TRANE®

Installation

Replacement of MOD00275 Control

Using Tracer™ CH530 Components

Models: CGWD, CGWE, CCAD, CGAD, CGAE, MOD00275

PART-SVN107A-EN

Introduction

Literature change history

PART-SVN107A-EN (April 2008) manual first release.

Warnings and Cautions

NOTICE: Warnings and Cautions 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 accidents

⚠ WARNING
Ground Wire!

All field-installed wiring must be completed by qualified personnel. All field-installed wiring must comply with NEC and applicable local codes. Failure to follow this instruction could result in death or serious injuries.

⚠ WARNING
Grounding Required!

Follow proper local and state electrical code on requirements for grounding. Failure to follow code could result in death or serious injury.

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General Information

Introduction

This information is provided to support the factory assembled RPAA, RPWA or RPCA complete control panel changes for original factory installed Cyclone control panels (service part number MOD00275). This work replaces the older control panel and chiller control part number MOD00275 with the current Tracer™ CH530 chiller controller components and software. The factory assembled portion includes the control panel components. Some of the control items will be field installed.

The step-by-step instructions outlined in this manual describe the procedures required to successfully retrofit factory installed controls on CGWD, CGWE, CCAD, CGAD and CGAE units with the CH530 based control system.

For help in selecting the correct part numbers to order see the latest version of PART-SVB19A-EN.

To properly install this retrofit, the technician must have a good knowledge of CH530 chiller controller systems. Training in CH530 controls is highly recommended before beginning this retrofit.

Note: New retrofit wiring diagrams and older Trane wiring diagrams are often referenced throughout this manual. Locate any drawings reflecting changes, upgrades, or building automation tie-ins that have been performed on the unit since original installation. A complete set of retrofit wiring diagrams are included in this manual. You may find it helpful to obtain a copy of the machine or job specific drawings before you attempt to perform the control system conversion.

Note: An entering water flow switch is required for proof of flow to provide freeze protection for the evaporator.

Replacement panel model number

The following model number breakdown provides a sample of information used when configuring this replacement panel. Other options may have been added or removed after printing of this manual so it may not be complete. The nameplate model and serial provided should be used for parts selection. Contact Trane Parts Center for assistance with your parts needs.

Sample: RPAA02040A0

Digit		Sample value	Description
1 and 2		RP	Replacement panel
3, Unit type		A	Air cooled condenser
		C	Condenserless chiller
		W	Water cooled condenser
4, Development sequence		A	Major design stage
5, 6 and 7, Nominal chiller size		020	20 tons
		025	25 tons
		030	30 tons
		040	40 tons
		050	50 tons
		060	60 tons
8, Voltage, Hz, Phase	Digit 3 = A	E	200/60/3 for CGAD or E
	= A	F	208/230/3 for CGAD or E
	C or W	G	208/230/3 for CGWD or E & CCAD
	A, C or W	4	460/60/3 for CGAD or E, CGWD or E, CCAD
	A, C or W	5	575/60/3 for CGAD or E, CGWD or E, CCAD
	A	9	380/50/3 for CGAD or E
	A	D	415/50/3 for CGAD or E
	C or W	D	380/60/3 for CGWD or E & CCAD
	C or W	N	400/50/3 for CGWD or E & CCAD
9, Condenser temperature range		0	None, CGA and CCA units
		1	CGW with std condenser temperature range
		4	CGW with high condenser temperature range
10 and 11, Design sequence		A0	This sequence changes

Nameplate

A retrofit nameplate is mounted on the new control panel box for water cooled units. For these units data from the existing nameplate should be transferred to the new nameplate that ships with the water cooled RPCA or RPWA panel. Or, the existing nameplate could be removed from the old panel and installed on the new panel if that is preferred.

For the air cooled condenser option (RPAA) an adhesive style nameplate ships loose with the kit. This should be installed near the existing unit nameplate.

Kit contents

See PART-SVB19A-EN for the selection of the correct CPN (control panel) and KIT (installation hardware kit) numbers.

The following table provides detailed information about individual hardware kit contents.

Table 1. Contents of hardware kits

Item	Part number	Description	KIT14971	KIT14972	KIT14969	KIT14970	KIT15059
1	SEN01314	Temperature sensor	3 each	3 each	3 each	3 each	2 each
2	TDR00354	Pressure transducer	2	4	2	4	
3	506755700100	Clear plastic sensor well	1	1	1	1	
4	CAB01146	Wire harness-male to 2 female - 0.5 m long	3	4	3	2	
5	CAB01147	Wire harness-male to 2 female - 1 m long				1	
6	CAB01148	Wire harness branching-male to 3 female - 0.5 m long	1	1		1	1
7	CAB01149	Wire harness extension-male to female - 1 m long	2	3	1	1	
8	CAB01150	Wire harness extension-male to female - 2 m long	1	1			
9	CAB01152	Wire harness extension-male to leads - 1 m long	1	1			
10	CAB01155	Wire harness extension-female to leads - 1 m long			1	1	
11	506897900100	DynaView mounting template	1	1			
12	DOR02240	DynaView cover	1	1			
13	506766670100	Insulation - 6.0" x 6.0"	3	5	3	5	
14	WEL00831	Bulbwell assembly - 1/4-18 NPT - 3.8" long	1	1	1	1	2
15	VAL02861	Depressor-1/4" flare hex nut x 1/4" male valve body	2	4	2	4	
16	X17210027030	1/4" male flare x 1/4" NPTI adapter	2	4	2	4	
17	506898680100	12" long copper tube with 1/4" flare nuts	2	4	2	4	
18	X19200339010	Temperature sensor strain relief	1	1	1	1	2
19	BRK03270	Temperature sensor mounting bracket	1	1	1	1	2
20	RSN00002	4 oz can of heat conductive compound	1	1	1	1	1
21	ADH00023	20 gram tube of Loctite adhesive	1	1	1	1	
22	COI00993	120 Vac solenoid coil	1	2	1	2	
23	TOL01343	Magnetic screw driver	1	1	1	1	
24	X25020239010	8-32 x 2.00" flat Phillips head screw	4	4			
25	X28020275010	8-32 lock nut	4	4			
26	BUS00361	0.69" ID bushing	3	3	3	3	
27	X39003140010	Nameplate label			1	1	
28	PART-SVN107A-EN	Installation literature	1	1	1	1	
29	506898590100	Wiring diagram	1	1			
30	506898600100	Wiring diagram	1	1			
31	506898610100	Wiring diagram	1	1			
32	506898620100	Wiring diagram	1	1			
33	506898690100	Wiring diagram			1	1	
34	506898700100	Wiring diagram			1	1	

Tools required

Normal tools are required to perform the work. A service technician with a well stocked tool chest should have the right tools to perform the job. The following special tools are required to perform the controls retrofit.

Some field provided material will be required to perform the replacement. This is a partial list in addition to normal service tools and hardware.

- Cable to connect DynaView to a PC. Use a factory approved and tested USB-to-serial cable. One example is, Radio Shack part number 26-117B. RS-232 male DB9 to female DB9 pin to pin serial cable. Cable must not be a "null-modem" cable. Cable must be less than 50 feet in length.
- Computer having:
  - TechView service software - At least Version 10.0. You can check your version by going to Help and selecting About.
  - Tracer CGW/CGA Main Processor software.
  - The computer hardware and operating systems required per the technical specifications required for TechView operation. The web site in the following note may have these technical specifications.
  - Note: To download the most recent versions of TechView software and Main Processor software, go to the Tracer CH530 Software Download site: or http://www.trane.com/Commercial/DNA/View.aspx?i=900
- Phase rotation meter or digital multi-meter, with phase detection capability.

Field provided material

All 24 Vac field wiring must be 16 gauge with insulation rated for 150 volts.

Electrical cable (16 gauge, 600 V) for use with the 115 Vac solenoid coils.

Need flexible conduit and fittings for the wiring to the new 115 Vac solenoid valve, etc. coil(s).

Wire markers will be required to identify field wiring. Wire nuts and splicers may be required if splicing wires in the control panel. Cable ties help to "clean up" wiring runs.

Loctite 554 (Trane part number SEL00528) thread sealant for refrigerant applications for the pressure transducers.

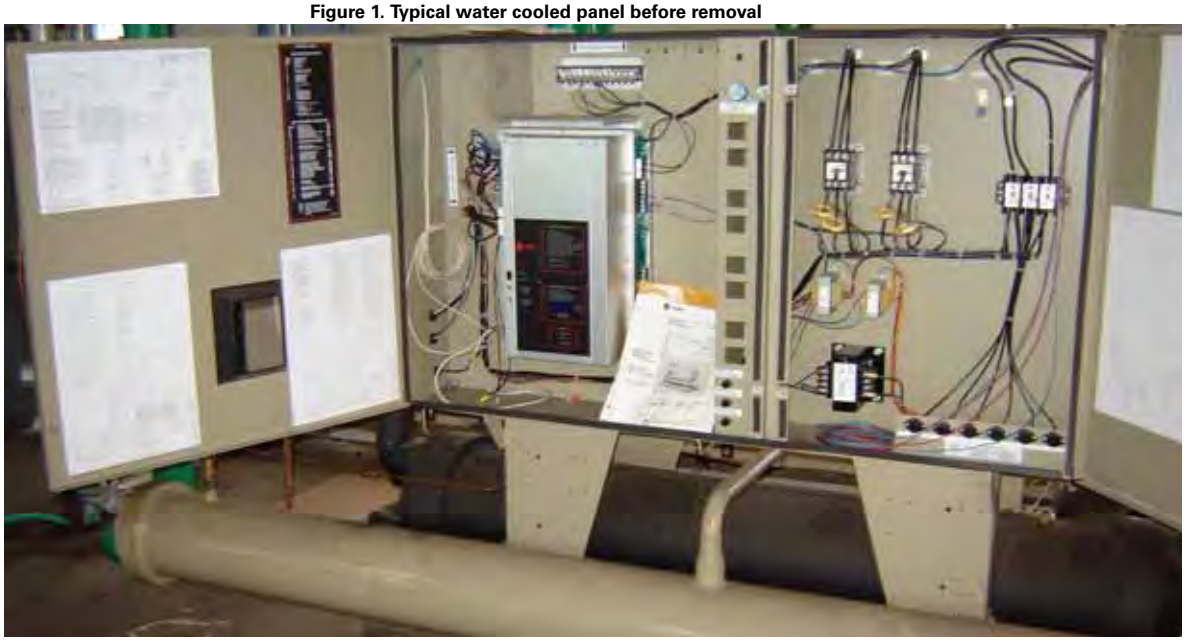
Thread sealant for water applications.

A can of Executive Beige spray paint (Trane part number PAI00061) or standard gray (PAI00011) may be required for touch-up work.

Installation

Water cooled panel only

Figure 1. Typical water cooled panel before removal



⚠ WARNING
Hazardous Voltage!

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

Removal of existing panel

1. Turn off power to machine and water pumps.
2. Secure machine and water pumps following lockout/tagout safety procedures.
3. Disconnect incoming power wires L1, L2 and L3.
4. Disconnect compressor wires 4A, 5A, 6A, 7B, 8B and 9B. On four compressor machines also disconnect 10C, 11C, 12C, 13D, 14D and 15D.
5. Disconnect 34B (terminal 7 on terminal block) and 56A (goes to A7-E1) which is the high pressure cutout switch. Disconnect 34E (terminal 7 on terminal block) and 63A (goes to A8-E1) on four compressor machines.
6. Disconnect two 1S9 wires (goes to A7-4 and A7-5) for flow switch.
7. Disconnect any communication wires.

8 Disconnect 203A, 204A, 205A and 206A (compressor winding t-stats). Disconnect 219A, 220A, 221A and 222A if present.

9 Disconnect low pressure circuit 1 and 2 if present.

10 Remove entering water temperature sensor (won't be reused)

11 Remove leaving water temperature sensor (won't be reused)

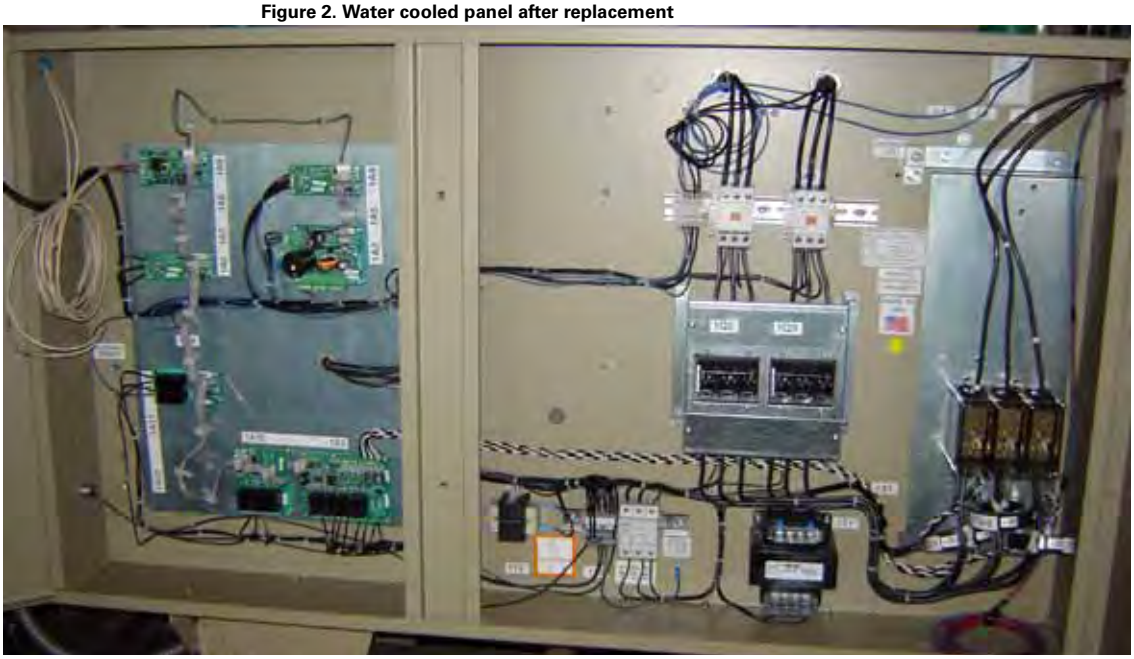
12 Remove liquid line solenoid valve coil(s). New coil is 115 Vac which will require new wiring and conduit.

13 Remove mounting screws for gauge panel and valve off pressure lines going to optional gages. Remove pressure lines because gages will not be reused.

14 Remove cabinet mounting bolts and disconnect braces.

15 Remove cabinet using safe lifting practices.

Figure 2. Water cooled panel after replacement



Installation of new panel

1 Bolt new panel where existing panel was removed from making sure to attach the support braces using original mounting hardware and holes.

2 Mount the DynaView to the door panel and wire per wiring diagram.

3 Pull all original wires into new cabinet and secure conduit.

4 Connect L1, L2 and L3 on the 1X1 terminal block or 1Q1 disconnect. Some applications may require moving the terminal block up to accommodate wire length. If originally provided, the pre-existing disconnect can be mounted in the panel above the terminal block. See wiring diagram for terminal details.

⚠ WARNING
Ground Wire!

All field-installed wiring must be completed by qualified personnel. All field-installed wiring must comply with NEC and applicable local codes. Failure to follow this instruction could result in death or serious injuries.

⚠ WARNING
Grounding Required!

Follow proper local and state electrical code on requirements for grounding. Failure to follow code could result in death or serious injury.

5 Wire ground to ground terminal or reuse original ground lug if necessary.

6 Wire the compressor leads to the 1K1 and 1K2 contactors. If there are four compressors then also wire to the 1K3 and 1K4 contactors.

Notice
Compressor Damage!

It is extremely important to maintain the correct phasing of the wiring to eliminate the possibility of the scroll compressors running backwards which will cause severe compressor damage. See wiring diagram for details.

7 Connect the high pressure cut out switch 4B9 to 1X3-5 and 1X3-4. If present, 4B10 connects to 1X3-5 and 1X3-1.

8 Connect the compressor temperature winding sensors 3M1S1 and 3M2S2 to 1A4 per the wiring diagram. Also if present, connect 3M3S3 and 3M4S4 to 1A5.

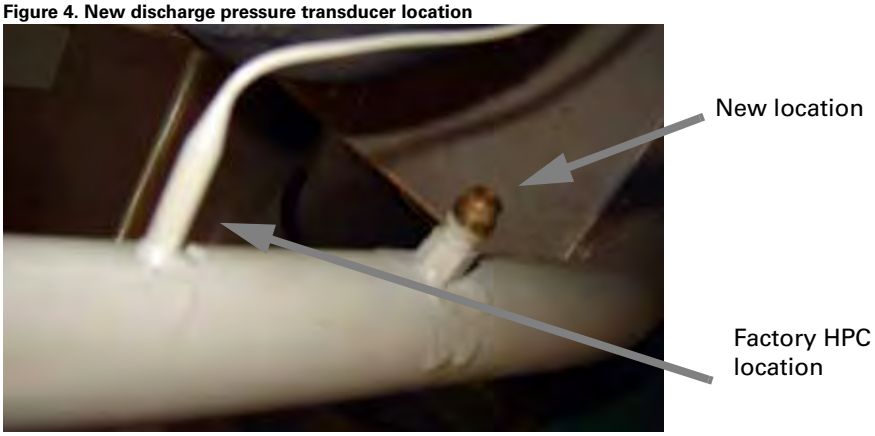
9 Connect the 1Q2 and 1Q3 auxiliary contacts to 1A4 per the wiring diagram. Also if present, connect 1Q4 and 1Q5 auxiliary contacts to 1A5.

10 Remove the existing suction pressure switch (LPC). Note that this is hooked up to a Schrader valve so no refrigerant evacuation is necessary. Install the new pressure transducer as shown in Figure 18 (p. 23). Use Loctite 554, Trane part number SEL00528 to secure.

Figure 3. Original suction pressure switch location

11 Install the new discharge pressure transducer in the location shown in Figure 4. Also reference Figure 18 (p. 23). Use Loctite 554, Trane part number SEL00528 to secure.

Figure 4. New discharge pressure transducer location



Note: The Hot Gas Bypass solenoid coil is ordered separately.

12 Replace existing 12 Vdc solenoid valve coils (liquid line, hot gas bypass if present) with new 115 Vac coils. Note that new 16 gauge wiring must be used and installed in conduit. Wire to panel.

13 Confirm the Evaporator water pump remains locked out and tagged out.

14 Remove existing leaving water temperature sensor from the evaporator. This can be discarded. Install new well using thread sealant suitable for water applications. Install new temperature sensor using thermal paste tied off to the bracket and strain relief as shown in Figure 5.

Figure 5. New evaporator leaving water temperature sensor

15 Abandon the existing entering water temperature sensor from the evaporator. Install the provided glue on well on the evaporator entering water pipe. (Note: A flow switch is required to prevent chiller barrel freeze-up.) Be sure to remove insulation and grind paint to bare metal for good thermal conductivity. Install temperature sensor with the thermal paste. Use touch up paint and insulate using the provided patch of insulation along with existing insulation.

Figure 6. New evaporator entering water temperature sensor

16 Run global connectors for all pressure transducers and temperature sensors and connect into the control panel. Connect in the panel at the 1A2 CH530 power supply.

Condenser temperature sensing option:

Some units are equipped with the condenser temperature sensing option. New wells, sensors and global connectors are supplied in optional kit KIT15059. The sensors in KIT15059 are installed similar to the evaporator leaving water temperature sensor and wired to the IPC bus. Installation shown in Figure 9 (p. 15) and Figure 5 (p. 13).

Table 2. Connector assembly key for assignments in following figures

Identifier	Cable descriptions	Size 20 to 30 ton	Size 40 to 60 ton	Condenser temperature sensing option
A	CAB01146, 1 male to 2 female, 0.5 m	3 needed	2 needed	
B	CAB01147, 1 male to 2 female, 1 m		1	
C	CAB01148, 1 male to 3 female, 0.5 m		1	1
K	CAB01155, 1 female to leads, 1 m	1	1	

Figure 7. CGW and CCA 20 to 30 Ton connector layout

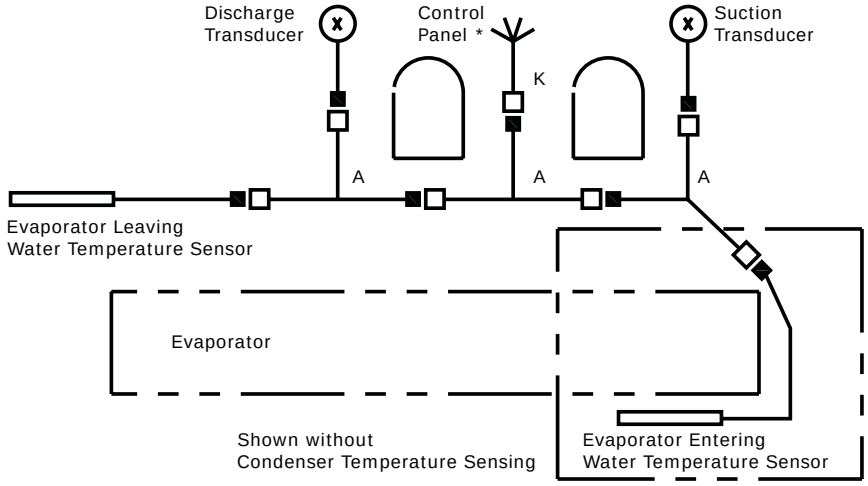


Figure 8. CGW and CCA 40 to 60 Ton connector layout

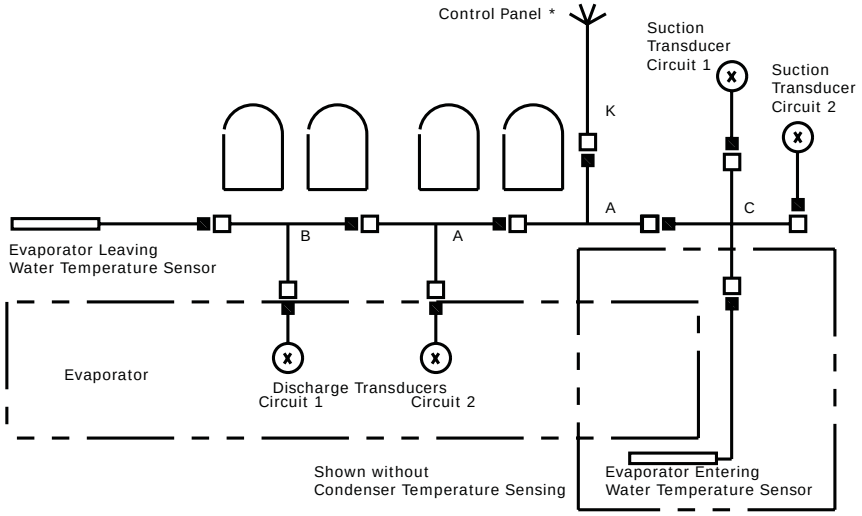
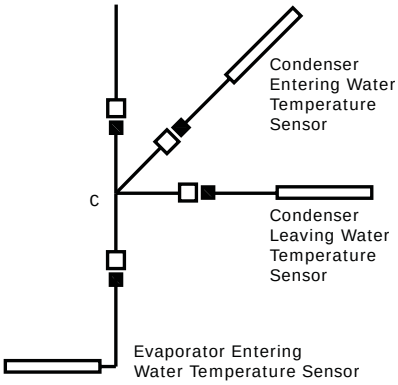


Figure 9. Condenser temperature sensing option connector layout



17 If used, the outdoor air temperature sensor bulb is to be wired with the sensor leads extended back to the Ilid electronics. These wires can be

spliced with two 14-18 AWG, 600 volt wires with a maximum length of 1000 feet (305 meters). The splices must be water tight.

18 Reconnect any flow switches and communication wires.

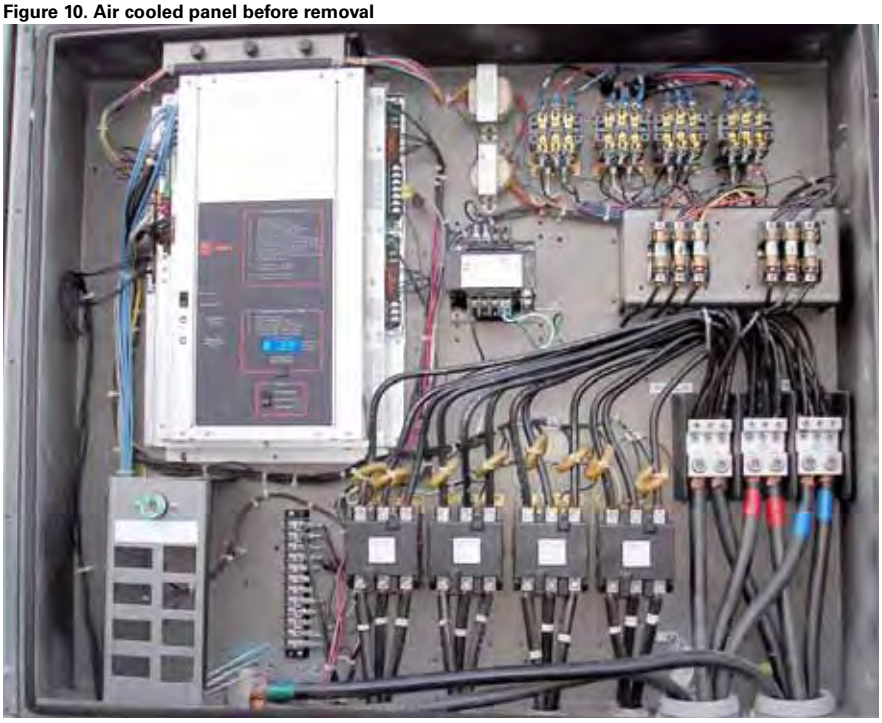
19 Open valves, turn on water pumps and check for leaks.

20 Turn on power to the unit.

21 Continue to “Startup” on page 25.

Air cooled panel only

Figure 10. Air cooled panel before removal



Control panel disassembly

⚠ WARNING
Hazardous Voltage!

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

1 Turn off power to machine and water pumps.

2 Secure machine and water pump following lockout/tagout safety procedures.

Notice
Compressor Damage!

Label all wires entering the cabinet for ease of identification and reuse. Failure to do so could cause severe damage to the compressors.

3 Disconnect main power wiring coming into the unit (L1, L2 and L3).

4 Disconnect main power wires at the compressors and contactors, wires 4A, 5A, 6A, 7B, 8B and 9B. If unit is 40 to 60 ton having four compressors also remove 10C, 11C, 12C, 13D, 14D and 15D.

5 Remove and discard compressor contactors 1K1, 1K2. Also for 40-60 ton units 1K3 and 1K4.

6 Remove and discard current transformers (CT's) labeled 1T3, 1T4, 1T5 and 1T6. Also for 40-60 ton units 1T7, 1T8, 1T9 and 1T10.

7 Remove and discard terminal block 1TB1.

8 Remove and discard main chiller control, MOD00275. Disconnecting wires from main chiller control 1T1, 1T2 and 1T12.

9 Remove and discard the primary and secondary transformers.

10 Remove and discard existing fan contactors, 1K5, 1K6, and 1K8, 1K9, and 1K10 if they exist.

11 Remove and discard existing fusing and bracket, 1F1, 1F2, 1F3, and 1F4, 1F5, 1F6 if they exist.

12 Remove and discard any remaining components in the panel.

13 Remove and discard display door from the control panel door.

Figure 11. Air cooled panel after component removal

Figure 12. Air cooled panel after installing new hardware

Note: If the circuit breaker is to be reused, remove the mounting panel and terminal block and rewire.

New control panel installation

1 Take the existing panel door off and install the DynaView using the supplied template and mounting hardware. See Figure 13 and Figure 14 (p. 19)for sample views.

Note: Wire the IPC cable to the DynaView before installing on the door.

Figure 13. DynaView template applied over old door opening

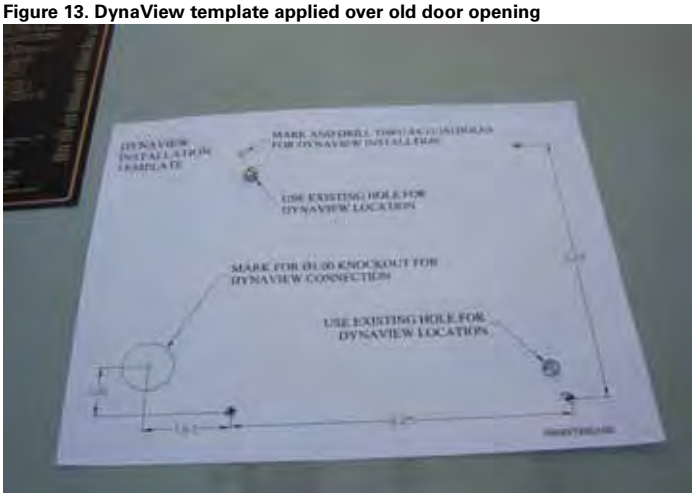


Figure 14. DynaView mounted on old door

2 Reinstall the door with the mounted DynaView on to the control panel.

3 Remove protective packaging and unbolt control panel from the plywood backing. Clear plastic templates shipped under the control panel sections can be used as a template for drilling mounting holes in the old control enclosure. Discard shipping materials.

4 For an overview of the new controls layout see Figure 12 (p. 18) and Figure 15 (p. 20).

5 Install new panels into the existing control box as shown in Figure 12. Use supplied clear plastic templates to locate mounting holes for the new panels. Use a 5/32" drill bit to make the pilot holes for the supplied thread rolling screws.

6 Reconnect all plugs between panels as required.

Figure 15. Control panel layout, note plastic templates ship under each panel section

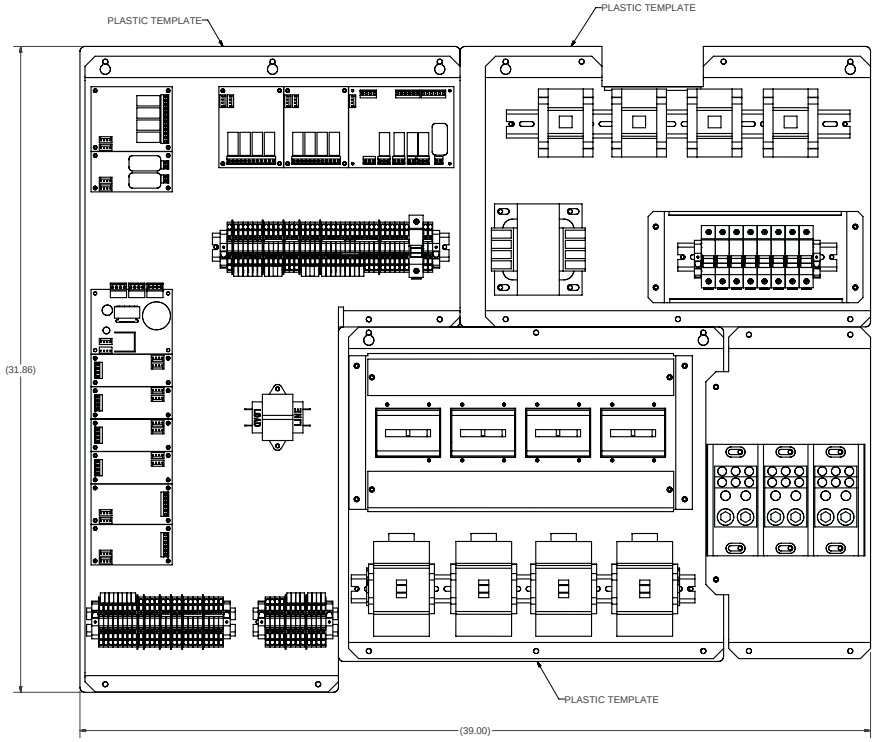
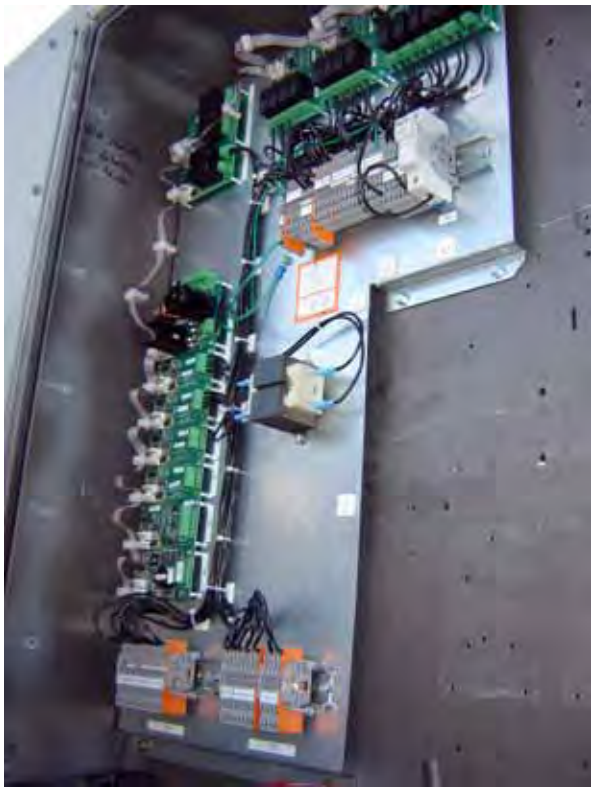


Figure 16. Panel section installed



7 Wire main power L1, L2, and L3 to the terminal block 1X1-1, 2 and 3.

⚠ WARNING
Ground Wire!

All field-installed wiring must be completed by qualified personnel. All field-installed wiring must comply with NEC and applicable local codes. Failure to follow this instruction could result in death or serious injuries.

⚠ WARNING
Grounding Required!

Follow proper local and state electrical code on requirements for grounding. Failure to follow code could result in death or serious injury.

8 Connect wire ground to ground terminal or reuse original ground lug if necessary.

9 Wire compressor power wires to compressor contactors 1K1, 1K2 and to 1K3 and 1K4 if present. Wire numbers 4A, 5A, 6A, 7B, 8B, 9B,and if required 10C,11C, 12C and 13D, 14D, 15D if present.

Notice
Compressor Damage!

Maintain the correct electrical phasing of compressor wiring to eliminate the possibility of the compressor running backwards. Failure to do so could cause severe damage to the compressors.

10 Wire fan power wires to fan contactors 1K5, 1K6 and to 1K8, 1K9 and 1K10 if present. Consult wiring diagrams for wiring of specific unit.

Note: 30 ton CGAE units (only) may have an additional condenser fan. All 30 ton air cooled panels ship with three contactors one of which may not be needed. Refer to the unit wiring diagrams for proper connection.

11 Connect compressor winding temperature sensors 3B1S1, 3B2S2 and 3B3S3, 3B4S4 if present. Compare to the unit wiring diagrams.

12 Connect any optional points such as external chilled water setpoint and refer to the wiring diagrams for specific details.

13 Connect existing evaporator flow switch between 1X5-1 and 1X5-13. A flow switch is required if not present.

14 Connect high pressure cut-out 4B9 to 1X5-12 and 1X5-9. There may be a second high pressure cut-out switch depending on the size of the unit. See wiring diagram for details.

15 Connect compressor temperature winding sensors to 1A4 and 1A5. Compare to the unit wiring diagrams.

16 Heat tape is wired to terminals 1X5-16 and 1X5-8 and is powered by a customer supplied 115 Vac source.

17 Wire the DynaView to 1A2 as shown in the wiring diagram.

18 If compressor crankcase heaters are present, wire to terminal block 1X5 as shown in the wiring diagrams.

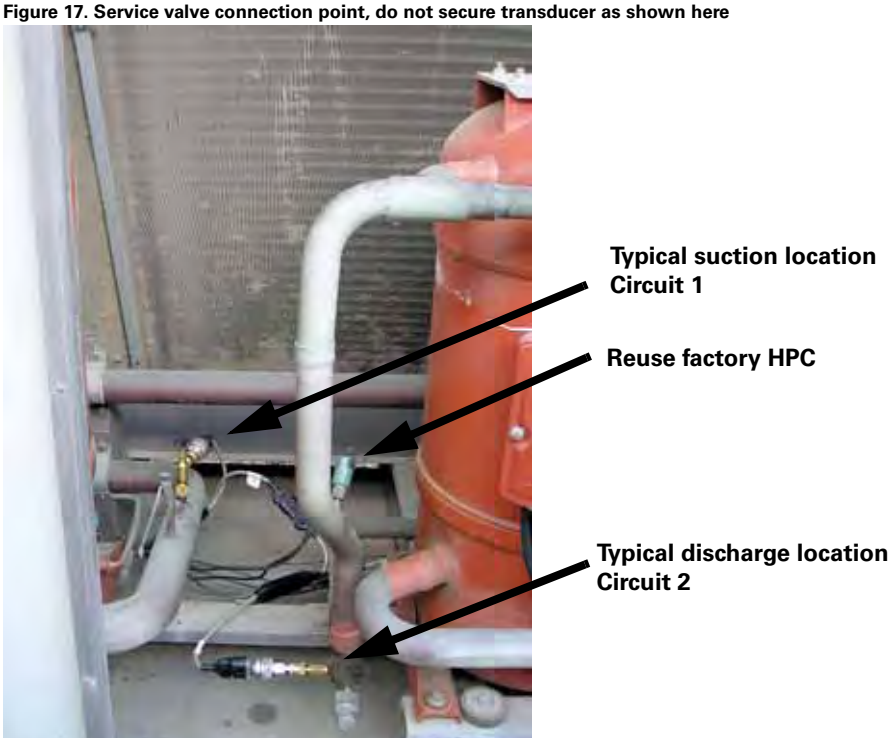
External wiring to control panel

1 Remove the existing suction pressure transducer.

This is hooked up to a Schrader valve so no refrigerant evacuation is necessary. Install the new pressure transducer using Loctite 554, Trane part number SEL00528 to secure.

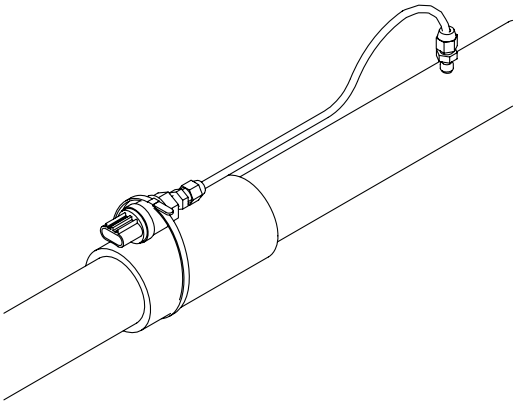
2 Connect the new discharge pressure transducer on the king valve shown in Figure 17. Use Loctite 554, Trane part number SEL00528 to secure.

Figure 17. Service valve connection point, do not secure transducer as shown here



3 Mount all pressure transducer assemblies in a fashion to minimize vibration as shown in Figure 18 (p. 23).

Figure 18. Typical pressure transducer mounting method



Note: The Hot Gas Bypass solenoid coil is ordered separately.

4 Replace existing 12 Vdc solenoid valve coils (liquid line, hot gas bypass if present) with new 115 Vac coils. Note that new 16 gauge wiring must be used and installed in conduit. Wire to panel.

5 Remove existing leaving water temperature sensor from the evaporator. This can be discarded. Install new well using thread sealant suitable for water applications. Install new temperature sensor using thermal paste tied off to the bracket and strain relief like shown in Figure 5 (p. 13)

6 Remove the existing entering water temperature sensor from the evaporator. Install the provided glue-on-well on the evaporator entering water pipe. Be sure to remove insulation and grind paint to bare metal for good thermal conductivity. Install temperature sensor with the thermal paste. Use touch up paint and insulate using the provided patch of insulation along with existing insulation. See Figure 6 (p. 14)

Note: A flow switch is required to prevent chiller barrel freeze-up.

7 Wire in new outdoor air temperature sensor to the back of the control panel like the original outdoor air temperature sensor.

8 Run global connectors for all pressure transducers and temperature sensors and connect into the control panel. For a sample of a typical cable routing installation refer to Figure 19 (p. 24).

9 Wire the IPC cable from the DynaView to the power supply 1A2 per wiring diagrams.

10 Turn on water and check for leaks.

⚠ WARNING
Live Electrical Components!

During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all

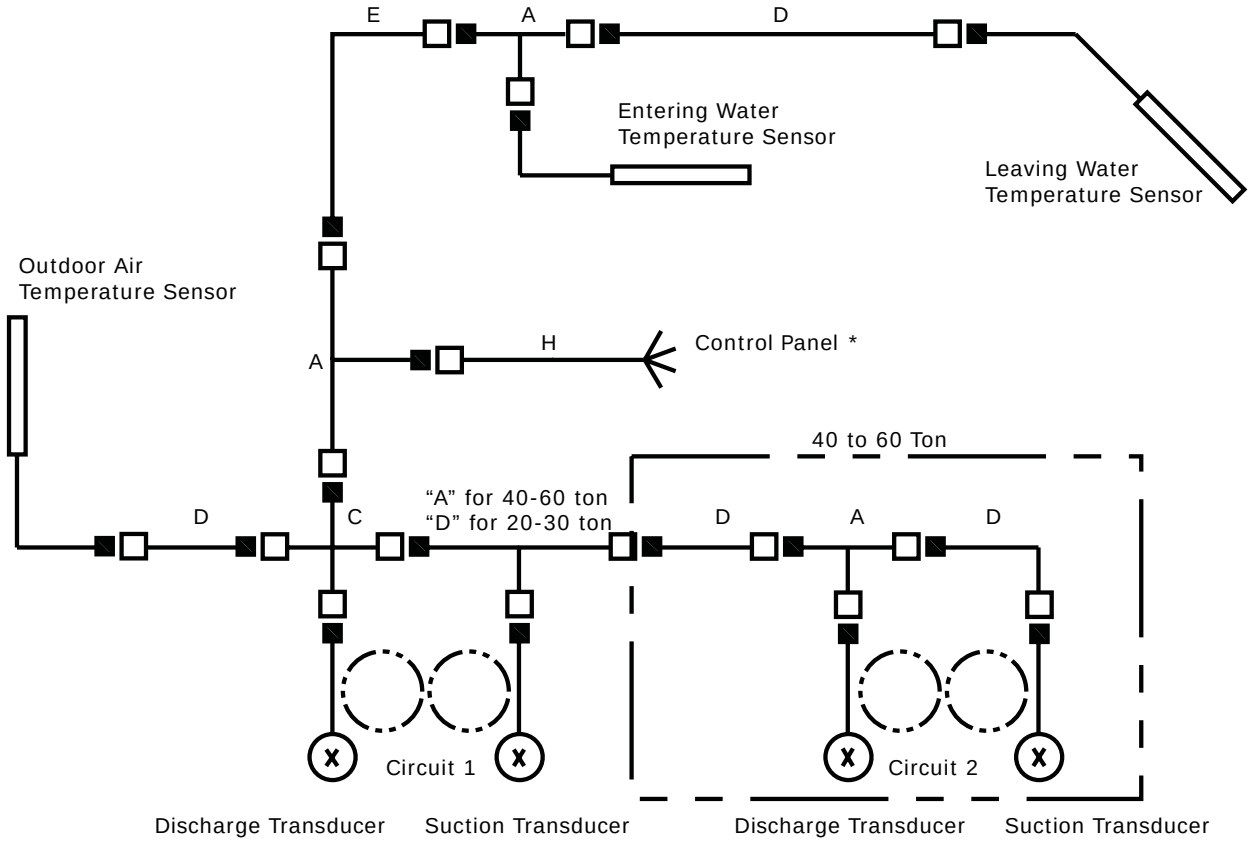
electrical safety precautions when exposed to live electrical components could result in death or serious injury.

11 Turn on power to the unit.

Table 3. Connector assembly key for assignments in Figure 19 (p. 24)

Identifier	Cable descriptions	Size 20 to 30 ton	Size 40 to 60 ton
A	CAB01146, 1 male to 2 female, 0.5 m	2 needed	4 needed
C	CAB01148, 1 male to 3 female, 0.5 m	1	1
D	CAB01149, 1 male to 1 female, 1 m	3	4
E	CAB01150, 1 male to 1 female, 2 m	1	1
H	CAB01155, 1 female to bare leads, 1 m	1	1

Figure 19. CGA connector layout



Startup

General startup review

The following table describes the major steps to take the control panel from "installed" to "operational". Specific details on certain steps (configuring, binding, etc.) are contained in the sections referenced in a particular step.

It is common to connect LLIDs that are external to the control panel to the bus one at a time and bind them as they are connected. In this way it becomes obvious if there is a bus connection problem that needs resolution before the bus installation is complete.

⚠ WARNING
Hazardous Voltage w/Capacitors!

Disconnect all electric power, including remote disconnects 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.

Note: For additional information regarding the safe discharge of capacitors, see PROD-SVB06A-EN or PROD-SVB06A-FR

Table 4. Startup checklist

Step	Procedure	Complete
1	Obtain software from Trane.com web-site, download latest Java Runtime, TechView™, and main processor MP (select CGWF/CCAF from drop-down list) software.	
2	Unplug the IPC bus from the power supply LLID: This will isolate the power supply LLID.	
3	Connect IPC bus to power supply and DynaView™ display	
4	Configure the DynaView using "CH530" Configuration View: Configure items to correspond to items installed. See "Configuration" on page 28 for details on configuration items. Record the programmed values.	
5	Configure the Starter using "Starter" Configuration View: Configure Starter items to correspond to items installed. See "Starter tab" on page 31.. Make sure the CT Meter Scale parameter is properly set, see "CT meter scale" on page 33. Write the edited values in provided table.	
6	Bind the LLIDs using the binding view: • See "Binding" on page 36 for binding details.	
7	Set the Chiller and Feature setpoints using the setpoint View. See "Setpoint View" on page 37 for details on setpoint items. Record the entered values.	

Table 4. Startup checklist

Step	Procedure	Complete
8	Test evaporator and condenser pump control: • If evaporator and condenser pumps are controlled, use the manual override view in TechView to manually start and test the control of the pumps. See “Manual Override View” on page 40. • For each heat exchanger, close and open the isolation valve in order to prove flow switch operation. • Return to Auto control.	
9	Verify temperatures and pressures: • From Status View in TechView, verify water, refrigerant, motor winding temperatures and BAS inputs or outputs are reasonable for the current chiller condition. • Verify pressures are reasonable	
10	Place clamp on ammeter on one of the L1, L2 or L3 legs.	
11	Start chiller: Place chiller in Auto	
12	Observe startup: Confirm that unit starts and loads as expected. Watch motor currents to help troubleshoot if problems exist.	
13	Check current and voltage readings: Verify that the current reading on the front panel matches that on the handheld ammeter. If it does not, the CT meter scale may need to be adjusted. See “CT meter scale” on page 33 for details.	

Powering up the controls for checkout

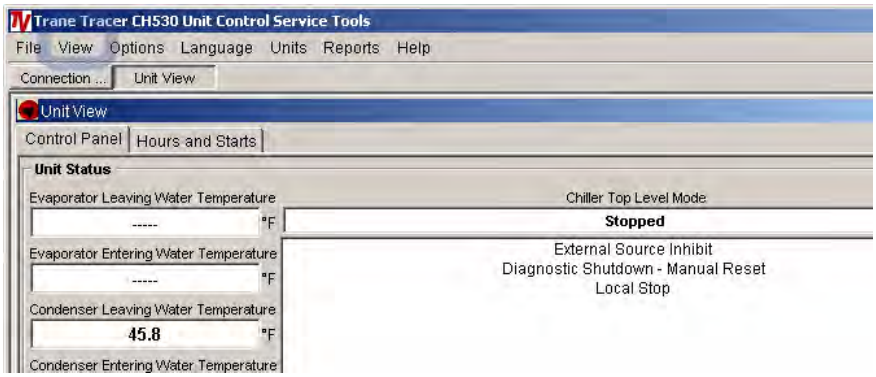
⚠ WARNING
Live Electrical Components!

During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

Be sure all wires are terminated and secure. Panels should be closed and secured safely before power is applied to the unit. Double check everything.

When you first power up the DynaView if it displays a message that there is no application present it will be necessary to download the main processor software into the DynaView.

Figure 20. TechView after connection



Configuration can be set and loaded without any additional LLIDs being connected to the IPC bus.

Configuration

Configuration information

Use the “View” pull down menu to select “Configuration View” as shown below.

Select the “Unit Type” tab, which appears on a separate tab. After a unit type is selected the rest of the questions will adjust based on that selection. When these configuration items are selected move to the next tab marked CH530 and then Starter tab. Finally, move to the Options tab to make final selections.

If any changes are made the Load Configuration and Undo All buttons become active. Changes will not take effect unless the **Load Configuration** button is clicked after all entries are changed to your satisfaction. You can load one configuration change at a time, or wait to complete all setup and then download all changes at one time.

The following provides a description of the tables used to describe configuration choices.

- Column 1 (Parameter) identifies the TechView menu Item.
- Column 2 (Recommended value) provides the most common configuration selection.
- Column 3 (Other options) Displays all the other options available for that configuration.
- Column 4 (Information) provides helpful information about the menu selection item, and instructs what modules are required when the item is “installed”. It also identifies other sources of related information such as the operation, maintenance, diagnostic, installation manuals, or service bulletins.

Make note of these selections and others in the margins and available white spaces in this manual.

Unit type tab

The TechView™ service software screen for selecting unit type is shown in Figure 21 (p. 29). Options for other selections are also shown in the Table 5 (p. 29). At this time there are not any significant choices for Unit type. The CGWF/CCAF should be selected.

Figure 21. Unit type configuration tab screen

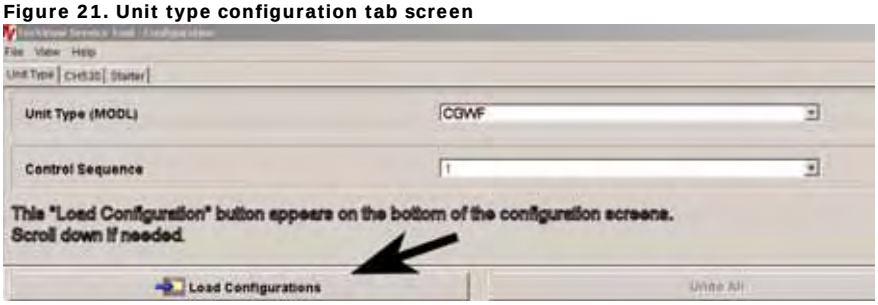


Table 5. Unit type configuration choices

Parameter	Recommended value	Other options	Information
Unit type (MODL)	Unit data	CGWF / CCAF	Unit Type: CGW_ = CGWF CGA_ = CCAF CCA_ (without fan control) = CGWF CCA_ (with fan control) = CCAF
Control sequence	1		There is only one control sequence that applies to the CVR main processor.

Note: Entered values may differ from the recommended value depending on the specific control scheme on your chiller. In most cases, the recommended value will be appropriate.

CH530 tab

The following information describes choices for the CH530 configuration.

Figure 22. CH530 configuration tab screen

There are many cases where information from the unit nameplate, motor nameplate, or chiller application data are used as entries in the configuration process. In most of those cases the Recommended value column will read "Unit data". The Information column may have helpful notes describing what is needed.

Table 6. CH530 tab configuration choices

Parameter	Recommended value	Other options	Information
Unit capacity	Unit data	20 tons 25 30 40 50 60	See unit nameplate for chiller tons
Manufacturing locations	Pueblo	Charmes Curitiba	Always use Pueblo
Leaving water temperature range	40 to 60°F (4.4 to 15.6°C)	25 to 39°F (-3.9 to 3.9°C) 14 to 24°F (-10 to -4.4°C) 7 to 13°F (-13.9 to -10.6°C)	Unit specific
Condenser high pressure cutout	405 psig	-5 to 475 psig	
Outdoor air temperature sensor	Not installed	Installed	Parameter does not show up for air cooled, water cooled optional
External chilled water setpoint	Not installed	4-20 mA or 2-10 Vdc	Optional
Condenser temperature sensors	Not installed	Installed	If installed - requires temperature sensors 4B22 and 4B23
Ice building	Not installed	InstldWthHrdwr, Installed without Hardware	Only select installed if freeze protection evaporator fluid (glycol) is installed in chiller.
Hot gas bypass	Not installed	Installed	Installs the hot gas bypass function into the chiller controls
Compressor inhibit hardware	Not installed	Installed	Unit specific
Operating status programmable relays	Not installed	Installed	Unit specific
BAS Interface	Not installed	Comm 3, LCI-C (Comm5) extension	COMM 3 provided, COMM 5 optional

Starter tab

Figure 23. Starter tab configuration screen

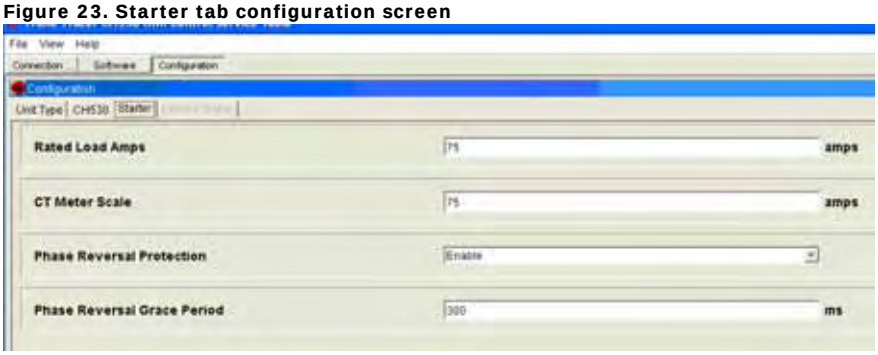


Table 7. Starter tab configuration choices

Parameter	Recommended value	Other options	Information
Rated load amps	Unit data	5 to 900 A	Use design selection amps which may be less than the nameplate value. Note: Use only whole numbers.
CT meter scale	Unit data	5 to 1000 A	Refer to the appropriate table in this manual. See section named “CT meter scale” on page 33.
Phase reversal protection	Enable	Disable	Enables phase reversal protection.
Phase reversal grace period	300 msec	20 to 1000 msec	Sets time (milliseconds) allowed before a trip on phase reversal. (PRGT)

Options tab

Figure 24. Options tab configuration screen

Table 8. Options tab configuration choices

Parameter	Recommended value	Other options	Information
ECWS Minimum temperature	34	0 to 49°F (-17.8 to 9.4°C)	Minimum setting for the ECWS analog signal. 2 Vdc or 4 mA will equal to this minimum setpoint value. If the ECWS is not installed, ignore this parameter.
ECWS Maximum Temperature	65	50 to 65°F (10 to 18.3°C)	Maximum setting for the ECWS analog signal. 10 Vdc or 20 mA will equal to this maximum setpoint value. If the ECWS is not installed, ignore this parameter.
Module 1 programmable status relay 1, J2-10, 11, 12	Compressor running	None Latching alarm Non-latching alarm Alarm Chiller limit mode Warning Chiller maximum capacity indicator	Use as required
Module 1 programmable status relay 2, J2-7, 8, 9	Latching alarm	None Compressor running Non-latching alarm Alarm Chiller limit mode Warning Chiller maximum capacity indicator	Use as required

Table 8. Options tab configuration choices

Parameter	Recommended value	Other options	Information
Module 1 programmable status relay 3, J2-4, 5, 6	Chiller limit mode	None Compressor running Non-latching alarm Alarm Latching alarm Warning Chiller maximum capacity indicator	Use as required
Module 1 programmable status relay 4, J2-1, 2, 3	Warning	None Latching alarm Non-latching alarm Alarm Chiller limit mode Compressor running Chiller maximum capacity indicator	Use as required

CT meter scale

The CT Meter Scale is an especially critical factor and must be determined correctly.

The CT meter scale settings vary by model and voltage. Notice that Table 11 (p. 35) is used for water cooled units with the high temperature condenser option. It is also used for CCAD units.

Table 9. CT Meter scale settings for CGAD and CGAE units

Unit size	Unit voltage	RLA sum	CT Meter scale
CGA* 20	200/60	78.8	100
	230/60	78.8	100
	380/50	34.4	50
	460/60	34.4	50
	575/60	26.4	37.5
	415/50	34.4	50
CGA* 25	200/60	96.2	100
	230/60	96.2	100
	380/50	42.5	50
	460/60	42.5	50
	575/60	34.0	50
	415/50	42.5	50
CGA* 30	200/60	113.8	150
	230/60	113.8	150
	380/50	50.4	75
	460/60	50.2	75
	575/60	39.8	50
	415/50	50.4	75

Table 9. CT Meter scale settings for CGAD and CGAE units

Unit size	Unit voltage	RLA sum	CT Meter scale
CGA* 40	200/60	157.6	200
	230/60	157.6	200
	380/50	68.8	75
	460/60	68.8	75
	575/60	52.8	75
	415/50	68.8	75
CGA* 50	200/60	182	200
	230/60	182	200
	380/50	79.4	100
	460/60	81.4	100
	575/60	63.6	75
	415/50	79.4	100
CGA* 60	200/60	227.6	275
	230/60	227.6	275
	380/50	100.8	150
	460/60	101.6	150
	575/60	80.8	100
	415/50	92.8	100

Table 10. CT Meter scale settings, CGWD and CGWE units, standard temp condenser

Unit size	Unit voltage	RLA sum	CT Meter scale
CGW* 20	208-230/60	68	75
	380/60	34	50
	460/60	28	37.5
	575/60	24	25
	400/50	28	37.5
CGW* 25	208-230/60	86	100
	380/60	44	50
	460/60	37	50
	575/60	30	37.5
	400/50	36	50
CGW* 30	208-230/60	104	150
	380/60	54	75
	460/60	46	50
	575/60	36	50
	400/50	44	50
CGW* 40	208-230/60	136	150
	380/60	68	75
	460/60	56	75
	575/60	48	50
	400/50	56	75

Table 10. CT Meter scale settings, CGWD and CGWE units, standard temp condenser

Unit size	Unit voltage	RLA sum	CT Meter scale
CGW* 50	208-230/60	172	200
	380/60	88	100
	460/60	74	75
	575/60	60	75
	400/50	72	100
CGW* 60	208-230/60	208	275
	380/60	108	150
	460/60	92	100
	575/60	72	75
	400/50	88	100

Table 11. CT Meter scale settings, CCAD units and CGWD/CGWE units with high temp condenser

Unit size	Unit voltage	RLA sum	CT Meter scale
CGW* 20	208-230/60	78	100
	380/60	40	50
	460/60	34	50
	575/60	28	37.5
	400/50	34	50
CGW* 25	208-230/60	97	100
	380/60	51	75
	460/60	43	50
	575/60	35	50
	400/50	42	50
CGW* 30	208-230/60	116	150
	380/60	62	75
	460/60	52	75
	575/60	42	50
	400/50	50	50
CGW* 40	208-230/60	156	200
	380/60	80	100
	460/60	68	75
	575/60	56	75
	400/50	68	75
CGW* 50	208-230/60	194	200
	380/60	102	150
	460/60	86	100
	575/60	70	75
	400/50	84	100
CGW* 60	208-230/60	232	275
	380/60	124	150
	460/60	104	150
	575/60	84	100
	400/50	100	100

Binding

Binding devices

When all the configuration inputs are complete, click on the **Load Configurations** button at the bottom of the screen. The computer will go into think mode for a few seconds. Then a window called Binding View will pop up.

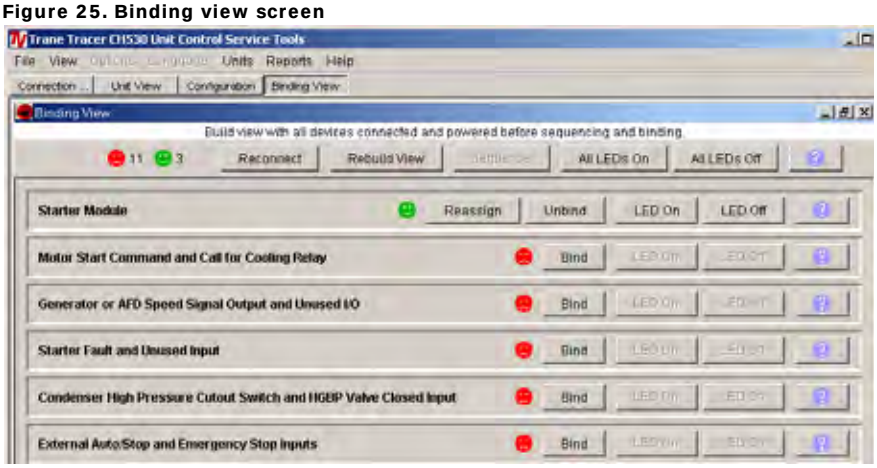
The binding view window looks similar to Figure 25. Note that the LLIDs appearing on this list are dependent on selections made previously in configuration. Initially, the LLIDs will show up as red frowning faces indicating they are unbound or not communicating. Binding is a process by which a particular LLID is assigned to monitor or control a particular function or item. All LLIDs required for a configuration must be bound or communicating (green face) to complete this section.

Select the LLID to be bound, click on the **Bind** button in the task bar. For example when binding the Motor Start Command LLID a window will pop up asking "Motor Start Command. Is the desired device alone selected?" Locate the targeted LLID in the control panel, unit or starter and place the Trane provided magnetic screwdriver (South pole magnet) near the LED under the SW1 arrow. The green LED will turn on at the device. Click **Yes** on the pop up window. The smile face will turn green next to that LLID on the binding view menu if successful.

If the wrong type of LLID was selected during this binding process an error message will appear. For some help determining exactly what type of LLID the binding process is looking, for press the blue "**?**" button on the right of each line. This will provide information including the generic type of LLID, i.e. Dual Relay Output.

Continue for all red frowning face LLIDs in the list.

Figure 25. Binding view screen

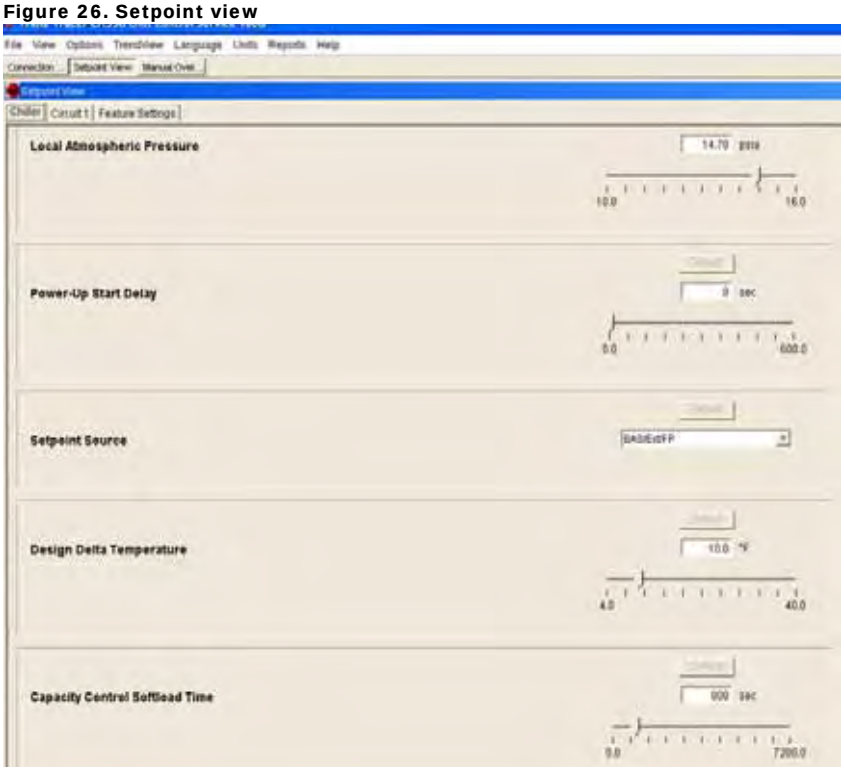


Setpoint View

Setpoint information

Using the View menu, selecting Setpoint View provides the following window.

Figure 26. Setpoint view



The tables that follow provide information about certain setpoints.

Table 12. Chiller tab settings

Setpoint	Default	Range or choices	Information
Front panel chilled water setpoint	45.0°F (7.2°C)	0 to 65°F (-17.8 to 23.9°C)	Set to sales order, job requirements
Front panel demand limit setpoint	2	0 to 4	
Front panel ice building command	Auto	On or Auto	Optional item, shown when installed
Front panel ice termination setpoint	27°F (-2.8°C)	20 to 32°F (-6.7 to 0.0°C)	Optional item, shown when installed
Restart inhibit free starts	2	1 to 5	Number of free starts allowed before restart timer begins

Table 12. Chiller tab settings

Setpoint	Default	Range or choices	Information
Restart inhibit start to start time	5 minutes	5 to 30 minutes	Timed mode inhibit time
Leaving water temp cutout	36°F (2.2°C)	-1 to 36°F (-18.3 to 2.2°C)	Safety trip point for low temp water.
Evaporator pump off delay	1 minute	0 to 30 minutes	Time chilled water pump will remain on.
Condenser high refrigerant pressure	85%	80 to 120%	
Local atmospheric pressure	14.7 psia (101.36 kPa)	10 to 16 psia (69.0 to 110.3 kPa)	Set to local average conditions
Power up start delay	0 seconds	0 to 600 seconds	Time delay to start upon power restoration. Allows multiple chillers to be staged on after a power outage.
Setpoint source	BAS/Ext/FP	Ext/front panel, Front panel	Sets hierarchy of commands; building automation system, external signals, front panel
Design delta temperature	10°F (-12.2°C)	4 to 40°F (-15.5 to 4.4°C)	
Capacity control softload time	900 seconds	0 to 7200 seconds	Time for at start or change of water temp setpoint to reach setpoint target.
Low ambient lockout	Enable	Disable	
Low Ambient lockout setpoint	25°F (-3.9°C)	-40 to 85°F (-40 to 29.4°C)	

Table 13. Circuit 1[a] tab settings

Setpoint	Default	Range or choices	Information
Front panel lockout	Not locked out	Locked out	

[a] There may be a Circuit 2 tab also depending on configuration choices made.

Table 14. Feature tab settings

Setpoint	Default	Range or choices	Information
Operational pumpdown	Enable	Disable	
Chilled water reset type	Disable	Return Outdoor air Constant	
Return reset ratio	50%	10 to 120%	
Return start reset	10°F (-12.2°C)	4 to 30°F (-15.6 to -1.1°C)	
Return maximum reset	5°F (-15°C)	0 to 20°F (-17.8 to -6.7°C)	
Outdoor reset ratio	10%	-80 to 80%	

Table 14. Feature tab settings

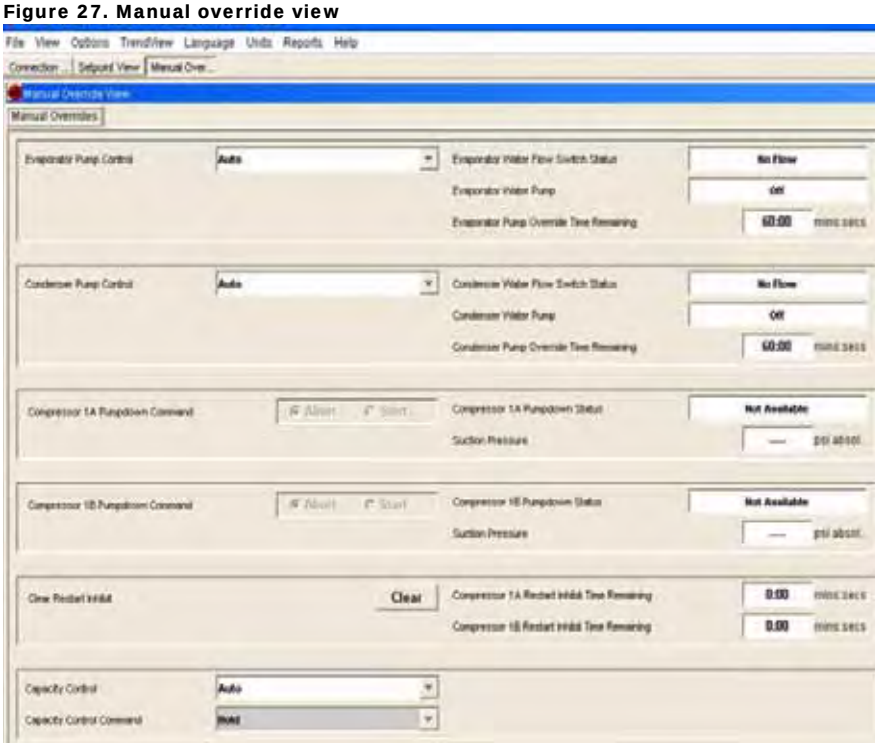
Setpoint	Default	Range or choices	Information
Outdoor start reset	90°F (32.2°C	10 to 130°F (-12.2 to 54.4°C)	
Outdoor maximum reset	5°F (-15°C)	0 to 20°F (-17.8 to -6.7°C)	
External chilled water setpoint	Disable	Enable	
Ice building feature	Disable	Enable	
Hot gas bypass	Enable	Disable	
Limit relay debounce time	1200 seconds	0 to 1200 seconds	
Maximum capacity relay debounce time	1200 seconds	0 to 1200 seconds	
Comm 3 ICS address	49	32 to 63	

Manual Override View

Manual override information

Using the View menu, selecting Manual Override View provides the following screen for use when servicing the chiller.

Figure 27. Manual override view



Manual Override View is a combined presentation of setpoint (override) and status values. Each manual override item has an **Auto / On** for binary control values or an **Auto/Manual** and an analog target value. Additionally, each item has a monitor value that the user will track the effect of an override.

The contents areas of the manual override panels can be described as follows:

- The title area provides a label for the specific override function.
- For analog overrides there is a drop down selection box to set the mode of control from **Auto** to **Manual** (or **Enable/Disable**) depending on the specific attribute.
- For analog overrides there is an input box that will determine values to use when in override.
- The monitored values or states of operation are displayed in the right section of the panel.

The following tables provide a complete listing of possible manual override view content options. The configuration selected previously will determine which of these items is displayed. They are not all displayed at the same time in TechView.

Table 15. Manual overrides tab

Description	Selection 1	Monitor value(s)
Evaporator pump control	Auto or On	Evaporator water flow switch status Evaporator water pump Evaporator pump override time remaining
Condenser pump control	Auto or On	Condenser water flow switch status Condenser water pump Condenser pump override time remaining
Compressor 1A pumpdown command	Abort or Start	Compressor 1A pumpdown status Suction pressure
Compressor 1B pumpdown command	Abort or Start	Compressor 1B pumpdown status Suction pressure
Compressor 2A pumpdown command	Abort or Start	Compressor 2A pumpdown status Suction pressure
Compressor 2B pumpdown command	Abort or Start	Compressor 2B pumpdown status Suction pressure
Clear restart inhibit	Clear	Compressor 1A restart inhibit time remaining Compressor 1B restart inhibit time remaining Compressor 2A restart inhibit time remaining Compressor 2B restart inhibit time remaining
Capacity control	Auto or Manual	
Capacity control command	Unload or Hold or Load	

When help is needed contact your local Trane office for assistance.

Appendix Notes

Warnings and Cautions

NOTICE: Warnings and Cautions 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 accidents

⚠ WARNING
Ground Wire!

All field-installed wiring must be completed by qualified personnel. All field-installed wiring must comply with NEC and applicable local codes. Failure to follow this instruction could result in death or serious injuries.

⚠ WARNING
Grounding Required!

Follow proper local and state electrical code on requirements for grounding. Failure to follow code could result in death or serious injury.

Appendix A. CGAE 20 to 60 ton sample original wiring diagrams

Figure A1. CGAE 20-60 ton sheet 1 of 4, ref. 23074005 rev B

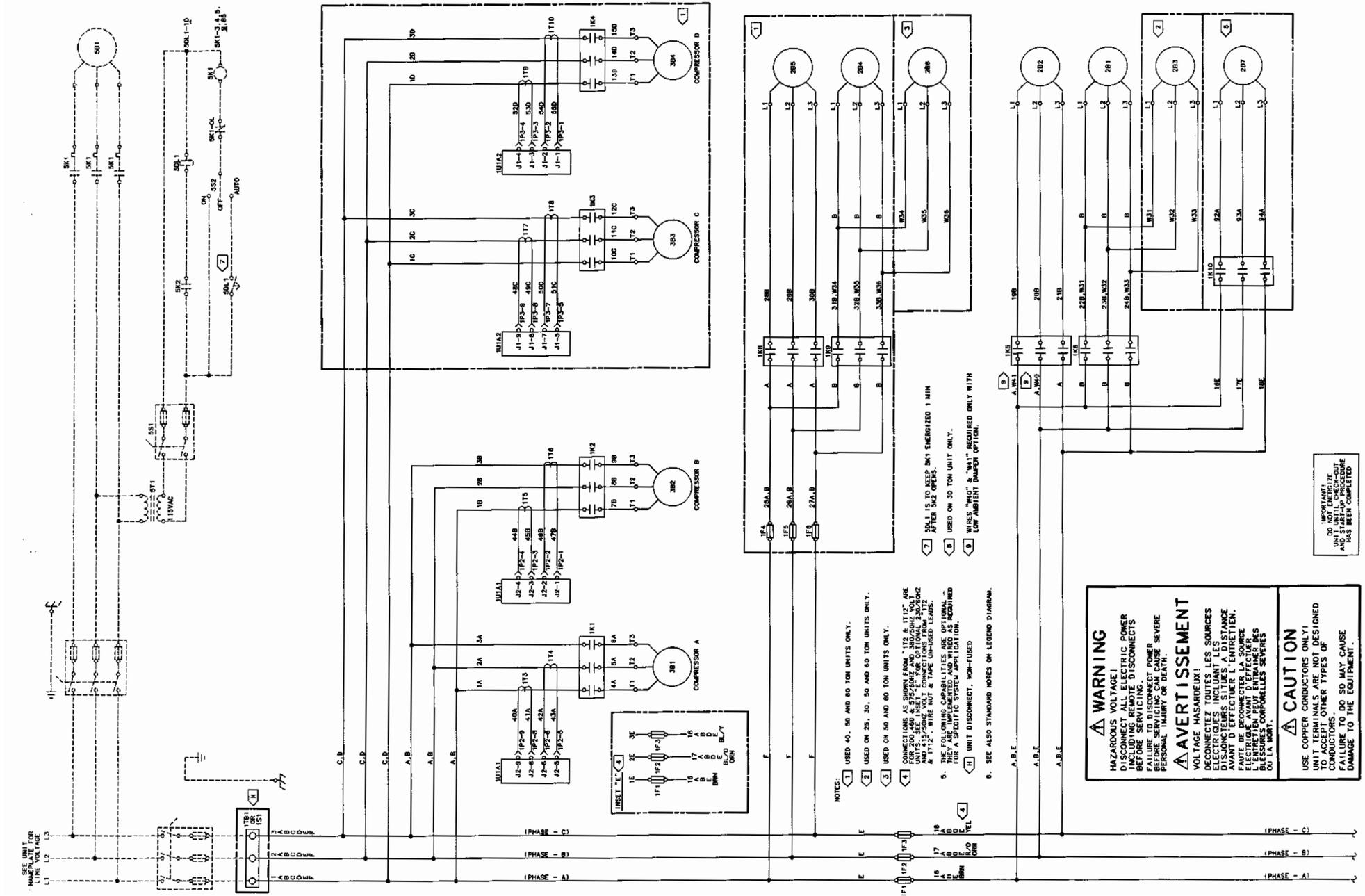


Figure A2. CGAE 20-60 ton sheet 2 of 4, ref. 23074003 rev A

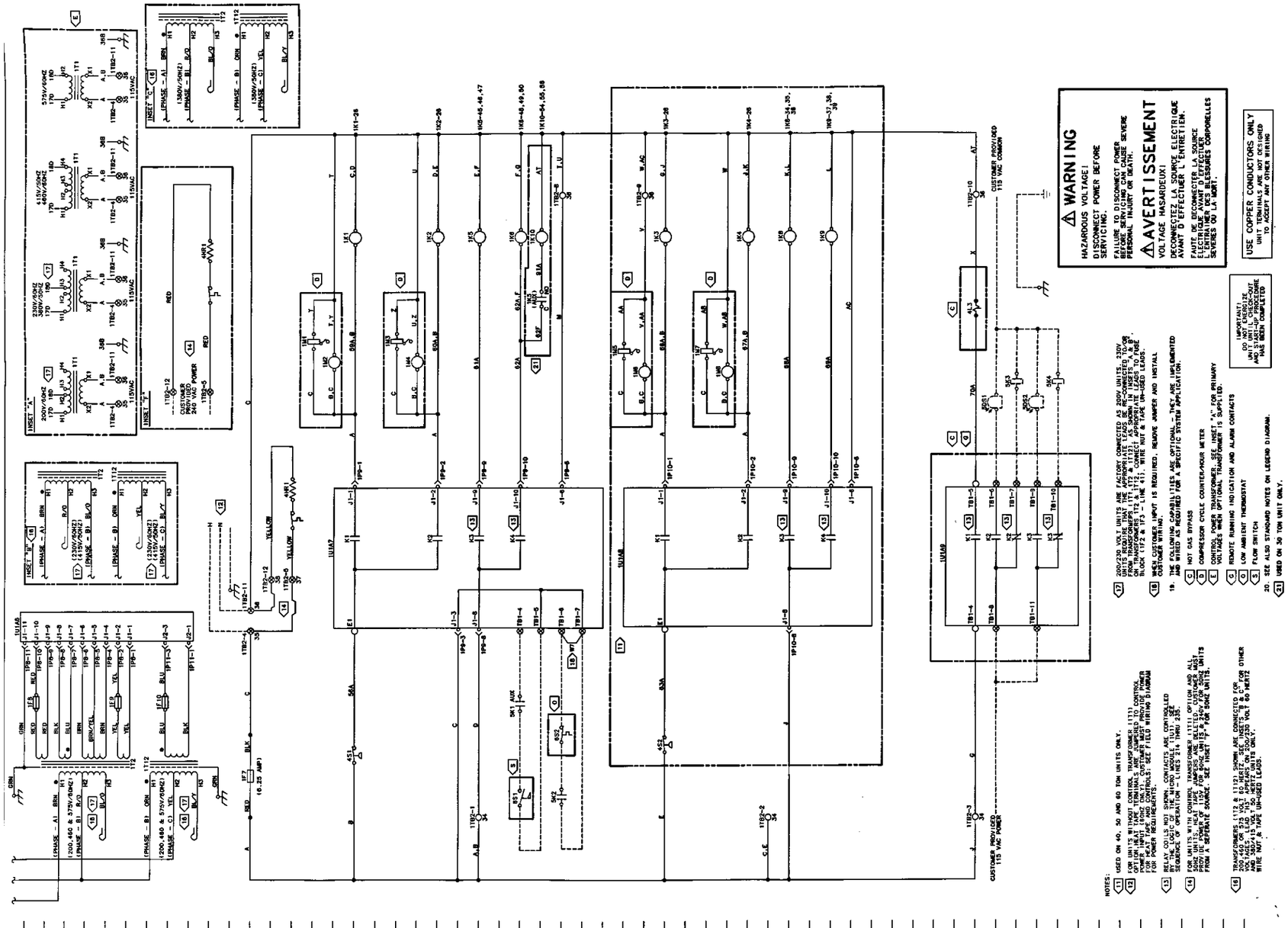


Figure A3. CGAE 20-60 ton sheet 3 of 4, ref. 23074002

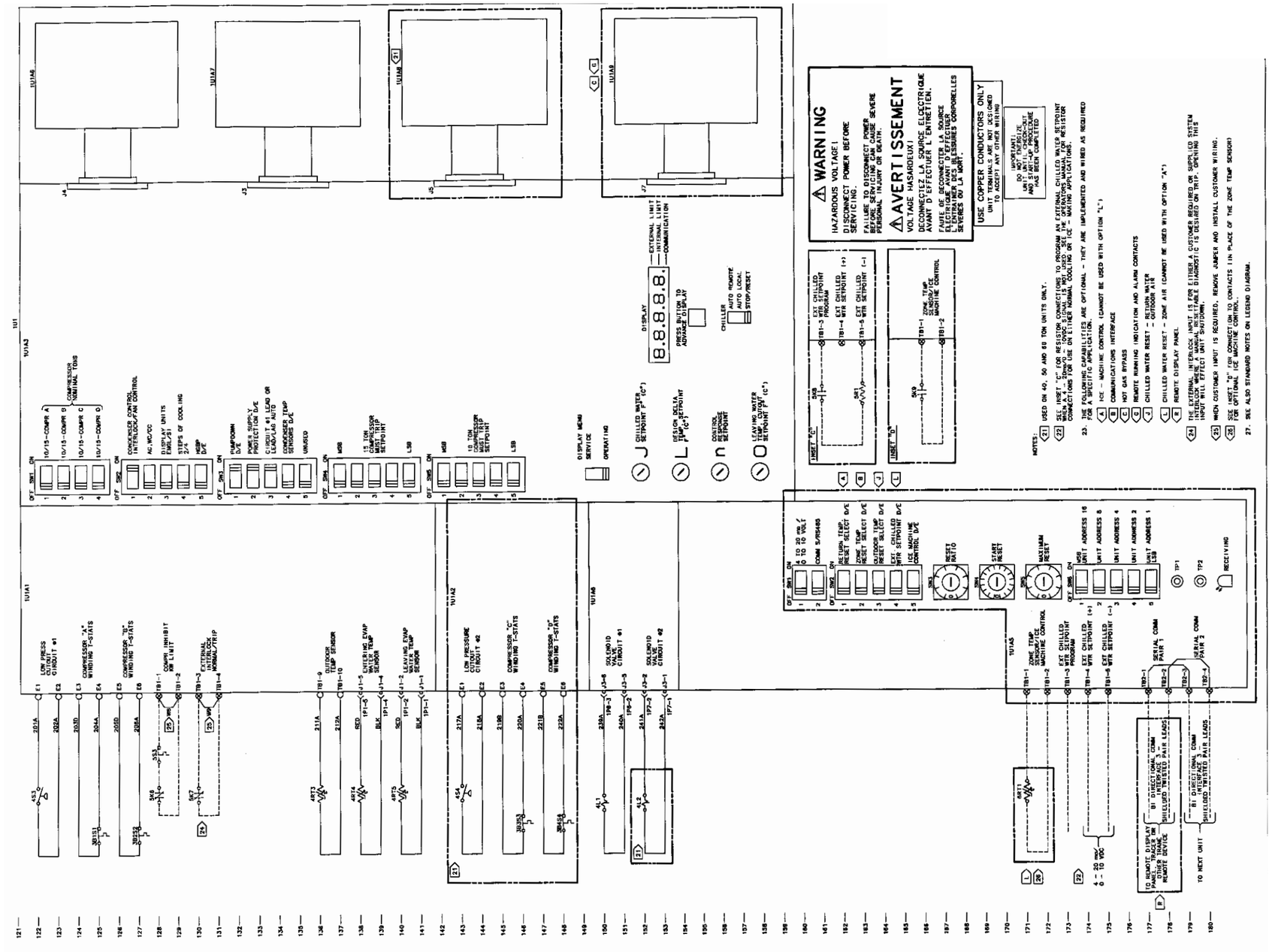


Figure A4. CGAE 20-60 ton sheet 4 of 4, ref. 23074004

DEVICE PREFIX LOCATION CODE	
AREA	LOCATION
1	CONTROL PANEL
2	FAN SECTION
3	COMPRESSOR
4	EXTERNAL FACTORY MTD DEVICE
5	CUSTOMER OR FIELD PROVIDED
6	SHIP W/ FIELD INSTALLED DEVICE

⚠ WARNING

HAZARDOUS VOLTAGE!

DISCONNECT POWER BEFORE SERVICING.

FAILURE TO DISCONNECT POWER BEFORE SERVICING CAN CAUSE SEVERE PERSONAL INJURY OR DEATH.

⚠ AVERTISSEMENT

VOLTAGE HASARDEUX!

DECONNECTEZ LA SOURCE ELECTRIQUE AVANT D'EFFECTUER L'ENTRETIEN.

FAUTE DE DECONNECTER LA SOURCE ELECTRIQUE AVANT D'EFFECTUER L'ENTRAINER DES BLESSURES CORPORELLES SEVERES OU LA MORT.

USE COPPER CONDUCTORS ONLY
UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT ANY OTHER WIRING

IMPORTANT!
DO NOT ENERGIZE UNIT UNTIL CHECK-OUT AND START-UP PROCEDURE HAS BEEN COMPLETED

NOTES:

31. 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.

32. 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 CO.

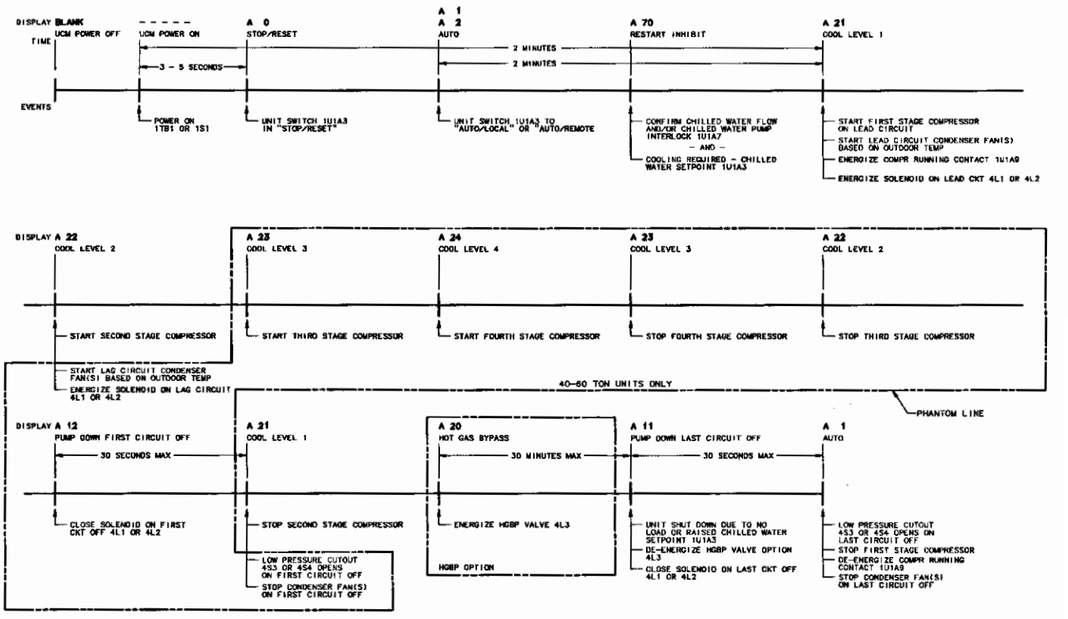
33. NUMBERS ALONG THE RIGHT SIDE OF THE SCHEMATIC DESIGNATE THE LOCATION OF CONTACTS BY LINE NUMBER. AN UNDERLINED NUMBER INDICATES A NORMALLY CLOSED CONTACT. AN OPEN ARROWHEAD BELOW THE LINE NUMBER POINTING UPWARD INDICATES A TIMED CONTACT WHICH BEGINS TIMING WHEN ENERGIZED.

(34) THE UPSTREAM COMPRESSOR IS COMPRESSOR "A" ON CKT #1 AND COMPRESSOR "C" ON CKT #2. THE DOWN STREAM COMPRESSOR IS COMPRESSOR "B" ON CKT #1 AND COMPRESSOR "D" ON CKT 2.

LEGEND NO. 1		
DEVICE DESIGNATION	DESCRIPTION	LINE NUMBER
E1 – E6	QC TERMINALS ON 1U1 BOARDS	
J1 – J4	PIN TERMINALS ON 1U1 BOARDS	
TB1, TB2	TERMINAL STRIPS ON 1U1 BOARDS	
1F1 – 1F3	COND FAN & CONTROL PWR FUSE	40
1F4 – 1F6	CONDENSER FAN FUSE	34,35,36
1F7	CONTROL CIRCUIT FUSE	72
1F8, 1F9, 1F10	1U1 POWER SUPPLY FUSE	62,66,68
1K1, 1K2	COMPRESSOR A & B CONTACTOR	77,81
1K3, 1K4	COMPRESSOR C & D CONTACTOR	92,96
1K5, 1K6	CONDENSER FAN CONTACTOR	83,65
1K8, 1K9	CONDENSER FAN CONTACTOR	98,100
1K10	CONDENSER FAN CONTACTOR	86
1M1, 1M3	COMPR A & B CYCLE COUNTER	75,79
1M2, 1M4	COMPR A & B HOUR METER	76,80
1M5, 1M7	COMPR C & D CYCLE COUNTER	90,94
1M6, 1M8	COMPR C & D HOUR METER	91,95
1P1 – 1P24	PLUG CONNECTORS TO 1U1	
1S1	NON-FUSED DISCONNECT SWITCH	11
1T1	CONTROL POWER TRANSFORMER	64
1T2, 1T12	1U1 POWER SUPPLY TRANSFORMER	63,67
1T3 – 1T10	COMPR CURRENT TRANSFORMERS	23
1TB1	LINE TERMINAL BLOCK	11
1TB2	115V CONTROL TERMINAL BLOCK	
1U1	MICRO MODULE	
1U1A1	COMPR A & B INPUT BOARD	23,122
1U1A2	COMPR C & D INPUT BOARD	143
1U1A3	MICRO BOARD	122
1U1A5	COMMUNICATIONS BOARD	166
1U1A6	POWER SUPPLY BOARD	61,150
1U1A7	RELAY BOARD NO. 1	77
1U1A7K1, 1U1A7K2	COMPRESSOR A & B RELAY	77,78,81,82
1U1A7K3, 1U1A7K4	COND FAN RELAY NO. 1 & 2	83,85
1U1A8	RELAY BOARD NO. 2	92
1U1A8K1, 1U1A8K2	COMPRESSOR C & D RELAY	92,93,96,97
1U1A9K3, 1U1A8K4	COND FAN RELAY NO. 3 & 4	99,100
1U1A9	OUTPUT BOARD, OPTIONS	107
1U1A8K1	HOT GAS BYPASS VALVE RELAY	107
1U1A9K2	ALARM RELAY	108,109
1U1A9K3	COMPRESSOR RUNNING RELAY	110,111
2B1 – 2B3	CONDENSER FAN MOTOR NO. 1 – 3	45 – 53
2B4 – 2B6	CONDENSER FAN MOTOR NO. 4 – 6	34 – 42
2B7	CONDENSER FAN MOTOR NO. 7	54 – 56
3B1, 3B2	COMPRESSOR A & B	28
3B1S1, 3B2S2	COMPR A & B WINDING T-STAT	125,127
3B3, 3B4	COMPRESSOR C & D	28
3B3S3, 3B4S4	COMPR C & D WINDING T-STAT	146,148

LEGEND NO. 2		
DEVICE DESIGNATION	DESCRIPTION	LINE NUMBER
4HR1	HEAT TAPE	74,70
4L1, 4L2	SOLENOID VALVE – CKT #1 & 2	150,152
4L3	HOT GAS BYPASS VALVE	107
4RT3	OUTDOOR TEMP SENSOR	138
4RT4	ENTERING EVAP WTR TEMP SENSOR	138
4RT5	LEAVING EVAP WTR TEMP SENSOR	140
4S1, 4S2	HI PRESS CUTOUT CKT #1 & 2	77,92
4S3, 4S4	LOW PRESS CUTOUT CKT #1 & 2	122,143
5B1	CHILLED WTR PUMP MOTOR	3
5DL1	CHILLED WTR PUMP TIME DELAY	9
5DS1	ALARM INDICATOR LIGHT	108
5DS2	COMPRESSOR RUNNING LIGHT	110
5K1	CHILLED WTR PUMP STARTER	9
5K2	CHILLED WTR PUMP RELAY	8,87
5K3	ALARM RELAY	109
5K4	COMPRESSOR RUNNING RELAY	111
5K6	COMPR INHIBIT KW LIMIT RELAY	128
5K7	EXTERNAL INTERLOCK RELAY	130
5K8	EXT CHILLED WTR STPT ENABLE	161
5K9	ICE MACHINE CONTROL CONTACT	162
5R1	CHLD WTR STPT PROGRAM RESISTOR	163
5S1	FUSED DISCONNECT SWITCH	7
5S2	CHILLED WTR PUMP CONTROL SW	9
5S3	HIGH AMBIENT LOAD LIMIT T-STAT	128
5T1	CONTROL TRANSFORMER	8
6RT1	ZONE TEMPERATURE SENSOR	171
6S1	CHILLED WATER FLOW SWITCH	85
6S2	LOW AMBIENT THERMOSTAT	87
TP1 & TP2	TEST POINT #1 & 2	178,180

SEQUENCE OF OPERATION (34)



COMPRESSOR A,B,C, & D SEQUENCING – VS – UNIT TYPE									
COOLING LEVELS	DISPLAY	20–30T W/O HGBP		20–30T W/ HGBP		40–60T W/O HGBP W/ LEAD LAG		40–60T W/ HGBP W/ CIRCUIT #1 LEAD	
		NORMAL	**ALTERNATE	NORMAL	**ALTERNATE	NORMAL	**ALTERNATE	NORMAL	**ALTERNATE
COOLING LEVEL 1	A 21	A	B	A	B	A OR C	–	A	C
COOLING LEVEL 2	A 22	AB	–	AB	–	AC	CD OR AB	AC	AD OR CD
COOLING LEVEL 3	A 23	–	–	–	–	ABC OR ACD	–	ABC	ACD
COOLING LEVEL 4	A 24	–	–	–	–	ABCD	–	ABCD	–
COOLING LEVEL 3	A 23	–	–	–	–	ACD OR ABC	–	ABC	ACD
COOLING LEVEL 2	A 22	AB	–	AB	–	AC	CD OR AB	AC	AB OR CD
COOLING LEVEL 1	A 21	B	B	A	B	C OR A	–	A	C
HGBP	A 20	–	–	A	–	–	–	A	–

** ONE COMPRESSOR IS EITHER IN ANTI-RECYCLE OR LOCKED OUT AND AN ALTERNATE COMPRESSOR WAS CHOSEN. EACH COMPRESSOR HAS A 5 MINUTE START-TO-START ANTI-RECYCLE TIMER.

Appendix B. CGWD and CCAD 20 to 60 ton original sample wiring diagrams

Figure B1. CGWD and CCAD 20-60 ton sheet 1 of 4, ref. X39551052 rev B

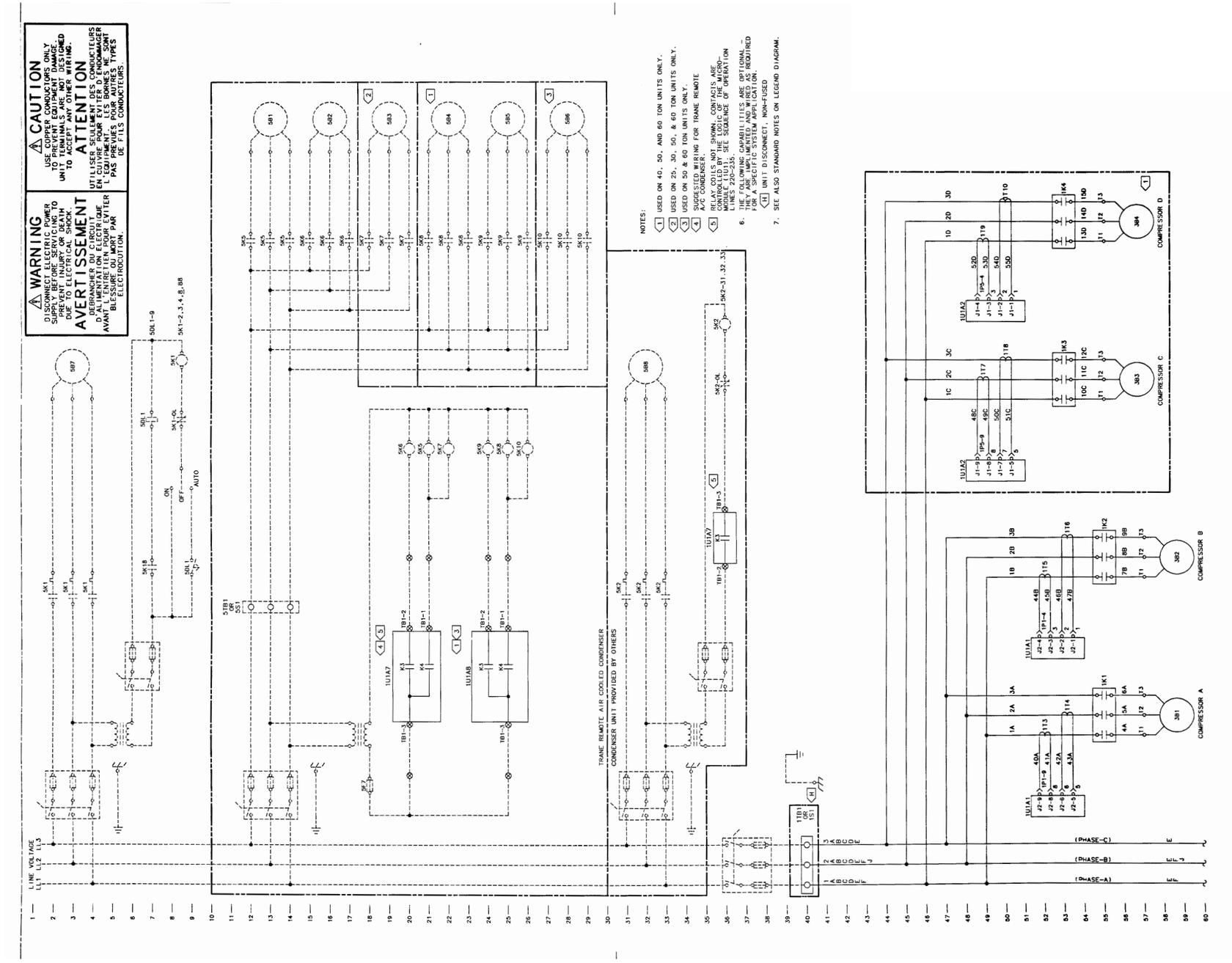


Figure B2. CCAD 20-60 ton sheet 2 of 4, ref. X39551053 rev B

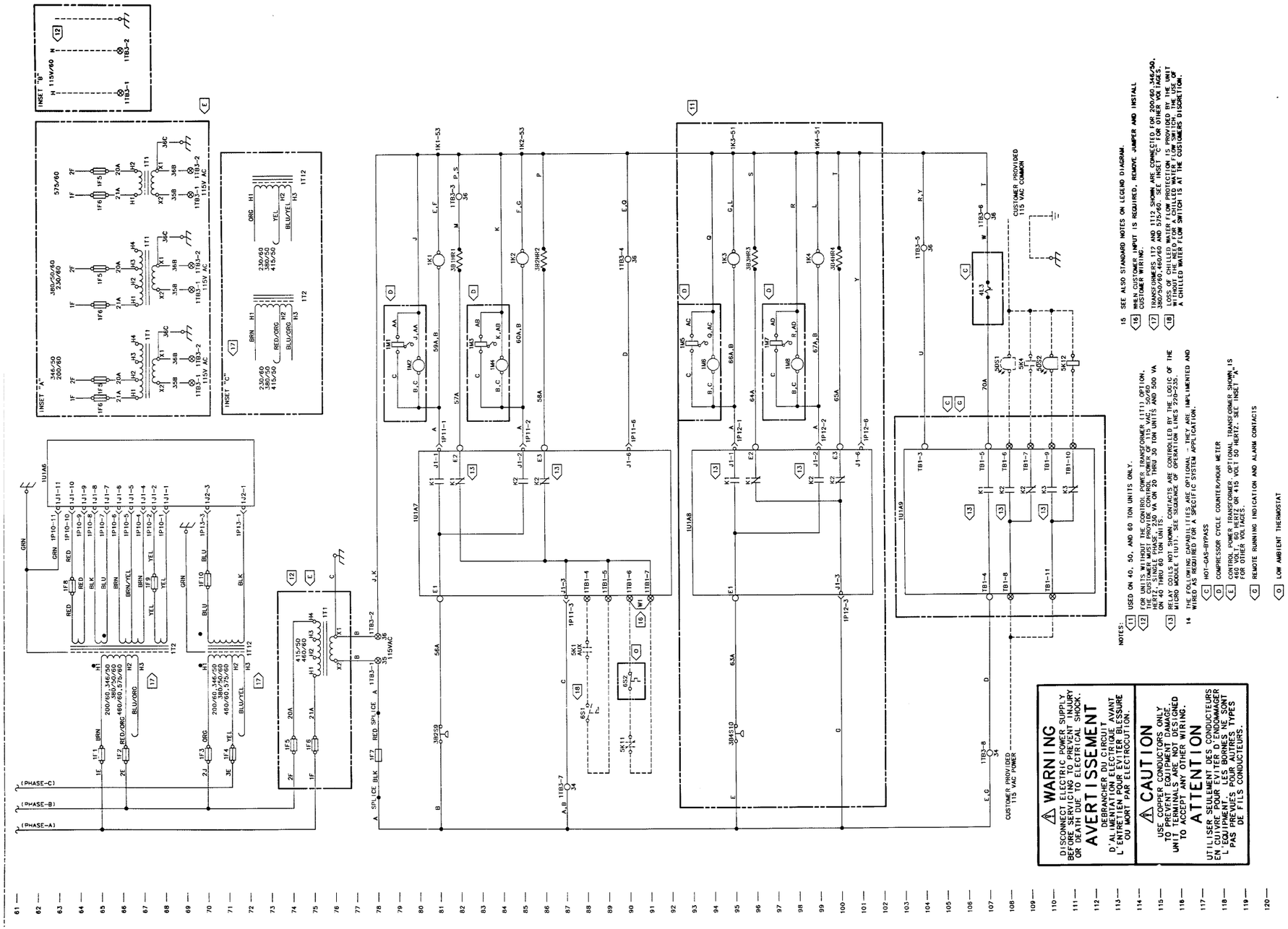


Figure B3. CGWD and CCAD 20-60 ton sheet 3 of 4, ref. X39551054 rev C

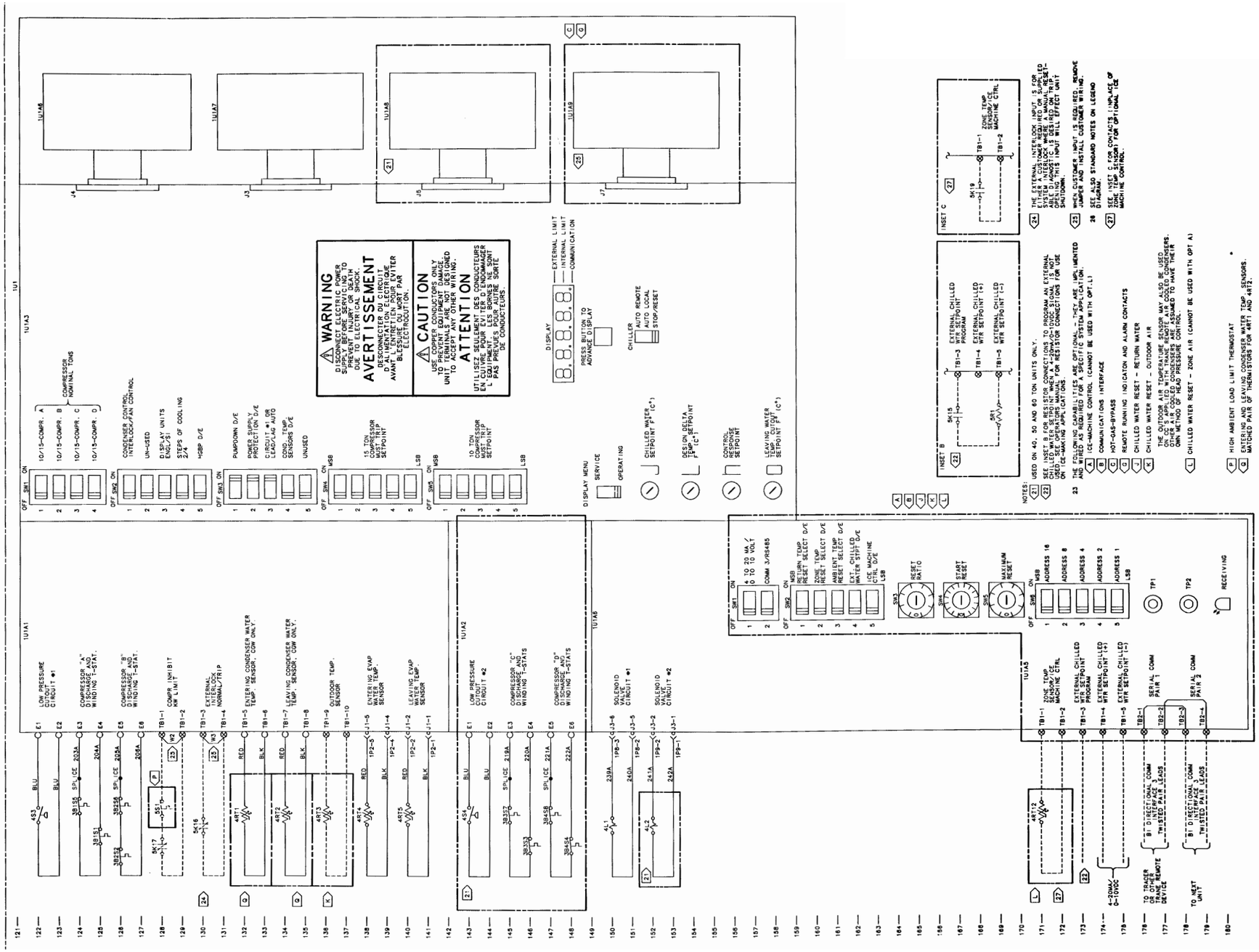
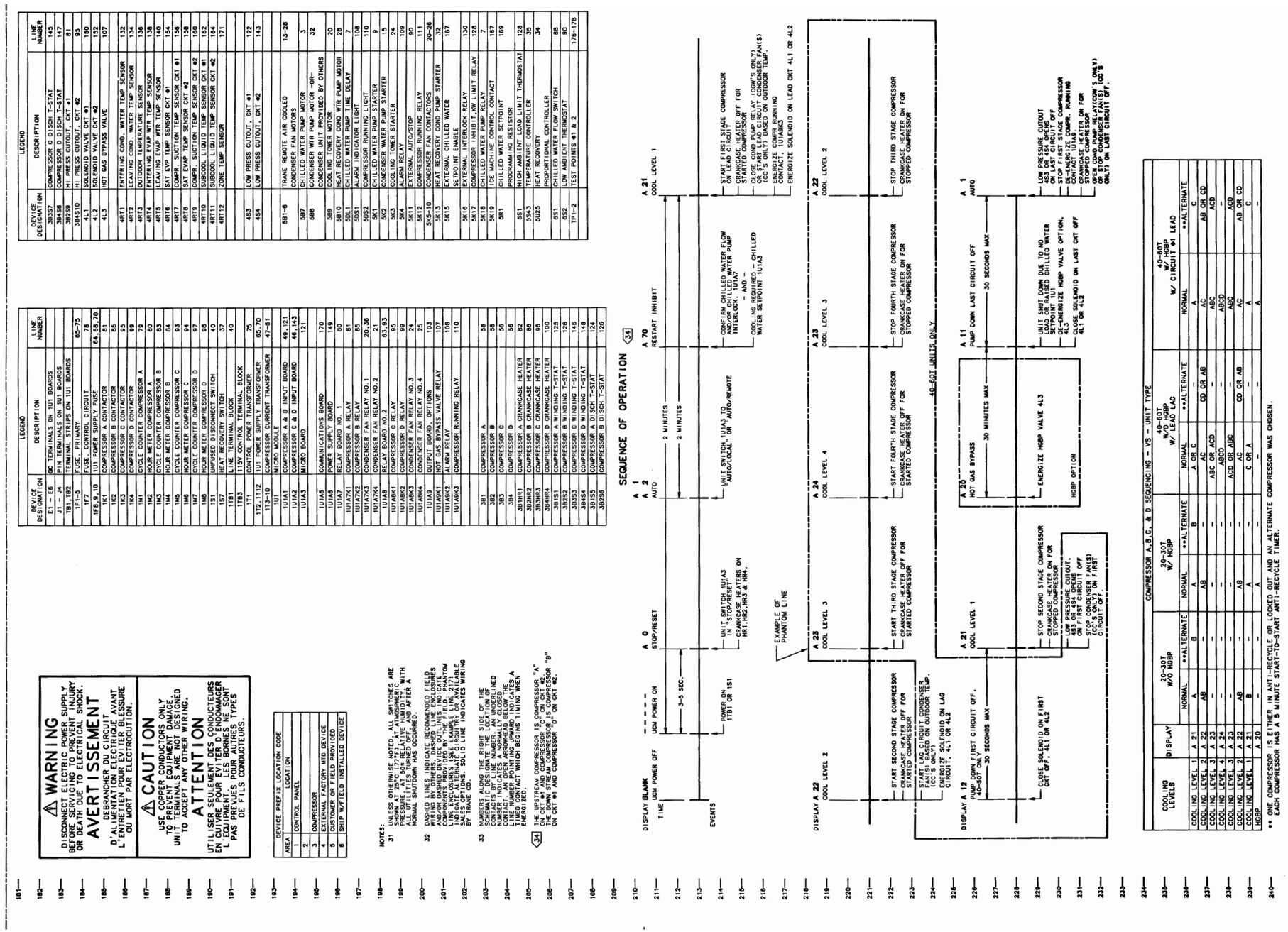


Figure B4. CGWD and CCAD 20-60 ton sheet 4 of 4, ref. X39551055 rev A



Appendix C. CGAD and CGAE new wiring diagrams

Figure C1. CGAD and CGAE sheet 1 of 4, power section, ref. 50689859 rev B

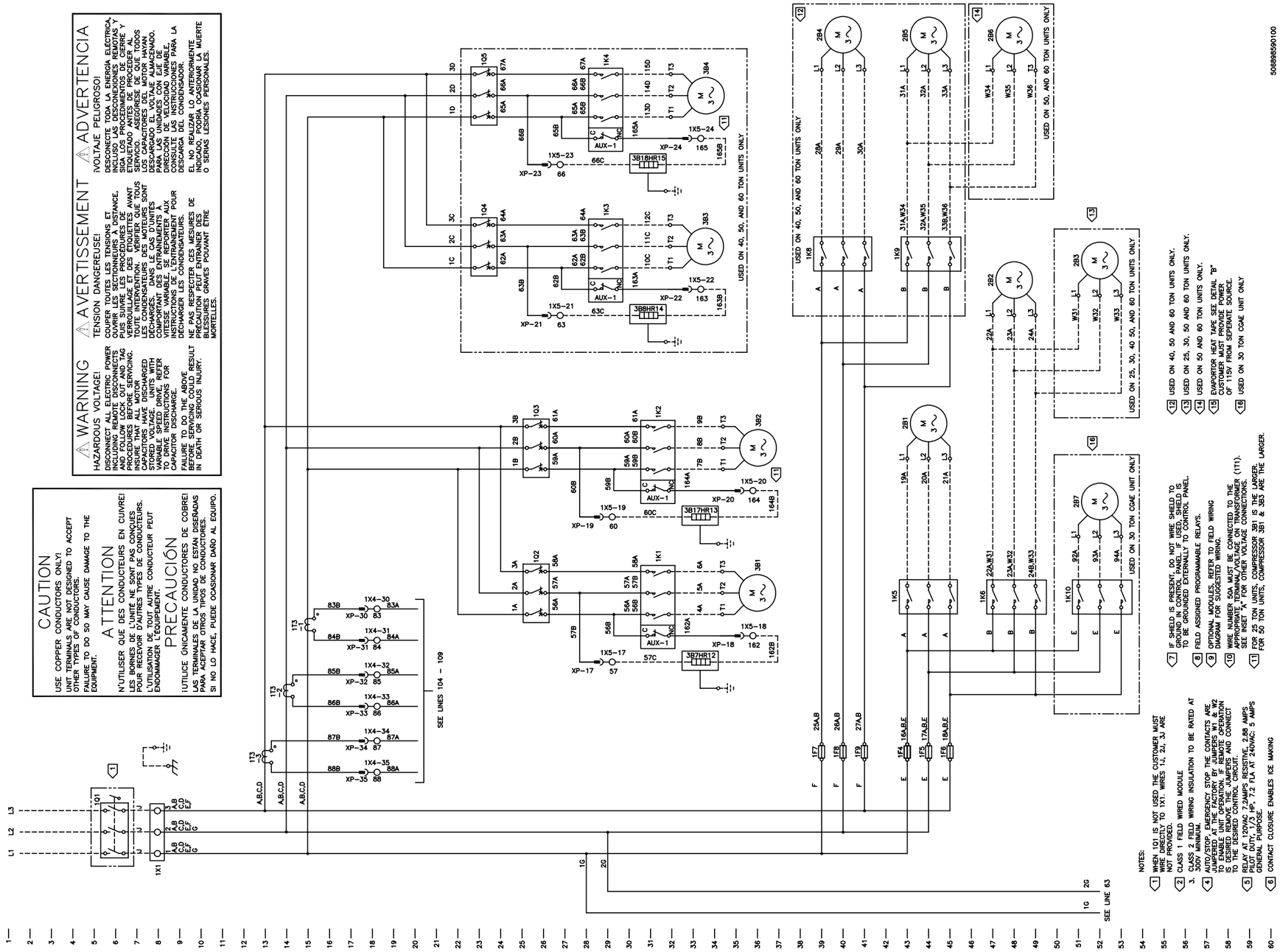


Figure C2. CGAD and CGAE sheet 2 of 4, controls section, ref. 50689860 rev B

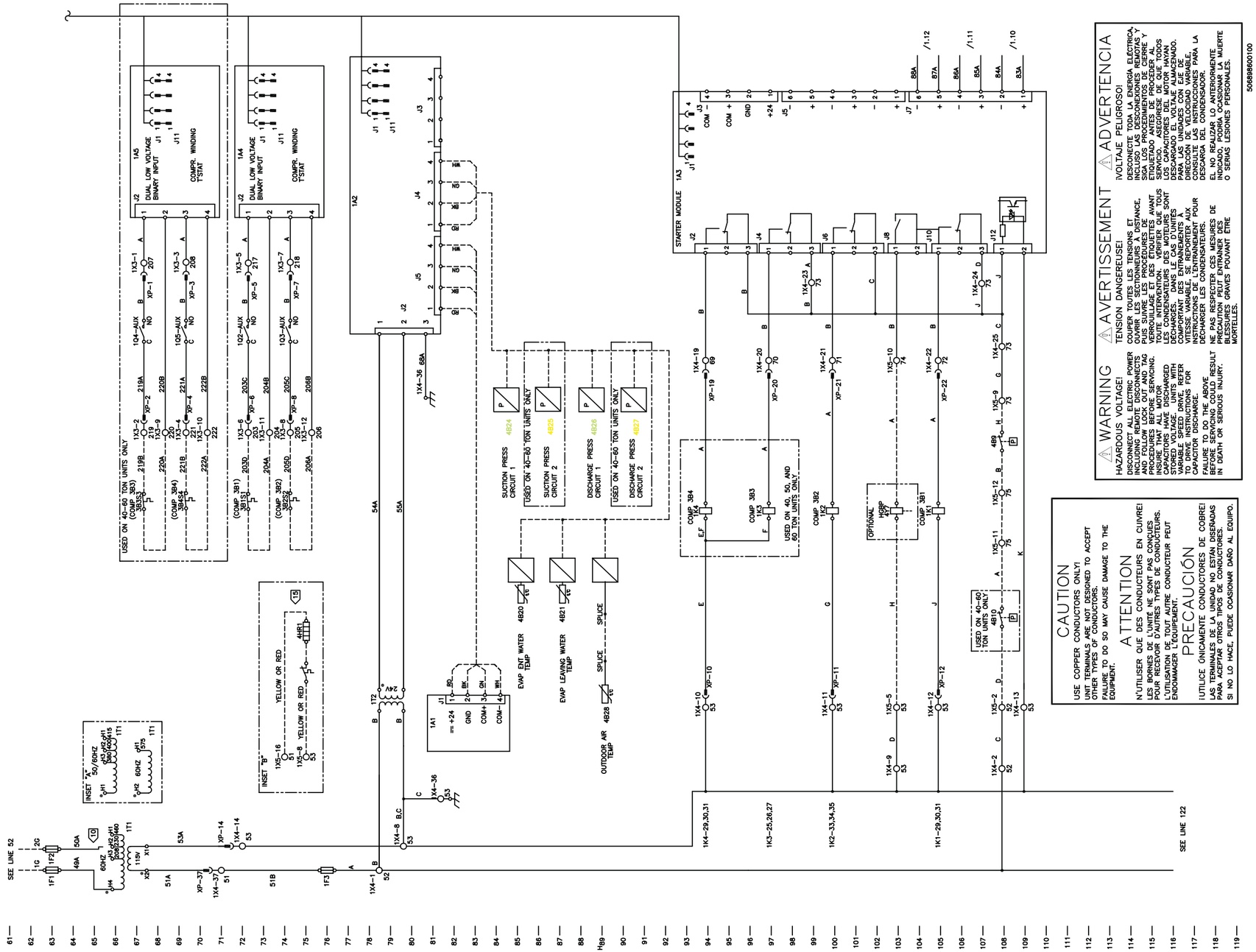


Figure C3. CGAD and CGAE sheet 3 of 4, controls section, ref. 50689861 rev B

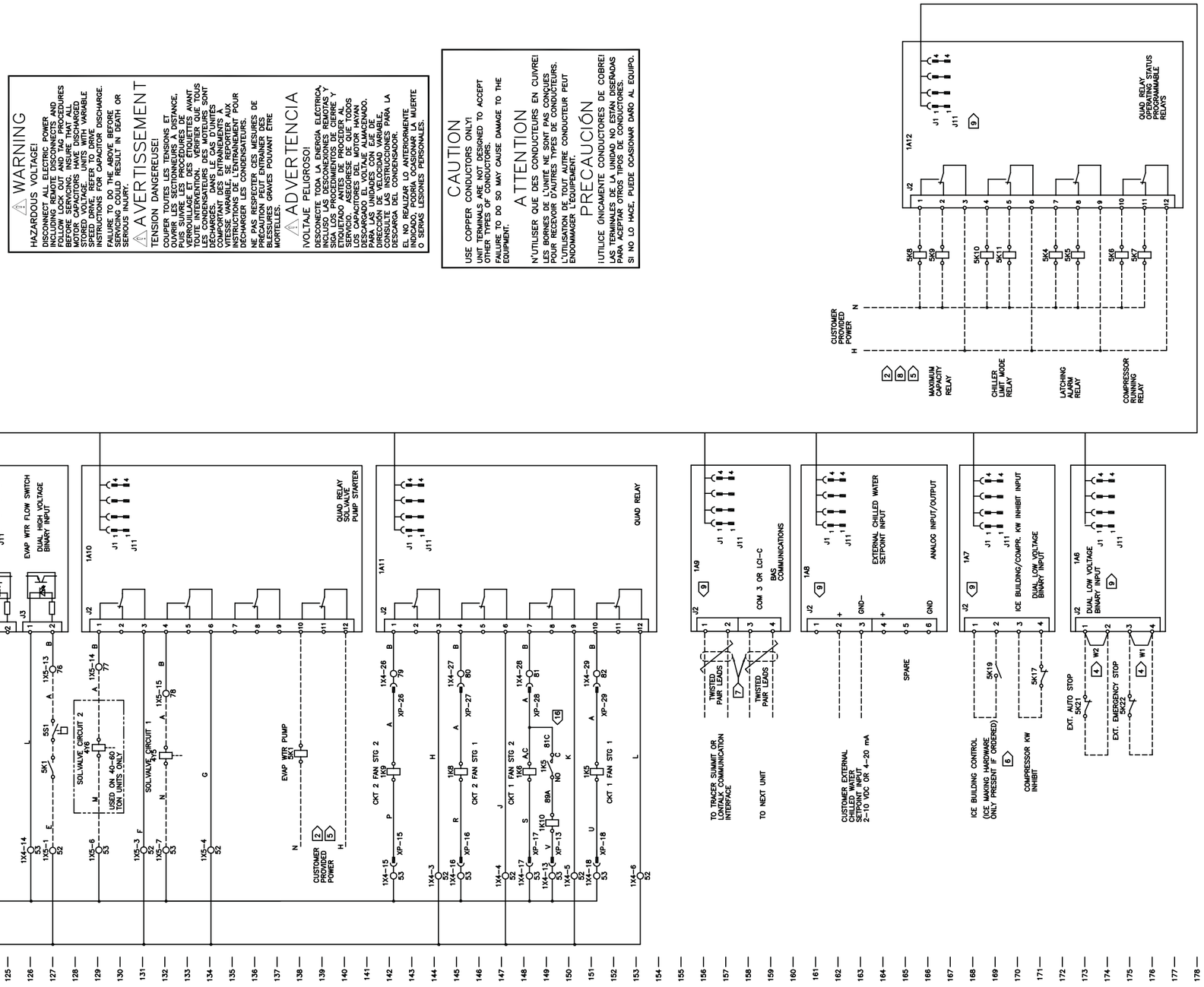


Figure C4. CGAD and CGAE sheet 4 of 4, legend, ref. 50689862 rev A

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USE COPPER CONDUCTORS ONLY!

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ATTENTION

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SI NO LO HACE, PUEDE OCASIONAR DAÑO AL EQUIPO.

⚠ WARNING

HAZARDOUS VOLTAGE!

DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS AND FOLLOW LOCK OUT AND TAG PROCEDURES BEFORE SERVICING. INSURE THAT ALL MOTOR CAPACITORS HAVE DISCHARGED STORED VOLTAGE. UNITS WITH VARIABLE SPEED DRIVE, REFER TO DRIVE INSTRUCTIONS FOR CAPACITOR DISCHARGE.

FAILURE TO DO THE ABOVE BEFORE SERVICING COULD RESULT IN DEATH OR SERIOUS INJURY.

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EL NO REALIZAR LO ANTERIORMENTE INDICADO, PODRÍA OCASIONAR LA MUERTE O SERIAS LESIONES PERSONALES.

50689862010O

LINE #	ITEM	DESCRIPTION
81	1A1	DYNA VIEW DISPLAY AND INTERFACE
78	1A2	POWER SUPPLY MODULE
92	1A3	STARTER MODULE
72	1A4	WINDING T'STAT INPUT CKT #1
67	1A5	WINDING T'STAT INPUT CKT #2
173	1A6	EXTERNAL AUTO/STOP AND EMERGENCY STOP INPUT
168	1A7	ICE BUILDING/COMPRESSOR KW INHIBIT INPUT
161	1A8	EXTERNAL CHILLED WATER SETPOINT INPUT
156	1A9	COM 3 OR LCI-C
129	1A10	SOLENOID VALVE COND/EVAP PUMP STARTER
142	1A11	AIR COOLED CONDENSER FAN CONTROL
165	1A12	ALARM/LIMIT AND RUNNING INDICATORS
123	1A13	EVAP WATER AND CONDENSER WATER FLOW SWITCH
31	1K1	COMPRESSOR 1A CONTACTOR
31	1K2	COMPRESSOR 1B CONTACTOR
25	1K3	COMPRESSOR 2A CONTACTOR
29	1K4	COMPRESSOR 2B CONTACTOR
43	1K5	FAN CONTACTOR
47	1K6	FAN CONTACTOR
39	1K8	FAN CONTACTOR
41	1K9	FAN CONTACTOR
51	1K10	FAN CONTACTOR
45	1K11	FAN CONTACTOR
73	1T1	115V TRANSFORMER
79	1T2	24V TRANSFORMER
21–24	1T3–1,2,3	CURRENT TRANSFORMERS
8	1X1	MAIN TERMINAL BLOCK
	1X3	TERMINAL STRIP
	1X4	TERMINAL STRIP
12	1Q1	MAIN DISCONNECT SWITCH
25,29,33	1Q2–5	COMPRESSOR OVERLOAD PROTECTORS
63	1F1–2	1T1 PRIMARY FUSES
77	1F3	1T1 SECONDARY FUSE
43,44,45	1F4,5,6	FAN FUSES
37,38,39	1F7,8,9	FAN FUSES
44	2B1	FAN MOTOR
48	2B2	FAN MOTOR
52	2B3	FAN MOTOR
38	2B4	FAN MOTOR
42	2B5	FAN MOTOR
46	2B6	FAN MOTOR
30	3B1	COMPRESSOR 1A
34	3B2	COMPRESSOR 1B
30	3B3	COMPRESSOR 2A
26	3B4	COMPRESSOR 2B
72	3B1S1	COMPRESSOR 1A WINDING T'STAT
75	3B2S2	COMPRESSOR 1B WINDING T'STAT
67	3B3S3	COMPRESSOR 2A WINDING T'STAT
69	3B4S4	COMPRESSOR 2B WINDING T'STAT
108	4B9	HI PRESS CUTOUT, CKT #1
108	4B10	HI PRESS CUTOUT, CKT #2
85	4B20	EVAPORATOR ENTERING WATER TEMP. SENSOR
87	4B21	EVAPORATOR LEAVING WATER TEMP. SENSOR
85	4B24	SUCTION PRESSURE TRANSDUCER CIRCUIT 1
87	4B25	SUCTION PRESSURE TRANSDUCER CIRCUIT 2
88	4B26	DISCHARGE PRESSURE SENSOR CIRCUIT 1
90	4B27	DISCHARGE PRESSURE SENSOR CIRCUIT 2
89	4B28	OUT DOOR AIR TEMP SENSOR
132	4Y5	SOLENOID VALVE CIRCUIT 1
129	4Y6	SOLENOID VALVE CIRCUIT 2
103	4Y7	HOT GAS BYPASS VALVE
138	5K1	EVAP WTR PUMP STARTER
166–175	5K4–11	UNIT STATUS RELAYS
171	5K17	COMPR KW INHIBIT INPUT
169	5K19	ICE BUILDING CONTROL
173	5K21	EXT AUTO STOP
175	5K22	EXT EMERGENCY STOP
127	5S1–2	EVAP WTR FLOW SWITCH

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

1K20
1T
IDENTIFICATION
CLASSIFICATION
LOCATION CODE

LOCATION
1 CONTROL PANEL
2 FAN
3 COMPRESSOR
4 UNIT MTD
5 CUSTOMER PROVIDED

TRANE WIRING
CUSTOMER WIRING
OPTIONS

Appendix D. CGW and CCA new wiring diagrams

Figure D1. CGW and CCA schematic wiring, ref. 50689869 rev A

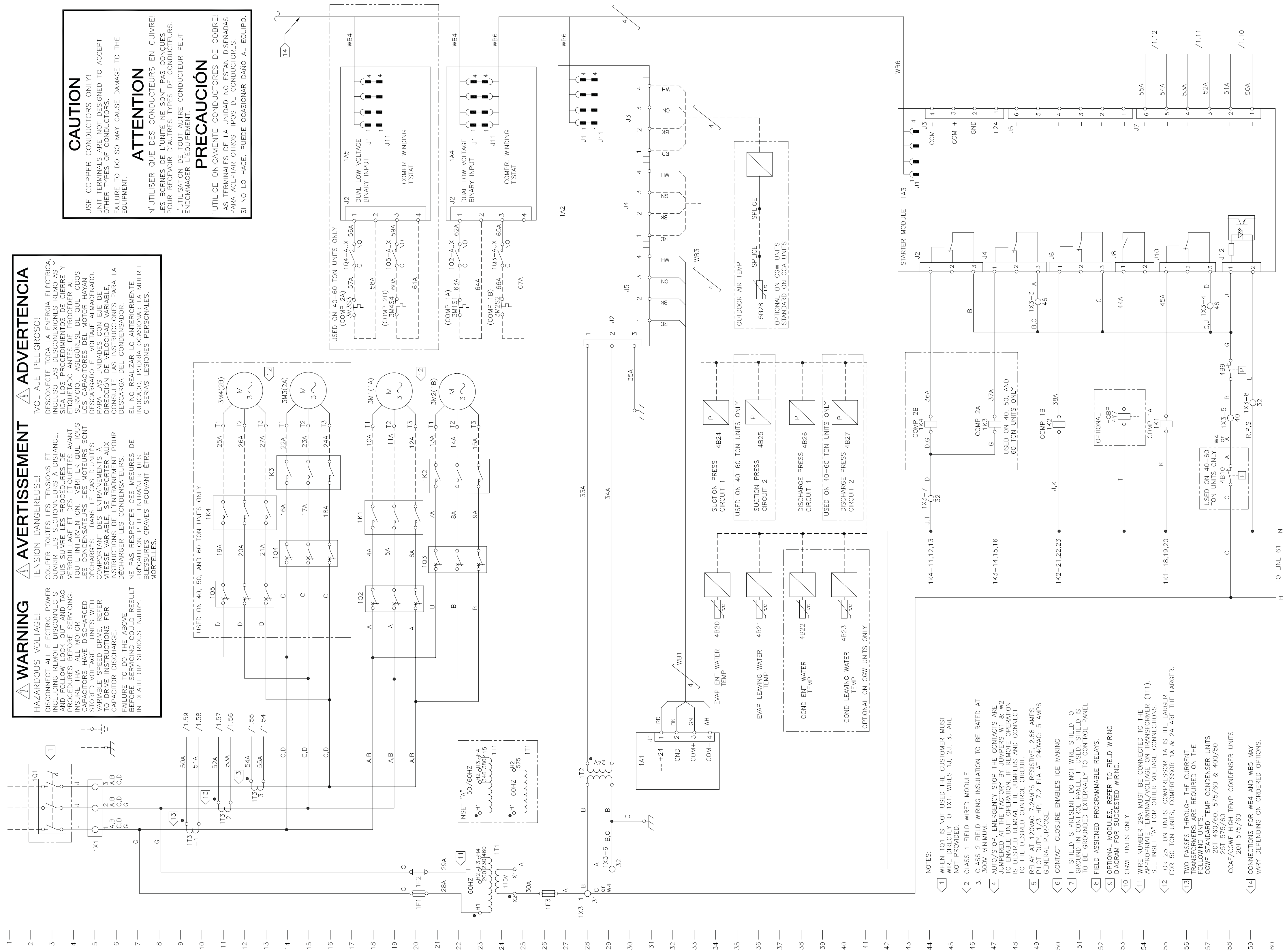
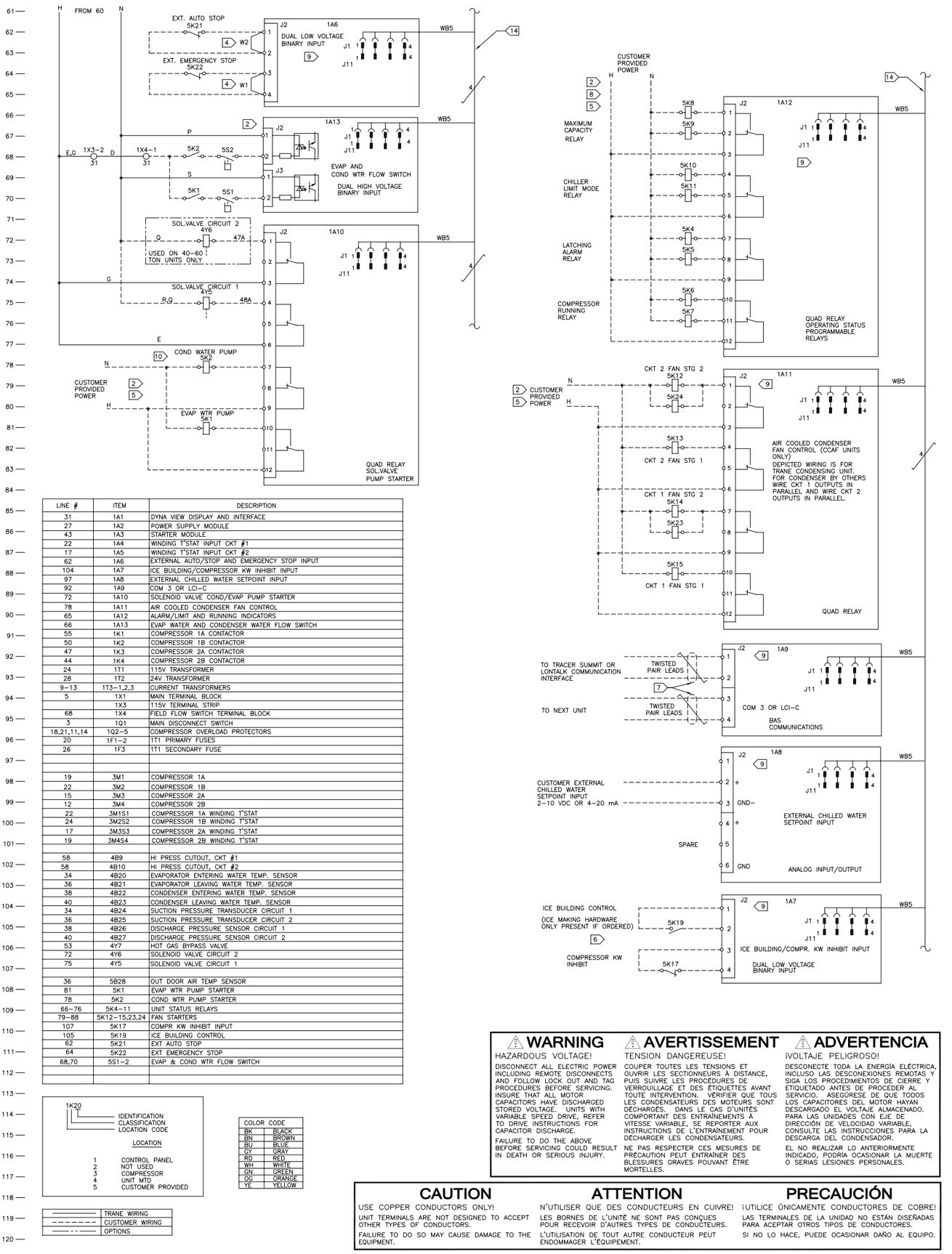


Figure D2. CGW and CCA schematic wiring, ref. 50689870 rev A



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97	1A8	EXTERNAL CHILLED WATER SETPOINT INPUT
92	1A9	COM 3 OR LCI-C
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68	1X4	FIELD FLOW SWITCH TERMINAL BLOCK
3	1Q1	MAIN DISCONNECT SWITCH
18,21,11,14	1Q2-5	COMPRESSOR OVERLOAD PROTECTORS
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19	3M4S4	COMPRESSOR 2B WINDING T°STAT
58	4B9	HI PRESS CUTOUT, CKT #1
58	4B10	HI PRESS CUTOUT, CKT #2
34	4B20	EVAPORATOR ENTERING WATER TEMP. SENSOR
36	4B21	EVAPORATOR LEAVING WATER TEMP. SENSOR
38	4B22	CONDENSER ENTERING WATER TEMP. SENSOR
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36	4B25	SUCTION PRESSURE TRANSDUCER CIRCUIT 2
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40	4B27	DISCHARGE PRESSURE SENSOR CIRCUIT 2
53	4Y7	HOT GAS BYPASS VALVE
72	4Y6	SOLENOID VALVE CIRCUIT 2
75	4Y5	SOLENOID VALVE CIRCUIT 1
36	5B28	OUT DOOR AIR TEMP SENSOR
81	5K1	EVAP WTR PUMP STARTER
78	5K2	COND WTR PUMP STARTER
66-76	5K4-11	UNIT STATUS RELAYS
79-88	5K12-15,23,24	FAN STARTERS
107	5K17	COMPR KW INHIBIT INPUT
105	5K19	ICE BUILDING CONTROL
62	5K21	EXT AUTO STOP
64	5K22	EXT EMERGENCY STOP
68,70	5S1-2	EVAP & COND WTR FLOW SWITCH

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- CLASSIFICATION
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CUSTOMER WIRING
OPTIONS

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Date	April 2008
Supersedes	New

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