STEP BY STEP SYSTEMS
NO. 360A
LOCAL OR INCOMING SELECTOR CIRCUIT

CHANGES

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 The rating is changed from A&M Only to Mfr. Disc.

D.2 Replacement note, "Replaced by SD-33003-01 is added.

All other headings, no change.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 2353-HLHD-EWO-RN

STEP BY STEP SYSTEMS
NO. 360A
LOCAL OR INCOMING SELECTOR CIRCUIT

CHANGES

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 In order to eliminate a possible buzzing condition, "ZF" optional wiring is removed and "ZE" optional wiring is reinstated as part of Figure 1.

All other headings, no change.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 3310-VJA-RLL-A1

STEP BY STEP SYSTEMS
NO. 360A
LOCAL OR INCOMING SELECTOR CIRCUIT

CHANGES

B. CHANGES IN APPARATUS

B.1 Added

51D (ZC option) or 51E (ZD option) bank (Fig. 3).

42D (ZC option) or 42E (ZD option) bank (Fig. 3).

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 Fig. 3 is added.

D.2 Reference to figures 1, 2 and 3 is added to note 102.

D.3 Reference to figure 3 is added to note 103 and to the options used table.

D.4 Connecting information for the wipers was "to Fig. 2".

D.5 The 107A switch code is shown as "G" options and the code 197AM for "A" and "B" options is added.

D.6 Line 11 of note 103 previously read, "This option was furnished Y&R, Y&S, or V&G".

D.7 The designation of the top wiper was previously "A or F".

D.8 The designation of the lead from jack 14 was previously "LT1-60 IPM-TB".

D.9 The code of the switch jack was previously 342A.

D.10 The working limits were previously, "The subscriber's line loop resistance is 0 to 750 ohms, with a minimum insulation resistance of 15,000 ohms. Trunk loop resistance 0 to 1200 ohms. Trunk insulation resistance 30,000 ohms min. Dial speed limitations 8 to 11 pulses per second.

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2. WORKING LIMITS

Limits are for single office areas. For multi-office areas, and for operator pulsing, see key sheets.

	45V. Min. Pulsing From Sub.			48V. Min. Pulsing From Sub.		
Type of Dial or Adj.	2,4 or 5	6	7	2,4 or 5	6	7
Max. Ext. Ckt. Loop*	750ω	1200ω	1100ω	850ω	1500ω	1400ω
Max. Ext. Ckt. Loop**	850ω	1400ω	1300ω	1000ω	1500ω	1500ω
Max. Ext. Ckt. Loop***	1000ω	1400ω	1400ω	1115ω	1500ω	1500ω
Min. Ins. Res.		15000ω			15000ω	

*When using 1000ω loop - Leak B in pulsing test set

**When using 1200ω loop - Leak A in pulsing test set

***When using 1400ω loop - Leak A in pulsing test set

All other headings, no change.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 3310-RDW-RLL-CM

STEP-BY-STEP SYSTEMS
NO. 360A
LOCAL OR INCOMING SELECTOR CIRCUIT

CHANGES

A. CHANGED AND ADDED FUNCTIONS

A.1 Provision is added for returning busy flash to operators originating calls through this circuit.

B. CHANGES IN APPARATUS

B.1 Superseded	Superseded By
(D) 222B relay ("J" or "K" Option)	(D) 222EN relay ("ZA" Option)

B.2 Added

(Z) 225H relay ("A" Option)

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 Options A, B, G, ZA, ZC, ZD and ZF are added and options D, E, F, G, P, ZB, and ZE are designated.

D.2 Reference to options A, B, D, E, F, G, P, ZA, ZB, ZC, ZD, ZE and ZF is added to circuit note 103 and to the options used table.

D.3 Reference to options A, B, D, E, F, G, P and ZA is added to circuit note 102.

D.4 Circuit note 105 is added.

D.5 Figure 2 is rated standard.

D.6 Connecting information for the wipers previously read, "To Fig. 2 or thru Sel. Bank Mult. Ckt. to Sel., Conn., Rep., or Trunk."

All other headings under Changes, no change.

1. PURPOSE OF CIRCUIT

1.1 This circuit is for use in a step-by-step office arranged for use with external alarms for establishing a connection from one station to another, either as a first or intermediate selector in a local connection, or as an incoming selector in inter-office connections.

2. WORKING LIMITS

2.1 The subscriber's line loop resistance is 0 to 750 ohms, with a minimum insulation resistance of 15,000 ohms. Trunk loop resistance 0 to 1200 ohms - Trunk insulation resistance 30,000 ohms min. Dial speed limitations 8 to 11 pulses per second.

3. FUNCTIONS

3.1 To select a group of trunks as determined by the impulses sent out by the calling station.

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

3.3 When used as a first selector to return dial tone to the calling station.

3.4 To return all trunks busy tone and/or busy flash to the calling party.

3.5 To extend the line or trunk to an idle trunk.

3.6 To restore to normal upon the breaking down of a connection.

3.7 To place a guarding potential on the trunk seized.

4. CONNECTING CIRCUITS

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

4.1 Line Finders, SD-31530-01.

4.2 Selectors, SD-31556-01*.

4.3 Connectors, SD-31598-01*.

4.4 Misc. Alarm Ckt., SD-31209-01.

4.5 Power Ringing Ckt., SD-80780-01.

4.6 Incoming Repeater, SD-32008-01.

4.7 By-pass Selector, SD-31344-01.

4.8 Trunks which will return ground on the sleeve, SD-31188-01.

4.9 Incoming or two-way trunk ckts., SD-31658-01*.

*Typical Circuits

DESCRIPTION OF OPERATION

5. SEIZURE

When the circuit is seized the (A) relay operates over the subscriber's or

trunk loop which in turn operates the (B) relay and returns ground over the "S" lead for holding the preceding switches operated, opens the release circuit for the switch and prepares the circuit for the operation of the vertical magnet.

6. VERTICAL STEPPING

When the subscriber operates his dial to send impulses, relay (A) will release and operate in unison with the pulses sent out by the dial, but relay (B) will remain operated throughout the series of pulses on account of its slow release feature. Each time relay (A) releases, it will send a pulse through the (C) relay and vertical magnet which causes the switch to step in a vertical direction and select the level desired. During this series of pulses relay (C), however, does not release on account of its slow release feature. As soon as the series of pulses ceases, relay (C) will release after an interval and automatic rotary hunting for an idle trunk will start.

7. ROTARY HUNTING

During the vertical stepping of the switch, as just described, relay (E) operated from a front contact of relay (C) so that when relay (C) releases after the vertical stepping has ceased the rotary magnet is energized through a front contact of relay (E) which had previously locked up on its own contact to ground under control of the rotary interrupter. As soon as the rotary magnet opens its contacts relay (E) will release and allow the rotary magnet to release. The switch has taken one rotary step and placed the "S" brush in contact with one of the multiple bank terminals. If this terminal is busy or in other words is grounded, relay (E) will be energized over the "S" brush to the grounded bank terminal and again cause the rotary magnet to step the brushes to the next terminal. This automatic stepping or hunting will continue until an idle or non-grounded terminal is found.

8. SEIZING THE IDLE TRUNK

When an idle terminal is found, relay (D) will operate from ground on the contact of relay (B) in series with the (E) relay, (the (E) relay will not operate in series with the (D) relay). During the process of hunting an idle trunk, relay (D) did not operate, since it was shunted out by ground on the "S" brush. The operation of relay (D) grounds the sleeve terminal to make the seized trunk busy to all other selectors and cuts the tip, ring sleeve, and "A or F" leads from the calling station through to the tip, ring, sleeve, and "A or F" leads of the trunk beyond.

9. ALL TRUNKS BUSY CONDITION

When all of the trunks in a group are busy the switch will take an eleventh step, passing off the bank terminals and operating the cam springs to return an all trunks busy tone or busy flash to the calling station or operate relay (Z) to return both busy flash and busy tone to the calling party, and prevent the operation of relay (D) in order that the switch may be held operated by energizing relay (A) over the subscriber's loop.

10. RELEASE

If the calling station now disconnects, relay (A) will release and in turn will allow relay (B) to release and close the circuit of the release magnet which will energize and return the switch to normal. This function of releasing is used any time prior to the seizure of an idle trunk.

11. RELEASE AFTER AN IDLE TRUNK IS SEIZED

When an idle trunk has been seized the operation of relay (D) causes relays (A) and (B) to release, but the trunk returns ground on the "S" brush and holds relay (D) energized, thus preventing the switch from releasing. When the calling station disconnects under this condition, the trunk or switch beyond removes ground from the "S" brush and allows relay (D) to release. Relay (D) in releasing closes the release magnet circuit and releases the switch.

12. TEST JACK

By means of the test jack this switch can be made busy in case it is out of order or for any tests which it may be desirable to make; also by plugging into test jack springs 1 and 2 with a test set the switch can be operated locally.

13. CONTACT PROTECTION

Contact protection network "C" reduces sparking at the contacts of relay (A).