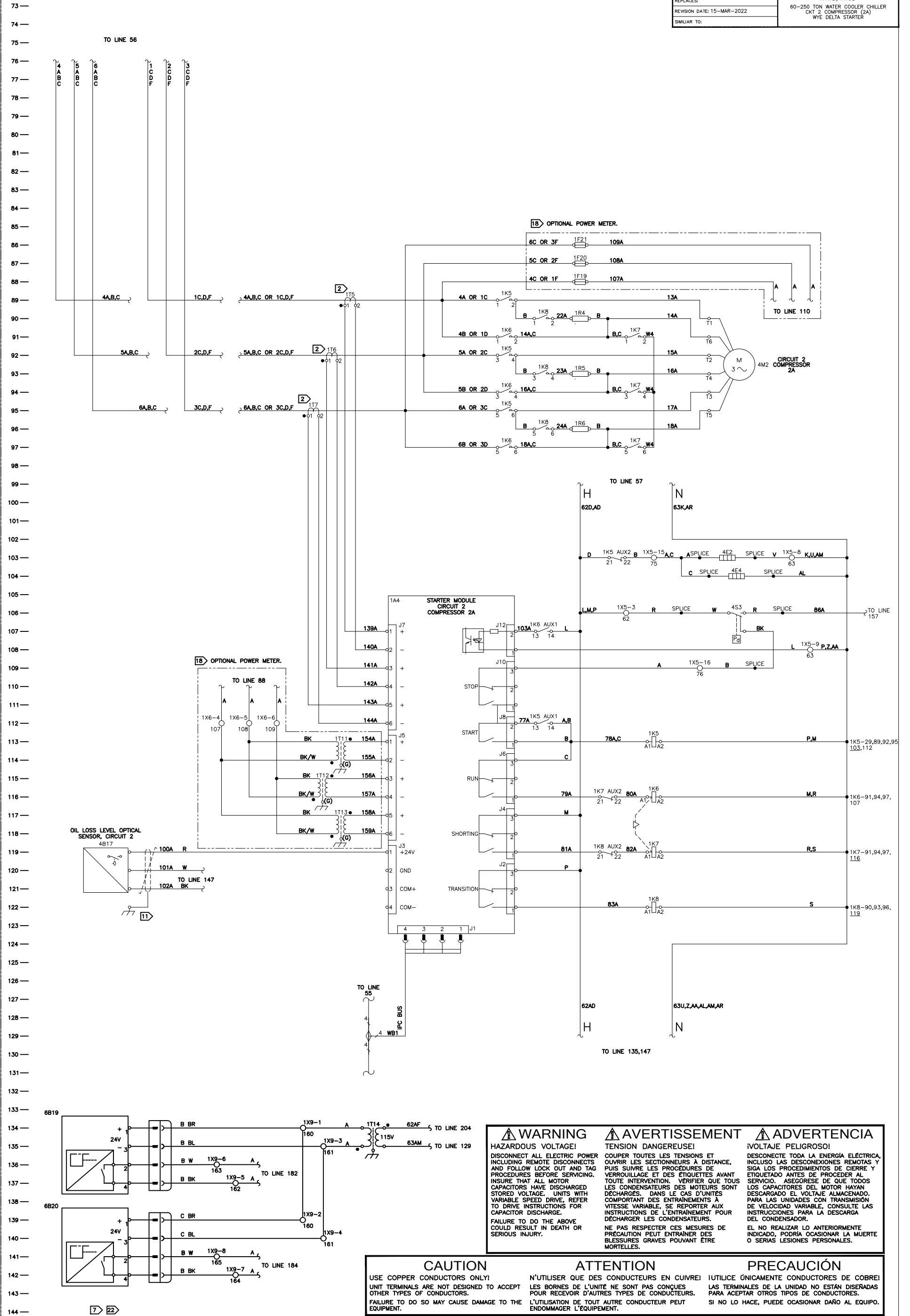




TRANS THIS DRAWING IS PROPRIETARY AND SHALL NOT BE COPIED OR ITS CONTENTS DISCLOSED TO ANY OTHER PARTY WITHOUT THE WRITTEN CONSENT OF THE COMPANY. DRAWN BY: E. DUMMER DATE: 13-MAY-05 REPLACES: REVISION DATE: 15-MAR-2022 SIMILAR TO:	2309-7584 SHEET 2 OF 3 SCHEMATIC RTWD/RTUD 60-250 TON WATER COOLER CHILLER CKT 2 COMPRESSOR (2A) WYE DELTA STARTER
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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 COULD RESULT IN DEATH OR SERIOUS INJURY.

TENSION DANGEREUSE!

COUPER TOUTES LES TENSIONS ET OUVRIR LES SECTIONNEURS A DISTANCE, PUIS SUIVRE LES PROCEDURES DE VERROUILLAGE ET DES ETIQUETTES AVANT TOUTE INTERVENTION. VERIFIER QUE TOUS LES CONDENSATEURS DES MOTEURS SONT DECHARGES. DANS LE CAS D'UNITES COMPORTANT DES ENTRAÎNEMENTS A VITESSE VARIABLE, SE REPORTER AUX INSTRUCTIONS DE L'ENTRAÎNEMENT POUR DECHARGER LES CONDENSATEURS. NE PAS RESPECTER CES MESURES DE PRECAUTION PEUT ENTRAÎNER DES BLESSURES GRAVES POUVANT ÊTRE MORTELLES.

¡VOLTAJE PELIGROSO!

DESCONECTE TODA LA ENERGÍA ELÉCTRICA, INCLUIDO LAS DESCONEXIONES REMOTAS Y SIGA LOS PROCEDIMIENTOS DE CIERRE Y ETIQUETADO ANTES DE PROCEDER AL SERVICIO. ASEGÚRESE DE QUE TODOS LOS CAPACITORES DEL MOTOR HAYAN DESCARGADO EL VOLTAJE ALMACENADO. PARA LAS UNIDADES CON TRANSMISIÓN 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.

CAUTION

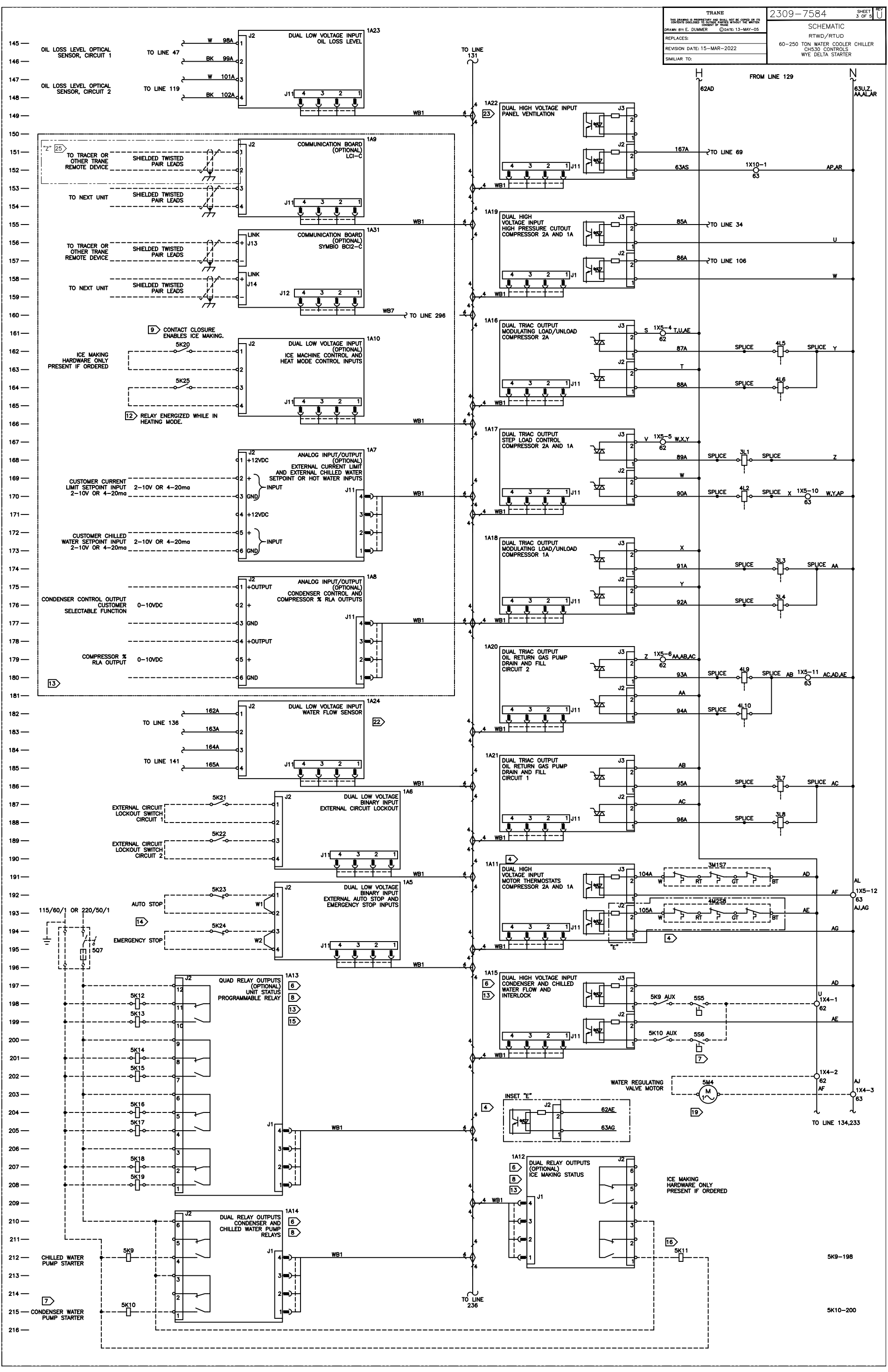
USE COPPER CONDUCTORS ONLY! UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS. FAILURE TO DO SO MAY CAUSE DAMAGE TO THE EQUIPMENT.

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'ÉQUIPEMENT.

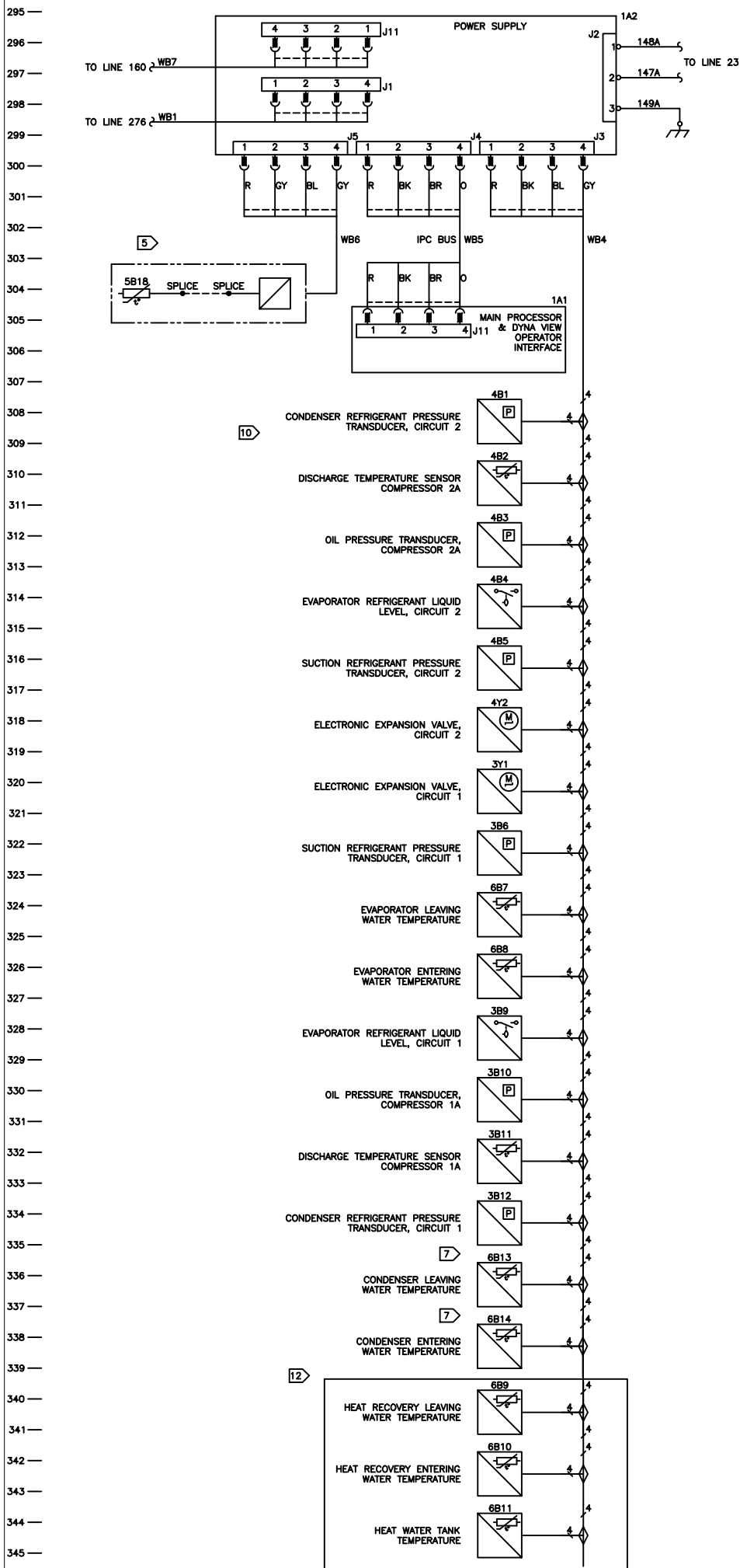
PRECAUCIÓN

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	 AVERTISSEMENT	 ADVERTENCIA
	HAZARDOUS VOLTAGE!	TENSION DANGEREUSE!	¡VOLTAJE PELIGROSO!
289 —	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.	COUPER TOUTES LES TENSIONS ET OUVRIER LA SECTIONNEMENT A 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 CITESSE VARIABLE, SE RÉFÉRER AUX INSTRUCTIONS DE L'ENTRAÎNEMENT POUR DÉCHARGER LES CONDENSATEURS.	DESCONECTE TODA LA ENERGÍA ELÉCTRICA, INCLUIDO LAS DESCONECONEXIONES REMOTAS Y SIGA LOS PROCEDIMIENTOS DE CIERRE Y ETIQUETADO ANTES DE PROCEDER AL SERVICIO. ASEGÚRESE DE QUE TODOS LOS CAPACITORES DEL MOTOR HAYAN DESCARGADO EL VOLTAJE ALMACENADO. PARA LAS UNIDADES CON TRANSMISIÓN DE VELOCIDAD VARIABLE, CONSULTE LAS INSTRUCCIONES PARA LA DESCARGA DEL CONDENSADOR.
290 —			
291 —			
292 —			
293 —	FAILURE TO DO THE ABOVE COULD RESULT IN DEATH OR SERIOUS INJURY.	NE PAS RESPECTER CES MESURES DE PRÉCAUTION PEUT ENTRAÎNER DES BLESSURES GRAVES POUVANT ÊTRE MORTELLES.	EL NO REALIZAR LO ANTERIORMENTE INDICADO, PODRÍA OCASIONAR LA MUERTE O SERIAS LESIONES PERSONALES.
294 —			

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DRAWN BY: E. DUMMER DATE: 13-MAY-05		SCHEMATIC		
REPLACES:		RTWD/RTUD		
REVISION DATE: 15-MAR-2002		60-250 TON WATER COOLER CHILLER CH530 CONTROLS/LEGEND/LIUD BUS WYE DELTA STARTER		
SIMILAR TO:				



- NOTES:
- 1 SINGLE SOURCE POWER IS PROVIDED AS STANDARD ON THESE PRODUCTS, DUAL SOURCE POWER IS OPTIONAL. FIELD CONNECTIONS FOR SINGLE SOURCE POWER ARE MADE TO 1X1, 1Q1, OR 1Q2. WHEN THE OPTIONAL DUAL SOURCE POWER IS SELECTED THE FIELD CONNECTIONS FOR CIRCUIT #2 ARE MADE TO 1X2, 1Q3, OR 1Q4.
 - 2 POLARITY MARKING ON THE CURRENT TRANSFORMER (DOT OR 1 ON CT) MUST BE FACING TOWARDS THE INCOMING CURRENT.
 - 3 WIRING FOR 200V/460V UNIT SHOWN. SEE INSET "A" FOR CONTROL POWER TRANSFORMER WIRING OF OTHER VOLTAGES.
 - 4 ONLY "X" AND "L" FRAME COMPRESSORS UTILIZE A COMPRESSOR MOTOR WINDING THERMOSTAT. WHEN COMPRESSOR 1A IS AN "L" FRAME AND COMPRESSOR 2A IS AN "M" FRAME, THE J3 INPUT IS WIRED TO COMPRESSOR 1A WINDING THERMOSTAT AND THE J2 INPUT IS HARDWIRED TO 115V AND NOT USED.
 - 5 OUTDOOR AIR TEMP FACTORY INSTALLED LEAD LENGTH TO BE EXTENDED BY CUSTOMER.
 - 6 CLASS 1 FIELD WIRED MODULE.
 - 7 NOT PRESENT ON CONDENSERLESS UNIT.
 - 8 RELAY AT 120VAC: 7.2 AMPS RESISTIVE, 2.88 AMPS PILOT DUTY, 1/3 HP, 7.2 FLA AT 240VAC: 5 AMPS GENERAL PURPOSE.
 - 9 CONTACT CLOSURE ENABLES ICE MAKING.
 - 10 COMPONENTS (LLIDS) ARE NOT NECESSARILY WIRED ON THE IPC BUS (WB4) IN THE ORDER SHOWN.
 - 11 DO NOT WIRE SHIELD TO GROUND IN CONTROL PANEL. SHIELD IS ATTACHED INTERNALLY TO METAL WASHER ON SENSOR.
 - 12 RELAY ENERGIZED WHILE IN HEATING MODE.
 - 13 OPTIONAL MODULE. REFER TO FIELD WIRING DIAGRAM FOR SUGGESTED WIRING.
 - 14 AUTO EMERGENCY STOP CONTACTS ARE JUMPERED AT THE FACTORY BY JUMPERS W1 & W2 TO ENABLE UNIT OPERATION. IF REMOTE CONTROL IS DESIRED, REMOVE THE JUMPERS AND CONNECT TO THE DESIRED CONFIGURATION.
 - 15 FIELD ASSIGNED PROGRAMMABLE RELAYS.
 - 16 RELAY ENERGIZED WHILE ICE MAKING.
 - 17 OPTIONAL UNDER/OVER VOLTAGE. THIS OPTION IS INCLUDED WITH POWER METER OPTION IF SELECTED.
 - 18 OPTIONAL POWER METER.
 - 19 FACTORY PROVIDED WATER REGULATING VALVE. MAXIMUM 120VA. 220V VALVE OPTION REQUIRES CUSTOMER PROVIDED POWER.
 - 20 ALL UNIT POWER WIRING MUST BE COPPER CONDUCTORS ONLY AND HAVE A MINIMUM INSULATION TEMPERATURE RATING OF 90°C AND BE SELECTED AT 75°C RATINGS.

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

LEGEND		
DEVICE DESIGNATION	DESCRIPTION	LINE NUMBER
1A1	DYNA VIEW MAIN PROCESSOR INTERFACE	305
1A2	POWER SUPPLY MODULE	295
1A3	STARTER MODULE, COMPRESSOR 1A	33
1A4	STARTER MODULE, COMPRESSOR 2A	105
1A5	DUAL LOW VOLTAGE INPUT, EXTERNAL AUTO STOP AND EMERGENCY STOP INPUTS	192
1A6	DUAL LOW VOLTAGE INPUT, EXTERNAL CIRCUIT LOCKOUT, REFRIGERANT CIRCUIT 1 AND 2	187
1A7	ANALOG INPUT/OUTPUT, EXTERNAL CURRENT LIMIT AND EXTERNAL CHILLED WATER OR HOT WATER SETPOINT INPUTS	168
1A8	ANALOG INPUT/OUTPUT, CONDENSER CONTROL AND COMPRESSOR % RLA OUTPUT	175
1A9	CH330 COMMS INTERFACE, LCI-C COMMUNICATIONS (ECHELON)	151
1A10	DUAL LOW VOLTAGE INPUT, ICE MACHINE CONTROL AND HEAT MODE CONTROL	162
1A11	DUAL HIGH VOLTAGE INPUT, MOTOR THERMOSTATS COMPRESSOR 2A AND 1A	197
1A12	DUAL RELAY OUTPUT, ICE MAKING STATUS	201
1A13	QUAD RELAY OUTPUTS, UNIT STATUS PROGRAMMABLE RELAYS	197
1A14	DUAL RELAY OUTPUTS, CONDENSER AND CHILLED WATER PUMP RELAYS	210
1A15	DUAL HIGH VOLTAGE INPUT, CONDENSER AND CHILLED WATER FLOW AND INTERLOCK	197
1A16	DUAL TRIAC OUTPUT, MODULATING UNLOAD AND LOAD COMPRESSOR 2A	161
1A17	DUAL TRIAC OUTPUT, STEP LOAD CONTROL COMPRESSOR 2A AND 1A	167
1A18	DUAL TRIAC OUTPUT, MODULATING UNLOAD AND LOAD COMPRESSOR 1A	173
1A19	DUAL HIGH VOLTAGE INPUT, HIGH PRESSURE CUTOUT COMPRESSOR 2A AND 1A	155
1A20	DUAL TRIAC OUTPUT, OIL RETURN GAS PUMP DRAIN AND FILL, CIRCUIT 2	179
1A21	DUAL TRIAC OUTPUT, OIL RETURN GAS PUMP DRAIN AND FILL, CIRCUIT 1	185
1A22	DUAL HIGH VOLTAGE INPUT, PANEL VENTILATION	149
1A23	DUAL LOW VOLTAGE INPUT, OIL LOSS LEVEL	145
1A24	DUAL LOW VOLTAGE INPUT, WATER FLOW SENSOR	182
1A25	QUAD RELAY OUTPUTS, CIRCUIT 1 FAN CONTROL	16
1A26	QUAD RELAY OUTPUTS, CIRCUIT 2 FAN CONTROL	35
1A27	ANALOG INPUT/OUTPUT, FAN SPEED CONTROL	46
1A28	DUAL LOW VOLTAGE INPUT, FAULT FEEDBACK	54
1A31	UC400, TRACER, BCI-C COMMUNICATIONS	156
1A39	MODBUS COMMUNICATIONS	275
1A32	DUAL HIGH VOLTAGE INPUT, HEAT WATER FLOW AND INTERLOCK	235
1A33	DUAL RELAY OUTPUTS, HEAT WATER PUMP START	261
1A34	DUAL LOW VOLTAGE INPUT, HEAT SUPPLEMENT AND HEAT RECOVERY INPUT	263
1A40	ANALOG INPUT/OUTPUT HEAT RECOVERY TANK TEMPERATURE SETPOINT INPUT	242
1A41	PROTOCOL INTERFACE CONTROLLER; MODBUS SOLUTION FOR TRANE CHILLERS (AP)	277
1B21	THERMOSTAT, PANEL VENTILATION	68
1F13	FUSE, POTENTIAL TRANSFORMER PRIMARY, COMPRESSOR 1A, LINE A, UNDER/OVER VOLTAGE - POWER METER	16
1F14	FUSE, POTENTIAL TRANSFORMER PRIMARY, COMPRESSOR 1A, LINE B, UNDER/OVER VOLTAGE - POWER METER	15
1F15	FUSE, CONTROL POWER TRANSFORMER SECONDARY, 115V	24
1F16	FUSE, CONTROL POWER TRANSFORMER SECONDARY, 27V	25
1F17	FUSE, CONTROL POWER TRANSFORMER SECONDARY, 27V	23
1F18	FUSE, POTENTIAL TRANSFORMER PRIMARY, COMPRESSOR 1A, LINE C, POWER METER	14
1F19	FUSE, POTENTIAL TRANSFORMER PRIMARY, COMPRESSOR 2A, LINE A, POWER METER	87
1F20	FUSE, POTENTIAL TRANSFORMER PRIMARY, COMPRESSOR 2A, LINE B, POWER METER	87
1F21	FUSE, POTENTIAL TRANSFORMER PRIMARY, COMPRESSOR 2A, LINE C, POWER METER	86
1K1	CONTACTOR, COMPRESSOR 1A START	41
1K2	CONTACTOR, COMPRESSOR 1A RUN	47
1K3	CONTACTOR, COMPRESSOR 1A SHORT	47
1K4	CONTACTOR, COMPRESSOR 1A TRANSITION	50
1K5	CONTACTOR, COMPRESSOR 2A START	113
1K6	CONTACTOR, COMPRESSOR 2A RUN	116
1K7	CONTACTOR, COMPRESSOR 2A SHORT	119
1K8	CONTACTOR, COMPRESSOR 2A TRANSITION	122
1M3	MOTOR, VENTILATION FAN	29
1Q1	DISCONNECT SWITCH, POWER DISTRIBUTION	9
1Q2	CIRCUIT BREAKER, POWER DISTRIBUTION	11
1Q3	DISCONNECT SWITCH, POWER DISTRIBUTION	9
1Q4	CIRCUIT BREAKER, POWER DISTRIBUTION	11
1R1	RESISTOR, TRANSITION, COMPRESSOR 1A, LINE A	18
1R2	RESISTOR, TRANSITION, COMPRESSOR 1A, LINE B	21
1R3	RESISTOR, TRANSITION, COMPRESSOR 1A, LINE C	24
1R4	RESISTOR, TRANSITION, COMPRESSOR 2A, LINE A	90
1R5	RESISTOR, TRANSITION, COMPRESSOR 2A, LINE B	93
1R6	RESISTOR, TRANSITION, COMPRESSOR 2A, LINE C	96
1T1	TRANSFORMER, CONTROL POWER	20
1T2	TRANSFORMER, CURRENT, COMPRESSOR 1A, LINE A	17
1T3	TRANSFORMER, CURRENT, COMPRESSOR 1A, LINE B	20
1T4	TRANSFORMER, CURRENT, COMPRESSOR 1A, LINE C	23
1T5	TRANSFORMER, CURRENT, COMPRESSOR 2A, LINE A	89
1T6	TRANSFORMER, CURRENT, COMPRESSOR 2A, LINE B	92
1T7	TRANSFORMER, CURRENT, COMPRESSOR 2A, LINE C	95
1T8	TRANSFORMER, POTENTIAL, UNDER/OVER VOLTAGE - POWER METER, LINE A TO B	41/60
1T9	TRANSFORMER, POTENTIAL, POWER METER, LINE B TO C	62
1T10	TRANSFORMER, POTENTIAL, POWER METER, LINE A TO C	64
1T11	TRANSFORMER, POTENTIAL, POWER METER, LINE A TO B	113
1T12	TRANSFORMER, POTENTIAL, POWER METER, LINE B TO C	115
1T13	TRANSFORMER, POTENTIAL, POWER METER, LINE A TO C	117
1W1	TRANSFORMER, WATER FLOW SENSOR	134
1X1	POWER DISTRIBUTION BLOCK	9
1X2	POWER DISTRIBUTION BLOCK	9
1X4	TERMINAL STRIP, CUSTOMER CONTROL WIRING	-
1X5	TERMINAL STRIP, FACTORY CONTROL WIRING	-
1X6	TERMINAL STRIP, FACTORY POWER METER WIRING	-
1X7	POWER DISTRIBUTION BLOCK	11
1X8	POWER DISTRIBUTION BLOCK	11
1X9	TERMINAL STRIP, WATER FLOW SENSOR CONTROL WIRING	-
1X10	TERMINAL STRIP, VENTILATION	152
1X11	TERMINAL STRIP, FAN CONTROL	-
3B6	PRESSURE TRANSDUCER, SUCTION REFRIGERANT PRESSURE, CIRCUIT 1	324
3B9	LIQUID LEVEL SENSOR, EVAPORATOR REFRIGERANT, CIRCUIT 1	328
3B10	PRESSURE TRANSDUCER, OIL PRESSURE, COMPRESSOR 1A	326
3B11	TEMPERATURE SENSOR, COMPRESSOR DISCHARGE OIL, COMPRESSOR 1A	330
3B12	PRESSURE TRANSDUCER, CONDENSER REFRIGERANT PRESSURE, CIRCUIT 1	332
3B16	LIQUID LEVEL OPTICAL SENSOR, OIL LOSS CIRCUIT 1	47
3E1	HEATER, OIL SEPARATOR, COMPRESSOR 1A	31
3E3	HEATER, COMPRESSOR 1A	32
3L1	SOLENOID, STEP LOAD CONTROL, COMPRESSOR 1A	168
3L3	SOLENOID, PROPORTIONAL LOAD CONTROL, COMPRESSOR 1A	172
3L4	SOLENOID, PROPORTIONAL UNLOAD CONTROL, COMPRESSOR 1A	174
3L7	SOLENOID, OIL RETURN GAS PUMP FILL, COMPRESSOR 1A	186</

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| 21 | ONLY PRESENT ON "ED" FRAME MOLDED CASE SWITCHES. | 1X7, 1X8, 27A, 28A, 29A, 30A, 31A, AND 32A ARE NOT PRESENT |
| 22 | WITH ALL OTHER MOLDED CASE SWITCHES. | |
| 23 | OPTIONAL MODULE: FACTORY WIRING. | |
| 24 | ONLY PRESENT WHEN VENTILATION IS REQUIRED. | |
| 25 | ONLY PRESENT IN TOTAL HEATE RECOVERY UNIT. | |
| 26 | ONLY PRESENT IN MODBUS COMMUNICATION INTERFACE | |
| 27 | IS SELECTED UNIT. | GENERAL NOTES: |
| 28 | ONLY PRESENT IN MODBUS COMMUNICATION INTERFACE(APR) | 1 UNLESS OTHERWISE NOTED, ALL SWITCHES ARE SHOWN |
| 29 | IS SELECTED UNIT. | |

GENERAL NOTES

- 1 UNLESS OTHERWISE NOTED, ALL SWITCHES ARE SHOWN AT 25° C (77° F), AT ATMOSPHERIC PRESSURE, AT 50% RELATIVE HUMIDITY, WITH ALL UTILITIES TURNED OFF, AND AFTER A NORMAL SHUTDOWN HAS OCCURRED.
- 2 DASHED LINES INDICATE RECOMMENDED FIELD WIRING BY OTHERS. DASHED LINE ENCLOSURES AND/OR DASHED DIVE OUTLINES INDICATE COMPONENTS PROVIDED BY THE FIELD. SOLID LINES INDICATE WIRING BY TRANE CO.
- 3 NUMBERS ALONG THE RIGHT SIDE OF THE SCHEMATIC DESIGNATE THE LOCATION OF CONTACTS BY LINE NUMBER, AN UNDERLINED NUMBER INDICATES A NORMALLY CLOSED CONTACT.
- 4 ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC), STATE AND LOCAL REQUIREMENTS.
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.

DEVICE PREFIX LOCATION CODE	
AREA	LOCATION
1	CONTROL AND STARTER PANEL
2	NOT USED
3	REFRIGERATION CIRCUIT 1
4	REFRIGERATION CIRCUIT 2
5	CUSTOMER REMOTELY INSTALLED