Wiring Manual

Air-Cooled Scroll Chillers

Model CGAM

20 – 130 Ton

⚠ 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.

April 2013

CGAM-SVE01B-EN

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

Overview of Manual

This manual provides wiring diagrams for CGAM units and corresponds to IOM CG-SVX17*-EN.

Revision Summary

CGAM-SVE01B-EN (24 Apr 2013)

Updated drawings 2309-2075, 2309-6468, 5720-6469 and 5720-6470 for panel insourcing project. Added VSD Pump Enclosure component location drawing 5722-4410.

CGAM-SVE01A-EN (19 Jun 2012)

New.

Trademarks

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Unit Wiring

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REPLACES:	TABLE OF CONTENTS		
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SIMILAR TO:	NORTH AMERICA PRODUCTION		

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REPLACES:	DEVICE DESIGNATORS		
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SIMILAR TO:	NORTH AMERICA PRODUCTION		

DEVICES, DESCRIPTIONS & DESIGNATIONS

DEVICE PREFIX LOCATION CODE	
AREA	LOCATION
1	MAIN PANEL/AUXILIARY PANEL
2	NOT USED
3	REFRIGERATION CIRCUIT 1
4	REFRIGERATION CIRCUIT 2
5	UNIT MOUNTED
6	CUSTOMER PROVIDED

LEGEND

DEVICE DESIGNATION	DESCRIPTION	LINE NUMBER
	MAIN PANEL/AUXILIARY PANEL	
1A1	DYNAVIEW MAIN PROCESSOR MODULE	823
1A2	POWER SUPPLY MODULE	814
1A4	COMPRESSOR MOTOR CONTROL; DUAL RELAY OUTPUT	392
1A5	HIGH PRESSURE CUTOUT; DUAL HIGH VOLTAGE BINARY INPUT	525
1A7	COMPRESSOR FAULT, 1A & 1B, DUAL HIGH VOLTAGE BINARY INPUT	557
1A9	CHILLED WATER PUMP CONTROL, DUAL RELAY OUTPUT	762
1A12	CHILLED WATER PUMP FAULT, DUAL LOW VOLTAGE BINARY INPUT	753
1A13	EXTERNAL EMERGENCY STOP/AUTO STOP, DUAL LOW VOLTAGE BINARY INPUT	801
1A14	EXTERNAL CHILLER WATER SETPOINT DEMAND &LIMIT; ANOLOG INPUT/OUTPUT	808
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1A16	ICE MAKING CONTROL, DUAL LOW VOLTAGE BINARY INPUT	827
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1F47	OVERLOAD RELAY, FAN 3M4 HIGH SPEED	?
1F48	OVERLOAD RELAY, FAN 3M9	?
1F49	OVERLOAD RELAY, FAN 3M5	?
1K1	CONTACTOR, COMPRESSOR 1A, CIRCUIT 1	3340
1K2	CONTACTOR, COMPRESSOR 1B, CIRCUIT 1	4838

LEGEND

DEVICE DESIGNATION	DESCRIPTION	LINE NUMBER
	REFRIGERATION CIRCUIT 1	
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3B3	TRANDUCER, DISCHARGE REFRIGERANT PRESSURE, CIRCUIT 1	830
3B4	SENSOR, DISCHARGE REFRIGERANT TEMPERATURE, CIRCUIT 1	832
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3M2E1	HEATER, COMPRESSOR 1B, CIRCUIT 1	42
3M4	MOTOR, FAN 1, CIRCUIT 1	156
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1X5	BLOCK, TERMINAL – FACTORY CONTROL WIRING, 0–10VDC	VARIES
1X6	BLOCK, TERMINAL – CUSTOMER CONTROL WIRING, 115VAC	VARIES
1X7	BLOCK, TERMINAL – CUSTOMER CONTROL WIRING, 0–10VDC	VARIES
1XJ1	CONNECTOR, JACK – CONTROL POWER TRANSFORMER WIRING	VARIES
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1XJ3	CONNECTOR, JACK – COMPRESSOR CONTROL CIRCUIT 1 WIRING	VARIES
1XJ5	CONNECTOR, JACK – FAN CONTROL CIRCUIT 1 WIRING	VARIES
1XJ8	CONNECTOR, JACK – VSD CONTROL CIRCUIT 1 WIRING	VARIES
1XJ9	CONNECTOR, JACK – COMPRESSOR 1A WIRING	VARIES
1XJ10	CONNECTOR, JACK – COMPRESSOR 1B WIRING	VARIES
1XJ15	CONNECTOR, JACK – PUMP CONTROL WIRING 2	VARIES
1XJ16	CONNECTOR, JACK – PHASE PROTECTION RELAY WIRING	VARIES
1XJ17	CONNECTOR, JACK – PUMP CONTROL WIRING 3	VARIES
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1XP2	CONNECTOR, PLUG – PUMP CONTROL WIRING 1	VARIES
1XP3	CONNECTOR, PLUG – COMPRESSOR CONTROL CIRCUIT 1 WIRING	VARIES
1XP5	CONNECTOR, PLUG – FAN CONTROL CIRCUIT 1 WIRING	VARIES
1XP8	CONNECTOR, PLUG – VSD CONTROL CIRCUIT 1 WIRING	VARIES
1XP9	CONNECTOR, PLUG – COMPRESSOR 1A WIRING	VARIES
1XP10	CONNECTOR, PLUG – COMPRESSOR 1B WIRING	VARIES
1XP15	CONNECTOR, PLUG – PUMP CONTROL WIRING 2	VARIES
1XP16	CONNECTOR, PLUG – PHASE PROTECTION RELAY WIRING	VARIES
1XP17	CONNECTOR, PLUG – PUMP CONTROL WIRING 3	VARIES

UNIT MOUNTED		
5A1	VSD, WATER PUMP CONTROL	467
5B1	SENSOR, EVAPORATOR LEAVING WATER TEMPERATURE	838
5B2	SENSOR, EVAPORATOR ENTERING WATER TEMPERATURE	840
5B3	SENSOR, AMBIENT TEMPERATURE	842
5B4	SENSOR, WATER FLOW	732
5B5	SENSOR, HEAT RECOVERY ENTERING WATER TEMP	839
5B6	SENSOR, HEAT RECOVERY LEAVING WATER TEMP	841
5E1	HEATER, EVAPORATOR	875
5E2	HEATER, BUFFER TANK	925
5E3	HEATER, WATER PUMP PIPING	912
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6Q6	FUSED DISCONNECT CUSTOMER SUPPLIED 1 PHASE, CONTROL POWER SUPPLY	846

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DRAWN BY: A ROBERTS © TRANE DATE: 30 NOV 2008	CGAM / CXAM		
REPLACES:	NOTES		
REVISION DATE: 19 MAR 2009	SLANT FRAME		
SIMILAR TO:	NORTH AMERICA PRODUCTION		

GENERAL & FLAG NOTES

GENERAL NOTES:

1. UNLESS OTHERWISE NOTED, ALL SWITCHES ARE SHOWN AT 25°C (77F), 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 DEVICE OUTLINES INDICATE COMPONENTS PROVIDED BY THE FIELD.PHANTOM LINE ENCLOSURES INDICATE ALTERNATE CIRCUITRY OR AVAILABLE SALES OPTIONS. SOLID LINE INDICATES WIRING BY TRANE.
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.
5. 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.

FLAG NOTES:

1. ALL UNIT POWER WIRING MUST BE COPPER CONDUCTORS ONLY, HAVE A MINIMUM INSULATION TEMPERATURE RATING OF 90°C AND BE SELECTED AT 75°C RATINGS.
2. TERMINAL BLOCK 1X1 IS PROVIDED AS STANDARD ON ALL UNITS PNCO=TERM. CIRCUIT BREAKER 1Q1 PNCO=CB AVAILABLE AS OPTION. TERMINAL BLOCK IS REPLACED WITH CIRCUIT BREAKER WHEN THIS OPTION IS SELECTED.
3. ELECTRONIC PROTECTION MODULE USED FOR 15–30 TON COMPRESSORS ONLY.
   FOR 10–13TON COMPRESSOR CONTROL CIRCUIT, TERMINALS (16,19), (16,20) ARE JUMPED BY W4 AND W5. TERMINALS (15,18), (15,17) ARE JUMPED BY W6, AND W7 IN V CONFIGURATION. (NTON= 020, 026, 040 or 052).
4. REFER TO FAN CHART FOR VALID FAN CONFIGURATIONS.
5. TRANSFORMER FOR 575V UNITS ONLY. (VOLT=575) AND (UAPP=CATC or WIDC).
6. PUMP PACKAGE:
   – AT LEAST ONE PUMP IS ALWAYS PRESENT AND IS EITHER FIELD OR FACTORY SUPPLIED.
   – WHEN PUMPS ARE FACTORY SUPPLIED, THEY WILL BE DUAL PUMPS.
7. OPTIONAL DUAL FACTORY SUPPLIED EVAP WATER PUMPS. WIRING SHOWN IS FOR VSD OF PUMP PACKAGE. (PTYP=DHHP).
8. OPTIONAL DUAL CUSTOMER SUPPLIED EVAP WATER PUMP(S). 6M2 WIRING PRESENT FOR DUAL PUMP CONFIGURATION ONLY. PUMP CONTROL CONFIGURATION SHOWS WIRING WITH CONTACTORS AND OVERLOAD RELAYS. PUMP(S) CAN ALSO BE POWERED BY CUSTOMER CONTROLLED VSD(S). PUMP STARTER FAULT SIGNAL(S) TO BE FIELD WIRED TO 1A12 (INSET "V").
9. CUSTOMER SUPPLIED PUMP RUN SIGNAL TO BE FIELD WIRED TO 1A9.
10. WIRING FOR 200V/460V UNIT SHOWN. SEE INSET "B" FOR CONTROL POWER TRANSFORMER WIRING OF OTHER VOLTAGES.
11. CONTACT CLOSURE ENABLES ICE MAKING, WHEN ICE MAKING OPTION IS ORDERED. (EVLT=ICE).
12. CLASS 1 FIELD WIRED MODULE.
13. RELAY AT 120VAC: 7.2 AMPS RESISTIVE, 2.88 AMPS PILOT DUTY, 1/3 HP 7.2 FLA; AT 240VAC: 5 AMPS GENERAL PURPOSE.
14. FIELD ASSIGNED PROGRAMMABLE RELAYS. (STAT=PRLY).
15. CUSTOMER SUPPLIED POWER, 120V.
16. ONLY USED WHEN PUMP PACKAGE OPTION IS ORDERED. (PTYP=DHHP).
17. ONLY USED WHEN BUFFER TANK OPTION IS ORDERED. (BTNK=BTNK).
18. THE CONTACTS FOR AUTO STOP AND EMERGENCY STOP SWITCHES ARE JUMPERED AT THE FACTORY BY JUMPERS W2 & W3 TO ENABLE UNIT OPERATION. IF REMOTE CONTROL IS DESIRED, REMOVE THE JUMPERS AND CONNECT TO THE DESIRED CONTROL CIRCUIT.
19. PHASE PROTECTION RELAY USED ONLY FOR CIRCUIT(S) WITH 10 TON AND 13 TON COMPRESSORS (NTON = 20, 26, 40 or 52).
20. NOT PRESENT WHEN BOTH OF THE COMPRESSORS ARE LESS THAN 15 TON (NTON = 20, 26, 40 or 52).
21. GROUND SCREW IN MAIN CONTROL PANEL.
22. INSIDE THE PUMP VSD ENCLOSURE, MOUNTED ON UNIT FRAME WITH (PTYP=DHHP).
23. ONLY USED WHEN PARTIAL HEAT RECOVERY (CDHR = PRTF) OPTION IS ORDERED.
24. COMPRESSOR HEATER WIRE COLOR IS DETERMINED BY VOLTAGE IN CHART.

21 GROUND SCREW IN MAIN CONTROL PANEL.

22 INSIDE THE PUMP VSD ENCLOSURE, MOUNTED ON UNIT FRAME WITH (PTYP=DHHP).

23 ONLY USED WHEN PARTIAL HEAT RECOVERY (CDHR = PRTF) OPTION IS ORDERED.

24 COMPRESSOR HEATER WIRE COLOR IS DETERMINED BY VOLTAGE IN CHART.

25 PRESENT ON "V" FRAME UNITS (NTON = 40, 52, 60 or 70).

26 PRESENT ON "W" FRAME UNITS (NTON = 100, 100, 120 or 130).

27 PRESENT ON "W" FRAME UNITS (NTON = 80, 90).

28 DISCHARGE REFIGERANT TEMPERATURE SENSOR PRESENT FOR ALL THE FOLLOWING OPTIONS:
UNITS WITH ICEMAKING OPTION (EVLT = ICE), UNITS WITH LOW TEMPERATURE PROCESS
COOLING (EVLT = PROC), UNITS WITH PHR FAN CONTROL OPTION (CDHR = PRTF).

29 REFER TO FIELD WIRING DIAGRAM FOR SUGGESTED WIRING.

30 JUMPERS W9, W10 AND W11 ARE INSTALLED BY THE FACTORY ON UNITS ORDERED WITH FIELD PROVIDED PUMPS (PTYP = NONE).
JUMPERS W9, W10 AND W11 ARE TO BE REMOVED WHEN PUMPS AND CONTROL ARE INSTALLED.

35 VENTILATION FAN PRESENT WHEN LINE (VOLT = 200, 230, 380 or 400).

36 1A41, BACNET INTERFACE MODULE USED WHEN (COMM = BCNT).

37 THERMOSTATS ARE REQUIRED IN THE COMPRESSOR JUNCTION BOXES ON ALL UNITS WITH COMMERCIAL COMPRESSORS AND SOUND WRAPS TO PREVENT THE PROTECTION MODUAL FROM GETTING TOO HOT. (NTON=30, 35, 60, 70, 80, 90, 100, 110, 120 or 130)
(HRTZ = 60 AND SATT = LNUN OR HRTZ = 50 AND SATT = STDN).

38 THE SAME PUMP MOTOR IS USED FOR 200/230 & 480V UNITS WIRE CONNECTIONS SHOWN FOR BOTH OPTIONS VERIFY WHAT VOLTAGES CHILLER IS BEFORE WIRING.

39 PRESENT ON UNITS (NTON = 130).

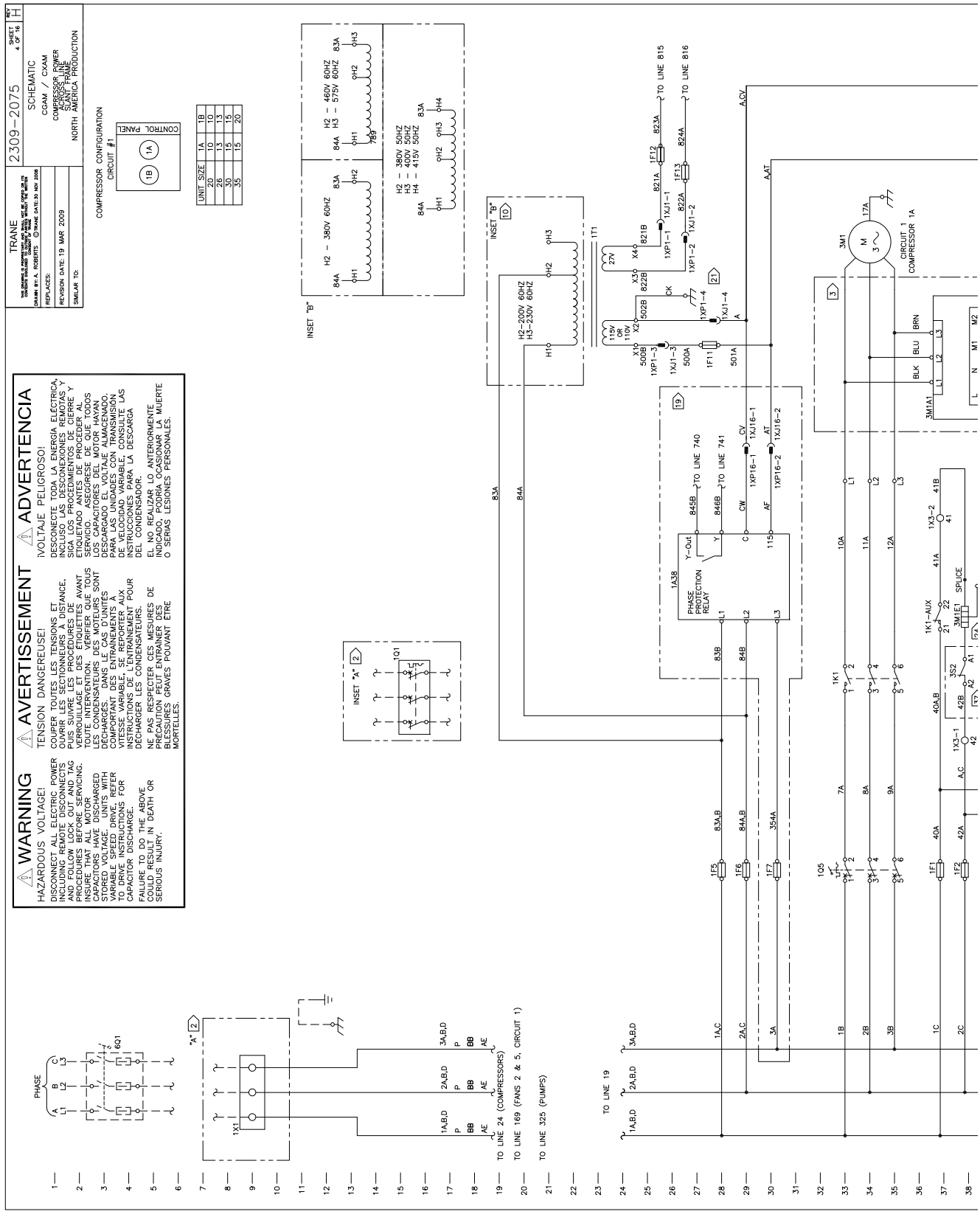
40 PRESENT ON UNITS (NTON = 20, 26, 30, 35) AND (PTYP = DHHP).

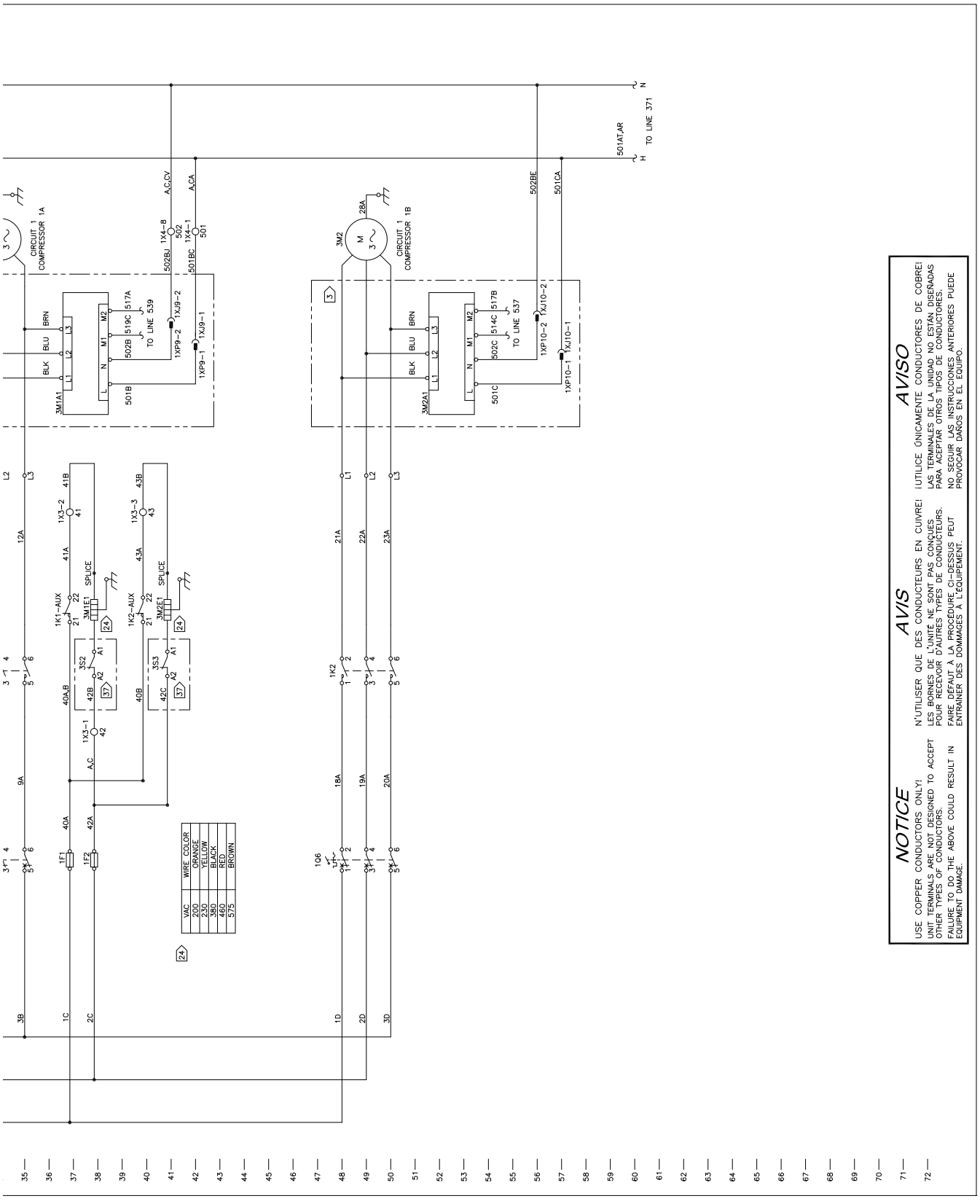
41 PRESENT ON UNITS (NTON = 20, 26, 30, 35) AND (PTYP = NONE).

42 SINGLE SPEED FAN 1 PRESENT WHEN:
STANDARD AMBIENT UNITS WITH 4 OR MORE FANS PER CIRCUIT, (NTON=100, 110, 120, OR 130) AND (UAPP=STDC OR HATC)

43 TWO SPEED FAN 1 PRESENT WHEN:
STANDARD AMBIENT UNIT WITH THREE FANS PER CIRCUIT, (NTON= 020, 026, 030, 035, 040, 052, 060, 070, 080, OR 090) AND (UAPP=STDC OR HATC)

44 VSD AND ASSOCIATED CONTROL CIRCUITS ON FAN 1 PRESENT WHEN:
LOW AMBIENT, AND WIDE AMBIENT UNITS.
UNITS WITH PHR FAN CONTROL OPTION AND 2 FAN STANDARD OR HIGH AMBIENT.


TRANE
2309–2075
SCHEMATIC
CGAM / CXAM
COMPRESSOR POWER
ACROSS-THE-LINE
SLANT FRAME
NORTH AMERICA PRODUCTION
REVISION DATE: 19 MAR 2009
SIMILAR TO:
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 COULD RESULT IN DEATH OR SERIOUS INJURY.
AVERTISSEMENT
TENSION DANGEREUSE!
COUPER TOUTES LES TENSIONS ET OUVRIR LES SECTIONNEURS À DISTANCE, PUIS SUIVRE LES PROCEDURES DE VERROUILLAGE ET DES ÉTIQUETTES AVANT TOUTE INTERVENTION. VÉRIFIER QUE TOUS LES CONDENSATEURS MOTEURS SONT DÉCHARGÉS. DANS LE CAS D'UNITÉS 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. 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.
COMPRESSOR CONFIGURATION
CIRCUIT #1
CONTROL PANEL
UNIT SIZE
20
25
30
35
INSET "A"
INSET "B"
PHASE PROTECTION RELAY
1A38
CIRCUIT 1 COMPRESSOR 1A
3M1
17A
SPLICE
TO LINE 19
TO LINE 24 (COMPRESSORS)
TO LINE 169 (FANS 2 & 5, CIRCUIT 1)
TO LINE 325 (PUMPS)
TO LINE 740
TO LINE 741
TO LINE 815
TO LINE 816


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
N'UTILISER QUE DES CONDUCTEURS EN CUIVRE! LES BORNES DE L'UNITÉ NE SONT PAS CONÇUES POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS. FAIRE DÉFAUT À LA PROCÉDURE CI-DESSUS PEUT ENTRAINER DES DOMMAGES À L'ÉQUIPEMENT.
AVISO
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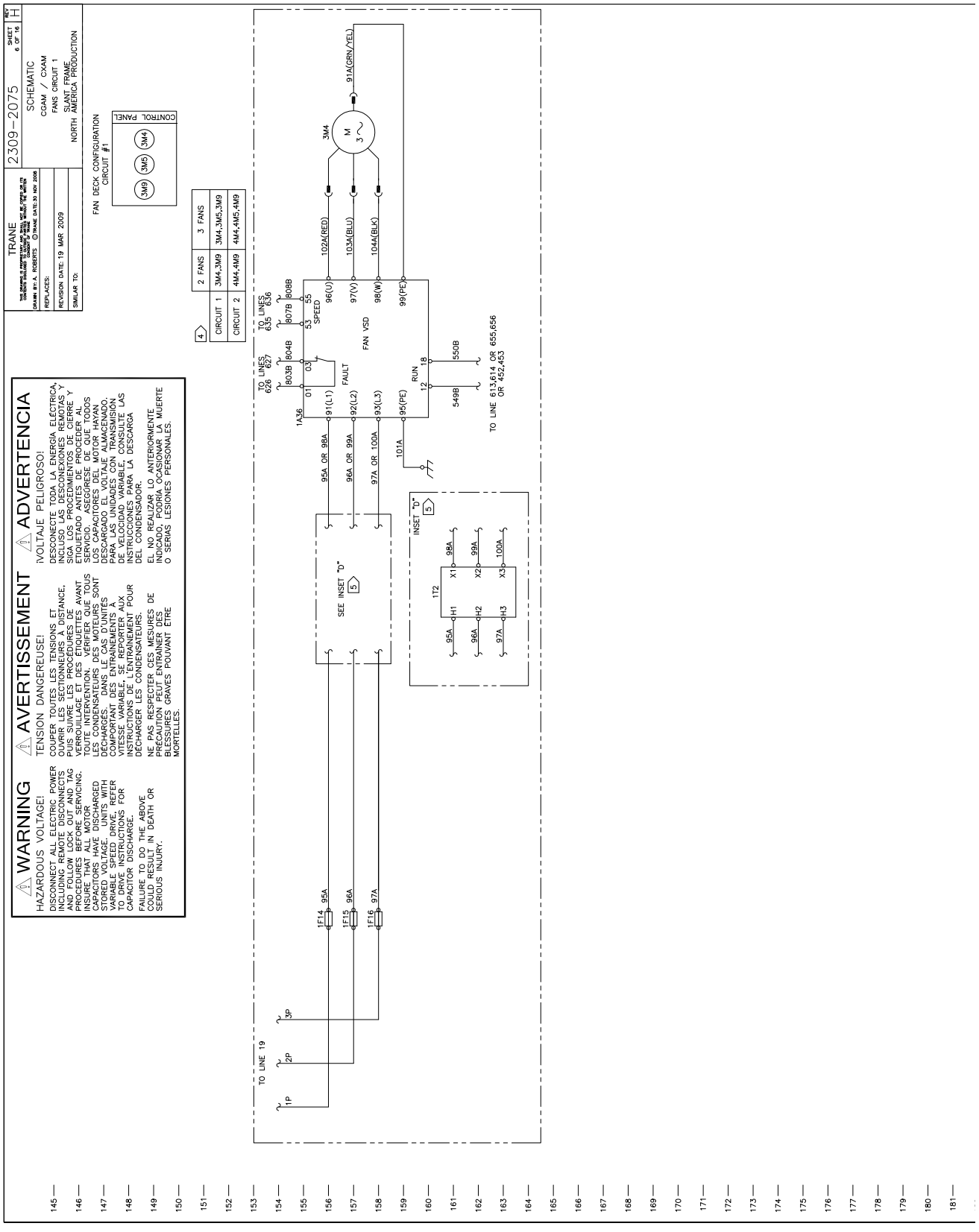
CIRCUIT 1 COMPRESSOR 1A
CIRCUIT 1 COMPRESSOR 1B
3M1A1
3M2A1
3M2
1K1-AUX
1K2-AUX
3M1E1
3M2E1
SPLICE
1K2
1F1
1F2
1Q6
3S2
3S3
1X3-2
1X3-3
1X3-1
1X4-8
1X4-1
1XP9-2
1XJ9-2
1XP9-1
1XJ9-1
1XP10-2
1XJ10-2
1XP10-1
1XJ10-1
TO LINE 539
TO LINE 537
TO LINE 371
501AT,AR
502BE
501CA
A,C,CV
A,CA
A,C
WIRE COLOR
VAC
ORANGE
YELLOW
BLACK
RED
BROWN
200
230
380
460
575


WARNING
HAZARDOUS VOLTAGE!
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ADVERTENCIA
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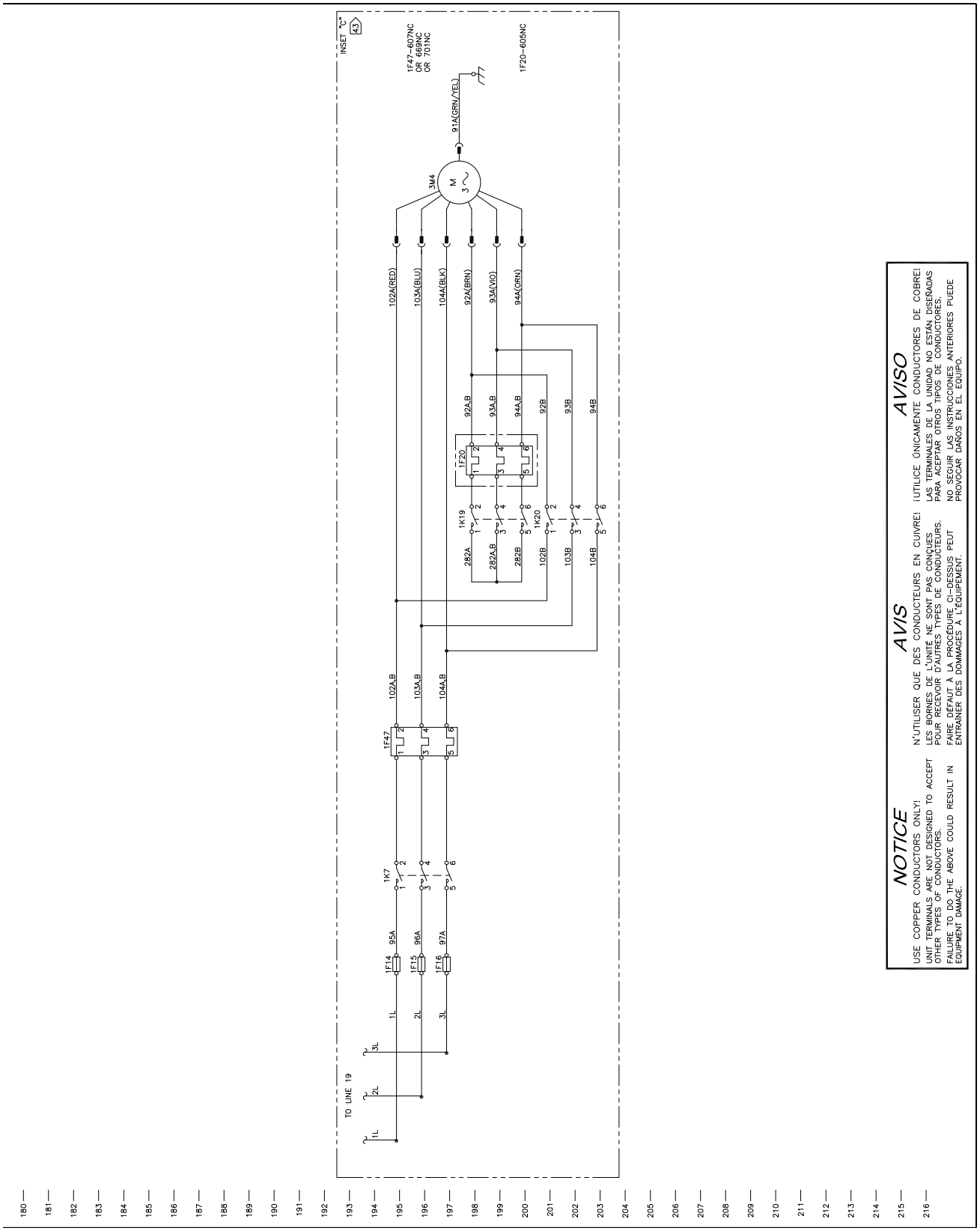
EL NO REALIZAR LO ANTERIORMENTE INDICADO, PODRÍA OCASIONAR LA MUERTE O SERIAS LESIONES PERSONALES.
TRANE
2309-2075
SCHEMATIC
SHEET 6 OF 16
REV H
CGAM / CXAM
FANS CIRCUIT 1
SLANT FRAME
NORTH AMERICA PRODUCTION
DRAWN BY: A. ROBERTS
REPLACES:
REVISION DATE: 19 MAR 2009
SIMILAR TO:
© TRANE DATE: 30 NOV 2006
FAN DECK CONFIGURATION
CIRCUIT #1
CONTROL PANEL
3M9
3M5
3M4
4
2 FANS
3 FANS
CIRCUIT 1
3M4,3M9
3M4,3M5,3M9
CIRCUIT 2
4M4,4M9
4M4,4M5,4M9
TO LINE 19
1P
2P
3P
1F14 95A
1F15 96A
1F16 97A
SEE INSET "D"
5
95A OR 98A
96A OR 99A
97A OR 100A
1T2
95A
96A
97A
H1
H2
H3
X1
X2
X3
98A
99A
100A
INSET "D"
5
101A
777
1A36
01
03
91(L1)
92(L2)
93(L3)
FAULT
95(PE)
RUN
12
18
549B
550B
TO LINE 613,614 OR 655,656
OR 452,453
TO LINES
626
627
803B
804B
TO LINES
635
636
807B
808B
53
55
SPEED
FAN VSD
96(U)
97(V)
98(W)
99(PE)
102A(RED)
103A(BLU)
104A(BLK)
3M4
M
3
91A(GRN/YEL)


INSET "C"
A3
1F47-607NC
OR 608NC
OR 701NC
1F20-605NC
91A(GRN/YEL)
3M4
M
3
102A(RED)
103A(BLU)
104A(BLK)
92A(BRN)
93A(VIO)
94A(ORN)
92A,B
93A,B
94A,B
92B
93B
94B
1F20
1K19
1K20
282A
282A,B
282B
102B
103B
104B
1F47
102A,B
103A,B
104A,B
1K7
1F14
1F15
1F16
95A
96A
97A
1L
2L
3L
TO LINE 19
NOTICE
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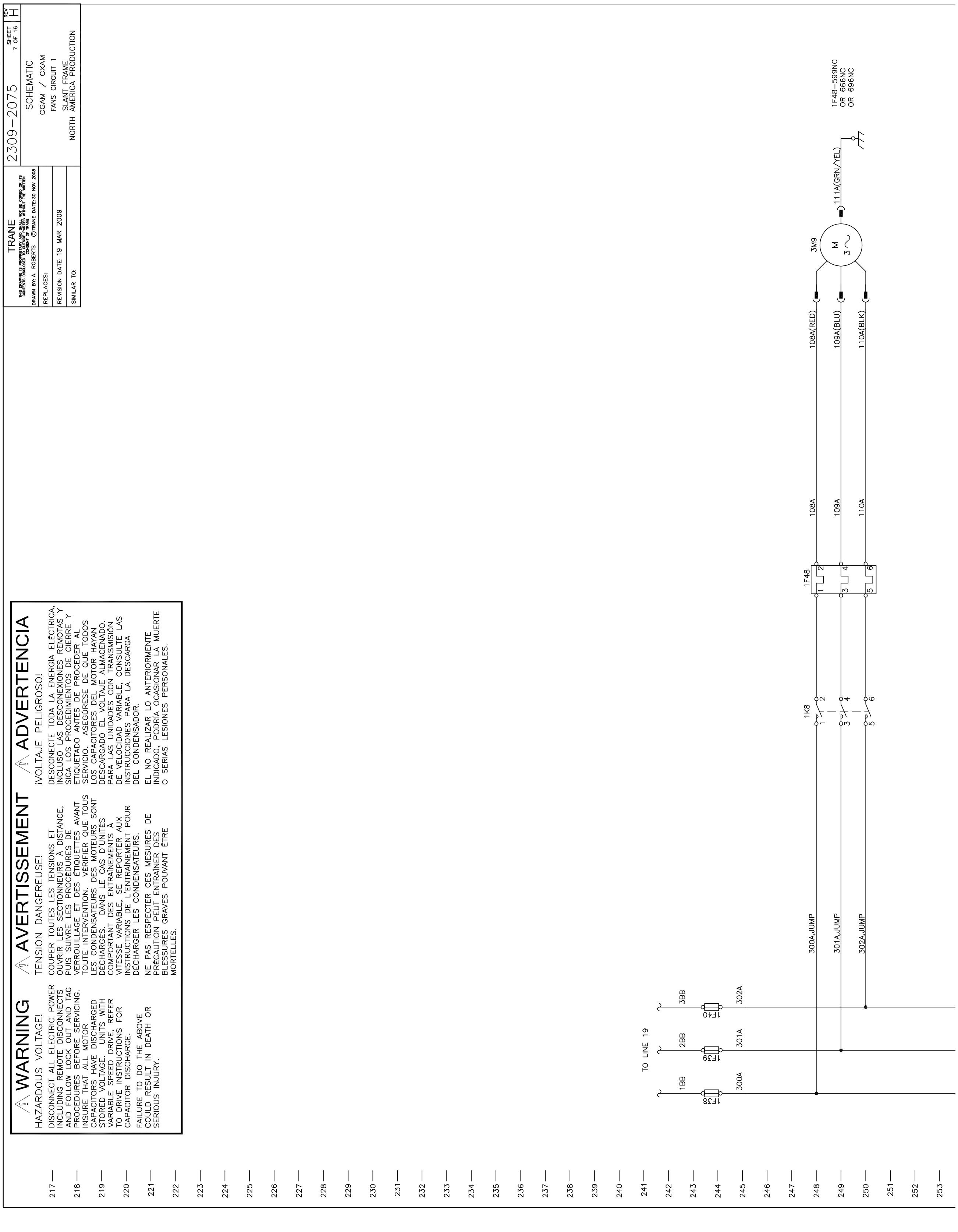
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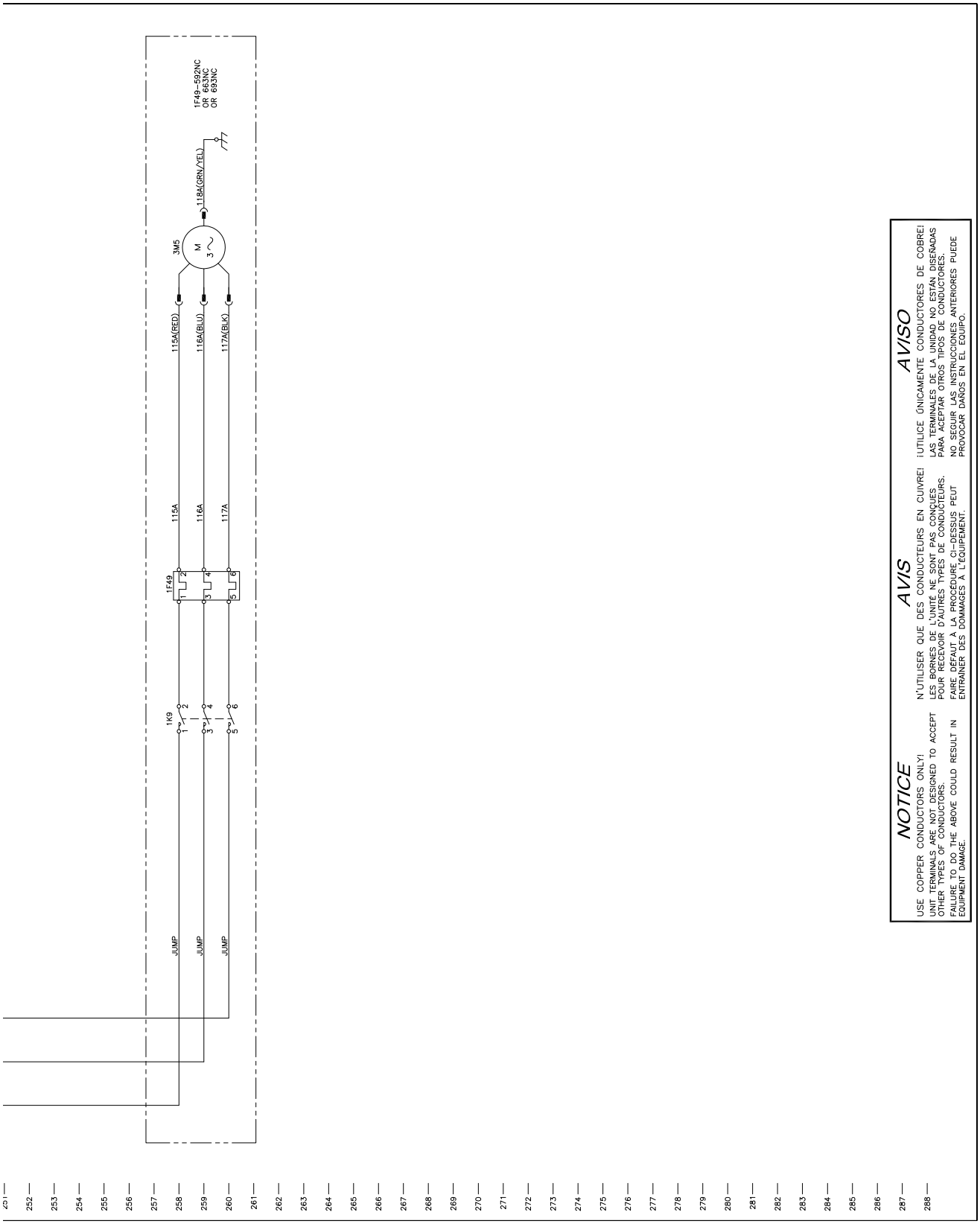
TRANE
DRAWN BY: A. ROBERTS
DATE: 30 NOV 2008
REPLACES:
REVISION DATE: 19 MAR 2009
SIMILAR TO:
2309-2075
SHEET 7 OF 16
REV H
SCHEMATIC
CGAM / CXAM
FANS CIRCUIT 1
SLANT FRAME
NORTH AMERICA PRODUCTION
TO LINE 19
1BB
2BB
3BB
1F38
1F39
1F40
300A
301A
302A
300A,JUMP
301A,JUMP
302A,JUMP
1K8
1F48
108A
109A
110A
108A(RED)
109A(BLU)
110A(BLK)
3M9
M
3~
111A(GRN/YEL)
1F48-599NC
OR 666NC
OR 696NC


1F49-592NC
OR 663NC
OR 693NC
118A(GRN/YEL)
3M5
M
3~
115A(RED)
116A(BLU)
117A(BLK)
115A
116A
117A
1F49
1K9
JUMP
JUMP
JUMP
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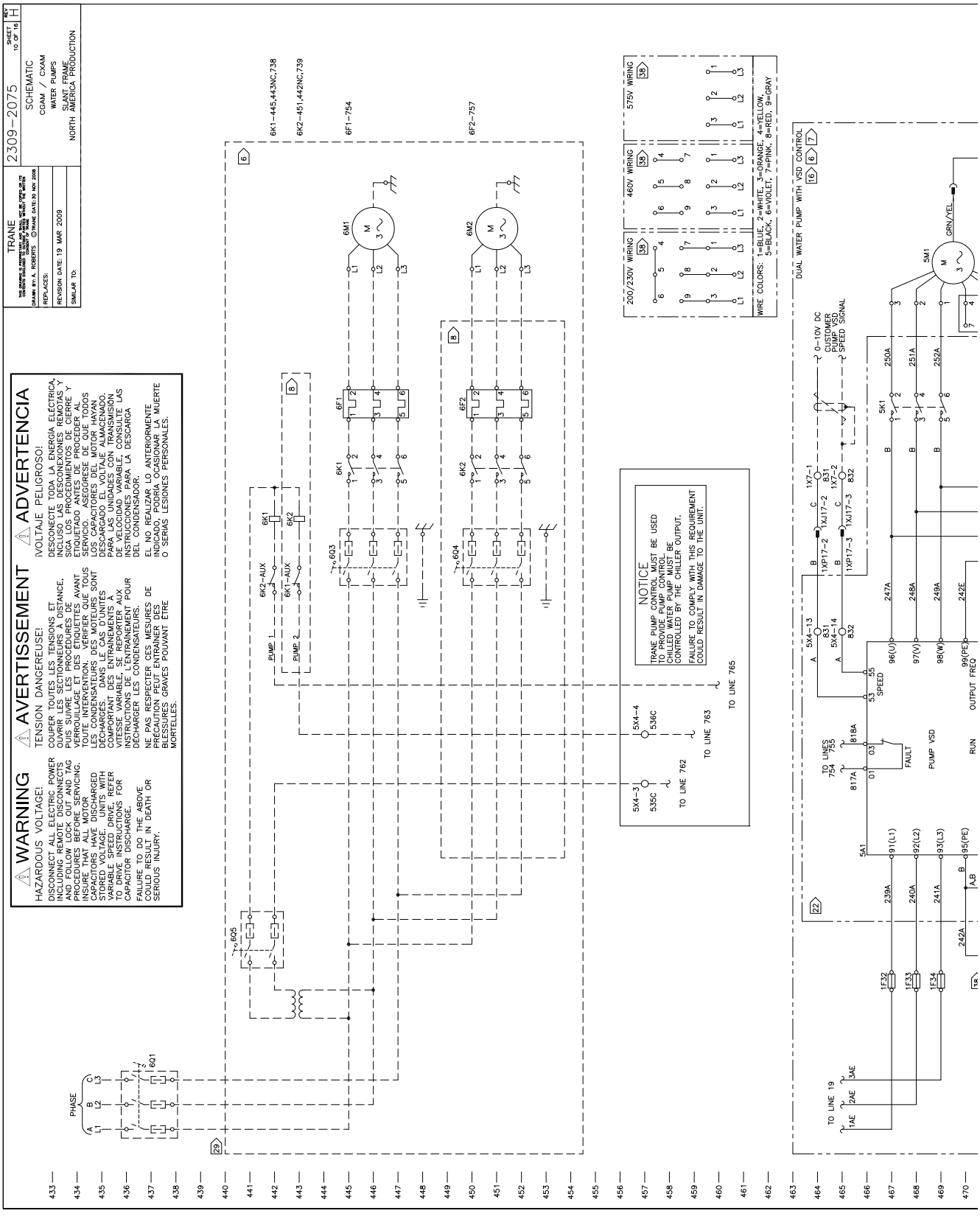
TRANE
2309–2075
SCHEMATIC
CGAM / CXAM
WATER PUMPS
SLANT FRAME
NORTH AMERICA PRODUCTION
SHEET 10 OF 16
REV H
REPLACES:
REVISION DATE: 19 MAR 2009
SIMILAR TO:
⚠ WARNING
HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS AND FOLLOW LOCK OUT AND TAG PROCEDURES BEFORE SERVICING. INSURE THAT ALL MOTORS AND CAPACITORS HAVE DISCHARGED STORED VOLTAGE. UNITS WITH VARIABLE SPEED DRIVE, REFER TO DRIVE INSTRUCTIONS FOR CAPACITOR DISCHARGE.
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⚠ AVERTISSEMENT
TENSION DANGEREUSE!
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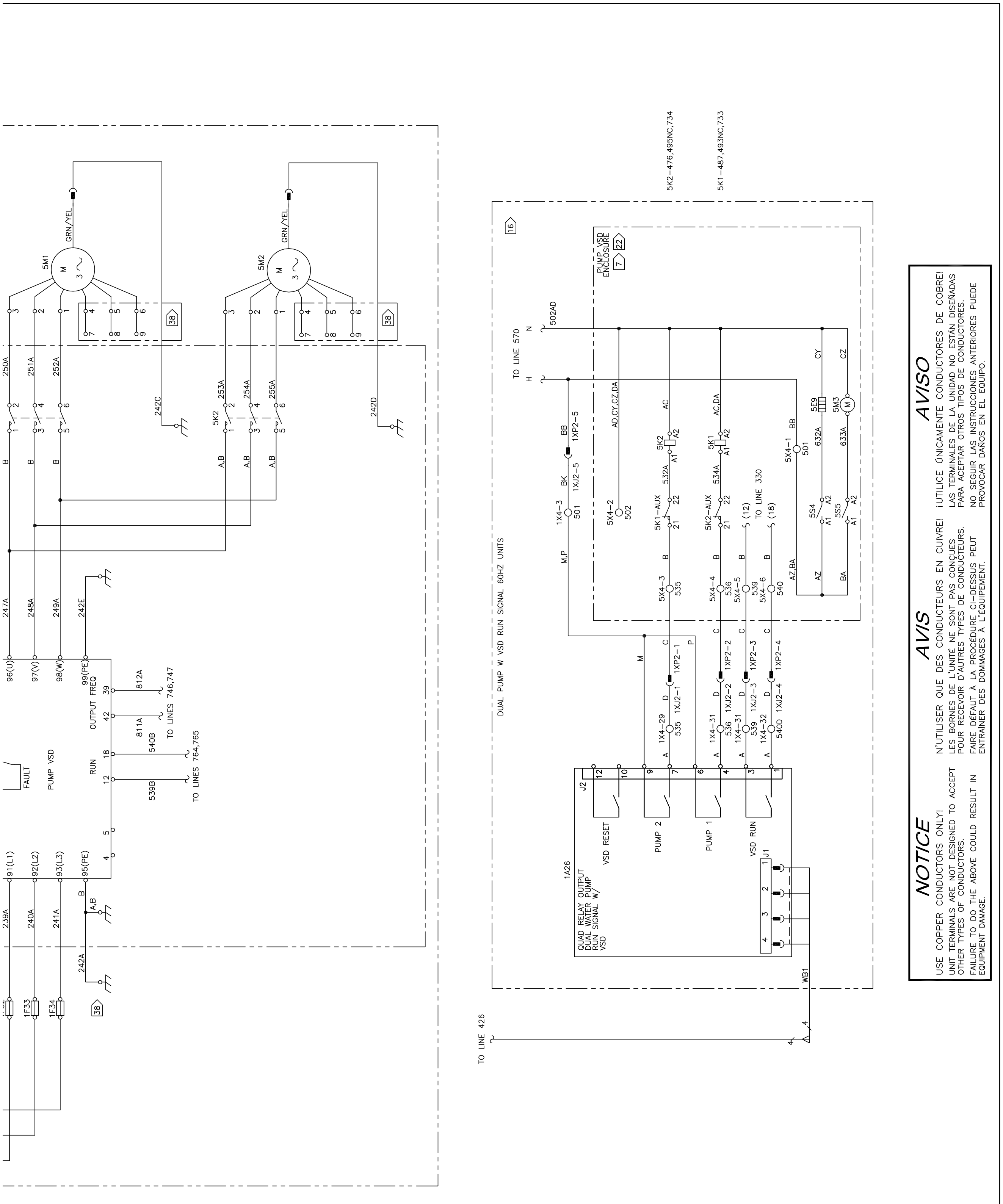
NOTICE
TRANE PUMP CONTROL MUST BE USED TO PROVIDE PUMP CONTROL CHILLED WATER PUMP MUST BE CONTROLLED BY THE CHILLER OUTPUT.
FAILURE TO COMPLY WITH THIS REQUIREMENT COULD RESULT IN DAMAGE TO THE UNIT.
DUAL WATER PUMP WITH VSD CONTROL
WIRE COLORS: 1=BLUE, 2=WHITE, 3=ORANGE, 4=YELLOW, 5=BLACK, 6=VIOLET, 7=PINK, 8=RED, 9=GRAY
200/230V WIRING
460V WIRING
575V WIRING
PHASE
6K1–445,443NC,738
6K2–451,442NC,739
6F1–754
6F2–757
PUMP 1
PUMP 2
TO LINE 762
TO LINE 763
TO LINE 765
TO LINE 19
TO LINES 754 755
PUMP VSD
FAULT
RUN
SPEED
OUTPUT FREQ
0–10V DC CUSTOMER PUMP VSD SPEED SIGNAL
GRN/YEL


DUAL PUMP W VSD RUN SIGNAL 60HZ UNITS
QUAD RELAY OUTPUT DUAL WATER PUMP RUN SIGNAL W/ VSD
PUMP VSD ENCLOSURE
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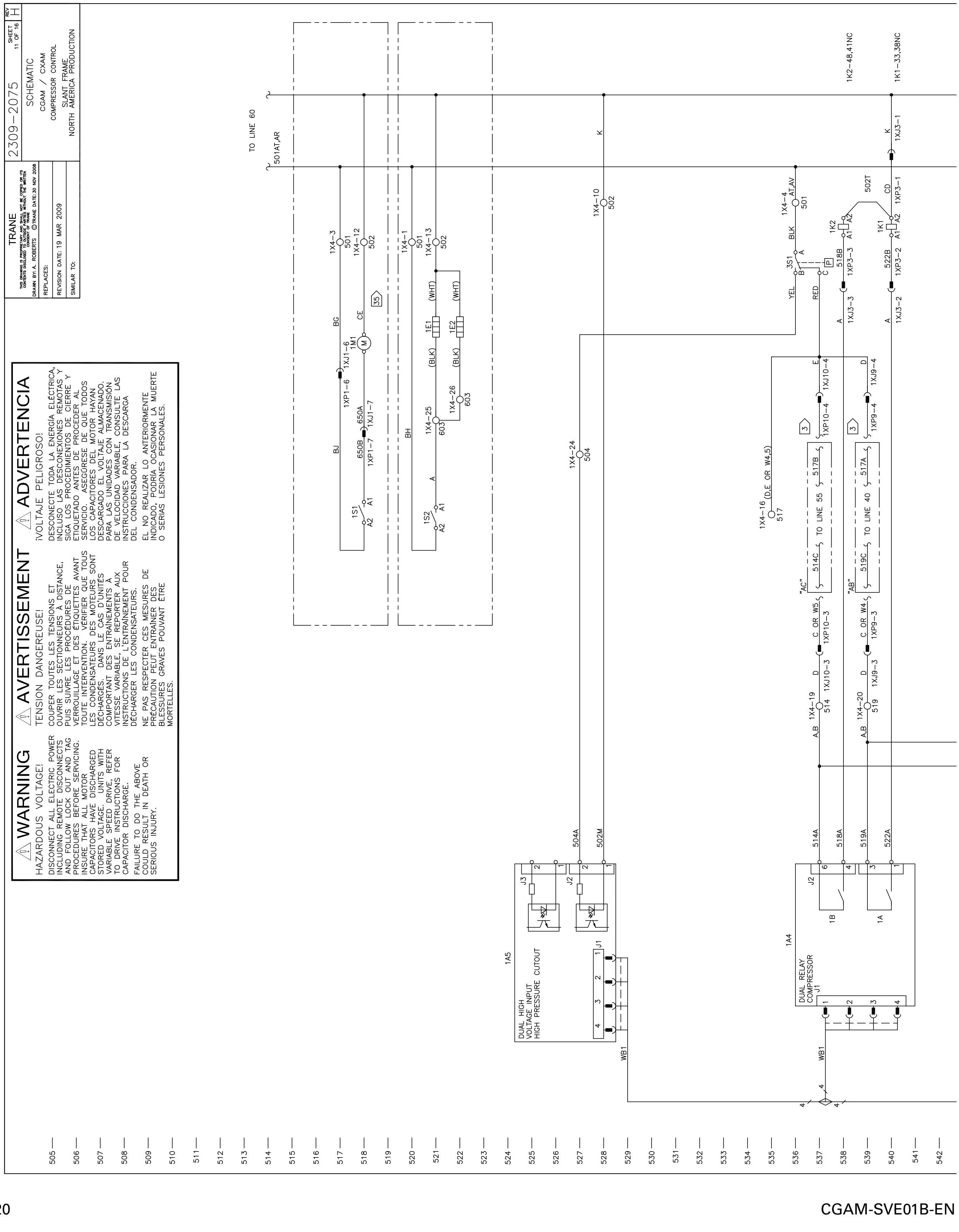
2309-2075
SCHEMATIC
CGAM / CXAM
COMPRESSOR CONTROL
SLANT FRAME
NORTH AMERICA PRODUCTION
SHEET 11 OF 16
REV H
DRAWN BY: A. ROBERTS
REVISION DATE: 19 MAR 2009
WARNING
HAZARDOUS VOLTAGE!
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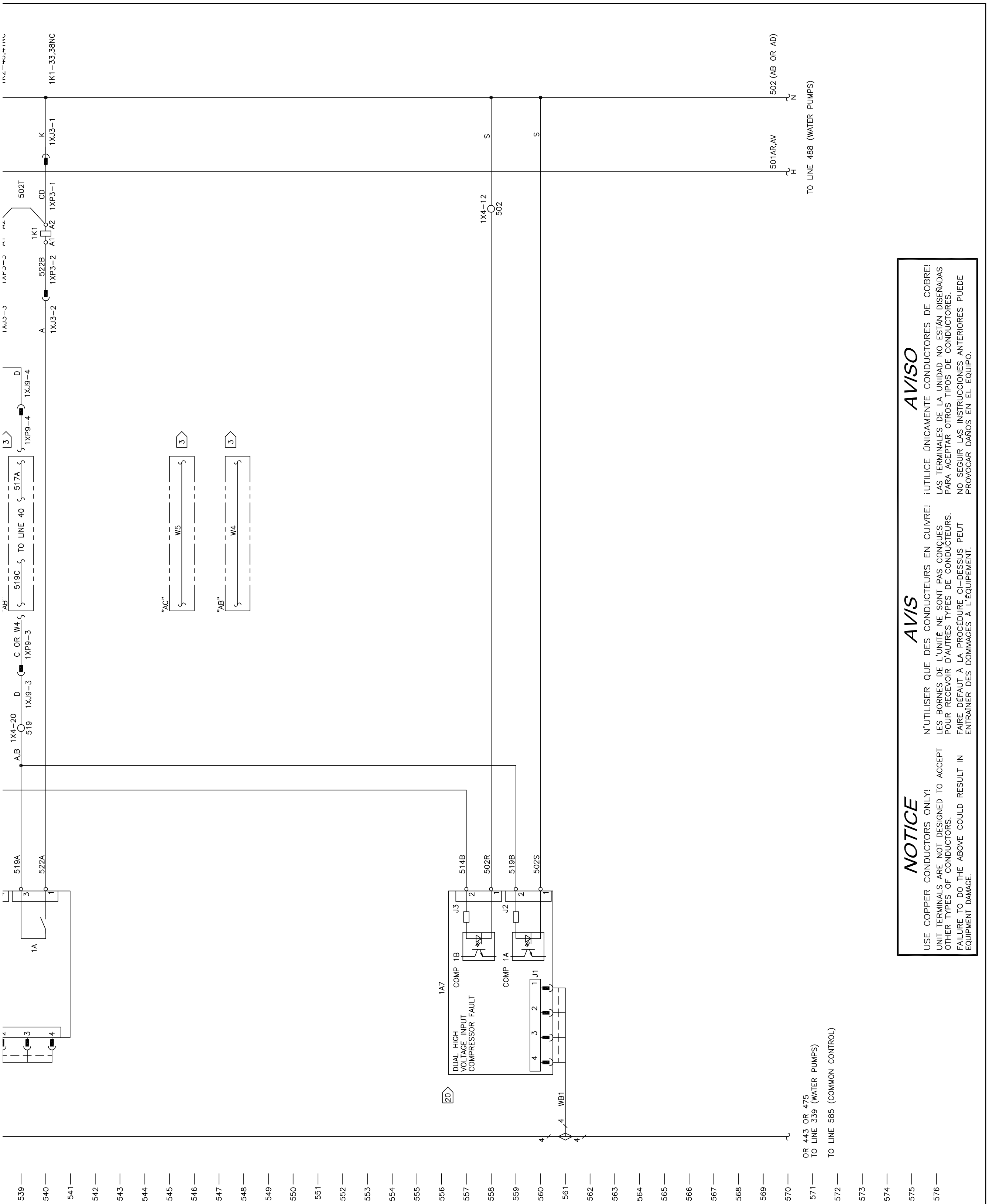
AVERTISSEMENT
TENSION DANGEREUSE!
ADVERTENCIA
¡VOLTAJE PELIGROSO!
TO LINE 60
DUAL HIGH VOLTAGE INPUT HIGH PRESSURE CUTOUT
DUAL RELAY COMPRESSOR
1A5
1A4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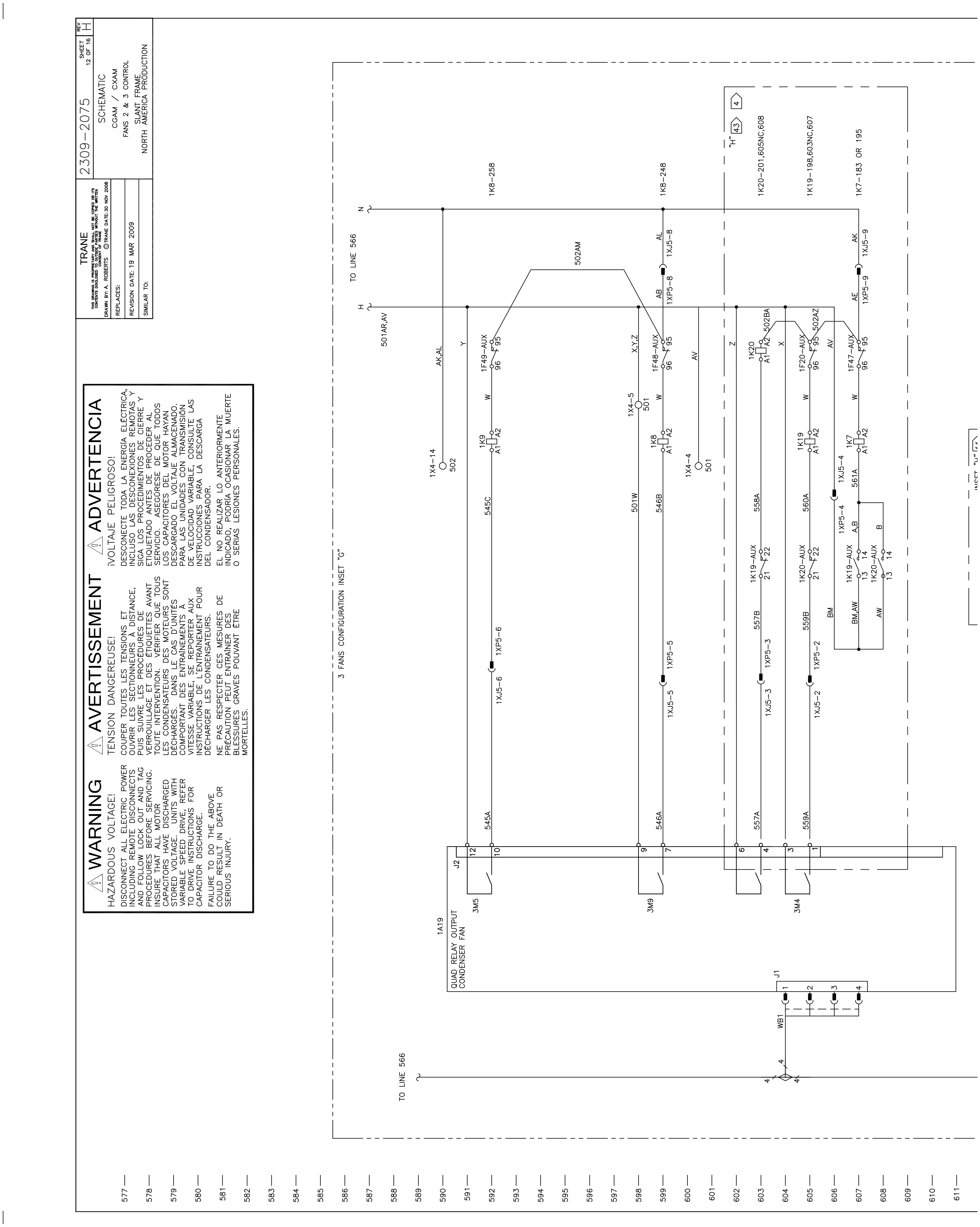
1A7
DUAL HIGH VOLTAGE INPUT COMPRESSOR FAULT
COMP 1B
COMP 1A
502 (AB OR AD)
501AR,AV
TO LINE 488 (WATER PUMPS)
OR 443 OR 475
TO LINE 339 (WATER PUMPS)
TO LINE 585 (COMMON CONTROL)
1K1-33,38NC
TO LINE 40


2309-2075
SHEET 12 OF 16
REV H
SCHEMATIC
CGAM / CXAM
FANS 2 & 3 CONTROL
SLANT FRAME
NORTH AMERICA PRODUCTION
TRANE
DRAWN BY: A. ROBERTS
DATE: 30 NOV 2008
REVISION DATE: 19 MAR 2009
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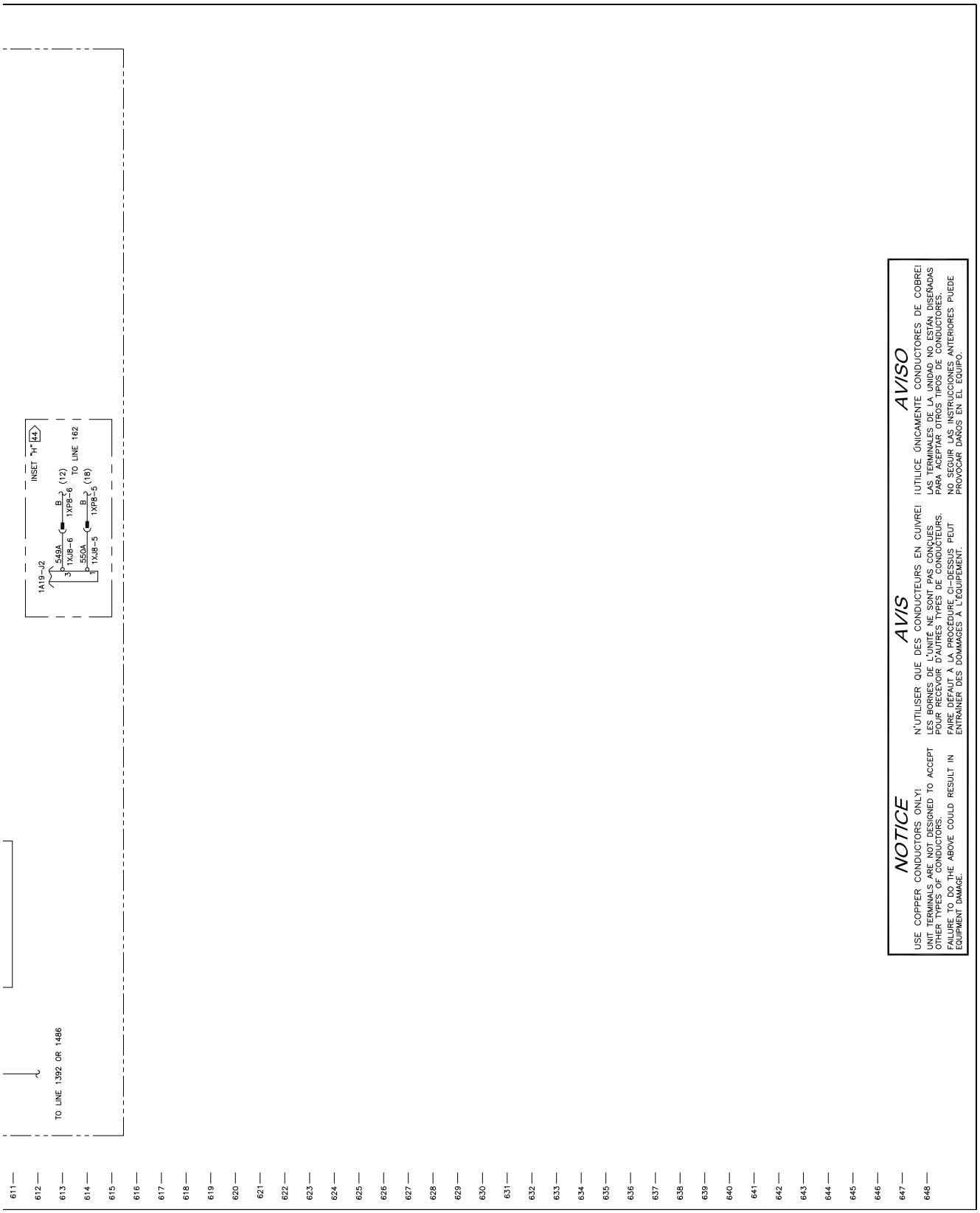
3 FANS CONFIGURATION INSET "G"
TO LINE 566
1A19
QUAD RELAY OUTPUT CONDENSER FAN
3M5
3M9
3M4
WB1
1K9
1K8
1K19
1K7
1K20
1F49-AUX
1F48-AUX
1F20-AUX
1F47-AUX
1K8-258
1K8-248
1K20-201,605NC,608
1K19-198,603NC,607
1K7-183 OR 195


611
612
613
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619
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621
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623
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629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
TO LINE 1392 OR 1486
1A19-J2
3
549A
1XJ8-6
B
1XPB-6
(12)
TO LINE 162
1
550A
1XJ8-5
B
1XPB-5
(18)
INSET "H" 44
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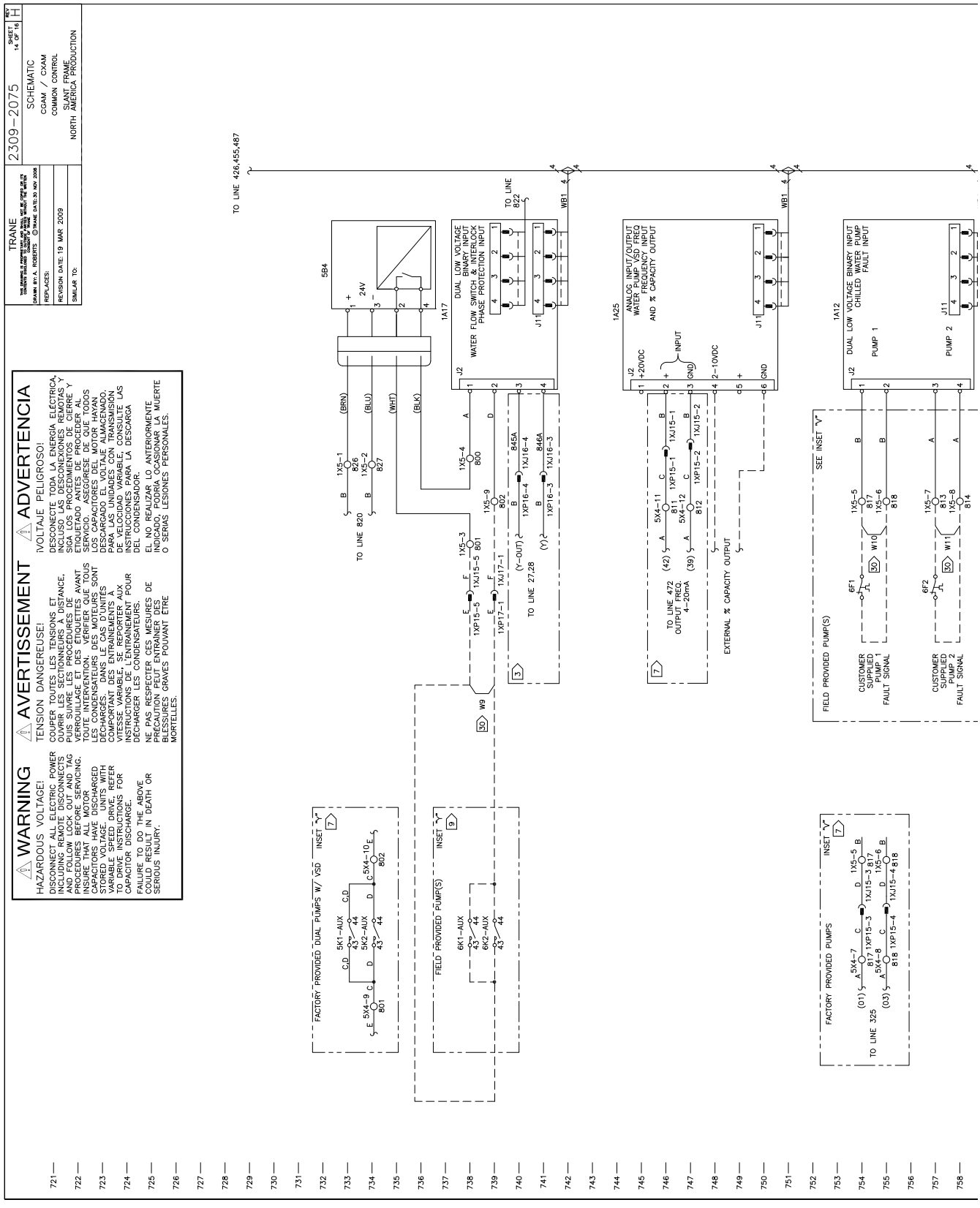
TRANE
2309-2075
SHEET 14 OF 16
REV H
SCHEMATIC
CGAM / CXAM
COMMON CONTROL
SLANT FRAME
NORTH AMERICA PRODUCTION
DRAWN BY: A. ROBERTS
REPLACES:
REVISION DATE: 19 MAR 2009
SIMILAR TO:
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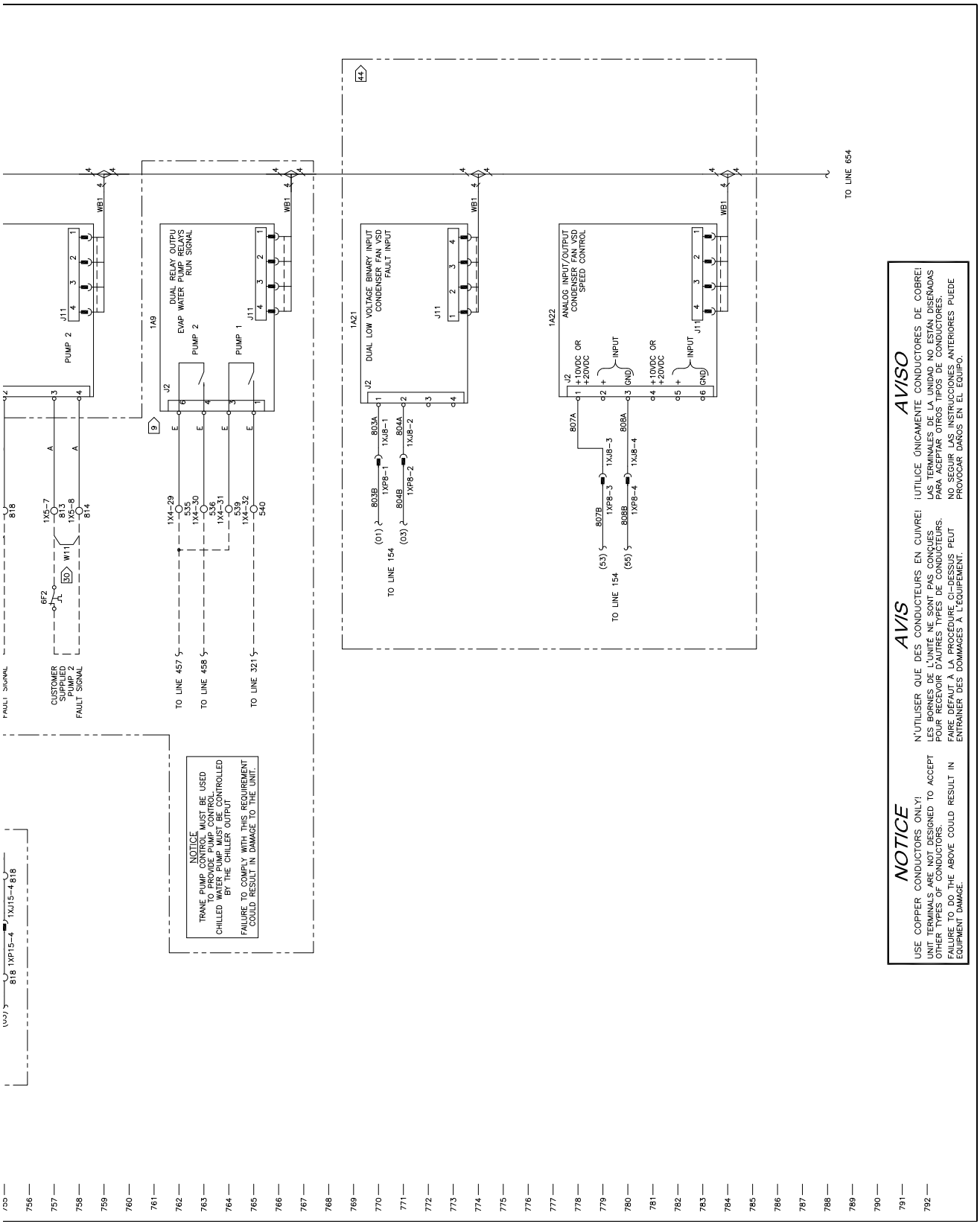
TO LINE 426,455,487
5B4
1A17
DUAL LOW VOLTAGE BINARY INPUT
WATER FLOW SWITCH & INTERLOCK
PHASE PROTECTION INPUT
TO LINE 822
1A25
ANALOG INPUT/OUTPUT
WATER PUMP VSD FREQ
FREQUENCY INPUT
AND % CAPACITY OUTPUT
1A12
DUAL LOW VOLTAGE BINARY INPUT
CHILLED WATER PUMP
FAULT INPUT
PUMP 1
PUMP 2
FACTORY PROVIDED DUAL PUMPS W/ VSD
FIELD PROVIDED PUMP(S)
FACTORY PROVIDED PUMPS
SEE INSET "V"
TO LINE 820
TO LINE 27,28
TO LINE 472
OUTPUT FREQ.
4-20mA
EXTERNAL % CAPACITY OUTPUT
TO LINE 325
CUSTOMER SUPPLIED PUMP 1 FAULT SIGNAL
CUSTOMER SUPPLIED PUMP 2 FAULT SIGNAL
(BRN)
(BLU)
(WHT)
(BLK)


NOTICE
TRANE PUMP CONTROL MUST BE USED TO PROVIDE PUMP CONTROL. CHILLED WATER PUMPS MUST BE CONTROLLED BY THE CHILLER'S OUTPUT.
FAILURE TO COMPLY WITH THIS REQUIREMENT COULD RESULT IN DAMAGE TO THE UNIT.
CUSTOMER SUPPLIED PUMP 2 FAULT SIGNAL
PUMP 2
PUMP 1
DUAL RELAY OUTPU EVAP WATER PUMP RELAYS RUN SIGNAL
DUAL LOW VOLTAGE BINARY INPUT CONDENSER FAN VSD FAULT INPUT
ANALOG INPUT/OUTPUT CONDENSER FAN VSD SPEED CONTROL
+10VDC OR +20VDC
INPUT
GND
TO LINE 457
TO LINE 458
TO LINE 321
TO LINE 154
TO LINE 654
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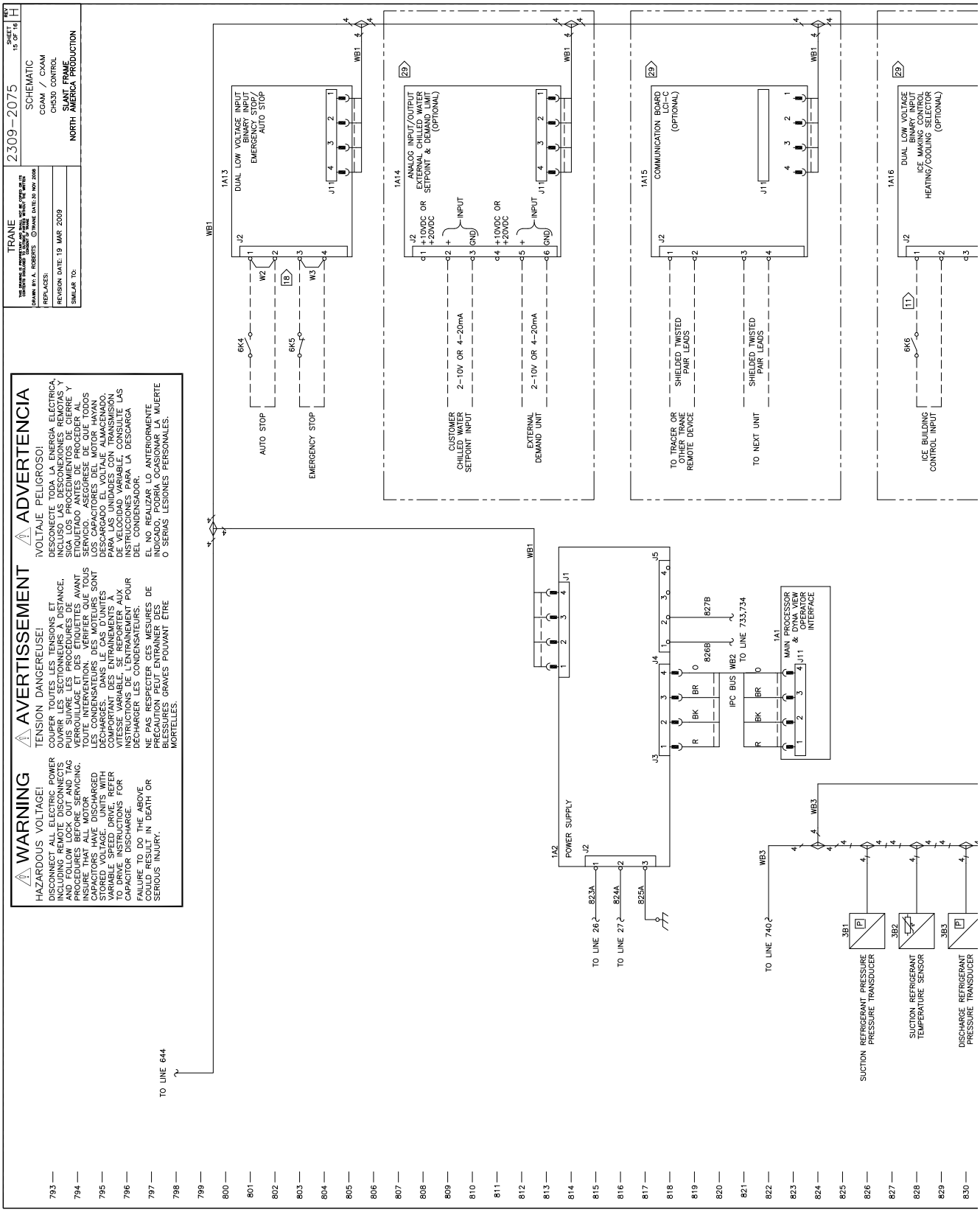
TRANE
2309–2075
SCHEMATIC
CGAM / CXAM
CH530 CONTROL
SLANT FRAME
NORTH AMERICA PRODUCTION
SHEET 15 OF 16
REV H
REPLACES:
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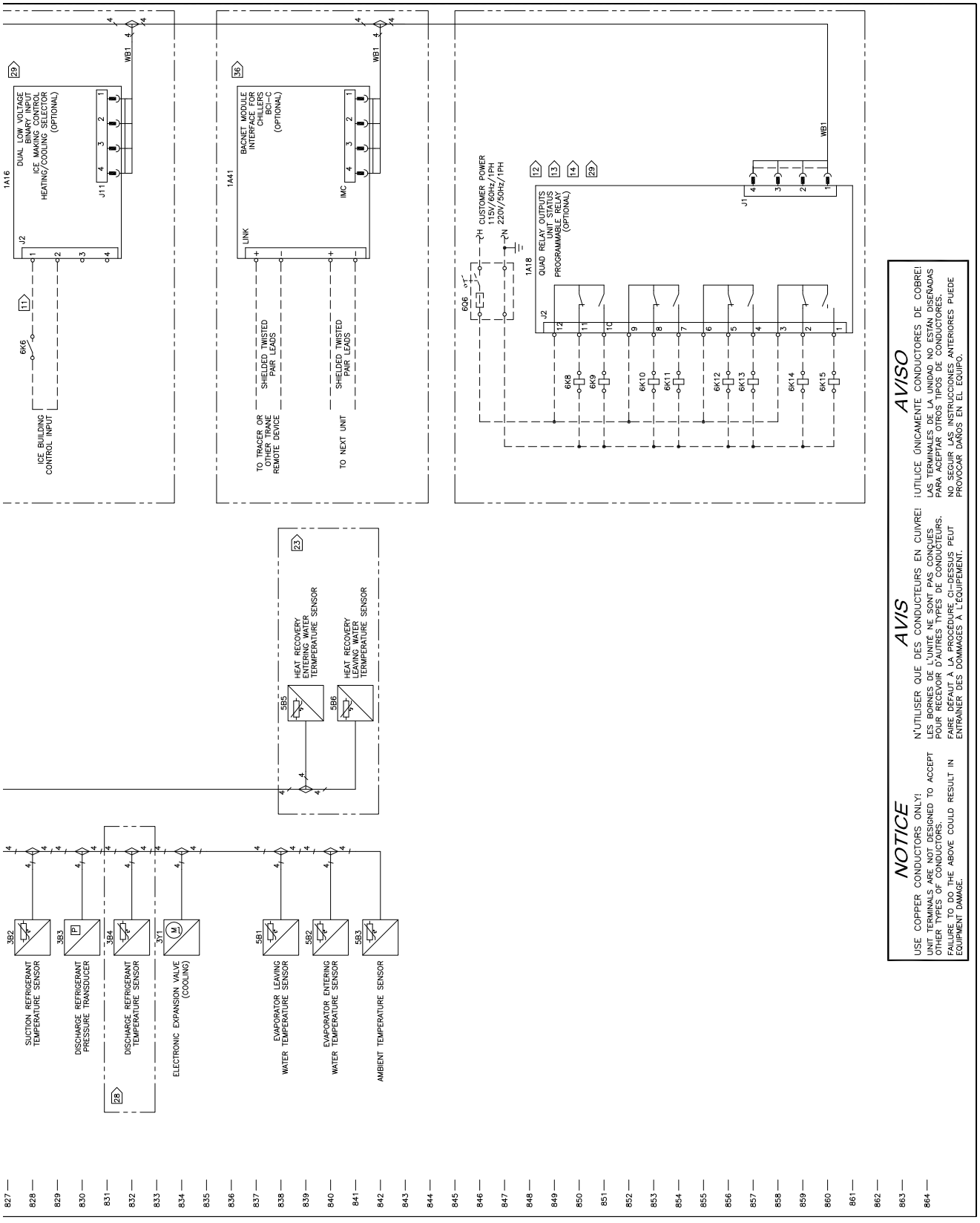
TO LINE 644
WB1
1A13
DUAL LOW VOLTAGE INPUT BINARY INPUT EMERGENCY STOP/ AUTO STOP
AUTO STOP
EMERGENCY STOP
6K4
6K5
W2
W3
18
1A14
ANALOG INPUT/OUTPUT EXTERNAL CHILLED WATER SETPOINT & DEMAND LIMIT (OPTIONAL)
+10VDC OR +20VDC
INPUT
GND
2–10V OR 4–20mA
CUSTOMER CHILLED WATER SETPOINT INPUT
EXTERNAL DEMAND LIMIT
1A15
COMMUNICATION BOARD LCI–C (OPTIONAL)
SHIELDED TWISTED PAIR LEADS
TO TRACER OR OTHER TRANE REMOTE DEVICE
TO NEXT UNIT
1A16
DUAL LOW VOLTAGE BINARY INPUT ICE MAKING CONTROL HEATING/COOLING SELECTOR (OPTIONAL)
6K6
11
ICE BUILDING CONTROL INPUT
1A2
POWER SUPPLY
TO LINE 26
TO LINE 27
823A
824A
825A
J1
J2
J3
J4
J5
826B
827B
WB2
TO LINE 733,734
IPC BUS
1A1
MAIN PROCESSOR & DYNA VIEW OPERATOR INTERFACE
WB3
TO LINE 740
3B1
3B2
3B3
SUCTION REFRIGERANT PRESSURE TRANSDUCER
SUCTION REFRIGERANT TEMPERATURE SENSOR
DISCHARGE REFRIGERANT PRESSURE TRANSDUCER


1A16
DUAL LOW VOLTAGE BINARY INPUT ICE MAKING CONTROL HEATING/COOLING SELECTOR (OPTIONAL)
J2
J11
WB1
ICE BUILDING CONTROL INPUT
6K6
1A41
BACNET MODULE INTERFACE FOR CHILLERS BCI-C (OPTIONAL)
LINK
IMC
SHIELDED TWISTED PAIR LEADS
TO TRACER OR OTHER TRANE REMOTE DEVICE
TO NEXT UNIT
1A18
QUAD RELAY OUTPUTS UNIT STATUS PROGRAMMABLE RELAY (OPTIONAL)
CUSTOMER POWER 115V/60Hz/1PH 220V/50Hz/1PH
6K8
6K9
6K10
6K11
6K12
6K13
6K14
6K15
HEAT RECOVERY ENTERING WATER TEMPERATURE SENSOR
HEAT RECOVERY LEAVING WATER TEMPERATURE SENSOR
5B5
5B6
SUCTION REFRIGERANT TEMPERATURE SENSOR
DISCHARGE REFRIGERANT PRESSURE TRANSDUCER
DISCHARGE REFRIGERANT TEMPERATURE SENSOR
ELECTRONIC EXPANSION VALVE (COOLING)
EVAPORATOR LEAVING WATER TEMPERATURE SENSOR
EVAPORATOR ENTERING WATER TEMPERATURE SENSOR
AMBIENT TEMPERATURE SENSOR
3B2
3B3
3B4
3Y1
5B1
5B2
5B3
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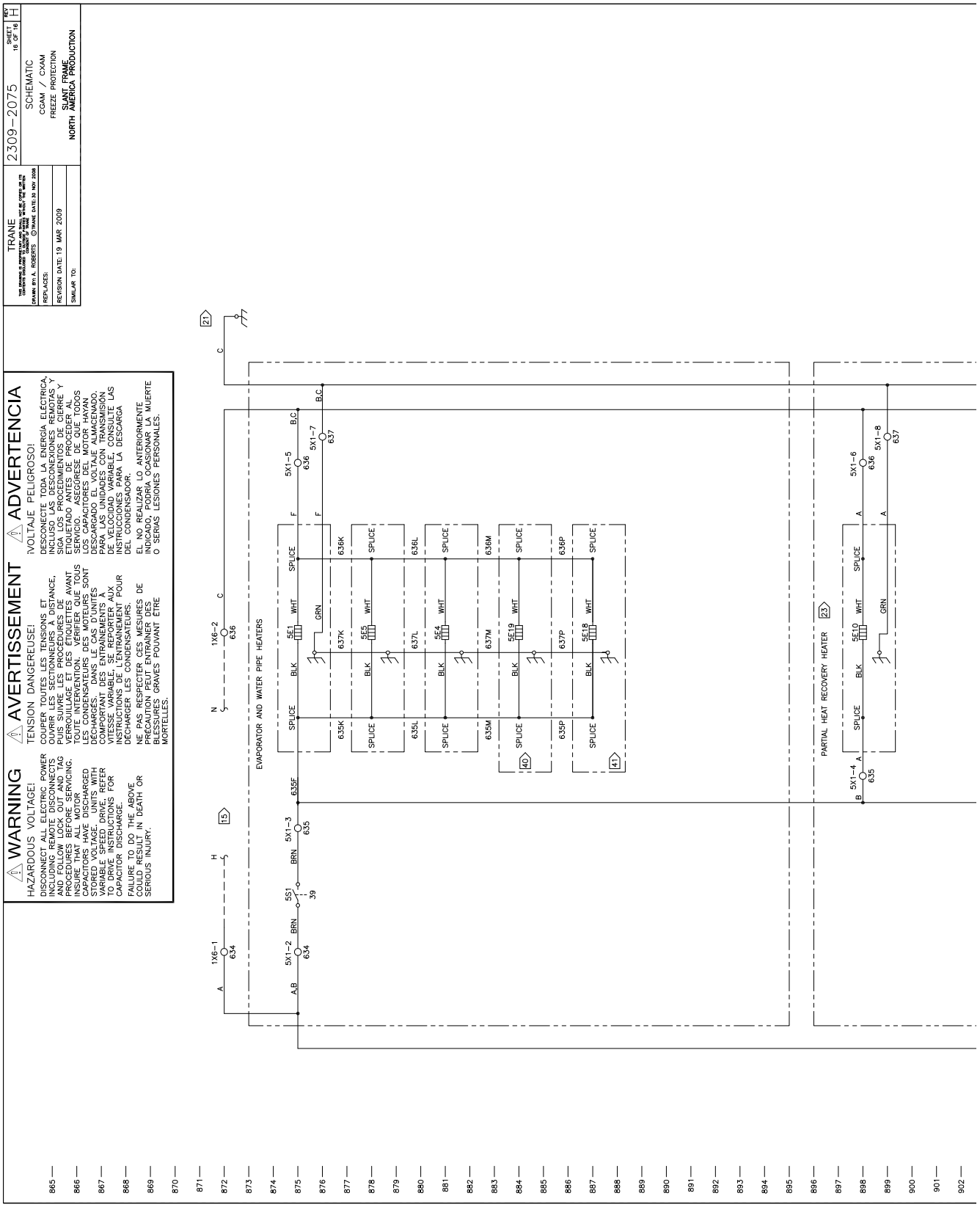
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TRANE
DRAWN BY: A. ROBERTS © TRANE DATE: 30 NOV 2009
REPLACES:
REVISION DATE: 19 MAR 2009
SIMILAR TO:
2309–2075
SHEET 16 OF 16
REV H
SCHEMATIC
CGAM / CXAM
FREEZE PROTECTION
SLANT FRAME
NORTH AMERICA PRODUCTION
EVAPORATOR AND WATER PIPE HEATERS
PARTIAL HEAT RECOVERY HEATER
1X6–1
1X6–2
5S1
5X1–2
5X1–3
5X1–4
5X1–5
5X1–6
5X1–7
5X1–8
5E1
5E4
5E5
5E9
5E10
5E18
5E19
SPLICE
WHT
BLK
GRN
BRN
634
635
635F
635K
635L
635M
635P
636
636K
636L
636M
636P
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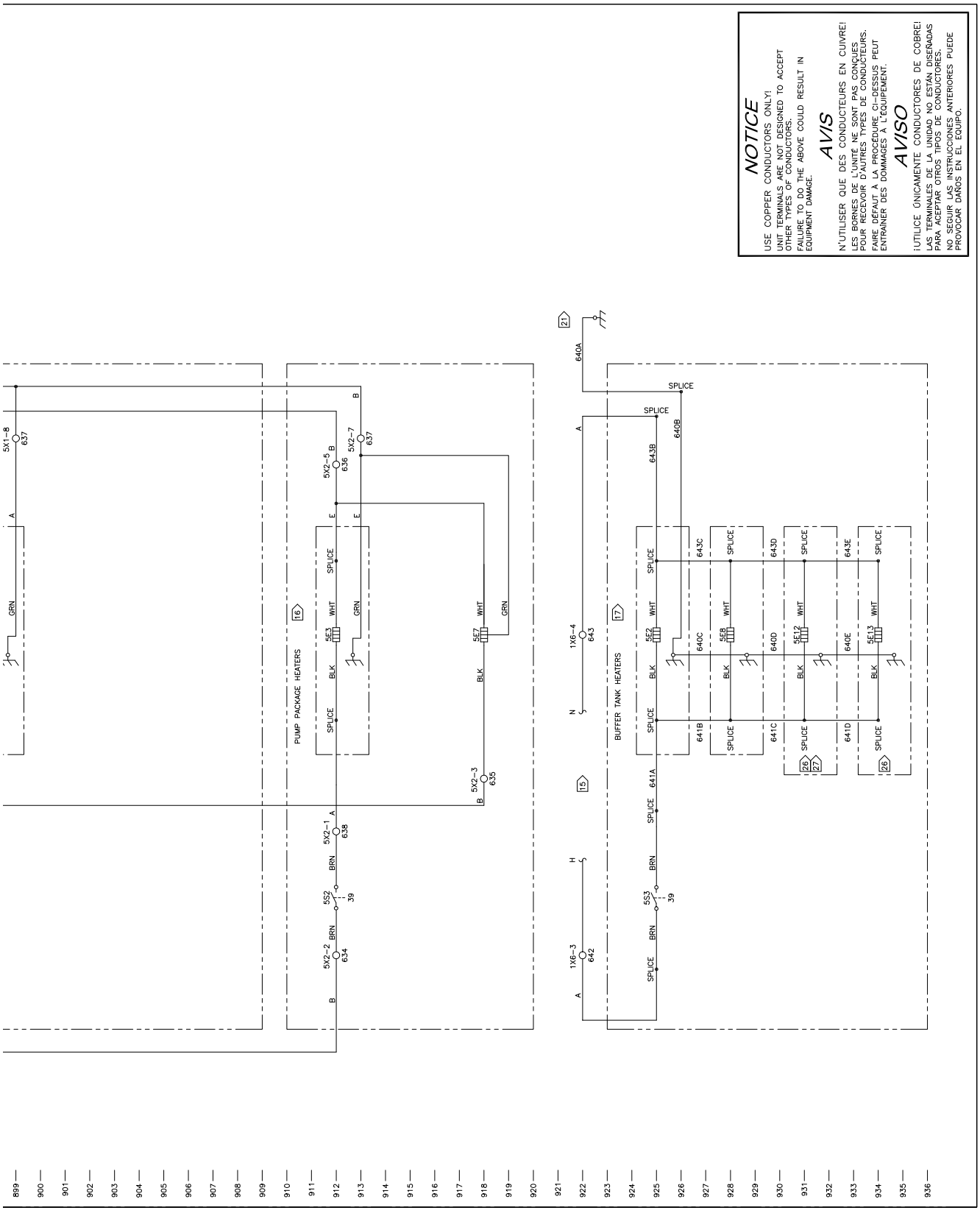
637P
39
15
21
23
140
141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PUMP PACKAGE HEATERS
BUFFER TANK HEATERS
5X1-8 637
5X2-7 637
5X2-5 636
5X2-3 635
5X2-1 638
5X2-2 634
1X6-4 643
1X6-3 642
640A
640B
641A
641B
641C
641D
643B
643C
643D
643E
5E3
5E7
5E2
5E8
5E12
5E13
5S2
5S3
GRN
BRN
BLK
WHT
SPLICE
39

TRANE	2309–2075	SHEET 1 OF 16	REV H
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DRAWN BY: A. ROBERTS © TRANE DATE: 30 NOV 2008	CGAM / CXAM		
REPLACES:	TABLE OF CONTENTS		
REVISION DATE: 19 MAR 2009	V FRAME		
SIMILAR TO:	NORTH AMERICA PRODUCTION		

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TRANE	2309–2075	SHEET 2 OF 16	REV H
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REPLACES:	CGAM / CXAM DEVICE DESIGNATORS		
REVISION DATE: 19 MAR 2009	V FRAME NORTH AMERICA PRODUCTION		
SIMILAR TO:			

DEVICES, DESCRIPTIONS & DESIGNATIONS

DEVICE PREFIX LOCATION CODE	
AREA	LOCATION
1	MAIN PANEL/AUXILIARY PANEL
2	NOT USED
3	REFRIGERATION CIRCUIT 1
4	REFRIGERATION CIRCUIT 2
5	UNIT MOUNTED
6	CUSTOMER PROVIDED

LEGEND

DEVICE DESIGNATION	DESCRIPTION	LINE NUMBER
	MAIN PANEL/AUXILIARY PANEL	
1A1	DYNAVIEW MAIN PROCESSOR MODULE	823
1A2	POWER SUPPLY MODULE	814
1A3	COMPRESSOR MOTOR CONTROL; QUAD RELAY OUTPUT	531
1A5	HIGH PRESSURE CUTOUT; DUAL HIGH VOLTAGE BINARY INPUT	525
1A6	COMPRESSOR FAULT, 2A & 2B, DUAL HIGH VOLTAGE BINARY INPUT	550
1A7	COMPRESSOR FAULT, 1A & 1B, DUAL HIGH VOLTAGE BINARY INPUT	557
1A9	CHILLED WATER PUMP CONTROL, DUAL RELAY OUTPUT	762
1A12	CHILLED WATER PUMP FAULT, DUAL LOW VOLTAGE BINARY INPUT	753
1A13	EXTERNAL EMERGENCY STOP/AUTO STOP, DUAL LOW VOLTAGE BINARY INPUT	801
1A14	EXTERNAL CHILLER WATER SETPOINT DEMAND &LIMIT; ANOLOG INPUT/OUTPUT	808
1A15	COMMUNICATION, LCI–C, DUAL LOW VOLTAGE BINARY INPUT	817
1A16	ICE MAKING CONTROL, DUAL LOW VOLTAGE BINARY INPUT	827
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1A20	CONDENSER FAN CONTROL CIRCUIT 2, QUAD RELAY OUTPUT	459 OR 490
1A21	FAN INVERT FAULT INPUT, DUAL LOW VOLTAGE BINARY INPUT	770
1A22	FAN VSD CONTROL, ANALOG INPUT/OUTPUT	778
1A25	PUMP VSD FREQUENCY, ANOLOG INPUT/OUTPUT OR % CAPACITY	745
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1F11	FUSE, CONTROL POWER TRANSFORMER, SECONDARY, 115V	27
1F12–1F13	FUSE, CONTROL POWER TRANSFORMER, SECONDARY, 24V	26,27
1F14–1F16	FUSE, FAN 1A, CIRCUIT 1	156,157,158 OR 183,184,185 OR 195,196,197
1F17–1F19	FUSE, FAN 2A, CIRCUIT 2	300,301,302, OR 328,329,330 OR 339,340,341
1F20	OVERLOAD RELAY, FAN 3M4 LOW SPEED	
1F21	OVERLOAD RELAY, FAN 4M4 LOW SPEED	
1F32–1F34	FUSE, VSD, PUMP	467,468,469
1F38–1F40	FUSE, FANS CIRCUIT 1	172
1F44–1F46	FUSE, FANS CIRCUIT 2	244
1F47	OVERLOAD RELAY, FAN 3M4 HIGH SPEED	?
1F48	OVERLOAD RELAY, FAN 3M9	?
1F49	OVERLOAD RELAY, FAN 3M5	?
1F53	OVERLOAD RELAY, FAN 4M4, HIGH SPEED	
1F54	OVERLOAD RELAY, FAN 4M9	?
1F55	OVERLOAD RELAY, FAN 4M5	?
1K1	CONTACTOR, COMPRESSOR 1A, CIRCUIT 1	3540
1K2	CONTACTOR, COMPRESSOR 1B, CIRCUIT 1	4538
		60,
1K4	CONTACTOR, COMPRESSOR 2A, CIRCUIT 2	9534
1K5	CONTACTOR, COMPRESSOR 2B, CIRCUIT 2	10832
1K7	CONTACTOR, FAN 3M4	607 OR 660 OR 704

LEGEND

DEVICE DESIGNATION	DESCRIPTION	LINE NUMBER
	REFRIGERATION CIRCUIT 1	
3B1	TRANSDUCER, SUCTION REFRIGERANT PRESSURE, CIRCUIT 1	826
3B2	SENSOR, SUCTION REFRIGERANT TEMPERATURE, CIRCUIT 1	828
3B3	TRANDUCER, DISCHARGE REFRIGERANT PRESSURE, CIRCUIT 1	830
3B4	SENSOR, DISCHARGE REFRIGERANT TEMPERATURE, CIRCUIT 1	832
3M1	MOTOR, COMPRESSOR 1A, CIRCUIT 1	34
3M1A1	ELECTRONIC PROTECTION MODULE, COMPRESSOR 1A, CIRCUIT 1	36
3M1E1	HEATER, COMPRESSOR 1A, CIRCUIT 1	39
3M2	MOTOR, COMPRESSOR 1B, CIRCUIT 1	49
3M2A1	ELECTRONIC PROTECTION MODULE, COMPRESSOR 1B, CIRCUIT 1	52
3M2E1	HEATER, COMPRESSOR 1B, CIRCUIT 1	42
3M4	MOTOR, FAN 1, CIRCUIT 1	156
3M5	MOTOR, FAN, CIRCUIT 1	259
3M9	MOTOR, FAN, CIRCUIT 1	249
3S1	HIGH PRESSURE CUTOUT SWITCH, CIRCUIT 1	536
3S2	THERMOSTAT, COMPRESSOR 1A HEATER	39
3S3	THERMOSTAT, COMPRESSOR 1B HEATER	42
3Y1	EXPANSION VALVE, COOLING, CIRCUIT 1	834
	REFRIGERATION CIRCUIT 2	
4B1	TRANDUCER, SUCTION REFRIGERANT PRESSURE, CIRCUIT 2	826
4B2	SENSOR, SUCTION REFRIGERANT TEMPERATURE, CIRCUIT 2	828
4B3	TRANDUCER, DISCHARGE REFRIGERANT PRESSURE, CIRCUIT 2	830
4B4	SENSOR, DISCHARGE REFRIGERANT TEMPERATURE, CIRCUIT 2	832
4M1	MOTOR, COMPRESSOR 2A, CIRCUIT 2	93
4M1A1	ELECTRONIC PROTECTION MODULE, COMPRESSOR 2A, CIRCUIT 2	96
4M1E1	HEATER, COMPRESSOR 2A, CIRCUIT 2	99
4M2	MOTOR, COMPRESSOR 2B, CIRCUIT 2	108
4M2A1	ELECTRONIC PROTECTION MODULE, COMPRESSOR 2B, CIRCUIT 2	112
4M2E1	HEATER, COMPRESSOR 2B, CIRCUIT 2	102
		156
4M4	MOTOR, FAN 1, CIRCUIT 2	228
4M5	MOTOR, FAN, CIRCUIT 2	403
4M9	MOTOR, FAN, CIRCUIT 2	393
4S1	HIGH PRESSURE CUTOUT SWITCH, CIRCUIT 2	530
4S2	THERMOSTAT, COMPRESSOR 2A HEATER	99
4S3	THERMOSTAT, COMPRESSOR 2B HEATER	102
4Y1	EXPANSION VALVE, COOLING, CIRCUIT 2	834
	UNIT MOUNTED	
5A1	VSD, WATER PUMP CONTROL	467
5B1	SENSOR, EVAPORATOR LEAVING WATER TEMPERATURE	838
5B2	SENSOR, EVAPORATOR ENTERING WATER TEMPERATURE	840
5B3	SENSOR, AMBIENT TEMPERATURE	842
5B4	SENSOR, WATER FLOW	732
5B5	SENSOR, HEAT RECOVERY ENTERING WATER TEMP	839
5B6	SENSOR, HEAT RECOVERY LEAVING WATER TEMP	841

1K1	CONTACTOR, COMPRESSOR 1A, CIRCUIT 1	3540
1K2	CONTACTOR, COMPRESSOR 1B, CIRCUIT 1	4538
		60,
1K4	CONTACTOR, COMPRESSOR 2A, CIRCUIT 2	9534
1K5	CONTACTOR, COMPRESSOR 2B, CIRCUIT 2	10832
1K7	CONTACTOR, FAN 3M4	607 OR 669 OR 701
1K8	CONTACTOR, FAN 3M9	176,447,481
1K9	CONTACTOR, FAN 3M5	186,479
1K13	CONTACTOR, FAN 4M4	633 OR 682 OR 714
1K14	CONTACTOR, FAN 4M9	248,463,494
1K15	CONTACTOR, FAN 4M5	258,492
1K19	CONTACTOR, 2-SPEED FAN 3M4, LOW	605
1K20	CONTACTOR, 2-SPEED FAN 3M4, HIGH	603
1K21	CONTACTOR, 2-SPEED FAN 4M4, LOW	631
1K22	CONTACTOR, 2-SPEED FAN 4M4, HIGH	629
1M1	FAN, MAIN CONTROL PANEL VENTILATION	518
1Q1	CIRCUIT BREAKER	15
1Q5	CIRCUIT BREAKER, COMPRESSOR, 3M1, CIRCUIT 1	33
1Q6	CIRCUIT BREAKER, COMPRESSOR, 3M2, CIRCUIT 1	48
1Q8	CIRCUIT BREAKER, COMPRESSOR, 4M1, CIRCUIT 2	93
1Q9	CIRCUIT BREAKER, COMPRESSOR, 4M2, CIRCUIT 2	108
1S1	THERMOSTAT, MAIN CONTROL PANEL VENTILATION	518
1S2	THERMOSTAT, VSD HEATER BLANKET	521
1T1	TRANSFORMER, CONTROL POWER	23
1T2	AUTOTRANSFORMER, FAN VSD, CIRCUIT 1	161
1T3	AUTOTRANSFORMER, FAN VSD, CIRCUIT 2	305
1X1	BLOCK, TERMINAL – CUSTOMER POWER DISTRIBUTION	8
1X3	BLOCK, TERMINAL – COMPRESSOR HEATER, CIRCUIT 1	VARIES
1X4	BLOCK, TERMINAL – FACTORY CONTROL WIRING, 115VAC	VARIES
1X5	BLOCK, TERMINAL – FACTORY CONTROL WIRING, 0-10VDC	VARIES
1X6	BLOCK, TERMINAL – CUSTOMER CONTROL WIRING, 115VAC	VARIES
1X7	BLOCK, TERMINAL – CUSTOMER CONTROL WIRING, 0-10VDC	VARIES
1X9	BLOCK, TERMINAL – COMPRESSOR HEATER, CIRCUIT 2	VARIES
1XJ1	CONNECTOR, JACK – CONTROL POWER TRANSFORMER WIRING	VARIES
1XJ2	CONNECTOR, JACK – PUMP CONTROL 1 WIRING	VARIES
1XJ3	CONNECTOR, JACK – COMPRESSOR CONTROL CIRCUIT 1 WIRING	VARIES
1XJ4	CONNECTOR, JACK – COMPRESSOR CONTROL CIRCUIT 2 WIRING	VARIES
1XJ5	CONNECTOR, JACK – FAN CONTROL CIRCUIT 1 WIRING	VARIES
1XJ6	CONNECTOR, JACK – FAN CONTROL CIRCUIT 2 WIRING	VARIES
1XJ7	CONNECTOR, JACK – VSD CONTROL CIRCUIT 2 WIRING	VARIES
1XJ8	CONNECTOR, JACK – VSD CONTROL CIRCUIT 1 WIRING	VARIES
1XJ9	CONNECTOR, JACK – COMPRESSOR 1A WIRING	VARIES
1XJ10	CONNECTOR, JACK – COMPRESSOR 1B WIRING	VARIES
1XJ12	CONNECTOR, JACK – COMPRESSOR 2A WIRING	VARIES
1XJ13	CONNECTOR, JACK – COMPRESSOR 2B WIRING	VARIES
1XJ15	CONNECTOR, JACK – PUMP CONTROL WIRING 2	VARIES
1XJ16	CONNECTOR, JACK – PHASE PROTECTION RELAY WIRING	VARIES
1XJ17	CONNECTOR, JACK – PUMP CONTROL WIRING 3	VARIES
1XP1	CONNECTOR, PLUG – CONTROL POWER TRANSFORMER WIRING	VARIES
1XP2	CONNECTOR, PLUG – PUMP CONTROL WIRING 1	VARIES
1XP3	CONNECTOR, PLUG – COMPRESSOR CONTROL CIRCUIT 1 WIRING	VARIES
1XP4	CONNECTOR, PLUG – COMPRESSOR CONTROL CIRCUIT 2 WIRING	VARIES
1XP5	CONNECTOR, PLUG – FAN CONTROL CIRCUIT 1 WIRING	VARIES
1XP6	CONNECTOR, PLUG – FAN CONTROL CIRCUIT 2 WIRING	VARIES
1XP7	CONNECTOR, PLUG – VSD CONTROL CIRCUIT 2 WIRING	VARIES
1XP8	CONNECTOR, PLUG – VSD CONTROL CIRCUIT 1 WIRING	VARIES
1XP9	CONNECTOR, PLUG – COMPRESSOR 1A WIRING	VARIES
1XP10	CONNECTOR, PLUG – COMPRESSOR 1B WIRING	VARIES
1XP12	CONNECTOR, PLUG – COMPRESSOR 2A WIRING	VARIES
1XP13	CONNECTOR, PLUG – COMPRESSOR 2B WIRING	VARIES
1XP15	CONNECTOR, PLUG – PUMP CONTROL WIRING 2	VARIES
1XP16	CONNECTOR, PLUG – PHASE PROTECTION RELAY WIRING	VARIES
1XP17	CONNECTOR, PLUG – PUMP CONTROL WIRING 3	VARIES

5A1	VSD, WATER PUMP CONTROL	467
5B1	SENSOR, EVAPORATOR LEAVING WATER TEMPERATURE	838
5B2	SENSOR, EVAPORATOR ENTERING WATER TEMPERATURE	840
5B3	SENSOR, AMBIENT TEMPERATURE	842
5B4	SENSOR, WATER FLOW	732
5B5	SENSOR, HEAT RECOVERY ENTERING WATER TEMP	839
5B6	SENSOR, HEAT RECOVERY LEAVING WATER TEMP	841
5E1	HEATER, EVAPORATOR	875
5E2	HEATER, BUFFER TANK	925
5E3	HEATER, WATER PUMP PIPING	912
5E4	HEATER, EVAPORATOR ENTERING WATER PIPING	881
5E5	HEATER, EVAPORATOR LEAVING WATER PIPING	878
5E7	HEATER, EXPANSION TANK	918
5E8	HEATER, BUFFER TANK	928
5E9	HEATER, PUMP VSD ENCLOSURE	499
5E10	**HEATER, PARTIAL HEAT RECOVERY**	898
5E11	**HEATER, PARTIAL HEAT RECOVERY**	757
5E12	HEATER, BUFFER TANK	931
5E13	HEATER, BUFFER TANK	934
5E15	HEATER, WATER PUMP PIPING	771
5E18	HEATER, EVAPORATOR ENTERING WATER PIPING	887
5K1-5K2	CONTACTOR, PUMP PACKAGE W/ VSD	492,495
5M1	MOTOR, FACTORY PROVIDED, CHILLED WATER PUMP 1	469
5M2	MOTOR, FACTORY PROVIDED, CHILLED WATER PUMP 2	478
5M3	MOTOR, FAN PUMP VSD ENCLOSURE VENTILATION	500
5X1	BLOCK, TERMINAL – EVAPORATOR AND WATER PIPE HEATERS	VARIES
5X2	BLOCK, TERMINAL – PUMP PACKAGE HEATERS	VARIES
5X3	BLOCK, TERMINAL – BUFFER TANK HEATERS	VARIES
5X4	BLOCK, TERMINAL – PUMP VSD AUXILIARY PANEL HEATER	VARIES
5S1	THERMOSTAT, EVAPORATOR & WATER PIPES, HEATERS	875
5S2	THERMOSTAT, PUMP PACKAGE, HEATERS	912
5S3	THERMOSTAT, BUFFER TANK, HEATERS	925
5S4	THERMOSTAT, PUMP VSD AUXILIARY PANEL HEATER	499
5S5	THERMOSTAT, PUMP VSD AUXILIARY PANEL FAN	500
	CUSTOMER PROVIDED	
6F1-6F2	RELAY, CUSTOMER PROVIDED, OVERLOAD PROTECTION, CHILLED WATER PUMP	445,450
6K1	RELAY, CUSTOMER PROVIDED, CHILLED WATER PUMP 1	442
6K2	RELAY, CUSTOMER PROVIDED, CHILLED WATER PUMP 2	443
6K4	RELAY, EXTERNAL INPUT, AUTO/STOP	801
6K5	RELAY, EXTERNAL INPUT, EMERGENCY STOP	803
6K6	RELAY, EXTERNAL INPUT, ENABLE ICE MAKING	828
6K8-15	RELAY, CUSTOMER PROVIDED, UNIT STATUS, (PROGRAMMABLE)	850 TO 860
6M1	MOTOR, CUSTOMER PROVIDED, CHILLED WATER PUMP 1	445
6M2	MOTOR, CUSTOMER PROVIDED, CHILLED WATER PUMP 2	450
6Q1	FUSED DISCONNECT CUSTOMER SUPPLIED 3 PHASE, POWER SUPPLY	3,437
6Q3-6Q4	FUSED DISCONNECT CUSTOMER SUPPLIED 3 PHASE, CHILLED WATER PUMP	445,450
6Q5	FUSED DISCONNECT CUSTOMER SUPPLIED 2 PHASE, CHILLED WATER PUMP	441
6Q6	FUSED DISCONNECT CUSTOMER SUPPLIED 1 PHASE, CONTROL POWER SUPPLY	846

TRANE	2309-2075	SHEET 3 OF 16	REV H
THIS DRAWING IS PROPRIETARY AND SHALL NOT BE COPIED OR ITS CONTENTS DISCLOSED TO OUTSIDE PARTIES WITHOUT THE WRITTEN CONSENT OF TRANE	SCHEMATIC		
DRAWN BY: A ROBERTS ©TRANE DATE: 30 NOV 2008	CGAM / CXAM		
REPLACES:	NOTES		
REVISION DATE: 19 MAR 2009	V FRAME		
SIMILAR TO:	NORTH AMERICA PRODUCTION		

GENERAL & FLAG NOTES

GENERAL NOTES:

1. UNLESS OTHERWISE NOTED, ALL SWITCHES ARE SHOWN AT 25°C (77F), 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 DEVICE OUTLINES INDICATE COMPONENTS PROVIDED BY THE FIELD.PHANTOM LINE ENCLOSURES INDICATE ALTERNATE CIRCUITRY OR AVAILABLE SALES OPTIONS. SOLID LINE INDICATES WIRING BY TRANE.
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.
5. 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.

FLAG NOTES:

1. ALL UNIT POWER WIRING MUST BE COPPER CONDUCTORS ONLY, HAVE A MINIMUM INSULATION TEMPERATURE RATING OF 90°C AND BE SELECTED AT 75°C RATINGS.
2. TERMINAL BLOCK 1X1 IS PROVIDED AS STANDARD ON ALL UNITS PNCO=TERM. CIRCUIT BREAKER 1Q1 PNCO=CB AVAILABLE AS OPTION. TERMINAL BLOCK IS REPLACED WITH CIRCUIT BREAKER WHEN THIS OPTION IS SELECTED.
3. ELECTRONIC PROTECTION MODULE USED FOR 15–30 TON COMPRESSORS ONLY.
   FOR 10–13TON COMPRESSOR CONTROL CIRCUIT, TERMINALS (16,19), (16,20) ARE JUMPED BY W4 AND W5. TERMINALS (15,18), (15,17) ARE JUMPED BY W6, AND W7 IN V CONFIGURATION. (NTON= 020, 026, 040 or 052).
4. REFER TO FAN CHART FOR VALID FAN CONFIGURATIONS.
5. TRANSFORMER FOR 575V UNITS ONLY. (VOLT=575) AND (UAPP=CATC or WIDC).
6. PUMP PACKAGE:
   – AT LEAST ONE PUMP IS ALWAYS PRESENT AND IS EITHER FIELD OR FACTORY SUPPLIED.
   – WHEN PUMPS ARE FACTORY SUPPLIED, THEY WILL BE DUAL PUMPS.
7. OPTIONAL DUAL FACTORY SUPPLIED EVAP WATER PUMPS. WIRING SHOWN IS FOR VSD OF PUMP PACKAGE. (PTYP=DHHP).
8. OPTIONAL DUAL CUSTOMER SUPPLIED EVAP WATER PUMP(S). 6M2 WIRING PRESENT FOR DUAL PUMP CONFIGURATION ONLY. PUMP CONTROL CONFIGURATION SHOWS WIRING WITH CONTACTORS AND OVERLOAD RELAYS. PUMP(S) CAN ALSO BE POWERED BY CUSTOMER CONTROLLED VSD(S). PUMP STARTER FAULT SIGNAL(S) TO BE FIELD WIRED TO 1A12 (INSET "V").
9. CUSTOMER SUPPLIED PUMP RUN SIGNAL TO BE FIELD WIRED TO 1A9.
10. WIRING FOR 200V/460V UNIT SHOWN. SEE INSET "B" FOR CONTROL POWER TRANSFORMER WIRING OF OTHER VOLTAGES.
11. CONTACT CLOSURE ENABLES ICE MAKING, WHEN ICE MAKING OPTION IS ORDERED. (EVLT=ICE).
12. CLASS 1 FIELD WIRED MODULE.
13. RELAY AT 120VAC: 7.2 AMPS RESISTIVE, 2.88 AMPS PILOT DUTY, 1/3 HP 7.2 FLA; AT 240VAC: 5 AMPS GENERAL PURPOSE.
14. FIELD ASSIGNED PROGRAMMABLE RELAYS. (STAT=PRLY).
15. CUSTOMER SUPPLIED POWER, 120V.
16. ONLY USED WHEN PUMP PACKAGE OPTION IS ORDERED. (PTYP=DHHP).
17. ONLY USED WHEN BUFFER TANK OPTION IS ORDERED. (BTNK=BTNK).
18. THE CONTACTS FOR AUTO STOP AND EMERGENCY STOP SWITCHES ARE JUMPERED AT THE FACTORY BY JUMPERS W2 & W3 TO ENABLE UNIT OPERATION. IF REMOTE CONTROL IS DESIRED, REMOVE THE JUMPERS AND CONNECT TO THE DESIRED CONTROL CIRCUIT.
19. PHASE PROTECTION RELAY USED ONLY FOR CIRCUIT(S) WITH 10 TON AND 13 TON COMPRESSORS (NTON = 20, 26, 40 or 52).
20. NOT PRESENT WHEN BOTH OF THE COMPRESSORS ARE LESS THAN 15 TON (NTON = 20, 26, 40, or 52).
21. GROUND SCREW IN MAIN CONTROL PANEL.
22. INSIDE THE PUMP VSD ENCLOSURE, MOUNTED ON UNIT FRAME WITH (PTYP=DHHP).
23. ONLY USED WHEN PARTIAL HEAT RECOVERY (CDHR = PRTF) OPTION IS ORDERED.
24. COMPRESSOR HEATER WIRE COLOR IS DETERMINED BY VOLTAGE IN CHART.
25. PRESENT ON "V" FRAME UNITS (NTON = 40, 52, 60 or 70).

20 NOT PRESENT WHEN BOTH OF THE COMPRESSORS ARE LESS THAN 15 TON (NTON = 20, 26, 40, or 52).

21 GROUND SCREW IN MAIN CONTROL PANEL.

22 INSIDE THE PUMP VSD ENCLOSURE, MOUNTED ON UNIT FRAME WITH (PTYP=DHHP).

23 ONLY USED WHEN PARTIAL HEAT RECOVERY (CDHR = PRTF) OPTION IS ORDERED.

24 COMPRESSOR HEATER WIRE COLOR IS DETERMINED BY VOLTAGE IN CHART.

25 PRESENT ON "V" FRAME UNITS (NTON = 40, 52, 60 or 70).

26 PRESENT ON "W" FRAME UNITS (NTON = 100, 100, 120 or 130).

27 PRESENT ON "W" FRAME UNITS (NTON = 80, 90).

28 DISCHARGE REFIGERANT TEMPERATURE SENSOR PRESENT FOR ALL THE FOLLOWING OPTIONS:
UNITS WITH ICEMAKING OPTION (EVLT = ICE), UNITS WITH LOW TEMPERATURE PROCESS
COOLING (EVLT = PROC), UNITS WITH PHR FAN CONTROL OPTION (CDHR = PRTF).

29 REFER TO FIELD WIRING DIAGRAM FOR SUGGESTED WIRING.

30 JUMPERS W9, W10 AND W11 ARE INSTALLED BY THE FACTORY ON UNITS ORDERED WITH FIELD PROVIDED PUMPS (PTYP = NONE).
JUMPERS W9, W10 AND W11 ARE TO BE REMOVED WHEN PUMPS AND CONTROL ARE INSTALLED.

35 VENTILATION FAN PRESENT WHEN LINE (VOLT = 200, 230, 380 or 400).

36 1A41, BACNET INTERFACE MODULE USED WHEN (COMM = BCNT).

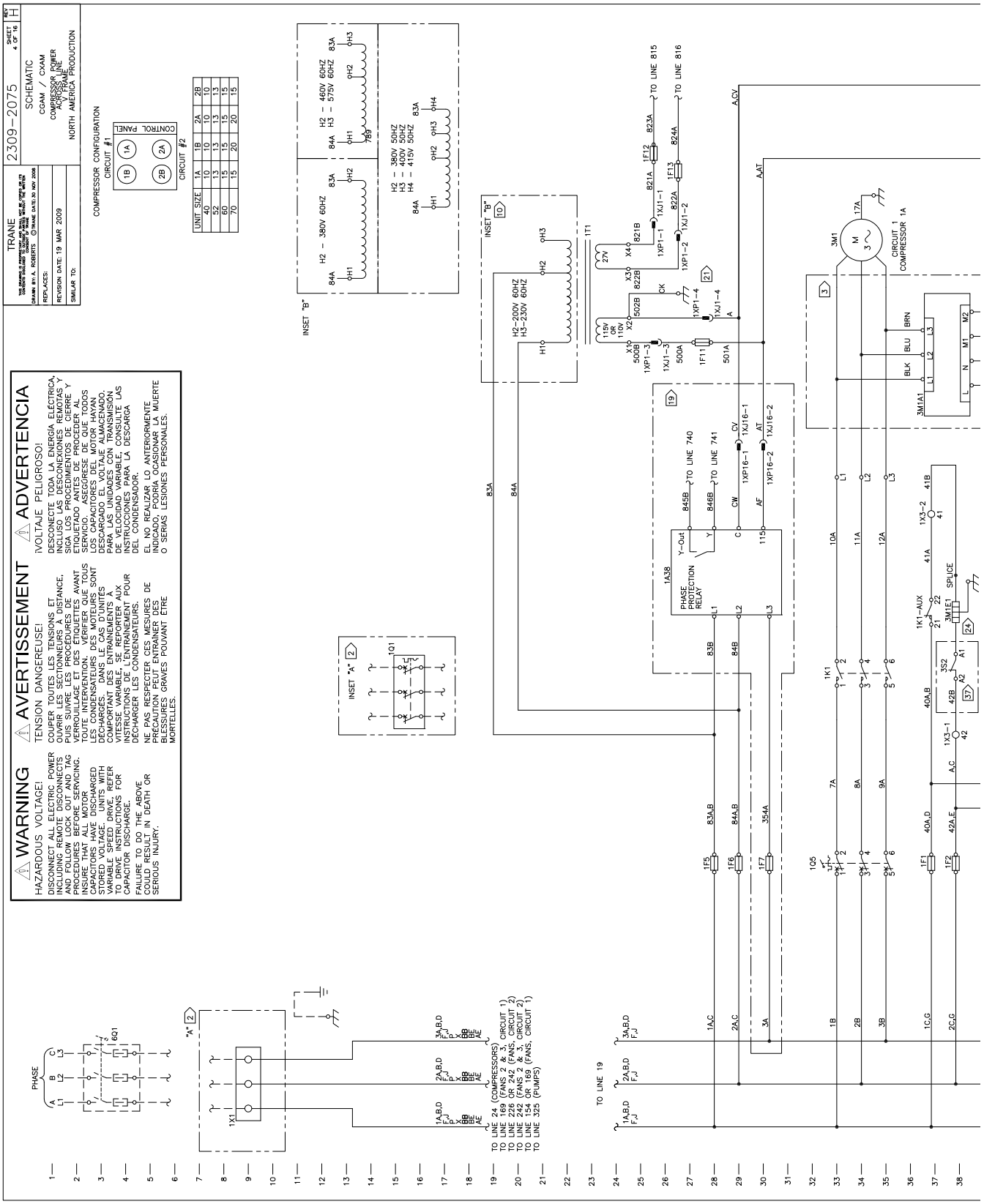
37 THERMOSTATS ARE REQUIRED IN THE COMPRESSOR JUNCTION BOXES ON ALL UNITS WITH COMMERCIAL COMPRESSORS AND SOUND WRAPS TO PREVENT THE PROTECTION MODUAL FROM GETTING TOO HOT. (NTON=30, 35, 60, 70, 80, 90, 100, 110, 120 or 130)
(HRTZ = 60 AND SATT = LNUN OR HRTZ = 50 AND SATT = STDN).

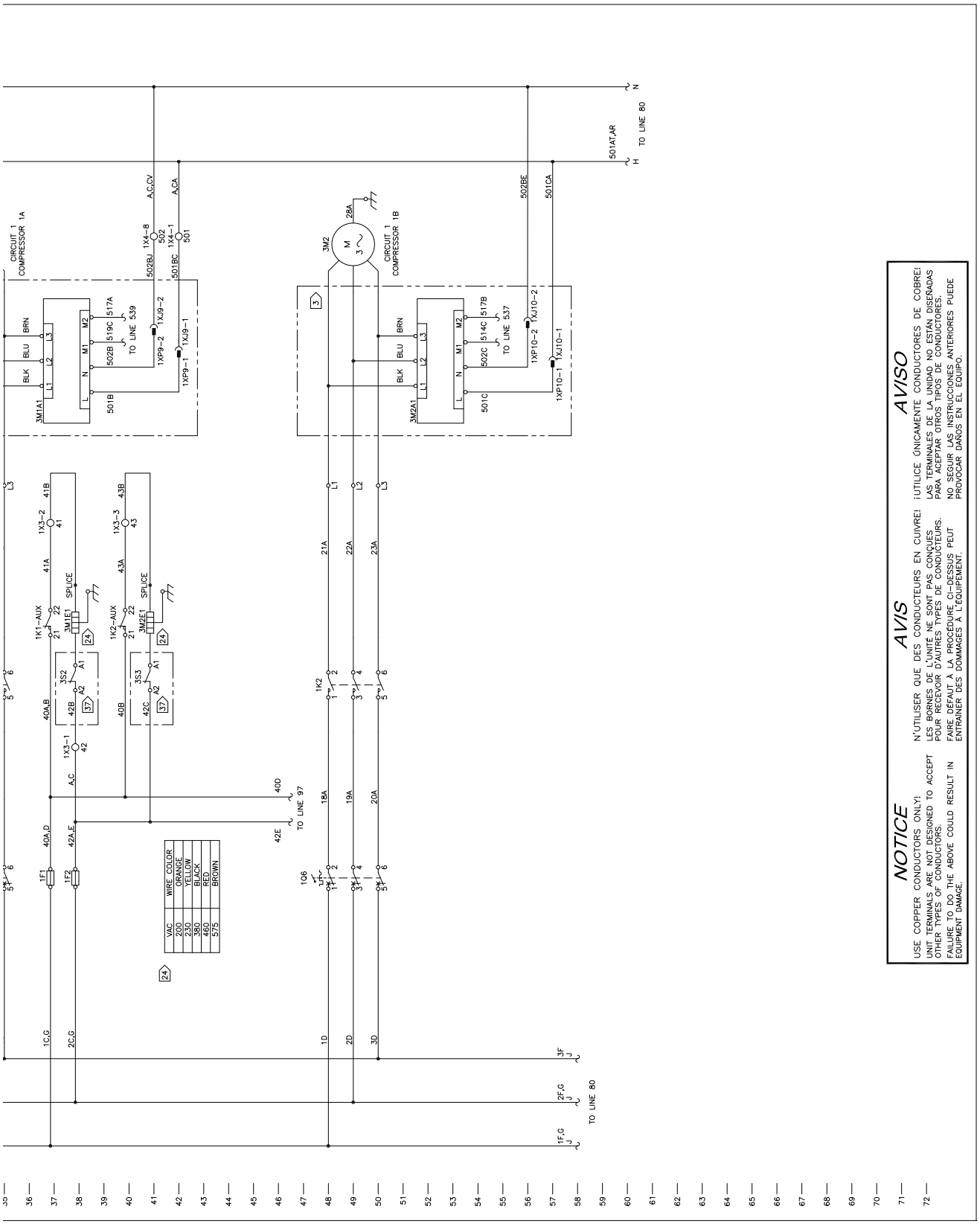
38 THE SAME PUMP MOTOR IS USED FOR 200/230 & 480V UNITS WIRE CONNECTIONS SHOWN FOR BOTH OPTIONS VERIFY WHAT VOLTAGES CHILLER IS BEFORE WIRING.

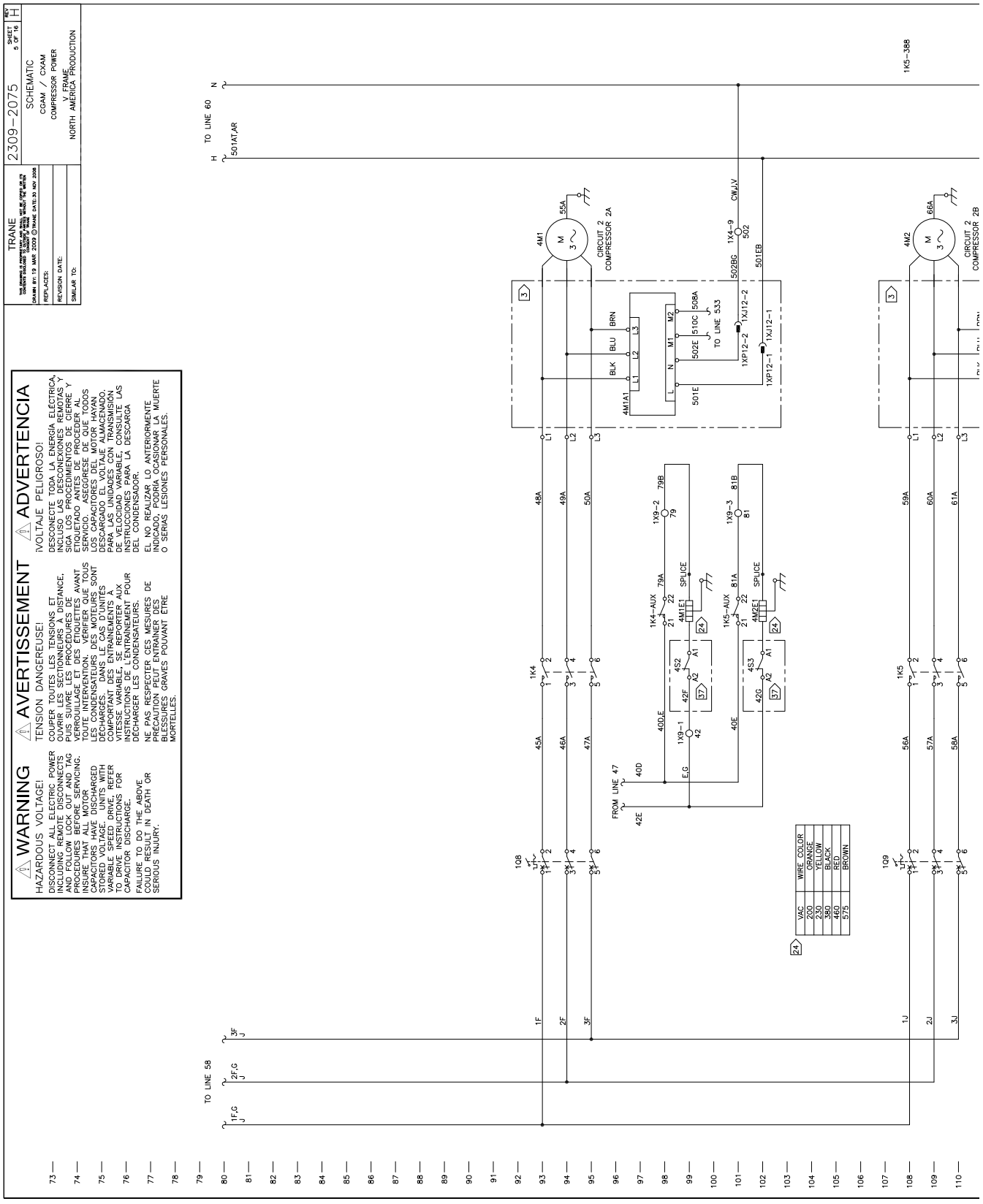
42 SINGLE SPEED FAN 1 PRESENT WHEN:
STANDARD AMBIENT UNITS WITH 4 OR MORE FANS PER CIRCUIT, (NTON=100, 110, 120, OR 130) AND (UAPP=STDC OR HATC)

43 TWO SPEED FAN 1 PRESENT WHEN:
STANDARD AMBIENT UNIT WITH THREE FANS PER CIRCUIT, (NTON= 020, 026, 030, 035, 040, 052, 060, 070, 080, OR 090) AND (UAPP=STDC OR HATC)

44 VSD AND ASSOCIATED CONTROL CIRCUITS ON FAN 1 PRESENT WHEN:
LOW AMBIENT, AND WIDE AMBIENT UNITS.
UNITS WITH PHR FAN CONTROL OPTION AND 2 FAN STANDARD OR HIGH AMBIENT.


TRANE
2309–2075
SCHEMATIC
CGAM / CXAM
COMPRESSOR POWER ACROSS LINE
NORTH AMERICA PRODUCTION
REVISION DATE: 19 MAR 2009
SIMILAR TO:
SHEET 4 OF 16
REV H
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 COULD RESULT IN DEATH OR SERIOUS INJURY.
AVERTISSEMENT
TENSION DANGEREUSE!
DISCONNECTER TOUTES LES TENSIONS ET INCLUSO LES DESCONEXIONES REMOTAS Y OUVRIR LES SECTIONNEURS À DISTANCE, SIGA LOS PROCEDIMIENTOS DE CIERRE Y PUIS SUIVRE LES PROCÉDURES DE ETIQUETADO ANTES DE PROCEDER AL VERROUILLAGE ET DES ÉTIQUETTES AVANT SERVICIO. ASEGÚRESE DE QUE TODOS LES CONDENSATEURS DU MOTEUR SONT LOS CAPACITORES DEL MOTOR HAYAN DÉCHARGÉS. DANS LE CAS D'UNITÉS DESCARGADO EL VOLTAJE ALMACENADO. COMPORTANT DES ENTRAÎNEMENTS À PARA LAS UNIDADES CON TRANSMISIÓN VITESSE VARIABLE, SE REPORTER AUX DE VELOCIDAD VARIABLE, CONSULTE LAS INSTRUCTIONS DE L'ENTRAÎNEMENT POUR INSTRUCCIONES PARA LA DESCARGA DÉCHARGER LES CONDENSATEURS. DEL CONDENSADOR.
NE PAS RESPECTER CES MESURES DE NO REALIZAR LO ANTERIORMENTE PRÉCAUTION PEUT ENTRAÎNER DES INDICADO PODRÍA OCASIONAR LA MUERTE BLESSURES GRAVES POUVANT ÊTRE O SERIAS LESIONES PERSONALES.
ADVERTENCIA
¡VOLTAJE PELIGROSO!
DESCONECTE TODA LA ENERGÍA ELÉCTRICA,
ETIQUETADO ANTES DE PROCEDER AL
SERVICIO. ASEGÚRESE DE QUE TODOS
DESCARGADO EL VOLTAJE ALMACENADO.
MORTELLES.
COMPRESSOR CONFIGURATION
CIRCUIT #1
CIRCUIT #2
CONTROL PANEL
UNIT SIZE 1A 1B 2A 2B
040 10 10 13 13
52 13 13 13 13
60 15 15 15 15
70 15 20 20 15
INSET "A"
INSET "B"
PHASE PROTECTION RELAY
TO LINE 740
TO LINE 741
TO LINE 815
TO LINE 816
TO LINE 19
CIRCUIT 1 COMPRESSOR 1A
SPLICE


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
N'UTILISER QUE DES CONDUCTEURS EN CUIVRE!
LES BORNES DE L'UNITÉ NE SONT PAS CONÇUES POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS.
FAIRE DÉFAUT 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 SEGUIR LAS INSTRUCCIONES ANTERIORES PUEDE PROVOCAR DAÑOS EN EL EQUIPO.
CIRCUIT 1 COMPRESSOR 1A
CIRCUIT 1 COMPRESSOR 1B
3M1A1
3M2A1
3M2
1K1-AUX
1K2-AUX
1K2
3M1E1
3M2E1
3S2
3S3
1F1
1F2
1Q6
1X3-1
1X3-2
1X3-3
1X4-1
1X4-8
1XJ9-1
1XJ9-2
1XP9-1
1XP9-2
1XJ10-1
1XJ10-2
1XP10-1
1XP10-2
TO LINE 539
TO LINE 537
TO LINE 97
TO LINE 80
501AT,AR
VAC
WIRE COLOR
200
ORANGE
230
YELLOW
380
BLACK
460
RED
575
BROWN


TRANE
2309-2075
SHEET 5 OF 16
REV H
SCHEMATIC
CGAM / CXAM
COMPRESSOR POWER
Y-FRAME
NORTH AMERICA PRODUCTION
WARNING
HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS AND FOLLOW LOCK OUT AND TAG PROCEDURES BEFORE SERVICING. INSURE THAT ALL MOTORS AND CAPACITORS ARE DISCHARGED. STORED VOLTAGE. UNITS WITH VARIABLE SPEED DRIVE, REFER TO DRIVE INSTRUCTIONS FOR CAPACITOR DISCHARGE.
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AVERTISSEMENT
TENSION DANGEREUSE!
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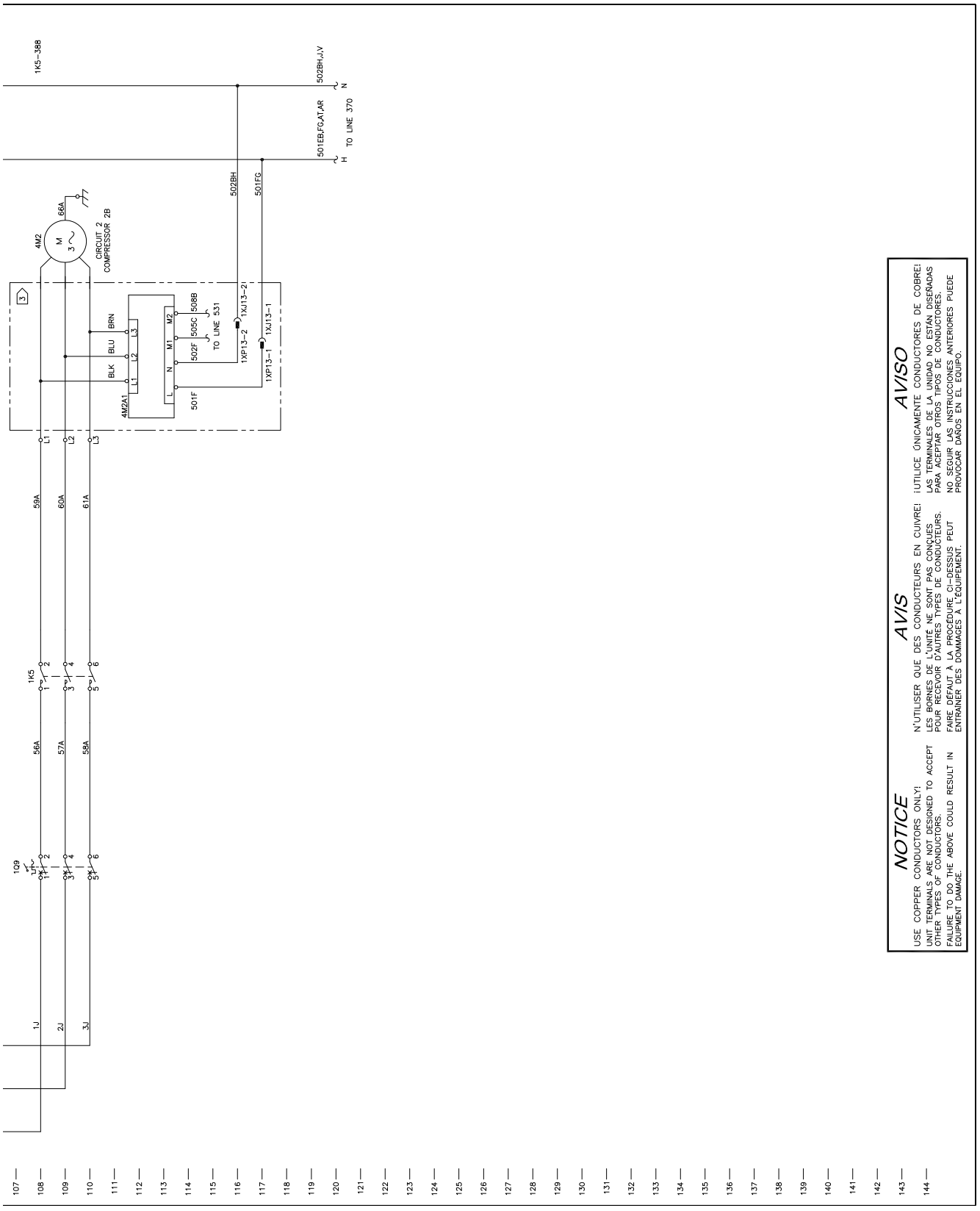
EL NO REALIZAR LO ANTERIORMENTE INDICADO PODRÍA OCASIONAR LA MUERTE O SERIAS LESIONES PERSONALES.
TO LINE 58
FROM LINE 47
TO LINE 60
501AT,AR
1K5-388
CIRCUIT 2 COMPRESSOR 2A
CIRCUIT 2 COMPRESSOR 2B
4M1
4M2
55A
66A
1K4
1K5
1K4-AUX
1K5-AUX
4M1E1
4M2E1
SPLICE
1X9-1
1X9-2
1X9-3
1X4-9
1XP12-1
1XP12-2
1XJ12-1
1XJ12-2
TO LINE 533
WIRE COLOR
VAC
200
230
380
460
575
ORANGE
YELLOW
BLACK
RED
BROWN


1K5–388
502BH,J,V
N
501EB,FG,AT,AR
H
TO LINE 370
502BH
501FG
4M2
66A
CIRCUIT 2
COMPRESSOR 2B
BRN
BLU
BLK
4M2A1
501F
502F
505C
508B
TO LINE 531
1XP13–2
1XJ13–2
1XP13–1
1XJ13–1
1K5
59A
60A
61A
56A
57A
58A
109
1J
2J
3J
NOTICE
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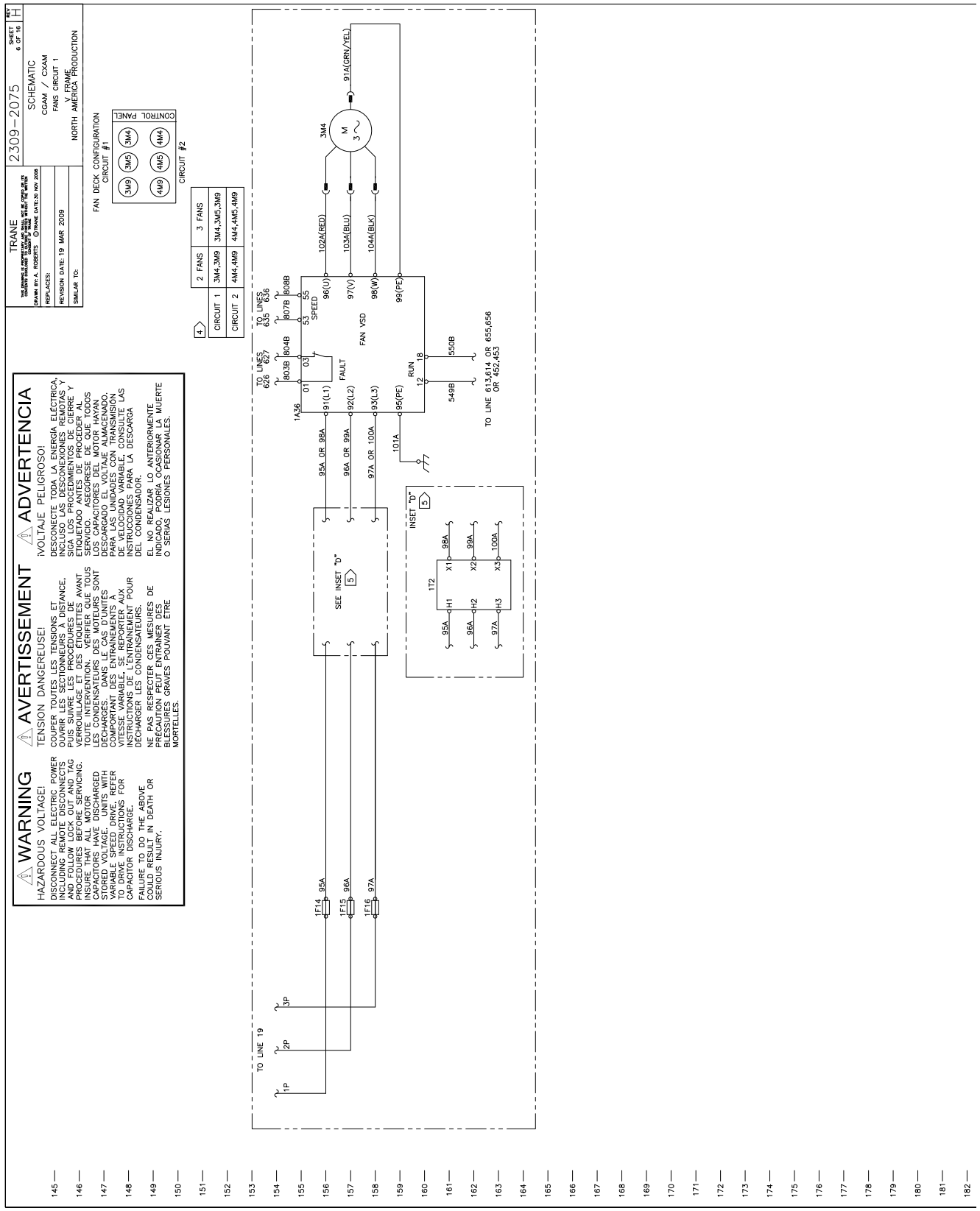
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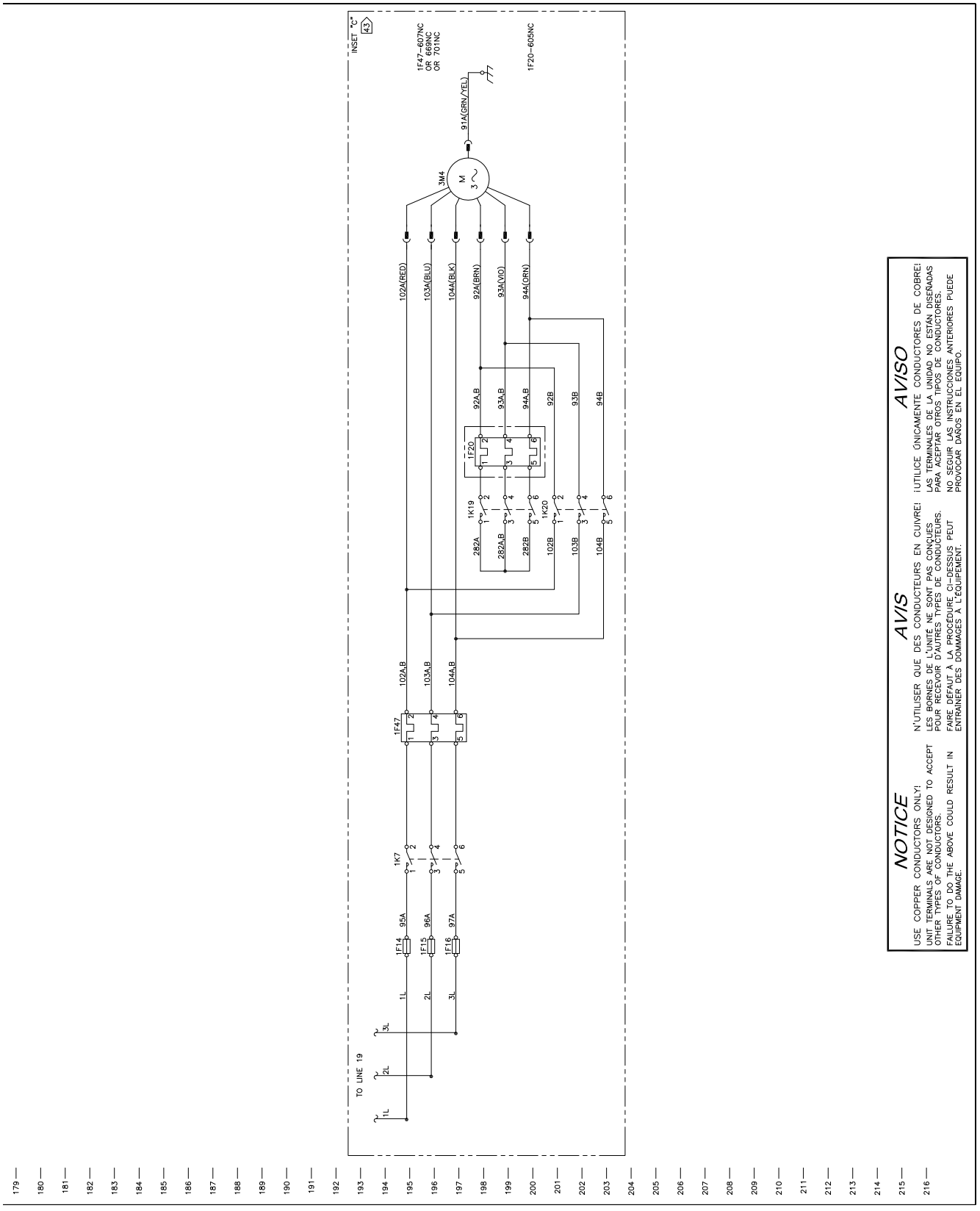
TRANE
2309–2075
SHEET 6 OF 16
REV H
SCHEMATIC
CGAM / CXAM
FANS CIRCUIT 1
V-FRAME
NORTH AMERICA PRODUCTION
REVISION DATE: 19 MAR 2009
FAN DECK CONFIGURATION
CIRCUIT #1
CIRCUIT #2
CONTROL PANEL
3M9
3M5
3M4
4M9
4M5
4M4
2 FANS
3 FANS
CIRCUIT 1
3M4,3M9
3M4,3M5,3M9
CIRCUIT 2
4M4,4M9
4M4,4M5,4M9
TO LINE 19
1P
2P
3P
1F14 95A
1F15 96A
1F16 97A
SEE INSET "D"
95A OR 98A
96A OR 99A
97A OR 100A
INSET "D"
172
95A
96A
97A
H1
H2
H3
X1
X2
X3
98A
99A
100A
101A
1A36
TO LINES 626 627
TO LINES 635 636
803B
804B
807B
808B
01
03
53
55
SPEED
FAULT
FAN VSD
91(L1)
92(L2)
93(L3)
95(PE)
96(U)
97(V)
98(W)
99(PE)
12
18
RUN
549B
550B
102A(RED)
103A(BLU)
104A(BLK)
91A(GRN/YEL)
3M4
M
3~
TO LINE 613,614 OR 655,656 OR 452,453


INSET "C"
43
1F47–607NC
OR 669NC
OR 701NC
1F20–605NC
91A(GRN/YEL)
3M4
M
3
102A(RED)
103A(BLU)
104A(BLK)
92A(BRN)
93A(VIO)
94A(ORN)
92A,B
93A,B
94A,B
92B
93B
94B
1F20
1K19
1K20
282A
282A,B
282B
102B
103B
104B
102A,B
103A,B
104A,B
1F47
1K7
1F14
1F15
1F16
95A
96A
97A
1L
2L
3L
TO LINE 19
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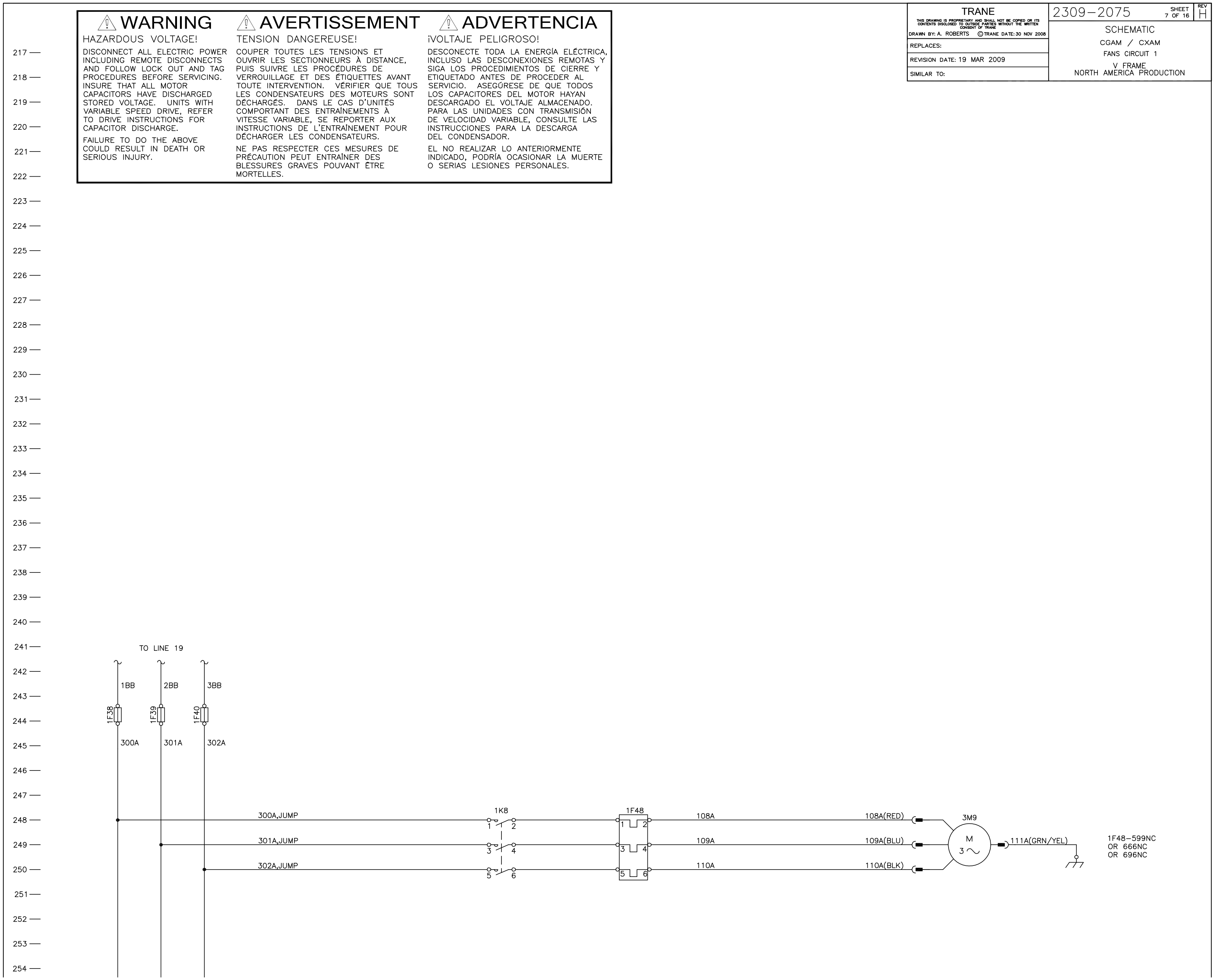
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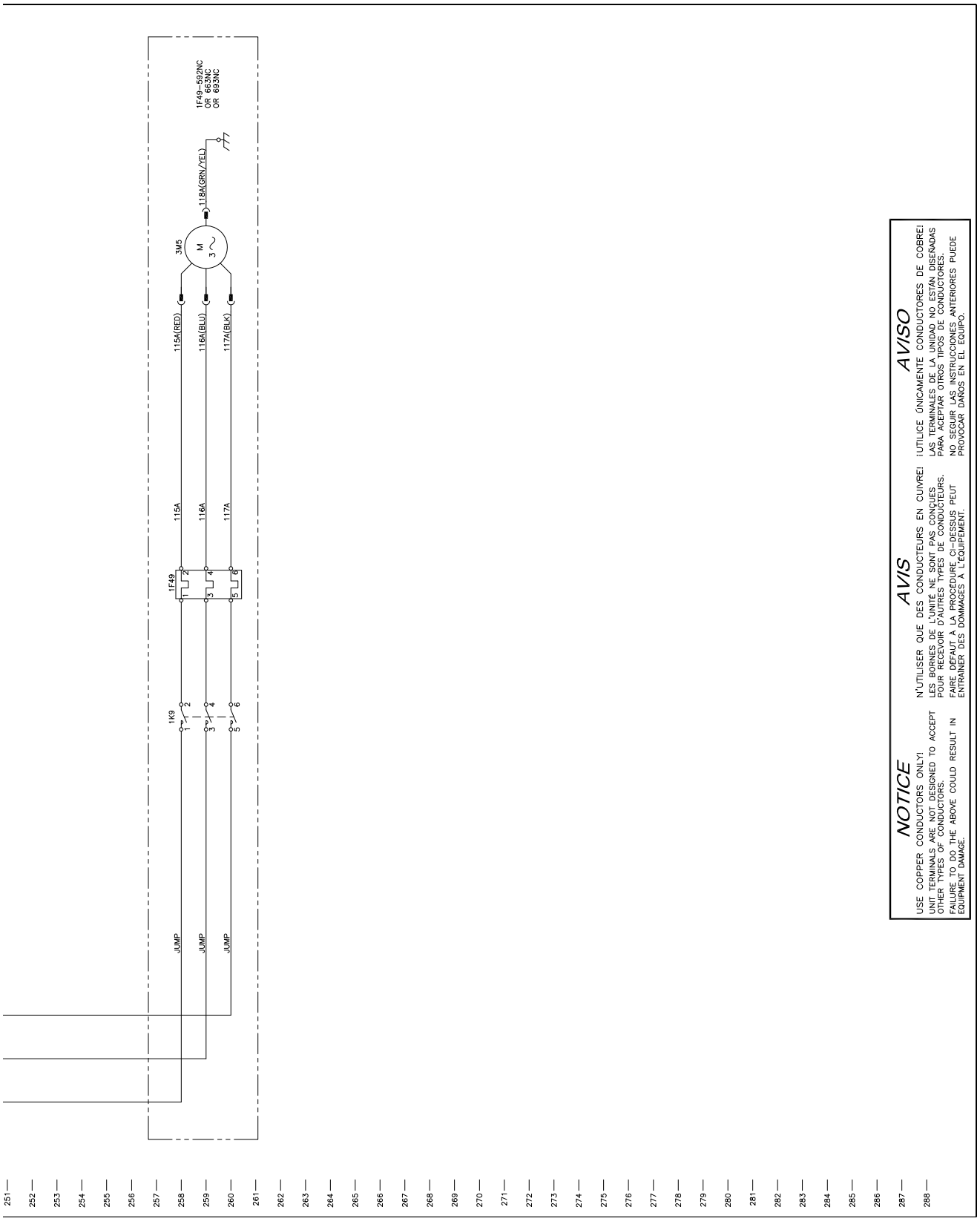
TRANE
THIS DRAWING IS PROPRIETARY AND SHALL NOT BE COPIED OR ITS CONTENTS DISCLOSED TO OUTSIDE PARTIES WITHOUT THE WRITTEN CONSENT OF TRANE
DRAWN BY: A. ROBERTS ©TRANE DATE: 30 NOV 2008
REPLACES:
REVISION DATE: 19 MAR 2009
SIMILAR TO:
2309-2075
SHEET 7 OF 16
REV H
SCHEMATIC
CGAM / CXAM
FANS CIRCUIT 1
V FRAME
NORTH AMERICA PRODUCTION
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
TO LINE 19
1BB
2BB
3BB
1F38
1F39
1F40
300A
301A
302A
300A,JUMP
301A,JUMP
302A,JUMP
1K8
1F48
108A
109A
110A
108A(RED)
109A(BLU)
110A(BLK)
3M9
M
3~
111A(GRN/YEL)
1F48–599NC
OR 666NC
OR 696NC


1F49-592NC
OR 693NC
OR 693NC
118A(GRN/YEL)
3M5
M
3~
115A(RED)
116A(BLU)
117A(BLK)
115A
116A
117A
1F49
1K9
JUMP
JUMP
JUMP
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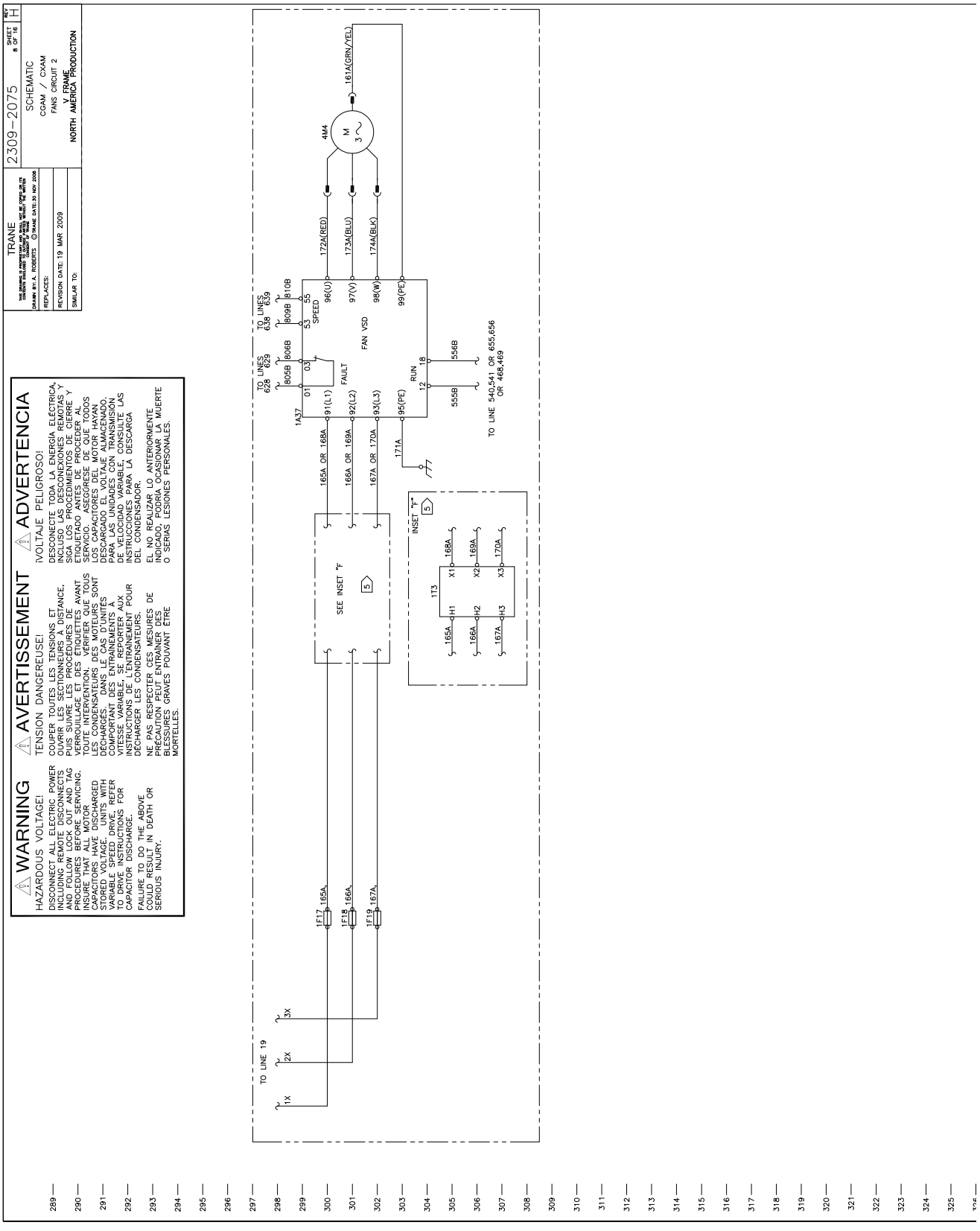
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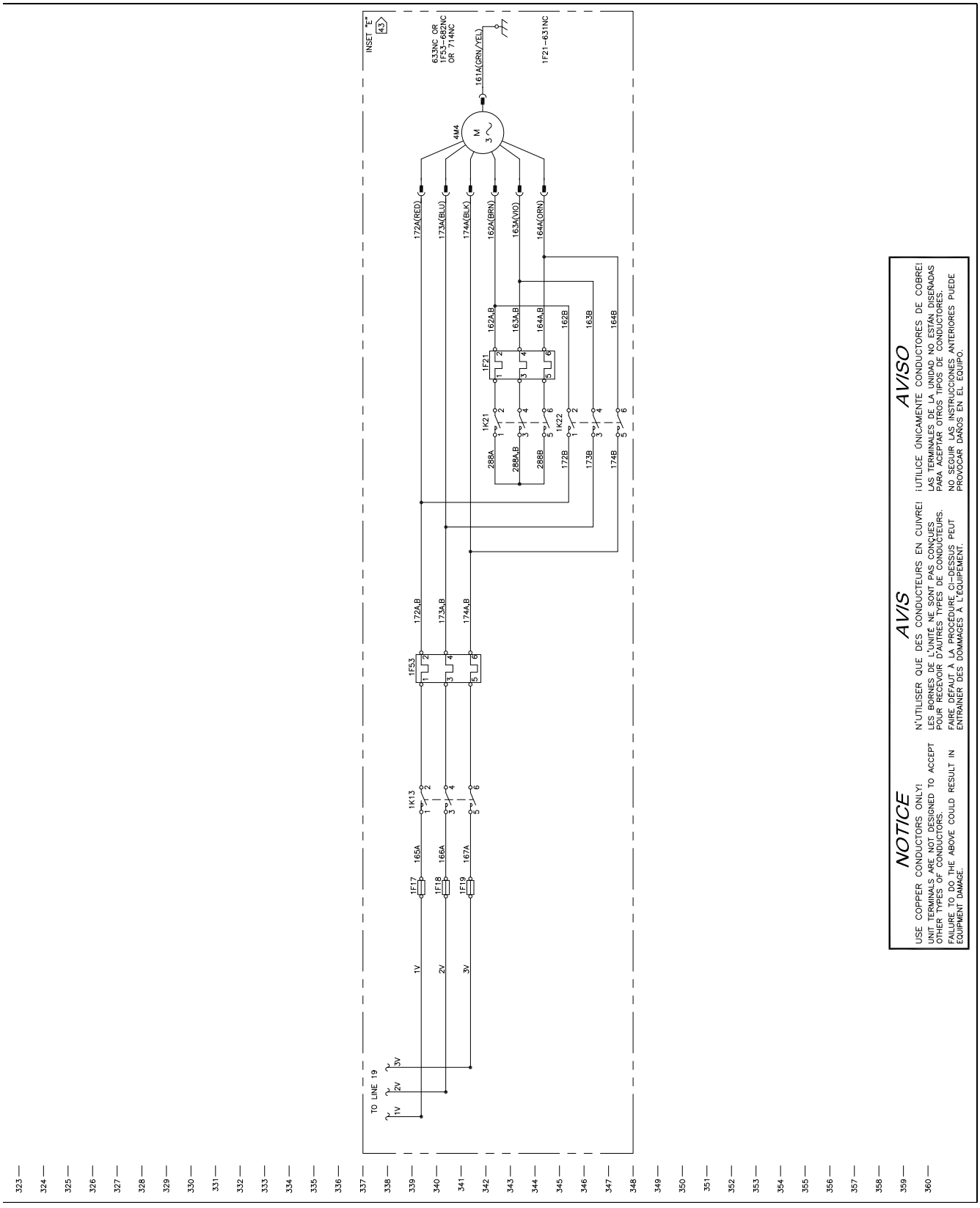
TRANE
DRAWN BY: A. ROBERTS
REPLACES:
REVISION DATE: 19 MAR 2009
SIMILAR TO:
2309-2075
SCHEMATIC
CGAM / CXAM
FANS CIRCUIT 2
TRANE
NORTH AMERICA PRODUCTION
SHEET 5 OF 16
REV H
TO LINE 19
1X
2X
3X
1F17 165A
1F18 166A
1F19 167A
SEE INSET "F"
5
165A OR 168A
166A OR 169A
167A OR 170A
INSET "F"
5
173
165A
166A
167A
H1
H2
H3
X1
X2
X3
168A
169A
170A
171A
1A37
01
03
91(L1)
92(L2)
93(L3)
95(PE)
FAULT
RUN
12
18
555B
556B
TO LINE 540,541 OR 655,656 OR 468,469
TO LINES 628 629
805B
806B
TO LINES 638 639
809B
810B
53
55
SPEED
96(U)
97(V)
98(W)
99(PE)
FAN VSD
172A(RED)
173A(BLU)
174A(BLK)
4M4
M
3
161A(GRN/YEL)


INSET "E"
43
633NC OR
1F53-682NC
OR 714NC
161A(GRN/YEL)
1F21-631NC
4M4
M
3 ~
172A(RED)
173A(BLU)
174A(BLK)
162A(BRN)
163A(VIO)
164A(ORN)
162A,B
163A,B
164A,B
162B
163B
164B
1F21
1K21
1K22
288A
288A,B
288B
172B
173B
174B
172A,B
173A,B
174A,B
1F53
1K13
165A
166A
167A
1F17
1F18
1F19
1V
2V
3V
TO LINE 19
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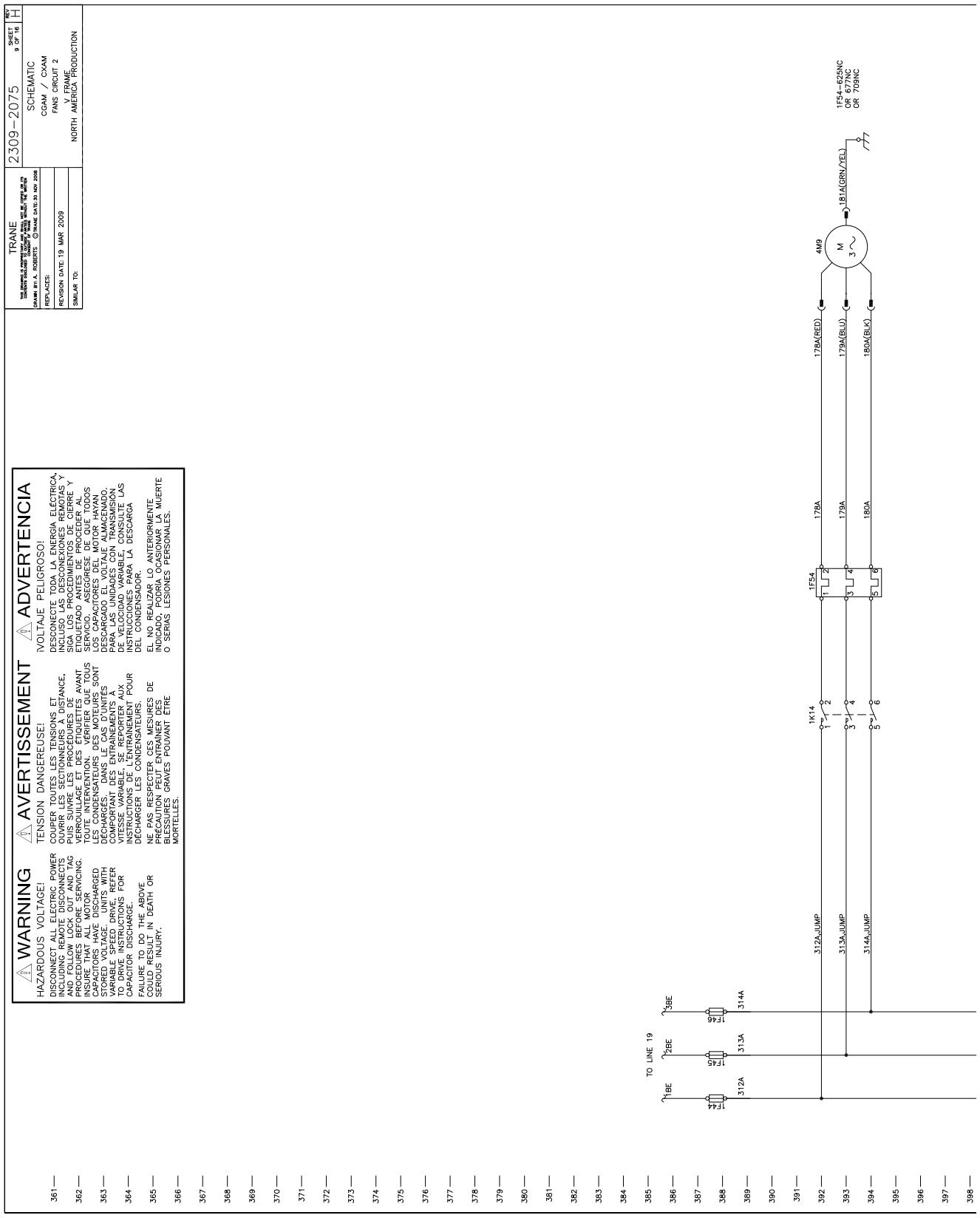
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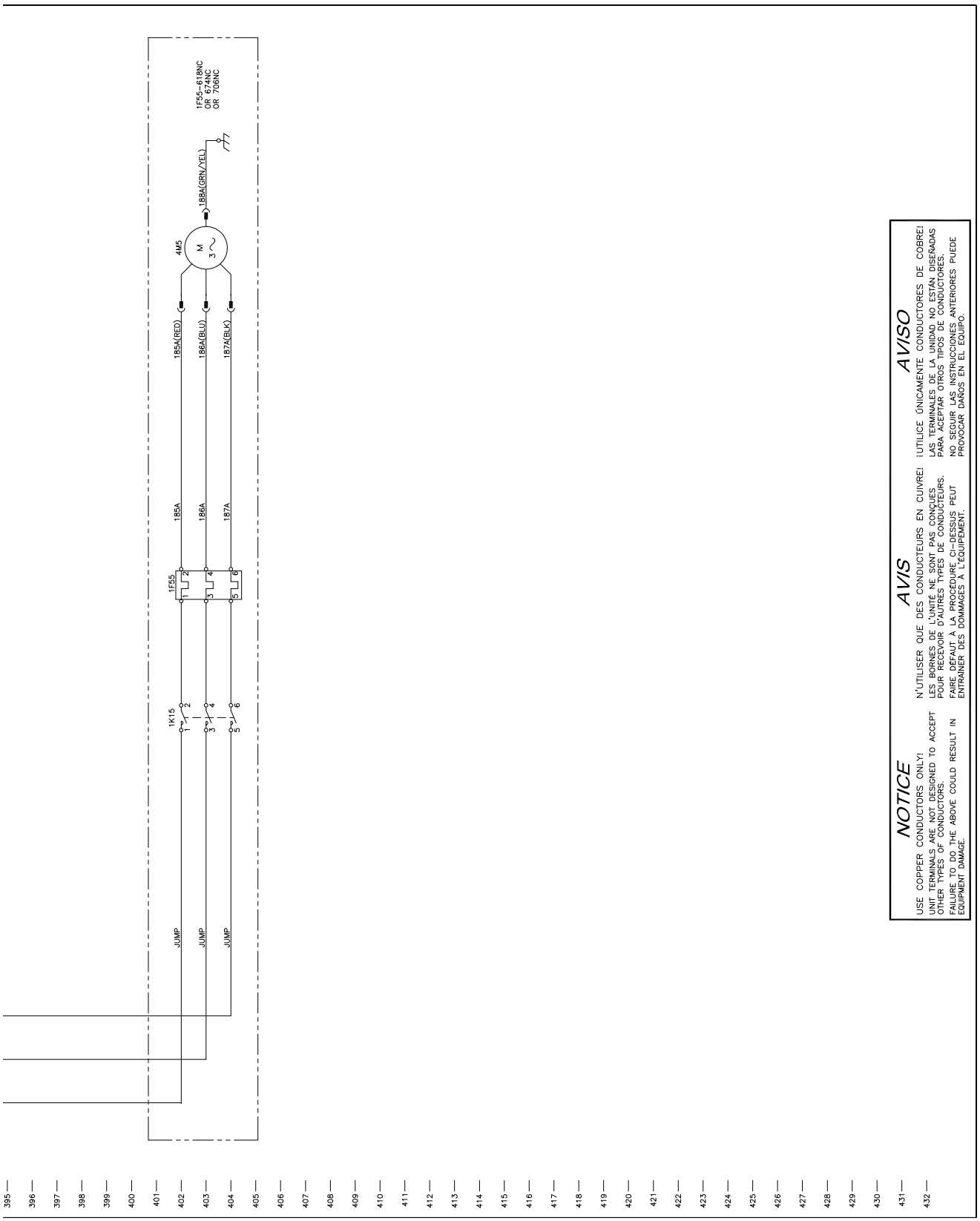
TRANE
DRAWN BY: A. ROBERTS © TRANE DATE: 30 NOV 2006
REPLACES:
REVISION DATE: 19 MAR 2009
SIMILAR TO:
2309-2075
SHEET 9 OF 16
REV H
SCHEMATIC
CGAM / CXAM
FANS CIRCUIT 2
V. FRAME
NORTH AMERICA PRODUCTION
TO LINE 19
1BE
2BE
3BE
1F44
1F45
1F46
312A
313A
314A
312A JUMP
313A JUMP
314A JUMP
1K14
1F54
178A
179A
180A
178A(RED)
179A(BLU)
180A(BLK)
4M9
M
3~
181A(GRN/YEL)
1F54-625NC
OR 677NC
OR 709NC


1F55-618NC
OR 704NC
OR 706NC
188A(GRN/YEL)
4M5
M
3
185A(RED)
186A(BLU)
187A(BLK)
185A
186A
187A
1F55
1K15
JUMP
JUMP
JUMP
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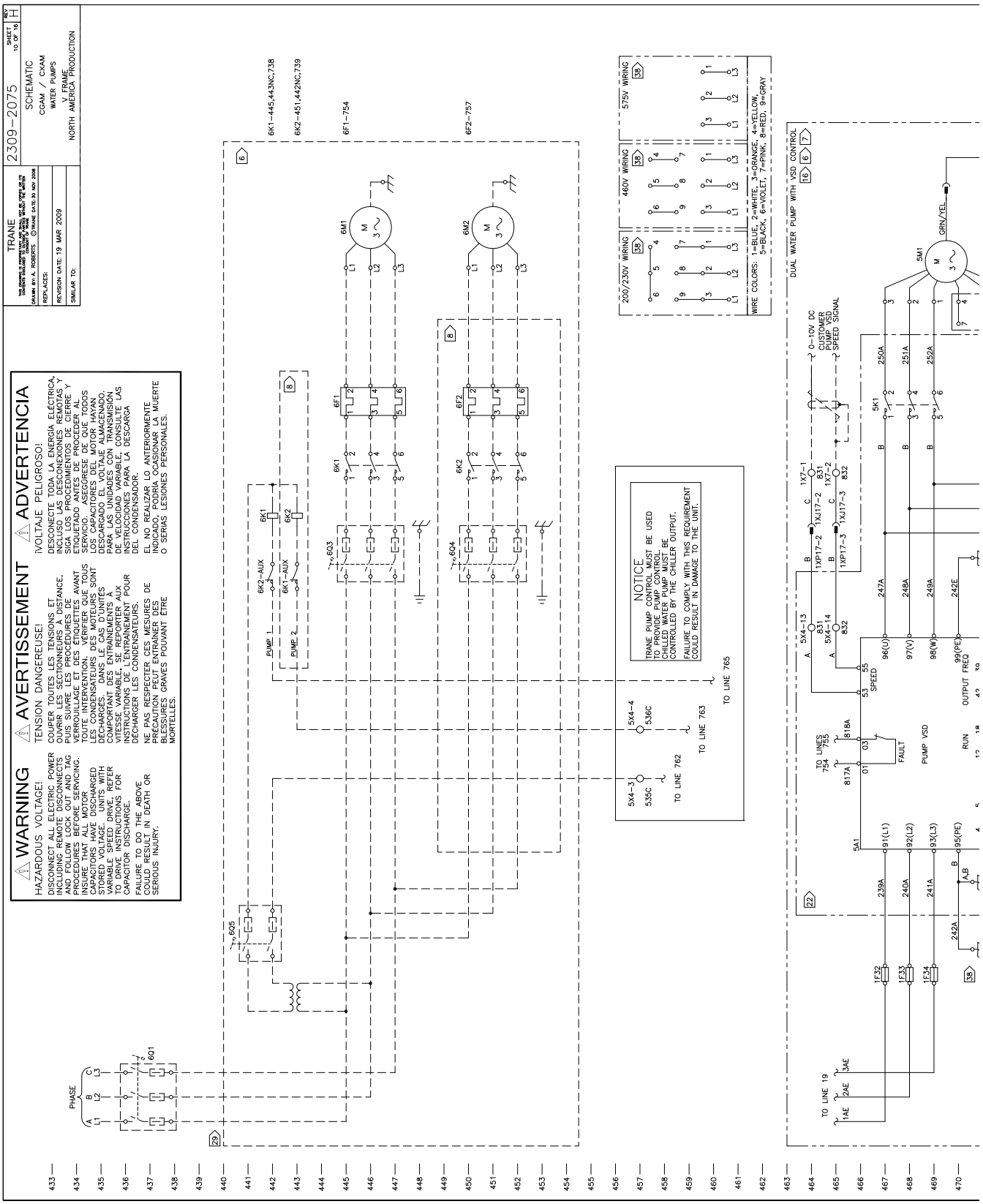
TRANE
2309-2075
SCHEMATIC
CGAM / CXAM
WATER PUMPS
TRANE
NORTH AMERICA PRODUCTION
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ADVERTENCIA
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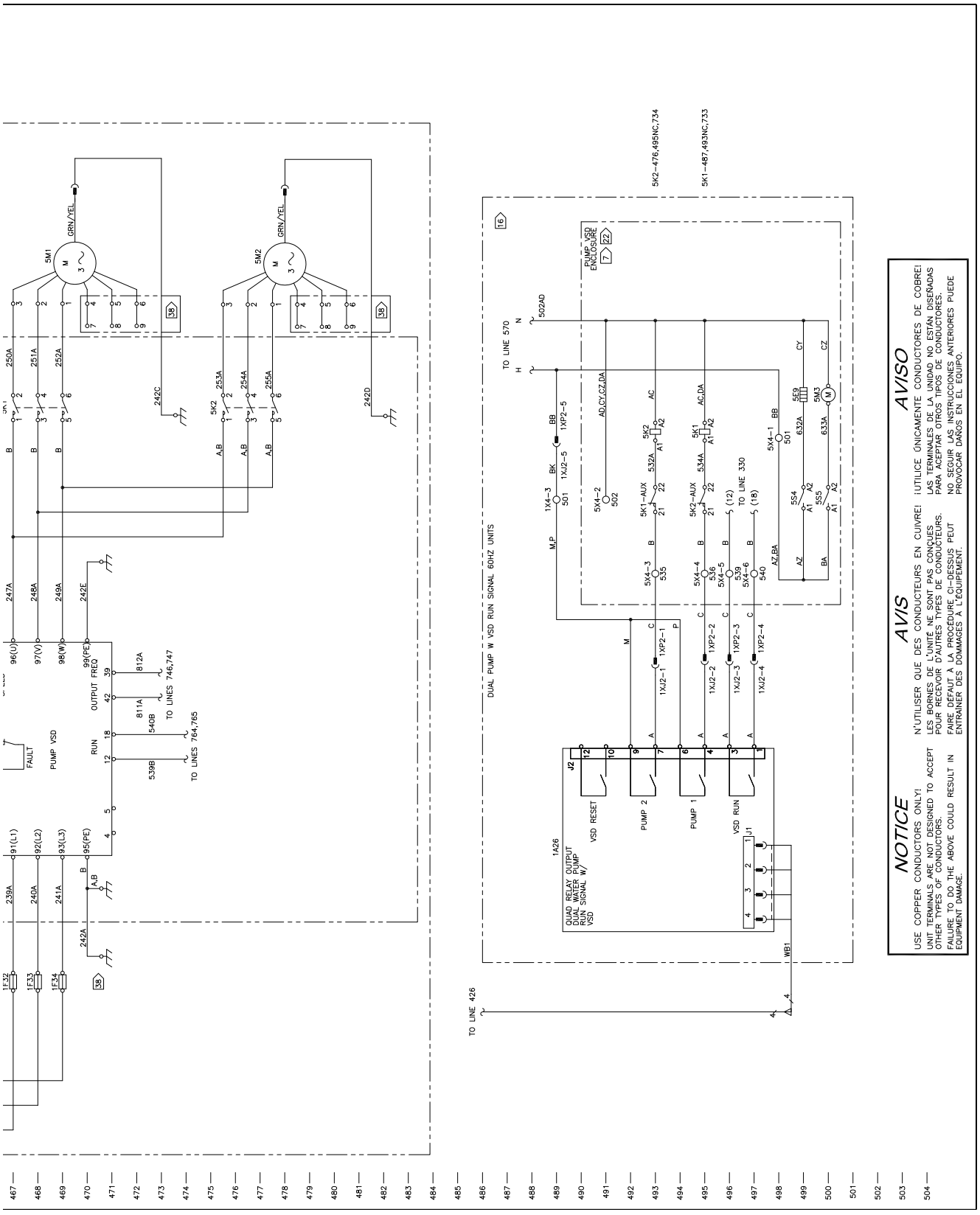
EL NO REALIZAR LO ANTERIORMENTE INDICADO PODRÍA OCASIONAR LA MUERTE O SERIAS LESIONES PERSONALES.
NOTICE
TRANE PUMP CONTROL MUST BE USED TO PROPERLY CONTROL PUMP WHEN CHILLED WATER PUMP MUST BE CONTROLLED BY THE CHILLER OUTPUT.
FAILURE TO COMPLY WITH THIS REQUIREMENT COULD RESULT IN DAMAGE TO THE UNIT.
DUAL WATER PUMP WITH VSD CONTROL
WIRE COLORS: 1=BLUE, 2=WHITE, 3=ORANGE, 4=YELLOW, 5=BLACK, 6=VIOLET, 7=PINK, 8=RED, 9=GRAY
200/230V WIRING
460V WIRING
575V WIRING
PHASE
PUMP 1
PUMP 2
6K1-445,443NC,738
6K2-451,442NC,739
6F1-754
6F2-757
6M1
6M2
5M1
TO LINE 762
TO LINE 763
TO LINE 765
TO LINE 19
TO LINES 754 755
PUMP VSD
FAULT
RUN
OUTPUT FREQ
0-10V DC CUSTOMER PUMP VSD SPEED SIGNAL
SPEED
GRN/YEL


DUAL PUMP W VSD RUN SIGNAL 60HZ UNITS
PUMP VSD ENCLOSURE
TO LINE 570
TO LINE 426
5K2–476,495NC,734
5K1–487,493NC,733
1A26
QUAD RELAY OUTPUT DUAL WATER PUMP RUN SIGNAL W/ VSD
VSD RESET
PUMP 2
PUMP 1
VSD RUN
FAULT
PUMP VSD
RUN
OUTPUT FREQ
TO LINES 746,747
TO LINES 764,765
GRN/YEL
5M1
5M2
242C
242D
242A
242E
TO LINE 330
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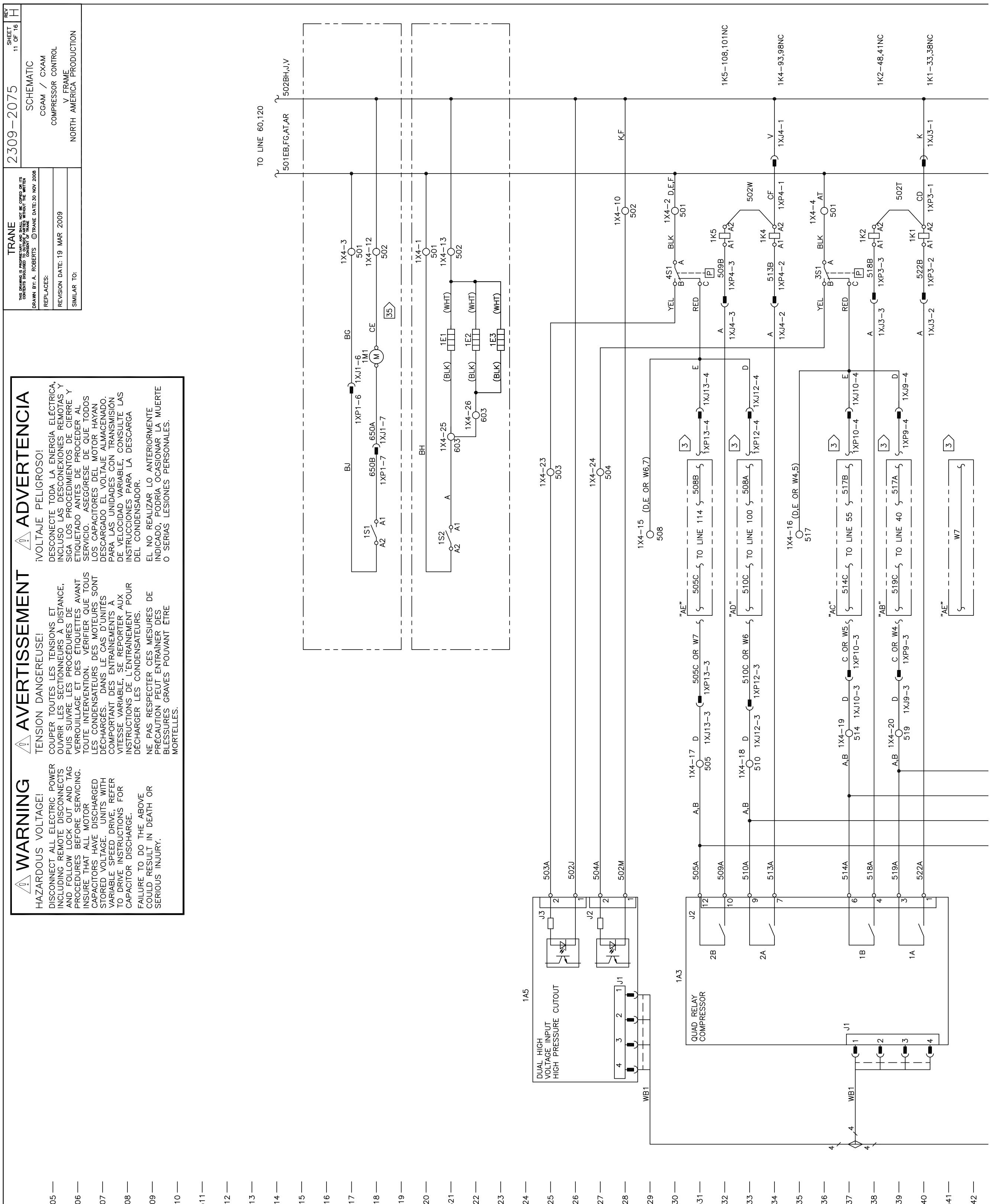
⚠ WARNING
HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS AND FOLLOW LOCK OUT AND TAG PROCEDURES BEFORE SERVICING. INSURE THAT ALL MOTOR CAPACITORS HAVE DISCHARGED STORED VOLTAGE. UNITS WITH VARIABLE SPEED DRIVE, REFER TO DRIVE INSTRUCTIONS FOR CAPACITOR DISCHARGE.
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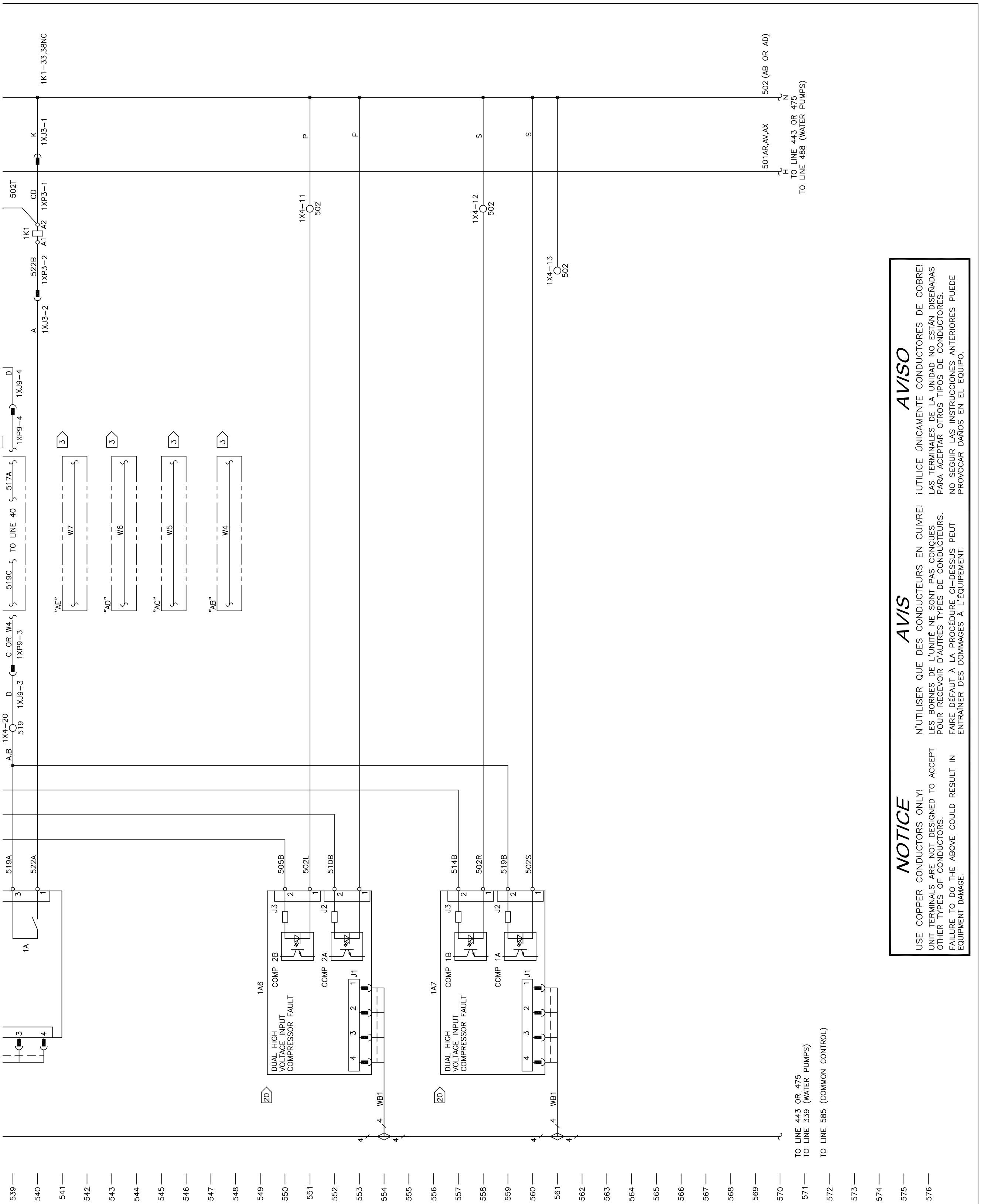
TRANE
DRAWN BY: A. ROBERTS
REPLACES:
REVISION DATE: 19 MAR 2009
SIMILAR TO:
2309-2075
SHEET 11 OF 16
REV H
SCHEMATIC
CGAM / CXAM
COMPRESSOR CONTROL
V FRAME
NORTH AMERICA PRODUCTION
TO LINE 60,120
501EB,FG,AT,AR
502BH,J,V
1A5
DUAL HIGH VOLTAGE INPUT HIGH PRESSURE CUTOUT
1A3
QUAD RELAY COMPRESSOR
1K5-108,101NC
1K4-93,98NC
1K2-48,41NC
1K1-33,38NC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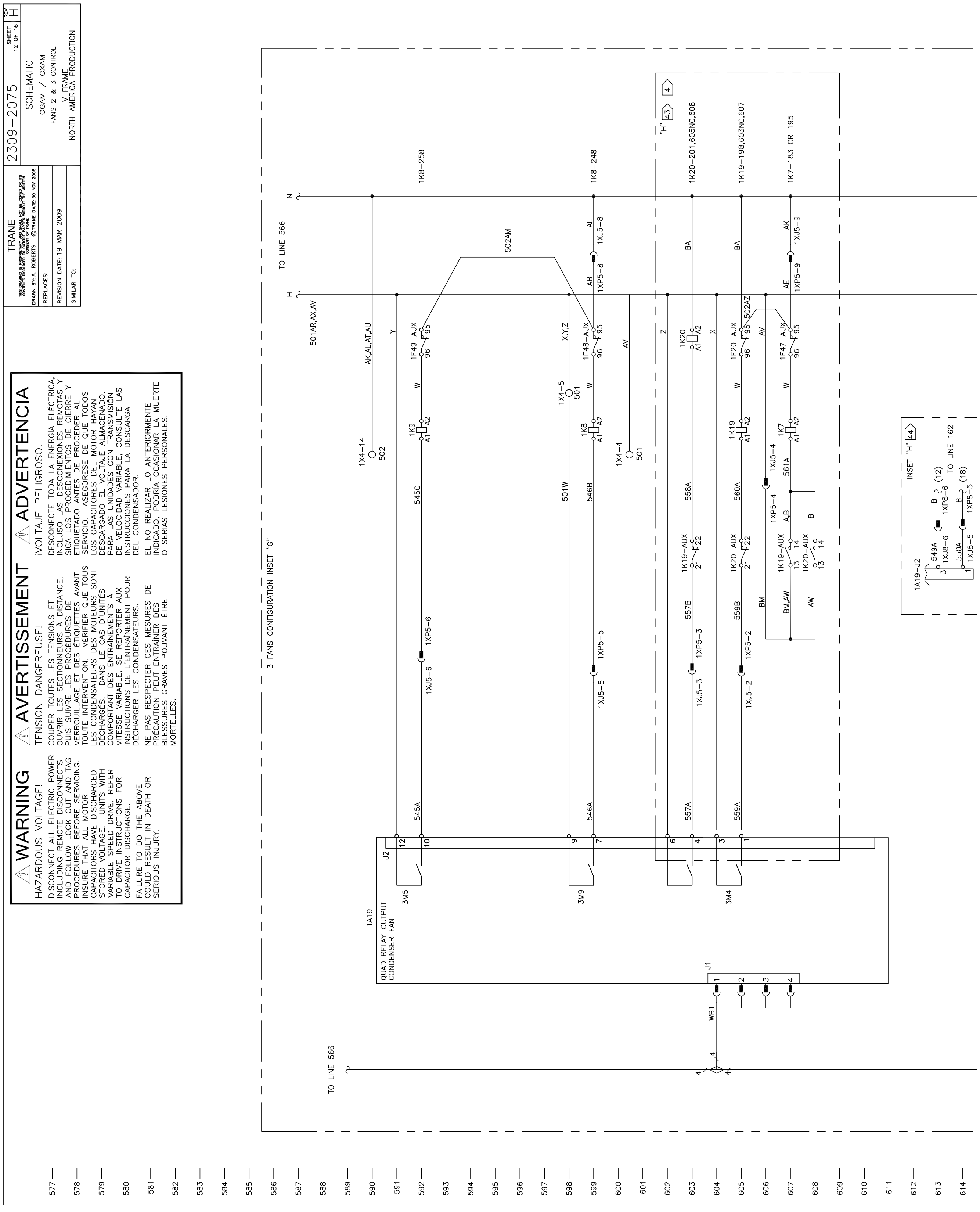
DUAL HIGH VOLTAGE INPUT COMPRESSOR FAULT
TO LINE 443 OR 475
TO LINE 339 (WATER PUMPS)
TO LINE 585 (COMMON CONTROL)
TO LINE 443 OR 475
TO LINE 488 (WATER PUMPS)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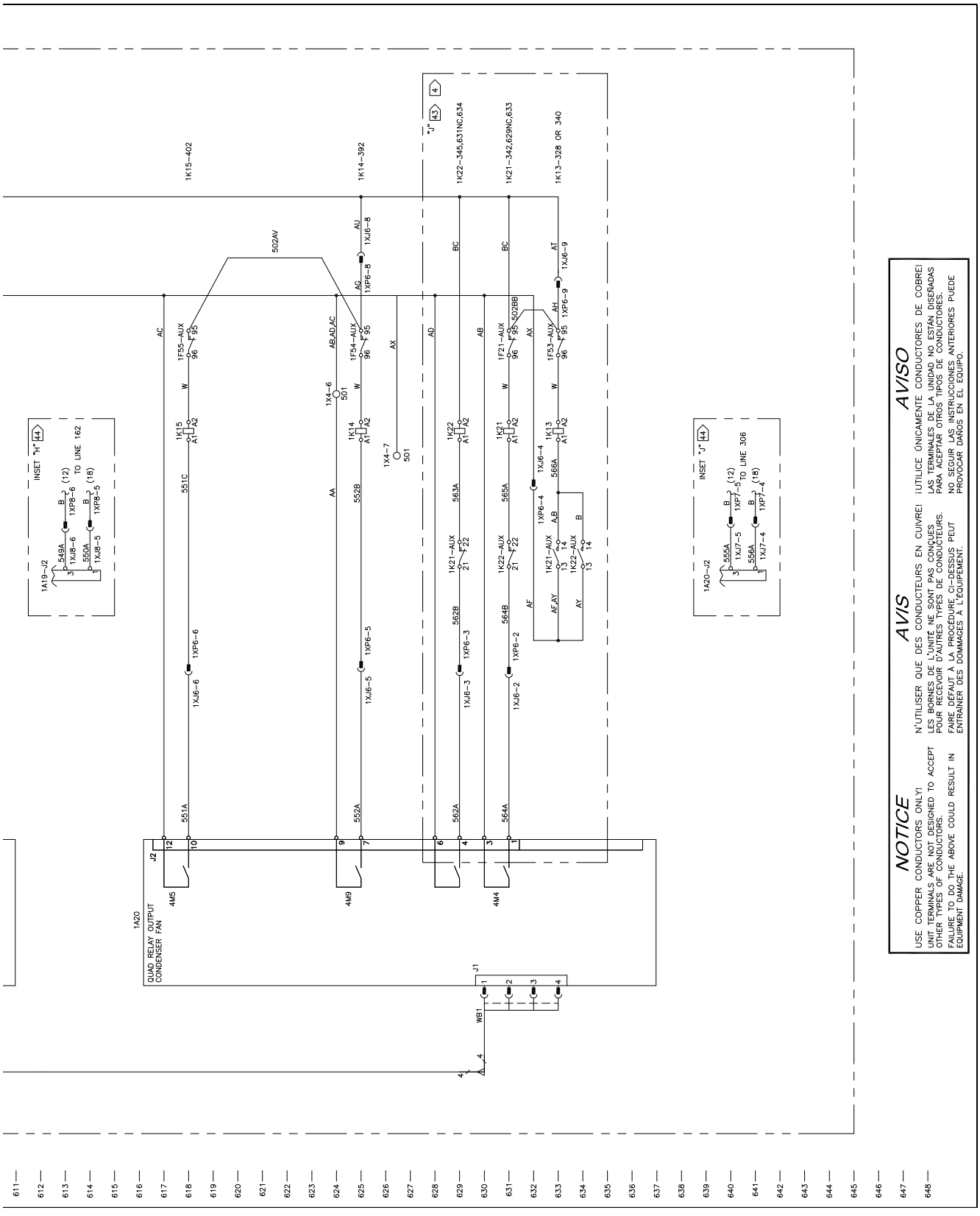
2309-2075
SCHEMATIC
CGAM / CXAM
FANS 2 & 3 CONTROL
V FRAME
NORTH AMERICA PRODUCTION
SHEET 12 OF 16
REV H
DRAWN BY: A. ROBERTS
REVISION DATE: 19 MAR 2009
3 FANS CONFIGURATION INSET "G"
QUAD RELAY OUTPUT CONDENSER FAN
1A19
TO LINE 566
INSET "H"
TO LINE 162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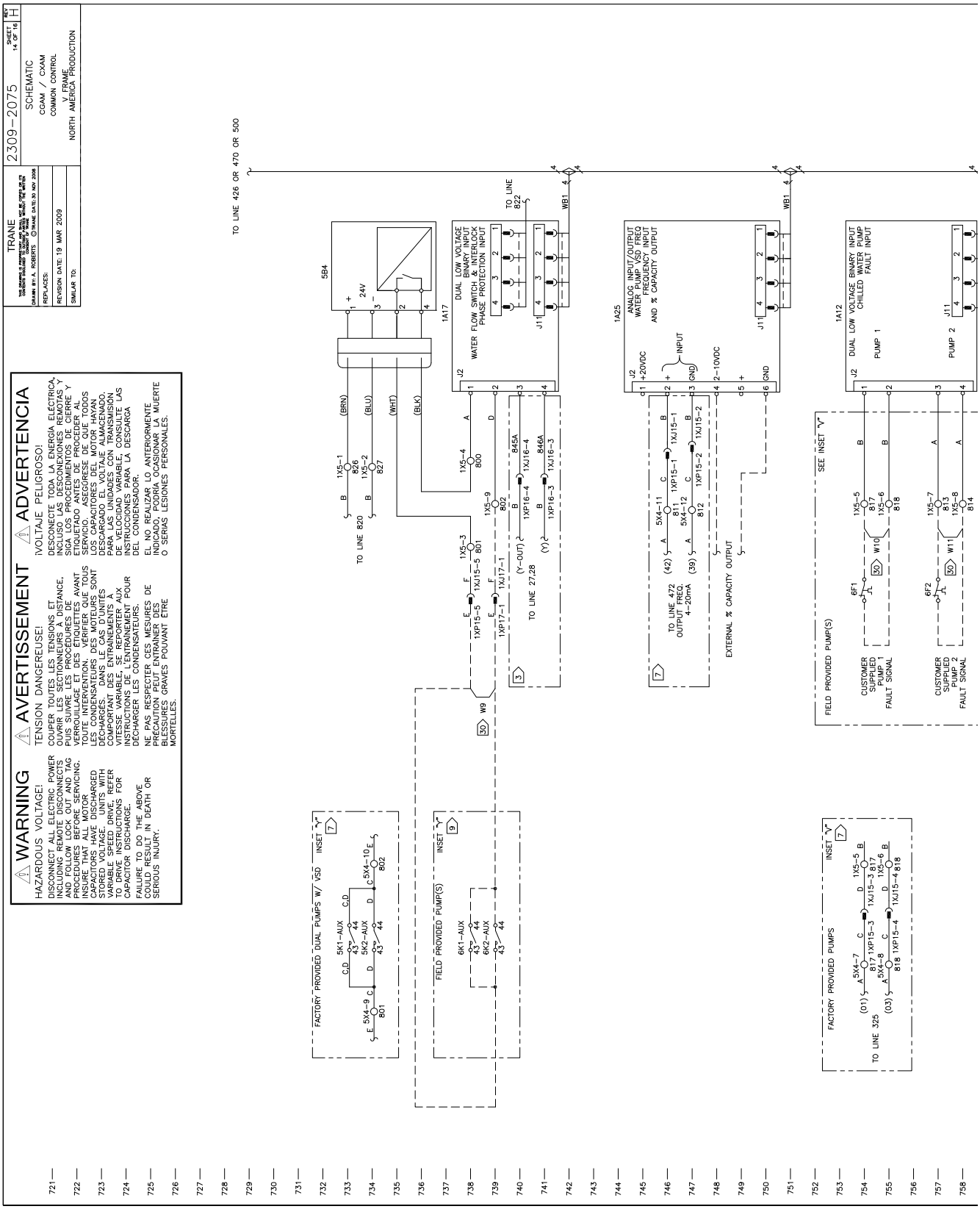
1A20 QUAD RELAY OUTPUT CONDENSER FAN
1A19-J2
1A20-J2
INSET "H" 44
INSET "J" 44
TO LINE 162
TO LINE 306
1K15-402
1K14-392
1K22-345,631NC,634
1K21-342,629NC,633
1K13-328 OR 340
502AV
1F55-AUX
1F54-AUX
1F21-AUX
1F53-AUX
1K15
1K14
1K22
1K21
1K13
1K21-AUX
1K22-AUX
1XJ6-6
1XJ6-5
1XJ6-3
1XJ6-2
1XJ6-4
1XJ6-8
1XJ6-9
1XP6-6
1XP6-5
1XP6-3
1XP6-2
1XP6-4
1XP6-8
1XP6-9
1X4-6
1X4-7
J2
J1
WB1
4M5
4M9
4M3
4M4
551A
551C
552A
552B
562A
562B
563A
564A
564B
565A
566A
549A
550A
555A
556A
1XJ8-6
1XJ8-5
1XJ7-5
1XJ7-4
1XP8-6
1XP8-5
1XP7-5
1XP7-4
502BB


TRANE
2309–2075
SCHEMATIC
CGAM / CXAM
COMMON CONTROL
V FRAME
NORTH AMERICA PRODUCTION
WARNING
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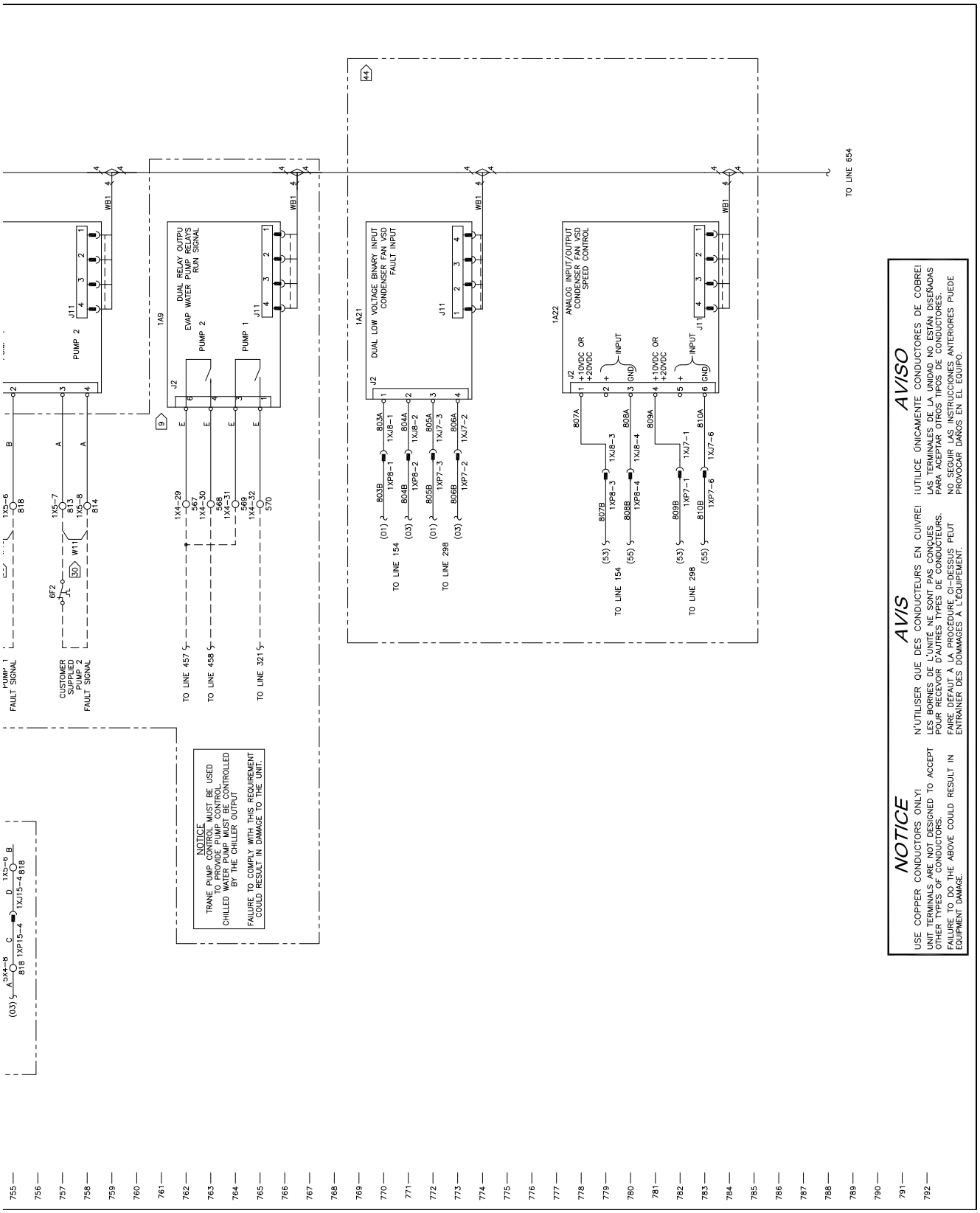
TO LINE 426 OR 470 OR 500
584
1A17
DUAL LOW VOLTAGE BINARY INPUT WATER FLOW SWITCH & INTERLOCK PHASE PROTECTION INPUT
1A25
ANALOG INPUT/OUTPUT WATER PUMP VSD FREQ FREQUENCY INPUT AND % CAPACITY OUTPUT
1A12
DUAL LOW VOLTAGE BINARY INPUT CHILLED WATER PUMP FAULT INPUT
FACTORY PROVIDED DUAL PUMPS W/ VSD
FIELD PROVIDED PUMP(S)
FACTORY PROVIDED PUMPS
FIELD PROVIDED PUMP(S)
EXTERNAL % CAPACITY OUTPUT
TO LINE 820
TO LINE 822
TO LINE 27,28
TO LINE 472
TO LINE 325
SEE INSET "A"
CUSTOMER SUPPLIED PUMP 1 FAULT SIGNAL
CUSTOMER SUPPLIED PUMP 2 FAULT SIGNAL


NOTICE
TRANE PUMP CONTROL MUST BE USED TO PROVIDE PUMP CONTROL CHILLED WATER PUMP MUST BE CONTROLLED BY THE CHILLER OUTPUT
FAILURE TO COMPLY WITH THIS REQUIREMENT COULD RESULT IN DAMAGE TO THE UNIT.
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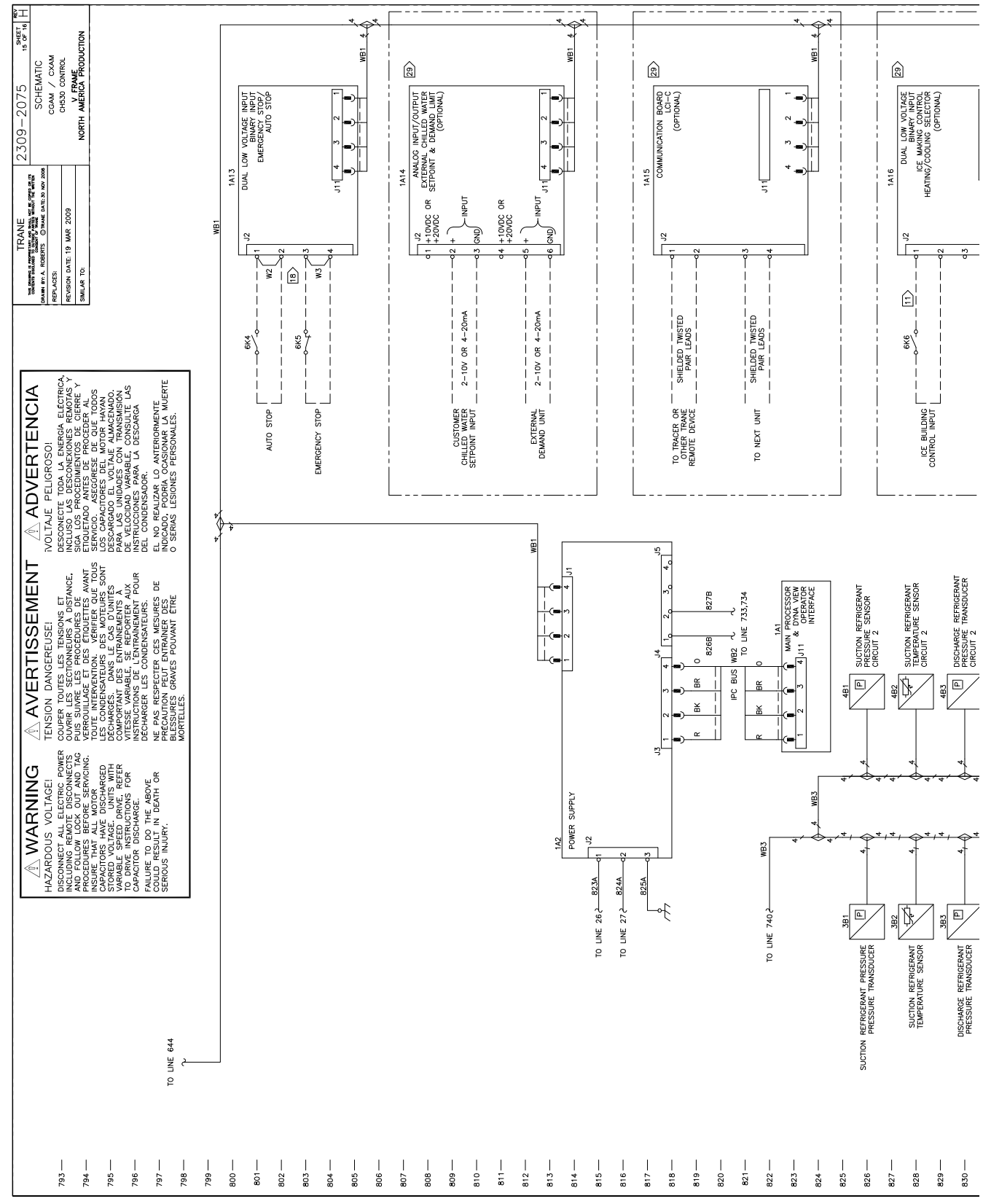
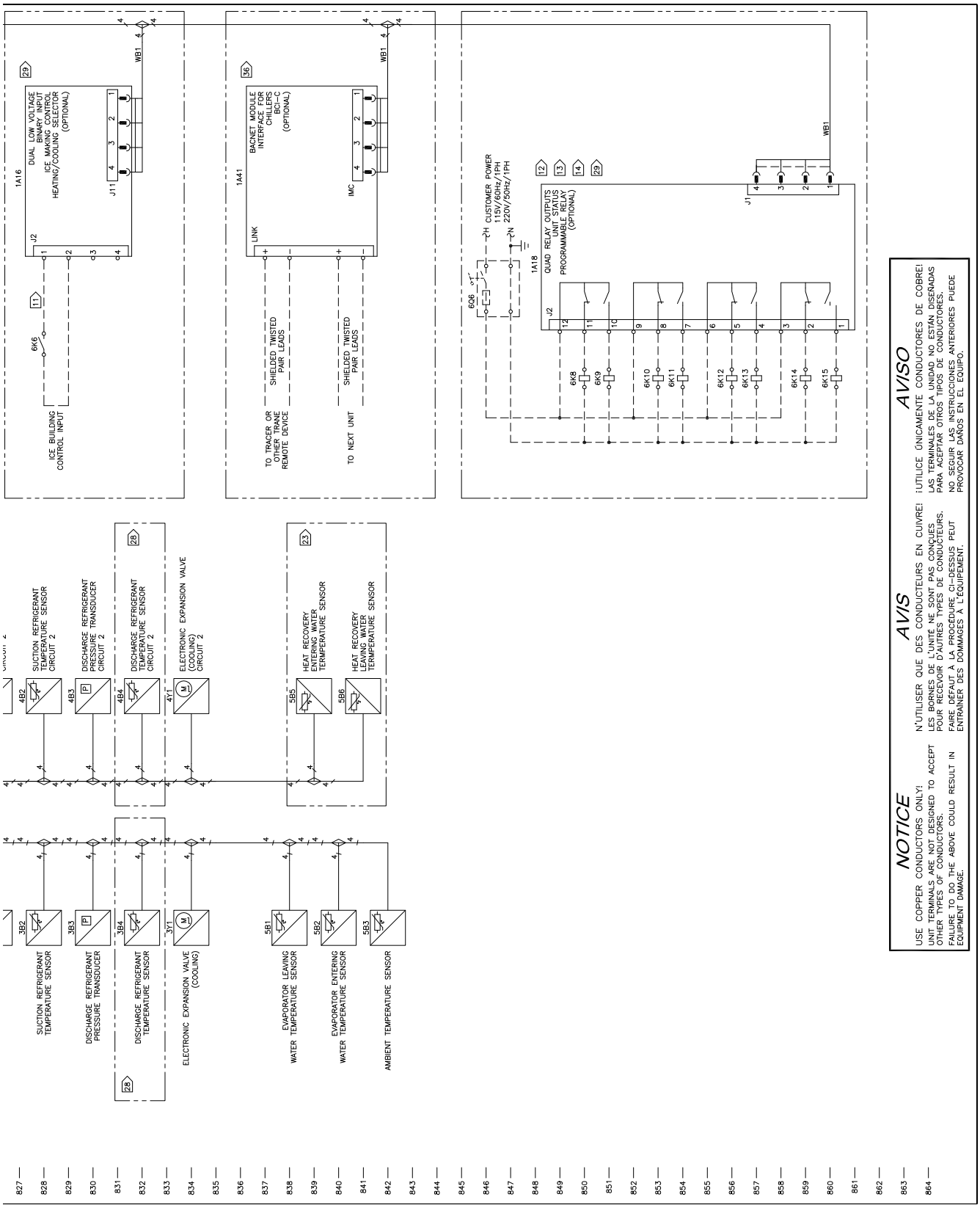
TO LINE 654
TO LINE 457
TO LINE 458
TO LINE 321
TO LINE 154
TO LINE 298
1A9
1A21
1A22
DUAL RELAY OUTPU EVAP WATER PUMP RUN SIGNAL
DUAL LOW VOLTAGE BINARY INPUT CONDENSER FAN VSD FAULT INPUT
ANALOG INPUT/OUTPUT CONDENSER FAN VSD SPEED CONTROL
PUMP 1
PUMP 2
CUSTOMER SUPPLIED PUMP 1 FAULT SIGNAL
CUSTOMER SUPPLIED PUMP 2 FAULT SIGNAL
+10VDC OR +20VDC
INPUT
GND


TRANE
2309–2075
SCHEMATIC
CGAM / CXAM
CH530 CONTROL
V FRAME
NORTH AMERICA PRODUCTION
WARNING
HAZARDOUS VOLTAGE!
ADVERTENCIA
¡VOLTAJE PELIGROSO!
1A13
DUAL LOW VOLTAGE INPUT
BINARY INPUT
EMERGENCY STOP
AUTO STOP
1A14
ANALOG INPUT/OUTPUT
EXTERNAL CHILLED WATER
SETPOINT & DEMAND LIMIT
(OPTIONAL)
1A15
COMMUNICATION BOARD
LOCAL
(OPTIONAL)
1A16
DUAL LOW VOLTAGE
BINARY INPUT
ICE MAKING CONTROL
HEATING/COOLING SELECTOR
(OPTIONAL)
AUTO STOP
EMERGENCY STOP
CUSTOMER
CHILLED WATER
SETPOINT INPUT
EXTERNAL
DEMAND UNIT
TO TRACER OR
OTHER TRANE
REMOTE DEVICE
TO NEXT UNIT
ICE BUILDING
CONTROL INPUT
SHIELDED TWISTED
PAIR LEADS
2–10V OR 4–20mA
+10VDC OR
+20VDC
GND
INPUT
1A2
POWER SUPPLY
1A1
MAIN PROCESSOR
& DYNA VIEW
OPERATOR
INTERFACE
IPC BUS
TO LINE 733,734
TO LINE 644
TO LINE 740
TO LINE 26
TO LINE 27
SUCTION REFRIGERANT
PRESSURE TRANSDUCER
SUCTION REFRIGERANT
TEMPERATURE SENSOR
DISCHARGE REFRIGERANT
PRESSURE TRANSDUCER
SUCTION REFRIGERANT
PRESSURE SENSOR
CIRCUIT 2
SUCTION REFRIGERANT
TEMPERATURE SENSOR
CIRCUIT 2
DISCHARGE REFRIGERANT
PRESSURE TRANSDUCER
CIRCUIT 2


1A16
DUAL LOW VOLTAGE BINARY INPUT ICE MAKING CONTROL HEATING/COOLING SELECTOR (OPTIONAL)
ICE BUILDING CONTROL INPUT
1A41
BACNET MODULE INTERFACE FOR CHILLERS BCI-C (OPTIONAL)
LINK
IMC
TO TRACER OR OTHER HVAC REMOTE DEVICE
TO NEXT UNIT
SHIELDED TWISTED PAIR LEADS
1A18
QUAD RELAY OUTPUTS WITH STATUS PROGRAMMABLE RELAY (OPTIONAL)
CUSTOMER POWER 115V/60Hz/1PH 220V/50Hz/1PH
SUCTION REFRIGERANT TEMPERATURE SENSOR CIRCUIT 2
DISCHARGE REFRIGERANT PRESSURE TRANSDUCER CIRCUIT 2
DISCHARGE REFRIGERANT TEMPERATURE SENSOR CIRCUIT 2
ELECTRONIC EXPANSION VALVE (COOLING) CIRCUIT 2
HEAT RECOVERY ENTERING WATER TERMPERATURE SENSOR
HEAT RECOVERY LEAVING WATER TERMPERATURE SENSOR
SUCTION REFRIGERANT TEMPERATURE SENSOR
DISCHARGE REFRIGERANT PRESSURE TRANSDUCER
DISCHARGE REFRIGERANT TEMPERATURE SENSOR
ELECTRONIC EXPANSION VALVE (COOLING)
EVAPORATOR LEAVING WATER TEMPERATURE SENSOR
EVAPORATOR ENTERING WATER TEMPERATURE SENSOR
AMBIENT TEMPERATURE SENSOR
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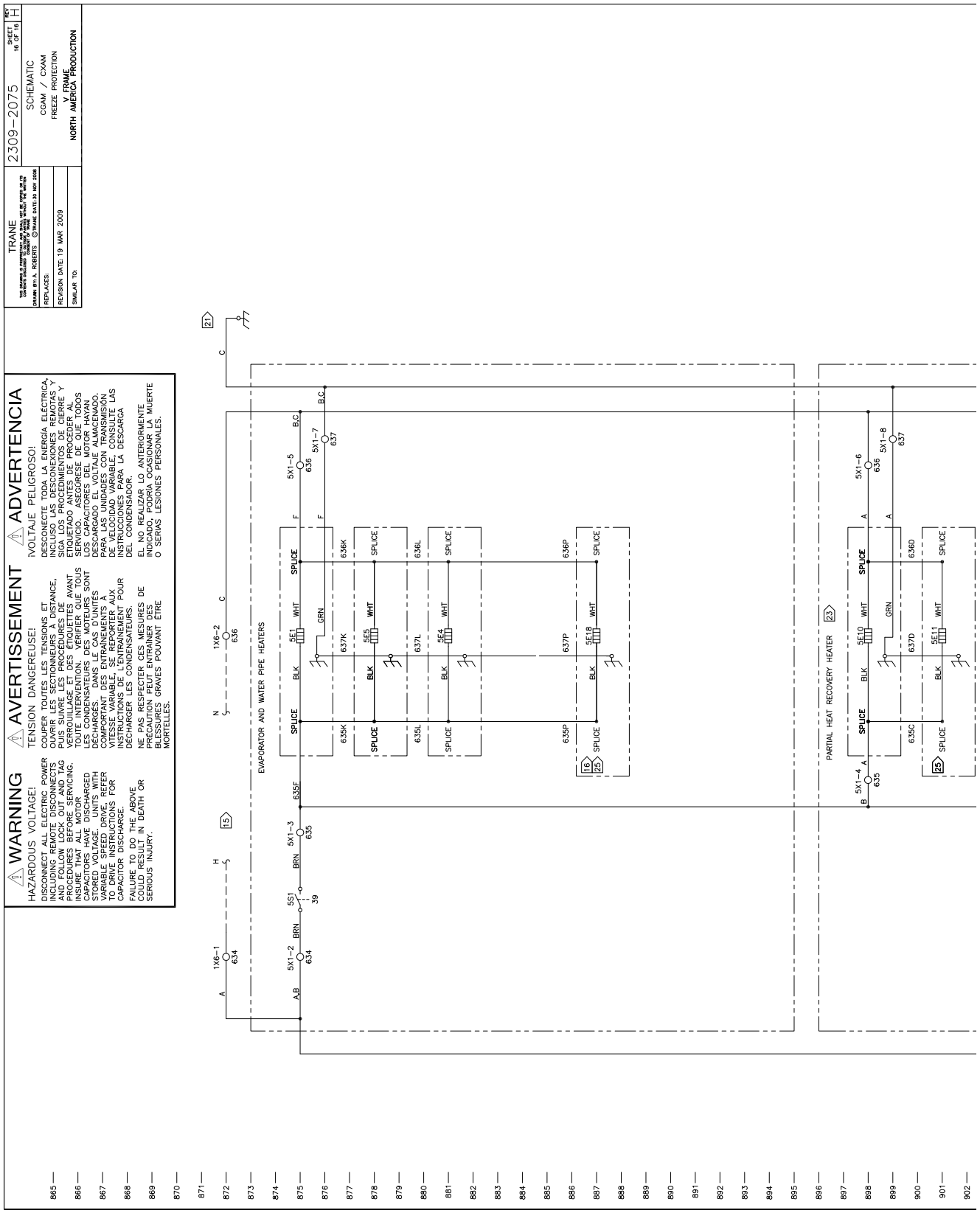
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TRANE
DRAWN BY: A. ROBERTS
REPLACES:
REVISION DATE: 19 MAR 2009
SIMILAR TO:
2309–2075
SHEET 16 OF 16
REV H
SCHEMATIC
CGAM / CXAM
FREEZE PROTECTION
TRANE
NORTH AMERICA PRODUCTION
EVAPORATOR AND WATER PIPE HEATERS
PARTIAL HEAT RECOVERY HEATER
1X6–1
1X6–2
5X1–1
5X1–2
5X1–3
5X1–4
5X1–5
5X1–6
5X1–7
5X1–8
5S1
5E1
5E3
5E4
5E5
5E10
5E11
5E18
SPLICE
BLK
BRN
GRN
WHT
634
635
636
637
635F
635K
635L
635P
635C
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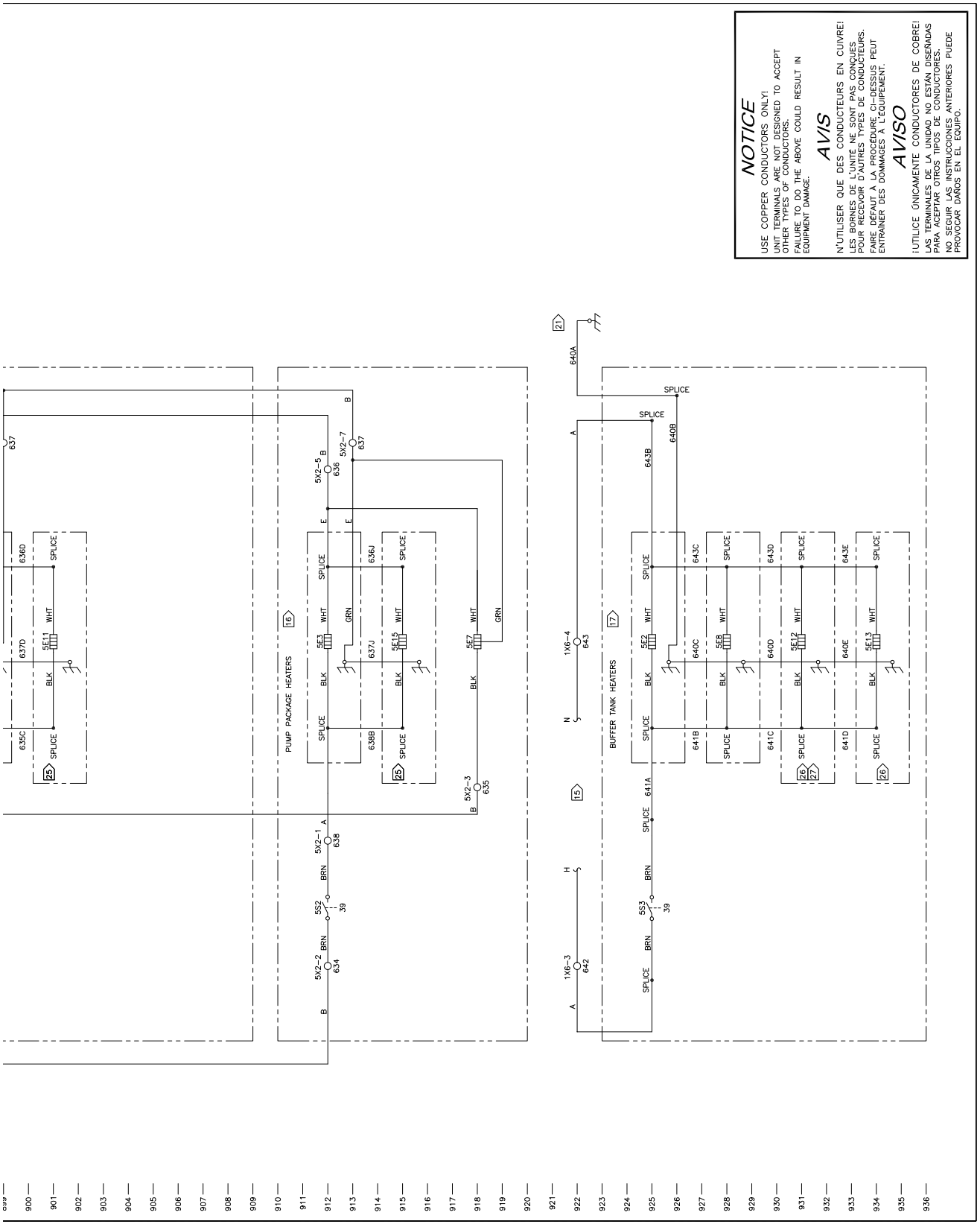
A
B
C
F
A,B
B,C


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
N'UTILISER QUE DES CONDUCTEURS EN CUIVRE! LES BORNES DE L'UNITÉ NE SONT PAS CONÇUES POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS. FAIRE DÉFAUT À LA PROCÉDURE CI-DESSUS PEUT ENTRAINER DES DOMMAGES À L'ÉQUIPEMENT.
AVISO
¡UTILICE ÚNICAMENTE CONDUCTORES DE COBRE! LAS TERMINALES DE LA UNIDAD NO ESTAN DISEÑADAS PARA ACEPTAR OTROS TIPOS DE CONDUCTORES. NO SEGUIR LAS INSTRUCCIONES ANTERIORES PUEDE PROVOCAR DAÑOS EN EL EQUIPO.
PUMP PACKAGE HEATERS
BUFFER TANK HEATERS
SPLICE
BLK
WHT
GRN
BRN

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DRAWN BY: A. ROBERTS ©TRANE DATE:30 NOV 2008	CGAM / CXAM		
REPLACES:	DEVICE DESIGNATORS		
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DEVICES, DESCRIPTIONS & DESIGNATIONS

DEVICE PREFIX LOCATION CODE	
AREA	LOCATION
1	MAIN PANEL/AUXILIARY PANEL
2	NOT USED
3	REFRIGERATION CIRCUIT 1
4	REFRIGERATION CIRCUIT 2
5	UNIT MOUNTED
6	CUSTOMER PROVIDED

LEGEND

DEVICE DESIGNATION	DESCRIPTION	LINE NUMBER
	MAIN PANEL/AUXILIARY PANEL	
1A1	DYNAVIEW MAIN PROCESSOR MODULE	823
1A2	POWER SUPPLY MODULE	814
1A3	COMPRESSOR MOTOR CONTROL; QUAD RELAY OUTPUT	531
1A4	COMPRESSOR MOTOR CONTROL; DUAL RELAY OUTPUT	543
1A5	HIGH PRESSURE CUTOUT; DUAL HIGH VOLTAGE BINARY INPUT	525
1A6	COMPRESSOR FAULT, 2A & 2B, DUAL HIGH VOLTAGE BINARY INPUT	550
1A7	COMPRESSOR FAULT, 1A & 1B, DUAL HIGH VOLTAGE BINARY INPUT	557
1A8	COMPRESSOR FAULT, 2C & 1C, DUAL HIGH VOLTAGE BINARY INPUT	564
1A9	CHILLED WATER PUMP CONTROL, DUAL RELAY OUTPUT	762
1A12	CHILLED WATER PUMP FAULT, DUAL LOW VOLTAGE BINARY INPUT	753
1A13	EXTERNAL EMERGENCY STOP/AUTO STOP, DUAL LOW VOLTAGE BINARY INPUT	801
1A14	EXTERNAL CHILLER WATER SETPOINT DEMAND &LIMIT; ANOLOG INPUT/OUTPUT	808
1A15	COMMUNICATION, LCI–C, DUAL LOW VOLTAGE BINARY INPUT	817
1A16	ICE MAKING CONTROL, DUAL LOW VOLTAGE BINARY INPUT	827
1A17	CHILLED WATER FLOW AND INTERLOCKS, DUAL LOW VOLTAGE BINARY INPUT	737 259
1A18	UNIT OPERATING STATUS, QUAD RELAY OUTPUT	849
1A19	CONDENSER FAN CONTROL CIRCUIT 1, QUAD RELAY OUTPUT	590 OR 662 OR 692
1A20	CONDENSER FAN CONTROL CIRCUIT 2, QUAD RELAY OUTPUT	616 OR 673 OR 705
1A21	FAN INVERT FAULT INPUT, DUAL LOW VOLTAGE BINARY INPUT	770
1A22	FAN VSD CONTROL, ANALOG INPUT/OUTPUT	778
1A25	PUMP VSD FREQUENCY, ANOLOG INPUT/OUTPUT OR % CAPACITY	745
1A26	DUAL CHILLED WATER PUMP CONTROL WITH VSD, QUAD RELAY OUTPUT	489
1A36	VSD, CONDENSER FAN 2A, CIRCUIT 1	155
1A37	VSD, CONDENSER FAN 2A, CIRCUIT 2	299
1A41	BACNET COMMUNICATION INTERFACE FOR CHILLERS	837
1E1	HEATER, BLANKET, 1A36	521
1E2	HEATER, BLANKET, 1A36	522
1E3	**HEATER, BLANKET, 1A37**	523
1F1,1F2	FUSE, COMPRESSOR HEATER, CIRCUIT 1	38,39
1F3,1F4	FUSE, COMPRESSOR HEATER, CIRCUIT 2	98,99
1F5,1F6	FUSE, CONTROL POWER TRANSFORMER, PRIMARY	28,29
1F11	FUSE, CONTROL POWER TRANSFORMER, SECONDARY, 115V	27
1F12–1F13	FUSE, CONTROL POWER TRANSFORMER, SECONDARY, 24V	26,27
1F14–1F16	FUSE, FAN 1A, CIRCUIT 1	156,157,158 OR 183,184,185 OR 195,196,197
1F17–1F19	FUSE, FAN 2A, CIRCUIT 2	300,301,302, OR 328,329,330 OR 339,340,341
1F20	OVERLOAD RELAY, FAN 3M4 LOW SPEED	?
1F21	OVERLOAD RELAY, FAN 4M4 LOW SPEED	?
1F32–1F34	FUSE, VSD, PUMP	467,468,469
1F38–1F40	**FUSE, FANS CIRCUIT 1**	244
1F44–1F46	FUSE, FANS CIRCUIT 2	388
1F47	OVERLOAD RELAY, FAN 3M4 HIGH SPEED	?
1F48	OVERLOAD RELAY, FAN 3M9	?
1F49	OVERLOAD RELAY, FAN 3M5	?
1F50	OVERLOAD RELAY, FAN 3M7	?
1F51	OVERLOAD RELAY, FAN 3M6	?
1F53	OVERLOAD RELAY, FAN 4M4, HIGH SPEED	?
1F54	OVERLOAD RELAY, FAN 4M9	?
1F55	OVERLOAD RELAY, FAN 4M5	?
1F56	OVERLOAD RELAY, FAN 4M7	?
1F57	OVERLOAD RELAY, FAN 4M6	?
1K1	CONTACTOR, COMPRESSOR 1A, CIRCUIT 1	540
1K2	CONTACTOR, COMPRESSOR 1B, CIRCUIT 1	538
1K3	CONTACTOR, COMPRESSOR 1C, CIRCUIT 1	547
1K4	CONTACTOR, COMPRESSOR 2A, CIRCUIT 2	534
1K5	CONTACTOR, COMPRESSOR 2B, CIRCUIT 2	532
1K6	CONTACTOR, COMPRESSOR 2C, CIRCUIT 2	545
1K7	CONTACTOR, FAN 3M4	607 OR 669 OR 701
1K8	CONTACTOR, FAN 3M9	559 OR 666 OR 696

LEGEND

DEVICE DESIGNATION	DESCRIPTION	LINE NUMBER
	REFRIGERATION CIRCUIT 1	
3B1	TRANSDUCER, SUCTION REFRIGERANT PRESSURE, CIRCUIT 1	826
3B2	SENSOR, SUCTION REFRIGERANT TEMPERATURE, CIRCUIT 1	828
3B3	TRANDUCER, DISCHARGE REFRIGERANT PRESSURE, CIRCUIT 1	830
3B4	SENSOR, DISCHARGE REFRIGERANT TEMPERATURE, CIRCUIT 1	832
3M1	MOTOR, COMPRESSOR 1A, CIRCUIT 1	34
3M1A1	ELECTRONIC PROTECTION MODULE, COMPRESSOR 1A, CIRCUIT 1	36
3M1E1	HEATER, COMPRESSOR 1A, CIRCUIT 1	39
3M2	MOTOR, COMPRESSOR 1B, CIRCUIT 1	49
3M2A1	ELECTRONIC PROTECTION MODULE, COMPRESSOR 1B, CIRCUIT 1	52
3M2E1	HEATER, COMPRESSOR 1B, CIRCUIT 1	42
3M3	MOTOR, COMPRESSOR 1C, CIRCUIT 1	60
3M3A1	ELECTRONIC PROTECTION MODULE, COMPRESSOR 1C, CIRCUIT 1	64
3M3E1	HEATER, COMPRESSOR 1C, CIRCUIT 1	45
3M4	MOTOR, FAN 1, CIRCUIT 1	156 OR 184 OR 197
3M5	MOTOR, FAN, CIRCUIT 1	259
3M6	MOTOR, FAN, CIRCUIT 1	279
3M7	MOTOR, FAN, CIRCUIT 1	269
3M9	MOTOR, FAN, CIRCUIT 1	249
3S1	HIGH PRESSURE CUTOUT SWITCH, CIRCUIT 1	536
3S2	THERMOSTAT, COMPRESSOR 1A HEATER	39
3S3	THERMOSTAT, COMPRESSOR 1B HEATER	42
3S4	THERMOSTAT, COMPRESSOR 1C HEATER	45
3Y1	EXPANSION VALVE, COOLING, CIRCUIT 1	834
	REFRIGERATION CIRCUIT 2	
4B1	TRANDUCER, SUCTION REFRIGERANT PRESSURE, CIRCUIT 2	826
4B2	SENSOR, SUCTION REFRIGERANT TEMPERATURE, CIRCUIT 2	828
4B3	TRANDUCER, DISCHARGE REFRIGERANT PRESSURE, CIRCUIT 2	830
4B4	SENSOR, DISCHARGE REFRIGERANT TEMPERATURE, CIRCUIT 2	832
4M1	MOTOR, COMPRESSOR 2A, CIRCUIT 2	93
4M1A1	ELECTRONIC PROTECTION MODULE, COMPRESSOR 2A, CIRCUIT 2	96
4M1E1	HEATER, COMPRESSOR 2A, CIRCUIT 2	99
4M2	MOTOR, COMPRESSOR 2B, CIRCUIT 2	108
4M2A1	ELECTRONIC PROTECTION MODULE, COMPRESSOR 2B, CIRCUIT 2	112
4M2E1	HEATER, COMPRESSOR 2B, CIRCUIT 2	102
4M3	MOTOR, COMPRESSOR 2C, CIRCUIT 2	120
4M3A1	ELECTRONIC PROTECTION MODULE, COMPRESSOR 2C, CIRCUIT 2	123
4M3E1	HEATER, COMPRESSOR 2C, CIRCUIT 2	105
4M4	MOTOR, FAN 1, CIRCUIT 2	301 OR 329 OR 342
4M5	MOTOR, FAN, CIRCUIT 2	403
4M6	MOTOR, FAN, CIRCUIT 2	423
4M7	MOTOR, FAN, CIRCUIT 2	413
4M9	MOTOR, FAN, CIRCUIT 2	393
4S1	HIGH PRESSURE CUTOUT SWITCH, CIRCUIT 2	530
4S2	THERMOSTAT, COMPRESSOR 2A HEATER	99
4S3	THERMOSTAT, COMPRESSOR 2B HEATER	102
4S4	THERMOSTAT, COMPRESSOR 2C HEATER	105
4Y1	EXPANSION VALVE, COOLING, CIRCUIT 2	834
	UNIT MOUNTED	
5A1	VSD, WATER PUMP CONTROL	467
5B1	SENSOR, EVAPORATOR LEAVING WATER TEMPERATURE	838
5B2	SENSOR, EVAPORATOR ENTERING WATER TEMPERATURE	840
5B3	SENSOR, AMBIENT TEMPERATURE	842
5B4	SENSOR, WATER FLOW	732
5B5	SENSOR, HEAT RECOVERY ENTERING WATER TEMP	839
5B6	SENSOR, HEAT RECOVERY LEAVING WATER TEMP	841
5E1	HEATER, EVAPORATOR	875

1F55	OVERLOAD RELAY, FAN 4M5	?
1F56	OVERLOAD RELAY, FAN 4M7	?
1F57	OVERLOAD RELAY, FAN 4M6	?
1K1	CONTACTOR, COMPRESSOR 1A, CIRCUIT 1	540
1K2	CONTACTOR, COMPRESSOR 1B, CIRCUIT 1	538
1K3	CONTACTOR, COMPRESSOR 1C, CIRCUIT 1	547
1K4	CONTACTOR, COMPRESSOR 2A, CIRCUIT 2	534
1K5	CONTACTOR, COMPRESSOR 2B, CIRCUIT 2	532
1K6	CONTACTOR, COMPRESSOR 2C, CIRCUIT 2	545
1K7	CONTACTOR, FAN 3M4	607 OR 669 OR 701
1K8	CONTACTOR, FAN 3M9	559 OR 666 OR 696
1K9	CONTACTOR, FAN 3M5	592 OR 663 OR 693
1K10	CONTACTOR, FAN 3M7	664 OR 694
1K11	CONTACTOR, FAN 3M6	698
1K13	CONTACTOR, FAN 4M4	633 OR 682 OR 714
1K14	CONTACTOR, FAN 4M9	625 OR 677 OR 709
1K15	CONTACTOR, FAN 4M5	618 OR 674 OR 706
1K16	CONTACTOR, FAN 4M7	675 OR 707
1K17	CONTACTOR, FAN 4M6	711
1K19	CONTACTOR, 2-SPEED FAN 3M4, LOW	605
1K20	CONTACTOR, 2-SPEED FAN 3M4, HIGH	603
1K21	CONTACTOR, 2-SPEED FAN 4M4, LOW	631
1K22	CONTACTOR, 2-SPEED FAN 4M4, HIGH	629
1M1	FAN, MAIN CONTROL PANEL VENTILATION	518
1Q1	CIRCUIT BREAKER	15
1Q5	CIRCUIT BREAKER, COMPRESSOR, 3M1, CIRCUIT 1	33
1Q6	CIRCUIT BREAKER, COMPRESSOR, 3M2, CIRCUIT 1	48
1Q7	CIRCUIT BREAKER, COMPRESSOR, 3M3, CIRCUIT 1	60
1Q8	CIRCUIT BREAKER, COMPRESSOR, 4M1, CIRCUIT 2	93
1Q9	CIRCUIT BREAKER, COMPRESSOR, 4M2, CIRCUIT 2	108
1Q10	CIRCUIT BREAKER, COMPRESSOR, CIRCUIT 2	120
1S1	THERMOSTAT, MAIN CONTROL PANEL VENTILATION	518
1S2	THERMOSTAT, VSD HEATER BLANKET	521
1T1	TRANSFORMER, CONTROL POWER	23
1T2	AUTOTRANSFORMER, FAN VSD, CIRCUIT 1	161
1T3	AUTOTRANSFORMER, FAN VSD, CIRCUIT 2	305
1X1	BLOCK, TERMINAL – CUSTOMER POWER DISTRIBUTION	8
1X3	BLOCK, TERMINAL – COMPRESSOR HEATER, CIRCUIT 1	VARIES
1X4	BLOCK, TERMINAL – FACTORY CONTROL WIRING, 115VAC	VARIES
1X5	BLOCK, TERMINAL – FACTORY CONTROL WIRING, 0–10VDC	VARIES
1X6	BLOCK, TERMINAL – CUSTOMER CONTROL WIRING, 115VAC	VARIES
1X7	BLOCK, TERMINAL – CUSTOMER CONTROL WIRING, 0–10VDC	VARIES
1XJ1	CONNECTOR, JACK – CONTROL POWER TRANSFORMER WIRING	VARIES
1XJ2	CONNECTOR, JACK – PUMP CONTROL 1 WIRING	VARIES
1XJ3	CONNECTOR, JACK – COMPRESSOR CONTROL CIRCUIT 1 WIRING	VARIES
1XJ4	CONNECTOR, JACK – COMPRESSOR CONTROL CIRCUIT 2 WIRING	VARIES
1XJ5	CONNECTOR, JACK – FAN CONTROL CIRCUIT 1 WIRING	VARIES
1XJ6	CONNECTOR, JACK – FAN CONTROL CIRCUIT 2 WIRING	VARIES
1XJ7	CONNECTOR, JACK – VSD CONTROL CIRCUIT 2 WIRING	VARIES
1XJ8	CONNECTOR, JACK – VSD CONTROL CIRCUIT 1 WIRING	VARIES
1XJ9	CONNECTOR, JACK – COMPRESSOR 1A WIRING	VARIES
1XJ10	CONNECTOR, JACK – COMPRESSOR 1B WIRING	VARIES
1XJ11	CONNECTOR, JACK – COMPRESSOR 1C WIRING	VARIES
1XJ12	CONNECTOR, JACK – COMPRESSOR 2A WIRING	VARIES
1XJ13	CONNECTOR, JACK – COMPRESSOR 2B WIRING	VARIES
1XJ14	CONNECTOR, JACK – COMPRESSOR 2C WIRING	VARIES
1XJ15	CONNECTOR, JACK – PUMP CONTROL WIRING 2	VARIES
1XJ17	CONNECTOR, JACK – PUMP CONTROL WIRING 3	VARIES
1XP1	CONNECTOR, PLUG – CONTROL POWER TRANSFORMER WIRING	VARIES
1XP2	CONNECTOR, PLUG – PUMP CONTROL WIRING 1	VARIES
1XP3	CONNECTOR, PLUG – COMPRESSOR CONTROL CIRCUIT 1 WIRING	VARIES
1XP4	CONNECTOR, PLUG – COMPRESSOR CONTROL CIRCUIT 2 WIRING	VARIES
1XP5	CONNECTOR, PLUG – FAN CONTROL CIRCUIT 1 WIRING	VARIES
1XP6	CONNECTOR, PLUG – FAN CONTROL CIRCUIT 2 WIRING	VARIES
1XP7	CONNECTOR, PLUG – VSD CONTROL CIRCUIT 2 WIRING	VARIES
1XP8	CONNECTOR, PLUG – VSD CONTROL CIRCUIT 1 WIRING	VARIES
1XP9	CONNECTOR, PLUG – COMPRESSOR 1A WIRING	VARIES
1XP10	CONNECTOR, PLUG – COMPRESSOR 1B WIRING	VARIES
1XP11	CONNECTOR, PLUG – COMPRESSOR 1C WIRING	VARIES
1XP12	CONNECTOR, PLUG – COMPRESSOR 2A WIRING	VARIES
1XP13	CONNECTOR, PLUG – COMPRESSOR 2B WIRING	VARIES
1XP14	CONNECTOR, PLUG – COMPRESSOR 2C WIRING	VARIES
1XP15	CONNECTOR, PLUG – PUMP CONTROL WIRING 2	VARIES
1XP17	CONNECTOR, PLUG – PUMP CONTROL WIRING 3	VARIES

	UNIT MOUNTED	
5A1	VSD, WATER PUMP CONTROL	467
5B1	SENSOR, EVAPORATOR LEAVING WATER TEMPERATURE	838
5B2	SENSOR, EVAPORATOR ENTERING WATER TEMPERATURE	840
5B3	SENSOR, AMBIENT TEMPERATURE	842
5B4	SENSOR, WATER FLOW	732
5B5	SENSOR, HEAT RECOVERY ENTERING WATER TEMP	839
5B6	SENSOR, HEAT RECOVERY LEAVING WATER TEMP	841
5E1	HEATER, EVAPORATOR	875
5E2	HEATER, BUFFER TANK	925
5E3	HEATER, WATER PUMP PIPING	912
5E4	HEATER, EVAPORATOR ENTERING WATER PIPING	881
5E5	HEATER, EVAPORATOR LEAVING WATER PIPING	878
5E6	HEATER, WATER PUMP PIPING	890
5E7	HEATER, EXPANSION TANK	918
5E8	HEATER, BUFFER TANK	928
5E9	HEATER, PUMP VSD ENCLOSURE	499
5E10	HEATER, PARTIAL HEAT RECOVERY	898
5E11	HEATER, PARTIAL HEAT RECOVERY	901
5E12	HEATER, BUFFER TANK	931
5E13	HEATER, BUFFER TANK	934
5E14	HEATER, WATER PUMP PIPING	893
5E15	HEATER, WATER PUMP PIPING	915
5E16	HEATER, PARTIAL HEAT RECOVERY	904
5E17	HEATER, PARTIAL HEAT RECOVERY	907
5E18	HEATER, EVAPORATOR ENTERING WATER PIPING	887
5K1–5K2	CONTACTOR, PUMP PACKAGE W/ VSD	492,495
5M1	MOTOR, FACTORY PROVIDED, CHILLED WATER PUMP 1	469
5M2	MOTOR, FACTORY PROVIDED, CHILLED WATER PUMP 2	478
5M3	MOTOR, FAN PUMP VSD ENCLOSURE VENTILATION	500
5X1	BLOCK, TERMINAL – EVAPORATOR AND WATER PIPE HEATERS	VARIES
5X2	BLOCK, TERMINAL – PUMP PACKAGE HEATERS	VARIES
5X3	BLOCK, TERMINAL – BUFFER TANK HEATERS	VARIES
5X4	BLOCK, TERMINAL – PUMP VSD AUXILIARY PANEL HEATER	VARIES
5S1	THERMOSTAT, EVAPORATOR & WATER PIPES, HEATERS	875
5S2	THERMOSTAT, PUMP PACKAGE, HEATERS	912
5S3	THERMOSTAT, BUFFER TANK, HEATERS	925
5S4	THERMOSTAT, PUMP VSD AUXILIARY PANEL HEATER	499
5S5	THERMOSTAT, PUMP VSD AUXILIARY PANEL FAN	500
	CUSTOMER PROVIDED	
6F1–6F2	RELAY, CUSTOMER PROVIDED, OVERLOAD PROTECTION, CHILLED WATER PUMP	445,450
6K1	RELAY, CUSTOMER PROVIDED, CHILLED WATER PUMP 1	442
6K2	RELAY, CUSTOMER PROVIDED, CHILLED WATER PUMP 2	443
6K4	RELAY, EXTERNAL INPUT, AUTO/STOP	801
6K5	RELAY, EXTERNAL INPUT, EMERGENCY STOP	803
6K6	RELAY, EXTERNAL INPUT, ENABLE ICE MAKING	828
6K8–15	RELAY, CUSTOMER PROVIDED, UNIT STATUS, (PROGRAMMABLE)	850 TO 860
6M1	MOTOR, CUSTOMER PROVIDED, CHILLED WATER PUMP 1	445
6M2	MOTOR, CUSTOMER PROVIDED, CHILLED WATER PUMP 2	450
6Q1	FUSED DISCONNECT CUSTOMER SUPPLIED 3 PHASE, POWER SUPPLY	3,437
6Q3–6Q4	FUSED DISCONNECT CUSTOMER SUPPLIED 3 PHASE, CHILLED WATER PUMP	445,450
6Q5	FUSED DISCONNECT CUSTOMER SUPPLIED 2 PHASE, CHILLED WATER PUMP	441
6Q6	FUSED DISCONNECT CUSTOMER SUPPLIED 1 PHASE, CONTROL POWER SUPPLY	846

TRANE	2309–2075	SHEET 3 OF 16	REV H
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GENERAL & FLAG NOTES

GENERAL NOTES:

1. UNLESS OTHERWISE NOTED, ALL SWITCHES ARE SHOWN AT 25°C (77F), 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 DEVICE OUTLINES INDICATE COMPONENTS PROVIDED BY THE FIELD.PHANTOM LINE ENCLOSURES INDICATE ALTERNATE CIRCUITRY OR AVAILABLE SALES OPTIONS. SOLID LINE INDICATES WIRING BY TRANE.
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.
5. 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.

FLAG NOTES:

1. ALL UNIT POWER WIRING MUST BE COPPER CONDUCTORS ONLY, HAVE A MINIMUM INSULATION TEMPERATURE RATING OF 90°C AND BE SELECTED AT 75°C RATINGS.
2. TERMINAL BLOCK 1X1 IS PROVIDED AS STANDARD ON ALL UNITS PNCO=TERM. CIRCUIT BREAKER 1Q1 PNCO=CB AVAILABLE AS OPTION. TERMINAL BLOCK IS REPLACED WITH CIRCUIT BREAKER WHEN THIS OPTION IS SELECTED.
4. REFER TO FAN CHART FOR VALID FAN CONFIGURATIONS.
5. TRANSFORMER FOR 575V UNITS ONLY. (VOLT=575) AND (UAPP=CATC or WIDC).
6. PUMP PACKAGE:
   – AT LEAST ONE PUMP IS ALWAYS PRESENT AND IS EITHER FIELD OR FACTORY SUPPLIED.
   – WHEN PUMPS ARE FACTORY SUPPLIED, THEY WILL BE DUAL PUMPS.
7. OPTIONAL DUAL FACTORY SUPPLIED EVAP WATER PUMPS. WIRING SHOWN IS FOR VSD OF PUMP PACKAGE. (PTYP=DHHP).
8. OPTIONAL DUAL CUSTOMER SUPPLIED EVAP WATER PUMP(S). 6M2 WIRING PRESENT FOR DUAL PUMP CONFIGURATION ONLY. PUMP CONTROL CONFIGURATION SHOWS WIRING WITH CONTACTORS AND OVERLOAD RELAYS. PUMP(S) CAN ALSO BE POWERED BY CUSTOMER CONTROLLED VSD(S). PUMP STARTER FAULT SIGNAL(S) TO BE FIELD WIRED TO 1A12 (INSET "V").
9. CUSTOMER SUPPLIED PUMP RUN SIGNAL TO BE FIELD WIRED TO 1A9.
10. WIRING FOR 200V/460V UNIT SHOWN. SEE INSET "B" FOR CONTROL POWER TRANSFORMER WIRING OF OTHER VOLTAGES.
11. CONTACT CLOSURE ENABLES ICE MAKING, WHEN ICE MAKING OPTION IS ORDERED. (EVLT=ICE).
12. CLASS 1 FIELD WIRED MODULE.
13. RELAY AT 120VAC: 7.2 AMPS RESISTIVE, 2.88 AMPS PILOT DUTY, 1/3 HP 7.2 FLA; AT 240VAC: 5 AMPS GENERAL PURPOSE.
14. FIELD ASSIGNED PROGRAMMABLE RELAYS. (STAT=PRLY).
15. CUSTOMER SUPPLIED POWER, 120V.
16. ONLY USED WHEN PUMP PACKAGE OPTION IS ORDERED. (PTYP=DHHP).
17. ONLY USED WHEN BUFFER TANK OPTION IS ORDERED. (BTNK=BTNK).
18. THE CONTACTS FOR AUTO STOP AND EMERGENCY STOP SWITCHES ARE JUMPERED AT THE FACTORY BY JUMPERS W2 & W3 TO ENABLE UNIT OPERATION. IF REMOTE CONTROL IS DESIRED, REMOVE THE JUMPERS AND CONNECT TO THE DESIRED CONTROL CIRCUIT.
21. GROUND SCREW IN MAIN CONTROL PANEL.
22. INSIDE THE PUMP VSD ENCLOSURE, MOUNTED ON UNIT FRAME WITH (PTYP=DHHP).
23. ONLY USED WHEN PARTIAL HEAT RECOVERY (CDHR = PRTF) OPTION IS ORDERED.
24. COMPRESSOR HEATER WIRE COLOR IS DETERMINED BY VOLTAGE IN CHART.
25. PRESENT ON "V" FRAME UNITS (NTON = 40, 52, 60 or 70).

21 GROUND SCREW IN MAIN CONTROL PANEL.

22 INSIDE THE PUMP VSD ENCLOSURE, MOUNTED ON UNIT FRAME WITH (PTYP=DHHP).

23 ONLY USED WHEN PARTIAL HEAT RECOVERY (CDHR = PRTF) OPTION IS ORDERED.

24 COMPRESSOR HEATER WIRE COLOR IS DETERMINED BY VOLTAGE IN CHART.

25 PRESENT ON "V" FRAME UNITS (NTON = 40, 52, 60 or 70).

26 PRESENT ON "W" FRAME UNITS (NTON = 100, 100, 120 or 130).

27 PRESENT ON "W" FRAME UNITS (NTON = 80, 90).

28 DISCHARGE REFIGERANT TEMPERATURE SENSOR PRESENT FOR ALL THE FOLLOWING OPTIONS:
UNITS WITH ICEMAKING OPTION (EVLT = ICE), UNITS WITH LOW TEMPERATURE PROCESS
COOLING (EVLT = PROC), UNITS WITH PHR FAN CONTROL OPTION (CDHR = PRTF).

29 REFER TO FIELD WIRING DIAGRAM FOR SUGGESTED WIRING.

30 JUMPERS W9, W10 AND W11 ARE INSTALLED BY THE FACTORY ON UNITS ORDERED WITH FIELD PROVIDED PUMPS (PTYP = NONE).
JUMPERS W9, W10 AND W11 ARE TO BE REMOVED WHEN PUMPS AND CONTROL ARE INSTALLED.

31 FUSES 1F38, 1F39, 1F40 PROVIDE POWER TO 3M7, 3M6 (IF PRESENT) WHEN LINE VOLTAGE IS
575VAC (VOLT = 575).

32 FUSES 1F14, 1F15, 1F16 PROVIDE POWER TO 3M7, 3M6 (IF PRESENT) WHEN LINE VOLTAGE IS NOT
575VAC (VOLT = 200, 230, 380, 400 OR 460).

33 FUSES 1F44, 1F45, 1F46 PROVIDE POWER TO 4M7, 4M6 (IF PRESENT) WHEN LINE VOLTAGE IS (VOLT
= 575).

34 FUSES 1F41, 1F42, 1F43 PROVIDE POWER TO 4M7, 4M6 (IF PRESENT) WHEN LINE VOLTAGE IS NOT
575VAC (VOLT = 200, 230, 380, 400 OR 460).

35 VENTILATION FAN PRESENT WHEN LINE (VOLT = 200, 230, 380 or 400).

36 1A41, BACNET INTERFACE MODULE USED WHEN (COMM = BCNT).

37 THERMOSTATS ARE REQUIRED IN THE COMPRESSOR JUNCTION BOXES ON ALL UNITS WITH COMMERCIAL COMPRESSORS AND SOUND WRAPS TO
PREVENT THE PROTECTION MODUAL FROM GETTING TOO HOT. (NTON=30, 35, 60, 70, 80, 90, 100, 110, 120 or 130)
(HRTZ = 60 AND SATT = LNUN OR HRTZ = 50 AND SATT = STDN).

38 THE SAME PUMP MOTOR IS USED FOR 200/230 & 480V UNITS WIRE CONNECTIONS SHOWN FOR BOTH OPTIONS VERIFY WHAT VOLTAGES CHILLER
IS BEFORE WIRING.

39 PRESENT ON UNITS (NTON = 130).

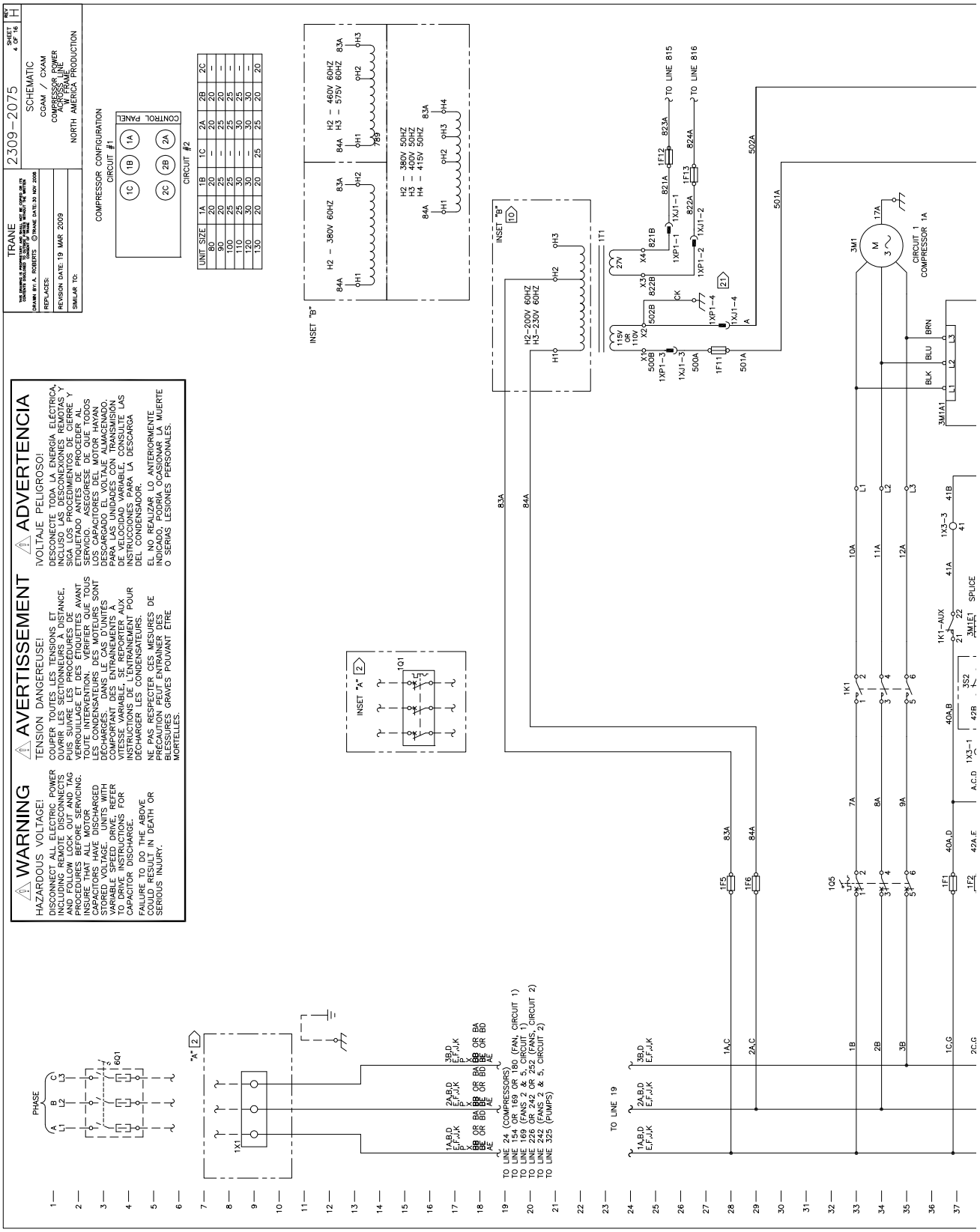
40 PRESENT ON UNITS (NTON = 20, 26, 30, 35) AND (PTYP = DHHP).

41 PRESENT ON UNITS (NTON = 20, 26, 30, 35) AND (PTYP = NONE).

42 SINGLE SPEED FAN 1 PRESENT WHEN:
STANDARD AMBIENT UNITS WITH 4 OR MORE FANS PER CIRCUIT, (NTON=100, 110, 120, OR 130) AND (UAPP=STDC OR HATC)

43 TWO SPEED FAN 1 PRESENT WHEN:
STANDARD AMBIENT UNIT WITH THREE FANS PER CIRCUIT, (NTON= 020, 026, 030, 035, 040, 052, 060, 070, 080, OR 090) AND
(UAPP=STDC OR HATC)

44 VSD AND ASSOCIATED CONTROL CIRCUITS ON FAN 1 PRESENT WHEN:
LOW AMBIENT, AND WIDE AMBIENT UNITS.
UNITS WITH PHR FAN CONTROL OPTION AND 2 FAN STANDARD OR HIGH AMBIENT.


TRANE
2309–2075
SCHEMATIC
CGAM / CXAM
COMPRESSOR POWER
ALL FRAME
NORTH AMERICA PRODUCTION
REVISION DATE: 19 MAR 2009
SIMILAR TO:
WARNING
HAZARDOUS VOLTAGE!
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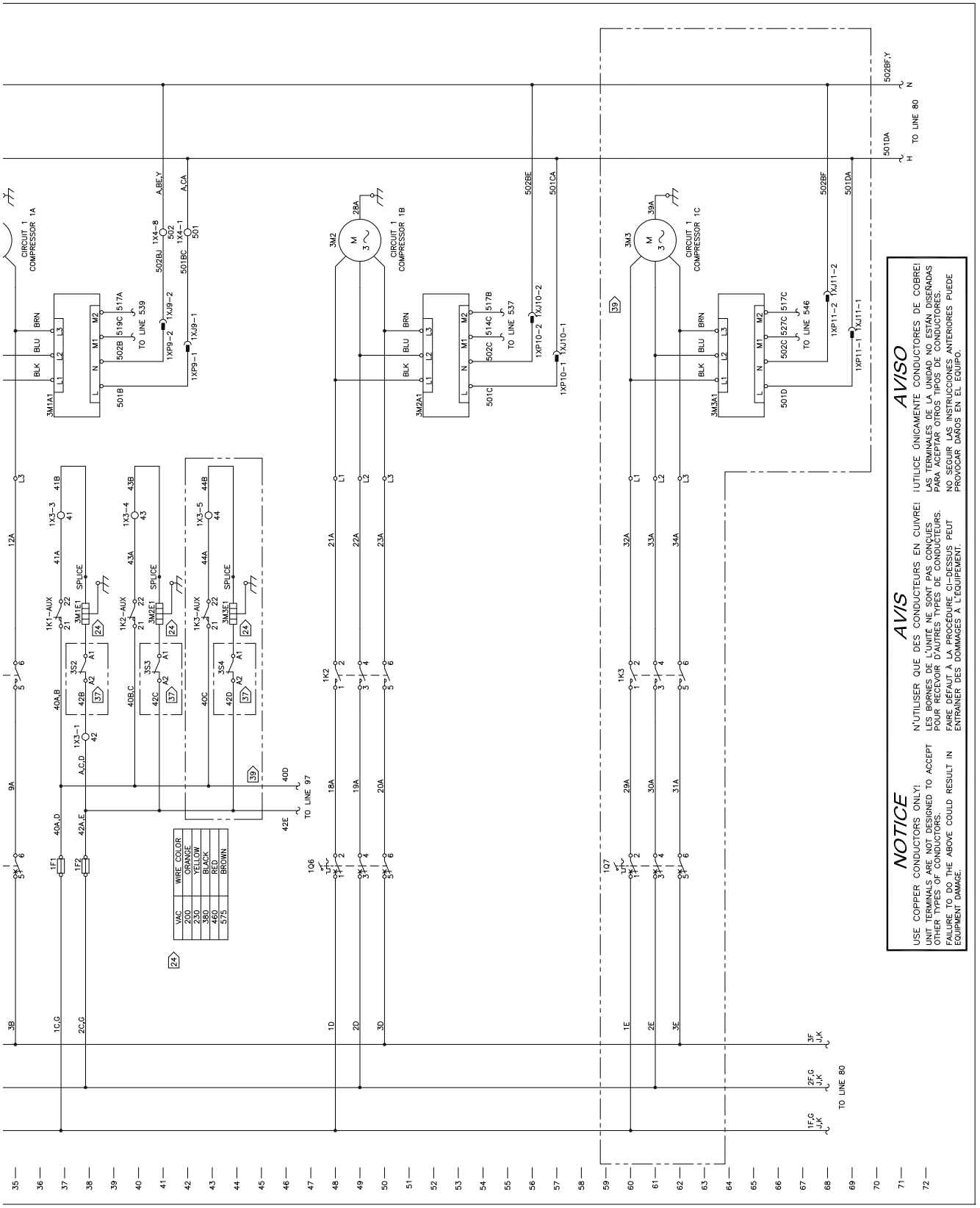
COMPRESSOR CONFIGURATION
CIRCUIT #1
CIRCUIT #2
CONTROL PANEL
UNIT SIZE
80
90
100
110
120
130
INSET "A"
INSET "B"
TO LINE 19
TO LINE 24 (COMPRESSORS)
TO LINE 154 OR 169 OR 180 (FAN, CIRCUIT 1)
TO LINE 169 (FANS 2 & 5, CIRCUIT 1)
TO LINE 226 OR 252 (FANS 3 & 4, CIRCUIT 2)
TO LINE 242 (FANS 2 & 5, CIRCUIT 2)
TO LINE 325 (PUMPS)
TO LINE 815
TO LINE 816
CIRCUIT 1
COMPRESSOR 1A
SPLICE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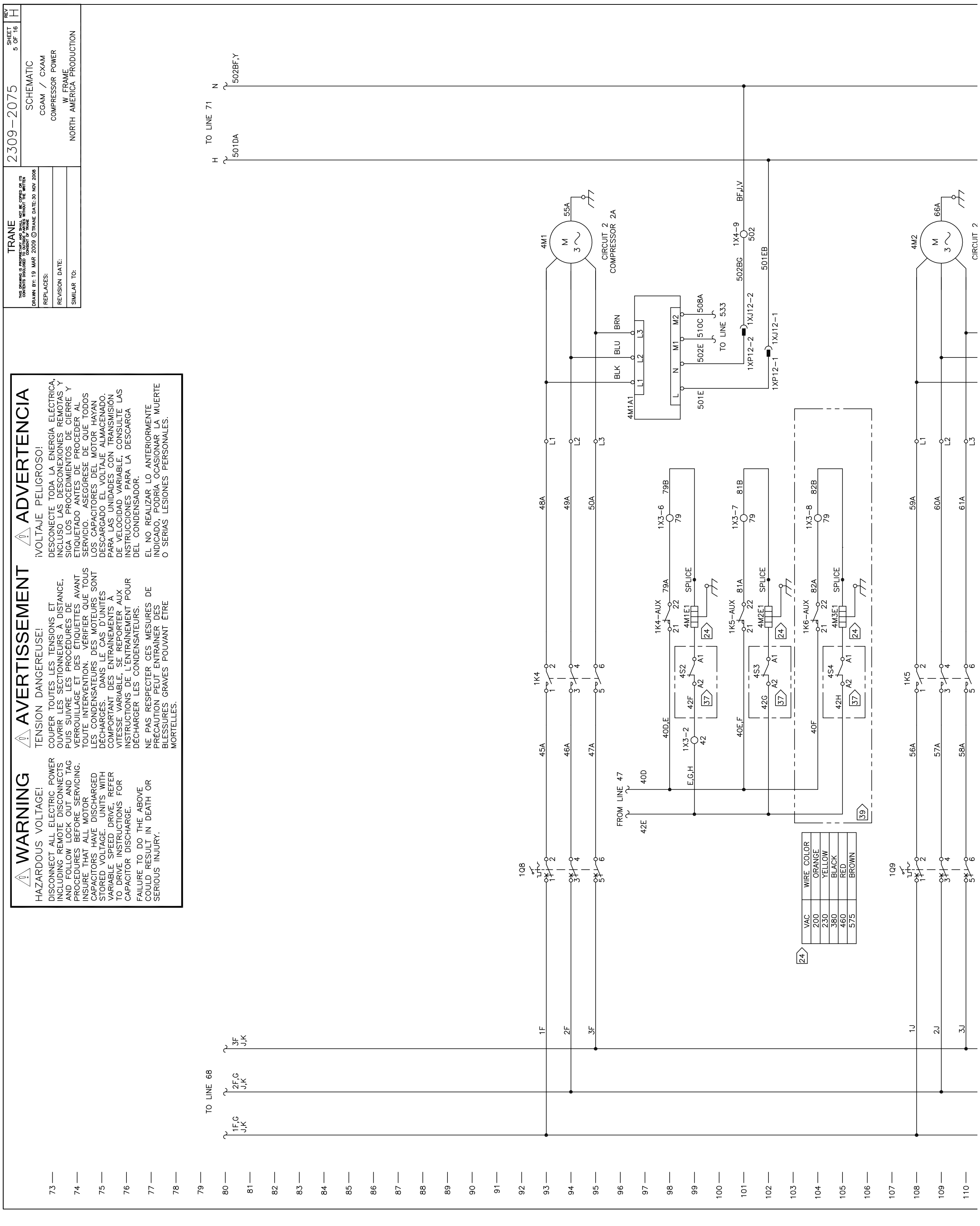
CIRCUIT 1 COMPRESSOR 1A
CIRCUIT 1 COMPRESSOR 1B
CIRCUIT 1 COMPRESSOR 1C
TO LINE 80
TO LINE 97
WIRE COLOR
ORANGE
YELLOW
BLACK
RED
BROWN


2309-2075
SHEET 5 OF 16
REV H
SCHEMATIC
CGAM / CXAM
COMPRESSOR POWER
W FRAME
NORTH AMERICA PRODUCTION
TRANE
DRAWN BY: 19 MAR 2009 ©TRANE DATE: 30 NOV 2008
REPLACES:
REVISION DATE:
SIMILAR TO:
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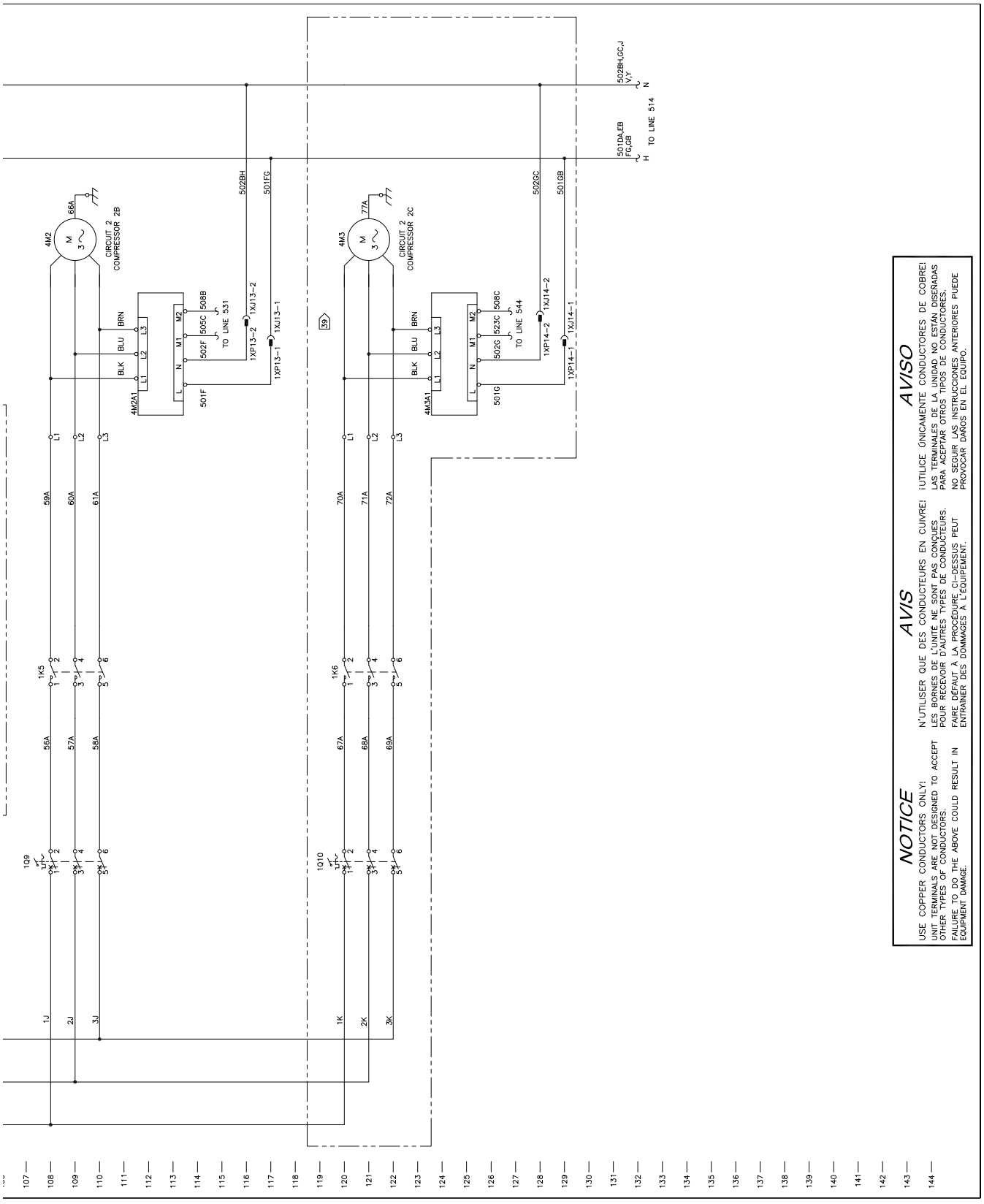
TO LINE 71
502BF,Y
501DA
TO LINE 68
1F,G J,K
2F,G J,K
3F J,K
4M1
CIRCUIT 2 COMPRESSOR 2A
55A
4M1A1
BLK BLU BRN
1X4-9
502BG
502
BF,J,V
501EB
1XJ12-2
1XP12-2
1XJ12-1
1XP12-1
TO LINE 533
502E 510C 508A
501E
1Q8
1K4
1K5
1Q9
FROM LINE 47
40D
42E
1X3-2
1X3-6
1X3-7
1X3-8
1K4-AUX
1K5-AUX
1K6-AUX
4M1E1
4M2E1
4M3E1
SPLICE
4S2
4S3
4S4
42F
42G
42H
40D,E
40E,F
40F
E,G,H
79A 79B 81A 81B 82A 82B
45A 46A 47A 48A 49A 50A
56A 57A 58A 59A 60A 61A
1F 2F 3F 1J 2J 3J
4M2
66A
CIRCUIT 2
VAC | WIRE COLOR
200 | ORANGE
230 | YELLOW
380 | BLACK
460 | RED
575 | BROWN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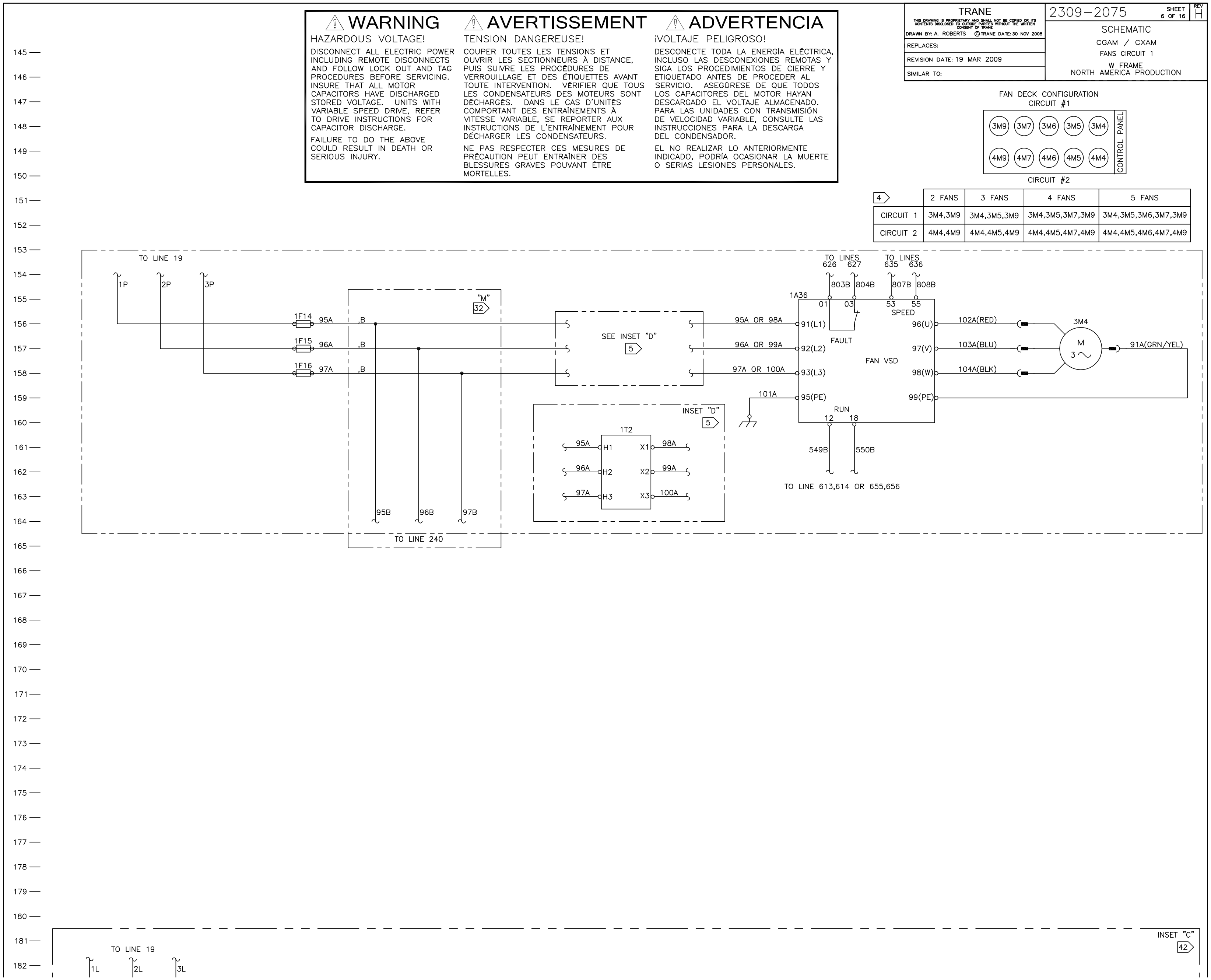
CIRCUIT 2 COMPRESSOR 2B
CIRCUIT 2 COMPRESSOR 2C
TO LINE 514
TO LINE 531
TO LINE 544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TRANE
DRAWN BY: A. ROBERTS
©TRANE DATE: 30 NOV 2008
REPLACES:
REVISION DATE: 19 MAR 2009
SIMILAR TO:
2309–2075
SHEET 6 OF 16
REV H
SCHEMATIC
CGAM / CXAM
FANS CIRCUIT 1
W FRAME
NORTH AMERICA PRODUCTION
FAN DECK CONFIGURATION
CIRCUIT #1
3M9 3M7 3M6 3M5 3M4
4M9 4M7 4M6 4M5 4M4
CONTROL PANEL
CIRCUIT #2
4
2 FANS
3 FANS
4 FANS
5 FANS
CIRCUIT 1
3M4,3M9
3M4,3M5,3M9
3M4,3M5,3M7,3M9
3M4,3M5,3M6,3M7,3M9
CIRCUIT 2
4M4,4M9
4M4,4M5,4M9
4M4,4M5,4M7,4M9
4M4,4M5,4M6,4M7,4M9
TO LINE 19
1P
2P
3P
1F14
95A
1F15
96A
1F16
97A
"M"
32
95B
96B
97B
TO LINE 240
SEE INSET "D"
5
95A OR 98A
96A OR 99A
97A OR 100A
101A
INSET "D"
1T2
H1
H2
H3
X1
X2
X3
98A
99A
100A
TO LINES 626 627
TO LINES 635 636
803B
804B
807B
808B
1A36
01
03
53
55
SPEED
91(L1)
92(L2)
93(L3)
95(PE)
FAULT
FAN VSD
RUN
12
18
96(U)
97(V)
98(W)
99(PE)
549B
550B
TO LINE 613,614 OR 655,656
102A(RED)
103A(BLU)
104A(BLK)
3M4
M
3
91A(GRN/YEL)
INSET "C"
42
TO LINE 19
1L
2L
3L
145
146
147
148
149
150
151
152
153
154
155
156
157
158
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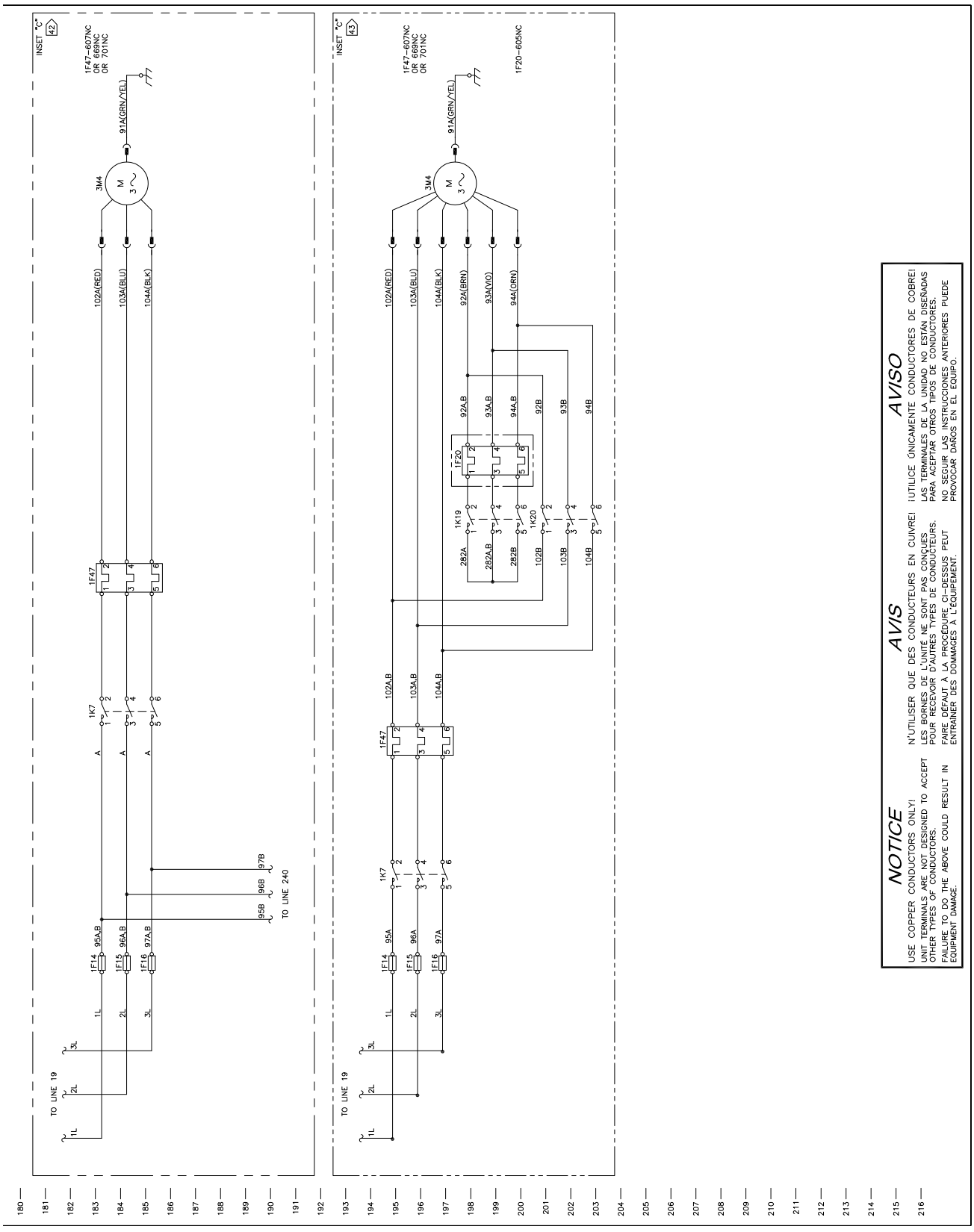

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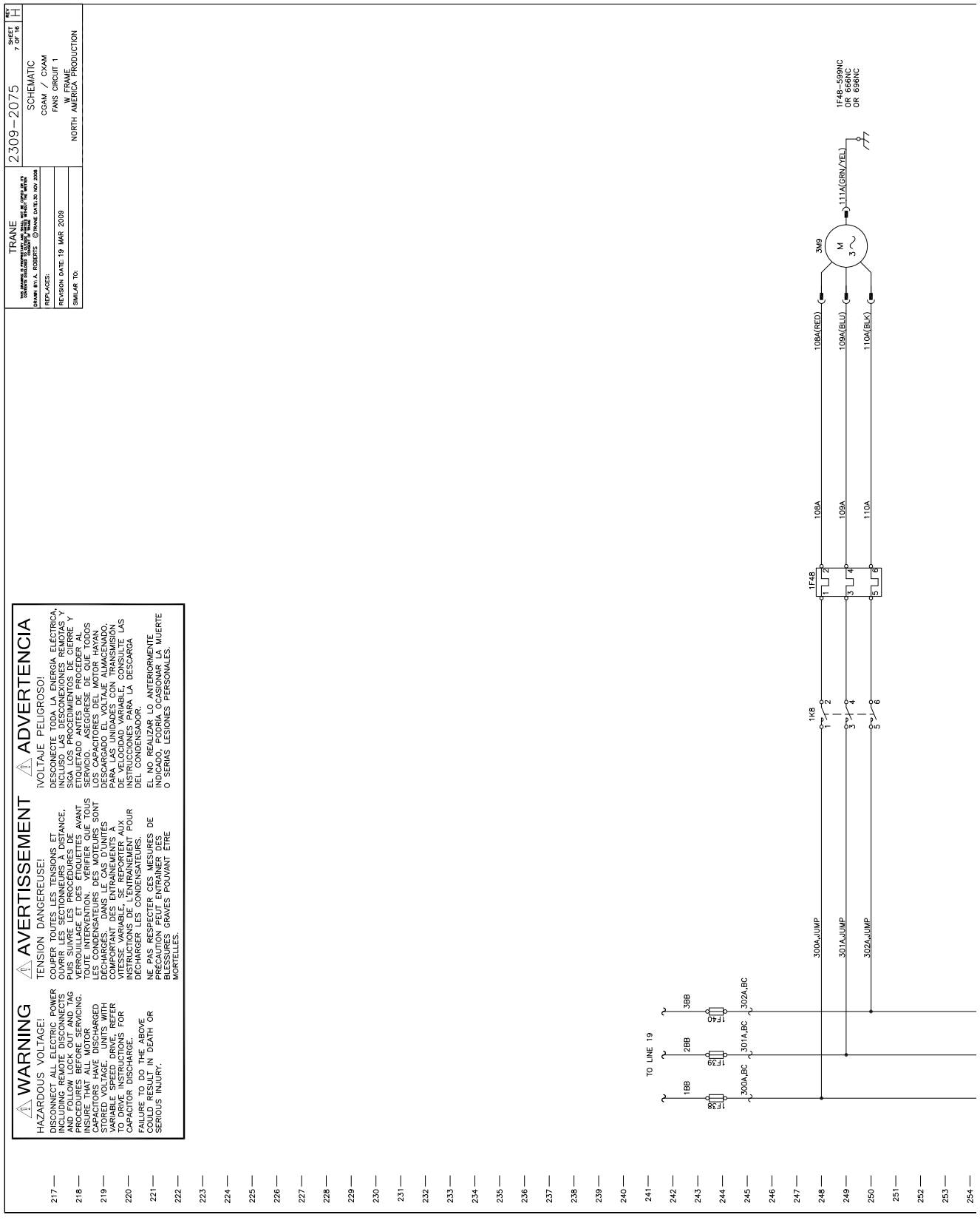
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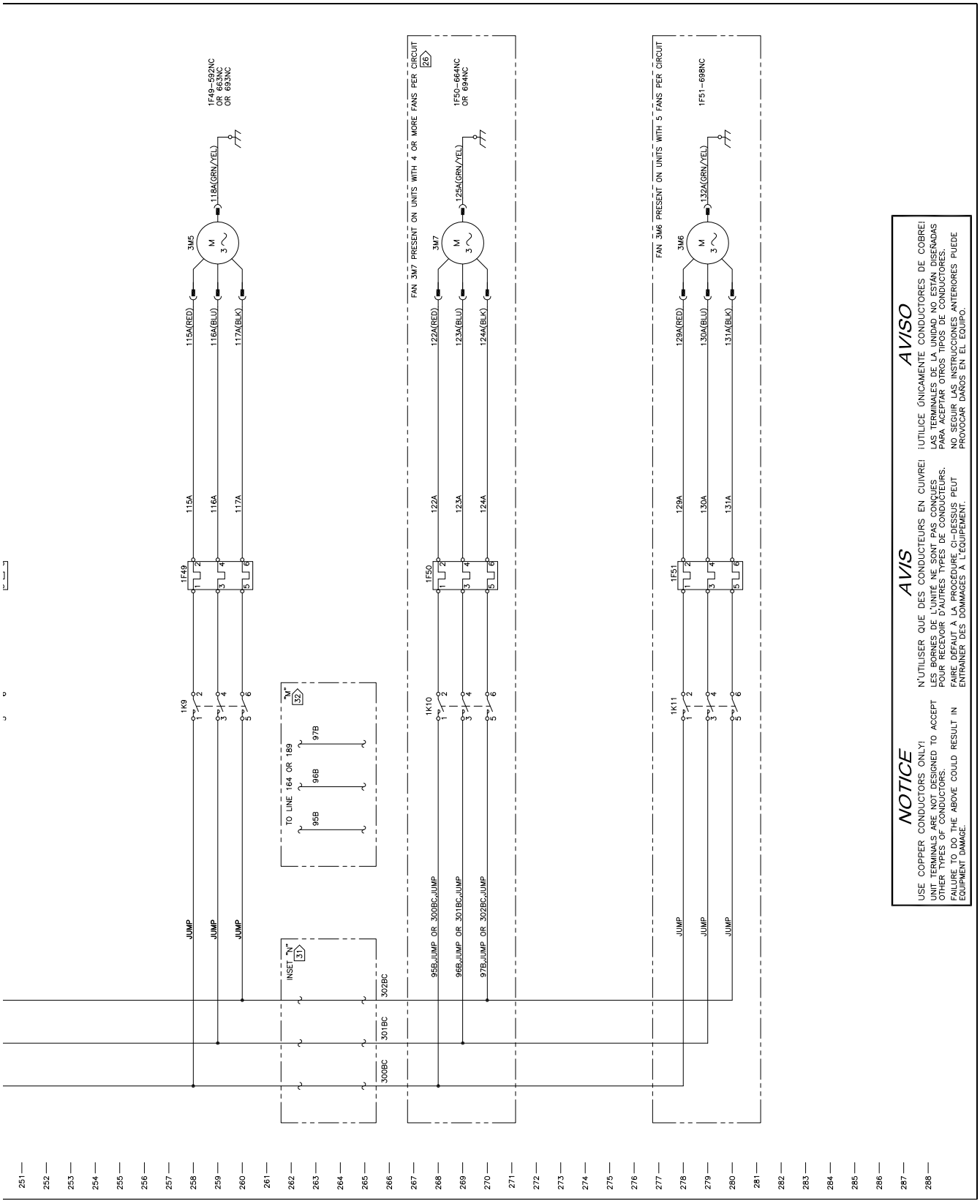
TRANE
DRAWN BY: A. ROBERTS © TRANE DATE: 30 NOV 2008
REPLACES:
REVISION DATE: 19 MAR 2009
SIMILAR TO:
2309-2075
SHEET 7 OF 16
REV H
SCHEMATIC
CGAM / CXAM
FANS CIRCUIT 1
W FRAME
NORTH AMERICA PRODUCTION
TO LINE 19
1BB
2BB
3BB
1FU5
1FU6
1FU7
300A,BC
301A,BC
302A,BC
300A,JUMP
301A,JUMP
302A,JUMP
1K8
1F48
108A
109A
110A
108A(RED)
109A(BLU)
110A(BLK)
3M9
M
3~
111A(GRN/YEL)
1F48--599NC
OR 685NC
OR 686NC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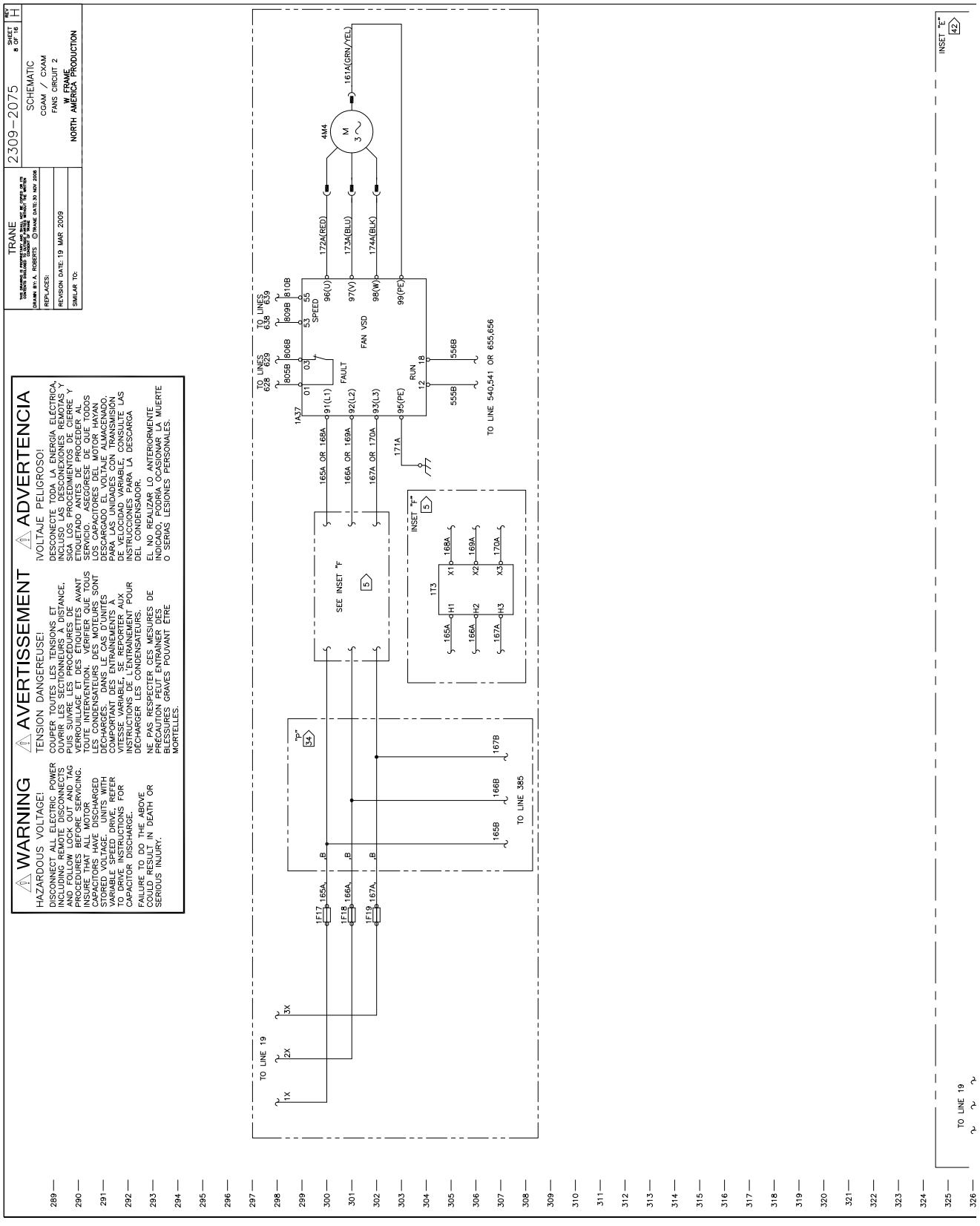
FAN 3M7 PRESENT ON UNITS WITH 4 OR MORE FANS PER CIRCUIT 26
FAN 3M6 PRESENT ON UNITS WITH 5 FANS PER CIRCUIT
3M5
3M7
3M6
1F49–592NC OR 663NC OR 693NC
1F50–664NC OR 694NC
1F51–698NC
1K9
1K10
1K11
1F49
1F50
1F51
115A(RED)
116A(BLU)
117A(BLK)
118A(GRN/YEL)
122A(RED)
123A(BLU)
124A(BLK)
125A(GRN/YEL)
129A(RED)
130A(BLU)
131A(BLK)
132A(GRN/YEL)
115A
116A
117A
122A
123A
124A
129A
130A
131A
JUMP
INSET "N" 31
"N" 32
TO LINE 164 OR 189
95B
96B
97B
95B JUMP OR 300BC JUMP
96B JUMP OR 301BC JUMP
97B JUMP OR 302BC JUMP
300BC
301BC
302BC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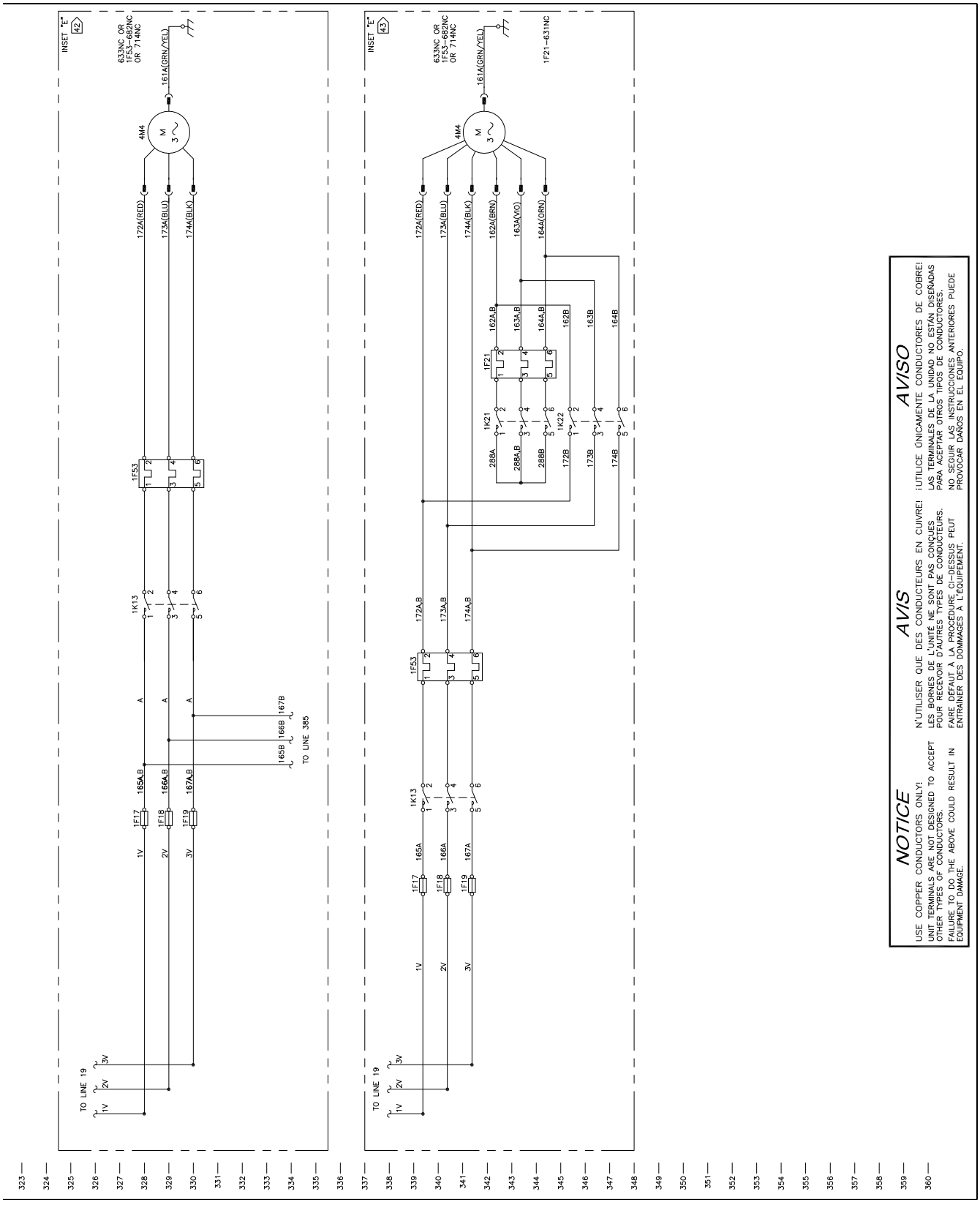
DRAWN BY: A. ROBERTS
REPLACES:
SIMILAR TO:
DATE: 19 MAR 2009
2309-2075
SHEET 8 OF 16
REV H
SCHEMATIC
CGAM / CXAM
FANS CIRCUIT 2
W. TRANE
NORTH AMERICA PRODUCTION
TO LINE 19
1X
2X
3X
1F17 165A B
1F18 166A B
1F19 167A B
"F" 34
SEE INSET "F" 5
165B
166B
167B
TO LINE 385
TO LINES 628 629
805B 806B
TO LINES 638 639
809B 810B
1A37
01 03
FAULT
91(L1)
92(L2)
93(L3)
165A OR 168A
166A OR 169A
167A OR 170A
171A
95(PE)
RUN
12 18
555B
556B
TO LINE 540,541 OR 655,656
FAN VSD
SPEED
53 55
96(U)
97(V)
98(W)
99(PE)
172A(RED)
173A(BLU)
174A(BLK)
4M4
M
3
161A(GRN/YEL)
INSET "F" 5
1T3
X1 168A
X2 169A
X3 170A
H1 165A
H2 166A
H3 167A
INSET "E" 42
TO LINE 19


INSET "E" 42
INSET "E" 43
633NC OR 1F53-682NC OR 714NC
161A(GRN/YEL)
4M4
M 3~
172A(RED)
173A(BLU)
174A(BLK)
1F53
1K13
1F17
1F18
1F19
165A,B
166A,B
167A,B
1V
2V
3V
TO LINE 19
165B
166B
167B
TO LINE 385
1F21-631NC
162A(BRN)
163A(VIO)
164A(ORN)
1F21
1K21
1K22
162A,B
163A,B
164A,B
288A
288A,B
288B
172B
173B
174B
162B
163B
164B
NOTICE
USE COPPER CONDUCTORS ONLY!
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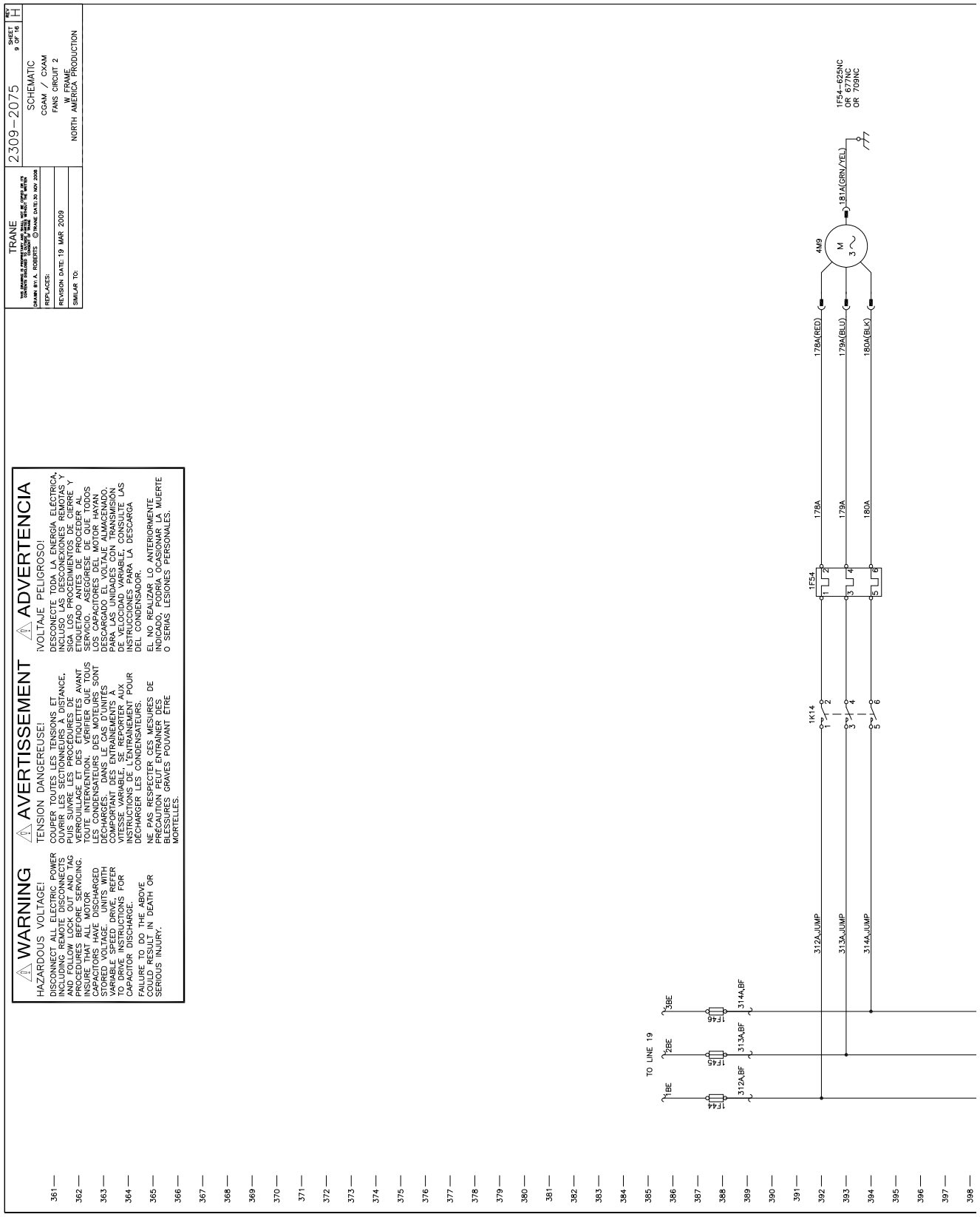
FAILURE TO DO THE ABOVE COULD RESULT IN EQUIPMENT DAMAGE.
AVIS
N'UTILISER QUE DES CONDUCTEURS EN CUIVRE!
LES BORNES DE L'UNITÉ NE SONT PAS CONÇUES POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS.
FAIRE DÉFAUT À LA PROCÉDURE CI-DESSUS PEUT ENTRAÎNER DES DOMMAGES À L'ÉQUIPEMENT.
AVISO
¡UTILICE ÚNICAMENTE CONDUCTORES DE COBRE!
LAS TERMINALES DE LA UNIDAD NO ESTÁN DISEÑADAS PARA ACEPTAR OTROS TIPOS DE CONDUCTORES.
NO SEGUIR LAS INSTRUCCIONES ANTERIORES PUEDE PROVOCAR DAÑOS EN EL 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 COULD RESULT IN DEATH OR SERIOUS INJURY.
⚠ AVERTISSEMENT
TENSION DANGEREUSE!
COUPER TOUTES LES TENSIONS, ET CELLES DES COMMANDES A DISTANCE, PUIS SUIVRE LES PROCÉDURES DE VERROUILLAGE ET DES ÉTIQUETTES AVANT TOUTE INTERVENTION. VÉRIFIER QUE TOUS LES CONDENSATEURS DES MOTEURS SONT DÉCHARGÉS. DANS LE CAS D'UNITÉS 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. 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.
TRANE
DRAWN BY: A. ROBERTS © TRANE DATE: 30 NOV 2006
REPLACES:
REVISION DATE: 19 MAR 2009
SIMILAR TO:
2309–2075
SHEET 9 OF 16
REV H
SCHEMATIC
CGAM / CXAM
FANS CIRCUIT 2
W. FRAME
NORTH AMERICA PRODUCTION
TO LINE 19
1BE
2BE
3BE
1FA4
1FA5
1FA6
312A,BF
313A,BF
314A,BF
312A,JUMP
313A,JUMP
314A,JUMP
1K14
1F54
178A
179A
180A
178A(RED)
179A(BLU)
180A(BLK)
4M9
M
3~
181A(GRN/YEL)
1FS4–625NC
OR 677NC
OR 709NC
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
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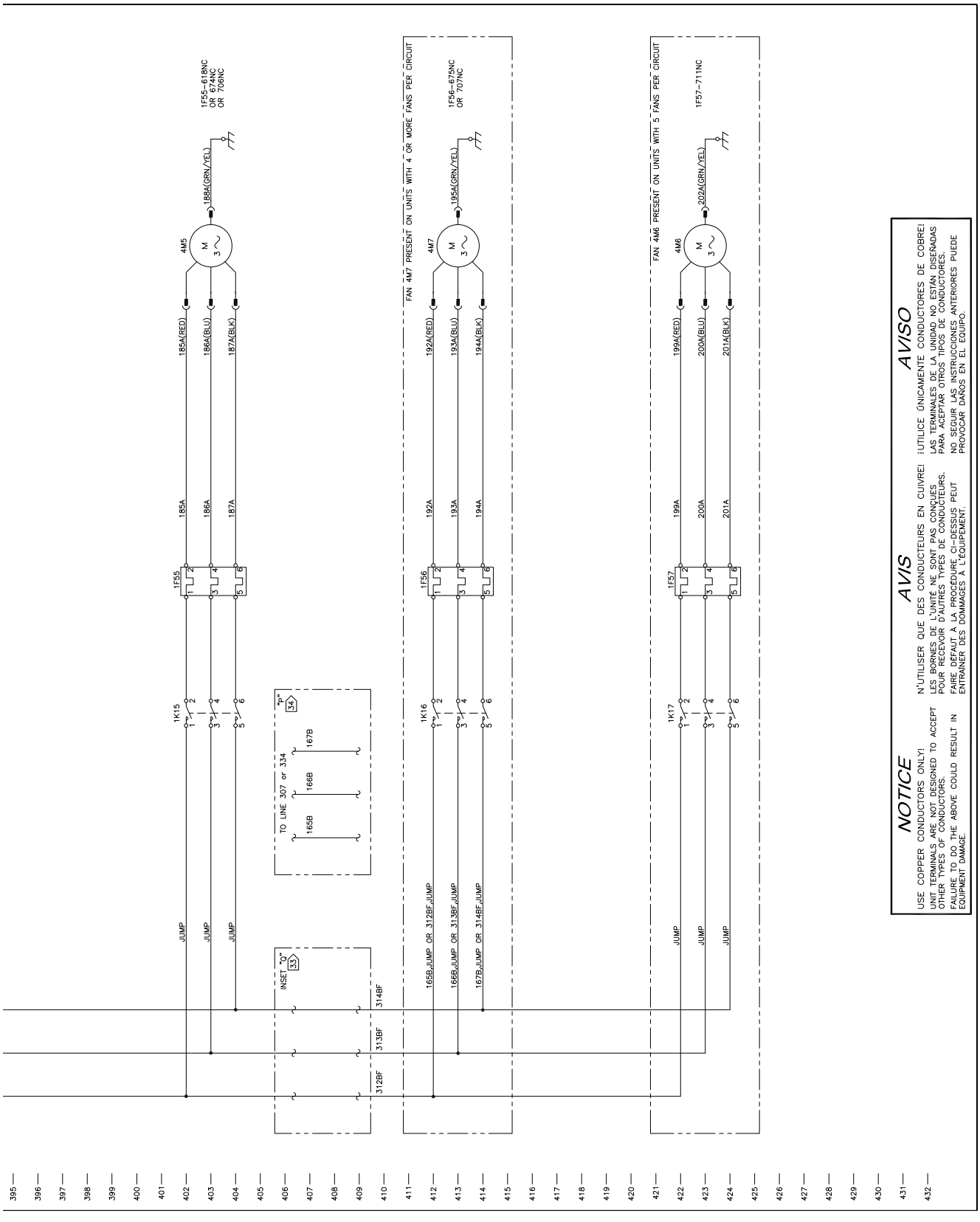
398


NOTICE
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FAILURE TO DO THE ABOVE COULD RESULT IN EQUIPMENT DAMAGE.
AVIS
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FAIRE DÉFAUT À LA PROCÉDURE CI-DESSUS PEUT ENTRAÎNER DES DOMMAGES À L'ÉQUIPEMENT.
AVISO
¡UTILICE ÚNICAMENTE CONDUCTORES DE COBRE!
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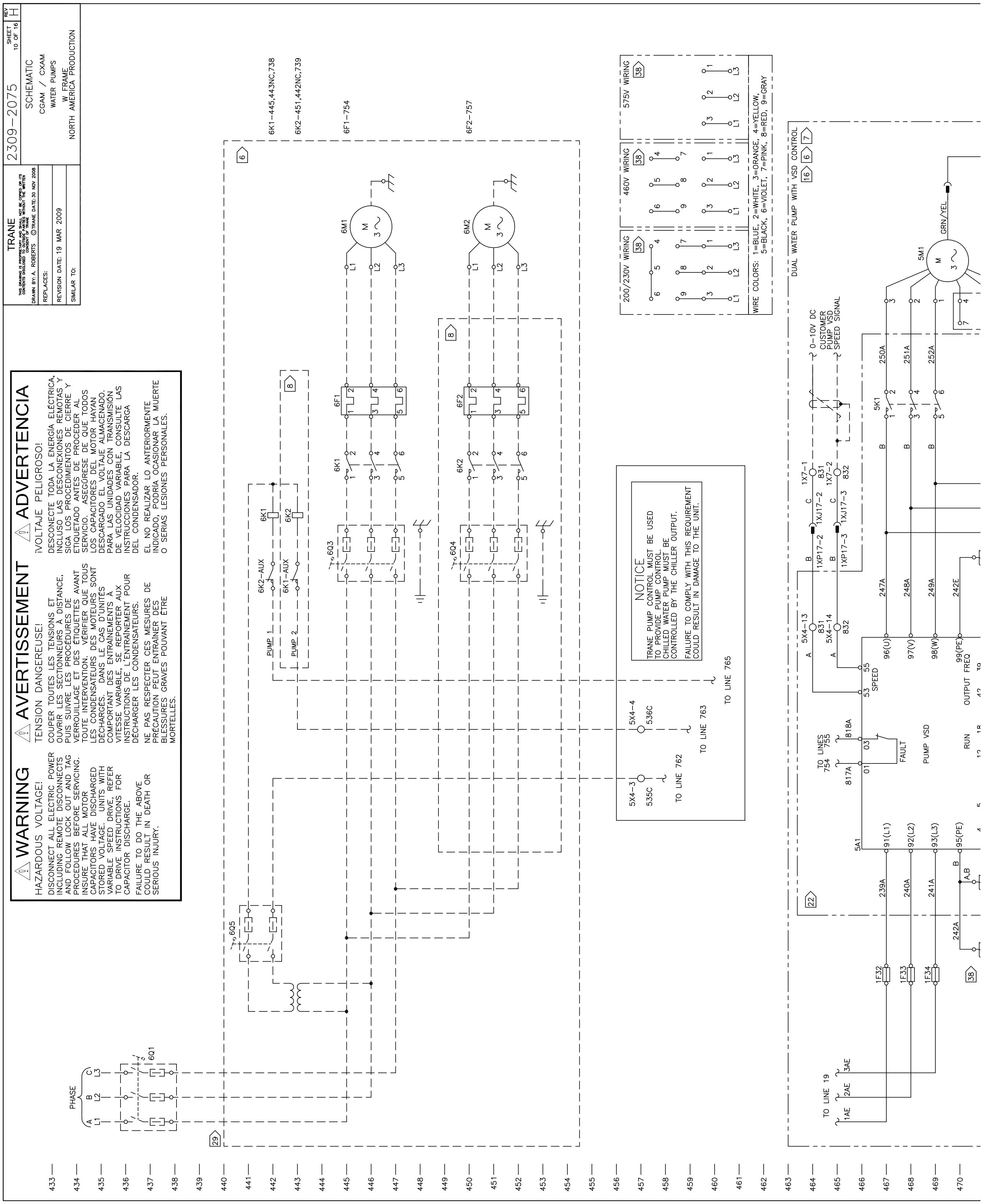
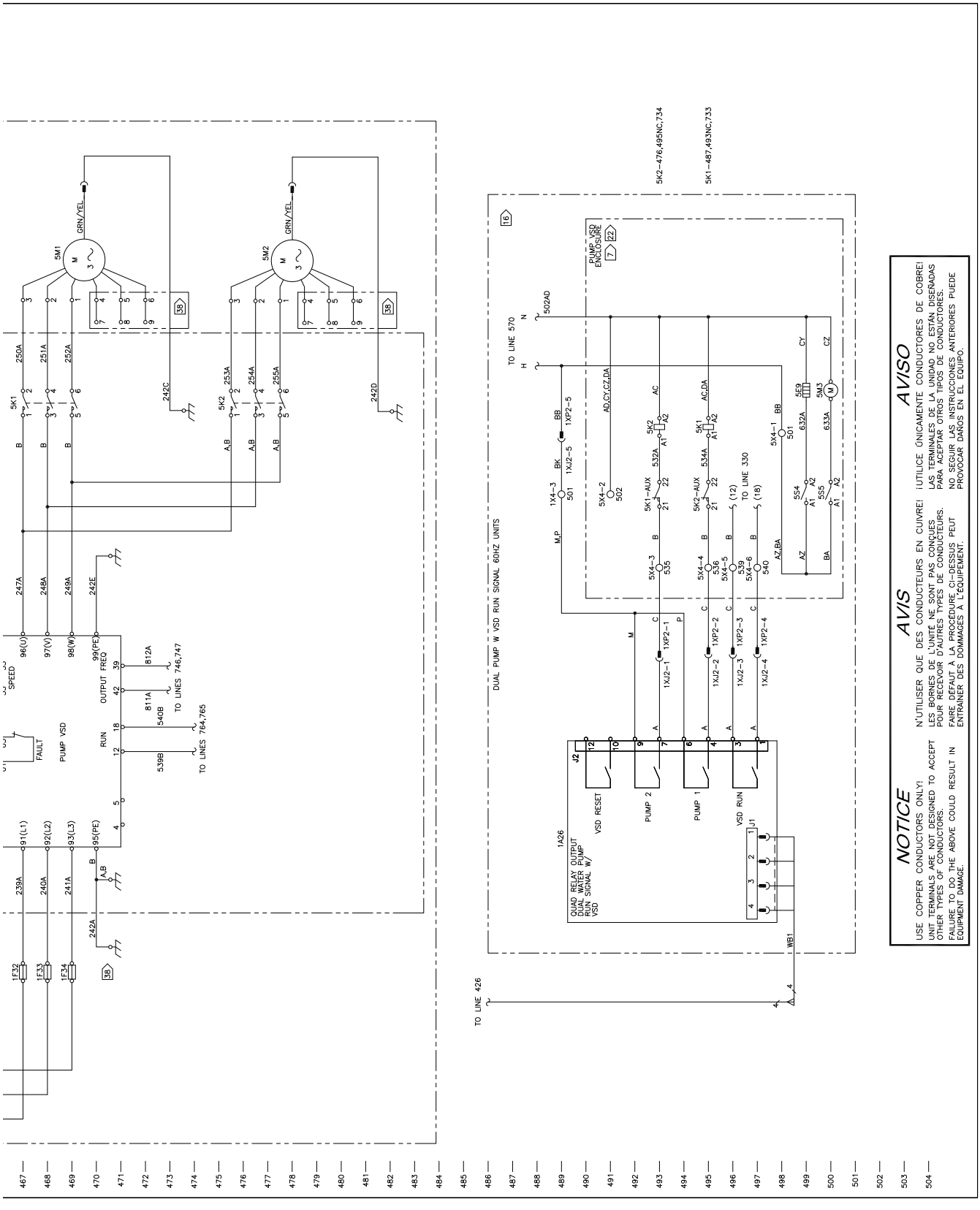
FAN 4M7 PRESENT ON UNITS WITH 4 OR MORE FANS PER CIRCUIT
FAN 4M6 PRESENT ON UNITS WITH 5 FANS PER CIRCUIT
4M5
4M7
4M6
1F55–618NC OR 674NC OR 706NC
1F56–675NC OR 707NC
1F57–711NC
188A(GRN/YEL)
195A(GRN/YEL)
202A(GRN/YEL)
185A(RED)
186A(BLU)
187A(BLK)
192A(RED)
193A(BLU)
194A(BLK)
199A(RED)
200A(BLU)
201A(BLK)
1K15
1K16
1K17
1F55
1F56
1F57
185A
186A
187A
192A
193A
194A
199A
200A
201A
JUMP
INSET "Q" 33
TO LINE 307 or 334
165B
166B
167B
"P" 34
165B JUMP OR 312BF JUMP
166B JUMP OR 313BF JUMP
167B JUMP OR 314BF JUMP
312BF
313BF
314BF


2309-2075
SCHEMATIC
CGAM / CXAM
WATER PUMPS
W FRAME
NORTH AMERICA PRODUCTION
SHEET 10 OF 16
REV H
DRAWN BY: A. ROBERTS
REVISION DATE: 19 MAR 2009
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 COULD RESULT IN DEATH OR SERIOUS INJURY.
AVERTISSEMENT
TENSION DANGEREUSE!
ADVERTENCIA
¡VOLTAJE PELIGROSO!
NOTICE
TRANE PUMP CONTROL MUST BE USED TO PROVIDE PUMP CONTROL. CHILLED WATER PUMP MUST BE CONTROLLED BY THE CHILLER OUTPUT.
FAILURE TO COMPLY WITH THIS REQUIREMENT COULD RESULT IN DAMAGE TO THE UNIT.
DUAL WATER PUMP WITH VSD CONTROL
WIRE COLORS: 1=BLUE, 2=WHITE, 3=ORANGE, 4=YELLOW, 5=BLACK, 6=VIOLET, 7=PINK, 8=RED, 9=GRAY
200/230V WIRING
460V WIRING
575V WIRING
PUMP 1
PUMP 2
6M1
6M2
5M1
6F1-754
6F2-757
6K1-445,443NC,738
6K2-451,442NC,739
TO LINE 762
TO LINE 763
TO LINE 765
TO LINE 19
PUMP VSD
0-10V DC CUSTOMER PUMP VSD SPEED SIGNAL


DUAL PUMP W VSD RUN SIGNAL 60HZ UNITS
PUMP VSD ENCLOSURE
TO LINE 570
TO LINE 426
5K2-476,495NC,734
5K1-487,493NC,733
QUAD RELAY OUTPUT DUAL WATER PUMP RUN SIGNAL W/ VSD
VSD RESET
PUMP 2
PUMP 1
VSD RUN
SPEED
FAULT
PUMP VSD
RUN
OUTPUT FREQ
TO LINES 746,747
TO LINES 764,765
NOTICE
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AVIS
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AVISO
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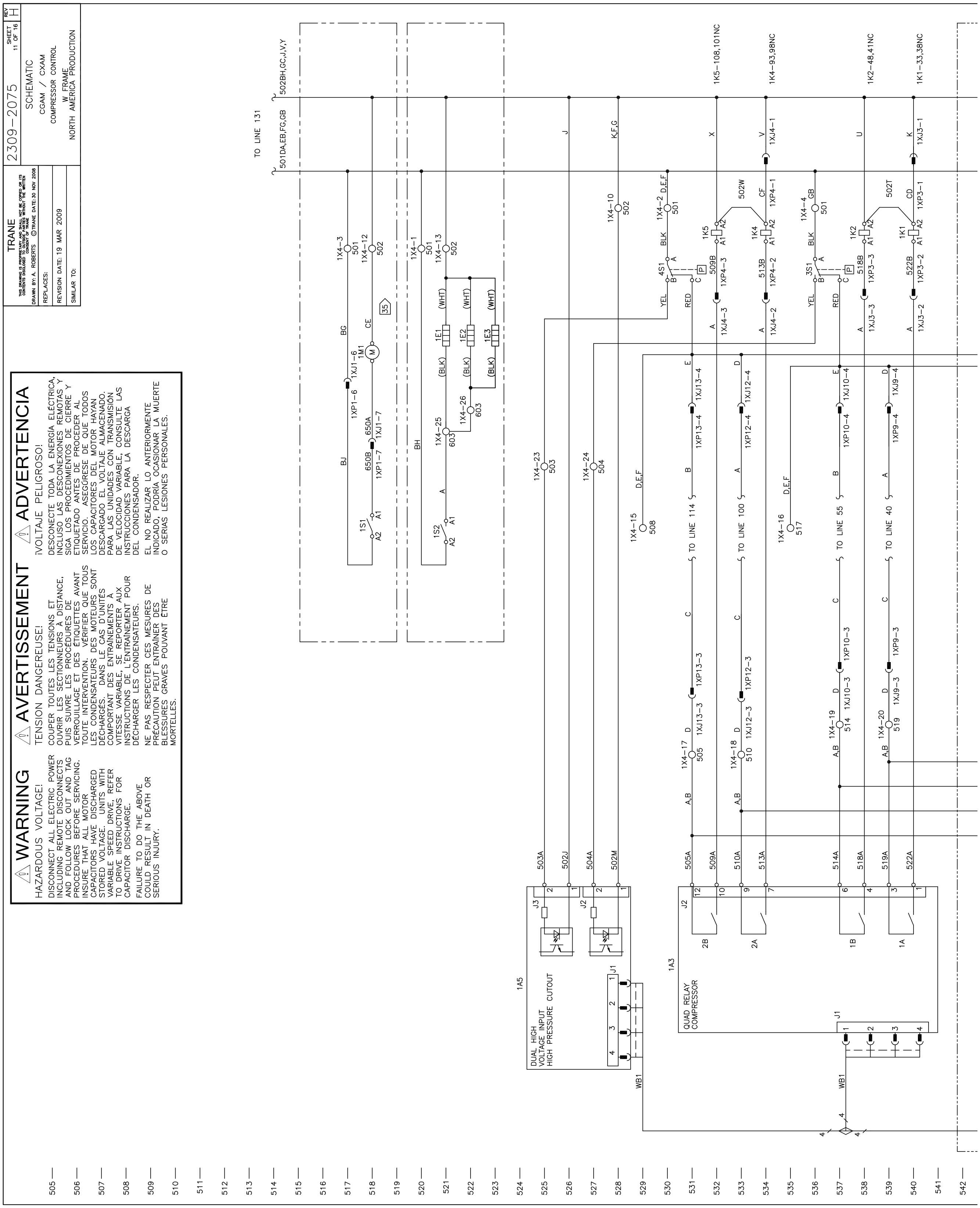

TRANE
2309-2075
SCHEMATIC
CGAM / CXAM
COMPRESSOR CONTROL
W FRAME
NORTH AMERICA PRODUCTION
SHEET 11 OF 16
REV H
DRAWN BY: A. ROBERTS
REVISION DATE: 19 MAR 2009
WARNING
HAZARDOUS VOLTAGE!
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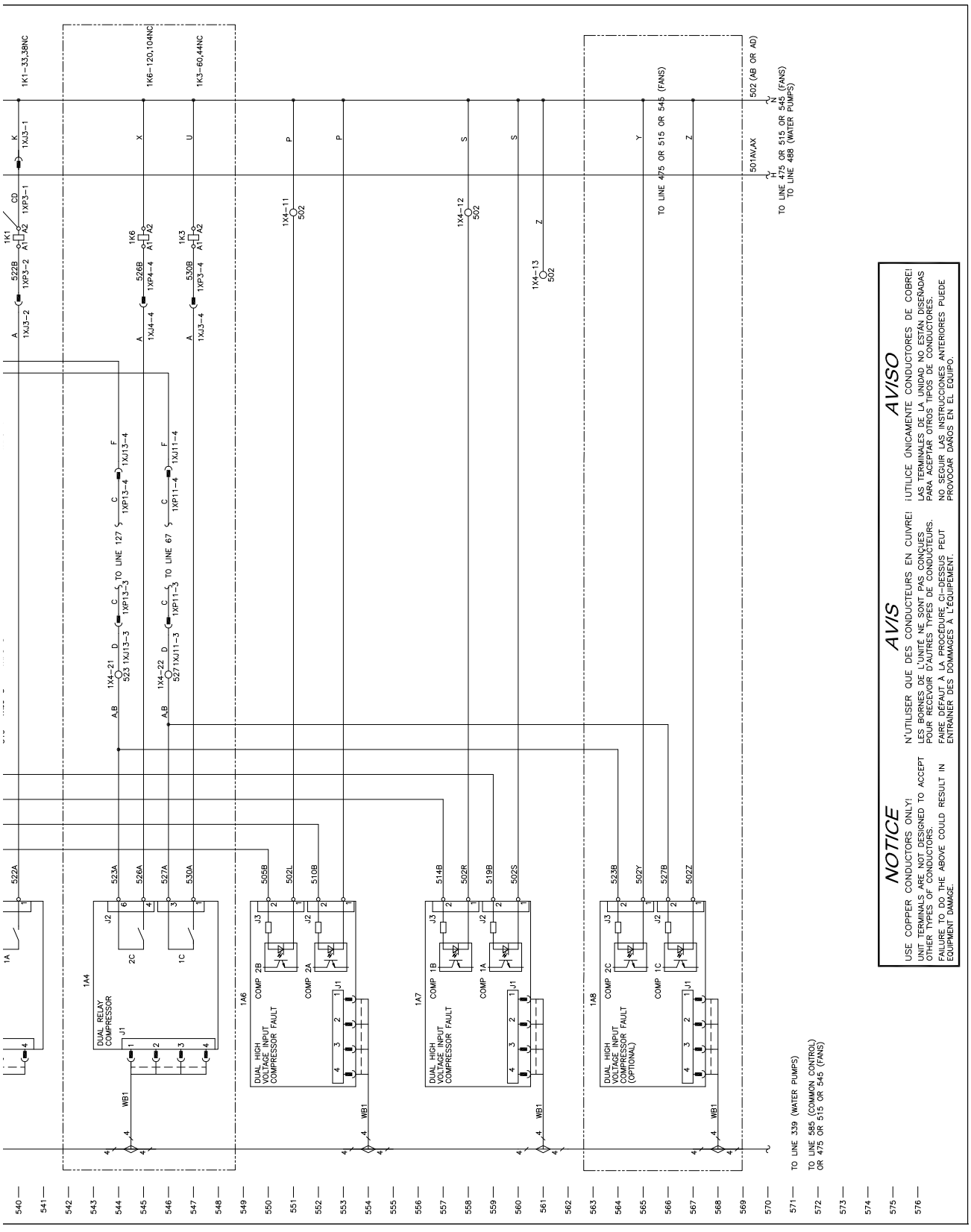
AVERTISSEMENT
TENSION DANGEREUSE!
ADVERTENCIA
¡VOLTAJE PELIGROSO!
DUAL HIGH VOLTAGE INPUT HIGH PRESSURE CUTOUT
QUAD RELAY COMPRESSOR
TO LINE 131


NOTICE
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AVIS
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FAIRE DÉFAUT À LA PROCÉDURE CI-DESSUS PEUT ENTRAINER DES DOMMAGES À L'ÉQUIPEMENT.
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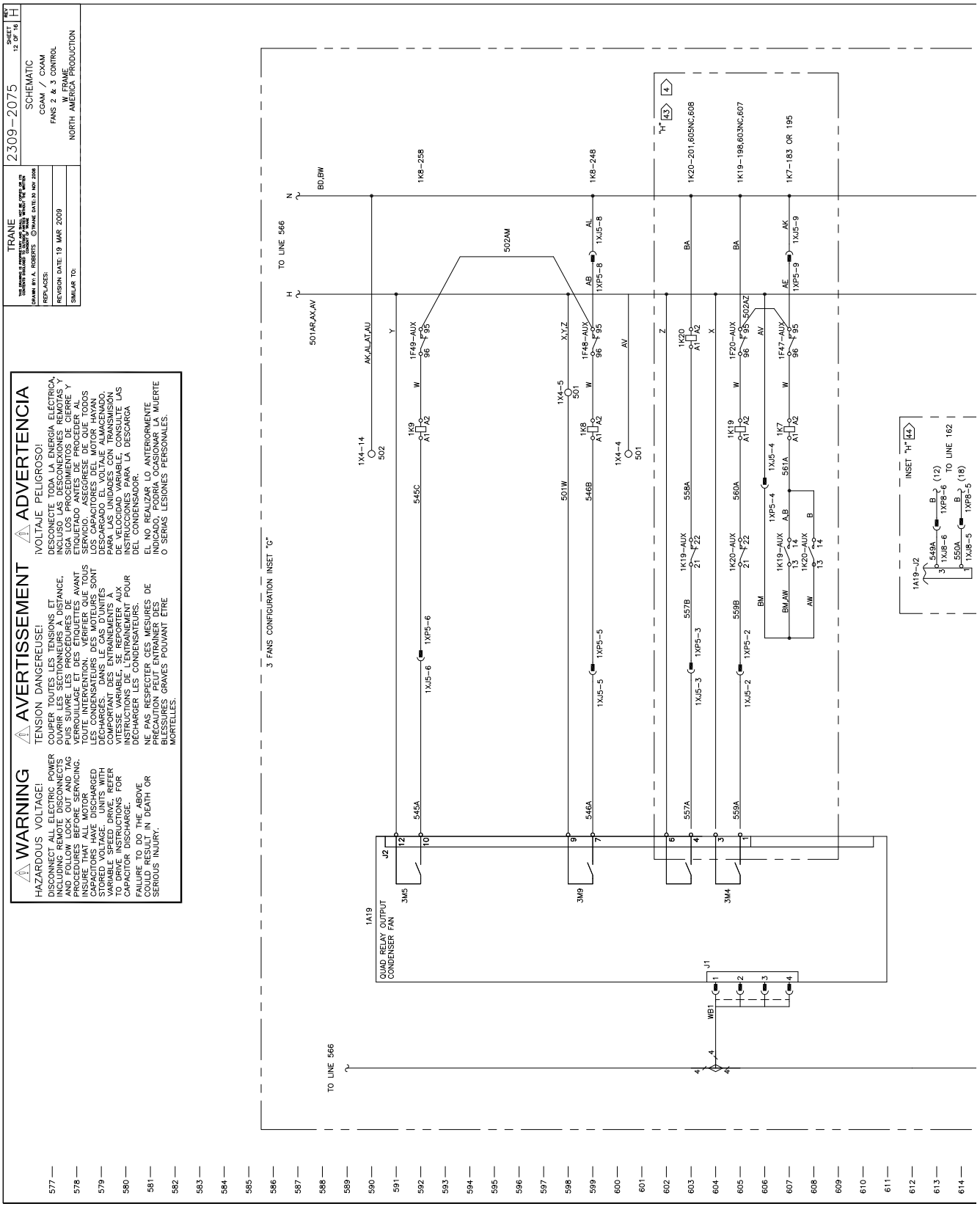
1K1-33,38NC
1K6-120,104NC
1K3-60,44NC
502 (AB OR AD)
TO LINE 475 OR 515 OR 545 (FANS)
TO LINE 488 (WATER PUMPS)
TO LINE 475 OR 515 OR 545 (FANS)
TO LINE 339 (WATER PUMPS)
TO LINE 585 (COMMON CONTROL)
OR 475 OR 515 OR 545 (FANS)
DUAL RELAY COMPRESSOR
DUAL HIGH VOLTAGE INPUT COMPRESSOR FAULT
DUAL HIGH VOLTAGE INPUT COMPRESSOR FAULT (OPTIONAL)
TO LINE 127
TO LINE 67


WARNING
HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS AND 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.
AVERTISSEMENT
TENSION DANGEREUSE!
COUPER TOUTES LES TENSIONS ET OUVRIR LES SECTIONNEURS À DISTANCE, Y COMPRIS LES PROCÉDURES DE VERROUILLAGE ET DES ÉTIQUETTES AVANT TOUTE INTERVENTION. VÉRIFIER QUE TOUS LES CONDENSATEURS DES MOTEURS SONT DÉCHARGÉS. DANS LE CAS D'UNITÉS 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
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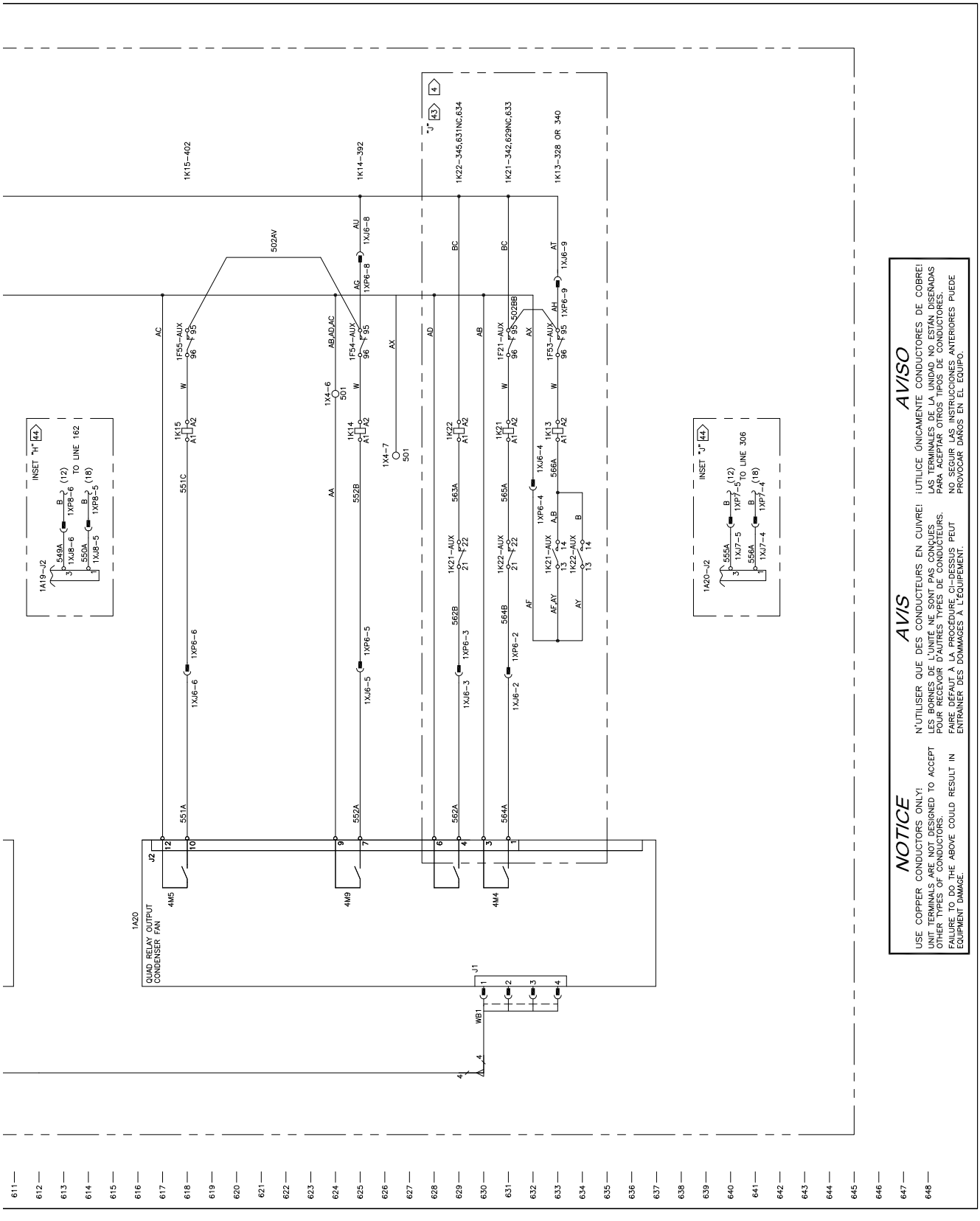
DESCONECTE TODA LA ENERGÍA ELÉCTRICA, INCLUSO LAS DESCONEXIONES REMOTAS Y SIGA LOS PROCEDIMIENTOS DE CIERRE Y ETIQUETADO ANTES DE PROCEDER AL SERVICIO. ASEGÚRESE DE QUE TODOS LOS CAPACITORES DEL MOTOR HAYAN DESCARGADO EL VOLTAJE ALMACENADO. PARA LAS UNIDADES CON TRANSMISIÓN DE FRECUENCIA VARIABLE, CONSULTE LAS INSTRUCCIONES PARA LA DESCARGA DEL CONDENSADOR.
EL NO REALIZAR LO ANTERIORMENTE INDICADO, PODRÍA OCASIONAR LA MUERTE O SERIAS LESIONES PERSONALES.
TRANE
DRAWN BY: A. ROBERTS
© TRANE DATE: 30 NOV 2008
REPLACES:
REVISION DATE: 19 MAR 2009
SIMILAR TO:
2309-2075
SHEET 12 OF 16
REV H
SCHEMATIC
CGAM / CXAM
FANS 2 & 3 CONTROL
W FRAME
NORTH AMERICA PRODUCTION
3 FANS CONFIGURATION INSET "G"
TO LINE 566
BD,BW
501AR,AX,AV
AK,AL,AT,AU
1K8-258
1K8-248
502AM
1X4-14
502
1K9
1F49-AUX
1X4-5
501
1K8
1F48-AUX
1X4-4
501
1K20
1F20-AUX
1K19
1F47-AUX
1K7
1XP5-8
1XJ5-8
1XP5-9
1XJ5-9
1K20-201,605NC,608
1K19-199,603NC,607
1K7-183 OR 195
"H" 43 4
545A
545C
546B
546A
501W
557A
557B
558A
559A
559B
560A
561A
502AZ
1XJ5-6
1XP5-6
1XJ5-5
1XP5-5
1XJ5-3
1XP5-3
1XJ5-2
1XP5-2
1XP5-4
1XJ5-4
1A19
QUAD RELAY OUTPUT CONDENSER FAN
J2
3M5
3M9
3M4
J1
WB1
1K19-AUX
1K20-AUX
1A19-J2
549A
550A
1XJ8-6
1XJ8-5
1XP8-6
1XP8-5
TO LINE 162
INSET "H" 44


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
N'UTILISER QUE DES CONDUCTEURS EN CUIVRE! LES BORNES DE L'UNITÉ NE SONT PAS CONÇUES POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS. FAIRE DÉFAUT À LA PROCÉDURE CI-DESSUS PEUT ENTRAÎNER DES DOMMAGES À L'ÉQUIPEMENT.
AVISO
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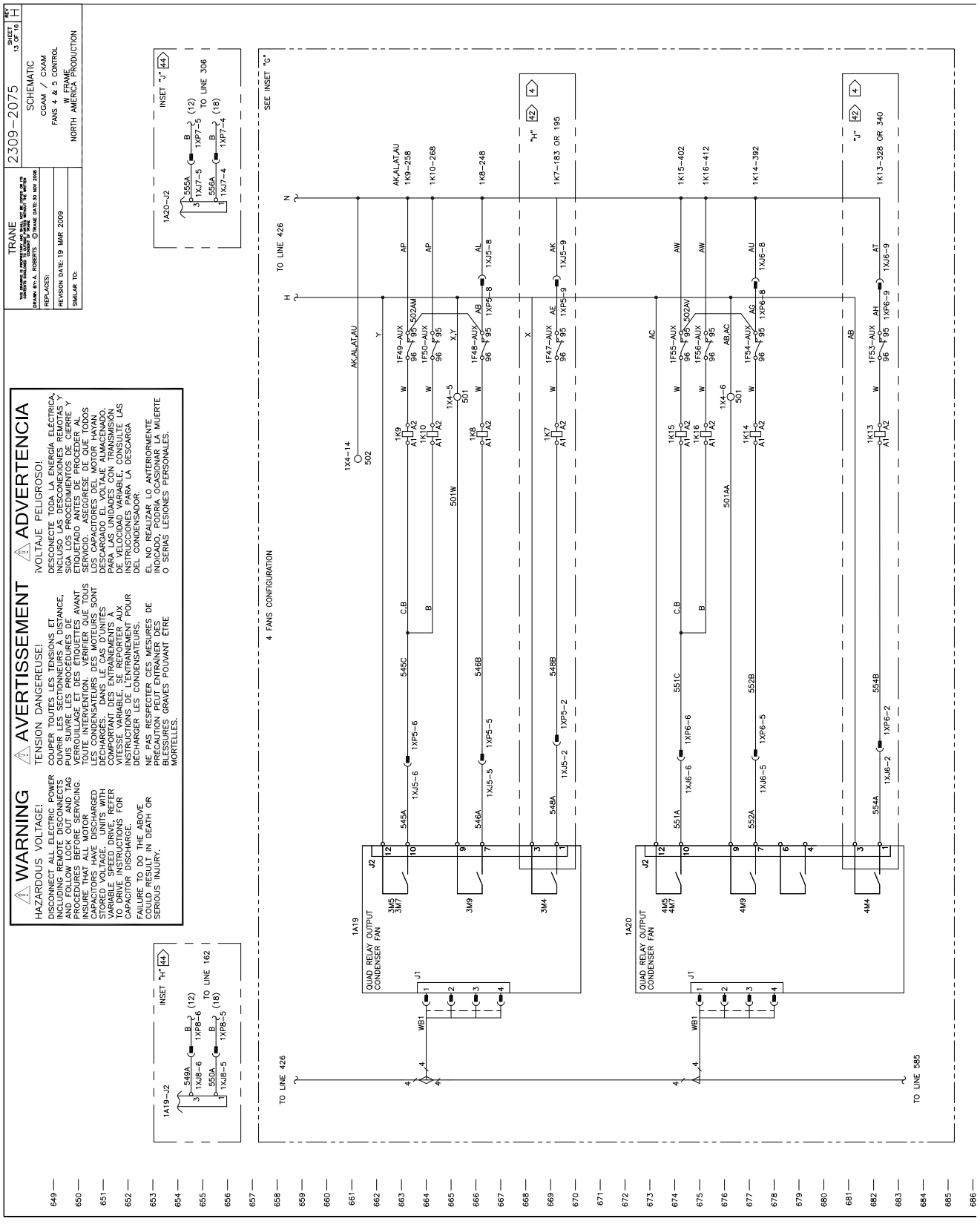
1A20 QUAD RELAY OUTPUT CONDENSER FAN
1A19–J2
1A20–J2
INSET "H" 44
INSET "J" 44
TO LINE 162
TO LINE 306
1K15–402
1K14–392
1K22–345,631NC,634
1K21–342,629NC,633
1K13–328 OR 340
502AV
4M5
4M9
4M4
WB1
J1
J2


TRANE
2309-2075
SHEET 13 OF 16
REV T
SCHEMATIC
CGAM / CXAM
FANS 4 & 5 CONTROL
W FRAME
NORTH AMERICA PRODUCTION
REVISION DATE: 19 MAR 2009
WARNING
HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS AND VERIFY LOCKOUT/TAGOUT. 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.
AVERTISSEMENT
TENSION DANGEREUSE!
DISCONNECTER TOUTES LES TENSIONS ET OUVRIR LES SECTIONNEURS A DISTANCE, AU BESOIN VERROUILLAGE/ETIQUETAGE. PROCEDURES AVANT L'ENTRETIEN. VERROUILLAGE ET DES ETIQUETTES AVANT TOUTE INTERVENTION. VERIFIER QUE TOUS LES CONDENSATEURS DES MOTEURS SONT DECHARGES. DANS LE CAS D'UNITES COMPORTANT DES ENTRAINEMENTS A VITESSE VARIABLE, SE REFERER AUX INSTRUCTIONS DE L'ENTRAINEMENT POUR DECHARGER LES CONDENSATEURS.
NE PAS RESPECTER CES MESURES DE PRECAUTION PEUT ENTRAINER DES BLESSURES GRAVES POUVANT ETRE MORTELLES.
ADVERTENCIA
¡VOLTAJE PELIGROSO!
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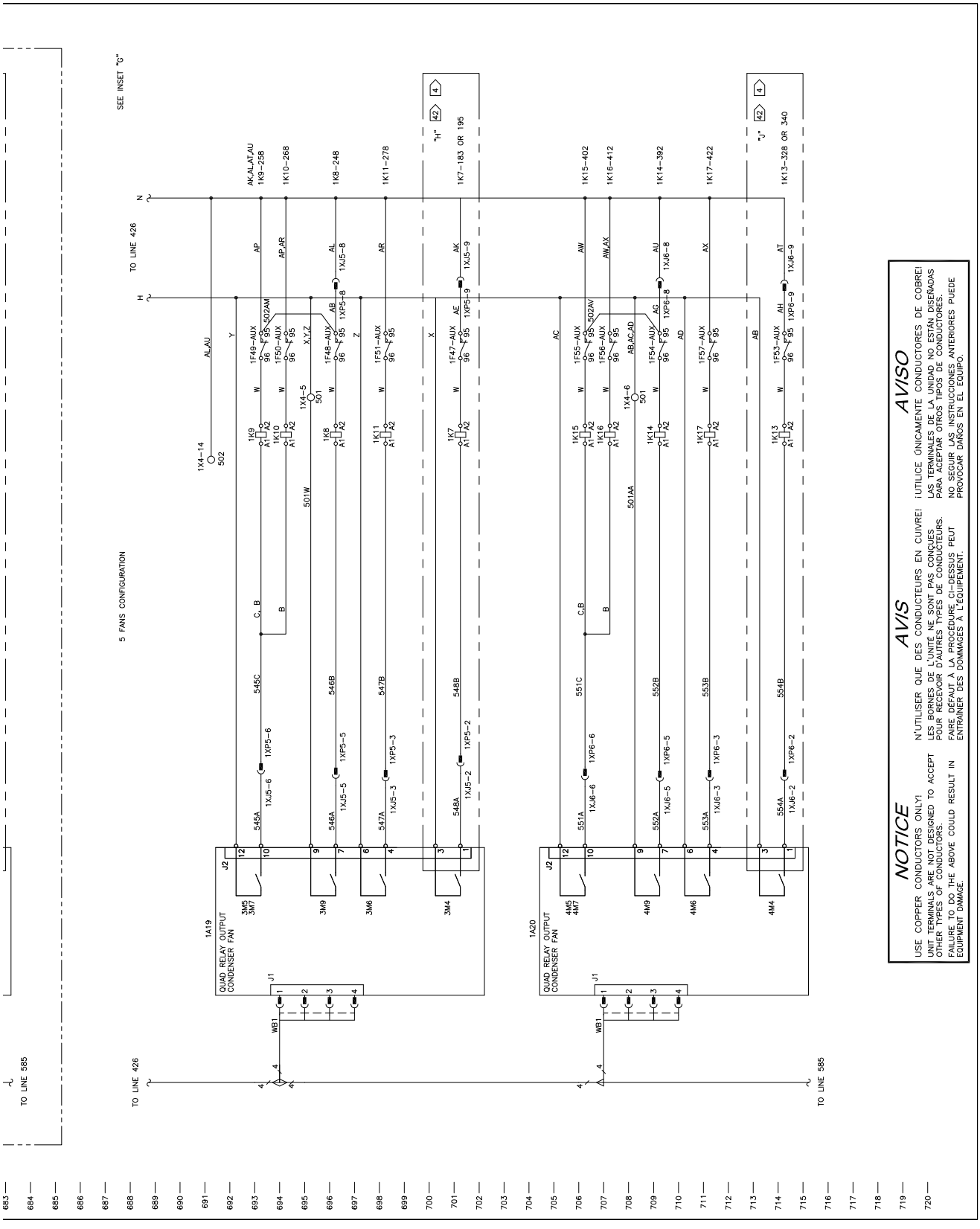
EL NO REALIZAR LO ANTERIORMENTE INDICADO, PODRÍA OCASIONAR LA MUERTE O SERIAS LESIONES PERSONALES.
4 FANS CONFIGURATION
SEE INSET "G"
TO LINE 426
TO LINE 585
1A19 QUAD RELAY OUTPUT CONDENSER FAN
1A20 QUAD RELAY OUTPUT CONDENSER FAN
1A19-J2
1A20-J2
INSET "H" 44
INSET "J" 44
TO LINE 162
TO LINE 306
1K1-14
1K7-183 OR 195
1K8-248
1K9-258
1K10-268
1K13-328 OR 340
1K14-392
1K15-402
1K16-412
1F47-AUX
1F48-AUX
1F49-AUX
1F50-AUX
1F53-AUX
1F54-AUX
1F55-AUX
1F56-AUX
1XJ5-2
1XJ5-5
1XJ5-6
1XJ5-8
1XJ5-9
1XJ6-2
1XJ6-5
1XJ6-6
1XJ6-8
1XJ6-9
1XP5-2
1XP5-5
1XP5-6
1XP5-8
1XP5-9
1XP6-2
1XP6-5
1XP6-6
1XP6-8
1XP6-9
1XP7-4
1XP7-5
1XP8-5
1XP8-6
3M4
3M5
3M7
3M9
4M4
4M5
4M7
4M9
WB1


5 FANS CONFIGURATION
SEE INSET "G"
TO LINE 426
TO LINE 585
1A19
1A20
QUAD RELAY OUTPUT CONDENSER FAN
"H"
"J"
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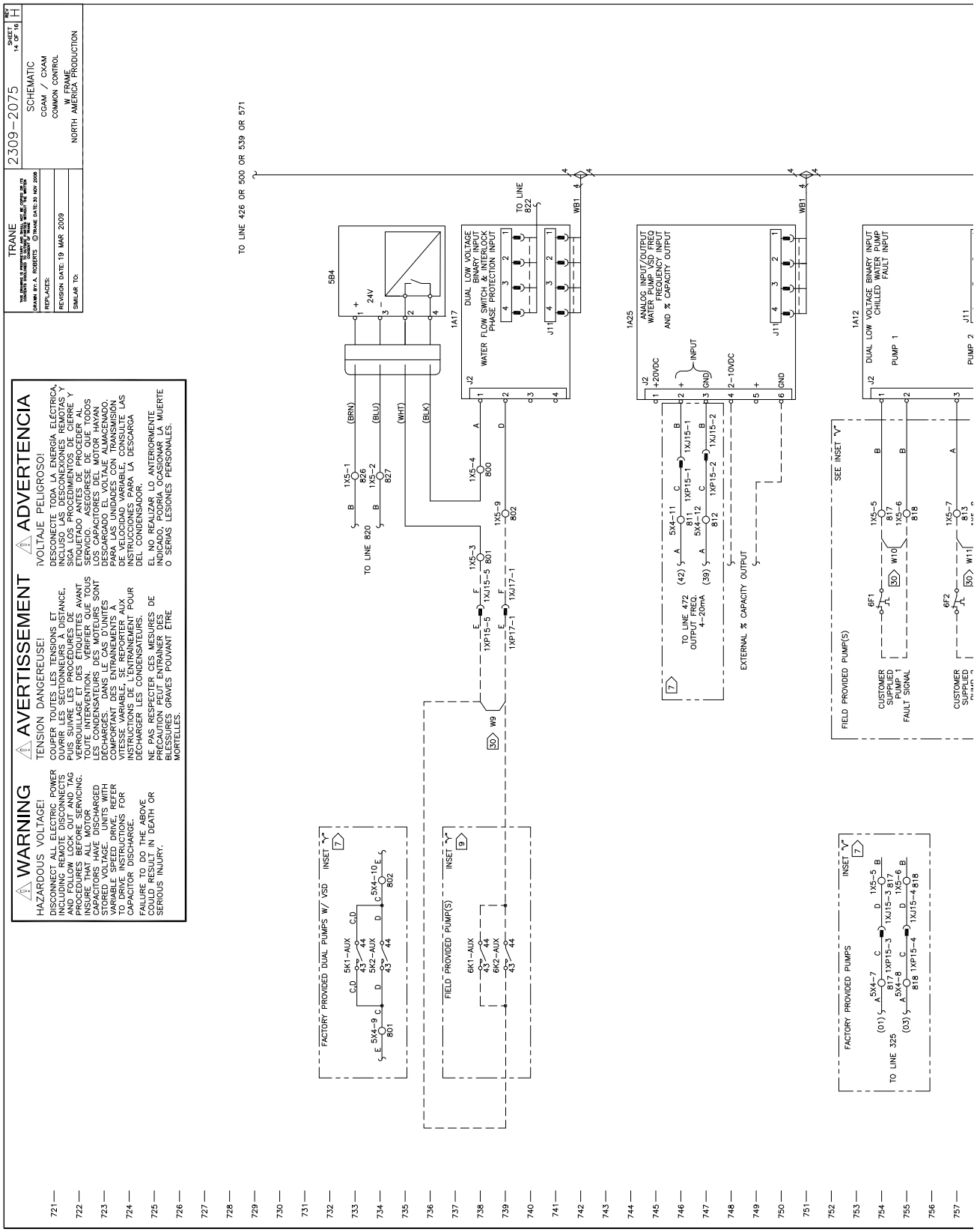
TRANE
2309–2075
SHEET 14 OF 16
REV H
SCHEMATIC
CGAM / CXAM
COMMON CONTROL
W. TRANE
NORTH AMERICA PRODUCTION
REVISION DATE: 19 MAR 2009
WARNING
HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS AND FOLLOW LOCK OUT AND TAG PROCEDURES BEFORE SERVICING. INSURE THAT ALL MOTORS ARE STOPPED. CAPACITORS HAVE DISCHARGED STORED VOLTAGE. UNITS WITH VARIABLE SPEED DRIVE, REFER TO DRIVE INSTRUCTIONS FOR CAPACITOR DISCHARGE.
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AVERTISSEMENT
TENSION DANGEREUSE!
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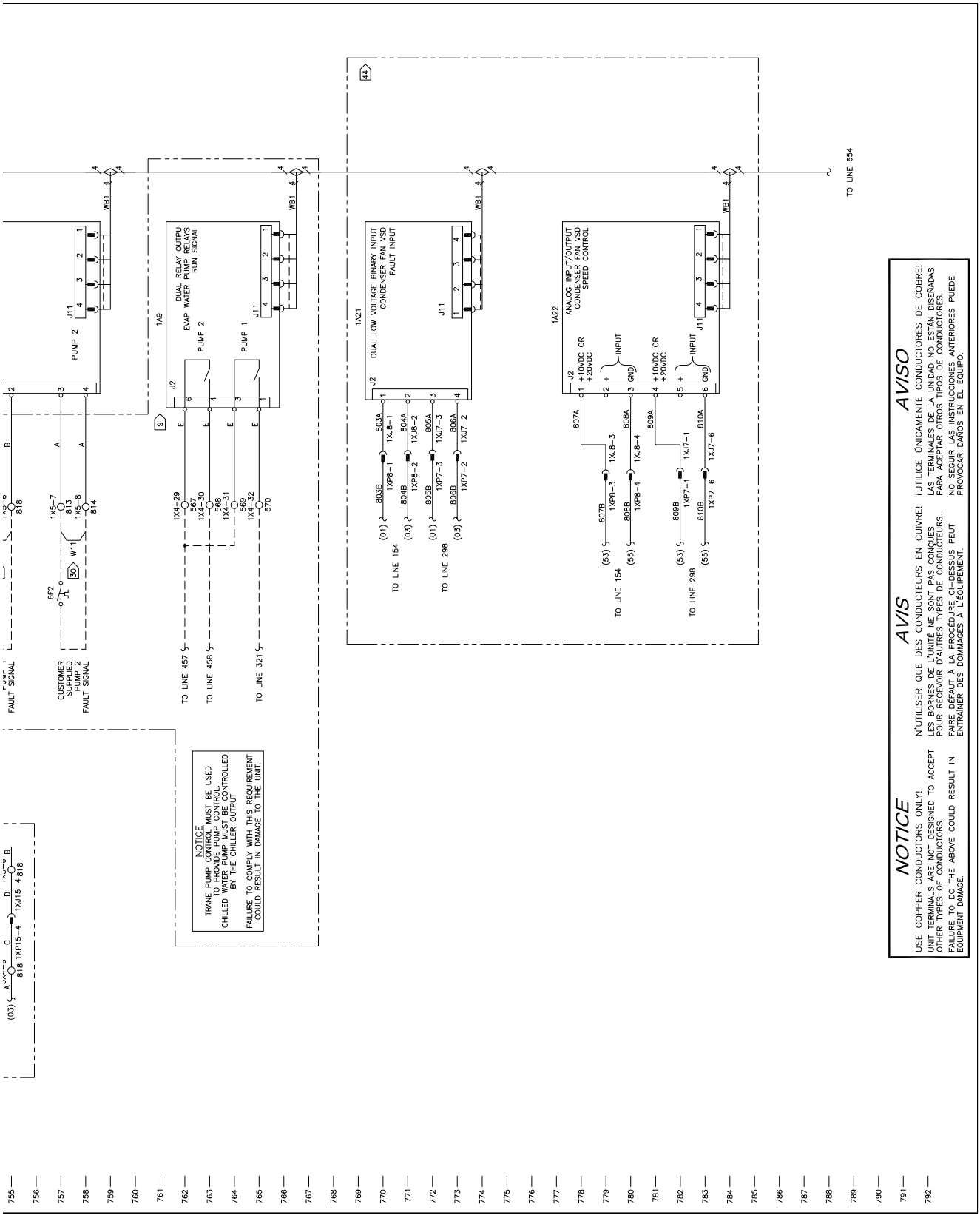
EL NO REALIZAR LO ANTERIORMENTE INDICADO, PODRÍA OCASIONAR LA MUERTE O SERIAS LESIONES PERSONALES.
TO LINE 426 OR 500 OR 539 OR 571
TO LINE 820
TO LINE 822
5B4
24V
(BRN)
(BLU)
(WHT)
(BLK)
1A17
DUAL LOW VOLTAGE BINARY INPUT WATER FLOW SWITCH & INTERLOCK PHASE PROTECTION INPUT
1A25
ANALOG INPUT/OUTPUT WATER PUMP VSD FREQ FREQUENCY INPUT AND % CAPACITY OUTPUT
+20VDC
INPUT
GND
2–10VDC
TO LINE 472 OUTPUT FREQ. 4–20mA
EXTERNAL % CAPACITY OUTPUT
1A12
DUAL LOW VOLTAGE BINARY INPUT CHILLED WATER PUMP FAULT INPUT
PUMP 1
PUMP 2
SEE INSET "V"
FIELD PROVIDED PUMP(S)
CUSTOMER SUPPLIED PUMP 1 FAULT SIGNAL
CUSTOMER SUPPLIED
FACTORY PROVIDED DUAL PUMPS W/ VSD INSET "V"
FIELD PROVIDED PUMP(S) INSET "V"
FACTORY PROVIDED PUMPS INSET "V"
TO LINE 325
W9
W10
W11
WB1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FAILURE TO COMPLY WITH THIS REQUIREMENT COULD RESULT IN DAMAGE TO THE UNIT.
CUSTOMER SUPPLIED PUMP 2 FAULT SIGNAL
PUMP 2
PUMP 1
1A9
EVAP WATER PUMP RELAYS
DUAL RELAY OUTPU
RUN SIGNAL
1A21
DUAL LOW VOLTAGE BINARY INPUT
CONDENSER FAN VSD
FAULT INPUT
1A22
ANALOG INPUT/OUTPUT
CONDENSER FAN VSD
SPEED CONTROL
+10VDC OR +20VDC
INPUT
GND
TO LINE 457
TO LINE 458
TO LINE 321
TO LINE 154
TO LINE 298
TO LINE 654
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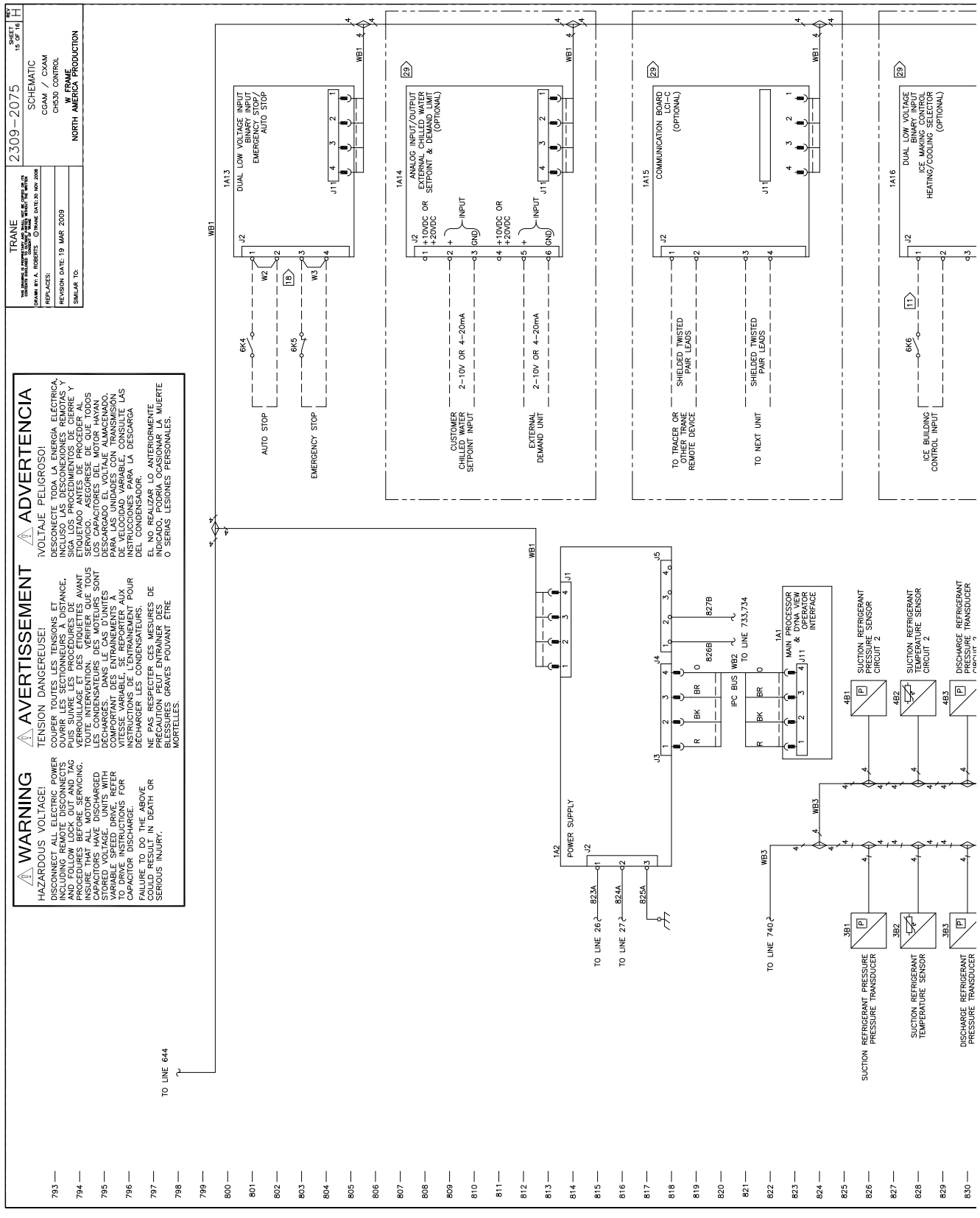
TRANE
2309-2075
SCHEMATIC
CGAM / CXAM
CH530 CONTROL
TRANE
NORTH AMERICA PRODUCTION
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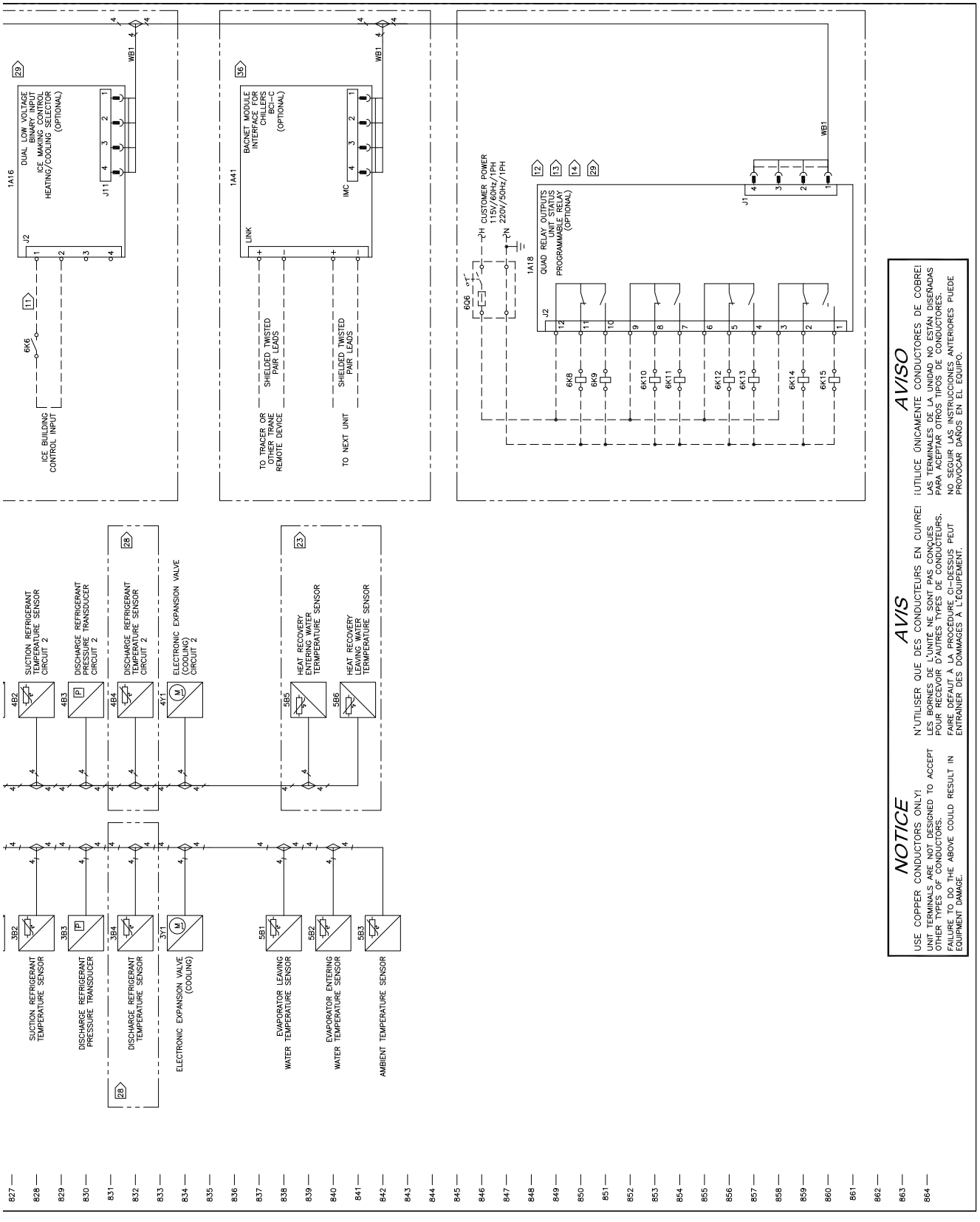
TO LINE 644
WB1
1A1.3
DUAL LOW VOLTAGE INPUT
BINARY INPUT
EMERGENCY STOP/
AUTO STOP
AUTO STOP
EMERGENCY STOP
6K4
6K5
W2
W3
18
1A14
ANALOG INPUT/OUTPUT
EXTERNAL CHILLED WATER
SETPOINT & DEMAND LIMIT
(OPTIONAL)
+10VDC OR
+20VDC
INPUT
GND
CUSTOMER
CHILLED WATER
SETPOINT INPUT
2-10V OR 4-20mA
EXTERNAL
DEMAND UNIT
1A15
COMMUNICATION BOARD
LCI-C
(OPTIONAL)
TO TRACER OR
OTHER TRANE
REMOTE DEVICE
SHIELDED TWISTED
PAIR LEADS
TO NEXT UNIT
1A16
DUAL LOW VOLTAGE
BINARY INPUT
ICE MAKING CONTROL
HEATING/COOLING SELECTOR
(OPTIONAL)
ICE BUILDING
CONTROL INPUT
6K6
11
29
1A2
POWER SUPPLY
TO LINE 26
TO LINE 27
823A
824A
825A
J1
J2
J3
J4
J5
826B
827B
IPC BUS
WB2
TO LINE 733,734
1A1
MAIN PROCESSOR
LOCAL DISPLAY WITH
OPERATOR
INTERFACE
TO LINE 740
WB3
3B1
3B2
3B3
4B1
4B2
4B3
SUCTION REFRIGERANT
PRESSURE TRANSDUCER
SUCTION REFRIGERANT
TEMPERATURE SENSOR
DISCHARGE REFRIGERANT
PRESSURE TRANSDUCER
SUCTION REFRIGERANT
PRESSURE SENSOR
CIRCUIT 2
SUCTION REFRIGERANT
TEMPERATURE SENSOR
CIRCUIT 2
DISCHARGE REFRIGERANT
PRESSURE TRANSDUCER



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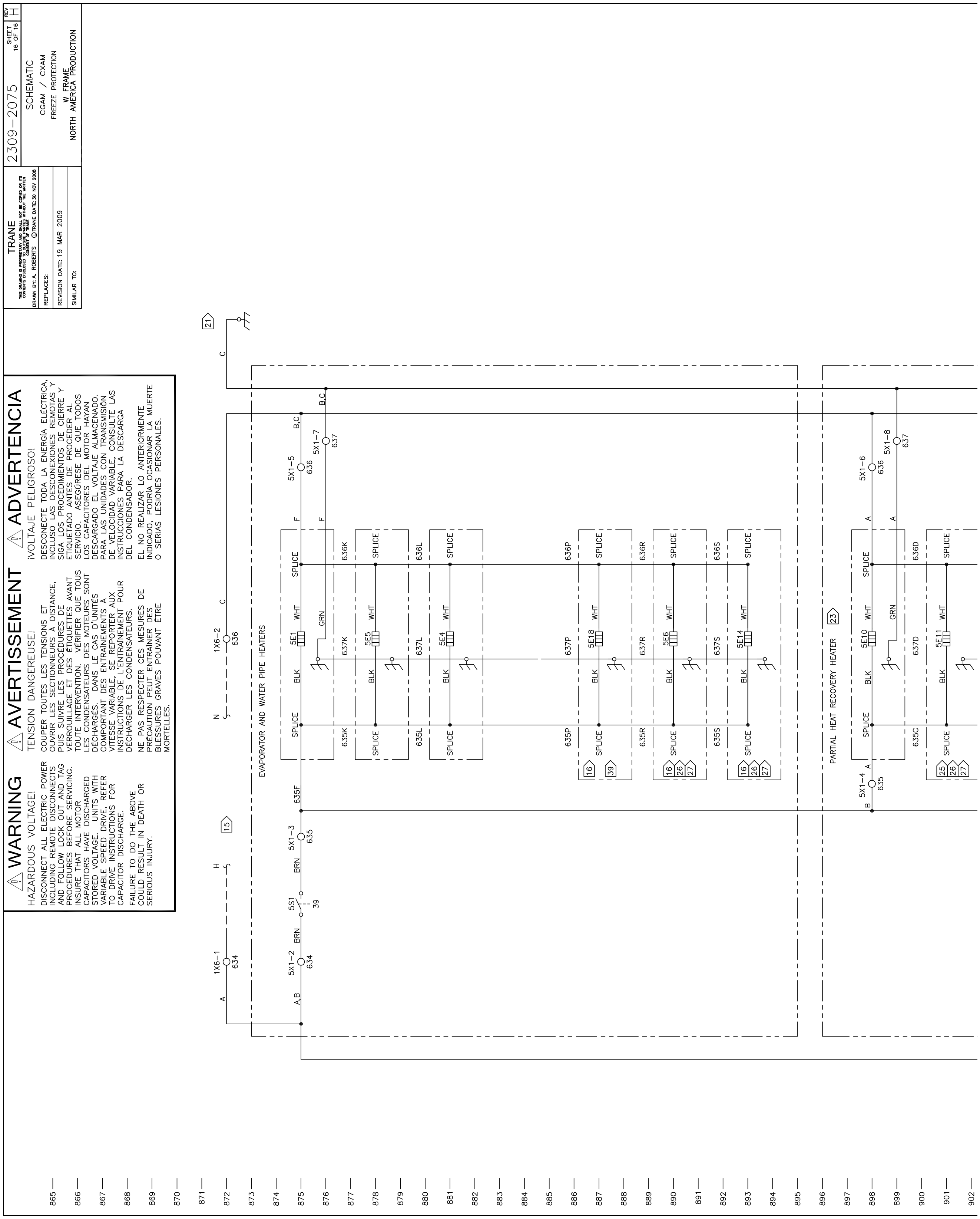
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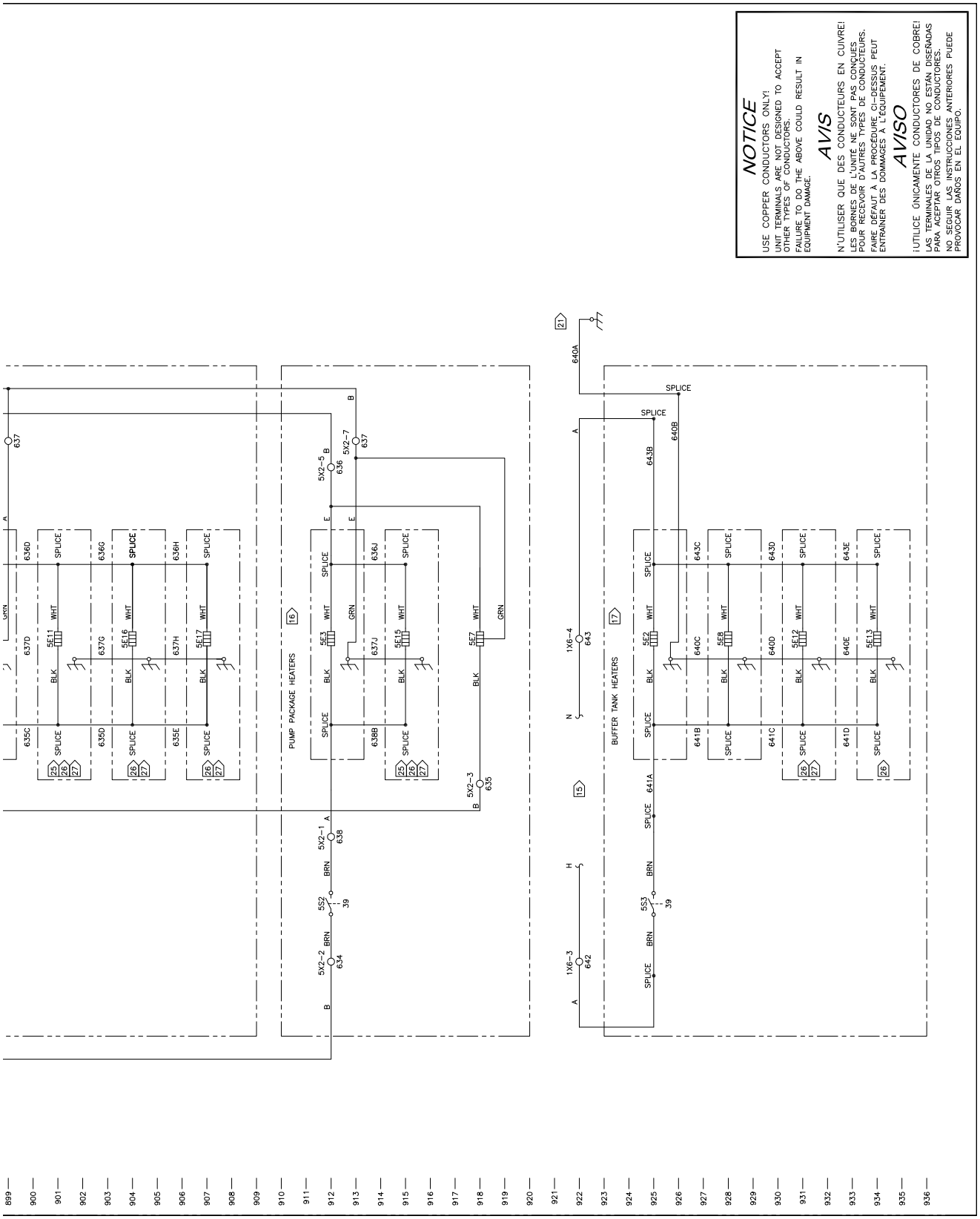
TRANE
DRAWN BY: A. ROBERTS
REPLACES:
REVISION DATE: 19 MAR 2009
SIMILAR TO:
2309-2075
SHEET 16 OF 16
REV H
SCHEMATIC
CGAM / CXAM
FREEZE PROTECTION
W. TRANE
NORTH AMERICA PRODUCTION
EVAPORATOR AND WATER PIPE HEATERS
PARTIAL HEAT RECOVERY HEATER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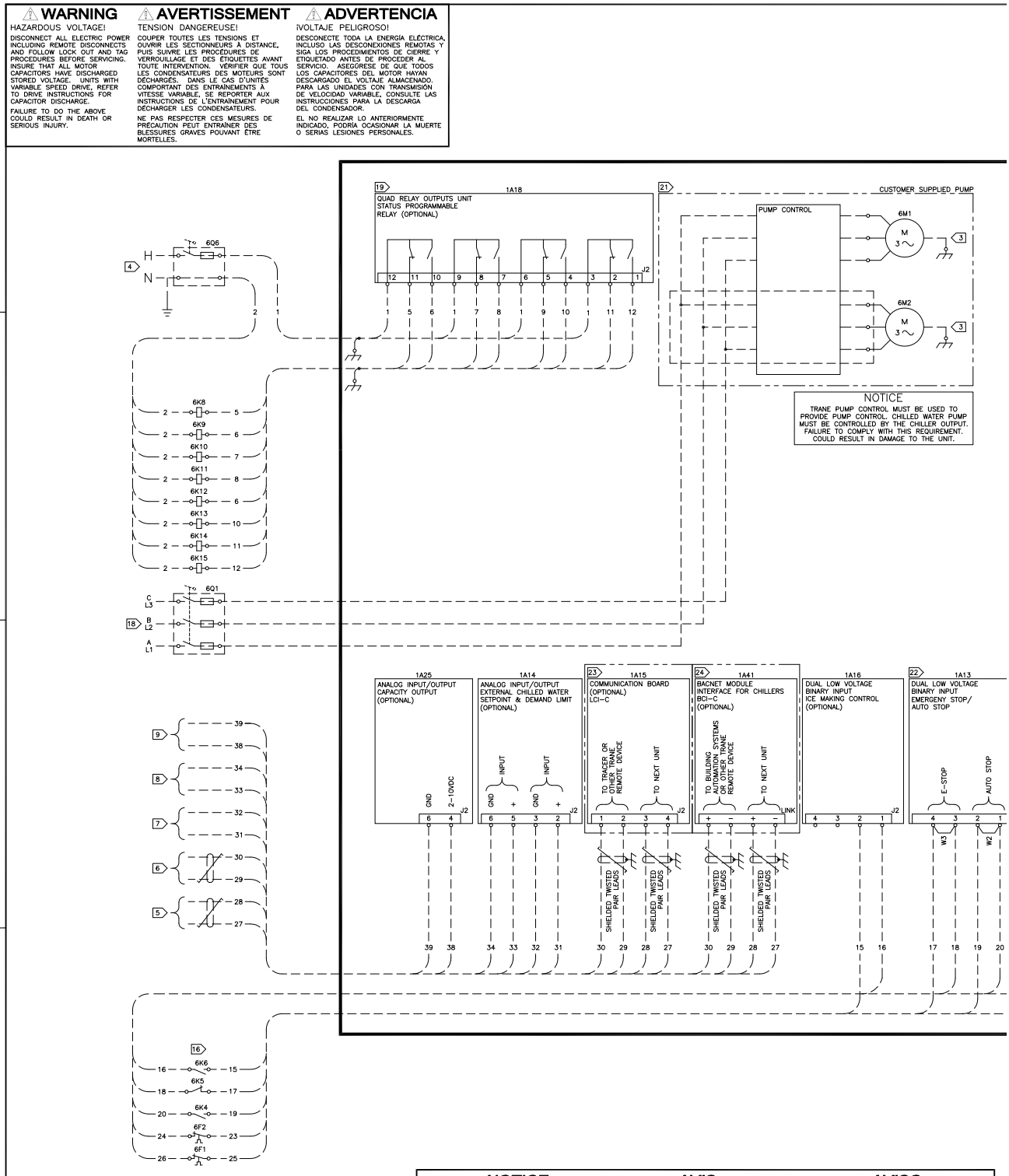
PUMP PACKAGE HEATERS
BUFFER TANK HEATERS
SPLICE
WHT
BLK
GRN
BRN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A
B
C
D
1
2
3
4
19
1A18
QUAD RELAY OUTPUTS UNIT STATUS PROGRAMMABLE RELAY (OPTIONAL)
21
CUSTOMER SUPPLIED PUMP
PUMP CONTROL
6M1
6M2
NOTICE
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6Q6
6Q1
6K8
6K9
6K10
6K11
6K12
6K13
6K14
6K15
6K6
6K5
6K4
6F2
6F1
1A25
ANALOG INPUT/OUTPUT CAPACITY OUTPUT (OPTIONAL)
GND
2–10VDC
1A14
ANALOG INPUT/OUTPUT EXTERNAL CHILLED WATER SETPOINT & DEMAND LIMIT (OPTIONAL)
INPUT
23
1A15
COMMUNICATION BOARD (OPTIONAL) LCI–C
TO TRACER OR OTHER TRANE REMOTE DEVICE
TO NEXT UNIT
24
1A41
BACNET MODULE INTERFACE FOR CHILLERS BCI–C (OPTIONAL)
TO BUILDING AUTOMATION SYSTEMS OR OTHER TRANE REMOTE DEVICE
LINK
1A16
DUAL LOW VOLTAGE BINARY INPUT ICE MAKING CONTROL (OPTIONAL)
22
1A13
DUAL LOW VOLTAGE BINARY INPUT EMERGENY STOP/ AUTO STOP
E–STOP
AUTO STOP
W3
W2
SHIELDED TWISTED PAIR LEADS
J2
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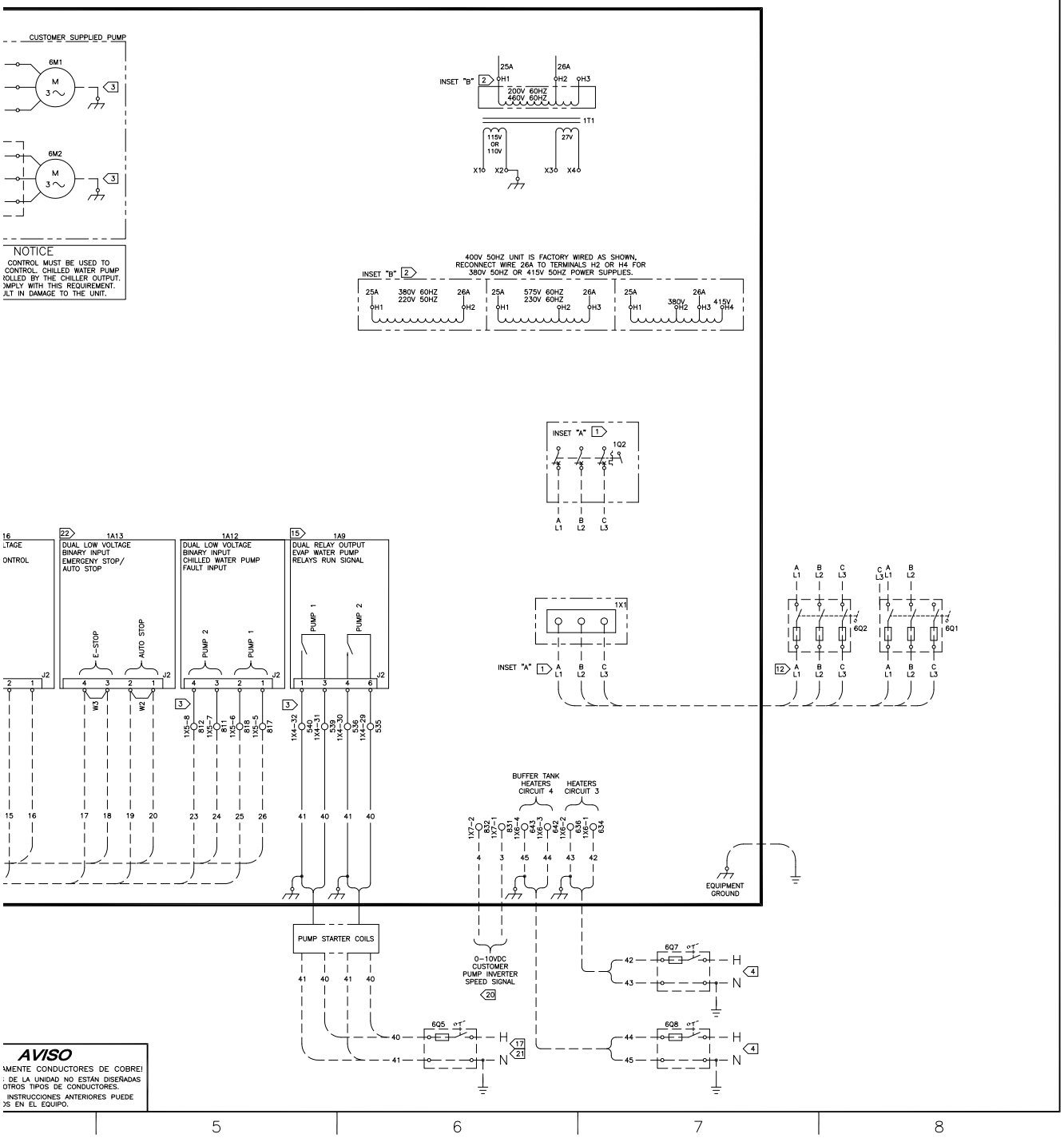
TRANE	2309–2076	SHEET 1 OF 2	REV D
THIS DRAWING IS PROPRIETARY AND SHALL NOT BE COPIED OR ITS CONTENTS DISCLOSED TO OUTSIDE PARTIES WITHOUT THE WRITTEN CONSENT OF TRANE	FIELD WIRING DIAGRAM		
DRAWN BY: ©TRANE DATE: 12/5/08	CGAM (NAR)		
REPLACES:	SLANT, V & W UNITS		
REVISION DATE:			
SIMILIAR TO:			



1. SINGLE SOURCE POWER IS PROVIDED AS STANDARD ON THESE PRODUCTS, FIELD CONNECTIONS ARE MADE TO 1X1, OR 1Q2.
2. FOR VOLTAGES 200V/60HZ, 220V/50HZ, 380V/60HZ, 460V/60HZ, WIRE 26A SHALL BE CONNECTED TO H2. FOR VOLTAGES 230V/60HZ & 575V/60HZ, WIRE 26A SHALL BE CONNECT TO H3. 400V/50HZ UNIT IS FACTORY WIRED WITH 26A CONNECTED TO H3 – RECONNECT WIRE 26A TO H2 FOR 380V/50HZ, OR H4 FOR 415V/50HZ. H4 IS ONLY AVAILABLE WITH 400V/50HZ PANELS.
3. FIELD CONNECTIONS ARE ONLY MADE IN A CUSTOMER PROVIDED PUMP (PTYP=NONE). THESE CONNECTIONS WILL BE MADE BY THE FACTORY WHEN THE PUMP IS PROVIDED BY THE FACTORY (PTYP=DHHP).
4. CUSTOMER SUPPLIED POWER 115/60/1 OR 220/50/1 TO POWER RELAYS. MAX. FUSE SIZE IS 20 AMPS. GROUND ALL CUSTOMER SUPPLIED POWER SUPPLIES AS REQUIRED BY APPLICABLE CODES. GREEN GROUND SCREWS ARE PROVIDED IN UNIT CONTROL PANEL.
5. WIRED TO NEXT UNIT. 22 AWG SHIELDED COMMUNICATION WIRE EQUIVALENT TO HELIX LF22P0014216 RECOMMENDED. THE SUM TOTAL OF ALL INTERCONNECTED CABLE SEGMENTS NOT TO EXCEED 4500 FEET. CONNECTION TOPOLOGY SHOULD BE DAISY CHAIN. REFER TO BUILDING AUTOMATION SYSTEM (BAS) COMMUNICATION INSTALLATION LITERATURE FOR END OF LINE TERMINATION RESISTOR REQUIREMENTS.
6. WIRED TO TRACER OR OTHER TRANE REMOTE DEVICE. 22 AWG SHIELDED COMMUNICATION WIRE EQUIVALENT TO HELIX LF22P0014216 RECOMMENDED. THE SUM TOTAL OF ALL INTERCONNECTED CABLE SEGMENTS NOT TO EXCEED 4500 FEET. CONNECTION TOPOLOGY SHOULD BE DAISY CHAIN. REFER TO BUILDING AUTOMATION SYSTEM (BAS) COMMUNICATION INSTALLATION LITERATURE FOR END OF LINE TERMINATION RESISTOR REQUIREMENTS.
7. WIRED TO CUSTOMER CHILLED WATER SET POINT 2–10V OR 4–20mA.
8. WIRED TO CUSTOMER EXTERNAL DEMAND LIMIT 2–10V OR 4–20mA.
9. WIRED TO CUSTOMER 2–10V OR 4–20mA % CAPACITY ANNUNICIATOR.
11. REFER TO CGAM ELECTRICAL SCHEMATIC FOR SPECIFIC ELECTRICAL CONNECTION INFORMATION AND NOTES PERTAINING TO WIRING INSTALLATION.
12. ALL UNIT POWER WIRING MUST BE 600 VOLT COPPER CONDUCTORS ONLY AND HAVE A MINIMUM TEMPERATURE INSULATION RATING OF 90 DEGREE C. REFER TO UNIT NAMEPLATE FOR MINIMUM CIRCUIT AMPACITY AND MAXIMUM OVERCURRENT PROTECTION DEVICE. PROVIDE AN EQUIPMENT GROUND IN ACCORDANCE WITH APPLICABLE ELECTRIC CODES. REFER TO WIRE RANGE TABLE FOR LUG SIZES.
13. ALL FIELD WIRING MUST BE IN ACCORDANCE WITH NATIONAL ELECTRIC CODE AND LOCAL REQUIREMENTS.
14. 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 OR DIN RAIL MOUNTED SPRING FORCE TERMINALS.
15. UNIT PROVIDED DRY CONTACTS FOR THE CONDENSER/CHILLED WATER PUMP CONTROL. RELAYS ARE RATED FOR 7.2 AMPS RESISTIVE, 2.88 AMPS PILOT DUTY, OR ⅓ HP, 7.2 FLA AT 120 VOLTS 60 HZ, CONTACTS ARE RATED FOR 5 AMPS GENERAL PURPOSE DUTY 240 VOLTS.
16. CUSTOMER SUPPLIED CONTACTS FOR ALL LOW VOLTAGE CONNECTIONS MUST BE COMPATABLE WITH DRY CIRCUIT 24 VOLTS DC FOR A 12 mA RESISTIVE LOAD. SILVER OR GOLD PLATED CONTACTS RECOMMENDED.
17. FIELD CONNECTIONS ARE ONLY MADE IN A CUSTOMER PROVIDED PUMP. THESE CONNECTIONS WILL BE MADE BY THE FACTORY WHEN THE PUMP IS PROVIDED BY THE FACTORY. CUSTOMER SUPPLIED POWER 115V, 60Hz, 1PH.
18. CUSTOMER SUPPLIED 3 PHASE POWER.
19. OPTIONAL FIELD ASSIGNED PROGRAMMABLE RELAYS (STAT=PRLY). CLASS 1 FIELD WIRED MODULE, RELAY AT 120V: 7.2A RESISTIVE 2.88A PILOT DUTY, 1/2HP 7.2FLA; AT 240VAC: 5 AMPS GENERAL PURPOSE.
20. WIRED TO CUSTOMER 0–10 VDC PUMP SPEED SIGNAL.
21. WHEN FACTORY PROVIDED PUMP IS NOT SELECTED. CUSTOMER MUST SUPPLY SUITABLE PUMP SYSTEM. REFER TO PUMP MANUFACTURER FOR WIRING REQUIREMENTS.
22. THE CONTACTS FOR AUTO STOP AND EMERGENCY STOP SWITCHES ARE JUMPERED AT THE FACTORY BY JUMPERS W2 & W3 TO ENABLE UNIT OPERATION. IF REMOTE CONTROL IS DESIRED, REMOVED THE JUMPERS AND CONNECT TO THE DESIRED CONTROL CIRCUIT.
23. 1A15, LCI MODULE USED WHEN (COMM = LCI).
24. 1A41, BACNET INTERFACE MODULE USED WHEN (COMM = BCNT).

1 | 2 | 3 | 4

TRANE	2309–2076	SHEET 2 OF 2	REV D
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DRAWN BY: © TRANE DATE: 12/5/08	CGAM (NAR)		
REPLACES:	SLANT, V & W UNITS		
REVISION DATE:			
SIMILIAR TO:			

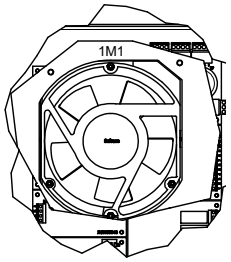
REPLACEMENT FUSE TABLE

FUSE	VOLTAGE	Hz	CLASS	AMPS	NOTES
1F1	ALL	ALL	CC	10	FUSE, COMPRESSOR CRANKCASE HEATER, CIRCUIT 1
1F2	ALL	ALL	CC	10	
1F3	ALL	ALL	CC	10	FUSE, COMPRESSOR CRANKCASE HEATER, CIRCUIT 2
1F4	ALL	ALL	CC	10	
1F5, 1F6	200	60	CC	10	FUSE, CONTROL POWER TRANSFORMER, PRIMARY
	230	60	CC	8	
	380	60	CC	5	
	400	50	CC	5	
	460	60	CC	5	
	575	60	CC	4	
1F7	200	60	CC	10	THIRD PHASE, PHASE PROTECTION MONITOR
	230	60	CC	8	
	380	60	CC	5	
	400	50	CC	5	
	460	60	CC	5	
	575	60	CC	4	
1F8, 1F9, 1F10	200	60	CC	10	DUAL POINT, POWER SECOND PHASE, PHASE PROTECTION MONITOR
	230	60	CC	8	
	380	60	CC	5	
	400	50	CC	5	
	460	60	CC	5	
	575	60	CC	4	
1F11	ALL	ALL	CC	10	FUSE, CONTROL POWER TRANSFORMER, SECONDARY, 115V
1F12 – 1F13	ALL	ALL	CC	6	FUSE, CONTROL POWER TRANSFORMER, SECONDARY, 24V
1F14 – 1F16 1F17 – 1F19	200–460	ALL	CC	30	FUSE, INVERTER, FAN (FAST ACTING EXCEPT 575V)
	575	60	CC	6	
1F38 – 1F40 1F44 – 1F46	ALL	ALL	CC	30	FAST ACTING FUSE, ATM–R–30
1F38 – 1F40 1F41 – 1F43	ALL	ALL	CC	30	FAST ACTING FUSE, USED ONLY ON W UNITS
FACTORY PROVIDED PUMP INVERTER FUSE					
1F32, 1F33, 1F34	200,230	60	CC	30	3.7Kw VSD
	460,575	60	CC	25	5.5 Kw VSD
	200,230	60	J	60	7.5Kw VSD
	460,575		CC	30	
	200,230	60	J	60	11Kw VSD
	460,575			40	

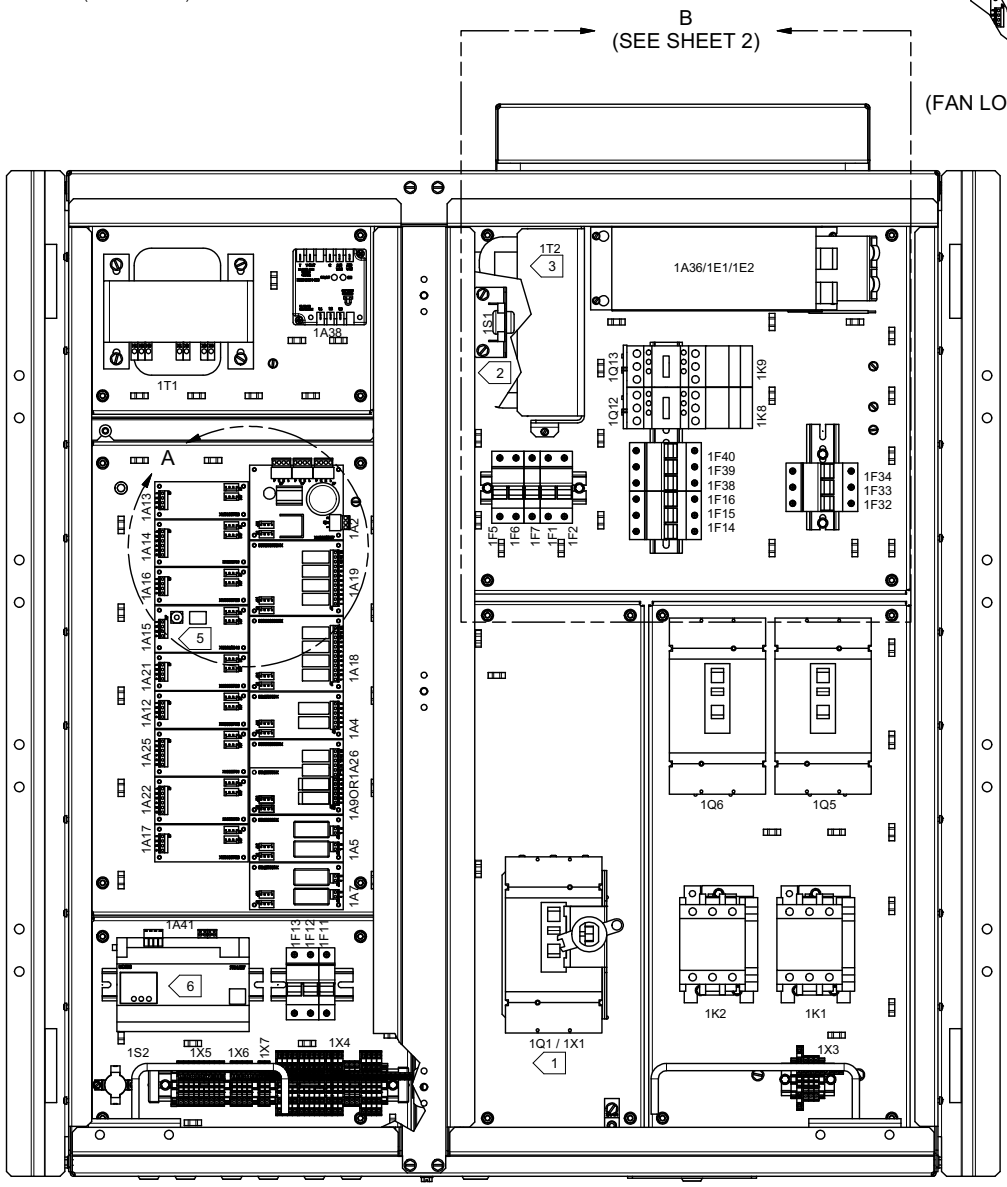
5 | 6 | 7 | 8

NOTES

1. COMPONENT 1X1 WILL REPLACE 1Q1 WHEN TERMINAL BLOCK OPTION IS SELECTED.
2. COMPONENTS 1M1 AND 1S1 ARE USED ONLY WHEN THE VENTILATED PANEL IS REQUIRED.
3. COMPONENT 1T2 IS USED ONLY WHEN THE 575V OPTION IS SELECTED.
4. POWER WIRE AND CONTROL HARNESS NOT SHOWN.
5. 1A15 LCI MODULE (COMM = LCI) USE BASED ON CONFIGURATION.
6. 1A41 BACNET MODULE (COMM = BCNT) USE BASED ON CONFIGURATION.

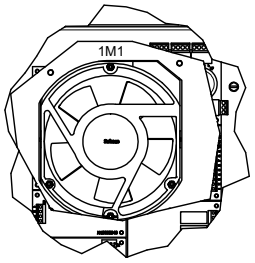


DETAIL A 2
(FAN LOCATED BEHIND P

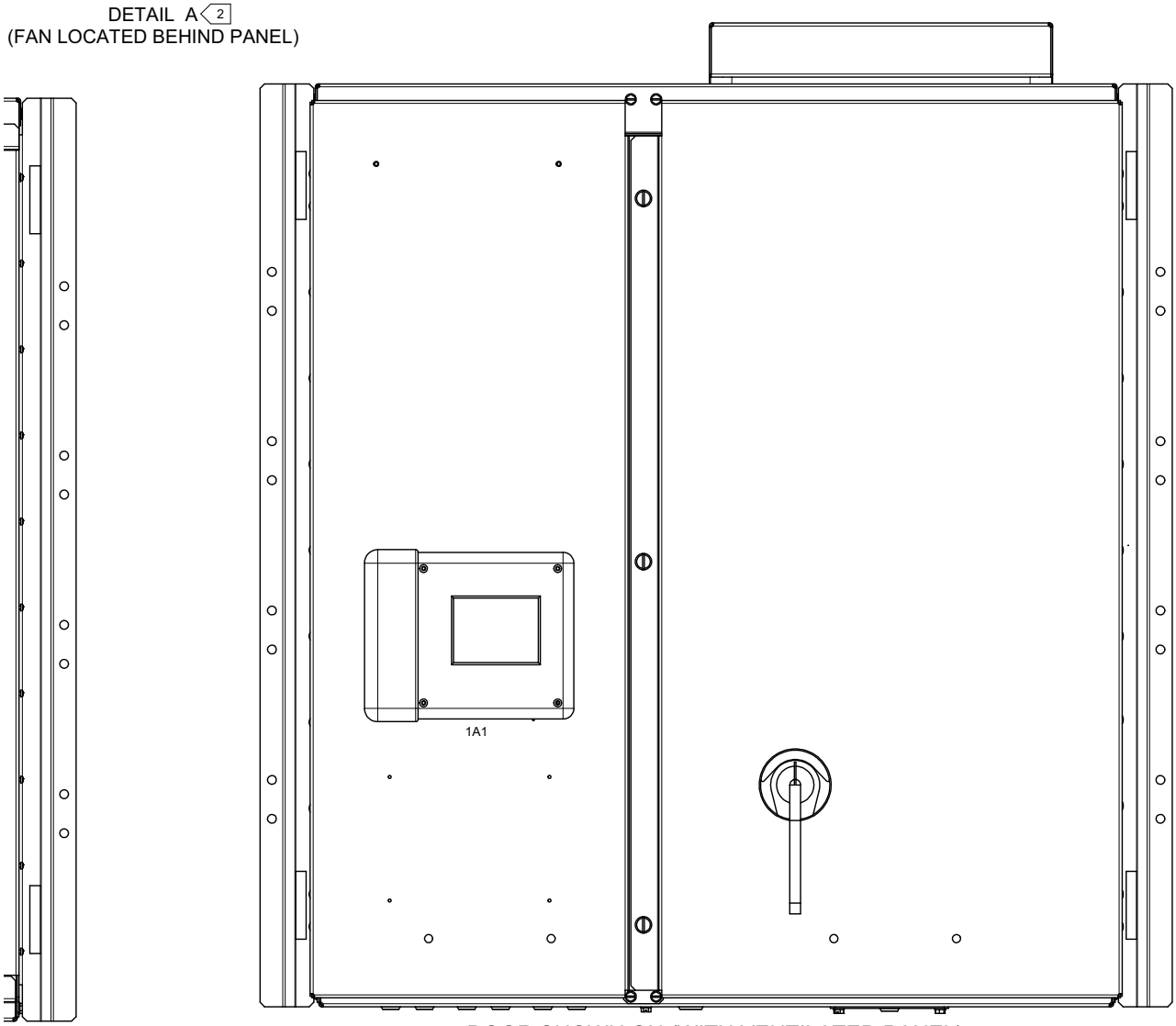


DOORS SHOWN OFF (WITH VENTILATED PANEL)

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETERS. TOLERANCE: X, = ± 5; X,X = ± 3,0; X,XX = ± 1,50; ANGLES = ± 1 °; HOLE DIA = +0,5 / -0,5; FINISH √; CONFORMS TO ASME Y14.5M - 1994	**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: J.Watts. © TRANE DATE: 24-APR-2009. DO NOT SCALE PRINT. THIRD ANGLE PROJECTION	57206468 SHEET 1 OF 2 REV F. DIAGRAM COMPONENT LOCATION CONTROL PANEL SLANT UNIT

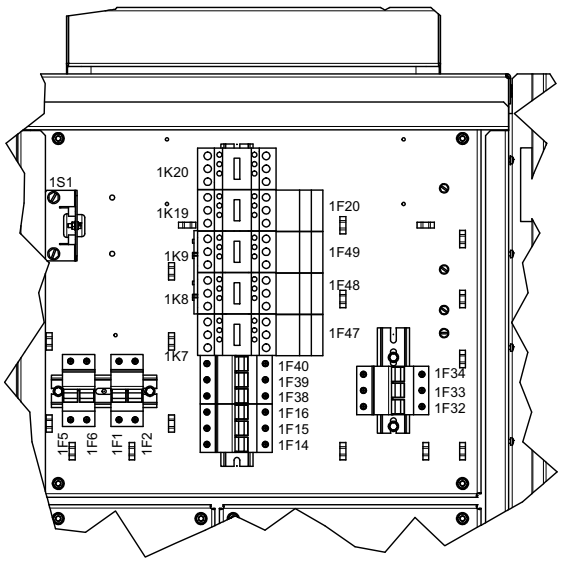


DETAIL A 2
(FAN LOCATED BEHIND PANEL)



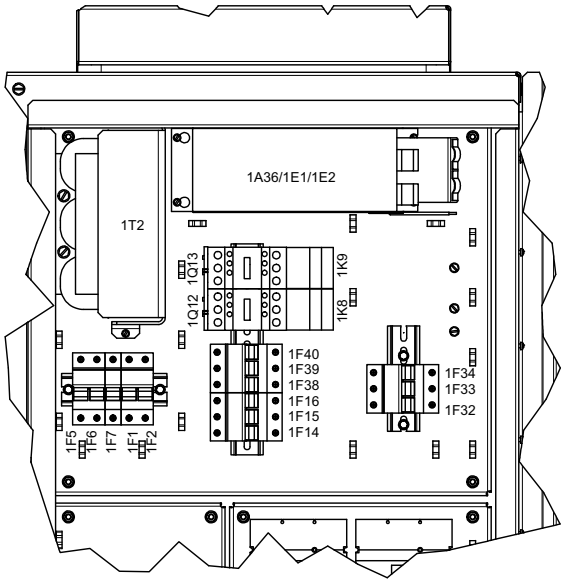
DOOR SHOWN ON (WITH VENTILATED PANEL)

4 3 2 1



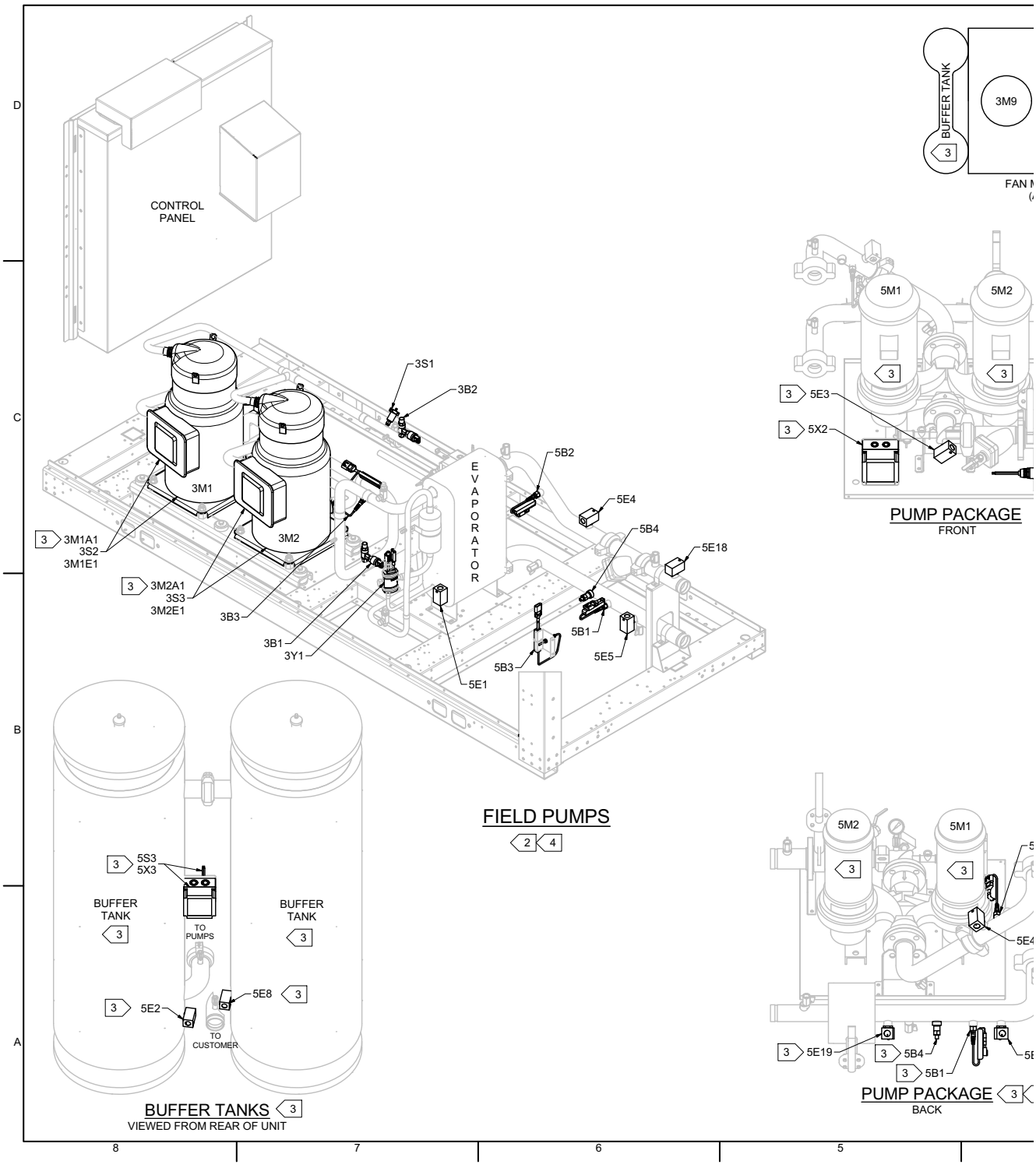
DETAIL B
3 FAN,WO VFD

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETERS. TOLERANCE: X, = ± 5; X,X = ± 3,0; X,XX = ± 1,50; ANGLES = ± 1; HOLE DIA = +0,5 - 0,5; CONFORMS TO ASME Y14.5M - 1994	**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: J.Watts. © TRANE DATE: 24-APR-2009. DO NOT SCALE PRINT. THIRD ANGLE PROJECTION	57206468 SHEET 2 OF 2 REV F. DIAGRAM COMPONENT LOCATION CONTROL PANEL SLANT UNIT



DETAIL B
3 FAN, W VFD

4 | 3 | 2 | 1


CONTROL PANEL
3S1
3B2
3M1
3M2
EVAPORATOR
5B2
5E4
5B4
5E18
3M1A1
3S2
3M1E1
3M2A1
3S3
3M2E1
3B3
3B1
3Y1
5B1
5E5
5B3
5E1
FIELD PUMPS
2 4
BUFFER TANK
3M9
3
FAN M
5M1
5M2
5E3
5X2
PUMP PACKAGE
FRONT
5S3
5X3
BUFFER TANK
TO PUMPS
5E8
5E2
TO CUSTOMER
BUFFER TANKS 3
VIEWED FROM REAR OF UNIT
5E19
5B4
5B1
PUMP PACKAGE 3
BACK
D
C
B
A
8
7
6
5

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETERS. TOLERANCE:
X, = ±
X,X = ±
X,XX = ±
ANGLES = ±
FINISH
HOLE DIA = +/-
CONFORMS TO ASME Y14.5M - 1994

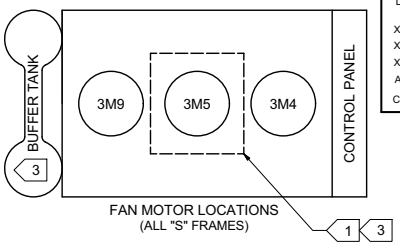
TRANE

DRAWN BY: A. BAHL
 DATE: 14-JUL-2008

DO NOT SCALE PRINT
THIRD ANGLE PROJECTION

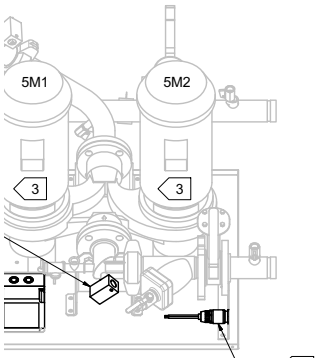
57206497 SHEET 1 OF 1 REV D

ASSEMBLY
DEVICE LOCATION
SENSOR AND CH530
CGAM, S UNIT

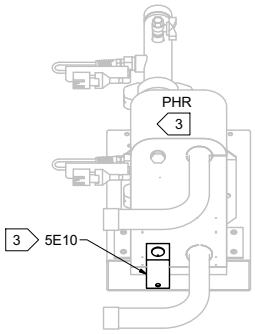


FAN MOTOR LOCATIONS
(ALL "S" FRAMES)

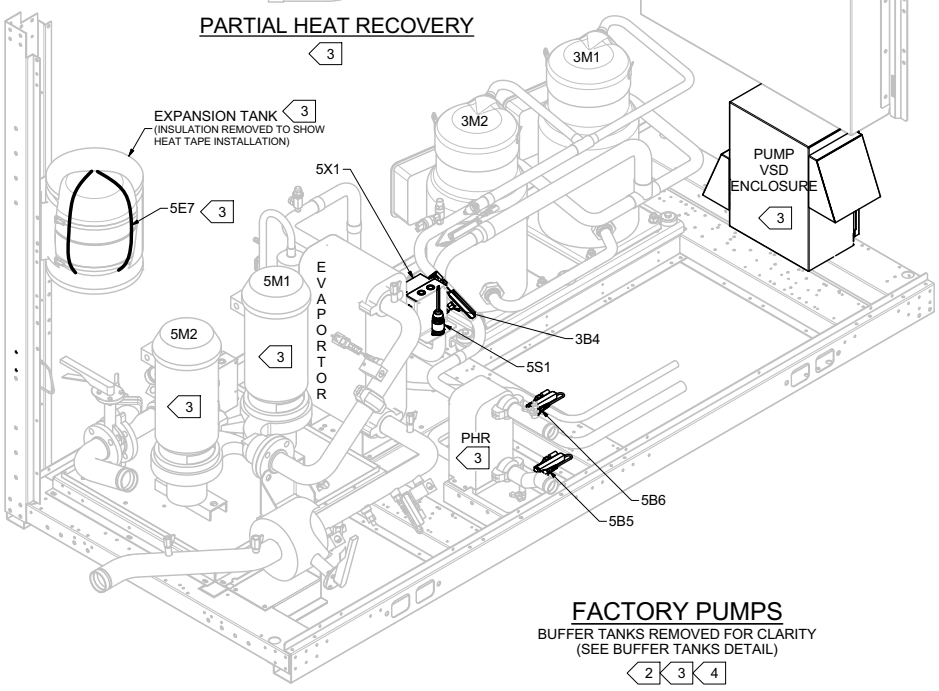
NOTES:
1. REMOVE 3M5 ON UNITS WITH 2-FANS PER CIRCUIT.
2. NOT ALL POSSIBLE UNIT/FRAME CONFIGURATIONS SHOWN. SENSOR/DEVICE LOCATIONS MAY VARY BY FRAME SIZE AND AVAILABLE OPTIONS CHOSEN.
3. OPTIONAL COMPONENT - CHECK MODEL NUMBER TO DETERMINE IF USED OR NOT.
4. SOME ITEMS, PIPING, BRACKETS & HANGERS ETC. HAVE BEEN REMOVED FOR CLARITY.



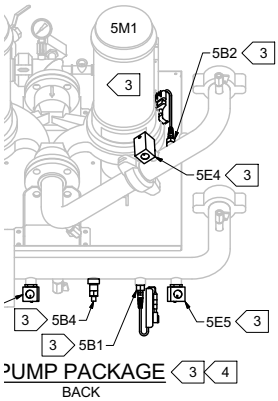
PUMP PACKAGE
FRONT



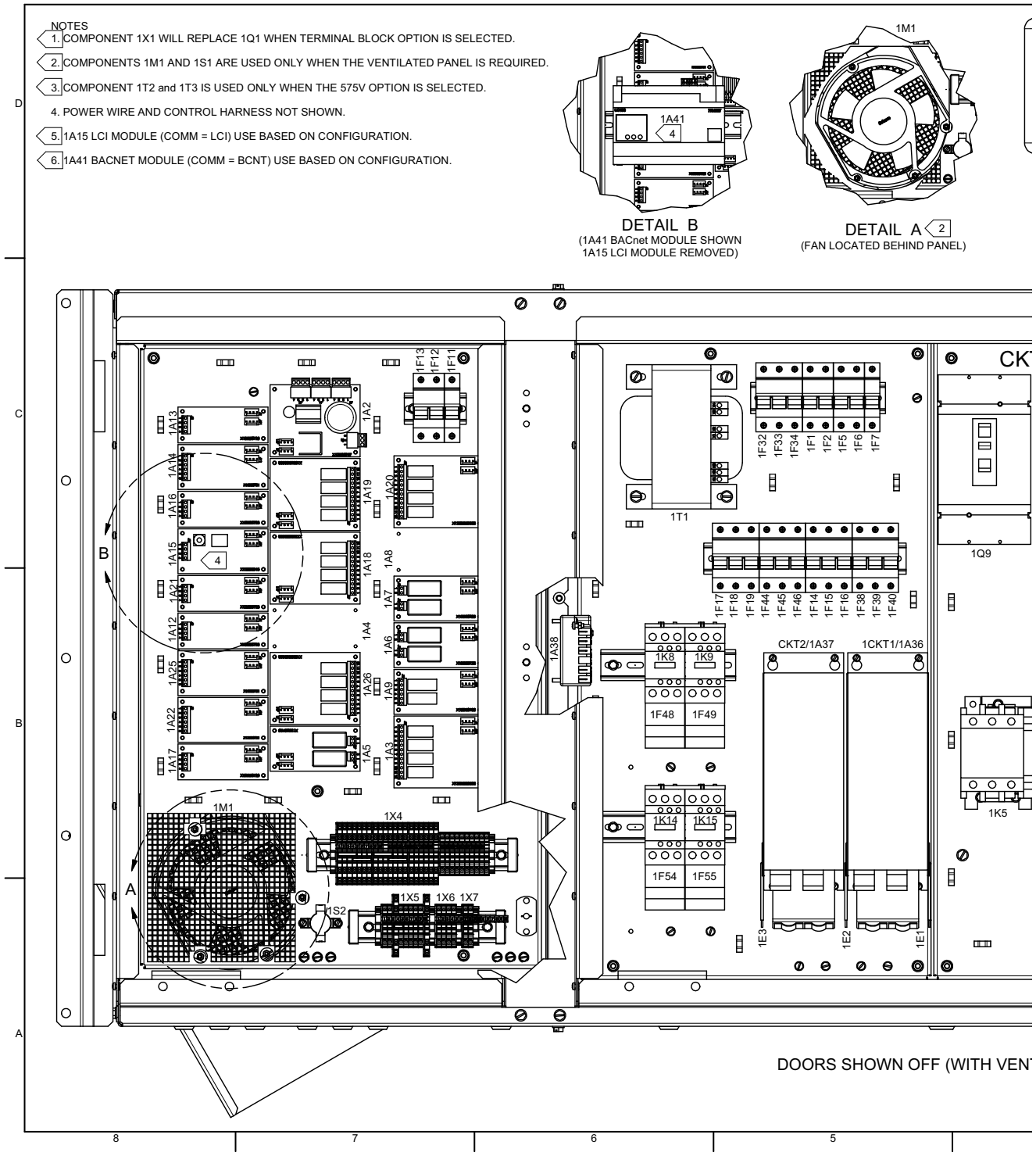
PARTIAL HEAT RECOVERY
3

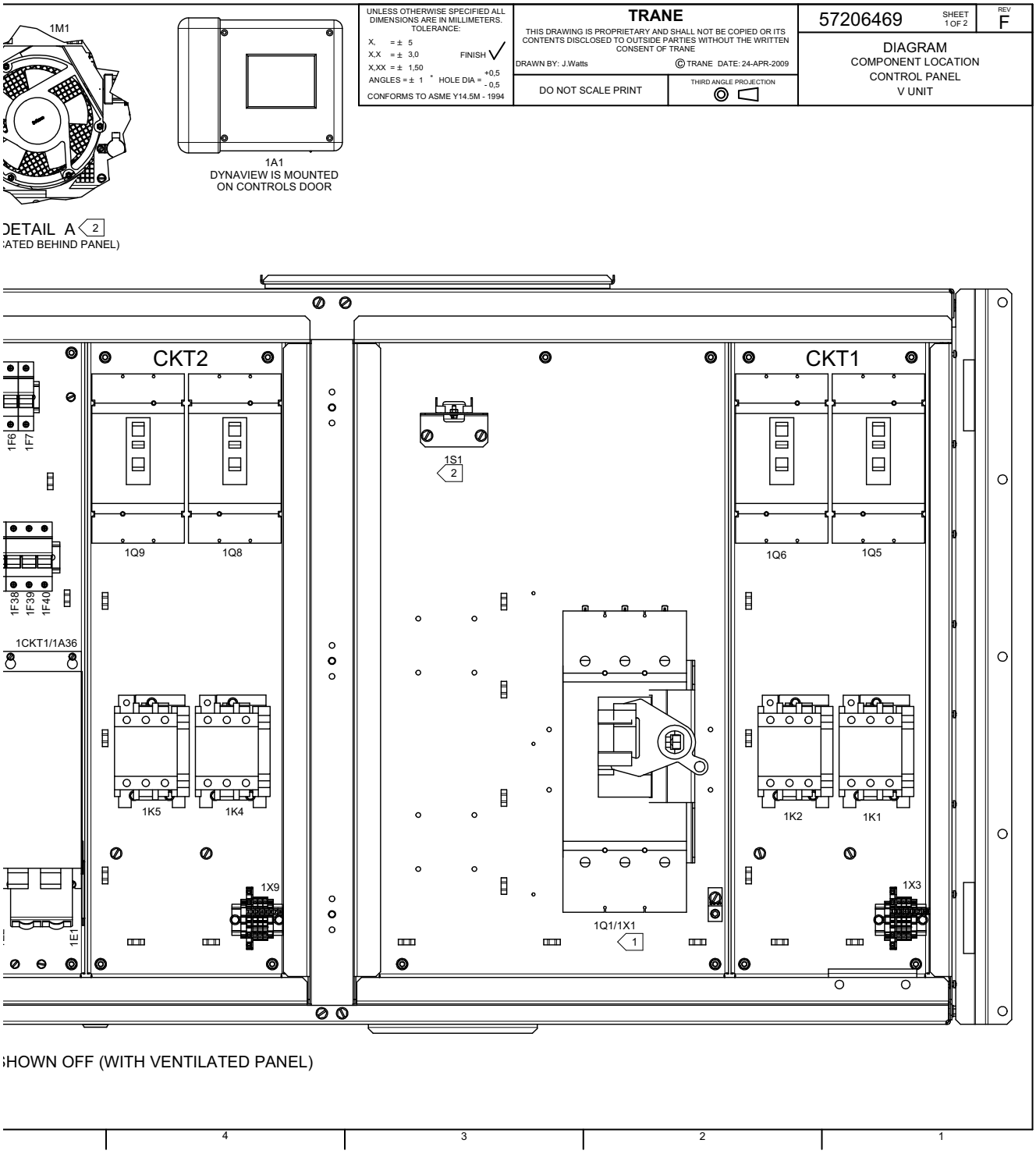


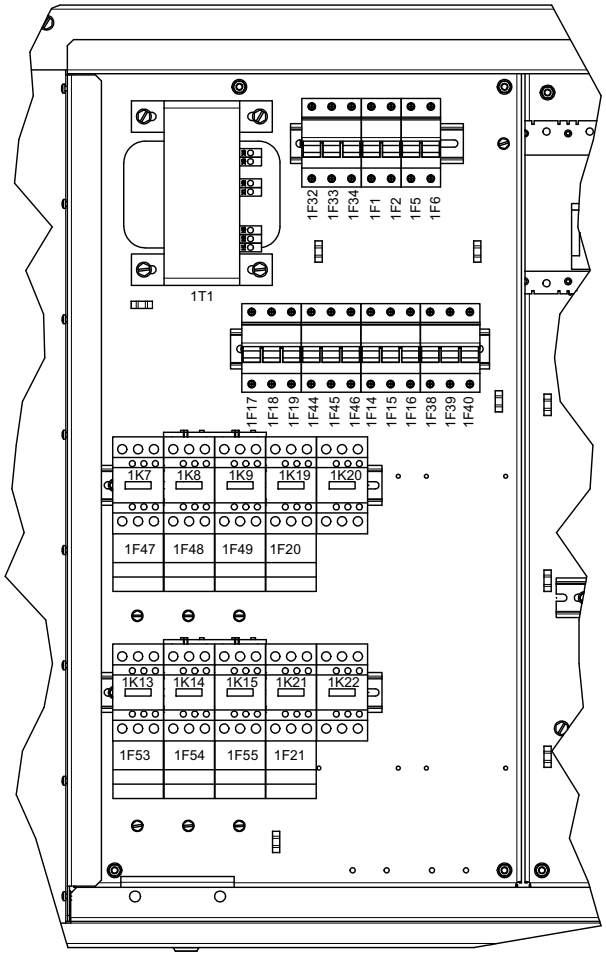
FACTORY PUMPS
BUFFER TANKS REMOVED FOR CLARITY
(SEE BUFFER TANKS DETAIL)
2 3 4



PUMP PACKAGE 3 4
BACK

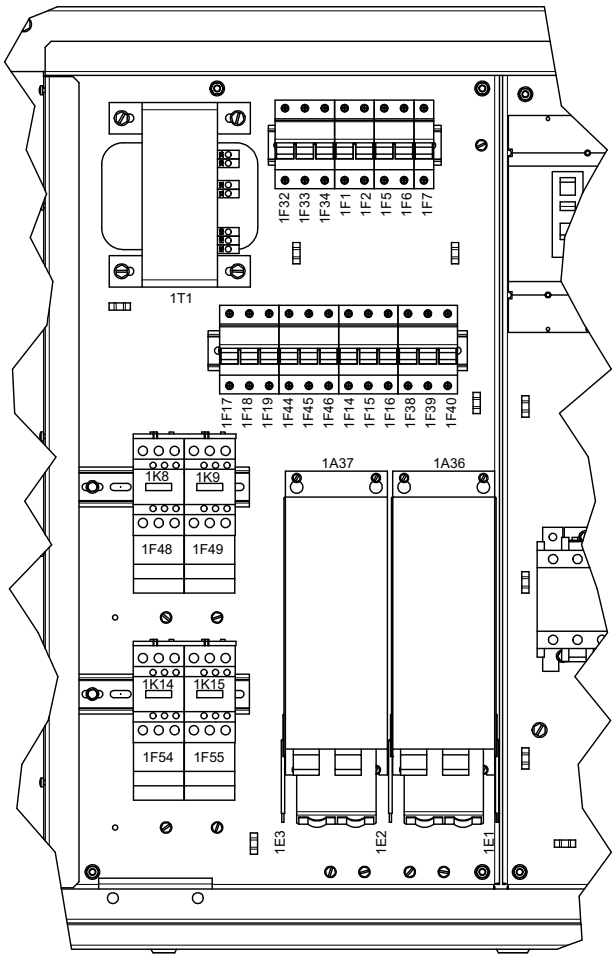

NOTES
1. COMPONENT 1X1 WILL REPLACE 1Q1 WHEN TERMINAL BLOCK OPTION IS SELECTED.
2. COMPONENTS 1M1 AND 1S1 ARE USED ONLY WHEN THE VENTILATED PANEL IS REQUIRED.
3. COMPONENT 1T2 and 1T3 IS USED ONLY WHEN THE 575V OPTION IS SELECTED.
4. POWER WIRE AND CONTROL HARNESS NOT SHOWN.
5. 1A15 LCI MODULE (COMM = LCI) USE BASED ON CONFIGURATION.
6. 1A41 BACNET MODULE (COMM = BCNT) USE BASED ON CONFIGURATION.
DETAIL B
(1A41 BACnet MODULE SHOWN
1A15 LCI MODULE REMOVED)
DETAIL A 2
(FAN LOCATED BEHIND PANEL)
1M1
1A41
4
1A15
4
1T1
1Q9
1K5
1K8
1K9
1K14
1K15
1F48
1F49
1F54
1F55
1X4
1X5
1X6
1X7
1S2
1A38
CKT2/1A37
1CKT1/1A36
DOORS SHOWN OFF (WITH VEN
A
B
C
D
8
7
6
5


1M1
1A1
DYNAVIEW IS MOUNTED
ON CONTROLS DOOR
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETERS. TOLERANCE:
X, = ± 5
X,X = ± 3,0
X,XX = ± 1,50
ANGLES = ± 1 °
FINISH
HOLE DIA = +0,5 - 0,5
CONFORMS TO ASME Y14.5M - 1994
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: J.Watts
© TRANE DATE: 24-APR-2009
DO NOT SCALE PRINT
THIRD ANGLE PROJECTION
57206469
SHEET 1 OF 2
REV F
DIAGRAM
COMPONENT LOCATION
CONTROL PANEL
V UNIT
DETAIL A 2
ATED BEHIND PANEL)
CKT2
CKT1
1F6
1F7
1F38
1F39
1F40
1CKT1/1A36
1Q9
1Q8
1Q6
1Q5
1S1
2
1K5
1K4
1K2
1K1
1X9
1X3
1Q1/1X1
1
1E1
HOWN OFF (WITH VENTILATED PANEL)
4
3
2
1

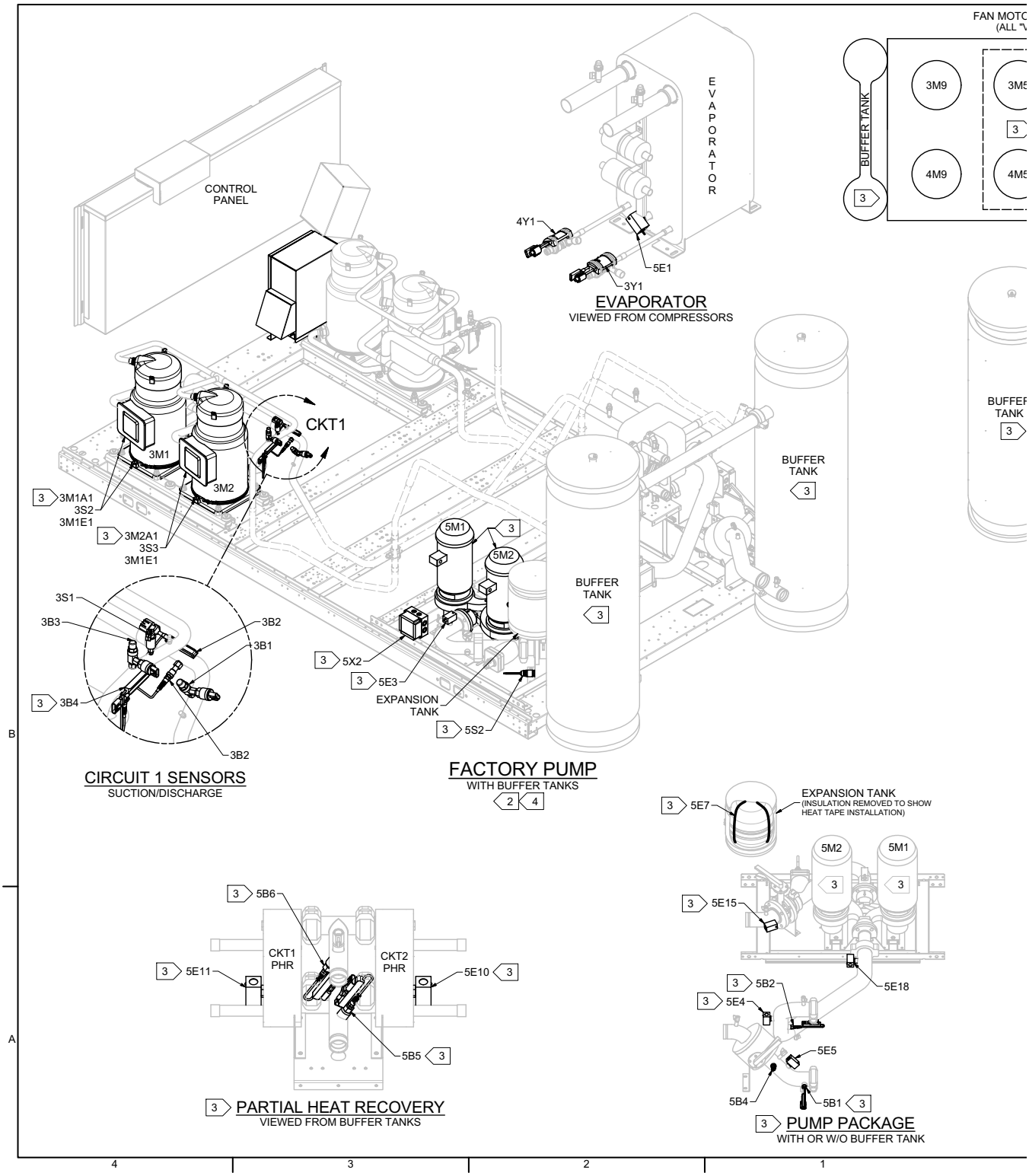


DETAIL C
2SP FAN, WO VFD

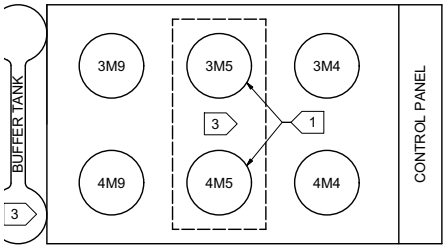
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETERS. TOLERANCE: X. = ± 5, X.X = ± 3,0, X.XX = ± 1,50, ANGLES = ± 1 °, HOLE DIA = +0,5 / -0,5, FINISH ✓, CONFORMS TO ASME Y14.5M - 1994	**TRANE** THIS DRAWING IS PROPRIETARY AND SHALL NOT BE COPIED OR ITS CONTENTS DISCLOSED TO OUTSIDE PARTIES WITHOUT THE WRITTEN CONSENT OF TRANE. DRAWN BY: J.Watts. © TRANE DATE: 24-APR-2009. DO NOT SCALE PRINT. THIRD ANGLE PROJECTION	57206469 SHEET 2 OF 2 REV F. DIAGRAM COMPONENT LOCATION CONTROL PANEL V UNIT



DETAIL C
WITH VFD


CONTROL PANEL
EVAPORATOR
4Y1
5E1
3Y1
EVAPORATOR
VIEWED FROM COMPRESSORS
FAN MOTO
(ALL "V
BUFFER TANK
3M9
4M9
3
CKT1
3M1
3M2
3M1A1
3S2
3M1E1
3M2A1
3S3
3M1E1
BUFFER TANK
5M1
5M2
3S1
3B3
3B2
3B1
3B4
3B2
3X2
5E3
EXPANSION TANK
5S2
CIRCUIT 1 SENSORS
SUCTION/DISCHARGE
FACTORY PUMP
WITH BUFFER TANKS
2
4
5B6
CKT1 PHR
CKT2 PHR
5E11
5E10
5B5
PARTIAL HEAT RECOVERY
VIEWED FROM BUFFER TANKS
5E7
EXPANSION TANK
(INSULATION REMOVED TO SHOW HEAT TAPE INSTALLATION)
5E15
5E18
5B2
5E4
5E5
5B4
5B1
PUMP PACKAGE
WITH OR W/O BUFFER TANK
B
A
4
3
2
1

FAN MOTOR LOCATIONS
(ALL "V" FRAMES)



UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETERS. TOLERANCE:
X, = ±
X,X = ±
X,XX = ±
ANGLES = ± ° HOLE DIA = +/-
FINISH √
CONFORMS TO ASME Y14.5M - 1994

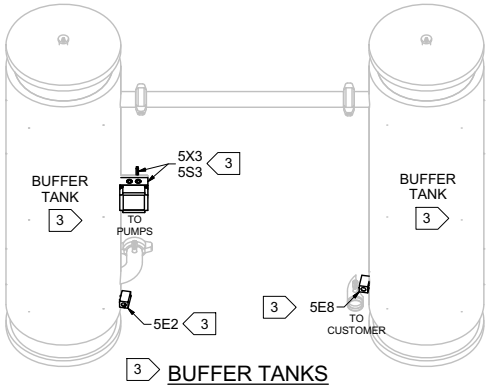
TRANE

DRAWN BY: A. BAHL
© TRANE DATE: 13-MAR-2008
DO NOT SCALE PRINT
THIRD ANGLE PROJECTION

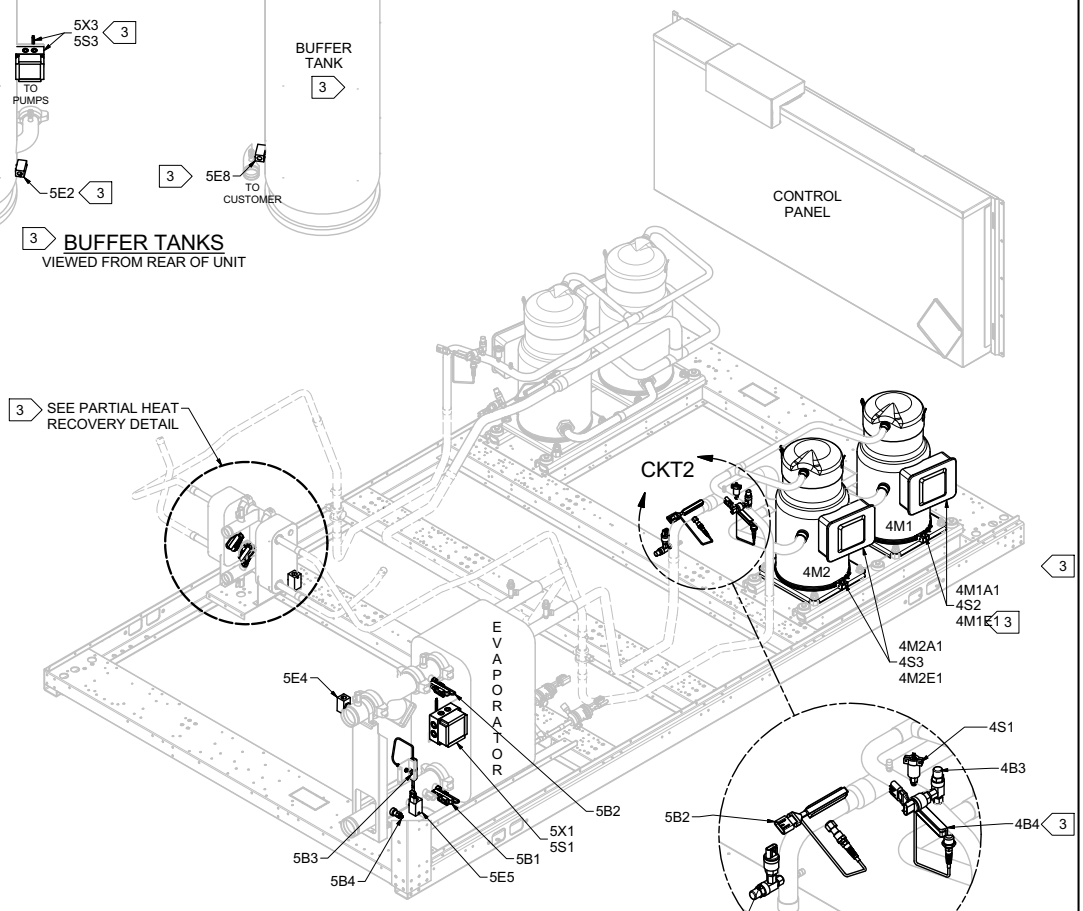
57206498 SHEET 1 OF 1 REV D

ASSEMBLY
DEVICE LOCATION
SENSOR AND CH530
CGAM, V UNIT

NOTES:
1. REMOVE 3M5 & 4M5 ON UNITS WITH 2-FANS PER CIRCUIT.
2. NOT ALL POSSIBLE UNIT/FRAME CONFIGURATIONS SHOWN. SENSOR/DEVICE LOCATIONS MAY VARY BY FRAME SIZE AND AVAILABLE OPTIONS CHOSEN.
3. OPTIONAL COMPONENT - CHECK MODEL NUMBER TO DETERMINE IF USED OR NOT.
4. SOME ITEMS, PIPING, BRACKETS & HANGERS ETC. HAVE BEEN REMOVED FOR CLARITY.

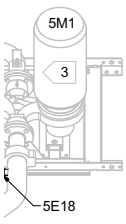


3 BUFFER TANKS
VIEWED FROM REAR OF UNIT



FIELD PUMP
2 4

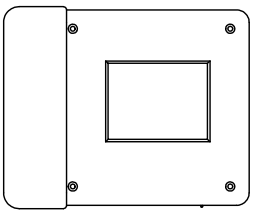
CIRCUIT 2 SENSORS
SUCTION/DISCHARGE



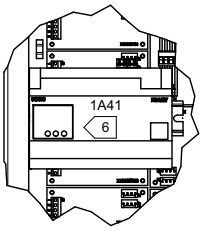
N TANK
REMOVED TO SHOW
STALLATION)

3
ACKAGE
BUFFER TANK

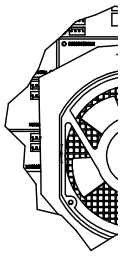
NOTES
1. COMPONENT 1X1 WILL REPLACE 1Q1 WHEN TERMINAL BLOCK OPTION IS SELECTED.
2. COMPONENTS 1M1 AND 1S1 ARE USED ONLY WHEN THE VENTILATED PANEL IS REQUIRED.
3. COMPONENT 1T2 AND 1T3 IS USED ONLY WHEN THE 575V OPTION IS SELECTED.
4. POWER WIRE AND CONTROL HARNESS NOT SHOWN.
5. 1A15 LCI MODULE (COMM = LCI) USE BASED ON CONFIGURATION.
6. 1A41 BACNET MODULE (COMM = BCNT) USE BASED ON CONFIGURATION.



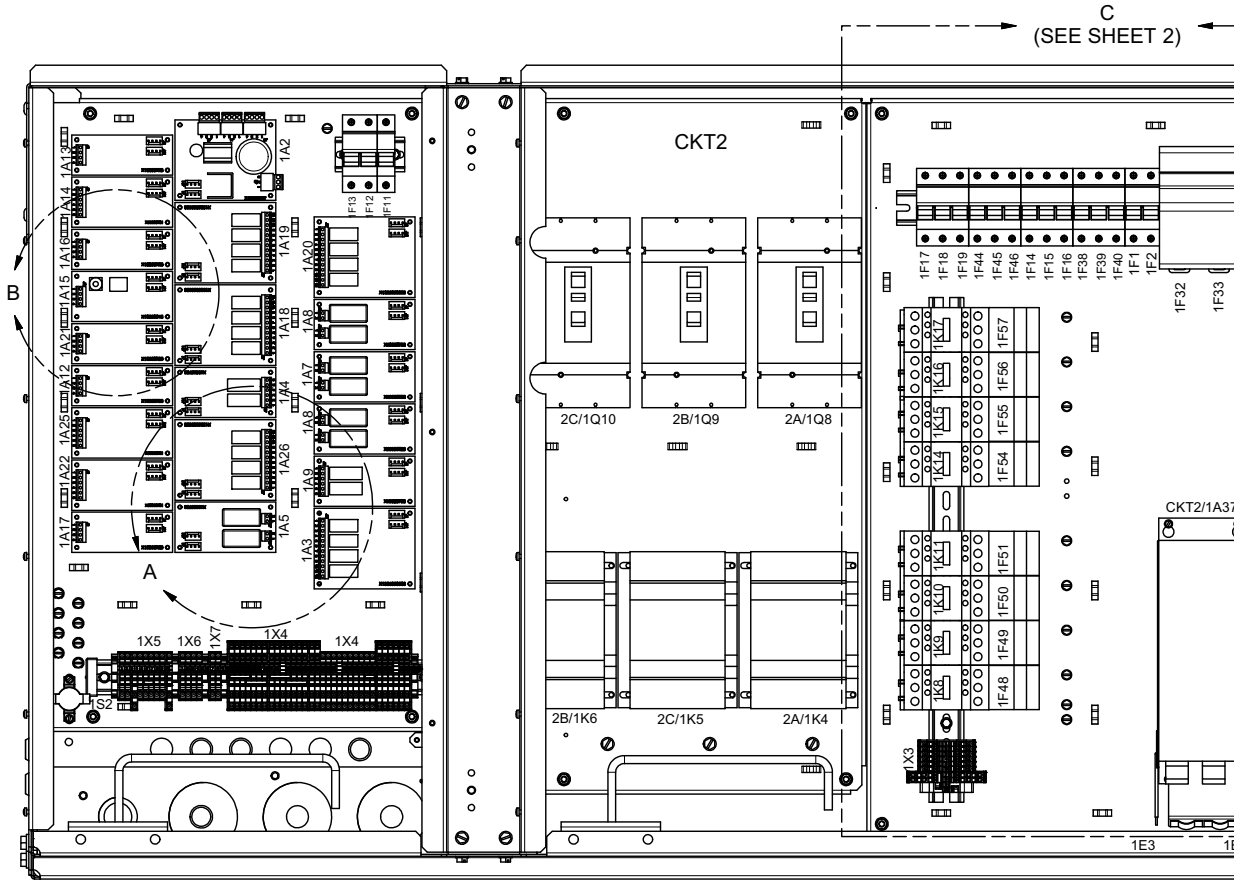
1A1
DYNAVIEW MOUNTED ABOVE
CONTROL PANEL ON UNIT FRAME



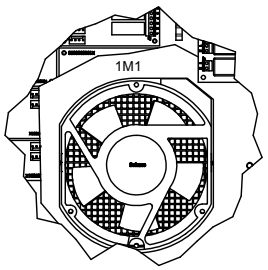
DETAIL B
(1A41 BACnet MODULE SHOWN
1A15 LCI MODULE REMOVED)



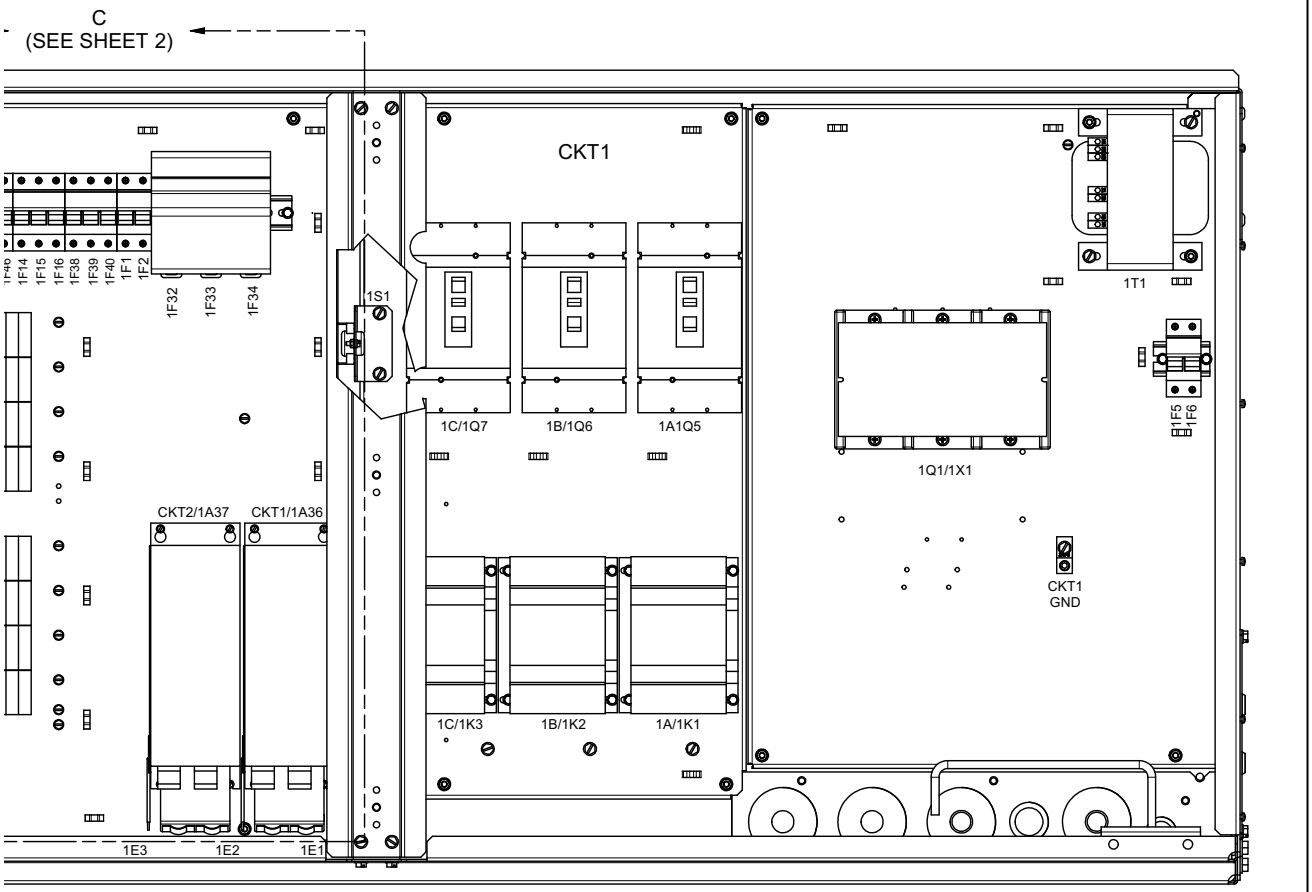
DE
(FAN LOCATE



UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETERS. TOLERANCE: X, = ± 3 X,X = ± 1,5 FINISH ✓ X,XX = ± 0,08 ANGLES = ± 1 ° HOLE DIA = +0,5 / -0,5 CONFORMS TO ASME Y14.5M - 1994	**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: J. WATTS © TRANE DATE: 24-APR-2008 DO NOT SCALE PRINT THIRD ANGLE PROJECTION	57206470 SHEET 1 OF 2 REV F DIAGRAM COMPONENT LOCATION CONTROL PANEL W UNIT	

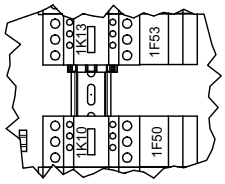


DETAIL A 3
(FAN LOCATED BEHIND PANEL)

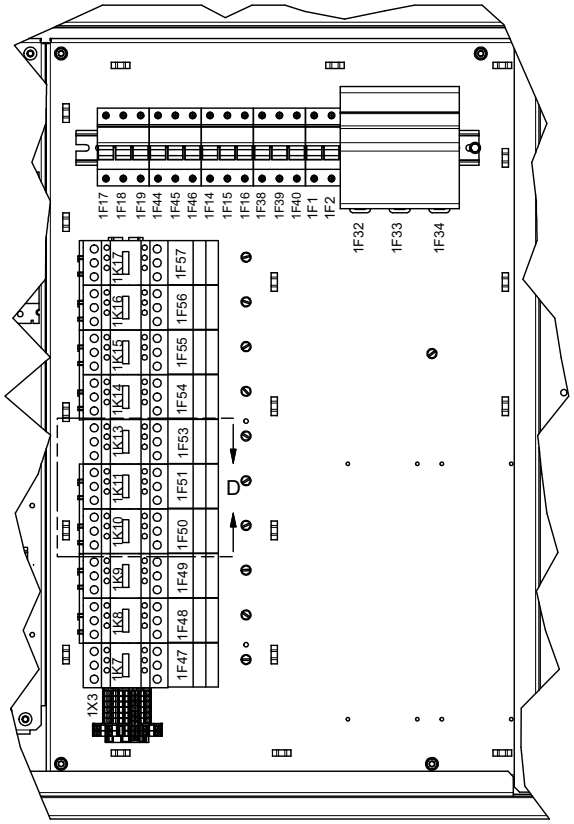


)FF (WITH VENTILATED PANEL)

4 3 2 1

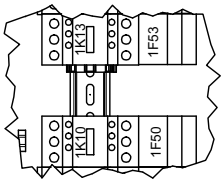


DETAIL D
WO VFD 1 SP, 4 FANS/CKT

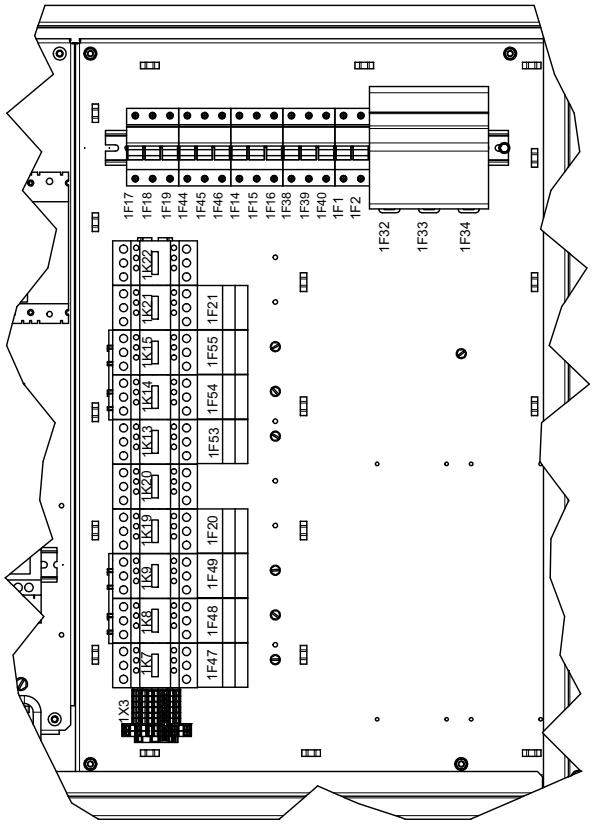


DETAIL C
WO VFD 1SP, 4 OR 5 FANS/CKT

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETERS. TOLERANCE: X, = ± 3; X,X = ± 1,5; X,XX = ± 0,08; ANGLES = ± 1°; HOLE DIA = +0,5 / -0,5; FINISH ✓; CONFORMS TO ASME Y14.5M - 1994	**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: J. WATTS © TRANE DATE: 24-APR-2008. DO NOT SCALE PRINT. THIRD ANGLE PROJECTION	57206470 SHEET 2 OF 2 REV F. DIAGRAM COMPONENT LOCATION CONTROL PANEL W UNIT

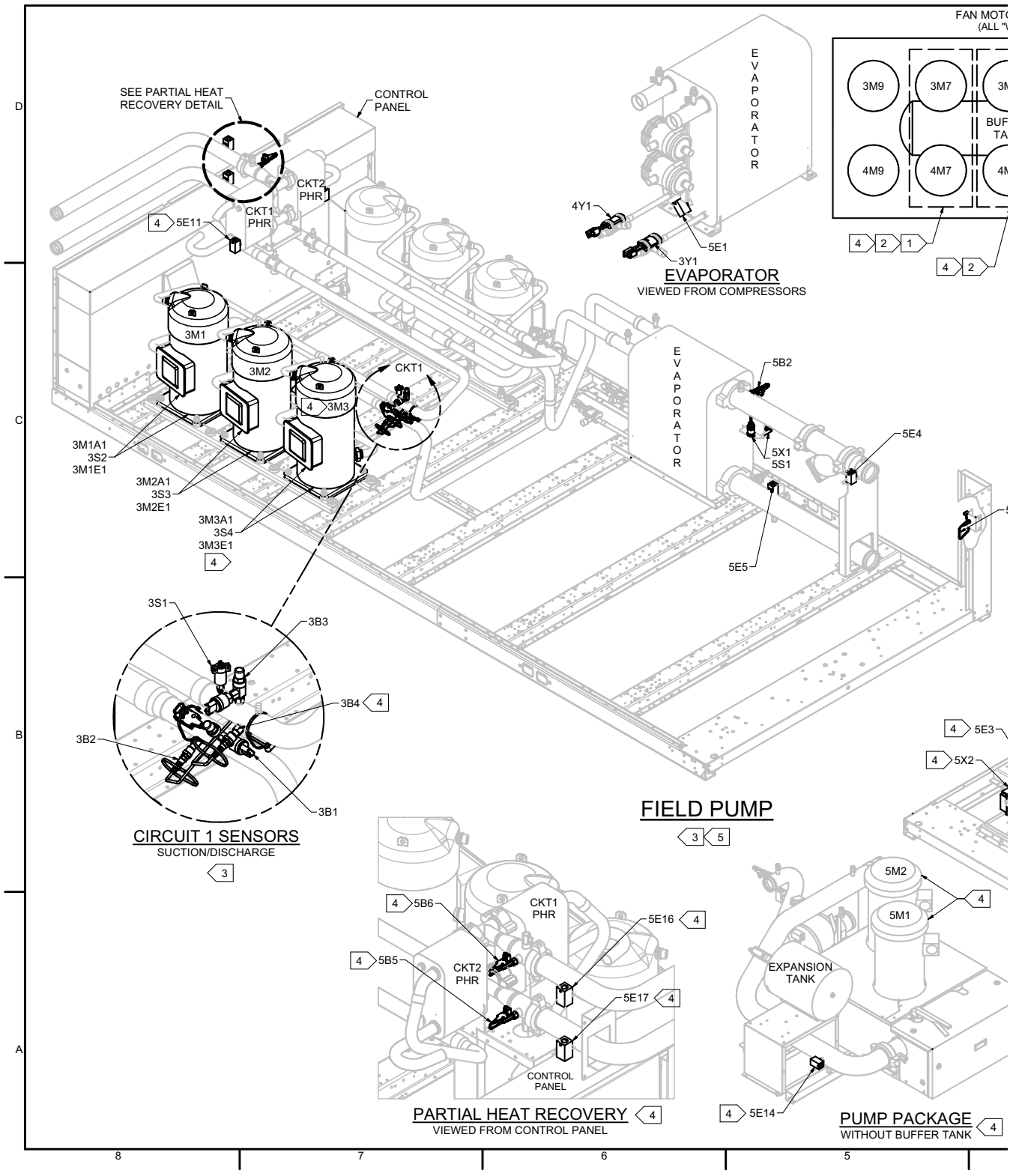


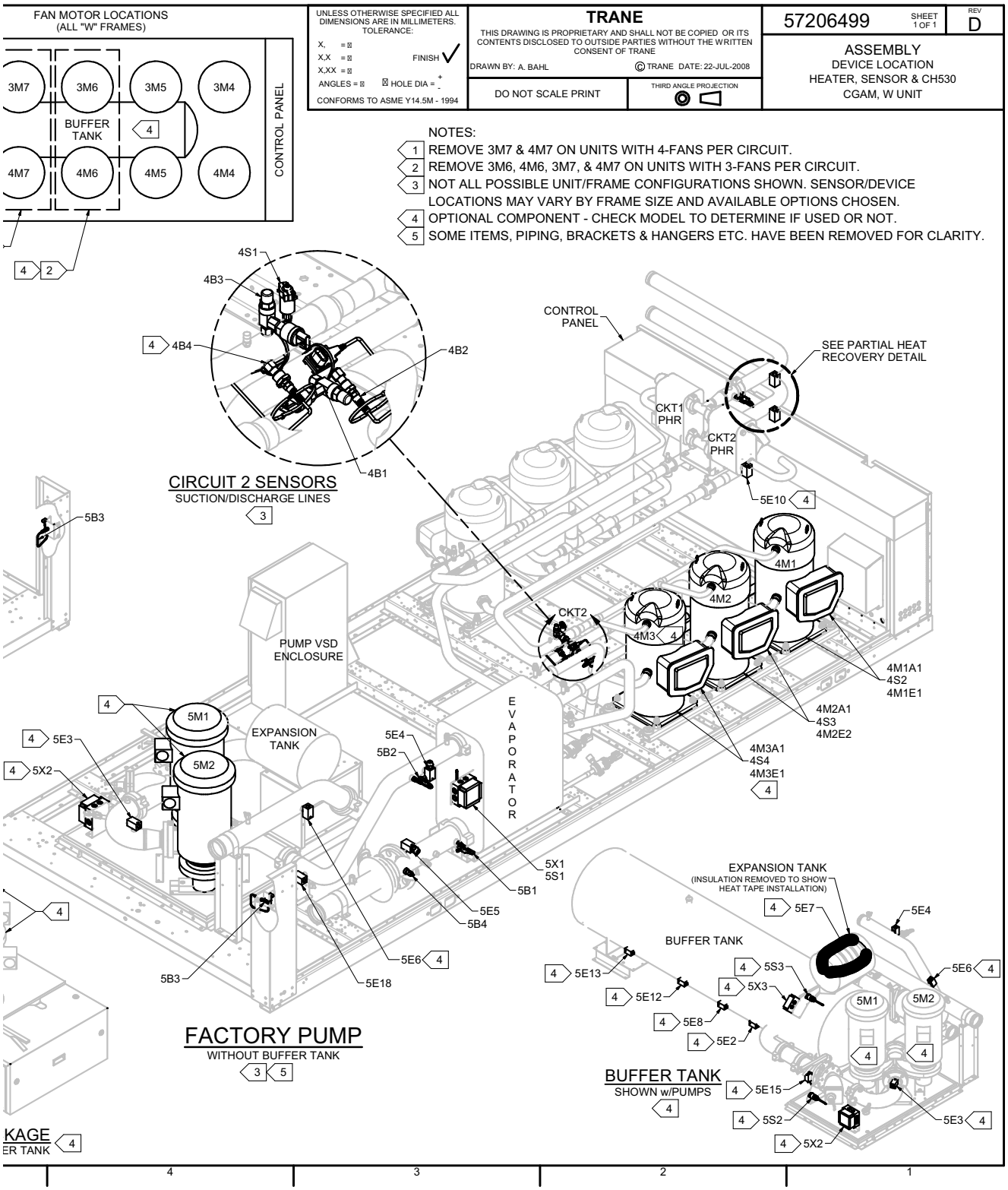
DETAIL D
WO VFD 1 SP, 4 FANS/CKT



DETAIL C
WO VFD 2SP, 3 FANS/CKT

4 | 3 | 2 | 1


SEE PARTIAL HEAT RECOVERY DETAIL
CONTROL PANEL
CKT2 PHR
CKT1 PHR
4 5E11
EVAPORATOR
4Y1
5E1
3Y1
EVAPORATOR
VIEWED FROM COMPRESSORS
FAN MOTO
(ALL "
3M9
3M7
4M9
4M7
BUF
TA
4 2 1
4 2
3M1
3M2
4 3M3
CKT1
3M1A1
3S2
3M1E1
3M2A1
3S3
3M2E1
3M3A1
3S4
3M3E1
4
EVAPORATOR
5B2
5X1
5S1
5E4
5E5
3S1
3B3
3B4 4
3B2
3B1
CIRCUIT 1 SENSORS
SUCTION/DISCHARGE
3
FIELD PUMP
3 5
4 5E3
4 5X2
4 5B6
CKT1 PHR
5E16 4
4 5B5
CKT2 PHR
5E17 4
CONTROL PANEL
PARTIAL HEAT RECOVERY 4
VIEWED FROM CONTROL PANEL
5M2
5M1
4
EXPANSION TANK
4 5E14
PUMP PACKAGE 4
WITHOUT BUFFER TANK
D
C
B
A
8
7
6
5


FAN MOTOR LOCATIONS
(ALL "W" FRAMES)
3M7
3M6
3M5
3M4
BUFFER TANK
4
4M7
4M6
4M5
4M4
CONTROL PANEL
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETERS. TOLERANCE:
X, = ⊠
X.X = ⊠
X.XX = ⊠
ANGLES = ⊠
FINISH
⊠ HOLE DIA = + -
CONFORMS TO ASME Y14.5M - 1994
TRANE
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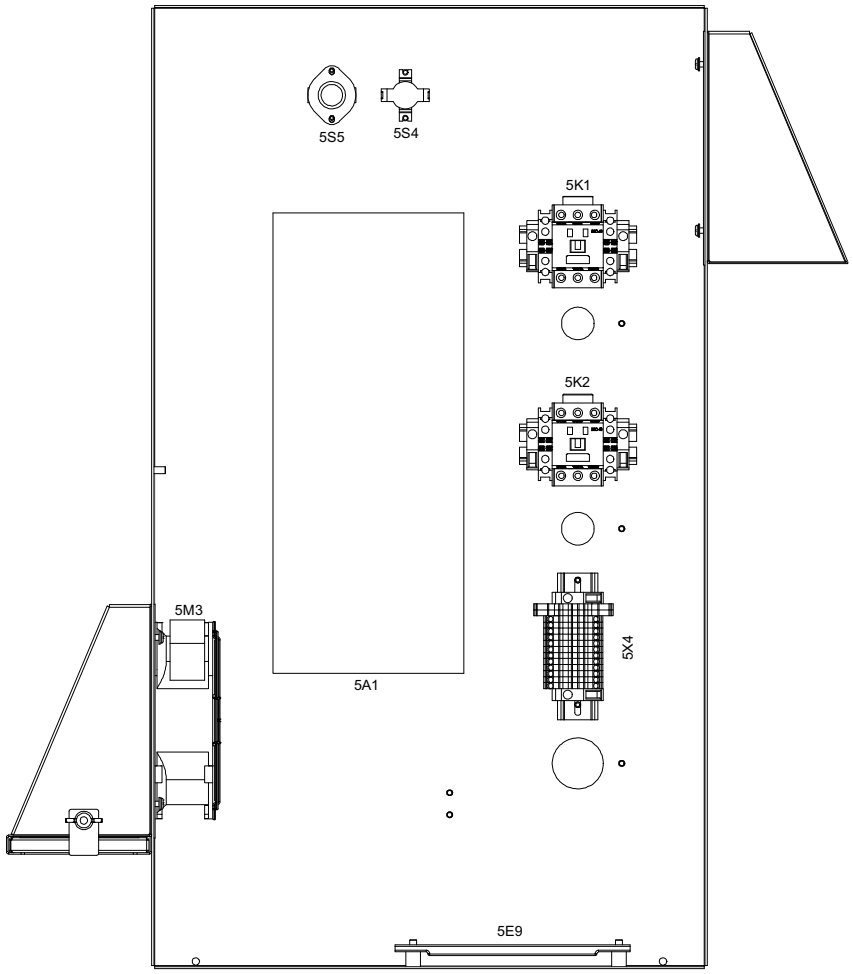
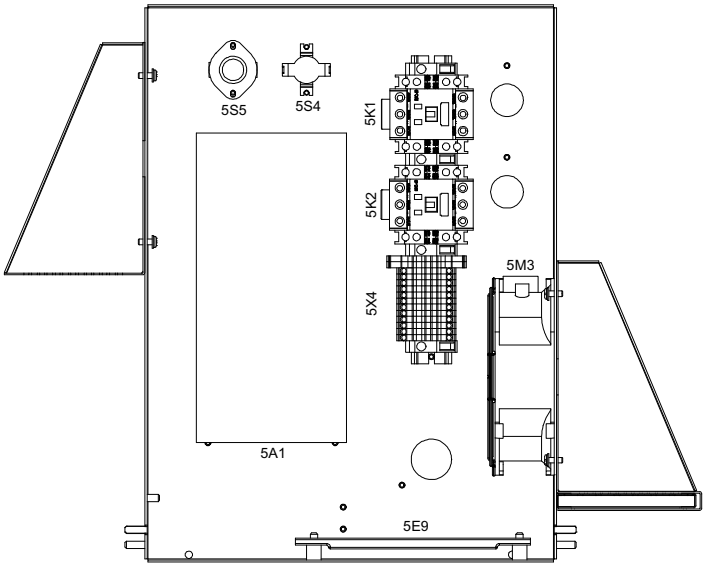
DRAWN BY: A. BAHL
© TRANE DATE: 22-JUL-2008
DO NOT SCALE PRINT
THIRD ANGLE PROJECTION
57206499
SHEET 1 OF 1
REV D
ASSEMBLY
DEVICE LOCATION
HEATER, SENSOR & CH530
CGAM, W UNIT
NOTES:
1 REMOVE 3M7 & 4M7 ON UNITS WITH 4-FANS PER CIRCUIT.
2 REMOVE 3M6, 4M6, 3M7, & 4M7 ON UNITS WITH 3-FANS PER CIRCUIT.
3 NOT ALL POSSIBLE UNIT/FRAME CONFIGURATIONS SHOWN. SENSOR/DEVICE LOCATIONS MAY VARY BY FRAME SIZE AND AVAILABLE OPTIONS CHOSEN.
4 OPTIONAL COMPONENT - CHECK MODEL TO DETERMINE IF USED OR NOT.
5 SOME ITEMS, PIPING, BRACKETS & HANGERS ETC. HAVE BEEN REMOVED FOR CLARITY.
4S1
4B3
4B4
4B2
4B1
CIRCUIT 2 SENSORS
SUCTION/DISCHARGE LINES
3
CONTROL PANEL
SEE PARTIAL HEAT RECOVERY DETAIL
CKT1 PHR
CKT2 PHR
5E10
4M1
4M2
4M3
CKT2
4M1A1
4S2
4M1E1
4M2A1
4S3
4M2E2
4M3A1
4S4
4M3E1
5B3
PUMP VSD ENCLOSURE
EVAPORATOR
EXPANSION TANK
5M1
5M2
5E3
5X2
5E4
5B2
5X1
5S1
5B1
5E5
5B4
5E6
5E18
5B3
FACTORY PUMP
WITHOUT BUFFER TANK
3 5
EXPANSION TANK
(INSULATION REMOVED TO SHOW HEAT TAPE INSTALLATION)
5E7
5E4
BUFFER TANK
5E13
5S3
5X3
5E6
5E12
5E8
5E2
5M1
5M2
BUFFER TANK
SHOWN w/PUMPS
5E15
5S2
5X2
5E3
KAGE
ER TANK

NOTES
1. FACTORY PUMP OPTION FOR S & V UNITS WITH THE FOLLOWING;
   PTYP = DHHP & NTON = 20, 26, 30, 35, 40, 52, 60 OR 70.
2. FACTORY PUMP OPTION FOR W UNITS WITH THE FOLLOWING;
   PTYP = DHHP & NTON = 80, 90, 100, 110 120 OR 130.



VSD PUMP ENCLOSURE - LARGE 2
FACTORY PUMP ONLY OPTION FOR W UNITS

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETERS. TOLERANCE: X, = ± X,X = ± X,XX = ± ANGLES = ± FINISH ✓ HOLE DIA = +/- CONFORMS TO ASME Y14.5M - 1994	**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: J. WATTS © TRANE DATE: 23-SEP-2010	57224410 SHEET 1 OF 1	REV B
	DO NOT SCALE PRINT THIRD ANGLE PROJECTION	DIAGRAM COMPONENT LOCATION VSD PUMP ENCLOSURE S, V & W UNITS	



VSD PUMP ENCLOSURE - SMALL 1
FACTORY PUMP ONLY OPTION FOR S & V UNITS

4 3 2 1

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CGAM-SVE01B-EN 24 Apr 2013
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