

## Troubleshooting Intermittent No Exposure condition for Original InnoVet.

Measure AC Power line voltage L1 to L2, and adjust Coarse and Fine wires at TB2 terminal strip appropriately.

Measure AC volts on Chassis panel fuses, measure F1 to F2, should be 120VAC. if not - repeat step 1.

Measure AC Volts from footswitch output at S3

- keep 1 meter lead on chassis F1 fuse, (common, or 0 volts), second meter lead on S3 (expose)
- Should be same as F1-F2 above, if not inspect / repair or replace the footswitch.

Measure AC volts supplied to the C118 timer board at exposure.

- Keep 1 meter lead on chassis F1 fuse (common, or 0 volts), second lead to fuse on C118 timer.
- depress footswitch fully to expose mode, and after approx 1.5 seconds meter should read same voltage as previously at F1 to F2.

If Timer fuse is getting less voltage than F2, then there is maybe too much circuit resistance  
either in the A455 motor start board, or wires from that to C118 timer.

- possibly the F3 fuse on the A455 Motor Start board has poor fuse to holder contact
- or the exposure interlock relay K4 on the Motor Start board has resistive contacts.

Measure DC volt supplies on KV MAS Interlock, and on Timer.

- these are created separately on each board. Refer to the appropriate schematics.

<> Test "Technique Latching" of KV mAs Interlock. <>

The kV mAs Interlock board is supposed to latch KV and Time data at PREP.

If this fails, possibility is Time Select data is getting corrupted causing aborted exposure.

Test by holding Prep condition, and changing either KV Tap Switch.

- KV Display should hold prior set value until you release the footswitch.
- If kV display changes with switch change, inspect R30 on kV mAs Interlock board.
- R30 should measure 12K ohms. If Open or higher resistance you need to replace it.
- If R30 measures ok, measure again to test solder quality using H6 Pin 3 to OC1 pin 1.

Re-solder as needed to ensure R30 conducts to OC1 (Opto-Couple 1).

<> Timer Board Back-up SCR Control = Chassis RE2 relay. <>

Confirm RE2 relay activates and Holds for the selected exposure time duration.

Select 1 second exposure time, and RE2 relay should remain active for 1.25 to 1.5 seconds.

<> Timer Board Time Select Input. <> Substitute ( lies for facts )

Time Select to the Timer board is partly controlled by EPROM on KV MAS Interlock board.

Corruption of EPROM program can cause no exposure.

Bypass this by disconnecting plug J3 from the timer board, and installing a clip-jumper to select time.

- if jumper in place recovers exposure, but reconnecting J3 again fails to expose, then either
  - W341 EPROM is corrupt
  - Time technique is not Latched at Prep.
  - Time select switch input to KV mAs Interlock is bad.

J3 pin 1 at top is +5vdc supply. Jumper this to one or more of the other pins except pin 12.

Pin 11 is shortest time = 1 pulse. Binary sequence as you count up from 11.

Pin 10 is 2 pulses = 16.6 mSec. ( 20 mSec for 50Hz )

Pin 9 is 4 pulses = 33.3 mSec. ( 40 mSec )

Pin 8 is 8 pulses = 66.6 mSec. ( 60 mSec )

Jumper Pin 1 to BOTH 8 and 9 = 12 pulses = 0.1 sec ( 120 mSec for 50Hz )

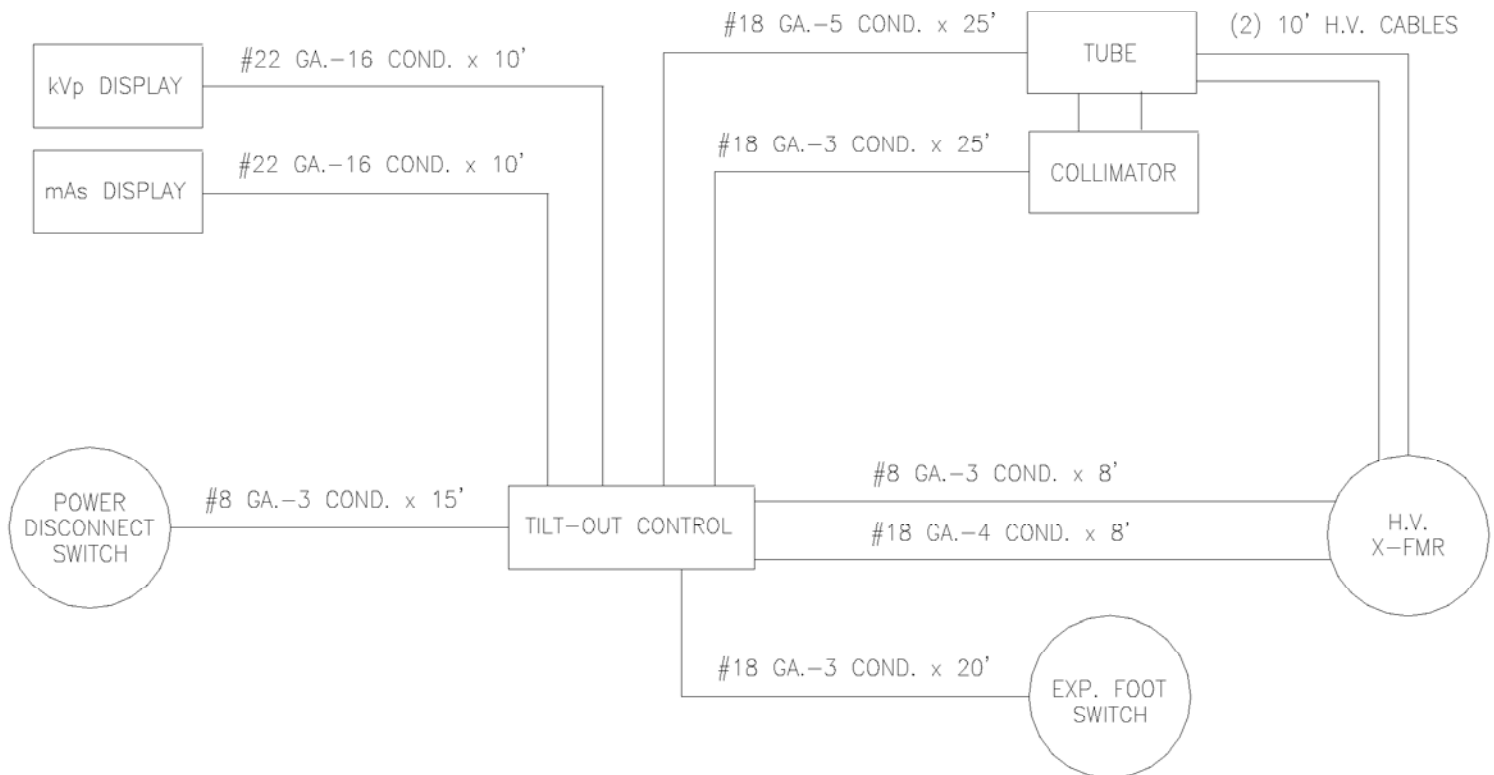
<> Saftey : SCR LEAK Detect <>

Timer board monitors Leakage of the Main SCR, and if Leakage above 2 volts is detected, then exposure is aborted.

Remove U4 chip from the C118 Timer board to bypass Leak Detect.

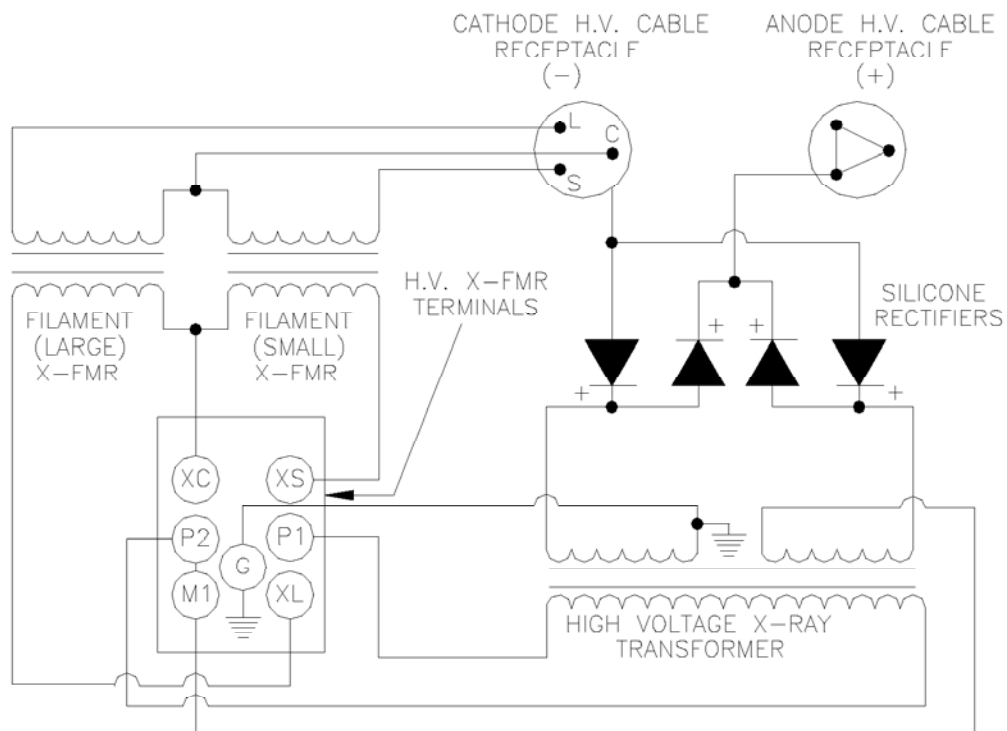
If you recover exposures with U4 removed, then you likely need to replace the main SCR.

## 8.0 ELECTRICAL SCHEMATICS AND DIAGRAMS



SYSTEMS CABLE ROUTING/INTERCONNECT DIAGRAM  
(STANDARD CABLE SIZES & LENGTHS SHOWN)

AWW430-09

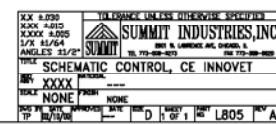


A700 HIGH VOLTAGE TRANSFORMER DIAGRAM

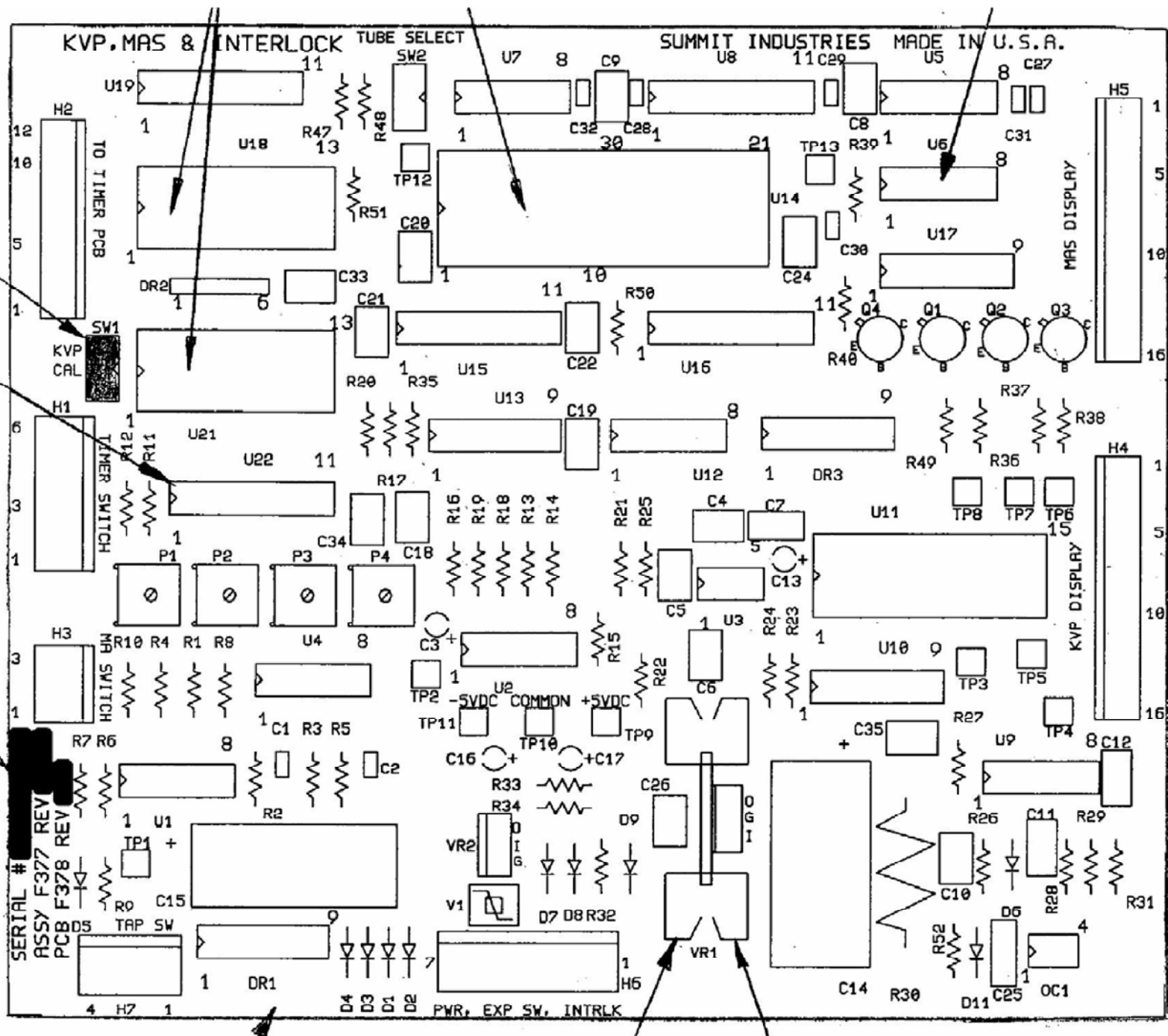
AWW430-10

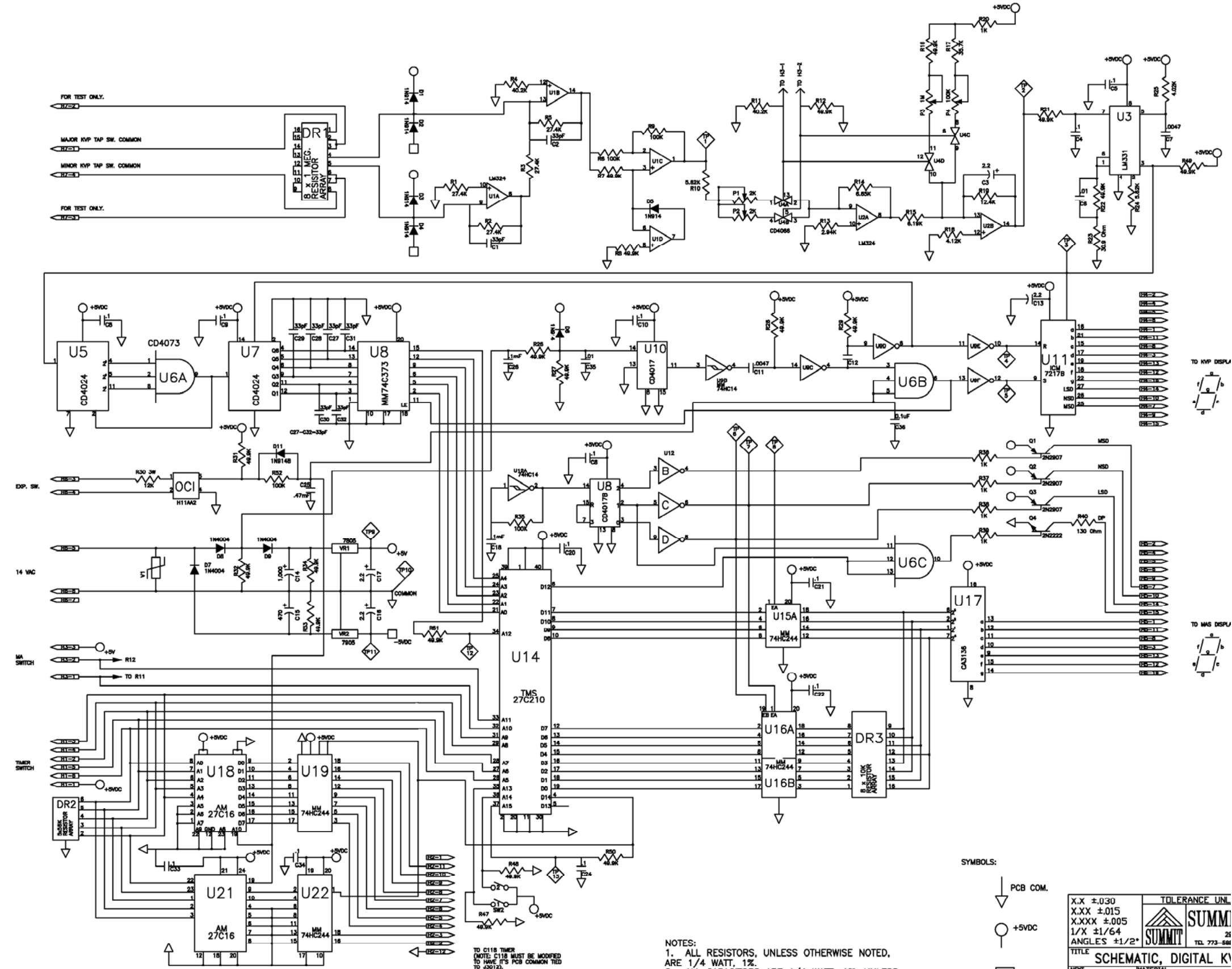


LYR	ECR	REVISION	BY	DATE
A	7120	RELEASE	TP	10/1/92/0



**Drawing No. W437**



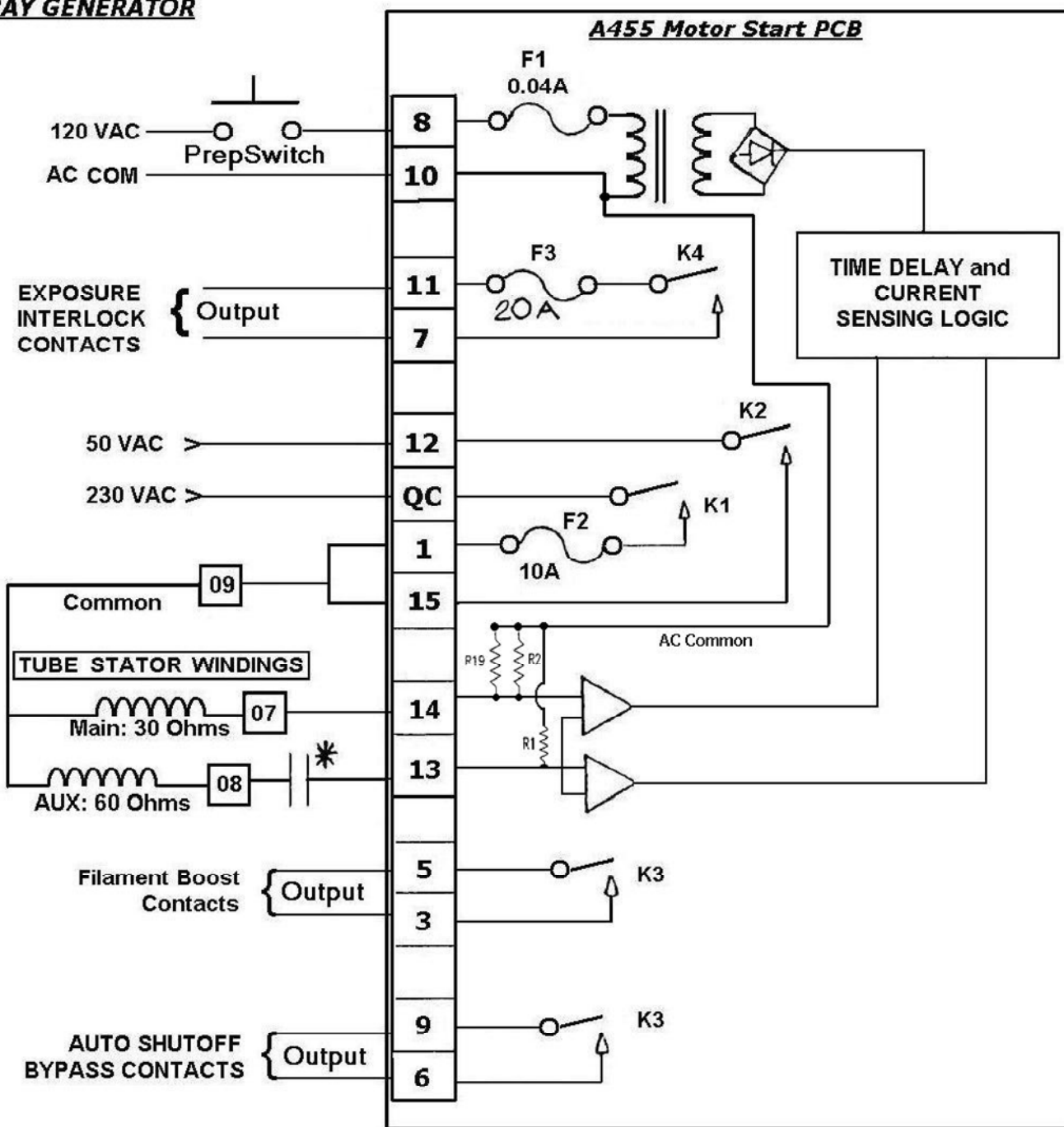


X.X ±0.30		TOLERANCE UNL	
X.XX ±0.15		SUMMIT	
X.XXX ±0.05		SUMMIT	
1/X ±1/64		TEL 773-588	
ANGLES ±1/2°		TEL 773-588	
TITLE SCHEMATIC, DIGITAL K1			
NEXT ASSY		MATERIAL	
—		NONE	
SCALE		FINISH	
NONE		NONE	

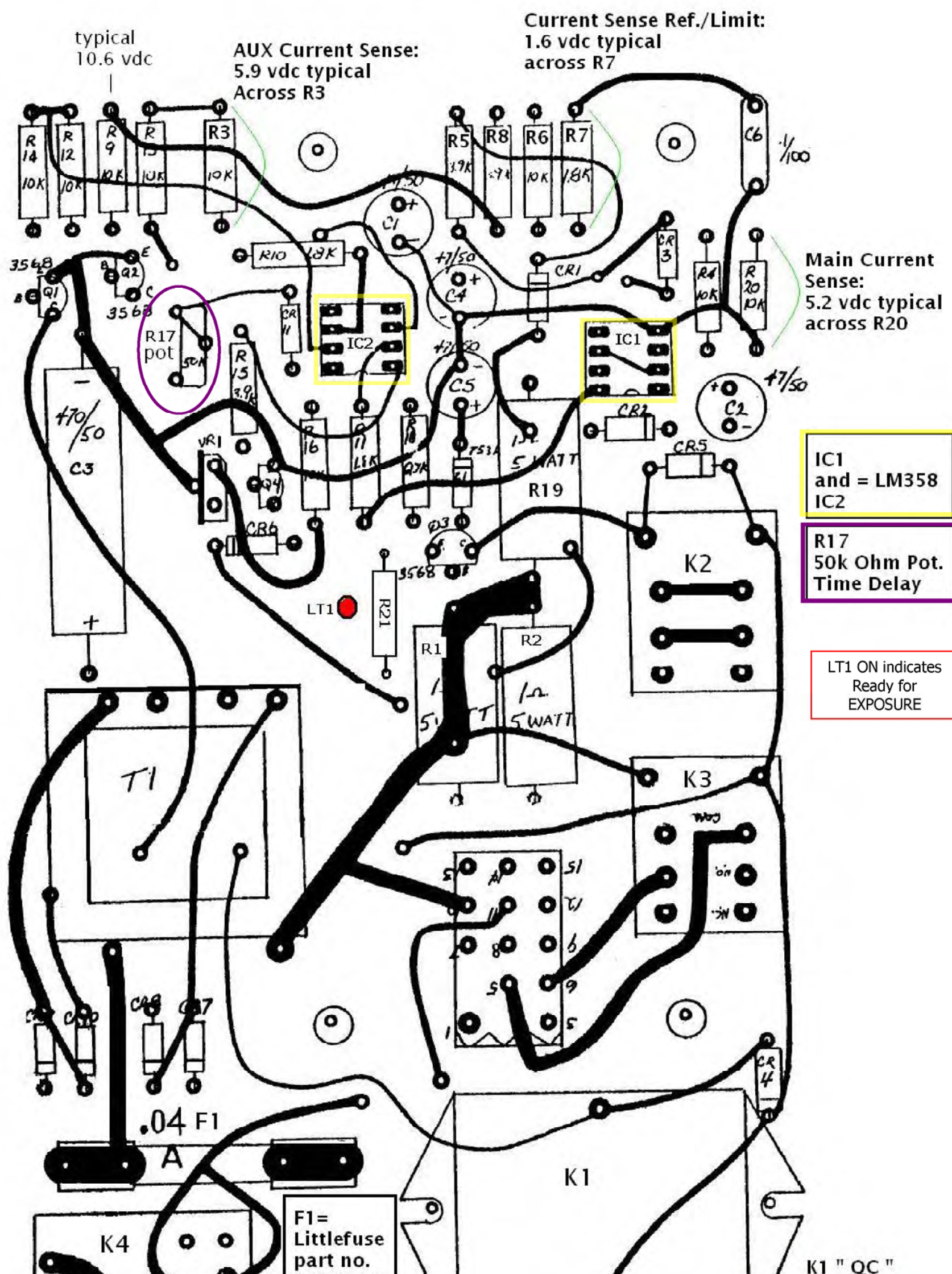


## A455 Interfacing to the Generator

### X-RAY GENERATOR



\* PHASE SHIFT CAPACITOR: 25 $\mu$ F: Summit Part Number HAB18

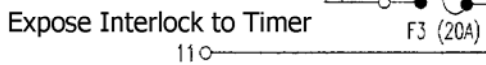
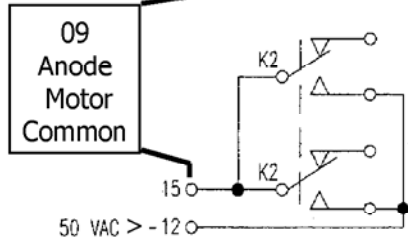
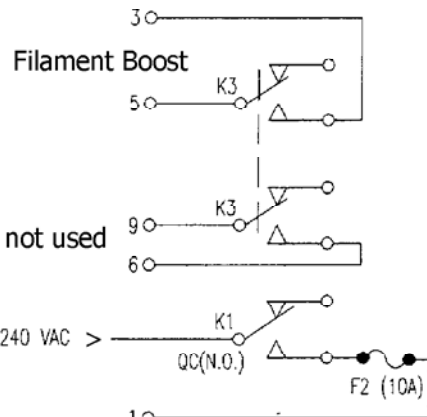


120VAC at PREP

(Chassis F2 Via Switch)

F1 (.5A)

Fuse rating reduced to 0.04A



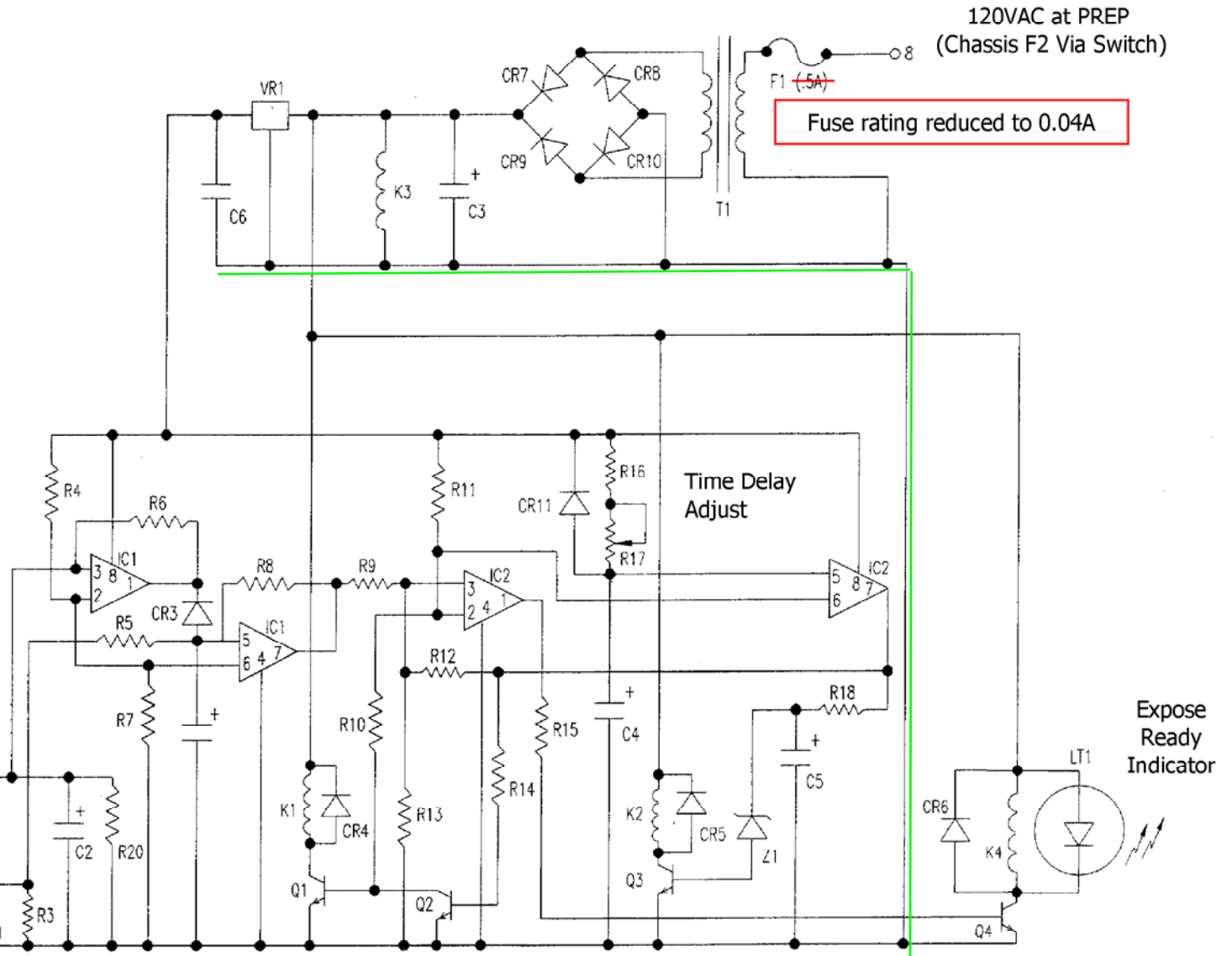
07 Motor Main

08 Motor Aux.

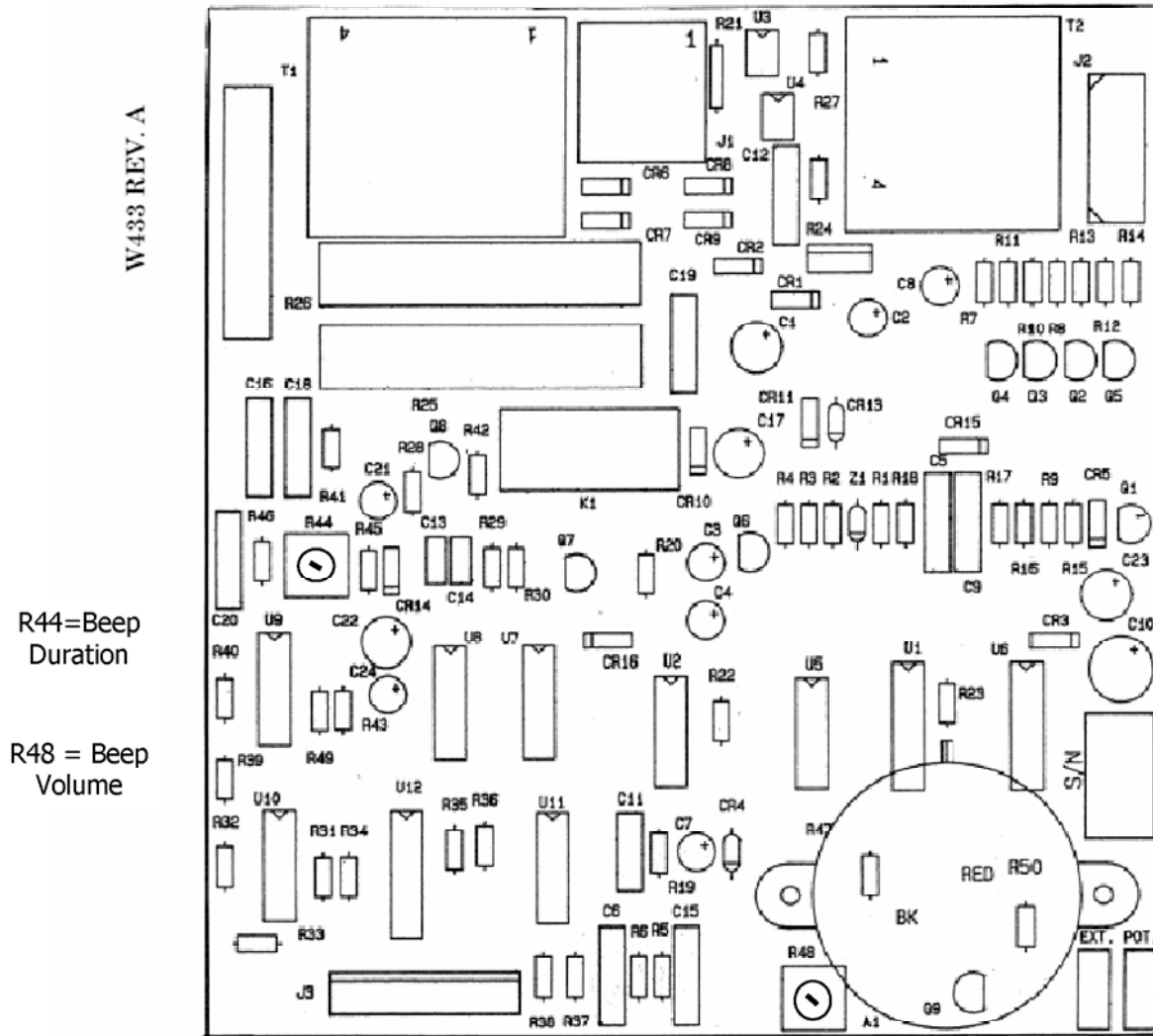
0 VAC ← 10

Chassis F1.

# SCHEMATIC, MOTOR START CIRCUIT



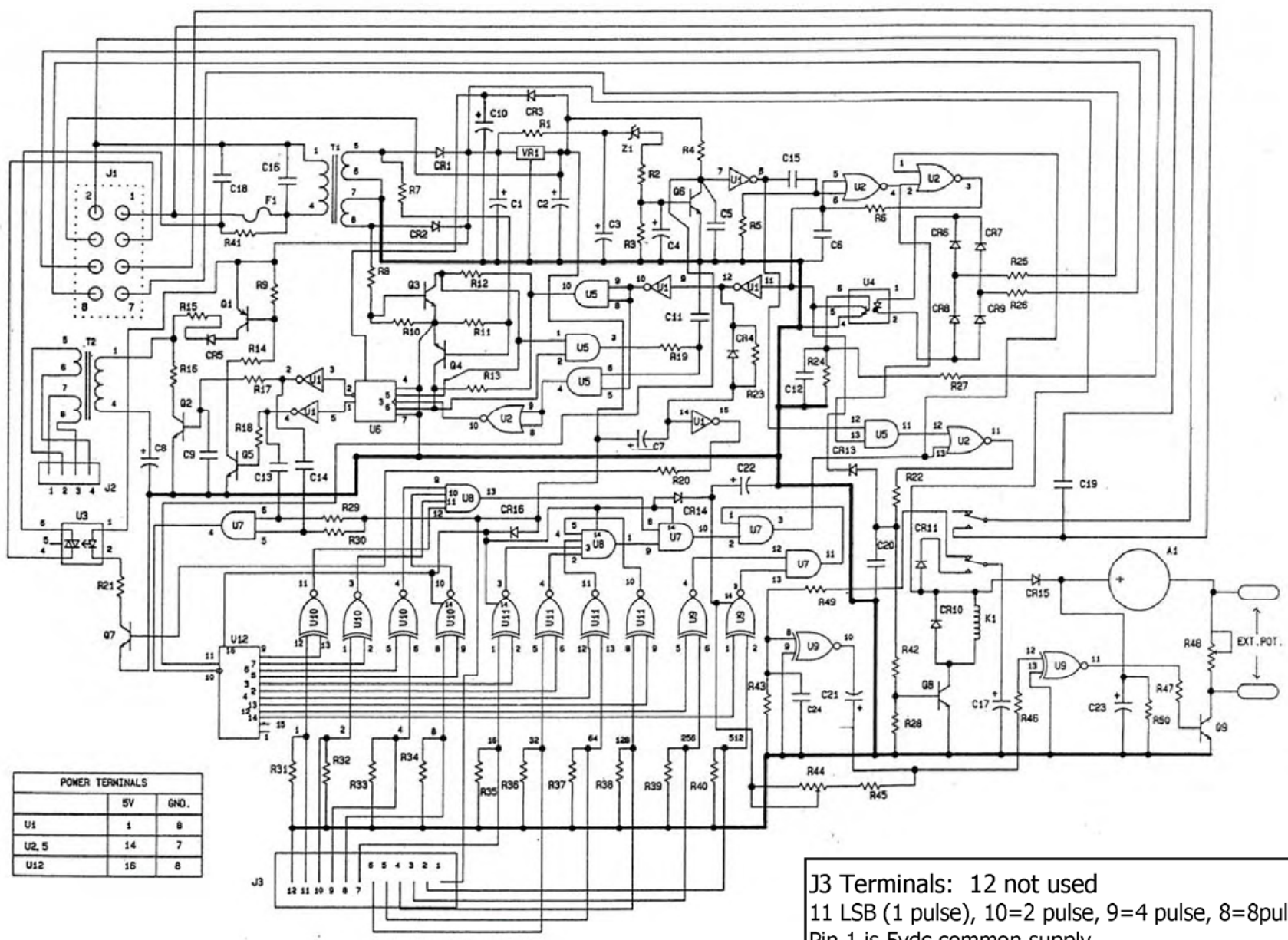
W433 REV. A



C118 TIMER PCB LAYOUT



W431 REV. A

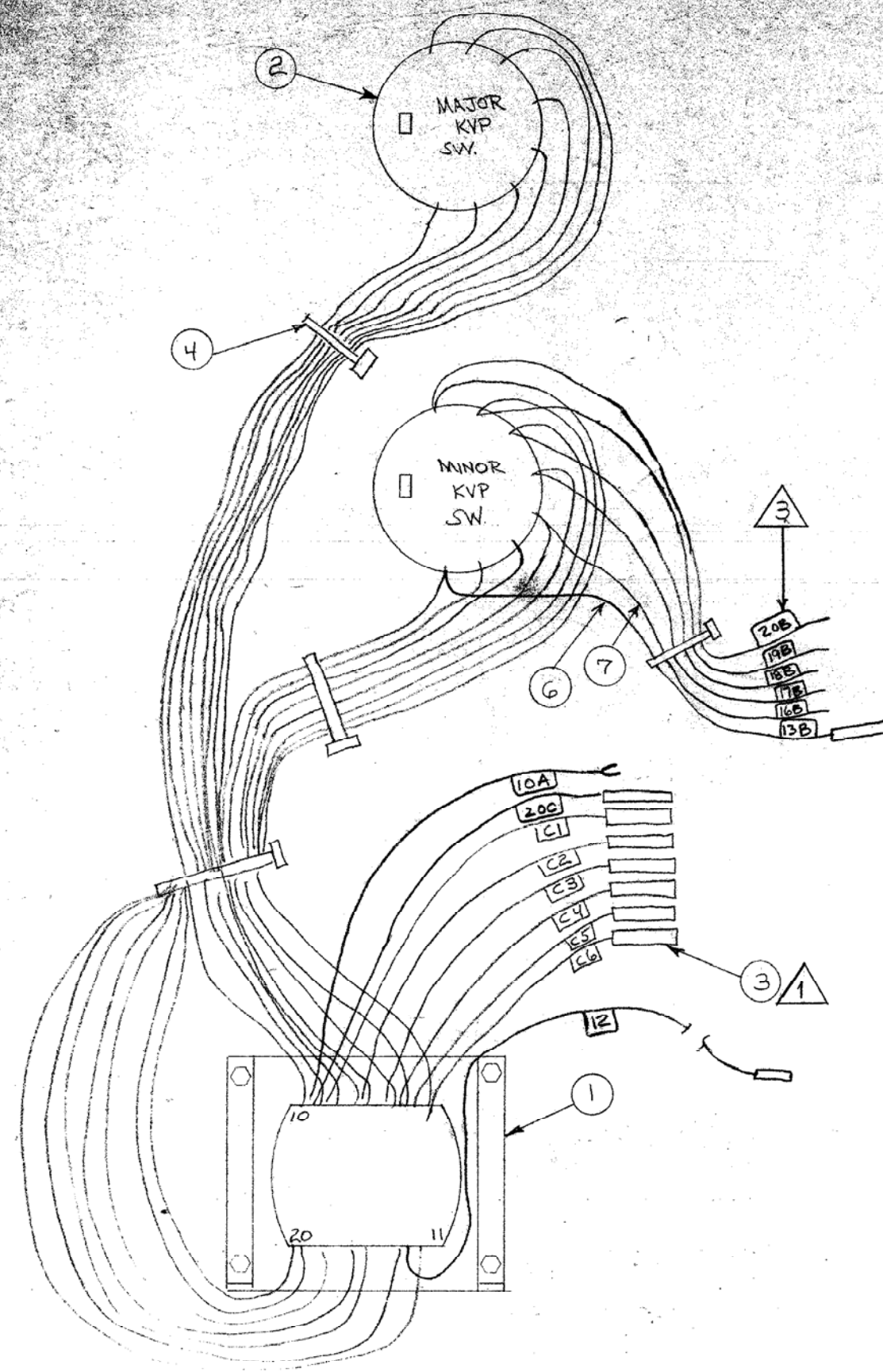


POWER TERMINALS		
	5V	GND.
U1	1	8
U2, 5	14	7
U12	16	8

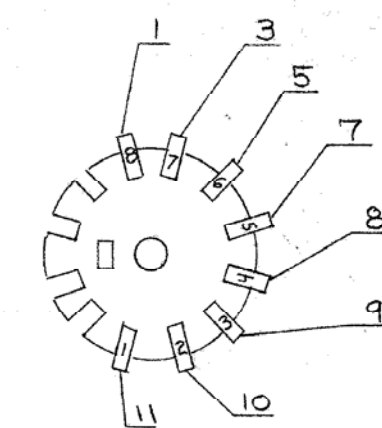
J3 Terminals: 12 not used  
11 LSB (1 pulse), 10=2 pulse, 9=4 pulse, 8=8pulse...  
Pin 1 is 5vdc common supply.

SCHEMATIC,C118 TIMER

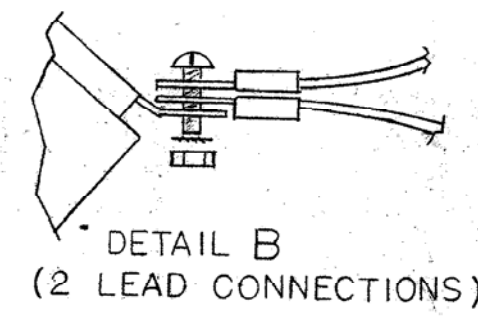
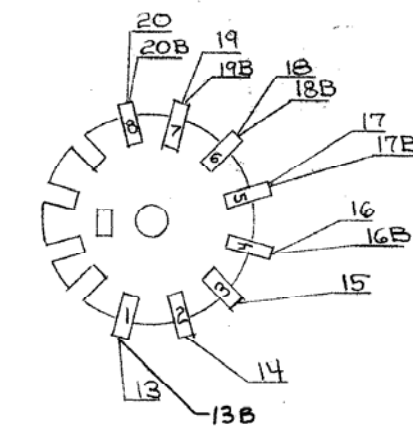
PART NO. L812 REV. A



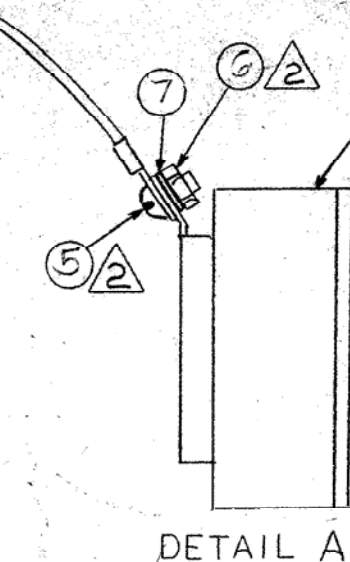
MAJOR KVP SWITCH



MINOR KVP SWITCH



- NOTES:
- 1 INSTALL DISCONNECT ON WIRE LEADS 13B & 20C
  - 2 TORQUE TO 15-2
  - 3 REFER TO L475



ITEM	PART #	DESCRIPTION
8	L475	WIRE CALL OUT, A
7	HA74	LOCKWASHER
6	HA85	NUT, #8-32
5	HH17	SCREW, 8-32 X .375
4	HA38	CABLE TIE
3	HD16	DISCONNECT/SWITCH
2	A357	TAP SWITCH, 6
1	L811	AUTO-XFMR, CE

TOLERANCE UNLESS OTHERWISE SPECIFIED	
X.X	ONE PLACE DECIMAL
X.XX	TWO PLACE DECIMAL
X.XXX	THREE PLACE DECIMAL
TITLE ASSY, AUTO/TAP	
NEXT ASSY L803	MATERIAL A-S NO
SCALE NONE	FINISH AS NO
DATE 11/15/00	DATE 9/25/92
BY [Signature]	APPROVED [Signature]
REVISIONS	

Pricing subject to change without notice.  
Call - fax - email to confirm.

Original InnoVet Part Description rev.July 2009	Part Number	LIST Price	Dealer Net Nov2008
The original InnoVet has two display windows on tubestand			
W300:INNOVET CONTROL 60HZ (OBSOLETE)			
W400-01(50Hz) -03 (50Hz) / W438	Generator		
W400-02 (60Hz) -04 (60Hz) / W438			
W400-06: CONTROL ASSY FINISHED,CE 50 Hz	Generator L802-00		
Air Cylinder, Damper for hinged generator tilt	W369 (Bimba 125)	\$171.77	\$103.06
cable, F377 to C118 Timer PCBA	E948	\$25.00	\$15.00
Cable, Main Power (12 foot length of 8/3 cable).	J477	\$90.45	\$54.27
Cable, Filament Primary	A328	\$110.00	\$66.00
Cable, H.V. Primary	A327	\$110.00	\$66.00
Cable, kVp display	E950	\$90.00	\$54.00
Cable, mAs display	E951	\$90.00	\$54.00
Cable, Timer J3	L890-00	\$100.00	\$60.00
Capacitor, Filament Stabilizer (C2)	A343	\$21.27	\$12.76
Capacitor, Stator (Motor Start)	HAB18	\$52.00	\$31.20
Curtain Strip, OlderTbST W200	W215	\$63.00	\$37.80
EPROM, Time Encoder, (kV mAs Interlock bd.)	W341	\$80.00	\$48.00
Foot Loop	K090	\$24.00	\$14.40
Grid Cabinet	W048	\$456.50	\$273.90
Knob with pointer (W344 orig is OBSO)	K300	\$34.00	\$20.40
Knob without pointer	K301	\$34.00	\$20.40
kVp Tap Switch TESTED (8 position)	02255-000	\$315.33	\$189.20
kVp Tap Switch	A365	\$200.00	\$120.00
LED replacement kit	00312-000	\$109.20	\$65.52
LID, FILM BIN			
mA Selector Switch assy	W354	\$186.00	\$111.60
mA selector switch cable	comes with W354		
Manual - (See MASTERS = Not in OBSOLETE)	K186	\$0.00	
On/Off Circuit Breaker	A365	\$311.67	\$187.00
pcb, kVp/mAs Interlock	F377	\$1,375.00	\$825.00
pcb, Motor Start (rotor control)	A455	\$536.25	\$321.75
pcb, Timer Driver	C118	\$852.50	\$511.50
Relay, RE-1 / RE-2	HH91	\$91.00	\$54.60
Relay socket assy for RE-2 (exposure)	W351	\$183.33	\$110.00
Relay socket for RE-1 (boost)	HH81	\$10.00	\$6.00
Remote exposure switch (wall mount)	W413	\$353.73	\$212.24
Resistor, Filament 100 Ohm, 175 W RX/RXS	A347	\$48.00	\$28.80
Resistor, SpaceCharge 25 Ohm, 175 W RSCC	A345	\$48.00	\$28.80
Rotor Cap 25uF, 330V	HAB18	\$52.00	\$31.20
Rotor Cap MOUNT Bracket	HAB19	\$12.00	\$7.20
SCR Kit ( includes Instructions )	00424-000	\$129.50	\$77.70
SCR block ^ order KIT with instructions ^	00194-000	\$136.00	\$81.60
Sliders, Front Grid Cabinet	00673-000	\$20.00	\$12.00
Snubber/Suppressor (kV Tap Switch)	W440	\$50.00	\$30.00
Stabilizer cap, C2, 660V 2.5 uF	A343	\$21.27	\$12.76
Stator Capacitor, C1, 330V 25 uF(formerly A351)	HAB18	\$52.00	\$31.20

Switch (FOR W413 Remote Switch Assy)	C414	\$49.67	\$29.80
switch button, (cap for C414)	J783	\$16.00	\$9.60
Time encoder EPROM (for F377 Board)	W341	\$80.00	\$48.00
Time Selector Switch assy	J976	\$177.00	\$106.20
Time Selector Switch Cable	comes with J976		
Transfrmr, Space Charge	L926	\$180.00	\$108.00
Transfrmr, Stabilizer, Filament	A342	\$403.33	\$242.00
TS Capacitor, C2	A343	\$0.00	
Two position prep/exposure foot switch	A981	\$0.00	