ELECTRONIC SWITCHING SYSTEMS

NO. 3
COIN, TONE, ANNOUNCEMENT AND CONFERENCE CIRCUIT

CHANGES

D. Description of Changes

D.1 Added Information Notes 304 and 305.

D.2 Changed name of miscellaneous power frame to miscellaneous power circuit.

D.3 Added announcement systems 12A and 13A.

F. Changes in Description of Operation

F.1 Change the last two sentences of Section II, 1.01 to read: "The announcements come from a 7A, 12A, or 13A announcement system and the splitting resistors, for announcement only, are provided on the tone or recorded announcement (TRA) circuit pack."

F.2 Change Section II, 1.03 to read:

1.03 When the EN relay operates, transfer contacts on this relay are used only to turn on the 7A or 12A announcement system to start the playback of a recorded announcement message for as long as the relay is held operated. Also, associated with each 7A, 12A, or 13A announcement is a scan point that signals the end of a recorded message for nonbarge-in operation. The junctor circuit in the line-to-line state completes the connection from the tone or recorded announcement source to the calling line.

F.3 Change the last sentence of Section II, 1.04 to read:
"When the relay contacts return to their normal state, the start signal is removed from the 7A or 12A announcement system to stop the playback of the recorded message.

F.4 Add the following to Section III 4.01 A.

(e) 12A Announcement Machine - SD-26435-01.

(f) 13A Announcement Machine - SD-97753-01.

~~BELL~~ TELEPHONE LABORATORIES, INCORPORATED

DEPT 5333-WLH-LEG

ELECTRONIC SWITCHING SYSTEMS

4

NO. 3 COIN, TONE, ANNOUNCEMENT AND CONFERENCE CIRCUIT

TABLE OF CONTENTS

SECTION I - GENERAL DESCRIPTION

1. PURPOSE OF CIRCUIT

1.01 The purpose of this circuit is to specify the wiring information for the J3H001CH unit which provides the means of wiring and physically mounting 12 circuits. The circuit provides coin, tone, announcement, remote recording of announcement, and three port conference circuit functions, which are on circuit packs, in No. 3 ESS. Equipment locations 0 through 3 are wired for coin, tone, announcement, and three port conference circuit; equipment locations 4 through 10 are wired for tone, announcement, and three port conference circuit; and equipment location 11 is wired for tone, announcement, remote recording of announcement and three port conference circuit. The first of such units is mounted on the control frame and additional growth units are placed on the miscellaneous frames.

2. GENERAL DESCRIPTION OF OPERATION

2.01 This unit, together with its associated circuit packs, provides the means for No. 3 ESS to perform needed coin control functions and to connect a tone or recorded announcement to a line or trunk circuit. It also gives the No. 3 ESS the ability to record an emergency overload announcement from a remote location and to provide 3 way calling functions.

SECTION II - DETAILED DESCRIPTION

1. TONE OR RECORDED ANNOUNCEMENT CIRCUIT (FB383)

1.01 This circuit is used to connect a tone or announcement to a line or trunk whenever the need arises. Tones that are not associated with this unit are dial tone, audible, overflow, and milliwatt. Associated tones are busy tone, ROH, and miscellaneous tone (call waiting). The system connects this circuit to a customer via the junctor in one of the predetermined states (eg, line-to-line for intraoffice calls). There are two tone or announcement circuits per circuit pack. Tone is obtained from the ringing and tone plant, which provides the needed splitting resistors. The announcements come from a 7A announcement system. Again the announcement is obtained from one 7A system and the splitting resistors are provided on the tone or recorded announcement (TRA) circuit pack.

LOCAL CALL CONNECTION

1.02 When a call has been placed into the system from a local line, the status of the called line is checked. If the status indicates that a tone or recorded announcement should be returned to the calling line, a junctor circuit is selected to connect the calling line to a tone or recorded announcement circuit. When the network path has been set up, the junctor circuit is placed in the line-to-line state, which provides battery and supervision through the network to both the calling line and the TRA circuit. The EN relay across the tip and ring in the TRA

Printed in U.S.A.

circuit allows direct current to flow through the network between the junctor circuit and the TRA circuit. This current flow indicates continuity to the system between the junctor circuit and the TRA circuit. This same current energizes the EN relay in the TRA circuit.

1.03 When the EN relay operates, transfer contacts on this relay are only used to turn on the 7A announcement system to start the playback of a recorded announcement message for as long as the relay is help operated. Also associated with each 7A announcement system is a scan point to signal the end of a recorded message for nonbarge-in operation. The junctor circuit in the line-to-line state completes the connection from the tone or recorded announcement source to the calling line.

1.04 When the calling line disconnects, the system places the junctor circuit in the open state. This action removes the battery feed to the circuit, thus removing the tone or announcement, and the EN relay releases. When the relay contacts return to their normal state, the start signal is removed from the 7A announcement system to stop the playback of the recorded message.

TRUNK CONNECTION

1.05 When a call has been placed into the system from a trunk, a junctor is selected to handle the call. Battery is provided for the TRA circuit by the junctor in its trunk-to-line state, and supervision is provided at the trunk circuit. The operation of the TRA circuit is the same for line or trunk connection, except for the location of the supervision.

2. COIN CONTROL CIRCUIT (FB423)

2.01 The purpose of this circuit is to provide the means for the system to perform the functions required by coin-operated telephones. These include a test for the presence of a coin, and the application of ± 130 volt potential for collecting or returning coins. These functions are performed from the tip lead to a ground in the coin station that completes the connection. This circuit is connected to a coin line by the switching network.

2.02 Testing for the presence of coins involves the application of 48 volts, obtained by a voltage divider from the 130-volt supply, through the scan point of the circuit to the tip lead with the ring lead open. Positive voltage is used for the overtime deposit test and negative voltage for the initial-deposit test. In either case, the scan point will saturate if a coin is present and this information is passed on to the processor.

2.03 Collection or return of coins is accomplished by application of 130-volt potential (positive for collect and negative for return unless the opposite is used as a local-office program option when coin stations are the prepay type) through a scan point to the tip lead with the ring lead open. The flow of current detected by the scan point informs the processor of the presence of a coin. When current stops flowing, the operation is successfully completed.

2.04 The control functions of this circuit are followed by drain states while line capacity, charged as a result of the control function, is discharged.

2.05 This circuit provides for a network continuity check by providing an idle-circuit termination between the tip and ring leads. This allows direct current to flow through the network between the junctor circuit and the coin control circuit.

2.06 Four relays designated A, B, C and D, operated by the distributor circuit under program control, are used to provide the necessary circuit states for the various functions of the circuit. Each state is defined by a particular relay or particular relays operating or releasing. For example, with A, B, and C released and D operated, the coin control circuit is placed in the overtime coin deposit check state (for others see SD-3H411-01). Three of the four relays can be operated or released in any combination at the same time from one triplet, and the fourth is operated or released from a second triplet.

3. REMOTE RECORDING OF ANNOUNCEMENT CIRCUIT (FB426)

3.01 The purpose of this circuit is to provide the means of remotely controlling a 7A announcement machine to record an emergency overload announcement. These include the capability of placing the 7A announcement system in the playback or record mode of operation. The sequence of operation is covered under TOPS 233-142-100.

3.02 With a talking connection established between the remote station and the No. 3 ESS office, the 7A announcement system is placed in the playback mode. This is done by placing a short between the ST and ST1 leads of the 7A announcement system. By doing this, the remote end hears the previous recording to determine if it may be revised or to check the quality of a new recording before placing it into service. At the end of the recording, a contact closure from the 7A announcement system causes a playback scan point on this circuit to saturate, indicating the end of the playback cycle.

3.03 If an emergency overload announcement is to be made, the 7A announcement system is placed into the record mode. This is done by placing a short between the D and ST1 leads of the 7A announcement system. After an erase cycle is completed, a contact closure from the 7A announcement system, saturating the record scan point of this circuit, indicates that the machine is ready to start recording.

3.04 Two relays, designated A and B, operated by the distributor circuit under program control, are used to provide the necessary circuit states for the various functions of the circuit. Each state is defined by a particular relay or particular relays operating or releasing. For example, with the A relay operated and the B relay released, the remote recording of announcement circuit is placed in the record state (for the others see SD-3H411-01). These two relays can be operated or released in any combination at the same time.

4. 3-PORT CONFERENCE CIRCUIT (FB427)

4.01 The purpose of this circuit is to provide the means for the system to connect three subscribers together for 3-way calling. Each subscriber connection to this circuit is being made through a circuit junctor with the port 0 circuit junctor supplying power and port 1 or port 2 supplying control for the conference circuit. Continuity for all three circuit junctors is supplied by the conference circuit.

4.02 When a third subscriber is added a negative 900-ohm shunt termination is placed between tip and ring for needed gain. This negative impedance is basically a -900 ohm in the voice band and changes to a positive impedance out of the voice band. If the signal placed on the tip and ring exceeds +6 dBm, the termination will become positive for typically 1 SEC to prevent oscillations before returning to -900 ohm.

4.03 After one of the subscribers goes on-hook, the conference circuit switches to a lower level of gain for at least 800 MSEC. This allows the system enough time to set the conference circuit into the passive state which removes power to this circuit but retains the talk path between the two remaining subscribers.

SECTION III - REFERENCE DATA

1. WORKING LIMITS

1.01 Maximum external loop resistance for FB383, FB426, and FB427 is 1600 ohms and 1300 ohms for FB423.

1.02 Minimum insulation resistance is 10,000 ohms.

1.03 Maximum earth potential difference is ± 3 volts.

2. FUNCTIONAL DESIGNATIONS

2.01 Relays

Designation	Meaning
A B C D	These relays are alphabetically designated for program reference.

3. FUNCTIONS

TRA CIRCUIT (FB383)

3.01 Provides for autonomous application of a tone or recorded announcement whenever the need arises to connect one of these signals to a line or trunk. The particular signal provided by a given circuit is controlled by line engineering, and the connection of this circuit to a line or trunk is controlled by the system.

COIN CONTROL CIRCUIT (FB423)

3.02 Provides tests for the presence of an initial coin deposit.

3.03 Provides tests for the presence of an overtime coin deposit.

3.04 Provides coin collect potential to the coin station.

3.05 Provides coin collect potential to the coin station.

3.06 Provides for discharge of line capacity at completion of each function.

REMOTE RECORDING OF ANNOUNCEMENT (FB426)

3.07 Places 7A announcement system into playback mode.

3.08 Places 7A announcement system into record mode.

3.09 Senses the end of the playback cycle and beginning of the record cycle.

THREE PORT CONFERENCE CIRCUIT (FB427)

3.10 Provides gain need for 3-way calling.

4. CONNECTING CIRCUITS

4.01 When these circuit are listed on the keysheet, the connecting information thereon should be followed.

A. TRA Circuit (FB383) and Remote Recording of Announcement Circuit (FB426)

(a) 15A Grid Circuit - SD-3H120-01.

(b) Master Scanner Circuit - SD-3H140-01.

(c) Distribute Point Circuit - SD-3H150-01.

(d) 7A Announcement Machine - SD-95283-01.

B. Coin Control Circuit (FB423)

(a) 15A Grid Circuit - SD-3H120-01.

(b) Master Scanner Circuit - SD-3H140-01.

(c) Distribute Point Circuit - SD-3H150-01.

C. Three Port Conference Circuit (FB427)

(a) 15A Grid Circuit - SD-3H120-01.

5. MANUFACTURING TESTING REQUIREMENTS

Intermediate Requirements

5.01 None.

End Requirements

5.02 This circuit should be tested to verify that it is wired in accordance with the schematic and wiring drawings, that requirements of the circuit requirements table are met, and that the circuit is capable of performing all functions stated in this circuit description.

6. TAKING EQUIPMENT OUT OF SERVICE

6.01 Information for taking this circuit out of service is found in IM-3H000 and OM-3H000. Also the associated fuses must be removed before removing the circuits from the unit.

SECTION IV - REASONS FOR REISSUE

D. Description of Changes

D.1 Provided complete CD information.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT 5341-WLH-LEG