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AMERICAN TELEPHONE AND TELEGRAPH COMPANY
195 BROADWAY, NEW YORK 7

DRAWING NOTICE

SD-30926-011
CD 3D -012
RATING A&M Only
SYSTEM Step-By-Step
DATE September 12, 1958
ISSUE 7D
APP. 2D

TITLE

Step-By-Step Systems - 35-E-97 - Coin Trunk Or -
Auxiliary Coin Line Circuit - For Dial Post Payment Service

DESCRIPTION

- 6.1 Reissued to deny CAMA calls from coin stations.
 - 6.2 No new apparatus is required, only a simple wiring change.
 - 6.3 Current Drains are not affected.
 - 6.4 Equipment information is not affected.
 - 6.5 Equipment Design Requirements are not affected.
- An engineering letter will be issued.

CIRCUIT DESCRIPTION

CD-30926-01
Issue 3-D
Appendix 2-D
Dwg. Issue 7-D

STEP BY STEP SYSTEMS
35-E-97
COIN TRUNK OR
AUXILIARY COIN LINE CIRCUIT
FOR DIAL POST PAYMENT SERVICE

CHANGES

D. DESCRIPTION OF CIRCUIT CHANGES

- D.1 Added Option K to prevent coin station from making CAMA calls.
- D.2 Revised Notes 102 and 105 reflect above change.

All other headings, no change.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT. 2336-AH-RCD-GF

AMERICAN TELEPHONE AND TELEGRAPH COMPANY

195 BROADWAY, NEW YORK 7 SD-30926-011

-012

AUG 31 1956

JMB

ISSUE 6-B

APP: 1-B

DRAWING NOTICE

CD3-D

RATING A&M Only

SYSTEM Step-By-Step - Ckt.

DATE Feb. 2, 1956

TITLE

Step-By-Step Systems - 35-E-97 - Coin Trunk Or - Auxiliary Coin
Line Circuit - For Dial Post Payment Service

DESCRIPTION

6.1 The circuit preparation for the 223AG (D) relay is changed so that the relay may be properly adjusted when "Q" or "M" options is used.

6.2 Current Drains are not affected.

6.3 Equipment information is not affected.

6.4 Equipment Design Requirements are not affected.

No engineering letter will be issued.

AUG 31 1956

END

CIRCUIT DESCRIPTION
SWITCHING SYSTEMS DEVELOPMENT DEPARTMENT

CD-30926-01
Issue 3-D
Appendix 1-B
Dwg. Issue 6-B

STEP-BY-STEP SYSTEMS
35-E-97
COIN TRUNK OR
AUXILLARY COIN LINE CIRCUIT
FOR DIAL POST PAYMENT SERVICE

CHANGES

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

C.1 Information to insulate 2 (E) is
added to the 223AG (D) relay with
"Q" or "M" option to prevent the relay
from locking to the contacts of relay (E)
when springs 1-2T of relay (D) make con-
tact.

All other headings, no change.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT. 2325-SW-EWO-AL

STEP-BY-STEP SYSTEMS
35-E-97
COIN TRUNK OR
AUXILIARY COIN LINE CIRCUIT
FOR DIAL POST PAYMENT SERVICE

CHANGES

D. DESCRIPTION OF CIRCUIT CHANGES

- D.1 "M" and "N" options added to Fig. 1.
- D.2 Note 102 changed to show reference to "M" and "Q" options.
- D.3 Note 105 changed to show reference to new options.
- D.4 Options used table changed to add M and N options.
- D.5 Circuit note 106 is added.

All other headings under Changes, no change.

1. PURPOSE OF CIRCUIT

- 1.1 This circuit is for use in controlling post payment coin service.

2. WORKING LIMITS

- 2.1 Maximum external circuit loop resistance - 1000 ohms.
- 2.2 Minimum insulation resistance - 50,000 ohms.
- 2.3 Max. No. of stas. per coin line (high impedance ringers). 1 - Bridged or 5 on tip and 5 on ring.

3. FUNCTIONS

- 3.1 To provide a pulsing path to the succeeding switches.
- 3.2 To recognize when the called subscriber has answered and to split the connection.
- 3.3 To hold the switches beyond when the connection is split.
- 3.4 To give a tone to the calling subscriber when the connection is split as an indication to deposit coins.

3.5 To remove the tone indication if the called subscriber hangs up before the calling subscriber deposits a coin.

3.6 To recognize when a coin is deposited in the coin box and to connect the subscribers together for conversation.

3.7 To ground the tone start lead when tone is required.

3.8 To restore to normal if the calling subscriber hangs up while the connection is split.

4. CONNECTING CIRCUITS (TYPICAL)

- 4.1 Line Finder Circuit - H-35710 or SD-32000-01.
- 4.2 Selector Circuit - SD-30902 or H-58447.
- 4.3 Dial and Busy Tone Circuit - H-61511.
- 4.4 Connector Circuit - SD-30904-01 or H-58452.
- 4.5 Subscribers Line Circuit - SD-31777-01 or H-35710.
- 4.6 Miscellaneous Alarm Circuit for Trunk and Miscellaneous Shelves - SD-30930-01.

DESCRIPTION OF OPERATION

5. SEIZURE

When this circuit is used as a coin line and the subscriber originates a call the line will be extended through to the subscribers line circuit. When it is used as a coin trunk and a subscriber originates a call the line after it as found by the line finder will be extended through to the selector, otherwise this circuit performs no function at this time. Relay (A) in series with the tip and ring does not operate when battery is normal, that is, battery on the ring and ground on the tip.

6. CALLED SUBSCRIBER ANSWERS

When the called subscriber answers, battery is reversed by the connector (battery on tip and ground on ring), causing relay (A) to operate. When the call is from a coin line, ground is connected to the armature and winding of relay (F) either directly or over the "EC" lead from the line finder or from the operation of the (G) relay. Relay (A) operates relay (F) which operates relay (B) and relay (C). Relay (C) is operated by a direct ground at this time for the purpose of obtaining a faster operation over long loops thereby preventing a false operation of relay (E). Relay (B) operating, connects resistance (A) across the tip and ring toward the selector or subscribers line circuit as a holding bridge and closes a path for operating relay (D). Relay (D) operating, transfers the tip and ring of the calling subscriber from the called subscriber to relays (F) and (C). Relay (F) remains operated and relay (C) momentarily releases and reoperates over the calling subscriber's loop. Relay (C) grounds the (TONE ST) lead of the tone circuit in order to obtain tone on the (TONE) lead. With "Q" or "M" wiring relays (D) and (A) connect this tone to the calling subscriber as an indication that the called subscriber has answered and that a coin should be deposited in the coin box. With "R" or "N" wiring relay (D) connects tone to the calling subscriber, while the (B) resistance is for the purpose of protecting the battery which is momentarily connected to the line when (D) operates.

7. CALLING SUBSCRIBER DEPOSITS COIN

When the calling subscriber deposits the required coins in the coin box a 4450 ohm resistance is momentarily inserted in series with the loop. Relay (C) releases on the reduced line current caused by the insertion of this resistance but relays (F) and (B) hold. With relay (C) normal and relays (B) and (D) operated, relay (E) operates. Relay (E) locks to battery and to ground on the sleeve. Relay (E) opens the operating circuit of relay (D) which releases. Relay (D) releasing, recloses the talking circuit, removes tone from the calling subscriber's line and opens relays (F) and (C) from the line. Relay (F) releases relay (B) and relay (B) releasing, opens the (A) resistance holding bridge from across the tip and ring. The circuit is now in the talking position.

8. DISCONNECTION FROM COIN LINE CALLS "Q" AND "M" OR "R" AND "N" OPTION

With "Q" and "M" option relays (E) and (D) release while with "R" and "N" option relay (E) releases and the circuit is restored to normal when ground is removed from the sleeve by the connector switch.

9. CALLED SUBSCRIBER HANGS UP BEFORE COIN IS DEPOSITED

9.1 "R" or "N" Option

Should the called subscriber hang up before the calling subscriber deposits the required coins, that is, while relays (A), (D), (F), (B), and (C) are operated, relay (A) will release on the reversal of current removing tone from the calling subscriber's line. Removal of the tone is an indication that the called subscriber has hung up. Should the called subscriber again take his receiver off the switchhook before the calling subscriber disconnects, the circuit will return to the original split condition and tone will be reconnected to the calling line.

9.2 "Q" or "M" Option

Should the called subscriber hang up before the calling party deposits the required coins, (relays (A), (D), (F), (B) and (C) operated), relay (A) will release on the reversal of current and remove tone from the calling party's line. Removal of the tone is an indication that the called subscriber has hung up. Should the called subscriber again take his receiver off the hook before the calling party disconnects tone will be reconnected to the calling line.

10. CALLING SUBSCRIBER HANGS UP BEFORE DEPOSITING COIN

Should the calling subscriber hang up after hearing the coin tone instead of depositing the coin, that is, with relays (A), (D), (F), (B) and (C) operated, relays (F) and (C) will both release releasing relay (B). Relay (E) is slow operating so that it will not operate should relay (C) close the operating circuit before relay (B) opens it. Relay (B) releasing will open the holding bridge consisting of resistance (A) and cause the connector to release and also relay (A). Relay (D) releases restoring the circuit to normal.

11. TRUNK CALLS

When the calling subscriber reaches a trunk to an operator where the operator will supervise the deposit of coins, no battery reversal will take place and this coin trunk circuit will remain normal. When the coin trunk has access to two classes of service lines such as coin lines and flat rate lines "Y" and "T" wiring is used. When a direct ground is connected on the (EC) lead either by means of X, V, W or T wiring an indication is given to the operator that a coin line is calling. If no ground is placed on the (EC) lead using either X, V, W or T wiring an indication will be given to the operator that a non-coin line having a certain class of service such as flat rate was calling. When this circuit is used as a coin line, indication is given to the operator by another means in the trunk. This

circuit shall not be used in connection with trunk circuits having a re-ring feature because the ringing current may operate relay (A) and cause the splitting of the talking circuit.

12. CALL FROM CONNECTOR

On an incoming call when used as a coin line, ground will be connected to the "S" or "CN" lead at the connector which will be extended to the subscribers line circuit to operate the cut off relay, clearing the tip and ring leads of battery and ground.

13. BUSY KEY

The (Busy Key) is operated to take the circuit out of service when used as a coin trunk. The (Busy Key) opens the C(S) lead to the (E) relay and grounds the C(S) lead.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 3310-GR-RLL-VA