12A ANNOUNCEMENT CIRCUIT WITH VOICE ALARM AND CONTROL CIRCUIT

CONTENTS

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1. GENERAL INFORMATION

1.1 Description - This section describes a method of testing the Announcement Circuit and its associated Voice Alarm and Control Circuit.

1.2 Circuits

SD-26435-01 Announcement Circuit
SD-26436-01 Circuit Pack Schematics
SD-26390-01 Voice Alarm and Control Circuit

1.3 Precautions

1.31 This equipment contains semi-conductor devices subject to damage if circuits are removed while power is applied.

1.32 Hazardous voltages exist at certain points in these circuits. Care should be exercised when making test connections to avoid electrical shock and damage to devices.

1.33 When removing power for circuit pack replacement, remove AC plug and/or F1 fuse and -40V (two) fuses at fuse panel.

1.4 Prerecorded Tape

1.41 Any combination of messages may be ordered from the factory. These messages are supplied on prerecorded tape loops which are made in a sound studio with controlled acoustics. Each of the messages up to four on a tape loop will not be less than 10 seconds long and can be obtained from drawing H595-938.

1.5 Connecting Circuit Information

1.51 As this circuit was designed for and is currently used in No. 3 Crossbar Systems, certain modifications are necessary for this announcement system in order for it to work in offices other than Crossbar No. 3. Refer to drawing T-520851 for various applications.

1.6 7A Announcement Replacement

1.61 In some cases this 12A announcement system which can provide up to four different messages individually or simultaneously with or without BUTT-in service will replace existing 7A announcement machines. If 7A machine is to be removed, remove and tag all leads to connecting circuit, disconnect 115V AC and disconnect plug connection between amplifier and announcement unit.

1.7 Cross-Connections

1.71 Cross connections are required for associating an audio amplifier (Message) with its connecting trunk circuit. See sheet D1 on SD-26435-01.

2. TEST EQUIPMENT

2.1 Test Sets

AMT	ITE	DESCRIPTION
1	4442	Volt-Ohmmeter
1	9650	Operator Telephone Headset

2.2 Accessories

AMT	CODE	DESCRIPTION
As Req.	768A	Blocking Wedge

2.3 Cords: As required. Normally furnished with ITE test sets.

3. PRELIMINARY OPERATIONS

3.1 Fusing and Wiring

3.11 Plug AC cord from announcement set to the provided receptacle.

3.12 Check F1 fuse (1/2 amp) inserted in mounting at front of unit.

3.13 Insert Battery fuses at Fuse panel and verify following punchings for supply of -48V, using ITE-4442 VOM.

(a) Lower winding of relay A1.

(b) Punching 58 on "A" terminal strip of the Announcement Unit.

3.14 Verify ground is present at the following places:

(a) Contacts 8F and 10F of relay A1.

(b) Contact 4F of relay ALM.

3.15 Verify connections at office alarm circuit and punchings 42 and 17 on connector "A" of the Voice Alarm & Control Circuit (SD-25574-01 Fig. 207 & Table M).

3.16 Verify connections at alarm sending circuit and punching 41 and 16 on connector "A" of the Voice Alarm & Control Circuit (SD-25574-01 Fig. 207 and Table M).

3.17 Verify connections to circuits that request an announcement according to Paragraph 1.5.

3.18 Verify cross connections per Paragraph 1.7.

3.19 Verify "PWR" lamp is lighted.

3.2 Mounting Tape Loop

3.21 Hold tape loop so the splice of tape is facing to outside of loop and the arrow on the splice should point to the left.

3.22 Place tape on two top guide post (one on left provides tension) and let loop hang. Hold tension arm down and slide tape loop under magnetic head. Allow tension arm to come up to force tape toward head.

3.23 Loop the tape below guide posts on either side of head.

3.24 Move tape loop between pressure roller and capston. Then place loop over remaining guide posts until tape is in place.

3.25 TAPE Removal - To change tape loop, depress tension arm from under magnetic head and slide tape from its position. Remove tape from spindle rollers.

4. TEST OPERATIONS

4.1 General

4.11 When the unit is idle, all relays are released, the soleniod plunger is extended and the motor is not running. The "PWR" lamp is lighted and the "IN-USE" lamp is not lighted.

4.12 When an announcement is requested by operation of key "TST" or by a connecting circuit, relay ST is operated momentarily followed by relay PL operated which allows solenoid plunger to move to start motor. The "IN-USE" lamp lights and tape begins to move.

4.13 All equipped messages begin simultaneously and are amplified by circuit pack 1054. There is a 1054 for each message so the number of announcements corresponds to the number of 1054 packs.

4.14 The Voice alarm and control circuit portion of the system monitors the announcement bus for the presence of voice. When a request for a message is made, the audio signal across T and R leads is stepped up by transformer A and imposed on to capacitor C and D.

4.15 If a voice failure occurs, the capacitors discharge to turn on transistor B and across the winding of relay A. If current increases to the operate value of relay A (approximately 8 seconds in time) it will operate.

4.16 Relay A then operates causing relay ALM to bring in alarm indications by sounding office alarm and lighting lamp OS-ALM.

4.17 Alarm will continue until released by operating key "OS-AR".

4.18 The discharge time of capacitor prevent false voice alarms due to momentary speech pauses.

4.2 Announcements

4.21 Install ANNOUNCEMENT loop tape into position with arrow pointing to direction of rotation as described in Para. 3.2.

4.22 Plug ITE-9650 Operator headset into "MON" jack. Turn "CHAN SEL" switch to position 1.

4.23 Operate key TST. "IN-USE" lamp lights and the announcement is heard in operators telephone set.

NOTE: Verify proper message is heard by referring to Paragraph 1.4 as ordered from factory. The Announcement should be loud and clear and should maintain a satisfactory listing level throughout the complete cycle.

4.24 At completion of message, the circuit returns to normal as signaled by the extinguished "IN-USE" lamp.

4.25 Repeat procedure for each equipped channel by moving "CHAN-SEL" to position 2, 3 and 4.

4.26 If amplitude of announcements is below a satisfactory level, several items can be checked for proper alignment:

a) Tape Tension - Lift tape loop with screwdriver or equivalent upward at a point above PWR lamp. The upward play in tape loop should be an inch above the rest position of the tape. Adjustment can be made at spring loaded tape tension arm assembly (841180Z84 bracket).

b) Burred Guide Post - should be smooth.

c) Collapsed, Torn or Worn Pressure Pad-(See J29362A-1)

d) Capstan & Pressure Roller - should be 1/16 inch apart in normal position. Adjustment can be made at (841182082 bracket) Solenoid Plunger Assembly.

e) Pressure Pad Assembly Tension - Tension screw on pad assembly should be adjusted to lift flat spring & pad against gap of tape head. Flat spring can be rotated for fullest coverage of tape head so the pad will be at center of tape head gap. It should take a maximum of 14 grams to move pad end of flat spring down from gap of head. Amplitude should peak at or just prior to pressure. If excessive pressure is required, alignment of tape head should be checked. See Paragraph 4.27.

f) Tape Head Alignment - Visually check position of tape head relative to tape across head. Verify tape lays perfectly flat at tape head. If adjustment is necessary, see Para. 4.27.

4.27 If tape head alignment is necessary, the head nest bracket can be adjusted to enable head movement in any direction. Allen set screws at top and bottom of head control vertical plane (Zenith). Slotted screws to side of head control the horizontal plane (Azimuth). Use the following procedure to obtain proper alignment:

a) Install an H595-938, Grp. 2 tone tape per Para. 3.2. (Any message tape can be substituted)

b) Plug headset into "MON" jack and operate key "TST" as stated in Para. 4.22 and 4.23. Set "CHAN SEL" switch to position 1. (Channel 1)

c) Adjust position of head to obtain maximum amplitude of tone or message. To move head out (clockwise) or in (counterclockwise) use a .050 Allen wrench for the vertical plain. For the horizontal plain, using a small blade screw driver, turn clockwise to move head in and counterclockwise to move head out.

4.28 End of Tape Detector

4.281 Check the tape and detector position. The detector face should be parallel to the tape and located 2/16 to 3/16 inches from the tape.

4.282 The "E" relay should operate each time the reflective stripe on the tape passes the detector module. To align the detector, perform the following operations:

a) Connect an ITE-4433 volt-ohmmeter to the (+) terminal 4 and the (GRD) terminal 13 of the A1264 circuit pack. The meter should be set to measure atleast 5 volts DC.

b) Insulate 1 make of the PL relay and then momentarily operate the TST key. The solenoid should operate and in turn engage the pressure roller and motor capstan but the capstan should not operate.

c) Position the tape reflector directly in front of the detector by manually rotating the pressure roller. The meter reading should go to a low (0 to 0.8 volts). The E relay should operate for approximately 3 seconds.

d) Rotate the pressure roller until the reflective stripe is not position in front of the detector. The meter reading should go to a high (4.5 to 5 volts).

4.3 Voice Failure Control

4.301 Insulate contact 10B of relay STD and contact 11B of relay STD.

4.302 Block operated relay STA. Relay ALM operates followed by relay "OS" operated which lights lamp "OS-ALM" and causes an office alarm to sound.

4.303 Release relay "STA". "OS-ALM" lamp remains lighted.

4.304 Momentarily operate key AR. Lamp "OS-ALM" is extinguished and office alarm is silenced.

4.305 Remove insulator from contacts 10 and 11 of relay "STD".

4.306 Using screwdriver adjust "A" potentiometer to its extreme clockwise position.

4.307 Block operate relay STA. Verify relays ALM and OS do not operate and lamp "OS-ALM" does not light. Allow recorder to run 30-40 seconds before next step.

4.308 Turn "A" potentiometer to its extreme counterclockwise position.

4.309 In 6-12 seconds after potentiometer is turned relays ALM and OS operate. Lamp OS-ALM lights and alarm sounds.

4.310 Release relay STA then momentarily operate key AR. Circuit return to normal.

4.311 Turn "A" potentiometer to its extreme clockwise position.

4.4 Alignment Test

4.41 Using an ITE-4442 Voltmeter, connect the plus (+) lead to 11M of relay STA and the negative (-) lead to 11B of relay STA. Set range of VOM to 12 volt scale.

4.42 Block operated relay STA. Announcement machine starts with the lighting of lamp "IN USE". Reading on VOM should be fluctuating with voice at close to zero. High bounces may go up to about one (1) volt.

4.43 Adjust the "A" potentiometer counterclockwise until the VOM reading fluctuates close to one (1) volt with high needle bounces never off scale (around three (3) volts). After setting is obtained follow announcement to recycle five times. "OS-ALM" lamp should not light.

NOTE: If desired, the announcement can be monitored while checking the voltage reading by plugging in an operators headset into "MON" jacks with "CHAN SEL" switch set to recording.

4.44 Remove block from relay STA and block operated relay STB for second 1054 circuit pack which is the amplifier for the "B" message. Repeat steps 4.42.

4.45 Repeat the procedure of Para. for "C" and "D" messages, if 1054 packs are equipped, by blocking relays STC and STD in turn and adjusting the potentiometer for each.

4.46 Remove all connections and blocking tools.

4.5 Operational Test

4.51 Make a check on marker routing that would require an announcement such as vacant code, dial tone first, blank number, etc.

4.52 Using the test frame or other convenient method, originate a test call that would result in an announcement. When message is heard, it should be the desired channel and it should be loud and clear.

4.53 Make as many test calls as necessary to obtain an announcement for each equipped message. Allow each call to complete its cycle of events (transfer, timeout, etc.). Make sure that the announcement machine releases as specified.

REASON FOR REISSUE:
REVISION OF SECTION

Manager, Product Engineering
Control Center