

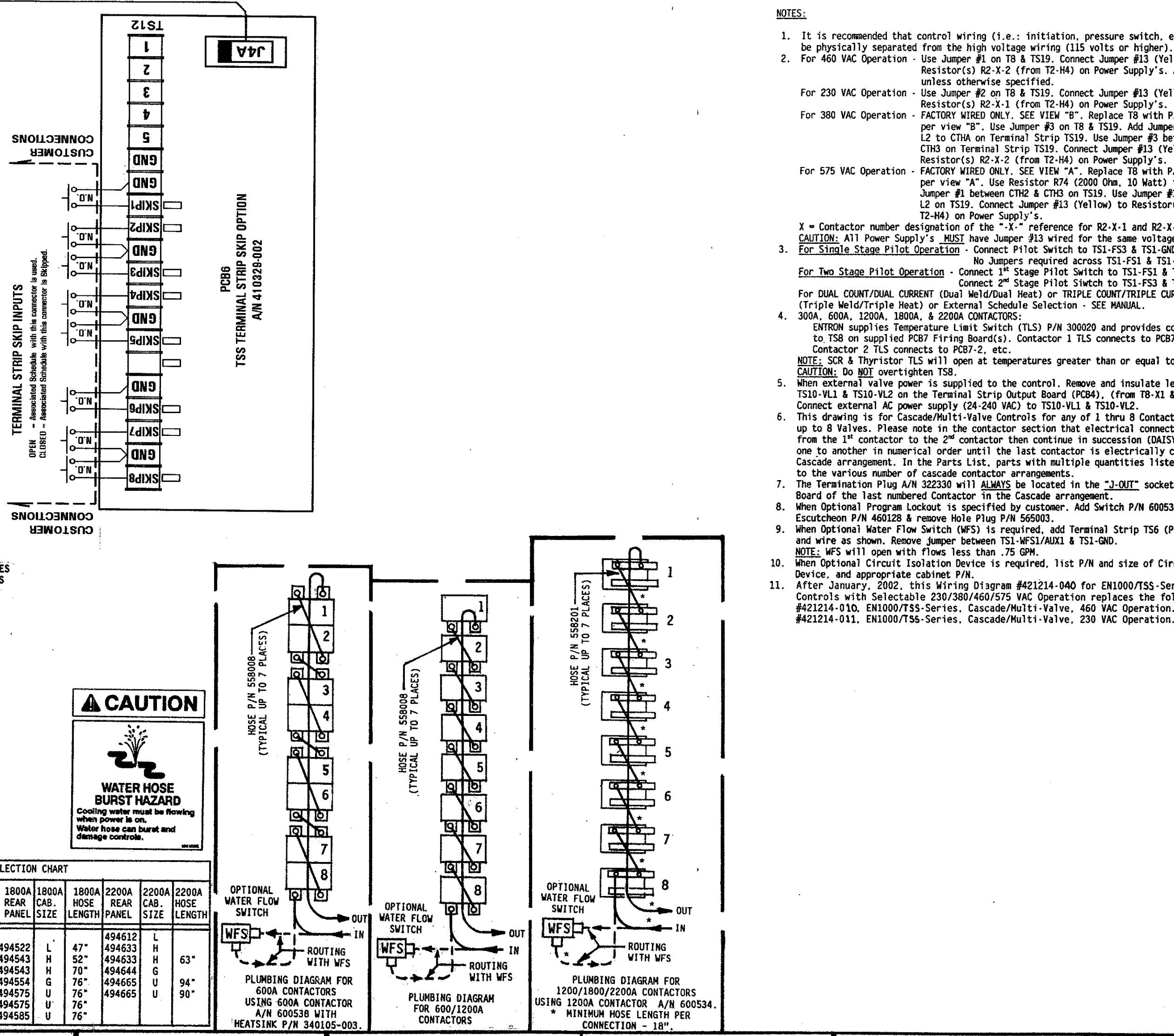
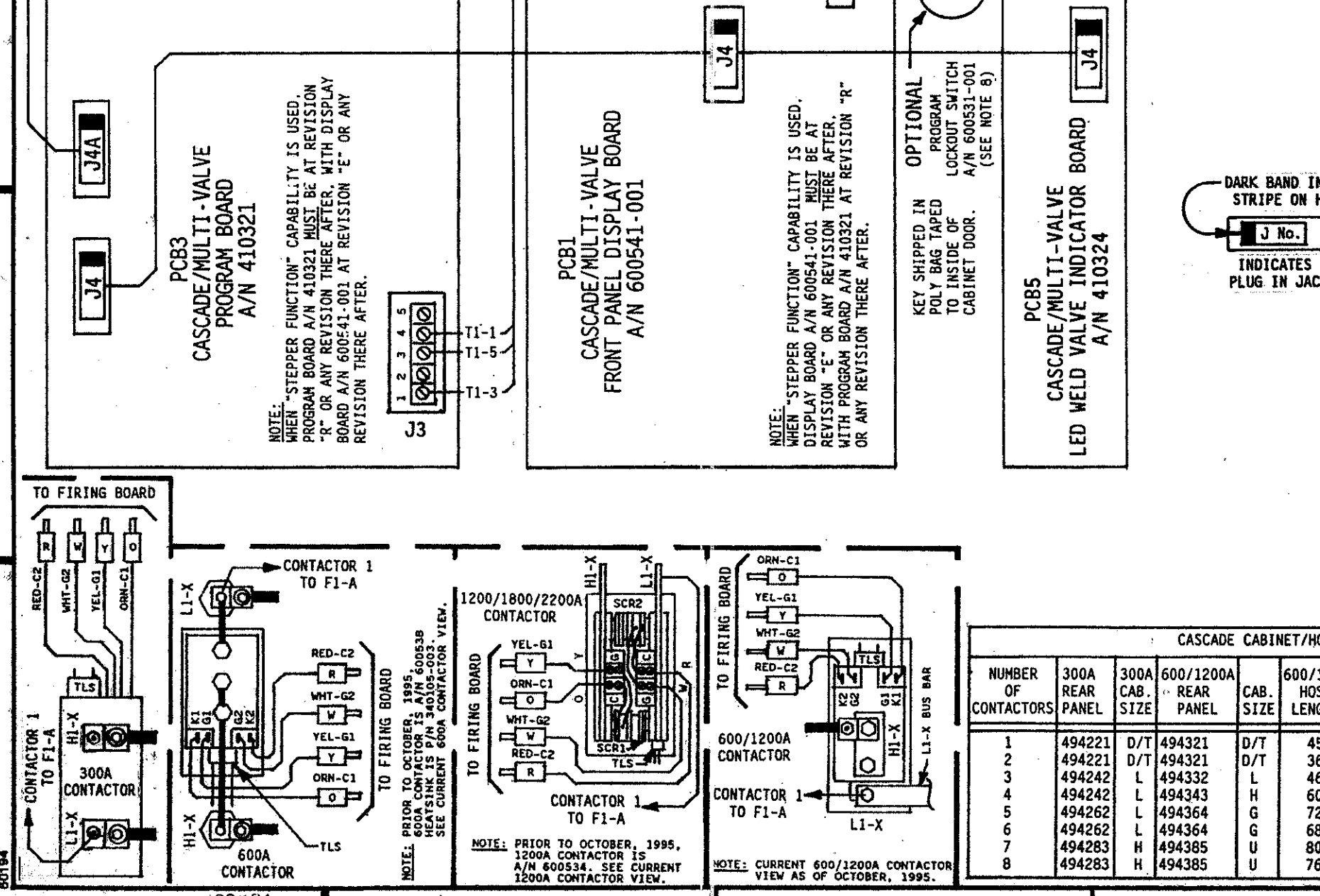
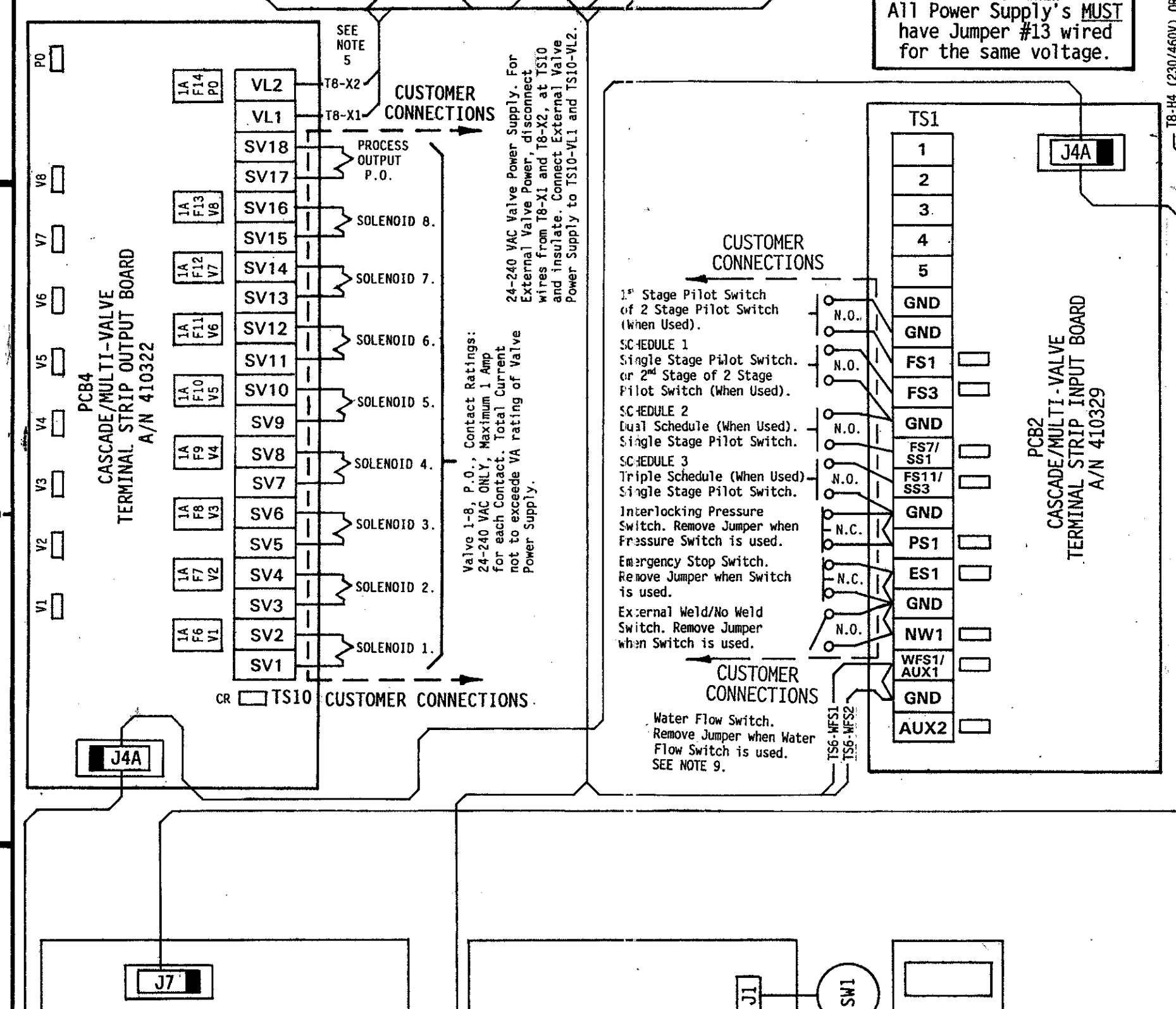
PARTS LIST - CONTROL SECTION

421214-040

QTY	DESIG.	PART NO.	DESCRIPTION
1	PCB1	600541-001	Assem., Dial Plate, EN1000 Cascade, Consisting of: Assem. Switch, Front Panel Display Board
1	PCB2	600541-001	Assem., Control Panel, EN1000 Cascade/Multi-Valve Display Window, Panel, Red Filter, Cont. & Valve, EN1000 Cascade
1	PCB5	515104	Display Window, Panel, Red Filter, LED, EN1000 Cascade
1	PCB8	410324	Assem., PCB, Contactor Weld & Valve Indicator Board, EN1000 Cascade
1	PCB3	410321	Assem., PCB, Program Board, EN1000 Cascade/Multi-Valve
1	SW1	600531-001	Assem., Switch, Keypad, Momentary, SPST Hole Plug, 3/4" Dia., Black, (For Keypad Hole)
1	J3	322340-004	Assem., Harness, Power, Door Mounted
1	J3	322341-004	Assem., Harness, Power, Side Mounted
1	J4	322342	Assem., Harness, Seq. Display Bd./Program Bd./LED Indicator Bd.
1	J4A	322356	Assem., Harness, Prog Bd/Output Bd/Input Bd/S99 Bd., Door Mt'd
1	J4A	322357	Assem., Harness, Prog Bd/Output Bd/Input Bd/S99 Bd., Side Mt'd
1	J7-IN	322346	Assem., Harness, Program Bd. to Firing Board, Door Mounted
1	J7-IN	322347	Assem., Harness, Program Bd. to Firing Board, Side Mounted

PARTS LIST - CONTACTOR SECTION

QTY	DESIG.	PART NO.	DESCRIPTION
1	TS6	335017	Terminal Strip, 6 Pin, 15A, (For WFS)
1	TS9	335024	Terminal Strip, 6 Pin, 20A
1	T1	311001	Transformer, Control, (Part of J3 Harness)
1	T8	311002	Transformer, Valve, 150VA, 230/460V
1	T8	311017	Transformer, Valve, 150VA, 575V
1	T8	311019	Transformer, Valve, 150VA, 500/400/415V
1	T8	311022	Transformer, Valve, 250VA
1	T8	311021	Transformer, Valve, 500VA
2	(T8)	325149	Assem., Wire, Valve Transformer, 22 Ga., Black
1-3	341040	Insulator, Standoff, L2 Bus Bar	
1-3	346011	Lug, Screw, 1/4" Bolt to 2/0 Wire, L1, L2, H1, & 600A Contactor	
1-4	346012	Lug, Screw, 1/4" Bolt to Dual 2/0 Wire, L2 Bus Bar	
1-4	346022	Lug, Screw, 1/4" Bolt to 4/0 Wire, L1, L2, & H1	
1-4	346060	Lug, Screw, 1/4" Bolt to Dual 4/0 Wire, L2 Bus Bar	
1-4	346065	Lug, Screw, 1/4" Bolt to 350 MCM Wire, L1, L2, & H1	
1-4	346010	Lug, Screw, 1/4" Bolt to Dual 350 MCM Wire, L2 Bus Bar	
1-4	346003	Lug, Screw, 1/4" Bolt to 500 MCM Wire, L1, L2, & H1	
1-4	346016	Lug, Screw, 1/4" Bolt to Dual 500 MCM Wire, L2 Bus Bar	
1-8	600520	Assem., Contactor, Air, 300A, w/TLs, 460/575V	
1-8	600520-004	Assem., Contactor, Air, 300A, w/TLs, 460/575V, w/o L1 Lug	
1-8	600510	Assem., Contactor, Water, 600A, 460/575V	
1-8	600598	Assem., Contactor, Water, 1200A, 460/575V	
1-8	600549	Assem., Contactor, Water, 1800A, 460/575V	
1-8	600535	Assem., Contactor, Water, 2200A, 460/575V	
1-8	300020	Switch, Temp. Limit, (N.C.), (Part of 600520 & 600520-004)	
1-8	530021	Plate, Mounting, 1800/2200A Contactor	
1-8	531036	Bracket, Mounting, 1800/2200A Contactor Plate	
1-8	525035-001	Bracket, Mounting, 300A Contactor	
1-8	600547-005	Assem., Power Supply, Selectable 230/380/460/575V, Consisting of: 600547-005, Sense, (Part of 600547-005)	
1-8	225016	Resistor, Power, Surge, 500 Ohm, 100W, (Part of 600547-005)	
1-8	325024	Assem., Wire, Surge Resistor, 18 Ga., Black, (Part of 600547-005)	
1-8	PCB7	410323	Assem., PCB, Firing Board, Cascade, (Mounted on Power Supply)
1-8	JIN-JOUT	322348	Assem., Harness, Firing Bd., Input to Output
1-8	R74	322330	Assem., Termination Plug, Cascade Firing Bd. (SEE NOTE 7)
1-8	600048	Assem., Resistor, Power, 2000 Ohm, 10W, (For 575V)	
1	F1	308010	Fuseholder, 1 Pole, Mini, 600V, HPC-L(85S)
1	F1	307024	Fuse, Control, 1/4", 3/8", 1/2", 3/4", 1", 1 1/2", 2", 3", 4", 6", 10", 15", 20", 25", 30", 35", 40", 45", 50", 60", 75", 100", 125", 150", 200", 250", 300", 350", 400", 450", 500", 600", 750", 1000", 1250", 1500", 2000", 2500", 3000", 3500", 4000", 4500", 5000", 6000", 7500", 10000"
1	F6-14	307022	Fuse, 1 Amp, Slow Blow, 2AG, (Part of 410322)
1	PC2	346004	Lug, Screw, Chassis GND, 5/16" Bolt to 2/0 Wire
1	PC4	410329	Assem., PCB, Terminal Strip Input Bd., Cascade
1	PC4	410322	Assem., PCB, Terminal Strip Output Bd., Cascade
1	PC6	510236	Plate Mounting, Terminal Strip Input & Output Boards
1	PC6	410329-002	Assem., PCB, Terminal Strip Skip, TSS
1	WFS	900045	Hose, 3/8" I.D.
1	WFS	558008	Hose, 3/8" I.D. x 12" Long
1	WFS	558011	Hose, 3/8" I.D. x 2-3/8" Dia. Coil x 18" Long
1	WFS	558012	Hose Clamp, 3/8" Hose
1	WFS	600179	Assem., Water Fitting, 3/8" Hose
1	WFS	600297-004	Assem., Water Flow Switch, 3/8" Hose
1	C/B	510247	Circuit Breaker, Pole, App. V, (SEE NOTE 10)
1	C/B	510253	Cabinet, Control, Style "D/T", w/Circuit Breaker
1	C/B	510257	Cabinet, Control, Style "L/S/L", w/Circuit Breaker
1	C/B	510053	Cabinet, Control, Style "HS/HF", w/Circuit Breaker
1	C/B	510055	Cabinet, Control, Style "GS/GF", w/Circuit Breaker
1	C/B	510114	Cabinet, Control, Style "US/UF", w/Circuit Breaker
1		700112	Manual, EN1000 Cascade
1		421386	Logic Diagram, EN1000 Cascade
1		421214-040	Wiring Diagram, EN1000/TSS-Series, Cascade/Multi-Valve



NOTES:

- It is recommended that control wiring (i.e., initiation, pressure switch, etc.) be physically separated from the high voltage wiring (115 volts or higher).
- For 460 VAC Operation - Use Jumper #1 on T8 & TS19. Connect Jumper #13 (Yellow) to Resistor(s) R2-X-2 (from T2-H4) on Power Supply's. As shipped unless otherwise specified.
- For 230 VAC Operation - Use Jumper #2 on T8 & TS19. Connect Jumper #13 (Yellow) to Resistor(s) R2-X-1 (from T2-H4) on Power Supply's.
- For 380 VAC Operation - FACTORY WIRE ONLY. SEE VIEW "B". Replace T8 with P/N 311019. Wire per view "B". Use Jumper #3 on T8 & TS19. Add Jumper #3 between L2 to CTHA on Terminal Strip TS19. Use Jumper #3 between CTH2 & CTH3 on Terminal Strip TS19. Connect Jumper #13 (Yellow) to Resistor(s) R2-X-2 (from T2-H4) on Power Supply's.
- For 575 VAC Operation - FACTORY WIRE ONLY. SEE VIEW "A". Replace T8 with P/N 311017. Wire per view "A". Use Resistor R74 (2000 Ohm, 10 Watt) in place of Jumper #1 between CTH2 & CTH3 on TS19. Use Jumper #1 between CTH2 & L2 on TS19. Connect Jumper #13 (Yellow) to Resistor(s) R2-X-2 (from T2-H4) on Power Supply's.

X = Contactor number designation of the "X" reference for R2-X-1 and R2-X-2.

CAUTION: All Power Supply's MUST have Jumper #13 wired for the same voltage.

- For Single Stage Pilot Operation - Connect Pilot Switch to TS1-FS1 & TS1-GND. No jumpers required across TS1-FS1 & TS1-GND. Connect 2nd Stage Pilot Switch to TS1-FS3 & TS1-GND.
- For Two Stage Pilot Operation - Connect 1st Stage Pilot Switch to TS1-FS1 & TS1-GND. Connect 2nd Stage Pilot Switch to TS1-FS3 & TS1-GND.

ENTRON supplies Temperature Limit Switch (TLS) P/N 300020 and provides connections to T88 on supplied PCB7 Firing Boards). Contactor 1 TLS connects to PCB7-1. Contactor 2 TLS connects to PCB7-2, etc.

NOTE: SCR & Thyristor TLS will open at temperatures greater than or equal to 150 F. **CAUTION:** Do not overtighten TSS.

- When external valve power is supplied to the control. Remove and insulate leads TS10-VL1 & TS10-VL2 on the Terminal Strip Output Board (PCB4). (from T8-X1 & T8-X2). Connect external AC power supply (24-240 VAC) to TS10-VL1 & TS10-VL2.
- This drawing is for Cascade/Multi-Valve Controls for any of 1 thru 8 Contactors and up to 8 Valves. Please note in the contactor section that electrical connections connect from the 1st contactor to the 2nd contactor then continue in succession (DAISY CHAIN) from one to another in numerical order until the last contactor is electrically connected in the Cascade arrangement. In the Parts List, parts with multiple quantities listed, correspond to the various number of cascade contactor arrangements.
- The Termination Plug A/N 322330 will ALWAYS be located in the "JOUT" socket on the Firing Board of the last numbered contactor in the Cascade arrangement.
- When Optional Program Lockout is specified by customer, Add Switch P/N 600531-001 and Escutcheon P/N 460128 and remove Hole Plug P/N 565003.
- When Optional Water Flow Switch (WFS) is required, add Terminal Strip TS6 (P/N 335017) and wire as shown. Remove jumper between TS1-WFS1/AUX1 & TS1-GND. **NOTE:** WFS will open with flows less than .75 GPM.
- When Optional Circuit Isolation Device is required, list P/N and size of Circuit Isolation Device, and appropriate cabinet P/N.
- After January, 2002, this Wiring Diagram #421214-040 for EN1000/TSS-Series, Cascade/Multi-Valve Controls with Selectable 230/380/460/575 VAC Operation replaces the Following Wiring Diagrams: #421214-010, EN1000/TSS-Series, Cascade/Multi-Valve, 460 VAC Operation. #421214-011, EN1000/TSS-Series, Cascade/Multi-Valve, 230 VAC Operation.

MANUFACTURING INSTRUCTIONS:
SEE DRAWINGS #44024, #510055, & #510095 FOR MECHANICAL ASSEMBLY INSTRUCTIONS. See Drawing #440093 For Crating Instructions. See Drawing #440428 For Label Locations.