

13A ANNOUNCEMENT SYSTEM TEST

CONTENTS

- | | |
|-----------------------------|------------------------|
| 1. GENERAL INFORMATION | 5. LOCAL TEST |
| 2. RECORDS AND REQUIREMENTS | 6. FML CT TEST |
| 3. TEST EQUIPMENT | 7. SYSTEM VERIFICATION |
| 4. POWER VERIFICATION | 8. TROUBLE PROCEDURES |

-
- | | |
|--|--|
| 1. <u>GENERAL INFORMATION</u> | 1.4 <u>Precautions</u> |
| 1.1 <u>General</u> - The 13A Announcement System is completely electronic with no moving parts. The design is based upon digitized speech stored in a 29A Magnetic Bubble Memory. The 13A can have from one to eight channels with each channel allowing one recorded message. Circuitry for announcing a message is located on circuit packs called message modules with three types available, a 12-second fixed message length (FML), a 3 to 12-second variable message length (VML), and a 3 to 24-second variable message length (VML). | 1.41 This equipment contains semi-conductor devices subject to damage by improper procedures. Methods of Section 0.3 of this handbook must be observed at all times. |
| 1.2 <u>Description</u> - This section describes a method of testing the 13A equipped with the following message modules or combination of these, depending on length of message required. | 1.42 In some cases TELCo may send the Message Module circuit packs to a location where they will be pre-recorded before the Message Modules are installed in a 13A WECO installation. Therefore, it is advisable to find out from TELCo if the Message Modules have been pre-recorded. Should this be the case, request from TELCo a spare Message Module to be used with this Test Section. |
| a) 12-second fixed message length (FML) (UD5 circuit pack) | 1.43 Before -48V power is connected to the Unit, power ON-OFF key should be operated to the OFF position ON-OFF key should be operated to the OFF position and all channel access keys should be in the Normal position. |
| b) 3 to 12-second variable message length (VML) (UD6 circuit pack) | 1.44 Until this test section is completed the only connections that should be connected are -48V and GRD. |
| c) 3 to 24-second variable message length (VML) (UD4 circuit pack) | 1.45 Do not install or remove circuit packs and/or if WECO is requested to wire up the cross connects without first powering down the 13A. This Power down procedure should be followed. |
| 1.21 Instructions printed on the inside of the 13A front cover identify all controls and indicators and should be used as a reference. For additional information refer to BSP Section 201-519-101 and Section 201-519-301. | 1.451 At UD3 operate and hold Field Down key until Field Down LED lights. |
| 1.3 <u>Circuits</u> | 1.452 Release Field Down key. |
| SD-97753-01 13A Announcement System | |

1.453 At UD1 operate Power key to OFF position. Power off LED lights.

2. RECORDS AND REQUIREMENTS

2.1 Forms SD-97-1313 and SD-97-1315 are required for recording the results of these tests. For information on records, refer to Handbook 3, Section 6B.

3. TEST EQUIPMENT

<u>Amt.</u>	<u>Code</u>	<u>Description</u>
1	ITE-4442 or ITE-4442A	Volt-Ohmmeter
1	G3UR-61*	Handset
1	R-3314	Stop Watch

* Acquire from TELCo when available.

4. POWER VERIFICATION

4.1 Power Supply (UD1)

4.11 Verify Power ON-OFF key is in the OFF position.

4.12 With Volt-Ohmmeter connected on back plane between TB1- pin 1 and pin 2 verify -42.5 to -52.5 volts. In Electro-mechanical office verify strap between TB1 pin 2 (-48V RTN) and Back Plane mounting screw as option WA.

4.13 On UD1 circuit pack verify Power OFF LED is lit.

4.14 Verify that each Message Module UD4 UD5 or UD6 channel access keys are in the NOR position (down).

4.15 Operate Power ON-OFF key to the ON position. Verify Power OFF LED extinguishes. Verify current limit LED on UD1 is extinguished.

4.16 At UD3 operate and hold Field Down key until Field Down LED lights. Operate Power ON-OFF key to the OFF position. Temporarily remove 70C fuse located on UD1 and install an operated fuse.

4.17 Operate Power ON-OFF key to the ON position. Verify Power OFF LED remains lit.

4.18 Operate Power ON-OFF key to the OFF position. Replace the operated fuse with a nonoperated 70C fuse. Operate Power ON-OFF key to the ON position, verify Power OFF LED extinguished. Verify current limit LED is extinguished.

4.19 On the front of UD1 circuit pack, connect Volt-Ohmmeter between TP (Test Point) GRD and TPs, verify the following per Table A. Refer to inside of 13A front cover for location of TPs:

TABLE A

<u>TEST POINT</u>	<u>REQUIRED VOLTAGE</u>
TP +15V	+15.0V to +16.5V
TP +5V	+5V to +5.4V
TP -4V	-3.8V to -4.2V
TP -8V	-7.6V to -8.4V
TP -15V	-15.0V to -16.5V
TP -48V	-42.5V to -52.5V

5. LOCAL TEST

5.1 Unit Record Test

5.11 Verify cut thru LED on UD3 lights for approximately 3 seconds and extinguished for approximately 12 seconds every 15 seconds.

5.12 Verify that each Channel Access LED on all equipped channel UD4, UD5 or UD6 are extinguished.

5.13 Plug telephone handset into 13A Handset jack.

NOTE: This unit can be equipped with three different types of UD circuit packs, depending on message length requirement. Therefore, only run those paragraphs that pertain.

5.2 Fixed Message Length (UD5)

5.21 Record Test - On the first equipped channel UD5 to be tested, operate Channel Access key to the Access position. Verify Channel Access LED lights. Set Output ADJ to approximately center position.

5.211 Momentarily operate Red Record key on UD3. Verify Red Request Record LED lights. As soon as Green Record LED lights, with the Handset record "Test Channel 0*", then count 1, 2, 3, etc." in a normal speaking level until green record LED extinguishes. After LED extinguishes channel will automatically go into playback mode

*This should be channel number under test.

- 5.212 Listen to the recorded announcement, verify a distinct message ** with a recording 12 seconds in length and a 3 second silent period (cut thru). Also verify at the silent period that the Cut Thru LED lights on UD3.
- ** This is a nominal audio output level and output ADJ may need to be changed to meet system requirements.
- 5.22 CT Test - With the handset to monitor cut thru (silent period) between message repetitions and VOM on Ohms to measure open or closure, verify closure between pins at cut thru for channel under test per Table 1.
- 5.23 VA Test - With the VOM, verify closure between pins on channel under test per Table 5 when temporary ground is connected to TB1 pin 12. Also verify Voice Alarm LED lights on channel under test.
- 5.24 Erase Test - Remove telephone handset from 13A handset jack. Momentarily operate Record key. Request Record LED lights, then within 12 seconds Record LED lights. After Record LED extinguishes plug telephone handset into 13A handset jack. Verify announcement has been erased, Voice Alarm LED lights within the message length and extinguishes at cut thru.
- 5.25 Repeat Paragraph 5.211 to re-record test message. After recording has been made, verify Voice Alarm LED extinguishes. Operate channel under test Channel Access key to Normal. Verify Channel Access LED extinguishes.
- 5.26 Repeat Paragraph 5.2 through 5.25 on each equipped Fixed Message Length (UD5 channel).
- 5.3 Variable Message Length (UD6)
- 5.31 Record Test - On the first equipped channel UD6 to be tested set Message Length switch to 12. Operate Channel Access key to the access position. Verify Channel Access LED lights. Set output ADJ to approximately center position.
- 5.311 Momentarily operate Red Record key on UD3. Verify Red Request Record LED lights as soon as the green Record LED lights with the Handset record "Test Channel 0* then count 1, 2, 3, etc." in a normal speaking level until green record LED extinguishes. After LED extinguishes channel will automatically go into playback mode.
- * This should be channel number under test.
- 5.312 Listen to the recorded announcement, verify a distinct message ** with a recording 12 seconds in length and a 3 second silent period (Cut Thru).
- ** This is a nominal audio output level and output ADJ may need to be changed to meet system requirements.
- 5.32 CT Test - With the Handset to monitor cut thru (silent period) between message repetitions and VOM on Ohms to measure open or closure, verify closure between pins at cut thru for channel under test per Table 1.
- 5.321 MU Test - With the VOM, verify MU3 and 4 open during cut thru and MU2 and 3 close during cut thru on channel under test per Table 2.
- 5.33 STP and LIM Test - With the VOM, verify pin STP is momentarily open to ground and LIM has a momentarily closure to ground during cut thru on channel under test per Table 3.
- 5.34 VA Test - With the VOM, verify closure between pins on channel under test per Table 5 when ground is temporarily connected to TB1 pin 12. Also verify Voice Alarm LED lights on channel under test.
- 5.35 Erase Test - Remove telephone handset from 13A handset jack. Momentarily operate red Record key, Request Record LED lights, then within 12 seconds Record LED lights. After Record LED extinguishes plug telephone handset into 13A handset jack. Verify announcement has been erased, Voice Alarm LED lights within the message length and extinguishes at cut thru.
- 5.36 Repeat Paragraph 5.311 to re-record test message. After recording has been made, verify Voice Alarm LED extinguishes. Operate channel under test Channel Access key to Normal. Verify Channel Access LED extinguishes.
- 5.37 Start Test - This test verifies the remote start function and the existence of the output audio on T1 and R1. T1 is jumpered to the TB1-3 (AUD OUT) pin on the backplane so that the audio can be monitored with the handset connected to the handset jack when the channel receives a start signal.

NOTE: No channels should be accessed for this test. All channel access LED's should be extinguished.

- 5.371 Monitor the message for each channel with T1 jumpered to TB1-3 per Table 6. Jumper the start and ground pins for the channel being monitored per Table 4. The message should start within 3 seconds.
- 5.372 Remove jumper.
- 5.38 Repeat Paragraph 5.3 through 5.372 on each equipped Variable Message Length (UD6) channel.
- 5.4 Variable Message Length (UD4)
- 5.41 Record Test - On the first equipped channel UD4 to be tested set Message Length switch to 24. Operate Channel Access key to the Access position. Verify Channel Access LED lights. Set Output ADJ to approximately center position.
- 5.411 Momentarily operate Red Record key on UD3. Verify Red Request Record LED lights. As soon as Green Record LED lights with the Handset, record "Test Channel 0*", then count 1, 2, 3, etc." in a normal speaking level until green record LED extinguishes. After LED extinguishes channel will automatically go into playback mode.
- * This should be channel number under test.
- 5.412 Listen to the recorded announcement, verify a distinct message ** with a recording 24 seconds in length and a 3 second silent period (cut thru).
- ** This is a nominal audio output level and output ADJ may need to be changed to meet system requirements.
- 5.42 CT Test - With the Handset to monitor cut thru (silent period) between message repetitions and VOM on Ohms to measure open or closure, verify closure between pins at cut thru for channel under test per Table 1.
- 5.43 MU Test - With the VOM, verify MU3 and 4 open during cut thru and MU2 and 3 close during cut thru on channel under test per Table 2.
- 5.431 STP and LIM Test - With the VOM, verify pin STP is momentarily open to ground and LIM has a momentary closure to ground during cut thru on channel under test per Table 3.
- 5.44 VA Test - With the VOM, verify closure between pins on channel under test per Table 5 when ground is temporarily connected to TB 1 pin 12. Also verify Voice Alarm LED lights on channel under test.
- 5.45 Erase Test - Remove telephone handset from 13A handset jack. Momentarily operate Red Record key, Request Record LED lights, then within 12 seconds Record LED lights. After Record LED extinguishes plug telephone handset into 13A handset jack. Verify announcement has been erased, Voice Alarm LED lights within the message length and extinguishes at cut thru.
- 5.46 Repeat Paragraph 5.411 to re-record test message. After re-recording has been made, verify Voice Alarm LED extinguishes. Operate channel under test Channel Access key to Normal. Verify Channel Access LED extinguishes.
- 5.47 Start Test - This test verifies the remote start function and the existence of the output audio on T1 and R1. T1 is jumpered to the TB1-3 (AUD OUT) pin on the backplane so that the audio can be monitored with the handset connected to the handset jack when the channel receives a start signal.
- NOTE: No channels should be accessed for this test. All channels access LED's should be extinguished.
- 5.471 Monitor the message for each channel with T1 jumpered to TB1-3 per Table 6. Jumper the start and ground pins for the channel being monitored per Table 4. The message should start within 3 seconds.
- 5.472 Remove jumper.
- 5.48 Repeat Paragraphs 5.41 through 5.472 on each equipped Variable Message Length UD4 channel.
6. FML CT TEST
- 6.1 With the VOM, verify a closure between Terminal A and B on the backplane when the CUT THRU LED is lit on UD3.
7. SYSTEM VERIFICATION
- 7.1 Note 106 on SD-97753-01 and all other cross connections made to the office should be verified with the individual handbook for the type of office using the 13A.

8. TROUBLE PROCEDURES8.1 Current Limit8.11 Current Limit LED Lights on UD1.

8.111 Probable Cause

- a) Faulty UD1
- b) Faulty UD2
- c) Faulty UD3
- d) R-14 resistor on UD5
R-9 resistor on UD4 and UD6

8.2 Field Down

NOTE: When the 13A Field Down, momentarily operate Power ON-OFF to the OFF position to reset.

8.21 Field Down LED lights on UD3

8.211 Probable Cause

- a) Faulty UD3
- b) Faulty UD1
- c) In Electro-mechanical office a strap should be added between TB1 Pin 2 (-48V RTN) and Back Plane mounting screw as option WA note 206 on SD-97753-01.

8.3 Garbled Message

8.31 Messages are not as recorded after power up although proper power down procedure was followed.

8.311 Probable causes when all messages are the same.

- a) Faulty UD2

8.312 Probable cause on one message.

- a) Faulty UD4, UD5 or UD6

8.4 Holes in Message

8.41 Parts in the message are missing.

8.411 R-35 and R-86 pull up resistors on UD4 and UD6 may be 10K ohms and should be replaced with 392 ohms per CN 5C12CB.

8.5 DIG Voice Alarm

8.51 The DIG Voice Alarm LED lit on UD3 and Voice Alarm LED lit on message module.

8.511 Voice Alarm LED lit on each Message Module may not extinguish until messages have been recorded on all equipment channels.

8.512 Power down the 13A per Paragraphs 1.451 thru 1.453.

- a) Back out all channel UD's except the first equipped channel (channel access key must be normal).
- b) Operate power ON-OFF to the ON position, wait approximately 30 seconds.
- c) Power down the 13A per Paragraphs 1.451 to 1.453.
- d) Back out this channel UD and insert the next channel UD.
- e) Repeat steps b, c, and d. When field down and powered down insert all channel UD's and operate Power ON-OFF key to ON position.

ATTACHMENT

Table 1 thru 6 on Page 6.

Manager, Product Engineering
Control Center

Reason for Reissue:
Expand DIG Voice Alarm
trouble procedures.

TABLE 1		
CHANNEL	BACKPLANE PINS	
	CT1 ()	CT2 ()
0	20	19
1	34	33
2	48	47
3	62	61
4	76	75
5	90	89
6	104	103
7	118	117

TABLE 2			
CHANNEL	BACKPLANE PINS		
	MU2 ()	MU3 ()	MU4 ()
0	24	25	26
1	38	39	40
2	52	53	54
3	66	67	68
4	80	81	82
5	94	95	96
6	108	109	110
7	122	123	124

TABLE 3			
CHANNEL	BACKPLANE PINS		
	CT1 ()	CT2 ()	GROUND
0	22	23	17
1	36	37	31
2	50	51	45
3	64	65	59
4	78	79	73
5	92	93	87
6	106	107	101
7	120	121	115

TABLE 4		
CHANNEL	BACKPLANE PINS	
	START	GROUND
0	28	17
1	42	31
2	56	45
3	70	59
4	84	73
5	98	87
6	112	101
7	126	115

TABLE 5		
CHANNEL	BACKPLANE PINS	
	VA1	VA2
0	18	21
1	32	35
2	46	49
3	60	63
4	74	77
5	88	91
6	102	105
7	116	119

TABLE 6		
CHANNEL	BACKPLANE PINS	
	T1	R1
0	16	15
1	30	29
2	44	43
3	58	57
4	72	71
5	86	85
6	100	99
7	114	113