NOTES:-

1. RELAY-UNIT Q 516 WIRED TO FIG. 1 (Page 3) is suitable for Earthed Return Ringing.

2. RELAY-UNIT Q 516 WIRED TO FIG. 2 (Page 4) if connected for Earthed Return Ringing should have the straps listed below in position on the cable side of the Terminal Strip Connexion No. 212/1A:-

   Terminals 8-2-22-42 strapped
   Terminals 14-15 strapped
   Terminals 19-20 strapped
   Terminals 27-28 strapped

   To strap a Relay-Unit Q 516 wired to Fig. 2 for Loop Ringing on one or both incoming lines see Note 4.

3. To modify a Relay-Unit Q 516 wired to Fig. 1 to conform to Fig 2 for Loop Ringing requires the following changes to the permanent wiring of the unit. See Label Diagram LD 192 for wiring colours.

   (a) Recover RED-GREEN wire connected between Relay RGA, spring 24 - Relay XB spring 3
   Recover BROWN wire connected between Relay RGA, spring 1 - Relay FLA spring 21
   Recover RED-SLATE wire connected between Relay RGA, spring 2 - Relay FLA spring 22
   Recover RED wire connected between Tag SCA 13 - Tag SCB 9 (Component Mounting)
   Remove 2 RED wires connected to Relay RGA, spring 21 solder wires together and insulate joint
   Shift BROWN wire from Relay RGA spring 1 to Relay FLA spring 21
   Shift RED-SLATE wire from Relay RGA spring 2 to Relay FLA spring 22
   Shift RED wire from Tag SCA 7 to Tag SCB 9 (Component Mounting)
   Remove strap between Tags SCA 9 and SCA 11 (Component Mounting)

   (b) Provide new wiring to terminals on Strip Connexion No. 212/1A as follows:-

   Relay FLA spring 21 - Terminal 19
   Relay FLA spring 22 - Terminal 14
   Relay RGA spring 1 - Terminal 20
   Relay RGA spring 2 - Terminal 15
   Relay RGA spring 21 - Terminal 8
   Relay RGA spring 24 - Terminal 27
   Relay XB spring 3 - Terminal 28
   Tag SCA 7 - Terminal 2
   Tag SCA 11 - Terminal 22

   (c) Amend the Label Diagram, Dgm. LD 192, in the Relay-Unit Cover to conform to Dgm. Q 516 Fig. 2.

4. On Relay-Units with original or modified wiring to Fig. 2 strap terminals on Strip Connexion No. 212/1A in accordance with the following table:-

LINE 1	LINE 2	STRAPS REQUIRED
Earth Ringing	Earth Ringing	8-2-22-42 14-15 19-20 27-28
Loop Ringing	Earth Ringing	27-22-42 7-8-37 2-33 14-15 19-20 } See Note 5
Earth Ringing	Loop Ringing	33-2-42 7-8-37 22-27 14-15 19-20 } See Note 5
Loop Ringing	Loop Ringing	2-33 7-8-37 22-27 14-15 19-20 } See Note 5

For system cabling to Relay-Unit Q 516 see Dgm. Q 503

PO TELECOMMS HQRS PAPER:- W DISTN:- GENERAL	ISSUE			
		D	Sheet 5 and Notes 10 and 11 added Relay NSA added to Fig 2. Notes 5, 8 and 9 amended. I.F.J. ME/PD1.2.2	8·1·81
		C	FIG. 2 ADDED. NOTES RE-WRITTEN TO INCLUDE LOOP RINGING FACILITIES	24·10·75
		B	GUARDED BATTERY SYMBOL CHANGED TO -D5 TD7.2.1	8.10.68

5. NIGHT SERVICE When Loop Ringing on Line 1 and/or Line 2 is required with Night Service on Line 1, omit straps 14-15 and 19-20 on Strip Connexion No. 212/1A. Provide straps 15-16, 20-42, and fit a Relay No. 23/16 using a Bracket Mounting HM (space for the relay exists in the top left hand corner of the Relay Unit see Note 11.) Fit Relay No. 23/16 to the uppermost position of the bracket). Connect Relay tags to terminals on Strip Connexion No. 212/1A, with Wire Equipment 1W/0.5 mm as follows:-

Relay Tag 4 to Terminal 16
Relay Tag 6 to Terminal 19
Relay Tag 7 to Terminal 14
Relay Tag 12 to Terminal 28
Relay Tag 11 to Terminal 30
Relay Tag 9 to Terminal 42 (Red Wire)
Relay Tag 10 to Terminal 13

Connect Relay Tag 1 to Resistor R6b (White Wire) See Dgm. Q 503 for cable connexions. If NIGHT SERVICE is required on LINE 2 only, Relay No. 23/16 is not required. (See Note 10.)

6. When incoming calls on Line 2 are required to ring bells at different stations from calls on Line 1 the following modification is required.

(a) Lines with Earthed Return Ringing. Remove strap between Terminals 47-48 and provide strap 46-47. Connect series circuit of bells required to ring on Line 2 (Max. 5 bells) to terminal 45. Use spare wire in cable if available. Amend Label Diagram in Relay-Unit Cover to show modification and indicate conductor colours used.

(b) Lines with Loop Ringing. Remove straps between terminals 47-48 and 22-27. Provide strap 46-47. Connect series circuit of bells required to ring on Line 2 (Max. 5 bells) to terminal 45. Connect a wire from the bell at the first station in the chain of bells to terminal 8 in Box Connexion No. 6A at the last station to complete the connexion to the A wire of Line 2. Use spare wires in cable if available or install additional 4W cable. Amend Label Diagram in Relay-Unit Cover to show modification and indicate conductor colours used.

7. Straps between Tags 41-42, 47-48 and 49-50 are soldered on left hand side of Tag Block as viewed from front of Relay-Unit.

8. Regulator Unit No.4A or 4B is bolted to Relay-Unit Mounting Plate and connected to SCC terminals by spade ended flexible leads.

9. D5 (Valve Electronic CV 8805 or CV 7026) was not fitted on early Issues of Relay-Unit Q 516.

10. Unit shown with connections for loop ringing on both lines with relay NSA provided for Night Service on Line 1 (see notes 4 & 5)
NSA 1 replaces RGA 1) for the circuit function given in
NSA 2 replaces RGA 4) TI C3 C3035 and on diagrams Q546,
NSA 3 replaces RGA 3) Q565, Q566, Q567, Q580, Q583.
Terminate cable conductor NA 1 lead on terminal 13 and the NL lead on terminal 30.

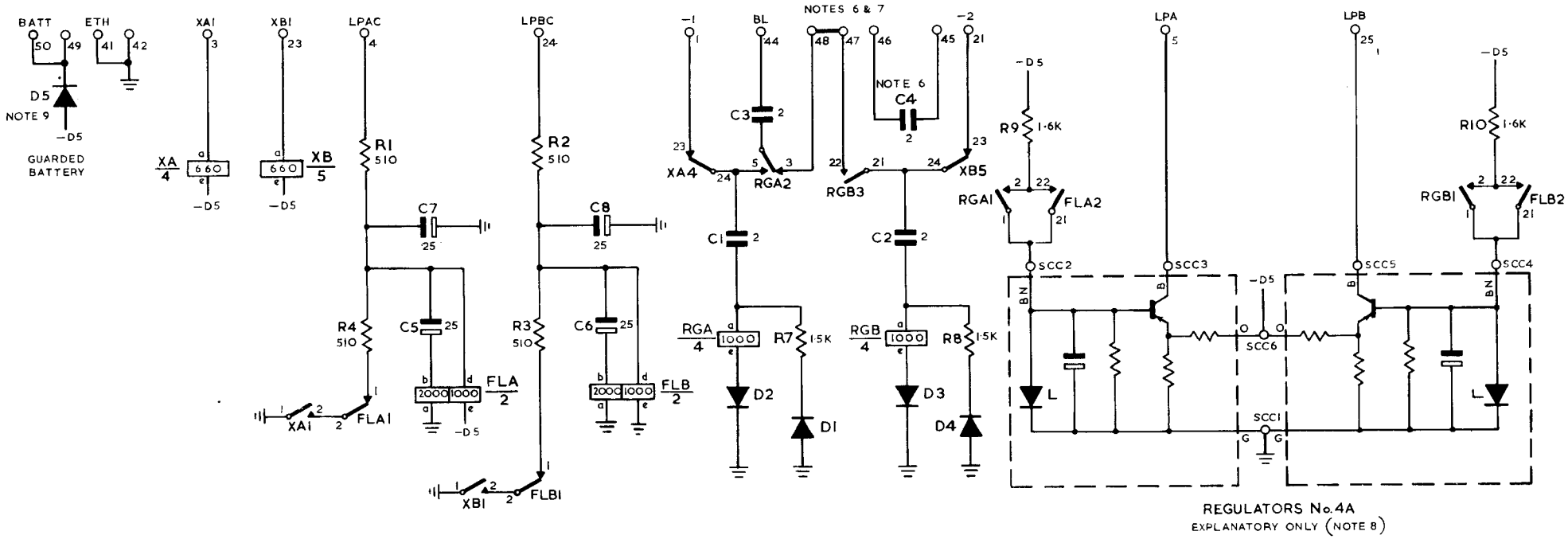
11. RECALL To prevent inadvertent application of recall signal on overpress of KXA or KXB when restoring from hold to speak position in Tele 4/1 provide a delay feature (Nominally 460 ms.) for the recall earth as follows:-

Mount and wire the components shown in Fig 3 on a strip Connexion 145 DN. Secure the Strip Connexion in the top left hand spare relay mounting space in Relay Unit Q516 (when NS Relay 23/16 is also required locate Bracket HM (Note 5) in spare relay mounting space immediately above Regulator No. 4 ...)
Connect SCD tag 4a to SCA9 (wire Equip 1W/0.5mm red)
" tag 8 to Term.29 (Wire Equip 1W/0.5mm blue)
See Dgm Q547 (Issue A) for cable Connexions.

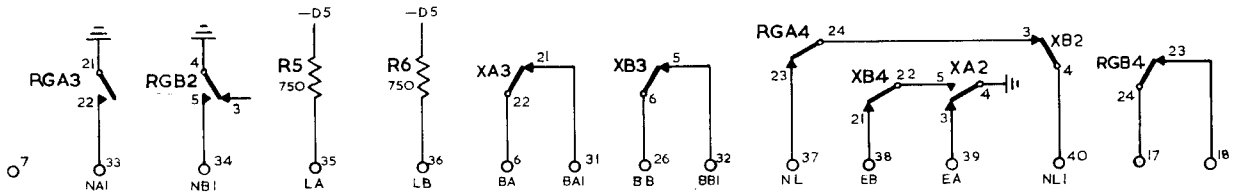
H.E.S. No.4

RELAY–UNIT Q561, FIG.1 (NOTE 1)

FOR WIRING COLOURS USED IN UNIT SEE DGM. LD192



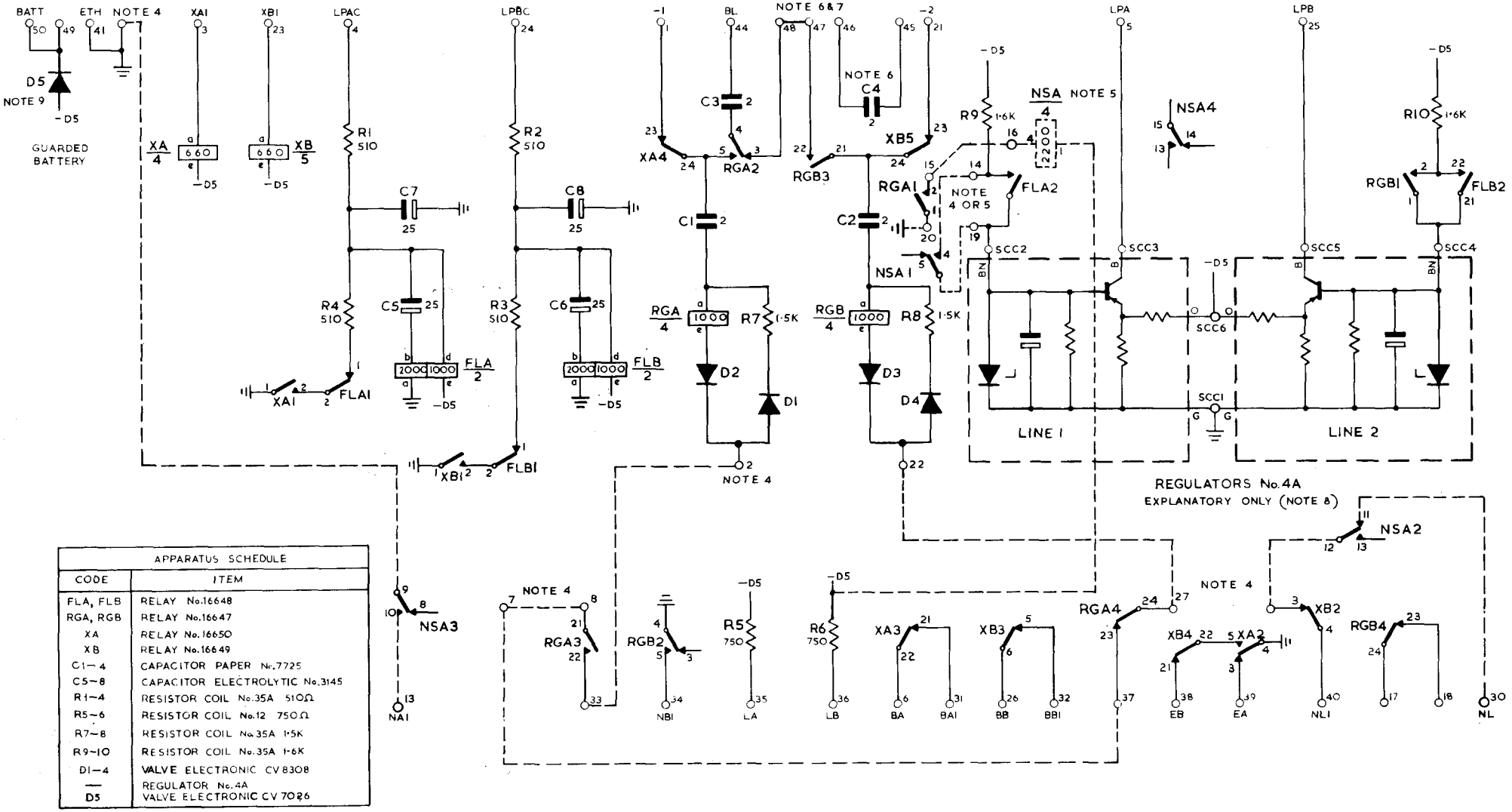
APPARATUS SCHEDULE	
CODE	ITEM
FLA, FLB	RELAY No.16648
RGA, RGB	RELAY No.16647
XA	RELAY No.16650
XB	RELAY No.16649
C1–4	CAPACITOR PAPER No.772
C5–8	CAPACITOR ELECTROLYTIC No.3145
R1–4	RESISTOR COIL No.35A 510Ω
R5–6	RESISTOR COIL No.12 750Ω
R7–8	RESISTOR COIL No.35A 1·5K
R9–10	RESISTOR COIL No.35A 1·6K
D1–4	VALVE ELECTRONIC CV8308
—	REGULATOR No.4A
D5	VALVE ELECTRONIC CV7026



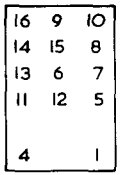
H.E.S. No.4

RELAY-UNIT Q516, FIG2 (MODIFIED TO BE SUITABLE FOR LOOP RINGING, SEE NOTES 4 & 10)

FOR WIRING COLOURS USED IN UNIT SEE DGM. LD 192



APPARATUS SCHEDULE	
CODE	ITEM
FLA, FLB	RELAY No.16648
RGA, RGB	RELAY No.16647
XA	RELAY No.16650
XB	RELAY No.16649
C1–4	CAPACITOR PAPER No.7725
C5–8	CAPACITOR ELECTROLYTIC No.3145
R1–4	RESISTOR COIL No.35A 510Ω
R5–6	RESISTOR COIL No.12 750Ω
R7–8	RESISTOR COIL No.35A 1·5K
R9–10	RESISTOR COIL No.35A 1·6K
D1–4	VALVE ELECTRONIC CV8308
—	REGULATOR No.4A
D5	VALVE ELECTRONIC CV 7026

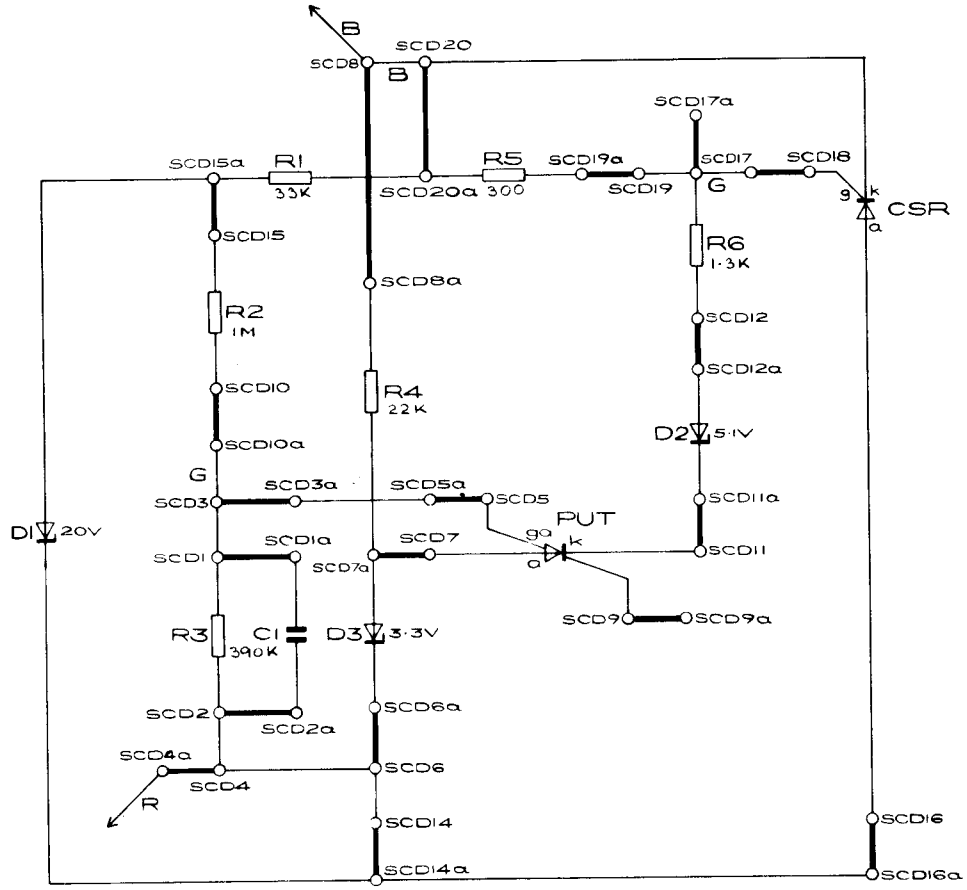


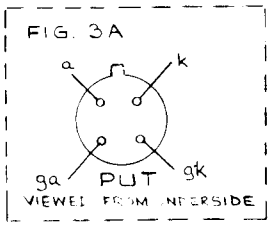
RELAY (VIEW OF TAGS)

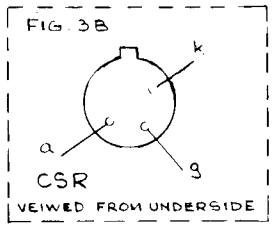
RELAY UNIT Q516 HES No.4

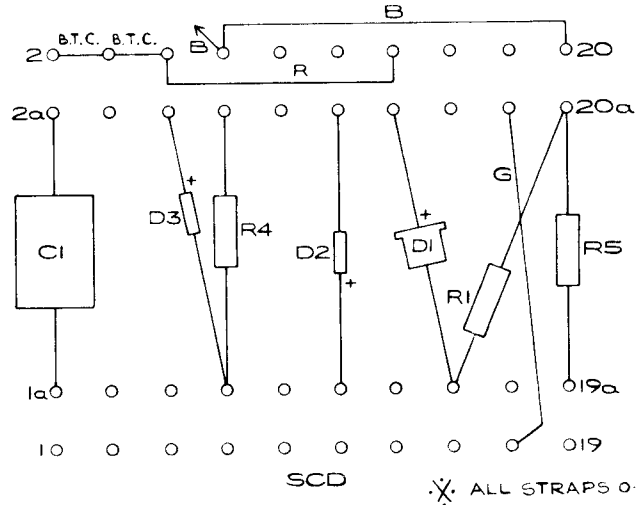
FIG.3 EARTH RECALL (DELAY CIRCUIT SEE NOTE 11)

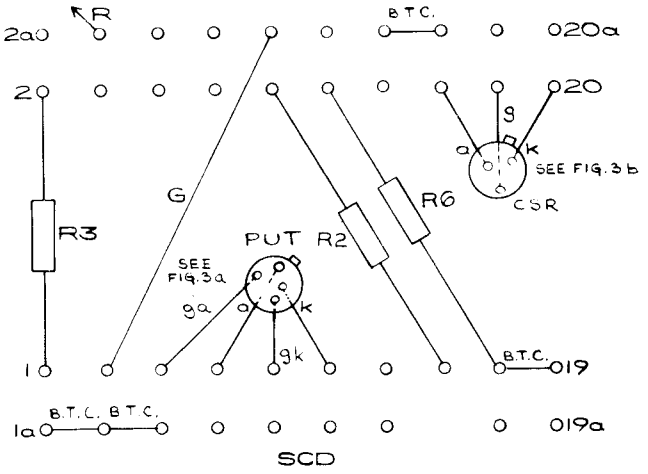
APPARATUS SCHEDULE	
CCT CODE	DESCRIPTION
C1	CAPACITOR No.8017 2·2μF 100V MIN
PUT	PROGRAMMABLE UNIJUNCTION TRANSISTOR BRY 39 (OR EQUIVALENT)
R5	RESISTOR No.9IEJ 300Ω
R6	RESISTOR No. 9IEJ 1·3kΩ
R4	RESISTOR No. 9IEJ 22kΩ
R1	RESISTOR No. 9IEJ 33kΩ
R3	RESISTOR No. 9IEJ 390kΩ
R2	RESISTOR No. 9IEJ 1M
SCD	STRIP CONNEXION No.145DN
D2	VALVE ELECTRONIC CV7100
D3	VALVE ELECTRONIC CV7138
D1	VALVE ELECTRONIC CV7424
CSR	VALVE ELECTRONIC (THYRISTOR) CV9297











ALL STRAPS 0·5mm WIRE