COMMON SYSTEMS
AUXILIARY ALARM CIRCUIT
FOR CROSSBAR NO. 5 OFFICES
WITH SWITCHBOARDS OR DESKS
REQUIRING COMMON ALARMS

CHANGES

B. CHANGES IN APPARATUS

B.1 Superseded Superseded By

3 amp. fuse - "D" 1-1/3 amp. fuse - "C"

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 The 3 amp. "D" designated fuse in Fig. 10 is rated A&M Only and is superseded by a 1-1/3 amp. "C" designated fuse which is furnished in the associated No. 5 crossbar alarm circuit.

D.2 Note 103 has been deleted and the information therein has been added to the fusing note. Note 103 read as follows:

Obtain bat. from correspondingly designated fuse of assoc. No. 5 crossbar alarm circuit.

D.3 Note 104 and the Options Used table are changed in reference to the above.

D.4 Multipling straps have been added to Fig. 7 since a maximum of 5 subsets can be provided.

All other headings, no change.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT. 2321-FPP-AAB-CI

COMMON SYSTEMS
AUXILIARY ALARM CIRCUIT
FOR CROSSBAR NO. 5 OFFICES
WITH SWITCHBOARDS OR DESKS
REQUIRING COMMON ALARMS

CHANGES

B. CHANGES IN APPARATUS

B.1

Superseded	Superseded By
531A-3 subset	687A-3 subset

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 "U" option is designated, rated Mfr. Disc. and is superseded by "T" option which is added in order to supersede the Mfr. Disc. 531A-3 subset with the "Standard" 687A-3 subset.

D.2 Note 104 and the options used table are changed in reference to the above.

D.3 The feature or option table is changed in order to specify a maximum of five Figs. 7 per floor instead of the one per floor formerly specified.

4. CONNECTING CIRCUITS

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

4.1 Circuits Requiring Alarm.

4.2 No. 5 Crossbar Alarm Circuit - SD-25671-01.

4.3 Power Battery Distributing Circuit.

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

4.5 Power Audible Alarm Circuit - SD-81061-01.

4.6 Dist. Fuse, Common Aisle and Misc. Individual Alarm Circuit - SD-95380-01.

All other headings, no change.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT. 2321-FPP-AAB-MJ

COMMON SYSTEMS
AUXILIARY ALARM CIRCUIT
FOR CROSSBAR NO. 5 OFFICES
WITH SWITCHBOARDS OR DESKS
REQUIRING COMMON ALARMS

CHANGES

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 Connection to the power audible alarm circuit is added to Fig. 7 and cross-connection Fig. 52 to extend a service alarm indication to the power room.

4. CONNECTING CIRCUITS

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

4.1 Circuits requiring alarm.

4.2 No. 5 Crossbar Alarm Circuit SD-25671-01.

4.3 Power battery distributing circuit.

4.4 Audible and visual alarm circuit SD-96188-01.

4.5 Power audible alarm circuit SD-81061-01.

All other headings, no change.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT. 2325-MAM-EWO-ET

COMMON SYSTEMS
AUXILIARY ALARM CIRCUIT
FOR CROSSBAR NO. 5 OFFICES
WITH SWITCHBOARDS OR DESKS
REQUIRING COMMON ALARMS

CHANGES

B. CHANGES IN APPARATUS

B.1

Superseded	Superseded By
(T1) Relay KS-13542 Option "W"	(T1) Relay 235E Option "V"
(T2) Relay KS-13542 Option "W"	(T2) Relay 235E Option "V"

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 The cross-connections have been changed to add cabling and wiring designations, to clarify the mounting of multiple leads and to provide for the mounting of the equipment units for this circuit on an "Alarm Frame" instead of on a miscellaneous relay rack basis.

All other headings, no change.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 3340-SL-FAK-FV

COMMON SYSTEMS
AUXILIARY ALARM CIRCUIT
FOR CROSSBAR NO. 5 OFFICES
WITH SWITCHBOARDS OR DESKS
REQUIRING COMMON ALARMS

CHANGES

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 Cross-connection Figs. 51, 52, 54, 55, 56 and 59 have been revised.

All other headings, no change.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 3340-SL-FAK-CD

COMMON SYSTEMS
AUXILIARY ALARM CIRCUIT
FOR CROSSBAR NO. 5 OFFICES
WITH SWITCHBOARDS OR DESKS
REQUIRING COMMON ALARMS

CHANGES

B. CHANGES IN APPARATUS

B.1 Superseded	Superseded By
(A) Tone Bar KS-5594, L4 Fig. 11, Option "Y"	(A) Tone Bar KS-5594, L10 Fig. 11, Option "X"

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 Cross connection figures 51, 52, 57 and 59 have been revised to agree with Crossbar Systems No. 5 Alarm Circuit.

D.2 Circuit note 104 has been added.

All other headings, no change.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 3340-SL-FAK-SI

COMMON SYSTEMS
AUXILIARY ALARM CIRCUIT
FOR CROSSBAR NO. 5 OFFICES
WITH SWITCHBOARDS OR DESKS
REQUIRING COMMON ALARMS

1. PURPOSE OF CIRCUIT

1.1 This circuit provides auxiliary control of the audible and visual signals and alarm grouping equipment for crossbar No. 5 offices with switchboards or desks requiring common alarms.

2. WORKING LIMITS

2.1 None.

3. FUNCTIONS

3.1 Lights the service alarm aisle and main aisle pilot lamps, lights the exit pilot lamps for this floor and sounds the service alarm subset when a service alarm is received from toll or telegraph circuits in a No. 5 crossbar office.

3.2 Lights the service alarm aisle and main aisle pilot lamps and sounds the service alarm subset on the same floor, lights the exit pilots for this floor, lights the minor other floor pilot lamp and sounds the service alarm subset on the adjacent floor if the service alarm grouping key between floors is operated when a service alarm is received on the first-mentioned floor.

3.3 Translates alarms from circuits which ground a "G" lead on a minor alarm to 48 volt battery through 800 ohms on the "MN" lead to the No. 5 crossbar alarm circuit.

3.4 Translates alarms from circuits which ground an "A" lead on a fuse alarm or major alarm to 48 volt battery through 800 ohms on the "MJ" lead to the No. 5 crossbar alarm circuit.

3.5 Translates minor alarm indications over the "MN" lead from No. 5 crossbar circuits to ground on the "G" and "F" leads to the toll, common systems, etc. audible and visual alarm circuit.

3.6 Translates major alarm indications over the "MJ" lead from No. 5 crossbar circuits to ground on the "R" and "D" leads to the toll, common systems, etc. audible and visual alarm circuit.

3.7 Provides for extending the alarm indications into operating rooms and similar locations using quiet audible signals.

4. CONNECTING CIRCUITS

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

4.1 Circuits requiring alarm.

4.2 No. 5 Crossbar Alarm Circuit SD-25671-01.

4.3 Power battery distributing circuit.

4.4 Audible and visual alarm circuit - SD-96188-01.

DESCRIPTION OF OPERATION

5. GENERAL

This circuit functions as an auxiliary to the No. 5 crossbar alarm circuit for the following purposes.

5.1 Provide for service alarm visual and audible indications and the grouping thereof between floors.

5.2 Provide for circuits of other systems to indicate major and minor alarms using the No. 5 crossbar audible and visual signals.

5.3 Provide for No. 5 crossbar circuits to indicate major and minor alarms on audible and visual signals of another system when the aisle in which these circuits are located is covered by an existing alarm system.

5.4 Provide for extending audible alarm indications into operating rooms and similar locations requiring quiet signals.

6. SERVICE ALARM

When a service alarm is received by a toll or telegraph circuit in an aisle, floor or building covered by No. 5 crossbar alarms a ground is received on the "SV" lead. If the service alarm can be answered in more than one aisle figure 3

is used. The (SAM) relay operates to ground the "SV" lead to figure 1 for each of the desired aisles. If the service alarm is to be answered from only one aisle the "SV" lead connects directly to the (SA1) relay of figure 1 for the proper aisle. The (SA1) relay lights both the aisle and main aisle pilots of figures 1 and 4 designated (SA) and amber in color. The (SA1) relay also operates the (SA2) relay of figure 2 of this floor. The (SA2) relay, (a) lights lamp or lamps EP, one on each floor except the floor on which the service call is to be answered, (b) opens the operating circuit for relay (SAO), (c) grounds the "SV" lead to signal the other floors through the service alarm grouping key of figure 8 and operates the service alarm subset under control of the alarm sending circuit if provided.

7. SERVICE ALARM GROUPING FEATURE

The grouping of service alarms is independent of the grouping of the trouble alarms. When the service alarm grouping key per figure 8 is operated a service alarm on this floor will in addition to the operation described in paragraph 6, result in the following:

(a) If the succeeding floor has No. 5 crossbar alarms the (SAO) relay operates over the "SV" lead sounds the audible alarm and lights the minor other floor pilot lamp. In this case lead "FS" has no effect.

(b) If the succeeding floor has other than No. 5 crossbar alarms the signal on the "SV" will result in sounding the service audible alarm. The signal on the "FS" lead will light the single other-floor pilot lamp on that floor.

8. AISLES WITH NO. 5 CROSSBAR ALARMS AND CIRCUITS OF OTHER SYSTEMS REQUIRING ALARMS - FIG. 5

When one of the other systems circuits indicates a minor alarm it grounds the "G" and perhaps other leads. The "G" lead only is connected and it operates the (GMN) relay which connects 800 ohm 48 volt battery to the "MN" lead causing the No. 5 crossbar minor audible and visual indications to be given for this aisle.

When one of the other systems circuits indicates a major alarm or a blown fuse it grounds the "R" and perhaps other leads. The "R" lead only is connected and it operates the (RMJ) relay which connects 800 ohm 48 volt battery to the "MJ" lead causing the No. 5 crossbar major audible and visual indications to be given for this aisle.

9. AISLES WITH NO. 5 CROSSBAR CIRCUITS BUT COVERED BY EXISTING ALARMS OF ANOTHER SYSTEM - FIG. 6

When a No. 5 crossbar circuit indicates a minor alarm it operates the (MN3) relay and in turn the (MN4) relay which grounds the "G" and "F" leads to light the green aisle pilots, sound the minor audibles and give other indications of the minor alarm in this aisle. When a No. 5 crossbar circuit indicates a major alarm it operates the (MJ3) relay and in turn the (MJ4) relay which grounds the "R" and "D" leads to light the green aisle pilots, sound the major audible and give other indications of the major alarm in this aisle.

10. QUIET AUDIBLE ALARMS - FIGS. 9, 10 11 AND 12

10.1 When the (AA) switch of figure 9 is closed the (AA) relay of the associated figure 10 operates. Under this condition a minor alarm for the associated switchroom grounds the "MN" lead and a major the "MJ" lead operating the (MNJ) relay. A power failure grounds the "PF" lead operating the (PJ) relay. An alarm battery supply fuse alarm grounds the AB lead operating the (AB) relay. The (AB) relay operated substitutes 48 V signal battery for the ABS battery normally used by figures 11 and 12. Any of relays (AB), (MNJ) and (PF) operated grounds the "ST" lead to figure 12 and closes the circuit for the associated tone bar of figure 11.

10.2 Ground on the ST lead operates the (A) relay of figure 12 which locks, sounds the tone bar of the figure 11 associated with the figure 10 with an operated (AB), (MNJ) or (PF) relay by energizing its solenoid coil and closes the heater winding of thermal relay (T1). After 13 to 32 seconds the (T1) relay closes its contact operating the (B) relay. The (B) relay locks under control of relay (A) opens the heater winding of the (T1) relay, closes the heater winding of the (T2) relay and opens the circuit to the operated tone bars. After 13 to 32 seconds the (T2) relay closes its contact operating the (C) relay which locks under control of the (B) relay, opens the heater winding of the (T2) relay and releases the (A) relay. The (T1) relay should have cooled sufficiently by this time to open its contact. With the (T1)

relay contact open and the (A) relay released the (B) relay releases. When the (T2) relay has cooled sufficiently to open its contact, the (B) relay being released by this time, the (C) relay releases. If there is still a ground on the "ST" lead the (A) relay again operates sounding any tone bars now connected and starting another cycle of operation as described above. This cycle will repeat as long as the "ST" lead remains grounded and sounding the tone bars connected at the beginning of each cycle. The first cycle will take from approximately 30 seconds to a minute but the successive cycles will be shorter because the thermal relays will not completely cool off during the time these heater windings are open. After about 3 or 4 cycles the cycle time becomes practically constant and the cycle time will be in the order of 15 to 30 seconds.

10.3 When the switch of figure 9 is opened or the trouble indication from the associated switchroom is removed the associated figures 10 and 11 restore to normal. When ground is removed from the "ST" lead to figure 12 it restores to normal at the end of the cycle in progress.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 3340-MCG-AJB-WT