANTES, ANTES DE PROCEDER AL SERVICIO. ASEGÚRESE DE QUE TODOS LOS CAPACITORES DEL MOTOR HAYAN SIDO DESCARGADOS. LAS UNIDADES CON CAPACITORES CARGADOS PUEDEN CONTENER TENSIONES ALMACENADAS. EL MANEJO INCORRECTO DE LAS UNIDADES PUEDE PROVOCAR DAÑOS EN EL EQUIPO.

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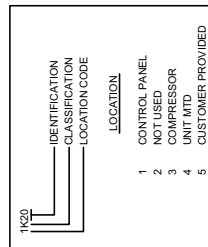
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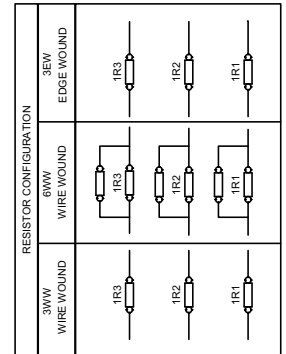
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COLOR CODE
BLACK
BROWN
BLUE
GRAY
RED
WHITE
GREEN
ORANGE
YELLOW

FUSE-VOLTAGE	200V	230V	380-415V	480-575V
1F1	10	8	5	4
1F2	10	8	5	4
1F3	3	3	3	3
1F4	10	10	10	10
1F5	6	6	6	6
1F6	6	6	6	6

_____	TRANS WIRING
_____	CUSTOMER WIRING
_____	OPTIONS



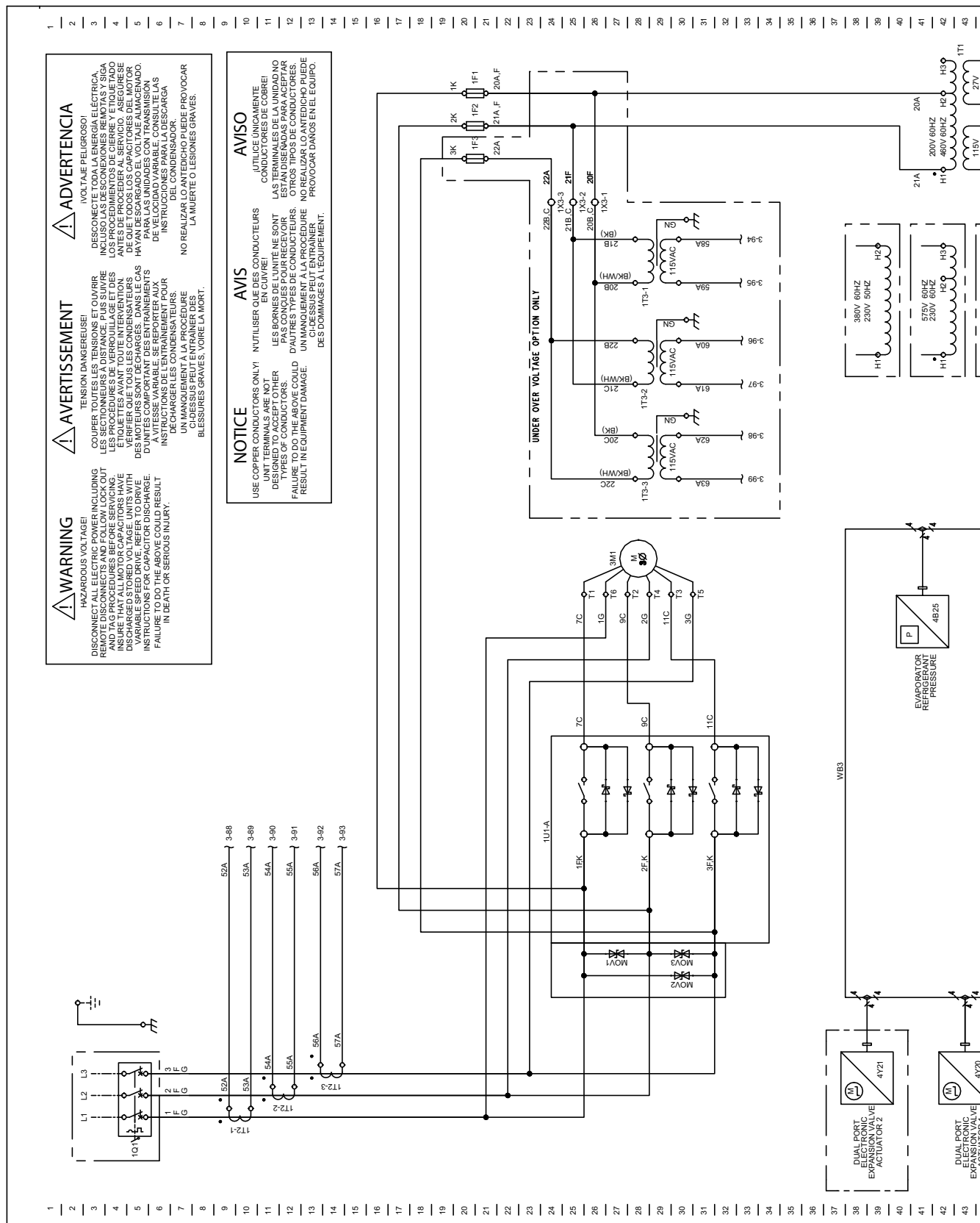
TRANSITION RESISTOR CONFIGURATION	RLA CONFIGURATION
200	477-606 6WW
230	607-779 6WW
346-480	398-476 6WW
550-600	477-606 3EW

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NOTES:

- 1 CLASS 1 FIELD WIRED MODULE
- 2 CLASS 1 FIELD WIRING INSULATION RATING IS REQUIRED TO BE EQUAL TO OR GREATER THAN THE EQUIPMENT SUPPLY VOLTAGE RATING.
CLASS 2 FIELD WIRE INSULATION TO BE RATED AT 300V MINIMUM.
- 3 OPTIONAL MODULES. REFER TO FIELD WIRING DIAGRAM FOR SUGGESTED WIRING.
- 4 TRANSITION RESISTORS SHOWN MAY BE COMPRISED OF ONE OR TWO RESISTORS, DEPENDING ON RLA RATING OF COMPRESSOR. REFER TO TABLE 1 FOR RESISTOR CONFIGURATION.
- 5 FIELD ASSIGNED PROGRAMMABLE RELAYS.
- 6 AUTOSTOP, EMERGENCY STOP THE CONTACTS ARE JUMPED AT THE FACTORY BY JUMPERS W1 & W2 TO ENABLE UNIT OPERATION. IF REMOTE CONTROL IS DESIRED REMOVE THE JUMPERS AND CONNECT TO THE DESIRED CONTROL CIRCUIT.
- 7 RELAY AT 120VAC; 7.2 AMPS RESISTIVE, 2.88 AMPS PILOT DUTY, 1/3 HP, 7.2 FLA AT 240VAC, 5 AMPS GENERAL PURPOSE.
- 8 IF SHIELD IS PRESENT, DO NOT WIRE SHIELD TO GROUND IN CONTROL PANEL. IF USED, SHIELD IS TO BE GROUNDED EXTERNALLY TO CONTROL PANEL.
REFERENCE FIELD WIRING DIAGRAM FOR RECOMMENDED WIRE TYPE.
- 9 RELAY ENERGIZED WHILE MAKING ICE.
- 10 CONTACT CLOSURE ENABLES ICE MAKING.
- 11 CLOSED CONTACT COMMANDS BASE LOADING OPERATION.
- 12 ACTUAL BASE LOADING SETPOINT USED IS SETABLE AT FRONT PANEL. REFER TO IQM FOR DETAILS.
- 13 WIRES 1C, 1D, 2C, 2D, 3C, 3D, 7D, 8D, 9D, 10D, 11D, 12D ARE ONLY PRESENT WHERE PARALLEL WIRE SETS ARE USED.

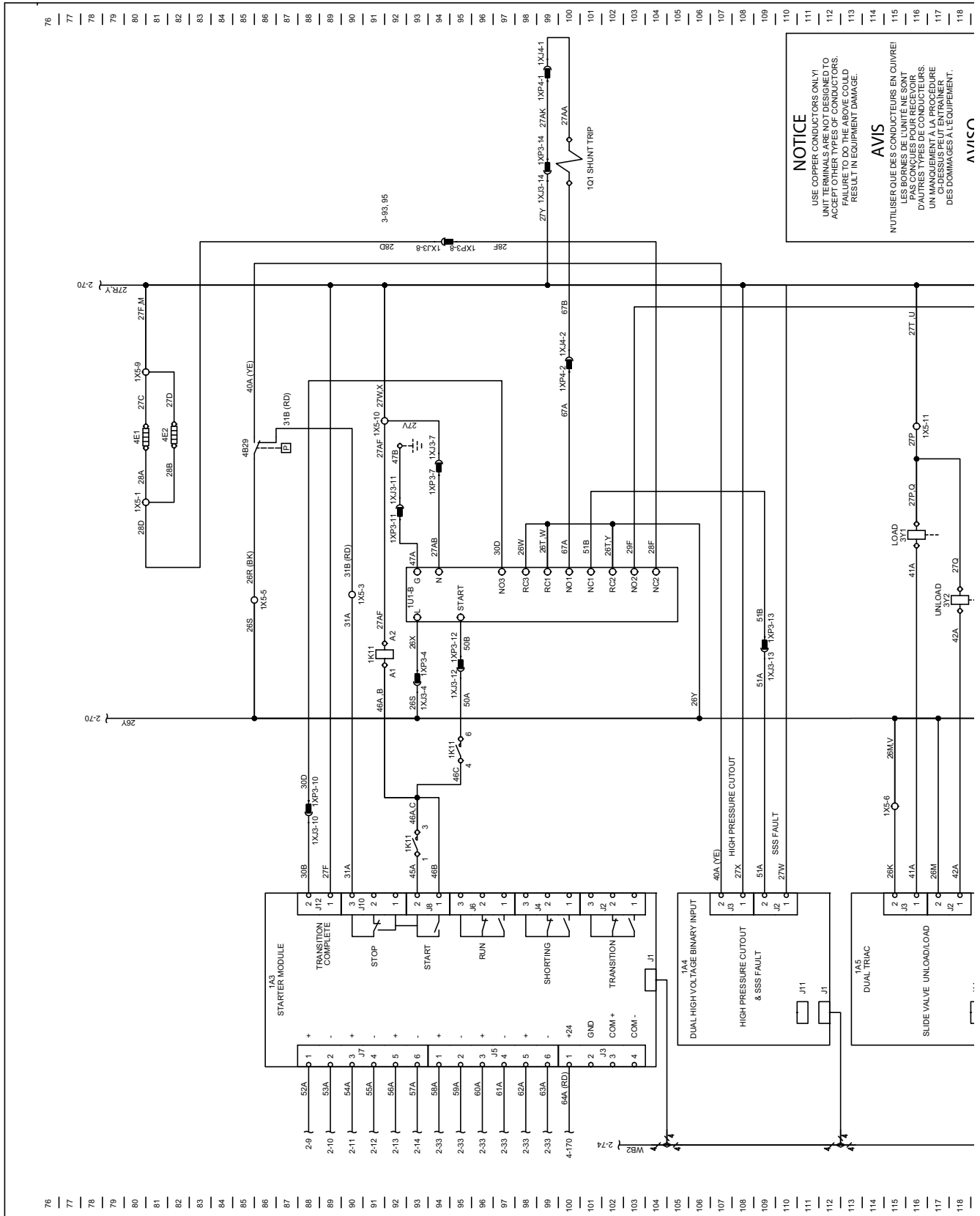
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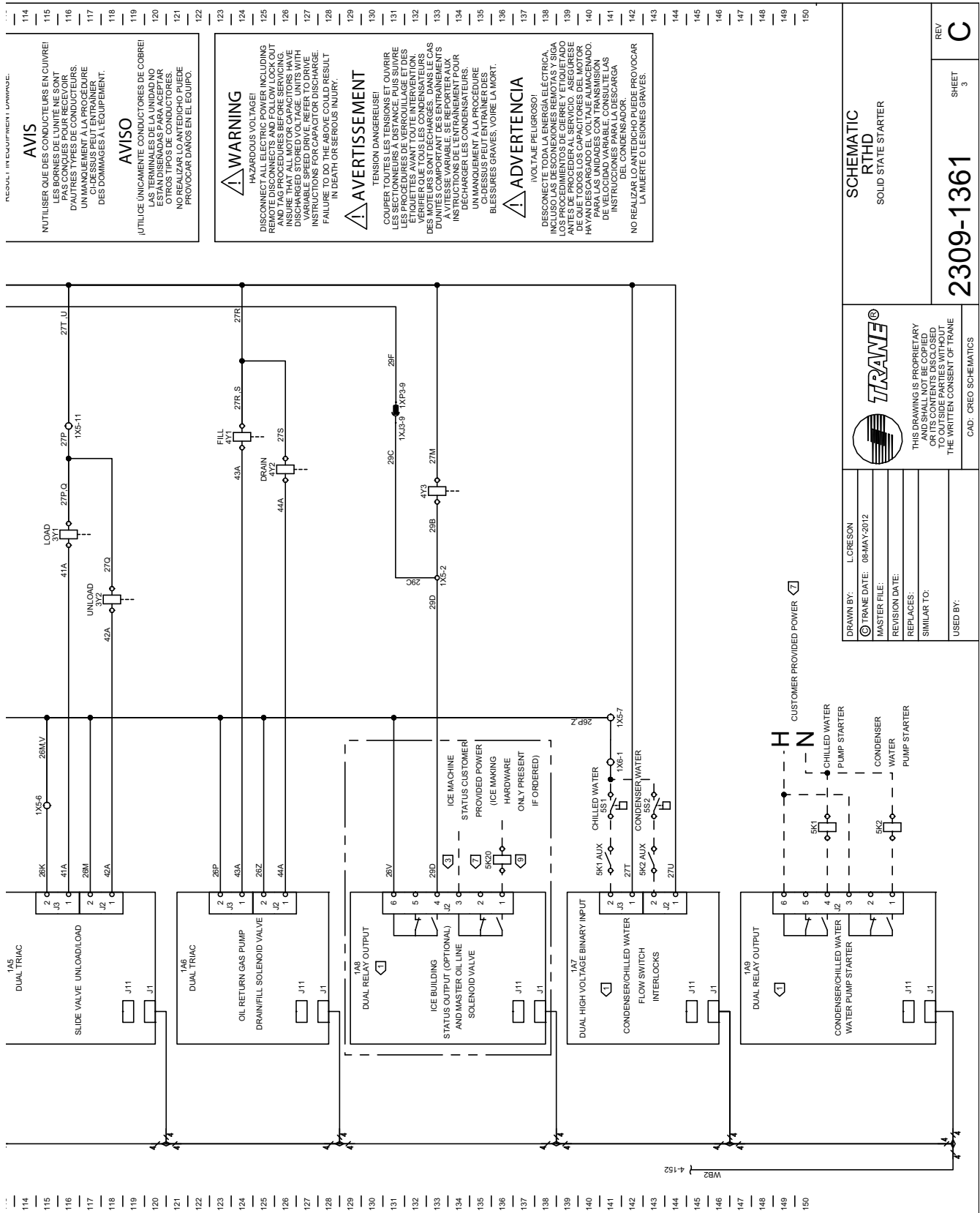






Unit Electrical Data





NOTICE

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FAILURE TO DO THE ABOVE COULD
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! WARNING

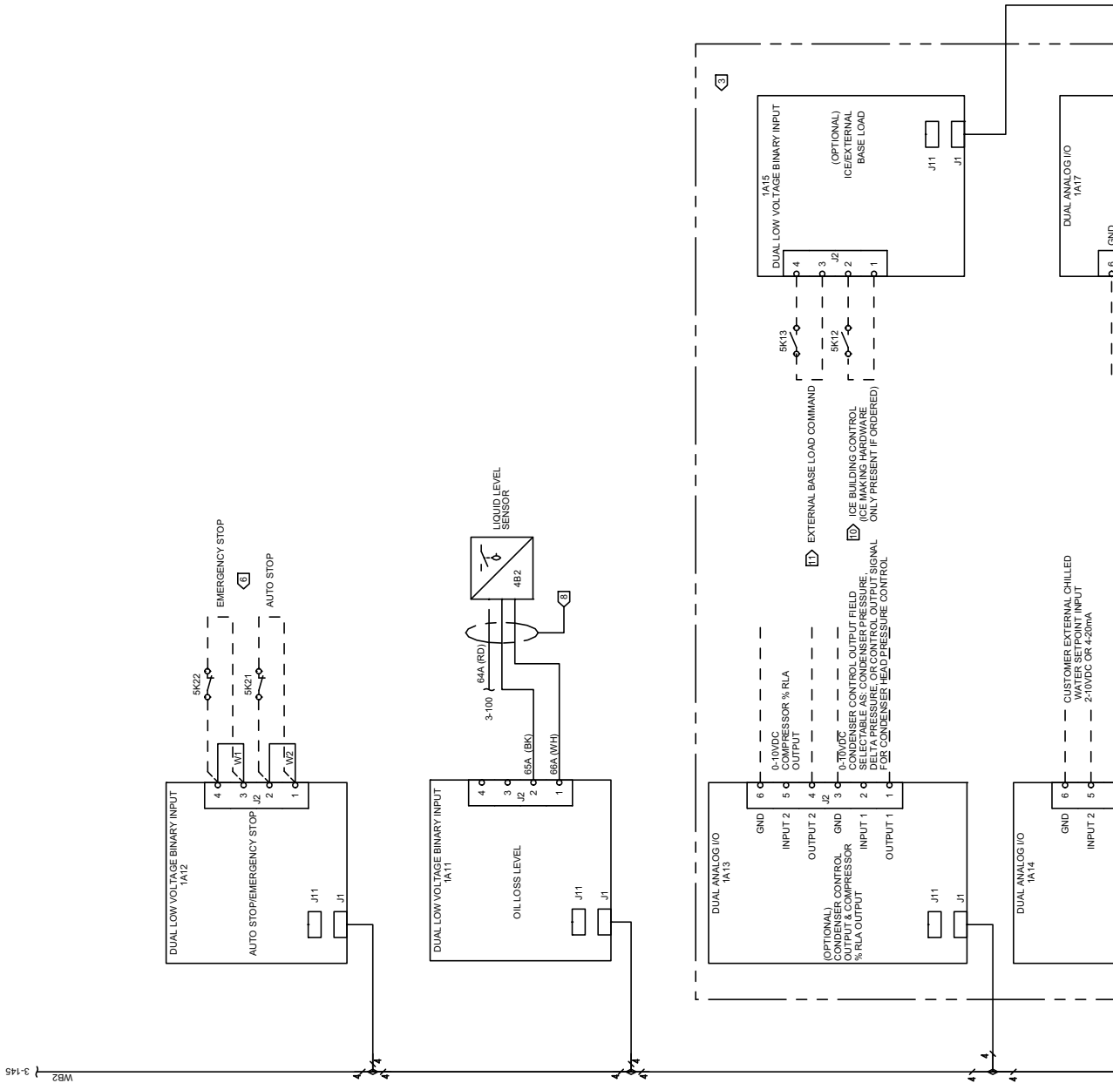
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OR REPAIR WORK. ALWAYS LOCK OUT
AND TAG OUT. ALWAYS USE PROPER
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VARIABLE SPEED DRIVES MUST FOLLOW THE
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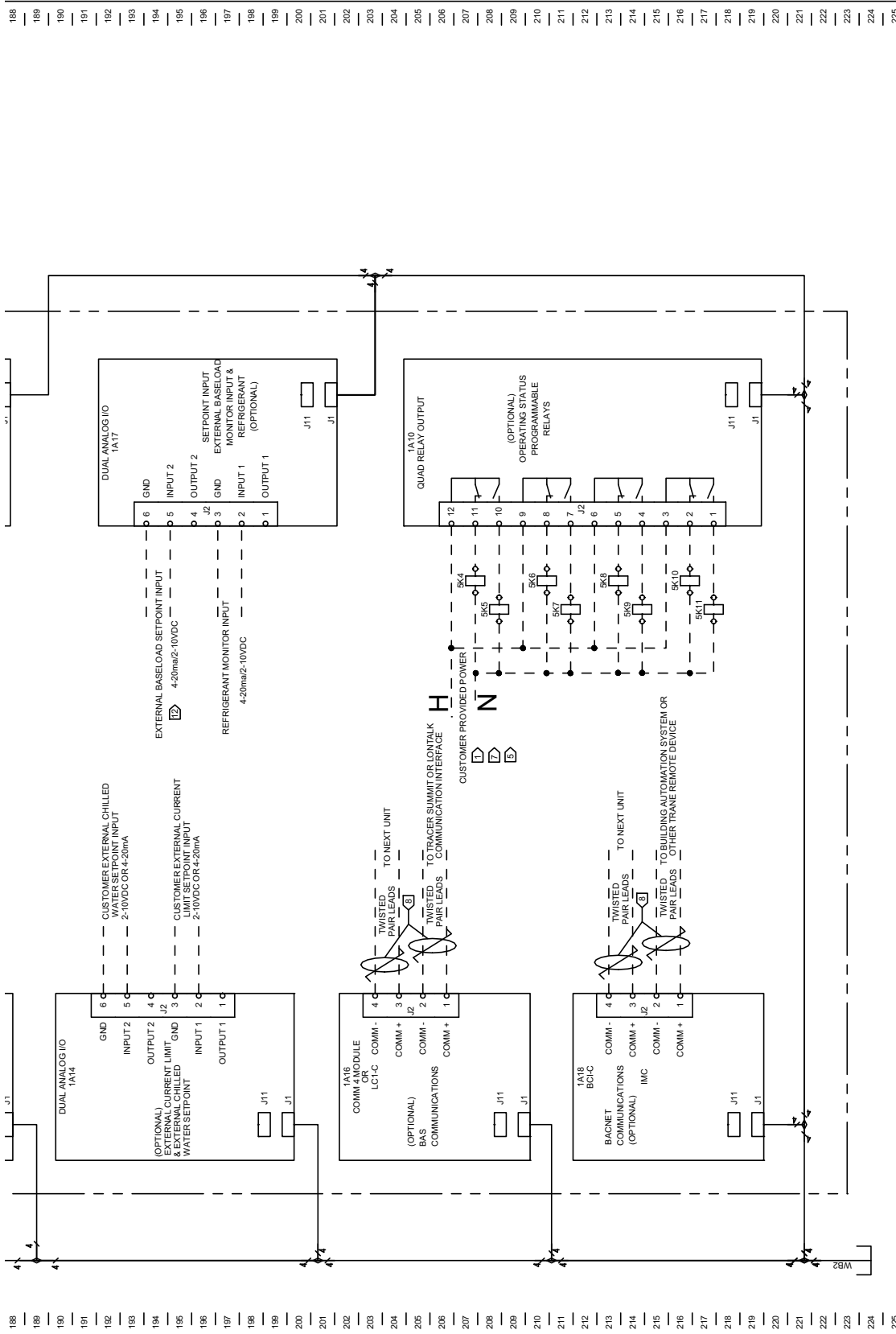
! AVERTISSEMENT

TENSION DANGEREUSE!
COUPER TOUTES LES TENSIONS ET OUVRIRE
LES SECTIONNEURS À DISTANCE. PUIS SUIVRE
LES PROCÉDURES DE VERROUILLAGE ET DES
ÉTIQUETTES AVANT TOUTE INTERVENTION.
TOUJOURS UTILISER LA BONNE ISOLATION.
DES MOTEURS SONT DÉCHARGÉS. DANS LE CAS
D'UNITÉS COMPORTANT DES ENTRAÎNEMENTS
À VITESSE VARIABLE, IL FAUT SUIVRE LES
INSTRUCTIONS POUR LE DÉMARRAGE POUR
DÉCHARGER LES CONDENSATEURS.
UN MANQUEMENT À LA PROCÉDURE
CI-DESSUS PEUT ENTRAINER DES
BLESSURES GRAVES, VOIRE LA MORT.

! ADVERTENCIA

¡VOLTAGE PELIGROSO!
DESCONECTE TODA LA ENERGÍA ELÉCTRICA,
INCLUSO LAS DESCONEXIONES REMOTAS Y SIGA
LOS PROCEDIMIENTOS DE BLOQUEO Y ETIQUETADO
ANTES DE PROCEDER AL SERVICIO. ASEGURESE
DE QUE TODOS LOS CAPACITORES DEL MOTOR
HAYAN DESCARGADO EL VOLTAGE ALMACENADO.
LAS UNIDADES CON MOTOR VARIABLE DE
VELOCIDAD VARIABLE CONSULTAR LAS
INSTRUCCIONES PARA LA DESCARGA
DEL CONDENSADOR.
NO REALIZAR LA MANTENCIÓN DE MANEJO
LA MUERTE O LESIONES GRAVES.





SCHEMATIC
RTHD
SOLID STATE STARTER



DRAWN BY: L. CRESON
© TRANE DATE: 08-MAY-2012
MASTER FILE:
REVISION DATE:
REPLACES:
SIMILAR TO:
USED BY:

REV
SHEET
4
2309-1362



Unit Electrical Data



WARNING

HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS AND FOLLOW LOCK OUT AND TAG PROCEDURES BEFORE SERVICING. ALWAYS DEENERGIZE THE UNIT BY TURNING THE DISCHARGED STORED VOLTAGE UNITS WITH VARIABLE SPEED DRIVE. REFER TO DRIVE INSTRUCTIONS FOR CAPACITOR DISCHARGE. FAILURE TO DO THE ABOVE COULD RESULT IN DEATH OR SERIOUS INJURY.



AVERTISSEMENT

TENSION DANGEREUSE!
COUPER TOUTES LES TENSIONS ET OUVRIRE LES SECTIONNEURS À DISTANCE. PUIS SUIVRE LES PROCÉDURES DE VERROUILLAGE ET DES ÉTIQUETTES. DÉENERGISER TOUJOURS L'UNITÉ EN BOUTONNANT LES CONDENSATEURS. VÉRIFIER QUE TOUTS LES CONDENSATEURS DES MOTEURS SONT DÉCHARGÉS. DANS LE CAS D'UNITÉS COMPORTANT DES ENTRAÎNEMENTS À VITESSE VARIABLE, RÉFÉRER AUX INSTRUCTIONS DE L'ENTRAÎNEMENT POUR DÉCHARGER LES CONDENSATEURS. UN MANQUEMENT À LA PROCÉDURE CI-DESSUS PEUT ENTRAÎNER DES BLESSURES GRAVES, Y OÙ LA MORT.



ADVERTENCIA

VOLTAJE PELIGROSO!
DESCONECTE TODA LA ENERGÍA ELÉCTRICA, INCLUSO LAS DESCONEXIONES REMOTAS Y SIGA LOS PROCEDIMIENTOS DE CIERRE Y ETIQUETADO. SIEMPRE DEENERGICE LA UNIDAD PRESIONANDO LOS CAPACITORES DEL MOTOR. VERIFIQUE QUE TODOS LOS CAPACITORES DEL MOTOR HAYAN DESCARGADO EL VOLTAJE ALMACENADO. PARA LAS UNIDADES CON TRANSMISIÓN DE VELOCIDAD VARIABLE, REFERIRSE A LAS INSTRUCCIONES PARA LA DESCARGA DEL CONDENSADOR. NO REALIZAR LO ANTERIOR PUEDE PROVOCAR LA MUERTE O LESIONES GRAVES.

NOTICE

USE COPPER CONDUCTORS ONLY!
UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.
FAILURE TO DO THE ABOVE COULD RESULT IN EQUIPMENT DAMAGE.

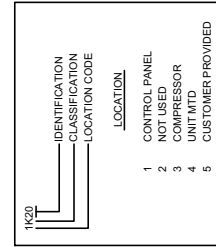
AVIS

NUTILISER QUE DES CONDUCTEURS EN CUIVRE!
LES BORNES DE L'UNITÉ NE SONT PAS CONÇUES POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS.
UN MANQUEMENT À LA PROCÉDURE CI-DESSUS PEUT ENTRAÎNER DES DOMMAGES À L'ÉQUIPEMENT.

AVISO

¡UTILICE ÚNICAMENTE CONDUCTORES DE COBRE!
LAS TERMINALES DE LA UNIDAD NO ESTÁN DISEÑADAS PARA ACEPTAR OTROS TIPOS DE CABLES.
NO REALIZAR LO ANTERIOR PUEDE PROVOCAR DAÑOS EN EL EQUIPO.

DEVICE	DESCRIPTION	ZONE
1X10	OPTIONAL DISPLAY	8-52
1X11	OPTIONAL OPERATING STATUS PROGRAMMABLE RELAYS	4-211
1X11	OIL LOSS LEVEL	4-172
1X12	AUTO STOP/EMERGENCY STOP	4-162
1X13	OPTIONAL CONDENSER CONTROL OUTPUT & COMPRESSOR % RLA OUTPUT	4-185
1X14	OPTIONAL EXTERNAL CURRENT LIMIT AND EXTERNAL CHILLED WATER SETPOINT	4-197
1X15	OPTIONAL ICE/EXTERNAL BASE LOAD	4-184
1X16	OPTIONAL EXTERNAL BASE LOAD	4-184
1X17	OPTIONAL REFRIGERANT MONITOR INPUT & EXTERNAL BASE LOAD SETPOINT INPUT	4-189
1X17	POWER SUPPLY MODULE	2-70
1X3	STARTER MODULE	3-103
1X4	HIGH PRESSURE CUTOFF & SOLID STATE STARTER FAULT	3-110
1X5	SLIDE VALVE UNLOAD/LOAD	3-118
1X6	OIL RETURN GAS PUMP DRAIN/FILL SOLENOID VALVE	3-126
1X6	CONDENSER CHILLED WATER FLOW SWITCH INTERLOCKS	3-148
1X6	CONDENSER CHILLED WATER FLOW SWITCH INTERLOCKS	3-148
1X8	CONDENSER/CHILLED WATER PUMP STARTER	3-150
1F1	PRIMARY FUSES-CONTROL POWER TRANSFORMER, UNDER/OVER VOLTAGE MODULE	2-20
1F2	PRIMARY FUSES-CONTROL POWER TRANSFORMER, UNDER/OVER VOLTAGE MODULE	2-20
1F3	PRIMARY FUSES-CONTROL POWER TRANSFORMER, UNDER/OVER VOLTAGE MODULE	2-20
1F4	SECONDARY FUSE-CONTROL POWER TRANSFORMER, 115V	2-49
1F5	SECONDARY FUSE-CONTROL POWER TRANSFORMER, 27V	2-49
1F6	START CONTACTOR	3-19
1C1	CIRCUIT BREAKER	2-3
1T1	CONTROL POWER TRANSFORMER	2-44
1T21	CURRENT TRANSFORMERS	2-10
1T22	CURRENT TRANSFORMERS	2-12
1T23	CURRENT TRANSFORMERS	2-14
1T24	CURRENT TRANSFORMERS	2-16
1T32	UNDER/OVER VOLTAGE TRANSFORMERS	2-30
1T33	UNDER/OVER VOLTAGE TRANSFORMERS	2-30
1T34	UNDER/OVER VOLTAGE TRANSFORMERS	2-30
1T35	SOLID STATE STARTER	2-20
1X3-1	UNDER/OVER VOLTAGE TERMINAL BLOCK	2-26
1X5-1	CONTROL TERMINAL BLOCK 115V	3-51
1X5-2	CONTROL TERMINAL BLOCK 27V	3-51



TRANE WIRING
CUSTOMER WIRING
OPTIONS

COLOR CODE	
BK	BLACK
BN	BROWN
BU	BLUE
GY	GRAY
RD	RED
WH	WHITE
GN	GREEN
OG	ORANGE
YE	YELLOW

CPT FUSE REPLACEMENT TABLE				
FUSE-VOLTAGE	200V	230V	380-415V	460-575V
1F1	10	8	5	4
1F2	10	8	5	4
1F3	3	3	3	3
1F4	10	10	10	10
1F5	6	6	6	6
1F6	6	6	6	6

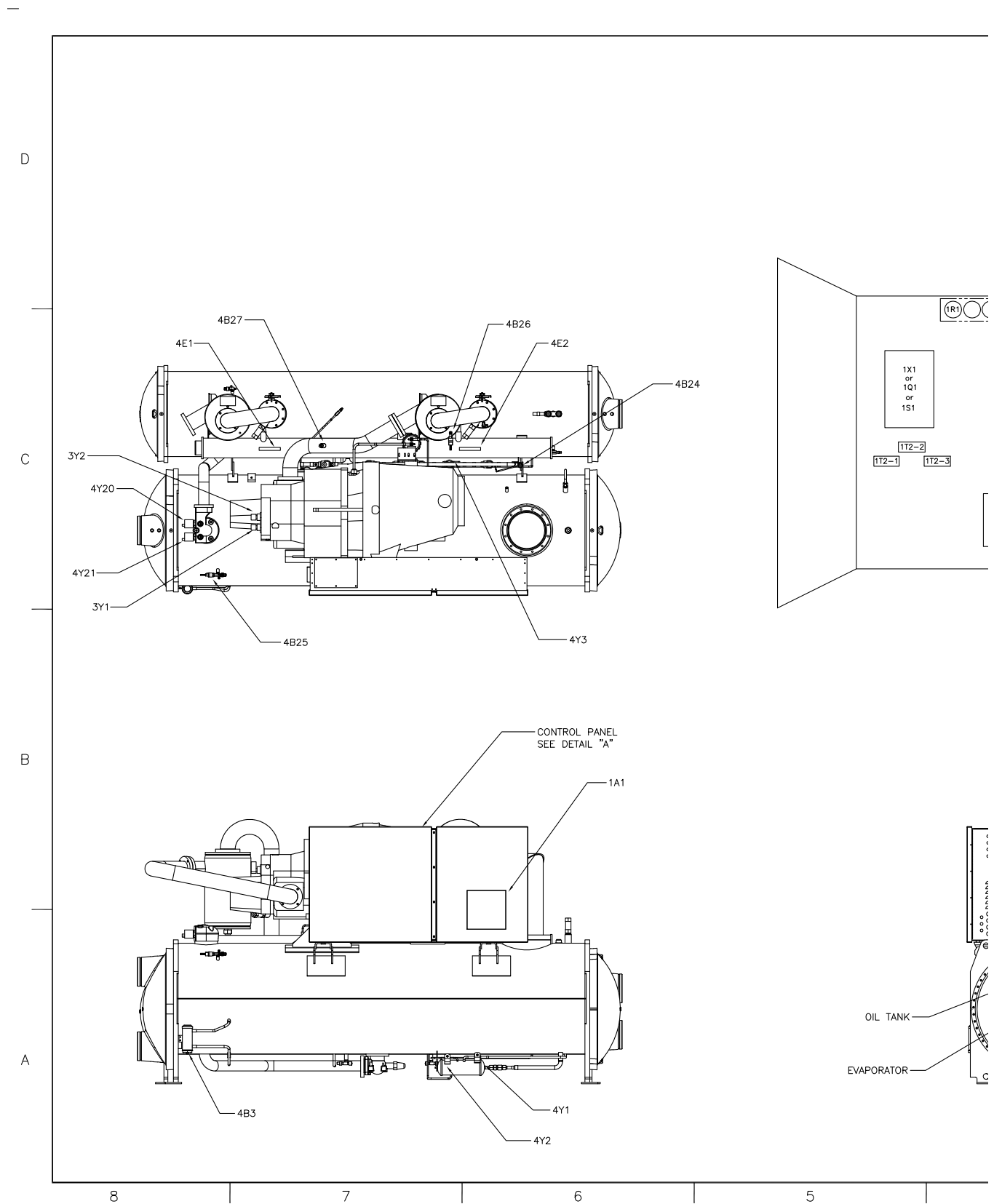
1X-31	UNDER OVER VOLTAGE TERMINAL BLOCK	2-26
1X-51	CONTROL TERMINAL BLOCK 115V	3-81
1X-61	FIELD FLOW SWITCH TERMINAL BLOCK	3-141
1X-71	CONTROL TERMINAL BLOCK 115V	3-141
1X-81	CONTROL TERMINAL BLOCK 115V	3-141
1X-91	CONTROL TERMINAL BLOCK 115V	3-141
1X-101	CONTROL TERMINAL BLOCK 115V	3-141
1X-111	CONTROL TERMINAL BLOCK 115V	3-141
1X-121	CONTROL TERMINAL BLOCK 115V	3-141
1X-131	CONTROL TERMINAL BLOCK 115V	3-141
1X-141	CONTROL TERMINAL BLOCK 115V	3-141
1X-151	CONTROL TERMINAL BLOCK 115V	3-141
1X-161	CONTROL TERMINAL BLOCK 115V	3-141
1X-171	CONTROL TERMINAL BLOCK 115V	3-141
1X-181	CONTROL TERMINAL BLOCK 115V	3-141
1X-191	CONTROL TERMINAL BLOCK 115V	3-141
1X-201	CONTROL TERMINAL BLOCK 115V	3-141
1X-211	CONTROL TERMINAL BLOCK 115V	3-141
1X-221	CONTROL TERMINAL BLOCK 115V	3-141
1X-231	CONTROL TERMINAL BLOCK 115V	3-141
1X-241	CONTROL TERMINAL BLOCK 115V	3-141
1X-251	CONTROL TERMINAL BLOCK 115V	3-141
1X-261	CONTROL TERMINAL BLOCK 115V	3-141
1X-271	CONTROL TERMINAL BLOCK 115V	3-141
1X-281	CONTROL TERMINAL BLOCK 115V	3-141
1X-291	CONTROL TERMINAL BLOCK 115V	3-141
1X-301	CONTROL TERMINAL BLOCK 115V	3-141
1X-311	CONTROL TERMINAL BLOCK 115V	3-141
1X-321	CONTROL TERMINAL BLOCK 115V	3-141
1X-331	CONTROL TERMINAL BLOCK 115V	3-141
1X-341	CONTROL TERMINAL BLOCK 115V	3-141
1X-351	CONTROL TERMINAL BLOCK 115V	3-141
1X-361	CONTROL TERMINAL BLOCK 115V	3-141
1X-371	CONTROL TERMINAL BLOCK 115V	3-141
1X-381	CONTROL TERMINAL BLOCK 115V	3-141
1X-391	CONTROL TERMINAL BLOCK 115V	3-141
1X-401	CONTROL TERMINAL BLOCK 115V	3-141
1X-411	CONTROL TERMINAL BLOCK 115V	3-141
1X-421	CONTROL TERMINAL BLOCK 115V	3-141
1X-431	CONTROL TERMINAL BLOCK 115V	3-141
1X-441	CONTROL TERMINAL BLOCK 115V	3-141
1X-451	CONTROL TERMINAL BLOCK 115V	3-141
1X-461	CONTROL TERMINAL BLOCK 115V	3-141
1X-471	CONTROL TERMINAL BLOCK 115V	3-141
1X-481	CONTROL TERMINAL BLOCK 115V	3-141
1X-491	CONTROL TERMINAL BLOCK 115V	3-141
1X-501	CONTROL TERMINAL BLOCK 115V	3-141
1X-511	CONTROL TERMINAL BLOCK 115V	3-141
1X-521	CONTROL TERMINAL BLOCK 115V	3-141
1X-531	CONTROL TERMINAL BLOCK 115V	3-141
1X-541	CONTROL TERMINAL BLOCK 115V	3-141
1X-551	CONTROL TERMINAL BLOCK 115V	3-141
1X-561	CONTROL TERMINAL BLOCK 115V	3-141
1X-571	CONTROL TERMINAL BLOCK 115V	3-141
1X-581	CONTROL TERMINAL BLOCK 115V	3-141
1X-591	CONTROL TERMINAL BLOCK 115V	3-141
1X-601	CONTROL TERMINAL BLOCK 115V	3-141
1X-611	CONTROL TERMINAL BLOCK 115V	3-141
1X-621	CONTROL TERMINAL BLOCK 115V	3-141
1X-631	CONTROL TERMINAL BLOCK 115V	3-141
1X-641	CONTROL TERMINAL BLOCK 115V	3-141
1X-651	CONTROL TERMINAL BLOCK 115V	3-141
1X-661	CONTROL TERMINAL BLOCK 115V	3-141
1X-671	CONTROL TERMINAL BLOCK 115V	3-141
1X-681	CONTROL TERMINAL BLOCK 115V	3-141
1X-691	CONTROL TERMINAL BLOCK 115V	3-141
1X-701	CONTROL TERMINAL BLOCK 115V	3-141
1X-711	CONTROL TERMINAL BLOCK 115V	3-141
1X-721	CONTROL TERMINAL BLOCK 115V	3-141
1X-731	CONTROL TERMINAL BLOCK 115V	3-141
1X-741	CONTROL TERMINAL BLOCK 115V	3-141
1X-751	CONTROL TERMINAL BLOCK 115V	3-141
1X-761	CONTROL TERMINAL BLOCK 115V	3-141
1X-771	CONTROL TERMINAL BLOCK 115V	3-141
1X-781	CONTROL TERMINAL BLOCK 115V	3-141
1X-791	CONTROL TERMINAL BLOCK 115V	3-141
1X-801	CONTROL TERMINAL BLOCK 115V	3-141
1X-811	CONTROL TERMINAL BLOCK 115V	3-141
1X-821	CONTROL TERMINAL BLOCK 115V	3-141
1X-831	CONTROL TERMINAL BLOCK 115V	3-141
1X-841	CONTROL TERMINAL BLOCK 115V	3-141
1X-851	CONTROL TERMINAL BLOCK 115V	3-141
1X-861	CONTROL TERMINAL BLOCK 115V	3-141
1X-871	CONTROL TERMINAL BLOCK 115V	3-141
1X-881	CONTROL TERMINAL BLOCK 115V	3-141
1X-891	CONTROL TERMINAL BLOCK 115V	3-141
1X-901	CONTROL TERMINAL BLOCK 115V	3-141
1X-911	CONTROL TERMINAL BLOCK 115V	3-141
1X-921	CONTROL TERMINAL BLOCK 115V	3-141
1X-931	CONTROL TERMINAL BLOCK 115V	3-141
1X-941	CONTROL TERMINAL BLOCK 115V	3-141
1X-951	CONTROL TERMINAL BLOCK 115V	3-141
1X-961	CONTROL TERMINAL BLOCK 115V	3-141
1X-971	CONTROL TERMINAL BLOCK 115V	3-141
1X-981	CONTROL TERMINAL BLOCK 115V	3-141
1X-991	CONTROL TERMINAL BLOCK 115V	3-141
1X-1001	CONTROL TERMINAL BLOCK 115V	3-141

NOTES:

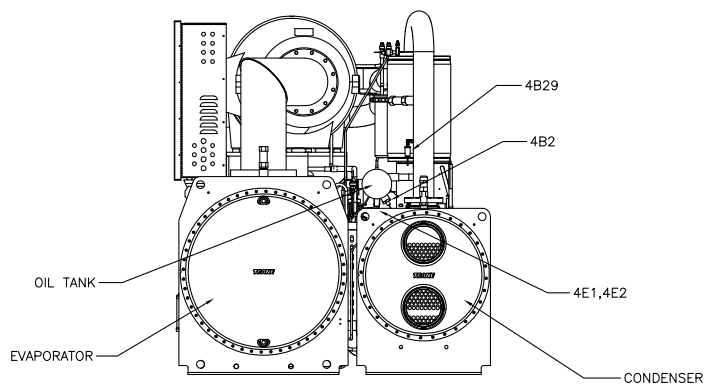
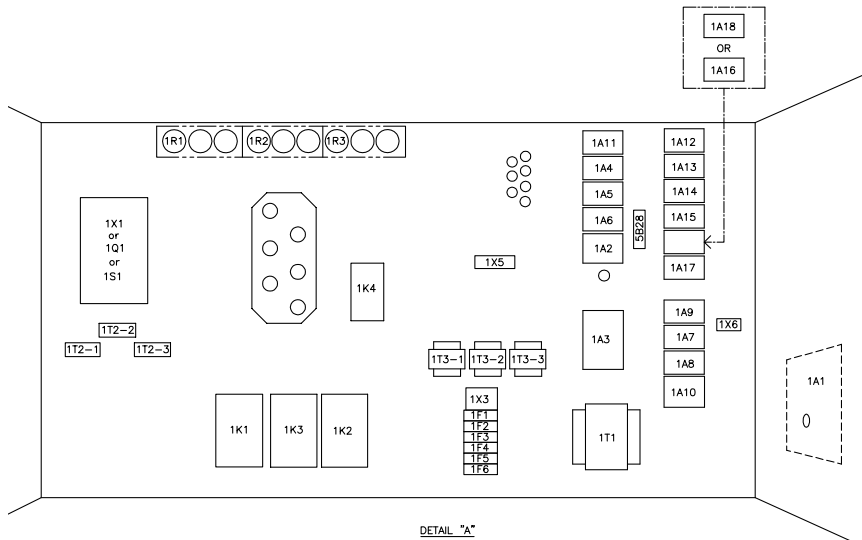
- 1 CLASS 1 FIELD WIRED MODULE
- 2 CLASS 1 FIELD WIRING INSULATION RATING IS REQUIRED TO BE EQUAL TO OR GREATER THAN THE EQUIPMENT SUPPLY VOLTAGE RATING.
- 3 CLASS 2 FIELD WIRE INSULATION TO BE RATED AT 300V MINIMUM.
- 4 OPTIONAL MODULES. REFER TO FIELD WIRING DIAGRAM FOR SUGGESTED WIRING.
- 5 FIELD ASSIGNED PROGRAMMABLE RELAYS.
- 6 AUTO STOP. EMERGENCY STOP THE CONTACTS ARE JUMPED AT THE FACTORY BY JUMPS. WHEN THE UNIT OPERATES, IF REMOTE CONTROL IS DESIRED REMOVE THE JUMPS AND CONNECT TO THE DESIRED CONTROL CIRCUIT.
- 7 RELAY AT 120VAC, 7.2 AMPS RESISTIVE, 2.88 AMPS PILOT DUTY, 1/3 HP, 7.2 FLA AT 240VAC, 5 AMPS GENERAL PURPOSE.
- 8 IF SHIELD IS PRESENT, DO NOT WIRE SHIELD TO GROUND IN CONTROL PANEL. IF USED, SHIELD IS TO BE GROUNDED EXTERNALLY TO CONTROL PANEL. REFERENCE FIELD WIRING DIAGRAM FOR RECOMMENDED WIRE TYPE.
- 9 RELAY ENERGIZED WHILE MAKING ICE.
- 10 CONTACT CLOSURE ENABLES ICE MAKING.
- 11 CLOSED CONTACT COMMANDS BASE LOADING OPERATION.
- 12 ACTUAL BASE LOADING SETPOINT USED IS SETTABLE AT FRONT PANEL. REFER TO IOM FOR DETAILS.

		SCHEMATIC RTHD SOLID STATE STARTER	
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Unit Electrical Data

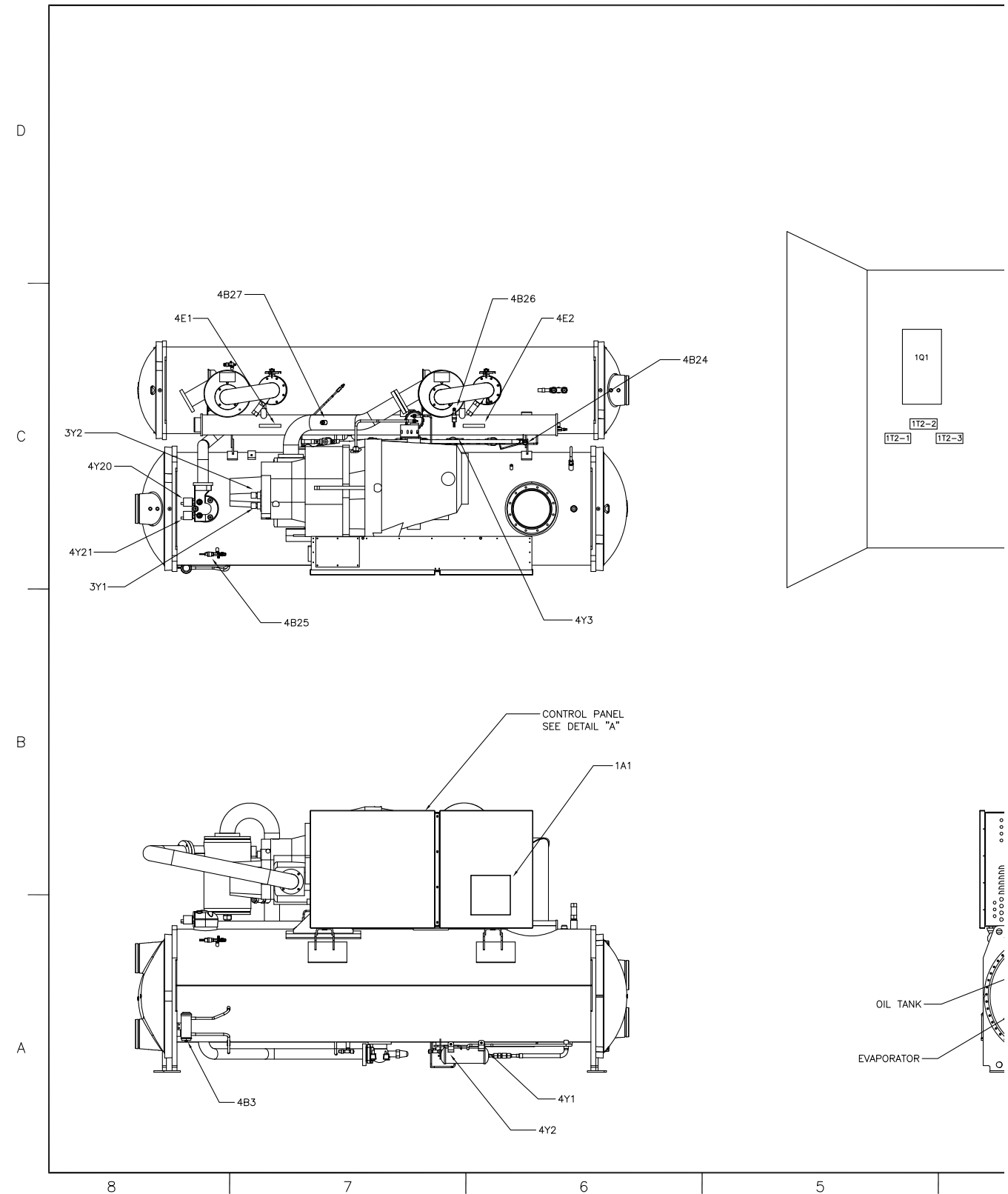


UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES. TOLERANCE: .X = ± .XX = ± .XXX = ± ANGLES = ± HOLE DIA = ± CONFORMS TO ASME Y14.5M - 1994 FINISH ✓	TRANE THIS DRAWING IS PROPRIETARY AND SHALL NOT BE COPIED OR ITS CONTENTS DISCLOSED TO OUTSIDE PARTIES WITHOUT THE WRITTEN CONSENT OF TRANE DRAWN BY: PBL © TRANE DATE: 3-13-03 DO NOT SCALE PRINT THIRD ANGLE PROJECTION	23097564 SHEET OF 1 REV E COMPONENT LOCATION RTHD WYE-DELTA START
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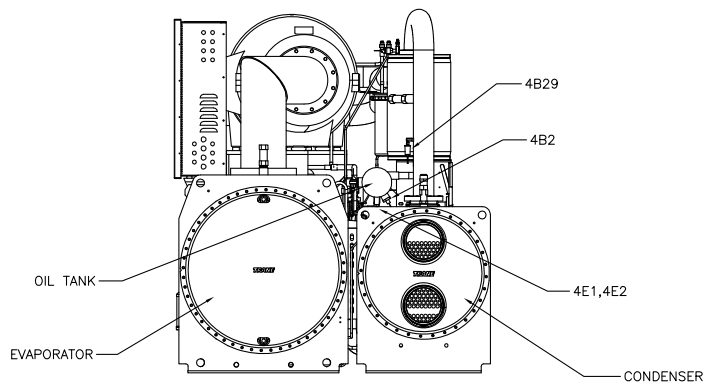
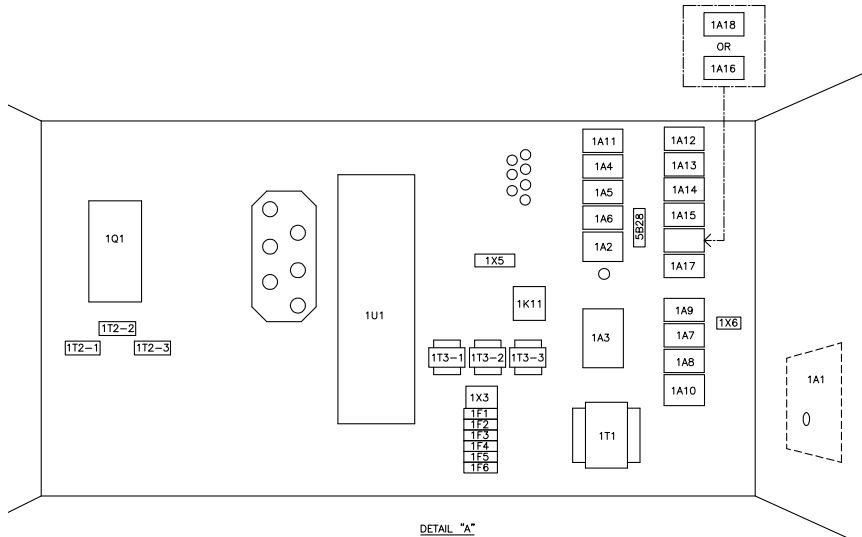
Unit Electrical Data



UNLESS OTHERWISE SPECIFIED ALL
DIMENSIONS ARE IN INCHES.
TOLERANCE:
X = ±
XX = ±
XXX = ±
ANGLES = ±
HOLE DIA = ±
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23097565
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COMPONENT LOCATION
RTHD
SOLID STATE STARTER



⚠ WARNING
HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS AND FOLLOW LOCK OUT AND TAG PROCEDURES BEFORE WORKING ON THE UNIT. ALL MOTOR CAPACITORS HAVE DISCHARGED INDICATORS. ALWAYS FOLLOW THE INSTRUCTIONS FOR CAPACITOR DISCHARGE. FAILURE TO DO THE ABOVE BEFORE SERVICING COULD RESULT IN DEATH OR SERIOUS INJURY.

⚠ AVERTISSEMENT
TENSION DANGEREUSE!
COUPER TOUTES LES TENSIONS ET OUVRIER LES SECTIONNEURS A DISTANCE. PUIS SUIVRE LES PROCEDURES DE VERIFICATION DE LA TENSION AVANT TOUTE INTERVENTION. VÉRIFIER QUE TOUTS LES CONDENSATEURS DES MOTEURS SONT DÉCHARGÉS. TOUJOURS SUIVRE LES INSTRUCTIONS POUR LE DÉCHARGEMENT DES CONDENSATEURS. NE PAS RESPECTER CES MESURES DE PRÉCAUTION PEUT ENTRAINER DES LÈSURES GRAVES POUVANT ÊTRE MORTELLES.

⚠ ADVERTENCIA
VOLTAJE PELIGROSO!
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CUSTOMER PROVIDED CLASS II CONTROL TOP KNOCKOUTS IN RIGHT SIDE OF CONTROL BOX.

TABLE 1

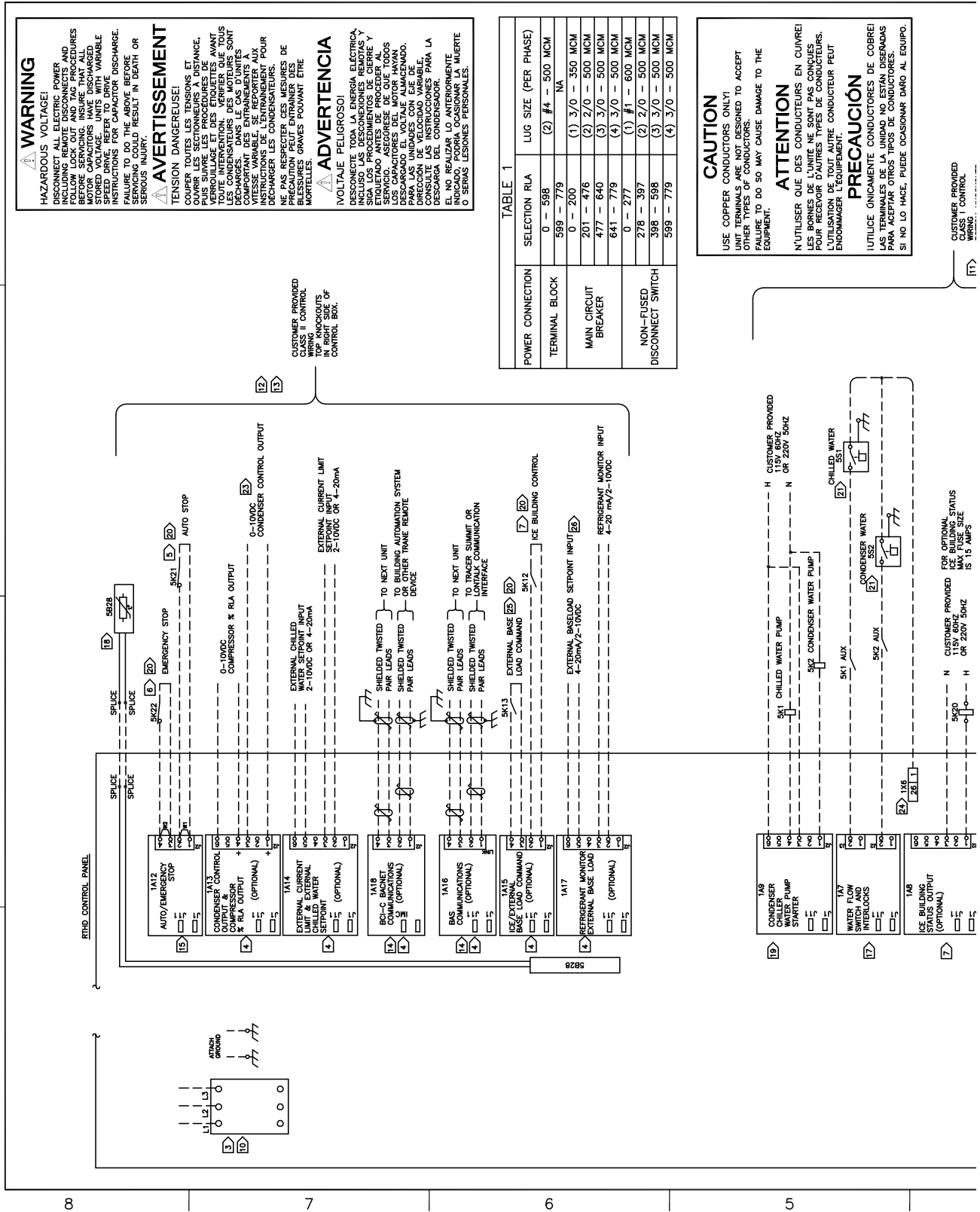
POWER CONNECTION	SELECTION RLA	LUC SIZE (PER PHASE)
TERMINAL BLOCK	0 - 598	(2) #4 - 500 MCM
	599 - 779	NA
MAIN CIRCUIT BREAKER	0 - 200	(1) 3/0 - 350 MCM
	201 - 476	(2) 2/0 - 500 MCM
	477 - 640	(3) 3/0 - 500 MCM
	641 - 779	(4) 3/0 - 500 MCM
NON-FUSED DISCONNECT SWITCH	0 - 277	(1) #1 - 600 MCM
	278 - 397	(2) 2/0 - 500 MCM
	398 - 598	(3) 3/0 - 500 MCM
	599 - 779	(4) 3/0 - 500 MCM

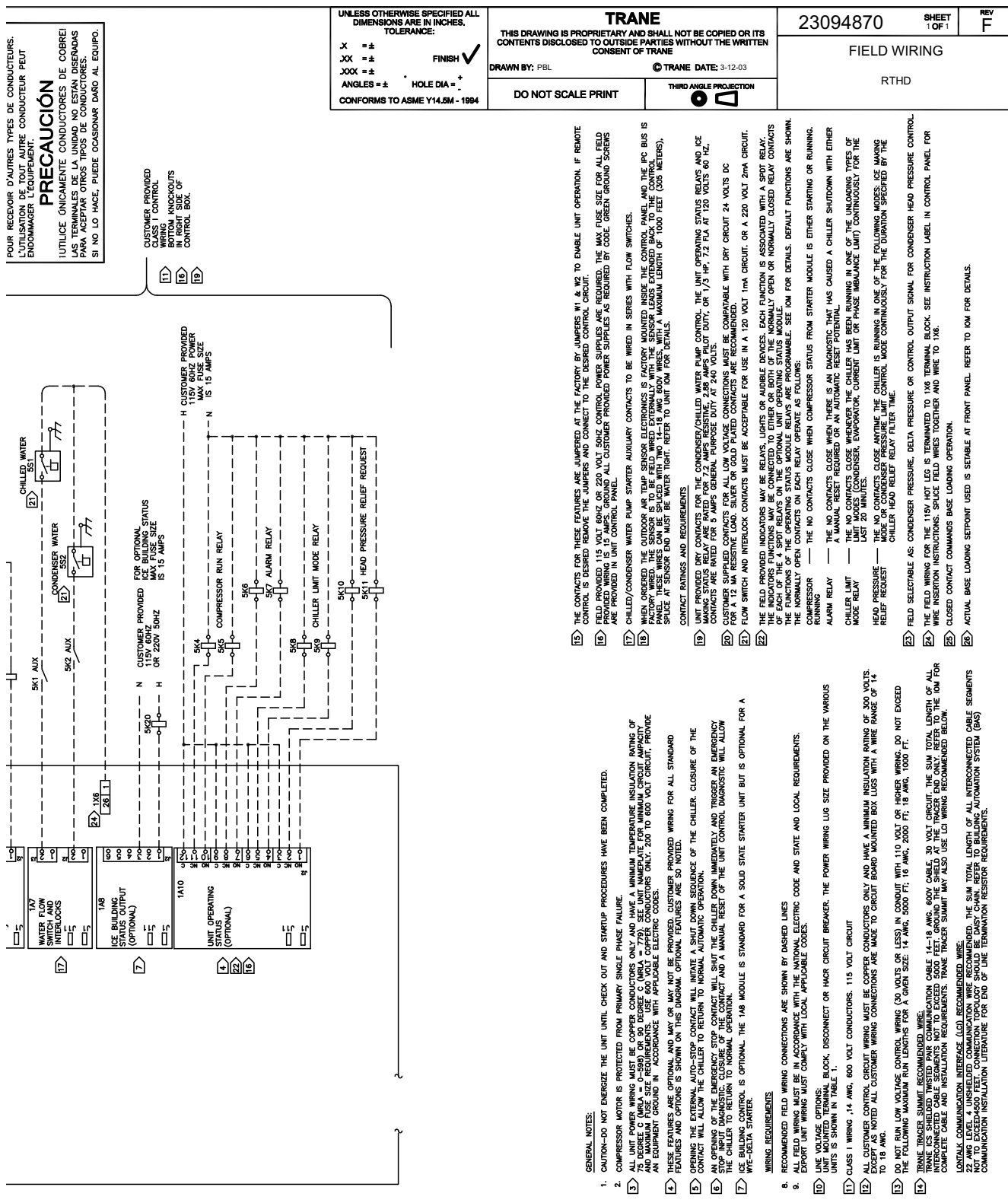
CAUTION
USE COPPER CONDUCTORS ONLY!
UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.
FAILURE TO DO SO MAY CAUSE DAMAGE TO THE EQUIPMENT.

ATTENTION
N'UTILISER QUE DES CONDUCTEURS EN CUIVRE!
LES BORNES DE L'UNITÉ NE SONT PAS CONÇUES POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS.
L'UTILISATION D'UN AUTRE CONDUCTEUR PEUT ENDOMMAGER L'ÉQUIPEMENT.

PRECAUCIÓN
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SI NO LO HACE, PUEDE OCASIONAR DAÑO AL EQUIPO.

CUSTOMER PROVIDED CLASS II CONTROL WIRING







Unit Electrical Data

NOTES:

1. DASHED LINES INDICATE FIELD WIRING BY OTHERS. PHANTOM LINES INDICATE ALTERNATE CIRCUITRY OR AVAILABLE SALES OPTIONS. CHECK SALES ORDER TO DETERMINE IF WIRING IS REQUIRED FOR SPECIFIC OPTIONS.

2. REQUIRED DEVICE AND/OR CIRCUITRY BY OTHERS.

3. REQUIRED DEVICE AVAILABLE FROM TRANE. FIELD INSTALLED

4. OPENING THE EXTERNAL AUTO-STOP CONTACT WILL INITIATE A SHUT DOWN SEQUENCE OF THE CHILLER. CLOSURE OF THE CONTACT WILL ALLOW THE CHILLER TO RETURN TO NORMAL AUTOMATIC OPERATION.

5. AN OPENING OF THE EMERGENCY STOP CONTACT WILL SHUT THE CHILLER DOWN IMMEDIATELY AND TRIGGER AN EMERGENCY STOP INPUT DIAGNOSTIC. CLOSURE OF THE CONTACT AND A MANUAL RESET OF THE UNIT CONTROL DIAGNOSTIC WILL ALLOW THE CHILLER TO RETURN TO NORMAL OPERATION.

GENERAL WIRING REQUIREMENTS AND PROVISIONS

6. THE EIGHT 1/2" CONDUIT KNOCKOUTS LOCATED NEAR THE TOP OF THE RIGHT HAND SIDE OF THE CONTROL PANEL ARE FOR USE WITH LOW VOLTAGE 30 VOLT CIRCUIT WIRING.

7. THE SIX 1/2" CONDUIT KNOCKOUTS AND 4 1-1/4" KNOCKOUTS LOCATED NEAR THE BOTTOM OF THE RIGHT HAND SIDE OF THE CONTROL PANEL ARE FOR USE WITH 115 VOLT CIRCUIT WIRING.

REQUIRED WIRING:

8. CLASS 1 WIRING, 14 AWG, 600 VOLT CONDUCTORS. 115 VOLT CIRCUIT

9. CLASS 2 WIRING.

10. TRANE TRACER SUMMIT RECOMMENDED WIRE.

TRANE ICS SHIELDED TWISTED PAIR COMMUNICATION CABLE 14-18 AWG, 600V CABLE, 30 VOLT CIRCUIT. THE SUM TOTAL LENGTH OF ALL INTERCONNECTED CABLE SEGMENTS NOT TO EXCEED 5000 FEET. GROUND THE SHIELD AT THE TRACER END ONLY. REFER TO THE IOM FOR COMPLETE CABLE AND INSTALLATION REQUIREMENTS. TRANE TRACER SUMMIT MAY ALSO USE LCI WIRING RECOMMENDED BELOW.

LONTALK COMMUNICATION INTERFACE (LCI) RECOMMENDED WIRE. 22 AWG LEVEL 4 UNSHIELDED COMMUNICATION WIRE RECOMMENDED. THE SUM TOTAL LENGTH OF ALL INTERCONNECTED CABLE SEGMENTS NOT TO EXCEED 4500 FEET. CONNECTION TOPOLOGY SHOULD BE DAISSY CHAIN. REFER TO BUILDING AUTOMATION SYSTEM (BAS) COMMUNICATION INSTALLATION LITERATURE FOR END OF LINE TERMINATION RESISTOR REQUIREMENTS.

11. THE FIELD WIRING FOR THE 115V NUT LEG IS TERMINATED TO 1X6 TERMINAL BLOCK. SEE INSTRUCTION LABEL IN CONTROL PANEL FOR WIRE INSERTION INSTRUCTIONS. SPLICE FIELD WIRES TOGETHER AND WIRE TO 116.

GENERAL NOTES:

12. CAUTION-DO NOT ENERGIZE THE UNIT UNTIL CHECK OUT AND STARTUP PROCEDURES HAVE BEEN COMPLETED.

13. COMPRESSOR MOTOR IS PROTECTED FROM PRIMARY SINGLE PHASE FAILURE.

14. THESE FEATURES ARE OPTIONAL AND MAY OR MAY NOT BE PROVIDED. CUSTOMER PROVIDED WIRING FOR ALL STANDARD FEATURES AND OPTIONS IS SHOWN ON THIS DIAGRAM. OPTIONAL FEATURES ARE SO NOTED.

WIRING REQUIREMENTS

15. ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE AND STATE AND LOCAL REQUIREMENTS. EXPORT UNIT WIRING MUST COMPLY WITH LOCAL APPLICABLE CODES.

16. ALL UNIT POWER WIRING MUST BE COPPER CONDUCTORS ONLY AND HAVE A MINIMUM TEMPERATURE INSULATION RATING OF 75 DEGREE C. SEE UNIT NAMEPLATE FOR MINIMUM CIRCUIT AMPACITY AND MAXIMUM FUSE SIZE REQUIREMENTS. USE 600 VOLT COPPER CONDUCTORS ONLY. 200 TO 600 VOLT CIRCUIT. PROVIDE AN EQUIPMENT GROUND IN ACCORDANCE WITH APPLICABLE ELECTRIC CODES.

17. LINE VOLTAGE OPTIONS:

UNIT MOUNTED TERMINAL BLOCK, DISCONNECT OR HACR CIRCUIT BREAKER THE POWER WIRING LUG SIZE PROVIDED ON THE VARIOUS UNITS IS SHOWN IN TABLE 2.

18. ALL CUSTOMER CONTROL CIRCUIT WIRING MUST BE COPPER CONDUCTORS ONLY AND HAVE A MINIMUM INSULATION RATING OF 300 VOLTS. EXCEPT AS NOTED ALL CUSTOMER WIRING CONNECTIONS ARE MADE TO CIRCUIT BOARD MOUNTED BOX LUGS WITH A WIRE RANGE OF 14 TO 18 AWG.

19. FIELD SELECTABLE AS: CONDENSER PRESSURE, DELTA PRESSURE OR CONTROL OUTPUT SIGNAL FOR CONDENSER HEAD PRESSURE CONTROL.

20. DO NOT RUN LOW VOLTAGE CONTROL WIRING (30 VOLTS OR LESS) IN IN CONDUIT WITH 110 VOLT OR HIGHER WIRING. DO NOT EXCEED THE FOLLOWING MAXIMUM RUN LENGTHS FOR A GIVEN SIZE: 14 AWG, 5000 FT; 16 AWG, 2000 FT; 18 AWG, 1000FT

21. THE CONTACTS FOR THESE FEATURES ARE JUMPERED AT THE FACTORY BY JUMPS W1 & W2 TO ENABLE UNIT OPERATION. IF REMOTE CONTROL IS DESIRED REMOVE THE NOTED JUMPS AND CONNECT TO THE DESIRED CONTROL CIRCUIT.

22. FIELD PROVIDED 115 VOLT 60HZ OR 220 VOLT 50HZ CONTROL POWER SUPPLIES ARE REQUIRED. THE MAX FUSE SIZE FOR ALL FIELD PROVIDED WIRING IS 15 AMPS. GROUND ALL CUSTOMER PROVIDED POWER SUPPLIES AS REQUIRED BY CODE. GREEN GROUND SCREWS ARE PROVIDED IN UNIT CONTROL CIRCUIT.

23. CLOSED CONTACT COMMANDS BASE LOADING OPERATION.

24. ACTUAL BASE LOADING SETPOINT USED IS SETABLE AT FRONT PANEL. REFER TO IOM FOR DETAILS.

CONTACT RATINGS AND REQUIREMENTS

25. UNIT PROVIDED DRY CONTACTS FOR THE CONDENSER/CHILLED WATER PUMP CONTROL. THE UNIT OPERATING STATUS RELAYS AND ICE MAKING STATUS RELAY ARE RATED FOR 7.2 AMPS RESISTIVE, 2.88 AMPS PILOT DUTY, OR 1/3 HP, 7.2 FLA AT 120 VOLTS 60 HZ. CONTACTS ARE RATED FOR 5 AMPS GENERAL PURPOSE DUTY AT 240 VOLTS.

26. CUSTOMER SUPPLIED CONTACTS FOR ALL CLASS 2 CONNECTIONS MUST BE COMPATIBLE WITH DRY CIRCUIT 24 VOLTS DC FOR A 12 MA RESISTIVE LOAD. SILVER OR GOLD PLATED CONTACTS ARE RECOMMENDED.

27. FLOW SWITCH & INTERLOCK CONTACTS MUST BE ACCEPTABLE FOR USE IN A 120 VOLT 1 mA CIRCUIT OR A 220 VOLT 2 mA CIRCUIT.

28. CHILLED / CONDENSER WATER PUMP STARTER AUXILIARY CONTACTS TO BE WIRED IN SERIES WITH FLOW SWITCHES.

29. THE FIELD PROVIDED INDICATORS MAY BE RELAYS, LIGHTS OR AUDIBLE DEVICES. EACH FUNCTION IS ASSOCIATED WITH A SPOT RELAY. THE INDICATORS MAY BE CONNECTED TO EITHER OR BOTH OF THE NORMALLY OPEN OR NORMALLY CLOSED RELAY CONTACTS OF EACH OF THE 4 SPOT RELAYS ON THE OPTIONAL UNIT OPERATING STATUS MODULE. THE FUNCTIONS OF THE OPERATING STATUS MODULE RELAYS ARE PROGRAMMABLE. SEE IOM FOR DETAILS. DEFAULT FUNCTIONS ARE SHOWN. THE NORMALLY OPEN CONTACTS ON EACH RELAY OPERATE AS FOLLOWS:

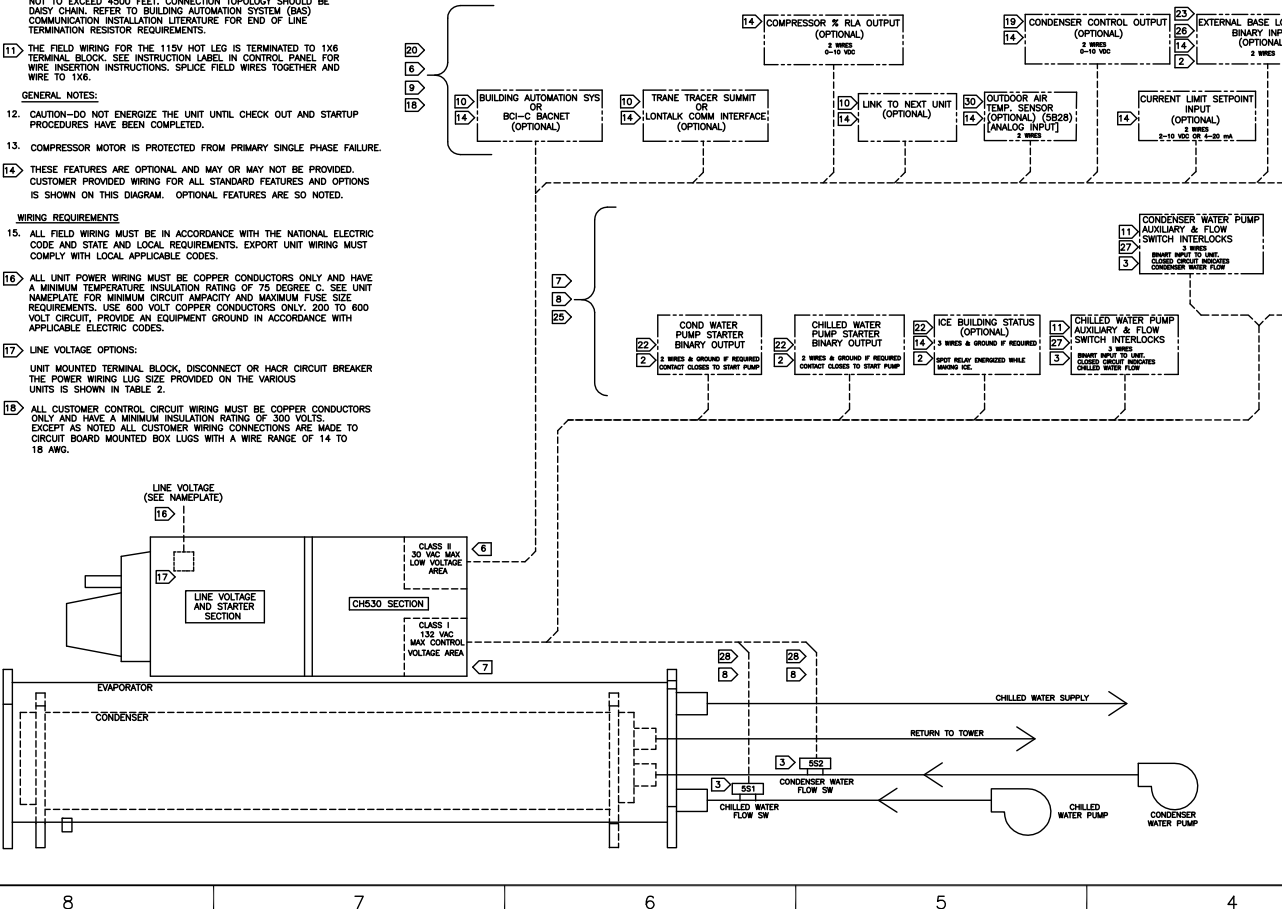
COMPRESSOR RUNNING — THE NO CONTACTS CLOSE WHEN COMPRESSOR STATUS FROM STARTER MODULE IS EITHER STARTING OR RUNNING.

ALARM RELAY — THE NO CONTACTS CLOSE WHEN THERE IS AN DIAGNOSTIC THAT HAS CAUSED A CHILLER SHUTDOWN WITH EITHER A MANUAL RESET REQUIRED OR AN AUTOMATIC RESET POTENTIAL.

CHILLER LIMIT MODE RELAY — THE NO CONTACTS CLOSE WHENEVER THE CHILLER HAS BEEN RUNNING IN ONE OF THE UNLOADING TYPES OF LIMIT MODES (CONDENSER, EVAPORATOR, CURRENT LIMIT OR PHASE IMBALANCE LIMIT) CONTINUOUSLY FOR THE LAST 20 MINUTES.

HEAD PRESSURE RELIEF REQUEST — THE NO CONTACTS CLOSE ANYTIME THE CHILLER IS RUNNING IN ONE OF THE FOLLOWING MODES: ICE MAKING MODE OR CONDENSER PRESSURE LIMIT CONTROL. MODE CONTINUOUSLY FOR THE DURATION SPECIFIED BY THE CHILLER HEAD RELIEF RELAY FILTER TIME.

30. WHEN ORDERED THE OUTDOOR AIR TEMP SENSOR ELECTRONICS IS FACTORY MOUNTED INSIDE THE CONTROL PANEL AND THE IPC BUS IS FACTORY WIRED. THE SENSOR IS TO BE FIELD WIRED, RELOCATED EXTERNALLY WITH THE SENSOR LEADS EXTENDED BACK TO THE CONTROL PANEL. THESE WIRES CAN BE SPLICED WITH TWO 14-18 AWG 600V WIRES, WITH A MAXIMUM LENGTH OF 1000 FT (305 METERS). SPLICE AT SENSOR END MUST BE WATER TIGHT. REFER TO UNIT IOM FOR DETAILS.



ROVIDED INDICATORS MAY BE RELAYS, LIGHTS OR AUDIBLE DEVICES. ION IS ASSOCIATED WITH A SPDT RELAY. THE INDICATORS MAY ED TO EITHER OR BOTH OF THE NORMALLY OPEN OR NORMALLY Y CONTACTS OF EACH OF THE 4 SPDT RELAYS ON THE OPTIONAL NG STATUS MODULE.

NS OF THE OPERATING STATUS MODULE RELAYS ARE PROGRAMMABLE. DETAILS, DEFAULT FUNCTIONS ARE SHOWN.

LY OPEN CONTACTS ON EACH RELAY OPERATE AS FOLLOWS:

- THE NO CONTACTS CLOSE WHEN COMPRESSOR STATUS FROM STARTER MODULE IS EITHER STARTING OR RUNNING.
- THE NO CONTACTS CLOSE WHEN THERE IS AN DIAGNOSTIC THAT HAS CAUSED A CHILLER SHUTDOWN WITH EITHER A MANUAL RESET REQUIRED OR AN AUTOMATIC RESET POTENTIAL.
- THE NO CONTACTS CLOSE WHENEVER THE CHILLER HAS BEEN RUNNING IN ONE OF THE UNLOADING TYPES OF LIMIT MODES (CONDENSER, EVAPORATOR, CURRENT LIMIT OR PHASE IMBALANCE LIMIT) CONTINUOUSLY FOR THE LAST 20 MINUTES.
- THE NO CONTACTS CLOSE ANYTIME THE CHILLER IS RUNNING IN ONE OF THE FOLLOWING MODES: ICE MAKING MODE OR CONDENSER PRESSURE LIMIT CONTROL MODE CONTINUOUSLY FOR THE DURATION SPECIFIED BY THE CHILLER HEAD RELIEF RELAY FILTER TIME.

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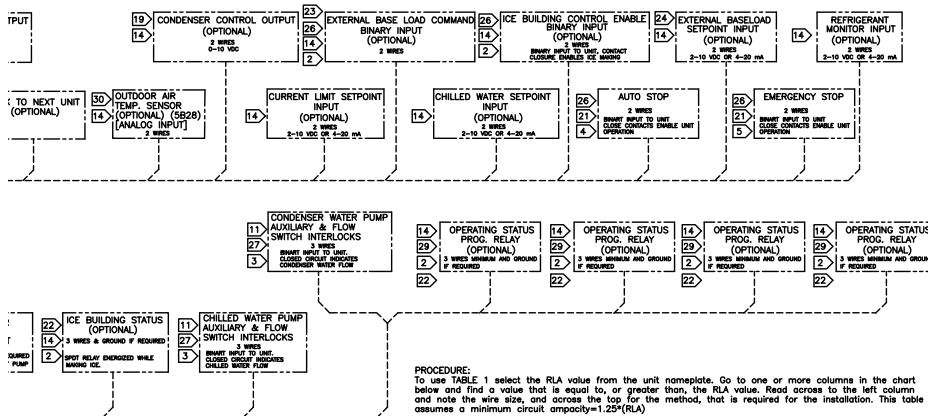
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES. TOLERANCE:
X = ±
JXX = ±
JXX = ±
ANGLES = ±
HOLE DIA = ±
CONFORMS TO ASME Y14.5M - 1994

TRANE
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THIRD ANGLE PROJECTION

23094869 SHEET 1 OF 1 REV E
FIELD LAYOUT DIAGRAM
RTHD

CAUTION
USE COPPER CONDUCTORS ONLY!
UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.
FAILURE TO DO SO MAY CAUSE DAMAGE TO THE EQUIPMENT.
ATTENTION
N'UTILISER QUE DES CONDUCTEURS EN CUIVRE!
LES BORNES DE L'UNITÉ NE SONT PAS CONÇUES POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS.
L'UTILISATION DE TOUT AUTRE CONDUCTEUR PEUT ENDOMMAGER L'EQUIPEMENT.
PRECAUCIÓN
¡UTILICE ÚNICAMENTE CONDUCTORES DE COBRE!
LAS TERMINALES DE LA UNIDAD NO ESTÁN DISEÑADAS PARA ACEPTAR OTROS TIPOS DE CONDUCTORES.
SI NO LO HACE, PUEDE OCASIONAR DAÑO AL EQUIPO.

WARNING
HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS AND FOLLOW LOCK OUT AND TAG PROCEDURES BEFORE SERVICING. INSURE THAT ALL MOTOR CAPACITORS HAVE DISCHARGED STORED VOLTAGE. UNITS WITH VARIABLE SPEED DRIVE, REFER TO DRIVE INSTRUCTIONS FOR CAPACITOR DISCHARGE. FAILURE TO DO THE ABOVE BEFORE SERVICING COULD RESULT IN DEATH OR SERIOUS INJURY.
AVERTISSEMENT
TENSION DANGEREUSE!
COUPER TOUTES LES TENSIONS ET OUVRIER LES SECTIONNEURS À DISTANCE, PUIS SUIVRE LES PROCÉDURES DE VERROUILLAGE ET DES ÉTIQUETTES AVANT TOUTE INTERVENTION. VÉRIFIER QUE TOUTS LES CONDENSATEURS DES MOTEURS SONT DÉCHARGÉS. DANS LE CAS D'UNITES COMPORTANT DES ENTRAÎNEMENTS À VITESSE VARIABLE, SE REPORTER AUX INSTRUCTIONS DE L'ENTRAÎNEMENT POUR DÉCHARGER LES CONDENSATEURS. NE PAS RESPECTER CES MESURES DE PRÉCAUTION PEUT ENTRAÎNER DES BLESSURES GRAVES POUVANT ÊTRE MORTELLES.
ADVERTENCIA
VOLTAJE PELIGROSO!
DESCONECTE TODA LA ENERGÍA ELÉCTRICA, INCLUSO LAS DESCONEXIONES REMOTAS Y SIGA LOS PROCEDIMIENTOS DE CIERRE Y ETIQUETADO ANTES DE PROCEDER AL SERVICIO. ASEGURESE DE QUE TODOS LOS CAPACITORES DEL MOTOR HAYAN DESCARGADO EL VOLTAJE ALMACENADO. PARA LAS UNIDADES CON EJE DE DIRECCIÓN DE VELOCIDAD VARIABLE, CONSULTE LAS INSTRUCCIONES PARA LA DESCARGA DEL CONDENSADOR. EL NO REALIZAR LO ANTERIORMENTE INDICADO, PODRÍA OCASIONAR LA MUERTE O SERIAS LESIONES PERSONALES.

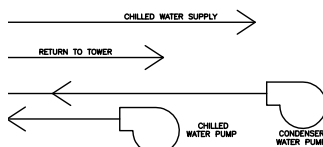


PROCEDURE:
To use TABLE 1 select the RLA value from the unit nameplate. Go to one or more columns in the chart below and find a value that is equal to, or greater than, the RLA value. Read across to the left column and note the wire size, and across the top for the method, that is required for the installation. This table assumes a minimum circuit ampacity=1.25*(RLA)
NOTE:
This procedure will offer several options for providing electrical service to the starter panel. Before making a final selection, review the accompanying TABLE 2 indicating wire ranges for the available lug sizes supplied on the equipment.

TABLE 1 RECOMMENDED WIRE SELECTION TABLE (REF.2002 NEC) RATED LOAD AMPS (RLA)							
MIN WIRE SIZE COPPER 75°C	SUPPLY LEADS FOR ALL STARTER PANELS						
	1 CONDUIT 3 WIRE	1 CONDUIT 6 WIRE	2 CONDUIT 3 WIRE	2 CONDUIT 6 WIRE	2 CONDUIT 12 WIRE	3 CONDUIT 9 WIRE	4 CONDUIT 12 WIRE
	1 wire/ph/co	2 wire/ph/co	3 wire/ph/co	1 wire/ph/co	2 wire/ph/co	1 wire/ph/co	1 wire/ph/co
0	40	**	**	**	**	**	**
6	40	**	**	**	**	**	**
12	52	**	**	**	**	**	**
18	68	**	**	**	**	**	**
24	80	**	**	**	**	**	**
30	92	**	**	**	**	**	**
36	104	**	**	**	**	**	**
42	120	192	252	240	384	360	480
48	140	224	294	280	448	420	560
54	160	256	336	320	512	480	640
60	184	294	386	368	589	552	736
66	204	328	428	408	653	612	816
72	228	365	479	456	730	684	912
78	248	397	521	496	794	744	992
84	268	429	563	536	858	804	1072
90	304	486	638	608	973	912	1216

** Electrical conductors may be connected in parallel only for size 1/0 wire and larger per Nec 310-4.
The unit nameplate will be marked "Maximum Fuse or Circuit Breaker Size"
The maximum fuse or circuit breaker size is calculated as follows:
Calculated value = 2.25 * (Compressor RLA)
The calculated value is then used to select the fuse or circuit breaker from the standard sizes.
Standard Sizes = 100, 110, 125, 150, 175, 200, 225, 300, 350, 400, 450, 500, 600, 700, 800, 1000, 1200, 1500, 2000.
Maximum Fuse or Circuit Breaker Size = The standard size that is closest to the calculated value without exceeding it.

TABLE 2		
POWER CONNECTION	SELECTION RLA	LUG SIZE (PER PHASE)
TERMINAL BLOCK	0 - 598	(2) #4 - 500 MCM
	599 - 779	NA
MAIN CIRCUIT BREAKER	0 - 200	(1) 3/0 - 350 MCM
	201 - 476	(2) 2/0 - 500 MCM
	477 - 640	(3) 3/0 - 500 MCM
	641 - 779	(4) 3/0 - 500 MCM
NON-FUSED DISCONNECT SWITCH	0 - 277	(1) #1 - 600 MCM
	278 - 397	(2) 2/0 - 500 MCM
	398 - 598	(3) 3/0 - 500 MCM
	599 - 779	(4) 3/0 - 500 MCM



5 | 4 | 3 | 2 | 1



Unit Electrical Data



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