

# THEATRICAL LIGHTING CONTROLLER

## Pt. 3 Construction

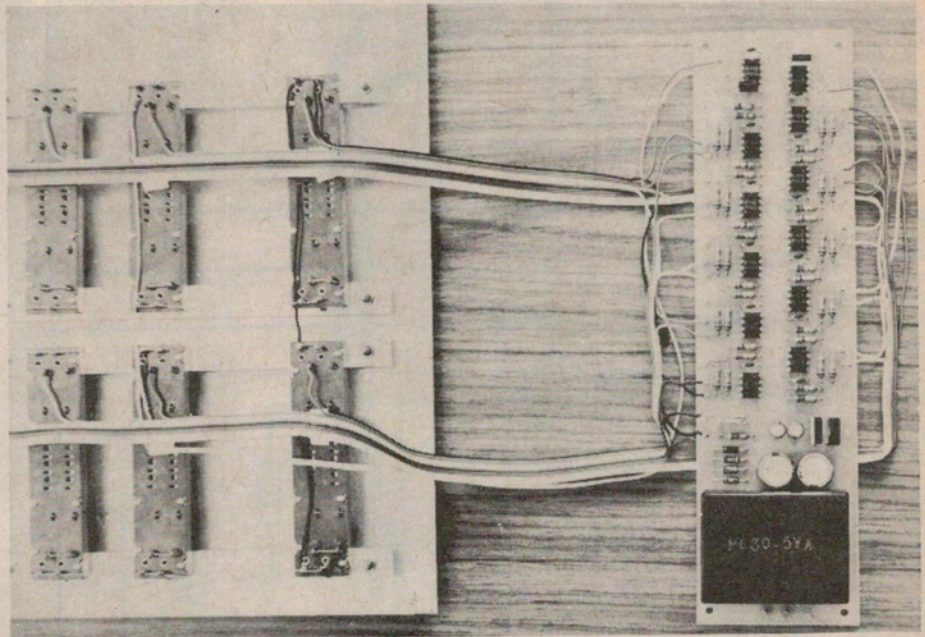
### Dimmer Module

ASSEMBLE THE PC board with the aid of the overlay in Fig. 1. The heatsink should be drilled and tapped for the triac to allow easy replacement if ever necessary. Note that the mounting of the fuse is different for the 10 and 20A dimmers.

The choke is bolted onto the PC board using the long clamping bolts, preferably using rubber grommets in the holes in the pc board (they may have to be drilled out to do this). The leads from the choke should be bent such that they go into the holes provided without going near the mounting bolts which are at earth potential. The leads can now be soldered (both sides on the 20A unit).

The pulse transformer can now be wound according to Table 1. Be careful when winding this transformer not to damage the insulation on the wire as there is 240V between windings. The transformer is mounted using a 19mm long 6BA bolt with a 12mm dia. piece of pc board material acting as a clamp.

After soldering the power transformer in, melt the plastic studs which protrude through the PC board to give mechanical support. We also recommend some epoxy between the transformer and the PC board.



The printed circuit boards for the two versions of the dimmer board (ETI 588/10 for the 10A version and ETI588/20 for the 20A board) are identical in layout and differ only in that the connector end of the 20A board is double sided to present a greater area of contact with the connectors.

The component numbering system used on the controller drawings is designed to indicate which channel a particular component is part of. The printed circuit board drawing for the dimmer board is too large to publish in the magazine at full size; however, negatives of the pattern are available from Nebula Electronics, 15 Boundary St., Rushcutters Bay, 2011 for \$5.00 each.

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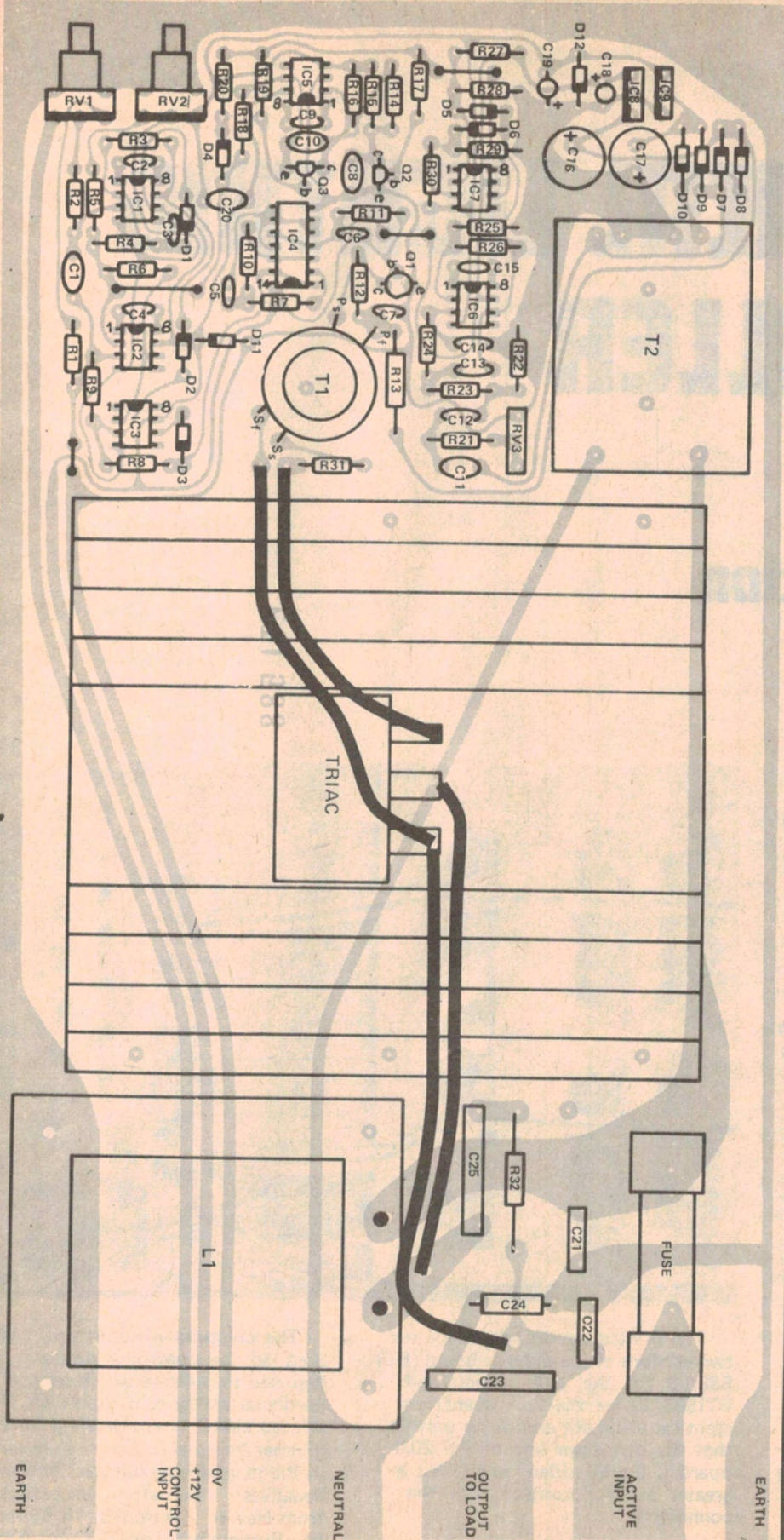


Fig. 1. Component overlay for the dimmer board, ETI 588.

## PARTS LIST - ETI 588

<b>Resistors</b>	all 1/2W 5%	R23-R26 . . . 100k
R1,2 . . . . .	100k	R27 . . . . . 4M7
R3 . . . . .	4M7	R28,29 . . . . . 3k3
R4 . . . . .	22k	R30 . . . . . 4M7
R5,6 . . . . .	47k	R31 . . . . . 10R
R7 . . . . .	10k	R32 . . . . . 47R 1W
R8 . . . . .	100k	
R9,10 . . . . .	10k	<b>Potentiometers</b>
R11 . . . . .	2k2	RV1 . . . . . 1M lin rotary
R12 . . . . .	1k	RV2 . . . . . 100k lin rotary
R13 . . . . .	470R 1W	RV3 . . . . . 25k trim
R14,15 . . . . .	100k	
R16 . . . . .	2M2	<b>Capacitors</b>
R17 . . . . .	100k	C1 . . . . . 100n polyester
R18 . . . . .	15k	C2 . . . . . 33p ceramic
R19,20 . . . . .	100k	C3 . . . . . 10n polyester
R21 . . . . .	4k7	C4 . . . . . 33p ceramic
R22 . . . . .	220k	C5 . . . . . 330p ceramic
		C6 . . . . . 100p ceramic

C7 . . . . .	10n polyester
C8 . . . . .	100n polyester
C9 . . . . .	33p ceramic
C10,11 . . . . .	100n polyester
C12,13 . . . . .	22n polyester
C14 . . . . .	33n polyester
C15 . . . . .	33p ceramic
C16,17 . . . . .	220µ 25V electro
C18,19 . . . . .	10µ 25V electro
C20 . . . . .	100n polyester
* C21,22 . . . . .	1n0 polyester
C23 . . . . .	33n 250V ac
* C24 . . . . .	1n0 polyester
C25 . . . . .	33n 25V ac

\* These capacitors must be specified as suitable for connection between active and earth.

<b>Semiconductors</b>	
IC1-IC3 . . . . .	LM301A
IC4 . . . . .	4011B (CMOS)
IC5-IC7 . . . . .	LM301A
IC8 . . . . .	7812
IC9 . . . . .	7912
Q1 . . . . .	2N3643
Q2,3 . . . . .	BC559
<b>TRIAC</b> . . . . .	BTW41-400
D1-D6 . . . . .	1N914
D7-D10 . . . . .	1N4001
D11,12 . . . . .	1N914

Transformer (T2) PL24/5VA  
 Metal bracket  
 Front panel

Additional components for 10A module  
 PC board ETI 588/10  
 100mm 35D heatsink  
 10 Amp choke  
 10 Amp fuse (ceramic body '0' size)  
 Fuse holders

Additional components for 20A module  
 PC board ETI 588/20  
 100mm 40D heatsink  
 Three 30mm long spacers  
 20 Amp choke  
 20 Amp fuse Philips A25X 20 Amp-trap  
 2 fuse holders Philips F30-2

Miscellaneous  
 Transformer (T1) see text

## PARTS LIST - ETI 588C

For 10 way 2 preset console

Resistors all 1/2 W, 5%

R1	4k7
R11,12	150k
R13	220k
R14	100R
R21,22	150k
R23	220k
R24	100R
R31,32	150k
R33	220k
R34	100R
R41,42	150k
R43	220k
R44	100R
R51,52	150k
R53	220k
R54	100R
R61,62	150k
R63	220k
R64	100R
R71,72	150k
R73	220k
R74	100R
R81,82	150k
R83	220k
R84	100R
R91,92	150k
R93	220k
R94	100R
R101,102	150k
R103	220k
R104	100R

### Potentiometers

22 off.	25k lin. 60mm slide
RV3	5k trim

### Capacitors

C1,2	33p ceramic
C3,4	220µ 50V electro
C5,6	10µ 25V electro
C11,21,31,41	33p ceramic
C51,61,71,81	33p ceramic
C91,101	33p ceramic

### Semiconductors

IC1,2	301A
IC3	7815
IC4	7915
IC11,21,31,41	301A
IC51,61,71,81	301A
IC91,101	301A
Q1,2	BD140
D1-D4	1N4001

### Miscellaneous

PC board	ETI 588C
Transformer	PL30/5VA
Box and front panel	
Knobs to suit	

### TABLE 1

WINDING DETAILS OF  
PULSE TRANSFORMER T1

CORE	PHILIPS 4322-020-36630
PRIMARY	50 TURNS 7/0076 PLASTIC COVERED WIRE
SECONDARY	12 TURNS 7/0076 PLASTIC COVERED WIRE

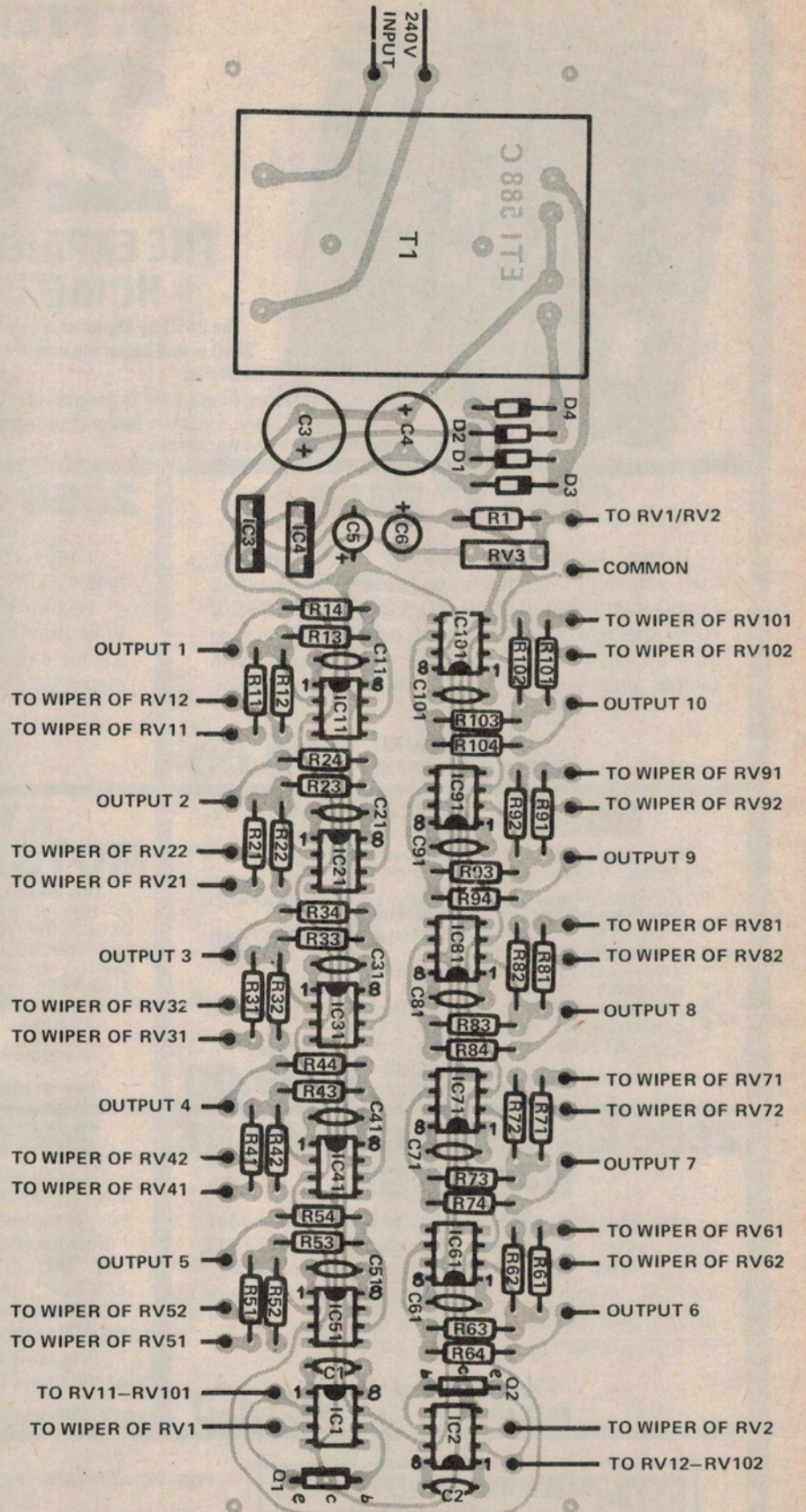


Fig. 2. Component overlay for the controller board, ETI588C.