

DIAGRAM NOTES (ISSUE 1)
 concerning
DIAGRAM GBW.14160
 titled
50/1200 LINE P.A.B.X.
ENQUIRY CIRCUIT

1. GENERAL.

This diagram shows the circuit of the Enquiry Circuit.

The following diagrams should be considered in conjunction with this diagram.

Extension Line and Line Finder Circuit (GBW.14080).
 Exchange Line Circuit (GBW.14150).
 "0" Level Circuit (GBW.14270).
 Lamp Lighting Circuit (GBW.14280).

2. FACILITY SCHEDULE.

Provision is made for:-

- (1) Seizure of free circuit by Exchange Line Circuit if an enquiry call is made.
- (2) Engaged circuit to set up operator re-call conditions in the Exchange Line.
- (3) Onward transmission of operator re-call signal if the digit "0" is dialled.

3. CIRCUIT DESCRIPTION.

3.1 Outline.

When an extension requires to make an enquiry call, the first depression of the telephone instrument push-button operates the enquiry relays in the Exchange Line, which seize a 1st Group Selector via the Enquiry Circuit. On receipt of dial tone the required extension can then be dialled.

Should the Enquiry Circuit be busy, or free and the digit "0" dialled, then operator re-call conditions are automatically set up.

3.2 Detail.

Enquiry Circuit Free.

The earth on the ST lead operates relay ER in the exchange line on the first depression of the telephone instrument push-button and relay RH in the Exchange Line circuit is short circuited by the earth on the M lead until the telephone instrument push-button is restored, whereupon RH operates and ER holds to earth on M lead. Relay ER in the exchange line circuit operates relay SG in the enquiry circuit.

A loop is forwarded over the -ve and +ve enquiry lines to operate the LS relay of the associated Line Circuit to seize a 1st Group Selector. Relay CO in the line circuit, and K relay in the enquiry circuit operate to the 1st Group Selector earth on the HF lead.

Relay SG operating

- SG1 removes the earth on ST lead so that the ER relay in any other Exchange Line making an enquiry call cannot operate.
- SG2 connects the Z lead through to the Z relay.
- SG3) extend a loop from the exchange line circuit to operate
- SG4) relay LS in the extension line circuit.

Relay K operating

- K1 disconnects an alternative operate circuit for relay CR.
- K2 operates relay KK.

Relay KK operating

- KK1 prepares a circuit to operate the CR relay on release of the K relay should the extension clear at any stage of an enquiry call.
- KK2 prepares a hold circuit for relay Z.

Dial tone is returned to the extension making an enquiry call, procedure is same as for local call. On completion of the call the originating extension, in order to release the connection, again depresses the instrument button which operates the Z relay via the Z lead in the exchange line.

Relay Z operating

- Z1 holds relay Z to earth at KK2.
- Z2 removes the earth on the M lead and loops the M and Z leads thus ER and RH are held till the instrument button is restored.
- Z3 further disconnects alternative operating circuit for relay CR.

When the ER relay in the exchange line circuit releases, the -ve and +ve enquiry leads are disconnected thereby releasing the 1st Group Selector which in turn releases relay K. The ER relay also releases relay SG.

Relay SG releasing

- SG1 prepares to restore earth to ST lead on release of Z.
- SG2 disconnects the Z relay from the Z lead.
- SG3 } further disconnect the +ve and -ve leads.
- SG4 }

Relay K releasing

- K1 prepares to restore alternative CR relay operating circuit.
- K2 releases relay KK.

Relay KK releasing

- KK1 further disconnects alternative CR relay operating circuit.
- KK2 releases relay Z.

Relay Z releasing

- Z1 further disconnects holding circuit for relay Z.
- Z2 restores earth on the ST and M leads.
- Z3 restores an alternative operating circuit for relay CR.

Circuit is now free and available for further enquiry calls.

Enquiry Circuit engaged.

Should the enquiry circuit be engaged when a second extension requires to make an enquiry call, on the depressing of the instrument button relay ER in the exchange line will not operate due to removal of earth on ST lead by SG1.

Enquiry Circuit free - digit "0" dialled.

Should the extension making an enquiry call, seize an enquiry circuit, as already described under "Enquiry Circuit free", and dial the digit "0", the 1st Group Selector will seize a free "0" level or Lamp Lighting circuit and an 1150 ohm battery will be returned over the L lead to operate relay CR in the enquiry circuit.

Relay CR operating

- CR1 applies an earth to the CR lead thus operating relay CR in the exchange line circuit thereby setting up operator re-call conditions.
- CR2 locks to earth at KK2 contact.
- CR3 further disconnects the SG lead against release of SG relay.
- CR4 releases relay SG.

Relay SG releasing

- SG3) disconnect the loop to the "0" level or
- SG4) Lamp lighting circuits.

As the A relay in the "0" level or Lamp lighting circuits is released before the G or B relays have operated, when the B relay in the 1st Group Selector releases there is no hold circuit for the K and H relays which release and restore the 1st Group Selector to normal. At the same time the earth is disconnected from the H lead to the Enquiry circuit to release relay K. The CR relay being held operated till KK disconnects the holding earth.

When the CR relay in the exchange line circuit operates, relays ER and RH are released and in turn further disconnect the +ve and -ve leads to the enquiry circuit.

Relay CR releasing

- CR1 disconnects earth on CR lead.
- CR2 further disconnects locking circuit for relay CR.
- CR3 re-connects the ST lead
- CR4 re-connects relay SG to BH lead.

Should an extension release on an enquiry call before the called party has answered, the release of relay K causes an earth to be applied to the CR relay during the release time of relay KK. This earth operates relay CR and sets up operator re-call conditions in the exchange line circuit by earthing the CR lead.

END