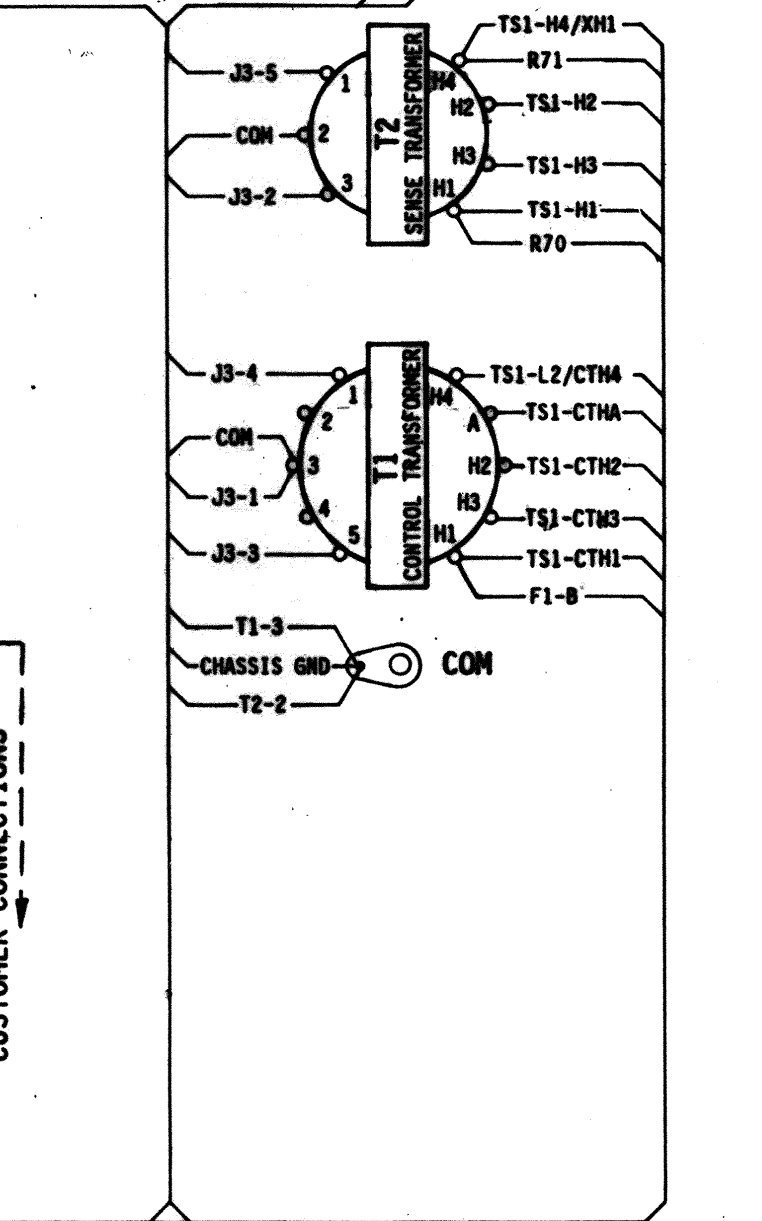
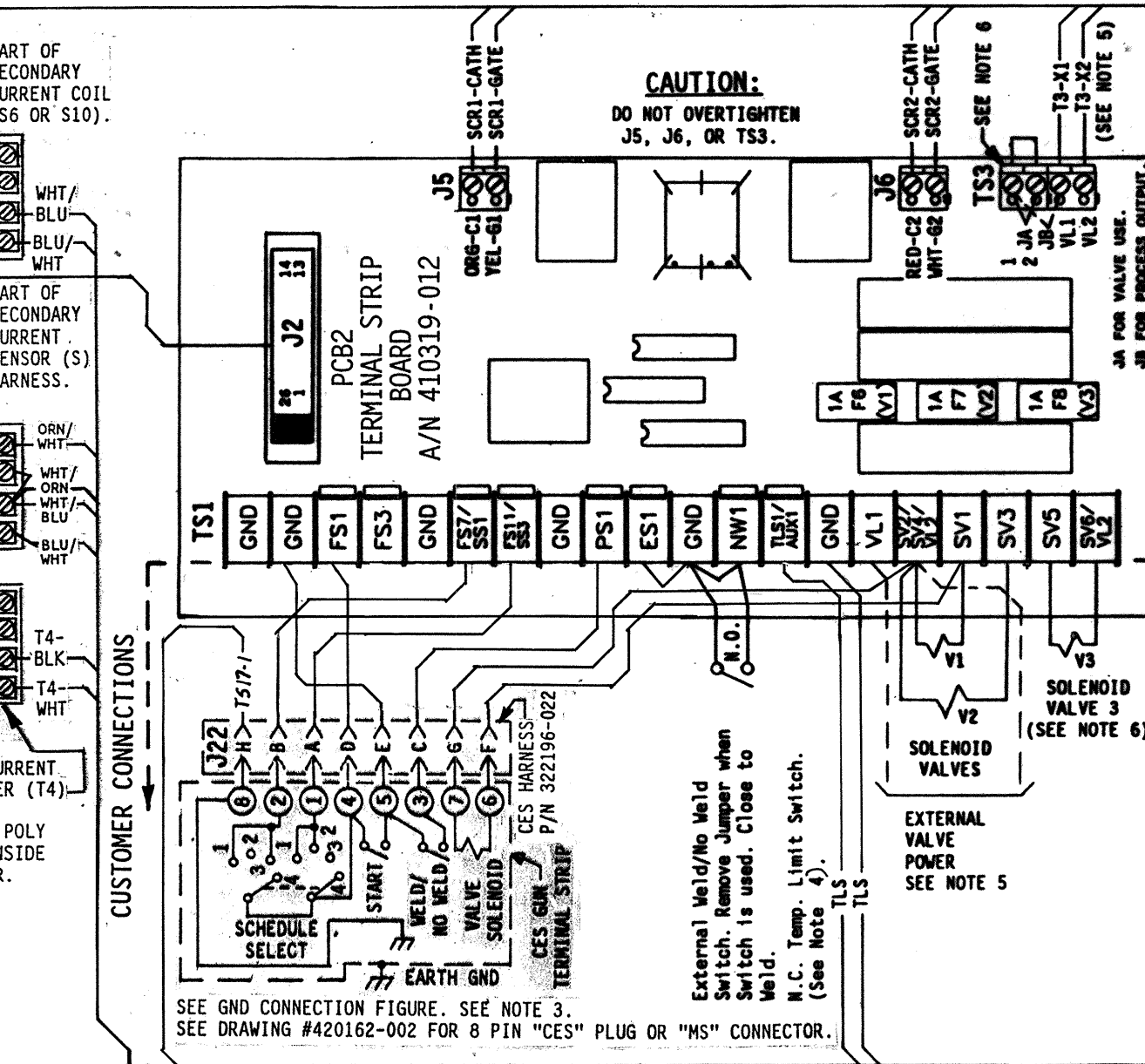
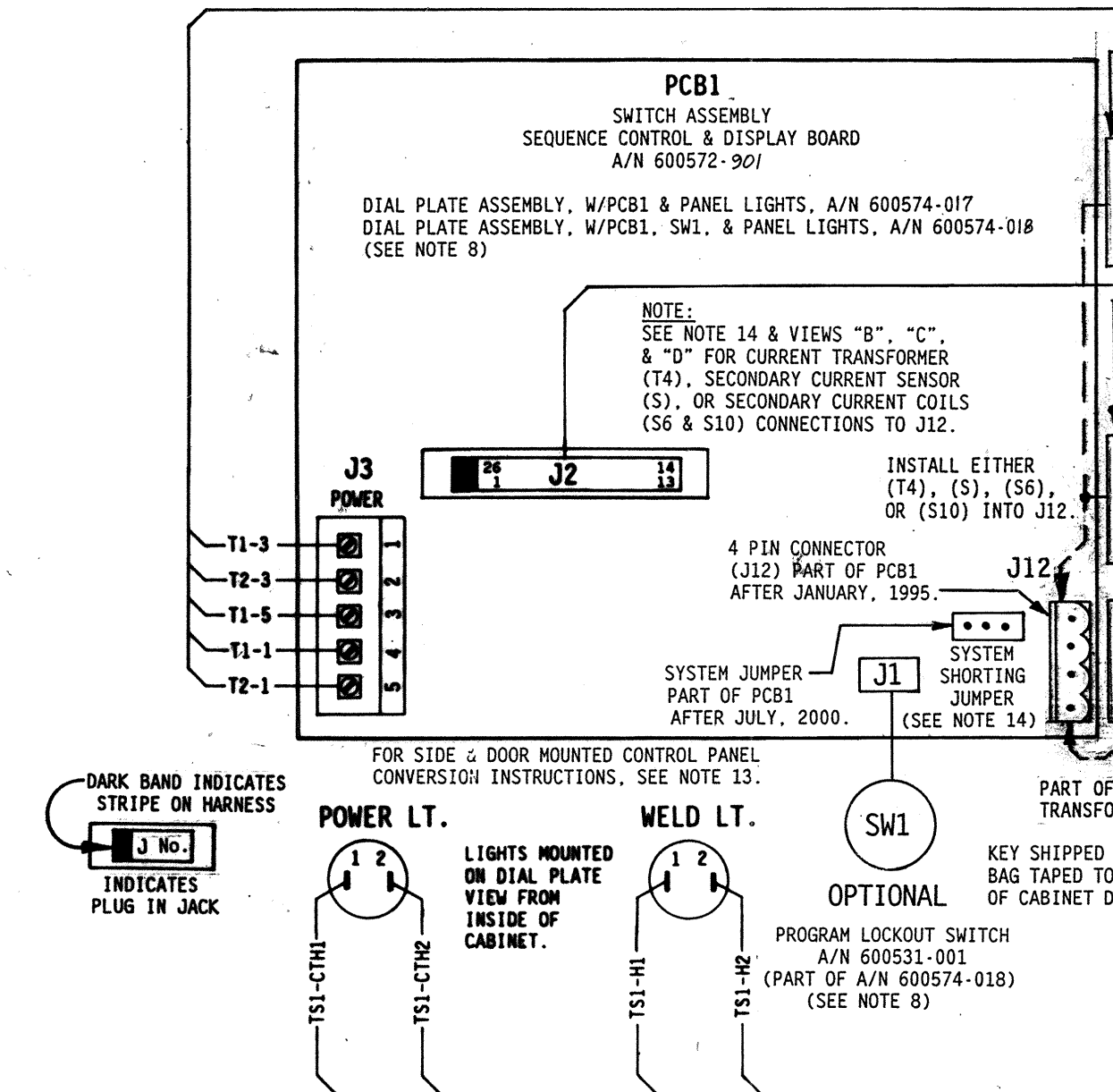


HAZARDOUS VOLTAGE
FROM ONE OR MORE SOURCES
Turn off all voltage sources before touching any components. Electrical shock or flash will cause severe injury or death.

PARTS LIST - CONTROL SECTION			421377-003 D
QTY.	DESIG.	PART NO.	DESCRIPTION
1	PCB1	600574-017	Assem., Dial Plate, w/Sw. Assem., EN1001. Consisting of:
1	SW1	600531-001	Assem., Switch, Sequence Control & Display Board
1		540245	Illustrated Panel, Dial Plate, EN1001
1		515104	Panel, Display Window, Red Filter, EN1001
1		565003	Panel Plug, 3/4" Diam., Black
1	PWR.LT.	305001	Lamp, Neon, Red, 230V
1	M.D.L.T.	305002	Lamp, Neon, Clear, 230V
1	J2-Z2	322326	Assem., Harness, Control Bd. to Terminal Strip Board
1	J3	322334-007	Assem., Harness, Power, EN1001/GF, D/T Cab.

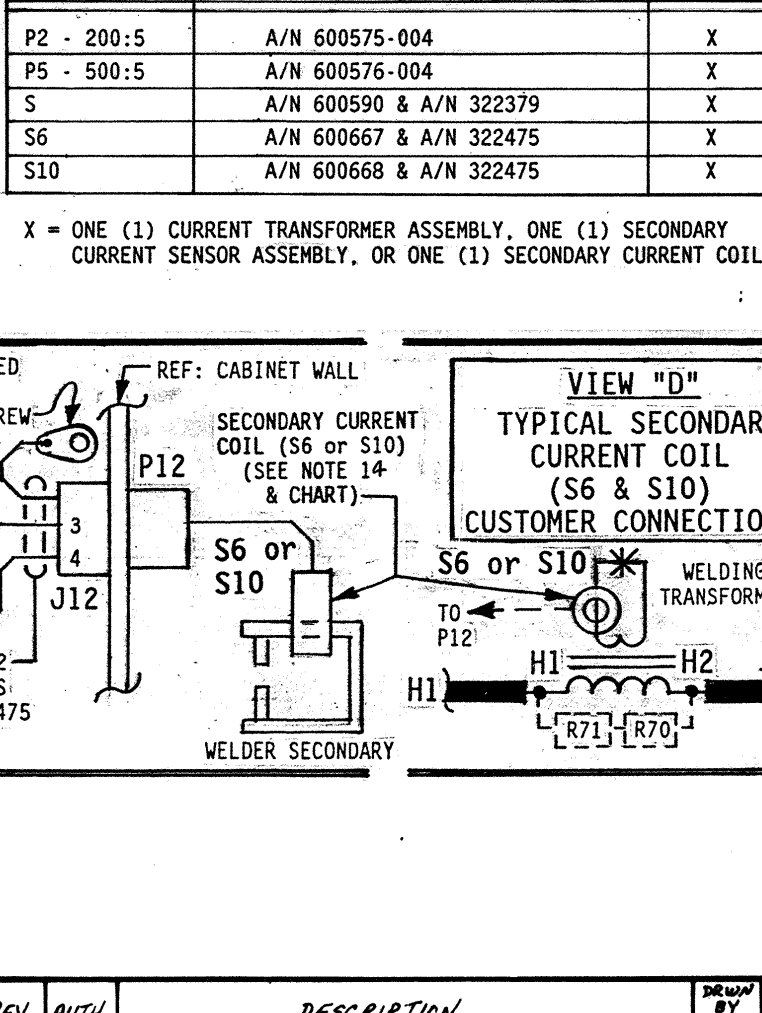
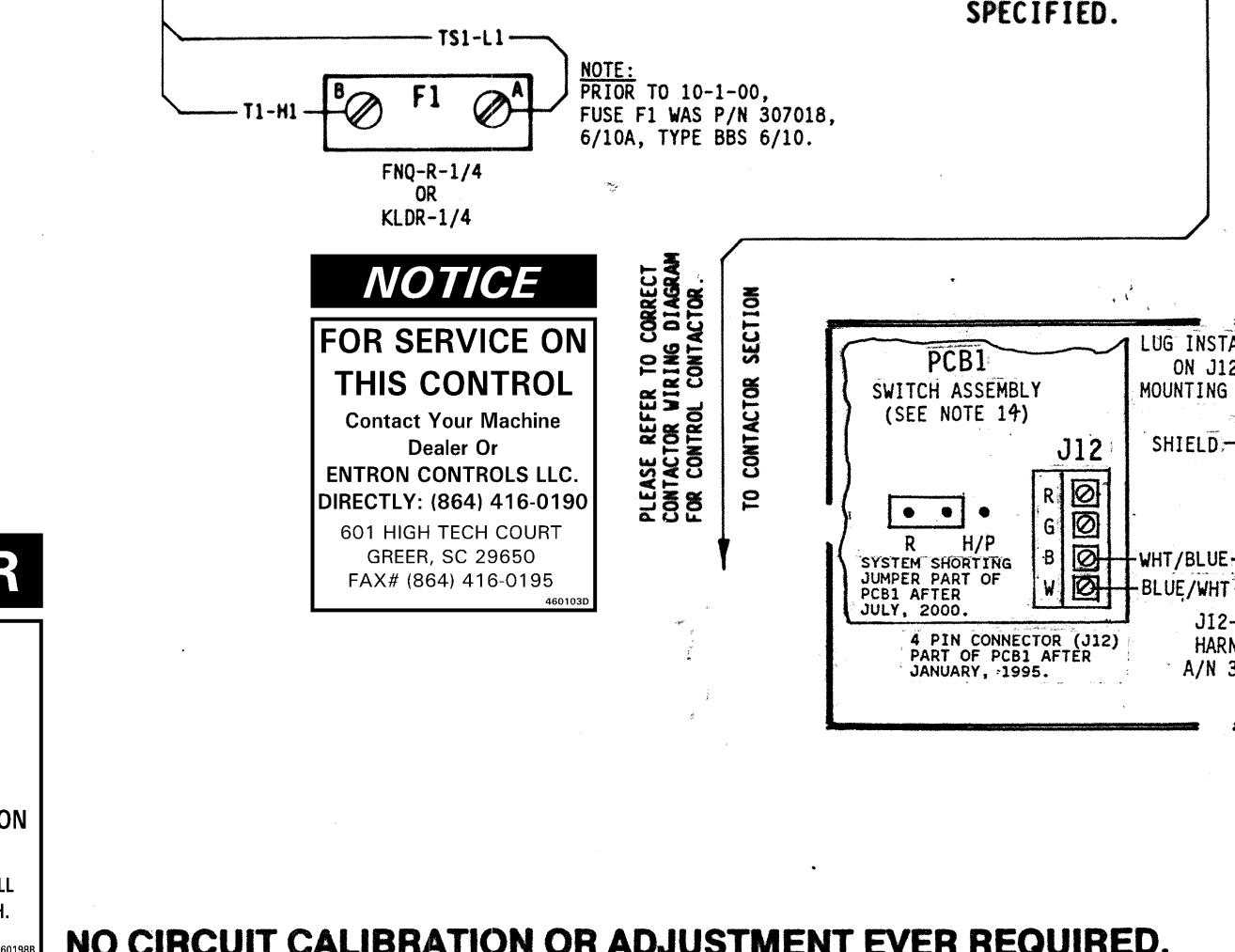
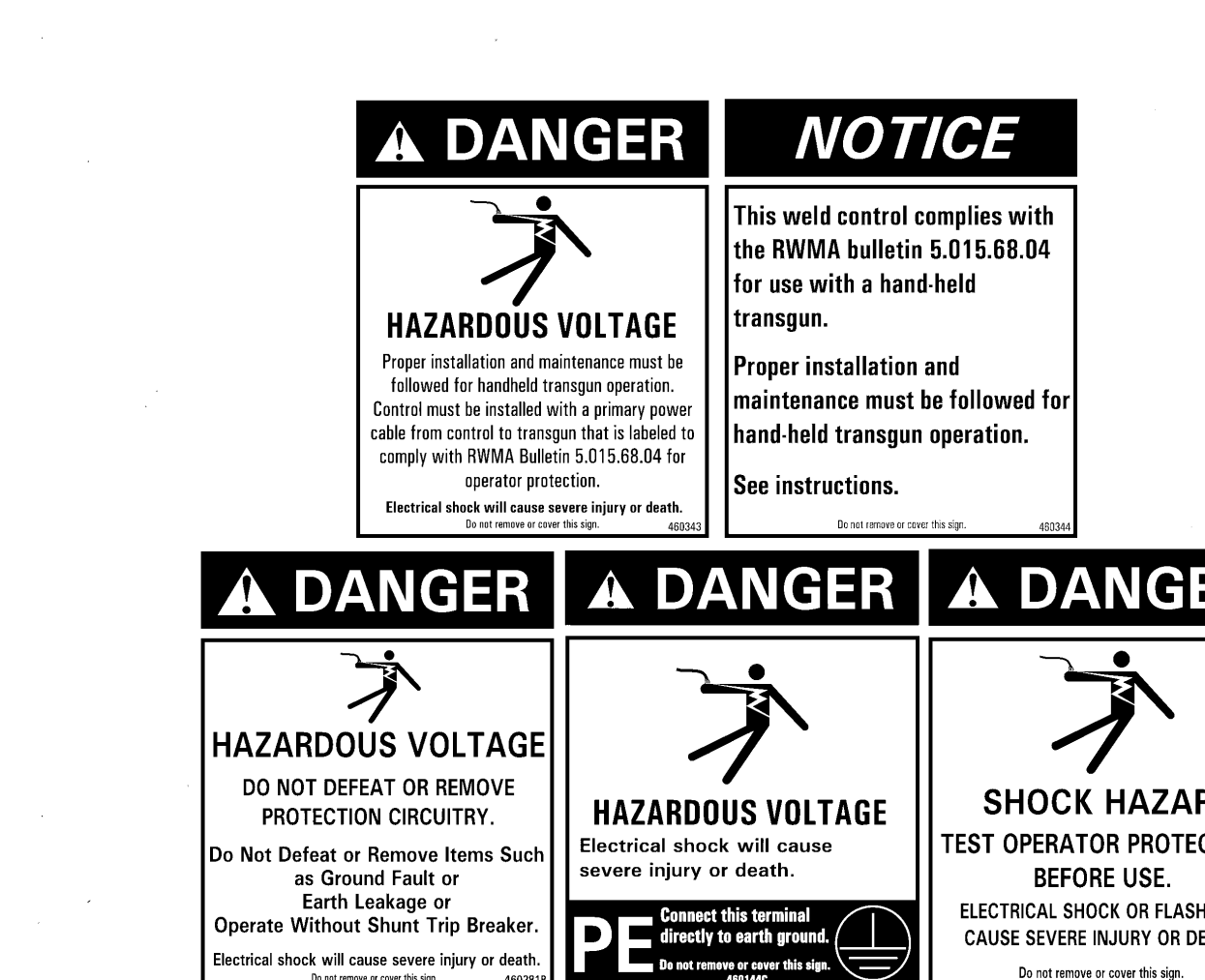
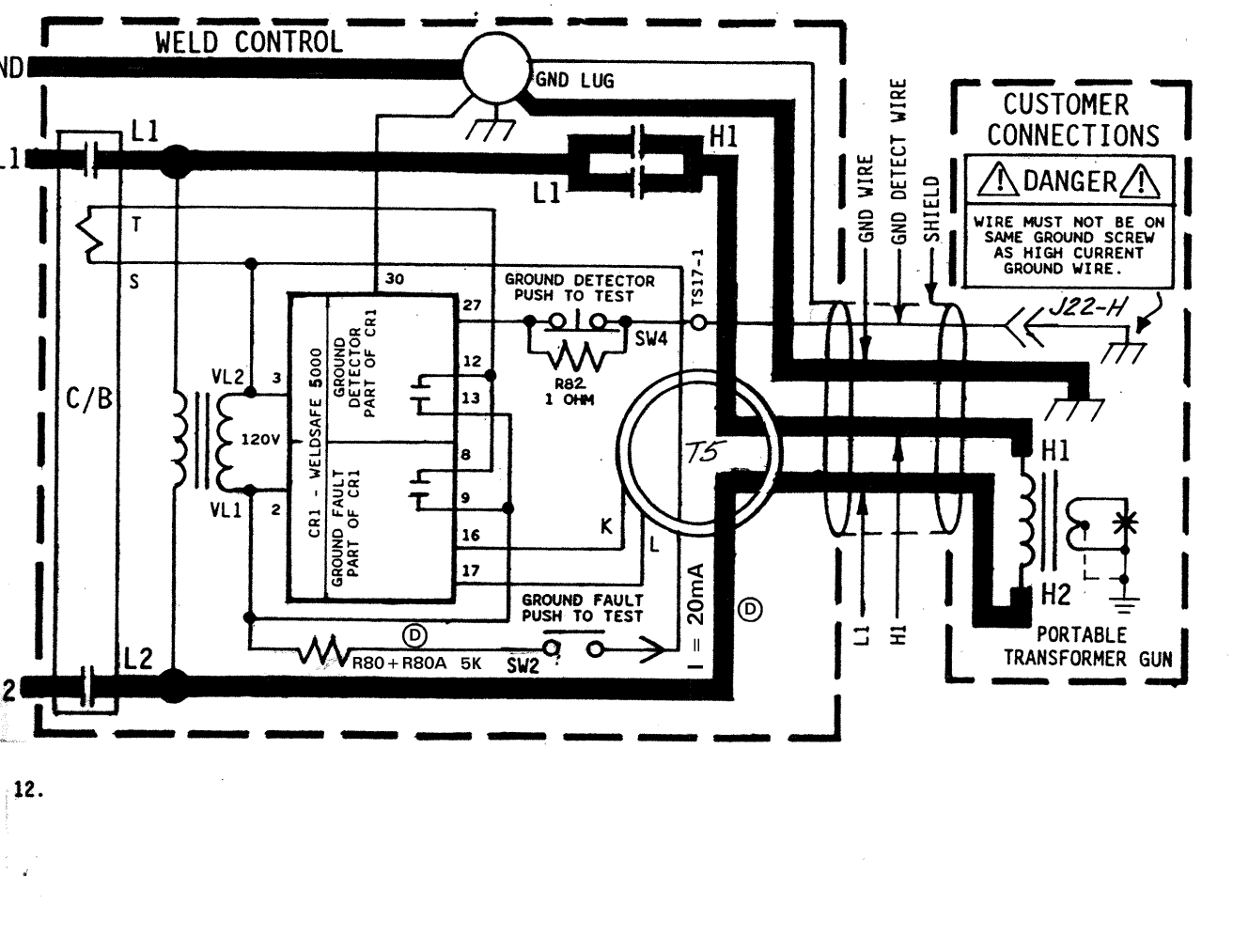
NOTES:

- 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 T3 & TS1. As shipped unless otherwise specified. For 230 VAC Operation - Use Jumper #2 on T3 & TS1. For 575 VAC Operation - CONSULT FACTORY. For 115 VAC or 380 VAC Operation - CONSULT FACTORY.
- Pilot Switch Connections - See Drawing #420162-002 for Color Code.** Connect Points 1 & 2 of Switch 1 terminal A to Control TSI-F511. Connect Points 1 & 3 of Switch 2 terminal B to Control TSI-F57. Connect Weld/No Weld Switch terminal C to Control TSI-PS1. Connect Gun START Switch terminal D to Control TSI-F53. Connect Gun START Switch terminal E to Control TSI-GND. Connect Valve Solenoid terminal F to Control TSI-SV1. Connect Valve Solenoid terminal G to Control TSI-SV2/SV4/VL2. Connect Gun GND terminal H to Control TSI-17. Control wired for GND Loss Protection. Loss of Gun Earth GND will prevent Control Initiation. **DO NOT CONNECT GUN GND AND CONTROL CHASSIS GND ON THE SAME LUG OR AT THE SAME CONNECTION POINT. DO NOT CONNECT GUN CHASSIS GND TO TSI-GND. SEE GROUND CONNECTION FIGURE TO THE RIGHT.**
- EN1001(CES)-SERIES, "D/T" CABINET: ENTRON supplies Temperature Limit Switch (TLS) P/N 300020 and provides connections to TSI-TLS1/AUX1 & TSI-GND. Jumper not required between TSI-TLS1/AUX1 & TSI-GND. NOTE: TLS Thyristor will open at temperatures greater than or equal to 150° F.
- When external valve power is supplied to the control, remove and insulate external TSI-VL1 & TSI-VL2 on the Terminal Strip Board (TSB), (from TSI-X1 & TSI-X2). Connect external AC power supply (24-240 VAC) to TSI-VL1 & TSI-SV2/SV4/VL2. CAUTION: Do NOT over-tighten TSI.
- Valve Usage:** When using this control with air over oil Portable Transformer Guns with Extend and Intensify and/or Blocking valves the following valve assignments and jumper placement must be followed: TSI-SV1 & TSI-SV2 connects to Extend solenoid valve. TSI-SV3 & TSI-SV4 connects to Intensify solenoid valve. TSI-SV5 & TSI-SV6 connects to Blocking solenoid valve (When Used).
- NOTE:** TSI-SV5 & TSI-SV6 can be used for a valve output on a Process Output (Blocking Valve). When using TSI-SV5 & TSI-SV6 as a valve output use Jumper "3A" on TSI. When using TSI-SV5 & TSI-SV6 as a Process Output (Blocking Valve) use Jumper "JB" on TSI.
- CAUTION:** Do NOT over-tighten TSI.
- WARNING:** Use of Jumper "JB" bypasses contact relay contacts to allow a Process output without an initiation. SEE MANUAL.
- BEAT DURING SQUEEZE** (Programmed in Control) - Control is programmed from factory so that the Weld Sequence can be terminated before the end of squeeze time by opening the initiation contacts. **NON BEAT DURING SQUEEZE** - If this is required, set Extended Function BE to 00 to disengage programmed BEAT DURING SQUEEZE function. Control will then function in NON BEAT DURING SQUEEZE mode. See manual for more information.
- When Optional Program Lockout is specified by customer, Dial Plate A/N 600572-018 replaces A/N 600572-017. Add Switch P/N 600531-001 & remove Hole P/N 565003.
- PROGRAMMING:** When using this control with air over oil Portable Transformer Guns with Extend and Intensify and Blocking Valves, extended Function P0 must be set to 07. Extended function bl (Blocking) and Sd (Squeeze Delay) can then be set to desired times. See manual for more information. When using this control with only Extend and Intensify valves, use of Extended Function P0 is not required. See manual for more information.
- GROUND FAULT INTERRUPTER:** This control is equipped with a ground fault and Ground Continuity operator protection system. For proper operation and operator protection, the following MUST be installed:
H1 & H2 Weld Transformer primary connections and push to TEST (SW2) lead are the ONLY 3 conductors that should pass through the Ground Fault Current Transformer (TF). The H1 & H2 wires should also be in close proximity to each other. Never pass a neutral or ground or shield or any other conductor other than the 3 wires listed above through the Ground Fault Current Transformer (TF).
The ground fault interrupter TEST switch button (SW2) and Ground Continuity Switch Button (SW4), (push to test) should be used periodically to test the ground fault detection components. The TEST button on the Current Relay (CR1) need not be used.
- Relay (CR1) MUST have S1, S4 & S8 (located behind CR1 Front Plate) closed to put relay in active mode. S1, S4 & S8 are set by ENTRON at factory. TSI-17 MUST be connected to Gun Case (GND) at a point mechanically different from the High Current Protection Ground. See view below.



HAZARDOUS VOLTAGE
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PARTS LIST - CONTACTOR SECTION			EN1001-300
QTY.	DESIG.	PART NO.	DESCRIPTION
2	TS1,17	335004	Terminal Strip, 10 Pin, (Part of 33 Harness)
1	TS2	335023	Terminal Block, 2 Pole, 2/0 Wire
1	TS7	335044	Terminal Strip, 2 Pin
1	T3	310001	Transformer, Control, (Part of 33 Harness)
1	T1	310002	Transformer, Control, (Part of 33 Harness)
1	T1	311011	Transformer, Valve, 150VA, 24 VAC
2	R70,71	225016	Resistor, Power, Surge, 500 Ohm, 100W
2	R80, R80A	600645	Assem., Resistor, 10,000 Ohm, 1W, (For TS17)
1	R82	600646	Assem., Resistor, 1 Ohm, 1W, (For TS17)
1	R81	210198	RESISTOR, METAL OXIDE, 1 OHM, 1W, (PART OF CURRENT TRANSFORMER)
1	F1	308010	Fuseholder, 1 Pole, Mini, 600V
1	F1	307024	Fuse, Control, 1/4A, FHS-1/4 or KLD-1/4
3	FE,7(PCB2)	307022	Fuse, 1 Amp, Slow Blow, 2A6, (Part of 410319-012)
1	(R70,71)	325004	Assem., Wire, Surge Resistor, 18 Ohm, Black
1	(T3)	325149	Assem., Wire, Valve Transformer, 22 Ohm, Black
1		600520	Assem., Contactor, Thyristor, A1r, 300A, 460/575V, w/TLS
1	J2-Z2	600590	ASSEM., SECONDARY CURRENT SENSOR
1	T4	322379	ASSEM., TRANSFORMER, CURRENT, 200VA, F2
1	T4	SEE CHART	ASSEM., TRANSFORMER, CURRENT, 200VA, F2
1		324360	Wire, #4 AWG, 300A Contactor, TS2-H2 to C/B-L2
1		324361	Wire, #4 AWG, 300A Contactor, TS2-H1 to Cont-H1
1		324362	Wire, #4 AWG, 300A Contactor, C/B-L1 to Cont-L1
1	T5	309514	Ground Fault Current Transformer
1	CR1	600695	Relay, Thermal Current & Ground Detection, Supplied w/Manual
1	SW4	307024	Switch, Pilot Light, Push Button, Red, N/O Contact 22mm
1	SW4	307025	Switch, Pilot Light, Push Button, Red, N/C Contact 22mm
1	TLS	300020	Switch, Temperature Limit; (N.C.), (Part of 300A Contactor)
1	PCB2	346004	Lug, Screw, Chassis GND, 2/0 Wire
1	(PCB2)	410319-012	Assem., PCB, Terminal Strip Board, EN1001/GF w/CES
1		510245	Plate, Mounting, Terminal Strip Board
1		520305	Bracket, Mounting, 300A Thyristor Contactor
1	J22	322196-022	Assem., Harness, CES Gun Connector
#	S6	600667	Secondary Current, 6" Coil Rogowski
#	S10	600668	Secondary Current, 10" Coil Rogowski
#	J12-J12	322475	Assem., Harness, Secondary Current, Rogowski Coil
1		550014	Vault Closing Door Mechanism, "D/T" Cabinet
1		510247-002	Cabinet, Control, Style "D/T", w/CB, Modified for GF
1		510248	Door, Cabinet, Control, Style "D/T"
1		510247-005	Cabinet, Control, Style "D/T", w/CB, Modified for 300A Cont.
1		700120	Manual, EN1001
1		412171	Logic Diagram, EN1001 Control
1		421377-003	Wiring Diagram, EN1001-300/GF, "D/T" Cabinet, w/CES CONNECTOR



CAUTION - CONTROL WIRED FOR 460 VAC OPERATION - UNLESS OTHERWISE SPECIFIED.

CAUTION
SEE NOTE 2
For 460 VAC Operation - Use Jumpers #1.
For 230 VAC Operation - Use Jumpers #2.
For 575 VAC Operation - CONSULT FACTORY.
For 115 VAC or 380 VAC Operation - CONSULT FACTORY.

OPTIONAL KEYLOCK WHEN SPECIFIED BY CUSTOMER. SEE NOTE 8. PACK KEY IN POLY BAG 900148 & ATTACH TO DOOR w/VELLO TAPE 900118.

MANUFACTURING INSTRUCTIONS:
See Drawing #600592 for Mechanical Layout/Assem. of EN1001/GF, "D/T" Cabinet.
See Drawing #440366 for Inner Pack & Use Carton #55016 for "D/T" Cabinet Packing Instructions.
See Drawing #440437 for Circuit Breaker to L1 Contactor Cable connections.
See Drawing #600526 for Layout/Assem. of Front Panel.
Relay (CR1) MUST have S3 & S4 (located behind CR1 Front Plate) closed to put Relay in active mode. Ship with Manufacturer Relay Manual.
See Drawing #440457 for Current Transformer Assembly.
See Drawing #440458 for Secondary Current Sensor Assembly.