

## SECTION VII

### TROUBLESHOOTING

CONTENTS	PAGE
1. GENERAL .....	1
2. ALARM INDICATIONS .....	1
3. IMPROPER PERFORMANCE (NO ALARM) .....	1
4. FOREIGN EXCHANGE CHANNEL UNIT TESTING .....	13

#### Figures

1. Local Alarm Troubleshooting Chart ...	2
2. Remote Alarm Troubleshooting .....	8
3. B325 Channel Bank Power Distribution .....	9
4. VF and Signaling Troubleshooting Reference Diagram .....	15
5. 325FX01 Channel Unit Signaling Tests .....	19
6. 325FX02 Channel Unit Signaling Tests .....	21

#### Tables

A. Alarm Indication Analysis .....	10
B. Channel Unit Connector-Pin Designations .....	11

### 1. GENERAL

**1.01** This section provides information required to restore a faulty B325 channel bank to operational status. Data presented is oriented to replacing faulty common equipment units or channel units to effect repair. Backplane interconnection data is also provided as reference material.

**1.02** Since circuit level repair of the plug-in units requires a thorough knowledge of the B325 system and access to special test equipment and tools, field repair of these units is *not recommended*.

*Note:* Attempts to repair a plug-in unit in the field could cause further damage and result in causing the warranty to be void. A copy of the warranty is included in the front of this technical manual.

### 2. ALARM INDICATIONS

**2.01** If an office alarm occurs, check alarm and power unit (325AP01) indicators for cause of alarm. If the LOC light is on, perform procedures of Fig. 1. If the REM light is on, perform procedures of Fig. 2. If the LOC and REM lights are both off, replace alarm and power unit. A power distribution diagram is provided in Fig. 3, which may be used when isolating units that cause power supply overload or fuse separation. Table A provides a list of probable malfunctioned common equipment units after looped indication analysis.

### 3. IMPROPER PERFORMANCE (NO ALARM)

**3.01** Component failures that do not create alarm indications are evidenced by excessive channel noise, interchannel crosstalk, distortion, hook signaling problems, or inoperative channels. Service interruption from these types of problems can be held to a minimum by performing the periodic alignment tests of Section VI on a timely schedule. This will allow detection of a problem area, before it becomes service-affecting. Comparison of past and present alignment records also provides insight into possible future problem areas, possible environmental anomalies, etc.

**3.02** If procedures of Section VI are performed and a faulty component still cannot be isolated, notify Lynch Customer Service. Table B is a reference list of all channel unit connections. Figure 4 is a VF and Signaling Troubleshooting Reference Diagram.

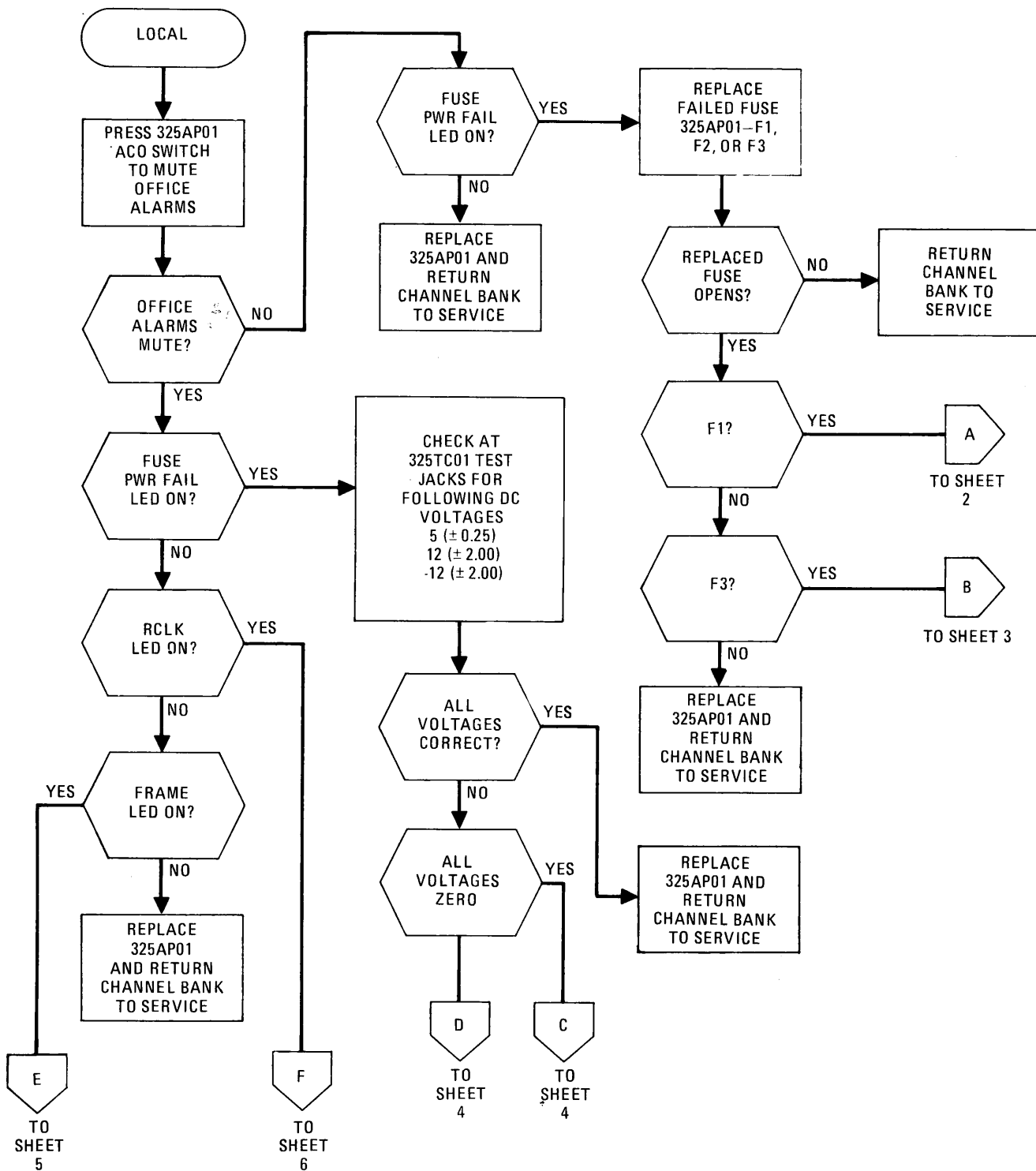


Fig. 1—Local Alarm Troubleshooting Chart (Sheet 1 of 6)

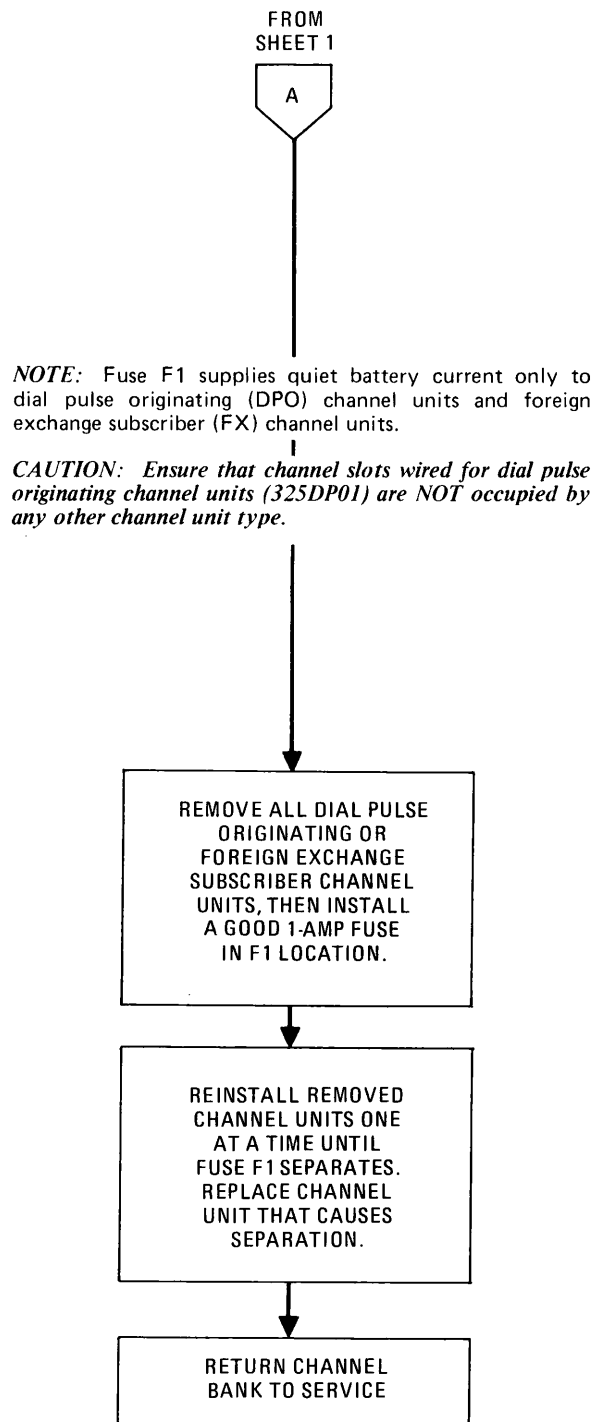


Fig. 1—Local Alarm Troubleshooting Chart (Sheet 2 of 6)

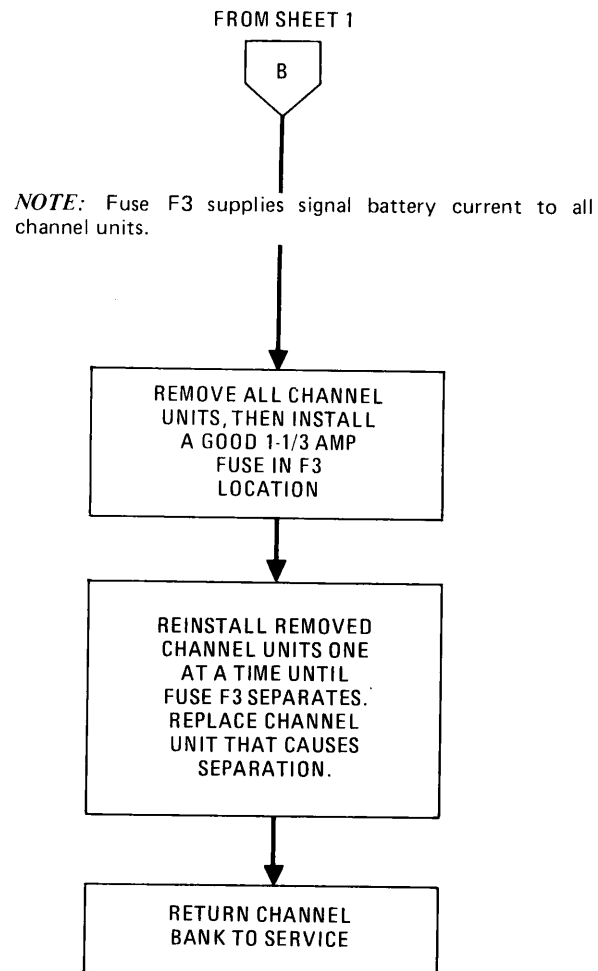


Fig. 1—Local Alarm Troubleshooting Chart (Sheet 3 of 6)

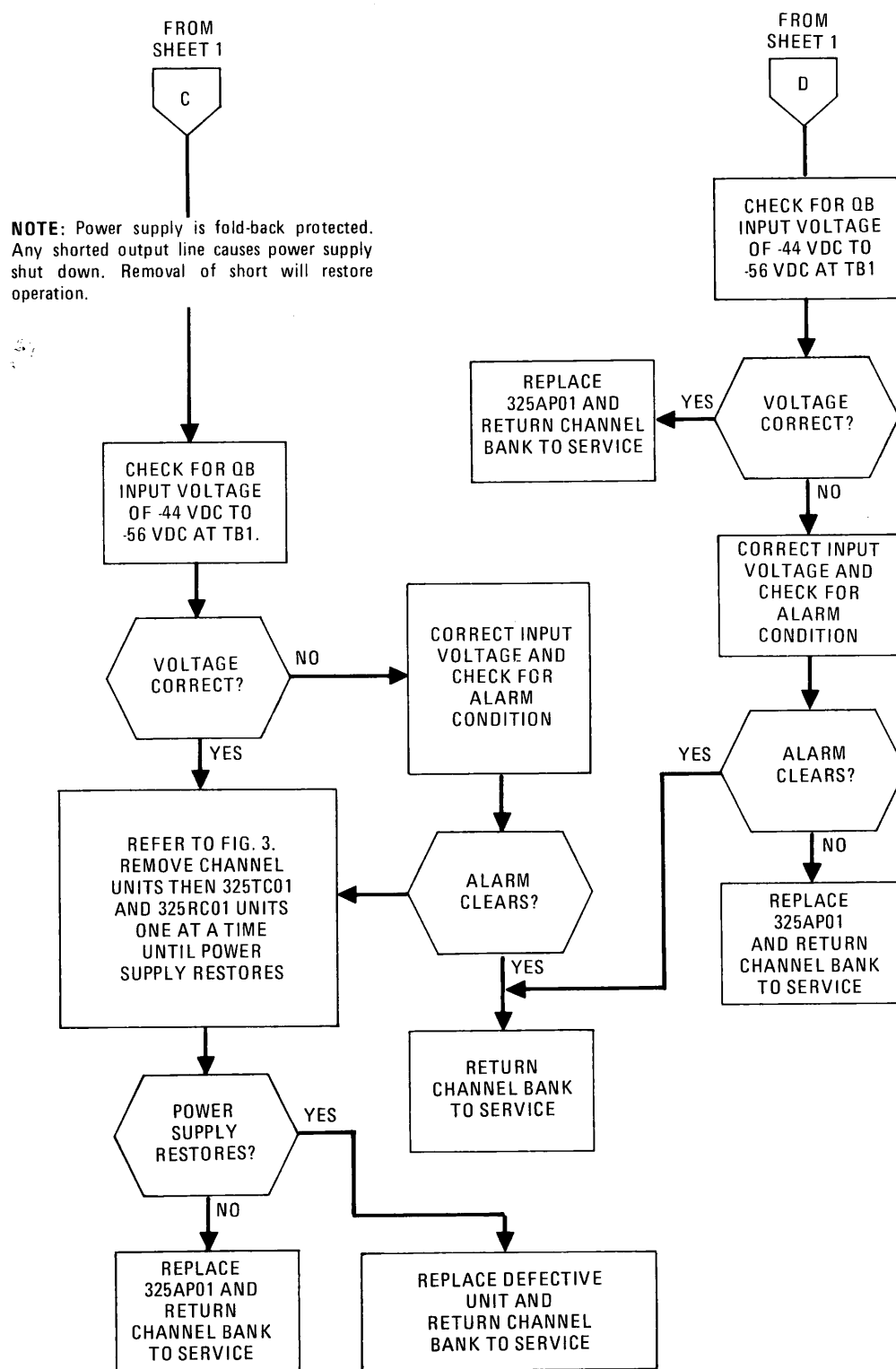


Fig. 1—Local Alarm Troubleshooting Chart (Sheet 4 of 6)

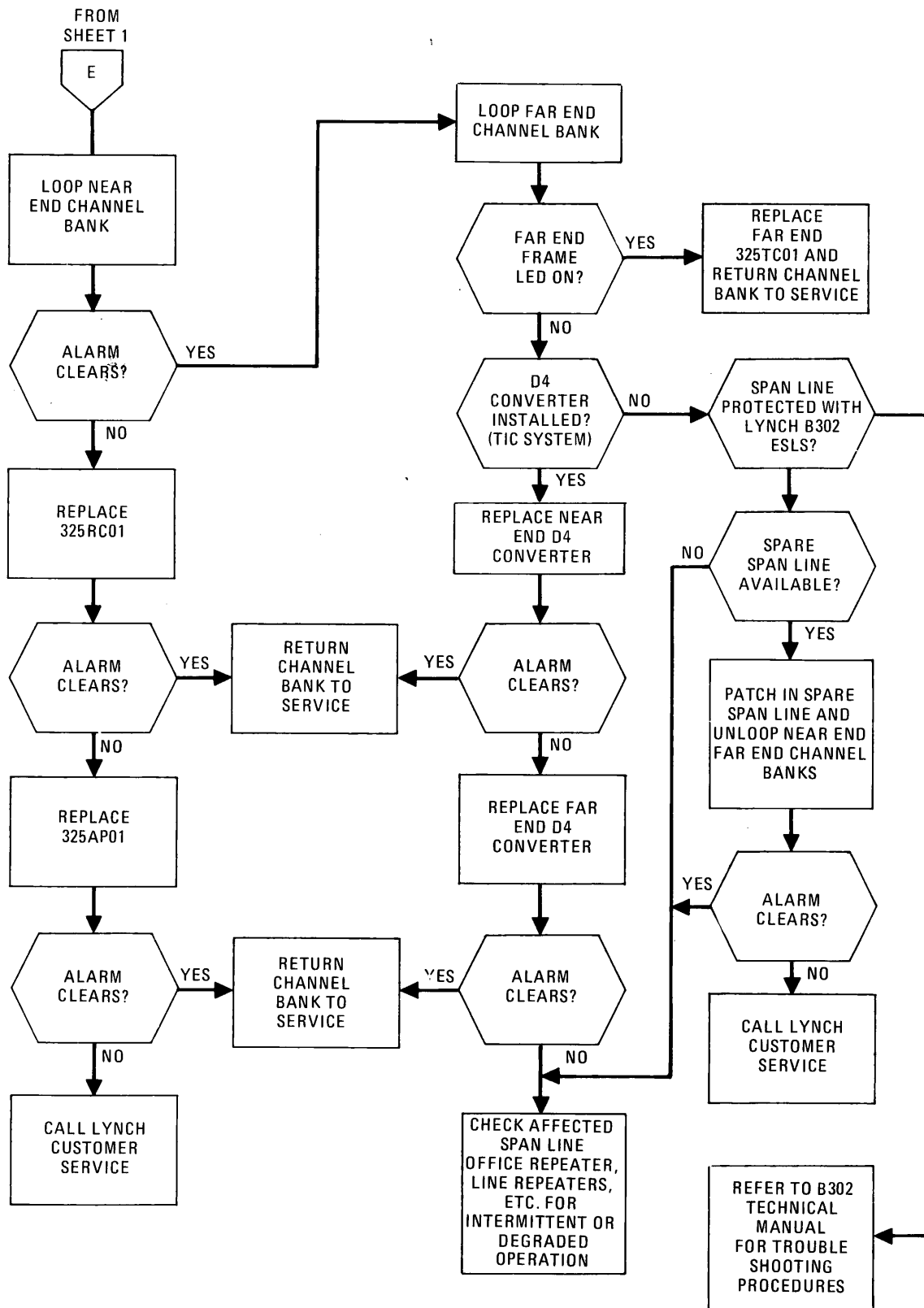


Fig. 1—Local Alarm Troubleshooting Chart (Sheet 5 of 6)



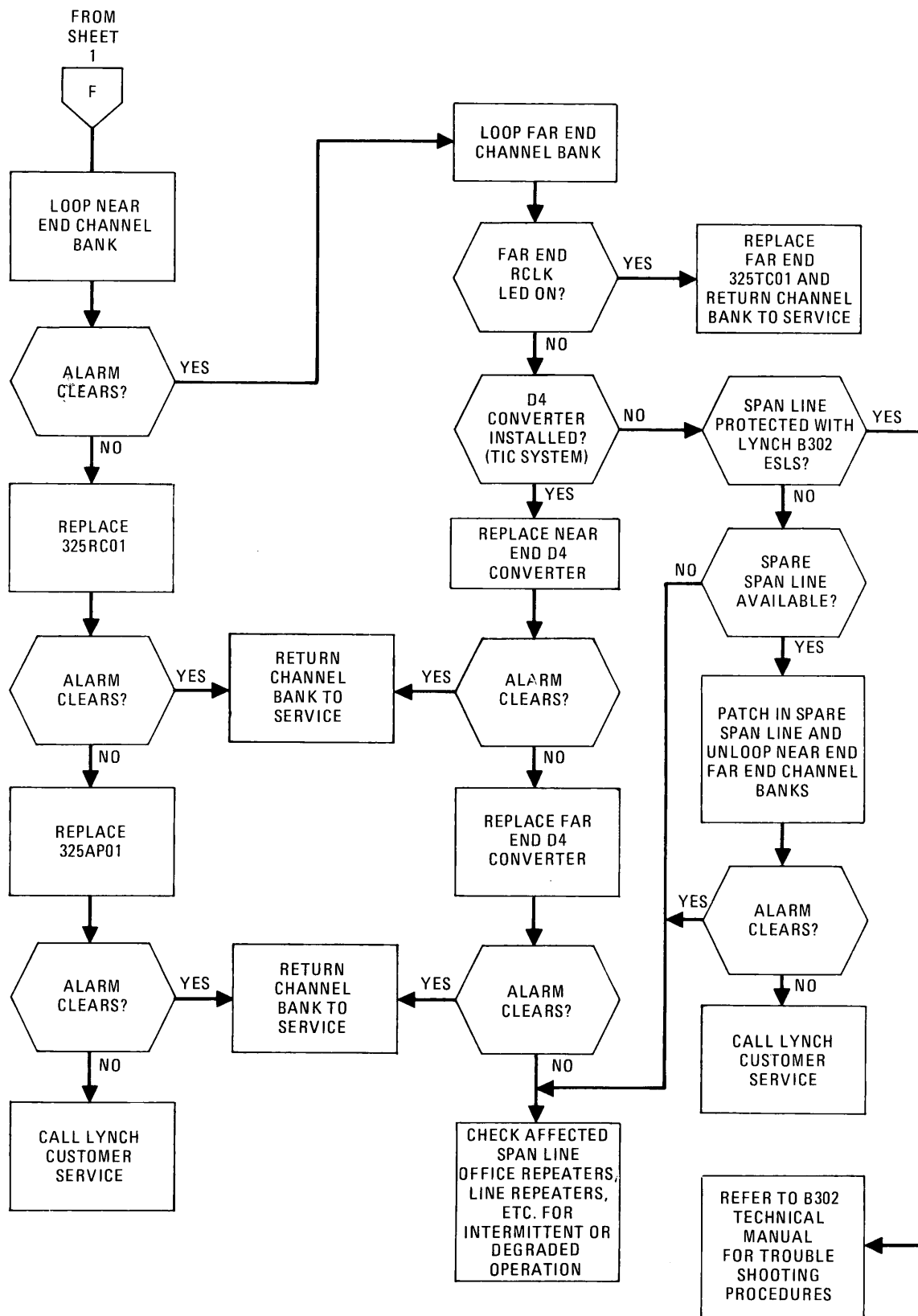


Fig. 1—Local Alarm Troubleshooting Chart (Sheet 6 of 6)

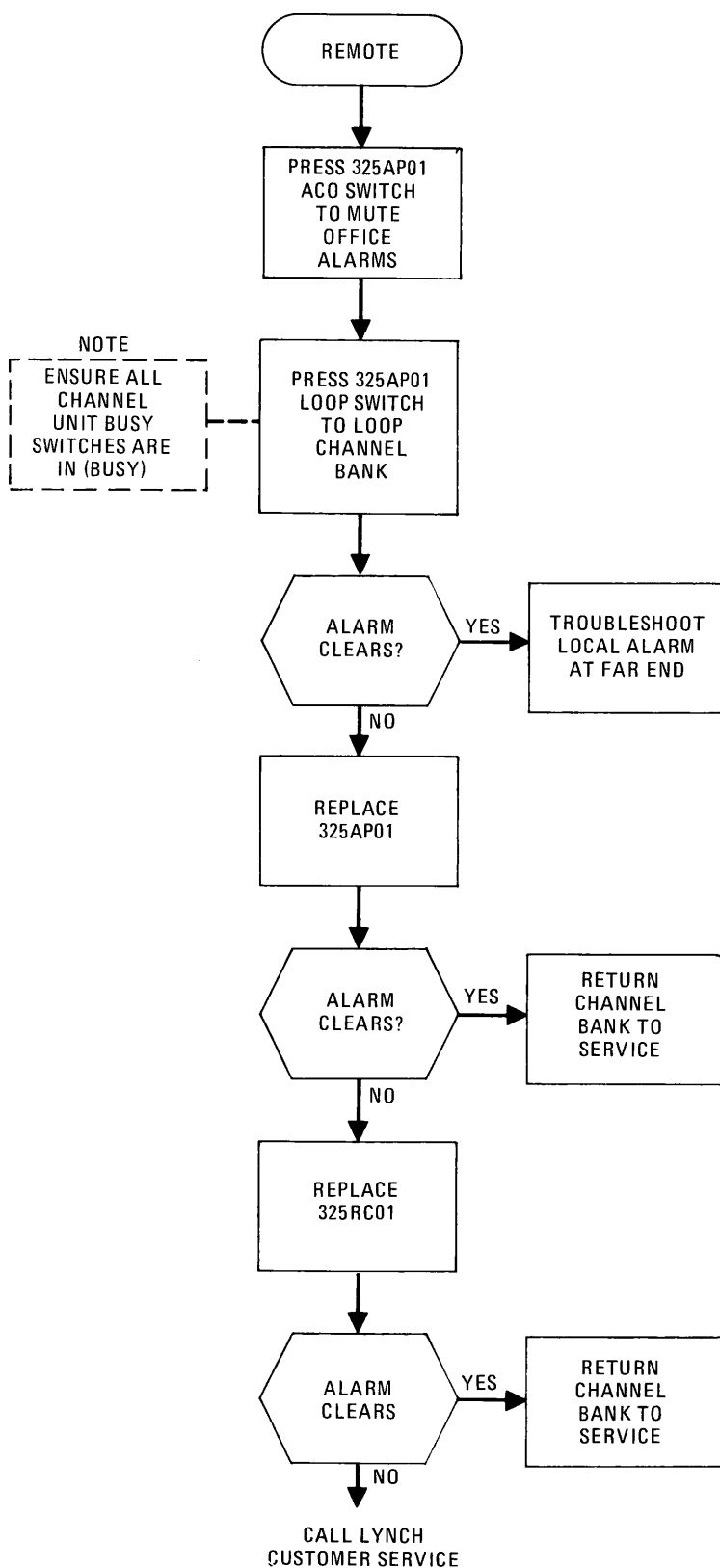
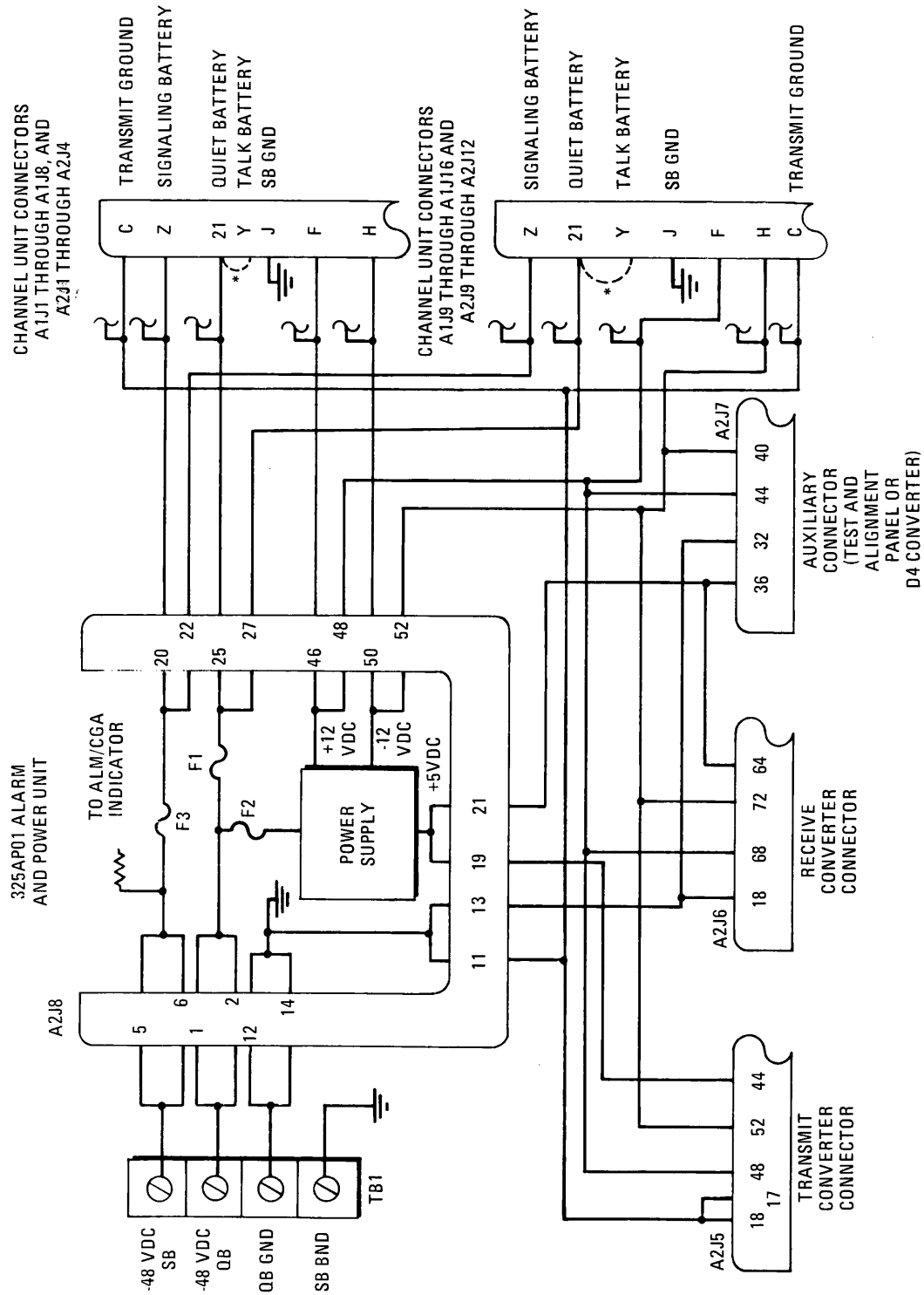


Fig. 2—Remote Alarm Troubleshooting



**\*JUMPER WIRE INSTALLED ONLY FOR INSTALLATION OF 325DP01 UNITS.**

**Fig. 3—B325 Channel Bank Power Distribution**

**TABLE A**  
**ALARM INDICATION ANALYSIS**

INITIAL ALARMS		LOOP ACTION	ALARMS AFTER ACTION		PROBABLE CAUSE
Near End	Far End		Near End	Far End	
LOC (Fuse Pwr Fail)	REM	None	—	—	Near end short or defective power supply.
LOC (RCLK)	REM	Loop both ends	LOC (RCLK)	CLEAR	Near end 325RC01 or 325AP01.
			CLEAR	LOC (RCLK)	Far end 325TC01 or 325AP01.
			CLEAR	CLEAR	Span line.
LOC (RCLK)	LOC (RCLK)	Loop both ends	CLEAR	CLEAR	Span line.
LOC	REM	Loop both ends	CLEAR	LOCAL (FRAME)	Far end 325TC01.
			LOCAL (FRAME)	CLEAR	Near end 325RC01 or 325AP01.
			CLEAR	CLEAR	Cycling span line repeater.
REM	CLEAR	None	—	—	Near end 325AP01.
REM	LOC (Fuse Pwr Fail)	None	—	—	Far end short or defective power supply.
REM	LOC (RCLK)	Loop both ends	CLEAR	LOC (RCLK)	Far end 325RC01 or 325AP01.
			LOC (RCLK)	CLEAR	Near end 325TC01.
			CLEAR	CLEAR	Span line.
REM	LOC (FRAME)	Loop both ends	CLEAR	LOCAL (FRAME)	Far end 325RC01 or 325AP01.
			LOCAL (FRAME)	CLEAR	Near end 325TC01.
			CLEAR	CLEAR	Cycling span line repeater.

**TABLE B**  
**CHANNEL UNIT CONNECTOR-PIN DESIGNATIONS**

PIN NO.	DESCRIPTION	CHANNEL UNIT APPLICATION
A	Transmit Signaling to 325TC01 (Logic 1 or Logic 0)	All, except 325VF01
B	Transmit VF to 325TC01 (voice frequency)	All
C	Transmit Ground	All
D	Receive VF from 325RC01 (voice frequency)	All
E	Receive Ground	All
F	+12 Vdc Logic Supply	All
H	-12 Vdc Logic Supply	All
J	Signal Battery Ground	All
K	Receive Signaling from 325RC01 (Logic 1 or Logic 0)	All, except 325VF01
M	CGAS from 325AP01 (Normal = resistance ground, Alarm = -48 volts with 1 wink pulse)	325DP01 only
N	N1 Transformer Balance Winding	All, except 325EM01, 325VF01
P	N2 Transformer Balance Winding	All, except 325EM01, 325VF01
R	Tip 1	325EM01, 325VF01 only
	A-Lead	325EM02, 325EM03 only
	HS-Lead	325DP01 only
S	Ring 1	325EM01, 325VF01 only
	B-Lead	325EM02, 325EM03 only
	PC (Peg Count)	325DP01 only

**TABLE B (Cont)**  
**CHANNEL UNIT CONNECTOR-PIN DESIGNATIONS**

PIN NO.	DESCRIPTION	CHANNEL UNIT APPLICATION
T	Tip	All
U	Ring	All
V	OS/MB	325EM01, 325EM02, 325EM03 only
	S-Lead	325DP01 only
W	E-Lead	325EM01, 325EM02, 325EM03 only
	ATB-Lead	325DP01 only
X	CGAC from 325AP01 (Normal = resistance battery, Alarm = ground)	All
Y	M-Lead	325EM01, 325EM02, 325EM03 only
	-48V Talk Battery Supply (jumpered from Pin 21)	325DP01 only
Z	-48V Signaling Battery Supply	All
14	20 Hz Ground	325FX01 only
16	Transmit Signal Clock from 325TC01 (A&B signal frame switching)	325FX01, 325FX02 only
17	Receive Signal Clock from 325RC01 (A&B signal frame switching)	325FX01, 325FX02 only
21	-48V Talk Battery Supply	325FX01 only
22	-48V 20-Hz Ring Generator Supply	325FX01 only

#### **4. FOREIGN EXCHANGE CHANNEL UNIT TESTING**

**4.01** The 325FX01 and 325FX02 channel units are both supplied with a three-position toggle-type maintenance test switch (in addition to the BUSY switch), which may be used by the craftsman as an aid in isolating signaling malfunctions to a channel unit, common equipment unit or improper PBX/central office inputs. The switch is mounted towards the rear of the circuit board and is used with a channel unit extender (part of 325TK01 Test Kit) installed. A description of the three switch positions (NORMAL, IDLE, and BUSY) is provided in Section IV, Paragraph 5.11 of this manual. The channel unit BUSY switch must be in the NORMAL (out) position during testing.

**4.02** Channel unit signaling test procedures are constructed to provide two phases of testing. In the first phase channel unit signaling functions are idled and signaling inputs applied from the PBX (325FX01 channel unit) or central office (325FX02 channel unit). Channel unit response to these inputs is monitored with a voltmeter. In the second phase the channel unit is busied and the signaling outputs are checked at the PBX or central office.

*Note:* The channel unit test switch must be returned to the NORMAL (up) position after channel unit testing.

**4.03** Testing instructions for the 325FX01 channel unit are contained in Fig. 5. Testing instructions for the 325FX02 channel unit are contained in Fig. 6.





VF Paths

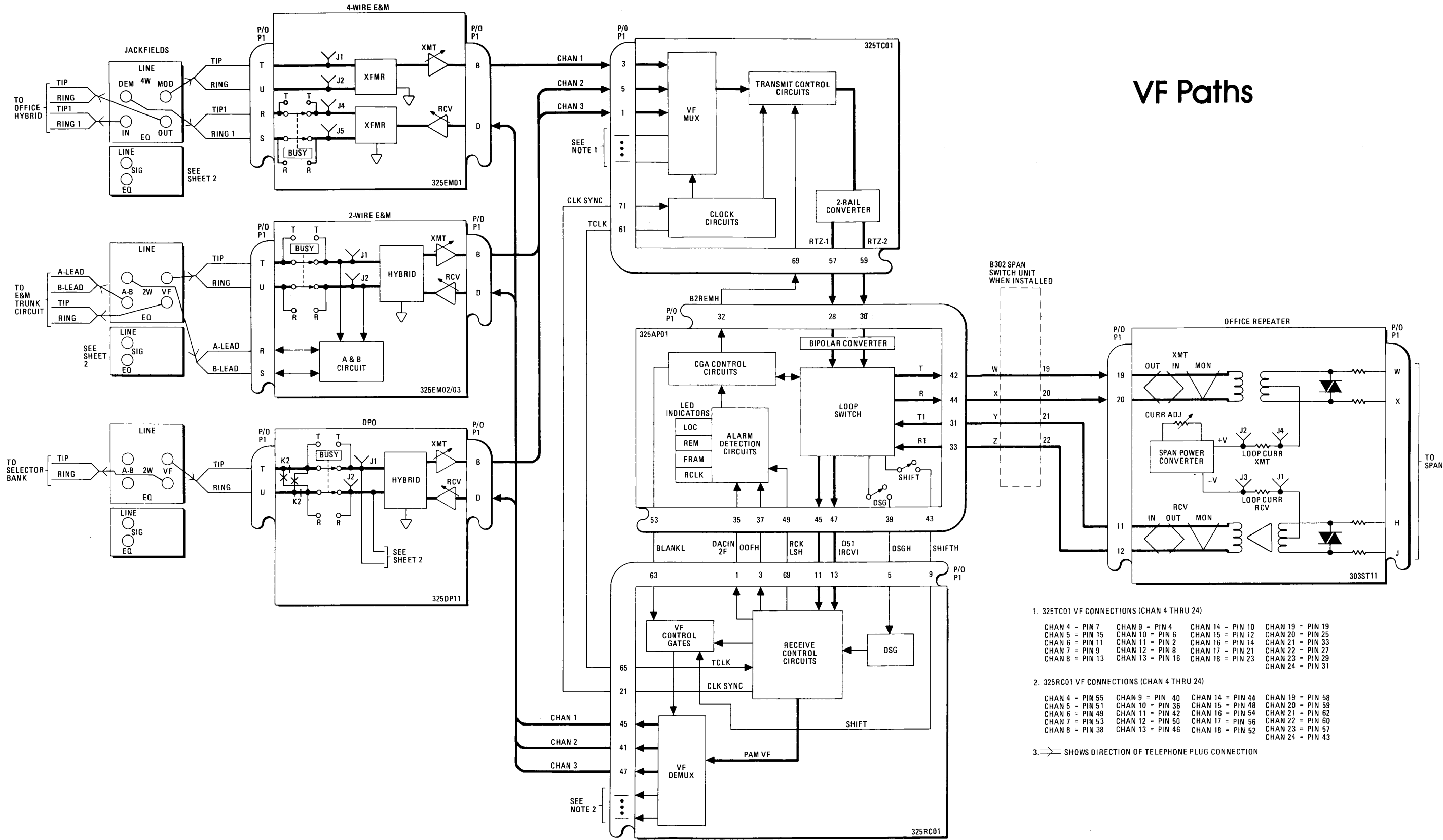
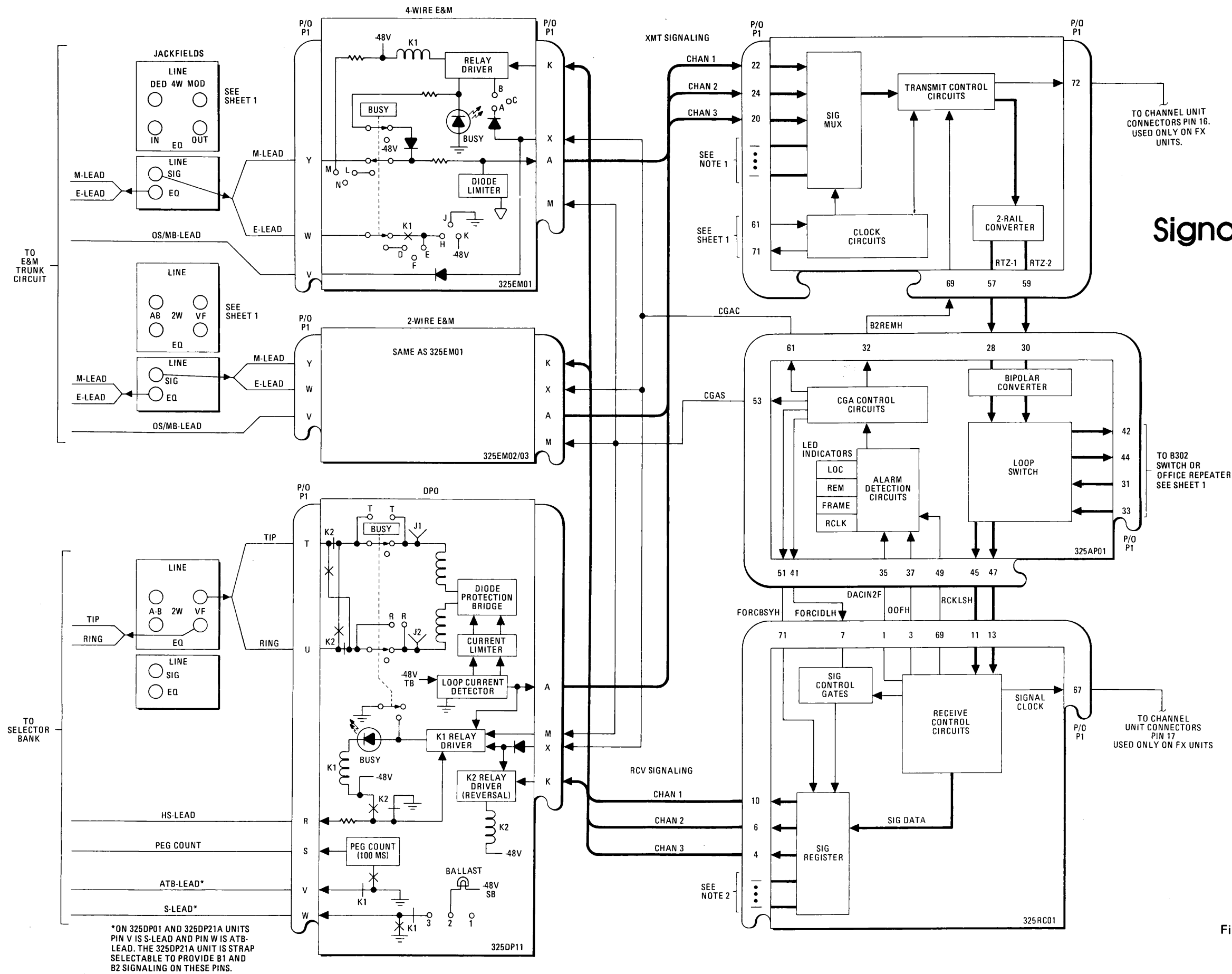


Fig. 4—VF and Signaling Troubleshooting  
Reference Diagram (Sheet 1of2)



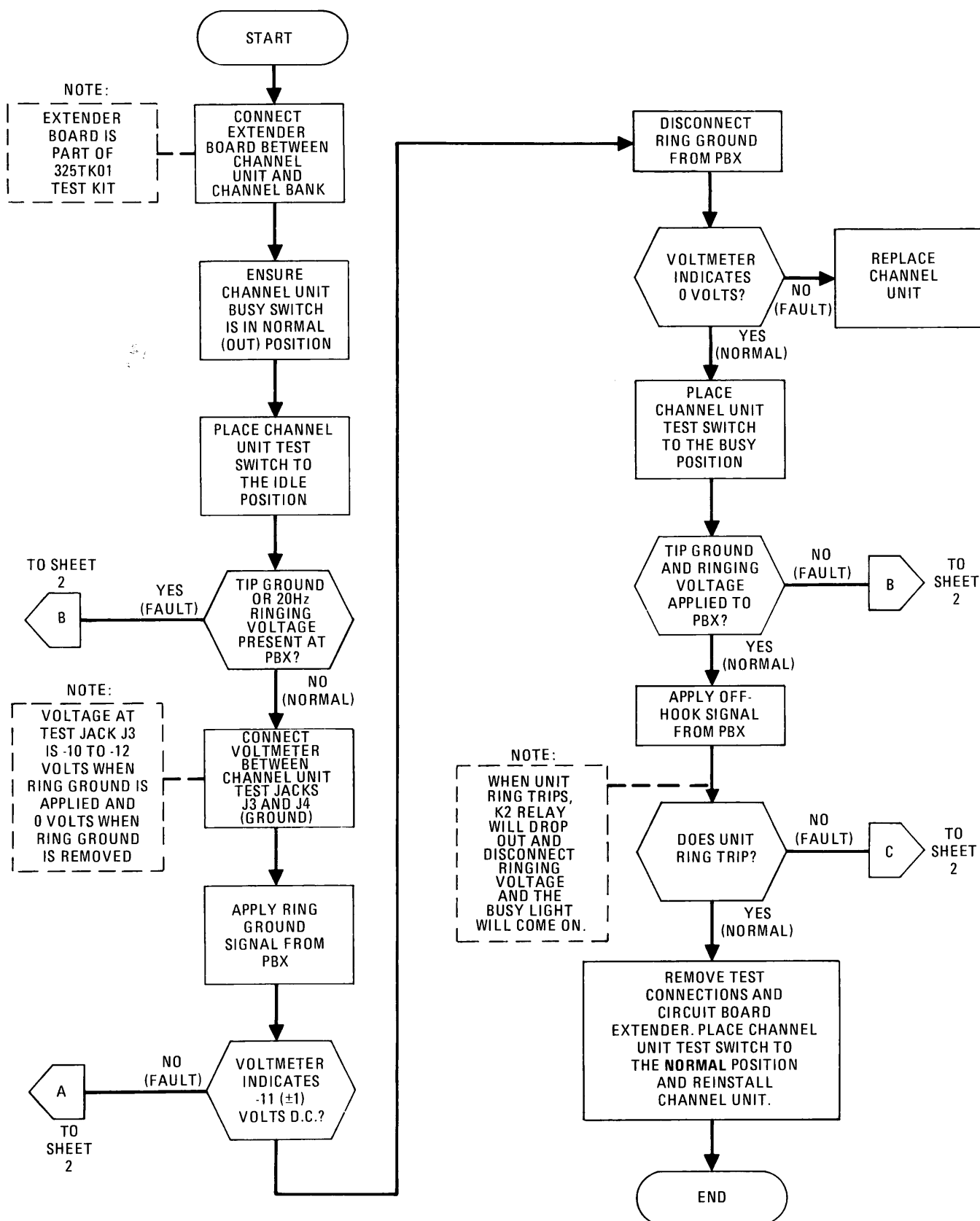


Fig. 5 – 325FX01 Channel Unit Signaling Tests (Sheet 1 of 2)

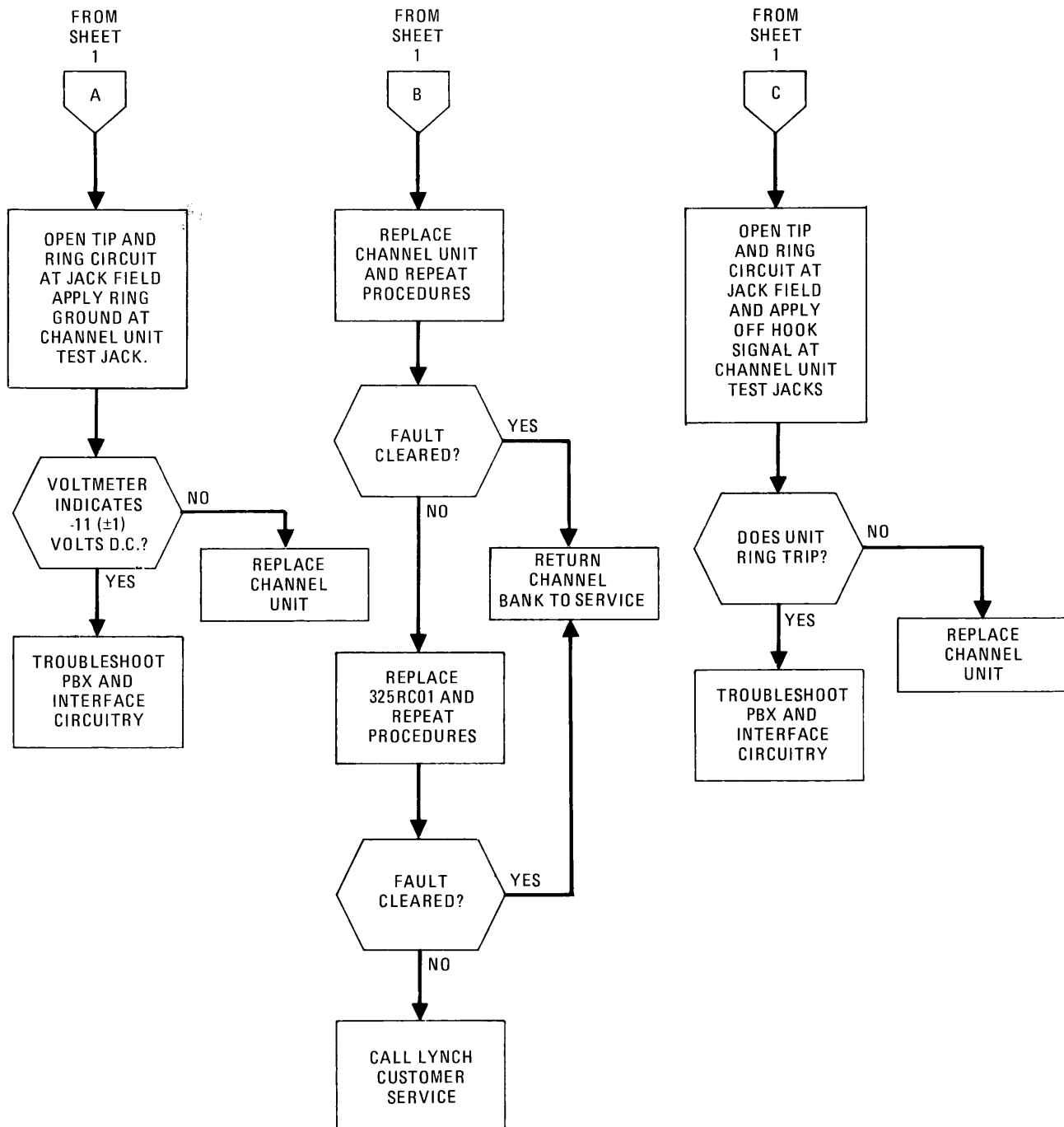


Fig. 5 – 325FX01 Channel Unit Signaling Tests (Sheet 2 of 2)

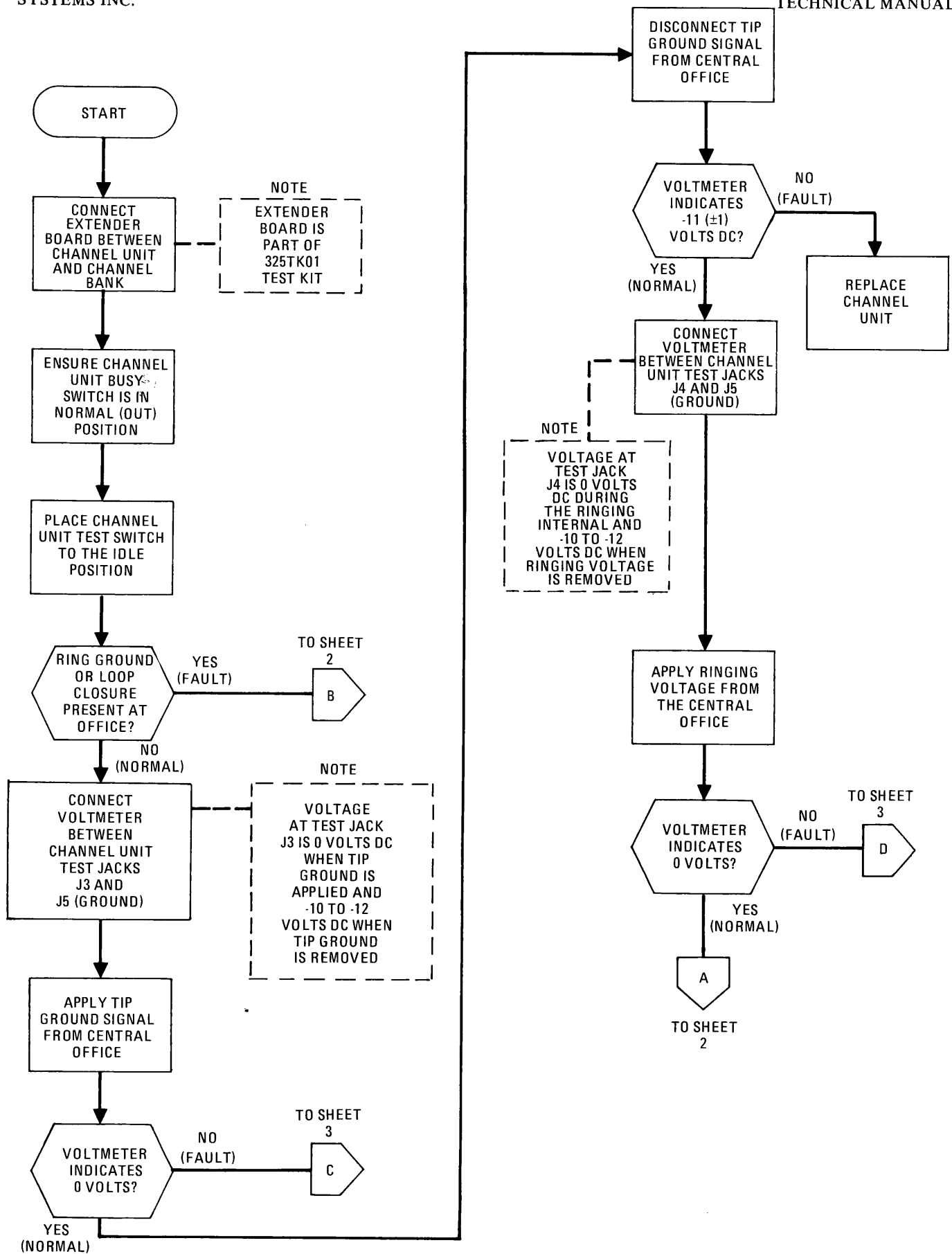


Fig. 6 — 325FX02 Channel Unit Signaling Tests (Sheet 1 of 3)

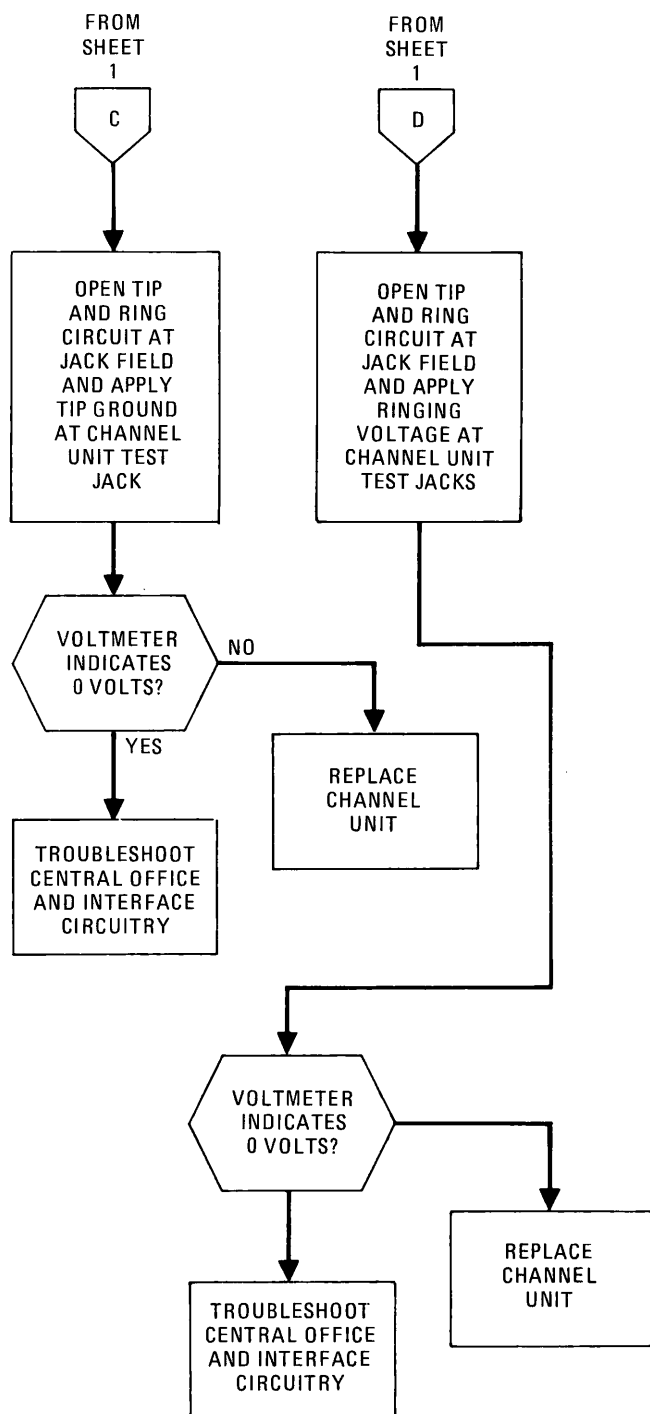


Fig. 6 – 325FX02 Channel Unit Signaling Tests (Sheet 2 of 3)

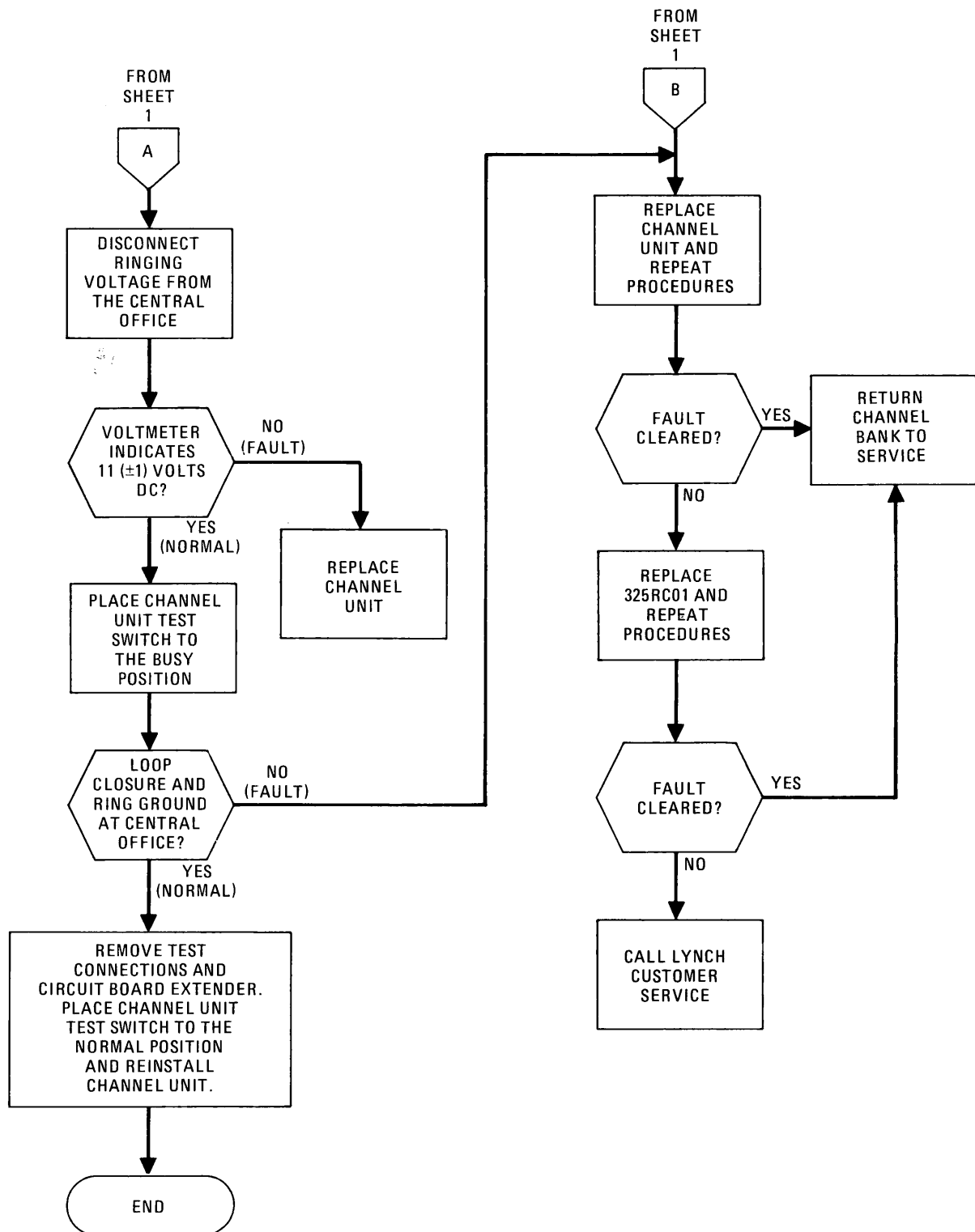


Fig. 6 — 325FX02 Channel Unit Signaling Tests (Sheet 3 of 3)

57