

4
STEP BY STEP SYSTEMS
NO. 1, 350A, 355A, 356A OR 360A
AUXILIARY TRUNK CIRCUIT
ARRANGED TO RESTRICT SERVICE

CHANGES

C. CHANGES IN CIRCUIT REQUIREMENTS OTHER
THAN THOSE APPLYING TO ADDED, OR RE-
MOVED APPARATUS

C.1 Notes 8 and 9 are added on the Circuit
Requirements table for the B(U1129)
relay.

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 Information Note 301 is added.

D.2 Cross connection Fig. 54 is revised.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT. 2335-MKD-FBB-ML

STEP-BY-STEP SYSTEMS
NO. 1, 350A, 355A, 356A OR 360A
AUXILIARY TRUNK CIRCUIT
ARRANGED TO RESTRICT SERVICE

CHANGES

D. DESCRIPTION OF CIRCUIT CHANGES

- D.1 Option V is added placing the sleeve lead under control of the (P1) relay. The former wiring is shown as W option.
- D.2 Leads S, R, T connecting to selector bank multiple circuit are also shown connecting to the auxiliary trunk circuit arranged to complete calls to distant CAMA office.
- D.3 Leads R, T, S connecting to trunk circuit or outgoing repeater circuit are also shown connecting to rotary out trunk switch.
- D.4 The title is changed to include the use of this circuit in No. 1, 350A and 360A offices.
- D.5 At lead designated "LOW TONE (BUSY) or LTI 120 IPM TB", reference to 360A office and to "Misc Tone and Tone Alarm Ckts" for No. 1 or 350A is added to the connecting information.
- D.6 Reference to V and W options is added to Note 102 and the Options Used table.
- D.7 Note 103 is added.

All other headings under Changes, no change.

1. PURPOSE OF CIRCUIT

1.1 This circuit provides a means of restricting service to certain classes of subscribers who are not permitted to dial outgoing trunks on designated selector levels, and a means of returning busy tone to these subscribers.

2. WORKING LIMITS

Maximum External Circuit Resistance
2400 ohms
Minimum Insulation Resistance
15,000 ohms

3. FUNCTIONS

3.1 To return busy tone to the calling subscriber when the proper class of service indication is received on the "A" lead from the selector bank multiple circuit.

- 3.2 To hold over dialing of an extra digit.
- 3.3 To provide a busy indication to the selector.
- 3.4 To permit the call to go thru when the indication on the "A" lead does not indicate that the call should be restricted.
- 3.5 To restore to normal when the calling station hangs up.

4. CONNECTING CIRCUITS

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

- 4.1 Selector Bank Multiple Circuit - SD-32123-01.
- 4.2 Two Way Interlocal Trunk Circuit - SD-31842-01.*
- 4.3 Power Ringing Circuit - SD-81131-01.*
- 4.4 Miscellaneous Alarm Circuit - Key Ringing Fuse and Fuse Alarm Circuits for Relay Racks - SD-31974-01.
- 4.5 Outgoing Repeater Circuit - SD-31779-01.
- 4.6 Auxiliary Trunk Circuit - SD-32281-01.
- 4.7 Rotary Out Trunk Circuit - SD-30868-01. (Used with other than 2-way Trunks)
- 4.8 Miscellaneous Tone & Tone Alarm Ckt - SD-31521-01.

*Typical

DESCRIPTION OF OPERATION

5. TRUNK CIRCUIT

5.1 "Z" Wiring

When this circuit is seized by the selector and a class of service indication (either direct ground or 3000 ohm ground) is present on the "A" lead, the (A) relay will operate.

If, with "Z" wiring, there is a 3000 ohm ground present on the "A" lead the (A)

relay will operate only far enough to close contacts 4 and 5. Ground thru contacts 5, 4, 3 and 2 of the (A) relay will operate relay (B). Relay (B) operated transfers the calling subscribers tip and ring from the outgoing trunk circuit to the winding of the (P) relay which operates over the subscribers loop and furnishes "All-trunks-busy" tone to the calling subscriber. Relay (P) operated operates relay (P1). Relay (P1) operated grounds the motor start lead and with W option places a 300 ohm bridge across the tip and ring toward the trunk circuit to hold it. A pulse will be sent because of the time interval between the break of the back contacts of relay (B) and the make of the contact of relay (P1), but this pulse has no effect on the operation. With V option furnished, (P1) operated disconnects the incoming sleeve from the outgoing sleeve and places a ground on the incoming sleeve to hold the connection. When the calling subscriber hangs up, relay (P) releases, which in turn causes relay (P1) to release. Relay (P1) released with W option removes the bridge toward the trunk which causes the selector to be released via the sleeve lead, or with V option removes ground from the sleeve lead permitting the preceding circuits to release. The selector released removes the 3000 ohm ground from the "A" lead which in turn, causes the (A) and the (B) relays to release.

Relay (P1) is slow to release so that it will hold operated if the calling party should dial extra digits.

If, with "Z" wiring, a direct ground is present on the "A" lead, the "A" relay will operate fully. Ground will be supplied momentarily to the (B) relay winding in the interval between the closure of contacts 4 and 5 of relay (A) and the break of contacts 2 and 3 of the (A) relay. However relay (B) is slow operate and will not operate in this short time interval.

5.2 "Y" Wiring

When this circuit is seized by the selector and a class of service indication (either direct ground or 3000 ohm ground) is present on the "A" lead the (A) relay will operate.

If, with "Y" wiring, a 3000 ohm ground is present on the "A" lead, the (A) relay will operate only far enough to close contacts 4 and 5 and the circuit will operate no further.

If, with "Y" wiring, a direct ground is present on the "A" lead the (A) relay will operate fully which will cause relay (B) to operate. Relay (B) operated transfers

the calling subscribers tip and ring from the outgoing trunk circuit to the windings of the (P) relay, which operates over the subscribers loop and furnishes "All-trunks-busy" tone to the calling subscriber. Relay (P) operated operates relay (P1). Relay (P1) operated grounds the motor start lead and with W option places a 300 ohm bridge across the tip and ring toward the trunk circuit to hold it. A pulse will be sent because of the time interval between the break of the back contacts of relay (B) and the make of the contact of relay (P1), but this pulse has no effect on the operation. With V option furnished, (P1) operated disconnects the incoming sleeve from the outgoing sleeve and places a ground on the incoming sleeve to hold the connection. When the calling subscriber hangs up, relay (P) releases, which in turn causes relay (P1) to release. Relay (P1) released with W option removes the bridge toward the trunk which causes the selector to be released via the sleeve lead, or with V option removes the ground from the sleeve lead permitting the preceding circuits to release. The selector released removes the direct ground from the "A" lead which in turn causes the (A) and then the (B) relays to release.

Relay (P1) is slow release so that it will hold operated if the calling party should dial extra digits.

5.3 "X" Wiring

When this circuit is seized by the selector and a class of service indication (either direct ground or 3000 ohm ground) is present on the "A" lead, the (A) relay will operate and close, contacts 4 and 5 in both cases. The (A) relay operated operates relay (B). Relay (B) operated transfers the calling subscribers tip and ring from the outgoing trunk circuit to the windings of the (P) relay which operates over the subscribers loop and furnishes "All-trunks-busy" tone to the calling subscriber. Relay (P) operated operates relay (P1). Relay (P1) operated grounds the motor start lead and with W option places a 300 ohm bridge across the tip and ring toward the trunk circuit to hold it. A pulse will be sent because of the time interval between the break of the back contacts of relay (B) and the make of the contact of relay (P1), but this pulse has no effect on the operation. With V option furnished, (P1) operated disconnects the incoming sleeve from the outgoing sleeve and places a ground on the incoming sleeve to hold the connection. When the calling subscriber hangs up, relay (P) releases, which in turn causes relay (P1) to release. Relay (P1) released with W option removes the bridge toward the

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trunk which causes the selector to be released via the sleeve lead, or with V option removes ground from the sleeve lead permitting the preceding circuits to release. The selector released removes the 3000 ohm ground or direct ground from the

"A" lead which in turn causes the (A) and then the (B) relays to release.

Relay (Pl) is slow release so that it will hold operated if the calling party should dial extra digits.

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