COMMON SYSTEMS
AUXILIARY SIGNAL CIRCUIT
FOR SENDER MAKE BUSY FRAME
CHIEF SWITCHMAN'S DESK
MASTER TEST FRAME
OFFICE TEST FRAME
AND OUTGOING TRUNK TEST FRAME
FOR USE IN CROSSBAR NO. 1 CROSSBAR TANDEM CROSSBAR NO. 5, PANEL, PANEL SENDERS TANDEM OR TOLL SWITCHING SYSTEM NO. 4 OR 4A

CHANGES

B. Changes in Apparatus

B.1	Superseded	Superseded By
	687A-3 subset - ZB option	687A-49 subset - ZC option

D. Description of Circuit Changes

D.1 Note 102 is changed to specify the use of this circuit with the Office Test Frame in No. 5 Crossbar Package Offices.

D.2 The manufacture of the 687A-3 subset has been discontinued and is replaced by a 687A-49 subset. ZB option is therefore rated "Mfr Disc." replaced by ZC option standard.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT 2311-ASM-MFF-CH

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MASTER TEST FRAME
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CROSSBAR NO. 5, PANEL, PANEL SENDER TANDEM,
OR TOLL SWITCHING SYSTEM NO. 4 OR 4A

CHANGES

A. CHANGES AND ADDED FUNCTIONS

A.1 Provision is made to function with the Flashing Circuit in offices where sufficient interrupters are not available and for Crossbar No. 5.

B. CHANGES IN APPARATUS

B.1 Superseded	Superseded by
Fig. 13 U207 (FL) relay	Fig. 18 U624 (FL) relay, option "ZA"
531-A3 Subset, option "P"	687-A3 Subset, option "ZB"

C. CHANGES IN CIRCUIT REQUIREMENTS OTHER THAN THOSE APPLYING TO ADDED OR REMOVED APPARATUS

C.1 Blocking information for relays (AL), (AL1), (A1), (A2), (A3) and (A4) is added.

C.2 Parallel requirements are added for relay (AL) with (AL1).

C.3 Test Notes 1 and 2 are added to block audible alarms.

D. DESCRIPTION OF CHANGES

D.1 Fig. 18 is added to permit this circuit to function with the Flashing Circuit. Fig. 13 and option Q are rated Mfr. Disc.

D.2 Option "ZA" is furnished with Fig. 18 when a bell or buzzer is required. Otherwise, option "K" is used.

D.3 Reference to Crossbar Tandem is included at interrupter (AS).

D.4 The 531-A3 subset, option P, is rated Mfr. Disc. and is superseded by the 687-A3 subset, option ZB.

D.5 Note 102 is revised to cover these changes.

D.6 Fig. 18 and options ZA and ZB are added to the Options Used table.

D.7 Note 104 records these changes.

All other headings under Changes, no change.

1. PURPOSE OF CIRCUIT

1.1 The purpose of this circuit is to provide an auxiliary signal circuit for use with the various trunks and tie lines associated with the maintenance desks and frames mentioned in the circuit title.

2. WORKING LIMITS

2.1 None.

3. FUNCTIONS

3.1 To give an interrupted audible signal on the buzzer or bell whenever a call comes in on one of the associated trunks or tie lines.

3.2 To provide supplementary bells or buzzers.

3.3 To provide means for lighting a lamp and for ringing a night alarm bell at the floor alarm board or frame or in the audible and visual alarm circuit for the purpose of extending an incoming call signal to a common point when the maintenance desk or frame in question is unattended.

3.4 To provide means for grouping the various auxiliary signal circuits so that trunks or tie lines multipled at certain desks will operate the auxiliary signal circuits of those desks or frames.

4. CONNECTING CIRCUITS

When this circuit is listed on a key sheet the connecting information thereon is to be followed.

4.01 Local Station Line - SD-90561-01.

4.02 Trunk or Tie Line, Two-Way Ringdown or Automatic - SD-90615-01, SD-96137-01.

4.03 Tie Line, Two-Way Automatic, Three Wire - SD-90616-01.

4.04 Trunk Circuit to Switchboard, Two-Way Automatic - SD-90595-01, SD-96195-01.

4.05 Tie Line Circuit to Supervisors, Four-Wire - SD-21639-01.

4.06 Floor Alarm Board, Miscellaneous and Auxiliary Alarm Circuit (Battery Cut-Off and Panel Tandem Office) - SD-21203-01, SD-21257-01.

4.07 Floor Alarm Frame Miscellaneous and Auxiliary Alarm Circuit (Crossbar Office) - SD-25047-01.

4.08 Panel-Miscellaneous Circuit for Miscellaneous Interrupter Frame - SD-21666-01, SD-21667-01, SD-21669-01.

4.09 Miscellaneous Alarm Circuits (Ground Cut-Off Office) - ES-20241-01.

4.10 Crossbar No. 1 or Tandem Interrupter Frame Ckt., SD-25062-01.

4.11 Key Cabinet No. 20 Transfer and Auxiliary Signal Circuit - SD-96136-01, Fig. 11.

4.12 Audible and Visual Alarm Circuit - SD-96188-01.

4.13 Interrupter Circuit Crossbar No. 5 - SD-25742-01.

4.14 Office Alarm Circuit - SD-25671-01.

4.15 Key Cabinet No. 20 or 21 Transfer and Auxiliary Signal Circuit - SD-95407-01.

4.16 Two-Way Trunk Circuit - SD-96221-01.

4.17 Alarm Transfer Circuit - SD-25885-01, SD-20733-01, SD-20736-01.

4.18 Flashing Circuit - SD-95725-01.

DESCRIPTION OF OPERATION

5. CONTROL CIRCUIT, FIG. 1

In cases where the grouping circuit of Fig. 3 is not used, the winding of relay (AL) in Fig. 1 is connected directly by way of lead "A" to the trunks or tie lines terminating at the maintenance desk or frame. When grouping with auxiliary signal circuit or key cabinet No. 20 or 21 is required, lead "A" is connected to key cabinet No. 20 or 21 transfer and auxiliary signal circuit. When a call comes in, the relay equipment of the trunk or tie line or key cabinet No. 20 or 21 transfer and auxiliary signal circuit causes steady ground to be applied to lead "A" so as to operate relay (AL).

6. BELL OR BUZZER REQUIRED, FIG 5 AND OPTION A

6.1 Where Interrupters Are Not Available, Fig. 18 and Option ZA

Relay (AL) operated, grounds lead "ST" to start the flashing circuit which flashes the trunk lamps and returns 60 IPM battery over lead "F" to flash relay (FL). With the BUZ key normal, relay (FL) flashes the bell or buzzer. For supplementary bells, Fig. 17 is furnished.

6.2 Where Interrupters Are Available, Fig. 4 and Option K

Relay (AL) operated, flashes relay (FL) thru interrupter (AS). With the BUZ key normal, relay (FL) flashes the bell or buzzer. For supplementary bells, Fig. 17 is furnished. The trunk lamps are flashed under control of the trunk circuit thru an (L) interrupter.

6.3 Crossbar No. 5, Fig. 10 or 13 and Option Q (Mfr. Disc.)

Relay (AL) operated, grounds lead "ST" to start the Crossbar No. 5 interrupter circuit which returns 60 IPM ground over lead "LB" to flash relay (FL). With the BUZ key normal, relay (FL) flashes the bell or buzzer. For supplementary bells, Fig. 17 is furnished. With Fig. 13, relay (FL) also flashes the trunk or line circuit lamps.

7. RINGER REQUIRED, FIGS. 6 AND 11 AND OPTIONS B AND K

Relay (AL) operated, connect machine ringing thru the BUZ key normal, to operate the ringer.

7.1 Where Interrupters Are Not Available, Fig. 18

Relay (AL) operated, grounds lead "ST" to the start the Flashing Circuit which flashes the trunk lamps.

7.2 Where Interrupter Are Available.

The trunk lamps are flashed under control of the trunk circuit by an (L) interrupter.

7.3 Crossbar No. 5, Fig. 13 and Option Q (Mfr. Disc.)

Relay (AL) operated, grounds lead "ST" to start the Crossbar No. 5 interrupter circuit which returns 60 IPM ground over lead "LB" to flash relay (FL). Relay (FL) flashes the trunk lamps.

8. CENTRAL OFFICE ALARM REQUIRED

Where connection to the central office alarm system is provided, the operation of (AL) relay closes circuits as follows:

Where T option is provided, the operation of (AL) relay with (NA) key normal, Fig. 7, connects ground to A or AG and F or SV leads. The operation of (NA) key disconnects these grounds.

Where V option is provided, the operation of (AL) relay connects lead AG to lead BG.

Where S option is provided in addition to V option, ground on lead A operates (AL1) relay. This connects ground to CS or A lead.

When G option is provided (AL) relay connects ground to the CS or A lead.

When R option is provided the operation of the (AL) relay with the (NA) key normal, Fig. 9, connects resistance battery to the MN lead. The operation of the (NA) key disconnects this battery.

9. GROUPING CIRCUIT, FIG. 3

When certain talking trunks are multipled at all three desks or frames or at only part of the desks or frames, it is necessary to furnish the grouping circuit of Fig. 3 in order that the proper auxiliary signal circuits may be operated on incoming trunk calls.

When Fig. 3 is furnished the "A" leads are connected to the various kinds of trunks and leads "B," "C" and "D" are connected as required to the auxiliary signal circuits of the different maintenance desks or frames. When grouping with auxiliary signal circuit of the No. 20 or 21 key cabinet is required, the "A" lead is connected to key cabinet No. 20 or 21 transfer and auxiliary circuit. By this arrangement, relay (A1) will cause the operation of the auxiliary signal circuits at all three of the maintenance desks for frames. Similarly, relay (A2) operates the auxiliary signal circuits at a certain pair of maintenance desks or frames, relay (A3) another combination and relay (A4) still another combination.

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DEPT. 2314-BSP-FBB-AS