STEP BY STEP SYSTEMS
NO. 1, 350A OR 355A
MISCELLANEOUS ALARM CIRCUIT
ALARM SENDER

CHANGES

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

C.1 Armature travel for relay (P) is changed from .020 to .015 to conform with standard adjustment and reference to test Note 3 is added.

C.2 Test Note 3 is added on Page 2.

All other headings no change.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT. 2315-WAO'C-RCD-B6

STEP BY STEP SYSTEMS
NO. 1, 350A OR 355A
MISCELLANEOUS ALARM CIRCUIT
ALARM SENDER

CHANGES

C. CHANGES IN CIRCUIT REQUIREMENTS OTHER THAN THOSE APPLYING TO ADDED, SUPERSEDED OR REMOVED APPARATUS

C.1 Reference to test Note 2 is added for relay (E).

C.2 Test Note 2 on page 1 is changed to refer to 1T (F) relay instead of 1 (F) relay.

All other headings, no change.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT. 2353-MBB-EWO-BM

STEP-BY-STEP SYSTEMS
NO. 1, 350A OR 355A
MISCELLANEOUS ALARM CIRCUIT
ALARM SENDER

CHANGES

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 The title is corrected to show the "350A" office instead of the "305A" office.

D.2 Cross connection Fig. 51 is changed to add proper connecting information for the battery and ground connections in the No. 1 and 350A offices since the information previously shown applied only to the 355A office.

All other headings, no change.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 3440-TJP-EWO-P1

STEP BY STEP SYSTEMS
NO. 1, 350A AND 355A
MISCELLANEOUS ALARM CIRCUIT
ALARM SENDER

CHANGES

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 The second line of the Title was formerly No. 355A.

D.2 In Fig. 1, "To Alm. Checking Term. Ckt. or" was added as connecting information.

D.3 The battery and ground leads to trunks 1 and 2 are brought out in separate brackets as they do not go to the trunk release circuit.

D.4 Connecting information in Fig. 51 is changed per D.2 and D.3.

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DEPT. 3030-OCH-RLL-HA

4. CONNECTING CIRCUITS

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

4.1 Misc. Alm. Ckt. (Alarm Control) SD-32192-01.

4.2 Alarm Checking Terminal Circuit SD-31835-01.

4.3 Trunks to Operator Offices.

4.21 Recording Completing - SD-32042-01.

4.22 2 Way - SD-31747-01.

4.4 Trunk Release Circuit - SD-31993-01.

All other headings, no change.

STEP-BY-STEP SYSTEMS
No. 355A
MISCELLANEOUS ALARM CIRCUIT
ALARM SENDER

1. PURPOSE OF CIRCUIT

1.1 This circuit provides for transmitting alarms from the alarm control circuit to an operator office over one of two operator office trunks.

2. WORKING LIMITS

2.1 None.

3. FUNCTIONS

3.1 To provide for transmitting alarms over operator office trunks.

3.2 To release the operator office trunk, either after an operator answers and disconnects, or, where there are more trunks available, after an operator answers and dials the alarm checking terminal.

3.3. To transmit a second alarm signal where a minor or multiple permanent signal alarm is registered, if a more important alarm is originated.

3.4 To repeat the alarm transmission every 20-30 minutes for major or multiple permanent signal alarms.

3.5 In event of failure of signal battery, to supply ABS battery to the associated operator office trunk, to permit transmission of the alarm.

4. CONNECTING CIRCUITS

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

4.1 Misc. Alarm Circuit-Alarm Control and Aisle Pilot Circuit SD-32192-01.

4.2 Operator Office Trunk SD-31747-01*.

4.3 Trunk Release Circuit SD-31993-01.

*Typical Circuit

DESCRIPTION OF OPERATION

5. MINOR ALARM

A minor alarm grounds lead MN, operating M which operates J and connects ground to leads PA1 and 3 to the alarm control circuit. The ground on lead 3 returns over lead 6 to provide for locking E when it operates after the operator answers. J operates C or D, if the associated trunk 1 or 2 is not busy, and starts the 20 minute timer, which, however, serves no useful purpose at this time.

C or D short circuit the Tip and ring of trunk 1 or 2, causing the trunk to return ground over the sleeve, and to signal the operator. The sleeve ground operates A or B. These relays also operate whenever the associated trunks are busy, to guard against seizure of the trunk by this circuit. With "Z" option, when the operator answers, ground over lead A operates E which locks to J, a relay in the alarm control circuit and M in series. E operated opens the operating circuit for G, and connects ground to the winding of F, but F does not operate until ground is removed from lead A, which will occur when the operator disconnects.

When Y option is provided, the operating circuit for E is not closed until the alarm checking terminal is dialed. A relay in the alarm control circuit operates at that time and connects lead 7 to lead 8. Ground over lead A will then operate E, and in turn, F.

With either Y or Z option, F operated opens the operating circuit for C and D, and whichever of these is operated will release, opening the short circuit on the tip and ring of the trunks to give a disconnect signal to the operator. When she disconnects, A or B will release.

6. MULTIPLE PERMANENT SIGNAL ALARM

6.1 When more than a specified number of permanent signals occur, or when low cable inculation occurs, ground over lead MP operates K.

6.2 K operated operates J and connects ground received over lead PA1 to lead 3 which returns over lead 6. From this point, the circuit functions as described in paragraph 5.

6.3 After a time interval the alarm control circuit removes ground from lead PA1. As E is locked to PA1, it releases, in turn releasing F. This allows C or D to reoperate, thus repeating the alarm to the operator office. This action will be repeated each time the PA1 lead is

opened, (every 20 to 30 minutes) until the trouble is cleared.

7. MAJOR ALARM

A major alarm grounds lead 2, operating G, which locks to lead 2 and in turn operates J, opens the operating circuit of M, and connects ground from lead PA1 to a front contact of E to lock E after it operates. From this point, the circuit functions as described in paragraph 5, (following locking of E relay) and repeats the alarm after an interval is described in paragraph 6.3. Thus minor alarms are transmitted only once to the operator office, but major alarms, cumulative permanent signal alarms, and low cable insulation alarms are transmitted every 20 to 30 minutes until the trouble is cleared.

8. MULTIPLE PERMANENT SIGNAL OR LOW CABLE INSULATION ALARM FOLLOWING A MINOR ALARM

When this occurs, ground over lead MP operates K. This releases E, F, and M. M is slow to release, therefore E and F will release before M. The release of M connects ground from lead PA1 to lead 3, returning over lead 6 to provide a locking ground for E. With E and F released and K operated, the circuit will then function as described in paragraph 6 to send an alarm.

9. MAJOR ALARM FOLLOWING AN ALARM OF LESS IMPORTANCE

When this condition occurs, a relay in the alarm control circuit opens the connection between leads 3 and 6 to release E, and ground is connected to lead 2, to operate G. M, if operated, will be released. The circuit will then function as described in paragraph 7 to send an alarm.

10. [illegible] FOLLOWING AN ALARM OF LESS IMPORTANCE

When this occurs, ground is connected to lead MP, but as this lead is open at K or G, no action occurs until the more important trouble is cleared. This will release E, F, J, and K or G, allowing M to operate and send an alarm as described in paragraph 5.

11. FAILURE OF MAIN SIGNAL BATTERY

11.1 First or Second Trunk Idle.

When the main signal battery fails, relay BS will release, and ground will be received over lead 2 to send a major alarm. BS released supplies ABS battery to trunks 1 and 2 to permit transmitting the alarm as described in paragraph 7.

11.2 Both trunks 1 and 2 busy.

Under this condition relay A is operated. When the main signal battery fails and BS releases, P operates from battery on 5T (ES) to ground thru resistance A. P locks to lead A of trunk No. 1, opening the operating circuit for C, and releasing A. Failure of the main signal battery causes the No. 1 trunk to give a disconnect signal to the operator due to release of the cut thru relays of the Selector preceding the trunk. When she disconnects, ground is removed from Lead A, releasing P, which allows C to operate, transmitting an alarm as described in paragraph 7.

Relay P is slow to release, to permit the relays of the associated trunk circuit to release before the trunk is seized by the operation of C.

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DEPT. 3030-OCH-RLL-TO