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From **THE STRAND ELECTRIC & ENGINEERING CO., LTD.**  
25 FLORAL STREET, COVENT GARDEN, LONDON, W.C.2

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NOT TO BE  
REMOVED  
FROM OFFICE

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Per

Carr.

Date

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*J.B.*

DL



System LC Mk. II  
TROUBLE SHOOTING

Determine the extent of any trouble as the numbers of the channels involved provide a valuable clue to the source of the fault. An AC/DC multi-range meter can be used to good effect to trace a fault. The testpoint for the positive connection is given first where voltages are mentioned below.

Loss of control on all channels on upper half of cabinet and on all X and Y master dimmers; no orange pilot lamp indication on left hand side of cabinet master panel, or on No. 1 rack power unit.

Check circuit breaker feeding No. 1 rack power unit.

Check 8-pin plug and socket on this power unit.

Loss of control on all channels on upper half of cabinet only

Check F.13 7 amp fuse, also F.1 and F.2 and F.2 GS 150/50 fuses (25/27 volt D.C. between testpoints T.6 and T.4) on No. 1 rack power unit. Check for loose or broken connections between terminals j - j (25/27 volt D.C. between testpoint T.6 and terminal j.)

Loss of control on all X and Y master dimmers; no orange pilot lamp indication on left hand side of cabinet master panel or on No. 1 rack power unit.

Check F.5 7 amp fuse (25 volt A.C testpoints T.6 and T.5). Check connections between terminals a - a, also b - b (25 volt A.C. between terminal b and a, 24 volt at cabinet).

Loss of control on all channels on lower half of cabinet and on both Z master dimmers; no orange pilot lamp indication on right-hand side of cabinet master panel or on No.2 rack power unit (No.3 rack where there are more than two racks.

Check circuit breaker feeding No.2 rack (or No.3 rack power unit.

Check 8-pin plug and socket on this power unit.

Loss of control on all channels on lower half of cabinet only

Check F.13 7 amp fuse, also F.1 and F.2 GS 150/50 fuses (25/27 volt D.C. between testpoints T.6 and T.4 on No.2 rack (or No.3 rack) power unit. Check for loose or broken connections between

terminals j-j (25/27 volt D.C. between testpoint T.6 and terminal j).

Loss of control on both Y master dimmers; no orange pilot lamp indication on right-hand side of cabinet master panel or on No.2 rack power unit (No.3 rack where there are more than two racks.

Check F. 5 7 amp fuse (25 volt A.C. between testpoints T.6 and T.5). Check connections between terminals a-a, also b-b (25 volt A.C. between terminals b and a, 24 volt at cabinet).

Loss of control on channel Nos. 25-48 when there are more than two racks, or on Channel Nos. 73-96.

Is the orange pilot lamp alight on the power unit corresponding to these numbers? If not check circuit breaker feeding the power unit. If pilot alight check F.13 7 amp fuse, also F.1 and F.2 GS 150/50 fuses (25/27 volt D.C. between testpoint T.6 and 7.4) on this power unit. Also 8-pin plug and socket. See also below.

Loss of control on channels 1-24, 25-48, 49-72 or 73-96 (i.e. one complete dimmer rack).

Check on corresponding rack power unit F.13 7 amp fuse (25/27 volt D.C. between testpoints T.6 and T.4). Check internal connection to terminal l or k on some models (25/27 volt D.C. between testpoint T.6 and terminal l or k).

Partial loss of control on one complete dimmer rack in that none of the 24 channels will fade to blackout.

Check on corresponding rack power unit F.6 2.5 amp fuse (14/16 volt D.C. between testpoints T.6 and T.3). Check also F.3 and F.4 amp fuses and internal 6-pin plug and socket to stabiliser sub-assembly (7/8 volt D.C. between testpoints T.6 and T.2).

Loss of control on one master dimmer only

Check corresponding 2 amp fuse on cabinet. If intermittent loss of control when fading check for clean contact on wiping track of master dimmer or work brush. If necessary clean track with non-corrosive metal polish and subsequently with carbon tetrachloride.

Loss of control on ten adjacent-numbered channels

Check appropriate 30-pin plug and socket on corresponding power unit.

Loss of control on five adjacent-numbered channels or the last four of a rack

Check F.7 - F.11 7 amp fuse on corresponding power unit. Each fuse protects five adjacent-numbered channels therefore F.12 is normally spare.

Complete loss of control on one channel only

Check for faulty projection lamp or faulty flexible cables to the lighting unit. Check load line for short circuit. Check channel circuit breaker on dimmer rack, and connections to terminals 1 - 1, also bridging loop, on reactor dimmer. Check that channel control amplifier is secure in edge connector. If fault still persists then localise fault to switching or dimming facilities. Check that the channel contactor is closed (24/27 volt D.C. between channel 'switch' control terminal and test-point T.4). If not check channel 'switch' (yellow) connections at cabinet and at upper three-position switch. Check channel 'dimmer' (blue/orange) control terminals (12 volt D.C. between testpoint T.6 and 'dimmer' terminal when dimmer instructed full-on, or  $\frac{1}{2}$  1 volt D.C. when dimmer instructed to zero. Check OA 81 diode in both the white and green dimmer lever units.

Substitute another control amplifier in the faulty channel, if this does not clear fault check all connections to edge connector, the appropriate 30 pin plug and socket on the power unit and the D.C. connections to the saturable reactor dimmer.

One channel only reaches maximum light below position 5 on both the white and the green lever scales

Check channel feedback fuse (1 amp)

One channel only loses or gains control at an intermediate position when moving the white or the green dimmer lever

Check continuity of 10k ohm resistance strip on dimmer lever unit.

One channel will not fade out as other of the same load do on the same dimmer size and tapping number.

With both dimmer levers at zero check for a constant 24 volt D.C. (minimum) between testpoint T.6 on the power unit and the testpoint of the channel control amplifier. If not correct turn the slot of the 'bottom' preset potentiometer on the amplifier anti-clockwise until the voltage is steady or reaches the maximum and then turn past this point by a few degrees.

One channel will not rise to full as others of the same load do on the same dimmer size and tapping number

With the dimmer switched on and both dimmer levers and associated masters set to full, check the voltage between testpoint T.6 on the power unit and the testpoint of the channel control amplifier. Turn the slot of the 'top' preset potentiometer on the amplifier clockwise until the reading on the meter drops to its lowest value (approx.  $\frac{1}{2}$  volt D.C. but use a scale capable of 30 volt deflection to begin with, then change down to a lower scale.) When voltage reached the minimum turn past this point by a few degrees.

Note: If the supply voltage differs from the voltage stated at the time of order then the tappings on the primary winding of all power transformers will have to be changed accordingly and probably the 'top' potentiometer of each amplifier adjusted as described above. This should be done with the maximum load connected to each dimmer.

## FUSE RATINGS

### Power Pack Unit

F.1, F.2

GS 150/50 H.R.C. fuse link

F.3, F.4

4 amp  $\frac{5}{8}$ " x  $\frac{3}{16}$ " fuse link (Size 00)

F.6

2.5 amp  $\frac{5}{8}$ " x  $\frac{3}{16}$ " fuse link (Size 00)

F.7 - F.13 also F.5

7 amp  $\frac{5}{8}$ " x  $\frac{3}{16}$ " fuse link (Size 00)

### Feedback

All

1 amp  $\frac{1}{8}$ " x  $\frac{3}{16}$ " fuse link (Size 00)

### Control Cabinet

All

2 amp  $1\frac{1}{4}$ " x  $\frac{1}{4}$ " fuse link (Size 0)

## INDICATOR LAMPS

28-volt tubular 0.04 amp L.E.S. cap

The quick-fade switches can accept 28-volt tubular 0.04 amp lamps with a cartridge cap but as these are non-standard the switches are provided with cartridge to L.E.S. adaptors. Do not discard these adaptors when discarding a lamp.

## SPARES

Each principal sub-assembly has a reference number which should be quoted, including any suffix letter, if ordering spares.

## SCHEMATIC WIRING DIAGRAM

Numbers and letter in circles refer to photographs on pages 4 and 6 of the operation instructions.

The upper part of the diagram shows part of No.1 Dimmer Rack with a power transformer and power unit shown on the left-hand side.

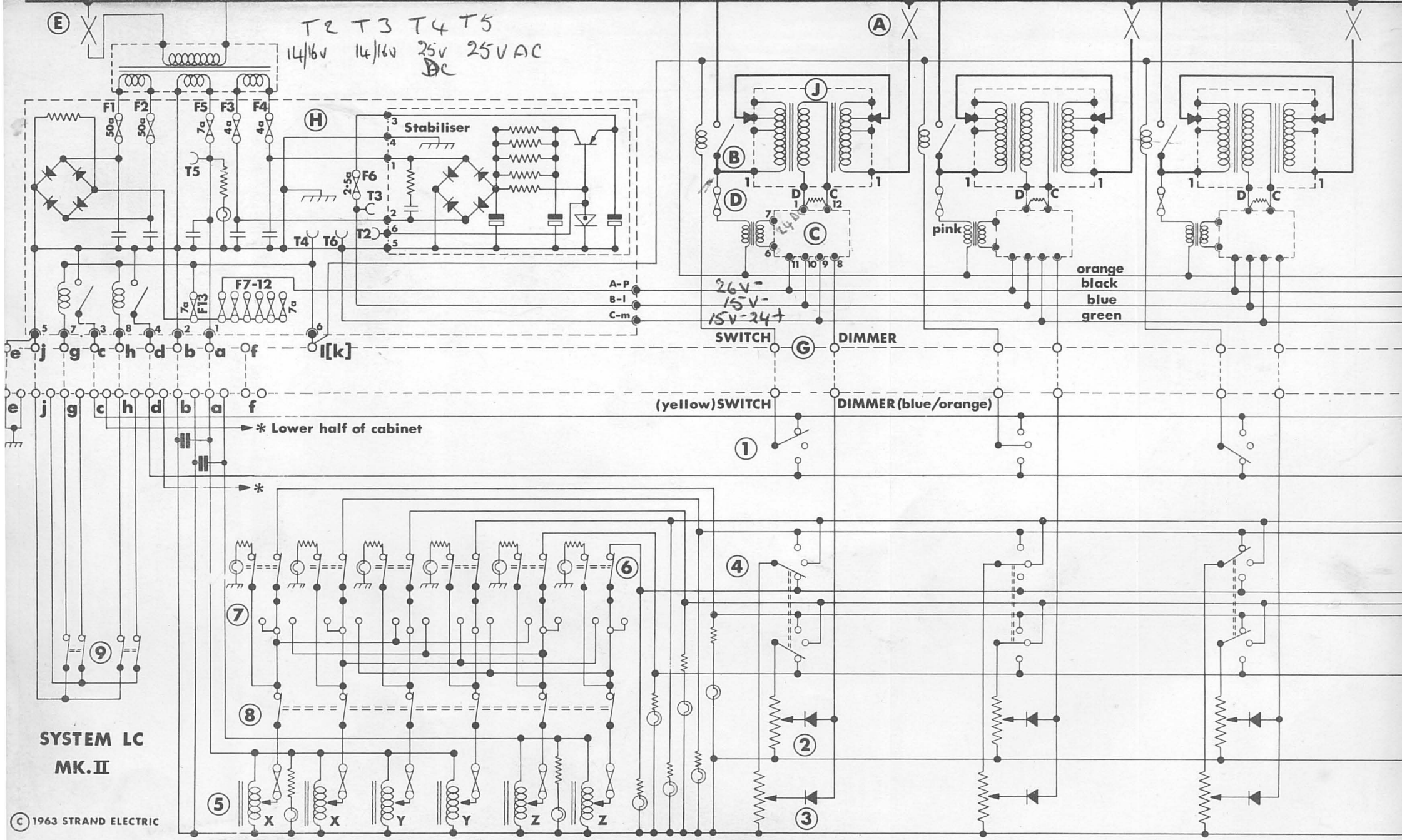
The stabiliser sub-assembly is shown to the right of test point

T3. Part of the control cabinet is shown on the lower part of the diagram with master controls on the left-hand side. The cabinet power supplies are derived from the power units of two racks and therefore only one set of the cabinet master terminals are shown connected. Where there are more than two dimmer racks the cabinet power supplies are obtained from No.1 and No.3 racks and terminal e on rack 2 is connected to terminal e on rack 1 and, where applicable, rack 4 terminal e to rack 3 terminal e. The right-hand side of the diagram shows three complete dimmer channels. Switch (1) has shorting type contacts and switch (4) has non-shorting contacts.



EARTH/GROUND  
NEUTRAL  
PHASE

T2 T3 T4 T5  
14/16V 14/16V 25V 25V AC  
DC



SYSTEM LC  
MK.II

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