8

STEP-BY-STEP SYSTEMS
NO. 1, 350A, 355A OR 360A
LOCAL, INCOMING OR 2 PARTY MESSAGE RATE
3 OR 4 WIRE SELECTOR
ARRANGED TO RESTRICT SERVICE OVER
ANY SPECIFIED LEVELS, FOR PEG COUNT
ON CUT THRU, AND FOR TIMED RELEASE
ON PERMANENT SIGNAL
OR BUSY FLASH ON CALLS FROM OPERATOR

CHANGES

B. Changes in Apparatus

	Superseded	Superseded By
B.1	C Network, 178A, Option A Figure 1	C Network, Consisting of 2-542D Capacitors, and 1-KS13490 L2 Resistor, 150 Ohms, Option ZA, Figure 1
	197FE Switch, Option P	197AM Switch, Option ZB

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

C.1 The spring layout BSP figure for the A relay is changed from 5 to 727. The BSP figures are the same except that 727 contains information on the newer silver/palladium contact combination.

D. Description of Changes

D.1 Figure 1 is revised to show the replacement of the old 178A contact protection network with a new pigtail network. The old network is designated option A and is rated Mfr. Disc. The new apparatus is designated option ZA and rated Standard.

D.2 A Supporting Information Table is added.

D.3 Option ZB (197AM Switch) is added and rated Standard. Option P (197FE Switch) is rated Manufacture Discontinued. The 197AM Switch is the same as the 197FE except that the 7 spring 11th rotary step spring assembly is replaced by a 5 spring assembly.

D.4 Note 105 is revised to include information noted in D.1 and D.3.

D.5 Circuit Notes 110 and 111 are added to reflect the above changes.

D.6 Note 102 is revised to show option ZB.

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DEPT 5225-LCB
WECo DEPT 5152-RTO-WEA

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CHANGES

D. Description of Changes

D.1 CAD 1 was revised to show PS lead connection from receiver off-hook tone connecting circuit.

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DEPT 2363-MEB-RJJ

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STEP-BY-STEP SYSTEMS
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CHANGES

D. Description of Changes

D.1 Option B is added to show connection to the Receiver Off-hook Tone Connecting Circuit (SD-33034-01).

D.2 Notes 102, 105, and 106 are modified and Note 204 is added to show this change.

D.3 Cad 1 is modified.

F. Changes in Description of Operation

F.1 Under 4. CONNECTING CIRCUITS add:

4.19 Receiver Off-hook Tone Connecting Circuit, SD-33034-01.

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DEPT 2363-MPC-RJJ

STEP-BY-STEP SYSTEMS
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CHANGES

D. DESCRIPTION OF CHANGES

D.1 The busy-flash feature option V is rated "Mfr Disc" and reference to it is removed from Note 102.

D.2 Circuit Notes 108 and 109 are added.

F. CHANGES IN DESCRIPTION OF OPERATION

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

4.19 Converter Trunk - TOUCH-TONE Calling - SD-32326-01.

4.20 Register Trunk and Link - SD-32353-01 - (Trunk Portion).

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DEPT 2363-GO-RJJ, Jr.

Printed in U.S.A.

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STEP BY STEP SYSTEMS
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CHANGES

B. CHANGES IN APPARATUS

	Superseded	Superseded By
B.1	225S "Z" Relay "G" Option	225AF "Z" Relay "F" Option

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 The 225S "Z" relay has been superseded by the 225AF to facilitate wire wrapped connections.

D.11 Circuit note 107 has been added. Note 105 has been revised to show the use of this change.

D.2 SD-68242-01 has been added to the connecting circuits.

D.3 Prior to Issue 4 Note 104 stated, this switch may be used as a first selector in connection with a two party message rate trunk circuit and for auxiliary first, service code, and auxiliary service code selector in 2 party message rate offices by omitting lead "P".

4. CONNECTING CIRCUITS

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

4.01 Line Finder - SD-33013-01.*

4.02 Incoming Repeater, SD-32008-01.*

4.03 Incoming Trunk Ckt., SD-30974-01.*

4.04 Post Pay Coin Trunk - SD-31985-01.*

4.05 Selector Bank Multiple Circuit - SD-32123-01.

4.06 Selector Circuit - SD-30200-01.*

4.07 Connector Circuit - SD-31737-01, SD-30228-01.*

4.08 Outgoing Repeater - SD-31779-01.*

4.09 2 Way Operator Office Trunk - SD-31747-01.*

4.10 Switch Trouble Alarm Circuit or Misc. Alarm Circuit for Selector Shelves - SD-32043-01.*

4.11 Permanent Signal Timing Circuit - SD-31844-01.*

4.12 Misc. Alarm Circuit - Registers - SD-31976-01.*

4.13 2 Party Message Rate Trunk Circuit - SD-31506-01.

4.14 Misc. Alarm Circuit, 360A Office - SD-31209-01.

4.15 Power Ringing Circuit.

4.16 Trunk Alternating Relay Circuit - SD-32063-01.

4.17 Aux. Trunk to Restrict Service - SD-32187-01.

4.18 Miscellaneous Alarm & Permanent Signal Timing Circuit - SD-32192-01.

4.19 Toll Switching Trunk Ckt. SD-68242-01

*Typical Circuit

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DEPT. 2363-MPC-FBB-EP

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CHANGES

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 Fig. 2 is rated A&M Only.

D.2 Fig. 4 is introduced replacing Fig. 2 to show connection to the (DS) relay on the line finder unit.

D.3 Note 102 is revised to show these changes.

D.4 Note 105 is added to record figure, wiring and apparatus changes.

D.5 Note 106 is added on an A&M Only basis to show the use of Fig. 2.

D.6 CAD Figs. 1 & 2 were modified.

All other headings under Changes, no change

1. PURPOSE OF CIRCUIT

1.1 This circuit is for use as a 3 or 4 wire local or incoming selector with or without restricted service on specified levels, for timed release on permanent signals, and for peg count when the selector cuts thru to the following circuit. It is also used as a 2 party message rate first or service code selector, or as an operator's incoming selector.

2. WORKING LIMITS

2.1 See table on drawing.

3. FUNCTIONS

3.01 To ground the sleeve lead to the preceding circuit when the selector is seized.

3.02 To supply dial tone to the calling party when required.

3.03 To step the switch vertically under control of the dial pulses.

3.04 To return a busy tone and block further operation on any specified level or levels over which service is restricted.

3.05 To cut in and trunk hunt on the first digit on any level not arranged for restricting service.

3.06 To return a ground to the preceding trunk circuit during the first digit, to cause the trunk circuit to make a station test.

3.07 To select an idle trunk automatically.

3.08 To connect busy tone and busy flash to the calling party when all the trunks in the group dialed are busy.

3.09 To extend the tip, ring and sleeve lead, and "A" "C" or "F" lead when furnished to the idle trunk selected.

3.10 To restore to normal upon disconnection by the calling party, and return a ground to release the line finder.

3.11 To operate a peg count register whenever an idle trunk is selected.

3.12 To provide a timed permanent signal release.

4. CONNECTING CIRCUITS

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

4.01 Line Finder - SD-33013-01.*

4.02 Incoming Repeater, SD-32008-01.*

4.03 Incoming Trunk Ckt., SD-30974-01.*

4.04 Post Pay Coin Trunk - SD-31985-01.*

4.05 Selector Bank Multiple Circuit - SD-32123-01.

4.06 Selector Circuit - SD-30200-01.*

4.07 Connector Circuit - SD-31737-01, SD-30228-01.*

4.08 Outgoing Repeater - SD-31779-01.*

4.09 2 Way Operator Office Trunk - SD-31747-01.*

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4.10 Switch Trouble Alarm Circuit or Misc. Alarm Circuit for Selector Shelves - SD-32043-01.*

4.11 Permanent Signal Timing Circuit - SD-31844-01.*

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4.13 2 Party Message Rate Trunk Circuit - SD-31506-01.

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4.16 Trunk Alternating Relay Circuit - SD-32063-01.

4.17 Aux. Trunk to Restrict Service - SD-32187-01.

4.18 Miscellaneous Alarm & Permanent Signal Timing Circuit - SD-32192-01.

*Typical Circuit.

DESCRIPTION OF OPERATION

5. SEIZURE

When this circuit is seized relay A operates over the line or trunk loop operating B. Relay B connects ground to lead "S" to hold the preceding circuits, close a path for operating C and the vertical magnet and prepares a circuit for operating the traffic register.

6. VERTICAL STEPPING

Relay A will release and reoperate in unison with the dial pulses but the slow releasing relay B will remain operated. Each time A releases, ground from its back contact through the front contact of B operates the vertical magnet in series with C causing the switch to step in a vertical direction to the level dialed, operating the vertical off-normal springs. Relay C operates E through the vertical off-normal springs and the 11th rotary step springs, and returns a ground to the preceding trunk over lead "P" causing the trunk to make a station test on 2-party lines. Relay C being slow to release remains operated during dialing. Relay E locks up through the rotary magnet springs.

7. TRUNK HUNTING

7.1 When C releases the rotary magnet is operated from a circuit through E and the VON springs and steps the wipers to the first bank terminals. The operation of the rotary magnet allows E to release which in turn allows the release of the rotary magnet. The "S" wiper is now in contact with the first multiple bank terminal and if this is grounded, E reoperates causing the rotary magnet to operate and step the wipers to the next terminal. This automatic stepping or trunk hunting will continue until an idle or nongrounded terminal is found, or until the switch reaches the 11th rotary step.

8. SEIZING THE IDLE TRUNK

8.1 When an idle terminal is found D operates in series with E when the rotary magnet releases, since it is no longer short-circuited by the ground through the "S" wiper. Relay E does not operate due to the high resistance in series with it. Relay D disconnects the tip and ring leads from A, cuts the tip, ring and sleeve and "A, C, or F" lead if provided, through to the trunk beyond, opens the release magnet circuit and grounds the "R" lead to operate a peg count register, if the shelf wiring is so arranged (see paragraph 11). The release of A allows B to release. Relay B on releasing removes the ground from the "R" lead and prepares the release magnet circuit. Relay D is held by ground from the succeeding circuit.

9. RESTRICTED SERVICE

9.1 "W" Wiring

When this circuit is arranged to restrict service on specified levels normal post springs are provided. They shall be operated on all restricted service levels. When C releases after the first digit is dialed the rotary magnet is energized the same as described in paragraph 7.1. On the release of the rotary magnet E is again operated by a circuit through the normal post springs thus stepping the shaft around until the 11th rotary step is reached. The operation of the 11th rotary step springs prevents the operation of D and opens the operating circuit for E thereby preventing any further operation of the rotary magnet. The operation of the 11th rotary springs also transfers the tip winding of A from dial tone or ground to busy tone and with "V" option, also connects busy flash to the "F" lead.

9.2 "Z" Wiring

When only certain lines having access to this selector are restricted from calling the levels at which the normal post springs close, "Z" wiring is provided. In this case the line finder is arranged to restrict the lines in accordance with the level on which they appear on the line finder. The line finder, when a call is originated by a subscriber on one of its restricted levels, connects ground to the "RS" lead. If the subscriber dials a restricted selector level this ground through the normal post springs operates E at each terminal as previously described.

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

10.1 When all of the trunks in a group are busy the switch will step the wipers off the bank terminals, and operate the 11th rotary step springs. These springs will connect busy tone to the calling party and with "V" option busy flash to the "F" lead, and will prevent the operation of D thus causing the circuit to remain held under control of A. When the calling station disconnects A releases, releasing B and in turn energizing the release magnet and restoring the switch to normal, and providing 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.

11. RELEASE AFTER CUT THROUGH

11.1 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 the D relay winding by the trunk beyond, allowing this relay to release. The release of D provides ground to the "RLS" lead to release the lind finder and energizes the release magnet which restores the switch to normal. On shelves wired for peg count when the switch releases, operation of the release magnet will of course cause operation of the traffic register. This feature is A&M Only.

12. TEST JACK

12.1 By means of the test jack this switch can be made busy for test purposes or in case it is out of order. By plugging a test set into jack springs 1 and 2 the switch can be operated locally in the manner described above.

13. CONTACT PROTECTION

13.1 Network C is used to protect relay contacts against inductive surges from the windings of the vertical and rotary magnets.

14. PERMANENT SIGNAL RELEASE

This circuit is arranged to release under control of the permanent signal timing circuit if the selector is seized and if dialing does not occur within a predetermined interval.

14.1 Fig. 2

When this circuit is seized and the (A) and (B) relays have operated, the primary winding of the (Z) relay is connected to the permanent signal timing circuit over the "PA" lead. When ground is placed on "PA", the Z relay operates and locks under control of the (B) relay. Z transfers control of the "S" lead to the finder from the selector to the timing circuit over the "PB" lead. After a predetermined interval ground is momentarily removed from "PB" and the line finder releases. The selector is released by the finder and the lockout relay in the line circuit operates.

14.2 Fig. 4

When this circuit is seized and the (B) relay has operated, ground is place on the "LO" lead to the permanent signal relay on the line finder unit. If dialing does not occur within a predetermined interval, the associated line finder is released, releases this circuit and operates the lockout relay in the line circuit.

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DEPT. 2315-AWK-RCD-NG

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