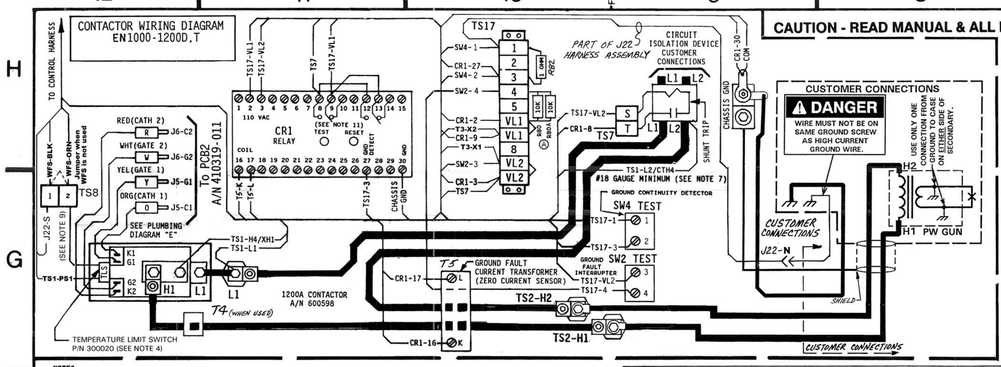
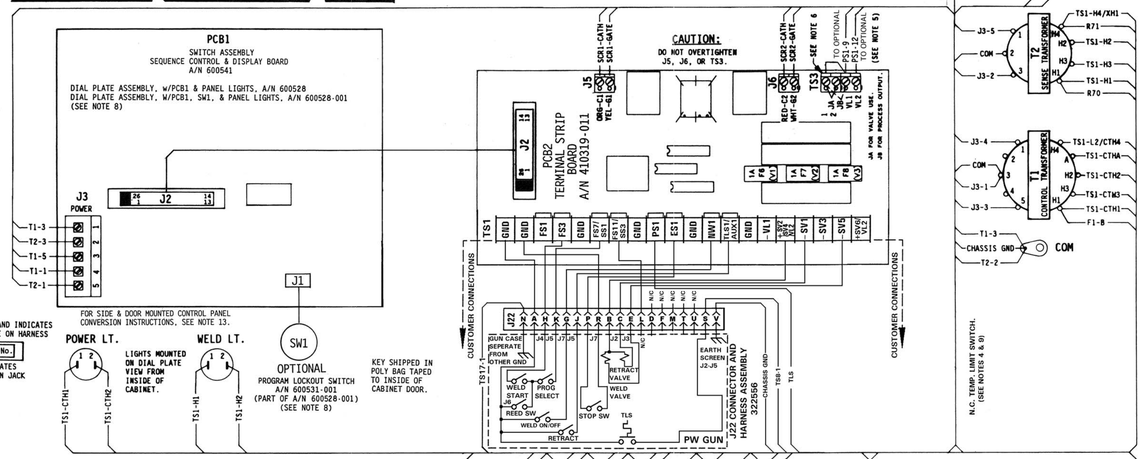




NOTES:

1. **It is recommended that control wiring (i.e.: initiation, pressure switch, etc.) be physically separated from the high voltage wiring (115 volts or higher).**

2. **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 380 VAC Operation - CONSULT FACTORY.
   For 575 VAC Operation - CONSULT FACTORY.

3. PW Type (J22): DO NOT CONNECT GUN GND TO CONTROL GND (TS1-GND)!
   Control Factory wired for GND Loss Protection. Loss of Gun Earth GND will prevent Control initiation. For customer connections to ERG Type connector, see J22 Harness wiring configuration.

4. EN1000-SERIES, "D/T" CABINET:
   ENTRON supplies Temperature Limit Switch (TLS) P/N 300020 and provides connections **to Pressure Switch circuit.**
   NOTE: TLS Thyristor will open at temperatures greater than or equal to 150° F.

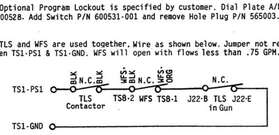
5.

6. ENTRON VALVE 3 OUTPUT (PW RETRACTION VALVE Y3) USAGE:
   On Terminal Strip Board (PCB2), TS1-5V5 is wired to J22-E.
   TS1-5V5 (ENTRON Valve 3/PW Valve Y3) and Jumper "JB" are used with Process Output 08..
   Jumper "JB" on TS3 MUST be used when Retraction Process Output 08 is programmed.
   Do NOT use TS1-5V5 for a Valve Output.
   Do NOT use Jumper "JA" on TS3.
   CAUTION: Do NOT overtighten TS3.
   WARNING: Use of Jumper "JB" bypasses control relay contacts to allow a process output without an initiation. SEE MANUAL.

7. TS1-L2/CTH4 to Circuit Breaker L2 is factory installed.

8. When Optional Program Lockout is specified by customer. Dial Plate A/N 600528-001 replaces A/N 600528. Add Switch P/N 600531-001 and remove Hole Plug P/N 565003.

9. When TLS and WFS are used together. Wire as shown below. Jumper not required between TS1-PS1 & TS1-GND. WFS will open with flows less than .75 GPM.



10. RETRACTION MODE PO = 08 Control to be programmed to use RETRACTION MODE PO = 08 and Terminal Strip Board (PCB2) TS1-TLS1/AUX1 input as an "EXTEND/RETRACT" switch. TS1-TLS1/AUX1 is wired to J22-P . Using CA = 02 will clear this value, so it must be reprogrammed to PO = 08 in the event of a clear all function or a control board replacement.

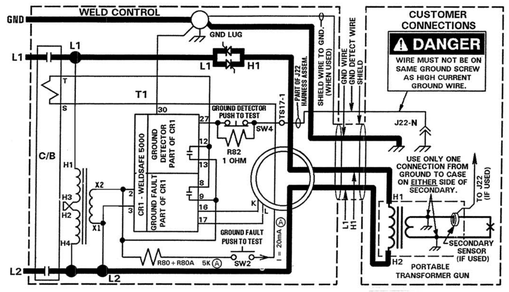
11. GROUND FAULT INTERRUPTER:
    This control is equipped with a ground fault and Ground Continuity operator protection system. For proper operation and operator protection, the following MUST be considered.

    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 (T5). 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 (T5).

    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 S3, S4, & S8 (located behind CR1 Front Plate) CLOSED
TO PUT RELAY IN ACTIVE MODE, S3, S4, & S8 ARE ADJUSTED BY ENTRON AT FACTORY.

TS17-1 MUST be connected to Gun Case (GND) at a point mechanically different from the High Current Protection Ground. See view below.



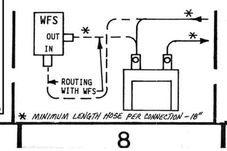
12. **BEAT DURING SQUEEZE/NON BEAT DURING SQUEEZE - Control can be configured so that the weld sequence can be terminated before the end of the Squeeze Time by opening the initiation contacts.**

    BEAT DURING SQUEEZE - If this is required, use Extended Function bE and set to 01. To remove beat during squeeze set Extended Function bE to 00. See manual for more information.

13. To convert Control Panel from side mounted cabinet control to door mounted or door mounted cabinet control to side mounted.
    Remove Cover Plate and Control Panel Dial Plate Assembly. Position spiral wrap around all harness wiring to prevent interference of wiring with the closing of cabinet door.
    When mounting Control Panel on side of cabinet, use clamp to secure J3 harness wires.
    CAUTION: When changing the position of the Control Panel, be sure harness wires do NOT interfere with the closing of the cabinet door. Wires may pinch in between door & cabinet and cause damage to wiring.

⚠ CAUTION
WATER HOSE BURST HAZARD
Cooling water must be flowing when power is on.
Water hose can burst and damage controls.
Do not remove or cover this sign.

PLUMBING DIAGRAMS
SEE PARTS LIST FOR HOSE LENGTH
PLUMBING DIAGRAM "E"
1200A CONTACTORS



⚠ DANGER
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.
Do not remove or cover this sign.

CAUTION
SEE NOTE 2
For 460 VAC Operation - Use Jumper #1 ONLY.
For 230 VAC Operation - Use Jumper #2 ONLY.
For 575 VAC Operation - FACTORY WIRED ONLY.
SEE VIEW "A": REPLACE T3 WITH P/N 311017.
For 115 VAC or 380 VAC Operation - CONSULT FACTORY.

NOTICE
This weld control complies with the RWMA bulletin 5.015.68.04 for use with a hand-held transgun.
Proper installation and maintenance must be followed for hand-held transgun operation.
See instructions.
Do not remove or cover this sign.

MANUFACTURING INSTRUCTIONS:
See Drawing #600592 and 510247-002 for Mechanical Layout/Assembly of EN1001 "D/T" Cabinet.
See Drawing #440366 for Inner,Pack & use Carton #650016 for "D/T" Cabinet Packing Instructions.
See Drawing #440437 for Circuit Breaker to L1 Contactor Cable connections.
See Drawing #600526 for Layout/Assembly of Front Panel.
See Drawing #440457 for Current Transformer Assembly.

⚠ DANGER
HAZARDOUS VOLTAGE
Proper installation and maintenance must be followed for handheld transgun operation. Control must be installed with a primary power cable from control to transgun that is labeled to comply with RWMA Bulletin 5.015.68.04 for operator protection.
Electrical shock will cause severe injury or death.
Do not remove or cover this sign.

⚠ DANGER
HAZARDOUS VOLTAGE
DO NOT DEFEAT OR REMOVE PROTECTION CIRCUITRY.
Do Not Defeat or Remove Items Such as Ground Fault or Earth Leakage or Operate Without Shunt Trip Breaker.
Electrical shock will cause severe injury or death.
Do not remove or cover this sign.

⚠ DANGER
HAZARDOUS VOLTAGE
Electrical shock will cause severe injury or death.
PE Connect this terminal directly to earth ground.
Do not remove or cover this sign.

⚠ DANGER
SHOCK HAZARD
TEST OPERATOR PROTECTION BEFORE USE.
ELECTRICAL SHOCK OR FLASH WILL CAUSE SEVERE INJURY OR DEATH.
Do not remove or cover this sign.

PARTS LIST - CONTROL SECTION			421387 - 010 B
QTY.	DESIG.	PART NO.	DESCRIPTION
1		600528	Assem., Dial Plate. w/Sw. Assem., EN1000, Consisting of:
@		600528-001	Assem. Dial Plate. w/Sw. Assem. & Keylock. EN1000. Consisting of:
1	PCB1	600541	Assem., Switch, Sequence Control & Display Board
@	SW1	600531-001	Assem., Switch, Keylock. Momentary, SPST
1		540251	Illustrated Panel, Dial Plate. EN1000
1		515104	Panel, Display Window, Red Filter. EN1000
1		565003	Hole Plug, 3/4" Diam., Black
1	PWR.LT.	305001	Lamp, Neon, Red, 230V
1	WLD.LT.	305002	Lamp, Neon, Clear, 230V
1	J2-J2	322326	Assem., Harness, Seq. Ctrl Bd. to Terminal Strip Bd.
1	J3	322334-013	Assem., Harness, Power. EN1000 Series/PW."D/T" Cabinet

EN1001-1200D,T	PARTS LIST - CONTACTOR SECTION		
QUANTITY	DESIG.	PART NO.	DESCRIPTION
2	TS1,17	335034	Terminal Strip, 10 Pin, (Part of J3 Harness)
1	TS7	335044	Terminal Strip, 2 Pin
+	TS8	335017	Terminal Strip, 2 Pin, (For TLS/WFS)
1	T1	310001	Transformer, Control, (Part of J3 Harness)
1	T2	310002	Transformer, Sense, (Part of J3 Harness)
1	T3	311002	Transformer, Valve, 150VA
+	T3	311017	Transformer, Valve, 150VA, 575V
2	R70,71	225016	Resistor, Power, Surge, 500 Ohm, 100W
2	R80,R80A	600645	Assem., Resistor, 10,000 Ohm, 1W, (For TS17)
1	R81	210198	Resistor, Metal Oxide, .1 Ohm, 1W,(Part of Current Transformer)
1	R82	600646	Assem., Resistor, 1 Ohm, 1W, (For TS17)
1	F1	308010	Fuseholder, 1 Pole, Mini, 600V
1	F1	307024	Fuse, Control, 1/4A, FNQ-R-1/4 or KLDR-1/4
3	F6,7,8(PCB2)	307022	Fuse, 1 Amp, Slow Blow, 2AG, (Part of 410319-014)
1	(R70,71)	325024	Assem., Wire, Surge Resistor, 18 Ga., Black
2	(T3)	325149	Assem., Wire, Valve Transformer, 22 Ga., Black
1		341040	Standoff, Insulator, 600/1200A Thyristor Contactor, L1
1		325174	Assem., Wire, Contactor-L1 to Lug-L1, 600/1200A Thy. Contactor
1		600598	Assem., Contactor, Thyristor, Water, 1200A, 460/575V
2		346002	Lug, Screw, 5/16 Bolt to 250 MCM Wire, 1200A Contactor, L1 & H1
1	(TS2)	600649	Assem., Standoff, w/Insulator, TS2-H1, Consisting of:
		341045	Insulator, Insulation between H1 & H2 Lugs, TS2-H1
		341040-001	Standoff, Modified for Insulator, TS2-H1
2	(TS2)	346002	Lug,Screw.5/16" Bolt to 250 MCM Wire,1200A Cont.,TS2-H1 & TS2-H2
1	(TS2)	341040	Standoff, Insulator, TS2-H2
1	(TS2)	346011	Lug, Screw, 1/4" Bolt to 2/0 Wire, 600A Cont. TS2-H1 & TS2-H2
*	R74	600048	Assem.,Resistor, Power, 2000 Ohm, 10W, (for 575V)
1	PS1	318029	Power Supply, 120-240AC:24 VDC, .65A
1	J22	322556	Assem., Harness, PW Gun Control,EN1000
1	TS	309514	Ground Fault Current Transformer
1	CR1	600695	Relay, Residual Current & Ground Detection, supplied w/Manual
1	TLS	300020	Switch, Temperature Limit, (N.C.)
1		346004	Lug, Screw, Chassis GND, 2/0 Wire
1	PCB2	410319-011	Assem., PCB, Terminal Strip Board,EN1000
1	SW2	302024	Switch, Oiltight,Push Button,Red. N/O Contact 22mm
1	SW4	302025	Switch, Oiltight,Push Button,Red. N/C Contact 22mm
1		324373	Wire,250 MCM,1200A Thyristor Contactor, TS2-H2 to C/B-L2,25" Lg.
1		324374	Wire,250 MCM,1200A Thyristor Contactor, TS2-H1 to Cont-H1,18" Lg.
1		324368	Wire,250 MCM,1200A Thyristor Contactor, C/B-L1 to Cont-L1,14" Lg.
1	(PCB2)	510236	Plate, Mounting, Terminal Strip Board
1		530021	Plate, Mounting, 600/1200A Thyristor Contactor
1	C/B	530001	**Circuit Breaker Mounting Bracket**
"1.75"	(PS1)	318001	**DIN Rail 1.75"**
2	(PS1)	318030	**DIN Rail End Stop**
36"		900045	Hose, 3/8" I.D.
4		566010	Hose Clamp, 3/8" Hose
2		600179	Assem., Water Fitting, 3/8" Hose
+	WFS	600297	Assem., Water Flow Switch, 3/8" Hose
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	C/B		Circuit Breaker, Pole, Amp, V, w/110 VAC Shunt Trip
1		700189	Application Note. DC Valve Outputs
1		700120	Manual, EN1000
1		421271	Logic Diagram, EN1000 Control
1		421387-010	Wiring Diagram, EN1000/PW -1200/GF,"D/T" Cabinet

* Substitution or addition of parts when 575V control is specified.
@ Optional Keylock when specified by customer. See Note 8. Pack Key in Poly Bag 900148 & attach to Door w/Yellow Tape 900118.
\+ Optional Water Flow Switch Assembly & TS8. An additional Thirty-Six inches (36") of hose, P/N 900045 and two (2) hose clamps, P/N 566010 are to be supplied. See Note 9.

REV.	AUTH.	DESCRIPTION	DRAWN BY DATE	CHK'D BY DATE
B	DCS 5/2/13	CORRECTED DRWG # IN PARTS LIST: 510247-002.	DCS 5/2/13	
A	ECN 2940	REVISED GF TEST TO 20mA; ADDED RESISTOR R80A.	DCS 11/7/08	
	ECN 2928	WELDSAFE 5000 (CR1) P/N 600695, SET SWITCH 8 TO CLOSED POSITION FOR 20mSEC RESPONSE TIME.	DPII 8/22/08	
—	—	ORIGINAL RELEASE		

ENTRON CONTROLS INC

SCALE	DATE	DRAWN BY	CHK'D BY	APPROVED BY
N/	13/6/07	DPDII		
TOLERANCE UNLESS SPECIFIED			REVISED	
ANGLES: ± ½°			REV LTR	APPROVED BY
DECIMALS: ± .010			B	
FRACTIONS: ± 1/64			DATE	5/2/13 DCS

WIRING DIAGRAM, EN1000/PW-1200, "D/T" CABINET, WITH PW CONNECTOR FOR PW GUN CONTROL, 24 VDC VALVE & POWER SUPPLY, GROUND FAULT, GROUND DETECTION & CIRCUIT BREAKER

NEXT ASSM/USED ON | DRAWING NUMBER 421387 - 010 | REV B

DRAWING NUMBER 421387 - 010 REV B