CIRCUIT DESCRIPTION

CD-66908-01
ISSUE 2A
APPENDIX 4D
DWG ISSUE 8D

PBX SYSTEMS
NO. 756A
DIAL CONFERENCE
TRUNK CIRCUIT
ATTENDANT CONTROLLED

CHANGES

D. Description of Changes

D.1 The rating of this circuit is changed from AT&TCo Standard to A&M Only.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT 3224-WVS-RVL

PBX SYSTEMS
NO. 756A
DIAL CONFERENCE
TRUNK CIRCUIT
ATTENDANT CONTROLLED

CHANGES

B. Changes in Apparatus

B.1 Superseded	Superseded by
S1, 2 and S3, 4 resistors (two), 19LC, App Fig. 1, option S	S1, 2 and S3, 4 resistors (two), 19LG, App Fig. 1, option R
S5 resistor, 18BW, App Fig. 1, option S	S5 resistor, 18EB, App Fig. 1, option R

D. Description of Changes

D.1 Option R is added and rated Standard to recode the conference sleeve resistors from 100 to 84 ohms. This provides the proper potential on the sleeve lead to prevent a link test failure. Option S is rated Mfr Disc.

D.2 This change is reflected in the Sheet Index, Option Index, FS2, App Fig. 1, and Circuit Note 104.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT 3224-TEH-RVL

PBX SYSTEMS
NO. 756A
DIAL CONFERENCE
TRUNK CIRCUIT
ATTENDANT CONTROLLED

CHANGES

D. Description of Changes

D.1 On sheets B1 and B3, option U is designated and rated Manufacture Discontinued. Option T is added to revise the operate paths of relays BCH1-5 and CR1-5.

D.2 On sheet B3, relays BC1-5 are designated as "SR".

D.3 Option index, App. Fig. 1 and circuit note 104 are revised to reflect the aforementioned changes.

BELL TELEPHONE LABORATORIES, INCORPORATED

(WECo 2120HW-SHA-WHK)
DEPT 5337-LAH

PBX SYSTEMS
NO. 756A
DIAL CONFERENCE
TRUNK CIRCUIT
ATTENDANT CONTROLLED

CHANGES

B. Changes in Apparatus

B.1 SUPERSEDED	SUPERSEDED BY
(6) A,B,C,D,E,F 542F Capacitors App. Fig. 1, Option W.	(6) A,B,C,D,E,F 705G Capacitors App. Fig. 1,Option V.
(6) RO,R1,R2,R3,R4,R5 145A, 898 ohm Resistors App. Fig. 1, Option W.	(6) RO, R1,R2,R3,R4,R5 145A, 600 ohm Resistors App. Fig. 1, Option V.

D. Description of Changes

D.1 For description of operation see CD, Issue 2A.

D.2 Option W is designated and option V is added. Option V provides improved idle line termination for the conference bridge circuit and provides for disconnecting the battery supply from the conference bridge circuit when the trunk circuit is idle.

D.3 In FS1 and FS2, references to options V and W are added at the location of capacitors A,B,C,D,E and F and resistors RO, R1, R2, R3, R4 and R5.

D.4 In FS4, option W provides battery supply to CA connector terminal 20 at all times and option V places connection of the battery supply under control of contacts 3 make of relay ON and the BC-relays.

D.5 Circuit note 104 is changed to indicate that the use in the circuit of option W is manufacture discontinued and that the use of option V is standard.

D.6 The title conference bridge circuit was conference amplifier circuit prior to this issue.

BELL TELEPHONE LABORATORIES, INCORPORATED

(WECo 2120HW-WES-JGW)
DEPT. 5337-LAH

PBX SYSTEMS
NO. 756A
DIAL CONFERENCE
TRUNK CIRCUIT
ATTENDANT CONTROLLED

TABLE OF CONTENTS

SECTION I - GENERAL DESCRIPTION

1. PURPOSE OF CIRCUIT

1.01 To provide control arrangements which permit an attendant to set up a conference connection with any five stations or tie trunks or with any four stations or tie trunks and a central office trunk.

2. GENERAL DESCRIPTION OF OPERATION

A. Definitions and Operation Charts

2.01 Table A defines terms used in this circuit description and Charts A-D of the schematic drawing outline the control and switching actions involved in setting up a conference.

B. Assignment of Switch Verticals

2.02 The five conference ports may be assigned to any five tie trunk verticals of the switch. For descriptive purposes it is assumed that verticals 81-85 are assigned to ports 1-5, respectively. It should be noted, however, that a consecutive sequence of numbers in not required.

C. Originating a Conference

2.03 A conference is originated by a request to the attendant over an attendant trunk or a central office trunk. A PBX station or tie trunk party must release this connection to permit the attendant to set up the conference connections including recall of the originating station or tie trunk party.

2.04 The attendant may seize the conference control circuit by depressing the CONF key. The conference circuit performs the following functions:

(a) Makes vertical 81 busy.

(b) Calls for the attachment of a dial pulse register at vertical 81.

(c) Returns dial tone to the attendant.

(d) Prepares to repeat the dialing of the attendant into the dial pulse register. The attendant may now dial the code of the first conferee station.

(e) Provides a steady visual signal on the TL lamps associated with the CONF and ST/RC keys.

2.05 The conferee station, when called, is terminated on port 1 of the conference circuit via vertical 81 and conference port 1 is connected to conference bridge port 1.

2.06 When the switching and control circuit actions are completed, the attendant is connected to conference bridge circuit port 0 and may communicate with the conferee station just added.

TABLE A

Term	Definition
CONFEREE	Station which has been called into a conference by the attendant.
CONFERENCE PORT	One of five interfaces between tie trunk switch verticals and the conference control circuit. The verticals are occupied by conferees on a first idle basis.
CALLING PORT	A conference port in group 1-5 through which a conferee station is being called.
CONFERENCE VERTICAL	A switch vertical in the tie trunk group which is cross connected to a conference port.
CONFERENCE BRIDGE	A six port conference bridge which provides multiway communication between all conferees (including attendant).
CONFERENCE BRIDGE PORT	One of six interfaces between the conference control circuit and the conference bridge circuit.
SWITCHHOOK FLASH	Operation of switchhook and release in not less than 75 milliseconds nor more than 250 milliseconds.

2.07 The attendant prepares for calling the second station by momentarily depressing the ST/RC key. This action disconnects the attendant from the conference bridge and transfers the attendant to vertical 82 for calling the next conferee. By normal switching action the dial pulse register is connected to vertical 82 and dial tone is returned to the attendant.

2.08 The attendant dials the number of the second desired conferee station and, by normal switching action, the station is rung. When the called station answers, it is terminated on the conference bridge. At this time the attendant is reconnected to the conference bridge and multiway voice communication may take place between the attendant and both conference stations.

2.09 Assuming that all desired conference stations are idle and answer when rung, set up of the conference proceeds until five stations have been connected to the conference bridge circuit. A 60-ipm signal is connected to the SL lamp of ST/RC key when all ports are in use.

2.10 If at any time during the process of build up of a conference the called station is busy or does not answer when rung, the attendant cancels the call to this station by operating the ST/RC key momentarily. This dismisses the PBX switching circuits and returns the attendant to the conference bridge for communication with the stations already connected.

2.11 The action of cancelling by operation of the ST/RC key, including cancelling after partial dialing, may be taken at any time prior to answer by the called station.

D. Disconnections

2.12 If a station leaves the conference by going on hook it is dismissed from the conference circuit and may make or receive other calls in a normal manner. The conference port vacated by the disconnected station is available for calling other stations or for recall of any station which previously has left the conference.

2.13 After releasing from the conference the attendant may be recalled by a switchhook flash at any station.

2.14 Each member of the conference is disconnected three to five hundred milliseconds after hanging up. If all parties disconnect except one, the remaining party is disconnected automatically. After the last station is disconnected, the TL lamps associated with the CONF and ST/RC keys are extinguished.

E. Connection of Central Office Trunk

2.15 A central office trunk may be connected to the conference by the PBX attendant via port 5 using normal dialing procedure.

F. Optional Features

2.16 An optional feature is available to provide for lock out of the attendant from the conference control circuit after her release. However, any member of the conference may recall the attendant by a switchhook flash. As a result of this action the SL lamp associated with the CONF key will flash at 120 ipm. The attendant answers by depressing the CONF key and is connected to the conference bridge. The request is received and another party can be connected provided there is an idle port.

2.17 An optional feature is available to provide for attendant release of a conference in progress by depressing and holding the ST/RC key down for a period in excess of five seconds. By this action the holding sleeve grounds of the conferee circuits are opened.

SECTION II - DETAILED DESCRIPTION

1. GENERAL

1.01 Any five tie trunk switch verticals may be used as entry ports to the conference control circuit. In the following description, use of the group 81-85 is assumed but a consecutive sequence is not a requirements.

1.02 It is assumed that verticals 81-85 are given a central office trunk (COT) class of service by suitable strapping at PBX terminal strips. Verticals 81-85 are on a "service denied" basis with the exception that code 85 may be used for a "dial back" connection by the attendant for connection of a central office trunk.

2. ORIGINATING A CONFERENCE - SC1

2.01 A PBX station, tie trunk or a central office trunk party may request a conference when connected to the attendant by normal means. A PBX station or tie trunk party must hang up after the request has been made. Then the attendant can connect the originator through the conference circuit. A central office call requesting a conference can be held and connected to the conference circuit on a dial-back basis by the attendant.

A. Control Circuit Seized

2.02 The attendant may seize the conference control circuit, if idle, by depressing the CONF key. Operation of the key connects the tip and ring of the attendant circuit to relay L, operating it.

2.03 Ground from the associated ACA lead in the cordless position circuit operates relay ON.

2.04 Relay ON operated:

(a) Operates relay ONA.

(b) Operates relay CR1 and closes a holding path for relays CR1-5.

(c) Prepares locking path for relays RS and D8.

(d) Operates relay CRDK via break contacts on relays CR1-5.

(e) Prepares a locking path for relays PM and RT.

(f) Connects the battery supply through to the conference bridge circuit.

2.05 Relay ONA operated:

(a) Prepares a locking ground for relays BC1-5.

(b) Opens the operating path of relay LO.

(c) Lights the TL lamps (steady) associated with the CONF and ST/RC keys.

B. Dial Tone Returned

2.06 When relay CR1 operates (through break contacts of relays BC1-5 and relay RRL), the attendant receives dial tone.

2.07 Relay CR1 operated:

(a) Releases relay CRDK which disconnects the attendant from the conference bridge.

(b) Locks to ground under control of relays S1, ST, PM, RRL and ON.

(c) Prepares an operating path for relay BC1.

(d) Places a short circuit, through the 5-6 and 1-2 windings of repeat coil T1 and the polarized operating circuit of relay P, on the tip and ring of the tie trunk vertical assigned to conference port 1. (Assumed to be vertical 81.)

(e) Connects a 100-ohm holding ground to the sleeve of vertical 81.

C. Register Attached

2.08 The shorted tip and ring of vertical 81 signals the marker to connect vertical 81 to a register and return dial tone to the attendant.

3. ATTENDANT ADDS FIRST CONFEREE - STATION - SC2

A. Calling Conferee Station

3.01 After receiving dial tone from the register, the attendant dials the code of the first conferee station. Relay L follows the dial pulses; make contacts on relay L are in series with the bridge across tip and ring and pulse the register.

3.02 After the register has connected to marker it reverses the tip and ring. This operates relay P which is polarized by diodes A and B. At the same time the register calls the marker.

3.03 Relay P operated, operates relay MC which performs the following functions:

(a) Operates marker relay CCC which cancels the camp-on function if the called line is busy.

(b) Operates relay PM.

(c) Closes a path to the marker and operates relay RS.

(d) Open its operating path and locks under control of marker relay RLAB.

3.04 Relay PM, operated, opens one of the locking paths for relays CR1-5.

3.05 Relay RS operated:

(a) Locks to ground at relay ON under control of relays RT and ST.

(b) Releases relay P by opening the bridge across tip and ring via coil T1.

(c) Prepares a path for applying ringing supply to tip and ring of vertical 81.

(d) Opens the termination via coil T1 across tip and ring of the attendant's connection.

(e) Prepares a path via capacitor H for audible ringing feedback from vertical 81 to attendant.

3.06 After the marker has completed its functions, it releases itself and the dial pulse register from the connection. Release of the marker causes relay MC to release. Relay MC released with relay RS operated, connects ringing supply through the primary winding of relay RT to the ring side of vertical 81, and connects ringing ground to the tip side. This rings the called station; audible ringing feedback is transmitted through capacitor H to the attendant.

B. Called Station Answers

3.07 When the called station answers, relay RT operates on its primary winding and performs the following functions:

(a) Locks through its secondary winding to ground at relay ON under control of relay CRDK.

(b) Operates relay BC1.

(c) Releases relay RS.

(d) Provides an open in lead OT1 to prevent the operation of line circuit relay OT- when relay BC1 operates.

3.08 Relay BC1 operated:

(a) Operates relay S1 by closing the tip and ring of vertical 81 to the primary and secondary winding; relay S1 remains operated under control of the called party.

(b) Removes the idle port terminating network from port 1 of the conference bridge and connects tip and ring of the called station to this port.

(c) Supplements the path via relay CR1 for holding 100-ohm ground on the sleeve of vertical 81.

(d) Prepares a holding path which is completed when relay BCH1 operates.

(e) Completes a path to supply battery to the conference bridge circuit when the attendant disconnects.

3.09 Relay S1 operated:

(a) Releases relay CR1.

(b) Prepares an operating path for relay CR2.

(c) Operates relay BCH1 to provide a holding path for relay BC1.

3.10 Relay CR1, released, opens one path to 100-ohm holding ground from the sleeve of vertical 81 and operates relay CRDK. Sleeve ground is maintained by operated relay BC1.

3.11 Relay CRDK operated:

(a) Releases relays RT and PM.

(b) Disconnects the idle port terminating network from port 0 of the conference bridge and connects tip and ring of the attendant to this port.

3.12 The attendant and the conferee station are now connected via the conference bridge and may communicate.

4. ATTENDANT CONNECTS REMAINING PARTIES TO CONFERENCE - SC3

A. Attendant Control Function

4.01 To add another station to the conference, the attendant momentarily depresses the ST/RC key. This transfers the attendant from the conference to the dial pulse register.

4.02 The ST/RC key operates relay ST; relay ST operates relay CR2.

4.03 Relay CR2 operated:

(a) Releases relay CRDK.

(b) Prepares an operating path for relay BC2.

(c) Places a short circuit on the tip and ring of tie trunk vertical 82 via the windings of repeat coil T1, make contacts of relay L and the operating circuit for relay P.

(d) Supplies a 100-ohm holding ground for the sleeve of vertical 82.

4.04 Relay CRDK released:

(a) Disconnects tip and ring of attendant position circuit from conference port 0 and terminates the port with the idle port terminating network.

(b) Prepares a holding path for relay PM and a locking path for relay RT.

4.05 The short circuit on tip and ring of vertical 82 calls for attachment of a register at vertical 82.

B. Register Attached

4.06 Register seizure is the same as in adding the first conferee station except that vertical 82 is used instead of 81. At this point dial tone is returned to the attendant and circuit functions during subsequent dialing and called party answer are the same as in adding the first station except that BC2, S2 and BCH2 are operated instead of BC1, S1 and BCH1.

4.07 Additional stations are added to the conference by the same procedure used to add the second station; that is, by momentarily depressing the ST/RC key and receiving dial tone, followed by dialing the number of the desired station. When all conference ports are occupied, a 60-ipm flashing visual signal on the SL lamp associated with the ST/RC key alerts the attendant.

4.08 When all ports are busy and the attendant is connected to the conference bridge, a 60-ipm flashing signal is applied to the ST/RC SL lamp through make contacts BCH1-5.

5. ATTENDANT DISPOSES OF LINE BUSY OR NO ANSWER - SC4

5.01 If the called station is busy or does not answer, the attendant may return to the conference bridge by momentarily depressing the ST/RC key. This operates the ST relay which opens the operating path of the associated relay CR-.

5.02 Relay CR- released:

(a) Operates relay CRDK.

(b) Opens tip and ring of the calling port.

(c) Removes 100-ohm holding ground from the calling port sleeve.

5.03 Relay CRDK operated, returns the attendant to the conference buss.

5.04 At this time the port last used is cleared and made available for adding the next conferee.

6. ATTENDANT DISPOSES OF DIAL TONE OR PARTIAL DIAL - SC5

6.01 If the attendant has received dial tone or has partially dialed, the call may be cancelled by depressing key ST/RC. In this case key ST/RC must be depressed long enough to operate relay RRL via thermistor A. Relay RRL operated opens the holding path of operated relay CR-.

7. CENTRAL OFFICE TRUNK PARTY ADDED TO CONFERENCE - SC6

A. Conference Setup Requested Over Central Office Trunk

7.01 A central office trunk may be connected to the conference circuit whenever port 5 is unoccupied. If the central office trunk requests a conference, the attendant can attach the central office trunk directly to port 5 by normal dial back procedure. A visual indication on the TL lamps of the CONF and ST/RC key indicates that the trunk is connected to the conference. Also provided is a 120-ipm flashing of lamp SL associated with CONF key.

7.02 The action of terminating the call on the switch vertical assigned to port 5 grounds lead CO from the line link and marker circuit. This operates relay BC5 via released relays ON and CO.

7.03 During termination of the trunk call on port 5, relay S5 is operated. This operates relay AR5 which locks under control of relays BC5, S5, ON and ONA. Operation of relay S5 results in operation of relays CO and BCH5. Relay BCH5 operated results in operation of relay LO. Relay LO operated closes the circuit for lighting the TL lamps associated with the CONF and ST/RC keys.

7.04 Relay AR5 operated, operates relay FO through thermistor B which closes the circuit for 120-ipm flashing of lamp SL associated with the CONF key. This is an additional indication to the attendant that the central office trunk is terminated on conference port 5.

7.05 When the central office trunk has been terminated on port 5 the attendant operates the CONF key. This mechanically releases the attendant circuits from the trunk used in the dial-back procedure, and electrically operates relays L, ON, and ONA.

7.06 Operation of relays ON and ONA release relay AR5 which releases relay FO. Release of relay FO stops the 120-ipm flashing of lamp SL associated with the CONF key.

7.07 With relays L, ON, and ONA operated, the conference circuit is prepared for action by the attendant to call in the first conferee station requested by the central office trunk party. Four stations or dial repeating tie trunks may be called in by the attendant as described in a preceeding section. When four stations have been connected, the SL lamp associated with the ST/RC key flashes at a 60-ipm rate to indicate the all-ports-busy condition.

B. Central Office Trunk Added to Conference

7.08 The attendant may add a central office trunk to an established conference (if port 5 is unoccupied) by the following sequential procedure:

(a) Operate central office trunk key and call distant station.

(b) Terminate trunk on port 5 by normal dial-back procedure.

(c) Operate key CONF and proceed with the addition of stations as requested.

7.09 Connection of the trunk results in operation of relay FO as previously described. Relay FO operated starts 120-ipm flashing of lamp SL as previously described and also short circuits break contacts on relay LO to defeat attendant lock-out if provided.

7.10 Where lock-out (option X) is provided the attendant must wait for the 120-ipm flashing signal before operating the CONF key. Premature operation of the CONF key operates relay L and may release relay AR5 before relay FO can operate. Under this condition the attendant, if locked out, cannot operate relay ON and is thus denied access to the conference circuit unless recalled by a switchhook flash by one of the conferee stations.

8. ATTENDANT RECALL - SC8

8.01 A switchhook flash by any station results in a 120-ipm flashing recall signal on the SL lamp associated with the CONF key of the attendant console.

8.02 Depressing the switchhook at any station releases relay S-. The associated relay AR- operates through the break contact of relay S- and the make contact of the slow release relay BCH-.

8.03 Relay AR- operated:

(a) Locks under control of relays ON, ONA and BC-.

(b) Operates relay FO through thermistor B.

8.04 Operation of relay FO is delayed by thermistor B to prevent flashing recall when a station hangs up.

8.05 When the attendant depressed the CONF key relays L, ON and ONA are operated. Operation of relays ON and ONA release any operated relays AR which release relay FO. Release of relay FO stops the 120-ipm flashing of lamp SL associated with the CONF key.

9. DIAL REPEATING TIE TRUNK ADDED TO CONFERENCE - SC7

9.01 Dial repeating tie trunks with reverse battery supervision may be added to the conference by the attendant.

9.02 When a tie trunk number (assume 89) has been dialed by the attendant, the register calls the marker and reverses battery toward the dialing port. This operates relay P which in turn operates relay MC.

9.03 Relay MC operated:

(a) Prepares a path for operation of relay D8 via the marker.

(b) Grounds marker lead CCC to cancel the camp-on function.

(c) Operates relay PM.

9.04 The marker, when connected, operates relay D8, connects the calling port to the tie line and then releases.

9.05 Relay D8 operated operates relay D8M when port 5 is idle through a break contact of relay BC5. A break contact of D8M prevents the operation of the associated relay OT in the marker during connection and disconnection of a tie trunk (code 8) on port 5.

9.06 Release of the marker releases relay MC and connection of the tie line releases relay P. The attendant may now dial the number of the station at the distant PBX.

9.07 If a supervisory signal received from the distant PBX indicates the called station is busy or does not answer, the attendant may cancel the call and return to the conference by momentarily depressing the ST/RC key (SC4).

9.08 If the distant station answers, reverse battery supervision provided by the trunk operates relay P. This operates relay RT on its secondary winding via operated relay D8 and released relay MC.

9.09 Operation of relay RT operates relay BC and releases relay D8. Relay D8M will be held operated by relay RT. Relay BC- operated completes a path via the switch vertical for operating relay S-. This releases operated relay CR- and operates relay BCH.

9.10 Release of relay CR- operates relay CRDK which releases relay RT and PM. Relay D8M will remain operated on the release of relay RT is a tie trunk (code 8) is connected to port 5. Operation of relay CRDK also returns the att dant to the conference bridge. The attendant and tie trunk station are now connected via the conference bridge.

10. DISCONNECTS

A. Attendant Disconnects From Conference Bridge Circuit - SC9

10.01 The attendant may release at any time by operating the RELEASE key of the console. This mechanically releases key CONF.

10.02 Release of key CONF releases relays L, ON and except for the case of only one station on the conference bridge, releases relay ONA.

10.03 If no stations have been called into the conference, release of key CONF restores the conference circuit to the normal idle condition.

10.04 If the attendant has connected only one conferee to the conference bridge via port 1, relay ONA will not release when the attendant leaves the conference bridge. Relay ONA operated provides holding ground for relay BC1 to allow the attendant to connect a central office trunk after adding the single conferee.

10.05 If the attendant has connected a minimum of two parties, the attendant may release from the conference by depressing the RELEASE key of the console. This action results in mechanical release of key CONF. The release of key CONF releases relays ON, ONA, and L. Relay ON released opens the ground path for relay CRDK which releases. Relay CRDK released results in the operation of relay LO and removes the attendant from the conference bridge.

B. Conference Station Disconnects Minimum of Two Parties Remaining in Conference - SC10

10.06 When a conferee goes on hook relay S- associated with the conference port is released. This starts the slow release of relay BCH-. The associated relay OT- in marker is operated momentarily through break contacts of relays S- and BCH- (also D8M on port 5 only) and a make contact of relay BC-. Relay OT- operated opens the sleeve from the station sleeve ground in the case of a camped-on conferee. Released relay BCH- starts the slow release of relay BC-. The associated switch vertical is then released.

10.07 When a conferee port is cleared by disconnection of the called station, it becomes available for a reuse by the attendant. A new call is directed to the lowest number conference port having a released relay S-.

C. Next to Last Conferee Station Disconnects With Attendant Disconnected - SC11

10.08 If the attendant has disconnected and only two stations are left in the conference, either station going on hook releases the conference control circuit. For discussion purposes, assume that the stations on conference ports 1 and 2 remain in the conference, and that the station on port 1 hangs up.

10.09 A hang up at the station connected to port 1 releases, in sequence, S1, BCH1, LO, and line hold magnets 81. Relay OT21 in marker is operated during the release of relay BC1 to open the sleeve ground of the switch vertical on the station side. Release of relay LO removes battery from trunk lamps CONF and ST/RC, extinguishing them.

10.10 Since the attendant is disconnected, relay ONA is released so that the holding path for relay BC2 is opened when relay BC1 releases. Release of relay BC1 thus releases relay BC2.

10.11 Relay BC2 released:

(a) Opens the holding sleeve ground for vertical 82.

(b) Releases relay S2.

(c) Disconnects the battery supply from the conference bridge circuit.

10.12 Relay OT22 will operate momentarily through break contacts of relays BC2 and S2 and a make contact of relay BCH2. Relay OT22 operated opens the sleeve from the station sleeve ground in the case of a camped-on conferee.

10.13 Release of relay S2 releases relay BCH2. The conference circuit is then clear for reuse.

11. OPTIONAL FEATURES

A. Lockout of Attendant from Conference (X Option)

11.01 When the lock-out feature (X option) is provided, break contacts on relay LO are in series with control leads from the attendant console to the conference control circuit. If the attendant releases from the control circuit after two or more conferees have been connected, relay LO operates and opens leads by which the attendant normally controls the conference. Under this condition, the attendant may not reconnect to the conference bridge or control the conference except to effect its complete release as described in a following paragraph.

11.02 When the attendant is recalled to the conference, the control lead is reclosed by operation of relay FO. When the attendant re-enters the conference by operation of key CONF, relay ON operates. Relay ON operated operates relay ONA which releases relay LO. This re-establishes attendant control of the conference.

11.03 It should be noted that relay FO is operated when a central office trunk is added so that a locked-out attendant may re-enter the conference after adding a central office trunk.

B. Release Conference (Z Option)

11.04 When the release-conference feature (Z option) is provided the attendant may release the entire conference by holding key ST/RC operated for about 5 seconds. Option Z is provided by plugging the optional timer circuit RD into the RD socket.

11.05 With Z option provided and key CONF operated, operation of key ST/RC grounds lead ON4 of the timer circuit.

11.06 Relay RC operated:

(a) Operates relays OT- in marker that are associated with ports in use. This opens all sleeve grounds associated with conferee stations.

(b) Removes 100-ohm holding ground from all conference ports. This releases the operated holding magnets and results in release of all switch links to the conference circuit.

(c) Opens the operating path for relay ONA.

11.07 Relay ON operates either immediately (lockout not provided) or when relay LO is released. Under this condition, release of the conference circuit is indicated by return of dial tone to the attendant. The attendant may either release from the conference circuit or proceed with another conference setup.

SECTION III - REFERENCE DATA

1. WORKING LIMITS

LINES AND TRUNKS

1.01 Maximum external loop resistance 1,500 ohms. Minimum insulation resistance 10,000 ohms.

VOLTAGE LIMITS

1.02 Minimum	Maximum
-45	-52

2. FUNCTIONAL DESIGNATIONS

Designation	Meaning
AR1-5	Attendant Recall
BC1-5	Buss Connect
BCH1-5	Buss Connect Hold
CO	Central Office
CR1-5	Connect Register
CRDK	Connect Register Down Check
D8	Dial 8
D8M	Dial 8 Memory
FO	Flash Attendant
L	Line Relay
LO	Lock Out
MC	Marker Connect
ON	Off Normal
ONA	Off Normal Aux
P	Polarized
PM	P Relay Memory
RC	Release Conference
RRL	Register Release
RS	Ring Start
RT	Ring Trip
S1-5	Supervisory - Station Line

3. FUNCTIONS

3.01 To provide means for the attendant to initiate and control a conference connection with PBX stations, dial repeating tie trunks and one central office trunk.

3.02 To disconnect any conference station which goes on hook and make the station available for incoming or outgoing nonconference calls.

3.03 To make a conference port from which a station has disconnected available to the attendant for adding another station.

3.04 To return a flashing signal if all ports are busy.

3.05 To provide for release of the attendant from a partially completed call.

3.06 To provide for the addition of a central office trunk to the conference by attendant.

3.07 To provide recall of the attendant by a flashing signal if the switchhook is flashed by any PBX station conferee.

3.08 To prevent (by lock-out option) attendant reconnection to the conference amplifier when two or more stations are in conference.

3.09 To permit a locked-out attendant to reconnect to the conference amplifier when recalled by any conferee station.

3.10 To provide (optionally) for release of all conferee stations by the attendant.

4. CONNECTING CIRCUITS

4.01 The attendant controlled conference is connected to the following circuits which are part of the 756A PBX system:

(a) Line, Link and Marker Circuit - SD-65741-01.

(b) Ringing Circuit SD-81288-01 and Power Supply Circuit SD-81326-01 or Power Supply Circuit SD-81577-01 alone, or Power Supply Circuit SD-81600-01 alone.

(c) Tie Trunk Circuit - SD-65535-01.

(d) Cordless Position Circuit - SD-65757-01.

PLUG-IN UNITS

4.02 The attendant controlled conference circuit includes the six port conference bridge circuit per SD-96595-01, Fig. 1, and when option Z is specified, the timing circuit SD-66793-01.

5. ALARM INFORMATION

5.01 Operation of a fuse supplying power to the attendant controlled conference circuit results in a visual alarm at the attendant position and alarm, transfer, and test circuit. If alarm sending is provided, a fuse alarm results in a major alarm at the plant service center.

6. MANUFACTURING TESTING REQUIREMENTS

6.01 The attendant controlled conference circuit shall be capable of performing all of the functions given in this circuit description, and relays with which it is equipped shall meet all requirements of the circuit requirements table.

7. TAKING EQUIPMENT OUT OF SERVICE

7.01 The attendant controlled conference may be taken out of service by the following procedure (in sequence):

(a) Determine that the circuit is not in use by observing that all relays are released.

(b) Block relay CO operated.

(c) Remove all battery supply fuses.

SECTION IV - REASONS FOR REISSUE

D. Description of Changes

D.1 This circuit is reissued to correct a trouble condition that at times occurred when the called station answered after being rung by this circuit. Instead of being connected into the conference bridge circuit, the called station was released by this circuit and the marker established a dial tone connection to the station.

D.2 This trouble occurred when relay CR released faster than relay OT in the line, link and marker circuit. Relay OT operated prevented relay S from holding operated over the station loop when relay CR released. Relay S normal prevented the operation of relay BCH which allowed relays BC and OT to release. Relay BC normal removed the 100 ohm ground from lead S1 causing the connection between this circuit and the station to release.

D.3 FS3 is changed to correct this trouble condition by adding contact 9 break of relay MT in series with contact 8 break of the S relays to prevent the operation of relay OT in the line, link and marker circuit.

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(WECo 7120HW-WEB-JGW)
DEPT 5337-LAH