DIAGRAM NOTES

concerning

DIAGRAM GBW. 14710

titled

20, 35 & 49 LINE P.A.B.X. - PULSE CIRCUIT

1. GENERAL

The diagram shows the circuit of the relay set used to provide interrupted tone and interrupted earth pulses on the above equipments. The circuit is closely associated with the Ringing and Tones circuit GBW.14700 and the circuit description for that circuit should be read in conjunction with this circuit description.

2. FACILITY SCHEDULE

Provision is made for:-

1. The distribution of earth start conditions to start chains for Connecting Circuits and Exchange Line Circuits.
2. The distribution of exchange line Test Pulses.
3. Interrupting ringing and ring tone.
4. Interrupting 400 cycle tone to give busy tone.
5. Warn pulse and Flicker earth.

3. CIRCUIT DESCRIPTION

3.1 Start condition, Warn Pulse, and Flicker Earth Supply

When interrupted earth supplies or test pulses are required for the operation of other circuits in the equipment, the pulse circuit is brought into operation by the connection of earth to the Pulse Start or line start leads which complete the circuit to operation relay PA.

Relay PA operating

PA1 energises the magnet of the PS switch via the PS interrupter springs, and holds it energised via R1.
PA2 removes the earth from the "flicker earth" lead, and operates relay PB.

Relay PB operating

PB1 breaks operating circuit of relay PA which releases.
PB2 connects a 10K battery via condenser C2 to warn tone lead and disconnects the 10K earth.

Relay PA releasing

PA1 disconnects energising circuit of PS switch and switch steps to 1st bank contact.
PA2 re-connects earth to "flicker earth" lead, and disconnects operating circuit of relay PB thereby releasing it.

Relay PB releasing

PB1 re-connects energising circuit of relay PA.
PB2 connects a 10K earth via condenser C2 to warn tone lead, and disconnects the 10K battery.

Relays PA and PB continue to interact in the above manner until earth is removed from the Start lead. The PS switch is thus stepped at approximately $2\frac{1}{2}$ steps per second. The 400 ms. interval between steps is made up of the combined operate and release times of relays PA and PB, and warn tone is produced by the alternating connection of the 10K earth or battery via capacitor C2 which causes C2 to charge and discharge thus producing the distinctive click.

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3.2 Tone Interruptions and Test Pulses

Earth on the Pulse Start lead is connected to wiper PS1, PS2 and PS3.

3.2.1 From the bank of PS1, BT is pulsed .8 sec. on, .8 sec. off approximately.

Relay BT pulsing

BT1 supplies Busy tone to circuits as required.
BT2 supplies Busy earth to circuits as required.

3.2.2 From the bank of PS2, RA is operated for 2 secs., released for .4 secs, re-operated for .4 secs. released for .4 secs and operated again for 2 secs whereupon the cycle is repeated.

Relay RA pulsing

RA1 supplies ring tone to circuits as required.
RA2 supplies interrupted ringing to circuits as required.

3.2.3 Exchange line test pulses are supplied from bank contacts of PS3.

3.3 Line Start

Start conditions for connecting circuit start chain are distributed via wiper and bank PS4.

3.4 Exchange Line Start

Start conditions for exchange line start chain are distributed via wiper and bank of PS5.

3.5 Dial Tone

Immediately a connecting circuit is seized and before dialling takes place, the P relay is operated.

Relay P operating

P1 completes circuit to TH relay.

Dial tone is fed from the valve tone generator to the connecting circuit via the dial tone lead.

3.6 PG circuit

When the P relay is operated (see 3.5) P1 completes the circuit of Thermal relay TH which operates in approximately 30 secs.

TH1 completes the circuit to operate relay PG.

Relay PG operating

PG1 completes the PG alarm circuit to the Attendants cabinet.
PG2 locks relay PG and releases thermal relay TH.

Relay PG releases when relay P is released.

PG and TH relays are combined as one relay. TH being the Right hand springset.

END