

CIRCUIT DESCRIPTION

CD-30200-01
ISSUE 5D
APPENDIX 5B
DWG ISSUE 29B
DISTN CODE 1D99
DATED 8-27-76

8

STEP-BY-STEP SYSTEMS
NO. 1, 350A OR 355A
3 WIRE SELECTOR CIRCUIT
FOR USE AS A LOCAL OR INCOMING SELECTOR
OR AS A REPEATED DIALING
TOLL TRAIN SELECTOR

CHANGE

D. Description of Changes

- D.1 Sleeve lead is extended to the Receiver Off-Hook Tone Connecting Circuit to allow Line Identification. Wiring Options B and E are added.
- D.1 Circuit Notes 102, 103 and 106 are changed.
- D.3 CAD Fig. 52 is changed, Equipment Note 202 is removed & 203 added.

F. Changes in CD Section

F.1 Under Section 4, CONNECTING CIRCUITS, add:

- 4.13 Converter Trunk and Link - SD-35033-01.
- 4.14 AMARS Sleeve Relay Board Trunk Circuit SD-35031-01.

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DEPT 5245-GFC
WECO DEPT 2311-DFH-WEA

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STEP-BY-STEP SYSTEMS
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CHANGES

B. Changes in Apparatus

<u>B.1 Superseded</u>	<u>Superseded By</u>
C Network, Fig. 1 V Option 178A Network	C Network Fig. 1 F Option 840073431 Network

C. Changes in Circuit Requirements Other Than Those
Caused By Changes in Apparatus

C.1 On Page 1 of the Circuit Requirements Table change the BSP fig. for the A relay, from 11 to 726. This change will provide compatibility with the Bell Telephone Laboratories X-Spec #75514.

D. Description of Changes

- D.1 Option V is rated Mfr. Disc. and is superseded by Std. Option F, to replace the present contact protection network with one that results in a cost reduction.
- D.2 Circuit Note 103 and the options used table are changed and Notes 106 and 202 are added to reflect the above modification.
- D.3 BSP and Keysheet numbers are added to the Supporting Information Table.

F. Changes in Circuit Description

F.1 Change the last sentence in paragraph 11 to read:
The switch may be made busy by short-circuiting jack springs 3 and 4.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT 5225-LCB
WECO DEPT 5152-FLS-WEA

CIRCUIT DESCRIPTION

CD-30200-01
ISSUE 5D
APPENDIX 3D
DWG ISSUE 27D

STEP BY STEP SYSTEMS
NO. 1, 350A or 355A
3 WIRE SELECTOR CIRCUIT
FOR USE AS A LOCAL OR INCOMING SELECTOR
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TOLL TRAIN SELECTOR

CHANGES

D. Description of Changes

D.1 Cross-Connection Fig. 52 has been revised.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT 2363-MEB-RJJ,Jr.

CIRCUIT DESCRIPTION

CD-30200-01
ISSUE 5D
APPENDIX 2D
DWG ISSUE 26D

STEP BY STEP SYSTEMS
NO. 1, 350A OR 355A
3 WIRE SELECTOR CIRCUIT
FOR USE AS A LOCAL OR INCOMING SELECTOR
OR AS A REPEATED DIALING
TOLL TRAIN SELECTOR

CHANGES

D. Description of Changes

- D.1 Option G is added to show connection to the Receiver Off-Hook Tone Connecting Circuit, SD-33034-01.
- D.2 G and H options were added to Notes 102 and 103 and the Options Used Table.
- D.3 Equipment Note 201 is added.

F. Changes in Description of Operation

- F.1 Under 4, CONNECTING CIRCUITS, add:
 - 4.12 Receiver Off-Hook Tone Connecting Circuit, SD-33034-01.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT 2363-ALF-RJJ

CIRCUIT DESCRIPTION

CD-30200-01
Issue 5D
Appendix 1D
Dwg Issue 25D

STEP-BY-STEP SYSTEMS
NO. 1, 350A OR 355A
3 WIRE SELECTOR CIRCUIT
FOR USE AS A LOCAL OR INCOMING SELECTOR
OR AS A REPEATED DIALING
TOLL TRAIN SELECTOR

CHANGES

D. DESCRIPTION OF CHANGES

- D.1 The "DT" lead is shown as J option.
- D.2 Note 102 is revised to show use of J option.
- D.3 Note 105 is added.
- D.4 Reference to J option is added in Note 103 and Options Used table.

F. CHANGES IN DESCRIPTION OF OPERATION

- F.1 Under 4. CONNECTING CIRCUITS add:
 - 4.10 Converter Trunk - TOUCH-TONE Calling - SD-32326-01.
 - 4.11 Register Trunk and Link (Trunk Portion) Circuit - SD-32353-01.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT 2363-MKD-RJJ, JR.

STEP-BY-STEP SYSTEMS
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3 WIRE SELECTOR CIRCUIT
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TOLL TRAIN SELECTOR

CHANGES

B. CHANGES IN APPARATUS

B.1 Added

KS-8512 L3A Res. 590 Ohms "Y" Option

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 "Y" option provides additional resistance in the pulsing circuit for short loops from A4A or 4A toll X-bar offices to prevent false operation of a relay in the connecting circuit.

D.2 Added option T provides for the use of this circuit as a first selector in 355A offices.

D.3 Notes 102 and 103 are revised for record of the above change.

D.4 Reference to SD-31735-01 is added in the replacement note.

All other headings under Changes, no change.

1. PURPOSE OF CIRCUIT

1.1 This circuit is used for establishing connections between subscribers and between subscribers and operators. It may also be used as a repeated dialing toll preceding selector.

2. WORKING LIMITS

2.1 See drawing for working limits.

3. FUNCTIONS

3.1 To return ground on the sleeve lead when seized.

3.2 To provide dial tone to the calling station when used as a first selector.

3.3 To select a group of trunks as determined by the dial pulses sent out by the calling station.

3.4 To select automatically an idle trunk in the group selected.

3.5 If all the trunks in the group are busy, to return all trunks busy tone to the calling station.

3.6 To extend the tip, ring and sleeve to the idle trunk selected.

3.7 To restore to normal upon the breaking down of the connection.

3.8 When used as a repeated dialing toll preceding selector, to open the tip when all trunks are busy.

4. CONNECTING CIRCUITS

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

4.1 Selector Circuit - SD-30976-01*.

4.2 Line finder circuit - SD-31530-01* - SD-32001-01*.

4.3 Coin box trunk circuit - SD-31592-02*.

4.4 Interoffice trunk circuit (cable pair).

4.5 Miscellaneous alarm circuit or seitch trouble alarm circuit SD-32043-01*.

4.6 Repeater circuit - SD-31779-01*.

4.7 Connector circuit - SD-30228-01*.

4.8 Repeated dialing toll transmission selector relay equipment ES-241851*.

4.9 Toll trunk in X-bar office - SD-68240-01*.

*Typical Circuit

DESCRIPTION OF OPERATION

5. SEIZURE

When this circuit is seized relay (A) operates over the loop except when used with

prepay coin lines, in No. 355A offices when it operates from a ground furnished by the line finder over the ring lead. A operates B to battery over the Perm. Sig. lead in series with a relay associated with the Misc. Alarm circuit or Switch Trouble Alarm Circuit. B connects ground to lead S to hold the preceding circuits and partially closes the path for operating C and the vertical magnet. The operation of the relay in the alarm circuit in series with B causes the alarm circuit to function and connect dial tone to the DT lead when this circuit is used as a first selector.

6. VERTICAL STEPPING

When dial pulses are received either from the calling station directly or over the trunk, A will release and reoperate in response to the dial pulses but B will remain operated due to the fact that it is made slow to release. Each time A releases ground from its back contact through the front contact of B will operate the vertical magnet in series with C, causing the switch to step in a vertical direction and select the level desired. C operates E through the vertical off-normal springs, which operate as soon as the switch takes the first vertical step. C is slow to release, and will hold over dial pulses until vertical stepping is completed. E locks under control of D and the rotary magnet and prepares a path for rotary hunting.

7. ROTARY HUNTING

When C releases after vertical stepping is completed the rotary magnet is energized causing the switch to take one rotary step. As soon as the rotary magnet opens its contact E will release, releasing the rotary magnet. The S brush is now in contact with one of the multiple bank terminals and if this terminal is grounded because of a busy condition, E will reoperate and cause the rotary magnet to step the brushes to the next terminal. This automatic stepping or hunting will continue until an idle or nongrounded terminal is found.

8. SEIZING THE IDLE TRUNK

When an idle terminal is found D will operate in series with E as soon as the rotary magnet is released, since it will no longer be short-circuited by the ground through the S brush. E will not operate at this time due to the high resistance in series with it. D disconnects the tip and ring leads from A and cuts them through to the tip and ring brushes to the trunk beyond. D also cuts the sleeve lead through

to the trunk beyond which will function to connect ground to this lead to hold D and the preceding circuits, before the holding ground from B is removed by the release of this relay.

9. ALL TRUNKS BUSY CONDITION AND RELEASE PRIOR TO CUT THROUGH

9.1 Except When Used As Repeated Dialing Toll Preceding Selector

When all of the trunks in a group are busy the switch brushes will pass off the bank terminals and operate the 11th rotary step springs. The operation of these springs will connect all trunks busy tone to the calling station and prevent the operation of D, thus causing this circuit to remain held under control of A. If the calling station disconnects upon receipt of busy tone A releases, releasing B and in turn energizing the release magnet, restoring the switch to normal. When used as a first selector in a No. 355A office B released also provides ground to the RLS lead to release the line finder. The switch will release in this manner on a disconnection at any time prior to the seizure of an idle trunk.

9.2 When Used As a Repeated Dialing Toll Preceding Selector

The 11th rotary step springs operating as above open ground from A and open the circuit of D. A releases, in turn releasing B which releases slowly. The trunk at the toll office recognizes this open as an all trunks busy signal, transmitting 120 I.P.M. flashes to the toll switchboard, and opening the trunk towards this circuit. When B releases, the release magnet is energized, restoring the switch to normal. Option Y introduces additional resistance on short loops from 4A or A4A toll crossbar offices to prevent false operation of a relay in the connecting circuit.

10. RELEASE SUBSEQUENT TO CUT THROUGH

As mentioned in paragraph 8, D is held from the succeeding trunk after an idle trunk is seized. When the calling station disconnects under this condition ground is removed from D winding by the trunk beyond, allowing this relay to release. The release of D energizes the release magnet, restores the switch to normal and provides ground to

the RLS lead to release the line finder when the selector is used as a first selector in a No. 355A office.

11. TEST JACK

By means of the test jack this switch can be tested or made busy. When used as a first selector in a 355A office, before any tests can be made the make busy key in the associated line finder must be operated.

The switch may be made busy by short circuiting jack springs 1 & 2.

12. CONTACT PROTECTION

Contact protection unit C or C and C1 is used to protect relay contacts against inductive surges from the windings of the vertical and rotary magnets.

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DEPT. 2313-OCH-RLL-FW