

DIAGRAM NOTES

concerning

DIAGRAM G.B.W. 13210

titled

20, 35 & 49 LINE P.A.B.X. - EXTENSION LINE CIRCUIT1. GENERAL

This circuit shows the automatic extension line circuit used on the 20, 35 and 49 line New Zealand P.A.B.X.'s. Modified extension line circuits as shown in figs. 2 and 4 are used for night service extensions.

2. FACILITY SCHEDULE

Provision is made for :-

1. Extending a start condition to cause a connecting circuit linefinder to hunt for the calling extension.
2. Applying line busying conditions when the line is in use.
3. Applying "barred access to main exchange" facility if required.
4. Use with the night service extension.
5. Access to extension line circuits from the Exchange line and selector multiples.

3. CIRCUIT DESCRIPTIONOutline

The various types of call are classified under the following headings :-

1. Outgoing calls from an automatic extension.
2. Direct access main exchange calls.
3. Incoming calls via a connecting circuit.
4. Calls via the Night Service Extension circuit.
5. Calls completed via the attendants cabinet.
6. Release on completion of a call.

Detail1. Outgoing calls from an automatic extension

The calling extension lifts the receiver to loop the A and B lines of the extension line circuit concerned.

Relay LS is operated by the calling loop.

LS2 connects a 1150 ohm battery to the H.F. contact of the line finder bank multiple to mark the calling extension.

LS1 connects an earth to the line start lead and causes a free connecting circuit line finder to hunt for the calling extension.

LS3 connects the CO relay to the HF lead.

When the linefinder reaches the calling extension, the battery on the HF lead operates relay FT in the connecting circuit which cuts the line finder drive circuit. An earth, via FT relay, is then connected to the HF wiper by the connecting circuit to busy the calling extension against incoming calls from the automatic equipment and the P.A.B.X. attendant.

Relay CO operates to the earth applied to the HF lead.

CO1 provides a hold circuit for relay CO.

CO2 disconnects the earth from the A lead.

CO3 disconnects the LS relay from the B lead thus releasing it.

Relay LS releasing

LS1 disconnects the earth to the line start lead.

LS2 } disconnects the 1150 ohm battery on the HF lead.
LS3 }

The calling extension is now connected to the connecting circuit and dial tone is received.

2. Direct Access main exchange calls

Dial Tone is returned to the calling extension as previously described. After dialling the exchange line digit the connection is established over the exchange line finder multiple and the connecting circuit is released.

Relay CO holds in series to the earth returned over the H wire from the exchange line circuit and this earth busies the calling extension against incoming calls.

Contact functions are as previously described in para. 1.

On extension line circuits which are barred direct access to the public exchange, the strap between the EB and BD terminals is disconnected, and terminals BD and E are strapped. The changing of the strap alters the circuit operation of the connecting circuit to return busy tone to calling extension.

3. Incoming calls via a connecting circuit

In the case of a call to a disengaged extension, the free condition is indicated by the connection of the CO relay battery to the H lead of the Selector multiple.

The connecting circuit positioned on a free extension line applies an earth to the H lead.

Relay CO operates to the earth applied to the H lead.

Contact functions are as previously described and the earth on the H lead busies the called extension's line on the multiple.

If the called extension line is already engaged on a call, an earth is connected to the H lead from the preceding or subsequent automatic apparatus. This prevents the operation of relay H and busy tone is returned from the connecting circuit, to the calling extension.

4. Calls via the Night Service Extension circuit. (Extension 89)

Calls via the night service extension circuit follow the circuit operation described in para. 3 with the exception that relay CO is operated in series with relay HF (diagram GBW. 13270 Fig. 2 or GBW. 14720 Fig. 2).

5. Incoming call to an extension completed via the attendant's cabinet

On calls completed via the attendant's cabinet connection to the wanted extension's line is obtained over the exchange line finder multiple.

Relay CO operates as previously described.

Should the called extension's line be engaged the operator will receive busy flash on the associated line lamp.

6. Release on completion of a call

On completion of a normal call, the earth is removed from the HF or H lead and relay CO releases, and reconnects the LS-relay to the extension's A and B lines.

The extension line is now available for further calls.