BOWENS

INTERNATIONAL

PROLITE RANGE

TECHNICAL MANUAL

This manual contains the technical information for the following units:

BW-1030	**BW-1085**
BW-1031	**BW-1086**
BW-1032	**BW-1087**
BW-1033	**CE-1082**
BW-1034	**CE-1083**
BW-1035	**CE-1084**
BW-1082	**CE-1085**
BW-1083	**CE-1086**
BW-1084	**CE-1087**

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Prolite Range Technical Manual.

Due to Bowens International's continuing commitment to maintain the highest standards of quality this manual will be subject to periodic amendments and improvements.

Please Note:

Old copies of updated drawings should be clearly marked as SUPERSEDED and retained in the modification appendix found at the end of this manual.

Page Amendment Record.

Page/s	Amend.Lev	Mod. No.	Mod. By	Mod. Date
1-10	1	00869	LYD	02-03-95
2-14	1	00869	LYD	02-03-95
3-20	1	00869	LYD	02-03-95
4-1, 4-2, 4-3	1	01671	DJB	17-02-97
2-13	1	01671	DJB	17-02-97

Raise Manual Issue When Page Is Full.

CONTENTS.

CONTENTS

SPECIFICATION

Total Power Output 'Full'	150 Watt sec
Flash Duration 'Full'	1/850 sec
Re-cycle time 'Full'	1.7 sec
Power output selection	Full and Half
Modelling bulb max. watts	150 Watts E.S. fitting
Modelling light control	ON/OFF 150 Watt max
Sync Volts	15 Volts DC
Photo Cell	Omnicell (Code BW-1820)
Ready Indication	Light - 100% Charge
Fuse	5 Amp (F)
Flash tube colour temperature	5,300K +/- *5%*

A. General

1 The Prolite 41A is the smallest and lightest model in the Prolite range of modern flash heads, but still retains many of the features of the larger and more powerful models.

2. Flash output selectable, Full or Half power, regulated to ensure consistent output levels.

3 . Switchable (ON/OFF) modelling light of 150 Watts for setting up.

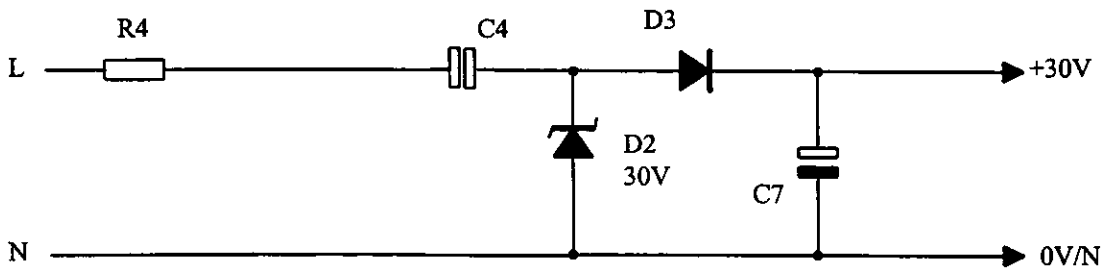
4. Low voltage sync compatible to modern cameras. Two sync sockets are provided for use with Omnicell (Code BW-1820) or Infrared Trigger system (BW-1839) as well as sync cable connection.

5· Charge and Ready indication. Ready indicating power selected and 100% charge.

6. Whilst the Prolite 41A is manufactured for either 220/ 240Volt or 117V Volt operation, the change between models is simple and can be carried out by a qualified engineer.

B. Circuit Description

(i) Low Voltage Supply



B. CIRCUIT DESCRIPTION

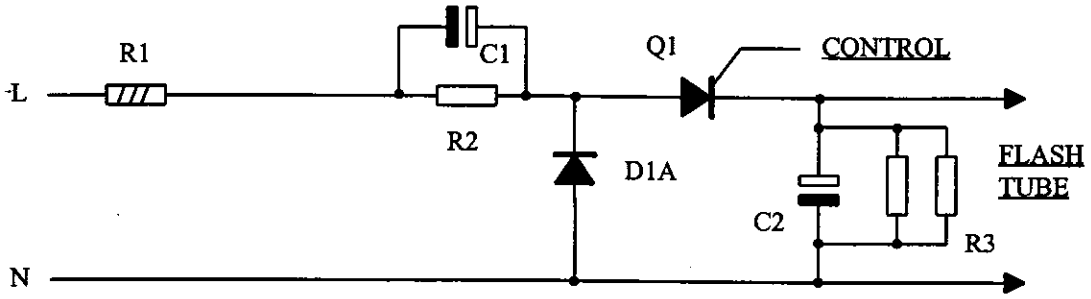
(i) Low Voltage Supply (cont)

(a) The 24 Volt low voltage supply is derived from the mains, reduced by series components R4/C4 and limited by Zener diode D2 to 24 Volts. The alternating voltage is rectified by diode D3 and charges reservoir capacitor C7 to 24 Volts.

(b) For 220/240 Volt operation, capacitor C4 is 680nF and for 117 Volt operation 2200 nF.

(ii) Charge Circuit

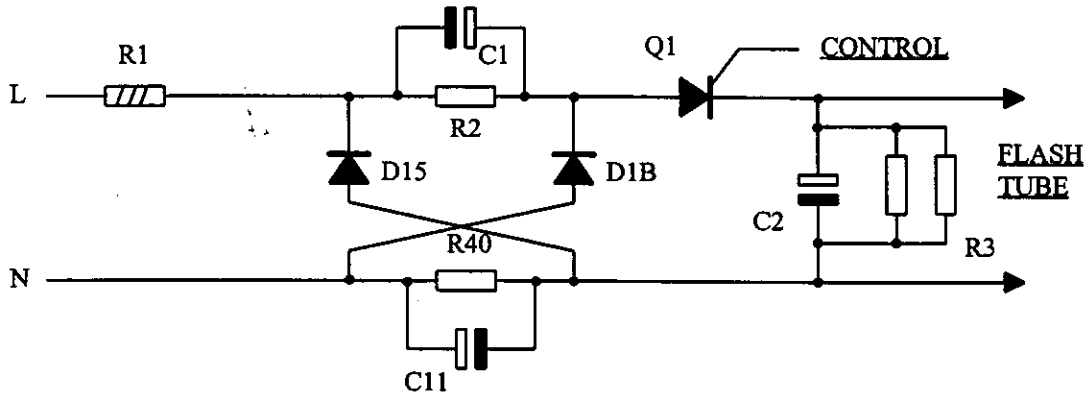
(a) 220/240 Volt Supply



Capacitors C1 and C2 together with diode D1A and SCR Q1 form a doubler circuit. Resistor R1 acts as a current limiter especially when power is applied with C1 and C2 fully discharged.

SCR Q1 is controlled by the regulator (see section iii) to set the voltage across capacitor C2. Resistors R2 and R3 serve to discharge the capacitors when the equipment is switched OFF.

(b) 95 to 125 Volt Supply



Capacitors C1, C2 and C11 together with D1B, D15 and Q1 form a tripler circuit. The charge on C2 is controlled by SCR Q1 via the regulator (see section iii). Resistor R1 is for current limiting especially when power is applied with C1, 2 and 11 fully discharged. R2, 3 and 40 discharge the capacitors when the equipment is switched OFF.

(c) The same PCB is used for both 117 and 240 Volt units. Extra components and link wires are required for 117V operation. See PCB layout diagram for differences.

(iii) **Regulation**

(a) Regulation of the HT (Voltage developed across the main storage capacitor C2 is controlled by comparitor IC1A.

(b) When you first switch 'ON' Pin 3 of IC1A will be more positive than Pin 2. The voltage on Pin 3 is derived from the 24 Volt supply by potential divider R13, R14 and R15 stabilised by Zener diode D7. With Pin 3 more positive, Pin 1's output will be HIGH (positive).

(c) Pin6 of IClB will therefore be high via R24 and IC1B output will be low. The low on IC1B output lights LED D12 and the LED half of Optocoupler IC3 via R27. The transistor half of IC3 shorts the low voltage sync line to earth preventing the unit being flashed. The low on IC1B output is also connected to Pin2 of IC2A. IC2A will therefore be HIGH removing the short from C9 and IC2B will oscillate at approximately 10kHz.

(d) The output from IC2B is fed via C10 / L2 to the gate of SCR Q1 which will turn On. and the main capacitor C2 will start to charge.

(e) As the HT (charge on capacitor C2) increases the voltage on Pin 2 of IC1A also increases, via potential divider R12, R16 and R17. A point will be reached when Pin 2, IC4A is more positive than Pin 3 and the output from Pin 1 will change to low. This low is coupled via D10 to Pin 6 of IC1B

(f) IC1B output will change to high and the LED'S D12 and IC3B will turn OFF. IC3A will turn switch OFF, removing the short from the sync line allowing the unit to be flashed.

(g) With HALF POWER selected the emitter of transistor Q4 and the base of transistor Q5 is grounded via switch SW4. The HIGH on the output of IC1B will therefore turn Q4 ON lighting LED D13 indicating ready in half power, (Selected by SW4).

(h) With FULL POWER selected the emitter of Q4 is connected to Q5 base via R31. With IC1B output high Q4 will tum ON enough to provide base drive to Q5 but not enough to light LED D13. Q5 will turn ON lighting LED, D14 indicating ready in full power.

(i) The High on IC1B Pin 7 output is also fed to Pin 2 of IC2A via R30. The output of IC2A will change to low, shorting C9 stopping IC2B oscillating and SCR Q1 will switch OFF stopping the charge.

(j) Variable resistor R15 is used to set the HT for full power. Switch SW4 shorts out resistor R17 when full power is selected. This reduces the percentage of the that is applied to Pin 2 of IC1A and the HT has therefore to rise higher to trip the regulator.

(iv) **Glow Stop**

(a) To prevent the flash tube glowing on following a flash, the charge must be delayed until the arc in the flash tube has extinguished.

(b) With main capacitor C2 charged and the unit in ready, capacitor C6 will charge via R11, D9 to HT. When the unit is flashed the ionised flash tube effectively puts a short circuit across capacitor C2. Capacitor C6 will therefore discharge through R21, D8 the ionised flash tube and R11. The voltage developed across R21 will turn Q3 on holding Pin 6 of IC1B low via D11 preventing the charge cycle restarting until the flash tube has fully extinguished.

(v) **Trigger / Sync**

(a) The trigger supply for the 41A is derived from the HT. With C2 charged C3 will charge to approximately 200 Volts. (Zener diodes D5, D6) via R7, R8, R9, R10 and the primary trigger coil L1. C5 will charge to 15 Volts (Zener diode D6) when the unit comes to ready and IC3 turns OFF. (See section (iii) (e)).

(b) If the open flash switch SW3 or the sync connector J.S. is shorted C5 will discharge into Q2 gate. Q2 will switch hard ON and C3 will discharge through the primary of trigger coil L1.

(vi) **Modelling**

(a) The supply for the modelling lamp is taken direct from the supply via SW2 due to the simplified construction of the Prolite 41A with less heat insulation / cooling fins at the front end, **the modelling lamp wattage is limited to 150 Watts.**

(vii) **Setting Up**

Note .- The voltage used in photographic flash equipment is very dangerous. Always ensure that the unit is disconnected from the supply and fully discharged before handling with covers removed. The unit is rendered safe by the resistors across the capacitors if left with the supply disconnected for 5 minutes.

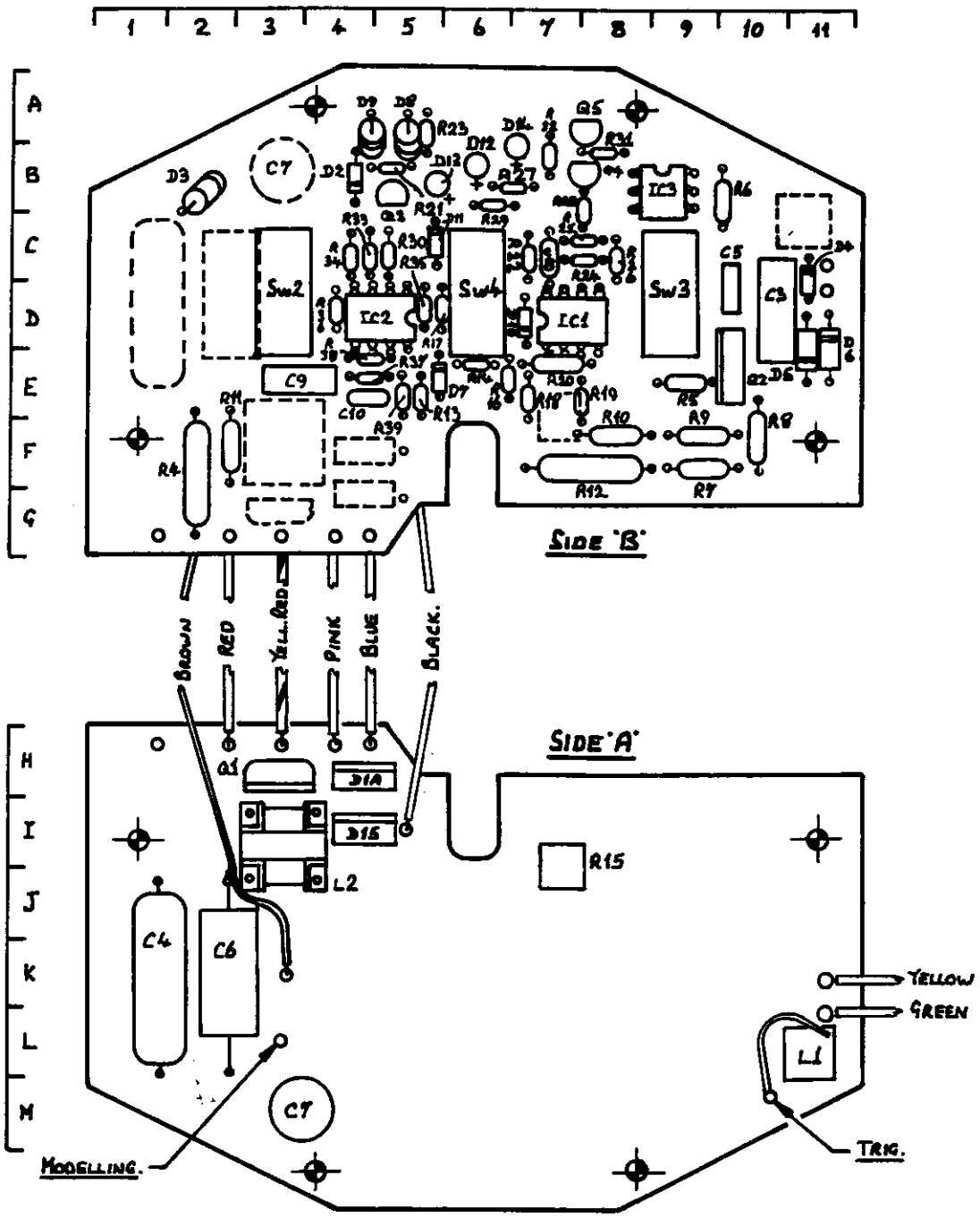
Equipment required

Meter capable of reading 400 Volts DC.

(a) Connect meter capable of reading 400 Volts DC across capacitor C2. Set Full / Half power switch SW4 to full. Switch unit ON and adjust R15, clockwise to increase, for a reading of 385 Volts.

(b) If the voltage reading is too high, adjust R15 for a reduction in Volts, flash units and measure voltage when unit retums to ready.

(c) Set Full / Half power switch to half power, flash unit and check that C2 charges to approximately 285 Volts.

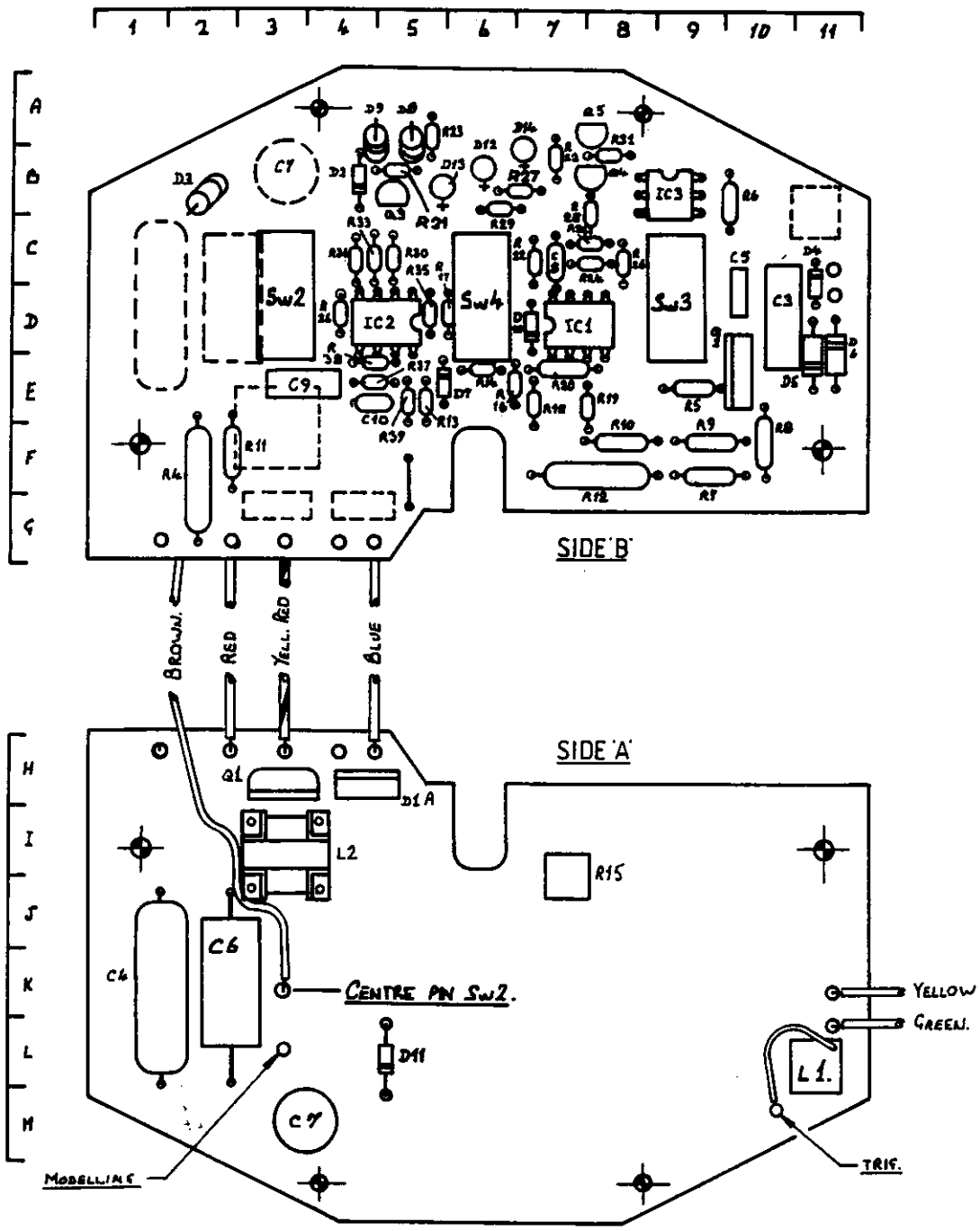


PROLITE 41A PCB LAYOUT

117 VOLT UNITS

K.E.W.

PAGE 1-6



PROLITE 4.1A PCB LAYOUT

220-240 VOLT UNITS

K.E.W. PAGE 1-7

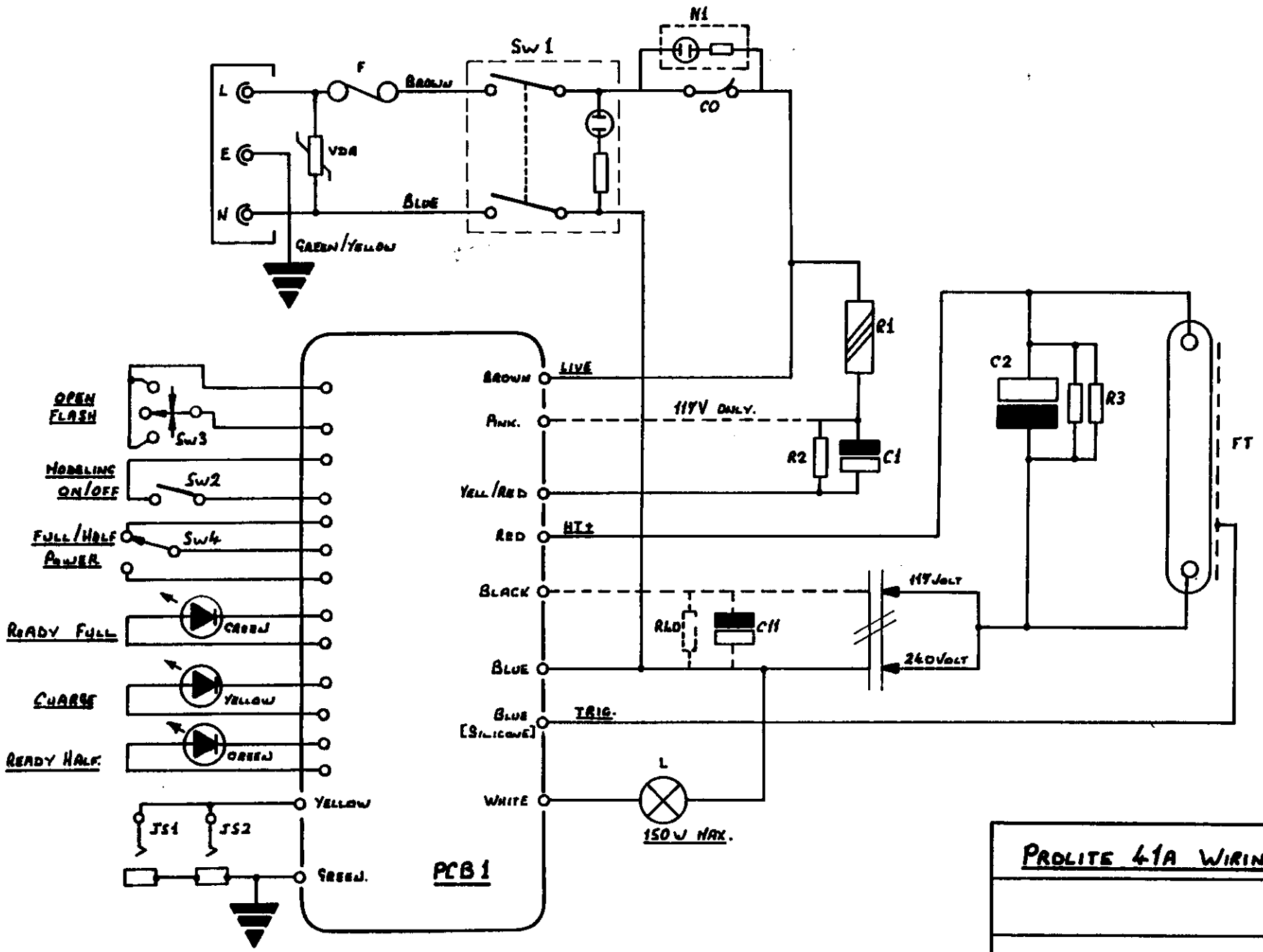
NO	VALUE	DESCRIPTION	CODE	LOCATION
R1	4R7	220/240V HSA 25 Watt W.W	RES-078	CHASSIS
	3R3	120V HSA 50 Watt W.W.	RES-075	CHASSIS
R2	330k	0.5 Watt Metal Film	RESM-4785	CAPS
R3	100k	2 Watt Metal Film (Two in parallel)	RESM-6725	CAPS
R4	10R	W 21 W/W 2.5 Watt Vitreous	RES-088	PCB-F2
R5	10R	25 Watt H.S. Carbon Film	RESC-2245	PCB-E9
R6	1k0	1/8 Watt H.S. Carbon Film	RESC-1485	PCB-BIO
R7	470k	2 Watt Metal Film	RESM-4805	PCB-F9
R8	470k	2 Watt Metal Film	RESM-4805	PCB-FIO
R9	470k	2 Watt Metal Film	RESM-4805	PCB-F9
R10	470k	2 Watt Metal Film	RESM-4805	PCB-FG
R11	56k	2 Watt Metal Film	RESM-4695	PCB-F2
R12	330k	1 Watt Metal Film	RESM-5785	PCB-F8
R13	4k7	1/8 Watt H.S. Carbon Film	RESC-1565	PCB-E5
R14	22k	1/8 Watt H.S. Carbon Film	RESC-1645	PCB-E6
R15	50k	Cermet Trim Pot 4255x	POT-095	PCB-I7
R16	2k7	1/8 Watt H.S. Carbon Film	RESC-1535	PCB-E6
R17	1k0	1/8 Watt H.S. Carbon Film	RESC-1485	PCB-D6
R18	10k	1/8 Watt H.S. Carbon Film	RESC-1605	PCB-E7
R19	10k	1/8 Watt H.S. Carbon Film	RESC-1605	PCB-E8
R20	10M	1/4 Watt Metal Film.	RESG-2965	PCB-E7
R21	3k9	1/8 Watt H.S. Carbon Film	RESC-1555	PCB-B5
R22	56k	1/8 Watt H.S. Carbon Film	RESC-1995	PCB-C7
R23	56k	1/8 Watt H.S. Carbon Film	RESC-1695	PCB-A5
R24	10k	1/8 Watt H.S. Carbon Film	RESC-1605	PCB-C8
R25	100k	1/8 Watt H.S. Carbon Film	RESC-1725	PCB-C8
R26	100k	1/8 Watt H.S. Carbon Film	RESC-1725	PCB-C8
R27	8k2	1/8 Watt H.S. Carbon Film	RESC-1595	PCB-B7
R28	470k	1/8 Watt H.S. Carbon Film	RESC-1805	PCB-C8
R29	15k	1/8 Watt H.S. Carbon Film	RESC-1625	PCB-B6
R30	470k	1/8 Watt H.S. Carbon Film	RESC-1805	PCB-C5
R31	470k	1/8 Watt H.S. Carbon Film	RESC-1805	PCB-B8
R32	5k	1/8 Watt H.S. Carbon Film	RESC-1625	PCB-B7
R33	100k	1/8 Watt H.S. Carbon Film	RESC-1725	PCB-C4
R34	100k	1/8 Watt H.S. Carbon Film	RESC-1725	PCB-C4
R35	100k	1/8 Watt H.S. Carbon Film	RESC-1725	PCB-D5
R36	100k	1/8 Watt H.S. Carbon Film	RESC-1725	PCB-D4
R37	100k	1/8 Watt H. S. Carbon Film	RESC-1725	PCB-E4
R38	100k	1/8 Watt H.S. Carbon Film	RESC-1725	PCB-E4
R39	3k3	1/8 Watt H.S. Carbon Film	RESC-1545	PCB-E5
R40	330k	1/2 Watt Metal Film 120V units only	RESM-4785	CAPS
R41	10M	1/4 Watt Metal Film 120V units only	RESG-2965	PCB-E11
R42	100R	1/2 Watt Metal Film 120V units only	RESM-4365	PCB-D1

CAPACITORS

C1	Bowens Type DD Capacitors (220/240 Volt) Bowens Type DA Capacitors (120 Volt)	CPBW-DD CPBW-DA	CHASSIS CHASSIS
C2	Bowens Type AA Capacitor	CPBW-AA	CHASSIS
C3	100nF 400V Siemens	CPPE-071	PCB-D10
C4	680nF 400V Mullard 368 (220/240V)	CPPE-135	PCB-K1
	220nF 250V Mullard 368 (120V)	CPPE-146	PCB-1
C5	100nF 100V Siemens Layer	CPPE-035	PCB-D10

NO.	VALUE	DESCRIPTION	CODE	LOCATION
CAPACITORS (cont)				
C6	1 mfd	400V 368 capacitor	CPPE-143	PCB-K2
C7	470mfd	35V Radial electrolytic	CPEL-097	PCB-M4
C8	10nF	Mono Ceramic (0.2" pitch)	CPCE-020	PCB-C7
C9	680pF	Polystyrene	CPPS-045	PCB-E3
C10	10nF	Mono Ceramic (0.2" pitch)	CPCE-020	PCB-E4
C11	Bowens	DA capacitor (120V units)	CPBW-DA	CHASSIS
DIODES				
DlA	DSA12D	Diode (220/240V)	SCD-195	PCB-H4
DlB	DSA12D	Diode (120V)	SCD-195	PCB-H4
D2	BZX85C24	24V Zener 1.3W	SCD-290	PCB-B4
D3	1N4006	Diode	SCD-165	PCB-B2
D4	1N4148	Diode	SCD-171	PCB-C11
D5	ZPU 180	180V Zener diode 1. 3 W	SCD-133	PCB-D11
D6	ZPD 15	15V Zener diode 500mW	SCD-100	PCB-D11
D7	BZY88C4V7	4.7V Zener diode 500mW	SCD-035	PCB-E5
D8	1N4006	Diode	SCD-165	PCB-B5
D9	1N4006	Diode	SCD-165	PCB-B4
D10	1N4148	Diode	SCD-171	PCB-D7
D11	1N4148	Diode 220/240V units	SCD-171	PCB-L5
D11	1N4148	Diode 117V units	SCD-171	PCB-C5
D12	HLNW 1719	LED Yellow	SCO-050	PCB-B6
D13	HLNW 1790	LED Green	SCO-052	PCB-B5
D14	HLMP 1790	LED Green	SCO-052	PCB-B7
D15	DSA12D	Diode 117V only	SCD-195	PCB-I5
INTEGRATED CIRCUITS				
IC1	LM393N	Dual Comparator	SCI-065	PCB-D7
IC2	LM393N	Dual Comparator	SCI-065	PCB-D5
IC3	4N36	Opto Coupler	SCO-010	PCB-B9
SOLID STATE DEVICES				
Ql	S161ONH	SCR (117V units only)	SCR-035	PCB-H3
Ql	TXN810	SCR (220/240V units only)	SCR-015	PCB-H3
Q2	TLC386A	Traic	SCTC-010	PCB-E1O
Q3	ZTX300	NPN Transistor	SCT-065	PCB-B5
Q4	ZTX300	NPN Transistor	SCT-065	PCB-B8
Q5	ZTX300	NPN Transistor	SCT-065	PCB-A8
INDUCTORS				
Ll		Trigger Coil (Heimann) Z5105 2/1 Mounting	TRF-165	PCB-L11
L2		Pulse Transformer PT4	TRF-115	PCB-13

NO.	VALUE	DESCRIPTION	CODE	LOCATION
MISCELLANEOUS (cont)				
SW1	1805	Marquardt 2 Pole Green Illum (240v)	SWI-295	PANEL
SW1	1805	Marquardt 2 Pole Green Illum (120v)	SWI-296	PANEL
SW2	1803	2402 Marquardt	SWI-293	PCB - D3
SW3	1808	2302 Marquardt	SWI-298	PCB - D9
SW4	1803	2402 marquardt	SWI-293	PCB - D6
J.S.	QTY2	2 Pole .25" Jack socket	SKT-020	CHASSIS /PANEL
F		Fuse 5 amp 20mm Qty 2	FUS-030	PANEL
LH		E26 Lamp holder	LAMH-036	CHASSIS
PCB		PCB1 240V (Raw)	PC06265	
PCB		PCB 1 117v (Raw)	PC06266	
		Mains socket	CON-066	CHASSIS
PCB		PCB1 (240V) (Complete)	PPO7265	
PCB		PCB1 (117V) (Complete)	PPO7266	



PROLITE 41A WIRING DIAGRAM

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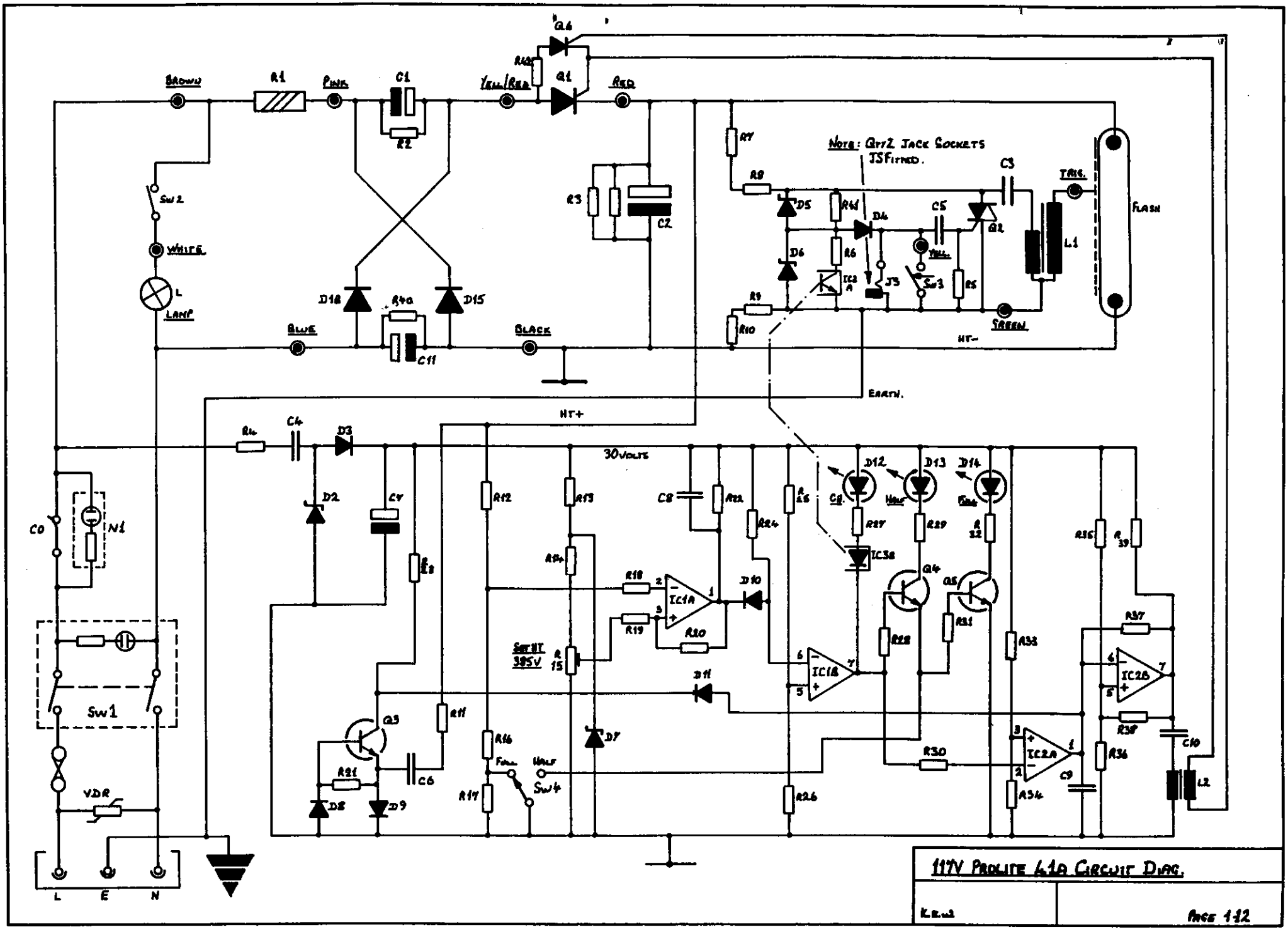

117V PROLITE 4.1A CIRCUIT DIAG.

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PAGE 1.12

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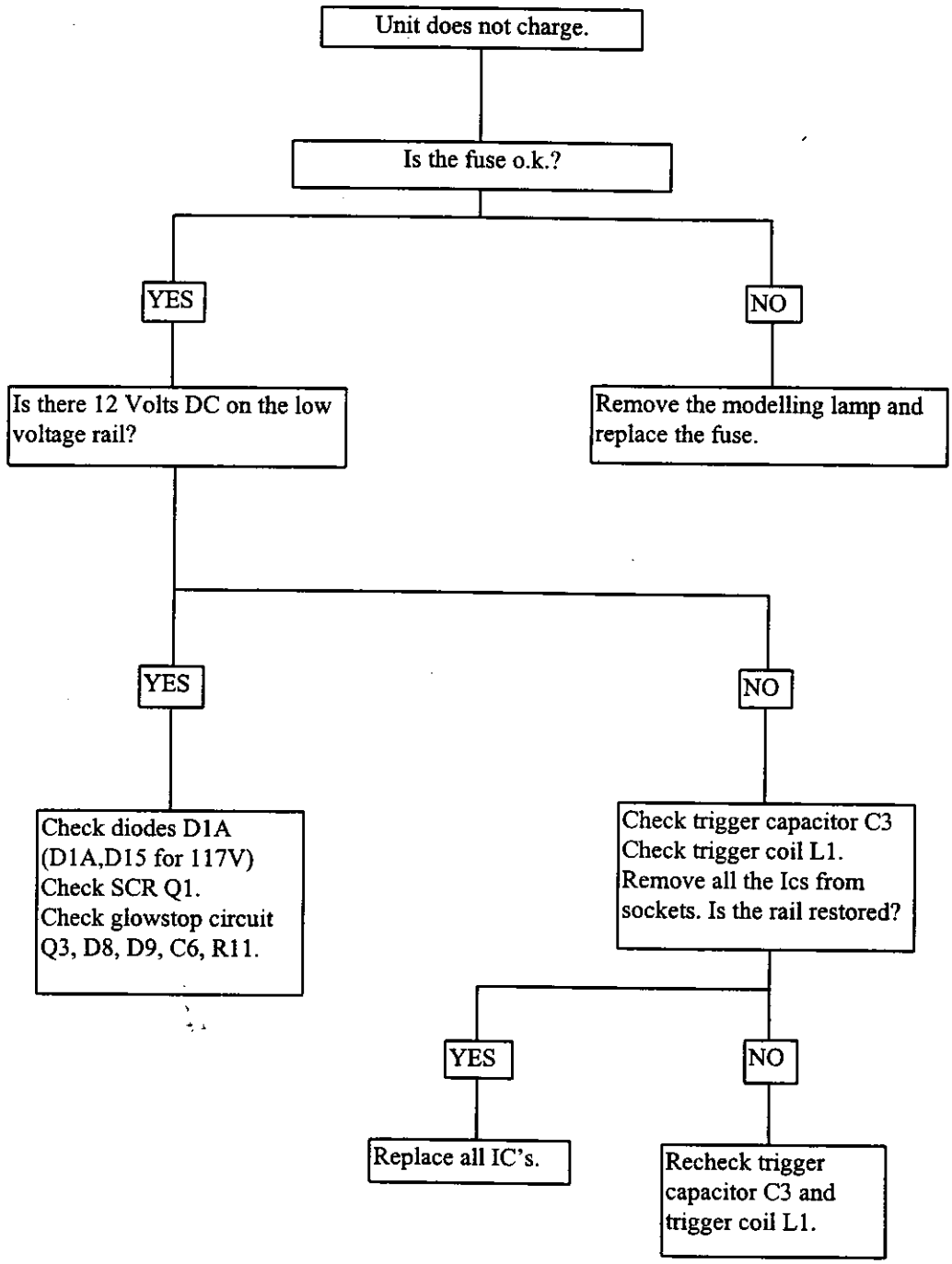
Fault Finding Chart.



Note: Always check that the power capacitor voltage is correct (385V DC MAX.) and check the value of the sense resistor R12 is correct. Replace R12 only with the approved resistor.

CONTENTS

SPECIFICATION

Total power output Watt/Seconds - Joules	**150 W-s**
Flash duration full power	**1 / 850s**
Re-cycle time to full power	**2.1 sec recharge**
Power output selection	**Full & 1/2**
Modelling bulb max Watts	**275 Watt max**
Modelling light control	**Modelling light in ratio with flash**
Sync volts	**15V**
Photo cell	**Built in switchable**
Ready indication	**By Ready light at 100% charge**
Radio interference suppression	**To BSI 613**
Fuse Rating	**5A (F)**
Flash tube colour temperature	**5,300K ± 5%**

A. General.

The Prolite/Bowens 41 is a low cost compact flash unit with the following features.

1. Fully stabilised to produce constant output regardless of power supply variations.

2. Full and half power output settings.

3. Powerful modelling light switched full or half power in ratio with the flash. With intermittent selected the modelling light goes out when the unit is flashed to indicate from the camera position that the unit has fired.

4. Built in switchable photocell for cordless sync with other units.

5. Whilst the Prolite 41 is manufactured for either 220/240 Volt or 110/117 Volt operation, the change over from one to the other is very simple and can be carried out bv a qualified service station.

B. Circuit Description.

(1) Low Voltage Supply.

a. The low voltage supplv is derived direct from the mains live, reduced by series components R2. C1. C2 and Zener diode D1 rectified by, D2 and smoothed by capacitor C5. Regulation IC2 reduces the supply to 12 Volts for the low voltage circuit.

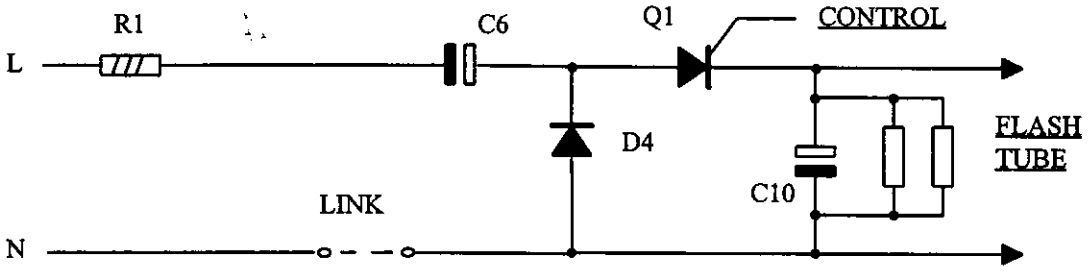
b. When wired for 220/250 Volt operation 2 links. L2 are fitted (dotted lines on diagram) which connects C1 and C2 in parallel. For 95/125 Volt operation only, link 1is fitted which connects C1 and C2 in series.

NOTE. The values of C I and C2 also change for different input Volts - see parts list.

c. Resistor R47 and capacitor C15 which are mounted on the switch PCB, PCB 1. provide additional decoupling of the 12V DC. supply.

(ii) Charge Circuit.

a. 220/240 Volt Suppy.

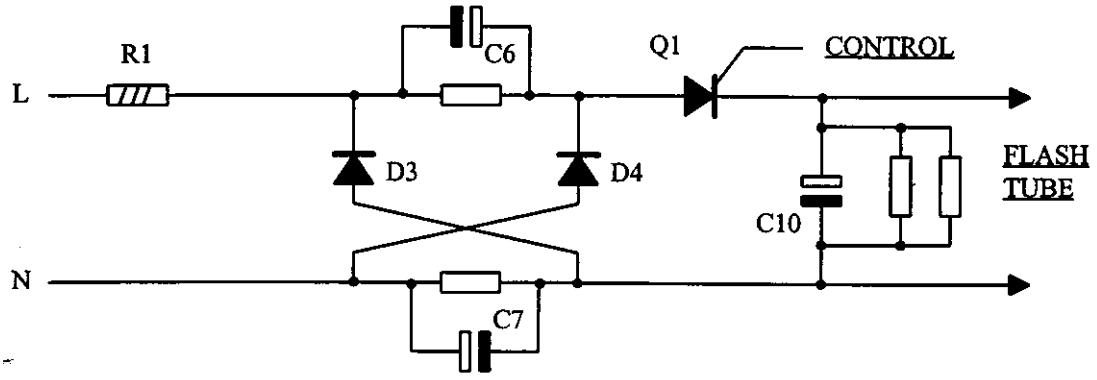


Capacitors C6 and C10 together with diode D4 and SCR Ql form a doubler circuit. Resistor R1 limits the current when C6 is fully discharged.

B. **Circuit Description (cont.)**

(ii) **Charge Circuit.**

b. 95/125v Supply



Capacitor C7 and diode D3 are added to form a tripler circuit. The extra diode D3 is mounted on PCB2 in place of the link and C7 is mounted on the chassis. The wiring in the cable form is arranged so that it can be connected for either 110 or 240 Volt operation.

(iii) **Regulation.**

a. Regulation of the HT (voltage developed across the main storage capacitor C10) is controlled by comparator IC4a. When first switched 'ON' or following a flash, the voltage on pin 3 of IC4a will be higher than the voltage on pin 2. The output on pin 1 of IC4a will, therefore, be high. This high is connected to one input of gate 1 (#1) and with #1's other input also high via R26, its output will be low. With #1's output low the input to inverter 2 will also be low via R32, and its output high which will light the charge LED, LD3 and the LED half of OPT2. The transistor half of OPT2 will conduct shorting the low voltage sync line via R19. This prevents the unit being flashed until fully charged and ready.

b. The output from #1 is inverted by IC4b which puts a high on the control input of #3. #3 is configured as an oscillator which, with its control input high will oscillate at approximately 10kHz. The oscillation output is buffered and inverted by inverter 1 and fed via C18 to pulse transformer L2. The output from L2 secondary is connected to the gate of SCR, Q1 ,which will turn 'ON' and C10 will start to charge.

c. As the HT Volts increase the voltage on pin 2 of IC4 also rises (potential divider R18, R23 and VRI). A point will be reached dependent on the setting of VR1, when Pin 2 of IC4a is more positive than pin 3. At this point IC4a's output will change to low. This low is inverted by #1 (other input to #1 high via R26) and fed via D14 to inverters 2 and 3. The low output from inverter 2 turns OFF the charge LED. LD2 and the LED half of OPT2, removing the short from the sync line allowing the unit to flash. The low output from inverter 3 will light LED LD1 or LD2, dependent on the position of the half/full switch SW4, indicating ready.

(iii) **Regulation (cont.)**

d. Switch SW4 also selects full and half power flash. With half power selected the input to inverter 6 is high and its output low. R29 is, therefore, connected across R26. (part of potential divider R20, R26) reducing the potential on pin 3 of comparitor IC4a and therefore, reducing the HT voltage when regulation occurs.

e. With full power selected inverter 6 input is low via R46 and its output high. With a high on R29, D10 will prevent it affecting the potential divider R20/R26 and the potential on pin 3 of IC4a will increase allowing the HT voltage to increase before regulation occurs.

f. Variable resistor VR1 is used to set the HT voltage by altering the ratio of potential divider R18. R23 and VR1 and therefore, voltage on pin 2 of comparitor IC4a for a given HT.

(iv) **Glow Stop.**

a. To prevent the flash tube glowing on after the flash, the charge must be held off until the arc has been extinguished.

b. With the unit in ready, capacitor C11 will charge to HT via R7. D11. When the unit is flashed the ionised flash tube effectively produces a short circuit across the HT. C11 will therefore, discharge via D 12, R8 and the potential developed across R8 will turn transistor Q5 ON'.

c. With Q5 on, a low is applied to one input of #l. This prevents #1's output going low and. therefore, prevents the unit charging (see regulation iii (b) until the arc through the flash tube is extinguished.

(v) **TRIGGER/SYNC**

The trigger Volts for the 41 are derived from the main HT. With C1 approximately 200 Volts (zener diodes D5/D6) via R11, 12, 13 and 14. C13 will charge to 15 Volts (D6) via RI0 and R51 when the unit is in ready and the transistor half of OPT line is shorted bv open flash switch SW5 or external contacts using JS 1,C13 will discharge into the gate of triac Q3. Q3 will turn hard 'ON' shorting the trigger line and discharging Cl2 through the primary of trigger coil L4. The EHT pulse from the secondary of trigger coil L4 ionises the gas in the flashtube initiating the flash. The ring from the primary of L4 turns Q3 OFF, When the photo cell is switched on a flash picked up by photo diodes D7, 8 and 9 will switch ON SCR Q4 shorting the snyc line and flashing the unit.

(vi) **MODELLING (SEE WAVEFORMS FIG. 1)**

a. The supply for the modelling light is taken from the fuse through the mains filter and triac Q2 for control.

b. Bridge rectifier D26 and optocoupler OPT 1 produce negative going pulses which are synchronised to zero crossing of the supply, 5OHz.

c. These pulses are used to trigger the monostable #4 and inverter 5 output of which is used to switch lamp control triac via pulse transformer L3. The monostable, therefore produces a delay after the zero crossing point of the supply. to when the supply is connected to modelling light. The percentage of the mains half cycles remaining after Q2 is turned 'ON' determines the brightness of the modelling lamp.

(vi) **Modelling (cont).**

d. The duty cycle of the monostable multivibrator is determined by VR2 and R41/42. With full power selected the output from inverter 6 is high . Transistor Q6 is, therefore, turned ON connected R42 in parallel with R41. The duty cvcle of the monostable is, therefore, short and almost the full 5OHz supply sine wave is fed via triac Q2 to the modelling lamp giving full output.

e. With half power selected, inverter 6 output is low turning OFF transistor Q6. R42 no longer shunts R41 and the monostable duty cycle is lengthened. Less of the supply sine wave is fed via Q2 and the modelling lamp dims.

f. The values of R41, R42 have been chosen to give approximately the same ratio from the modelling as the flash.

g. With Sw3 (modelling switch) set to OFF transistor Q7 will be ON, holding the control input of #4 high via D24 preventing the monostable being activated and the modelling light OFF.

h. With SW3 set to continuous, SW3 connects the junction of R35/Dl7 to ground via D23. The pulses from OPT 1 will, therefore, be developed across R35 and appear on the control input of #4 all the time giving continuous modelling.

i. SW3 set to continuous also grounds the base of transistor Q7 via D25 turning Q7 OFF

j. With Sw3 set to intermittent, #2 output controls the modelling. When the unit is in Ready #2 output is LOW the pulses from OPT 1 will be developed across R35 and fed to #4 to switch modelling ON

k. During charge #2 output will be high. removing the retum path for R35/OPT1 and the pulses from OPT 1 will no longer trigger #4 and the modelling light will go out.

(vii) **Setting Up.**

(a) **Flash Power Output**

1. Equipment required - Meter capable of reading 400 Volts DC.

2. Connect meter across main storage capacitor C I 0.

3. Select full power and switch ON.

4. When the unit comes to ready, adjust VR1 for a reading of 385 Volts. If the reading on the meter is more than 385 Volts, adjust VR1 to reduce volts. Flash unit and check volts when the unit comes to ready.

5. Set FULL/HALF power switch on HALF power, flash unit and check that C10 charges to approximately 285 Volts.

(b) **Modelling Output.**

1. AC meter capable of reading 300 VOLTS TRUE RMS.NOTE:- A moving coil meter does not read TRUE RMS. A moving iron meter does.

2. Connect the meter across the modelling lamp.

3. Set the modelling light for'ON'and CONTINUOUS'.Fit a modelling lamp to lamp holder.
   Set FULL / HALF power switch to'FULL'.

4. Switch unit 'ON' and adjust VR2 for a reading of 200 Volts / 240 Volt units or 100 Volts 117 Volt units.

5. Set FULL / HALF power switch to 'HALF' and check modelling bulb dims.

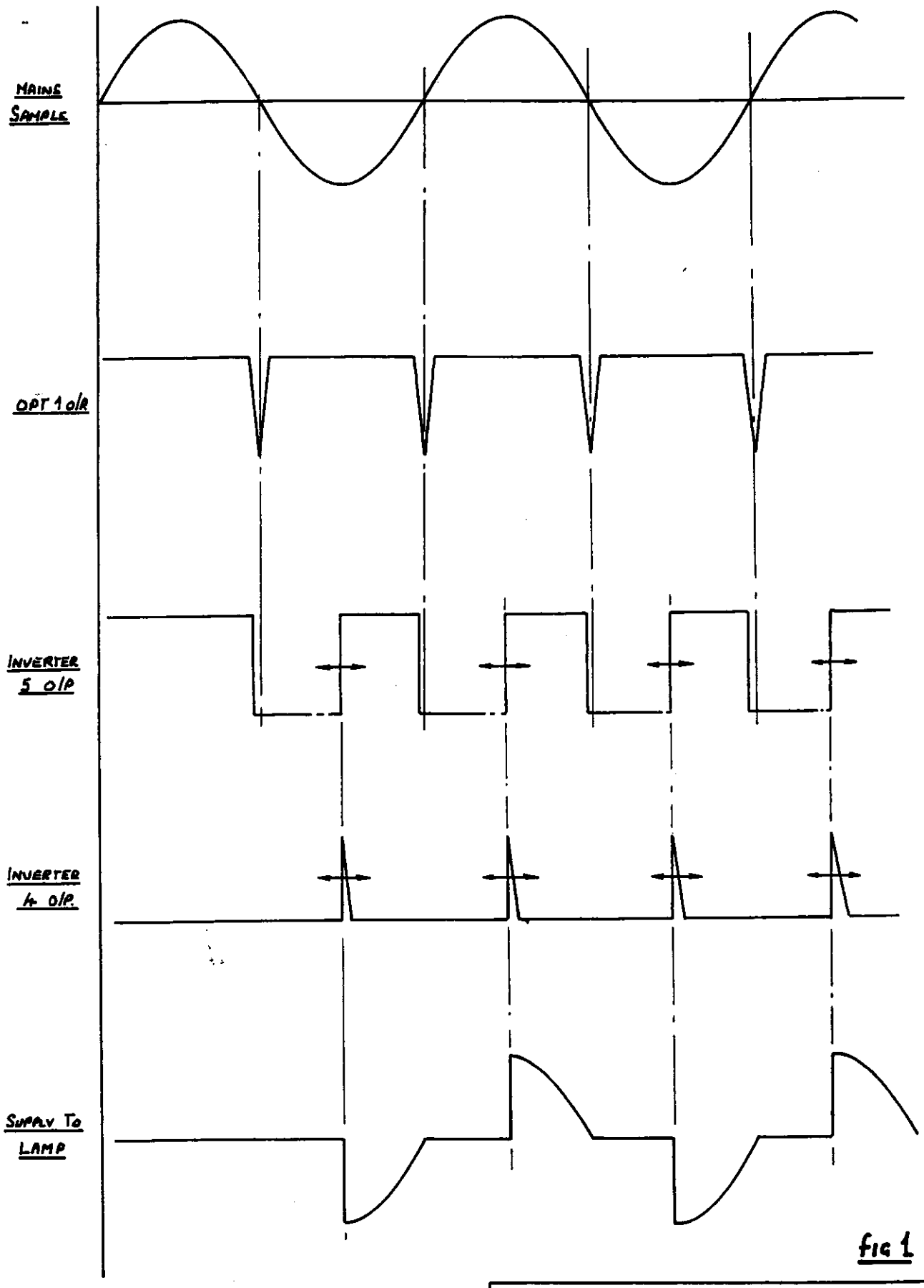


FIG 1

IDEALISED WAVEFORMS.

PROLITE 41 ~ BOWENS 41

MODELLING LAMP CONTROL

K.E.W.

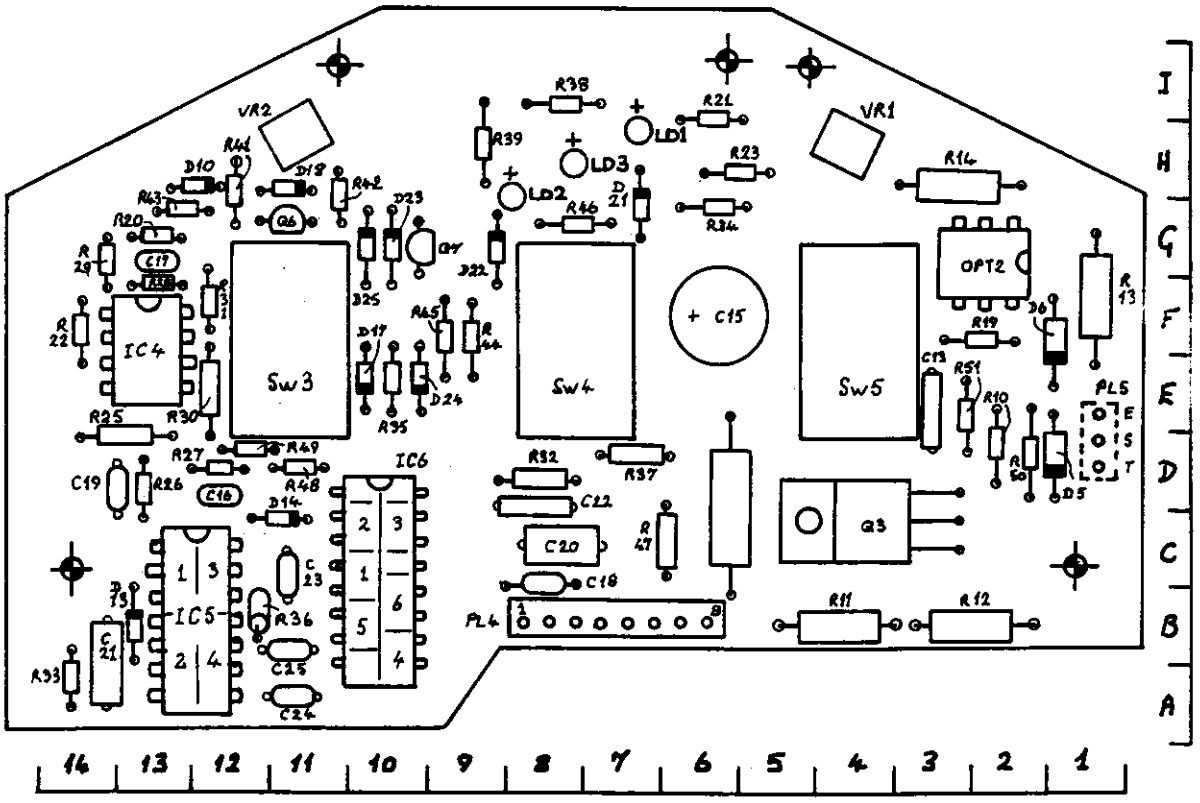


fig 2

PROLITE 41	BOWENS 41
PCB 1 LAYOUT	
KEW.	PAGE 2-9

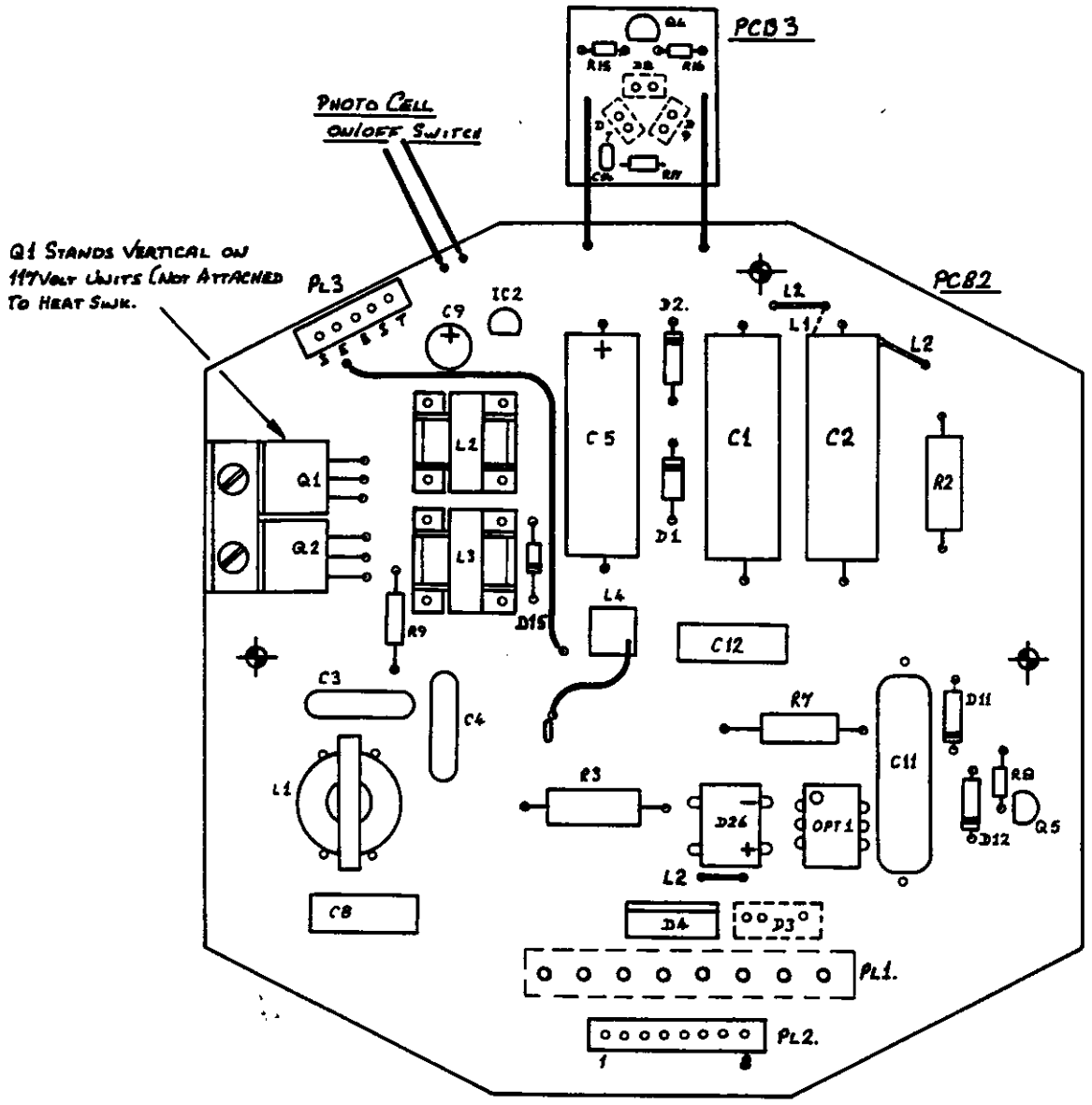
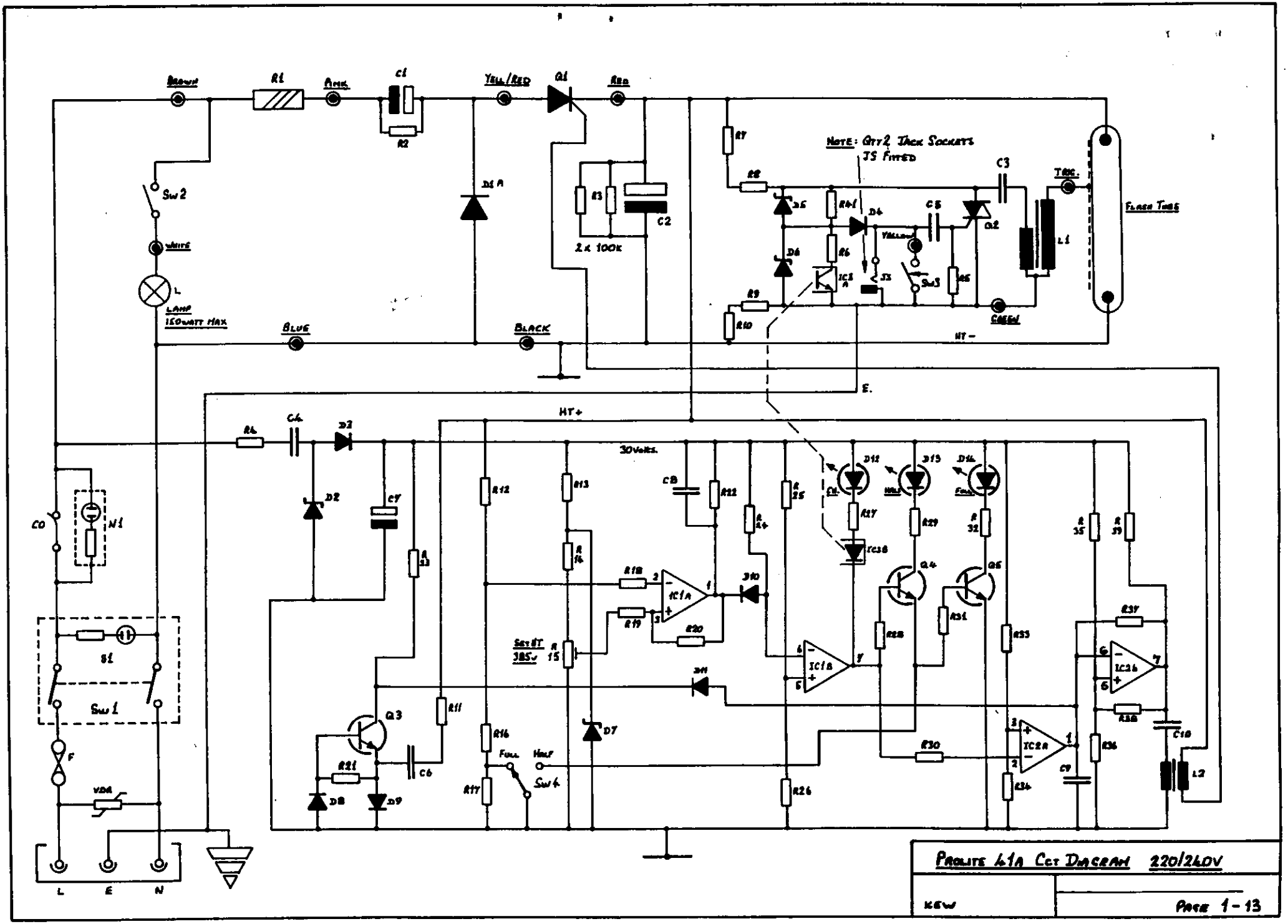


Fig 3

PROLITE 41	BOWENS 41
PCB 2 AND 3	LAYOUT.
K.E.W.	2-10

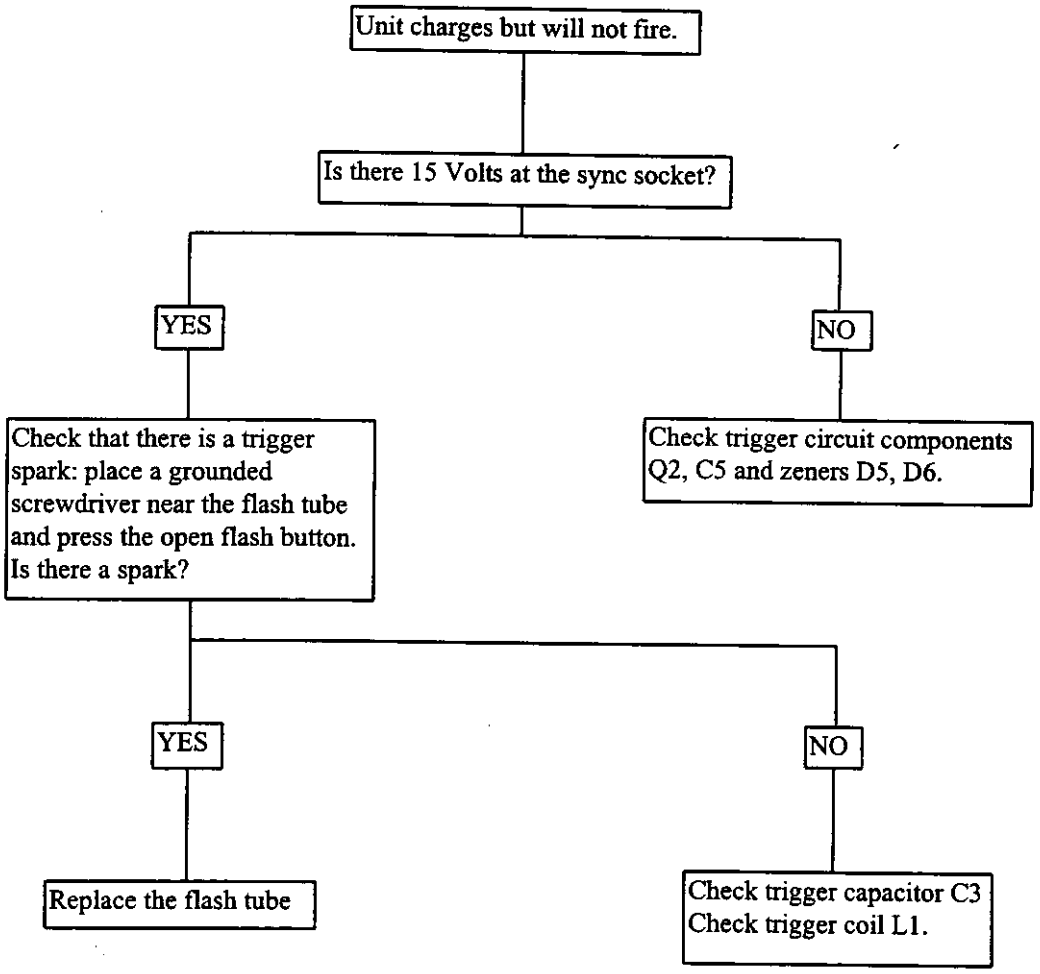


PROLITE 41A CCT DIAGRAM 220/240V

KEW

PAGE 1-13

Fault Finding Chart.



NO.	VALUE	DESCRIPTION	CODE	LOCATION
RESISTORS				
R1	4R7	240Volt Unit HSA 25	RES-078	CHASSIS
	3R3	120Volt Unit HSA 50	RES-075	CHASSIS
R2	10R	W/W W21 2.5 Watt Vitreous	RES-088	PCB2
R3	180k.	1 Watt M/Glaze / Oxide	RESM-5755	PCB2
R4	330k.	1 Watt 2% Vishay (117V only)	RESM-5785	CAPACITORS
R5	330k.	1 Watt 2% Vishay	RESM-5785	CAPACITORS
R6	100k.	2 Watt M/Glaze / Oxide. (both in parallel)	RESM-6725	CAPACITORS
	100k.	2 Watt M/Glaze / Oxide. (both in parallel)	RESM-6725	CAPACITORS
R7	56k.	1/2 Watt Metal Film.	RESM-4695	PCB2
R8	3k9.	1/4 Watt H.S. Carbon Film	RESC-2555	PCB2
R9	22R	1/4 Watt H.S. Carbon Film	RESC-2285	PCB2
R10	10R	1/4 Watt H.S. Carbon Film	RESC-2245	PCB1 D2
R11	470k.	1/2 Watt Metal Film	RESM-4805	PCB1 B5
R12	470k.	1/2 Watt Metal Film	RESM-4805	PCB1 B3
R13	470k.	1/2 Watt Metal Film	RESM-4805	PCB1 G1
R14	470k.	1/2 Watt Metal Film	RESM-4805	PCB1 G3
R15	4M7.	1/2 Watt M/Glaze	RESM-4925	PCB3
R16	68k.	1/8 Watt H.S. Carbon Film	RESC-1705	PCB3
R17	22k.	1/8 Watt H.S.Carbon Film	RESC-1645	PCB3
R18	330k.	1 Watt 2% Vishay	RESM-5785	PCB1 D6
R19	1k...	1/8 Watt H.S.Carbon Film	RESC-1485	PCB1 F2
R20	10k.	1/8 Watt H.S.Carbon Film	RESC-1605	PCB1 G13
R21	10k.	1/8 Watt H.S.Carbon Film	RESC-1605	PCB1 I6
R22	10k.	1/8 Watt H.S.Carbon Film	RESC-1605	PCB1 F14
R23	6k8.	1/8 Watt H.S.Carbon Film	RESC-1585	PCB1 H6
R24 **NOT ALLOCATED**				
R25	4M7.	1/4 Watt	RESG-2925	PCB1 D13
R26	56k.	1/8 Watt H.S.Carbon Film	RESC-1695	PCB1 D13
R27	56k.	1/8 Watt H.S.Carbon Film	RESC-1695	PCB1 D12
R28	56k	1/8 Watt H.S.Carbon Film	RESC-1695	PCB1 F13
R29	27k.	1/8 Watt H.S.Carbon Film	RESC-1655	PCB1 G14
R30	4M7.	1/4 Watt	RESG-2925	PCB1 E12
R31	56k.	1/8 Watt H.S.Carbon Film	RESC-1695	PCB1 F12
R32	680k.	1/8 Watt H.S.Carbon Film	RESC-1825	PCB1 D8
R33	1M.	1/8 Watt H.S.Carbon Film	RESC-1845	PCB1 A14
R34	3k3.	1/8 Watt H.S.Carbon Film	RESC-1545	PCB1 G6
R35	56k.	1/8 Watt H.S.Carbon Film (240V units)	RESC-1695	PCB1 E10
R35	100k.	1/8 Watt H.S.Carbon Film (117V units)	RESC-1725	PCB1 E10
R36	82k.	1/8 Watt H.S.Carbon Film	RESC-1715	PCB1 B12
R37	560k.	1/8 Watt H.S.Carbon Film	RESC-1815	PCB1 D7
R38	4k7.	1/8 Watt H.S.Carbon Film	RESC-1565	PCB1 I8
R39	4k7.	1/8 Watt H.S.Carbon Film	RESC-1565	PCB1 H9
R40.**NOT ALLOCATED**				
R41	100k.	1/8 Watt H.S.Carbon Film	RESC-1725	PCB1 G12
R42.	270k.	1/8 Watt H.S.Carbon Film	RESC-1775	PCB1 G11
R43	1M.	1/8 Watt H.S.Carbon Film	RESC-1845	PCB1 G13
R44	10k	1/8 Watt H.S.Carbon Film	RESC-1605	PCB1 F9
R45	100k	1/8 Watt H.S.Carbon Film	RESC-1725	PCB1 F9
R46	56k.	1/8 Watt H.S.Carbon Film	RESC-1695	PCB1 G8
R47	10R	1/4 Watt H.S.Carbon Film	RESC-2245	PCB1 C7
R48	270k.	1/8 Watt H.S.Carbon Film	RESC-1775	PCB1 D11
R49	56k.	1/8 Watt H.S.Carbon Film	RESC-1695	PCB1 D12
R50	10M.	1/4 Watt M/Glaze	RESG-2965	PCB1 D2
R51	10k.	1/8 Watt H.S.Carbon Film	RESC-1605	PCB1 E3

NO.	VALUE	DESCRIPTION	CODE	LOCATION
VARIABLE RESISTORS				
VR1	2k	Vertical Cermet 4255X	POT-013	PCB1 H4
VR2	50k	Vertical Cermet 4255X	POT-095	PCB1 H11
CAPACITORS				
C1	470nF	250V AC - 240 Volt Unit	CPPE-115	PCB2
C1	4.7mfd	100V MKT - 100 - 120 Volt Unit	CPPE-155	PCB2
C2	470nF	250V AC 240 Volt Unit	CPPE-115	PCB2
C2	4.7 mfd	100V MKT - 100 - 120 Volt Unit	CPPE-155	PCB2
C3	2n2	250V AC WIMA MP3Y	CPPA-005	PCB2
C4	2n2	250V AC WIMA MP3Y	CPPA-005	PCB2
C5	1000mfd	16 Volt Axial Electrolytic	CPEL-115	PCB2
C6		Bowens Type DD 240 Volt Units Bowens Type DA 120 Volt Units Bowens Type DF 100 Volt Units	CPBW-DD CPBW-DA CPBW-DF	CHASSIS
C7		NOT FITTED 240 Volt Units Bowens Type DA 120 Volt Units Bowens Type DF 100 Volt Units	 CPBW-DA CPBW-DF	CHASSIS
C8	15nF	250V AC WIMA MKS - 4 - R	CPPE-013	PCB2
C9	47mfd	16 Volt Radial electrolytic	CPEL-065	PCB2
C10		BOWENS TYPE 'AA'	CPBW-AA	CHASSIS
C11	680nF	400V Millard 368	CPPE-135	PCB2
C12	100n	400V Siemens	CPPE-071	PCB2
C13	100nF	100V Siemens Layer	CPPE-035	PCB1 E3
C14	2n2	100V Ceramic	CPCE-015	PCB3
C15	220mfd	16 Volt Radial Electrolytic	CPEL-077	PCB1 F6
C16	10nF	100V Ceramic	CPCE-020	PCB1 D12
C17	10nf	100V Ceramic	CPCE-020	PCB1 G13
C18	47nF	100V Ceramic	CPCE-035	PCB1 C8
C19	2n2	100V Ceramic	CPCE-015	PCB1 D14
C20	220nF	100V Siemens Layer	CPPE-075	PCB1 C8
C21	220nF	100V Siemens Layer	CPPE-075	PCB1 A14
C22	100nF	100V Siemens Layer	CPPE-035	PCB1 D8
C23	2n2	100V Ceramic	CPCE-015	PCB1 C11
C24	2n2	100V Ceramic	CPCE-015	PCB1 A11
C25	47n	100V Ceramic	CPCE-035	PCB1 B11
DIODES				
D1	ZPY15	15 Volt Zener Diode 1.3 Watt	SCD-100	PCB2
D2	1N4006	Silicon Diode	SCD-165	PCB2
D3	DSA1 - 12D	Diode 100 - 120 Volt Units	SCD-195	PCB2
D4	DSA1 - 12D	Diode	SCD-195	PCB2
D5	ZPU180	180 Volt Zener Diode 1.3 Watt	SCD-134	PCB1 D2
D6	ZPY15	15 Volt Zener Diode 1.3 Watt	SCD-100	PCB1 F2
D7	VTP100	I.R. Receiver Diode	SCO-025	PCB3
D8	VTP100	I.R. Receiver Diode	SCO-025	PCB3
D9	VTP100	I.R.Receiver Diode	SCO-025	PCB3
D10	1N4006	Silicon Diode	SCD-165	PCB1 H13
D11	1N4006	Silicon Diode	SCD-165	PCB2
D12	1N4006	Silicon Diode	SCD-165	PCB2
D13	1N4148	Silicon Diode	SCD-171	PCB1 B13
D14	1N4148	Silicon Diode	SCD-171	PCB1 C11
D15	1N4148	Silicon Diode	SCD-171	PCB2

NO.	VALUE	DESCRIPTION	CODE	LOCATION
DIODES CONTD.				
D16 **NOT ALLOCATED**				
D17	1N4148	Silicon Diode	SCD-171	PCB1 E10
D18	1N4148	Silicon Diode	SCD-171	PCB1 H11
D19 **NOT ALLOCATED**				
D20 **NOT ALLOCATED**				
D21	1N4148	Silicon Diode	SCD-171	PCB1 G7
D22	1N4148	Silicon Diode	SCD-171	PCB1 G9
D23	1N4148	Silicon Diode	SCD-171	PCB1 G10
D24	1N4148	Silicon Diode	SCD-171	PCB1 E10
D25	1N4148	Silicon Diode	SCD-171	PCB1 G10
D26	DIL BRIDGE	PL-40	SCB-010	PCB2
LIGHT EMITTING DIODES (LED'S)				
LD1	LED	3mm Green	SCO-080	PCB H7
LD2	LED	3mm Green	SCO-080	PCB1 H9
LD3	LED	3mm Yellow	SCO-085	PCB1 H8
INTEGRATED CIRCUITS				
ICI **NOT ALLOCATED**				
IC2	LM78L12	12V Regulator	SCI-090	PCB2
IC3 **NOT ALLOCATED**				
IC4	LM393	Comparator	SCI-065	PCB1 F13
IC5	CD4093BCN	Quad 2 I/P Nand Schmitt	SCI-045	PCB1 B13
IC6	CD4049CN	Hex Interverting Buffer	SCI-030	PCB1 C10
OPTO ISOLATORS				
OPT1	4N36	Opto Transistor	SCO-010	PCB2
OPT2	4N36	Opto Transistor	SCO-010	PCB1 G2
SOLID STATE DEVICES				
Q1	S1610NH	SCR (120V)	SCR-035	PCB2
Q1	TXN 810	SCR (220 / 240V)	SCR-015	PCB2
Q2	BTA 10/400	Triac	SCTC-015	PCB2
Q3	BTA 10/400	Triac	SCTC-015	PCB1 C4
Q4	P0109DA	SCR (See Modification Appendix)	SCR-013	PCB3
Q5	ZTX 300	NPN Transistor	SCT-065	PCB2
Q6	ZTX 300	NPN Transistor	SCT-065	PCB1 G11
Q7	ZTX 300	NPN Transistor	SCT-065	PCB1 G10
SWITCHES				
SW1	1805 (117V)	Marquart 2 Pole Green Rocker	SWI-296	PANEL
SW1	1805 (240V)	Marquart 2 Pole Green Rocket	SWI-295	PANEL
SW2	1801-0119	Marquart SPST Red Marker	SWI-291	CHASSIS
SW3	1808-2102	Marquart SPDT Centre Off	SWI-297	PCB1 F11
SW4	1803-2402	Marquart SPDT	SWI-293	PCB1 F8
SW5	1808-2302	Marquart SPDT Biased Centre	SWI-298	PCB1 F4
INDUCTORS				
L1	Choke	Bulgin SA2674-1	IND-015	PCB2
L2	Pulse Trans	(PT4) 00746	TRF-115	PCB2
L3	Pulse Trans	(PT4) 00746	TRF-115	PCB2
L4		Trigger Trans Heimann ZS10521	TRF-165	PCB2

NO.	VALUE	DESCRIPTION	CODE	LOCATION
CONNECTORS				
PL1	8 Way	.2 Inch PCB Header	PLG-135	PCB2
PL2	8 Way	.1 Inch PCB Header	PLG-210	PCB2
PL3	5 Way	.1 PCB Header	PLG-163	PCB2
PL4	8 Way	.1 PCB Header	PLG-210	PCB1 B7
PL5	3 Way	.1 PCB Header	PLG-156	PCB1 E1
PL6		Lucar PCB Connector Male .125 Inch		PCB2
PL7		Fixed Mains Plug Bulgin P595 110-1mm/10A	CON-066	PANEL
SKT1a	6 Way	.2 Connector	SKT-120	CHASSIS
SKT1b	2 Way	.2 Connector (Qty 8 crimps for SKT1a/b)	SKT-100	CHASSIS
SKT6		Lucar Connector Female .125 Inch		CHASSIS
RC1	8 Way	Ribbon Cables SKT1 To SKT4	CON-120	PCB1 / 2
RC2	3 Way	Ribbon Cables SKT3 To SKT5	CON-135	PCB1 / 2
MISCELLANEOUS				
F	Fuse 5 amp 20mm Cartridge (F)		FUS-030	PANEL
VDR	Voltage Dependant Resistor 300V		VDR-015	PANEL
VDR	Voltage Dependant Resistor 130V		VDR-005	PANEL
FT	Flash Tube PX4 /UV		FLT-145	CHASSIS
LH	Lamp Holder E26		LAMH-036	CHASSIS
PCB1	117V & 240V	PCB1 (RAW)	PC06270	
PCB2	117V & 240V	PCB2 (RAW)	PC06275	
PCB3	117V & 240V	PCB3 (RAW)	PC06280	
PCB1	117V	PCB1 (complete)	PP07271	
PCB1	240V	PCB1 (complete)	PP07270	
PCB2	117V	PCB2 (complete)	PP07273	
PCB2	240V	PCB2 (complete)	PP07275	
PCB3	117V & 240V	PCB3 (complete)	PP07278	

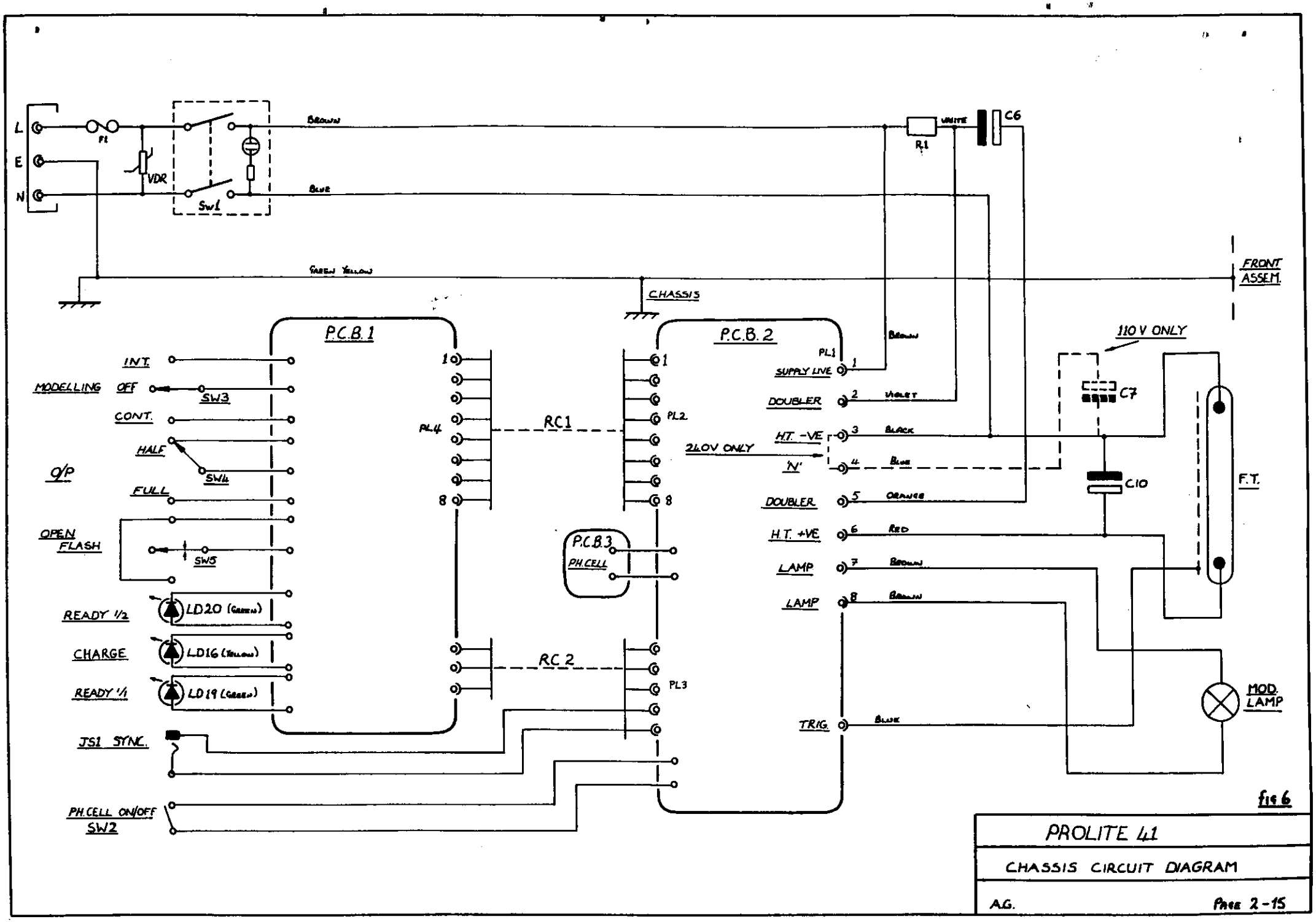
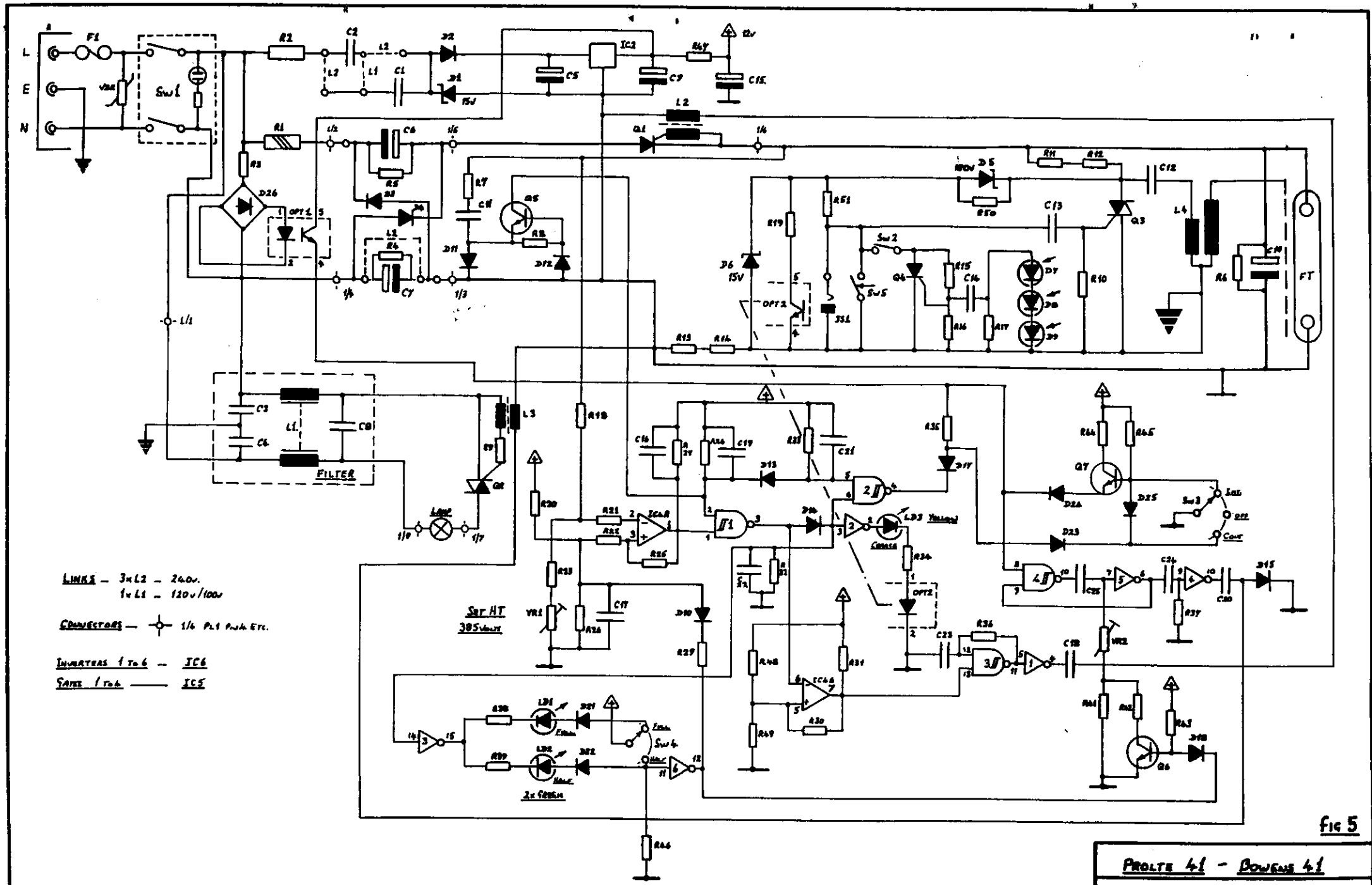


fig 6

PROLITE 41	
CHASSIS CIRCUIT DIAGRAM	
A.G.	Page 2-15



LINKS — 3×L2 — 240v.
1×L1 — 120v/100v

CONNECTORS — 1/4 PL1 PUSH ETC.

INVERTERS 1 TO 6 — IC6

GATES 1 TO 4 — IC5

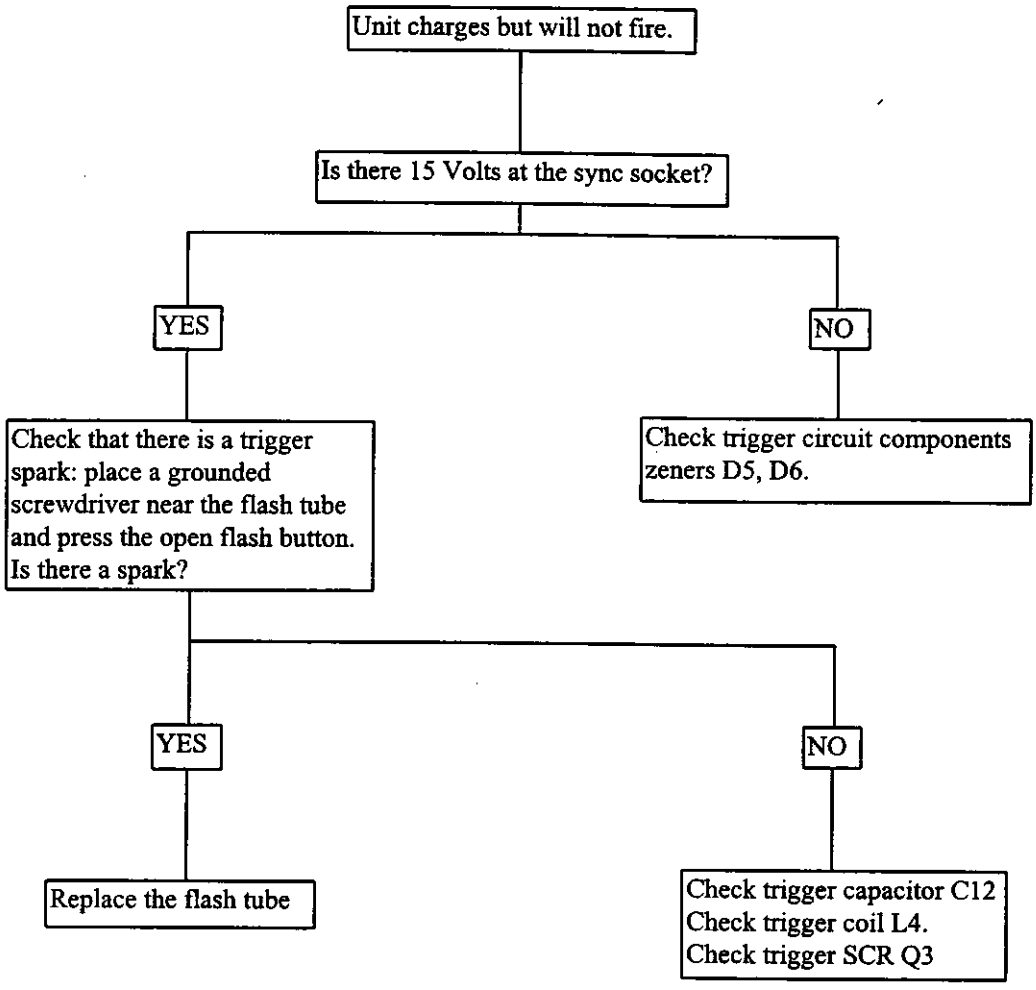
Fig 5

PROLITE 41 - BOWENS 41

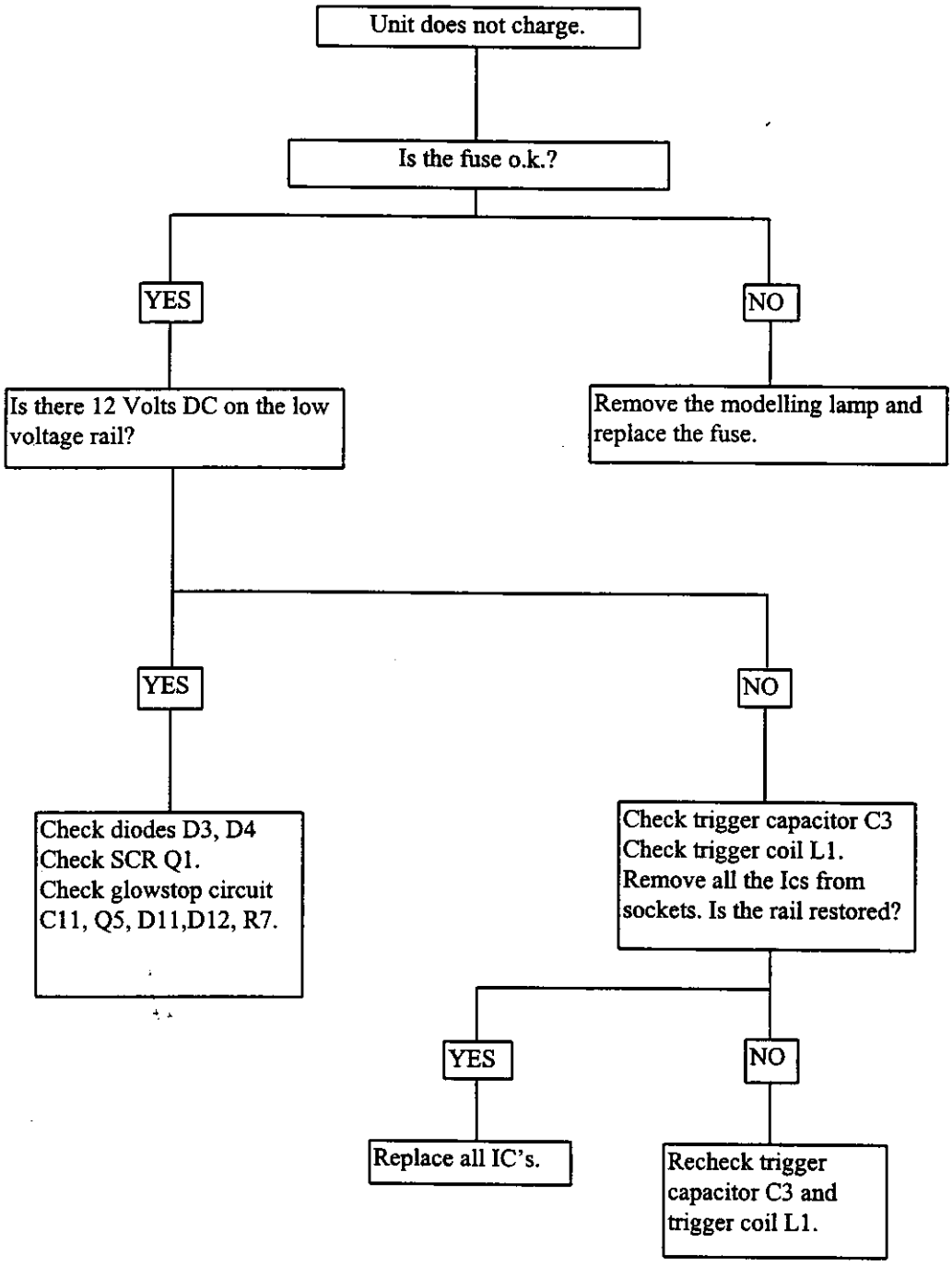
CIRCUIT DIAGRAM PAGE 2-16

K.E.W.

Fault finding Chart.



Fault Finding Chart.



Note: Always check that the power capacitor voltage is correct (385V DC MAX.) and check the value of the sense resistor R18 is correct. Replace R18 only with the approved resistor.

CONTENTS.

SPECIFICATION

ITEM	60	82	100	120
CODE NUMBER	BW-1032	BW-1033	BW-1034	BW-1035
TOTAL POWER WATT / SEC-JOULES	250W/s	500W/s	750W/s	1000W/s
FLASH DURATION FULL POWER	1/750 sec	1/660 sec	1/500 sec	1/1500 sec
THERMAL CUT OUT	71°C	71°C	71°C	71°C
RE-CYCLE TIME TO FULL POWER	1.7 sec	2.4 sec	2.6 sec	2.8 sec
POWER SELECTION	FULL TO QUARTER	FULL TO EIGHTH	FULL TO EIGHTH	FULL TO SIXTEENTH
MODELLING BULB WATTS	240V 275 MAX	240V 275 MAX.	240V 275 MAX.	240V 650 MAX.
MODELLING LIGHT CONTROL	IN RATIO WITH FLASH OR FULL POWER OVERRIDE			
SYNC VOLTS	15V DC REFERENCED TO EARTH			
PHOTO CELL	BUILT IN SWITCHABLE			
READY INDICATION	BY READY LIGHT & AUDIO SOUNDER AT 100% CHARGE. (Flash inhibited until ready). *NOTE :- SOUNDER OPERATIVE ONLY WHEN CONTINUOUS MODELLING SELECTED*			
RADIO INTERFERENCE SUPPRESSION	TO BSI 613			

SPECIFICATION (cont)

ITEM	60	82	100	120
FUSE RATING	5 AMP (F)	5 AMP (F)	5 AMP (F)	6.3 AMP (F)
FLASH TUBE COLOUR TEMP.	5,300 K ± 5%			
WEIGHT	2.7kg	2.9 kg	3.3 kg	4 kg

Description.

(i) General.

The Prolite range of flash units are designed as a compact powerful flash source with many features previously only found on much larger more expensive equipment.

All units have the following features as standard.

A. Fully stabilised to ensure constant output regardless of supply Volts. Regulation within +- 1%

B. Variable flash output See Specification.

C. MODELLING LAMP CONTROL OFF/FULL/RATIO switch allows the modelling lamp to either be on full all the time, vary in output with the flash or be switched OFF. The continuous/intermittent switch will select modelling ON all the time or out between flashes to indicate the unit has flashed. Additionally when continuous is selected a sounder gives a single bleep when the unit comes to ready.

D. The Prolite range of flash units may be synchronised to the camera via a sync lead plugged into either of the sync sockets, an infrared remote sync unit or by using the built in switchable photo cell.

E. Whilst the Prolite is manufactured to operate from either 110 or 240 Volt supply the change over is very simple and can be carried out by a qualified repair station.

(ii) Circuit Description.

(A) Charge.

For 240 Volt operation D12 and D11 are fitted. The supply is fed via SW1, the fuse, cutout and limit resistor R62 to the Solid State Relay (SSR). If the HT (Volts across the main capacitor(s) CX) is less than required (see regulation section C) the regulator will turn ON the SSR connecting the supply to the doubler circuit C16, D11, D12 and main storage capacitors CX. Doubler capacitors C16 and C17 are effectively in series and provide some additional current limiting especially during the initial high current phase of the charge cycle.When connected for 117volt operation diode D11 is replaced by diodes D9 and 10. (Broken lines on diagram). This then forms a tripler circuit with C16, C17 and storage capacitors CX.

(A) Charge (cont).

To ensure reliable flash at low power settings (low HT) an additional low power doubler circuit is fitted. This consists of limit resistor R12, capacitors C30 and C31 and diodes D22, 23. This pull up doubler is powered direct from the supply live and separated from the main storage capacitors by diodes D20, 21.On the Prolite 120 The main storage capacitors are divided into two blocks CX and CY which consist of three type AA capacitors of 2000mfd/400 Volt each.The two blocks are charged via separate charge diodes D12A and B which also act as separator diodes. The extra diode D12B is mounted on PCB5. The doubler/tripler C16, C17, D9, 10 and 11, Solid State Relay and charge limiting components are as used in the Prolite 60 to 100.

Two separate flash tubes FTA&B are used connected across the separate capacitor blocks CX and CY.

To ensure reliable flashing at low power setting (low HT Volts) an additional low power doubler circuit C30, R12, D and D22A/B, C31A/B is fitted. This pull up voltage doubler is powered direct from the mains supply and separated from the main HT by diodes D20A/B and D21A/B.

(B) Low Voltage Supply.

The low voltage supply (12 Volts) is derived direct from the supply live, reduced by Volts drop across series capacitor C5 and current limit resistor R1 to 20 Volts set by zener diodes D4 and 5. The 20 Volt positive half cycles are passed via D7 and charge C13 on the input of Regulator IC4. The 12 Volt output from the regulator is used to power the low voltage section of the circuit. To reduce the load on the regulated 12volt the supply for Q4, modelling control transistor, is taken from the junction of D7 and C13.

(C). Regulation.

The HT +ve is connected via diode D24 to potential divider chain R33, 35, 38 and VR3. A small percentage of the HT therefore appears on Pin 6 (-ve) of comparator IC5a. Divider chain R32, 37 and VR2b connected across the 12 Volt supply provides a reference voltage which is connected to pin 5 (+ve) of IC5a. At switch ON the voltage on pin 5 will be higher than the voltage on Pin 6 of IC5a. The output will, therefore, be +ve(high) which is connected to one input of gate 9 (#9). The other input of #9 is high, via R45 and the output will therefore be low switching ON the SSR via R13. With #9 output low one input of #10 will also be low via R49. The other input of #10 is held high via R48 and its output is, therefore, high.

(C). Regulation (cont).

The high on #10 output lights LD3 via R56 indicating the unit is charging. The LED half of Optocoupler OPT3 is also LIT switching ON the transistor and shorting the sync line via R8 preventing the unit from being flashed.As the HT increases a point will be reached when Pin 6 (-ve) of IC5a becomes more +ve than pin 5. At this point the output on pin 7 will change to LOW switching OFF the SSR via #9. The high on #9 output is also connected to #10 input via D17 and the output of #10 will change LOW switch OFF OPT3 and LD3 and switching ON LD4. The charge LED will, therefore, turn OFF the short will be removed from the sync line (OPT3) and ready light will turn ON (LD4). The charge on C23 prevents short top-up pulses from #9 switching #10 and changing over the charge/ready LED's and producing a bleep from the sounder.

If continuous is selected by switch SW5 the high to low transition from #10 is differentiated by C25/R59 and triggers Mono Stable #'s 11 and 12 to produce a single bleep from the sounder.

The output from #10 is also fed via R58 to control the modelling light (SW5 in INT). (See Section F).The Prolite 120 has two blocks, therefore, the voltage of both capacitor blocks CX & CY are sensed via diodes 24A & B. The extra diode D24B being mounted on PCB5. If the two blocks do not charge at the same rate, the block that reaches therequired HT voltage first will trip the regulator and prevent any further charge on either block. The block with lower HT will quickly charge to the same level by accepting more charge during top-up pulses and through component leakage. If one tube fails to fire the block that is fully discharged will draw far more current during the following top-up pulses and will quickly recharge to the same level as the charged block.

(D). Dump Indicator (EXCESS CHARGE).

If, with full power selected and the unit in ready, the power selected is reduced (resistance of VR2b reduced) the voltage on Pin 3 (+ve) of IC5b will decrease. A point will be reached when the voltage on pin 2 exceeds that on pin 3 and the output will change to LOW. This LOW is connected to one input of #7 and the Gated Astable #'s 7 and 8 will start to oscillate. The output from #8 causes the DUMP LED, (LED2) to flash and the sounder to give a series of bleeps. The HT will now slowly decrease as the main storage capacitors discharge via R63 to a level when pin 3 of IC5b is again more positive then pin 2 when IC5a will again take over control. The excess power stored in the capacitor(s) CX may be dumped quickly by flashing the unit from the Open Flash Switch.

(E). Glow-On-Prevention.

To prevent Glow-on (arc maintained in the flash tube after the flash) the start of the charge after flashing must be delayed till after the flash discharge is complete and the arc through the ionised gas within the flash tube is extinguished.

(E). Glow-On-Prevention (cont.)

With the unit charged and at ready capacitor C21 will charge via R47, D14 to HT. When the flash is fired the ionised flash tube effectively connects the positively charged side of C21 to ground. The charge on C21 turns ON TRANSISTOR Q3 via R47 and Dl3- Q3, therefore, puts a low on one input of both #'s 9 and 10. The high on #9 output prevents the SSR switching on and #10 output turns the ready LED (LED4) OFF, the charge LED (LED3) ON and shorts the sync line via OPT3- When C21 is discharged IC5a takes over and the charge cycle starts. (See Section ii (A)).On the Prolite 120, the glow stop circuit is the same as used on the Prolite60 to 100 with the addition of two extra components C21B and R47B. These extra components are mounted on PCB2 (PCB 3 is not fitted).

(F). Modelling Lamp Controls.

The full wave rectified unsmoothed AC from Bridge rectifier D3 is applied to the LED Half of Optocoupler OPT1. This produces positive going pulses from the transistor half of OPT1 coincident with the positive and negative half cycles of the mains supply. These pulses trigger the gated Mono Stable #'s 1 and 2 to produce a square wave with a duty cycle of length dependent on the setting of VR2a. The trailing edge of this square wave triggers gated Mono Stable #'s 5 and 6 to produce a narrow pulse which is fed to the gate of Q4 via R2l- Q7 the modelling triac is, therefore, switched ON for a part of the mains cycle dependent on the position of variable resistors VR2a.

With Sw2 set to ratio the emitter to OPT1 transistor is grounded via D1/R17 and #3 IP's are held low (output High blocked by diode D2) allowing VR2a to control the brilliance of the modelling lamp in ratio with the flash output. When SW2 is set to centre OFF position the emitter of OPT1 transistor is open circuit preventing Mono Stable #'s 1 and 2 being triggered. Setting SW2 to FULL provides a direct ground return for OPT1 transistor emitter via R17 whilst #3 input is high via R15. The LOW on #3 output shorts out VR2a via diode D2 setting the modelling to full power regardless of the setting of the output control.

With SW5 set to continuous #6 control input is held low and the gated Mono Stable #'s 5 and 6 will operate all the time. The earth is also removed from one input of #12 and the sounder will sound as the unit comes to ready (See section C.). Setting Sw5 to Intermittent removes the permanent earth from #6 and allows the modelling to be controlled by the output of #10 via R58. i.e Modelling ON only when the unit is in ready and #10 output is LOW. The filter C2, C3, C4 and L1 is fitted to prevent noise produced by the modelling lamp circuit in any other than full power from being fed back to the supply.

(G). Trigger/Sync.

The 180 Volt trigger is derived from the HT via isolation resistors R3, 4, 6, 7 and zener diodes D15 and D16. The 180 Volts charges the trigger capacitors C29 via the primary of the trigger transformer T2.

(G) Trigger/Sync (cont).

During the time that the main storage capacitor(s) CX are charging the transistor half of Optocoupler OPT3 is ON shorting out the low voltage Sync line preventing C28 charging and the unit flashing. When the unit comes to ready C28 charges to 15, Volts (ZENER DIODE D16) via R11. If either of the sync sockets SKT1 or JS1 are shorted C28 will discharge into the gate of Triac Q6. Q6 will turn hard ON discharging C29 through the primary of transformer T2 producing a high voltage pulse from the secondary which will initiate the flash.When the open flash switch SW4 is operated C11 which is charged to 12 Volts via R29/32 and D6 will discharge through R31, OPT2 and SW4. On 117V units the transistor half of OPT2 will therefore turn on and discharge C27 into the gate of Q5 which will in turn discharge C28 switching on Q6 and flashing the unit. On 220/240Volt units C27 R10 & Q5 are not fitted while R9 is replaced with a link. In this case OPT2 discharges into C28 turning on Q6 triggering the flash. On the Prolite 120 the sync and trigger Volts are derived from one of theblocks CX. To ensure that the high voltage sync does not fall below the 195Vcombined zener voltage (D15/D16) the supply to the sync/trigger circuit is taken from the pull-up side of diodes D20/21A. A common trigger is taken from transformer T2 secondary to both flash tubes. An extra optocoupler OPT4 is connected across the low voltage sync line, which is controlled by the flash tube failure circuit (see section J).

(H) Photo Cell.

When a flash illuminates the photo cell PH1 the negative pulse produced is amplified and inverted by IC6 and fed to one input of #4. With SW3 open (photo cell OFF) the other input of #4 is held low by R26 preventing pulses from IC6 passing through. When SW3 is closed (photo cell ON) pulses from IC6 are inverted by #4 turning Q1 & Q2 ON flashing the unit via OPT2 (section g). C9,C10,R25 are chosen to ensure that the photo cell only responds to flashes and is not activated by ambient light such as modelling, fluorescent etc.

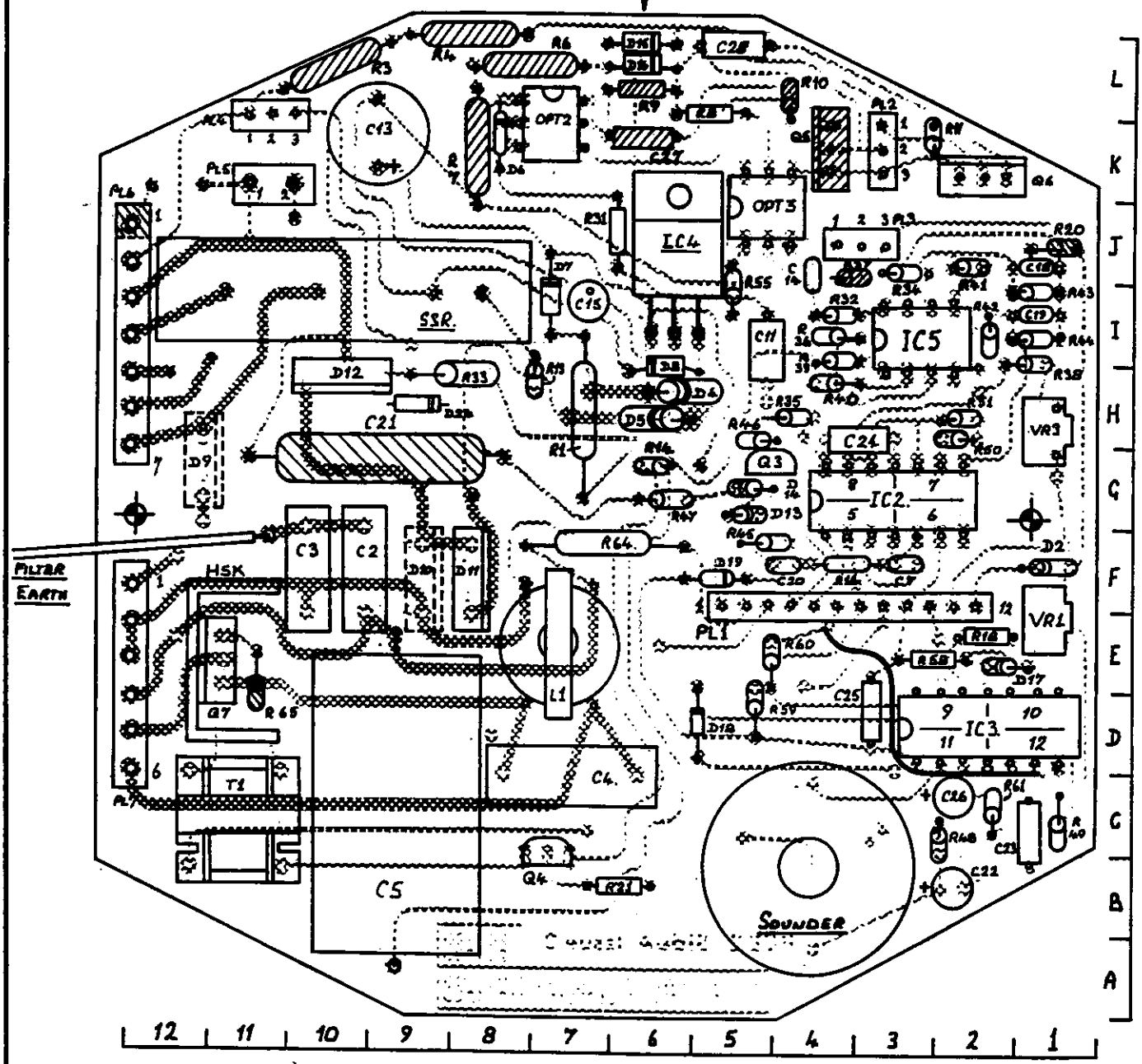
(I) Overheat.

The thermal cutout monitors the temperature of the main storage capacitors CX. If the temperature exceeds 71°C the cutout (CO) will open disconnecting the supply to the unit and lighting the overheat neon N1.

(J). Flash Tube Failure Warning. (Prolite 120 only)

If one of the flash tubes should fail to flash this may not be immediately apparent to the photographer. To overcome this problem, a warning circuit has been included in the Prolite 120. If one flash tube does not fire the imbalance between the two capacitor blocks CX and CY will cause a current flow through R67 and Bridge Rectifier D28. The voltage dropped across D28 is limited to 15 Volts by zener diode D27. With C35 charged to 15 Volts the LED half of Optocoupler OPT4 will light.

R52 ON SIDE 'A' (TRACK SIDE) ACROSS D15 - 117 VOLT UNITS



D11 - 240/250 VOLT SUPPLY

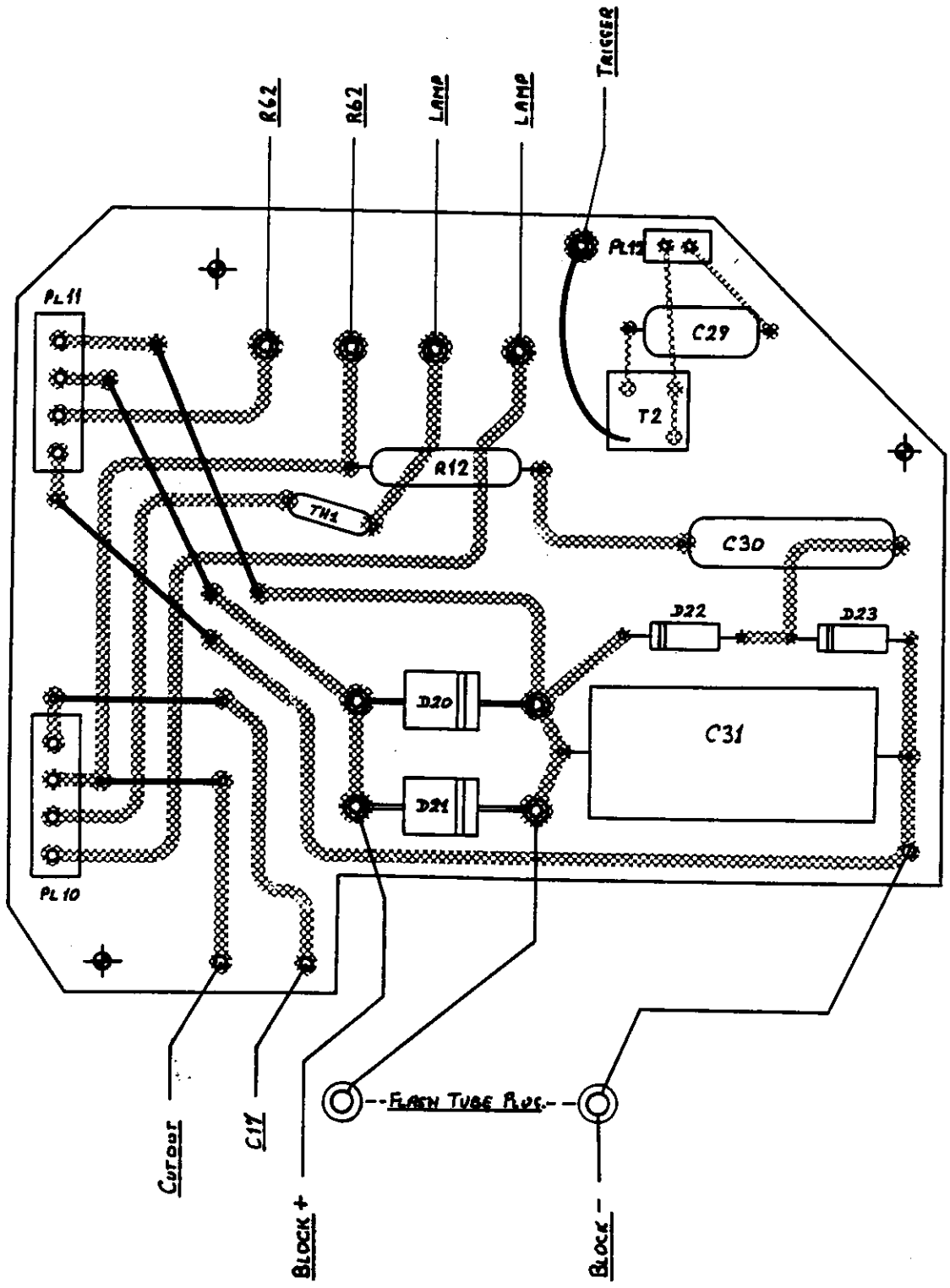
D9 - D10 110 VOLT SUPPLY.

NOT FITTED OR VALUES DIFFER FOR SOME UNITS SEE PARTS LIST

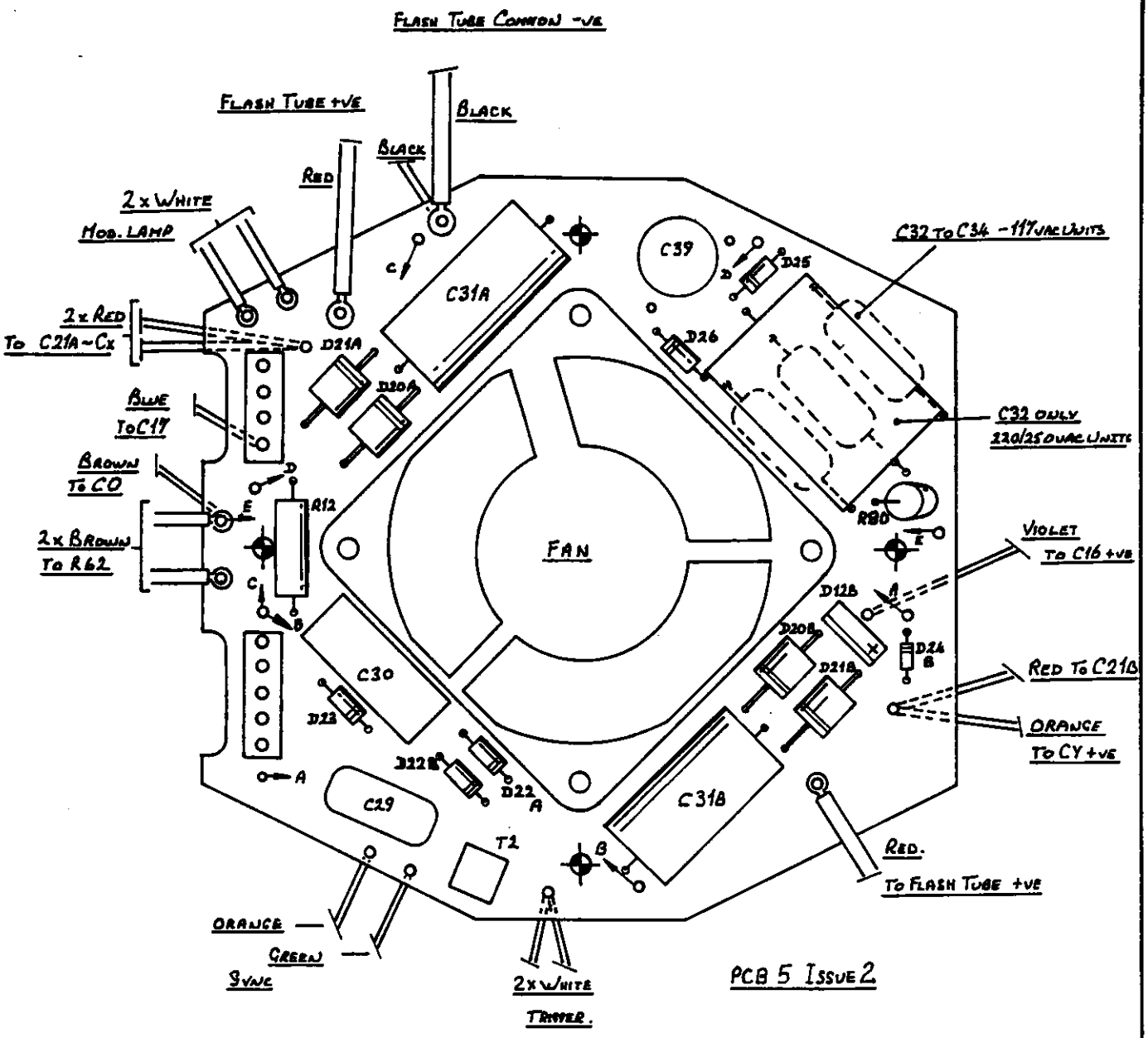
PROLITE 60 - 120

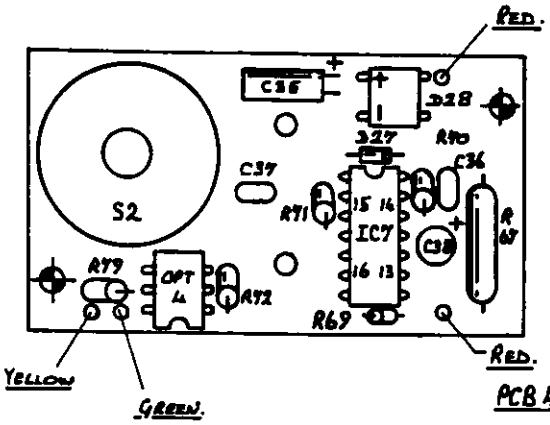
PCB 2 LAYOUT

K.E.W.



PROLITE 60 TO 100
PCB 3 LAYOUT
K.E.W.





PROLITE 120 PCB's 4 AND 5

KEW

NO.	VALUE	DESCRIPTION	CODE	LOCATION
RESISTORS				
R1	10R	2.5Watt W21 W/W Vitreous	RES-088	PCB2, H-7
R2	330k	1/2 Watt Metal Film	RESM-4785	CAPACITORS
R3		*See alternative list*		PCB2, L-10
R4		*See alternative list*		PCB2, L-8
R5	330k	1/2 Watt Metal Film	RESM-4785	CAPACITORS
R6	2M2	1/4Watt M/Glaze	RESG-2885	PCB2, L-7
R7	2M2	1/4Watt M/Glaze	RESG-2885	PCB2, K-8
R8	1k	1/4 Watt H.S. Carbon Film	RESC-2485	PCB2, K-5
R9	10k	1/4 Watt H.S. Carbon Film *See alternative list*	RESC-2605	PCB2, L-6
R10	10R	1/4 Watt H.S.Carbon Film *See alternative list*	RESC-2245	PCB2, L-4
R11	10R	1/4 Watt H.S. Carbon Film	RESC-2245	PCB2, K-2
R12	1k	1 Watt H.S. M/Glaze/Oxide	RESM-5485	PCB3
R13		*See alternative list*		PCB2, H-8
R14	180R	1/4 Watt H.S. Carbon Film	RESC-2395	PCB2, G-6
R15	100k	1/4 Watt H.S. Carbon Film	RESC-2725	PCB1
R16	100k	1/4 Watt H.S. Carbon Film	RESC-2725	PCB2, F-4
R17	56k	1/4 Watt H.S. Carbon Film	RESC-2695	PCB1
R18	56k	1/4 Watt H.S. Carbon Film	RESC-2695	PCB2, E-2
R19		*See alternative list*		PCB1
R20		*See alternative list*		PCB2, J-1
R21	5k6	1/4 Watt H.S. Carbon Film	RESC-2575	PCB2, B-6
R22	56k	1/4 Watt H.S. Carbon Film	RESC-2695	PCB1
R23	1M	1/4 Watt H.S. Carbon Film	RESC-2845	PCB1
R24	330k	1/4 Watt H.S. Carbon Film	RESC-2785	PCB1
R25	330k	1.4 Watt H.S. Carbon Film	RESC-2785	PCB1
R26	10k	1/4 Watt H.S. Carbon Film	RESC-2605	PCB1
R27	10k	1/4 Watt H.S. Carbon Film	RESC-2605	PCB1
R28	100k	1/4 Watt H.S. Carbon Film	RESC-2725	PCB1
R29	100k	1/4 Watt H.S. Carbon Film	RESC-2725	PCB1
R30	100k	1/4 Watt H.S. Carbon Film	RESC-2725	PCB1
R31	3R3	1/4 Watt H.S. Carbon Film	RESC-2185	PCB2, J-6
R32	12k	1/4 Watt H.S. Carbon Film	RESC-2615	PCB2, I-4
R33	330k	1 Watt Vishay	RESM-5785	PCB2, H-8
R34	10k	1/4 Watt H.S. Carbon Film	RESM-2605	PCB2, J-3
R35	680R	1/4 Watt H.S. Carbon Film	RESC-2465	PCB2, H-4
R36	10k	1/4 Watt H.S. Carbon Film	RESC-2605	PCB2, I-4
R37		*See alternative list*		PCB2, J-3
R38	6k8	1/4 Watt H.S. Carbon Film	RESC-2585	PCB2, I-1
R39	10k	1/4 Watt H.S. Carbon Film	RESC-2605	PCB2, I-4
R40	10k	1/4 Watt H.S. Carbon Film	RESC-2605	PCB2, H-4
R41	4M7	1/4 Watt M/Glaze	RESG-2925	PCB2, J-2
R42	4M7	1/4 Watt M/Glaze	RESG-2925	PCB2, J-2
R43	56k	1/4 Watt H.S. Carbon Film	RESC-2695	PCB2, I-1
R44	470k	1/4 Watt H.S. Carbon Film	RESC-2805	PCB2, I-1

NO.	VALUE	DESCRIPTION	CODE	LOCATION
RESISTORS				
R45	56k	1/4 Watt H.S. Carbon Film	RESC-2695	PCB2, F-4
R46	3k9	1/4 Watt H.S. Carbon Film	RESM-4695	PCB2, H-5
R47	56k	1/2 Watt Metal Film	RESC-2845	PCB2, G-6
R48	1M	1/4 Watt H.S. Carbon Film	RESC-2845	PCB2, C-2
R49	2M2	1/4 Watt M/Glaze	RESG-2885	PCB2, C-1
R50	2M2	1/4 Watt M/Glaze	RESG-2885	PCB2, H-2
R51	2M2	1/4 Watt M/Glaze	RESG-2885	PCB2, H-2
R52	10M	1/4 Watt M/Glaze*See alternative list*	RESG-2965	PCB2, ACROSS D15
R53		*Not allocated*		
R54	5k6	1/4 Watt H.S. Carbon	RESC-2575	PCB1
R55	5k6	1/4 Watt H.S. Carbon	RESC-2575	PCB2, I-5
R56	3k3	1/4 Watt H.S. Carbon	RESC-2545	PCB1
R57	3k3	1/4 Watt H.S. Carbon	RESC-2545	PCB1
R58	100k	1/4 Watt H.S. Carbon	RESC-2725	PCB2, E-3
R59	1M	1/4 Watt H.S. Carbon	RESC-2845	PCB2, D-5
R60	100k	1/4 Watt H.S. Carbon	RESC-2725	PCB2, E-5
R61	100k	1/4 Watt H.S. Carbon	RESC-2725	PCB2, C-2
R62	2R2	HSA 50 50 Watt Wirewound	RES-065	CHASSIS
R63	100k	2 Watt M/Glaze/Oxide	RESM-6725	CX
R64	180k	1 Watt M/Glaze/Oxide	RESM-5755	PCB2, F-7
R65		*See alternative list*		PCB2, D-11
R66	120k	1/4 Watt H.S. Carbon	RESC-2735	VR2b
VR1	100k	Trim Pot Vert	POT-110	PCB2, E-1
VR2	100k	Variable Resistor Twin	POT-127	PANEL
VR3	2k2	Trim Pot Vert	POT-026	PCB2, H-1

NO.	VALUE	DESCRIPTION	CODE	LOCATION
CAPACITORS				
CX/CY		*See alternative list*		CHASSIS
C2	1500pF	250V	CPPA-010	PCB2, F-10
C3	1500pF	250V	CPPA-010	PCB2, F-10
C4	15nF	250V AC x 2	CPPE-013	PCB2, C-7
C5	2.2mfd	250V AC x 2	CPPE-147	PCB2, C-9
C6	100nF	100V Layer	CPPE-035	PCB1
C7	2n2	Monolithic Ceramic	CPCE-015	PCB2, F-3
C8	220mfd	16Volt Radial Electrolytic	CPEL-077	PCB1
C9	n47	Monolithic Ceramic	CPCE-005	PCB1
C10	220nF	Monolithic Ceramic	CPCE-045	PCB1
C11	220nF	100V Layer	CPPE-075	PCB2, I-5
C12		*Not allocated*		
C13	1000mfd	25V Radial Electrolytic	CPEL-123	PCB2, K-9
C14	47nF	Monolithic Ceramic	CPCE-035	PCB2, J-4
C15	22mfd	25V Radial Electrolytic	CPEL-050	PCB2, I-7
C16		*See alternative list*		
C17		*See alternative list*		
C18	10nF	Monolithic Ceramic	CPCE-020	PCB2, J-1
C19	47nF	Monolithic Ceramic	CPCE-035	PCB2, I-1
C20	2n2	Monolithic Ceramic	CPCE-015	PCB2, F-4
C21		*See alternative list*		PCB2, G-9
C22	2.2mfd	50V Radial Electrolytic	CPEL-020	PCB2, C-2
C23	100nF	100V Layer	CPPE-035	PCB2, C-1
C24	100nF	100V Layer	CPPE-035	PCB2, H-4
C25	100nF	Layer	CPPE-035	PCB2, D-3
C26	2.2mfd	50V Radial Electrolytic	CPEL-020	PCB2, C-2
C27	100nF	100V Layer *See alternative list*	CPPE-035	PCB2, K-6
C28	100nF	100V Layer	CPPE-055	PCB2, L-5
C29	100nF	PMT2R 400V	CPPE-071	PCB3
C30	220nF	250V AC	CPPE-090	PCB3
C31	220nF	100V	CPPP-007	PCB3
DIODES				
D1	1N4148	Silicon Diode	SCD-171	PCB1
D2	1N4148	Silicon Diode	SCD-171	PCB2, F-1

NO.	VALUE	DESCRIPTION	CODE	LOCATION
DIODES (cont)				
D3	DIL Bridge	PC40	SCB-010	PCB1
D4	1N5347B	10V 5 Watt Zener	SCD-135	PCB2, H-5
D5	1N5347B	10V 5 Watt Zener	SCD-135	PCB2, H-6
D6	1N4148	Silicon Diode	SCD-171	PCB2, K-8
D7	1N4006	Silicon Diode	SCD-165	PCB2, I-7
D8	1N4006	Silicon Diode	SCD-165	PCB2, I-6
D9	DSA12D	*See alternative list*	SCD-195	PCB2, G-12
D10	DSA12D	*See alternative list*	SCD-195	PCB2, F-9
D11	DSA12D	*See alternative list*	SCD-195	PCB2, F-8
D12	DSA12D		SCD-195	PCB2, H-10
D13	1N4006	Silicon Diode	SCD-165	PCB2, G-5
D14	1N4006	Silicon Diode	SCD-165	PCB2, G-5
D15		180V 1.3 Watt Zener	SCD-134	PCB2, L-6
D16		15V 1.3Watt Zener	SCD-100	PCB2, L-6
D17	1N4148	Silicon Diode	SCD-171	PCB2, E-2
D18	1N4148	Silicon Diode	SCD-171	PCB2, D-5
D19	1N4148	Silicon Diode	SCD-171	PCB2, F-5
D20	P600K	Silicon Diode	SCD-270	PCB3
D21	P600K	Silicon Diode	SCD-270	PCB3
D22	1N4006	Silicon Diode	SCD-165	PCB3
D23	1N4006	Silicon Diode	SCD-165	PCB3
D24	1N4006	Silicon Diode	SCD-165	PCB2, H-9
LIGHT EMITTING DIODES				
LD2		LED Red 3mm HLMP1700	SCO-047	PCB1 CONTROL PANEL
LD3		LED Yellow 3mm HLMP1719	SCO-050	PCB1
LD4		LED Green 3mm HLMP1790	SCO-052	PCB1
PHOTO CELL				
PH1	VTP100	Photo Cell	SCO-025	PCB1
INTEGRATED CIRCUITS				
IC1	CD4011	QUAD 2 I/P Nand	SCI-010	PCB1
IC2	CD4001	QUAD 2 I/P Nor	SCI-005	PCB2, G-3
IC3	CD4011	QUAD 2 I/P Nand	SCI-010	PCB2, D-2
IC4	LM340T12	12 Volt Regulator	SCI-080	PCB2, J-6
IC5	LM393N	Dual Comparator	SCI-065	PCB2, I-3
IC6	CA314OE	OP. Amp	SCI-060	PCB1
OPT1	4N36	Opto Isolator	SCO-010	PCB1
OPT2	4N32	Opto Isolator (remove pin 6 close to body)	SCO-120	PCB2, K-7
OPT3	4N36	Opto Isolator	SCO-010	PCB2, J-4
SOLID STATE DEVICES				
Q1	ZTX500	PNP Transistor	SCT-070	PCB1
Q2	ZTX300	NPN Transistor	SCT-065	PCB1
Q3	ZTX300	NPN Transistor	SCT-065	PCB2, G-4

NO.	VALUE	DESCRIPTION	CODE	LOCATION
SOLID STATE DEVICES (cont)				
Q4	ZTX300	NPN Transistor	SCT-065	PCB2, C-7
Q5	BTA10-400B	Triac *See alternative list*	SCTC-015	PCB2, K-4
Q6	BTA10-400B	Triac	SCTC-015	PCB2, K-2
Q7	BTA10-400B	Triac	SCTC-015	PCB2, E-11
SSR		Solid State Relay type CX240D5	REL-095	PCB2, I-9
SWITCHES				
SW1		2 pole ON/OFF Rocker Switch 117V units	SWI-296	PANEL
SW1		2 pole ON/OFF Rocker Switch 240V units	SWI-295	PANEL
SW2		1 Pole 2 way Centre OFF Miniature Rocker Switch	SWI-297	PCB1
SW3		1 Pole ON/OFF Miniature Rocker Switch Red Bar	SWI-294	PCB1
SW4		1 Pole Biased OFF Miniature Rocker Switch	SWI-298	PCB1
SW5		1 Pole ON/OFF Miniature Rocker Switch	SWI-293	PCB1
INDUCTORS				
L1		Toroidal Choke	IND-015	PCB2, E-7
T1		Pulse Transformer 1:1 PT4	TRF-115	PCB2, C-11
T2		Trigger transformer	TRF-165	PCB3
CONNECTORS				
PL1		12 way .1" PCB Connector (PCB2-RC1-PCB1)	PLG-215	PCB2, F-4
PL2		3 way .1" PCB Connector (PCB1-PCB3/PANEL)	PLG-156	PCB2, K-3
PL3		3 way .1" PCB Connector (PCB1-Output control)	PLG-156	PCB2, J-3
PL4		3 way .1" PCB Connector (PCB1-Battery Socket)	PLG-156	PCB2, K-11
PL5		2 way .156" PCB Connector (PCB1-Battery SKT)	PLG-152	PCB2, J-11
PL6		6 way .156" PCB Connector (PCB1-RC3-PCB3) (Prolite 60/82/100)	PLG-200	PCB2, I-12
PL7		6 way .156" PCB Connector (PCB1-RC2RC3-PCB3)	PLG-200	PCB2, D-12
PL8		12 way .1" PCB Connector (PCB2-RC1-PCB1)	PLG-215	PCB1
PL9		2 way .1" PCB Connector (PCB1-Dump LED)	PLG-151	PCB1
PL10		4 way .156" PCB Connector (PCB3-RC2-PCB2)	PLG-162	PCB3
PL11		4 way .156" PCB Connector (PCB3-RC3-PCB2)	PLG-162	PCB3
PL12		2 way PCB Connector (PCB3-PCB1/PANEL)	PLG-151	PCB3

NO.	VALUE	DESCRIPTION	CODE	LOCATION
PL13		Mains Fixed Plug	CON-050	Panel
SKT1		3PBF Jap Synchro Skt (117V Units only)	SKT-057	Chassis
SKT2		10 Way Battery Socket Fixed	SKT-065	Panel
SKT3,4,5		14 Way I/C Socket x 3	SKT-045	PCB1 and PCB2
SKT6		8 Way I/C Socket	SKT-040	PCB2
SKT7,8		6 Way I/C Socket x 2 for 240V, x 1 for 117V	SKT-035	PCB2
JS1		1/4" Jack Socket - 2 Pole	SKT-020	Chassis
RC2		4 way Ribbon	CON-105	PCB2 to PCB3
RC3		6 - 4 Way Ribbon	CON-090	PCB2 to PCB3 and C16
RC1		12 Way Ribbon	CON-085	PCB1 to PCB2

MISCELLANEOUS

HSK		TV - 58 Heatsink	HSK-005	PCB2
FT		Flash Tube - See alternative list		Reflector
S1		Sound Type SM4B	SOU-005	PCB2, B-4
TH1		Thermistor Type SP010	TDR-010	PCB3
F		Fuse Holder 20mm	FUH-015	Chassis
F		Fuse 5amp 20mm Cartridge Fuse	FUS-030	Chassis
C.O.		71°C Cutout	SW1-410	Chassis
N1		Neon Red Panel	LAM-030	Panel
VDR		Voltage Dependent Resistor Type 240V	VDR-015	Chassis
VDR		Voltage Dependent Resistor Type 130V	VDR-005	Chassis
LH		E26 Lamp Holder	LAMH-036	Chassis
PCB1		PCB1 (Raw)	PC0 6285	
PCB2		PCB2 (Raw)	PC0 6290	
PCB3		PCB3 (Raw)	PC0 6295	
PCB4		PCB4 (Raw)	PC0 6300	
PCB5		PCB5 (Raw)	PC0 6305	
PCB1		(Complete) Prolite 60 - 82 - 100	PP0 7285	
PCB1		(Complete) Prolite 120 (117V)	PP0 7292	
PCB1		(Complete) Prolite 120 (240V)	PP0 7287	
PCB2		(Complete) Prolite 60 (117V)	PP0 7504	
PCB2		(Complete) Prolite 60 (240V)	PP0 7500	
PCB2		(Complete) Prolite 82 (117V)	PP0 7505	
PCB2		(Complete) Prolite 82 (240V)	PP0 7501	
PCB2		(Complete) Prolite 100 (117V)	PP0 7506	
PCB2		(Complete) Prolite 100 (240V)	PP0 7502	
PCB2		(Complete) Prolite 120 (117V)	PP0 7507	
PCB2		(Complete) Prolite 120 (240V)	PP0 7503	
PCB3		(Complete) Prolite 60 - 82 - 100	PP0 7297	
PCB4		(Complete) Prolite 120	PP0 7300	
PCB5		(Complete) Prolite 120	PP0 7305	

ALTERNATIVE PARTS LIST FOR PROLITE 120

NO.	VALUE	DESCRIPTION	CODE	LOCATION
RESISTORS				
R12	1k	1Watt M/Glaze/Oxide	RESM-5485	PCB5
R13		*See alternative list.*	RESC-2515	PCB2, H -8
R20 *Not fitted*				
R37	4k7	1/4 Watt H.S.	RESC-2565	PCB2, J-3
R67	47k	2 Watt H.S.	RESM-6685	PCB4
R68 *Not fitted*				
R69	1M	1/8 Watt H.S.	RESC-1845	PCB4
R70	1M	1/4 Watt H.S.	RESC-2845	PCB4
R71	1M	1/4 Watt H.S.	RESC-2845	PCB4
R72	10k	1/4 Watt H.S.	RESC-2605	PCB4
R73	100k	2 Watt H.S.	RESM-6725	CAP'S
R74	100k	2 Watt H.S.	RESM-6725	CAP'S
R75	100k	2 Watt H.S.	RESM-6725	CAP'S
R76	100k	2 Watt H.S.	RESM-6725	CAP'S
R77	100k	2 Watt H.S.	RESM-6725	CAP'S
R78	100k	2 Watt H.S.	RESM-6725	CAP'S
R79	1k	1/4 Watt H.S.	RESC-2485	PCB4
R80	10R	2.5 Watt W21 Wirewound	RES-088	PCB5
CAPACITORS				
CX1	2100mfd	400V Bowens type AC	CPBW-AC	CHASSIS
CX2	2100mfd	400V Bowens type AC	CPBW-AC	CHASSIS
CX3	2100mfd	400V Bowens type AC	CPBW-AC	CHASSIS
CY1	2100mfd	400V Bowens type AC	CPBW-AC	CHASSIS
CY2	2100mfd	400V Bowens type AC	CPBW-AC	CHASSIS
CY3	2100mfd	400V Bowens type AC	CPBW-AC	CHASSIS
C16A/B	100mfd	250V Bowens type FF	CPBW-FF	CHASSIS
C17A/B	100mfd	250V Bowens type FF	CPBW-FF	CHASSIS
C21b	470nF	Bowens type FF	CPPE-131	PCB2 K-12
C29	0.1mfd	400V B32522-A6104K	CPPE-071	PCB5
C30	0.22mfd	250V ACX2	CPPE-090	PCB5
C31a	220n	1000VDC AX P/Prop	CPPP-007	PCB5
C31b	220n	1000VDC AX P/Prop	CPPP-007	PCB5
C32	3.3mfd	250V AC (220/240V AC supply)	CPPE-150	PCB5
C32-34	2.2mfd	250V AC (117V AC supply)	CPPE-147	PCB5
C35	22mfd	25V Electrolytic Cap. Radial	CPEL-050	PCB4
C36	4.7mfd	16V Tantalum capacitor	CPTT-015	PCB4
C37	47nf	Monolithic Ceramic	CPCE-030	PCB4
C38	10mfd	16V Electrolytic Cap. Radial	CPEL-035	PCB4
C39	220mfd	16V Electrolytic Cap. Radial	CPEL-077	PCB5
C40	0.47nF	Monolithic Capacitor (Pin 6 & 7 on IC5 - on the track side)	CPCE-005	117V only PCB2 *

* Connect across Pin 6 and Pin 7 on IC5 on side A (track side)

ALTERNATIVE PARTS LIST FOR PROLITE 120

NO.	VALUE	DESCRIPTION	CODE	LOCATION
DIODES				
D12A	DSA1-12D	Silicon power diode	SCD-195	PCB2 H-10
D12B	DSA1-12D	Silicon power diode	SCD-195	PCB5
D20A/B	P600K	Silicon power diode	SCD-270	PCB5
D21A/B	P600K	Silicon power diode	SCD-270	PCB5
D22a	1N4006	Silicon diode	SCD-165	PCB5
D22b	1N4006	Silicon diode	SCD-165	PCB5
D23	1N4006	Silicon diode	SCD-165	PCB5
D24A	1N4006	Silicon diode	SCD-165	PCB2 H-9
D24B	1N4006	Silicon diode	SCD-165	PCB5
D25		15V 1.3Watt zener diode	SCD-100	PCB5
D26	1N4006	Silicon diode	SCD-165	PCB5
D27		15V 1.3Watt zener diode	SCD-100	PCB4
D28	PL60	DIL bridge	SCB-015	PCB4
INTEGRATED CIRCUITS				
OPT4	4N36	Opto isolator	SCO-010	PCB4
IC7	CD4001	Quad Two I/P Nor	SCI-005	PCB4
MISCELLANEOUS				
S2		Sounder Type SM4B	SOU-005	PCB4
FTA/B		QTY 2 X 1/2 Circle flash tube (Flash Tube Assembly) See alternative list		Reflector
F		Fan 12VDC	FAN-003	PCB5
RC2		4 Way Ribbon Cable	CON-125	PCB2 to PCB5
RC3		7/5 Way Ribbon Cable	CON-130	PCB2 to PCB5 and C16
LH		Prolite 120 (117 or 240V) Lamp Holder	LAMH-015	Chassis
PL6		7 Way 0.156" PCB connector	PLG-205	PCB2, I-12

PRO 60-82-100-120 ALTERNATIVE PARTS LIST

EQUIPMENT	PRO 60	PRO 60	PRO 82	PRO 82	PRO 100	PRO 100	PRO 120	PRO 120
VOLTAGE	110V	220V	110V	220V	110V	220V	110V	220V
C21	680nF 400V CPPE-135	680nF 400V CPPE-135	680nF 400V CPPE-135	680nF 400V CPPE-135	1000nF 400V CPPE-143	1000nF 400V CPPE-143	1000nF 400V CPPE-143	1000nF 400V CPPE-143
C27	FIT	N/F	FIT	N/T	FIT	N/F	FIT	N/F
D9	FIT	N/F	FIT	N/F	FIT	N/F	FIT	N/F
D10	FIT	N/F	FIT	N/F	FIT	N/F	FIT	N/F
D11	N/F	FIT	N/F	FIT	N/F	FIT	N/F	FIT
R3	470K 1/2W RESM-4805	2M2 1/4W RESG-2885	470K 1/2W RESM-4805	2M2 1/4W RESG-2885	470K 1/2W RESM-4805	2M2 1/4W RESG-2885	470K 1/2W RESM-4805	2M2 1/4W RESG-2885
R4	470K 1/2W RESM-4805	2M2 1/4W RESG-2885	470K 1/2W RESM-4805	2M2 1/4W RESG-2885	470K 1/2W RESM-4805	2M2 1/4W RESG-2885	470K 1/2W RESM-4805	2M2 1/4W RESG-2885
R9	FIT	N/F LINK	FIT	N/F LINK	FIT	N/F LINK	FIT	N/F LINK
R10	FIT	N/F	FIT	N/F	FIT	N/F	FIT	N/F
R19	330K 1/4W RESC-2785	330K 1/4W RESC-2785	330K 1/4W RESC-2785	330K 1/4W RESC-2785	330K 1/4W RESC-2785	330K 1/4W RESC-2785	330K 1/4W RESC-2785	560K 1/4W RESC-2815

PRO 60-82-100-120 ALTERNATIVE PARTS LIST

EQUIPMENT	PRO 60	PRO 60	PRO 82	PRO 82	PRO 100	PRO 100	PRO 120	PRO 120
R20	330K 1/4W RESC-2785	560K 1/4W RESC-2815	330K 1/4W RESC-2785	N/F	560K 1/4W RESC-2815	N/F	N/F	N/F
R37	12K 1/4W RESC-2615	12K 1/4W RESC-2615	6K8 1/4W RESC-2585	6K8 1/4W RESC-2585	6K8 1/4W RESC-2585	6K8 1/4W RESC-2585	4K7 1/4W RESC-2565	4K7 1/4W RESC-2565
R65	47R 1/4W RESC-2325	47R 1/4W RESC-2325	47R 1/4W RESC-2325	47R 1/4W RESC-2325	47R 1/4W RESC-2325	47R 1/4W RESC-2325	22R 1/4W RESC-2285	22R 1/4W RESC-2285
Q5	FIT	N/F	FIT	N/F	FIT	N/F	FIT	N/F
R52	FIT	N/F	FIT	N/F	FIT	N/F	FIT	N/F

R13 1K8 1/4W } (RESC-2515) When using Crydom CX24-OD5 Solid State Relay

R13 2K7 1/4W } (RESC-2535) When using other types of Solid State Relay on .

R13 2K2 1/4W } (RESC-2525) When using other types of Solid State Relay on Prolite 120.

FIT = FITTED

N/F =NOT FITTED

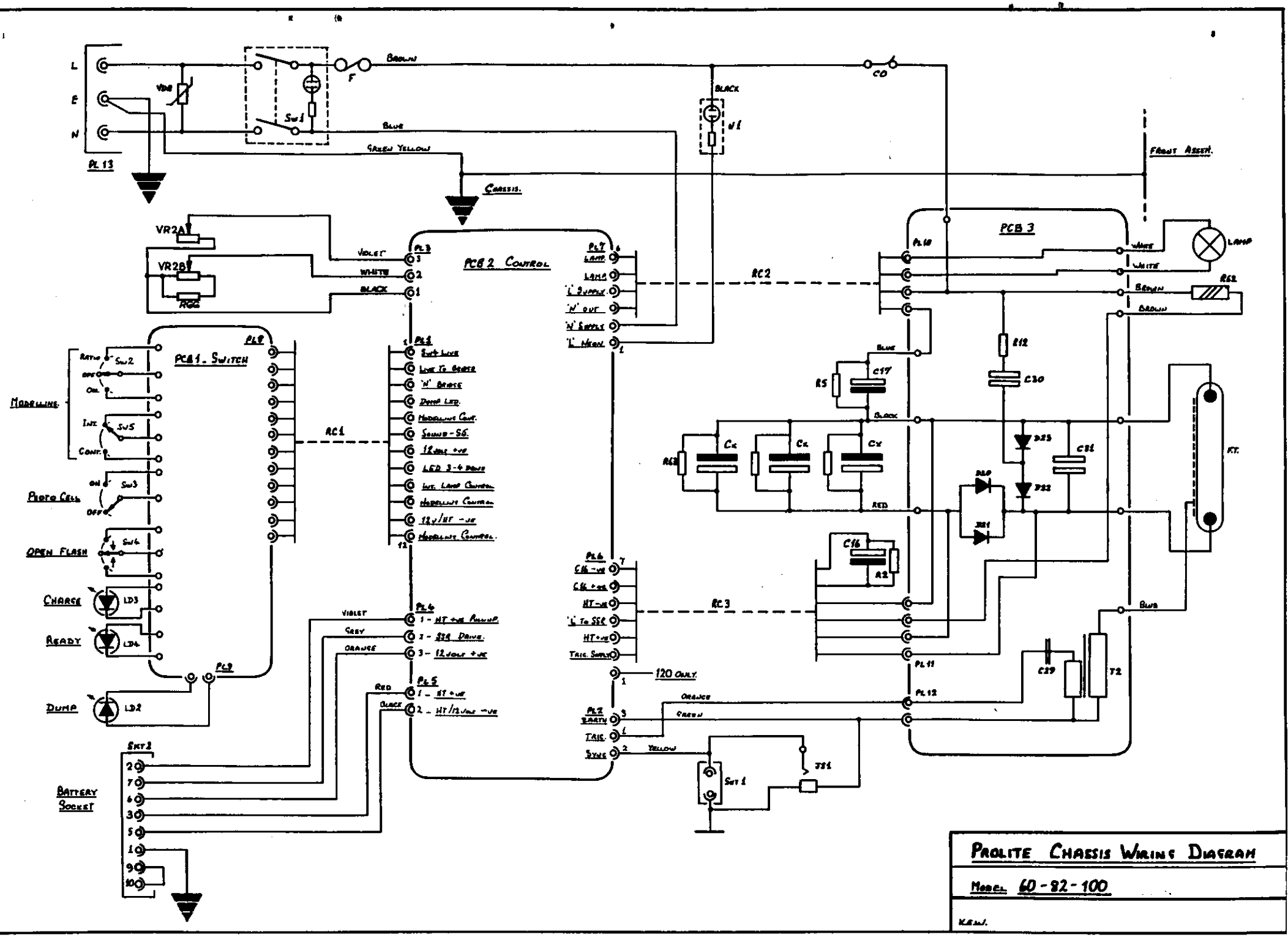
PRO 60-82-100-120 ALTERNATIVE PARTS LIST

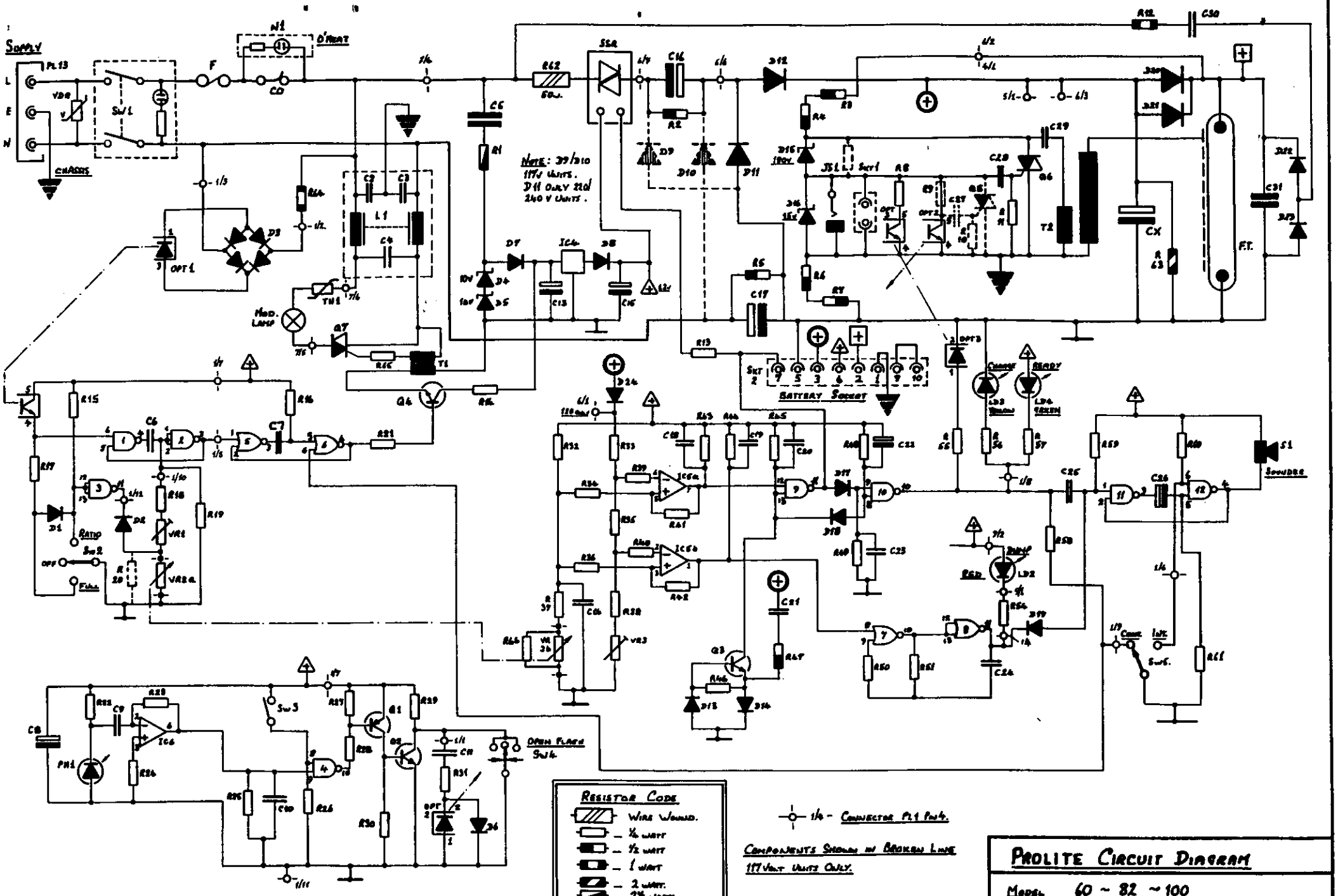
Capacitors

Equipment	Doubler(C16,C17)		Main Storage (CX)		
	Value	Code No.	Value	Code	QTY
Prolite 60	70mfd/250V	CPBW-'DB'	1600mfd/400V	CPBW-AB	2
Prolite 82	100mfd/250V	CPBW-'FF'	2,100mfd/400V	CPBW-AC	3
Prolite 100	160mfd/250V	CPBW-'DC'	3200mfd/400V	CPBW-Y	3
Prolite 120	100mfd/250V	CPBW-'FF'	2100mfd/400V	CPBW-AC	6

Flash tubes

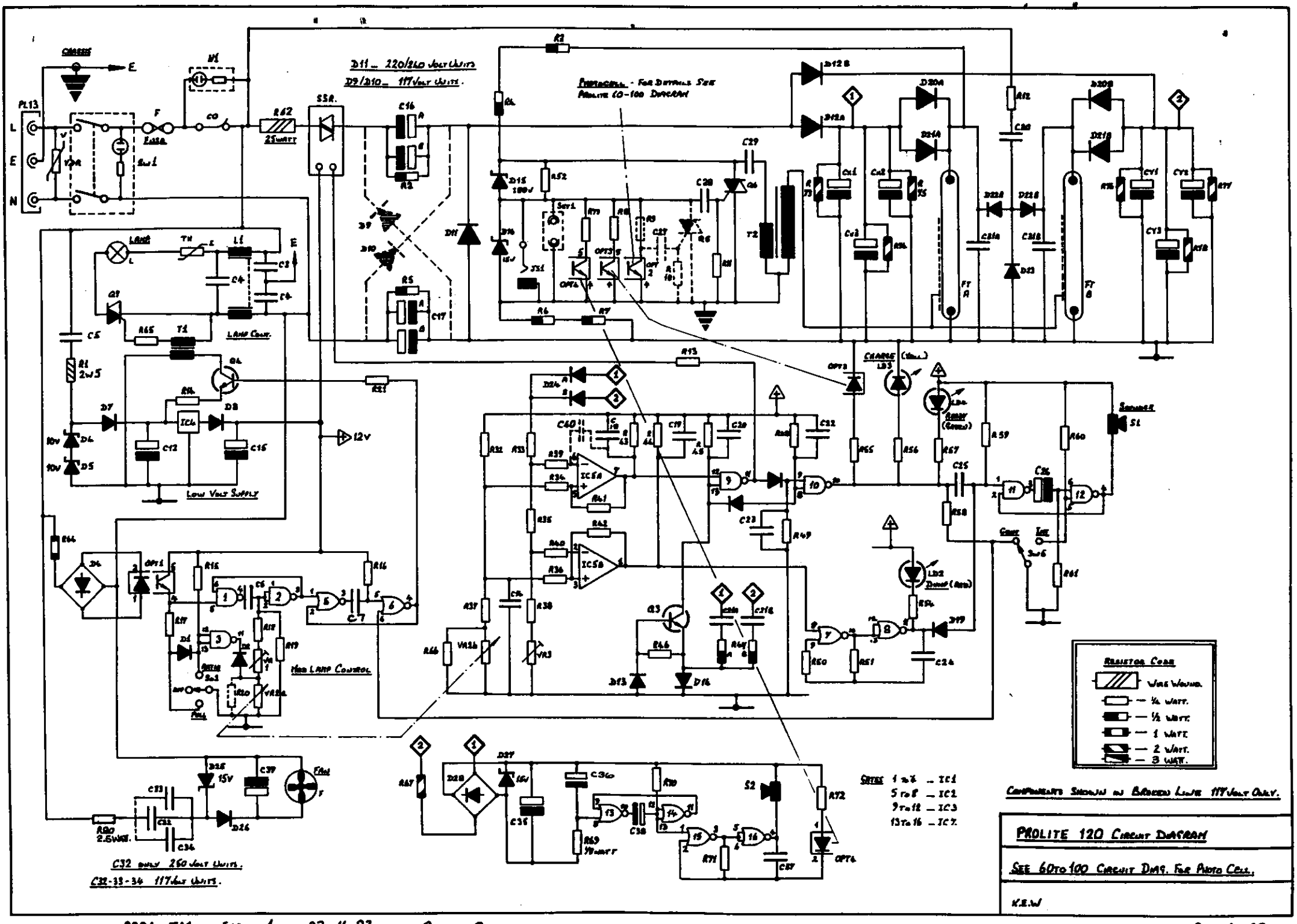
Equipment	Flash Tube Assembly	Unmounted Flash Tube
Prolite 60 - 82	BW-1026	Code: FLT-155
Prolite 100	BW-1089	Code: FLT-156
Prolite 120	BW-1090	Code: FLT-053 x 2


PROLITE CHASSIS WIRING DIAGRAM
MODEL 60-82-100
PCB 1 - SWITCH
PCB 2 CONTROL
PCB 3
FRONT ASSEM.
CHASSIS.
BATTERY SOCKET
MORELINE
PHOTO CELL
OPEN FLASH
CHARGE
READY
DUMP
120 ONLY
RC1
RC2
RC3

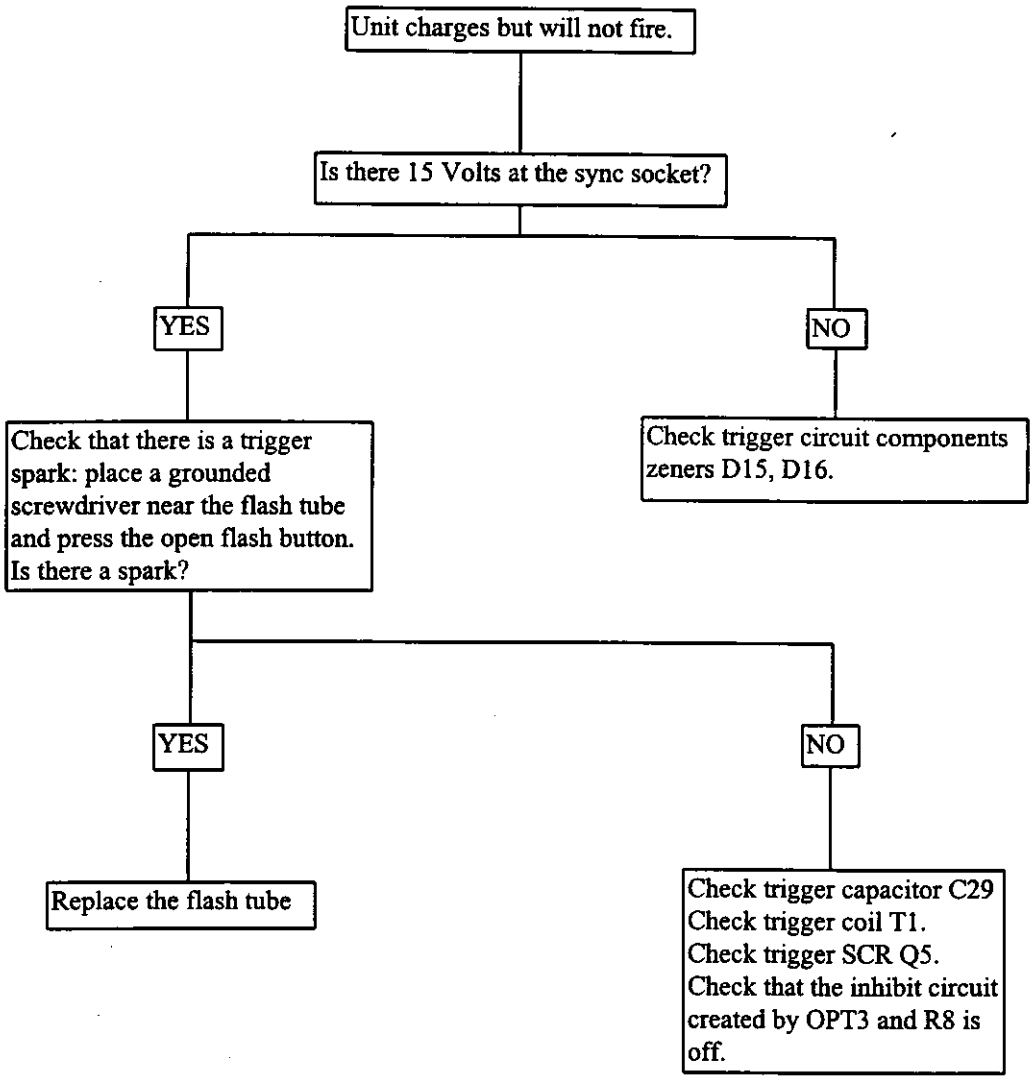


PROLITE CIRCUIT DIAGRAM

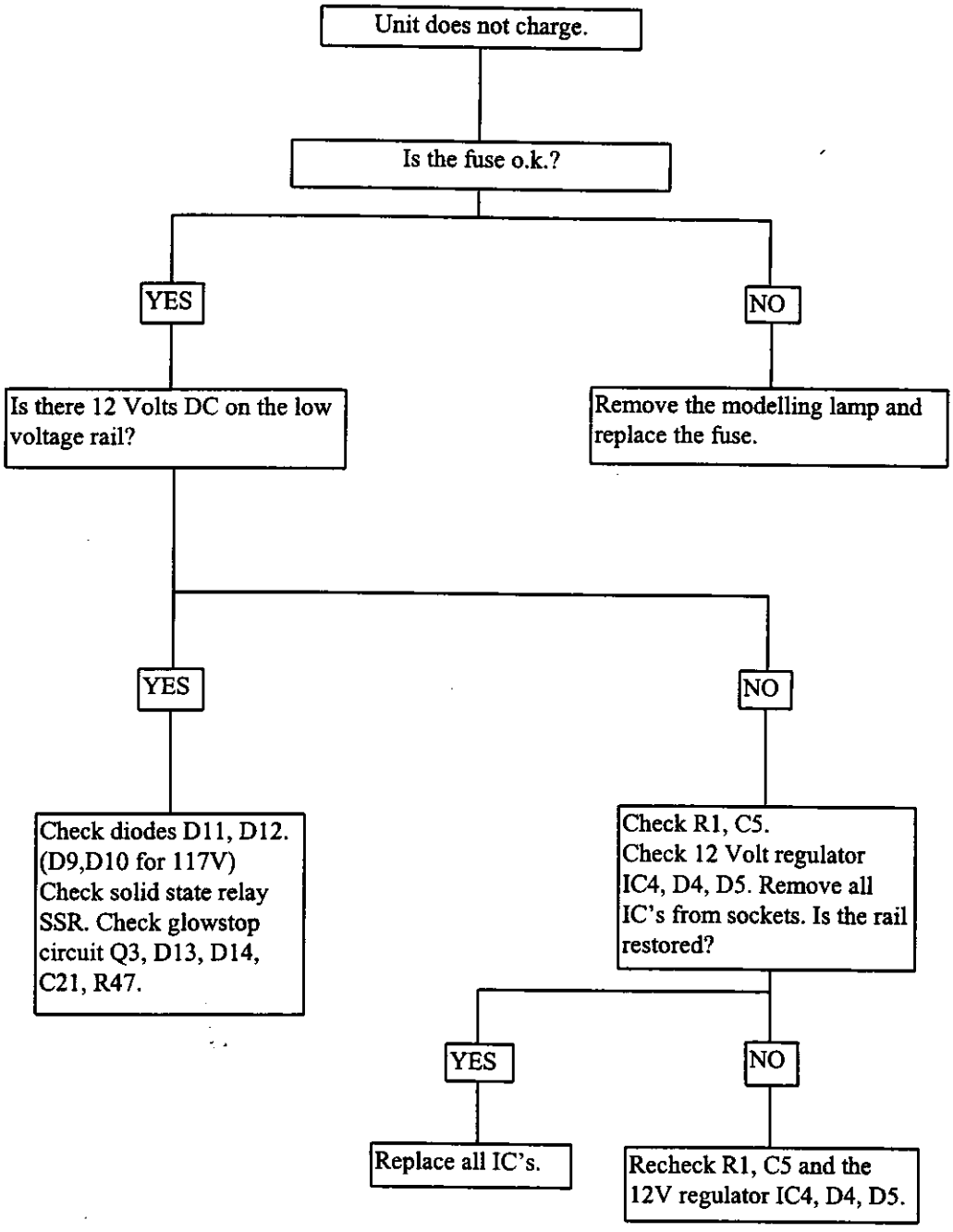
MODEL 60 ~ 82 ~ 100


D11 — 220/240 Volt Units
D9/D10 — 117 Volt Units.
Protection - For Details See Prolite 60-100 Diagram
Low Volt Supply
Lamp Control
Mon Lamp Control
Charge
Low
Resistor Code
Wire Wound.
¼ Watt.
½ Watt.
1 Watt.
2 Watt.
3 Watt.
Components Shown in Battery Line 117 Volt Only.
C32 only 250 Volt Units.
C32-33-34 117 Volt Units.
Prolite 120 Circuit Diagram
See 60 to 100 Circuit Diag. for Photo Cell.
K.E.W.

Fault Finding Chart.



Fault Finding Chart.



Note: Always check that the power capacitor voltage is correct (385V DC MAX.) and check the value of the sense resistor R33 is correct. Replace R33 only with the approved resistor.

PROLITE TECHNICAL DATA

PROLITE MECHANICAL PARTS LIST

See diagrams on following pages to identify components.

When ordering parts for the Prolite please quote the part number equipment for which the part is required and operating voltage of the unit.

PRO-01	100	240
↓	↓	↓
Part No.	Prolite 100	Voltage

PROLITE MECHANICAL PARTS LIST

NUMBER ON DIAGRAM	DESCRIPTION	PART NUMBER
PRO-01	Reflector stop pin	00663
PRO-02	Reflector retaining ring	00662
PRO-03	Reflector retaining ring spacer	00666/3
PRO-04	Top hat / reflector	00661
PRO-05	Front octagon	00654/8
PRO-06	Rear octagon pair complete	01829-1
PRO-07	Reflector latch bolt	00658
PRO-08	Reflector latch knob	00659
PRO-09	Reflector latch spring	04510
PRO-10	Block spacer	**60**-010401 **82/120**-00779/1 **100**- 00764/1
PRO-11	Block retaining moulding front	05480
PRO-12	Block retaining moulding rear	05480
PRO-13	Bracket rear upper	00806/1
PRO-14	Control panel moulding complete with label	**60-120**-BM05475 **41-41A**-BM05470
PRO-15	Bezel moulding	05111
PRO-16	Handle moulding	05135
PRO-17	Photocell cover	05005
PRO-18	Printed circuit board spacer	05495
PRO-19	Battery socket earth tag	00975
PRO-20	Bracket rear lower	00807/1
PRO-21	Flash tube plug spacer	00675
PRO-22	Front printed circuit board spacer	00722/1
PRO-23	Flash tube plug assembly spacer	00753/2
PRO24	Flash tube plug assembly insulation tube	00678/2
PRO-25	Front octagon complete	**60**-02534 **82**-02535 **100**-01882
PRO-26	Flashtube plug assembly front plate	00673/4
PRO-27	Flash tube plug	PLG-170
PRO-28	Flash tube plug assembly rear plate	00751/4
PRO-30	Cover left hand	**41**-00820/4 **41A**-00818/4 **60**-01037 **82**-00978 **100**-01044 **120**-00775/2
PRO-31	Cover right hand	**41**-00819/4 **41A**-00817/4 **60**-01036 **82**-00977 **100**-01043 **120**-00774/2

PROLITE MECHANICAL PARTS LIST

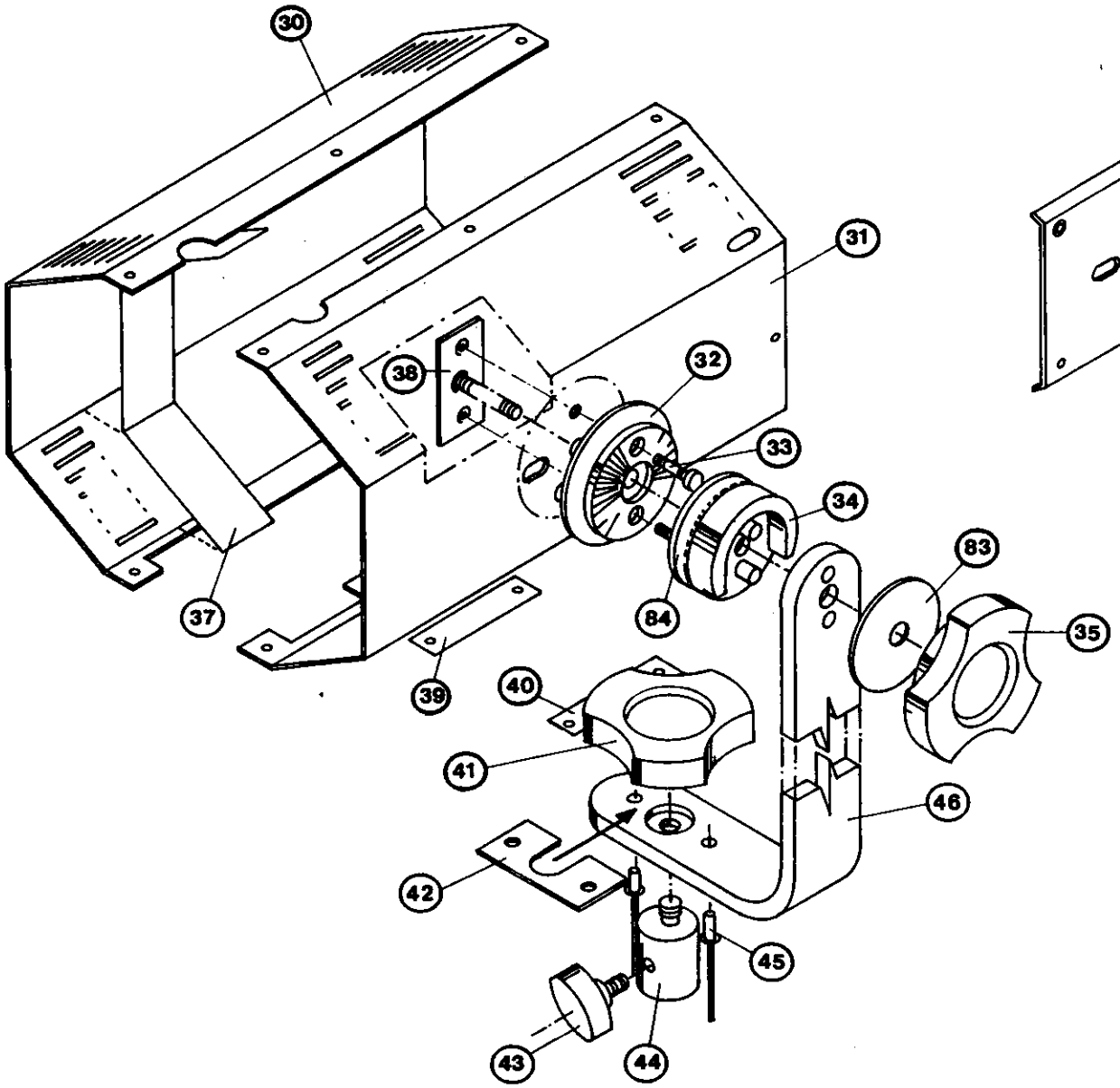
NUMBER ON DIAGRAM	DESCRIPTION	PART NUMBER
PRO-32	'L' Bracket assembly serrated disc mouldings	05031
PRO-33	4BA Cheese head screw x .437 inch	1003B
PRO-34	'L' Bracket assembly adaptor moulding	05021
PRO-35	'L' Bracket assembly tilt lock knob	05010
PRO-36	3/8 inch double coil spring washer	5P0072D
PRO-37	Cover insulation rear	00789/1
PRO-38	'L'Bracket assembly stud plate	00153
PRO-39	Warning label	LAB-195

PROLITE MECHANICAL PARTS LIST

NUMBER ON DIAGRAM	DESCRIPTION	PART NUMBER
PRO-40	Serial number label	LAB-150
PRO-41	'L' Bracket assembly stand lock knob	05016
PRO-42	'L' Bracket assembly knob retaining plate	00157
PRO-43	Lozenge screw	014BOW
PRO-44	Stand adaptor bush	014BOW
PRO-45	Rivet .125 inch dia.	POP-060
PRO-46	'L' Bracket	**41/41A** -00159 **60** - 00160 **82** -00161 **100** - 00162 **120** - 00163
PRO-47	Flashtube plug assembly rear plate, PROLITE 120	00750
PRO-48	Rear octagon pair complete, PROLITE 120	02071-1
PRO-49	Front octagon, PROLITE 120	00700
PRO-50	Lamp holder mounting bracket, PROLITE 120	00798
PRO-51	Top hat spinning, PROLITE 120	00707
PRO-52	Reflector plate flash tube mounting assembly, PROLITE 120	BW-1090
PRO-53	Modelling lamp cover dome, PROLITE 120	BW-2360
PRO-54	Resistor mounting clip, quantity 2, PROLITE 120	00786
PRO-55	Bracket mid/rear upper, PROLITE 120	00804/1
PRO-56	Bracket mid/front upper, PROLITE 120	00802/1
PRO-57	Front chassis octagon complete, PROLITE 120	02408
PRO-58	Chassis insulation, PROLITE 120	00787/1
PRO-59	PCB5 Mounting spacer, quantity 4, PROLITE 120	2 (long) 00794/1 2 (short) 00756/1
PRO-60	PCB4 Retaining mot insulation, quantity 2, PROLITE 120	00792/1
PRO-61	PCB4 Mounting spacer, quantity 2, PROLITE 120	00793/1
PRO-62	PCB4 Insulation, PROLITE 120	00790/2
PRO-63	Bracket mid/front/lower PROLITE 120	00803/1
PRO-64	Bracket mid/rear/lower PROLITE 120	00805/1
PRO-65	'L' Bracket assembly stud/re-inforcing plate, PROLITE 100/120	00703
PRO-66	Front octagon PROLITE 41A ONLY	00699
PRO-67	Reflector latch bolt,short, PROLITE 41A ONLY	00694
PRO-68	Spacer washer SRBP, PROLITE 41A ONLY	00660
PRO-69	Chassis complete PROLITE 41/41A ONLY	**41A - 117V** 02446 **41A - 240V** 02445 **41 - 117V** 02447 **41 - 240V** 02387

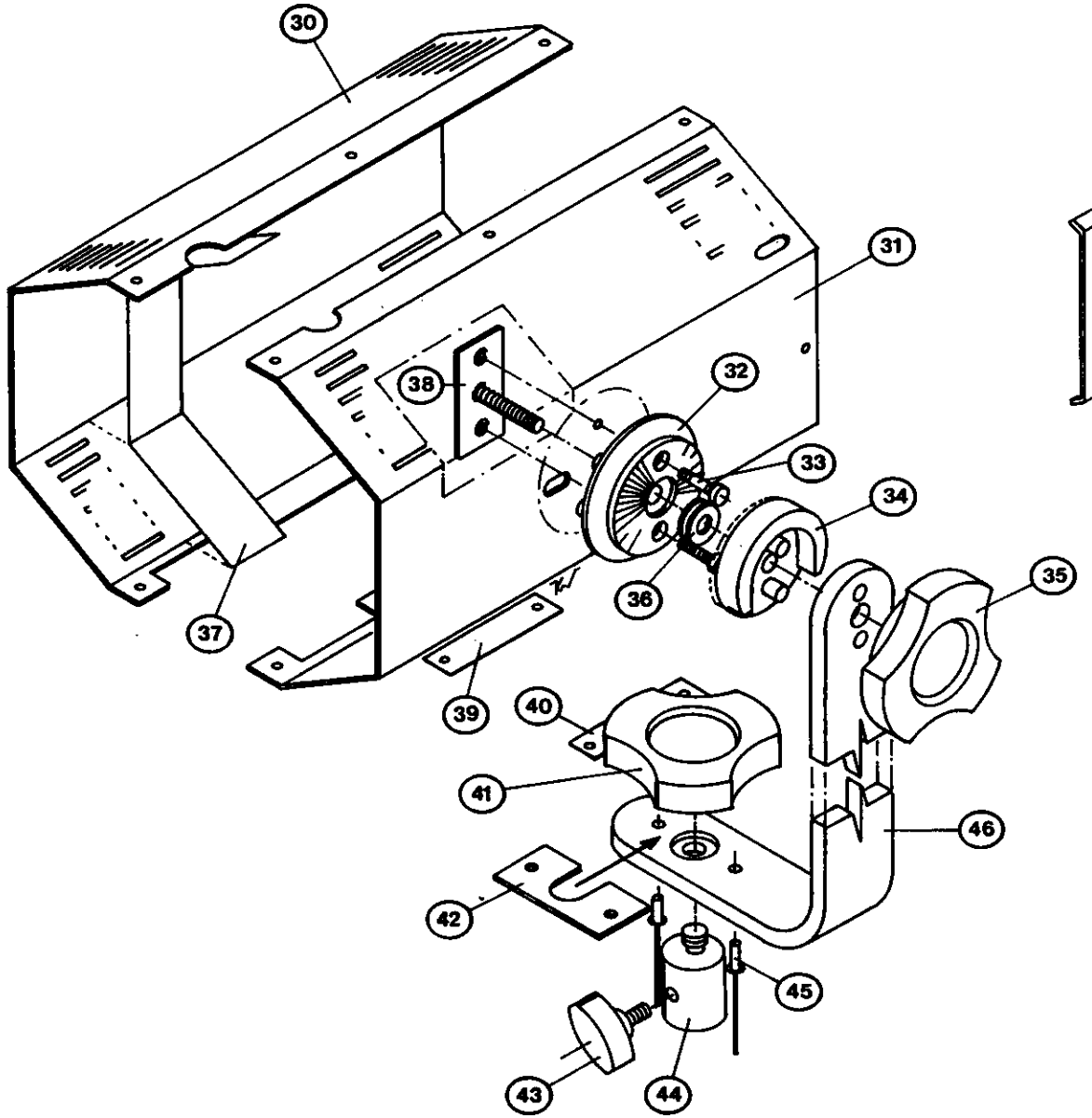
PROLITE MECHANICAL PARTS LIST

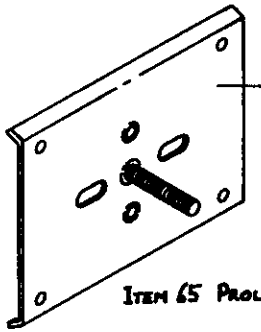
NUMBER ON DIAGRAM	DESCRIPTION	PART NUMBER
PRO-70	Flash tube *(see alternative list)*	
PRO-71	Flash tube assembly retaining screw	00680
PRO-72	Female ceramic insulator	INS-020
PRO-73	Filamic washer packing (as required)	6P9762W
PRO-74	Ceramic junction block	TER-015
PRO-75	Retaining screw captive washer	5K8462X
PRO-76	Socket, complete with screws	00679
PRO-79	Socket complete with screws PROLITE 41A ONLY	00695/4
PRO-80	Flash tube support	00667
PRO-81	Ceramic insulator male	INS-015
PRO-82	Ceramic insulator female	INS-020
PRO-83	PTFE disc (white)	00150
PRO-84	Neopren disc (black)	00151
PRO-85	Knob K607/6mm PB30	KNO-095



ITEM 65 PROLITE 100 AND 120 ONLY

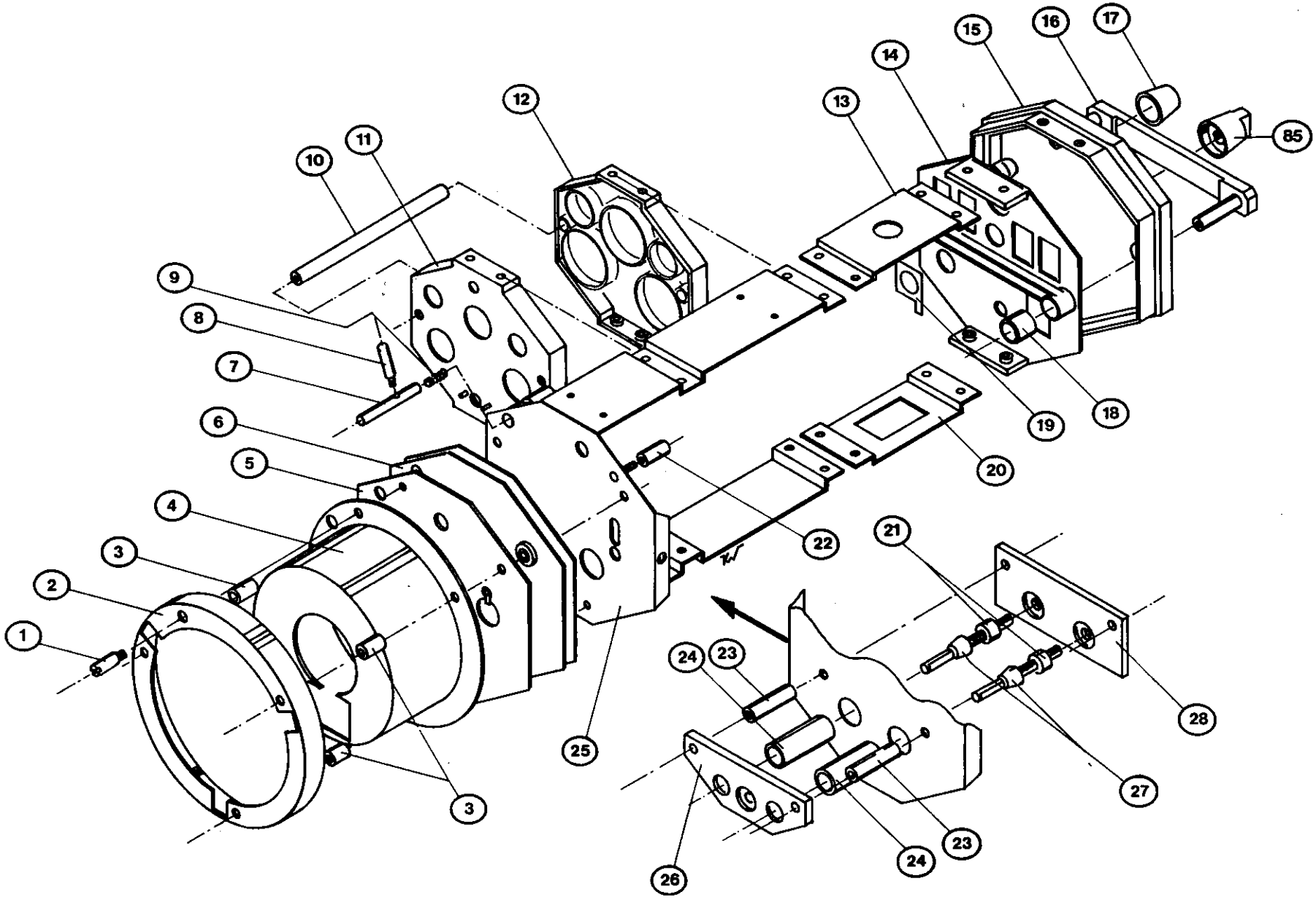
PROLITE MECHANICAL PARTS



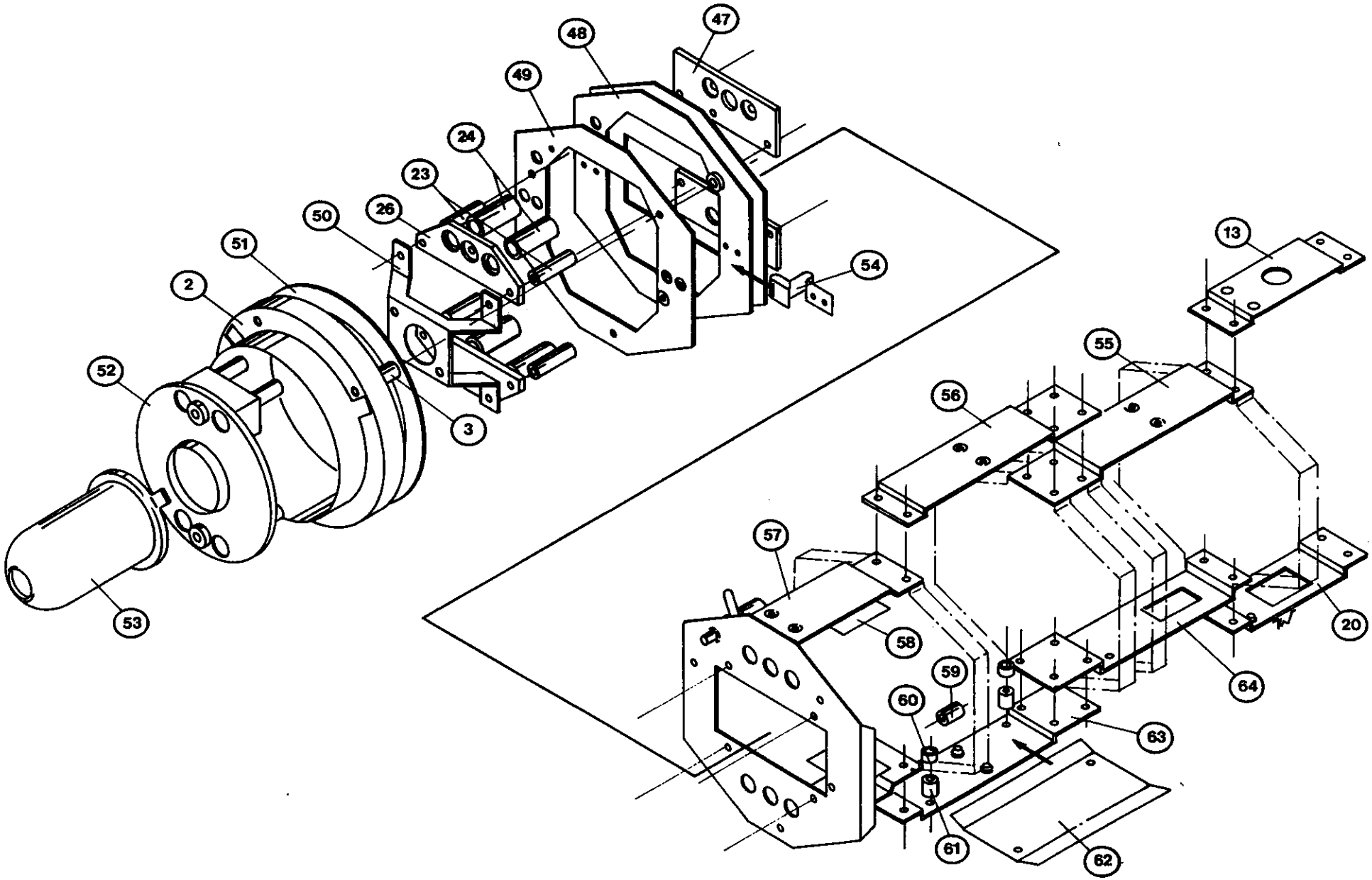


ITEM 65 PROLITE 100 AND 120 ONLY

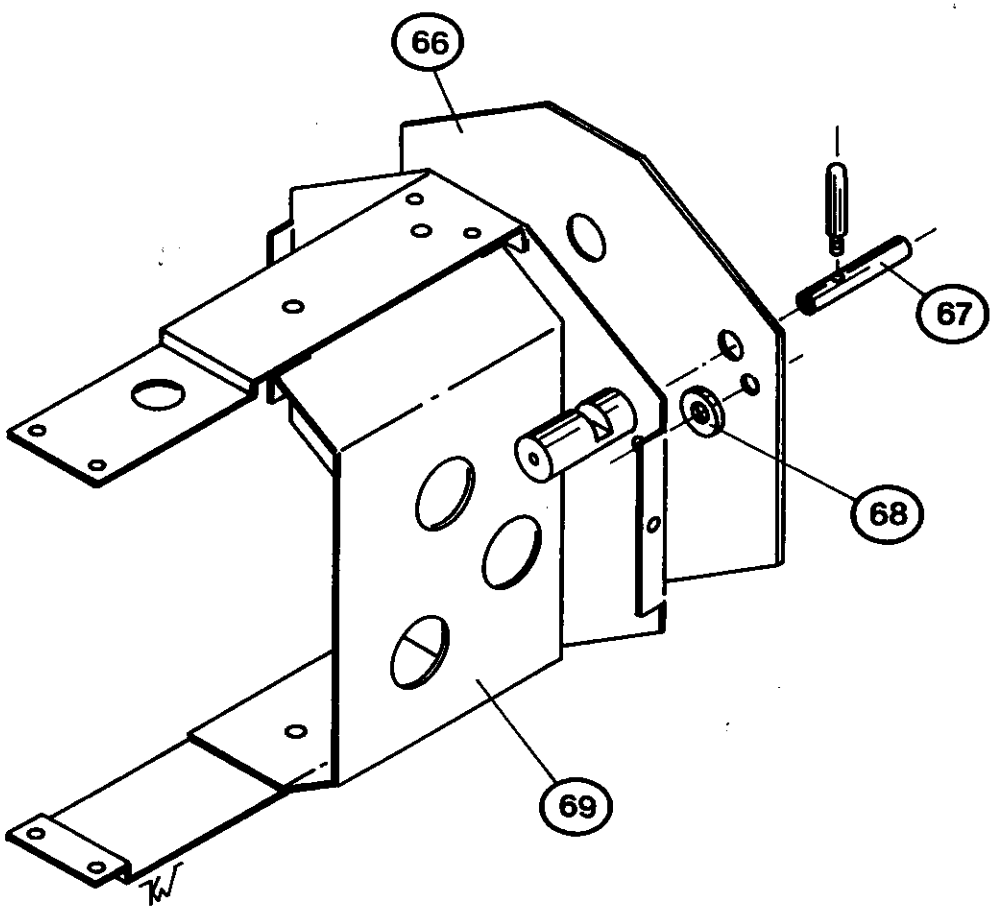
PROLITE MECHANICAL PARTS
KEW



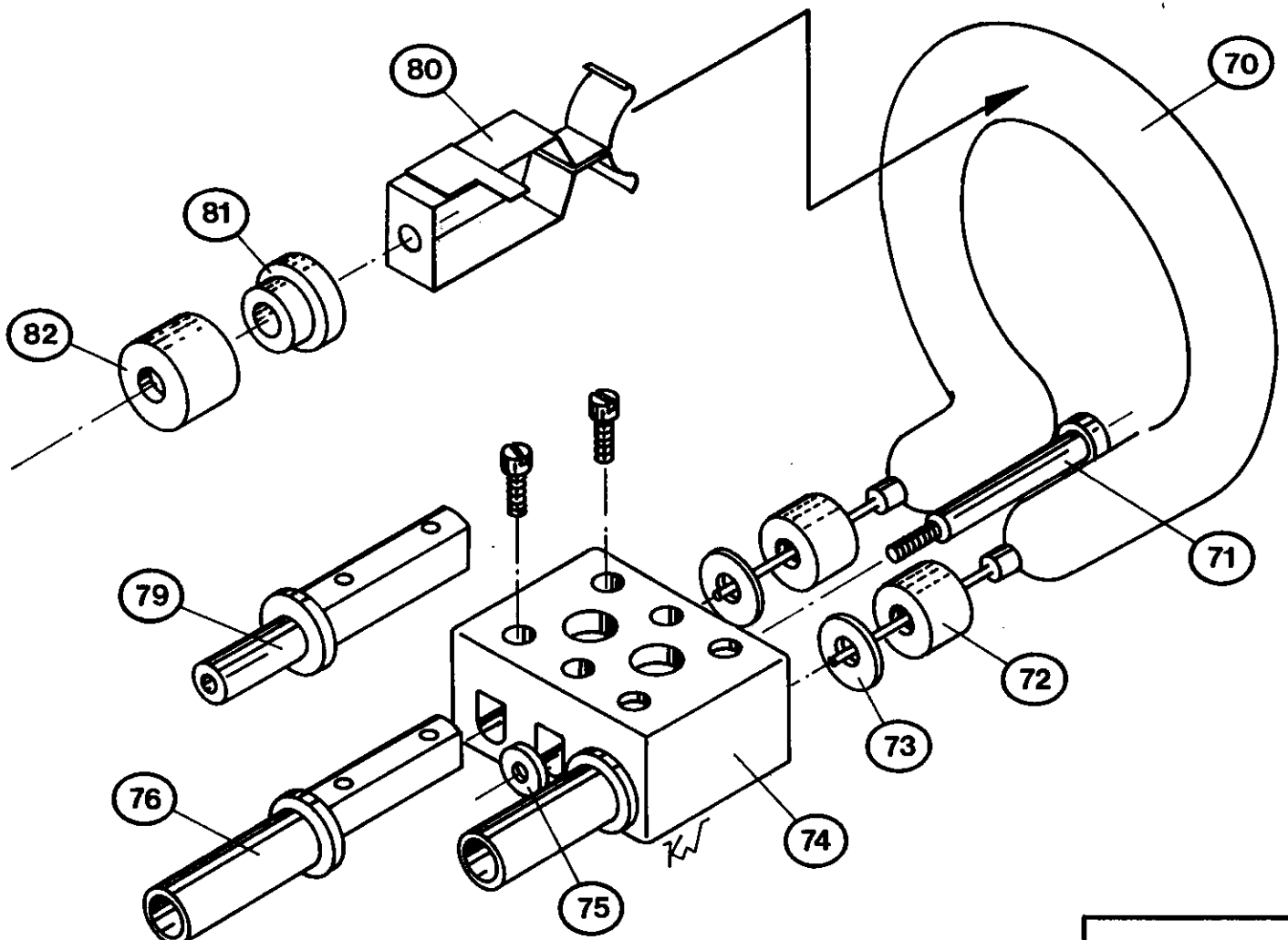
PROLITE MECHANICAL PARTS
KEW



PROLITE MECHANICAL PARTS
PROLITE 120
KEW



PROLITE MECHANICAL PARTS
PROLITE 41-41A
KEW



PROLITE MECHANICAL PARTS
KEW

Modification Appendix

N.B. Modifications apply to Prolite 60-100 unless otherwise stated.

1. Pin 6 of 4N32 (OPTO) to be broken off to prevent noise on sync.

2. Mod to Prolite 120 PCB4 to improve sounder circuit indicating a tube misfire.

   R68 (56k 1/4W) removed (RESC-2695).

   C36 changes from 10nF (CPCE-020) to 4.7µF 16V Tantalum (CPTT-015) and is fitted in position previously occupied by R69.

   R69 changes from 6k8 1/4W (RESC-2585) to a 1M 1/8W (RESC-1845) and is fitted in the position previously occupied by C36.

   C35 changes from a 10µF 16V (CPEL-035) to a 22µF 25V (CPEL-050).

   R67 changes from a 2W 68k (RESC-6705) to a 2W 47k (RESM-6685).

   C38 changes from a 2.2µF 50V (CPEL-020) to a 10µF 16V (CPEL-035).

3. All units with Crydom CX246D5 Solid State Relays require R13 to be changed from 2k7 to 1k8.

4. Prolite 120, 117V. Capacitor, 0.47nF (CPCE-005), added between O/P of IC5 and junction of R39 and R33 to prevent lamp flicker.

5. R16 changed from 100k to 18k to prevent SSR turning on and off at 50Hz.

6. Capacitor value changed to stop unit flashing when turned off with photo-cell switched on. C8 on PCB1 changed from 10µF 16V to 47µF 16V.

7. R1 becomes 10R 2.5W wirewound RES-088 PCB2 - H7.

8. R33 becomes 330k 1W metal film RES-5785 PCB2 - H8.

9. R47 becomes 56k 1/2W H.S. carbon RESC-4695 PCB2 - G6.

10. R66 deleted on Prolite 120.

11. Prolite 120. R80 10R 2.5W wirewound RES-088 PCB5.

12. Extra resistor R66 added across VR2b to increase HT.

13. To improve action of 15V Zener diode D16, a 10M ¼W metal film resistor is added across Zener diode D15.

14. Prolite 82 to 120. To comply with new electricity standards, resistors R3, R4, R6 & R7 (4 x 470k 1/2W) change to 4 x 2M2 1/4W (RESG-2885). Also remove Q5, R10, R9 and C27 and a link in place of R9.

15. C2 and C3 220pF 250V change to 1500pF 250V CPPA-010.

16. R12 1k 1W resistor (RESM-5485). C30 0.22µF 250V (CPPE-090). C31 0.22µF 250V (CPPP-007). D20, D21, P600K (SCD-270), D22, D23 1N4006 (SCD-165).

17. Prolite 120. Change C39, 1000µF 25V to 220µF 16V to ensure fan starts.

18. Harris GE4N36 Opto-couplers no longer available, therefore, OPT2 PCB2 becomes 4N32 (SCD-120). OPT3 PCB2 remains 4N36 (any manufacturer).

19. Prolite 41. R10 reduced from 100R to 10R to reduce trigger sensitivity.

20. Prolite 41. To improve drive to lamp triac Q2 the value of R37 changes from 1M 1/4W to 560k 1/4W.

21. Prolite 41. To improve the action of the Zener diode D6 on 100V and 117V units a 10M 1/4W resistor has been added across Zener diode D5.

22. Prolite 41. To stop glow-on and fuse or limit resistor failure SCR Q1 (TXN810) has been changed to S1610NH (SCR-035) and is no longer attached to the heatsink and stands vertical.

23. Prolite 41. Due to failure of R2 (47R 1W) it is replaced with 10R 2.5W (RES-088).

24. Prolite 41.

No.	*Value*	*Description*	*Part No.*	*Location*
R1	4R7	220/240V HAS 25W Wirewound	RES-078	Chassis
R1	3R3	110/117V HAS 50W Wirewound	RES-075	Chassis
R3	180k	1W H.S. Carbon	RESC-5755	
R15	4M7	1/2W Metal Glaze	RESM-4925	
R18	330k	1W Metal Film	RESM-5785	
R19	1k	1/4W H.S. Carbon	RESC-2485	
R45	100k	1/8W H.S. Carbon	RESC-1725	
R50	10M	1/4W H.S. Carbon	RESM-2965	
R51	10k	1/8W H.S. Carbon	RESC-1605	
C11	680nF	400V Mullard Type 368	CPPE-071	
C18	47nF	100V Ceramic	CPCE-035	

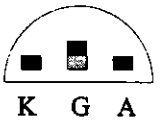
25. Prolite 41A.

No.	*Value*	*Description*	*Part No.*	*Location*
R1	4R7	220/240V HAS 25W Wirewound	RES-078	Chassis
R1	3R3	110/117V HAS 50W Wirewound	RES-075	Chassis
R12	330k	1W Metal Film	RESC-5785	PCB - F8
C6	1000nF	400V Mullard Type 368	CPPE-143	PCB - K2

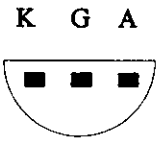
To prevent spurious triggering R5 changes from 100R to 10R 1/4W.
To stop glow-on and fuse or limit resistor failure, SCR Q1 Type 810 changes to S1610NH (SCR-035) with the heatsink removed, R41 330k 0.5W changes to 100k RESM-4365.
An additional SCR (Q6) type TIC106N (SCR-040) has been added between the control circuit and Q1.
D2 (30V Zener) changes to 24V (ZPY-24) to prevent over-volting of transistors Q3, Q4 and Q5.
Due to failure of R4 (47R 1W) changes to 10R 2.5W (RES-088).

Mod No. 01671 - Prolite 41. The SCR type P0109DB (SCR-012) is normally fitted in Q4 position. This device is no longer manufactured but may be substituted by the P0109DA (SCR-013) which is electrically identical but has a different pin-out. This requires the device to be rotated by 180° compared to the P0109DB. Either device may be used for repair but ensure that the orientation is correct as shown below:-

NOTE: THE PIN-OUT SHOWN IS AS VIEWED FROM THE PIN SIDE AND THE MIDDLE PIN OF THE P0109DB DEVICE IS JOGGLED.



P0109DB (SCR-012)



P0109DA (SCR-013)

(J). Flash Tube Failure Warning (cont).

The transistor half of OPT4 will turn ON shorting the low voltage sync line to earth preventing the unit being fired. At the same time 15 Volts is applied to gates 13 to 16 which produce a warbling sound from sounder S2. When the discharged capacitor block recharges the two blocks will again be in balance and the circuit will revert to normal. The components of the flash tube failure warning circuit are mounted on PCB4 which is mounted under the top chassis member of the Prolite 120.

(K) Cooling Fan.

To prevent the Prolite 120 from overheating, a small 12 Volt cooling fan has been fitted. The fan draws air through the slots in the case and exhausts through the front end of the equipment, partly through the slots in the top hat / reflector and partly through the octagonal cooling fins behind the reflector. The charge limiting resistor R62 is mounted between the octagonal cooling fins on the front of the unit and is, therefore, cooled by the air exhausting from the unit.The power for the fan is derived from the supply. Series capacitor C32 being used todrop the Volts on 220/240 Volt units, and C32, 33 and 34 on 117 Volt units. R80 limits the current, especially when first switched ON with the capacitors fully discharged. The fan and power supply components are mounted on PCB5 which is mounted across the front of the unit.

Setting Up.

A. Flash Output.

a. Equipment required - Meter(s) capable of reading 400 Volts D.C.

b. Connect meter(s) across main storage capacitors 'CX'('CY'). (Use 2 meters for Prolite 120 - one to each block.

c. Select full power and switch unit ON

d. When the unit comes to ready adjust VR3 for a reading of 385V on meter. If meter reading exceeds 385V adjust VR3 for a reduction in volts, flash unit and check reading when unit comes back ready.

B. Modelling Output.

a. Equipment required - meter capable of reading 300 Volts true RMS

NOTE: A moving coil meter does not read true RMS.
A moving iron meter does. Also some digital AC meters read true RMS.

b. Connect the meter across the modelling lamp. Ensure the modelling lamp is fitted.

c. Set modelling light 'FULL/OFF/RATIO' switch to 'RATIO'. Set INT/CONT switch to 'CONT' (continuous). Set power output control to 'FULL' (maximum).

B. Modelling Output

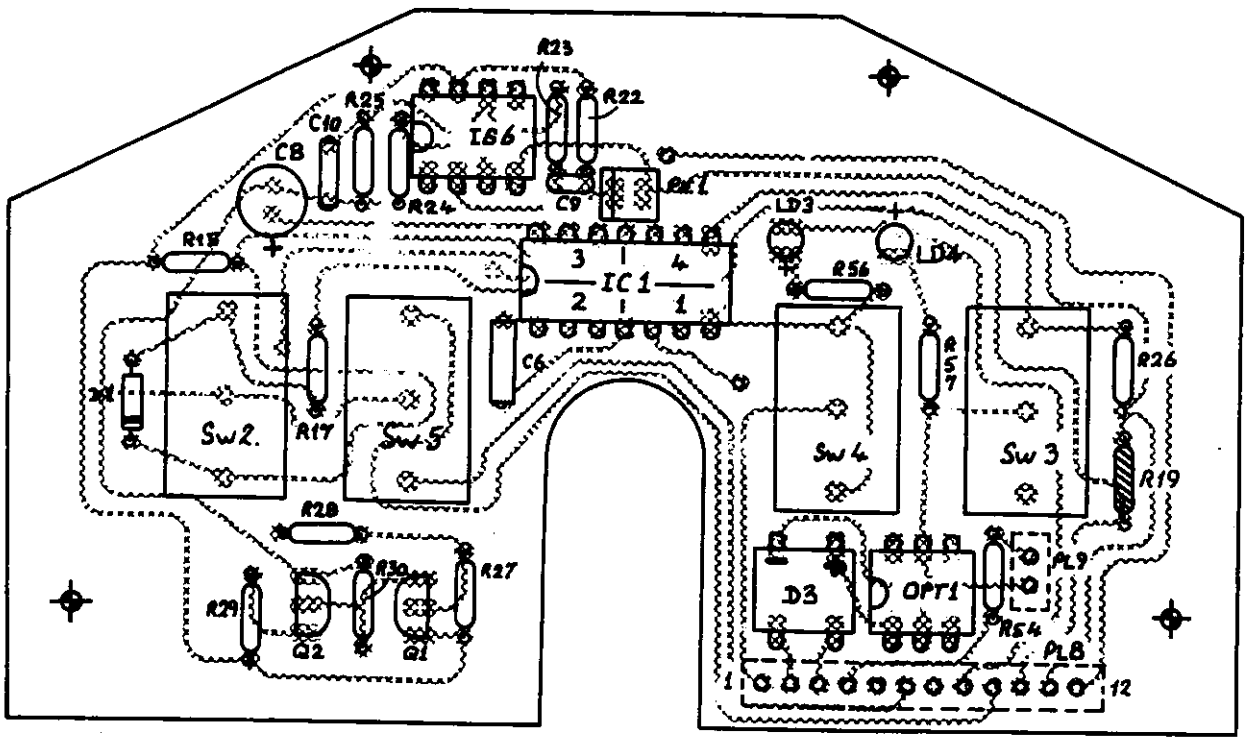
d. Switch unit 'ON' and adjust VR1 for a reading of 200 /240 Volt units or 100 /117 Volt units. Adjust to 210V on 240V Prolite 120 or 110V for 117V Prolite 120.

e. Turn power control to minimum and check modelling bulb dims.

f. Flash unit and check modelling light remains 'ON' and sounder sounds as unit comes to ready.

g. Set 'INT/CONT' switch to 'INT', flash unit and check the modelling light goes out following the flash and comes back 'ON' as the unit comes to ready. Check sounder does not sound.

h. Set 'FULL/OFF/RATIO' switch to 'FULL'. Check modelling bulb remains at full brilliance regardless of position of output power control.



▨ - VALUES DIFFER FOR SOME UNITS - SEE PARTS LIST.

PROLITE 60-120	
PCB 1 LAYOUT	
K.E.W.	