

CIRCULATION
GENERAL
SUFFIX
80,9,C,4, A
REDRAWN, WAS 3 PANELS
AMENDT.
W

# TERMINATION OF INTERSWITCHBOARD PRIVATE CIRCUIT

SWITCHBOARD CBB73 SIGNALLING GROUP D: G/AC IN; G/AC OUT.

N 716

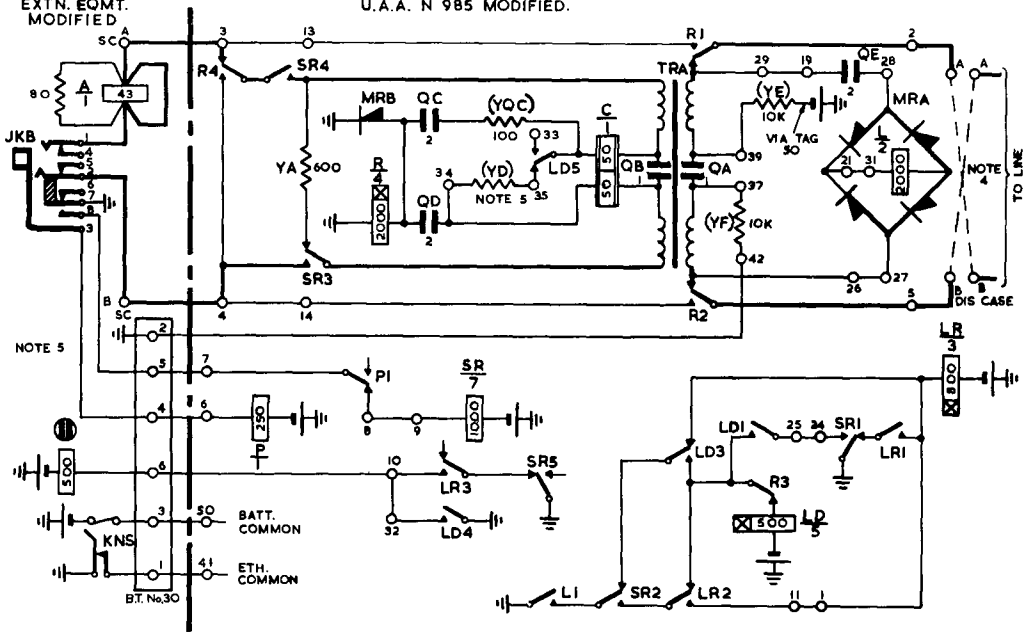
6 PANELS-1  
11-4-56.

SUPERSEDES FOR NEW WORK N1084

## EXPLANATORY

EXTN. EQMT.  
MODIFIED

U. A. A. N 985 MODIFIED.



NOTE 5

NOTE 4

TO LINE

L3

800

800

800

800

800

800

800

800

800

800

BATT. COMMON

ETH. COMMON

B.T. No.30

PAPER

W



# WIRING SCHEDULE

**N 716**

6 Panels-3

11-4-56

Supersedes for New  
Work DGM N 1084

CIRCULATION	GENERAL
SUFFIX	A
AMENDT	W
PAPER	W

**RECOVER**  
**(Note 7)**

**SHIFT**

**PROVIDE**

Wires from Jack  
springs 7 & 8

Wires from Jack inner  
spring 4 to Jack Aux  
spring 7

BT No. 30... adjacent to SC No. 101 in  
swbd.

Wires from KNS  
springs

Fuse Mtg. No. 136A (see Note 3).

Wire from main battery connection on swbd.  
fuse to Fuse Mtg. No. 136A.

Wire from Indicator

Wire short circuit across A relay of extn.

Wires from s/c  
No. 101 in switchboard  
to dis. case on  
selected extension at  
both ends

Wires from BT No. 30 terminals as  
follows:-

- (1) To KNS break spring
- (2) To earth bus bar (Spare terminal)
- (3) To Fuse Mtg. No. 136A
- (4) To Jack spring 3
- (5) To Jack spring 8
- (6) To Indicator

Strap between Jack  
springs 6 & 2

Wire KNS traveller spring to earth bus  
bar spare terminal.

Cable from S.C. and B.T. to UAA as shown.

Resistors YD, YE & YF directly across  
S.C. No. 121 tags as shown (Note 5).

Capacitor QE & connect by existing wiring  
to tags 19 & 28

Wire from S.C. tag 40 to SR5 spring 25.

Straps on S.C. No. 121 as shown on  
Panel 2.

REDRAWN, WAS 3 PANELS

**N 716**

6 Panels-4

## INSTALLATION NOTES

1. The earthed lead from the ringing source must be connected to the 'Tip' side of KR & KDR (N 930 Fig. 8). The hand generator should be earthed accordingly.
2. Requisition separately:-  
Capacitor MC No. 102. Clip No. 42  
Fuse Mtg. No. 136A Fuse No. 36/1  
Resistor Carbon No. 15GD-10K (Quantity 2)  
Resistor Carbon No. 15GD-15K (Note 5)
3. Battery supply to U.A.A. to be made via a Fuse No. 36/1 fitted on Fuse Mtg. No. 136A screwed to the woodwork above existing fuse mtg. Fuse to supply 1 to 4 U.A.A's.
4. Normally reversed at one end for contact wetting.
5. Resistor YD has a value of 15K $\Omega$  for circuits with prohibition. Where omission of prohibition has been authorised omit YD, strap tags 34 & 35 and omit connexion JKB(3) to B.T. No. 30(4).
6. A Label White No. 398A marked "U.A.A. modified to Dgm. N 716" to be firmly affixed to U.A.A.
7. Recovered wires to be insulated and tied back.
8. KNS contact unit No. is the same as No. of selected extension.

## CIRCUIT OPERATION NOTES

N 716  
6 Panels-5

(See Panel 1 for supersession Notes)

For a description of Group D signalling see E.l.s Tele's PBX's B 3101 & B 3102.

**INCOMING CALL.** L operates to ringing current over A & B wires of line. L1 ops. LR which holds to LR1. LR3 ops. INDICATOR. Local operator inserts cord circuit plug into jack and SR operates. SR3 & 4 complete speech path. SR1 releases LR. SR5 releases INDICATOR.

**OUTGOING CALL.** Operator inserts plug into jack. SR ops. SR3 & 4 extend R relay to cord circuit. Operator rings and ringing current flows from earthed generator over RING wire of cord circuit and jack to operate R relay via SR3. (At this stage a shunt path to earth via SR4, R4 and cord circuit ringing return, reduces generator output available for operation of relay R). When R ops, the shunt path is disconnected and an additional hold path for R is established by R4. Earthed ringing is sent to line via R2. R1 applies ringing return earth from cord circuit. No answer signal is received.

**CLEARDOWN FROM ESTABLISHED CONNEXION:-**  
(SR relay is operated during a call).

**Local PBX clears first.** Upon receiving a clear from local extension, operator challenges then 'rings-off' (i.e. sends burst of ringing, then removes plug). R ops and sends ringing to line. SR releases to removal of plug.

**Distant PBX clears first.** L ops to ringing from distant PBX. L1 ops LD. LD4 ops. INDICATOR. Operator challenges, then removes plug. SR releases. LD releases.

**CALLING-IN.** During an established connexion local operator may call in the distant operator by ringing. Similarly, if distant operator rings to call-in local operator, INDICATOR will be operated by relay sequence given for a clear signal (hence the need for challenging on this type of circuit). In order to restore INDICATOR, local operator removes and re-inserts plug thus releasing SR and LD relays, then re-operating SR.

**RECALL.** The local operator, upon receiving a clear signal from distant PBX may wish to recall distant operator. This may be done by ringing (without prior removal of plug). R relay operates and extends ringing current to line. R3 releases LD relay. LD4 restores INDICATOR.

N 716

6 Panels-6

## CIRCUIT OPERATION NOTES (Contd.)

**PROHIBITION.** If an exchange line is connected to the Interswitchboard Private Circuit jack, P relay ops. to earth on exch. line jack. P1 releases SR. SR3 & 4 disconnect speech path.

**CONTACT WETTING.** Resistors YE & YF are provided so that a current of approximately 1 mA flows in each wire of interswitchboard line during speaking condition to prevent transmission losses which would otherwise occur if no d.c. were flowing. Resistor YD is used to pass approximately 1 mA from cord circuit during a call, through Contacts R4, SR4, LD5 and SR3. Where omission of exchange prohibition has been authorised this resistor is replaced by a strap, in order to provide a holding loop to exchange.

**GUARD CIRCUITS.** If local operator inserts (or removes) plug during receipt of a call (or clear) signal, a guard circuit prevents release of LR (or LD) relay until the end of signal, thus:- Earth from L1 holds LR via SR2 operated, LR2 operated, (or L1 holds LD via SR2 normal, LD3 operated) the relay having sufficient release lag to remain operated during the transition times of SR1 & 2 contacts.