

5A ANNOUNCEMENT SYSTEM

TESTS

1. GENERAL

PAGE

1.01 This section describes a method for testing the announcing trunk, amplifiers, alarms, and recording and playback features of channels in the 5A Announcement System used in No. 4A and 4M Toll Switching Systems and crossbar tandem offices.

at a telephone set can make emergency oral announcements if the recorded announcements fail.

19

1.02 This section is reissued for the following reasons:

F. Erase, Record, and Playback From Telephone Set: This test checks that an operator at a telephone set can erase, record, playback, and release on all channels.

21

- (a) To revise Test A to include information for testing the KS-20449 limiting amplifier
- (b) To revise method of adjusting voice alarm in Test D.

G. Channel Busy Tone—Announcing Trunk Per SD-94804-01: This test checks that the announcing trunk returns 120-IPM tone to the announcement connecting trunks during periods when new announcements are being recorded.

24

This reissue does not affect the Equipment Test List.

1.03 The following tests are covered.

PAGE

A. Limiting Amplifier: This test checks the gain and limiting features of the limiting amplifier KS-16754 or KS-20449.

3

B. Channel Amplifiers: This test checks the erase and record bias voltages and the record and reproduce levels of the channel amplifiers.

5

C. Adjacent Channel Interference: This test checks that an erasure on a channel does not affect recordings on adjacent channels.

10

D. Voice Alarm: This test checks the operate and release requirements of the voice alarm relays in the channel amplifiers and the announcing trunk circuit.

14

E. Operator Emergency Announcement: This test checks that an operator

1.04 Tests should not be made until the channel has been released by the traffic department. The traffic department should be informed that the channels released for Tests B through F will have recordings erased.

1.05 The gain requirements of this section are based on having an announcement distribution level of -11VU at the 2-ohm load resistor of the announcing trunk circuit. The transmission measuring set indications specified in this section do not indicate true amplifier gain, but the indications given will provide the correct distribution level.

1.06 Caution: Hazardous voltages are present in vacuum tube amplifiers. The power switch on the amplifier, where provided, should be operated to OFF, or ac supply plugs disconnected before removing any protective covers, making test connections, or working on any component parts of the amplifier.

1.07 The ac supply connections to the power transformer in vacuum tube amplifier and applique circuit, when provided, shall be correct for the voltage supplied.

SECTION 201-511-501

1.08 Electron tubes used in amplifier and alarm circuits shall meet standard test requirements. Some abnormal trouble conditions in alarm circuit might be cleared by replacing the 12AT7 electron tube V200 or V7 of the KS-12056 L13A or KS-16508 L1 amplifiers because certain defects are not detected by the tube tester.

1.09 Reference should be made to Section 024-150-501 for the transmission test on KS-16508 L1 amplifier.

1.10 Reference should be made to Section 024-177-500 for the transmission test on KS-19219 L1 amplifier.

1.11 ♦Reference should be made to Section 034-351-701 for information on KS-12068 recorder-reproducer.♦

1.12 Tests D, E, and G require actions and verifications at the announcement frame and the telephone set at the same time.

1.13 ♦Tests A and B should be performed prior to performing Test D.

1.14 While performing Test D do not at any time adjust any amplifiers.

1.15 Before performing any tests that require use of the -10 dBm jack ascertain that the level is at -10 dBm by using a 23A transmission measuring set.♦

1.16 The transmission measuring set is referred to in this section as TMS, and vacuum tube voltmeter is referred to as VTVM.

1.17 The abbreviations CW and CCW denote clockwise and counterclockwise, respectively.

1.18 In general, only the lamps, tones, etc, necessary for verification, are mentioned in the VERIFICATION column.

1.19 *Lettered Steps:* A letter a, b, c, etc, added to a step number in Parts 3 and 4 of this section indicates an action which may or may not be required depending on local conditions. The condition under which a lettered step or a series of lettered steps should be made is given in the ACTION column, and all steps governed by the same condition are designated by the same letter within a test. Where a condition does not apply, all steps designated by that letter should be omitted.

2. APPARATUS

2.01 The apparatus required for each test is shown in Table A. The details of each item are covered in the paragraph indicated by the number in parentheses.

2.02 23A transmission measuring set (TMS).

2.03 Hewlett-Packard 400D vacuum tube voltmeter (VTVM) or equivalent.

2.04 KS-14510 volt-ohm-milliammeter (VOM).

2.05 Patching cord, P3E cord, 6 feet long, equipped with two 310 plugs (3P7A cord).

2.06 Patching cord, P3N cord, 3 feet long, equipped with one 310 plug and one 241A plug (3P17A cord).

2.07 322A make-busy plug (for crossbar tandem offices).

2.08 No. 47 tool or equivalent 1/2-inch screwdriver handle socket wrench when required (for potentiometer shaft locknuts).

2.09 Blocking and insulating tools, as required. Use and apply as covered in Section 069-020-801.

3. PREPARATION

STEP	ACTION	VERIFICATION
------	--------	--------------

Tests A through G

1	Obtain release of channels from traffic department (1.04).	
---	------------------------------------------------------------	--

STEP	ACTION	VERIFICATION
------	--------	--------------

TABLE A

APPARATUS	TESTS						
	A	B	C	D	E	F	G
TMS (2.02)	1	1	1	1	—	—	—
VTVM (2.03)	—	1	—	—	—	—	—
5A attenuator	1	—	—	—	—	—	—
1011G handset	—	—	—	—	1	—	1
Patching cord (2.04)	—	2	2	2	—	1	—
Patching cord (2.05)	2	—	—	—	—	—	—
322A plug (2.06)	✓	✓	✓	✓	✓	✓	✓
47 tool (2.07)	—	—	—	1	—	—	—
3-inch cabinet screwdriver	1	1	—	1	—	—	—
Tools (2.08)	—	—	—	✓	✓	—	—

✓ As required.

- 2a If testing No. 4-type office—
At traffic supervisory rack—
Remove patching cords associated with channel under test.
- 3b If testing crossbar tandem office—
At outgoing trunk test frame—
Make busy all announcement connecting trunks associated with channel under test.

4. METHOD

STEP	ACTION	VERIFICATION
------	--------	--------------

A. Limiting Amplifier

- | | | |
|---|------------------------------------------------------------------------|------------------|
| 4 | At 23A TMS—
Operate INPUT key to 600 and DIAL-SLV-MEAS key to MEAS. | |
| 5 | At announcing trunk (SD-94804-01)—
Operate ACO key. | GD lamp lighted. |

SECTION 201-511-501

STEP	ACTION	VERIFICATION
6	Using 3P7A cord, connect TMS MEAS jack to LIM AMP OUT jack.	
7	At announcing trunk— Using 3P17A cord, connect -10 dBm jack to 5A attenuator IN jack.	
8	Using 3P17A cord, connect 5A attenuator OUT jack to LIM AMP IN jack.	
9	Set 5A attenuator to 0 dB and observe TMS indication.	◆TMS indicates -20 dBm \pm 2 dB.◆

KS-16754 (SD-95281-01) Limiting Amplifier Used With Announcing Trunks per SD-94804-01 Only

10c	If verification in Step 9 is not obtained— At limiting amplifier— Rotate R5 potentiometer CW and CCW until verification in Step 9 is obtained.	
11	Set 5A attenuator to 10 dB (to apply 1000-Hz tone at -20 dBm to amplifier) and observe TMS indication.	◆TMS indicates -20 dBm \pm 2 dB.◆
12d	If verification of Step 11 is not obtained— Repeat Step 10c until verification of Step 11 is obtained.	

◆KS-20449 (SD-99531-01) Limiting Amplifier Used With Announcing Trunks per SD-94804-01 Only

13c	If verification of Step 9 is not obtained— At limiting amplifier— Remove cover from front of limiting amplifier.	
14c	Remove lead from terminal 18.	
15c	Rotate R1 potentiometer CW and CCW until verification in Step 9 is obtained.	
16c	Connect lead to terminal 18.	
17c	Replace cover.	
18	Set 5A attenuator to 10 dB (to apply 1000-Hz tone at -20 dBm to amplifier) and observe TMS indication.	TMS indicates -20 dBm \pm 2 dB.
19e	If verification of Step 18 is not obtained— Repeat Steps 13c through 17c until verification of Step 18 is obtained.◆	

STEP	ACTION	VERIFICATION
KS-16754 or KS-20449 Limiting Amplifier		
20	Disconnect 5A attenuator from -10 dBm jack and LIM AMP IN jack.	
21	Disconnect TMS from LIM AMP OUT jack.	
22	Restore ACO key to normal.	GD lamp extinguished.
23f	If no further tests are to be performed— Notify traffic department that channels are available.	
24a	If testing No. 4-type office— At traffic supervisory rack— Replace patching cords.	
25b	If testing in crossbar tandem office— At outgoing trunk test frame— Remove plugs from announcement connecting trunks.	

B. Channel Amplifiers

KS-16508 L1 and L2 (SD-95256-01), KS-12056 L13A and KS-19219 (SD-99723-01) Channel Amplifiers

Note: If announcing trunk circuit is per SD-94804-01 when performing the following steps, set CHAN SEL switch on trunk to channel under test. Channel switch markings 0 through 5 correspond to recorder-reproducer channels 1 through 6, respectively. If trunk circuit is per SD-68445-01 or SD-68431-01, connect test cords to TST IN and TST OUT jacks of trunk circuit associated with channel under test. Announcing trunks are numbered 0 through 5 and connect to recorder-reproducer channels 1 through 6, respectively. For example, announcing trunk 0 is associated with channel amplifier 0. Announcing trunk 0 and channel amplifier 0 are associated with recorder-reproducer channel 1.

4c	If testing announcing trunk per SD-94804-01— At announcing trunk— Operate ACO key.	GD lamp lighted.
5c	Using 3P7A cord, connect -10 dBm jack to LIM AMP IN jack.	

SECTION 201-511-501

STEP	ACTION	VERIFICATION
6c	Operate CHAN SEL switch to channel to be tested.	
7c	Block operated ANN_ relay associated with channel to be tested.	
8c	Operate RCD key. Note: Allow at least two complete recording cycles to erase any previous recordings and to record new tone for adjustment before proceeding.	
9d	If testing announcing trunk per SD-68445-01 or SD-68431-01— At announcing trunk associated with channel to be tested— Operate ALM CO key.	GUARD and ALM lamps lighted.
10d	Using 3P7A cord, connect -10 dBm jack to TST IN jack of trunk.	
11d	Operate REC POT key. Note: Allow at least two complete recording cycles to erase any previous recordings and to record new tone for adjustment before proceeding. Caution: <i>The common side of the VTVM must not be grounded when making voltage measurements at the recorder-reproducer due to the possibility of seriously damaging the magnetic heads. Be sure that the ac supply cord to the VTVM is not grounded.</i>	
12	At recorder-reproducer while recording— Set range switch of VTVM to 30 VOLTS and connect to terminals as shown in column A of Table B.	Indication on VTVM is within limits shown in column B of Table B.
13	Set range switch of VTVM to 300 VOLTS and connect to terminals as shown in column C of Table B.	Indication on VTVM is within limits shown in column D of Table B.
14e	If testing KS-16508 L1 or L2 or KS-12056 L13A channel amplifier— At amplifier— Remove oscillator (V8) tube to disable oscillator circuit.	

STEP

ACTION

VERIFICATION

TABLE B

RECORD AND ERASE BIAS REQUIREMENTS

CHAN. SEL. SWITCH NUMBER OR TRUNK NUMBER	RECORDER REPRODUCER CHANNEL	A		B	C		D	E		F
		TS	TERM.	RECORD BIAS	TS	TERM.	ERASE BIAS	TS	TERM.	RECORD LEVEL
0	1	4	1 and 2	20V-30V	5	1 and 2	*90V-120V ‡170V±17V	4	1 and 2	0.2V/0.5V
1	2	4	7 and 8	20V-30V	5	3 and 4	*90V-120V ‡170V±17V	4	7 and 8	0.2V/0.5V
2	3	2	1 and 2	20V-30V	4	3 and 4	*90V-120V ‡170V±17V	2	1 and 2	0.2V/0.5V
3	4	3	1 and 2	20V-30V	4	5 and 6	*90V-120V ‡170V±17V	3	1 and 2	0.2V/0.5V
4	5	1	1 and 2	20V-30V	2	3 and 4	*90V-120V ‡170V±17V	1	1 and 2	0.2V/0.5V
5	6	1	3 and 4	20V-30V	3	3 and 4	*90V-120V ‡170V±17V	1	3 and 4	0.2V/0.5V

*90V-120V — When equipped with KS-12056 L13A or KS-16508 L1 or L2 amplifiers.

‡170V±17V (Nominal) — When equipped with KS-19219 L1 amplifiers.

- 15f If testing KS-19219 L1 (SD-99723-01) channel amplifier—
At amplifier—
Remove circuit board containing Q101 transistor to disable oscillator circuit (KS-19219, L2).

- 16 At recorder-reproducer—
Set range switch of VTVM to 1 VOLT and connect to terminals as shown in column E of Table B.

Indication on VTVM is within limits shown in column F of Table B.

- 17g If testing KS-16508 L1 or L2 or KS-12056 L13A channel amplifier and verification in Step 16 is not obtained—
At amplifier—
Set RECORD GAIN (R1) potentiometer and REPRODUCE GAIN (R15) potentiometers to 0.

- 18g Adjust RECORD GAIN (R1) potentiometer until verification is obtained.

- 19h If testing KS-19219 L1 (SD-99723-01) channel amplifier and verification in Step 16 is not obtained—

SECTION 201-511-501

STEP	ACTION	VERIFICATION
	At amplifier— Set REC (R1) potentiometer and REP (R6) potentiometer to 0.	
20h	Adjust REC (R1) potentiometer until verification is obtained.	
21	At recorder-reproducer— Disconnect VTVM.	
22e	If testing KS-16508 L1 or L2 or KS-12056 L13A channel amplifier— At amplifier— Replace oscillator (V8) tube removed in Step 14e.	
23f	If testing KS-19219 L1 (SD-99723-01) channel amplifier— At amplifier— Replace circuit board removed in Step 15f.	
24c	If testing announcing trunk per SD-94804-01— At announcing trunk— Restore RCD key for one recording cycle and then reoperate for two recording cycles to insure proper recording of -10 dBm tone.	
25c	Restore RCD key.	
26c	Remove blocking tool from ANN_ relay.	
27d	If testing announcing trunk per SD-68445-01 or SD-68431-01— At announcing trunk— Restore REC POT key for one recording cycle and then reoperate for two recording cycles to insure proper recording of -10 dBm tone.	
28d	Restore REC POT key.	
29	At 23A TMS— Operate INPUT key to 600 and DIAL-SLV-MEAS key to MEAS.	
30	At announcing trunk— Using 3P7A cord, connect TMS MEAS jack to TST OUT jack.	
31e	If testing KS-16508 L1 or L2 or KS-12056 L13A channel amplifier— At amplifier—	TMS indicates -10 dBm reproducing level.

STEP	ACTION	VERIFICATION
	Adjust REPRODUCE GAIN (R15) potentiometer until TMS indicates -10 dBm.	
	Note: Do not adjust RECORD GAIN (R1) potentiometer.	
32f	If testing KS-19219 L1 (SD-99723-01) channel amplifier— At amplifier— Adjust REP (R6) potentiometer until TMS indicates -10 dBm.	TMS indicates -10 dBm reproducing level.
	Note: Do not adjust REC (R1) potentiometer.	
33	Disconnect TMS from TST OUT jack.	
34	Repeat Steps 4c through 33 on all channels to be tested.	
35	Removal all test connections.	
36c	If testing announcing trunk per SD-94804-01— At announcing trunk— Restore ACO key.	GD lamp extinguished.
37d	If testing announcing trunk per SD-68445-01 or SD-68431-01— At announcing trunk— Restore ALM CO key.	GUARD and ALM lamps extinguished.
38	Notify traffic department that channels are available for recording.	
39a	If testing No. 4-type office— After announcements are recorded— At traffic supervisory rack— Replace patching cords.	
40b	If testing crossbar tandem office— After announcements are recorded— At outgoing trunk test frame— Remove make-busy plugs from announcement connecting trunks.	
	Note: The limiting and channel amplifiers have been adjusted using a recording of 1000-Hz tone. When a voice recording is placed on the magnetic recording band, the level may change so that the quality of the voice recording will be undesirable. If this condition exists, it will be necessary to make minor adjustments of the REPRODUCE GAIN	

STEP	ACTION	VERIFICATION
------	--------	--------------

(R15) potentiometer on KS-16508 L1 or L2 or KS-12056 L13A amplifiers or of the REP (R6) potentiometer on KS-19219 L1 amplifiers to improve the level of the voice recording. Do not make any adjustments on the RECORD GAIN (R1) potentiometer or the REC (R1) potentiometer.

C. Adjacent Channel Interference**Announcing Trunks SD-94804-01 With CHAN SEL Switch**

- | | | |
|---|------------------------------------------|------------------|
| 4 | At announcing trunk—
Operate ACO key. | GD lamp lighted. |
|---|------------------------------------------|------------------|

Note: Steps 5 through 17 are performed for each line of Table C.

TABLE C

RECORDER REPRODUCER CHANNEL	CHANNEL SEL SWITCH POSITIONS		
	RECORD & CHECK	ERASE	RECHECK
1	0	2	0
2	1	3	1
2	1	4	1
3	2	0	2
3	2	4	2
4	3	1	3
4	3	5	3
5	4	1	4
5	4	2	4
6	5	3	5

- | | |
|---|-----------------------------------------------------------------------------------|
| 5 | Set CHAN SEL switch to position indicated in RECORD & CHECK column of Table C. |
| 6 | Using 3P7A cord, connect 23A TMS MEAS jack to TST OUT jack. |
| 7 | On 23A TMS—
Operate INPUT switch to 600 and DIAL-SLV-MEAS key to MEAS. |
| 8 | At announcing trunk—
Using 3P7A cord, connect -10 dBm jack to LIM AMP IN jack. |

STEP	ACTION	VERIFICATION
9	Block operated ANN_ relay associated with channel under test.	
10	Operate RCD key for two recording cycles (to record -10 dB 1000-Hz tone on magnetic recording band).	
11	Restore RCD key and remove block from ANN_ relay.	
12	Observe TMS indication; record level indication for future reference.	TMS indicates recorded tone level.
13	Disconnect cord from -10 dBm and LIM AMP IN jack.	
14	Set CHAN SEL switch to position indicated in ERASE column in Table C.	
15	Operate RCD key for two recording cycles (to erase recording from magnetic recording band).	
16	Restore RCD key.	
17	Set CHAN SEL switch to position indicated in RECHECK column of Table C and observe TMS indication.	TMS indication shall not differ by more than 1 dB from indication recorded in Step 12.
18	Repeat Steps 5 through 17 for each line of Table C.	
19c	If level has changed more than specified in Step 17— See Section 034-351-701 for adjustment of magnetic heads.	
20	Disconnect TMS from TST OUT jack.	
21	After all channels have been tested— Connect -10 dBm jack to LIM AMP IN jack.	
22	Set CHAN SEL switch to channel 0.	
23	Block operated ANN 0 relay.	
24	Operate REC key (to record 1000-Hz tone on recorder reproducer channel 1).	
25	After two recording cycles— Restore REC key and remove block from ANN 0 relay.	

SECTION 201-511-501

STEP	ACTION	VERIFICATION
26	Repeat Steps 22 through 25 operating CHAN SEL switch and blocking ANN_ relay corresponding to each successive channel in turn.	
27	After 1000-Hz tone has been recorded on all channels 1 through 6— Restore ACO key.	GD lamp extinguished.
28	Remove all test connections.	
29d	If no further tests are to be performed— Notify traffic department that channels are available for recording.	
30a	If testing No. 4-type office— After announcement has been recorded— At traffic supervisory rack— Replace patching cords.	
31b	If testing crossbar tandem office— After announcement has been recorded— At outgoing trunk test frame— Remove make-busy plugs from announcement connecting trunks.	

Announcing Trunks SD-68445-01 or SD-68431-01 Without CHAN SEL Switch

32	At announcing trunk— Operate ALM CO key.	GUARD and ALM lamps lighted.
	Note: Steps 33 through 42 are performed for each line of Table D.	
33	Using 3P7A cord, connect 23A TMS MEAS jack to TST OUT jack listed in CHECK column of Table D.	
34	On 23A TMS— Operate INPUT switch to 600 and DIAL-SLV-MEAS key to MEAS.	
35	At announcing trunk— Using 3P7A cord, connect -10 dBm jack to TST IN jack listed in RECORD column of Table D.	
36	Operate REC POT key for two recording cycles (to record -10 dB 1000-Hz tone on magnetic recording band).	

STEP

ACTION

VERIFICATION

TABLE D

RECORD		CHECK	ERASE	
ON CHANNEL	CONNECT – 10 DBM JACK TO	CONNECT TMS TO	ON CHANNEL	GROUND SLEEVE OF CORD CONNECTED TO
1	TST IN 0	TST OUT 0	3	TST IN 2
2	TST IN 1	TST OUT 1	4	TST IN 3
2	TST IN 1	TST OUT 1	5	TST IN 4
3	TST IN 2	TST OUT 2	1	TST IN 0
3	TST IN 2	TST OUT 2	5	TST IN 4
4	TST IN 3	TST OUT 3	2	TST IN 1
4	TST IN 3	TST OUT 3	6	TST IN 5
5	TST IN 4	TST OUT 4	3	TST IN 2
5	TST IN 4	TST OUT 4	2	TST IN 1
6	TST IN 5	TST OUT 5	4	TST IN 3

- | | | |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 37 | Restore REC POT key and observe TMS indication; record level indication for future reference. | TMS indicates recorded tone level. |
| 38 | Restore REC POT key. | |
| 39 | Remove cord from -10 dBm and TST IN jack. | |
| 40 | Insert one end of 3P7A cord into TST IN jack listed in ERASE column of Table D and ground sleeve of cord for two recording cycles (to erase recording from magnetic recording band). | |
| 41 | Remove cord from TST IN jack. | |
| 42 | On 23A TMS—
Observe TMS indication. | TMS indication shall not differ by more than 1 dB from indication recorded in Step 37. |
| 43 | Repeat Steps 33 through 42 for each line of Table D. | |
| 44c | If level has changed more than specified in Step 42—
See Section 034-351-701 for adjustment of magnetic heads. | |

SECTION 201-511-501

STEP	ACTION	VERIFICATION
45	Disconnect TMS from TST OUT jack.	
46	After all channels have been checked— Connect -10 dBm jack to TST IN 0 jack.	
47	Operate REC POT key (to record 1000-Hz tone on channel 1).	
48	After two recording cycles— Disconnect cord from TST IN 0 jack and connect to each successive TST IN jack in turn for two recording cycles.	
49	After 1000-Hz tone has been recorded on all channels 1 through 6— Restore REC POT key.	
50	Restore ALM CO key.	GUARD and ALM lamps extinguished.
51	Remove all test connections.	
52d	If no further tests are to be performed— Notify traffic department that channels are available for recording.	
53a	If testing No. 4-type office— After announcement has been recorded— At traffic supervisory rack— Replace patching cords.	
54b	If testing crossbar tandem office— After announcement has been recorded— At outgoing trunk test frame— Remove make-busy plugs from announcement connecting trunks.	

D. Voice Alarm

- | | |
|----|------------------------------------------------------------------------------------------------------------------------|
| 4 | At 23A TMS—
Operate INPUT key to 600 and DIAL-SLV-MEAS key to MEAS. |
| 5 | Using 3P7A cord, connect TST OUT jack to MEAS jack of TMS. |
| 6c | If testing announcing trunk per SD-94804-01—
At announcing trunk—
Operate CHAN SEL switch to channel under test. |
| 7c | Using 3P7A cord, connect -10 dBm jack to IN jack of 5A attenuator. |

STEP	ACTION	VERIFICATION
8c	Using 3P7A cord, connect OUT jack of 5A attenuator to TEST IN jack of frame.	
9c	Set 5A attenuator to 10 dB. <i>Note:</i> This applies 1000-Hz at -20 dBm to input of channel amplifier—same as output of limiting amplifier.	
10c	Block operated S01 relay to disable announcing trunk alarm delay feature. <i>Note:</i> Total alarm delay time consists of amplifier alarm delay and announcing trunk alarm delay.	
11c	Block operated ANN_ relay corresponding to channel under test.	
12c	Operate RCD key for two recording cycles.	
13c	Restore RCD key and observe TMS indication.	TMS indicates -10 dBm ± 1 dB.
14d	If verification of Step 13c is not obtained— Perform Tests A and B of this section.	
15c	If testing announcing trunk per SD-94804-01— At 5A attenuator— Set 5A attenuator to 15 dB.	
16c	Operate RCD key for two recording cycles.	
17c	Restore RCD key and observe TMS indication and voice alarm relay.	TMS indicates -15 dBm ± 1 dB. Voice alarm relay does not release.
18e	If verification of Step 17c is not obtained— Proceed to Step 38k.	
19c	If testing announcing trunk per SD-94804-01— At 5A attenuator— Set 5A attenuator to 20 dB.	
20c	Operate RCD key for two recording cycles.	
21c	Restore RCD key and observe TMS indication and voice alarm relay.	TMS indicates -20 dBm ± 1 dB. Voice alarm relay released.
22f	If verification of Step 21c is not obtained— Proceed to Step 38k.	
23g	If testing announcing trunk per SD-68445-01 or SD-68431-01—	

SECTION 201-511-501

STEP	ACTION	VERIFICATION
	At announcing trunk associated with channel to be tested— Using 3P7A cord, connect -10 dBm jack to IN jack of 5A attenuator.	
24g	Using 3P7A cord, connect OUT jack of 5A attenuator to TEST IN jack of frame.	
25g	Set 5A attenuator to 10 dB.	
	Note: This applies 1000-Hz at -20 dBm to input of channel amplifier—same as output of limiting amplifier.	
26g	Block operated L1 relay.	
	Note: Total alarm delay time consists of amplifier alarm delay and announcing trunk alarm delay.	
27g	Operate REC POT key for two recording cycles.	
28g	Restore RCD key and observe TMS indication.	TMS indicates -10 dBm ± 1 dB.
29h	If verification of Step 28g is not obtained— Perform Tests A and B of this section.	
30g	If testing announcing trunk per SD-68445-01 or SD-68431-01— At 5A attenuator— Set 5A attenuator to 15 dB.	
31g	Operate REC POT key for two recording cycles.	
32g	Restore REC POT key and observe TMS indication and voice alarm relay.	TMS indicates -15 dBm ± 1 dB. Voice alarm relay does not release.
33i	If verification of Step 32g is not obtained— Proceed to Step 38k.	
34g	If testing announcing trunk per SD-94804-01— At 5A attenuator— Set 5A attenuator to 20 dB.	
35g	Operate REC POT key for two recording cycles.	
36g	Restore REC POT key and observe TMS indication and voice alarm relay.	TMS indicates -20 dBm ± 1 dB. Voice alarm relay released.

STEP	ACTION	VERIFICATION
37j	If verification of Step 36g is not obtained— Proceed to Step 38k.	
38k	If verification of alarm in Steps 17c or 21c, or 32g or 36g is not obtained— Proceed to perform adjustments of OPERATE and RELEASE potentiometers per Steps 39g through 52g for voice alarm relay under test. <i>Note:</i> Depending on type of amplifier provided, the OPERATE and RELEASE potentiometers may be located on the front, rear, or underneath the wiring side of cover panel. <i>Caution: Hazardous voltages are present where it is necessary to remove the amplifier cover plate.</i>	
39g	If testing announcing trunk per SD-68445-01 or SD-68431-01— At announcing trunk— Insulate 1T and 2T contacts of AL relay.	
40l	If OPERATE and RELEASE potentiometers are equipped with locknuts— Using 47 tool or equivalent, loosen locknuts.	
41	Adjust OPERATE potentiometer fully CCW.	When testing KS-19219 amplifier— K101 relay released. When testing KS-16058 amplifier— K2 relay released. When testing KS-12056 amplifier— K200 relay released. ALM lamp lighted. Minor audible alarm sounded. Aisle pilot lamp lighted. At telephone set— ALM lamp lighted.
42m	If verification in Step 41 is not obtained— Adjust RELEASE potentiometer fully CW.	
43m	Adjust RELEASE potentiometer very slowly CCW until K ₂ relay just releases. <i>Note: Very slowly</i> for the purpose of this test means that it takes about 60 seconds to go from fully CW or fully CCW to midrange on the potentiometer.	When testing KS-19219 amplifier— K101 relay released. When testing KS-16058 amplifier— K2 relay released. When testing KS-12056 amplifier— K200 relay released. ALM lamp lighted. Minor audible alarm sounded. Aisle pilot lamp lighted.

STEP	ACTION	VERIFICATION
		At telephone set— ALM lamp lighted.
44	Adjust OPERATE potentiometer <i>very slowly</i> CW until K ₁ relay just operates.	When testing KS-19219 amplifier— K101 relay operated. When testing KS-16058 amplifier— K2 relay operated. When testing KS-12056 amplifier— K200 relay operated. ALM lamp extinguished. At telephone set— ALM lamp extinguished.
45	Adjust OPERATE potentiometer <i>very slowly</i> CCW and <i>very slightly</i> until K ₁ relay just releases.	When testing KS-19219 amplifier— K101 relay released. When testing KS-16058 amplifier— K2 relay released. When testing KS-12056 amplifier— K200 relay released. ALM lamp lighted. Minor audible alarm sounded. Aisle pilot lamp lighted. At telephone set— ALM lamp lighted.
46	Repeat Steps 15c through 21c to verify that voice alarm is properly adjusted. <i>Note:</i> It may be necessary to repeat the adjustment procedure (Steps 41 through 45) several times to obtain proper adjustment due to variations caused by circuit capacitances.	
47l	If OPERATE and RELEASE potentiometers are equipped with locknuts— When adjustments are satisfactorily completed— Tighten locknuts on OPERATE and RELEASE potentiometers.	
48g	If testing announcing trunk per SD-94804-01— At announcing trunk— Restore ACO key to normal.	GD lamp extinguished.
49c	If testing announcing trunk per SD-94804-01— Remove block from SO1 relay.	
50g	If testing announcing trunk per SD-68445-01 or SD-68431-01— At announcing trunk— Remove insulator from 1T and 2T of AL relay.	

STEP	ACTION	VERIFICATION
51g	At announcing trunk— Restore ALM CO key to normal.	GUARD and ALM lamps extinguished.
52g	Remove block from L1 relay.	
53c	If testing announcing trunk per SD-94804-01— Repeat Steps 6c through 13c of this test.	
54g	If testing announcing trunk per SD-68445-01 or SD-68431-01— Repeat Steps 23g through 28g of this test.	
55n	If other channels are to be tested— Repeat Steps 6c or 23g through 55n for other channels.	
56	Remove all test connections.	
57o	If not further tests are to be performed— Notify traffic department that channels are available for recording.	
58a	If testing No. 4-type office— After announcement has been recorded— At traffic supervisory rack— Replace patching cords.	
59b	If testing crossbar tandem office— After announcement has been recorded— At outgoing trunk test frame— Remove make-busy plugs from announcement connecting trunks.♦	

E. Operator Emergency Announcement

Announcing Trunk Circuit—SD-94804-01

4	At telephone set— Operate EM_ key associated with channel under test.	ANN_ lamp associated with channel under test lighted.
5	At announcing trunk circuit— Operate CHAN SEL switch to channel under test.	
6	Insert plug of 1011G handset into TST OUT jack.	
7	Block operated L relay associated with channel under test.	At telephone set— EM_ lamp lighted.

SECTION 201-511-501

STEP	ACTION	VERIFICATION
8	At telephone set— Remove handset from switchhook.	
9	Momentarily operate RCD key.	RCD lamp lighted. ANN_ lamp extinguished.
10	Announce for about 3 to 4 seconds.	At announcing trunk circuit— Announcement heard in handset.
11	At announcing trunk circuit— Remove blocking tool from L relay.	At telephone set— EM_ lamp extinguished.
12	At announcing trunk circuit— Remove 1011G handset from TEST OUT jack.	
13	At telephone set— Momentarily operate RCD key.	RCD lamp extinguished. ANN_ lamp lighted.
14	Replace handset on switchhook.	
15	Momentarily operate RLS key.	ANN_ lamp extinguished. EM_ key restored.
16	Repeat Steps 4 through 15 for other channels to be tested.	
17c	If no further tests are to be performed— Notify traffic department that channels are available for recording.	
18a	If testing No. 4-type office— After announcement has been recorded— At traffic supervisory rack— Replace patching cords.	
19b	If testing in crossbar tandem office— After announcement has been recorded— At outgoing trunk test frame— Remove make-busy plugs from announcement connecting trunks.	

Announcing Trunk Circuits SD-68445-01 or SD-68431-01

20	At telephone set— Operate EM_ key for channel to be tested.
21	At announcing trunk circuit— Insert plug of 1011G handset into TST OUT jack of announcing trunk associated with channel under test.

STEP	ACTION	VERIFICATION
22	Block operated L1 relay associated with channel under test.	At telephone set— EM_ lamp lighted.
23	At telephone set— Remove handset from switchhook and announce for 3 to 4 seconds.	At announcing trunk circuit— Announcement heard in handset.
24	At announcing trunk circuit— Remove blocking tool from L1 relay.	At telephone set— EM_ lamp extinguished.
25	At announcing trunk circuit— Remove 1011G handset from TST OUT jack.	
26	At telephone set— Momentarily operate RLS key and place handset on switchhook.	EM_ key restored.
27	Repeat Steps 20 through 26 for other channels to be tested.	
28c	If no further tests are to be performed— Notify traffic department that channels are available for recording.	
29a	If testing in No. 4-type office— After announcement has been recorded— At traffic supervisory rack— Replace patching cords.	
30b	If testing in crossbar tandem office— After announcement has been recorded— At outgoing trunk test frame— Remove plugs from announcement connecting trunks.	

F. Erase, Record, and Playback From Telephone Set

Announcing Trunk Circuit per SD-94804-01

4	At announcing trunk circuit— Operate ACO key.	GD lamp lighted.
5	At telephone set— Remove handset from switchhook.	
6	Operate ANN_ key associated with channel under test.	ANN_ lamp lighted. ANN_ key locked.
7	Momentarily operate RCD key.	At start of next recording cycle— RCD lamp lighted. ANN_ lamp extinguished.

SECTION 201-511-501

STEP	ACTION	VERIFICATION
8	Record message while RCD lamp lighted. <i>Note:</i> Maximum recording time approximately 11.2 seconds.	
9	After RCD lamp extinguished— Monitor recorded message.	ANN_ lamp lighted. Recorded message free from hiss, hum, and previous recording. Recorded message has uniform level and free from flutter.
10	Operate RLS key and replace handset on switchhook.	ANN_ lamp extinguished. ANN_ key released.
11	At announcing trunk circuit— Set CHAN SEL switch to channel under test.	
12	Using 3P7A cord, connect -10 dBm jack to TST IN jack.	
13	Operate RCD key for two recording cycles.	
14	Remove patching cord.	
15	Repeat Steps 4 through 14 for other channels to be tested.	
16	Restore ACO key.	GD lamp extinguished.
17c	If no further tests are to be performed— Notify traffic department that channels are available for recording.	
18a	If testing No. 4-type office— After announcement has been recorded— At traffic supervisory rack— Replace patching cord.	
19b	If testing in crossbar tandem office— After announcement has been recorded— At outgoing trunk test frame— Remove plugs from announcement connecting trunks.	
Announcing Trunk Circuit per SD-68445-01 or SD-68431-01		
20	At announcing trunk circuit associated with channel under test— Operate ALM CO key.	GUARD and ALM lamps lighted.

STEP	ACTION	VERIFICATION
21	At telephone set— Remove handset from switchhook.	
22	Operate ANN_ key associated with channel under test.	ANN_ key locked. At start of next recording cycle— ANN_ lamp flashes momentarily.
23	Observe ANN_ lamp and when ANN_ lamp flashes— Operate and hold operated REC key.	
24	Observe ANN_ lamp and when ANN_ lamp again flashes— Record message.	
	Note: Maximum recording time is approximately 11.2 seconds, and the length of the message recorded must be held to 11.2 seconds or less. The ANN_ lamp flashes at the beginning of each new recording cycle; the message must be recorded; and the REC_ key released (Step 25) before the new recording cycle begins.	
25	After message is recorded but before ALM_ lamp again flashes— Release REC key.	
26	After REC key is released and after ALM_ lamp flashes— Monitor recorded message for several recording cycles.	Recorded message free from hiss, hum, and previous recording. Recorded message has uniform level and free from flutter. Recorded message ends before ANN_ lamp flashes. Recorded message follows each ANN_ lamp flash.
27	Operate RLS key and replace handset on switchhook.	ANN_ key restored.
28	At announcing trunk circuit associated with channel under test— Using 3P7A cord, connect -10 dBm jack to TST IN jack of trunk circuit.	
29	Operate REC POT key for two recording cycles.	
30	Remove patching cord.	
31	Repeat Steps 20 through 30 for other channels to be tested.	

SECTION 201-511-501

STEP	ACTION	VERIFICATION
32	Restore ALM CO key.	GUARD and ALM lamps extinguished.
33c	If no further tests are to be performed— Notify traffic department that channels are available for recording.	
34a	If testing No. 4-type office— After announcement has been recorded— At traffic supervisory rack— Replace patching cords.	
35b	If testing in crossbar tandem office— After announcement has been recorded— At outgoing trunk test frame— Remove make-busy plugs from announcement connecting trunks.	

G. Channel Busy Tone—Announcing Trunk Per SD-94804-01

Note: This test does not erase recorded announcement. However it does interrupt the announcement during the interval that TN relay is operated.

4	At telephone set— Remove handset from switchhook.	
5	Operate ANN_ key associated with channel under test.	ANN_ lamp lighted. ANN_ key locked. Recorded announcement heard in handset.
6	At announcing trunk circuit— Connect 1011G handset to terminal strip B terminals listed in Table E for channel under test.	Recorded announcement heard in 1011G handset.

TABLE E

TO TEST CHANNEL	CONNECT 1011G HANDSET TO TERM. STRIP B TERMINALS
0	56 and 45
1	38 and 28
2	58 and 48
3	34 and 24
4	54 and 44
5	36 and 26

STEP	ACTION	VERIFICATION
7	Manually operate TN_ relay associated with channel under test.	TN_ relay locked operated. 120-IPM tone heard in 1011G handset. At telephone set— Recorded announcement heard in handset.
8	At telephone set— Operate RLS key.	ANN_ lamp extinguished. ANN_ key released. No recorded announcement heard in handset. At announcing trunk circuit— TN_ relay released. 120-IPM tone silenced and recorded announcement heard in 1011G handset.
9	At telephone set— Replace handset on switchhook.	
10	At announcement trunk circuit— Disconnect 1011G handset from terminal strip B terminals.	
11c	If no further tests are to be performed— Notify traffic department that channels are available.	
12a	If testing in No. 4-type office— At traffic supervisory rack— Replace patching cords.	
13b	If testing in crossbar tandem office— At outgoing trunk test frame— Remove plugs from announcement connecting trunks.	