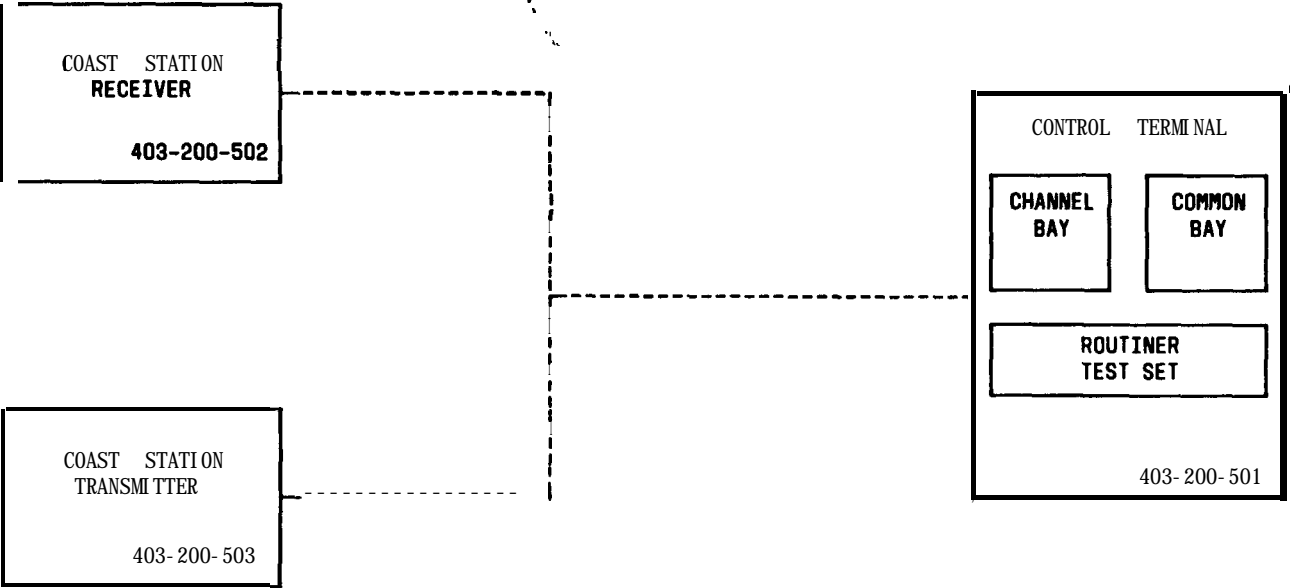


MM COASTAL HARBOR RADIO
TOP DOCUMENTATION
THREE VOLUMES



TPA 646574
BSP 403-200-501
OOC PLAN
40W X 26H

Task Oriented Practice
(TOP)

MM COASTAL HARBOR RADIO SYSTEM

CONTROL TERMINAL AND ROUTINER TEST SET

NOTE

Before using TOP for the first time, complete the TOP-USER Plant Training Course-PTC No. 278.

A short version of PTC No. 278 is in the back of this volume.

NOTICE

Not for use or disclosure outside the
Bell System except under written agreement

Printed in U.S.A

ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE
CHECKLIST		TAP-123		DLP-503		DLP-538					
RTL-001		TAD-124		DLP-504		DLP-539					
RTP-002		TAP-125		DLP-505		DLP-540					
RTP-003		TAP-126		DLP-506		DLP-541					
RTP-004		TAD-127		DLP-507		DLP-542					
RTP-005		TAD-128		DLP-508		DLP-543					
RTP-006		TAP-129		DLP-509		DLP-544					
RTP-007		TAD-130		DLP-510		DLP-545					
RTP-008		TAP-131		DLP-511		DLP-546					
ATL-030		TAP-132		DLP-512		DLP-547					
COL-050		TAP-133		DLP-513		DLP-548					
TIL-095		TAD-134		DLP-514		DLP-549					
TAD-100		TAP-135		DLP-515		DLP-550					
TAP-101		TAP-136		DLP-516		DLP-551					
TAD-102		TAD-137		DLP-517		DLP-552					
TAP-103		TAP-138		DLP-518		DLP-553					
TAD-104		TAD-139		DLP-519		DLP-554					
TAP-105		TAP-140		DLP-520		DLP-555					
TAD-106		TAP-141		DLP-521		DLP-556					
TAP-107		TAD-142		DLP-522		DLP-557					
TAD-108		TAP-143		DLP-523		DLP-558					
TAP-109		TAP-144		DLP-524		DLP-559					
TAD-110		TAP-145		DLP-525		DLP-560					
TAP-111		TAP-146		DLP-526		DLP-561					
TAP-112		TAD-147		DLP-527		IXL-890					
TAP-113		TAD-148		DLP-528							
TAP-114		TAD-149		DLP-529							
TAD-115		TAD-150		DLP-530							
TAP-116		TAP-151		DLP-531							
TAP-117		TAD-152		DLP-532							
TAD-118		TAP-153		DLP-533							
TAD-119		TAD-154		DLP-534							
TAD-120		DLP-500		DLP-535							
TAD-121		DLP-501		DLP-536							
TAP-122		DLP-502		DLP-537							

● REVISED OR ADDED ITEM

□ CANCELED ITEM

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CKL

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CHECKLIST

JOB NO.	ROUTINE TASKS	CLASS	FREQ	PROCEDURE NUMBER
	TEST CHANNEL BAY VOLTAGE REGULATOR CIRCUITS	MW	1M	RTP-002
	MEASURE DELAY TIME OF COMMON BAY TIMER TN-1	MW	3M	DLP-53 1
	MEASURE PULSE WIDTH OF STANDBY TRANSMITTER FREQUENCY SELECT CHANNEL BAY PULSES	MW	3M	DLP-532
	MEASURE PULSE WIDTH OF STANDBY TRANSMITTER FREQUENCY SELECT COMMON BAY PULSES	MW	3M	OLP-533
	MEASURE DELAY TIME OF CHANNEL BAY TIMER TH-1	MW	3M	DLP-534
	MEASURE DELAY TIME OF CHANNEL BAY TIMER TM-2	MW	3M	DLP-535
	MEASURE DELAY TIME OF CHANNEL BAY TIMER TR-3	MW	3M	DLP-536
	MEASURE DELAY TIME OF CHANNEL BAY RECEIVER SELECT TIMER	MW	1M	DLP-537
	MEASURE DELAY TIME OF CHANNEL BAY RECEIVER CODAN TIMER	MW	1M	DLP-538
	TEST CHANNEL BAY 1900-HZ, 2100-HZ, AND 2900-HZ TONE OSCILLATORS, SENDERS, AND MONITORS	MW	1M	RTP-003
	TEST CHANNEL BAY 600-HZ, 1000-HZ, AND 1500-HZ TONE OSCILLATORS AND TONE MONITORS	MW	1M	RTP-004
	TEST CHANNEL BAY VOGAD	MW	1M	DLP-539
	MEASURE TONE LEVEL LOSS TO AND FROM RECEIVER	MW	3M	RTP-005
	MEASURE TONE LEVEL LOSS TO AND FROM TRANSMITTER	MW	3M	RTP-006
	TEST RECEIVER RF LEVEL INDICATION AT CONTROL TERMINAL	MW	1M	OLP-540
	TEST RECEIVER ALARM INDICATIONS AT CONTROL TERMINAL	MW	1M	DLP-541
	TEST SAFETY AND CALLING TRANSMITTER OPERATION	MW	1M	DLP-542
	TEST ROUTINER TEST SET - RECEIVER FUNCTIONS (SELF CHECK)	MW	6M	DLP-543
	TEST ROUTINER TEST SET - TRANSMITTER FUNCTIONS (SELF CHECK)	MW	6M	DLP-544

**ROUTINE TASK LIST - COASTAL HARBOR RADIO SYSTEM -
CONTROL TERMINAL AND ROUTINER TEST SET**

JOB NO.	ROUTINE TASK	CLASS	FREQ	PROCEDURE NUMBER
	TEST ROUTINER TEST SET - CONTROL TERRINAL FUNCTIONS (SELF CHECKS)	MW	6M	DLP-545
	TEST CONTROL TERMINAL RECEIVER SIGNALING FUNCTIONS USING ROUTINER TEST SET	MW	3M	RTP-007
	TEST CONTROL TERRINAL TRANSMITTER SIGNALING FUNCTIONS USING ROUTINER TEST SET	MW	3M	RTP-008
	TEST EXCESSIVE STANDING WAVE RATIO ALARM INDICATION AT CONTROL TERMINAL	MW	1M	DLP-517
	TEST TRANSRITTER RF ALARM INDICATION AT CONTROL TERMINAL	MW	1M	DLP-518
	TEST TRANSMITTER TURNON FAILURE ALARM INDICATION AT CONTROL TERMINAL	MW	1M	DLP-518
	TEST TRANSMITTER EMERGENCY POWER ON INOICATION AT CONTROL TERMINAL	MW	1M	DLP-520
	TEST TRANSMITTER ALARMS A, B, AND C INDICATIONS AT CONTROL TERMINAL	MW	1M	DLP-521
	TEST STANDBY TRANSRITTER OPERATION USING STANDBY TRANSMITTER CONTROL CIRCUIT	MW	3M	DLP-522
	TEST STANDBY TRANSMITTER OPERATION WHEN PATCHED IN PLACE OF TRANSMITTER 1, 2, OR 3	MW	3M	DLP-523
	TEST REMOTE RECEIVERS USING TEST GENERATOR	MW	1M	DLP-561

**ROUTINE TASK LIST - COASTAL HARBOR RADIO SYSTEM -
CONTROL TERMINAL AND ROUTINER TEST SET**

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ITEM	SUGTASKS	PROCEDURE NUMBER
1	MEASURE -12 VOLT DC REGULATED OUTPUTS	DLP-500
2	MEASURE -24 VOLT DC REGULATED OUTPUTS	DLP-501
3	TEST -12 VOLT REGULATOR - RONITOR TRANSFER	DLP-502
4	TEST -24 VOLT REGULATOR - RONITOR TRANSFER	DLP-503

TEST CHANNEL BAY VOLTAGE REGULATOR CIRCUITS

ITEM	SUBTASKS	PROCEDURE NUMBER
1	REASURE FREQUENCY AND OUTPUT LEVEL OF CHANNEL BAY 1900-HZ, 2100-HZ, AND 2900-HZ TONE OSCILLATORS	DLP-504
2	TEST CHANNEL BAY 1900-HZ, 2100-HZ, AND 2900-HZ TONE MONITOR	DLP-505

TEST CHANNEL BAY 1900-HZ, 2100-HZ, AND 2900-HZ TONE OSCILLATORS, SENDERS, AND MONITORS

ITEM	SUBTASKS	PROCEDURE NUMBER
1	HEASUAE FREQUENCY AND OUTPUT LEVEL OF CHANNEL BAY 600-HZ, 1000-HZ, AND 1500-HZ TONE OSCILLATORS	DLP-506
2	TEST CHANNEL BAY 600-HZ, 1000-HZ, AND 1500-HZ TONE MONITOR	DLP-507

TEST CHANNEL BAY 600-HZ, 1000-HZ, AND 1500-HZ
TONE OSCILLATORS AND TONE MONITORS

ITEM	SUBTASKS	PROCEDURE NUMBER
1	REASURE RECEIVER TO CONTROL TERRINAL 1900-HZ , 2100-HZ , AND 2900-HZ SIGNALING TONE LEVELS	DLP-508
2	HEASURE OVERALL 1000-HZ LOSS IN RECEIVER PATH OF CONTROL TERRINAL	DLP-509
3	REASURE CONTROL TERRINAL TO RECEIVER 1000-HZ TONE LEVEL	DLP-510
4	MEASURE CONTROL TERMINAL TO RECEIVER 1900-HZ , 2100-HZ , AND 2900-HZ SIGNALING TONE LEVELS	DLP-511

ITEH	SUBTASKS	PROCEDURE NUMBER
1	MEASURE CONTROL TERHINAL TO TRASNMITTER 1000-HZ TONE LEVEL	DLP-512
2	MEASURE CONTROL TERHINAL TO TRANSHITTER 1900-HZ, 2100-HZ, AND 2900-HZ SIGNALING TORE LEVELS	MP-513
3	MEASURE OVERALL 1000-HZ LOSS IN TRANSRITTER PATH OF CONTROL TERMINAL	DLP-514
4	MEASURE TRANSRITTER TO CONTROL TERMINAL 1000-HZ TONE LEVEL	DLP-515
5	MEASURE TRANSHITTER TO CONTROL TERRINAL 1900-HZ, 2100-HZ, AND 2900-HZ SIGNALING TDNE LEVELS	MP-516

ITEM	SUBTASKS	PROCEDURE NUMBER
1	SIMULATE AND TEST RECEIVER AC ON, CODAN , AND FREEZE SIGNALING SEQUENCE	DLP-524
2	SIMULATE AND TEST RECEIVER RF LEVEL SIGNALING SEQUENCE	DLP-525
3	SIMULATE AND TEST RECEIVER ALARR SIGNALING SEQUENCE	DLP-526
4	SIMULATE AND TEST CODAN OVERRIDE, TEST GENERATOR, AND SPARE FUNCTION SIGNALING SEQUENCE	DLP-527

TEST CONTROL TERMINAL RECEIVER SIGNALING FUNCTIONS USING
ROUTINE TEST SET

	SUBTASKS	PROCEDURE NUMBER
1	SIMULATE AND TEST TRANSMITTER RF FAIL, VSWR, AND EMERGENCY POWER SIGNALING SEQUENCE	DLP-528
2	SIMULATE AND TEST TRANSMITTER ALARM SIGNALING SEQUENCE	DLP-529
2	SIMULATE AND TEST TRANSMITTER SPARE AND MONITOR RECEIVER SIGNALING SEQUENCE	OLP-530

ACCEPTANCE TASK LIST

PROCEDURE
NUMBER

NONE REQUIRED

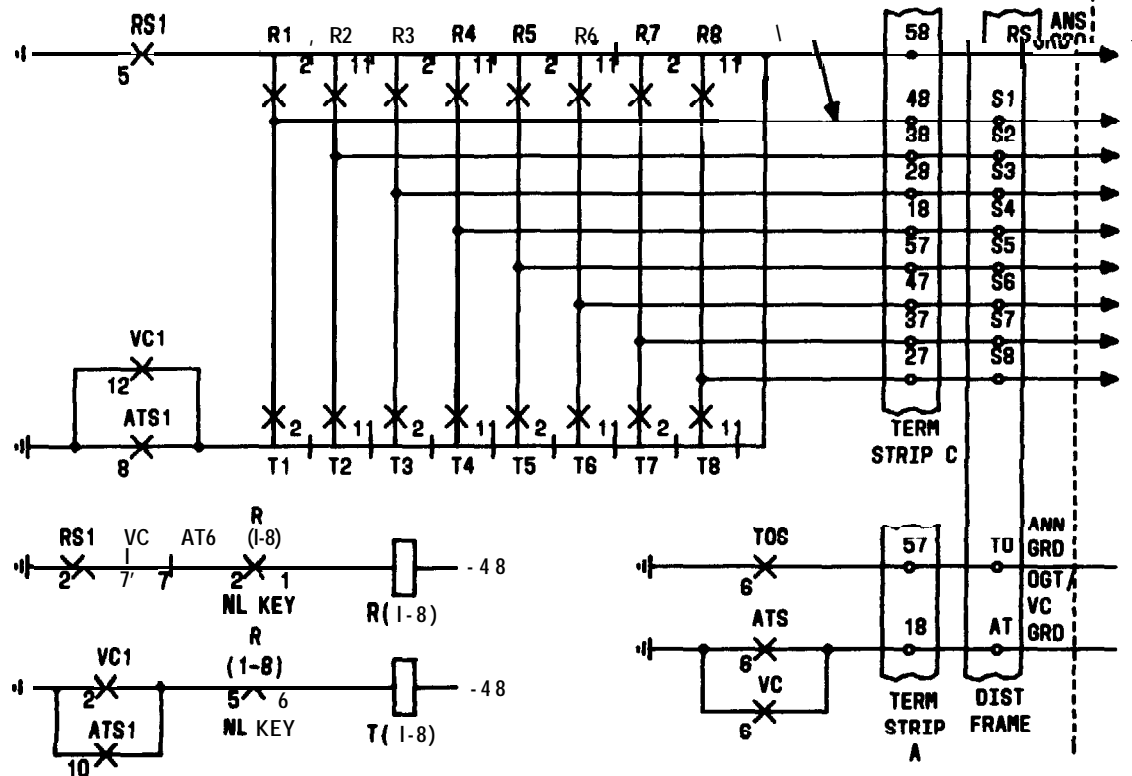
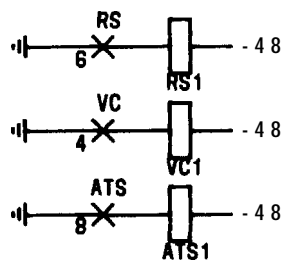
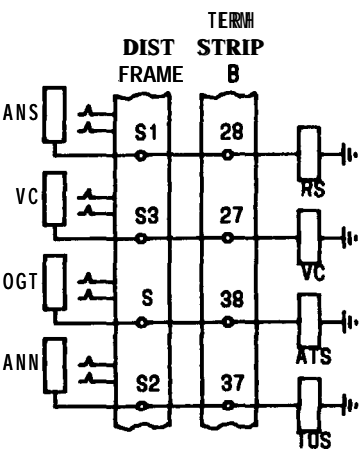
ACCEPTANCE TASK LIST -- COASTAL
CONTROL TERMINAL AND ROUTINER TEST SET

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CIRCUIT ORDER TASKS	PROCEDURE NUMBER
NONE REQUIRED	

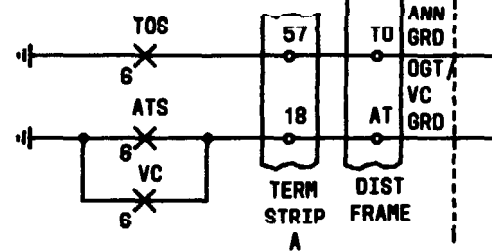
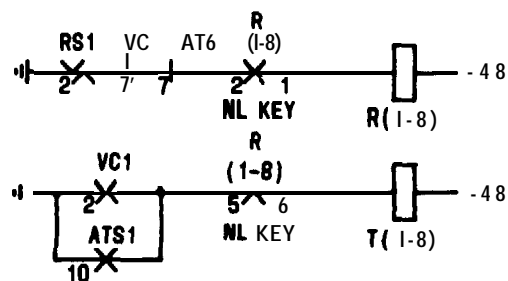
TROUBLE INDICATED	MY ALSO BE REPORTED AS	PROCEDURE NUMBER
MAINTENANCE PHILOSOPHY		TAO-152
AUTOMATIC DEVICES		
CLEAR CONTROL TERMINAL ALARMS		TAP-I 17
CLEAR RECEIVER ALARMS		TAP- 120
CLEAR TRANSMITTER ALARMS		TAP-122
<u>TROUBLE REPORTS</u>		
CLEAR RECEIVER-RELATED TROUBLES		TAP-145
CLEAR TRANSMITTER-RELATED TROUBLES		TAP-146
CLEAR SWITCHBOARD-RELATED TROUBLES		TAP-153
CLEAR SAFETY AND CALLING CHANNEL TROUBLES		TAP-136
CLEAR CHANNEL DISPLAY TROUBLE		TAP-141

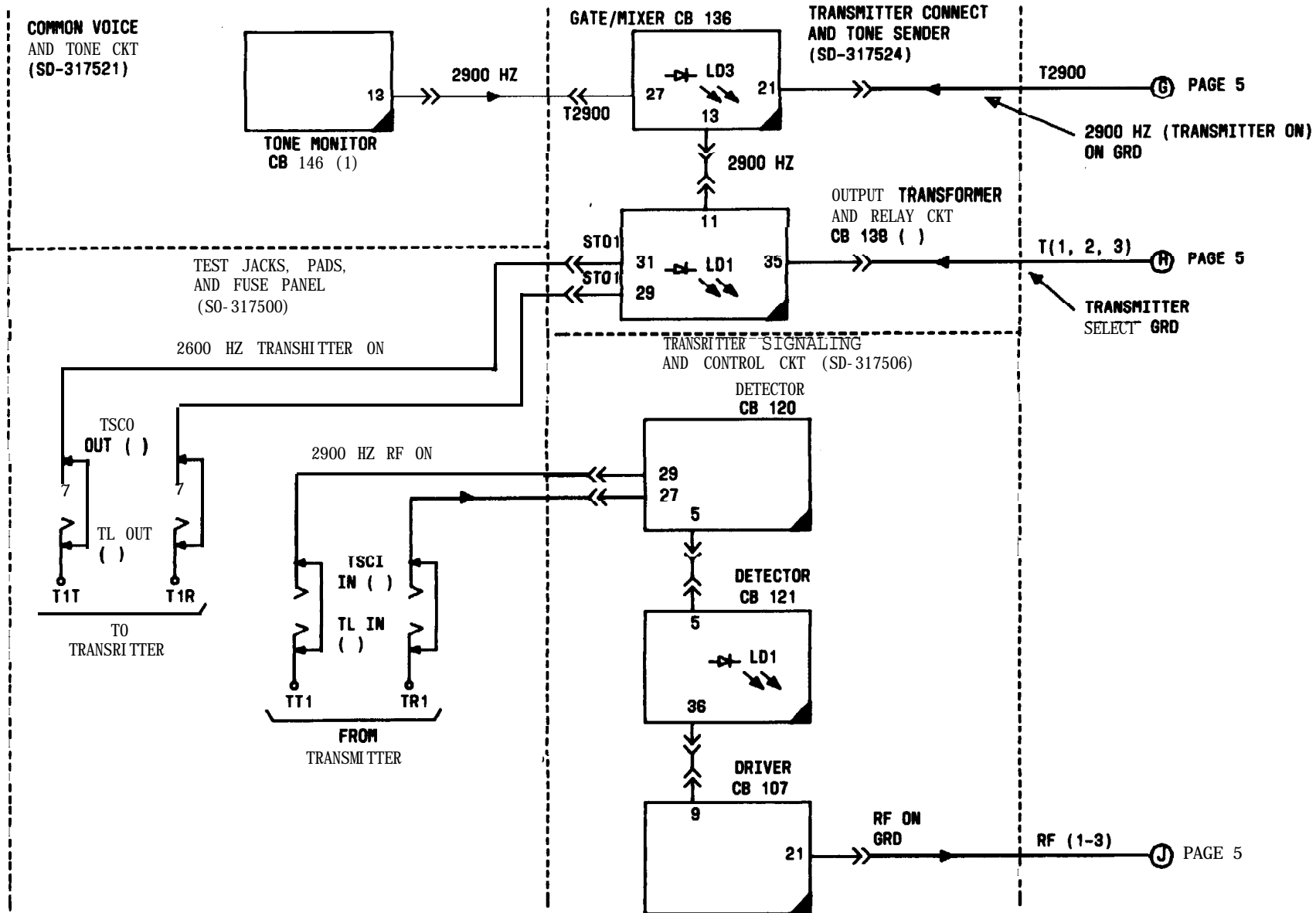
SWITCHBOARD - PUBLIC CORRESPONDENCE TRUNK CIRCUIT (SD-18126-01)



TO CHANNEL BAY
PAGE 3

RELAY CONTACT ORIENTATION/
COMPONENT LOCATION:
RELAY CONTACT ORIENTATION IS SHOWN ON TAD-147. **COMPONENT LOCATION IS SHOWN ON TAD-148 AND TAD-148 FOR CHANNEL BAY AND COMMON BAY, RESPECTIVELY**



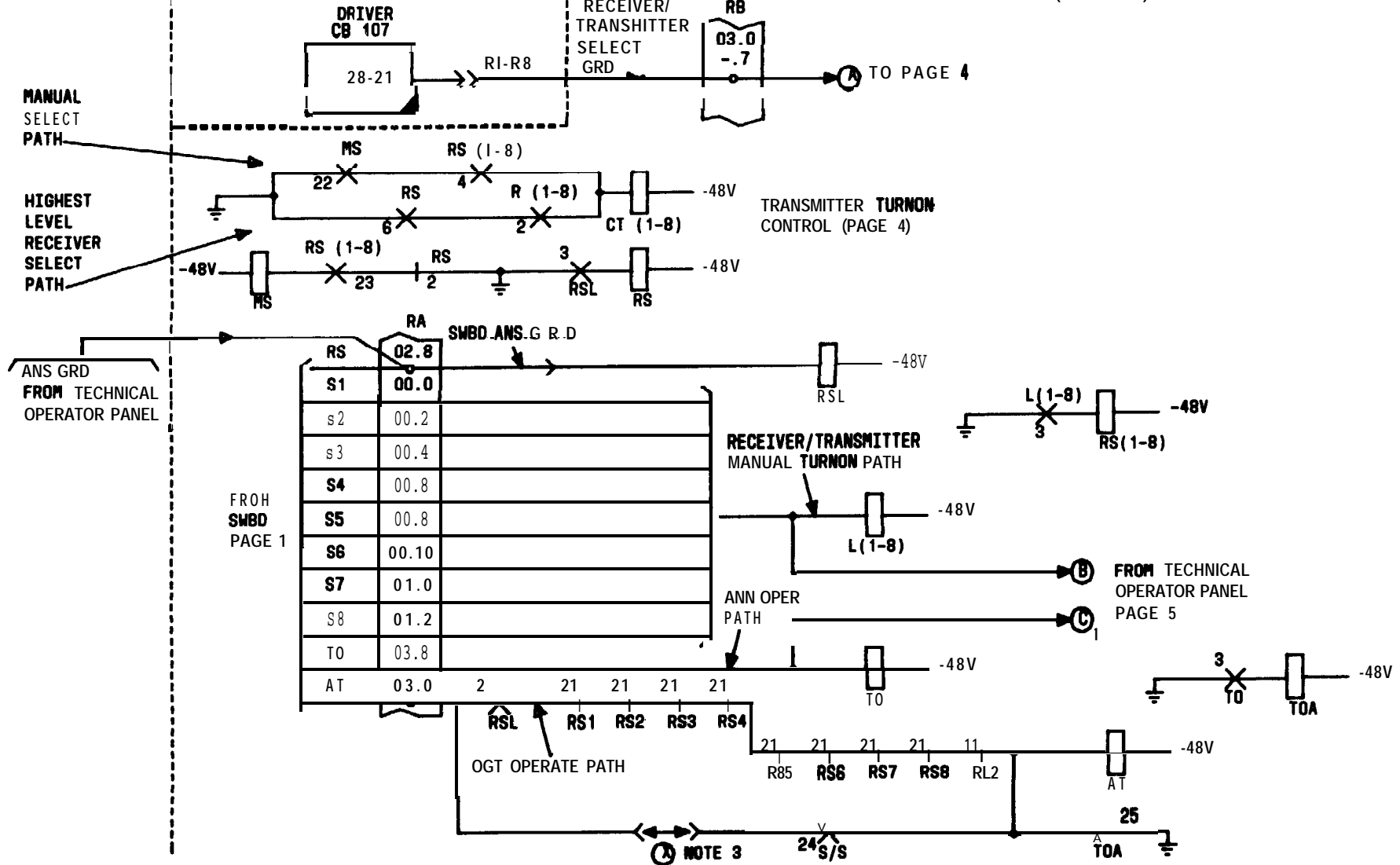


TRANSMITTER TURNDN AND RF ALARMS CIRCUITS

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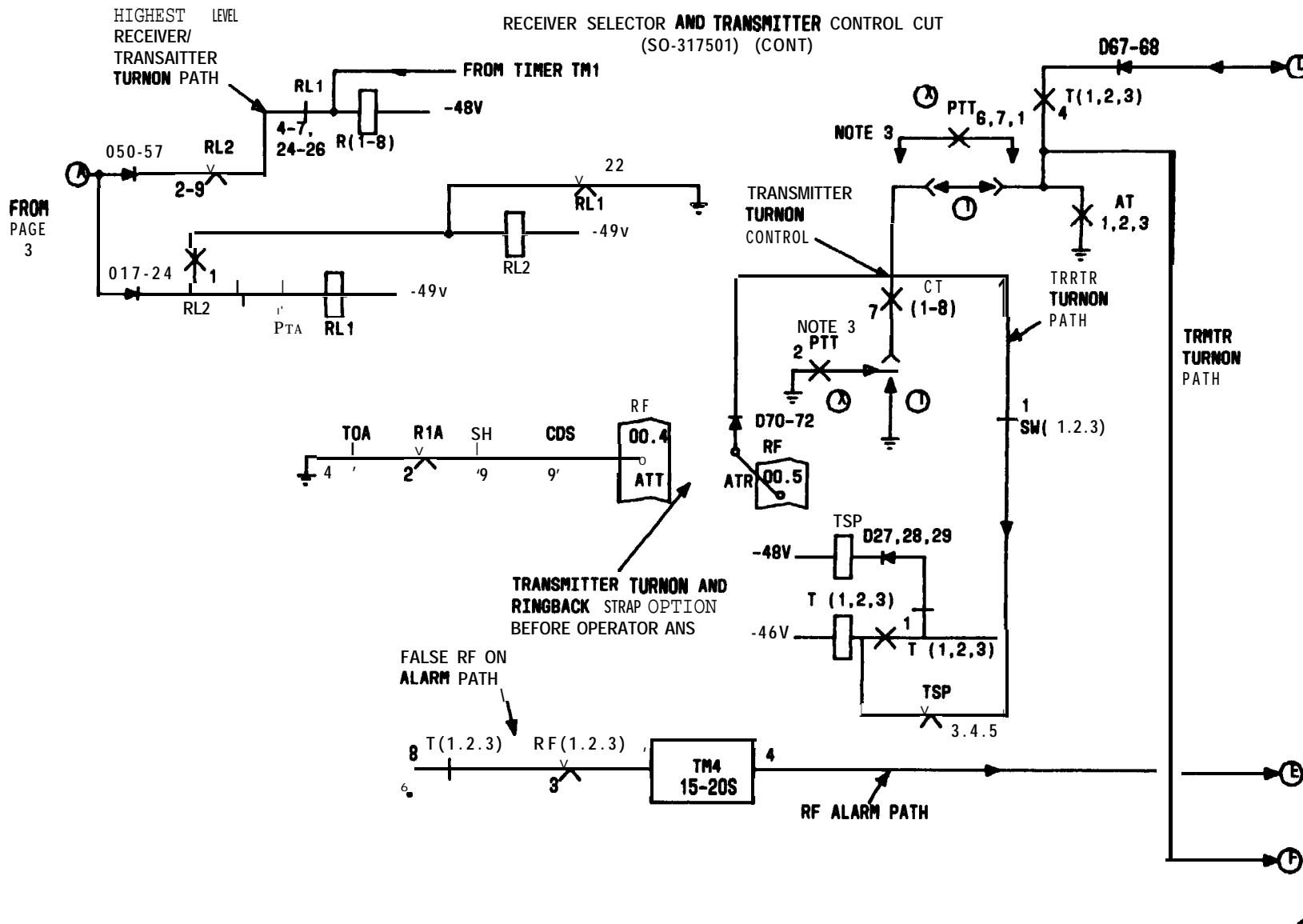
HIGHEST LEVEL RECEIVER
SELECT CKT (SO-317509)

RECEIVER SELECTOR AND TRANSMITTER CONTROL CKT
(SO-317501)



TRANSMITTER TURNON AND RF ALARM CIRCUITS

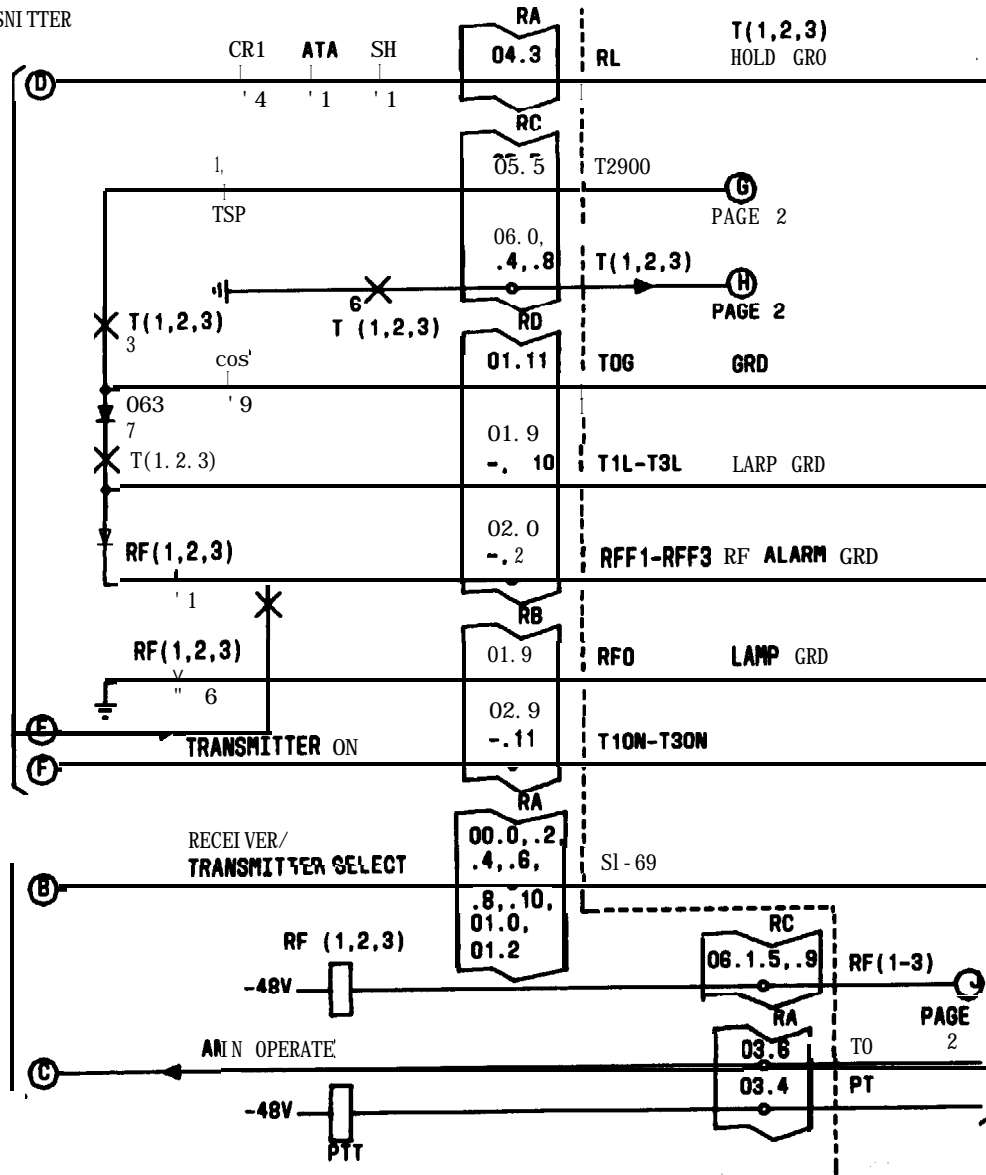
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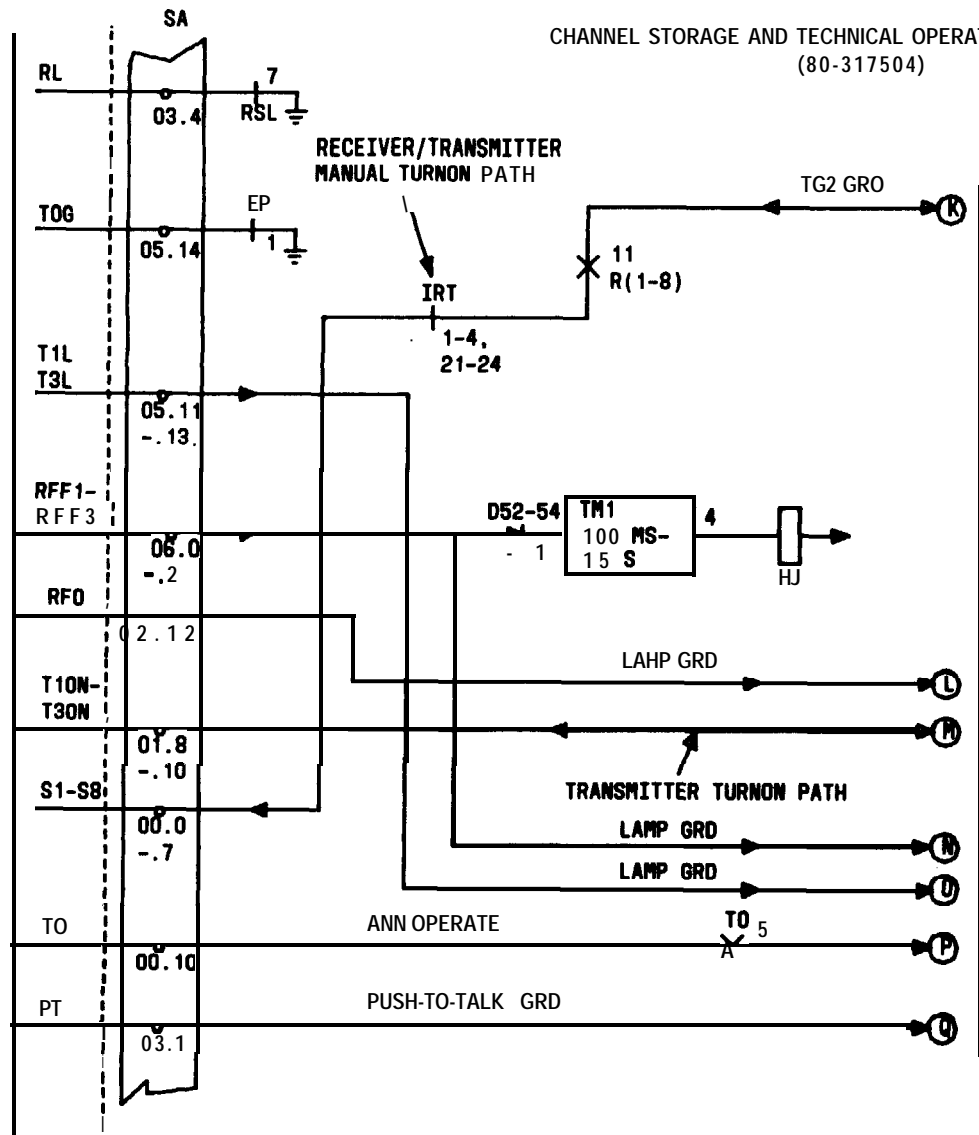
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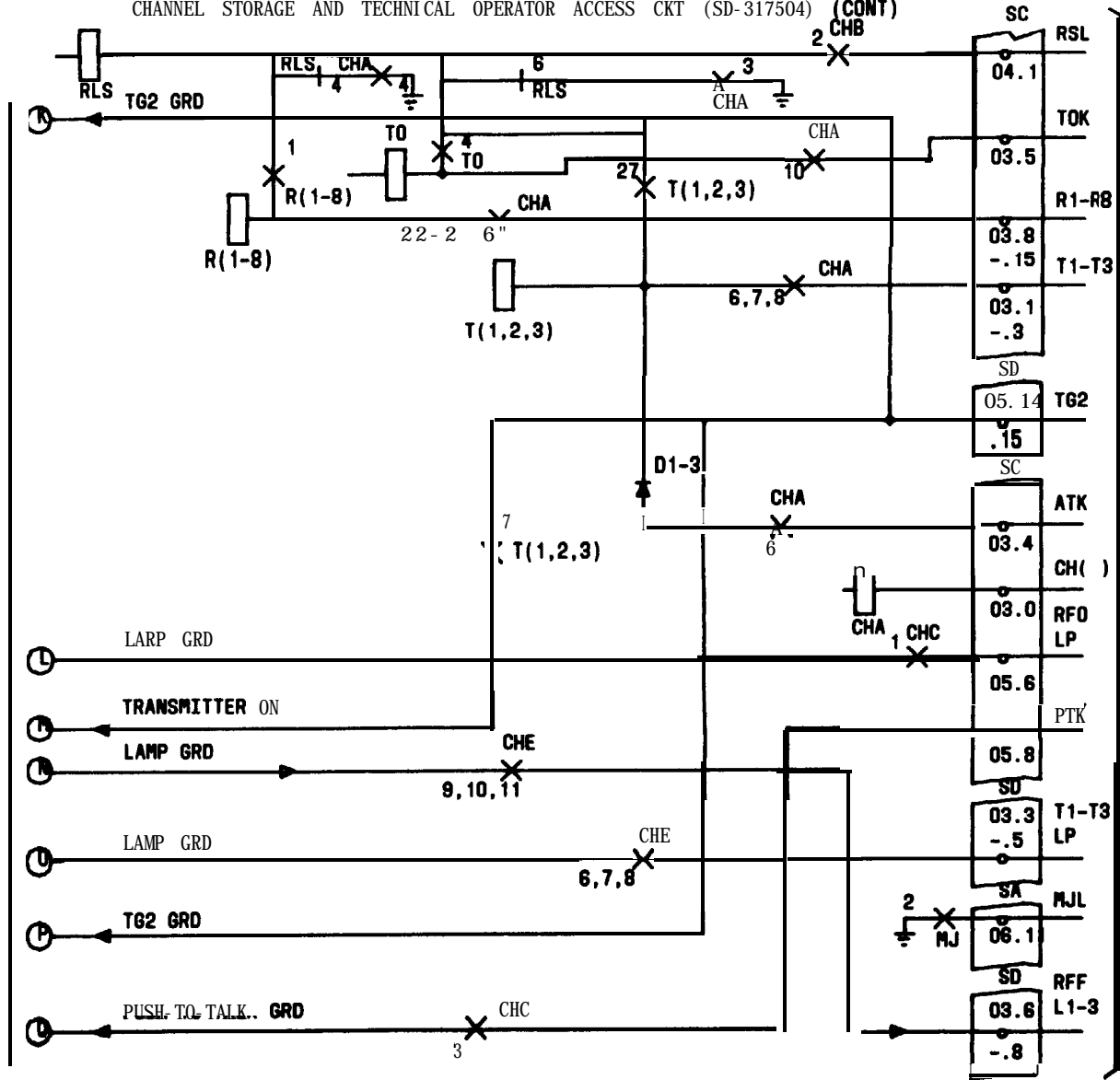
TRANSMITTER TURNON AND RF ALARM CIRCUITS

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7

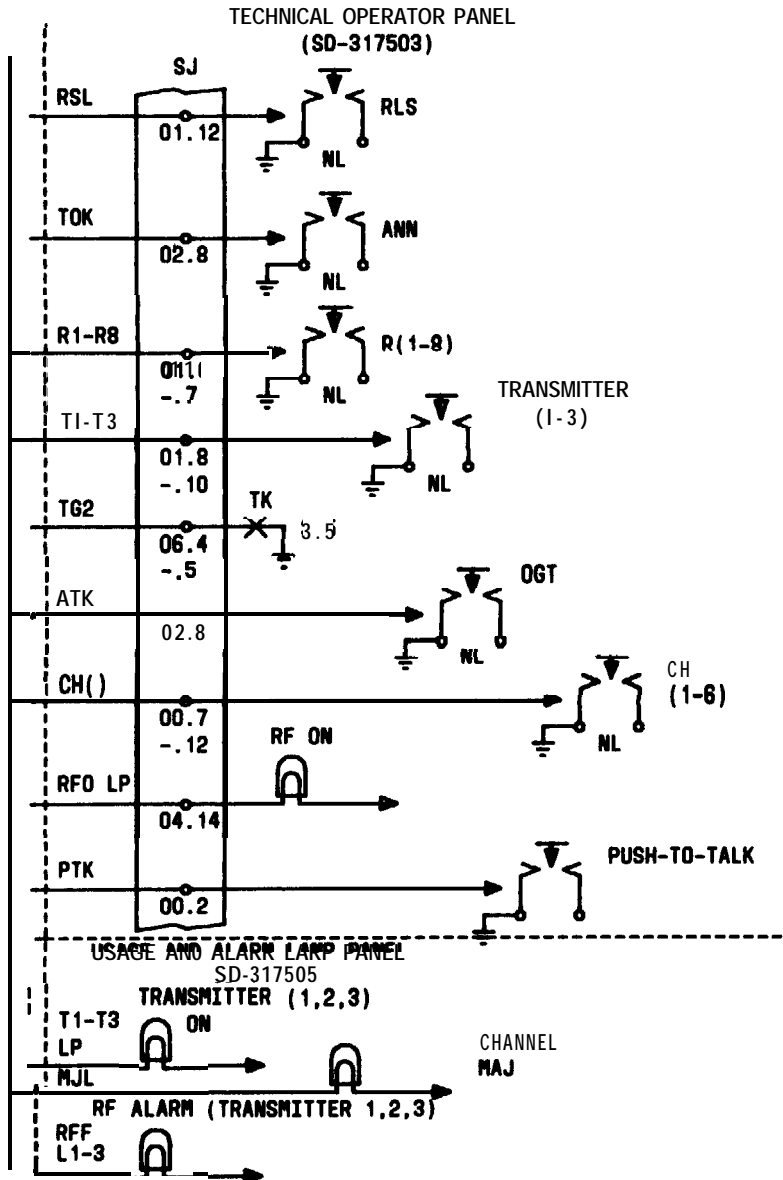


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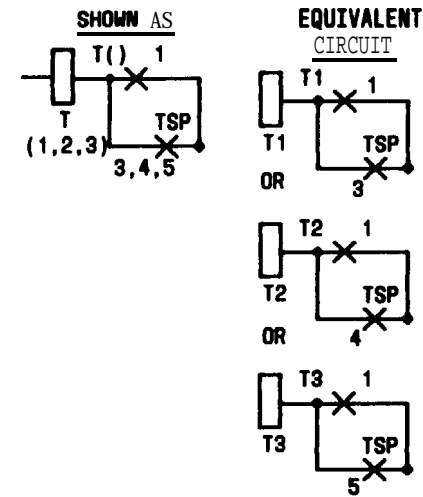
TRANSMITTER TURNON AND RF ALARM CIRCUITS

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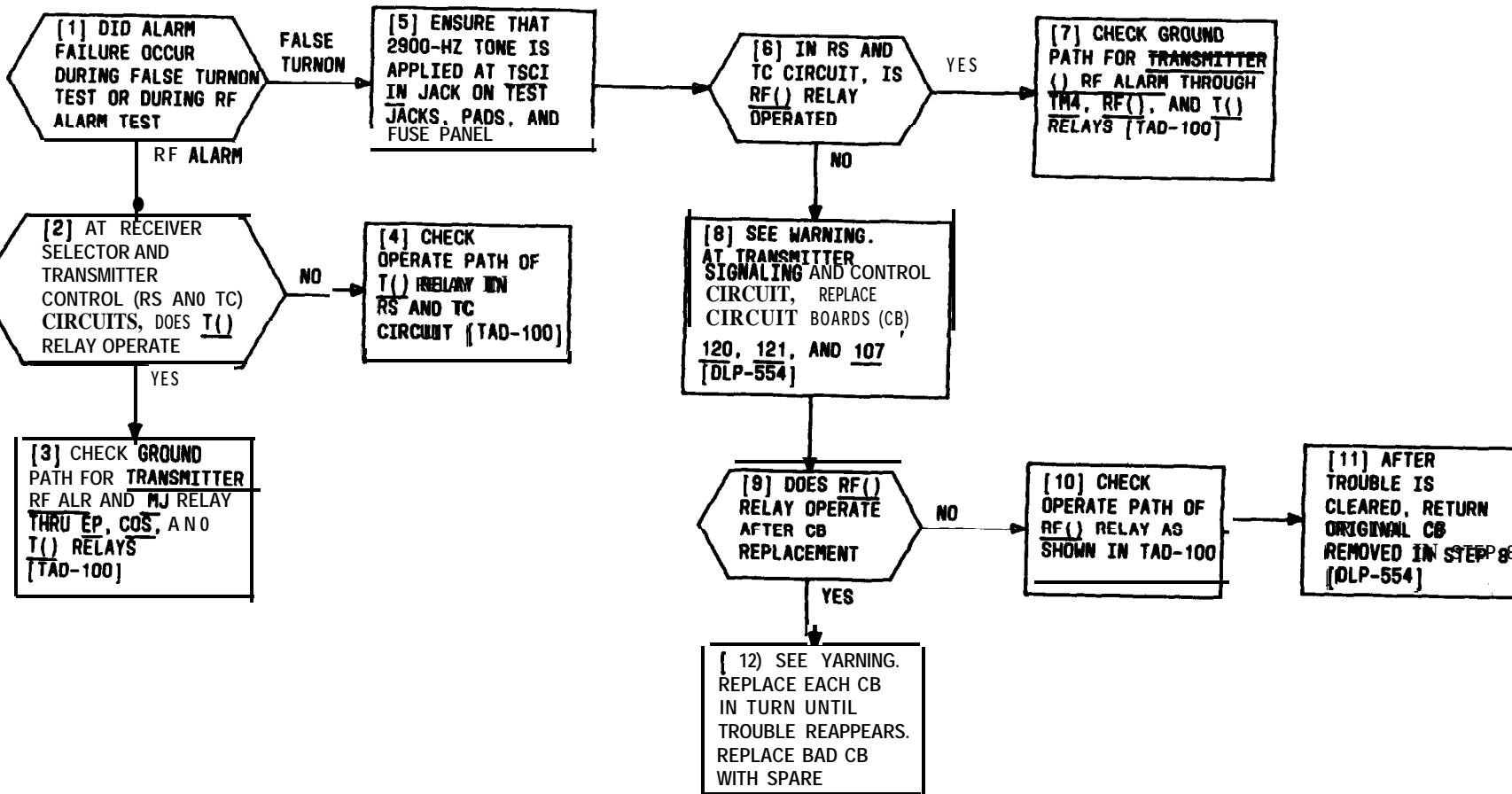


NOTES

- EQUIVALENT CIRCUIT PATHS FOR DIFFERENT RECEIVERS AND TRANSMITTERS ARE GROUPED TOGETHER AND SHOWN AS EXPLAINED IN EXARPLE BELOW:



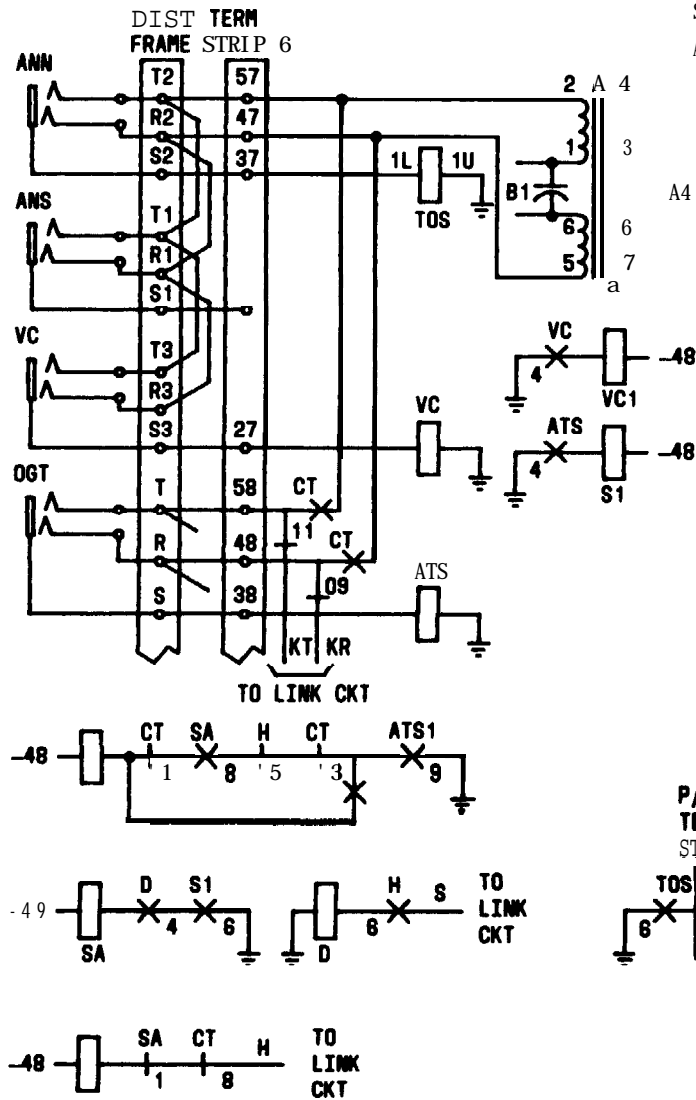
- TRANSMITTERS ARE TURNED-ON FROM (A) TECHNICAL OPERATOR PANEL BY EITHER XHTR (), R(), ANN, OR OGT KEYS; (B) SWBD BY RCVR KEYS OR BY CONNECTION INTO ANN, OR OGT/VC JACKS; AND (C) HIGHER LEVEL RECEIVER SELECT CKT OR RINGBACK STRAP OPTION
- OPTION USED FOR SAFETY AND CALLING CHANNEL



WARNING
 POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

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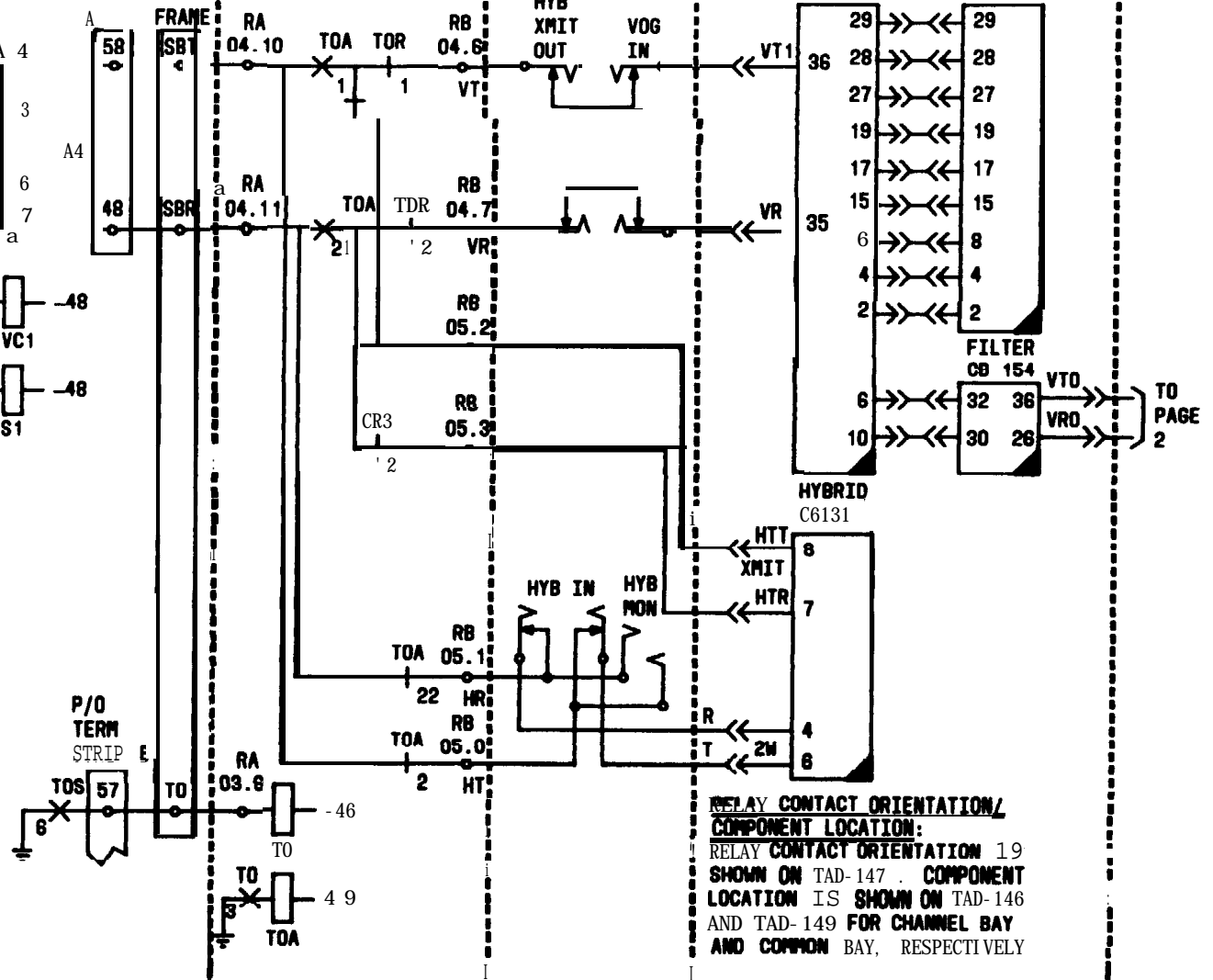
PUBLIC CORRESPONDANCE
TRUNK CKT (SD-1B126-01)



REC SEL &
TRHTR CONTROL CKT
(SD-317501)

TEST JACKS,
PADS, & FUSE CKT
(SD-317500)

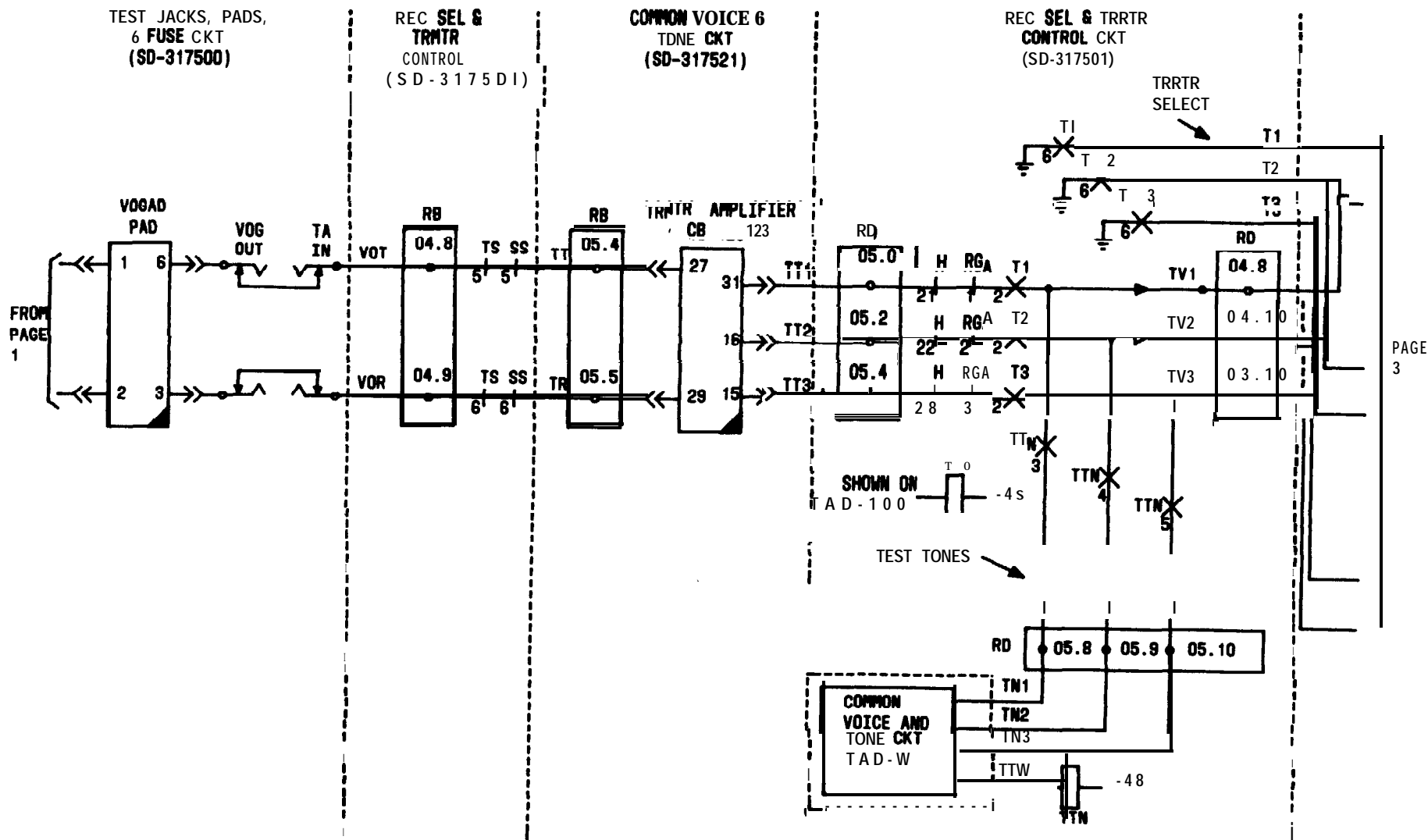
COMMON VOICE & TUNE CKT
(SD-317521)



RELAY CONTACT ORIENTATION/
COMPONENT LOCATION:
RELAY CONTACT ORIENTATION 19
SHOWN ON TAD-147. COMPONENT
LOCATION IS SHOWN ON TAD-146
AND TAD-149 FOR CHANNEL BAY
AND COMMON BAY, RESPECTIVELY

SWITCHBOARD TO TRANSMITTER VOICE PATH

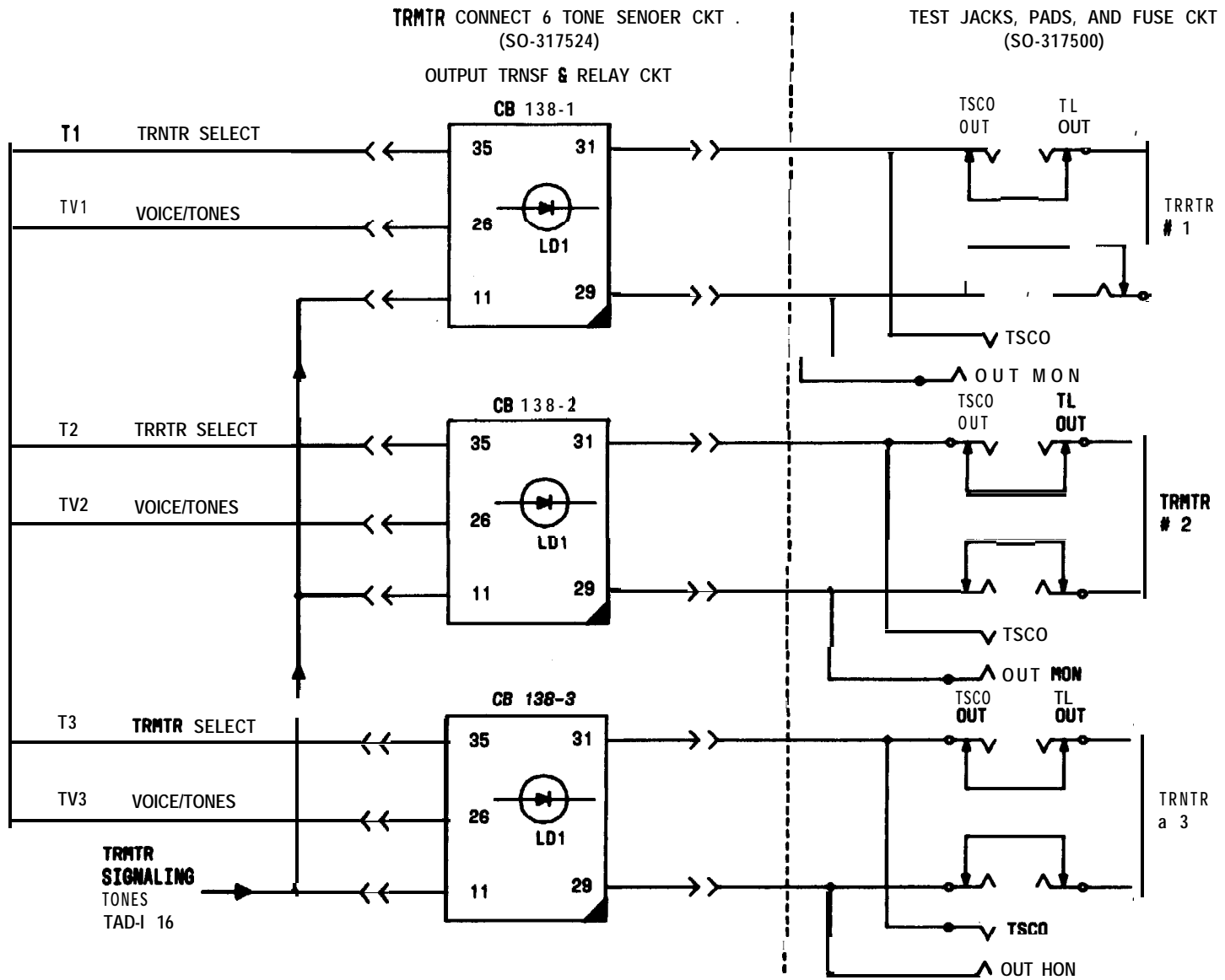
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SWITCHBOARD TO TRANSMITTER VOICE PATH

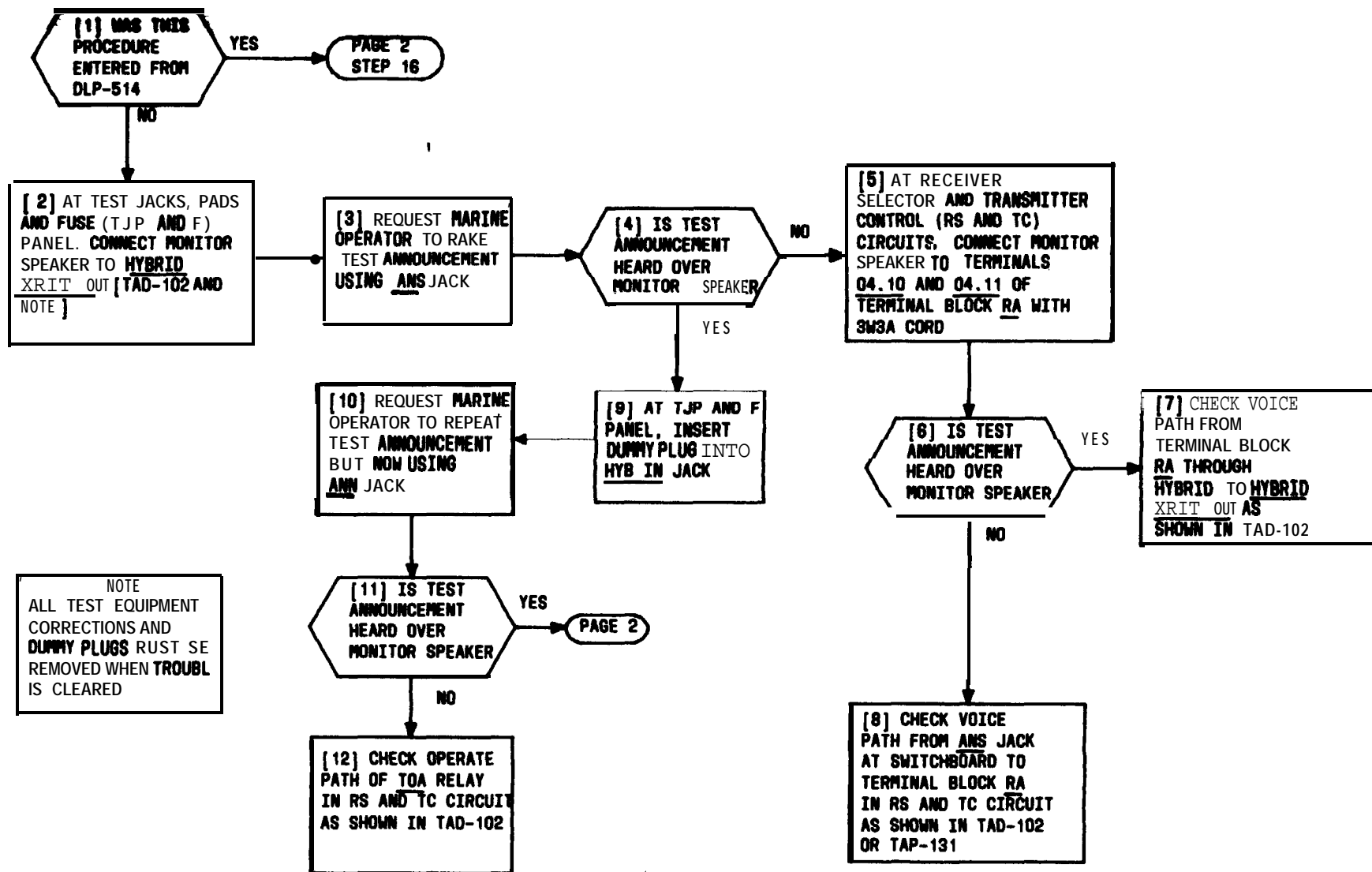
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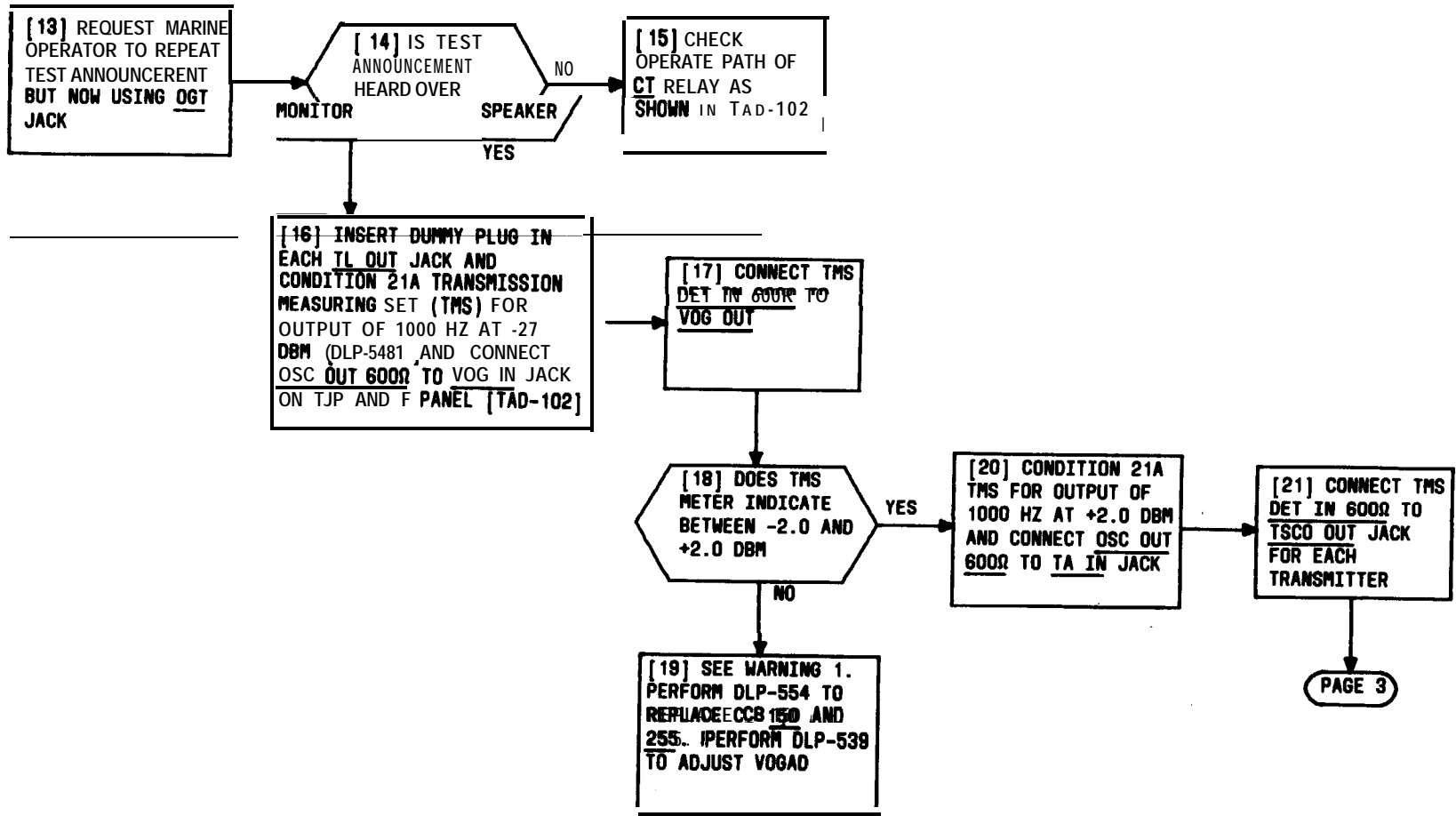
SWITCHBOARD TO TRANSMITTER VOICE PATH

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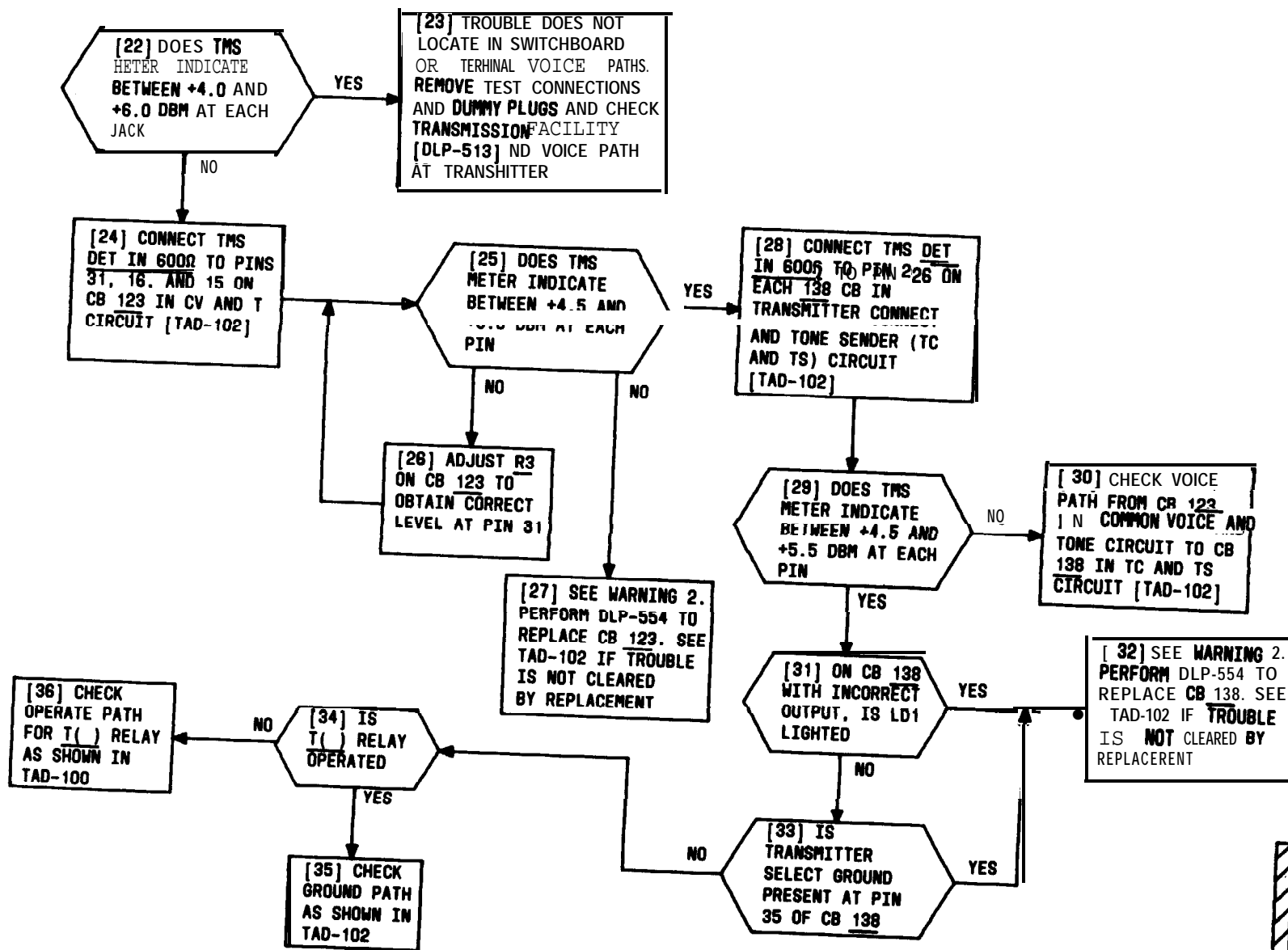
NOTE
ALL TEST EQUIPMENT
CORRECTIONS AND
DUMMY PLUGS MUST BE
REMOVED WHEN TROUBLE
IS CLEARED

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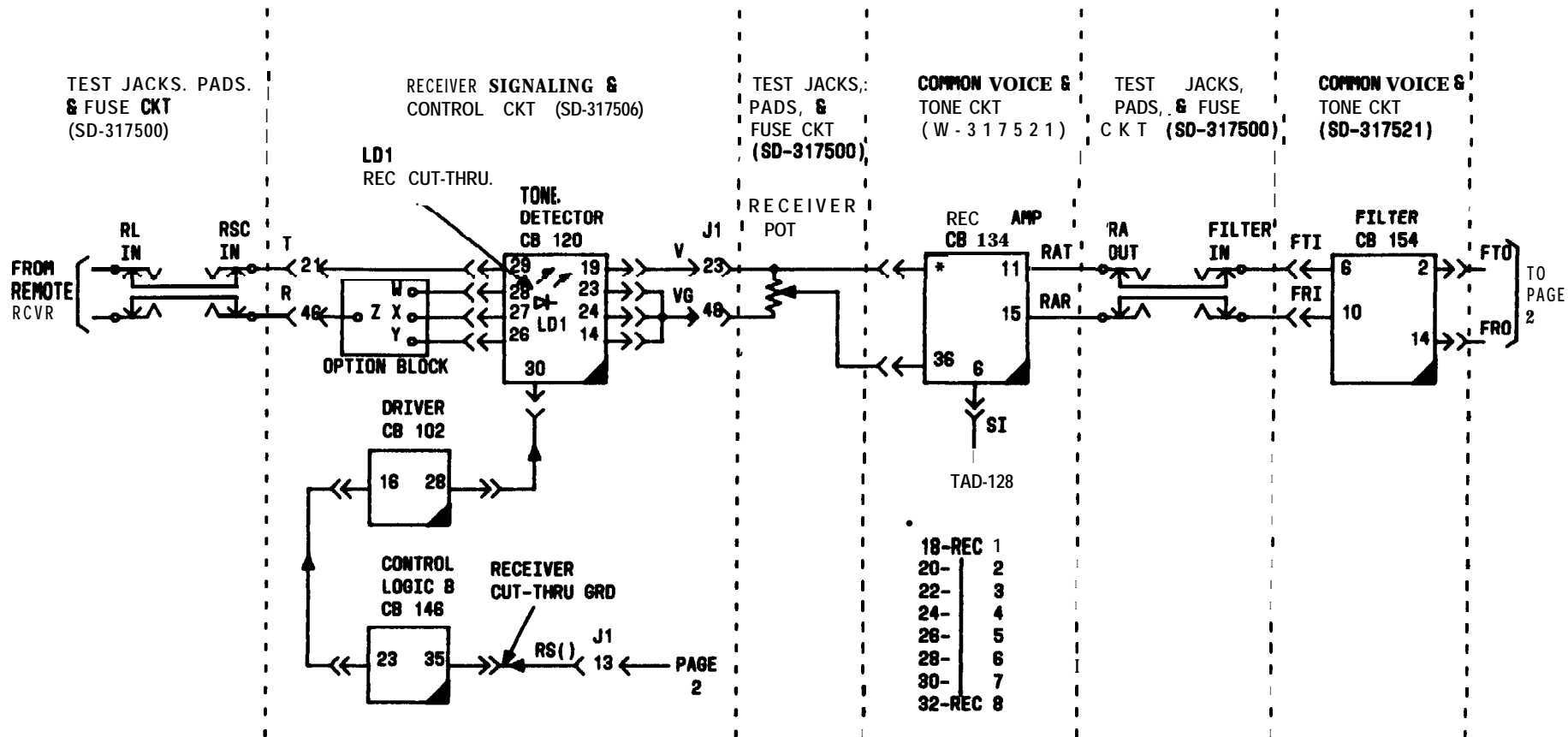
CLEAR SWITCHBOARD TO TRANSMITTER VOICE PATH TROUBLE

WARNING 1	
POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT	
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WARNING 2
POWER MUST BE REMOVED
AS SHOWN IN DLP-554
TO PREVENT DAMAGE TO
EQUIPMENT

CLEAR SWITCHBOARD TO TRANSMITTER VOICE PATH TROUBLE



RELAY CONTACT ORIENTATION/COMPONENT LOCATION:
 RELAY CONTACT ORIENTATION 13 SHOWN IN TAO-147.
 COMPONENT LOCATION IS SHOWN IN TAO-118 AND
 TAD-140 FOR CHANNEL GAY AND COMMON BAY, RESPECTIVELY

RECEIVER TO **SWITCHBOARD** VOICE PATH

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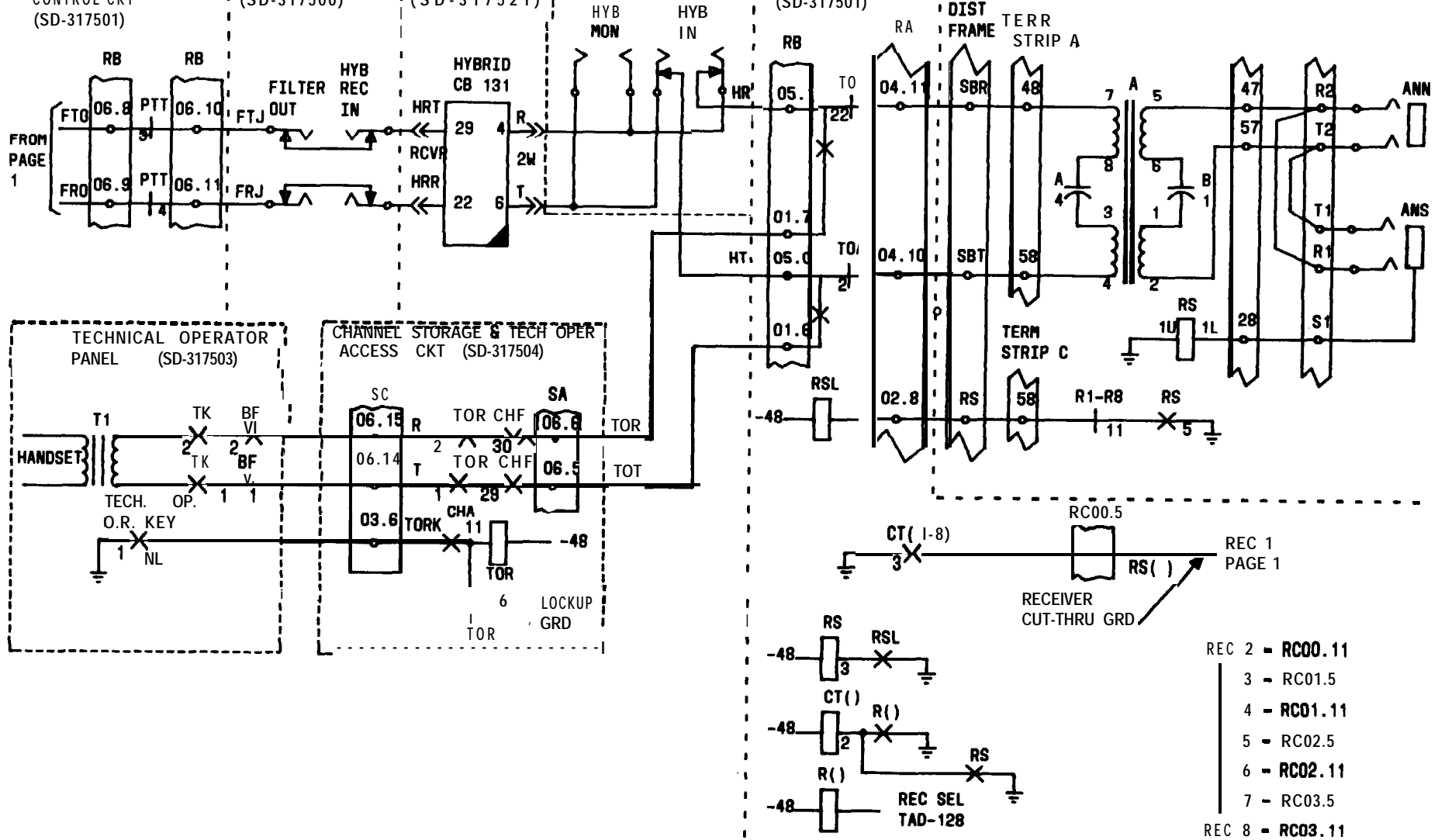
REC SEL &
TRHTR
CONTROL CKT
(SD-317501)

TEST JACKS, PADS,
& FUSE CKT
(SD-317500)

COMMON VOICE
TONE CKT
(SD-317521)

TEST JACKS, PADS, &
FUSE CKT (SD-317500)
REC SEL & TRHTR
CONTROL CKT
(SD-317501)

PUBLIC CORRESPONDENCE
TRUNK CKT (SD-1B126-01)



RECEIVER TO SWITCHBOARD VOICE PATH

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CHANNEL BAY
GROUND

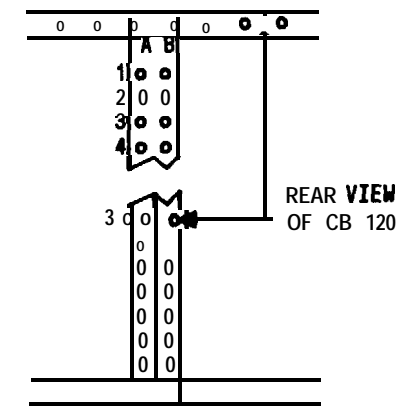


FIG. 1

[1] AT TEST JACKS, PADS, AND FUSE (TJP AND F) PANEL, INSERT DUMMY PLUG INTO EACH RSC IN JACK NOT UNDER TEST [NOTE 1]

[2] CONDITION 21A TRANSMISSION MEASURING SET (THS) FOR OUTPUT OF 1000 HZ AT -16 DBM (DLP-548) AND CONNECT DSC OUT 600R TO RSC IN() WITH 3P17B CORD

[3] AT RECEIVER SELECT AND TRANSMITTER CONTROL (RS AND TC) CIRCUIT, BLOCK R1A RELAY OPERATED

[4] AT RECEIVER SIGNAL AND CONTROL CIRCUIT, GROUND PIN 30 ON REAR OF CB 120 [NOTE 2 AND FIG. 1]

[5] AT TJP AND F PANEL, CONNECT HP 400D TO HYB IN JACK [TAD-104]

[6] INSERT 262C (900Ω) PLUG IN HYB MON JACK

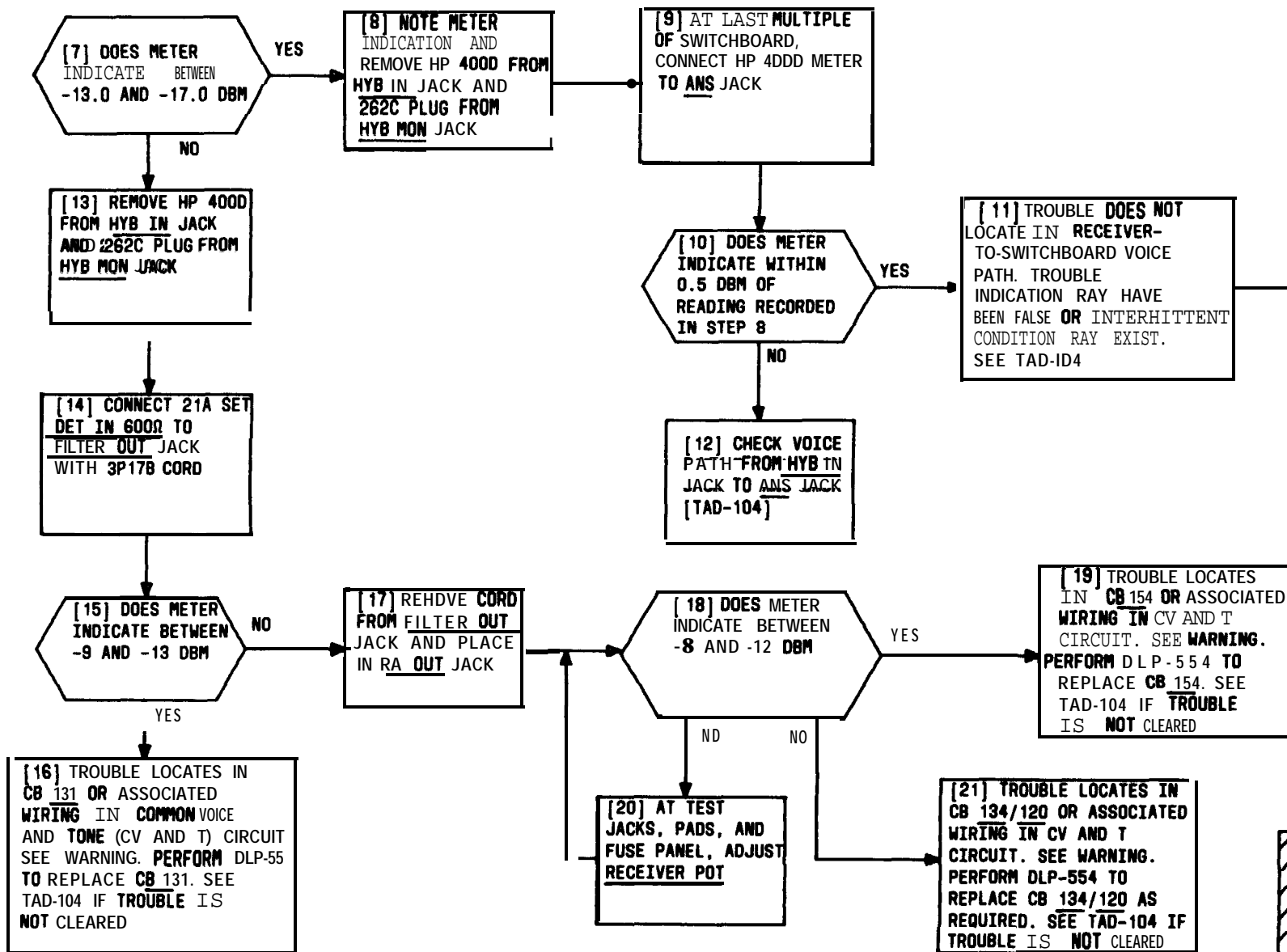
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NOTES

- ALL TEST EQUIPMENT CONNECTIONS AND DUMMY PLUGS MUST BE REMOVED WHEN TROUBLE IS CLEARED
- LD1 ON CB 120 LIGHTS INDICATING RECEIVER CUT-THRU. GROUND ON PIN 30 MUST BE RECONNECTED WHEN TROUBLE IS CLEARED

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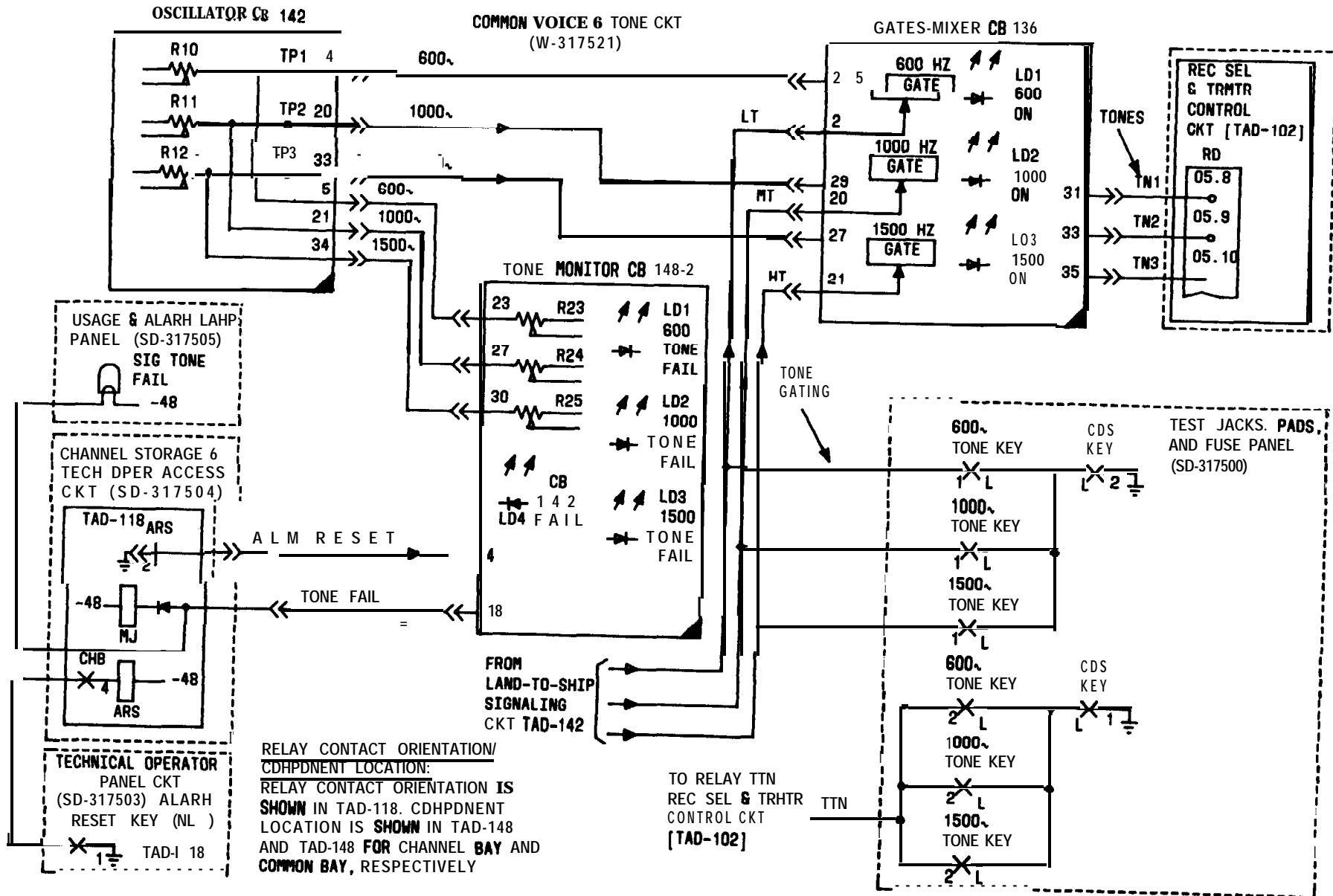
CLEAR RECEIVER TO SWITCHBOARD VOICE PATH TROUBLE



WARNING
 POWER RUST BE
 REMOVED AS SHOWN IN
 DLP-554 TO PREVENT
 DAMAGE TO EQUIPMENT

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CLEAR RECEIVER TO SWITCHBOARD VOICE PATH TROUBLE



600-HZ, 1000-HZ, AND 1500-HZ TONE CIRCUITS

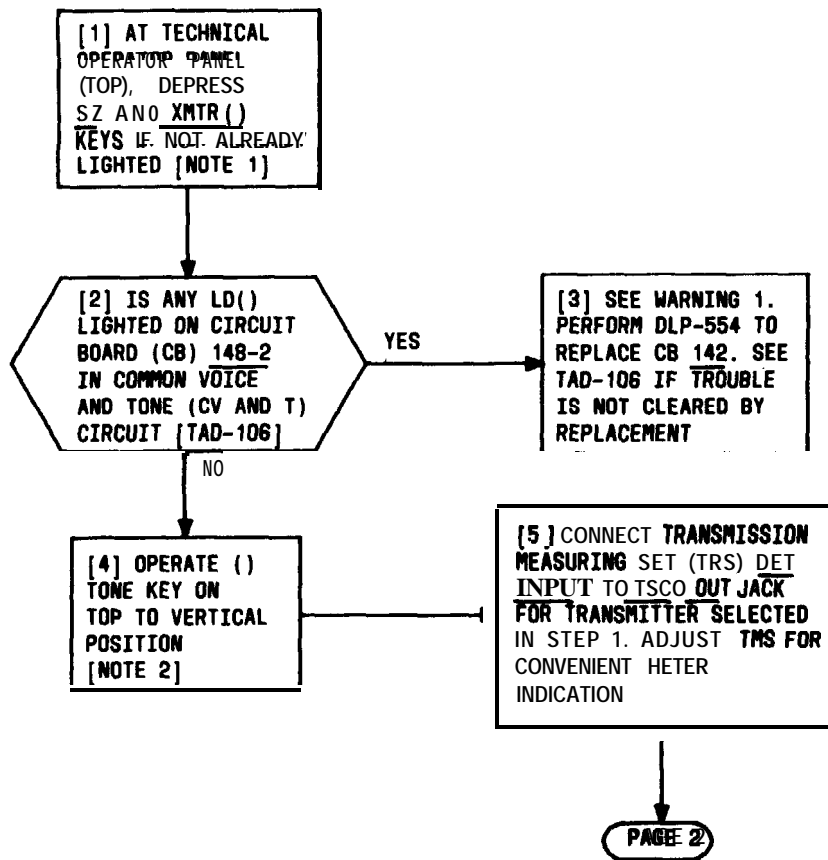


TABLE A			
SPECIFIC CALLOUTS FOR EACH FREQUENCY			
STEP NUMBER	600 HZ	1000 HZ	1500 HZ
4	600 HZ	1000 HZ	1500 HZ
7	R10	R11	R12
9	LD1	LD2	L03
23	TN1	TN2	TN3

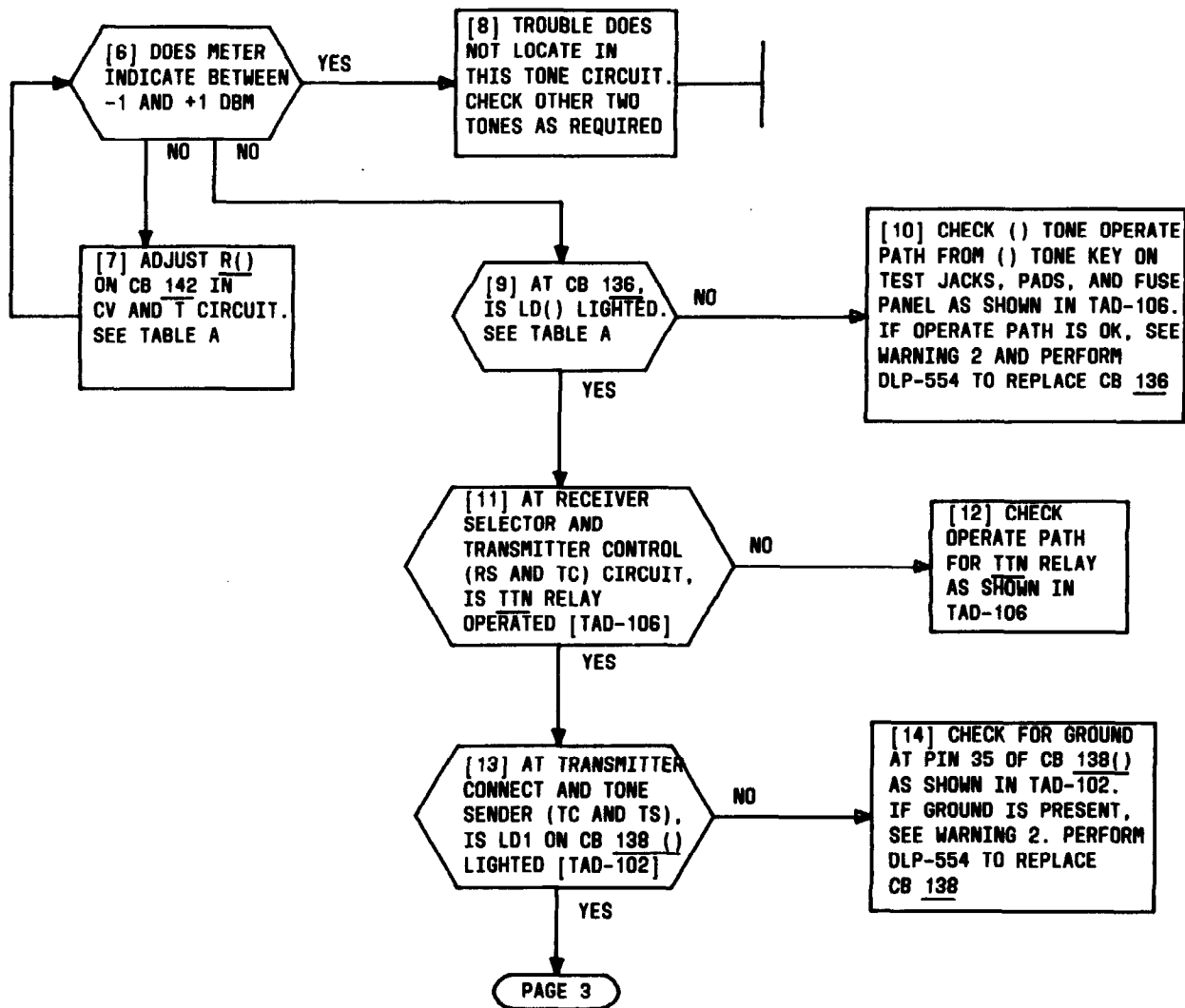
NOTES

1. ALL TEST **EQUIPMENT MUST BE REMOVED** WHEN TROUBLE IS CLEARED
2. SUBSTITUTE DESIRED TONE EITHER **600, 1000, OR 1500** FOR (). SEE TABLE A FOR SPECIFIC CALLOUTS WHEN 0 IS SHOWN

WARNING 1
 POYER **MUST** BE REMOVED AS SHOWN IN DLP-554 TO PREVENT **DAMAGE** TO EQUIPMENT

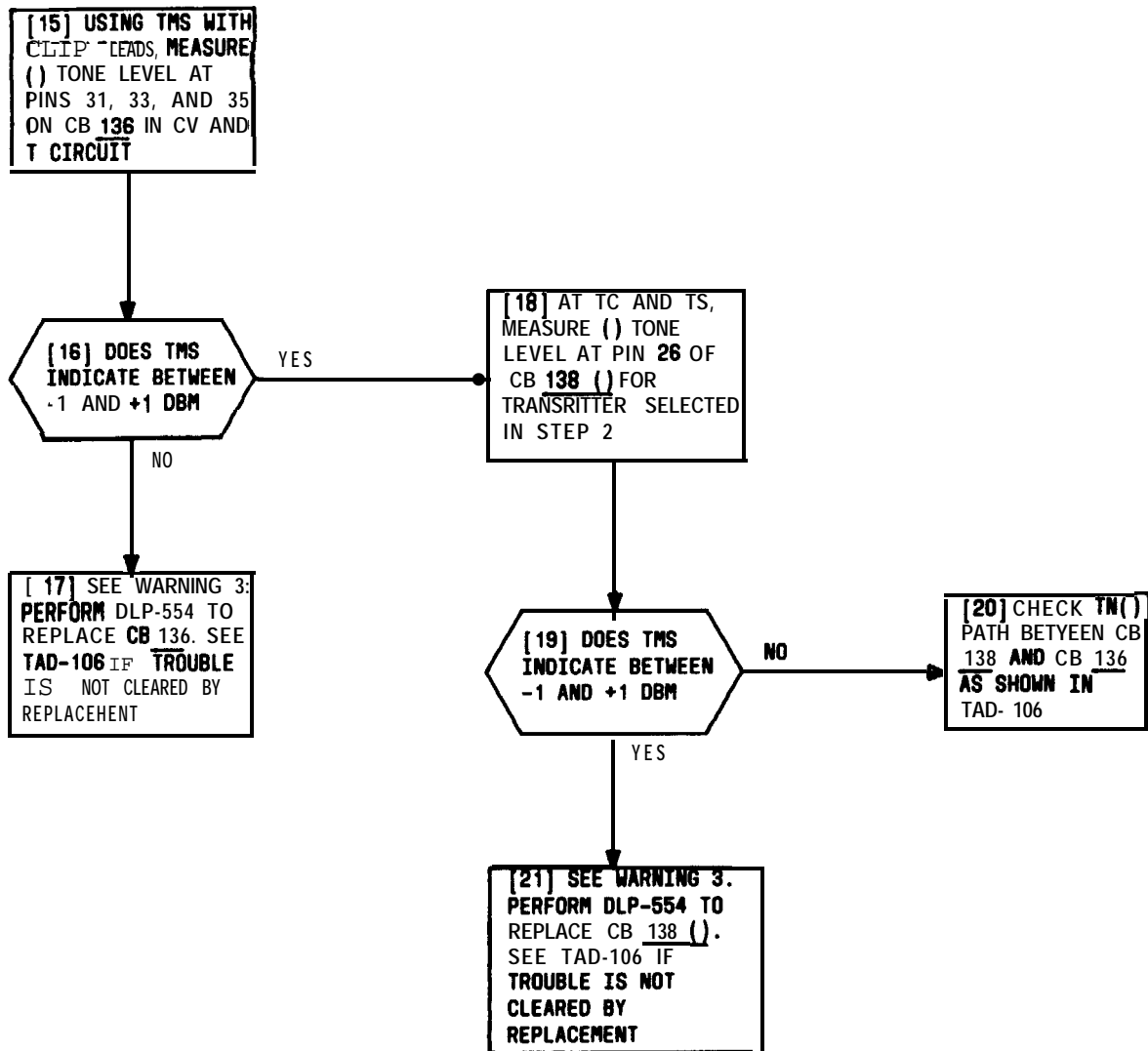
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CLEAR CHANNEL BAY 600-HZ, 1000-HZ, AND 1500-HZ TONE TROUBLE



WARNING 2
 POWER MUST BE REMOVED
 AS SHOWN IN DLP-554
 TO PREVENT DAMAGE TO
 EQUIPMENT

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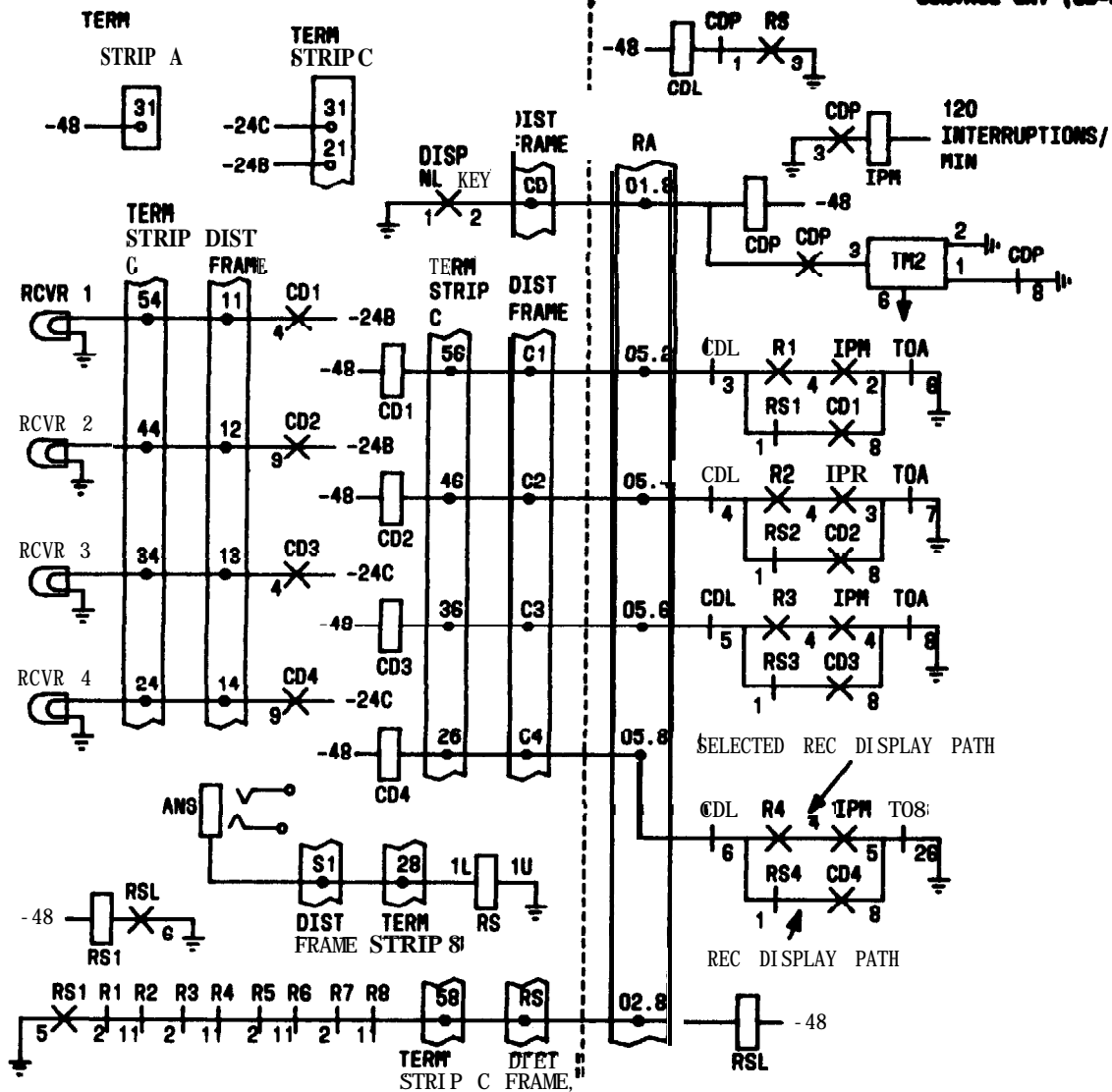
WARNING 3
 POYER **MUST** BE REMOVED
 AS SHOWN IN DLP-554
 TO PREVENT **DAMAGE** TO
 EQUIPMENT

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CLEAR CHANNEL BAY 600-HZ, 1000-HZ, AND 1500-HZ TONE TROUBLE

**PUBLIC CORRESPONDENCE
TRUNK CRT (SD-18126-01)**

**REC SEL & TRUNK
CONTROL CRT (SD-31750-1)**



RELAY CONTACT ORIENTATION/
COMPONENT LOCATION:
RELAY CONTACT ORIENTATION IS
SHOWN ON TAD-147. COMPONENT
LOCATION IS SHOWN ON TAD-148
AND TAD-148 FOR CHANNEL BAY
AM) COMMON BAY, RESPECTIVELY

NOTE:
OPERATE PATHS FOR
RCVR 1-4 ARE SHOWN.
FOR OTHER RCVRs,
SEE SD-317501

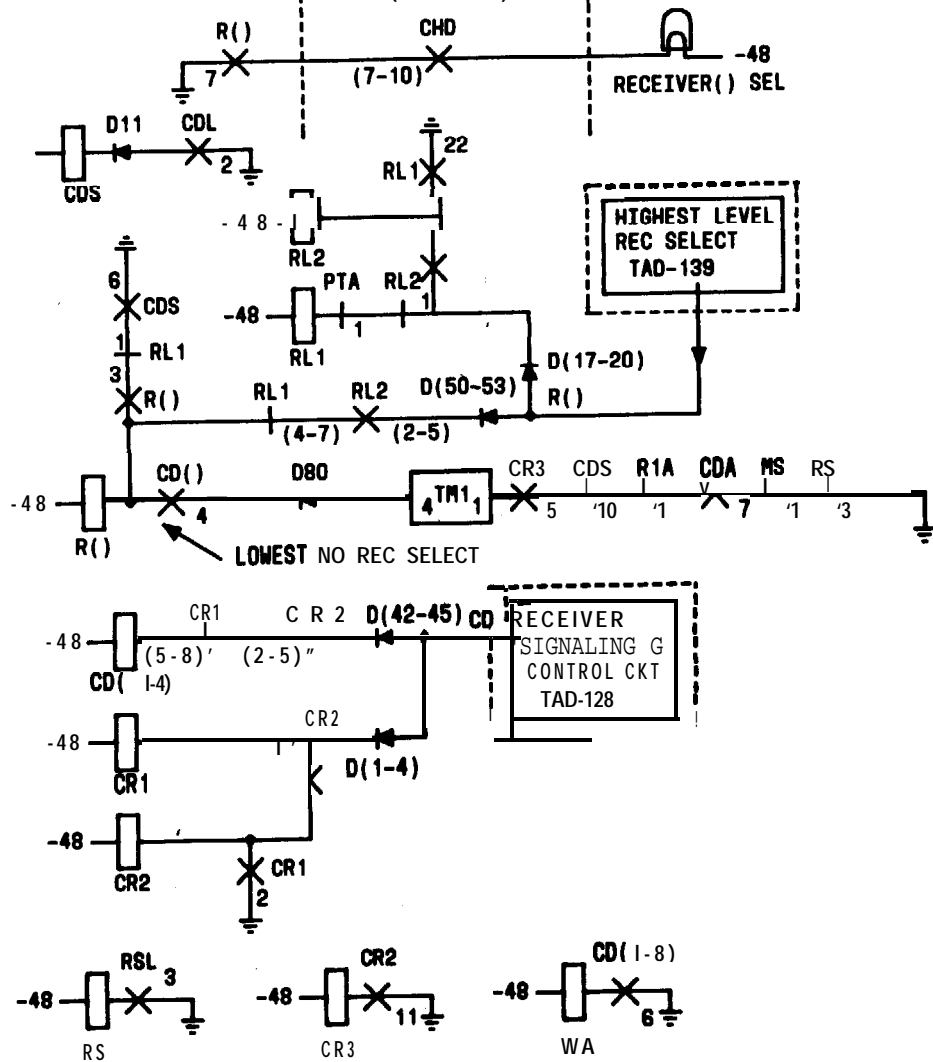
SWITCHBOARD RCVR LAMP DISPLAY CIRCUIT

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REC SEL & TRMTR
CONTROL CKT (SD-317501)

CHANNEL STORAGE
G TECH OPER ACCESS
CKT (SD-317504)

USAGE 6 ALM
LP PANEL
(SD-317505)



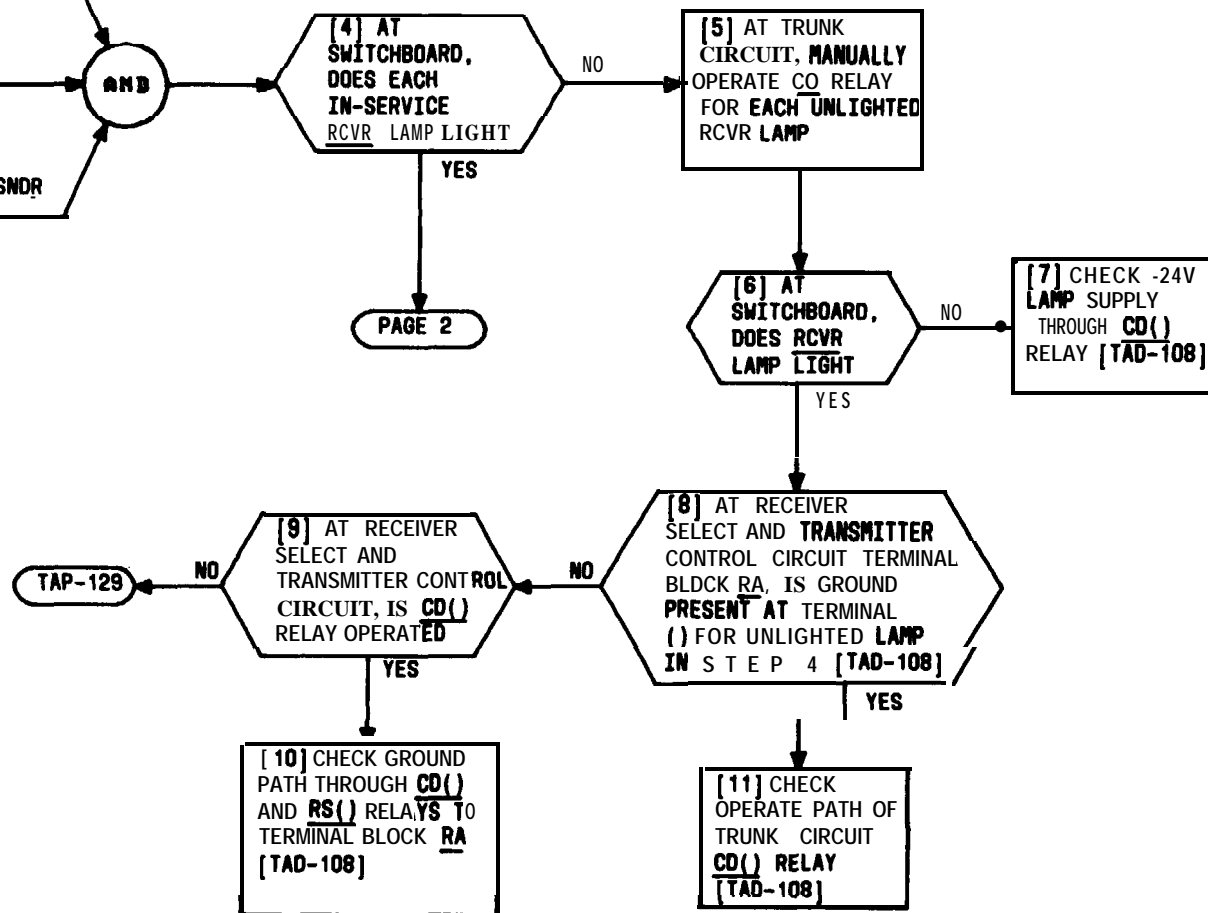
SWITCHBOARD RCVR LAMP DISPLAY CIRCUIT

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[1] OBTAIN RELEASE TO REMOVE CHANNEL FROM SERVICE AND NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL PROCEDURES [NOTE 1]

[2] CHECK ALL LAMPS ASSOCIATED WITH TROUBLE BEFORE STARTING THIS PROCEDURE

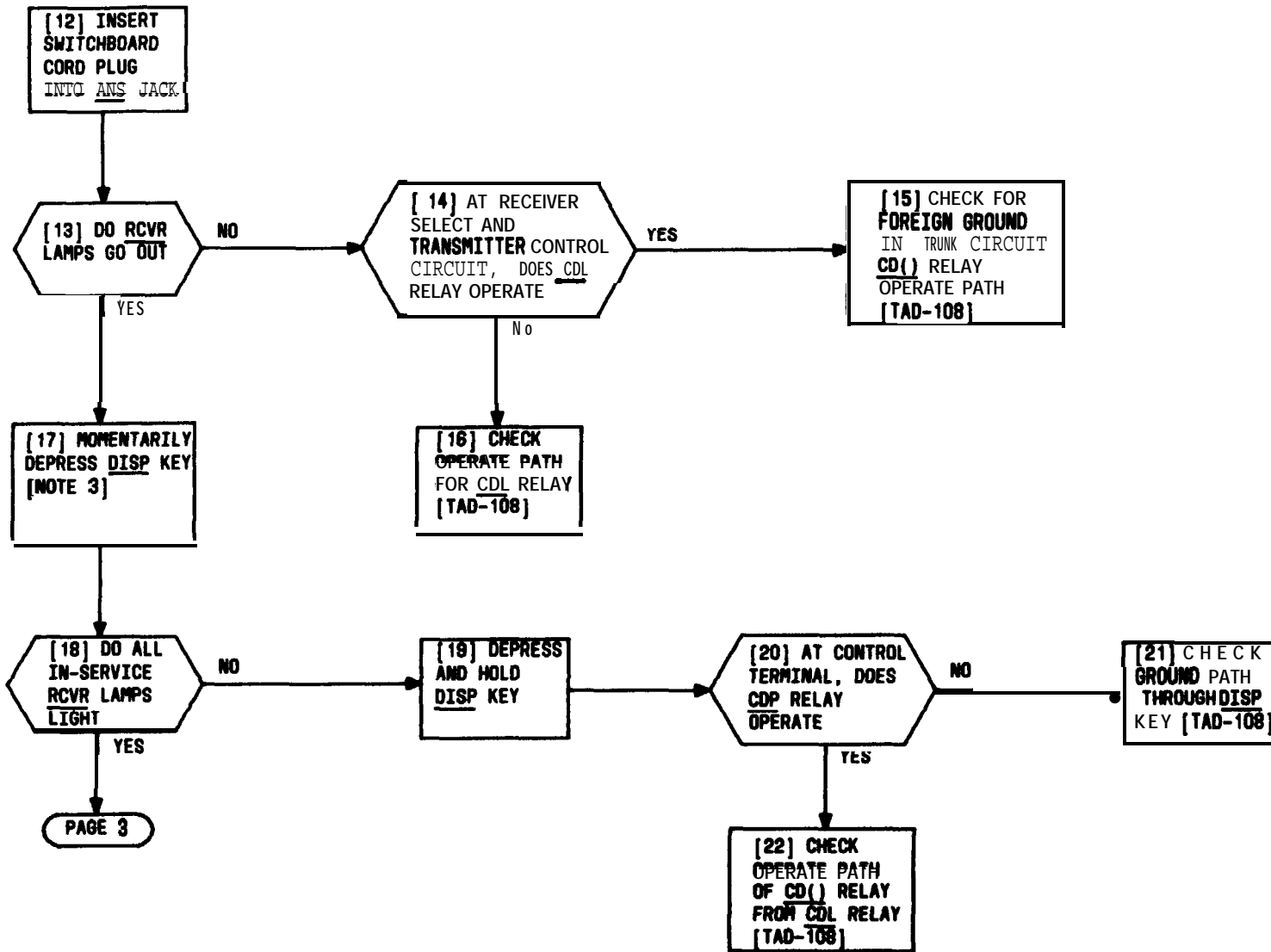
[3] AT TECHNICAL OPERATOR PANEL, DEPRESS CH (), TEST GEN. AND REC SNDR START KEYS [NOTE 2]



NOTES

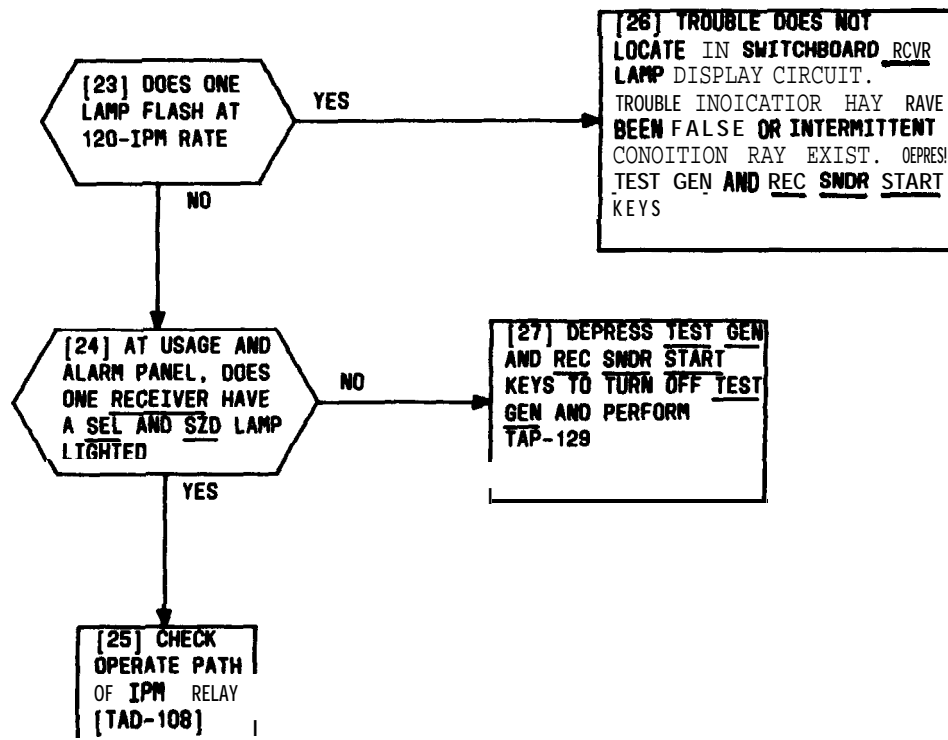
1. ALL TEST EQUIPMENT MUST BE REMOVED AND CHANNEL MUST BE RETURNED TO SERVICE IN ACCORDANCE WITH LOCAL PROCEDURES WHEN TROUBLE IS CLEARED
2. TEST GEN AND REC SNDR START KEYS MUST BE DEPRESSED WHEN PROCEDURE IS COMPLETED

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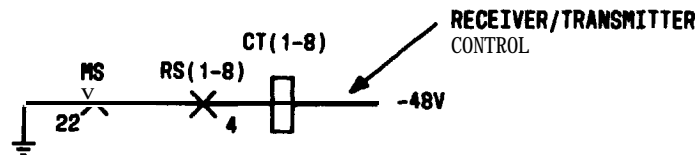
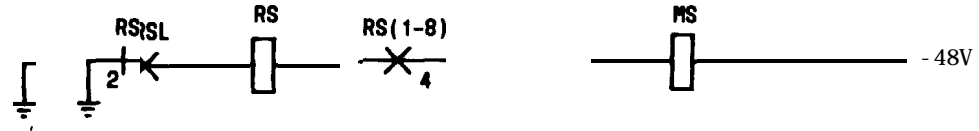
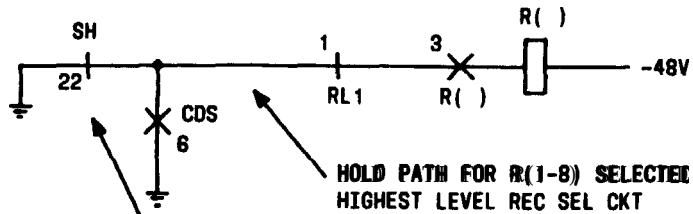


NOTE 8	
TIMER WILL TIME OUT II LES8 THAN 10 SECONDS AND RCVR LAMPS WILL GO OUT	
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CLEAR SWITCHBOARD RCVR LAMP AND DISP FUNCTION TROUBLE

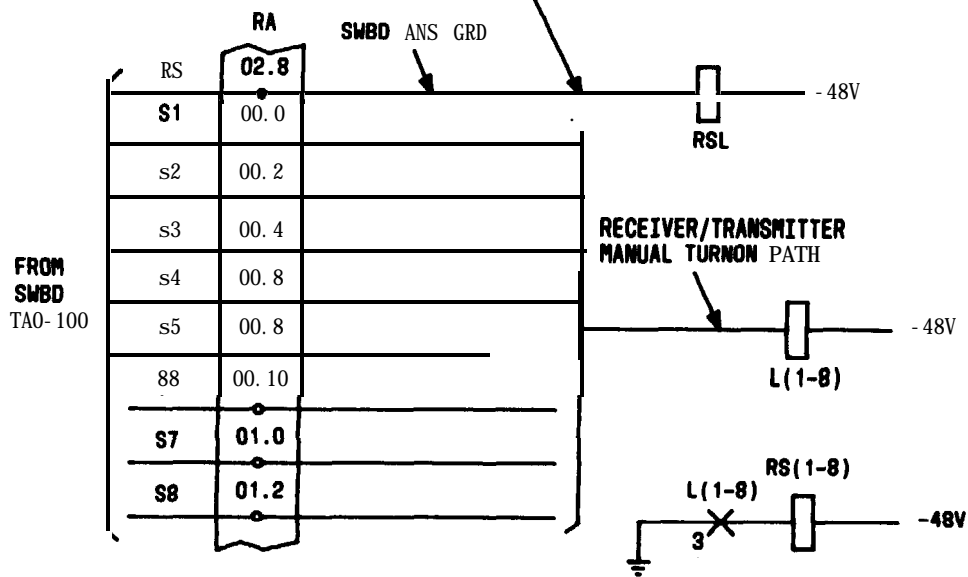


RECEIVER SELECTOR AND TRANSMITTER CONTROL CKT
(SD-317501)

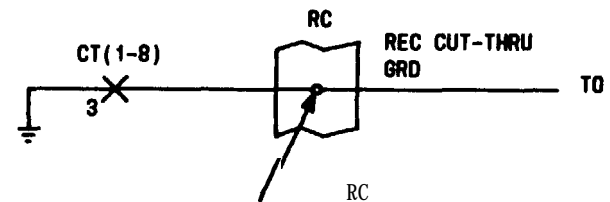


RELAY SH OPERATES AT OPERATOR
DISCONNECT OR **MANUAL** RECEIVER/
TRANSMITTER SELECTION TO RELEASE R()

ANS GRD 18 REMOVED WHEN
MANUAL SELECTION IS MADE AT SWBD



TRANSMITTER TURNON PATH
SHOWN IN TAD-100



RELAY CONTACT ORIENTATION/
COMPONENT LOCATION:
RELAY CONTACT ORIENTATION 18
SHOWN ON TAD-147. COMPONENT
LOCATION 18 SHOWN ON TAD-148
AND TAO-148 FOR CHANNEL BAY
AND COMMON BAY, RESPECTIVELY

- REC I - 00.5
- 2 - 00.11
- 3 - 01.5
- 4 - 01.11
- 5 - 02.5
- 8 - 02.11
- 7 - 03.5
- REC 8 - 03.11

[1] OBTAIN RELEASE TO REMOVE CHANNEL FROM SERVICE AND NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL PROCEDURES [NOTE 1]

[2] AT TECHNICAL OPERATOR PANEL, DEPRESS CH (), TEST GEN AND REC SNDR START [NOTE 2]

[3] AT SWITCHBOARD (SWBD), INSERT CORD PLUG INTO ANS JACK

[4] MOMENTARILY DEPRESS DISP KEY

[5] MOMENTARILY DEPRESS RCVR KEY FOR FLASHING RCVR LAMP

[6] MOMENTARILY DEPRESS DISP KEY [NOTE 3]

AT SWBD EACH IN-SERVICE RCVR LAMP LIGHTS

TAP-109

RCVR LAMPS GO OUT

TAP-109

ALL IN-SERVICE RCVR LAMPS LIGHT AND ONE LAMP FLASHES AT 120-IPM RATE [NOTE 3]

TAP-109

AND

[7] DOES RCVR LAMP THAT WAS FLASHING GO OUT AND OTHERS REMAIN ON

YES

NO

[8] IS S () GROUND PRESENT AT TERMINAL () OF TERMINAL BLOCK RA OF RECEIVER SELECTOR AND TRANSMITTER CONTROL CIRCUIT [TAD-110]

YES

NO

[9] CHECK GROUND PATH OF S () GROUND THROUGH R () RELAY [TAD-100]

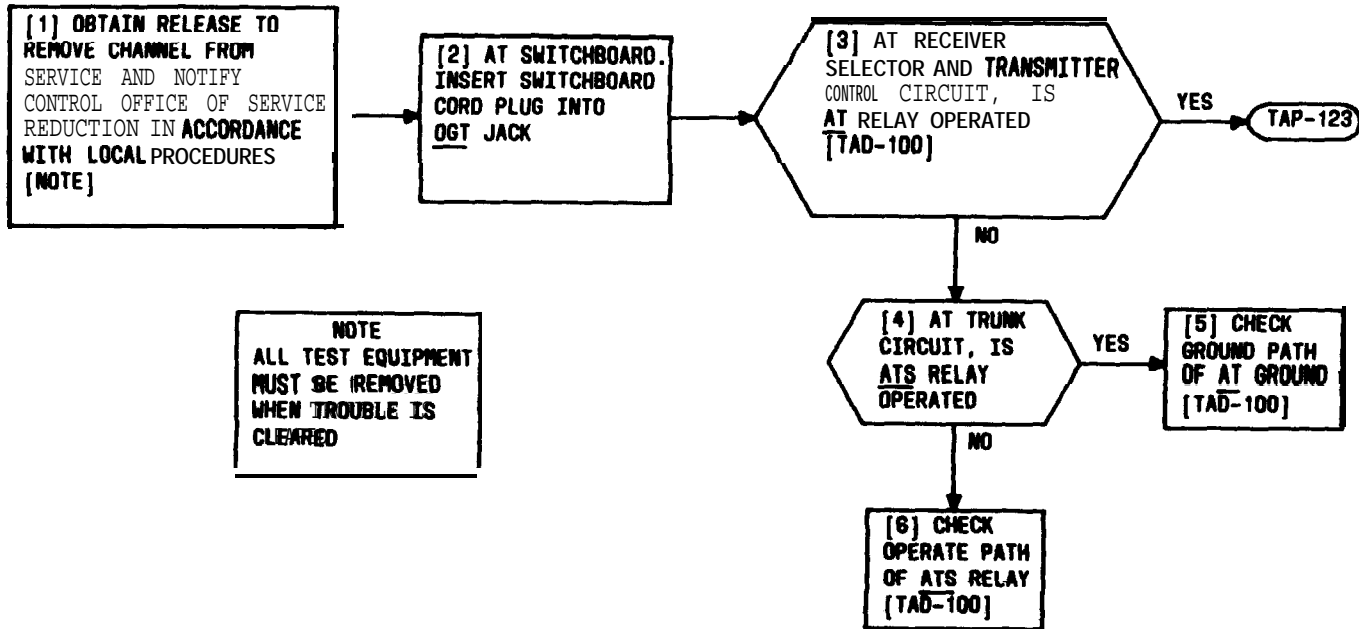
[10] CHECK TRANSMITTER/RECEIVER OPERATE PATH [TAD-110]

NOTES

1. ALL LAMPS ASSOCIATED WITH TROUBLE SHOULD BE CHECKED BEFORE STARTING THIS PROCEDURE
2. TEST GEN MUST BE TURNED OFF BY DEPRESSING TEST GEN AND REC SNDR START KEYS WHEN TROUBLE IS CLEARED OR WHEN THIS PROCEDURE IS LEFT
3. TIMER WILL TIME OUT IN LESS THAN 10 SECONDS AND RCVR LAMPS WILL GO OUT

CLEAR SWITCHBOARD MANUAL TRANSMITTER/RECEIVER SELECT TROUBLE

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[1] OBTAIN RELEASE TO REMOVE CHANNEL FROM SERVICE AND NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL PROCEDURES [NOTE]

[2] AT SWITCHBOARD. INSERT SWITCHBOARD CORD PLUG INTO VC JACK

[3] AT RECEIVER SELECTOR AND TRANSMITTER CONTROL CIRCUIT, IS AT RELAY OPERATED [TAD-100]

YES

TAP-123

NO

[4] AT TRUNK CIRCUIT, IS ATS RELAY OPERATED

YES

[5] CHECK GROUND PATH OF AT GROUND [TAD-100]

NO

[6] CHECK OPERATE PATH OF VC RELAY [TAD-100]

NOTE
ALL TEST EQUIPMENT
MUST BE REMOVED
WHEN TROUBLE IS
CLEARED

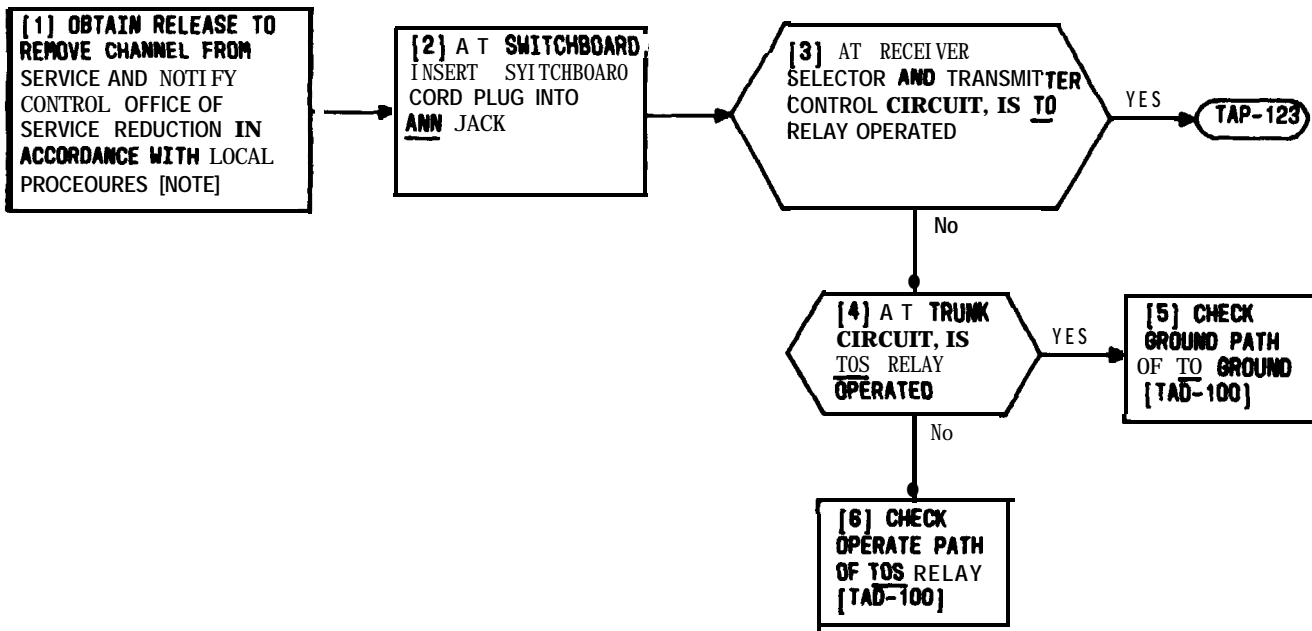
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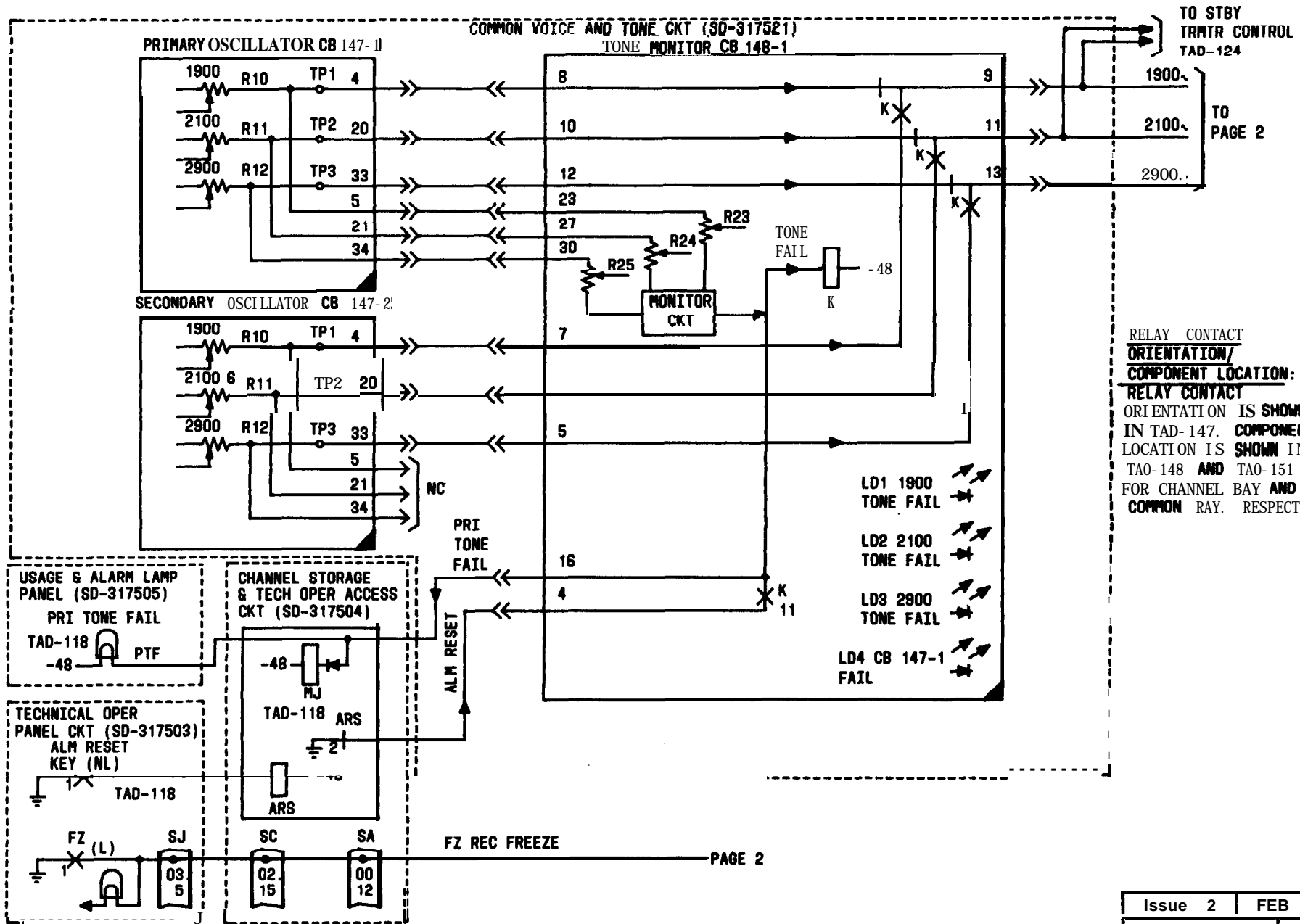
TAP

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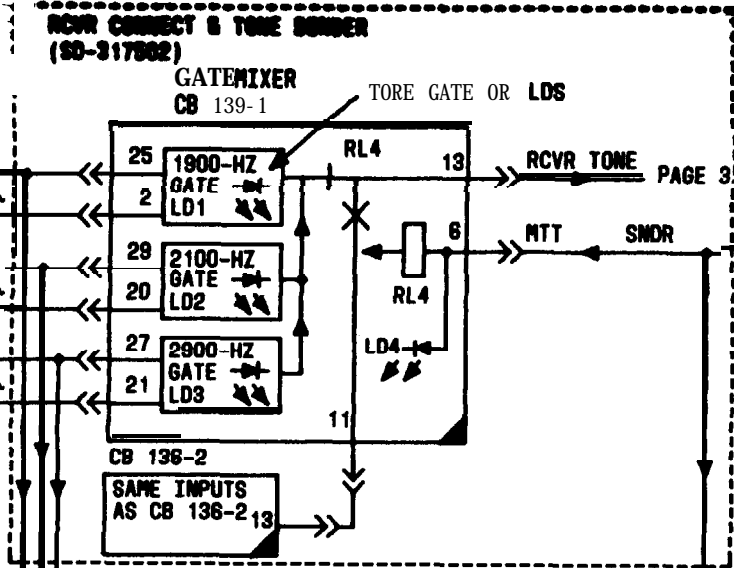
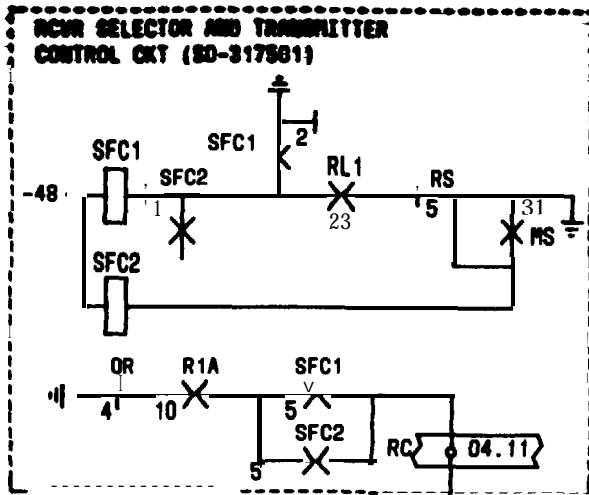
113



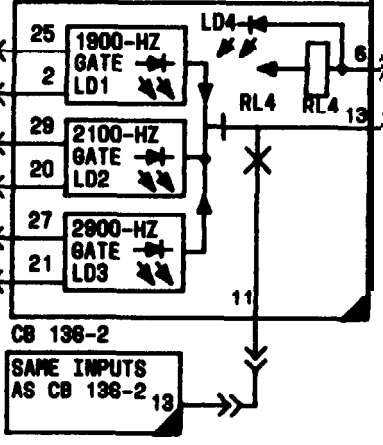
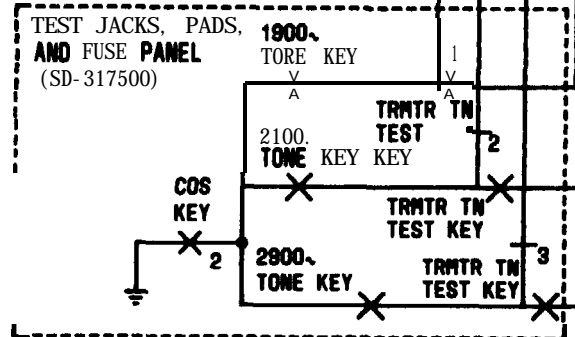
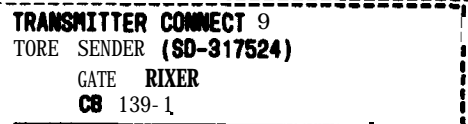
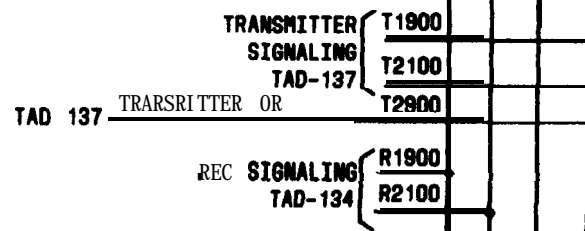
NOTE	
ALL TEST EQUIPMENT MUST BE REMOVED WHEN TROUBLE IS CLEARED	
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1900-HZ, 2100-HZ, AND 2900-HZ TONE CIRCUITS



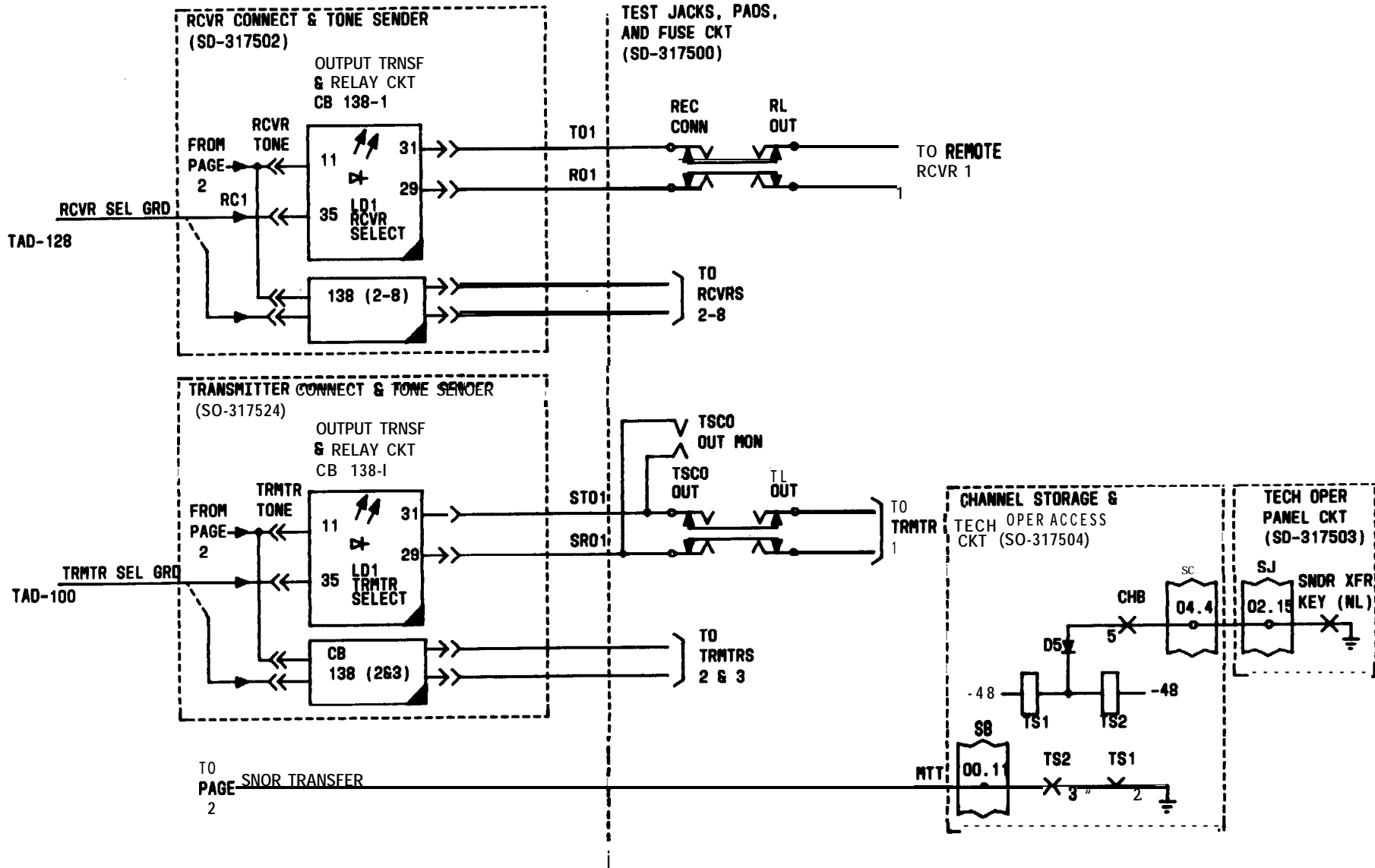
PAGE 1 FZ REC FREEZE



RCVR TONE PAGE 3
MTT SNDR TRANSFER FROM PAGE 3

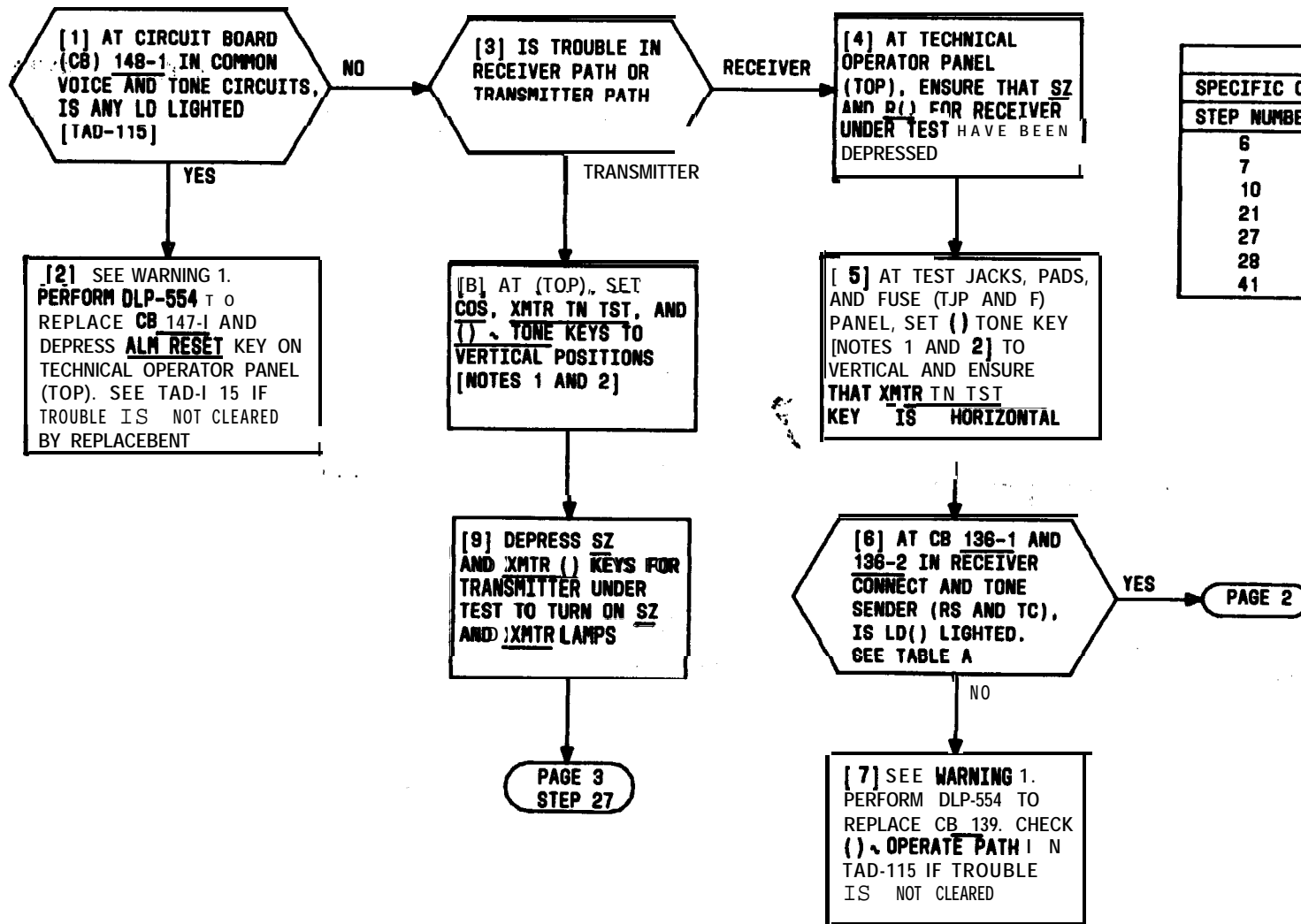
I.TT TRMTR TONE TO PAGE 3

1900-HZ, 2100-HZ, AND 2900-HZ TONE CIRCUITS



1900-HZ, 2100-HZ, AND 2900-HZ TONE CIRCUITS

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STEP NUMBER	1900 HZ	2100 HZ	2900 HZ
6	LD1	LD2	LD3
7	R1900	R2100	R2900
10	LD1	LD2	LD3
21	PIN 25	PIN 29	PIN 27
27	LD1	LD2	LD3
28	T1900	T2100	T2900
41	PIN 25	PIN 29	PIN 27

NOTES

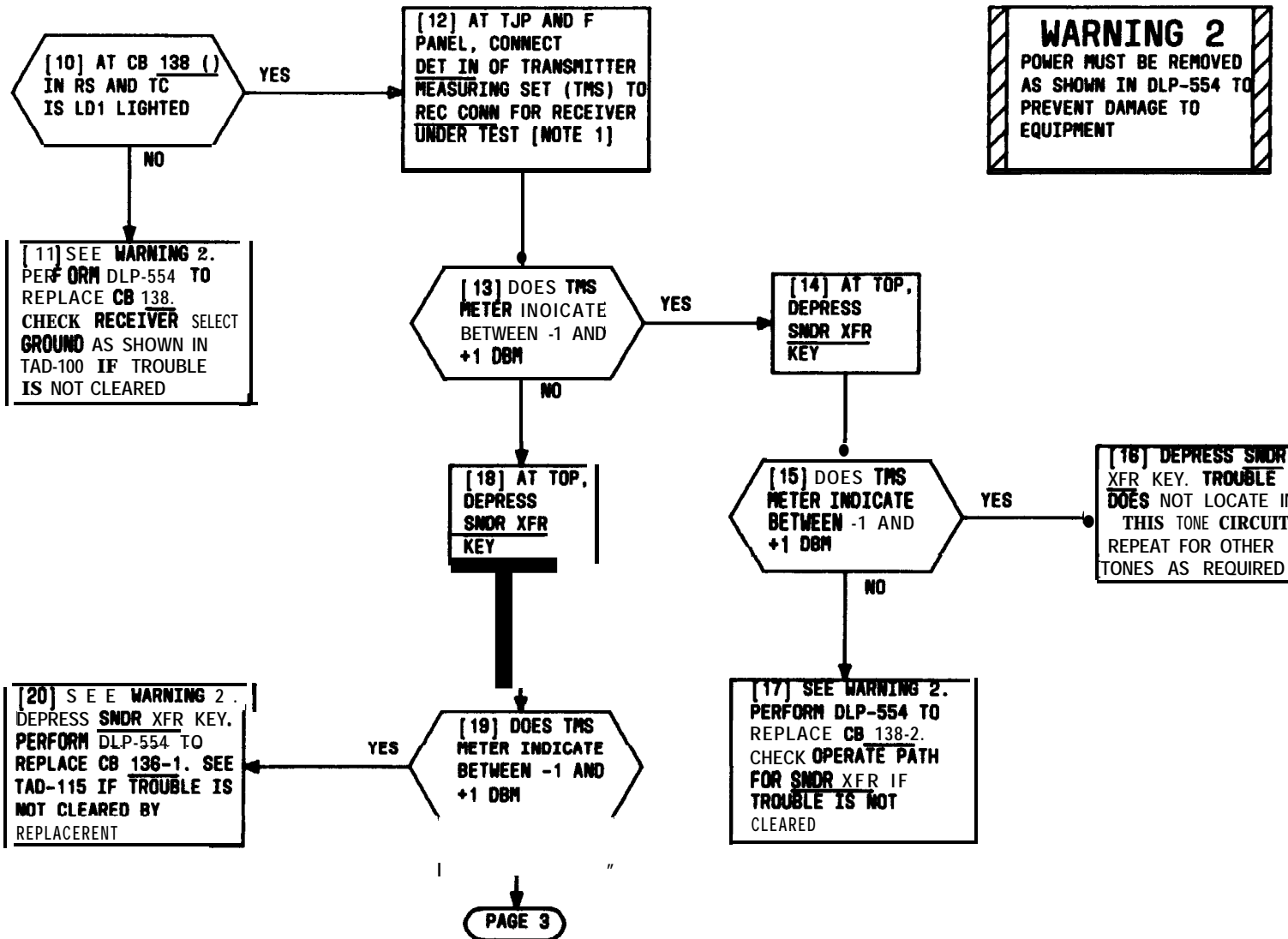
- ALL TEST EQUIPMENT MUST BE **REMOVED** AND KEYS RETURNED TO **NORMAL** WHEN TROUBLE IS CLEARED
- SUBSTITUTE DESIRED TONE, EITHER **1900**, **2100**, OR **2900**, FOR (.)

WARNING 1
POWER MUST BE **REMOVED** AS SHOWN IN DLP-554 TO PREVENT **DAMAGE** TO EQUIPMENT

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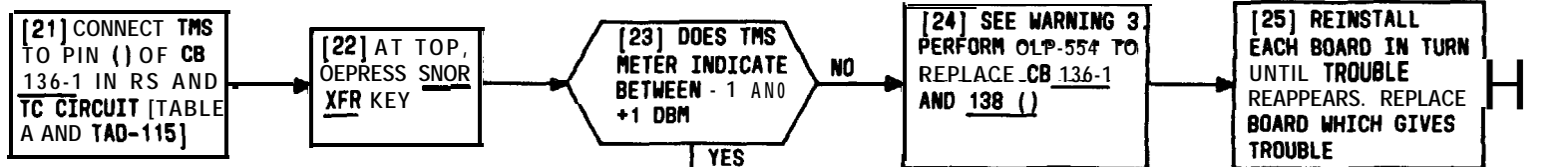
**CLEAR CHANNEL BAY 1900-HZ, 2100-HZ, AND 2900-HZ
TONE TROUBLE**



WARNING 2
POWER MUST BE REMOVED
AS SHOWN IN DLP-554 TO
PREVENT DAMAGE TO
EQUIPMENT

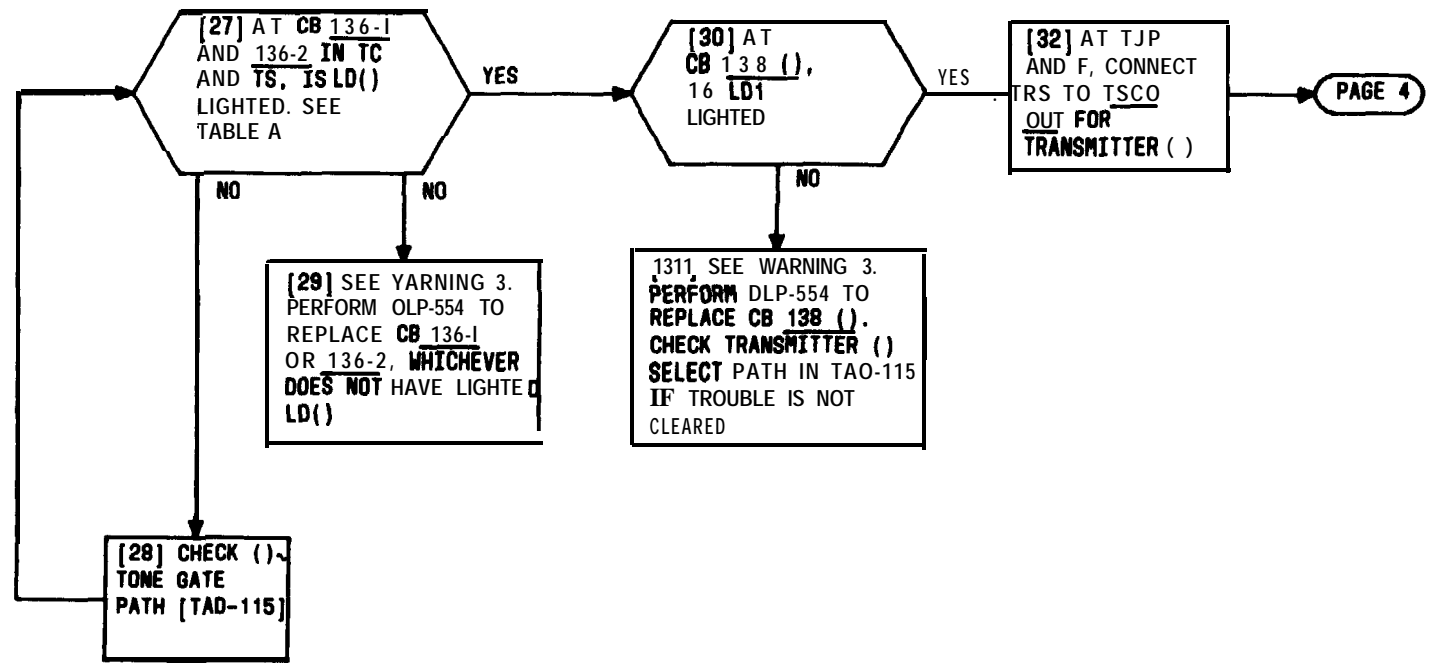
**CLEAR CHANNEL BAY 1900-HZ, 2100-HZ, AND 2900-HZ
TONE TROUBLE**

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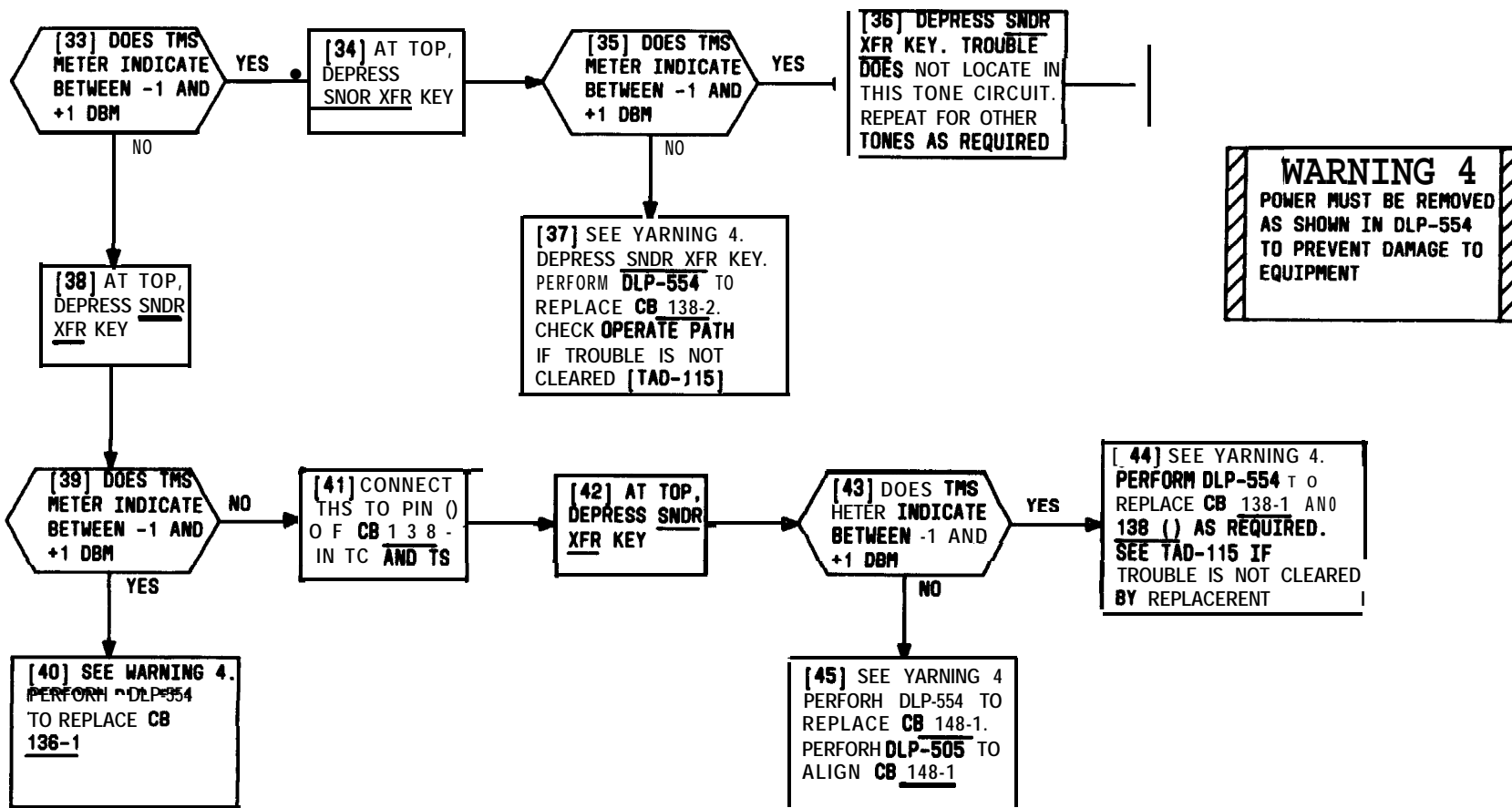
WARNING 3
 POWER **MUST BE** REMOVED AS SHOYN IN OLP-554 TO PREVENT DAMAGE TO **EQUIPMENT**

[26] SEE WARNING 3. PERFORM OLP-554 TO REPLACE CB 148-1 AND OLP-505-76 ALIGN CB 148-i



AR CHANNEL BAY 1900-HZ, 2100-HZ, AND 2900-HZ
E TROUBLE

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WARNING 4
 POWER MUST BE REMOVED
 AS SHOWN IN DLP-554
 TO PREVENT DAMAGE TO
 EQUIPMENT

**CLEAR CHANNEL BAY 1900-HZ, 2100-HZ, AND 2900-HZ
 TONE TROUBLE**

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SUMMARY

ALARH DISPLAYS AT CONTROL TERMINAL AND ASSOCIATED CENTRAL OFFICE ALARMS ARE THE RESULT OF (A) ALARH **CONDITIONS** AT RECEIVER, (B) ALARM CONDITIONS AT **TRANSMITTER**, AND (C) ALARH CONDITIONS AT CONTROL TERMINAL. TROUBLE-CLEARING ALARH CONDITIONS ARE BASED ON FIRST DETERMINING WERE THE ALARM

CONDITIDN EXISTS **BY** SELECTING **FOR** DISPLAY THE CHANNEL ON WHICH ALARH OCCURS AND **BY** OBSERVING SPECIFIC ALARH DISPLAYS: SECOND. **BY DETERMINING** SF ALARH CONDITION IS **HARD** OR **TRANSIENT** **BY** RESETTING ALARH CIRCUITS: AND THIRD, IF ALARH IS REAL, **BY** ISOLATING AND REHOVING ALARM **CONDITION**. SEE NOTE 1

NOTE 1

WITH EXCEPTION **OF** RECEIVER AC FAIL AND **TRANSMITTER** EHERGENCY **POWER** ON, ALL ALARH CONDITIONS ARE INDICATED AS CHANNEL () **MAJ** OR **HIN** DISPLAYS AT THE USAGE AND ALARH (**U** AND **A**) **LAMP** PANEL. ANY ALARM CONDITION, INCLUDING RECEIVER AC FAIL AND TRANSMITTER EHERGENCY PDUER **ON**, WILL ACTIVATE CENTRAL OFFICE **MAJOR** OR **HINDR** AUDIBLE AND VISUAL ALARMS. **FOR SOME ALARMS** CHANNEL DISPLAY IS REQUIRED BEFORE THE SPECIFIC ALARH WILL BE DISPLAYED AT THE U AND A **LAMP** PANEL. TABLE A CONTAINS A CROSS-REFERENCE BETWEEN EACH ALARH CONDITION **AND** THE RESULTING DISPLAYS SHOUN IN TABLE B. SEE PAGES 3 AND 4

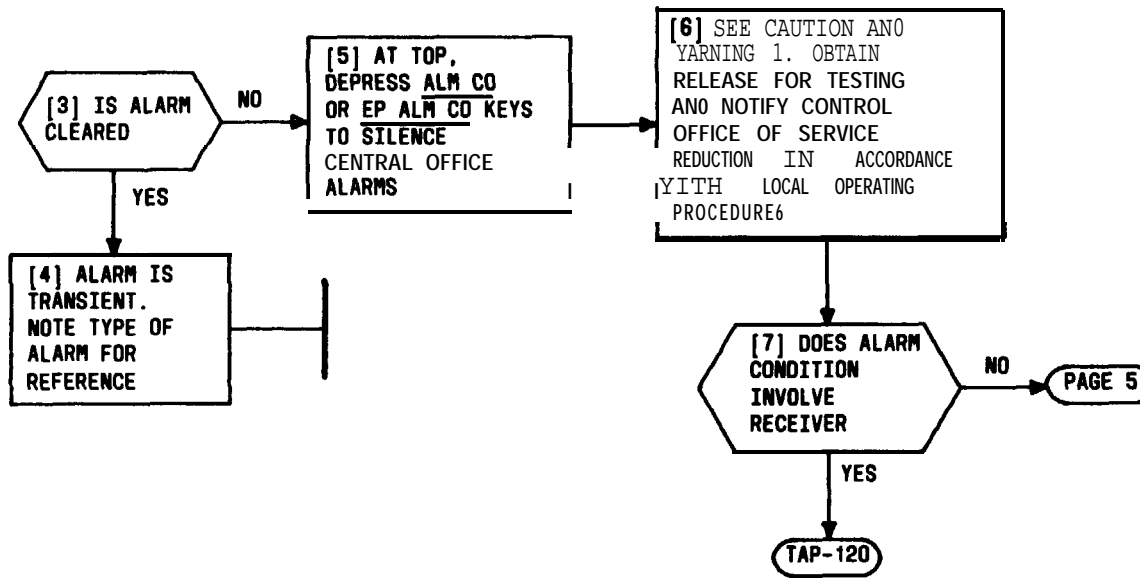
[1] AT TECHNICAL OPERATOR PANEL (TOP), DISPLAY CHANNEL **ON WHICH** ALARH OCCURS BY DEPRESSING **CH ()** KEY AND OBSERVE **ALARH DISPLAYS** AT U AND A **LAMP** PANEL
[NOTE 2]

[2] AT TOP, DEPRESS SPARE **FUNCT RESET**, **VR RESET**, AND **ALM RESET** KEYS

PAGE 2

NOTE 2

ENSURE THAT **ONLY** DESIRED CHANNEL KEY IS LIGHTED BY DEPRESSING OTHER LIGHTED KEY **WHEN MORE** THAN ONE CHANNEL KEY IS LIGHTED, **LDUEST** **NUMBERED** CHANNEL WILL BE DISPLAYED



CLEAR CONTROL TERMINAL ALARMS

CAUTION	
ALL ROUTINE AND TROUBLE-CLEARING PROCEDURE6 ON THE PUBLIC SAFETY AND CALLING CHANNEL MUST BE COORDINATED IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES. SEE TAP-136 BEFORE TESTING SAFETY AND CALLING CHANNEL	
WARNING 1	
WHEN REPLACING CIRCUIT BOARDS, POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT	
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TABLE A - ALARRH CONDITIONS

ALARRH CONDITION	ALARRH DISPLAYS (KEYED TO TABLE B. PAGE 4)
1. RECEIVER () AC FAIL ALARRS A & B*	† A2, B1, D4, E3-4 † A3-4, A11 OR A12, C1 OR C2, D3 OR D4, E1-2 OR E3-4
2. TRANSMITTER () EMERGENCY POWER ALARM ALARRH C ALARRS A & B* RF ALARRH EXCESSIVE STANDING WAVE	† A5, B1, D4, E3-4 † A10, A12, C2, D4, E3-4 † A8-9, A11 OR A12, C1 OR C2, D3 OR D4, E1-2, OR E3-4 † A7, A11, C1, D3, E1-2 † A8, A11, C1, D3, E1-2
3. STANDBY TRANSMITTER EMERGENCY POWER ON EXCESSIVE STANDING WAVE ALARRH C ALARRS A & B* FREQUENCY ALARRH	A18, B1, D4, E3-4 A17, D3, E1-2 A21, D4, E3-4 A19-20, D3 OR D4, E1-2 OR E3-4 † A22, D3, E1-2
4. CHANNEL BAY FUSE ALARRS BLOWN FUSES 1, 11, 12, 13, 14 BLOWN FUSES 2, 3, 10, 15, 18, 18	A12, C2, C3, D4, E3-4 A11, C1, C4, D3, E1-2
5. VOLTAGE REGULATOR FAIL (1 FAILURE)	A12, † A16, C2, D4, E3-4
8. VOLTAGE REGULATOR FAIL (2 OR MORE FAILURES)	A11, † A15, C1, D3, E1-2
7. TONE DSC FAIL - PRI	A11, A13, C1, D3, E1-2
8. TONE OSC FAIL - SIG	A11, A14, C1, D3, E1-2
9. COMMON BAY FUSE ALARRS BLOWN FUSES 3, 5, 7, 9, 11, 13, 17, 18 BLOWN FUSES 1, 2, 4, 8, 8, 10, 12, 14, 15, 18	D2, D3, E1-2 D1, D4, E3-4

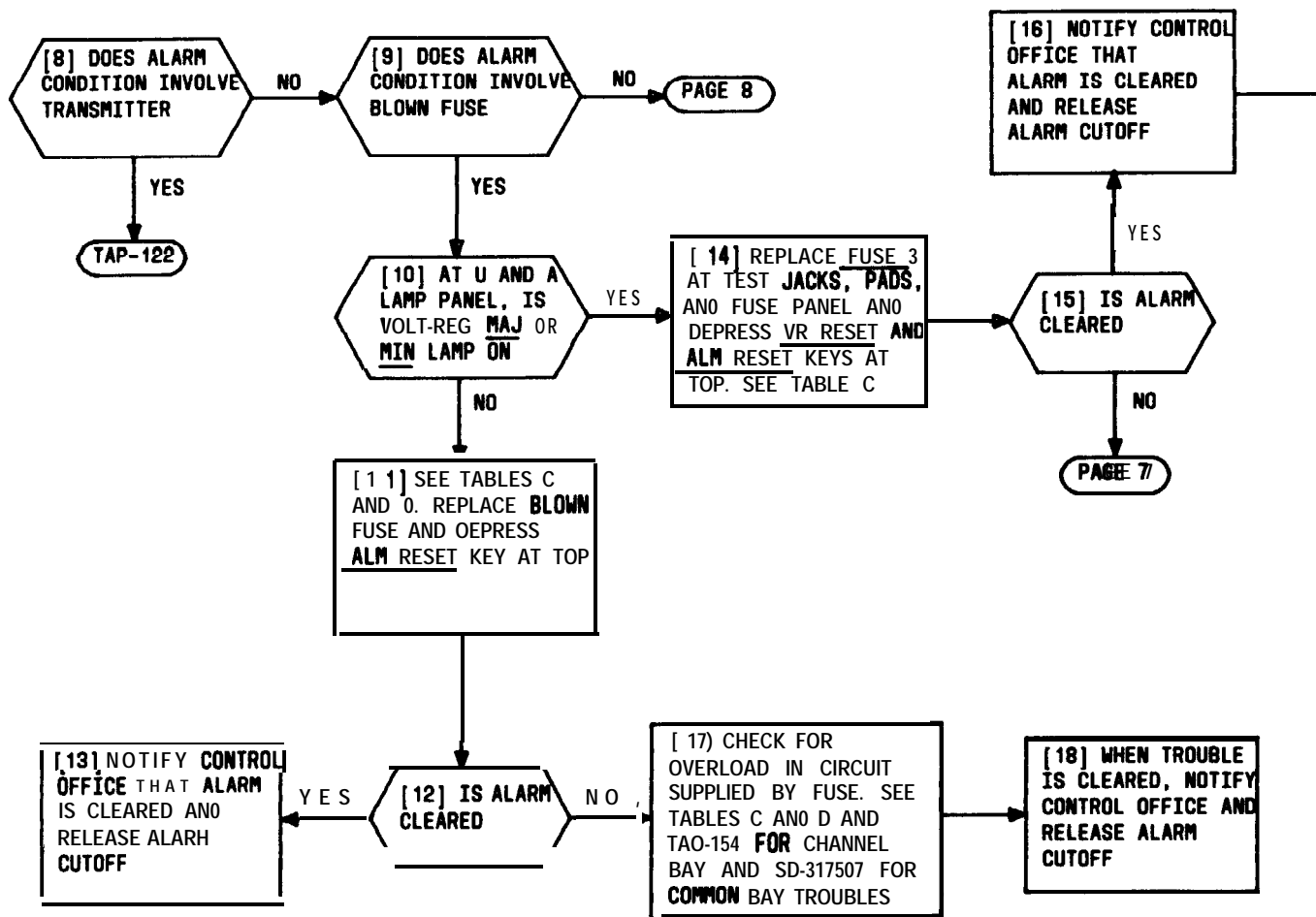
- * CONTROL TERMINAL ALARRS STRAPPED MAJOR OR MINOR DEPENDING ON HOW THEY ARE STRAPPED AT RECEIVER OR TRANSMITTER
 † DISPLAYED WHEN CHANNEL IS SELECTED
 ‡ RONG FRED KEY ON TECHNICAL OPERATOR PANEL MUST BE DEPRESSED

TABLE B - ALARH DISPLAYS REFERENCED FROM TABLE A

A. USAGE AND ALARM LAHP PANEL		
<u>RECEIVER ()</u>		<u>TRANSHITTER ()</u>
1. CD FAIL		5. EP ALARH
2. AC FAIL		6. ESW ALARH
3. ALARM A		7. RF ALARH
4. ALARM B		8. ALARH A
		9. ALARH B
		10. ALARH C
<u>CHANNEL</u>		<u>VOLT-REG</u>
11. HAJ		15. HAJ
12. HIN		16. HIN
13. TONE FAIL - PRI		
14. TONE FAIL - SIG		
		<u>STANDBY TRANSHITTER</u>
		17. ESW ALARH
		18. EP ALARH
		19. ALARH A
		20. ALARH B
		21. ALARH C
		22. FREQ ALARH
B. TECHNICAL OPERATOR PANEL		
1. EP ALH CO		
C. TEST JACKS, PADS. AND FUSE PANEL		
1. HAJ	3. HINF	5. PRI-FAIL
2. WIN	4. HAJF	6. SIG FAIL
D. COMMON BAY FUSE PANEL		
1. MINF	3. MAJ	
2. HAJF	4. HIN	
E. CENTRAL OFFICE ALARMS		
1. MAJOR AUDIBLE	3. MINOR AUDIBLE	
2. MAJOR VISUAL	4. MINOR VISUAL	

CLEAR CONTROL TERMINAL ALARMS

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CLEAR CONTROL TERMINAL ALARMS

SEE WARNING 2		TABLE C
CHANNEL BAY		
USE NO.	ARP	ASSIGNMENT
1	1/2	ALARR LAMP, TEST JACK, AND POST BATTERY
2	3	REC SEL AND TRMTR CONTROL
3	3	VOLTAGE REGULATOR MONITOR AND TRANSFER*
4	SPARE	
5	SPARE	
6	SPARE	
7	SPARE	
8	SPARE	
9	SPARE	
10	1/2	REC CONNECT AND TONE SENDER
11	1/2	REC SIGNALING AND CONTROL NO. 1 AND 2
12	1/2	REC SIGNALING AND CONTROL NO. 3 AND 4
13	1/2	REC SIGNALING AND CONTROL NO. 5 AND 6
14	1/2	REC SIGNALING AND CONTROL NO. 7 AND 8
15	1/2	TRHTR CONNECT AND TONE SENDER
16	1/2	TRHTR SIGNALING AND CONTROL NO. 2 AND 3
17	1/2	HIGHEST LEVEL REC SEL AND TRHTR SIGNALING AND CONTROL NO. 1
18	1/2	COMMON VOICE AND TONE
19	SPARE	
20	1/2	(20 HZ) REC SEL AND TRHTR CONTROL ₄

SEE WARNING 2		TABLE D
COMMON BAY		
FUSE NO.	AMP	ASSIGNMENT
1	1/2	ALARM LAMP, TEST JACK, AND POST BATTERY
2	1-1/3	A. CHANNEL STORAGE AND TECHNICAL
3	1/2	B. OPERATOR ACCESS NO. 1
4	1-1/3	A. CHANNEL STORAGE AND TECHNICAL
5	1/2	B. OPERATOR ACCESS NO. 2
6	1-1/3	A. CHANNEL STORAGE AND TECHNICAL
7	1/2	B. OPERATOR ACCESS NO. 3
8	1-1/3	A. CHANNEL STORAGE AND TECHNICAL
9	1/2	B. OPERATOR ACCESS NO. 4
10	1-1/3	A. CHANNEL STORAGE AND TECHNICAL
11	1/2	B. OPERATOR ACCESS NO. 5
12	1-1/3	A. CHANNEL STORAGE AND TECHNICAL
13	1/2	B. OPERATOR ACCESS NO. 6
14	3	USAGE AND ALARM LAMP AND METER PANEL
15	1-1/3	A. TECHNICAL OPERATOR PANEL
16	1/2	STANDBY TRANSMITTER CONTROL
17	1/2	24-HOUR TIMER
18	1/2	B. TECHNICAL OPERATOR PANEL
19	SPARE	
20	SPARE	

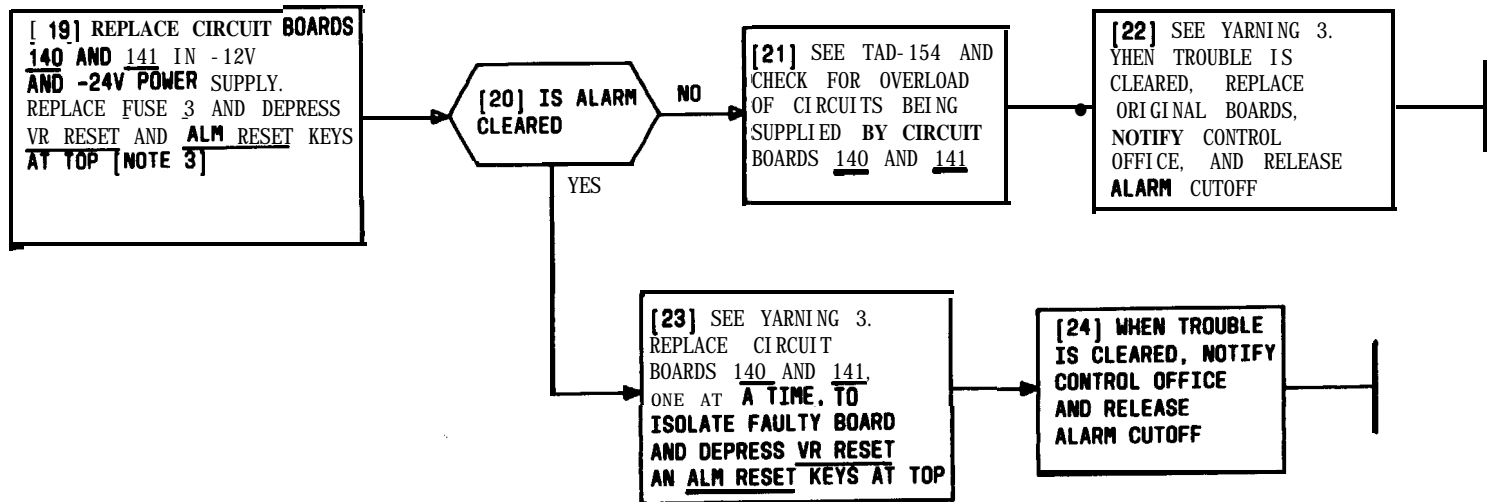
24-HR TIMER | N COMMON BAY WILL
 REQUIRE RESETING AFTER REMOVAL OF
 FUSE 3 WITHIN CHANNEL BAY

* NOT CONNECTED TO ALARR CIRCUIT

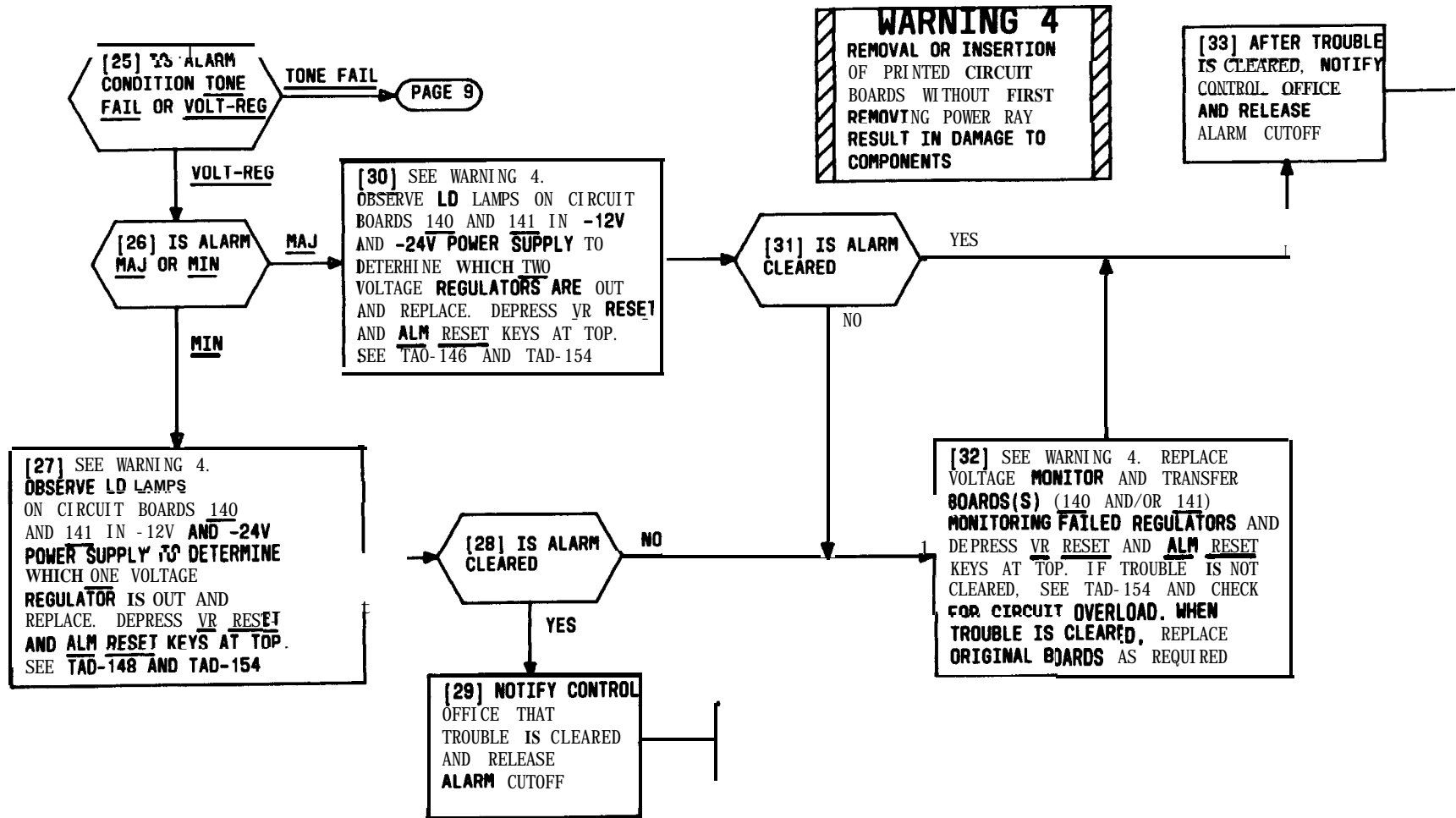
WARNING 2
 VOLTAGE MAY STILL BE
 PRESENT ON UNIT AFTER
 REMOVING FUSES DUE TO
 FEED THRU FROM LAMP
 AND RELAY CIRCUITS ON
 OTHER UNITS

CLEAR CONTROL TERMINAL ALARMS

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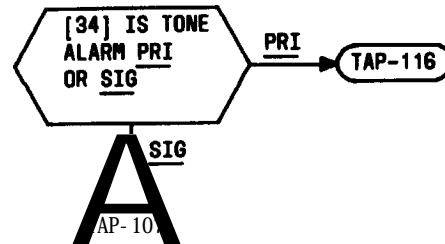
NOTE 3	
ENSURE ADJUSTMENT OF NEW BOARD [DLP-502 OR DLP-503]	
WARNING 3	
REMOVAL OR INSERTION OF PRINTED CIRCUIT BOARDS YITHOUT FIRST REMOVING POWER RAY RESULT IN DAMAGE TO COMPONENTS	
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WARNING 4
REMOVAL OR INSERTION
OF PRINTED CIRCUIT
BOARDS WITHOUT FIRST
REMOVING POWER MAY
RESULT IN DAMAGE TO
COMPONENTS

CLEAR CONTROL TERMINAL ALARMS

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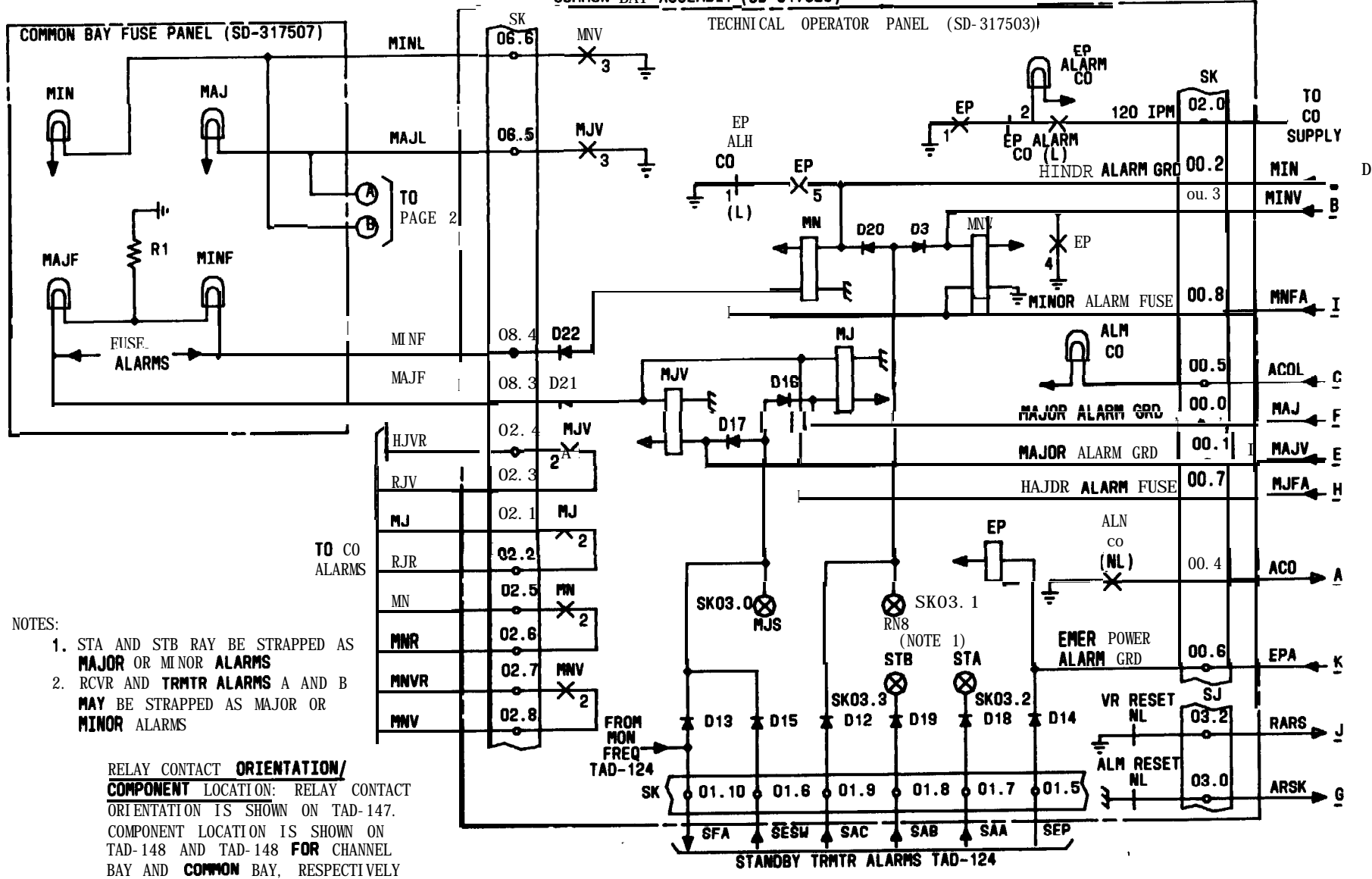
CLEAR CONTROL TERMINAL ALARMS

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COMMON BAY ASSEMBLY (SD-317525)

TECHNICAL OPERATOR PANEL (SD-317503)

COMMON BAY FUSE PANEL (SD-317507)



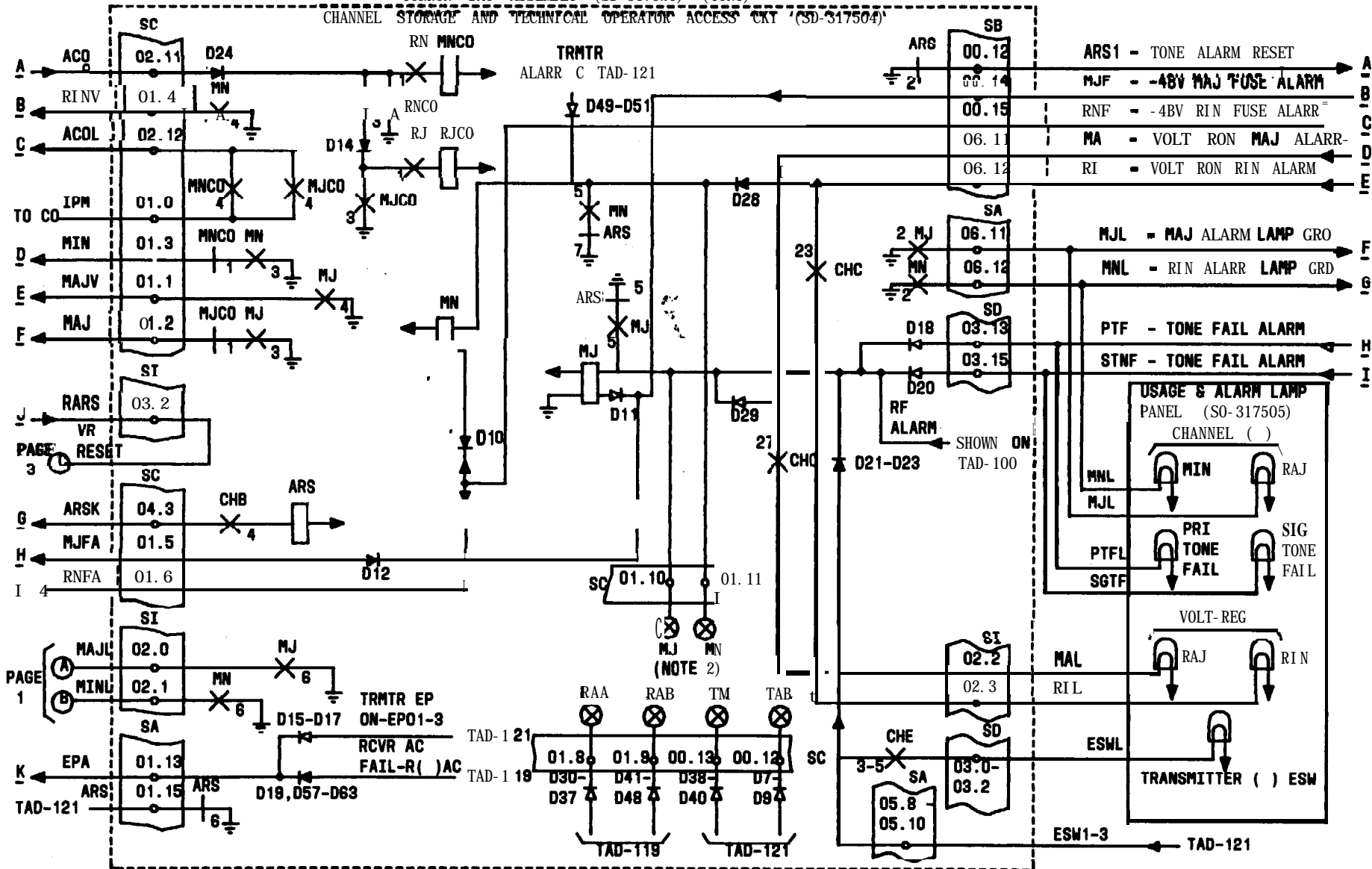
- NOTES:
1. STA AND STB RAY BE STRAPPED AS MAJOR OR MINOR ALARMS
 2. RCVR AND TRMTR ALARMS A AND B MAY BE STRAPPED AS MAJOR OR MINOR ALARMS

RELAY CONTACT ORIENTATION/
 COMPONENT LOCATION: RELAY CONTACT ORIENTATION IS SHOWN ON TAD-147. COMPONENT LOCATION IS SHOWN ON TAD-148 AND TAD-148 FOR CHANNEL BAY AND COMMON BAY, RESPECTIVELY

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CONTROL TERMINAL ALARM CIRCUITS

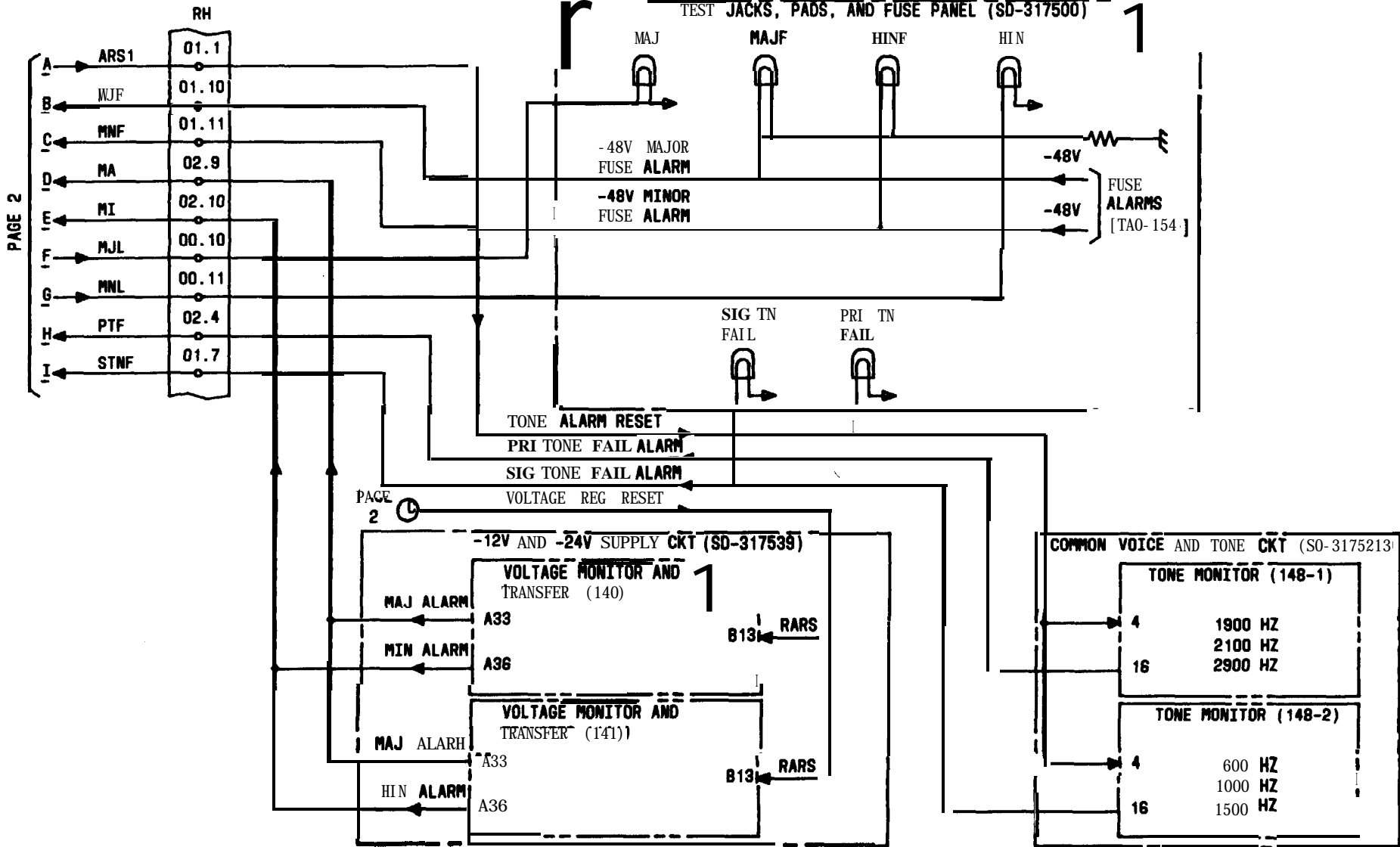
CORRON BAY ASSEMBLY (SD-317520) (CONT)
 CHANNEL STORAGE AND TECHNICAL OPERATOR ACCESS CKT (SD-317504)



CONTROL TERMINAL ALARM CIRCUITS

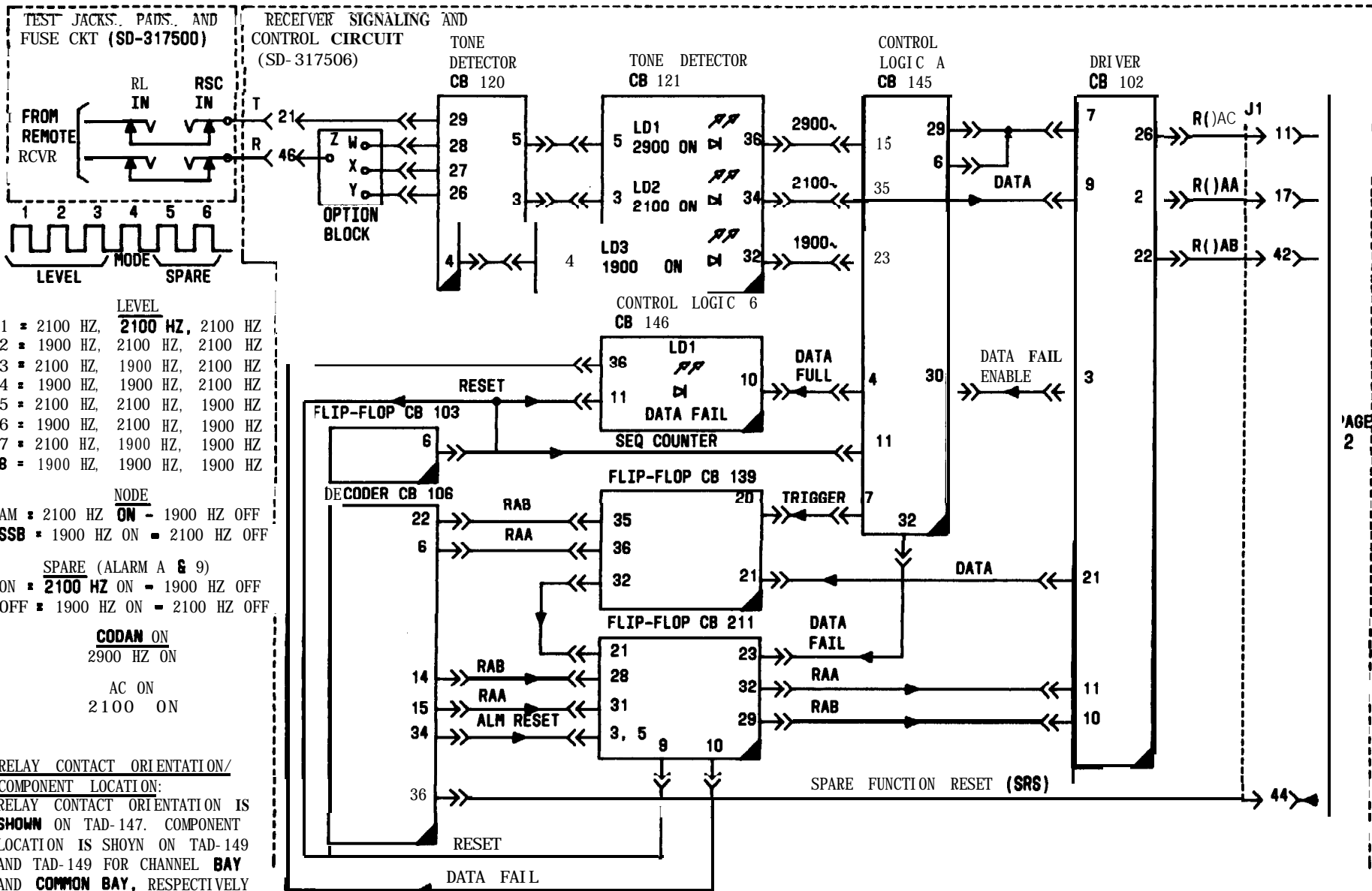
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TEST JACKS, PADS, AND FUSE PANEL (SD-317500)



CONTROL TERMINAL ALARM CIRCUITS

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- LEVEL**
- 1 = 2100 HZ, 2100 HZ, 2100 HZ
 - 2 = 1900 HZ, 2100 HZ, 2100 HZ
 - 3 = 2100 HZ, 1900 HZ, 2100 HZ
 - 4 = 1900 HZ, 1900 HZ, 2100 HZ
 - 5 = 2100 HZ, 2100 HZ, 1900 HZ
 - 6 = 1900 HZ, 2100 HZ, 1900 HZ
 - 7 = 2100 HZ, 1900 HZ, 1900 HZ
 - 8 = 1900 HZ, 1900 HZ, 1900 HZ

NOTE

AM = 2100 HZ ON - 1900 HZ OFF

SSB = 1900 HZ ON = 2100 HZ OFF

SPARE (ALARM A & 9)

ON = 2100 HZ ON - 1900 HZ OFF

OFF = 1900 HZ ON - 2100 HZ OFF

CODAN ON

2900 HZ ON

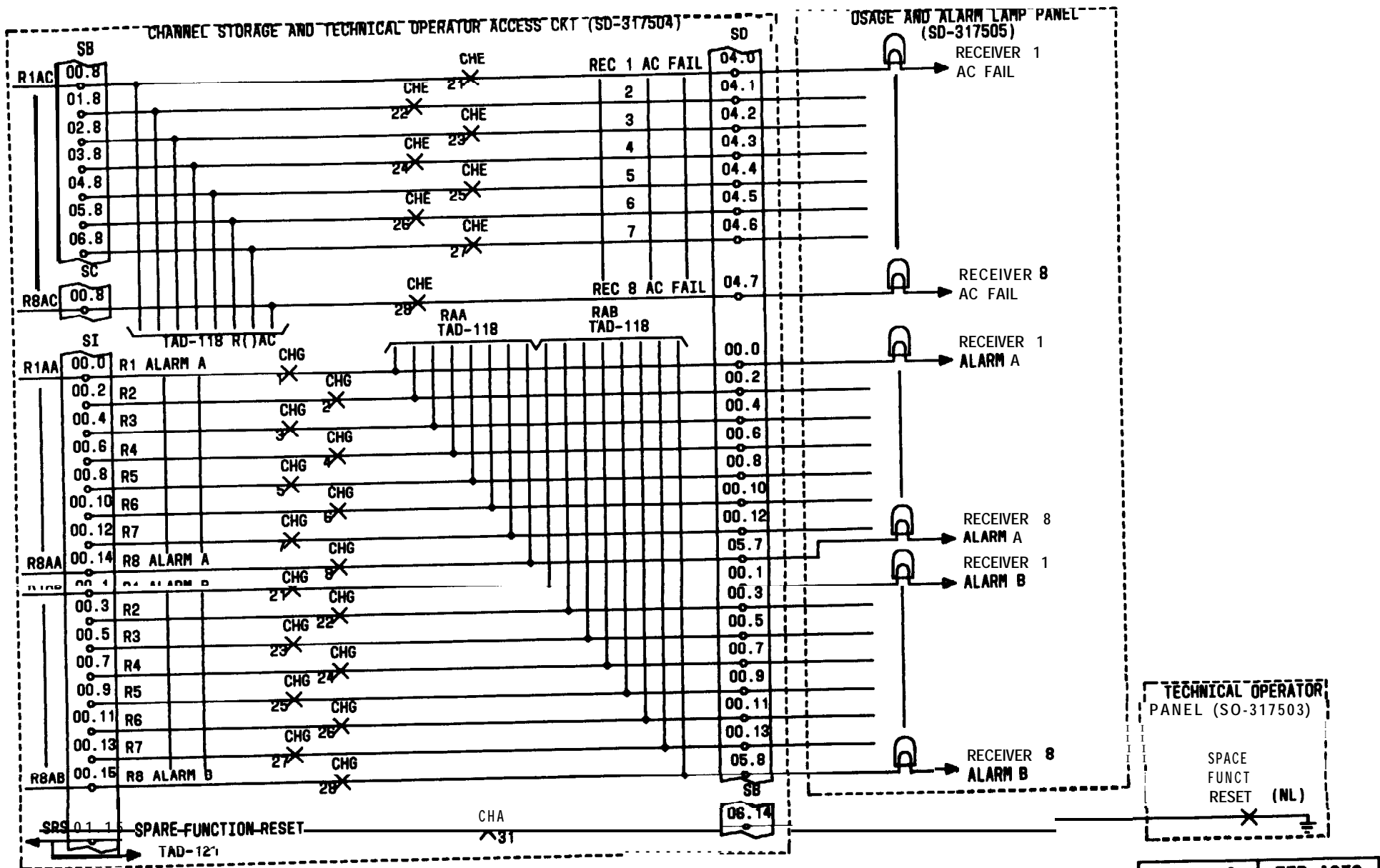
AC ON

2100 ON

RELAY CONTACT ORIENTATION/COMPONENT LOCATION:

RELAY CONTACT ORIENTATION IS SHOWN ON TAD-147. COMPONENT LOCATION IS SHOWN ON TAD-149 AND TAD-149 FOR CHANNEL BAY AND COMMON BAY, RESPECTIVELY

PAGE 2

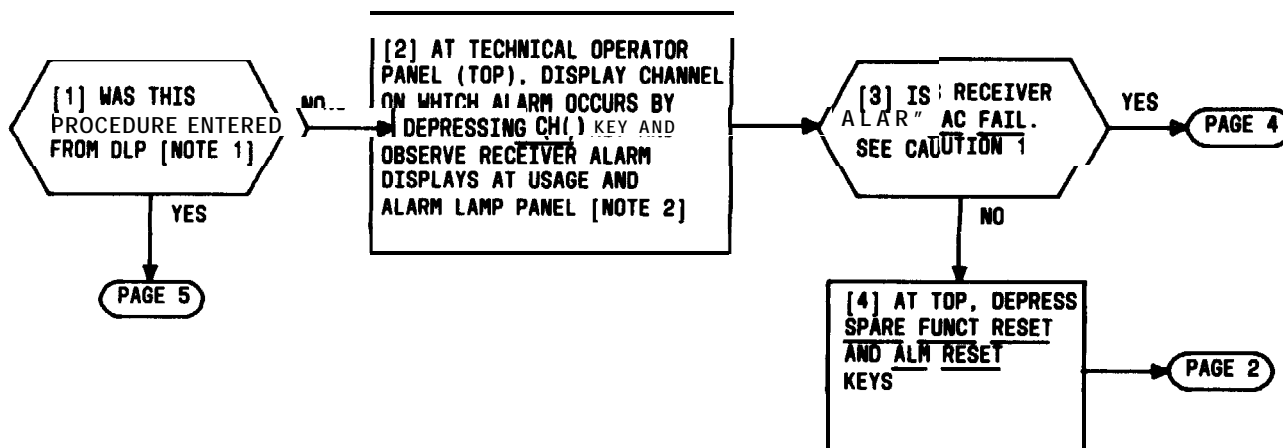


RECEIVER ALARM CIRCUITS

SUMMARY

RECEIVER ALARM DISPLAYS AND ASSOCIATED OFFICE ALARMS RESULT FROM THE ABSENCE OR PRESENCE OF SIGNALING TONES FROM RECEIVER. DURING IDLE CONDITION AT RECEIVER, 2100-HZ TONE (INDICATION COMMERCIAL POWER IS AVAILABLE) IS SENT FROM RECEIVER TO PREVENT AC FAIL INDICATION AT CONTROL TERMINAL. SEE CAUTION 1. WHEN RECEIVER IS IN USE, 2900-HZ (CODAN ON) TONE SENT FROM RECEIVER INHIBITS AC FAIL INDICATION. ALARMS A AND B RESULT FROM 2100-HZ PULSES (PULSES 5 AND 6) WITHIN DATA TRAIN SENT FROM

RECEIVER AFTER CODAN RELEASE. CONDITIONS FOR ALARMS A AND B ARE DETERMINED BY STRAP-OPTIONS AT RECEIVER. TROUBLE CLEARING RECEIVER ALARMS IS BASED ON FIRST DETERMINING WHERE THE ALARM CONDITION EXISTS BY SELECTING FOR DISPLAY CHANNEL ON WHICH ALARM OCCURS AND DETERMINING IF ALARM IS REAL, TRANSIENT, OR FALSE BY RESETTING ALARM CIRCUITS AND/OR BLOCKING RECEIVER INPUT: SECOND, IF ALARM IS REAL, BY REFERRING CONDITION TO RECEIVER PERSONNEL; AND THIRD, IF ALARM IS FALSE, BY TROUBLE CLEARING FAULTY ALARM CIRCUITS AT CONTROL TERMINAL.



NOTES

1. RELAY CONTACT ORIENTATION! COMPONENT LOCATION: RELAY CONTACT ORIENTATION IS SHOWN IN TAD-147. COMPONENT LOCATION IS SHOWN IN TAD-149 AND TAD-149 FOR CHANNEL BAY AND COMMON BAY, RESPECTIVELY
2. ENSURE THAT ONLY THE DESIRED CHANNEL KEY IS LIGHTED BY DEPRESSING OTHER LIGHTED KEYS. WHEN MORE THAN ONE CHANNEL KEY IS LIGHTED, LOWEST NUMBERED CHANNEL WILL BE DISPLAYED

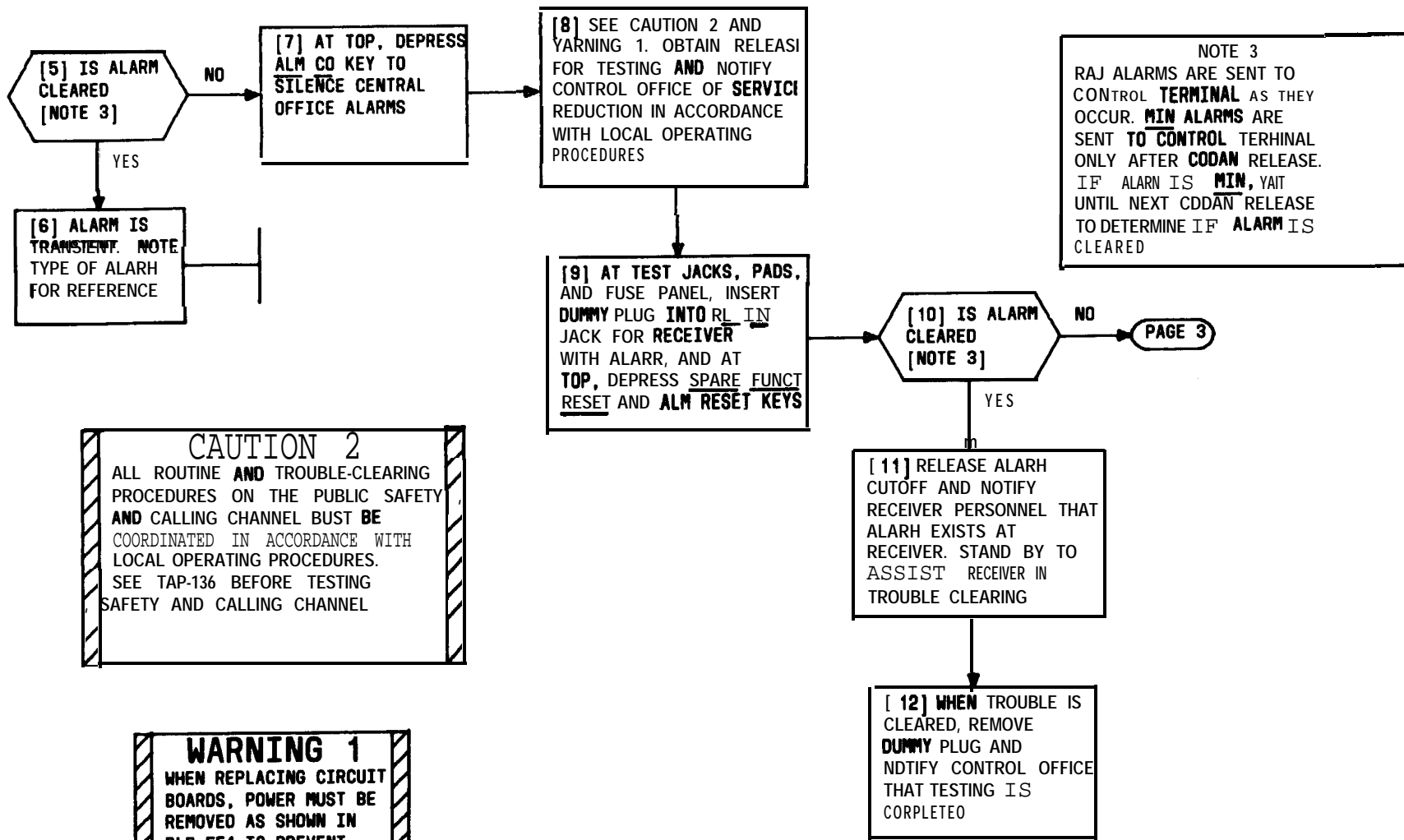
CAUTION 1

BATTERY POWER TO OPERATE RECEIVER IS LIMITED. CLEAR AC FAIL CONDITION AT RECEIVER AS SOON AS POSSIBLE TO PREVENT SERVICE INTERRUPTION

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CAUTION 2
 ALL ROUTINE AND TROUBLE-CLEARING PROCEDURES ON THE PUBLIC SAFETY AND CALLING CHANNEL MUST BE COORDINATED IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES. SEE TAP-136 BEFORE TESTING SAFETY AND CALLING CHANNEL

WARNING 1
 WHEN REPLACING CIRCUIT BOARDS, POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

NOTE 3
 RAJ ALARMS ARE SENT TO CONTROL TERMINAL AS THEY OCCUR. MIN ALARMS ARE SENT TO CONTROL TERMINAL ONLY AFTER CODAN RELEASE. IF ALARM IS MIN, WAIT UNTIL NEXT CODAN RELEASE TO DETERMINE IF ALARM IS CLEARED

CLEAR RECEIVER ALARMS

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[13] SEE WARNING 2. IN RECEIVER SIGNALING AND CONTROL (RS AND C) CKT FOR RECEIVER UNDER TEST, REMOVE CIRCUIT BOARD 102, REPLACE FUSE, AND AT TOP DEPRESS ALM RESET KEY

[14] IS ALARM CLEARED

[15] CHECK FOR FOREIGN GROUND IN ALARM CIRCUITS AS SHOWN IN TAD-118

[16] SEE WARNING 2. WHEN TROUBLE IS CLEARED, REPLACE CIRCUIT BOARD 102, RELEASE ALARM CUTOFF, AND NOTIFY CONTROL OFFICE THAT TESTING IS COMPLETED

[17] SEE WARNING 2. INSTALL NEW 102 BOARD IN PLACE OF REMOVED 102 BOARD AND AT TOP, DEPRESS SPARE FUNCT RESET AND ALM RESET KEY

[18] IS ALARM CLEARED

[20] SEE WARNING 2. ISOLATE TROUBLE IN RS AND C CIRCUIT, REPLACE CIRCUIT BOARDS 211, 106, AND 139, ONE AT A TIME, AND DEPRESS SPARE FUNCT RESET AND ALM RESET KEYS AT TOP AFTER EACH REPLACEMENT. IF TROUBLE IS NOT CLEARED, CHECK WIRING AS SHOWN IN TAD-113

[21] SEE WARNING 2. WHEN TROUBLE IS CLEARED, REPLACE CIRCUIT BOARD 102, RELEASE ALARM CUTOFF, AND NOTIFY CONTROL OFFICE THAT TESTING IS COMPLETED

[19] RELEASE ALARM CUTOFF AND NOTIFY CONTROL OFFICE THAT TESTING IS COMPLETED

WARNING 2
WHEN REPLACING CIRCUIT BOARDS, POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

[22] SEE CAUTION 3. OBTAIN RELEASE FOR TESTING AND NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES AND DEPRESS EP ALM CO AT TOP

[23] IN RS AND C CKT FOR RECEIVER UNDER TEST, IS LD1 OR LD2 ON CIRCUIT BOARD 121 ON

YES

NO

[24] SEE SUMMARY, PAGE 1 AT TEST JACKS, PADS, AND FUSE PANEL, MONITOR FOR 2100 HZ (-10.0 TO -24.0 DBM) AT RL IN JACK FOR RECEIVER UNDER TEST

[25] IS TONE LEVEL CORRECT

YES

NO

[26] REMOVE MONITOR CONNECTION FROM RL IN JACK AND RELEASE ALARM CUTOFF. NOTIFY RECEIVER PERSONNEL OF AC FAIL AT RECEIVER AND STAND BY TO ASSIST RECEIVER PERSONNEL IN TROUBLE CLEARING

[28] SEE YARNING 3. REPLACE CIRCUIT BOARDS 102 AND 121 IN RECEIVER SIGNALING AND CONTROL CKT FOR RECEIVER UNDER TEST. ONE AT A TIME, TO ISOLATE TROUBLE. IF TROUBLE IS NOT CLEARED, CHECK WIRING AS SHOWN IN TAD-119

[27] WHEN TROUBLE IS CLEARED, NOTIFY CONTROL OFFICE THAT TESTING IS COMPLETED

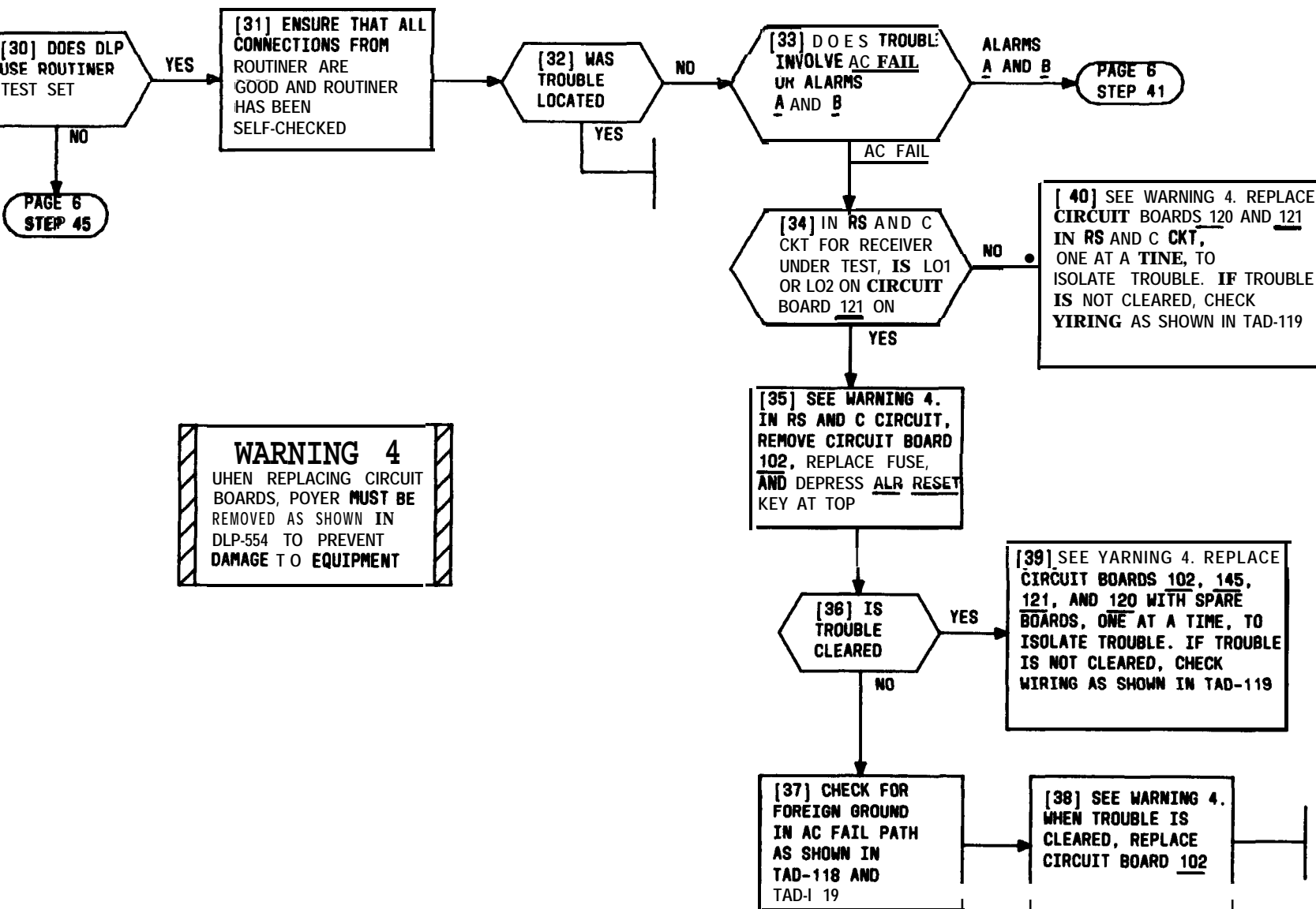
[29] WHEN TROUBLE IS CLEARED, RELEASE ALARM CUTOFF AND NOTIFY CONTROL OFFICE THAT TESTING IS COMPLETED

WARNING 3
WHEN REPLACING CIRCUIT BOARDS, POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

CAUTION 3
ALL ROUTINE AND TROUBLE-CLEARING PROCEDURES ON THE SAFETY AND CALLING CHANNEL MUST BE COORDINATED IN LOCAL ACCORDANCE WITH OPERATING PROCEDURES. SEE TAP-136 BEFORE TESTING SAFETY AND CALLING CHANNEL

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CLEAR RECEIVER ALARMS



WARNING 4
WHEN REPLACING CIRCUIT BOARDS, POYER **MUST BE** REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

[41] SEE WARNING 5. IN RS AND C CKT FOR RECEIVER UNDER TEST, GROUND PIN 23 FOR ALARM A AND PIN 22 FOR ALARM B ON CIRCUIT BOARD 102

[42] DO ALARMS OPERATE

[43] SEE WARNING 6. REMOVE GROUND AT PINS 23 AND 22 OF CIRCUIT BOARD 102. REPLACE CIRCUIT BOARDS 102, 211, 106, AND 139, ONE AT A TIME, AND REPEAT TEST ON WHICH TROUBLE OCCURRED TO ISOLATE TROUBLE. IF TROUBLE IS NOT CLEARED, CHECK WIRING AS SHOWN IN TAD-119

[44] CHECK ALARM OPERATE PATH AS SHOWN IN TAD-118 AND TAD-119

WARNING 5
USE CARE WHEN APPLYING GROUND TO PREVENT GROUNDING WRONG PIN

WARNING 6
WHEN REPLACING CIRCUIT BOARDS, POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

[45] DOES TROUBLE INVOLVE AC FAIL OR ALARM CUTOFF

AC FAIL

ALARM CUTOFF

[47] IN RS AND C CKT FOR RECEIVER UNDER TEST, IS LD1 OR LD2 ON CIRCUIT BOARD 121 ON

YES

NO

[46] SEE WARNING 6. REPLACE CIRCUIT BOARDS 121 AND 120, ONE AT A TIME, TO ISOLATE TROUBLE [TAD-119]

[46] CHECK OPERATE PATH OF ALARM CUTOFF CIRCUITS AS SHOWN IN TAD-118

[49] SEE WARNING 5. GROUND PIN 26 ON CIRCUIT BOARD 102 IN RS AND C CKT

[50] DOES ALARM OPERATE

NO

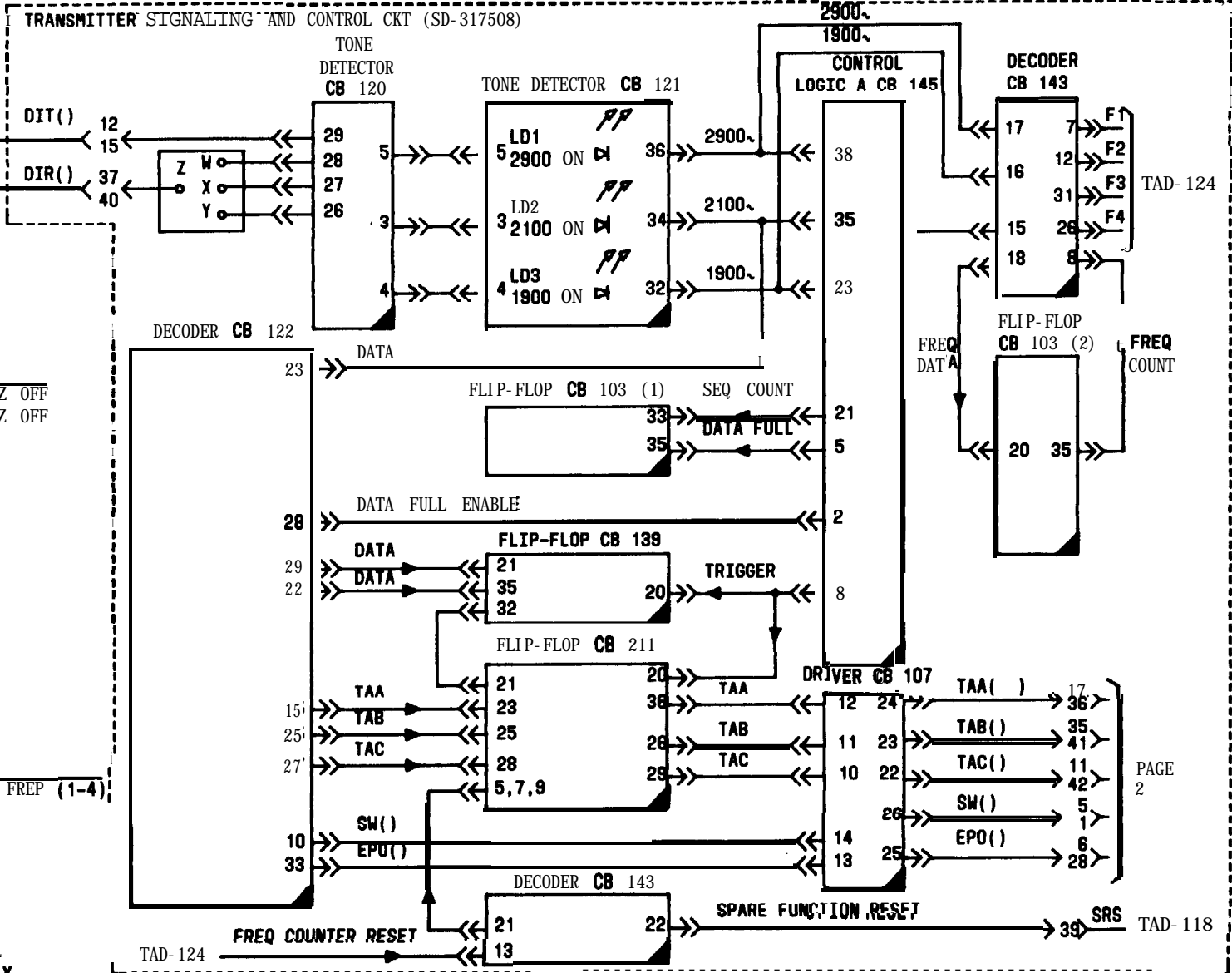
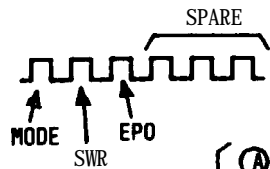
YES

[52] CHECK AC FAIL OPERATE PATH A6 SHOWN IN TAO-116 AND TAD-116. REMOVE GROUND FROM BOARD 102 WHEN TROUBLE IS CLEARED

[51] SEE WARNING 6. REMOVE GROUND FROM PIN 26 OF BOARD 102 AND REPLACE CIRCUIT BOARDS 102, 145, 121, AND 120, ONE AT A TIME, TO ISOLATE TROUBLE [TAO-116]

CLEAR RECEIVER ALARMS

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A. MODE
SSB = 1800 HZ ON-2100 HZ OFF

B. SWR
NORMAL = 1800 HZ ON-2100 HZ OFF
EXCESSIVE = 2100 HZ ON-1800 HZ OFF

C. EPO
ON = 2100 HZ ON-1800 HZ OFF
OFF = 1800 HZ ON-2100 HZ OFF

D. SPARE (ALARMS A, B, AND C)
ON = 2100 HZ ON-1800 HZ OFF
OFF = 1800 HZ ON-2100 HZ OFF

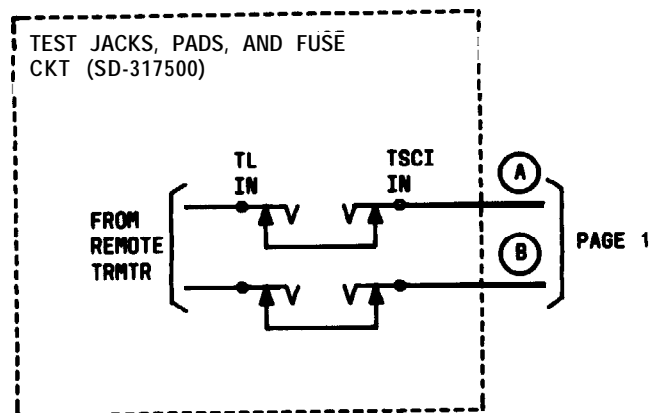
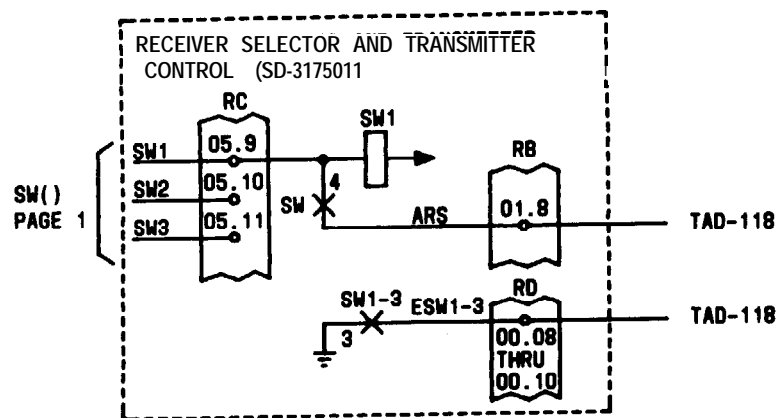
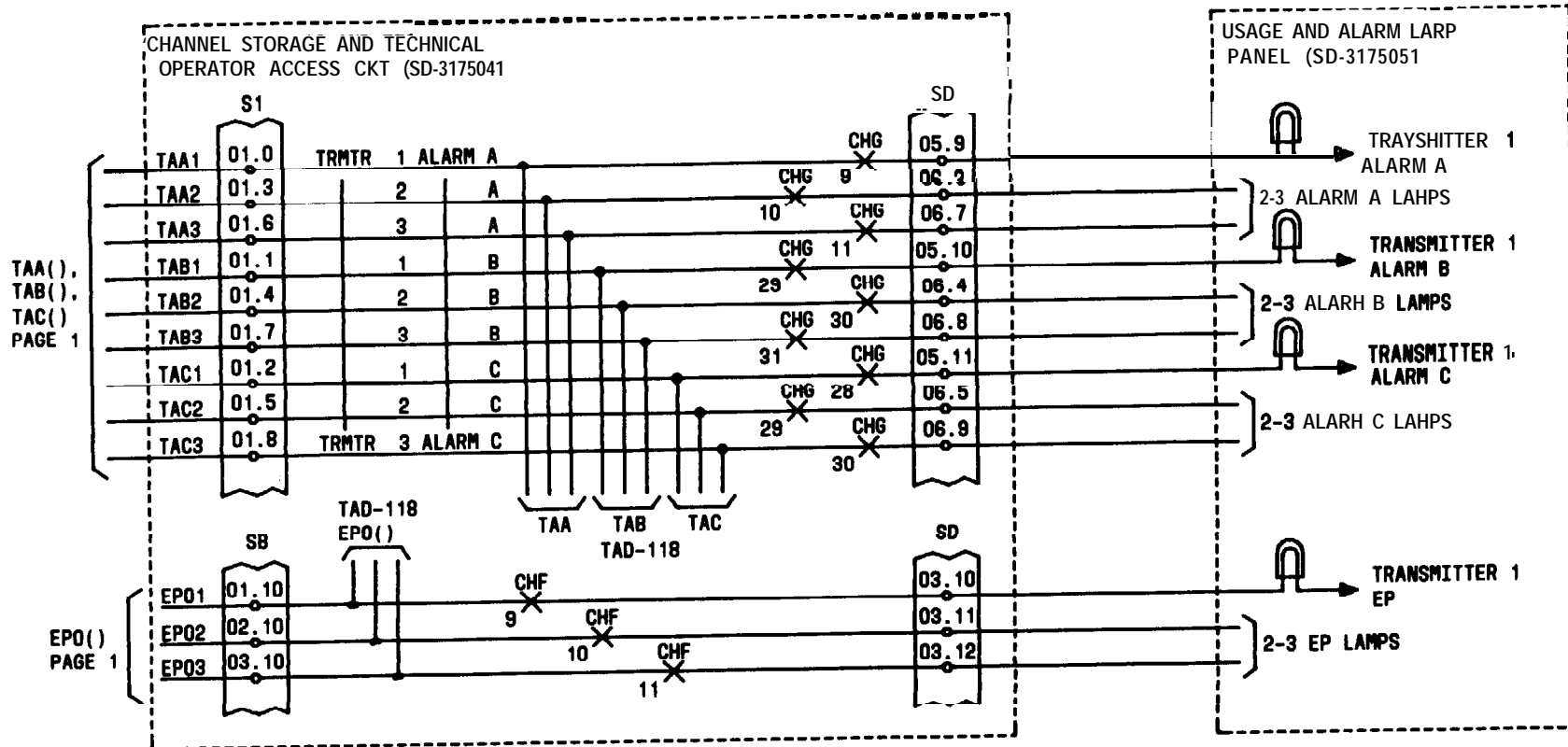
E. RF ON
2900 HZ ON

F. EP ON
2800 HZ OFF-2100 HZ ON

G. FREQ INDICATION
250 MS BURST 1800 HZ FOR EACH FREQ (1-4)

RELAY CONTACT **ORIENTATION/**
COMPONENT LOCATION:
RELAY CONTACT ORIENTATION IS
SHOWN ON TAD-148. **COMPONENT**
LOCATION IS SHOWN ON
TAD-148 AND TAD-148 FOR CHANNEL
BAY AND **COMMON BAY**, RESPECTIVELY.

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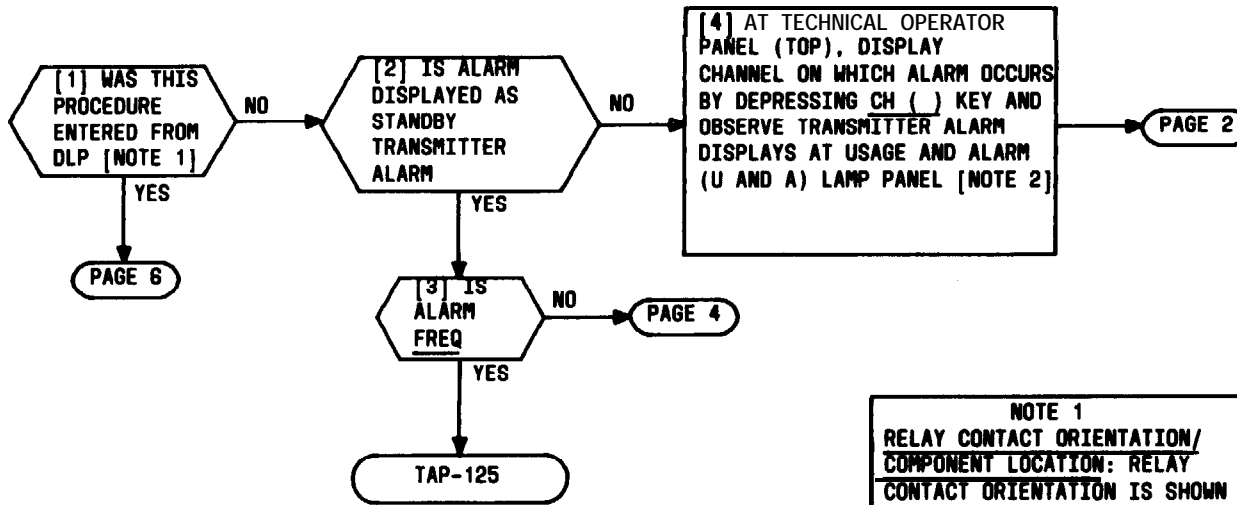
TRANSMITTER ALARM CIRCUITS

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SUMMARY

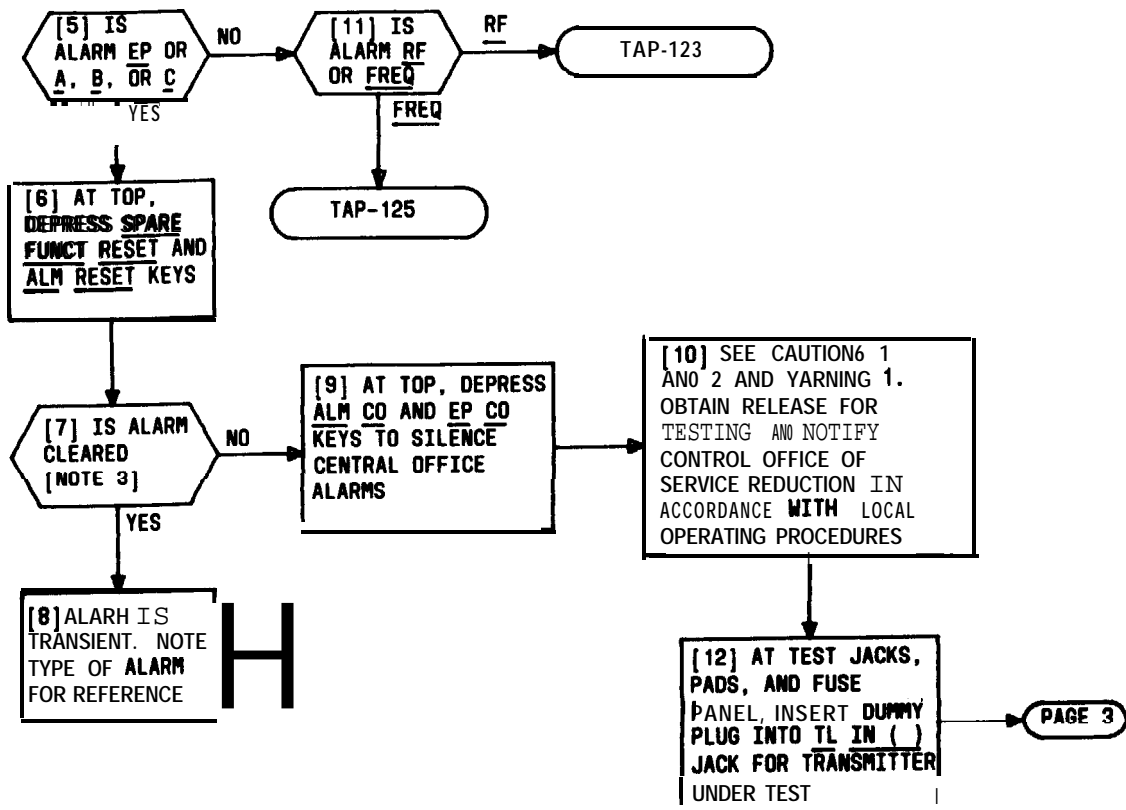
TRANSMITTER ALARM DISPLAYS AND ASSOCIATED OFFICE ALARMS RESULT FROM THE ABSENCE OR PRESENCE OF SIGNALING TONES FROM TRANSMITTER. STANDBY TRANSMITTER ALARMS (WITH EXCEPTION OF FREQ), WHEN UNDER CONTROL OF STANDBY TRANSMITTER CONTROL CIRCUIT (COMMON BAY), ARE DISPLAYED AT THE USAGE AND ALARM LAMP PANEL AS THEY OCCUR. WHEN THE STANDBY TRANSMITTER IS PATCHED TO TAKE THE PLACE OF A CHANNEL TRANSMITTER, ALARM DISPLAYS ARE MADE ONLY WHEN CHANNEL DISPLAY IS SELECTED.

STANDBY TRANSMITTER FREQ ALARM IS DISPLAYED BY MONITORING FREQUENCY AT TECHNICAL OPERATOR PANEL. TROUBLE-CLEARING OF TRANSMITTER ALARMS IS BASED ON FIRST DETERMINING WHEN ALARM CONDITION EXISTS BY SELECTING FOR DISPLAY (IF REQUIRED) CHANNEL ON WHICH ALARM OCCURS AND DETERMINING IF ALARM IS REAL, TRANSIENT, OR FALSE BY RESETTING ALARM CIRCUITS AND/OR BLOCKING TRANSMITTER INPUT; SECOND, IF ALARM IS REAL, BY REFERRING ALARM CONDITION TO TRANSMITTER PERSONNEL; AND THIRD, IF ALARM IS FALSE BY TROUBLE CLEARING FAULTY ALARM CIRCUITS AT CONTROL TERMINAL



NOTE 1
 RELAY CONTACT ORIENTATION/
 COMPONENT LOCATION: RELAY
 CONTACT ORIENTATION IS SHOWN
 IN TAD-147. COMPONENT
 LOCATION IS SHOWN IN TAD-148
 AND TAD-148 FOR CHANNEL BAY
 AND COMMON BAY, RESPECTIVELY

NOTE 2
 ENSURE THAT ONLY THE
 DESIRED CHANNEL KEY IS
 LIGHTED BY DEPRESSING OTHER
 LIGHTED KEYS. WHEN MORE
 THAN ONE CHANNEL KEY IS
 LIGHTED, LOWEST NUMBERED
 CHANNEL WILL BE DISPLAYED



CLEAR TRANSMITTER ALARMS

NOTE 3

MAJOR ALARM INDICATIONS ARE SENT TO CONTROL TERMINAL AS THEY OCCUR. MINOR ALARM INDICATIONS ARE SENT TO TRANSMITTER AFTER SIGNALING UPDATE BY CONTROL TERMINAL. IF ALARM IS MINOR, WAIT UNTIL NEXT TRANSMITTER UPDATE TO DETERMINE IF ALARM IS CLEARED

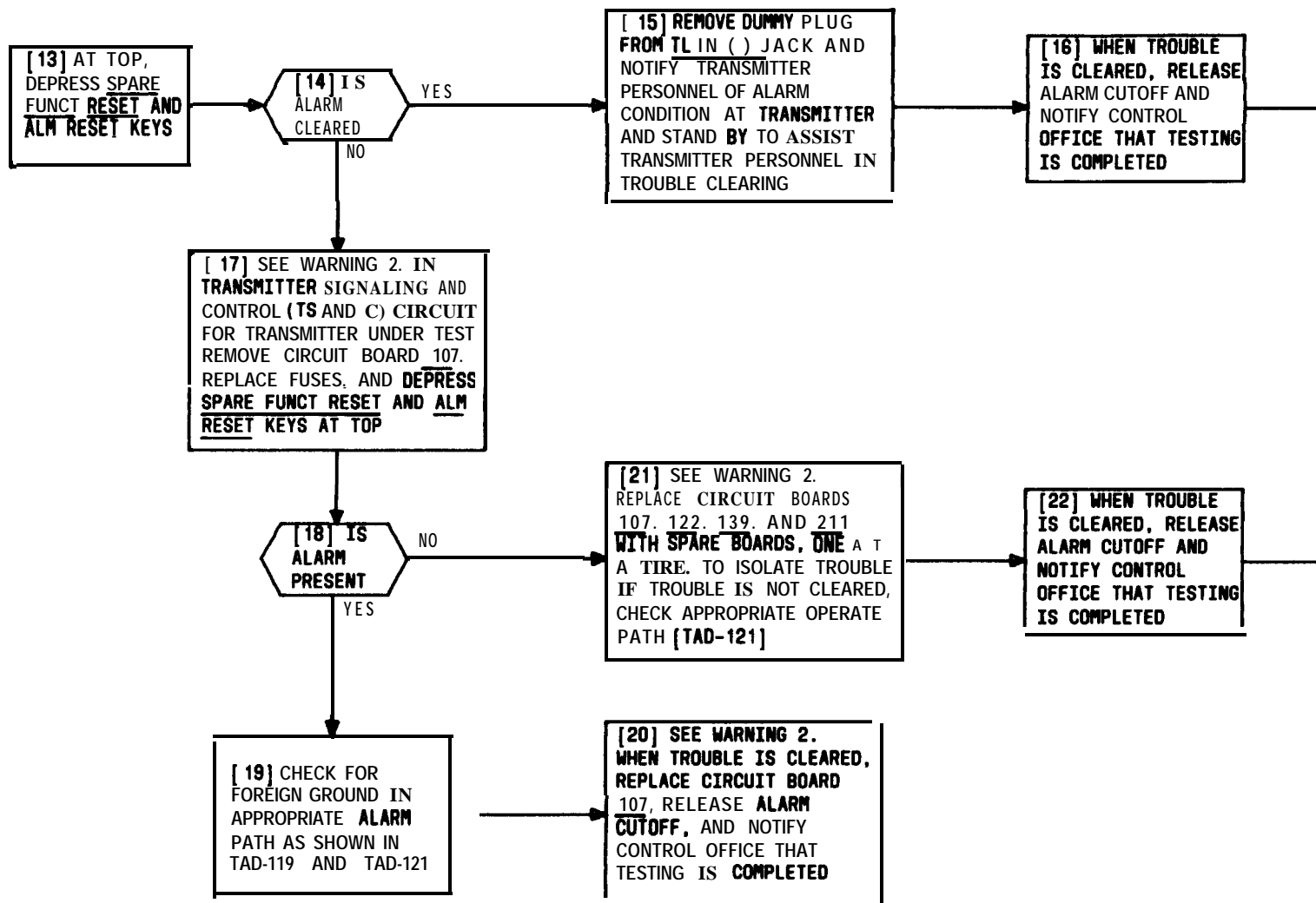
WARNING 1

WHEN REPLACING CIRCUIT BOARDS, POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

CAUTIONS

1. ALL ROUTINE AND TROUBLE-CLEARING PROCEDURES ON THE SAFETY AND CALLING CHANNEL MUST BE COORDINATED IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES. SEE TAP-138 BEFORE TESTING SAFETY AND CALLING CHANNEL
2. EMERGENCY POWER TO OPERATE TRANSMITTER IS LIMITED. CLEAR EP CONDITION AS SOON AS POSSIBLE TO PREVENT SERVICE INTERRUPTION

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WARNING 2
 WHEN REPLACING CIRCUIT BOARDS, POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

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[23] AT TOP, DEPRESS SPARE FUNCT RESET AND ALM RESET KEYS. SEE CAUTION 3

[24] IS ALARM CLEARED

YES
NO

[25] ALARM IS TRANSIENT. NOTE TYPE OF ALARM FOR REFERENCE

[26] AT TOP, DEPRESS ALM CO AND EP CO KEYS TO SILENCE OFFICE ALARMS

[27] SEE WARNING 3. OBTAIN RELEASE FOR TESTING AND NOTIFY CONTROL OFFICE IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES

[28] AT TEST JACKS, PADS, AND FUSE PANEL, INSERT DUMMY PLUG INTO STNBY XMTR IN JACK

[29] AT TOP, DEPRESS SPARE FUNCT RESET AND ALM RESET KEYS

[30] IS ALARM CLEARED

NO
PAGE 5

YES

[31] REMOVE DUMMY PLUG FROM STNBY XMTR IN JACK AND NOTIFY TRANSMITTER PERSONNEL OF ALARM CONDITION

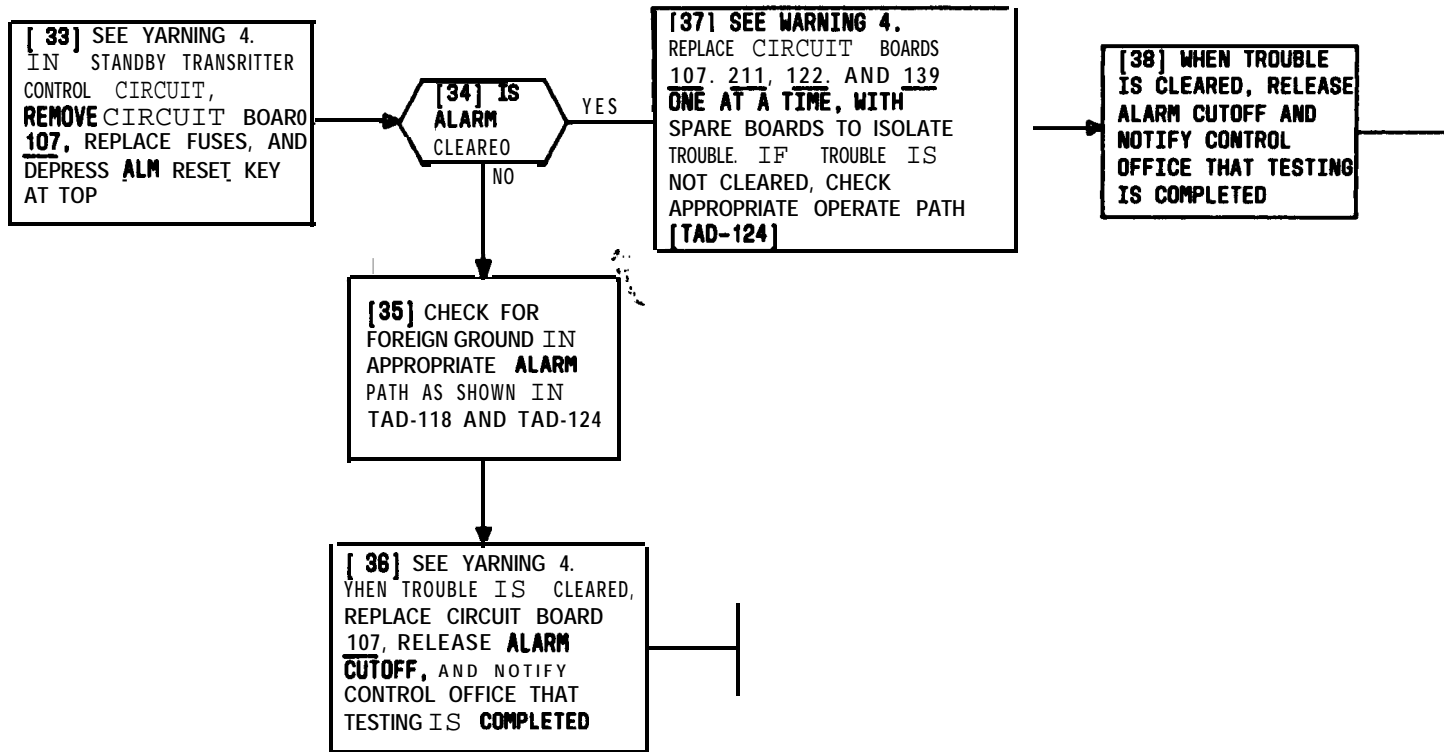
[32] WHEN TROUBLE IS CLEARED. RELEASE ALARM CUTOFF AND NOTIFY CONTROL OFFICE THAT TESTING IS COMPLETED

WARNING 3
WHEN REPLACING CIRCUIT BOARDS, POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

CAUTION 3
EMERGENCY POWER TO OPERATE TRANSMITTER IS LIMITED. CLEAR EP CONDITION AS SOON AS POSSIBLE TO PREVENT AVAILABLE SERVICE REDUCTION

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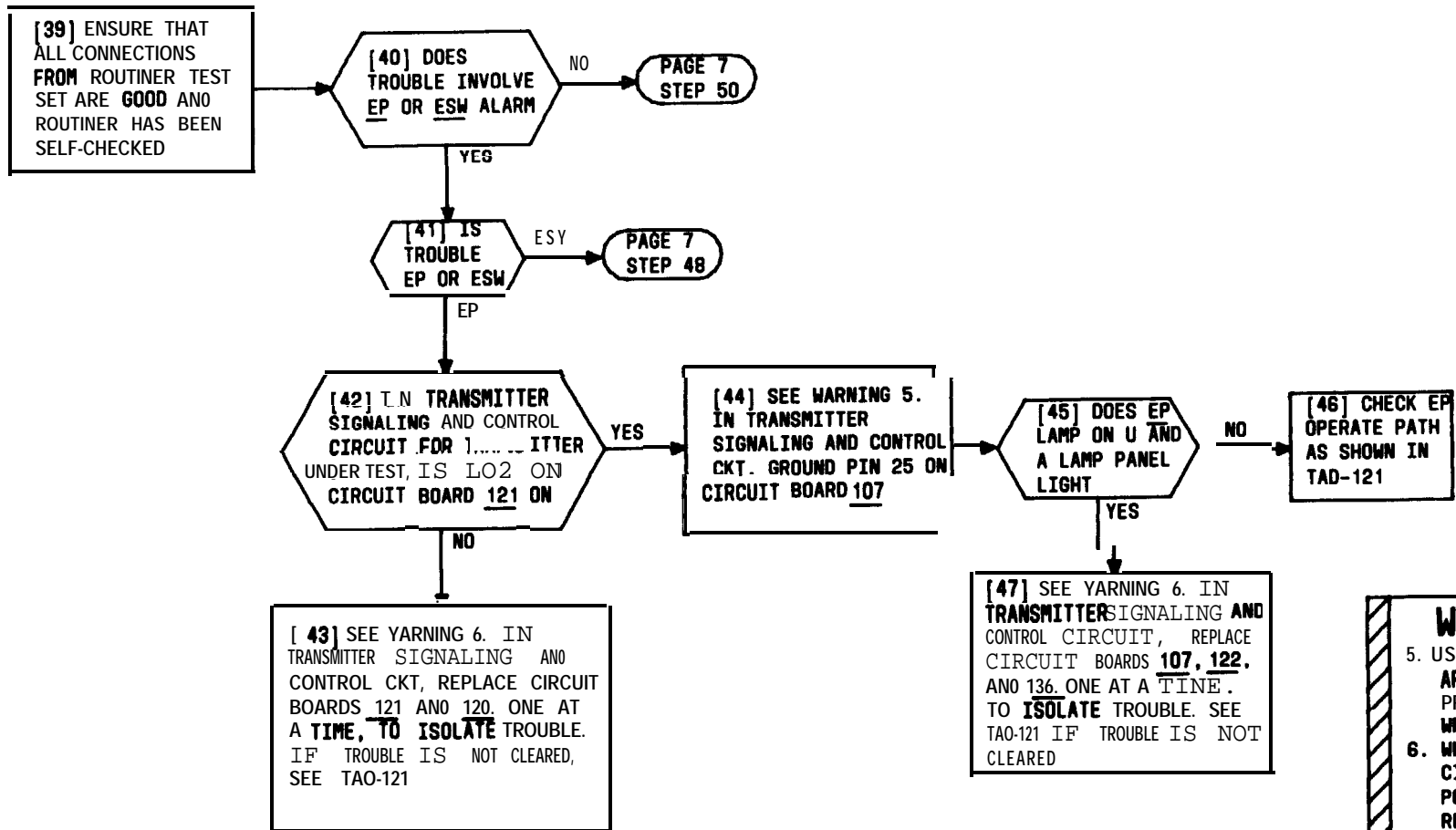
CLEAR TRANSMITTER ALARMS



WARNING 4
WHEN REPLACING CIRCUIT
BOARDS, POWER MUST BE
REMOVED AS SHOWN IN
DLP-554 TO PREVENT
DAMAGE TO EQUIPMENT

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CLEAR TRANSMITTER ALARMS



WARNINGS	
5. USE CARE WHEN APPLYING GROUND TO PREVENT GROUNDING WRONG PIN	
6. WHEN REPLACING CIRCUIT BOARDS, POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT	
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CLEAR TRANSMITTER ALARMS

[48] IN TS AND C
CIRCUIT FOR TRANSMITTER
UNDER TEST, OBSERVE LD2
AND LD3 ON CIRCUIT BOARD
121, AND AT ROUTINER
TEST SET, SET RF SWITCH
TO FAIL AND THEN TO NORM

[49] DID LD2
AND LD3 BLINK
ON AND OFF

NO

YES

[53] SEE WARNING 7. IN
TS AND C CIRCUIT, REPLACE
CIRCUIT BOARDS 120
AND 121, ONE AT A
TIME, TO ISOLATE TROUBLE
AND REPEAT TEST ON WHICH
TROUBLE OCCURRED AFTER EACH
REPLACEMENT. IF TROUBLE IS
NOT CLEARED, SEE TAD-121

[52] SEE WARNING 7. IN
TS AND C CIRCUIT, REPLACE
CIRCUIT BOARDS 107, 122,
211, AND 139, ONE AT A
TIME, TO ISOLATE TROUBLE
AND REPEAT TEST ON WHICH
TROUBLE OCCURRED AFTER EACH
REPLACEMENT. IF TROUBLE IS
NOT CLEARED. SEE TAD-121

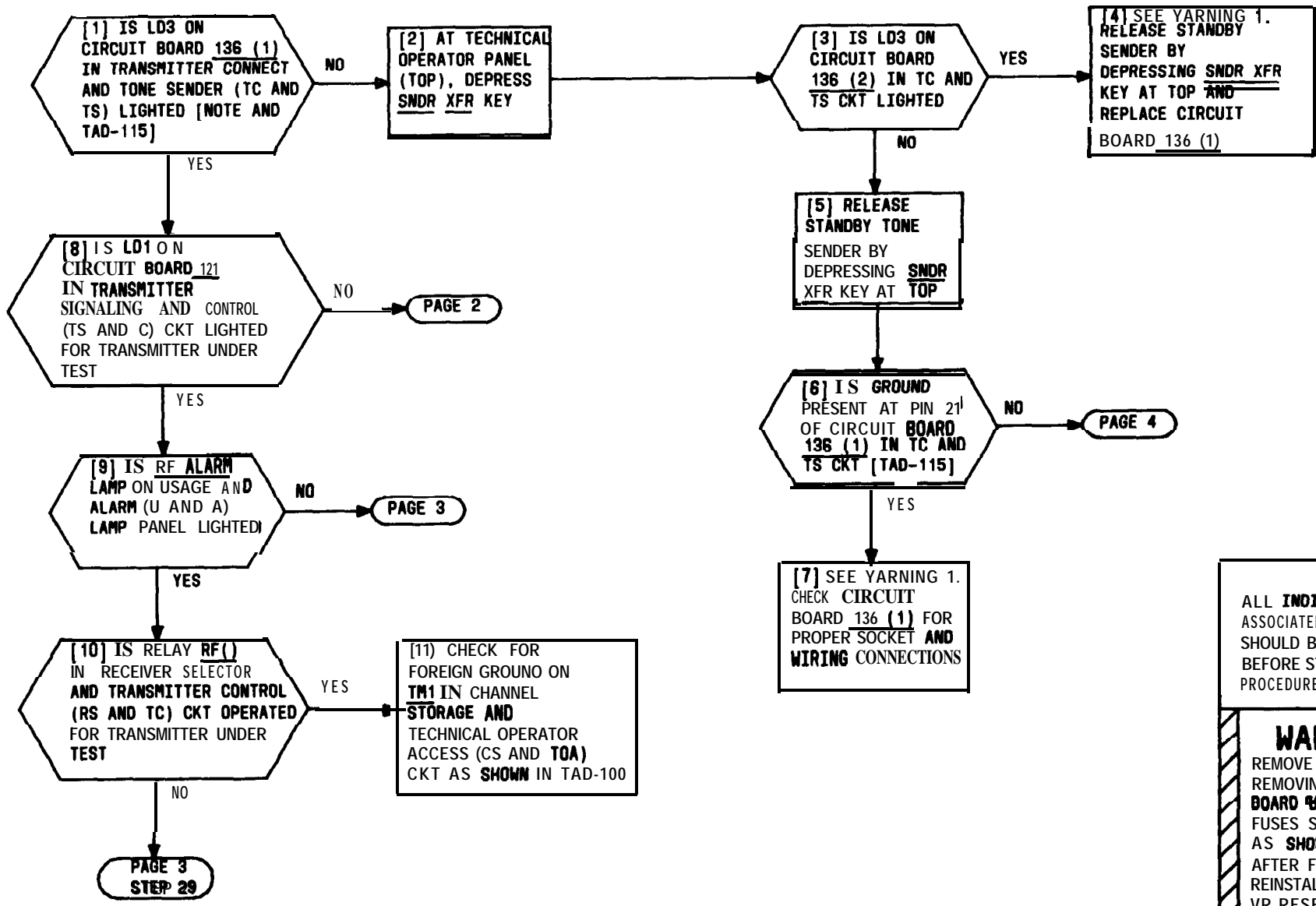
YES

[50] IN TS AND C
CIRCUIT, FOR TRANSMITTER
UNDER TEST, OBSERVE LD2
AND LD3 ON CIRCUIT BOARD
121, AND AT ROUTINER
TEST SET, OPERATE CODAN
SWITCH

[51] DID LD2
AND LD3 BLINK
ON AND OFF

NO

WARNING 7	
WHEN REPLACING CIRCUIT BOARDS, POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT	
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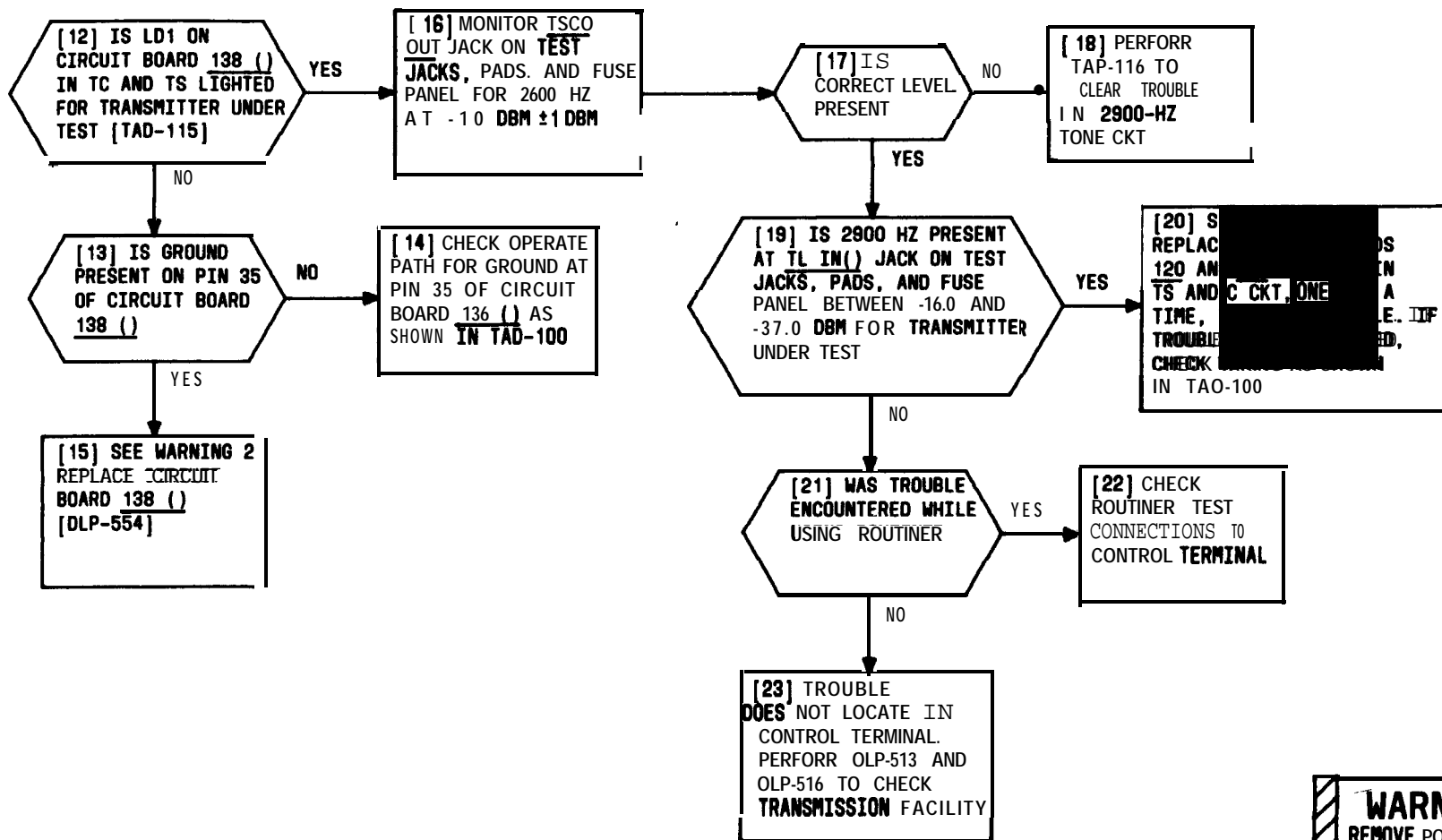
NOTE
ALL INDICATOR LAMPS
ASSOCIATED WITH TROUBLES
SHOULD BE CHECKED
BEFORE STARTING THIS
PROCEDURE

WARNING 1

REMOVE POWER BEFORE
REMOVING CIRCUIT
BOARD BY REMOVING
FUSES SUPPLYING BOARD
AS SHOWN IN OLP-554.
AFTER FUSES ARE
REINSTALLED, DEPRESS
VR RESET AND ALM
RESET AT TOP

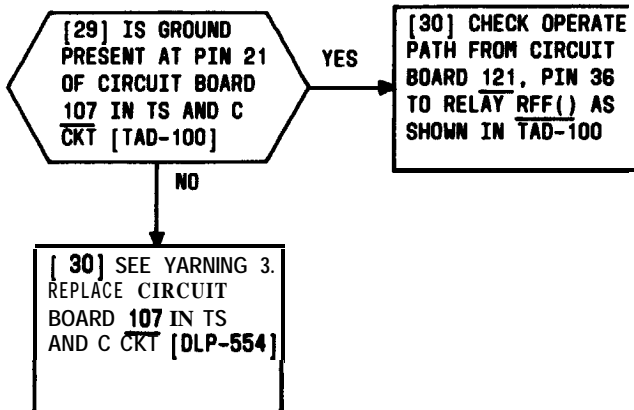
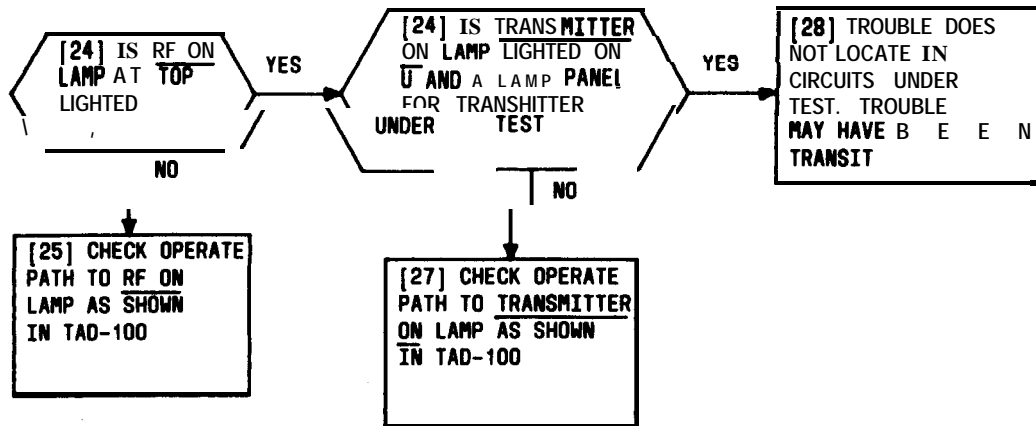
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CLEAR TRANSMITTER TURNON TROUBLE



CLEAR TRANSMITTER TURNON TROUBLE

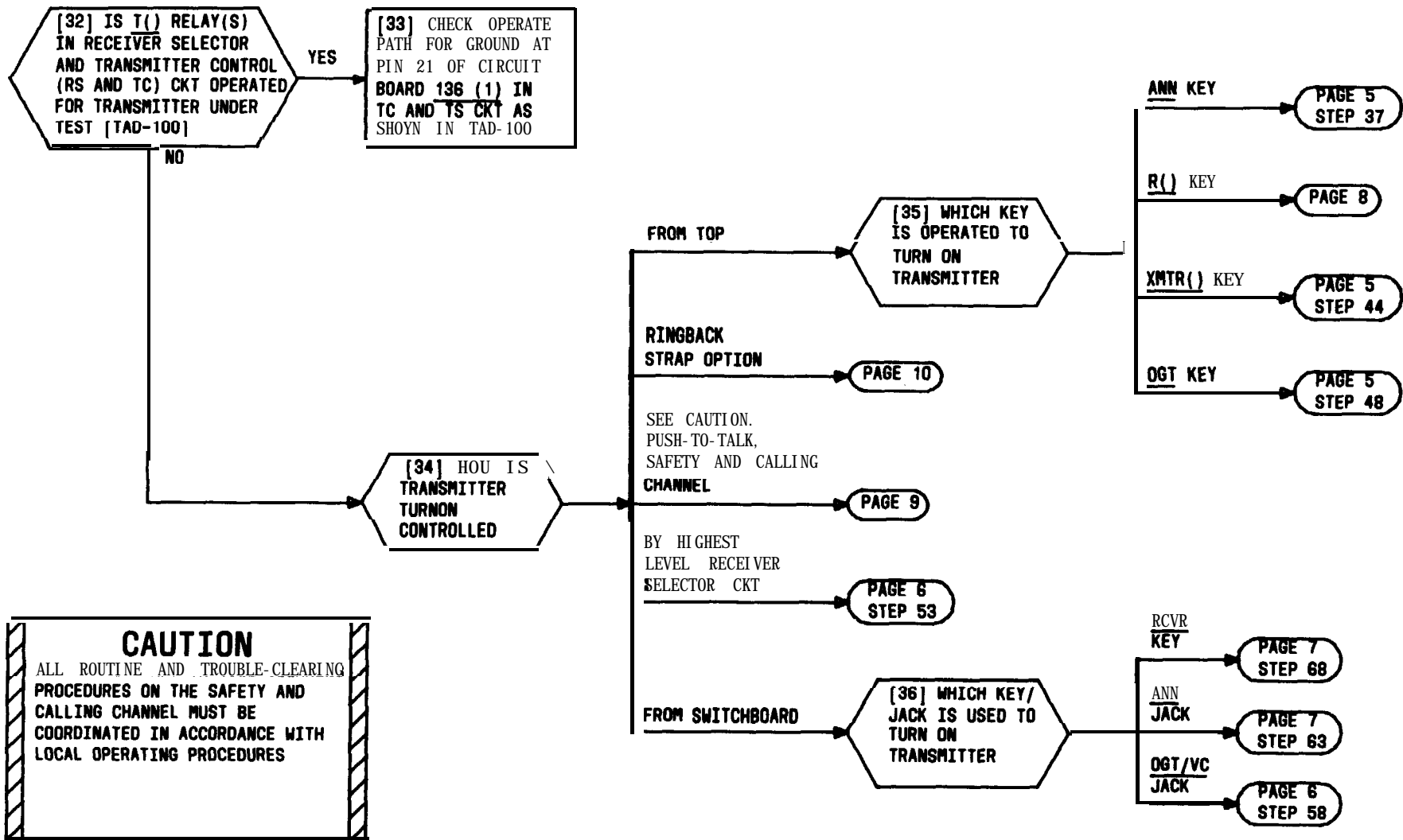
WARNING 2	
REMOVE POWER BEFORE REMOVING CIRCUIT BOARD BY REMOVING FUSES SUPPLYING BOARD AS SHOWN IN OLP-544. AFTER FUSE6 ARE REINSTALLED, DEPRESS VR RESET AND ALAN RESET AT TOP	
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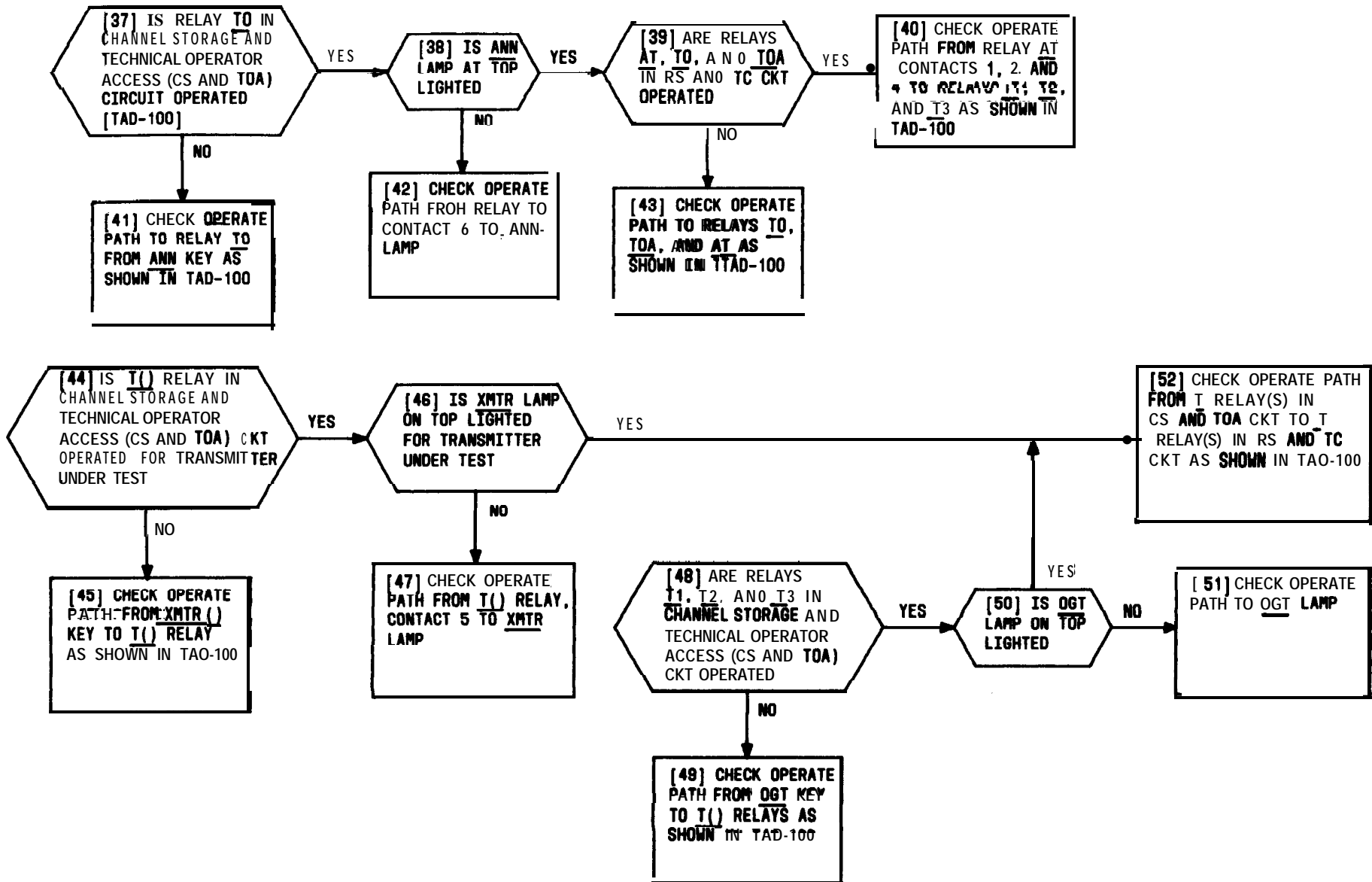
WARNING 3
 REMOVE POWER BEFORE REMOVING CIRCUIT BOARD BY REMOVING FUSES SUPPLYING BOARD AS SHOWN IN DLP-554 . AFTER FUSES ARE REINSTALLED, DEPRESS VR RESET AND ALM RESET ON TOP

CLEAR TRANSMITTER TROUBLE

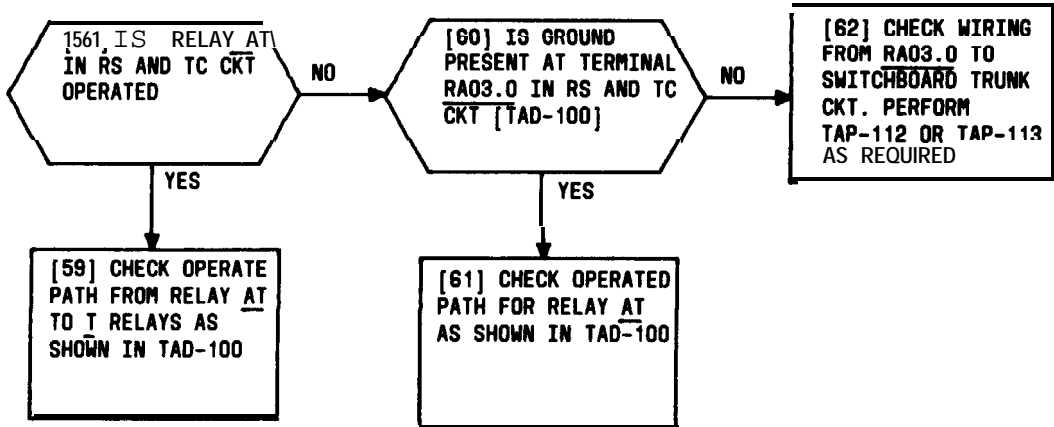
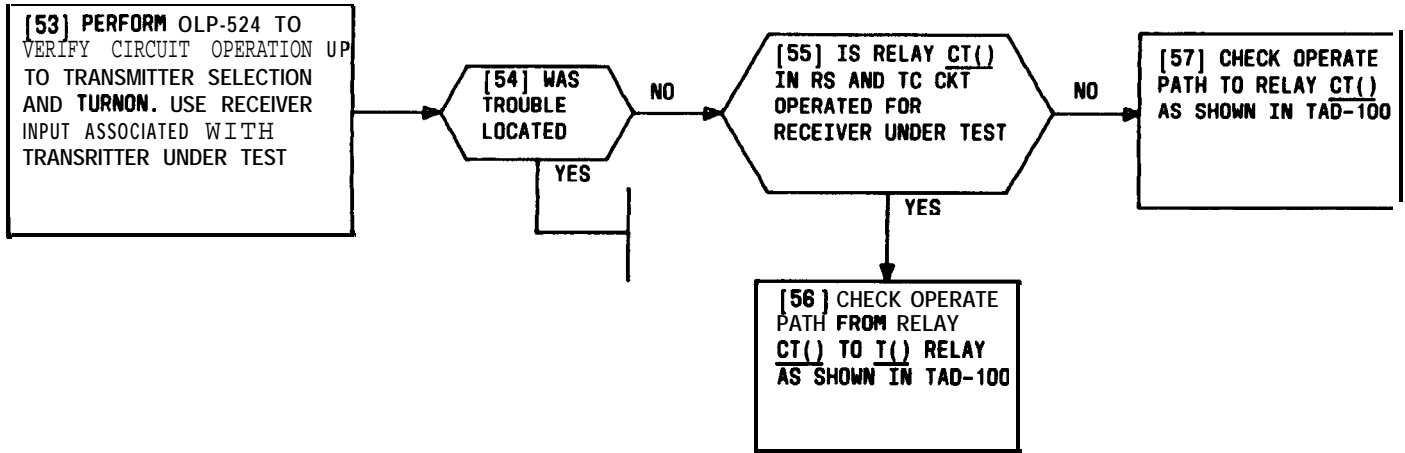
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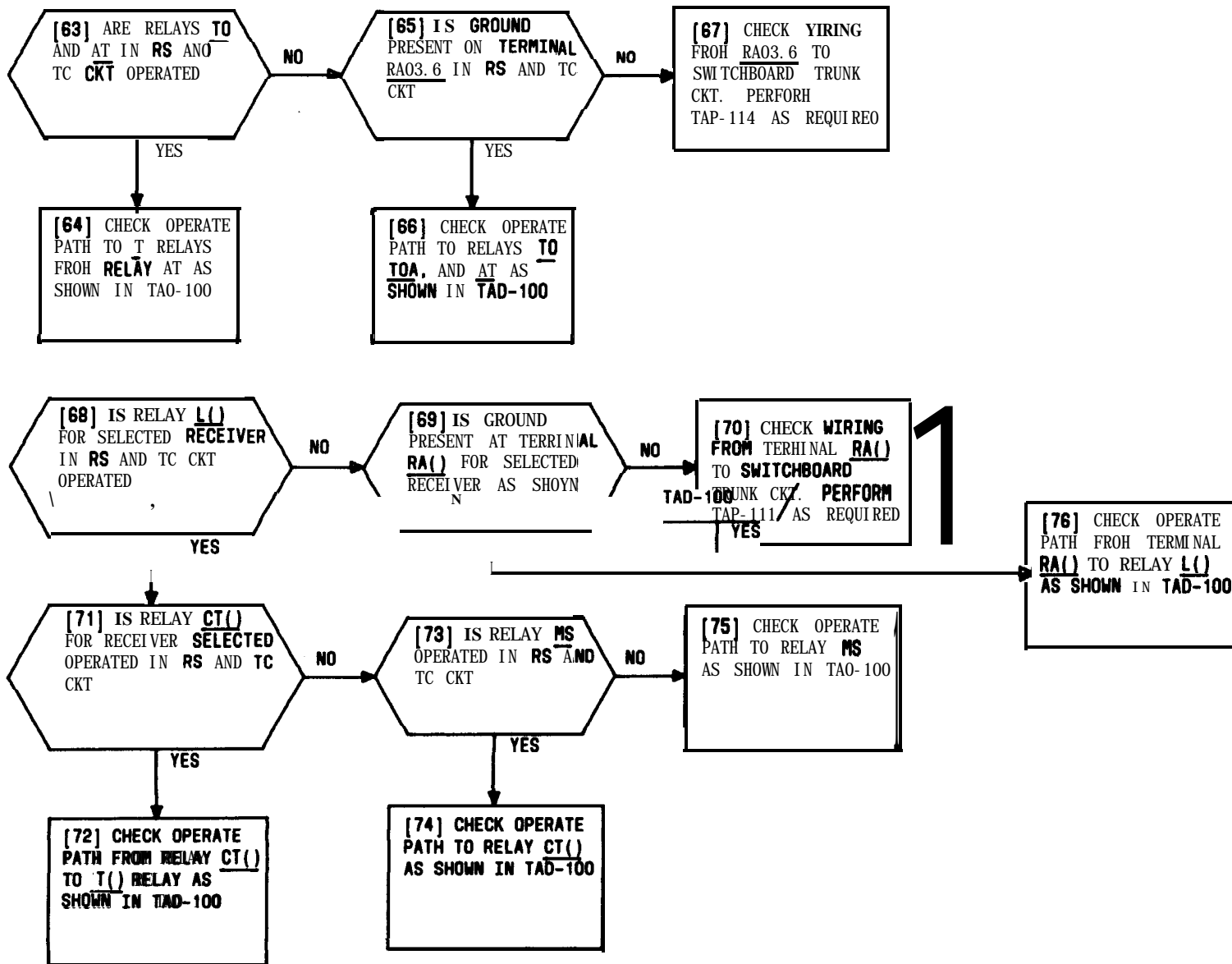
CLEAR TRANSMITTER TURNON TROUBLE



CLEAR TRANSMITTER TURNON TROUBLE

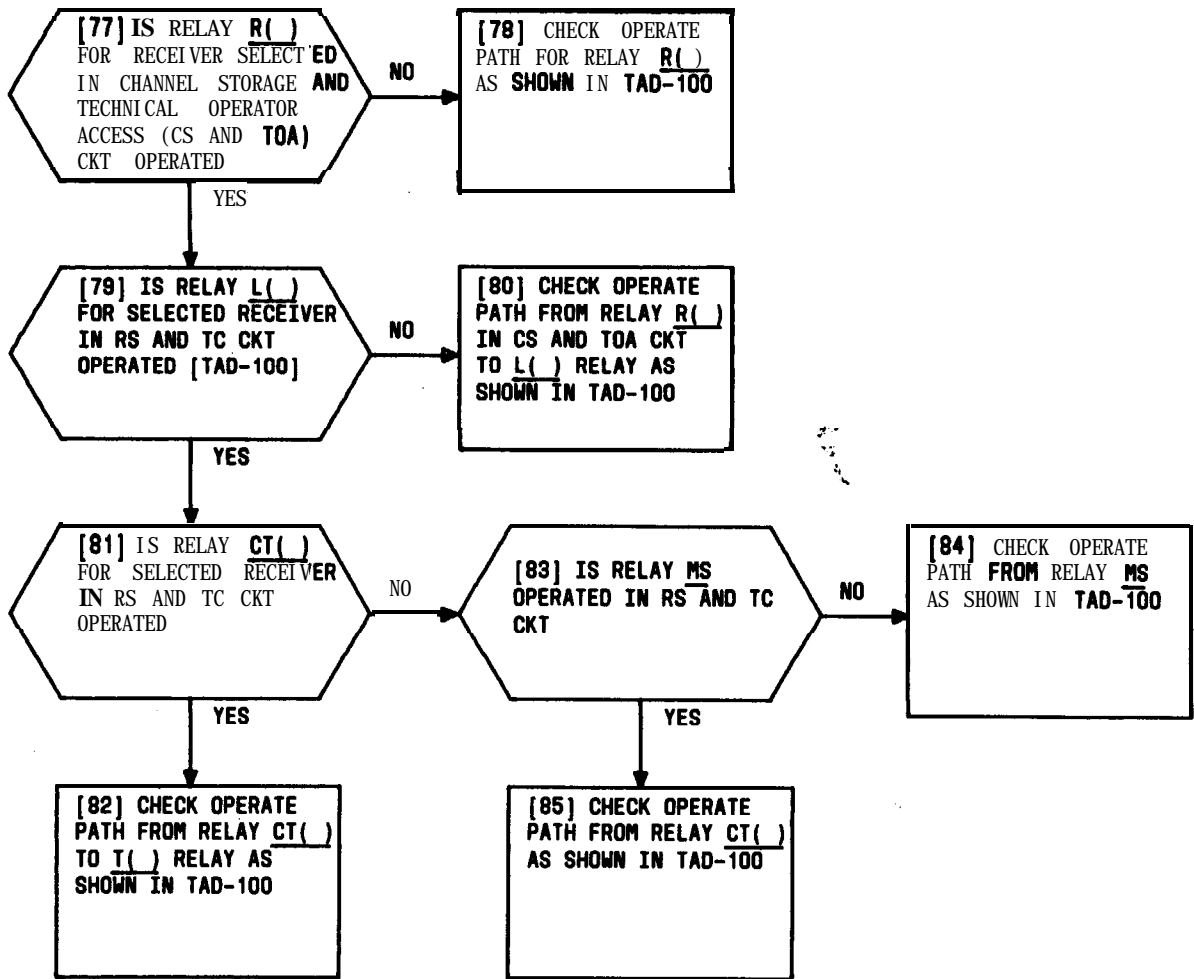


CLEAR TRANSMITTER TURNON TROUBLE



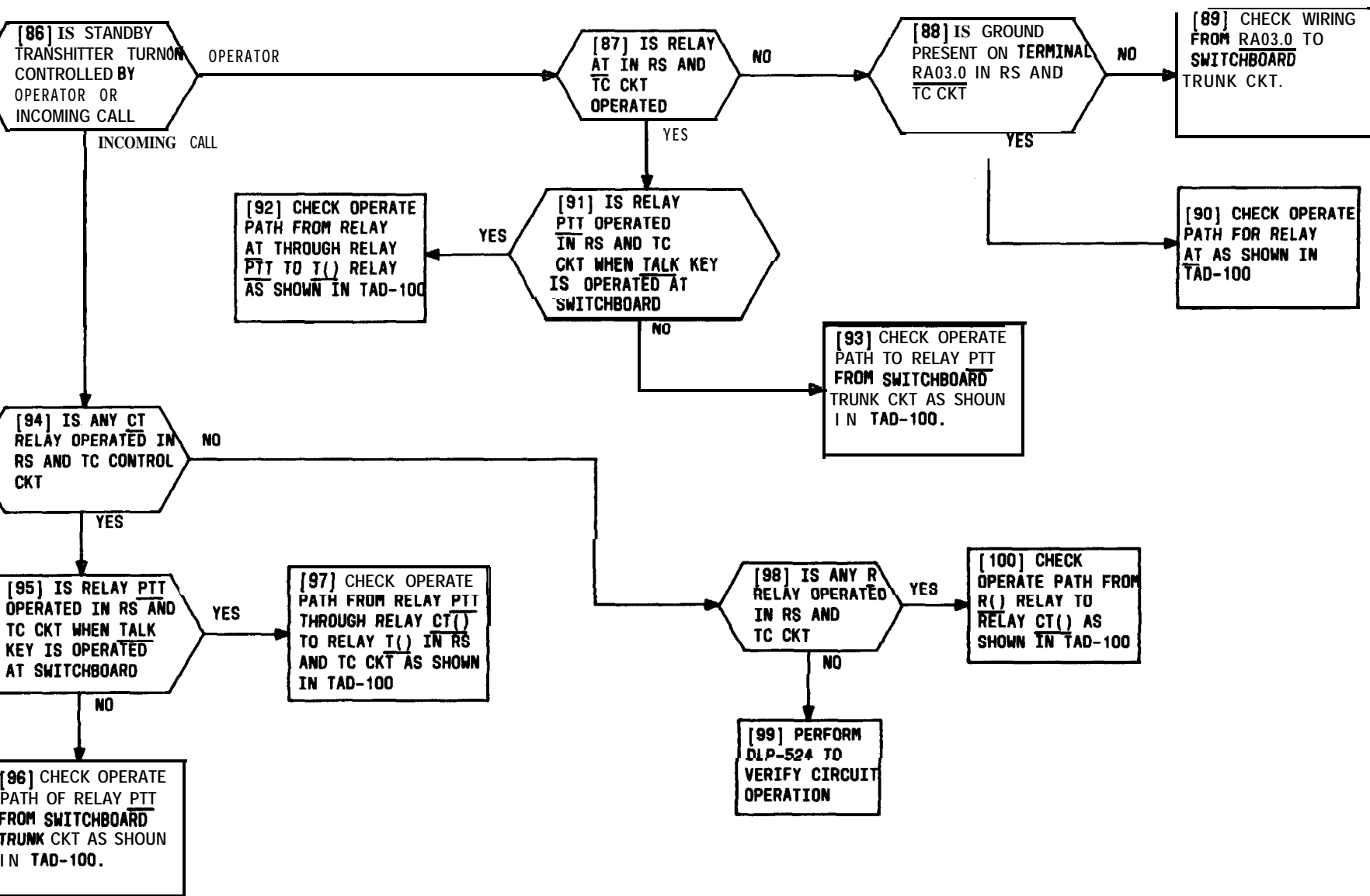
CLEAR TRANSMITTER TURNON TROUBLE

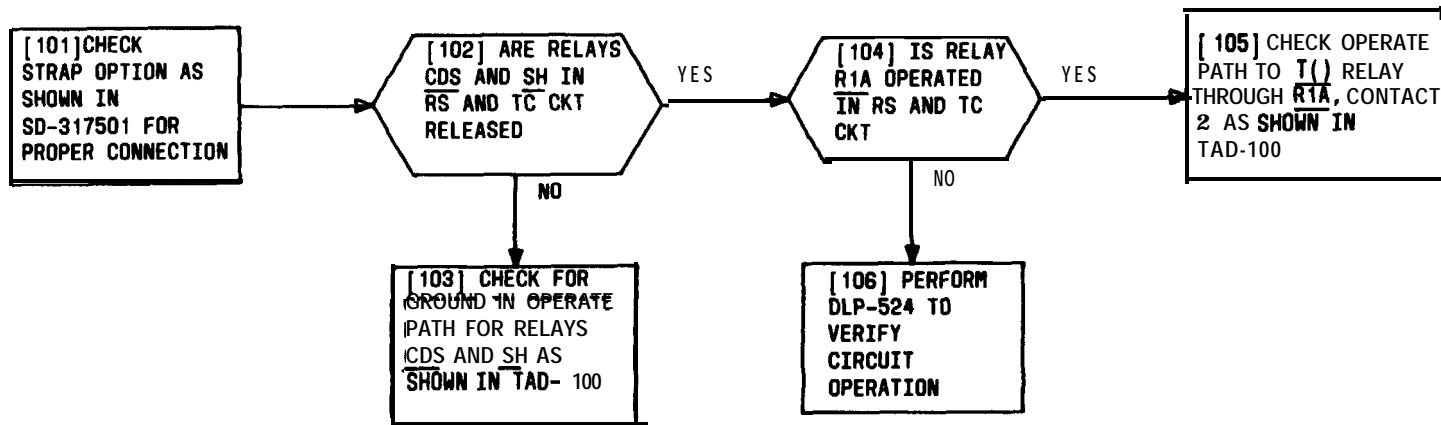
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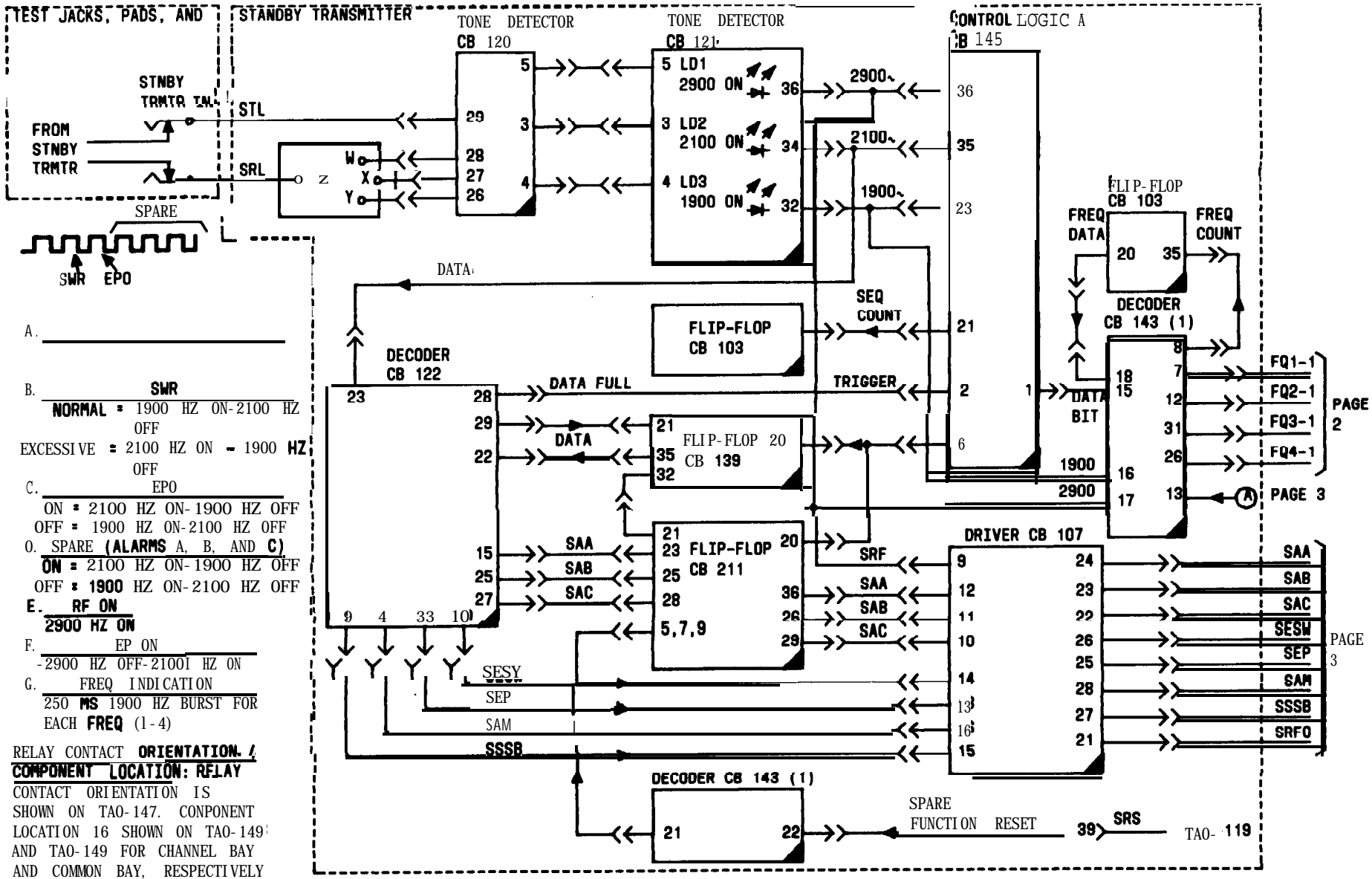


CLEAR TRANSMITTER TURNON TROUBLE

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- A. _____
- B. **SWR**
NORMAL = 1900 HZ ON-2100 HZ OFF
EXCESSIVE = 2100 HZ ON - 1900 HZ OFF
- C. **EPO**
ON = 2100 HZ ON-1900 HZ OFF
OFF = 1900 HZ ON-2100 HZ OFF
- D. **SPARE (ALARMS A, B, AND C)**
ON = 2100 HZ ON-1900 HZ OFF
OFF = 1900 HZ ON-2100 HZ OFF
- E. **RF ON**
2900 HZ ON
- F. **EP ON**
-2900 HZ OFF-2100 HZ ON
- G. **FREQ INDICATION**
250 MS 1900 HZ BURST FOR EACH FREQ (1-4)

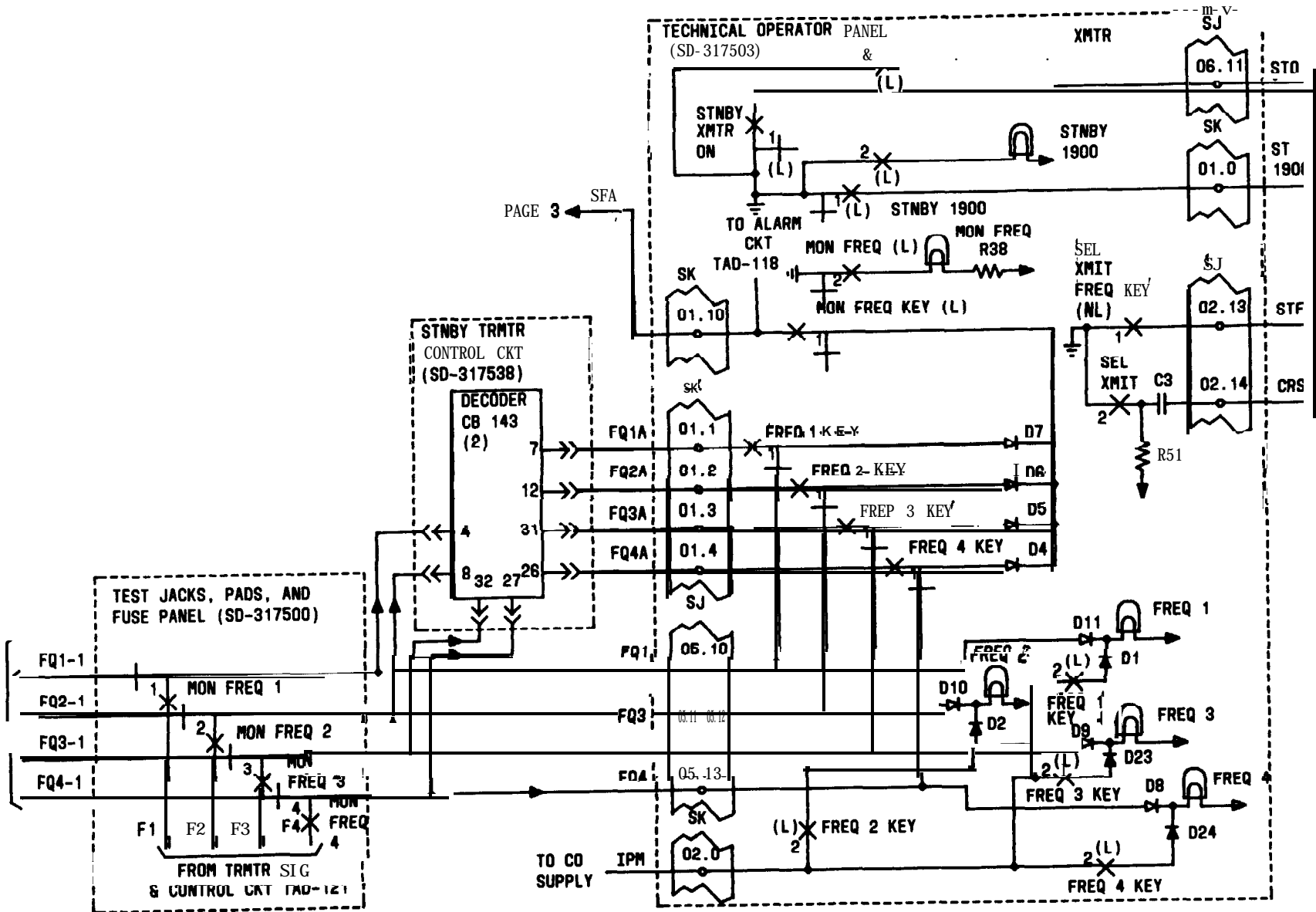
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PAGE 3

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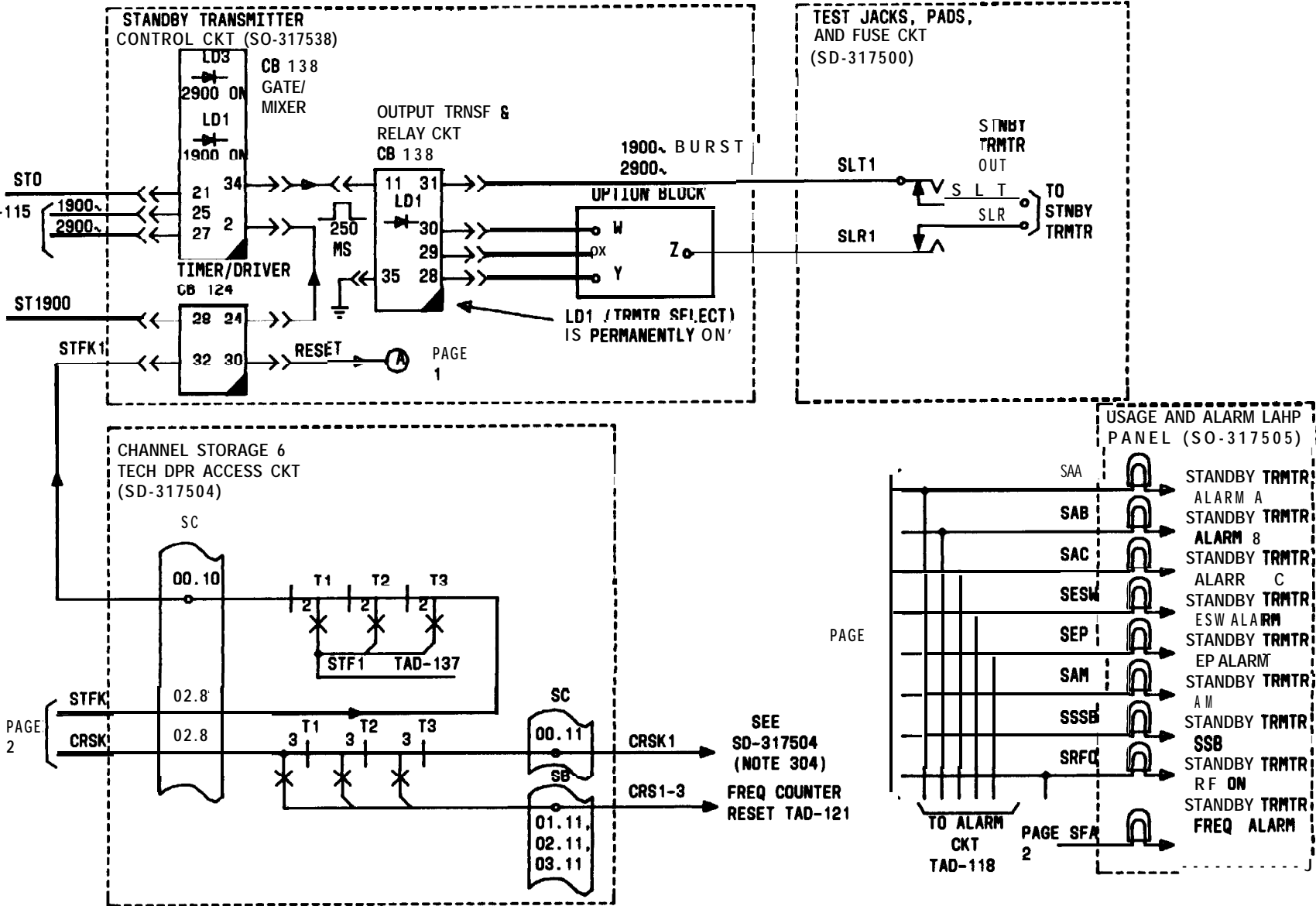
STANDBY TRANSMITTER CIRCUITS



STANDBY TRANSMITTER CIRCUITS

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PAGE 2



STANDBY TRANSMITTER CIRCUITS

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[1] SEE CAUTION 1. OBTAIN RELEASE FOR TESTING **AND** NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES

[2] WAS THIS PROCEDURE ENTERED FROM TAP-122

NO

PAGE 2

YES

[3] ENSURE THAT DEPRESSED **FREQ ()** KEY AT **TECHNICAL** OPERATOR PANEL (TOP) IS CORRECT FOR STANDBY **TRANSMITTER** OPERATING FREQUENCY

[4] IS DEPRESSED KEY CORRECT

NO

YES

[5] SEE WARNING 1. TO ENSURE THAT ALARM CONTROL CIRCUITS ARE NOT FAULTY, **REMOVE CIRCUIT BOARD 143 (1)** IN **STANDBY** TRANSMITTER **CONTROL CIRCUIT** OR 143 IN **TRANSMITTER SIGNALING AND CONTROL (TS AND C) CIRCUIT** FOR TRANSMITTER WITH **ALARM** AND DEPRESS **ALM CO AND ALM RESET KEYS** AT TOP. **SEE TAD-121 AND TAD-124**

[6] IS ALARM PRESENT

YES

[8] CHECK FOR FOREIGN GROUND IN FREQUENCY ALARM PATH AS SHOWN IN TAD-118

[9] SEE WARNING 1. WHEN TROUBLE IS CLEARED, REPLACE BOARD 143, RELEASE ALARM CUTOFF, AND NOTIFY CONTROL OFFICE THAT TESTING IS COMPLETED

NO

[7] SEE WARNING 1 AND REPLACE 143 BOARD. RELEASE **FREQ KEY AND ALM CO** AT TOP AND PERFORM **DLP-522** OR -523 TO VERIFY OPERATION OF STANDBY **TRANSMITTER CONTROL**. SEE CAUTION 2 **AND** NOTE 1

CAUTIONS

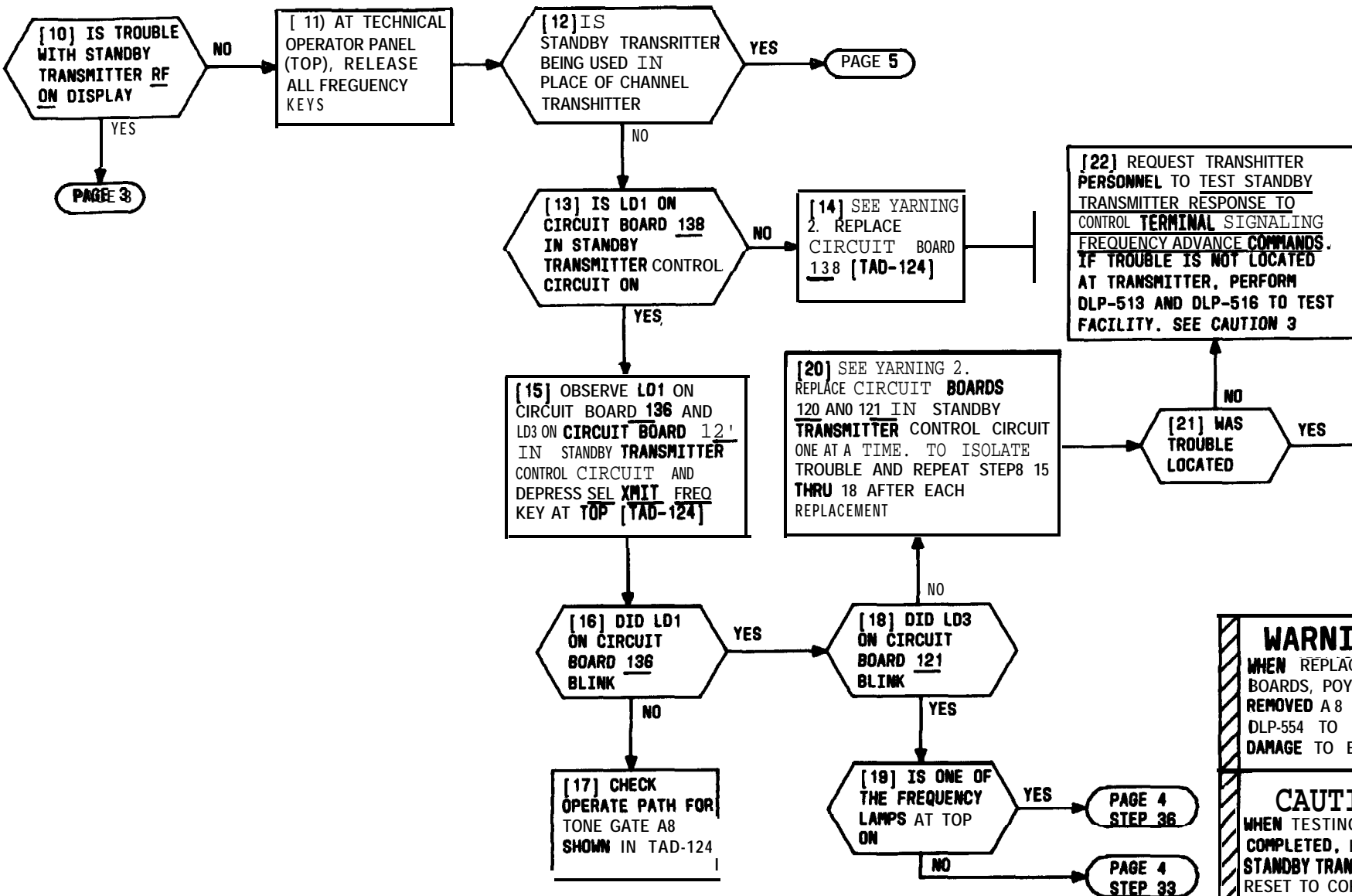
1. ALL ROUTINE **AND** TROUBLE-CLEARING PROCEDURES ON THE PUBLIC SAFETY AND CALLING CHANNEL MUST BE COORINATED IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES. SEE TAO-136 BEFORE TESTING SAFETY AND CALLING CHANNEL
2. ACTUAL FREQUENCY OF TRANSHITTER CAN DIFFER FROM FREQUENCY INDICATION SENT TO CONTROL **TERMINAL**. IF FREQUENCY IS IN DOUBT, REQUEST THAT TRANSMITTER PERSONNEL CHECK FREQUENCY AT TRANSMITTER

WARNING 1

WHEN REPLACING **CIRCUIT** BOARDS, POWER **MUST** BE **REMOVED** AS SHOWN IN DLP-554 TO PREVENT **DAMAGE** TO EQUIPMENT

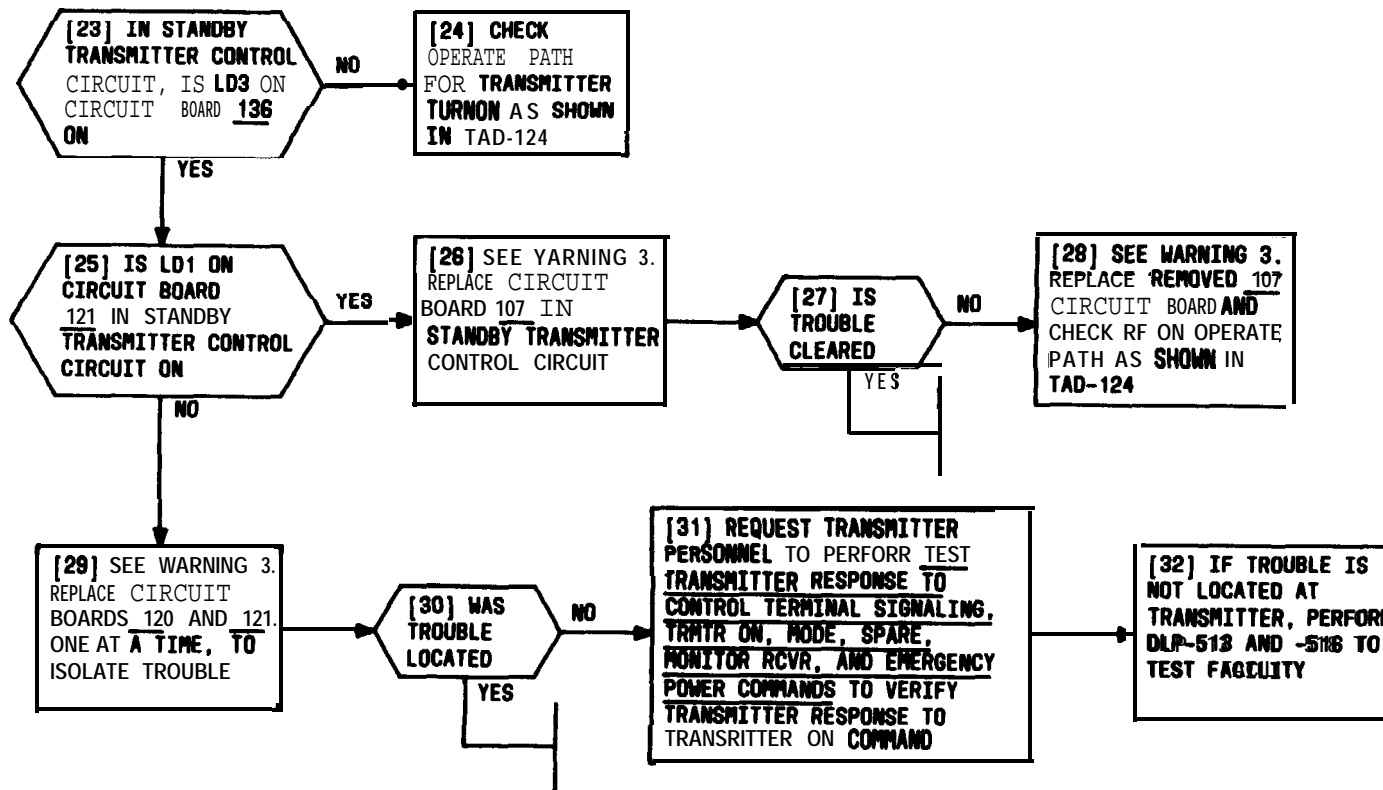
NOTE 1

FREQUENCY CONTROL IS **ACCOMPLISHED** BY APPLYING **1900-HZ** THRU **250-MS** PULSES TO TRANSMITTER. EACH PULSE RECEIVED BY TRANSMITTER WILL CAUSE TRANSMITTER TO STEP TO NEXT HIGHER FREQUENCY AND SEND BACK PULSE6 (1 THRU 4) TO INDICATE FREQUENCY



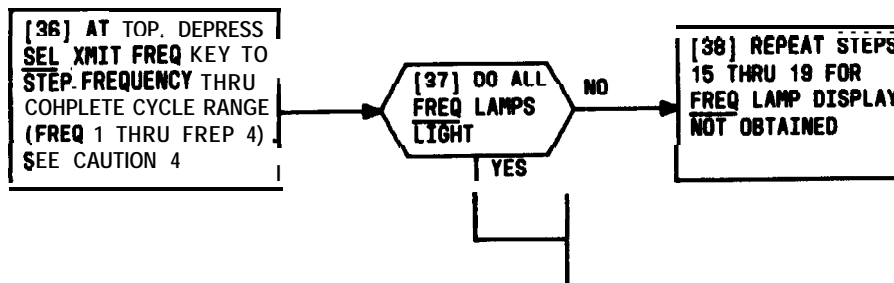
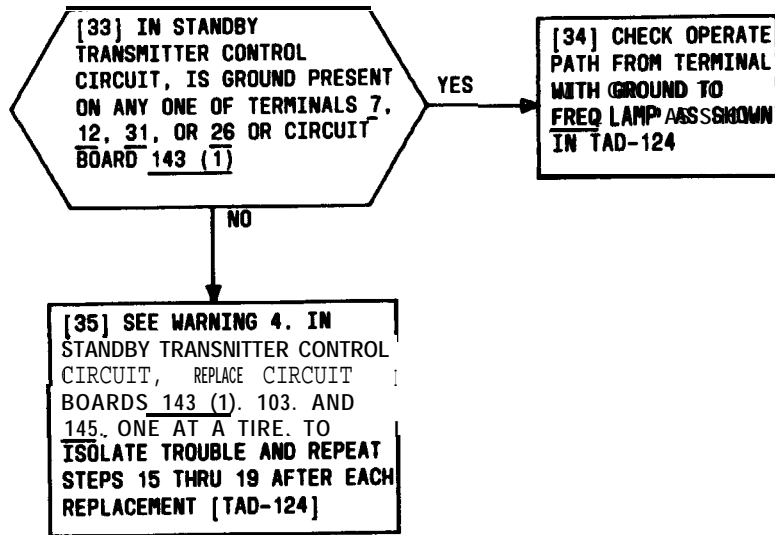
WARNING 2	
WHEN REPLACING CIRCUIT BOARDS, POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT	
CAUTION 3	
WHEN TESTING 18 COMPLETED, ENSURE THAT STANDBY TRANSMITTER IS RESET TO CORRECT FREQUENCY	
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CLEAR STANDBY TRANSMITTER FREQUENCY SELECT TROUBLE



WARNING 3
 WHEN REPLACING CIRCUIT BOARDS, POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

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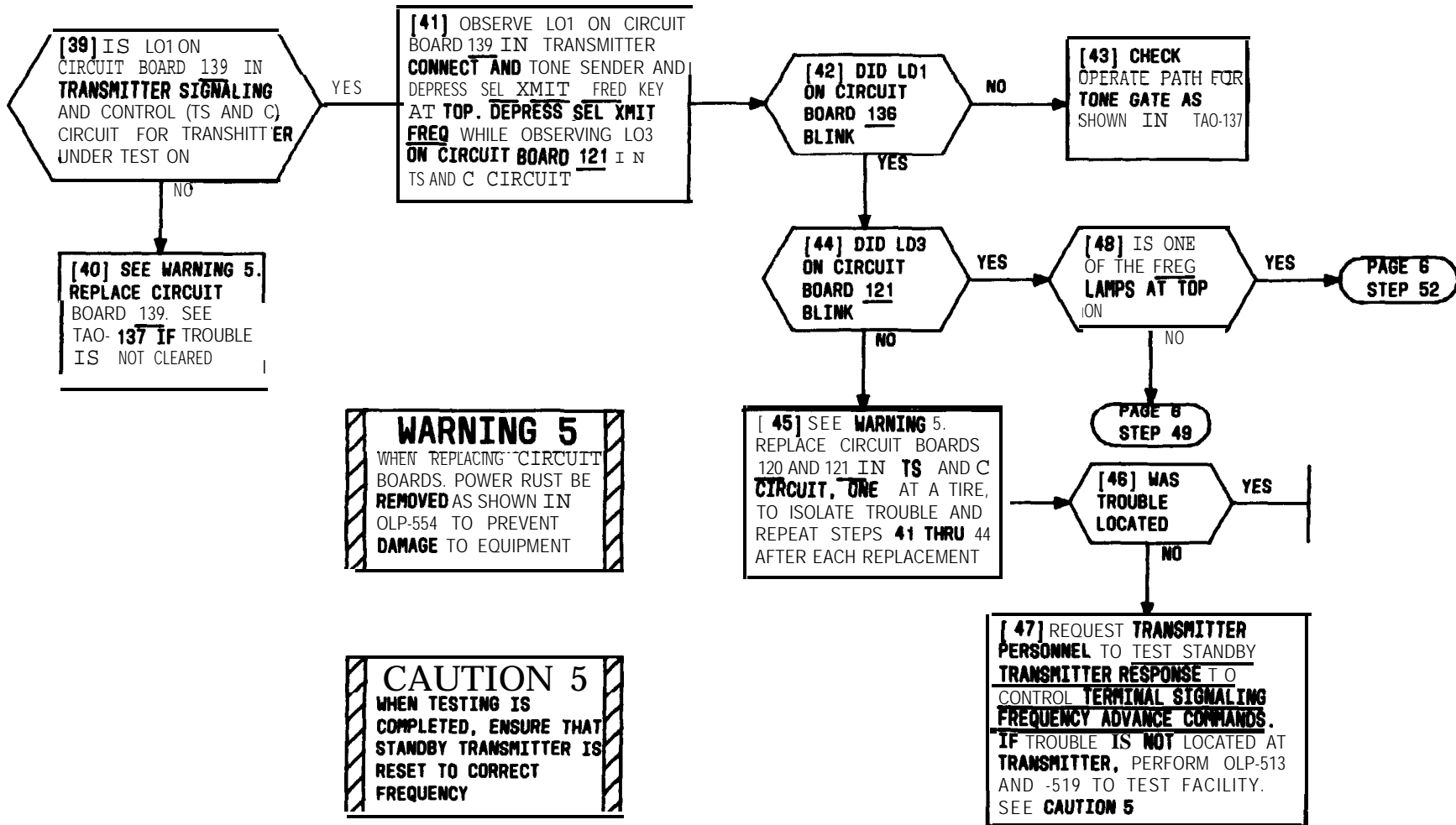


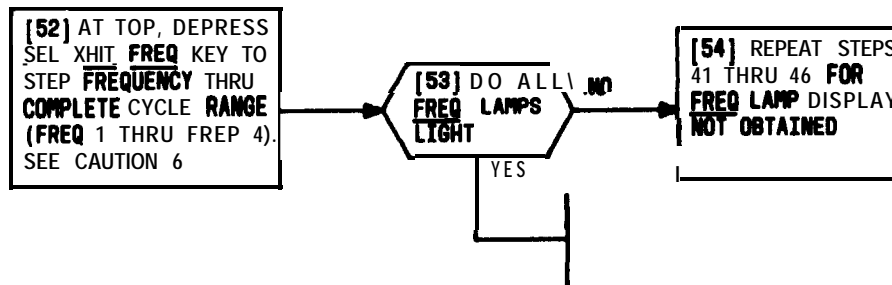
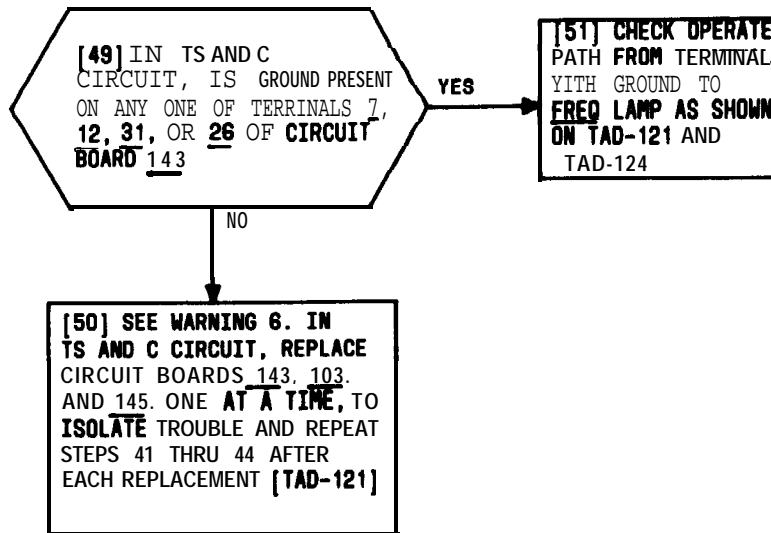
WARNING 4
 WHEN REPLACING CIRCUIT BOARDS, POWER **MUST** BE **REMOVED** AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

CAUTION 4
 WHEN TESTING IS **COMPLETED**, ENSURE THAT STANDBY TRANSMITTER IS RESET TO CORRECT **FREQUENCY**

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CLEAR STANDBY TRANSMITTER FREQUENCY SELECT TROUBLE



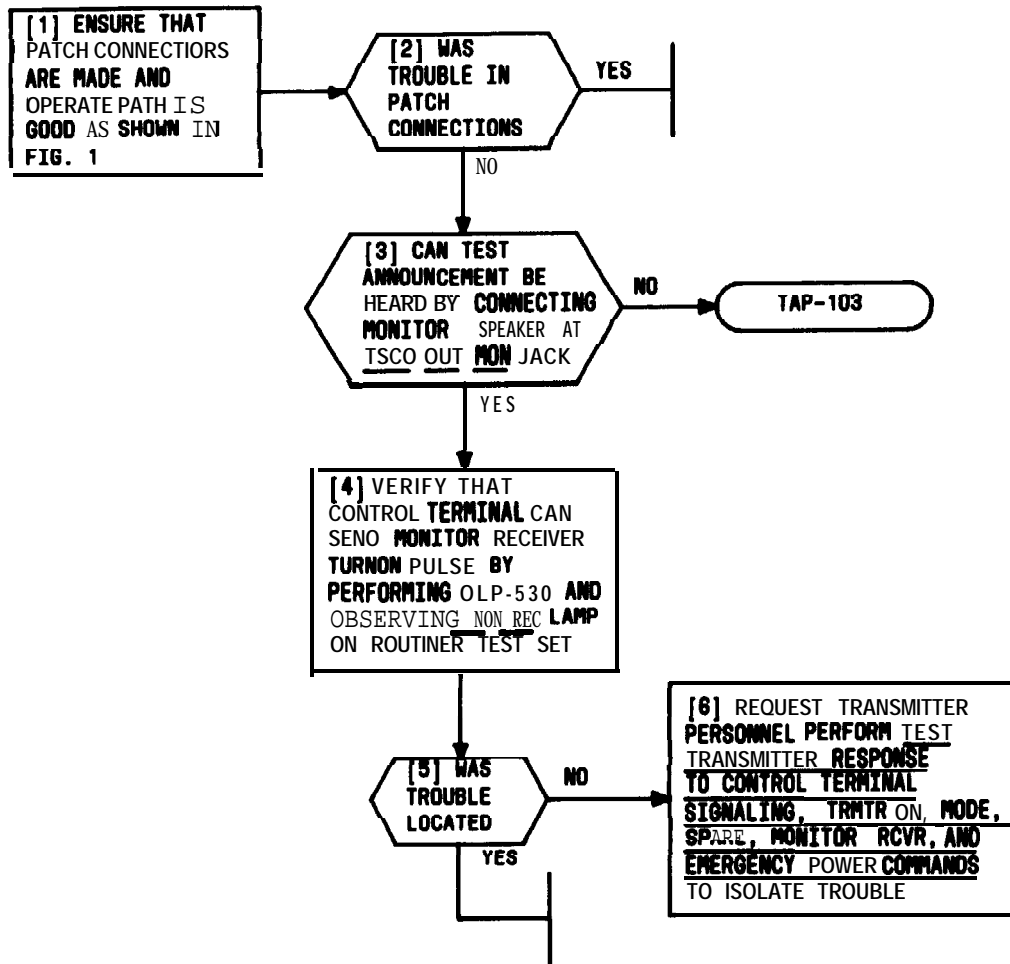


WARNING 6
WHEN REPLACING CIRCUIT BOARDS, POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

CAUTION 6
WHEN TESTING IS COMPLETED, ENSURE THAT STANDBY TRANSMITTER IS RESET TO CORRECT FREQUENCY

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CLEAR STANDBY TRANSHITTER FREQUENCY SELECT TROUBLE



CLEAR MONITOR RECEIVER TROUBLE

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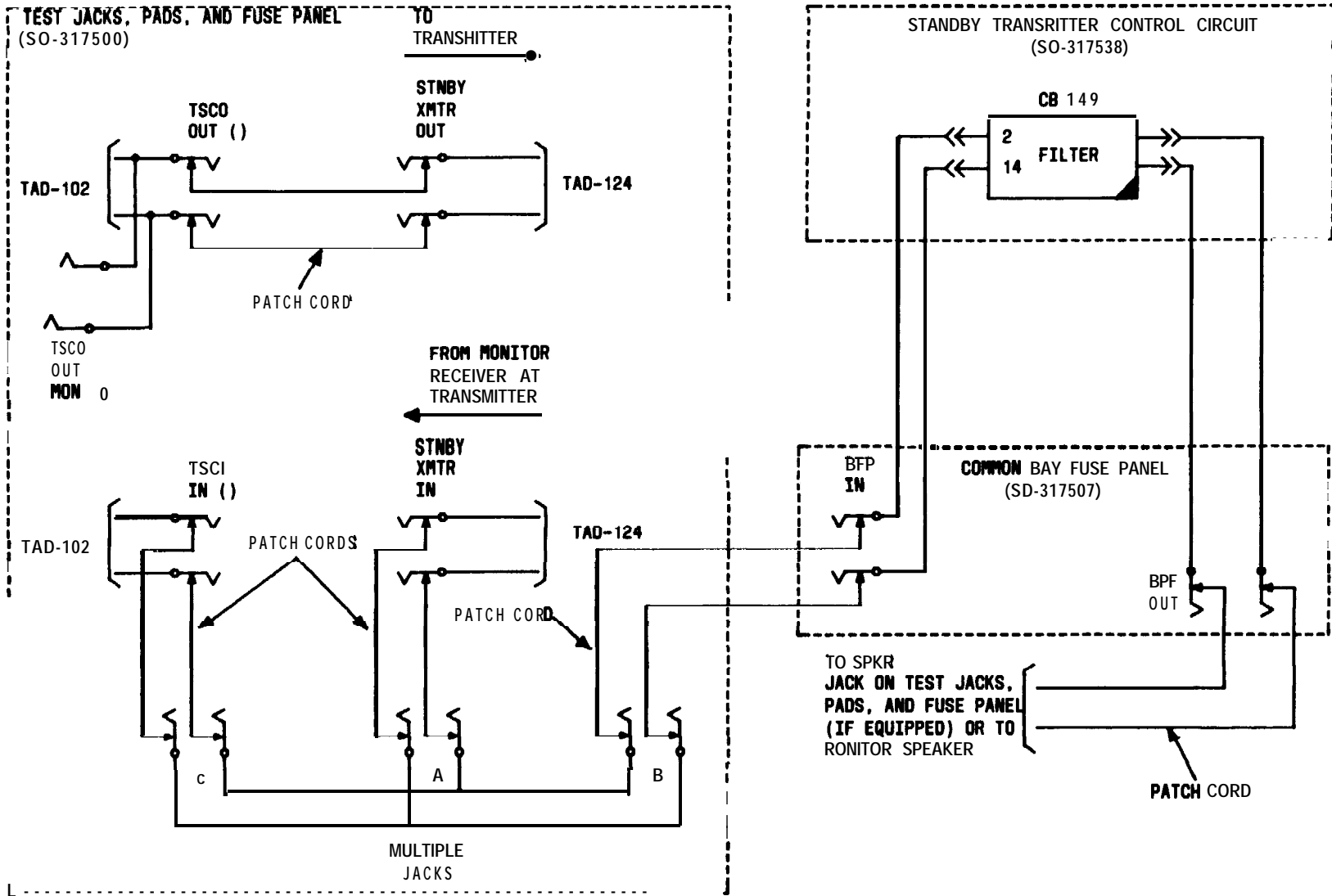
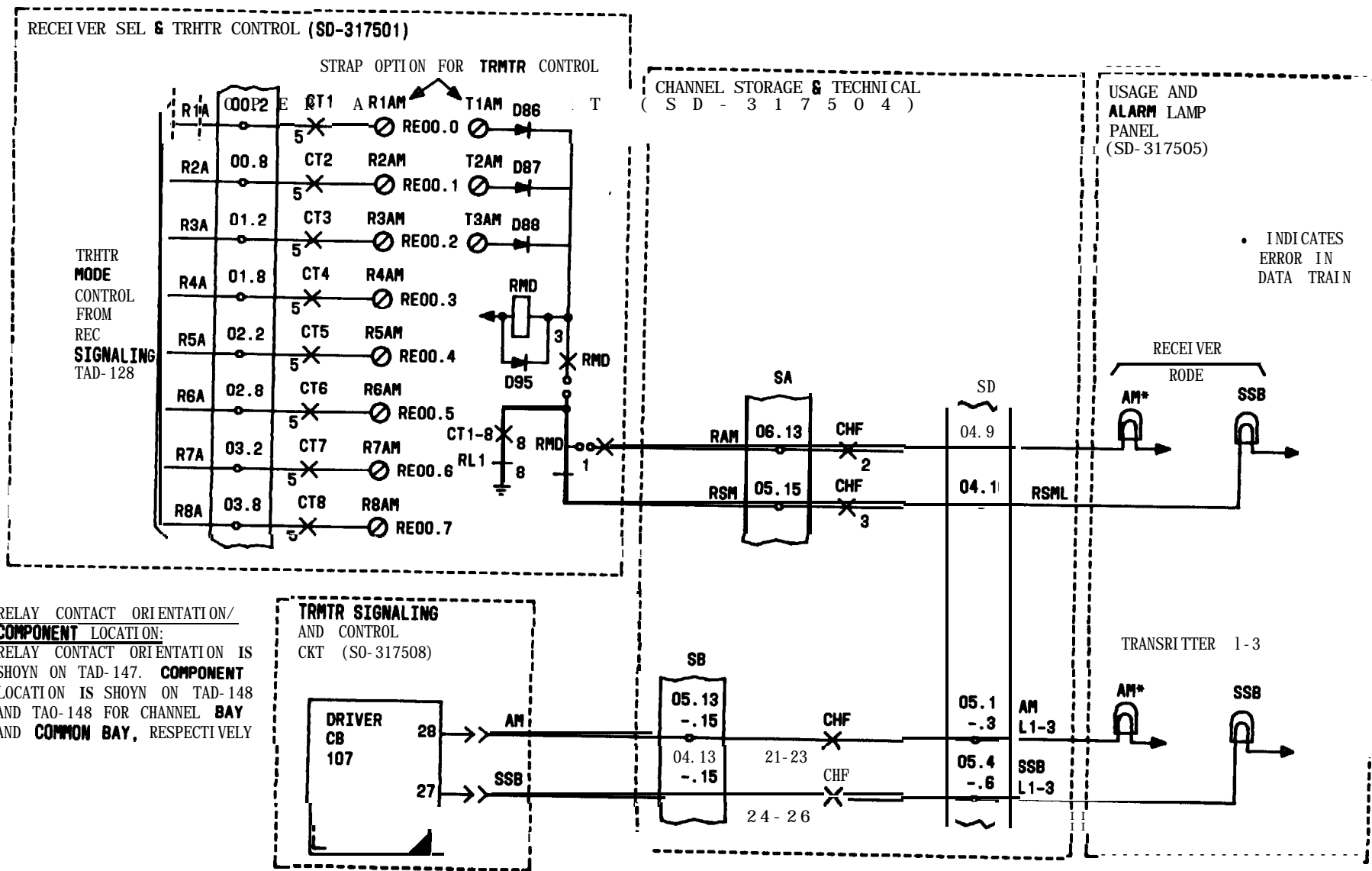
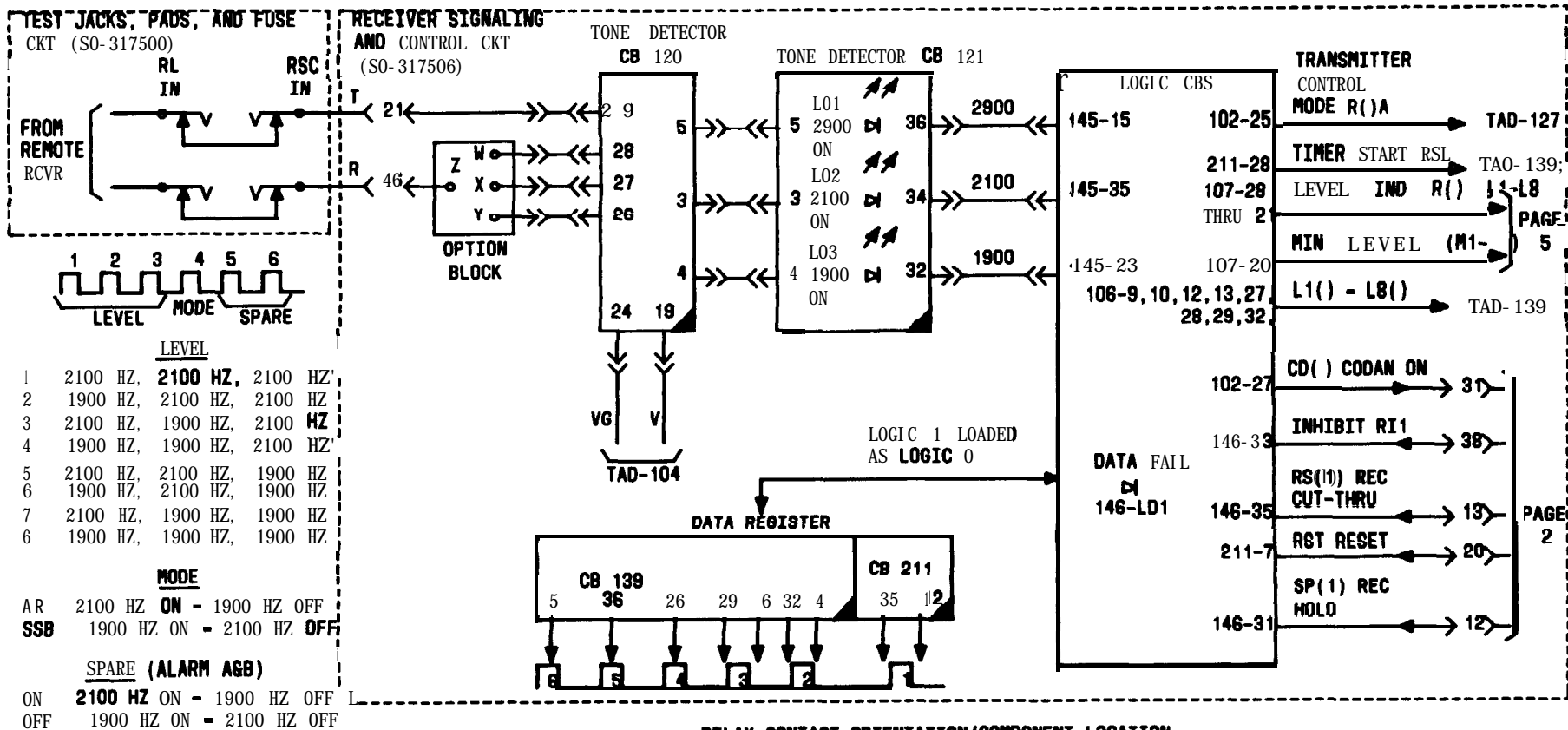


FIG. 1 • PATCH CONNECTIONS FOR TESTING MONITOR RECEIVER

CLEAR MONITOR RECEIVER TROUBLE

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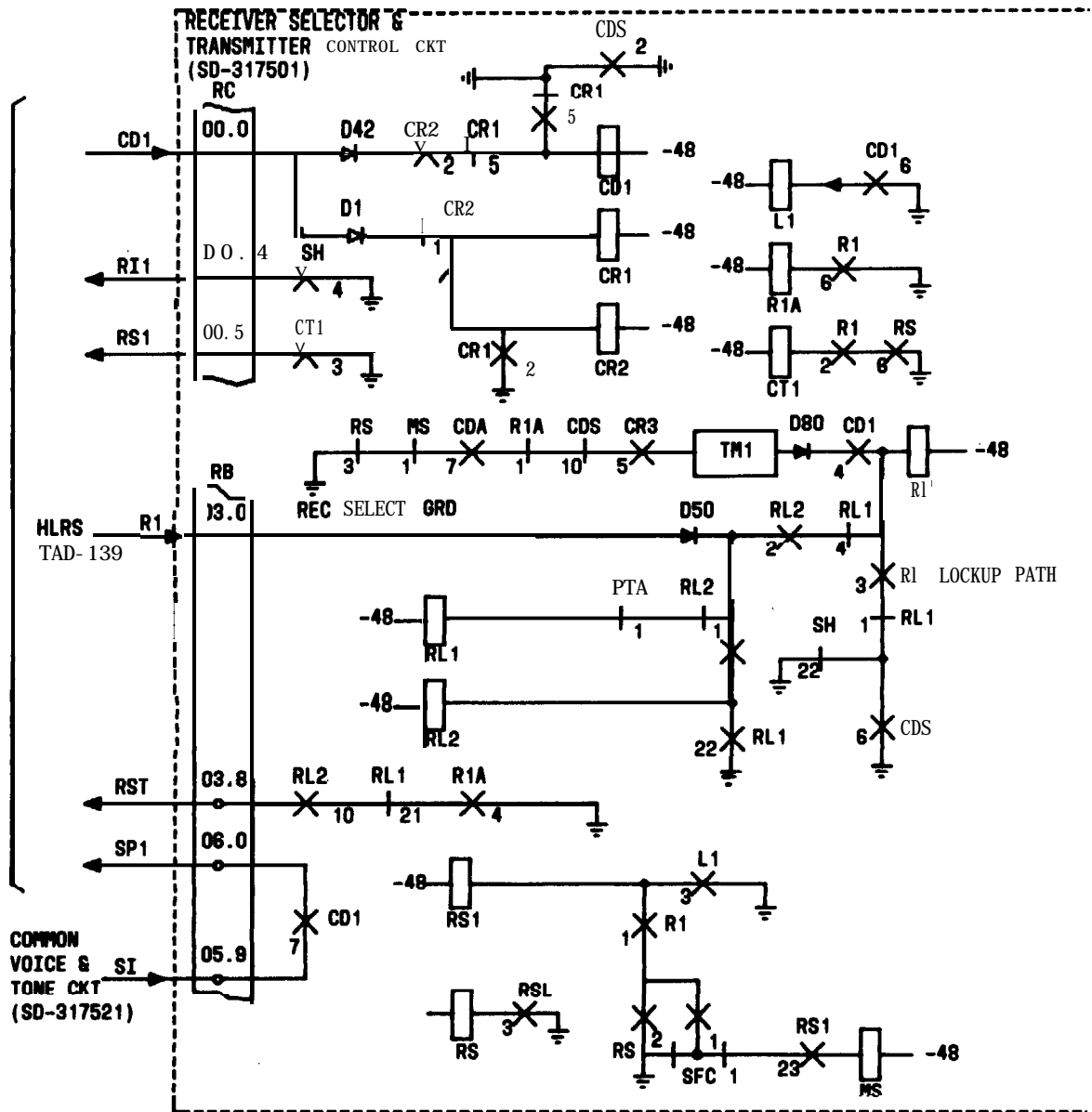
RELAY CONTACT ORIENTATION/COMPONENT LOCATION:
 RELAY CONTACT ORIENTATION IS SHOWN IN TAD-147
 COMPONENT LOCATION IS SHOWN IN TAO-149 AND
 TAO-149 FOR CHANNEL BAY AND COMMON BAY,
 RESPECTIVELY

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PAGE
1

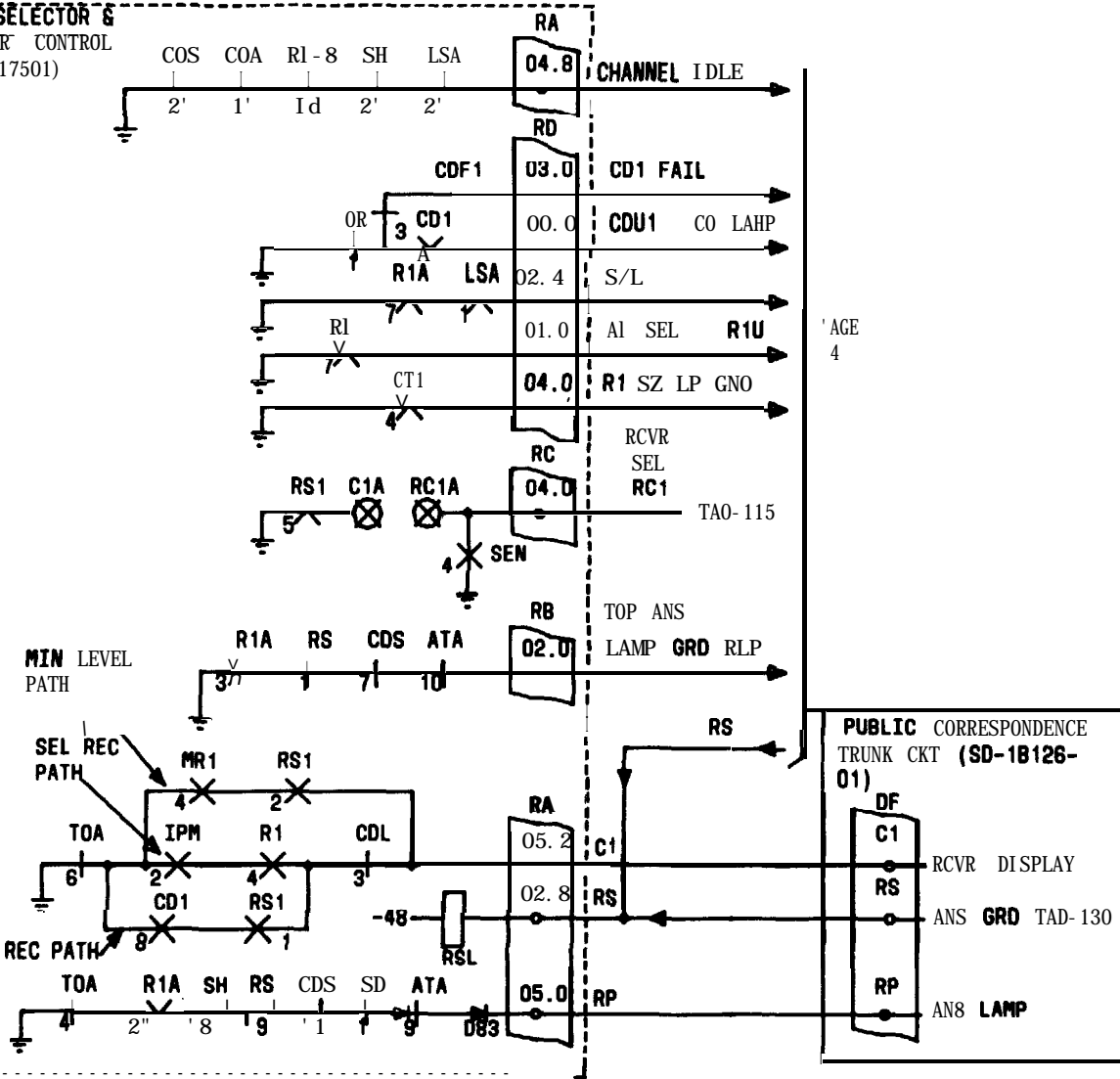
NOTES:

1. SEE PAGE 6 FOR OTHER TERMINALS
2. OPERATE PATH FOR RCVR 1 IS SHOWN. FOR OTHER RCVRS, SEE SO-317501
3. INHIBITS ARE SHOWN ON SD-317501 AS STRAP OPTION

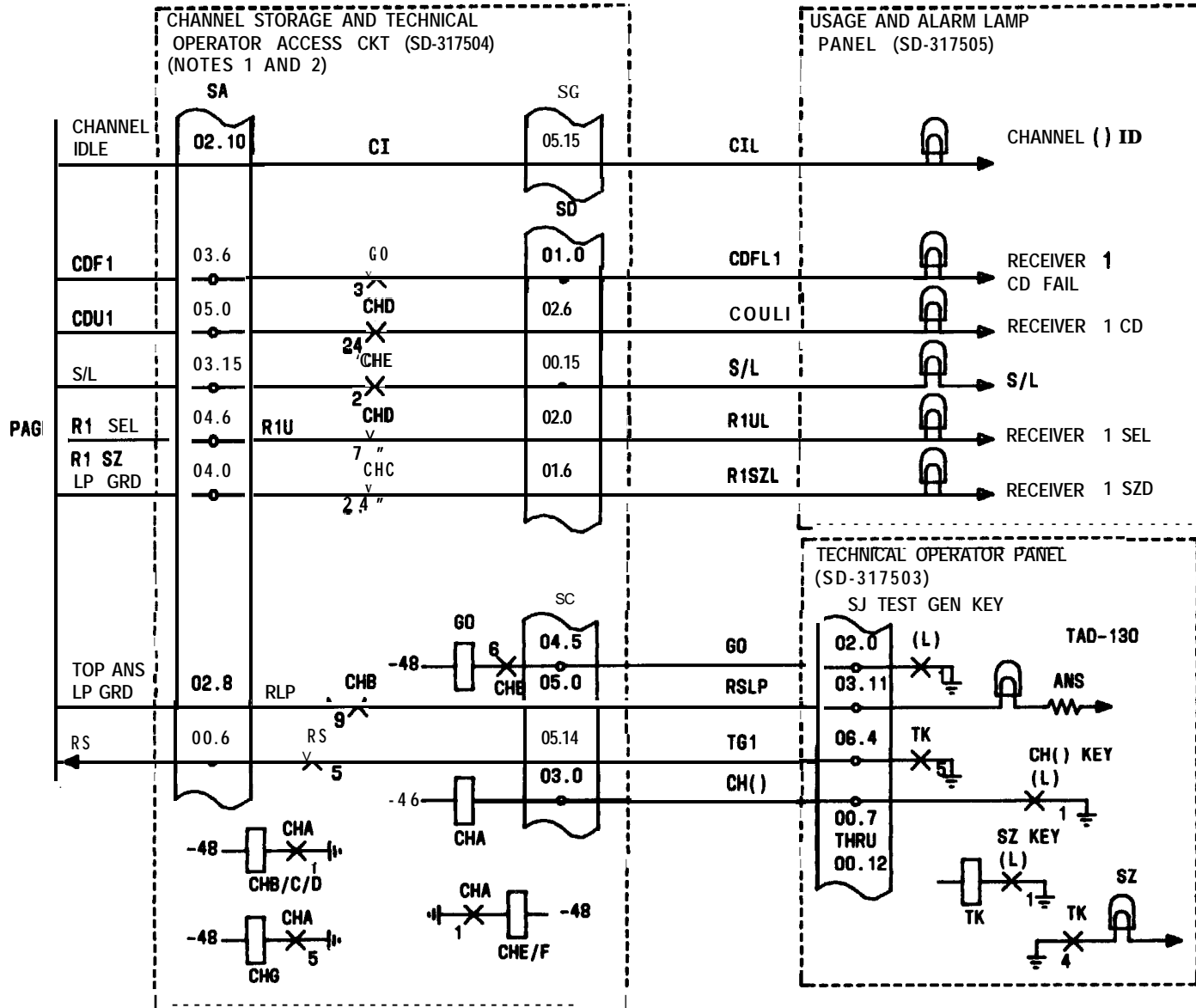


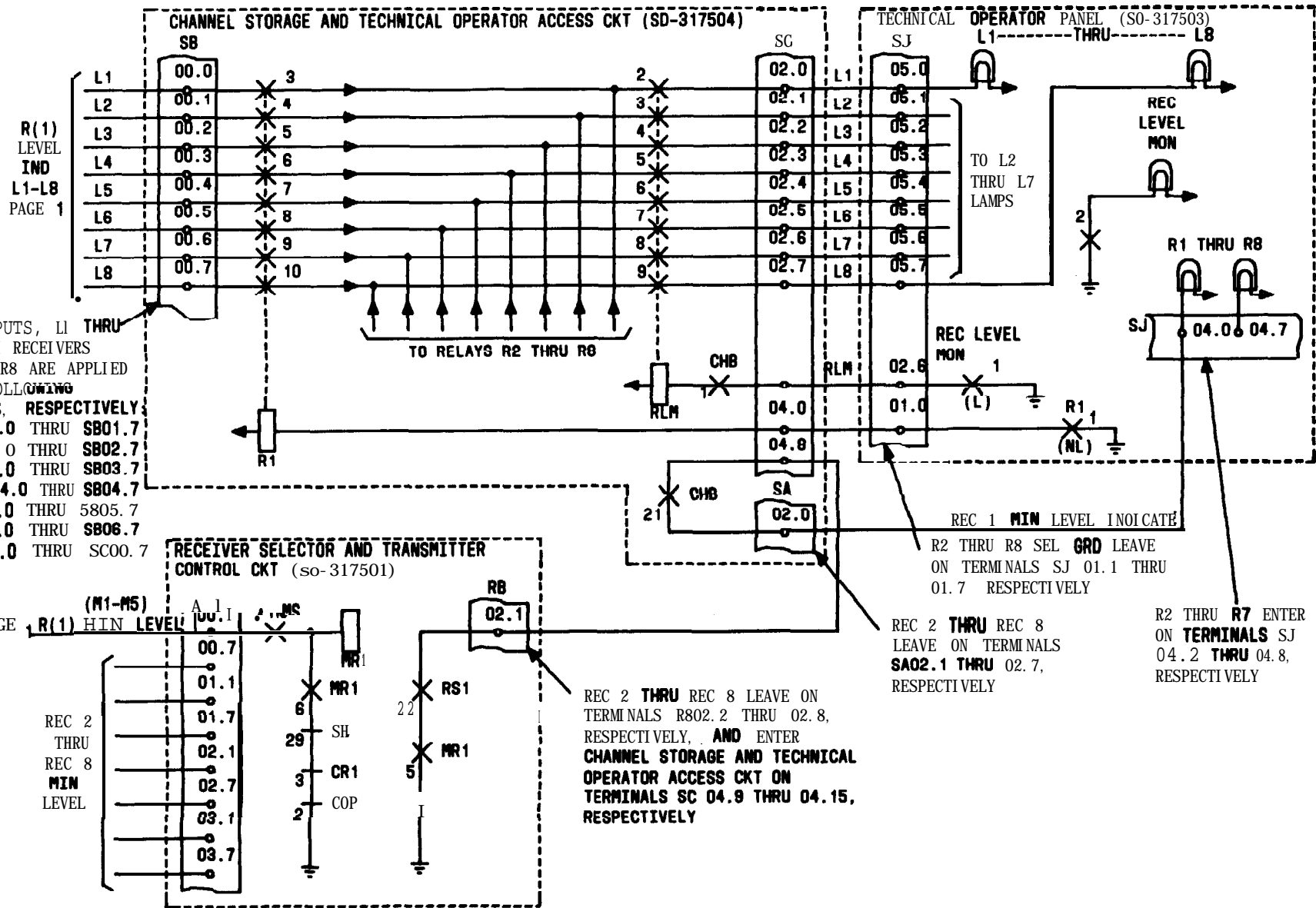
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**RECEIVER SELECTOR &
TRANSMITTER CONTROL
CKT (S0-317501)**



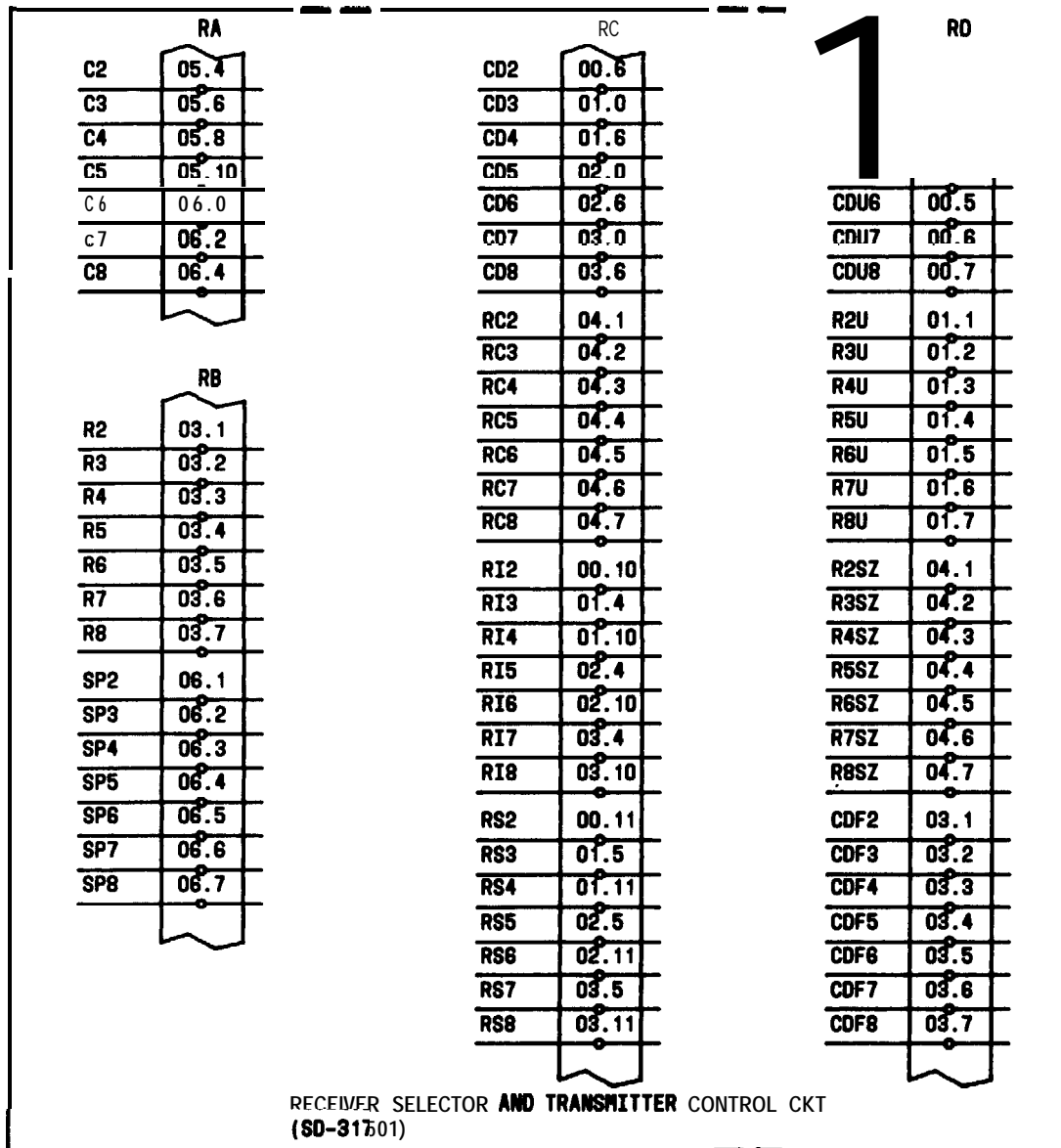
AGE
4

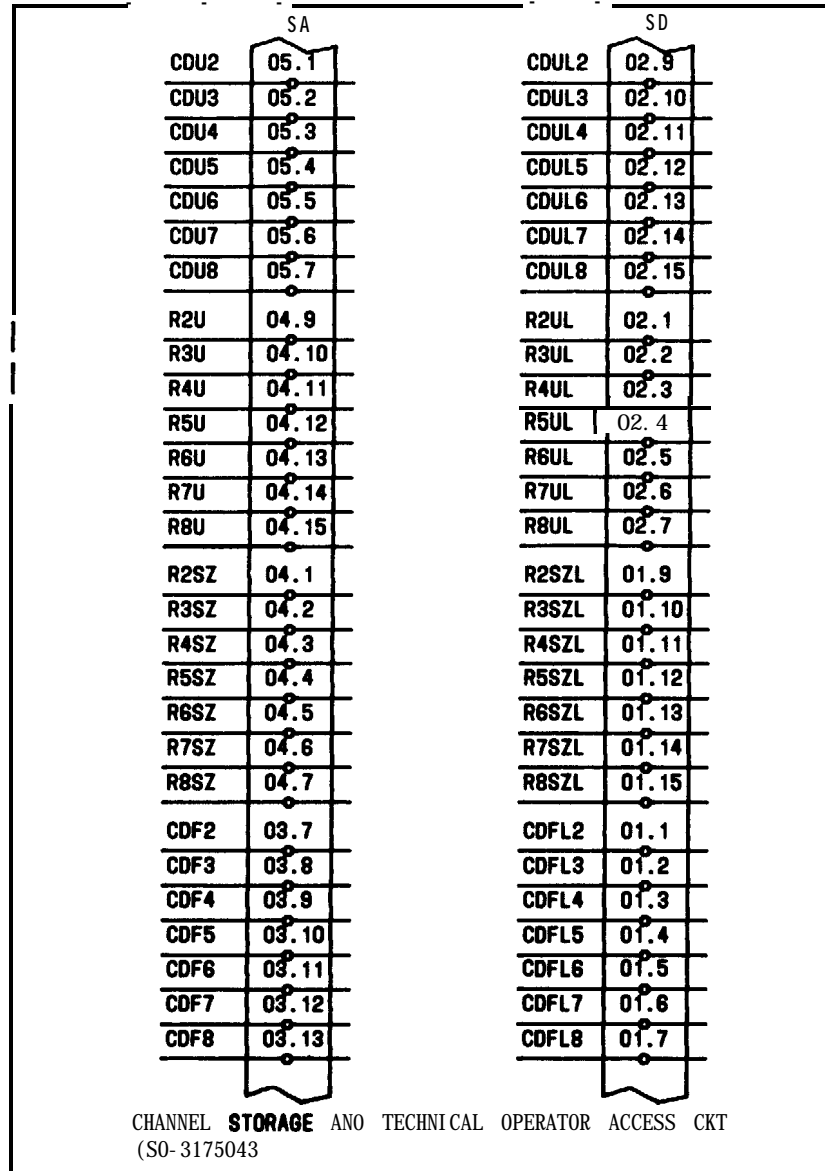




INCOMING CALL-PROCESSING CIRCUITS

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INCOMING CALL-PROCESSING CIRCUITS

[1] PERFORM OLP-525 TO VERIFY CIRCUIT (CKT) OPERATION BEFORE STARTING THIS TEST [NOTES 1 AND 2]

[2] IS CD RELAY FOR RECEIVER UNDER TEST IN RECEIVER SELECTOR AND TRANSMITTER CONTROL (RS AND TC) CKT OPERATED [NOTE 3]

YES

PAGE 4

NO

[3] ON ROUTINER TEST SET, OPERATE AND HOLD CODAN SWITCH FOR 4 S WHILE OBSERVING LD1 ON CIRCUIT BOARD 121 IN RECEIVER SIGNALING AND CONTROL (RS AND C) CKT

[4] DOES LD1 LIGHT

NO

PAGE 3 STEP 15

YES

[5] ON ROUTINER TEST SET, OPERATE AND HOLD CODAN SWITCH FOR 4 S WHILE OBSERVING RELAY CR2 IN RS AND TC CKT

[6] DOES RELAY CR2 OPERATE

YES

[7] CHECK OPERATE PATH FOR RELAY CO () THRU RELEASED RELAY CR1 AND OPERATED RELAY CR2 AS SHOWN IN TAD-128

NO

[8] OPERATE AND HOLD CODAN SWITCH FOR 4 S WHILE OBSERVING RELAY CR1 IN RS AND TC CKT

PAGE 2

NOTES

1. ALL INDICATOR LAMPS ASSOCIATED WITH TROUBLES SHOULD BE CHECKED BEFORE STARTING THIS PROCEDURE THE OPERATING PATHS FOR ALL MAJOR FUNCTIONS ASSOCIATED WITH INCOMING CALL-PROCESSING ARE VERIFIED BY THIS PROCEDURE. USE TAO-128 FOR CHECKING LAMP OPERATING PATH NOT SPECIFICALLY COVERED BY THIS PROCEDURE
 CD RELAYS 1 THRU 8 ARE ASSOCIATED WITH RECEIVERS 1 THRU 8, RESPECTIVELY

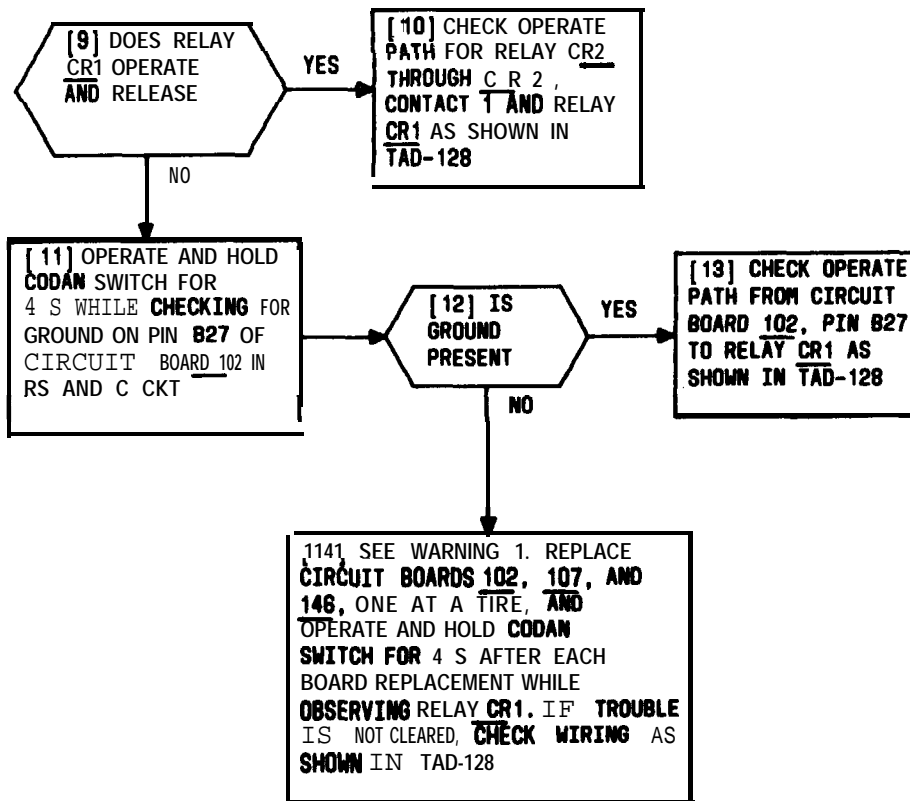
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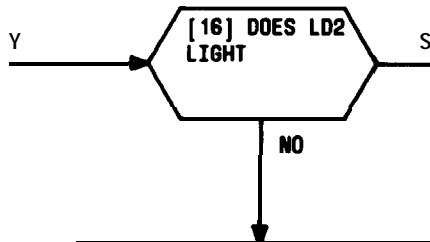
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CLEAR INCOMING CALL-PROCESSING TROUBLE

WARNING 1	
REMOVE POWER BEFORE REMOVING BOARDS BY REMOVING FUSES SUPPLYING BOARD AS SHOWN IN DLP-554. AFTER FUSES ARE REINSTALLED, DEPRESS VR RESET AND ALM RESET ON TECHNICAL OPERATOR PANEL	
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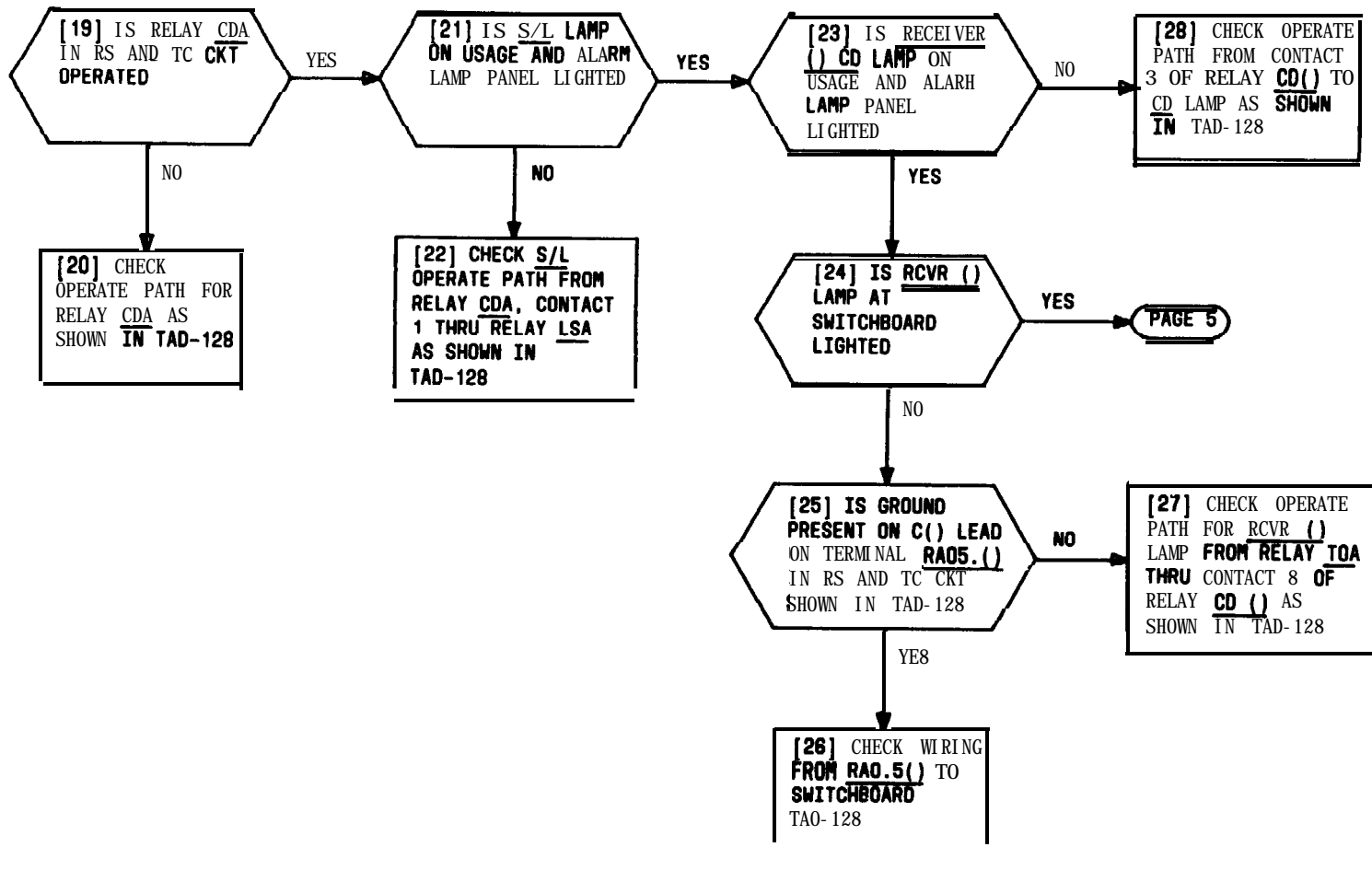
[15] AT ROUTINER, SET
AC SWITCH TO ON AND
OBSERVE LD2 ON CIRCUIT
BOARD 121 IN RS AND C
C K T



[17] SEE WARNING 2. SET
AC SWITCH TO OFF AND
REPLACE CIRCUIT BOARD
121. IF TROUBLE IS NOT
CLEARED.. CHECK WIRING
AS SHOWN IN TAD-128

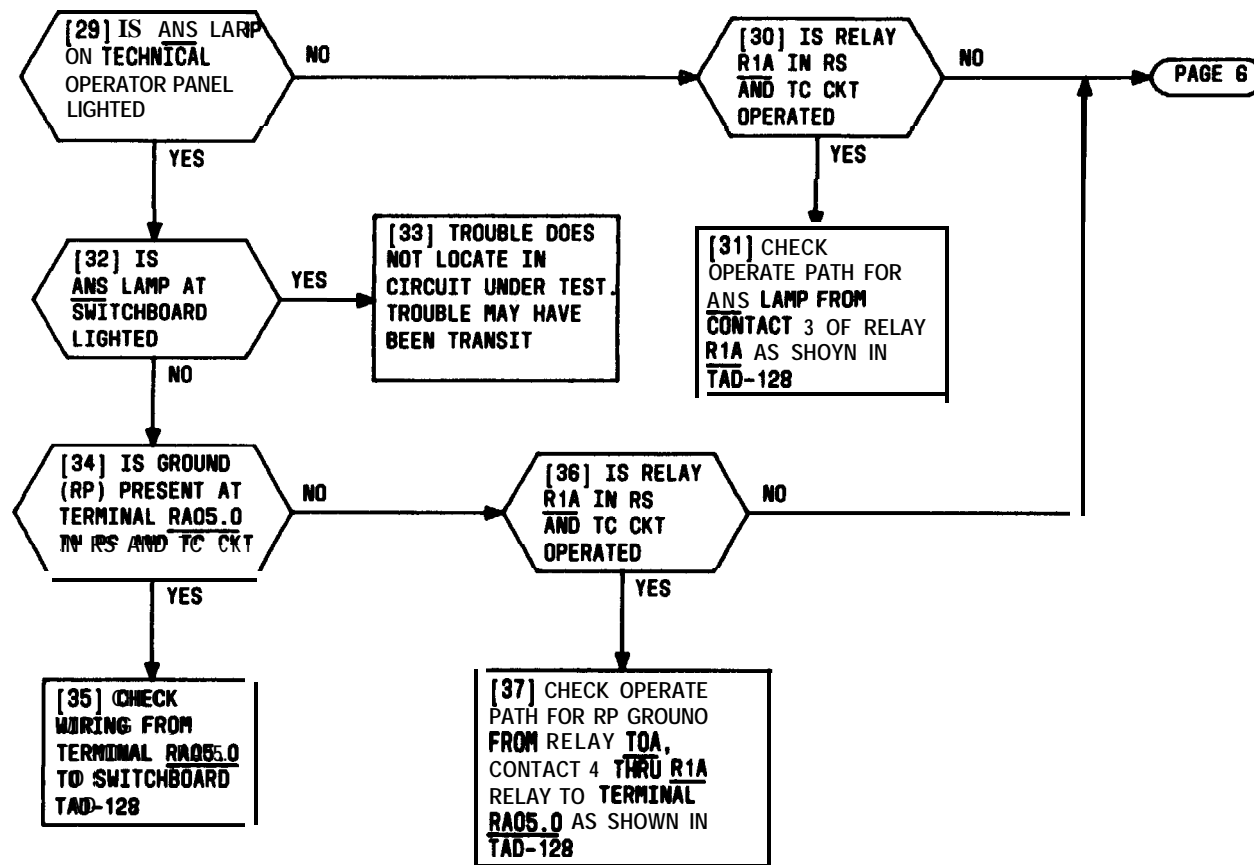
[18] SEE WARNING 2. REPLACE
CIRCUIT BOARDS 120 AND 121.
ONE AT A TIME. AND OBSERVE
LD2 AFTER EACH REPLACEMENT.
IF TROUBLE IS NOT CLEARED,
CHECK WIRING AS SHOWN IN
TAD-128. SET AC SWITCH AT
ROUTINER TO OFF WHEN
TROUBLE IS CLEARED

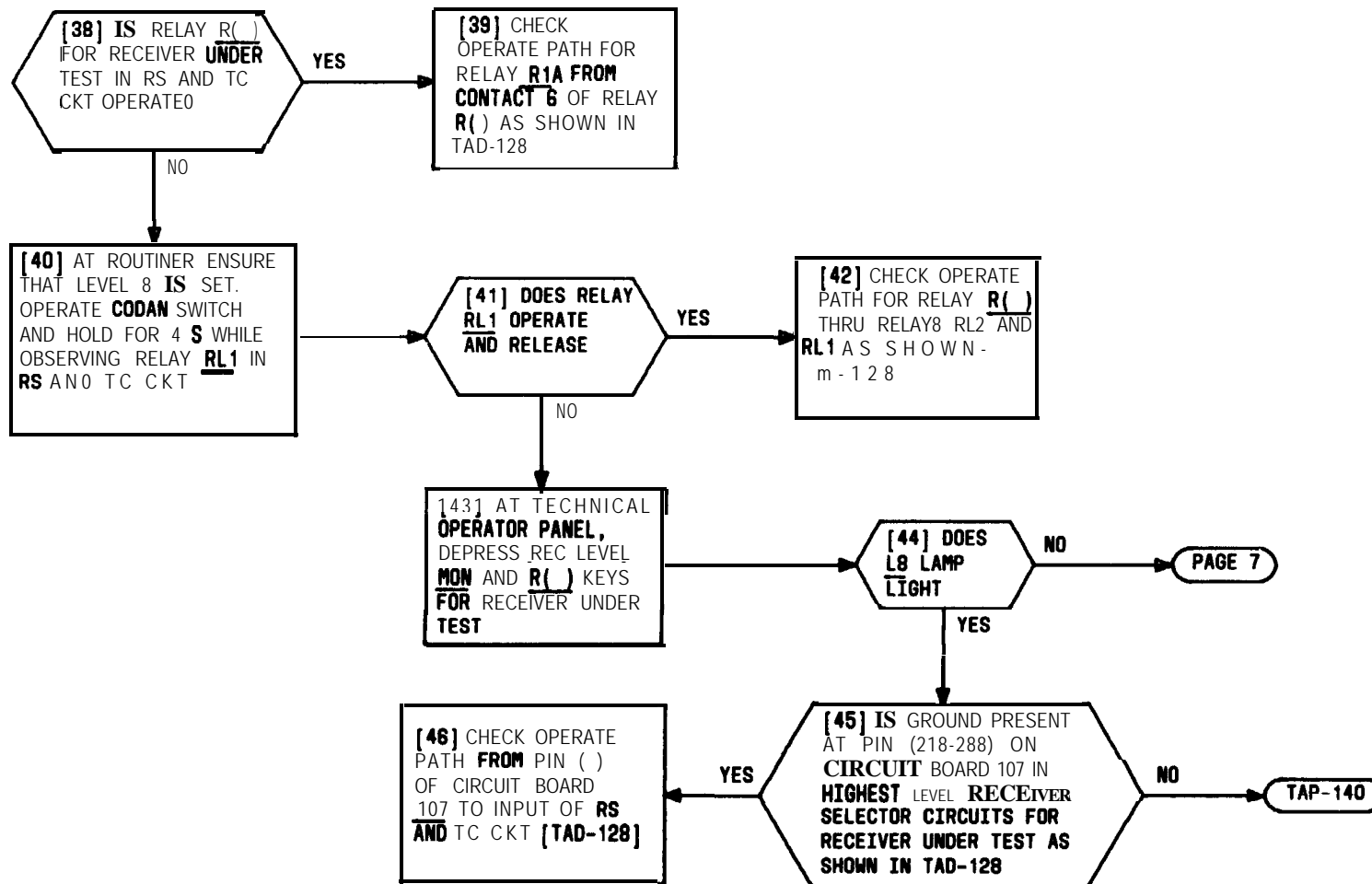
WARNING 2	
REMOVE POWER BEFORE REMOVING CIRCUIT BOARDS BY REMOVING FUSES SUPPLYING BOARD AS SHOWN IN DLP-554. AFTER FUSES ARE REINSTALLED, DEPRESS VR RESET AND ALM RESET ON TECHNICAL OPERATOR PANEL	
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CLEAR INCOMING CALL-PROCESSING TROUBLE

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CLEAR INCOMING CALL-PROCESSING TROUBLE

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[47] AT ROUTINER, OPERATE CODAN SWITCH AND HOLD FOR 4 S. OBSERVE LDS 2 AND 3 ON CIRCUIT BOARD 121 IN RS AND C CKT WHEN CODAN SWITCH IS RELEASED

[48] DO LDS 2 AND 3 BLINK AFTER RELEASE OF CODAN SWITCH

[49] SEE WARNING 3. REPLACE CIRCUIT BOARDS 120 AND 121, ONE AT A TIME, AND REPEAT STEP 47 AFTER EACH REPLACEMENT. IF TROUBLE IS NOT CLEARED CHECK WIRING AS SHOWN IN TAD-129

[50] IS DATA FAIL LD1 ON CIRCUIT BOARD 146 IN RS AND C CKT LIGHTED

[55] SEE WARNING 3. REPLACE CIRCUIT BOARDS 145, 146, AND 103, ONE AT A TIME. OPERATE CODAN SWITCH AND HOLD FOR 4 S AFTER EACH REPLACEMENT. IF TROUBLE IS NOT CLEARED, CHECK WIRING AS SHOWN IN TAD-129

[51] AT ROUTINER, SET LEVEL SWITCHES TO SIMULATE LEVELS 1 THRU 7. ONE LEVEL AT A TIME. OPERATE AND HOLD CODAN SWITCH FOR 4 S

[52] DO ANY LEVEL L1 THRU L8 LAMPS LIGHT ON TECHNICAL OPERATOR PANEL

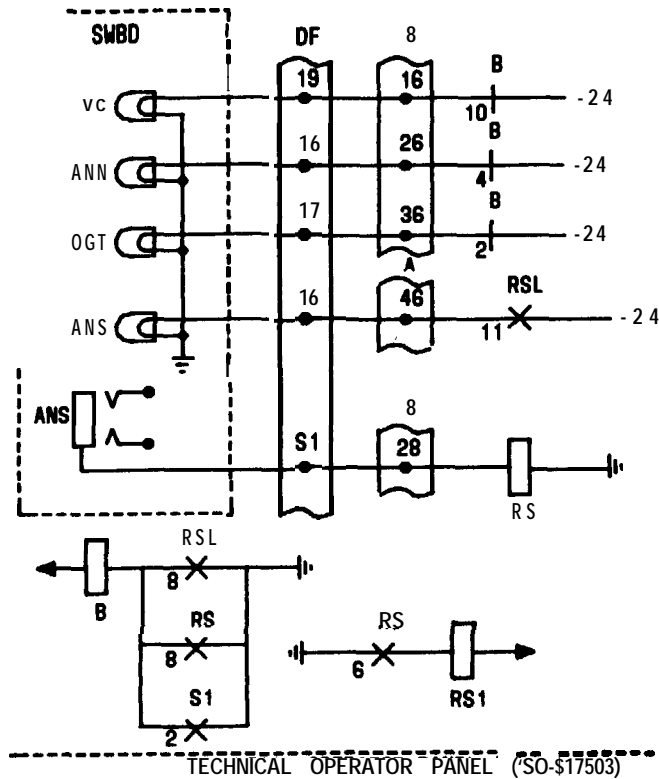
[53] SEE WARNING 3. REPLACE CIRCUIT BOARD 106 IN RS AND C CKT. IF TROUBLE IS NOT CLEARED, CHECK WIRING AS SHOWN IN TAD-129

[54] SEE WARNING 3. REPLACE CIRCUIT BOARDS 139, 103, 145, 146, AND 102, ONE AT A TIME, AND SET LEVEL 9 AT ROUTINER. OPERATE AND HOLD CODAN SWITCH FOR 4 S AFTER EACH REPLACEMENT. IF TROUBLE IS NOT CLEARED, CHECK WIRING AS SHOWN ON SD-317509

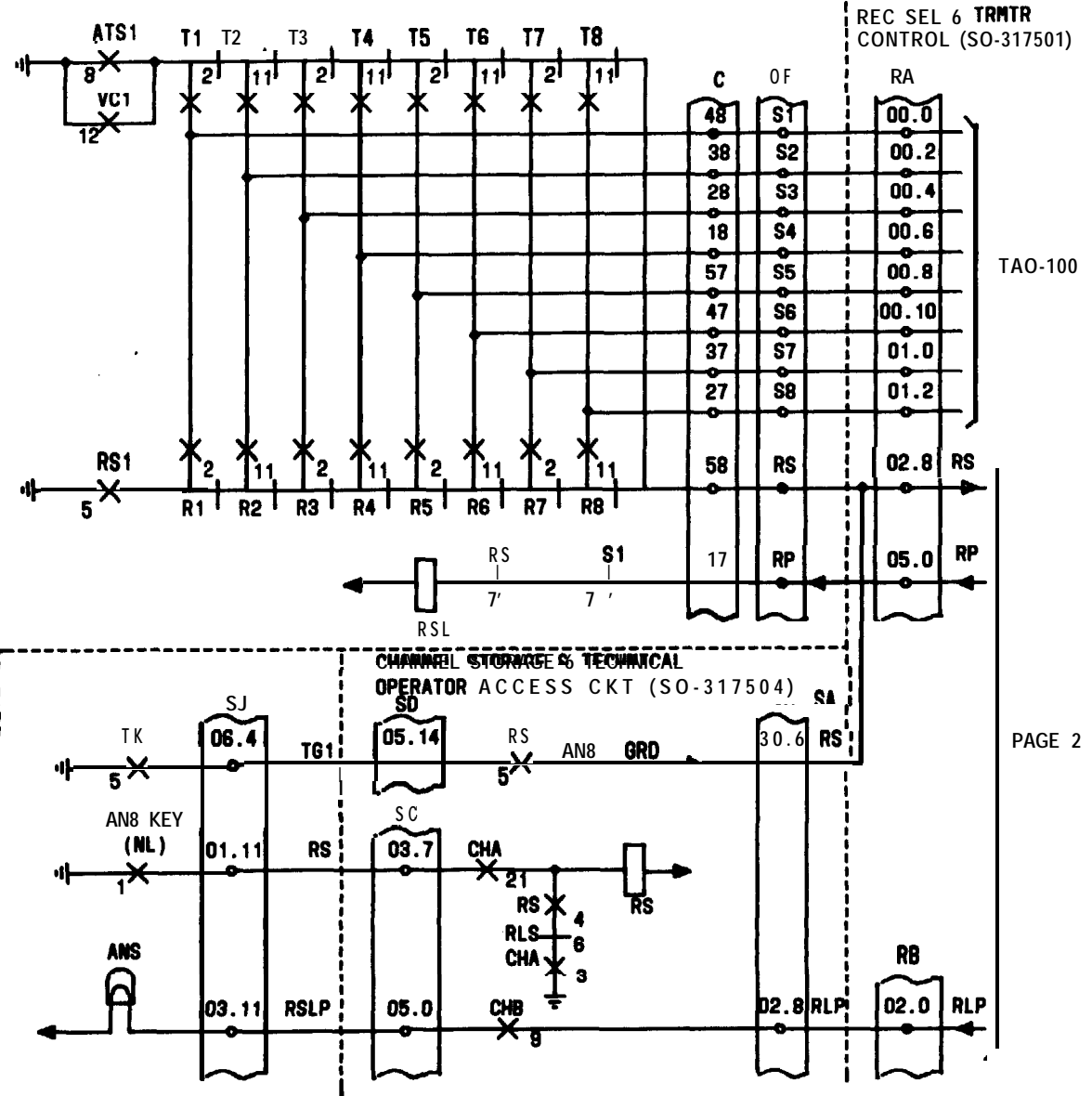
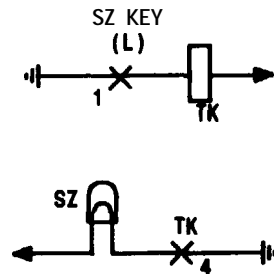
WARNING 3
 REMOVE POWER BEFORE REMOVING CIRCUIT BOARDS BY REMOVING FUSES SUPPLYING BOARD AS SHOWN IN DLP-554. AFTER FUSES ARE REINSTALLED, DEPRESS VR RESET AND ALM RESET ON TECHNICAL OPERATOR PANEL

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PUBLIC CORRESPONDENCE
TRUNK CIRCUITS (SD-1B126-01)



RELAY CONTACT ORIENTATION/
COMPONENT LOCATION:
RELAY CONTACT ORIENTATION IS
SHOWN ON TAO-147. COMPONENT
LOCATION IS SHOWN ON TAO-148
AND TAO-146 FOR CHANNEL BAY
AND COMMON BAY, RESPECTIVELY



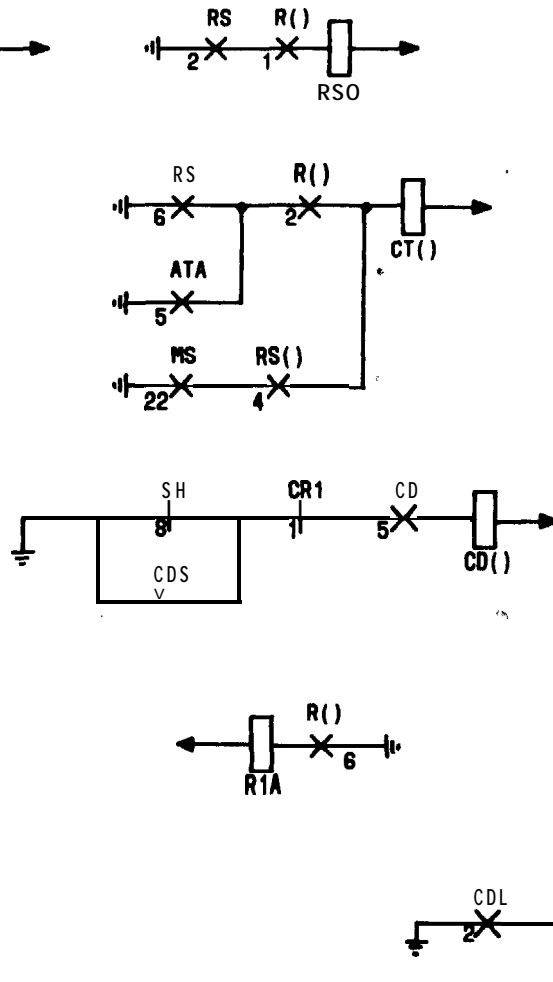
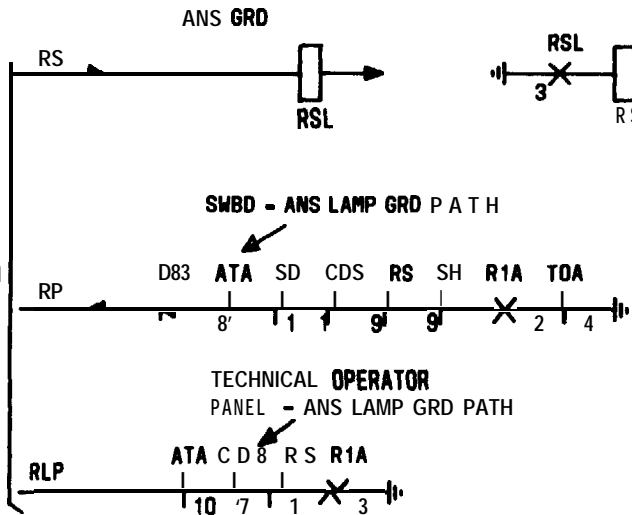
REC SEL 6 TRMTR
CONTROL (SO-317501)

TAO-100

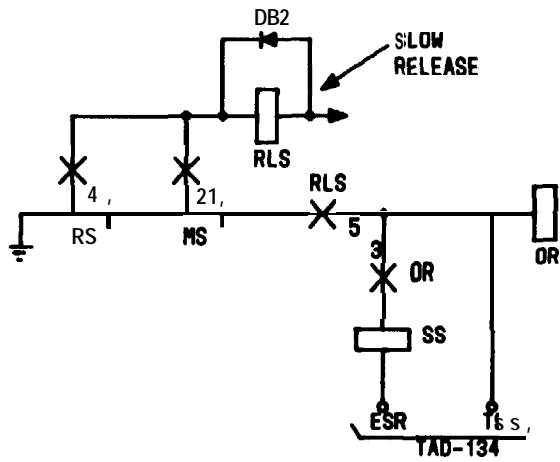
PAGE 2

SWITCHBOARD TECHNICAL OPERATOR PANEL ANSWER CIRCUITS

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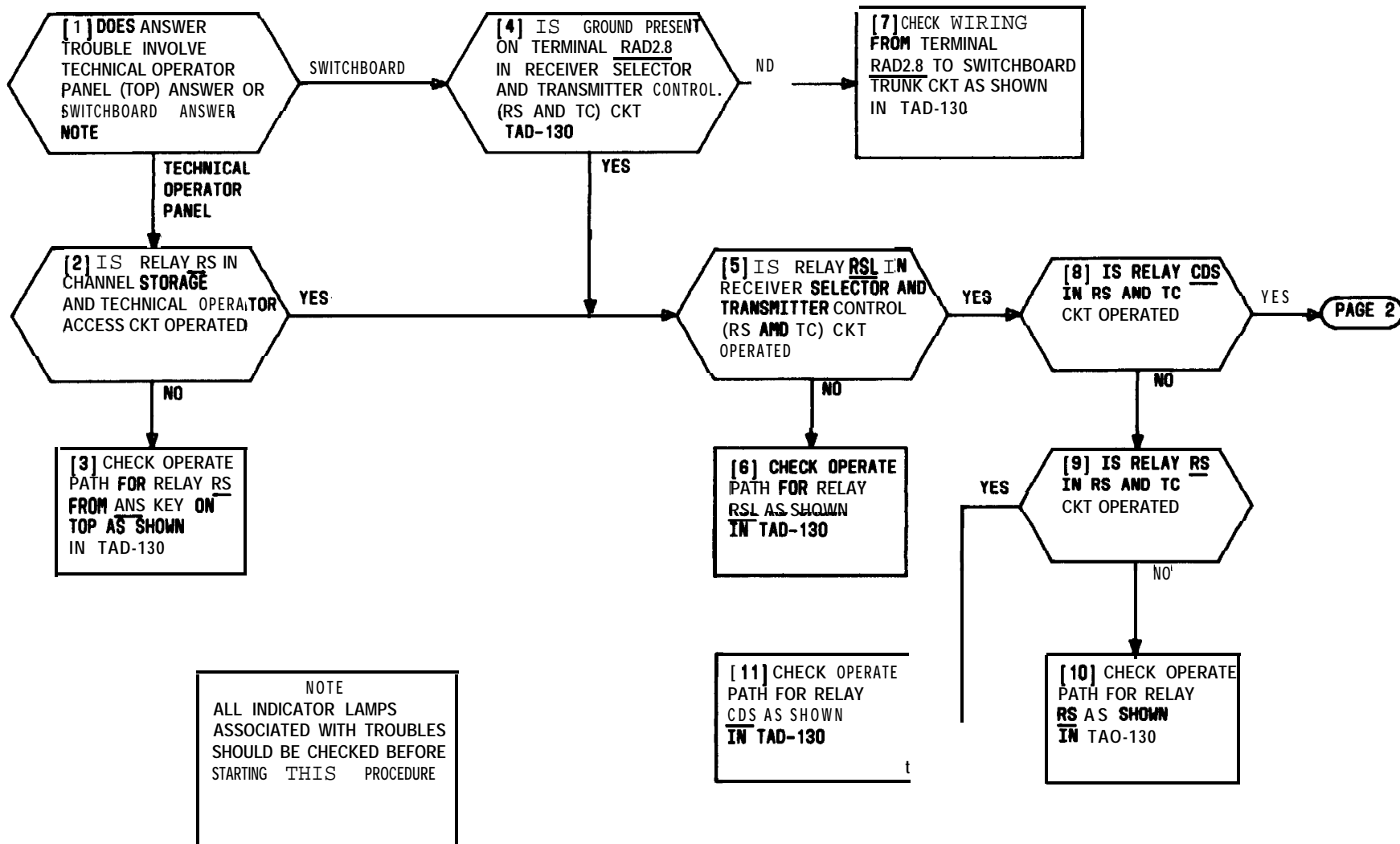


NOTE :
SEE TAD-134 FOR SIGNALING UPDATE AFTER OPERATOR DISCONNECT. UPDATE IS CAUSED BY RELEASE OF RS AND SLOW RELEASE OF RELAY RLS WHICH CAUSE OR TO OPERATE, OPERATING SS, AND STARTING REC TONE SENDER VIA STT LEAD



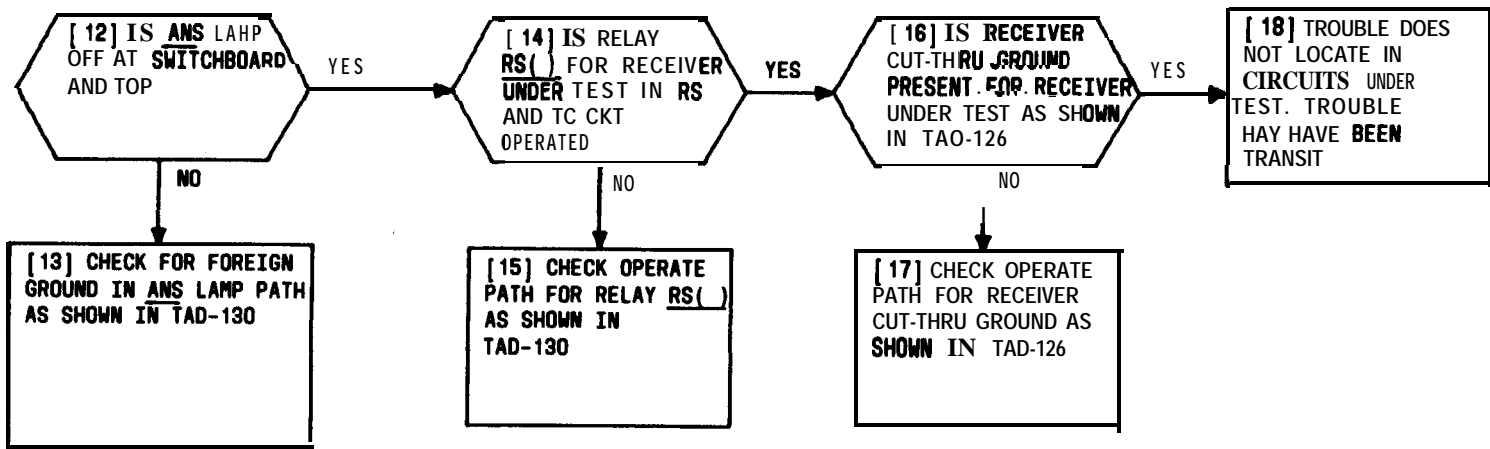
RECEIVER SIGNALING TRANSMITTER CONTROL CKT (SD-317501)

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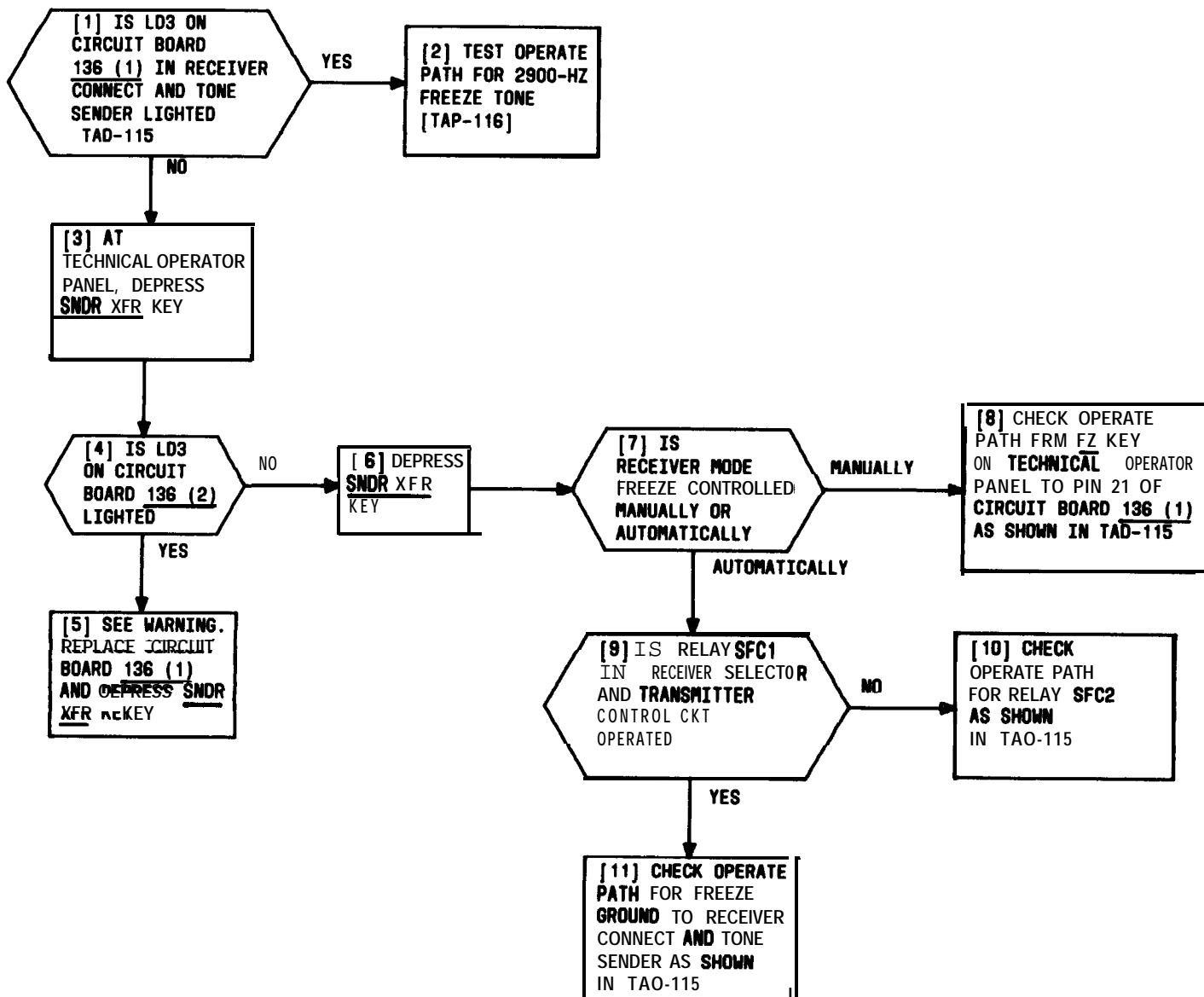


CLEAR OPERATOR ANSWER CIRCUIT TROUBLE

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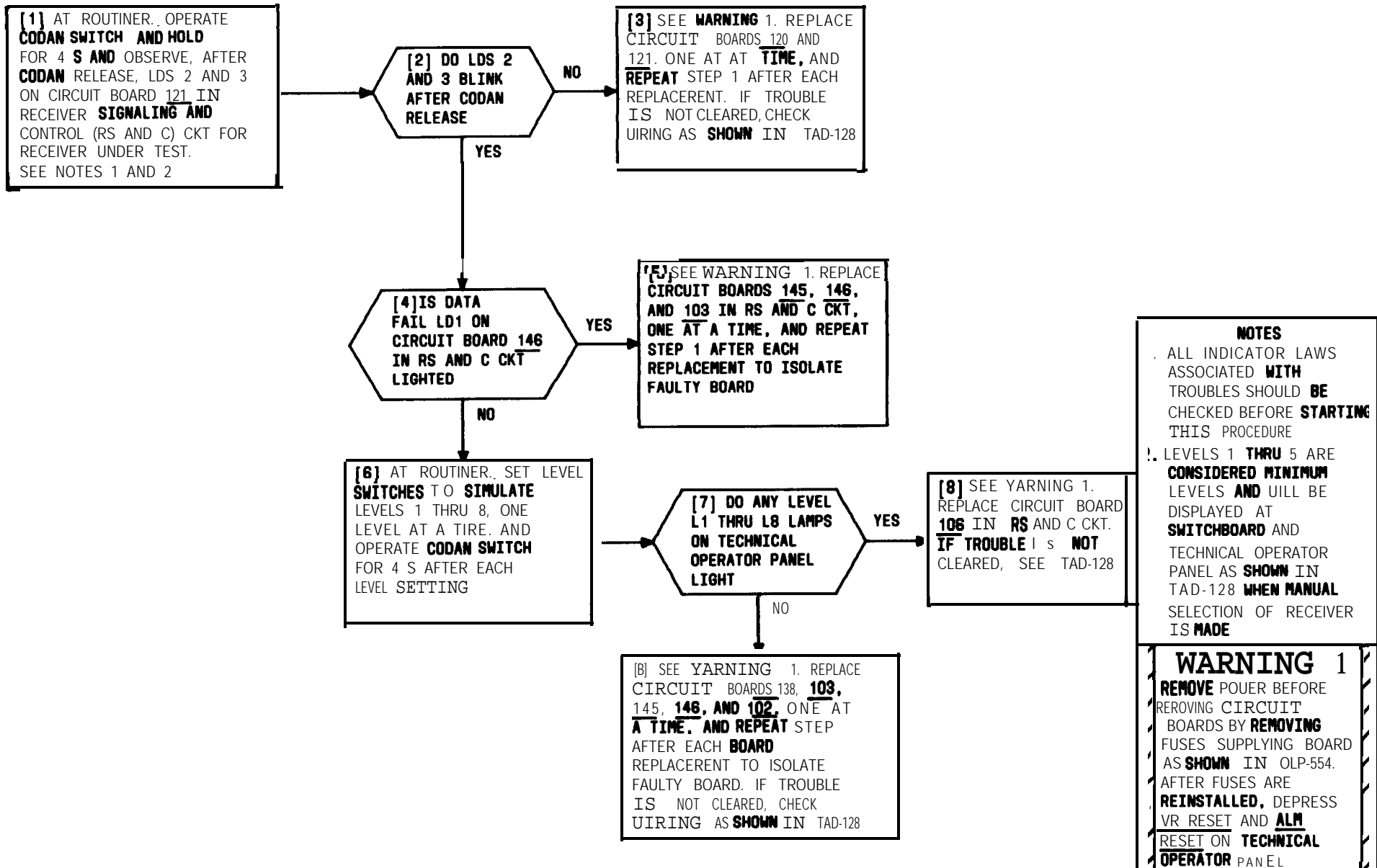


CLEAR OPERATOR ANSWER CIRCUIT TROUBLE



WARNING	
REMOVE POWER BEFORE REMOVING CIRCUIT BOARDS BUY REMOVING FUSES SUPPLYING BOARDS AS SHOWN IN DLP-554. AFTER FUSES ARE REINSTALLED, DEPRESS VR RESET AND ALM RESET ON TECHNICAL OPERATOR PANEL	
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CLEAR RECEIVE FREEZE TROUBLE



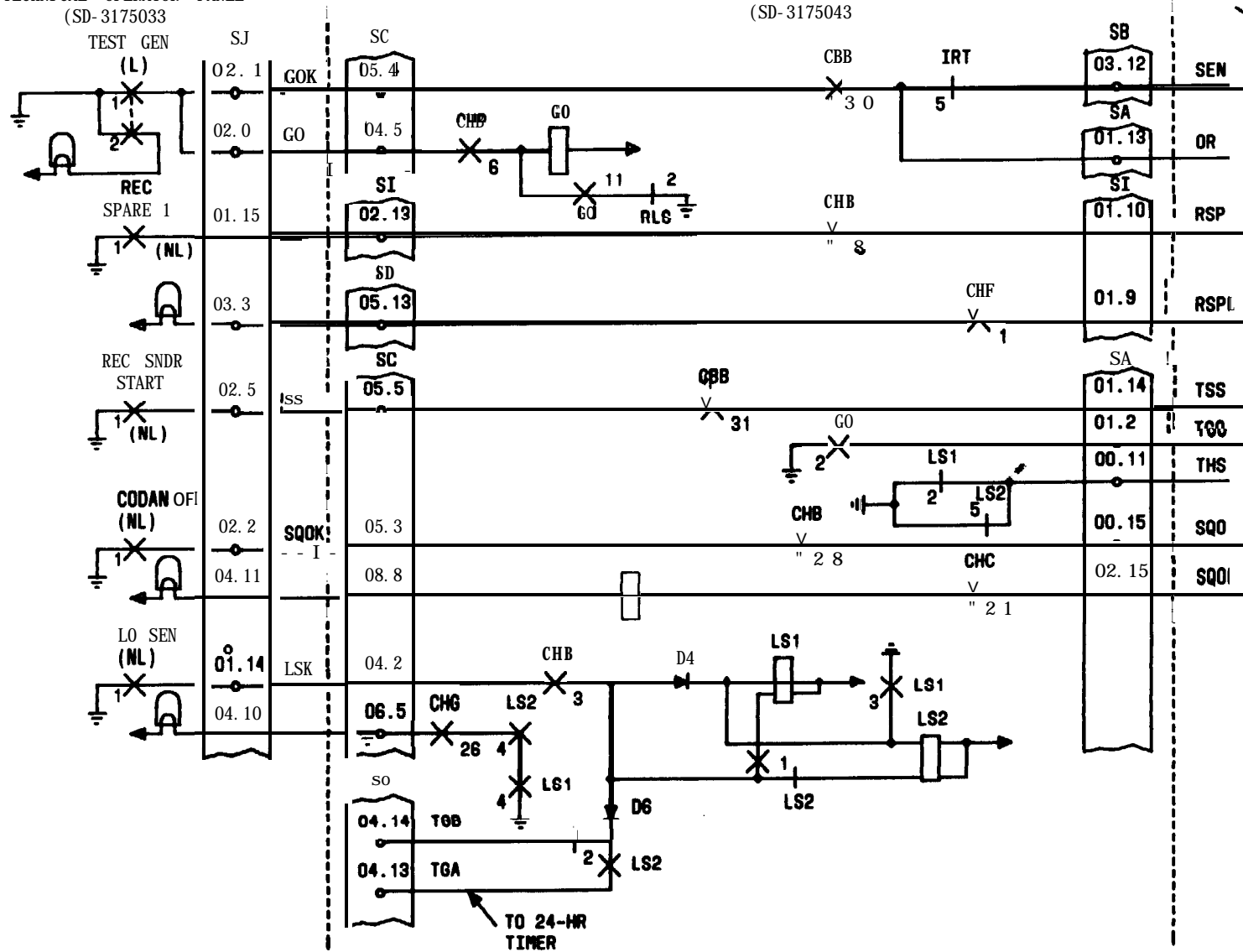
NOTES

- ALL INDICATOR LAWS ASSOCIATED WITH TROUBLES SHOULD BE CHECKED BEFORE STARTING THIS PROCEDURE
- LEVELS 1 THRU 5 ARE CONSIDERED MINIMUM LEVELS AND WILL BE DISPLAYED AT SWITCHBOARD AND TECHNICAL OPERATOR PANEL AS SHOWN IN TAD-128 WHEN MANUAL SELECTION OF RECEIVER IS MADE

WARNING 1

REMOVE POWER BEFORE REMOVING CIRCUIT BOARDS BY REMOVING FUSES SUPPLYING BOARD AS SHOWN IN OLP-554. AFTER FUSES ARE REINSTALLED, DEPRESS VR RESET AND ALM RESET ON TECHNICAL OPERATOR PANEL

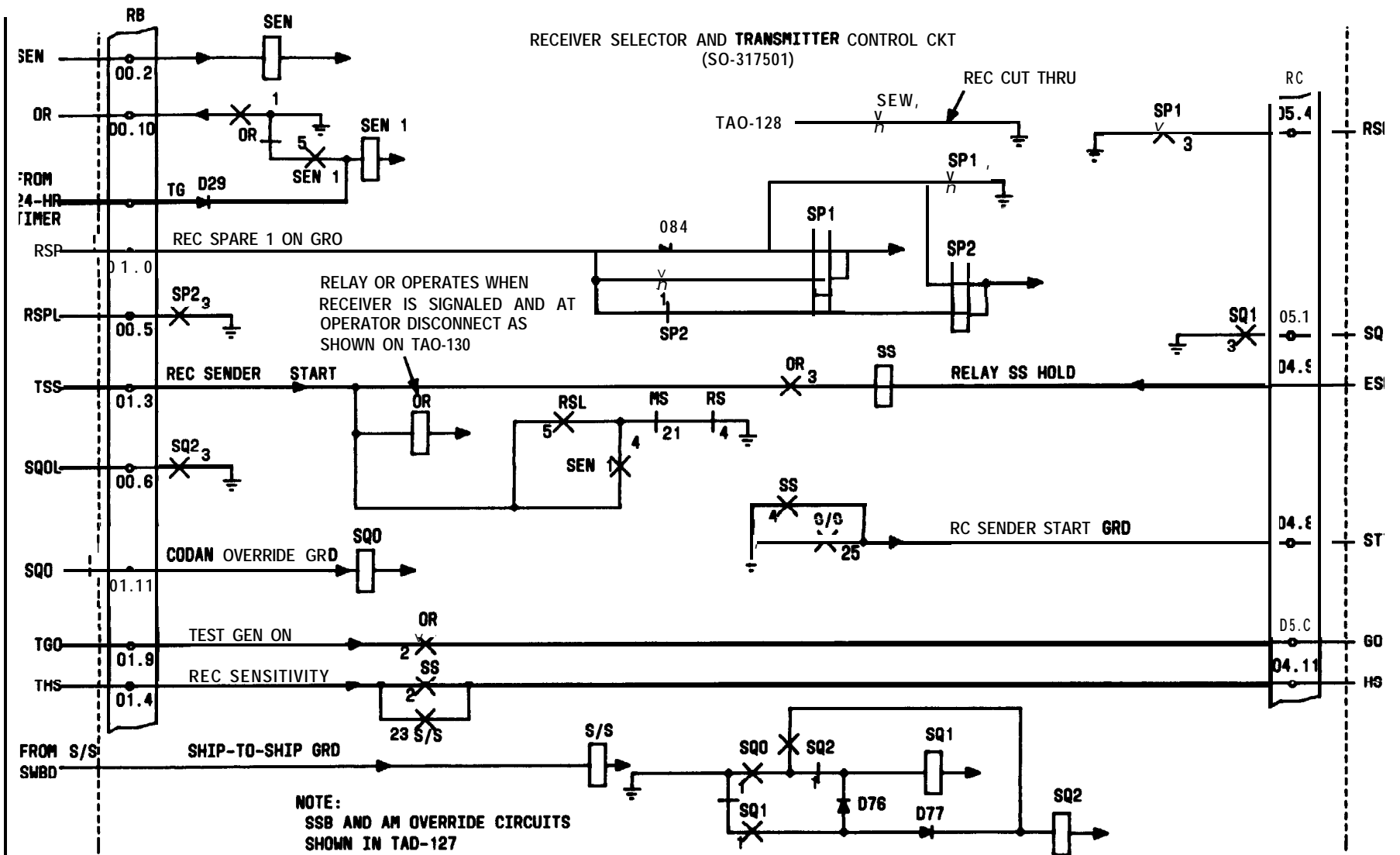
CLEAR RECEIVER RF LEVEL SIGNALING TROUBLE



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RECEIVER CONNECT AND TONE SENDER CIRCUITS

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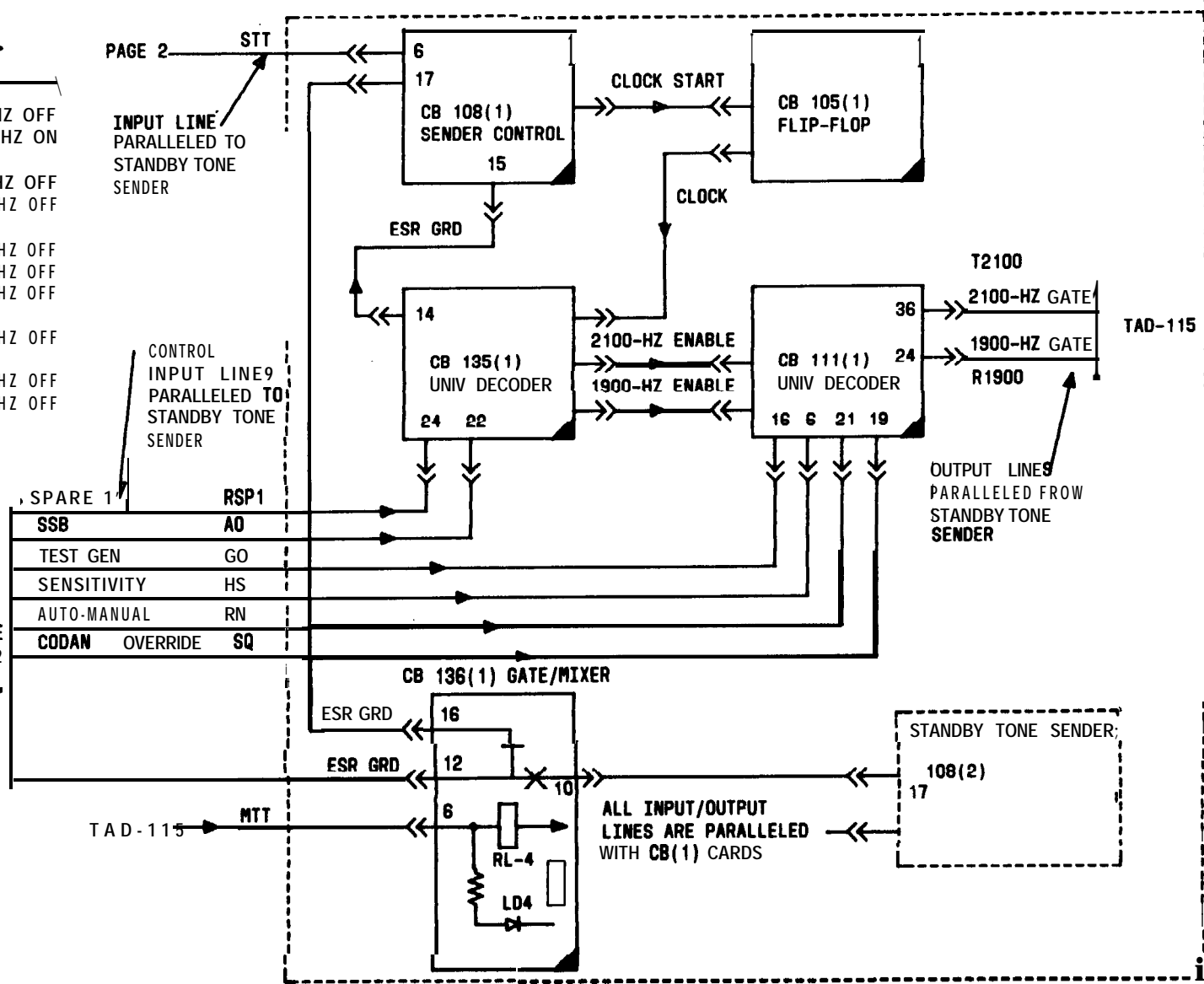


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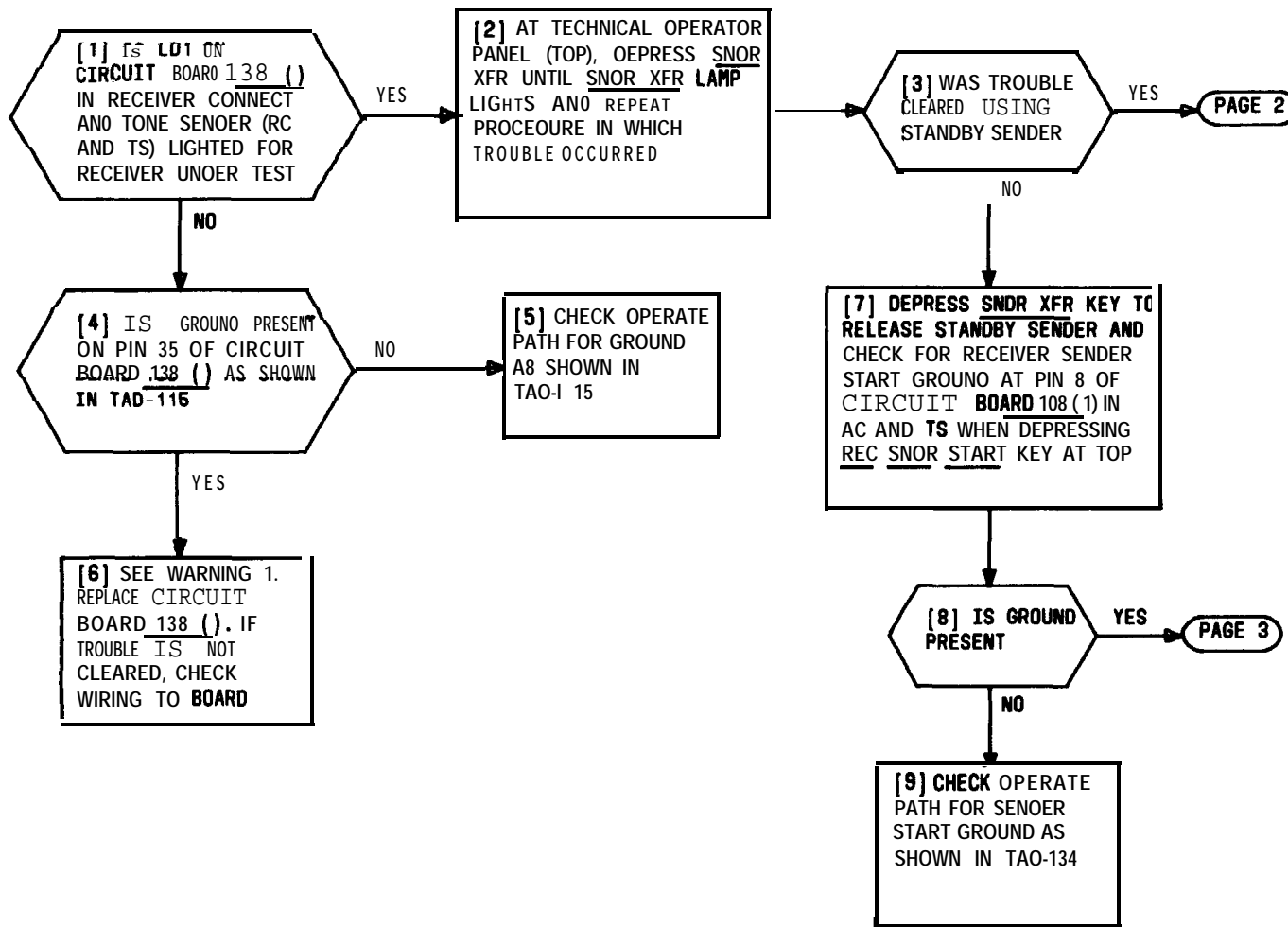


1. SENSITIVITY
HIGH 2100 HZ ON - 1900 HZ OFF
LOW 2100 HZ OFF - 1900 HZ ON
2. TEST GEN
ON 2100 HZ ON - 1900 HZ OFF
OFF 1900 HZ ON - 2100 HZ OFF
3. CODAN OVERRIDE
ON 2100 HZ ON - 1900 HZ OFF
OFF 1900 HZ ON - 2100 HZ OFF
4. AUTO - 2100 HZ ON - 1900 HZ OFF
5. SSB
SSB 1900 HZ ON - 2100 HZ OFF
6. SPARE 1
ON 2100 HZ ON - 1900 HZ OFF
OFF 1900 HZ ON - 2100 HZ OFF

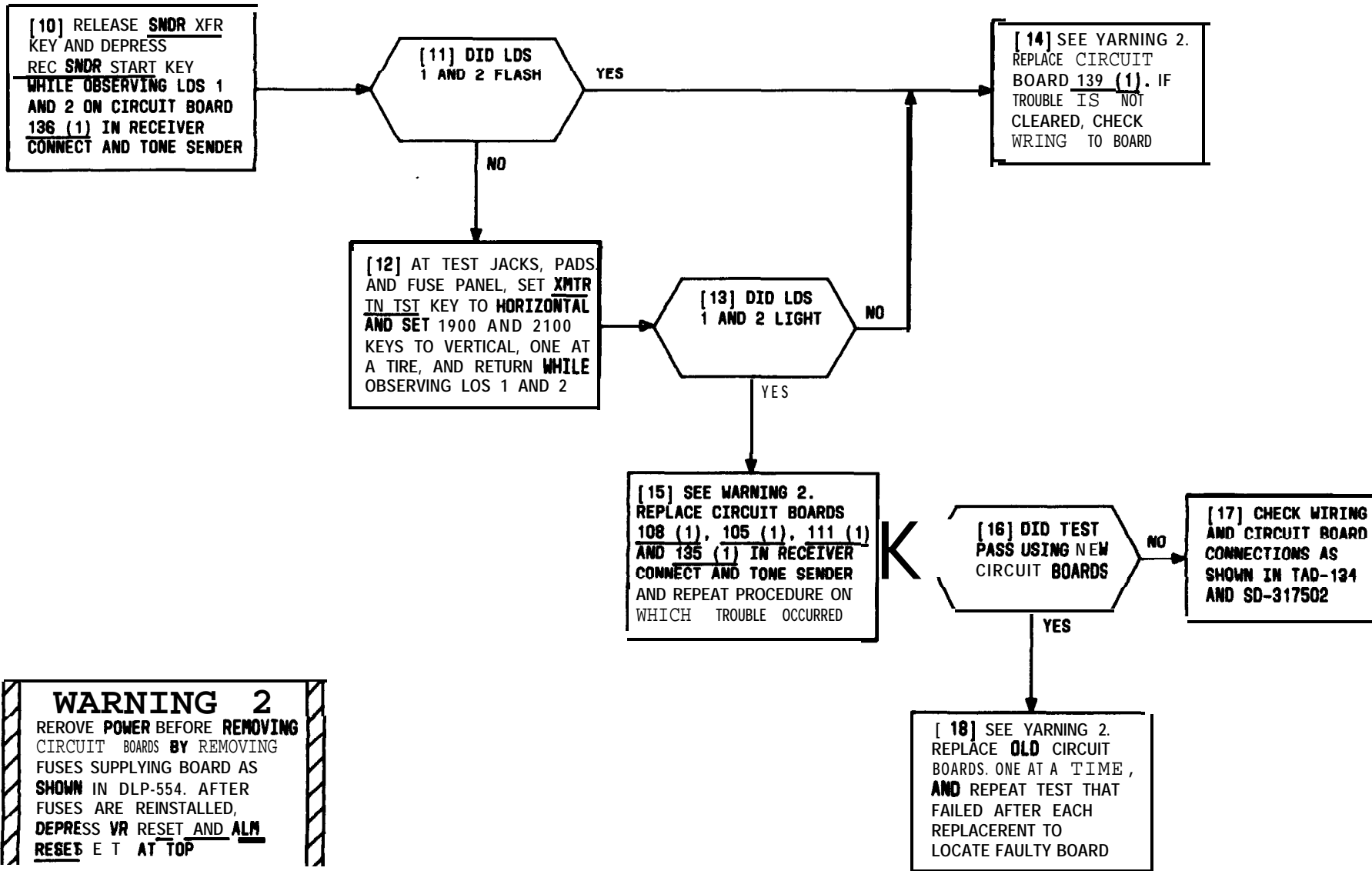


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RECEIVER CONNECT AND TONE SENDER CIRCUITS



WARNING 1
 REMOVE POWER BEFORE REMOVING CIRCUIT **BOARDS BY REMOVING** FUSES SUPPLYING **BOARDS** AS SHOWN IN OLP-554. AFTER FUSES ARE REINSTALLED, DEPRESS **VR RESET** ANO **ALM RESET** AT TECHNICAL OPERATOR PANEL



WARNING 2
 REMOVE POWER BEFORE REMOVING CIRCUIT BOARDS BY REMOVING FUSES SUPPLYING BOARD AS SHOWN IN DLP-554. AFTER FUSES ARE REINSTALLED, DEPRESS VR RESET AND ALM RESET AT TOP

CLEAR RECEIVER CONNECT AND TONE SENDER TROUBLE



TABLE A

FUNCTION	INPUT LEVEL	CIRCUIT BOARD/ PIN NO.
1. RECEIVER SPARE ON OFF	GROUND OPEN	135 (1), PIN 24
2. CODAN OVERRIDE ON OFF	GROUND OPEN	111 (1), PIN 19
3. TEST GENERATOR ON OFF	GROUND OPEN	111 (1), PIN 16
4. RECEIVER RODE OVERRIDE [NOTE] OFF	GROUND OPEN	111 (1), PIN 21
5. RECEIVER SENSITIVITY HIGH LOW	GROUND OPEN	111 (1), PIN G
9. RECEIVER RODE [NOTE] SSB	GROUND OPEN	135 (1), PIN 22

WARNING 3

REMOVE POWER BEFORE REMOVING CIRCUIT BOARDS BY REMOVING FUSES SUPPLYING POWER TO BOARD AS SHOWN IN DLP-554 . AFTER FUSES ARE REINSTALLED, DEPRESS VR RESET AND ALM RESET ON TOP

NOTE

WHEN RECEIVER RODE IS MANUALLY CONTROLLED, RECEIVER AUTO MODE INPUT AT PIN 21 ON CIRCUIT BOARD 111 (1) IS OPEN

CAUTION

SAFETY AND **CALLING SERVICE** MUST BE MAINTAINED IF POSSIBLE OR RESTORED AS SOON AS POSSIBLE. IF TROUBLE INVOLVES TRANSHITTER, PATCH STANDBY TRANSMITTER IN PLACE OF SAFETY AND CALLING TRANSHITTER IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES. NOTIFY LOCAL COAST GUARD OFFICE OF ANY REDUCTION IN SAFETY AND CALLING CHANNEL SERVICE

NOTES

1. DURING TROUBLE-CLEARING PROCEDURES, PUSH-TO-TALK KEY MUST BE DEPRESSED AT TECHNICAL OPERATOR PANEL TO TURN ON SELECTED TRANSMITTER
2. WHEN SERVICE IS RESTORED NOTIFY CONTROL OFFICE AND COAST GUARD

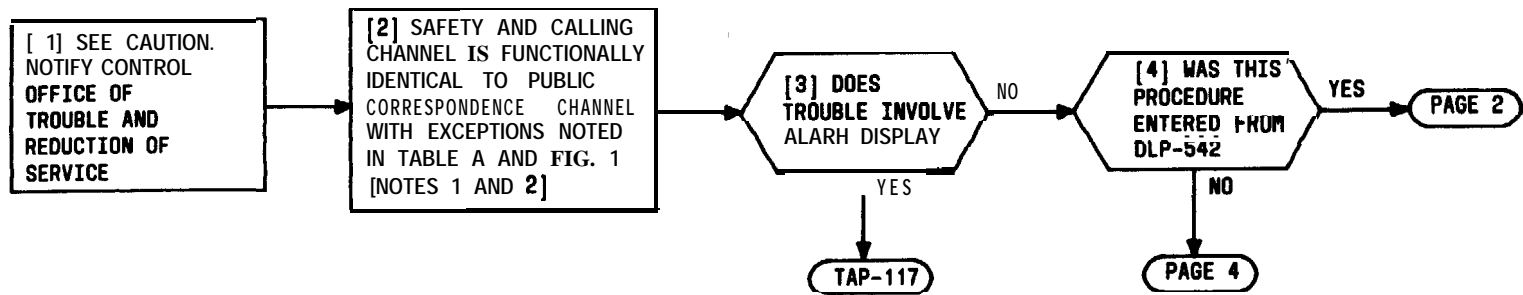


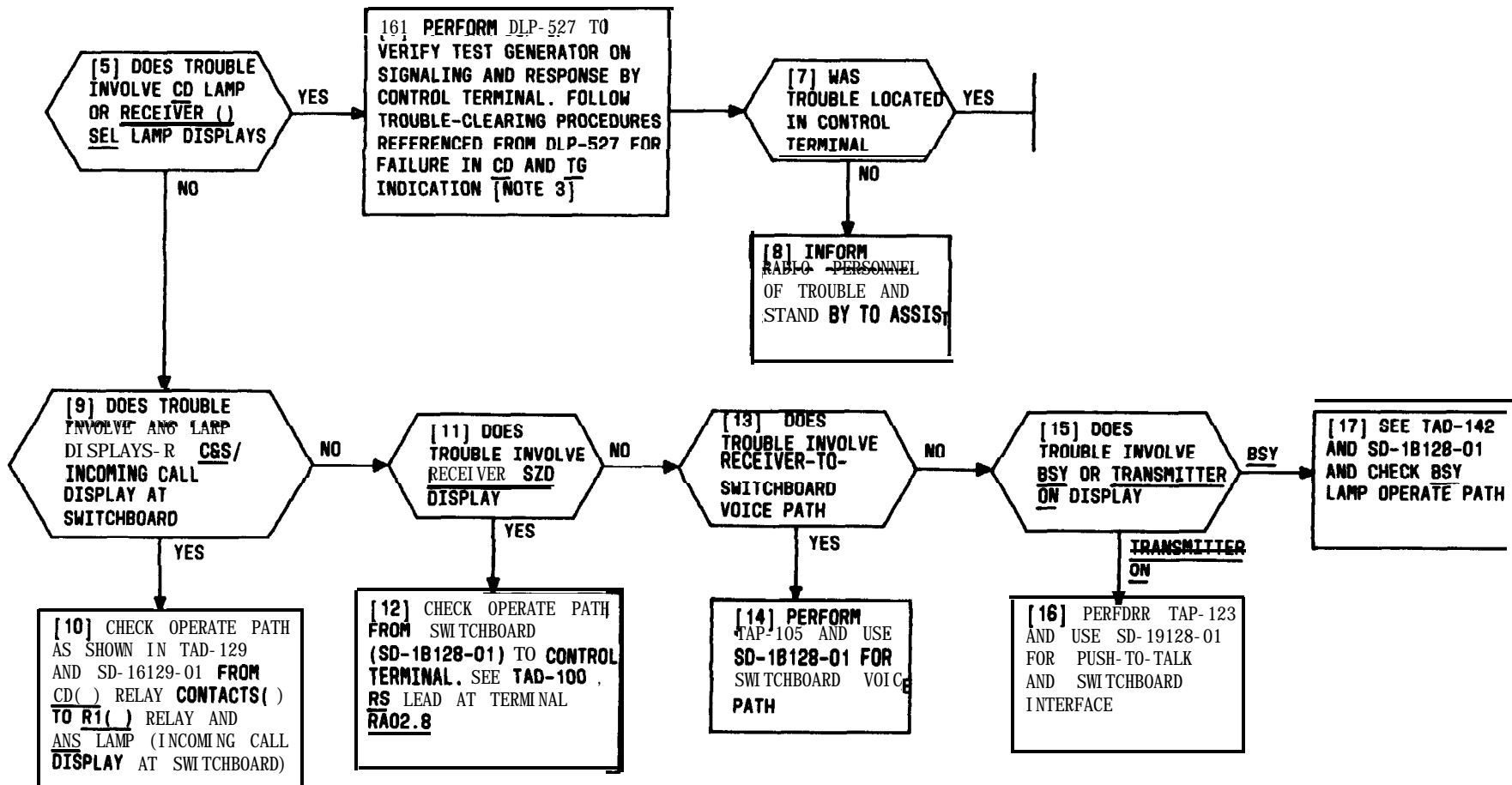
TABLE A - SAFETY AND CALLING CHANNEL CIRCUIT DIFFERENCES

SWITCHBOARD*	CONTROL TERMINAL	RECEIVER/TRANSMITTER
1. NO RCVR DISPLAYS (CODAN AND RECEIVER DISPLAYS MADE AT USAGE AND ALARH LAHP PANEL AT CONTROL TERHINAL) 2. SWBD OPERATOR CANNOT SELECT RECEIVER/ TRANSHITTER 3. TRANSHITTER TURNON IS CONTROLLED BY PUSH-TO-TALK OPERATION	1. RECEIVER SELECTOR AND TRANSMITTER CONTROL CKT (SD-317501) USES PTT (PUSH-TO-TALK) RELAY FOR TRANSHITTER TURNON CONTROL 2. RECEIVER UPDATE AFTER OPERATOR RELEASE OF TRANSHITTER IS PREVENTED BY PTA RELAY. UP DATE IS ON NEXT TRANSHISSION RELEASE FROM SHIP	1. BOTH RECEIVER AND TRANSHITTER USE SAME FREQUENCY 2. TRANSHITTER MODE IS AH 3. TRANSHITTER ONLY RECEIVES 2800 HZ (TRANSHITTER ON) - NO DATA TRAIN

• SWBD SD-18128-01

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CLEAR SAFETY AND CALLING CHANNEL TROUBLE



NOTE 3
 IF RECEIVER SEL LAMP DOES **NOT** LIGHT, CHECK OPERATE PATH AS SHOWN IN TAD-126

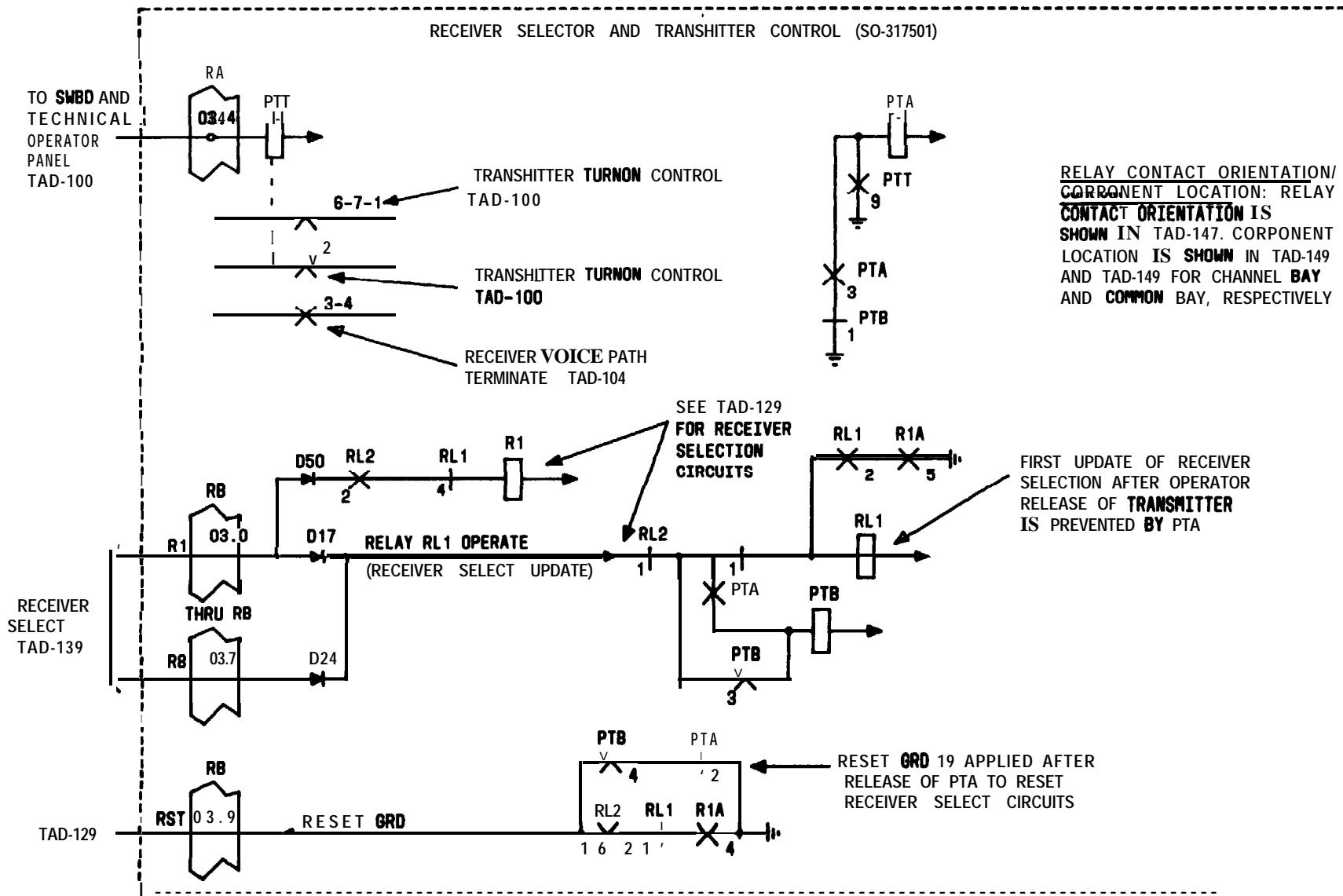
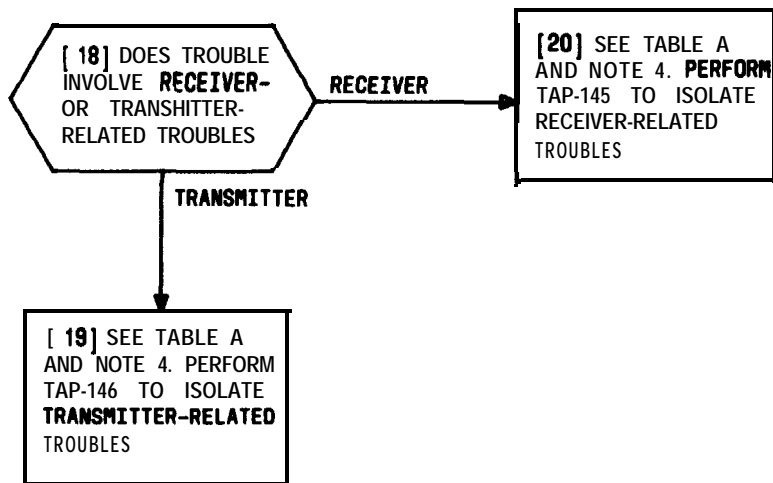


FIG. 1 ■ SAFETY AND CALLING ■ PUSH-TO-TALK

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CLEAR SAFETY AND CALLING CHANNEL TROUBLE

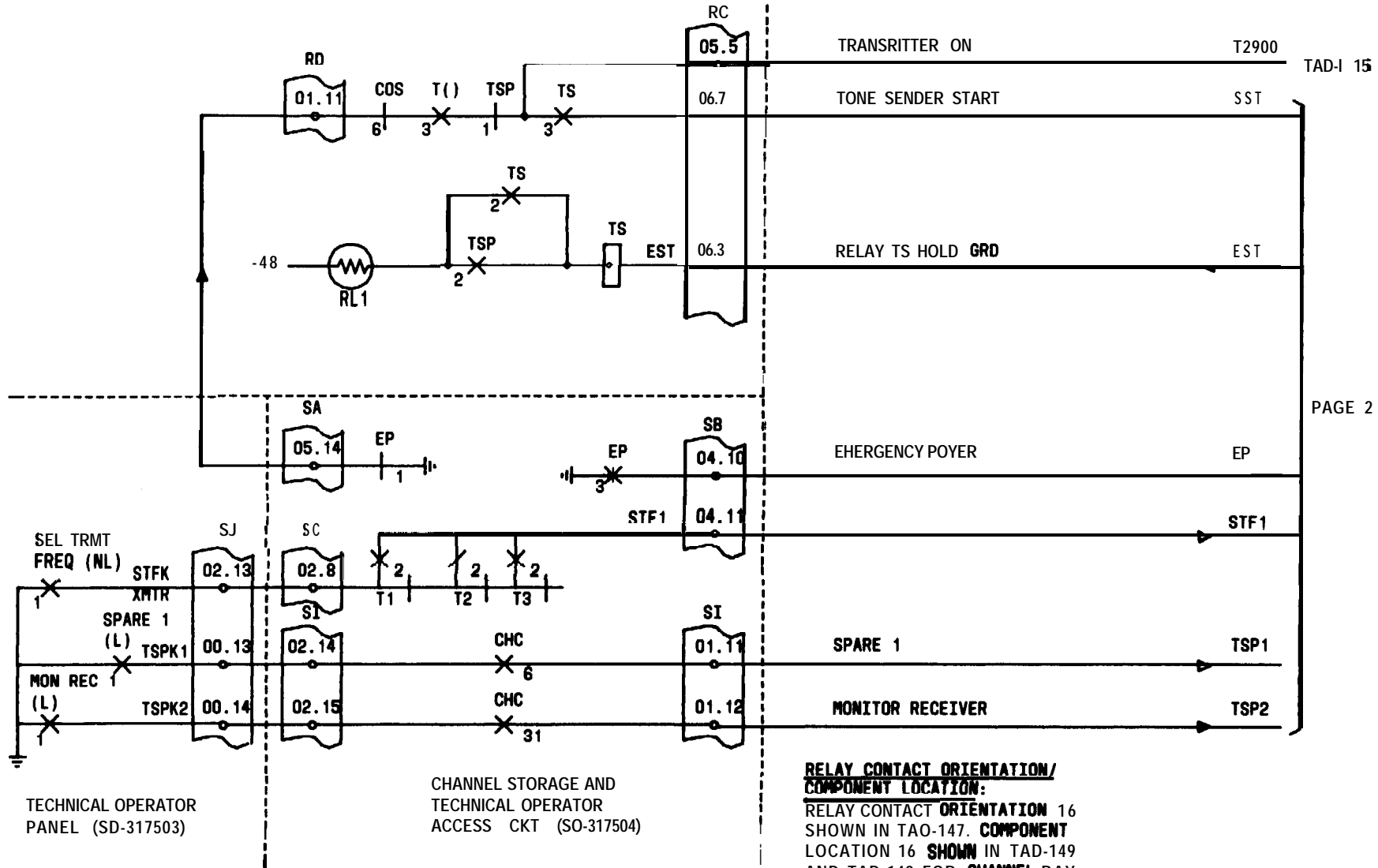


NOTE 4
 PUSH-TO-TALK KEY MUST
BE DEPRESSED FOR
 TRANSHITTER
 OPERATION AND RECEIVER
 SELECTION. NO DATA
 TRAIN IS SENT TO
RECEIVER/TRANSMITTER

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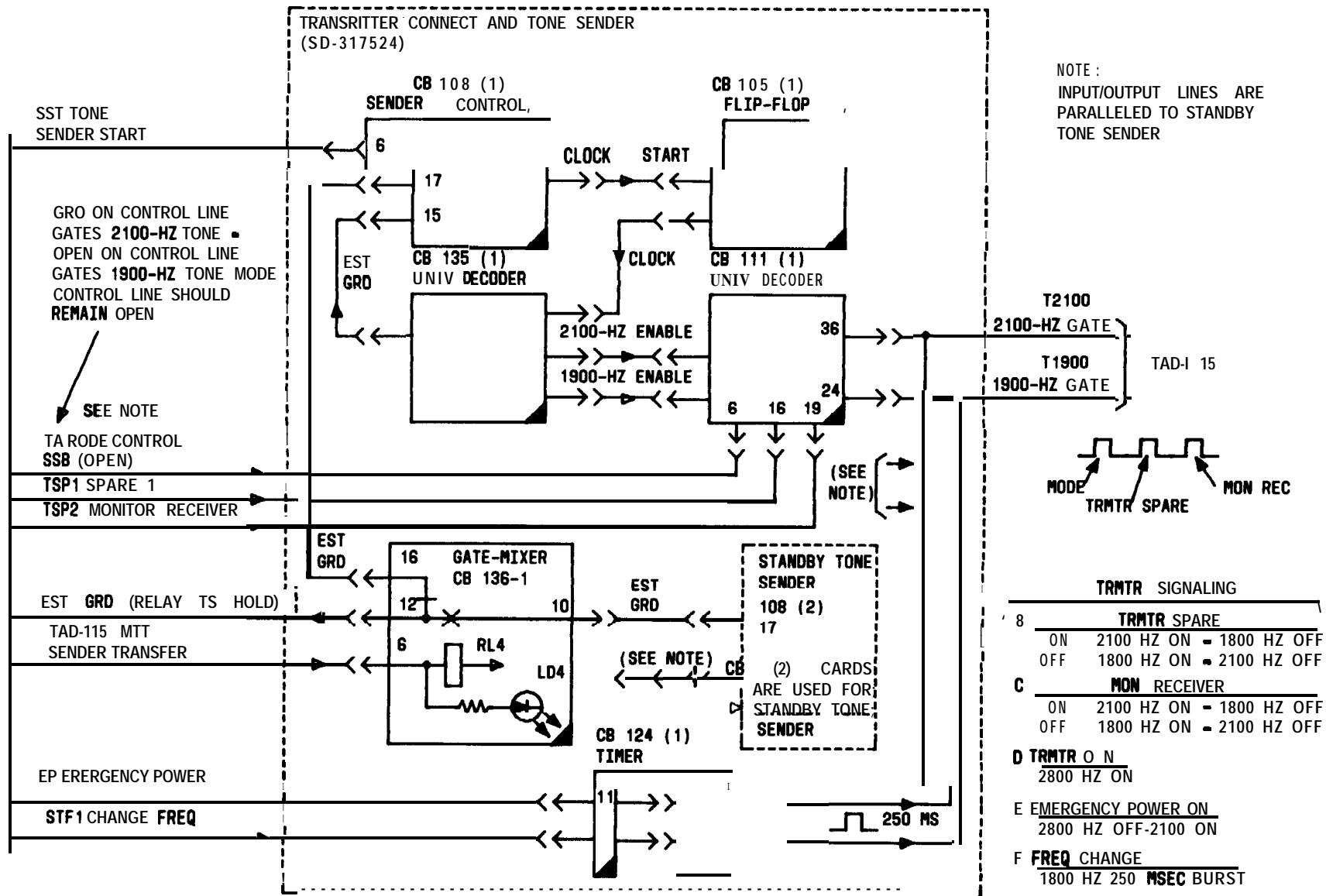
RECEIVER SEL. 6 TRMTR CONTROL
(SO-317501)

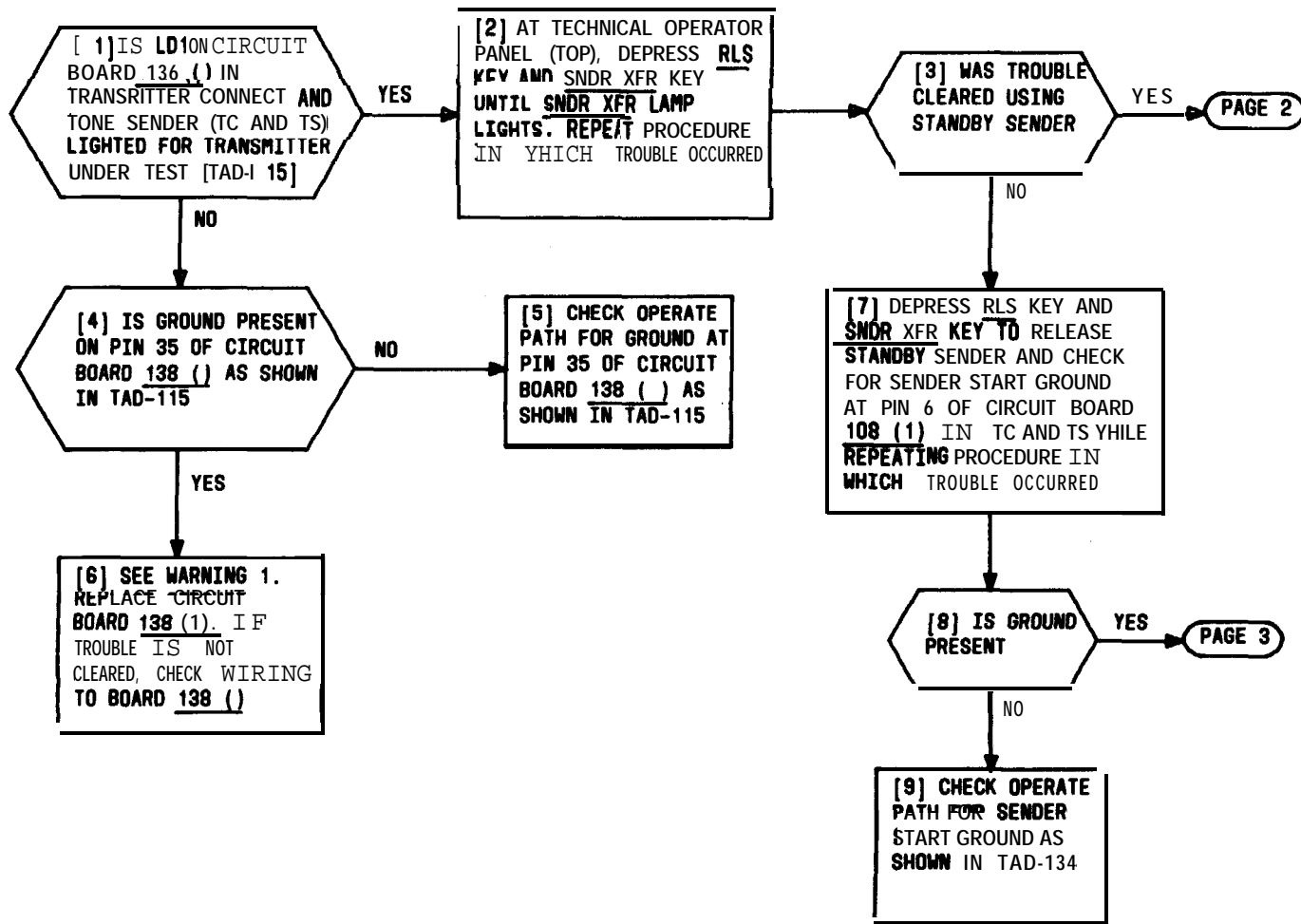
TRANSMITTER CONNECT 6 TONE SENDER
(SD-317524)



TRANSMITTER CONNECT AND TONE SENDER CIRCUITS

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WARNING 1
 REMOVE **POWER** BEFORE **REMOVING** CIRCUIT BOARDS **BY** REMOVING **FUSES** SUPPLYING BOARDS AS SHOWN IN DLP-554. AFTER **FUSES** ARE REINSTALLED, DEPRESS **VR** RESET AND **ALM** RESET OR **TECHNICAL OPERATOR PANEL**

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CLEAR TRANSMITTER CONNECT AND TONE SENDER TROUBLE

[10] DEPRESS RLS KEY AND SNDR XFR KEY. WHILE OBSERVING LOS 1, 2, AND 3 ON CIRCUIT BOARD 136 (1) IN TC AND TS, REPEAT PROCEDURE IN WHICH TROUBLE OCCURRED

[11] DOES TROUBLE INVOLVE EMERGENCY POWER ON

YES

[12] DOES LD2 LIGHT

YES

[21] SEE YARNING 2. REPLACE CIRCUIT BOARD 136 (1). IF TROUBLE IS NOT CLEARED, CHECK YIRING TO BOARD 136 (1)

NO

[13] DID LD1 AND LD2 FLASH DURING TEST

NO

[15] AT TEST JACKS, PADS, AND FUSE PANEL, SET XHTR TN KEY TO VERTICAL AND SET 1900y, 2100y, AND 2900y KEYS TO VERTICAL, ONE AT A TIME. AND RETURN WHILE OBSERVING LDS 1, 2, AND 3 ON CIRCUIT BOARD 136 (1)

YES

[16] DID LDS 1, 2, AND 3 LIGHT

YES

[17] SEE YARNING 2. DEPRESS RLS KEY AT TOP AND REPLACE CIRCUIT BOARDS 108 (1), 105 (1), 111 (1), AND 135 (1). REPEAT PROCEDURE IN WHICH TROUBLE OCCURRED

NO

[20] SEE YARNING 2. DEPRESS RLS KEY AT TOP AND REPLACE OLD CIRCUIT BOARDS. ONE AT A TIME. REPEAT PROCEDURE IN WHICH TROUBLE OCCURRED AFTER EACH REPLACERENT TO LOCATE FAULTY BOARD

YES

[18] DID TEST PASS USING NEW CIRCUIT BOARDS

NO

[19] CHECK WIRING AND CIRCUIT BOARD CONNECTIONS AS SHOWN IN TAO-137 AND SD-317524

[14] SEE YARNING 2. REPLACE CIRCUIT BOARD 136 (1). IF TROUBLE IS NOT CLEARED, CHECK UIRING TO BOARD 136 (1)

WARNING 2	
REMOVE POUER BEFORE REMOVING CIRCUIT BOARDS BY REMOVING FUSES SUPPLYING BOARDS AS SHOWN IN DLP-554. AFTER FUSES ARE REINSTALLED, DEPRESS VR RESET AND ALM RESET ON TOP	
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[22] DEPRESS RLS KEY. CHECK FOR PRESENCE OR ABSENCE OF GROUND FOR FUNCTION BEING PERFORMED AS SHOYN IN TAD-134 AND TABLE A WHILE REPEATING PROCEDURE IN YHICH TROUBLE OCCURRED

[23] WAS INPUT CORRECT FOR FUNCTION AS SHOWN IN TABLE A

NO

YES

[25] CHECK OPERATE PATH FOR FUNCTION BEING PERFORMED AS SHOWN IN TAD-134 AND TABLE A

[24] SEE WARNING 3. REPLACE CIRCUIT BOARD 138 (). IF TROUBLE IS NOT CLEARED, CHECK WIRING AS SHOWN IN TAD-134 AND SD-317524

TABLE A		
FUNCTION	INPUT LEVEL	CIRCUIT BOARD/ PIN NO.
1. FREQUENCY CHANGE ON OFF	GROUND OPEN	124 (), PIN 32
2. MONITOR RECEIVER ON OFF	GROUND OPEN	111 (), PIN 18
3. TRANSMITTER SPARE ON OFF	GROUND OPEN	111 (), PIN 18
4. EREGENCY POYER ON OFF	GROUND OPEN	124 (), PIN 12
5. TRANSMITTER MODE AM SSB	GROUND OPEN	111 (), PIN 6

WARNING 3

REMOVE POWER BEFORE REMOVING CIRCUIT BOARDS BY REMOVING FUSES SUPPLYING BOARD AS SHOYN IN DLP-554. AFTER FUSES ARE REINSTALLED, DEPRESS VR RESET AND ALM RESET ON TOP

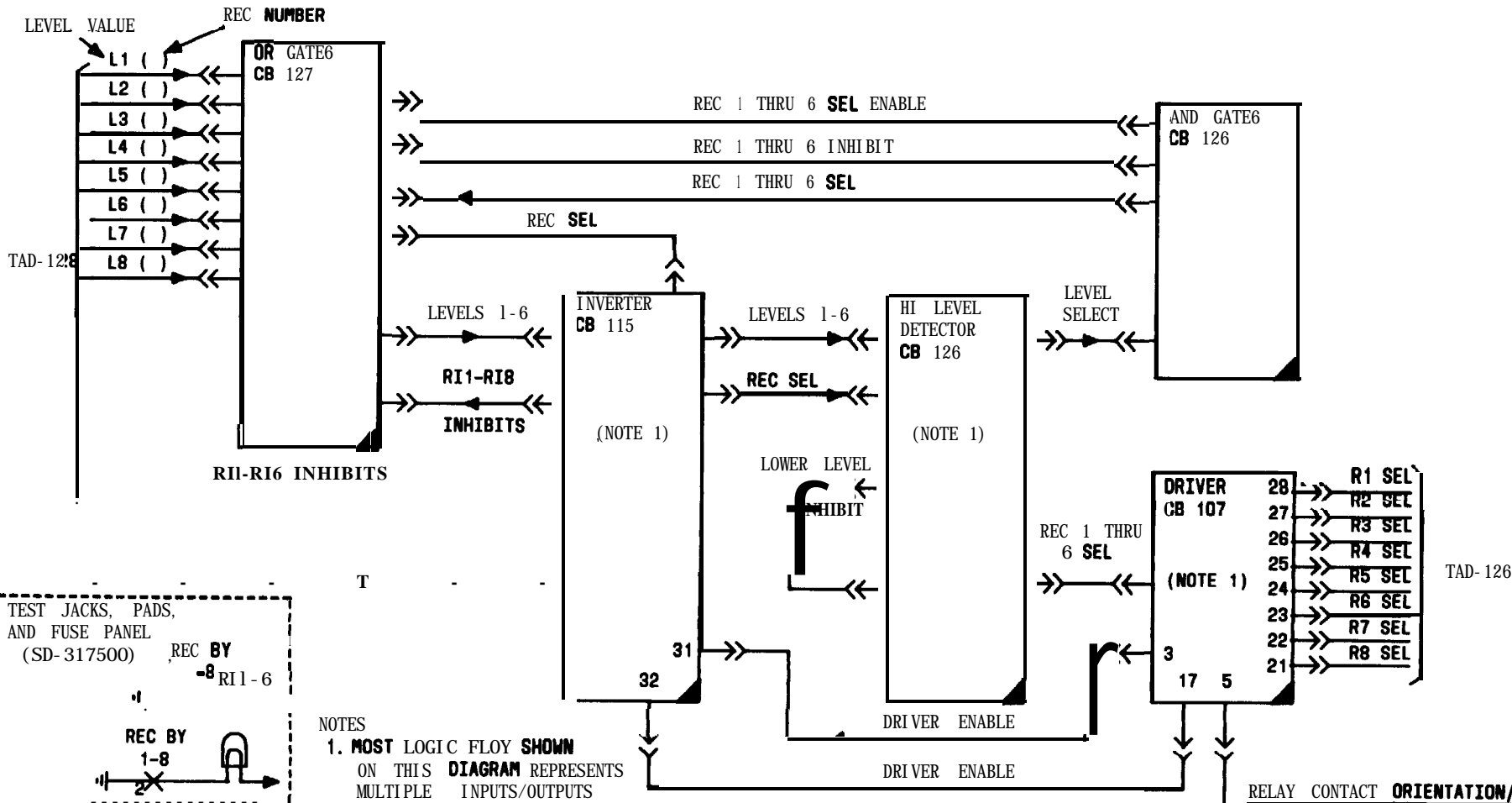
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- NOTES
1. MOST LOGIC FLOY SHOWN ON THIS DIAGRAM REPRESENTS MULTIPLE INPUTS/OUTPUTS FROM MULTIPLE CARDS OF SAME TYPE. SEE SD-317506 FOR SPECIFIC CIRCUIT CONNECTIONS
 2. LEVEL INPUTS ARE GROUPED BY LEVEL VALUE. EACH RECEIVER HAS INPUT TO EACH LEVEL GROUP - RESULTING IN 64 INPUT LINES

RELAY CONTACT ORIENTATION/
COMPONENT LOCATION:
RELAY CONTACT ORIENTATION IS SHOWN IN TAD-147.
COMPONENT LOCATION IS SHOWN IN TAD-148 AND TAD-146 FOR CHANNEL BAY AND COMMON BAY, RESPECTIVELY

HIGHEST LEVEL RECEIVER SELECT CIRCUITS

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[1] CHECK FOR GROUND AT PIN 5 ON CIRCUIT BOARD 107 IN HIGHEST LEVEL RECEIVER SELECTOR CIRCUIT AFTER OPERATING CODAN SWITCH ON ROUTINER FOR 3 S [NOTE ANO TAO-1391]

[2] IS GROUND PRESENT

NO → PAGE 3

YES → [3]

[3] CHECK FOR GROUND AT PIN 3 OF CIRCUIT BOARD 107 AFTER OPERATING CODAN SWITCH ON ROUTINER FOR 3 S [TAD-139]

[4] IS GROUND PRESENT

YES → [6]

NO → [5]

[6] CHECK FOR LOGIC 0 ON CIRCUIT BOARD 115 (1) AT PIN () FOR LEVEL UNDER TEST AS SHOWN IN TABLE A

[5] SEE WARNING 1. REPLACE CIRCUIT BOARD 107

PAGE 2

TABLE A				
RECEIVER/ LEVEL UNDER TEST	STEP 9		STEP 11	
	CIRCUIT BOARD	PIN	CIRCUIT BOARD	PIN
1	115 (1)	5	115 (2)	5
I 2	115 (1)	7	115 (2)	7
3	115 (1)	9	115 (2)	9
4	115 (1)	11	115 (2)	11
5	115 (1)	13	115 (2)	13
6	115 (1)	15	115 (2)	15
7	115 (1)	17	115 (2)	17
8	115 (1)	20	115 (2)	20

NOTE
LOGIC LEVEL 0 IS APPROXIMATELY -13 VOLTS FOR THIS PROCEDURE

WARNING 1
REMOVE POWER BEFORE REMOVING CIRCUIT BOARDS BY REMOVING FUSES SUPPLYING BOARD AS SHOWN IN DLP-554. AFTER FUSES ARE REINSTALLED, DEPRESS VR RESET AND ALM RESET ON TECHNICAL OPERATOR PANEL

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CLEAR HIGHEST LEVEL RECEIVER SELECT TROUBLE

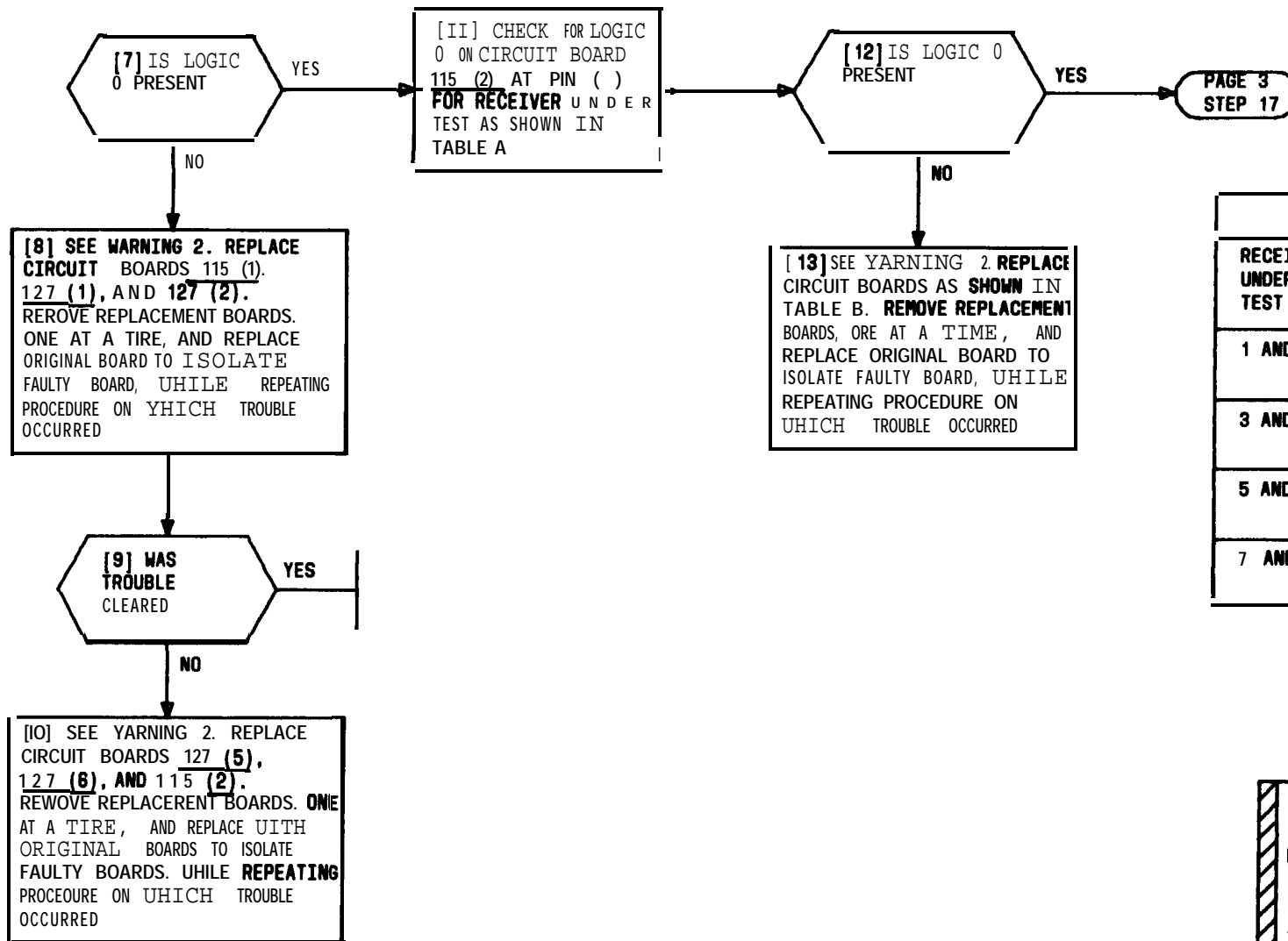
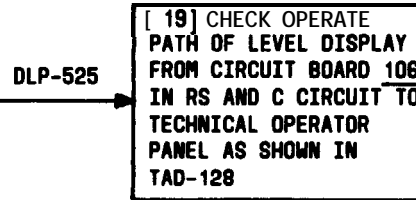
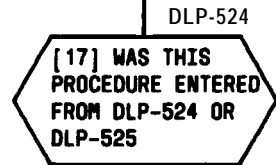
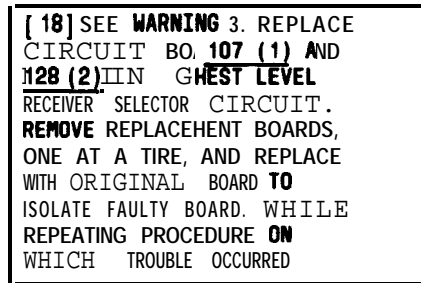
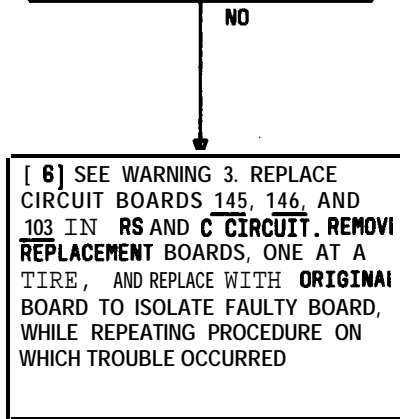
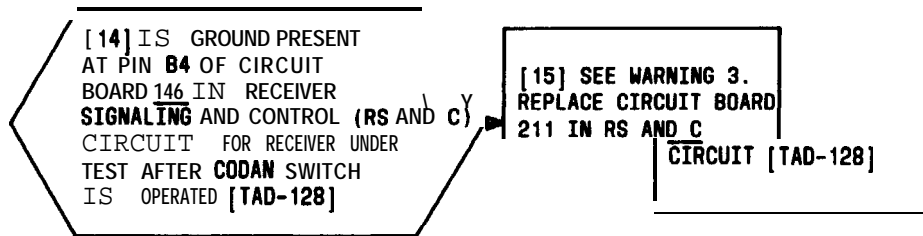


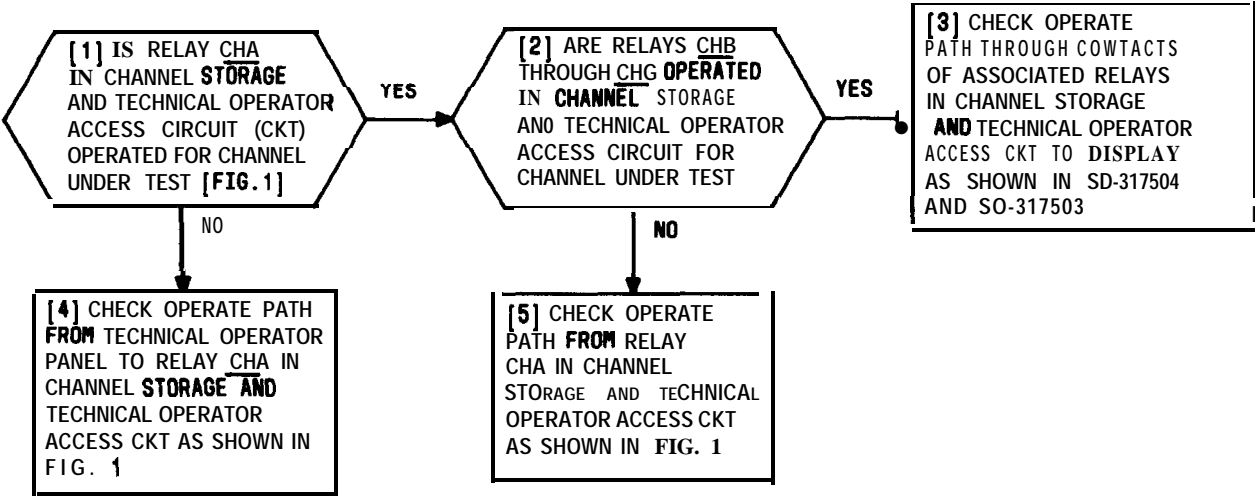
TABLE B	
RECEIVER UNDER TEST	REPLACE CIRCUIT BOARDS
1 AND 2	115 (2), 127 (3), 126 (1)
3 AND 4	115 (2), 127 (3), 126 (2)
5 AND 6	115 (2), 127 (4), 126 (3)
7 AND 8	115 (2), 127 (4), 126 (4)

WARNING 2
 REMOVE POWER BEFORE REMOVING CIRCUIT BOARDS BY REMOVING FUSES SUPPLYING POWER AS SHOWN IN DLP-554. AFTER FUSES ARE REINSTALLED, DEPRESS VR RESET AND ALM RESET ON TECHNICAL OPERATOR PANEL



WARNING 3	
REMOVE POWER BEFORE REMOVING CIRCUIT BOARDS BY REMOVING FUSES SUPPLYING BOARD AS SHOWN IN DLP-554. AFTER FUSES ARE REINSTALLED, DEPRESS VR RESET AND ALM RESET ON TECHNICAL OPERATOR PANEL	
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CLEAR HIGHEST LEVEL RECEIVER SELECT TROUBLE



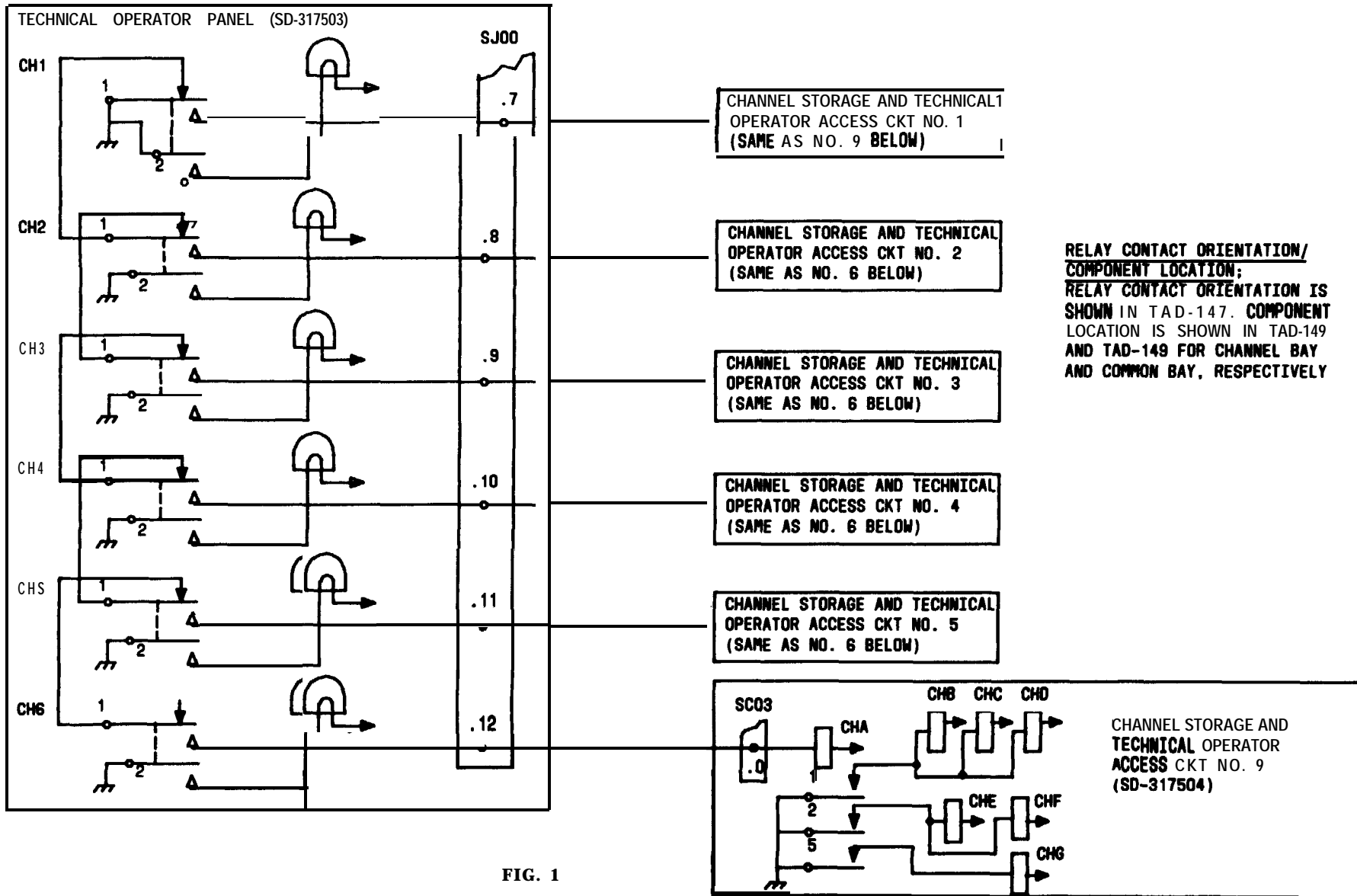
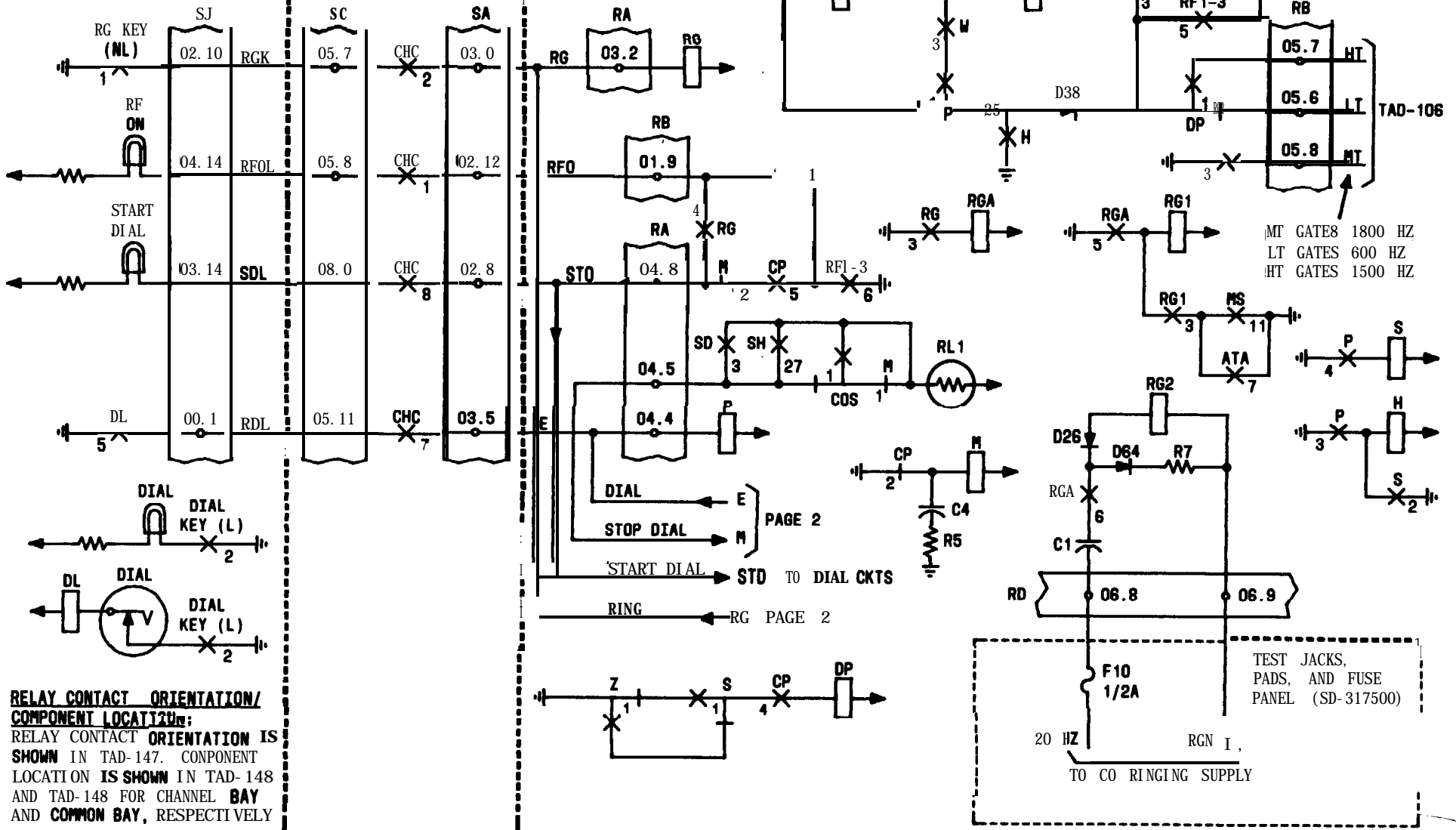


FIG. 1

**TECHNICAL OPERATOR
PANEL (80-317503)**

**CHANNEL STORAGE
6 TECHNICAL OPERATOR
ACCESS CKT (SD-317504)**

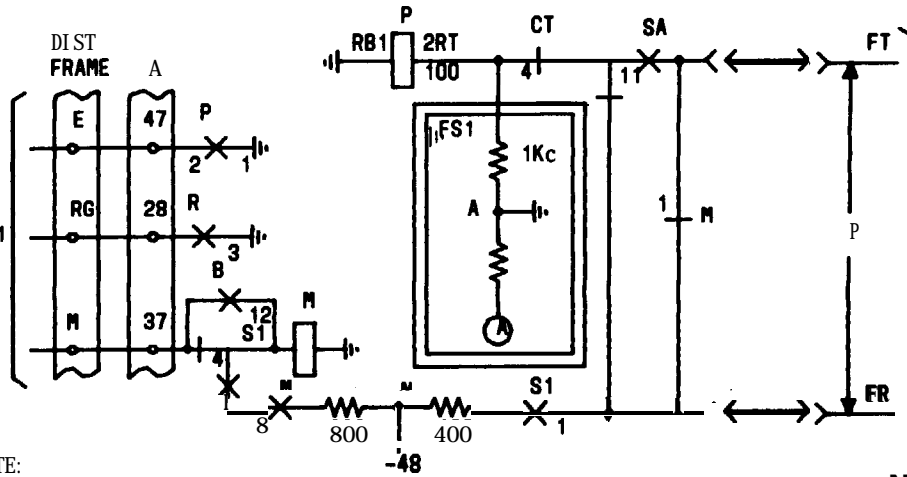
**RECEIVER SEL & TRMTR
CONTROL (SD-317501)**



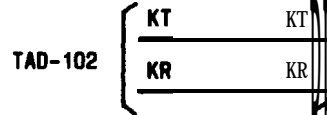
**RELAY CONTACT ORIENTATION/
COMPONENT LOCATION:**
RELAY CONTACT ORIENTATION IS
SHOWN IN TAD-147. COMPONENT
LOCATION IS SHOWN IN TAD-148
AND TAD-148 FOR CHANNEL BAY
AND COMMON BAY, RESPECTIVELY

RINGING AND SELECTIVE SIGNALING CIRCUITS

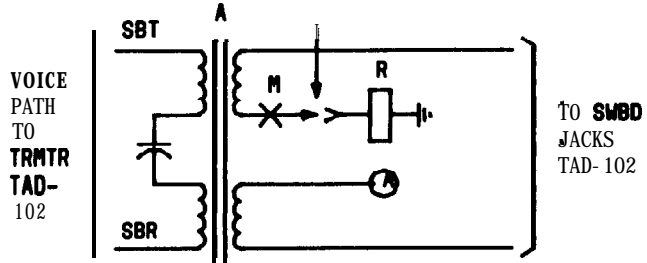
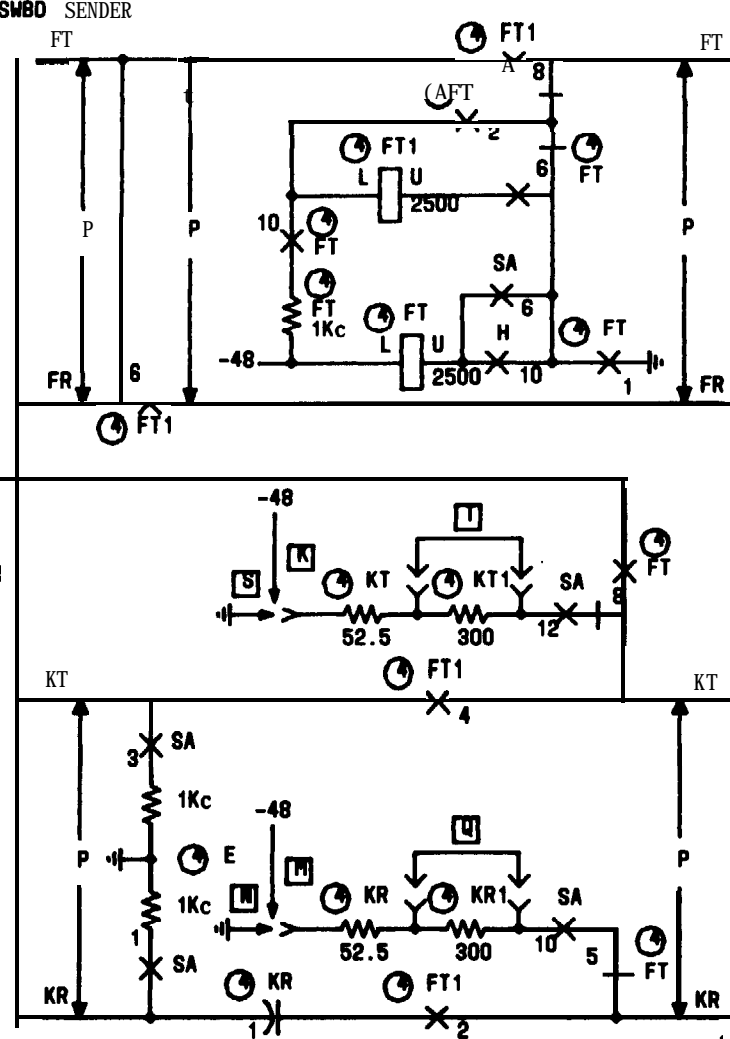
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NOTE:
SEE TAD-100 FOR
RELAY OPERATIONS
AND TAD-102 FOR
VOICE PATH

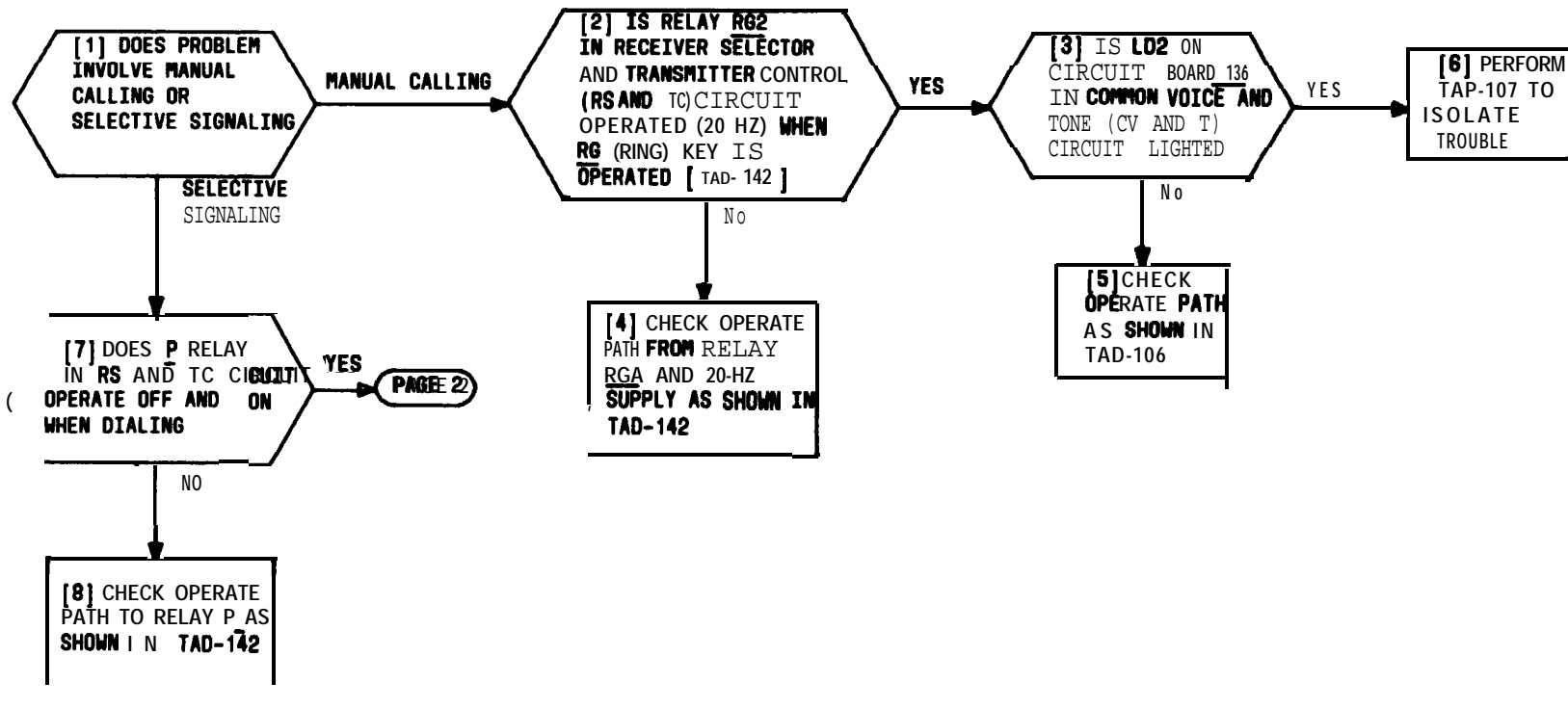


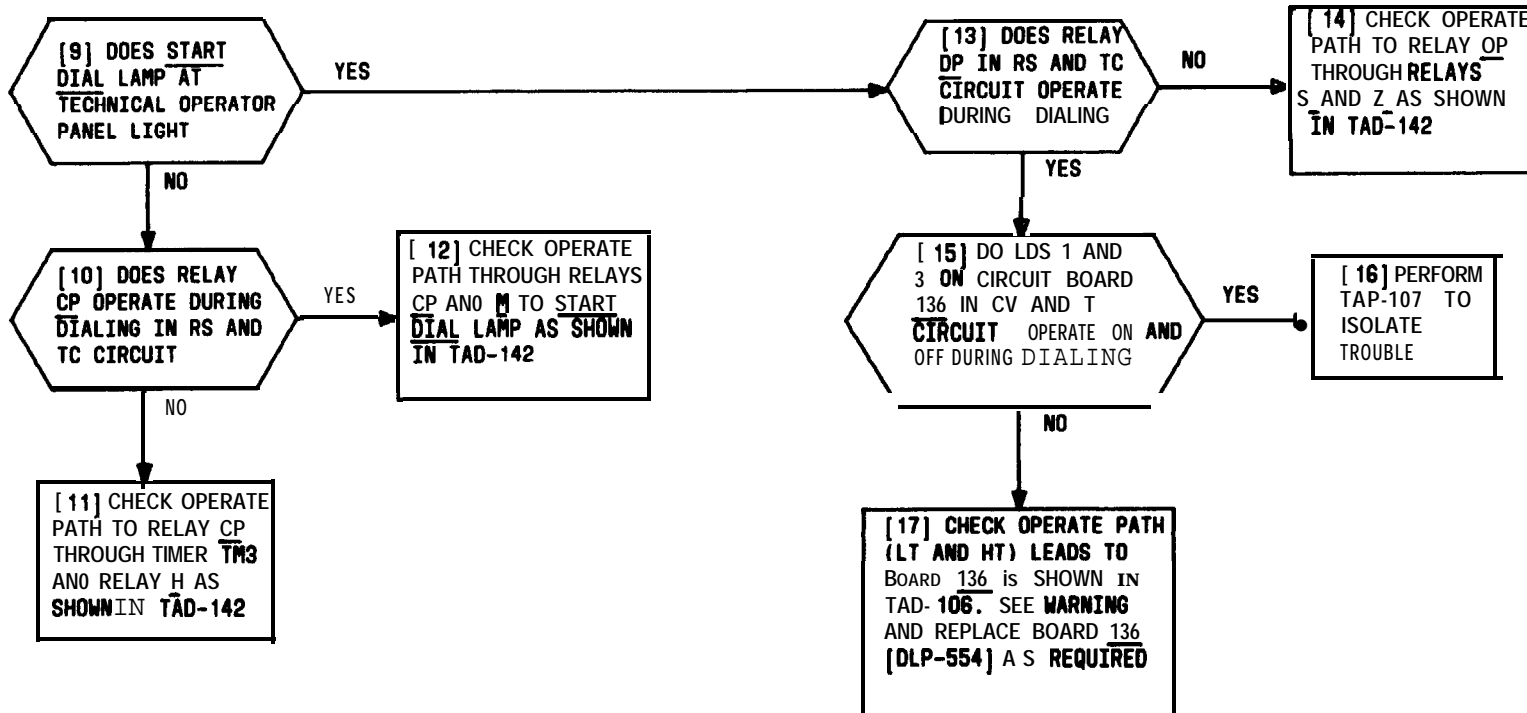
TO LINK CKT
OR
MF PULS INTO
SWBD SENDER



PUBLIC CORRESPONDENCE
TRUNK CIRCUIT (SD-18128-01)

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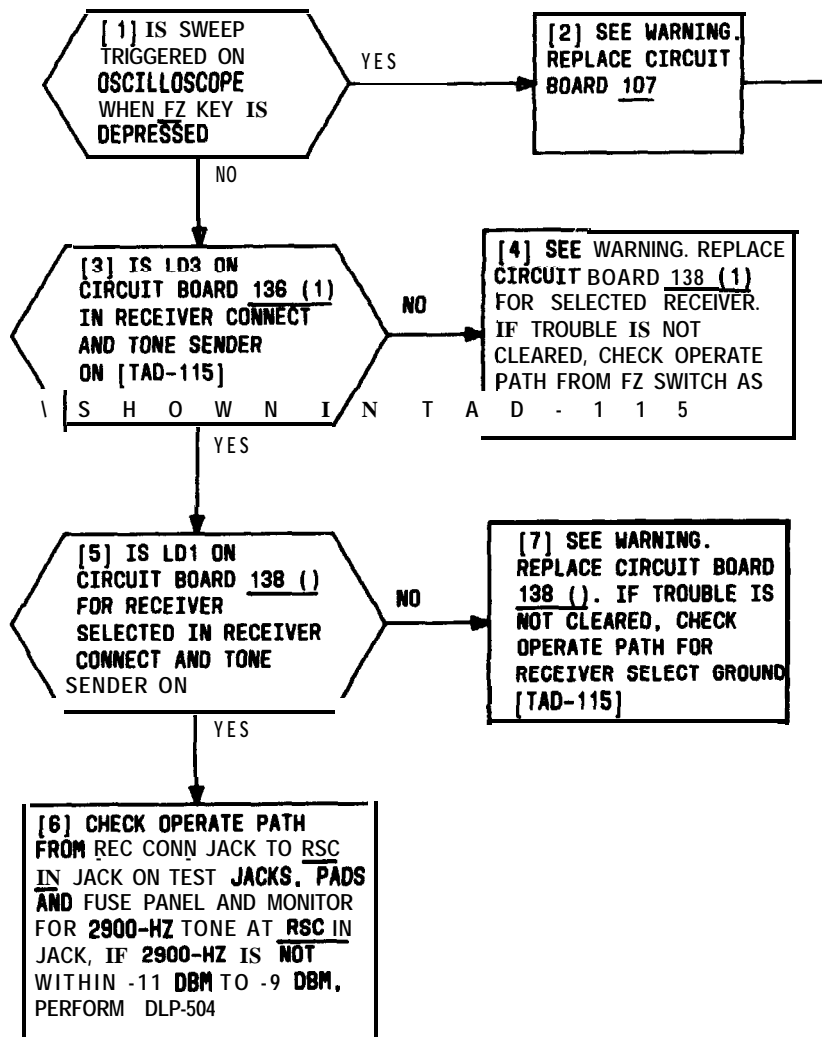




WARNING
 REMOVE POWER BEFORE REMOVING
 CIRCUIT BOARDS BY REMOVING
 FUSES SUPPLYING BOARDS AS
 SHOWN IN DLP-554. AFTER FUSES
 ARE REINSTALLED, DEPRESS VR
 RESET AND ALM RESET ON
 TECHNICAL OPERATOR PANEL

CLEAR LAND-TO-SHIP SIGNALING TROUBLE

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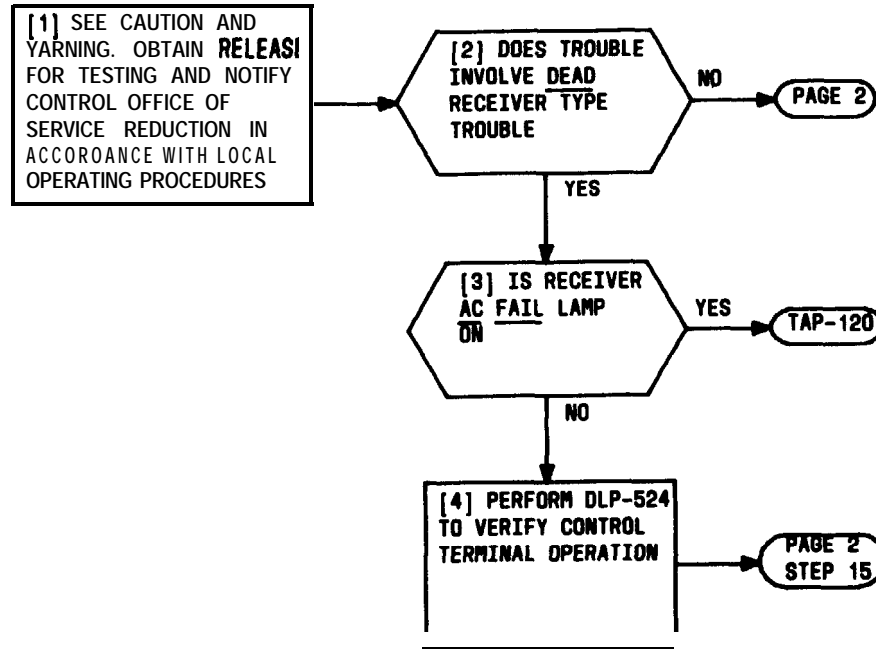


WARNING
 WHEN REPLACING CIRCUIT BOARDS, POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

SUMMARY

RECEIVER-RELATED TROUBLES ARE CLASSIFIED AS THEY RELATE TO RECEIVER OPERATING FUNCTIONS AND/OR FUNCTIONS ASSOCIATED WITH RECEIVER OPERATION. TROUBLE CLEARING IS BASED ON FIRST DETERMINING WHETHER TROUBLE LOCATES AT RECEIVER OR AT CONTROL

CONTROL THRU THE USE OF APPROPRIATE ROUTINE PROCEDURES AND CIRCUIT INDICATIONS; AND SECOND AFTER TROUBLE HAS BEEN ISOLATED TO RECEIVER OR CONTROL THRU THE USE OF DETAILED PROCEDURES TO LOCATE AND CORRECT FAULTY CIRCUIT AREA



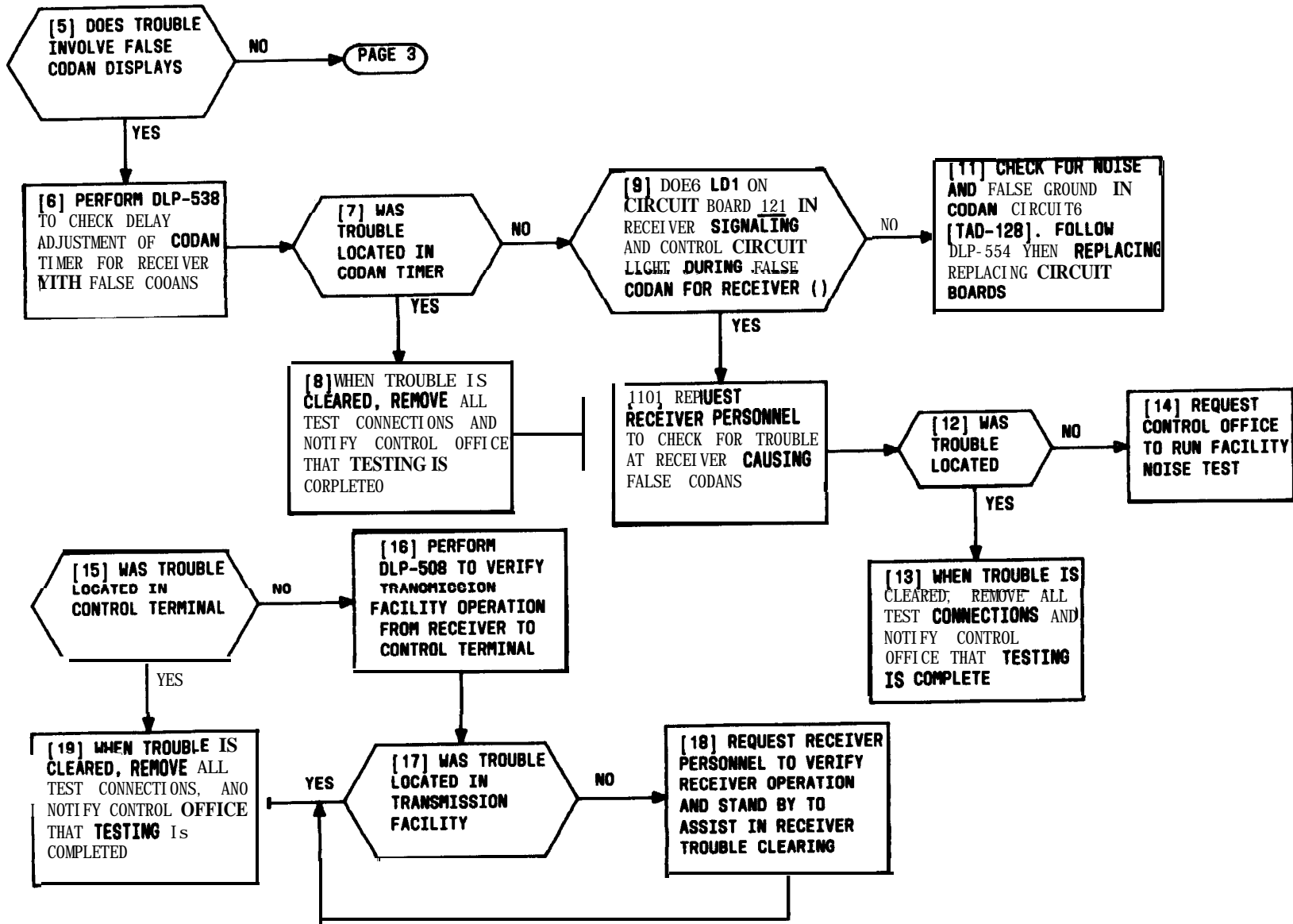
NOTE
RELAY **CONTACT ORIENTATION/COMPONENT** LOCATION: RELAY CONTACT ORIENTATION IS SHOWN IN TAD-147. **COMPONENT** LOCATION IS SHOWN IN TAD-141 AND TAD-149 FOR CHANNEL BAY AND COMMON BAY, RESPECTIVELY

CAUTION
ALL ROUTINE AND TROUBLE-CLEARING PROCEDURES ON THE PUBLIC SAFETY AND CALLING CHANNEL MUST BE COORDINATED IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES. SEE TAD-199 BEFORE TESTING SAFETY AND CALLING CHANNEL

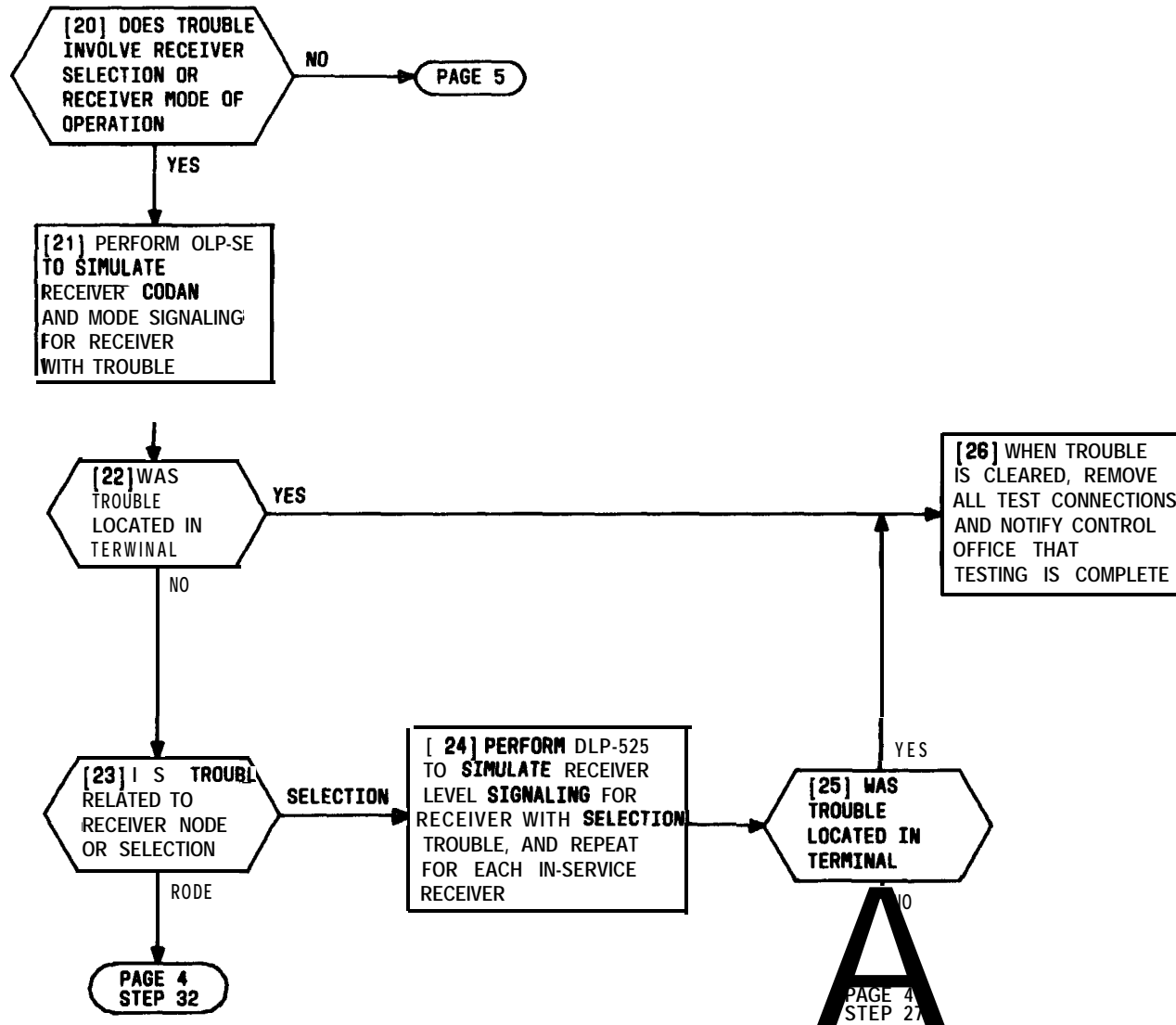
WARNING
WHEN REPLACING CIRCUIT BOARDS, POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

CLEAR RECEIVER-RELATED TROUBLES

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CLEAR RECEIVER-RELATED TROUBLES



CLEAR RECEIVER-RELATED TROUBLES

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[27] DISCONNECT ROUTINER TEST SET FROM RSC IN AND REC CONN JACKS. DEPRESS ANS REC LEVEL MON AND RLS KEYS AT TECHNICAL OPERATOR PANEL, AND PERFORM OLP-540 TO VERIFY RF LEVEL SIGNALING FROM RECEIVER

[28] ARE LEVEL DISPLAYS CORRECT

[31] DISCONNECT ROUTINER TEST SET, DEPRESS ANS, REC LEVEL MON. AND RLS KEYS AT TECHNICAL OPERATOR PANEL, AND REMOVE DUMMY PLUGS. TROUBLE DOES NOT LOCATE AND RAY HAVE BEEN TRANSIENT. NOTIFY CONTROL OFFICE THAT TESTING IS COMPLETED

[32] REQUEST RECEIVER PERSONNEL TO TEST RECEIVER TO CONTROL TERMINAL AM/SSB SIGNALING

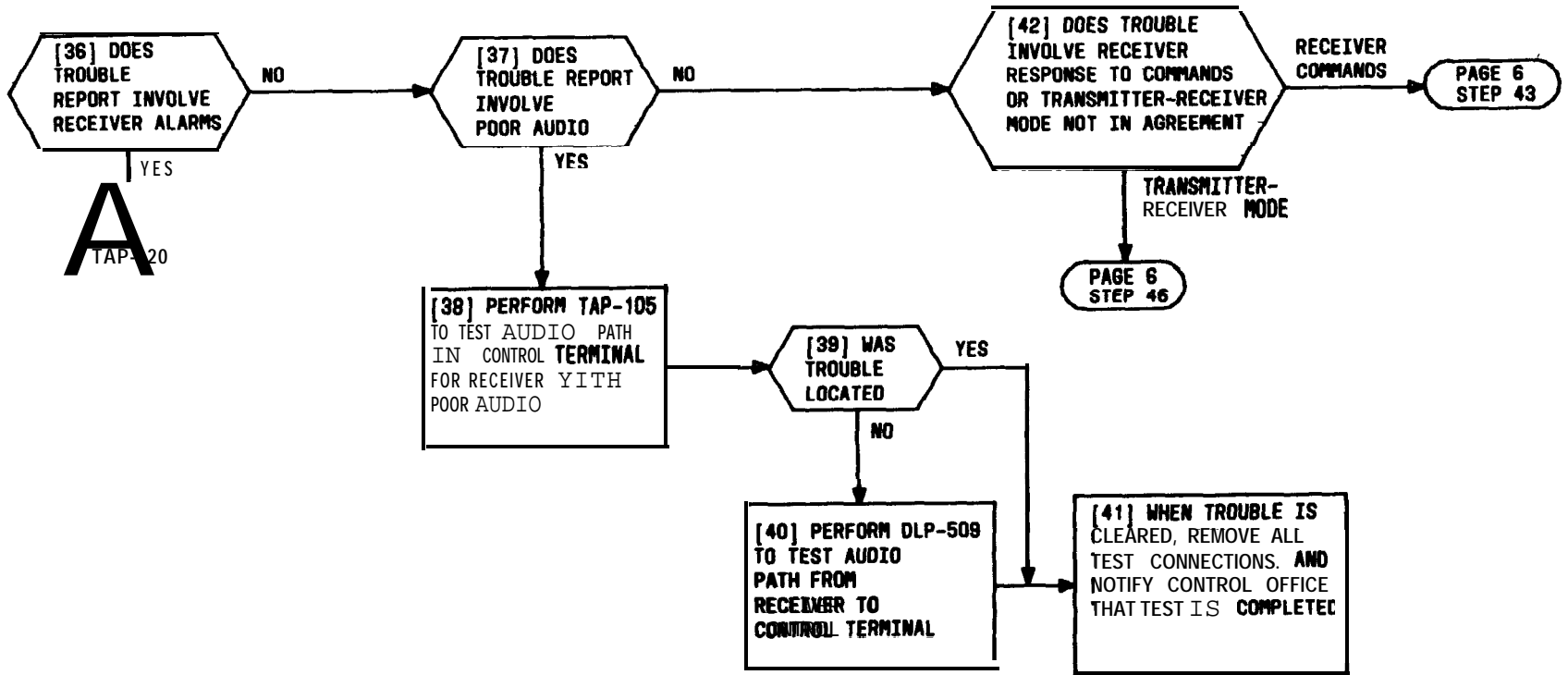
[29] DISCONNECT ROUTINER TEST SET FROM CONTROL TERMINAL, REMOVE ALL DUMMY PLUGS, SET REC BY KEYS TO HORIZONTAL, AND CONNECT ROUTINER TEST, SET TO FAACILITY ASSIST RECEIVER TEST [DP-546

[34] DISCONNECT ROUTINER TEST SET. DEPRESS ANS, REC LEVEL MON, AND RLS KEYS AT TECHNICAL OPERATOR PANEL, AND REMOVE DUMMY PLUGS. TROUBLE DOES NOT LOCATE AND MAY HAVE BEEN TRANSIENT. NOTIFY CONTROL OFFICE THAT TESTING IS COMPLETED

[30] WHEN TROUBLE IS CLEARED, REMOVE TEST CONNECTIONS AND NOTIF CONTROL OFFICE THAT TESTING IS COMPLETED

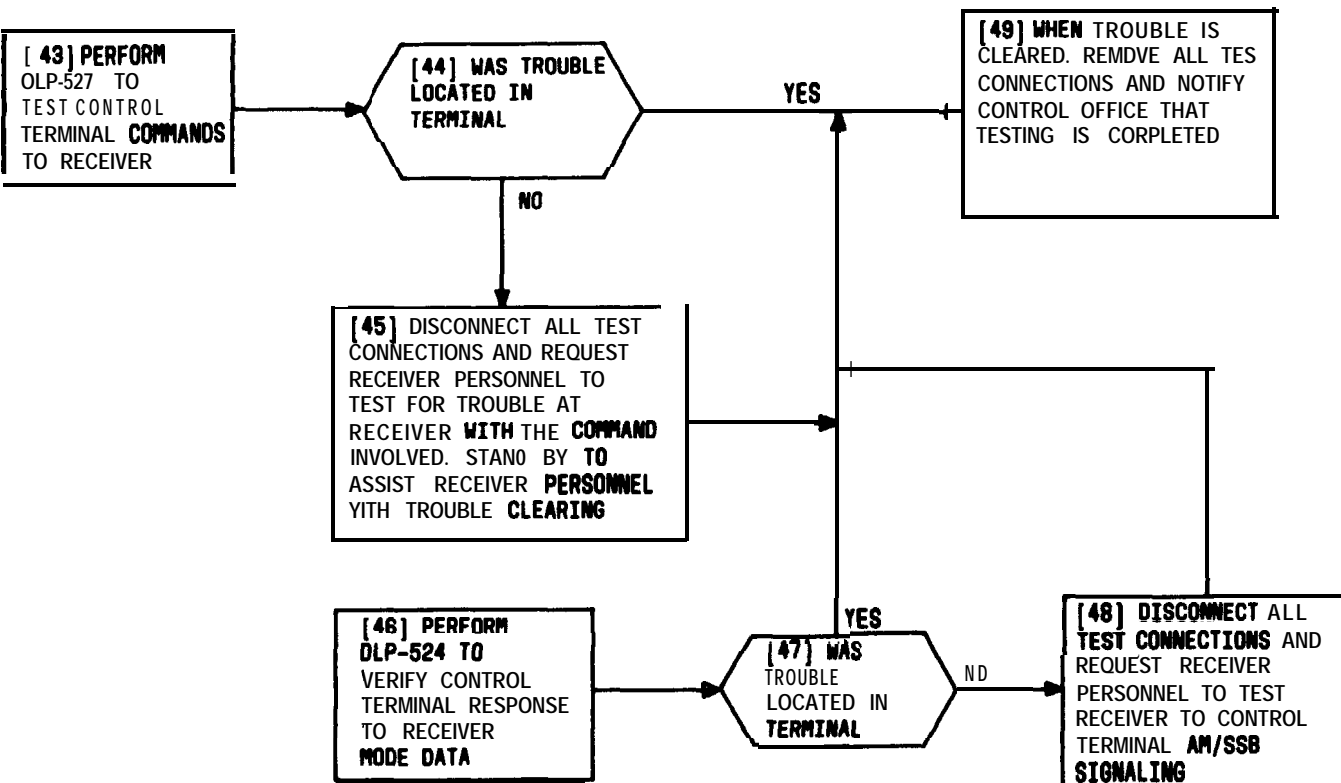
[33] WAS TROUBLE LOCATED AT RECEIVER

[35] STAND BY TO ASSIST RECEIVER PERSONNEL IN TROUBLE CLEARING. WHEN TROUBLE IS CLEARED, REMOVE ALL TEST CONNECTIONS AND NOTIFY CONTROL OFFICE THAT TESTING IS COMPLETED



CLEAR RECEIVER-RELATED TROUBLES

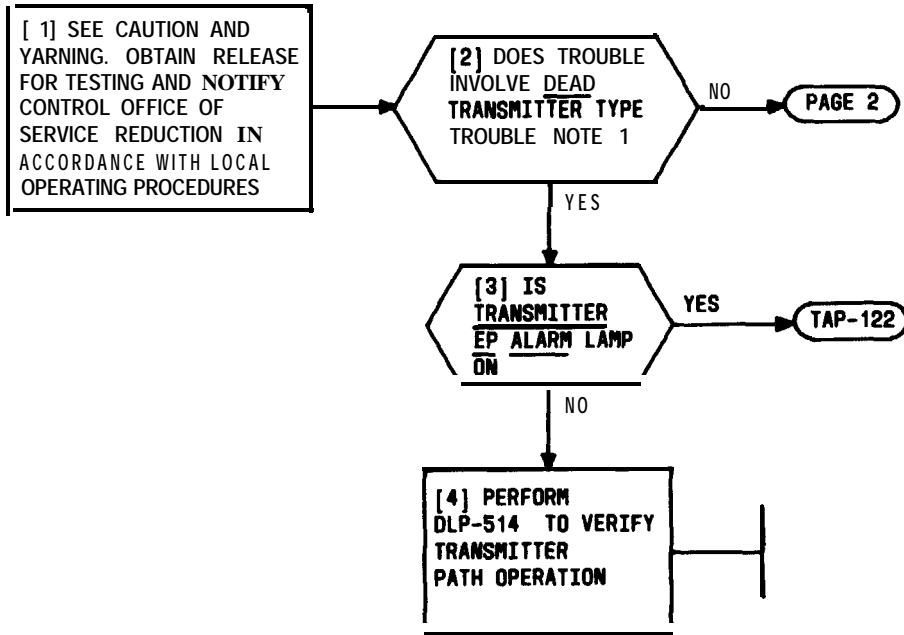
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SUMMARY

TRANSMITTER-RELATED TROUBLES ARE CLASSIFIED AS THEY RELATE TO TRANSMITTER OPERATING FUNCTIONS AND/OR FUNCTIONS ASSOCIATED WITH TRANSMITTER OPERATION. TROUBLE CLEARING IS BASED ON FIRST DETERMINING WHETHER TROUBLE LOCATES AT TRANSMITTER OR AT-

CONTROL TERMINAL THRU THE USE OF APPROPRIATE ROUTINE PROCEDURES AND CIRCUIT INDICATIONS; AND SECOND AFTER TROUBLE HAS BEEN ISOLATED TO TRANSMITTER OR CONTROL TERMINAL THRU THE USE OF DETAILED PROCEDURES TO LOCATE AND CORRECT FAULTY CIRCUIT AREA

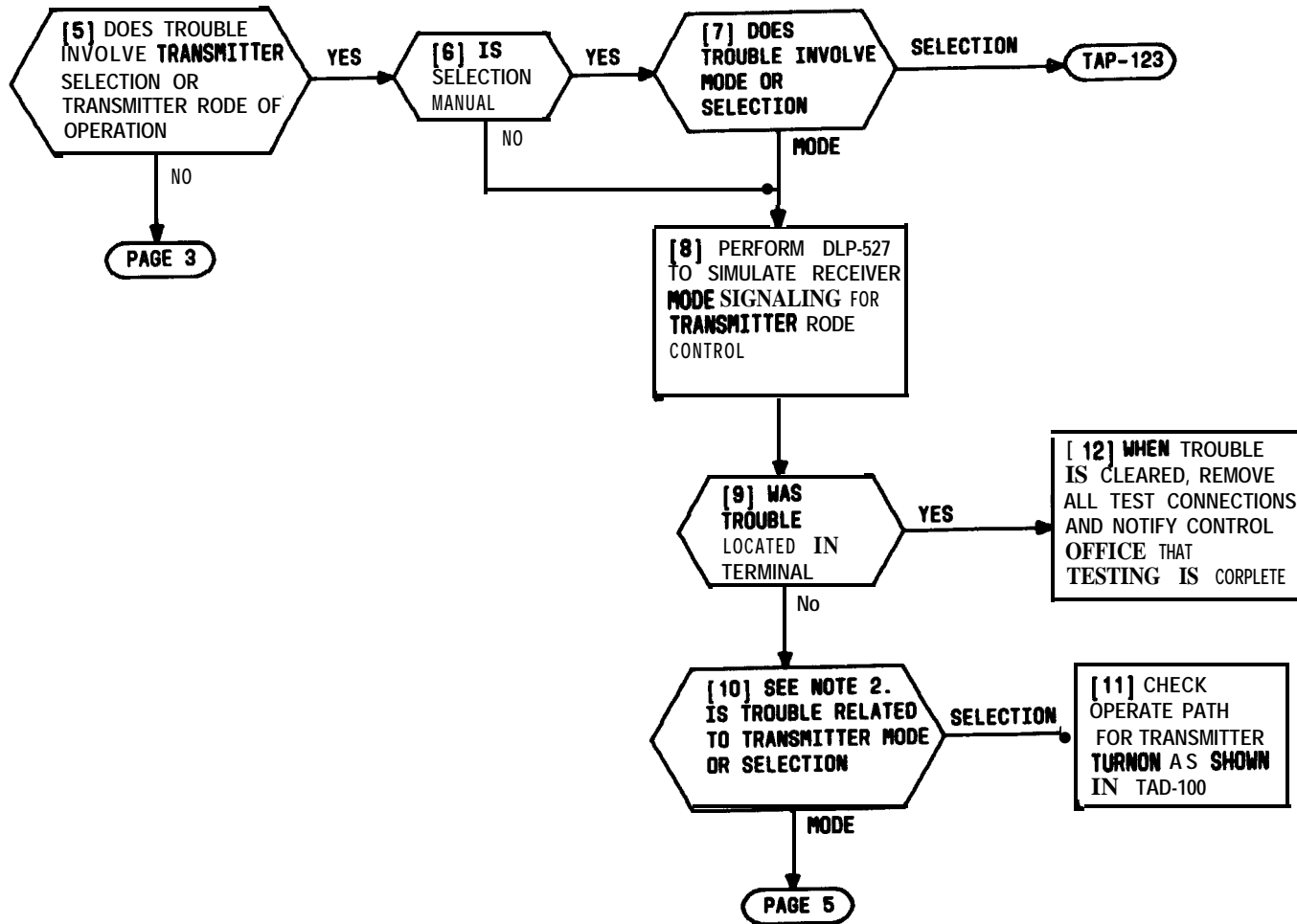


NOTE 1
RELAY CONTACT ORIENTATION/COMPONENT LOCATION; RELAY CONTACT ORIENTATION IS SHOWN IN TAD-147. COMPONENT LOCATION IS SHOWN IN TAO-148 AND TAO-149 FOR CHANNEL BAY AND COMMON BAY, RESPECTIVELY

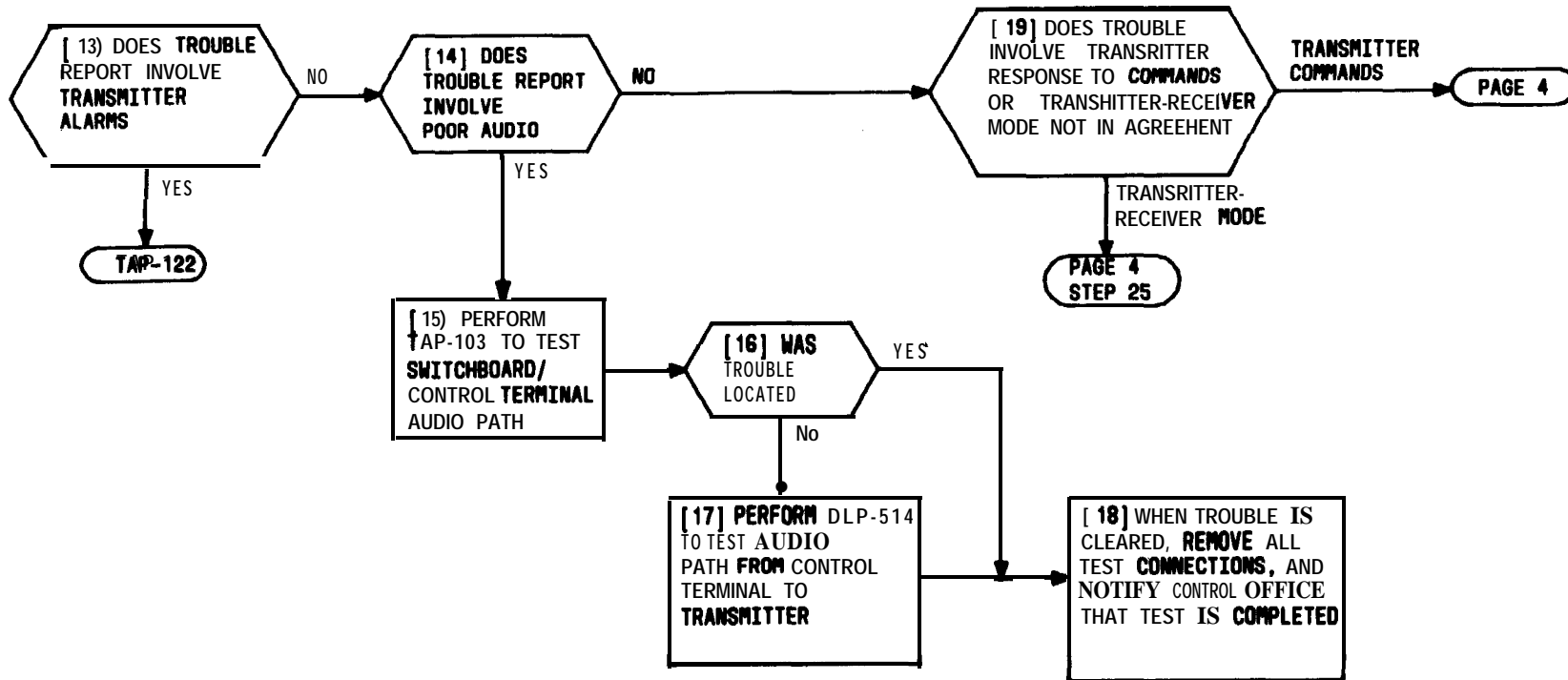
WARNING
WHEN REPLACING CIRCUIT BOARDS, POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

CAUTION
ALL ROUTINE AND TROUBLE-CLEARING PROCEDURES ON THE SAFETY AND CALLING CHANNEL MUST BE COORDINATED IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES. SEE TAO-136 BEFORE TESTING SAFETY AND CALLING CHANNEL

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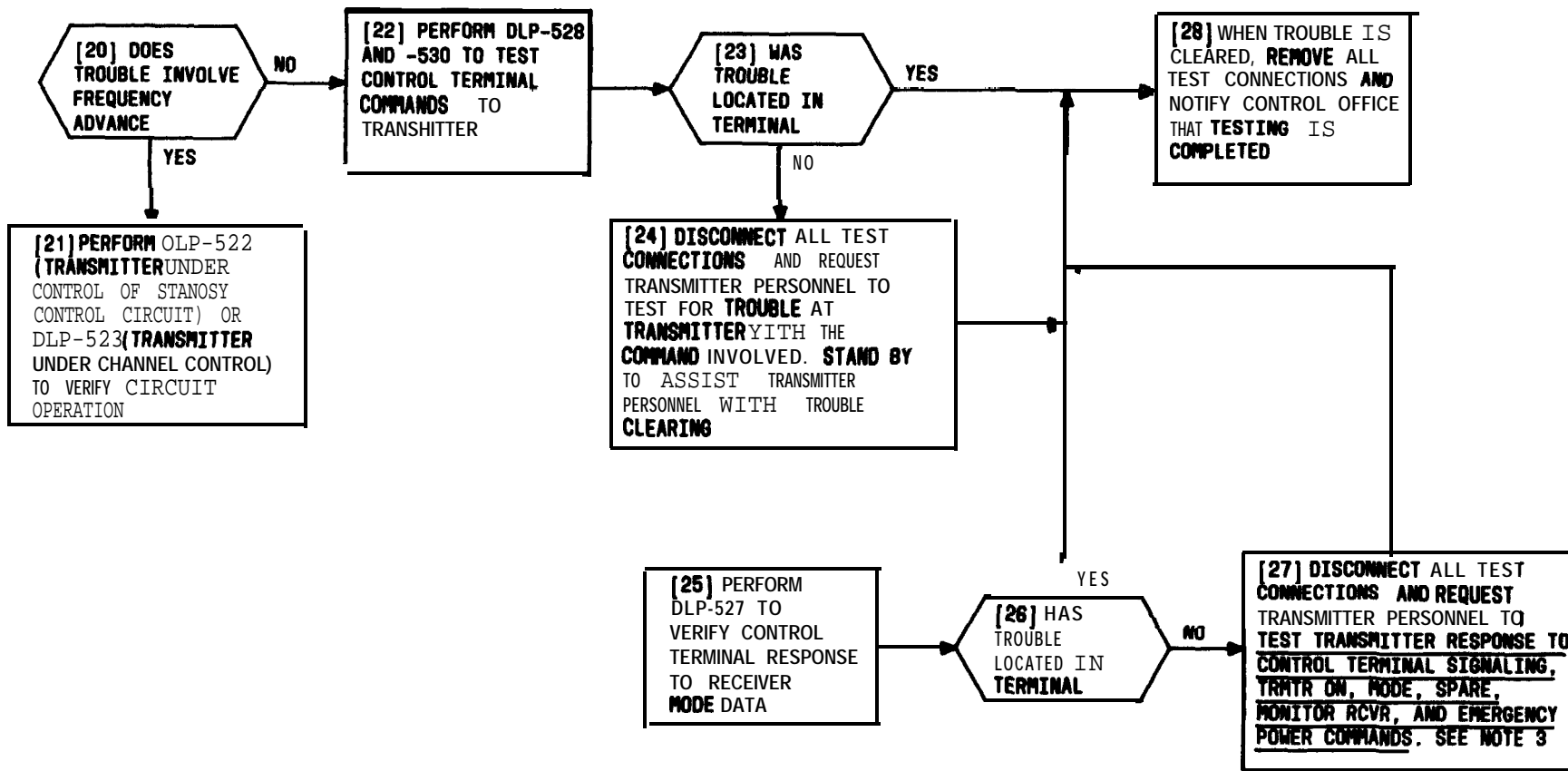


NOTE 2			
TRANSMITTER SELECTION IS CONTROLLED BY RECEIVER SELECTION THRU STRAP OPTION			
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EAR TRANSMITTER-RELATED TROUBLES

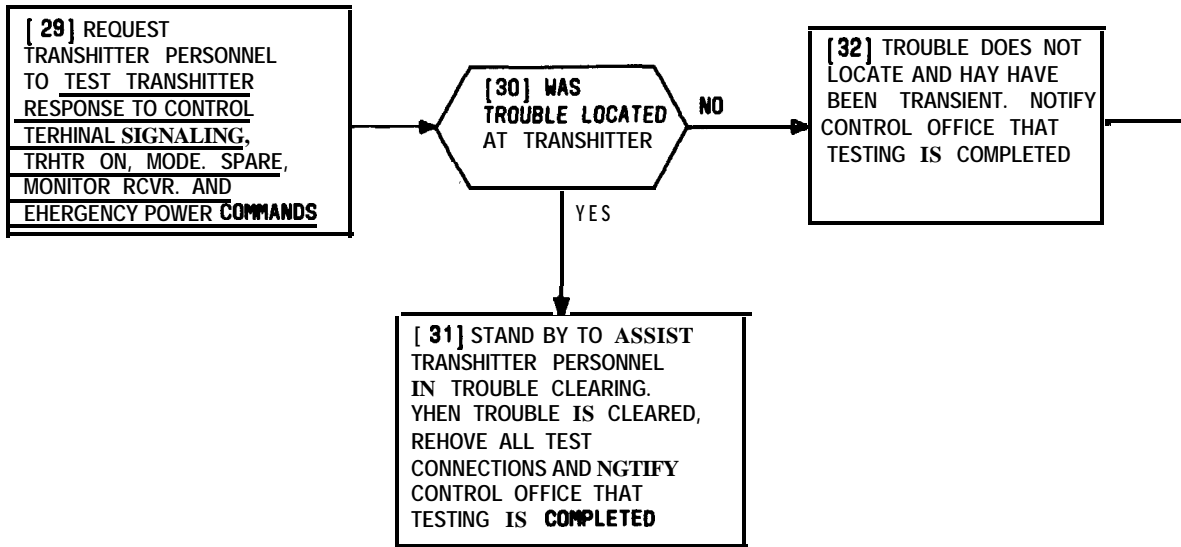
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NOTE 3
 IF TRANSMITTER PERSONNEL DO NOT HAVE ROUTINER TEST SET PERFORM ASSIST TRANSMITTER TEST USING ROUTINER TEST SET AT CONTROL TERMINAL [DLP-547]

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CLEAR TRANSMITTER-RELATED TROUBLES

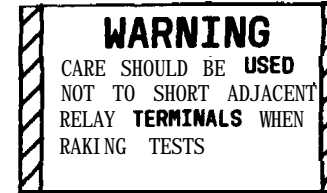


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CLEAR TRANSMITTER-RELATED TROUBLES

THE PHYSICAL ORIENTATION OF RELAY CONTACTS AS RELATED TO THE ELECTRICAL REPRESENTATION SHOWN ON TAOS AND SUPPORTING ILLUSTRATIONS IS CONTAINED ON THIS TAO TO ASSIST USER IN CHECKING CIRCUIT PATHS ACROSS RELAY CONTACTS. TO USE THIS INFORMATION:

(A) **FIND** RELAY TITLE (SUCH AS **CR1, T1**, ETC) **UNDER** UNIT TITLE AS SHOWN BELOW TO DETERMINE RELAY TYPE, (B) LOCATE PHYSICAL DIAGRAM FOR RELAY TYPE, AND (C) USE ASSOCIATED LEGEND TO DETERMINE THE ELECTRICAL REPRESENTATION TO PHYSICAL RELATIONSHIP. SEE WARNING



RECEIVER SELECTOR AND TRANSMITTER CONTROL CKT

RELAY	TYPE	RELAY	TYPE
AO	353A	R1A	855A
AOA	861A	RF1-RF3	428A
AM	56BA	RG1	354A
AT	353A	RG2	353A
ATA	838A	PG	353A
BP1	353A	RGA	710A
BP2	353A	RL1	481A
	353A	RL2	655A
& - CO*	860A	RLS	569A
COA	56BA	RMD	353A
CDL	482A	RS1-RS8	719A
CDP	353A	RS	861A
CDS	750A	RSL	353A
COS	42BA	S	308A
CP	426A	SD	353A
CR1	462A	SEN 1	426A
CR2	854A	SEN	832A
CR3	569A	SH	758A
CT1-CT8	636A	SO	353A
DP	316A	SOA	758A
H	405A	SP1-SP2	366A
IPM	854A	SQ0	353A
L1-L8	353A	SQ1-SQ2	353A
LS	569A	SS	401A
LSA	353A	S/S	767A
M	340A	SW1-SW3	353A
M1-M4	569A	T1-T3	756A
M5-M8	860A	TM	861A
MF1-MF4	353A	TO	353A
MR1-MR3	428A	TOA	767A
MS	854A	TOR	710A
O/R	353A	TS	401A
OR	354A	TSP	426A
PTA	353A	TTN	42BA
PTB	353A	W	353A
P	353A	Z	353A
PTT	860A		
R1-R8	837A		

CHANNEL STORAGE AND TECHNICAL OPERATOR ACCESS CKT

RELAY	TYPE
ARS	487A
CHA	832A
CHB	832A
CHC	832A
CHD	832A
CHE	832A
CHF	832A
CHG	832A
EP	353A
GO	854A
IRT	860A
LS1	386A
LS2	386A
MJ	399A
HJCO	353A
MN	399A
MNCO	353A
R1-R8	832A
RA	70BA
RLM	654A
RLS	487A
RS	399A
T1-T3	860A
TO	709A
TOR	709A
TS1-TS2	386A

TECHNICAL OPERATOR PANEL

RELAY	TYPE
BF	405A
DL	405A
EP	405A
MJ	399A
MJV	399A
MN	399A
MNV	399A
TK	405A
TL	405A

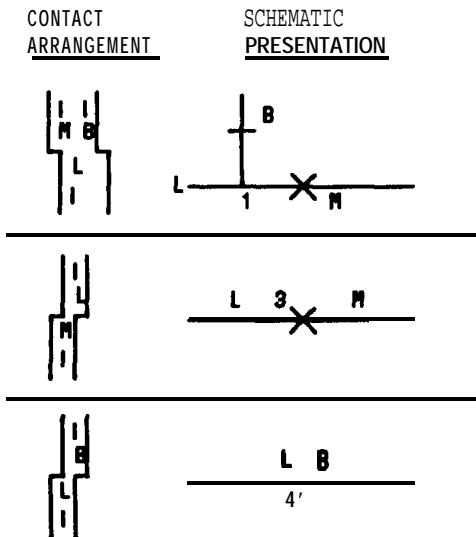
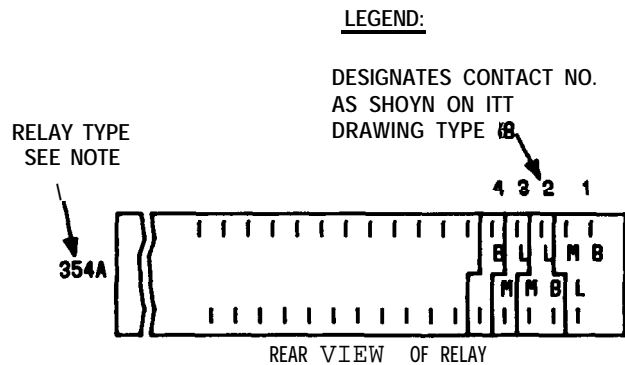
SWITCHBOARD TRUNK CKT

RELAY	TYPE
AM	AK4
ATS	AJ10
ATS1	AK4
B	AG20
CD1-CD8	AK4
CT	AJ125
D	AK4
FT	AF13
FT1	AF10
H	AJ31
M	AJ125
P	S522
R	AF95
R1-R8	AK4
RS	AJ10
RS1	AK4
RSL	AK4
S1	AJ125
SA	AJ125
SSB	AK4
T1-T8	AK4
T06	AJ10
VC	AJ10
VC1	AJ125

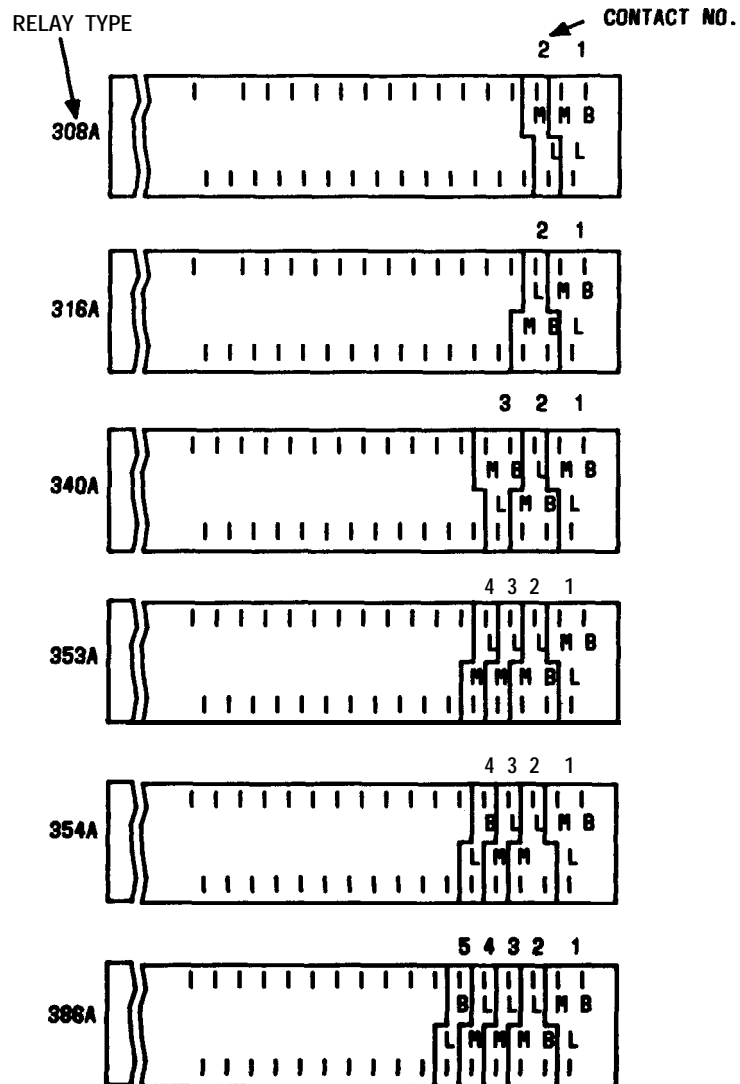
SHEET INDEX

RELAY	TYPE	SHEET NO.
309A	THRU 396A	2
399A	THRU 569A	3
709A	THRU 937A	4
838A	THRU 851A	5
AF10	THRU 9522	5

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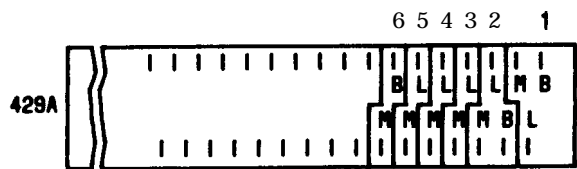
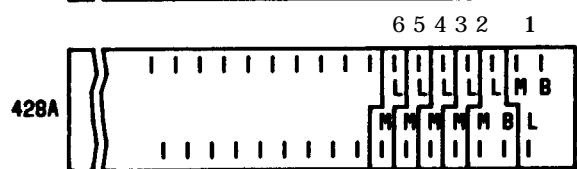
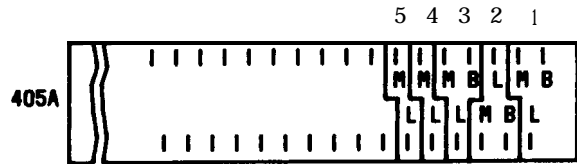
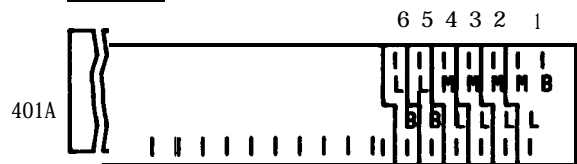
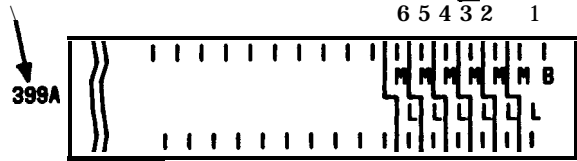


NOTE:
DESIGNATES CONTACT ARRANGEMENTS AS
SHOWN ON ITT DRAWING TYPE 113

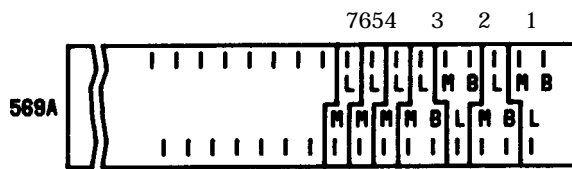
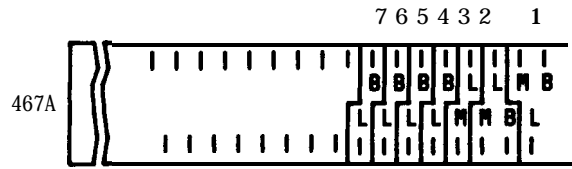
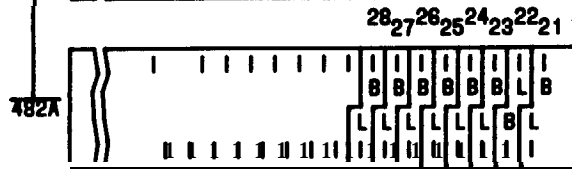
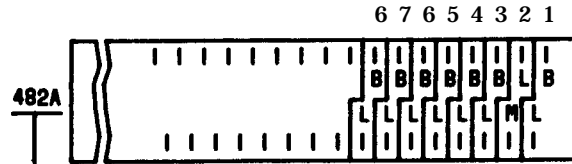
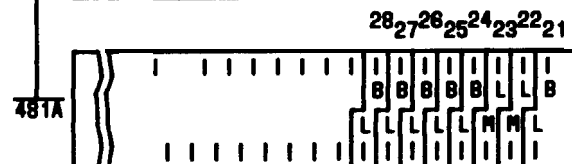
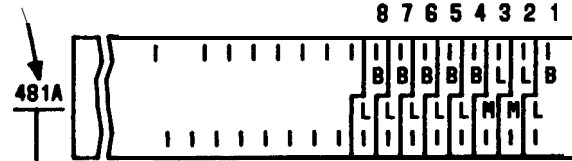


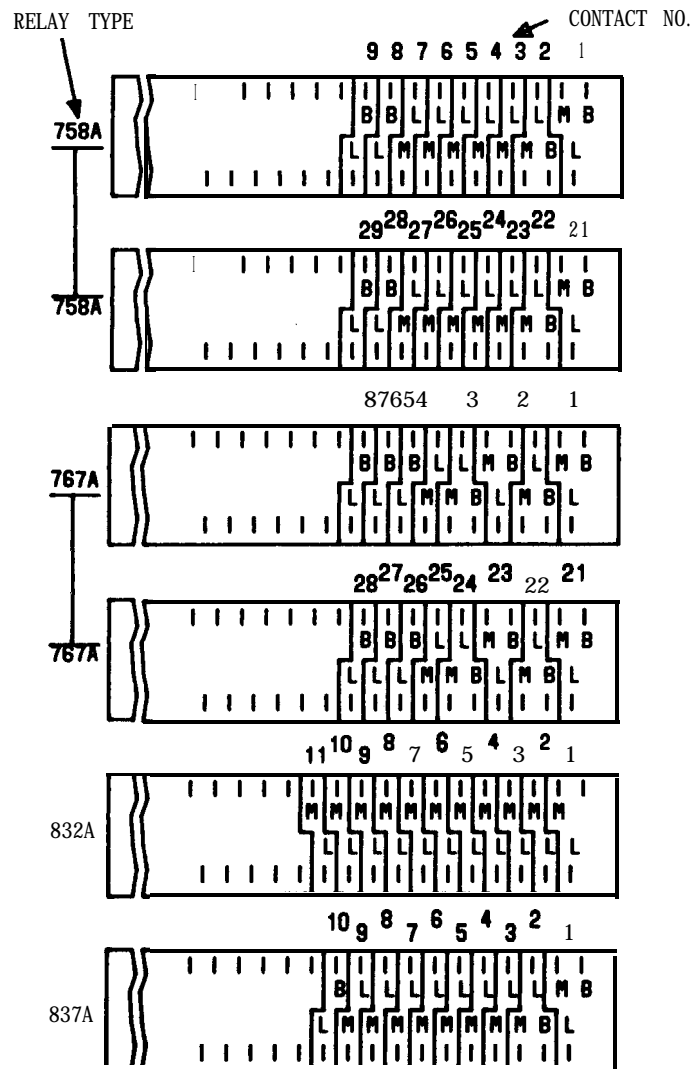
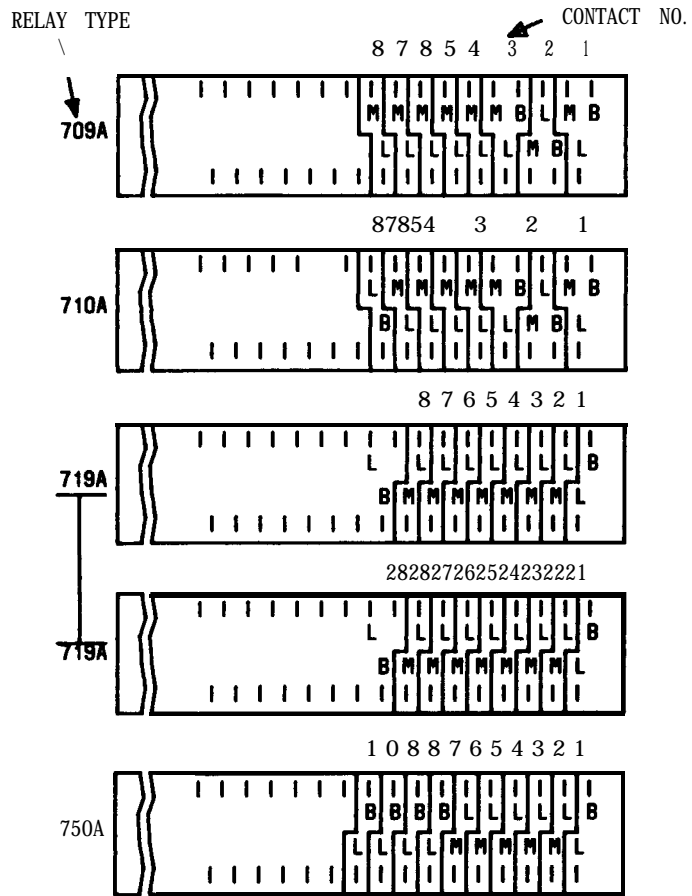
RELAY CONTACT ORIENTATION • NONCIRCUIT BOARD MOUNTED

RELAY TYPE CONTACT NO.



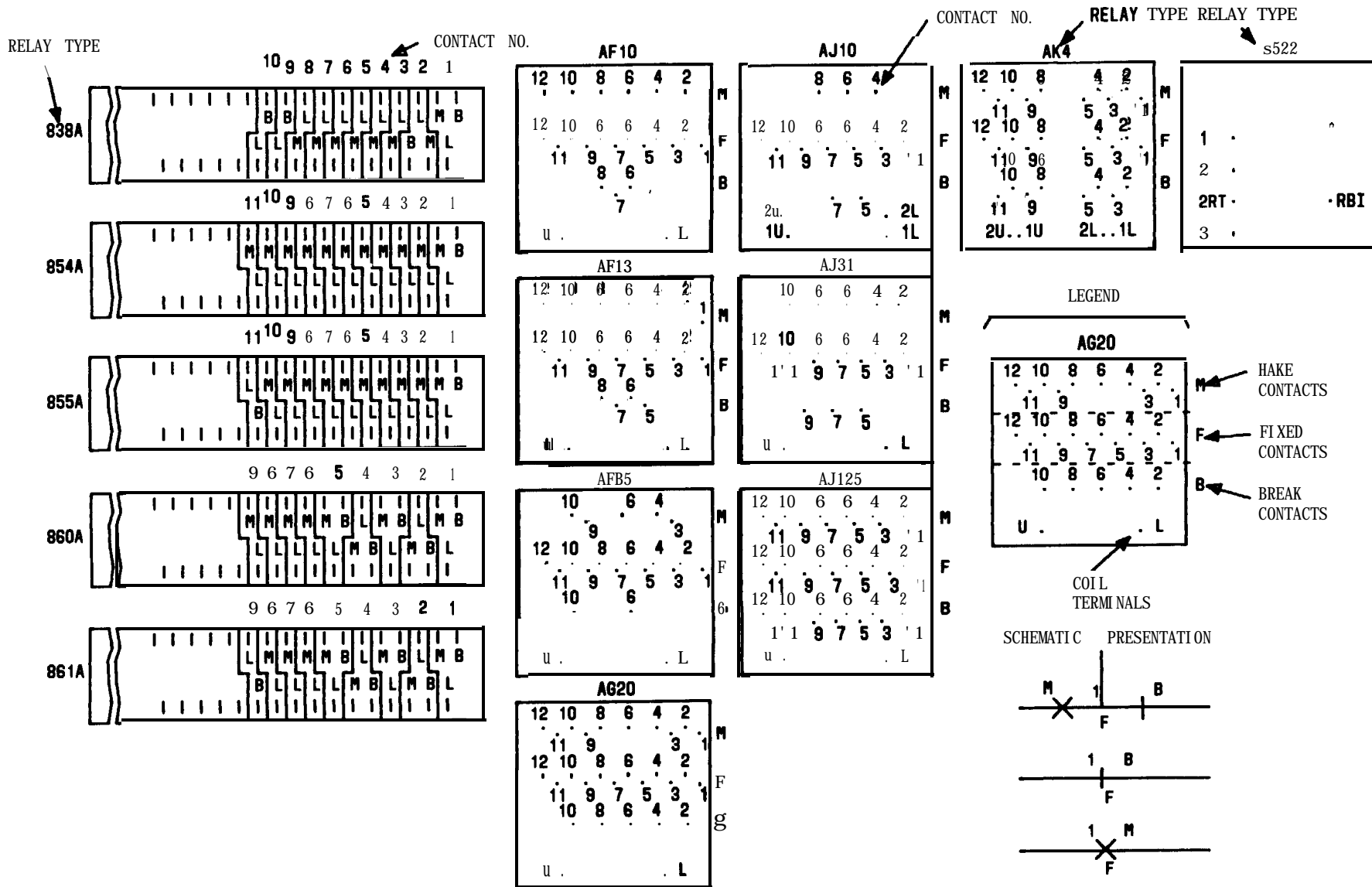
RELAY TYPE CONTACT NO.





RELAY CONTACT ORIENTATION - NONCIRCUIT BOARD MOUNTED

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RECEIVER SELECTOR AND
TRANSMITTER CONTROL
CIRCUIT PAGES 9
THRU 15

-12 AND -24 VOLT POWER
SUPPLY PAGE 2
TRANSMITTER CONNECT AND
TONE SENOER CIRCUIT
PAGE 3

COMMON VOICE AND TONE
CIRCUIT PAGE 4

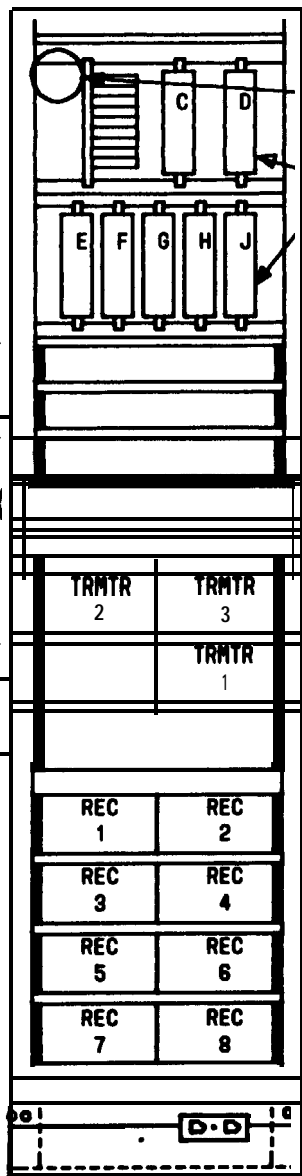
TEST JACKS, PADS, AD
FUSE PANEL (SO-3175001)

TRANSMITTER SIGNALING AND
CONTROL CIRCUIT PAGE 5

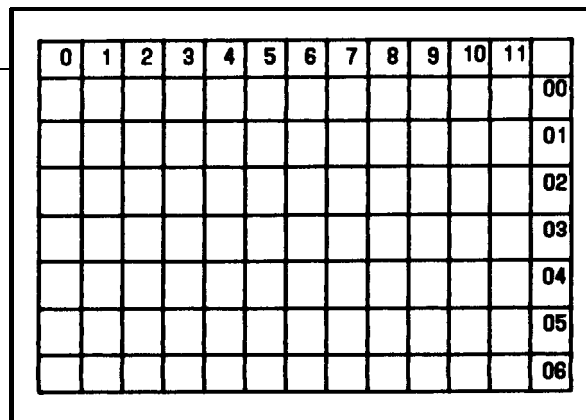
HIGHEST LEVEL RECEIVER
SELECTOR PAGE 6

RECEIVER CONNECT AND
TONE SENOER CIRCUIT
PAGE 7

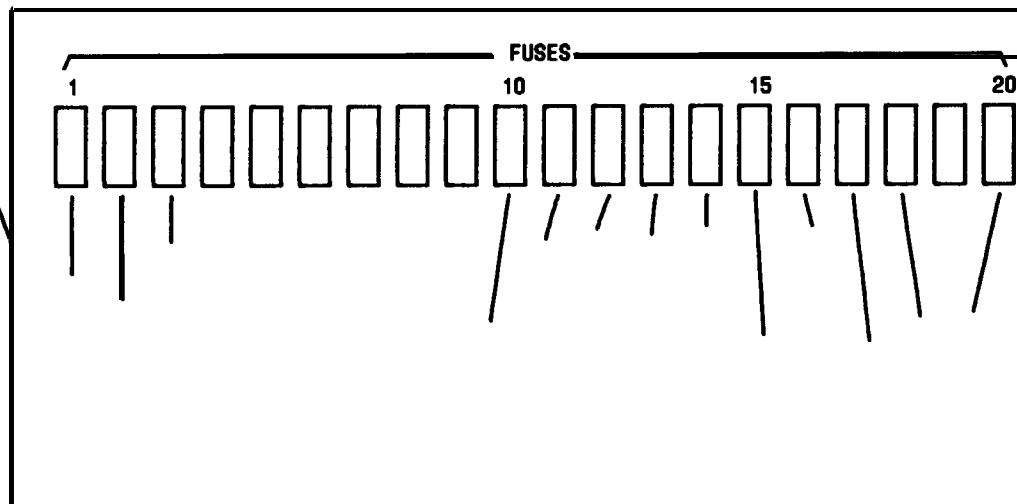
RECEIVER SIGNALING AND
CONTROL CIRCUIT PAGE 6



CHANNEL BAY ASSEMBLY (SO-317520)



TERMINAL BLOCKS RA THRU RI



NOTE:
FUSE NOT CONNECTED TO FUSE ALARM

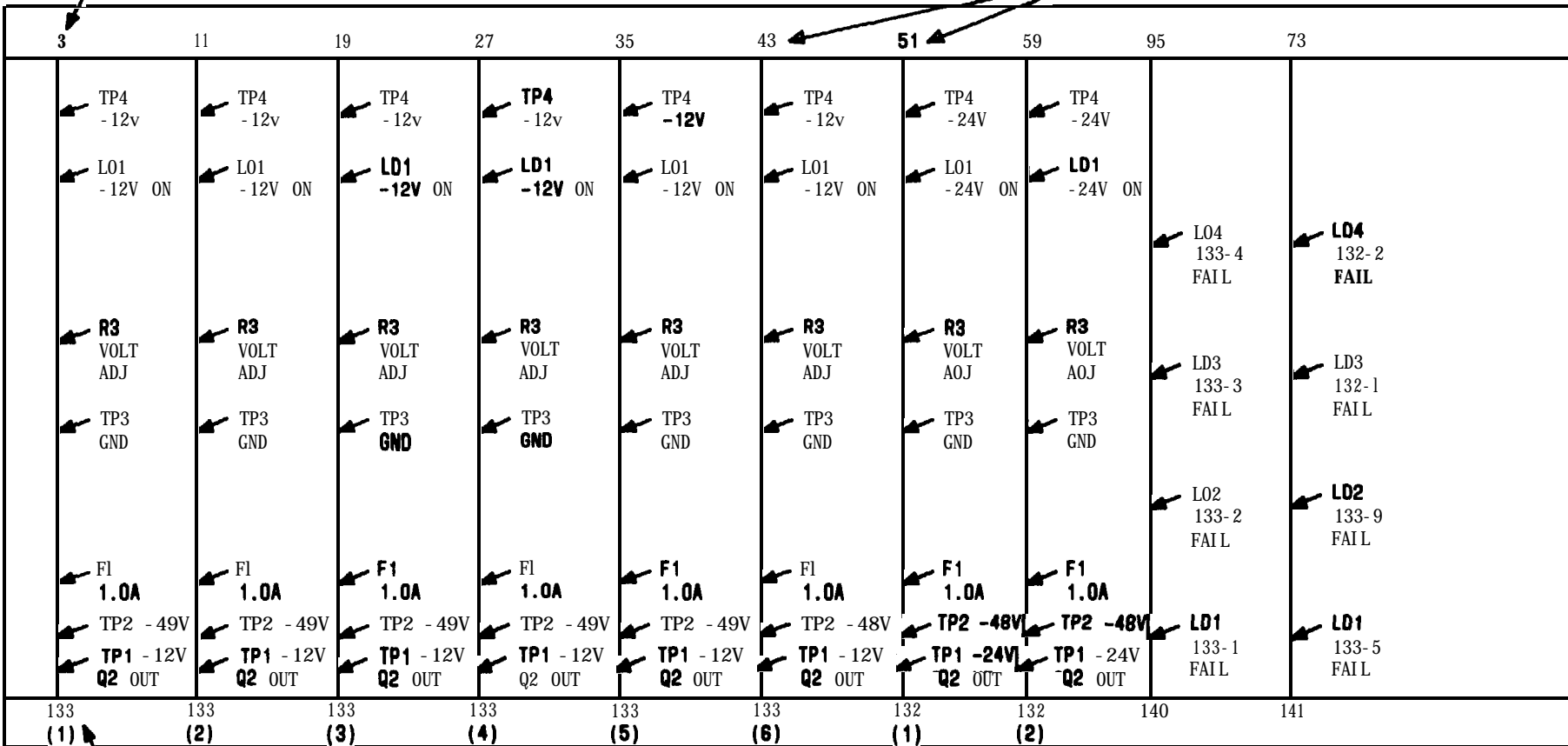
CHANNEL BAY - EQUIPMENT LOCATION DIAGRAM

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BOARD POS

- 12 ANO - 24 VOLT POWER SUPPLY (S0-317539)

STANDBY VOLTAGE REGULATORS



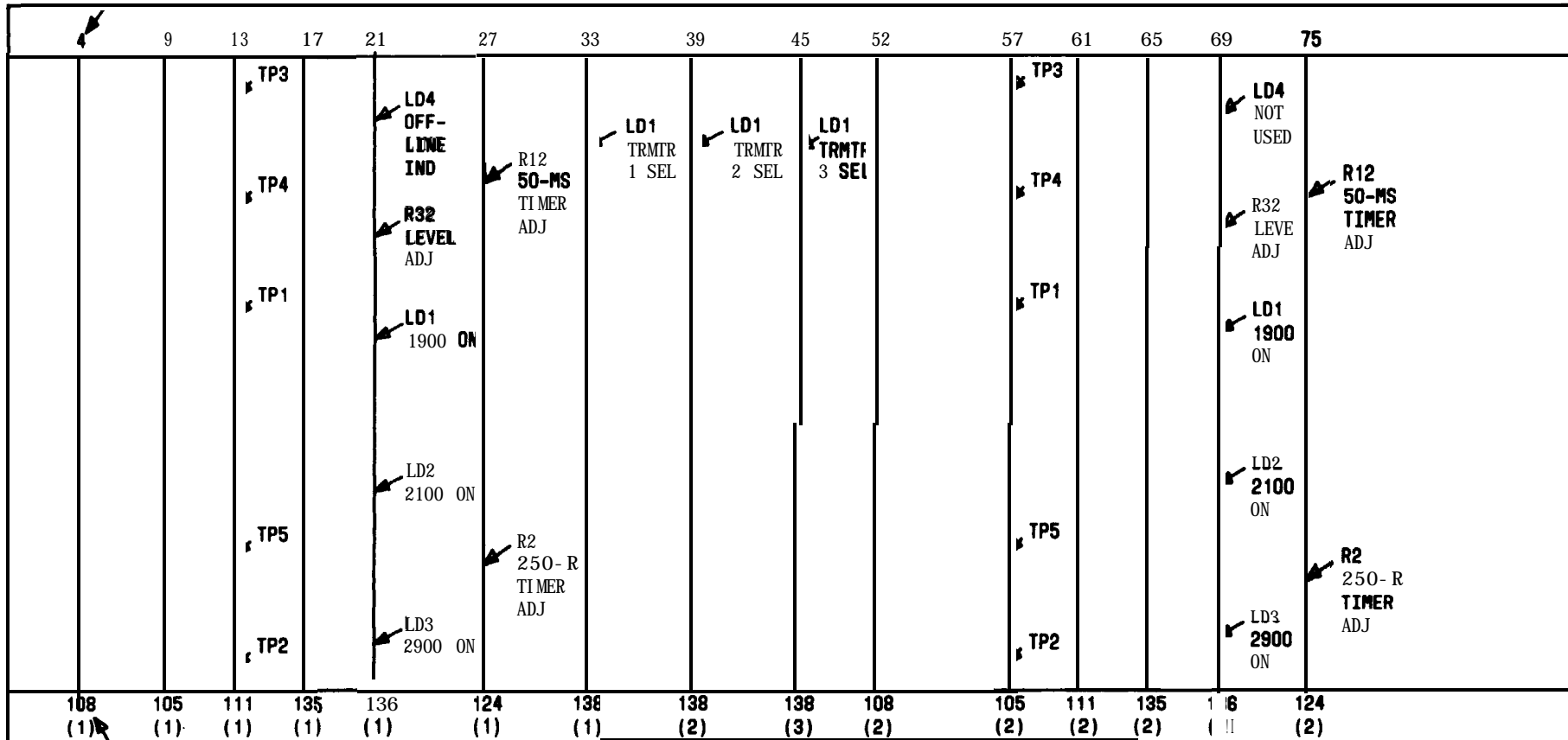
BOARD TYPE

BOARD TYPE	NOMENCLATURE	SCHEMATIC ND.	FIG. ND.
133	VOLTAGE REGULATOR	317527	(1)
132	VOLTAGE REGULATOR	317527	(2)
140	VOLTAGE MONITOR AND TRANSFER	317528	(1)
141	VOLTAGE MONITOR AND TRANSFER	317529	(2)

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BOARD POS

TRRTR CONNECT AND TONE SENDER CIRCUIT (SD-317524)



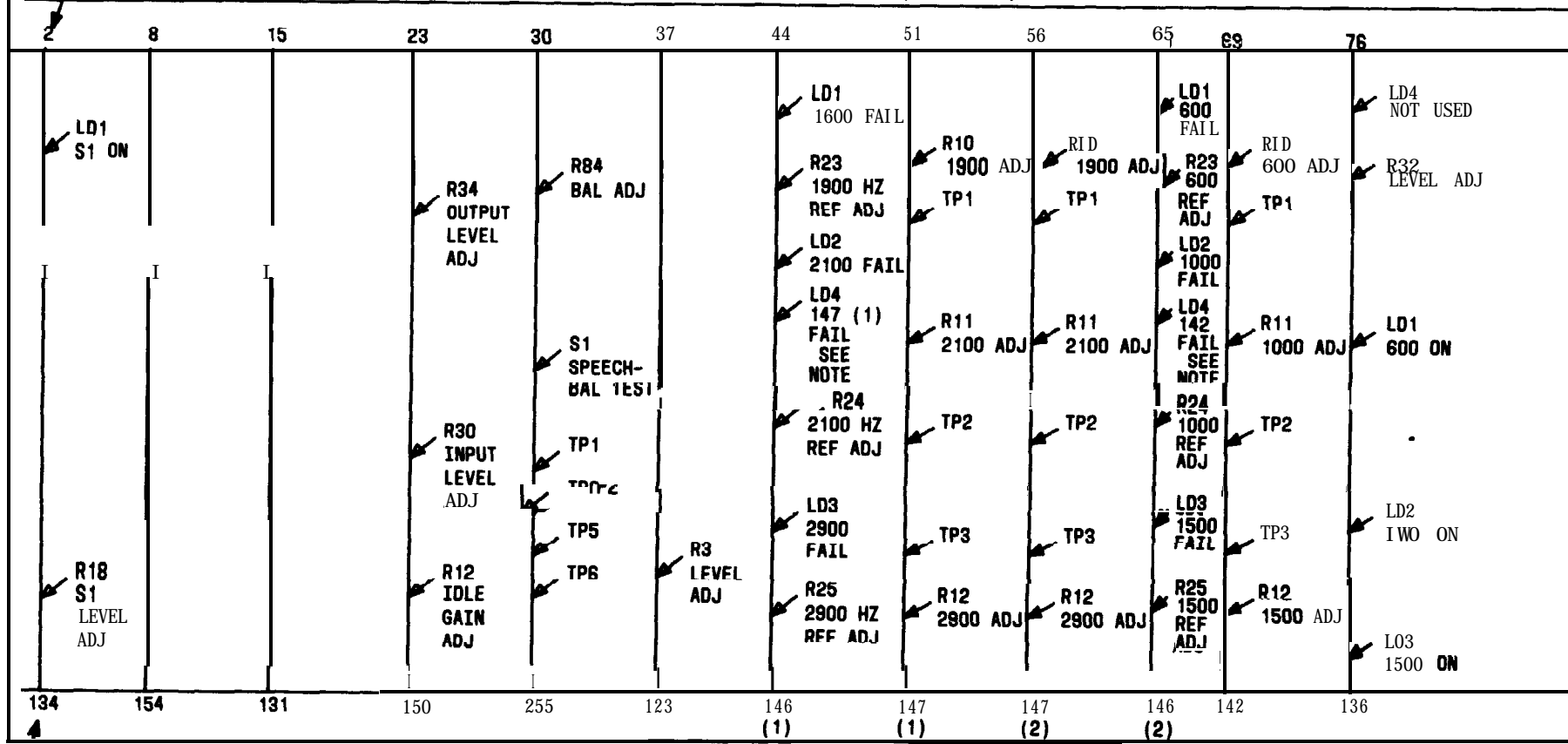
BOARD TYPE

BOARD TYPE	DESCRIPTION	SCHEMATIC NO.	FIG. NO.
109	SENDER CONTROL	317536	(1)
105	FLIP-FLOP	312106	(7)
111	UNI V DECODER	312129	(22)
135	UNI V DECODER	312129	(23)
136	GATE MIXER	317529	(1)
124	TIMERS AND DRIVERS	317516	(1)
139	OUTPUT TRANSFORMER AND RELAY CIRCUIT	317522	(6)

CHANNEL BAY - EQUIPMENT LOCATION DIAGRAM

BOARD POS

COMMON VOICE AND TONE CIRCUIT (SD-317521)



BOARD TYPE	NOMENCLATURE	SCHEMATIC NO.	FIG NO.
134	AMPLIFIER	317523	(1)
154	FILTER	317515	(2)
131	HYBRID	317517	(1)
150	VOGAD	317516	(1)
123	AMPLIFIER	317523	(2)
146	TONE HDNI TOR	317531	(1)
147	OSCILLATOR	317530	(1)
142	OSCILLATOR		(2)
136	GATE/MIXER	317530	(1)
255	VOGAD	317528	(8)

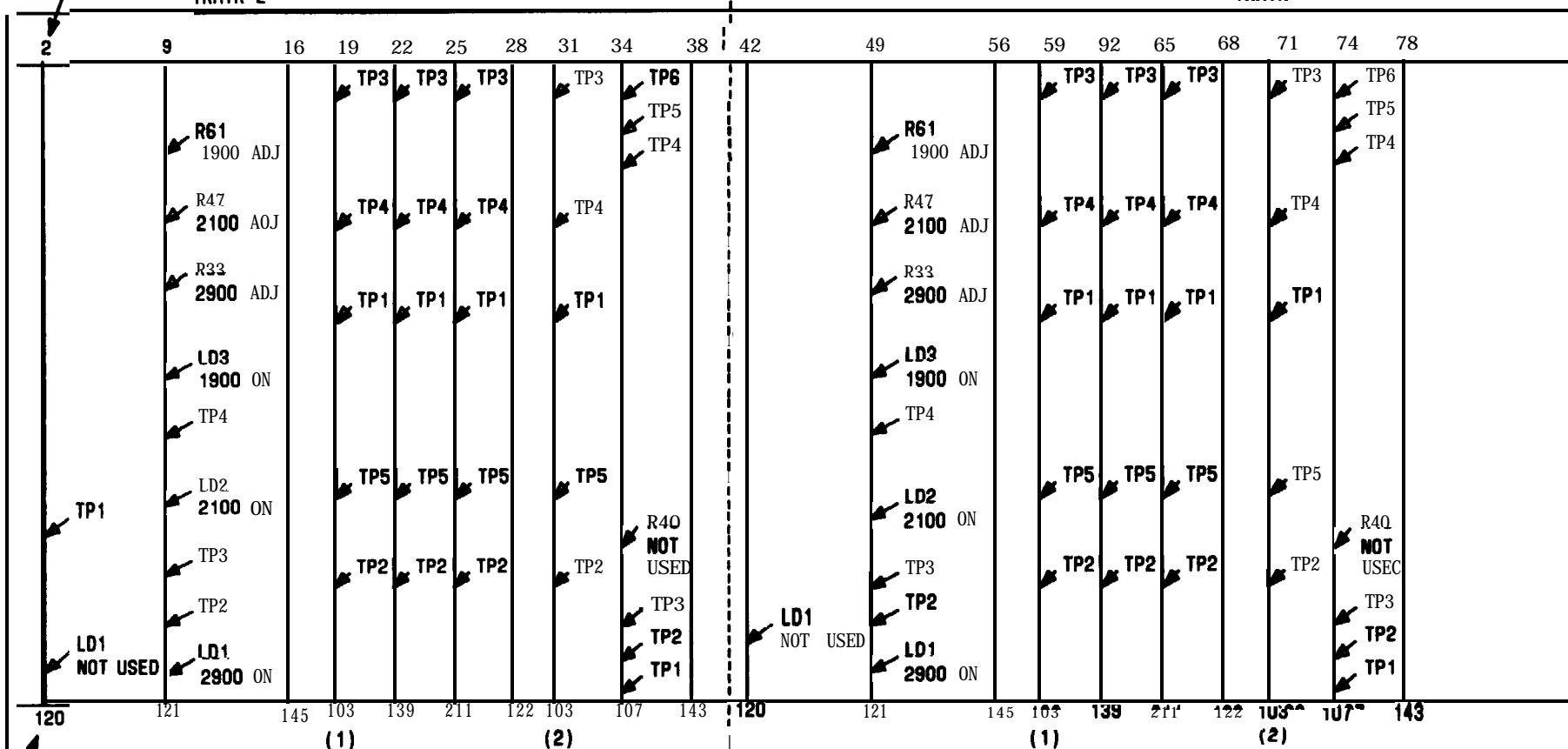
NOTE:
LD4 19 LOCATED
TOWARD REAR OF
148 BOARD

BOARD POS

TRMTR 2

TRANSMITTER SIGNALING AND CONTROL CIRCUIT (SO-317509)

TRMTR 3



BOARD TYPE

BOARD TYPE	NOMENCLATURE	SCHEMATIC SO. FIG. NO.	
120	TONE DETECTOR	317513	(1)
121	TONE DETECTOR	317513	(2)
145	CONTROL LOGIC A	317533	(1)
103	FLIP-FLOP	312109	(6)
139	FLIP-FLOP	312108	(2)
211	FLIP-FLOP	312108	(12)
			(20)
102	DRIVER	312128	(7)
143	DECODER DRIVER	317532	(1)

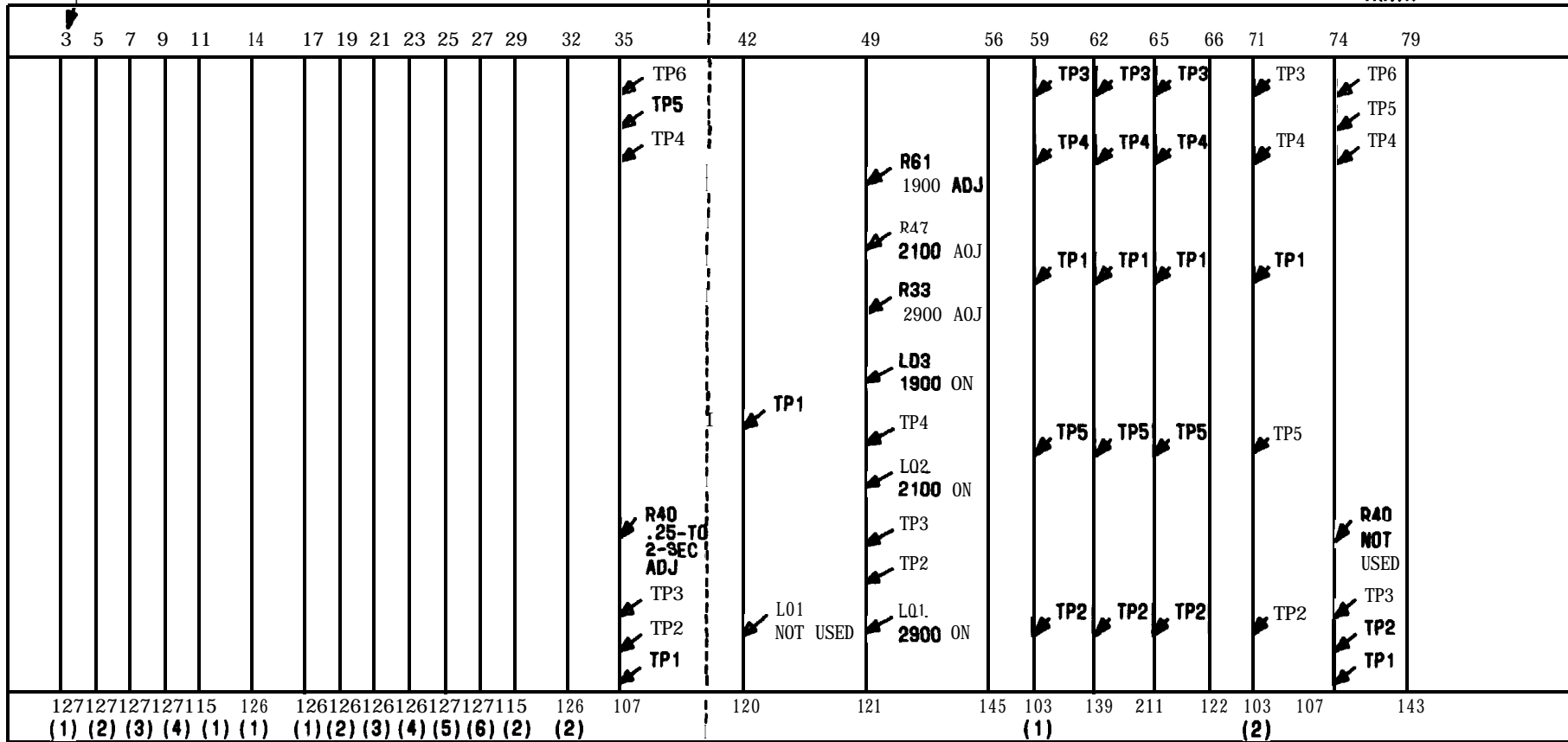
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CHANNEL BAY - EQUIPMENT LOCATION DIAGRAM

BOARD POS

HIGHEST LEVEL RECEIVER SELECTOR (SO-317509)

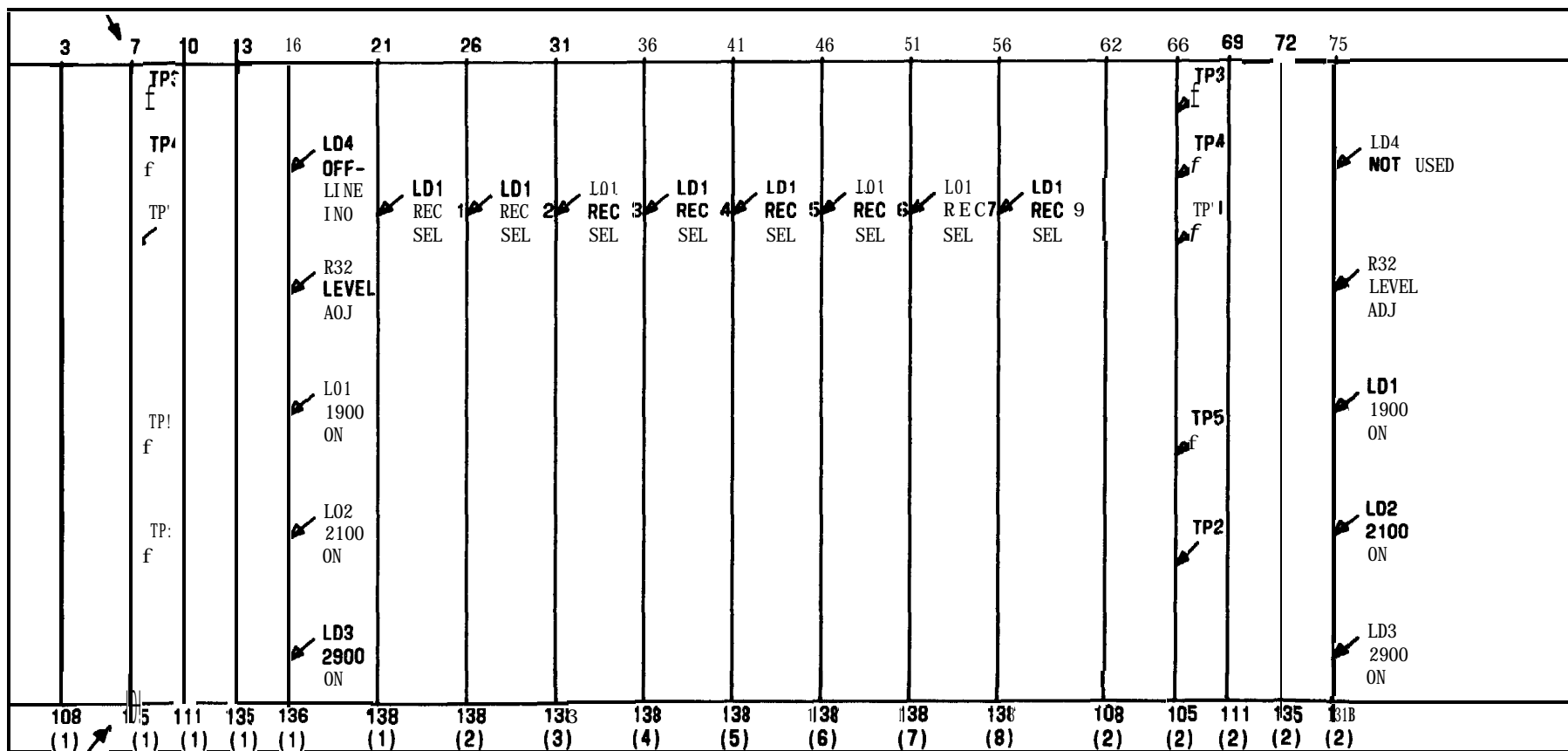
TRANSMITTER SIGNALING AND CONTROL CIRCUIT (SD-317509) TRMTR ,



BOARD TYPE	BOARD TYPE	NOMENCLATURE	SCHEMATIC NO.	FIG NO.	BOARD TYPE	NOMENCLATURE	SCHEMATIC NO.	FIG NO.
	127	DIODE MATRIX GATES	312167	(3)	145	CONTROL LOGIC A	317533	(1)
	115	INVERTERS AND DIFFERENTIATOR	312110	(1)	103	FLIP-FLOP	312106	(6)
	126	UNI V DECODER	312129	(21)	139	FLIP-FLOP	312106	(2)
	126	DIODE MATRIX GATES	312167	(2)	211	FLIP-FLOP	312106	(12)
	107	DRIVER	312111	(7)	122	DECODER	312129	(20)
	120	TONE DETECTOR	317513	(1)	143	DECODER-DRIVER	317532	(1)
	121	TONE DETECTOR	317513	(2)				

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CHANNEL BAY - EQUIPMENT LOCATION DIAGRAM



BOARD TYPE

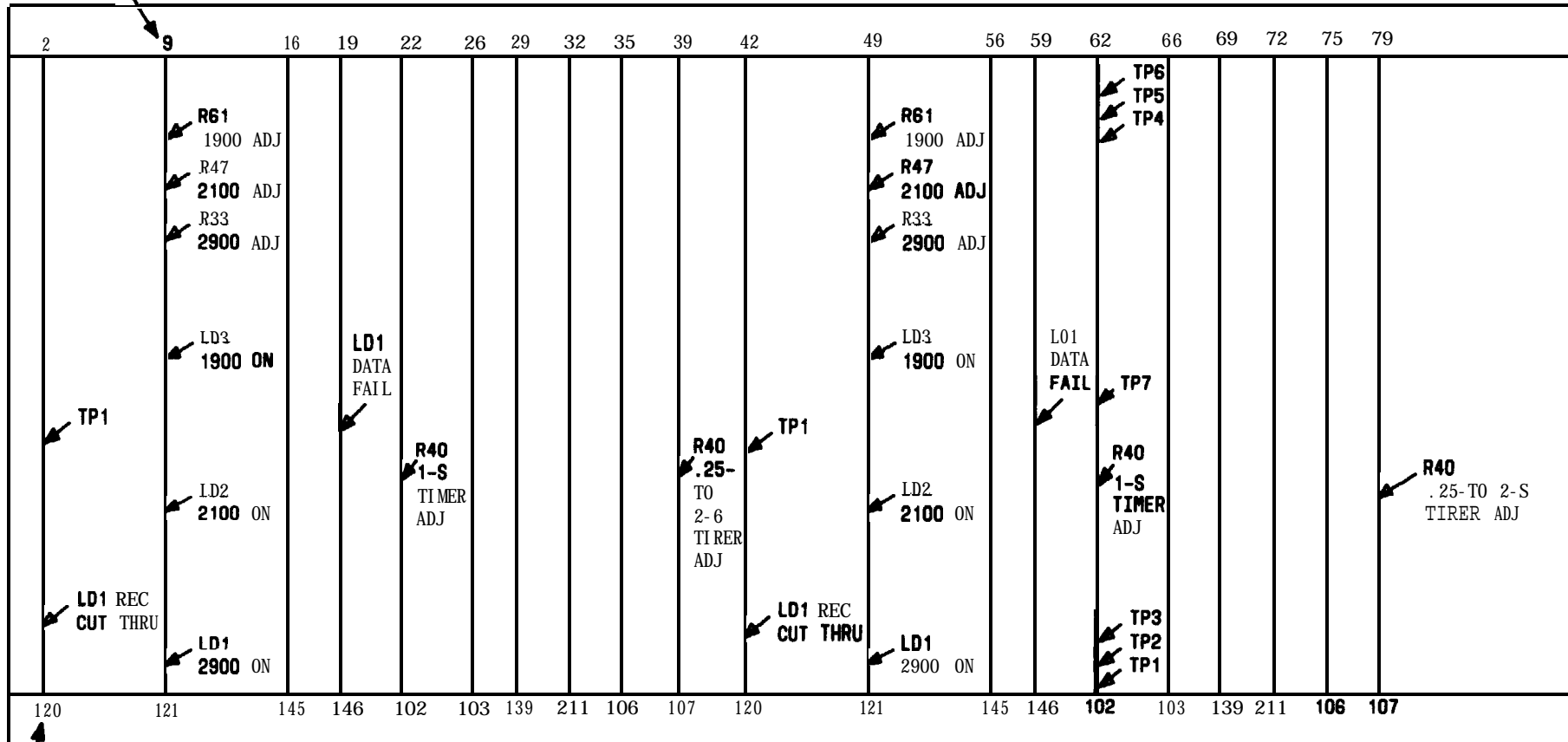
BOARD TYPE	NOMENCLATURE	SCHEMATIC NO.	FIG NO.
108			(1)
105	SENDER CONTROL	317536	(1)
111	FLIP-FLOP	312109	(7)
135	UNIV DECODER	312128	(22)
136	UNIV DECODER	312129	(23)
136	GATE/MIXER	317528	(1)
138	OUTPUT TRANSFORMER AND RELAY CIRCUIT	317522	(6)

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CHANNEL BAY - EQUIPMENT **LOCATION** DIAGRAM

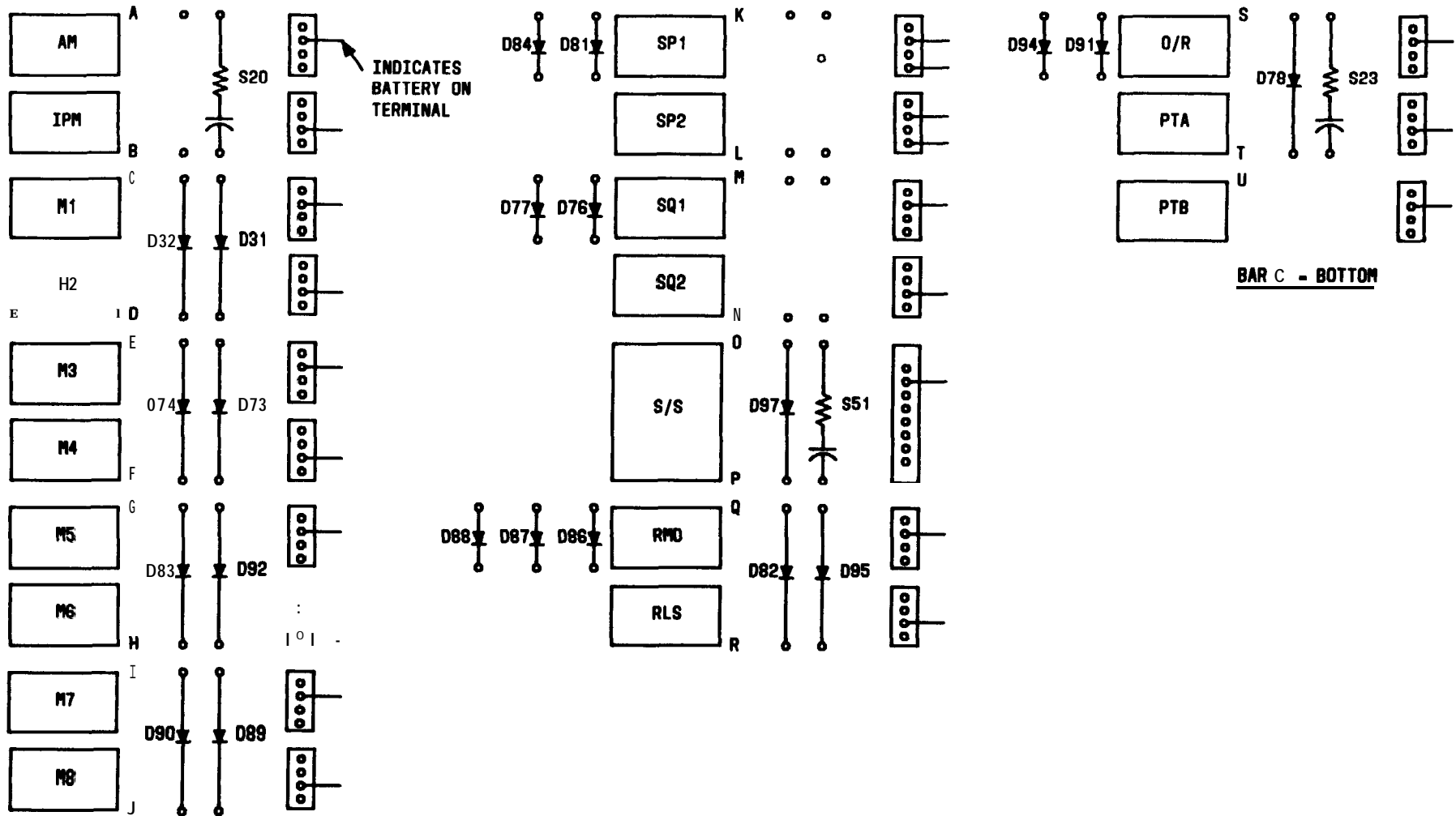
BOARD POS
RCVR ()

RECEIVER SIGNALING AND CONTROL CIRCUIT (SD-317506)
RCVR ()



BOARD TYPE	BOARD TYPE	NOMENCLATURE	SCHEMATIC ND.	FIG NO.	BOARD TYPE	NOMENCLATURE	SCHEMATIC ND.	FIG NO.
	120	TONE DETECTOR	317513	(1)	103	FLIP FLOP	312109	(6)
	121	TONE DETECTOR	317513	(2)	139	FLIP FLOP	312108	(2)
	145	CONTROL LOGIC 'A'	317533	(1)	211	FLIP FLOP	312109	(12)
	146	CONTROL LOGIC 'B'	317534	(1)	106	DECOOER	312129	(17)
	102	DRIVER	312111	(6)	107	DRIVER	312111	(7)

BAR C - TOP

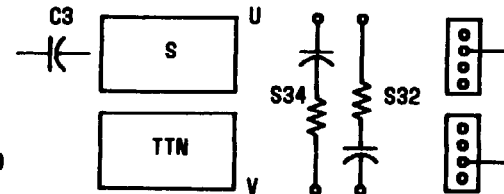
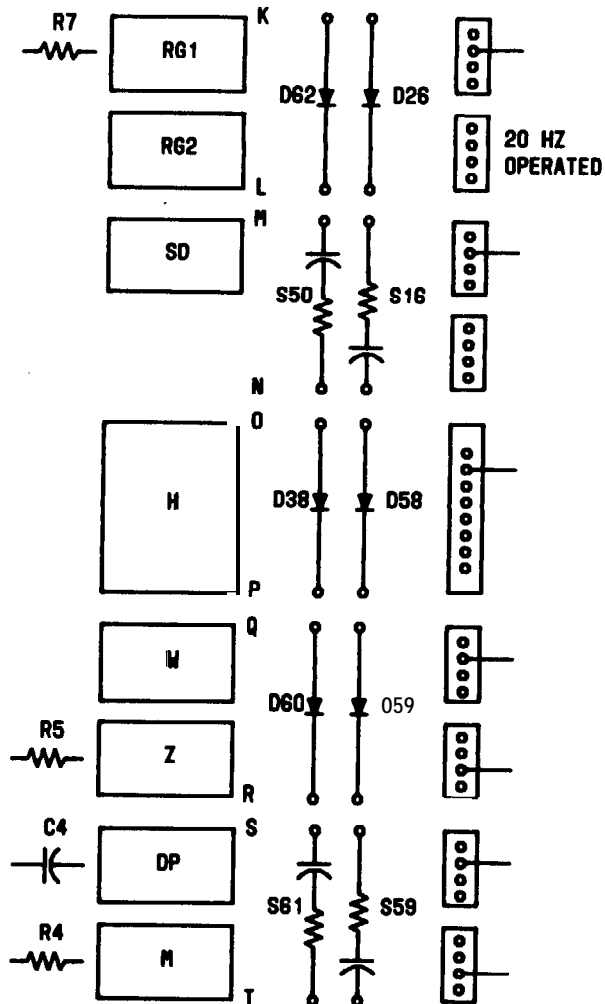
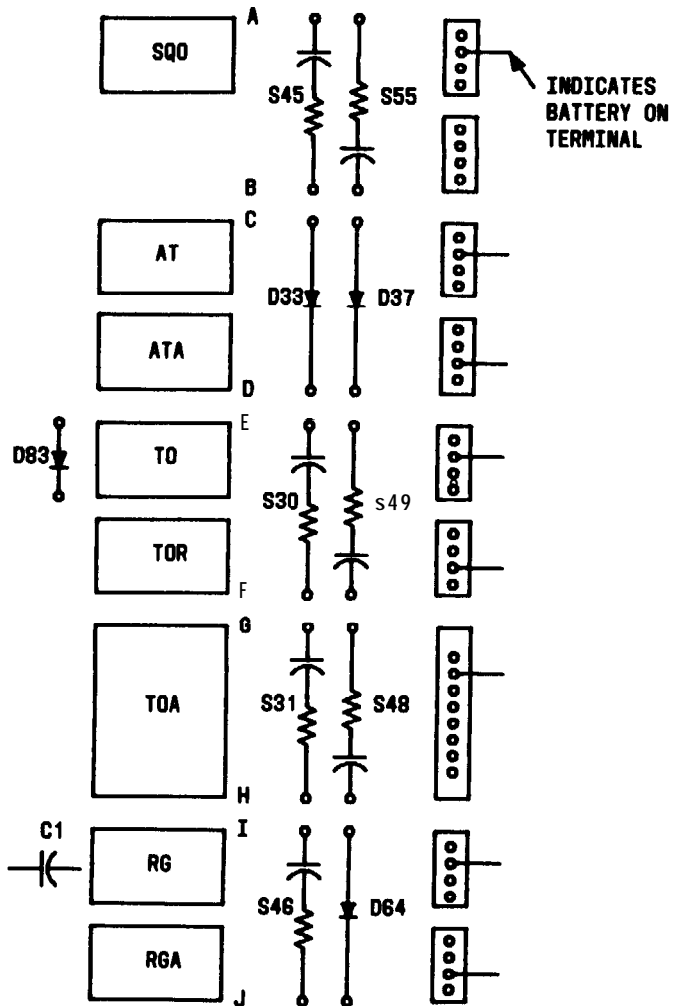


RECEIVER SELECTOR AND TRANSMITTER CONTROL
CIRCUIT (SD-317501) - RELAY BAR C (REAR VIEW)

CHANNEL BAY - EQUIPMENT LOCATION DIAGRAM

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BAR 0 = TOP

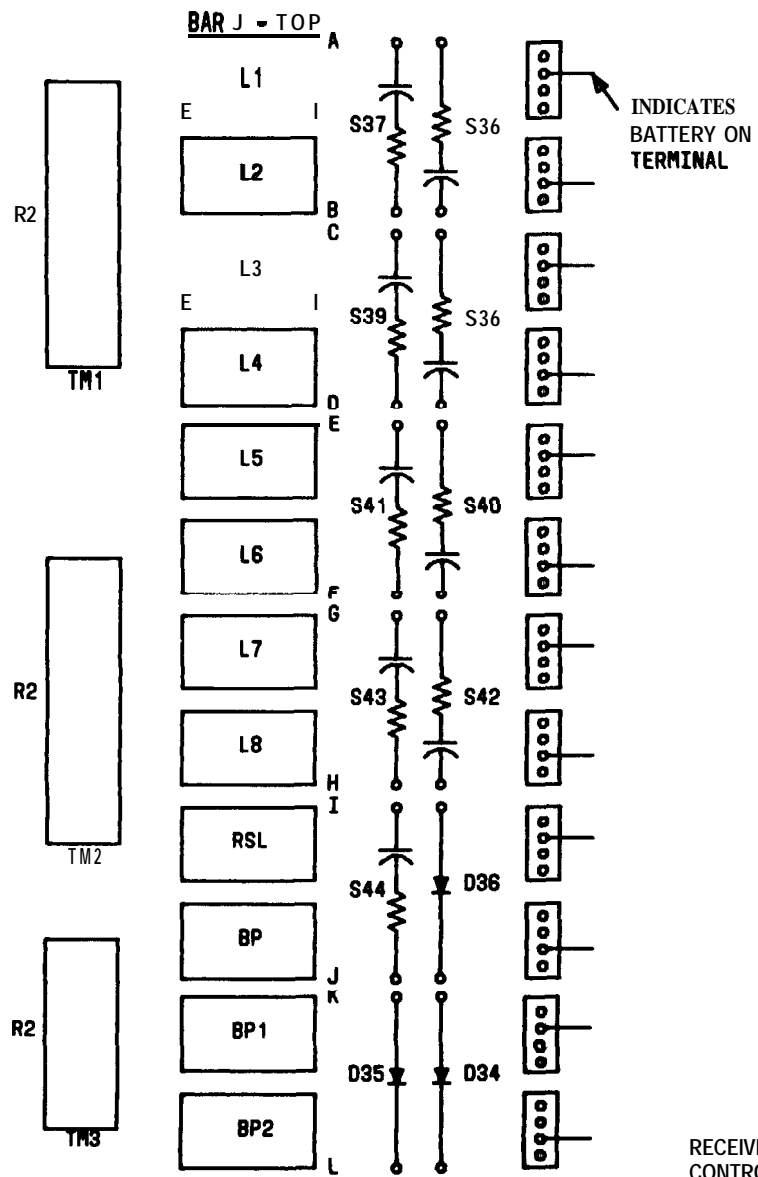


BAR 0 - BOTTOM

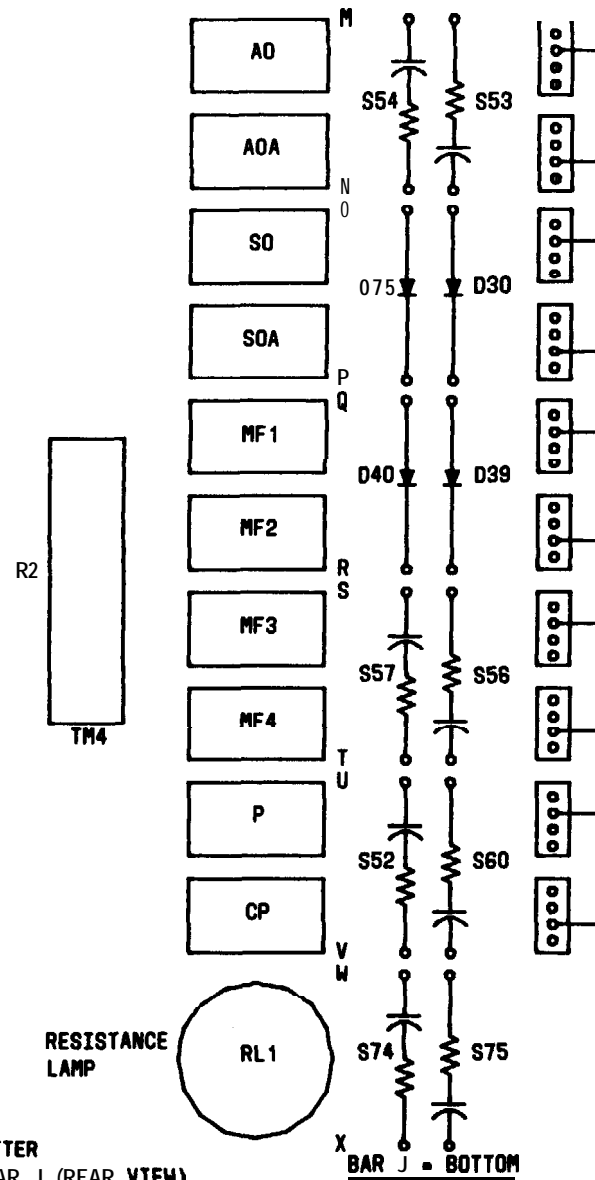
RECEIVER SELECTOR AND TRANSMITTER CONTROL
CIRCUIT (80-317501) - RELAY BAR 0 (REAR VIEW)

CHANNEL BAY - EQUIPMENT LOCATION DIAGRAM

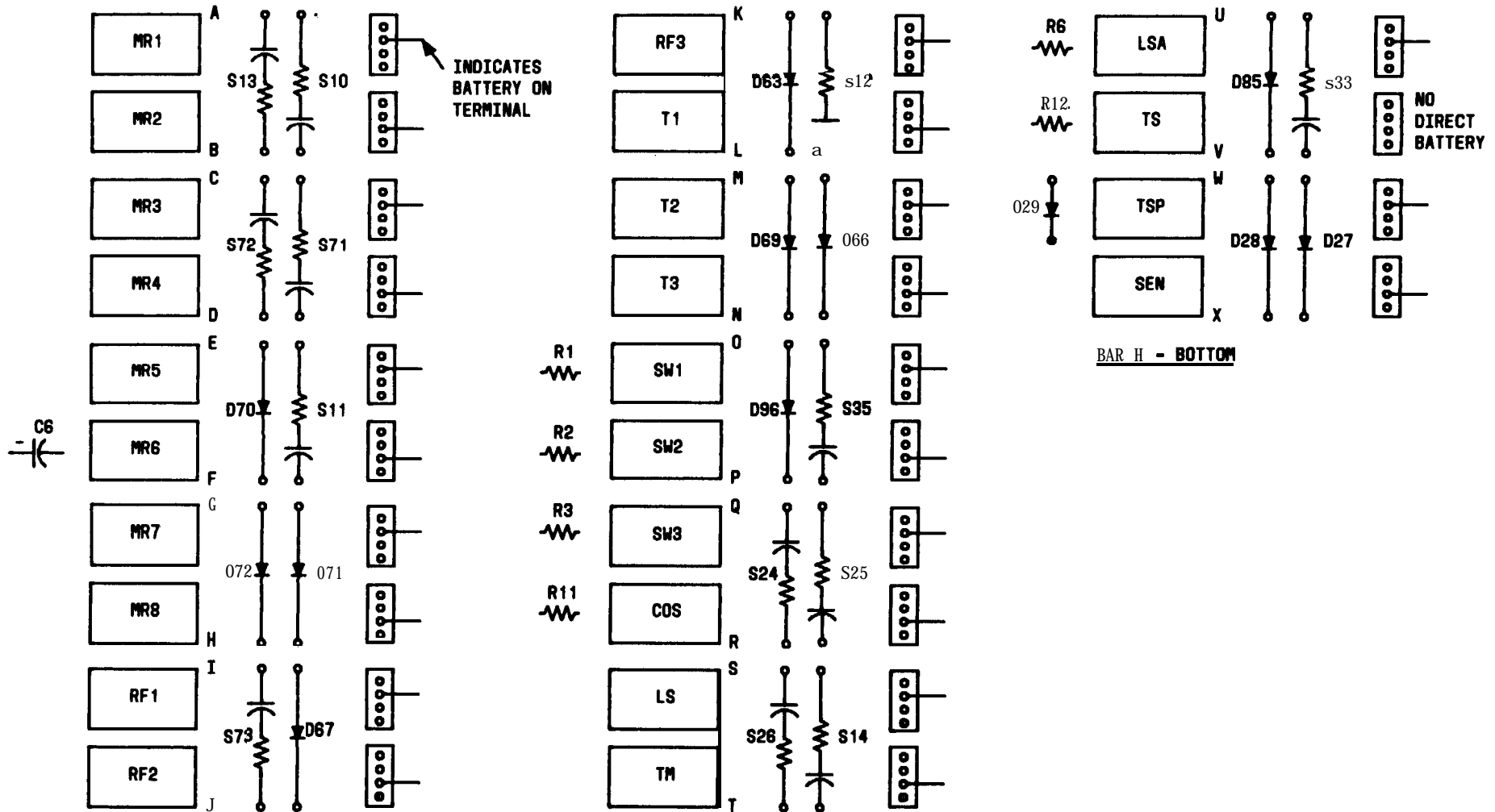
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RECEIVER SELECTOR AND TRANSMITTER CONTROL (SO-317501) - RELAY BAR J (REAR VIEW)



BAR H - TOP

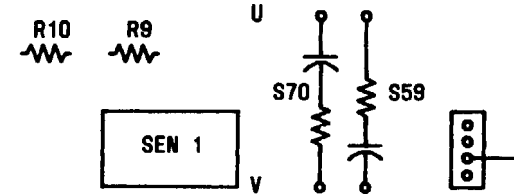
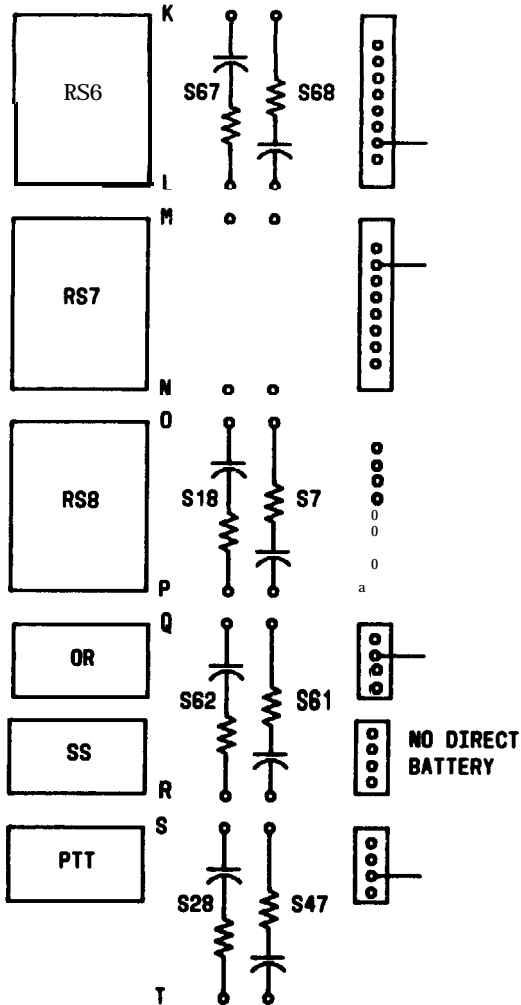
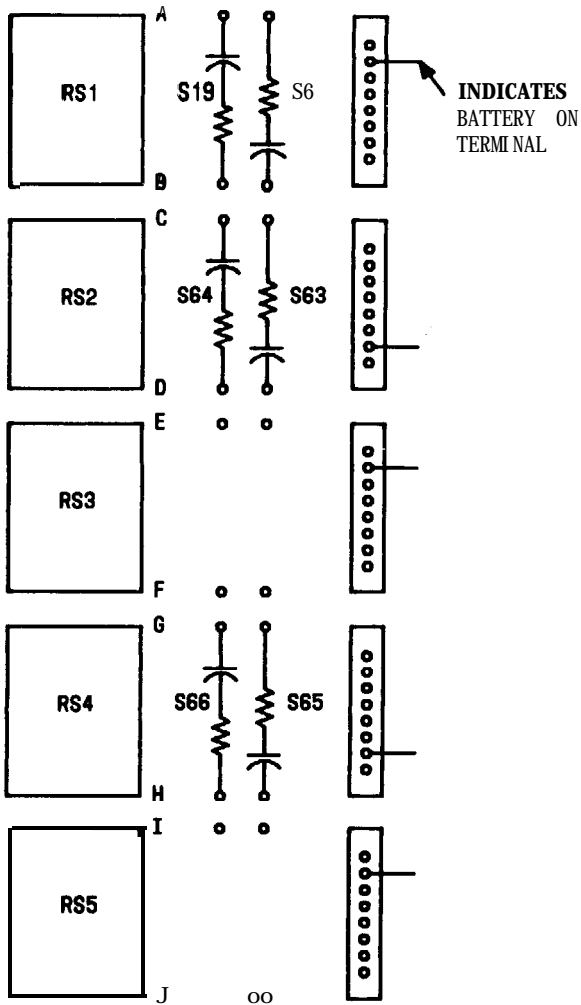


RECEIVER SELECTOR AND TRANSMITTER CONTROL (S0-317501) - RELAY BAR H (REAR VIEW)

CHANNEL BAY - EQUIPMENT LOCATION DIAGRAM

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BAR G - TOP



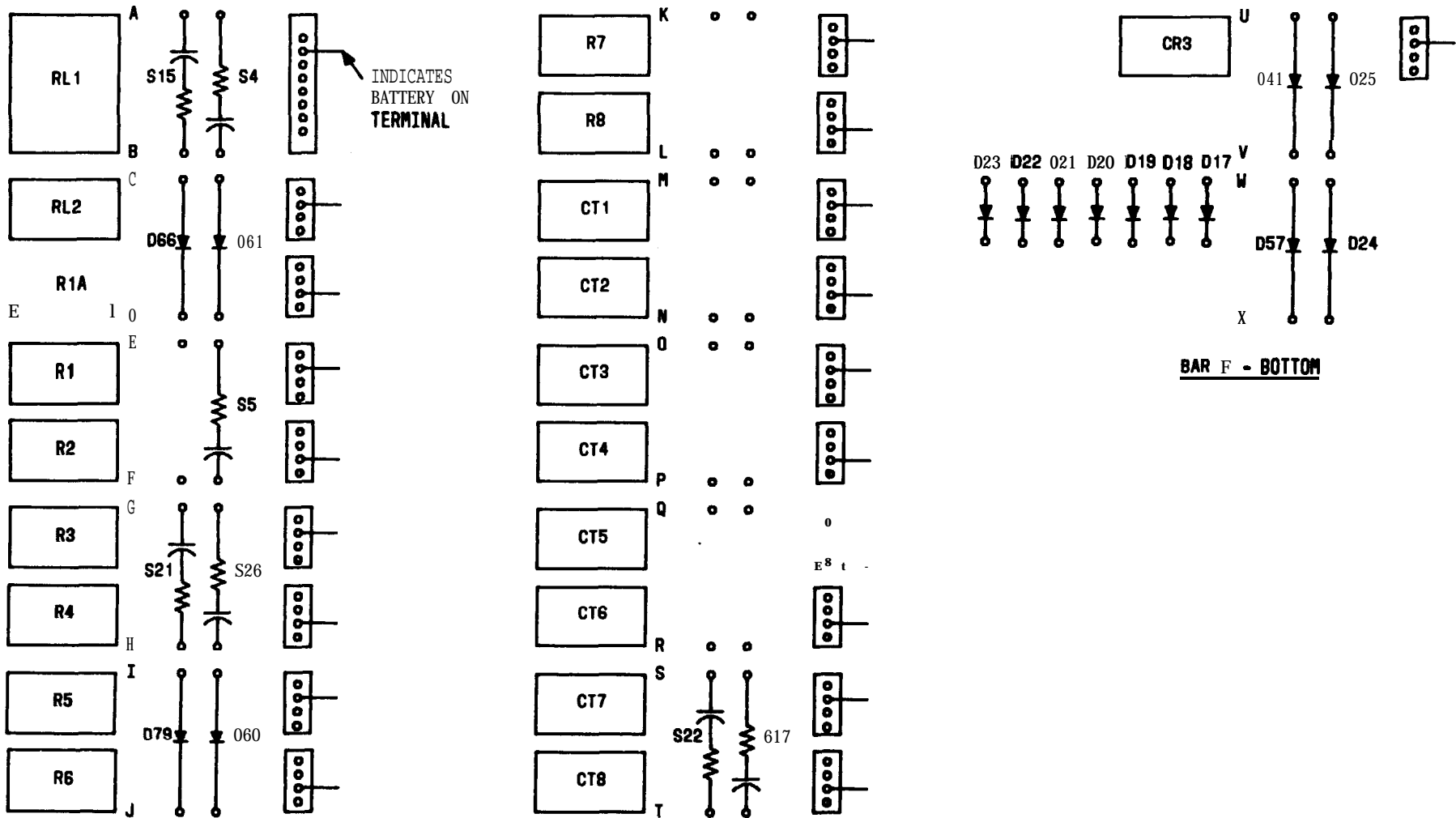
BAR G - BOTTOM

RECEIVER SELECTOR AND TRANSMITTER
CONTROL (SD-317501) - RELAY BAR G (REAR VIEW)

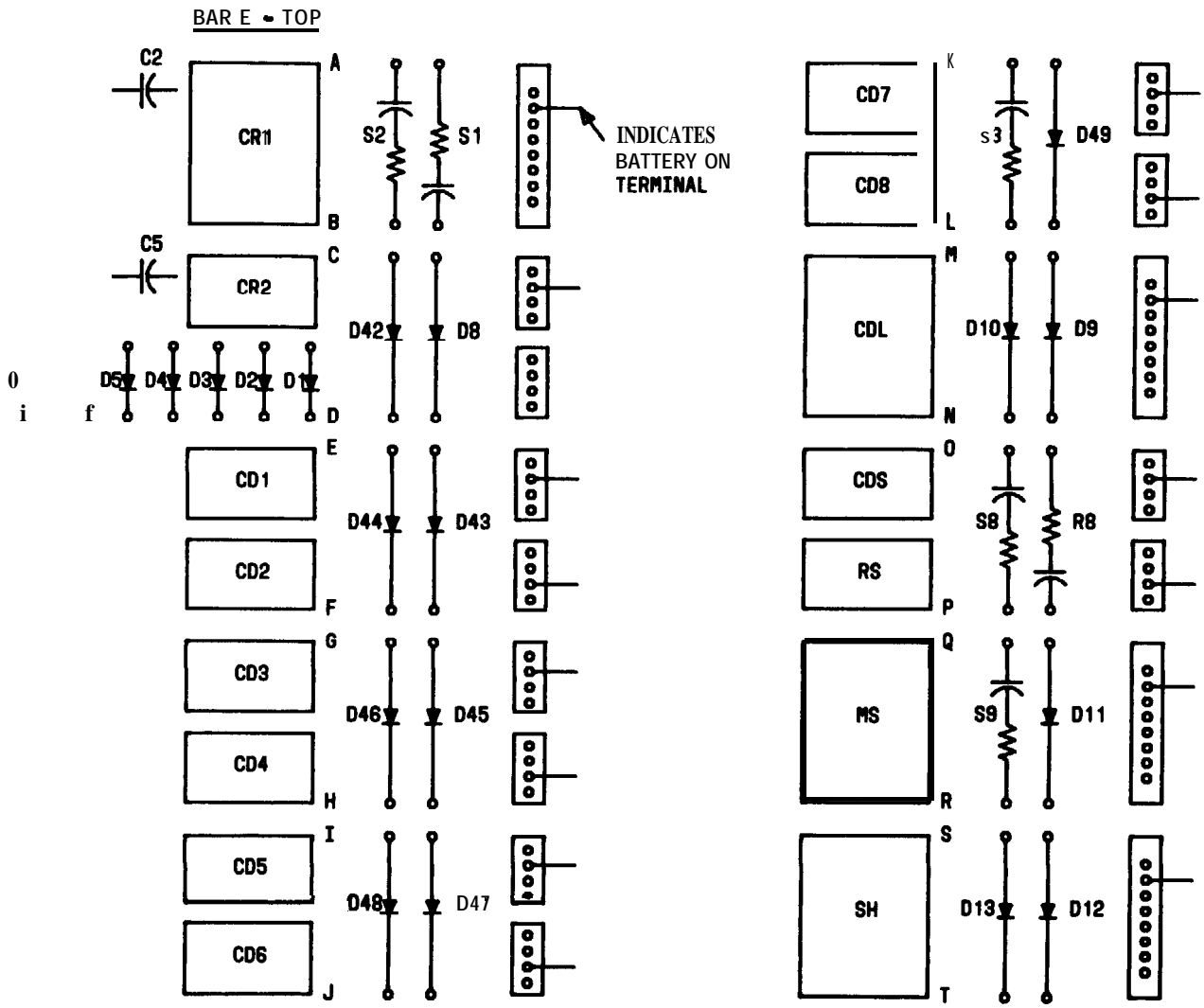
CHANNEL BAY - EQUIPMENT LOCATION DIAGRAM

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BAR F - TOP



RECEIVER SELECTOR AND TRANSMITTER CONTROL (S0-317501) - RELAY BAR F (REAR VIEW)



CHANNEL BAY - EQUIPMENT' LOCATION DIAGRAM

CHANNEL STORAGE AND
TECHNICAL OPERATOR
ACCESS CIRCUIT [PAGE 2]

STANDBY TRANSMITTER
CONTROL CIRCUIT
[PAGE 4]

MESSAGE REGISTER PANEL
(SO-317505-2)

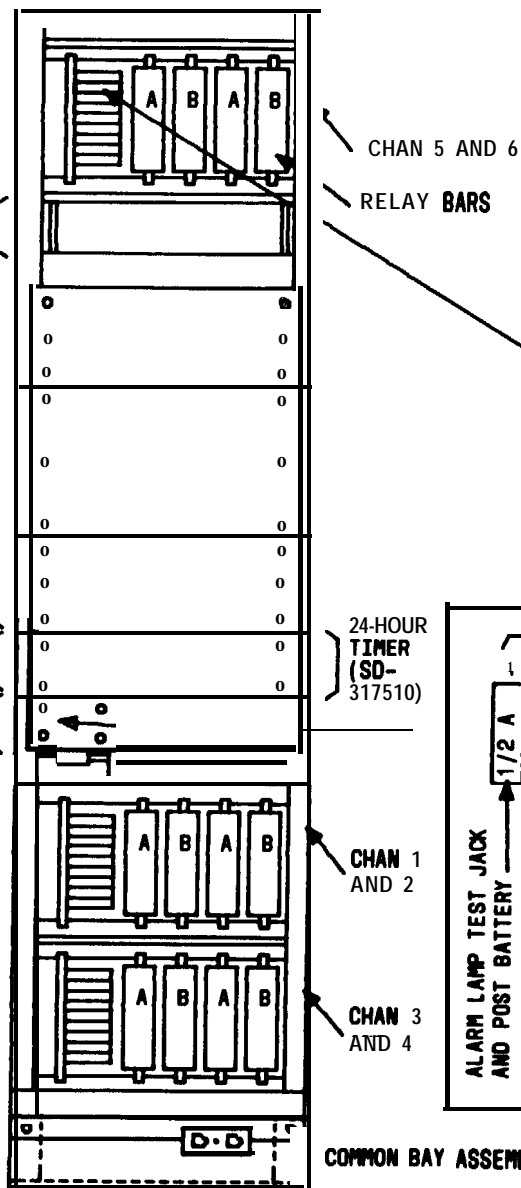
USAGE AND ALARM
LAMP PANEL
(SO-317505)

TECHNICAL OPERATOR
PANEL [PAGE 5]

RECEIVER SENSITIVITY
AND COS CONTROL
(SD-317540)

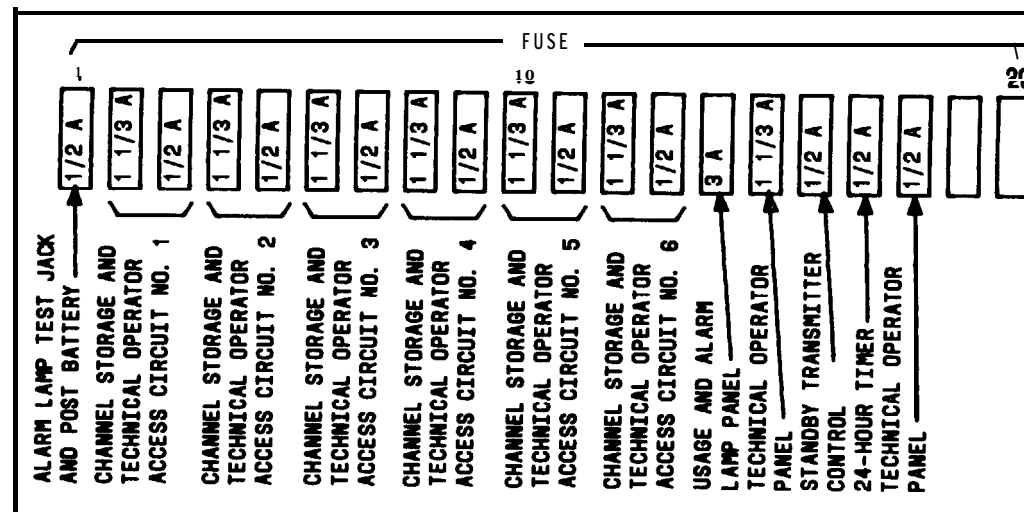
COMMON GAY FUSE
PANEL (SD-317507)

CHANNEL STORAGE AND
TECHNICAL OPERATOR
ACCESS CIRCUIT
[PAGE 2]



0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
																00
																01
																02
																03
																04
																05
																06

TERMINAL BLOCKS SA THRU ST

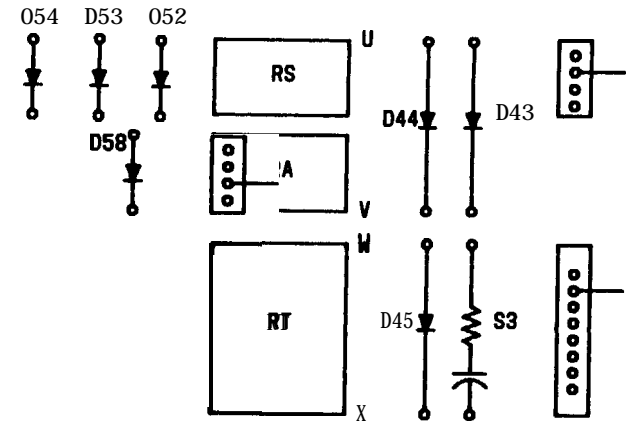
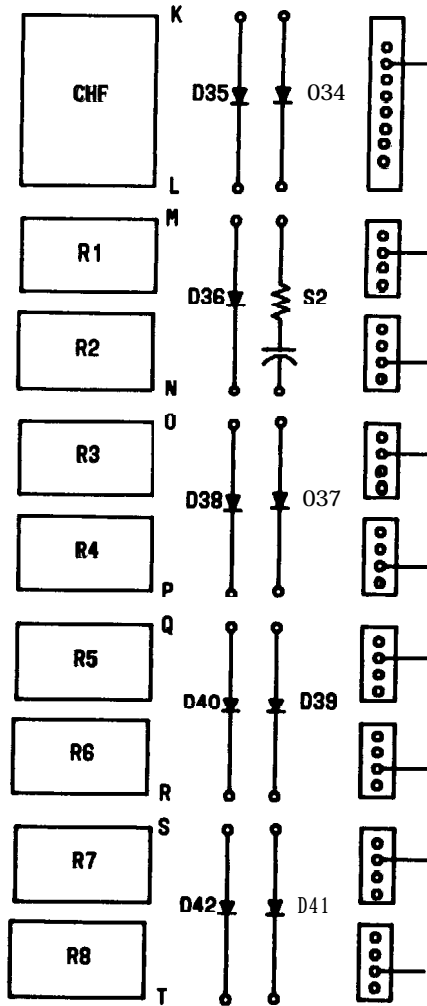
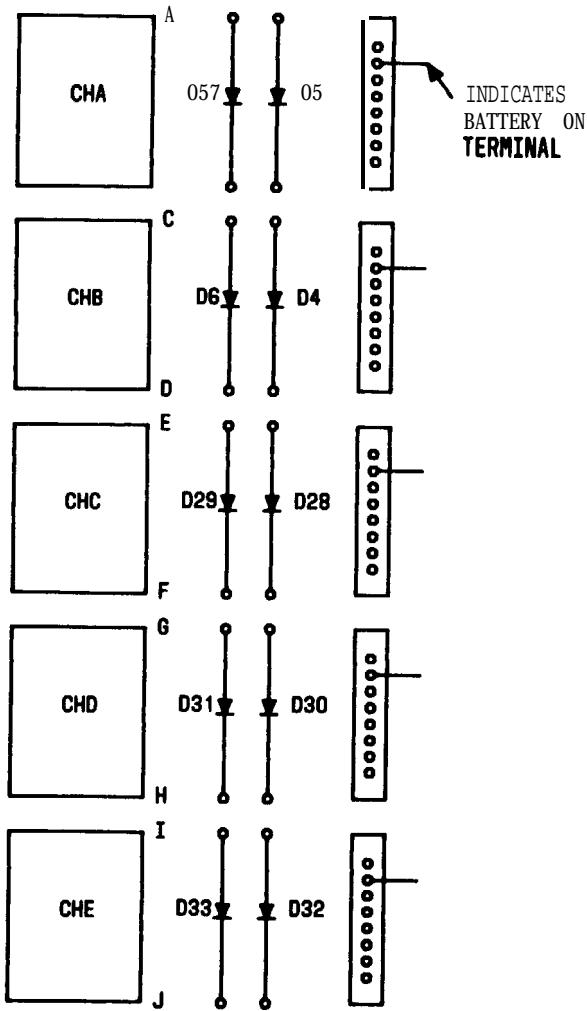


FUSE PANEL

COMMON BAY ASSEMBLY (SD-317525)

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BAR A - TOP



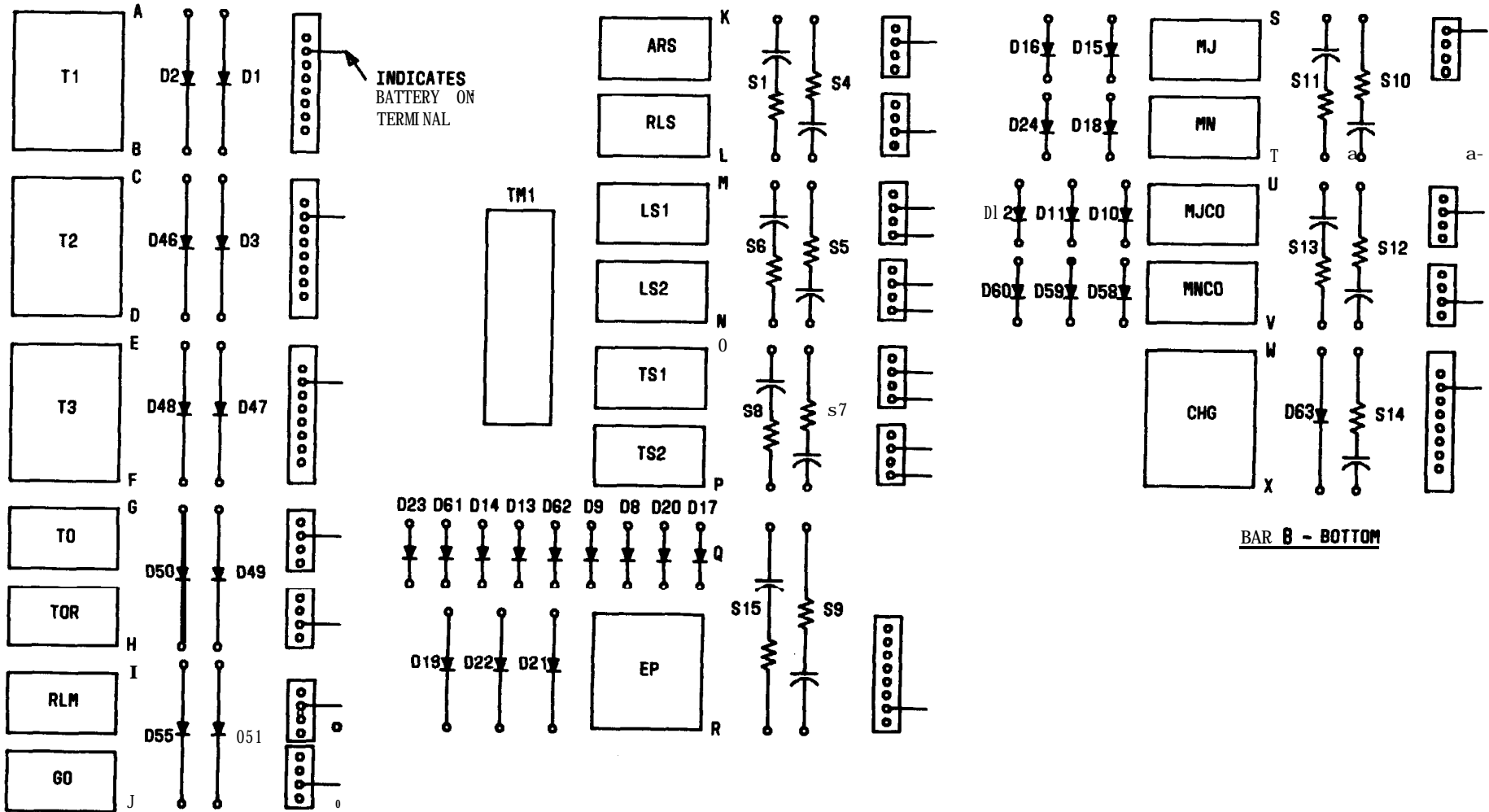
BAR A - BOTTOM

CHANNEL STORAGE AND TECHNICAL OPERATOR ACCESS
 CKT (SD-317504) - RELAY BAR A (REAR VIEW)

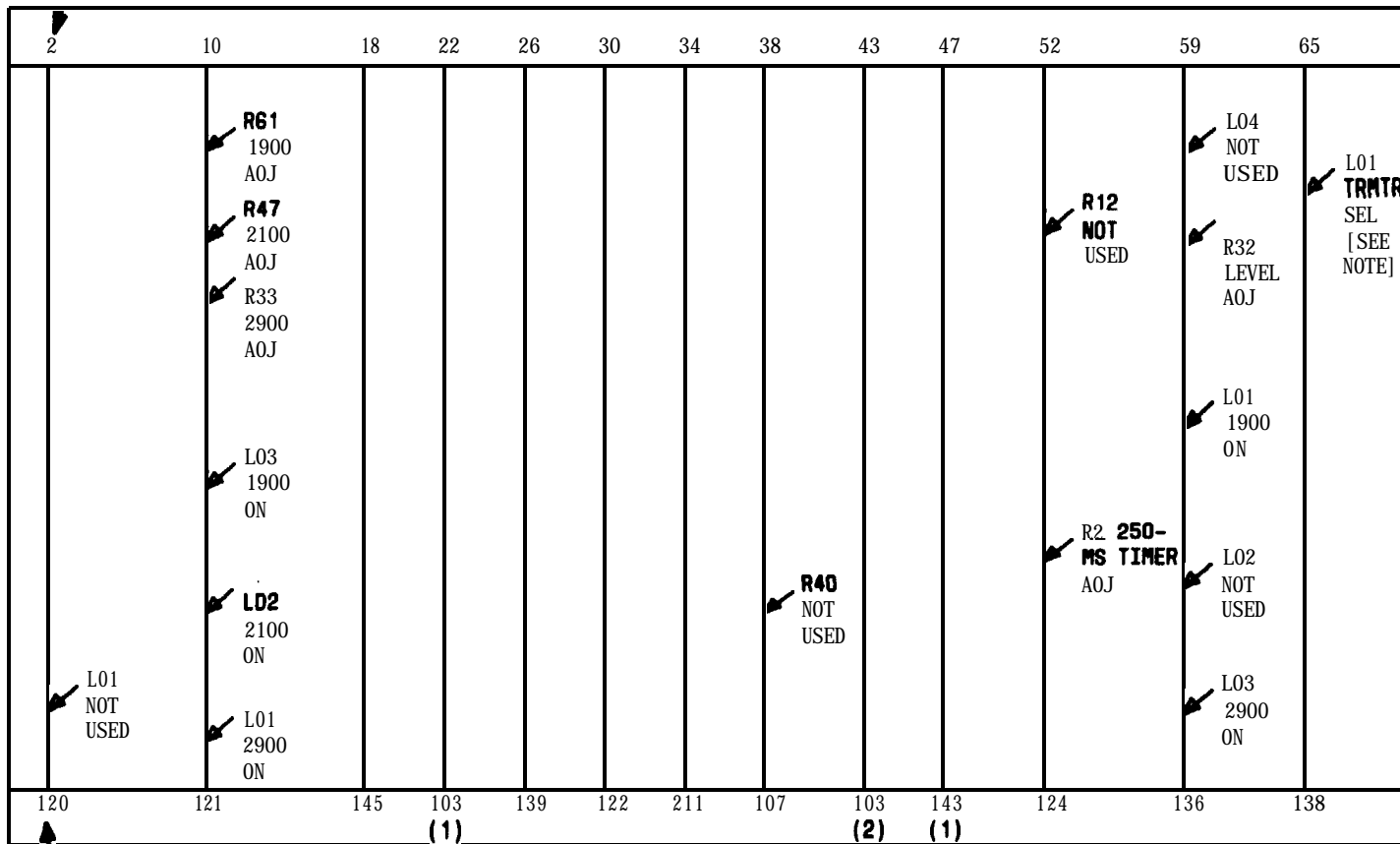
COMMON BAY - EQUIPMENT LOCATION DIAGRAM

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BAR B - TOP



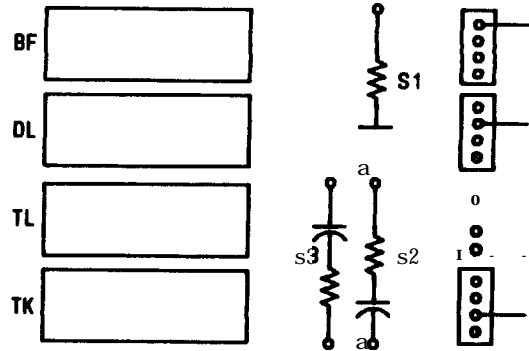
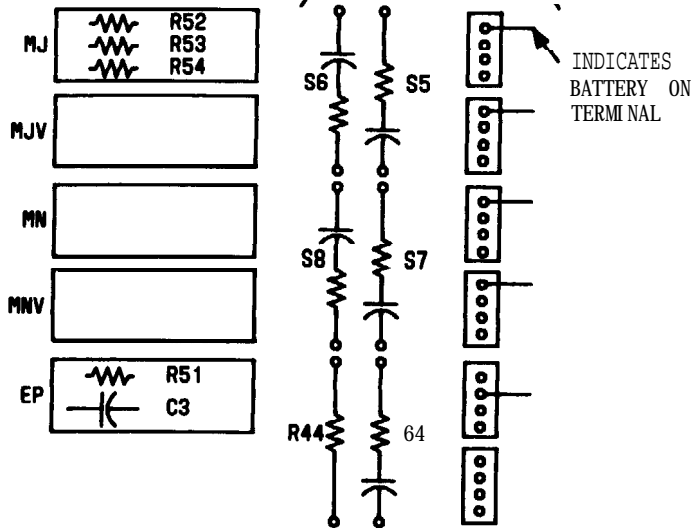
CHANNEL STORAGE AND TECHNICAL OPERATOR ACCESS
 CKT (S0-317504) ■ RELAY BAR B (REAR VIEW)



BOARD TYPE	BOARD TYPE	NOMENCLATURE	SCHEMATIC NO.	FIG.	NG.	BOARD TYPE	NOMENCLATURE
	120	TONE DETECTOR	317513		(1)	107	DRIVER
NOTE:	121	TONE DETECTOR	317513		(2)	143	DECODER DRIVE
CIRCUIT 16 WIRE	145	CONTROL LOGIC 'A'	317533		(1)	124	TIMERS AND OR
TO HAVE PERMANENT	103	FLIP-FLOP	312108		(6)	136	GATE/MIXER
TRMTR SELECTION	139	FLIP-FLOP	312108		(2)	138	OUTPUT TRANSF
L01 IS PERMANENTLY	122	DECODER	312129		(20)		AND RELAY CI
ON	211	FLIP-FLOP	312108		(12)	149	FILTERS

COMMON BAY - EQUIPMENT LOCATION DIAGRAM

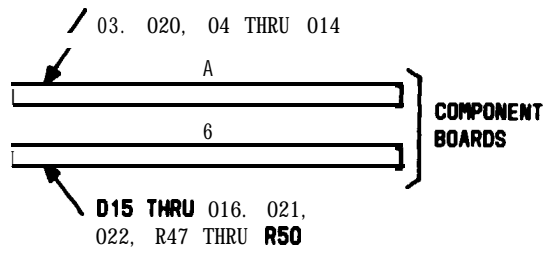
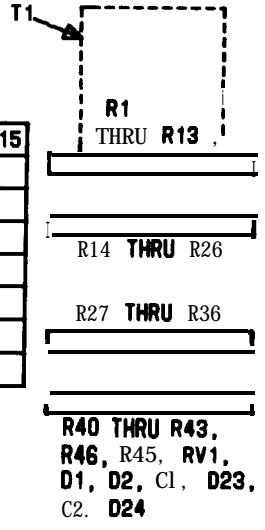
COMPONENT LOCATION AS SEEN FROM REAR OF RELAYS



0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
00															
01															
02															
03															
04															
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06															

SK

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
00															
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04															
05															
06															



TECHNICAL OPERATOR PANEL (SD-317503) - REAR VIEW

COMMON BAY - EQUIPMENT LOCATION DIAGRAM

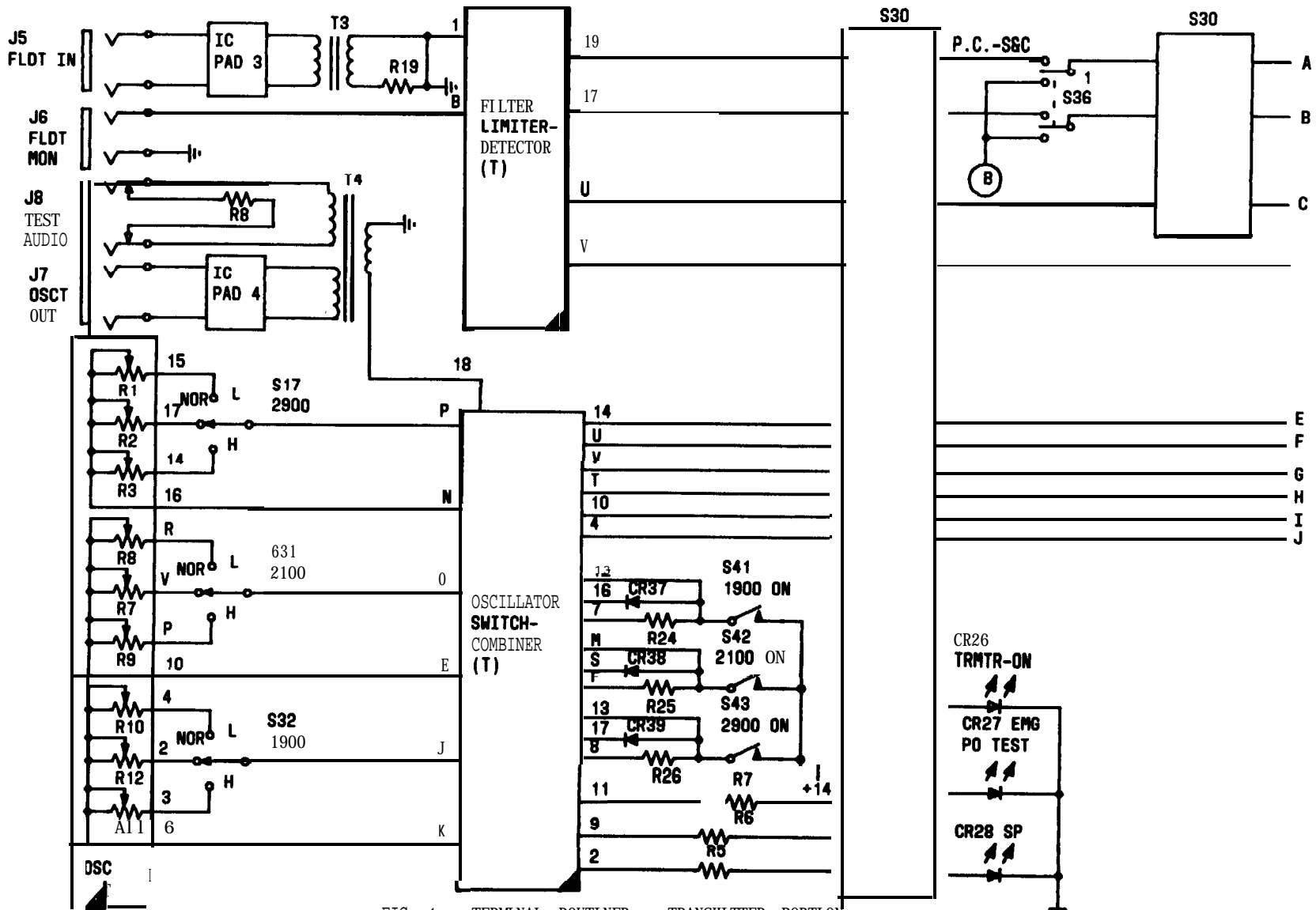


FIG. 1 - TERMINAL ROUTINER - TRANSMITTER PORTION
SD-2R111

- PAGE 2

ROUTINER TEST SET CIRCUITS

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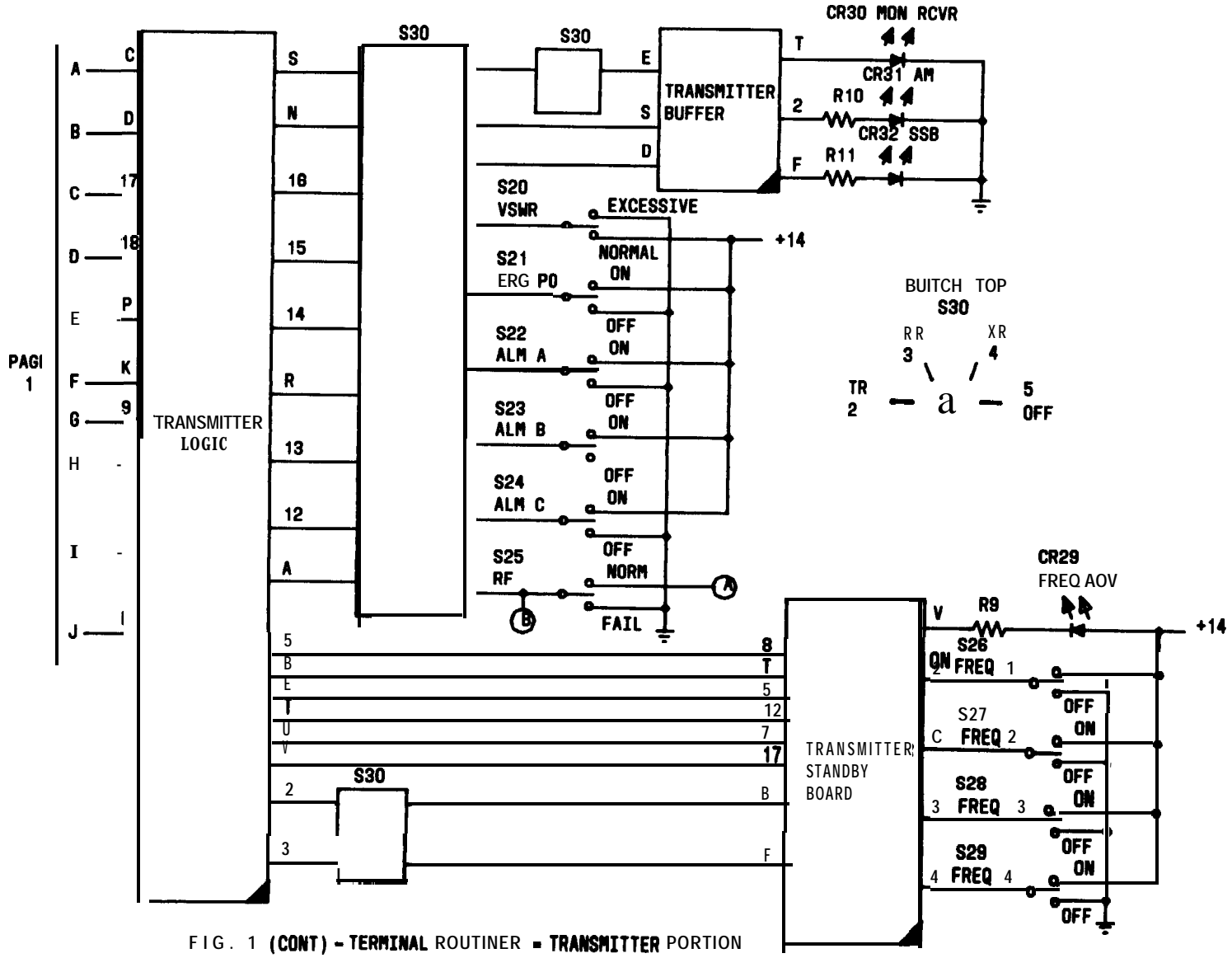


FIG. 1 (CONT) - TERMINAL ROUTER - TRANSMITTER PORTION
SD-2R111

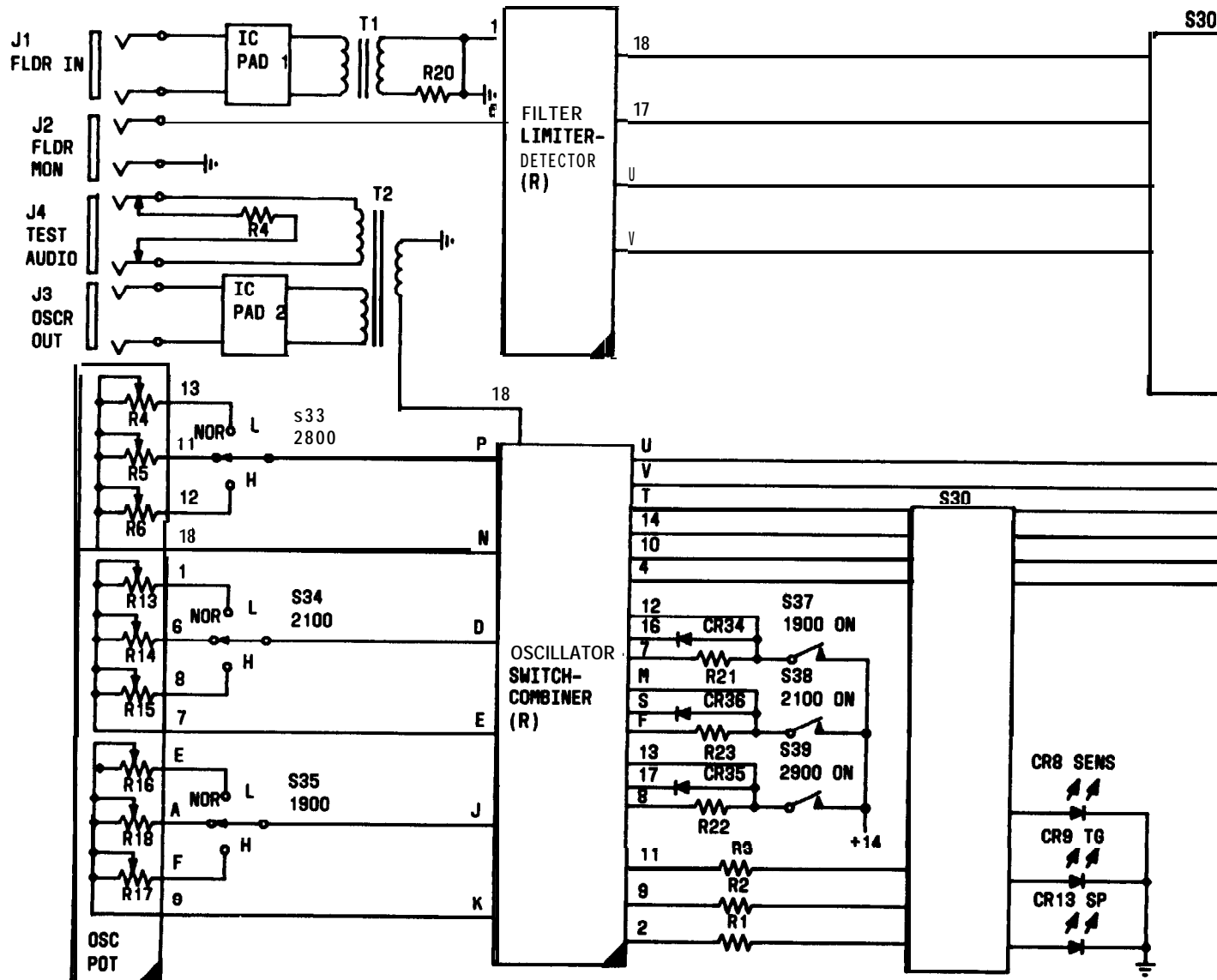


FIG. 2 - Terminal Router - Receiver Portion
SD-2RIII

ROUTINER TEST SET CIRCUITS

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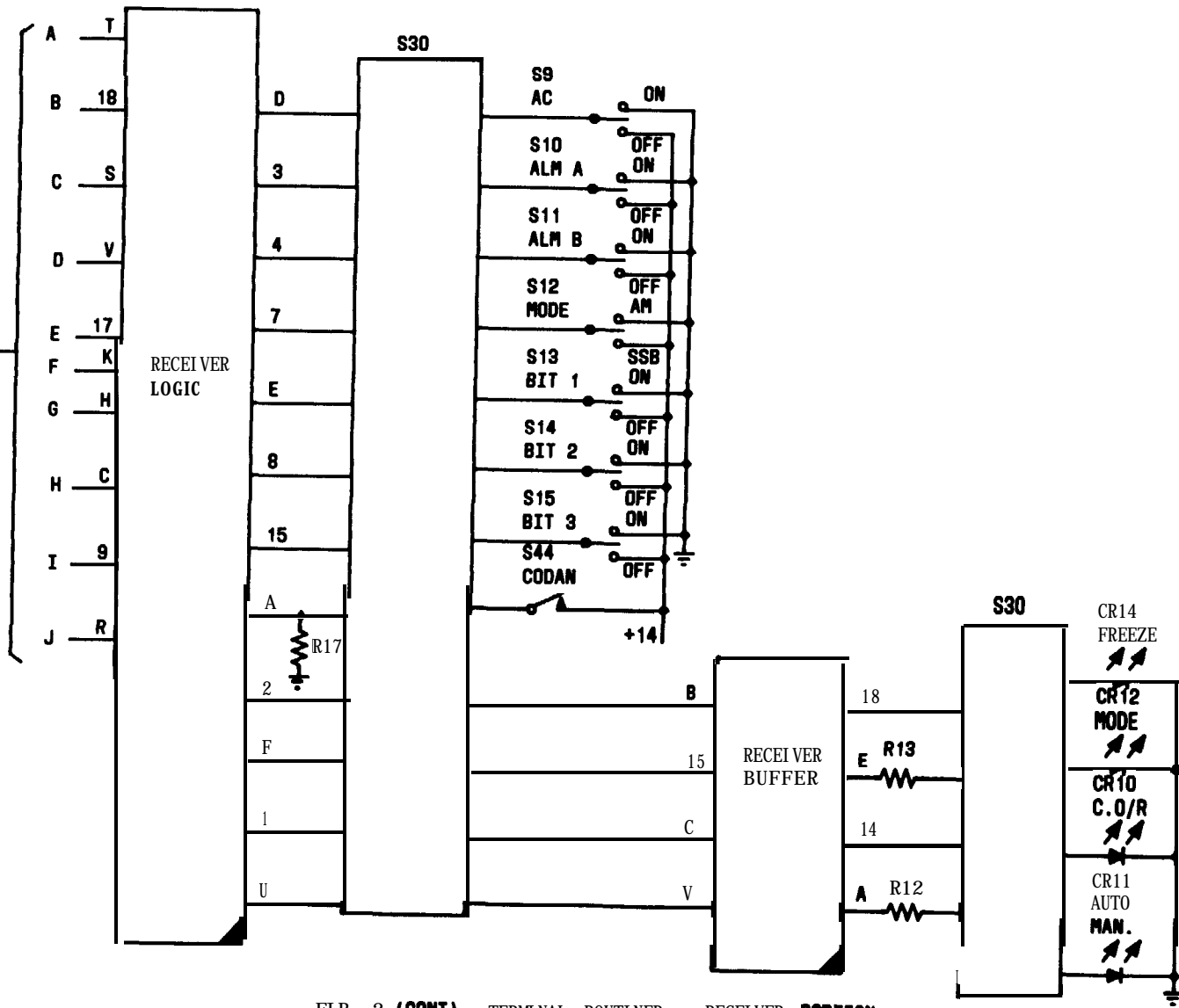
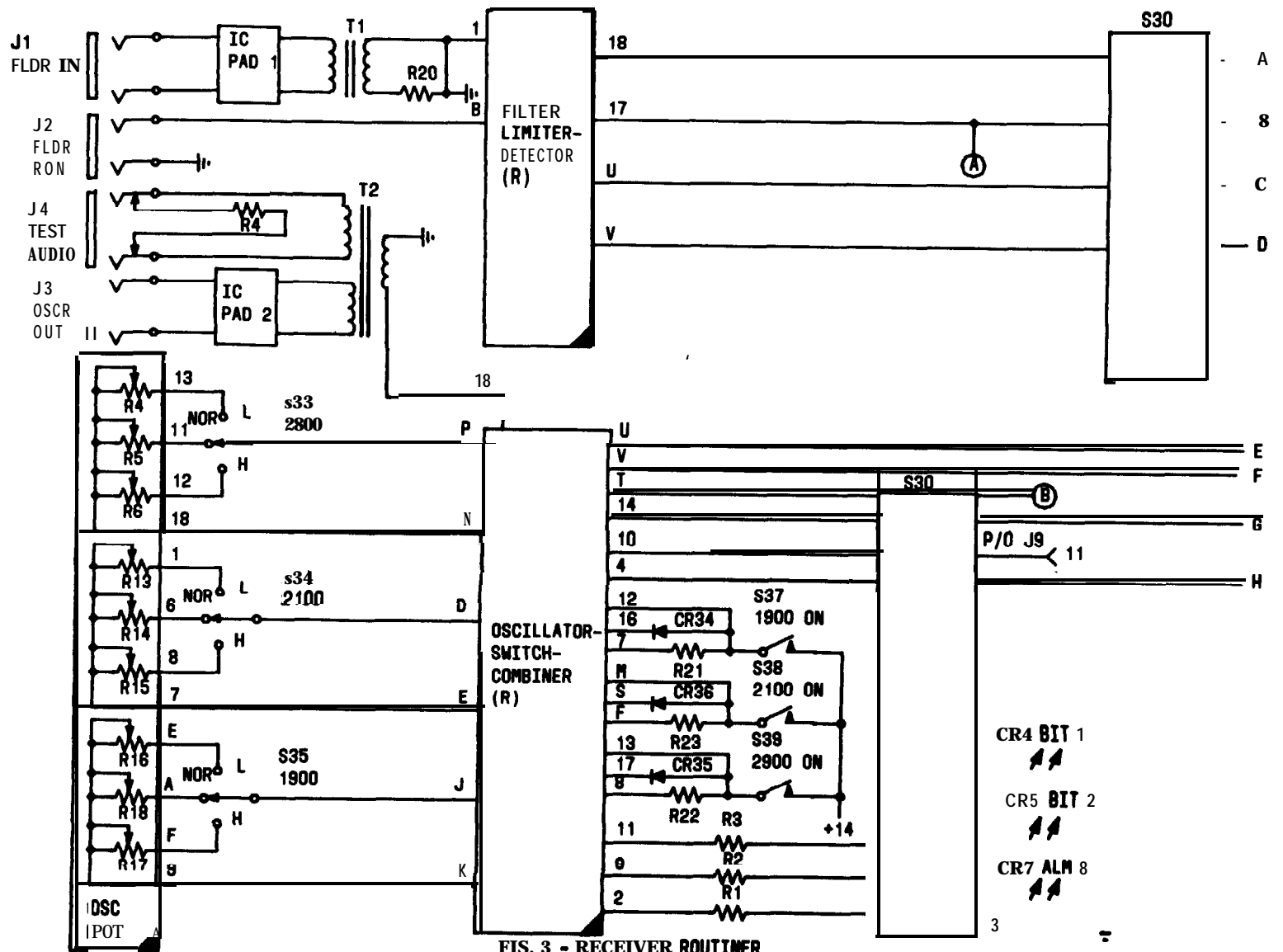


FIG. 2 (CONT) - TERMINAL ROUTINER - RECEIVER PORTION
SD-2R111



FIS. 3 - RECEIVER ROUTINER
SD-2R111

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ROUTINER TEST SET CIRCUITS

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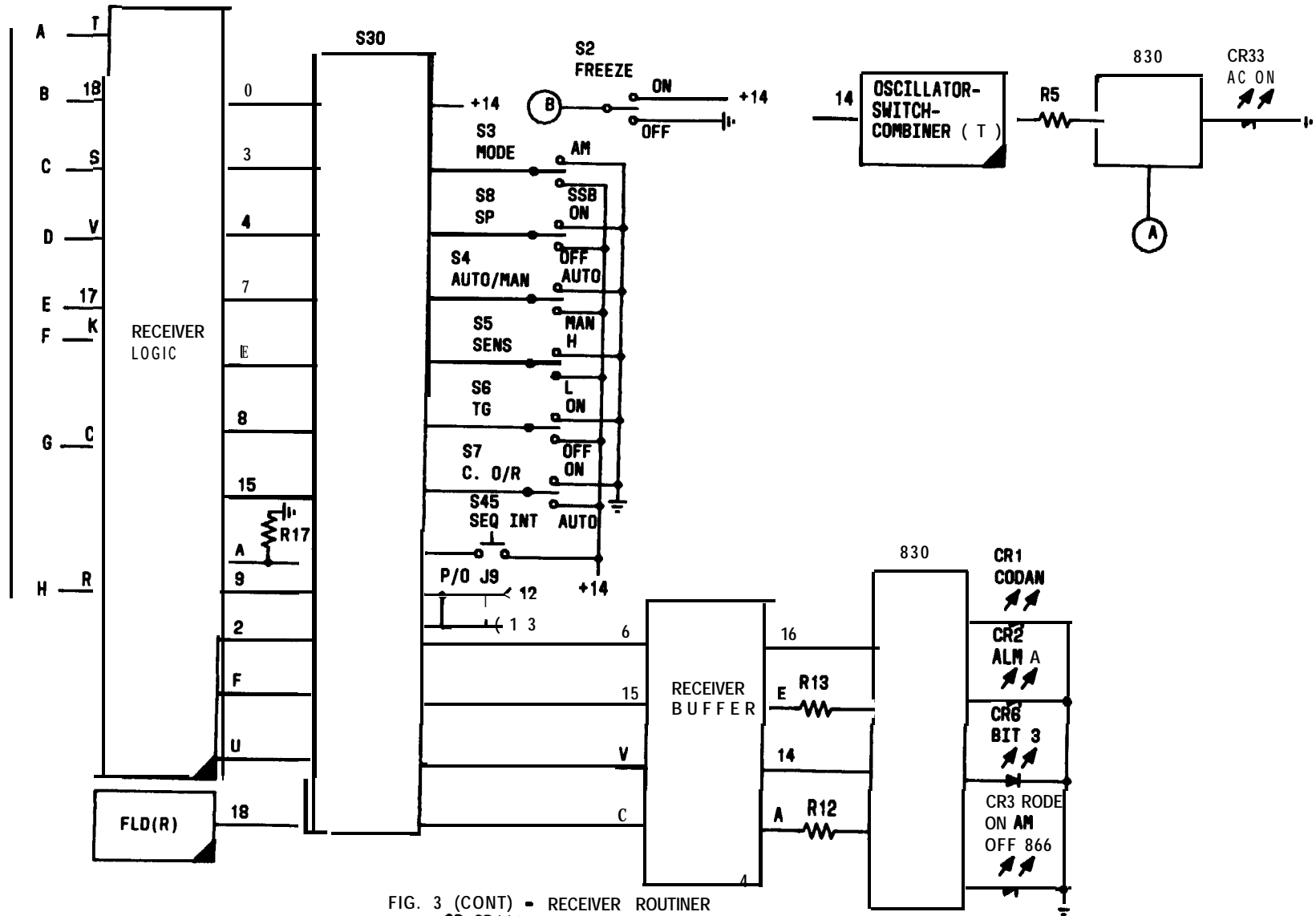


FIG. 3 (CONT) - RECEIVER ROUTINER
SD-2R111

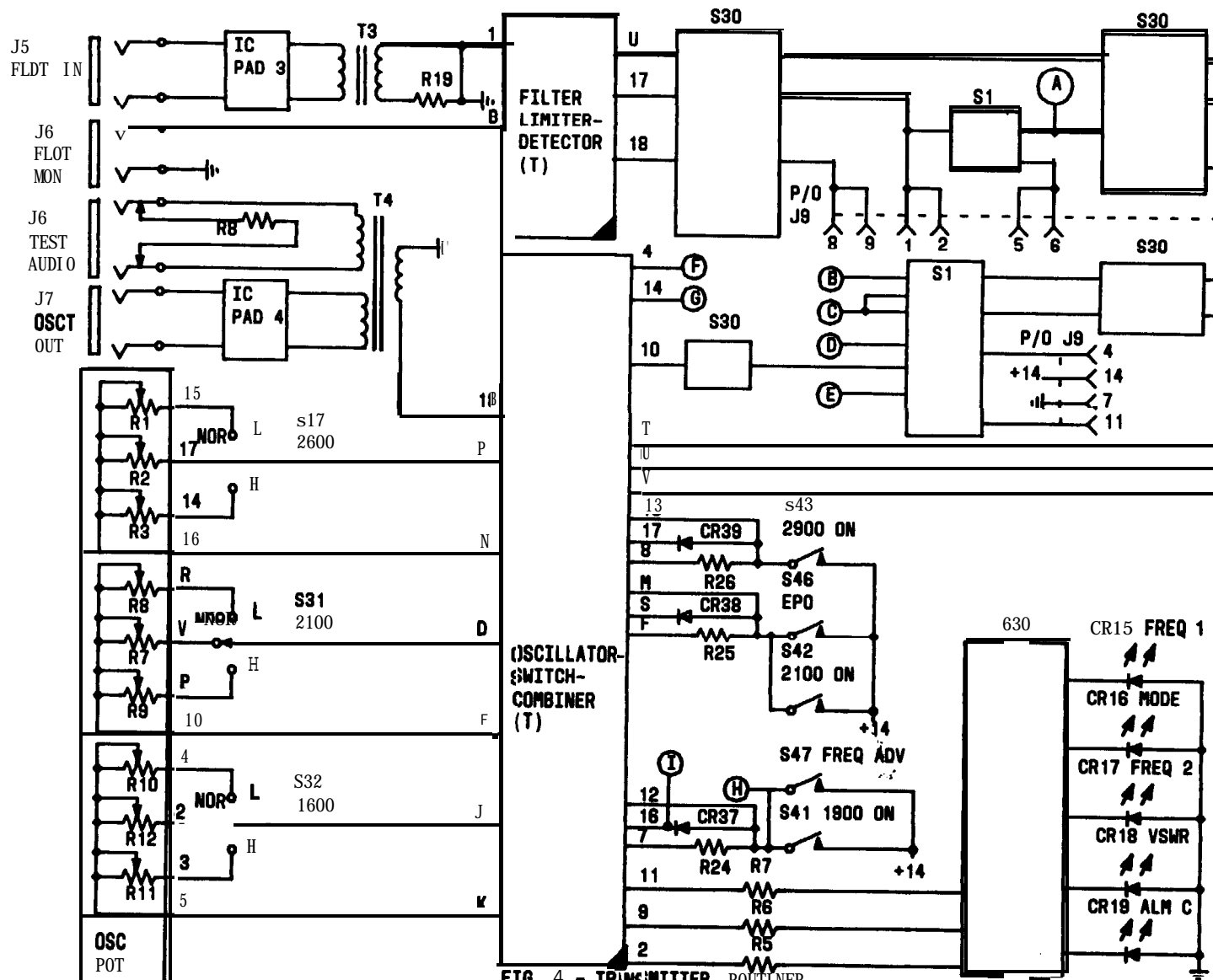


FIG. 4 - TRANSMITTER ROUTINER SD-2R111

ROUTINER TEST SET CIRCUITS

PAGE 7

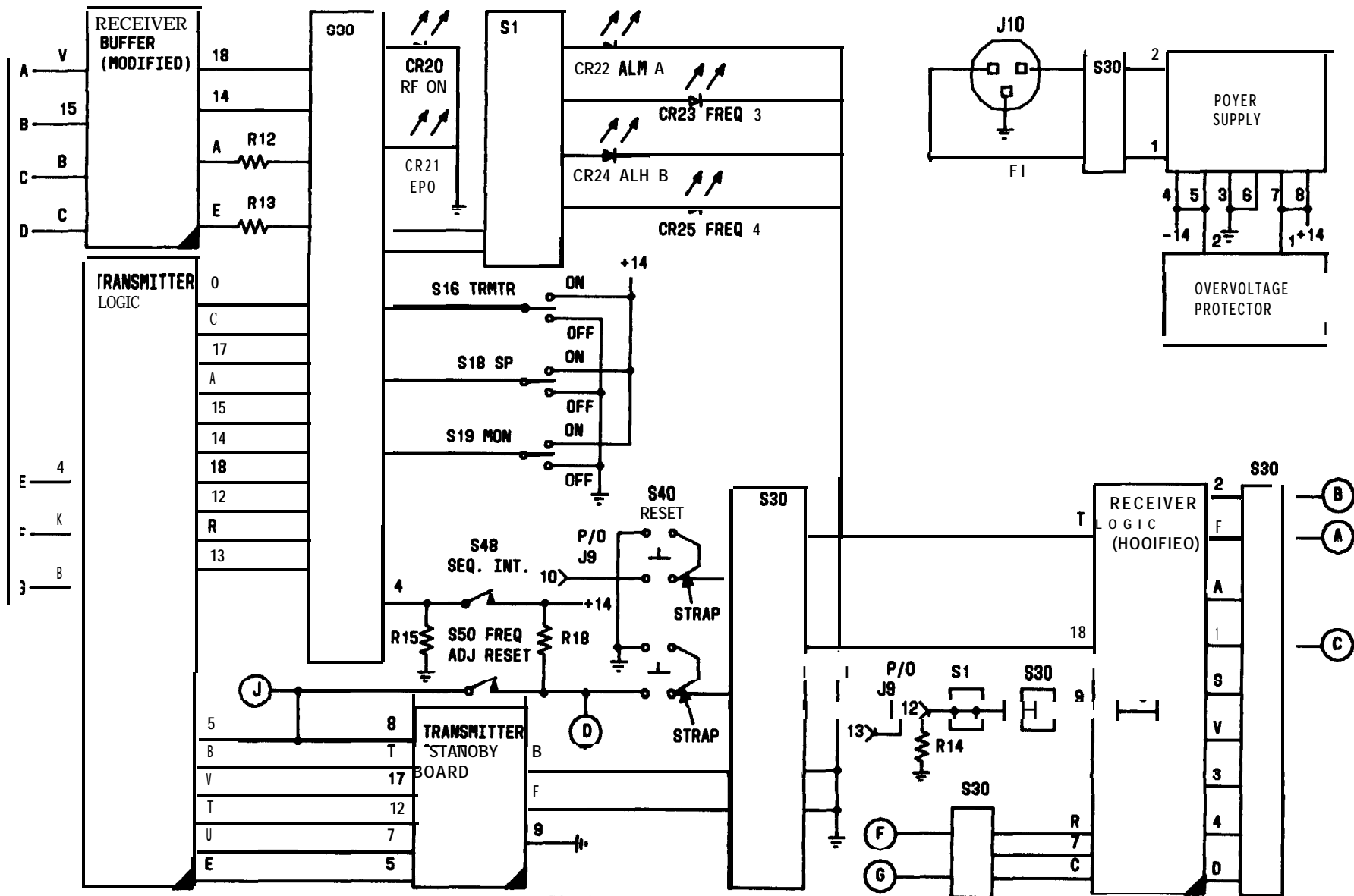
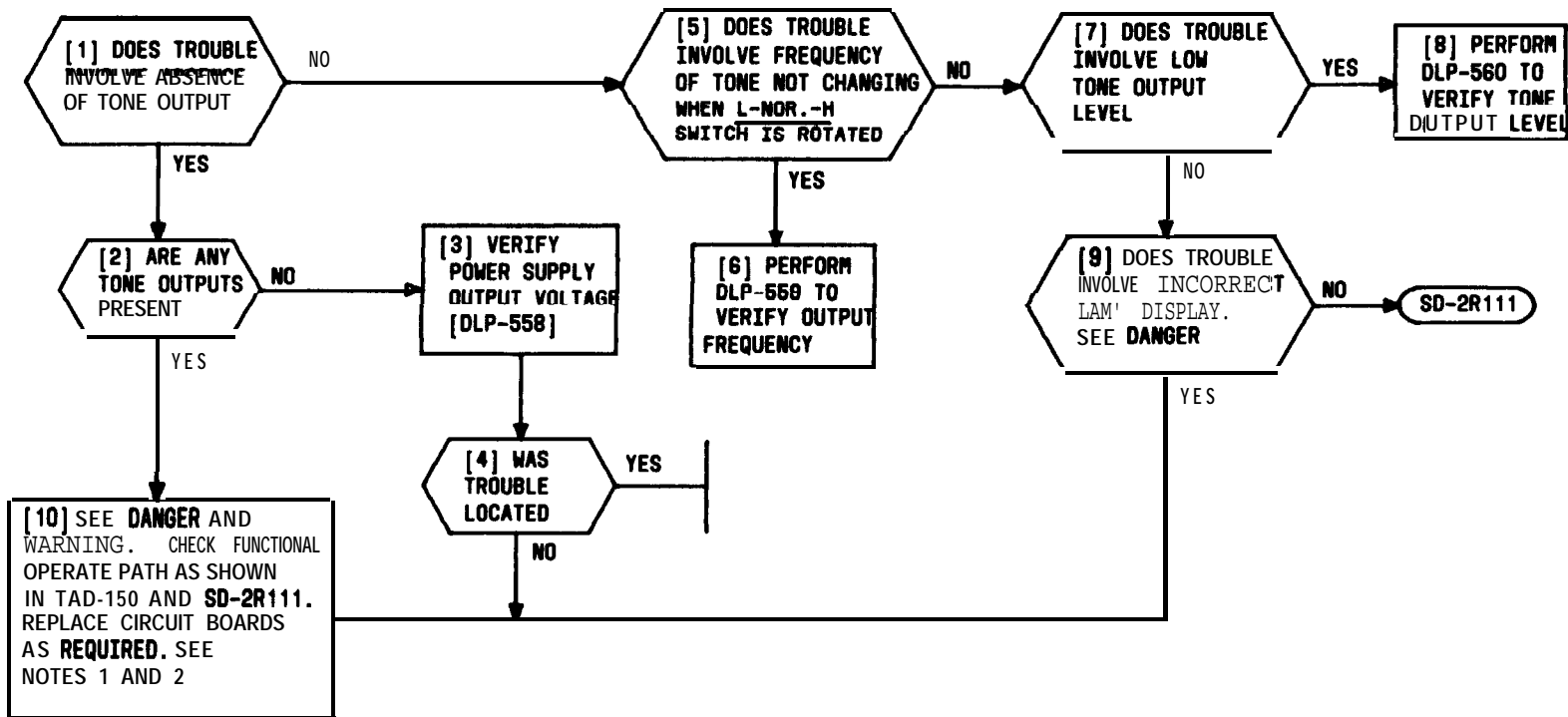


FIG. 4 (CONT) - TRANSMITTER ROUTINER SD-2R111



DANGER
120 VOLTS AC IS PRESENT IN THIS UNIT. USE CAUTION NOT TO TOUCH EXPOSED POINTS CARRYING THIS VOLTAGE

WARNING
WHEN REMOVING OR INSTALLING CIRCUIT BOARDS, FOLLOW PROCEDURES OUTLINED IN DLP-555 TO PREVENT DAMAGE TO EQUIPMENT

NOTES
1. PARTICULAR ATTENTION SHOULD BE GIVEN TO FAULTY AND INTERMITTENT SWITCH CONTACTS
2. WHEN OSCILLATOR POTENTIOMETER OR OSCILLATOR-SWITCH-COINER BOARDS ARE REPLACED, PERFORM DLP-558 AND -560 TO VERIFY FREQUENCY AND LEVEL OUTPUTS

PREVENTIVE AND CORRECTIVE MAINTENANCE

COASTAL HARBOR RADIO MAINTENANCE PHILOSOPHY IS BASED UPON (A) PREVENTIVE MAINTENANCE AS REPRESENTED BY THE ROUTINE TASKS LISTED ON THE ROUTINE TASK LIST (RTL) AND (B) CORRECTIVE MAINTENANCE AS REPRESENTED BY THE TROUBLE ANALYSIS PROCEDURES (TAP) REFERENCED FROM ROUTINE TASKS AND THE TROUBLE INDICATOR LIST (TIL). THE MAINTENANCE COVERAGE, AS CONTAINED IN THE THREE TOP VOLUMES, IS STRUCTURED AND DESIGNED TO VERIFY OVERALL SYSTEM PERFORMANCE AND TO ISOLATE AND IDENTIFY TROUBLES IN THE CONTROL TERMINAL, SWITCHBOARD, SWITCHBOARD INTERFACE, RADIO RECEIVER, RADIO TRANSMITTER, AND TRANSMISSION FACILITY. A GENERAL DESCRIPTION OF THE STRUCTURE AND PHILOSOPHY OF USE FOR COASTAL HARBOR PREVENTIVE AND CORRECTIVE MAINTENANCE IS GIVEN BELOW

PREVENTIVE MAINTENANCE: AS SHOWN IN FIG. 1, ROUTINE TASKS MAKE UP A PREVENTIVE MAINTENANCE PROGRAM DESIGNED TO VERIFY THE FUNCTIONAL CONDITION OF MAJOR CIRCUIT OPERATIONS NECESSARY TO PROPER PERFORMANCE OF SYSTEM DESIGN CAPABILITIES. CORRECT PERFORMANCE OF THE ROUTINE TASKS ON A REGULARLY SCHEDULED INTERVAL PROVIDES A HIGH DEGREE OF CONFIDENCE IN SYSTEM READINESS AND OPERATION. THE CONTROL TERMINAL IS THE CENTER OF MAINTENANCE ACTIVITY. CONTROL TERMINAL ROUTINE TASKS (VOLUME 1) ARE DESIGNED

TO (A) TEST CONTROL TERMINAL FUNCTIONS ONLY, (B) TEST TERMINAL-TO-RECEIVER FUNCTIONS, AND (C) TEST TERMINAL-TO-TRANSMITTER FUNCTIONS. ROUTINE TASKS ON THE RECEIVER (VOLUME 2) AND TRANSMITTER (VOLUME 3) ARE STRUCTURED TO (A) TEST RECEIVER/TRANSMITTER FUNCTIONS AT THE RECEIVER/TRANSMITTER SITE WITH AND WITHOUT ASSISTANCE FROM THE CONTROL TERMINAL AND (B) TEST RECEIVER/TRANSMITTER-TO-CONTROL TERMINAL FUNCTIONS WITH ASSISTANCE AT CONTROL TERMINAL. MANY OF THE ROUTINE TASKS IN EACH OF THE THREE VOLUMES USE THE ROUTINER TEST SET TO VERIFY FUNCTIONAL OPERATIONS. PROCEDURES ARE GIVEN FOR USING THE ROUTINER AT CONTROL TERMINAL OR RECEIVER/TRANSMITTER SITE.

ALL ROUTINE TASKS PERFORMED AT THE CONTROL TERMINAL ARE DESIGNED FOR THE PUBLIC CORRESPONDENCE CHANNELS UNLESS SPECIFICALLY REFERRED TO WITHIN THE ROUTINE TITLE AS SAFETY AND CALLING. ROUTINE TASKS PERFORMED ON THE RECEIVERS AND TRANSMITTERS ASSOCIATED WITH THE SAFETY AND CALLING CHANNEL MUST BE COORDINATED IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES. THE PERFORMANCE OF ALL ROUTINE TASKS FOR COASTAL HARBOR RADIO IS

COASTAL HARBOR RADIO MAINTENANCE PHILOSOPHY

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BASED ON THE FOLLOWING:

1. PERMISSION HAS BEEN OBTAINED TO USE CHANNEL AND RUN TEST IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES
2. NO ALARM CONDITIONS EXIST
3. ALL SYSTEM OPERATING CONTROLS ARE IN THEIR NORMAL POSITIONS

CORRECTIVE MAINTENANCE: WHEN A TROUBLE REPORT IS RECEIVED OR AN ALARM IS ACTIVATED, CORRECTIVE MAINTENANCE PROCEDURES (VOLUME 1) PROVIDE DIRECTION TO DETERMINE WHETHER THE TROUBLE IS VALID AND IF SO, WHETHER THE TROUBLE LOCATES IN CONTROL TERMINAL, RECEIVER, OR TRANSMITTER. TROUBLE ANALYSIS PROCEDURES (TAP) KEYED TO TROUBLE REPORTS AND ALARM INDICATIONS, AS REFERENCED FROM THE TROUBLE INDICATOR LIST (TIL), CONTAIN CORRECTIVE MAINTENANCE PROCEDURES [FIG. 2] TO VERIFY AND LOCATE TROUBLES AND CORRECT FAULTS. CORRECTIVE MAINTENANCE FOR FAULTS WHICH ARE IDENTIFIED DURING ROUTINE TASKS AT THE CONTROL TERMINAL, RECEIVER, OR TRANSMITTER IS PROVIDED EITHER ON THE ROUTINE TASK OR ON THE APPROPRIATE TAP.

IN GENERAL, TROUBLES WILL FIRST BE IDENTIFIED BY CONTROL TERMINAL PERSONNEL FROM ALARM INDICATIONS OR TROUBLE REPORTS. THE FIRST CORRECTIVE MAINTENANCE THEREFORE WILL BE PERFORMED AT THE CONTROL

TERMINAL TO ISOLATE AND CORRECT THE TROUBLE OR, IF REQUIRED, REFERENCE RECEIVER AND TRANSMITTER PERSONNEL INTO THE SUSPECTED FAULT AREA FOR USING CORRECTIVE MAINTENANCE PROCEDURES WITHIN THE RECEIVER OR TRANSMITTER VOLUME. ALL TROUBLE ANALYSIS PROCEDURES ARE BASED ON THE FOLLOWING:

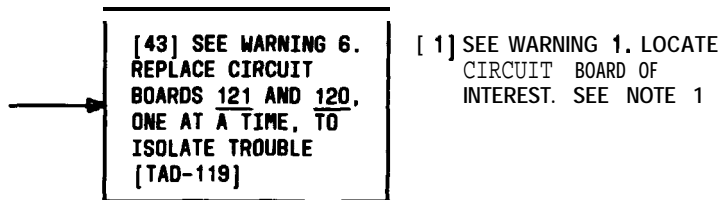
1. PERMISSION HAS BEEN OBTAINED TO USE CHANNEL AND RUN TEST IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES
2. ONLY ONE TROUBLE EXISTS AT A TIME
3. ALL SYSTEM OPERATING CONTROLS ARE IN THEIR NORMAL POSITIONS

TROUBLE ANALYSIS PROCEDURES ARE DESIGNED TO GUIDE THE USER BY THE MOST DIRECT MEANS AVAILABLE TO LOCATING AND CORRECTING FAULTS. TROUBLE CLEARING IS APPROACHED IN THE FOLLOWING MANNER:

- FIRST: BY OBSERVING AVAILABLE CIRCUIT INDICATORS SUCH AS LEADS, METERS, AND ALARM LAMPS
- SECOND: BY ESTABLISHING OR SIMULATING OPERATING CONDITIONS NECESSARY FOR CIRCUIT OBSERVATION AND MEASUREMENT
- THIRD: BY USING CONVENTIONAL TROUBLE-CLEARING PROCEDURES SUCH AS CHECKING THE DC OPERATE PATH FOR CIRCUIT FUNCTIONS AND WIRING

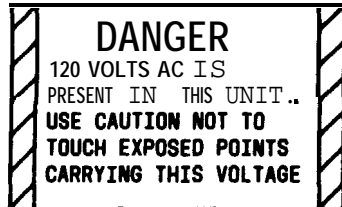
ADMONISHMENT BLOCKS

COASTAL HARBOR TOP PROCEDURES CONTAIN, AS REQUIRED. THREE TYPES OF **ADMONISHMENT** BLOCKS, OR FLAGS, TO CALL ATTENTION TO PERSONAL DANGER (DANGER BLOCKS), POSSIBLE SERVICE INTERRUPTION (CAUTION BLOCKS), AND POSSIBLE **EQUIPMENT** DAMAGE (WARNING BLOCKS). THE USER IS REMINDED TO READ THE **ADMONISHMENT** BY HAVING ATTENTION CALLED TO THE **ADMONISHMENT** AT THE BEGINNING OF A STEP WHICH INVOLVES ANY OF THE ABOVE **ADMONISHMENT** CONDITIONS AS SHOWN IN THE BELOW EXAMPLE:

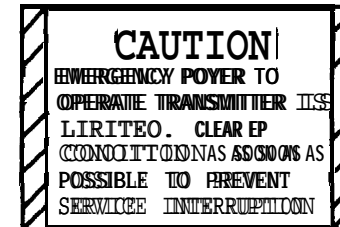
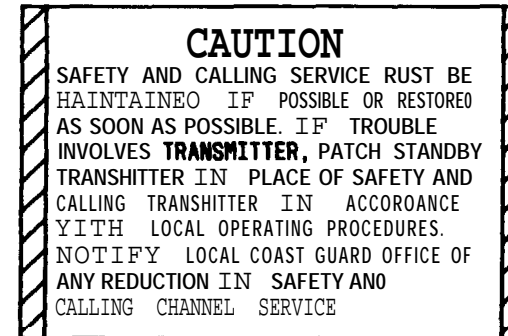
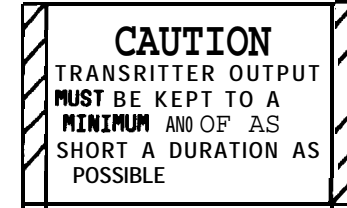
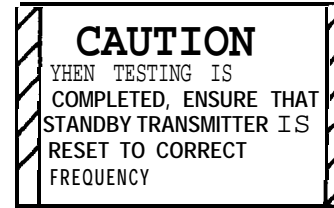


AN EXAMPLE OF EACH TYPE OF **ADMONISHMENT** BLOCK FOUND IN THIS VOLUME IS PROVIDED BELOW FOR REVIEW.

PERSONAL DANGER



POSSIBLE SERVICE INTERRUPTION



POSSIBLE SERVICE INTERRUPTION

CAUTIONS

1. **ALL** ROUTINE AND TROUBLE-CLEARING PROCEDURES ON THE SAFETY AND CALLING CHANNEL MUST BE COORDINATED IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES. SEE TAO-138 BEFORE TESTING SAFETY AND CALLING CHANNEL.
2. ACTUAL FREQUENCY OF TRANSMITTER CAN DIFFER **FROM FREQUENCY** INDICATION SENT TO CONTROL TERMINAL. IF FREQUENCY IS IN DOUBT, REQUEST THAT TRANSMITTER PERSONNEL CHECK FREQUENCY AT TRANSMITTER.

CAUTION

DO NOT REMOVE THIS CHANNEL FROM SERVICE FOR TESTING. IF TROUBLE OCCURS, FOLLOW PROCEDURES IN TAP-136

CAUTION

BATTERY POWER TO OPERATE RECEIVER IS **LIMITED**. CLEAR AC FAIL CONDITION AT RECEIVER AS SOON AS POSSIBLE TO PREVENT SERVICE INTERRUPTION

CAUTION

THIS TEST REMOVES **COMMERCIAL AC POWER FROM** RADIO RECEIVER. CARE MUST BE TAKEN TO INSURE THAT POWER IS NOT **REMOVED FROM** OTHER AC CIRCUITS FURNISHING SERVICE

POSSIBLE EQUIPMENT DAMAGE

WARNINGS

1. WHEN REMOVING CIRCUIT BOARDS, MAKE SURE THAT EDGES OF BOARD ARE AIRERD SO THEY COME THROUGH THE SWITCH ON THE SIDE OF BOARD CARRIER
2. SOME OF THE CIRCUIT BOARDS COULD BE **DAMAGED** BY STATIC DISCHARGE IF HANDLED IMPROPERLY. CARE SHOULD BE TAKEN NOT TO TOUCH ANY BARE SURFACE SUCH AS THE CONTACT POINTS. IF A CIRCUIT BOARD IS TO BE STORED, IT SHOULD BE PLACED IN A CONDUCTIVE **MEDIUM** SUCH AS **ALUMINUM** FOIL

WARNINGS

1. WHEN MAKING RESISTANCE MEASUREMENTS, MAKE SURE THAT POWER IS NOT APPLIED TO CIRCUIT BEING **MEASURED**, AS DAMAGE TO METER WILL RESULT
2. **WHEN** MAKING EITHER CURRENT OR VOLTAGE **MEASUREMENTS**, SET FUNCTION SWITCH TO PROPER RANGE BEFORE MAKING CONTACT WITH TEST PROBES TO CIRCUIT BEING **MEASURED**. SET FUNCTION **SWITCH** TO HIGHEST VALUE FOR INITIAL TEST AND THEN DECREASE **STEP-BY-STEP** UNTIL PROPER RANGE IS REACHED

WARNING

WHEN REPLACING CIRCUIT BOARDS, POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

WARNING

CARE SHOULD BE USED NOT TO SHORT ADJACENT RELAY TERMINALS WHEN MAKING TESTS

WARNING

USE CARE WHEN APPLYING GROUND TO PREVENT GROUNDING WRONG PIN

WARNING

USE CARE WHEN APPLYING GROUND TO PREVENT GROUNDING WRONG PIN

WARNING

VOLTAGE MAY STILL BE PRESENT ON UNIT AFTER REMOVING FUSES DUE TO FEED THRU FROM LAMP AND RELAY CIRCUITS ON OTHER UNITS

WARNING

WHEN MAKING RESISTANCE MEASUREMENTS, MAKE SURE THAT POWER IS NOT APPLIED TO CIRCUIT BEING MEASURED, AS DAMAGE TO METER WILL RESULT

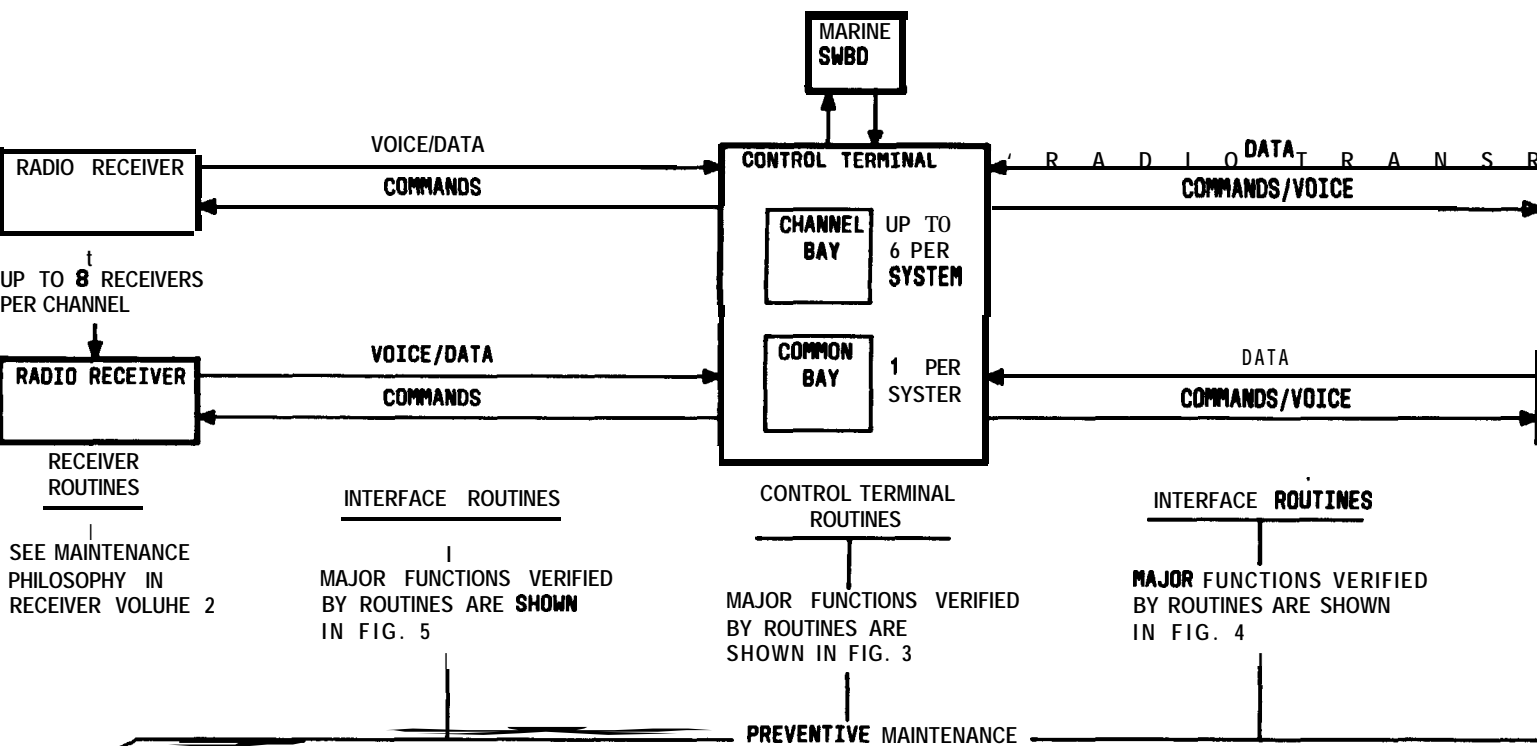
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ROUTINE TASKS ARE STRUCTURED TO BE PERFORMED PERIODICALLY ON A CHANNEL BASIS AND ARE **DESIGNED** TO (A) VERIFY CIRCUIT OPERATIONS **UNIQUE** TO THE CONTROL TERMINAL WITHOUT ASSISTANCE **FROM** RECEIVER OR TRANSMITTER PERSONNEL, (B) VERIFY CIRCUIT OPERATIONS WITHIN THE CONTROL TERMINAL ASSOCIATED WITH CIRCUIT OPERATIONS WITHIN THE RECEIVER WITH AND WITHOUT ASSISTANCE **FROM** RECEIVER PERSONNEL, AND (C) VERIFY CIRCUIT OPERATIONS WITHIN THE CONTROL TERMINAL ASSOCIATED WITH CIRCUIT OPERATIONS WITHIN THE TRANSMITTER WITH AND WITHOUT ASSISTANCE **FROM** TRANSMITTER PERSONNEL

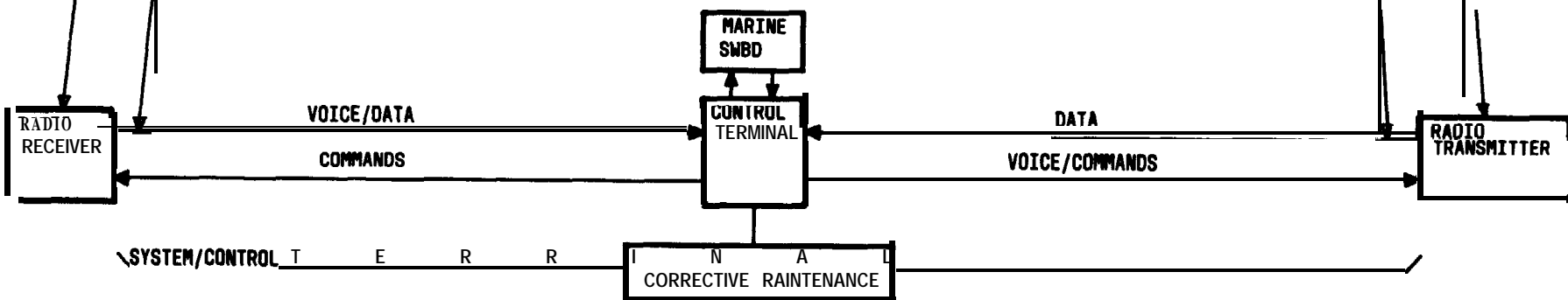
FIG. 1 - PREVENTIVE MAINTENANCE

RECEIVER/TRANSMITTER TROUBLES

AUTOMATIC FAULT INDICATIONS AT RECEIVER/TRANSMITTER ARE LIMITED AND IN MANY LOCATIONS ARE REFERRED TO MAINTENANCE PERSONNEL. RECEIVER/TRANSMITTER TROUBLES MOST OFTEN WILL BE IDENTIFIED BY (A) TROUBLE REPORTS RECEIVED AT CONTROL TERMINAL, (B) ALARM INDICATIONS AT CONTROL TERMINAL, AND (C) ROUTINE TASKS RUN FROM CONTROL TERMINAL OR RECEIVER/TRANSMITTER

FACILITY TROUBLES

AUTOMATIC FAULT INDICATORS FOR FACILITY TROUBLES DO NOT EXIST AT CONTROL TERMINAL. FACILITY TROUBLES WILL MOST OFTEN BE IDENTIFIED BY (A) LOCAL FACILITY CONTROL, (B) TROUBLE REPORTS RELATED TO RECEIVER/TRANSMITTER OPERATION, AND (C) ROUTINE TASKS RUN BETWEEN CONTROL TERMINAL AND RECEIVER/TRANSMITTER



CORRECTIVE MAINTENANCE IS ACCOMPLISHED THROUGH TROUBLE ANALYSIS PROCEDURES WHICH MAKE USE OF MANUAL AND ROUTINE TEST SET PROCEDURES TO ISOLATE TROUBLES TO CONTROL TERMINAL, RADIO RECEIVER, OR TRANSMITTER AND LOCATE FAULTS DOWN TO THE REPLACEABLE CARD LEVEL

FIG. 2 - CORRECTIVE MAINTENANCE

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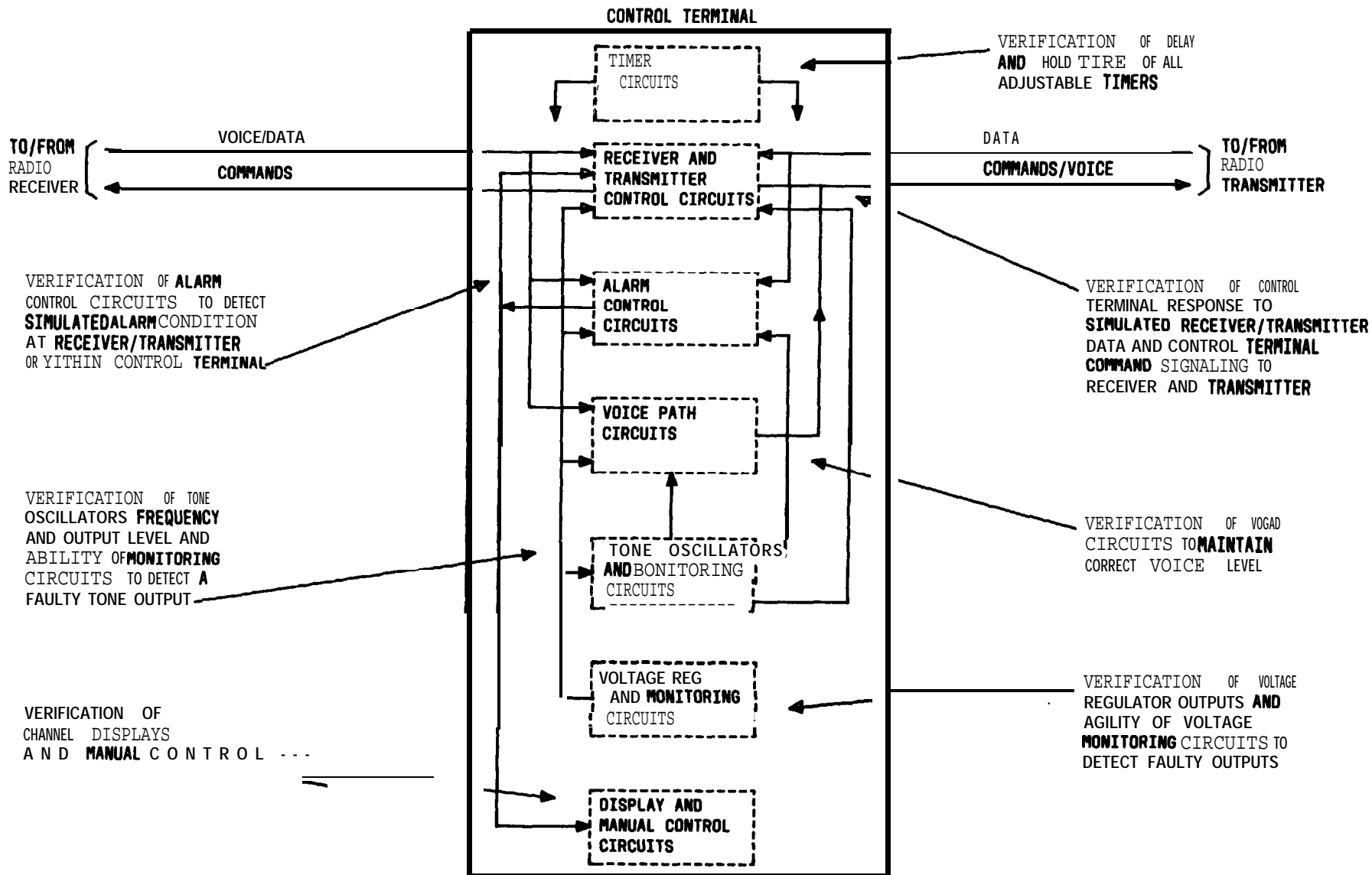


FIG. 3 - MAJOR FUNCTIONS VERIFIED BY CONTROL TERMINAL ROUTINES

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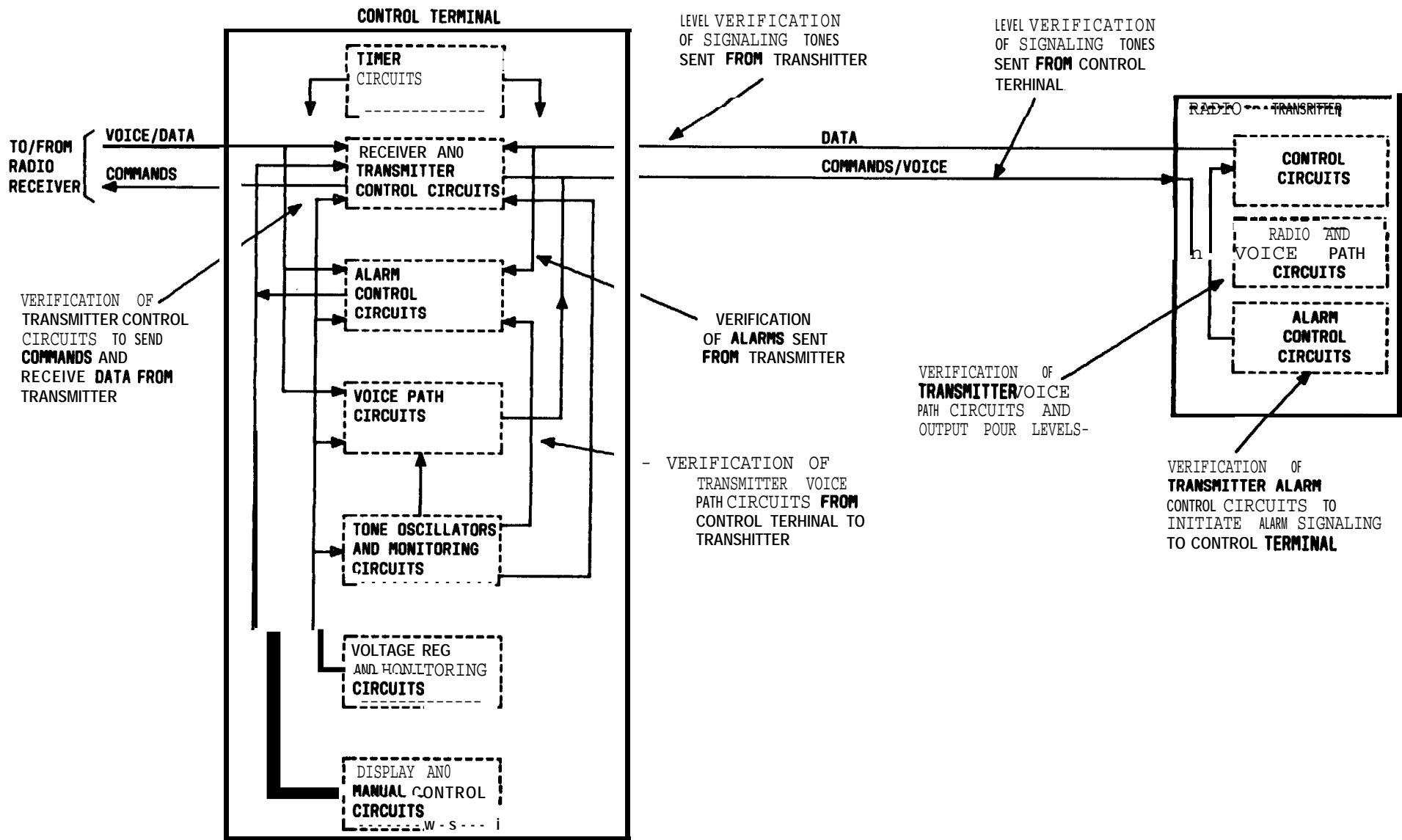


FIG. 4 - MAJOR FUNCTIONS VERIFIED BY CONTROL TERMINAL TO/FROM RECEIVER INTERFACE ROUTINES

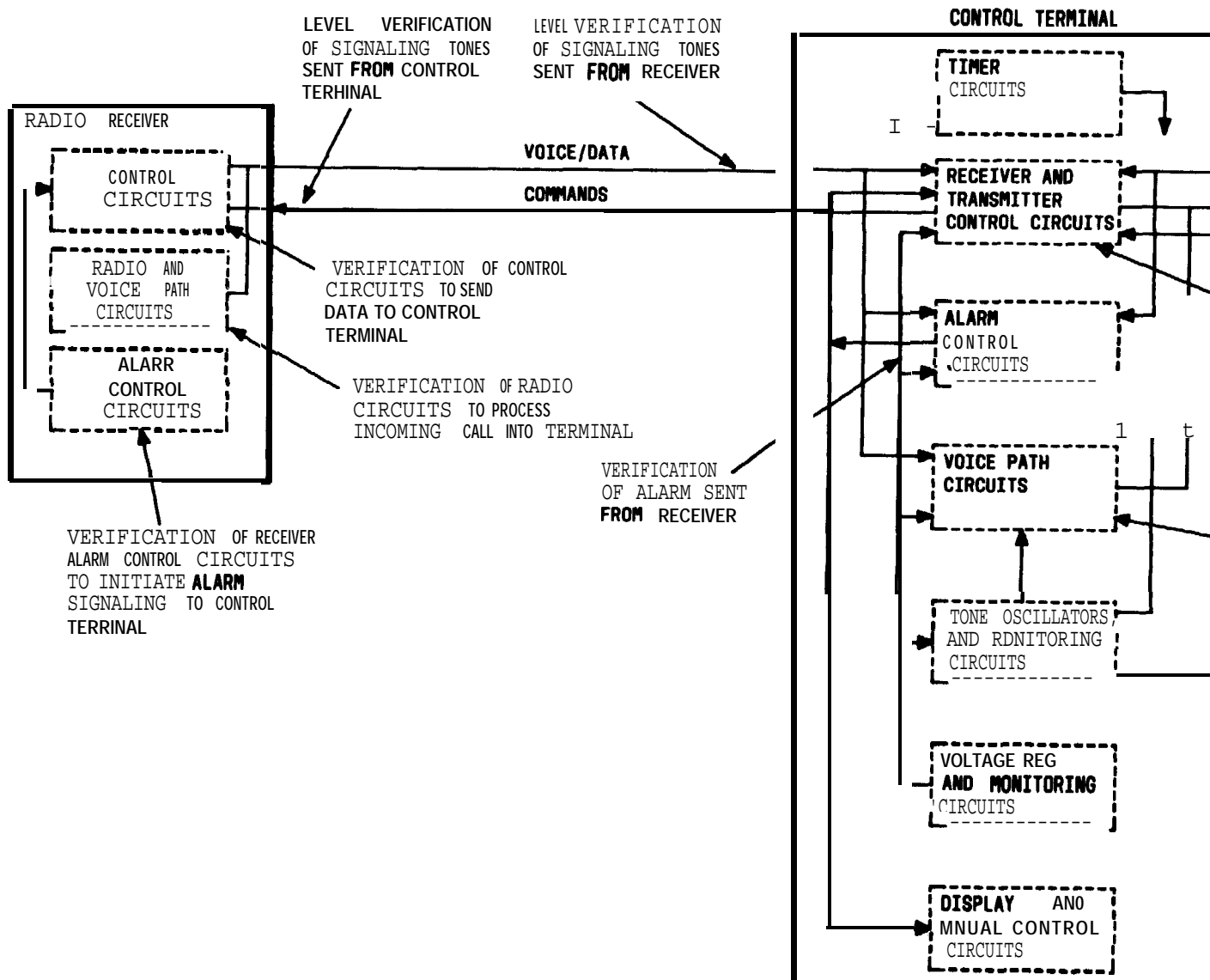


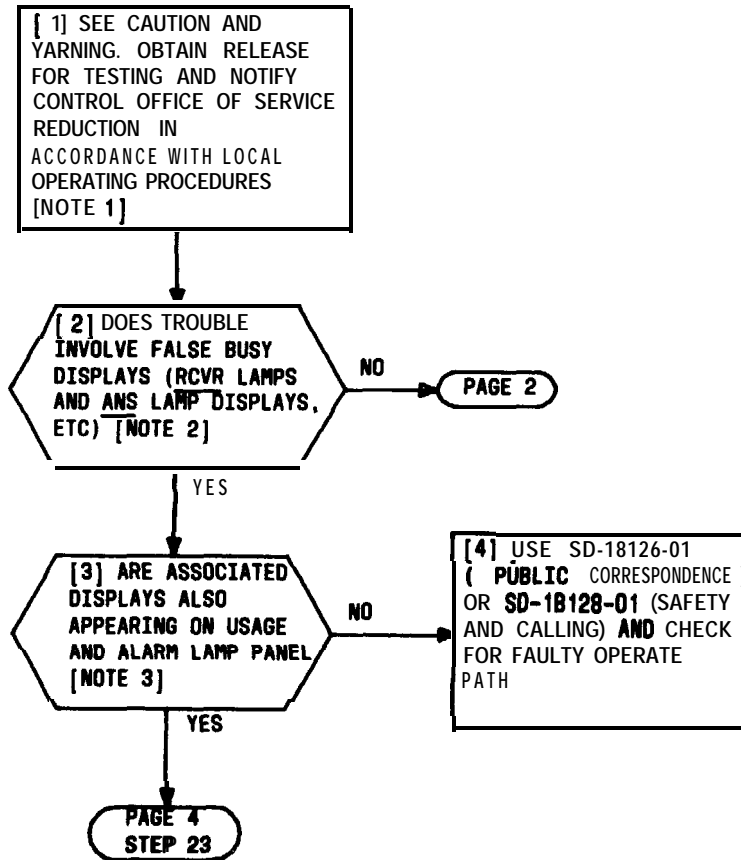
FIG. 5 - MAJOR FUNCTIONS VERIFIED BY CONTROL TERMINAL TO/FROM RECEIVER INTERFACE ROU

COASTAL HARBOR RADIO MAINTENANCE PHILOSOPHY

SUMMARY

SWITCHBOARD-RELATED TROUBLES ARE CLASSIFIED AS THEY RELATE TO SWITCHBOARD FUNCTIONS (LAMP DISPLAYS AND MANUAL OPERATIONS) OBSERVED AND PERFORMED BY THE OPERATOR. TROUBLE CLEARING IS BASED ON FIRST DETERMINING TO WHICH SWITCHBOARD FUNCTION

TROUBLE RELATES; SECOND VERIFYING THAT TROUBLE **DOES** EXIST THROUGH THE USE OF CIRCUIT DISPLAYS AND ROUTINE PROCEDURES; AND THIRD USE OF DETAILED PROCEDURES TO LOCATE AND CORRECT FAULTY CIRCUIT AREA



NOTES

1. WHEN TESTING IS COMPLETED, REMOVE ALL TEST CONNECTIONS AND NOTIFY CONTROL OFFICE
2. RELAY CONTACT **ORIENTATION/COMPONENT** LOCATION: RELAY CONTACT ORIENTATION IS SHOWN IN TAD-147 . COMPONENT LOCATION IS SHOWN IN TAD-148 AND TAO-149 FOR CHANNEL BA AND COMMON BAY. RESPECTIVELY
3. ENSURE THAT ONLY DESIRED CHANNEL IS SELECTED FOR DISPLAY BY DEPRESSING OTHER LIGHTED CH () KEYS AT TECHNICAL OPERATOR PANEL. WHEN MORE THAN ONE CHANNEL KEY IS LIGHTED, LOWEST NUMBERED CHANNEL WILL BE DISPLAYED

WARNING 1
WHEN REPLACING CIRCUIT BOARDS, POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

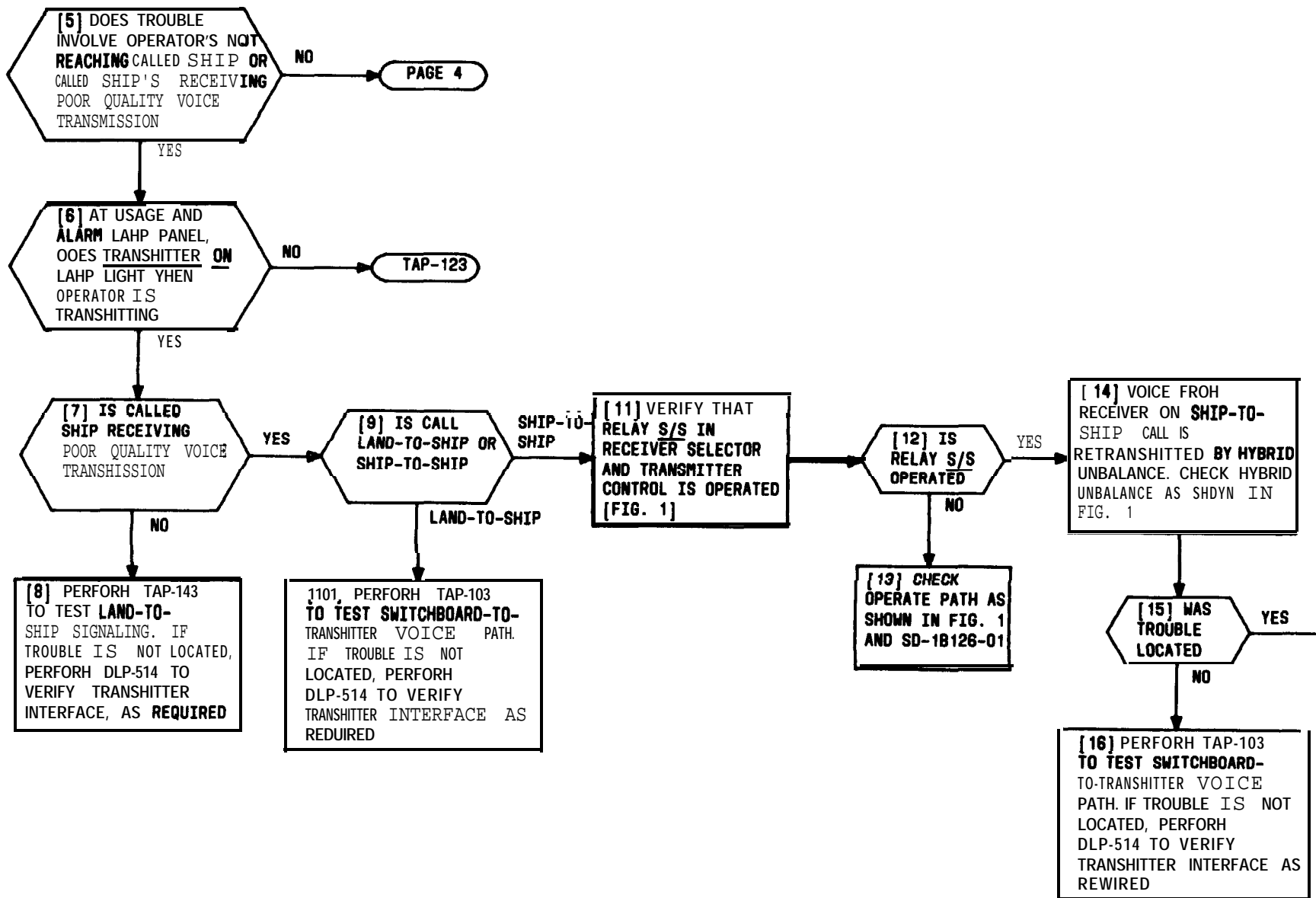
CAUTION 1
ALL ROUTINE AND TROUBLE-CLEARING PROCEDURES ON THE SAFETY AND CALLING CHANNEL MUST BE COORDINATED IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES. SEE TAD-136 BEFORE TESTING SAFETY AND CALLING CHANNEL

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CLEAR SWITCHBOARD-RELATED TROUBLES



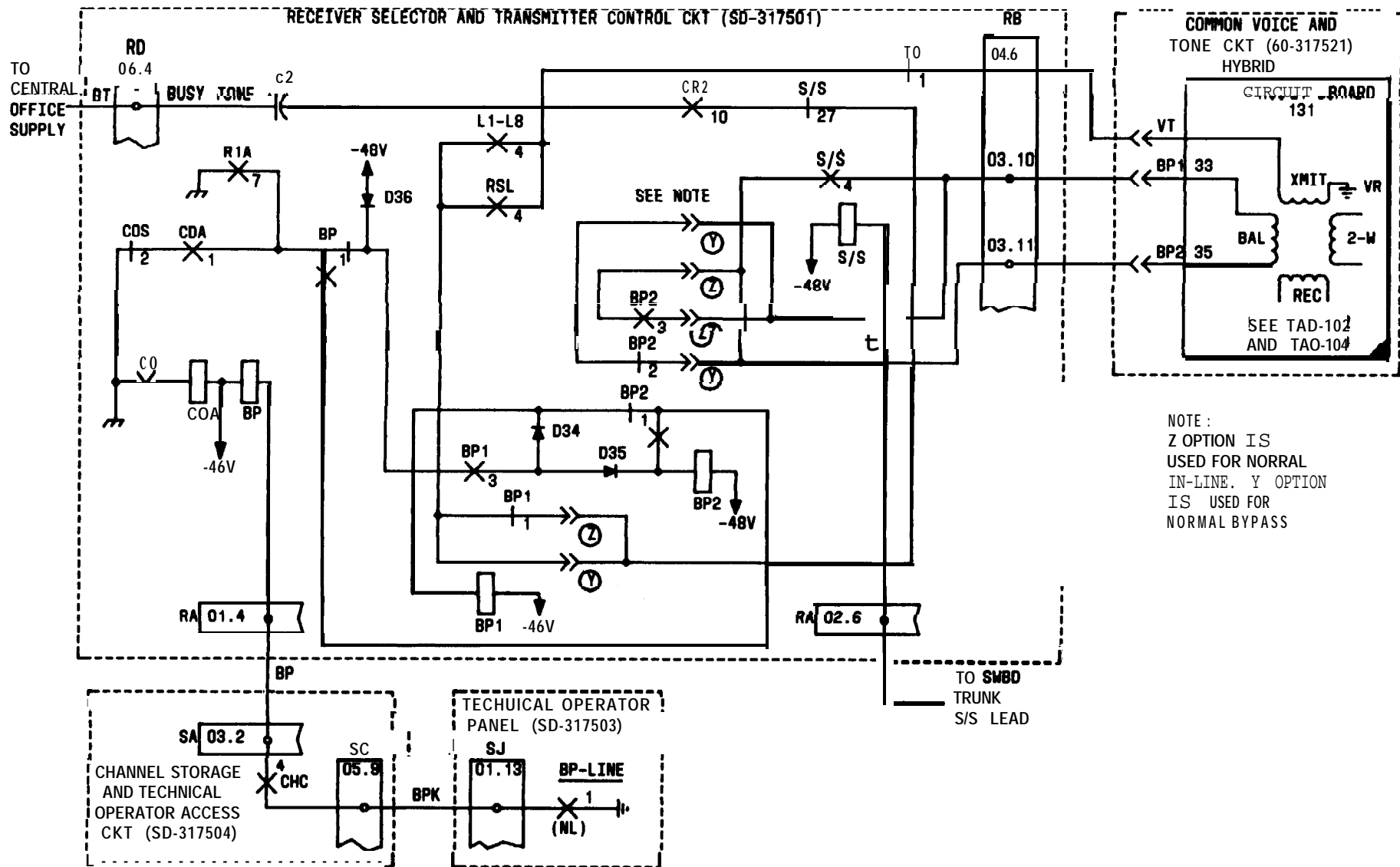
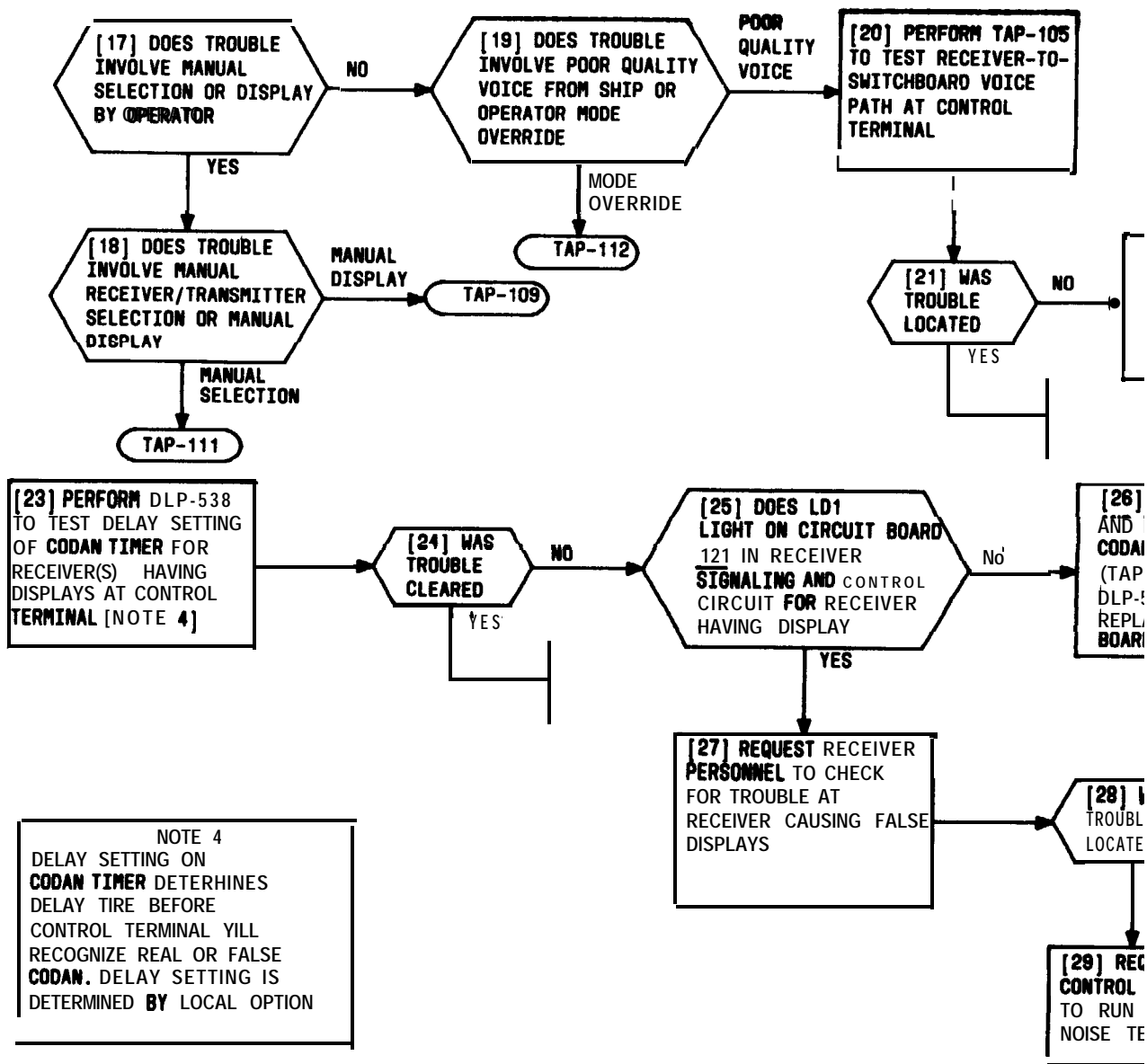


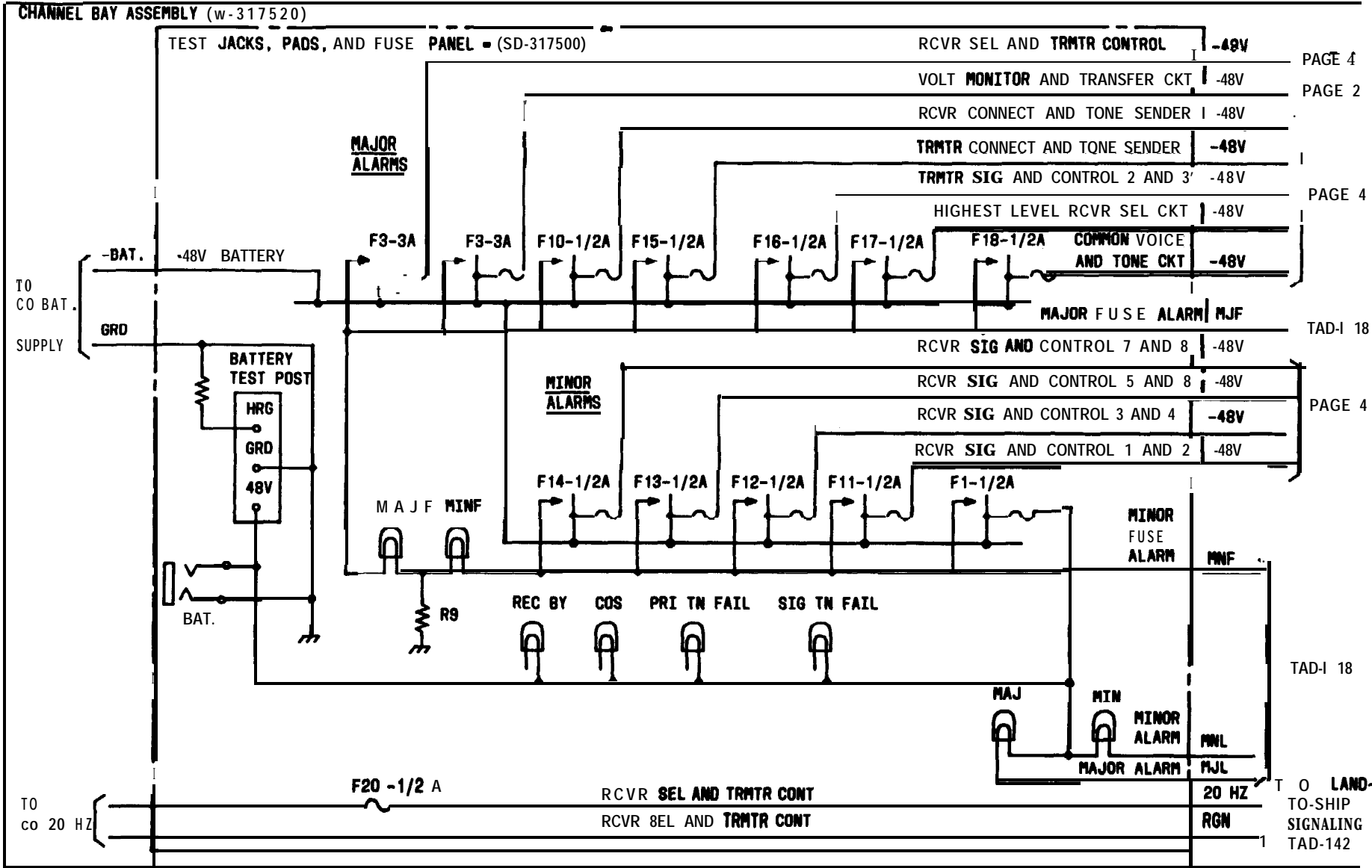
FIG. 1 - SHIP-TO-SHIP BYPASS CIRCUITS

CLEAR SWITCHBOARD-RELATED TROUBLES

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CLEAR SWITCHBOARD-RELATED TROUBLES

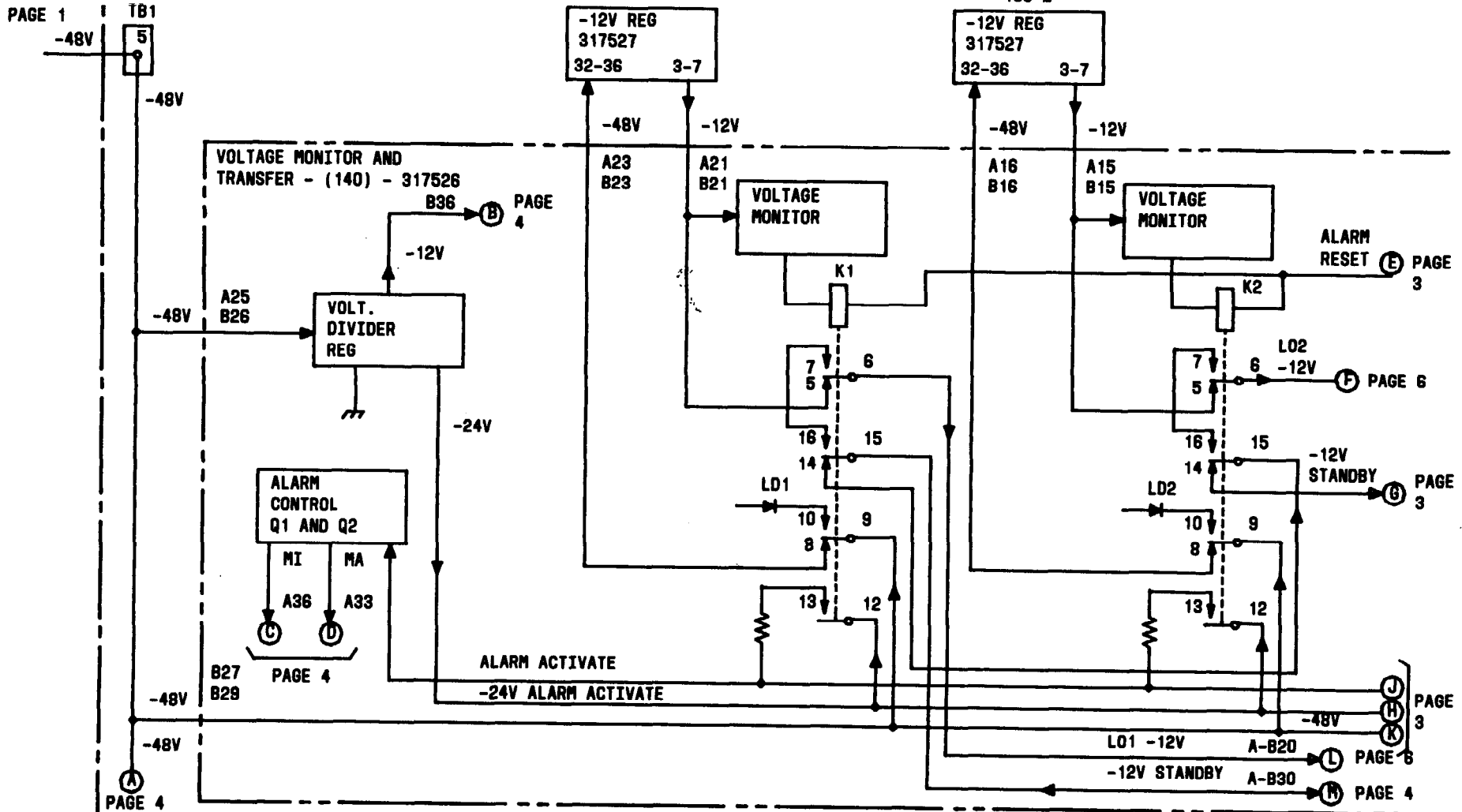


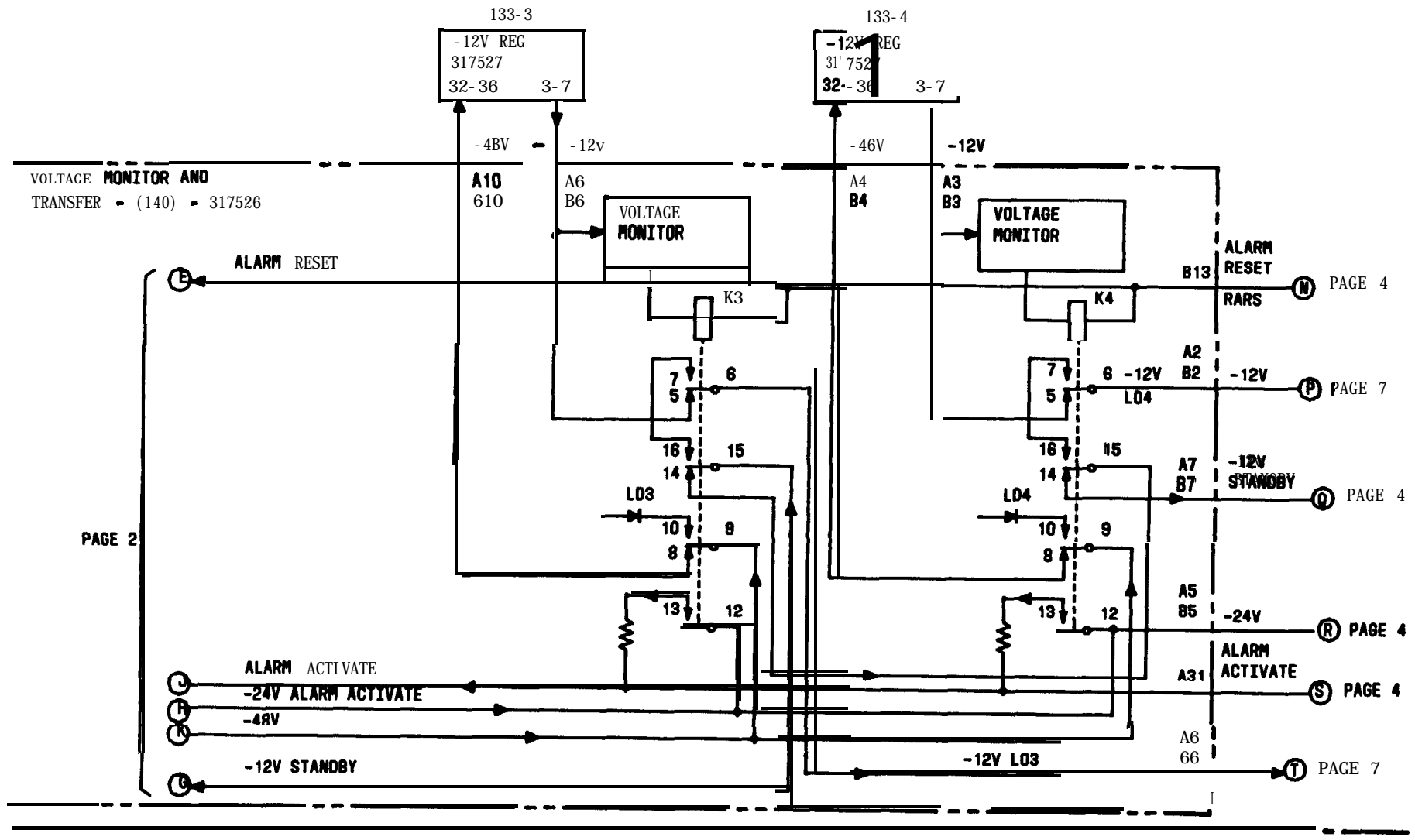
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 TO LAND-TO-SHIP SIGNALING TAD-142

CHANNEL BAY POWER DISTRIBUTION

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-12 VOLT AND -24 VOLT POWER SUPPLY CIRCUIT - 317539

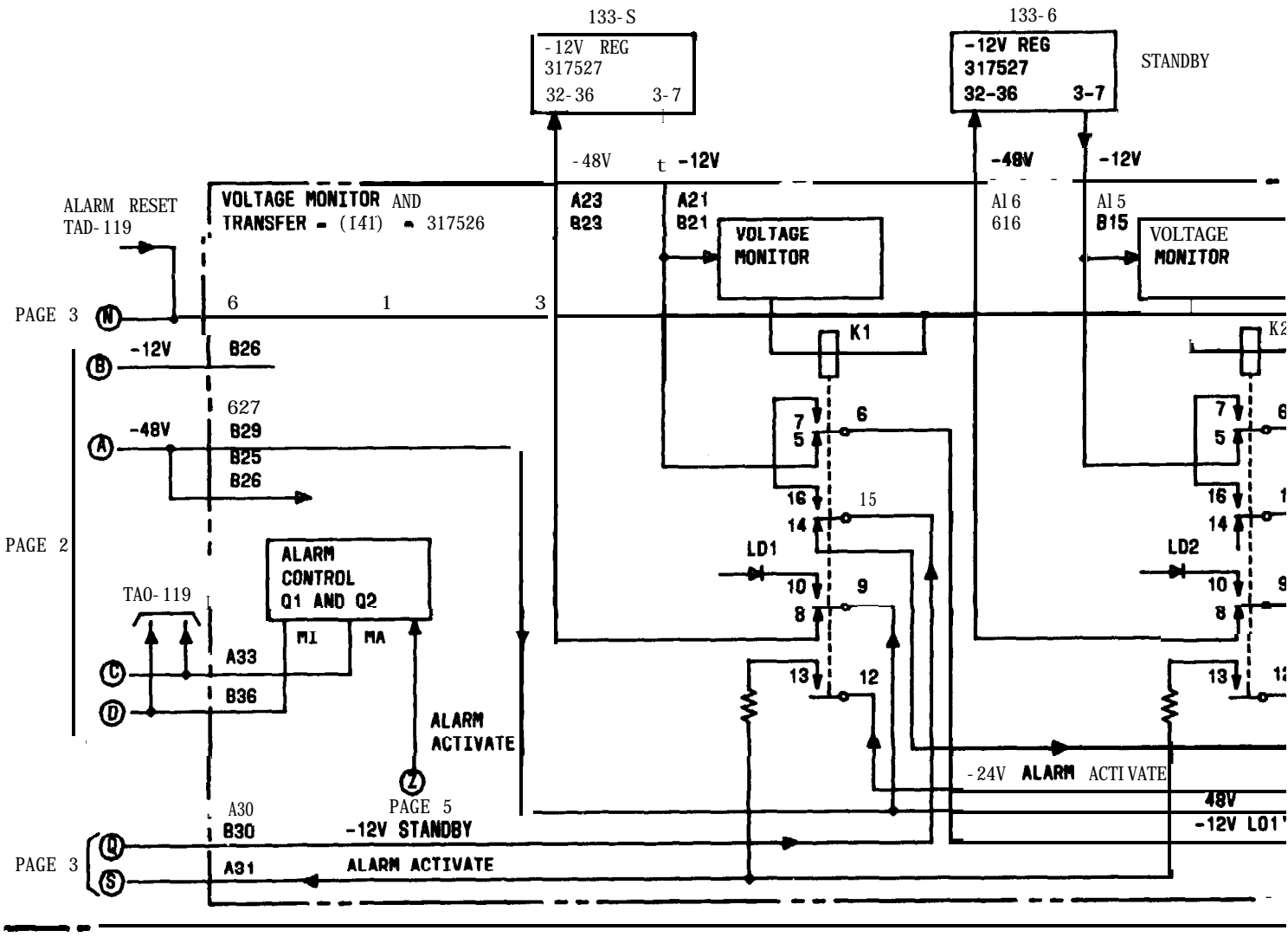




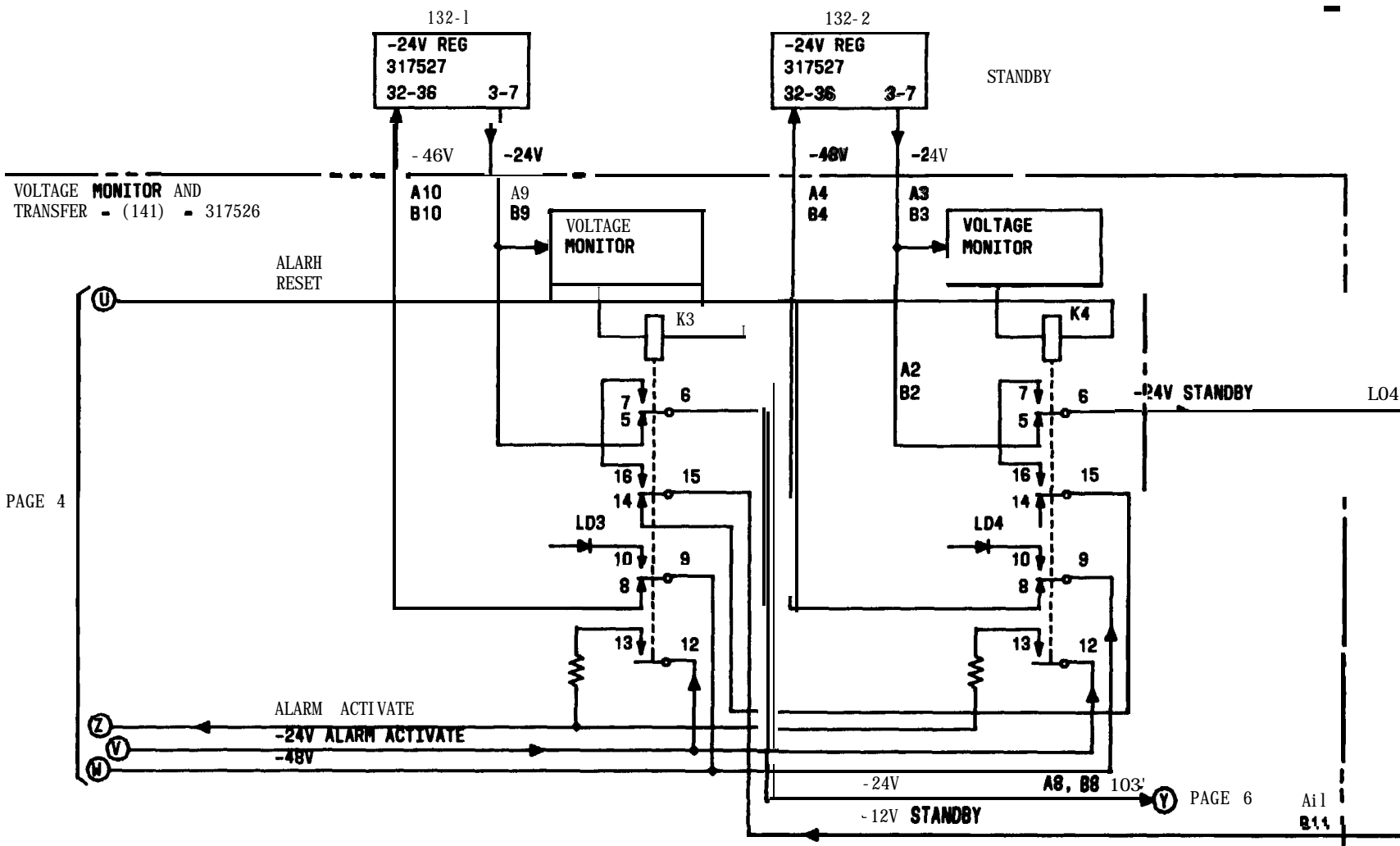
CHANNEL BAY POWER DISTRIBUTION

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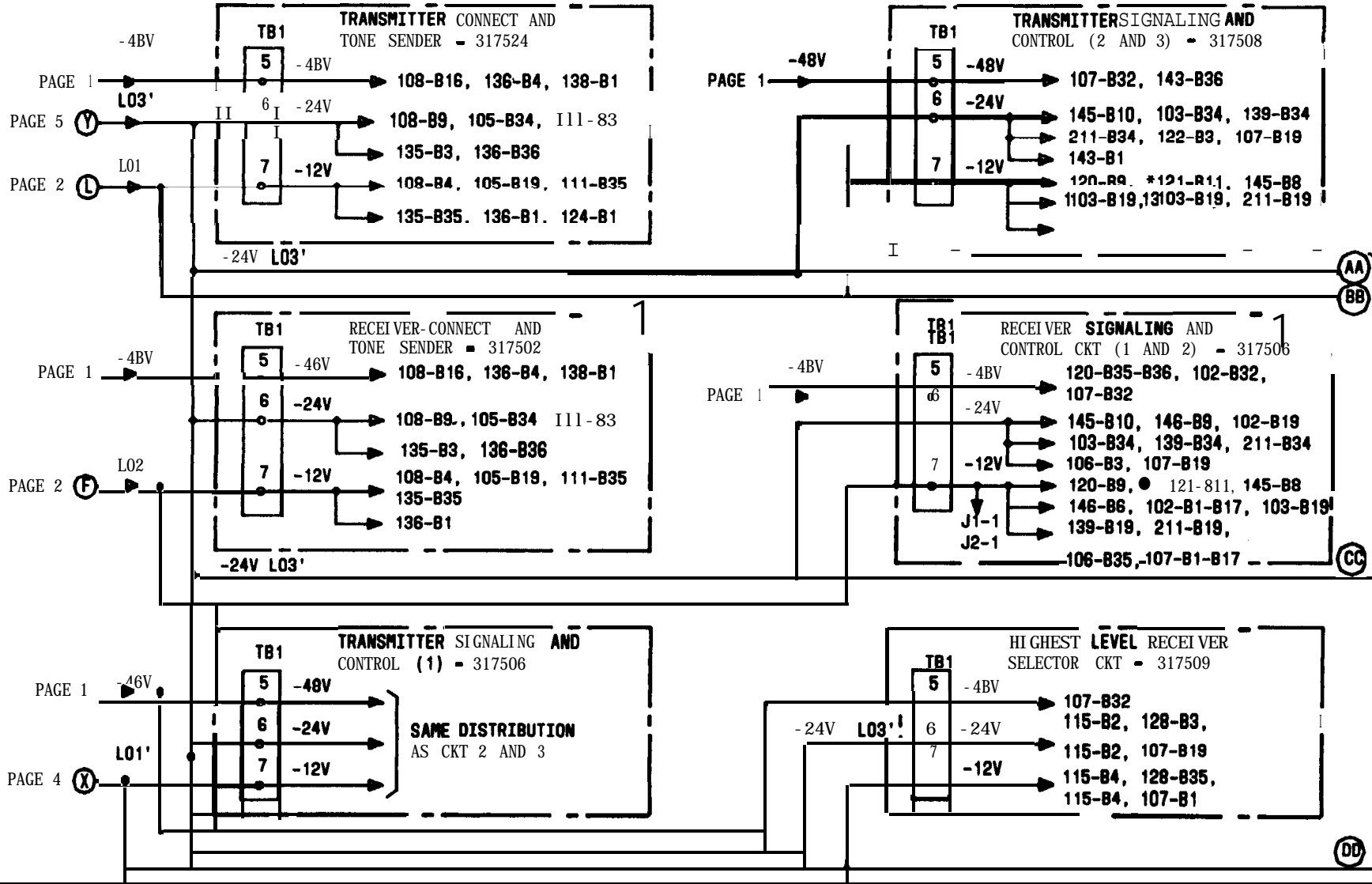
-12 VOLT AND -24 VOLT POWER SUPPLY CIRCUIT - 317539



-12 VOLT AND -24 VOLT POWER SUPPLY CIRCUIT - 317539

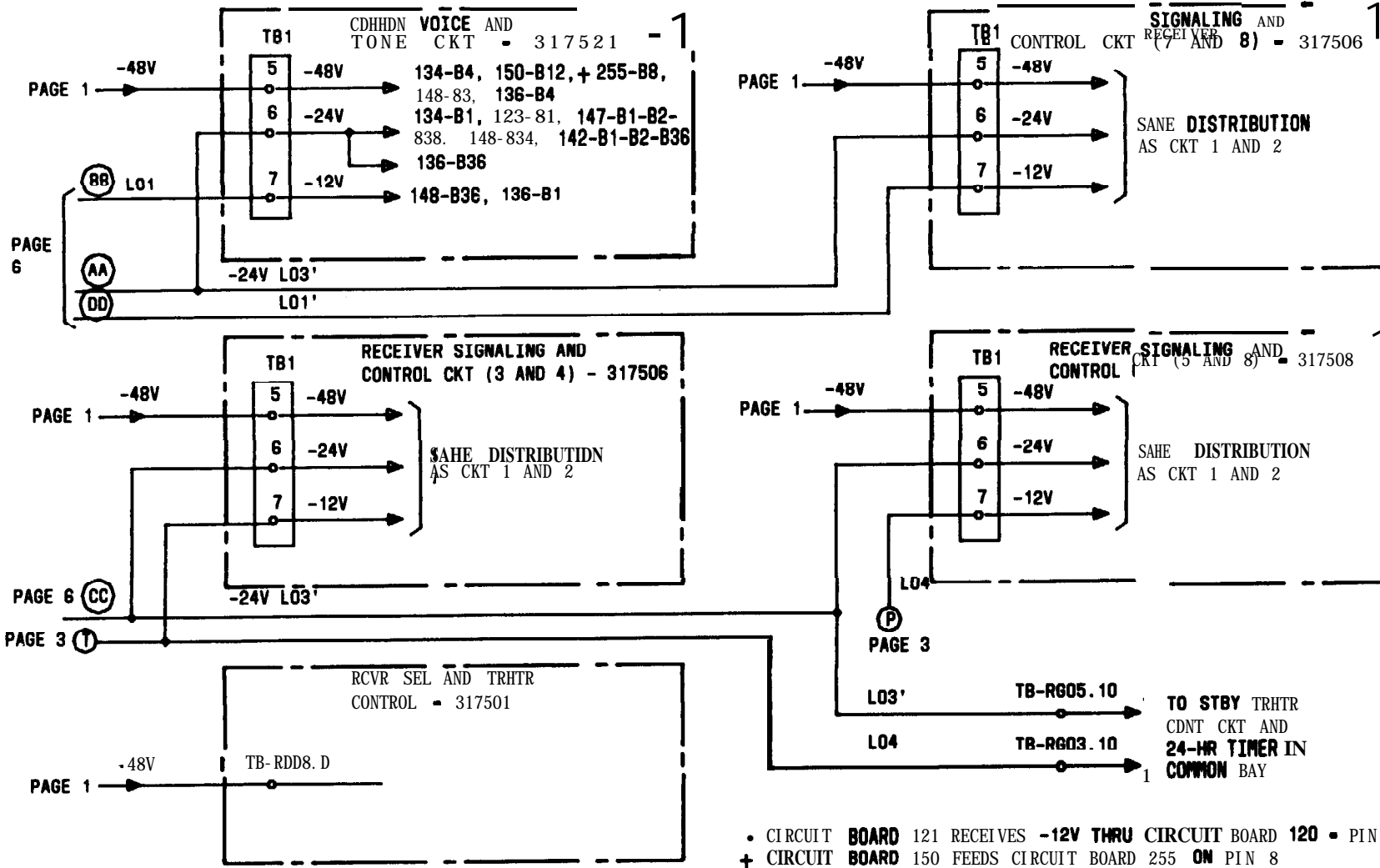


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CHANNEL BAY ASSEMBLY - (SD-317520)



• CIRCUIT BOARD 121 RECEIVES -12V THRU CIRCUIT BOARD 120 • PIN 11
 + CIRCUIT BOARD 150 FEEDS CIRCUIT BOARD 255 ON PIN 8

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SURHARY

SET **DIGITAL VOLTRETER (DVM)** TO READ **DC VOLTS** AND CONNECT TO TP3 AND TP4 ON **133 ()** VOLTAGE REGULATOR (VR) BOARDS. THE READING ON **DVM** SHALL BE BETWEEN **-11.7 AND -12.3 VOLTS**

TABLE A

EQUIPRENT REQUIRED	RECOMMENDED TYPE
DIGITAL VOLTMETER (DVM)	HEYLETT-PACKARD MODEL 3469B
TEST CORD	W2DW CORD OR EQUIVALENT
ALLIGATOR CLIP ATTACMENTS	FURNISHED WITH W2DW CORD

[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED.
SEE NOTES 1 AND 2

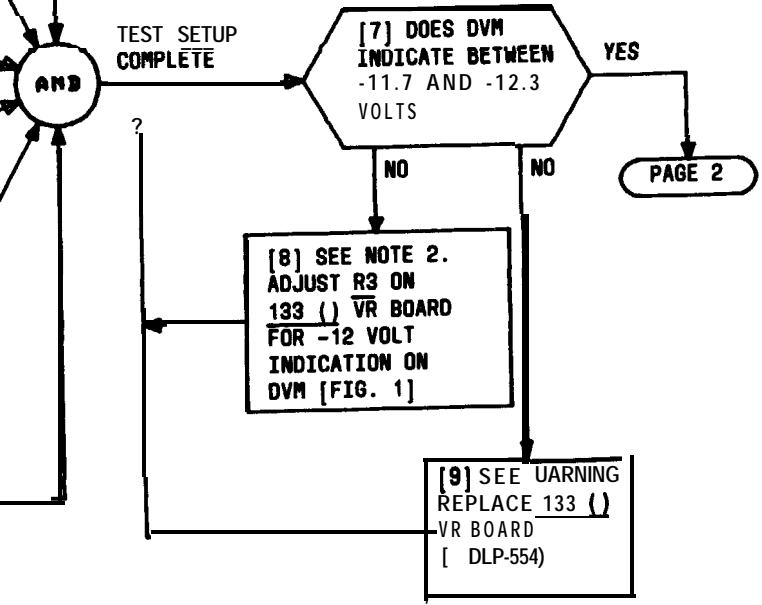
[2] GET TEST **EQUIPMENT** PER **TABLE A**

[3] CONDITION DVM TO MEASURE **DC VOLTS** ON 100-V SCALE [DLP-556]

[4] SEE NOTE 3. CONNECT **METER** END OF TEST **CORD** TO **COM** AND **DCV** POSTS ON **DVM** [FIG. 1]

[5] LOCATE **SIX -12V VOLTAGE REGULATOR (VR)** BOARDS [LABELED **133 (1)** THRU **133 (6)**] IN -12 AND -24 VOLT POUER SUPPLY CIRCUITS IN CHANNEL BAY [FIG. 1]

[6] SEE NOTE 3. CONNECT BLACK TEST CLIP TO **TP3** AND CONNECT RED TEST **CLIP TO TP4** ON **133 ()** VR BOARD [FIG. 1]



MEASURE -12 VOLT DC REGULATED OUTPUTS

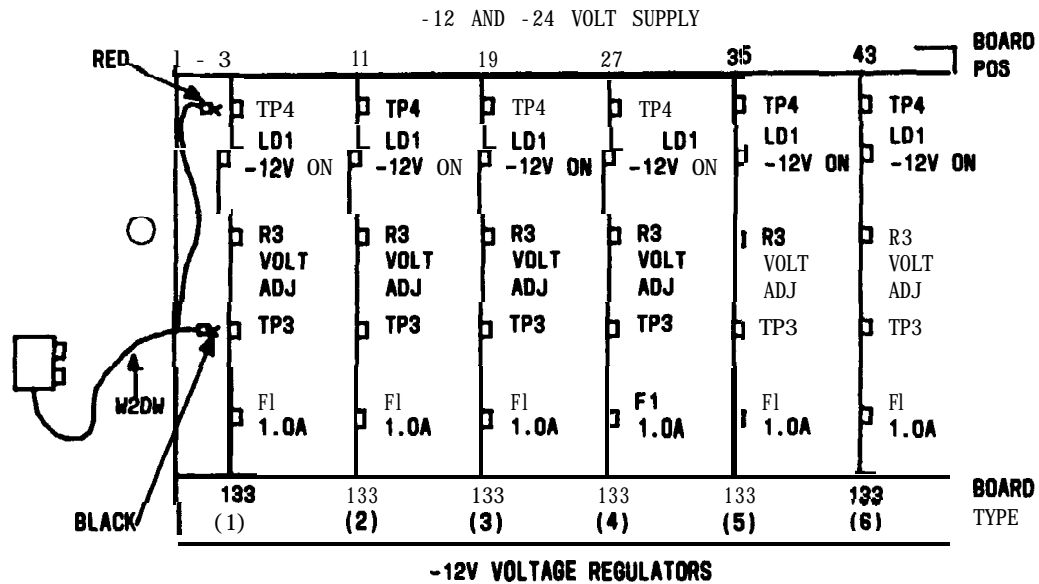
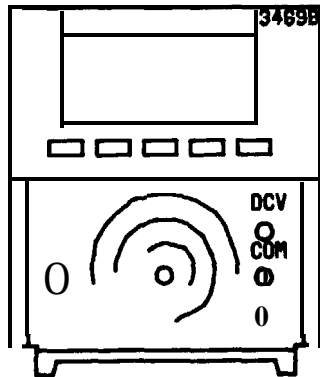
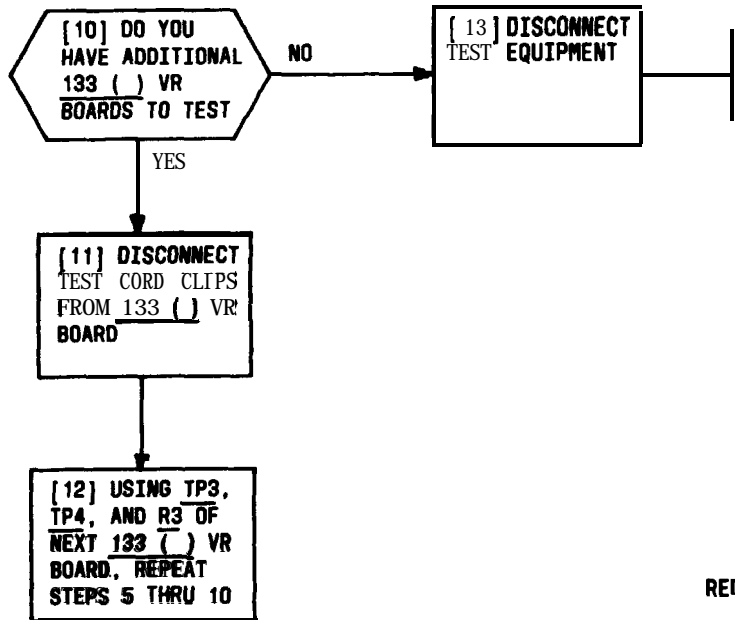


FIG. 1

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SUMMARY

SET DIGITAL VOLTMETER (DVM) TO READ DC VOLTS AND CONNECT TO TP3 AND TP4 ON 132 () VOLTAGE REGULATOR (VR) BOARDS. THE READING ON DVM SHALL BE BETWEEN -23.5 AND -24.5 VOLTS.

[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED. SEE NOTES 1 AND 2

[2] GET TEST EQUIPMENT PER TABLE A

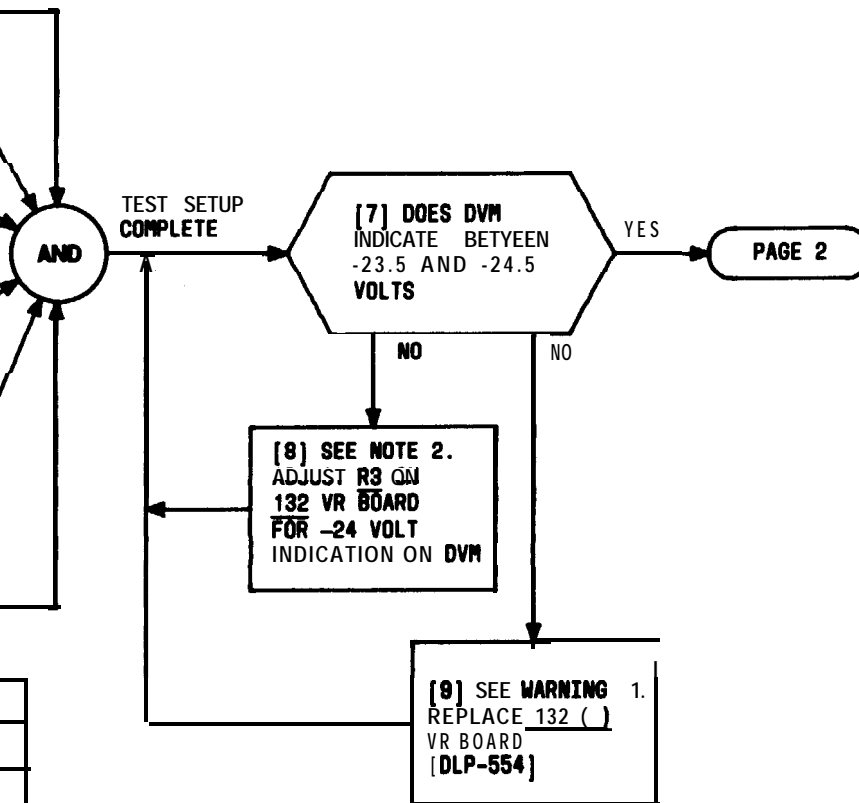
[3] CONDITION DVM TO MEASURE DC VOLTS ON 100-V SCALE [DLP-556]

[4] SEE NOTE 3. CONNECT METER END OF TEST CORD TO COM AND DCV POSTS ON DVM [FIG. 1]

[5] LOCATE TWO -24V VOLTAGE REGULATOR (VR) BOARDS [LABELED 132 (1) AND 132 (2)] IN -12 AND -24 VOLT POWER SUPPLY CIRCUITS IN CHANNEL BAY

[B] SEE NOTE 3. CONNECT BLACK TEST CLIP TO TP3 AND CONNECT RED TEST CLIP TO TP4 ON 132 () VR BOARD

EQUIPMENT REQUIRED		RECOMMENDED TYPE
DIGITAL VOLTMETER (DVM)		HEWLETT-PACKARD MODEL 3469B
TEST CORD		W20W CORD OR EQUIVALENT
ALLIGATOR CLIP ATTACHMENTS		FURNISHED WITH W20W CORD



NOTES

- DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE
- ADJUSTMENT OF R3 IS CRITICAL. VOLTAGE REGULATOR WILL BE SWITCHED OFF, IF OUTPUT IS ADJUSTED PAST ACCEPTED LIMITS. IF THIS OCCURS, R3 MUST BE RESET BY ESTIMATING POSITION OF R3 THAT WILL PROVIDE ACCEPTABLE OUTPUT, AND THEN DEPRESSING VR RESET AND ALM RESET KEYS ON TECHNICAL OPERATOR PANEL. THIS ADJUSTMENT MAY BE REQUIRED SEVERAL TIMES BEFORE REGULATOR IS SWITCHED ON AGAIN
- THE HP 34666 DVM HAS AUTOMATIC POLARITY INPUTS

WARNING 1

POWER MUST BE REMOVED AS SHOWN IN DLP-544 TO PREVENT DAMAGE TO EQUIPMENT

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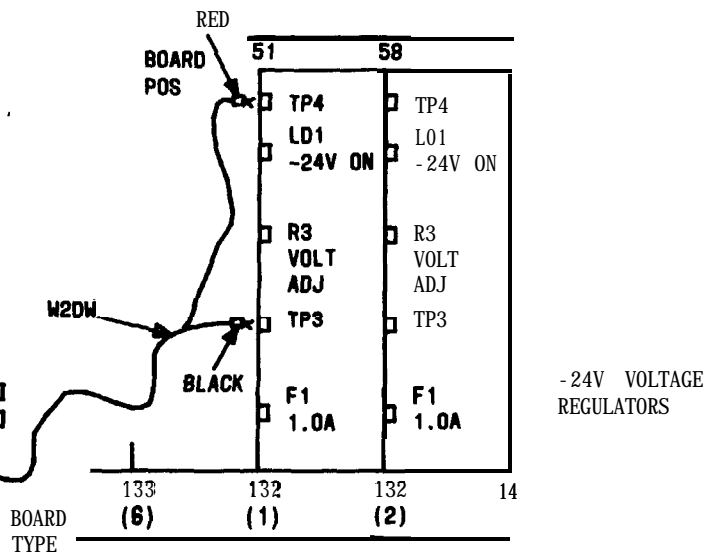
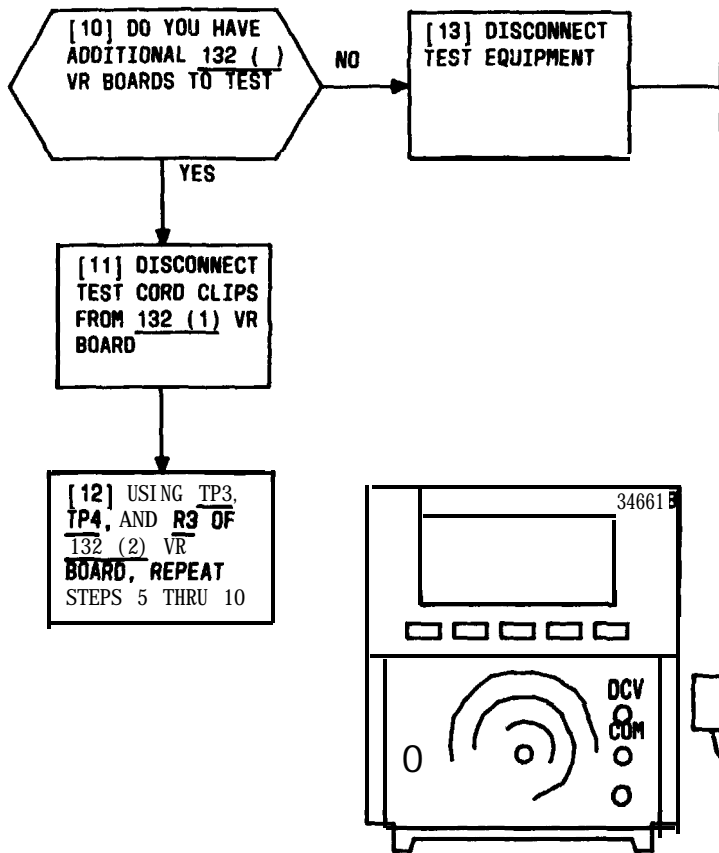


FIG. 1

MEASURE -24 VOLT DC REGULATED OUTPUTS

SUMMARY
 MISADJUST R3 ON 133 () VR BOARDS TO INITIATE VOLT-REG-MIN AND VOLT-REG-MAJ ALARM INDICATIONS. RESET R3 AND CLEAR ALARM INDICATIONS

[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED.
 SEE NOTE 1


[2] NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL PROCEDURES

[3] GET TEST EQUIPMENT PER TABLE A

[4] CONDITION DVM TO MEASURE DC VOLTS ON 100-V SCALE [DLP-556]

[5] SEE NOTE 2. CONNECT METER END OF TEST CORD TO COM AND DCV POSTS ON DVM [FIG. 1]

[6] ON TECHNICAL OPERATOR PANEL, DEPRESS CH () KEY



[7] LOCATE SIX -12V VOLTAGE REGULATOR (VR) BOARDS [LABELED 133 (1) THRU 133 (6)] IN -12 AND -24 VOLT POWER SUPPLY CIRCUITS IN CHANNEL BAY. CONNECT BLACK TEST CLIP TO TP3 AND CONNECT RED TEST CLIP TO TP4 ON 133 () VR BOARD [FIG. 1]

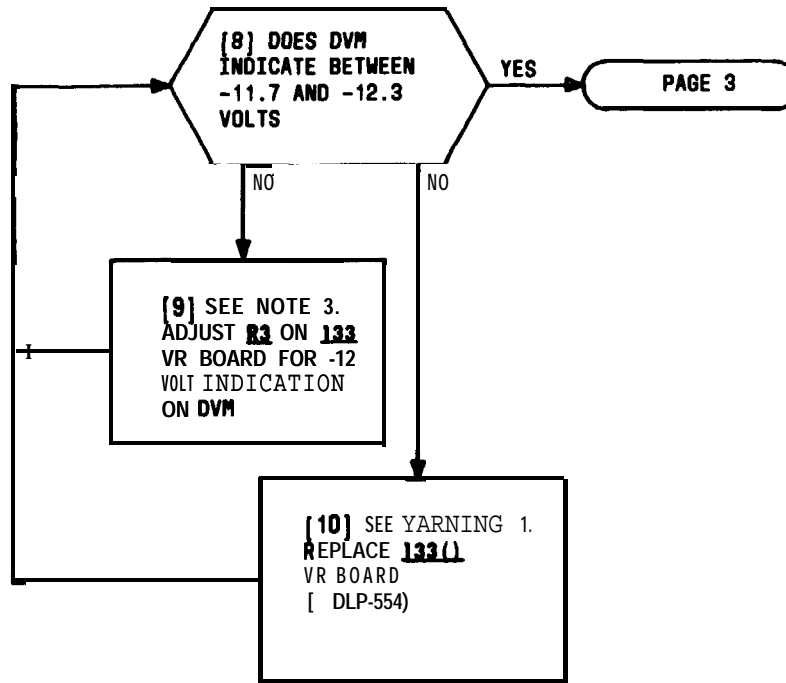
NOTES
 1. DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE
 2. THE HP 3469B DVM HAS AUTOMATIC POLARITY INPUTS

TABLE A	
EQUIPMENT REQUIRED	RECOMMENDED TYPE
DIGITAL VOLTMETER (DVM)	HEWLETT-PACKARD MODEL 3469B
TEST CORD	W2DW CORD OR EQUIVALENT
ALLIGATOR CLIP ATTACHMENT	FURNISHED WITH W2DW CORD

TEST SETUP COMPLETE → PAGE 2

TEST -12 VOLT REGULATOR - MONITOR TRANSFER

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NOTE 3

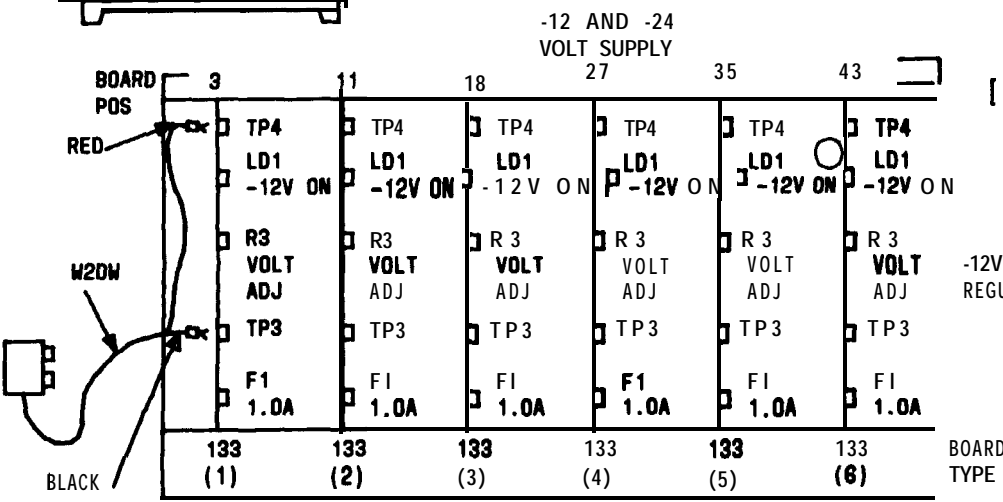
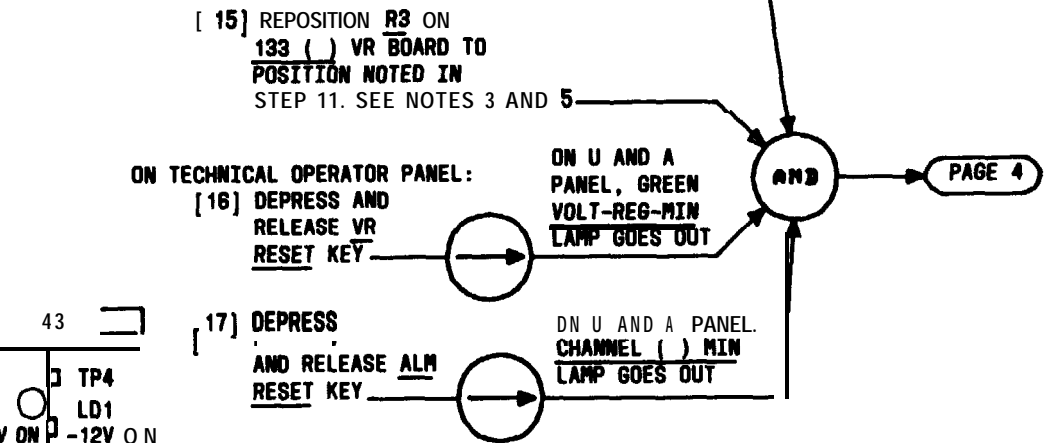
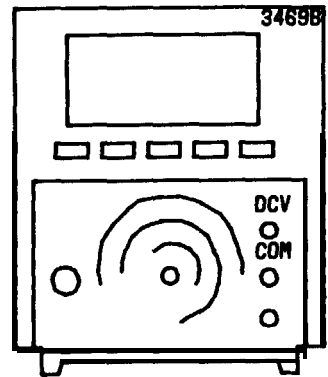
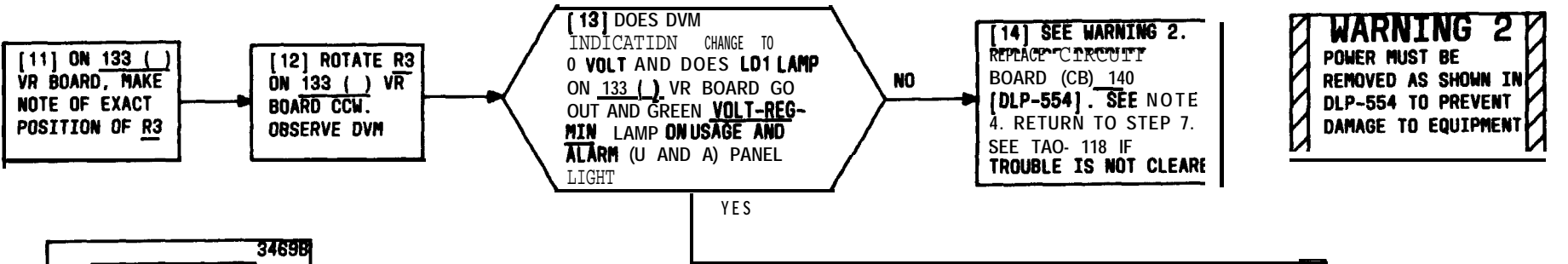
ADJUSTMENT OF R3 IS CRITICAL. VOLTAGE REGULATOR WILL BE SWITCHED OFF IF OUTPUT IS ADJUSTED PAST ACCEPTED LIMITS IF THIS OCCURS, R3 MUST BE RESET BY ESTIMATING POSITION OF R3 THAT WILL PROVIDE ACCEPTABLE OUTPUT, AND THEN DEPRESSING VR RESET AND ALM RESET KEYS ON TECHNICAL OPERATOR PANEL. THIS ADJUSTMENT MAY BE REQUIRED SEVERAL TIMES BEFORE REGULATOR IS SWITCHED ON AGAIN

WARNING 1

POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

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TEST -12 VOLT REGULATOR – MONITOR TRANSFER

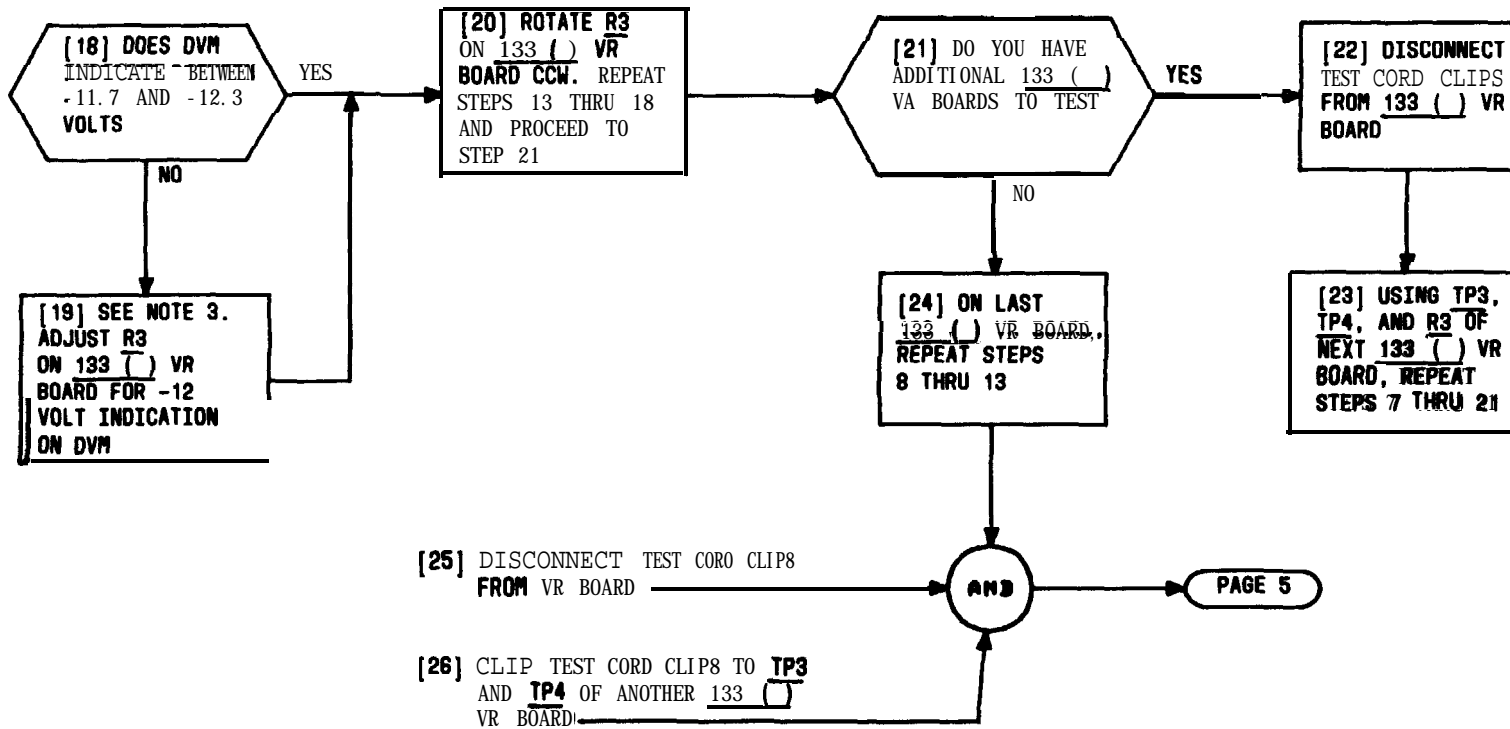


NOTES

4. 133 (6) 133 (5) AND CB 141 133 181, REPLACE

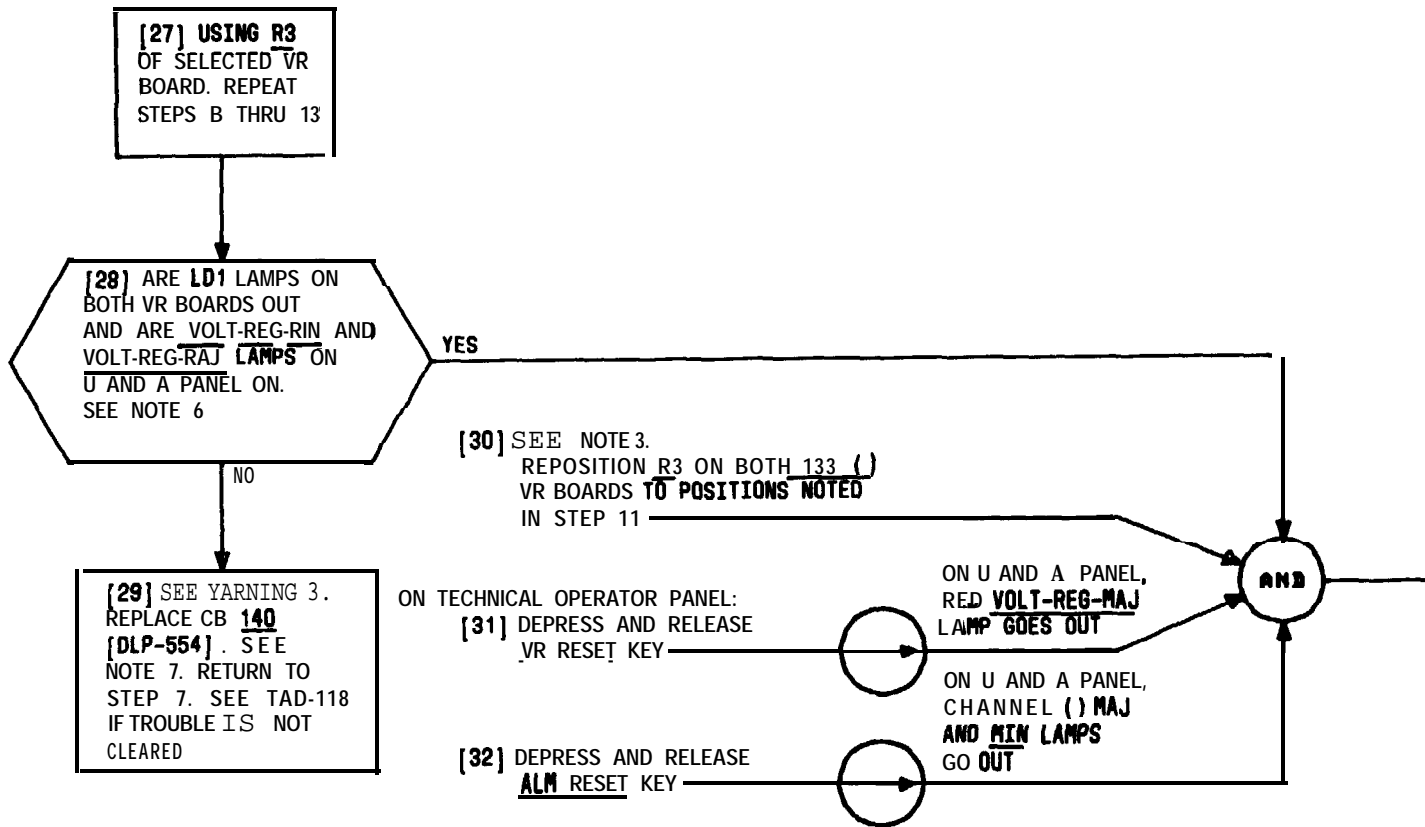
5. IF R3 IS NOT REPOSITIONED CORRECTLY, VOLT REGULATOR CIRCUITS WILL NOT RESET

FIG. 1



TEST -12 VOLT REGULATOR - MONITOR TRANSFER

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TEST -12 VOLT REGULATOR – MONITOR TRANSFER

[33] USING TP3,
TP4, AND R3 FOR
EACH 133 () VR
BOARD. REPEAT
STEPS 7 THRU 9



[34] DISCONNECT
TEST EQUIPMENT
AND RESET
24-HR TIMER
AS REQUIRED



TEST -12 VOLT REGULATOR – MONITOR TRANSFER

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SUMMARY

MISADJUST R3 ON 132 () VR BOARDS TO INITIATE VOLT-REG-HIN AND VOLT-REG-RAJ ALARM INDICATIONS. RESET R3 AND CLEAR ALARM INDICATIONS

TABLE A	
EQUIPMENT REQUIRED	RECOMMENDED TYPE
DIGITAL VOLTMETER (DVM)	HEWLETT-PACKARD MODEL 3469B
TEST CORD	W2DM CORD OR EQUIVALENT
ALLIGATOR CLIP ATTACHMENT	FURNISHED WITH W2DM CORD

[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED.
SEE NOTE 1

[2] NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL PROCEDURES

[3] GET TEST EQUIPMENT PER TABLE A

[4] CONDITION DVM TO MEASURE DC VOLTS ON 100-V SCALE [DLP-558]

[5] SEE NOTE 2. CONNECT METER END OF TEST CORD TO COM AND DCV POSTS ON DVM [FIG. 1]

[6] ON TECHNICAL OPERATOR PANEL, DEPRESS CH () KEY

CH ()
LAMP LIGHTS

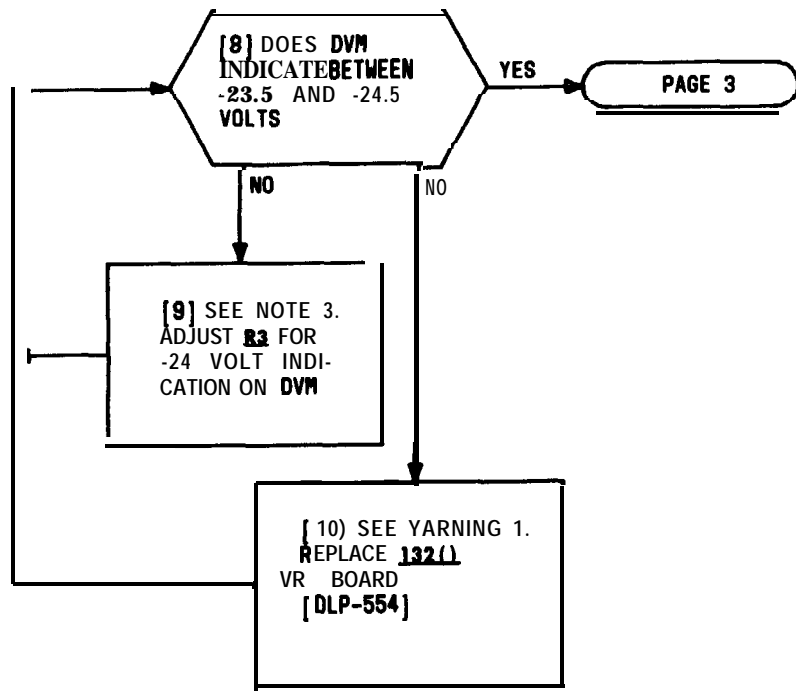
[7] LOCATE TWO -24V VOLTAGE REGULATOR (VR) BOARDS [LABELED 132 (1) AND 132 (2)] IN -12 AND -24 VOLT POWER SUPPLY CIRCUITS IN CHANNEL BAY [FIG. 1]. CONNECT BLACK TEST CLIP TO TP3 AND CONNECT RED TEST CLIP TO TP4 ON 132 () VR BOARD

AND

PAGE 2

NOTES

1. OISREGARO ALL LAWS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE
2. THE HP 3469B DVM HAS AUTOMATIC POLARITY INPUTS



NOTE 3

ADJUSTMENT OF R3 IS CRITICAL. VOLTAGE REGULATOR WILL BE SWITCHED OFF IF OUTPUT IS ADJUSTED PAST ACCEPTED LIMITS IF THIS OCCURS, R3 MUST BE RESET BY ESTIMATING POSITION OF R3 THAT WILL PROVIDE ACCEPTABLE OUTPUT, AND THEN DEPRESSING VR RESET AND ALM RESET KEYS ON TECHNICAL OPERATOR PANEL. THIS ADJUSTMENT MAY BE REQUIRED SEVERAL TIRES BEFORE REGULATOR IS SWITCHED ON AGAIN

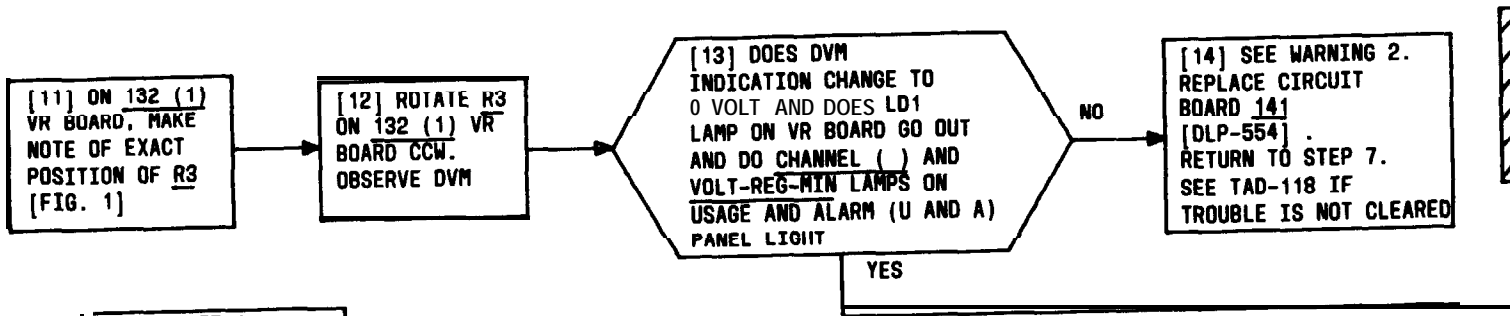
YARNING 1

POYER RUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAHAGE TO EQUIPMENT

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TEST -24 VOLT REGULATOR – MONITOR TRANSFER



NOTE 4
 IF R3 IS NOT REPOSITIONED CORRECTLY, VOLT REGULATOR CIRCUITS WILL NOT RESET

[15] REPOSITION R3 ON 132 (1) VR BOARD TO POSITION NOTED IN STEP 11. SEE NOTES 3 AND 4

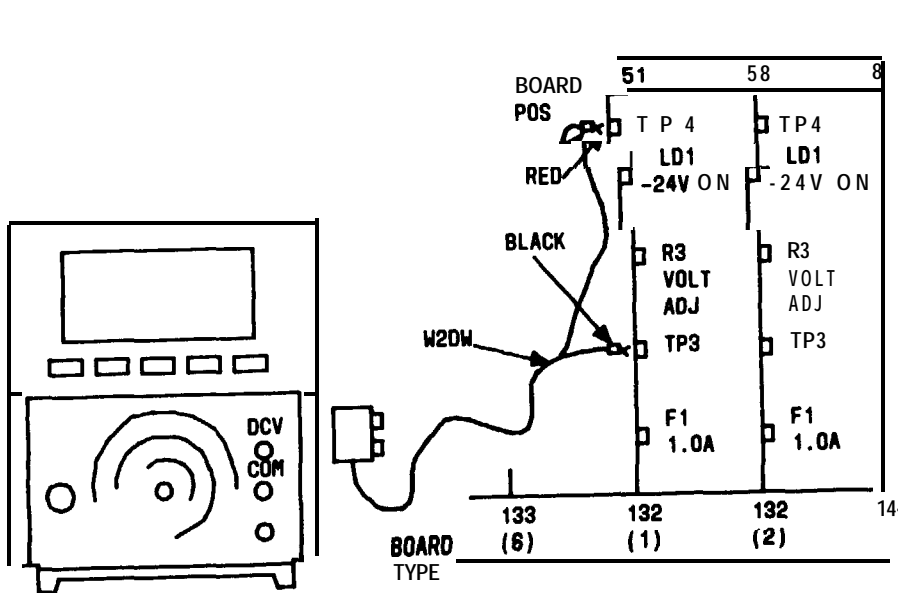
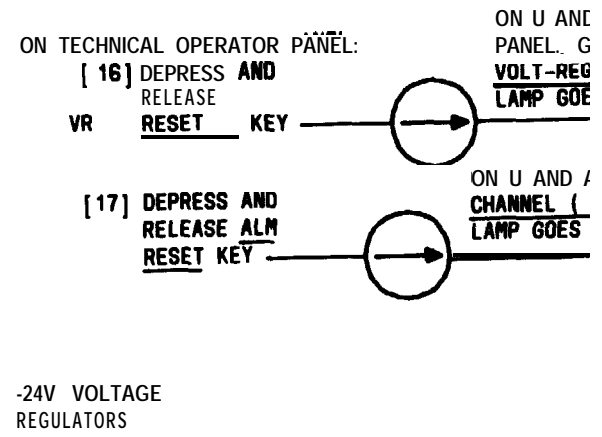
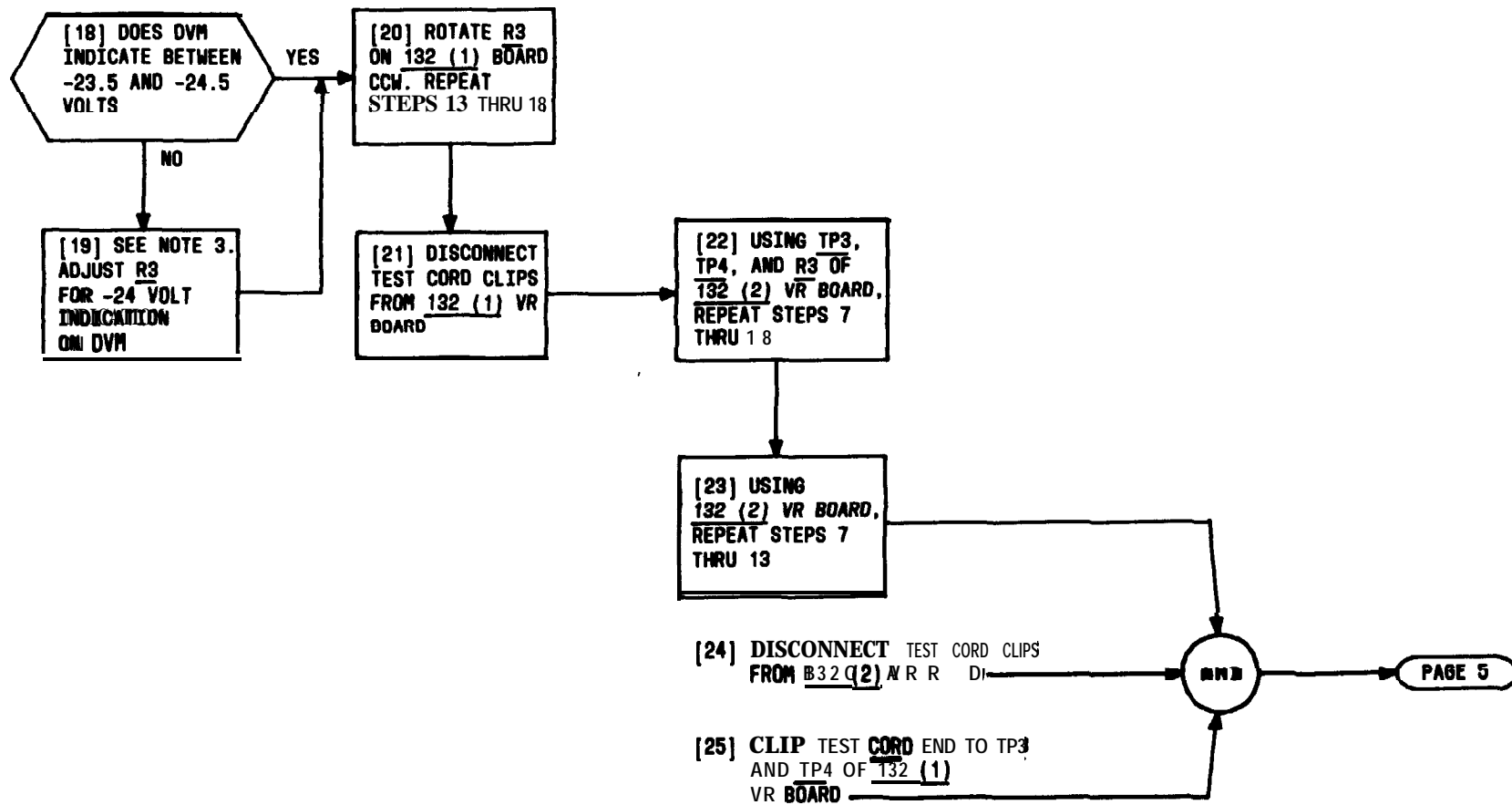


FIG. 1



TEST -24 VOLT REGULATOR – MONITOR TRANSFER



WARNING 3
 POWER MUST BE
 REMOVED AS SHOWN IN
 DLP-554 TO PREVENT
 DAMAGE TO EQUIPMENT

[26] USING R3
 OF 132 (1) VR
 BOARD, REPEAT
 STEPS 7 THRU 13

[27] ARE LD1 LAMPS
 ON BOTH VR BOARDS
 OUT AND ARE VOLT-REG-
 WIN AND VOLT-REG-MAJ
 LAMPS ON U AND A
 PANEL ON

YES

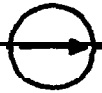
[29] SEE NOTE 3,
 REPOSITION R3 ON 132 ()
 VR BOARDS TO POSITIONS
 NOTED IN STEP 11

[28] SEE WARNING 3.
 REPLACE CB 141
 [DLP-554] . RETURN
 TO STEP 7. SEE
 TAD-116 IF TROUBLE
 16 NOT CLEARED

NO

ON TECHNICAL OPERATOR PANEL:

[30] DEPRESS AND RELEASE
 VR RESET KEY



ON U AND A PANEL,
 RED VOLT-REG-MJ
 LAMP GOES OUT

[31] DEPRESS AND RELEASE
 ALM RESET KEY

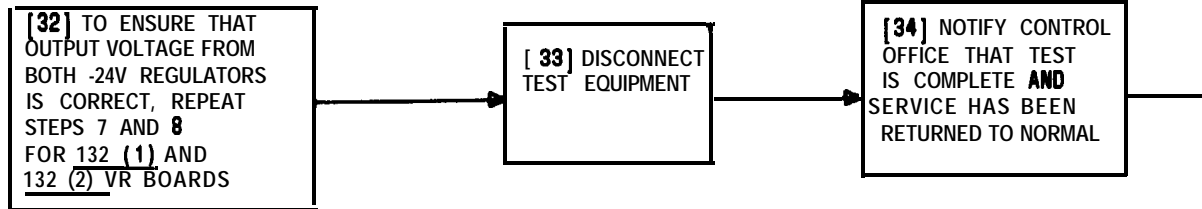


ON U AND A PANEL,
 CHANNEL () MAJ AND
 MIN LAMPS GO OUT



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TEST -24 VOLT REGULATOR – MONITOR TRANSFER

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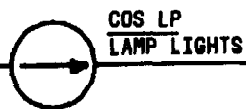
SUMMARY

USING FREQUENCY COUNTER AND VTVM, MEASURE TONE OSCILLATOR FREQUENCIES AND OUTPUT LEVELS ON TEST POINTS TP1, TP2, AND TP3 OF CIRCUIT BOARD (CB) 147 OF COMMON VOICE AND TONE CIRCUITS IN

CHANNEL BAY. FREQUENCY AND LEVELS SHOULD BE YI SPECIFIED IN TABLE B. USIR TMS MEASURE TOI OSCILLATOR FREQUENCIES. TONE BALANCE SHOULD BE W SPECIFIED IN TABLE C

- [1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED AND NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL PROCEDURES, SEE NOTE 1
- [2] GET TEST EQUIPMENT PER TABLE A AND SET UP HP 5245L COUNTER TO MEASURE FREQUENCY [DLP-549]
- [3] ENSURE CHANNEL () TO LAMP IS ON BEFORE CONTINUING WITH TEST
- [4] ON TEST JACKS, PADS, AND FUSE (TJP AND F) PANEL, SET COS KEY TO VERTICAL POSITION
- [5] ON COMMON VOICE AND TONE (CV AND T) CIRCUITS, LOCATE CIRCUIT BOARDS (CB) 147 AND 147-2 [FIG. 1]
- [6] CONNECT HP 5245L COUNTER AC INPUT TO TP1 ON 147-1 BOARD
- [7] GROUND COUNTER TO GRD TEST POST ON TJP AND F PANEL

T
EQUIPMENT REQUIRED
TRANSMISSION MEASURING
VACUUM TUBE VOLTMETER (VTVM)
FREQUENCY COUNTER
TEST CORD FOR VTVM
TEST CORD FOR TMS
TEST CORD FOR COUNTER



AND

READY TO MEASURE FREQUENCY

[8] IS INDICATION POINT BETWEEN SHOWN IN PAGE 3

[9] SEE REPLACE 147-() B CV AND T [DLP-554 STEPS 6

WARNING 1
POWER MUST BE REMOVED AS SHOWN IN OLP-554 TO PREVENT DAMAGE TO EQUIPMENT

NOTE 1
DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE

MEASURE FREQUENCY AND OUTPUT LEVEL OF CHANNEL BAY 1900-HZ, 2100-HZ, AND 2900-HZ TONE OSCILLATORS

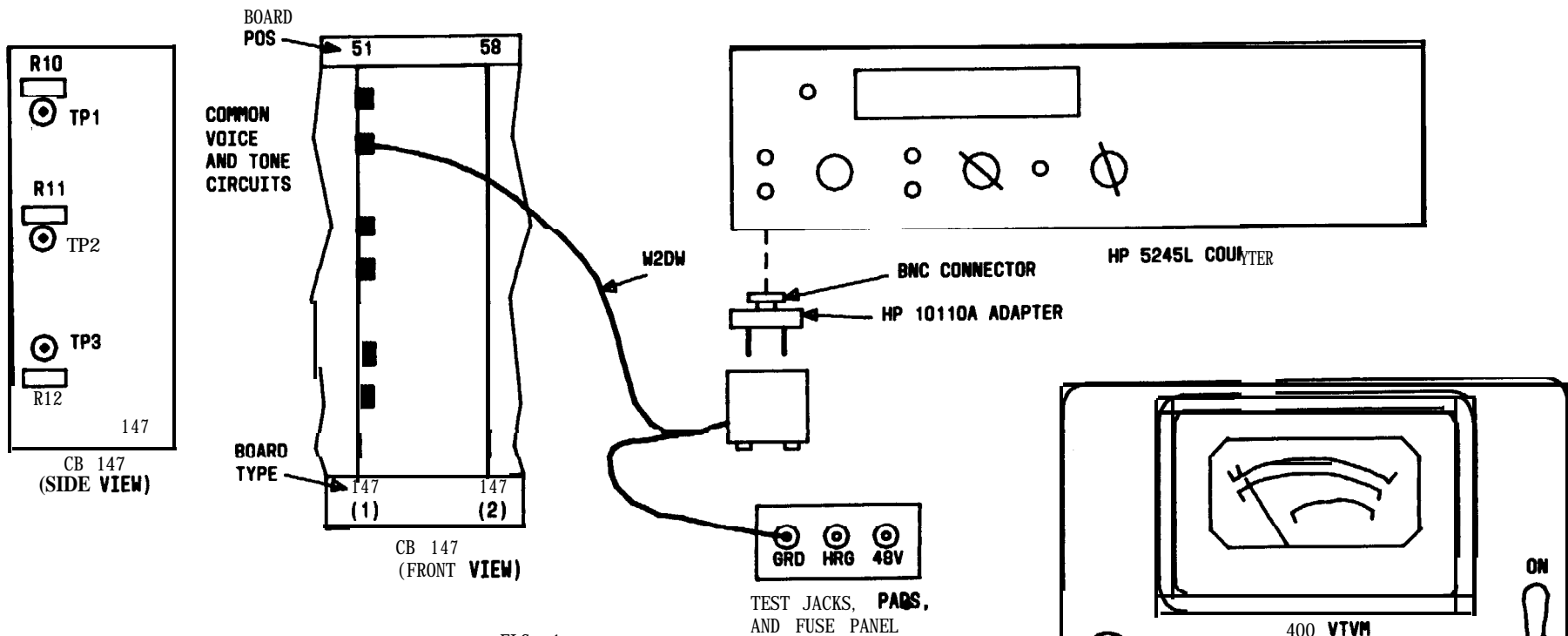


FIG. 1

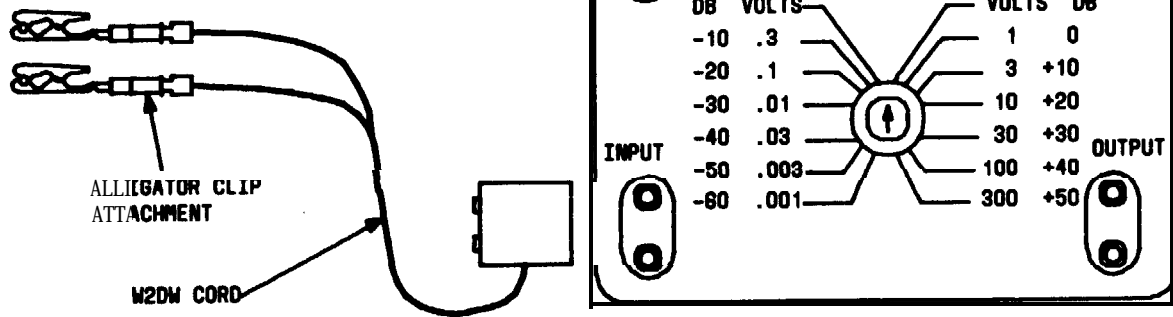


FIG. 2

**MEASURE FREQUENCY AND OUTPUT LEVEL OF CHANNEL BAY
1900-HZ, 2100-HZ, AND 2900-HZ TONE OSCILLATORS**

[10] SUBSTITUTING TEST POINTS TP2 AND TP3 FOR TP1 ON CB 147-(). REPEAT STEPS 6 THRU 9. SEE TABLE B

NOTE 2
IT MAY BE NECESSARY TO REPEAT THIS ADJUSTMENT SEVERAL TIMES TO GET EXPECTED INDICATION

TABLE B				
COUNTER	CIRCUIT BOARD (CB)	TEST POINT	FREQUENCY LIMITS (HZ)	ADJUSTMENT
TONE OSCILLATOR FREQUENCIES	147-1	TP1	1894 - 1906	REPLACE CIRCUIT BOARD
	OR	TP2	2094 - 2109	"
	147-2	TP3	2891 - 2909	"
VTVM	CIRCUIT BOARD (CB)	TEST POINT	OUTPUT LEVEL (MILLIVOLTS)	ADJUSTMENT POTENTIOMETER
TONE OSCILLATOR OUTPUT LEVELS	147-1	TP1	650	R10
	OR	TP2	650	R11
	147-2	TP3	200	R12

[11] SUBSTITUTING TEST POINTS ON CB 147-2 FOR THOSE ON CB 147-1, REPEAT STEPS 6 THRU 10. SEE TABLE B

[12] DISCONNECT COUNTER

[13] PREPARE VTVM TO READ VOLTS ON 1-VOLT SCALE [DLP-557]. CONNECT VTVM TO TP1 ON CB 147-1 [FIG. 2]

[14] CONNECT VTVM GROUND TO GRD TEST POINT ON TJP AND F PANEL

READY FOR VTVM READINGS



[15] 19 VTVM INDICATION FOR THIS TEST POINT AS SPECIFIED IN TABLE B

YES

[18] SUBSTITUTING TEST POINTS TP2 AND TP3 FOR TP1 ON CB 147-(). REPEAT STEPS 13 THRU 15. SEE TABLE B

NO

NO

[16] ADJUST APPROPRIATE POTENTIOMETER R() ON CB 147-() FOR VALUE SPECIFIED IN TABLE B. SEE NOTE 2

[17] SEE WARNING 2. REPLACE CB 147-(). [DLP-554]

[19] SUBSTITUTING TEST POINTS ON CB 147-2 FOR THOSE ON CB 147-1, REPEAT STEPS 13 THRU 18. SEE TABLE B

WARNING 2
POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

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MEASURE FREQUENCY AND OUTPUT LEVEL OF CHANNEL BAY 1900-HZ, 2100-HZ, AND 2900-HZ TONE OSCILLATORS

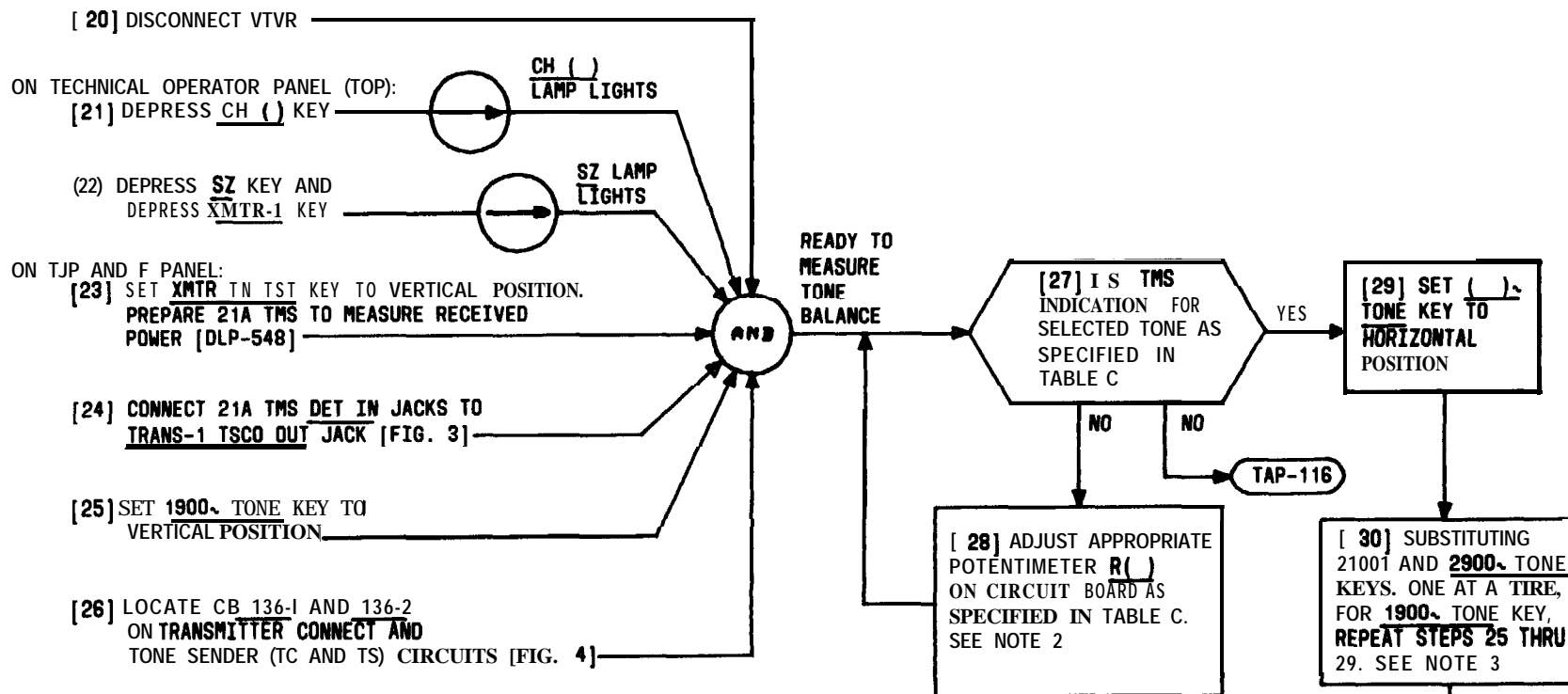
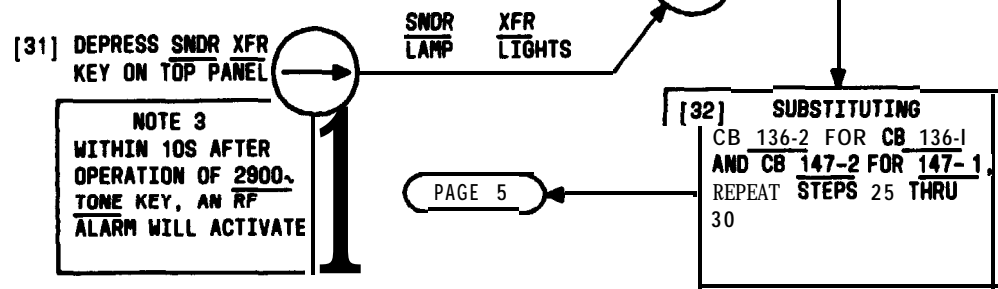


TABLE C			
TMS TONE BALANCE - DBMS			
ON TJP AND F PANEL	TONE BALANCE	ADJUSTMENT	
TONE KEY JACK	LIMITS	POTENTIOMETER	
1600s	TRANS- 1 TSC OUT	0 DBM	R32 ON CB 136-() IN TC AND T6 CIRCUITS
2100.	TRANS- 1 TSC OUT	-1 DBM TO +1 DBM	R11 ON CB 147-() IN CV AND T CIRCUITS
2900 _~	TRANS- 1 TSC OUT	-11 DBM TO -6 DBM	R12 ON CB 147-() IN CV AND T CIRCUITS



MEASURE FREQUENCY AND OUTPUT LEVEL OF CHANNEL BAY 1900-HZ, 2100-HZ, AND 2900-HZ TONE OSCILLATORS

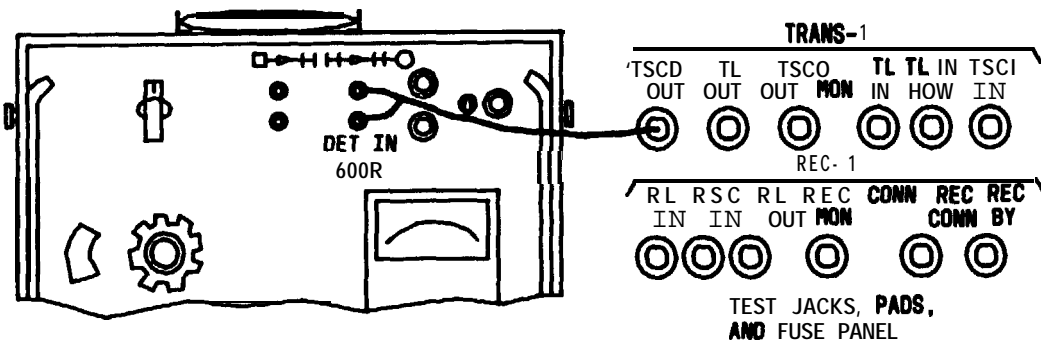
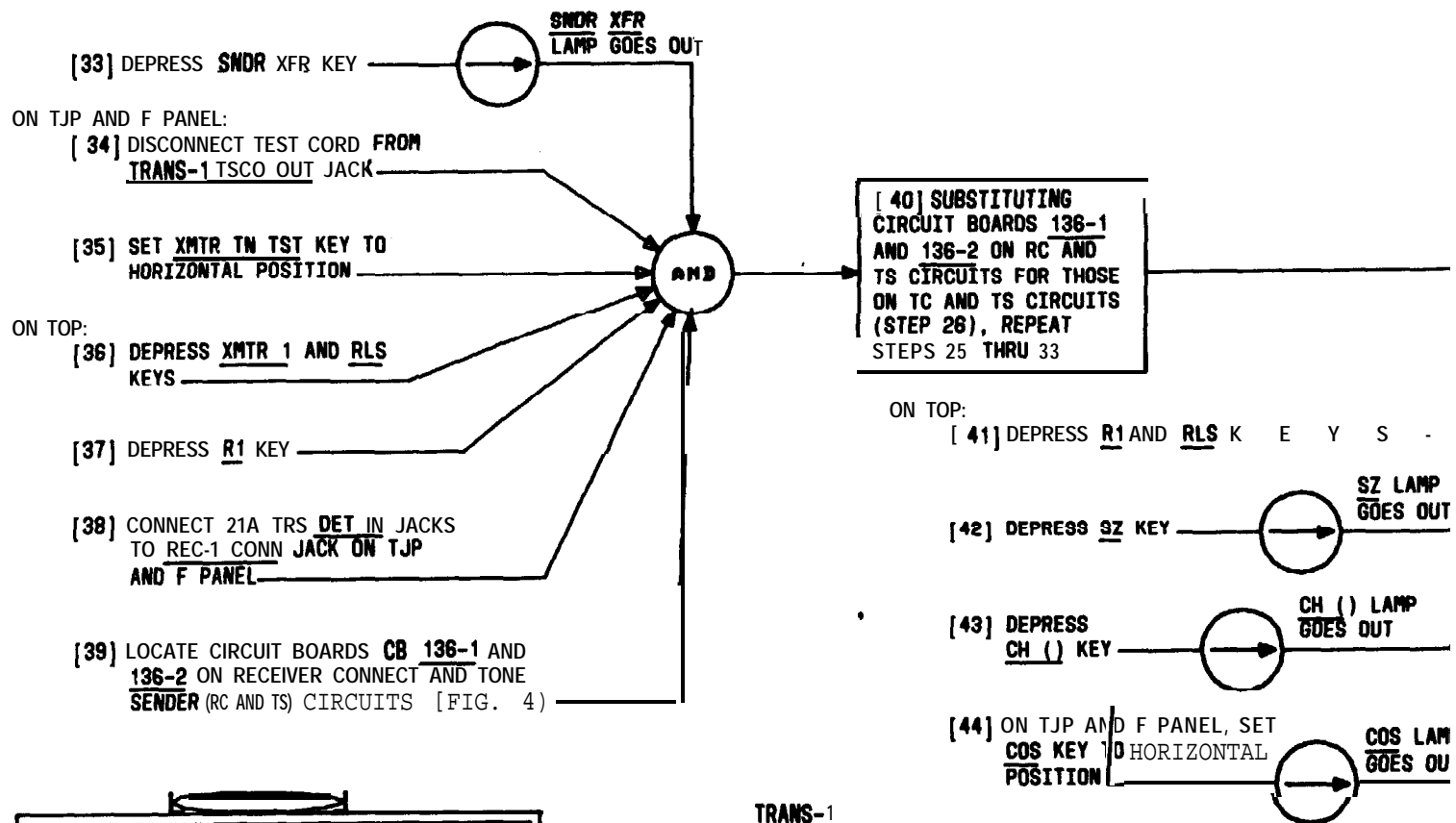


FIG. 3

**MEASURE FREQUENCY AND OUTPUT LEVEL OF CHANNEL BAY
 1900-HZ, 2100-HZ, AND 2900-HZ TONE OSCILLATORS**

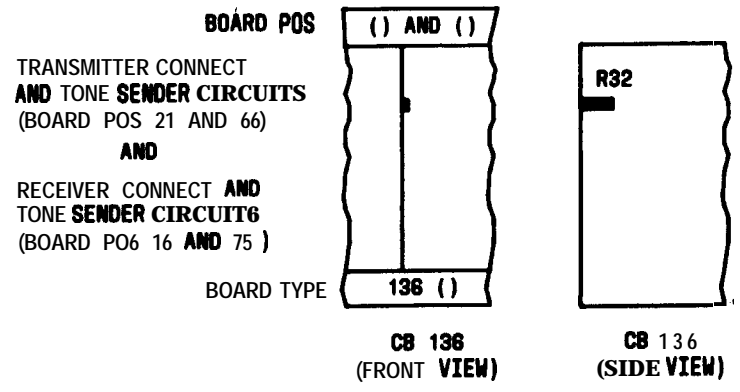
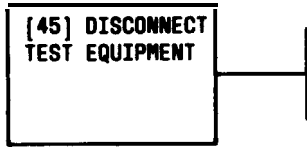


FIG. 4

**MEASURE FREQUENCY AND OUTPUT LEVEL OF CHANNEL BAY
 1900-HZ, 2100-HZ, AND 2900-HZ TONE OSCILLATORS**

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SUMMARY

USE 21A TMS TO HONITOR PRIMARY TONES. MISADJUST R10, R11, AND R12 TO INITIATE PRIMARY TONE (1900-, 2100-, AND 2900%) FAILURE AND ALARM INDICATIONS. USING TMS AND VTVH. RESET R10, R11, AND R12 FOR NORMAL OPERATION AND RESET ALARM CIRCUITS

[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED AND NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL PROCEDURES. SEE NOTE 1

[2] GET TEST EQUIPMENT PER TABLE A AND SET UP TMS FOR DBM INPUT MEASUREMENTS [DLP-548]

[3] ENSURE CHANNEL () ID LAMP IS ON BEFORE CONTINUING WITH TEST

[4] ON TEST JACKS, PADS, AND FUSE (TJP AND F) PANEL OF CHANNEL BAY, SET COS KEY TO VERTICAL POSITION

ON TECHNICAL OPERATOR PANEL (TOP):

[5] DEPRESS CH () KEY

[6] DEPRESS SZ KEY

[7] DEPRESS XHTR 1 KEY

NOTE 1
DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE

EQUIPMENT REWIRED		RECOMMENDED TYPE
TRANSMISSION MEASURING SET (TMS)		YECD J94021A (21A)
VACUUM TUBE VOLTMETER (VTVM)		HEYLETT-PACKARD MODEL 400
TEST CORD FOR TMS		3P17B
TEST CORD FOR VTVH		W2DW WITH ALLIGATOR CLIPS

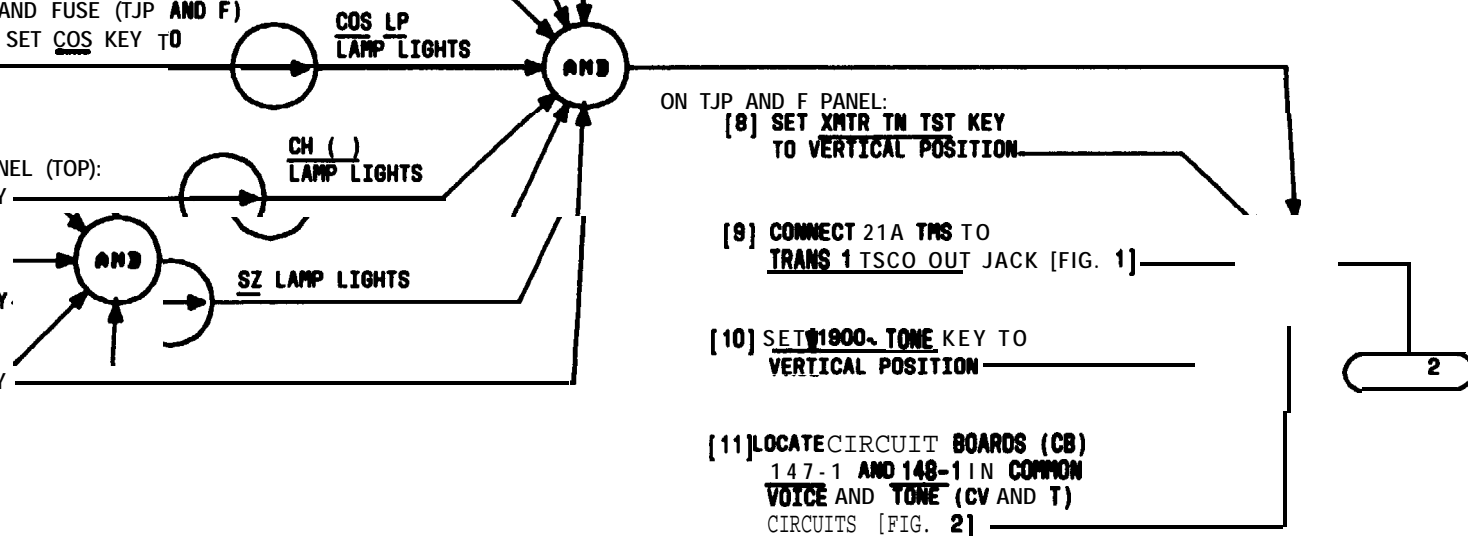
ON TJP AND F PANEL:

[8] SET XHTR 1 TST KEY TO VERTICAL POSITION

[9] CONNECT 21A TMS TO TRANS 1 TSCO OUT JACK [FIG. 1]

[10] SET 1900- TONE KEY TO VERTICAL POSITION

[11] LOCATE CIRCUIT BOARDS (CB) 147-1 AND 148-1 IN COMMON VOICE AND TONE (CV AND T) CIRCUITS [FIG. 2]



TEST CHANNEL BAY 1900-HZ, 2100-HZ, AND 2900-HZ TONE MONITOR

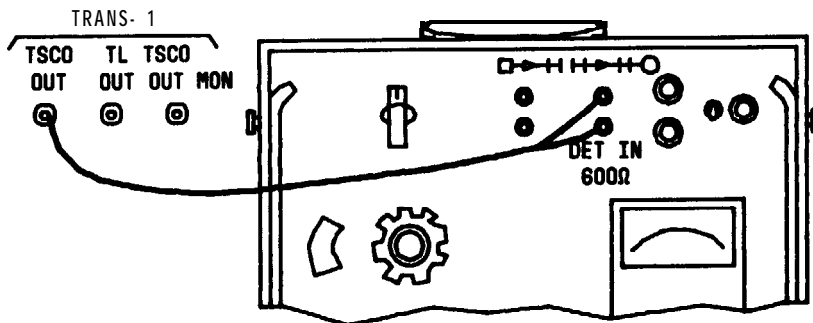
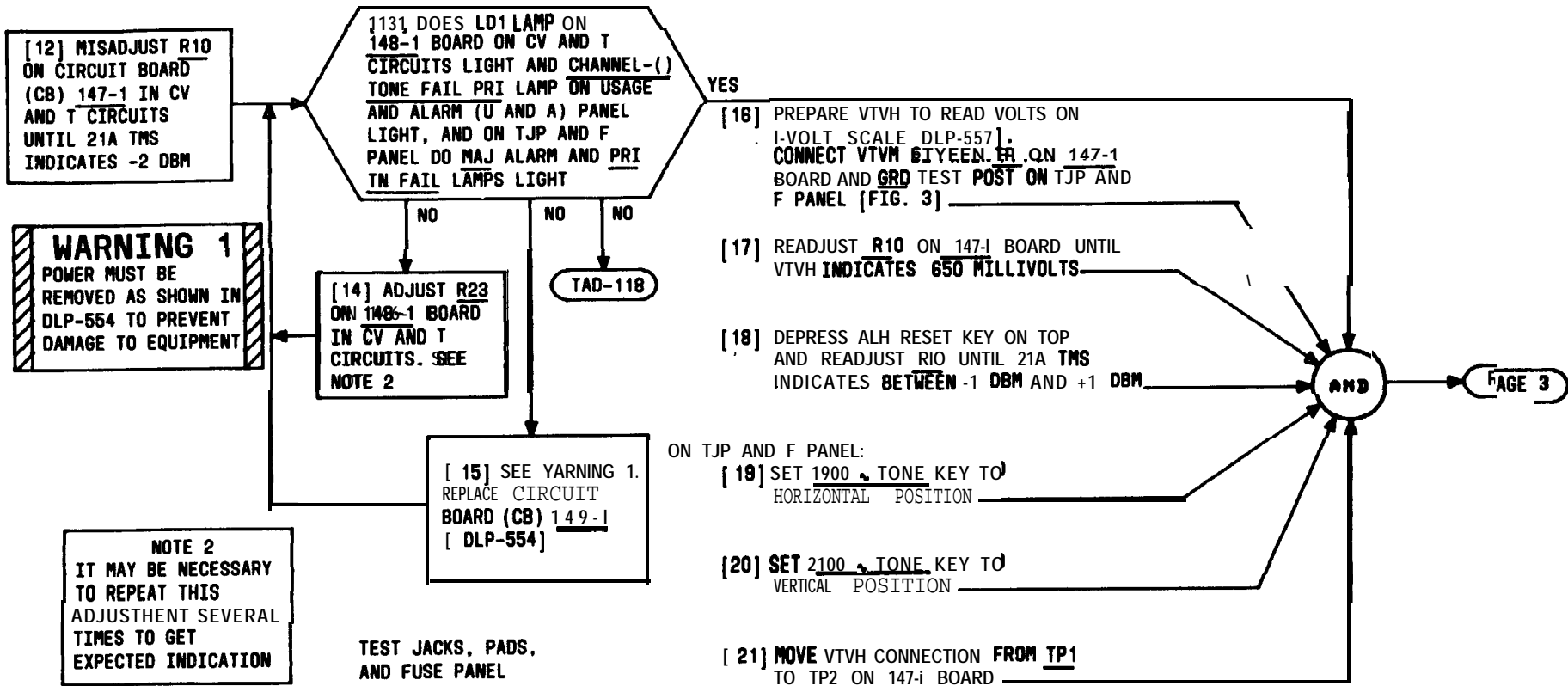


FIG. 1

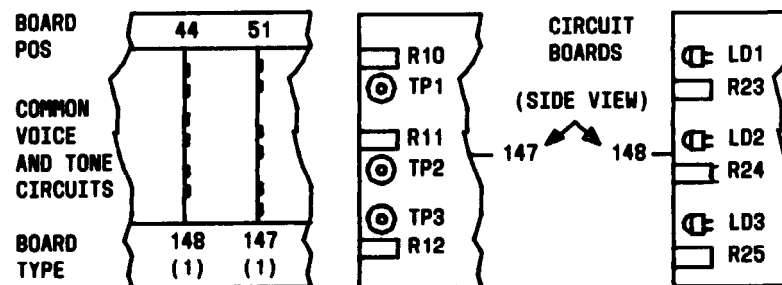


FIG. 2

TEST CHANNEL BAY 1900-HZ, 2100-HZ, AND 2900-HZ TONE MONITOR

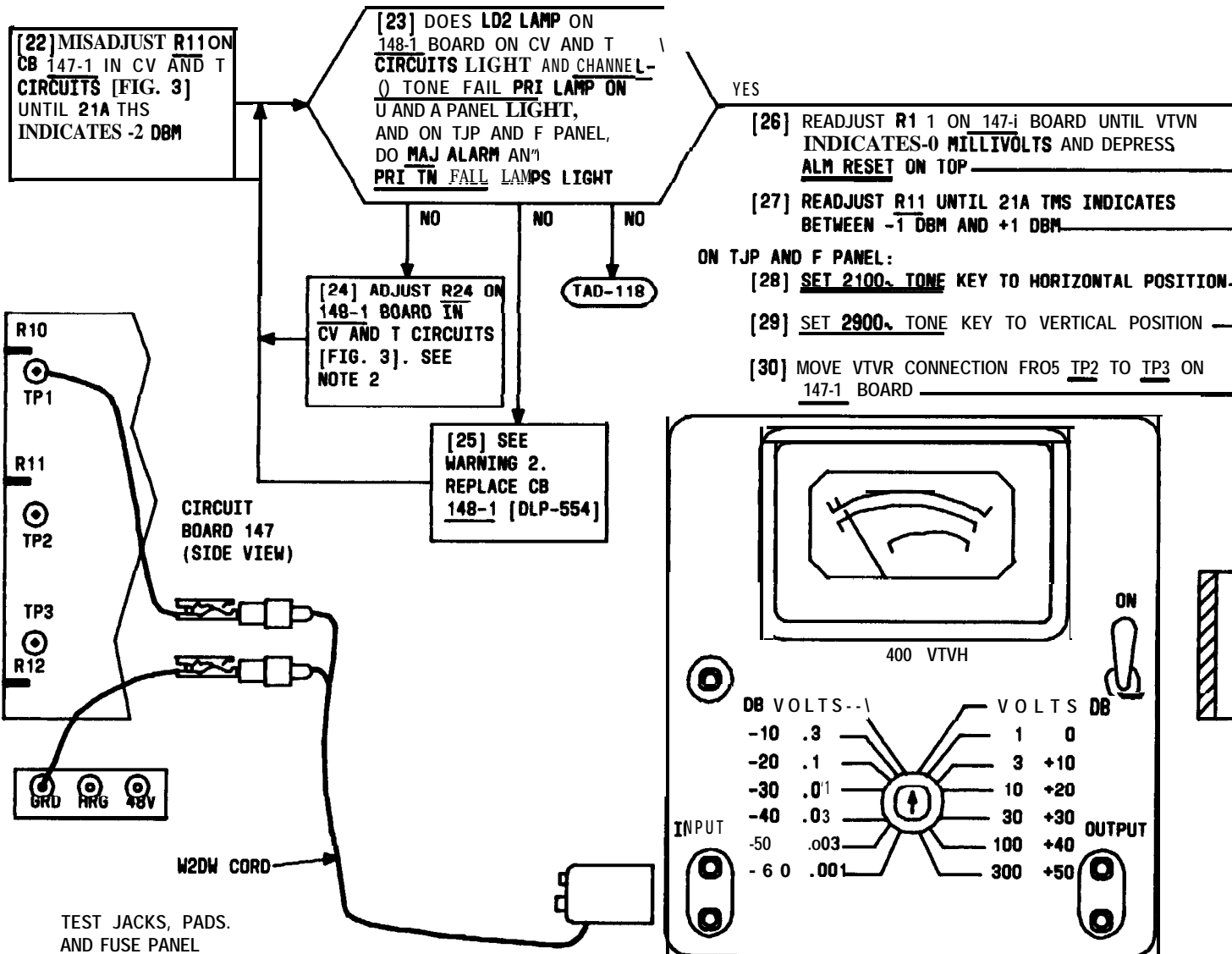
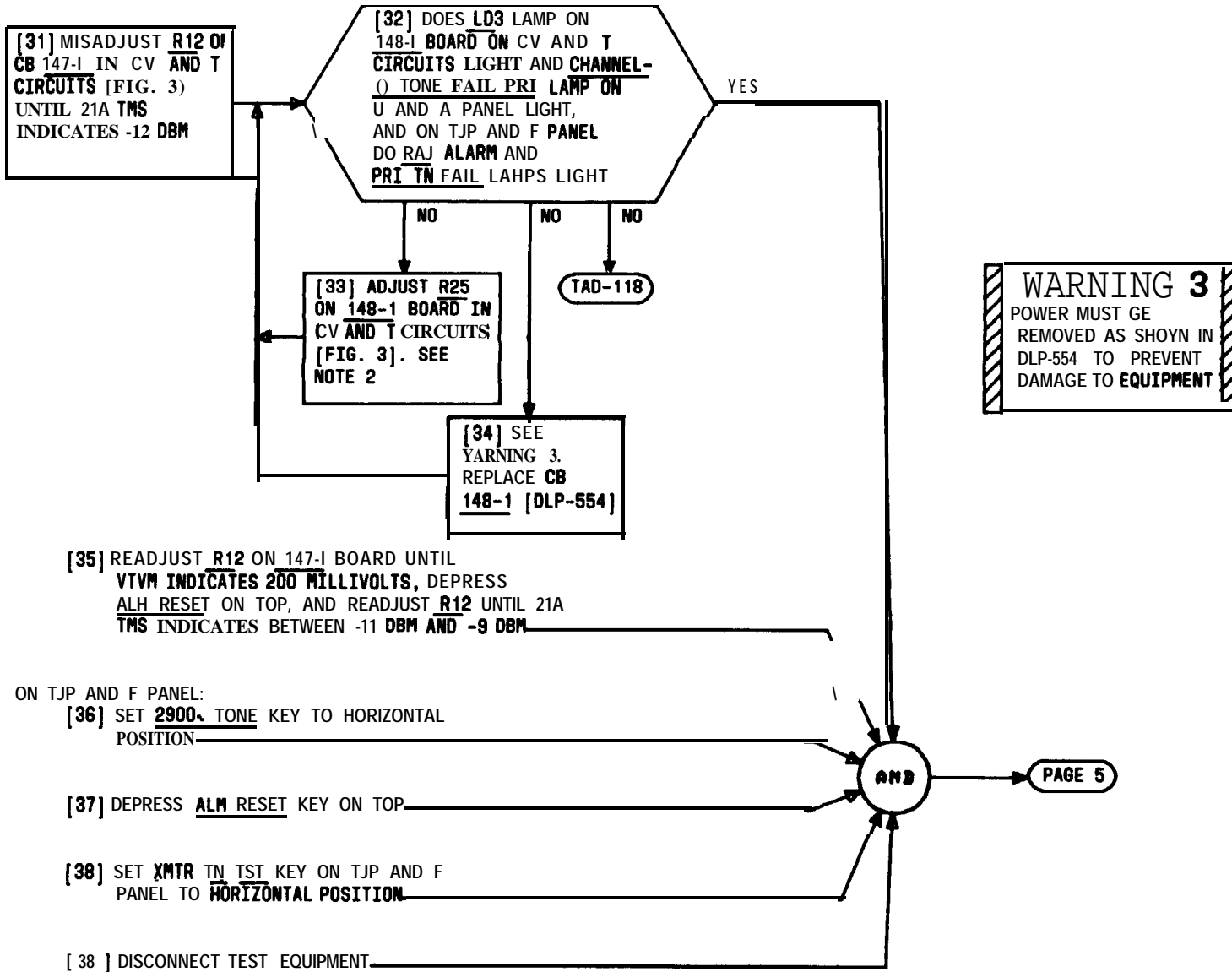


FIG. 3

TEST CHANNEL BAY 1900-HZ, 2100-HZ, AND 2900-HZ TONE MONITOR



**TEST CHANNEL BAY 1900-HZ, 2100-HZ, AND 2900-HZ
TONE MONITOR**

ON TOP CIRCUITS:

[40] DEPRESS RLS KEY

[41] DEPRESS SZ KEY → SZ LAMP GOES OUT

[42] DEPRESS CH () KEY

ON TJP AND F PANEL:

[43] SET COS KEY TO HORIZONTAL POSITION

COS LP LAMP GOES OUT

AND

[44] NOTIFY CONTROL OFFICE THAT TEST IS COMPLETE AND SERVICE HAS BEEN RETURNED TO NORMAL

TEST CHANNEL BAY 1900-HZ, 2100-HZ, AND 2900-HZ
TONE MONITOR

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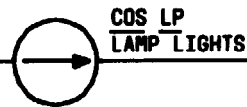
SUMMARY

USING FREQUENCY COUNTER AND VTVM, MEASURE TONE OSCILLATOR FREQUENCIES AND OUTPUT LEVELS ON TEST POINTS TP1, TP2, AND TP3 OF CIRCUIT BOARD 142 OF COMMON VOICE AND TONE CIRCUITS IN

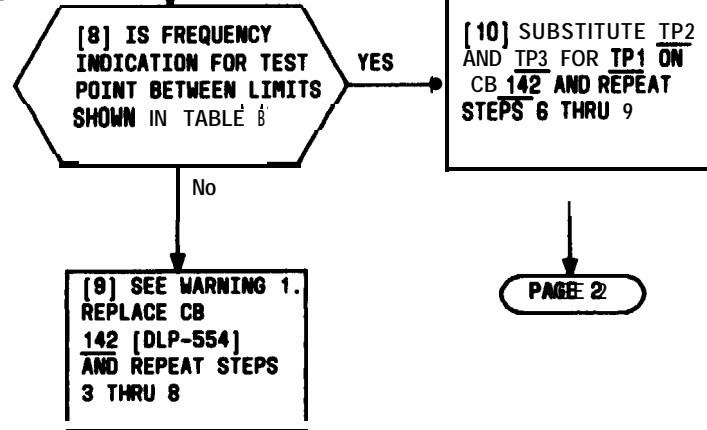
CHANNEL BAY. FREQUENCY AND LEVELS SHOULD BE WITHIN LIMITS SPECIFIED IN TABLE B. USING TMS MEASURE TONE BALANCE FOR TONE OSCILLATOR FREQUENCIES. TONE BALANCE SHOULD BE WITHIN LIMITS SPECIFIED IN TABLE C

- [1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED AND NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL PROCEDURES. SEE NOTE 1
- [2] GET TEST EQUIPMENT PER TABLE A AND SET UP COUNTER TO MEASURE FREQUENCY [DLP-549]
- [3] ENSURE CHANNEL () ID LAMP IS ON BEFORE CONTINUING WITH TEST
- [4] SET COS KEY ON TEST JACKS, PADS, AND FUSE (TJP AND F) PANEL OF CHANNEL BAY TO VERTICAL POSITION
- [5] LOCATE CIRCUIT BOARDS (CB) 142 AND 136 ON COMMON VOICE AND TONE (CV AND T) CIRCUITS OF CHANNEL BAY [FIG. 1]
- [6] CONNECT COUNTER AC INPUT TO TP1 ON CB 142
- [7] GROUND COUNTER TO GRD TEST POST ON TJP AND F PANEL

TABLE A	
EQUIPMENT REQUIRED	RECOMMENDED TYPE
TRANSMISSION MEASURING SET (TMS)	WECO J94021A (21A)
VACUUM TUBE VOLTMETER (VTVM)	HEYLETT-PACKARD MODEL 400
FREQUENCY COUNTER	HP 5245L
TEST CORD FOR TMS	3P17B
TEST CORD FOR VTVM	W2DW OR EQUIVALENT
TEST CORD FOR COUNTER	HALE BNC TO ALLIGATOR CLIPS OR USE W2DW WITH HP 10110A ADAPTER



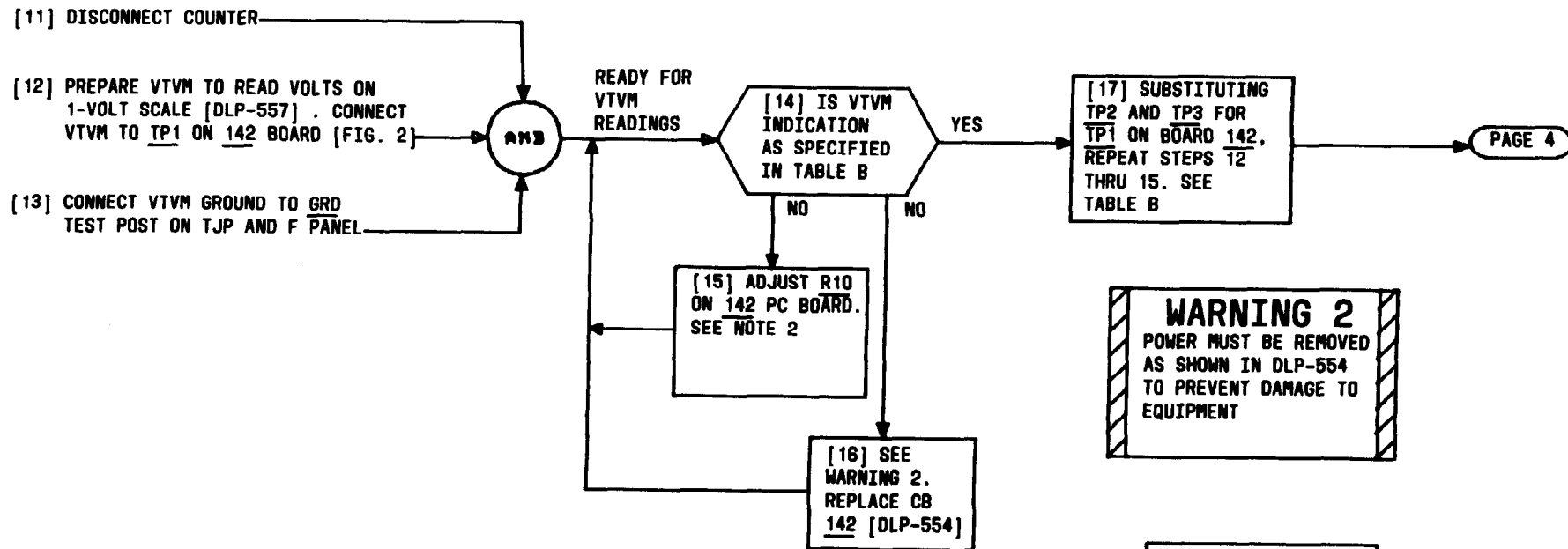
READY TO MEASURE FREQUENCY



NOTE 1
DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE

WARNING 1
POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

MEASURE FREQUENCY AND OUTPUT LEVEL OF CHANNEL BAY 600-HZ, 1000-HZ, AND 3000-HZ TONE OSCILLATORS



WARNING 2
 POWER MUST BE REMOVED
 AS SHOWN IN DLP-554
 TO PREVENT DAMAGE TO
 EQUIPMENT

NOTE 2
 IT MAY BE NECESSARY
 TO REPEAT THIS
 ADJUSTMENT SEVERAL
 TIMES TO GET
 EXPECTED INDICATION

TABLE B				
COUNTER	PC BOARD	TEST POINT	FREQUENCY LIMITS (HZ)	ADJUSTMENT
TONE OSCILLATOR FREQUENCIES	142	TP1	596-604	REPLACE PC BOARD
	142	TP2	993-1007	REPLACE PC BOARD
	142	TP3	1490-1510	REPLACE PC BOARD
VTVM	PC BOARD	TEST POINT	AMPLITUDE (MILLIVOLTS)	ADJUSTMENT POTENTIOMETER
TONE OSCILLATOR AMPLITUDES	142	TP1	650	R10
	142	TP2	650	R11
	142	TP3	650	R12

**MEASURE FREQUENCY AND OUTPUT LEVEL OF CHANNEL BAY
 600-HZ, 1000-HZ, AND 1500-HZ TONE OSCILLATORS**

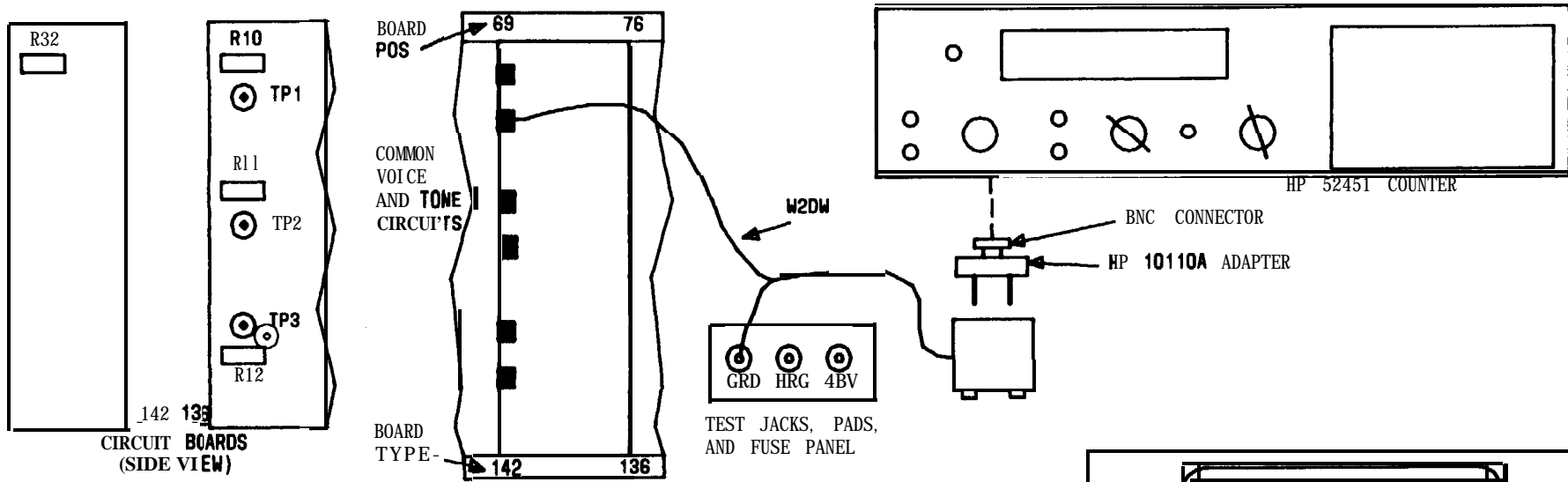


FIG. 1

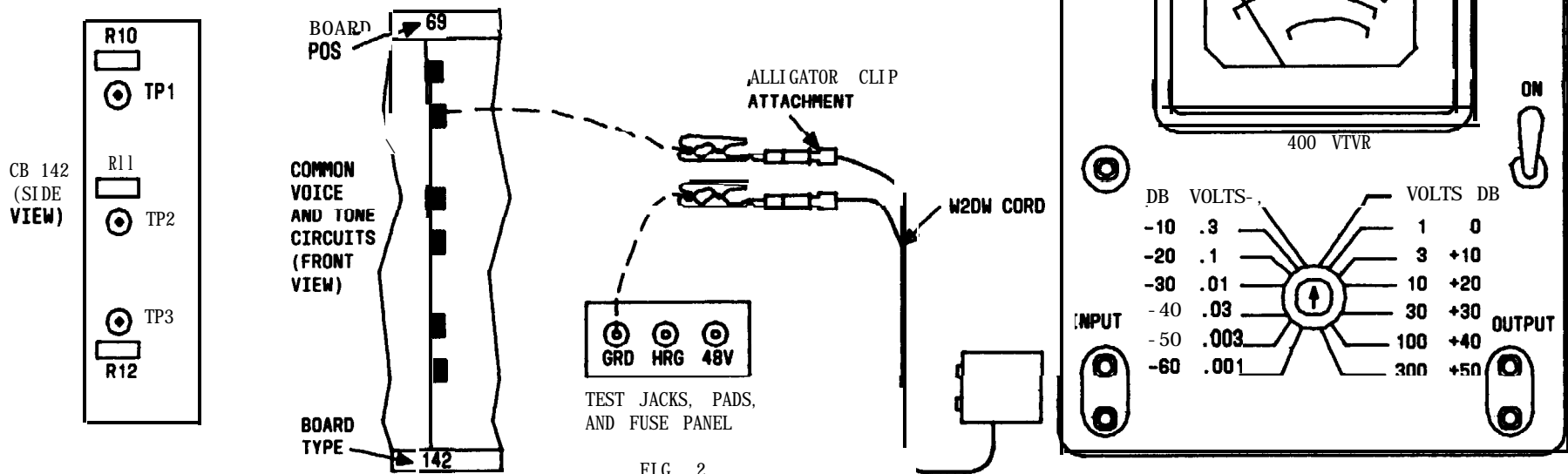


FIG. 2

**MEASURE FREQUENCY AND OUTPUT LEVEL OF CHANNEL BAY
600-HZ, 1000-HZ, AND 1500-HZ TONE OSCILLATORS**

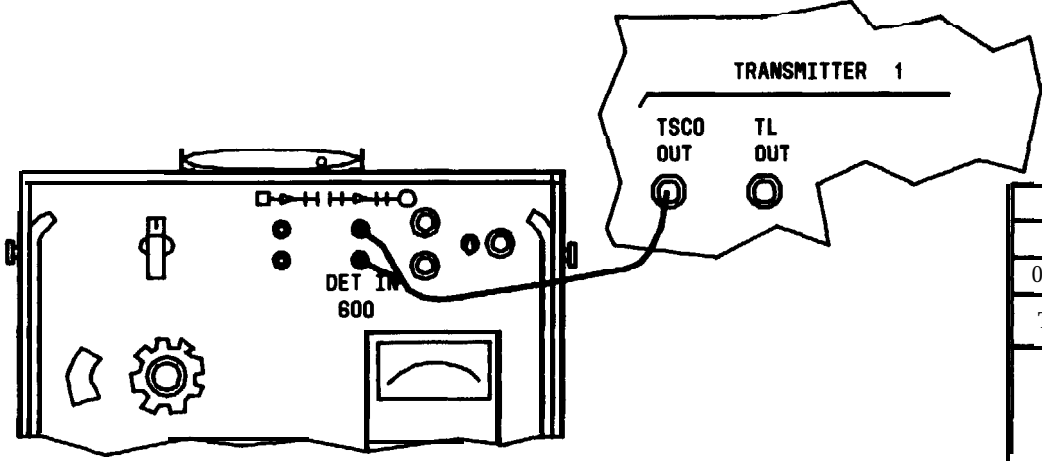
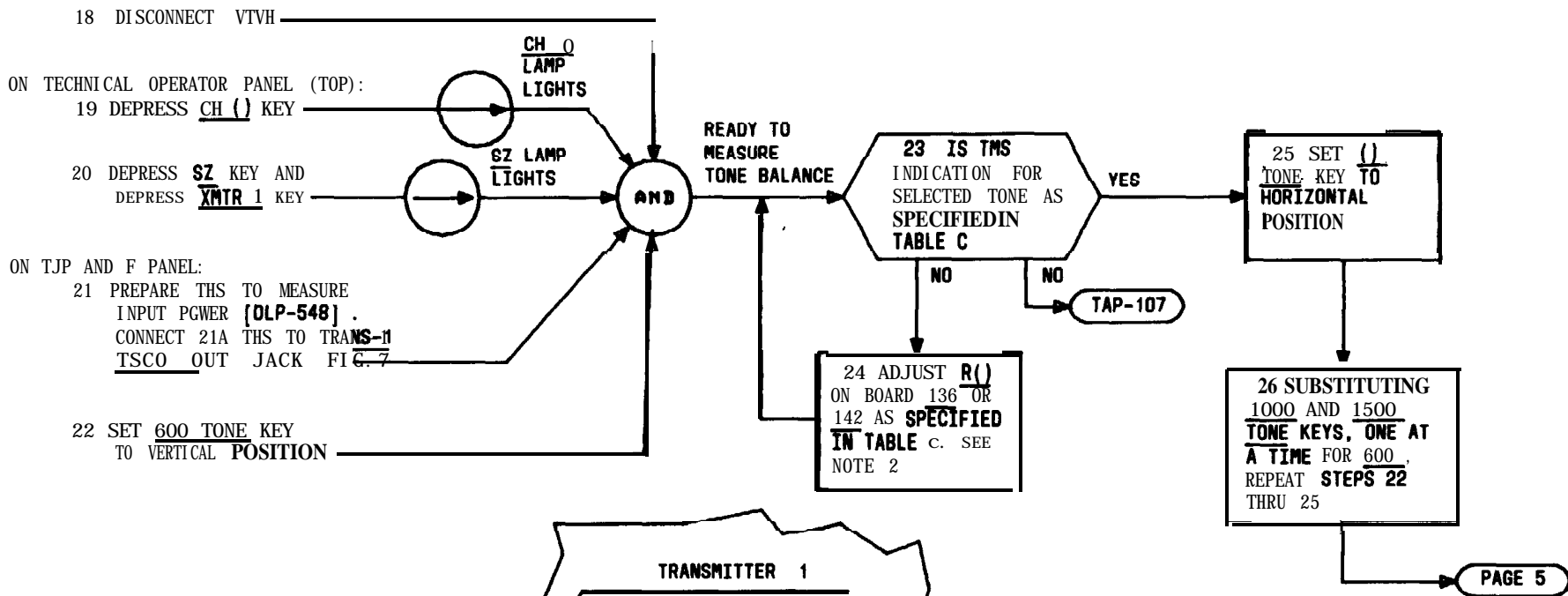


FIG. 3

TABLE C			
TMS TONE BALANCE DBMS			
ON TJP AND F CIRCUITS		BALANCE INDICATION LIRITS	ADJUSTMENT POTENTIOMETER
TONE KEY	JACK		
600	TRANS - 1 TSCO-OUT	-1 DBM TO 1 DBM ON	R32 ON 136 BOARD CV AND T CIRCUITS
1000	TRANS - 1 TSCO-OUT	-1 DBM TO 1 DBM ON	R11 ON 142 BOARD CV AND T CIRCUITS
1500	TRANS - 1 TSCO-OUT	-1 DBM TO 1 DBM ON	R12 ON 142 BOARD ON CV AND T CIRCUITS

**MEASURE FREQUENCY AND OUTPUT LEVEL OF CHANNEL BAY
600-HZ, 1000-HZ, AND 1500-HZ TONE OSCILLATORS**

ON TJP AND F PANEL:

[27] DISCONNECT TEST CORD FROM
TRANS 1 TSCO OUT JACK

ON TOP:

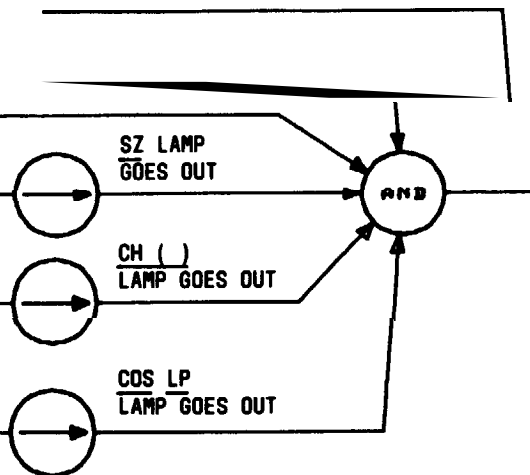
[28] DEPRESS RLS KEY

[29] DEPRESS SZ KEY

[30] DEPRESS CH () KEY

ON TJP AND F PANEL:

[31] SET COS KEY TO
HORIZONTAL POSITION



**MEASURE FREQUENCY AND OUTPUT LEVEL OF CHANNEL BAY
600-HZ, 1000-HZ, AND 1500-HZ TONE OSCILLATORS**

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SUMMARY

USE 21A TMS TO MONITOR SELECTIVE SIGNALING TONES. MISADJUST R10, R11, AND R12 ON CIRCUIT BOARD 142 OF THE COMMON VOICE AND TONE CIRCUITS TO INITIATE SIGNALING TONE FAILURE AND ALARM INDICATIONS. USING TMS AND VTVH, RESET R10, R11, AND R12 FOR NORMAL OPERATION AND RESET ALARM CIRCUITS

[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED AND NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL PROCEDURES. SEE NOTE 1

[2] GET TEST EQUIPMENT PER TABLE A AND SET UP TMS FOR DBM INPUT MEASUREMENTS [DLP-548]

[3] ENSURE CHANNEL ID LAHP IS ON BEFORE CONTINUING WITH TEST

[4] ON TEST JACKS, PADS, AND FUSE (TJP AND F) PANEL, SET COS KEY TO VERTICAL POSITION

COS LP
LAMP LIGHTS

ON TECHNICAL OPERATOR PANEL (TOP):

[5] DEPRESS CH () KEY

CH ()
LAMP LIGHTS

[6] DEPRESS SZ KEY

SZ LAMP LIGHTS

[7] DEPRESS XHTR-1 KEY

AND

ON TJP AND F PANEL:

[8] CONNECT TRANS-1 TSCO OUT JACK TO 21A TMS DET IN JACKS [FIG. 1]

[9] SET 600 TONE KEY TO VERTICAL POSITION

[10] LOCATE CIRCUIT BOARDS (CB) 142 AND 148-2 IN COMMON VOICE AND TONE (CV AND T) CIRCUITS [FIG. 2]

TABLE A

EQUIPMENT REQUIRED		RECOMMENDATION
TRANSMISSION SET (TMS)	MEASURING	YECO J9402
VACUUM TUBE VOLTMETER (VTVH)		HEWLETT-PACKARD
TEST CORD FOR TMS		3P17B
TEST CORD FOR VTVH		W20W UNIT

NOTE 1
DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE

TEST CHANNEL BAY 600-HZ, 1000-HZ, AND 1000-HZ TONE MONITOR

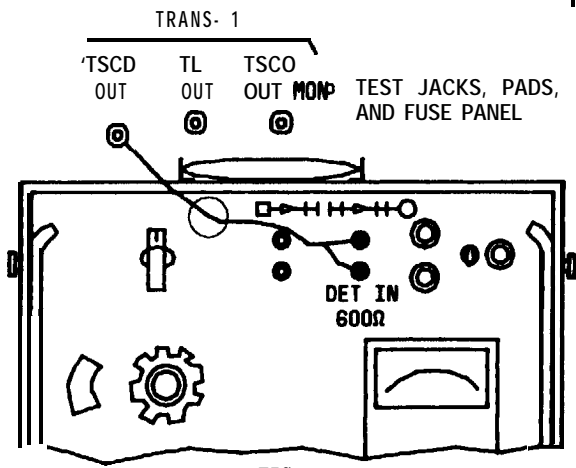
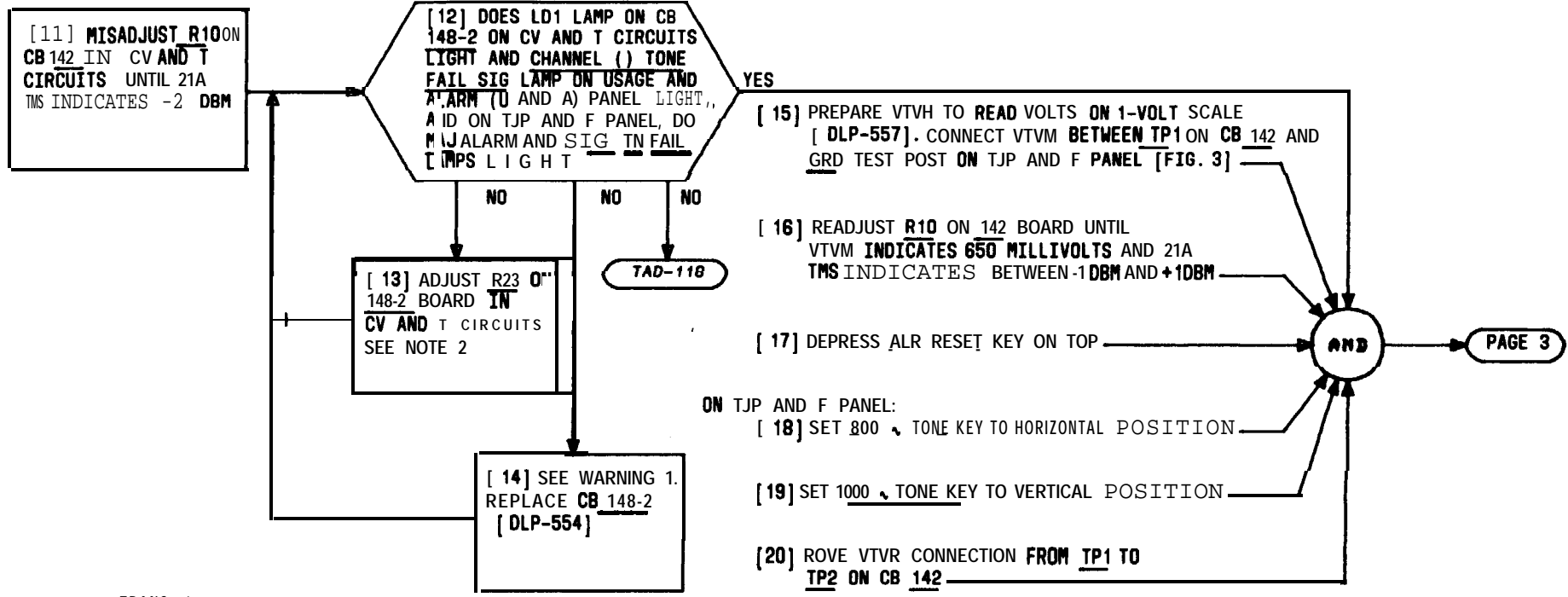


FIG. 1

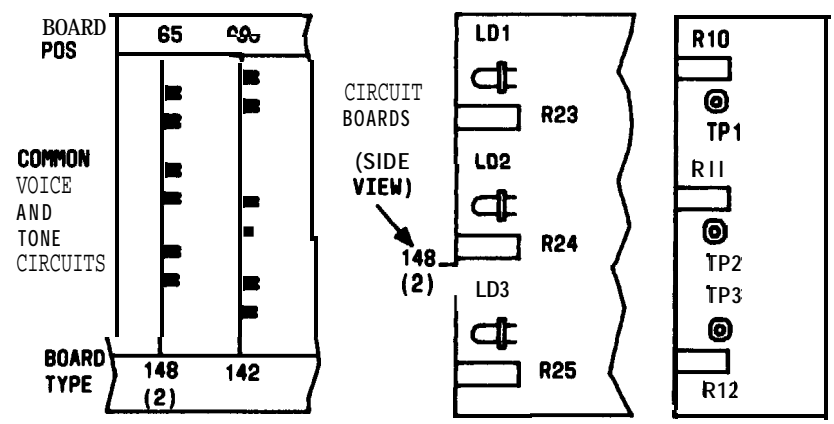


FIG. 2

NOTE 2
IT MAY BE NECESSARY TO REPEAT THIS ADJUSTMENT SEVERAL TIMES TO GET EXPECTED INDICATION

WARNING 1
POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

TEST CHANNEL BAY 600-HZ, 1000-HZ, AND 1500-HZ TONE MONITOR

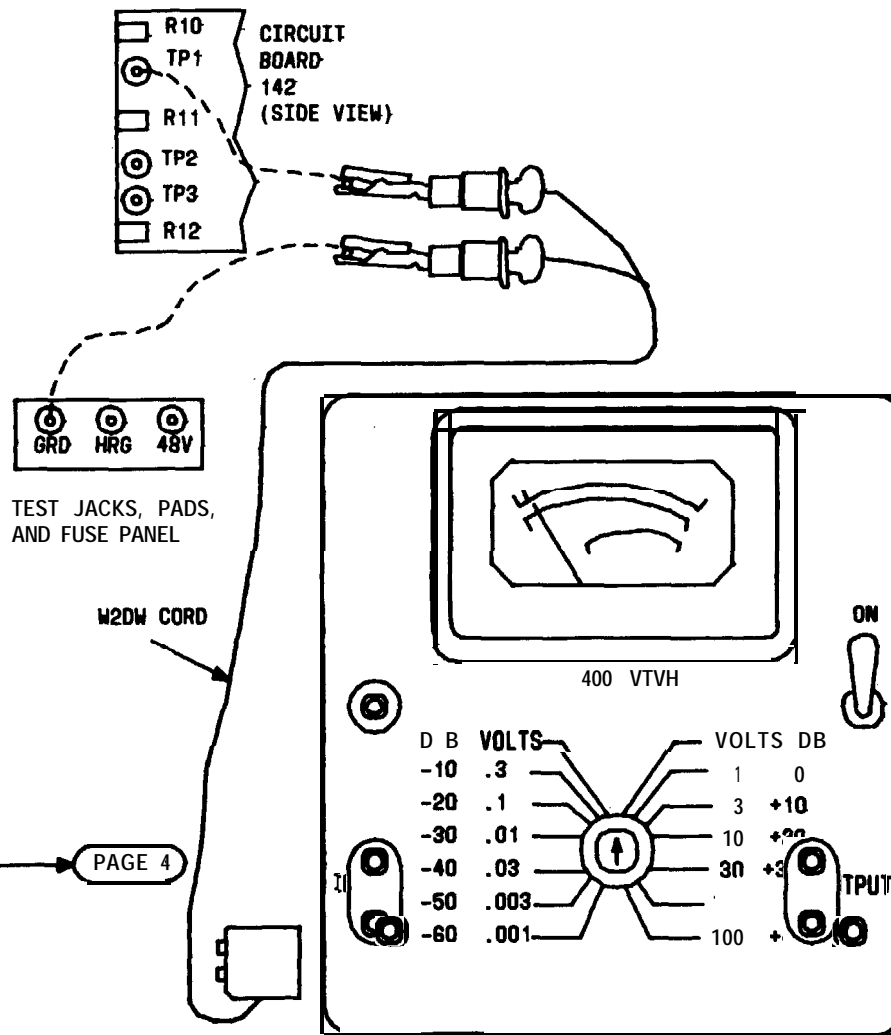
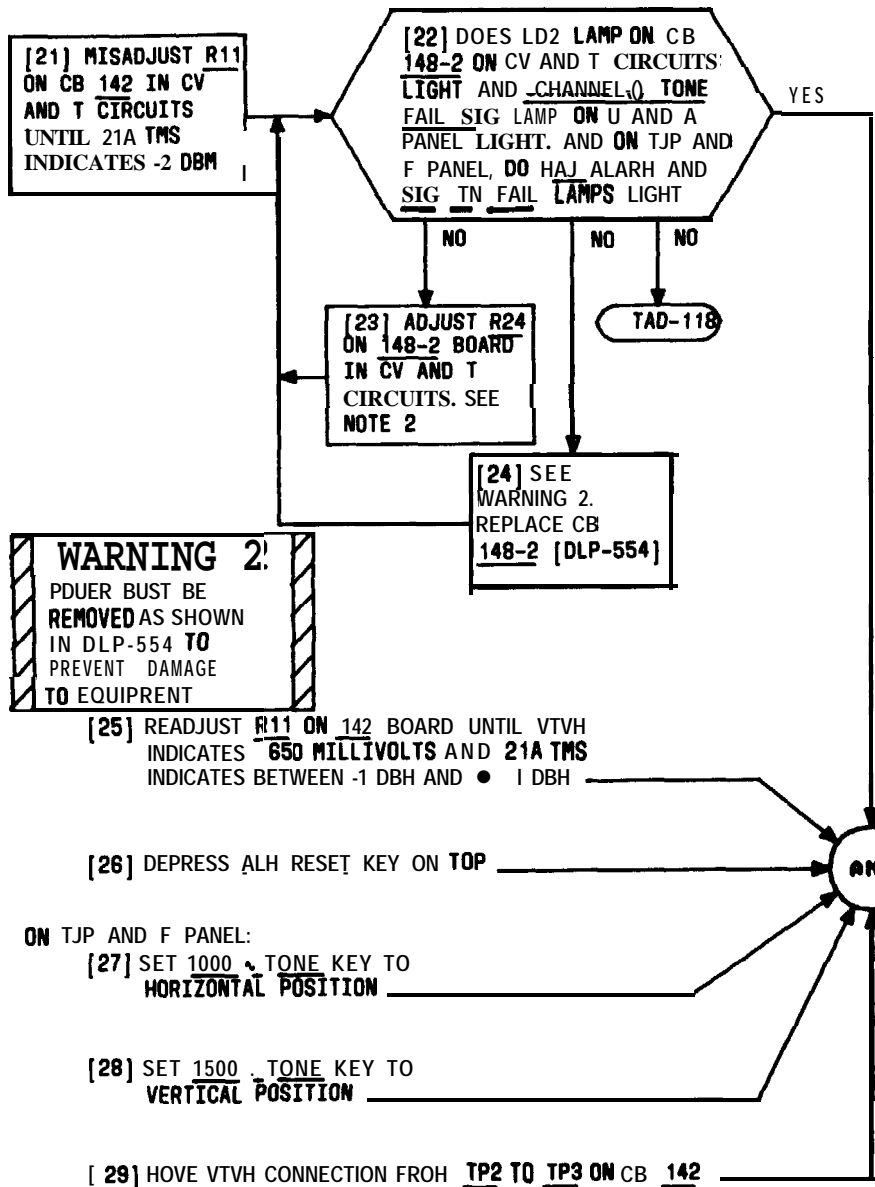
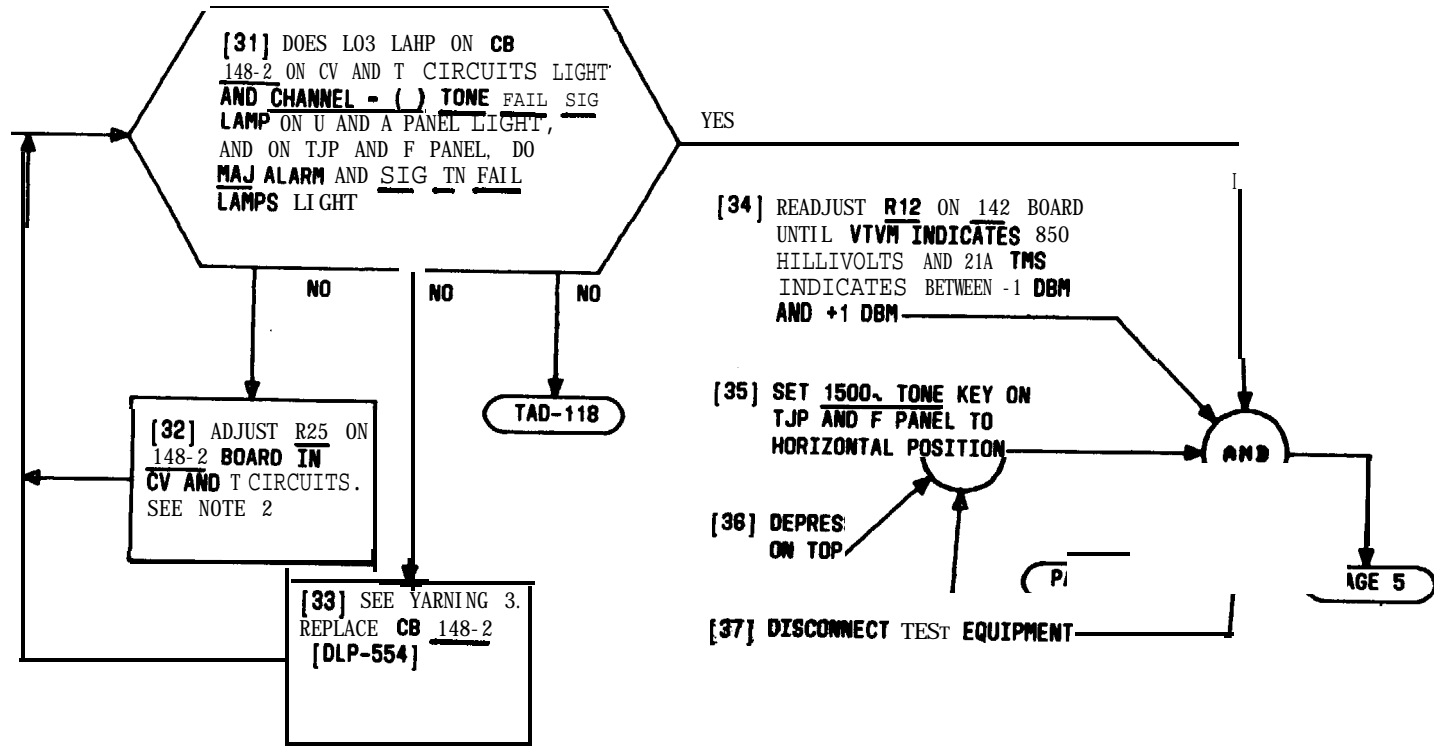


FIG. 3

TEST CHANNEL BAY 600-HZ, 1000-HZ, AND 1500-HZ TONE MONITOR

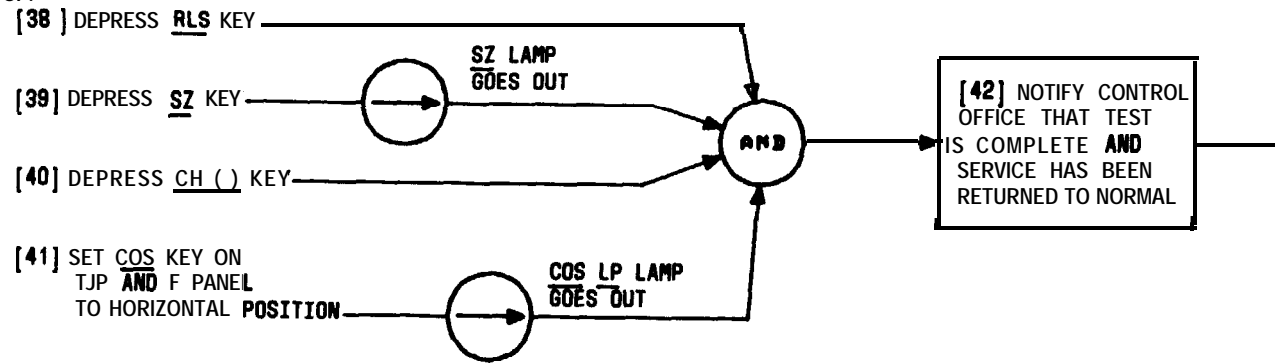
[30] MISADJUST R12 ON
 CB 142 IN CV AND T
 CIRCUITS UNTIL 21A
 TMS INDICATES -2 DBM

WARNING 3
 POWER MUST BE REMOVED
 AS SHOWN IN DLP-554
 TO PREVENT DAMAGE
 TO EQUIPMENT



TEST CHANNEL BAY 600-HZ, 1000-HZ, AND 1500-HZ
 TONE MONITOR

ON TOP:



TEST CHANNEL BAY **600-HZ, 1000-HZ, AND WOO-HZ**
TONE MONITOR

SUMMARY
 USING A TRANSMISSION MEASURING SET (TMS) AT CHANNEL BAY-TEST JACKS, PADS, AND FUSE PANEL, MEASURE 1900-HZ AND 2100-HZ TONE FOR -10 TO -24 DBM AND 2900-HZ TONE FOR -19 TO -37 OEM. RADIO RECEIVER PERSONNEL ARE ALSO REQUIRED FOR THIS TEST

TABLE A	
EQUIPMENT REQUIRED	RECOMENEO TYPE
TRANSMISSION MEASURING SET	WECO J94021A (21A)
TEST CORD FOR TMS	3P17B CORD

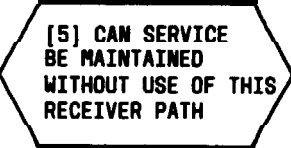
NOTE
 DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE

[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED. SEE NOTE

[2] GET TEST EQUIPMENT PER TABLE A

[3] ESTABLISH COMMUNICATIONS WITH RADIO RECEIVER PERSONNEL

[4] ENSURE CHANNEL() IO LAMP IS ON BEFORE CONTINUING WITH TEST



[9] AT TEST JACKS, PADS, AND FUSE PANEL, SET REC BY FOR DESIRED RECEIVER TO VERTICAL POSITION



PAGE 2

[6] AT TECHNICAL OPERATOR PANEL, DEPRESS CH () AND SZ KEYS FOR DESIRED CHANNEL



CH () AND SZ LAMPS LIGHT



[7] NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES

[8] DEPRESS SWBD D'ABLE KEY



SWBD D'ABLE LAMP LIGHTS

MEASURE RECEIVER TO CONTROL TERMINAL 1900-HZ, 2100-HZ, AND 2900-HZ SIGNALING TONE LEVELS

[10] CONDITION J94021A (2IA) TMS TO MEASURE DECIBELS [DLP-548]

[11] SET DET INPUT ON TMS TO +20

[12] CONNECT DET IN 600Ω OF TMS TO RL IN () JACK OF TEST JACKS, PADS, AND FUSE PANEL WITH 3P17B PATCH CORD [FIG. 1]

[13] AT RECEIVER, MEASURE RECEIVER TO CONTROL TERMINAL 1900-HZ, 2100-HZ, AND 2900-HZ SIGNALING TONE LEVELS

[14] ASK RADIO RECEIVER PERSONNEL TO SET 2100 SIG OSC AND 2900 SIG OSC SWITCHES TO OFF AND DEPRESS AND HOLD 1900 SIG OSC TEST PUSHBUTTON

[15] ON TMS, TURN DET INPUT CLOCKWISE UNTIL AN ON-SCALE METER DEFLECTION IS OBTAINED

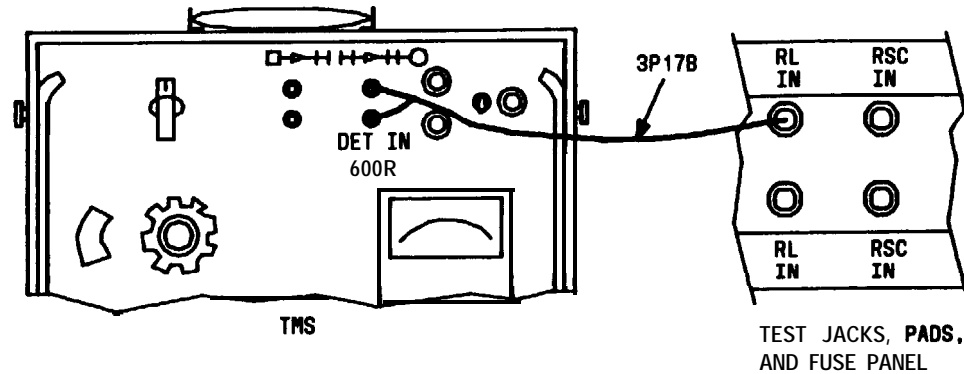
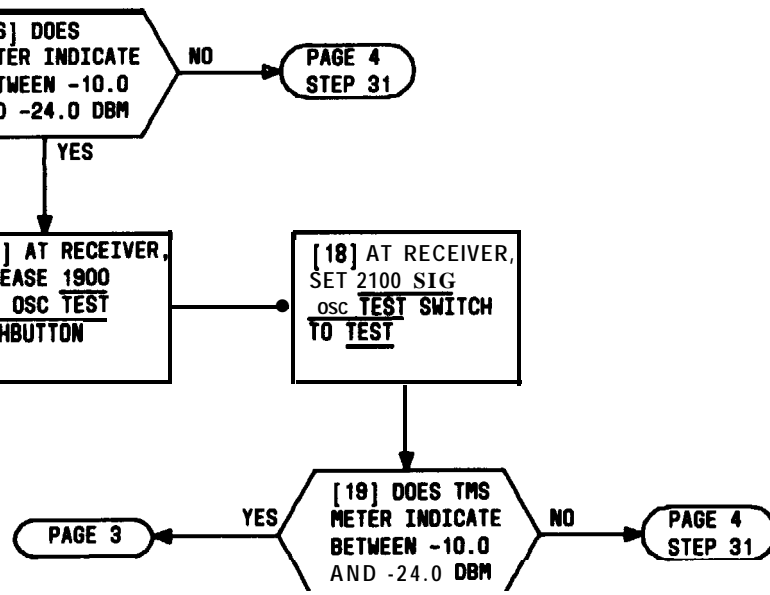


FIG. 1



MEASURE RECEIVER TO CONTROL TERMINAL 1900-HZ, 2100-HZ, AND 2900-HZ SIGNALING TONE LEVELS

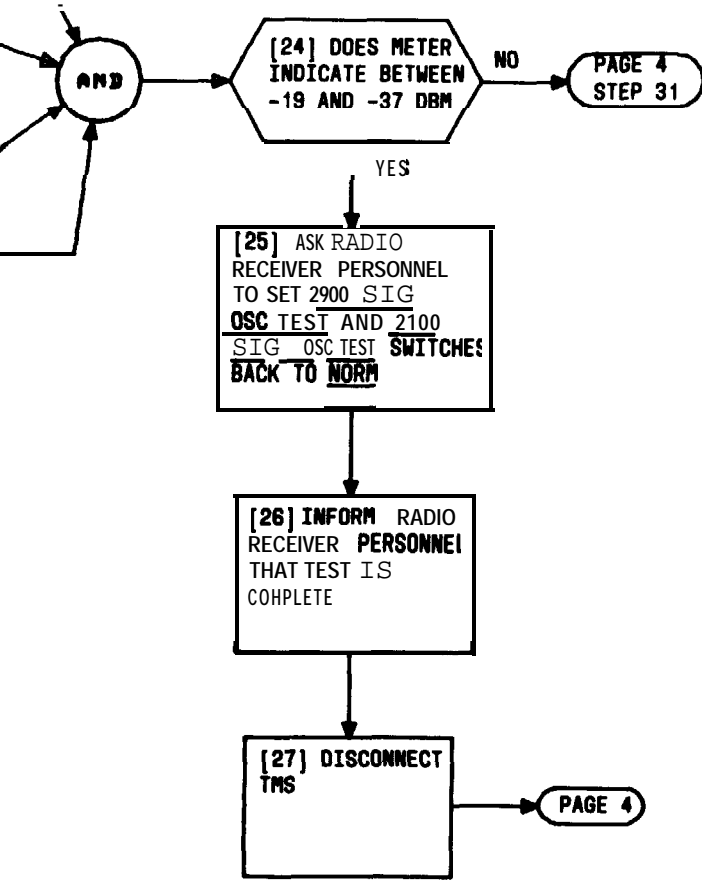
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[20] ASK RADIO RECEIVER PERSONNEL TO SET
2100 SIG OSC TEST SWITCH BACK TO OFF

[21] SET OET INPUT OF TRS TO +20

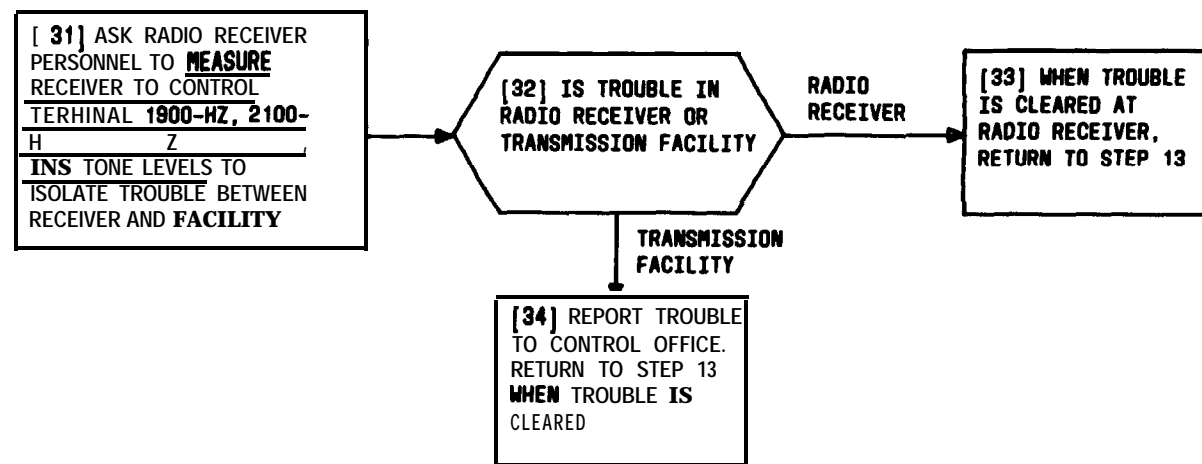
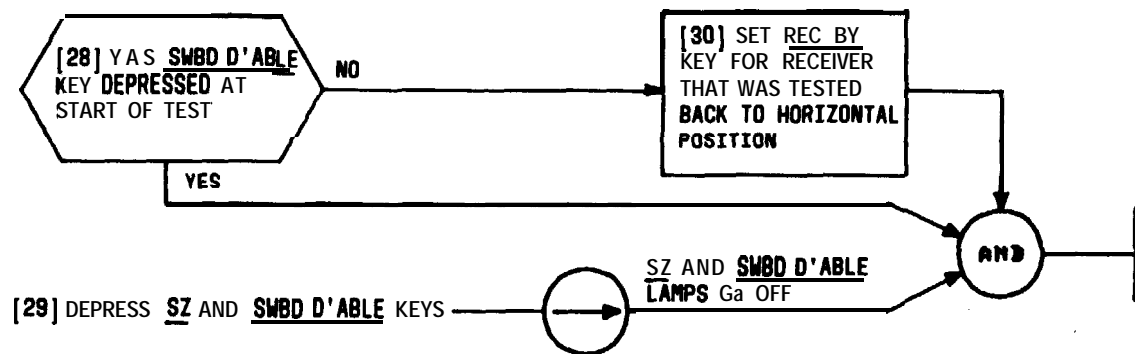
[22] ASK RADIO RECEIVER PERSONNEL TO SET
2900 SIG OSC TEST SWITCH TO TEST

[23] ON TMS, TURN DET INPUT CLOCKWISE UNTIL
AN ON-SCALE METER DEFLECTION IS OBTAINED



MEASURE RECEIVER TO **CONTROL** TERMINAL **1900-HZ, 2100-HZ,**
AND 2900-HZ SIGNALING TONE LEVELS

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MEASURE RECEIVER TO CONTROL TERMINAL 1900-HZ, 2100-HZ, AND 2900-HZ SIGNALING TONE LEVELS

SUMMARY

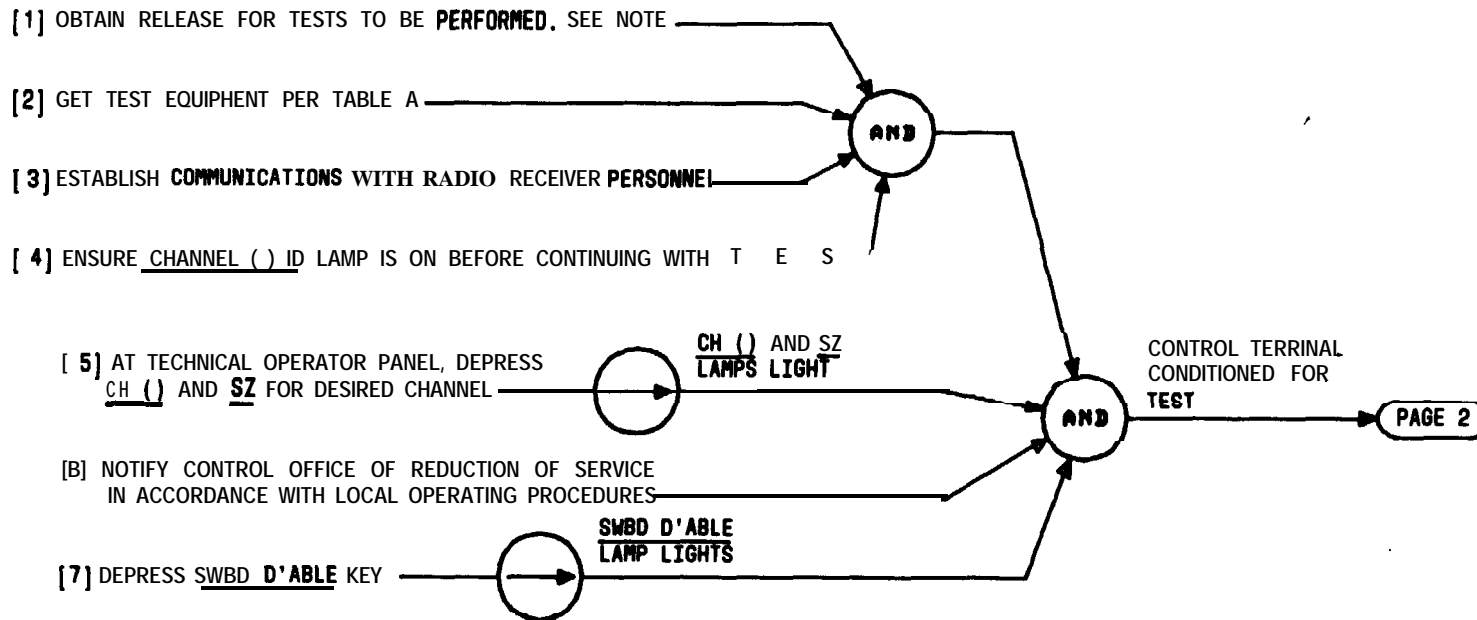
USING AN RF SIGNAL GENERATOR AT RADIO RECEIVER AND TRANSMISSION MEASURING SET (TMS) AND VACUUM TUBE VOLTMETER (VTVM) AT CHANNEL BAY-TEST JACKS, PADS, AND FUSE PANEL. MEASURE OVERALL 1000-HZ LOSS FROM INPUT OF RADIO RECEIVER TO HYB IN JACK AT CONTROL TERRINAL. RADIO RECEIVER PERSONNEL ARE ALSO REQUIRED FOR THIS TEST

NOTE

DISREGARD ALL LARPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE

TABLE A

EQUIPMENT REQUIRED	RECOMMENDED TYPE
TRANSMISSION MEASURING SET	WECO J94021A (21A)
AC VACUUM TUBE VOLTMETER	HEWLETT-PACKARD MODEL 400
TERMINATION PLUG (900Ω)	262C
TEST CORD FOR TMS	3P17B CORD



MEASURE OVERALL 1000-HZ LOSS IN RECEIVER PATH OF CONTROL TERRINAL

[8] AT RECEIVER, MEASURE RECEIVER TO CONTROL TERMINAL 1000-HZ TONE LEVEL

[9] CONDITION J94021A (21A) TMS TO MEASURE DECIBELS [DLP-548]

[10] SET DET INPUT ON TMS TO +20

[11] CONNECT DET IN 600Ω OF TMS TO RL IN () JACK OF TEST JACKS, PADS, AND FUSE PANEL WITH A 3P17B PATCH CORD [FIG. 1]

[12] ON TMS, TURN DET INPUT CLOCKWISE UNTIL AN ON-SCALE METER DEFLECTION IS OBTAINED

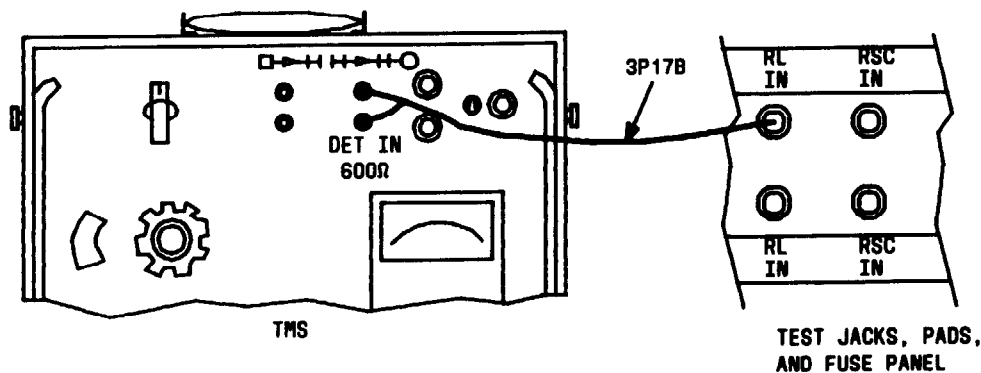
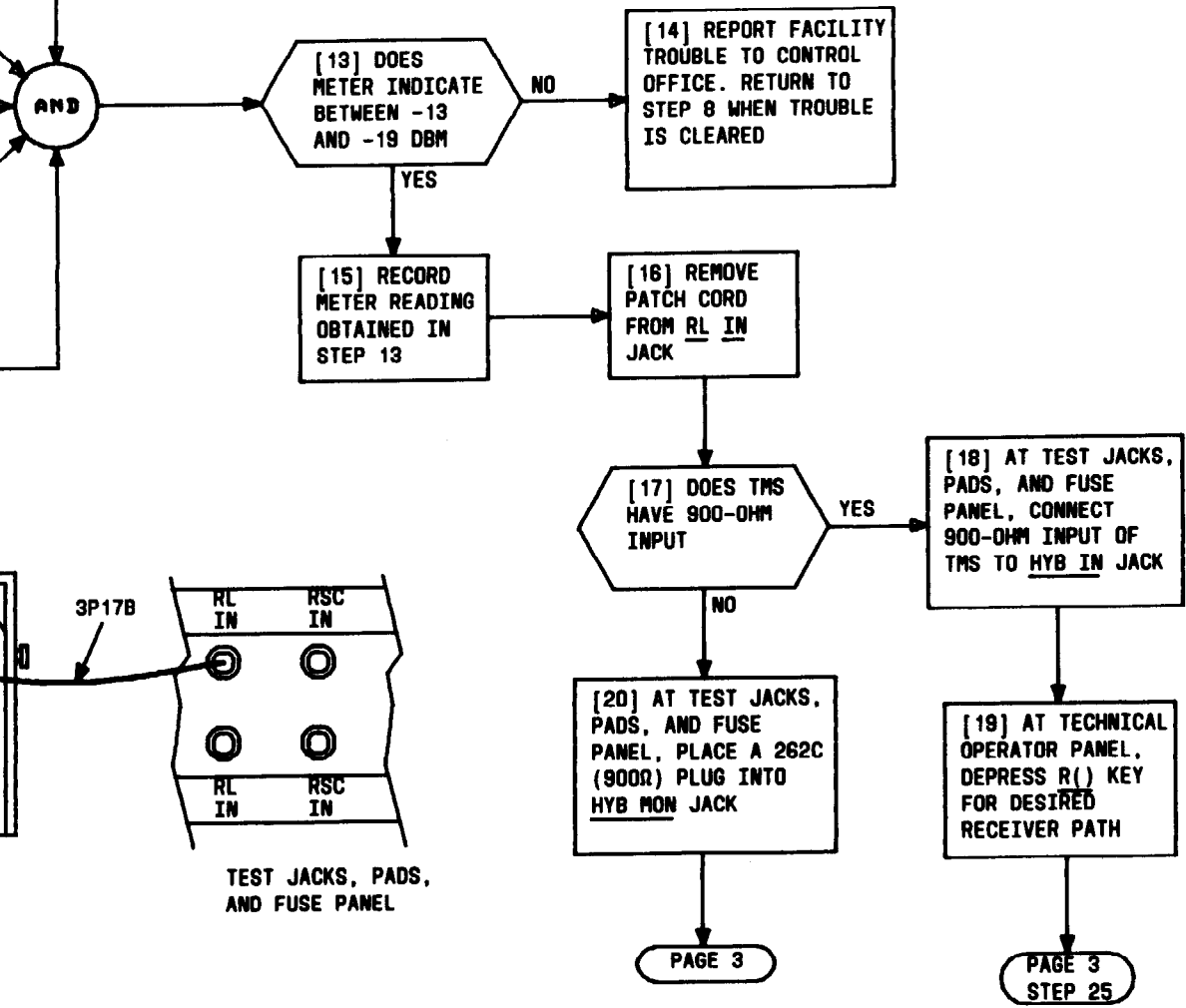


FIG. 1



MEASURE OVERALL 1000-HZ LOSS IN RECEIVER PATH OF CONTROL TERMINAL

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[21] CONDITION HP 400 VTVM FOR MEASUREMENT [DLP-557]

[22] CONNECT INPUT OF VTVM TO HYB IN JACK AT TEST JACKS, PADS, AND FUSE PANEL [FIG. 2]

[23] AT TECHNICAL OPERATOR PANEL, DEPRESS R() KEY FOR MSIREO RECEIVED PATH

[24] ON VTVM, ROTATE RANGE SELECTOR SWITCH UNTIL AN ON-SCALE METER DEFLECTION IS OBTAINED

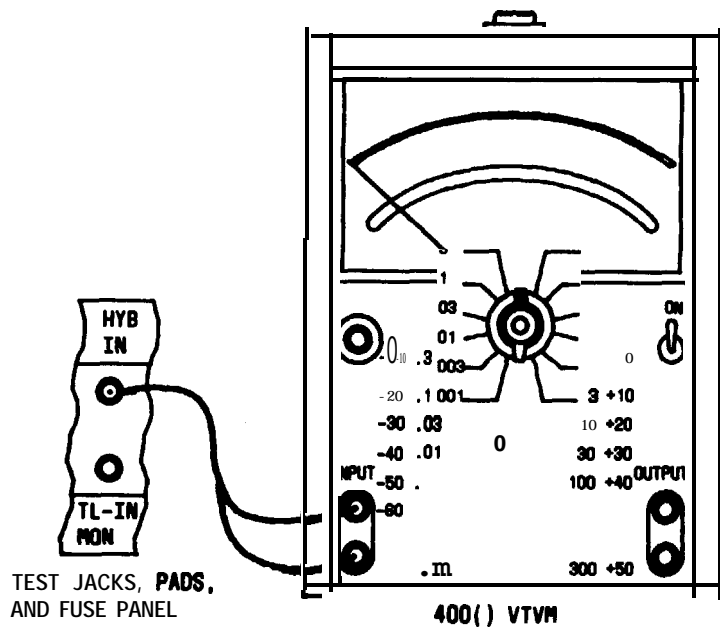
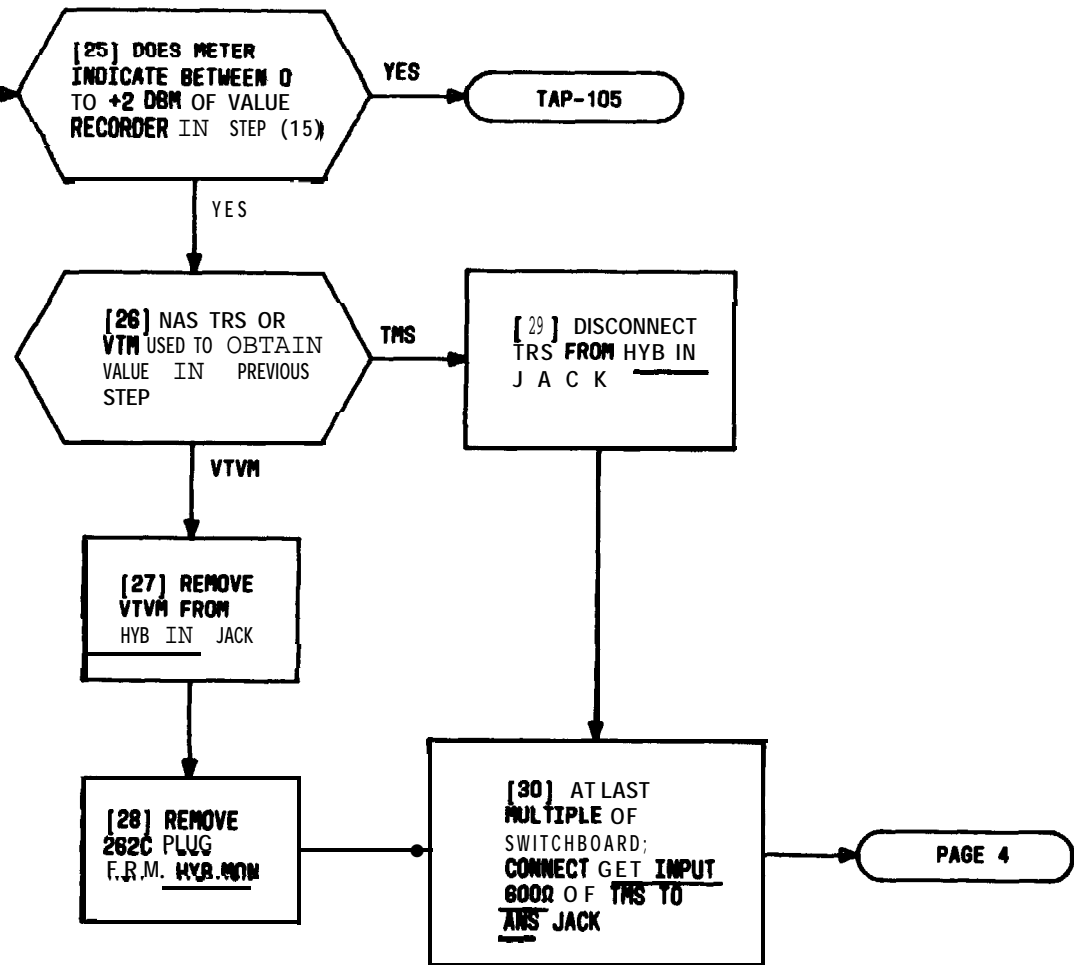
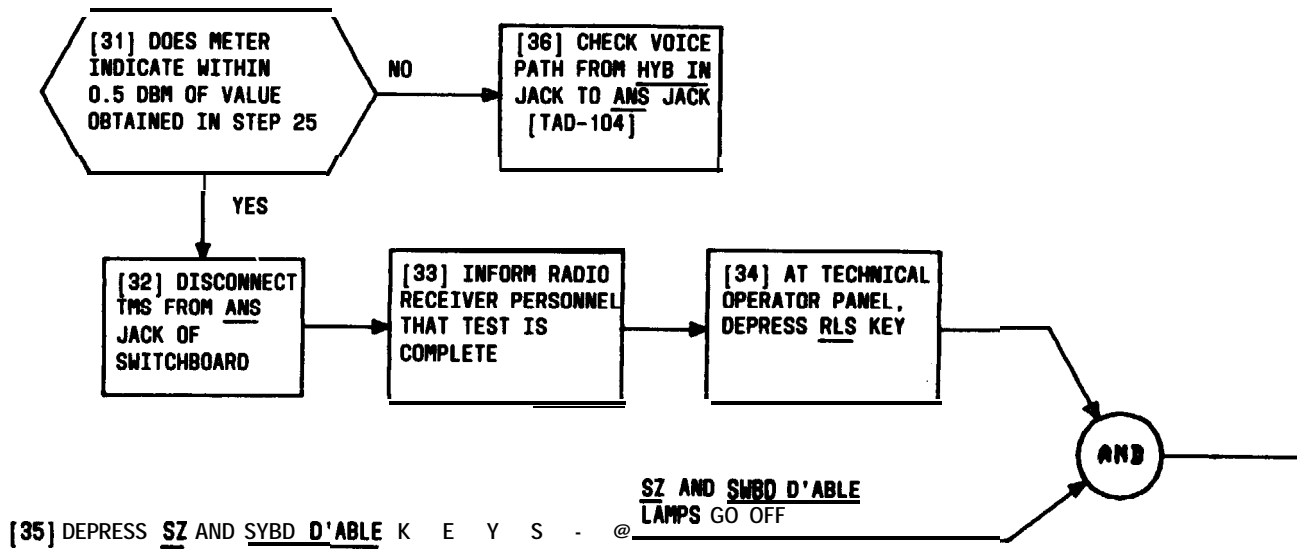


FIG. 2

MEASURE OVERALL 1000-HZ LOSS IN RECEIVER PATH OF CONTROL TERMINAL



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MEASURE OVERALL 1000-HZ LOSS IN RECEIVER PATH OF CONTROL TERMINAL

SUMMARY
 USING 21A TRANSMISSION MEASURING SET (TMS) AT CHANNEL BAY-
 TEST JACKS, PADS, AND FUSE PANEL AND TMS AT RADIO RECEIVER,
 MEASURE 1000-HZ TONE FOR -13 TO -19 DBM FROM CHANNEL BAY TO
 RADIO RECEIVER

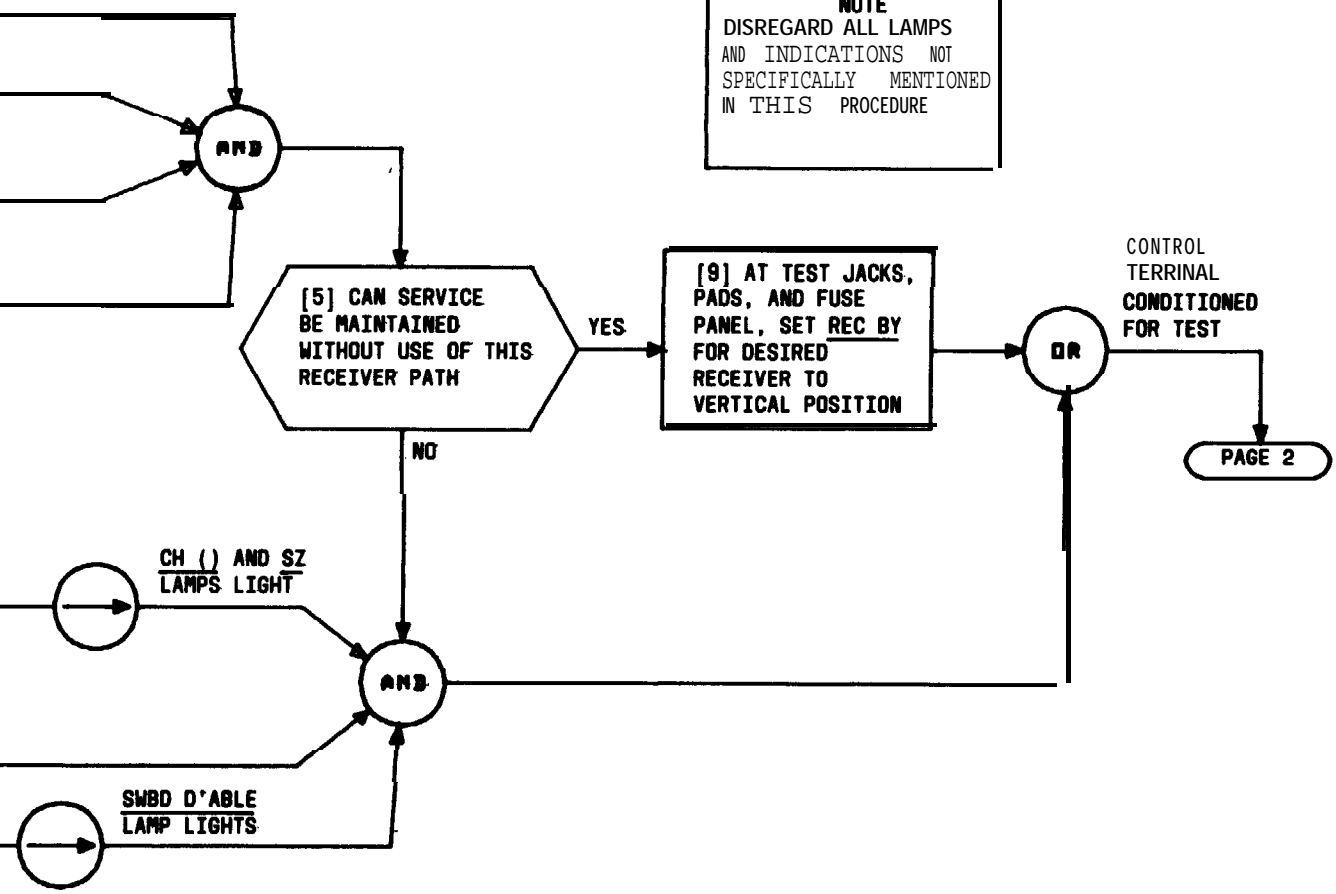
- [1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED. SEE NOTE
- [2] GET 21A TRANSMISSION MEASURING SET FOR USE IN TEST
- [3] ESTABLISH COMMUNICATIONS WITH RADIO RECEIVER PERSONNEL
- [4] ENSURE CHANNEL () ID LAMP IS ON BEFORE CONTINUING WITH TEST

NOTE
 DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE

[5] CAN SERVICE BE MAINTAINED WITHOUT USE OF THIS RECEIVER PATH

[9] AT TEST JACKS, PADS, AND FUSE PANEL, SET REC BY FOR DESIRED RECEIVER TO VERTICAL POSITION

- [6] AT TECHNICAL OPERATOR PANEL, DEPRESS CH () AND SZ LAMPS LIGHT AND SZ FOR DESIRED CHANNEL
- [7] NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES
- [8] DEPRESS SYBD D'ABLE KEY



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MEASURE CONTROL TERMINAL TO RECEIVER 1000-HZ TONE LEVEL

[10] AT RADIO RECEIVER, MEASURE CONTROL
 TERMINAL TO RECEIVER 1000-HZ TONE LEVEL

[11] CONDITION J94021A (21A) TMS
 [DLP-548]

[12] SET FREQ HULT SWITCH TO X100

[13] SET FREG SCALE SETTING TO 10.0

[14] SET BOTH OSC OUTPUT CONTROLS TO 0

[IS] AT TEST JACKS, PADS, AND FUSE PANEL, CONNECT
3P178 CORD FROM OSC OUT 600Ω TO RL
OUT OF RECEIVER BEING TESTED [FIG. 1]

AND

[IS] ASK RADIO
 RECEIVER PERSONNEL
 TO HAKE MEASUREMENT
 AT TG CONTROL IN
LINE

[17] DOES HETER
 INDICATE BETWEEN
 -13.0 AND -19.0
 DBM

[IS] REPORT FACILITY
 TROUBLE TO CONTROL
 OFFICE. RETURN TO
 STEP 10 WHEN TROUBLE
 IS CLEARED

[18] INFORM RADIO
 RECEIVER PERSONNEL
 THAT TEST IS
 COMPLETE

[20] REMOVE
3P178 CORD FROM
RL OUT () JACK

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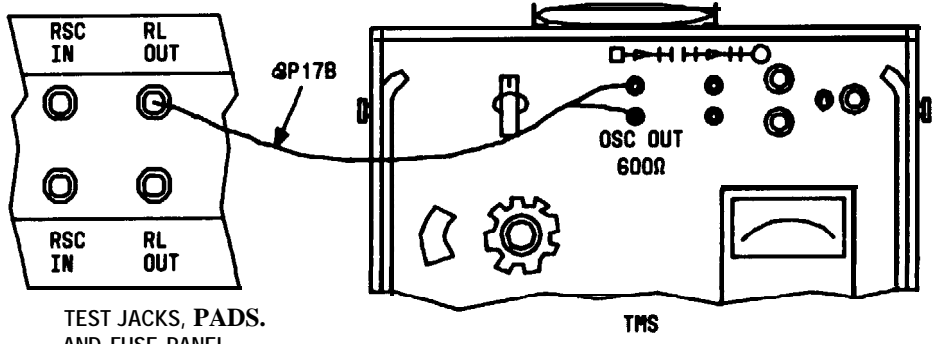
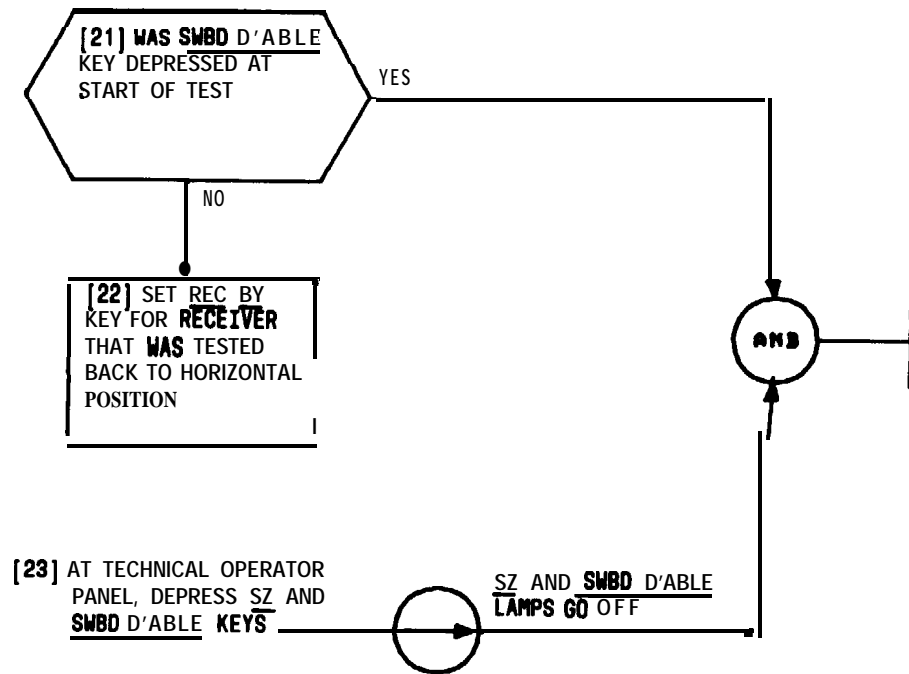


FIG. 1

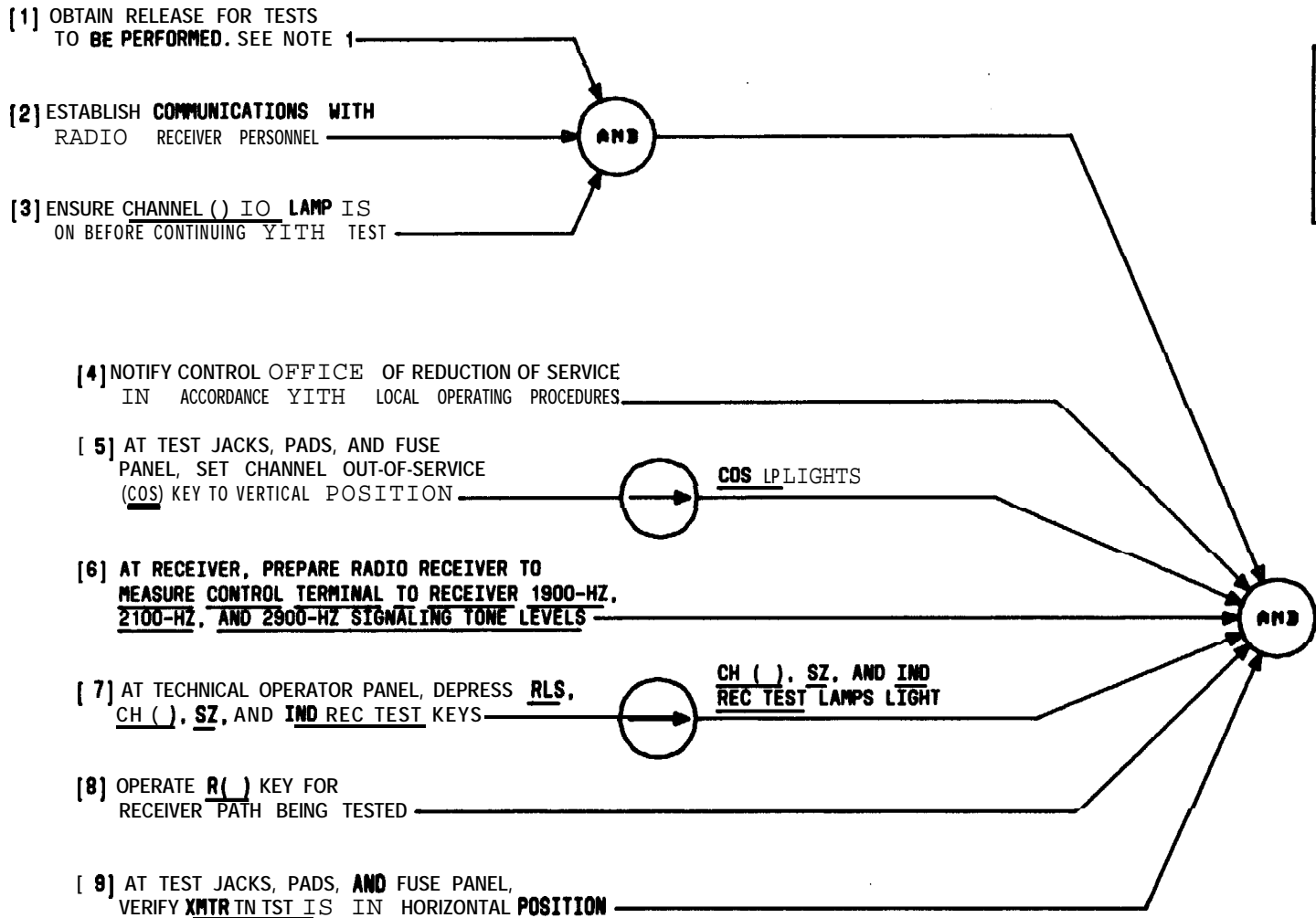


MEASURE CONTROL TERMINAL TO RECEIVER 1000-HZ TONE LEVEL

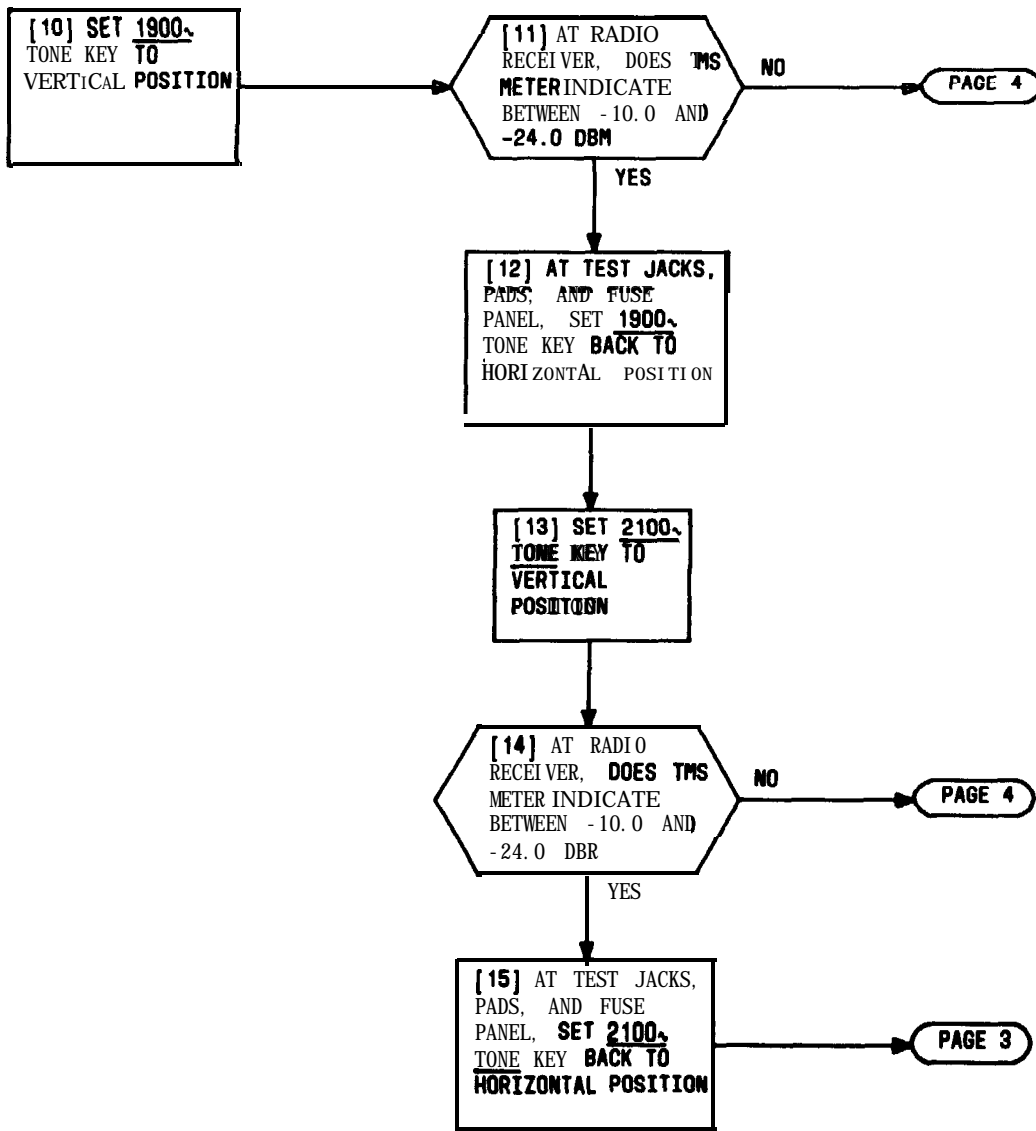
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SUMMARY

USING A **TRANSMISSION MEASURING SET (TMS)** AT RADIO RECEIVER, **MEASURE 1900-HZ AND 2100-HZ TONE FOR -10 TO -24 DBM AND 2900-HZ TONE FOR -19 TO -37 DBM**



MEASURE CONTROL TERMINAL TO RECEIVER 1900-HZ, 2100-HZ, AND 2900-HZ SIGNALING TONE LEVELS



**MEASURE CONTROL TERMINAL TO RECEIVER 1900-HZ,
2100-HZ, AND 2900-HZ SIGNALING TONE LEVELS**

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[16] SET 2900-HZ TONE KEY TO VERTICAL POSITION

[17] AT RADIO RECEIVER, DOES TMS METER INDICATE BETWEEN -19.0 AND -37.0 DBM

NO

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YES

[18] AT TEST JACKS, PADS, AND FUSE PANEL, SET 2900-HZ TONE KEY BACK TO HORIZONTAL POSITION

[19] INFORM RADIO RECEIVER PERSONNEL THAT TEST IS COMPLETE

[20] AT TECHNICAL OPERATOR PANEL, DEPRESS SZ AND RLS KEY6

SZ AND IND REC TEST LAMPS GO OFF

AND

[22] WAS THIS PROCEDURE ENTERED FOR TROUBLE CLEARING

NO

[23] NOTIFY CONTROL OFFICE THAT TESTING IS COMPLETE AND SERVICE HA6 BEEN RETURNED TO NORMAL

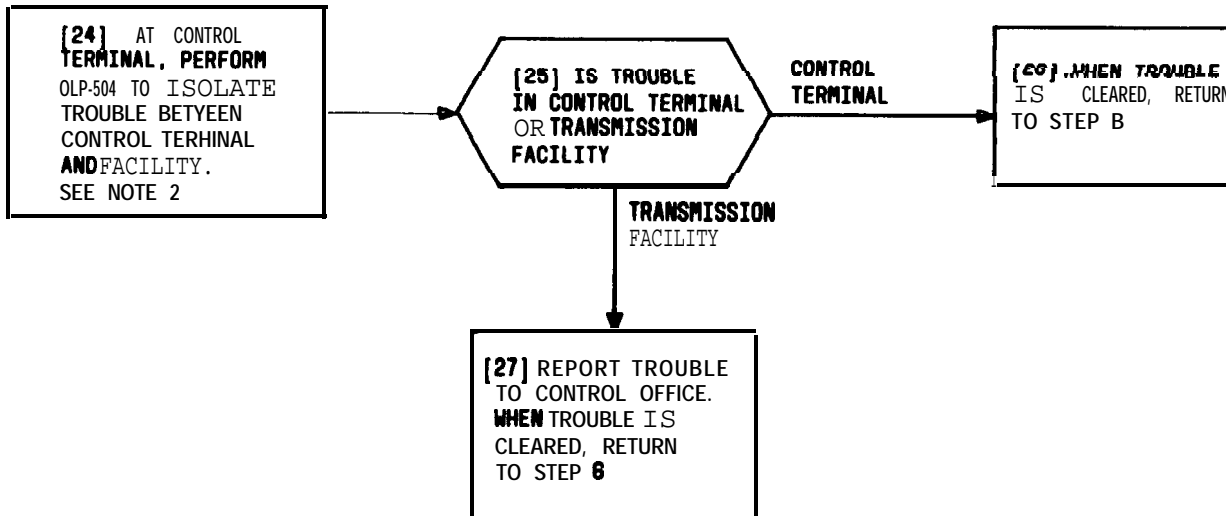
YES

[21] AT TEST JACKS, PADS, AND FUSE PANEL, SET CO6 KEY BACK TO HORIZONTAL POSITION

CO6 LP GOES OFF

MEASURE CONTROL TERMINAL TO RECEIVER 1900-HZ, 2100-HZ, AND 2900-HZ SIGNALING TONE LEVELS

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MEASURE CONTROL TERMINAL TO RECEIVER 1900-HZ, 2100-HZ, AND 2900-HZ SIGNALING TONE LEVELS

NOTE 2	
ENSURE THAT THE SAME RECEIVER PATH IS USED IN DLP-504 THAT IS UNDER TEST HERE	
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SUMMARY

USING TRANSMISSION MEASURING SET (TMS) AT RADIO TRANSMITTER AND CHANNEL GAY-TEST JACKS, PADS, AND FUSE PANEL, MEASURE 1000-HZ TONE FROM CONTROL TERMINAL TO TRANSMITTER FOR -13 TO -19 DBM. RADIO TRANSMITTER PERSONNEL ARE ALSO **REQUIRED** FOR THIS TEST

TABLE A

EQUIPMENT REQUIRED	RECOMMENDED
TRANSMISSION MEASURING SET	YECO J94021A
TEST CORD FOR TMS	3P17B CORD

NOTE
DISREGARD ALL LAHPS
AND INDICATIONS
NOT SPECIFICALLY
MENTIONED IN
THIS PROCEDURE

- [1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED.
SEE NOTE

- [2] GET **TEST EQUIPMENT** FROM **TABLE A**

- [3] ESTABLISH **COMMUNICATIONS** WITH RADIO TRANSMITTER PERSONNEL

- [4] ENSURE CHANNEL () ID LAHP IS ON BEFORE CONTINUING WITH TEST

- [5] AT TECHNICAL OPERATOR PANEL, DEPRESS CH () AND **SZ** KEYS FOR **DESIRED CHANNEL**

- [6] NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE **WITH** LOCAL OPERATING PROCEDURES

- [7] DEPRESS **SWBD D'ABLE** KEY

AND

AND

CONTROL TERMINAL
CONDITIONED FOR TEST

PAGE

MEASURE CONTROL TERMINAL TO TRANSMITTER 1000-HZ
TONE LEVEL

[8] AT RADIO TRANSMITTER. MEASURE CONTROL
TERMINAL TO TRANSMITTER 1000-HZ TONE LEVEL

[8] ASK RADIO TRANSMITTER PERSONNEL TO
 SET TRANSRIT MODE SWITCH TO OFF

[10] CONDITION J94021A (21A) TMS (DLP-548)

[11] SET FREQ MULT TO X100

[12] SET FREQ SCALE TO 10.0

[13] SET BOTH OSC OUTPUT SWITCHES TO 0

[14] CONNECT 3P17B CORD FROM OSC OUT 600Ω TO TTL OUT ()
 JACK FOR TRANSMITTER BEING TESTED [FIG. 1]

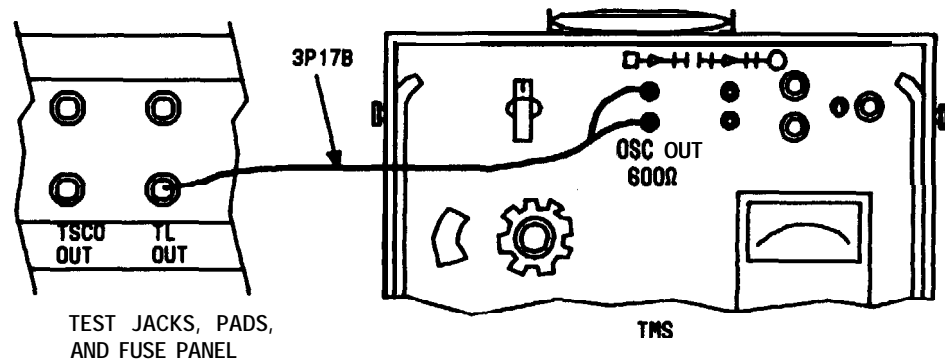
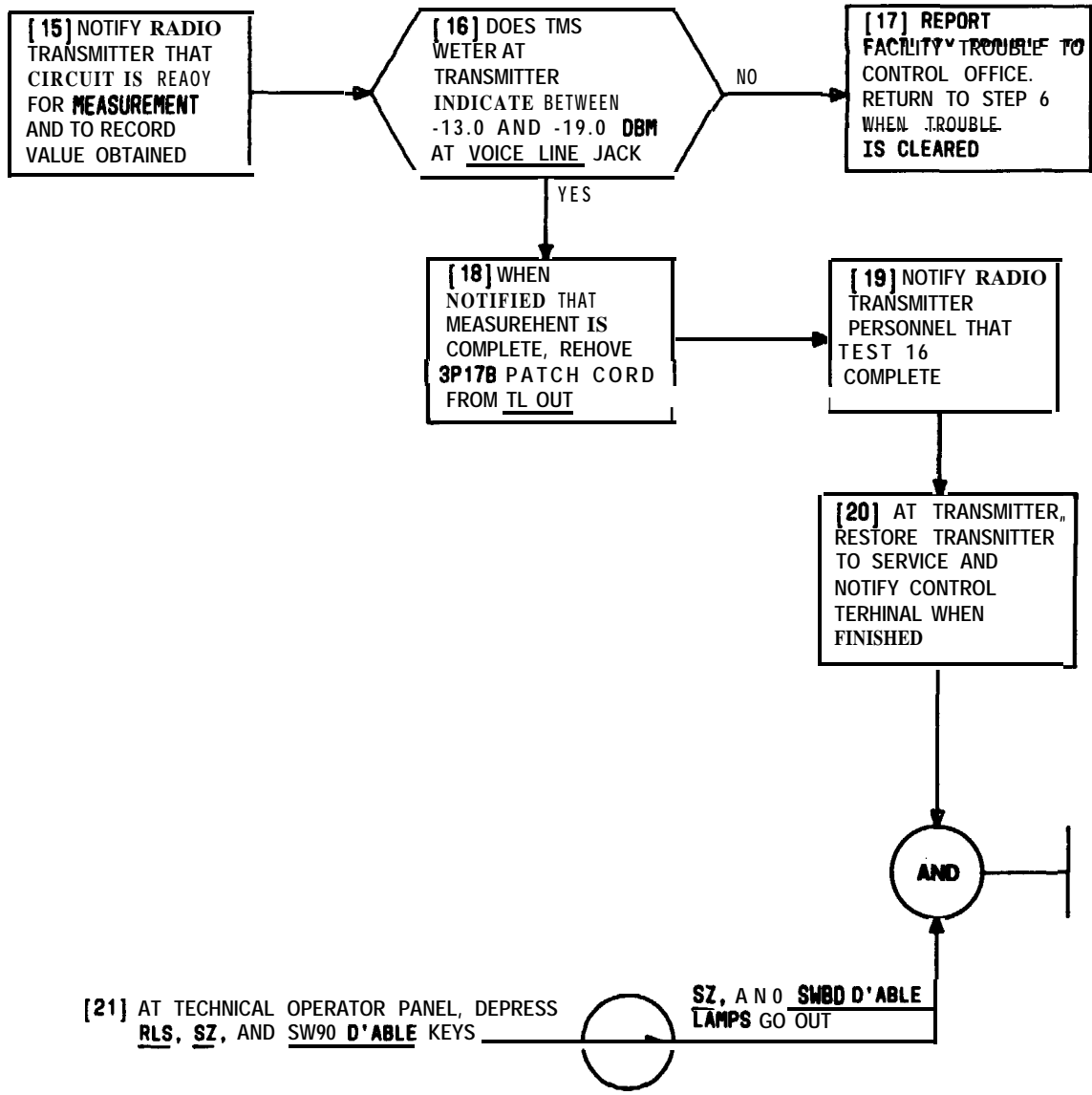


FIG. 1

**MEASURE CONTROL TERMINAL TO TRANSMITTER 1000-HZ
 TONE LEVEL**

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**MEASURE CONTROL TERMINAL TO TRANSMITTER 1000-HZ
TONE LEVEL**

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SUMMARY

USING RADIO TRANSMITTER PERSONNEL AND A TRANSMISSION MEASURING SET (TMS) AT TRANSMITTER, MEASURE 1900-HZ AND 2100-HZ TONE FROM CONTROL TERMINAL TO TRANSMITTER FOR -10.0 TO -24.0 DBM AND 2900-HZ TONE FOR -19.0 TO -37.0 DBM

NOTE 1

DISREGARD ALL LAHPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE

[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED. SEE NOTE 1

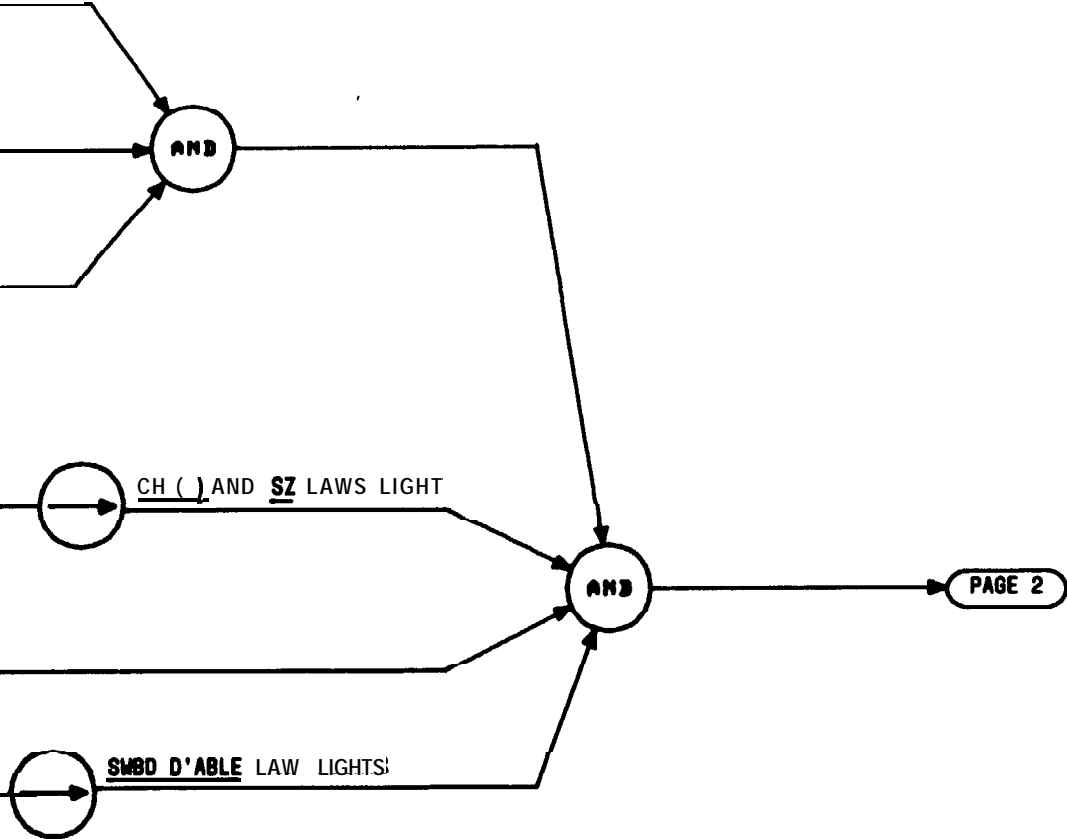
[2] ESTABLISH COMMUNICATIONS WITH RADIO TRANSMITTER PERSONNEL

[3] ENSURE CHANNEL () ID LAMP IS ON BEFORE CONTINUING WITH TEST

[4] AT TECHNICAL OPERATOR PANEL, DEPRESS CH () AND SZ KEYS FOR DESIRED CHANNEL

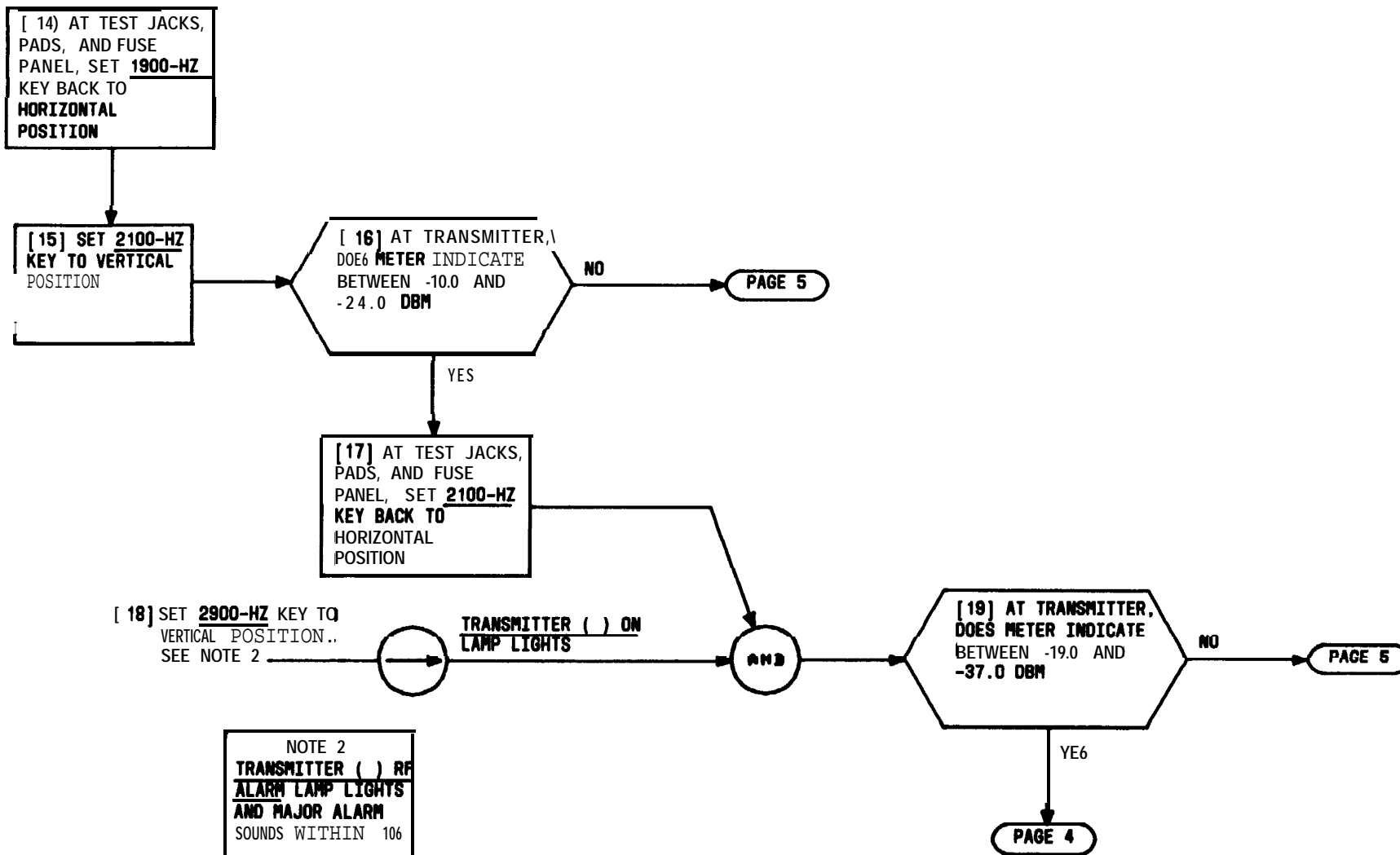
[5] NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES

[S] DEPRESS SWBD D'ABLE KEY



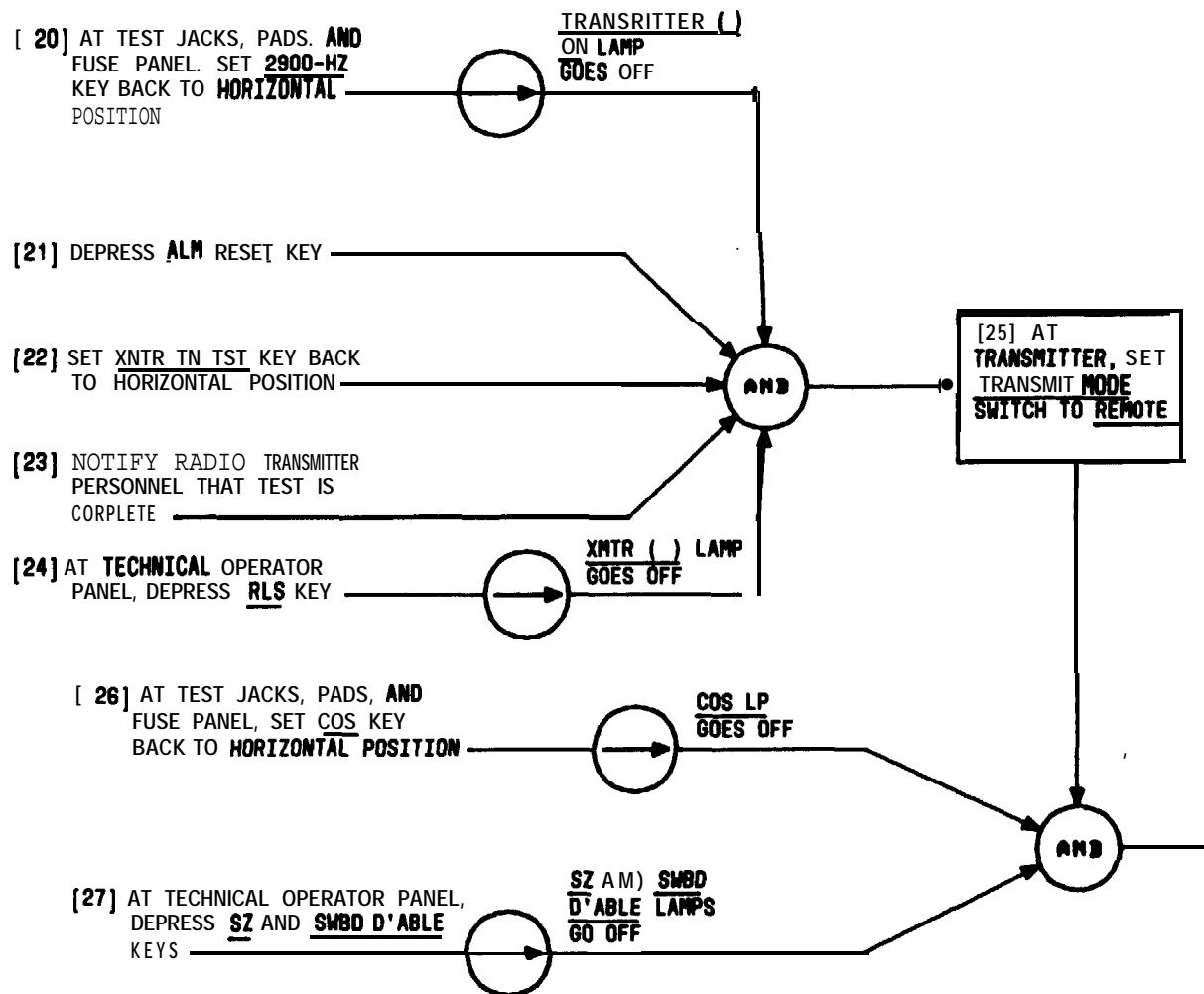
MEASURE CONTROL TERMINAL TO TRANSMITTER 1900-HZ, 2100-HZ, AND 2900-HZ SIGNALING TONE LEVELS

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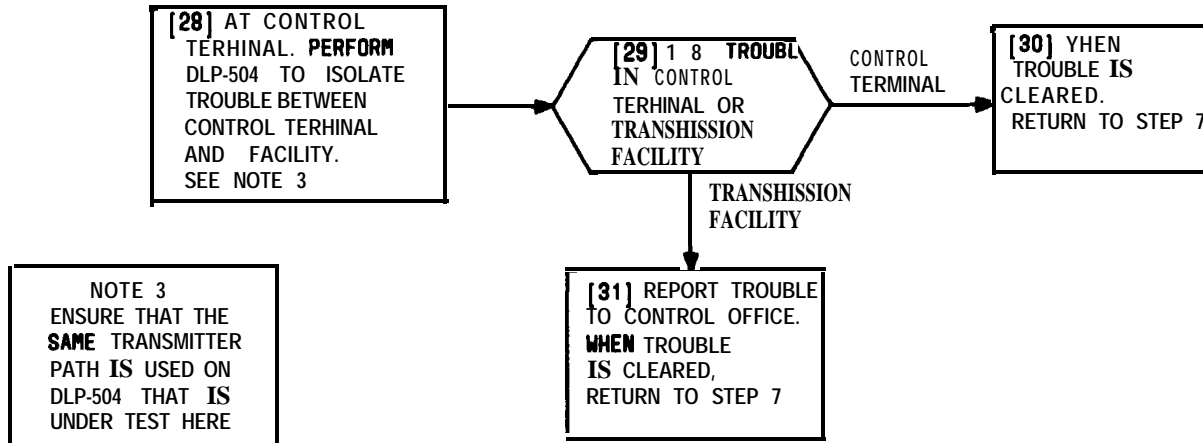
**MEASURE CONTROL TERMINAL TO TRANSMITTER 1900-HZ,
2100-HZ, AND 2900-HZ SIGNALING TONE LEVELS**

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MEASURE CONTROL TERMINAL TO TRANSMITTER **1900-HZ**, **2100-HZ**, AND **2900-HZ** SIGNALING TONE LEVELS

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MEASURE CONTROL TERMINAL TO TRANSMITTER 1900-HZ, 2100-HZ, AND 2900-HZ SIGNALING TONE LEVELS

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SUMMARY
 USING 21A TRANSMISSION MEASURING SET (TMS) AT CHANNEL BAY-TEST JACKS, PADS, AND FUSE PANEL AND A THS AND WATTMETER AT RADIO TRANSMITTER, MEASURE OVERALL 1000-HZ LOSS FROM HYBRID IN JACK AT CONTROL TERMINAL TO MODULATING OF RADIO TRANSMITTER

TABLE A	
EQUIPMENT REQUIRED	RE
TRANSMISSION MEASURING SET	WE
2 TEST CORDS FOR THS	3P17

[1] OBTAIN RELEASE FOR TEST TO BE PERFORMED. SEE NDTE

[2] GET TEST EQUIPMENT PER TABLE A

[3] ESTABLISH COMMUNICATIONS WITH RADIO TRANSMITTER PERSONNEL

[4] ENSURE CHANNEL () ID LAMP IS ON BEFORE CONTINUING WITH TEST

[5] AT TECHNICAL OPERATOR PANEL, DEPRESS CH () AND SZ KEYS FOR DESIRED CHANNEL

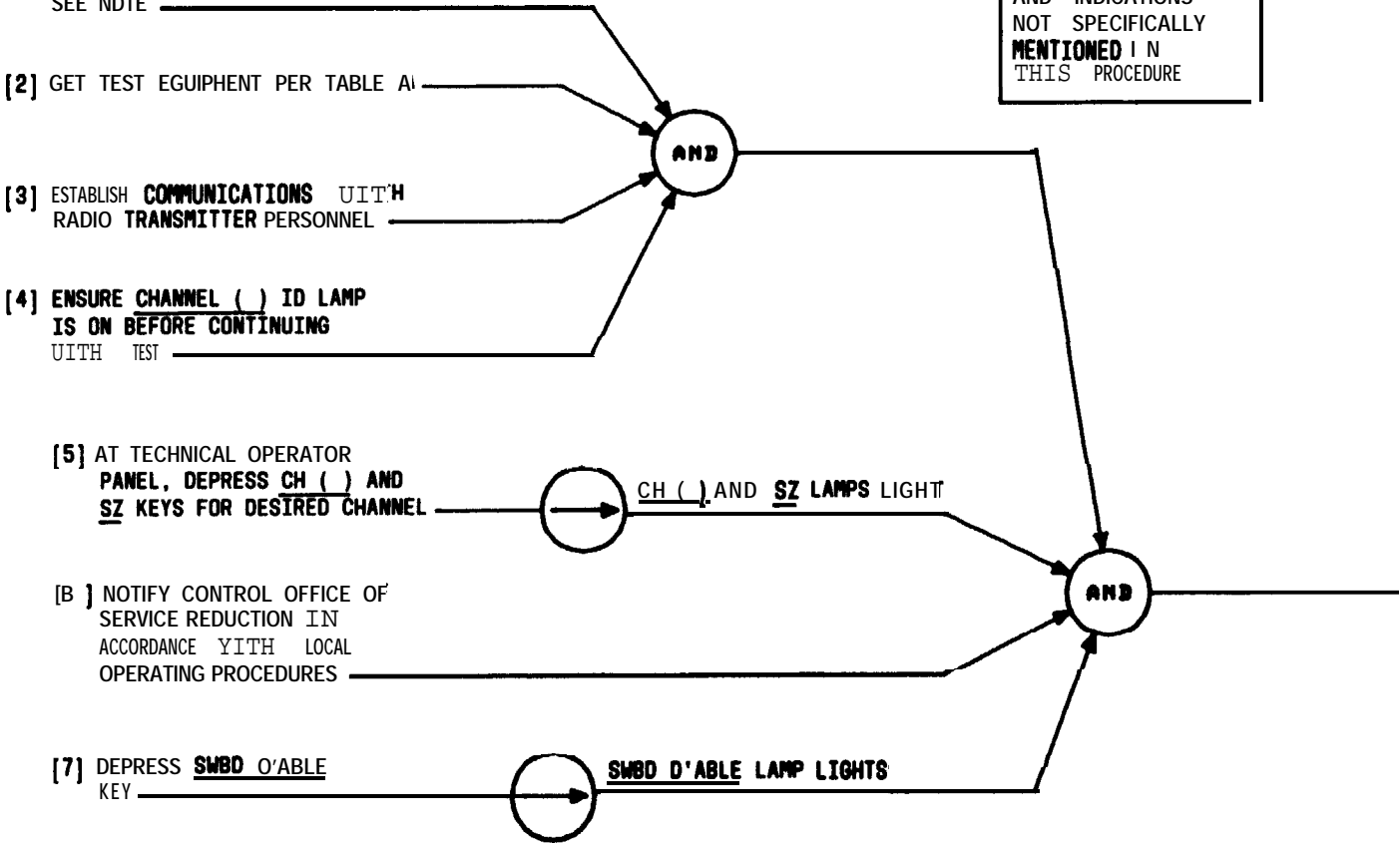
CH () AND SZ LAMPS LIGHT

[6] NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES

[7] DEPRESS SWBD O'ABLE KEY

SWBD O'ABLE LAMP LIGHTS

NOTE
 DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE



MEASURE OVERALL 1000-HZ LOSS IN TRANSMITTER PATH OF CONTROL TERMINAL

[G] AT TRANSMITTER, REMOVE ANTENNA AND CONNECT RF COAXIAL LOAD RESISTOR AND IN-LINE WATTMETER

[9] AT TRANSMITTER, CONNECT TMS OET IN 600R JACK TO VOICE LINE JACK OF TRANSMITTER AND SET TMS OET INPUT SWITCH TO +10DBM

[10] SET TRANSMIT MODE SWITCH TO REMOTE

AT CONTROL TERMINAL:

[11] CONDITION J94021A(21A) TMS [DLP-548]

[12] SET FREQ MULT SWITCH TO X100

[13] SET FREQ SCALE SETTING TO 10.0

[14] SET BOTH OSC OUTPUT CONTROLS TO 0

[15] CONNECT 3P17B CORD FROM OSC OUT 600R TO TA IN AT TEST JACKS, PADS, AND FUSE PANEL [FIG. 1]

[16] DEPRESS XRTR () KEY

TRANSMITTER
READY FOR
MEASUREMENT

TMS CONDITIONED FOR
1000 HZ AT 0 DBM

RF ON LAMP LIGHTS

No

TAP-123

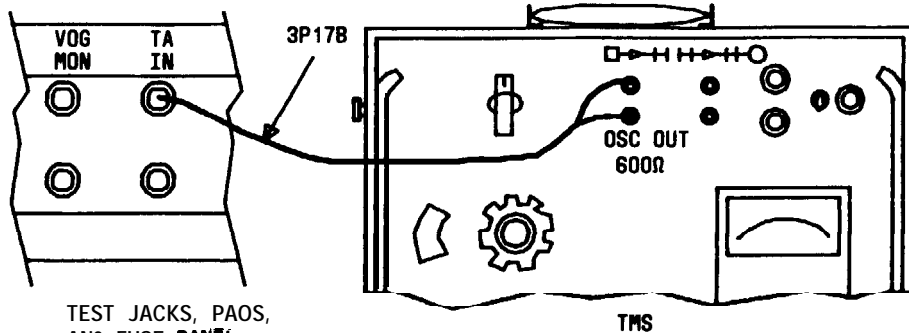
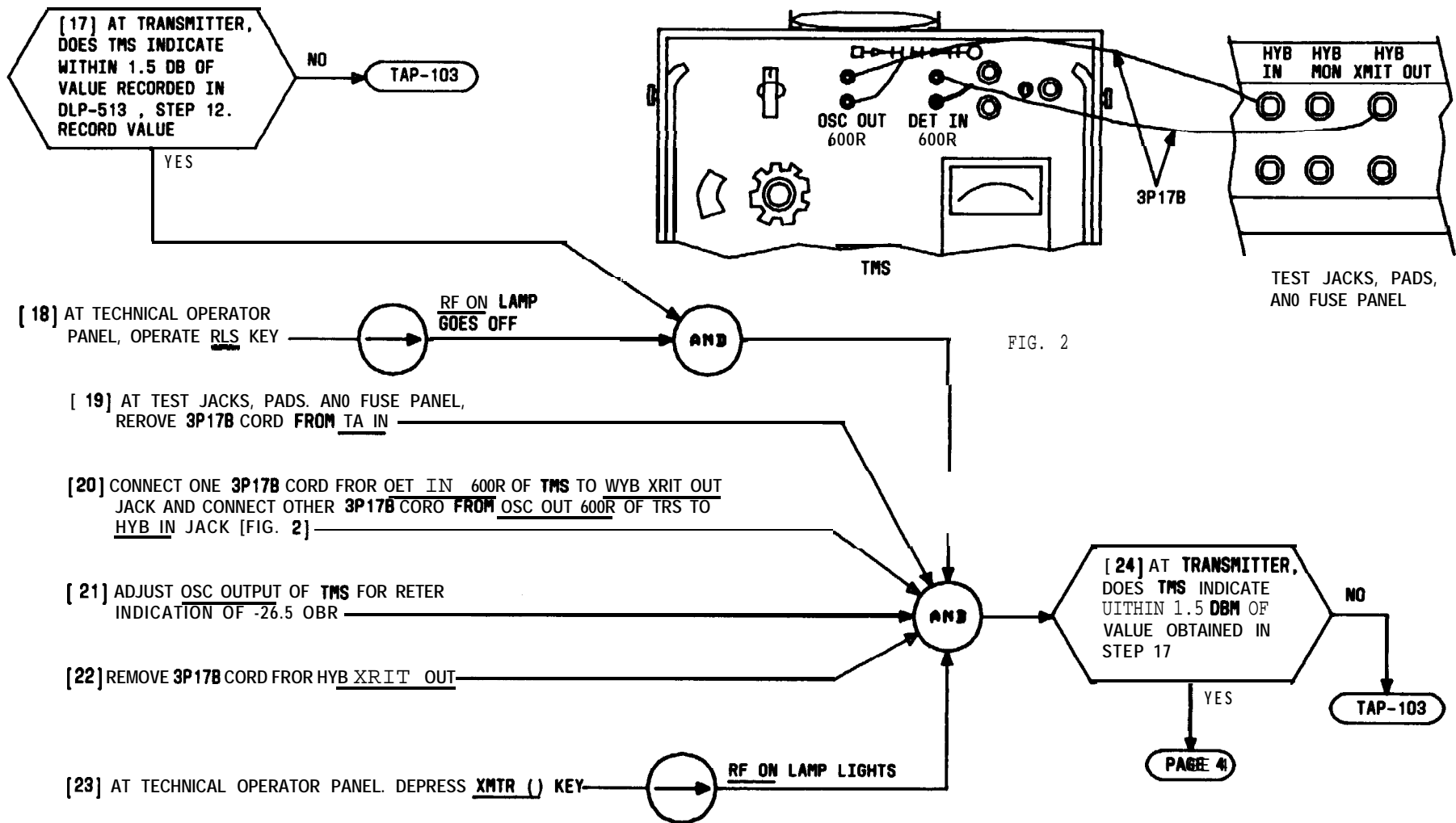


FIG. 1

PAGE 3

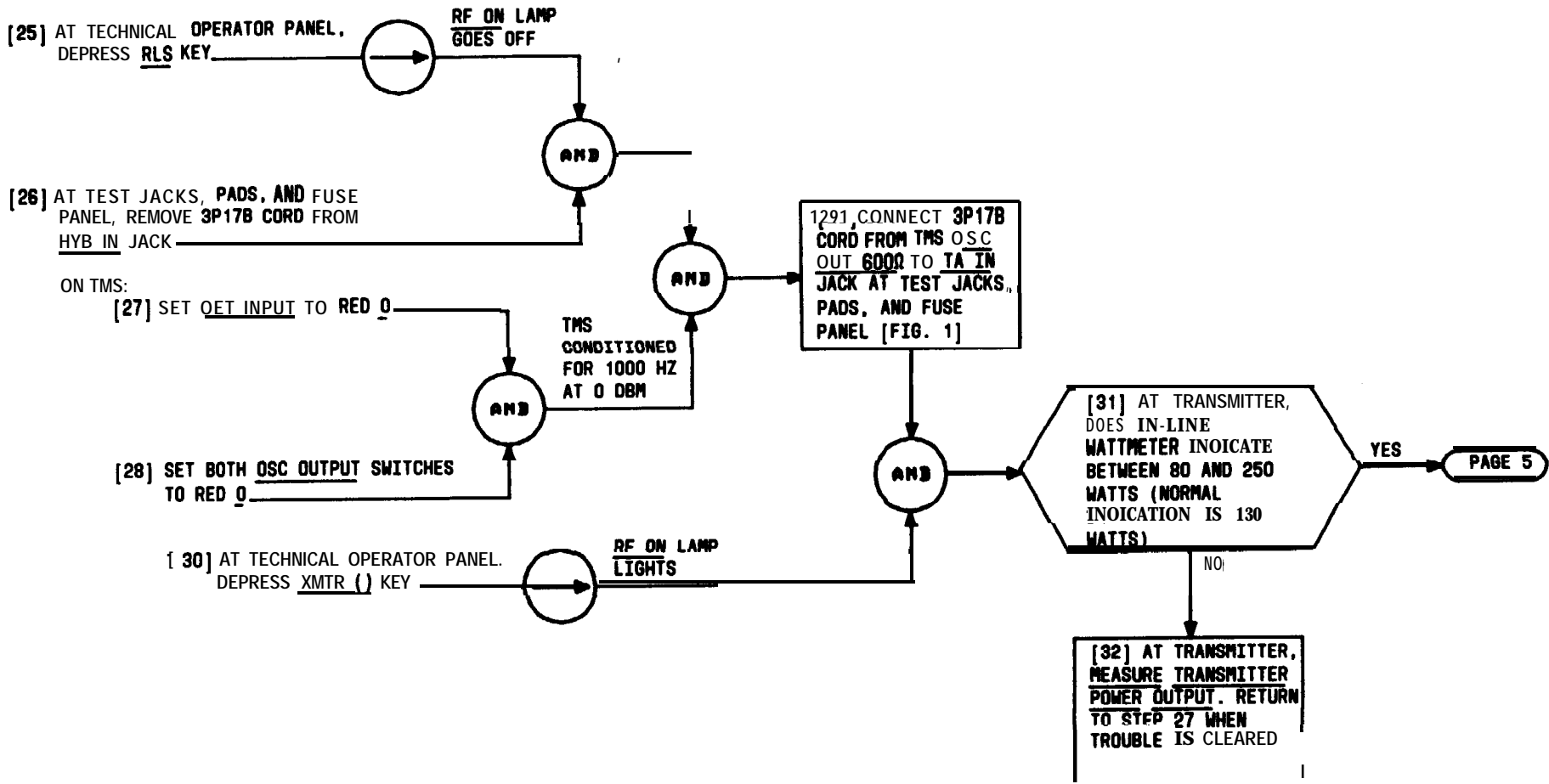
MEASURE OVERALL 1000-HZ LOSS IN TRANSMITTER PATH OF CONTROL TERMINAL

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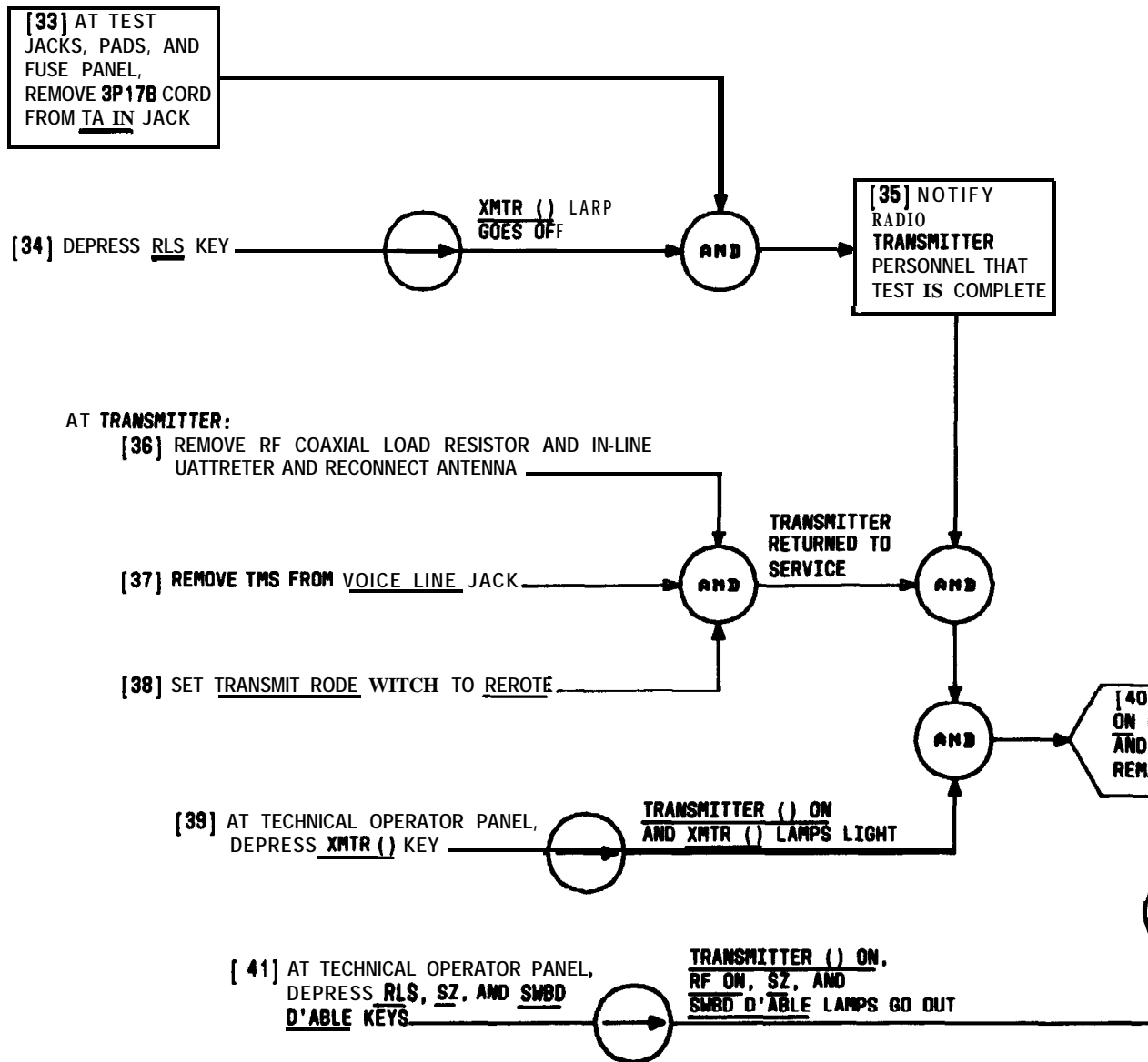
MEASURE OVERALL 1000-HZ LOSS IN TRANSMITTER PATH OF CONTROL TERMINAL

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MEASURE OVERALL 1000-HZ LOSS IN TRANSMITTER PATH OF CONTROL TERMINAL

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MEASURE OVERALL 1000-HZ LOSS IN TRANSMITTER PATH OF CONTROL TERMINAL

SUMMARY

USING A TRANSMISSION MEASURING SET (TMS) AT RADIO TRANSMITTER AND CHANNEL BAY-TEST JACKS, PADS, AND FUSE PANEL, MEASURE 1000-HZ TONE FROM TRANSMITTER TO CONTROL TERMINAL FOR -13 TO -19 DBM. RADIO TRANSMITTER PERSONNEL ARE ALSO REQUIRED FOR THIS TEST

TABLE A

EQUIPMENT REQUIRED	RECOMMENDED TYPE
TRANSMISSION MEASURING SET	WECO J94021A (21A)
TEST CORD FOR TMS	3P17B CORD

NOTE

DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE

[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED. SEE NOTE

[2] GET TEST EQUIPMENT PER TABLE A

[3] ESTABLISH COMMUNICATIONS WITH RADIO TRANSMITTER PERSONNEL

[4] ENSURE CHANNEL () ID LAMP IS ON BEFORE CONTINUING WITH TEST

[5] AT TECHNICAL OPERATOR PANEL, DEPRESS CH () AND SZ KEYS FOR DESIRED CHANNEL

CH () AND SZ LAMPS LIGHT

[6] NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES

[7] DEPRESS SWBD D'ABLE KEY

SWBD D'ABLE LAMP LIGHTS

CONTROL TERMINAL CONDITIONED FOR TEST

PAGE 2

AND

AND

MEASURE TRANSMITTER TO CONTROL TERMINAL 1000-HZ TONE LEVEL

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[8] AT RADIO TRANSMITTER, MEASURE TRANSMITTER TO CONTROL TERMINAL 1000-HZ TONE LEVEL

[9] ASK RADIO TRANSMITTER PERSONNEL TO SET TRANSMIT MODE SWITCH TO OFF

AT CONTROL TERMINAL:

[10] CONDITION J94021A (21A) THS TO MEASURE DECIBELS [DLP-548]

[11] SET DET INPUT ON TMS TO +20

[12] CONNECT 3P178 CORD FROM DET IN 800R TO TL IN! JACK OF TRANSMITTER BEING TESTED [FIG. 1]

[13] ON TMS, TURN DET INPUT CLOCKWISE UNTIL AN ON-SCALE METER DEFLECTION 18 OBTAINED

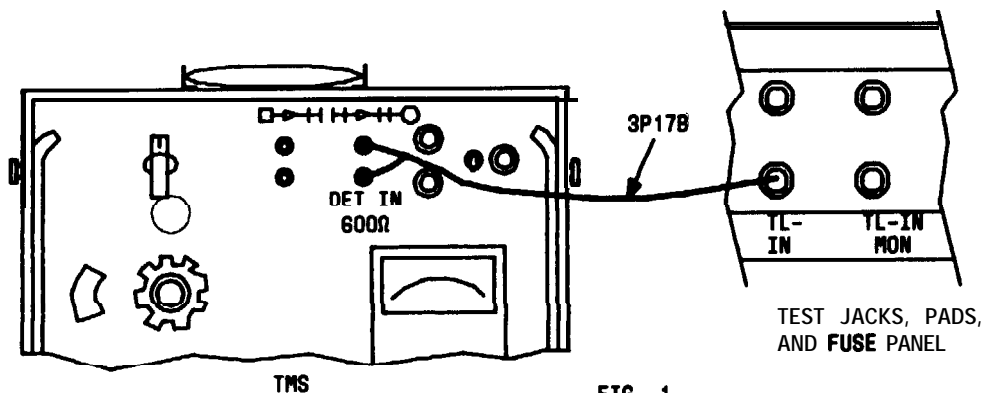
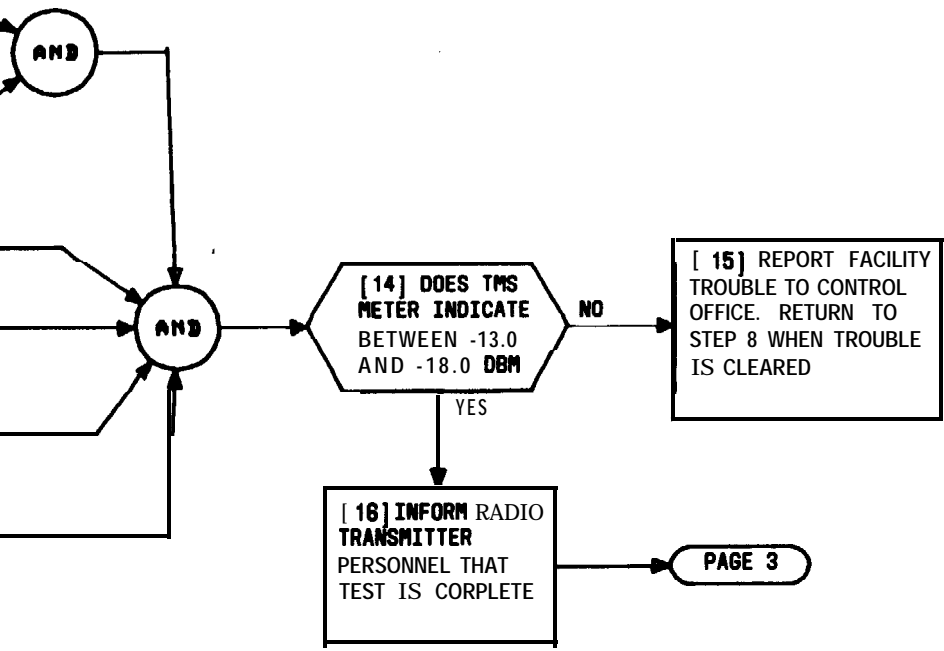
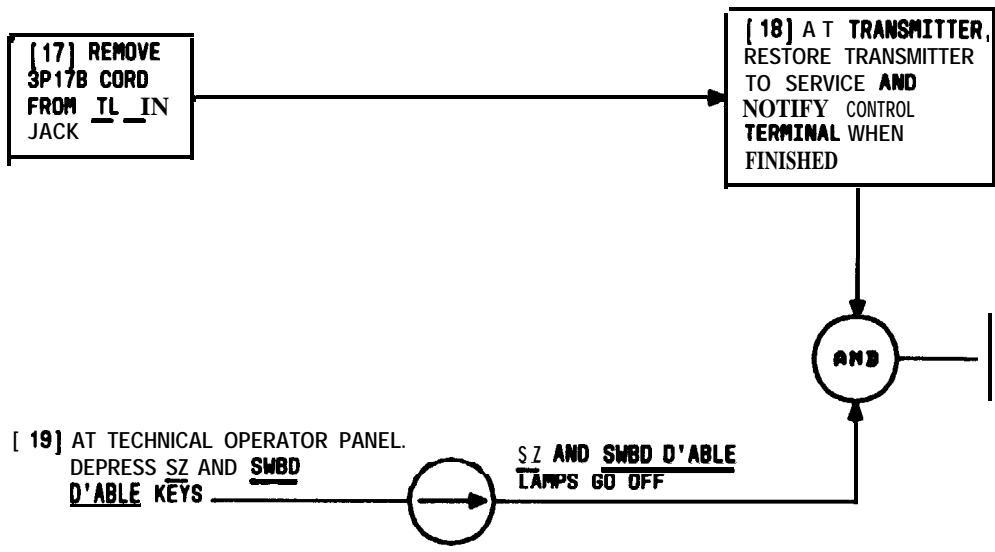


FIG. 1

MEASURE TRANSMITTER TO CONTROL TERMINAL 1000-HZ TONE LEVEL

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MEASURE TRANSMITTER TO CONTROL TERMINAL 1000-HZ
TONE LEVEL

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SUMMARY
 USING TRANSMISSION MEASURING SET (THS) AT CHANNEL BAY-TEST JACKS, PADS, AND FUSE PANEL, MEASURE TRANSMITTER TO CONTROL TERMINAL 1900-HZ AND 2100-HZ FOR -10.0 TO -24.0 DBM, AND 2900-HZ DBM FOR -19.0 TO -37.0 DBM. RADIO TRANSMITTER PERSONNEL ARE ALSO REQUIRED FOR THIS TEST

TABLE A	
EQUIPMENT REQUIRED	RECOMMENDATION
TRANSMISSION MEASURING SET	YECCO J
TEST CORD FOR THS	3P17B C

NOTE
 DISREGARD ALL LAHPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE

[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED. SEE NOTE

[2] GET TEST EQUIPMENT PERTAINING TO THIS TEST

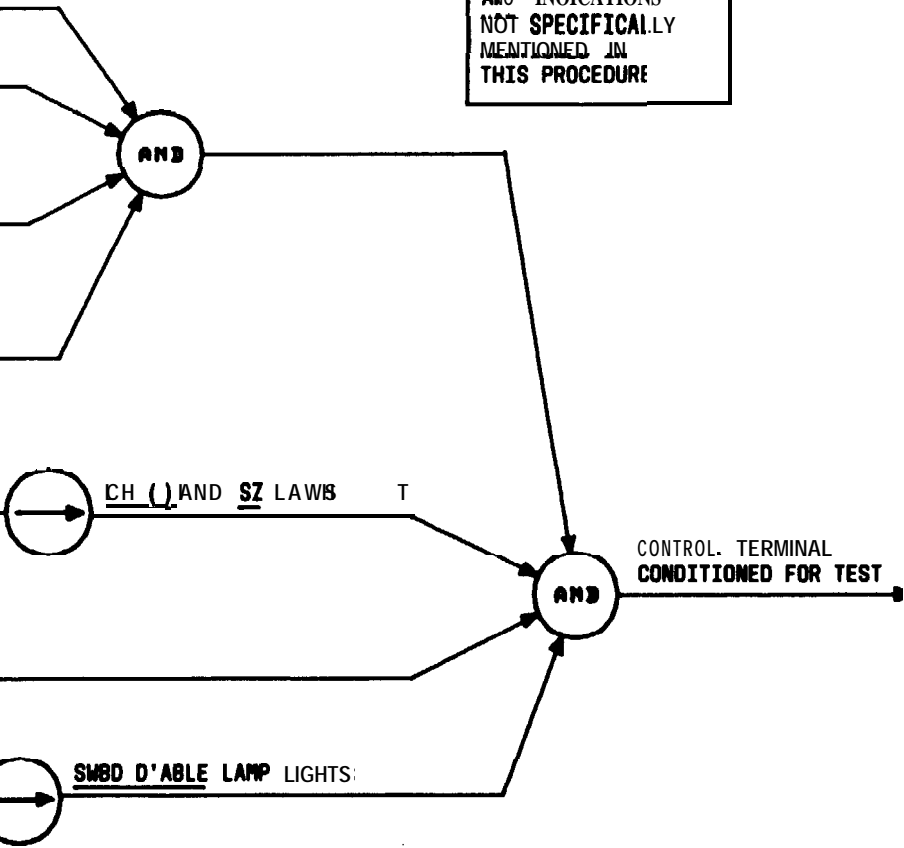
[3] ESTABLISH COMMUNICATIONS WITH RADIO TRANSMITTER PERSONNEL

[4] ENSURE CHANNEL () ID LAMP IS ON BEFORE CONTINUING WITH TEST

[5] AT TECHNICAL OPERATOR PANEL, DEPRESS CH () AND SZ KEYS FOR DESIRED CHANNEL

[6] NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES

[7] DEPRESS SWBD O'ABLE KEY



MEASURE TRANSMITTER TO CONTROL TERMINAL 1900-HZ, 2100-HZ, AND 2900-HZ SIGNALING TONE LEVELS

[8] AT RADIO TRANSMITTER, SET
TRANSMIT BODE WITCH TO OFF

AT CONTROL TERMINAL:

[9] CONDITION J94021A(21A)TMS TO
MEASURE DECIBELS [DLP-548]

[10] SET DET INPUT ON TMS TO +20

[11] CONNECT 3P17B CORD FROM DET IN
800R TO TL IN JACK OF TRANSMITTER
BEING TESTED [FIG. 1]

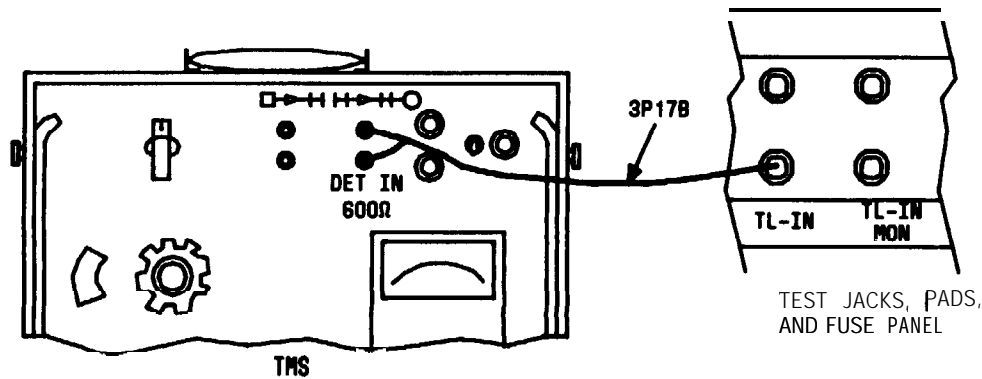


FIG. 1

[12] AT TRANSMITTER.
DEPRESS AND HOLD
1800 SIG OSC TEST
PUSHBUTTON

[13] AT CONTROL
TERMINAL, DOES
TMS METER INDICATE
BETWEEN -10.0 AND
-24.0 DBM

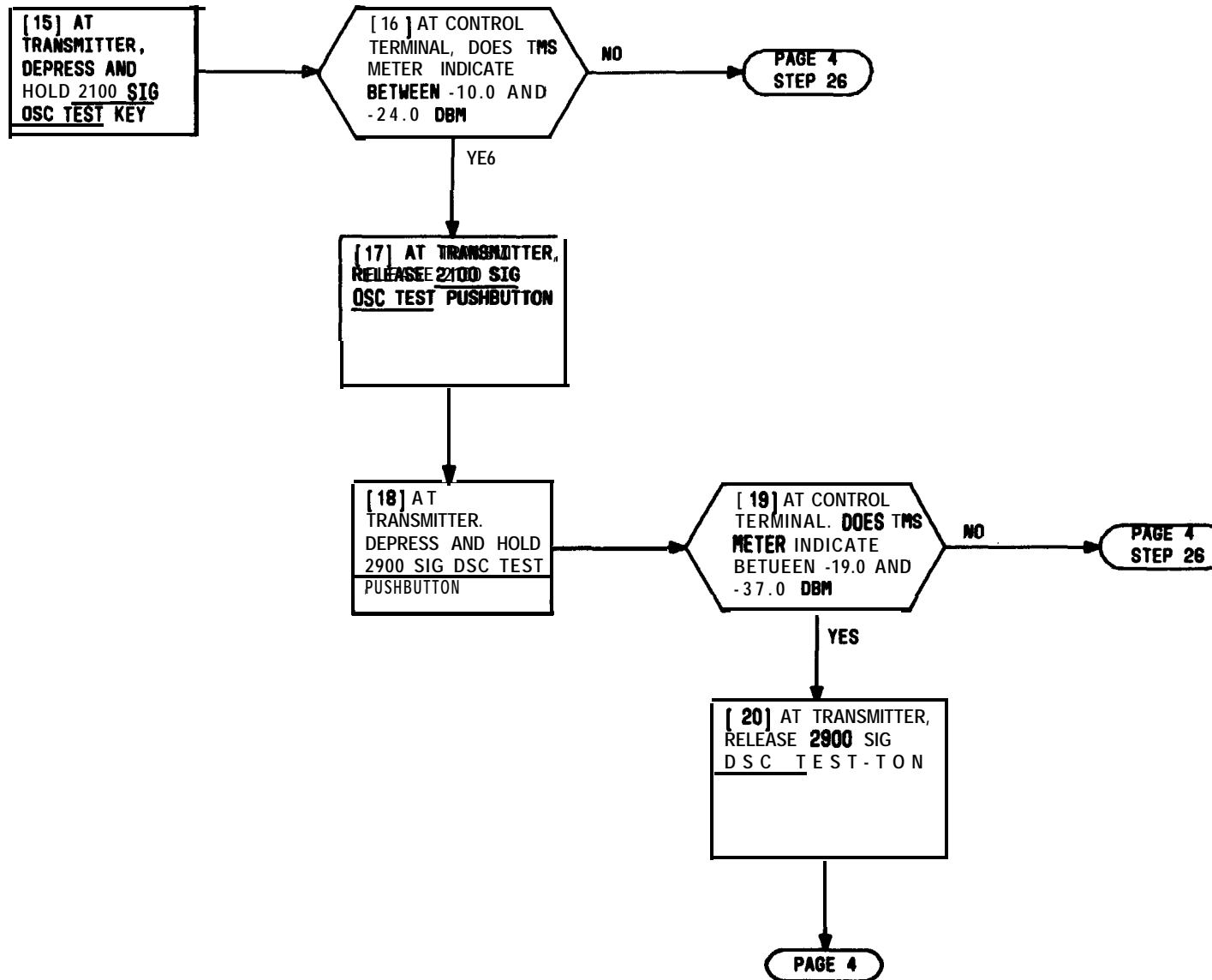
NO
PAGE 4
STEP 26

[14] AT TRANSMITTER,
RELEASE 1800 SIG OSC
TEST PUSHBUTTON

PAGE 3

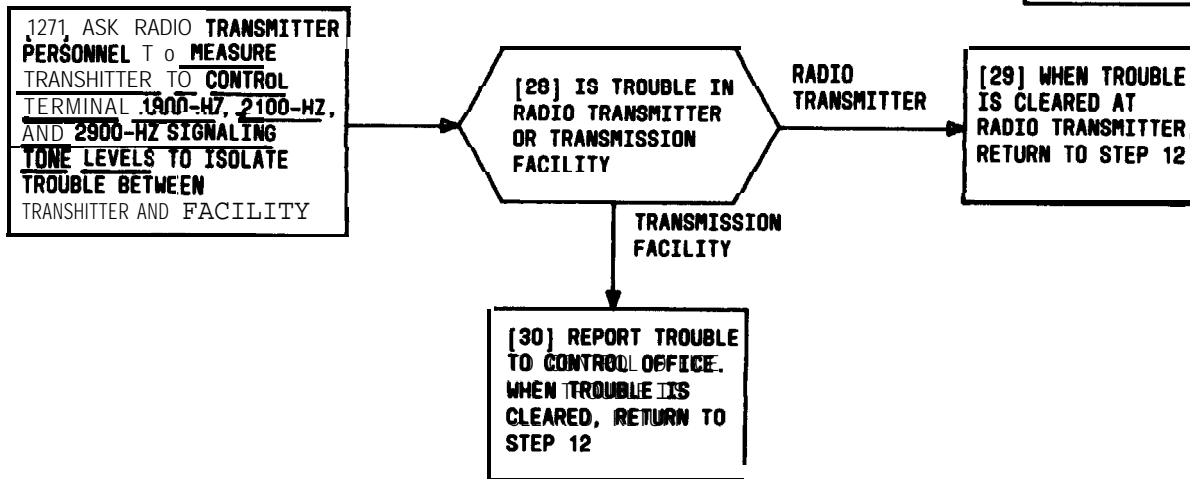
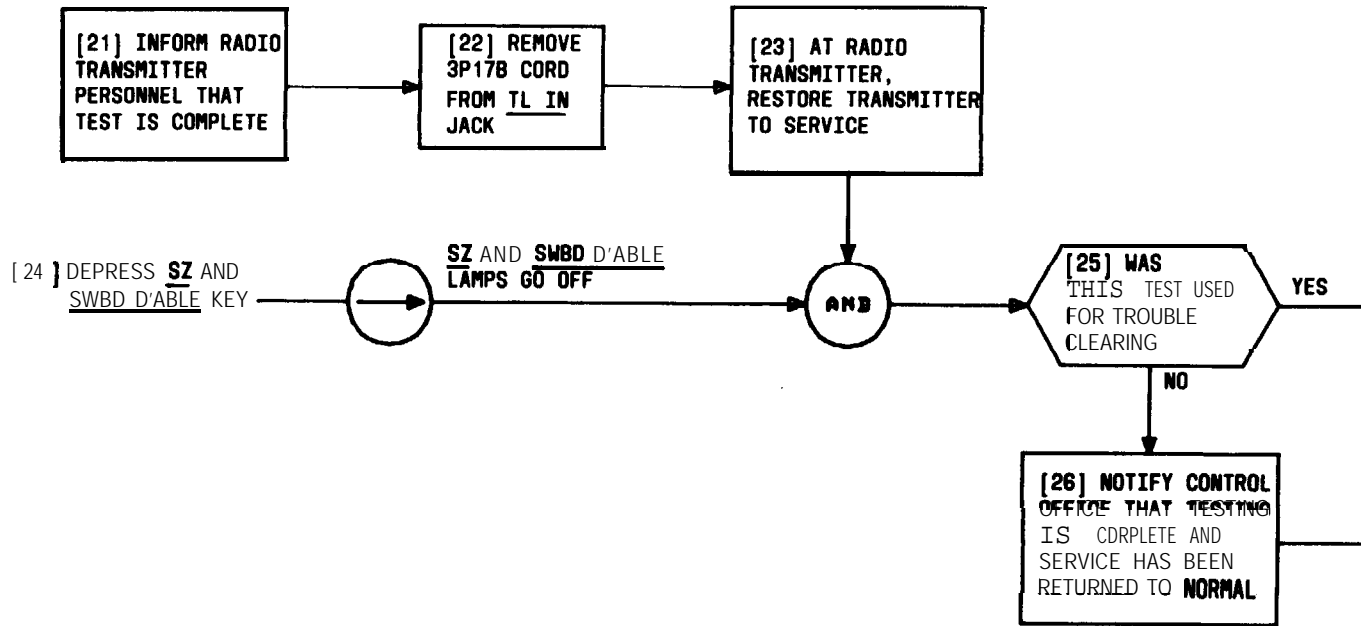
MEASURE TRANSMITTER TO CONTROL TERMINAL 1900-HZ,
2100-HZ, AND 2900-HZ SIGNALING TONE LEVELS

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MEASURE TRANSMITTER TO CONTROL TERMINAL 1900-HZ, 2100-HZ, AND 2900-HZ SIGNALING TONE LEVELS

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**MEASURE TRANSMITTER TO CONTROL TERMINAL 1900-HZ,
2100-HZ, AND 2900-HZ SIGNALING TONE LEVELS**

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SUMMARY

VERIFY THAT TRANSMITTER () ESW ALARM LAMP WILL LIGHT AT USAGE AND ALARM PANEL OF COMMON BAY WHEN AN EXCESSIVE VOLTAGE STANDING WAVE RATIO IS CREATED AT TRANSMITTER BY TRANSMITTER PERSONNEL PERFORMING TEST TRANSMITTER SIGNALING OF VSWR ALARM

NOTE
DISREGARD ALL
AND INDICATIO
NOT SPECIFICA
RENTIONE IN
THIS PROCEDUR

[1] OBTAIN RELEASE FOR
TESTS TO BE PERFORMED.
SEE NOTE

[2] ESTABLISH COMMUNICATIONS WITH
RADIO TRANSMITTER PERSONNEL

[3] ENSURE CHANNEL () ID LAMP
IS ON BEFORE CONTINUING
WITH TEST

[4] AT TECHNICAL OPERATOR
PANEL, DEPRESS CH () AND
SZ KEYS FOR DESIRED CHANNEL

CH () AND SZ LAMP LIGHT

[5] NOTIFY CONTROL OFFICE OF
SERVICE REDUCTION IN
ACCORDANCE WITH LOCAL
OPERATING PROCEDURES

[6] DEPRESS SWBD D'ABLE
KEY

SWBD D'ABLE LAMP LIGHTS

CONTROL TERMINAL
CONDITIONED FOR TE

TEST EXCESSIVE STANDING WAVE RATIO ALARM INDICATION
AT CONTROL TERMINAL

[7] AT TRANSMITTER, TEST TRANSMITTER SIGNALING. OF VSWR ALARM

[8] ASK RADIO TRANSMITTER PERSONNEL TO REMOVE STATION ANTENNA SYSTEM FROM TRANSMITTER OUTPUT AND NOTIFY CONTROL TERMINAL WHEN COMPLETED

[9] DEPRESS XRTR () KEY

XHTR () LAMP LIGHTS

[11] DEPRESS RLS KEY

TRANSMITTER (), ESW LAMPS GO OFF

[12] DEPRESS ALM RESET KEY

OFFICE ALARM IS SILENCED

[10] AT USAGE AND ALARM PANEL, DOES TRANSMITTER () ESW ALARM LAMP LIGHT AND MAJOR OFFICE ALARM SOUND

NO

PAGE 3 STEP 19

YES

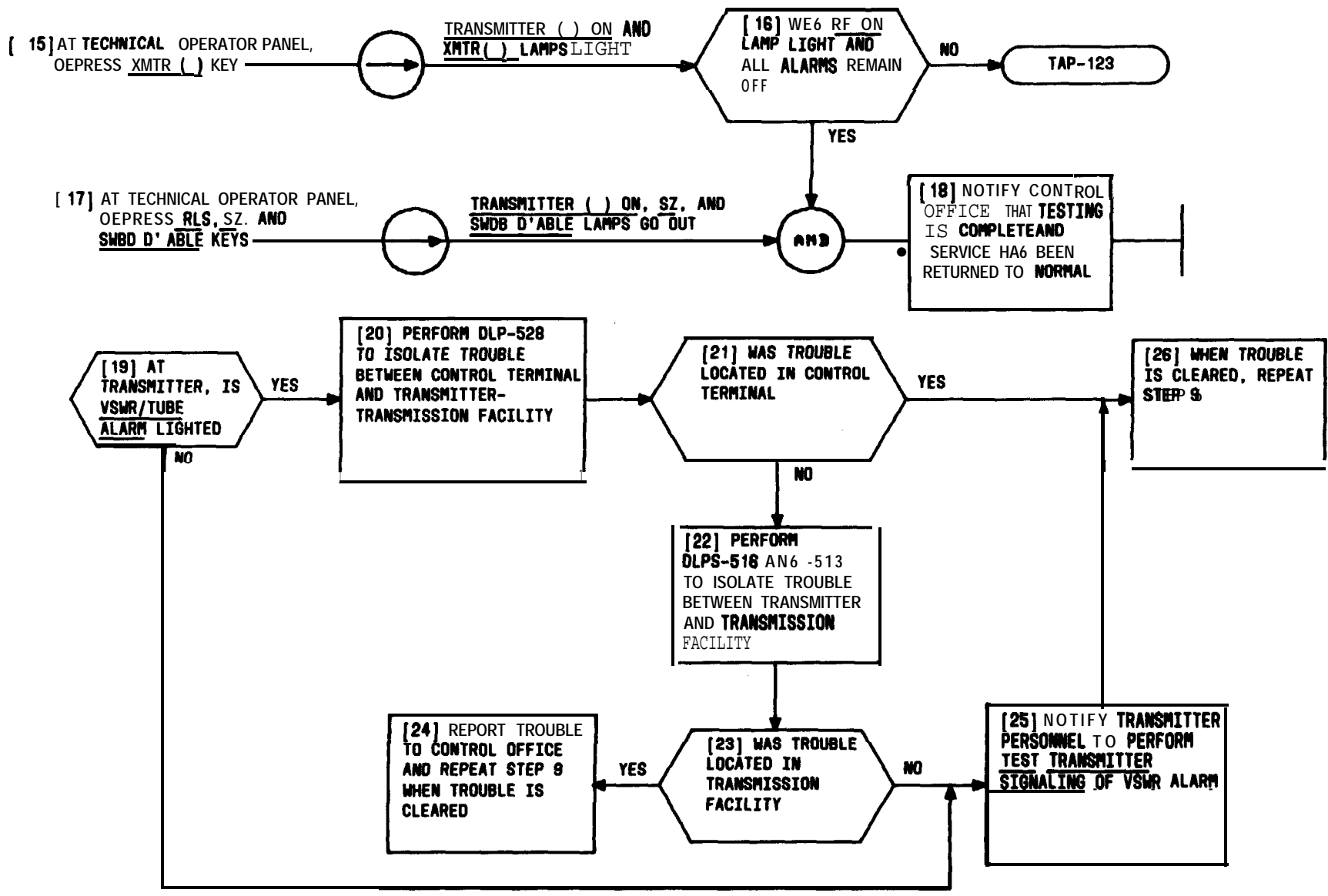
[13] NOTIFY TRANSMITTER PERSONNEL THAT TEST IS COMPLETE

[14] AT TRANSMITTER, RESTORE TRANSMITTER TO SERVICE AND NOTIFY CONTROL TERMINAL WHEN FINISHED

PAGE 3

TEST EXCESSIVE STANDING WAVE RATIO ALARM INDICATION AT CONTROL TERMINAL

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TEST EXCESSIVE STANDING WAVE RATIO ALARM INDICATION
AT CONTROL TERMINAL

SUMMARY

VERIFY THAT CONTROL TERMINAL WILL DETECT AND INDICATE RF ALARM THAT IS INITIATED AT TRANSMITTER. RADIO TRANSMITTER PERSONNEL ARE ALSO REQUIRED FOR THIS TEST

[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED.
SEE NOTE

[2] ESTABLISH COMMUNICATIONS WITH RADIO TRANSMITTER PERSONNEL

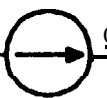
[3] ENSURE CHANNEL () ID LAMP IS ON BEFORE CONTINUING WITH TEST

[4] AT TECHNICAL OPERATOR PANEL, DEPRESS CH () AND SZ KEYS FOR DESIRED CHANNEL

[5] NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES

[6] DEPRESS SWBD D'ABLE KEY

NOTE
DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE



CH () AND SZ LAMPS LIGHT

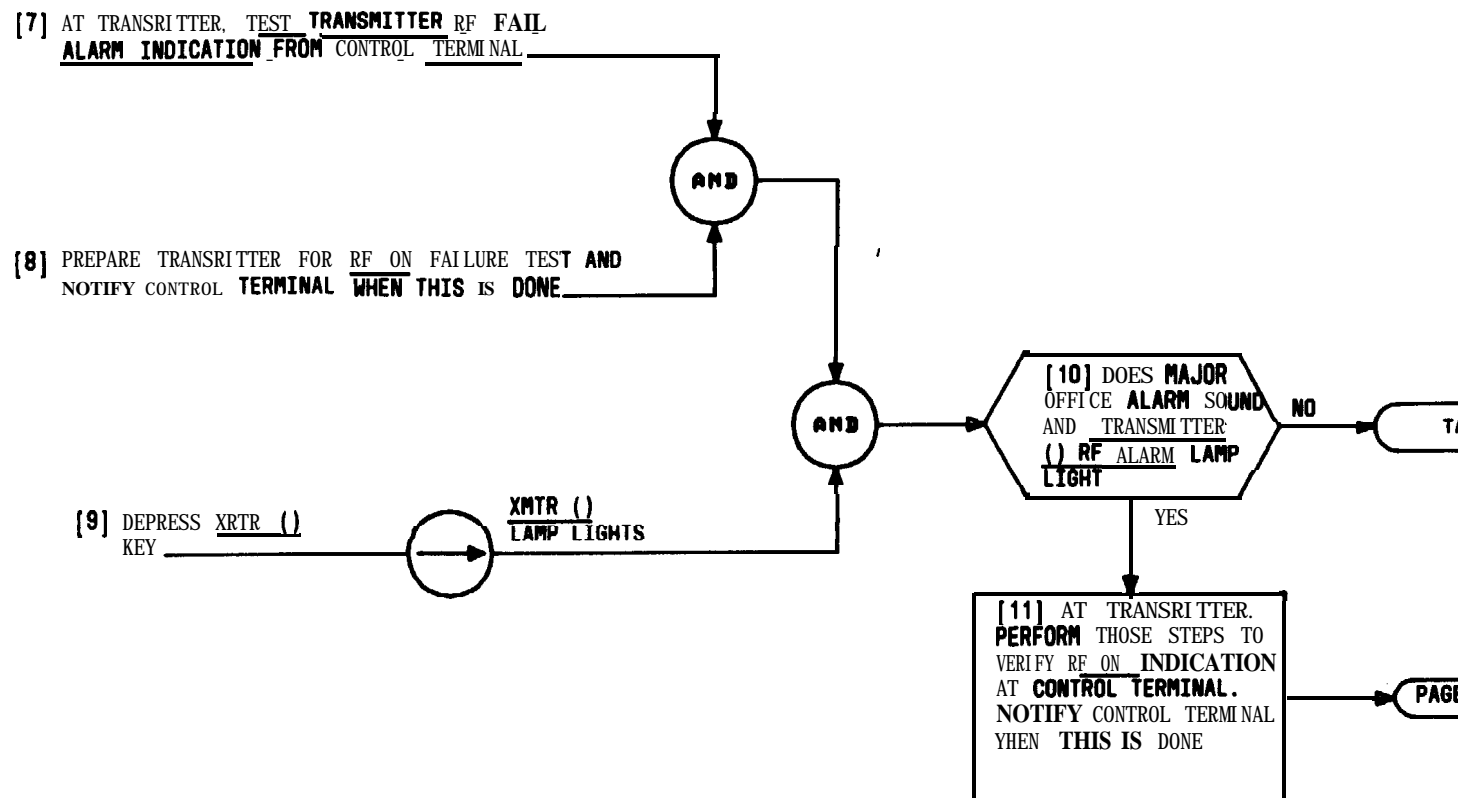


CONTROL TERMINAL CONDITIONED FOR TEST

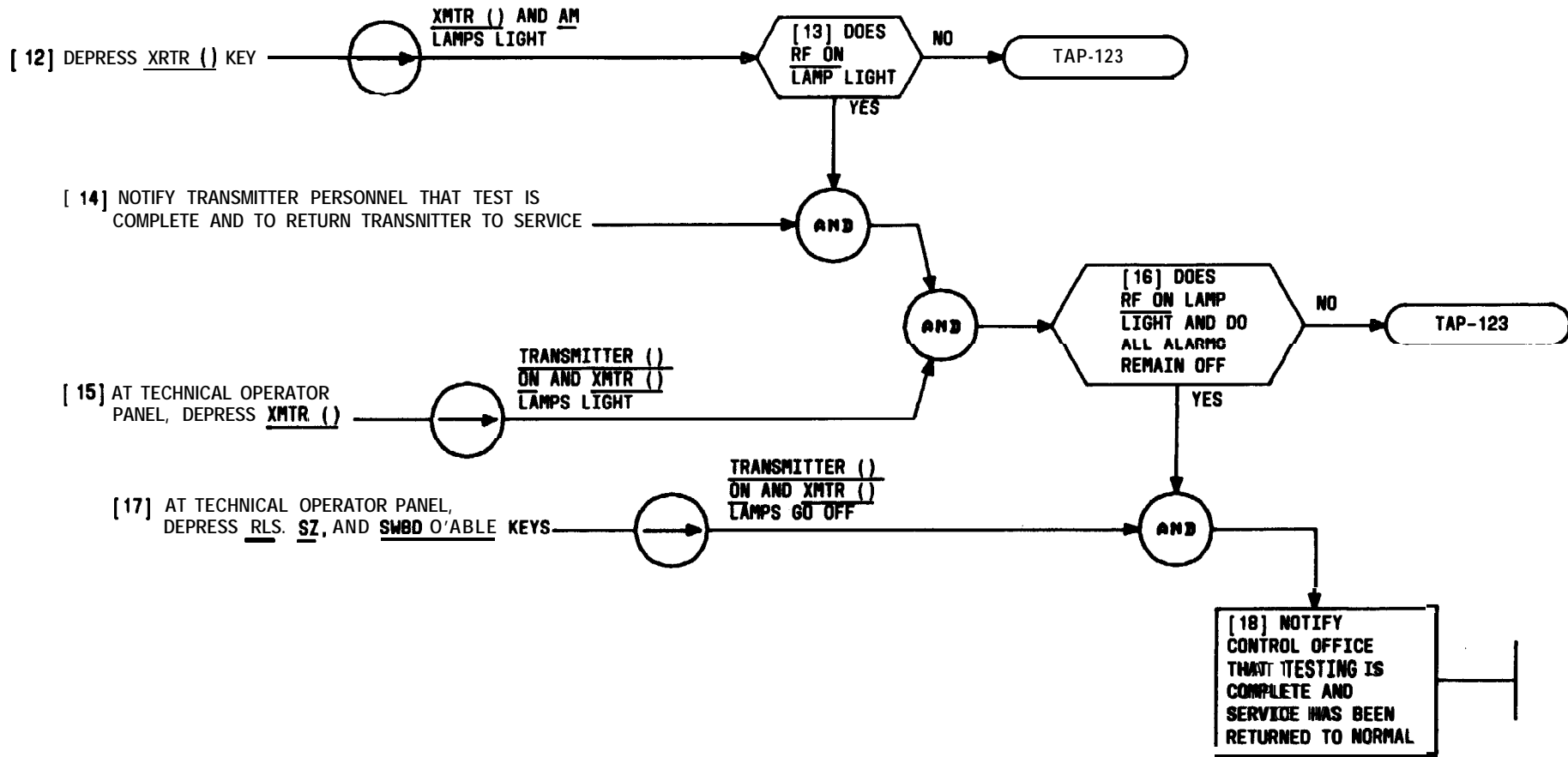
PAGE 2

TEST TRANSMITTER RF ALARM INDICATION AT CONTROL TERMINAL

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TEST TRANSMITTER RF ALARM INDICATION AT CONTROL TERMINAL



TEST TRANSMITTER RF ALARM INDICATION AT CONTROL TERMINAL

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SUMMARY

VERIFY THAT CONTROL TERMINAL WILL DETECT FAILURE OF TRANSMITTER TO TURN ON WHEN COMMANDED TO DO SO BY CONTROL TERMINAL. ALSO VERIFY THAT CONTROL TERMINAL WILL DETECT TURNON OF TRANSMITTER WHEN NOT COMMANDED TO DO SO BY CONTROL TERMINAL

TABLE A

EQUIPMENT REQUIRED	RECOMMENDED TYPE
TRANSMISSION MEASURING SET	WECO J94021A (21A)
TEST CORD FOR TMS	3P17B CORD
600Ω DUMMY PLUG	262B PLUG

[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED. SEE NOTE

[2] GET TEST EQUIPMENT PER TABLE A

[3] ENSURE CHANNEL () ID LAMP IS ON BEFORE CONTINUING WITH TEST

NOTE
DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE

[4] AT TECHNICAL OPERATOR PANEL, DEPRESS CH () AND SZ FOR DESIRED CHANNEL

CH () AND SZ LAMPS LIGHT

[5] NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL OPERATIONS PROCEDURES

[6] DEPRESS SWBD O'ABLE KEY



CONTROL TERMINAL
CONDITIONED FOR TEST

TEST TRANSMITTER TURNON FAILURE ALARM INDICATION AT CONTROL TERMINAL

[7] AT TEST JACKS, PADS, AND FUSE PANEL,
PLACE A 2626 PLUG INTO TSCO OUT JACK
OF TRANSMITTER BEING TESTED

[8] AT TECHNICAL OPERATOR PANEL,
DEPRESS XRTR () KEY OF
TRANSMITTER BEING TESTED

[10] DEPRESS RLS KEY AND
ALM RESET KEY

[11] AT TEST JACKS, PADS, AND FUSE PANEL,
REHOVE 2626 PLUG FROR TUSCO OUT JACK

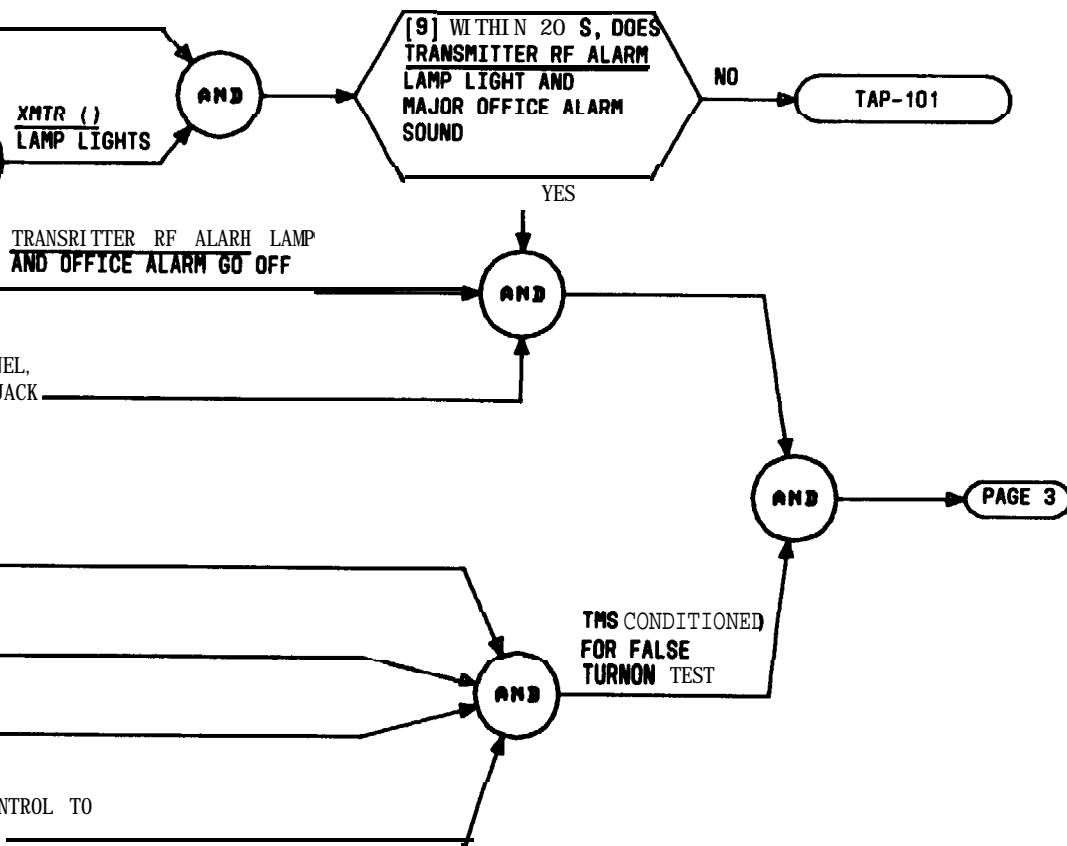
ON TRANSMISSION MEASURING SET:

[12] CONDITION TMS FOR 2900-HZ
OUTPUT AT -26 DB [DLP-548]

[13] SET FREP MULT TO X1000

[14] SET FREQ SCALE TO 2.9

[15] SET OSC OUTPUT 10-DB STEP CONTROL TO
-20 AND SMOOTH CONTROL TO -6



TEST TRANSMITTER **TURNON** FAILURE ALARM INDICATION
AT CONTROL TERMINAL

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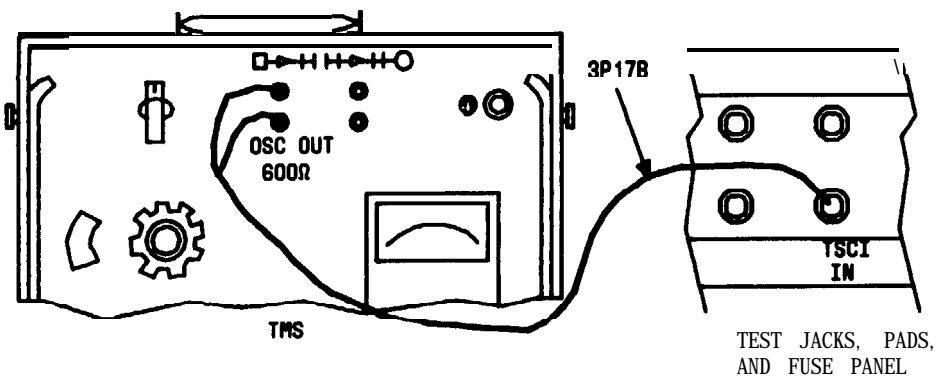
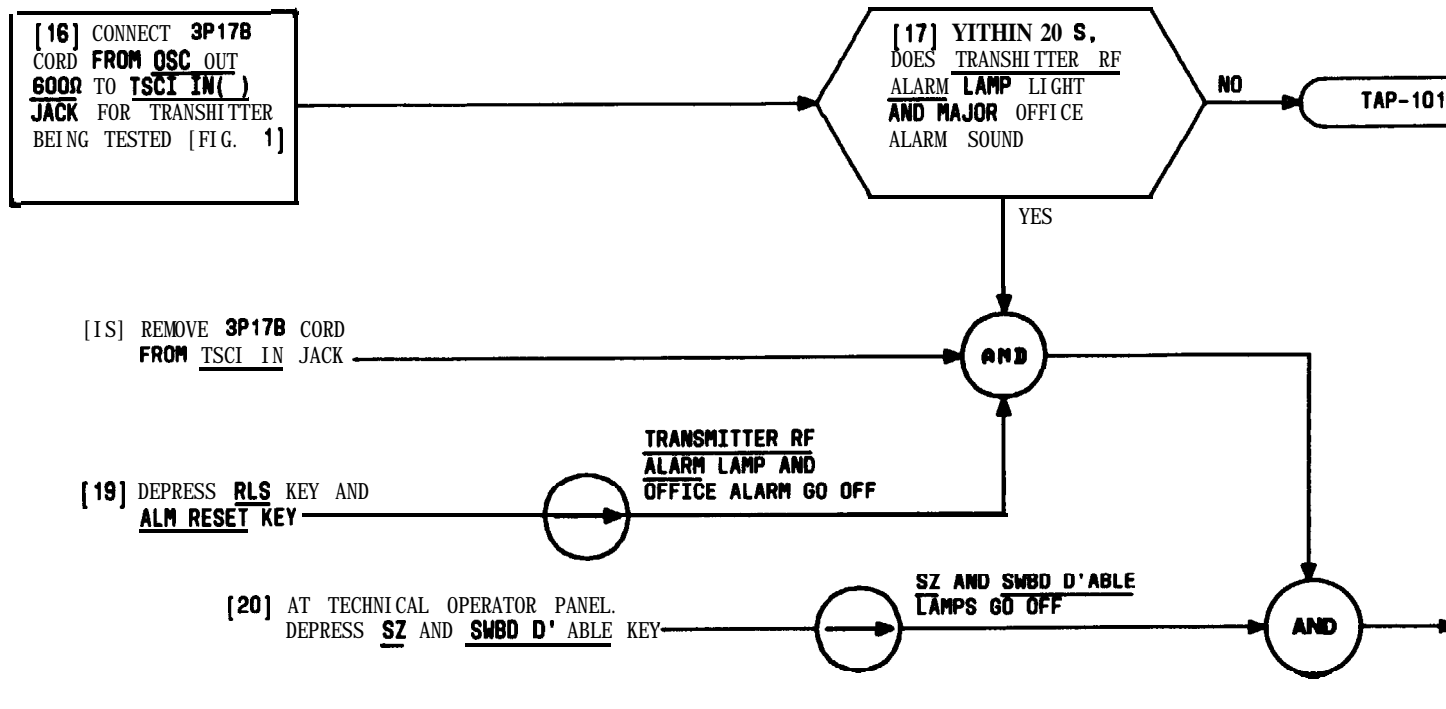


FIG. 1

TEST TRANSMITTER TURNON FAILURE ALARM INDICATION AT CONTROL TERMINAL

SUMMARY

VERIFY ABILITY OF CONTROL TERMINAL TO **COMMAND** EMERGENCY POWER ON AND TO DETECT EMERGENCY POWER ON RESPONSE **FROM** TRANSMITTER. SEE NOTE 1

NOTES

1. LOAD AT TRANSMITTER IS NOT TRANSFERRED TO EMERGENCY POWER GENERATOR **WHEN** GENERATOR IS **COMMANDED** ON **FROM** CONTROL TERMINAL
2. DISREGARD ALL **LAMPS** AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE

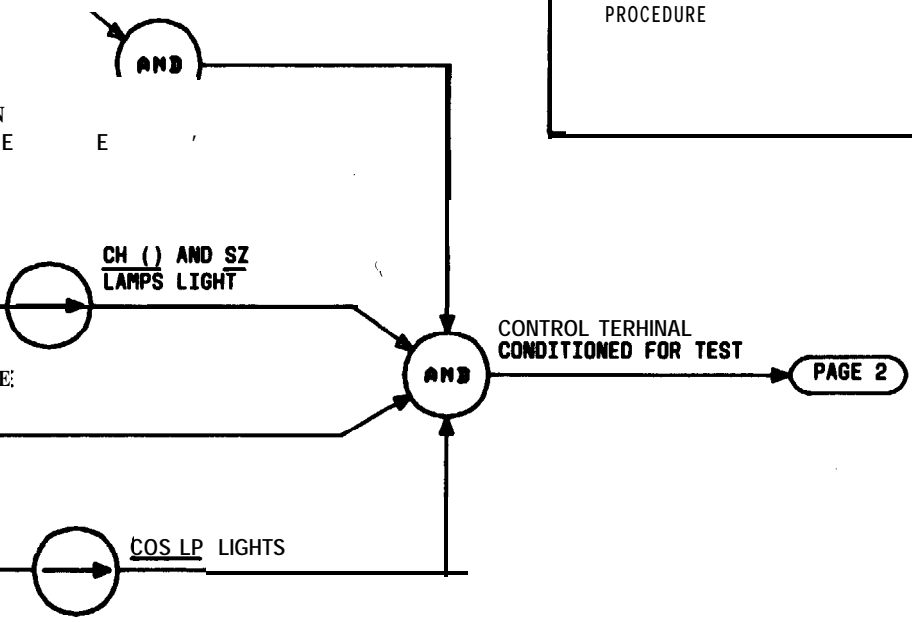
[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED. SEE NOTES 1 AND 2 _____

[2] ENSURE **CHANNEL () ID** LMP IS ON BEFORE **CONTINUING** WITH TEST _____

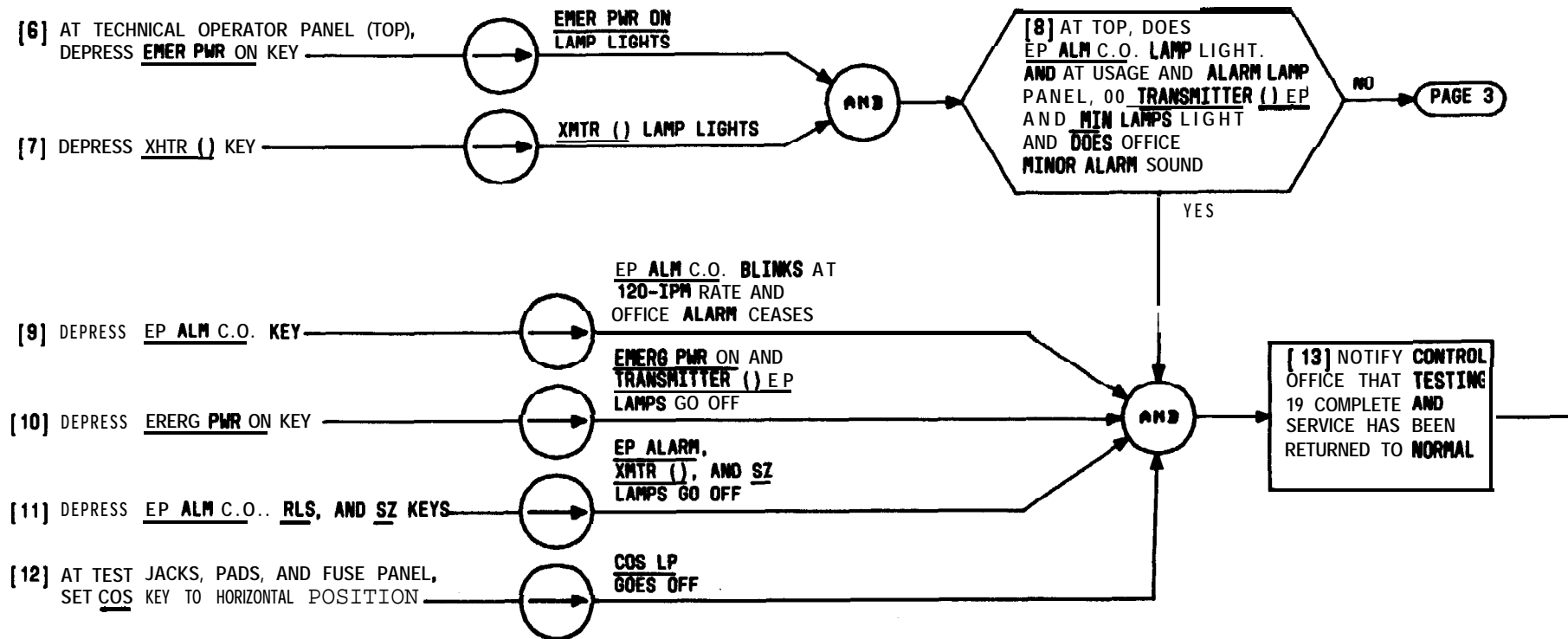
[3] AT TECHNICAL OPERATOR PANEL, DEPRESS **CH ()** AND **SZ** FOR DESIRED **CHANNEL** _____

[4] NOTIFY CONTROL OFFICE OF SERVICE: REDUCTION IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES _____

[5] AT TEST JACKS, PADS, AND FUSE PANEL, SET **COS** KEY TO VERTICAL POSITION _____

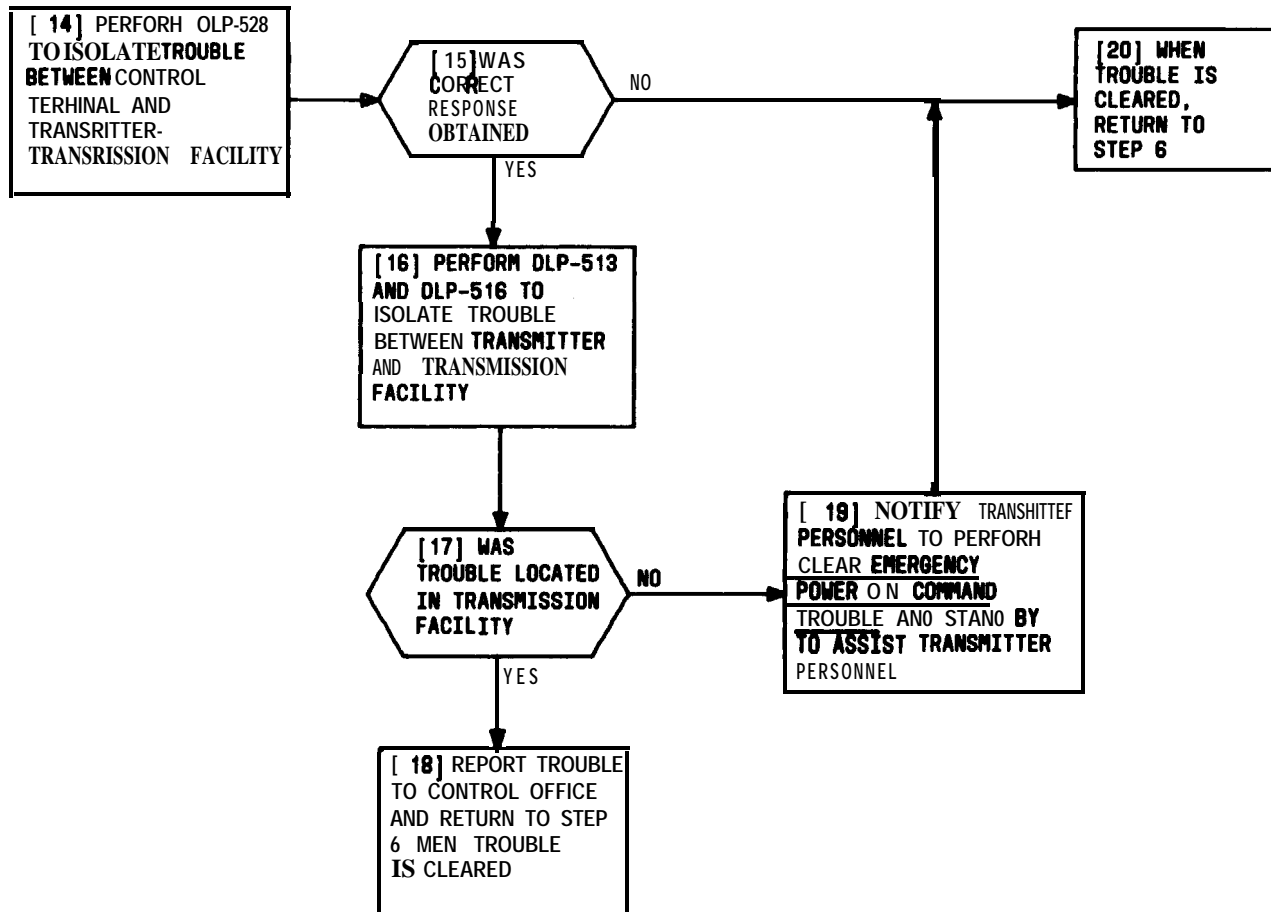


TEST TRANSMITTER EMERGENCY POWER ON INDICATION AT CONTROL TERMINAL



TEST TRANSMITTER EMERGENCY POWER ON INDICATION
AT CONTROL TERMINAL

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TEST TRANSMITTER EMERGENCY POWER ON INDICATION
AT CONTROL TERMINAL

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SUMMARY

VERIFY THAT A, B, AND C ALARMS INITIATED AT TRANSMITTER WILL BE DETECTED AT CONTROL TERMINAL. RADIO TRANSMITTER PERSONNEL ARE ALSO REQUIRED FOR THIS TEST

[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED. SEE NOTE 1

[2] ESTABLISH COMMUNICATIONS WITH RADIO TRANSMITTER PERSONNEL

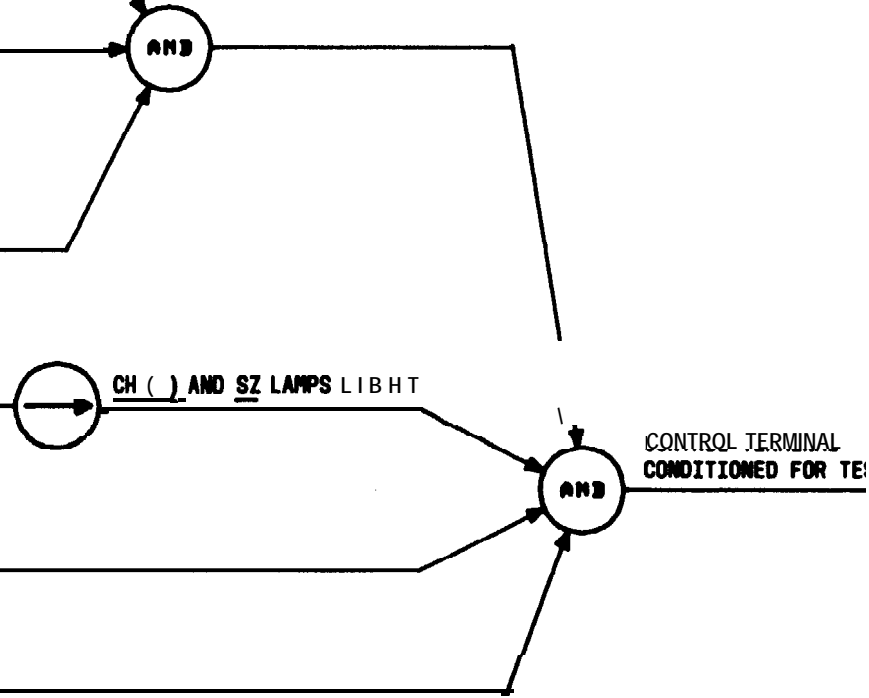
[3] ENSURE CHANNEL () ID LAW IS ON BEFORE CONTINUING WITH TEST

[4] AT TECHNICAL OPERATOR PANEL, DEPRESS CH () AND SZ FOR DESIRED CHANNEL

[5] NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES

[6] DEPRESS SWBD D'ABLE KEY

NOTE 1
DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE



TEST TRANSMITTER ALARMS A, B, AND C INDICATIONS AT CONTROL TERMINAL

[7] SEE NOTE 2. AT TRANSMITTER, TEST TRANSMITTER SIGNALING OF MAJOR AND MINOR A, B, AND C ALARMS

MAJOR ALARM SOUNDS WHEN INITIATED

[8] AT TECHNICAL OPERATOR PANEL, DEPRESS XHTR () KEY

RF ON LAMP LIGHTS

[9] DO TRANSMITTER () A, B, AND C LAMPS LIGHT, CHANNEL () MAJ/MIN LAMPS LIGHT, AND DOES MINOR/MAJOR ALARM SOUND

PAGE 4

[10] DEPRESS ALM C.O. KEY

OFFICE ALARH CUTS OFF AND ALM C.O. LAMP LIBHT3

[11] DEPRESS RLS KEY

RF ON LAMP GOES OFF

[12] ASK TRANSMITTER PERSONNEL TO REHDVE A, B, AND C ALARH CONDITIONS

[13] DEPRESS SPARE FUNCT RESET KEY

[14] DO TRANSMITTER () A, B, AND C ALARM LAMPS GO OFF

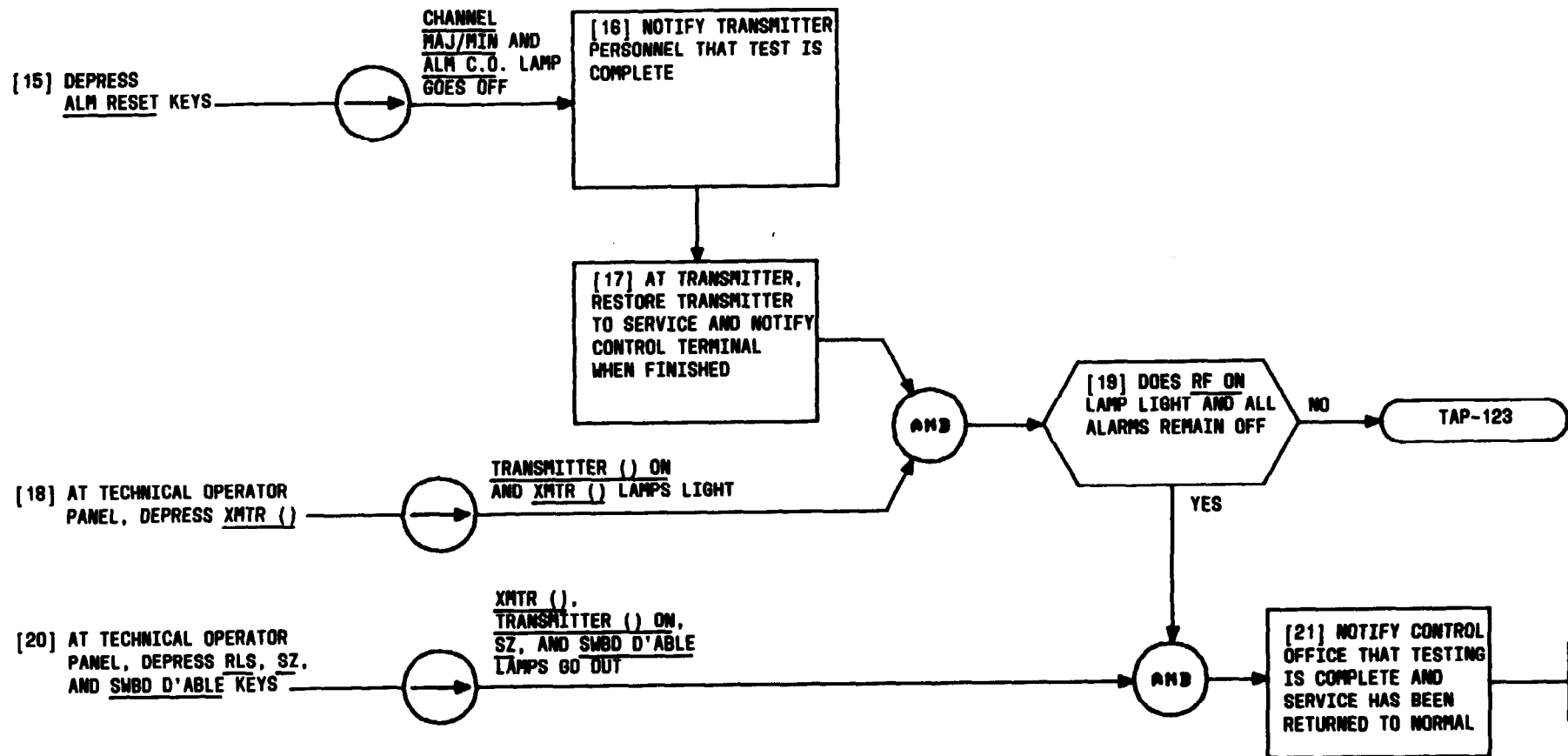
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NOTE 2
 A, B, AND C ALARMS ARE FURNISHED FOR USE OF LOCAL TELEPHONE COMPANY. IF A OR B ALARM IS WIRED FOR A MAJOR ALARH. DATA WILL BE SENT TOWARD CONTROL TERMINAL IMMEDIATELY. IF ALARMS ARE CONNECTED AS MINOR ALARMS (C IS ALWAYS WIRED AS A MINOR ALARH), IT WILL BE NECESSARY TO SEND NEXT DATA TRAIN TO CAUSE ALARH TO ACTIVATE

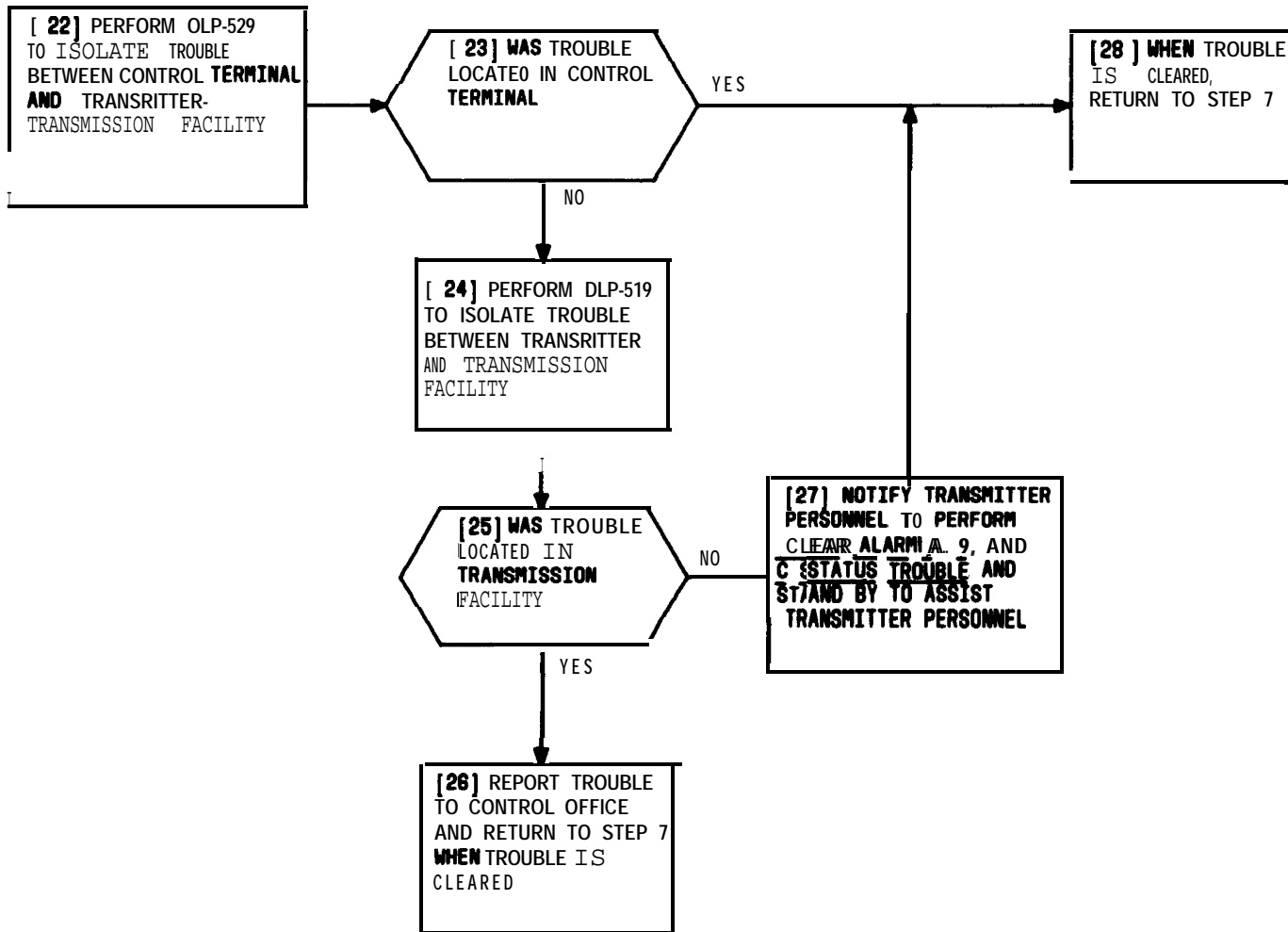
TEST TRANSMITTER ALARMS A, B, AND C INDICATIONS AT CONTROL TERMINAL

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TEST TRANSMITTER ALARMS A, B, AND C INDICATIONS AT CONTROL TERMINAL

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TEST TRANSMITTER ALARMS A, B, AND C INDICATIONS
AT CONTROL TERMINAL

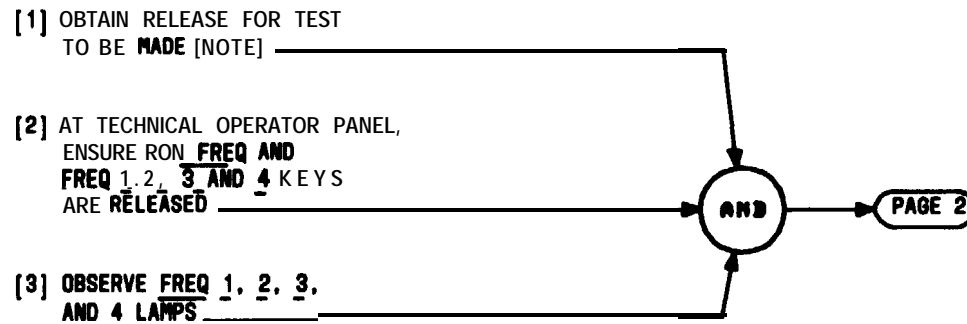
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SUMMARY

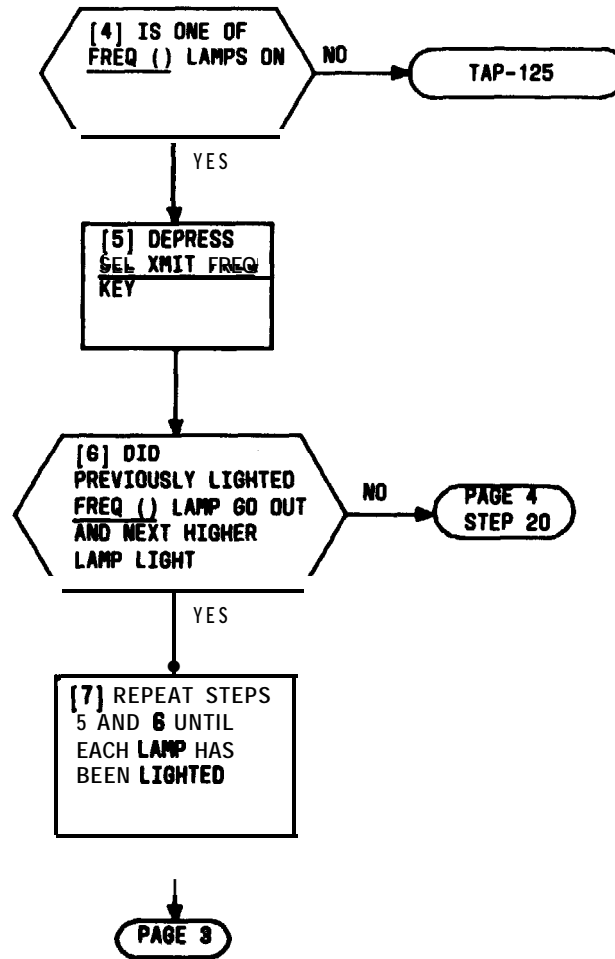
VERIFY ABILITY OF TECHNICAL OPERATOR TO TURN **STANDBY TRANSMITTER** ON **AND** TO CONTROL SELECTION OF TRANSMITTER FREQUENCY

NOTE

DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE

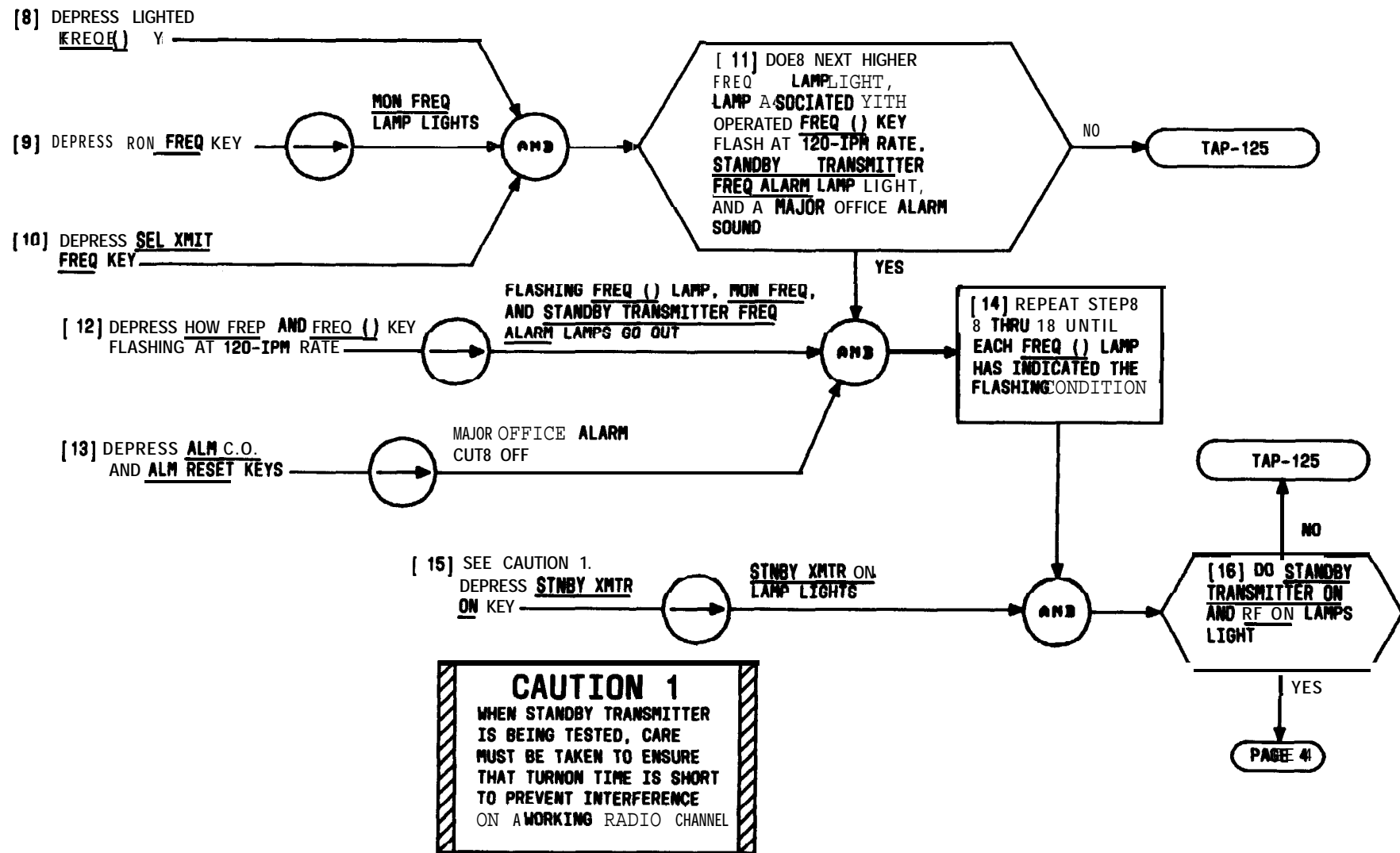


TEST STANDBY TRANSMITTER OPERATION USING **STANDBY** TRANSMITTER **CONTROL CIRCUIT**



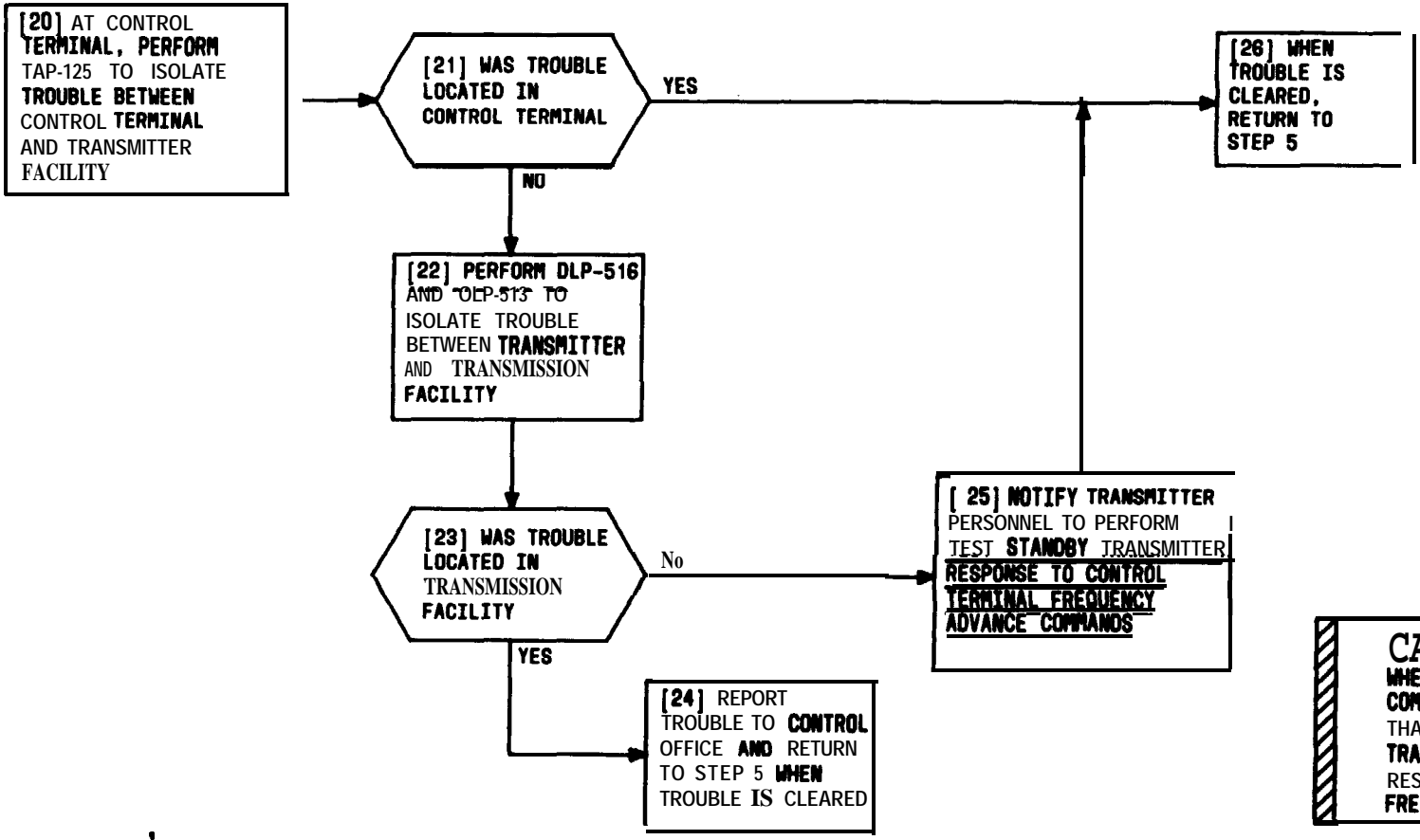
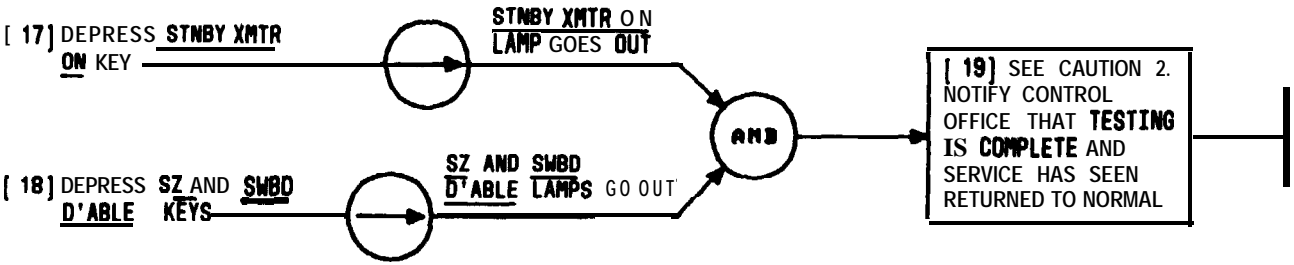
TEST STANDBY TRANSMITTER OPERATION USING STANDBY
TRANSMITTER CONTROL CIRCUIT

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TEST STANDBY TRANSMITTER OPERATION USING STANDBY TRANSMITTER CONTROL CIRCUIT

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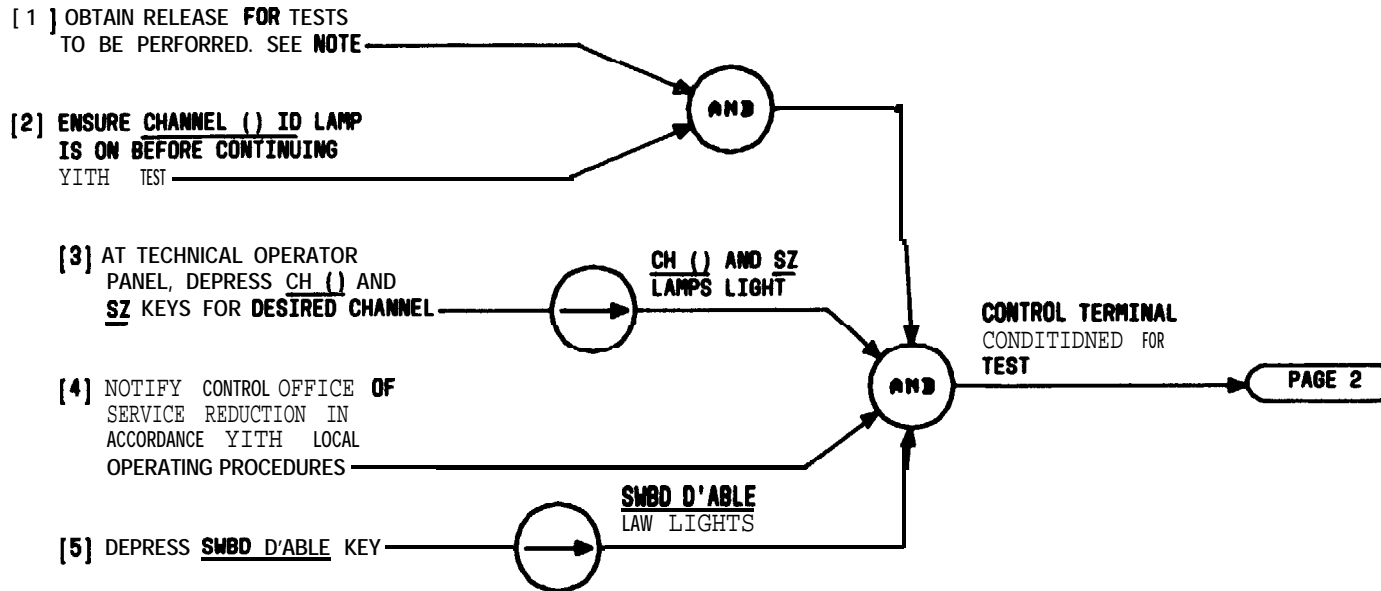
CAUTION 2
 WHEN TESTING IS COMPLETED, ENSURE THAT STANDBY TRANSMITTER IS RESET TO CORRECT FREQUENCY

TEST STANDBY TRANSMITTER OPERATION USING STANDBY TRANSMITTER CONTROL CIRCUIT

SUMMARY

USING SIGNALING AND CONTROL CIRCUITS ASSOCIATED WITH XMTR 1, XMTR 2, OR XMTR 3, VERIFY OPERATION OF STANDBY TRANSMITTER WHEN PATCHED IN PLACE OF ANOTHER TRANSMITTER

NOTE
DISREGARD ALL LAWS
AND INDICATIONS NOT
SPECIFICALLY MENTIONED
IN THIS PROCEDURE



**TEST STANDBY TRANSMITTER OPERATION WHEN
PATCHED IN PLACE OF TRANSMITTER 1, 2, OR 3**

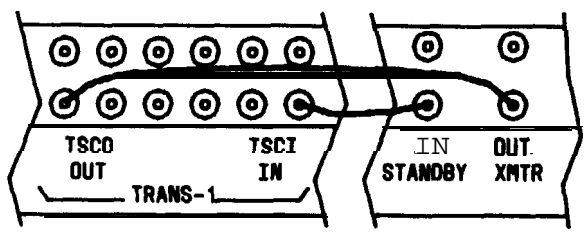
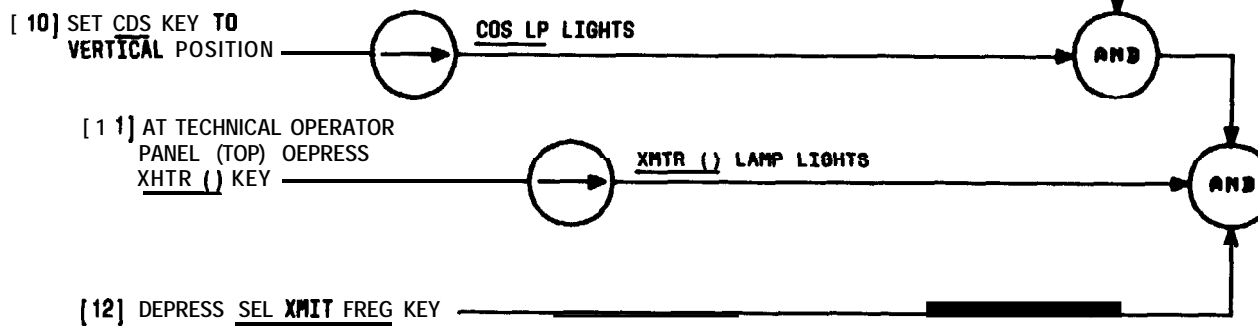
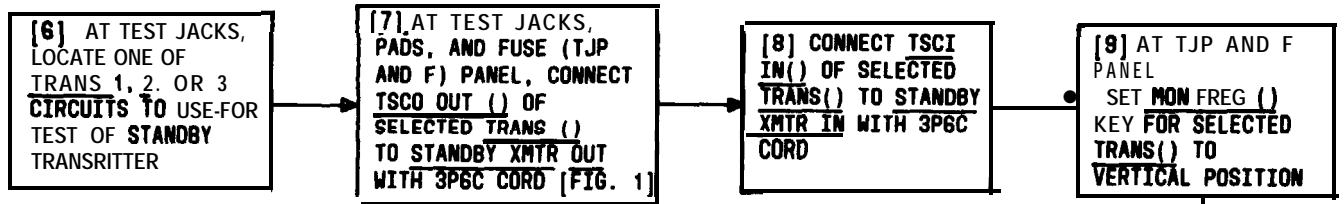
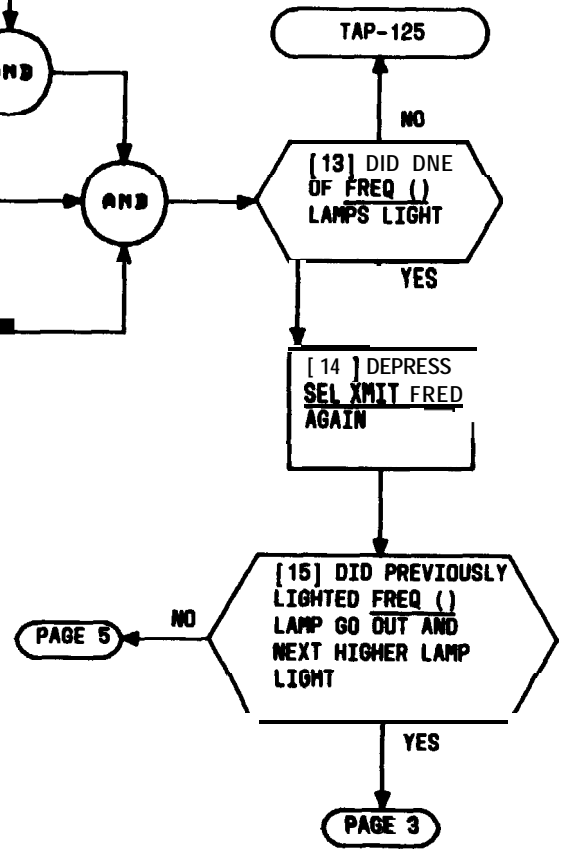
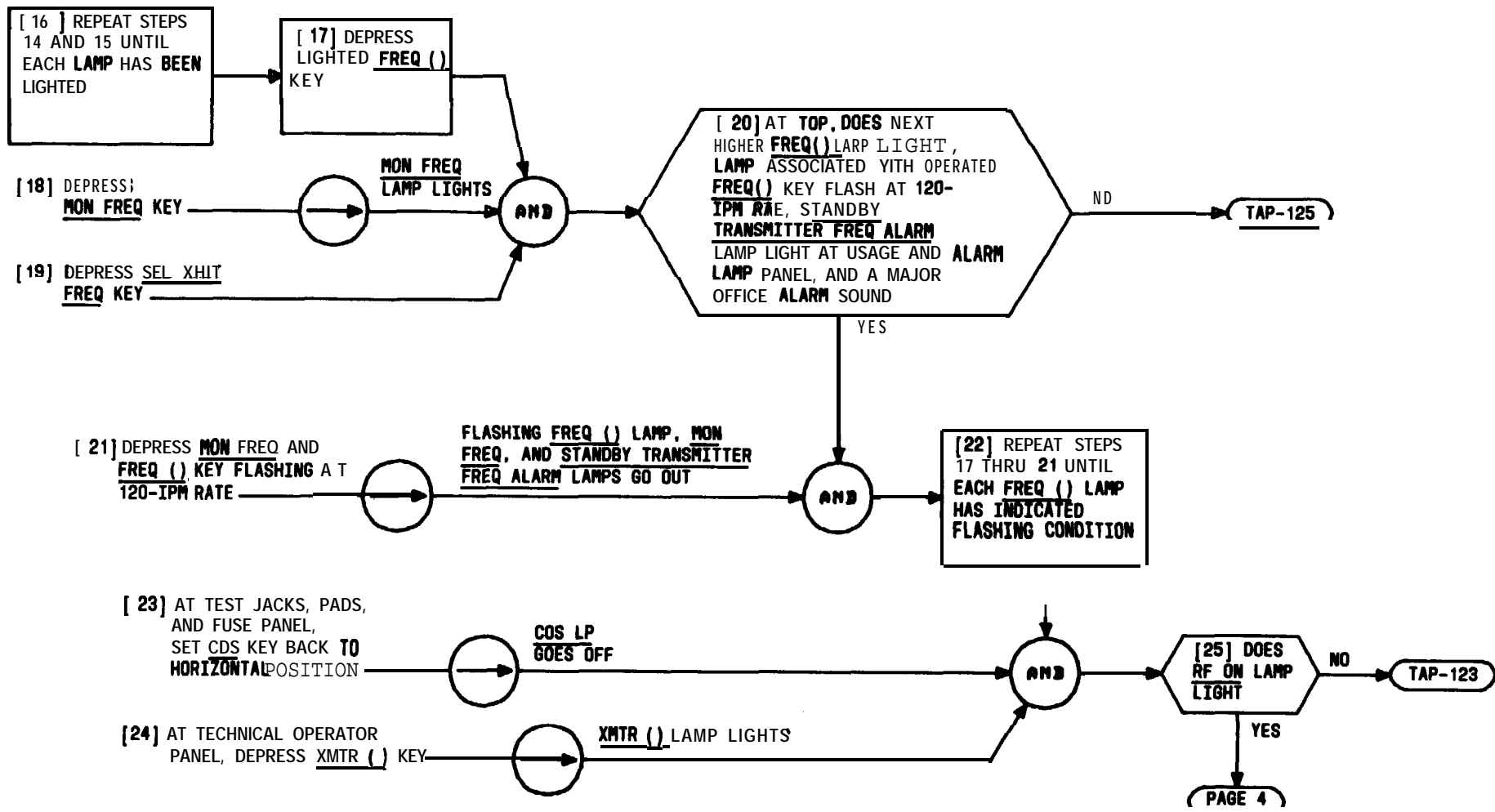


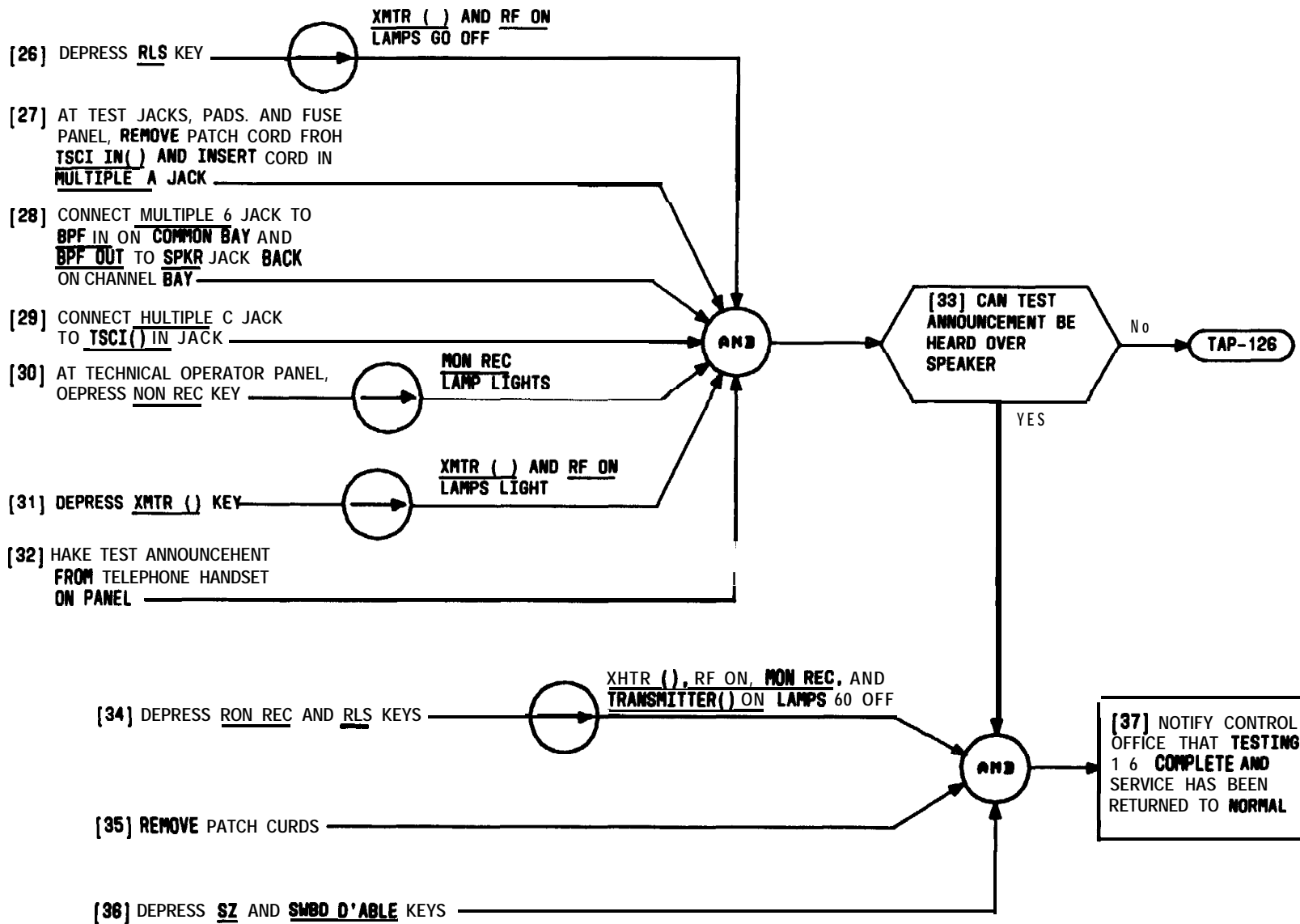
FIG. 1



TEST STANDBY TRANSMITTER OPERATION WHEN PATCHED IN PLACE OF TRANSMITTER 1, 2, OR 3

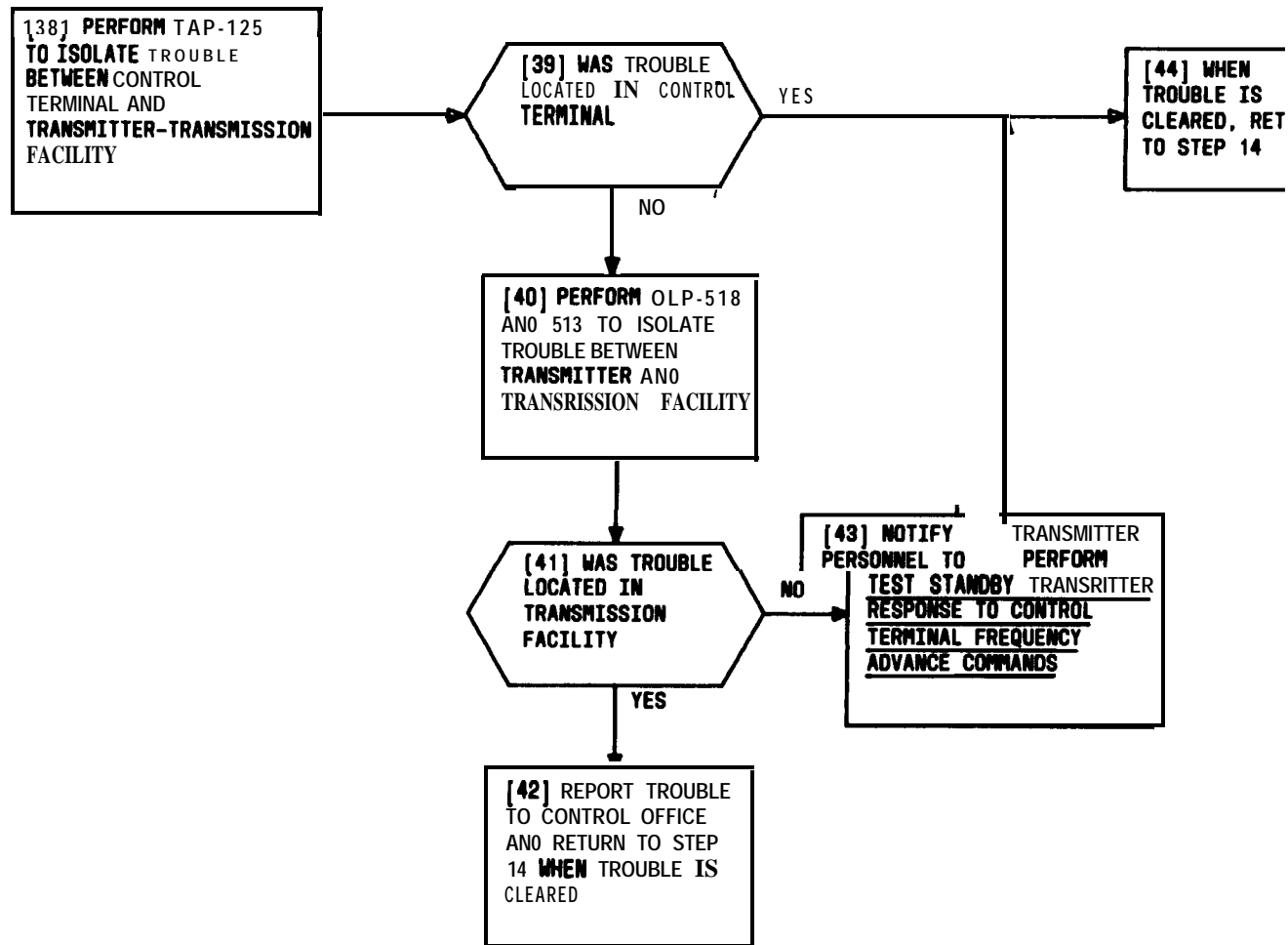


TEST STANDBY TRANSMITTER OPERATION WHEN
 PATCHED IN PLACE OF TRANSMITTER 1, 2, OR 3



STANDBY TRANSMITTER OPERATION WHEN
 PATCHED IN PLACE OF TRANSMITTER 1, 2, OR 3

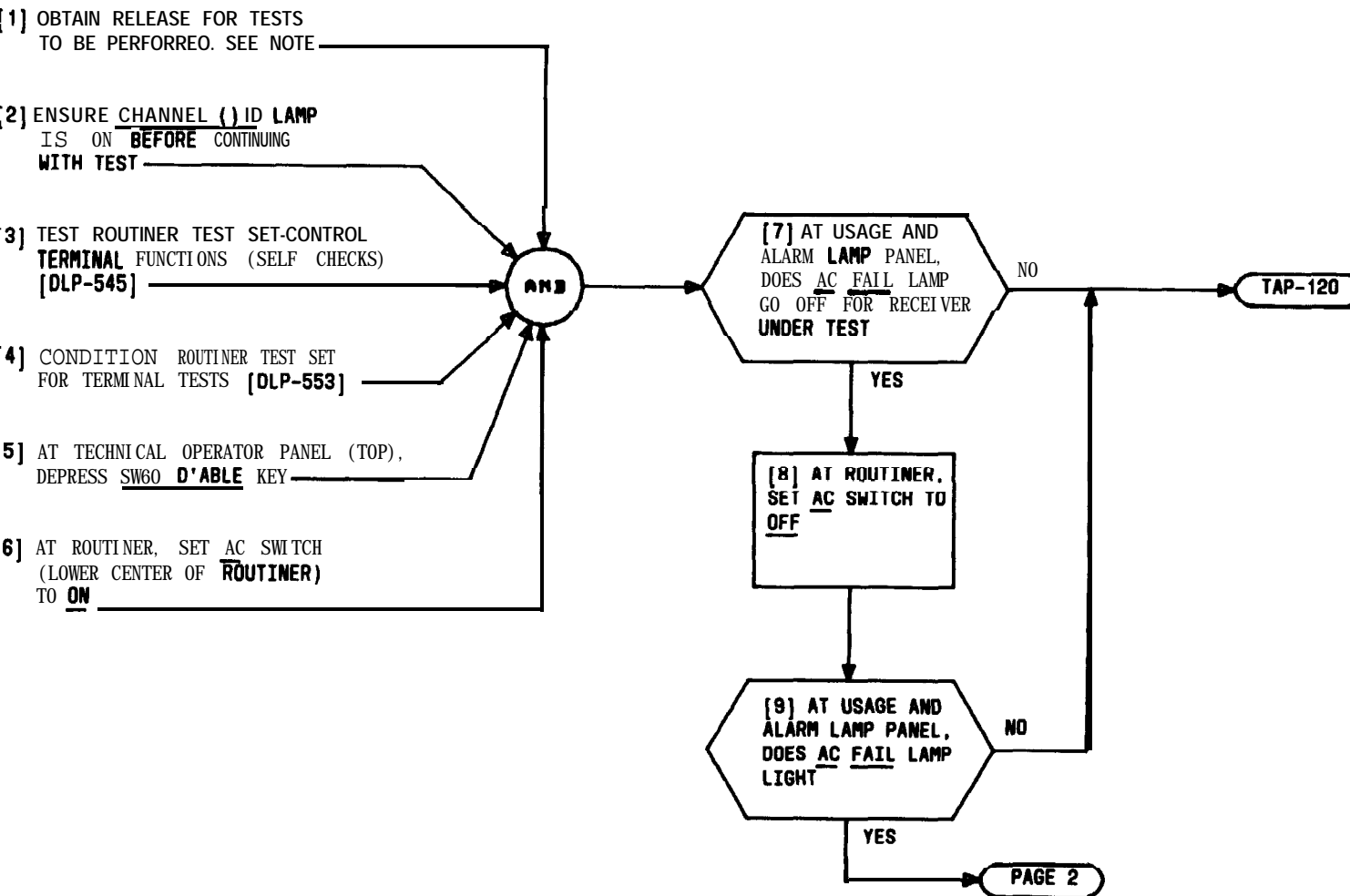
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TEST STANDBY TRANSMITTER OPERATION WHEN
 PATCHED IN PLACE OF TRANSMITTER 1, 2, OR 3

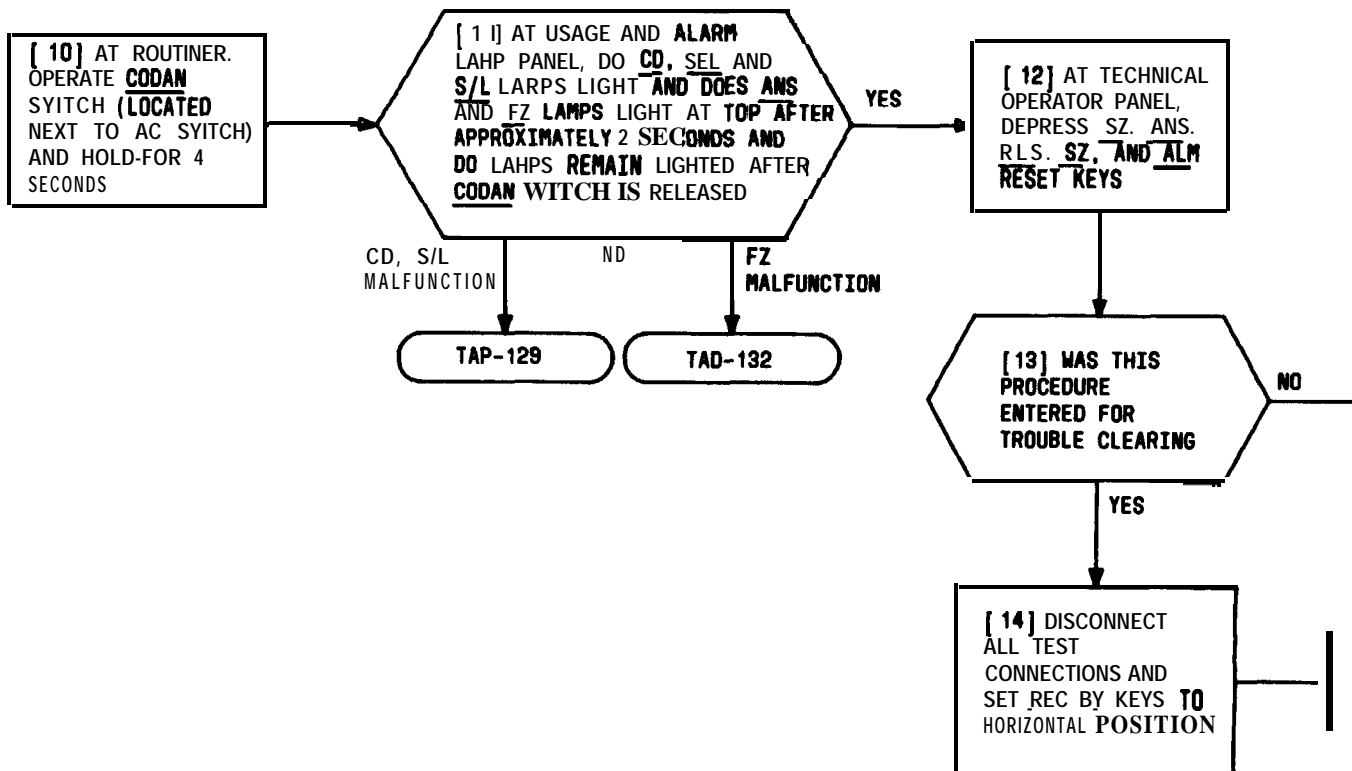
SURHARY

VERIFY THAT CONTROL **TERMINAL** WILL DISPLAY PROPER RESPONSES TO RECEIVER AC ON, **CODAN**, AND FREEZE SIGNALS FROM ROUTINER TEST SET.



NOTE	
DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MNTIONEEO IN THIS PROCEDURE	
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SIMULATE AND TEST RECEIVER AC ON, CODAN, AND FREEZE SIGNALING SEQUENCE



**SIMULATE AND TEST RECEIVER AC ON, CODAN,
AND FREEZE SIGNALING SEQUENCE**

SUMMARY

VERIFY THAT CONTROL TERMINAL WILL DISPLAY PROPER RECEIVER RF LEVEL (L1 THROUGH L8) WHEN SIGNALLED BY ROUTINER TEST SET.

[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED. SEE NOTE 1

[2] ENSURE CHANNEL () ID LAMP IS ON BEFORE CONTINUING WITH TEST

[3] TEST ROUTINER TEST SET-CONTROL TERMINAL FUNCTIONS (SELF CHECKS) [DLP-545]

[4] CONDITION ROUTINER TEST SET FOR TERMINAL TESTS [DLP-553]

[5] AT TECHNICAL OPERATOR PANEL, DEPRESS R), IND REC TEST AND REC LEVEL MAN KEYS

[6] AT ROUTINER, OPERATE CODAN SWITCH FOR 4S

REC LEVEL NON AND IND REC TEST LAMPS LIGHT

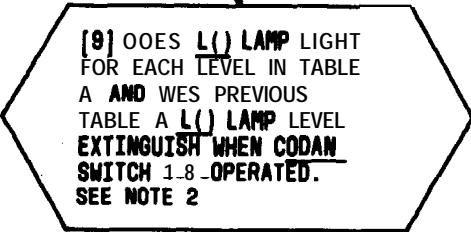
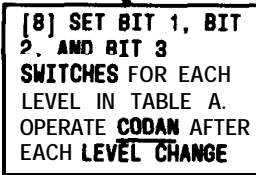
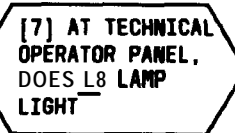
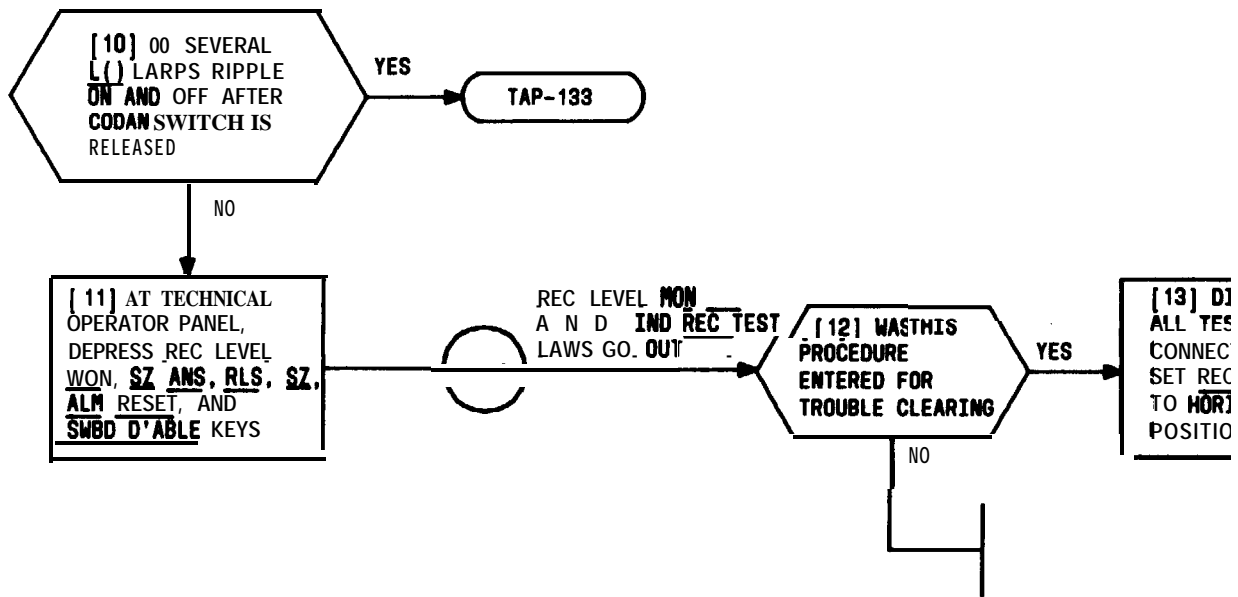


TABLE A			
SWITCHES			LEVEL
BIT 1	BIT 2	BIT 3	
OFF	OFF	OFF	8
ON	OFF	OFF	7
OFF	ON	OFF	6
ON	ON	OFF	5
OFF	OFF	ON	4
ON	OFF	ON	3
OFF	ON	ON	2
ON	ON	ON	1

- NOTES
- DISREGARD ALL LAMP'S AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE
 - R() LIGHTS AT TECHNICAL OPERATOR PANEL FOR LEVELS 1 THRU 5

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SIMULATE AND TEST RECEIVER RF LEVEL SIGNALING SEQUENCE



SIMULATE AND TEST RECEIVER RF LEVEL SIGNALING SEQUENCE

SUMMARY

VERIFY THAT CONTROL TERMINAL WILL DISPLAY PROPER RECEIVER
LAMP WHEN SIGNALLED BY ROUTINER TEST SET

OBTAIN RELEASE FOR TESTS
TO BE PERFORMED. SEE NOTE 1

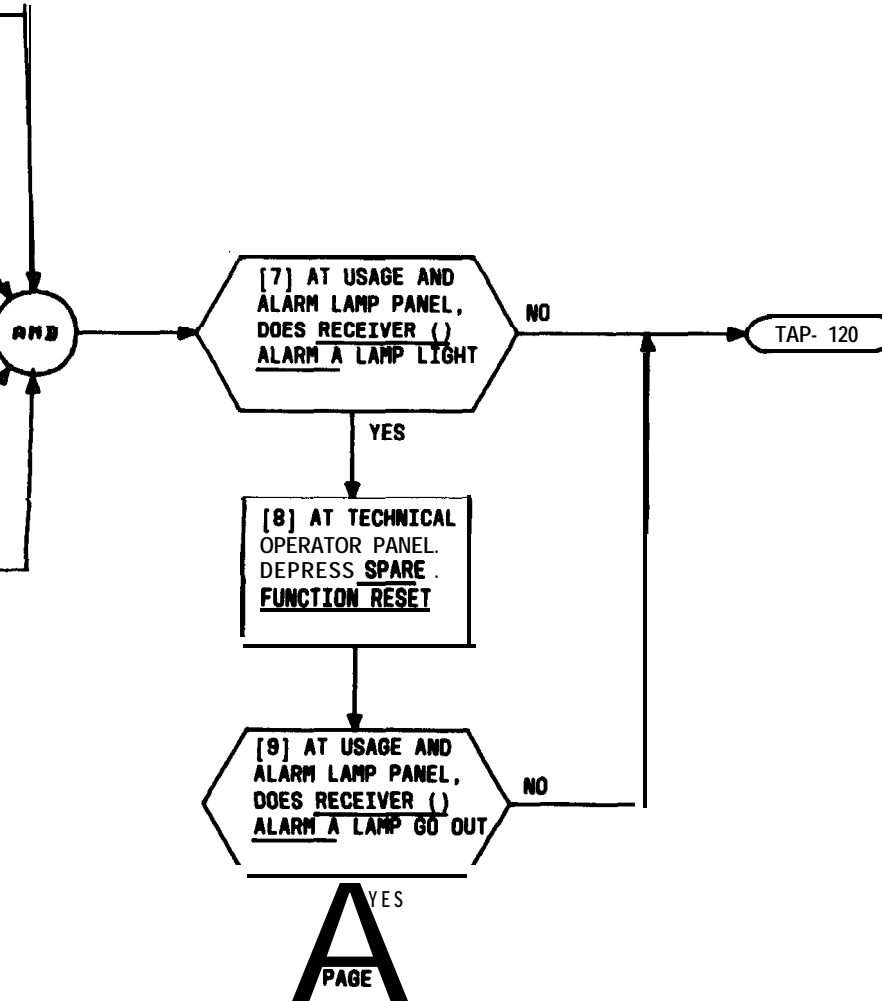
ENSURE CHANNEL () ID LAHP *
IS ON BEFORE CONTINUING
WITH TEST

TEST ROUTINER TEST SET-CONTROL
TERMINAL FUNCTIONS (SELF CHECKS)
(DLP-545)

CONDITION ROUTINER TEST SET
FOR TERMINAL TESTS [DLP-553]

AT ROUTINER, SET ALH A SWITCH
(LOWER LEFT OF ROUTINER) TO ON

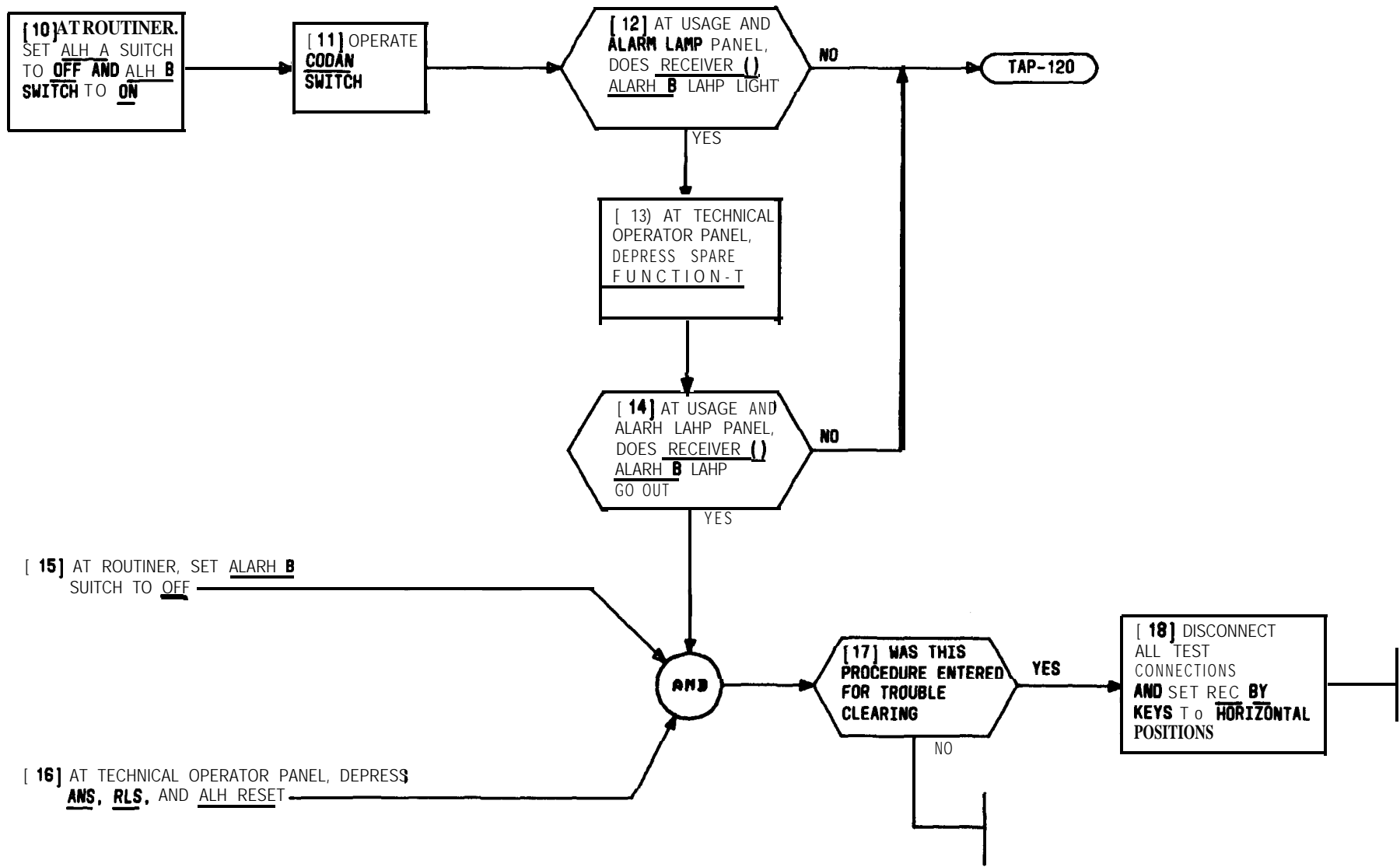
DEPRESS CODAN SWITCH



A
PAGE

NGTE 1 DISREGARD ALL LAHPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE	
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SIMULATE AND TEST RECEIVER ALARM SIGNALING SEQUENCE

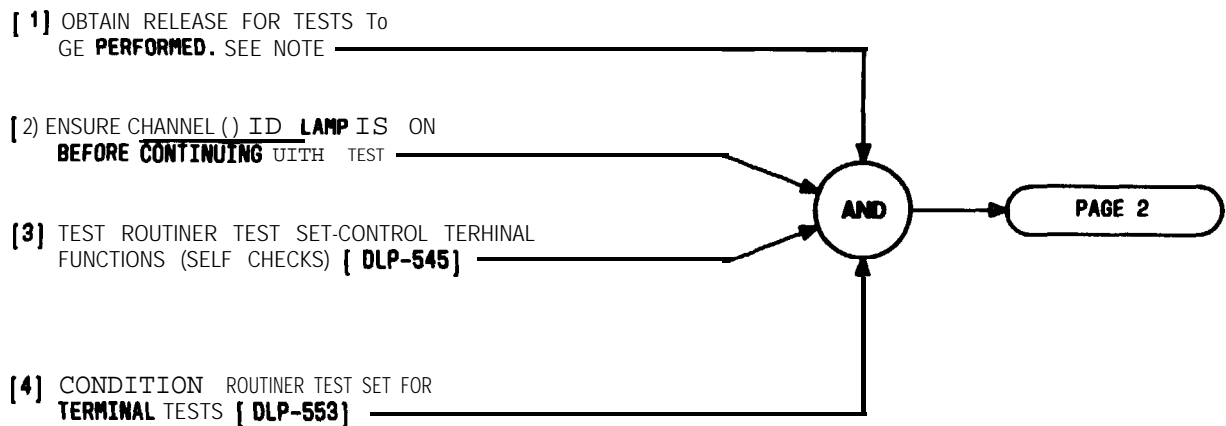


SIMULATE AND TEST RECEIVER ALARM SIGNALING SEQUENCE

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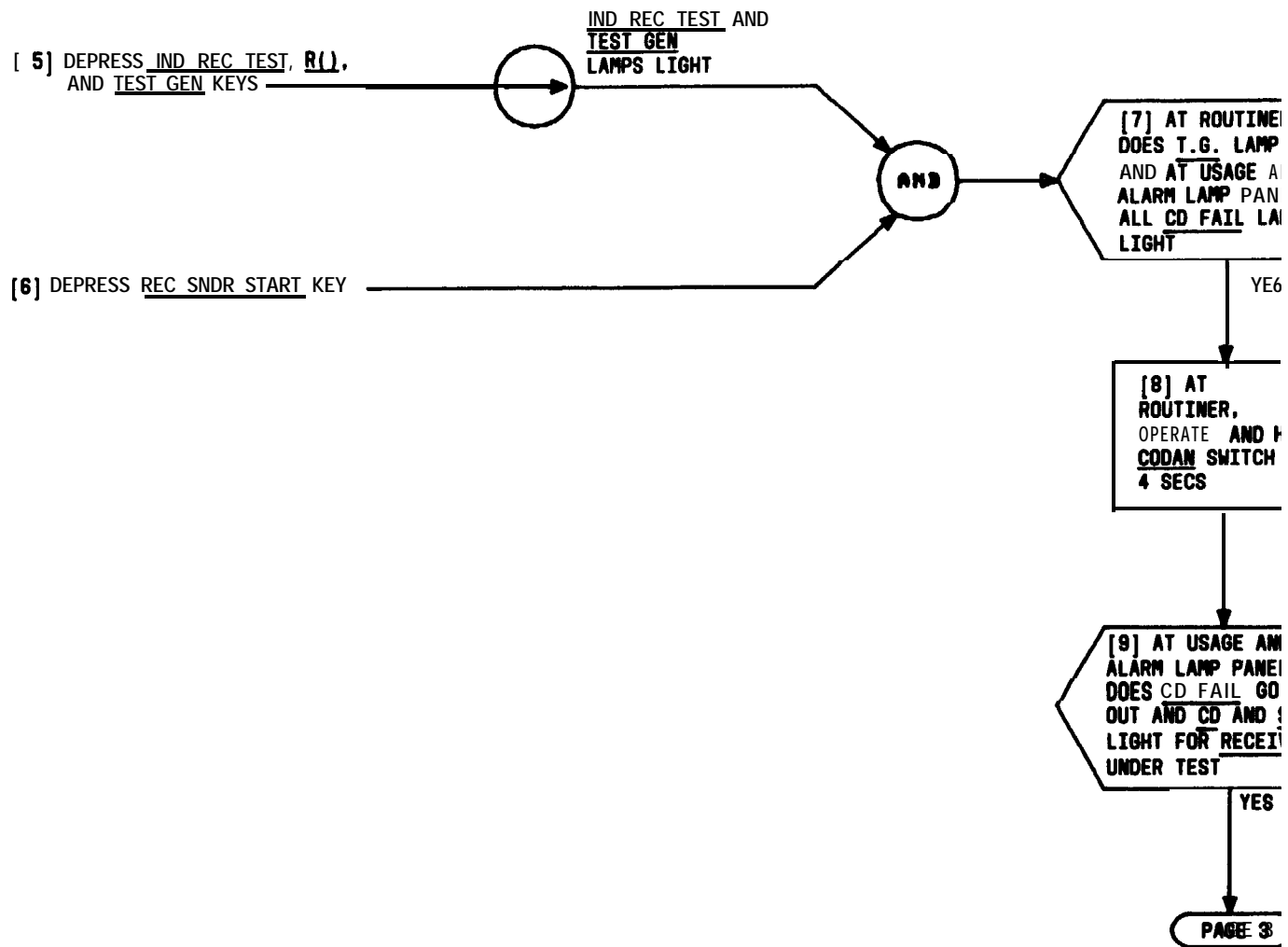
SUMMARY

VERIFY THAT CONTROL **TERMINAL** WILL PRESENT PROPER DISPLAYS FOR TEST GENERATOR, **CODAN** OVERRIDE, AND SPARE FUNCTION SIGNALS **FROM** ROUTINER TEST SET

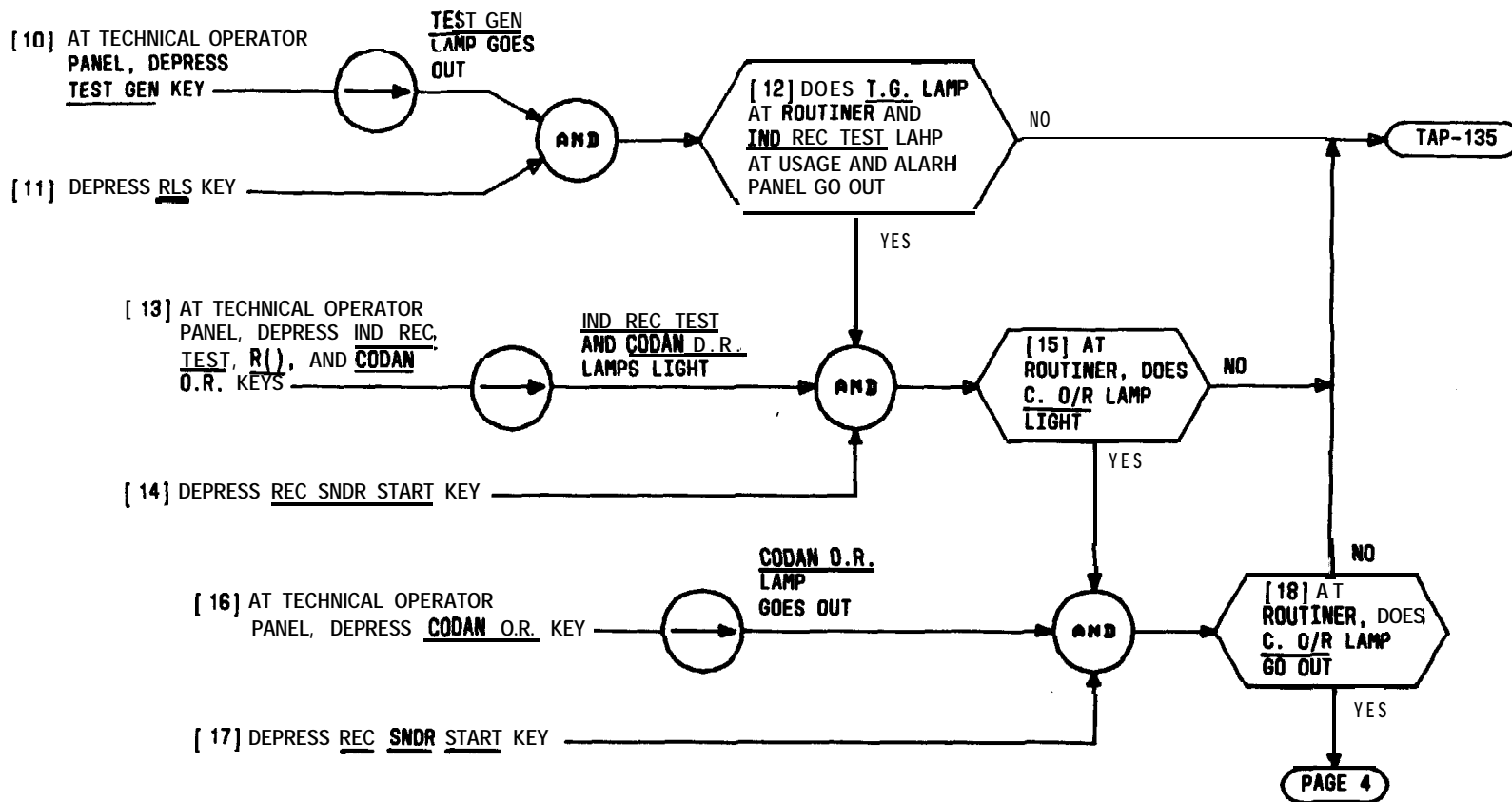


NOTE DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE	
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SIMULATE AND TEST CODAN OVERRIDE, TEST GENERATOR, AND SPARE FUNCTION SIGNALING SEQUENCE

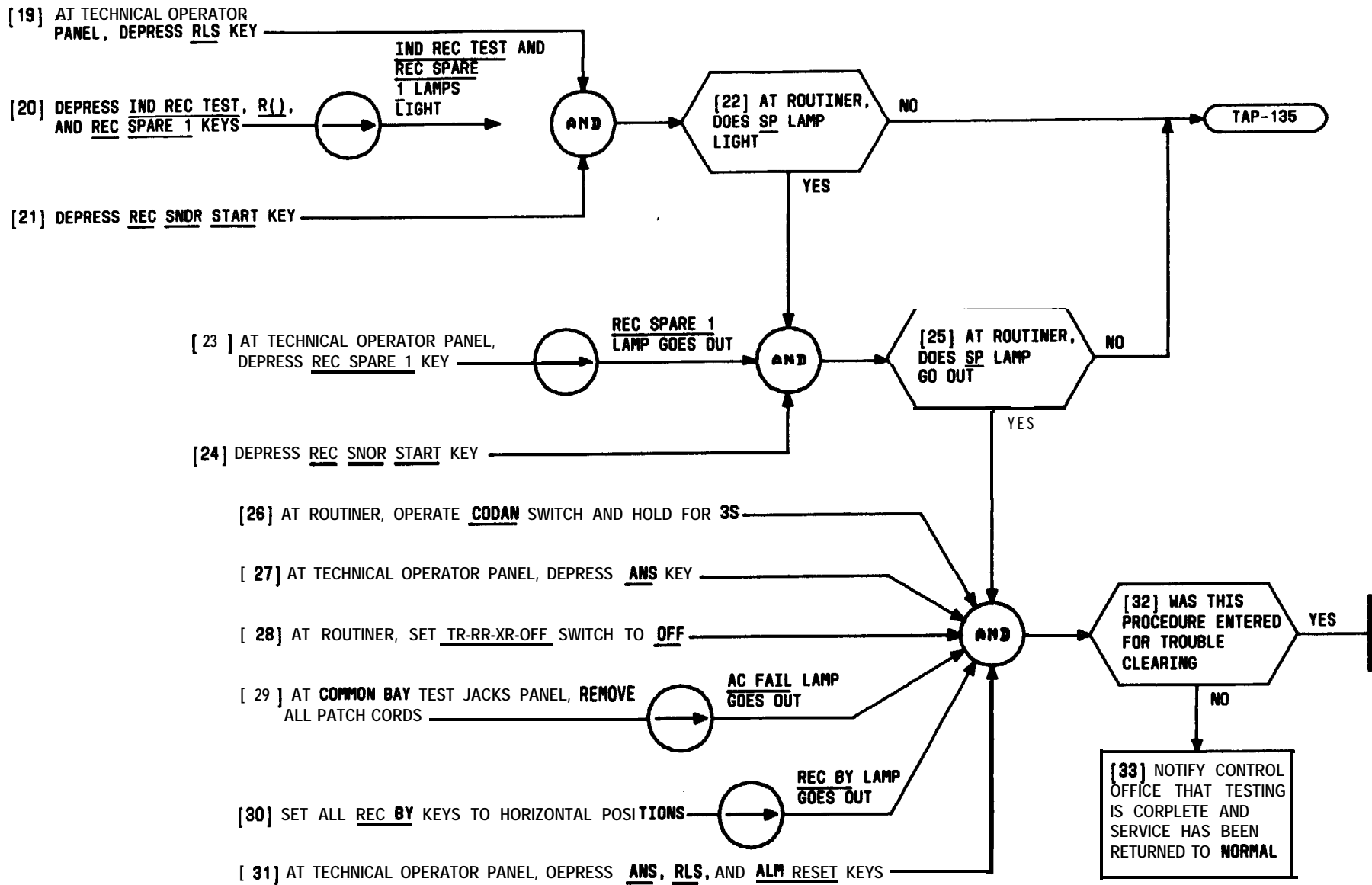


SIMULATE AND TEST CODAN OVERRIDE, TEST GENERATOR, AND SPARE FUNCTION SIGNALING SEQUENCE



**SIMULATE AND TEST CODAN OVERRIDE, TEST GENERATOR,
AND SPARE FUNCTION SIGNALING SEQUENCE**

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SIMULATE AND TEST CODAN OVERRIDE, TEST GENERATOR, AND SPARE FUNCTION SIGNALING SEQUENCE

SUMMARY

VERIFY THAT CONTROL TERNINAL **WILL** DISPLAY PROPER RESPONSES FOR **TRANSMITTER** RF FAIL, VSWR, AND ENERGENCY POWER DESIGNATIONS WHEN SIGNALLED **BY** ROUTINER TEST SET.

[1] OBTAIN RELEASE FOR TESTS TO **BE PERFORMED** AND NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL PROCEDURES. SEE NOTE 1

(2) ENSURE CHANNEL () ID LARP IS ON BEFORE CONTINUING **WITH** TEST

[3] TEST ROUTINER TEST SET CONTROL TERRINAL FUNCTIONS (SELF CHECKS) [DLP-545]

[4] CONDITION ROUTINER TEST SET FOR TERRINAL TESTS [DLP-553]

[5] DEPRESS SZ KEY

[6] DEPRESS XMTR () KEY ON TECHNICAL OPERATOR PANEL (TOP)

ON U AND A PANEL,
TRANSMITTER () ON
LAMP LIGHTS

[7] ENSURE THAT TRANSMITTER ALARR RF LAMP ON U AND A PANEL IS OFF

[B] AT ROUTINER, SET RF **SWITCH** (LOWER RIGHT SIDE) TO **FAIL**

AND

AND

PAGE 2

NOTE 1
DISREGARD ALL LAMPS
AND **INDICATIONS** NOT
SPECIFICALLY MENTIONED
IN THIS PROCEDURE

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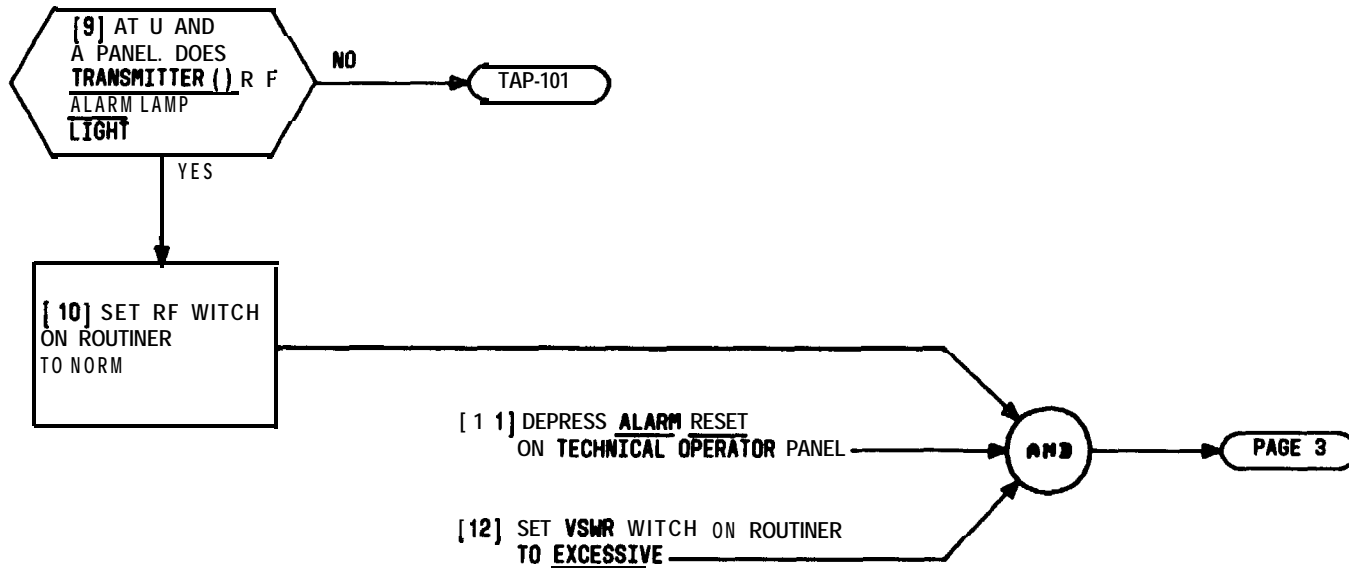
403-200-501

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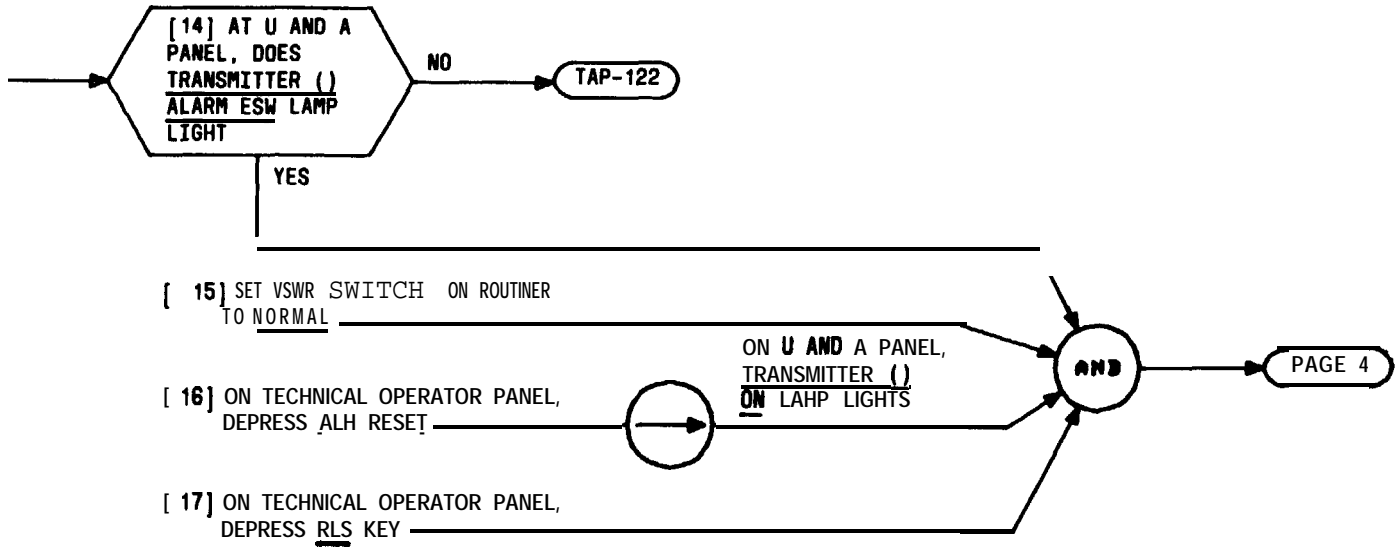
528

**IMULATE AND TEST TRANSMITTER RF FAIL, VSWR, AND
ENERGENCY POWER SIGNALING SEQUENCE**



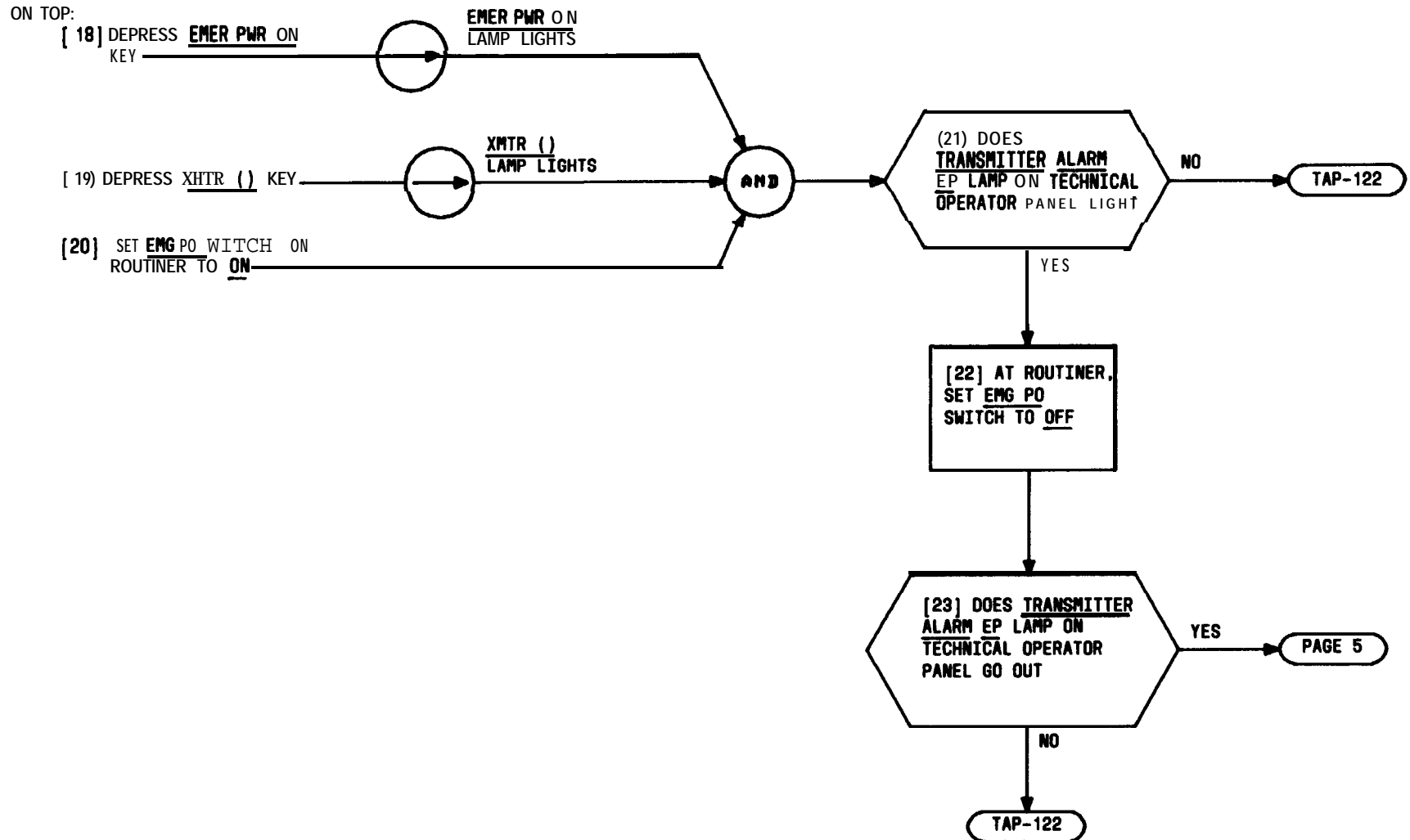
SIMULATE AND TEST TRANSMITTER RF FAIL, VSWR, AND EMERGENCY POWER SIGNALING SEQUENCE

[13] AT ROUTINER.
 SET RF SWITCH
 TO FAIL POSITION
 AND THEN TO NORM
 POSITION



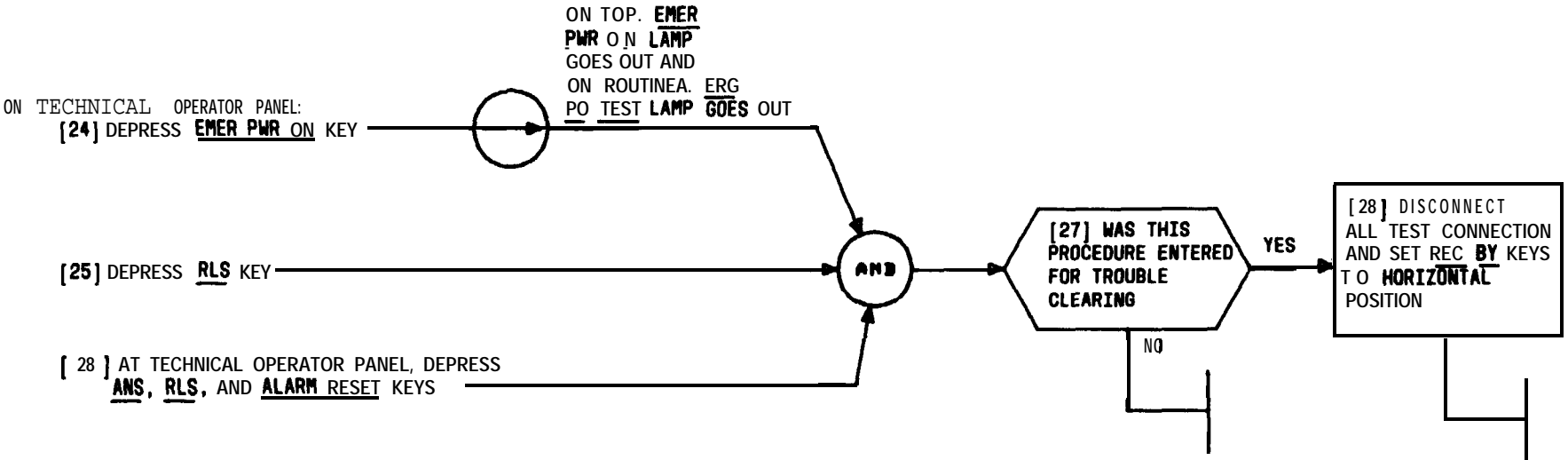
**MULATE AND TEST TRANSMITTER RF FAIL, VSWR, AND
 EMERGENCY POWER SIGNALING SEQUENCE**

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SIMULATE AND TEST TRANSMITTER RF FAIL, VSWR, AND EMERGENCY POWER SIGNALING SEQUENCE

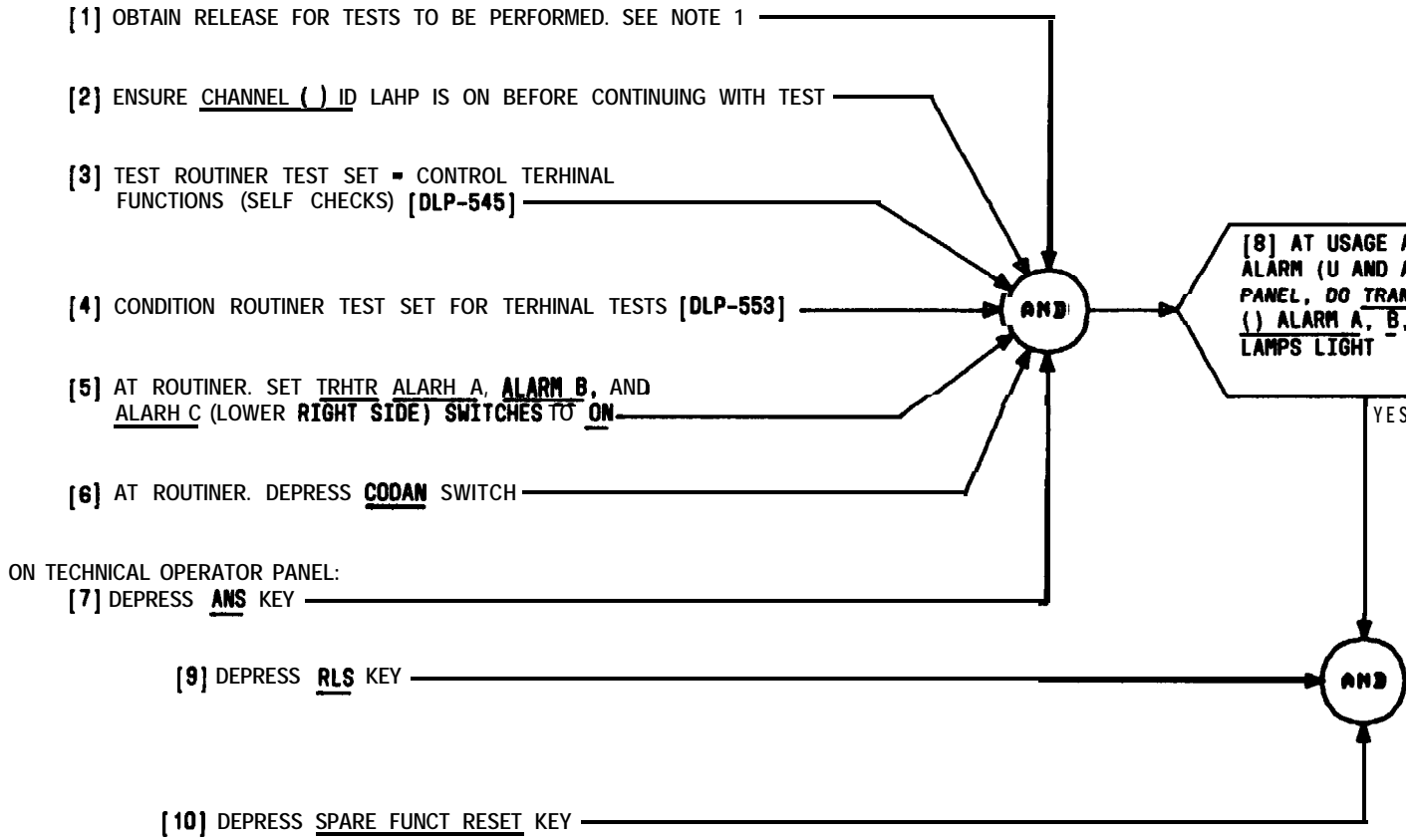
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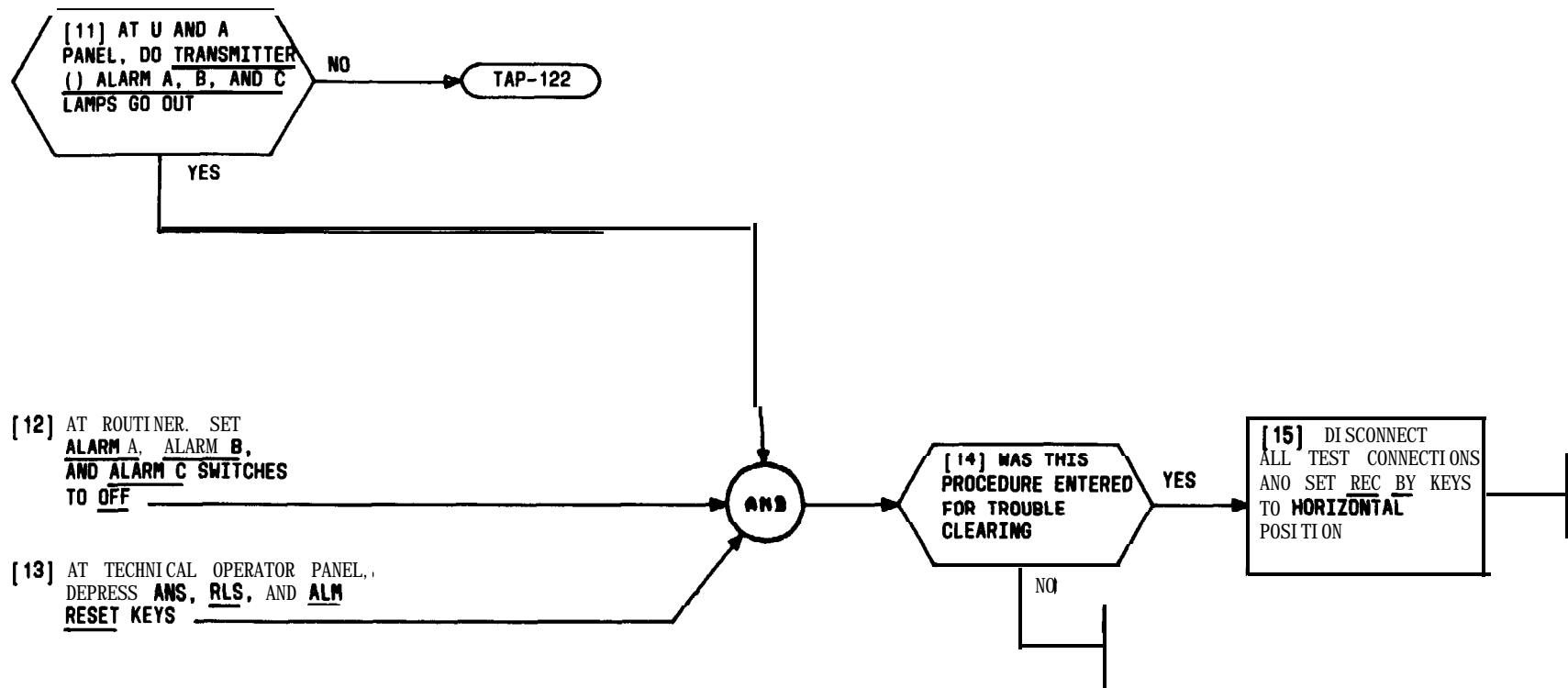
SIMULATE AND TEST TRANSMITTER RF FAIL, VSWR, AND EMERGENCY POWER SIGNALING SEQUENCE

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SUHHARY
 VERIFY THAT CONTROL TERMINAL WILL DISPLAY PROPER TRANSHITTER
ALARMS WHEN SIGNALLED BY ROUTINER TEST SET



SIMULATE AND TEST TRANSMITTER ALARM SIGNALING SEQUENCE



SIMULATE AND TEST TRANSMITTER ALARM SIGNALING SEQUENCE

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SUMMARY

VERIFY THAT CONTROL TERMINAL WILL DISPLAY PROPER RESPONSES, FOR TRANSMITTER SPARE (XMTR SPARE 1) AND MONITOR RECEIVER (HON REC) DESIGNATIONS, WHEN SIGNALLED BY ROUTINER TEST SET.

[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED AND NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL PROCEDURES. SEE NOTE 1

[2] ENSURE CHANNEL () ID LAMP IS ON BEFORE CONTINUING WITH TEST

[3] TEST ROUTINER TEST SET - CONTROL TERMINAL FUNCTIONS (SELF CHECKS) [DLP-545]

[4] CONDITION ROUTINER TEST SET FOR TERMINAL TESTS [OLP-553]

[5] ON TECHNICAL OPERATOR PANEL, DEPRESS SWBD D'ABLE KEY AND XMTR SPARE 1 KEY

SWBD D'ABLE AND XMTR SPARE 1 LAMPS LIGHT

[6] ON ROUTINER, OPERATE AND HOLD CODAN SWITCH FOR 4 SECONDS

ON USAGE AND ALARM PANEL, RECEIVER () CD LAHP LIGHTS

[7] ON TECHNICAL OPERATOR PANEL (TOP), DEPRESS R () KEY

AND

[8] ON ROUTINER, DOES SP LAHP LIGHT

YES

PAGE 2

NO

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NOTE 1

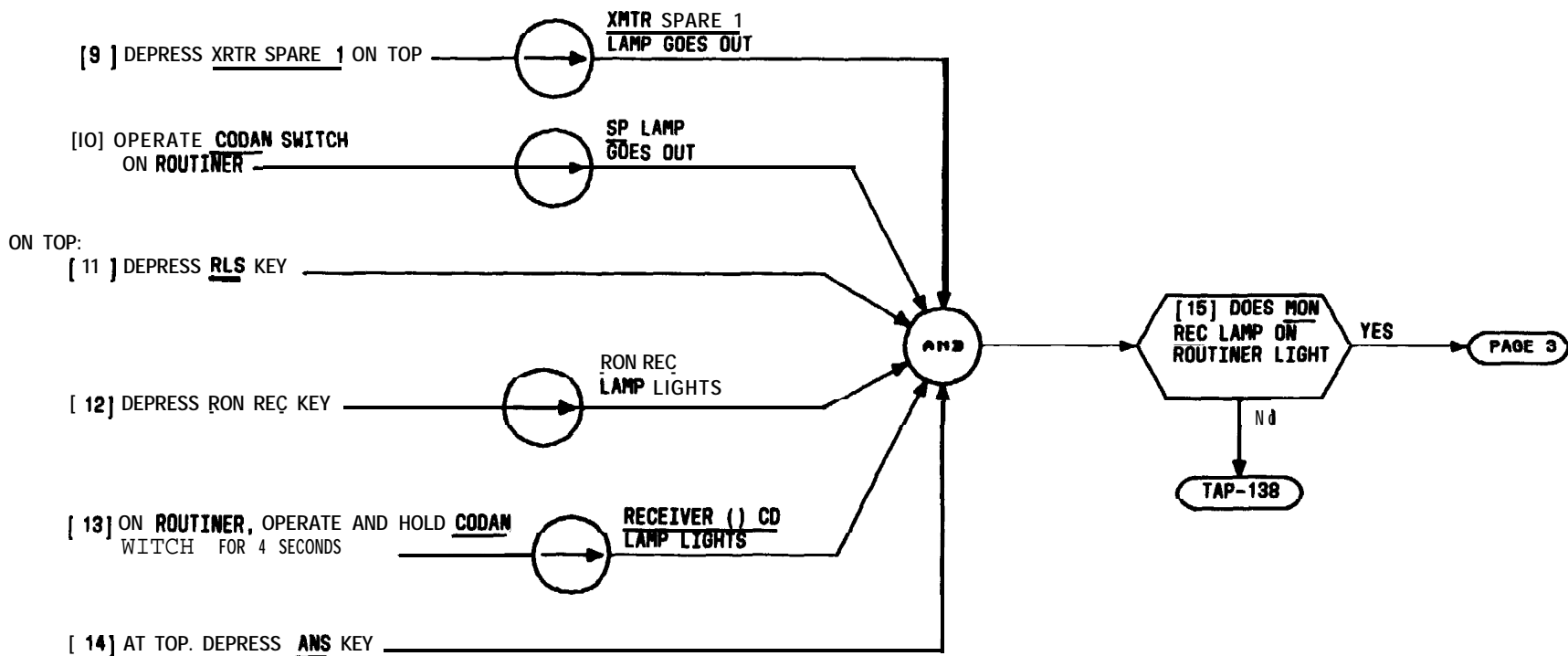
DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE

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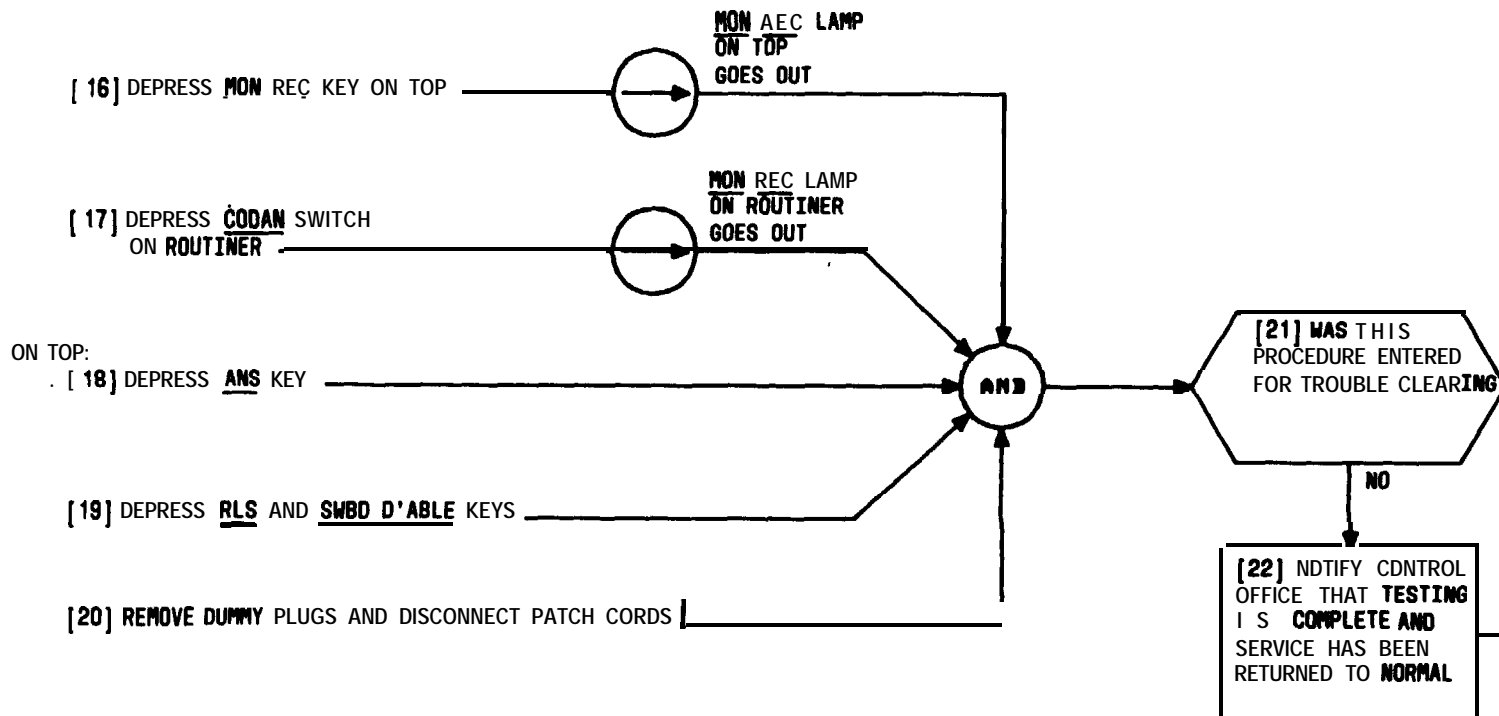
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SIMULATE AND TEST TRANSMITTER SPARE AND MONITOR RECEIVER SIGNALING SEQUENCE



SIMULATE AND TEST TRANSMITTER SPARE AND MONITOR RECEIVER SIGNALING SEQUENCE

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SIMULATE AND TEST TRANSMITTER SPARE AND MONITOR RECEIVER SIGNALING SEQUENCE

SUMMARY

USING STOP WATCH OR 24-HOUR TIMER IN COMMON BAY. MEASURE TIME INTERVAL BETWEEN OPERATION OF XMTR-1 KEY ON TECHNICAL OPERATOR PANEL AND INDICATION OF TRANSMITTER-1 RF ALARM ON USAGE AND ALARM PANEL. TIME INDICATION SHOULD BE BETWEEN 11 AND 13 SECONDS.

TABLE A
TEST EQUIPMENT REQUIRED
STOP WATCH OR USE 24-HOUR TIMER LOCATED IN COMMON BAY
DUMMY PLUG

[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED AND NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL PROCEDURES. SEE NOTE 1

[2] ENSURE CHANNEL () ID LAMP IS ON BEFORE CONTINUING WITH TEST

[3] OBTAIN STOP WATCH

ON TECHNICAL OPERATOR PANEL (TOP):

[4] DEPRESS CH () KEY

[5] DEPRESS SYBD D'ABLE KEY

[6] DEPRESS SZ KEY

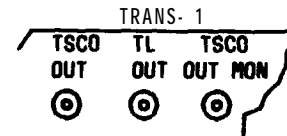
ON TEST JACKS, PADS, AND FUSE (TJP AND F) PANEL:

[7] INSERT DUMMY PLUG IN TRANS-1 TL OUT JACK [FIG. 1]

SIMULTANEOUSLY (STEPS 8 AND 8):

[8] DEPRESS XMTR-1 KEY ON TOP

[9] START STOP WATCH AND OBSERVE INDICATIONS ON USAGE AND ALARM (U AND A) PANEL



TEST JACKS, PADS, AND FUSE PANEL

FIG. 1

TEST SETUP COMPLETE

XRTR-1 LAMP ON TOP LIGHTS AND TRANSMITTER-1 ON AND RF ALARM LAMPS ON USAGE AND ALARM PANEL LIGHTS

TIMER OPERATED

PAGE 2

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NOTE 1 DISREGARD ALL LARPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE	
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MEASURE DELAY TIME OF COMMON BAY TIMER TM-1

[10] STOP THE WATCH WHEN THE CHANNEL () MAJ ALARM LAMP ON U AND A PANEL LIGHT

[11] DOES STOP WATCH INDICATE BETWEEN 11 AND 13 SECONDS

YES

NO

NO

[15] SEE WARNING. IF TM-1 TIMER DOES NOT TIME OUT, CHECK OPERATE PATH AS SHOYN IN TAO-100 BEFORE REPLACING TR-1 [DLP-554]. IF TH-1 THES OUT, BUT NOT UITHIN LIMITS, REPLACE TN-1 [DLP-554]. REPEAT STEPS 12 THRU 14

WARNING
POWER RUST BE REMOVED AS SHOYN IN OLP-554 TO PREVENT DAMAGE TO EQUIPMENT

NOTE 2
IT MAY BE NECESSARY TO REPEAT THIS ADJUSTMENT SEVERAL TIRES TO GET EXPECTED INOICATION

[14] ADJUST R2 ON TM-1 TIMER [FIG. 2] FOR SELECTED CHANNEL. REPEAT STEPS 8 THRU 11. SEE NOTE 2

ON U AND A PANEL, TRANSMITTER-1 ON AND RF ALARM LAMPS GO OUT

ON U AND A PANEL, CHANNEL () MAJ LAMP GOES OUT

TOP :
[12] DEPRESS RLS KEY

[13] DEPRESS ALH RESET KEY

AND

ON TOP:

[16] DEPRESS RLS KEY

[17] DEPRESS ALM RESET KEY

[18] DEPRESS SZ KEY

ON TJP AND F PANEL:

[19] REMOVE DUMMY PLUG FROM TL OUT JACK

ON TOP:

[20] DEPRESS SWBD O'ABLE KEY

[21] DEPRESS CH () KEY

ON U AND A PANEL, TRANSMITTER-1 ON AND RF ALARM LAMPS GO OUT

ON U AND A PANEL, CHANNEL () MAJ ALARM LAMP GOES OUT

SZ LAMP GOES OUT

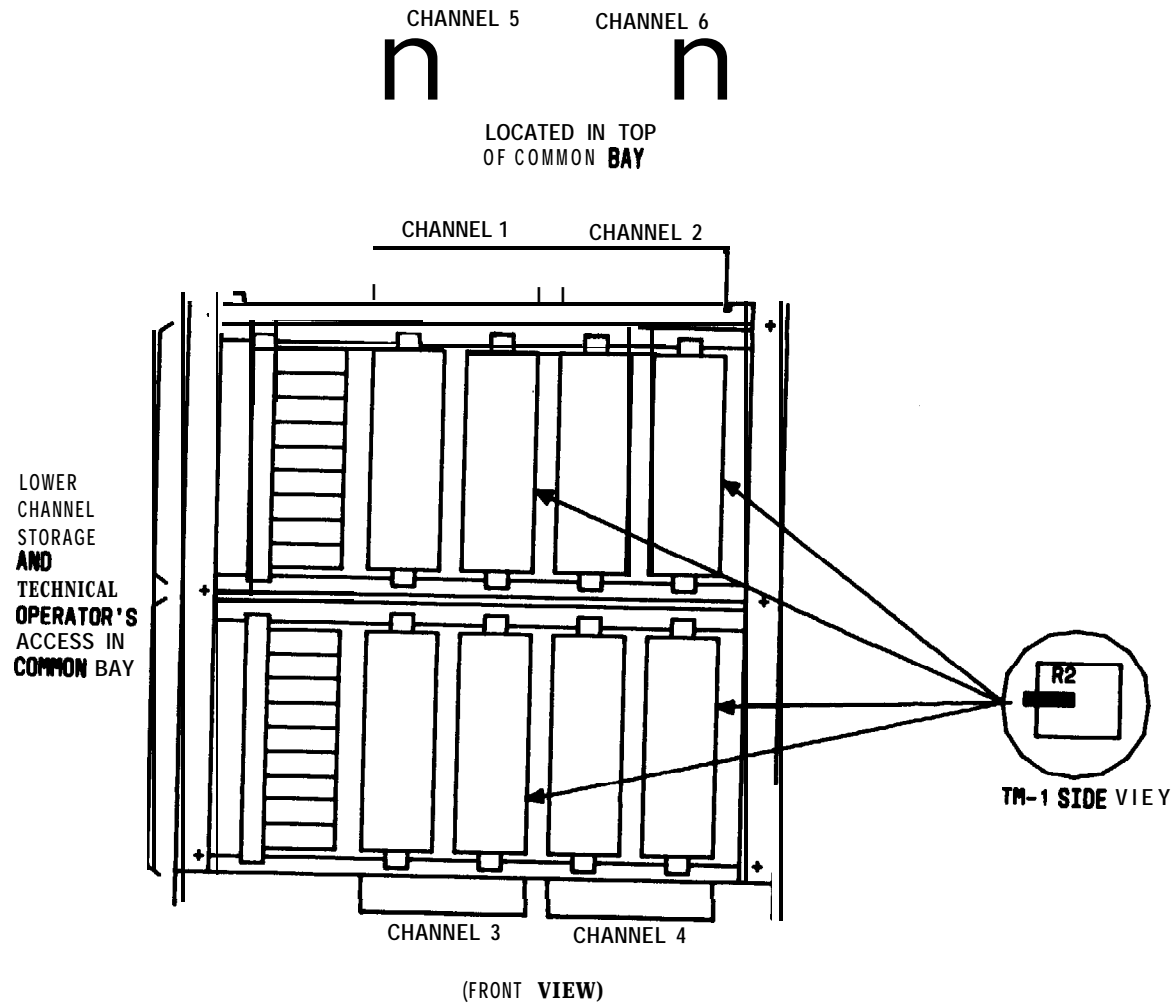
SWBD D'ABLE LAMP GOES OUT

CH () LAMP GOES OUT

AND

[22] NOTIFY CONTROL OFFICE THAT TEST IS COMPLETE AND SERVICE HAS BEEN RETURNED TO NORMAL

4



MEASURE DELAY TIME OF COMMON BAY TIMER TM-1

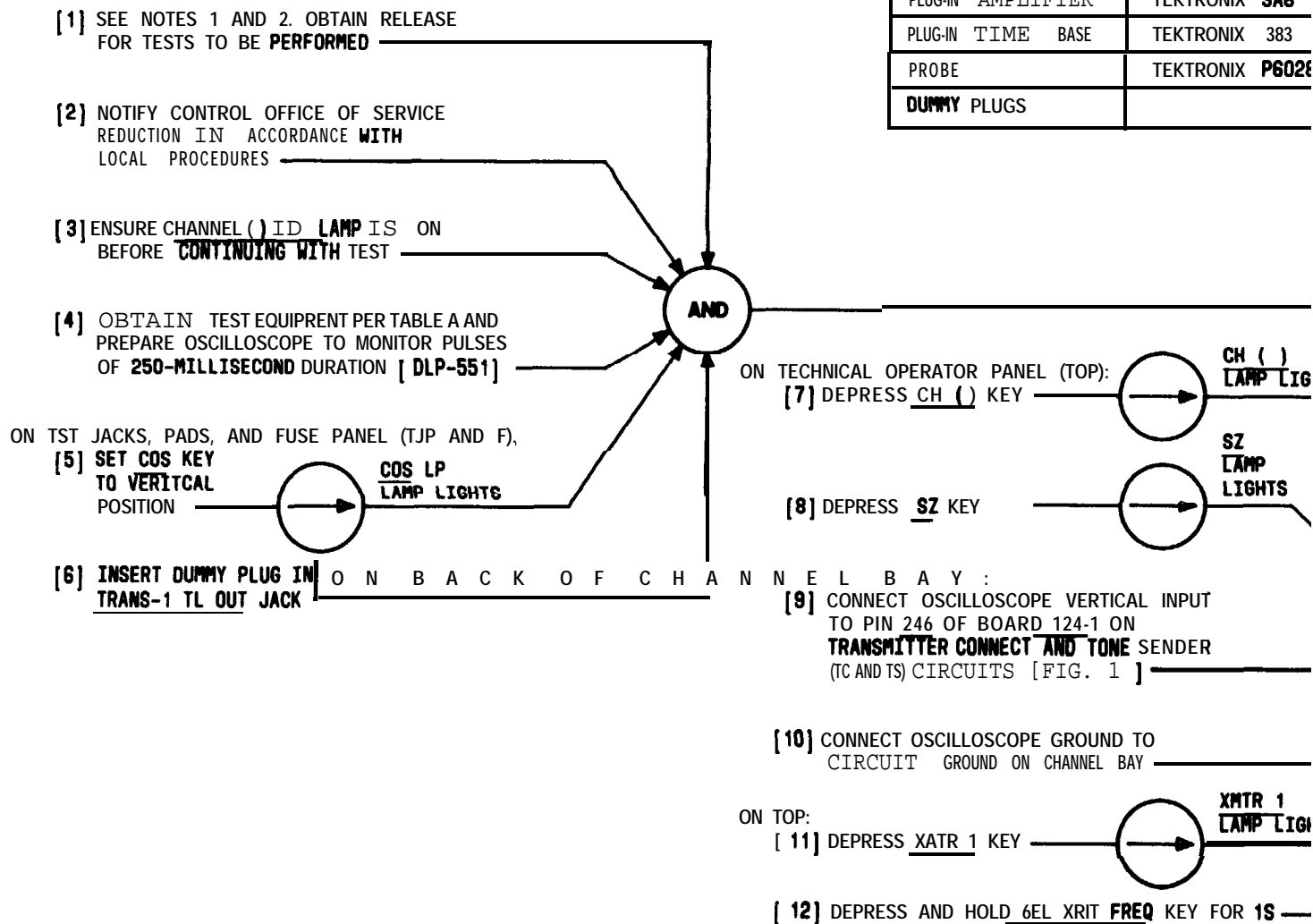
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SUMMARY

USING OSCILLOSCOPE, MONITOR TIMER OUTPUT AT PIN **24B** OF CIRCUIT BOARDS (CB) 124-1, -2 IN TRANSMITTER CONNECT AND TONE SENDER CIRCUITS IN CHANNEL BAY. OSCILLOSCOPE INDICATION SHOULD BE A POSITIVE-GOING 13-V PULSE OF **250±50** **MILLISECONDS** IN DURATION.

TABLE A

EQUIPMENT REQUIRED	RECOMMENDED TYPE
OSCILLOSCOPE	TEKTRONIX 564B
PLUG-IN AMPLIFIER	TEKTRONIX 3A6
PLUG-IN TIME BASE	TEKTRONIX 383
PROBE	TEKTRONIX P602E
DUMMY PLUGS	



**MEASURE PULSE WIDTH OF STANDBY TRANSMITTER FREQUENCY
SELECT CHANNEL BAY PULSES**

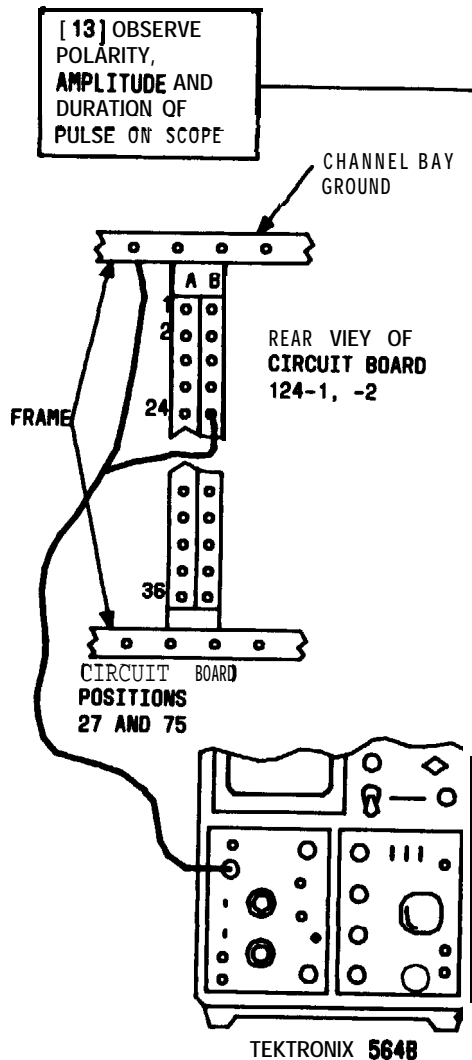


FIG. 1

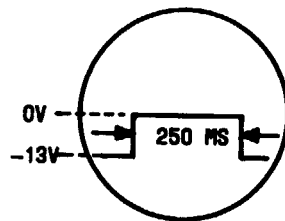
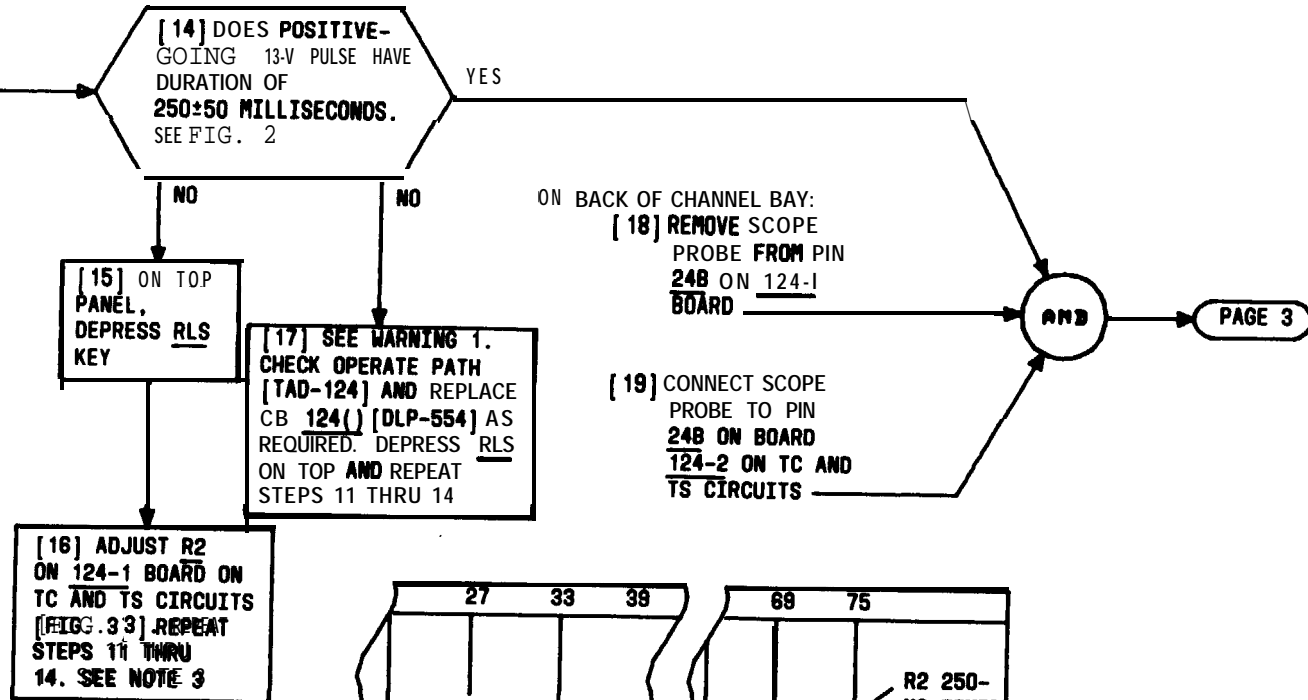


FIG. 2

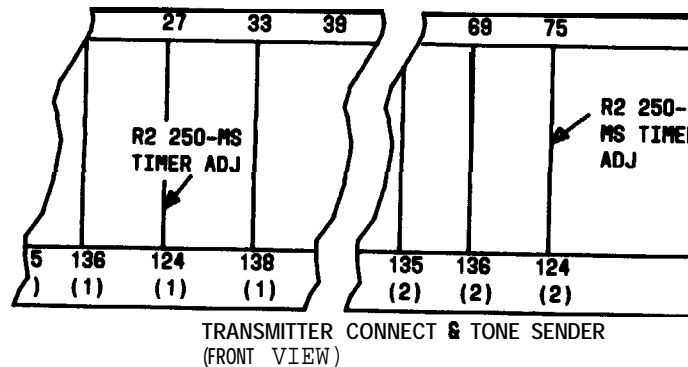


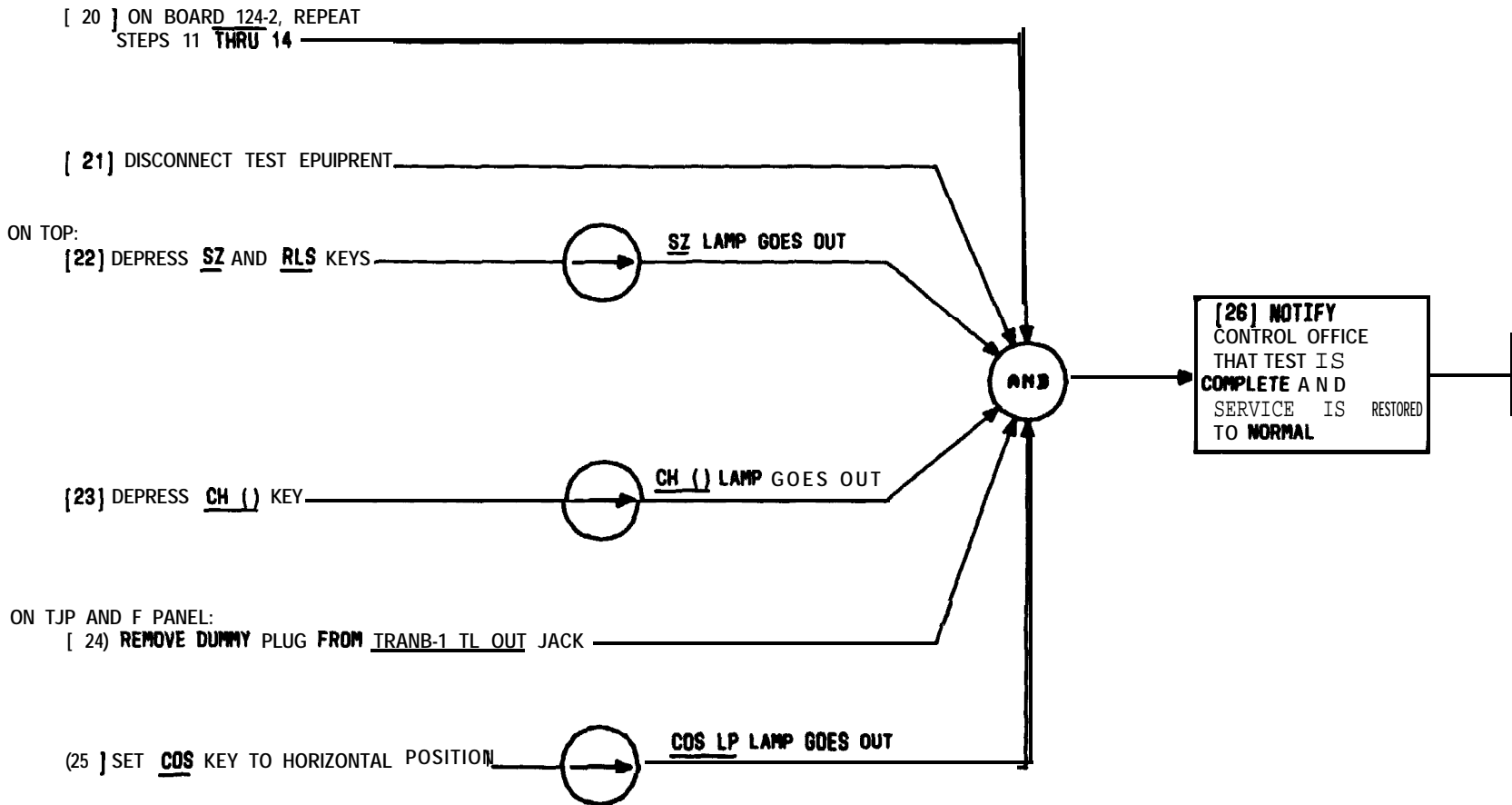
FIG. 3

NOTE 3
IT MAY BE NECESSARY TO REPEAT THIS ADJUSTMENT SEVERAL TIMES TO GET EXPECTED INDICATION

WARNING 1
POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

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**MEASURE PULSE WIDTH OF STANDBY TRANSMITTER FREQUENCY
SELECT CHANNEL BAY PULSES**



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MEASURE PULSE WIDTH OF STANDBY TRANSMITTER FREQUENCY
SELECT CHANNEL BAY PULSES

SUMMARY

USING OSCILLOSCOPE, **MONITOR TIMER** OUTPUT AT PIN 248 OF CIRCUIT BOARD (CB) 124 ON **STANDBY TRANSMITTER CONTROL CIRCUITS** IN **COMMON BAY**. OSCILLOSCOPE INDICATION SHOULD BE A POSITIVE-GOING 13-V PULSE OF **250±50** MILLISECONDS IN DURATION.

[1] SEE NOTES 1 AND 2. OBTAIN
RELEASE FOR TESTS TO BE **PERFORMED**

[2] OBTAIN TEST **EQUIPMENT** PER
TABLE A AND PREPARE
OSCILLOSCOPE TO MONITOR
PULSES OF **250-MILLISECOND**
DURATION [OLP-551)

[3] ENSURE **STANDBY TRANSMITTER** NOT IN USE
BEFORE CONTINUING WITH TEST

ON TEST JACKS, PADS, AND FUSE PANEL (TJP
AND F) IN CH 1 OF CHANNEL BAY:

[4] PLACE **DUMMY PLUG** IN
STANDBY XRTR OUT JACK

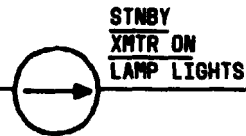
ON BACK OF **COMMON BAY**:

[5] CONNECT OSCILLOSCOPE VERTICAL
INPUT TO PIN **248** OF CIRCUIT BOARD
(CB) **124** ON **STANDBY TRANSMITTER**
CONTROL (STC) CIRCUITS [FIG. 1]
AND CONNECT OSCILLOSCOPE GROUND
TO CIRCUIT GROUND ON **COMMON BAY**

ON TECHNICAL OPERATOR PANEL (OP):

[B] DEPRESS STNBY XMTR ON KEY

[7] DEPRESS AND HOLD SEL XMTR FREQ KEY
FOR DURATION OF OSCILLOSCOPE SWEEP



[8] OBSERVE
POLARITY, AMPLITUDE
AND DURATION OF
PULSE ON
OSCILLOSCOPE

PAGE 2

TABLE A

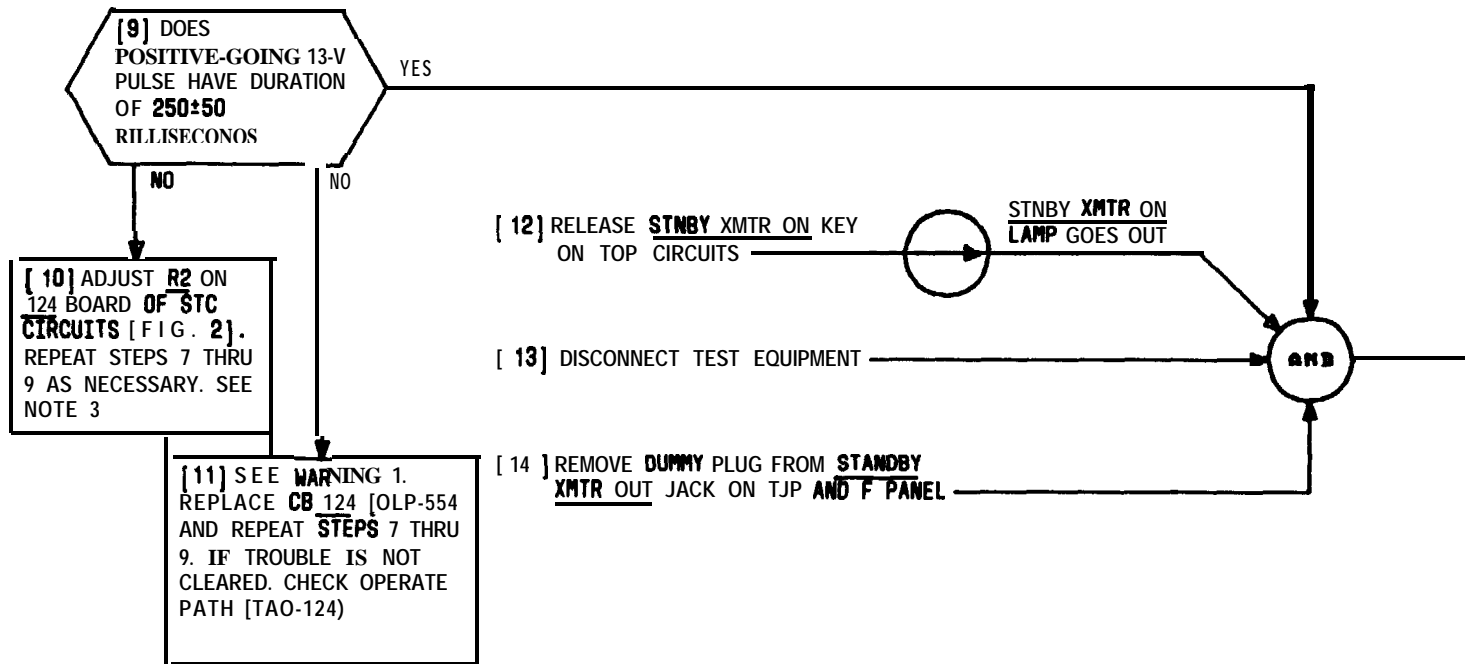
EQUIPMENT REQUIRED	RECOMMENDED TYPE
OSCILLOSCOPE	TEKTRONIX 5648
PLUG-IN AMPLIFIER	TEKTRONIX 3A6
PLUG-IN TIRE BASE	TEKTRONIX 363
PROBE	TEKTRONIX P6028
DUMMY PLUGS	

NOTES

1. **TWO PERSONS ARE** REQUIRED TO PERFORM THIS TEST
2. DISREGARD ALL **LAMPS** AND INDICATIONS NOT SPECIFICALLY **MENTIONED** IN THIS PROCEDURE
3. IT MAY **BE** NECESSARY TO REPEAT THIS **ADJUSTMENT** SEVERAL TIMES TO GET EXPECTED **INDICATION**

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**MEASURE PULSE WIDTH OF STANDBY TRANSMITTER FREQUENCY
SELECT COMMON BAY PULSES**



MEASURE PULSE WIDTH OF STANDBY TRANSMITTER FREQUENCY
 SELECT COMMON BAY PULSES

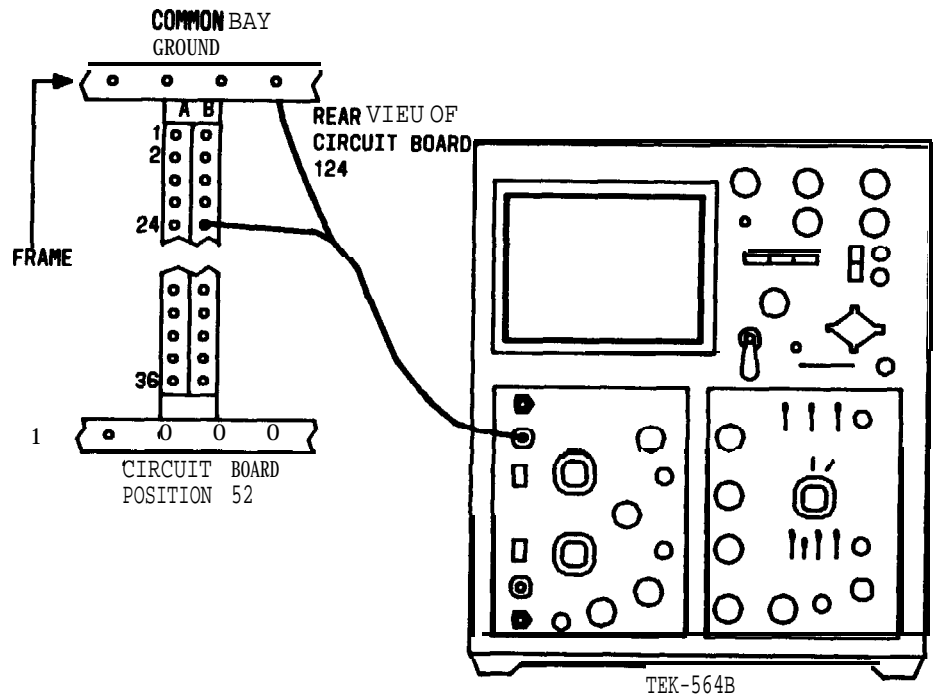


FIG. 1

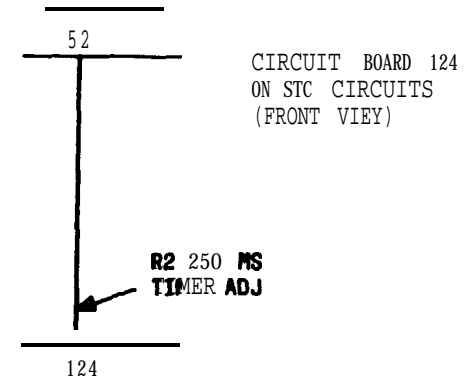


FIG. 2

MEASURE PULSE WIDTH OF STANDBY TRANSMITTER
 FREQUENCY SELECT COMMON BAY PULSES

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SUMMARY
 USE STOP WATCH OR 24-HOUR TIMER IN COMMON BAY TO MEASURE TIME PERIOD BETWEEN START OF TIMER TM-1 AND LIGHTING OF ANS LAMP ON TECHNICAL OPERATOR PANEL. MEASURED TIME SHOULD BE BETWEEN 1 AND 10 SECONDS. LOCAL PROCEDURES MAY DICTATE MORE SPECIFIC TIME READING

TABLE A
EQUIPMENT REQUIRED
STOP WATCH OR USE 24-HOUR TIMER LOCATED IN COMMON BAY
DUMMY PLUGS

[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED AND NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL PROCEDURES. SEE NOTE 1

[2] ENSURE CHANNEL () ID LAMP IS ON BEFORE CONTINUING WITH TEST

[3] OBTAIN STOP WATCH

[4] SET ALL REC BY KEYS, ON TEST JACKS, PADS, AND FUSE PANEL (TJP AND F) IN CHANNEL BAY TO VERTICAL POSITION

ON TECHNICAL OPERATOR PANEL (TOP):
 [5] DEPRESS CH () KEY

[6] DEPRESS SWBD D'ABLE KEY

REC BY
LAMP LIGHTS

CH ()
LAMP LIGHTS

SWBD D'ABLE
LAMP LIGHTS



[7] INSERT DUMMY PLUGS IN ALL TRANS () TL OUT JACKS IN TJP AND F PANEL

[8] BLOCK RELAY CR3 (IN OPERATE POSITION) IN RECEIVER SELECTOR AND TRANSMITTER CONTROL (RS AND TC) WITH BLOCKING TOOL [FIG. 1]

SIMULTANEOUSLY (STEPS 9 AND 10):

[9] MANUALLY OPERATE CD1 RELAY IN RS AND TC CIRCUITS

CD1 LAMP ON
U AND A PANEL LIGHTS

[10] START STOP WATCH AND OBSERVE TOP



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NOTE 1
 DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE

MEASURE DELAY TIME OF CHANNEL BAY TIMER TM-1

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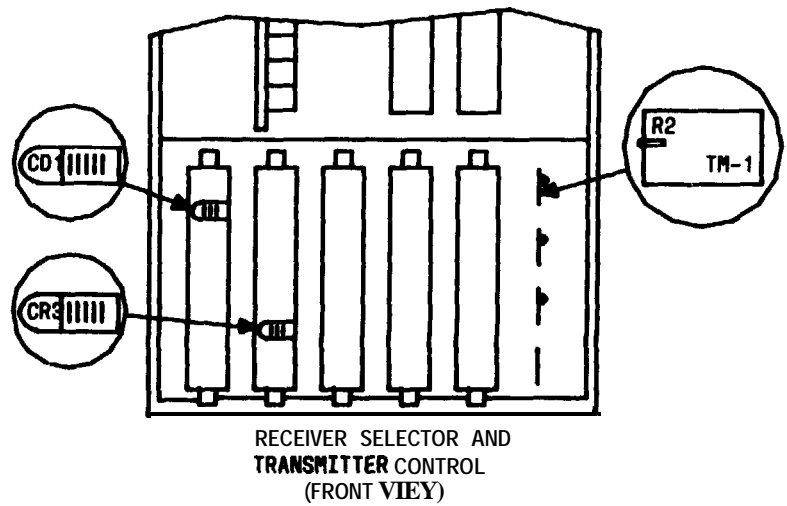
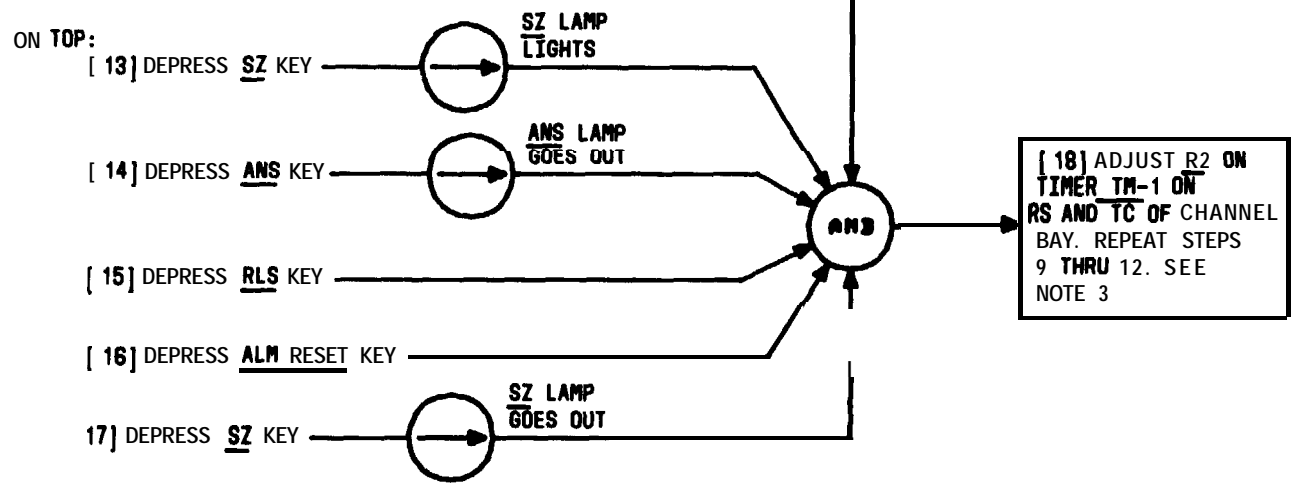
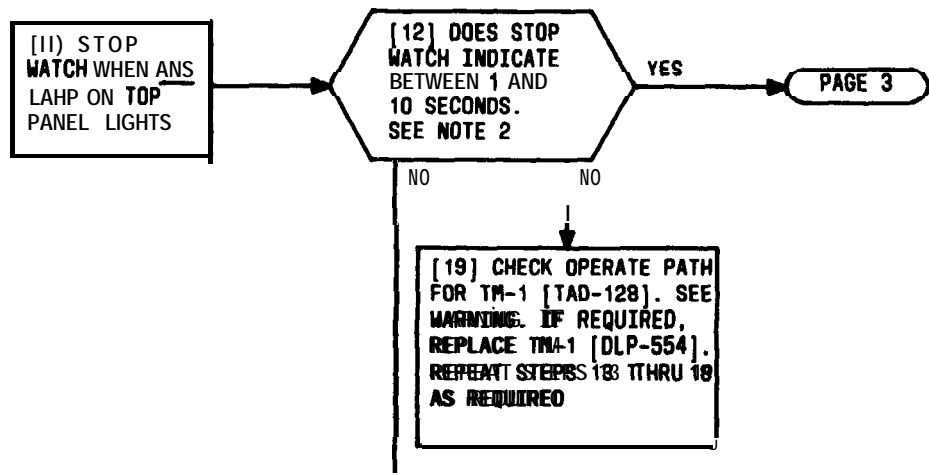


FIG. 1

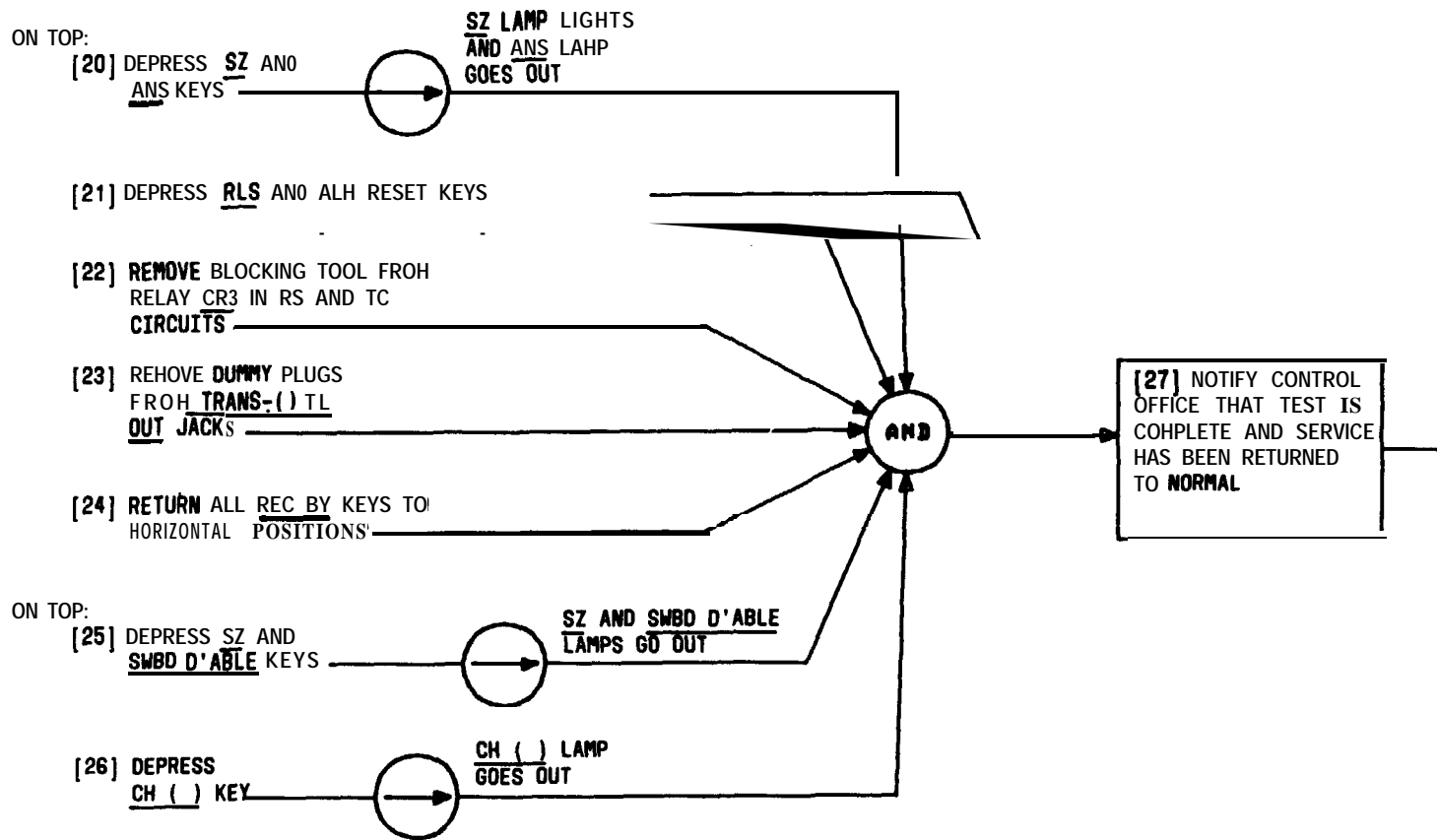
NOTES

- CHECK LOCAL PROCEDURES FOR OTHER SPECIFIED TIRE INDICATIONS
- IT MAY BE NECESSARY TO REPEAT THIS ADJUSTMENT SEVERAL TIMES TO GET EXPECTED INDICATION

WARNING
 POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

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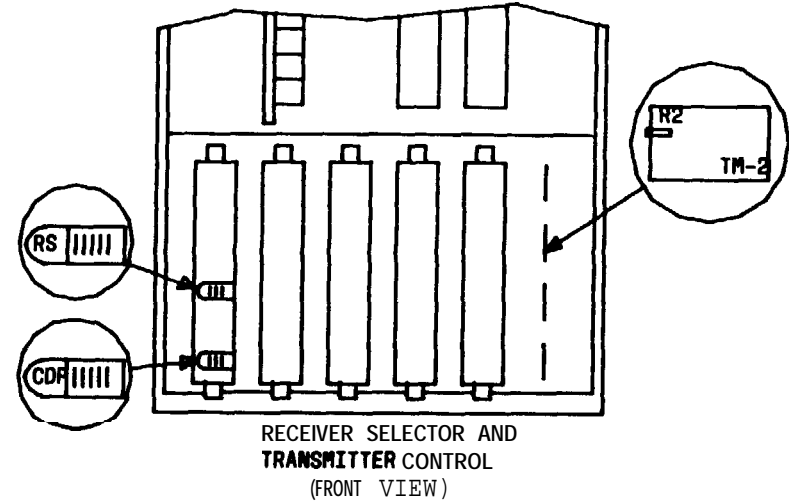
MEASURE DELAY TIME OF CHANNEL BAY TIMER TM-1



MEASURE DELAY TIME OF CHANNEL BAY TIMER TM-1

SUMMARY

USE STOP WATCH OR 24-HOUR **TIMER** IN **COMMON BAY** TO **MEASURE** THE PERIOD BETWEEN START OF **TIMER** TM-2. AND RELEASE OF CDP RELAY IN RECEIVER SELECTOR **AND** TRANSMITTER CONTROL CIRCUITS. STOP WATCH INDICATION SHOULD BE BETWEEN 1 AND 10 SECONDS. LOCAL PROCEDURES MAY DICTATE **MORE** SPECIFIC TIME READINGS



RECEIVER SELECTOR AND TRANSMITTER CONTROL (FRONT VIEW)

FIG. 1

- [1] OBTAIN RELEASE FOR TESTS TO BE **PERFORMED** AND NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL PROCEDURES. **SEE NOTE 1**

- [2] OBTAIN STOP WATCH

- [3] ENSURE CHANNEL () IO LAMP IS ON BEFORE CONTINUING WITH TEST

- [4] ON TEST JACKS, PADS, AND FUSE (TJP AND F) PANEL, SET COS KEY TO VERTICAL **POSITION**



- [5] IN RECEIVER SELECTOR AND TRANSMITTER CONTROL (RS AND TC) CIRCUITS. BLOCK RELAY RS IN OPERATED CONDITION WITH RELAY **BLOCKING** TOOL [FIG. 1]

SIMULTANEOUSLY (STEPS B AND 7) :

- [6] MANUALLY OPERATE CDP RELAY ON RS AND TC

- [7] START STOP WATCH

AND

[B] WHEN CDP RELAY RELEASES, STOP STOP WATCH

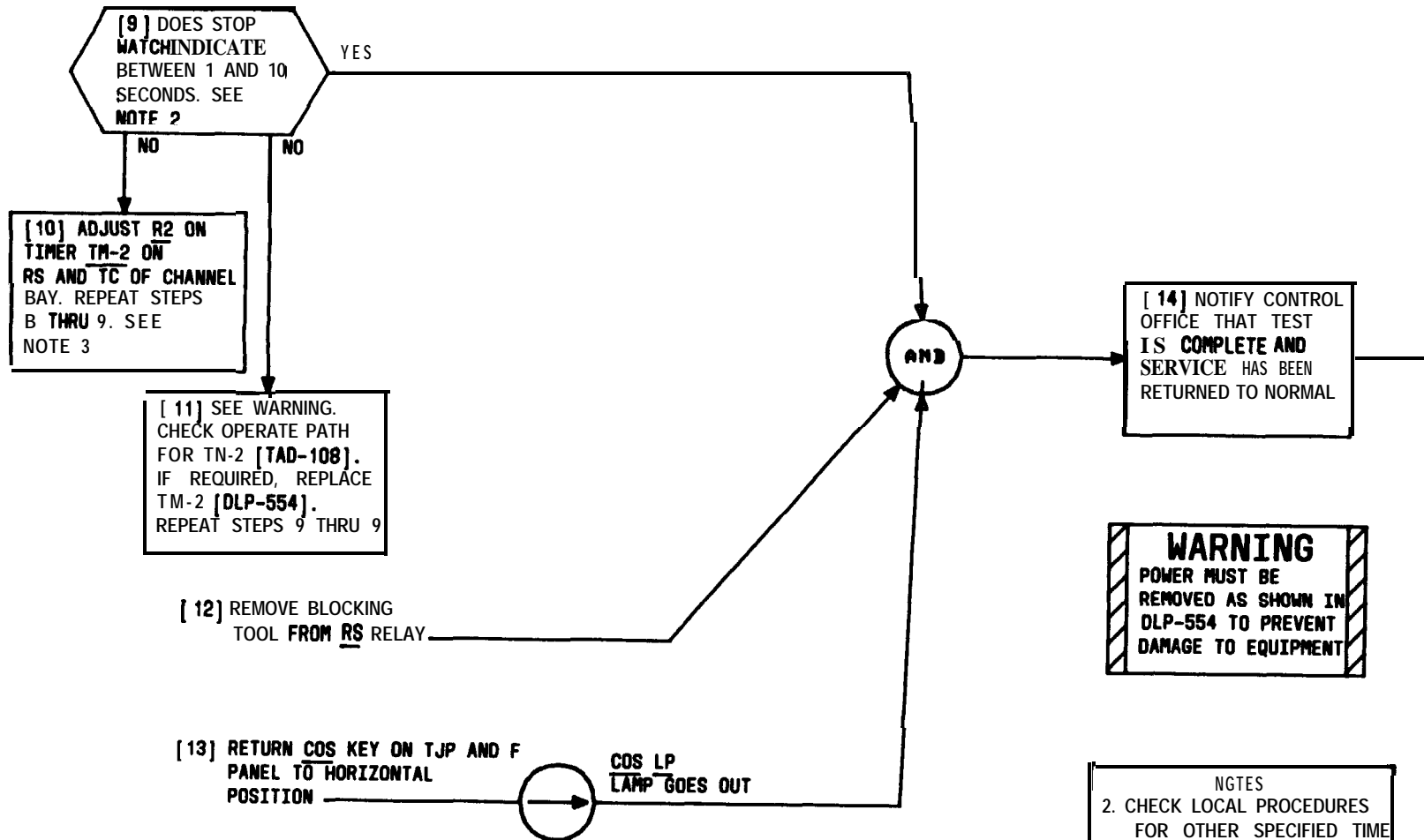
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TABLE A
EQUIPMENT REQUIRED
STOP WATCH OR USE 24-HOUR TIMER LOCATED IN COMMON BAY
RELAY BLOCKING TOOL

NOTE 1
DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE

MEASURE DELAY TIME OF CHANNEL BAY TIMER TM-2

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WARNING
 POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

NOTES
 2. CHECK LOCAL PROCEDURES FOR OTHER SPECIFIED TIME INDICATIONS
 3. IT MAY BE NECESSARY TO REPEAT THIS ADJUSTMENT SEVERAL TIMES TO GET EXPECTED INDICATION

SUMMARY
 USING OSCILLOSCOPE MEASURE TIME INTERVAL BETWEEN APPLICATION OF TIMER TM-3 INPUT TRIGGER AND OUTPUT PULSE APPEARING ON PIN 4 OF TM-3 TIMER. TIME MEASUREMENT SHOULD BE BETWEEN 540 AND 660 MILLISECONDS.

TABLE A	
EQUIPMENT REQUIRED	RECOMMENDED TYPE
OSCILLOSCOPE	TEKTRONIX 564B
PLUG-IN AMPLIFIER	TEKTRONIX 3A6
2 PROBES	TEKTRONIX P6028
ADAPTERS--BNC-TO-DUAL BANANA INSULATED DOUBLE-PLUG	2038-1 GR 274-MB
TEST LEAD W/ALLIGATOR CLIP ON ONE END	HP 10110A W1AG

[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED AND NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL PROCEDURES. SEE NOTE 1

[2] OBTAIN TEST EQUIPMENT PER TABLE A AND PREPARE OSCILLOSCOPE TO MEASURE A 350- TO 900-MILLISECOND PULSE DELAY [DLP-551]

[3] ENSURE CHANNEL () ID LAMP IS ON BEFORE CONTINUING WITH TEST

[4] SET COS KEY ON TEST JACKS, PADS, AND FUSE PANEL (TJP AND F) OF CHANNEL BAY, TO VERTICAL POSITION

COS LP
LAMP
LIGHTS

[5] CONNECT OSCILLOSCOPE VERTICAL INPUT TO PIN 4 ON TM-3 TIMER IN RECEIVER SELECTOR AND TRANSMITTER CONTROL (RS AND TC) CIRCUITS OF CHANNEL BAY [FIG. 1]

[6] GROUND OSCILLOSCOPE PROBE GROUND TO CIRCUIT GROUND ON CHANNEL BAY

[7] CONNECT OSCILLOSCOPE EXT TRIG TO PIN 1 OF TM-3 TIMER

[8] APPLY TEMPORARY GROUND TO EXT TRIG INPUT ON OSCILLOSCOPE [INSET FIG. 1]



READY TO MEASURE TM-3 DELAY TIME

[9] MEASURE TIME INTERVAL ON OSCILLOSCOPE. SAMPLE PRESENTATION IS SHOWN IN FIG. 2

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NOTE 1
 DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE

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MEASURE DELAY TIME OF CHANNEL BAY TIMER TM-3

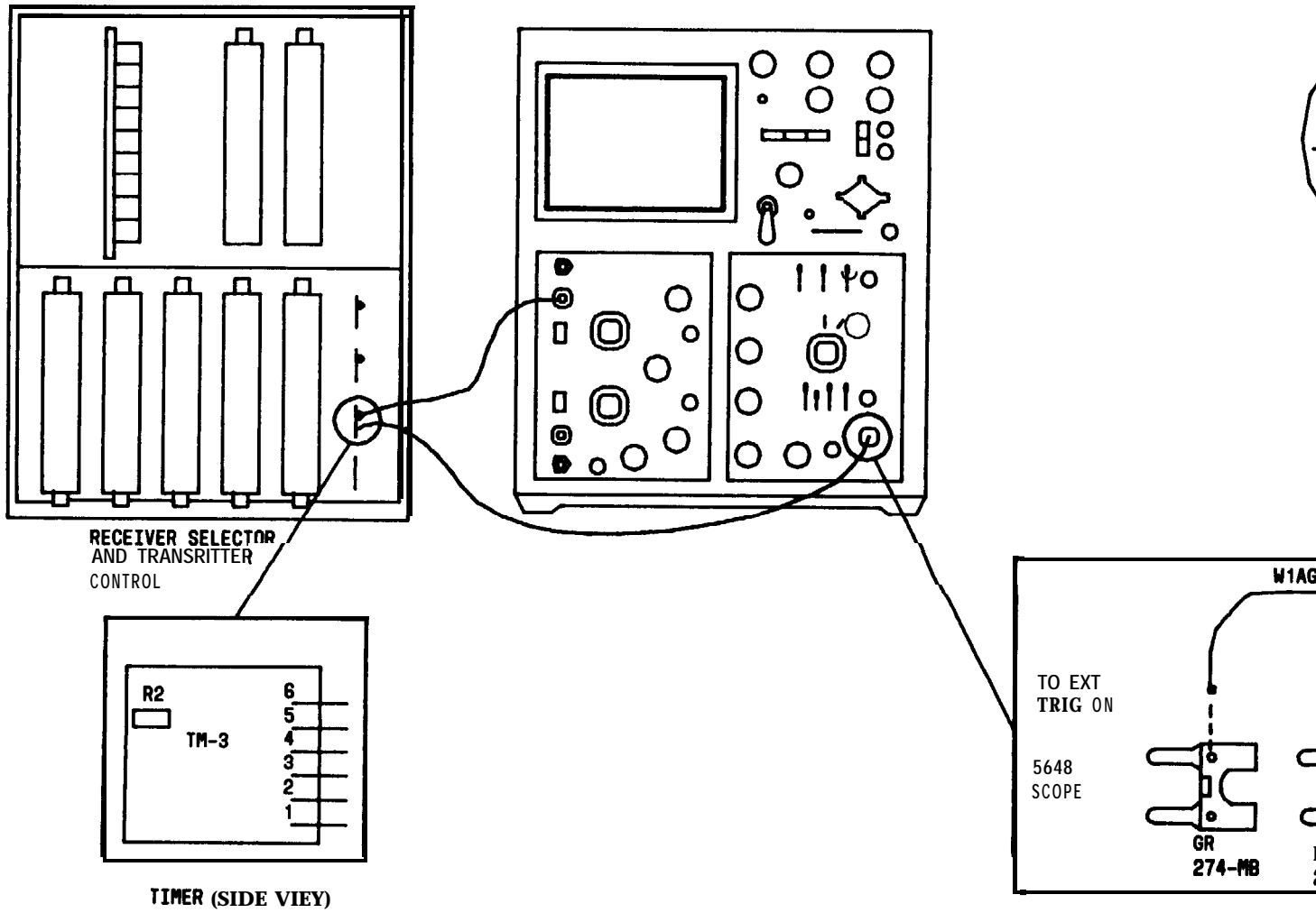
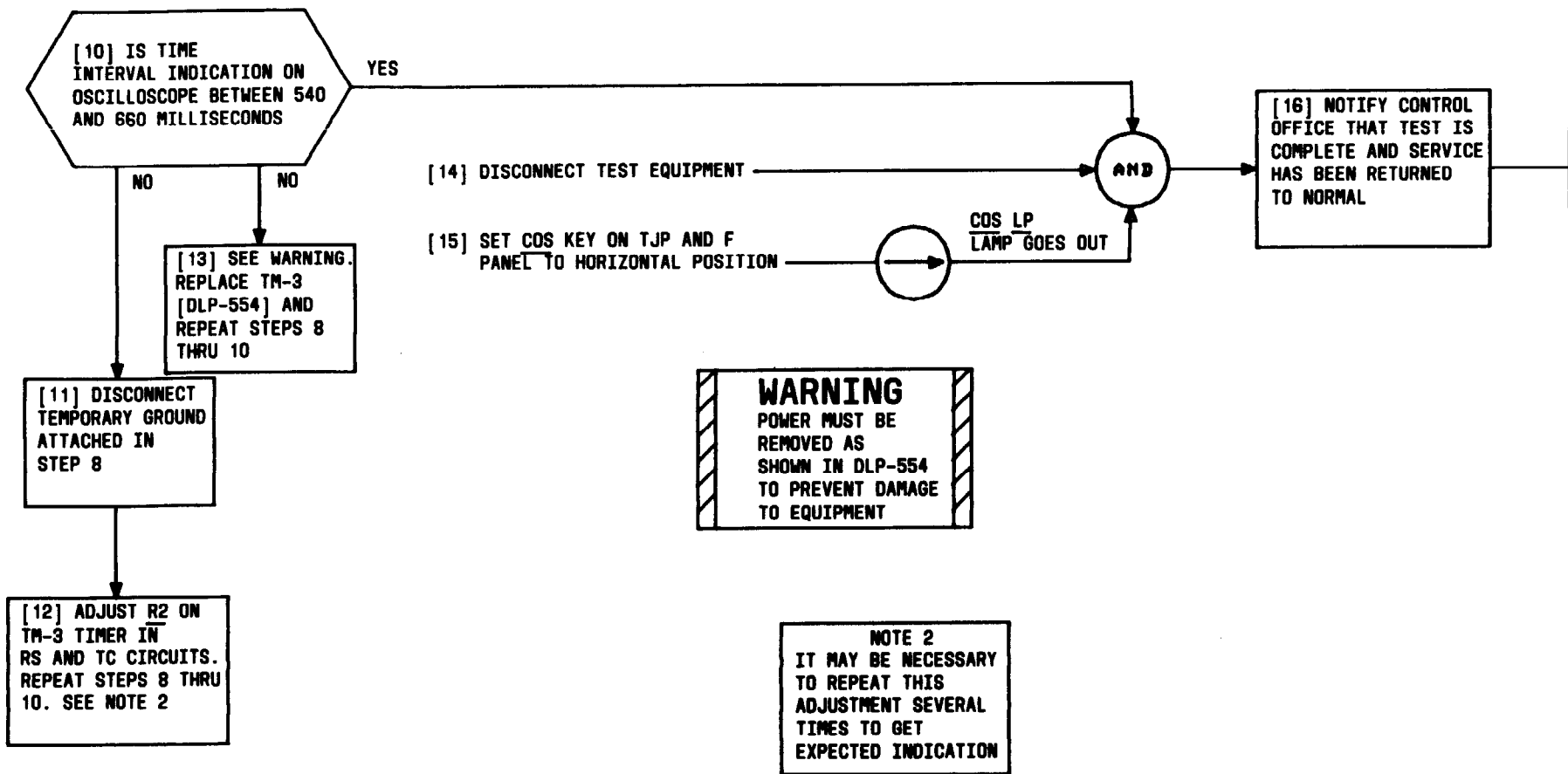


FIG. 1

MEASURE DELAY TIME OF CHANNEL BAY TIMER TM-3



MEASURE DELAY TIME OF CHANNEL BAY TIMER TM-3

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SUMMARY
 USING OSCILLOSCOPE **MEASURE** TIRE INTERVAL BETWEEN APPLICATION OF RECEIVER SELECT **TIMER** INPUT TRIGGER (GROUND ON PIN **5B**) AND OUTPUT PULSE APPEARING ON PIN **3B** OF **TIMER**. TIRE MEASUREMENT SHOULD BE 1 SECOND

TABLE A	
EQUIPMENT REQUIRED	RECOMMENDED TYPE
OSCILLOSCOPE	TEKTRONIX 564B
PLUG-IN AMPLIFIER	TEKTRONIX 3A6
PLUG-IN TIRE BASE	TEKTRONIX 3B3
2 PROBES	TEKTRONIX P6028
ADAPTER - BNC TO DUAL BANANA	BENDIX 2038-1
INSULATED DOUBLE PLUG	GR 274 - m
TEST LEAD	W1A6

[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED AND NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL PROCEDURES. SEE NOTES 1 AND 2.

[2] OBTAIN TEST EQUIPMENT PER TABLE A AND PREPARE OSCILLOSCOPE TO MEASURE A **500-MILLISECOND** TO P-SECOND PULSE DELAY [DLP-551]

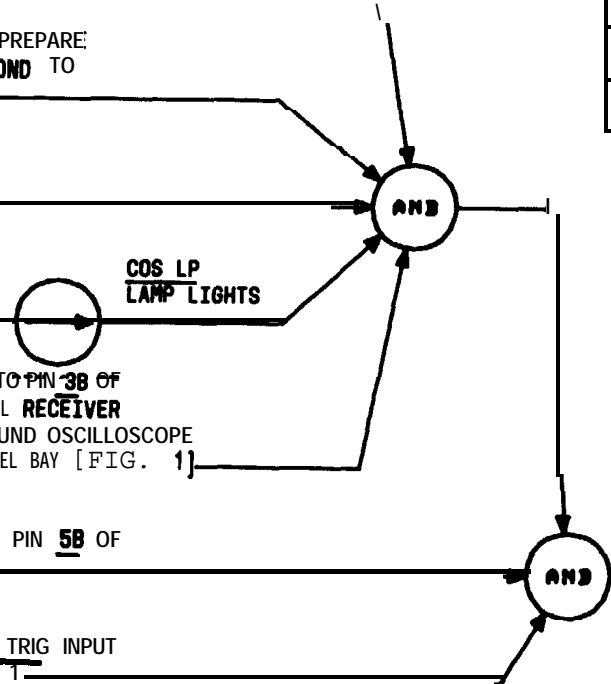
[3] ENSURE CHANNEL **()** ID LAMP IS ON BEFORE CONTINUING WITH TEST

[4] SET COS KEY ON TEST JACKS, PADS, AND FUSE (TJP AND F) PANEL OF CHANNEL BAY TO VERTICAL POSITION

[5] CONNECT OSCILLOSCOPE VERTICAL INPUT TO PIN **3B** OF CIRCUIT BOARD (CB) 107 IN HIGHEST LEVEL RECEIVER (HLR) CIRCUITS IN CHANNEL BAY, AND GROUND OSCILLOSCOPE PROBE GROUND TO CIRCUIT GROUND ON CHANNEL BAY [FIG. 1]

[6] CONNECT OSCILLOSCOPE EXT TRIG TO PIN **5B** OF CB **107** IN HLR CIRCUITS

[7] APPLY A **TEMPORARY** GROUND TO EXT TRIG INPUT ON OSCILLOSCOPE. SEE INSET, FIG. 1



[8] MEASURE TIRE INTERVAL ON OSCILLOSCOPE. SAMPLE PULSE PRESENTATION SHOW IN FIG. 2

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NOTES

- TWO PERSONS MAY BE REQUIRED TO PERFORM THIS TEST
- DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE

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MEASURE DELAY TIME OF CHANNEL BAY RECEIVER SELECT TIMER

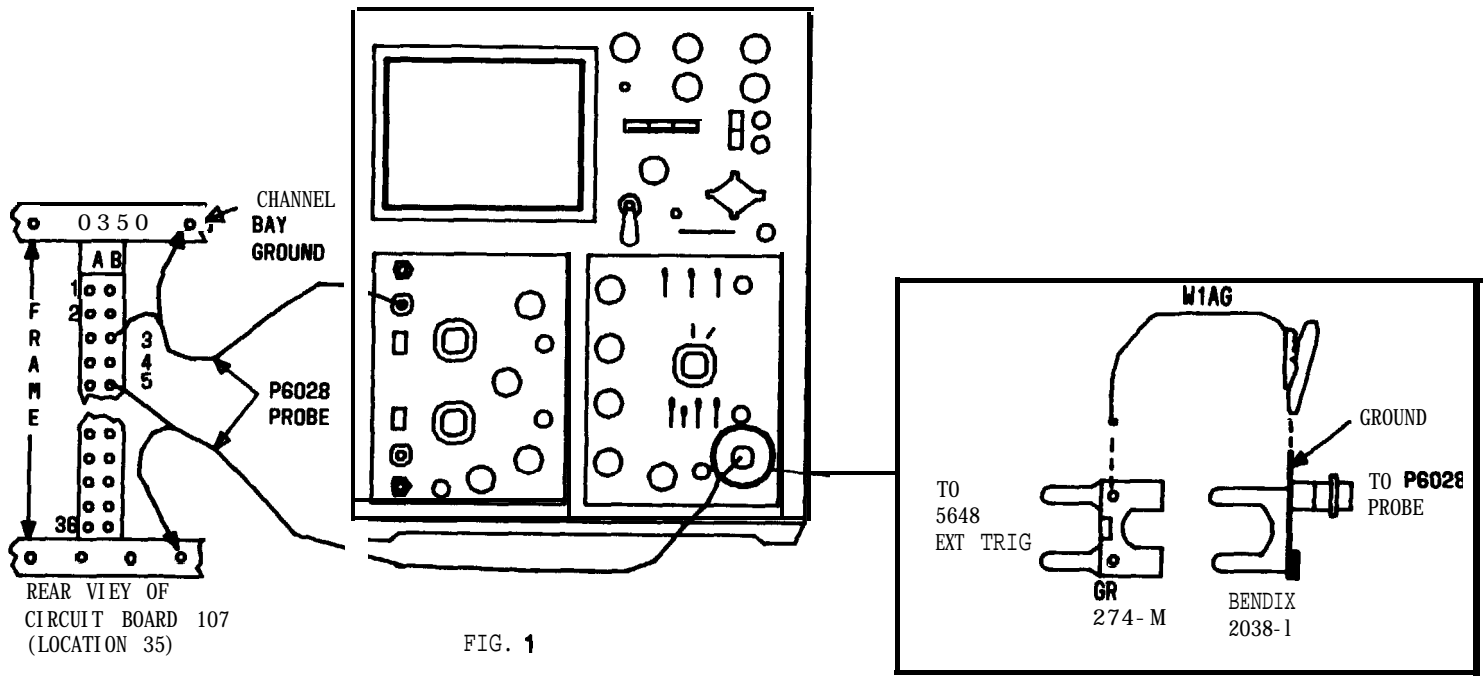


FIG. 1



FIG. 2

MEASURE DELAY TIME OF CHANNEL BAY RECEIVER SELECT TIMER

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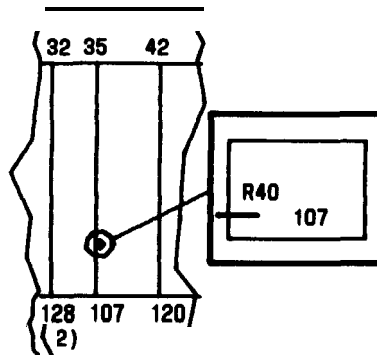
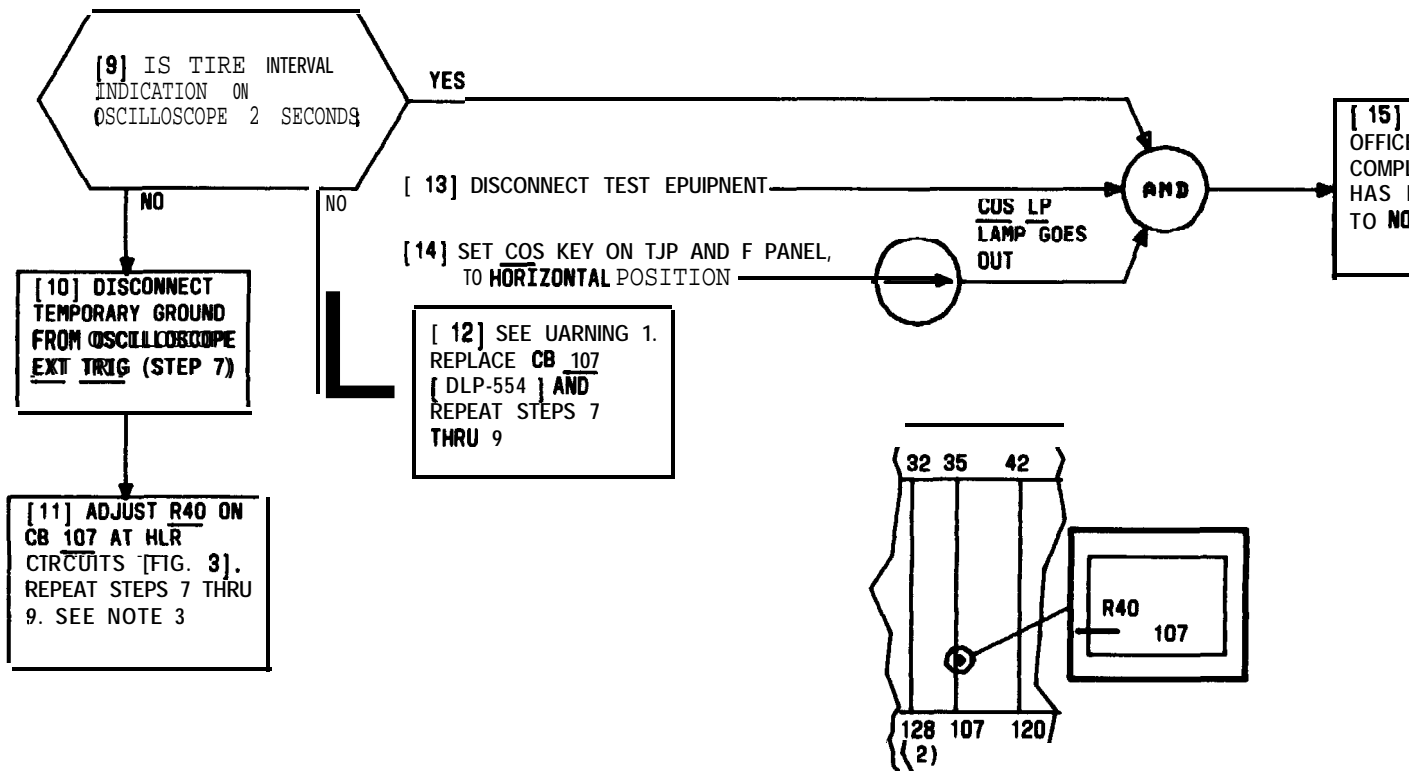


FIG. 3 - HIGHEST LEVEL
RECEIVER SELECTOR
CIRCUITS - CHANNEL
BAY (FRONT VIEW)

MEASURE DELAY TIME OF CHANNEL BAY RECEIVER SELECT TIMER

SUMMARY
 USING OSCILLOSCOPE MEASURE TIME INTERVAL BETWEEN APPLICATION OF EXTERNAL TRIGGER FROM PIN 5B AND OUTPUT PULSE ON PIN 3B OF CIRCUIT BOARD (CB) 107 IN RECEIVER SIGNALING AND CONTROL (RS AND C) CIRCUITS. OUTPUT PULSE IS INDICATED ON OSCILLOSCOPE AS A POSITIVE STEP IN WEEP. TIME INDICATED SHOULD BE 3.25 ± .1 SECONDS.

TABLE A	
EQUIPMENT REQUIRED	RECOMMENDED TYPE
OSCILLOSCOPE	TEKTRONIX 564B
PLUG-IN AMPLIFIER	TEKTRONIX 3A6
PLUG-IN TIME BASE	TEKTRONIX 3B3
2 PROBES	TEKTRONIX P602B
ADAPTER BNC-TO-DUAL BANANA	2038-1
PATCH CORD	3P6C

[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED AND NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL PROCEDURES. SEE NOTES 1 AND 2

[2] OBTAIN TEST EQUIPMENT PER TABLE A AND PREPARE OSCILLOSCOPE TO MEASURE 1-SECOND PULSE DELAY.

[3] ENSURE CHANNEL () ID LAMP IS ONR E CONTINUING WITH TEST

[4] SET COS KEY ON TEST JACKS, PADS, AND FUSE (TJP AND F) PANEL TO VERTICAL POSITION

[5] CONNECT OSCILLOSCOPE VERTICAL INPUT TO PIN 3B OF CIRCUIT BOARD (CB) 107 FOR RECEIVER () IN RS AND C CIRCUITS ON BACK OF CHANNEL BAY [FIG. 1]

[6] CONNECT OSCILLOSCOPE GROUND (ON PROBE) TO CIRCUIT GROUND IN CHANNEL BAY

[7] CONNECT OSCILLOSCOPE EXT TRIG [SEE INSET FIG. 1] TO PIN 5B OF CB 107 FOR RECEIVER () IN R8 AND C CIRCUITS

[8] CONNECT JUMPER BETWEEN REC-() RSC IN AND REC-() REC CONN JACK8 IN TJP ADD FPANEL [FIG. 2]

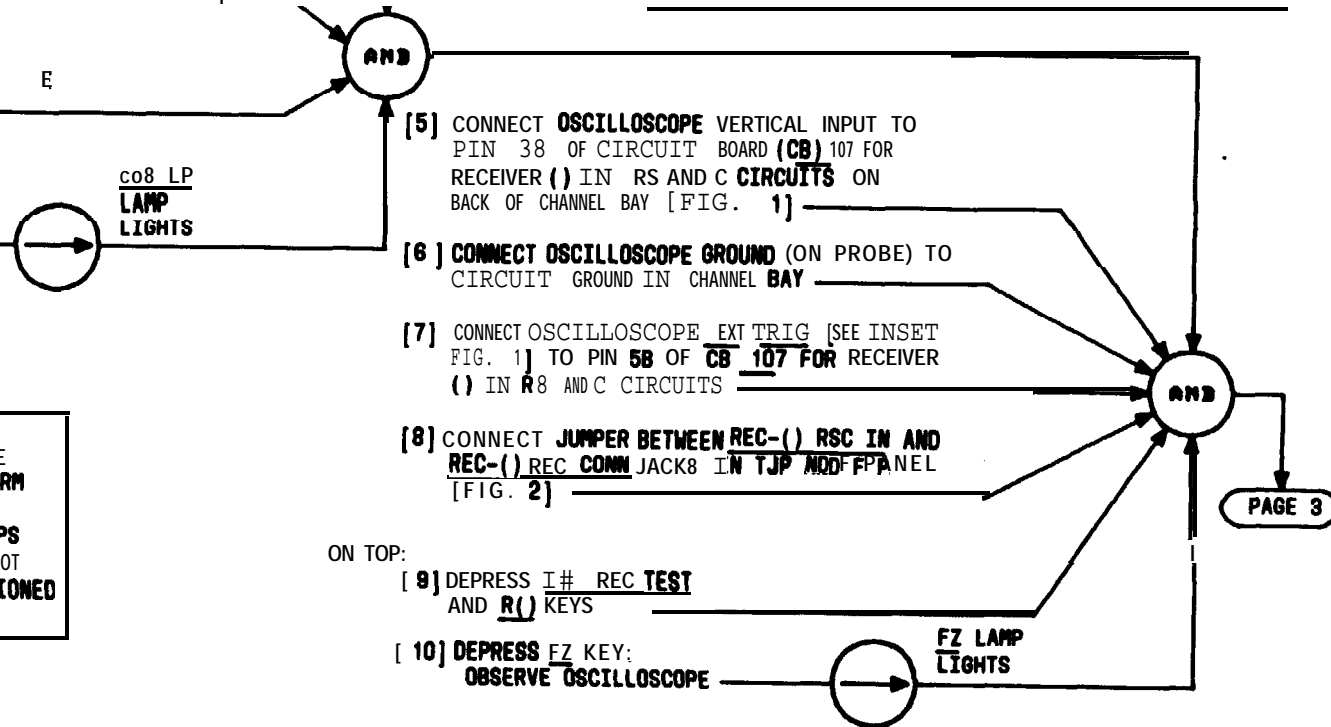
ON TOP:

[9] DEPRESS I# REC TEST AND R() KEYS

[10] DEPRESS FZ KEY; OBSERVE OSCILLOSCOPE

NOTES

1. TWO PERSONS MAY BE REQUIRED TO PERFORM THIS TEST
2. DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE



MEASURE DELAY TIME OF CHANNEL BAY RECEIVER CODAN TIMER

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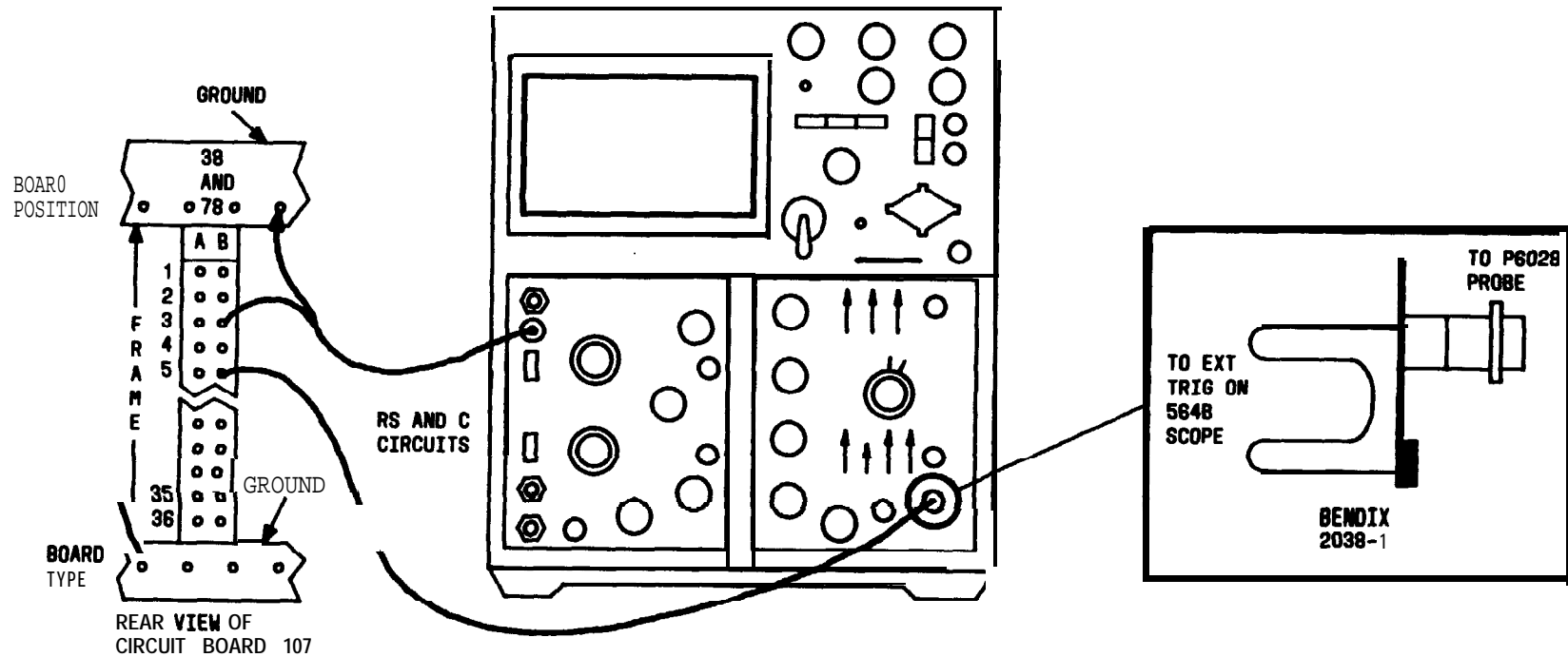


FIG. 1

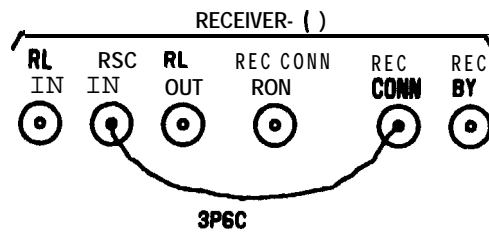
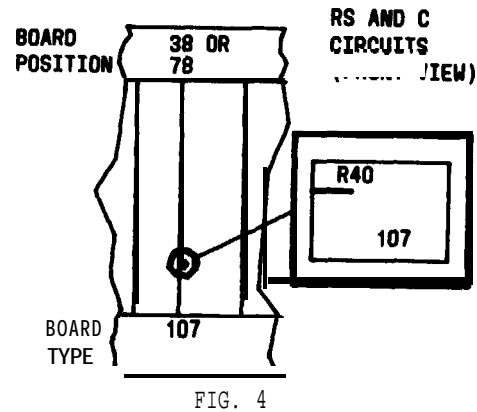
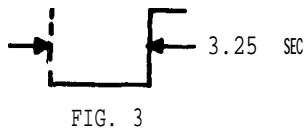
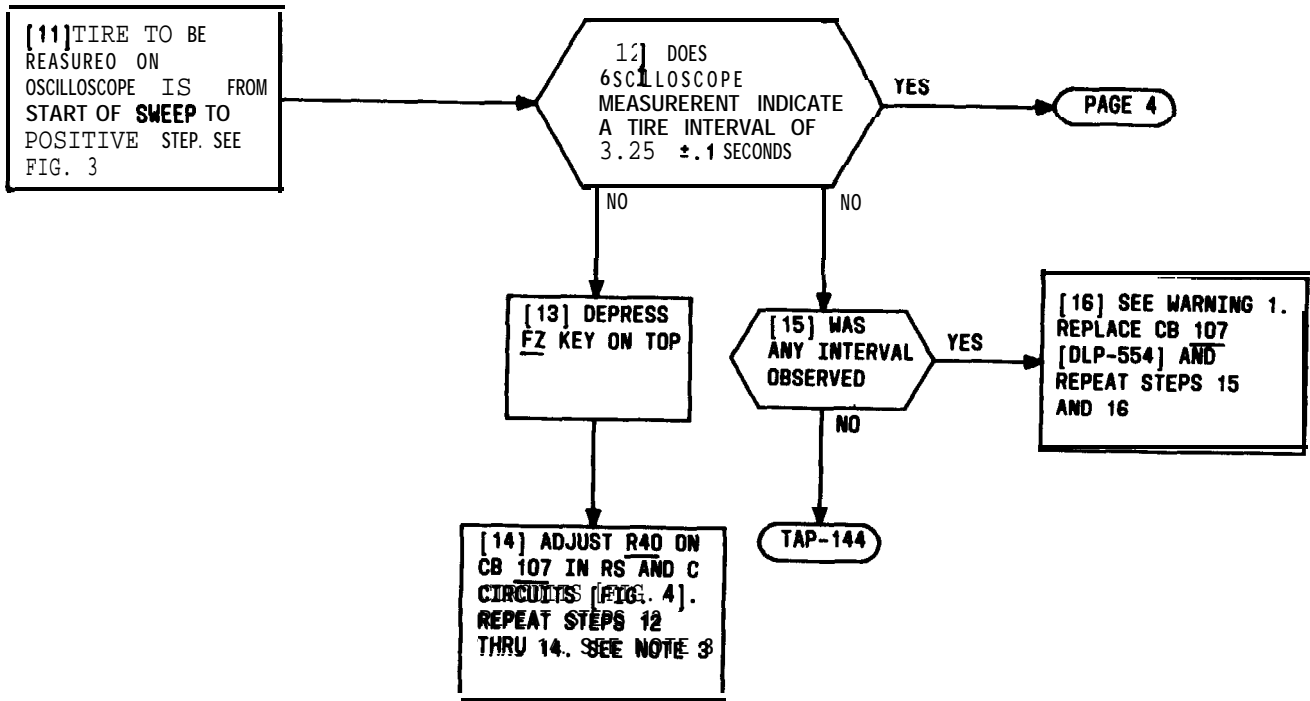


FIG. 2

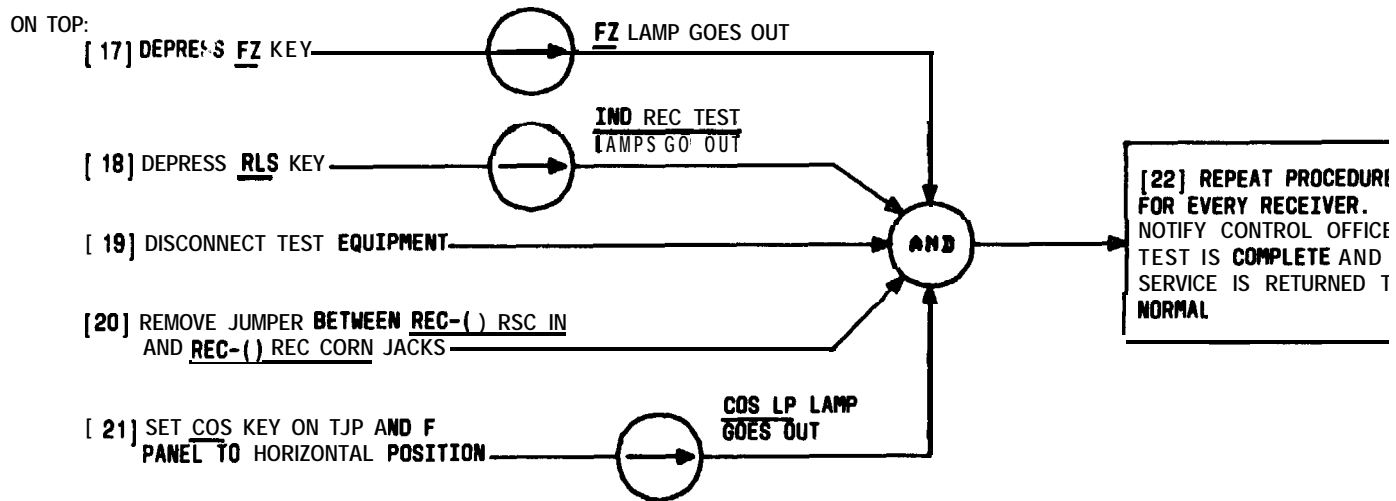


NOTE 3
IT MAY BE NECESSARY TO REPEAT THIS ADJUSTMENT SEVERAL TIMES TO GET EXPECTED INDICATION

WARNING 1
POWER MUST BE REMOVED AS SHOWN IN DLP-554 TO PREVENT DAMAGE TO EQUIPMENT

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MEASURE DELAY TIME OF CHANNEL BAY RECEIVER CODAN TIMER



SUMMARY

EXTEND CB 150 IN COMMON VOICE AND TONE CIRCUITS IN CHANNEL BAY AND REMOVE CB 255 FROM SHELF. MEASURE IDLE GAIN AND FREQUENCY RESPONSE OF CB 150 USING 21A TRANSMISSION TEST SET. RETURN CB 150 TO SHELF AND EXTEND CB 255. CHECK BALANCE CONTROL FOR CB 255 USING KS-14510 VOM. RETURN CB 255 TO SHELF AND EXTEND CB 150. MEASURE INPUT AND OUTPUT LEVELS USING TMS 21A, HP 200CD OSCILLATOR, AND HP 400 () VTVM AS NECESSARY

TABLE A	
EQUIPMENT REQUIRED	RECOMMENDED TYPE
TRANSMISSION MEASURING SET (TMS)	WECO J94021A (21A)
OSCILLATOR	HEWLETT-PACKARD MODEL 200CD
VACUUM TUBE VOLTMETER (VTVM)	HEWLETT-PACKARD MODEL 400
VOLT-OHM-MILLIAMMETER (VOM)	KS-14510
TEST CORDS:	3P17B 2W15B WITH MODIFIED APPARATUS END TO TAKE ALLIGATOR CLIPS OR EQUIVALENT W2DW

[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED AND NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL PROCEDURES. SEE NOTE 1

[2] GET TEST EQUIPMENT PER TABLE A AND CONDITION 21A TMS FOR A 1-MILLIWATT (MW) OUTPUT LEVEL AT 1000 CYCLES DLP-548

[3] ENSURE CHANNEL () ID LAMP IS ON BEFORE CONTINUING WITH TEST

ON TEST JACKS, PADS, AND FUSE (TJP AND F) PANEL:

[4] SET COS KEY TO VERTICAL POSITION



[5] REMOVE FUSES 3 AND 18 FROM PANEL [FIG. 1]. SEE NOTE 2

[6] LOCATE CIRCUIT BOARDS (CB) 150 AND 255 IN COMMON VOICE AND TONE (CV AND T) CIRCUITS [FIG. 2]

[7] USING REMOVAL AND EXTENDER PROCEDURE FOR CIRCUIT BOARDS [DLP-554] . REMOVE CB 255 FROM SHELF AND EXTEND CB 150 ON CB EXTENDER

NOTE 1
DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE

NOTE 2
FUSE 3 REMOVAL WILL AFFECT OPERATION OF 24-HR TIMER IN COMMON BAY. TIMER WILL BE RESET WHEN THIS PROCEDURE IS COMPLETED

[8] RETURN FUSES 3 AND 18 TO TJP AND F PANEL

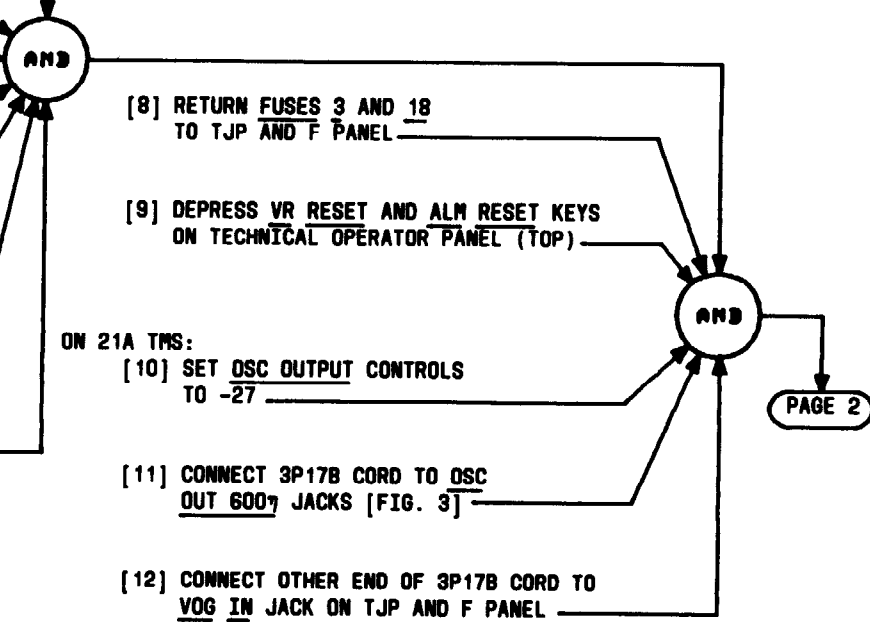
[9] DEPRESS VR RESET AND ALM RESET KEYS ON TECHNICAL OPERATOR PANEL (TOP)

ON 21A TMS:

[10] SET OSC OUTPUT CONTROLS TO -27

[11] CONNECT 3P17B CORD TO OSC OUT 600 Ω JACKS [FIG. 3]

[12] CONNECT OTHER END OF 3P17B CORD TO VOG IN JACK ON TJP AND F PANEL



TEST CHANNEL BAY VOGAD

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[13] CONNECT 241A PLUG ENO OF **MODIFIED**
2W158 CORD TO **DET** IN ON 21A **TMS** AND
 APPARATUS END TO **PINS 6** AND **10** ON **CB 150**

[14] ENSURE **TMS** OSCILLATOR IS SET TO **1000** CYCLES

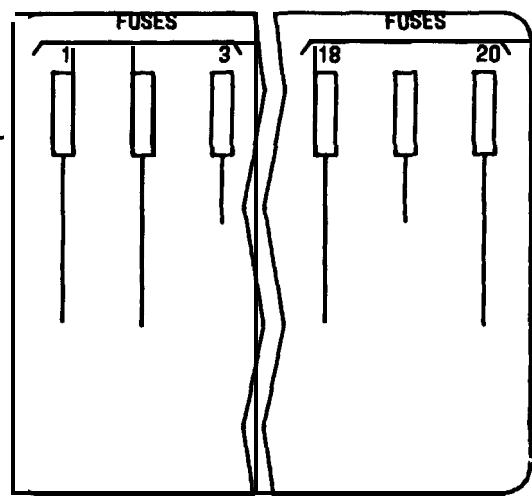
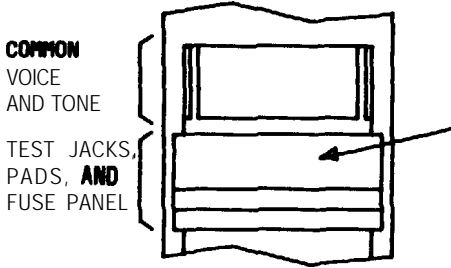
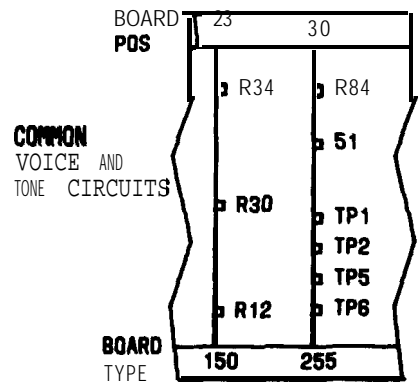
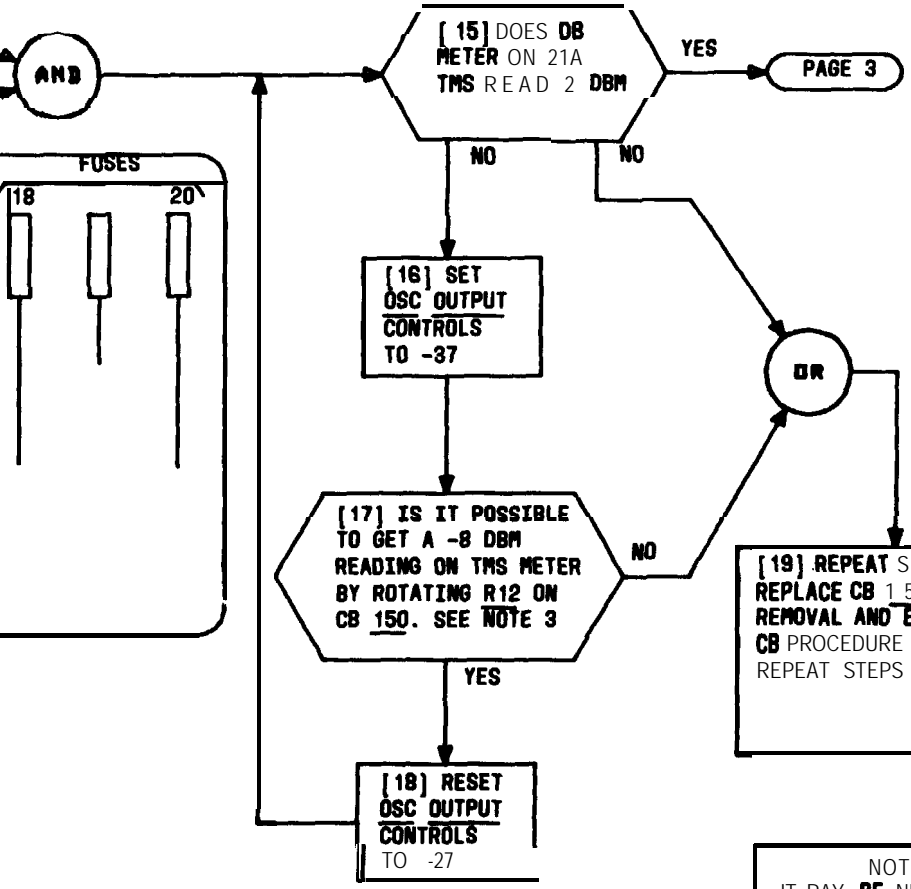


FIG. 1



(FRONT VIEW)
FIG. 2



[19] REPEAT STEP 5.
 REPLACE CB 150 USING
 REMOVAL AND EXTENDER
 CB PROCEDURE [DLP-554].
 REPEAT STEPS 7 THRU 15

NOTE 3
 IT MAY BE NECESSARY
 TO REPEAT THIS
 ADJUSTMENT SEVERAL
 TIMES TO GET
 EXPECTED INDICATION

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[20] SLOWLY CHANGE FREQUENCY OF 21A TMS OSCILLATOR FROM 300 TO 2500 HZ

{21} DOES 21A TMS READING STAY WITHIN +1.5 AND +2.1 DBM

YES

[23] DISCONNECT TEST EQUIPMENT

[24] REMOVE FUSES 3 AND 16 FROM TJP AND F PANEL

[22] REPEAT STEP 5. REPLACE CB 150 USING REMOVAL AND EXTENDER PROCEDURE [DLP-554]. REPEAT STEPS 7 THRU 21

1251, USING REMOVAL AND EXTENDER CB PROCEDURE [DLP-554]. RETURN CB 150 TO CV AND T CIRCUITS. EXTEND CB 255, AND RETURN TO CV AND T CIRCUITS

[26] RETURN FUSES 3 AND 18 TO TJP AND F PANEL

[27] ON TOP, DEPRESS VR RESET AND ALM RESET KEYS

[26] SET TEST-BAL-SPEECH SWITCH ON CB 255 TO BAL POSITION

[29] CONDITION KS-14510 VOM TO READ 60 VDC [DLP-552] AND CONNECT VOM TEST LEADS TO TP5 AND TP6 ON CB 255 [FIG. 4]

[30] OBSERVE METER WHILE USING PROGRESSIVELY LOWER DC VOLT SCALES ON VOM

TEST JACKS, PADS, AND FUSE PANEL

CB 150
6
10

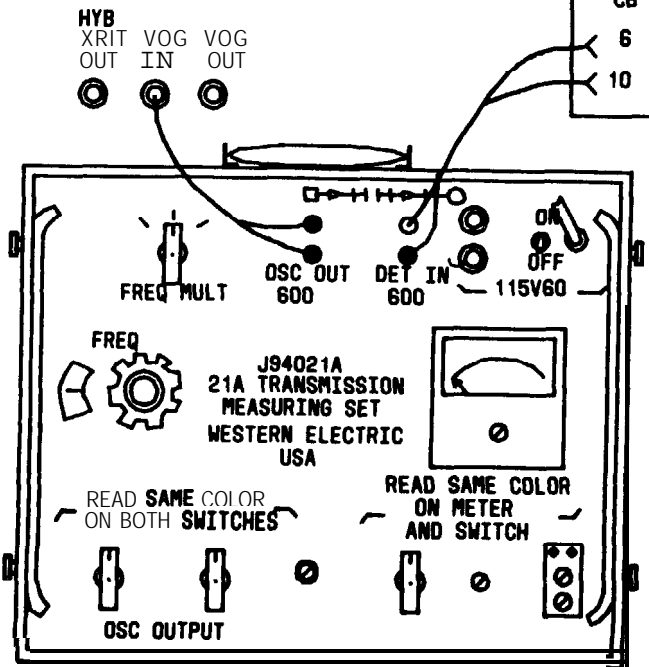


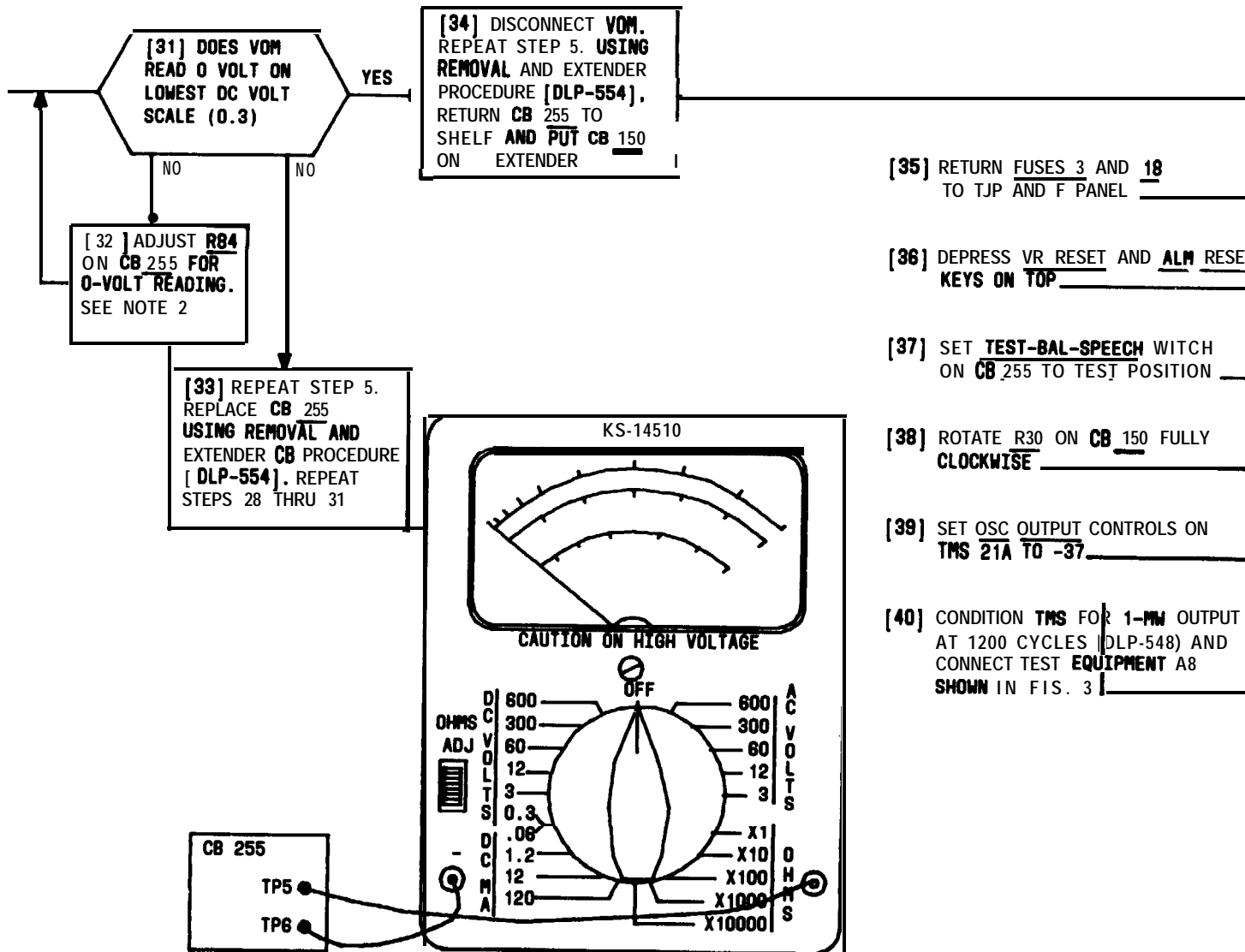
FIG. 3

AND

PAGE 4

TEST CHANNEL BAY VOGAD

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ON HP 200CD OSCILLATOR:

[41] CONDITION OSCILLATOR FOR 7-HZ OUTPUT INTO UNBALANCED LOAD [DLP-550]

[42] SET AMPLITUDE CONTROL FULLY COUNTERCLOCKWISE [FIG. 5]

[43] CONNECT OSCILLATOR BOOR OUTPUT TO HP 400() VTVM INPUT

[44] ADJUST OSCILLATOR AMPLITUDE CONTROL FOR 1-VOLT READING ON VTVM

[45] DISCONNECT VTVM FROM OSCILLATOR 600Ω OUTPUT

[46] CONNECT OSCILLATOR 600Ω OUTPUT TO TP3 AND TP4 ON CB 150

[47] CONNECT HP 400() VTVM TO PINS 9 AND 10 ON CB 150

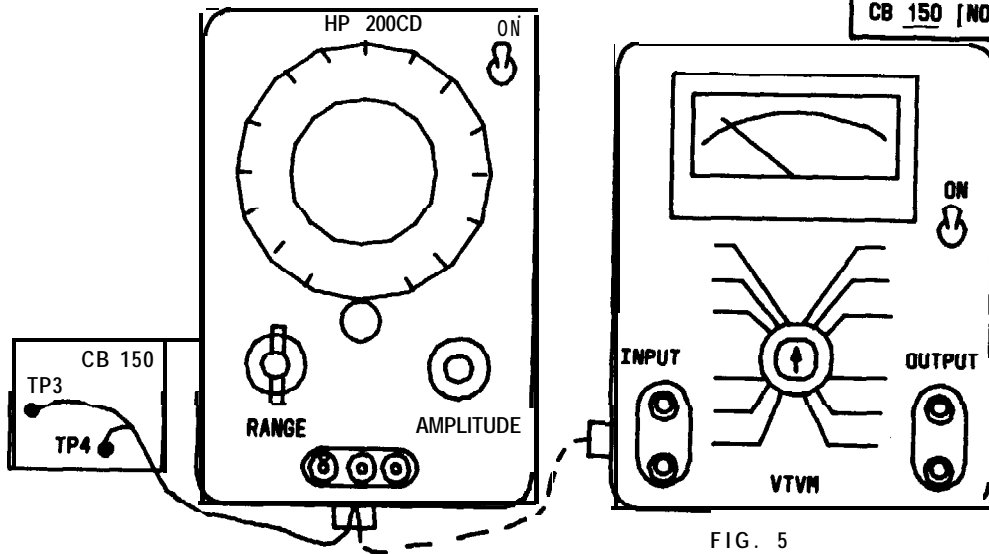


FIG. 5

[48] DOES VTVM CONNECTED TO PINS 6 AND 10 OF CB 150 READ +2 DBM

[49] ADJUST R34 ON CB 150 FOR A 2-DBM READING ON VTVM CONNECTED TO CB 150 [NOTE 2]

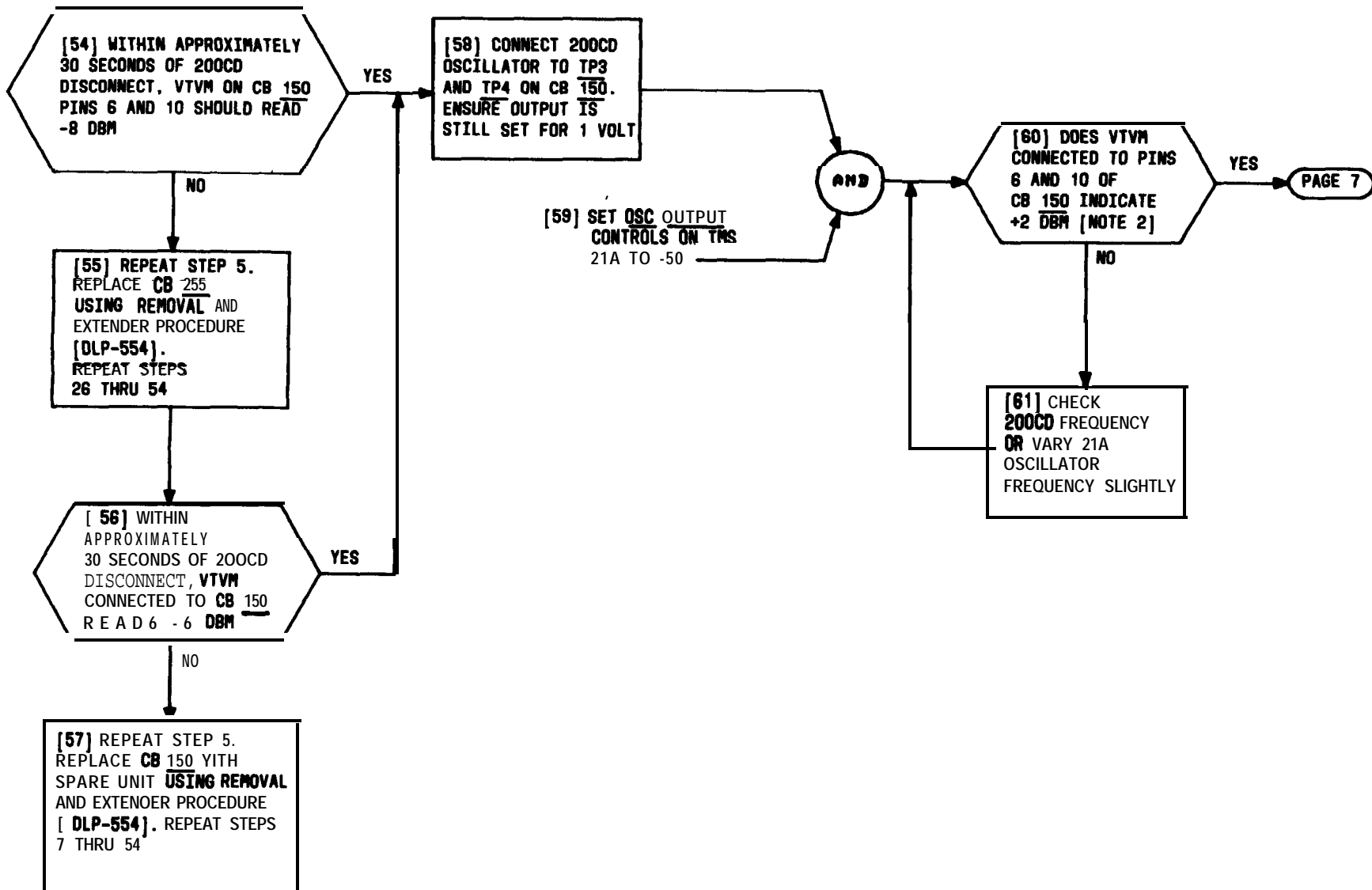
[50] REPEAT STEP 5. REPLACE CB 255 USING REMOVAL AND EXTENDER PROCEDURE [DLP-554]. REPEAT STEPS 26 THRU 49

[51] DOES VTVM CONNECTED TO CB 150 READ +2 DBM

[52] REPEAT STEP 5. REPLACE CB 150 WITH SPARE WITH USING REMOVAL AND EXTENDER PROCEDURE [LP-554]. REPEAT STEPS 7 THRU 48

[53] DISCONNECT HP 200CD OSCILLATOR FROM CB 150 AND OBSERVE VTVM METER INDICATION

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[62] SET TMS 21A OSC OUTPUT CONTROLS TO -45

[63] ENSURE THAT OUTPUT LEVEL OF +2 DBM IS ESTABLISHED ON TMS 21A RETER

[64] VARY TMS 21A OUTPUT FREQUENCY BY TURNING FRED KNOB BETWEEN 11.4 AND 12.6, TURNING TO MAXIMIZE VTVR READING

[65] SLOWLY ROTATE R30 ON CB 150 COUNTERCLOCKWISE UNTIL INDICATION ON VTVM BEGINS TO DECREASE CONSISTENTLY. SEE NOTE 4

[66] SET TMS 21A OSC OUTPUT TO -44

NOTE 4
OBSERVE SIGNAL REACTIOI CLOSELY. SIGNAL RAY DECREASE AND THEN LEVEL OFF. LOOK FOR CONTINUOUS DECREASE AS POT IS ROTATED

AND

[67] DOES VTVM CONNECTED TO CB 150 READ BETWEEN +1 AND +3 DBM

YES

[70] IN TURN SET OSC OUTPUT ATTENUATORS TO 25- AND THEN 8-DBM OUTPUTS. OBSERVE VTVM AFTER EACH SETTING

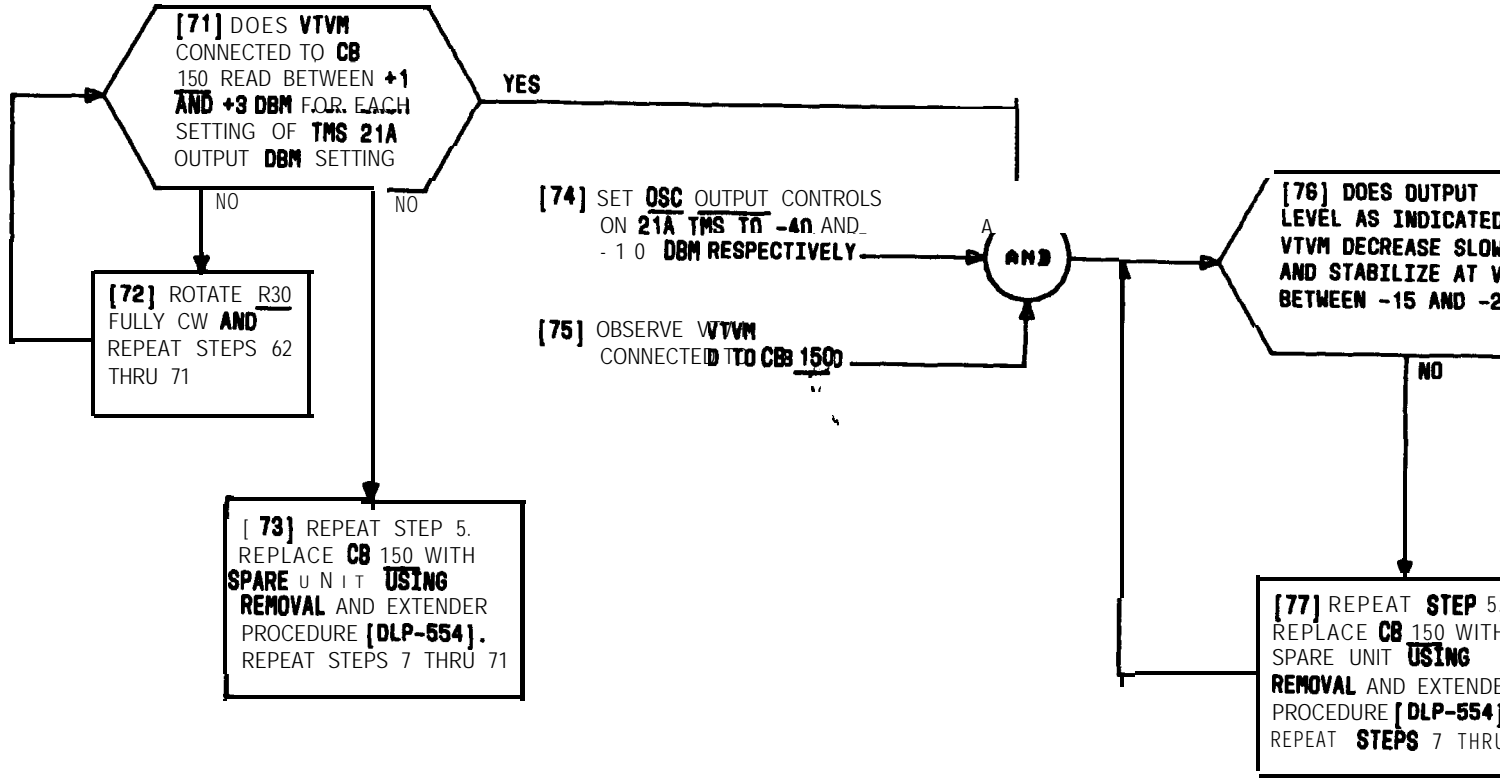
A
PAGE 8

[68] ROTATE R30 ON, FULLY CLOCKWISE, AND REPEAT STEPS 62 THRU 67

[69] REPEAT STEP 5. REPLACE CB 150 WITH SPARE UNIT USING REMOVAL AND EXTENDER PROCEDURE [DLP-554]. REPEAT STEPS 7 THRU 67

TEST CHANNEL BAY VOGAD

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TEST CHANNEL BAY VOGAD

[78] REPEAT STEP 5. REMOVE CB 150 AND EXTENSOER BOARD USIWG REMOVAL AND EXTENDER CIRCUIT BOARD PROCEDURE (DLP-554)

[79] REPLACE CB 150 IN CV AND T CIRCUIT SHELF

[80] RETURN FUSES 3 AND 18 TO TJP AND F PANEL

[81] DEPRESS VR RESET AND ALM RESET KEYS ON TOP

[82] SET TEST-EAL-SPEECH SWITCH ON CB 255 TO SPEECH POSITION

[83] DISCONNECT TEST EQUIPMENT

[84] SET COS KEY TO HORIZONTAL POSITION



AND

[85] NOTIFY CONTROL OFFICE THAT TEST IS COMPLETE AND SERVICE HAS BEEN RETURNED TO NORMAL

TEST CHANNEL BAY VOGAD

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<p style="text-align: center;">SUMMARY</p> <p>VERIFY ABILITY OF CONTROL TERMINAL TO DETECT RF LEVEL INFORMATION THAT IS SENT FROM RADIO RECEIVER. AT RADIO RECEIVER, INPUT AN RF SIGNAL INTO RECEIVER WITH RF SIGNAL GENERATOR. OBSERVE RECEIVER LEVEL LAMPS L2-L8 FOR PROPER INDICATION. THIS</p>	<p>MEASUREMENT ONLY VERIFIES OPERATION OF RECEIVER SIGNALING AND CONTROL CIRCUIT: IT DOES NOT VERIFY OPERATION OF HIGHEST LEVEL RECEIVER SELECTOR CIRCUIT. RADIO RECEIVER PERSONNEL ARE ALSO REQUIRED FOR THIS TEST.</p>
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[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED. SEE NOTE 1

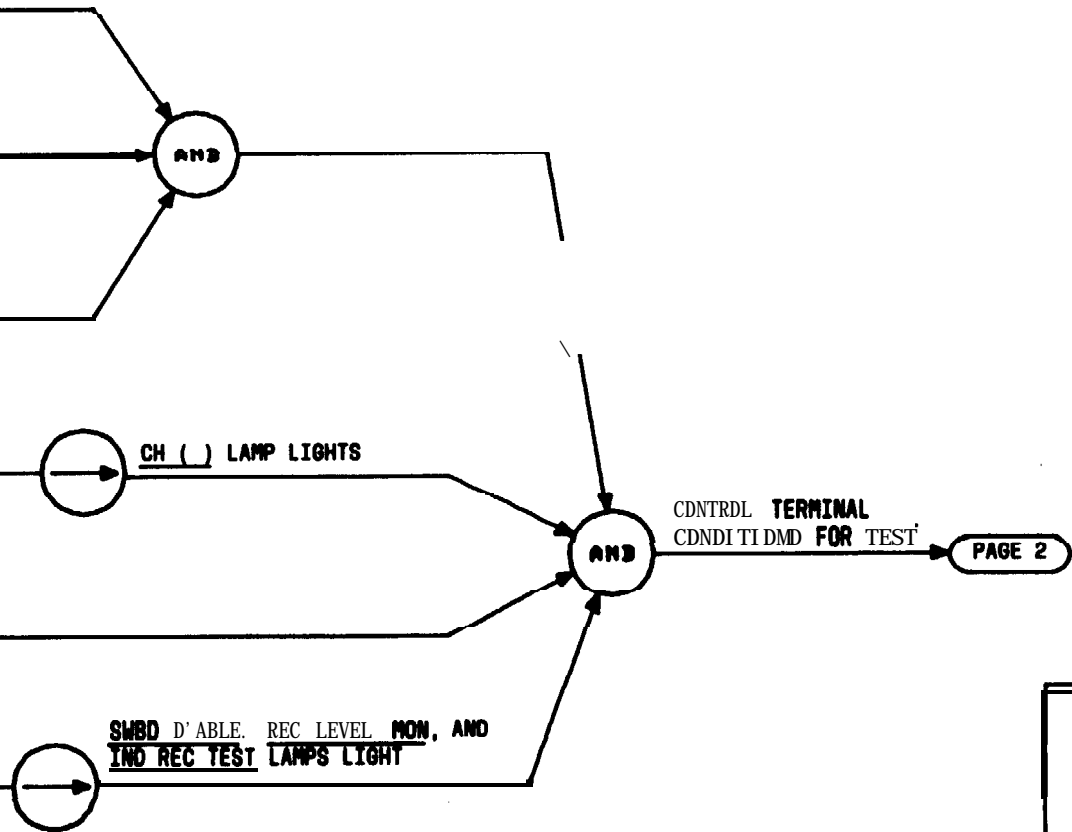
[2] ESTABLISH COMMUNICATIONS WITH RADIO RECEIVER PERSONNEL

[3] ENSURE CHANNEL () ID LAMP IS ON BEFORE CONTINUING WITH TEST

[4] AT TECHNICAL OPERATOR PANEL, DEPRESS CH () AND SZ KEYS FOR DESIRED CHANNEL

[5] NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES

[6] DEPRESS SWBD D' ABLE. REC LEVEL MON. INO REC TEST AND R() KEYS



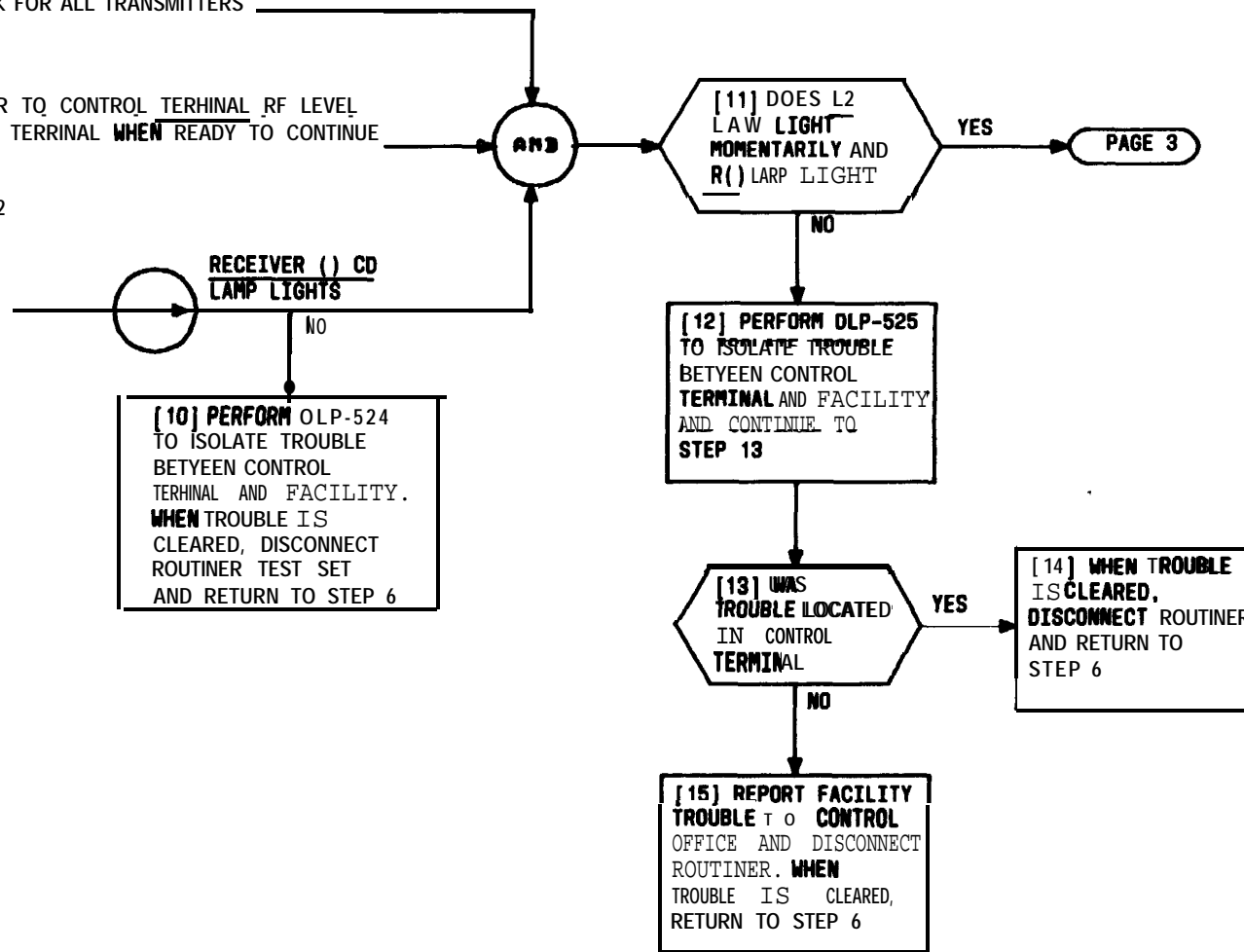
NOTE 1	
DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE	
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TEST RECEIVER RF LEVEL INDICATION AT CONTROL TERMINAL

[7] AT TEST JACKS, PADS, AND FUSE PANEL, INSERT
DUMMY PLUG IN TL OUT JACK FOR ALL TRANSMITTERS

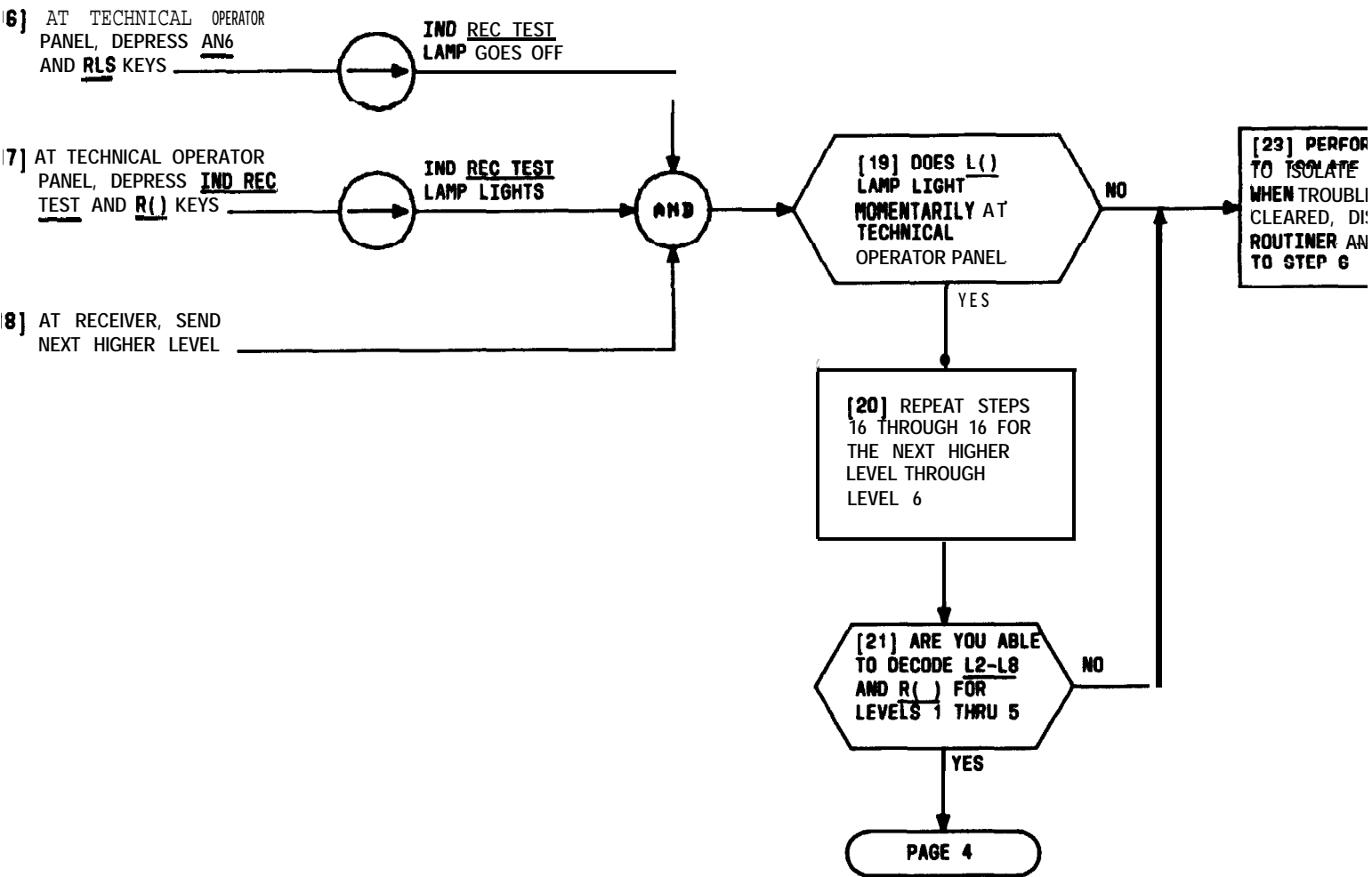
[8] AT RECEIVER, TEST RECEIVER TO CONTROL TERMINAL RF LEVEL
SIGNALING. NOTIFY CONTROL TERMINAL WHEN READY TO CONTINUE

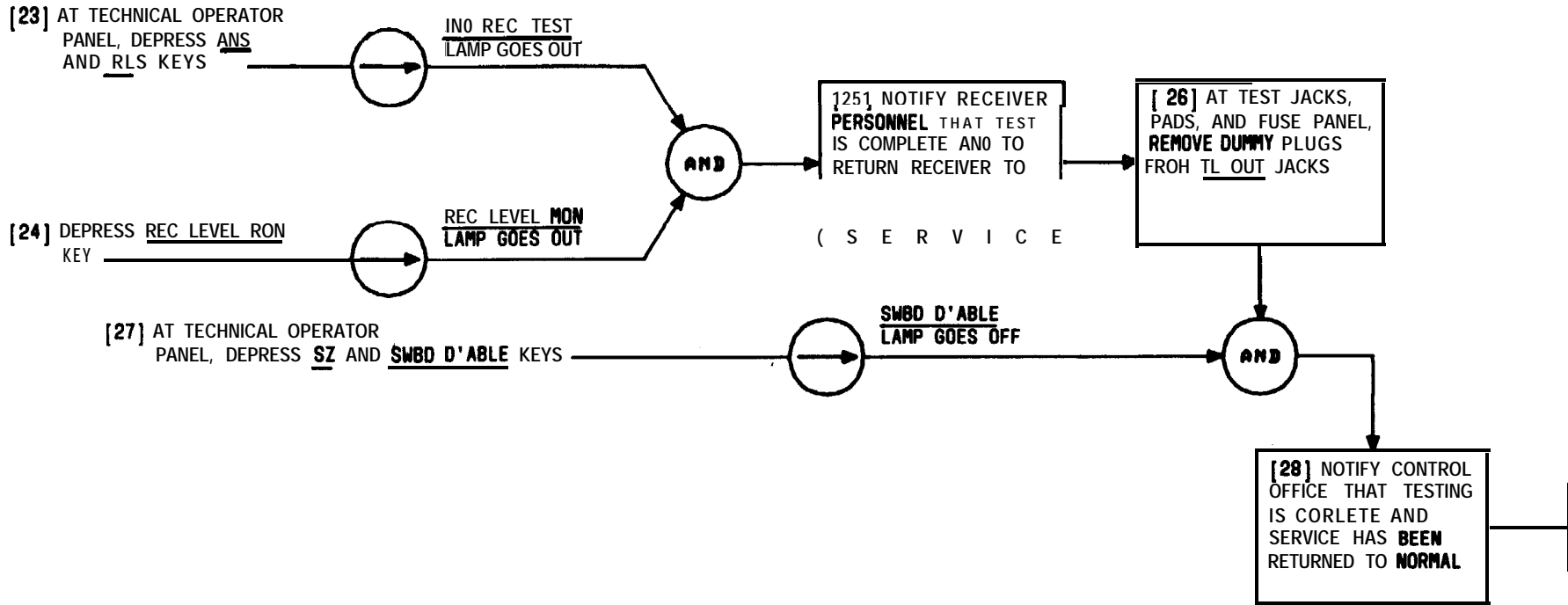
[9] AT RECEIVER, SEND LEVEL 2
**DATA TO CONTROL TERMINAL AND AT TECHNICAL OPERATOR
 PANEL, OBSERVE L () LAMPS FOR A MOMENTARY LIGHT**



TEST RECEIVER RF LEVEL INDICATION AT CONTROL TERMINAL

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TEST RECEIVER RF LEVEL INDICATION AT CONTROL TERMINAL

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SUMMARY

VERIFY THAT ALARMS INITIATED AT RADIO RECEIVER WILL BE INDICATED AT CONTROL TERMINAL. RADIO RECEIVER PERSONNEL ARE ALSO REQUIRED FOR THIS TEST

CAUTION

THIS TEST REMOVES COMMERCIAL AC POWER FROM RADIO RECEIVER. CARE MUST BE TAKEN TO INSURE THAT POWER IS NOT REMOVED FROM OTHER AC CIRCUITS FURNISHING SERVICE

[1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED. SEE NOTE 1

[2] ESTABLISH COMMUNICATIONS WITH RADIO RECEIVER PERSONNEL

[3] ENSURE CHANNEL () ID LAMP IS ON BEFORE CONTINUING WITH TEST

[4] NOTIFY CONTROL OFFICE OF SERVICE REDUCTION IN ACCORDANCE WITH LOCAL OPERATING PROCEDURES

[5] SEE CAUTION. AT RADIO RECEIVER, SIMULATE AN AC POWER FAILURE PER TEST RECEIVER TO CONTROL TERMINAL AC ON SIGNALING

NOTE 1
DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE

[7] AT TECHNICAL OPERATOR PANEL, DEPRESS CH () KEY

CH () LAMP LIGHTS

[6] DOES OFFICE MINOR ALARM SOUND

NO

TAP-120

YES

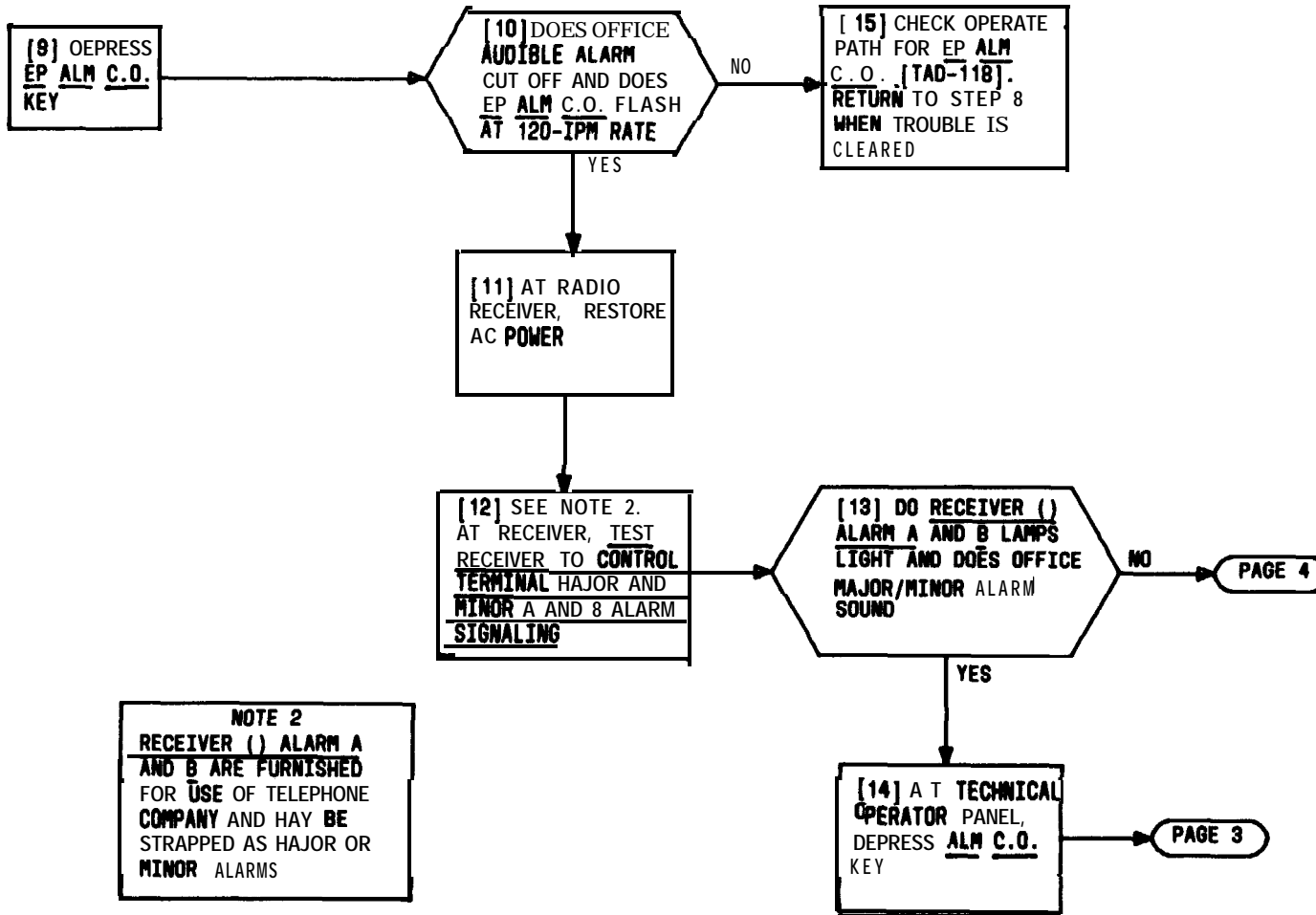
NO

[8] AT USAGE AND ALARM PANEL, DOES RECEIVER () AC FAIL LAMP LIGHT

YES

PAGE 2

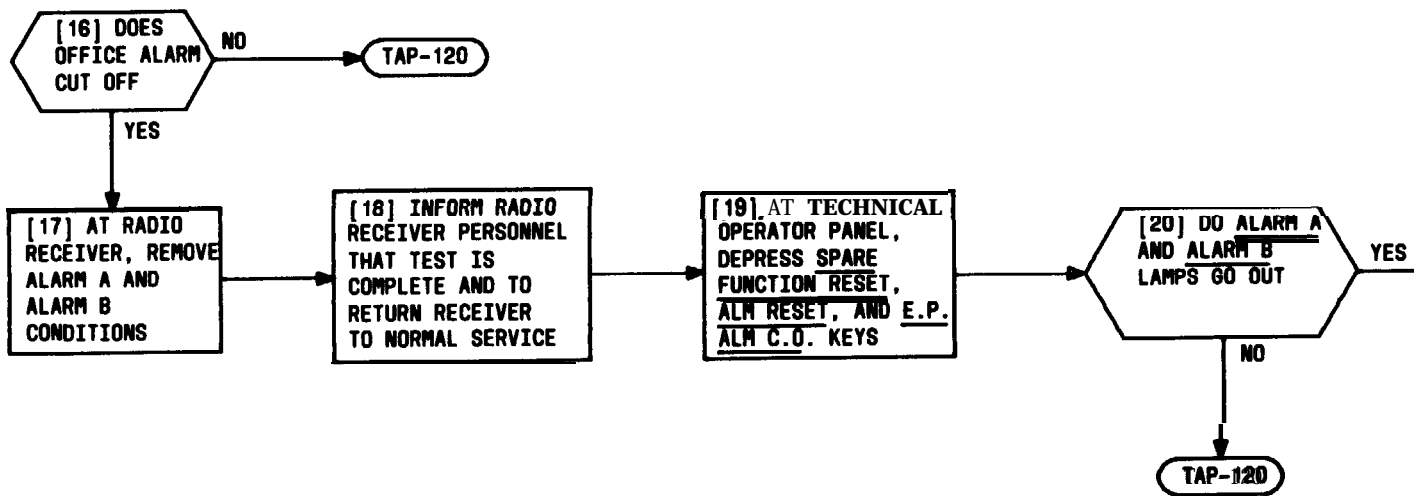
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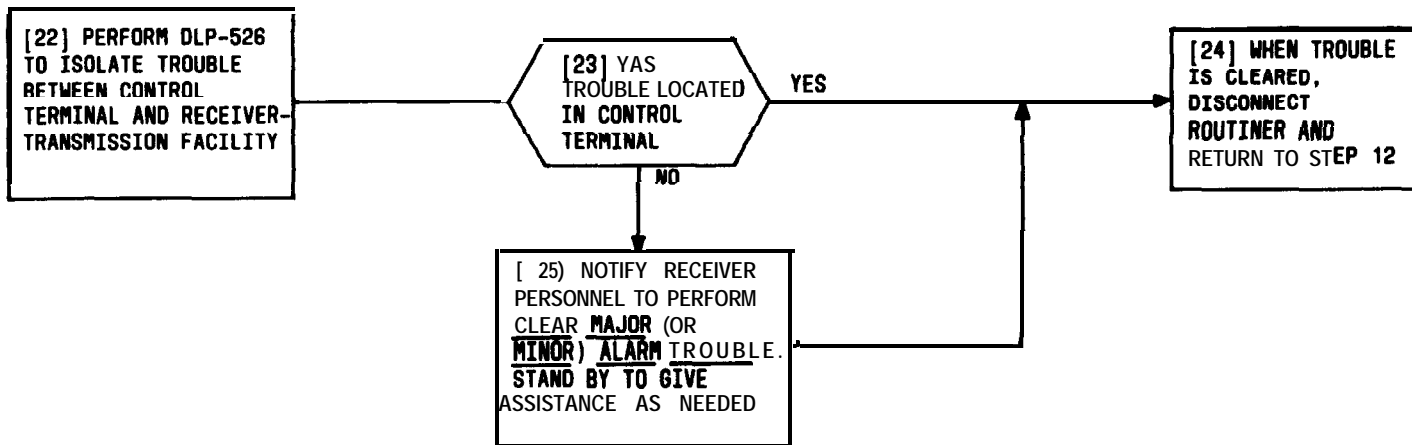
NOTE 2
RECEIVER () ALARM A
AND B ARE FURNISHED
FOR USE OF TELEPHONE
COMPANY AND HAY BE
STRAPPED AS MAJOR OR
MINOR ALARMS

TEST RECEIVER ALARM INDICATIONS AT CONTROL TERMINAL

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TEST RECEIVER ALARM INDICATIONS AT CONTROL TERMINAL



ST RECEIVER ALARM INDICATIONS AT CONTROL TERMINAL

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SUMMARY
 VERIFY OPERATION OF SAFETY AND CALLING CHANNEL FROM MARINE OPERATOR SWITCHBOARD. CORD CIRCUITS ARE NOT FURNISHED ON SAFETY AND CALLING CHANNEL. CALLS CAN BE ANSWERED AND ORIGINATED BY MARINE OPERATOR BUT CALLS CANNOT BE EXTENDED TO A LAND TELEPHONE SUBSCRIBER.

CAUTIONS

- DO NOT REMOVE THIS CHANNEL FROM SERVICE FOR TESTING IF TROUBLE OCCURS, FOLLOW PROCEDURES IN TAP-136
- TRANSMITTER OUTPUT MUST BE KEPT TO A MINIMUM AND OF AS SHORT A DURATION AS POSSIBLE

- SEE CAUTIONS 1 AND 2. NOTIFY DESIGNATED CONTROL OFFICE OF WORK TO BE PERFORMED ON SAFETY AND CALLING CHANNEL AND OBTAIN PERMISSION FOR TEST
- GET TEST EQUIPMENT PER TABLE A
- SEE NOTE 1. ENSURE CHANNEL () ID LAMP IS ON BEFORE CONTINUING WITH TEST
- ASK MARINE OPERATOR THAT IS ASSISTING IN THIS TEST TO SET OPER-MON KEY TO OPER WHEN INC LAMP LIGHTS ON SAFETY AND CALLING KEYSET
- AT TECHNICAL OPERATOR PANEL (TOP), DEPRESS TEST GEN AND REC SNDR START KEYS

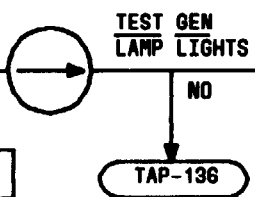
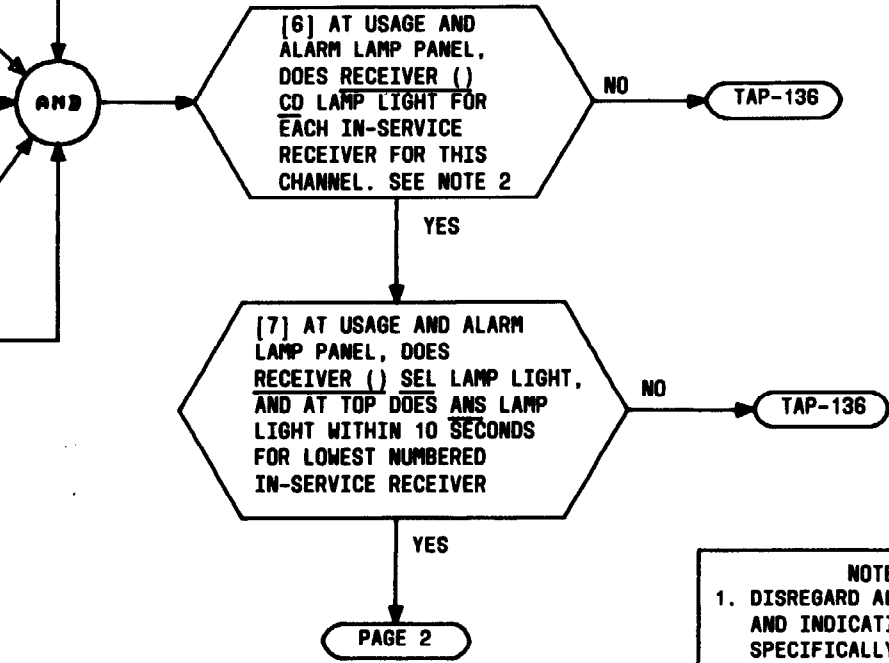


TABLE A	
EQUIPMENT REQUIRED	RECOMMENDED TYPE
TRANSMISSION MEASURING SET	WECO J94021A (21A)
TEST CORD FOR TMS	3P17B



NOTES

- DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE
- RECEIVER () CD FAIL LAMP WILL LIGHT FOR RECEIVERS NOT IN-SERVICE

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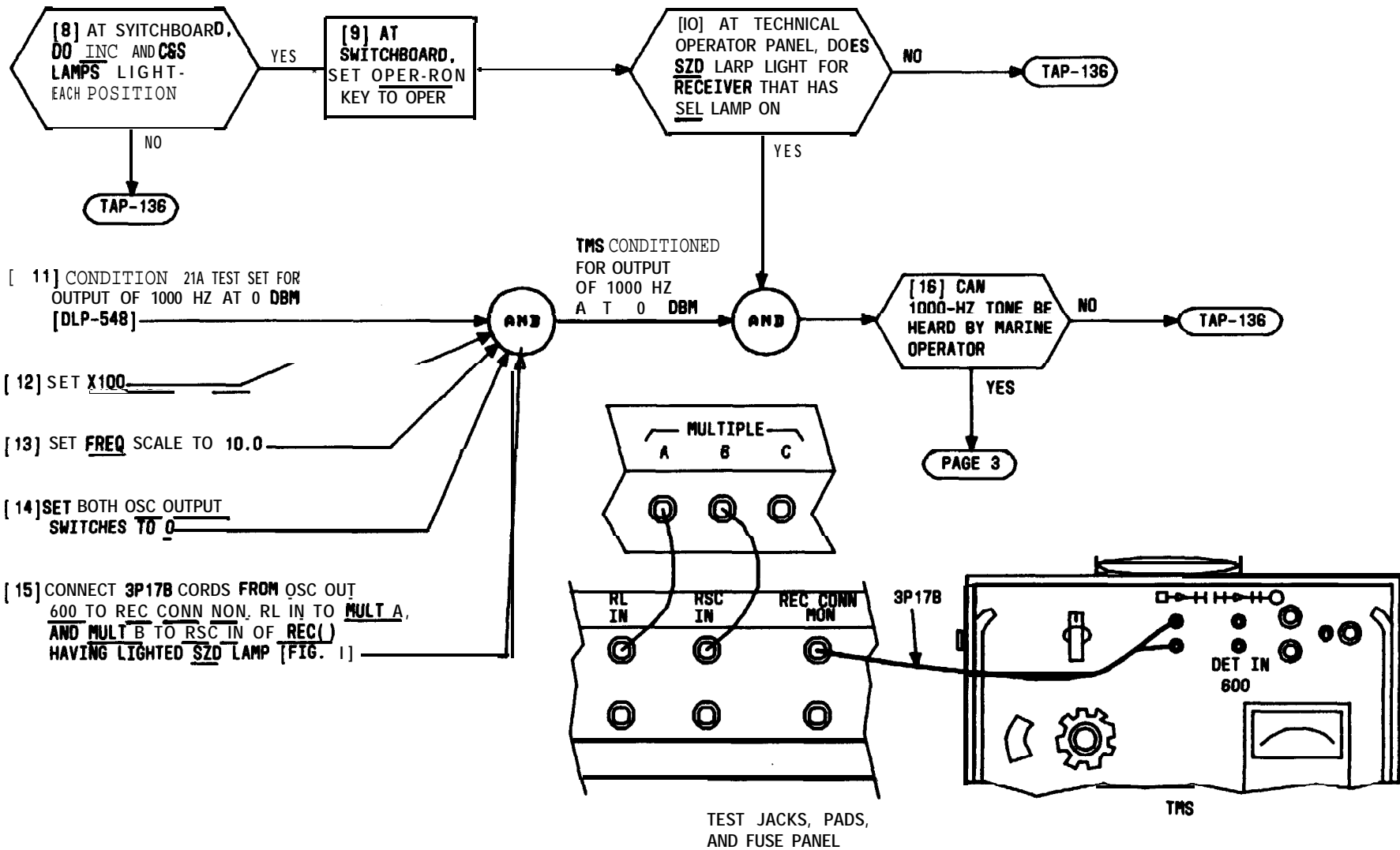
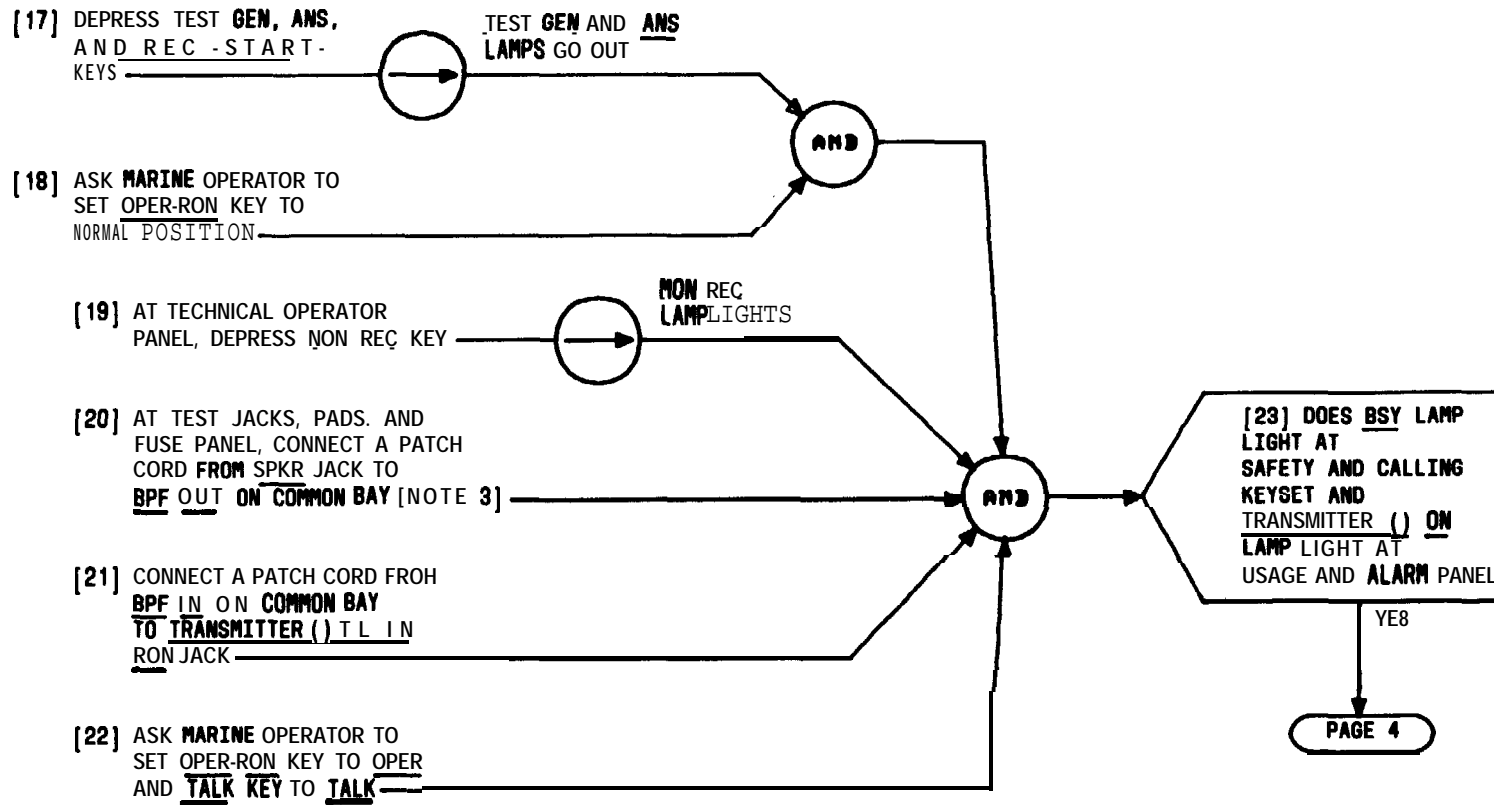


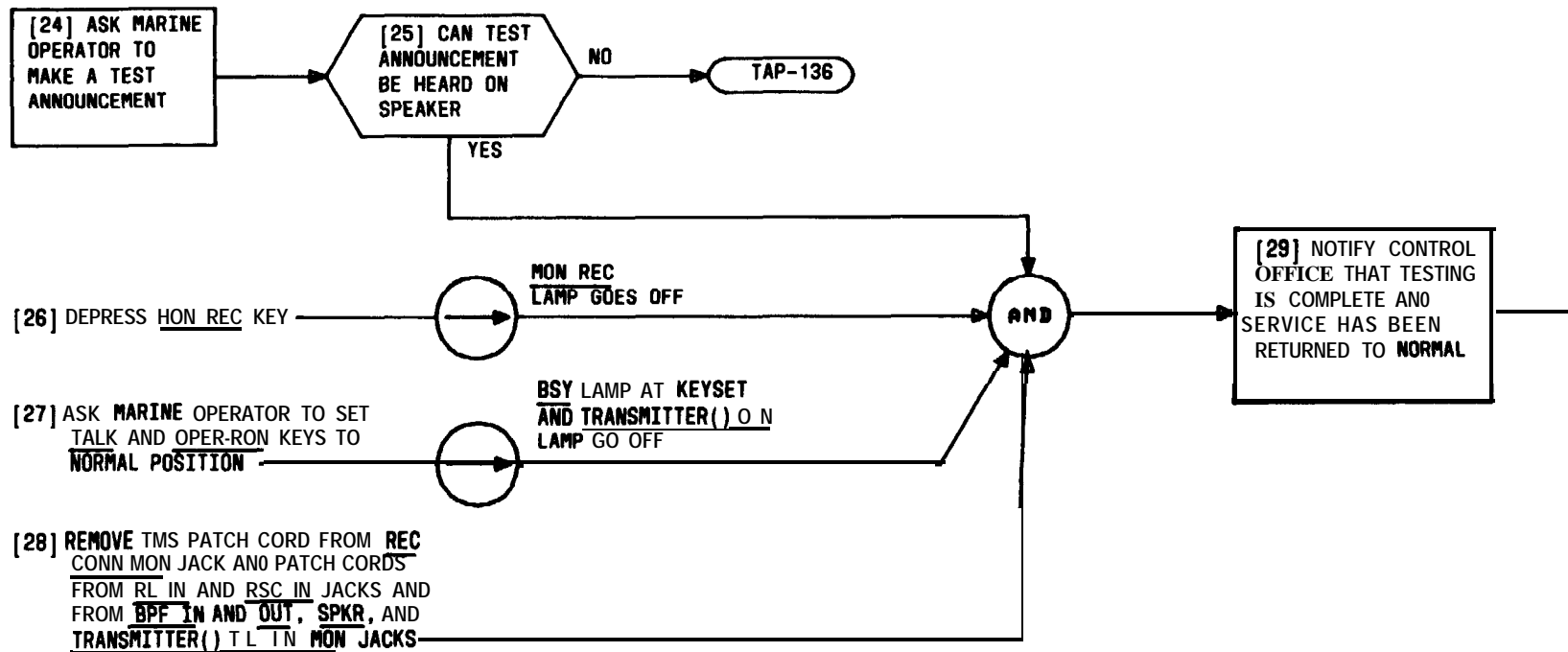
FIG. 1

TEST SAFETY AND CALLING TRANSMITTER OPERATION

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TEST SAFETY AND CALLING TRANSMITTER OPERATION



TEST SAFETY AND CALLING TRANSMITTER OPERATION

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- 1] GET TEST EQUIPMENT PER TABLE A
- 2] CONNECT ROUTINER TEST SET TO 115-VAC OUTLET WITH CORD-ANO-PLUG ASSEMBLY
- 3] SET RAIN FUNCTION 4-POSITION SWITCH TO RR POSITION. SEE FIG. 1 AND NOTE 1
- 4] CONNECT OSCR OUT JACK TO FLOR IN JACK WITH 3PBC CORD
- 5] CONNECT MONITORING SPEAKER TO FLDR MON JACK
- 6] SET 1900-2100-2900 3-POSITION ROTARY SWITCHES MARKED L/NOR/H TO NOR POSITIO
- 7] INSERT AN 898N (16 DB) RESISTOR INTO OUT SOCKET, AND INSERT AN 89A (0 DB) RESISTOR INTO IN SOCKET ON LEFT SIDE OF RDUTINER

AND

[8] SET ROUTINER TEST SET SWITCHES TO POSITIONS PER TABLE B

[9] MOMENTARILY OPERATE SEQ INT SWITCH AND OBSERVE RDUTINER LAMPS

[10] ARE ALM A, ALM B, AC ON/2100, 1900, CODAN, BIT 1, BIT 2, AND BIT 3 LAMPS EXTINGUISHED

PAGE 2

TAP-151

TABLE A
EQUIPMENT REQUIRED
KS-21277 ROUTINER TEST SET
3P6C TELEPHONE CORD
89A (0 DB) RESISTOR
2 898N (16 DB) RESISTORS
SIGNAL MONITORING SPEAKER (600 OHMS OR GREATER) WITH 310 PLUG

TABLE B	
ROUTINER TEST SET	
SWITCH	POSITION
SENS	LO
TG	OFF
C O/R	AUTO
AUTO/MAN	MAN
MODE	SSB
SP	OFF
FREEZE	OFF

NOTES

1. THE RECEIVER PORTION OF ROUTINER TEST SET IS LOCATED AT UPPER LEFT PART OF PANEL. SWITCHES AND LARPS ARE COLOR-COOED GREEN AND BLACK
2. IGNORE ANY LAMP INDICATIONS ON TERMINAL AND TRANSMITTER PORTIONS OF ROUTINER

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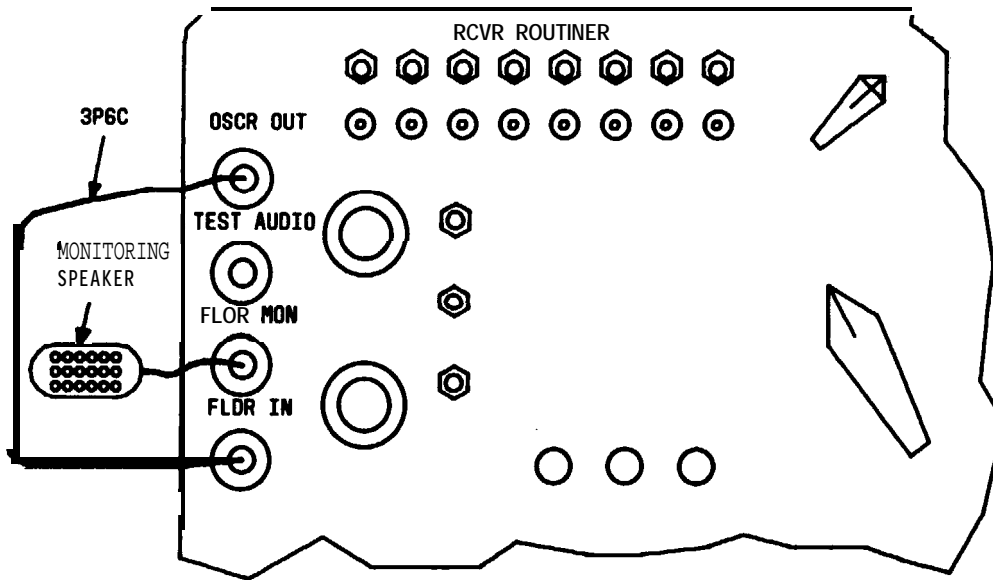
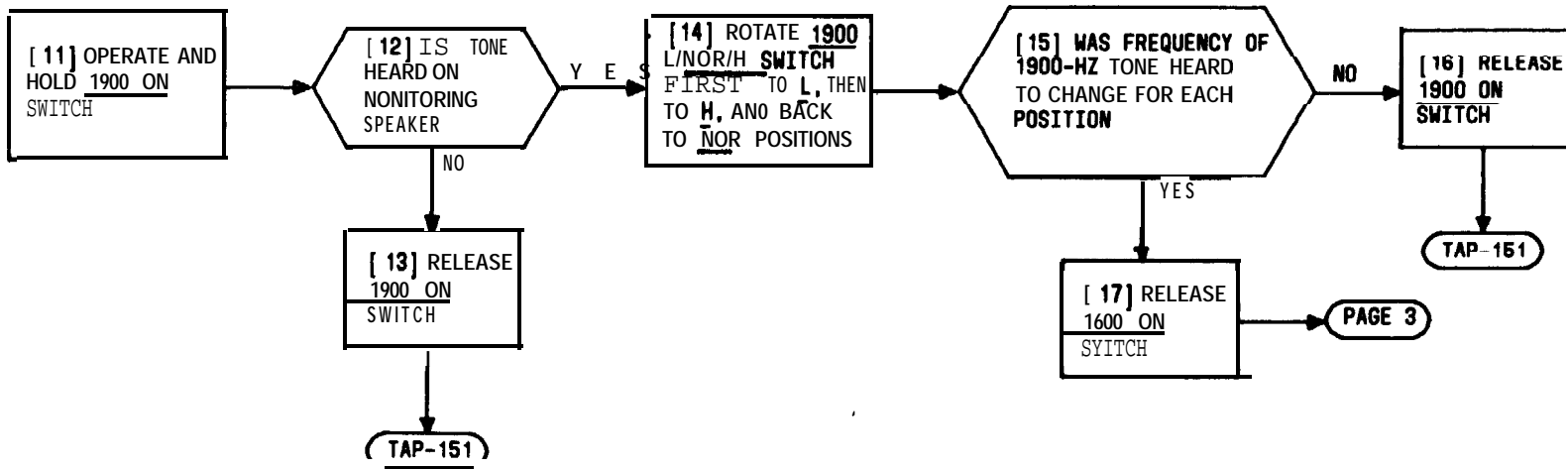
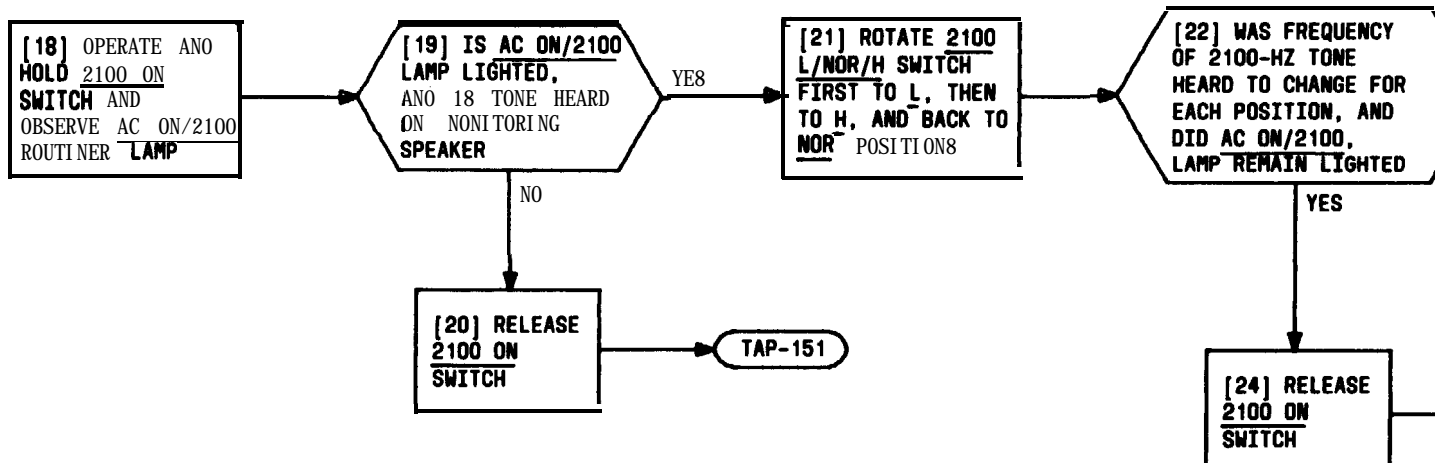


FIG. 1

TEST ROUTINER TEST SET – RECEIVER FUNCTIONS (SELF CHECKS)

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TEST ROUTINER TEST SET – RECEIVER FUNCTIONS (SELF CHECKS)

[25] OPERATE AND HOLD 2900 ON SWITCH AND OBSERVE CODAN ROUTINER LAMP

[26] IS CODAN LAMP LIGHTED, AND IS TONE HEARD ON MONITORING SPEAKER

YES

[28] ROTATE 2900 L/NOR/H SWITCH FIRST TO L, THEN TO H, AND BACK TO NOR POSITIONS

[29] WAS FREQUENCY OF 2900-HZ TONE HEARD TO CHANGE FOR EACH POSITION. AND DID AN LAMP REMAIN HTED

NO

[30] RELEASE 2900 ON SWITCH

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NO

[27] RELEASE 2900 ON SWITCH

TAP-151

YES

[31] RELEASE 2900 ON SWITCH

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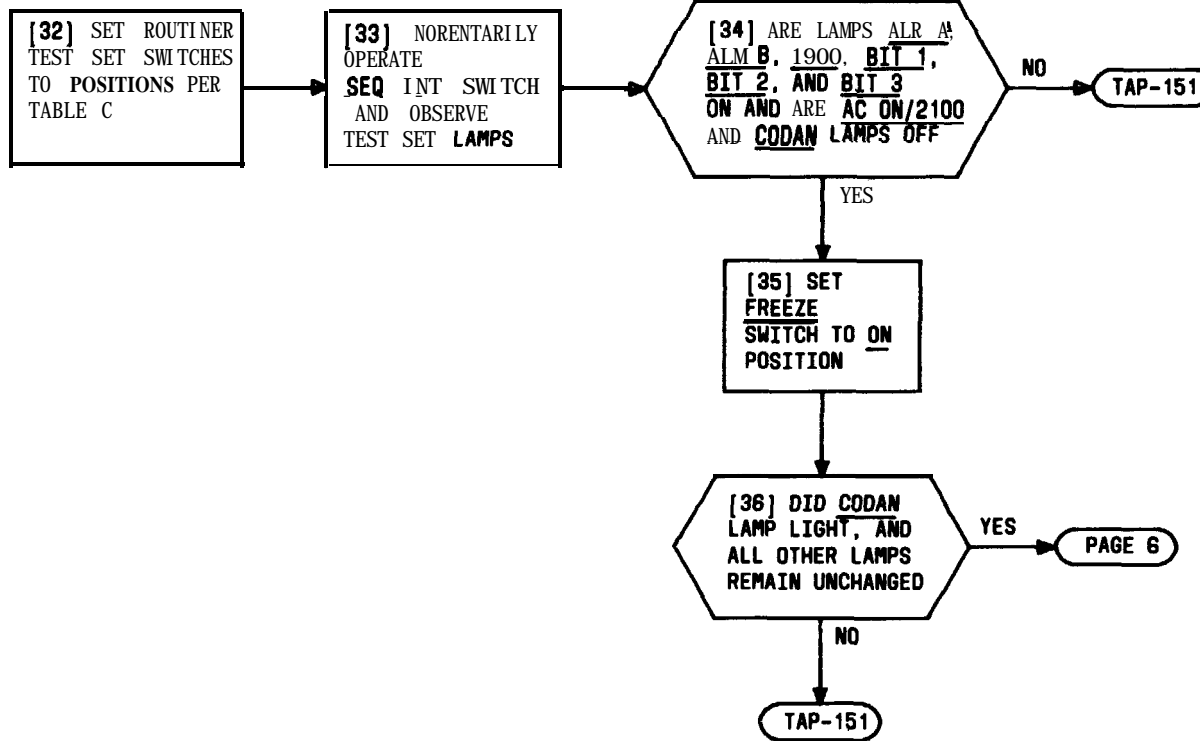


TABLE C	
ROUTINER TEST SET	
SWITCH	POSITION
SENS	HI
TG	ON
C O/R	ON
AUTO/RAN	AUTO
NODE	ALL
SP	ON
FREEZE	OFF

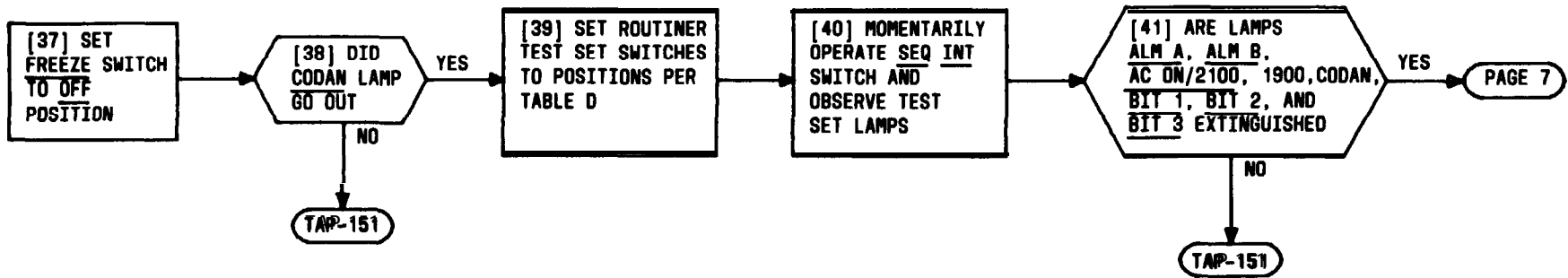
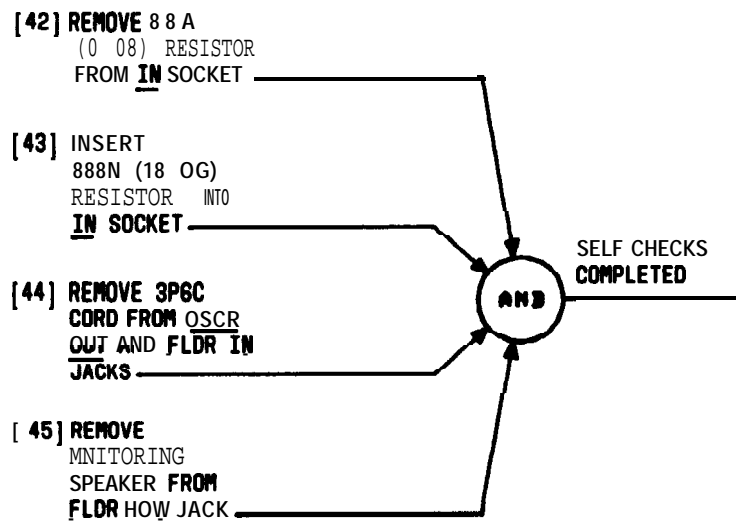


TABLE 0	
ROUTINER TEST SET	
SWITCH	POSITION
SENS	LO
TG	OFF
c O/R	AUTO
AUTO/HAN	NAN
MODE	SSB
SP	OFF
FREEZE	O F F

TEST ROUTINER TEST SET - RECEIVER FUNCTIONS (SELF CHECKS)

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- [1] GET TEST **EQUIPMENT** SHOWN IN TABLE A _____
- [2] SEE FIG. 1 AND NOTE 1. SET SWITCHES SHOWN IN TABLE B _____
- [3] INSERT **898N** RESISTOR INTO **OUT** JACK AND **89A** RESISTOR INTO **IN** JACK (RIGHT SIDE OF ROUTINER TEST SET) _____
- [4] CONNECT ONE END OF 3PGC CORD INTO **OSCT OUT** JACK AND OTHER END INTO **FLDT IN** JACK _____
- [5] CONNECT MONITORING SPEAKER INTO **FLDT MON** JACK _____
- [6] CONNECT ROUTINER TEST SET TO 115-VAC OUTLET WITH CORD AND PLUG ASSEMBLY _____

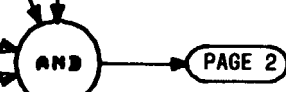


TABLE A	
EQUIPMENT REQUIRED	RECOMMENDED TYPE
ROUTINER TEST SET	KS-21277
TELEPHONE PATCH CORD	3PGC
2 RESISTORS	898N
RESISTOR	89A
MONITORING SPEAKER	EQUIPPED WITH 310 PLUG

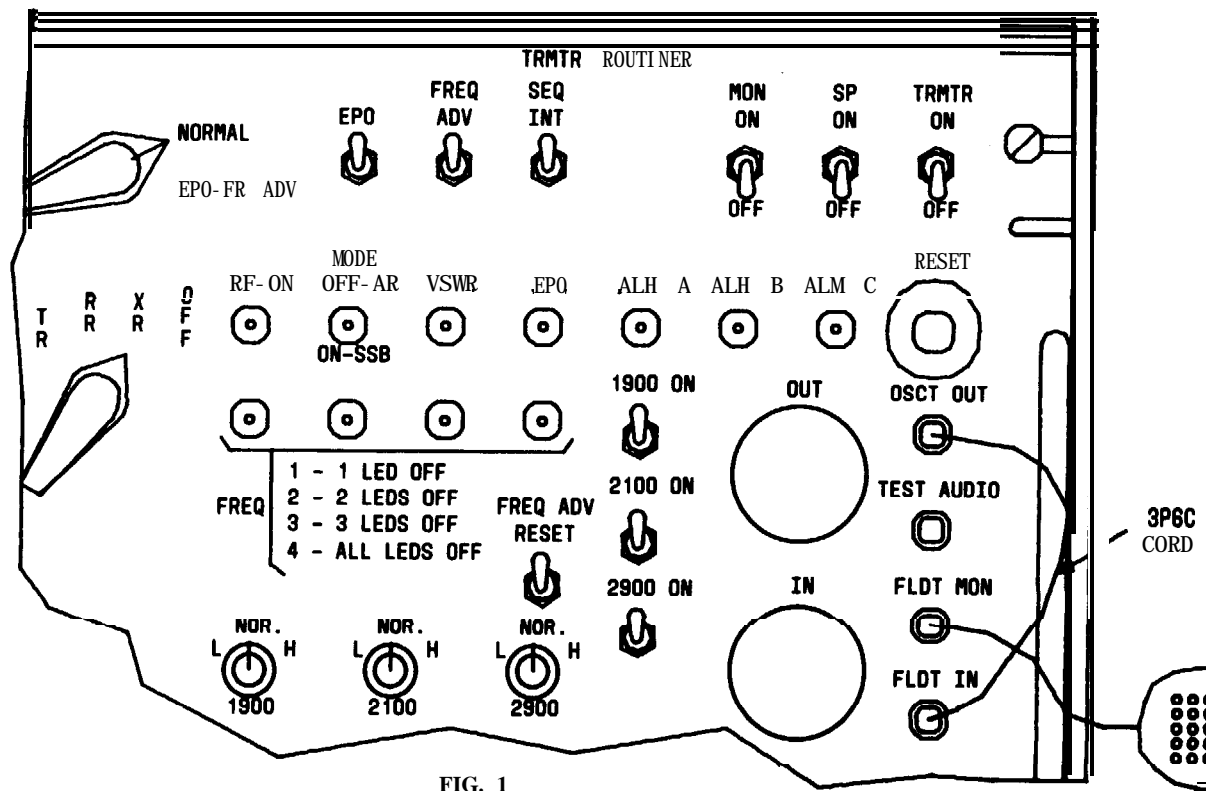


FIG. 1

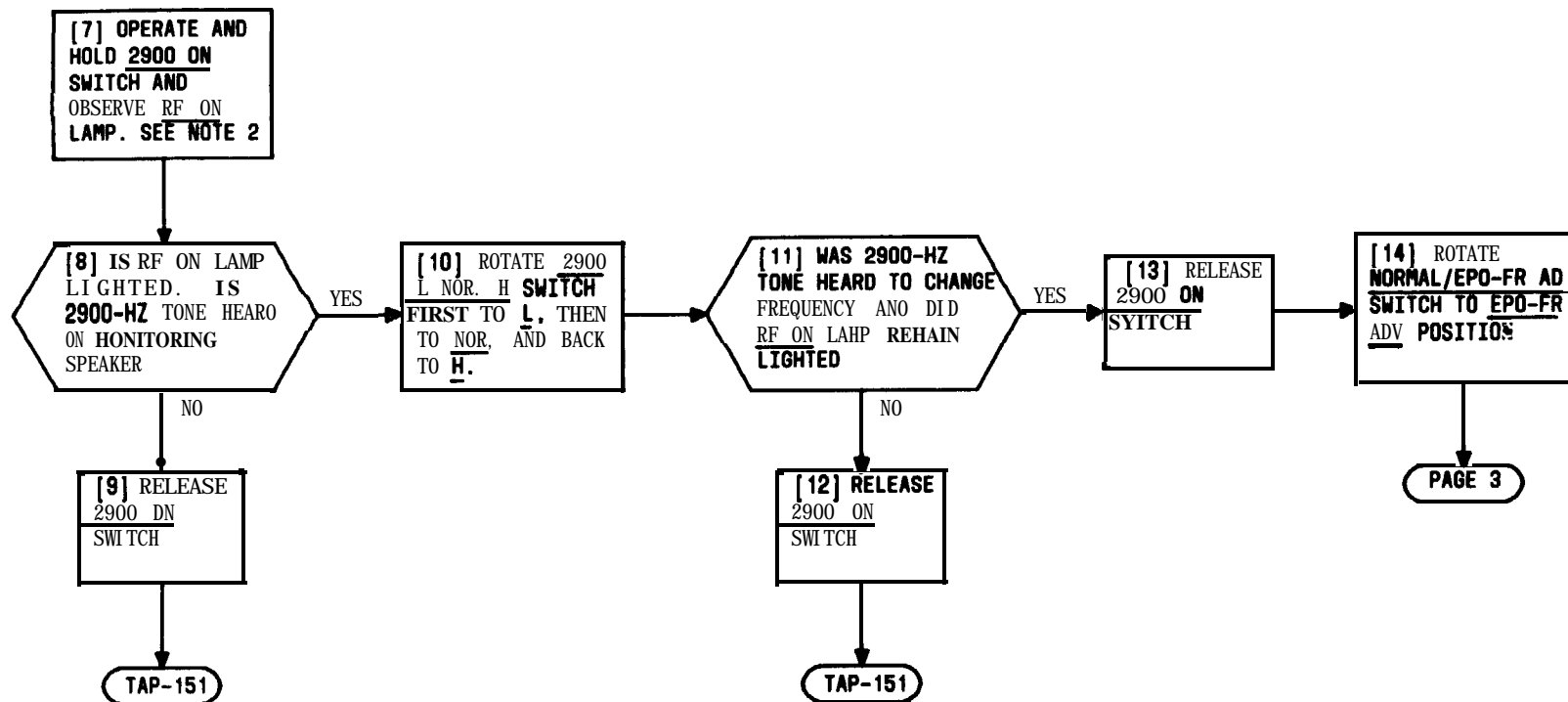
TABLE B	
SWITCH	POSITION
EPO-FR ADV, NORMAL	NORMAL
*FUNCTION	XR
MON	OFF
SP	OFF
TRMTR	OFF
L NOR. H (3)	NOR

* FUNCTION SWITCH IS NOT BARKED FUNCTION. IT IS LOCATED TOP CENTER OF FRONT PANEL

NOTE 1
TRANSMITTER PORTION OF ROUTINER TEST SET IS LOCATED AT UPPER RIGHT OF PANEL. SWITCHES AND LARPS ARE COLOR-COOLED RED OR BLACK

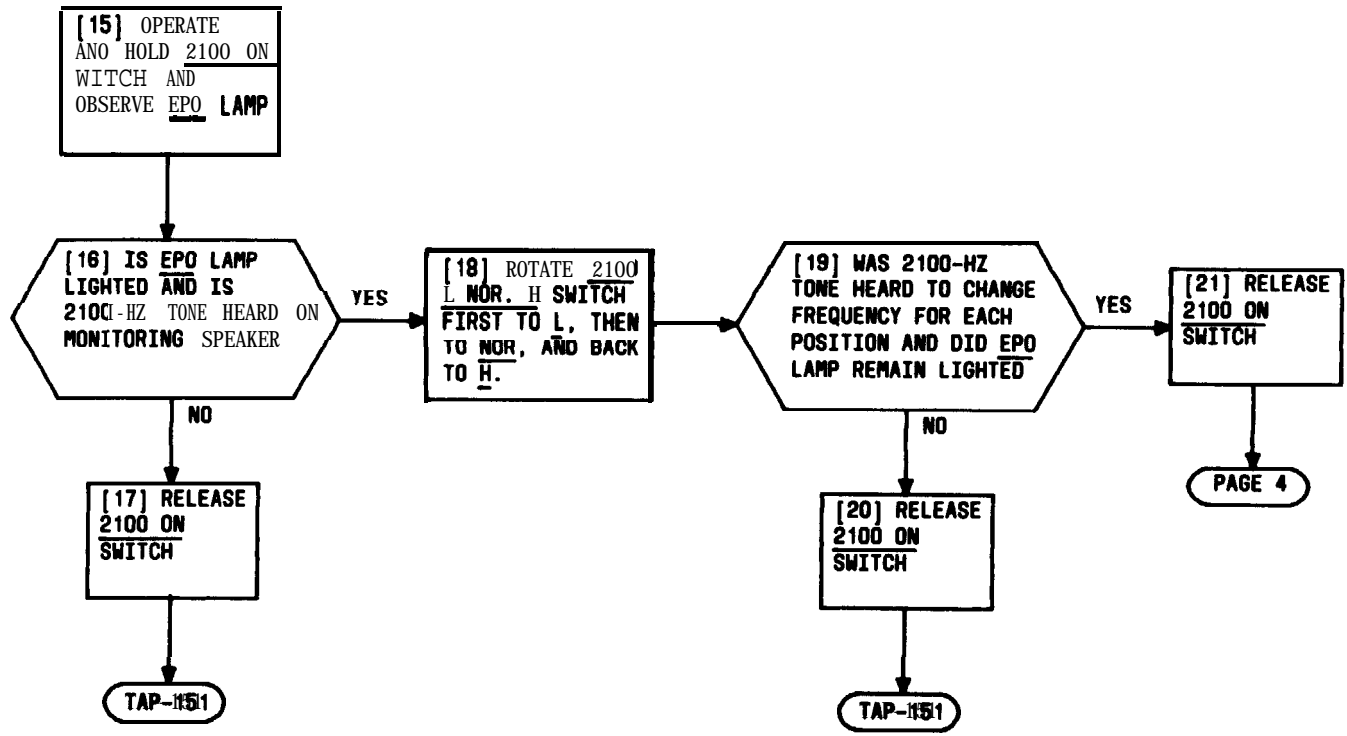
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TEST ROUTINER TEST SET - TRANSMITTER FUNCTIONS (SELF CHECKS)



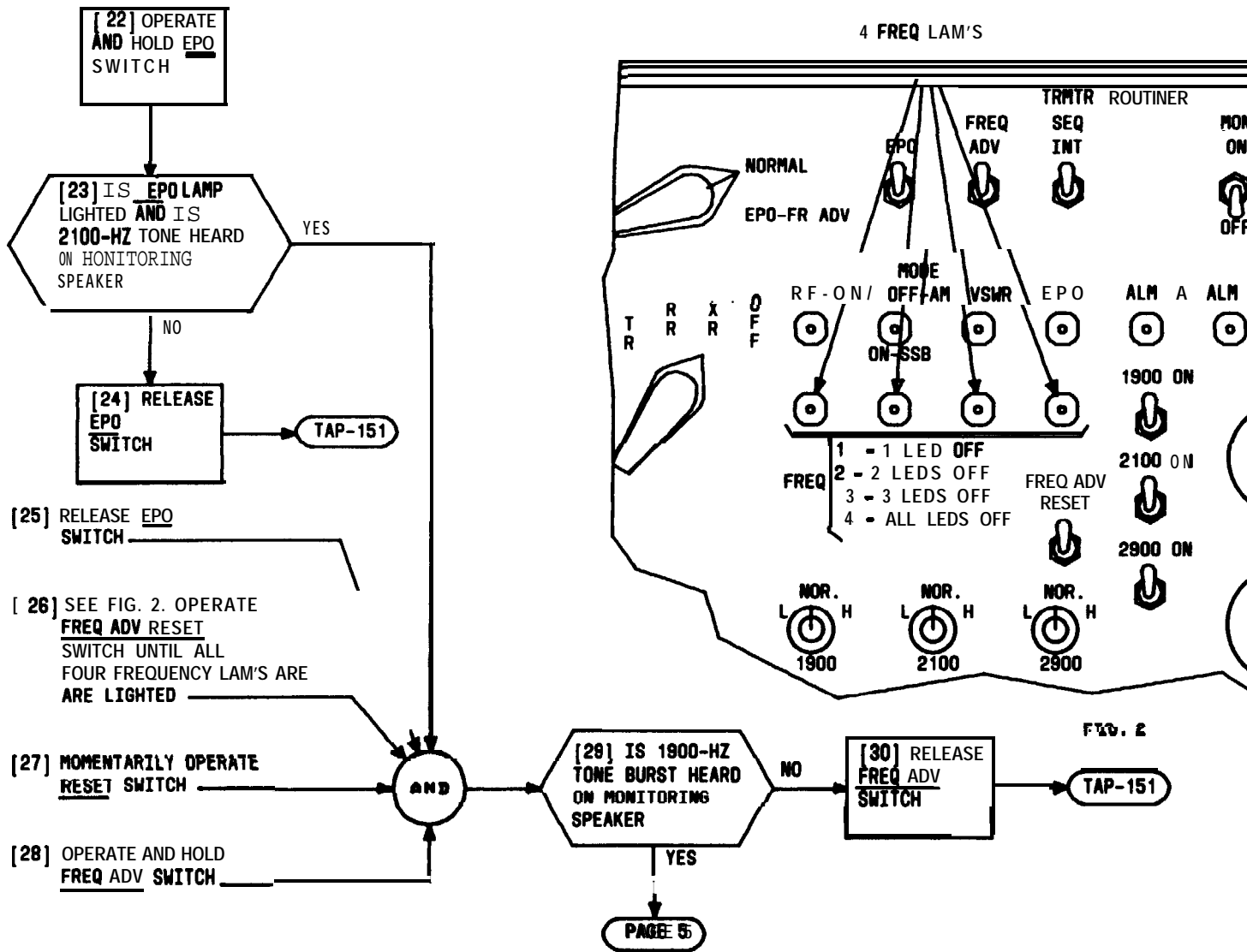
**TEST ROUTINER TEST SET – TRANSMITTER
FUNCTIONS (SELF CHECKS)**

NOTE 2 DISREGARD ALL LAHP INDICATIONS NOT MENTIONED	
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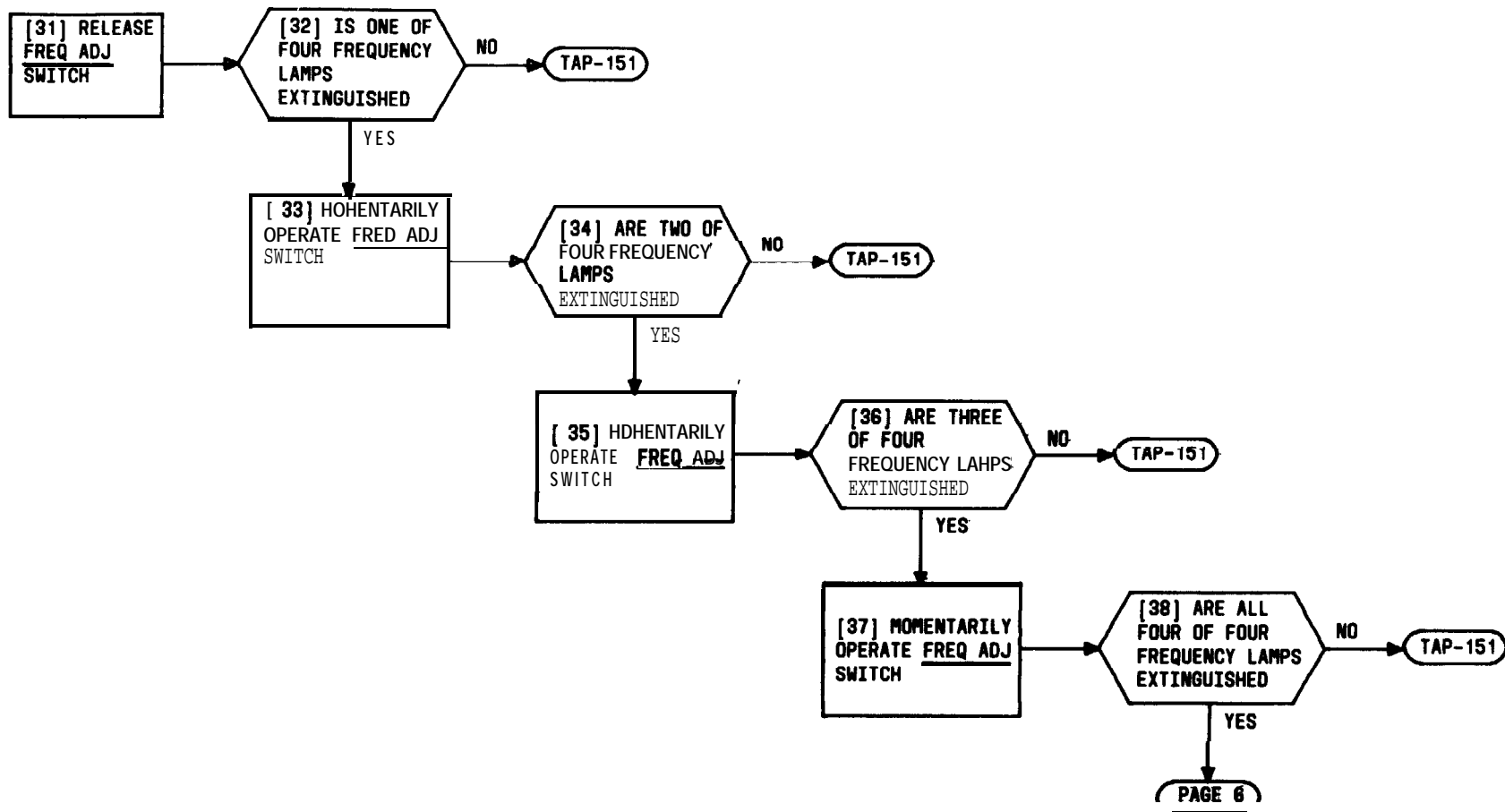


TEST ROUTINER TEST SET - TRANSMITTER
FUNCTIONS (SELF CHECKS)

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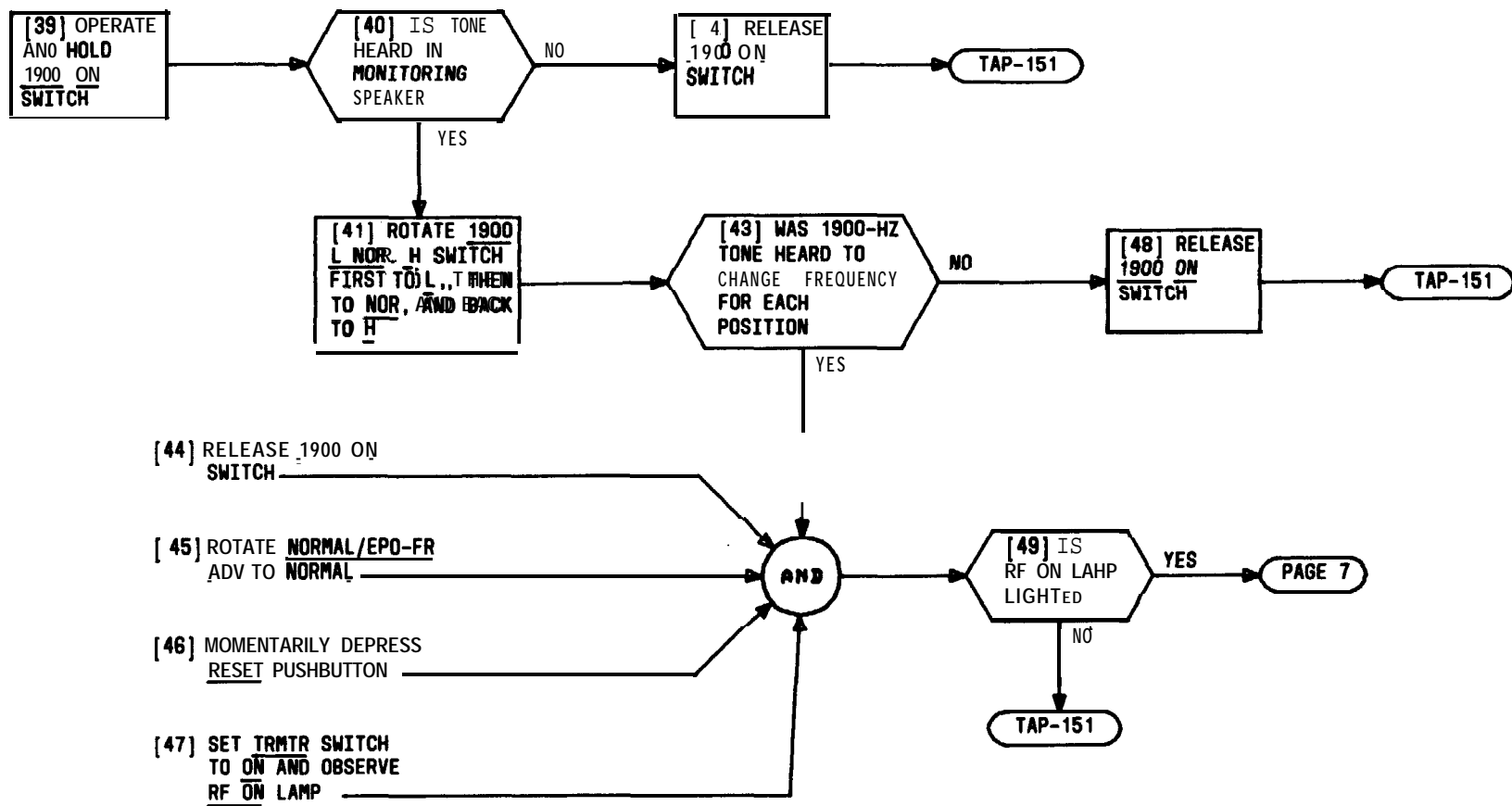


TEST ROUTINER TEST SET – TRANSMITTER FUNCTIONS (SELF CHECKS)

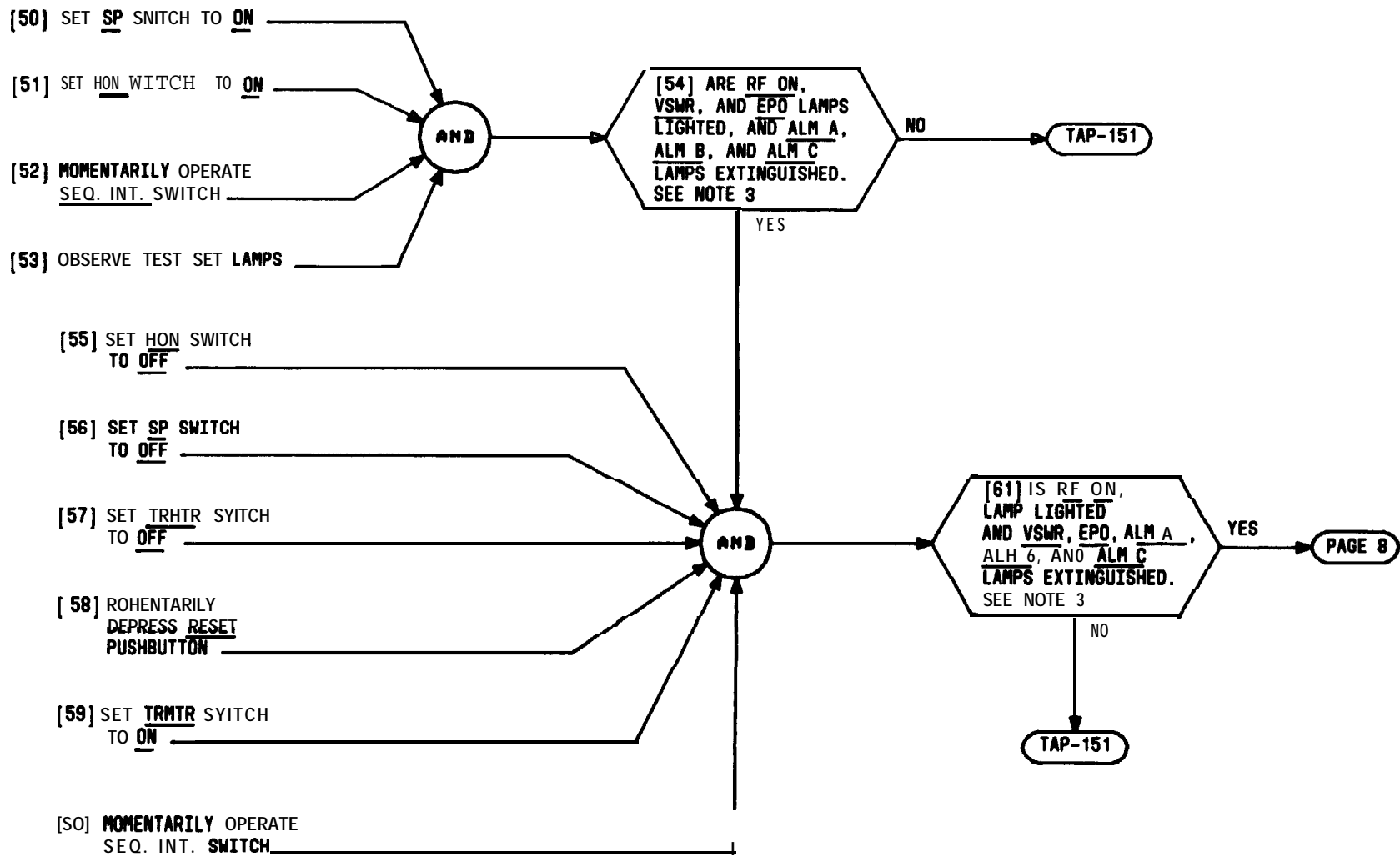


**TEST ROUTINER TEST SET – TRANSMITTER
FUNCTIONS (SELF CHECKS)**

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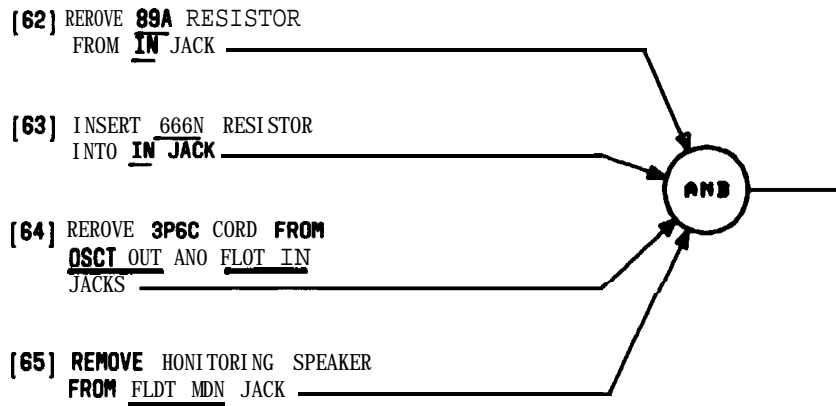


TEST ROUTINER TEST SET – TRANSMITTER FUNCTIONS (SELF CHECKS)



NOTE 3 DISREGARD THE MODE LAMP INDICATION	
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TEST ROUTINER TEST SET - TRANSMITTER FUNCTIONS (SELF CHECKS)



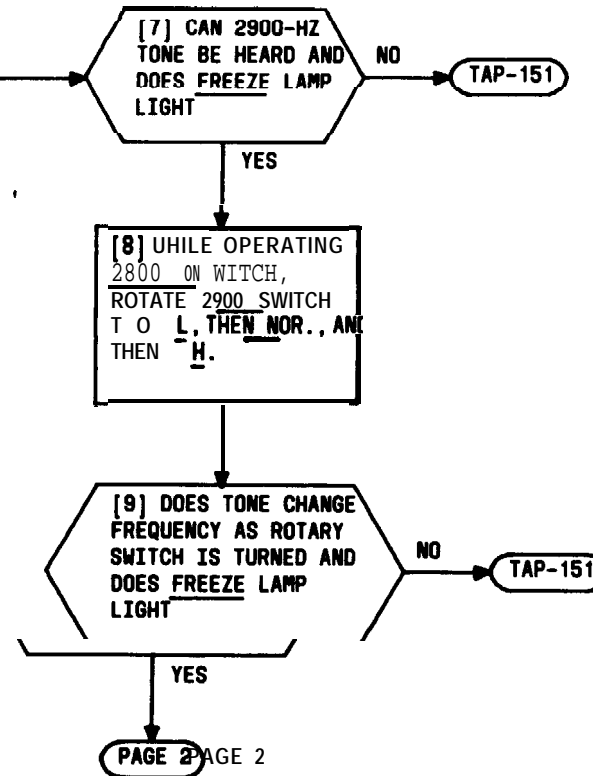
TEST ROUTINER TEST SET • TRANSMITTER
FUNCTIONS (SELF CHECKS)

SUMMARY

VERIFY THAT LAMPS, SWITCHES, AND OSCILLATOR CIRCUITS OF ROUTINER TEST SET ARE FUNCTIONING PROPERLY FOR SIGNALING TESTS AT CONTROL TERMINAL.

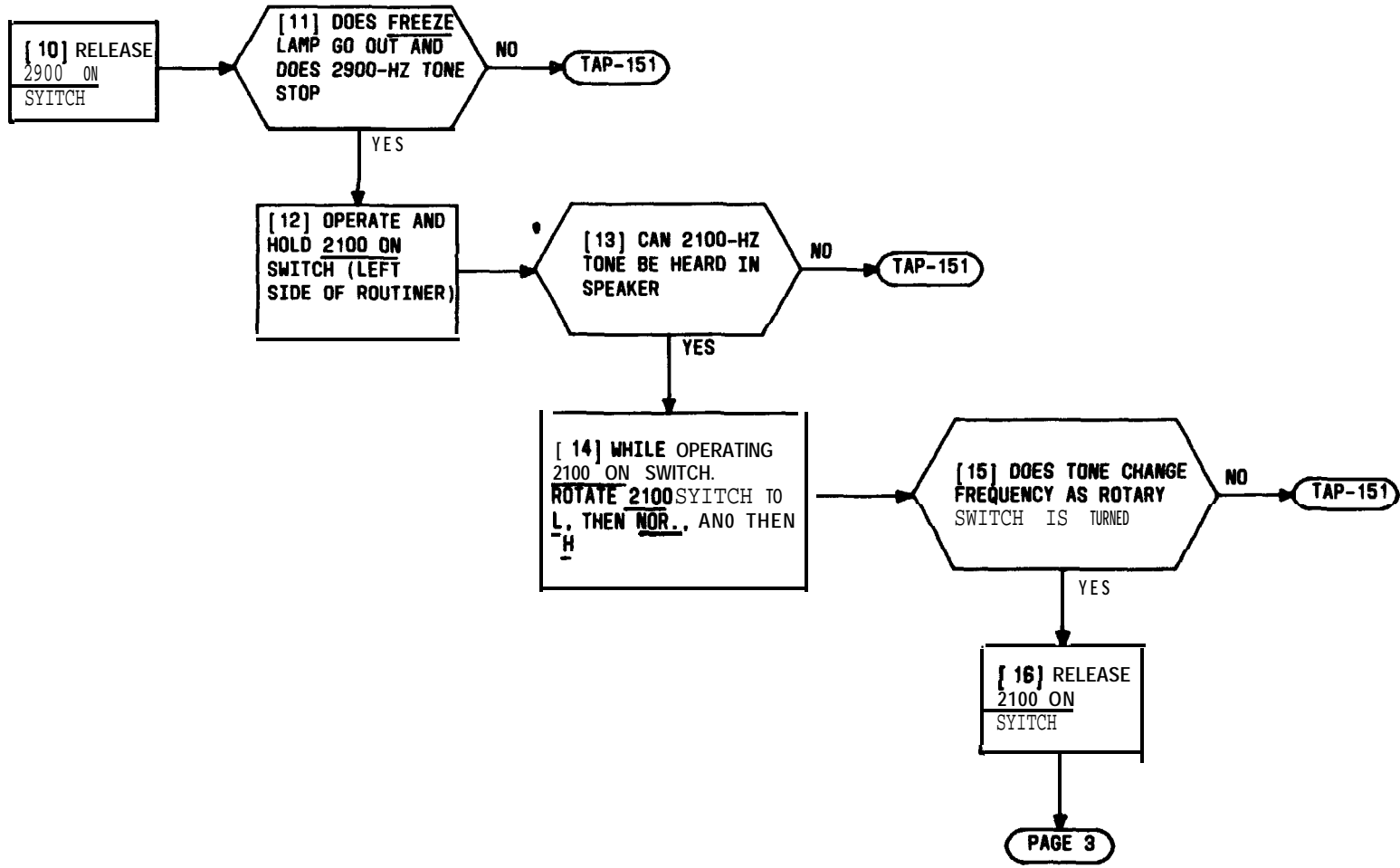
- [1] OBTAIN TEST EQUIPMENT PER TABLE A
- [2] SEE NOTE 1. WITH P28 PATCH CORD, CONNECT OSC OUT JACK TO FLOR IN JACK ON LEFT SIDE OF ROUTINER
- [3] AT LEFT SIDE OF ROUTINEA. INSERT 888N (18 08) RESISTOR INTO OUT PAD AND 88A (0 08) RESISTOR INTO IN PAD
- [4] SET TR-RR-XR-OFF SWITCH TO TR
- [5] PLUG SIGNAL MONITORING SPEAKER INTO SIGNAL MON JACK
- [6] OPERATE AND HOLD 2800 ON SWITCH (LEFT SIDE OF ROUTINER)

TABLE A	
EQUIPMENT REQUIRED	RECOMMENDED TYPE
2 PATCH CORDS	310 TYPE P28
888N RESISTOR	888N
88A RESISTOR	88A
SIGNAL MONITORING SPEAKER WITH 310 PLUG	600 OR GREATER



NOTE 1	
DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE	
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TEST ROUTINER TEST SET - CONTROL TERMINAL FUNCTIONS (SELF CHECKS)



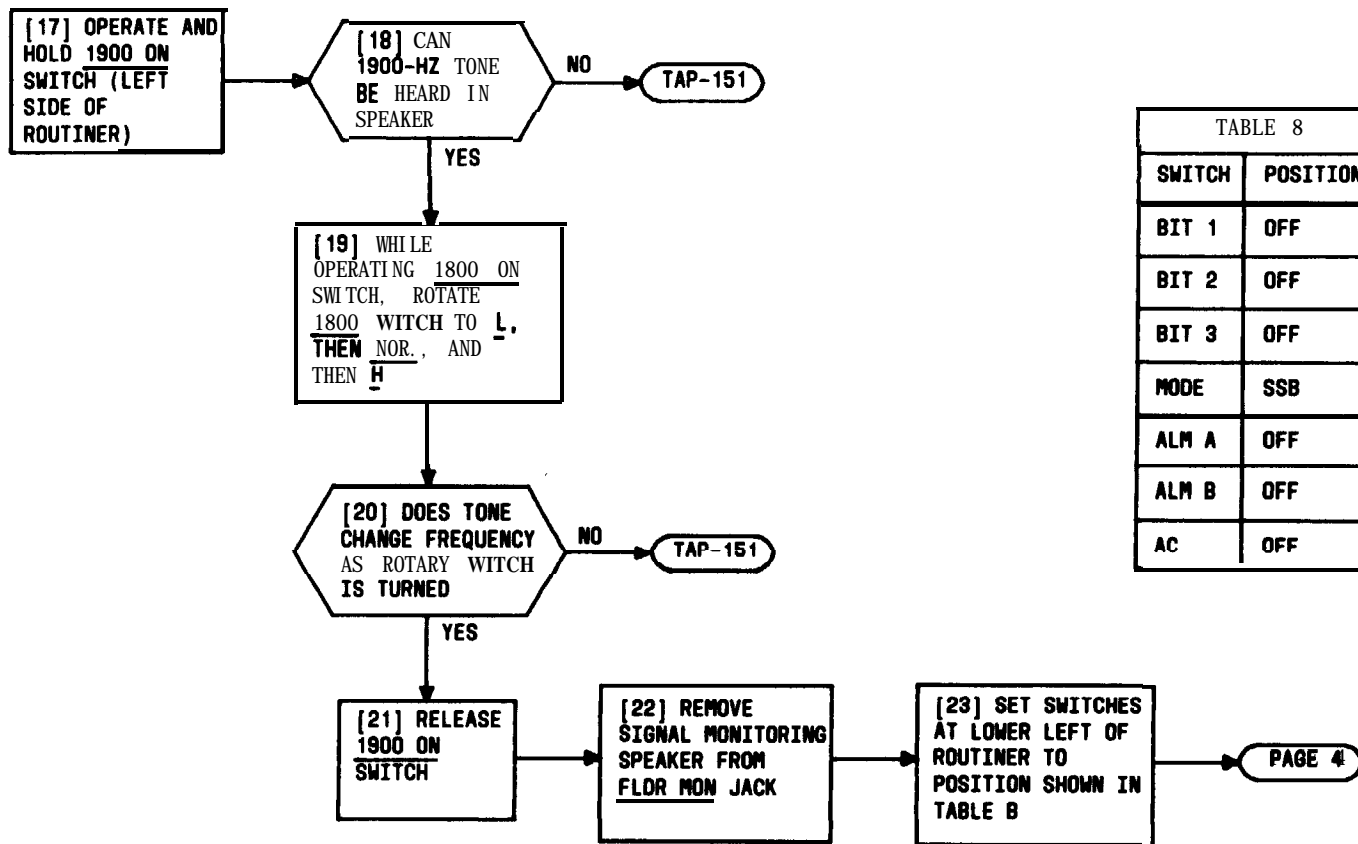
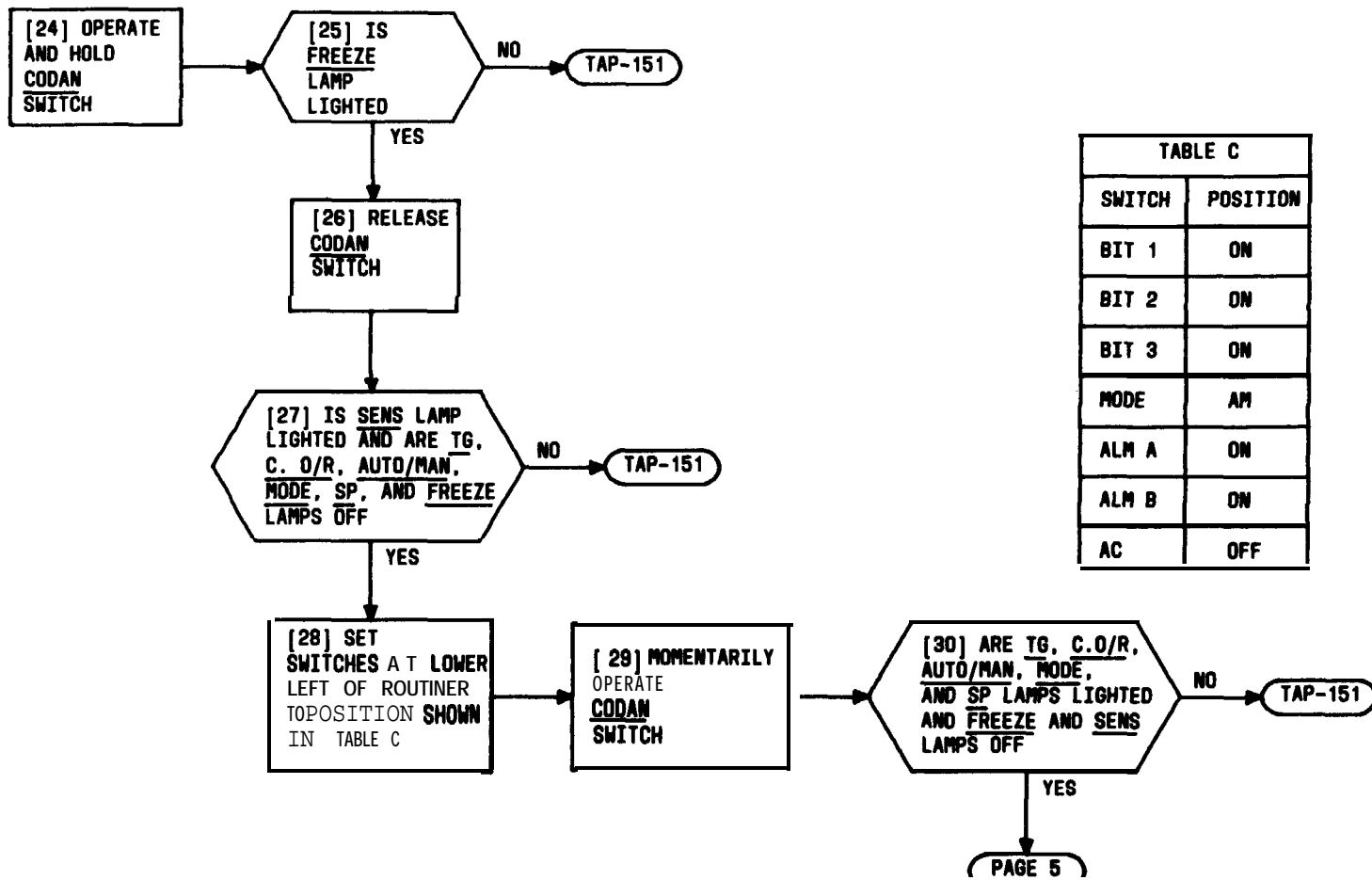


TABLE 8

SWITCH	POSITION
BIT 1	OFF
BIT 2	OFF
BIT 3	OFF
MODE	SSB
ALM A	OFF
ALM B	OFF
AC	OFF

**TEST ROUTINER TEST SET – CONTROL
TERMINAL FUNCTIONS (SELF CHECKS)**



[31] REMOVE P2B PATCH CORD FROM LEFT SIDE OF ROUTINER AND USE TO CONNECT OSCT OUT JACK TO FLDT IN JACK ON RIGHT SIDE OF ROUTINER

[32] REMOVE 88A AND 888N PADS FROM LEFT SIDE OF ROUTINER AND INSERT 898N (18 DB) RESISTOR INTO OUT PAD AND 89A (0 DB) RESISTOR INTO INPAD ON RIGHT SIDE OF ROUTINER

[33] ENSURE TR-RR-XR-OFF SWITCH IS SET TO TR

[34] SET RF SWITCH TO FAIL, ERG. PO. SWITCH TO OFF (LOWER RIGHT SIDE OF ROUTINER), AND P.C./SEC TO P.C. (LOWER CENTER OF ROUTINER)

[35] PLUG SIGNAL MONITORING SPEAKER INTO FLDT MON JACK

[36] OPERATE AND HOLD 2900 ON SWITCH (RIGHT SIDE OF ROUTINER)

AND

[37] CAN 2900-HZ TONE BE HEARD AND DOES TRMTR-ON LAMP LIGHT

NO

TAP-151

YES

[38] WHILE OPERATING 2900 ON SWITCH, ROTATE 2900 SWITCH TO L, THEN NOR., AND THEN H

[39] DOES TONE CHANGE FREQUENCY AS ROTARY SWITCH IS TURNED AND DOES FREEZE LAMP LIGHT

NO

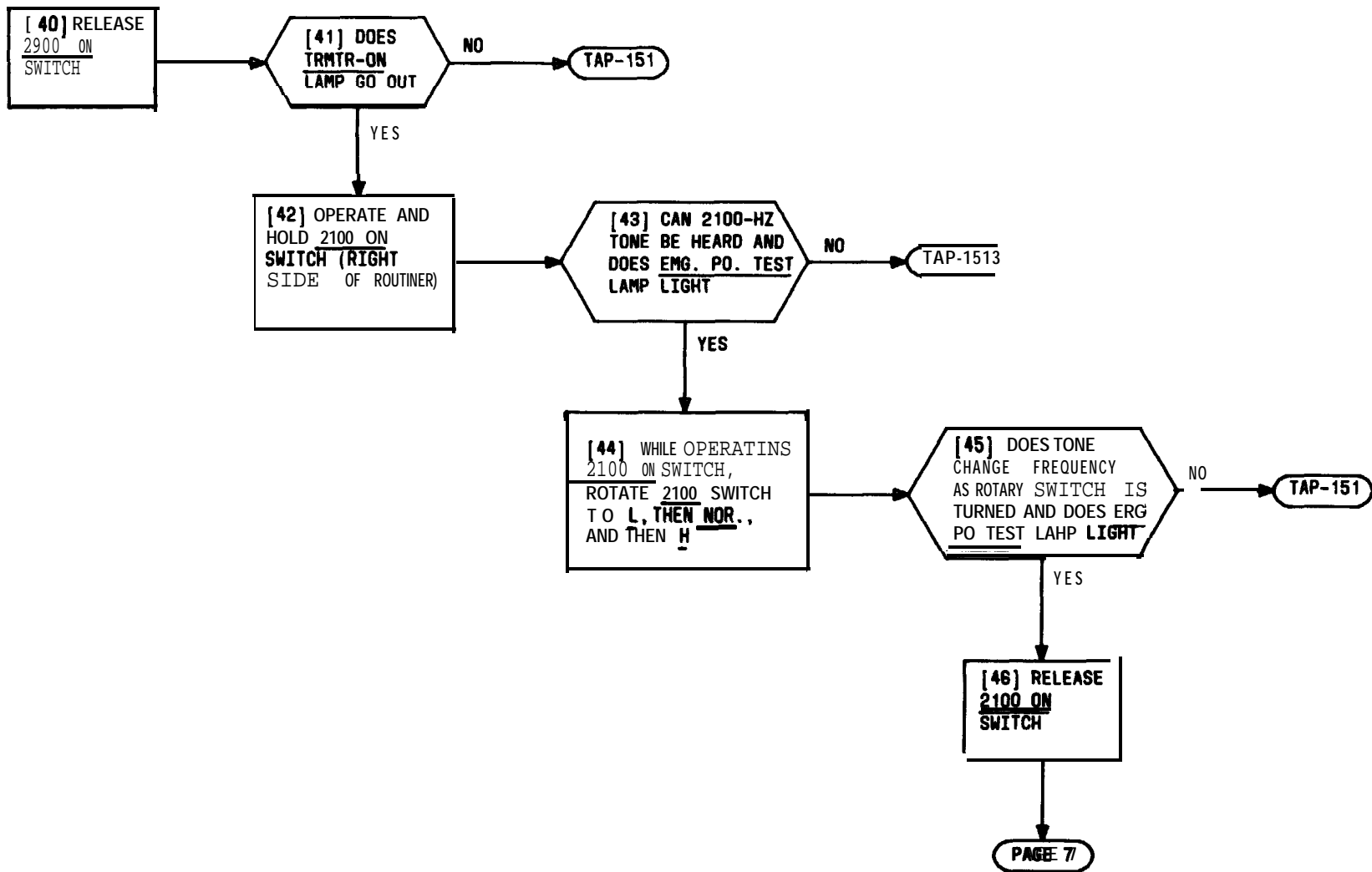
TAP-151

YES

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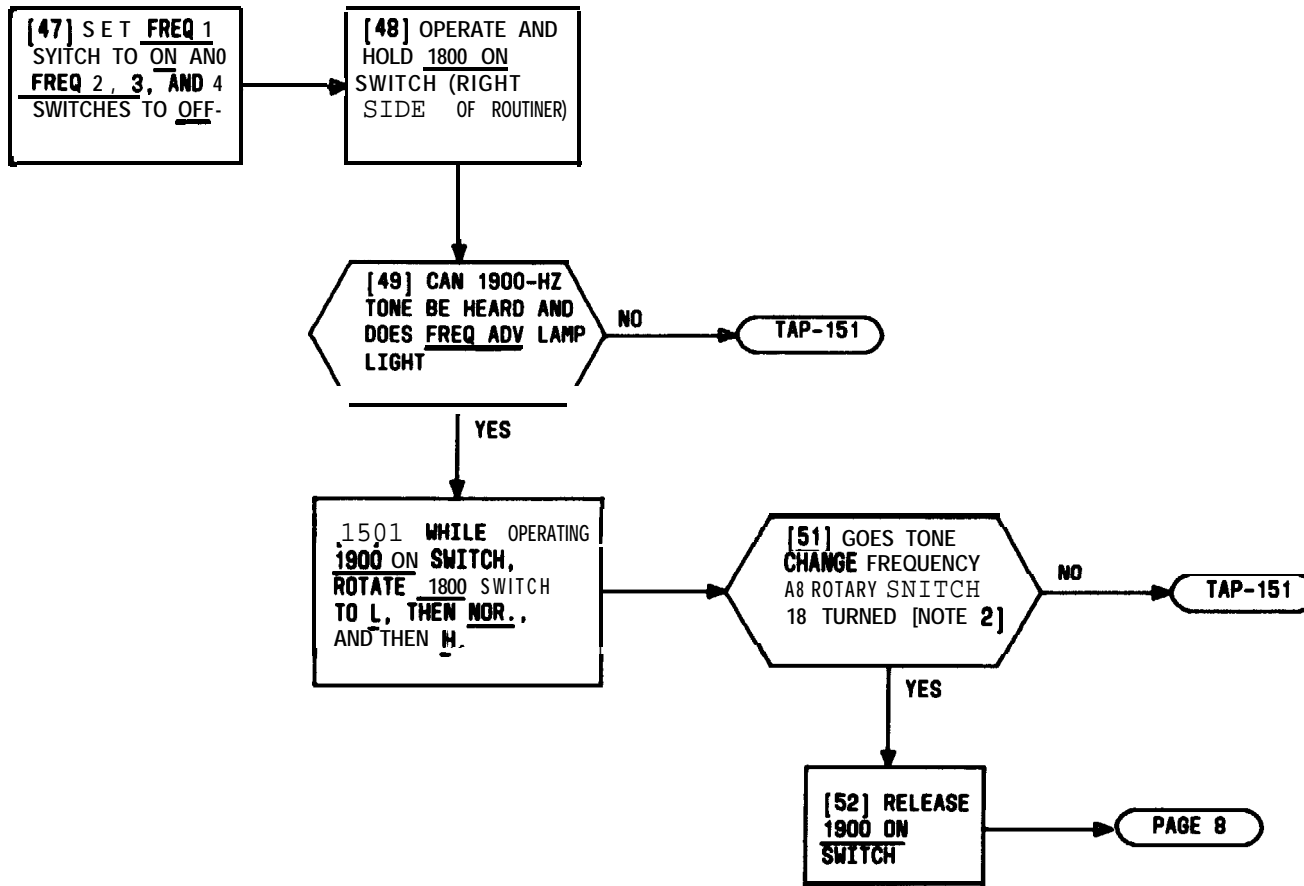
**TEST ROUTINER TEST SET - CONTROL
TERMINAL FUNCTIONS (SELF CHECKS)**

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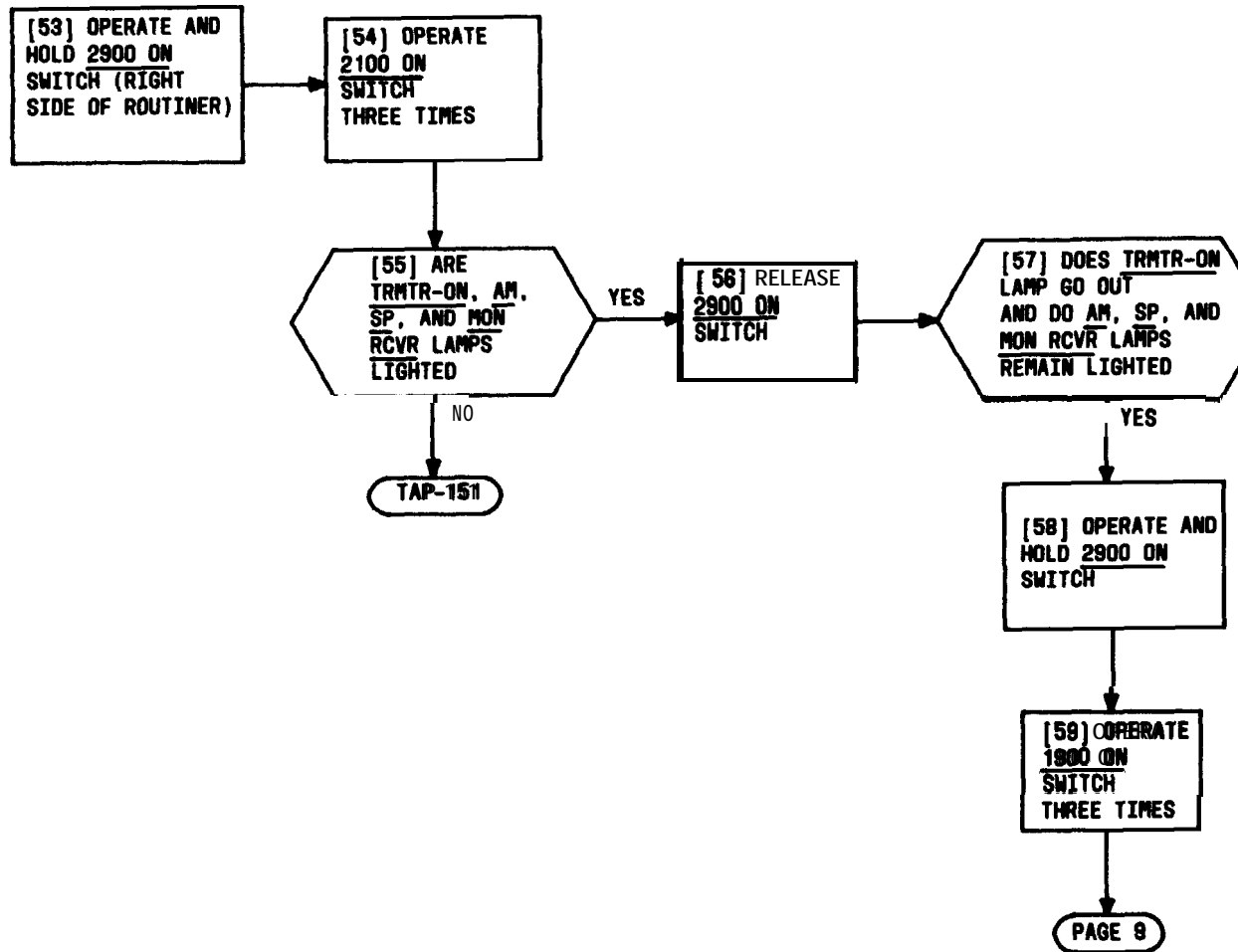
TEST ROUTINER TEST SET – CONTROL
 TERMINAL FUNCTIONS (SELF CHECKS)

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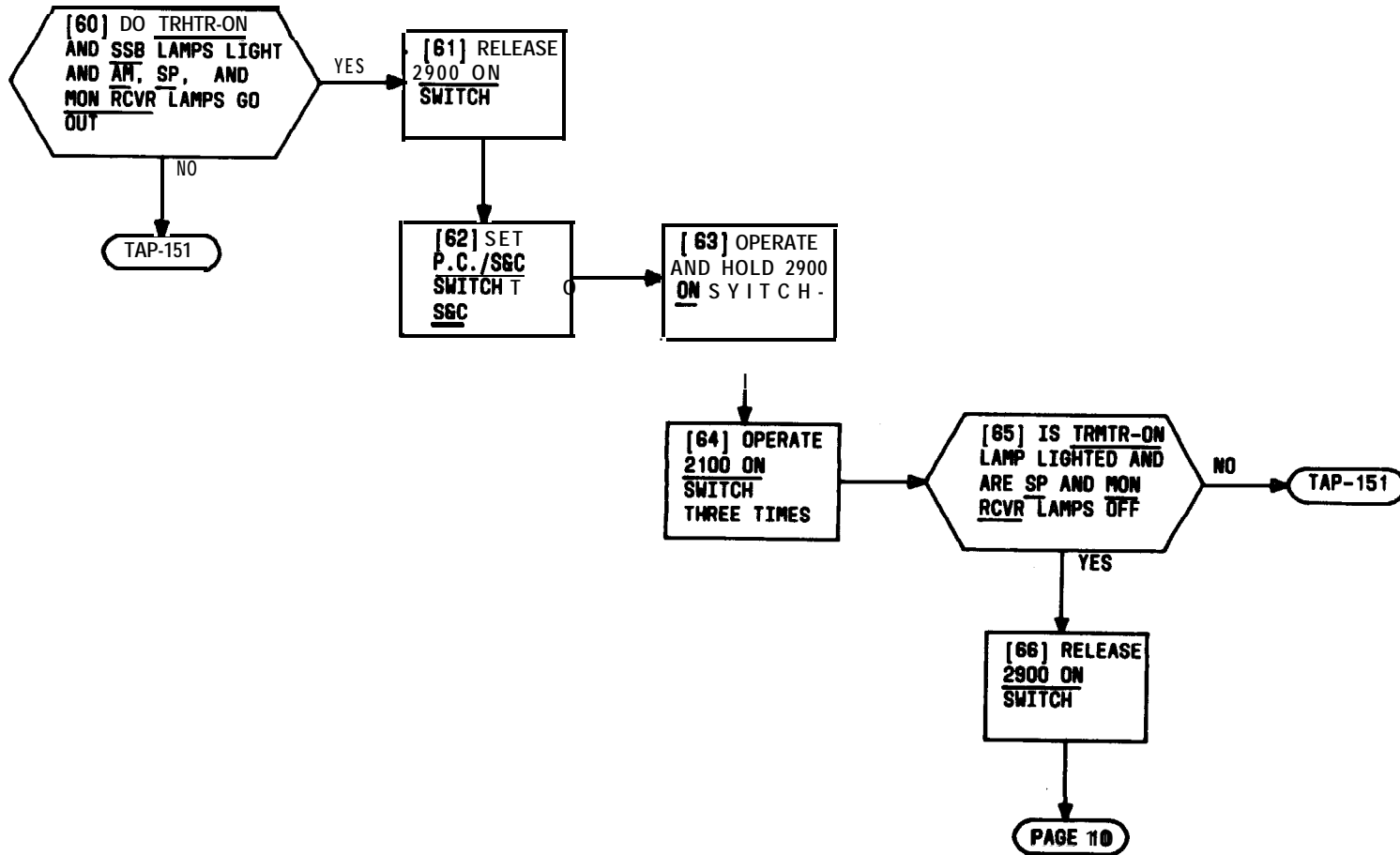


TEST ROUTINER TEST SET – CONTROL
TERMINAL FUNCTIONS (SELF CHECKS)

NOTE 2	
FREQ ADV LAMP MAY GO OUT MOMENTARILY IN EACH SWITCH CHANGE	
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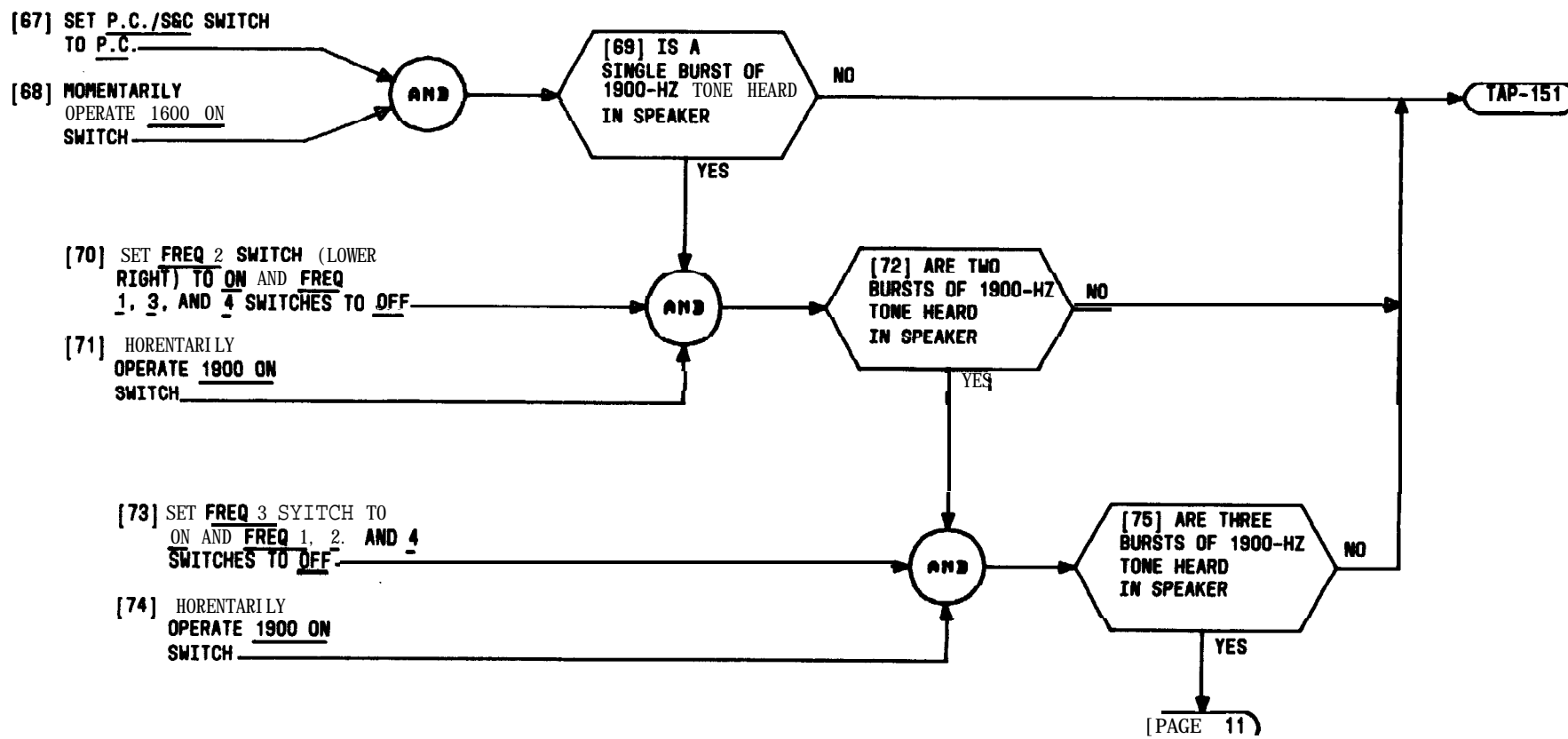


TEST ROUTINER TEST SET – CONTROL
 TERMINAL FUNCTIONS (SELF CHECKS)



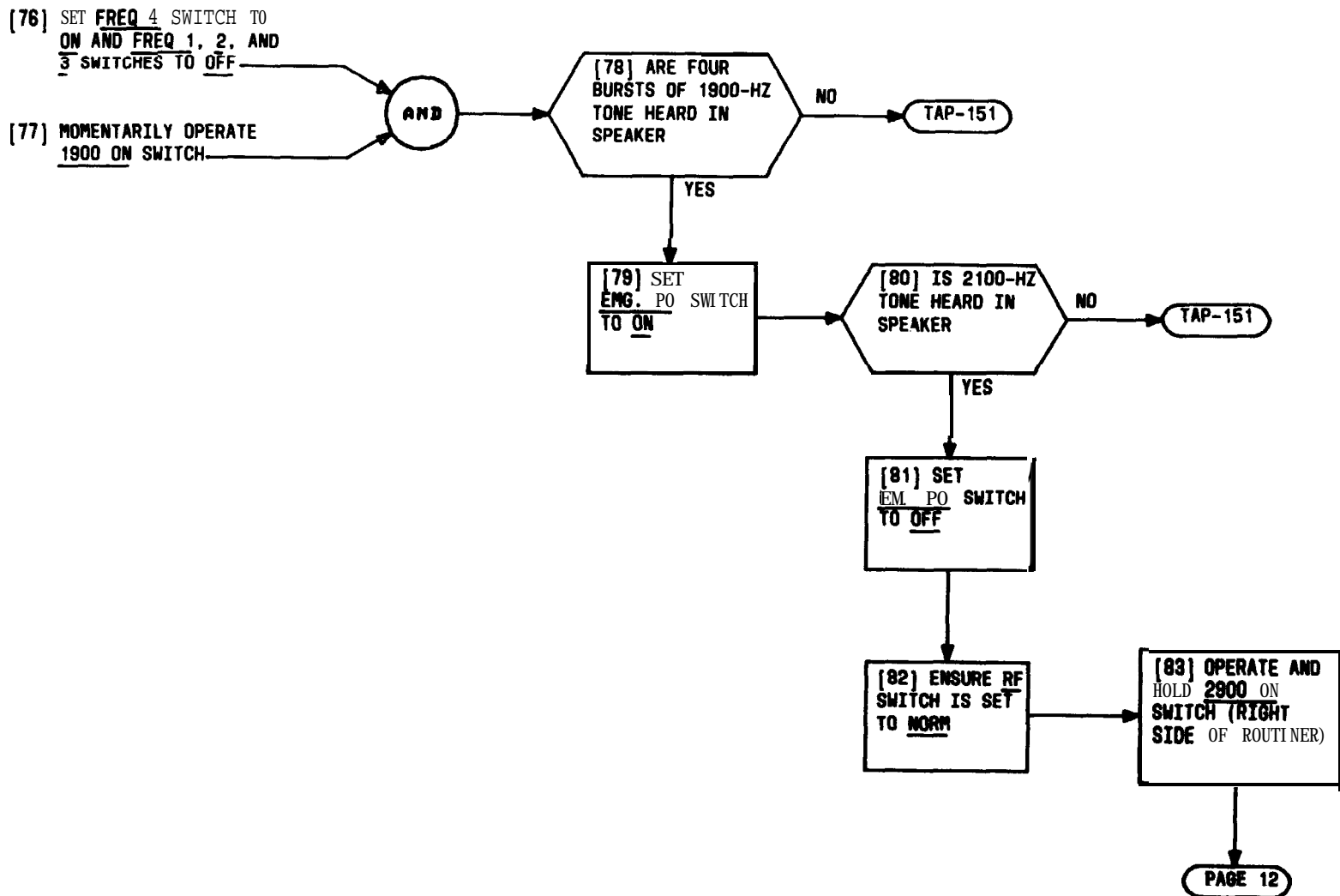
TEST ROUTINER TEST SET – CONTROL
TERMINAL FUNCTIONS (SELF CHECKS)

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TEST ROUTINER TEST SET - CONTROL
 TERMINAL FUNCTIONS (SELF CHECKS)

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 TERMINAL FUNCTIONS (SELF CHECKS)

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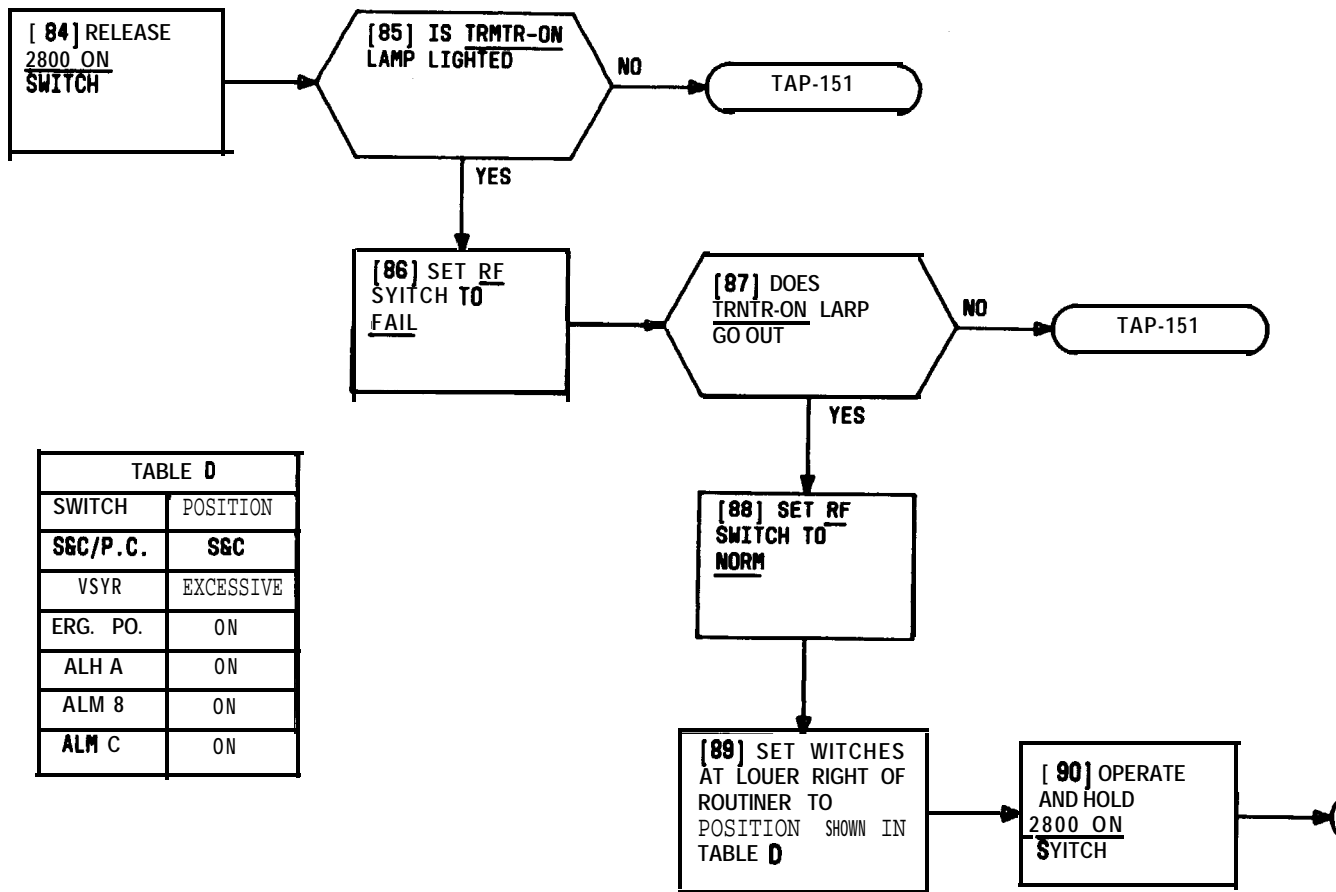
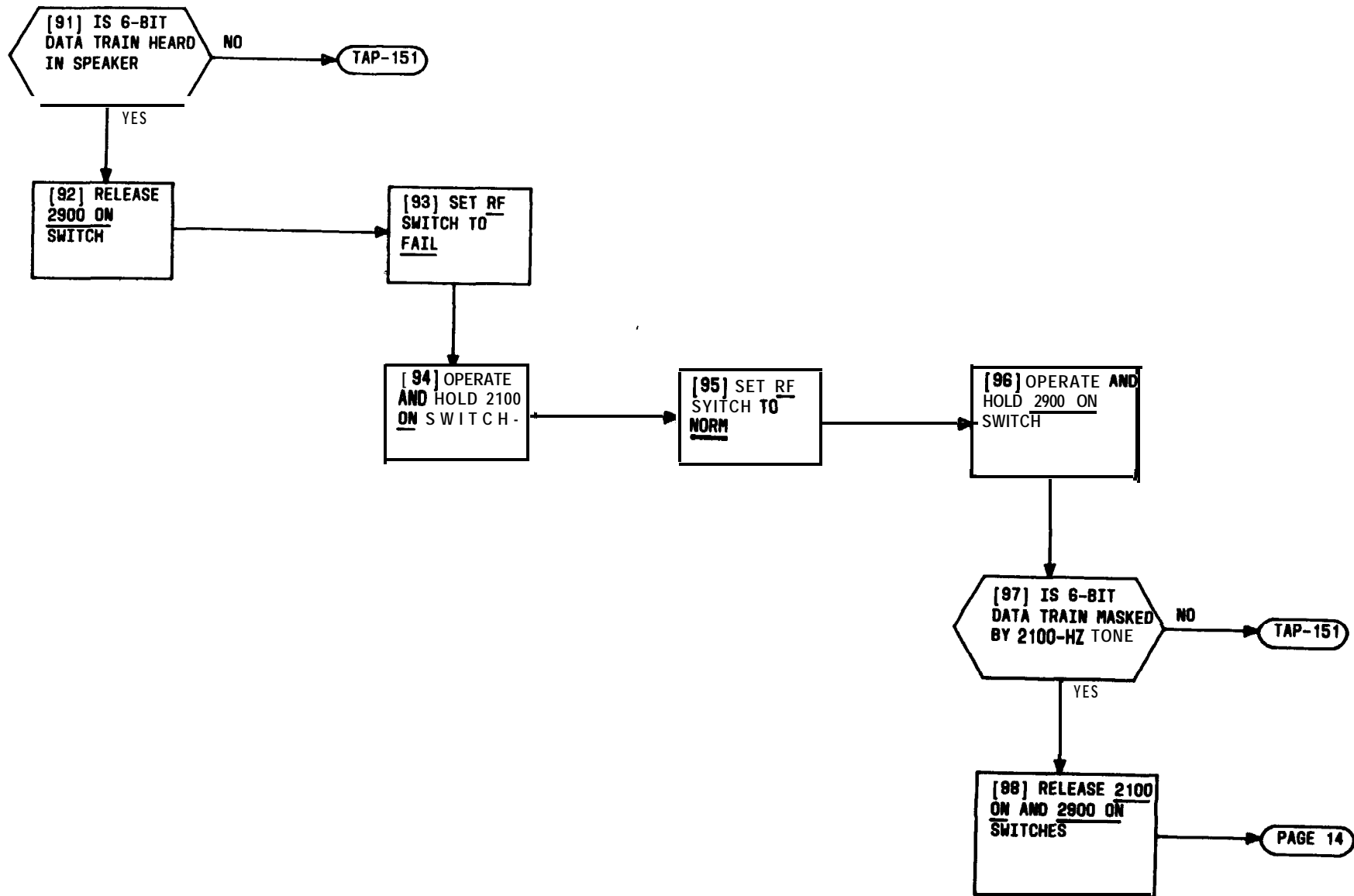


TABLE D

SWITCH	POSITION
SGC/P.C.	SGC
VSYR	EXCESSIVE
ERG. PO.	ON
ALH A	ON
ALM 8	ON
ALM C	ON

**TEST ROUTINER TEST SET – CONTROL
TERMINAL FUNCTIONS (SELF CHECKS)**



TEST ROUTINER TEST SET - CONTROL
TERMINAL FUNCTIONS (SELF CHECKS)

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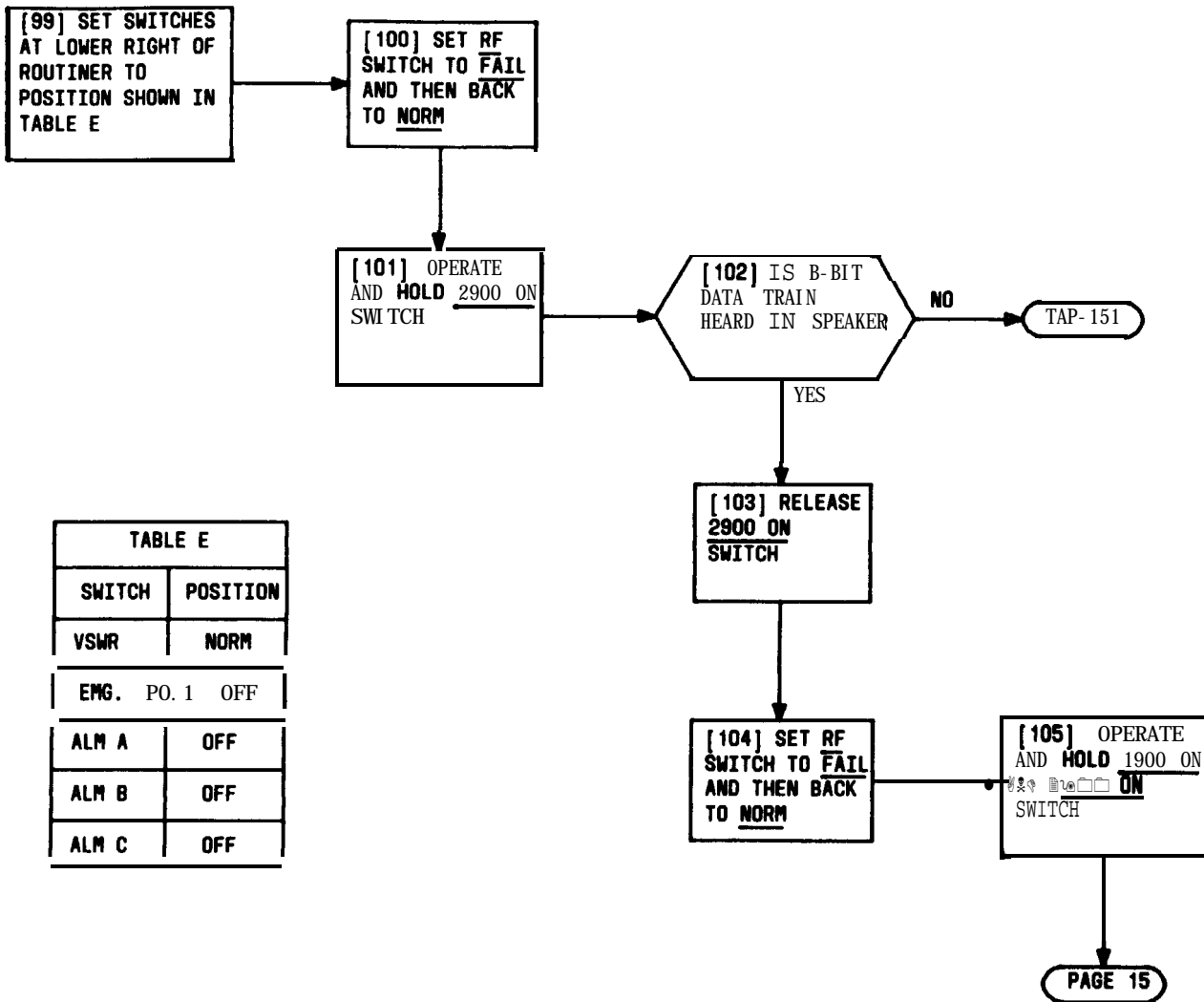
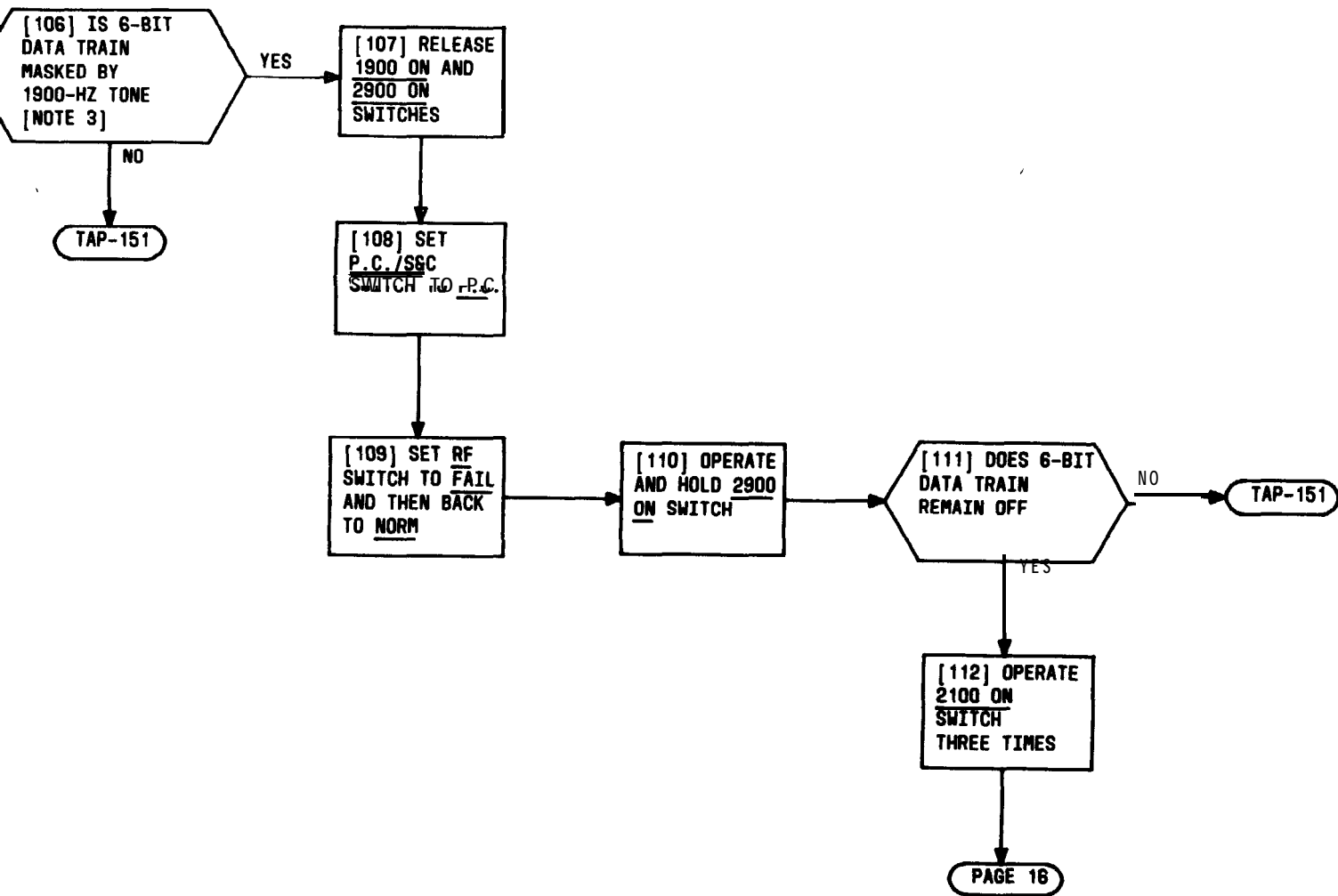


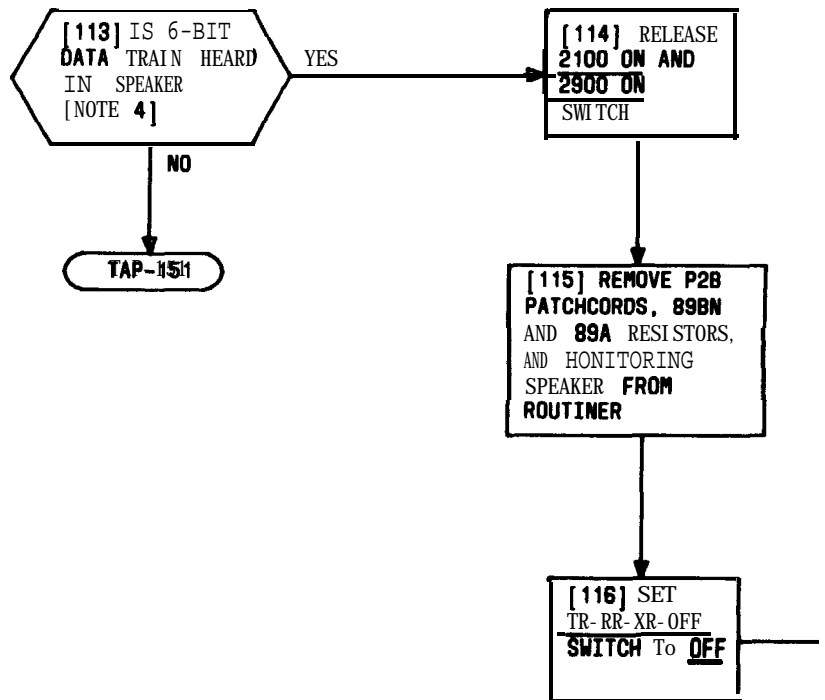
TABLE E

SWITCH	POSITION
VSWR	NORM
EMG. PO. 1 OFF	
ALM A	OFF
ALM B	OFF
ALM C	OFF



ST ROUTINER TEST SET – CONTROL
 RMINAL FUNCTIONS (SELF CHECKS)

NOTE 3	
THE FIRST DATA BIT RAY BE HEARD IF THE RODE AH LAMP IS LIT	
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**TEST ROUTINER TEST SET – CONTROL
TERMINAL FUNCTIONS (SELF CHECKS)**

SUMMARY

ROUTINER TEST SET IS CONNECTED INTO **TERMINAL-TO-RECEIVER TRANSMISSION** FACILITY TO SUPPORT RECEIVER PERSONNEL IN PERFORMING RECEIVER TEST OR TO ASSIST RECEIVER PERSONNEL IN TROUBLE CLEARING AT RECEIVER. ROUTINER TEST SET FUNCTIONS ARE PERFORMED AT TERMINAL AS DIRECTED FROM RECEIVER.

- [1] OBTAIN RELEASE FOR TESTS TO BE PERFORMED. SEE NOTE 1
- [2] ENSURE CHANNEL () IO LAMP IS ON BEFORE CONTINUING WITH TEST. SEE NOTE 2
- [3] TEST ROUTINER TEST SET (TABLE A) RECEIVER FUNCTIONS (SELF CHECKS) [DLP-543]
- [4] ON ROUTINER TEST SET, INSERT 69A (0 06) RESISTORS INTO OUT AND IN SOCKETS [FIG. 1]

FOR RECEIVER UNDER TEST:

- [5] CONNECT ROUTINER OSCR OUT JACK TO REC () RL OUT JACK ON TEST JACKS, PADS AND FUSE (TJP AND F) PANEL WITH 3P6C CORD
- [6] CONNECT ROUTINER FLDR IN JACK TO REC () RL IN JACK ON TJP AND F PANEL WITH 3P6C CORD
- [7] NOTIFY RECEIVER PERSONNEL THAT ROUTINER IS CONNECTED AND STAND BY FOR INSTRUCTIONS

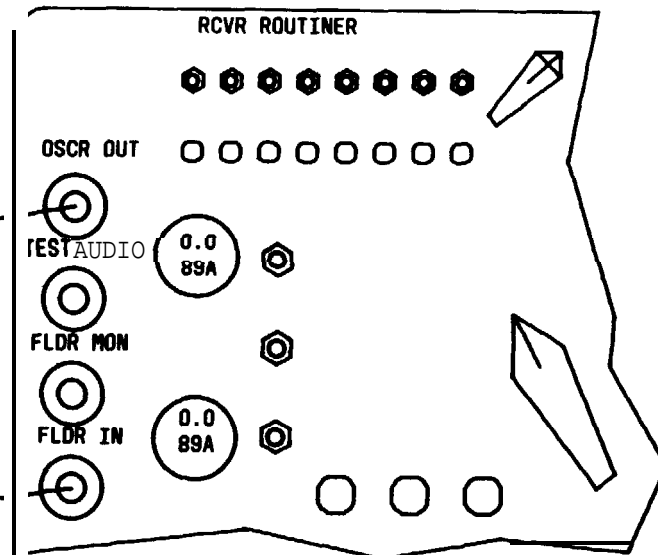
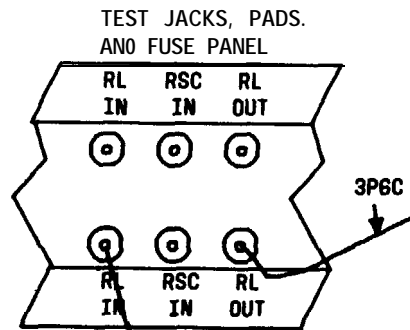


FIG. 1

PAGE 2

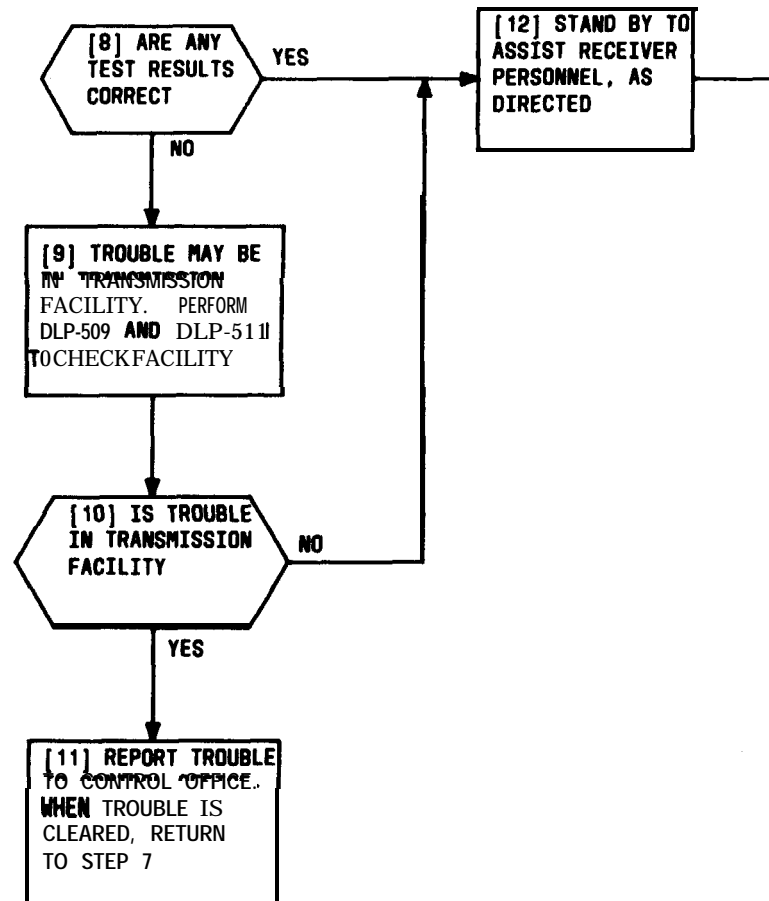
TABLE A	
EQUIPMENT REQUIRED	RECOMMENDED TYPE
ROUTINER TEST SET	KS-21277
2 TEST CORDS	3P6C

NOTE 1

- 1. DISREGARD ALL LAMS AND INDIICATIONS NOT SPECIFICALLY MENTIONED IN THIS PROCEURE
- 2. DISREGARD THIS REQUIREMENT IF CHANNEL WAS UNDER TEST BEFORE ENTERING THIS PROCEURE

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ASSIST RECEIVER TEST USING ROUTINER TEST SET AT CONTROL TERMINAL



ASSIST RECEIVER TEST USING ROUTINER TEST SET AT CONTROL TERMINAL

SUMMARY

ROUTINER TEST SET IS CONNECTED INTO **TERMINAL-TO-TRANSMITTER TRANSMISSION FACILITY** TO SUPPORT **TRANSMITTER PERSONNEL** IN PERFORMING TRANSMITTER TEST OR TO ASSIST TRANSMITTER

PERSONNEL IN TROUBLE CLEARING AT TRANSHITTER. ROUTINER TEST SET FUNCTIONS ARE **PERFORMED AT TERMINAL AS DIRECTED FROM RECEIVER.**

- [1] OBTAIN RELEASE FOR TEST TO BE **PERFORMED**. SEE NOTE 1
- [2] ENSURE **CHANNEL () ID LAMP** IS ON BEFORE CONTINUING WITH TEST. SEE NOTE 2
- [3] TEST ROUTINER TEST SET (TABLE A)-TRANSMITTER FUNCTIONS (SELF CHECKS) [DLP-544]
- [4] ON ROUTINER. INSERT **89A (0 0B) RESISTORS** INTO **OUT AND IN SOCKETS** ON **RIGHT SIDE OF ROUTINER**
- [5] FOR TRANSMITTER UNDER TEST, CONNECT ROUTINER **OSCT OUT JACK** TO **TL OUT JACK** ON TEST JACKS, PADS, AND FUSE **PANEL WITH 3P6C CORD** [FIG. 1]
- [6] FOR TRANSMITTER UNDER TEST, CONNECT ROUTINER **FLDT IN JACK** TO **TL IN JACK** ON TEST JACKS, PADS, AND FUSE **PANEL WITH 3P6C CORD**
- [7] NOTIFY TRANSMITTER PERSONNEL THAT ROUTINER IS CONNECTED AND STAND **BY** FOR INSTRUCTIONS

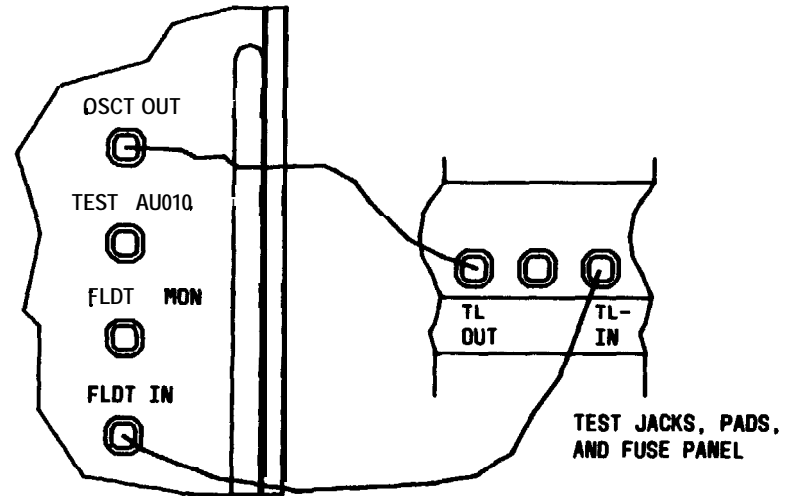


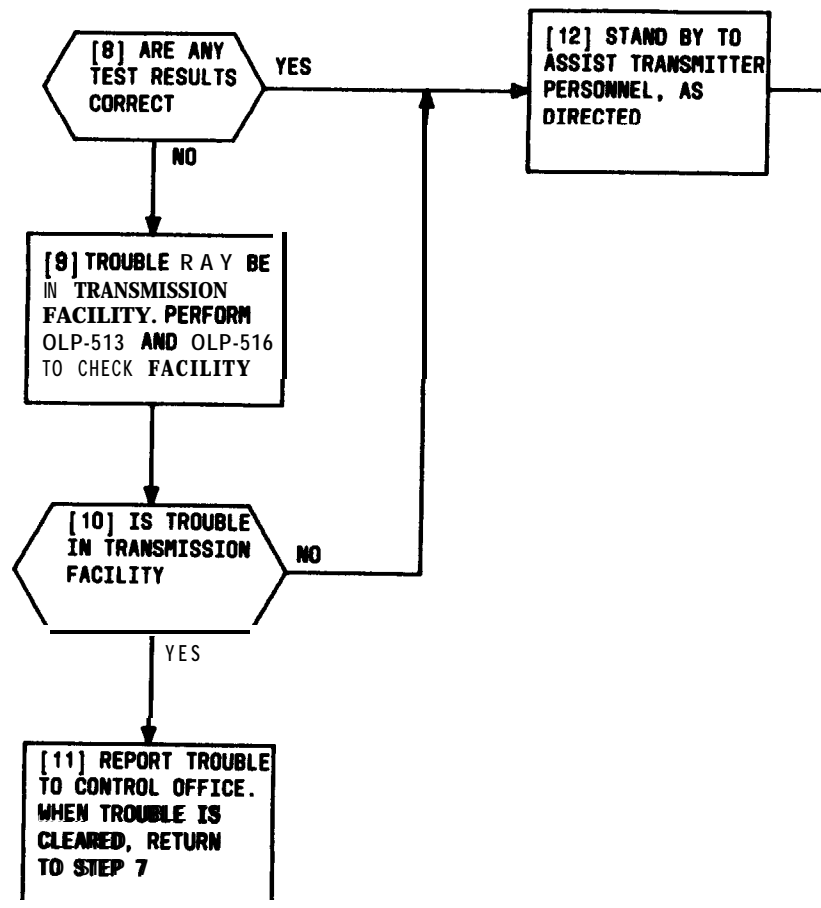
FIG. 1 - TRRTR ROUTINER

AND PAGE 2

TABLE A	
EQUIPMENT REQUIRED	RECOMMENDED TYPE
ROUTINER TEST SET	KS-21277
2 TEST CORDS	3P6C

NOTES	
1. DISREGARD ALL LAMPS AND INDICATIONS NOT SPECIFICALLY MENTIONED DURING THIS PROCEDURE	
2. DISREGARD THIS REQUIREMENT IF CHANNEL YAS UNDER TEST BEFORE ENTERING THIS PROCEDURE	
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ASSIST TRANSMITTER TEST USING ROUTINER TEST SET AT CONTROL TERMINAL



ASSIST TRANSMITTER TEST USING ROUTINER TEST SET AT CONTROL TERMINAL

[1] CONNECT LINE POWER
 CORO TO 115-VOLT, 60-HZ
 OUTLET _____

[2] SET 115V 60 SWITCH TO ON
 [FIG. 1] _____

LAMP BEHIND
 FREQ DIAL
 LIGHTS

[3] ALLOW TMS TO WARM
 UP AT LEAST 10 MINUTES _____

[4] SET FREQ MULT TO X100 _____

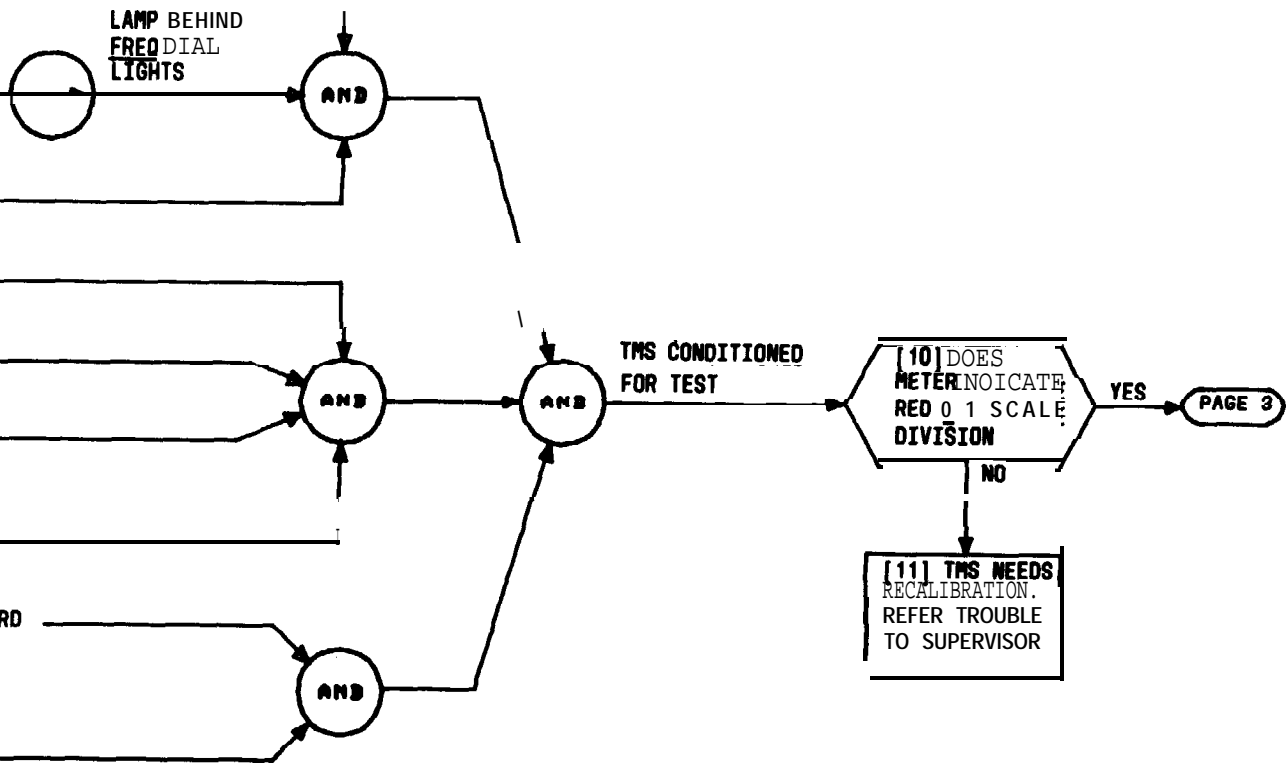
[5] SET FREQ DIAL TO 10 _____

[6] SET OET INPUT TO REO 0 _____

[7] SET BOTH OSC OUTPUT
 SWITCHES TO RED 0 _____

[8] GET 2P14A OR 3P14A CORD _____

[9] CONNECT OSC OUT 600
 JACK TO DET IN 600
 JACK _____



CONDITION J94021A (21A) TMS FOR TEST

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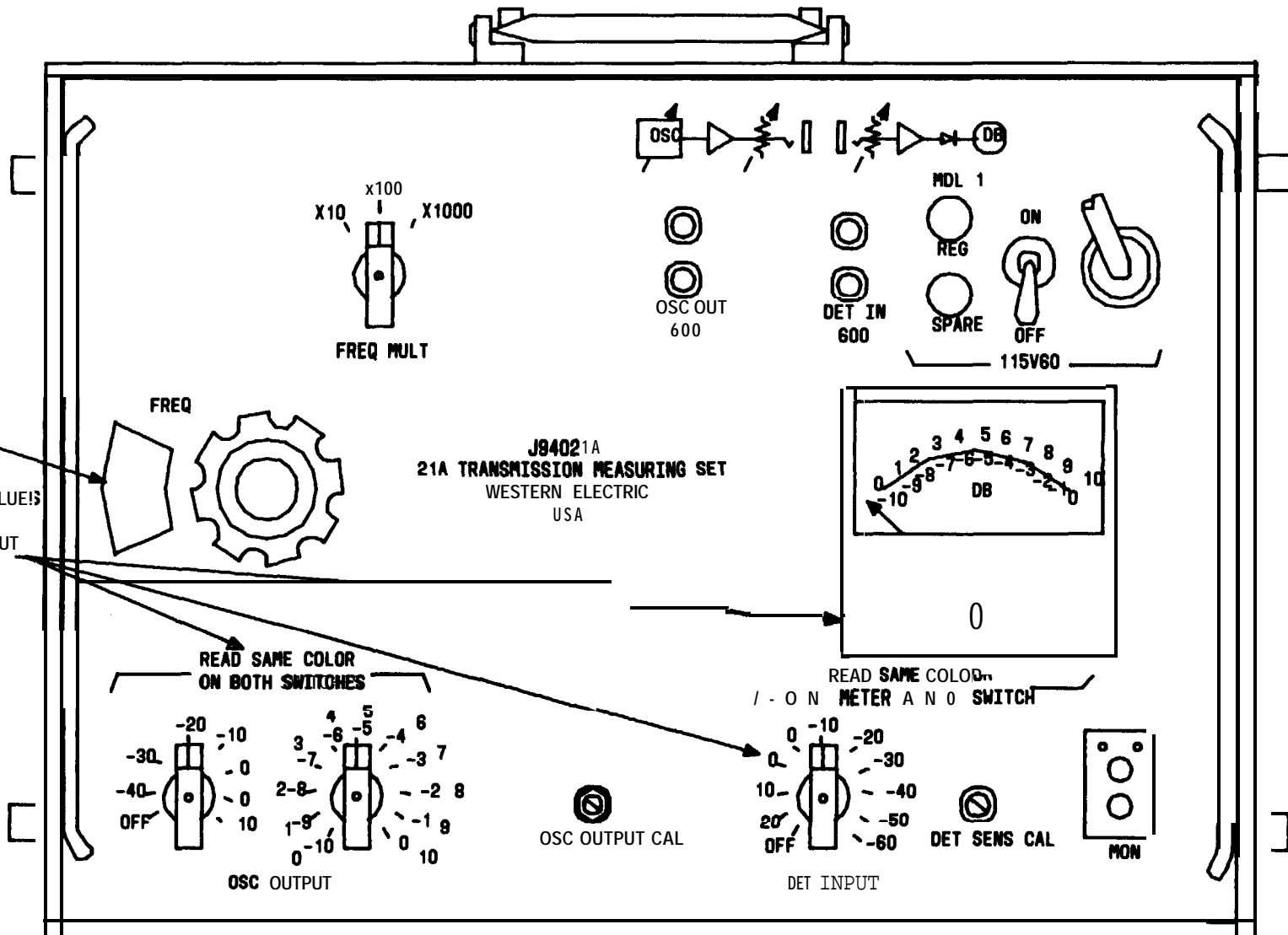
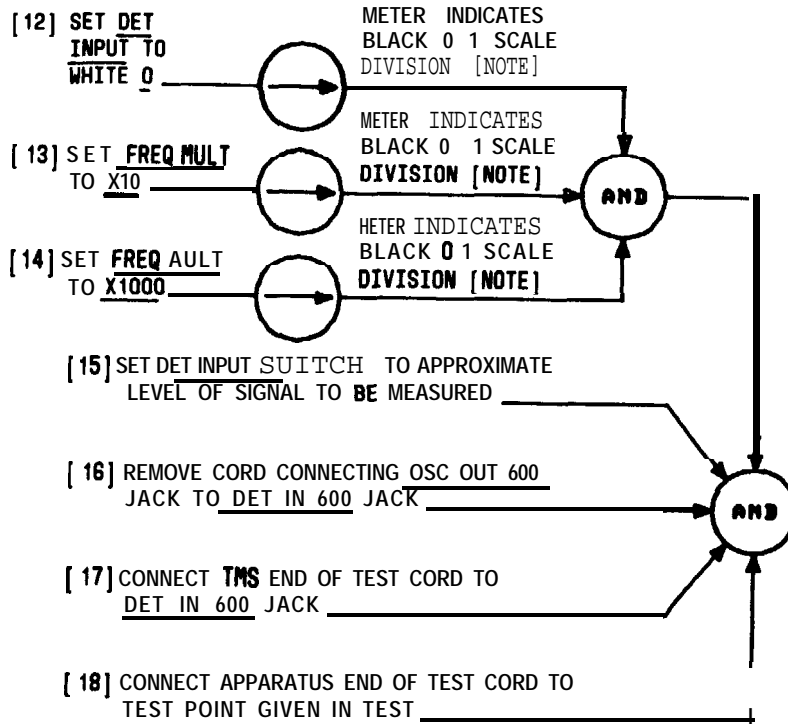


FIG. 1



NOTE
IF METER REQUIREMENT IS NOT MET. TMS NEEDS RECALIBRATION. REFER TROUBLE TO SUPERVISOR

TABLE A				
SIGNAL LEVEL IN 06 IS SUM OF OET INPUT SWITCH SETTING (RED OR WHITE) AND HETER INDICATION (RED OR BLACK SCALE)				
EXAMPLES				
DET INPUT SETTING	-30	-10	10	30
DB METER INDICATION	- 3	- 5	3	3
	-33 DB	-15 DB	13 DB	33 DB

CONDITION **J94021A (21A) TMS FOR TEST**

[1] CONNECT **POWER** CABLE TO
115V, 60-HZ OUTLET

[2] ROTATE **SAMPLE RATE**
CONTROL **CW FROM POWER**
OFF [FIG. 1]

DISPLAY
COMES ON

[3] SET **SENSITIVITY**
SWITCH TO **CHECK**

[4] SET **LEVEL** CONTROL
TO **PRESET**

[5] SET **FUNCTION** SWITCH
TO **FREQUENCY**

[6] SET **TIME BASE** SWITCH
TO **EACH POSITION**
SHOWN IN TABLE A

AND

[7] DOES
DISPLAY READ
AS SHOWN IN
TABLE A

YES

[9] SET
FUNCTION
SWITCH TO
MANUAL STA

NO

[10] DOES CO
COUNT CONTIN
AT FREQUENCY
SELECTED ON
BASE SWITCH

NO

[8] CALIBRATE
COUNTER BEFORE
USING AS SHOWN IN
MANUFACTURER'S
HANDBOOK

TABLE A	
TIME BASE	DISPLAY
1KS	0000010. MHZ
10KS	000010.0 MHZ
0.1MS	000010.00 MHZ
1MS	00010000. KHZ
10MS	0010000.0 KHZ
0.1S	010000.00 KHZ
1S	10000.000 KHZ
10S	0000.0000 KHZ

CONDITION HP 5245L FREQUENCY COUNTER TO MEASURE FREQUENCY

[1 1] SET FUNCTION SWITCH TO EACH PERIOD AVERAGE SETTING IN TABLE B

[1 2] DOES DISPLAY READ AS SHOYN IN TABLE G

[1 3] CALIBRATE COUNTER BEFORE USING AS SHOYN IN RANUFACTURER'S HANDBOOK

NOTE
IF THERE IS NO COUNT, OR IF COUNT IS UNCERTAIN, PROGRESSIVELY CHANGE SENSITIVITY TO LOWER RANGES

TABLE B	
PERIOD AVERAGE	DISPLAY
1	0000001
10	0000010
100	0000100
1K	00001000
10K	00010000
100K	00100000

[1 4] SET FUNCTION SWITCH TO FREQUENCY

[1 5] SET TIME BASE SWITCH FOR DESIRED COUNT TIME

[1 6] CONNECT UNKNOUN SIGNAL TO AC OR DC SIGNAL INPUT JACK

[1 7] SET SENSITIVITY SWITCH TO 10. SEE NOTE

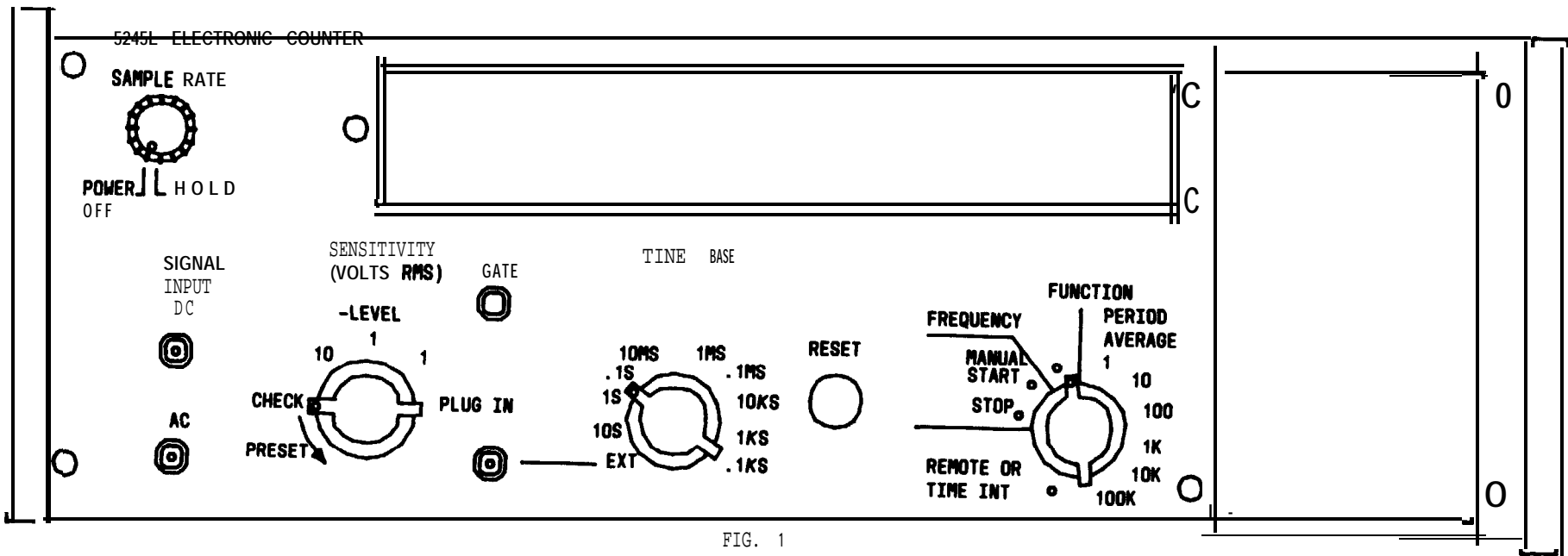


FIG. 1

CONDITION HP 5245L FREQUENCY COUNTER TO MEASURE FREQUENCY

[1] CONNECT OSCILLATOR POWER CORD TO 115-VAC OUTLET

[2] SET TOGGLE SWITCH TO ON POSITION. SEE FIG. 1

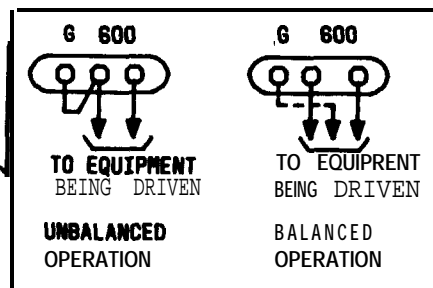
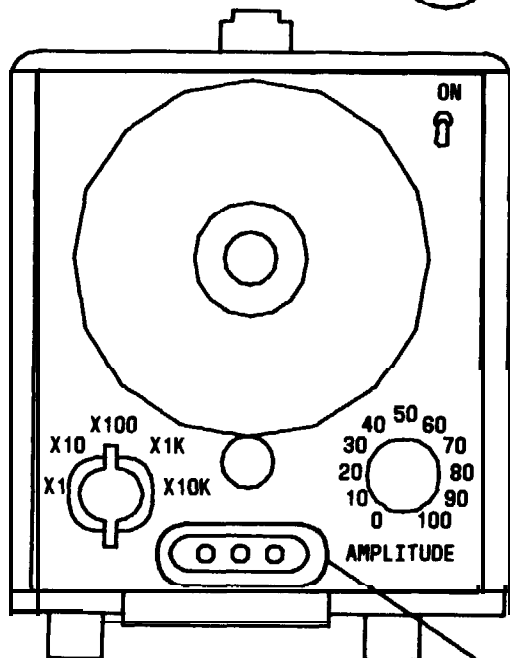
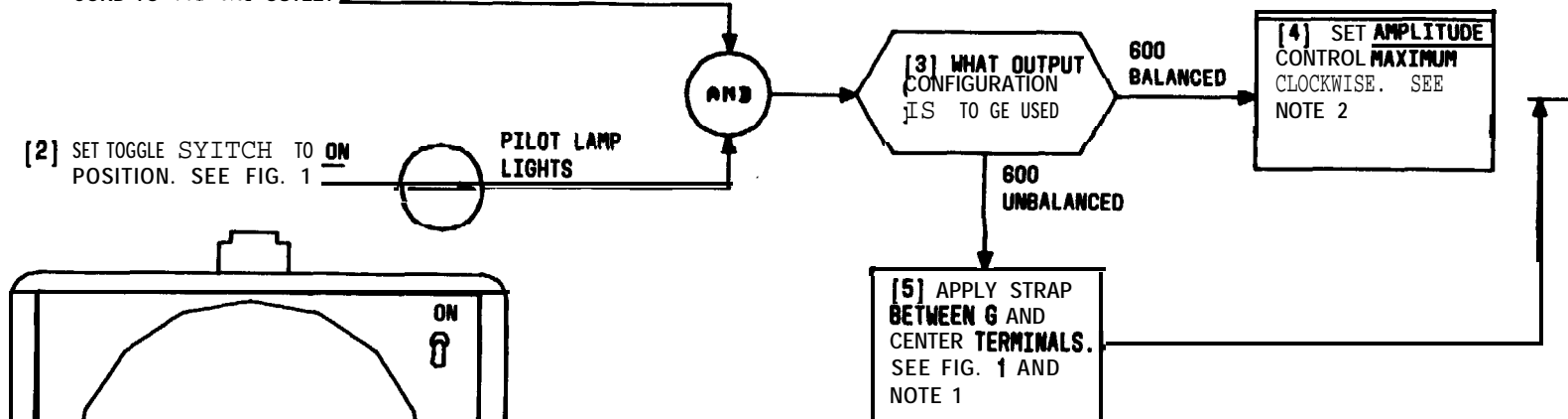


FIG. 1

NOTES

1. WHEN IT IS DESIRED TO OPERATE UNBALANCED, GROUND SHOULD BE CONNECTED TO CENTER OUTPUT TERMINAL, THE TERMINATION FOR CONNECTION BROUGHT OUT FROM TERMINAL 6 OF OUTPUT TRANSFORMERS T1 AND T2. PROPER OPERATION CANNOT BE OBTAINED IF GROUND IS CONNECTED TO SIDE OF CIRCUIT WHICH INCLUDES ATTENUATOR
2. THE AMPLITUDE CONTROL IN OUTPUT CIRCUIT IS A BRIDGED-T ATTENUATOR AND AT ANY SETTING EXCEPT MINIMUM ATTENUATION UNBALANCES CIRCUIT. THEREFORE, FOR BALANCED OPERATION, AMPLITUDE CONTROL MUST BE SET FOR MAXIMUM OUTPUT (FULLY CLOCKWISE)

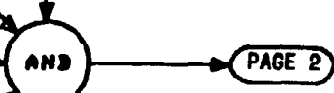
[1] CONNECT MODEL 5646 TEKTRONIX OSCILLOSCOPE TO 117-VAC POWER SUPPLY

[2] SET OSCILLOSCOPE CONTROLS ON FRONT PANEL [FIG. 1] AND SIDE PANEL AS SHOWN IN TABLE A

[3] CONNECT PATCH CORD FROM CAL OUT CONNECTOR TO CHANNEL 1 INPUT CONNECTOR OF AMPLIFIER UNIT

[4] SET POWER SWITCH TO ON (PULLED OUT). SEE NOTE

[5] ADVANCE INTENSITY, FOCUS, AND SCALE ILLUM CONTROLS AS DESIRED



NOTE
ALLOY APPROXIMATELY
2 MINUTES WARM-UP
TIME

TABLE A

FRONT PANEL CONTROLS			FRONT PANEL CONTROLS		
CONTROL TYPE	CONTROL	SETTING	CONTROL TYPE	CONTROL	SETTING
CRT CONTROLS	INTENSITY	COUNTERCLOCKWISE	TIRE-BASE UNIT (FOR EXAMPLE, TYPE 363)	TIME/DIV	.5 MS
	FOCUS	MIDRANGE		VARIABLE (TIME/DIV)	CALIBRATED
	SCALE ILLUM	COUNTERCLOCKWISE		MGNIFIER	OFF
	CALIBRATOR	4V		MODE	NORMAL
	STORE (BOTH)	NON-STORE (BUT)		NORMAL-SINGLE SUEEP	NORMAL
	ENHANCE (BOTH)	OFF (OUT)		LEVEL	CLOCKWISE (FREE RUN)
	LEVEL	COUNTERCLOCKWISE		TRIGGERING SOURCE	INTERNAL
CRT CATHODE SELECTOR (REAR PANEL)	NORM	SLOPE	AUTO		
AMPLIFIER UNIT (FOR EXAMPLE, TYPE 3A6)	POSITION	CENTERED	COUPLING		
	MODE	NORMAL (CHANNEL 1)			
	VOLTS/DIV	2			
	VARIABLE (VOLTS/DIV)	CALIBRATED			
	INPUT COUPLING	DC			

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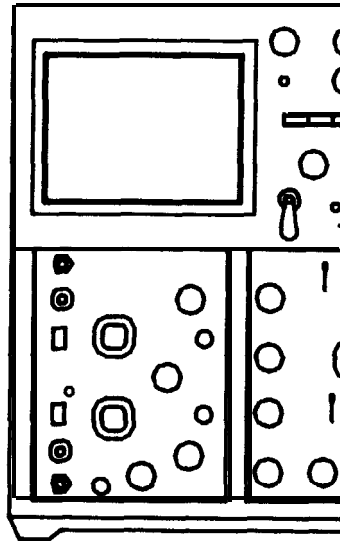
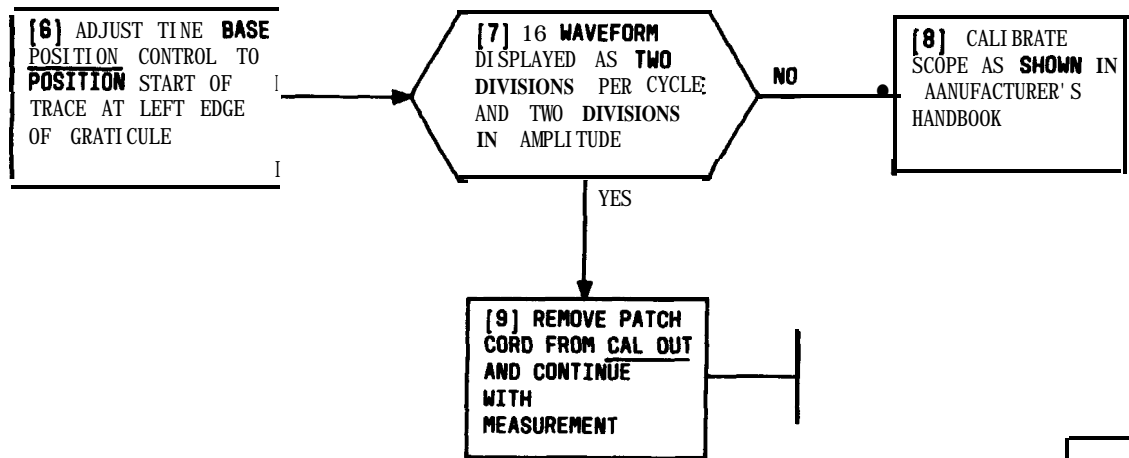


FIG. 1

CONDITION TEKTRONIX **564B** OSCILLOSCOPE FOR MEASUREMENT

[1] PLACE METER ON HORIZONTAL SURFACE
WITH FRONT OF METER UP [NOTE]

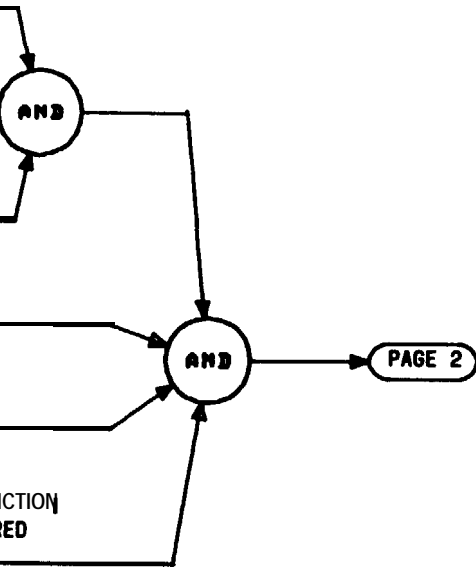
[2] SET FUNCTION SWITCH
TO OFF [FIG. 1]

[3] ADJUST METER ZERO SCREW FOR
ZERO INDICATION

[4] INSERT SHORT PIN PLUG OF RED
TEST LEAD IN JACK

[5] INSERT SHORT PIN PLUG OF BLACK
TEST LEAD IN JACK

[6] SEE WARNINGS AND FIG. 1. SET FUNCTION
SWITCH TO PARAMETER TO BE MEASURED
AND TO REQUIRED RANGE



NOTE
METER SHOULD NOT BE
PLACED ON A MAGNETIC
SURFACE OR OTHER LOCATION
WHERE METER MOVEMENT WILL
BE SUBJECT TO INFLUENCE
OF MAGNETIC FIELD

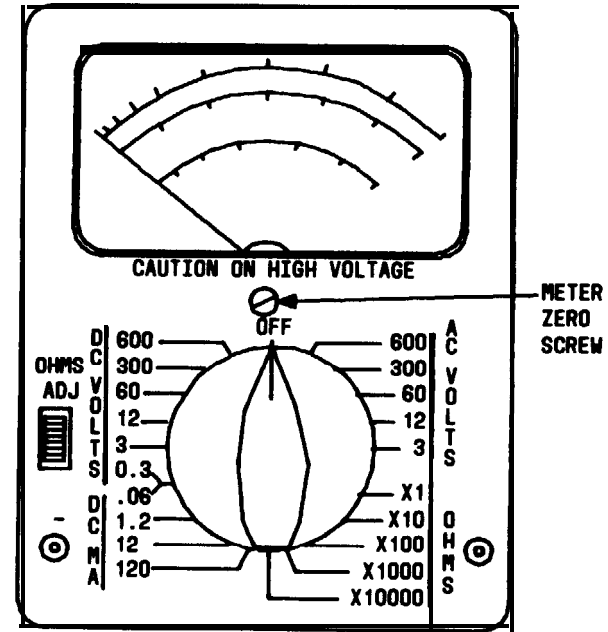
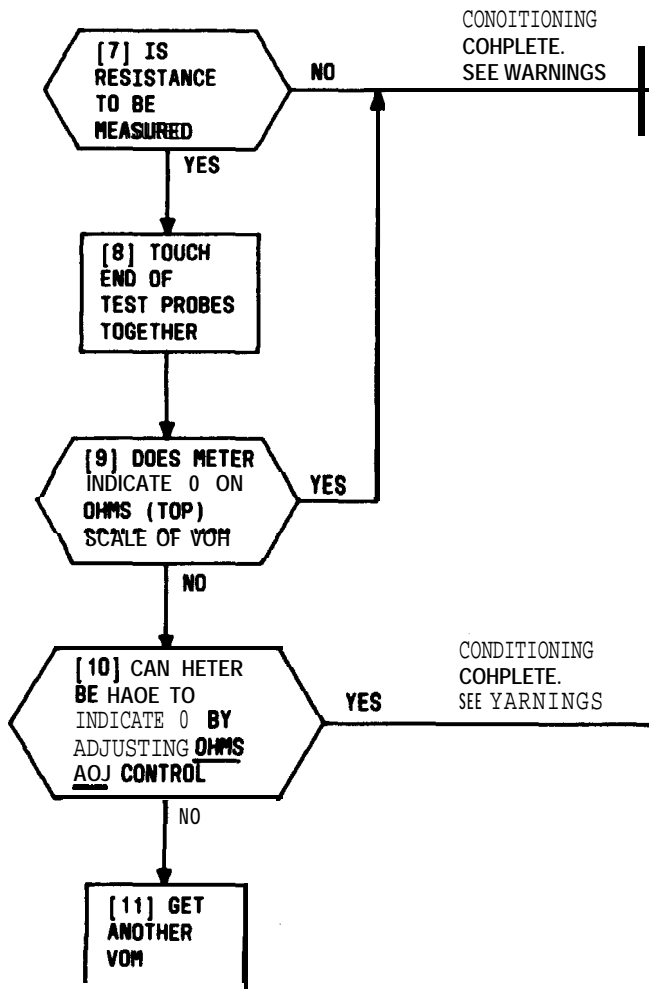


FIG. 1

CONDITION KS-14510 METER (VOM) FOR MEASUREMENT

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WARNINGS

1. WHEN **MAKING** RESISTANCE MEASUREMENTS, MAKE SURE THAT POWER IS NOT APPLIED TO CIRCUIT BEING MEASURED. AS **DAMAGE** TO METER **WILL** RESULT
2. **WHEN** MAKING EITHER CURRENT OR VOLTAGE MEASUREMENTS. SET FUNCTION SWITCH TO PROPER RANGE BEFORE **MAKING** CONTACT WITH TEST PROBES TO CIRCUIT BEING MEASURED. IF THERE IS ANY DOUBT AS TO APPROXIMATE VALUE OF VOLTAGE OR CURRENT TO **BE** MEASURED, SET FUNCTION SWITCH TO HIGHEST VALUE FOR INITIAL TEST AND THEN DECREASE STEP-BY-STEP UNTIL PROPER RANGE IS REACHED

[1 OBTAIN TEST EQUIPMENT PER TABLE A

[2] SEE NOTE 1. SET TR-RR-XR-OFF SWITCH TO TR

[3] SET SIX BLACK FREQUENCY SWITCHES TO NOR

[4] INSERT FOUR BBBN (16 DB) RESISTORS INTO IN AND OUT SOCKETS ON BOTH SIDES OF ROUTINER TEST SET

[5] SET SWITCHES ON LOWER LEFT PORTION OF ROUTINER TEST SET TO POSITION SHOWN IN TABLE B

[6] SET SWITCHES ON LOWER RIGHT PORTION OF ROUTINER TEST SET TO POSITION SHOWN IN TABLE C

ALL ROUTINER TEST SET SWITCHES CONDITIONED

AND

[7] CONNECT POWER CORD TO ROUTINER AND TO AC POWER LINE

PAGE 2

TABLE A	
EQUIPMENT	NUMBER REQUIRED
310-TYPE P2B PATCH CORDS	B
310-TYPE DUMMY PLUGS	12

TABLE B	
SWITCH	POSITION
BIT 1	OFF
BIT 2	OFF
BIT 3	OFF
MODE	SSB
ALM A	OFF
ALM B	OFF
AC	OFF

TABLE C	
SWITCH	POSITION
PC/S&C	(NOTE 2)
VSWR	NORMAL
EMG. PD.	OFF
ALM A	OFF
ALM B	OFF
ALM C	OFF
RF	NORM
FREQ 1	OFF
FREQ 2	OFF
FREQ 3	OFF
FREQ 4	OFF

CONDITION KS-21277 ROUTINER TEST SET FOR CONTROL TERMINAL TESTS

NOTE 1	
1. OISREGARO ALL LAMPS NOT SPECIFICALLY MENTIONED IN THIS PROCEDURE	
2. <u>PC/S&C</u> SWITCH IS SET TO <u>S&C</u> FOR SAFETY AND CALLING CHANNEL AND TO <u>PC</u> WHEN TESTING PUBLIC CORRESPONDENCE CHANNEL	
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[8] AT USAGE AND **ALARM** PANEL, ENSURE CHANNEL () ID **LAMP IS ON** BEFORE CONTINUING WITH TEST. SEE **NOTE 3**

[9] AT TECHNICAL OPERATOR PANEL, DEPRESS **CH ()**, **SZ**, **SPARE FUNCT REC ALM RESET**, AND **RLS**

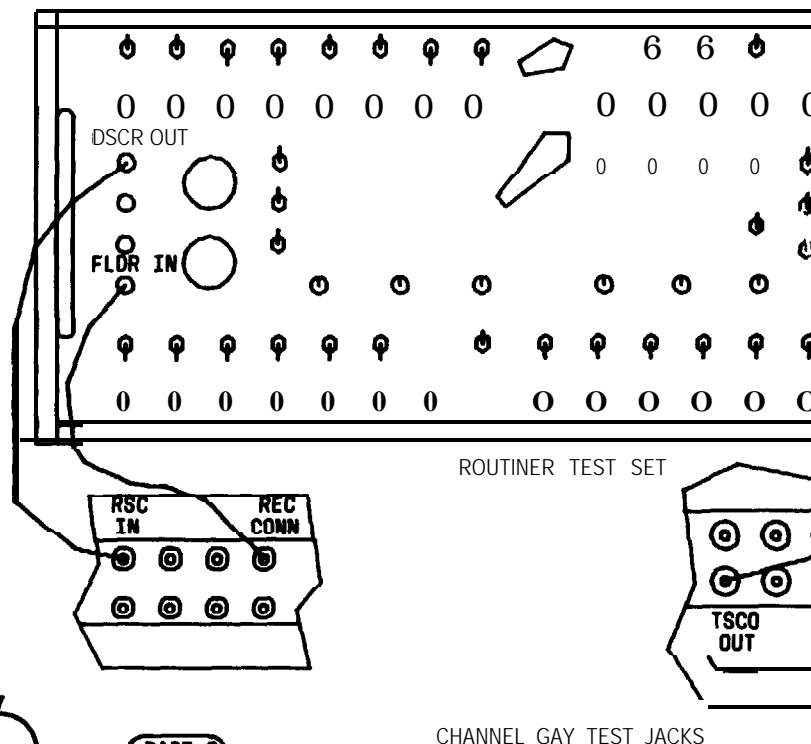
[10] WITH P28 PATCH CORD, CONNECT ROUTINER JACK **DSCR OUT** TO CHANNEL BAY TEST JACK **RSC IN** FOR RECEIVER TO BE SIMULATED [FIG. 1]

[11] WITH SECOND P28 PATCH CORD, CONNECT ROUTINER JACK **FLDR IN** TO CHANNEL BAY TEST JACK **REC CONN FOR** RECEIVER TO BE SIMULATED [FIG. 1]

[12] WITH THIRD P28 PATCH CORD, CONNECT ROUTINER JACK **DSCR OUT** TO CHANNEL BAY TEST JACK **TSCO IN** FOR TRANSMITTER THAT OPERATES WITH ABOVE SELECTED RECEIVER [FIG. 1]. SEE **NOTE 5**

[13] WITH FOURTH P28 PATCH CORD, CONNECT ROUTINER JACK **FLDR IN** TO CHANNEL BAY TEST JACK **TSCO OUT** FOR ABOVE TRANSMITTER [FIG. 1]

SEE NDTE 4. **SZ LAMP LIGHTS**



ROUTINER TEST SET

CHANNEL GAY TEST JACKS

FIG. 1

- | | |
|----|-------|
| 3. | DISRI |
| | CH. |
| | EN |
| 4. | IF |
| | FAI |
| | LI |
| | ANS |
| | 1. |
| | FL/ |
| 5. | TRA |
| | OP |
| | LOC |
| | IN |

CONDITION KS-21277 ROUTINER TEST SET FOR CONTROL TERMINAL TESTS

[14] AT CHANNEL BAY JACK FIELD,
INSERT 310-TYPE **DUMMY** PLUGS
INTO **RL IN** JACK FOR ACTIVE
RECEIVERS AND **TL OUT** JACK
FOR ACTIVE **TRANSMITTERS**
NOT UNDER TEST

AT USAGE AND **ALARM**
PANEL, **AC FAIL LAMP**
LIGHTS

[15] SET ALL **REC BY** KEYS TO
VERTICAL POSITION FOR
INACTIVE RECEIVERS

REC BY **LAMP** LIGHTS

ROUTINER TEST
SET **CONDITIONED**
FOR CONTROL **TERMINAL**
TESTS [NOTE 6]

AND

NOTE 6

WHEN USING ROUTINER TEST SET
TO CHECK CONTROL **TERMINAL**
FUNCTIONS, **R** KEY AND
XMTR KEY **SELECTED** AT TECHNICAL
OPERATOR PANEL MUST BE **SAME**
AS RECEIVER UNDER TEST **AND**
TRANSMITTER STRAPPED **WITH**
RECEIVER UNDER TEST

CONDITION KS-21277 ROUTINER TEST SET FOR CONTROL
TERMINAL TESTS

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[1] SEE WARNING 1. LOCATE CIRCUIT BOARD OF INTEREST. SEE NOTE 1 _____

[2] SEE WARNING 2. REMOVE FUSES AFFECTING CIRCUIT BOARD OF INTEREST [TABLES A, B, AND C]

ON FUSE PANEL: MAJF AND/OR MINF LAMP WILL LIGHT

[4] REMOVE CIRCUIT BOARD PANEL COVER AND LAY ASIDE

[5] REMOVE CIRCUIT BOARD BY FIRMLY PULLING STRAIGHT OUT

[3] IS CIRCUIT BOARD SOLDERED IN

YES

PAGE 3 STEP 12

NO

AND

[6] IS BOARD TO BE REPLACED WITH A SPARE OR IS ORIGINAL BOARD TO BE REINSTALLED ON AN EXTENDER BOARD

SPARE

[9] LAY REMOVED CIRCUIT BOARD ASIDE AND OBTAIN REPLACEMENT BOARD

EXTENDER BOARD

[7] INSERT EXTENDER INTO TOP AND BOTTOM SLOTS IN CARD SHELF AND PUSH FIRMLY INWARD TO SEAT

[10] INSERT SPARE CIRCUIT BOARD INTO TOP AND BOTTOM SLOTS IN CARD SHELF AND PUSH FIRMLY IN TO SEAT

[8] WITH BOARD COMPONENTS TO RIGHT SIDE, INSERT ORIGINAL CIRCUIT BOARD INTO EXTENDER AND SEAT FIRMLY

[11] REPLACE FUSES REMOVED IN STEP 2

PAGE 3 STEP 14

NOTE 1
CARE MUST BE OBSERVED WHEN REMOVING, EXCHANGING, OR INSERTING CIRCUIT BOARDS. CARE **MUST** ALSO BE OBSERVED WHEN SELECTING REPLACEMENT BOARDS BECAUSE OF SIMILARITY IN **BOARDS** AND DIFFERENT ISSUES OF SAM BOARD. BOARD AND **COMPONENT** LOCATIONS ARE SHOWN IN TAD-148 AND TAD-149

WARNINGS

1. REMOVAL OR INSERTION OF PRINTED CIRCUIT BOARDS WITHOUT FIRST REMOVING POWER MAY RESULT IN DAMAGE TO COMPONENTS
2. VOLTAGE MAY STILL BE PRESENT ON UNIT AFTER REMOVING FUSES DUE TO FEED THROUGH FROM LAMP AND RELAY CIRCUITS ON OTHER UNITS

REMOVE AND INSTALL CONTROL TERMINAL CIRCUIT BOARD

NOTES

2. WHEN REPLACING ANY CIRCUIT BOARD WITHIN CHANNEL BAY, FUSE 3 MUST BE REMOVED IN ADDITION TO THE FUSE SHOWN IN TABLE B FOR THE ASSIGNED UNIT
3. 24-HR TIMER IN COMMON BAY WILL REQUIRE RESETTNG AFTER REMOVAL OF FUSE 3 WITHIN CHANNEL BAY

TABLE A	
CHANNEL BAY	
DESIGNATION	FUNCTION
MAJF	INDICATES THAT THERE IS A BLOWN FUSE IN POSITION 2, 3, 10, 15, 16, 17, OR 18.
RINF	INDICATES THAT THERE IS A BLOWN FUSE IN POSITION 1, 11, 12, 13, OR 14.
COMMON BAY	
DESIGNATION	FUNCTION
RAJF	INDICATES THAT THERE IS A BLOWN FUSE IN POSITION 3, 5, 7, 9, 11, 13, 17, OR 16.
RINF	INDICATES THAT THERE IS A BLOWN FUSE IN POSITION 1, 2, 4, 6, 8, 10, 12, 14, 15, OR 16.

WARNING 3

VOLTAGE MAY STILL BE PRESENT ON UNIT AFTER REMOVING FUSES DUE TO FEED THROUGH FROM LAMP AND RELAY CIRCUITS ON OTHER UNITS

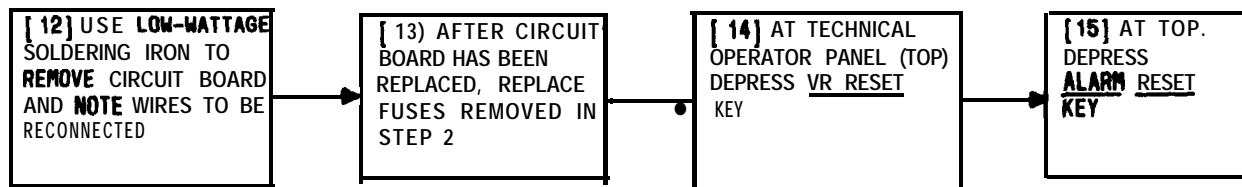
SEE WARNING 3. TABLE B		
CHANNEL BAY (SEE NOTES 2 AND 3)		
FUSE NO	AMP	ASSIGNMENT
1	1/2	ALARM LAMP, TEST JACK, AND POST BATTERY
2	3	REC SEL AND TRHTR CONTROL
3	3	VOLTAGE REGULATOR MONITOR AND TRANSFER
4	SPARE	
5	SPARE	
6	SPARE	
7	SPARE	
8	SPARE	
9	SPARE	
10	1/2	REC CONNECT AND TONE SENDER
11	1/2	REC SIGNALING AND CONTROL NO. 1 AND 2
12	1/2	REC SIGNALING AND CONTROL NO. 3 AND 4
13	1/2	REC SIGNALING AND CONTROL NO. 5 AND 6
14	1/2	REC SIGNALING AND CONTROL NO. 7 AND 6
15	1/2	TRHTR CONNECT AND TONE SENDER
16	1/2	TRHTR SIGNALING AND CONTROL NO. 2 AND 3
17	1/2	HIGHEST LEVEL REC SEL AND TRHTR SIGNALING AND CONTROL NO. 1
18	1/2	COMMON VOICE AND TONE
19	SPARE	
20	1/2	(20 HZ) REC SEL AND TRHTR CONTROL"

SEE WARNING 3. TABLE C		
COMMON BAY		
FUSE NO	AMP	ASSIGNMENT
1	1/2	ALARM LAMP, TEST JACK, AND POST BATTERY
2	1-1/3	A. CHANNEL STORAGE AND TECHNICAL
3	1/2	B. OPERATOR ACCESS NO. 1
4	1-1/3	A. CHANNEL STORAGE AND TECHNICAL
5	1/2	B. OPERATOR ACCESS NO. 2
6	1-1/3	A. CHANNEL STORAGE AND TECHNICAL
7	1/2	B. OPERATOR ACCESS NO. 3
8	1-1/3	A. CHANNEL STORAGE AND TECHNICAL
8	1/2	B. OPERATOR ACCESS NO. 4
10	1-1/3	A. CHANNEL STORAGE AND TECHNICAL
11	1/2	B. OPERATOR ACCESS NO. 5
12	1-1/3	A. CHANNEL STORAGE AND TECHNICAL
13	1/2	B. OPERATOR ACCESS NO. 6
14	3	USAGE AND ALARM LAMP AND METER PANEL
15	1-1/3	A. TECHNICAL OPERATOR PANEL
16	1/2	STANDBY TRANSMITTER CONTROL
17	1/2	24-HOUR TIMER
18	1/2	9. TECHNICAL OPERATOR PANEL
19	SPARE	
20	SPARE	

• NOT CONNECTED TO ALARM CIRCUIT

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REMOVE AND INSTALL CONTROL TERMINAL CIRCUIT BOARD



REMOVE AND INSTALL CONTROL TERMINAL CIRCUIT BOARD

[1] SET TR-RR-XR-OFF SWITCH ON ROUTINER TO **OFF**

[2] DISCONNECT POWER CORD FROM AC OUTLET AND ROUTINER TEST SET

[3] REMOVE FOUR SCREWS AT LEFT AND RIGHT EDGES OF FRONT PANEL

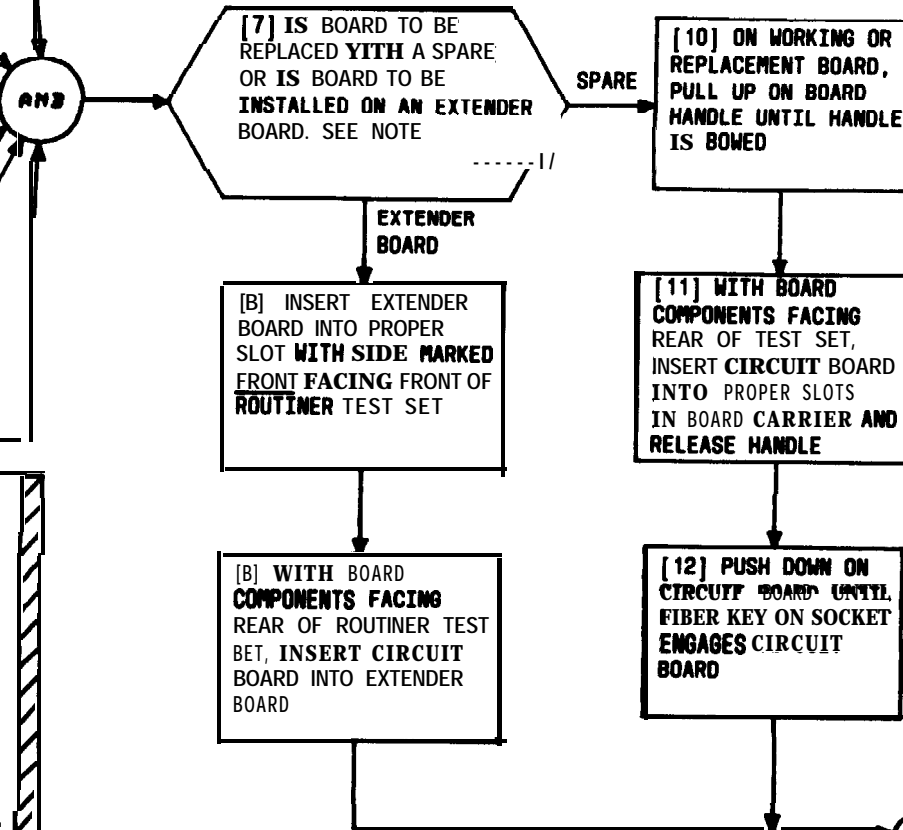
[4] USING METAL HANDLES, SLIDE ROUTINER TEST SET OUT OF CASE

[5] LOCATE CIRCUIT BOARD TO BE REMOVED OR EXTENDED [FIG. 1]

[6] SEE WARNINGS 1 AND 2. PULL UP ON CENTER OF PLASTIC HANDLE OF CIRCUIT BOARD AND REMOVE BOARD BY PULLING UPWARD

WARNINGS

1. WHEN REMOVING CIRCUIT BOARDS, MAKE SURE THAT EDGES OF BOARD ARE AINED SO THEY COME THROUGH THE SWITCH ON THE SIDE OF BOARD CARRIER
2. SOME OF THE CIRCUIT BOARDS COULD BE DAMAGED BY STATIC DISCHARGE IF HANDLED IMPROPERLY. CARE SHOULD BE TAKEN NOT TO TOUCH ANY BARE SURFACE SUCH AS THE CONTACT POINTS. IF A CIRCUIT BOARD IS TO BE STORED, IT SHOULD BE PLACED IN A CONDUCTIVE MEDIUM SUCH AS ALUMINUM FOIL



NOTE
EXTENDER BOARD 16 STORED ON SIDE OF CIRCUIT BOARD CARRIER

PAGE 2

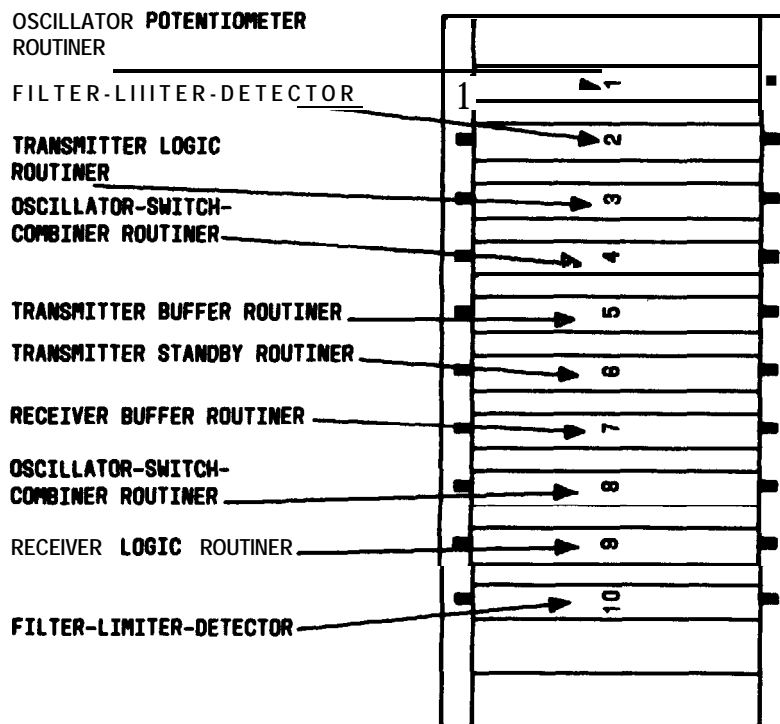
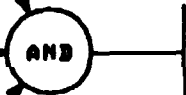
REMOVE AND INSTALL ROUTINER TEST SET CIRCUIT BOARD

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[13] WHEN CIRCUIT BOARD TEST IS COMPLETED, IF NECESSARY, REMOVE CIRCUIT AND/OR EXTENDER BOARDS. INSTALL WORKING CIRCUIT BOARD INTO BOARD CARRIER USING STEPS 10 THRU 12. STORE EXTENDER BOARD

[14] USING METAL HANDLES, SLIDE ROUTINER TEST SET INTO CASE

[15] CONNECT CASE AND ROUTINER TEST SET USING FOUR SCREWS REMOVED IN STEP 3



ROUTINER FRONT PANEL
(BACK SIDE)

FIG. 1

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[1] CONNECT LINE CORD TO 117-VAC POWER SUPPLY - - - - -

[2] DEPRESS PUSHBUTTON OFFUNCTION TO BE MEASURED [FIG. 1]

[3] CONNECT TEST LEADS FOR SPECIFIC HEASUREHENT TO BE HADE

[4] DEPRESS LINE PUSHBUTTON

DISPLAY APPEARS

[5] SET RANGE WITCH TO **DESIRED RANG**-

[6] SEE YARNING. CONNECT TEST LEADS TO EQUIPHENT UNDER TEST

WARNING
WHEN MAKING RESISTANCE MEASUREMENTS, MAKE SURE THAT POWER IS NOT APPLIED TO CIRCUIT BEING MEASURED, AS DAMAGE TO METER WILL RESULT

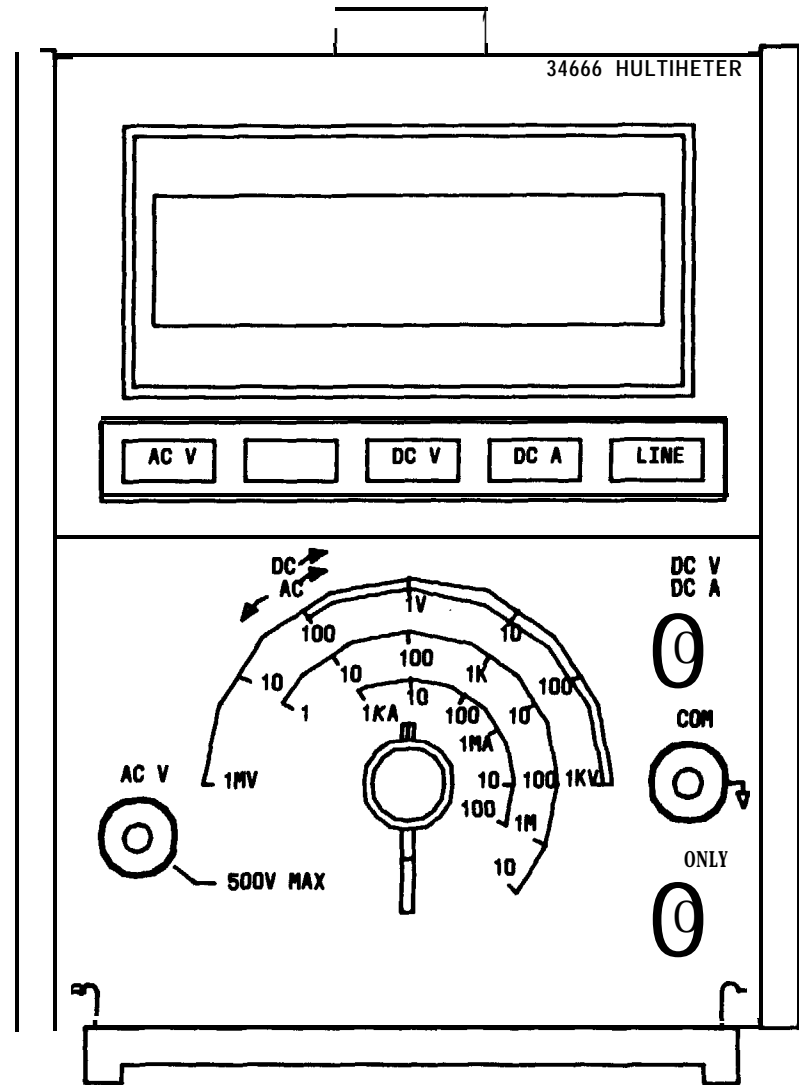


FIG. 1

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[1] CONNECT LINE POWER
CORD TO 115V, 60-W
OUTLET

[2] SET POWER SWITCH
TO ON [FIG. 1]

RED LAMP
LIGHTS

AND

[3] ALLOW VTVM
TO WARM UP FOR
AT LEAST 5
MINUTES BEFORE
USE

[4] ARE YOU
GOING TO
MEASURE VOLTAGE
OR DECIBELS

VOL

DECIBELS

PAGE 3

RED
LAMP,

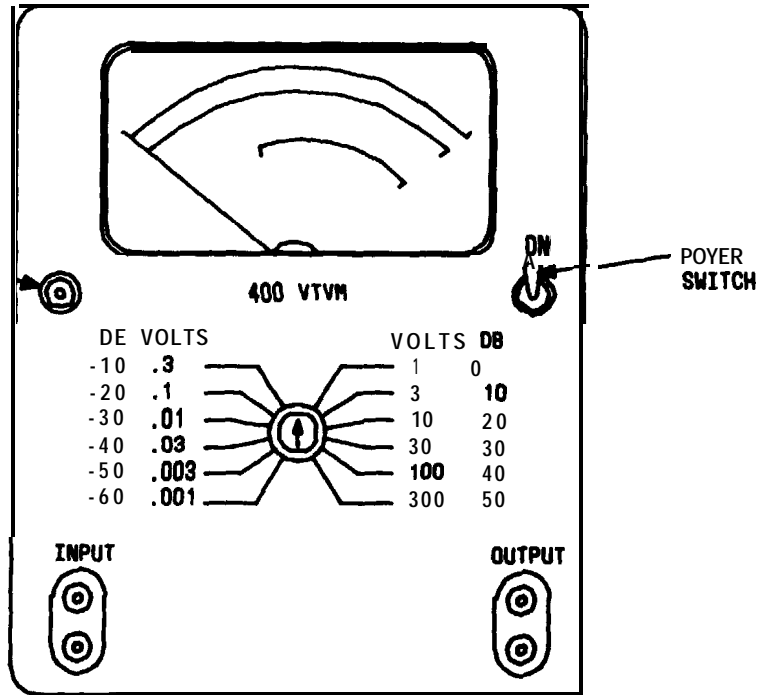
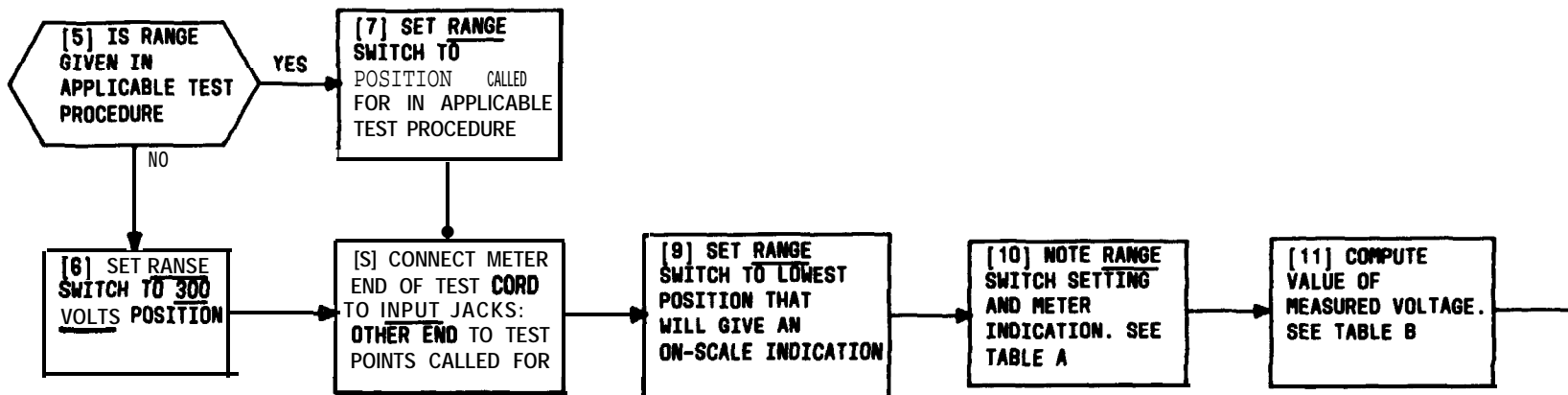


FIG. 1

CONDITION HP 400 () VTVM FOR MEASUREMENT



RANGE SWITCH SETTING (VOLTS)	READ RMS VOLTS	
	ON 0 - 1.0 SCALE	ON 0 - 3 SCALE
.001	X	
.003		X
.01	X	
.03		X
.1	X	
.3		X
1	X	
3		X
10	X	
30		X
100	X	
300		X

MEASURED VOLTAGE	$\frac{\text{RANGE SWITCH SETTING}}{\text{METER FULL SCALE VALUE}} \times \text{METER INDICATION}$	
CONDITIONS	COMPUTATION	
METER INDICATION 1.5 RANGE SWITCH SETTING .03 METER FULL SCALE VALUE 3	$\frac{.03}{3} \times 1.5$.015 VOLT
METER INDICATION .8 RANGE SWITCH SETTING 10 METER FULL SCALE VALUE 1	$\frac{10}{1} \times .8$	8 VOLTS

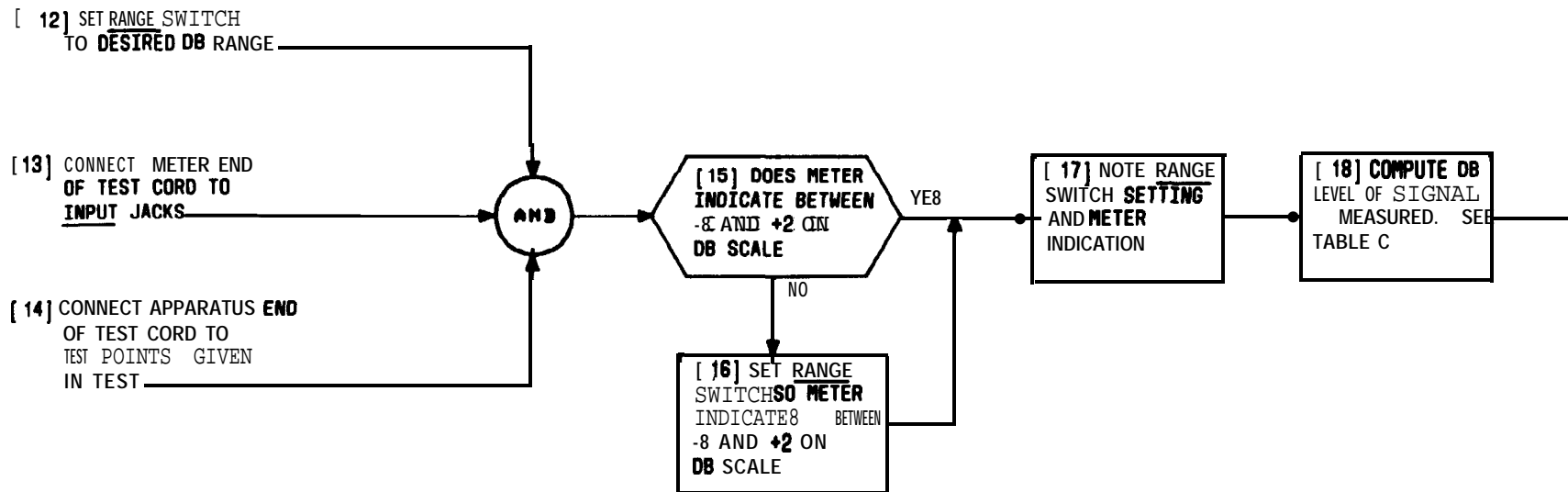
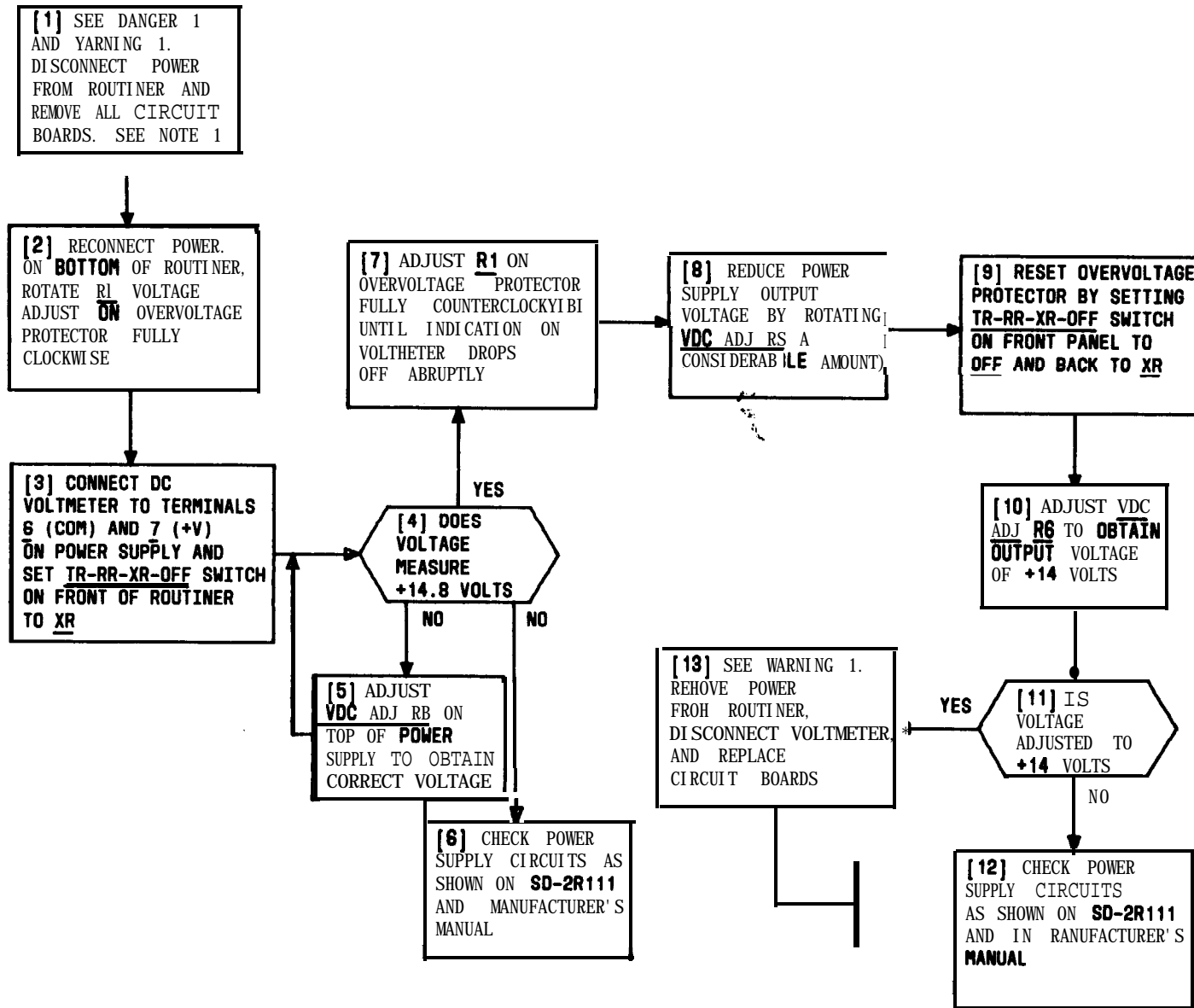


TABLE C EXAMPLES OF DB COMPUTATION				
SIGNAL LEVEL IN DB IS THE RANGE SWITCH SETTING PLUS OR MINUS THE METER DB SCALE INDICATION				
CONDITIONS	COMPUTATION			
RANGE SWITCH SETTING	- 10 DB	- 20.0 DB	+ 30.0 DB	+ 10.0 DB
METER INDICATION	+ 2 DB	+ 1.2 DB	+ 2.5 DB	- 2.4 DB
SIGNAL LEVEL	- 8 DB	- 21.2 DB	+ 32.5 DB	+ 7.8 DB

CONDITION HP 400 () VTVM FOR MEASUREMENT



ADJUST ROUTINER TEST SET POWER SUPPLY OUTPUT

NOTE 1
MANUFACTURER'S MANUALS FOR POWER SUPPLY AND OVERVOLTAGE PROTECTOR ARE SUPPLIED WITH ROUTINER

WARNING 1

WHEN REMOVING OR INSTALLING CIRCUIT BOARDS, FOLLOW PROCEDURES OUTLINED IN DLP-555 TO PREVENT **DAMAGE** TO EQUIPMENT

DANGER 1

120 VOLTS AC IS PRESENT IN THIS UNIT. USE CAUTION NOT TO TOUCH EXPOSED POINTS CARRYING THIS VOLTAGE

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[1] SEE DANGER 1. REMOVE POWER AND CONNECTIONS **FROM** ROUTINER. AND REMOVE ROUTINER FROM CASE
[DLP-555]

[2] RECONNECT POWER AND SET TR-RR-YR-OFF SWITCH ON FRONT PANEL OF ROUTINER TO **TR**

[3] CONDITION FREQUENCY COUNTER [DLP-549] AND CONNECT COUNTER INPUT TO OSCT OUT JACK

[4] ON RIGHT MIDDLE SIDE OF ROUTINER, SET 1900, 2100, AND 2900 SWITCHES TO **NOR**.

ROUTINER CONDITIONED FOR OSCILLATOR FREQUENCY MEASUREMENT

AND

[5] SEE TABLE A AND FIG. 1. PERFORM STEPS 6 THRU 47 TO MEASURE FREQUENCY AND MAKE ADJUSTMENTS AS REQUIRED. IF TROUBLE IS ENCOUNTERED, CONTINUE TO NEXT STEP

TABLE A - OSCILLATOR ADJUSTMENTS

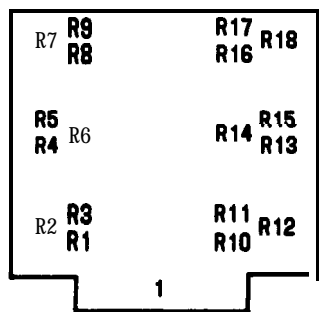


FIG. 1 - OSCILLATOR POTENTIOMETER BOARD

POTENTIOMETER	FREQUENCY	POTENTIOMETER	FREQUENCY
R1	2800 (T) L	R10	1900 (T) L
R2	2800 (T) NOR	R11	1900 (T) H
R3	2800 (T) H	R12	1900 (T) NOR
R4	2800 (R) L	R13	2100 (R) L
R5	2800 (R) NOR	R14	2100 (R) NOR
R6	2800 (R) H	R15	2100 (R) H
R7	2100 (T) NOR	R16	1900 (R) L
R8	2100 (T) L	R17	1900 (R) H
R9	2100 (T) H	R18	1900 (R) NOR

(T) TRANSMITTER SIDE
(R) RECEIVER SIDE

ADJUST ROUTINER TEST SET OUTPUT FREQUENCIES

- [6] ON RIGHT SIDE OF FRONT PANEL, OPERATE AND HOLD 1800 ON SWITCH
- [7] OBSERVE FREQUENCY COUNTER AND ADJUST R12 FOR AN INDICATION OF 1800 HZ AND RELEASE 1900 ON SWITCH
- [8] ON RIGHT SIDE OF FRONT PANEL, OPERATE AND HOLD 2100 ON SWITCH
- [9] OBSERVE FREQUENCY COUNTER AND ADJUST R7 FOR AN INDICATION OF 2100 HZ AND RELEASE 2100 ON SWITCH
- [10] ON RIGHT SIDE OF FRONT PANEL, OPERATE AND HOLD 2800 ON SWITCH
- [11] OBSERVE FREQUENCY COUNTER AND ADJUST R2 FOR AN INDICATION OF 2900 HZ AND RELEASE 2900 ON SWITCH
- [12] ON RIGHT SIDE RIDDLE OF FRONT PANEL, ROTATE 1800, 2100. AND 2900 SWITCHES TO THE UP POSITION
- [13] ON RIGHT SIDE OF FRONT PANEL, OPERATE AND HOLD 1800 ON SWITCH
- [14] OBSERVE FREQUENCY COUNTER AND ADJUST R10 FOR AN INDICATION OF 1888 HZ AND RELEASE 1900 ON SWITCH

[15] ON RIGHT **SIDE** OF FRONT PANEL, OPERATE AND HOLD 2100 ON SWITCH

[16] OBSERVE FREQUENCY COUNTER AND ADJUST R8 FOR AN INDICATION OF 2066 HZ AND RELEASE 2100 ON SWITCH

[17] ON RIGHT **SIDE** OF FRONT PANEL, OPERATE AND HOLD 2900 ON SWITCH

[18] OBSERVE **FREQUENCY** COUNTER AND **ADJUST** R1 FOR AN INDICATION OF 2966 HZ AND RELEASE 2900 ON SWITCH

[19] ON RIGHT **SIDE MIDDLE** OF FRONT PANEL, ROTATE 1600, 2100, AND 2900 SWITCHES TO THE H POSITION

[20] ON RIGHT **SIDE** OF FRONT PANEL, OPERATE **AND** HOLD 1900 ON SWITCH

[21] OBSERVE FREQUENCY COUNTER AND ADJUST R11 FOR AN INDICATION OF 1911 HZ AND RELEASE 1900 ON SWITCH

[22] ON RIGHT **SIDE** OF FRONT PANEL, OPERATE **AND** HOLD 2100 ON SWITCH

[23] OBSERVE FREQUENCY COUNTER AND ADJUST R9 FOR AN INDICATION OF 2111 HZ AND RELEASE 2100 ON SWITCH

JUST ROUTINER TEST SET OUTPUT FREQUENCIES

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- [24] ON RIGHT SIDE OF FRONT PANEL. OPERATE AND HOLD THE 2900 ON SWITCH
- [25] OBSERVE FREQUENCY COUNTER AND ADJUST R3 FOR AN INDICATION OF 2914 HZ AND RELEASE THE 2900 ON SWITCH
- [26] DISCONNECT FREQUENCY COUNTER **FROM** OSCT OUT JACK AND CONNECT **FREQUENCY** COUNTER TO OSCR OUT JACK
- [27] ON LEFT SIDE RIDDLE OF FRONT PANEL, ROTATE 1900, 2100, **AND** 2900 SWITCHES **TO** NOR POSITION
- [28] ON LEFT SIDE OF FRONT PANEL, OPERATE AND HOLD 1900 ON SWITCH
- [29] OBSERVE FREQUENCY COUNTER AND ADJUST R18 FOR AN INDICATION OF 1900 HZ AND RELEASE 1900 ON SWITCH
- [30] ON LEFT SIDE OF FRONT PANEL, OPERATE **AND** HOLD 2100 ON SWITCH
- [31] OBSERVE FREQUENCY COUNTER AND **ADJUST** R14 FOR AN INDICATION OF 2100 HZ **AND** RELEASE 2100 ON SWITCH
- [32] ON LEFT SIDE OF FRONT PANEL, OPERATE AND HOLD 2900 ON SWITCH
- [33] OBSERVE FREQUENCY COUNTER AND ADJUST R5 FOR AN INDICATION OF 2900 HZ AND RELEASE 2900 ON SWITCH

- [34] ON LEFT SIDE HIOOLE OF FRONT PANEL, ROTATE 1900, 2100, AND 2900 SWITCHES TO **THE L** POSITION
- [35] ON LEFT SIDE OF FRONT PANEL, OPERATE AND HOLD 1900 ON SWITCH
- [36] OBSERVE FREQUENCY COUNTER AND ADJUST R16 FOR AN INDICATION OF 1999 HZ AND RELEASE 1900 ON SWITC
- [37] ON LEFT SIDE OF FRONT PANEL, OPERATE AND HOLD 2100 ON SWITCH
- [38] OBSERVE FREQUENCY COUNTER AND ADJUST R13 FOR AN INDICATION OF 2099 HZ AND RELEASE 2100 ON SWITC:
- [39] ON LEFT SIDE OF FRONT PANEL, OPERATE AND HOLD 2900 ON **SWITCH**
- [40] OBSERVE **FREQUENCY** COUNTER AND ADJUST R4 FOR AN INDICATION OF 2996 HZ AND RELEASE 2900 ON SWITCH
- [41] ON LEFT SIDE RIDDLE OF FRONT PANEL, ROTATE 1900, 2100, AND 2900 SWITCHES **TO H** POSITION

ADJUST **ROUTINER** TEST SET OUTPUT FREQUENCIES

[42] ON LEFT **SIDE** OF FRONT PANEL, OPERATE AND **HOLD** 1900 ON SWITCH

[43] OBSERVE FREQUENCY COUNTER AND ADJUST R17 FOR **AN** INDICATION OF 1911 HZ **AND** RELEASE 1900 ON SWITCH

[44] ON LEFT SIDE OF FRONT PANEL, OPERATE AND HOLD 2100 ON SWITCH

[45] OBSERVE FREQUENCY COUNTER **AND** ADJUST R15 FOR AN INDICATION OF 2111 HZ AND RELEASE 2100 ON SWITCH

[46] ON LEFT SIDE OF FRONT PANEL, OPERATE **AND** HOLD 2800 ON SWITCH

[47] OBSERVE **FREQUENCY** COUNTER **AND** ADJUST R6 FOR AN INDICATION OF 2814 HZ **AND** RELEASE 2800 ON SWITCH

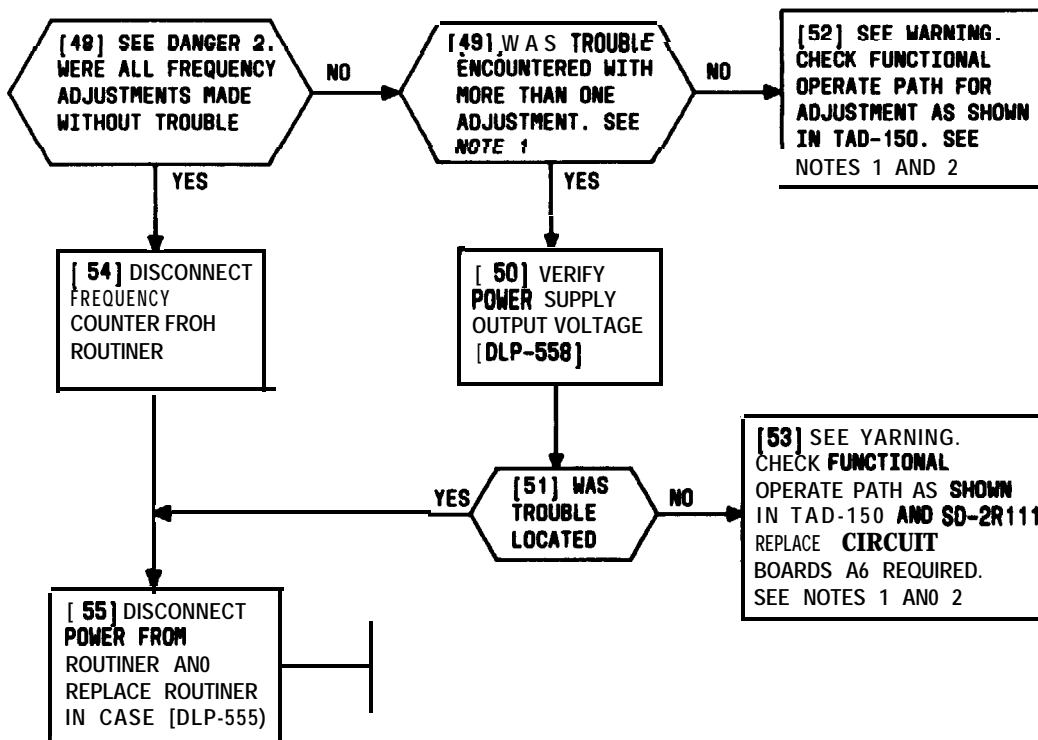
ADJUST ROUTINER TEST SET OUTPUT FREQUENCIES

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WARNING
 WHEN REMOVING OR
 INSTALLING CIRCUIT
 BOARDS, FOLLOW
 PROCEDURES OUTLINED
 IN DLP-555 TO PREVENT
 DAMAGE TO EQUIPMENT

DANGER 2
 120 VOLTS AC IS PRESENT
 IN THIS UNIT. USE
 CAUTION NOT TO TOUCH
 EXPOSED POINTS CARRYING
 THIS VOLTAGE

NOTES
 1. PARTICULAR ATTENTION SHOULD
 BE GIVEN TO FAULTY AND
 INTERMITTENT SWITCH CONTACTS
 2. WHEN OSCILLATOR POTENTIOMETER
 OR OSCILLATOR-SWITCH-COINER
 BOARDS ARE REPLACED, ALL
 ADJUSTMENTS ON THIS PROCEDURE
 MUST BE REPEATED AND DLP-560
 MUST BE PERFORMED



ADJUST ROUTINER TEST SET OUTPUT FREQUENCIES

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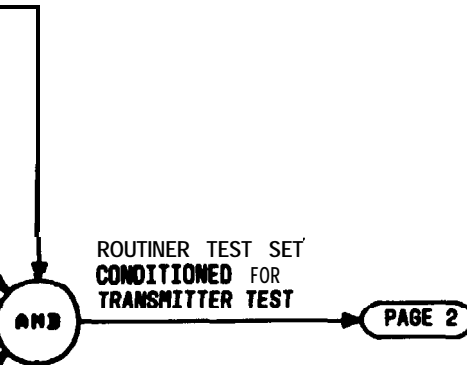
[1] REMOVE **POWER** AND **REMOVE** ROUTINER TEST SET FROM CASE [DLP-555]

[2] SEE **DANGER 1** AND **WARNING 1**. PLACE **OSCILLATOR-SWITCH-COMBINER** CIRCUIT BOARD NO. 4 (**TRANSMITTER**) ON EXTENDER BOARD [DLP-555]

[3] RECONNECT **POWER** AND SET TR-RR-XR-OFF SWITCH ON FRONT PANEL TO **TR**

[4] ON **RIGHT SIDE** OF FRONT PANEL, INSERT TYPE **89A** (0 DB) PAD INTO **OUT JACK**

[5] **CONDITION 21A TRANSMISSION MEASURING** SET [DLP-548] AND CONNECT **DET IN 6000** JACK TO **OSCT OUT** JACK ON RTS (**600 OHM**)



WARNING 1
WHEN REMOVING OR
INSTALLING CIRCUIT
BOARDS, FOLLOW
PROCEDURES OUTLINED
IN DLP-555 TO PREVENT
DAMAGE TO EQUIPMENT

DANGER 1
120 VOLTS AC IS
PRESENT IN THIS UNIT.
USE CAUTION NOT TO
TOUCH EXPOSED POINTS
CARRYING THIS VOLTAGE

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[6] ON RIGHT SIDE OF FRONT PANEL, OPERATE AND HOLD 1900 ON SWITCH

[7] NOTE INDICATION ON TRANSMISSION MEASURING SET (**TMS**) AND RELEASE 1900 ON SWITCH

[8] OPERATE AND HOLD 2100 ON SWITCH

[9] NOTE INDICATION ON **TMS** AND RELEASE 2100 ON SWITCH

[10] OPERATE AND HOLD 2900 ON SWITCH

[11] NOTE INDICATION ON **TMS** AND RELEASE 2900 ON SWITCH

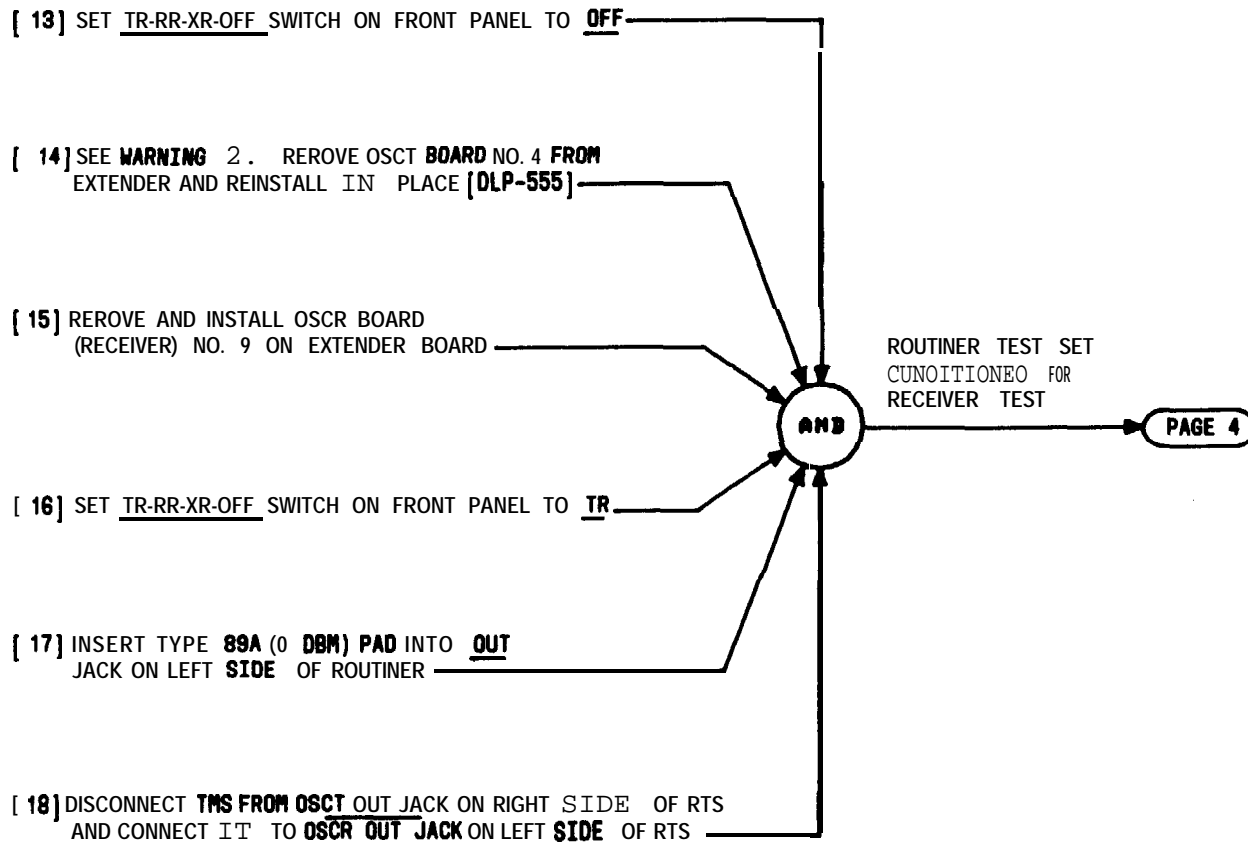
AND

[12] ARE **TMS** INDICATIONS 0 ± 2.0 DBM FOR 1900 AND TONES AND -1062.0 FOR 2900 TONE

NO

PAGE 5

ADJUST ROUTINER TEST SET **OUTPUT** LEVELS



ADJUST ROUTINER TEST SET OUTPUT LEVELS

WARNING 2	
WHEN REMOVING OR INSTALLING CIRCUIT BOARDS. FOLLOW PROCEDURES OUTLINED IN OLP-555 TO PREVENT DAMAGE TO EQUIPMENT	
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[19] ON LEFT SIDE OF FRONT PANEL, OPERATE AND HOLD 1900 ON SWITCH

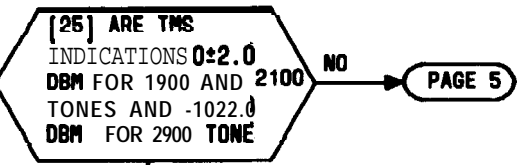
[20] NOTE INDICATION ON TMS AND RELEASE 1900 ON SWITCH

[21] OPERATE AND HOLD 2100 ON SWITCH

[22] NOTE INDICATION ON TMS AND RELEASE 2100 ON SWITCH

[23] OPERATE AND HOLD 2900 ON SWITCH

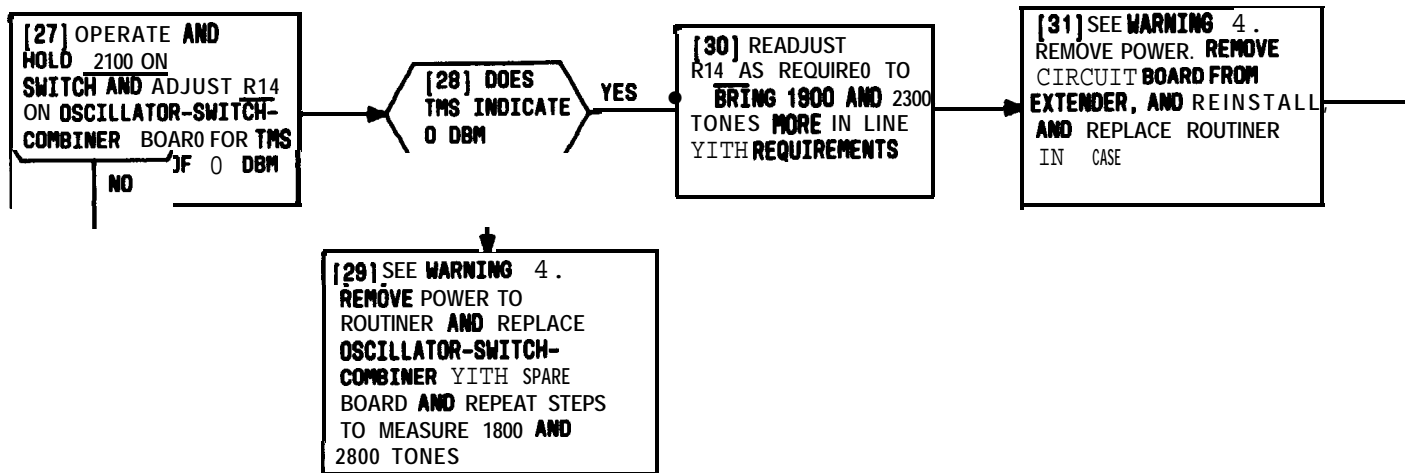
[24] NOTE INDICATION ON TMS AND RELEASE 2900 ON SWITCH



[26] SEE WARNING 3. REMOVE POWER, REMOVE CIRCUIT BOARD FROM EXTENDER, AND REINSTALL AND REPLACE ROUTINER IN CASE

ADJUST ROUTINER TEST SET OUTPUT LEVELS

WARNING 3	
WHEN REMOVING OR INSTALLING CIRCUIT BOARDS, FOLLOW THE PROCEDURES OUTLINED IN DLP-555 TO PREVENT DAMAGE TO EQUIPMENT	
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[29] SEE WARNING 4. REMOVE POWER TO ROUTINER AND REPLACE OSCILLATOR-SWITCH-COMBINER WITH SPARE BOARD AND REPEAT STEPS TO MEASURE 1800 AND 2800 TONES

WARNING 4	
WHEN REMOVING OR INSTALLING CIRCUIT BOARDS, FOLLOW PROCEDURES OUTLINED IN OLP-555 TO PREVENT DAMAGE TO EQUIPMENT	
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SUMMARY

CONNECT **TRANSMISSION** MEASURING SET (TMS) PER FIG. 1 AND MEASURE **2100-HZ** RECEIVER **TONE FOR METER** INDICATION BETWEEN **-13 AND -27 DBM** AND **2900-HZ** RECEIVER **TONE** BETWEEN **-19 AND -37 DBH**. THEN VERIFY THAT RECEIVER **CODAN 4** SECOND TIME-OUT CIRCUIT AND RECEIVER DATA SENDING CIRCUIT ARE OPERATING PROPERLY (PER LAMP RESPONSES IN STEPS 16 AND 19).

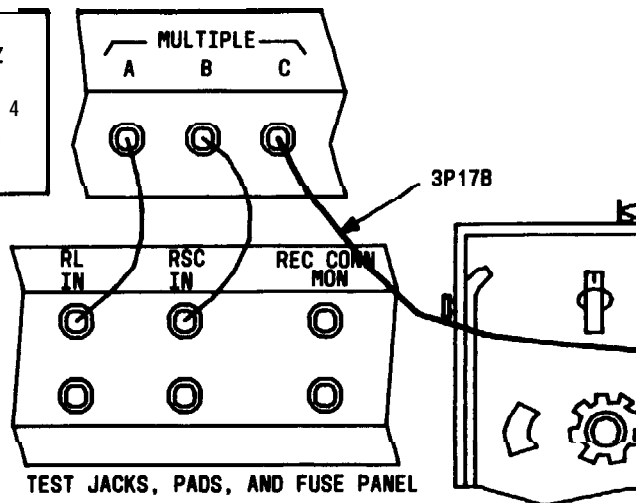


FIG. 1

[1] OBTAIN RELEASE FOR TEST TEST TO BE PERFORMED. SEE NOTE 1

[2] GET TEST EQUIPMENT PER TABLE A

[3] ENSURE CHANNEL () ID LAMP IS ON BEFORE CONTINUING WITH TEST



[4] AT TEST JACKS, PADS, AND FUSE PANEL, CONNECT **RL-IN()** TO **MULTIPLE A** JACK AND CONNECT **RSC-IN()** TO **MULTIPLE 6** JACK [FIG. 1]

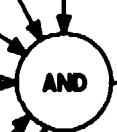
[5] CONDITION 21A TEST SET TO MEASURE DECIBELS [DLP-548]

[6] SET **DET INPUT** ON THS TO **+20**

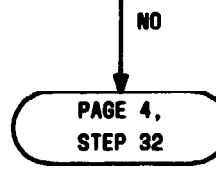
[7] CONNECT **DET IN 600Ω** OF TMS TO **MULTIPLE C** JACK ON TEST JACKS, PADS, AND FUSE PANEL WITH A **3P17B** PATCH CORD [FIG. 1]

[8] PLACE AN OPEN **PLUG** IN THE **TSCO-OUT** JACK FOR EACH EQUIPPED **TRANSMITTER** SIGNALING AND CONTROL CIRCUIT

[9] ON TMS, TURN **DET INPUT** CLOCKWISE UNTIL AN **ON-SCALE METER** DEFLECTION IS OBTAINED



[10] DOES METER INDICATE BETWEEN **-13 AND -27 DBM**



TEST REMOTE RECEIVERS USING TEST GENERATOR

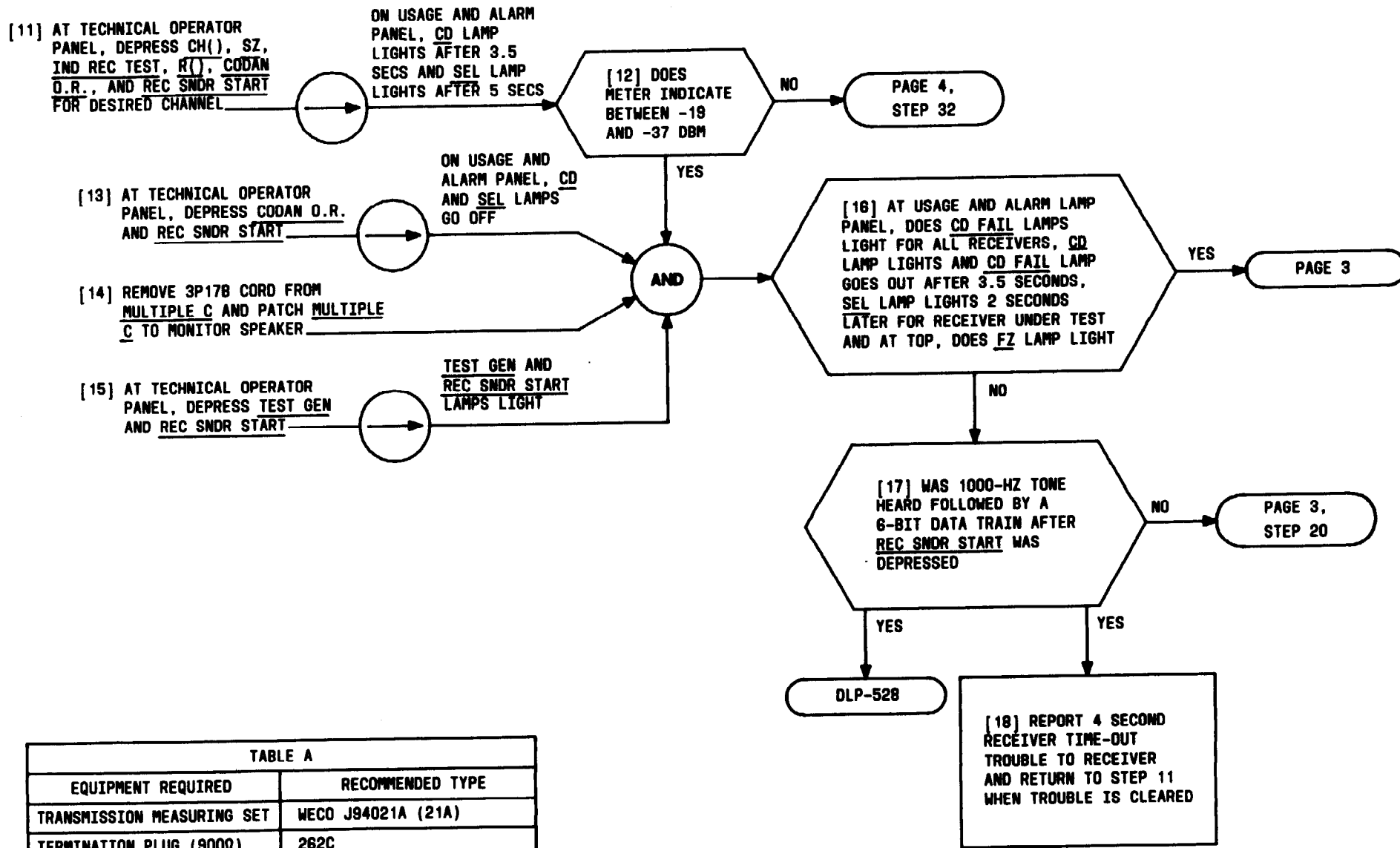
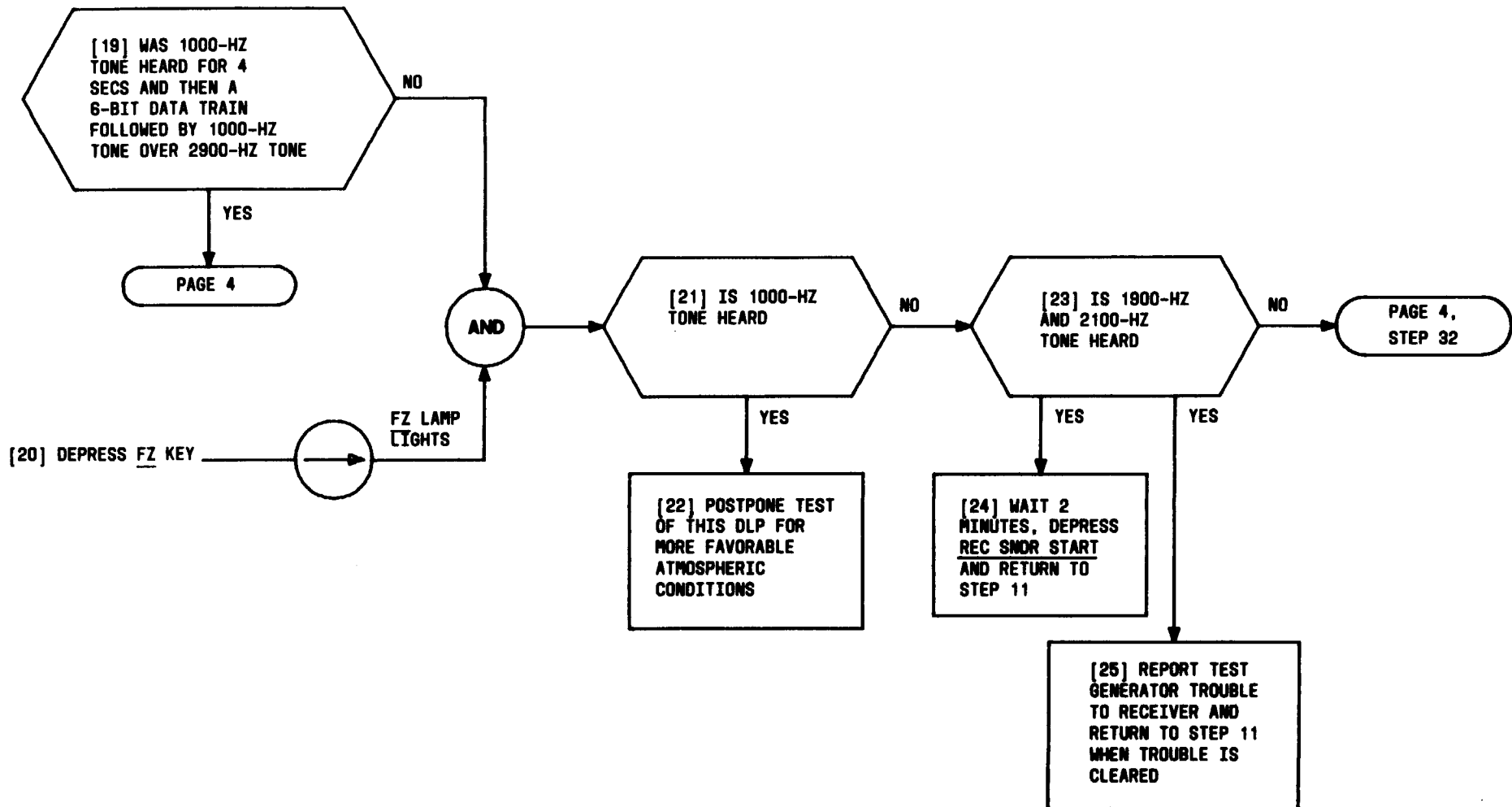


TABLE A	
EQUIPMENT REQUIRED	RECOMMENDED TYPE
TRANSMISSION MEASURING SET	WECO J94021A (21A)
TERMINATION PLUG (900Ω)	262C
TEST CORD FOR TMS	3P17B CORD

TEST REMOTE RECEIVERS USING TEST GENERATOR



TEST REMOTE RECEIVERS USING TEST GENERATOR

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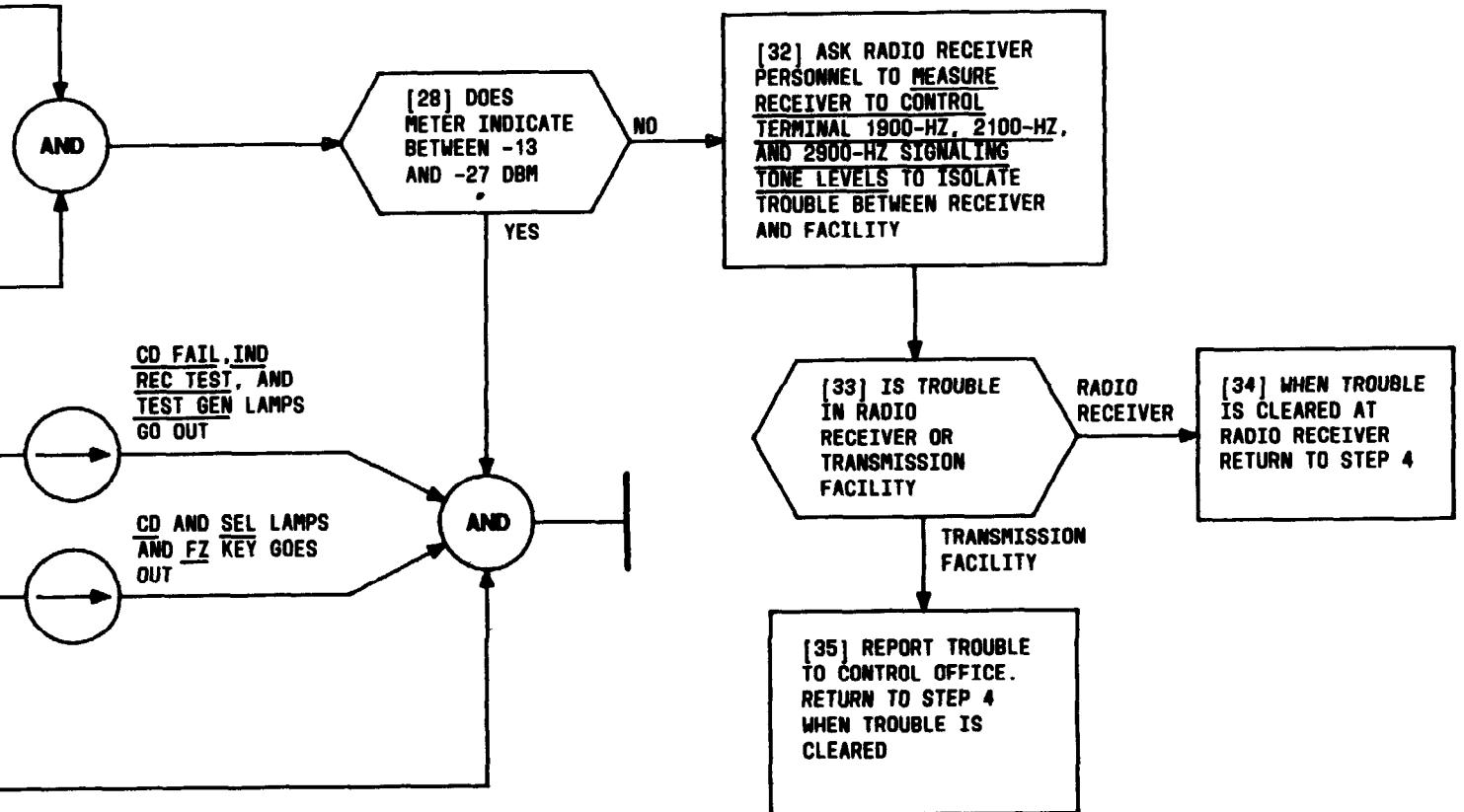
[26] AT TEST JACKS, PADS, AND FUSE PANEL REMOVE PATCH CORD BETWEEN MULTIPLE C AND MONITOR SPEAKER

[27] RECONNECT DET IN 600Ω OF TMS TO MULTIPLE C JACK

[29] AT TECHNICAL OPERATOR PANEL, DEPRESS TEST GEN, SZ, AND RLS

[30] DEPRESS REC SENDER START

[31] REMOVE DUMMY PLUG AND ALL PATCH CORDS FROM TEST JACKS AND FUSE PANEL



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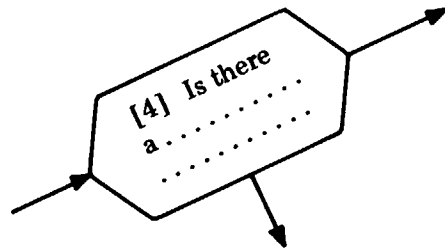
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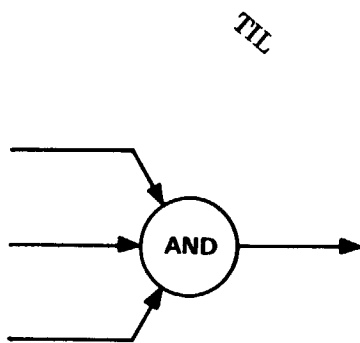


This is a

TASK ORIENTED PRACTICE or TOP

The next few pages will tell you how to use this document.

TAP

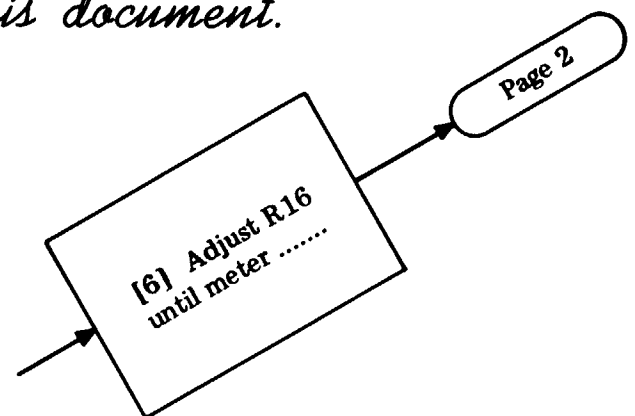


TIL

ATP

ATL

[DLP-540]



HOW TO USE THIS "TOP"

This book is called a Task Oriented Practice or a "TOP." It is a type of programmed document — one which gives you step-by-step instructions of how to do a job (or task). A TOP can be a big help in your everyday work, but you must know how to use it correctly. Take a few minutes, say 15 or 20, and study these few pages until you feel you understand how to use a TOP. Taking this time now will very likely save you time and effort later on.

An important thing to remember about TOP is that it contains all the needed instructions to complete a job. If you are doing the job for the first time, you will be directed through each action without having to guess or remember where to find the necessary information. If you are experienced on a particular job, TOP can provide just that information which you may have forgotten.

Almost all of your jobs can be classified into one of four types — *Routine*, *Acceptance*, *Company Order*, or *Trouble Clearing*. This is how TOP defines these four work types:

Routine

that work you do as part of a Controlled Maintenance Plan like scheduled cleaning or scheduled tests. Routine work may also include those things you do as a "routine" part of your job like requesting a TTY printout or turning on equipment in the mornings and off in the evenings.

Acceptance

that work you do to verify that equipment is installed properly. Normally this is a test or inspection you perform when Western Electric has completed a new installation or addition. It could

also be a test you perform when another group from *your* Company has completed an installation or addition of equipment. Acceptance work, however, is always related to testing or checking newly installed equipment.

Company Order

that work you do in response to one of several different "orders" which may be given to you. Some of the orders you may be familiar with are: Circuit Orders, Service Orders, Traffic Orders, Recent Change Orders, etc. Normally, company order type work is something done to install, establish, change, or discontinue some service offered by the telephone company.

Trouble Clearing

is simply what it says—that work you do to clear and repair troubles in the system. Trouble clearing may be done in answering a customer complaint, responding to some office alarm, an abnormal TTY printout, etc.

Try to fix these four work types firmly in your mind. As you will see, you must classify each job you get in one of these four types before you will be able to look up the instructions in the TOP.

Now glance briefly at the front cover: there are several things which will be useful there. In the upper-right corner is the 9-digit volume number. Near the center is the volume title which tells you something about the contents—such things as the system (or subsystem) name and perhaps the type of jobs included in the volume. Next is a four-line index located in the lower-left corner. This index provides the location of four "lists" which are simply a listing of all the jobs in each of the

four job types. If a nine-digit (XXX-XXX-XXX) number appears on the front cover index, that particular list is located in another volume of the TOP. A three-digit number on the line means that the list is in this volume, and the list can be located by searching the lower-right corner of each page for the *referenced number*.

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These numbers will always be arranged in numerical order; however, all numbers in the sequence will not be used.

Some TOP volumes may cover only a small part of a system, so on the inside of each front cover you will find a documentation plan. This plan will give a bird's-eye view of all the volumes in the TOP and can help you quickly determine the correct volume.

Locate one of the TOP volumes which contains a Company Order List, and note from the front cover that this list is numbered "050." Turn to that number in the TOP.

This Company Order List (COL) is simply a listing of all the Circuit Order jobs, Service Order jobs, etc, that may be done on this system. Once you know the job you have to do, use the lists as an index to find the number of the "procedure" which tells you *what to do* to complete that job.

Now pick one of these jobs from the list which references to a COP (Company Order Procedure), and using the referenced number, locate that procedure in the TOP. Look over this procedure and note that it gives all the items which must be done to complete the job.

The items are numbered and must be completed in that order; however, you may see some lettered (A, B, C...) items in the procedure. These letters are assigned to options or other items which may be done differently because of equipment variations, etc. Look over the following example to get a better idea of what is meant by the numbers (1,2,3...) and letters (A,B,C...) which may be used in the procedure.

ITEM	SUBTASKS	PROCEDURE NUMBER
1	Do the first thing first	DLP-XXX
2	Do the second item next	DLP-XXX
3	Do the following optional items as required by the Company Order or as is required by the system you are working on	
	A. An optional item	DLP-XXX
	B. Another optional item	—
	C. Another optional item which must be done in the sequence below	
	1. First part of Option "C"	DLP-XXX
	2. Last part of Option "C"	DLP-XXX
4	Do the next part of the job	DLP-XXX
5	Do the last part of the job	DLP-XXX

Remember that this procedure tells you *what* to do in order to complete the total job. If you know *how* to do an item in the procedure, you should go ahead and complete it. If you need further information on *how* to do part of the job, then you should turn to the referenced DLP or Detail Level Procedure. When you complete all the steps in the DLP, then you must turn back to the COP or Company Order Procedure to find the next item to be done.

TOP is designed so that you will have to read only what is necessary to get your job done. At any time when you know how to perform all the steps in an item, it is not necessary to look further for the “how to” information—simply complete the item and go on to the next one. This idea, in TOP, is known as “bypassing.”

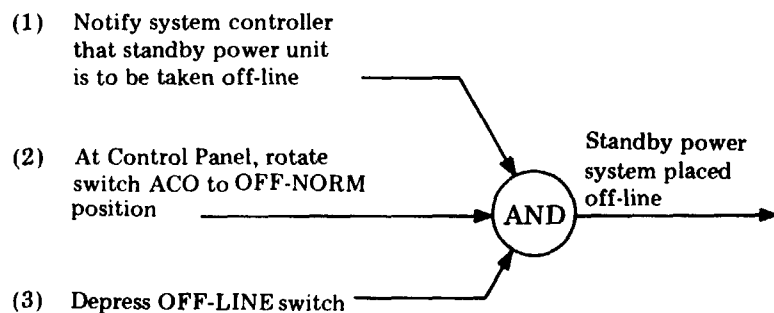
Here are some of the things designed into TOP to help you “bypass” information you may already know:

Summary Statement

A summary statement is used with a DLP (or the flow-charted procedures). It tells you briefly what the procedure does and what type measurement or result can be observed. After reading the summary, you may be able to complete the procedure without reading further. Some shorter DLPs, of course, do not have summary statements.

Result Statement

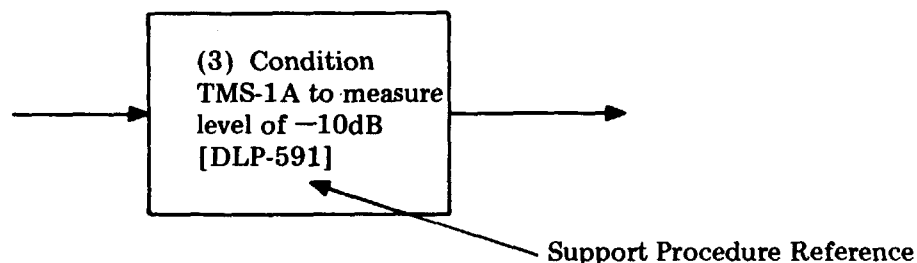
A result statement may be used in a flow-charted procedure along with the “AND” symbol. Here is an example of the “AND” symbol and a *result statement*:



When using a procedure, read the result statement first. If you know how to place standby power system in off-line status, it would be unnecessary to read steps 1, 2, and 3.

Support Procedures

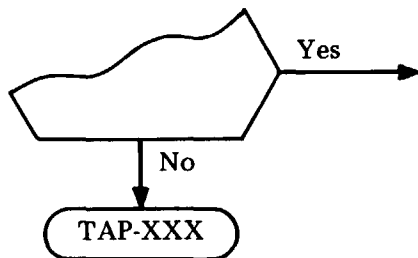
When you see this kind of reference in TOP, it refers to a support procedure.



The support procedure (DLP-591) would provide information about how to operate the TMS-1A. Of course, if you are familiar with the TMS-1A, there is no reason to look up DLP-591.

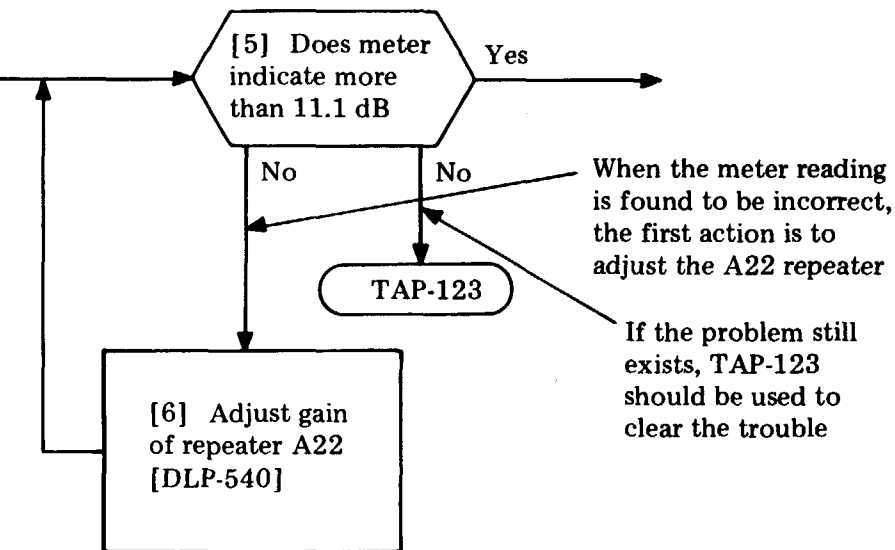
So far, the Company Order type jobs have been the main topic; however, you will find that the Routine and Acceptance categories are used in the same manner. You may come across a couple of new abbreviations in those categories; namely, Acceptance Task Procedure (ATP) and Routine Task Procedure (RTP). These categories are used in the same way that the Company Order Procedure (COP) is used in the Company Order work.

While using TOP, you probably will run across a reference similar to this:



This reference to TAP-XXX indicates that the equipment is not operating correctly and the TAP (Trouble Analysis Procedure) should be used to help you find and repair the trouble.

This idea can be carried further. In some cases, a decision block may have more than one abnormal output. This simply means that you should try more than one solution to the problem. See the example below.

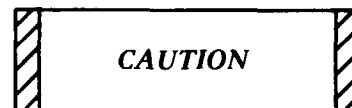


Trouble clearing information in TOP is basically used the same way as the other types. When a trouble report or equipment alarm requires you to troubleshoot a system, the Trouble Indicator List (TIL) is the place to start. This (TIL) is a listing of trouble symptoms or alarms with a reference to a Trouble Analysis Procedure (TAP). The TAP is an aid in analyzing and locating the cause of the trouble. The TAP may reference to other information such as a Trouble Analysis Data (TAD) or an Isolation Diagram (ISD) as an aid in the trouble clearing process.

Any job must always be done safely and it is no different with TOP. Here are three items which you should look for in TOP:



– means there is a possibility of personal injury



– means there is a possibility of service interruption



– means there is a possibility of equipment damage

The last page of this introductory section is a diagram which shows all the elements used to make up a TOP and basically how they are organized to make a complete document. The diagram may, at first, seem to be complex; but remember, TOP is a programmed document and it always tells you where to find the next bit of information required to do the job. The diagram, however, may be useful later if you need to know the words which DLP, TAP, etc, represent or simply a memory jogger about TOP in general.

While using any TOP, if you find errors, or if a procedure is inadequate or missing, your comments are greatly needed. They may be forwarded by using the standard form E3973 which is available through your Company. Thank you for helping us prepare better documentation.

