

This Method of Operation was prepared from Issue 23 of Drawing Eg-207867.

METHOD OF OPERATION  
Miscellaneous Tone and Interrupter Circuits - Panel System

DEVELOPMENT

1. PURPOSE OF CIRCUIT

- 1.1 This circuit shows miscellaneous tone, interrupter and tone alarm circuits required for use in panel offices.

2. WORKING LIMITS

- 2.1 None.

OPERATION

3. PRINCIPAL FUNCTIONS

- 3.1 Provision of flashing interrupters for:

- 3.11 Line busy.  
3.12 All incoming local paths busy.  
3.13 All incoming toll paths busy.

- 3.2 Provision of tone for:

- 3.21 Busy.  
3.22 All paths busy.  
3.23 Dial.  
3.24 Permanent signal.  
3.25 Howler.  
3.26 Check.  
3.27 Trunk assignment.

- 3.3 Provision of alarms for:

- 3.31 Ground and line busy circuit.



( 3 Pages, Page 2 )  
Issue 3 BT-207867  
April 2, 1930.  
Replacing all previous  
issues.

3.32 No voltage for busy, all paths busy and dial tones.

#### 4. CONNECTING CIRCUITS

4.1 This circuit connects with any panel system circuit requiring the various interrupter frequencies and tones.

#### DESCRIPTION OF OPERATION

##### 5. LINE BUSY INTERRUPTERS

This interrupter causes periodical interruption of the busy tone applied by panel selector circuit. A ground on any of the associated line busy leads "D" will cause operation and release of relay (BB) in unison with the make and break of the interrupter, causing lamp (BB) to flash. Relay (BB) also controls the relay in the associated fuse alarm circuit which, alternately operating and releasing, operates alarms at the alarm boards.

##### 6. ALL PATHS BUSY FLASH

This circuit furnishes interrupted ground over lead "pB" for operating and releasing the supervisory relay in an incoming circuit from manual key indicator system. This relay, in turn, causes the "A" operator's supervisory lamp to flash as an indication that the incoming has gone to overflow. Interrupted ground is furnished over lead "PBI" to operate and release a relay in the toll key indicator incoming circuit for flashing the toll supervisory lamp to indicate that the incoming has gone to overflow.

##### 7. TONES

The busy tone and all paths busy tone leads supply the same low tone except that the all paths busy tone is periodically connected and disconnected by the interrupter. A different low tone is provided for dial tone. High tone, either direct or through a repeating coil is furnished for permanent signal, howler, check and trunk assignment.

##### 8. ALARMS

Relays (LT1) and (LT2) provide an alarm for the busy tone, all paths busy tone and dial tone circuits. These relays are normally held operated by interrupter battery through a low tone commutator. Relay (R) (Fig. 5) provides an alarm for the dial tone when ringing current is superimposed upon dial tone to prevent interference with the tone by contact resistance. In case the ringing current is disconnected, relay (R) releases causing operation of visible and audible signals. Where



( 3 Pages, Page 3 )  
Issue 3 BT-207867  
April 2, 1930.  
Replacing all previous  
issues.

the location of the ringing machine equipment is remote from that of the main power equipment. Fig. 2 is used to provide alarms both in the alarm board for the floor on which the ringing machine is located and in the power alarm cabinet.

9. PERMANENT SIGNAL TONE

When the associated key at the sender monitor position is operated, tone is connected to the high winding of output transformer (PST) of Fig. 4. This causes high tone to be applied over lead "I" to the ring of each holding line for permanent signals for identifying defective cable pairs.

ENG.  
E.L.F.  
4-2-30  
B.A.S.

CHK'D. E.L.F.

APP'D. A. PENROD  
S.C.E.