

# CGAM

## 'V' Unit Drawing Package

### 40-70 Ton

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Component Location (Unit)		5720-6498 rev C
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		5720 6005 0100 rev C

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<small>THE QUALITY OF THE TRANE NAME IS A TRADEMARK OF TRANE COMPANY, INC. ALL RIGHTS RESERVED. © TRANE DATE: 30 NOV 2009</small>		
REPLACES:		
REVISION DATE: 19 MAR 2009		
SIMILAR TO:		
		SHEMATIC CGAM / CXAM TABLE OF CONTENTS V FRAME NORTH AMERICA PRODUCTION

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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	DYNAMVIEW MAIN PROCESSOR MODULE	678
1A2	POWER SUPPLY MODULE	689
1A3	COMPRESSOR MOTOR CONTROL, QUAD RELAY OUTPUT	387
1A5	HIGH PRESSURE CUTOUT, DUAL HIGH VOLTAGE BINARY INPUT	380
1A6	COMPRESSOR FAULT, 2A & 2B, DUAL HIGH VOLTAGE BINARY INPUT	405
1A7	COMPRESSOR FAULT, 1A & 1B, DUAL HIGH VOLTAGE BINARY INPUT	412
1A9	CHILLED WATER PUMP CONTROL, DUAL RELAY OUTPUT	617
1A12	CHILLED WATER PUMP FAULT, DUAL LOW VOLTAGE BINARY INPUT	609
1A13	EXTERNAL EMERGENCY STOP/AUTO STOP, DUAL LOW VOLTAGE BINARY INPUT	656
1A14	EXTERNAL CHILLER WATER SETPOINT DEMAND & LIMIT, ANALOG INPUT/OUTPUT	663
1A15	COMMUNICATION, LCI-C, DUAL LOW VOLTAGE BINARY INPUT	673
1A16	ICE MAKING CONTROL, DUAL LOW VOLTAGE BINARY INPUT	683
1A17	CHILLED WATER FLOW AND INTERLOCKS, DUAL LOW VOLTAGE BINARY INPUT	593
1A18	UNIT OPERATING STATUS, QUAD RELAY OUTPUT	704
1A19	CONDENSER FAN CONTROL CIRCUIT 1, QUAD RELAY OUTPUT	443 OR 477
1A20	CONDENSER FAN CONTROL CIRCUIT 2, QUAD RELAY OUTPUT	458 OR 490
1A21	FAN INVERT FAULT INPUT, DUAL LOW VOLTAGE BINARY INPUT	625
1A22	FAN VSD CONTROL, ANALOG INPUT/OUTPUT	633
1A25	PUMP VSD FREQUENCY, ANALOG INPUT/OUTPUT OR % CAPACITY	600
1A26	DUAL CHILLED WATER PUMP CONTROL WITH VSD, QUAD RELAY OUTPUT	345
1A36	VSD, CONDENSER FAN 2A, CIRCUIT 1	155
1A37	VSD, CONDENSER FAN 2A, CIRCUIT 2	227
1A38	RELAY, PHASE PROTECTION, CIRCUIT 1	26
1A41	BACNET COMMUNICATION INTERFACE FOR CHILLERS	692
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1E2	HEATER, BLANKET, 1A36	378
1E3	HEATER, BLANKET, 1A37	379
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1F11	FUSE, CONTROL POWER TRANSFORMER, SECONDARY, 115V	27
1F12-1F13	FUSE, CONTROL POWER TRANSFORMER, SECONDARY, 24V	26,27
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1F17-1F19	FUSE, FAN 2A, CIRCUIT 2	229,229,230
1F32-1F34	FUSE, VSD, PUMP	323,324,325
1F36-1F40	FUSE, FANS CIRCUIT 1	172
1F44-1F46	FUSE, FANS CIRCUIT 2	244
1K1	CONTACTOR, COMPRESSOR 1A, CIRCUIT 1	33,386
1K2	CONTACTOR, COMPRESSOR 1B, CIRCUIT 1	48,394
1K4	CONTACTOR, COMPRESSOR 2A, CIRCUIT 2	60
1K5	CONTACTOR, COMPRESSOR 2B, CIRCUIT 2	93,390
1K8	CONTACTOR, FAN 3M9	176,447,481
1K9	CONTACTOR, FAN 3M5	186,479
1K14	CONTACTOR, FAN 4M9	248,463,494
1K15	CONTACTOR, FAN 4M5	258,492
1M1	FAN, MAIN CONTROL PANEL VENTILATION	374
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1Q5	CIRCUIT BREAKER, COMPRESSOR, 3M1, CIRCUIT 1	33
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1T3	AUTOTRANSFORMER, FAN VSD, CIRCUIT 2	233
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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

LEGEND		
DEVICE DESIGNATION	DESCRIPTION	LINE NUMBER
REFRIGERATION CIRCUIT 1		
3B1	TRANSDUCER, SUCTION REFRIGERANT PRESSURE, CIRCUIT 1	682
3B2	SENSOR, SUCTION REFRIGERANT TEMPERATURE, CIRCUIT 1	684
3B3	TRANSDUCER, DISCHARGE REFRIGERANT PRESSURE, CIRCUIT 1	686
3B4	SENSOR, DISCHARGE REFRIGERANT TEMPERATURE, CIRCUIT 1	688
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	186
3M9	MOTOR, FAN, CIRCUIT 1	176
3S1	HIGH PRESSURE CUTOUT SWITCH, CIRCUIT 1	392
3S2	THERMOSTAT, COMPRESSOR 1A HEATER	39
3S3	THERMOSTAT, COMPRESSOR 1B HEATER	42
3Y1	EXPANSION VALVE, COOLING, CIRCUIT 1	690
REFRIGERATION CIRCUIT 2		
4B1	TRANSDUCER, SUCTION REFRIGERANT PRESSURE, CIRCUIT 2	682
4B2	SENSOR, SUCTION REFRIGERANT TEMPERATURE, CIRCUIT 2	684
4B3	TRANSDUCER, DISCHARGE REFRIGERANT PRESSURE, CIRCUIT 2	686
4B4	SENSOR, DISCHARGE REFRIGERANT TEMPERATURE, CIRCUIT 2	688
4M1	MOTOR, COMPRESSOR 2A, CIRCUIT 2	93
4M1A1	ELECTRONIC PROTECTION MODULE, COMPRESSOR 2A, CIRCUIT 2	95
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
4M4	MOTOR, FAN 1, CIRCUIT 2	228
4M5	MOTOR, FAN, CIRCUIT 2	258
4M9	MOTOR, FAN, CIRCUIT 2	248
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4S2	THERMOSTAT, COMPRESSOR 2A HEATER	99
4S3	THERMOSTAT, COMPRESSOR 2B HEATER	102
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5B2	SENSOR, EVAPORATOR ENTERING WATER TEMPERATURE	696
5B3	SENSOR, AMBIENT TEMPERATURE	698
5B4	SENSOR, WATER FLOW	588
5B5	SENSOR, HEAT RECOVERY ENTERING WATER TEMP	695
5B6	SENSOR, HEAT RECOVERY LEAVING WATER TEMP	697
5E1	HEATER, EVAPORATOR	731
5E2	HEATER, BUFFER TANK	781
5E3	HEATER, WATER PUMP PIPING	768
5E4,5E18	HEATER, EVAPORATOR ENTERING WATER PIPING	737,743
5E5,5E19	HEATER, EVAPORATOR LEAVING WATER PIPING	734,740
5E6	HEATER, WATER PUMP PIPING	746
5E7	HEATER, EXPANSION TANK	774
5E8	HEATER, BUFFER TANK	784
5E9	HEATER, PUMP VSD ENCLOSURE	355
5E10	HEATER, PARTIAL HEAT RECOVERY	754
5E11	HEATER, PARTIAL HEAT RECOVERY	757
5E12	HEATER, BUFFER TANK	787
5E13	HEATER, BUFFER TANK	790
5E14	HEATER, WATER PUMP PIPING	749
5E15	HEATER, WATER PUMP PIPING	771
5E16	HEATER, PARTIAL HEAT RECOVERY	760
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5M2	MOTOR, FACTORY PROVIDED, CHILLED WATER PUMP 2	334
5M3	MOTOR, FAN PUMP VSD ENCLOSURE VENTILATION	356
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	731
5S2	THERMOSTAT, PUMP PACKAGE, HEATERS	768
5S3	THERMOSTAT, BUFFER TANK, HEATERS	781
5S4	THERMOSTAT, PUMP VSD AUXILIARY PANEL HEATER	356
5S5	THERMOSTAT, PUMP VSD AUXILIARY PANEL FAN	356
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6K4	RELAY, EXTERNAL INPUT, AUTO/STOP	657
6K5	RELAY, EXTERNAL INPUT, EMERGENCY STOP	659
6K6	RELAY, EXTERNAL INPUT, ENABLE ICE MAKING	684
6K8-15	RELAY, CUSTOMER PROVIDED, UNIT STATUS, (PROGRAMMABLE)	706 TO 716
6M1	MOTOR, CUSTOMER PROVIDED, CHILLED WATER PUMP 1	301
6M2	MOTOR, CUSTOMER PROVIDED, CHILLED WATER PUMP 2	306
6Q1	FUSED DISCONNECT CUSTOMER SUPPLIED 3 PHASE, POWER SUPPLY	3,292
6Q3-6Q4	FUSED DISCONNECT CUSTOMER SUPPLIED 3 PHASE, CHILLED WATER PUMP	301,306
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6Q6	FUSED DISCONNECT CUSTOMER SUPPLIED 1 PHASE, CONTROL POWER SUPPLY	702

# GENERAL & FLAG NOTES

TRANE <small>THIS DRAWING IS UNLESS OTHERWISE NOTED BE POWERED BY THE                  COMPANY'S STANDARD 120VAC, 60 HZ, 1 PHASE, 1Ø WIRING                  DRAWN BY A. ROBERTS © TRANE BAY, 20 NOV 2008</small>	2309-2075 SHEET 3 OF 14 REV D
REPLACES: REVISION DATE: 18 MAR 2009 SIMILAR TO:	SCHEMATIC CGAM / CXAM NOTES V FRAME NORTH AMERICA PRODUCTION

## GENERAL NOTES:

1. UNLESS OTHERWISE NOTED, ALL SWITCHES ARE SHOWN AT 25°C (77°F), AT ATMOSPHERIC PRESSURE, AT 50% RELATIVE HUMIDITY, WITH ALL UTILITIES TURNED OFF, AND AFTER A NORMAL SHUTDOWN HAS OCCURRED.
2. DASHED LINES INDICATE RECOMMENDED FIELD WIRING BY OTHERS, DASHED LINE ENCLOSURES AND/OR DASHED 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 (15,16), (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 WDC)
- 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. (EVL=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 JUMPED 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.
- 26 PRESENT ON "W" FRAME UNITS NTON = 80, 90, 100, 100, 120 or 130.
- 27 NOT PRESENT ON "W" FRAME UNITS NTON = 80, 90.
- 28 DISCHARGE REFRIGERANT TEMPERATURE SENSOR PRESENT FOR ALL THE FOLLOWING OPTIONS:  
UNITS WITH ICEMAKING OPTION (EVL = ICE), UNITS WITH LOW TEMPERATURE PROCESS COOLING (EVL = PROC), UNITS WITH PHR FAN CONTROL OPTION (CDHR = PRTF).
- 29 REFER TO FIELD WIRING DIAGRAM FOR SUGGESTED WIRING.
- 30 JUMPERS W10 AND W11 ARE INSTALLED BY THE FACTORY ON UNITS ORDERED WITH FIELD PROVIDED PUMPS (PTYP = NONE). JUMPERS W10 AND W11 ARE TO BE REMOVED WHEN PUMPS AND CONTROL ARE INSTALLED.
- 31 FUSES 1F38, 1F39, 1F40 PRESENT ON ALL SLANT (NTON = 20, 26, 30 or 35) AND V (NTON = 40, 52, 60 or 70) CONFIGURATIONS. PRESENT FOR W (NTON = 80, 90, 100, 110, 120 or 130) CONFIGURATION WHEN LINE VOLTAGE IS 575VAC (VOLT = 575).
- 33 FUSES 1F44, 1F45, 1F46 PRESENT ON ALL V (NTON = 40, 52, 60 or 70) CONFIGURATIONS. PRESENT FOR W (NTON = 80, 90, 100, 110, 120 or 130) CONFIGURATION WHEN LINE VOLTAGE IS (VOLT = 575).
- 35 VENTILATION FAN PRESENT WHEN LINE (VOLT = 200, 230VAC, 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

**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 OUVRIER LES SECTIONNEURS A DISTANCE, PUIS SUIVRE LES PROCEDURES DE VERROUILLAGE ET DES ETIQUETTES AVANT TOUTE INTERVENTION. VERIFIER QUE TOUTS LES CONDENSATEURS DES MOTEURS SONT DECHARGES. DANS LE CAS D'UNITES COMPORTANT DES ENTRAINEMENTS A VITESSE VARIABLE, SE REPORTER AUX INSTRUCTIONS DE L'ENTRAINEMENT POUR DECHARGER LES CONDENSATEURS. NE PAS RESPECTER CES MESURES DE PRECAUTION PEUT ENTRAENER DES BLESSURES GRAVES POUVANT ETRE MORTELLES.

**ADVERTENCIA**  
¡VOLTAJE PELIGROSO!  
DESCONECTE TODA LA ENERGIA ELECTRICA, INCLUSO LAS DESCONECIONES REMOTAS Y SIGA LOS PROCEDIMIENTOS DE CIERRE Y ETIQUETADO ANTES DE PROCEDER AL SERVICIO. ASEGURESE DE QUE TODOS LOS CAPACITORES DEL MOTOR HAYAN DESCARGADO EL VOLTAJE ALMACENADO. PARA LAS UNIDADES CON TRANSMISION DE VELOCIDAD VARIABLE, CONSULTE LAS INSTRUCCIONES PARA LA DESCARGA DEL CONDENSADOR. EL NO REALIZAR LO ANTERIORMENTE INDICADO, PODRIA OCASIONAR LA MUERTE O SERIAS LESIONES PERSONALES.

TRANE  
2309-2075  
SCHEMATIC  
CGAM / CKAM  
COMPRESSOR POWER  
ACRYL FRAME  
NORTH AMERICA PRODUCTION

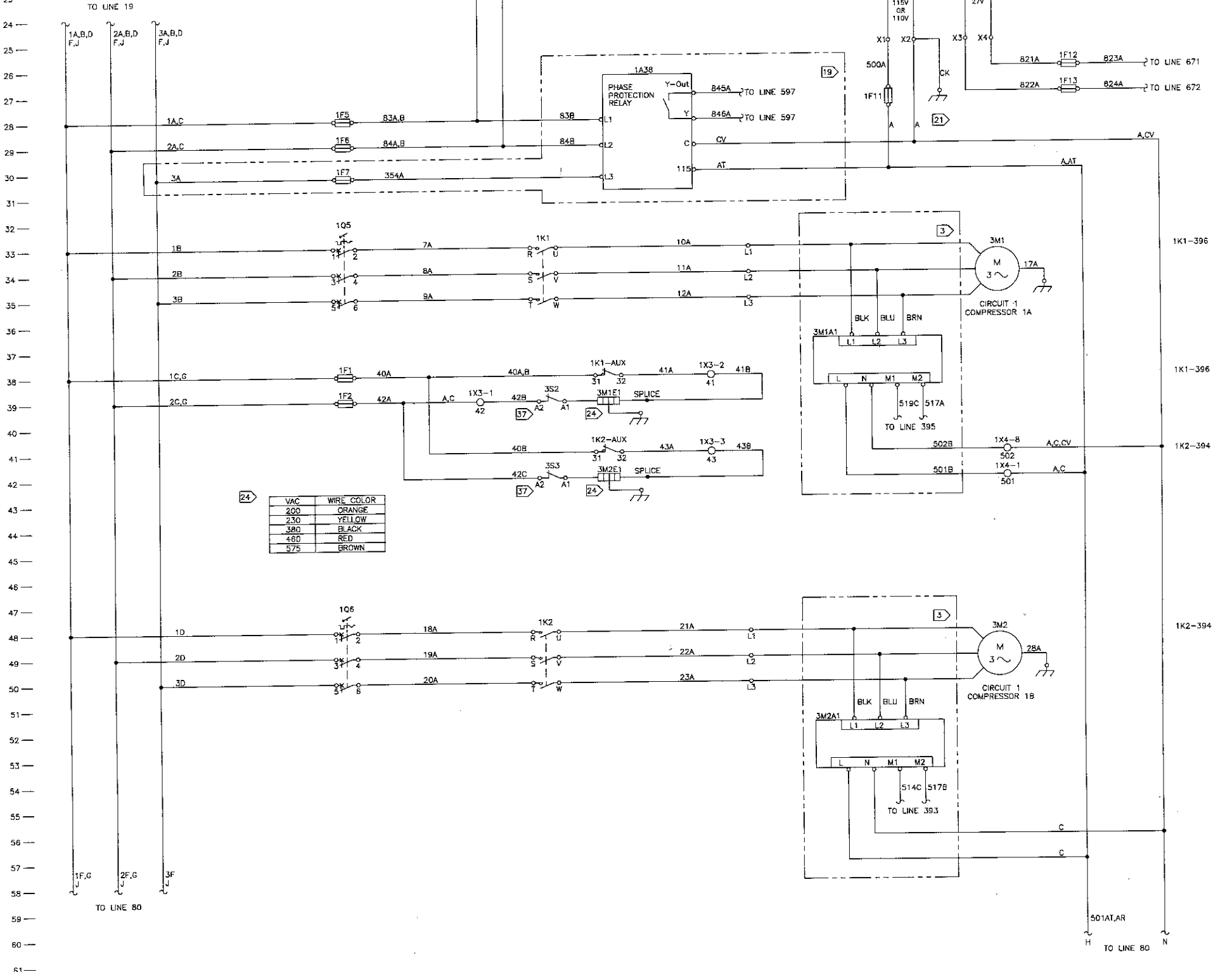
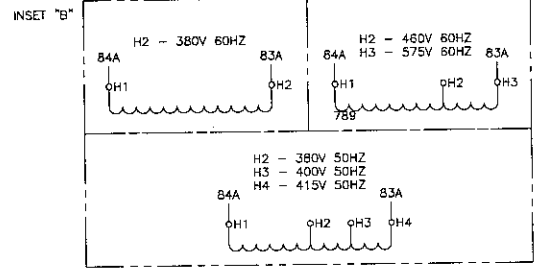
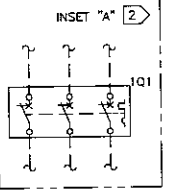
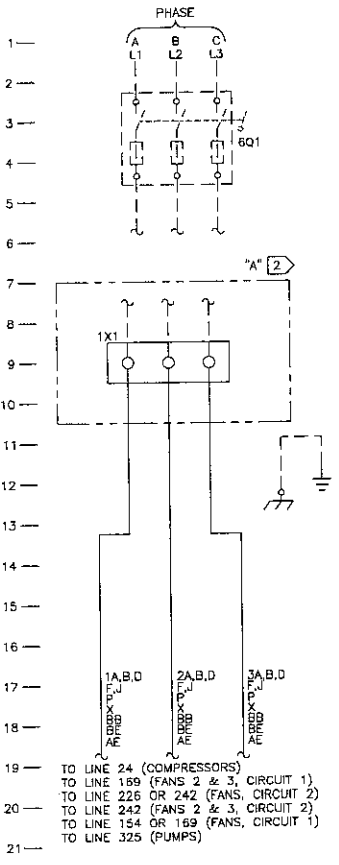
COMPRESSOR DECK CONFIGURATION

CIRCUIT #1

1B	1A
2B	2A

CIRCUIT #2

UNIT SIZE	1A	1B	2A	2B
40	10	10	10	10
52	13	13	13	13
60	15	15	15	15
70	15	20	20	15



24

VAC	WIRE COLOR
200	ORANGE
230	YELLOW
380	BLACK
460	RED
575	BROWN

**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.

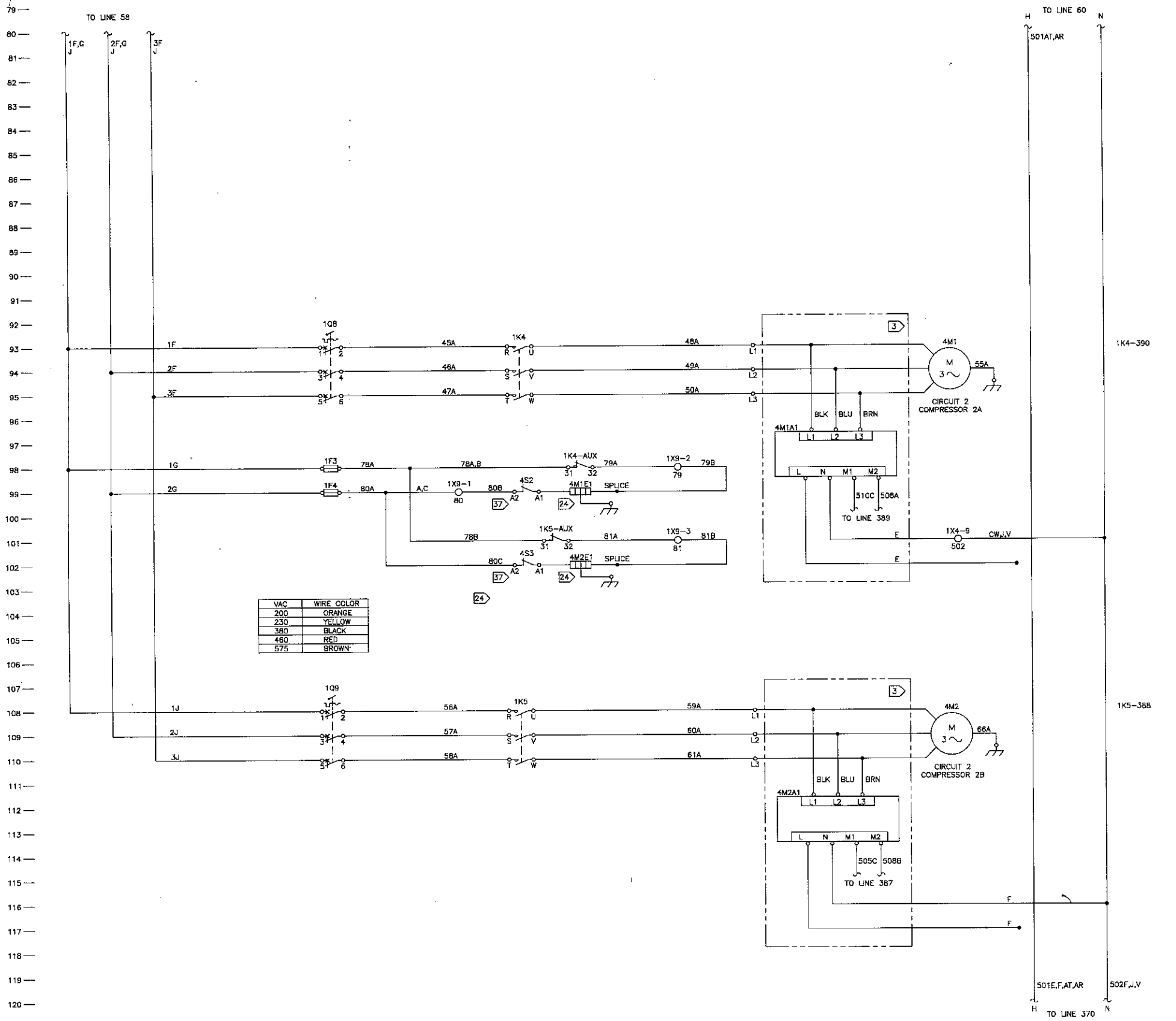
**AVIS**  
N'UTILISER QUE DES CONDUCTEURS EN CUIVRE!  
LES BORNES DE L'UNITÉ NE SONT PAS CONÇUES POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS.  
FAIRE DÉFAUT À LA PROCÉDURE CI-DESSUS PEUT ENTRAÎNER DES DOMMAGES À L'ÉQUIPEMENT.

**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.

**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**  
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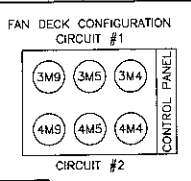
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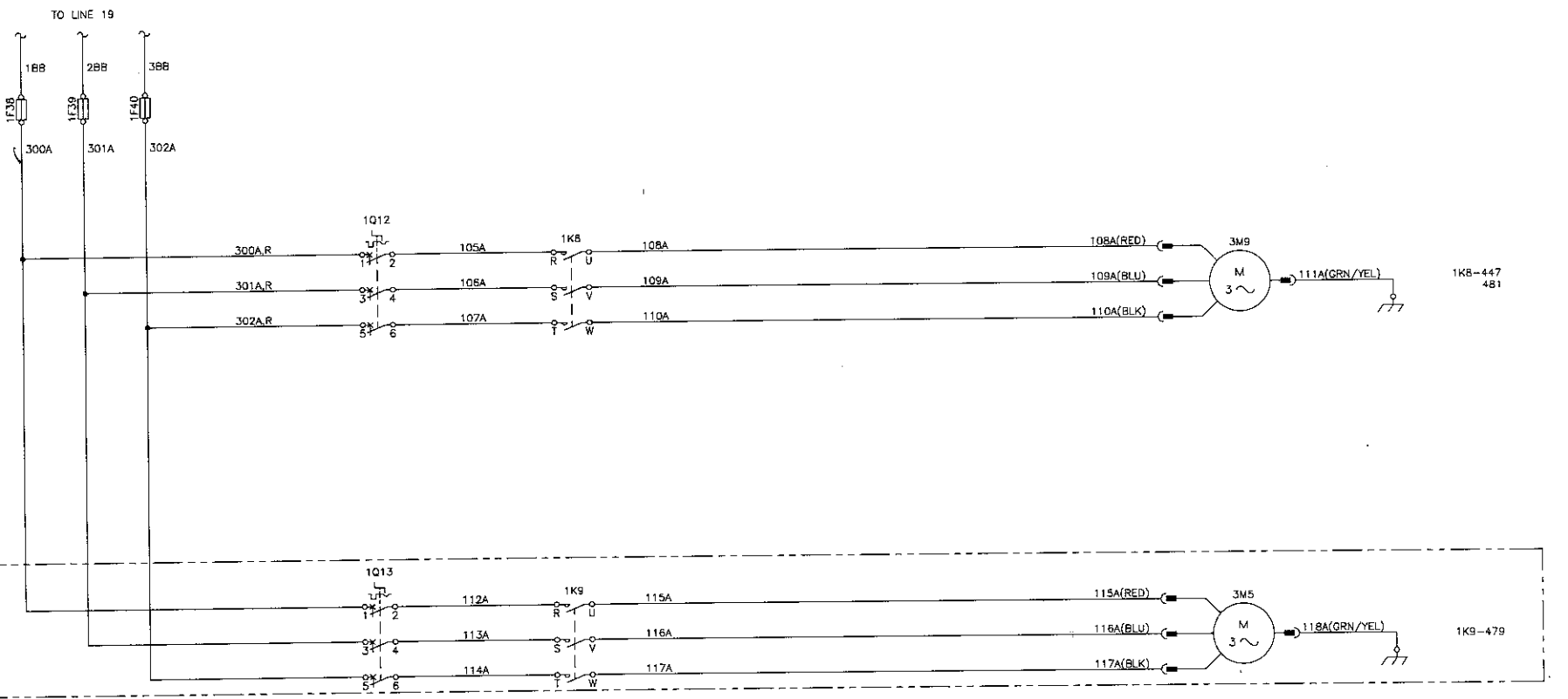
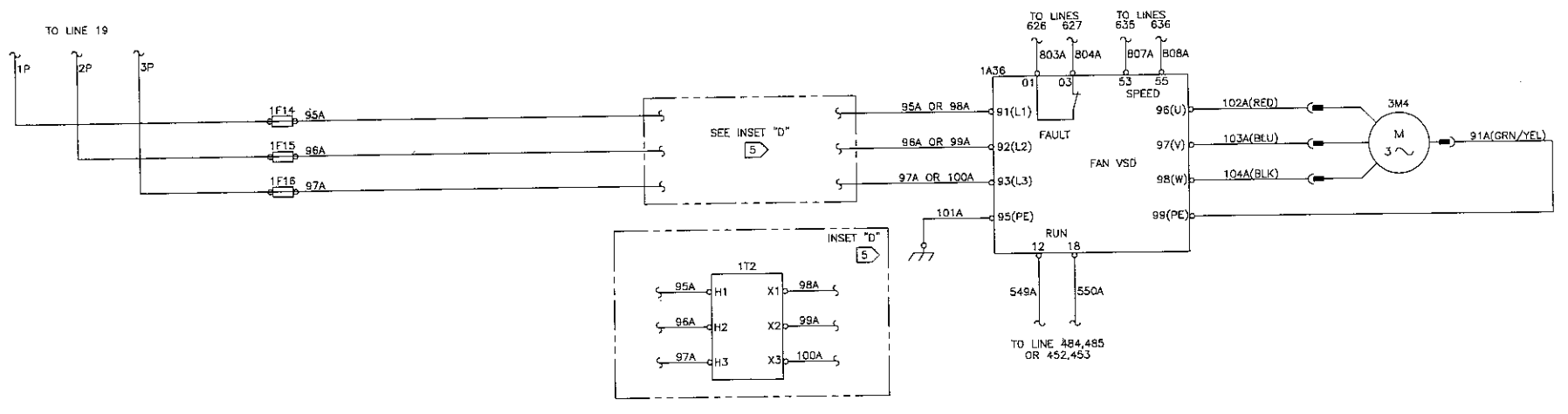
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	2 FANS	3 FANS
CIRCUIT 1	3M4,3M9	3M4,3M5,3M9
CIRCUIT 2	4M4,4M9	4M4,4M5,4M9



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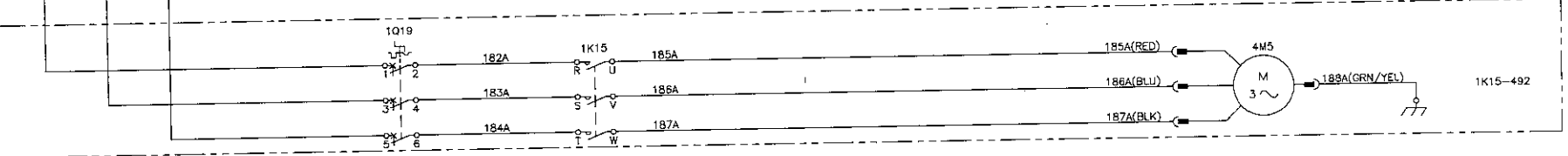
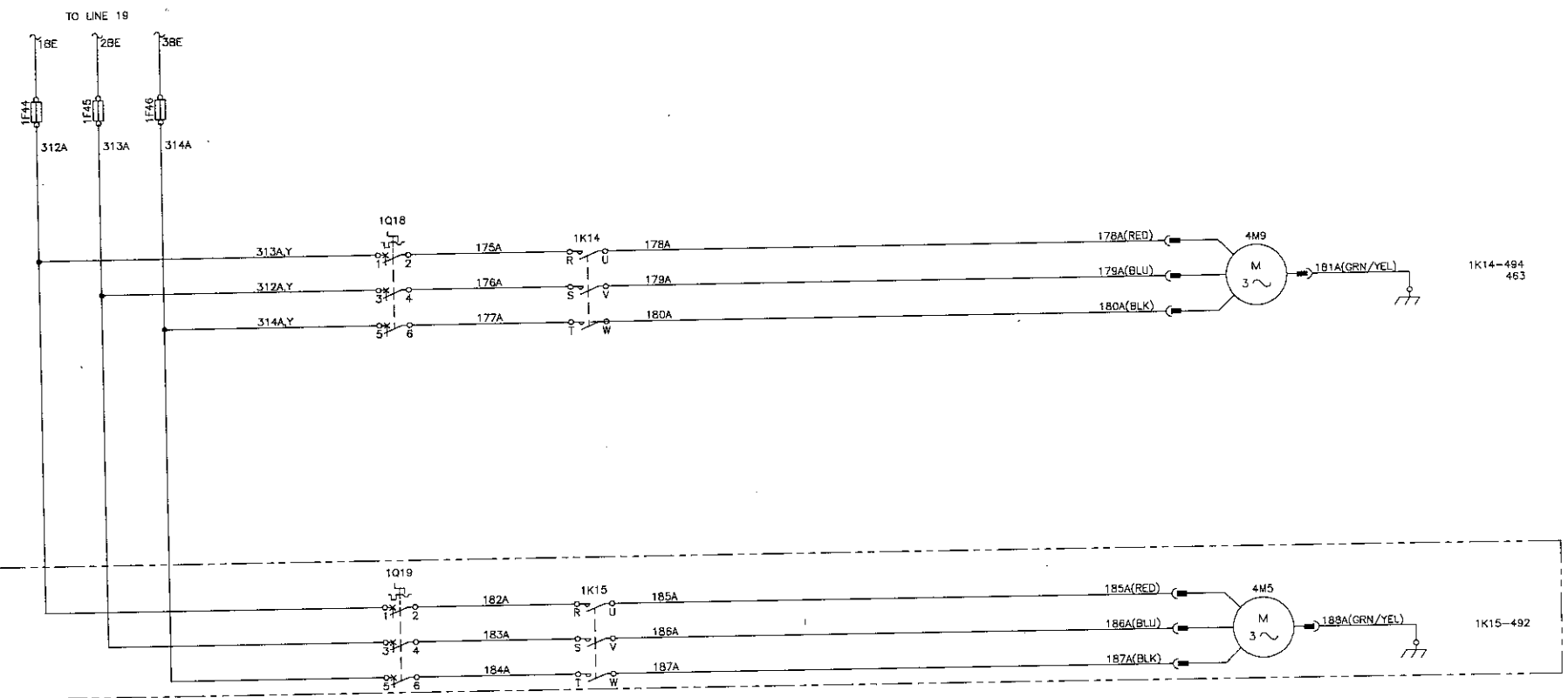
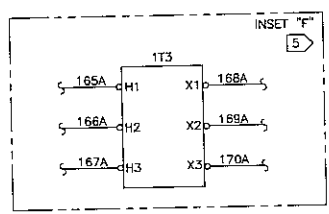
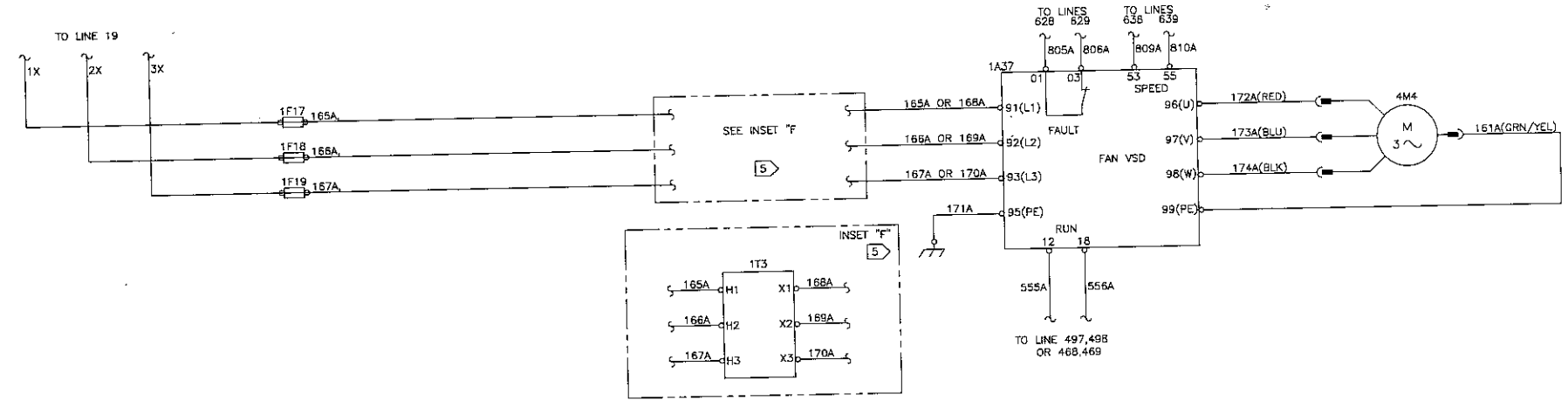
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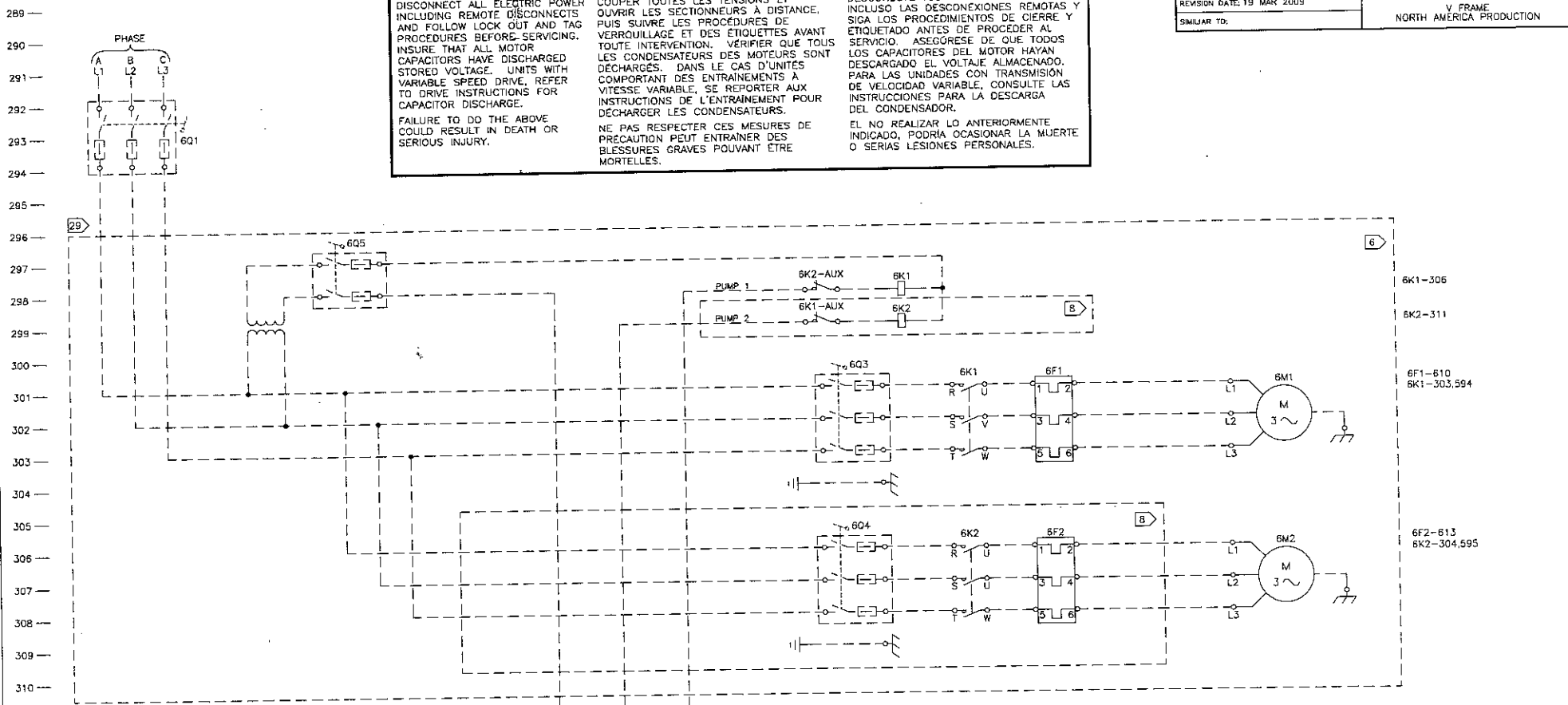
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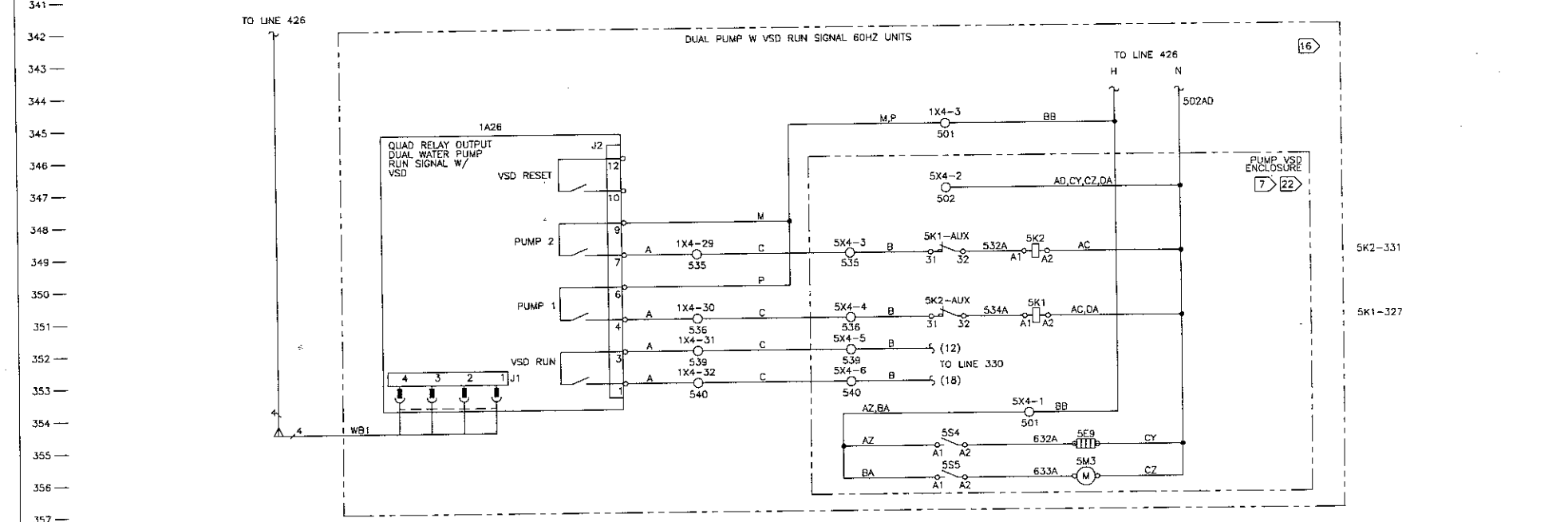
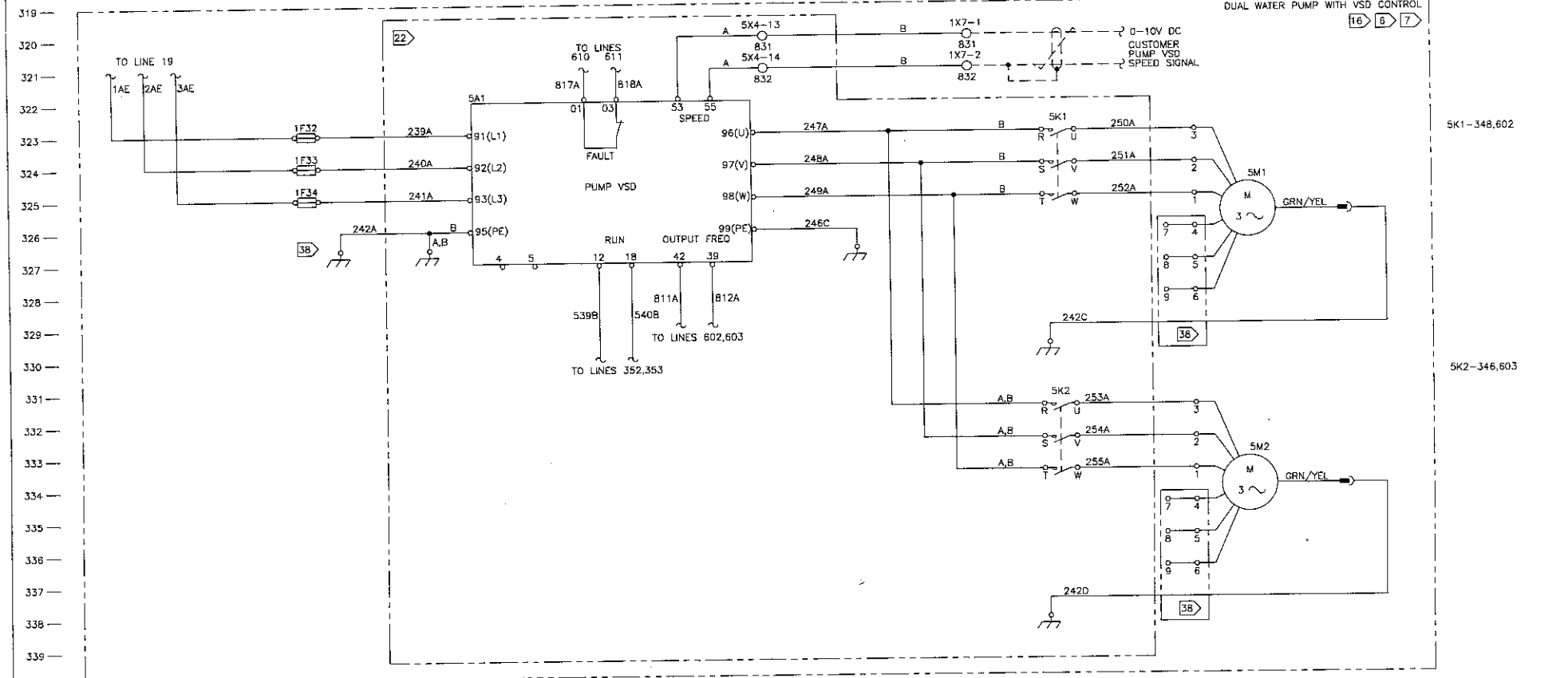
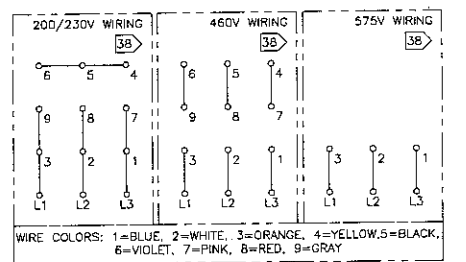
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 TRANE PUMP CONTROL MUST BE USED TO PROVIDE PUMP CONTROL. CHILLED WATER PUMP MUST BE CONTROLLED BY THE CHILLER OUTPUT. FAILURE TO COMPLY WITH THIS REQUIREMENT COULD RESULT IN DAMAGE TO THE UNIT.

5X4-3 535C TO LINE 618  
 5X4-4 536C TO LINE 619  
 TO LINE 621



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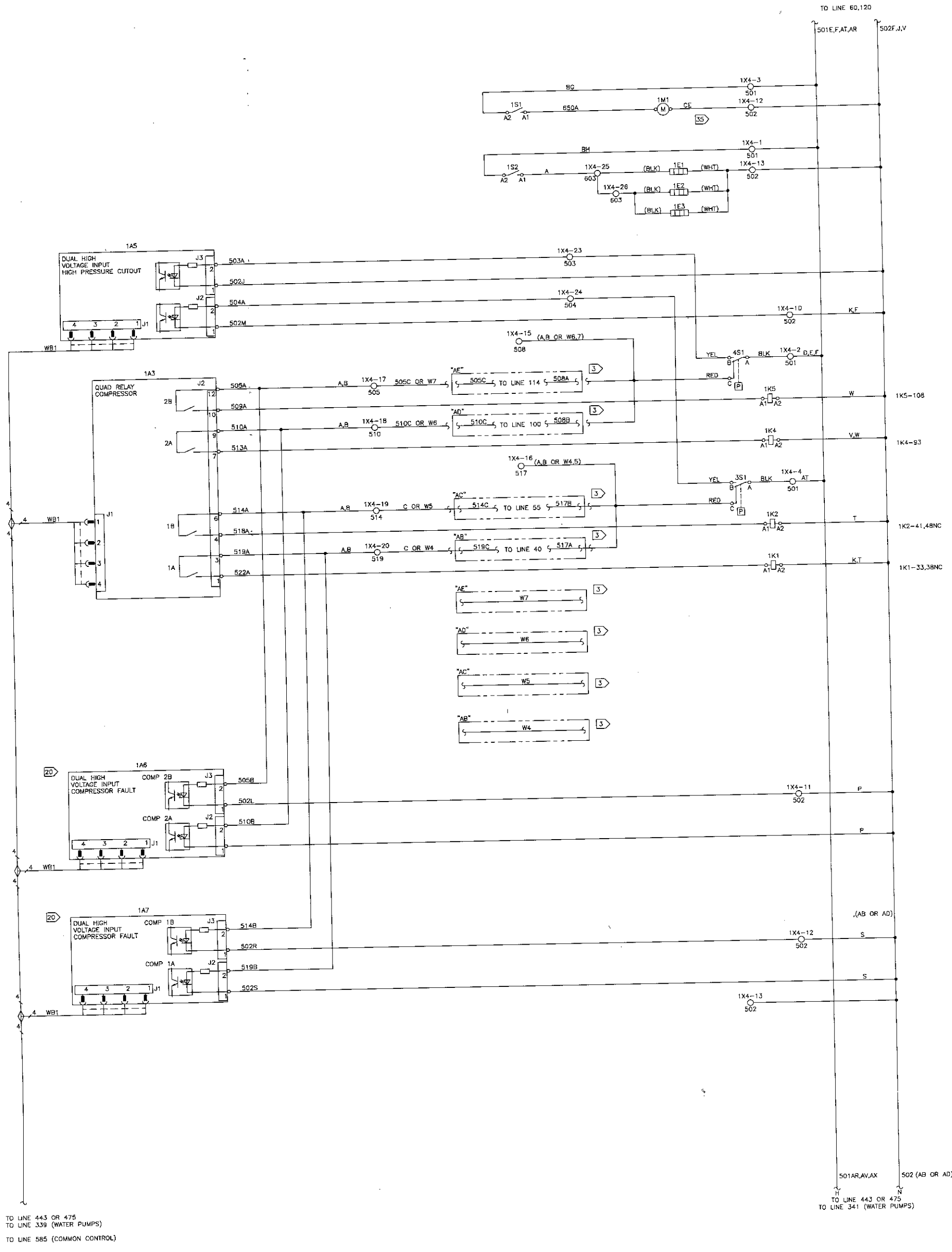
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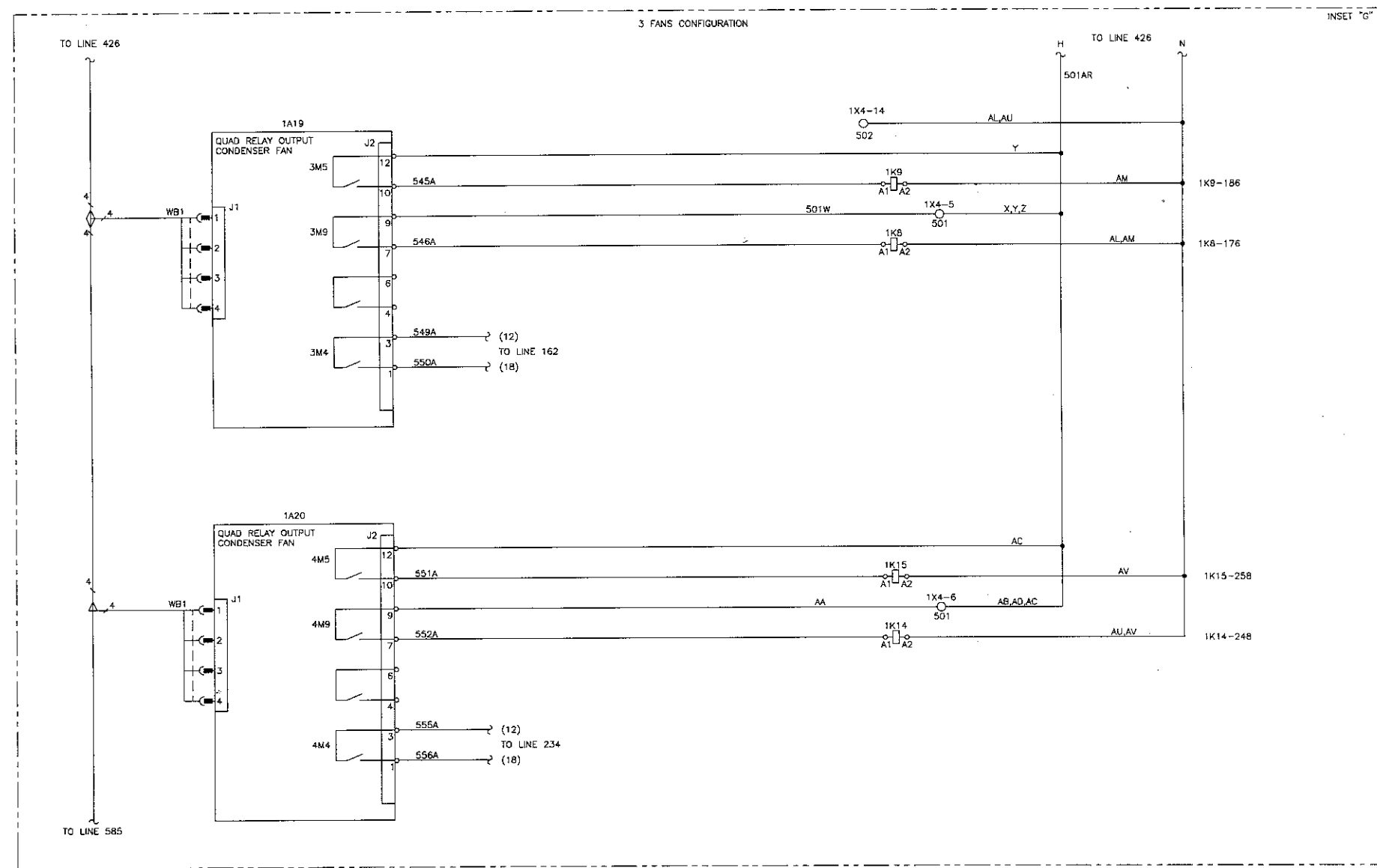
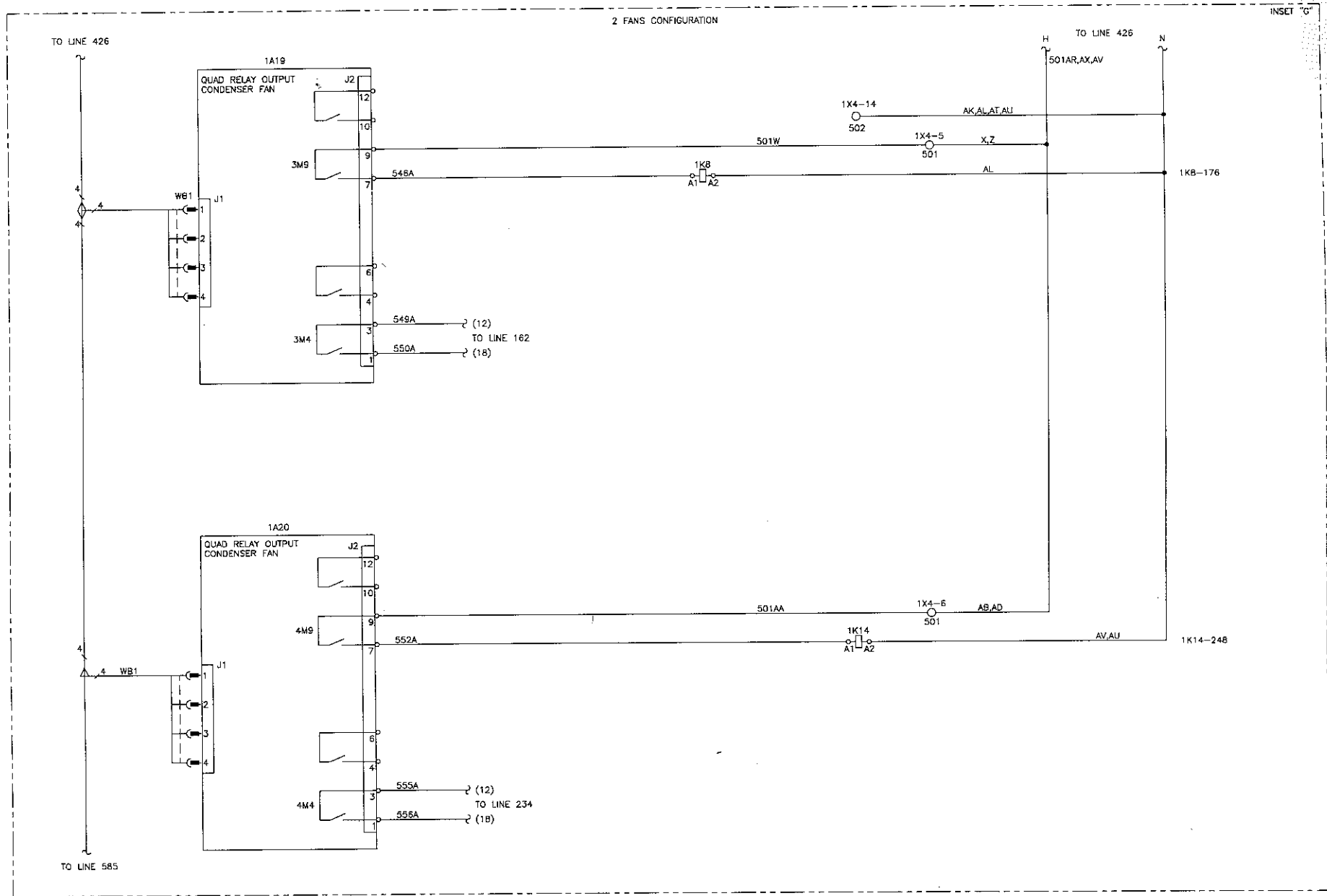
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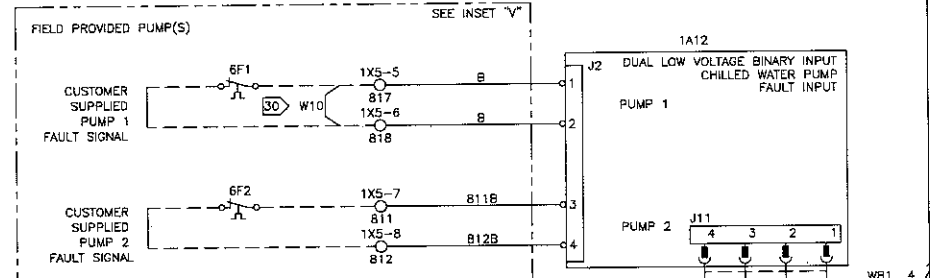
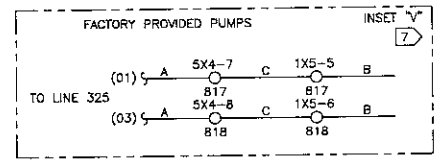
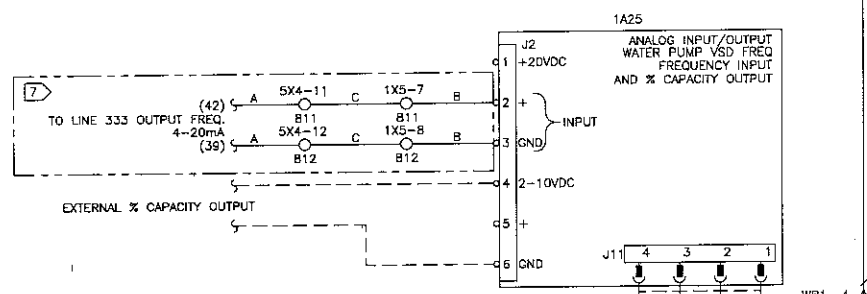
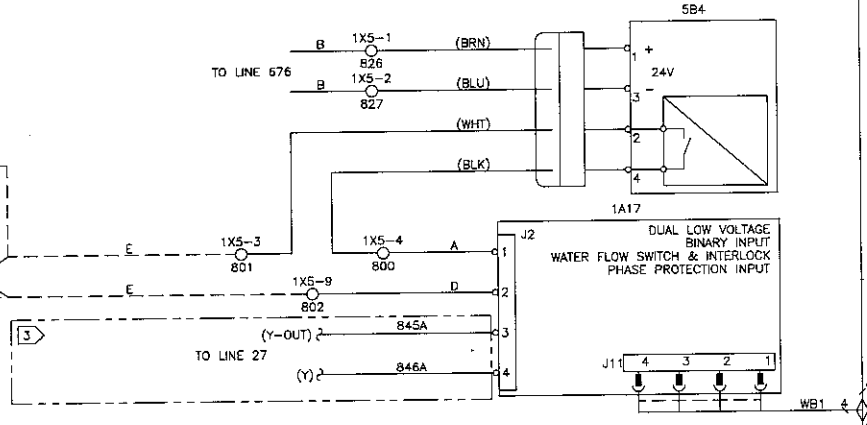
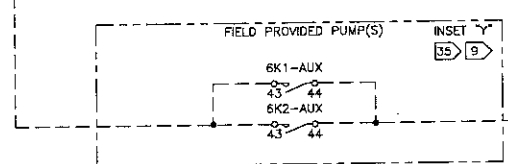
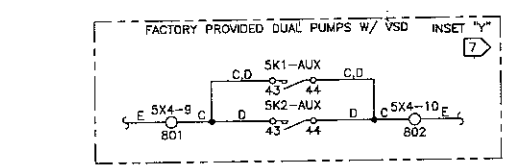
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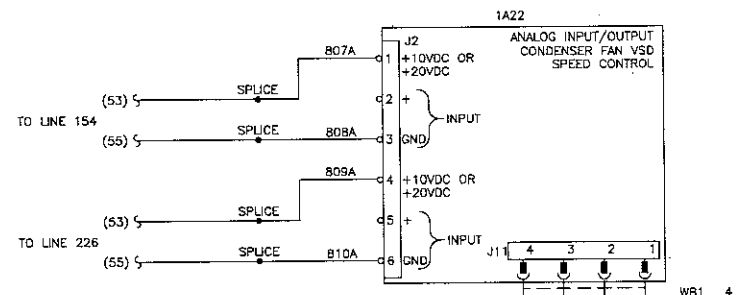
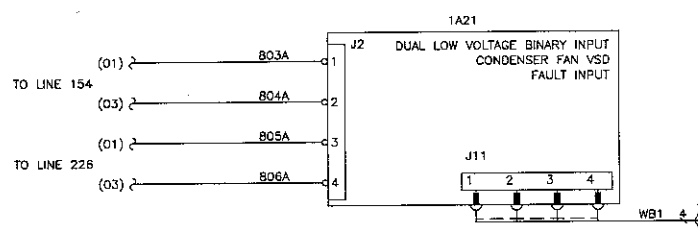
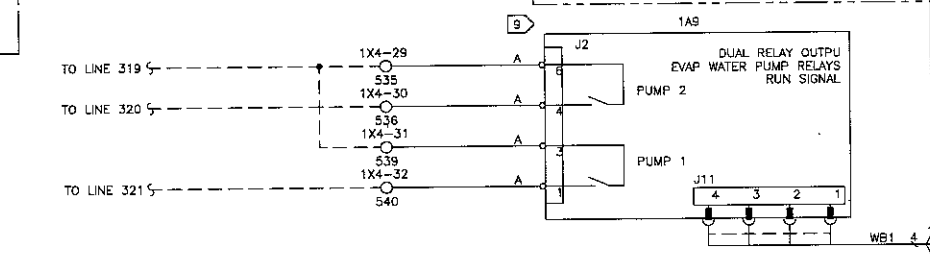
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**NOTICE**  
 TRANE PUMP CONTROL MUST BE USED TO PROVIDE PUMP CONTROL. CHILLED WATER PUMP MUST BE CONTROLLED BY THE CHILLER OUTPUT. FAILURE TO COMPLY WITH THIS REQUIREMENT COULD RESULT IN DAMAGE TO THE UNIT.



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**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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TO LINE 426 OR 470 OR 500

5K1-327  
5K2-332  
6K1-306  
6K2-311

6F1-308  
6F2-311

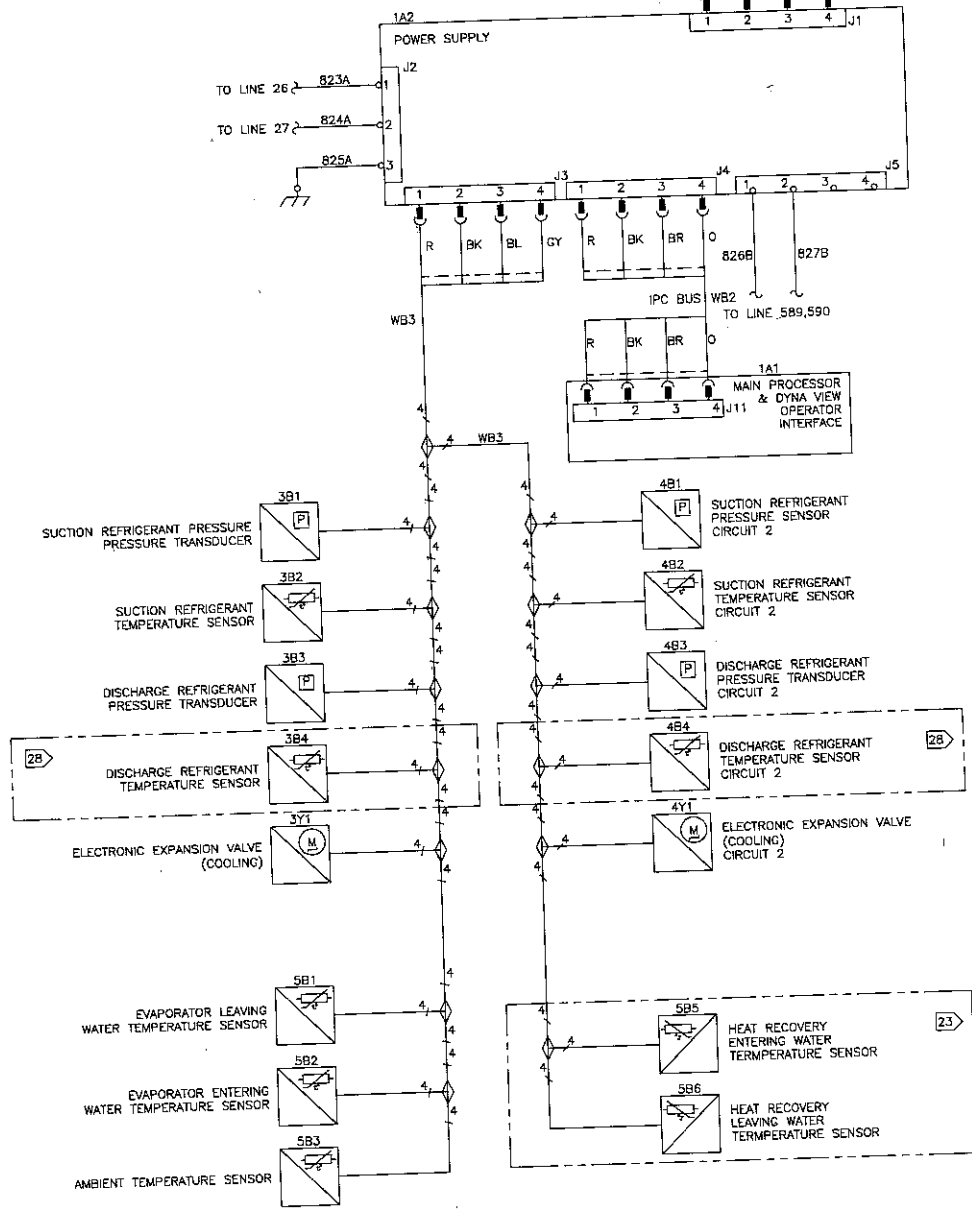
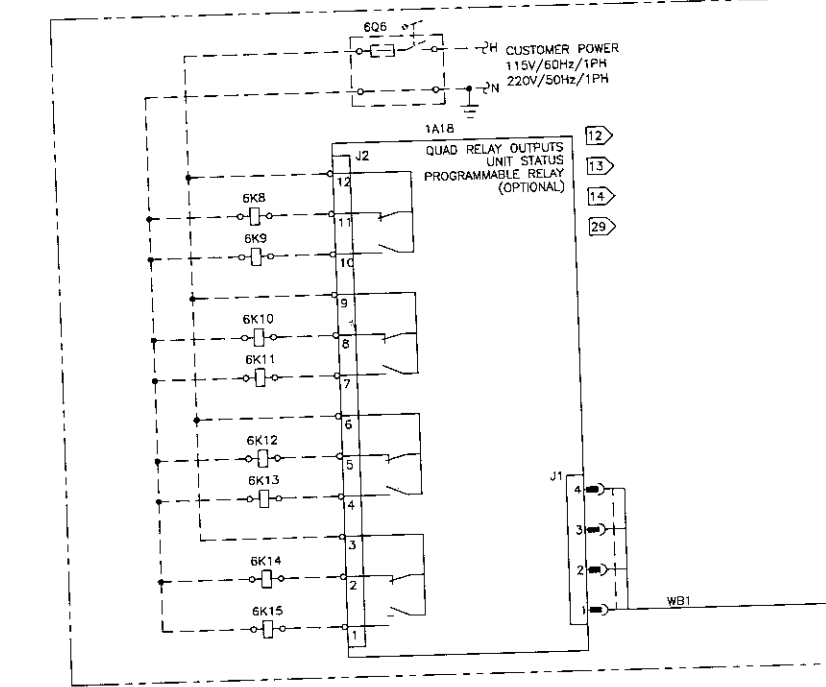
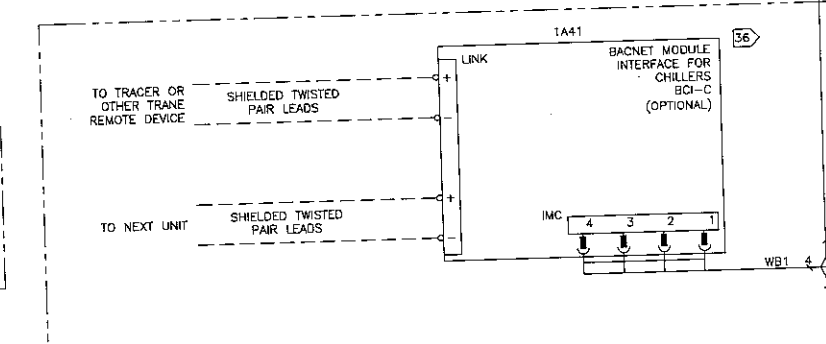
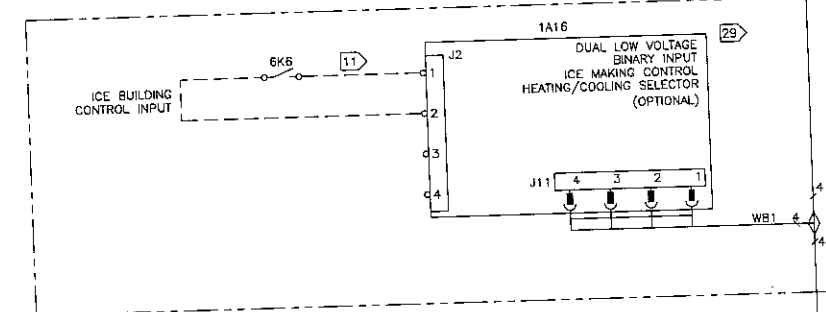
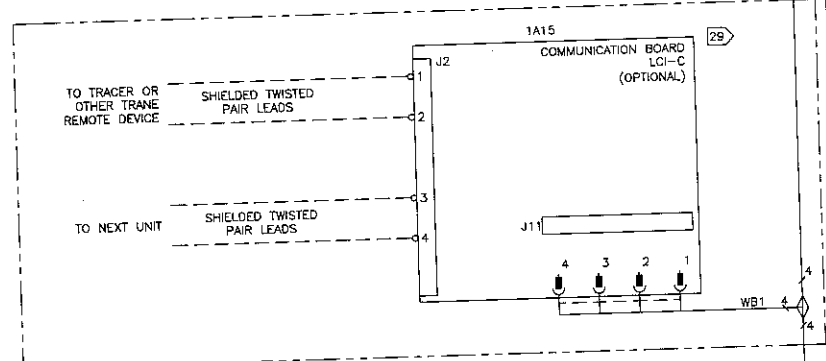
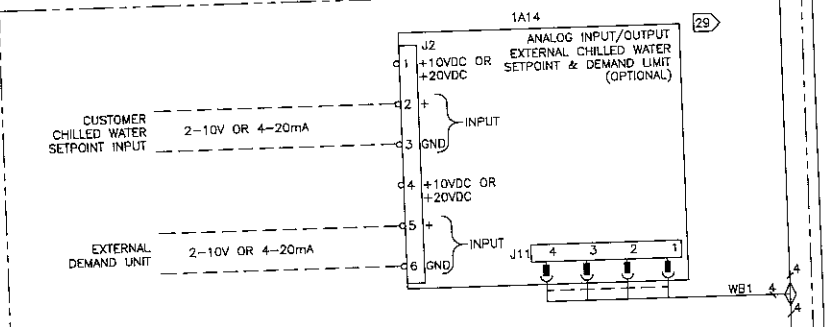
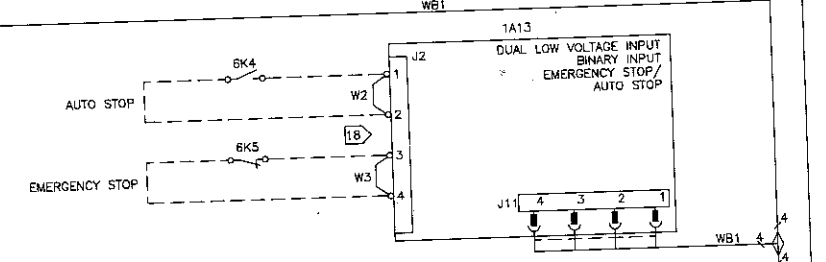
TO LINE 654

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

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TO LINE 644



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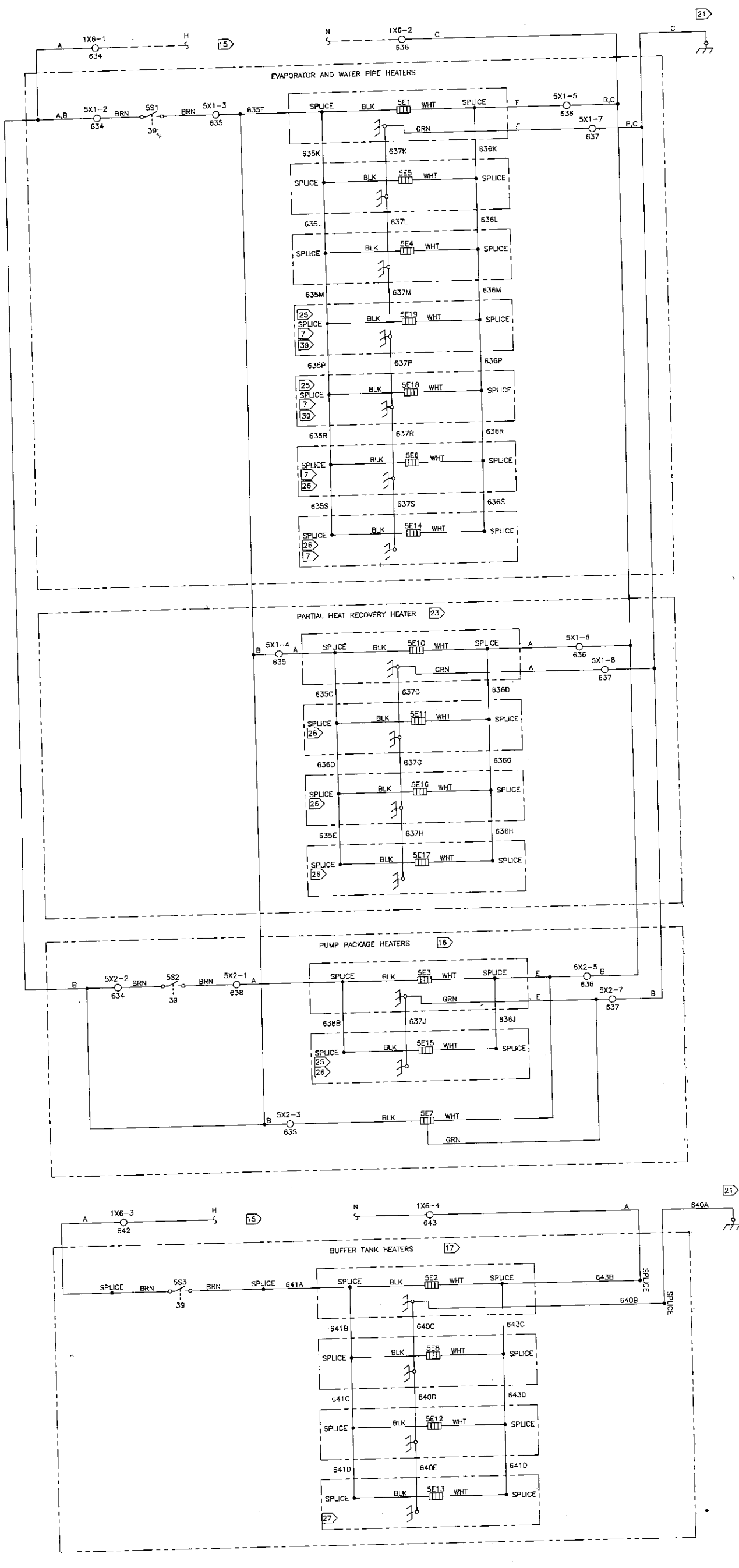
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FIELD WIRING DIAGRAM

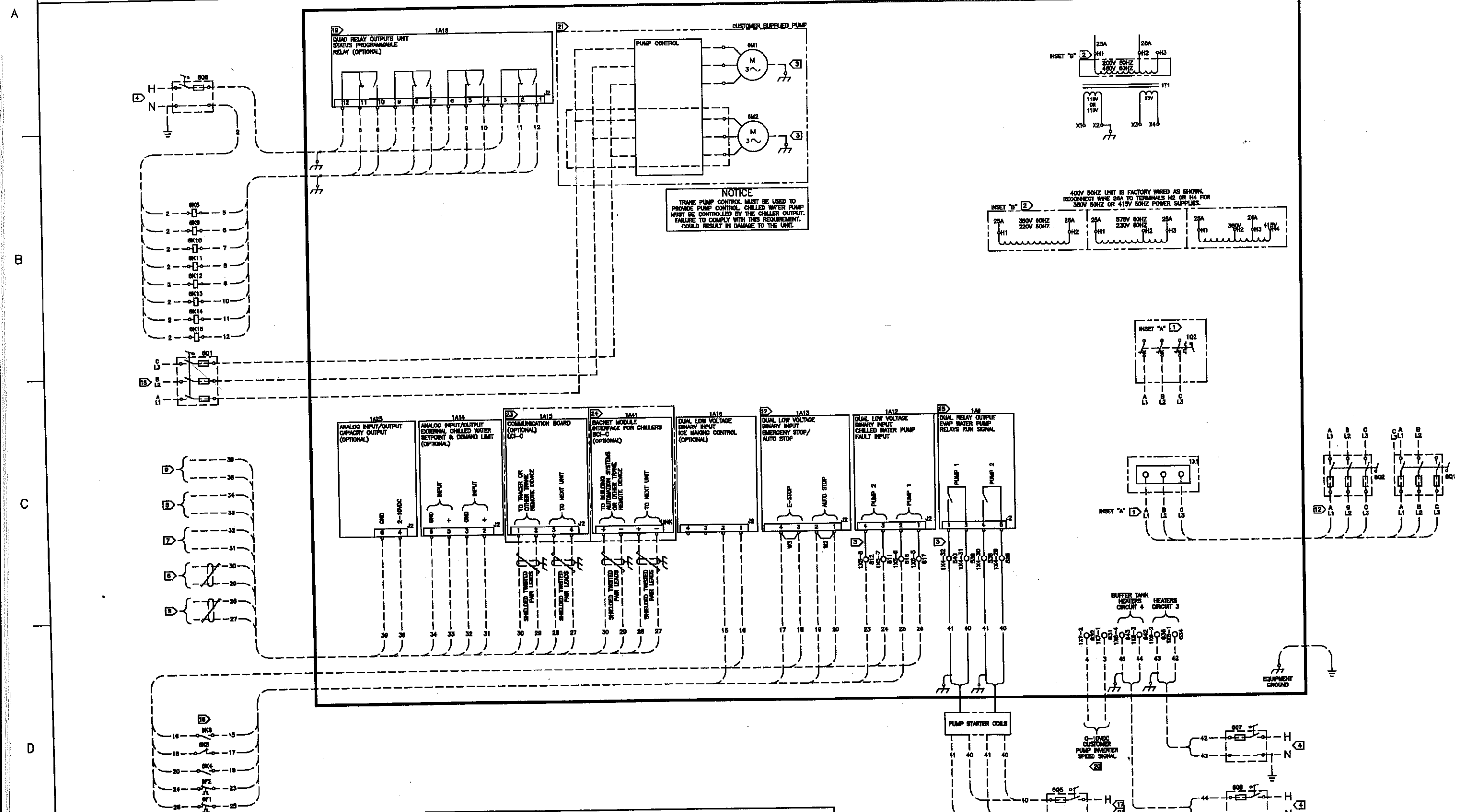
CGAM (NAR)  
SLANT, V & W UNITS

THIS DRAWING IS PROPRIETARY AND SHALL NOT BE COPIED OR ITS CONTENTS DISCLOSED TO OUTSIDE PARTIES WITHOUT THE WRITTEN CONSENT OF TRANE.  
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REVISION DATE:  
SIMILAR TO:

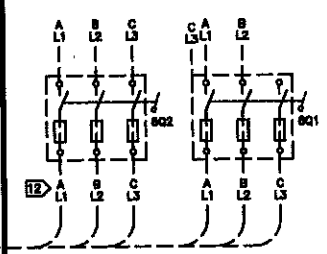
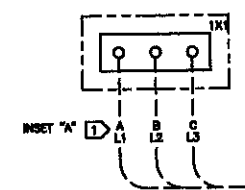
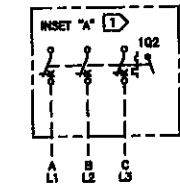
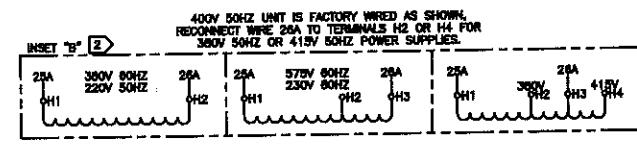
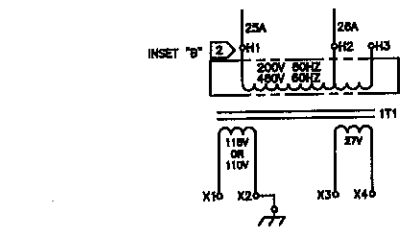
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B

C

D

- 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 ANNUNCIATOR.
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 1/2 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).

FUSE REPLACEMENT TABLE					
FUSE	VOLTAGE	HERTZ (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	
1F4	ALL	ALL	CC	10	FUSE, COMPRESSOR CRANKCASE HEATER, CIRCUIT 2
1F5 - 1F6	200	60	CC	10	
	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	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	
1F8 - 1F10	200	60	CC	10	FUSE, 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	
1F11	ALL	ALL	CC	10	FUSE, DUAL POINT, POWER SECOND PHASE, PHASE PROTECTION MONITOR
1F12 - 1F13	ALL	ALL	CC	6	FUSE, CONTROL POWER TRANSFORMER, SECONDARY, 115V
1F14 - 1F16 1F17 - 1F19	200-460	ALL	CC	30	FUSE, CONTROL POWER TRANSFORMER, SECONDARY, 24V
	575	60	CC	6	
1F38 - 1F40 1F44 - 1F46	ALL	ALL	CC	30	FUSE, INVERTER, FAN (FAST ACTING EXCEPT 575V)
1F35 - 1F37 1F41 - 1F43	ALL	ALL	CC	30	FUSE, FAST ACTING, ATM-R-30
FACTORY PROVIDED PUMP INVERTER FUSE					
1F32 - 1F34	200,230	60	CC	30	3.7Kw VSD
	460,575			25	5.5Kw VSD
	200,230		J	60	7.5Kw VSD
	460,575		CC	30	
	200-230		J	60	11Kw VSD
	460,575			40	



# WARNING

## HAZARDOUS VOLTAGE!

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# AVERTISSEMENT

## TENSION DANGEREUSE!

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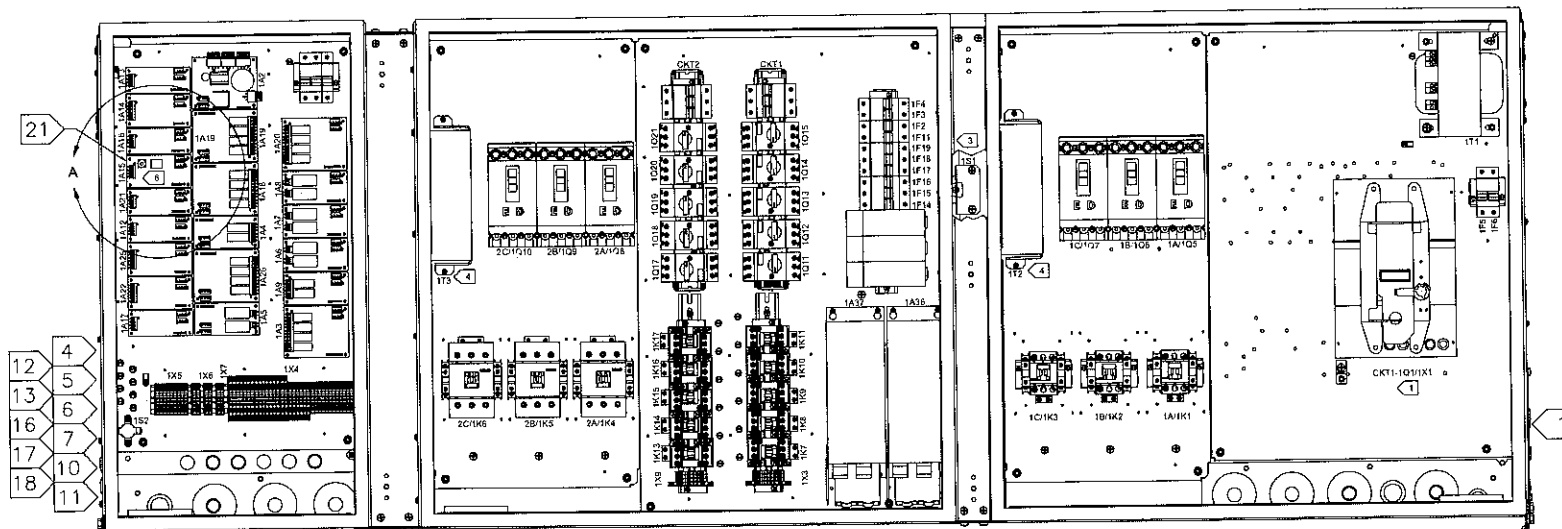
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# ADVERTENCIA

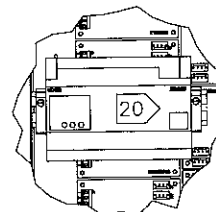
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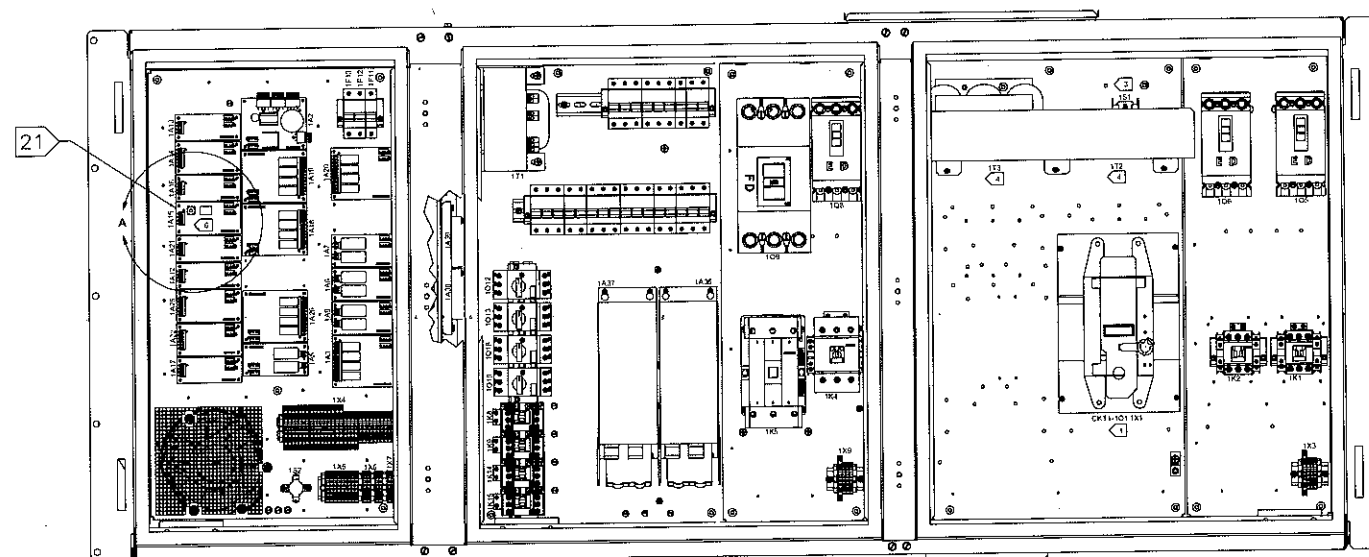
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"W" UNIT (80-130 TONS)  
(SHOWN WITHOUT DOORS) 20

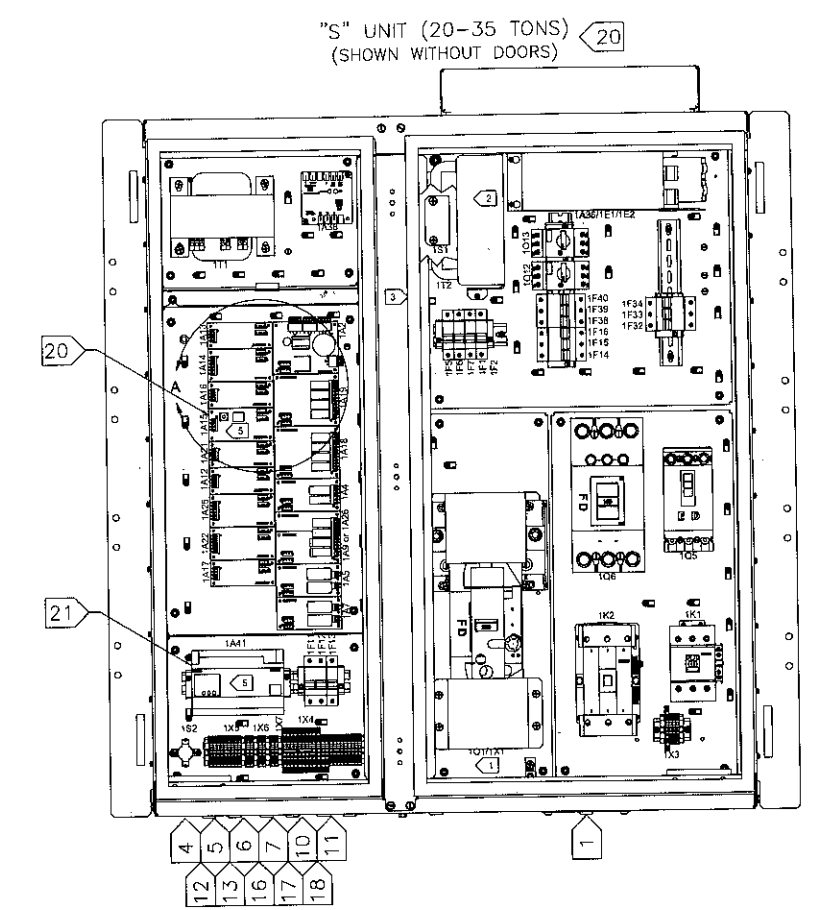


DETAIL A  
SHOWING 1A41 OPTION  
IN PLACE OF 1A15  
"V" & "W" UNITS ONLY



"V" UNIT (40-70 TONS)  
(SHOWN WITHOUT DOORS) 20

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: N. SCHAMS DATE: 21-MAY-09	5720-6496 FIELD LAYOUT CGAM SLANT, "V", "W" UNITS JOB SITE CONNECTIONS	SHEET 1 OF 1 REV C
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"S" UNIT (20-35 TONS)  
(SHOWN WITHOUT DOORS) 20

- 1 LINE VOLTAGE ENTRANCE (SEE UNIT NAMEPLATE)
- 2 POWER SECTION
- 3 CONTROLS SECTION
- 4 CUSTOMER CONTROL POWER HAZARDOUS VOLTAGE ENTRANCE
- 5 CUSTOMER CONTROL POWER LOW VOLTAGE ENTRANCE
- 6 FREEZE PROTECTION SEPARATE 115/60/1 CUSTOMER POWER IS REQUIRED.
- 7 UNIT STATUS PROGRAMMABLE RELAY OUTPUTS. SEPARATE 115/60/1 OR 220/50/1 CUSTOMER POWER IS REQUIRED. (6K8-6K15)
- 8 CIRCUIT 1 DISCONNECT (OPTIONAL)
- 9 CUSTOMER SUPPLIED PUMP COMMAND SPEED SIGNAL
- 10 EXTERNAL AUTO STOP AND EMERGENCY STOP INPUTS (6K4 AND 6K5)
- 11 EXTERNAL DEMAND LIMIT AND CHILLED WATER SETPOINT INPUTS (4-20MH OR 2-10V) (OPTIONAL)
- 12 TRACER COMMUNICATIONS (OPTIONAL)
- 13 ICE MAKING CONTROL, HEATING/COOLING SELECTOR (6K6) (OPTIONAL)
- 14 ACROSS LINE STARTER CIRCUIT 1
- 15 ACROSS LINE STARTER CIRCUIT 2
- 16 CHILLED WATER PUMP FAULT (6F1 AND 6F2)
- 17 EVAP WATER PUMP RUN SIGNAL
- 18 PHASE PROTECTION INPUT (6K1 AND 6K2)
- 19 REFER TO CGAM ELECTRICAL SCHEMATIC FOR SPECIFIC CONNECTION
- 20 INFORMATION AND NOTES PERTAINING TO WIRING INSTALLATION.
- 21 1A15 LCI MODULE (COMM = LCI) IS REMOVED WHEN 1A41 BACnet MODULE (COMM = BCNT) IS USED.

# 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

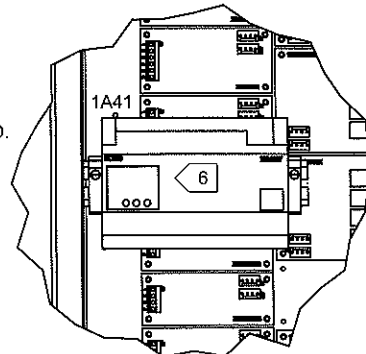
¡UTILICE ÚNICAMENTE CONDUCTORES DE COBRE!

LAS TERMINALES DE LA UNIDAD NO ESTÁN DISEÑADAS PARA ACEPTAR OTROS TIPOS DE CONDUCTORES.

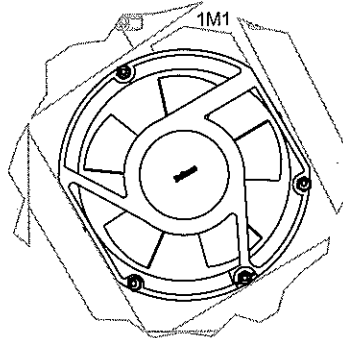
NO SEGUIR LAS INSTRUCCIONES ANTERIORES PUEDE PROVOCAR DAÑOS EN EL EQUIPO.

NOTES

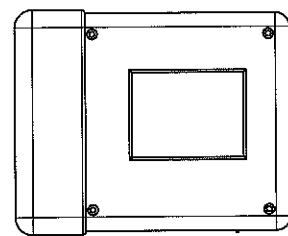
1. COMPONENT 1X1 WILL REPLACE 1Q1 WHEN TERMINAL BLOCK OPTION IS SELECTED.
2. COMPONENT 1X2 WILL REPLACE 1Q3 WHEN TERMINAL BLOCK OPTION IS SELECTED.
3. COMPONENTS 1M1 AND 1S1 ARE USED ONLY WHEN THE VENTILATED PANEL IS REQUIRED.
4. COMPONENTS 1T2 AND 1T3 ARE USED ONLY WHEN THE 575V OPTION IS SELECTED.
5. WIRE RETAINERS AND WIRE RETAINER MOUNTING SCREWS REMOVED FOR CLARITY.
6. 1A15 LCI MODULE (COMM = LCI) IS REMOVED WHEN 1A41 BACnet MODULE (COMM = BCNT) IS USED.



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



DETAIL A 3  
(FAN LOCATED BEHIND PANEL)

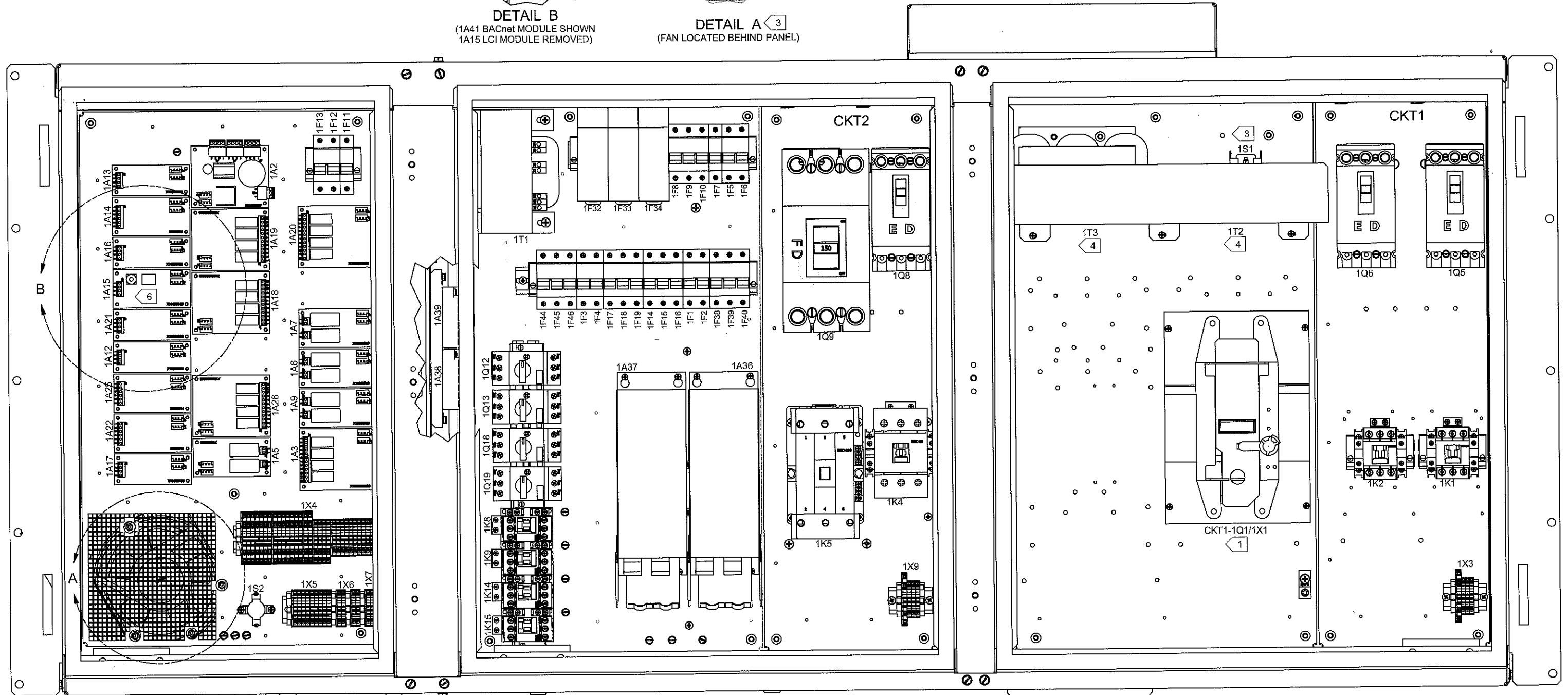


1A1  
DYNVIEW IS MOUNTED  
ON CONTROLS DOOR

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETERS.  
TOLERANCE:  
X, = ± 5  
X.X = ± 3.0  
X.XX = ± 1.50  
ANGLES = ± 1  
CONFORMS TO ASME Y14.5M - 1994

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DRAWN BY: J.Watts  
© TRANE DATE: 24-APR-2009  
DO NOT SCALE PRINT  
THIRD ANGLE PROJECTION

57206469 SHEET 1 OF 1 REV C  
**DIAGRAM**  
COMPONENT LOCATION  
CONTROL PANEL  
V UNIT



DOORS SHOWN OFF (WITH VENTILATED PANEL)

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DRAWN BY: A. BAHL © TRANE DATE: 13-MAR-2008

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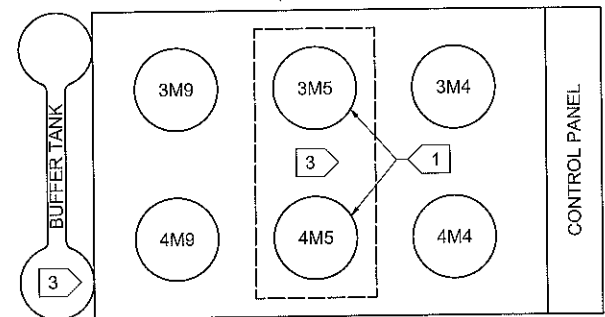
THIRD ANGLE PROJECTION

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

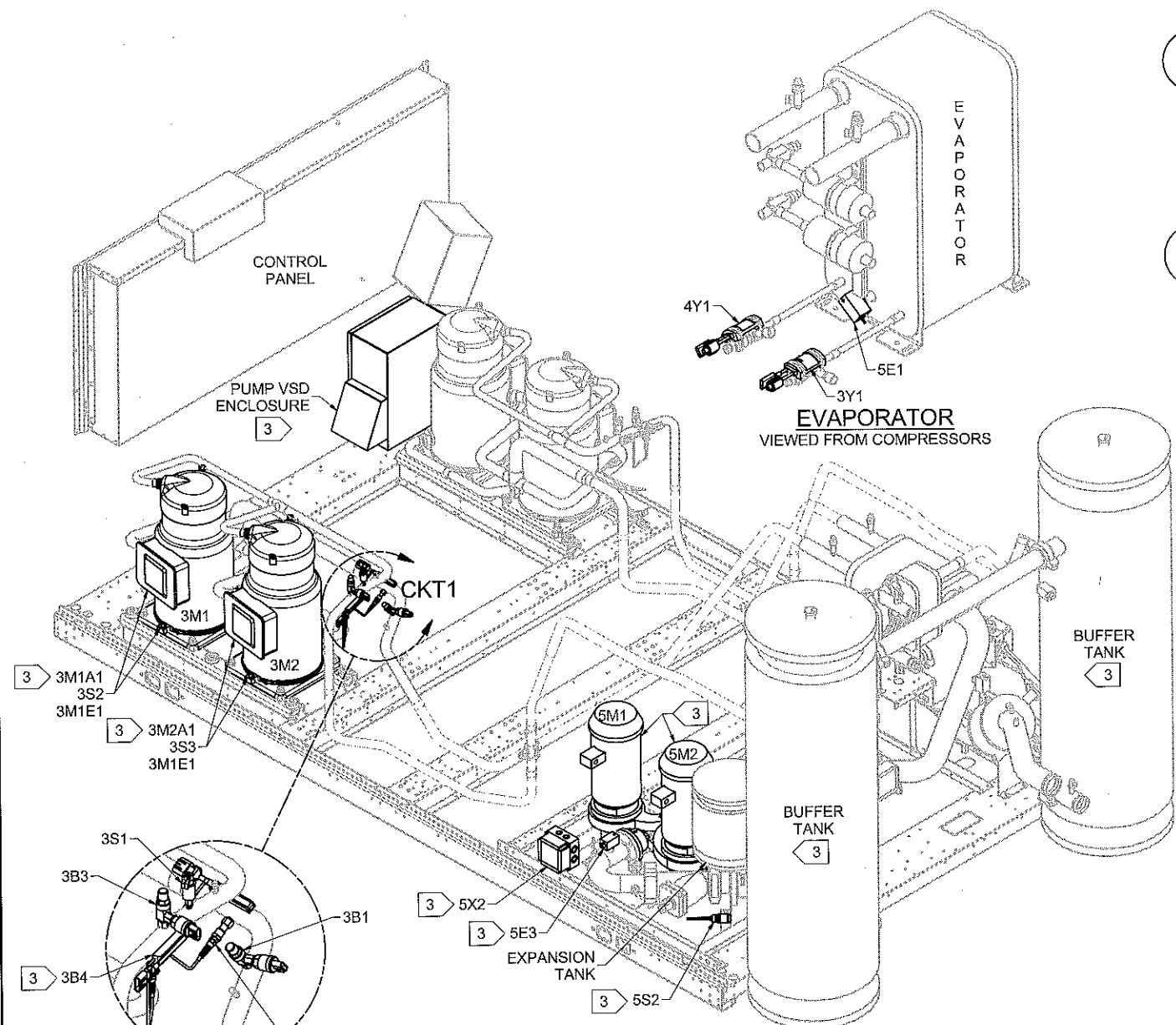
FINISH ✓

HOLE DIA = +

FAN MOTOR LOCATIONS (ALL "V" FRAMES)

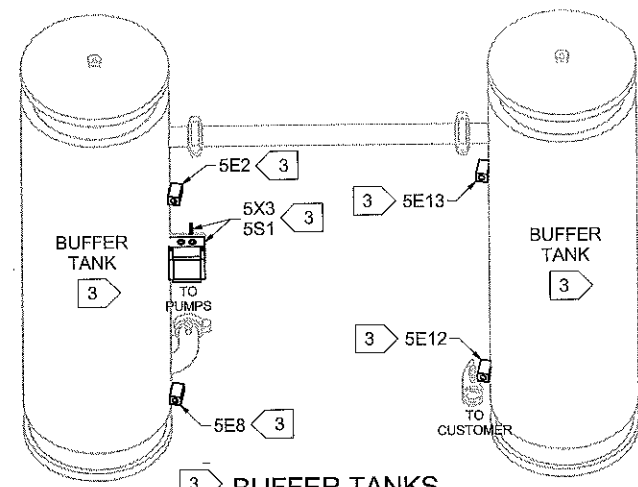


- NOTES:
- 1 REMOVE 3M5 & 4M5 ON UNITS WITH 2-FANS PER CIRCUIT.
  - 2 NOT ALL POSSIBLE UNIT/FRAME CONFIGURATIONS SHOWN. SENSOR/DEVICE LOCATIONS MAY VARY BY FRAME SIZE AND AVAILABLE OPTIONS CHOSEN.
  - 3 OPTIONAL COMPONENT - CHECK MODEL NUMBER TO DETERMINE IF USED OR NOT.
  - 4 SOME ITEMS, PIPING, BRACKETS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



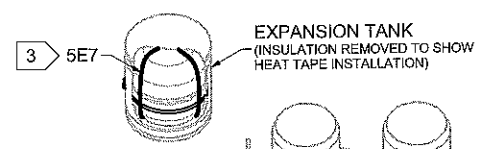
EVAPORATOR VIEWED FROM COMPRESSORS

FACTORY PUMP WITH BUFFER TANKS

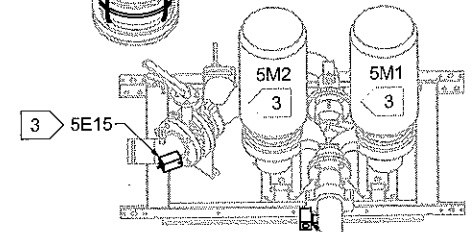


BUFFER TANKS VIEWED FROM REAR OF UNIT

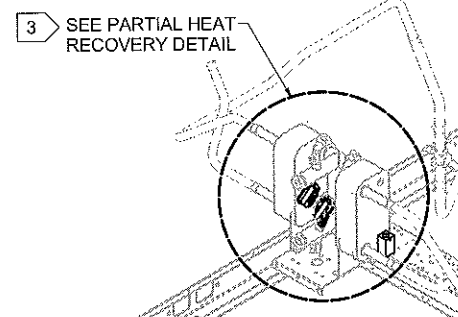
CIRCUIT 1 SENSORS SUCTION/DISCHARGE



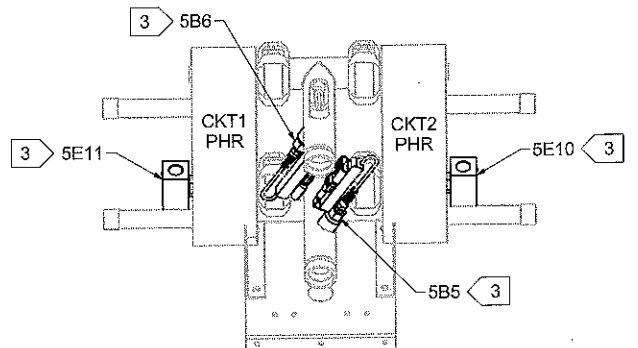
EXPANSION TANK (INSULATION REMOVED TO SHOW HEAT TAPE INSTALLATION)



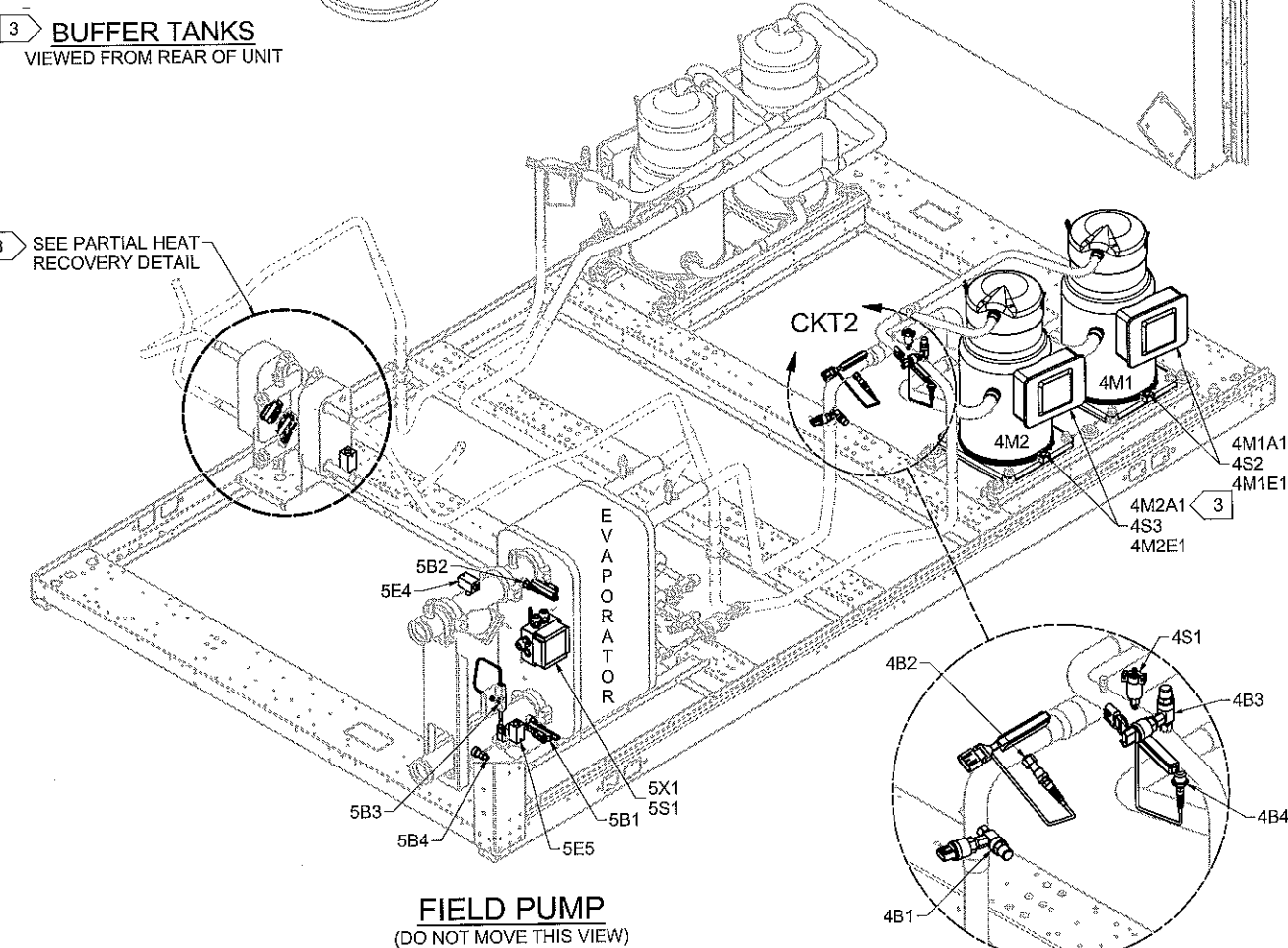
PUMP PACKAGE WITH OR W/O BUFFER TANK



SEE PARTIAL HEAT RECOVERY DETAIL



PARTIAL HEAT RECOVERY VIEWED FROM BUFFER TANKS



FIELD PUMP (DO NOT MOVE THIS VIEW)

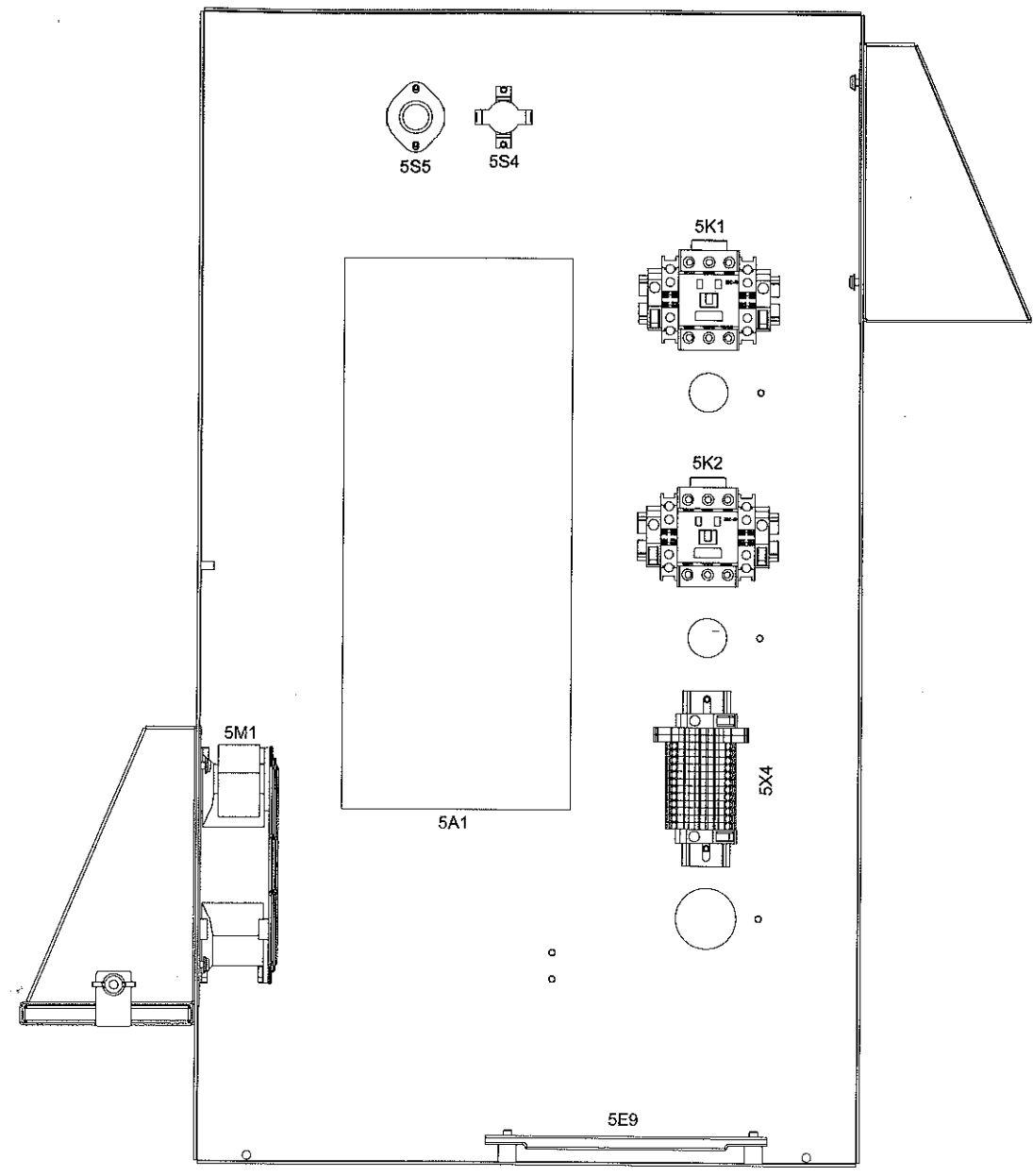
CIRCUIT 2 SENSORS SUCTION/DISCHARGE

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETERS.  
TOLERANCE:  
X, = ±  
X.X = ±  
X.XX = ±  
ANGLES = ±  
HOLE DIA = +  
CONFORMS TO ASME Y14.5M - 1984

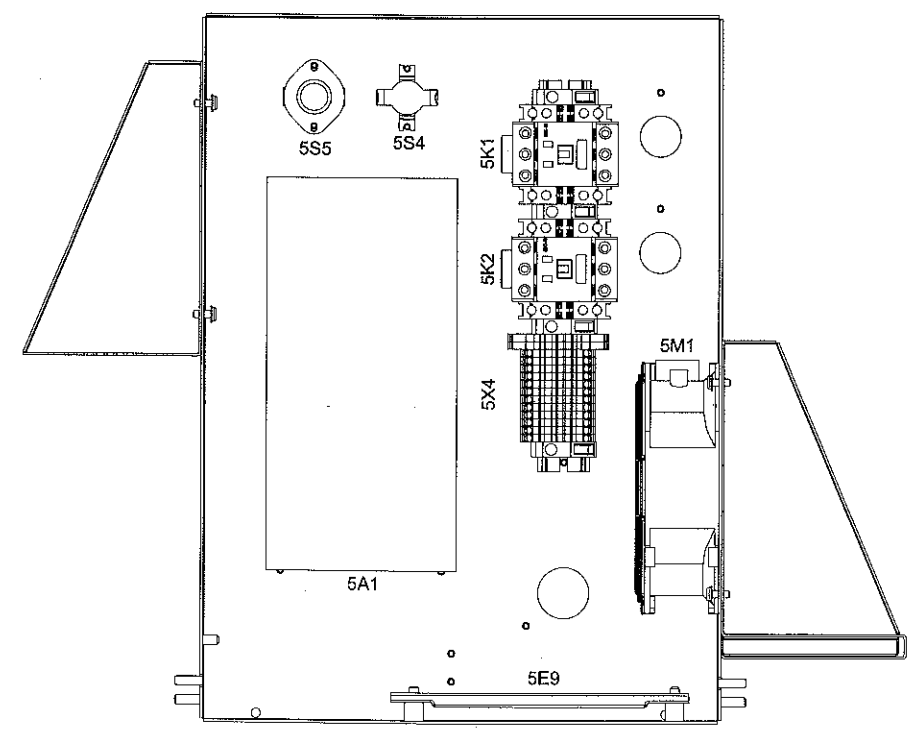
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DRAWN BY: J. WATTS  
© TRANE DATE: 23-SEP-2010  
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THIRD ANGLE PROJECTION

57224410 SHEET 1 OF 1 REV A  
DIAGRAM  
COMPONENT LOCATION  
VSD PUMP ENCLOSURE  
S, V & W UNITS

- 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  
FACTORY PUMP ONLY OPTION FOR W UNITS 2



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