

APR 26 1971

CIRCUIT DESCRIPTION

CD-65753-01
ISSUE 8D
APPENDIX 3D
DWG ISSUE 21D

PBX SYSTEMS
NO. 756A
ATTENDANT TRUNK CIRCUIT

CHANGES

D. Description of Changes

D.1 The rating of this circuit is changed from AT&TCo
Standard to Mfr Disc.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT 3224-WVS-RVL

2871a (copy)
CIRCUIT DESCRIPTION

CD-65753-01
ISSUE 8D
APPENDIX 2D
DWG ISSUE 20D

PBX SYSTEMS
NO. 756A
ATTENDANT TRUNK CIRCUIT

CHANGES

D. Description of Changes

- D.1 On sheet B1, options ZG, ZI, and ZH as added on Issue 19D, are rearranged to facilitate manufacture.
- D.2 Circuit Notes 102 and 104 are revised for options ZG, ZI, and ZH.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT 3224-WVS-RVL

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Page 1
1 Page

CIRCUIT DESCRIPTION

CD-65753-01
ISSUE 8D
APPENDIX 1D
DWG ISSUE 19D

PBX SYSTEMS
NO. 756A
ATTENDANT TRUNK CIRCUIT

CHANGES

D. Description of Changes

- D.1 Option ZG is designated and rated Mfr. Disc.
- D.2 Options ZH and ZI are added as Standard.
- D.3 Circuit Note 104 is revised to reflect Issue 19D.
- D.4 Circuit Note 105 is added.

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DEPT 3221-WVS-RGP

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Page 1
1 Page

PBX SYSTEMS
NO. 756A
ATTENDANT TRUNK CIRCUIT

TABLE OF CONTENTS	PAGE	
<u>SECTION I - GENERAL DESCRIPTION</u>	1	<u>9. MISCELLANEOUS</u>
<u>1. GENERAL METHOD OF OPERATION (SEE INFORMATION NOTE 301 BLOCK DIAGRAM)</u> ..	1	<u>10. FUNCTION OF MAKE BUSY AND BUSY DISPLAY CIRCUIT</u>
<u>2. GENERAL FUNCTIONS</u>	2	<u>A. Attendant Trunk Key Normal</u>
<u>SECTION II - DETAILED DESCRIPTION</u>	2	<u>B. Attendant Trunk Made Busy</u>
<u>1. INCOMING CALL (DIAL O)</u>	2	<u>SECTION III - REFERENCE DATA</u>
<u>A. Seizure of Trunk (Options W and Y)</u>	2	<u>1. WORKING LIMITS</u>
<u>B. Attendant Answers Call</u>	2	<u>A. Lines</u>
<u>C. Attendant Holds Call</u>	3	<u>B. Voltage Limits</u>
<u>D. Attendant Re-enters Held Call</u>	3	<u>2. FUNCTIONAL DESIGNATIONS</u>
<u>2. INTERCEPTION</u>	3	<u>3. FUNCTIONS</u>
<u>A. Call Intercepted</u>	3	<u>4. CONNECTING CIRCUITS</u>
<u>B. Attendant Answers Intercepted Call</u> ..	3	<u>5. MANUFACTURING TESTING REQUIREMENTS</u> ...
<u>C. Attendant Holds Intercepted Call</u> ..	4	<u>6. ALARM INFORMATION</u>
<u>D. Attendant Re-enters Held Call</u>	4	<u>7. TAKING EQUIPMENT OUT OF SERVICE</u>
<u>3. ATTENDANT ORIGINATED CALL</u>	4	<u>SECTION IV - REASONS FOR REISSUE</u>
<u>A. Outgoing Call by Attendant</u>	4	<u>SECTION I - GENERAL DESCRIPTION</u>
<u>B. Attendant Holds Call</u>	4	<u>1. GENERAL METHOD OF OPERATION (SEE INFORMATION NOTE 301 BLOCK DIAGRAM)</u>
<u>C. Attendant Re-enters Held Call</u>	4	<u>1.01</u> When a PBX station or tie trunk dials O, the marker will complete this call on a trunk class basis which means that no junctor circuit is required for the call and only a single link path is completed from the calling line or tie trunk to the attendant trunk circuit. When the calling station or tie trunk loop is extended through the link crosspoints to the attendant's trunk, that trunk functions to provide a holding ground for both the calling line or tie trunk hold magnet and for the attendant trunk hold magnet.
<u>D. Attendant Holds Before Dialing</u> ...	4	<u>1.02</u> When the attendant trunk is seized by a cordless operation, a visual and audible signal is operated at the attendant's equipment. The attendant operates the pickup key associated with the incoming lamp signal and connects the attendant's telephone to the attendant trunk. Once connected to the trunk, the attendant has the option of dis-
<u>E. Attendant Holds Call Before Called Party Answers</u>	5	
<u>4. DISCONNECTION</u>	5	
<u>A. Calling Party Disconnects First (Incoming Call)</u>	5	
<u>B. Attendant Disconnects First (Incoming Call)</u>	5	
<u>C. Calling Party Disconnects After Attendant Incoming Call</u>	5	
<u>D. Disconnection of Attendant Originated Call</u>	5	
<u>5. KICKOFF</u>	5	
<u>6. OPERATION WITHOUT PBX ATTENDANT, INTERCOMMUNICATING SYSTEM ONLY (X OPTION)</u>	6	
<u>7. OPERATION WITH CORD SWITCHBOARD (Z OR A OPTION)</u>	6	
<u>A. Seizure of Trunk</u>	6	
<u>B. Attendant Originated Call</u>	6	
<u>C. Attendant Answers Incoming Call</u> ..	6	
<u>D. Attendant Answers Intercepted Call</u> ..	6	
<u>E. Disconnection</u>	6	
<u>8. OPERATION WITH 6-BUTTON KEY TELEPHONE SET</u>	6	

connecting or of placing the attendant trunk on hold. If the call is a request for a central office or outside telephone number the attendant puts the hold condition on the attendant trunk, and the calling line remains off-hook. The attendant disconnects from the attendant trunk and dials the desired outside telephone number over an idle 2-way CO trunk. Having reached the desired outside telephone, the attendant then dials the number of the PBX line, which is being held by the attendant trunk, on the "in" end of the 2-way CO trunk, on a dial-back basis. The marker proceeds to set up a link from the "in" end of the CO trunk to the PBX station disregarding the busy condition. The attendant trunk recognizes this double connection and responds by releasing. The connection is now complete from the calling PBX line through the 2-way CO trunk to the outside telephone number, and the attendant trunk is restored to normal.

1.03 When the attendant trunk is seized by a cord switchboard operation, an audible and visual signal is operated at the cord switchboard. The attendant plugs a station cord into the jack associated with the visual signal and operates the talk key to connect the switchboard telephone circuit to the trunk.

2. GENERAL FUNCTIONS

2.01 This circuit functions:

- (a) To provide for terminating calls to the attendant, and to provide talking battery for the connection of the calling PBX line or trunk after the attendant disconnects, if desired.
- (b) To hold the connection under control of the calling PBX line or trunk after the attendant disconnects, if desired.
- (c) To release automatically when the calling line is dialed back from a 2-way CO trunk.
- (d) To provide for answering only incoming calls at a cord switchboard.
- (e) To provide supervision on incoming calls via dial repeating tie trunks.

SECTION II - DETAILED DESCRIPTION

1. INCOMING CALL (DIAL 0)

A. Seizure of Trunk (Options AW and Y)

1.01 When the calling line or tie trunk dials 0, the marker is signaled to set up a connection from the calling line or tie trunk to the attendant trunk over a link. When the SMTA relay in the marker operates, it grounds one of the IT05 through 07 leads toward the attendant trunk circuit. This ground is carried back to the line, link, and marker

circuit where it operates the trunk hold magnet (THM) of the attendant trunk. The trunk hold magnet operated closes the cross-points which extend the loop of the calling line or trunk to relay A. The loop operates relay A which: (a) operates relay B; (b) closes a circuit from lead FF of the power plant to lamp SL which flashes at 120 IPM; (c) with Z option, operates relay NC in the attendant cord switchboard; (d) with R option, prepares a path to operate relay RV; (e) extends ground over lead TU(AT-A) toward the TMS remote scanner.

1.02 Relay B operated:

- (a) Bridges the contacts of relay AC in both the T and R leads to keep relay A operated when relay AC operates.
- (b) Completes a path for ringing tone from capacitor RT to the ring side of the trunk for audible ringing tone.
- (c) Connects ground to one of the IT00 through 02 and IT05 through 07 leads to make the trunk busy to the marker.
- (d) Closes machine ringing from lead R1 through break contacts on relays ON and HD to lead BZ to operate the audible signal in the attendant equipment.
- (e) Prepares a locking path for relays ON and HD.
- (f) Connects ground to lead HM to hold the trunk hold magnet THM.
- (g) Operates relay SL (relay SL is connected as a 100-ohm holding ground to lead S which holds the hold magnet of the calling line or trunk operated after the marker releases).

B. Attendant Answers Call

1.03 The attendant, in response to an audible signal and flashing SL lamp, operates the pickup key associated with the trunk. The pickup key operated connects ground to lead ACA to operate relay AC. Relay AC will remain operated as long as the pickup key is operated. Relay AC operated: (a) connects the attendant equipment to the trunk via leads TT and TR; (b) with S option, prepares a path to operate relay SP in the attendant equipment; (c) prepares a path to operate relay HD; (d) connects ground to leads U and TR- toward the marker; (e) operates relay ON; (f) with R option, operates relay RV to give reverse battery supervision on calls from dial tie trunks.

1.04 Relay ON operated: (a) locks operated to ground through its own contacts and under control of relays HD and B; (b) opens the tone path from the RT capacitor to the ring of the trunk; (c) opens the R1 lead to silence the audible signal at the attendant's equipment; (d) transfers lamp SL from

120 IPM to steady battery; and (e) removes ground from lead TU(AT-A) to the TMS remote scanner. The calling station and the attendant are now connected, and transmission battery for the calling party is from the A relay.

C. Attendant Holds Call

1.05 If it is desired to place a hold condition on an attendant trunk, the attendant must momentarily operate the hold key in the attendant equipment prior to releasing the pickup key. The hold key operated operates relay H in the attendant equipment which grounds lead HD to operate relay HD through relay AC operated. Relay HD operated:

- (a) With S option, operates relay SP in the attendant's equipment.
- (b) With R option, operates relay D.
- (c) Releases relay ON.
- (d) Opens one of the operating paths of relay B.
- (e) Prepares a path to operate relay TN over lead KO from the marker.
- (f) Prepares a locking path for itself to remain locked to the sleeve through contacts of relay TN normal after relay AC releases.
- (g) Transfers the busy ground on one of leads IT00 through 02 from relay B to relay HD.
- (h) Transfers the SL lamp from steady battery to 30 IPM to indicate a holding condition.
- (i) Opens lead R1 or BZ to prevent reoperation of the audible signal at the attendant equipment when relay ON releases.
- (j) Opens the tone lead to the ring side of the trunk.

1.06 With S option, relay SP operated in the attendant equipment locks operated to ground over lead SP and holds relay HD operated until relay AC releases.

1.07 With R option, relay D holds relay HD operated until relay AC releases.

1.08 The attendant operates the release key which mechanically releases the pickup key. The pickup key released in turn releases relay AC. Relay AC released: (a) removes ground from leads U- and TR-; (b) with S option, releases relay SP in the attendant's equipment; (c) with R option, releases relay D; (d) transfers relay HD from an operating path to a holding path to the sleeve lead; and (e) disconnects the attendant equipment via leads TT and TR from the

trunk and leaves the calling line connected to relay A. Relay ON released prepares a locking path for relay TN which operates at a later time.

D. Attendant Re-enters Held Call

1.09 With the hold condition established on an incoming call, relays A, B, HD, SL, and if R option is furnished, relay RV is operated in the attendant trunk circuit. To re-enter the trunk the attendant again operates the pickup key, and relay AC operates as described in 1.03 and 1.04. Relay AC operated bridges the attendant telephone set on to the T and R leads over leads TT and RT for a talking path. Relay AC operated releases relay HD. Relay HD released: (a) operates relay ON from ground through operated relay AC; (b) transfers lamps SL from 30 IPM to 120 IPM; and (c) disconnects the holding of relay RV. Relay ON operates to transfer lamps SL from 120 IPM to steady battery.

2. INTERCEPTION

A. Call Intercepted

2.01 If a station dials: (a) an unassigned station; (b) a trunk code 8 which is not equipped; (c) a restricted station; (d) a restricted dial repeating tie trunk which is denied access to 2-digit codes beginning with 8 and 1- or 2-digit codes beginning with 9; (e) a restricted station or a restricted dial repeating tie trunk which is denied access to 1- or 2- digit codes beginning with 9 but which is allowed access to codes beginning with code 8; (f) a register times out or a permanent signal condition exists, the marker will direct the call to an attendant trunk circuit over a link. When the SMTA relay in the marker operates, ground is connected to one of the IT00 through 02 leads causing relay TN to operate. Relay TN operated (a) prepares a path to flash lamps TL, and (b) grounds lead HM to operate the attendant trunk hold magnet THM in the line, link, and marker circuit. With the trunk hold magnet operated the loop is extended to operate relay A, and the trunk functions as described in 1.01 and 1.02 except that lamp TL flashes at 120 IPM and relay TN locks operated under control of relays B and ON.

B. Attendant Answers Intercepted Call

2.02 The attendant, in response to an audible signal and flashing SL and TL lamps, operates the pickup key associated with the trunk. Relays AC and ON operate as described in 1.03 and 1.04 except that relay ON transfers the ring of the trunk from ringing tone through capacitor RT to low tone through capacitor TN and opens the locking path of relay TN which starts to release. During the interval in which relay ON is operated and before relay TN releases, the low tone heard by the attendant is a signal to the attendant that this is other than a dial 0 call. The

low tone is removed when relay TN releases. Relay TN released extinguishes lamp TL.

C. Attendant Holds Intercepted Call

2.03 Holding an intercepted call is the same as described in 1.05 through 1.08.

D. Attendant Re-enters Held Call

2.04 Re-entering a hold intercepted call is the same as described in 1.09.

3. ATTENDANT ORIGINATED CALL

A. Outgoing Call by Attendant

3.01 When the attendant originates a call over the attendant trunk circuit, an idle trunk is selected from the lamp indication. The attendant operates a pickup key in the attendant equipment associated with the idle trunk. The pickup key operated grounds lead ACA to operate relay AC. Relay AC operated: (a) operates relay ON; (b) prepares a path to operate relay OUT through relay B normal when the marker operates the trunk hold magnet; (c) connects the attendant's equipment to the trunk circuit via leads TT and TR; (d) prepares a path to operate relay HD; and (e) grounds leads U- and TR- to the line, link, and marker circuit as a signal to connect the attendant trunk to a register via a link.

3.02 Relay ON operated: (a) connects battery to lead SL- to light the SL lamps steadily; (b) connects ground to one of leads IT00 through 02 to make the trunk busy to the marker on subsequent calls; (c) opens the BZ lead to prevent the audible signal from sounding; and (d) opens the audible ringing lead to the ring side of the trunk.

3.03 In the process of connecting the trunk to a register, relay SMTA in the marker grounds one of leads IT05 through 07 to operate the trunk hold magnet THM, relay OUT, and extends ground over lead TU(AT-) toward the TMS remote scanner. Relay OUT operated: (a) connects the sleeve lead to the HM lead so that the sleeve holding ground furnished by the register will hold the attendant trunk hold magnet operated after the marker removes ground from one of the IT05 through 07 leads; (b) locks operated to the sleeve ground; (c) connects battery to lamps SL in place of relay ON; and (d) opens the T and R leads to relay A to prevent its operation.

3.04 The attendant now hears PBX dial tone from the register and can dial the desired PBX station line. The marker will set up a connection to the line on a junctor class basis. When finally connected the junctor will supply holding ground on the sleeve and supply transmission battery to the called station.

B. Attendant Holds Call

3.05 To hold an attendant originated call, the attendant operates the hold key, in turn operating relays H and HD as described in 3.01 through 3.04. In addition, relay HD connects a short circuit across the T and R leads of the trunk to hold the junctor when relay AC releases and also prepares a path to lock to lead HM when relay AC releases. Lead HM is connected to the sleeve lead by relay OUT which is grounded via the link by the junctor.

3.06 The attendant operates the release key which mechanically releases the pickup key, in turn releasing relay AC. Relay AC released transfers the tip and ring from the attendant telephone circuit to the short prepared by relays OUT and HD operated. This short circuit is extended to the junctor or tie trunk to which the attendant trunk is connected. Under control of this short, the connecting circuit supplies holding ground on the sleeve to hold the attendant trunk hold magnet in the line, link, and marker circuit and relay HD over lead HM which is connected to the sleeve through relay OUT operated.

C. Attendant Re-enters Held Call

3.07 With the hold condition established on a call originated by the attendant, relays HD and OUT are operated in the trunk. To re-enter the trunk, the attendant operates the pickup key associated with the trunk to operate relay AC as described in 3.01 through 3.04. Relay AC operated (a) transfers the trunk T and R leads from the holding short formed by relays HD and OUT to the attendant equipment via leads TT and RT, and (b) releases relay HD. Relay HD released operates relay ON and transfers lamp SL from 30 IPM to 120 IPM. Relay ON operated transfers lamp SL from 120 IPM to steady battery.

D. Attendant Holds Before Dialing

3.08 When the attendant depresses the pickup key associated with an idle trunk, a dial tone connection will be established as explained in 3.01 through 3.04. Should the attendant depress the hold key, the H relay in the attendant circuit and the HD relay in the trunk circuit will operate as explained in 1.05 through 1.08. With J option, relay HD in operating will place the C diode in series with make contacts of the OUT relay and its own make contact across the tip and ring of the line as a holding bridge. Since this connection is to a DP register there will be battery on the ring side and ground on the tip. When the attendant releases from the circuit the polarity of the C diode will prevent current flow, releasing the L relay in the register circuit which will function to restore both circuits to normal.

E. Attendant Holds Call Before Called Party Answers

3.09 When the attendant depresses the pickup key of an idle trunk and receives dial tone as explained in 3.01 through 3.04, the desired line may be called. After dialing, the marker will set up the call on a junctor type basis. While the called station is on-hook there is ground on the tip and battery on the ring from the junctor circuit. Should the attendant place the trunk on hold and release from the connection, the C diode will prevent current flow causing the A relay in the junctor to release which will function to restore both circuits to normal.

4. DISCONNECTIONA. Calling Party Disconnects First (Incoming Call)

4.01 If the calling party disconnects before the attendant and the hold condition has not been established, no circuit action occurs in the trunk circuit because an inductor in the attendant equipment is connected across leads TT and TR to hold relay A operated.

B. Attendant Disconnects First (Incoming Call)

4.02 If the attendant disconnects first and the hold condition has not been established, relay AC releases when the pickup key is released by operating the release key. Relay AC releasing (a) operates relay HD, and (b) releases relay RV which reverses battery and ground to give disconnect supervision on a tie trunk.

4.03 Relay HD is forced operated on disconnect to insure that the trunk will respond to "kick off" if the attendant fails to operate the hold key before disconnecting on calls where dialing back from a 2-way central office trunk is required. Relay HD operated: (a) transfers the ground on one of the IT00 through 02 leads from relay B to relay HD; (b) opens the BZ lead to keep the AND audible signal from sounding when relay ON releases; (c) connects 30 IPM to the SL lamps; (d) opens the tone lead to the ring of the trunk to prevent sending tone to the calling party when relay ON releases; (e) opens the TL lamp lead; (f) prepares its own locking circuit under control of relay B; and (g) releases relay ON.

C. Calling Party Disconnects After Attendant (Incoming Call)

4.04 When the calling party disconnects after the attendant has disconnected, the loop is opened and relay A releases in turn releasing relay B. Slow-release relay B (a) opens the sleeve lead to release relay SL and removes the 100-ohm holding ground from the sleeve to release the calling line hold magnet, (b) releases relay HD, (c) removes

ground from lead HM to release the trunk hold magnet, (d) removes ground from lead IT05 through 07, and (e) removes ground from lead TU(AT-) to the TMS remote scanner. Relay HD releases to extinguish the SL lamp and remove ground from one of the IT00 through 02 leads to remove the busy condition on the trunk.

D. Disconnection of Attendant Originated Call

4.05 If the called party disconnects first on a call originated by the attendant, no circuit action takes place in the trunk because the junctor circuit originating end is being held under control of the attendant telephone circuit which is bridged across the T and R leads over leads TT and RT through make contacts of AC. When the attendant disconnects by restoring the pickup key, ground is removed from lead ACA and relay AC releases. Relay AC released releases relay ON and relay OUT is held locked up to the sleeve. Relay AC released removes the loop from the A relay in the connected junctor circuit which is a signal to the junctor to release. When the junctor releases, sleeve ground is removed and relay OUT releases. The trunk hold magnet is also released. Relay OUT released removes ground from the IT leads to remove the busy condition from the trunk. Relay OUT released also removes battery from lead SL to extinguish the lamp at the attendant position.

5. KICKOFF

5.01 If a PBX line which needs to be connected to a CO subscriber is routed to an attendant trunk circuit either by that line dialing 0 or by a restricted line attempting to dial 9, the attendant must ascertain the identity of the calling line as well as the outside telephone number desired. When the attendant has the necessary information, the attendant places a hold condition on the attendant trunk. The attendant now selects an idle 2-way CO trunk and dials the desired outside telephone number. When the called CO line answers, the attendant informs the party of the call and asks them to wait. The attendant then puts a hold on the 2-way CO trunk (central office end) and receives PBX dial tone from the PBX end of the 2-way CO trunk. After operating the dial-back key momentarily, the attendant proceeds to dial the number of the PBX line that requested the outside connection.

5.02 The marker proceeds to set up a connection from the PBX end of the 2-way CO trunk to the calling PBX line, and in response to the dial-back key operation, will set up this connection disregarding the busy condition of the line being held on the attendant trunk.

5.03 The camp-on relay in the marker connects ground to the sleeve lead of the calling line, and this ground via the link shuts down relay SL. Relay SL released

completes the path via lead KO to operate relay TN from ground in the marker from the no-test relay. Relay TN operated locks operated and releases relay B. Relay B released releases the trunk hold magnet and relay TN. Relay TN released releases relay HD and removes ground from lead TU(AT-) to the TMS remote scanner. When the trunk hold magnet released, the loop to relay A was opened which caused relay A to release. With relays A and HD released, the SL lamp is extinguished. The attendant trunk now is released and restored to normal.

6. OPERATION WITHOUT PBX ATTENDANT. INTERCOMMUNICATING SYSTEM ONLY (X OPTION)

6.01 If the PBX is used for intercommunicating purposes only, the attendant trunks are used only as holding trunks for calls to unassigned numbers or permanent signal calls.

6.02 Seizure of the attendant trunk for this condition is as described in 2.01 except that X option provides busy tone instead of audible ringing tone to the ring of the trunk.

7. OPERATION WITH CORD SWITCHBOARD (Z OR A OPTION)

A. Seizure of Trunk

7.01 Seizure of the trunk when a cord switchboard is provided is the same as described in 1.01, 1.02, and 2.01 except that a call originated by dialing 0 results in a 120-IPM flashing busy lamp at the cord switchboard. A call which is intercepted results in both the busy and trunk lamps flashing at 120 IPM at the cord switchboard.

B. Attendant Originated Call

7.02 No provision is made for the attendant to originate calls over the attendant trunk from the cord switchboard.

C. Attendant Answers Incoming Call

7.03 The attendant, in response to the flashing busy lamp, inserts a station cord into the attendant trunk jack. A make contact on the tip jack spring closes ground over a lead to operate relay OUT.

7.04 Relay OUT transfers the trunk T and R leads from the winding of relay A to the switchboard. Relay A releases.

7.05 Relay OUT operated also operates relay ON and transfers the busy lamp lead BL from 120-IPM flashing battery to solid battery, resulting in a steadily lighted busy lamp.

7.06 T option causes the trunk to return supervision when answering a tie trunk.

7.07 Relay ON operated (a) opens the A or NA lead to silence the audible signal and close a circuit in order to hold itself independent of relay OUT, and (b) removes ground from lead TU(AT-A) to the TMS remote scanner.

D. Attendant Answers Intercepted Call

7.08 The attendant responds to the flashing busy and trunk lamp signal by inserting a trunk cord into the attendant trunk jack. Circuit action is as described in the preceding paragraphs except that in addition to relay A releasing, relay TN is also released when relay ON operates. Relay TN released removes flashing battery from lead TL or L, resulting in a dark trunk lamp. The busy lamp remains steadily lighted from the solid battery through contacts of relay OUT operated.

E. Disconnection

7.09 If the calling line or trunk disconnects before the attendant removes the plug from the trunk jack, no circuit action occurs in the trunk because relay OUT is still held from the operated jack spring ground.

7.10 If the attendant removes the plug from the trunk jack before the calling party disconnects, relay OUT will release returning the tip and ring of the trunk to the winding of relay A. Relay A reoperates to continue holding slow-release relay B.

7.11 Relay B held operated holds the trunk and calling line hold magnets operated. Relay ON holds the busy lamp steadily lighted and the audible signal silenced.

8. OPERATION WITH 6-BUTTON KEY TELEPHONE SET

8.01 When a 6-button key telephone set is used as an attendant equipment, the attendant trunk circuit functions as described in 1.01 through 5.03 with the following exceptions:

- (a) The line lamp (L) in the 6-button set serves the same purpose as does the station lamp (SL).
- (b) On a dial 0 or intercepted call, relay A furnishes transmission battery for the 6-button set.
- (c) On intercepted calls there will be no trunk lamp (TL) and only the burst of tone will identify the call.
- (d) On an attendant originated call the junctor furnishes the transmission battery for the 6-button set.
- (e) There is no release key on the 6-button set but a switchhook contact will open the circuit to the AC relay causing it to release when the handset is replaced.

9. MISCELLANEOUS

9.01 When the attendant's operation of a 756A PBX is transferred to a 6-button key telephone set, the common ringer continues to ring on calls over central office and attendant trunks which do not appear on the 6-button key telephone set.

9.02 To prevent this, option N is added which provides for each buzzer (BZ) lead to be separate and to connect to relay contacts in the cordless position circuit.

9.03 Straps are added across the make and break contacts of each BZ lead associated with a trunk appearance on the 6-button key telephone set. When the operations are transferred, the added relays in the cordless position circuit operate and the BZ leads not strapped are opened. Only those strapped BZ leads will cause the common ringer to operate.

9.04 When direct station selection is provided for the attendant, option M is required in the attendant trunk circuit.

9.05 Relay AC operated opens lead HL to prevent the operation of relay H in the cordless position circuit when any of the keys in the direct station selection set are operated.

10. FUNCTION OF MAKE BUSY AND BUSY DISPLAY CIRCUIT

A. Attendant Trunk Key Normal

10.01 With the attendant trunk key (ATND TRK) normal in the make busy and busy display circuit, the attendant trunk busy lamp (ATND TRK) will light (a) when the marker, in placing a busy test on the attendant trunk for either an attendant originated trunk call or an incoming attendant trunk call, applies resistance ground to the associated IT05 through 07 lead in the line, link, and marker circuit, or (b) when the marker, in selecting the attendant trunk for an intercepted call, applies direct ground to the associated HM lead by operating relay TN in the attendant trunk circuit. In either case, the lighting of lamp ATND TRK indicates that the attendant trunk has been called on by the marker through normal operations.

B. Attendant Trunk Made Busy

10.02 If it is desired to place the attendant trunk in a busy condition, key ATND TRK is operated. The ATND TRK key operated operates relay B in the attendant trunk circuit. Relay B operated, grounds the associated IT00 through 02 and HM0 through 2 leads to the line, link, and marker circuit. The ground applied to lead HM by the operation of relay B: (a) operates the trunk hold magnet (THM) in the marker circuit; (b) makes the attendant trunk busy to the marker for incoming calls; (c) makes the trunk inaccess-

ible to the attendant for an attendant originated call; and (d) lights lamp ATND TRK in the make busy and busy display circuit. The ground applied to the associated IT00 through 02 lead makes the attendant trunks busy to the marker for intercepted calls.

SECTION III - REFERENCE DATA

1. WORKING LIMITS

A. Lines

1.01 The maximum external circuit loop for relay A is 2370 ohms; minimum insulation resistance is 20,000 ohms.

B. Voltage Limits

1.02 45-52 volts dc

2. FUNCTIONAL DESIGNATIONS

2.01 Relays

DESIGNATION	B LOCATION	FUNCTIONAL MEANING
A	2A9	Line
AC	2E9	Attendant Connector
B	2G4	Slow-Release Guard
HD	2E4	Hold
ON	2B2	Off-Normal
OUT	2C2	Outgoing Call
SL	2E2	Sleeve
TN	2F4	Tone

3. FUNCTIONS

3.01 To recognize seizure by the calling line or tie trunk and to supply holding ground for the calling line or the trunk hold magnet under control of the calling party.

3.02 To make itself busy to the marker or subsequent calls.

3.03 To supply holding ground for the attendant trunk hold magnet under control of the calling party.

3.04 To cause an audible and vusual signal to sound at the attendant position as a signal that the trunk has been seized.

3.05 To provide a means for the attendant to connect the cordless position circuit to the trunk.

3.06 To silence the audible signal and change the visual signal from a fast flash to

a steadily lighted lamp when the attendant is connected to the trunk.

3.07 To signal the attendant with a short spurt of tone and a distinctive lamp signal if the call is other than a dial 0 call from a calling line or the trunk.

3.08 To supply audible ringing tone to the calling party until the attendant answers.

3.09 To remove the audible ringing tone when the attendant answers.

3.10 To supply transmission battery to the calling party.

3.11 To supervise the connection and recognize whether the calling party disconnects when the attendant is not connected and no hold has been established, and to signal this disconnection to the attendant.

3.12 To hold the connection at the discretion of the attendant after disconnect and to signal this hold condition to the attendant.

3.13 To release itself (kick off) and extinguish the trunk lamp when the attendant dials back over a 2-way CO trunk to complete a call from an outside line to the line initiating the request on the attendant trunk.

3.14 To enable the attendant to originate a call to a PBX line and to hold this line after the connection is established, if desired.

3.15 To return to normal when both the calling line and PBX attendant have disconnected, and to free the calling line.

3.16 To hold itself busy as long as either the calling party remains off-hook or the attendant remains connected.

3.17 To provide for operation with a cord switchboard.

3.18 To disconnect if the attendant places a call on hold and releases from the circuit before dialing (J option).

3.19 To disconnect if the attendant dials an extension and places the call on hold but releases before called party answers (J option).

3.20 To provide for being made busy by the make busy and busy display circuit.

3.21 To provide for a busy indication to the make busy and busy display circuit.

3.22 To provide for operation with the traffic measurement system No. 1A remote scanner.

4. CONNECTING CIRCUITS

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

4.02 This circuit connects with the following circuits:

- (a) Attendant Modular Console and Position Cordless Positions Circuit - SD-65757-01
- (b) Cordless Position Circuit - SD-65751-01
- (c) Line, Link, and Marker Circuit - SD-65741-01
- (d) Alarm, Transfer, and Test Circuit - SD-65743-01
- (e) Power Supply Circuit - SD-81288-01
- (f) Busy Verification Auxiliary Trunk Circuit - SD-66911-01
- (g) Traffic Measurement System No. 1A Remote Scanner and Encoder Circuit - Portable Type - SD-3B200-01
- (h) Make Busy and Busy Display Circuit - SD-5E029-01
- (i) 552A, 522B, 552D, 552E, 605A, 607A, 607B, or 608A Jack Circuit - SD-65778-01
- (j) 608A Auxiliary Signal, Fuse Alarm, Battery Cutoff and Miscellaneous Circuit - SD-66722-01
- (k) 608D Jack and Lamp Circuit - SD-65997-01
- (l) 608D Auxiliary Signal, Fuse Alarm, Battery Cutoff and Miscellaneous Circuit - SD-67039-01

5. MANUFACTURING TESTING REQUIREMENTS

5.01 The attendant trunks shall be capable of performing all the service functions listed herein, and meeting the requirements shown in the Circuit Requirement table.

6. ALARM INFORMATION

6.01 An operated fuse supplying an attendant trunk will cause a major alarm to be transmitted to the plant service center if alarm sending is provided, and in any case, it will produce a visual signal at the attendant position and in the alarm transfer and test circuit.

6.02 To silence the alarm and extinguish the alarm lamp, replace the operated fuse.

7. TAKING EQUIPMENT OUT OF SERVICE

7.01 In order to make an attendant trunk busy it is necessary to ground the IT leads toward the line, link, and marker circuit. This can be accomplished as follows: Ascertain that no select magnet is operated, then insulate 11M of relay B and block relay B operated.

SECTION IV - REASONS FOR REISSUE

D. Description of Changes

D.1 Option ZE is designated and rated Mfr Disc.

D.2 Option ZF is added as Standard.

D.3 Options ZE and ZF are added to the Option Index.

D.4 Circuit Note 104 is revised to reflect Issue 18D.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT 3221-WVS-RGP