

## 13A ANNOUNCEMENT SYSTEM SD-97753-01

### OPERATING, TESTING, AND TROUBLE ANALYSIS PROCEDURES

### COMMON SYSTEMS

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		1. GENERAL	
		1.01 This section describes the procedures needed for proper operation, testing and trouble analysis of the 13A Announcement System.	
		1.02 This section is reissued to:	
		(a) Add timing and control UD3B information	
		(b) Indicate message module UD5 has been rated manufacture discontinued (MD)	
		(c) Add information to paragraph 1.08 on the 13A Announcement System front door	
		(d) Indicate in paragraph 2.05 a 6-foot cord is used instead of an 8-foot cord	
		(e) Indicate in Step 4 under paragraph 4.05 a 4P18C testing cord is used instead of a 2P21A testing cord	
		(f) Add paragraphs 5.03 and 5.04 and revise Fig. 6 for additional trouble analysis	
		(g) Add Table of Contents.	
		Revision arrows are used to emphasize the more significant changes.	

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## SECTION 201-519-301

1.03 The procedures covered are:

- **Method of Operation:** These procedures are used for proper operation, recording, monitoring, and power removal of the 13A Announcement System.
- **Testing Procedures:** These procedures are used to check the output levels of the recorded messages.
- **Trouble Analysis:** These procedures are used to locate and correct problems in the 13A Announcement System.

1.04 The 13A Announcement System is completely electronic and requires no periodic maintenance normally required with announcement systems that employ moving parts.

1.05 The design of the 13A Announcement System has all components located on circuit packs. Three circuit packs are common to each 13A Announcement System. These are the power supply (UD1), the encoder driver (UD2), and the timing and control (UD3 or UD3B). The circuit packs that have the capability for recording are different for each option and are coded UD4, UD5, and UD6. A list of all circuit packs and a description of each can be found in Section 201-519-101.

1.06 A brief summary of the procedures needed for operation of the 13A Announcement System is located on the inside of the front cover. This section will be used to supplement those procedures.

1.07 Before performing these procedures, the craft person should become familiar with the 13A Announcement System. A detailed description can be found in Section 201-519-101.

1.08 The front door of the 13A Announcement System should be open for all operations. The door is opened by sliding both spring loaded latch pins toward the center of the door on doors made with metal caps. On later models equipped with an all plastic door, the door is opened by lifting to clear the latch pins.

## 2. APPARATUS

2.01 The apparatus or test equipment required to perform the procedures are listed, with a description of each, in the following paragraphs.

2.02 KS-14510, L11 volt-ohm-milliammeter (VOM), equipped with KS-14510, L8 leads.

2.03 G3CR-61 hand set or equivalent.

2.04 21A transmission measuring set (TMS) J94021A (Section 103-221-100).

2.05 Testing cord, one P4H cord, 6 feet long, equipped with two 464A plugs (4P18C).

2.06 3-inch C screwdriver.

2.07 Tape recorder.

## 3. METHOD OF OPERATION

### A. Start Up

3.01 To start up the 13A Announcement System, proceed as follows:

- (1) At UD1 power supply circuit pack, operate POWER switch to ON position, POWER OFF LED extinguishes.
- (2) Using KS-14510, L11 VOM, insure that the correct voltages are present at their respective test points. The correct voltages are as follows:

- TP1 +15V to +16.5V
- TP2 +5V to +5.4V
- TP3 Ground
- TP4 -3.8V to -4.2V
- TP5 -7.6V to -8.4V
- TP6 -15V to -16.5V
- TP7 -42.5V to -52.5V.

### B. Monitoring

3.02 To monitor the announcements of the 13A Announcement System, proceed as follows:

- (1) Connect the handset to the HANDSET jack (see Fig. 1) on the front of the shelf assembly.
- (2) At desired channel to be monitored, operate CHANNEL ACCESS switch to ACCESS posi-

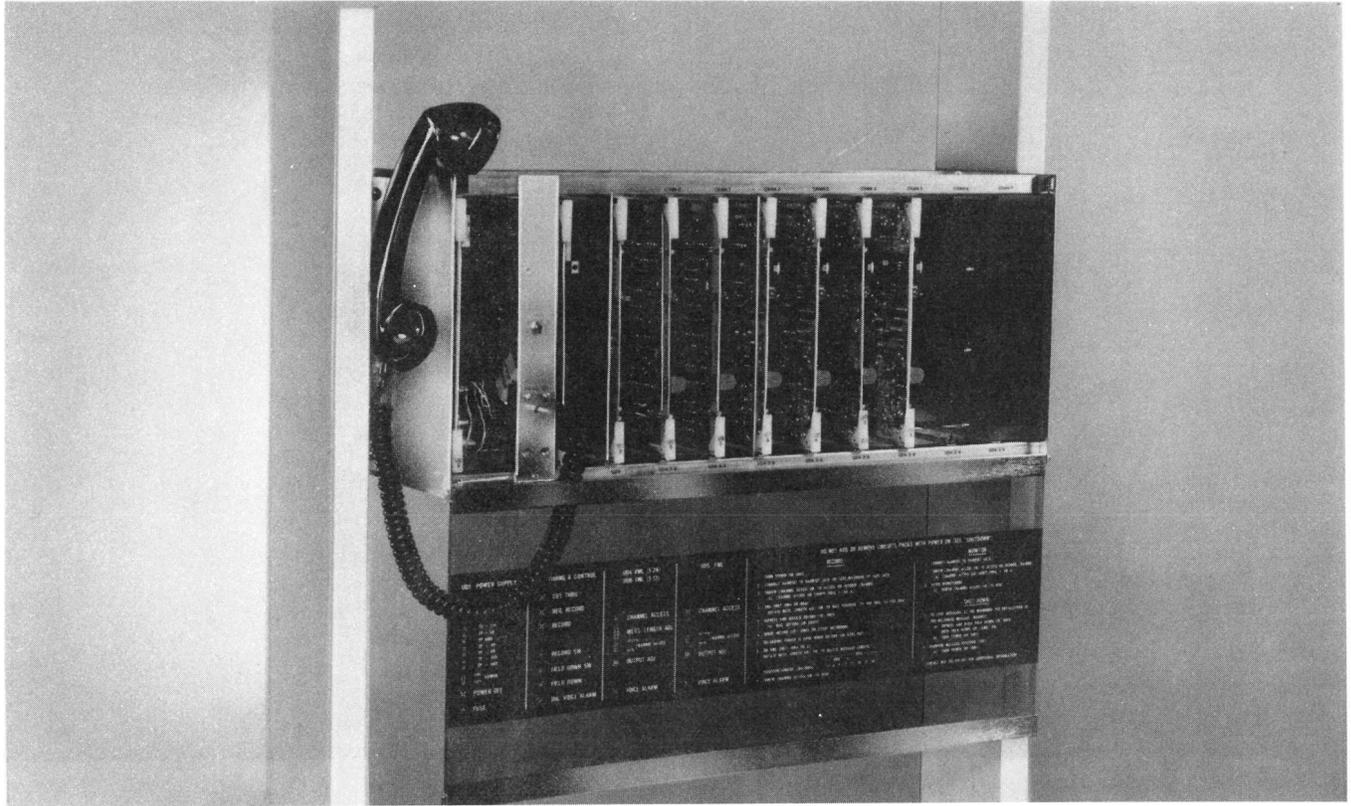


Fig. 1—13A Announcement System (With a Handset Connected)

tion. CHANNEL ACCESS LED lights immediately.

**Note:** Within 3 seconds (cut-through period), the recorded announcement can be heard in handset.

(3) If new message is to be recorded, proceed to paragraph 3.03. If monitoring is completed, operate CHANNEL ACCESS switch to NORMAL position.

(4) Remove handset from HANDSET jack.

### C. Recording

**3.03** Recording announcements can be accomplished using either of two methods. The two methods are: locally using handset and locally using TAPE jack (see Fig. 2).

#### For Locally Using Handset Only

(1) At UD1, if not operated, operate POWER switch to ON position. POWER OFF LED extinguished.

(2) At the front of the shelf assembly, connect handset to HANDSET jack.

(3) At the desired channel for recording, operate CHANNEL ACCESS switch to ACCESS position. CHANNEL ACCESS LED lights. ♦It is possible to make identical recordings simultaneously on multiple channels by operating the CHANNEL ACCESS switches of the desired channels to the ACCESS position. This can be useful in clearing a digital voice alarm.♦

(4) If the desired channel to be recorded is a variable message length (VML) message module, adjust MESSAGE LENGTH ADJ switch to maxi-

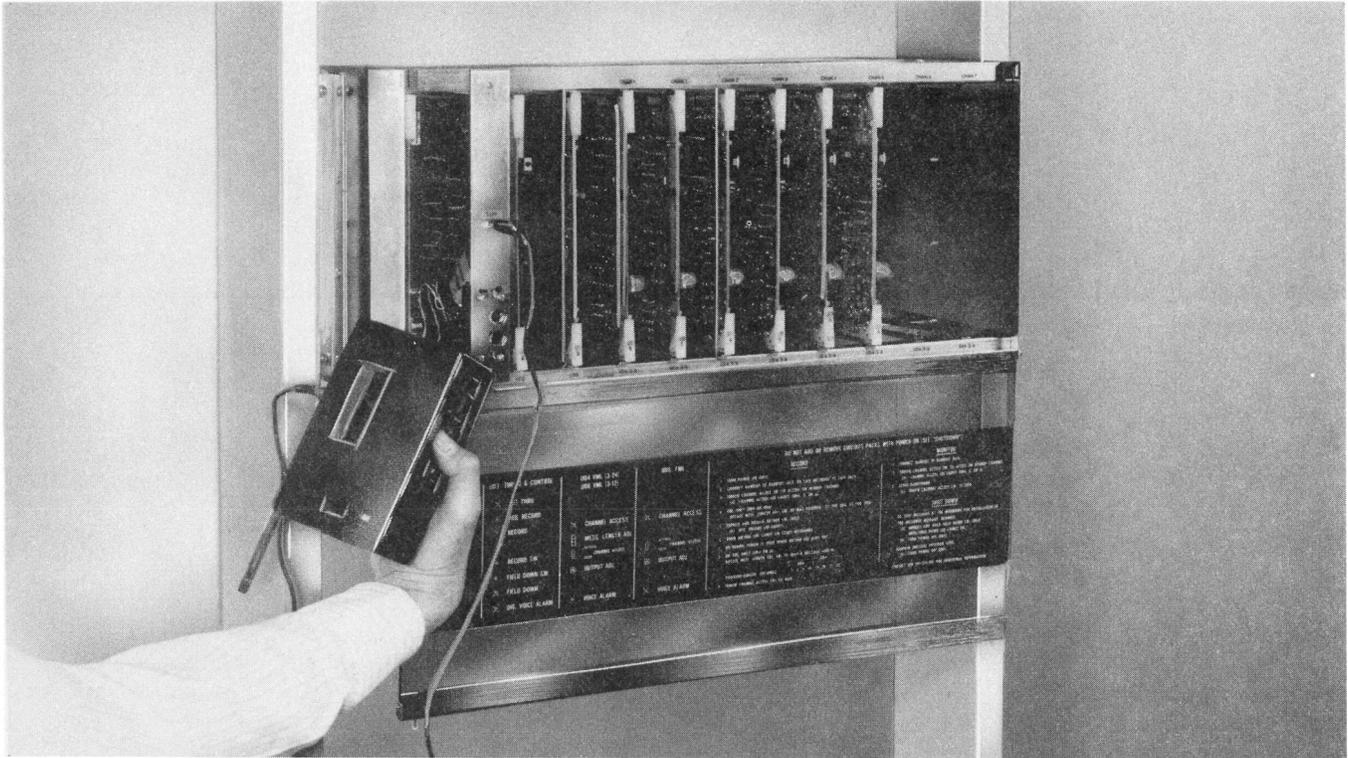


Fig. 2—13A Announcement System (With a Tape Recorder Connected)

imum message length (UD4—24 seconds; UD6—12 seconds).

**NOTE:** When the 13A Announcement System is used in a No. 2/2B ESS Office, all channels must be set to the 12-seconds message length.]

(5) At UD3 or UD3B timing and control circuit pack, operate and release RECORD switch. REQUEST RECORD (red) LED lights immediately. When the RECORD (green) LED lights, the recording process should be started and continued until RECORD LED is extinguished.

(6) If announcement was recorded on a VML message module (UD4 or UD6), adjust MESSAGE LENGTH ADJ switch to encompass length of recording.

**Note:** When message length is adjusted properly, there will be a minimum amount of silence between the end of the announcement and the beginning.

(7) Operate CHANNEL ACCESS switch to NORMAL position. CHANNEL ACCESS LED extinguishes.

(8) Remove handset from HANDSET jack.

#### For Locally Using Tape Jack Only

The procedures to follow when recording locally, using the TAPE jack, is the same as using a handset. A tape recorder is connected to the TAPE jack with a patching cord.

**Note:** Do not connect the handset when recording from a tape recorder. Undesirable background noise will be recorded.

#### D. Shutdown

**3.04** The procedure to follow when removing power is as follows:

(1) Notify the network administration personnel and receive approval for shutdown of the 13A Announcement System.

**Caution: Power shutdown of the 13A Announcement System will cause loss of all announcements.**

- (2) At UD3 or  $\blacklozenge$ UD3B $\blacklozenge$  timing and control circuit pack, operate and hold FIELD DOWN switch until FIELD DOWN LED lights.
- (3) Release FIELD DOWN switch.
- (4) At UD1 power supply circuit pack, operate POWER switch to OFF position. POWER OFF LED lights.

**Note:** The procedure listed above should be used if prerecorded message modules are to be added or moved to another 13A Announcement System. However, in an emergency, the POWER switch can be turned off directly.

#### 4. TESTING PROCEDURES

**4.01** Since the 13A Announcement System is completely electronic, the only testing procedure required is setting the output level.

**4.02** The output levels should be in agreement with local policies. When output levels cannot be properly adjusted, recording a new message should be tried before replacement of the message module circuit pack.

**4.03** The preferred method of adjusting the output level is to record a 1000-Hz tone at -10 dBm and measure the output using a 21A TMS. An alternate method is to use a VU meter and measure the recorded audio output.

**4.04** The output level can be measured at T1 and R1 output pins on the backplane for each channel per Table A or at the HANDSET jack at the front of the shelf assembly. However, the measured output at the HANDSET jack will be  $\blacklozenge$ approximately 10 dBm $\blacklozenge$  lower than the measured output at the T1 and R1 output pins.

**4.05** The procedures to follow when monitoring the output level of the 13A Announcement System are as follows:

- (1) After notifying the proper network administration personnel, connect the power cord of the 21A TMS to the 115 vac power supply.

**Note:** If there is an associated test clip, connect the test clip to building ground.

TABLE A

CHANNEL AND PIN NOS. ON BACKPLANE

CHANNEL	PIN NOS. ON BACKPLANE	
	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

- (2) Operate the 115V60~ power circuit switch to the ON position.

**Note:** A sufficient warm up period (at least 10 minutes) is required for proper operation.

- (3) Operate the DET INPUT switch to minimum clockwise position setting (-60) or to the position nearest the expected value, if known.
- (4) Using the  $\blacklozenge$ 4P18C $\blacklozenge$  testing cord, connect the HANDSET jack to the DET IN 600 $\Omega$  jack of the 21A TMS.
- (5) At the 13A Announcement System, operate the CHANNEL ACCESS switch of the channel to be measured to the ACCESS position. The CHANNEL ACCESS LED lights.
- (6) Reposition DET INPUT switch to allow for accurate measurements.
- (7) Using the 3-inch C screwdriver, adjust the OUTPUT LEVEL potentiometer for the proper output level.
- (8) If requirements cannot be met, rerecord announcement and repeat adjustment procedure.

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- (9) If requirements still are not met, replace message module circuit pack, rerecord announcement, and repeat adjustment procedure.

**Note:** Before removal or replacement of any circuit packs, power must be removed from the 13A Announcement System.

- (10) After requirements have been met, operate CHANNEL ACCESS switch to NORMAL.
- (11) If other channels are to be monitored, repeat Steps 5 through 10 for other channels.
- (12) If no other channels are to be monitored, disconnect 21A TMS and notify the proper network administration personnel that testing is complete.

### 5. TROUBLE ANALYSIS

- 5.01 The indicators located along the front edge of circuit packs and identified on the inside of

the front door can serve as diagnostics for troubleshooting. See Table B for an explanation of each indicator.

5.02 The problems listed in Table C are the most common and the procedures that are listed can be used to locate the main causes and correct the problems (Fig. 3 through 6).

5.03 A major cause of a digital voice alarm (DVA), especially in systems just powered up for the first time (or in systems where a message module has just been replaced) is message modules out of synchronization with each other. This condition can remain even after new recordings are made on the channels, since the UD3 or UD3B circuit pack tries to resynchronize once per minute.

5.04 To synchronize all channels together, record a dummy message on all channels simultaneously, then go back to each channel individually and record the desired message. This procedure is detailed starting with Step 5 in Fig. 6.

◆ TABLE B ◆

## VISUAL INDICATIONS, LED COLOR, AND FUNCTIONS

VISUAL INDICATIONS	LED COLOR	FUNCTIONS
POWER OFF	RED	<ul style="list-style-type: none"> <li>• -48 Vdc switch off.</li> <li>• Blown fuse.</li> </ul>
CURRENT LIMIT	RED	<ul style="list-style-type: none"> <li>• Over current drain on -48 Vdc.</li> <li>• High voltage either +15 Vdc or +5 Vdc.</li> </ul>
REQUEST RECORD	RED	<ul style="list-style-type: none"> <li>• Acknowledgment of request to record.</li> </ul>
RECORD	GREEN	<ul style="list-style-type: none"> <li>• Common circuit packs are in record mode.</li> </ul>
FIELD DOWN	RED	<ul style="list-style-type: none"> <li>• Rotating field drive for magnetic bubble memory package is turned off.</li> </ul>
DIGITAL VOICE ALARM	RED	<ul style="list-style-type: none"> <li>• Error in stored digital information either: 1) no match signal. 2) extra match signal from a message module.</li> </ul>
CHANNEL ACCESS	GREEN	<ul style="list-style-type: none"> <li>• Indicates a channel is accessed to the common bus on the back plane: <ol style="list-style-type: none"> <li>1) Supplies audio to the HANDSET jack.</li> <li>2) Receives audio from HANDSET jack or TAPE jack.</li> <li>3) Accepts signals &amp; audio for record.</li> <li>4) Inhibits match signal to UD3 or UD3B.</li> </ol> </li> </ul>
FML CUT THROUGH	GREEN	<ul style="list-style-type: none"> <li>• Indicates a 12-second period and a 3-second cut-through.</li> <li>• Lights for 3-seconds and is in sync with FML message modules (UD5).</li> </ul>
VOICE ALARM	RED	<ul style="list-style-type: none"> <li>• Indicates that the audio output for the channel is in the alarm condition</li> </ul>

♦ TABLE C ♦  
 SYMPTOMS, PROBABLE CAUSE, CHECK AND CORRECTION

SYMPTOMS	PROBABLE CAUSE	CHECK	CORRECTION
No Audio (All channels: no CHANNEL ACCESS LEDS LIGHTED WHEN CHANNEL HAS been accessed).	No Power	Fuse (UD1)	Procedure 1 (Fig. 3)
		CURRENT LIMITED LED	Procedure 2 (Fig. 4)
		POWER OFF switch	Operate to ON position
		Check test points (UD1) for correct voltages.	If not correct, replace faulty UD1 circuit pack.
No Audio (All Channels)	No Power		Same as above (No Audio)
	Fields Down	FIELD DOWN LED	Procedure 3 (Fig. 5)
	Bad Encoder		Replace UD2 circuit pack*
	Bad Control		Replace UD3/UD3B circuit pack*
	Bad Handset		Replace handset
No Audio (One Channel)	Bad Channel	Try recording	If recording fails, substitute faulty message module circuit pack with a known good and rerecord*
Can't Record (RECORD LED sequences but no play back)	Bad Channel	Attempt recording on other channels- If no channels playback, see "No Audio (All Channels)" If other channels playback, see "No Audio (One Channel)"	
Missing Signaling Closures (CT, STP/LIM, and/or MU but Audio is present)	Bad Channel	Substitute faulty message module circuit with a known good one.*	
	Bad Control	If no signaling is present on all channels- Replace UD3 or UD3B circuit pack*	
Voice Alarm(s)	No Audio		Same as "No Audio"
Voice Alarm, Digital Voice Alarm (Audio Present)	Bad Voice Alarm Circuit		Replace faulty message module circuit pack.*
Digital Voice Alarm, Voice Alarm (Audio Present)	Bad Channel	DIGITAL VOICE ALARM LED	Procedure 4 (Fig. 6)

\* Before removal or replacement of any circuit packs, power must be removed from the 13A Announcement System. See procedures for "shutdown."

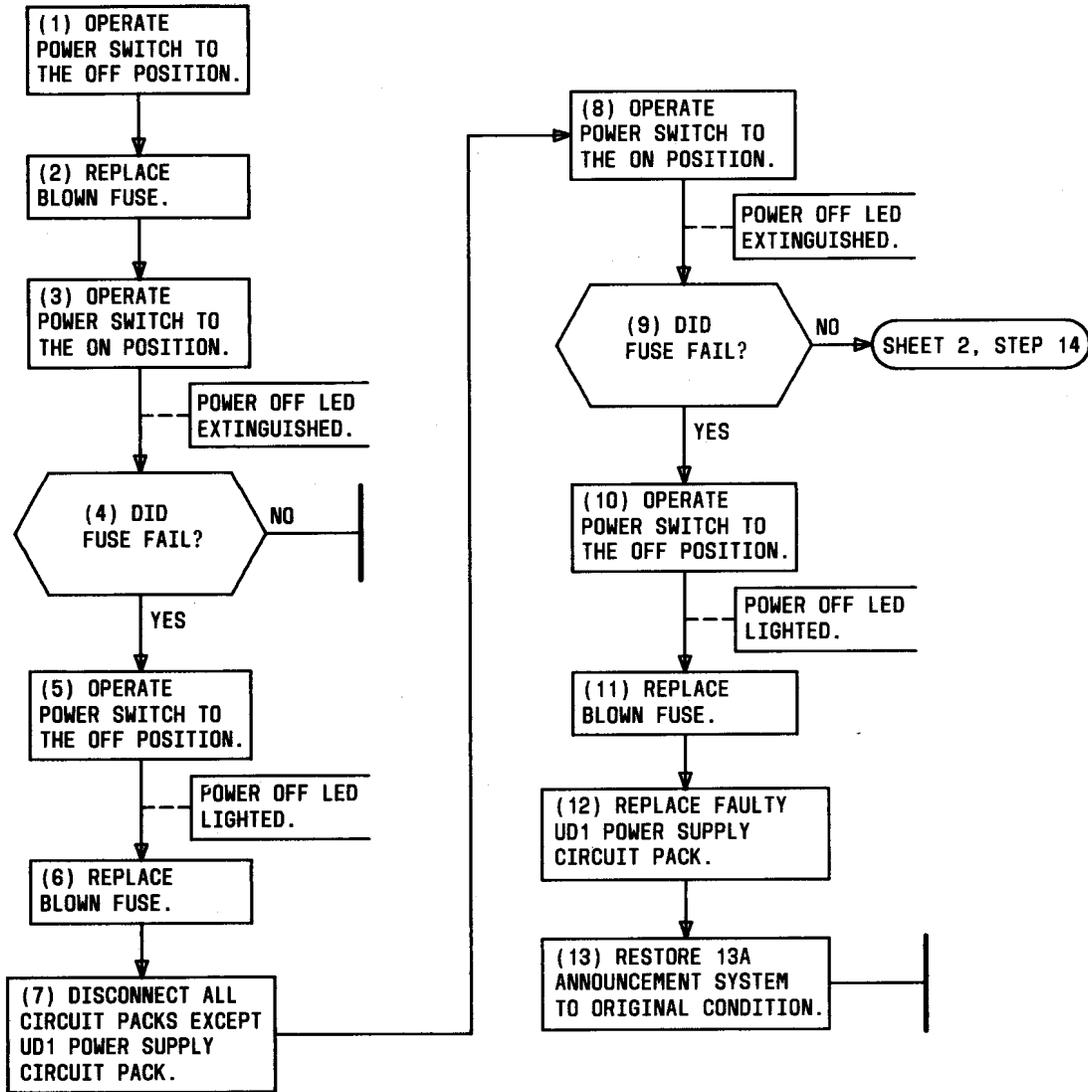


Fig. 3—Procedure 1 (Blown Fuse) (Sheet 1 of 2)

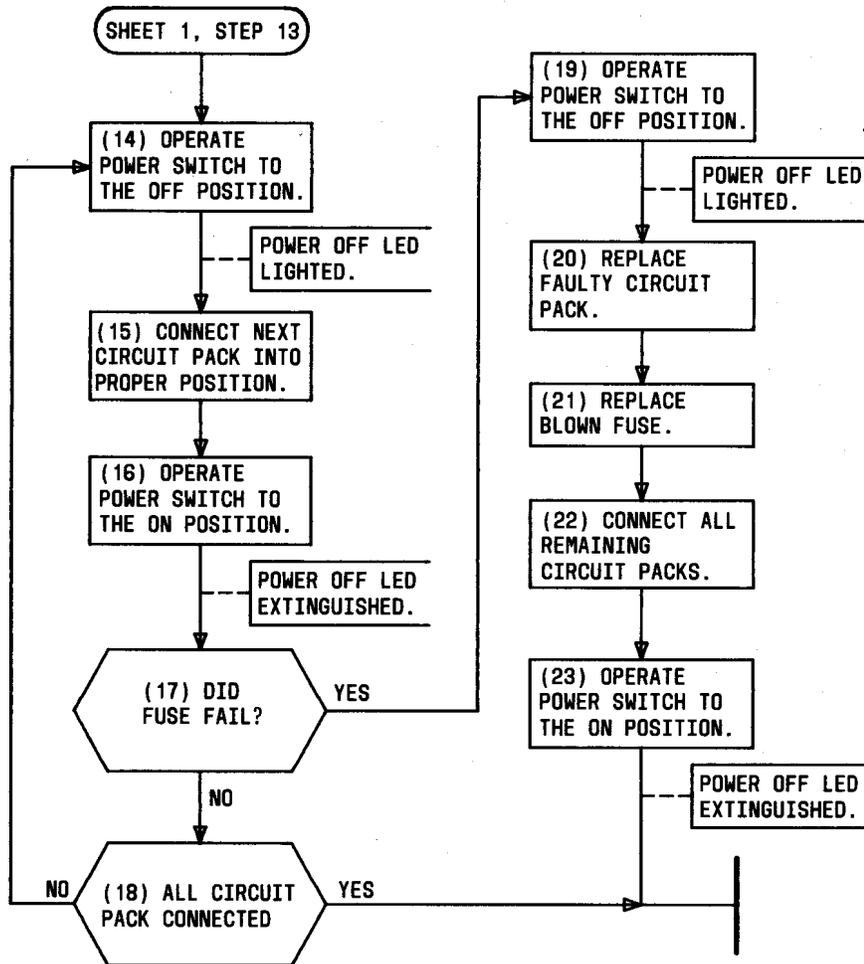


Fig. 3—Procedure 1 (Blown Fuse) (Sheet 2 of 2)

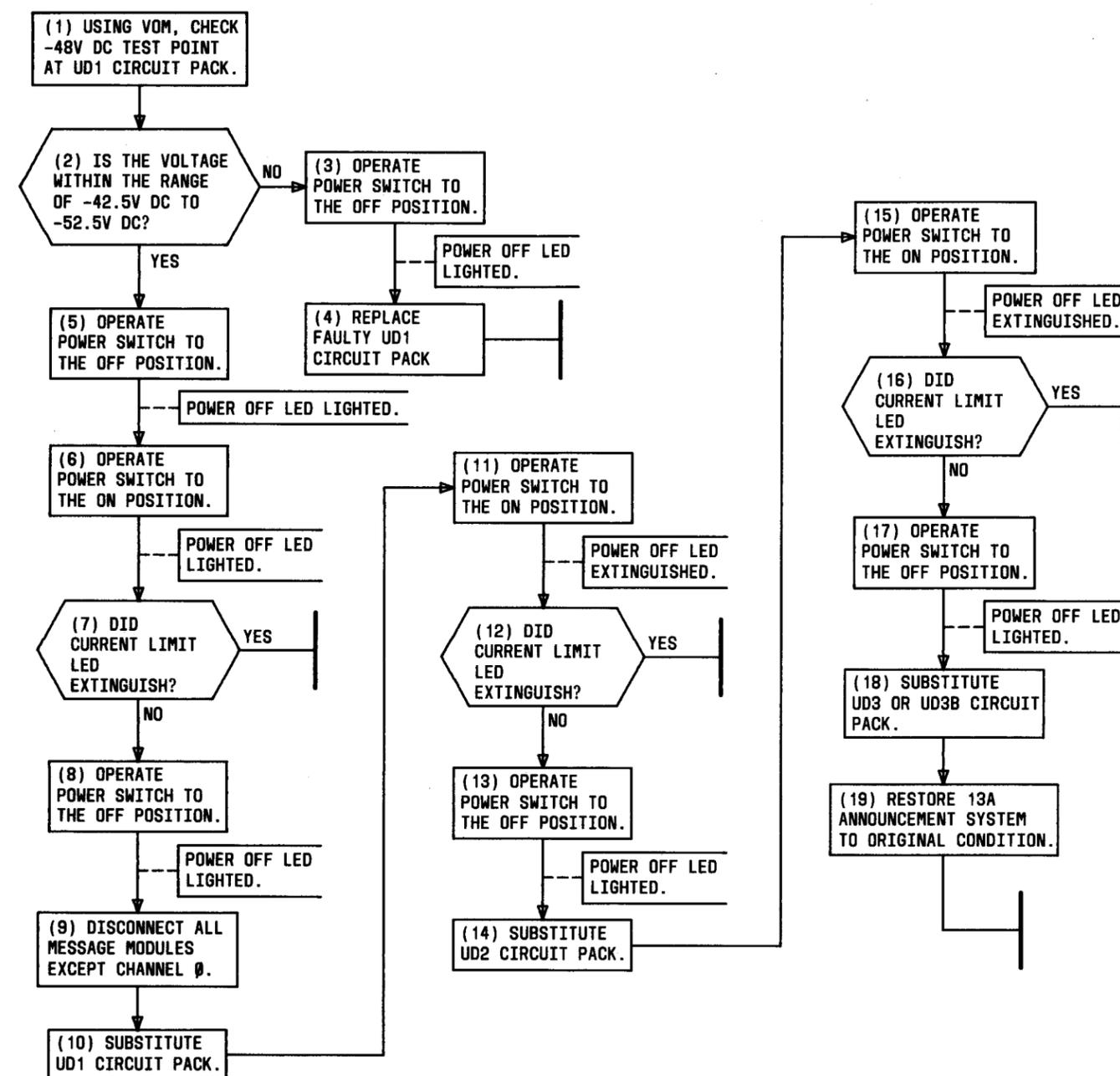


Fig. 4—Procedure 2 (Current Limit LED)

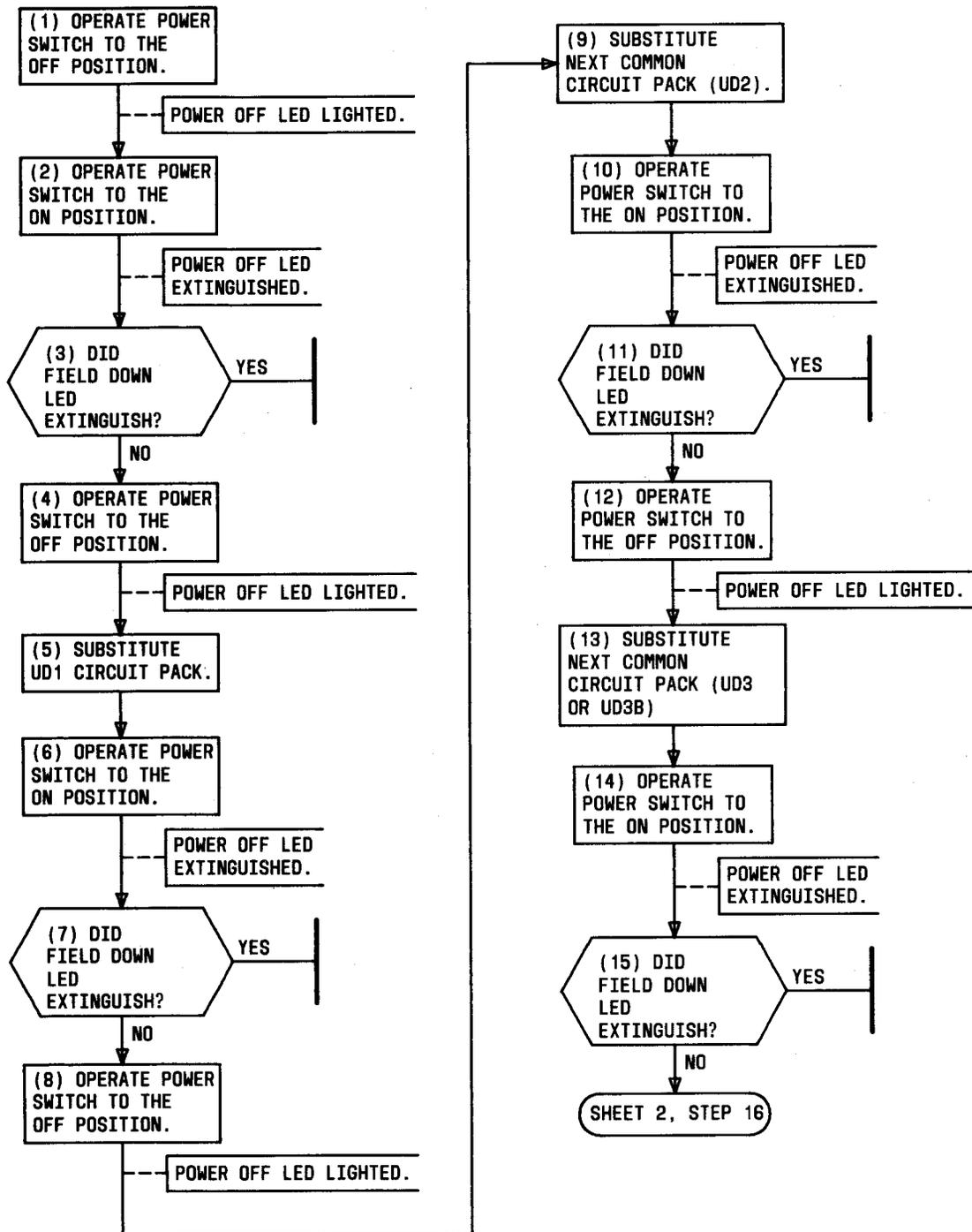


Fig. 5—Procedure 3 (Field Down LED) (Sheet 1 of 2)

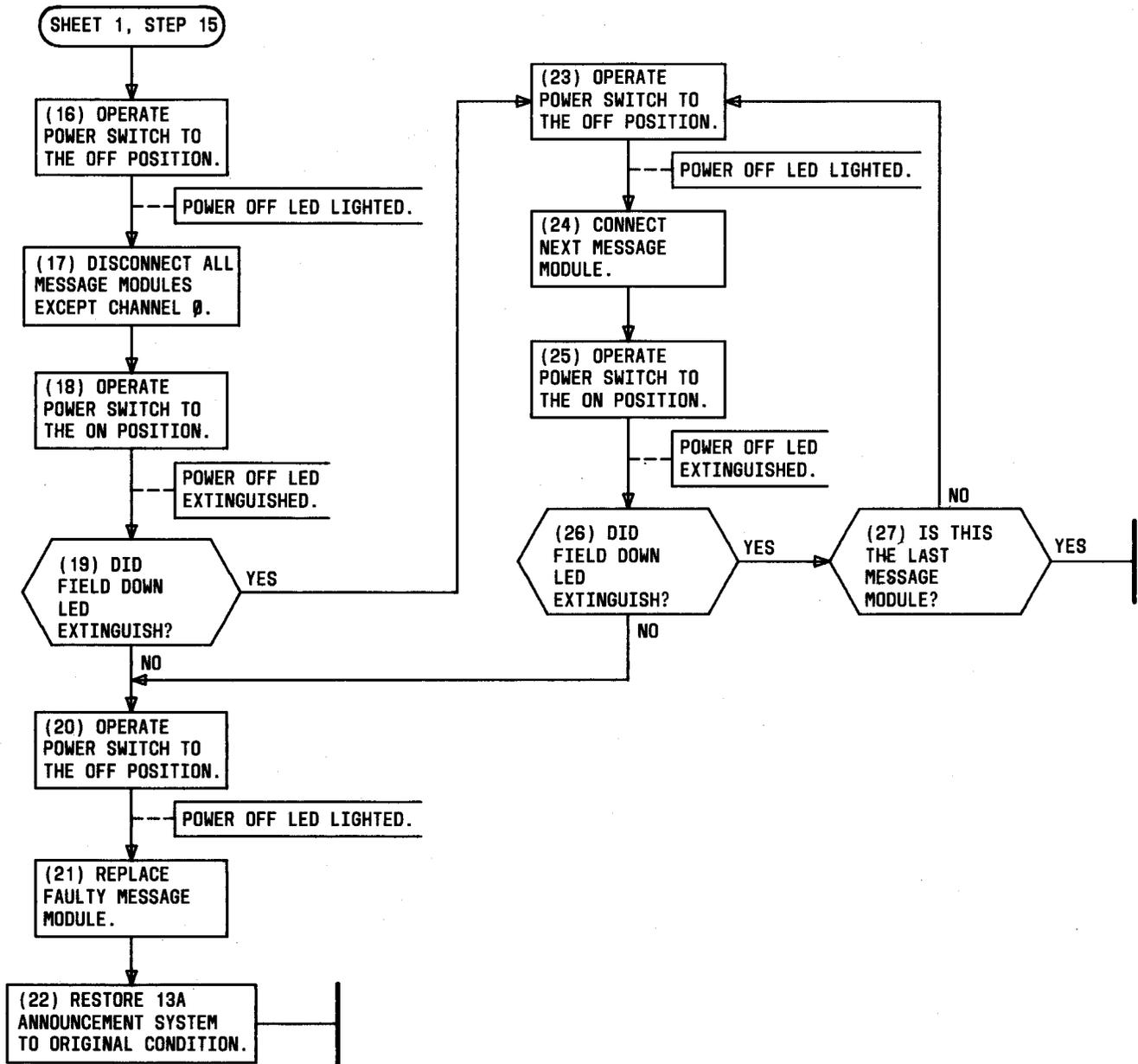


Fig. 5—Procedure 3 (Field Down LED) (Sheet 2 of 2)

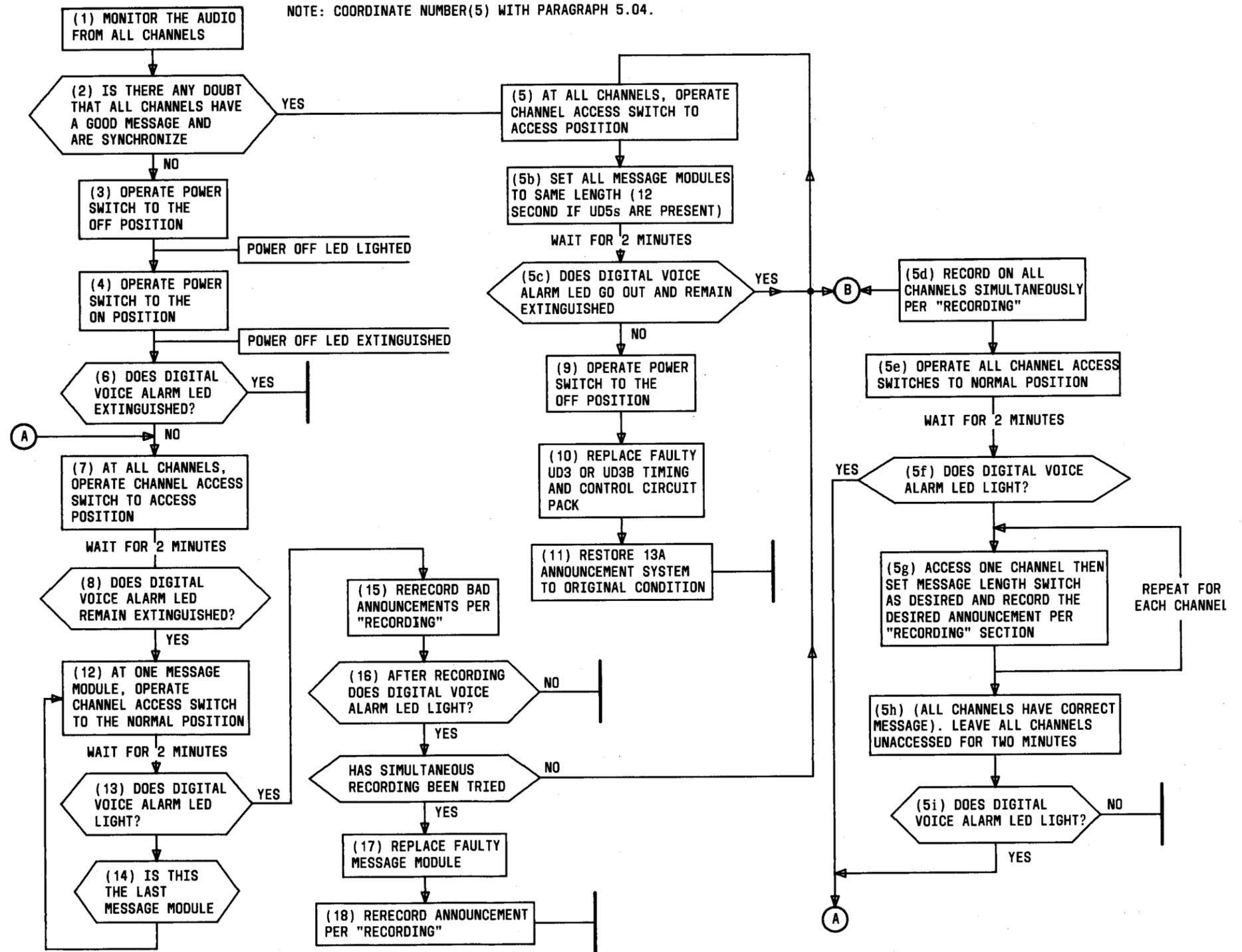


Fig. 6—Procedure 4 (Digital Voice Alarm LED)