TRANE

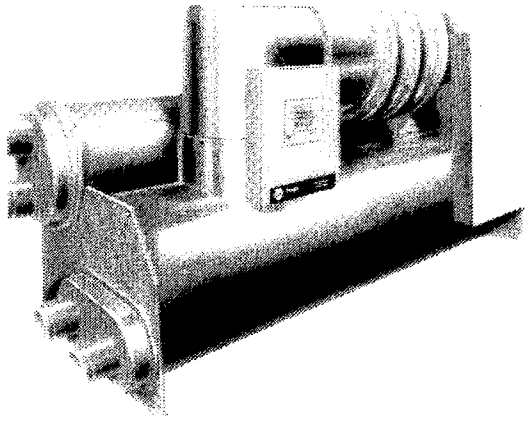
Wiring CVHE-W-8A

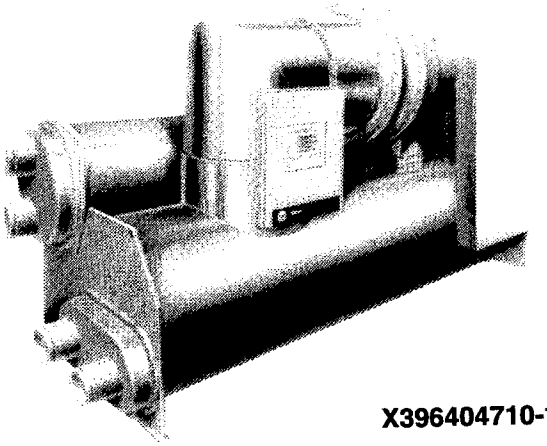
Library	**Service Literature**
Product Section	**Refrigeration**
Product	**Centrifugal Liquid Chillers**
Model	**CVHE, CVHF,CVHG,**
Literature Type	**Wiring**
Sequence	**8A**
Date	**June 6, 1996**
File No.	**SV-RF-CTV-CVHE-W-8A-**
Supersedes	**SV-RF-CTV-CVHE-W-8 - 5/94**

CenTraVac® Liquid Chillers

50 and 60 HZ
CVHE, CVHF, CVHG

Cooling-Only and Heat-Recovery, Direct-Drive CenTraVacs with UCP2 Control Panels





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Since the Trane Company has a policy of continuous product improvement, it reserves the right to change specifications and design without notice. The installation and servicing of the equipment referred to in this booklet should be done by qualified, experienced technicians.

Index of Diagrams

Schematic
Wiring Legend

Device Designation	Description	Line Number
1CB1	Circuit Breaker - Starter	19
1CB2	Circuit Breaker - Purge	65
1CB3	Circuit Breaker - Unit Control	145
1F2	Oil Pump Fuse	167
1T1	Control Power Transformer	122
1TB1	Control Panel Term Block	
1U1	Chiller Module	Page 4
1U10	I.O. Module	Page 5
1U2	Circuit Module	Page 3
1U3	Stepper Module	Page 3
1U4	Clear Language Display	Page 3
1U5	Options Module	Page 5
1U7	Printer COM Module	Page 4
1U8	Tracer COM 3 Module	Page 4
1U9	IPC Buffer Module	Page 4
1U11	Tracer COM 4 Module	Page 4
2BP1,2,3	By-Pass Contactor	3,6,9
2CB1	Circuit Breakr (Shunt Trip)	30
2F1,2,3	Primary Starter Fusing	3,6,10
2F4	Secondary Control Power Fuse	13
2K1	Start Contactor	27
2K2	Run Contactor	30
2K3	Shorting Contactor	33
2K4	Transition Contactor	36
2R1	Heat Sink Temp Sensor	32
2T1, 2,3	Current Transformers	2,5,8
2T4	24V Power Supply	14
2T5	Control Power Transformer	12
2T6, 7, 8	Potential Transformer (OPT)	18, 20, 22
2TB1	Control Term. Strip	
2TB2	IPC Term Strip	
2TB3	Line Terminal Block	
2U2	Starter Control	
2U1	Starter Module	Page 1
3B5	Purge RFGT Compressor	78
3B6	Purge Pump-Out Compressor	80
3L1	Tank Valve Solenoid	76
3L3	Exhaust Valve Solenoid	74
3R3	Cond. RFGT Press.	165
3RT2	RFGT Comp Suction Temp	75
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Prefix Code	
1 =	Main Control Panel
2 =	Starter Control
3 =	Purge
4 =	Unit Mounted Device
5 =	Provided By Others

Note: Dashed Lines Indicate Wiring By Others

Continued next page

Schematic
Wiring Legend

Device Designation	Description	Line Number
4B1	Compressor Motor	5
4B12	Free Cooling Actuator	266
4B13	Free Cooling Actuator	274
4B1R2,3,4	Motor Winding Temp	150-155
4B2	Stepper Motor Vane Actuator	133
4B3	Oil Pump Motor	169
4B3	Dual Filter Transfer Valve	162
4B4	Dual Filter Transfer Valve	163
4B5	Hot Gas By-Pass Valve	251
4C1	Capacitor - Oil Pump	168
4HR1	Oil Tank Heater	165
4K8	Oil Pump Starter Relay	169
4L1	Vent Line Solenoid	157
4L2	Evap Wtr Press. Soenoid	211
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4R1	Oil Sump Press	170
4R2	Oil Pump Discharge Press	175
4R3	Evap Ent & Lvn Wtr Press	209
4R4	Cond Ent & Lvn Wtr Press	237
4RT1	Sat Cond Temp (Retrofit Only)	73
4RT1	Evap Entering Water Temp.	232
4RT11	Aux Heat Rec Ent Temp	258
4RT12	Aux Heat Rec Lvn Temp	260
4RT2	Evap Leaving Water Temp	211
4RT3	Cond Entering Water Temp	213
4RT4	Cond Leaving Water Temp	215
4RT5	Sat Evap Rfgt Temp	132
4RT6	Discharge Temp	134
4RT7	Bearing Temp 1	136
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4S1	Dual Filter Switch	162
5DS1	Alarm Light (Latching)	225
5DS2	Alarm Light (Non-Latching)	229
5DS3	Pump-Out Running (Tracer) Relay	84
5K1	Chilled Wtr Pump Relay	217
5K10	Purge Alarm Relay	86
5K2	Cond Wtr Pump Relay	219
5K3	Comp Running Relay	222
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5K5	Limit Warning Relay	227
5K6	Ice Making Relay	260
5K7	Head Relief Request Relay	262
5K8	Maximum Capacity Relay	264
5K9	Tracer Controlled Relay	270
5RT1	Tracer Temp Sensor	272
5S1	Chilled Water Flow Switch	231
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5S3	External Auto Stop	217
5S4	Emergency Stop	219
5S5	Heat Pump Control	225
5S6	Ext Free Cooling	262
5S7	Ice Making	264
5U1	Refrigerant Monitor	280

Prefix Code	
1 =	Main Control Panel
2 =	Starter Control
3 =	Purge
4 =	Unit Mounted Device
5 =	Provided By Others

Note: Dashed Lines Indicate Wiring By Others

General Information

Literature Change History

CVHE-W-8A - June 1996
Addition of CVHG models and general update.

CVHE-W-8 - May 1994
Original issue of manual covering CVHE and CVHF models.

Design Sequences

CVHE units, A2 - 2J
CVHE units, A0 - T0
CVHE units, A0 - K0

Unit Models		
CVHE 60 HZ		
230	250	280
320	360	400
450	500	560
630	710	800
CVHE 50 HZ		
190	210	240
270	300	330
370	420	470
530	590	660
CVHF 60 HZ		
555	640	650
770	910	1060
1280		
CVHG 50 HZ		
670	780	920
1067		

Unit Information

To determine the electrical characteristics of a specific chiller, always refer to the unit nameplate. The unit nameplate is mounted on the left-hand side of the unit control panel and lists the installation and maintenance manuals required for the chiller. Example: CVHE-IN-8 and CVHE-M-7. The nameplate also provides electrical data for the compressor motor, oil pump motor, oil tank heater and purge compressor motor.

Use the chiller model number or product description block on the unit to determine the following information.

1. Machine design sequence;

2. Starter location (i.e., unit mounted versus remote-mounted);

3. Unit type (i.e., standard unit, heat recovery, auxiliary condenser, or free-cooling).

4. Whether the unit has Hot Gas By Pass.

For specific electrical connection and schematic information, always refer to the wiring diagrams and schematics that shipped with the unit.

As you review this manual, keep in mind that all field-installed wiring must conform to NEC guidelines, as well as to any applicable state and local codes. Be sure to satisfy any special grounding requirements that may be necessary.

All field-installed wiring should be checked for proper terminations, and for possible shorts or grounds.

Notice that warnings and cautions appear at appropriate intervals throughout this manual.

WARNINGS are provided to alert installing contractors to potential hazards that could result in personal injury or death, while CAUTIONS are designed to alert personnel to conditions that could result in equipment damage.

Caution!

⚠ The diagrams illustrated in this manual are typical for the above design sequence units. Refer to the "as-built" diagrams for specific information.

WARNING!

⚠ When servicing the machine, disconnect electrical power source to prevent injury or death due to electrical shock.

Adaptive Frequency Drive™

An overall field wiring layout of the Adaptive Frequency Drive is shown in this manual. The following information is offered when installing Adaptive Frequency Drive enclosure to provide electrical access. DO NOT CUT ADAPTIVE FREQUENCY DRIVE ENCLOSURE. Refer to the installation manual (AFDA-IN-1) which shipped with the Adaptive Frequency Drive.

WARNING!

⚠ **Do not cut Adaptive Frequency Drive enclosure. Debris falling inside frequency drive may cause failure of electronic components.**

Figure 1
Typical UCP2 Schematic CVHE, CVHF, CVHG
Remote Across the Line Starter

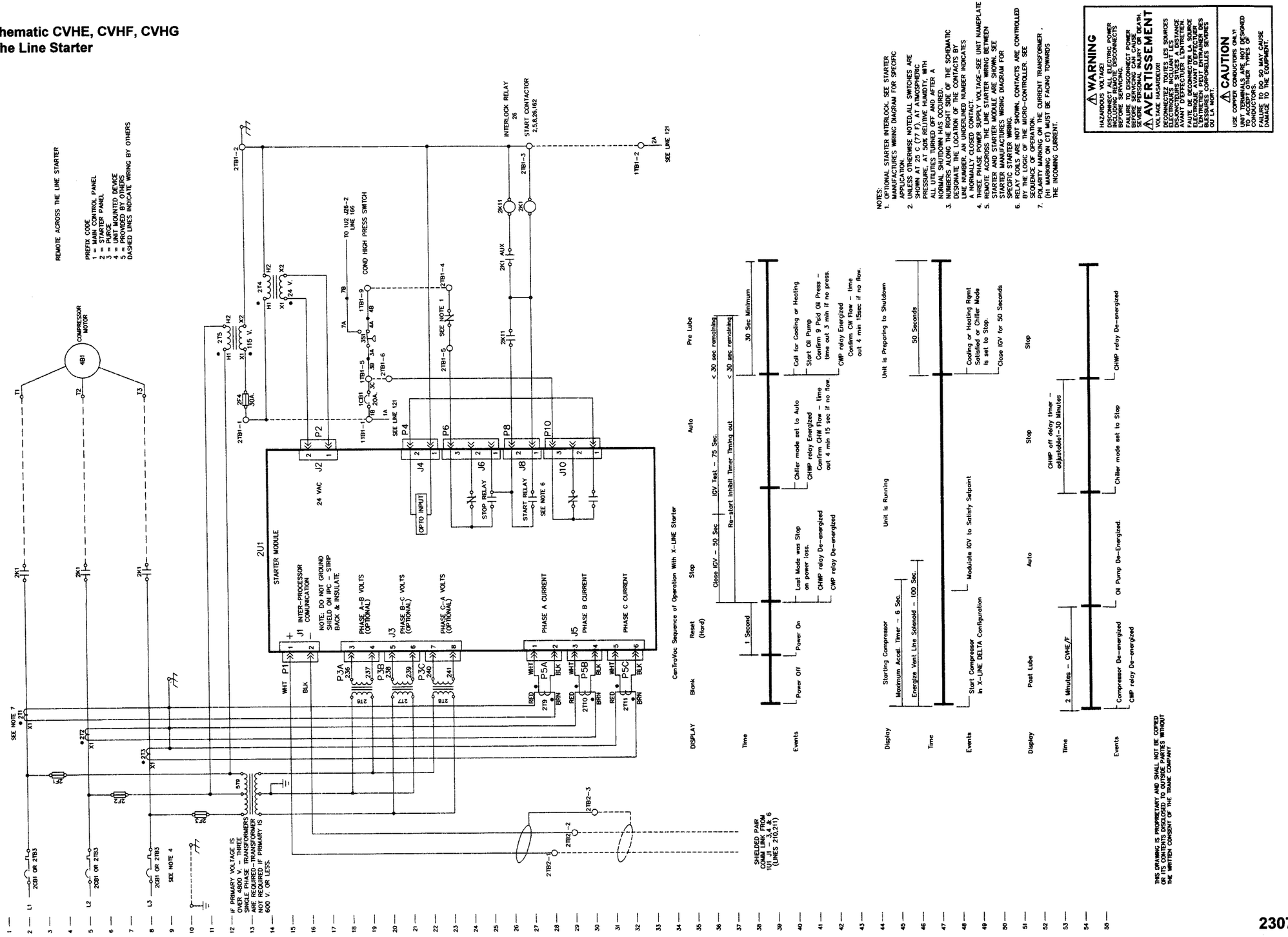

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Figure 2
Typical UCP2 Schematic CVHE, CVHF, CVHG
Remote Primary Reactor Starter

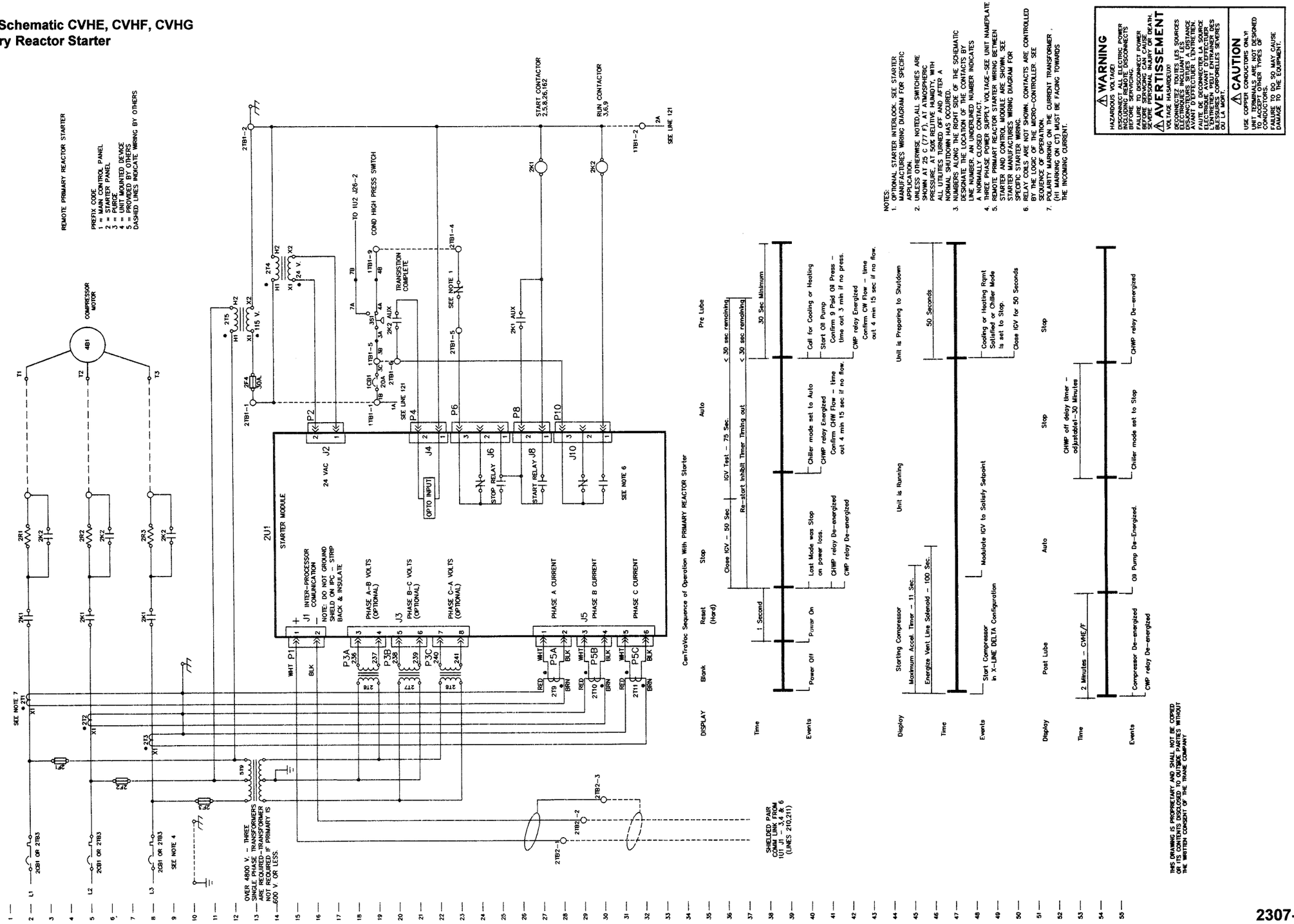

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Figure 3
Typical UCP2 Schematic CVHE, CVHF, CVHG
Remote Auto Transformer Starter

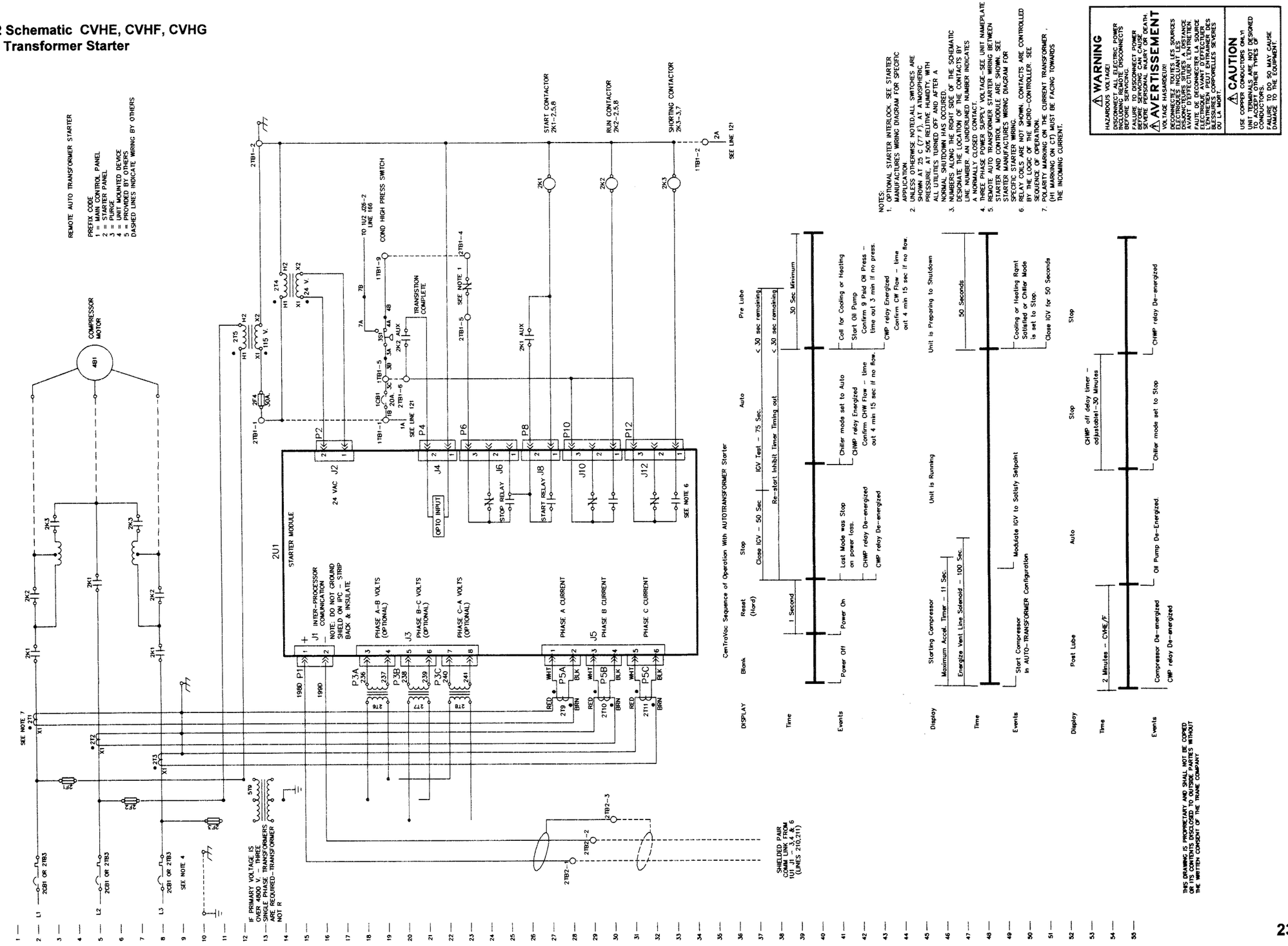

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Figure 4
Typical UCP2 Schematic CVHE, CVHF, CVHG
Remote Wye-Delta Starter

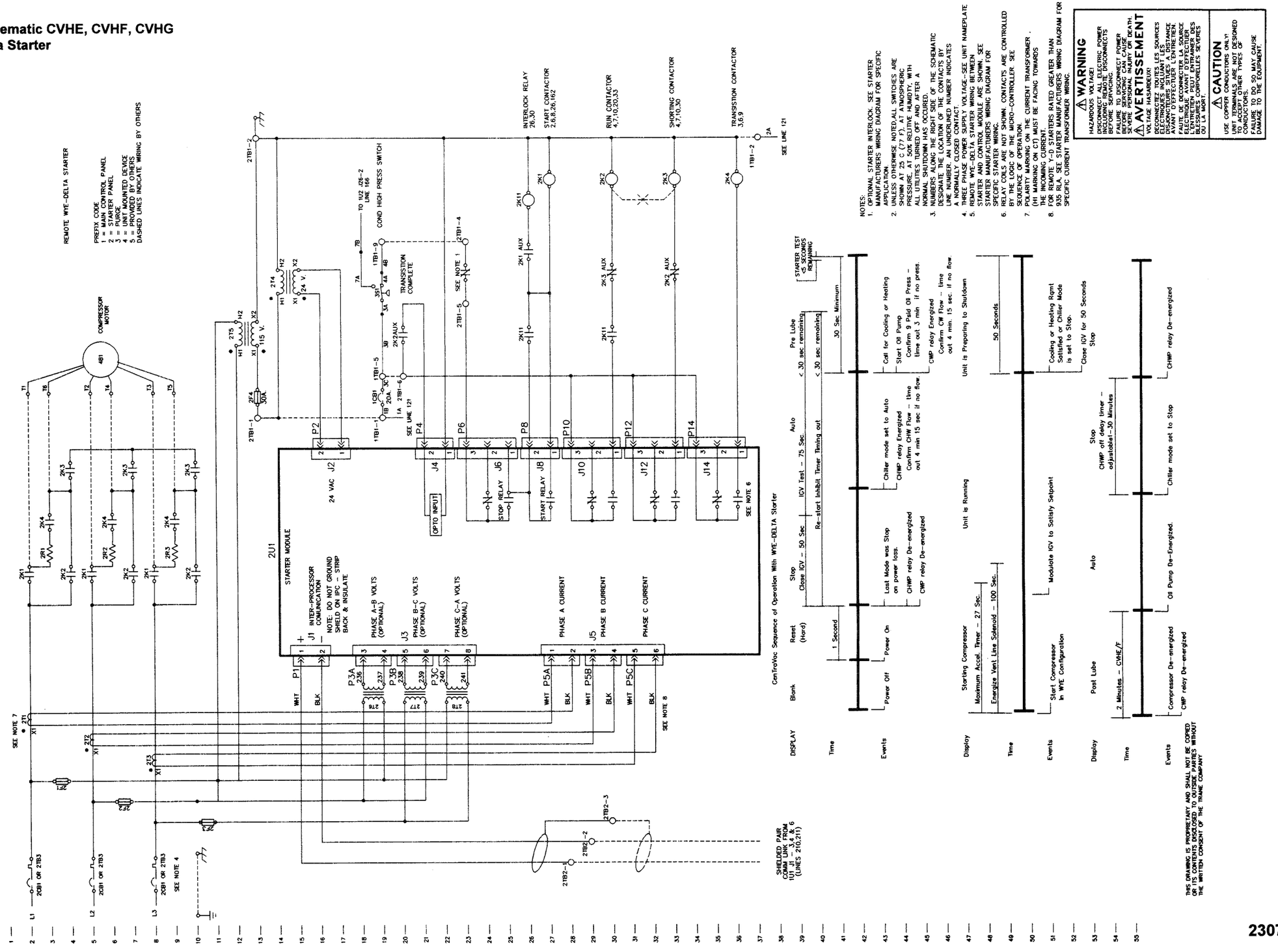

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Figure 5
Typical UCP2 Schematic CVHE, CVHF, CVHG
Remote Adaptive Frequency™ Drive

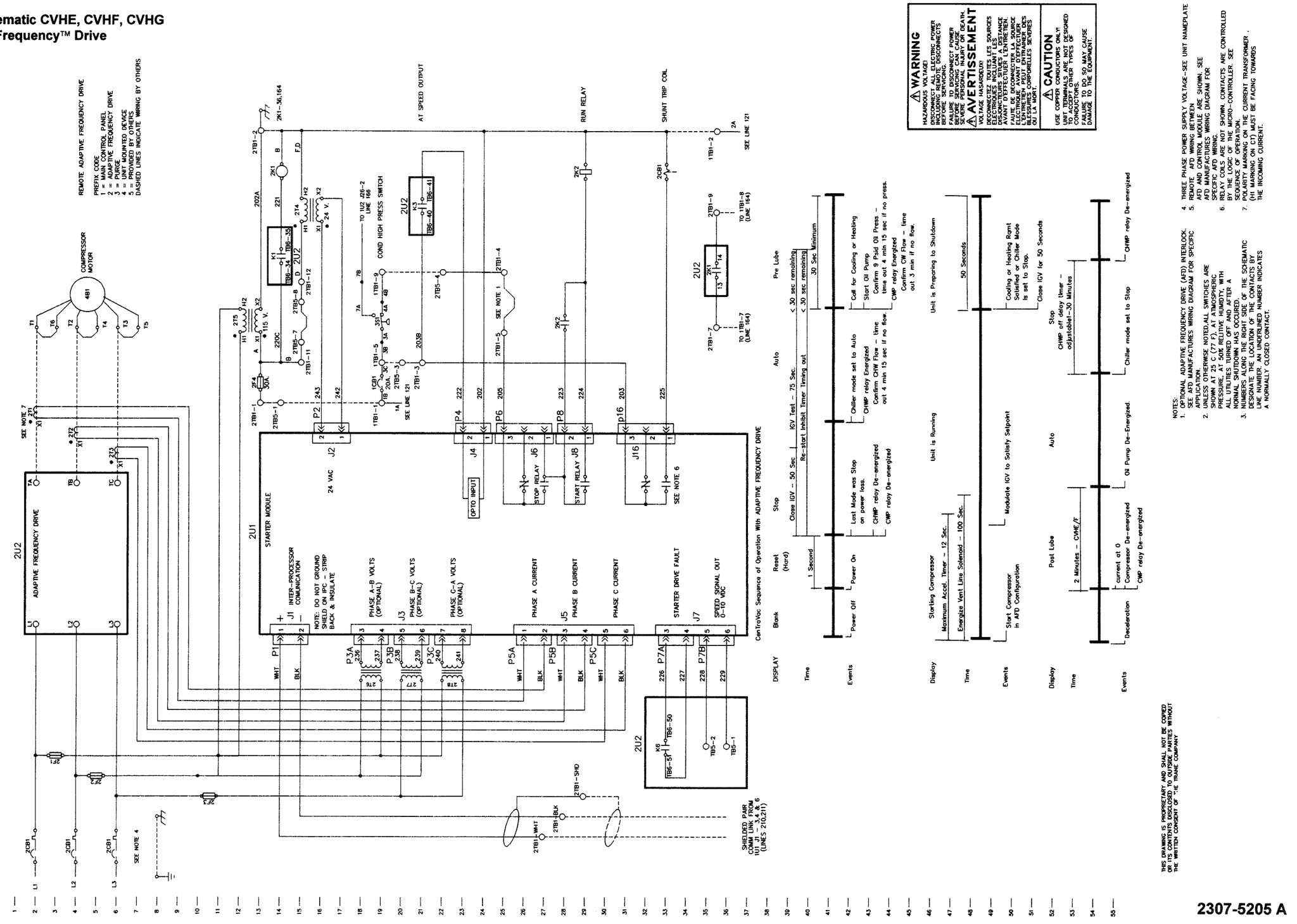

Figure 6
Typical UCP2 Schematic CVHE, CVHF, CVHG
Customer Supplied Across the Line Starter

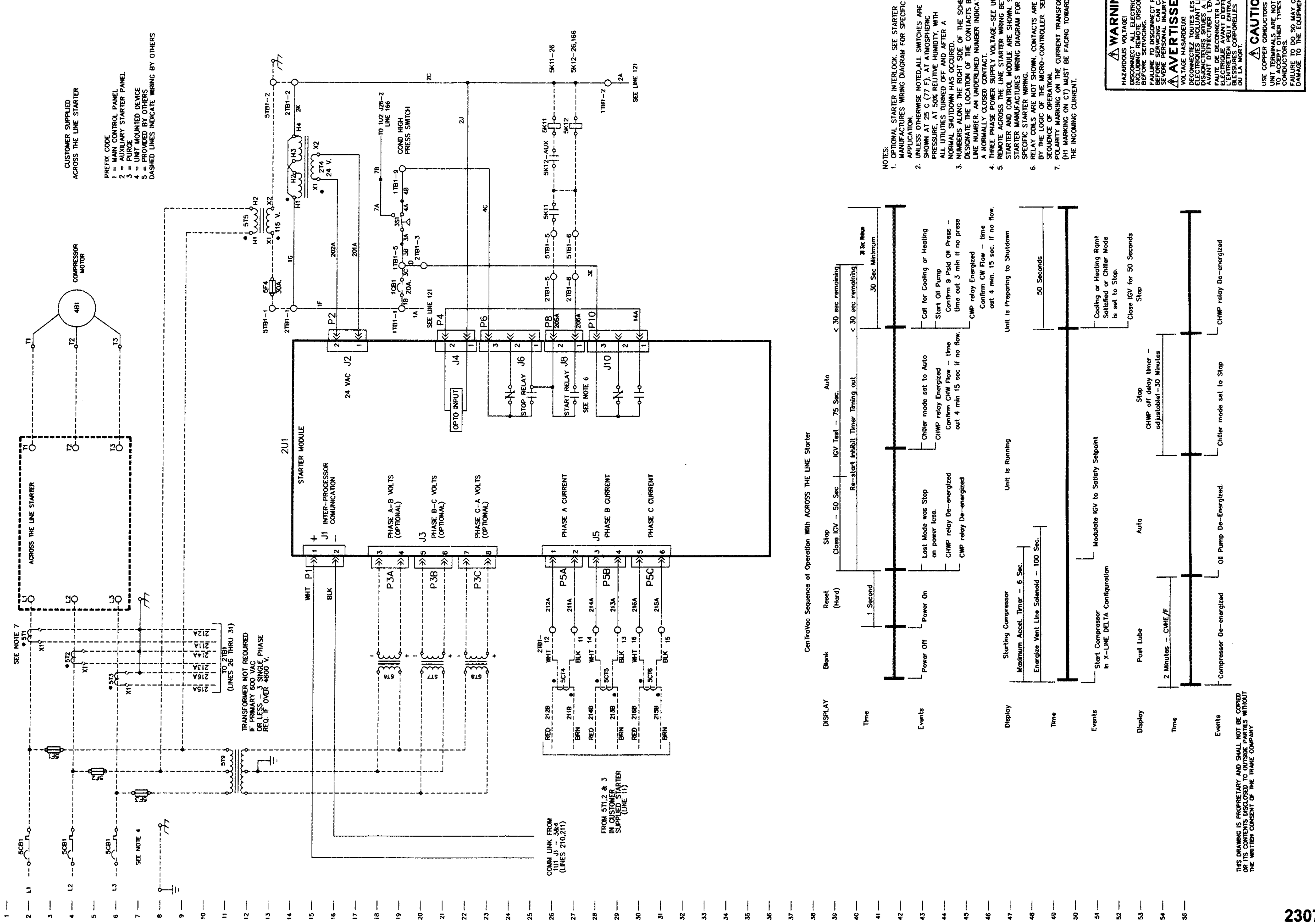

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Figure 7
Typical UCP2 Schematic CVHE, CVHF, CVHG
Remote Mounted Solid State Starter

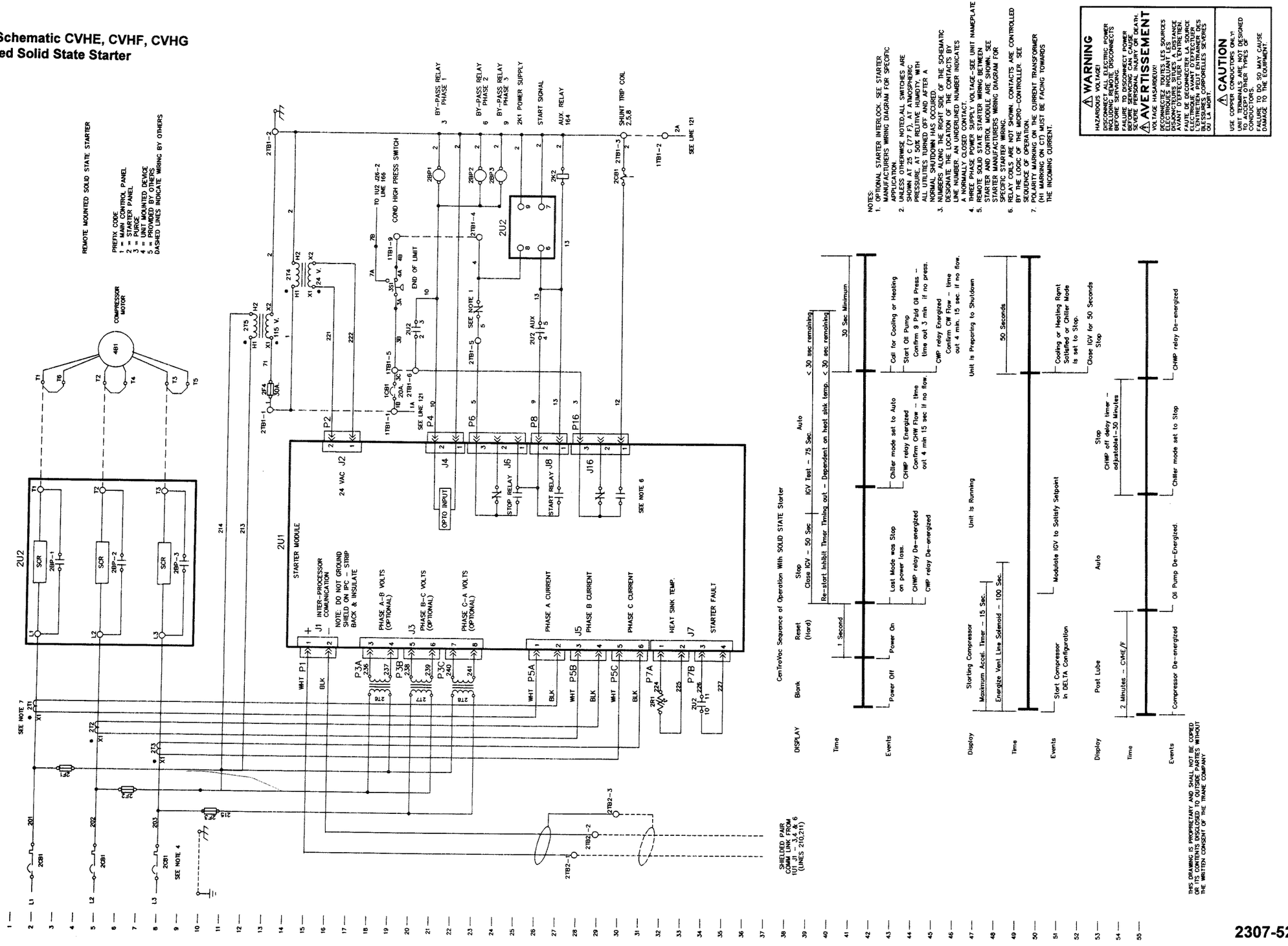

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Figure 8
Typical UCP2 Schematic CVHE, CVHF and CVHG
Unit Mounted Solid State Starter

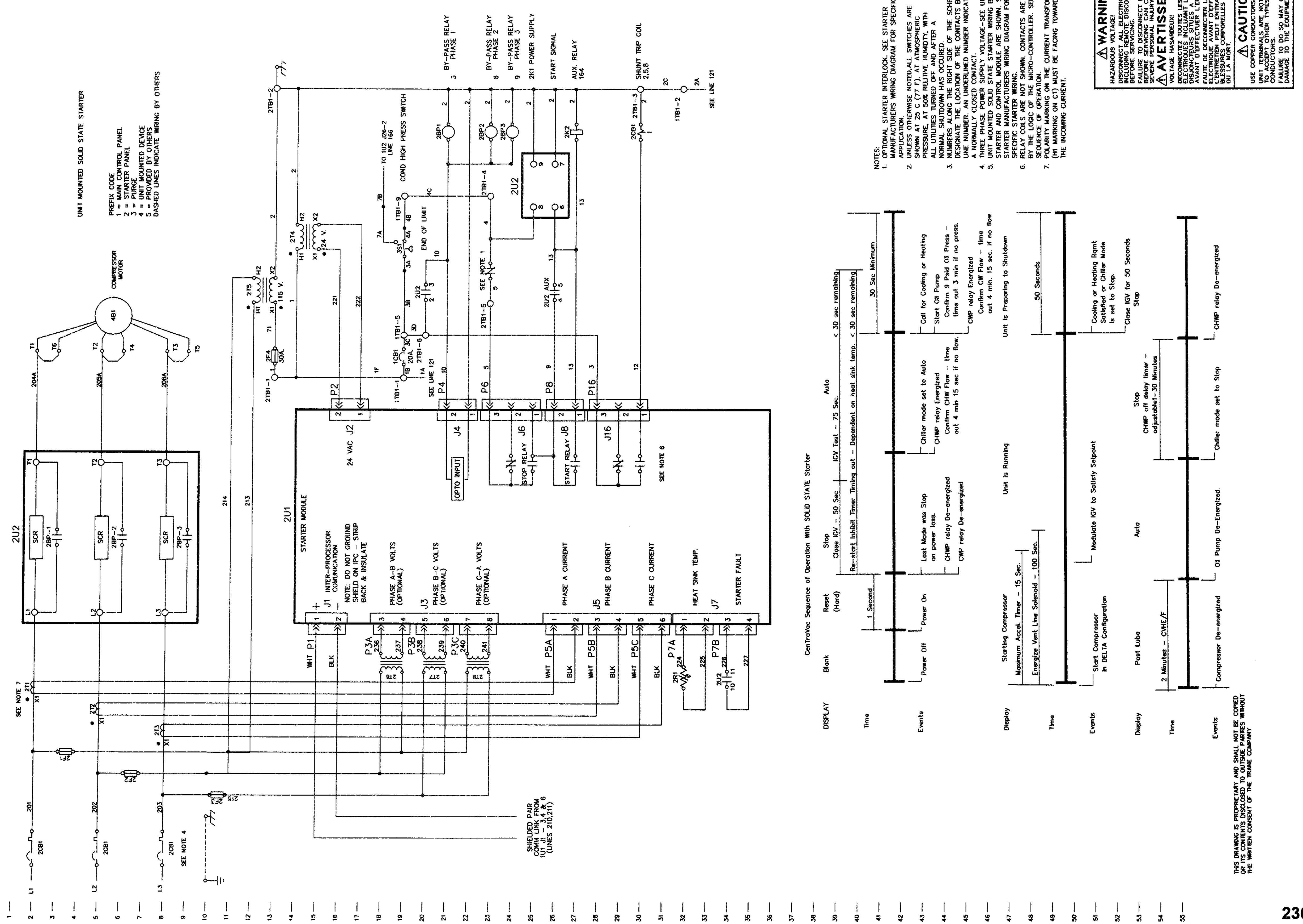

Figure 9
Typical UCP2 Schematic CVHE, CVHF, and CVHG
Unit Mounted Wye-Delta Starter

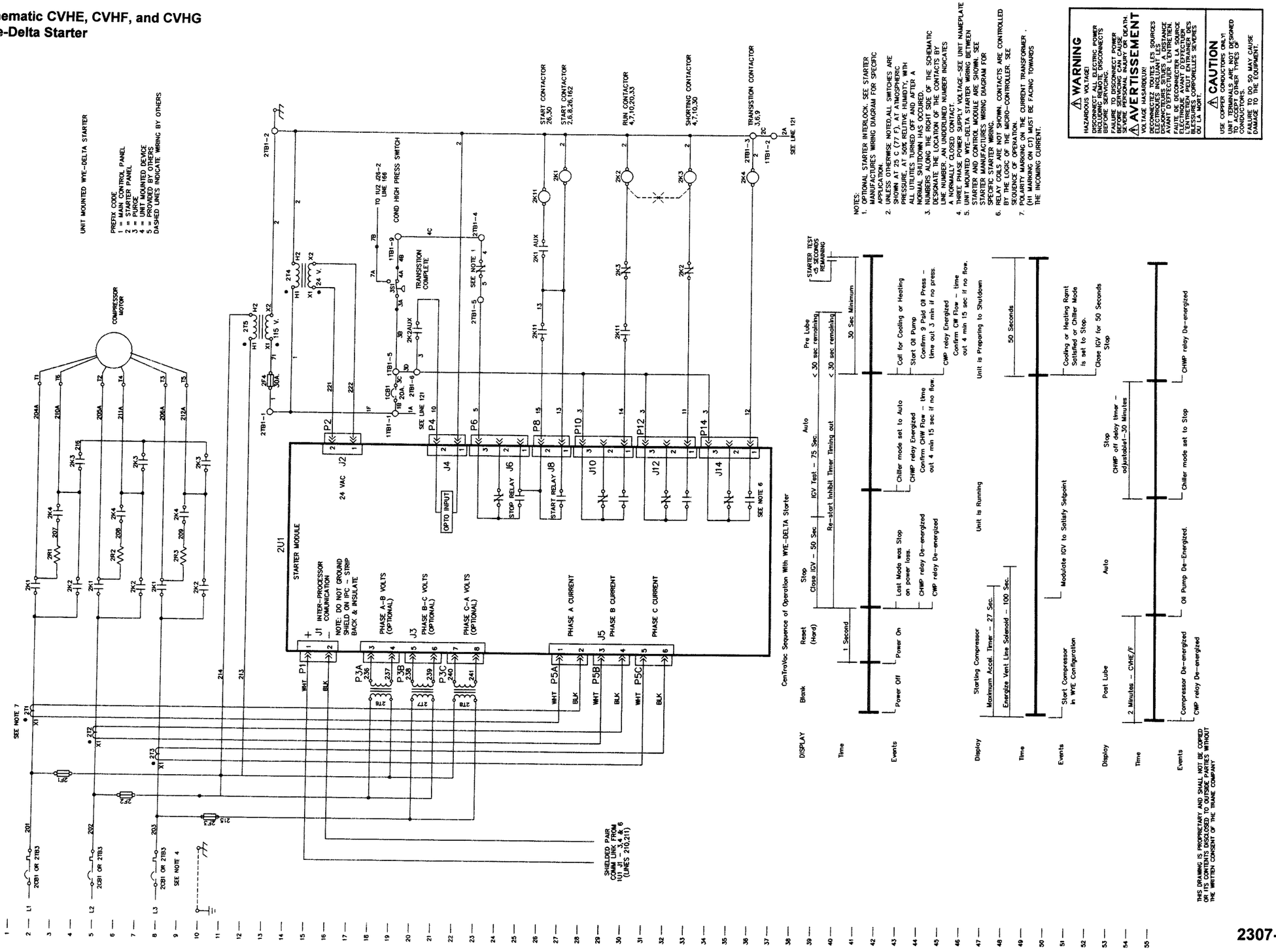

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Figure 10
Typical UCP2 Schematic CVHE, CVHF, CVHG
Customer Supplied Solid State Starter

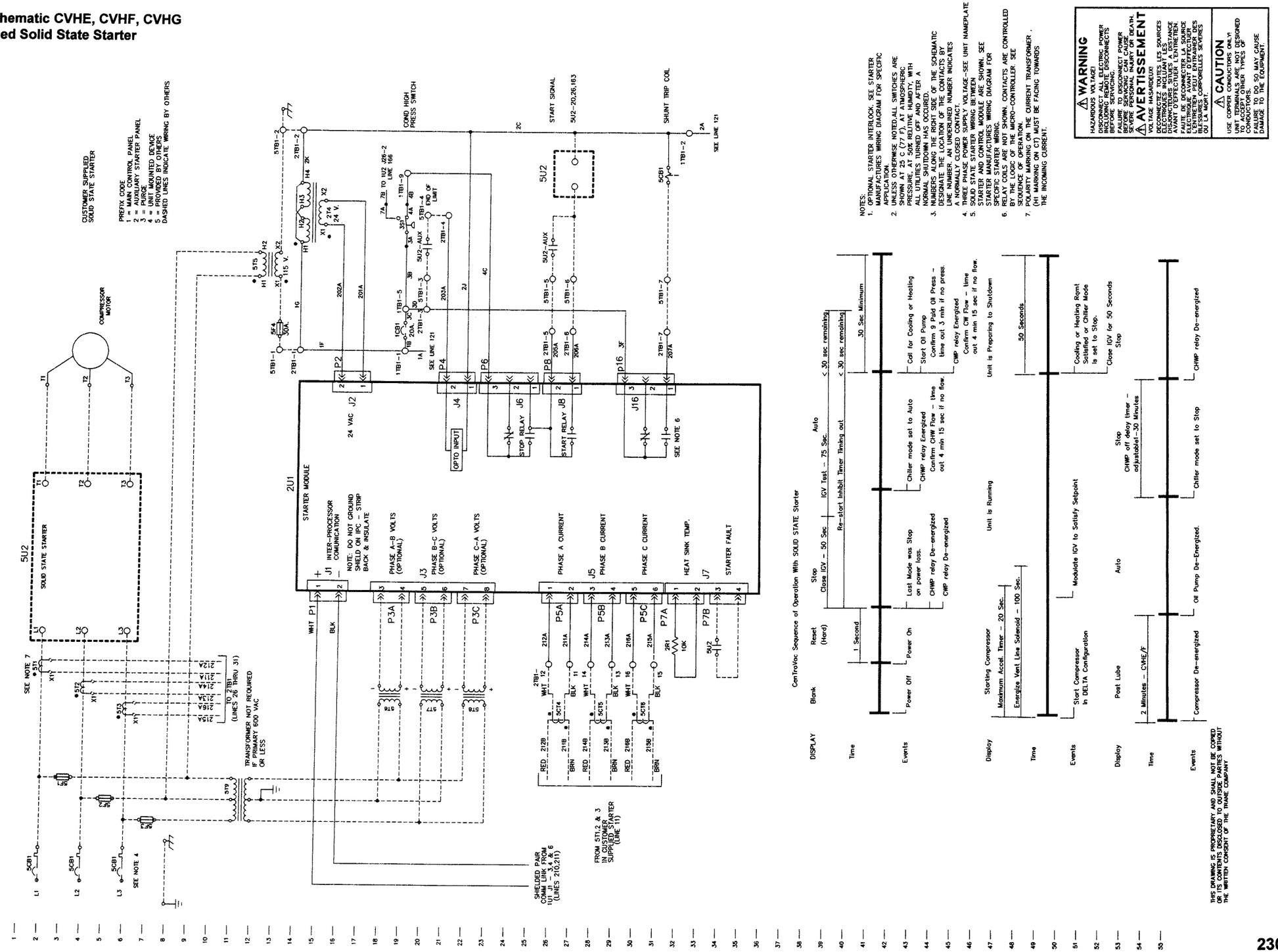

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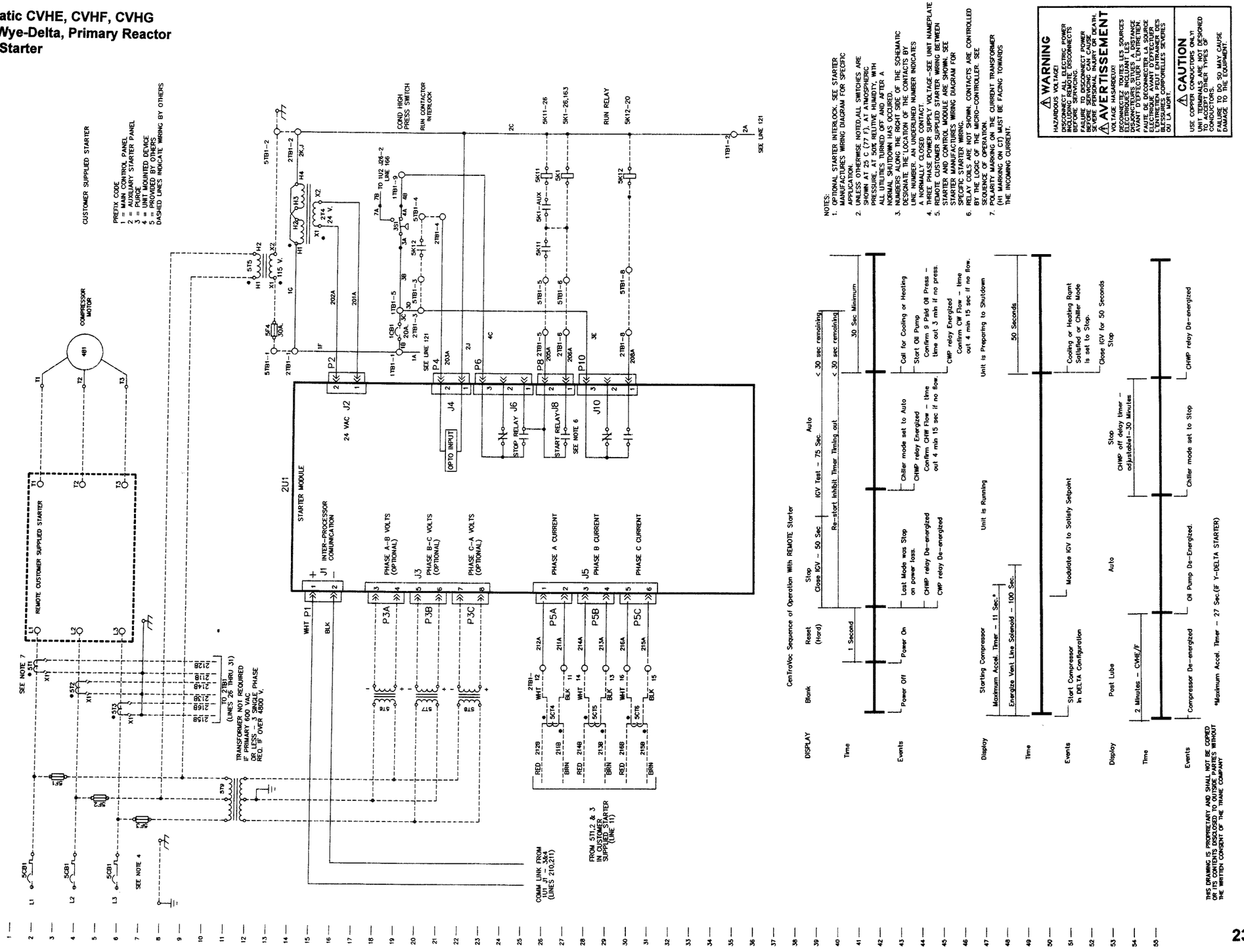
Figure 11
Typical UCP2 Schematic CVHE, CVHF, CVHG
Customer Supplied, Wye-Delta, Primary Reactor
or Auto Transformer Starter



NOTES:
1. OPTIONAL STARTER INTERLOCK. SEE STARTER MANUFACTURES WIRING DIAGRAM FOR SPECIFIC APPLICATION.
2. UNLESS OTHERWISE NOTED, ALL SWITCHES ARE SHOWN AT 25°C (77°F), AT ATMOSPHERIC PRESSURE, AT SEA LEVEL WITH ALL UTILITIES TURNED OFF AND AFTER A NORMAL SHUTDOWN HAS OCCURRED.
3. NUMBERS ALONG THE RIGHT SIDE OF THE SCHEMATIC DESIGNATE THE LOCATION OF THE CONTACTS BY LINE NUMBER. A LINE NUMBER FOLLOWED BY A NUMBER INDICATES A NORMALLY CLOSED CONTACT.
4. THREE PHASE POWER SUPPLY VOLTAGE—SEE UNIT NAMEPLATE
5. REMOTE CUSTOMER SUPPLIED STARTER WIRING BETWEEN STARTER AND CONTROL PANEL SHOWN. SEE STARTER MANUFACTURES WIRING DIAGRAM FOR SPECIFIC STARTER WIRING.
6. RELAY COILS ARE NOT SHOWN. CONTACTS ARE CONTROLLED BY THE LOGIC OF THE MICRO-CONTROLLER. SEE SEQUENCE OF OPERATION.
7. POLARITY MARKING ON THE CURRENT TRANSFORMER (H1 MARKING ON CT) MUST BE FACING TOWARDS THE INCOMING CURRENT.

⚠ WARNING
HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS BEFORE SERVICING.
FAILURE TO DISCONNECT POWER BEFORE SERVICING CAN CAUSE ELECTRICAL SHOCK RESULTING IN DEATH.

⚠ AVERTISSEMENT
⚠ FAIRE MAXIMUM
DECONNECTEZ TOUTES LES SOURCES ELECTRIQUES INCLUANT LES INTERRUPTEURS A DISTANCE AVANT D'EFFECTUER L'ENTRETIEN.
FAUTE DE CE FAIRE PEUT CAUSER DU CHOC ELECTRIQUE RESULTANT EN LA MORT.
L'ENTRETIEN PEUT ENTRAINER DES RISQUES ELECTRIQUES, MECANIQUES OU LA MORT.

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

CenTraVac Sequence of Operation With REMOTE Starter

DISPLAY	Blank	Reset (Hard)	Stop	Auto
Time		1 Second	Close IGV – 50 Sec	IGV Test – 75 Sec. / Re-start Inhibit Timer Timing out / < 30 sec remaining / < 30 sec remaining / 30 Sec Minimum
Events	Power Off	Power On	Lost Mode was Stop on power loss. / CHWP relay De-energized / CWP relay De-energized	Chiller mode set to Auto / CHWP relay Energized / Confirm CHW Flow – time out 4 min 15 sec if no flow.	Call for Cooling or Heating / Start Oil Pump / Confirm $ Psid Oil Press – time out 3 min if no press. / CWP relay Energized / Confirm CW Flow – time out 4 min 15 sec if no flow.

Display	Starting Compressor	Unit is Running	Unit is Preparing to Shutdown
Time	Maximum Accel. Timer – 11 Sec.* / Energize Vent Line Solenoid – 100 Sec.	Modulate IGV to Satisfy Setpoint	50 Seconds
Events	Start Compressor in DELTA Configuration		Cooling or Heating Remt Satisfied or Chiller Mode is set to Stop. / Close IGV for 50 Seconds Stop

Display	Post Lube	Auto	Stop
Time	2 Minutes – CVHE/F		CHWP off delay timer – adjustable1–30 Minutes
Events	Compressor De-energized	Oil Pump De-Energized	Chiller mode set to Stop	CHWP relay De-energized

*Maximum Accel. Timer – 27 Sec.(F Y-DELTA STARTER)

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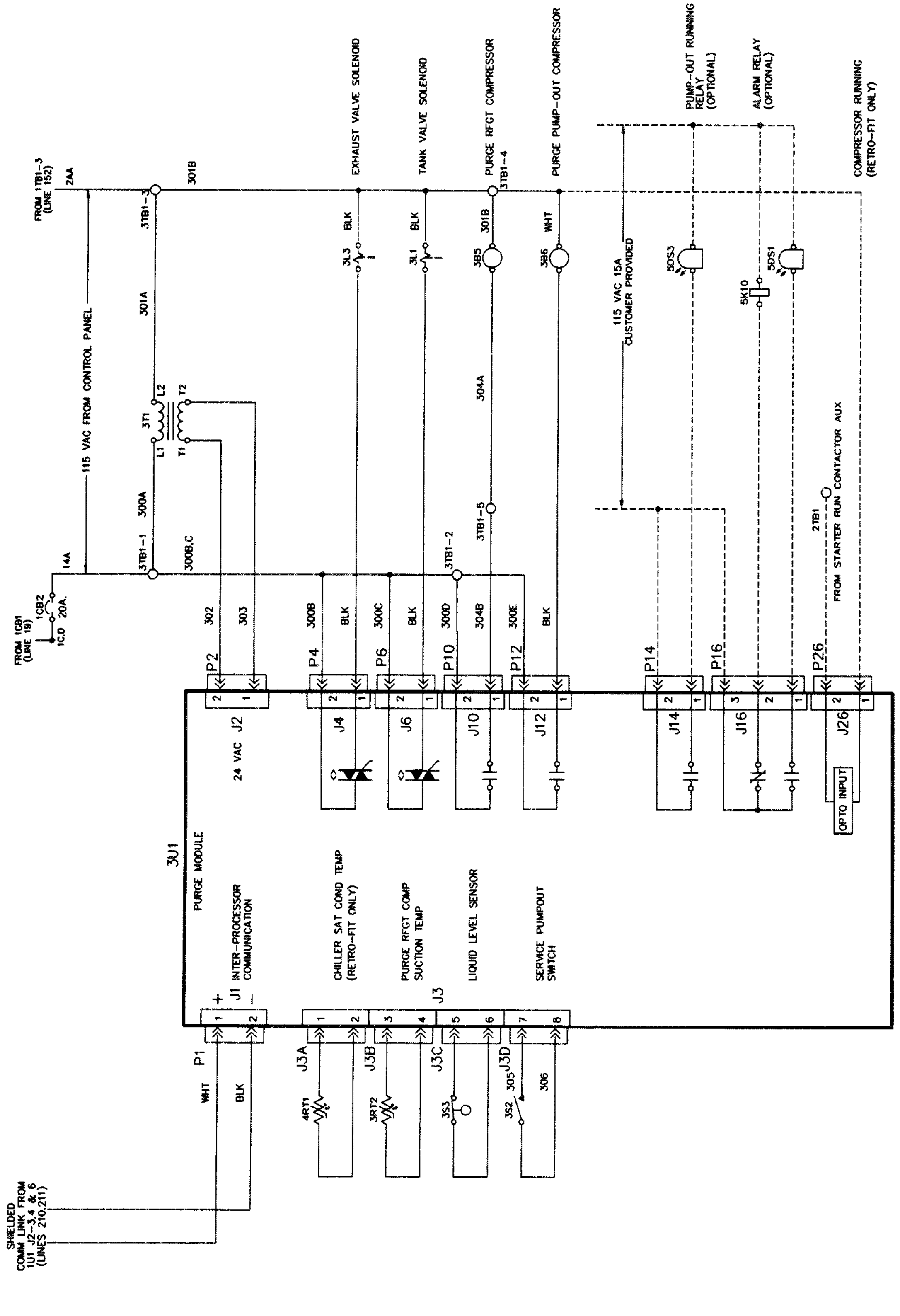
Figure 12
Typical UCP2 Schematic CVHE, CVHF, CVHG
Purge Module



⚠ WARNING
HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS BEFORE SERVICING.
FAILURE TO DISCONNECT POWER BEFORE SERVICING CAN CAUSE SEVERE PERSONAL INJURY OR DEATH.

⚠ AVERTISSEMENT
VOLTAGE HASARDEUX!
DECONNECTEZ TOUTES LES SOURCES ELECTRIQUES INCLUANT LES DISJONCTEURS SITUES A DISTANCE AVANT D'EFFECTUER L'ENTRETIEN.
FAUTE DE DECONNECTER LA SOURCE ELECTRIQUE AVANT D'EFFECTUER L'ENTRETIEN PEUT ENTRAINER DES BLESSURES CORPORELLES SEVERES OU LA MORT.

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

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Figure 13
Typical UCP2 Schematic CVHE, CVHF, CVHG
Human Interface, Stepper and Circuit Modules

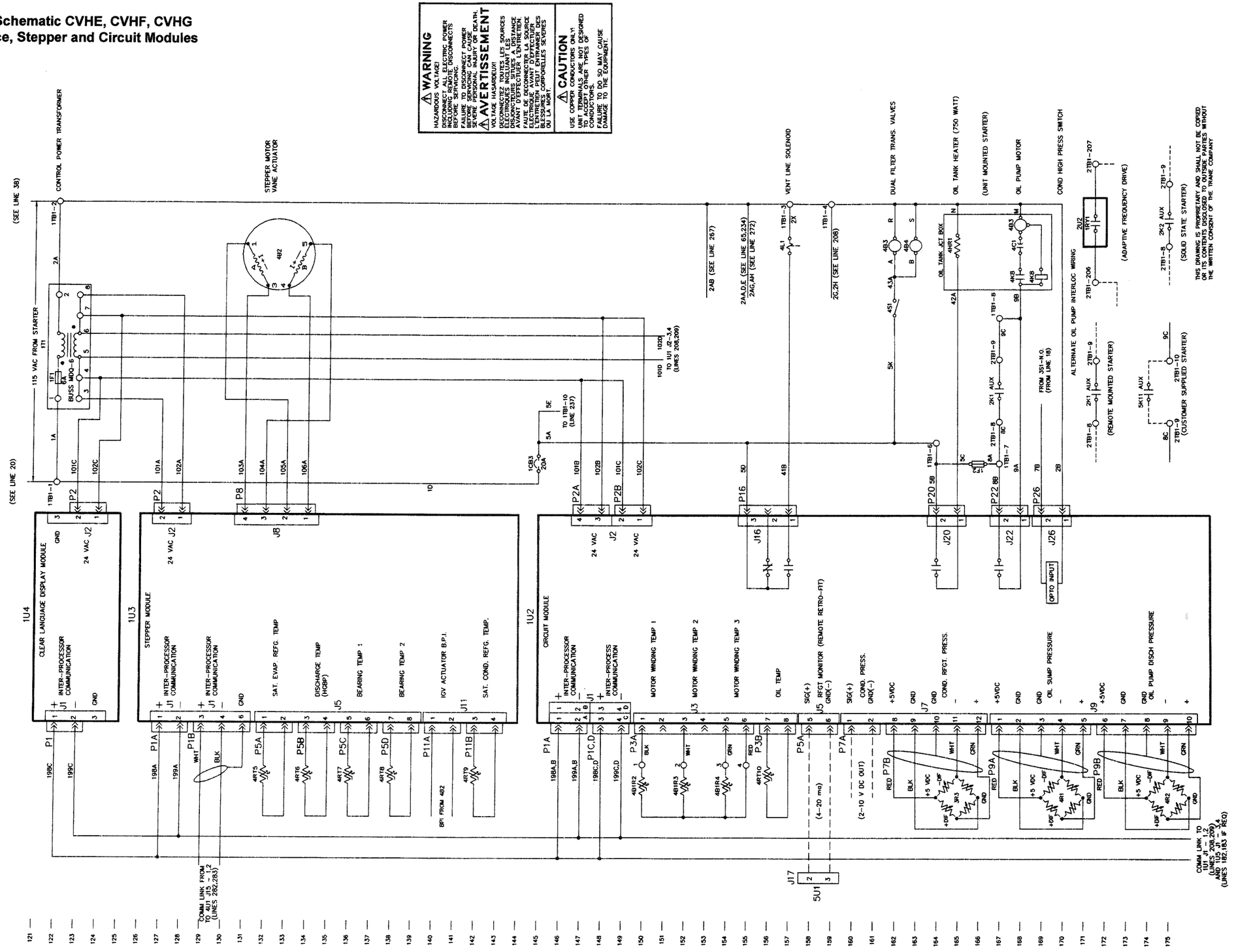

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Figure 14
Typical UCP2 Schematic CVHE, CVHF, CVHG
Chiller and Communications Modules

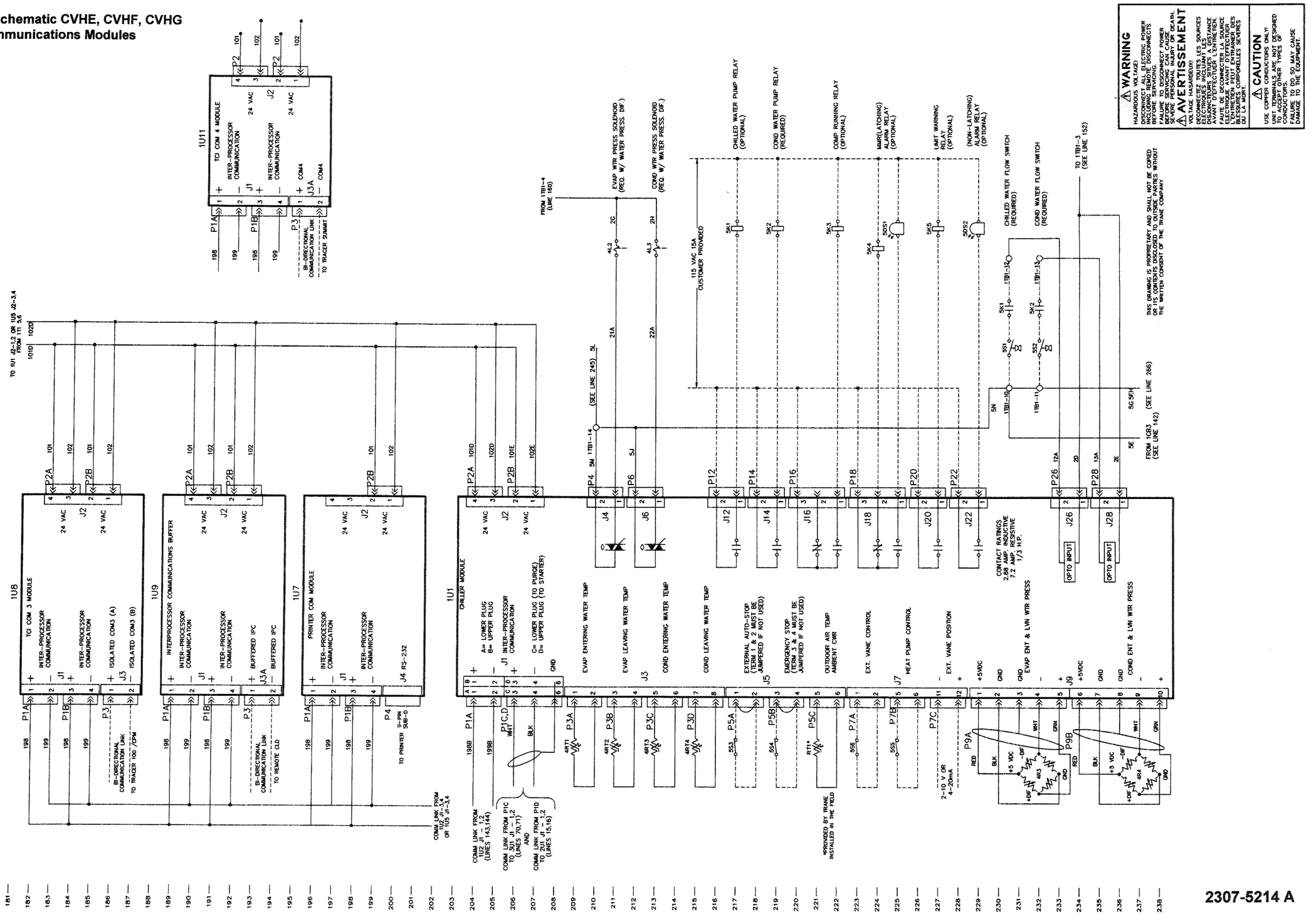

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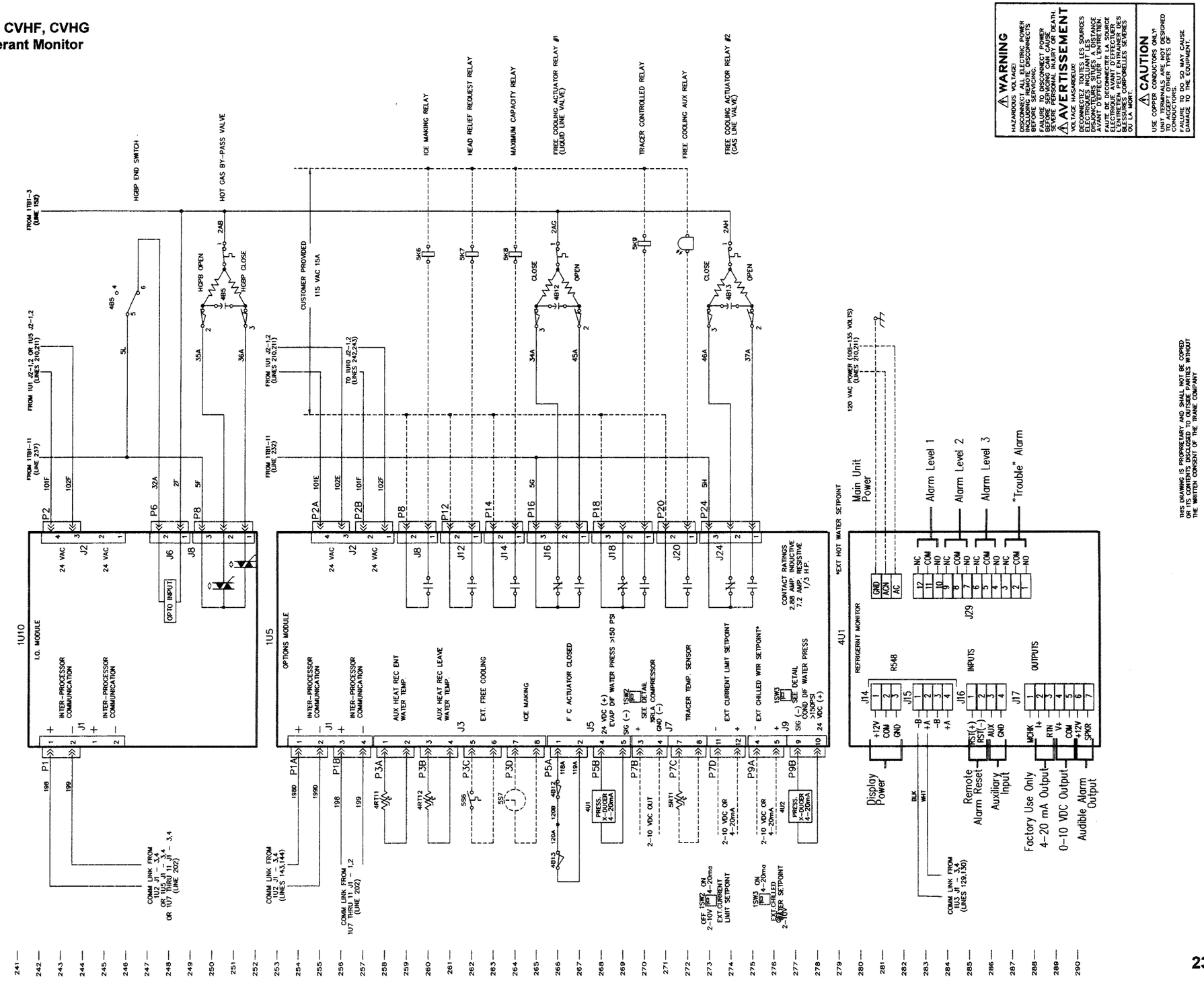
Figure 15
Typical UCP2 Schematic CVHE, CVHF, CVHG
Options I.O. Module and Refrigerant Monitor



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PURPOSE: THIS DRAWING IS TO BE USED FOR ESTIMATING FIELD WIRING REQUIREMENTS.

NOTES:
1. DASHED LINES INDICATE FIELD WIRING BY OTHERS. CHECK SALES ORDER TO DETERMINE WHICH OPTIONS ARE SPECIFIED.
2. DO NOT ROUTE LOW VOLTAGE (30V MAX) WITH CONTROL VOLTAGE (115V) AND DO NOT POWER UNIT UNTIL CHECK-OUT AND START-UP PROCEDURES HAVE BEEN COMPLETED.
3. THE FOLLOWING OPTIONS ARE AVAILABLE. REFER TO MECHANICAL SPECIFICATION FOR DESCRIPTION:
   - (A) OPTIONS MODULE: REQUIRED W/FLAGGED FEATURES (REFER TO CONTROL SCHEMATICS)
   - (B) COMMUNICATIONS INTERFACE – COMM3 OR COMM4 (CONSULT SALES OFFICE FOR SELECTION)
   - (C) UNIT DISCONNECT, NON FUSED
   - (D) CHILLED WATER RESET–OUTDOOR AIR
4. EVAPORATOR AND CONDENSER FLOW SWITCHES ARE REQUIRED. THEY MUST BE INSTALLED AND WIRED TO THE TRANE PANEL BY THE INSTALLING CONTRACTOR. PURCHASE OF SWITCHES FROM TRANE IS OPTIONAL.
5. AUXILIARY CONTROLS FOR A CUSTOMER SPECIFIED OR INSTALLED LATCHING TRIPOUT. THE CHILLER WILL RUN NORMALLY WHEN THE CONTACT IS CLOSED AND TRIP THE CHILLER OFF WITH A MANUALLY RESETTABLE DIAGNOSTIC WHEN THE CONTACT OPENS. MANUAL RESET IS ACCOMPLISHED AT THE DIAGNOSTIC KEY ON THE FRONT OF THE UNIT CONTROL PANEL (UCP2).
6. AUXILIARY CONTROLS FOR A CUSTOMER SPECIFIED OR INSTALLED REMOTE AUTO/STOP FUNCTION. THE CHILLER WILL RUN NORMALLY WHEN THE CONTACT IS CLOSED AND STOP THE CHILLER WHEN THE CONTACT IS OPEN. RE-CLOSURE OF THE CONTACT WILL PERMIT THE CHILLER TO AUTOMATICALLY RETURN TO NORMAL OPERATION.

REQUIRED WIRING:
7. ALL CUSTOMER CONTROL CIRCUIT WIRING MUST HAVE A MINIMUM RATING OF 150 VOLTS.
8. ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC), STATE AND LOCAL REQUIREMENTS. OUTSIDE THE UNITED STATES, OTHER COUNTRIES APPLICABLE NATIONAL AND/OR LOCAL REQUIREMENTS SHALL APPLY.
9. THE UNIT CONTROL PANEL (UCP2) SUPPLIES A CONTACT OUTPUT TO CONTROL THIS CUSTOMER SUPPLIED DEVICE. MAXIMUM FUSE SIZE – 15 AMPS.
10. COPPER WIRE ONLY – SIZED PER N.E.C. – BASED ON NAMEPLATE RATING.
11. 2 WIRES, 115 VAC CIRCUIT. MINIMUM CONTACT RATING AT 115 VAC – 2.88 INDUCTIVE 1/3 H.P.
12. 7 WIRES 2 – #10 AWG 600V, 4 – #16 AWG 600V, 1 – #8 GRN FOR GROUND
13. 2 WIRES, 30 VOLT OR LESS CIRCUIT. MAX LENGTH 5000 FT. BELDON TYPE 8760
14. IF UNIT IS SUPPLIED WITH UNIT MOUNTED STARTER, FIELD WIRING BETWEEN UNIT AND STARTER IS NOT REQUIRED.

OPTIONAL WIRING:
15. 3 WIRES, 115 VAC CIRCUIT, SEPARATE 115 VAC POWER SUPPLY IS REQUIRED. CONTACTS ARE NO/NC RATINGS – 2.88 INDUCTIVE 1/3 H.P. AT 115 VAC.
16. 2 WIRES, 115 VAC CIRCUIT, SEPARATE POWER SUPPLY IS REQUIRED. CONTACTS ARE N.O. CONTACT RATING – 2.88 INDUCTIVE 1/3 H.P. AT 115 VAC.
17. 2 WIRES, 30 VOLT OR LESS CIRCUIT. DO NOT RUN IN CONDUIT WITH HIGHER VOLTAGE CIRCUITS.
18. SHIELDED PAIR. 30 VOLT OR LESS CIRCUIT. MAX LENGTH 5000 FT. BELDON TYPE 8760 RECOMMENDED.
19. CUSTOMER SUPPLIED SILVER CONTACTS MUST BE COMPATIBLE WITH DRY CIRCUIT 24 VDC, 12mA RESISTIVE LOAD.

Figure 16
UCP2 Field Lay-Out Diagram
CVHE, CVHF, CVHG

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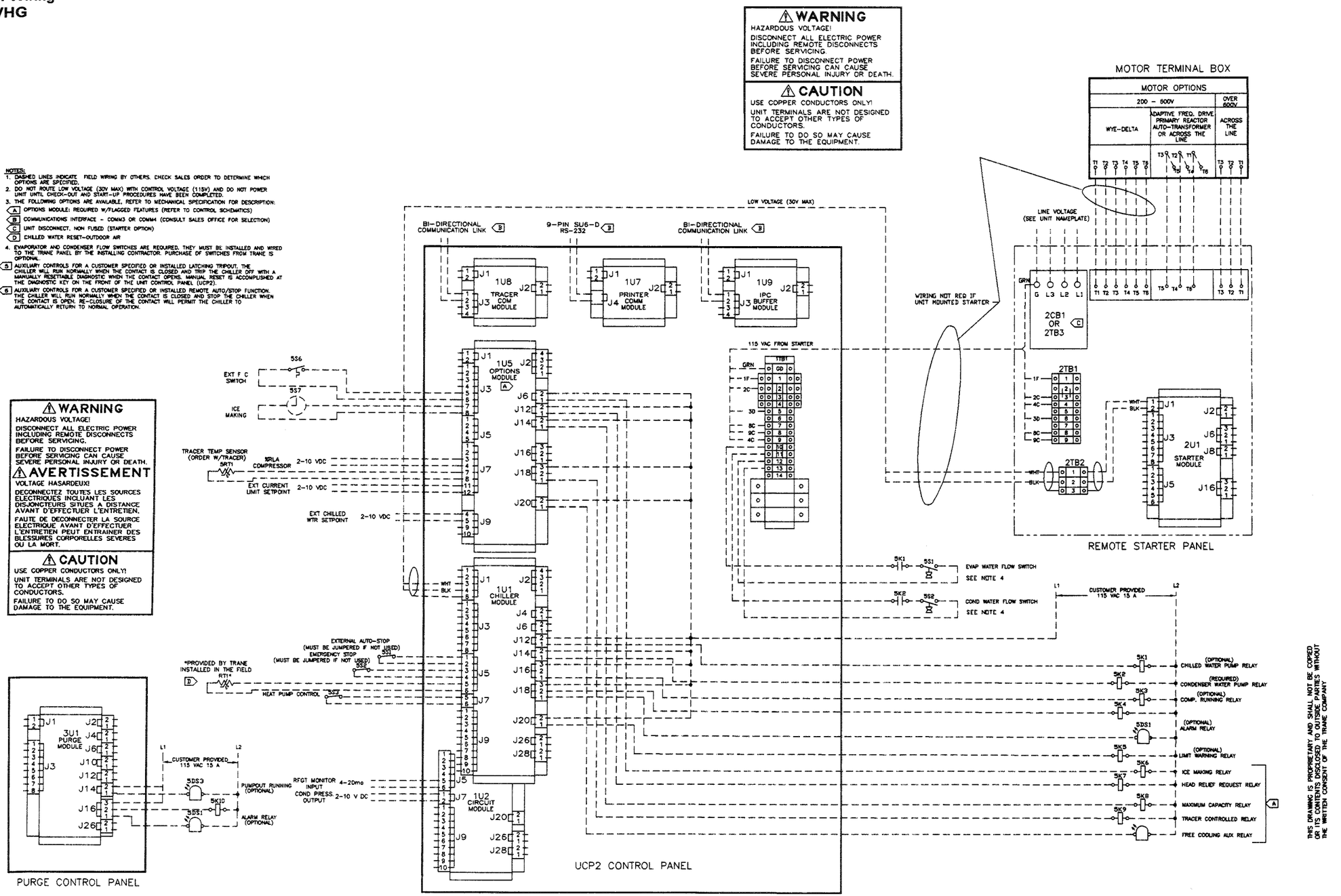
⚠ WARNING
HAZARDOUS VOLTAGE W/ELECTRIC POWER
DISCONNECT ALL ELECTRIC POWER
INCLUDING REMOTE DISCONNECTS
BEFORE SERVICING.
FAILURE TO DISCONNECT POWER
BEFORE SERVICING MAY CAUSE
SEVERE PERSONAL INJURY OR DEATH.

⚠ AVERTISSEMENT
VOLTAGE HASARDEUX!
DÉCONNECTEZ TOUTES LES SOURCES
D'ALIMENTATION ÉLECTRIQUE AUX
DISJONCTEURS SITUÉS À DISTANCE
AVANT D'EFFECTUER L'ENTRETIEN.
FAUTE DE DÉCONNECTER TOUTE
ÉLECTRICITÉ AVANT D'EFFECTUER
L'ENTRETIEN PEUT ENTRAÎNER DES
BLESSURES CORPORELLES SÉVÈRES
OU LA MORT.

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

Figure 17
Field Connection Wiring
CVHE, CVHF, CVHG



NOTES:
1. DASHED LINES INDICATE FIELD WIRING BY OTHERS. CHECK SALES ORDER TO DETERMINE WHICH OPTIONS ARE SPECIFIED.
2. DO NOT ROUTE LOW VOLTAGE (30V MAX) WITH CONTROL VOLTAGE (115V) AND DO NOT POWER UNIT UNTIL CHECK-OUT AND START-UP PROCEDURES HAVE BEEN COMPLETED.
3. THE FOLLOWING OPTIONS ARE AVAILABLE. REFER TO MECHANICAL SPECIFICATION FOR DESCRIPTION:
   - (A) OPTIONS MODULE: REQUIRED W/FLAGGED FEATURES (REFER TO CONTROL SCHEMATICS)
   - (B) COMMUNICATIONS INTERFACE - COMM3 OR COMM4 (CONSULT SALES OFFICE FOR SELECTION)
   - (C) UNIT DISCONNECT: NON FUSED (STARTER OPTION)
   - (D) CHILLED WATER RESET-OUTDOOR AIR
4. EVAPORATOR AND CONDENSER FLOW SWITCHES ARE REQUIRED. THEY MUST BE INSTALLED AND WIRED TO THE TRANE PANEL BY THE INSTALLING CONTRACTOR. PURCHASE OF SWITCHES FROM TRANE IS OPTIONAL.
5. AUXILIARY CONTROLS FOR A CUSTOMER SPECIFIED OR INSTALLED LATCHING TRIPOUT. THE CHILLER WILL RUN NORMALLY WHEN THE CONTACT IS CLOSED AND TRIP THE CHILLER OFF WITH A MANUALLY RESETTABLE DIAGNOSTIC WHEN THE CONTACT OPENS. MANUAL RESET IS ACCOMPLISHED AT THE DIAGNOSTIC KEY ON THE FRONT OF THE UNIT CONTROL PANEL (UCP2).
6. AUXILIARY CONTROLS FOR A CUSTOMER SPECIFIED OR INSTALLED REMOTE AUTO/STOP FUNCTION. THE CHILLER WILL RUN NORMALLY WHEN THE CONTACT IS CLOSED AND STOP THE CHILLER WHEN THE CONTACT IS OPEN. RE-CLOSURE OF THE CONTACT WILL PERMIT THE CHILLER TO AUTOMATICALLY RETURN TO NORMAL OPERATION.

⚠ WARNING
HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS BEFORE SERVICING.
FAILURE TO DISCONNECT POWER BEFORE SERVICING CAN CAUSE SEVERE PERSONAL INJURY OR DEATH.
⚠ AVERTISSEMENT
VOLTAGE HASARDEUX!
DECONNECTEZ TOUTES LES SOURCES ELECTRIQUES INCLUANT LES DISJONCTEURS SITUES A DISTANCE AVANT D'EFFECTUER L'ENTRETIEN.
FAUTE DE DECONNECTER LA SOURCE ELECTRIQUE AVANT D'EFFECTUER L'ENTRETIEN PEUT ENTRAINER DES BLESSURES CORPORELLES SEVERES OU LA MORT.
⚠ CAUTION
USE COPPER CONDUCTORS ONLY!
UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.
FAILURE TO DO SO MAY CAUSE DAMAGE TO THE EQUIPMENT.

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Figure 18
Field Connection Wiring - Starter by Others
CVHE, CVHF, CVHG

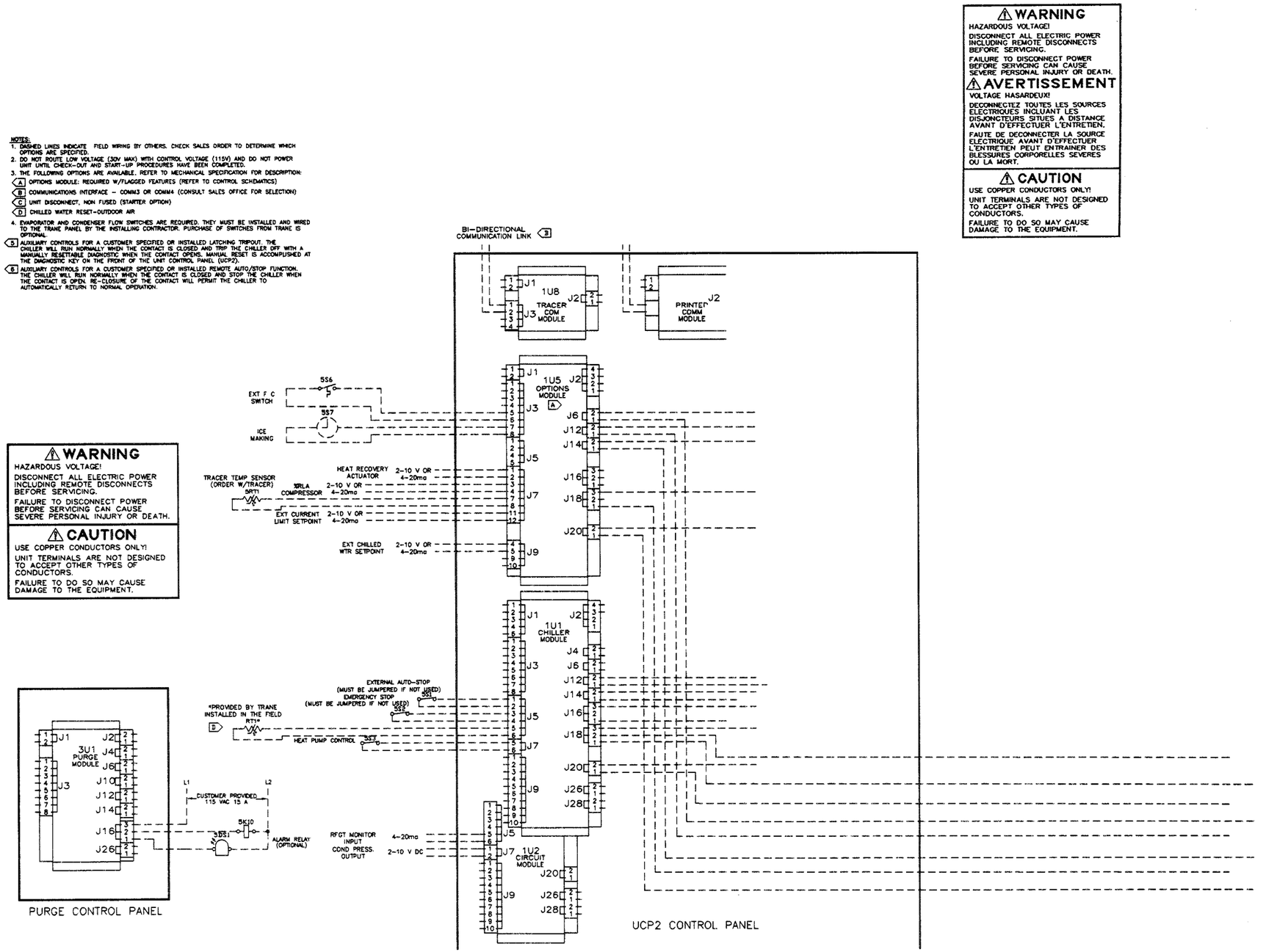

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Figure 19
Remote Adaptive Frequency Drive
w/Solid State By-Pass
CVHE, CVHF, CVHG
UCP2 Schematic Wiring

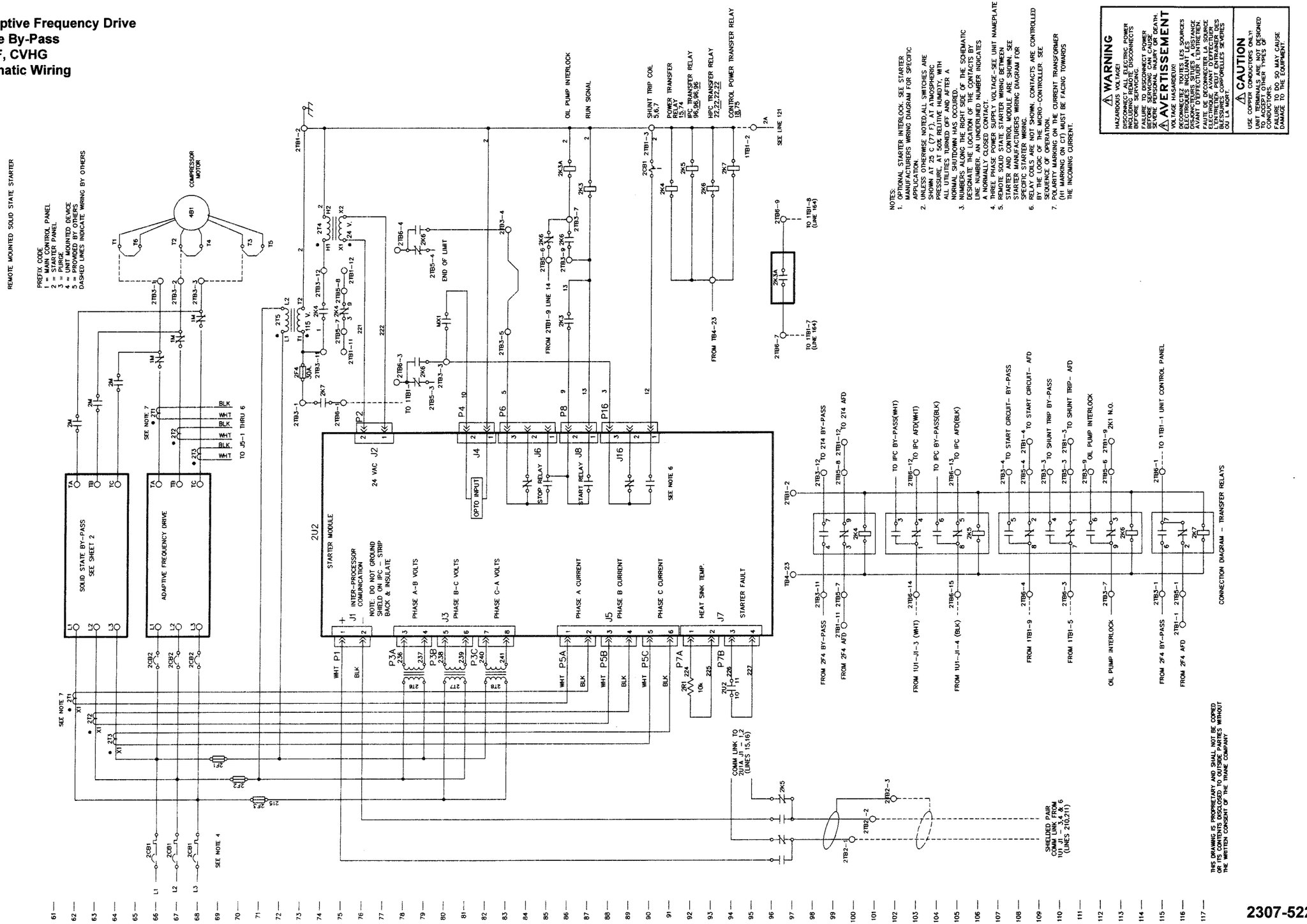
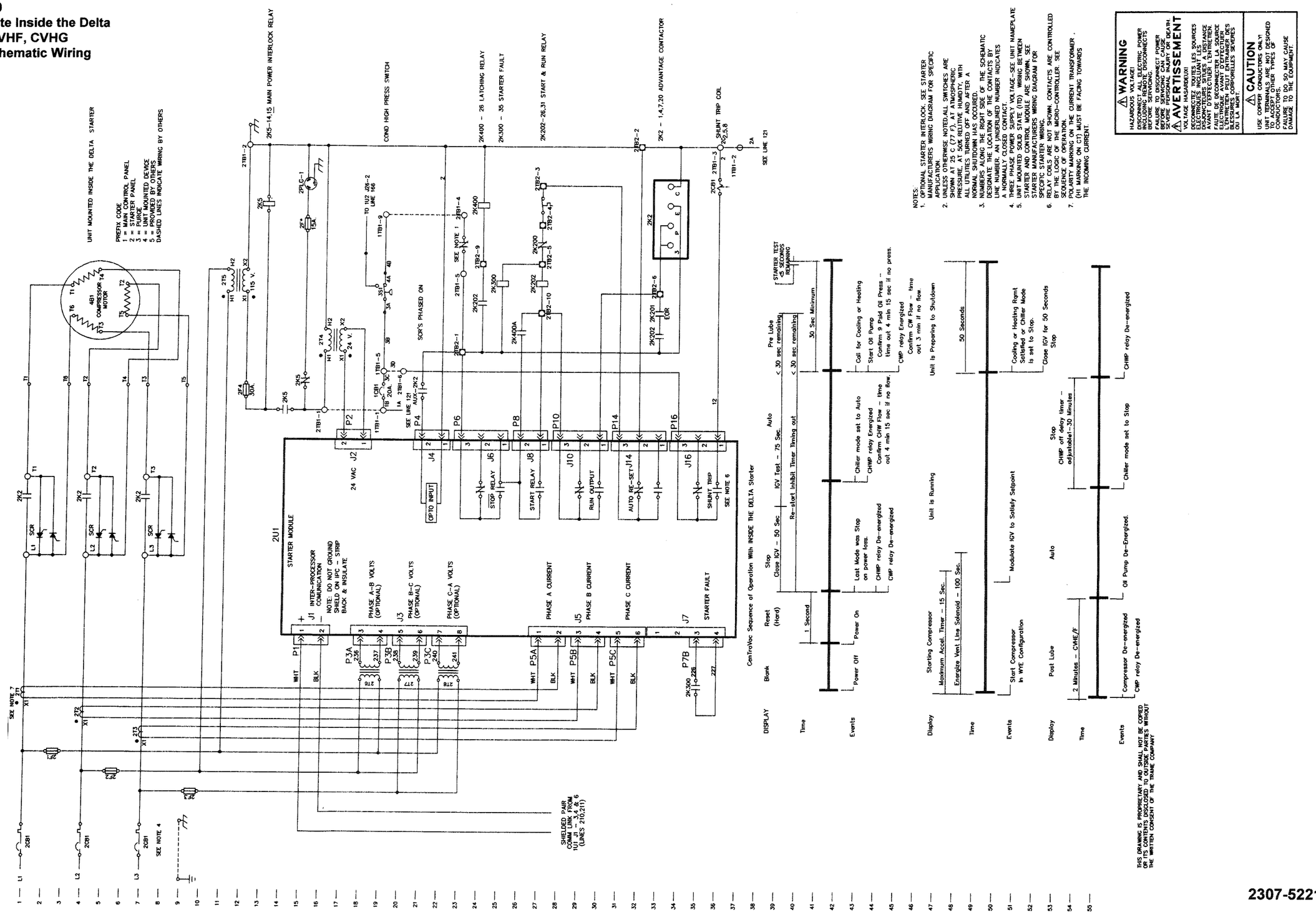


Figure 20
Solid State Inside the Delta
CVHE, CVHF, CVHG
UCP2 Schematic Wiring



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