

TECHNICAL MANUAL

**AVIATION INTERMEDIATE
MAINTENANCE MANUAL**

**VHF AM/FM RADIO SET
AN/ARC-186(V)**

This copy is a reprint which includes current pages from Changes 1 through 5.

HEADQUARTERS, DEPARTMENT OF THE ARMY

15 JANUARY 1986

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington DC, 1 June 1994

CHANGE
No. 5

**Aviation Intermediate
Maintenance Manual
VHF AM/FM RADIO SET
AN/ARC-186(V)
(NSN 5821-01-086-6243) (EIC: N/A)**

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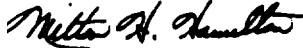
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**Aviation Intermediate
Maintenance Manual
VHF AM/FM RADIO SET
AN/ARC-186(V)
(NSN 5821-01-086-6243) (EIC: N/A)**

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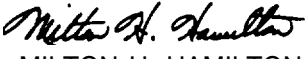
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Aviation Intermediate Maintenance Manual

**AN/ARC-186(V), VHF AM/FM RADIO SET
(NSN 5821-01-086-6243)
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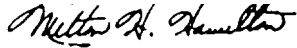
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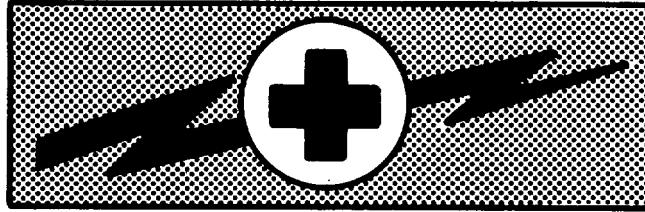
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WARNING



WARNING

HIGH VOLTAGE

is used in the operation of this equipment

DEATH ON CONTACT

may result if personnel fail to observe safety precautions

Never work on electronic equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and who is competent in administering first aid. When the technician is aided by operators, he must warn them about dangerous areas.

Whenever possible, the power supply to the equipment must be shut off before beginning work on the equipment. Take particular care to ground every capacitor likely to hold a dangerous potential. When working inside the equipment, after the power has been turned off, always ground every part before touching it.

Be careful not to contact high-voltage connections of 115-volt ac input connections when installing or operating this equipment.

Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flowing through vital organs of the body.

WARNING Do not be misled by the term "low voltage." Potentials as low as 50 volts may cause death under adverse conditions.

For Artificial Respiration, refer to FM 21-11.

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**AVIATION INTERMEDIATE
MAINTENANCE MANUAL**

**VHF AM/FM RADIO SET
AN/ARC-186(V)
(NSN 5821-01-086-6243) (EIC: N/A)**

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in back of this manual direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-LC-LM-LT Fort Monmouth, New Jersey 07703-5007. In either case, a reply will be furnished direct to you.

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* This manual supersedes TM 11-5821-318-30 dated 5 June 1981.

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CHAPTER 1

INTRODUCTION

CHAPTER OVERVIEW

Chapter 1 is divided into two sections.

a. Section I. General Information.

Tells you general “need-to-know” information found in all technical manuals (TM's). This information includes:

- Maintenance forms and records.
- Reporting equipment improvement recommendations (EIR).

An official nomenclature to common name cross-reference list is included to make the TM easier to read.

b. Section II. Equipment Description and Data.

Includes

- Location and description of the major components that are maintained at Aviation Intermediate Maintenance (AVIM).
- Safety, care, and handling of electrostatic discharge sensitive (ESDS) devices.

Section I. GENERAL INFORMATION

1-1. SCOPE

- a. Type of Manual.
Aviation Intermediate Maintenance
- b. Model Number and Equipment Name
AN/ARC-186(V) VHF AM/FM Radio Set

1-1.1. CONSOLIDATED INDEX OF ARMY PUBLICATIONS AND BLANK FORMS

Refer to the latest issue of DA Pam 25-30 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS

a. *Reports of Maintenance and Unsatisfactory Equipment.* Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738-750, as contained in Maintenance Management Update.

b. *Reporting of Item and Packaging Discrepancies.* Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/SECNAVINST 4355.18/AFR 400-54/MCO 4430.3J.

c. *Transportation Discrepancy Report (TDR) (SF 361).* Fill out and forward Transportation Discrepancy Report (TDR) (SF 361) as prescribed in AR 55-38/NAVSUPINST 4610.33C/AFR 75-18/MCO P4610.19D/DLAR 4500.15.

1-2.1. ADMINISTRATIVE STORAGE

Administrative storage of equipment issued to and used by Army activities will have Preventive Maintenance Checks and Services (PMCS) performed before storing. When removing the equipment from administrative storage, the PMCS checks should be performed to assure operational readiness.

1-3. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-LC-ED-TC, Fort Monmouth, New Jersey 07703-5023. We'll send you a reply.

1-4. NOMENCLATURE CROSS-REFERENCE LIST

<u>Common Name</u>	<u>Official Nomenclature</u>
Radio set	VHF AM/FM Radio Set AN/ARC-186(V)
RT-1300A	Radio Receiver-Transmitter RT-1300A/ARC-186(V)
RT-1300B	Radio Receiver-Transmitter RT-1300B/ARC-186(V)
RT-1354	Radio Receiver-Transmitter RT-1354/ARC-186(V), Radio Receiver-Transmitter RT-1354A/ARC-186(V) and Radio Receiver-Transmitter RT-1354B/ARC-186(V)
C-10604	Radio Set Control C-10604(V)6/ARC-186(V), Radio Set Control C-10604(V)7/ARC-186(V) and Radio Set Control C-10604A(V)6/ARC-186(V)
C-10606	Radio Set Control C-10606(V)6/ARC-186(V) and Radio Set Control C-10606(V)7/ARC-186(V)
CM-482	Signal Data Comparator CM-482/ARC-186(V)
CM-492	Signal Data Comparator CM-492/ARC-186(V)
M-6048A	Electrical Equipment Mounting Base MT-6048A/ARC-186(V)
M-6050	Electrical Equipment Mounting Base MT-6050/ARC-186(V)

NOTE

The following common names and official nomenclatures are used in the RT-1300A, RT-1300B, and RT-1354.

<u>Common Name</u>	<u>Official Nomenclature</u>
A1	Transmitter Assembly
A2	Power Supply
A3	Audio Circuit Card
A4	Receiver Assembly
A5	Synthesizer Assembly
A6	Chassis Assembly
A7	Control Assembly (RT-1354 only)
A8	Blank Panel Assembly (RT-1300A only)
A9	1553 Panel Assembly (RT-1300B only)

1-4. NOMENCLATURE CROSS-REFERENCE LIST (Continued)

NOTE

The following common names and official nomenclatures are used for test, measurement and diagnostic equipment.

<u>Common Name</u>	<u>Official Nomenclature</u>
Tool Kit TK-105/G	Electronic Equipment Tool Kit TK-105/G
AN/URM-120	Radio Frequency Power Test Set AN/URM-120
ME-525	Modulation Meter ME-525/USM
AN/GSM-64C	Digital Voltmeter AN/GSM-64C
SG-1112(V)1	Signal Generator SG-1112(V)1/U
PP-1104	Battery Charger PP-1104C/G
MK-994A/AR	Test Facilities Kit MK-994A/AR
AN/USM-281C	Oscilloscope AN/USM-281C
H-158	Headset-Microphone H-158/AIC
AN/URM-127	Signal Generator AN/URM-127A
6-dB Attenuator	6-dB Fixed Attenuator, Boonton 80 ZH3, NSN 5985-00-888-8714
AN/URM-164A	Distortion Analyzer AN/URM-184A
30-dB Attenuator	30-dB Fixed Attenuator Narda 766-30, NSN 5985-00-233-4626 .
MX-1730	Fuseholder MX-1730/U
J-4247/AR	Interconnecting Box J-4247/AR
AN/URM-145	Electronic Voltmeter AN/URM-145D

Section II. EQUIPMENT DESCRIPTION AND DATA

1-5. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

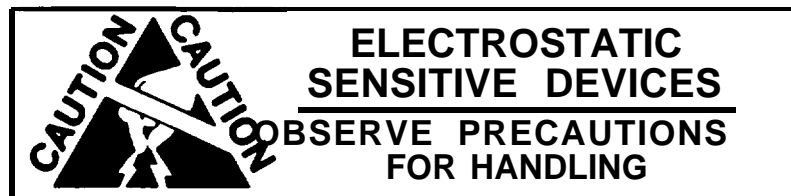
See TM 11-5821-318-12 Chapter 1, Section I for the characteristics, capabilities, and features of the radio set.

1-6. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS**CAUTION**

ELECTROSTATIC DISCHARGE SENSITIVE (ESDS) DEVICES are used in your radio set.

ESDS are assemblies and parts that can be **DESTROYED** by the **STATIC ELECTRICITY IN YOUR BODY**.

When you see these labels on assemblies and parts



or



BE CAREFUL — DO NOT TOUCH unless you are connected to a static work station.

1-6. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (Continued)

This paragraph locates and describes only the maintenance features of the radio set's components that you are allowed to take apart.

See TM 11-5821-318-12, Chapter 1, Section II for the location and description of all the radio set's major components.

You are allowed to take apart the RT-1300A, RT-1300B, and RT-1354 to replace assemblies.

The RT-1300A, RT-1300B, and RT-1354 each contain seven assemblies:

Transmitter Assembly A1.

Power Supply A2.

Audio Circuit Card A3.

Receiver Assembly A4.

Synthesizer Assembly A5.

Chassis Assembly A6.

Control Assembly A7 (RT-1354 only).

Blank Panel Assembly A8 (RT-1300A only).

1553 Panel Assembly A9 (RT-1300B only).

The RT-1300A and RT-1354 use different transmitter assemblies (A1).

The RT-1300A A1 uses a:

BNC connector (J3) for the FM antenna cable connection.

TNC connector (J4) for the AM antenna cable connection.

The RT-1354 A1 uses TPS connectors for J3 and J4.

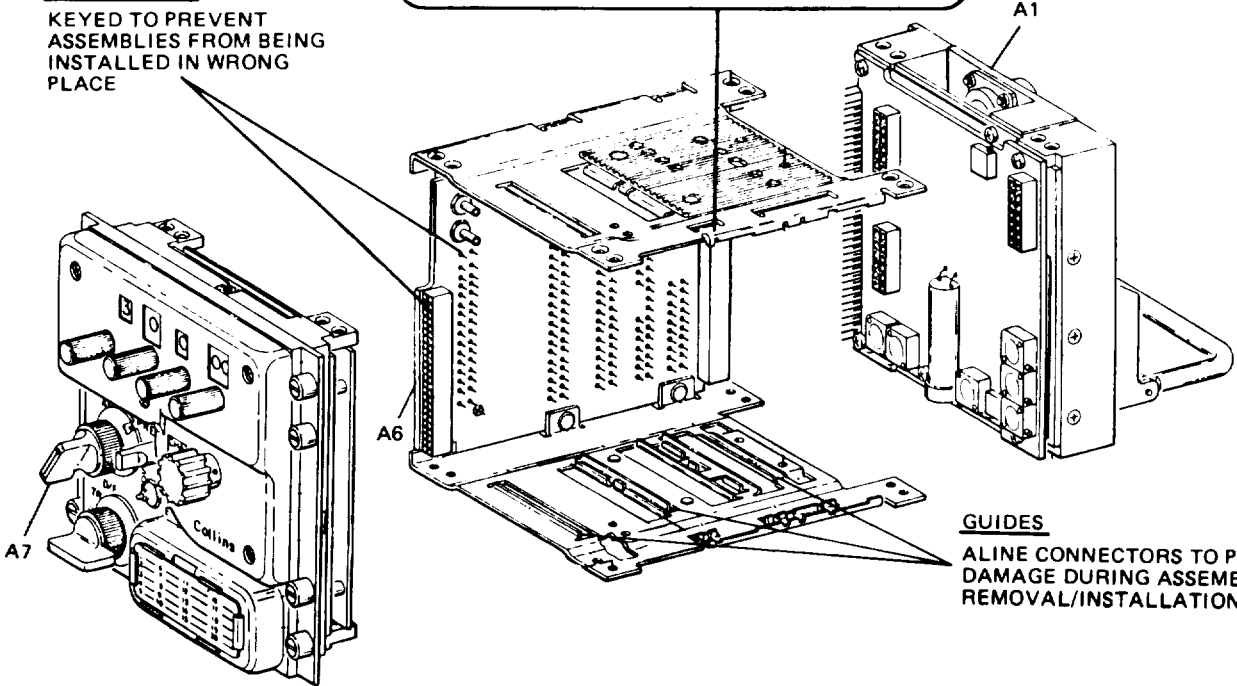
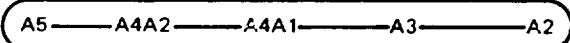
The RT-1354 and RT-1354B use dc power for faceplate lighting (red for RT-1354, and ANVIS green for RT-1354 B); the RT-1354A uses ac power for faceplate lighting (green).

The C-10604(V)6 and C-10606(V)6 faceplates light up red; the C-10604(V)7 and C-10606(V)7 faceplates light up green, the C-10604A(V)6 faceplate lights up ANVIS green.

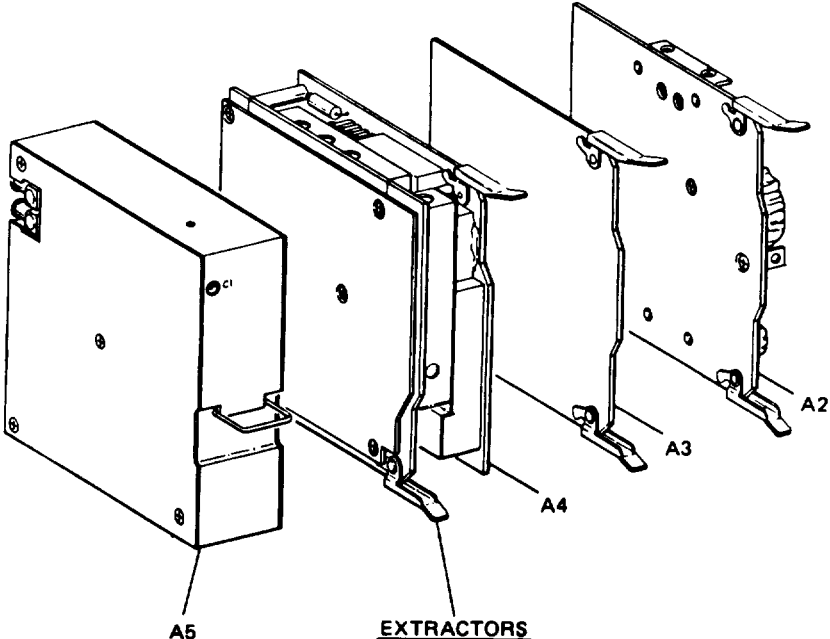
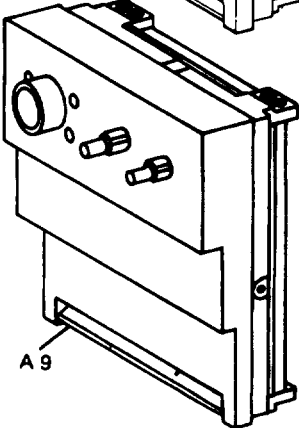
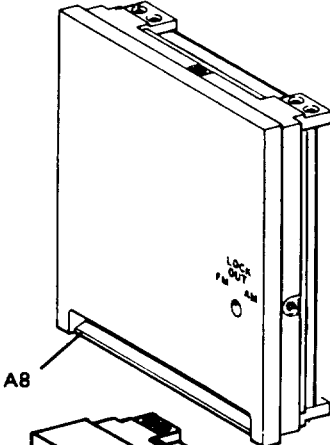
ANVIS (Aviator's Night Vision Imaging System) panel lighting prevents infrared light emission from the RT-1354B and the C-10604A(V)6 which would otherwise affect night goggle operation and thus flight safety. ANVIS panel lighting changes are a result of MWO 11-5821 -318-30-1 and MWO 11-5821-318-30-2.

1-6. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (Continued)

CONNECTORS
KEYED TO PREVENT
ASSEMBLIES FROM BEING
INSTALLED IN WRONG
PLACE



GUIDES
ALIGN CONNECTORS TO PREVENT
DAMAGE DURING ASSEMBLY
REMOVAL/INSTALLATION



EXTRACTORS
USED TO REMOVE/INSTALL
A2 THRU A4

1-7. EQUIPMENT DATA

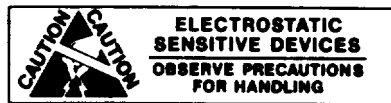
See TM 11-5821-318-12, paragraph 1-10, for equipment data.

1-8. SAFETY, CARE, AND HANDLING

Many parts of the radio set are easily damaged by static electricity and are called electrostatic discharge sensitive devices.

- a. Identifying Electrostatic Discharge Sensitive (ESDS) Devices. You can tell if a component has ESDS parts installed by checking for

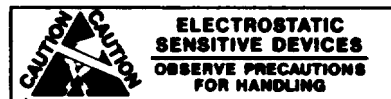
(1) A black-on-yellow caution sticker on the part or assembly.



or



(2) One of these caution stickers in the TM maintenance procedure or illustration.



or



(3) The abbreviation ESDS in the description column of the parts list.

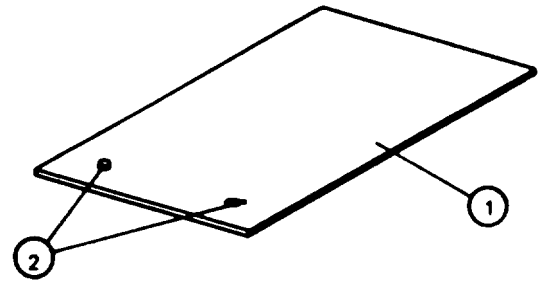
Always check for ESDS before performing maintenance procedures.

- b. Preventing Damage to ESDS. Always work at a static work station when performing maintenance procedures on components that contain ESDS. Place the equipment and all tools on the static work station before removing any component covers. Keep all ESDS in protective packages when not installed in equipment. Place repairable components that contain ESDS in protective packages as soon as they are removed from equipment. Be sure to use only antistatic bags for packaging.
- c. Using Static Work Stations. Static work station NSN 4940-01-087-3458 is designed to prevent buildup of static electricity that could damage ESDS. Always set up the static work station as shown before removing covers from equipment or removing ESDS from protective packages.

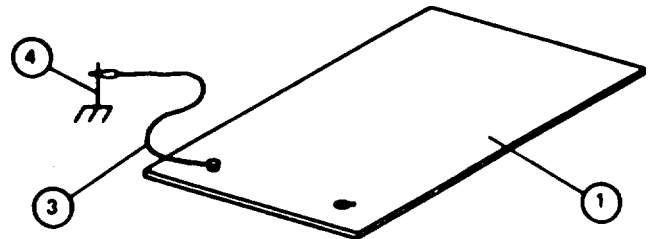
1-8. SAFETY, CARE, AND HANDLING (Continued)

STEP 1 PLACE MAT (1) ON WORK BENCH.

Connectors (2) should be on left if you are right-handed, on right if you are left-handed.

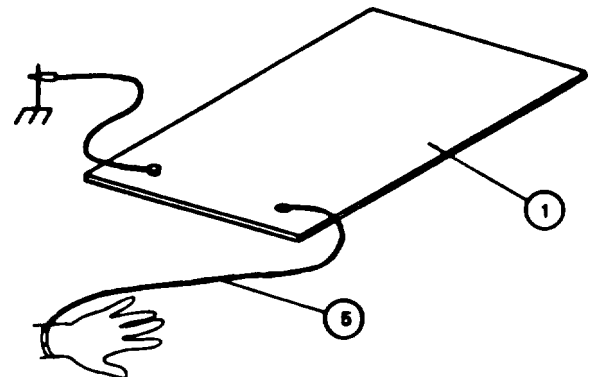


STEP 2 CONNECT GROUND STRAP (3) TO MAT (1) AND GROUND (4).



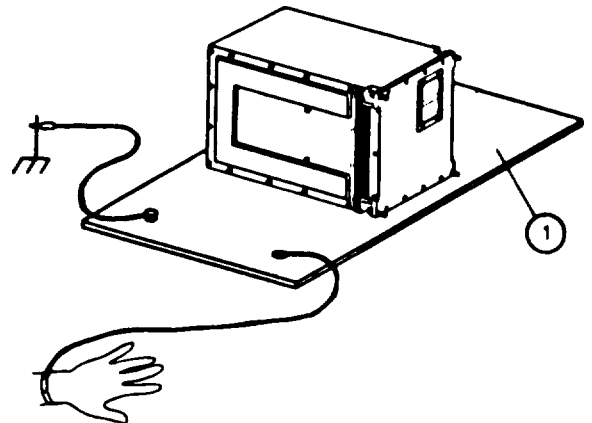
STEP 3 CONNECT WRIST STRAP (5) TO MAT (1) AND WRIST.

Connect wrist strap to left wrist if right-handed; right wrist if left-handed. Wrist strap must contact skin, not be over shirt sleeve.



STEP 4 PLACE EQUIPMENT TO BE REPAIRED ON MAT (1).

Hand tools should also be kept on mat, but do not place equipment other than that being repaired on mat.



1-8. SAFETY, CARE, AND HANDLING (Continued)]

- d. Protective Packaging for ESDS. ESDS must be kept in protective packages any time they are not installed in the equipment. Antistatic bags are used for packaging ESDS. Ordinary plastic bags must not be used to package ESDS.

To pack assemblies:

- STEP 1** Connect static work station.
- STEP 2** Place antistatic bag on mat.
- STEP 3** Remove assembly from component.
- STEP 4** Open antistatic bag.
- STEP 5** Slide assembly into antistatic bag.
- STEP 6** Close antistatic bag.

To unpack assemblies

- STEP 1** Connect static work station.
- STEP 2** Place antistatic bag on mat.
- STEP 3** Open antistatic bag.
- STEP 4** Slide assembly out of antistatic bag.
- STEP 5** Install assembly into component.
- STEP 6** Put antistatic bag away until needed again.

CHAPTER 2

RT-1300A MAINTENANCE INSTRUCTIONS

OVERVIEW

Chapter 2 is divided into six sections.

- a. Section I. Repair Parts; Special Tools; Test, Measurement, and Diagnostic Equipment (TMDE); and Support Equipment.

Tells you:

- What tools and TMDE you need.
- Where to find repair parts.

- b. Section II. Service Upon Receipt.

Tells you what do to when an RT-1300A is received from supply.

- c. Section III. How the RT-1300A Works.

- d. Section IV. Testing.

Tells you how to test the RT-1300A.

Shows you how to Set up equipment for testing.

- e. Section V. Troubleshooting.

Tells you how to find troubles in the RT-1300A.

- f. Section VI. Maintenance Procedures.

Tells you how to replace assemblies.

Section L REPAIR PARTS; SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

2-1. COMMON TOOLS AND EQUIPMENT

The common tools you need are contained in Tool Kit, Electronic Equipment, TK-105/G.

2-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

The maintenance allocation chart in TM 11-5821-318-12 (Appendix B) lists the TMDE and support equipment needed for aviation intermediate maintenance.

No special tools are needed.

Static work station NSN 4940-01-087-3458 is needed to repair the RT-1300A.

2-3. REPAIR PARTS

Repair parts are listed and illustrated in TM 11-5821-318-30P.

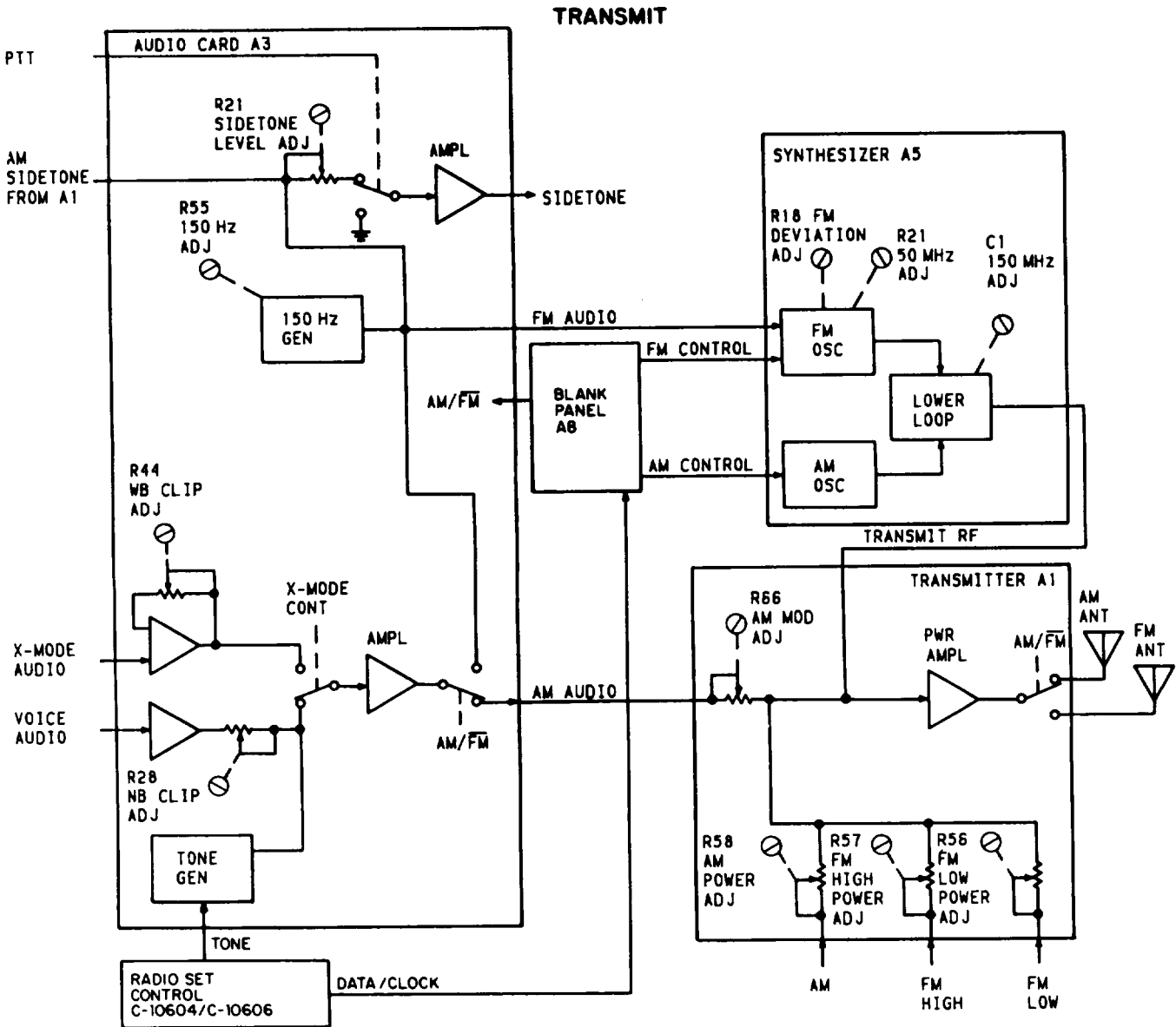
Section II. SERVICE UPON RECEIPT

2-4. SERVICE UPON RECEIPT

Test the receiver-transmitter before it is issued; paragraph 2-5 tells you how.

RT-1300A's received from depot may require adjustment to meet the specifications listed in TM 11-5821-318-12 paragraph 1-10. The testing and troubleshooting procedures in paragraph 2-5 will tell you when and how to do the adjustments.

Section III. HOW THE RT-1300A WORKS



The C-10604 or C-10606 provides clock and data to the RT-1300A blank panel A8. The data input is a digital data word that contains frequency and switch positions.

Blank panel A8 changes the data input from serial to parallel data. This parallel data controls radio set operation. When frequencies below 100 MHz are selected, the radio set is in FM mode. When frequencies above 100 MHz are selected, the radio set is in AM mode.

Transmitter A1 provides sidetone input to audio card A3 in AM mode. Audio card A3 provides sidetone in FM mode.

Voice audio is applied to audio card A3. The audio input level is set by narrow-band (NB) clip adjustment R28. R28 can be adjusted for audio inputs between 0.25 and 1.4 Vrms.

In AM mode, the voice audio is routed to transmitter A1. The voice audio modulates the transmit RF from synthesizer A5. R58 sets the AM output power level. R66 sets the modulation level.

In FM mode, voice audio and 150 Hz is routed to synthesizer A5. The sum of the voice audio frequency and 150 Hz deviates the FM oscillator. The deviated FM oscillator output is provided to transmitter A1. Since no AM voice audio is present at transmitter A1, the FM oscillator output is amplified and transmitted. R56 and R57 set the output power level for FM mode depending upon frequency selection.

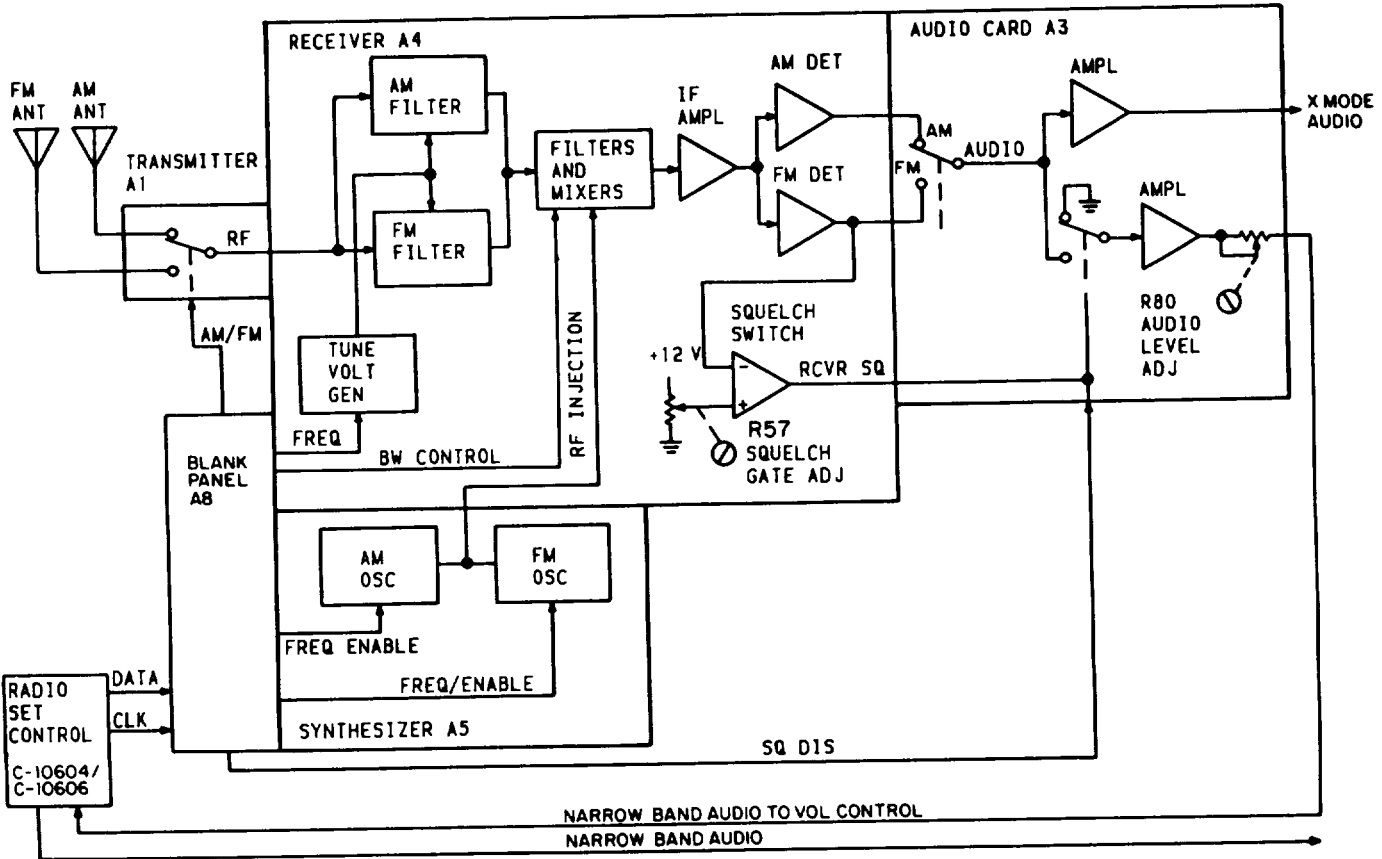
The TONE switch on the C-10604 or C-10606 turns on the 1000-HZ tone generator. The tone generator output is transmitted as normal voice audio. Frequency selection determines AM/FM mode.

X-mode audio is transmitted in either AM or FM mode. Wide-band (WB) clip adjustment R44 is adjusted to the required X-mode audio input level.

Antenna switching takes place in transmitter A1. In the AM mode, the AM antenna is coupled to the power amplifier. In the FM mode, the FM antenna is coupled to the power amplifier.

Power supply A2 supplies all RT-1300A operating voltages.

RECEIVE



Transmitter A1 routes the received AM or FM RF to receiver A4. Antenna selection is determined by AM/FM frequency selection.

Receiver A4 filters are tuned to the selected frequency and pass the selected RF to the mixers. The mixers produce IF. frequencies by mixing RF from A1 with RF injection from A5. The mixer filters pass the difference IF. frequency to the IF. amplifiers. The AM/FM detectors pass the audio frequencies to audio card A3. The squelch switch detects a preset signal level. When the input signal hits the preset level, the squelch switch produces the receiver squelch output to audio card A3. This allows AM or FM audio to be applied to the amplifier. R57 sets the level at which the squelch switch turns on. Wide-band (X-mode) audio is sent to the KY-28 or KY-58 during X-mode operation.

Audio card A3 amplifies the audio. The audio output is sent to the C-10604 or C-10606. R80 sets the audio output level.

SECTION IV. TESTING

NOTE

Be sure you read the test a few times so you understand what you have to do.

2-5. TESTING

THIS TASK COVERS: POWER SUPPLY TESTS, TRANSMITTER TESTS, RECEIVER TESTS, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

Personnel Required

Avionic Communications Equipment
Repairer MOS 68L

Test Equipment

AN/URM-120
ME-525
AN/GSM-64C
SG-1112(V)1
PP-1104
MK-994A/AR
AN/URM-127
6-dB Attenuator
AN/URM-184A
AN/USM-281C
30-dB Attenuator
MX-1730
AN/GRM-114A
AN/USM-486

References

Safety, Care, and Handling
paragraph 1-8.

Equipment Condition

PP-1104 adjusted for 28.0 volts.
C-10604/10606 OFF/TR/DF set to OFF.
MK-994A/AR DC POWER ON/OFF set
to OFF.

Tools and Support Equipment

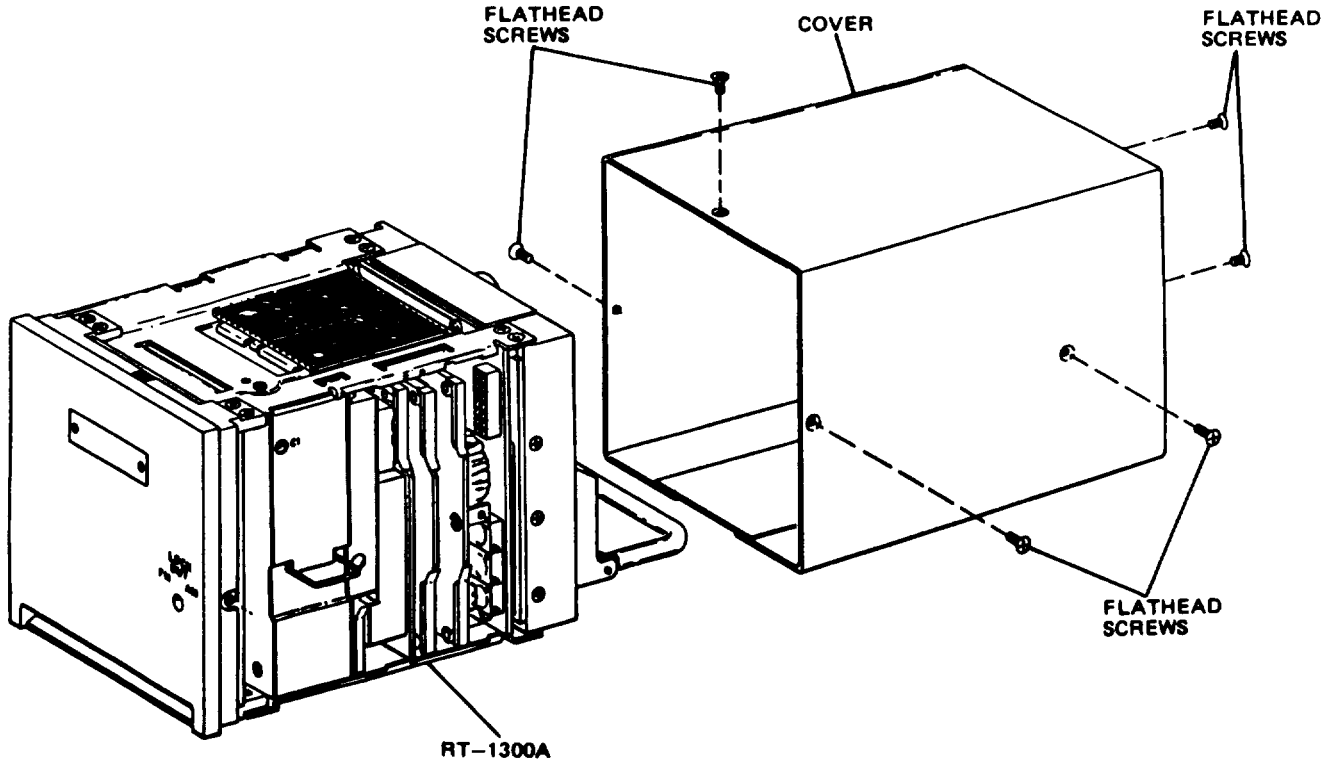
Tool Kit TK-105/G
No. 1 Phillips screwdriver
Static work station NSN 4940-01-087-3458
Radio Set Control C-10604(V)/ARC-186(V)
or
Radio Set Control C-10606/ARC-186(V)

Special Environmental Condition

CAUTION

Static work station
connected before procedure
is started.

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
 <p>1. Remove six flathead screws.</p> <p>2. Remove cover from RT-1300A.</p>		

POWER SUPPLY TEST

WARNING

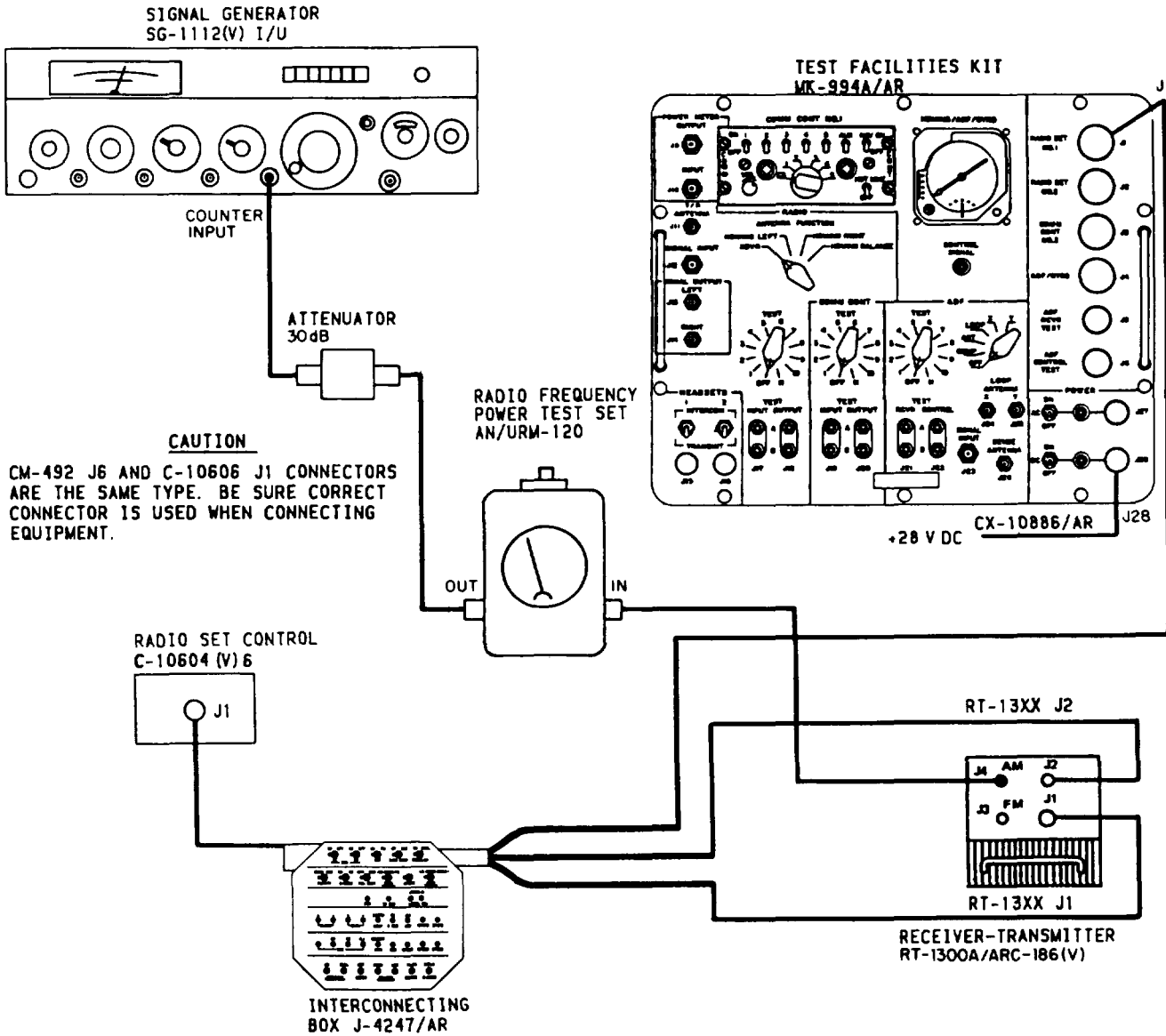
The power supply test procedures require taking measurements on the radio with power applied. Exercise all safety precautions to prevent personal injury or damage to the RT-1300A.

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
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POWER SUPPLY TEST (Continued)

3. Connect RT-1300A to test equipment as shown below



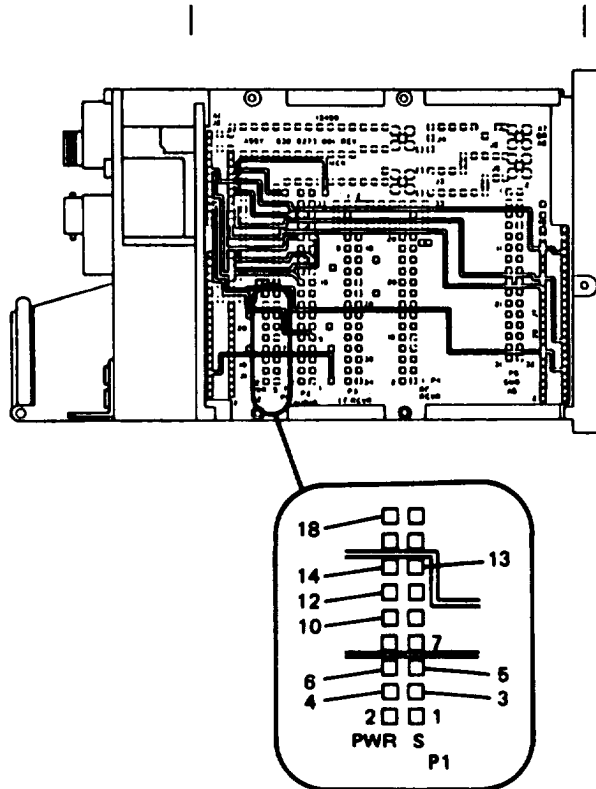
2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS																				
<u>POWER SUPPLY TEST (Continued)</u>																						
<p>4. Set controls as follows</p> <table> <tr> <td style="text-align: center;"><u>Control</u></td> <td style="text-align: center;"><u>Setting</u></td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>MK-994A/AR</u></td> </tr> <tr> <td>DC POWER ON/OFF</td> <td>ON</td> </tr> <tr> <td>RADIO TEST</td> <td>OFF</td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>C-10604/10606</u></td> </tr> <tr> <td>OFF/TR/DF</td> <td>TR</td> </tr> <tr> <td>BANDWIDTH WIDE/ NARROW</td> <td>NARROW</td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>J-4247/AR</u></td> </tr> <tr> <td>PWR RT ON/OFF</td> <td>ON</td> </tr> <tr> <td>TAKE CONT RT/RMT</td> <td>RMT</td> </tr> </table> <p>Connect voltmeter AN/GSM-64C negative lead to chassis ground.</p>	<u>Control</u>	<u>Setting</u>	<u>MK-994A/AR</u>		DC POWER ON/OFF	ON	RADIO TEST	OFF	<u>C-10604/10606</u>		OFF/TR/DF	TR	BANDWIDTH WIDE/ NARROW	NARROW	<u>J-4247/AR</u>		PWR RT ON/OFF	ON	TAKE CONT RT/RMT	RMT		
<u>Control</u>	<u>Setting</u>																					
<u>MK-994A/AR</u>																						
DC POWER ON/OFF	ON																					
RADIO TEST	OFF																					
<u>C-10604/10606</u>																						
OFF/TR/DF	TR																					
BANDWIDTH WIDE/ NARROW	NARROW																					
<u>J-4247/AR</u>																						
PWR RT ON/OFF	ON																					
TAKE CONT RT/RMT	RMT																					

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
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POWER SUPPLY TEST (Continued)



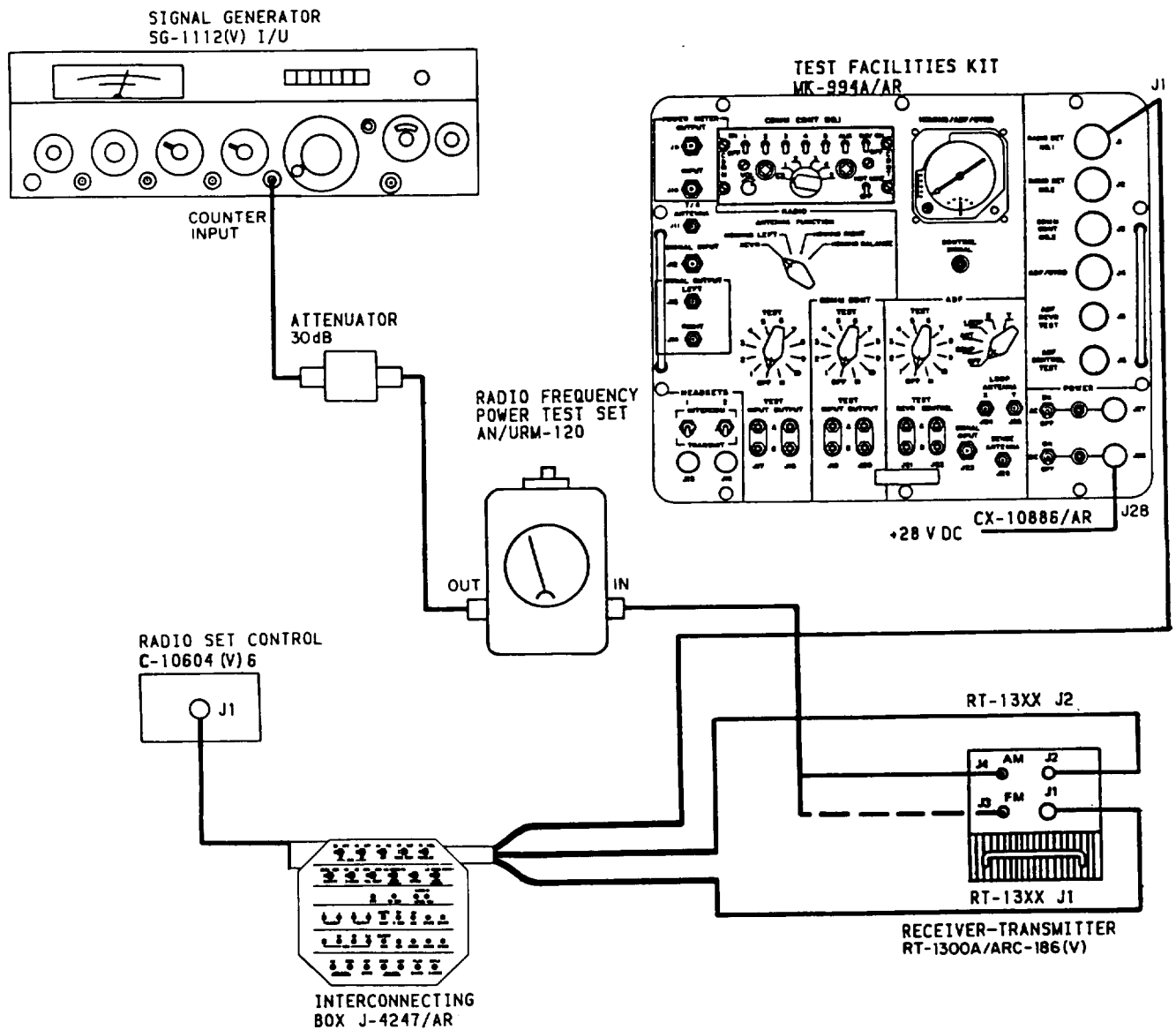
5. Measure dc volts at A2P1, pin 10 and pin 12.	23.5 to 24.5 Vdc	Go to TROUBLE 2-1.
6. Measure dc volts at A2P1, pin 2 and pin 6.	5.0 to 5.2 Vdc	Go to TROUBLE 2-2.
7. Measure dc volts at A2P1, pin 4.	11.6 to 12.4 Vdc	Go to TROUBLE 2-3.
8. Measure dc volts at A2P1, pin 3.	-11.6 to -12.4 Vdc	Go to TROUBLE 2-4.
9. Measure dc volts at A2P1, pin 5 and pin 7.	23.4 to 28.8 Vdc	Go to TROUBLE 2-5.
10. Measure dc volts at A2P1, pin 14.	72 to 88 Vdc	Go to TROUBLE 2-6.
11. Measure dc volts at A2P1, pin 18.	5.7 to 6.5 Vdc	Go to TROUBLE 2-7.

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
-----------	-------------------	---------

TRANSMITTER TESTS

1. Connect RT-1300A to test equipment as shown below:



2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS		
<u>TRANSMITTER TESTS (Continued)</u>				
2. Set controls as follows:				
<table border="0"> <tr> <td style="text-align: center;"><u>Control</u></td> <td style="text-align: center;"><u>Setting</u></td> </tr> </table>	<u>Control</u>	<u>Setting</u>		
<u>Control</u>	<u>Setting</u>			
<u>MK-994A/AR</u>				
DC POWER ON/OFF RADIO	ON			
ANTENNA FUNCTION TEST	XCVR 6			
<u>J-4247/AR</u>				
PWR DC/OFF/AC	DC			
RT ON/OFF	ON			
ANT AM/FM	AM			
TAKE CONT RT/RMT	RMT			
SQUELCH TN/DSBL	DSBL			
X-MODE WB/NB	NB			
VOL CONT OPR/GND	OPR			
<u>C-10604/10606</u>				
OFF/TR/DF	TR			
VOL	Fully clock- wise			
EMER AM/FM/MAN/ PRE	MAN			
SQ DIS/TONE Frequency selectors	Centered 151.975			
<u>RT-1300A</u>				
LOCKOUT AM/FM	Dot centered under LOCKOUT			
<u>SG-1112(V)1</u>				
COUNTER MODE INT/EXT EXT EXPAND LOCK	EXT (out) 10-550 (out) X10 (in) OFF (out)			

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>TRANSMITTER TESTS (Continued)</u>		
<u>AN/URM-120</u>		
<p>50 watts, 25-230 MHz insert. Arrow pointing to 30-dB attenuator.</p>		
<u>CAUTION</u>		
<p>Long transmit periods will overheat transmitter. Key transmitter only long enough to get a reading. -Transmitter cycle is 1 minute transmit, then 5 minutes receive.</p>		
<p>3. RF power output test.</p>		
<p>a. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.</p>	<p>AN/URM-120 reads 10 watts or more.</p>	<p>Go to TROUBLE 2-8.</p>
<p>b. Release MK-994A/AR MICROPHONE 1.</p>		
<p>c. Disconnect cable from RT-1300A J4, then connect cable to J3.</p>		
<p>d. Set J-4247/AR ANT AM/FM to FM.</p>		
<p>e. Repeat steps a, b.</p>	<p>AN/URM-120 reads 10 watts or more.</p>	<p>Replace A1 (para 2-7).</p>
<p>f. Repeat steps a, b with C-10604/10606 frequency selectors set to 134.000, 116.000.</p>	<p>AN/URM-120 reads 10 watts or more.</p>	<p>Go to TROUBLE 2-9.</p>
<p>g. Repeat steps a, b with C-10604/10606 frequency selectors set to 87.975, 59.000.</p>	<p>AN/URM-120 reads 10 watts or more.</p>	<p>Go to TROUBLE 2-10.</p>
<p>h. Repeat steps a, b with C-10604/10606 frequency selectors set to 30.500.</p>	<p>AN/URM-120 reads 10 watts or more.</p>	<p>Go to TROUBLE 2-11.</p>
<p>4. Frequency accuracy test.</p>		
<p>a. Set C-10604/10606 frequency selectors to 150.000.</p>		

2-5. TESTING (Continued)

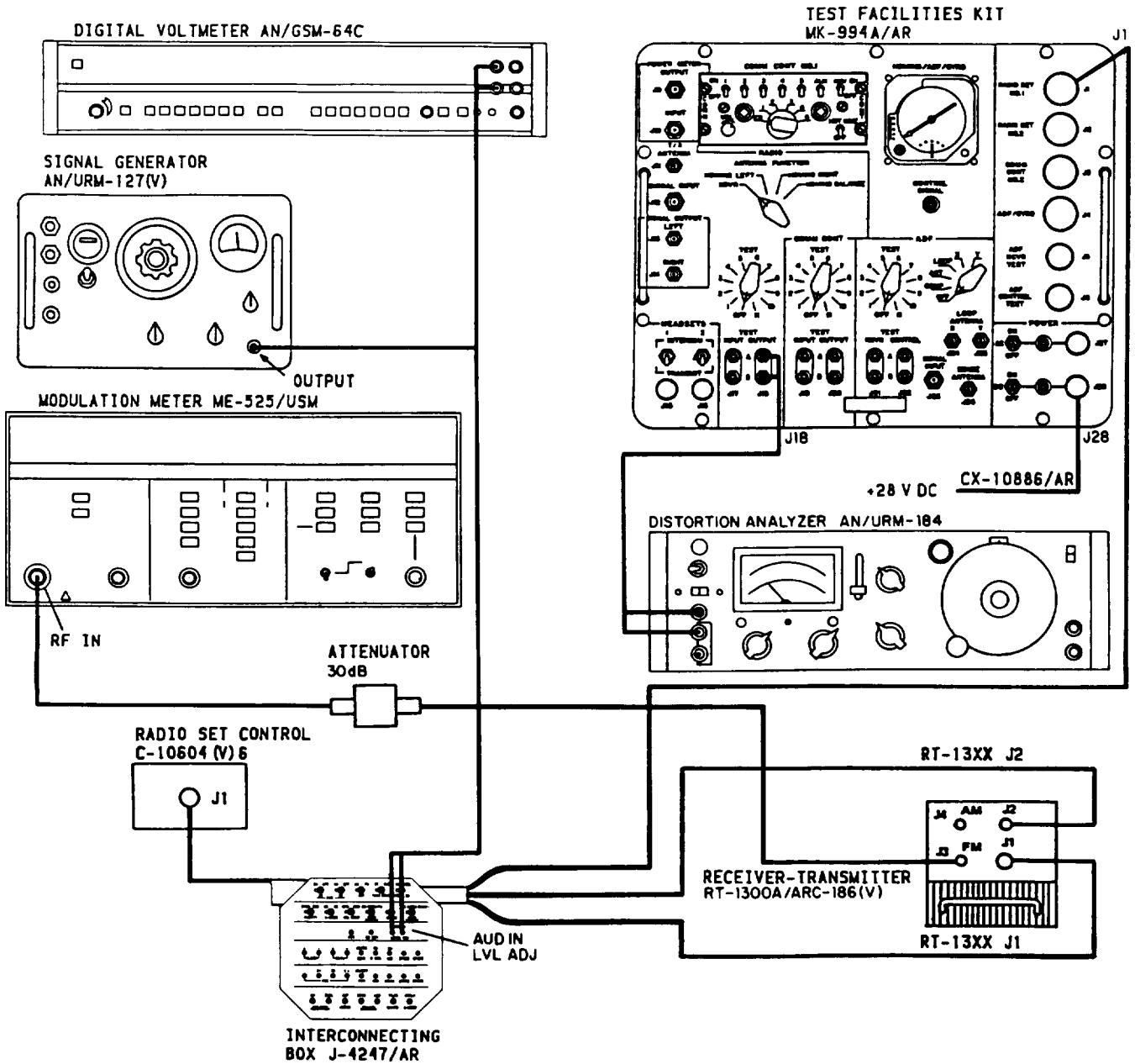
PROCEDURE	NORMAL INDICATION	REMARKS
<u>TRANSMITTER TESTS (Continued)</u>		
b. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.	SG-1112(V)1 reads between 149.998 to 150.002.	Go to TROUBLE 2-12.
c. Release MK-994A/AR MICROPHONE 1.		
d. Repeat steps b, c with C-10604/10606 frequency selectors set to 50.000.	SG-1112(V)1 reads between 49.998 to 50.002.	Go to TROUBLE 2-13.
e. Repeat steps b, c with C-10604/10606 frequency selectors set to:	SG-1112(V)1 reads between:	Replace A5 (para 2-11).
59.000 87.975 116.000 134.000 151.975	58.998 to 59.002 87.973 to 87.977 115.998 to 116.002 133.998 to 134.002 151.973 to 151.977	<p>NOTE</p> <p>If A5 was replaced and trouble remains, replace A8 (para 2-13).</p>

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
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TRANSMITTER TESTS (Continued)

- Connect RT-1300A to test equipment as shown below



2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS																		
<u>TRANSMITTER TESTS (Continued)</u>																				
6. Set controls as follows:																				
<table border="0"> <tr> <td style="text-align: center;"><u>Control</u></td> <td style="text-align: center;"><u>Setting</u></td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>AN/URM-127</u></td> </tr> <tr> <td>Frequency</td> <td>1000 Hz</td> </tr> <tr> <td>Amplitude</td> <td>0.39 Vrms as measured on AN/GSM-64C</td> </tr> </table>	<u>Control</u>	<u>Setting</u>	<u>AN/URM-127</u>		Frequency	1000 Hz	Amplitude	0.39 Vrms as measured on AN/GSM-64C												
<u>Control</u>	<u>Setting</u>																			
<u>AN/URM-127</u>																				
Frequency	1000 Hz																			
Amplitude	0.39 Vrms as measured on AN/GSM-64C																			
<table border="0"> <tr> <td colspan="2" style="text-align: center;"><u>ME-525</u></td> </tr> <tr> <td>TUNING</td> <td>AUTO (in)</td> </tr> <tr> <td>HIGH-PASS</td> <td>30</td> </tr> <tr> <td>LOW-PASS/DEEM-PHISIS IN/OUT</td> <td>OUT (out)</td> </tr> <tr> <td>LOW-PASS</td> <td>15</td> </tr> <tr> <td>PEAK</td> <td><u>PK-PK</u> 2</td> </tr> <tr> <td>RANGE</td> <td>100</td> </tr> <tr> <td>FUNCTION</td> <td>AM</td> </tr> <tr> <td>AUTO/SET TO 10.00</td> <td>AUTO</td> </tr> </table>	<u>ME-525</u>		TUNING	AUTO (in)	HIGH-PASS	30	LOW-PASS/DEEM-PHISIS IN/OUT	OUT (out)	LOW-PASS	15	PEAK	<u>PK-PK</u> 2	RANGE	100	FUNCTION	AM	AUTO/SET TO 10.00	AUTO		
<u>ME-525</u>																				
TUNING	AUTO (in)																			
HIGH-PASS	30																			
LOW-PASS/DEEM-PHISIS IN/OUT	OUT (out)																			
LOW-PASS	15																			
PEAK	<u>PK-PK</u> 2																			
RANGE	100																			
FUNCTION	AM																			
AUTO/SET TO 10.00	AUTO																			
<table border="0"> <tr> <td colspan="2" style="text-align: center;"><u>AN/URM-184A</u></td> </tr> <tr> <td>LINE FUNCTION</td> <td>ON VOLT-METER</td> </tr> <tr> <td>METER RANGE</td> <td>3 VOLTS</td> </tr> <tr> <td>NORM/RF. DET</td> <td>NORM</td> </tr> </table>	<u>AN/URM-184A</u>		LINE FUNCTION	ON VOLT-METER	METER RANGE	3 VOLTS	NORM/RF. DET	NORM												
<u>AN/URM-184A</u>																				
LINE FUNCTION	ON VOLT-METER																			
METER RANGE	3 VOLTS																			
NORM/RF. DET	NORM																			
<p>7. Narrow-band AM modulation and sidetone test.</p> <p>a. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.</p> <p>b. Measure percent modulation and sidetone level, then release MK-994A/AR MICROPHONE 1.</p>	<p>ME-525 reads SO to 99% AM. AN/URM-184A reads 0.93 to 1.57 Vrms.</p>	<p>Go to TROUBLE 2-14. Go to TROUBLE 2-15.</p>																		

2-5. TESTING (Continued)

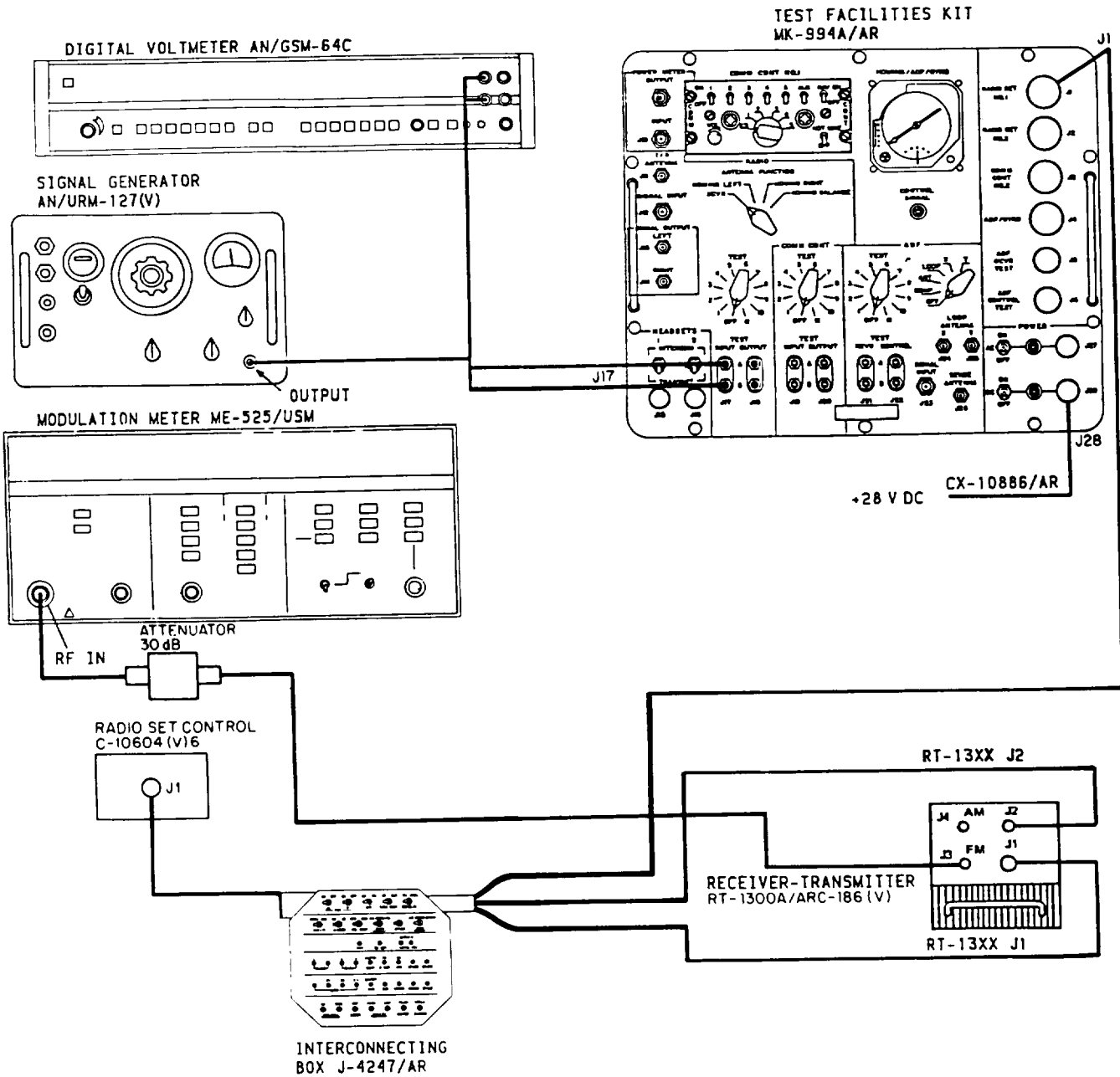
PROCEDURE	NORMAL INDICATION	REMARKS				
<u>TRANSMITTER TESTS (Continued)</u>						
c. Repeat steps a, b with C-10604/10606 frequency selectors set to 134.000, 116.000.	ME-525 reads 80 to 99% AM. AN/URM-184A reads 0.93 to 1.57 Vrms.	Go to TROUBLE 2-14. Go to TROUBLE 2-15.				
8. Narrow-band FM deviation and sidetone test.						
a. Set C-10604/10606 frequency selectors to 87.975.						
b. Set ME-525:						
<table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">FUNCTION</td> <td style="text-align: right;">kHz DEV</td> </tr> <tr> <td>RANGE</td> <td style="text-align: right;">10</td> </tr> </table>	FUNCTION	kHz DEV	RANGE	10		
FUNCTION	kHz DEV					
RANGE	10					
c. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.						
d. Measure FM deviation and sidetone level, then release MK-994A/AR MICROPHONE 1.	ME-525 reads 3.5 to 6.5 kHz DEV. AN/URM-184A reads 0.93 to 1.57 Vrms.	Go to TROUBLE 2-16. Go to TROUBLE 2-17.				
e. Repeat steps c, d with C-10604/10606 frequency selectors set to 59.000, 30.500.	ME-525 reads 3.5 to 6.5 kHz DEV. AN/URM-184A reads 0.93 to 1.57 Vrms.	Go to TROUBLE 2-16. Go to TROUBLE 2-17.				

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
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TRANSMITTER TESTS (Continued)

9. Connect RT-1300A to test equipment as shown below:



2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>TRANSMITTER TESTS (Continued)</u>		
<p>10. FM retransmission test.</p> <p>a. Set AN/URM-127 AMPLITUDE to 2.75 Vrms as measured on AN/GSM-64C.</p> <p>b. Check J-4247/AR SQUELCH TN/DSBL set to DSBL.</p> <p>c. Set MK-994A/AR RADIO TEST to 4.</p> <p>d. Set MK-994A/AR RADIO TEST to 5.</p>	<p>ME-525 reads 4 to 6 kHz DEV.</p>	<p>Go to TROUBLE 2-18.</p>
<p>11. AM retransmission test.</p> <p>a. Set C-10604/10606 frequency selectors to 151.975.</p> <p>b. Set ME-525:</p> <p style="padding-left: 40px;">RANGE 100 FUNCTION % AM</p> <p>c. Set MK-994A/AR RADIO TEST to 4.</p> <p>d. Set MK-994A/AR RADIO TEST to 3.</p>	<p>ME-525 reads 70 to 99% AM.</p>	<p>Go to TROUBLE 2-18.</p>
<p>12. AM X-mode modulation test.</p> <p>a. Adjust AN/URM-127 for 3.54 Vrms as measured on AN/GSM-64C.</p> <p>b. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.</p> <p>c. Release MK-994A/AR MICROPHONE 1.</p>	<p>ME-525 reads 70 to 99% AM.</p>	<p>Go to TROUBLE 2-19.</p>

2-5. TESTING (Continued)

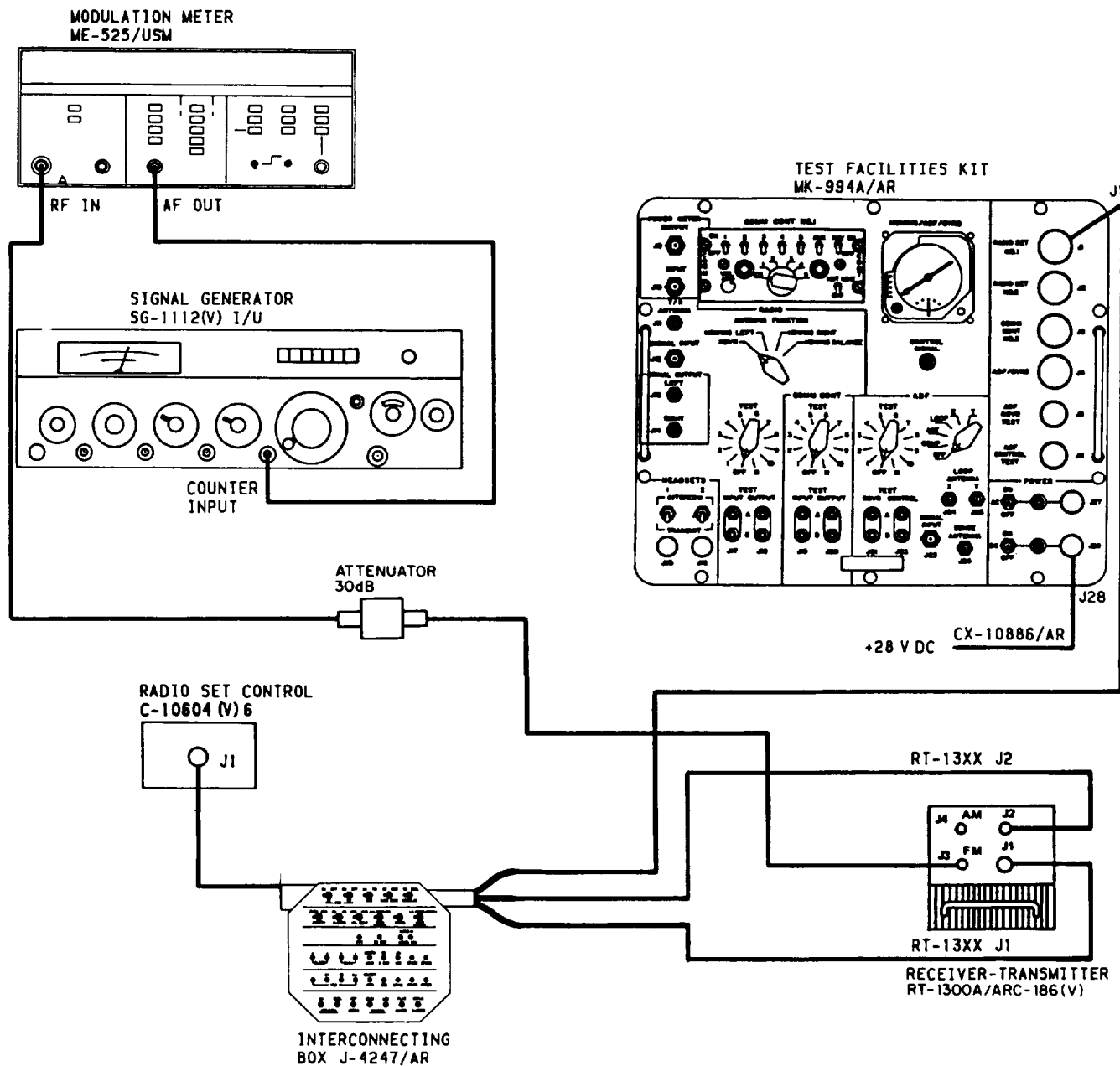
PROCEDURE	NORMAL INDICATION	REMARKS				
<u>TRANSMITTER TESTS (Continued)</u>						
d. Repeat steps b, c with C-10604/10606 frequency selectors set to 134.000, 116.000.	ME-525 reads 70 to 99% AM.	Go to TROUBLE 2-19.				
13. FM X-mode modulation test.						
a. Set ME-525:						
<table style="border: none;"> <tr> <td style="padding-right: 20px;">FUNCTION</td> <td>kHz DEV</td> </tr> <tr> <td>RANGE</td> <td>10</td> </tr> </table>	FUNCTION	kHz DEV	RANGE	10		
FUNCTION	kHz DEV					
RANGE	10					
b. Set C-10604/10606 frequency selectors to 87.975.						
c. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.	ME-525 reads 3.5 to 6.5 kHz DEV.	Go to TROUBLE 2-19.				
d. Release MK-994A/AR MICROPHONE 1.						
e. Repeat steps c, d with C-10604/10606 frequency selectors set to 59.000, 30.500.	ME-525 reads 3.5 to 6.5 kHz DEV.	Go to TROUBLE 2-19.				

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
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TRANSMITTER TESTS (Continued)

14. Connect RT-1300A to test equipment as shown below:



2-5. TESTING (Continued)

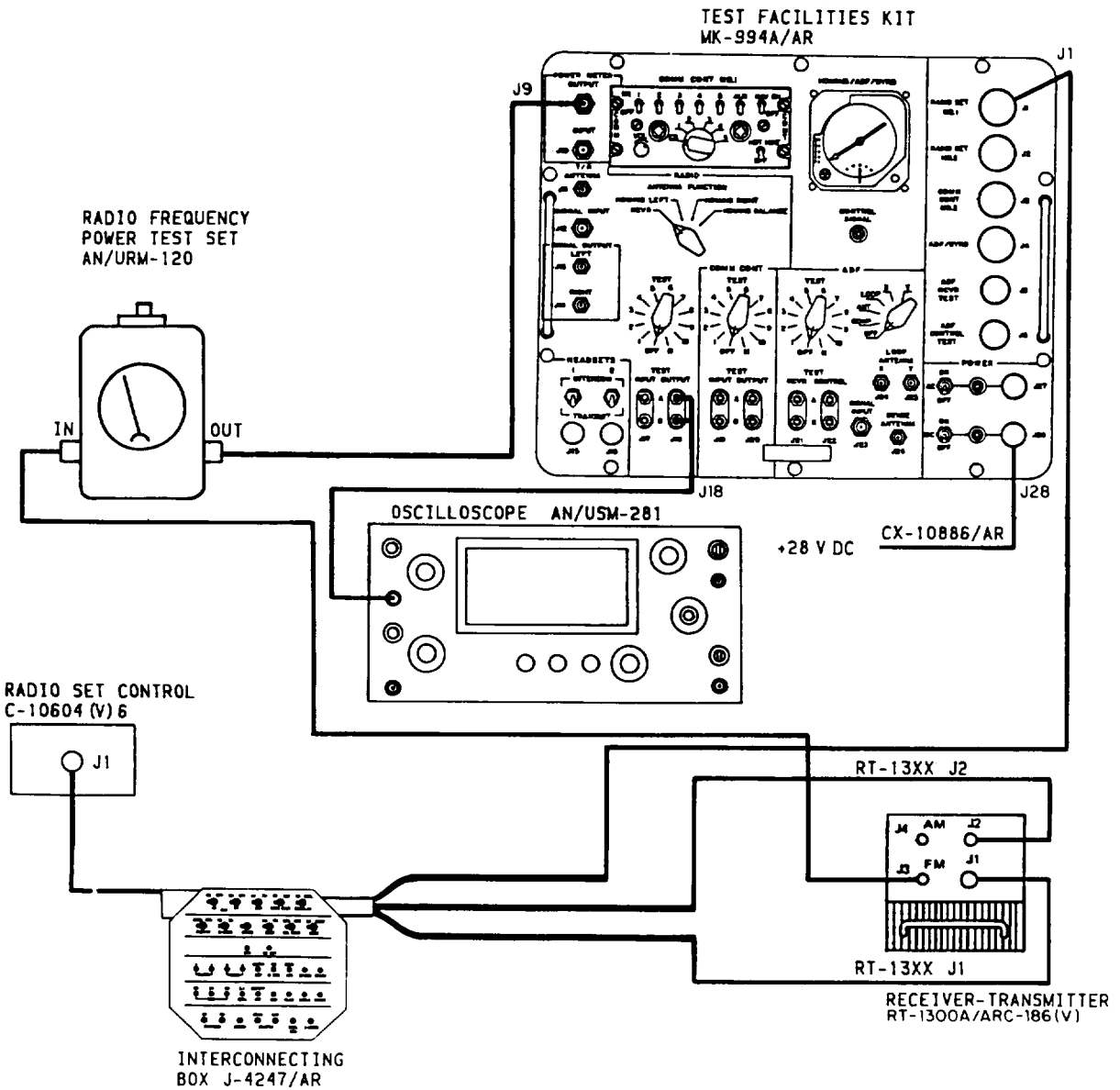
PROCEDURE	NORMAL INDICATION	REMARKS																										
<u>TRANSMITTER TESTS (Continued)</u>																												
15. Set controls as follows:																												
<table border="0"> <tr> <td style="text-align: center;"><u>Control</u></td> <td style="text-align: center;"><u>Setting</u></td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>MK-994A/AR</u></td> </tr> <tr> <td>RADIO TEST</td> <td>6</td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>J-4247/AR</u></td> </tr> <tr> <td>SQUELCH</td> <td>TN</td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>SG-1112(V)1</u></td> </tr> <tr> <td colspan="2">COUNTER MODE</td> </tr> <tr> <td>INT/EXT</td> <td>EXT (out)</td> </tr> <tr> <td>EXT</td> <td>0-10 (in)</td> </tr> <tr> <td>EXPAND</td> <td>X100 (in)</td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>ME-525</u></td> </tr> <tr> <td>FUNCTION</td> <td>kHz DEV</td> </tr> <tr> <td>RANGE</td> <td>10</td> </tr> </table>	<u>Control</u>	<u>Setting</u>	<u>MK-994A/AR</u>		RADIO TEST	6	<u>J-4247/AR</u>		SQUELCH	TN	<u>SG-1112(V)1</u>		COUNTER MODE		INT/EXT	EXT (out)	EXT	0-10 (in)	EXPAND	X100 (in)	<u>ME-525</u>		FUNCTION	kHz DEV	RANGE	10		
<u>Control</u>	<u>Setting</u>																											
<u>MK-994A/AR</u>																												
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SQUELCH	TN																											
<u>SG-1112(V)1</u>																												
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INT/EXT	EXT (out)																											
EXT	0-10 (in)																											
EXPAND	X100 (in)																											
<u>ME-525</u>																												
FUNCTION	kHz DEV																											
RANGE	10																											
16. FM squelch tone deviation and frequency test.																												
a. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.																												
b. Measure FM deviation and frequency, then release MK-994A/AR MICROPHONE 1.	ME-525 reads 2.35 to 3.65 kHz DEV. SG-1112(V)1 reads .000147 to .000153 MHz.	Go to TROUBLE 2-20. Go to TROUBLE 2-21.																										
17. FM TONE deviation and frequency test.																												
a. J-4247AR SQUELCH TN/DSBL to DSBL.																												
b. Set C-10604/10606 SQ DIS/TONE to TONE.																												
c. Measure FM deviation and frequency, then release SQ DIS/TONE.	ME-525 reads 3.5 to 6.5 kHz DEV. SG-1112(V) 1 reads .000760 to .001280 MHz.	Go to TROUBLE 2-22.																										

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
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TRANSMITTER TESTS (Continued)

18. Connect RT-1300A to test equipment as shown below



2-5. TESTING (Continued)

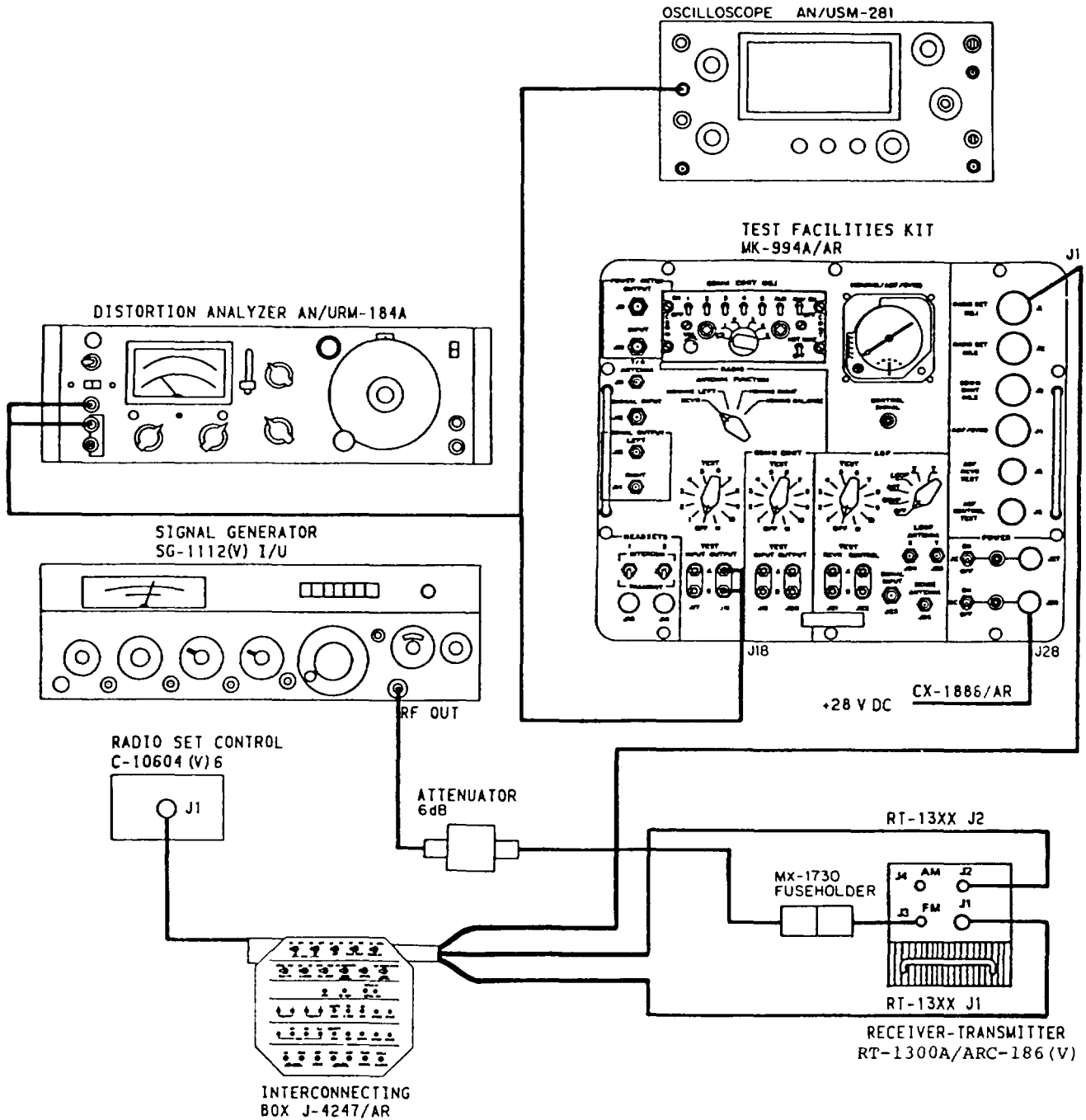
PROCEDURE	NORMAL INDICATION	REMARKS
<u>TRANSMITTER TESTS (Continued)</u>		
19. AM/FM LOCKOUT test.		
a. Set RT-1300A LOCKOUT AM/FM to FM.	Distorted audio signal on AN/USM-281C.	Go to TROUBLE 2-23.
b. Set MK-994A/AR RADIO MICROPHONE 1 to TRANSMIT.	AN/URM-120 reads O.	Replace A3 (para 2-9).
c. Set RT-1300A LOCKOUT AM/FM to AM.	No signal on AN/USM-281C. AN/URM-120 reads more than 10 watts.	Go to TROUBLE 2-24.
d. Release MK-994A/AR HEADSET 1.		
e. Set C-10604/10606 frequency selectors to 151.975.	Distorted audio signal on AN/USM-281C.	Go to TROUBLE 2-23.
f. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.	AN/URM-120 reads O.	Replace A3 (para 2-9).
g. Set RT-1300A LOCKOUT AM/FM to center position.	No signal on AN/USM-281C. AN/URM-120 reads more than 10 watts.	Replace A8 (para 2-13).
h. Release MK-994A/AR MICROPHONE 1.		

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<p style="text-align: center;"><u>CAUTION</u></p> <p>These are receiver tests.</p> <p>Do not transmit.</p> <p><u>DO NOT</u> set MK-994A/AR RADIO TEST to position 4.</p> <p>This causes the receiver-transmitter to transmit.</p> <p>The receiver-transmitter could cause damage to test equipment while transmitting.</p> <p>1. Connect receiver-transmitter to test equipment as follows:</p> <p style="padding-left: 20px;">a. When using the AN\USM-281, AN/URM-184A and SG-1112(V)1/U follow the test setup shown in A below. Perform PROCEDURE steps 2 through 26.</p> <p style="padding-left: 20px;">b. When the AN/GRM-114A and AN/USM-486 are used for testing, follow the test setup shown in B below. Perform PROCEDURE steps 15.1 through 15.13 to test the following:</p> <p style="padding-left: 40px;">(1) Internal Noise Tests</p> <p style="padding-left: 40px;">(2) Squelch Tests</p> <p style="padding-left: 40px;">(3) Sensitivity Tests</p> <p style="padding-left: 40px;">(4) Audio Output Tests</p> <p style="padding-left: 40px;">(5) Retransmission Tests</p>	<p><u>RECEIVER TESTS</u></p>	

2-5. TESTING (Continued)

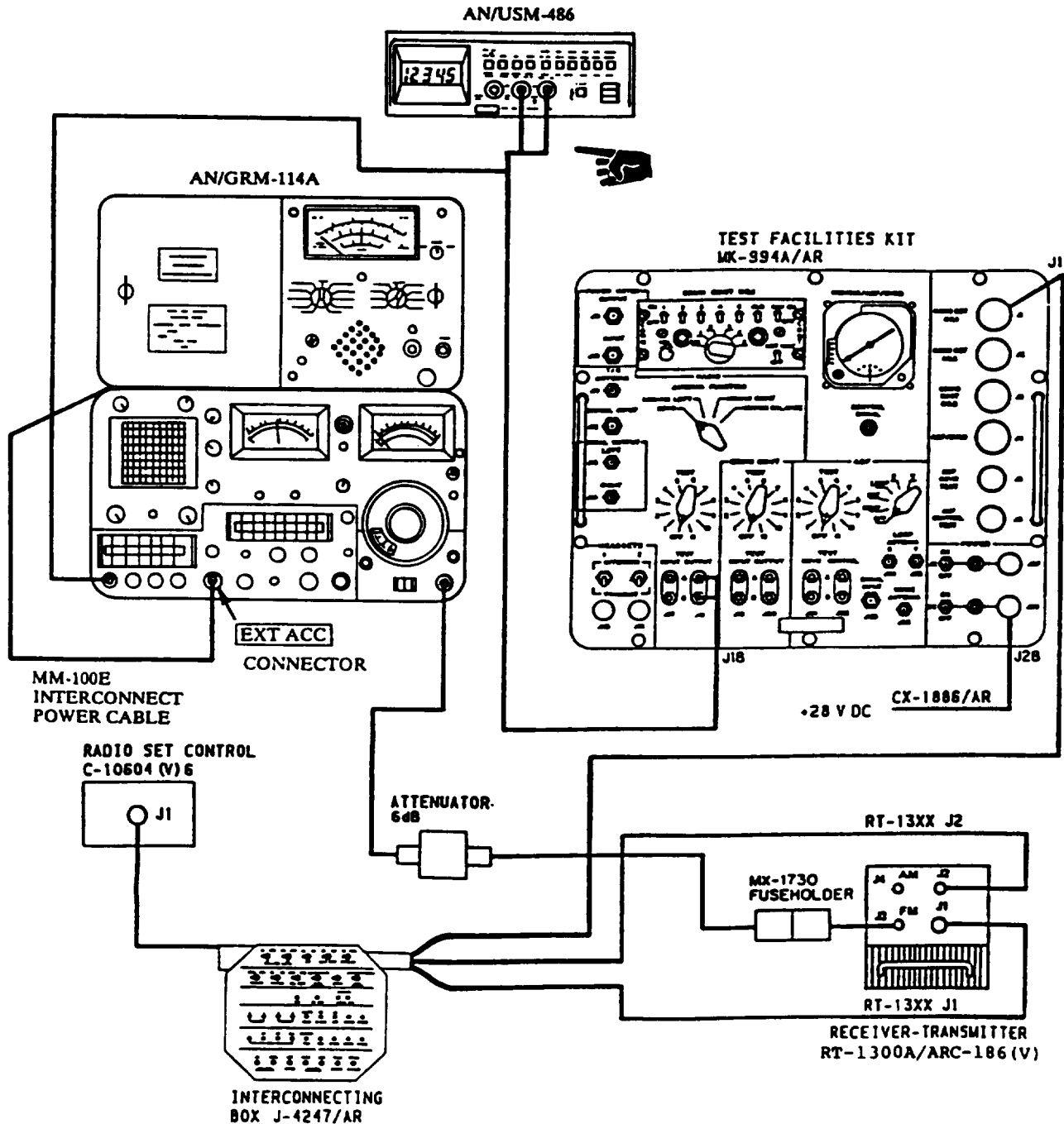
PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
1. Connect RT-1300A to test equipment as shown below:		



A

2-5. TESTING (Continued)

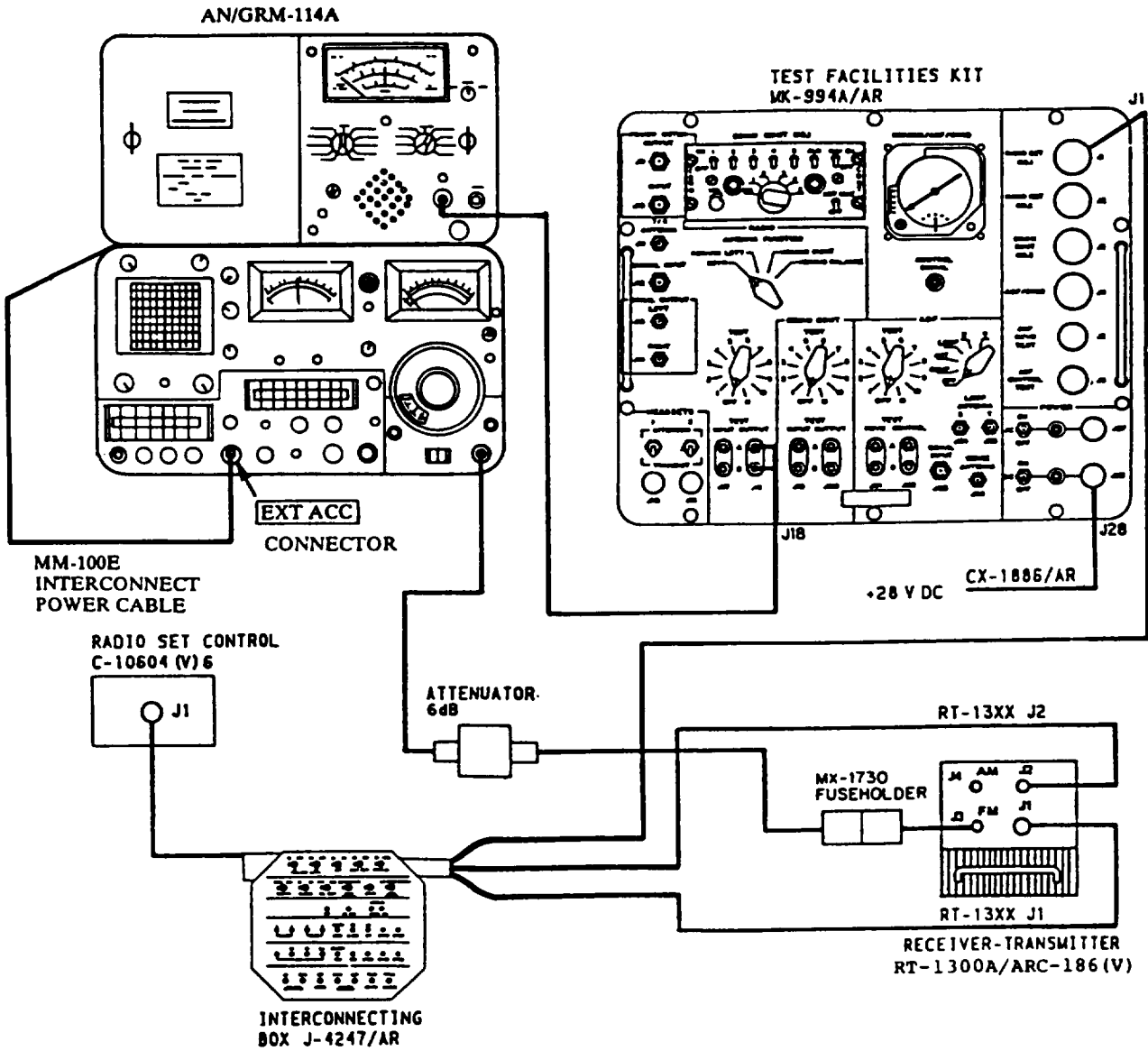
PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		



B

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATIONS	REMARKS
	<p>RECEIVER TESTS (Continued)</p> <p>Test setup for use only with SINAD squelch test , when RT-13XX/A is installed in AH-64A</p>	



C

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATIONS	REMARKS
<p>c. When the receiver- transmitter is installed in the AH-64A APACHE helicopter follow the test set up C with procedures listed below . Perform PROCEDURE steps 15.14 through 15.18 to test the following:</p> <p>(1) Internal Noise Tests</p> <p>(2) Sensitivity Test</p> <p>(3) Squelch Tests</p> <p>NOTE</p> <p>Be sure you set the SG-1112(V)1 to the correct frequency. If you are as much as 100 Hz off, your testing may not be accurate.</p> <p>2. set controls as follows:</p> <p>Control</p> <p>J-4247/AR</p> <p>SQUELCH TN/DSBL TN X-MODE WB/NB NB</p> <p>SG-1112(V)1</p> <p>RF ON/OFF ON COUNTER MODE INT/EXT INT (in) EXPAND X10 (in) OUTPUT LEVEL 1m VOLTS RANGE 256-128 FREQUENCY MHz 151.975 LOCK ON (in) AM INT MODULATION KHz FREQUENCY FIXED FREQ.</p>	<p>RECEIVER TESTS (Continued)</p>	

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<p><u>Control</u> <u>Setting</u></p> <p style="text-align: center;"><u>SG-1112(V)1 (Continued)</u></p> <p>AM X10% In PEAK DEVIATION 5 kHz MODULATION 0-100% 30%</p> <p style="text-align: center;"><u>AN/URM-184A</u></p> <p>LINE ON FUNCTION VOLT- METER METER RANGE 10 VOLT NORM/RF. DET. NORM</p>		
<p>3. Check AN/USM-281C.</p>	<p>AN/USM-281C shows 1000-Hz sine wave.</p>	<p>Go to TROUBLE 2-25.</p>
<p>4. Set</p> <p>C-10604/10606 VOL fully counterclockwise.</p> <p>AN/URM-184A METER RANGE to 1 VOLT.</p>		
<p>5. Internal noise test.</p> <p>a. Adjust C-10604/10606 VOL for +10 dB as read on AN/URM-184A.</p> <p>b. Set SG-1112(V)1 AM to OFF.</p> <p>c. Repeat steps a, b with C-10604/10606 frequency selectors and SG-1112(V)1 set to 134.000, 1.16.000, and 108.000.</p> <p>d. Set C-10604/10606 frequency selectors to 87.975.</p> <p>e. Adjust SG-1112(V)1 for 87.975, 1000 Hz, 5-kHz deviation at 1 mV.</p>	<p>Adjusts to +10 dB.</p> <p>AN/URM-184A reading drops more than 30 dB.</p> <p>AN/URM-184A reading drops more than 30 dB.</p>	<p>Go to TROUBLE 2-26.</p> <p>Replace A4 (para 2-10).</p> <p>Replace A4 (para 2-10).</p> <p style="text-align: center;">NOTE</p> <p>If A4 was replaced and trouble remains, replace A6 (para 2-12).</p>

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
f. Adjust C-10604/10606 VOL for +10 dB as read on AN/URM-184A.	Adjusts to +10 dB.	Replace A4 (para 2-10). NOTE If A4 was replaced and trouble remains, replace A6 (para 2-12).
g. Set SG-1112(V)1 FM to OFF .	AN/URM-184A reading drops more than 30 dB.	Replace A4 (para 2-10). NOTE If A4 was replaced and trouble remains, replace A6 (para 2-12).
h. Repeat steps f, g with C-10604/10606 frequency selectors and SG-1112(V)1 set to 59.000 and 30.500.		
6. FM sensitivity test.		
a. Set C-10604/10606 SQ DIS/TONE to SQ DIS.		
b. Set SG-1112(V)1 OUTPUT to 1.5 μ V, FM set to INT.		
c. Adjust C-10604/10606 VOL for +10 dB as read on AN/URM-184A.		
d. Set SG-1112(V)1 FM to OFF.	AN/URM-184A reading drops more than 10 dB.	Replace A4 (para 2-10).
e. Repeat steps b thru d with c-10604/101506 frequency selectors and SG-1112(V)1 set to 59.000, 87.975.	AN/URM-184A reading drops more than 10 dB.	Replace A4 (para 2-10).
7. AM sensitivity test.		
a. Adjust SG-1112(V)1 for 108.000, 1000 Hz, 80% modulation at 6 μ V.		

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
b. Set C-10604/10606 frequency selectors to 108.000.		
c. Adjust C-10604/10606 VOL for +10 dB as read on AN/URM-184A.		
d. Set SG-1112(V)1 AM to OFF.	AN/URM-184A reading drops more than 10 dB.	Replace A4 (para 2-10).
e. Repeat steps b thru d with C-10604/10606 frequency selectors and SG-1112(V)1 set to 116.000, 134.000, and 151.975.	AN/URM-184A reading drops more than 10 dB.	Replace A4 (para 2-10).
8. AM squelch test.		
a. Set C-10604/10606 SQ DIS/TONE to center position.		
b. Set SG-1112(V)1: OUTPUT LEVEL to .1 μ VOLTS MODULATION 0-100% to 30%.	AN/URM-184 A reading drops more than 30 dB.	Go to TROUBLE 2-27.
c. Slowly increase SG-1112(V)1 OUTPUT LEVEL until AN/URM-184A reading increases (receiver unquelsches).	No more than 6 μ V.	Go to TROUBLE 2-28.
d. Set SG-1112(V)1 OUTPUT LEVEL to .1 μ VOLTS.		
9. FM squelch test.		
a. Adjust SG-1112(V)1 for 30.500, 1000-HZ modulation, 5-kHz deviation at 0.1 μ V.		
b. Set C-10604/10606 frequency selectors to 30.500.		
c. Slowly increase SG-1112(V)1 OUTPUT LEVEL until AN/URM-184A reading increases (receiver unquelsches).	No more than 1.5 μ V.	Go to TROUBLE 2-29.

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<p>d. Set SG-III2(V)1 OUTPUT LEVEL to .1 μ VOLTS.</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>Do not turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.</p> <p>10. AM narrow-band audio output test.</p> <p>a. Set MK-994A/AR RADIO TEST to 6.</p> <p>b. Set C-10604/10606 <i>frequency</i> eelectms to 151.975.</p> <p>c. Adjust SG-1 112(V)1 for 151.975 MHz, 1000 Hz, 30% modulation at 1 mV.</p> <p>d. Check AN/URM-184A reading.</p> <p style="text-align: center;"><u>CAUTION</u></p> <p><u>Do not</u> turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.</p>	<p>AN/URM-184A reads 2.5 to 3.0 Vrms.</p>	<p>Go to TROUBLE 2-30.</p>
<p>11. AM retransmission audio output test.</p> <p>Set MK-994A/AR RADIO TEST to 2.</p>	<p>AN/JRM-184A reads 2.38 to 3.15 Vrms. MK-994A/AR CONTROL SIGNAL lamp lights.</p>	<p>Go to TROUBLE 2-31.</p>
<p>12. AM X-mode audio output test.</p> <p>Set MK-994A/AR RADIO TEST to 3.</p>	<p>AN/URM-184A reads not less than 1.9 Vrms.</p>	<p>Go to TROUBLE 2-32.</p>

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<p>13. FM narrow-band audio output test.</p> <p>a. Set:</p> <p style="padding-left: 40px;">AN/URM-184A METER RANGE to 10 VOLTS.</p> <p style="padding-left: 40px;">SG-1112(V)1 OUTPUT LEVEL to 1m VOLTS.</p> <p>b. Set C-10604/10606 VOL fully clockwise.</p> <p>c. Check AN/URM-184A reading.</p> <p style="text-align: center;"><u>CAUTION</u></p> <p><u>DO NOT</u> turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.</p>	<p>AN/URM-184A reads 2.5 to 3.0 Vrms.</p>	<p>Go to TROUBLE 2-30.</p>
<p>14. FM retransmission audio output test.</p> <p>Set MK-994A/AR RADIO TEST to 2.</p>	<p>AN/URM-184A reads 2.38 to 3.15 Vrms. MK-994A/AR CONTROL SIGNAL lamp lights.</p>	<p>Go to TROUBLE 2-31.</p>
<p>15. FM X-mode audio output test.</p> <p>Set MK-994A/AR RADIO TEST to 3.</p>	<p>AN/URM-184A reads not less than 1.9 Vrms.</p>	<p>Go to TROUBLE 2-32.</p>
<p style="text-align: center;">NOTES:</p> <p>1. If you are using Test Setup A, proceed to PROCEDURE step 16 to continue with RECEIVER TESTS.</p> <p>2. PROCEDURE steps 15.1 through 15.13 are performed only when using the AN/GRM-114A and Test Setup B.</p>		

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS																																																										
<p style="text-align: center;">NOTE</p> <p>Be sure the AN/GRM-114A Frequency Wheels are seated at the correct frequency. If you are as much as 100 Hz off, your testing may not be accurate.</p> <p>15.1 Set controls as follows:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;"><u>Control</u></th> <th style="text-align: left; border-bottom: 1px solid black;"><u>Setting</u></th> </tr> </thead> <tbody> <tr> <td colspan="2" style="text-align: center; padding: 5px 0;"><u>J-4247/AR</u></td> </tr> <tr> <td>SQUELCH TN/DSBL TN</td> <td></td> </tr> <tr> <td>XMODE WB/NB</td> <td>NB</td> </tr> <tr> <td colspan="2" style="text-align: center; padding: 5px 0;"><u>AN/GRM-114A</u></td> </tr> <tr> <td>PWR/OFF/BAIT</td> <td>PWR or BAIT</td> </tr> <tr> <td>AUTOZERO/OFF/</td> <td></td> </tr> <tr> <td>BATT</td> <td>AUTOZERO</td> </tr> <tr> <td>HI LVL x100/NORM</td> <td>NORM</td> </tr> <tr> <td>BFO-RF LEVEL</td> <td>0.05 Uv</td> </tr> <tr> <td>RCVR WIDE/MID/</td> <td></td> </tr> <tr> <td>NARROW</td> <td>NARROW</td> </tr> <tr> <td>GEN/RCVR</td> <td>GEN</td> </tr> <tr> <td>INT MOD/RCVR/</td> <td></td> </tr> <tr> <td>RCVR(DET OFF)</td> <td>RCVR</td> </tr> <tr> <td>VOLUME</td> <td>FULLY ccw</td> </tr> <tr> <td>BFO/OFF</td> <td>OFF</td> </tr> <tr> <td>AM/FM</td> <td>AM</td> </tr> <tr> <td>1 kHz/off</td> <td>OFF</td> </tr> <tr> <td>MOD FREQUENCY</td> <td></td> </tr> <tr> <td>HZ</td> <td>1(KIO Hz</td> </tr> <tr> <td>AC/OFF/DC</td> <td>DC</td> </tr> <tr> <td>RF FREQUENCY</td> <td></td> </tr> <tr> <td>MHz</td> <td>151.975 MHz</td> </tr> <tr> <td>VAR/OFF</td> <td>adjust to see 30% mod on MM-1(K)E AM %. scale</td> </tr> <tr> <td>SCOPE DEV</td> <td></td> </tr> <tr> <td>VERT V/DIV</td> <td>1</td> </tr> <tr> <td>SWEEP</td> <td></td> </tr> <tr> <td>mSEC/DIV</td> <td>0.1</td> </tr> </tbody> </table>	<u>Control</u>	<u>Setting</u>	<u>J-4247/AR</u>		SQUELCH TN/DSBL TN		XMODE WB/NB	NB	<u>AN/GRM-114A</u>		PWR/OFF/BAIT	PWR or BAIT	AUTOZERO/OFF/		BATT	AUTOZERO	HI LVL x100/NORM	NORM	BFO-RF LEVEL	0.05 Uv	RCVR WIDE/MID/		NARROW	NARROW	GEN/RCVR	GEN	INT MOD/RCVR/		RCVR(DET OFF)	RCVR	VOLUME	FULLY ccw	BFO/OFF	OFF	AM/FM	AM	1 kHz/off	OFF	MOD FREQUENCY		HZ	1(KIO Hz	AC/OFF/DC	DC	RF FREQUENCY		MHz	151.975 MHz	VAR/OFF	adjust to see 30% mod on MM-1(K)E AM %. scale	SCOPE DEV		VERT V/DIV	1	SWEEP		mSEC/DIV	0.1	<p>RECEIVER TESTS (Continued)</p>	
<u>Control</u>	<u>Setting</u>																																																											
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HI LVL x100/NORM	NORM																																																											
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NARROW	NARROW																																																											
GEN/RCVR	GEN																																																											
INT MOD/RCVR/																																																												
RCVR(DET OFF)	RCVR																																																											
VOLUME	FULLY ccw																																																											
BFO/OFF	OFF																																																											
AM/FM	AM																																																											
1 kHz/off	OFF																																																											
MOD FREQUENCY																																																												
HZ	1(KIO Hz																																																											
AC/OFF/DC	DC																																																											
RF FREQUENCY																																																												
MHz	151.975 MHz																																																											
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SCOPE DEV																																																												
VERT V/DIV	1																																																											
SWEEP																																																												
mSEC/DIV	0.1																																																											

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<u>MM-100E</u>		
RANGE AM% FUNCTION AC LOAD 600		
<u>AN/USM-486 DIGITAL MULTIMETER</u>		
PWR ON (PUSHED IN)		
RELATIVE OFF OFF		
AC/DC AC (PUSHED IN)		
VandrnA BOTH NEED		
TO BE PUSHED INTO READ dB. (READ VOLTS FOR GAIN READINGS ONLY).		
SCALE 20		
<u>RADIO RT</u>		
SQUELCH		
DIS/TONE Center Position		
FREQ		
SELECTORS 151.975 MHz		
VOLUME FULLY cw		
EMER AM		
FM/MAN/PRE MAN		
15.2 AM Internal Noise Test.		
a. Set AN/GRM-114A Selectors to 151.975, AM/FM switch to AM, 1000 Hz, 80% ImV.		
b. Adjust C-10604/10606 VOL ccw for a + 10 dB as read on AN/USM-486.	Adjusts to +10 dB.	Go to TROUBLE 2-26.
c. Set AN/GRM-114A 1000 Hz mod to 0000 (turn off mod).	AN/USM-486 reading drops more than 30 dB.	Replace A4 (para 2-10).
d. Repeat steps a,b,c with frequency selector set to 134.000, 116.000, and 108.000 MHz.	AN/USM-486 reading drops more than 30 dB.	Replace A4 (para 2-10).
NOTE If A4 was replaced and trouble remains, replace A6 para 2-12.		

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
RECEIVER TESTS (Continued)		
<p>15.3 FM Internal Noise Test.</p> <p>a. Set AN/GRM-114A Selector to 87.975, AM/FM switch to FM 1000 Hz, 5 kHz deviation at 1mV on BFO-RF level.</p> <p>b. Adjust C-10604/10606 VOL ccw for a + 10 dB as read on AN/USM-486. Set frequency selectors to 87.975.</p> <p>c. Set AN/GRM-114A 1000 Hz mod to 0000 (turn off mod).</p> <p>d. Repeat steps a,b,c with frequency selectors set to 59.000 and 30.500 MHz.</p>	<p>Adjusts to +10 dB.</p> <p>AN/USM-486 reading drops more than 30 dB.</p> <p>AN/USM-486 reading drops more than 30 dB.</p>	<p>Go to TROUBLE 2-26.</p> <p>Replace A4 (para 2-10).</p> <p>Replace A4 (para 2-10).</p> <p style="text-align: center;">NOTE</p> <p>If A4 was replaced and trouble remains, replace A6 para 2-12.</p>
<p>15.4 AM Squelch Test.</p> <p>a. Set AN/GRM-114A Selectors to 151.975, AM/FM switch to AM, 1000 Hz, 80% mod at 1 uV.</p> <p>b. Set C-10604/10606 frequency selectors to 151.975 and SQ DIS/TONE to SQ DIS pos. Note the reading on the AN/USM-486.</p> <p>c. Set C-10604/10606 SQ DIS/TONE to center position</p> <p>d. Set AN\GRM-114A to .1 UV at 3070 modulation.</p>	<p>AN/USM-4S6A reading drops more than 30 dB.</p>	<p>Go to TROUBLE 2-27.</p>

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
RECEIVER TESTS (Continued)		
<p>e. Slowly increase AN/GRM-114A BFO-RF level until AN/USM-486 reading increases (radio unsquelches).</p> <p>f. Set AN/GRM-114A BFO-RF level to .1 uV.</p>	<p>No more than 2 uV.</p>	<p>Go to TROUBLE 2-28.1.</p>
<p>15.5 AM Sensitivity Test.</p>		
<p>a. Set AN/GRM-114A for 108.000 MHz, 1000 Hz mod freq, 80% modulation at 2 uV.</p>		
<p>b. Set C-10604/10606 frequency selectors to 108.000 and SQ DIS/TONE to SQ DIS pos.</p>		
<p>c. Adjust C10604/10606 VOL for + 10 dB as read on AN/USM-486.</p>		
<p>d. Set AN/GRM-114A to off (mod freq to 0000).</p>	<p>AN/USM-486 reading drops more than 10 dB.</p>	<p>Replace A4 (para 2-10).</p>
<p>e. Repeat steps a thru d with C-10604/10606 and AN/GRM-114A frequency selectors set to 116.000, 134,000, and 151.975 MHz.</p>	<p>AN/USM-486 reading drops more than 10 dB.</p>	<p>Replace A4 (para 2-10).</p>
<p>15.6 FM Squelch Test.</p>		
<p>a. Set AN/GRM-114A Selectors to 58.000, AM/FM switch to FM 1000 Hz, 5 kHz deviation at .1uV on BFO-RF level.</p>		
<p>b. Set C-10604/10606 frequency selectors to 58.500 and SQ DIS/TONE to center pos.</p>		

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
RECEIVER TESTS (Continued)		
<p>c. Slowly increase BFO-RF level until AN/USM-486 reading increases (receiver unscelches). Note AN/USM-486 reading.</p> <p>d. Turn off modulation on AN/GRM-114A (mod freq to 0000).</p> <p>e. Note AN/USM-486 reading for use in FM sensitivity test.</p> <p>f. Set AN/GRM-114A BFO-RF level to .1 uV.</p>	Reading drops 10 +/- 0.5 dB.	Go to TROUBLE 2-29.1
<p>15.7 FM Sensitivity Test.</p> <p>a. Set C-10604/10606 frequency selectors to 30.500 and SQ DIS/TONE to SQ DIS POS.</p> <p>b. Set AN/GRM-114A for 30.500 MHz. Set BFO-RF level to that noted in step 15.6e., (level to break squelch).</p> <p>c. Adjust C-10604/10606 VOL for + 10 dB as read on AN/USM-486.</p> <p>d. Set AN/GRM-114A modulation to off (mod freq to 0000).</p> <p>e. Repeat steps a thru d with C-10604/10606 and AN/GRM-114A frequency selectors set to 59.000 and 87.975 MHz.</p>		
	AN/USM-486 reading drops more than 10 dB.	Replace A4 (para 2-10).

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
RECEIVER TESTS (Continued)		
<p>15.10 AM X-mode Audio Output Test.</p> <p>Set MK-994 A/AR RADIO TEST to 5.</p>	<p>AN/USM-486 reads not less than 1.9 Vrms.</p>	<p>Go to TROUBLE 2-32.</p>
<p>15.11 FM Narrow-band Audio Output Test.</p> <p>a. Set C-10604/10606 frequency selectors to 58.500.</p> <p>b. Insure C-10604/10606 VOL fully Cw.</p> <p>c. Set AN/GRM-114A for 58.500 MHz, AM/FM switch to FM, 1000 Hz mod freq., 5 kHz dev at 1 mV.</p> <p>d. Check AN/USM-486 reading.</p> <p style="text-align: center;"><u>CAUTION</u></p> <p><u>DO NOT</u> turn MK-994A/AR RADIO TEST across position 4 while changing settings in the following steps.</p>	<p>AN/USM-486 reads 2.5 to 3.3 Vrms.</p>	<p style="text-align: center;">NOTE</p> <p>VOL must be fully cw for proper reading.</p> <p>Go to TROUBLE 2-30.</p>
<p>15.12 FM Retransmission Audio Output test.</p> <p>Set MK-994A/AR RADIO TEST to 2.</p>	<p>AN/USM-486 reads 2.38 to 3.15 Vrms. MK 994 control signal lamp lights.</p>	<p>Go to TROUBLE 2-31.</p>
<p>15.13 FM X-mode Audio Output test.</p> <p>Set MK-994 A/AR RADIO TEST to 5.</p>	<p>AN/USM-486 reads not less than 1.9 Vrms.</p>	<p>Go to TROUBLE 2-32.</p>

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATIONS	REMARKS
<p>15.14 AM Internal Noise Test.</p> <p>a. set AN/GRM-114A frequency selectors to 151.975, AM/FM switch to AM 1000 Hz, 30% mod., at 1 m V.</p> <p>b. Adjust C-10604/10606 VOL ccw for a +10 dBas read on MM-100E, (p/o AN/GRM-114A).</p> <p>C. Set AN/GR.M-114A 1000Hz mod to 0000 (turn off mod).</p> <p>d. Repeat steps a,b, c with frequency selector set to 134000, 116,000, and 108,000 MHz.-</p>	<p>RECEIVER TESTS (Continued)</p> <p>Adjust to+ 10 dB.</p> <p>MM-100E reading drops more than 30 dB.</p> <p>MM-100E reading drops more than 30 dB.</p>	<p>Go to TROUBLE 2-26.</p> <p>Replace A4 (para 2-10).</p> <p>Replace A4 (para 2-10).</p> <p>NOTE IF A4 was replaced and trouble remains, replace A6 para 2-12.</p>
<p>15.15 FM Internal Noise Test.</p> <p>a. Set AN/GRM-114A Selector to 87.975, AM/FM switch to FM 1000 Hz, 5 kHz deviation at 1 mV on BFO-RF level.</p> <p>b. Adjust C-10604/10606 VOL. ccw for a +10 dBas read on MM-100E, Set frequency selectors to 87.975.</p> <p>C. Set AN/GRM-114A 1000 Hz mod to 0000 (turn off mod).</p> <p>d. Repeat steps a, b, c with frequency selectors set to 59.000 and 30.5000 MHz.</p>	<p>Adjust to+ 10 dB.</p> <p>MM-100E reading drops more than 30 dB.</p> <p>MM-100E reading drops more than 30 dB.</p>	<p>Go to TROUBLE 2-26.</p> <p>Replace A4 (para 2-10).</p> <p>Replace A4 (para 2-10).</p> <p>NOTE IF A4 was replaced and trouble remains, replace A6 para 2-12.</p>
<p>15.16 FM sensitivity Test. (Use Test Setup C.)</p> <p>a. Set C-10604/10606 frequency selectors to 30.500 and SQ DIS/TONE to SQ DIS pos.</p>		

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATIONS	REMARKS
<p>b. Set AN/GRM-114A for FM, 30.500 MHz. Set BFO/RF at 2 uV.</p> <p>c. Adjust C-10604/10606 VOL. for +12 dB as read on MM-100 E (AN/GRM-114A).</p> <p>d. Set AN/GRM-114A modulation to off (mod freq. to 0000).</p> <p>e. Repeat steps a thru d with C-10604/106 and AN/GRM-114A frequency selector set to 59.000 and 87.975 MHz.</p>	<p>RECEIVER TESTS (Continued)</p> <p>MM-100E reading drops more than 12 dB</p> <p>MM-100E reading drops more than 12 dB.</p>	<p>Replace A4 (par 2-10).</p> <p>Replace A4 (par 2-10).</p>
<p>15.17 AM Sensitivity Test. (Use test set up C)</p> <p>a. Set AN/GRM-114A for 108.000 MHz, 1000 Hz mod. freq. 30% modulation at 2 uV.</p> <p>b. Set C-10604/10606 frequency selectors to 108.000 and SQ DIS/TONE to SQ DIS position.</p> <p>c. Adjust C-10604/10606 VOL for + 10 as read on MM-100E (p/o AN/GRM-114A).</p> <p>d. Set AN/GRM-114A to off (mod. freq. to 0000).</p> <p>e. Repeat steps a through d with C-10604/10606 and AN/GRM-114A frequency Selectors set to 116.000, 134,000, and 151.975 MHz.</p>	<p>MM-100 E reading drops more than 10 dB.</p> <p>MM-100E reading drops more than 10 dB</p>	<p>Replace A4 (par 2-10).</p> <p>Replace A4 (par 2-10),</p>

2-5 TESTING (Continued)

PROCEDURE	NORMAL INDICATIONS	REMARKS
<p>15.18 AM Squelch Test. (Use Test Set up C)</p> <p>a. Set AN/GRIM-114A frequency selectors 134.000, AM/FM switch to AM, 1000Hz, 30% mod. at 1 uV.</p> <p>b. Set C-10604/10606 frequency seleletors to 134.000 and SQ DIS/TONE to SQ DIS position (Note reading on MM-100E).</p> <p>c. Set C-104W10606 SQ DIS/TONE to center position.</p> <p>d. Set ANI/GRM-114A to .1 μV at 30 % modulation.</p> <p>e. Slowly increase AN/GRM-114A BFO-RP level until MM-100E reading increases (radio unaquelches).</p> <p>f. Set AN/GRM-114A BFO-RF level to .1uV.</p>	<p>MM-100E reading drops more than 30 dB.</p> <p>No more than 2uV.</p>	<p>Go to TROUBLE 2-27.</p> <p>Go to TROUBLE 2-28.1.</p>

2-5. TESTING (Continued)

PROCEDURE	NOW INDICATIONS	REMARKS
<p>15.19 FM Squelch Test. (-use test setup C)</p> <p>a. Set AN/GRNI-114A selceters to 58.000, AM/FM switch to FM 1000 Hz, 5 kHz deviation at .05 uV on BFO-RF level.</p> <p>b. Set RT-1354 frequency sektors to 58.000 and SQ DIS/TONE to center position.</p> <p>c. Slowly increase BFO-RF level until MM-100E (SINAD range) reading increases (reeeiver unsqluches). Note MM-100E reading.</p> <p>d. Turn off modulation on AN/GRM-114A (mod freq. to 0000).</p>	<p>MM-100E reading drops more than 30 dB.</p> <p>Reading no more than 2uV.</p> <p>MM-100E reading drops more than 30 dB.</p>	<p>Go to TROUBLE 2-29.2.</p> <p>Go to TROUBLE 2-29.2.</p>

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
RECEIVER TESTS (Continued)		
<p>16. FM narrow-band audio frequency response test.</p> <p>a. Set MK-994A/AR RADIO TEST to 6.</p> <p>b. Adjust SG-1112(V)1 for 58.5000, 1000-HZ modulation, 5-kHz deviation at 1 m V.</p> <p>c. Set:</p> <p style="padding-left: 40px;">C-10604/10606 frequency selectors to 58.500.</p> <p style="padding-left: 40px;">VOL fully counterclockwise.</p> <p style="padding-left: 40px;">AN/URM-184A METER RANGE to 1 VOLTS.</p> <p>d. Adjust C-10604/10606 VOL for +10 dB as shown on AN/URM-184A.</p> <p>e. Set SG-1112(V)1 to 300-Hz modulation, 5-kHz deviation,</p> <p>f. Set SG-1112(V)1 to 3200-Hz modulation, 5-kHz deviation.</p>	<p>AN/URM-184A does not rise more than 1 dB or fall more than 3 dB.</p> <p>AN/URM-184A dots not rise more than 1 dB or fall more than 3 dB.</p>	<p>Replace A3 (para 2-9).</p> <p style="text-align: center;">NOTE</p> <p>If A3 was replaced and trouble remains, replace A4 (para 2-10).</p> <p>Replace A3 (para 2-9).</p> <p style="text-align: center;">NOTE</p> <p>If A3 was replaced and trouble remains, replace A4 (para 2-10).</p>

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
RECEIVER TESTS (Continued)		
<p style="text-align: center;"><u>CAUTION</u></p> <p><u>DO NOT</u> turn MK-994A/AR RADIO TEST across position 4 while changing settings in the following steps.</p> <p>17. FM X-mode audio frequency response test.</p> <p>a. Set:</p> <p style="padding-left: 40px;">AN/URM-184A METER RANGE to 10 VOLTS.</p> <p style="padding-left: 40px;">MK-994A/AR RADIO SET to 3.</p> <p style="padding-left: 40px;">J-4247/AR X-MODE WB/NB to WB.</p> <p style="padding-left: 40px;">SG-1112(V)1 to 1000-HZ modulation, 5-kHz deviation.</p> <p>b. Remember AN/URM-184A reading for steps c,d.</p>		

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
c. Set SG-1112(V)1 to 20-Hz modulation, 5-kHz deviation.	AN/URM-184A reading does not rise more than 1 dB or fall more than 3 dB.	Replace A3 (para 2-9). <p style="text-align: center;">NOTE</p> If A3 was replaced and trouble remains, replace A4 (para 2-10).
d. Set SG-1112(V)1 to 14-kHz modulation, 5-kHz deviation.	AN/URM-184A reading does not rise more than 1 dB or fall more than 3 dB.	Replace A3 (para 2-9). <p style="text-align: center;">NOTE</p> If A3 was replaced and trouble remains, replace A4 (para 2-10).
<u>CAUTION</u>		
Do not turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.		
18. FM narrow-band selectivity test.		
a. Set:		
J-4247/AR X-MODE WB/NB to NB.		
MK-994A/AR RADIO TEST to 6.		
AN/URM-184A METER RANGE to 1 VOLTS.		
SG-1112(V)1 to 1000-HZ modulation, 5-kHz deviation.		
b. Set C-10604/10606 VOL for +10 dB as read on AN/URM-184A.		

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
c. Set SG-1112(V)1 to 58.5085.	AN/URM-184A reading does not rise or fall more than 6 dB.	Replace A4 (para 2-10).
<u>CAUTION</u>		
Do not turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.		
19. FM X-mode selectivity test.		
a. Set		
AN/URM-184A METER RANGE to 10 VOLTS.		
J-4247/AR X-MODE WB/NB to WB.		
MK-994A/AR RADIO TEST to 3.		
b. Set SG-1112(V)1 to 50.516.	AN/URM-184A reading does not rise or fall more than 6 dB.	Go to TROUBLE 2-33.
<u>CAUTION</u>		
Do not turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.		
20. FM audio distortion test.		
a. Set:		
MK-994A/AR RADIO SET to 6.		
J-4247/AR X-MODE WB/NB to NB.		
b. Adjust SG-1112(V)1 for 58.500, 1000-HZ modulation, 5-kHz deviation at 1 mV.		

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
c. Adjust AN/URM-184A to read distortion.	AN/URM-184A reads no more than 12.5%	Replace A3 (para 2-9). <p style="text-align: center;">NOTE</p> If A3 was replaced and trouble remains, replace A4 (para 2-10).
d. Repeat steps b, c for modulation frequencies of 300 Hz, 3200 Hz.	AN/URM-184A reads no more than 12.5%.	Replace A3 (para 2-9). <p style="text-align: center;">NOTE</p> If A3 was replaced and trouble remains, replace A4 (para 2-10).
<p><u>CAUTION</u></p>		
Do not turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.		
21. AM narrow-band audio frequency response test.		
a. Set		
MK-994A/AR RADIO TEST to 6.		
C-10604/10606 frequency selectors to 133.500.		
VOL fully counterclockwise.		
J-4247/AR X-MODE WB/NB to NB.		
AN/URM-184A FUNCTION to VOLTMETER.		
METER RANGE to 1 VOLTS.		

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
b. Adjust SG-1112(V)1 for 133.500, 1000 Hz, 30% modulation at 1 mV. c. Adjust C-1.0604/10606 VOL for +10 dB as read on AN/URM-184A. d. Set SG-1112(V)1 to 300 Hz, 30% modulation.	AN/URM-184A reading does not rise more than 1 dB or fall more than 3 dB.	Replace A3 (para 2-9). NOTE If A3 was replaced and trouble remains, replace A4 (para 2-10).
e. Set SG-1112(V)1 to 3200 Hz, 30% modulation.	AN/URM-184A reading does not rise more than 1 dB or fall more than 3 dB.	Replace A3 (para 2-9). NOTE If A3 was replaced and trouble remains, replace A4 (para 2-10).
<u>CAUTION</u>		
<p><u>Do not</u> turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.</p>		
22. AM X-mode audio frequency test.		
a. Seti AN/URM-184A METER RANGE to 3 VOLTS. MK-994A/AR RADIO TEST to 3. J-4247/AR X-MODE WB/NB to WB.		
b. Set SG-1112(V)1 to 1000 Hz, 30% modulation.		

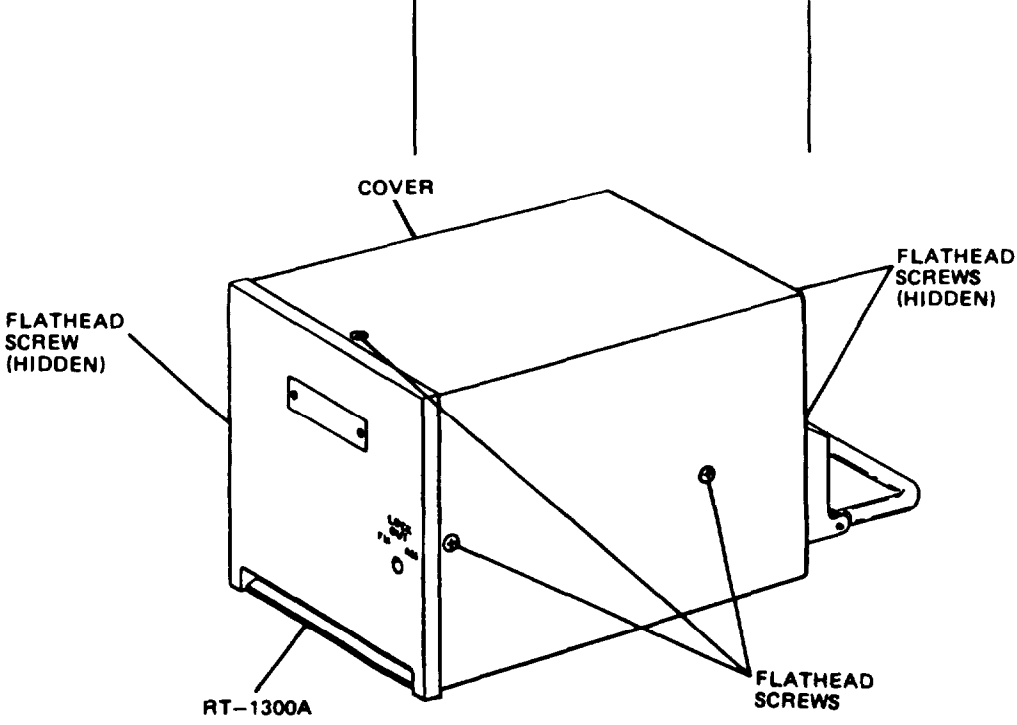
2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
c. Remember AN/URM-184A reading for steps d, e.		
d. Set SG-1112(V)1 to 20 Hz, 30% modulation.	AN/URM-184A reading does not rise more than 1 dB or fall more than 3 dB.	Replace A3 (para 2-9).
e. Set SG-1112(V)1 to 14 kHz, 30% modulation.	AN/URM-184A reading does not rise more than 1 dB or fall more than 3 dB.	Replace A3 (para 2-9)
<u>CAUTION</u>	Do not turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.	NOTE
23. AM audio distortion test.		If A3 was replaced and trouble remains, replace A4 (para 2-10).
a. Set MK-994A/AR RADIO TEST to 6.		
J-4247/AR X-MODE WB/NB to NB.		
b. Set SG-1112(V)1 to 300 Hz, 50% modulation.		
c. Set AN/URM-184A to measure distortion.	Not more than 12.5%	Replace A3 (para 2-9).
NOTE	If A3 was replaced and trouble remains, replace A4 (para 2-10).	

2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<p>d. Repeat steps b and c for modulation frequencies of 1000 Hz, 3000 Hz.</p>	<p>Not more than 12.5%.</p>	<p>Replace A3 (para 2-9).</p> <p style="text-align: center;">NOTE</p> <p>If A3 was replaced and trouble remains, replace A4 (para 2-10).</p>
<p>24. DF (homing) enable test.</p>		
<p>a. Adjust AN/GSM-64C to read ohms.</p>		
<p>b. Connect AN/GSM-64C:</p> <p>Negative probe to J-4247/AR GND.</p> <p>Positive probe to J-4247/AR ADF/HOM ENBL.</p>	<p>AN/GSM-64C reads between 400 to 600 ohms.</p>	<p>Go to TROUBLE 2-34.</p>
<p>c. Set C-10604/10606 OFF/TR/DF switch to DF.</p>	<p>AN/GSM-64C reads about 50 ohms.</p>	<p>Go to TROUBLE 2-35.</p>
<p>25. Set</p> <p>MK-994A/AR DC POWER ON/OFF to OFF.</p> <p>J-4247/AR PWR RT ON/OFF to OFF.</p> <p>C-10604/10606 OFF/TR/DF to OFF.</p>		
<p>26. Disconnect RT-1300A from J-4247/AR.</p>		

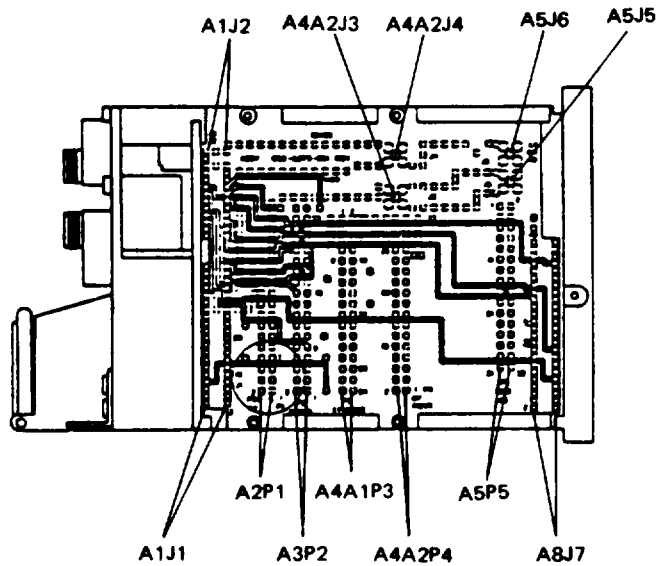
2-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<p>27. Slide cover on RT-1300A.</p> <p>28. Install six flathead screws.</p> <p>29. Complete maintenance forms.</p>	 <p>The diagram shows a perspective view of a rectangular metal receiver assembly. A cover is being slid onto the top of the unit. Six flathead screws are shown being installed into the top surface of the receiver. Labels include: 'COVER' pointing to the top lid; 'FLATHEAD SCREW (HIDDEN)' pointing to two screws on the left side of the top surface; 'FLATHEAD SCREWS (HIDDEN)' pointing to two screws on the right side of the top surface; 'RT-1300A' pointing to the front-left corner of the receiver; and 'FLATHEAD SCREWS' pointing to two screws on the front-right edge of the receiver.</p>	

Section V. TROUBLESHOOTING

2-6. RADIO SET TROUBLESHOOTING

A6 CONNECTOR LAYOUT



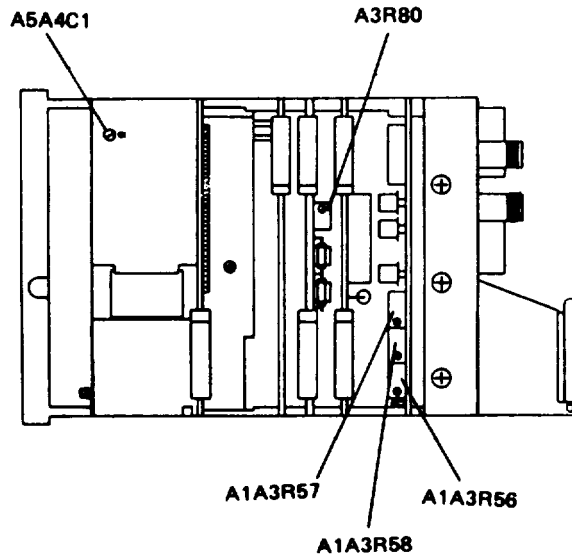
A1J1, A1J2 are numbered bottom-to-top and left-to-right.

A4A1P3, A5P5 are numbered top-to-bottom and left-to-right.

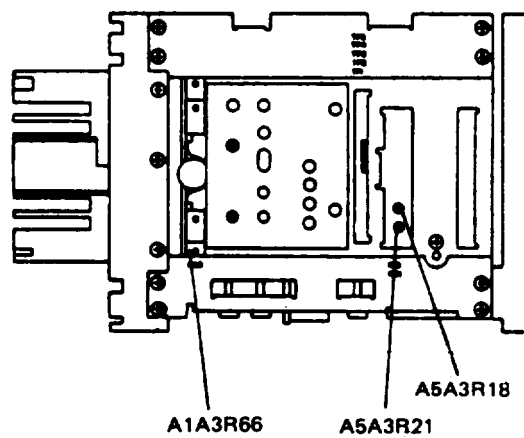
A2P1, A3P2, A4A2P4, A8J7 are numbered bottom-to-top and right-to-left.

2-6. RADIO SET TROUBLESHOOTING (Continued)

RIGHT SIDE ADJUSTMENT LOCATIONS

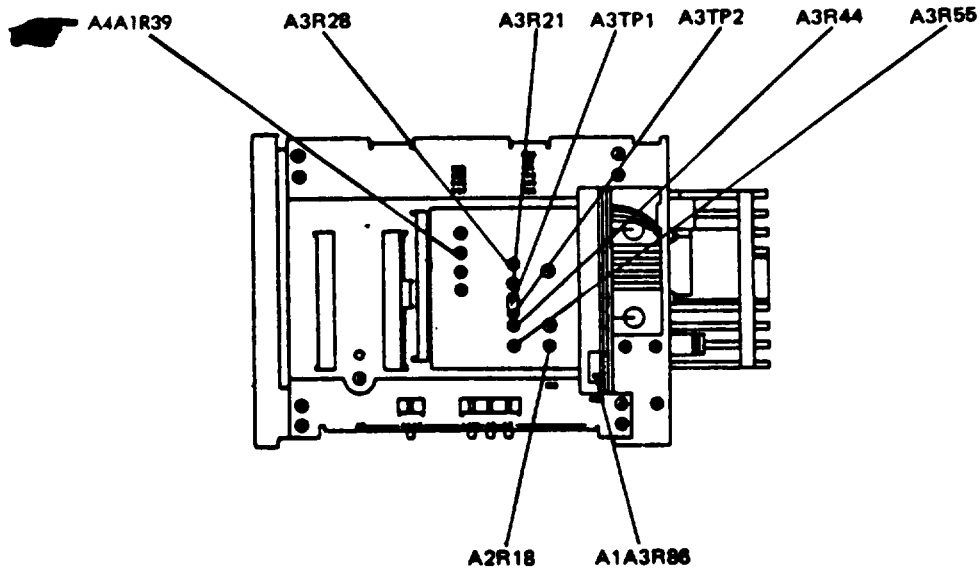


BOTTOM ADJUSTMENT LOCATIONS

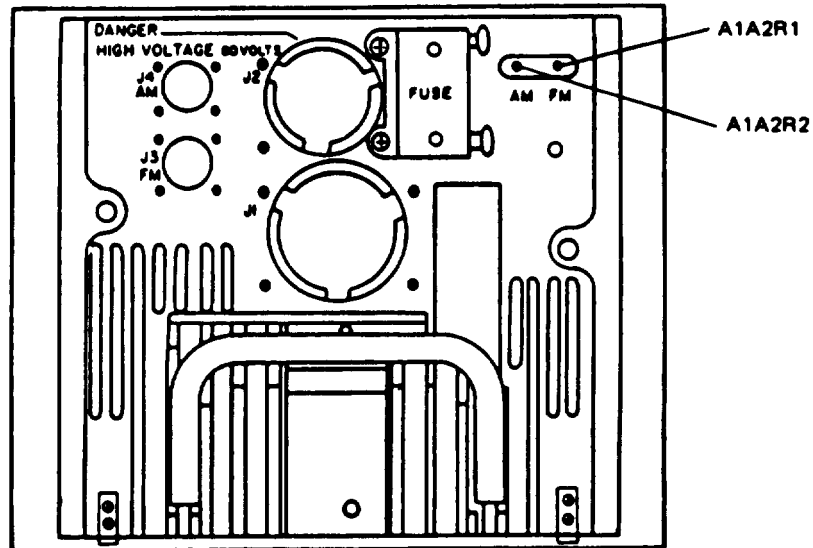


2-6. RADIO SET TROUBLESHOOTING (Continued)

TOP ADJUSTMENT LOCATIONS

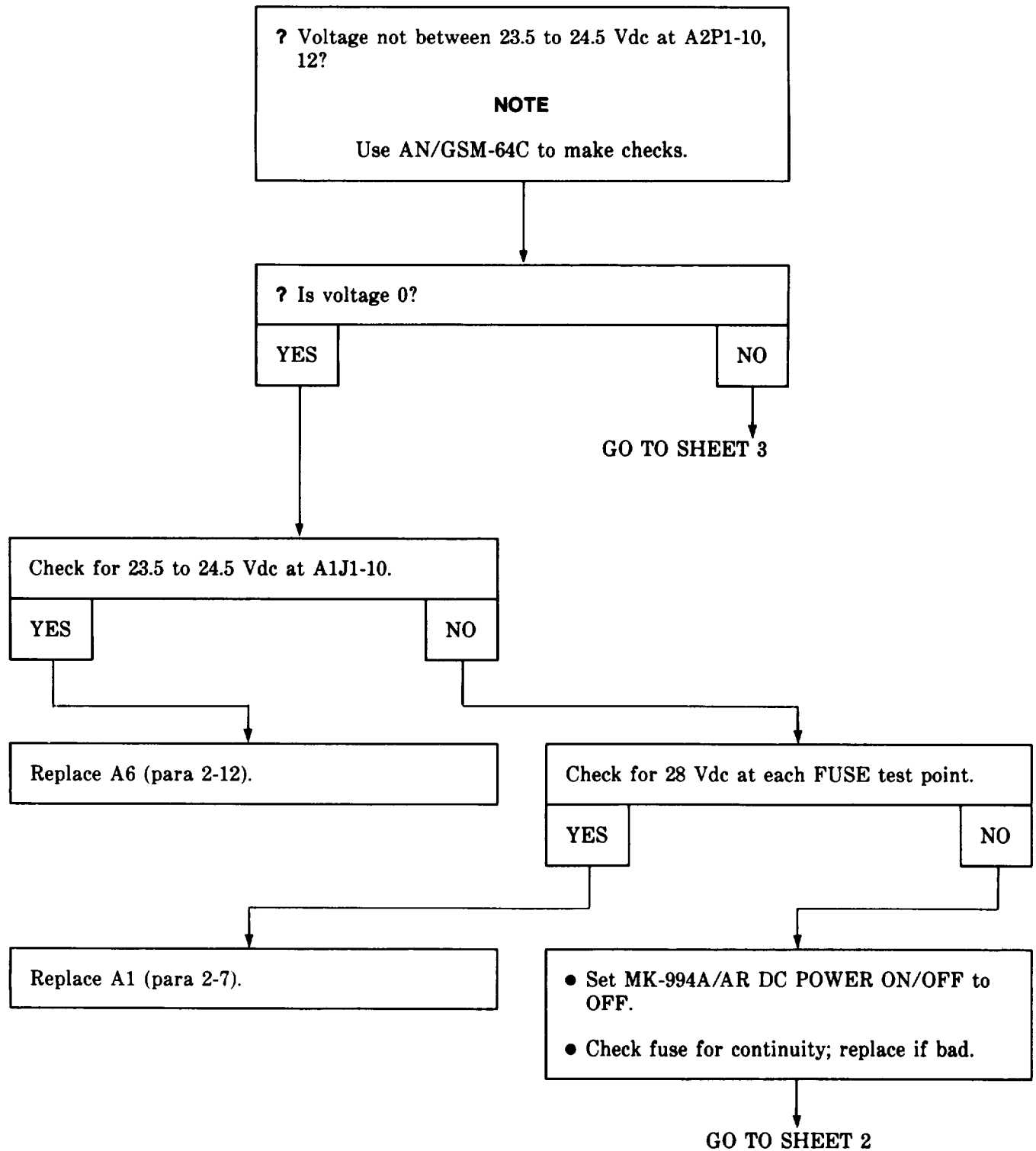


REAR ADJUSTMENT LOCATIONS



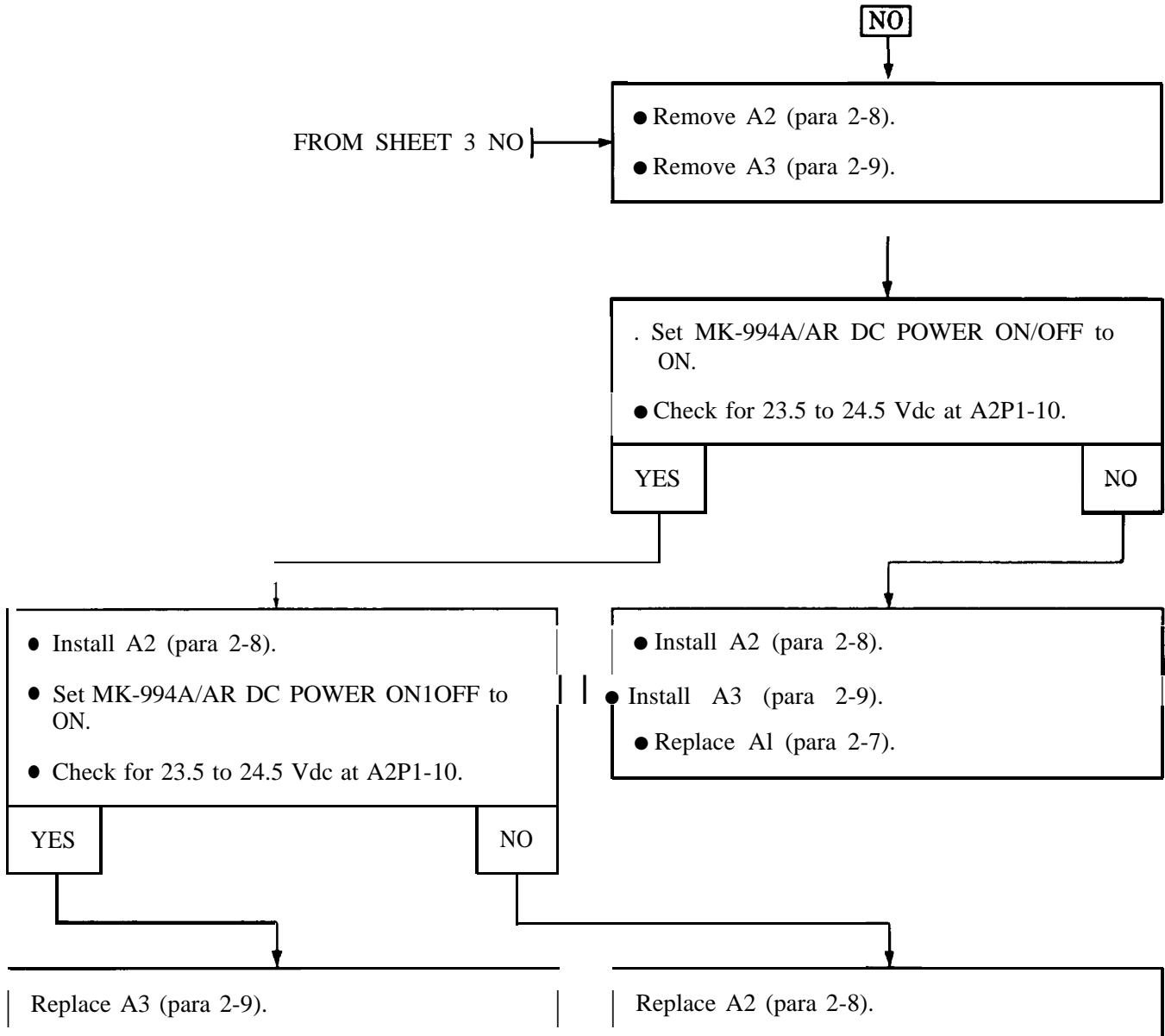
2-6.RADIO TROUBLESHOOTING (Continued)

TROUBLE 2-1 (SHEET 1)



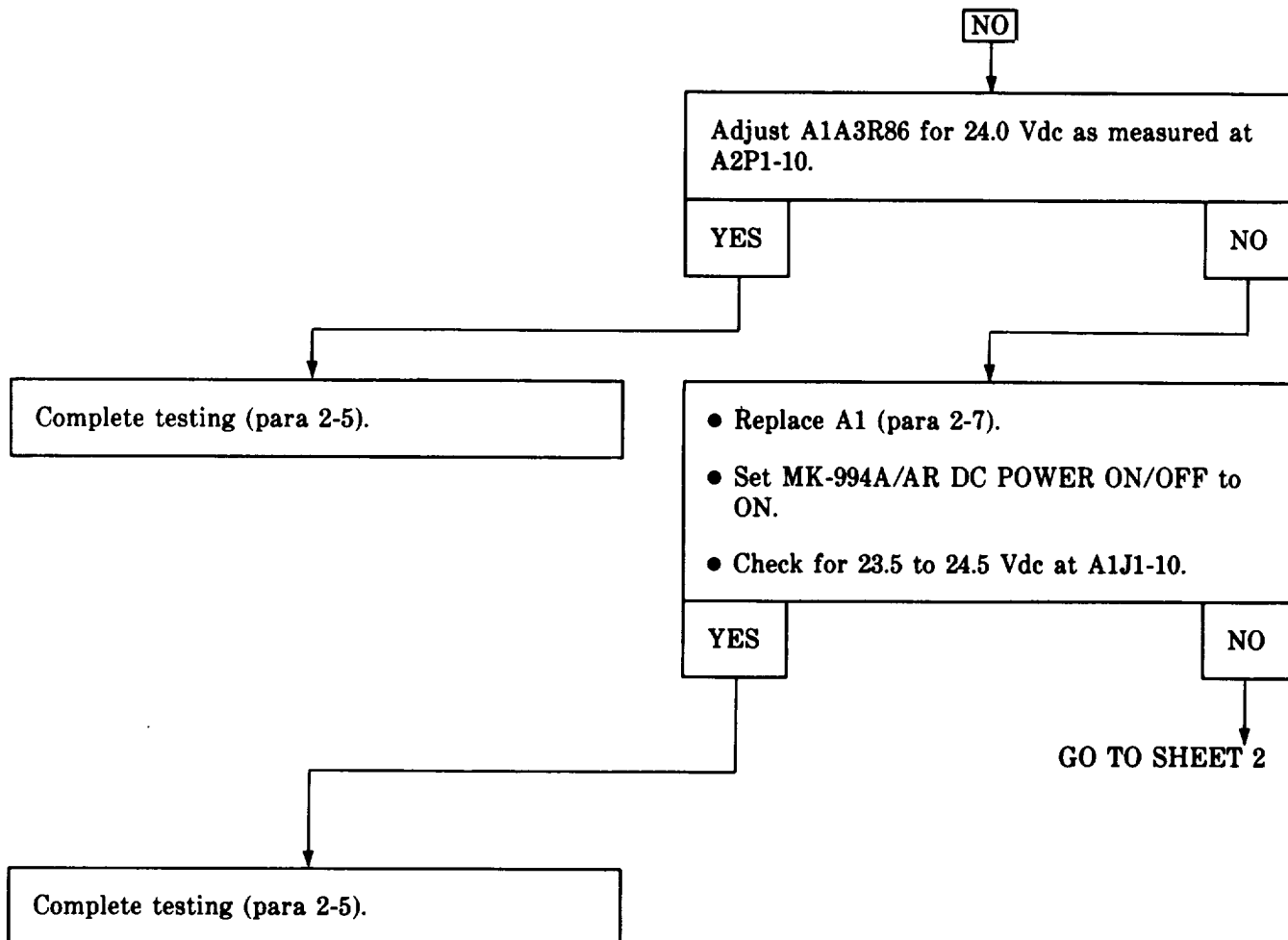
12-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-1 (SHEET 2)



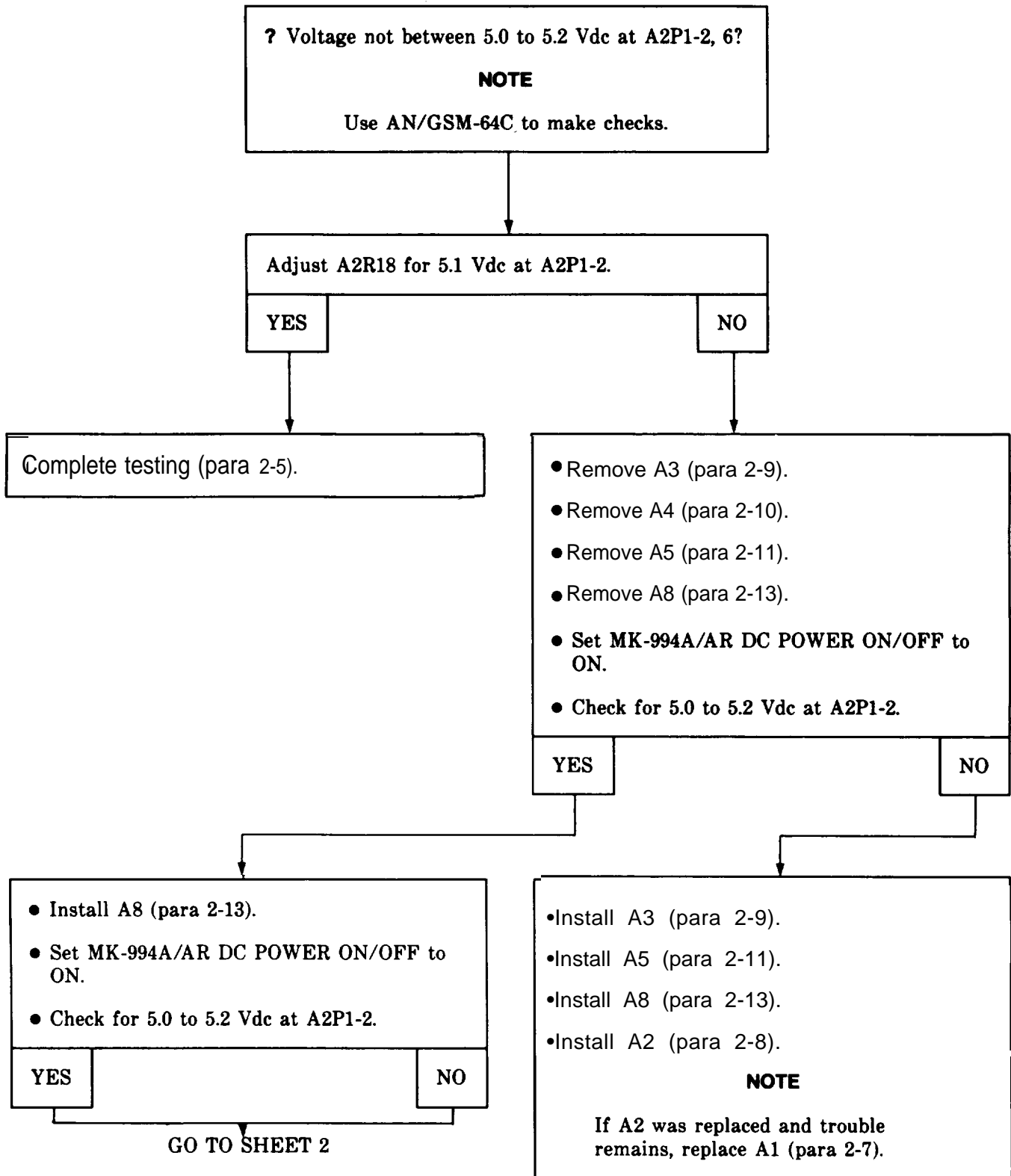
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-1 (SHEET 3)



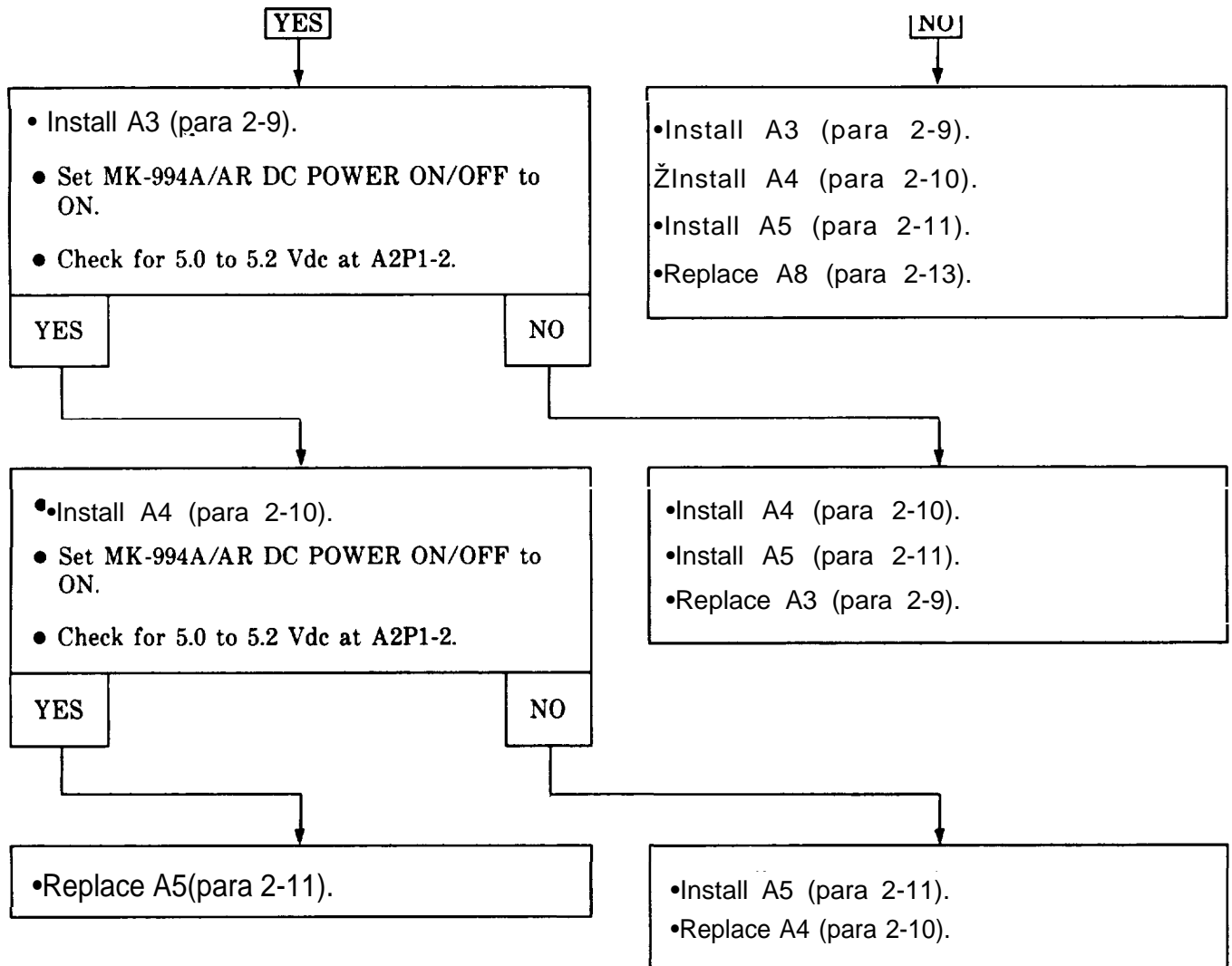
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-2 (SHEET 1)



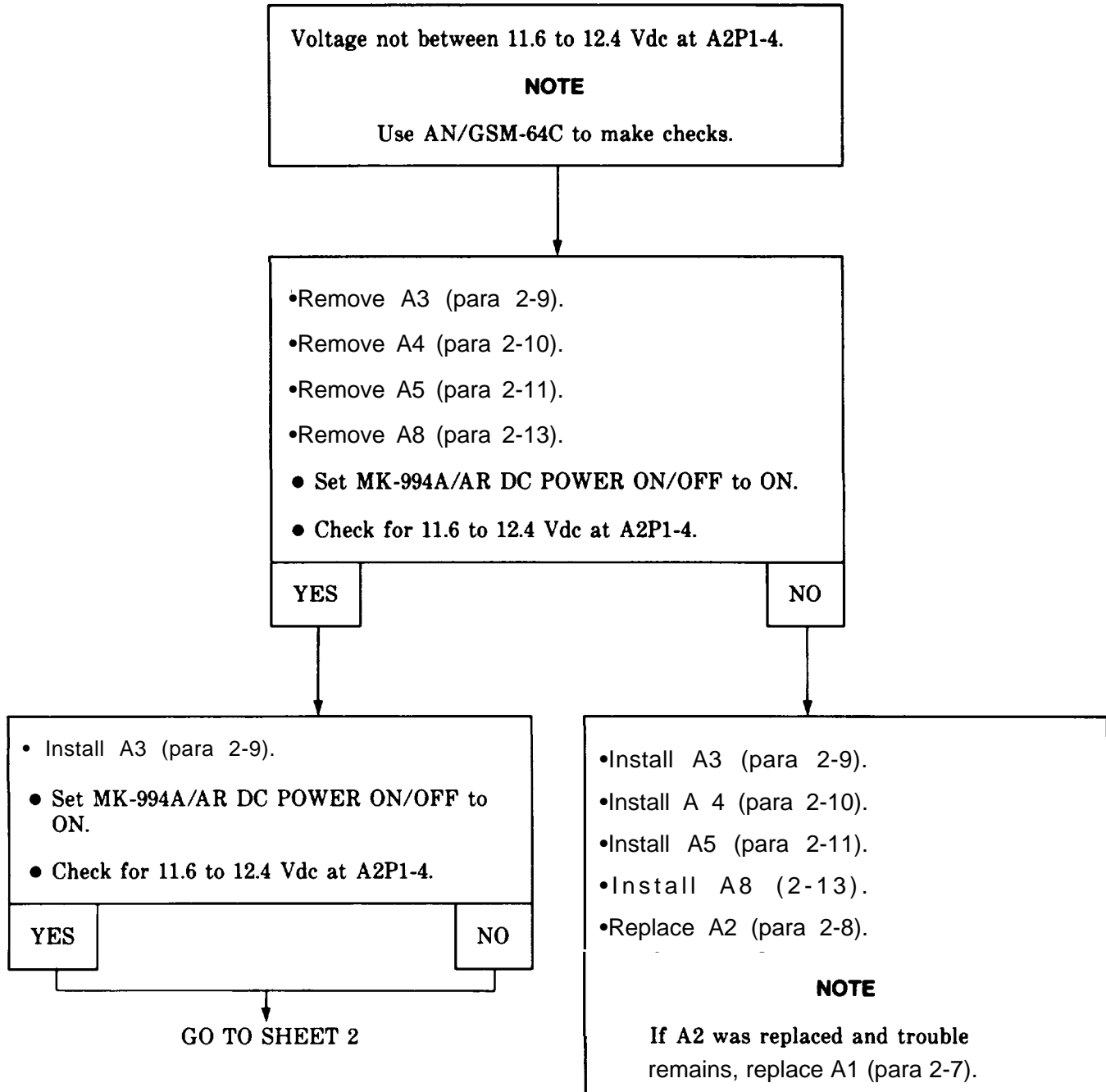
2-6.RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-2 (SHEET 2)



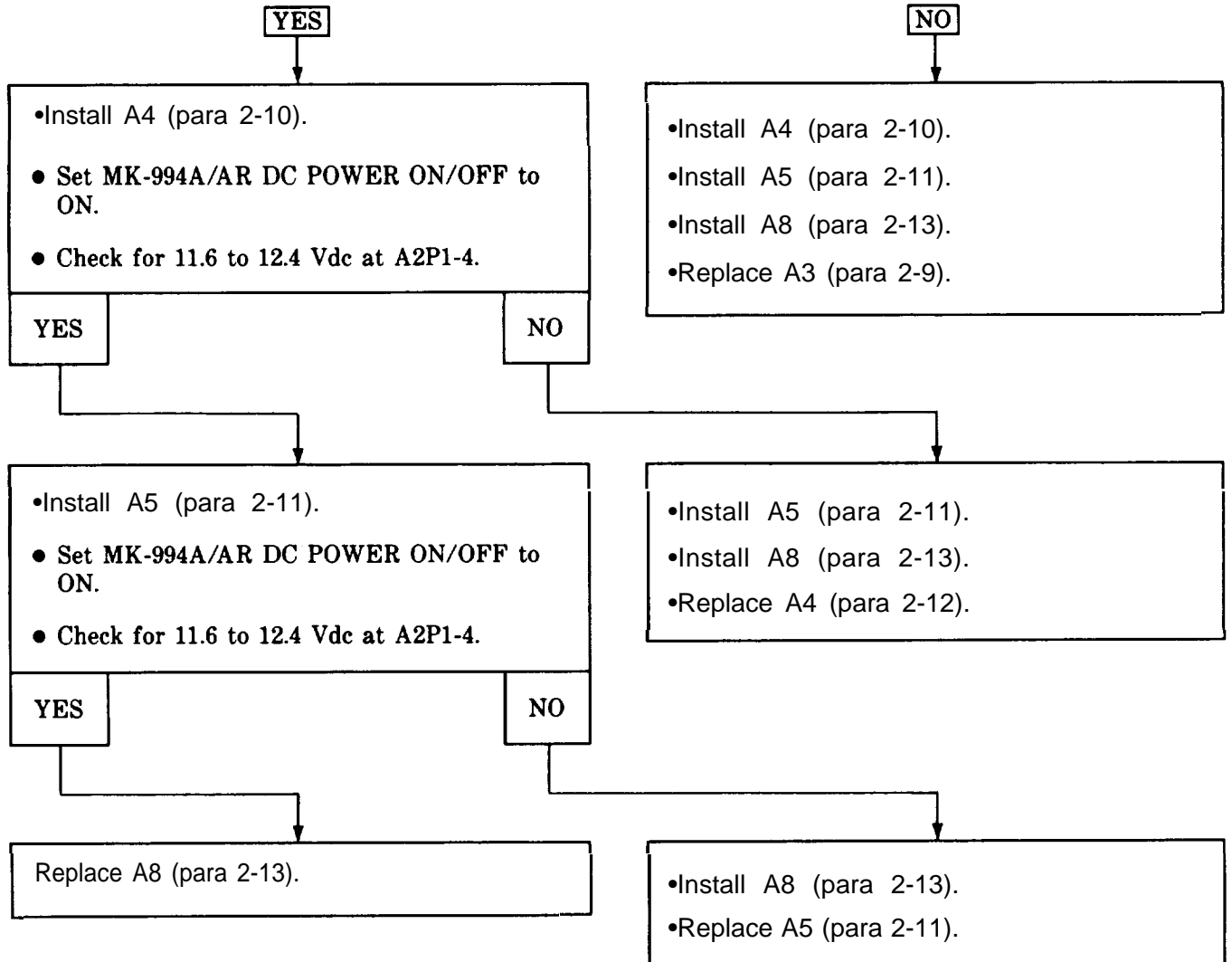
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-3 (SHEET 1)



2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-3 (SHEET 2)



2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-4 (SHEET 1)

Voltage not between -11.6 to -12.4 Vdc at A2P1-3.

NOTE
Use AN/GSM-64C to make checks.

- Remove A3 (para 2-9).
- Remove A4 (para 2-10).
- Remove A5 (para 2-11).
- Remove A8 (para 2-13).
- Set MK-994A/AR DC POWER ON/OFF to ON.
- Check for -11.6 to -12.4 Vdc at A2P1-3.

YES NO

- Install A3 (para 2-9).
- Set MK-994A/AR DC POWER ON/OFF to ON.
- Check for -11.6 to -12.4 Vdc at A2P1-3.

YES NO

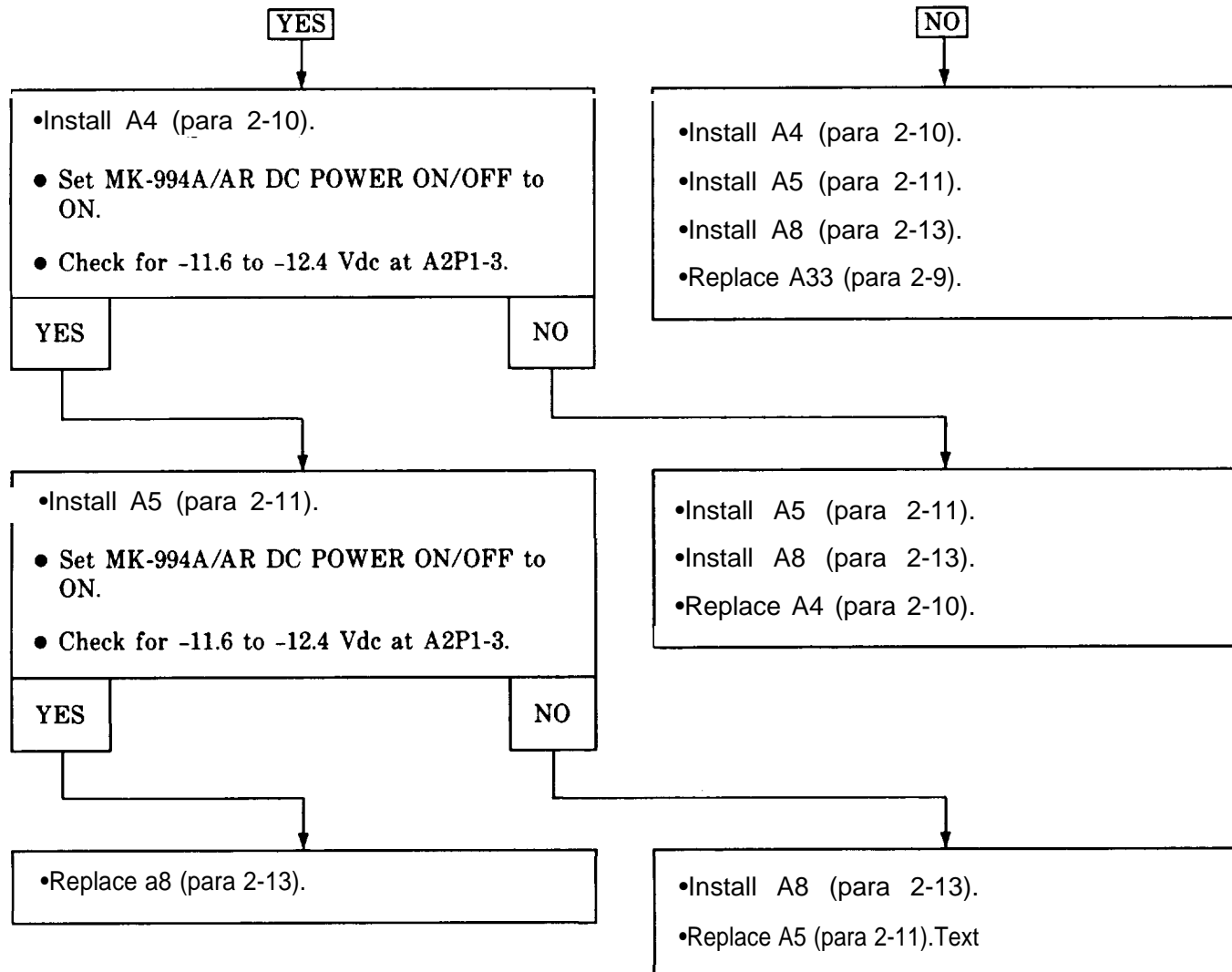
GO TO SHEET 2

- Install A3 (para 2-9).
- Install A4 (para 2-10).
- Install A5 (para 2-11).
- Install A8 (para 2-13).
- Replace A2 (para 2-8).

NOTE
If A2 was replaced and trouble remains A1 (para 2-7).

2-6 RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-4 (SHEET 2)



2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-5

Voltage not between 23.4 to 28.8 Vdc at A2P1-5, 7.
NOTE
 Use AN/GSM-64C to make checks.

•Remove A3 (para 2-9).
 •Remove A5 (para 2-11).
 • Set MK-994A/AR DC POWER ON/OFF to ON.
 • Check for 23.4 to 28.8 Vdc at A2P1-5.

YES NO

•Install A3 (para 2-9).
 • Set MK-994A/AR DC POWER ON/OFF to ON.
 • Check for 23.4 to 28.8 Vdc at A2P1-5.

YES NO

•Install A3 (para 2-9).
 •Install A5 (para 2-11).
 •Replace A2 (para 2-8).

Replace A5 (para 2-11).

Install a5 (2-11).
 Replace A3 (para 2-9).

2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-6

Voltage not between 72 to 88 Vdc at A2P1-14.

Replace A2 (para 2-8).

NOTE

If A2 was replaced and trouble remains,
replace A1 (para 2-7).

TROUBLE 2-7

Voltage not between 5.7 to 6.5 Vdc at A2P1-18.

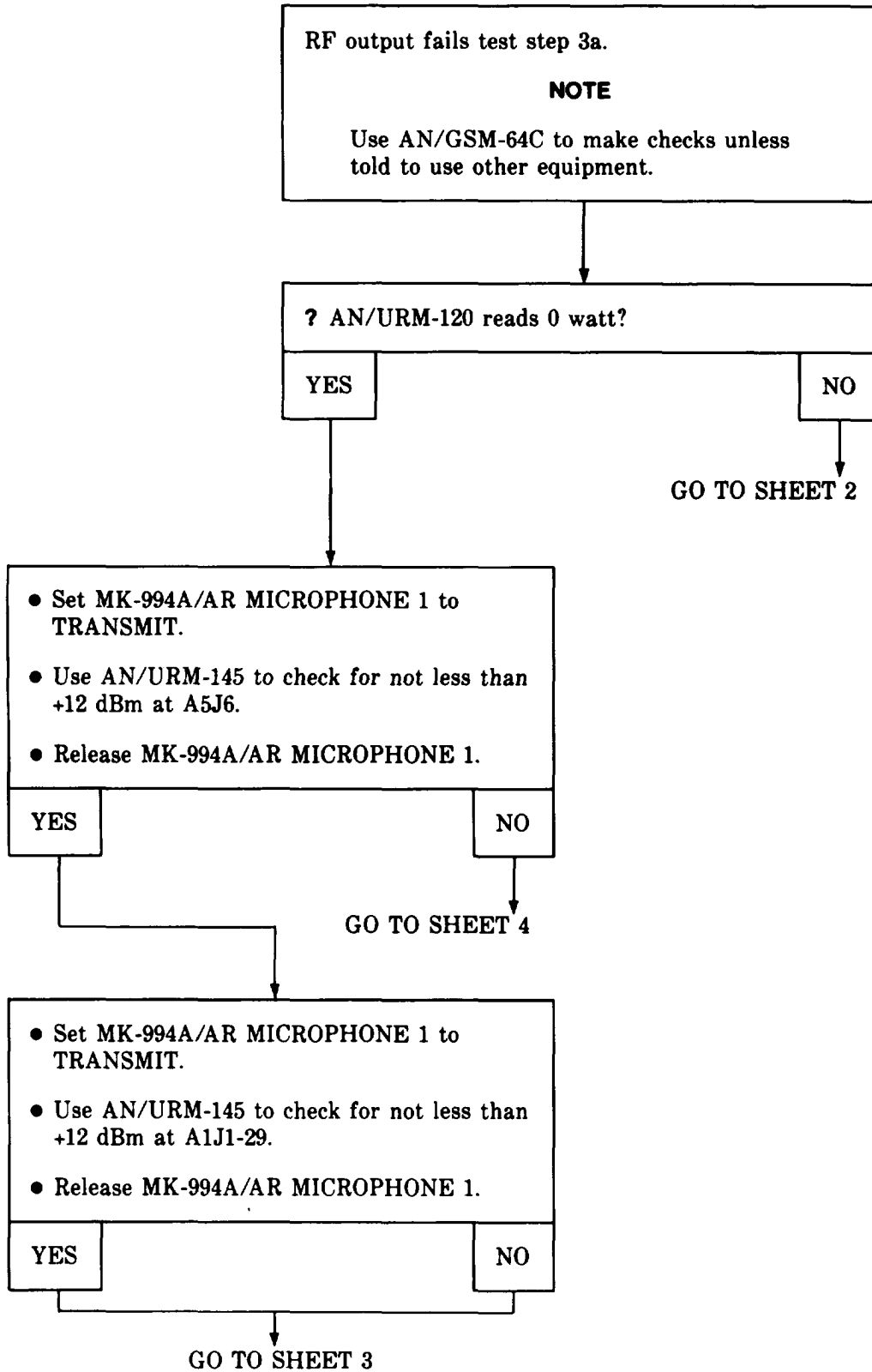
Replace A2 (para 2-8).

NOTE

If A2 was replaced and trouble remains,
replace A1 (para 2-7).

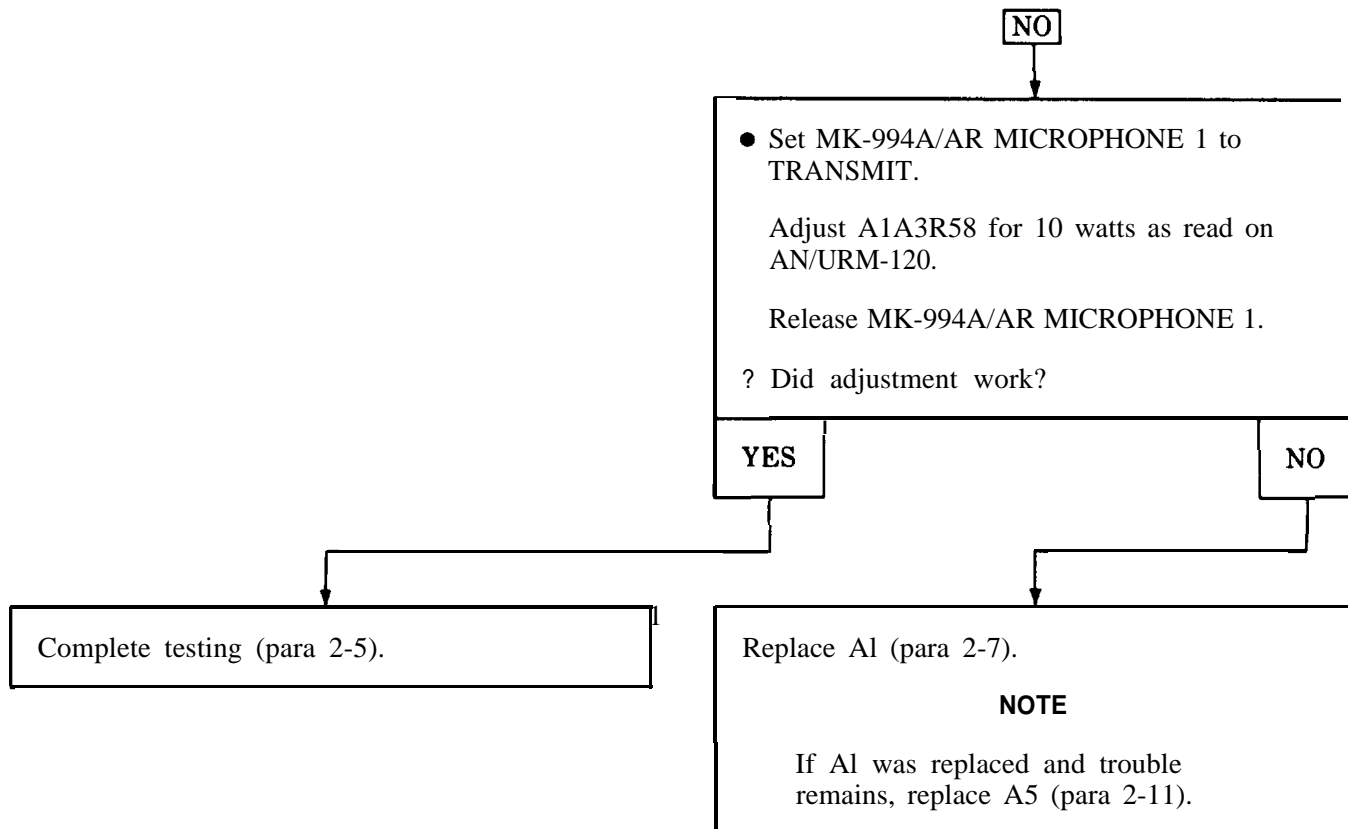
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-8 (SHEET 1)



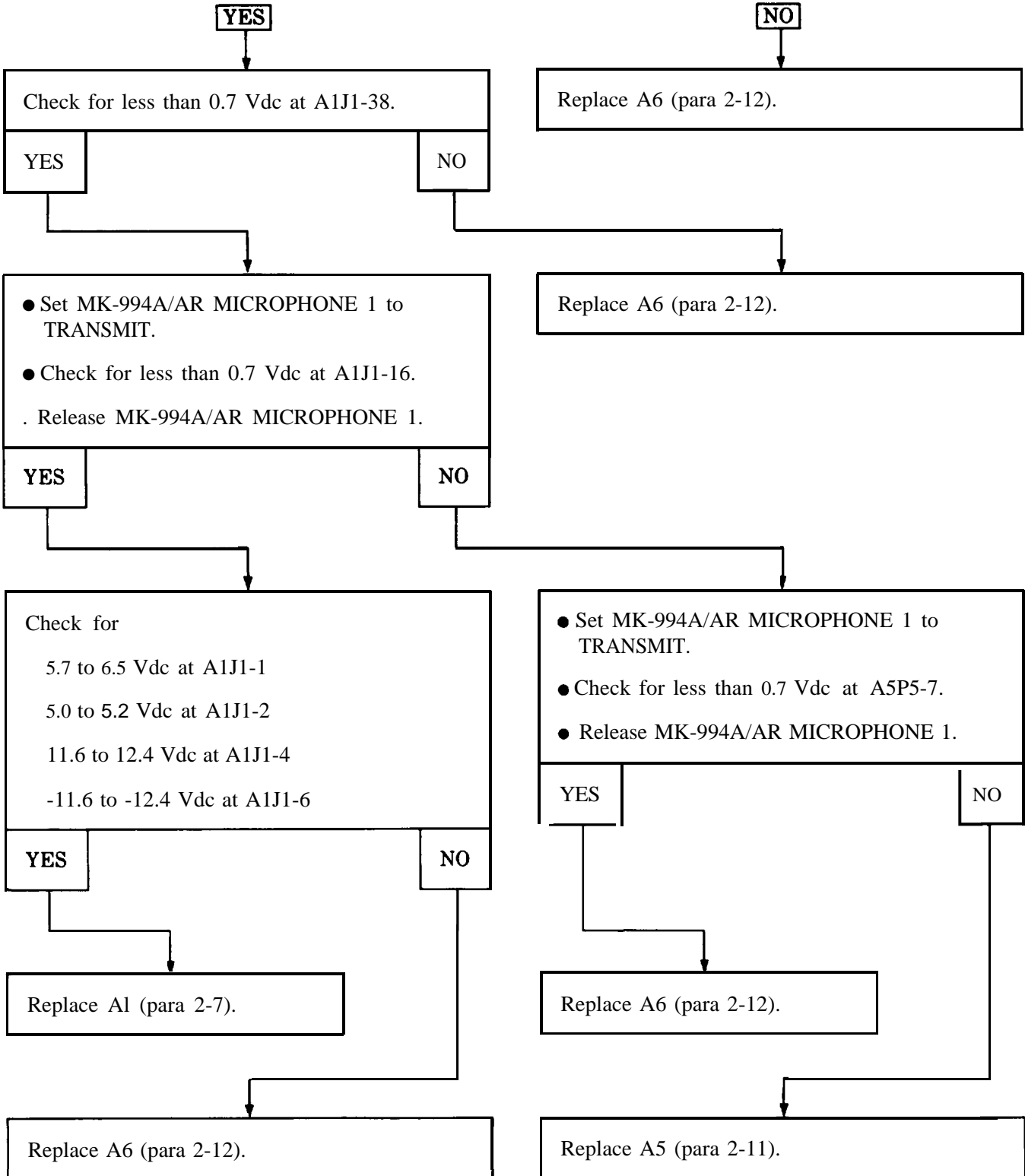
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-8 (SHEET 2)



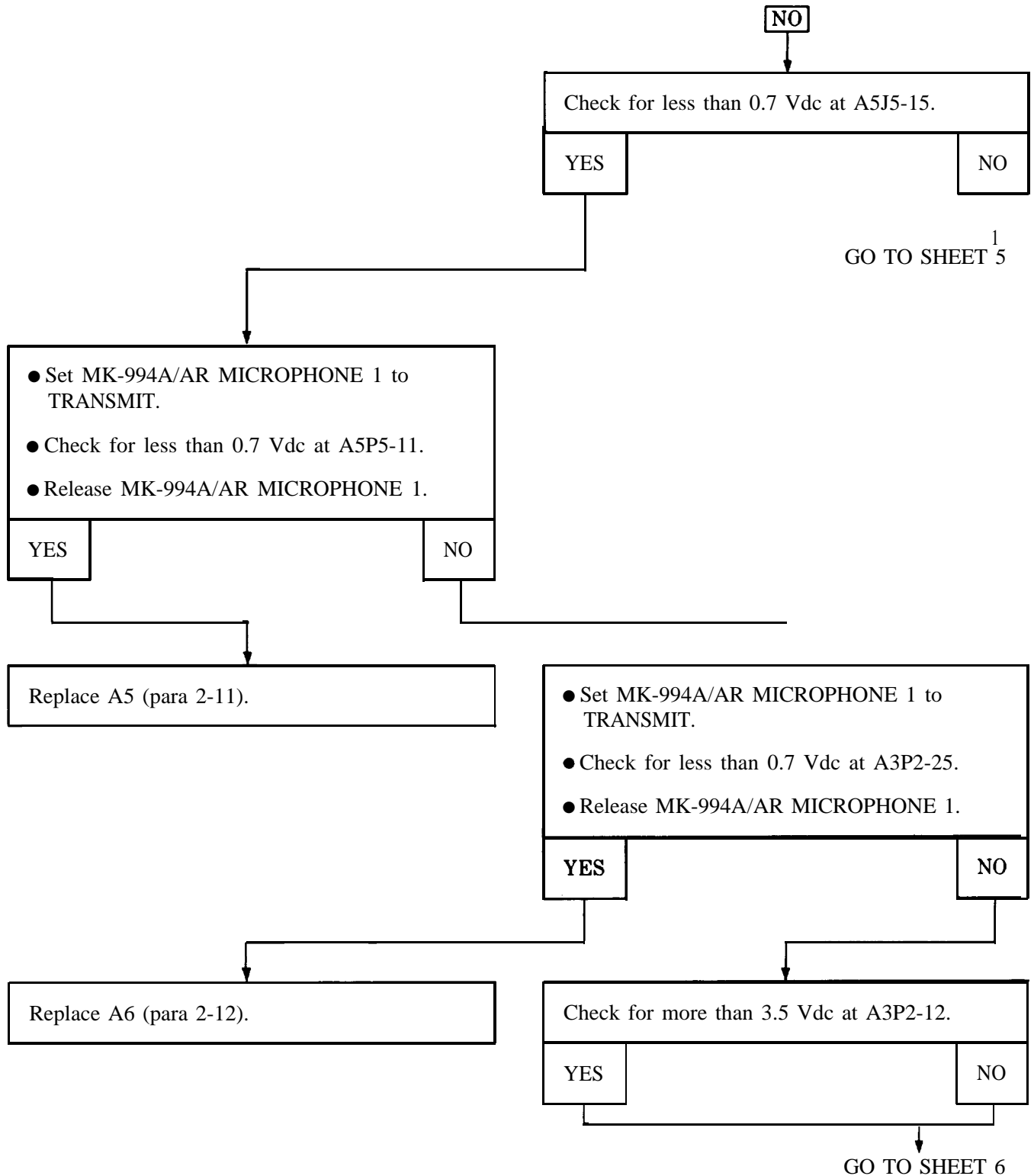
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-8 (SHEET 3)



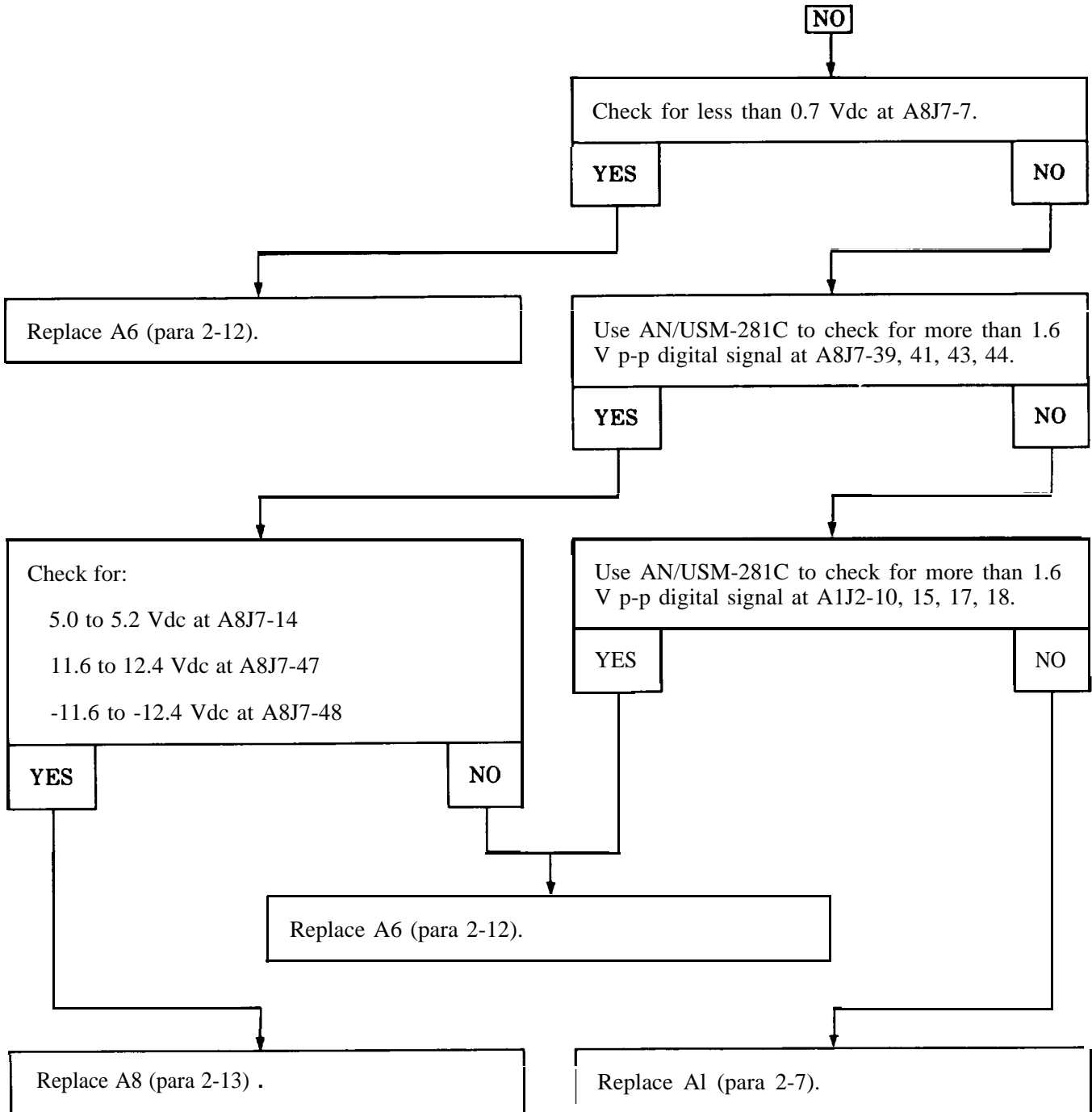
2-6. RADIO SET TROUBLESHOOTING (Continued)

TRUBLE 2-8 (SHEET 4)



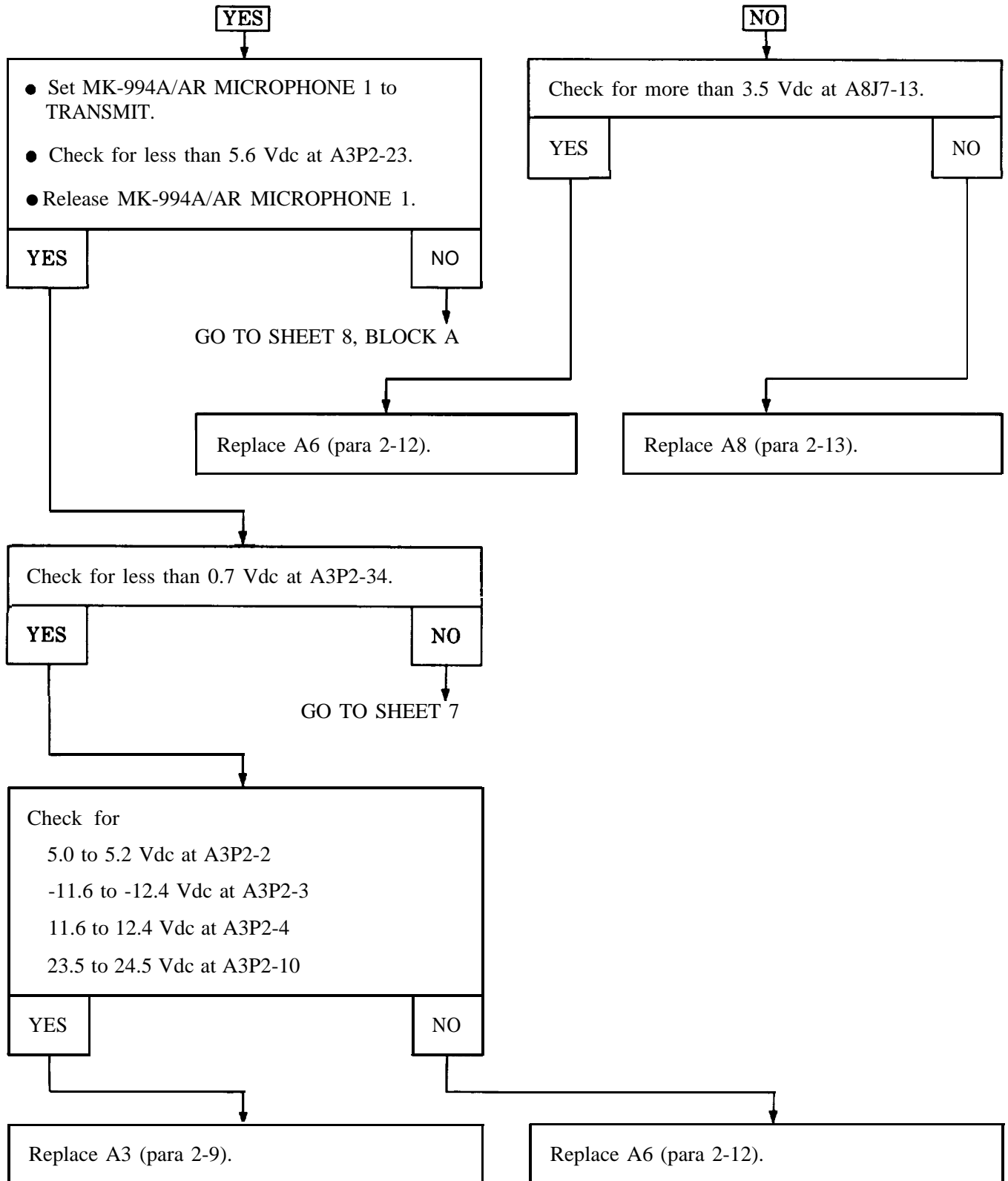
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-8 (SHEET 5)



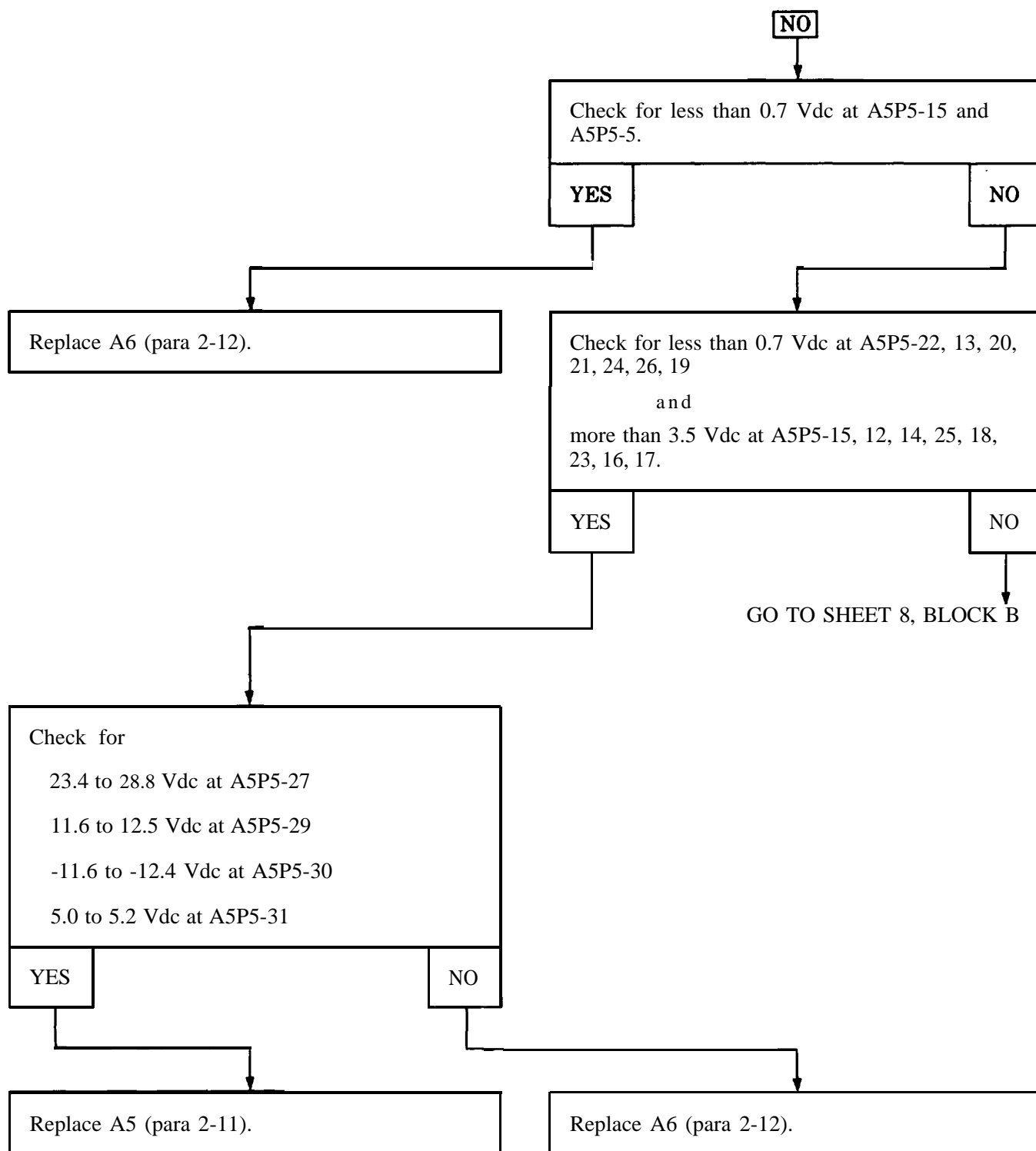
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-8 (SHEET 6)



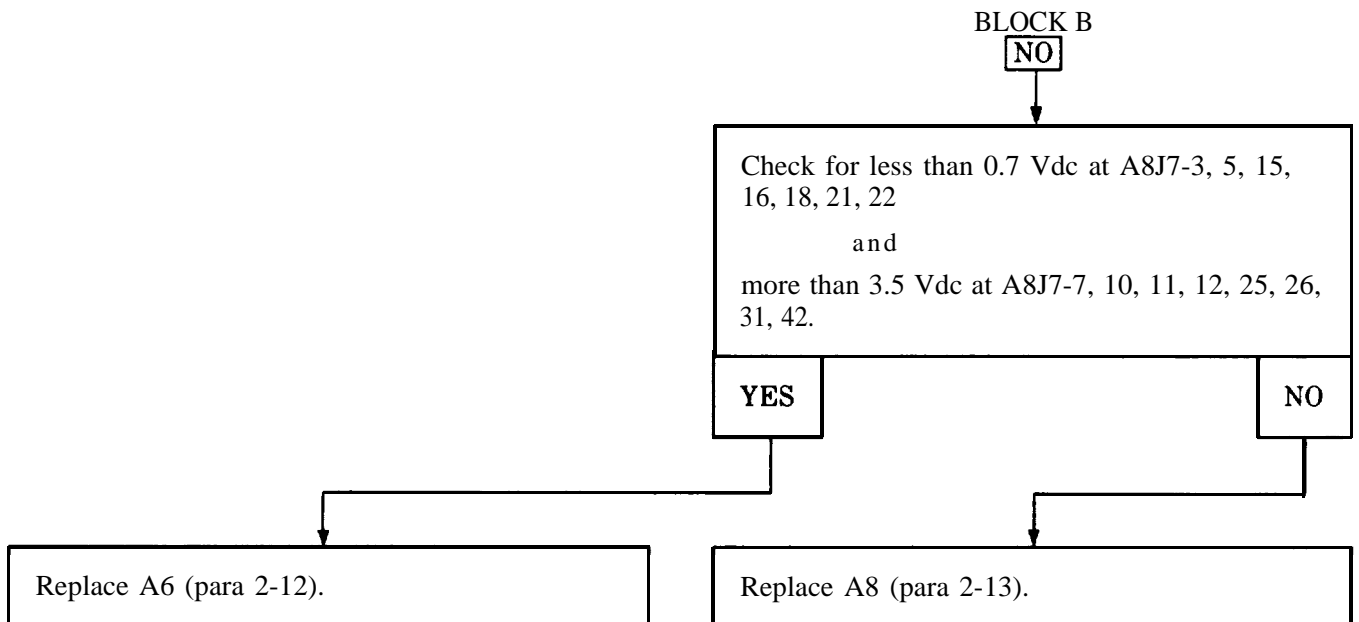
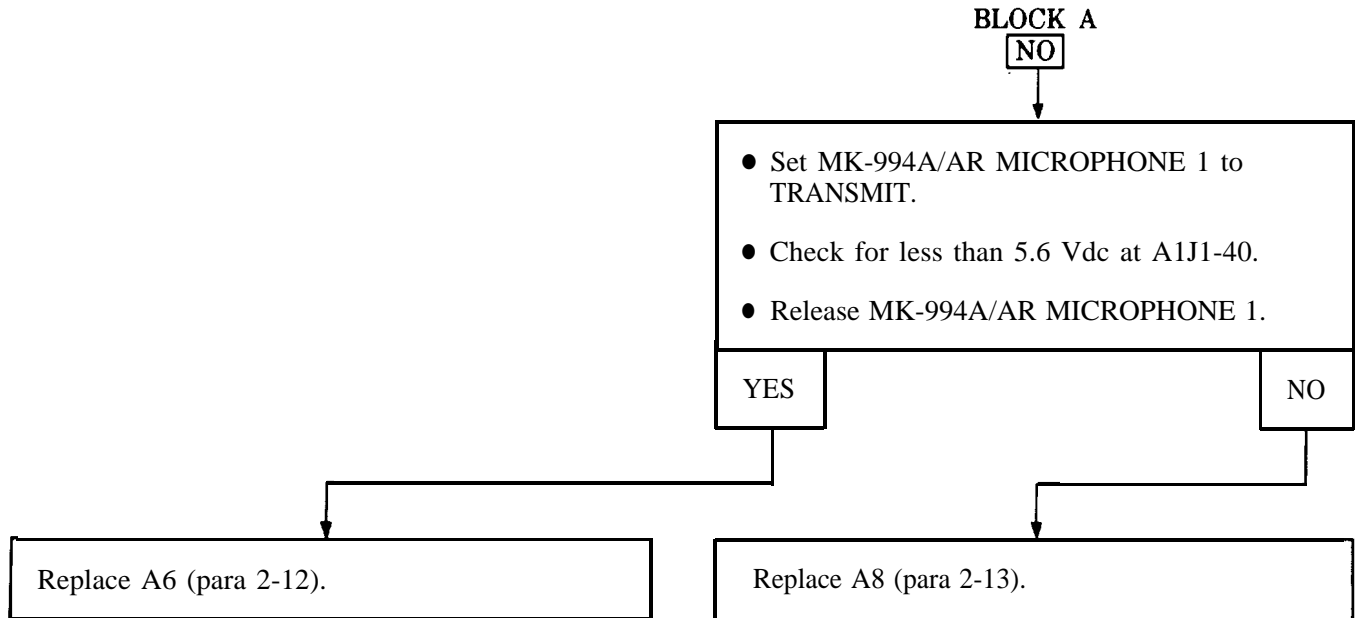
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-8 (SHEET 7)



2-6. RADIO SET TROUBLESHOOTING (Continued)

TRouble 2-8 (SHEET 8)



2-6. RADIO SET TROUBLESHOOTING (Continued)

TRUBLE 2-9 (SHEET 1)

RF output fails test step 3f.
NOTE
 Use AN/GSM-64C to make checks unless told to use other equipment.

? AN/URM-120 reads 0 watt?
 YES NO

GO TO SHEET 2, **BLOCK B**

- Set MK-994A/AR MICROPHONE 1 to TRANSMIT.
- Use AN/URM-145 to check for not less than +12 dBm at A1J1-29.
- Release MK-994A/AR MICROPHONE 1.

YES NO

Replace A1 (para 2-7).

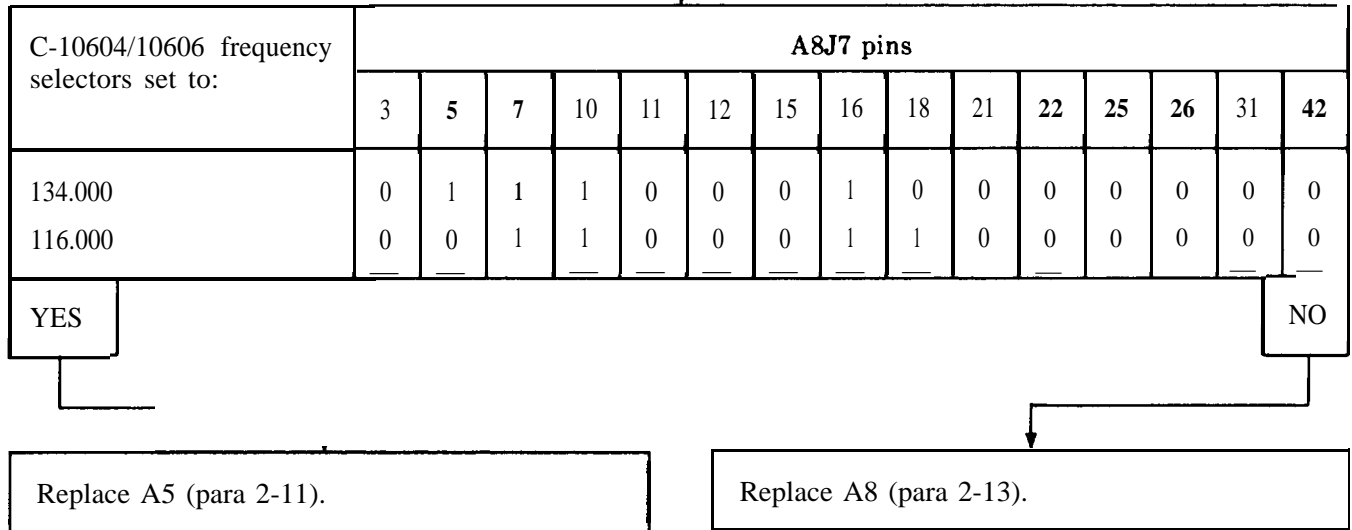
Check for more than 3.5 Vdc where a "1" is listed. and less than 0.7 Vdc where a "O" is listed in this chart.

GO TO SHEET 2

2-6. RADIO SET TROUBLESHOOTING (Continued)

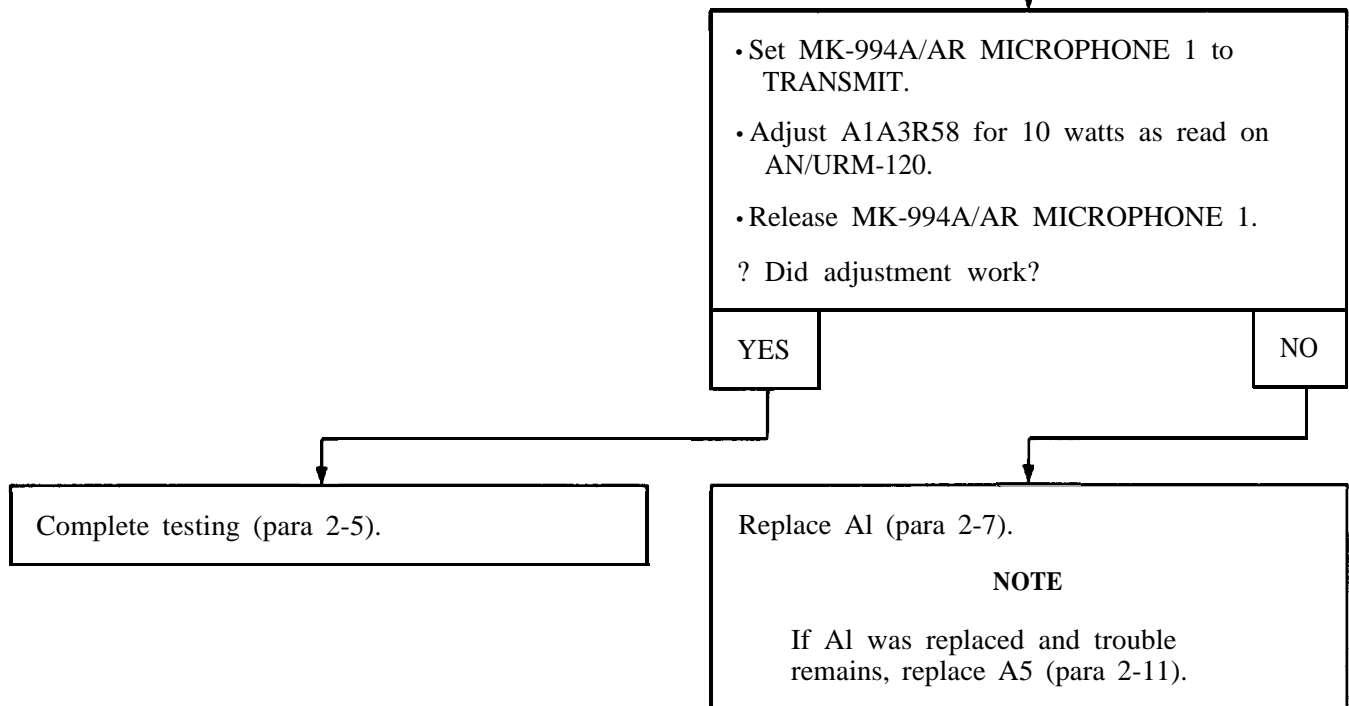
TRouble 2-9 (SHEET 2)

NO



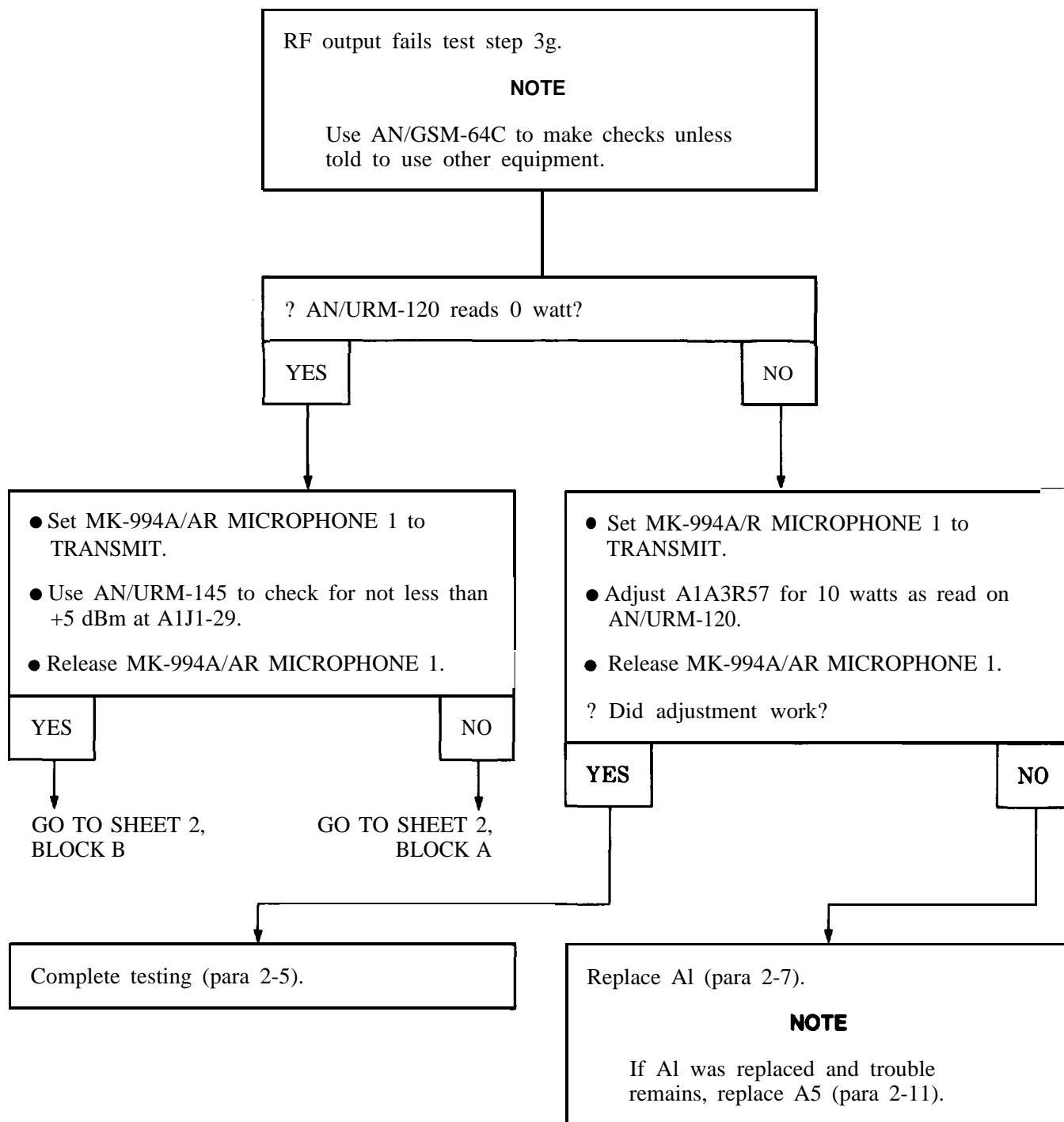
BLOCK B

NO



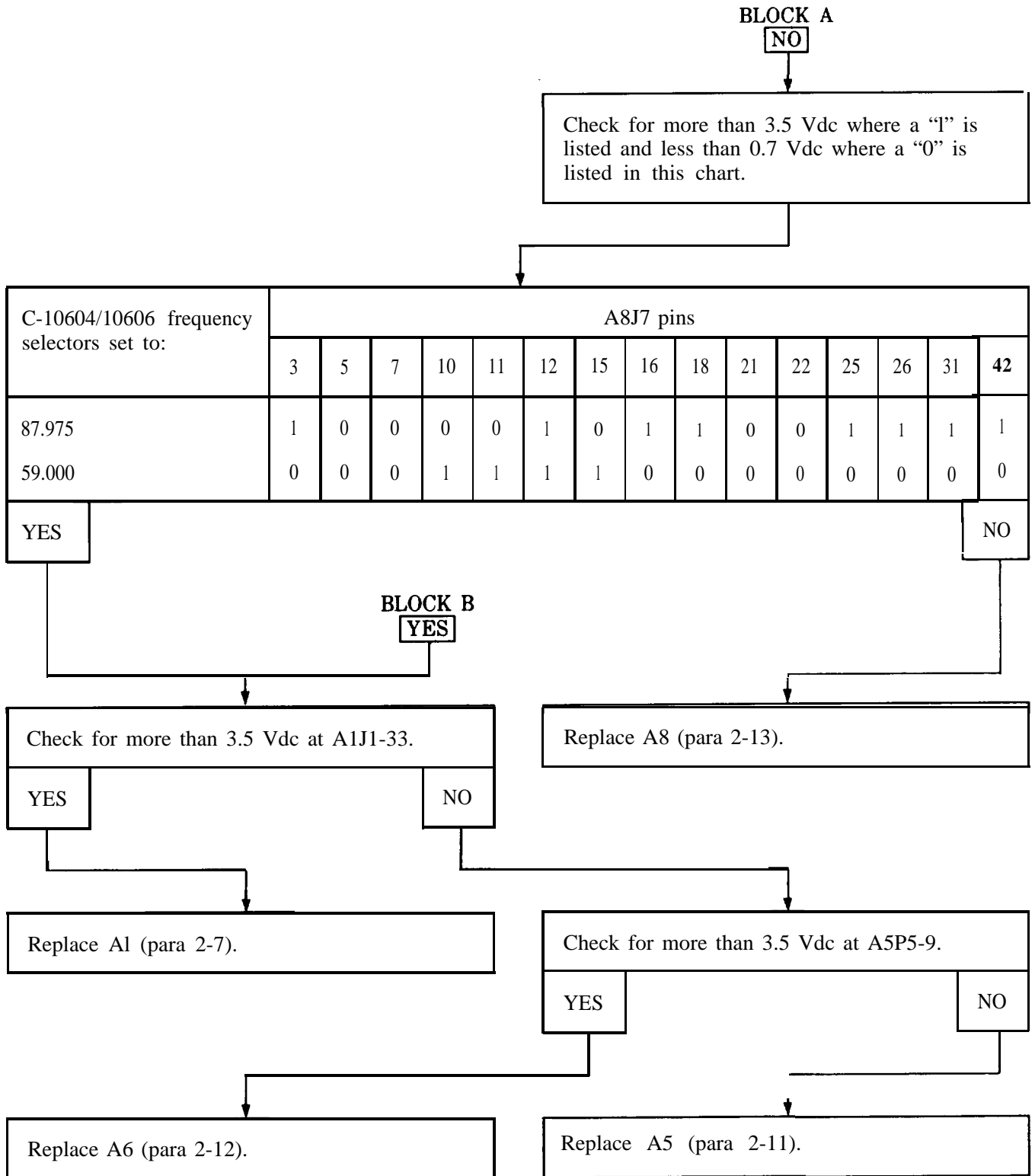
2-6 RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-10 (SHEET 1)



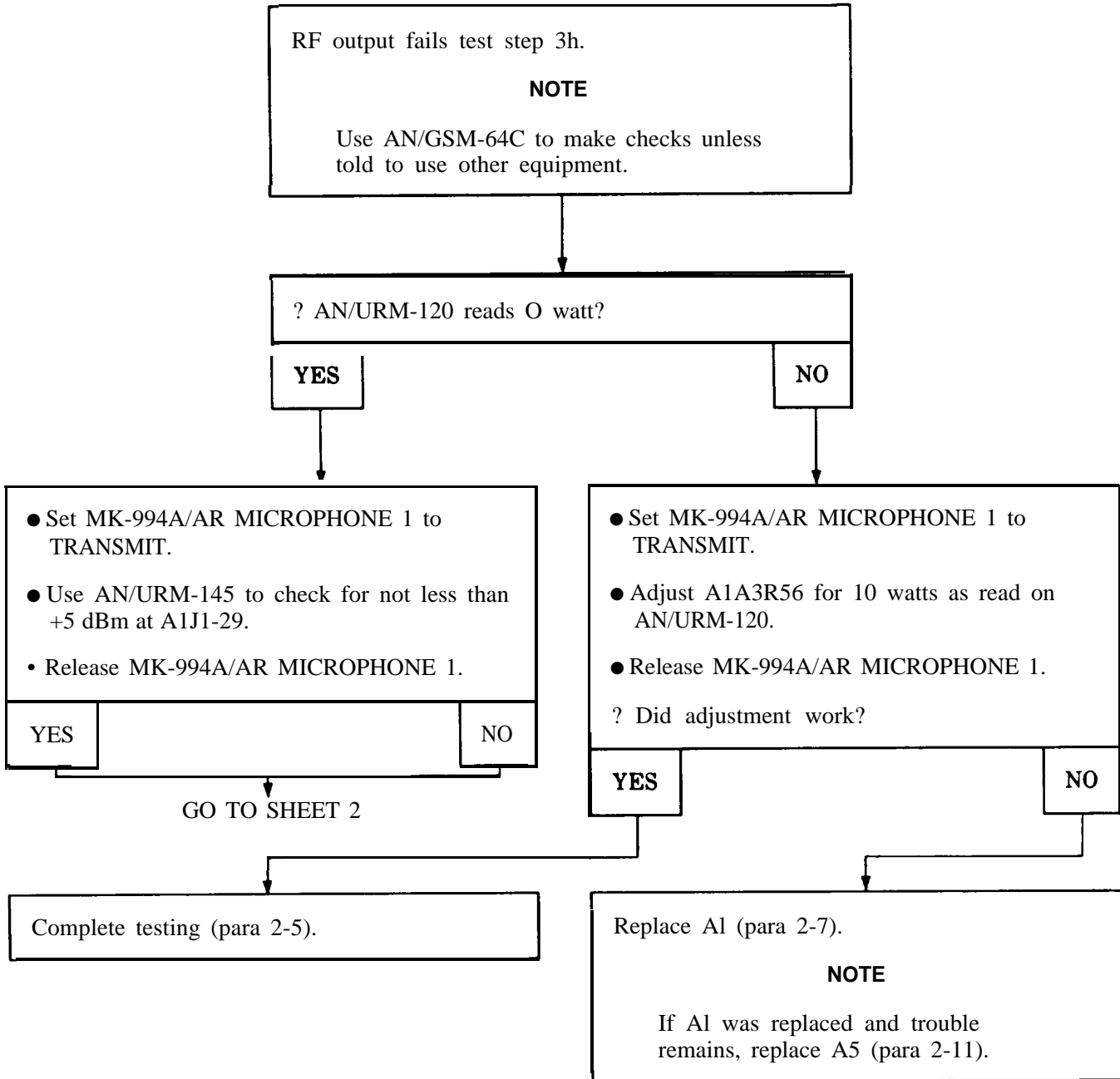
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-10 (SHEET 2)



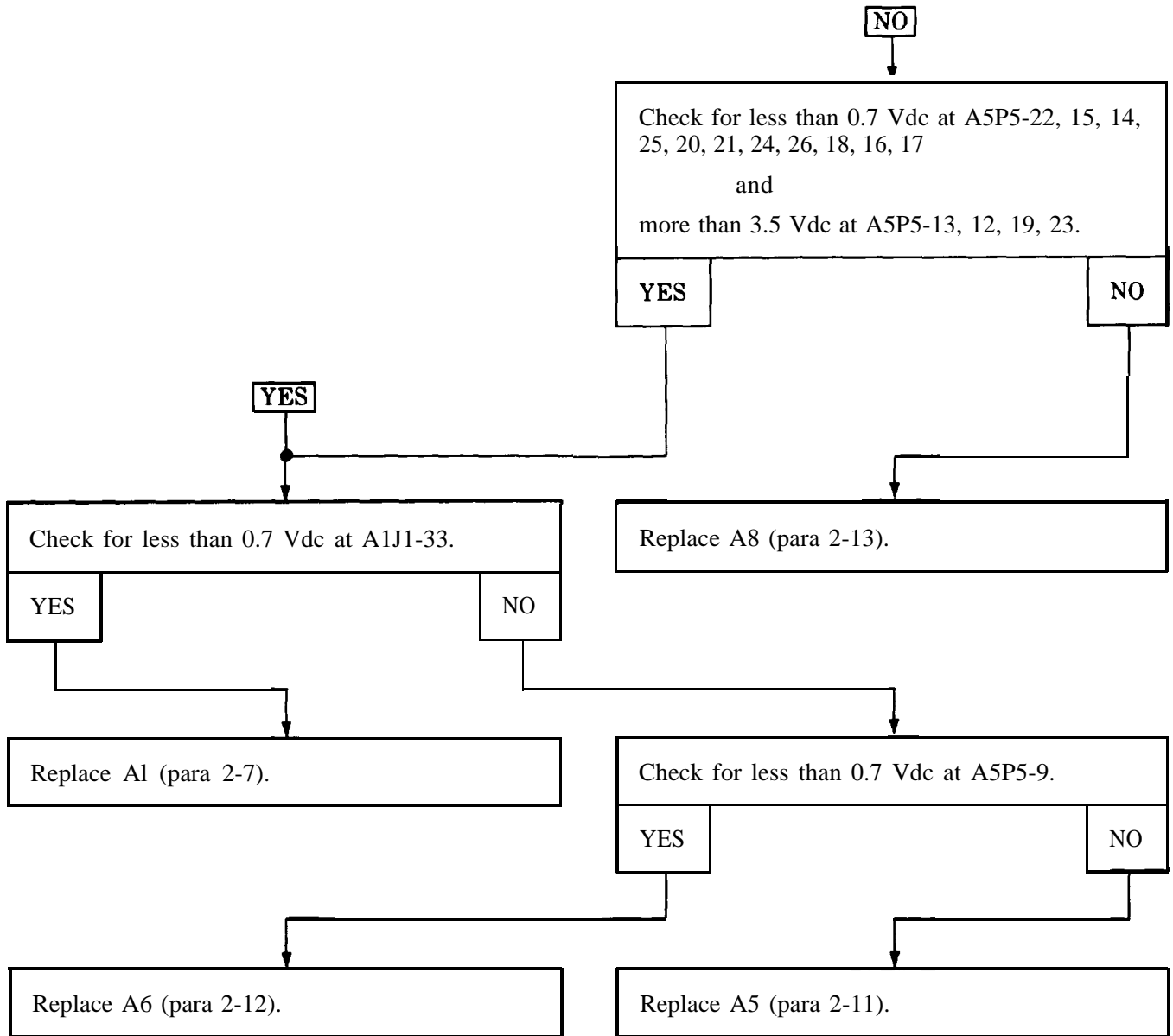
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-11 (SHEET 1)



2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-11 (SHEET 2)



2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-12

Frequency accuracy fails test step 4b.

- Set MK-994A/AR DC POWER ON/OFF to OFF.
 - Wait 10 minutes for RT-1300A to cool down.
 - Set MK-994A/AR DC POWER ON/OFF to ON.
 - Set MK-994A/AR MICROPHONE 1 to TRANSMIT.
 - Adjust A5A4C1 for 150.000 MHz as read on SG-1112(V)1.
 - Release MK-994A/AR MICROPHONE 1.
- ‡ Did adjustment work?

YES

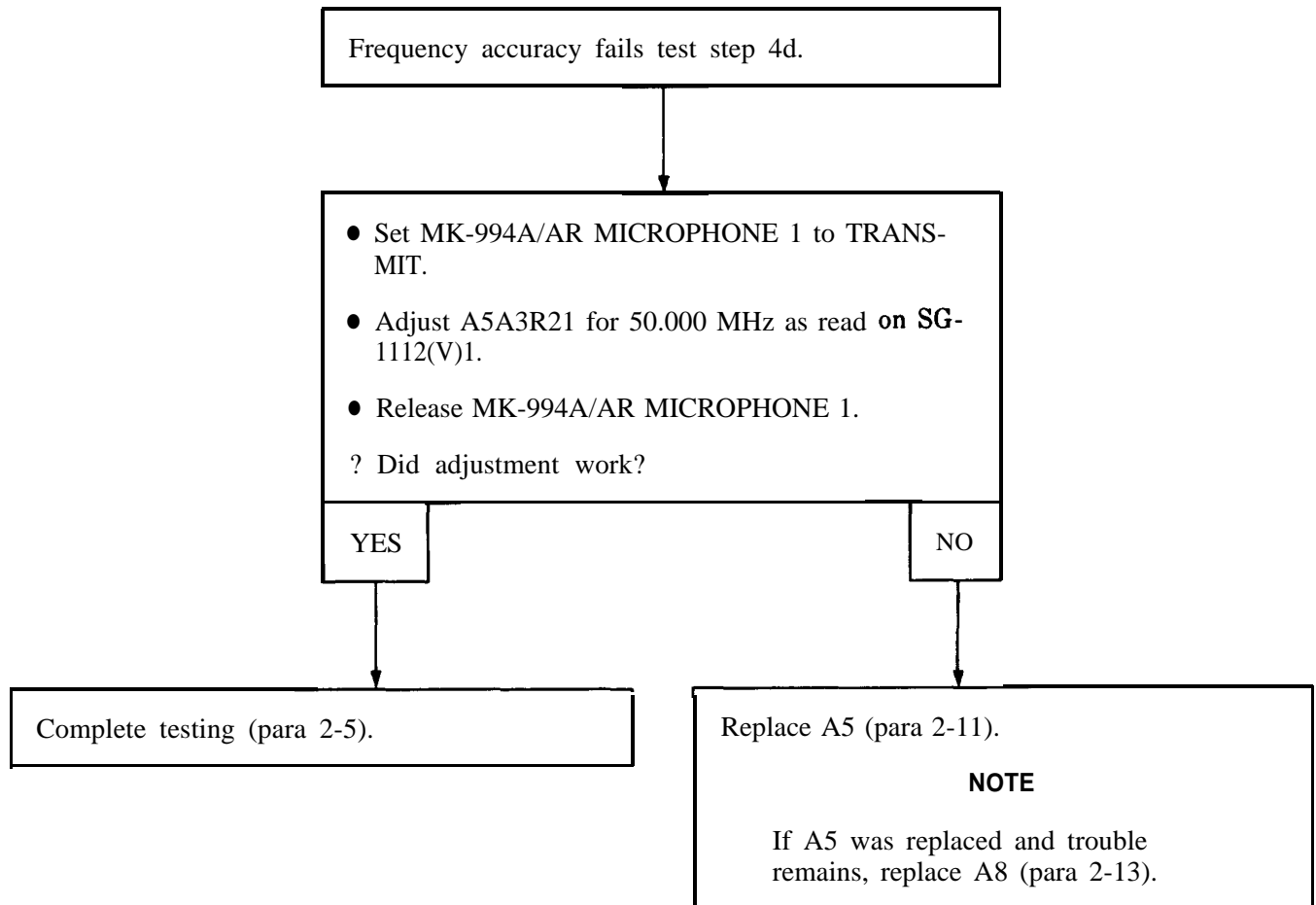
NO

Complete testing (para 2-5).

Replace A5 (para 2-11).

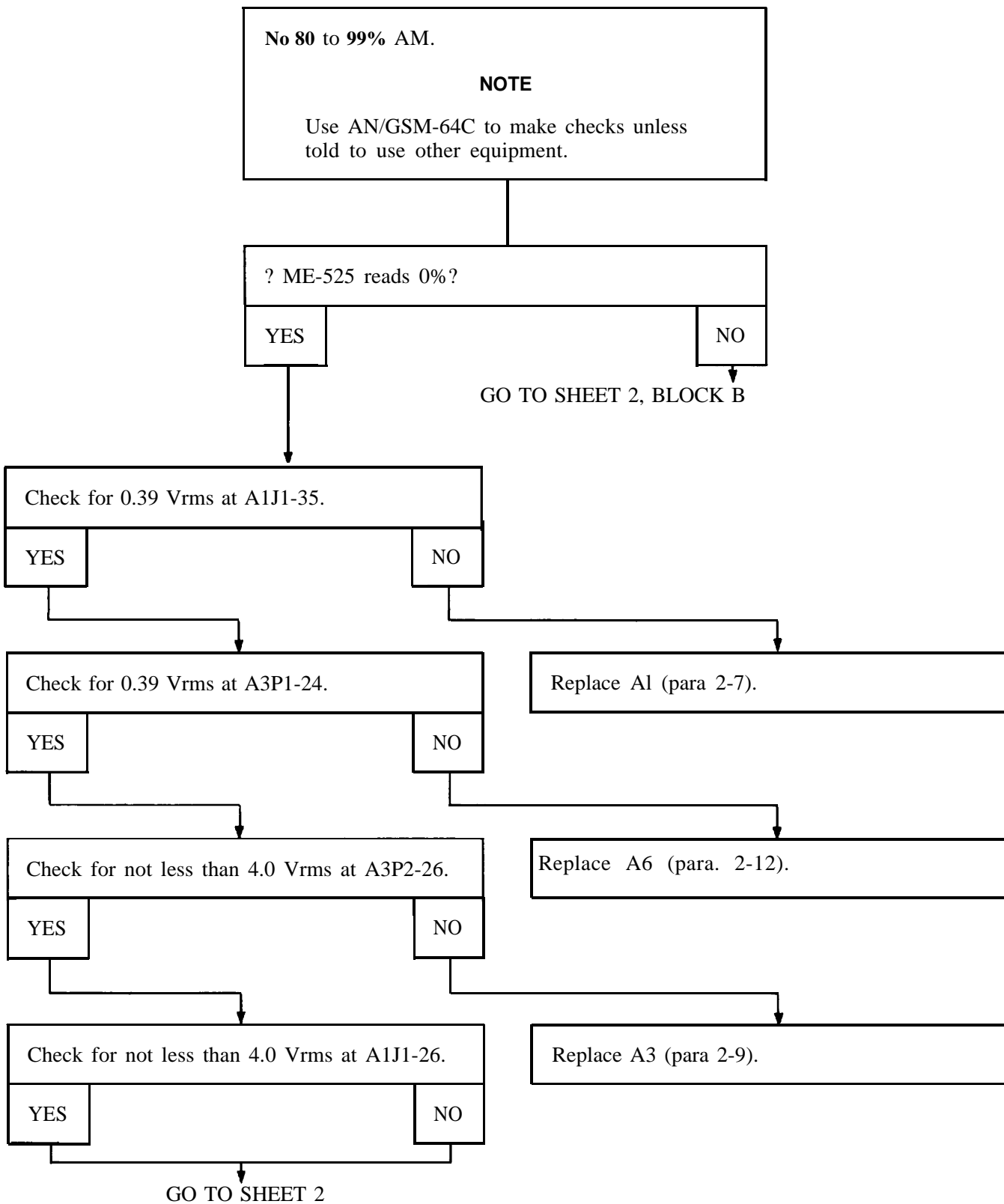
NOTE

If A5 was replaced and trouble remains, replace A8 (para 2-13).

2-6. RADIO SET TROUBLESHOOTING (Continued)TROUBLE 2-13

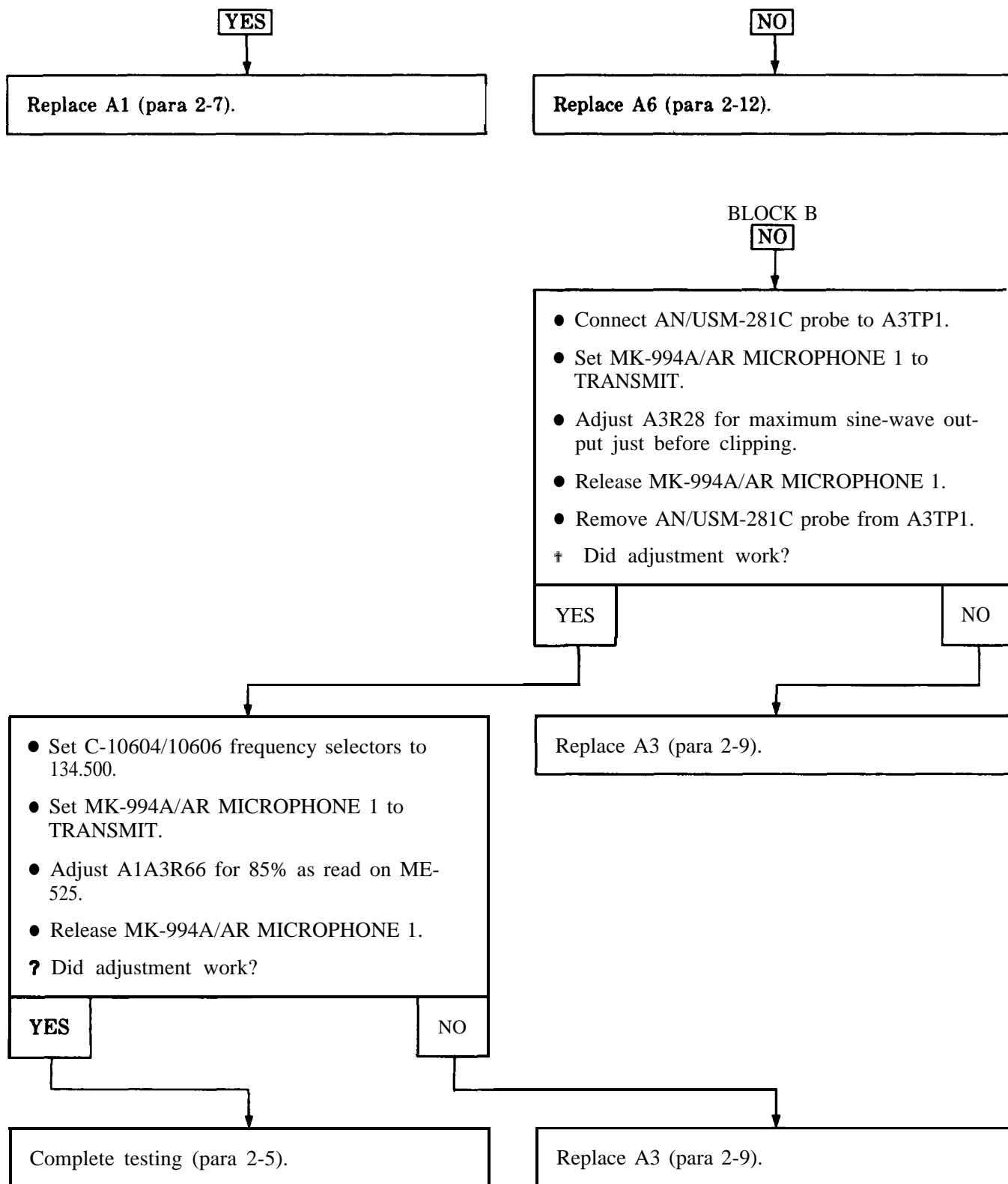
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-14 (SHEET 1)



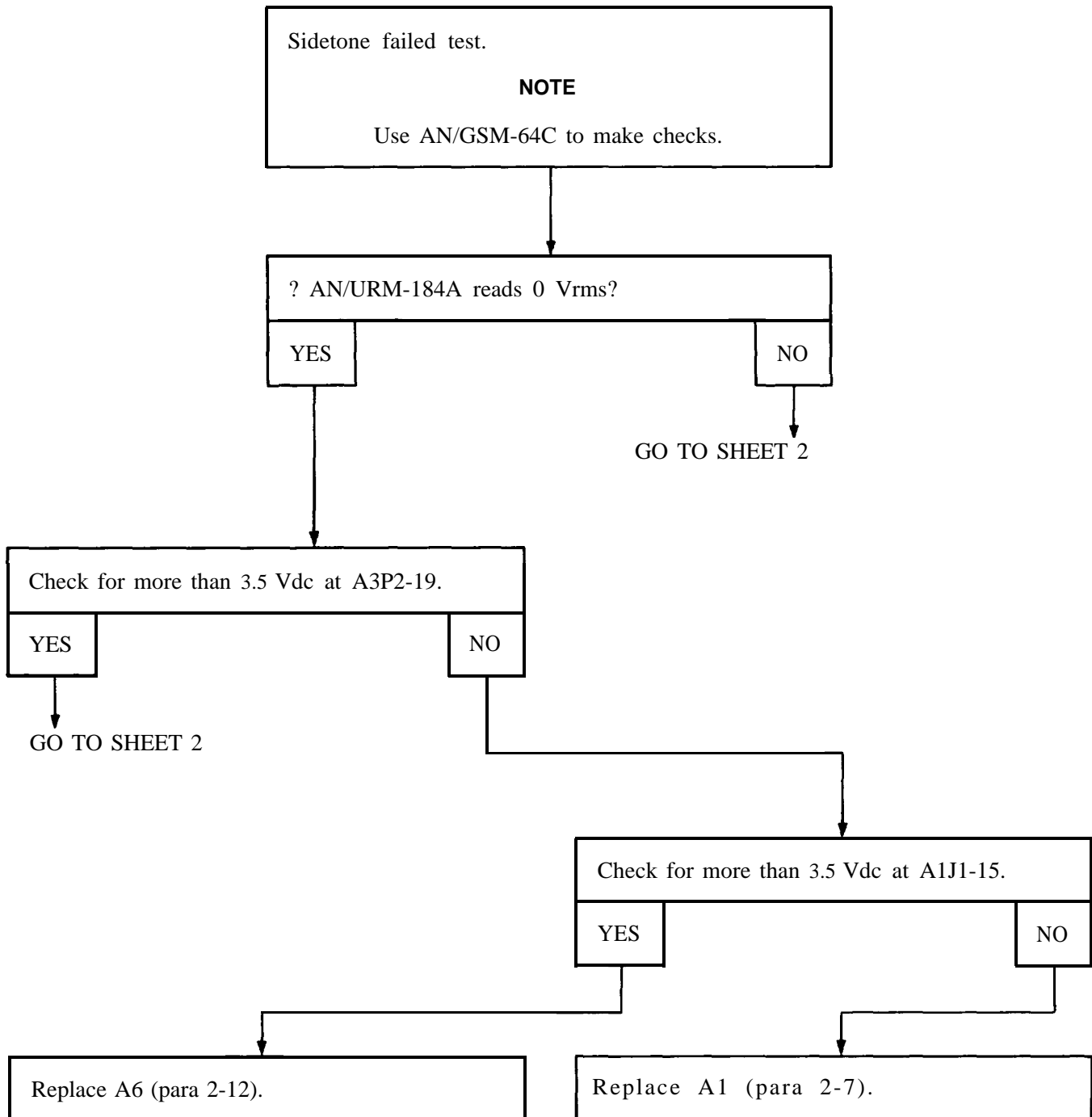
2-6. RADIO SET TROUBLESHOOTING (Continued)

TRUBLE 2-14 (SHEET 2)



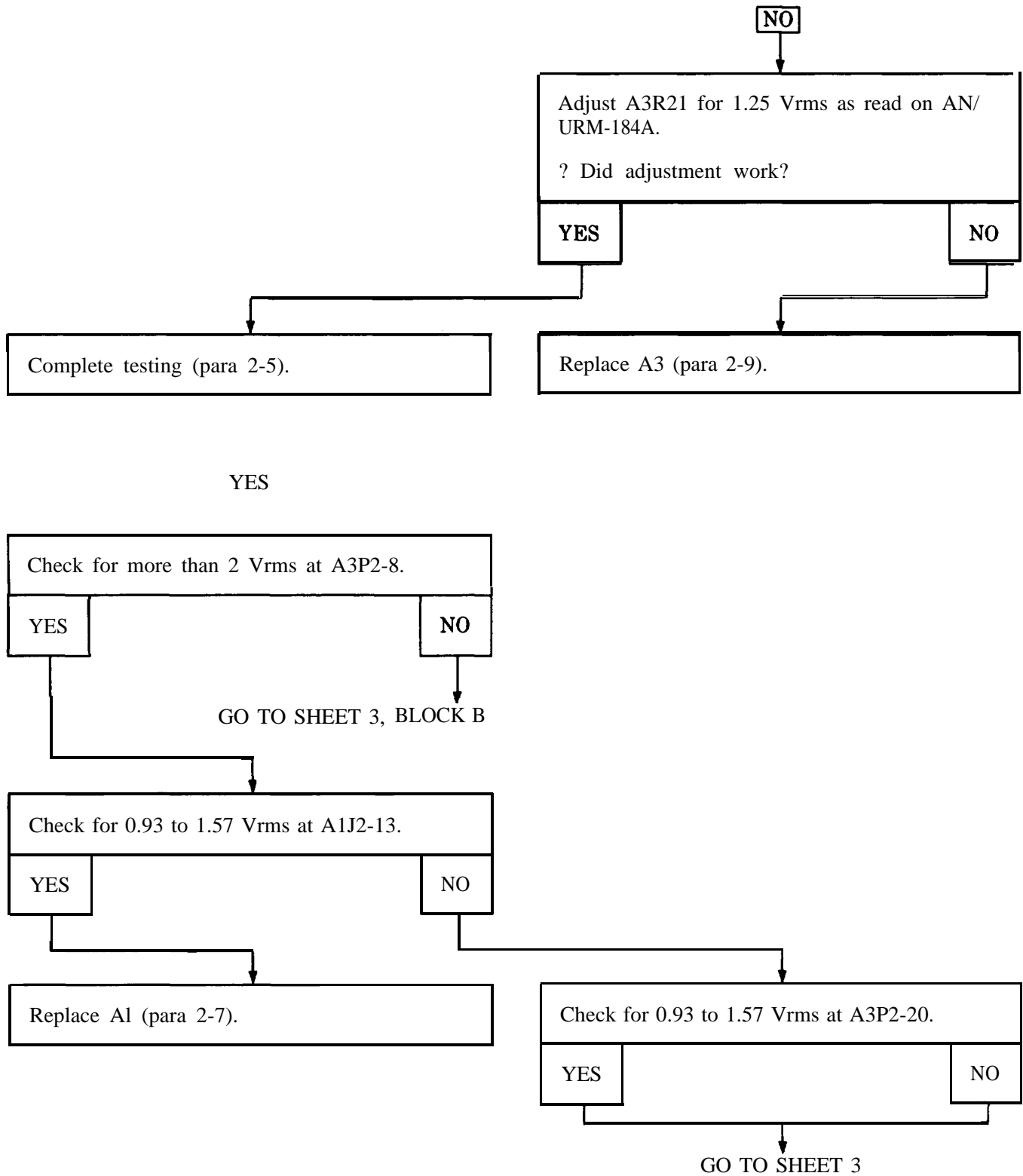
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-15 (SHEET 1)



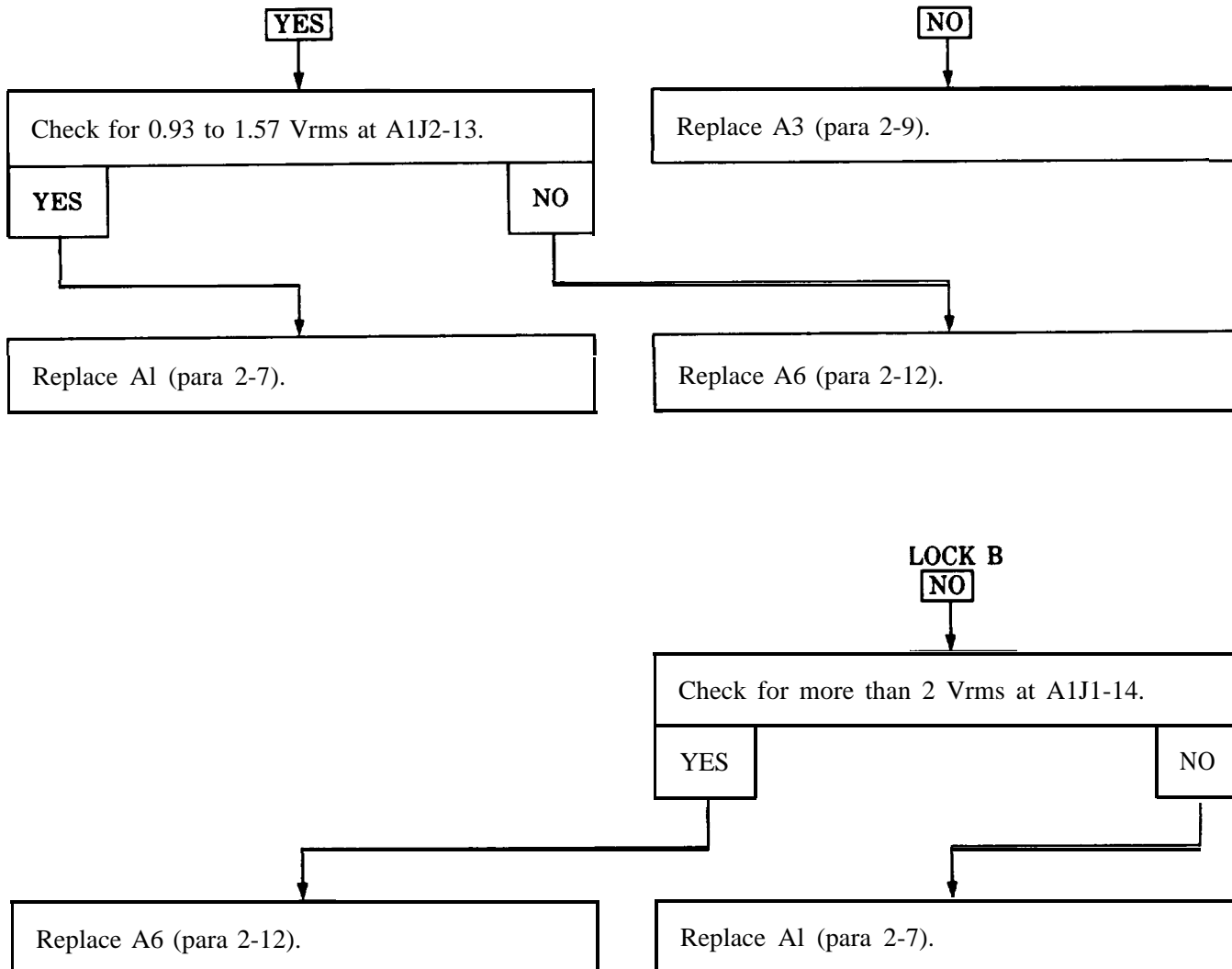
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-15 (SHEET 2)



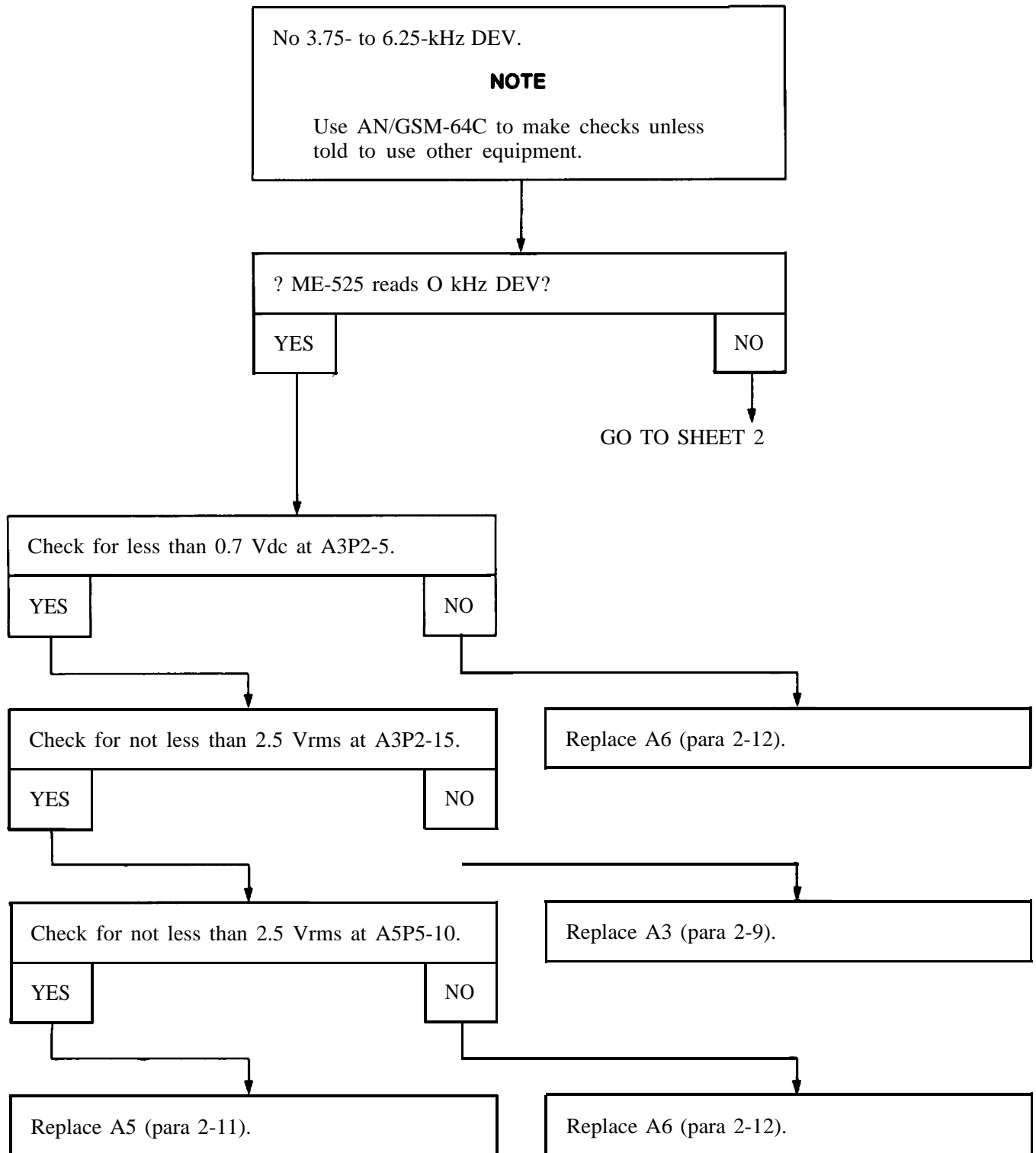
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-15 (SHEET 3)



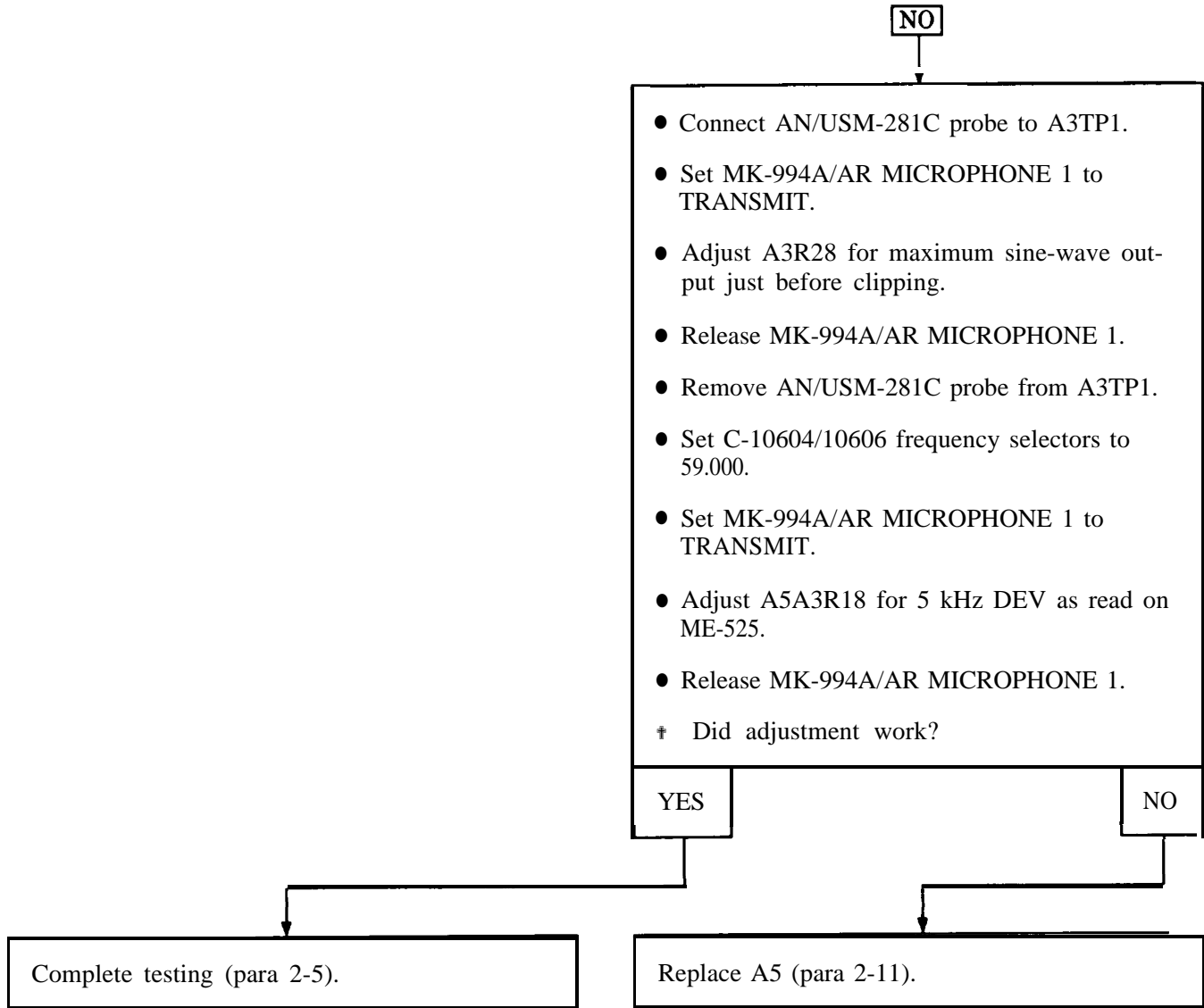
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-16 (SHEET 1)



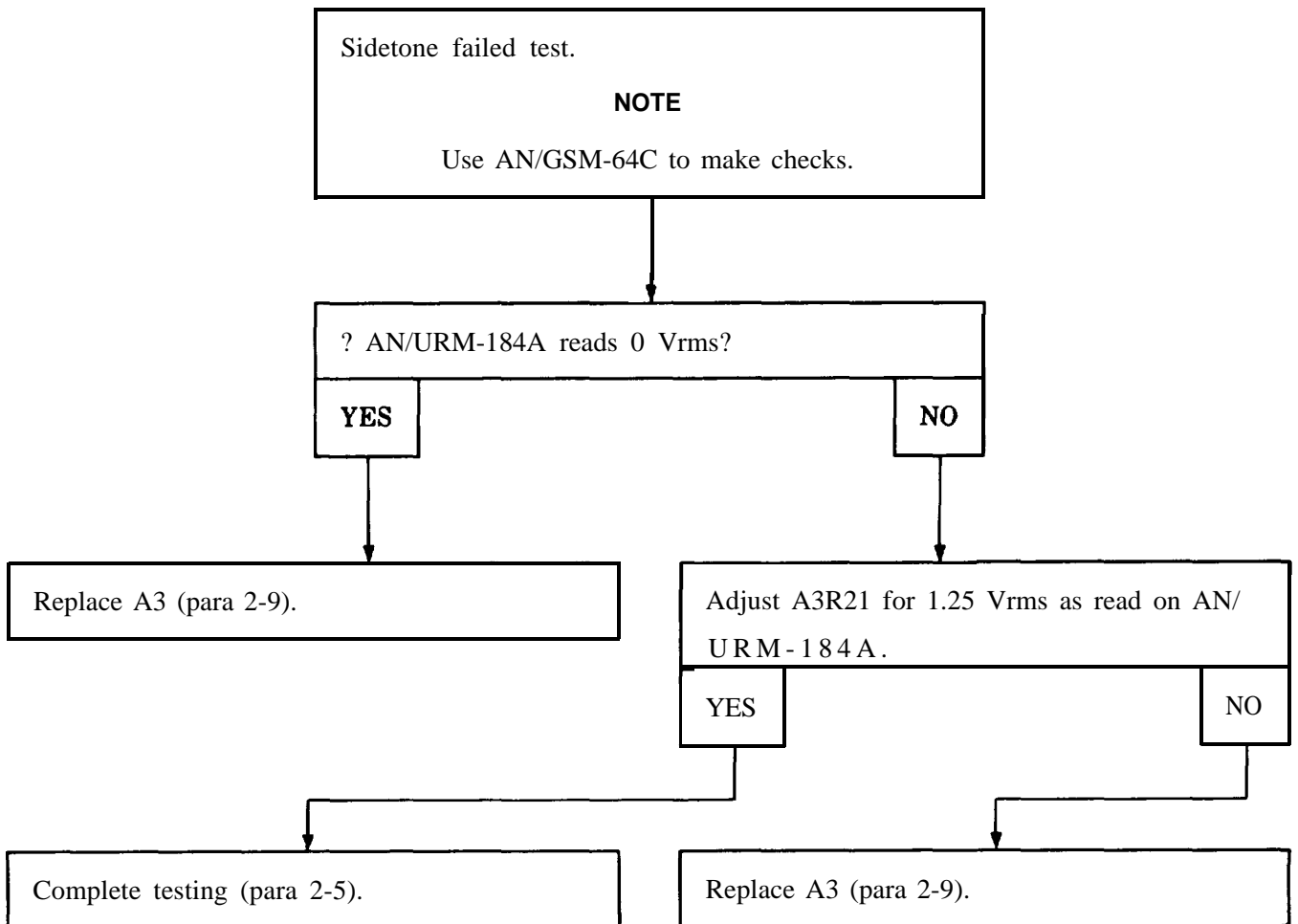
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-16 (SHEET 2)



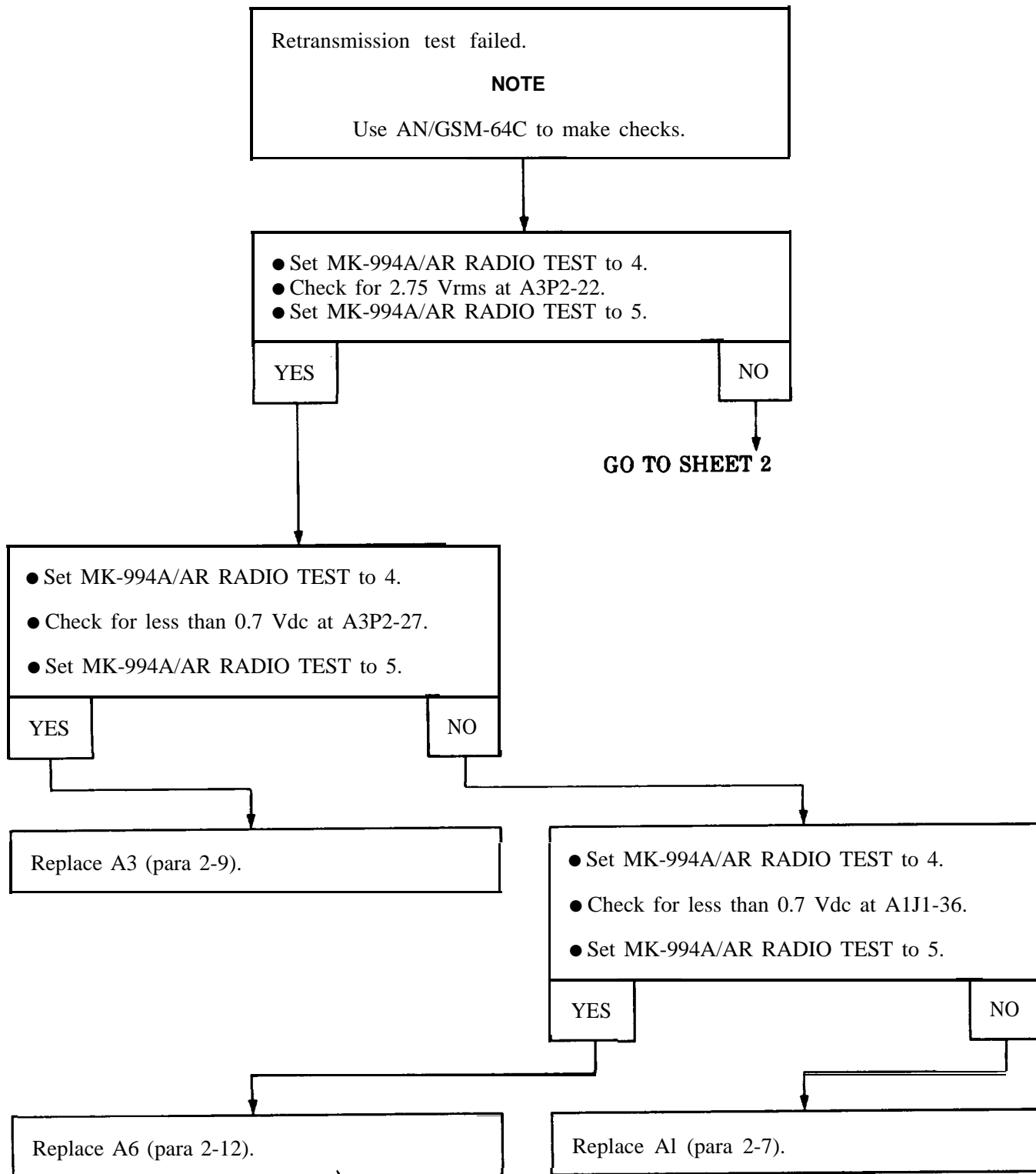
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-17



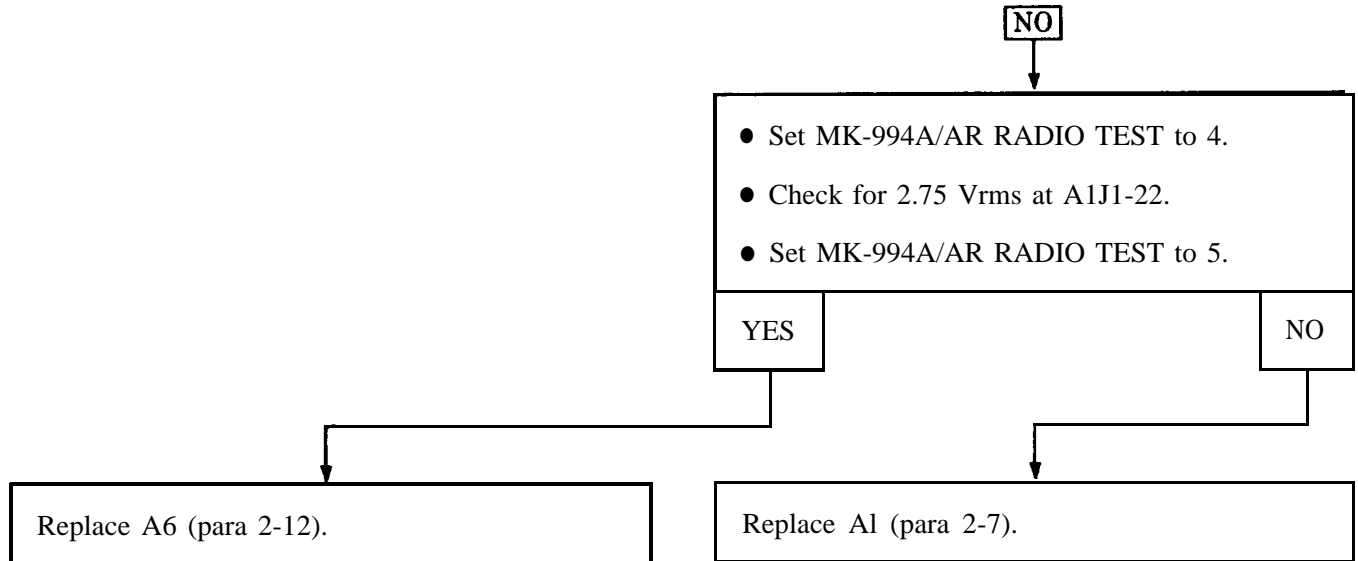
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-18 (SHEET 1)

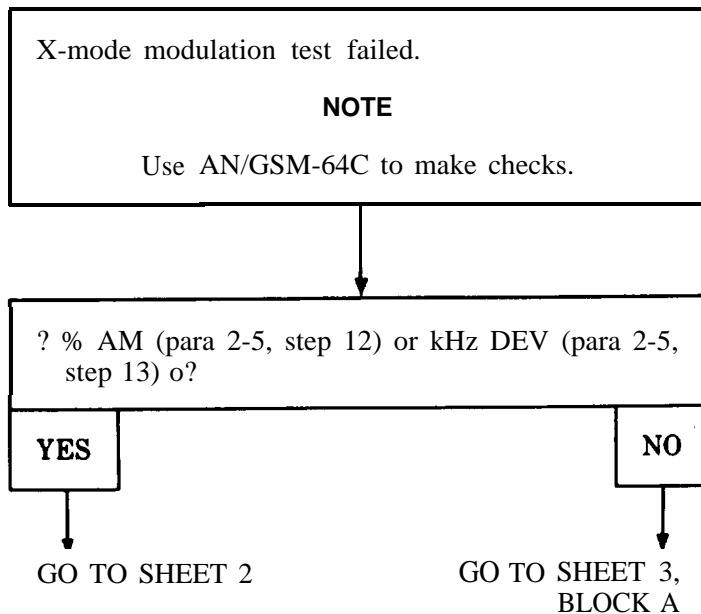


2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-18 (SHEET 2)

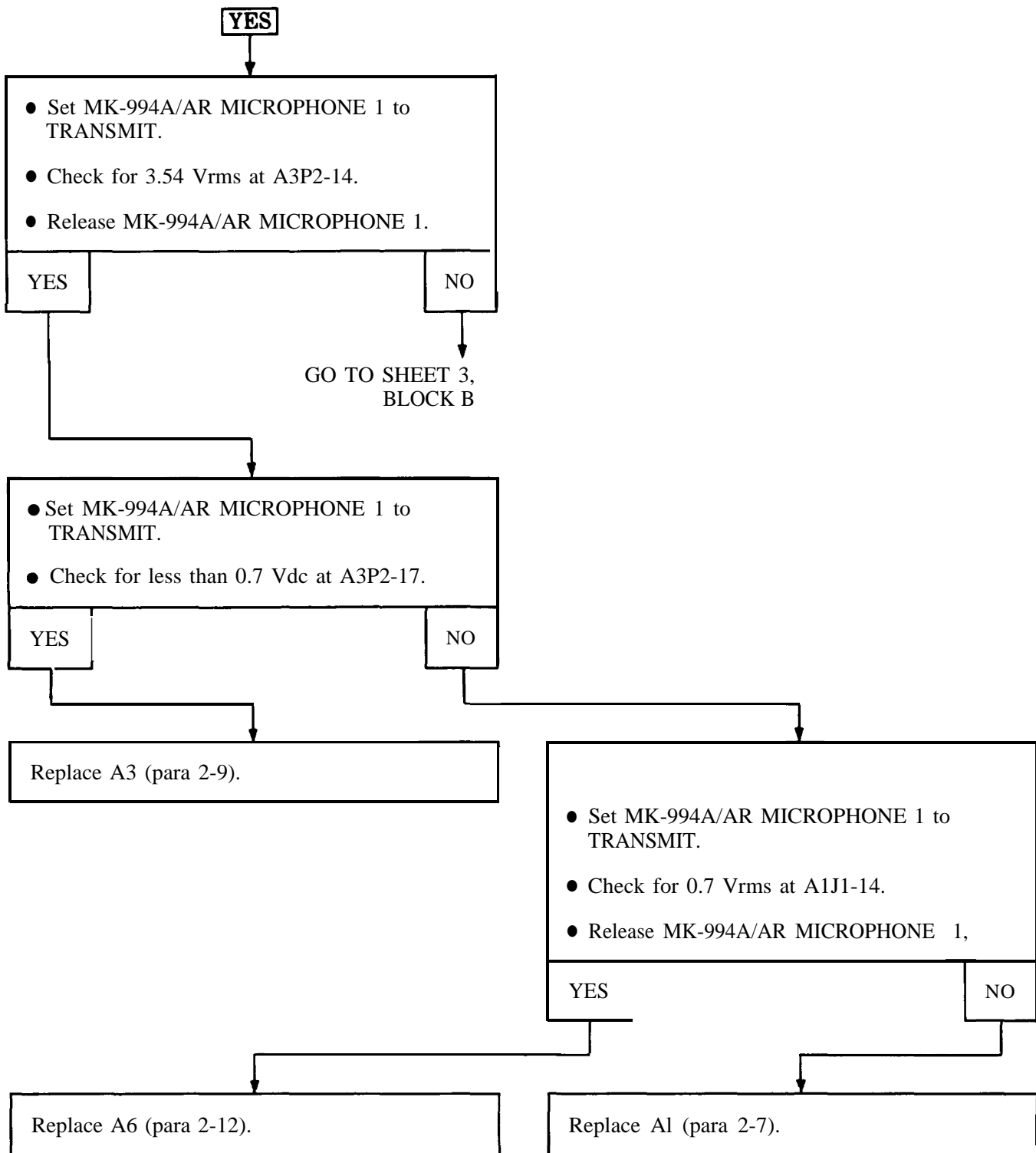


TROUBLE 2-19 (SHEET 1)



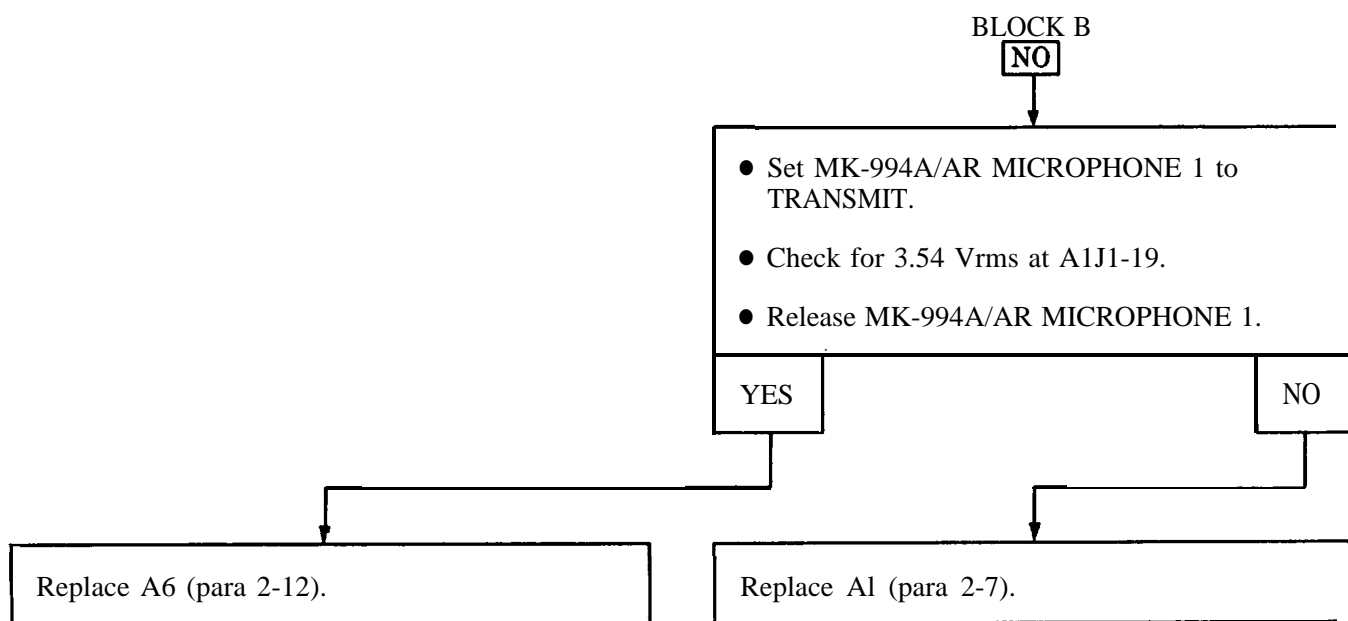
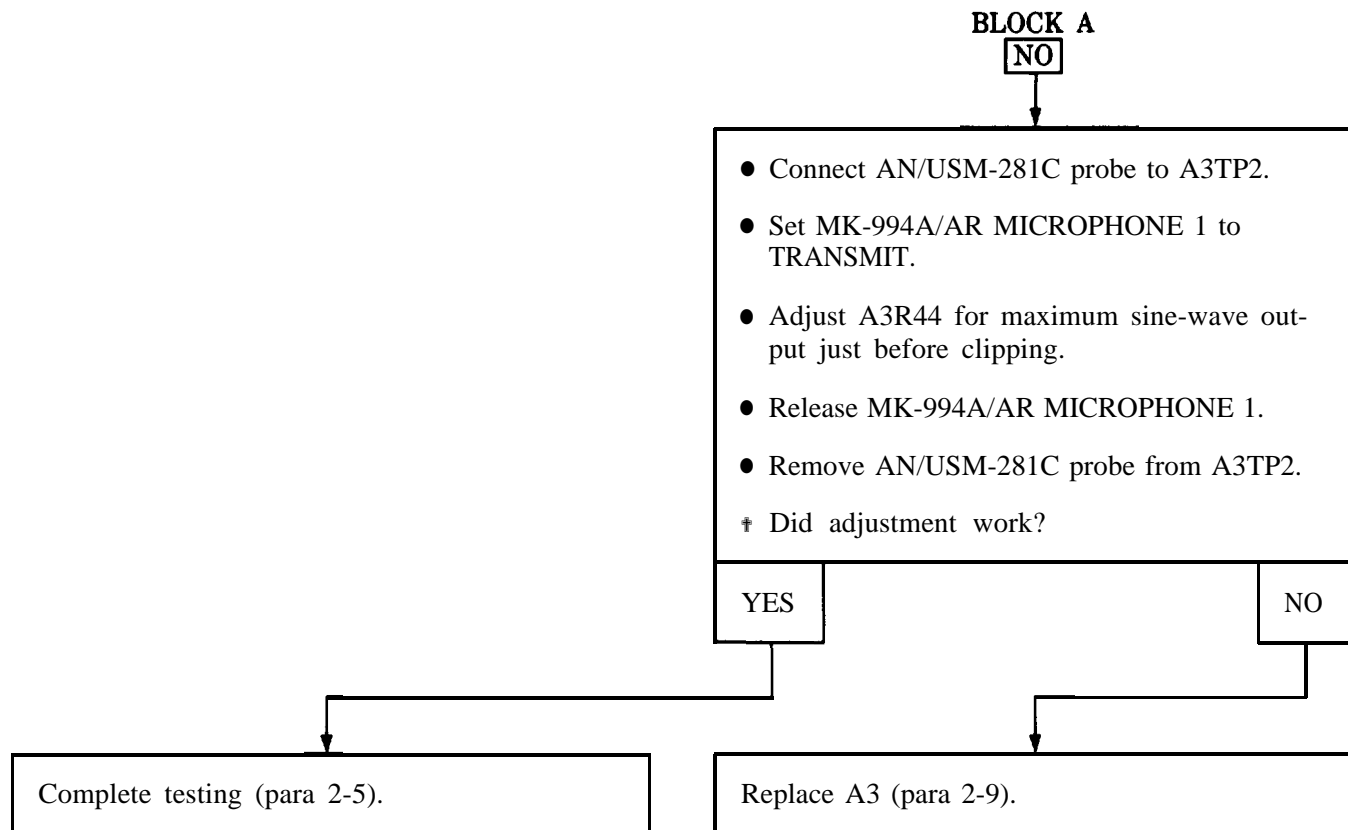
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-19 (SHEET 2)



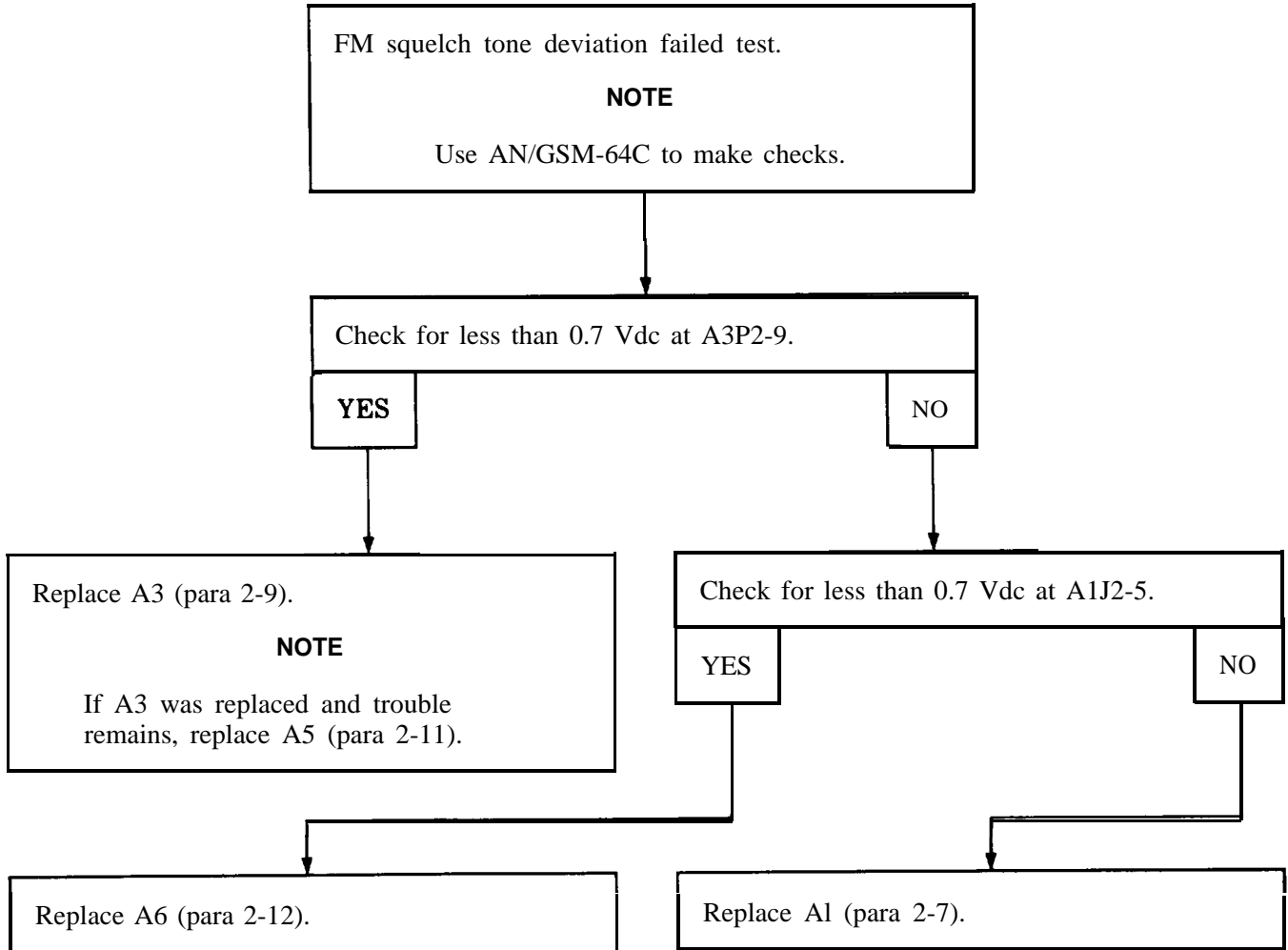
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-19 (SHEET 3)



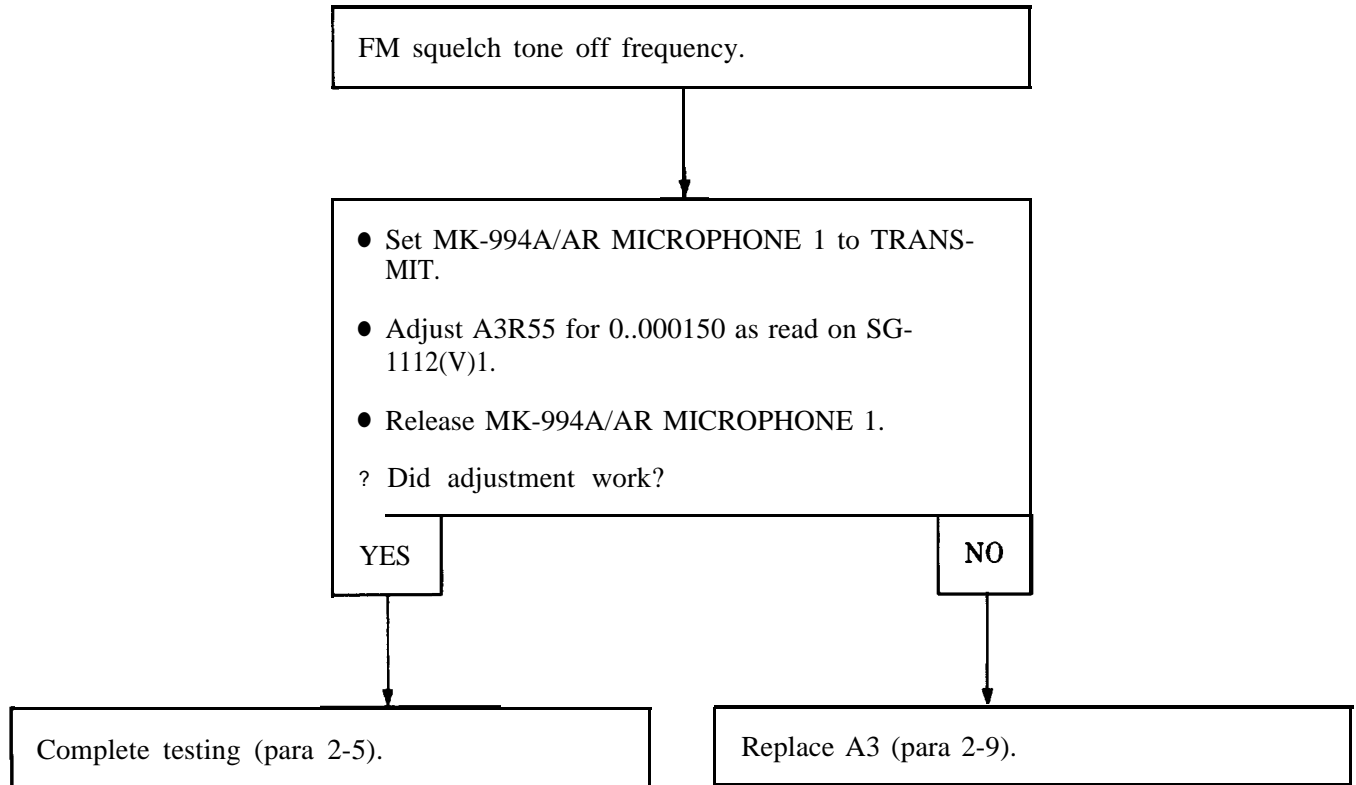
2-6. RADIO SET TROUBLESHOOTING (Continued)

TRUBLE 2-20



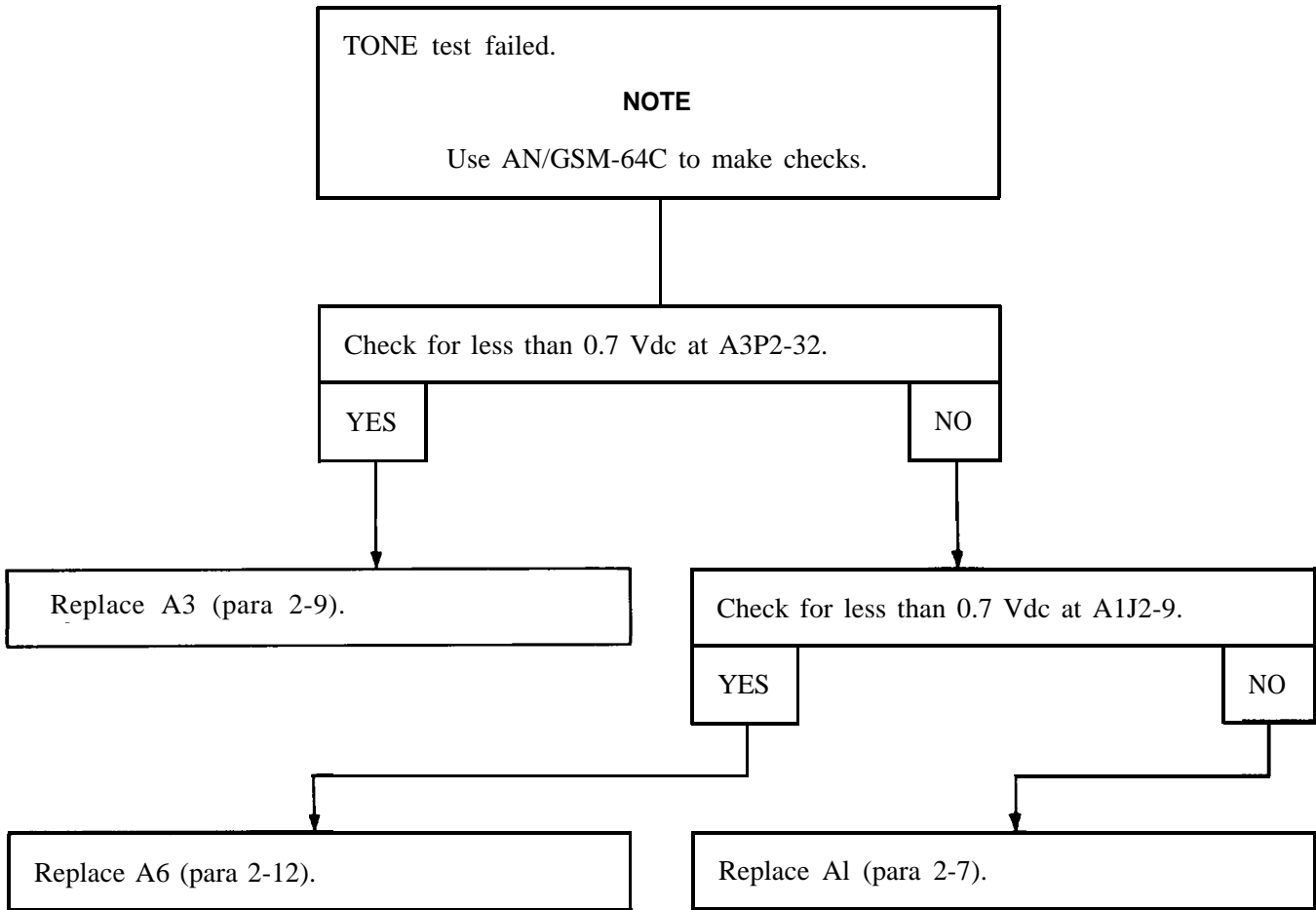
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-21



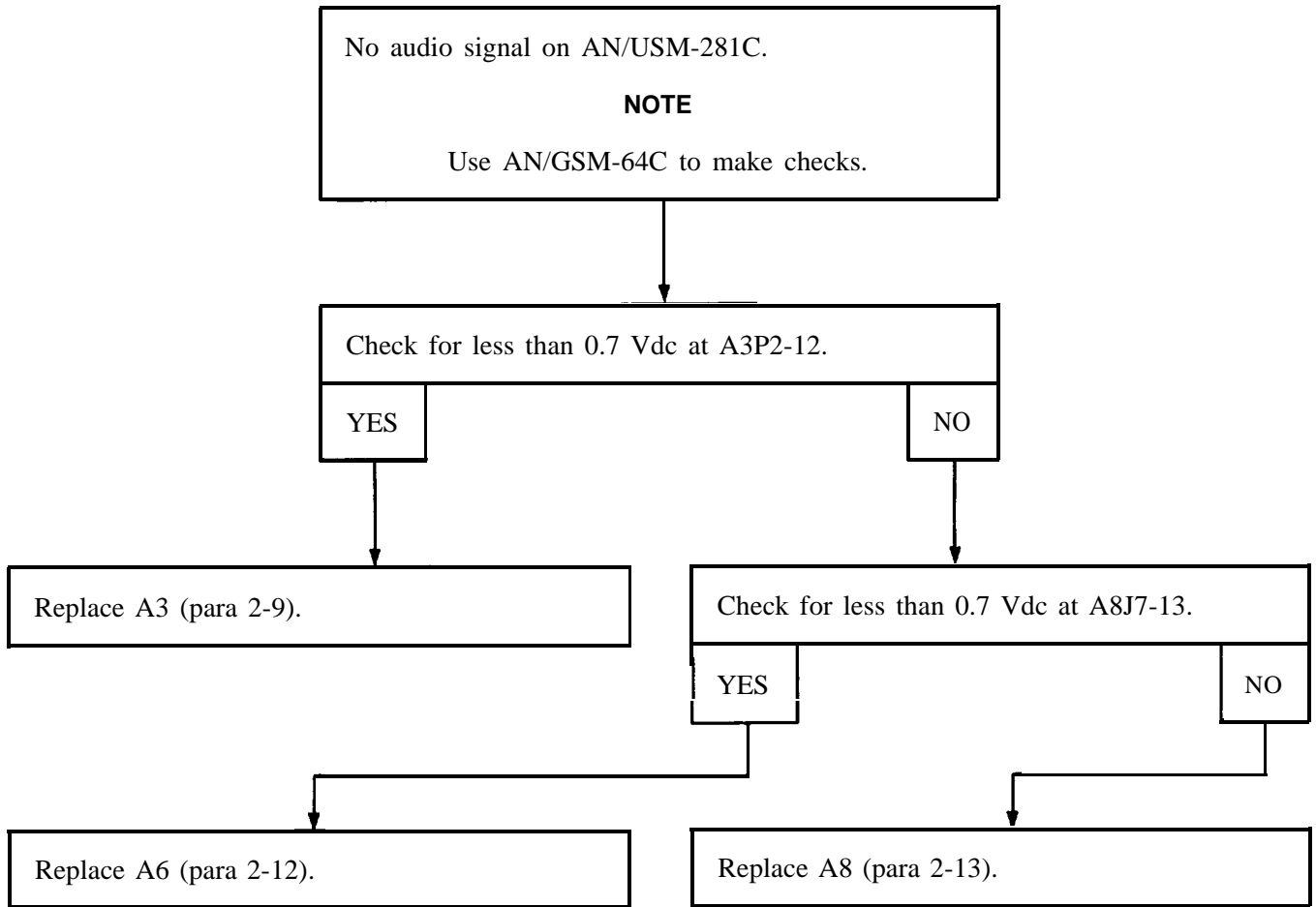
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-22



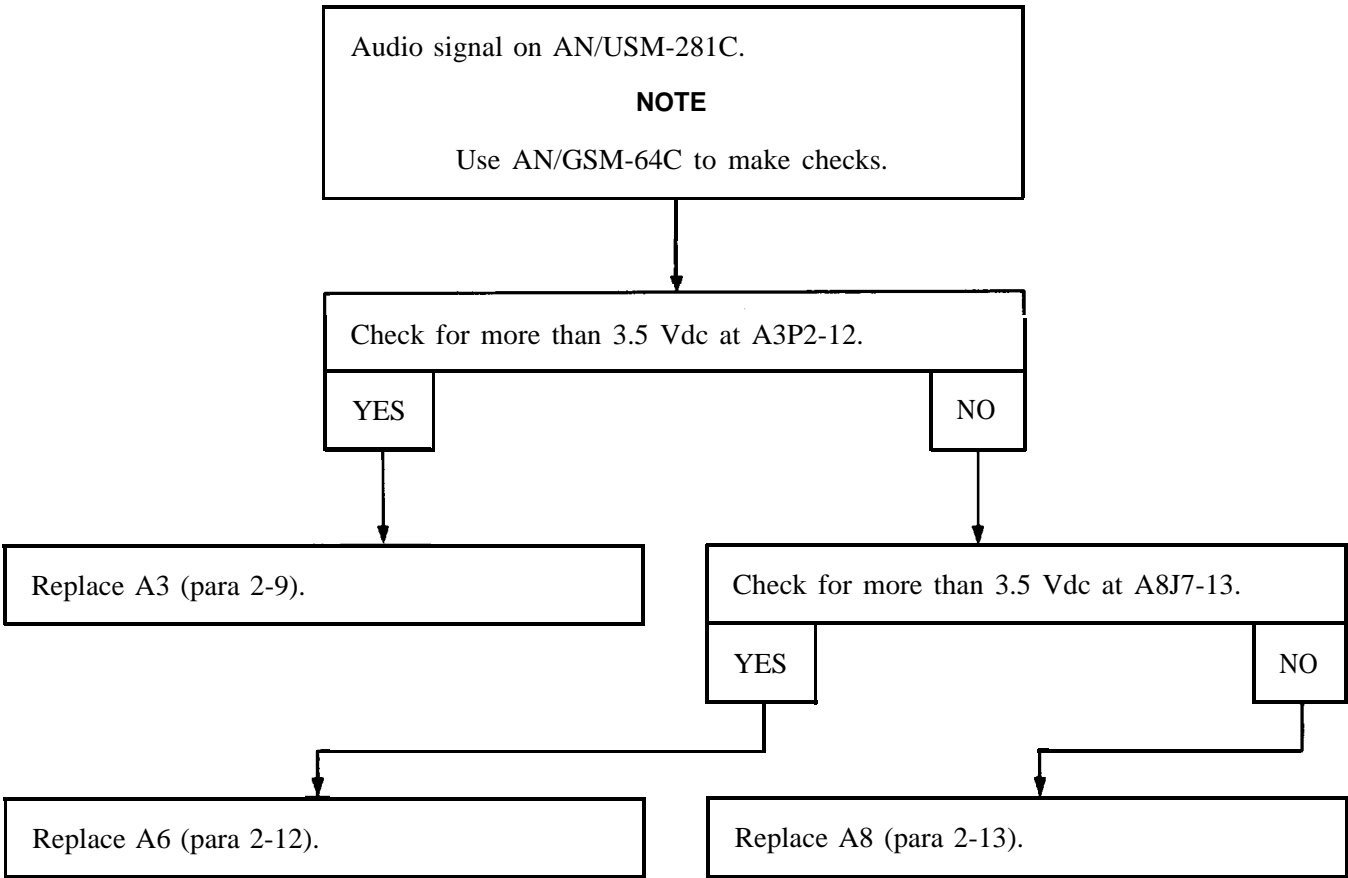
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-23

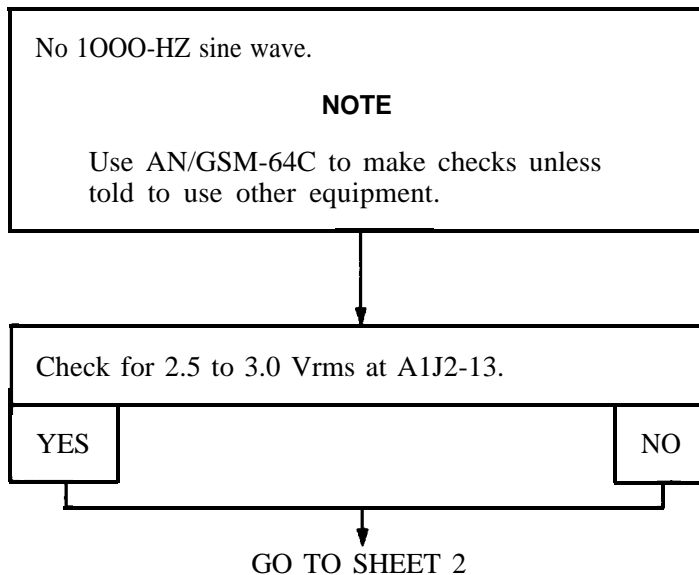


2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-24

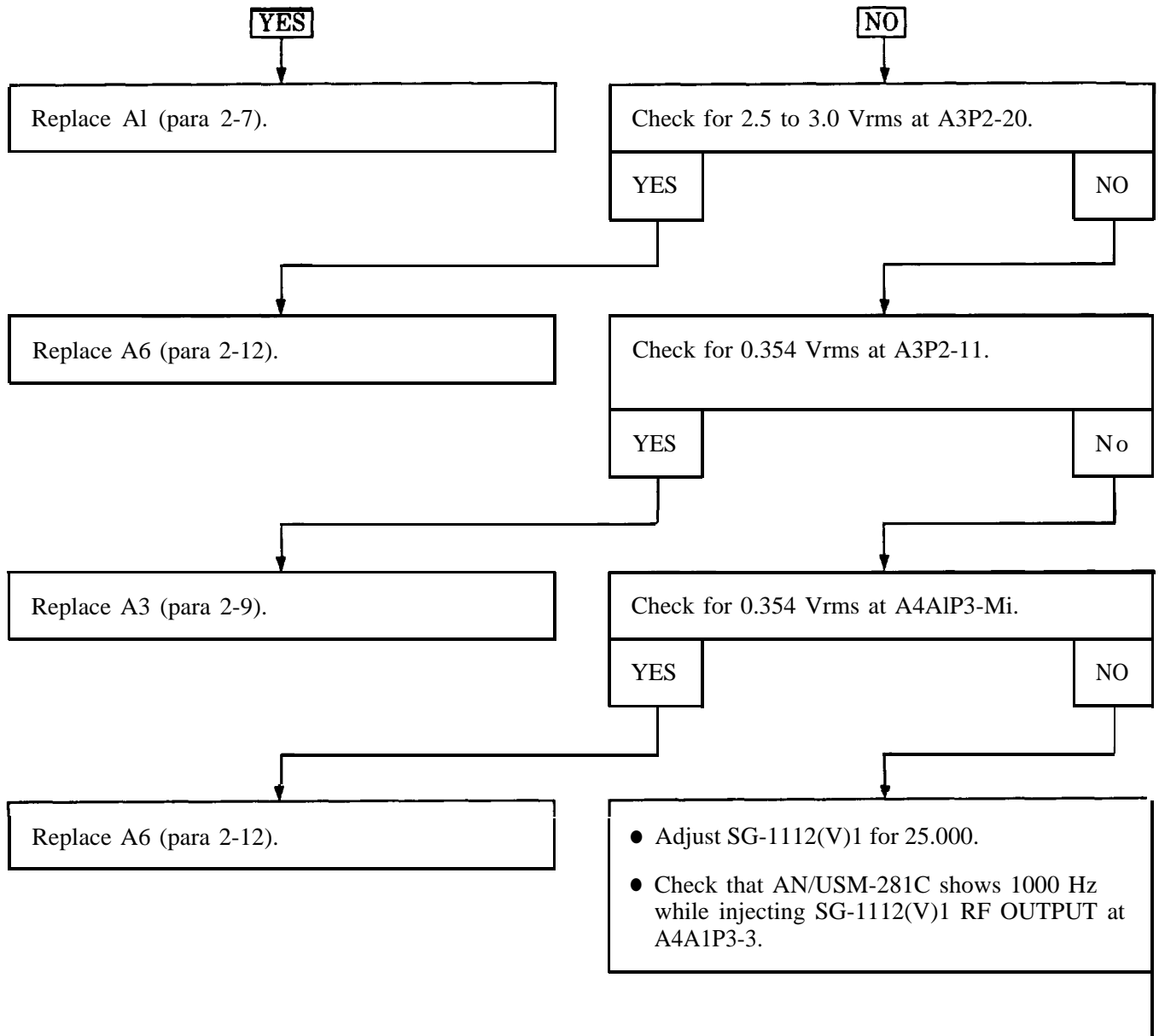


TROUBLE 2-25 (SHEET 1)



2-6. RADIO SET TROUBLESHOOTING (Continued)

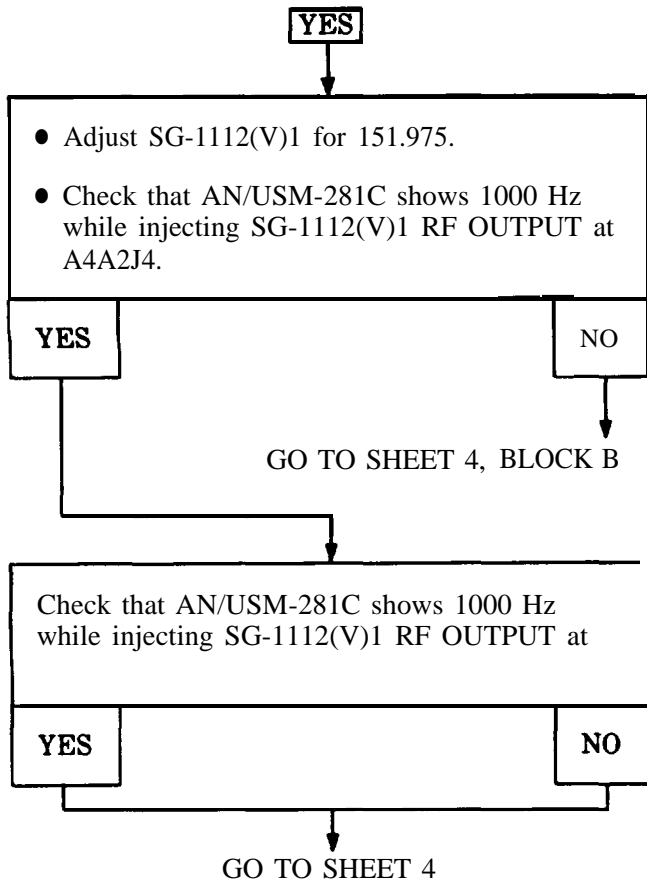
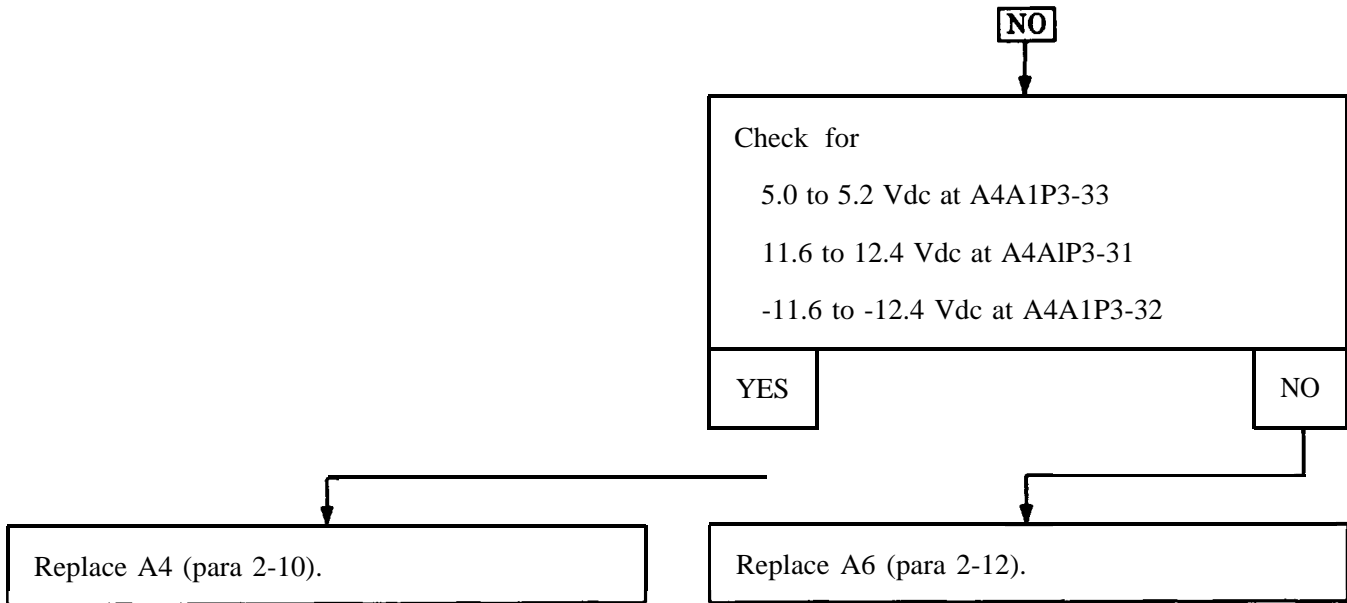
TROUBLE 2-25 (SHEET 2)



GO TO SHEET 3

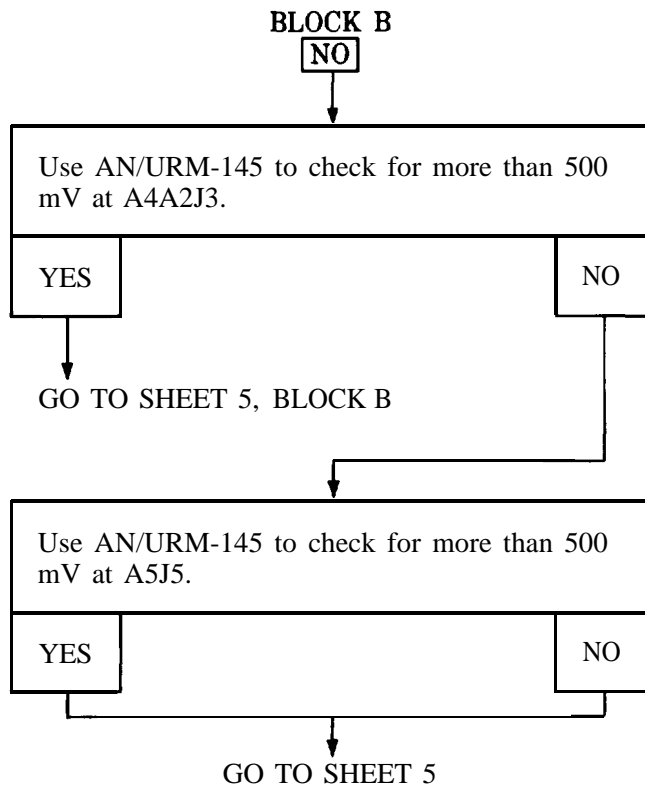
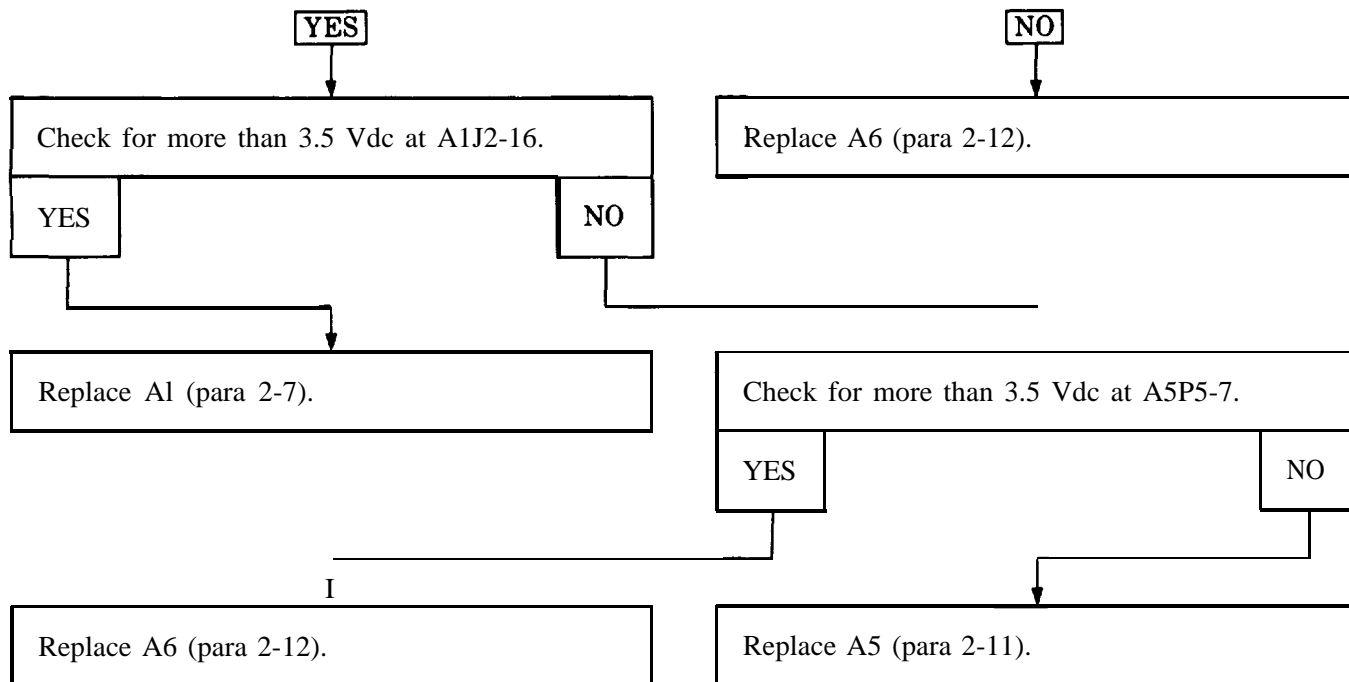
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-25 (SHEET 3)



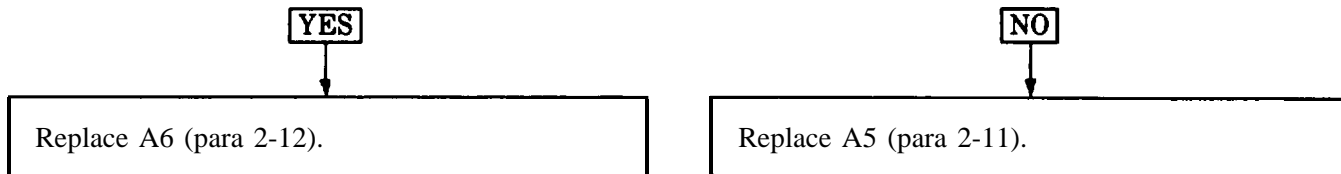
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-25 (SHEET 4)

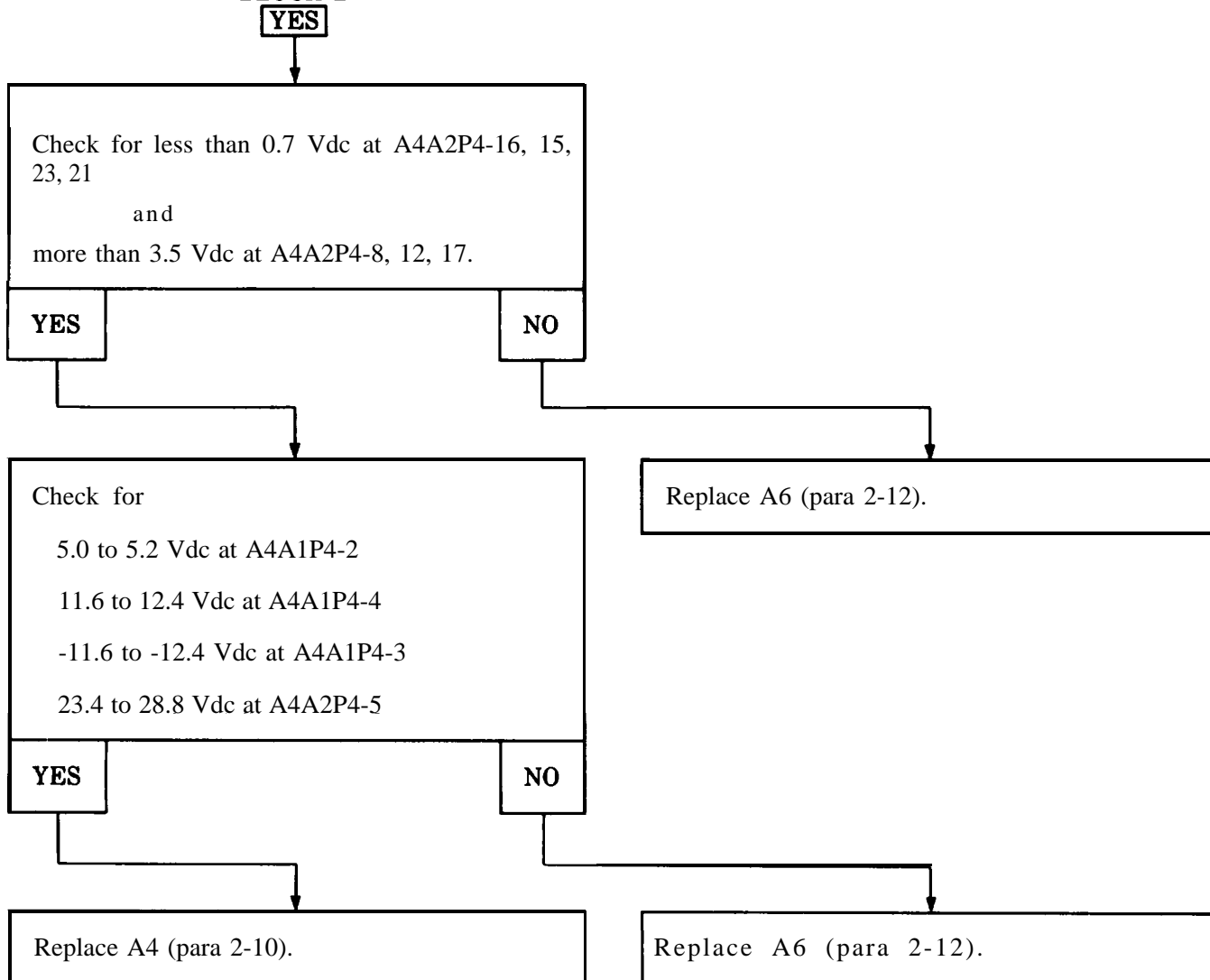


2-6. RADIO SET TROUBLESHOOTING (Continued)

TRUBLE 2-25 (SHEET 5)

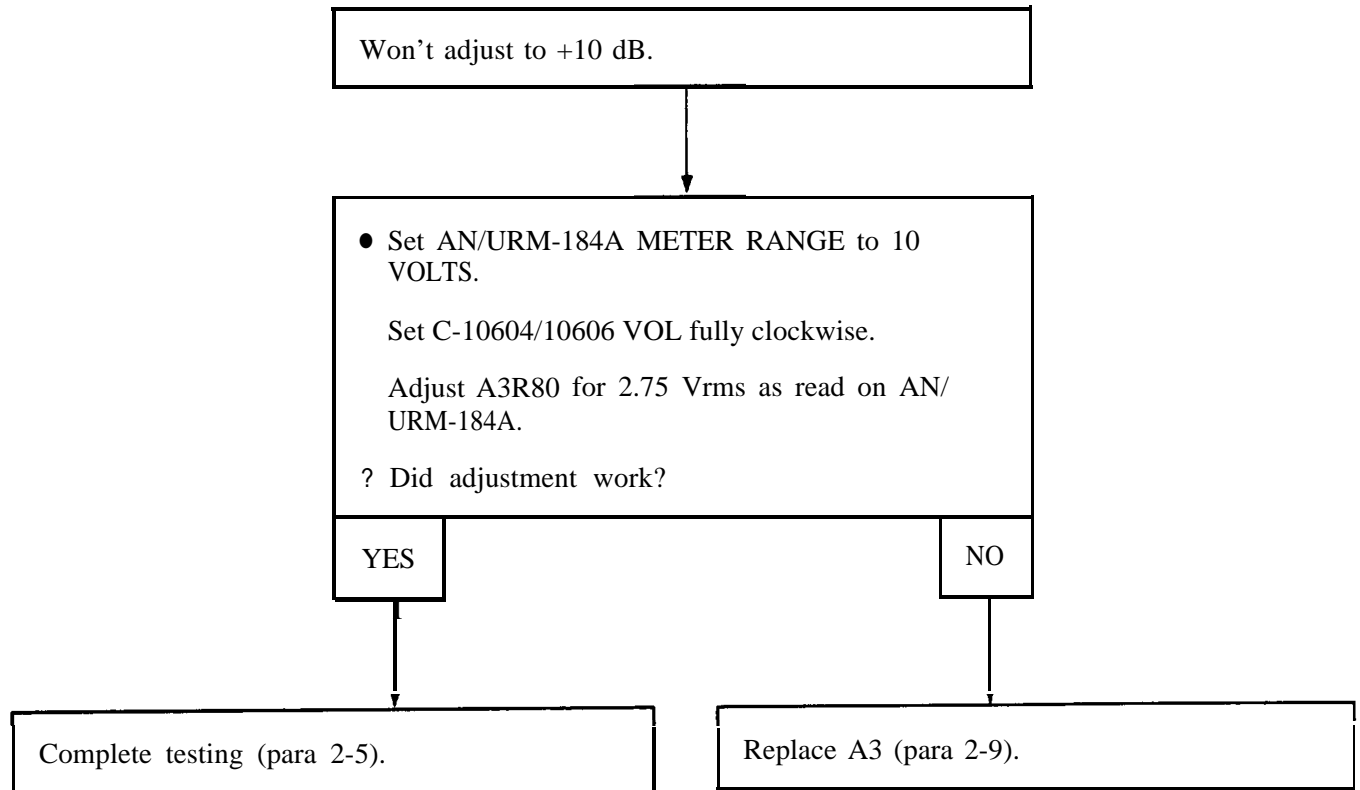


BLOCK B



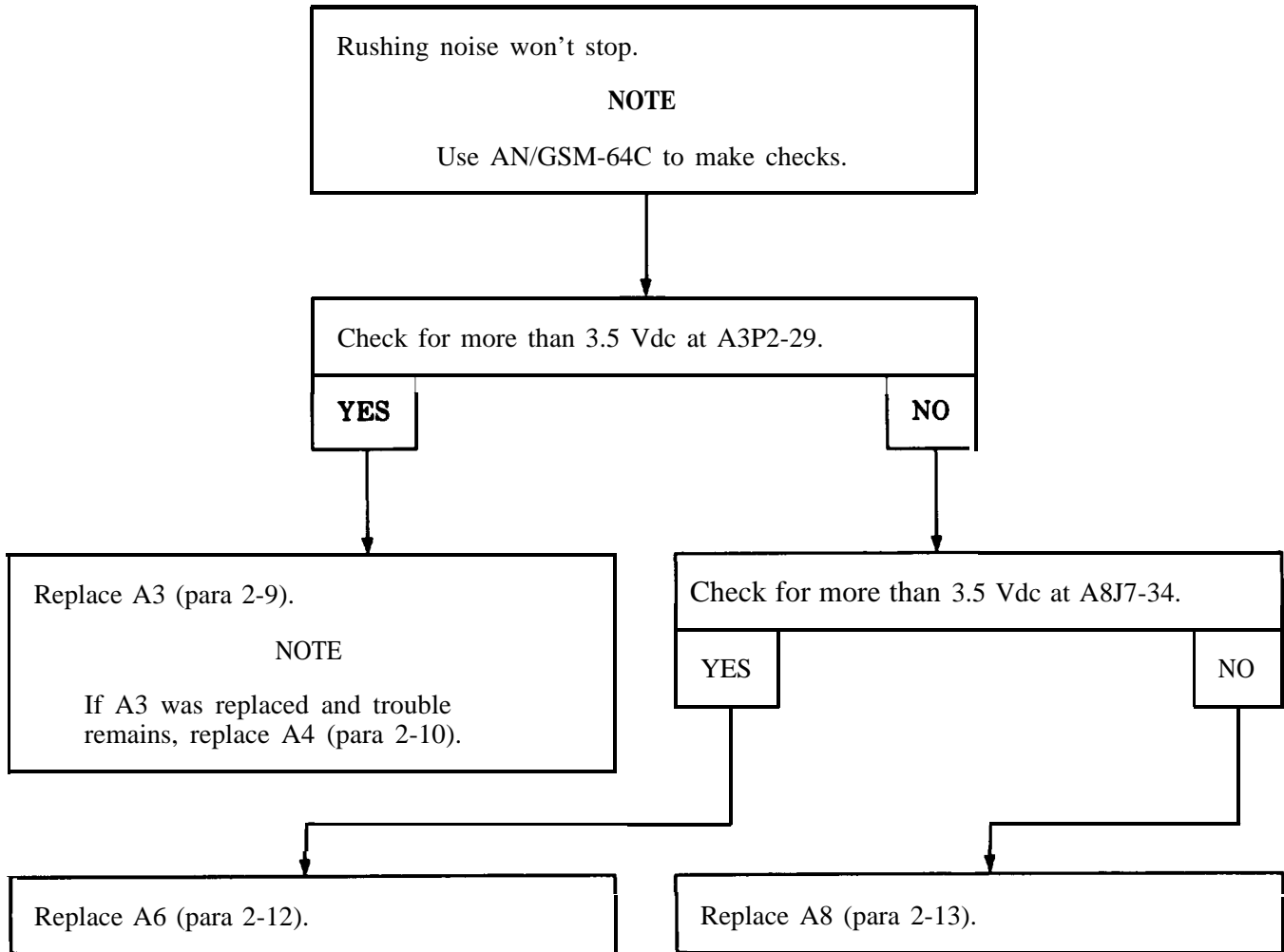
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-26



2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-27



2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-28 (SHEET 1)

Takes more than 6 μV to unsquelch receiver.

NOTE

Use AN/GSM-64C to make checks.

- Set C-10604/10606 frequency selectors to 134.000.
 - Set SG-1112(V)1 to 134.000, 1000 Hz, 30% modulation, at 6.0 μV .
 - Slowly adjust A1AR2 fully counterclockwise until AN/URM-184A reading increases.
 - Set SG-1112(V)1 OUTPUT LEVEL to 0.1 μV (AN/URM-184A reading decreases).
 - Slowly increase SG-1112(V)1 OUTPUT LEVEL until AN/URM-184A reading increases. SG-1112(V)1 OUTPUT LEVEL should be 6.0 μV . If not, try the adjustment again a couple of times.
- ? Did adjustment work?

YES

NO

Complete testing (para 2-5).

Set SG-1112(V)1 OUTPUT LEVEL to 0.1 μV .

- Check for more than 9.0 Vdc at A3P2-7.

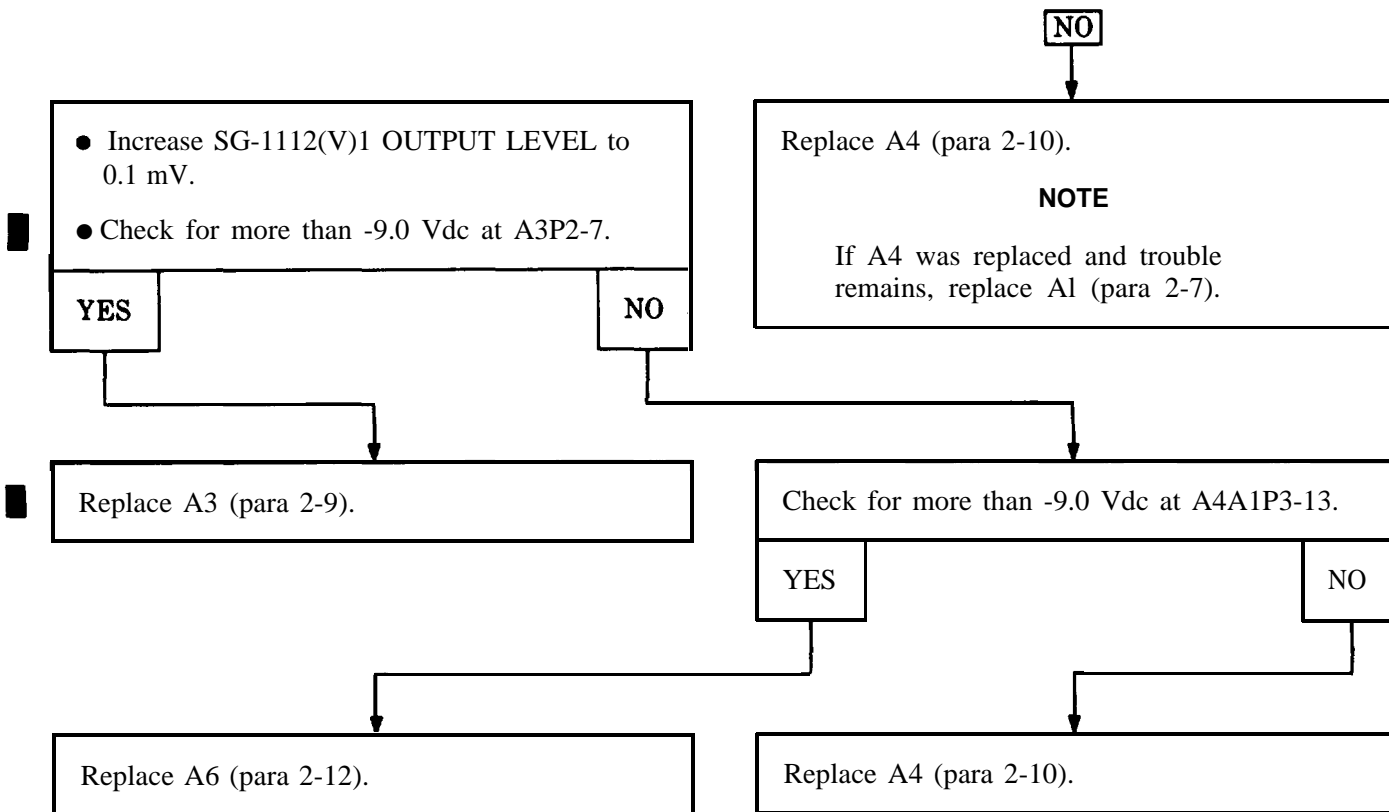
YES

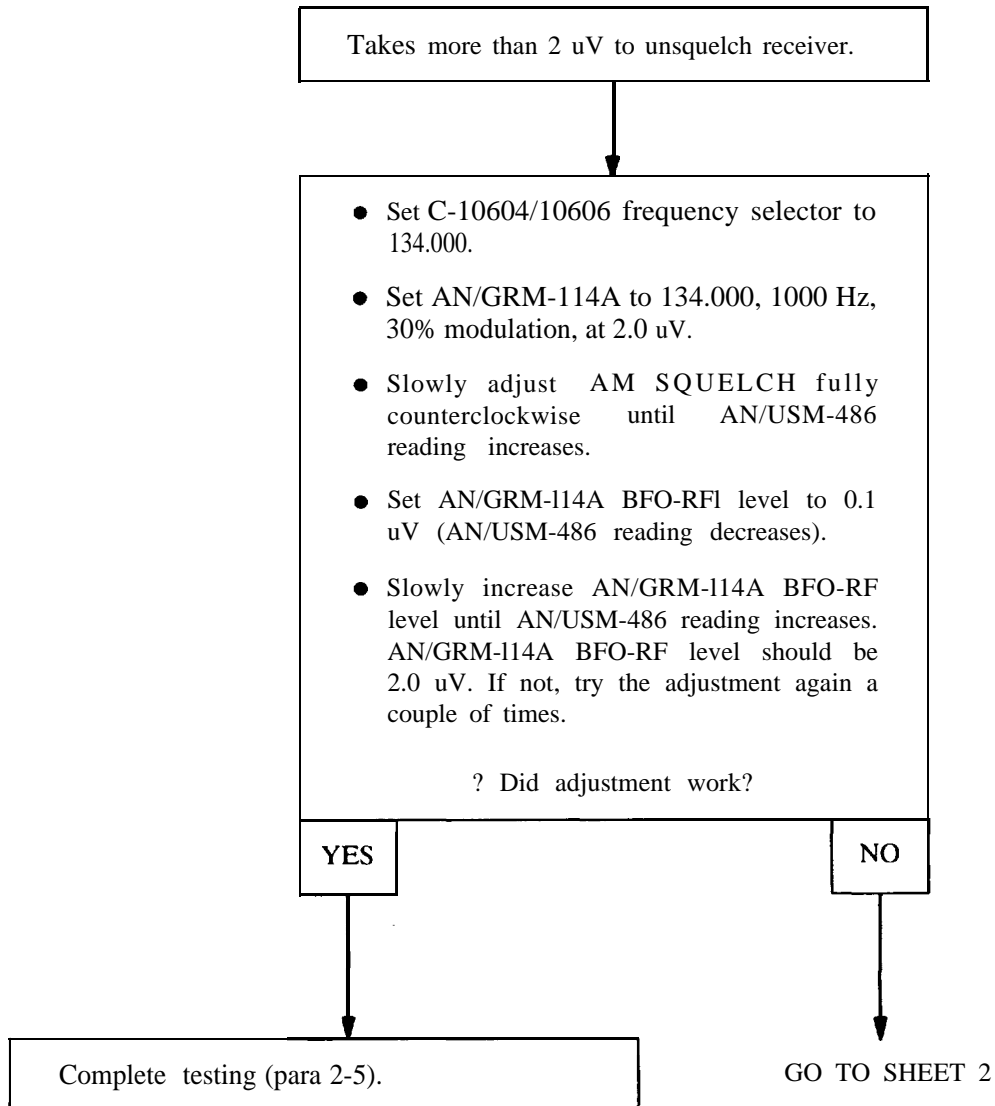
NO

GO TO SHEET 2

2-6. RADIO SET TROUBLESHOOTING (Continued)

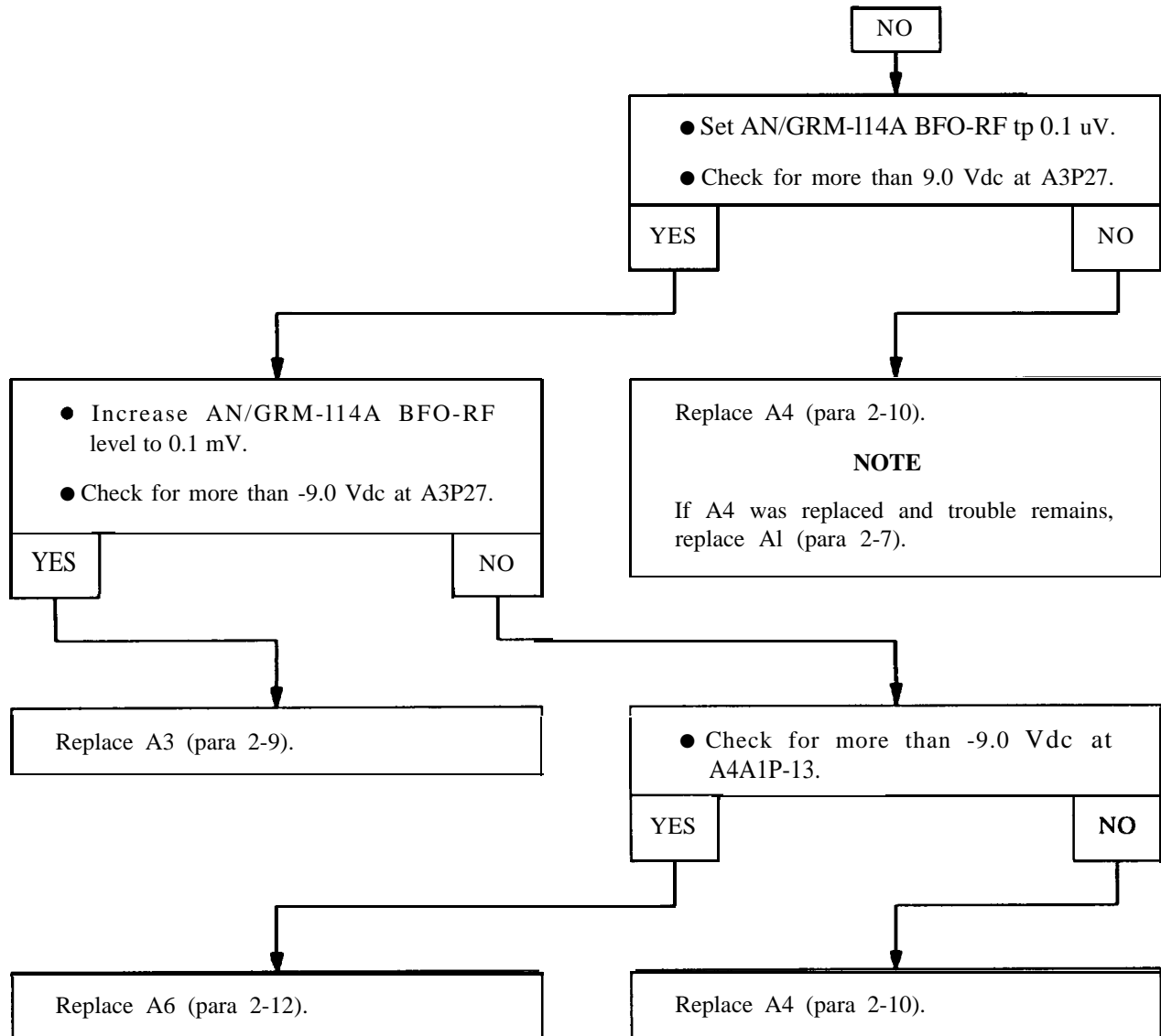
TROUBLE 2-28 (SHEET 2)



2-6. RADIO SET TROUBLESHOOTING (Continued)**TROUBLE 2-28.1 (SHEET 1)**

2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-28.1 (SHEET 2)



2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-29

Squelch does not open with 10 dB S/N.

- Turn A1A2R1 fully clockwise.
 - Set C-10604/10606 SQ DIS/ TONE to SQ DIS position.
 - Find the 10 dB point using the following steps:
 - Set SG-1112(V)1 OUTPUT to .4 uV, FM set to INT.
 - Adjust C-10604/10606 VOL for + 10 dB as read on AN/URM-184A.
 - Set SC-1112(V)1 FM to OFF.
 - Reading should drop 10 dB.
 - If not increase OUTPUT in .1 uV increments until finding 10 dB drop.
 - Set SG-1112(V)1 to FM INT with OUTPUT as required to achieve 10 dB sensitivity.
 - Set C-10604/10606 SQ DIS/TONE to center position (radio should squelch).
 - Turn A1A2R1 slowly counterclockwise until receiver unsquelches.
 - Adjust VOL on C-10604/10606 to read +10 dB as read on AN/URM-184A.
 - Set SG-1112(V)1 FM to OFF.
 - Should read 10 dB drop on AN/URM-184A.
- ? Did adjustment work?

YES

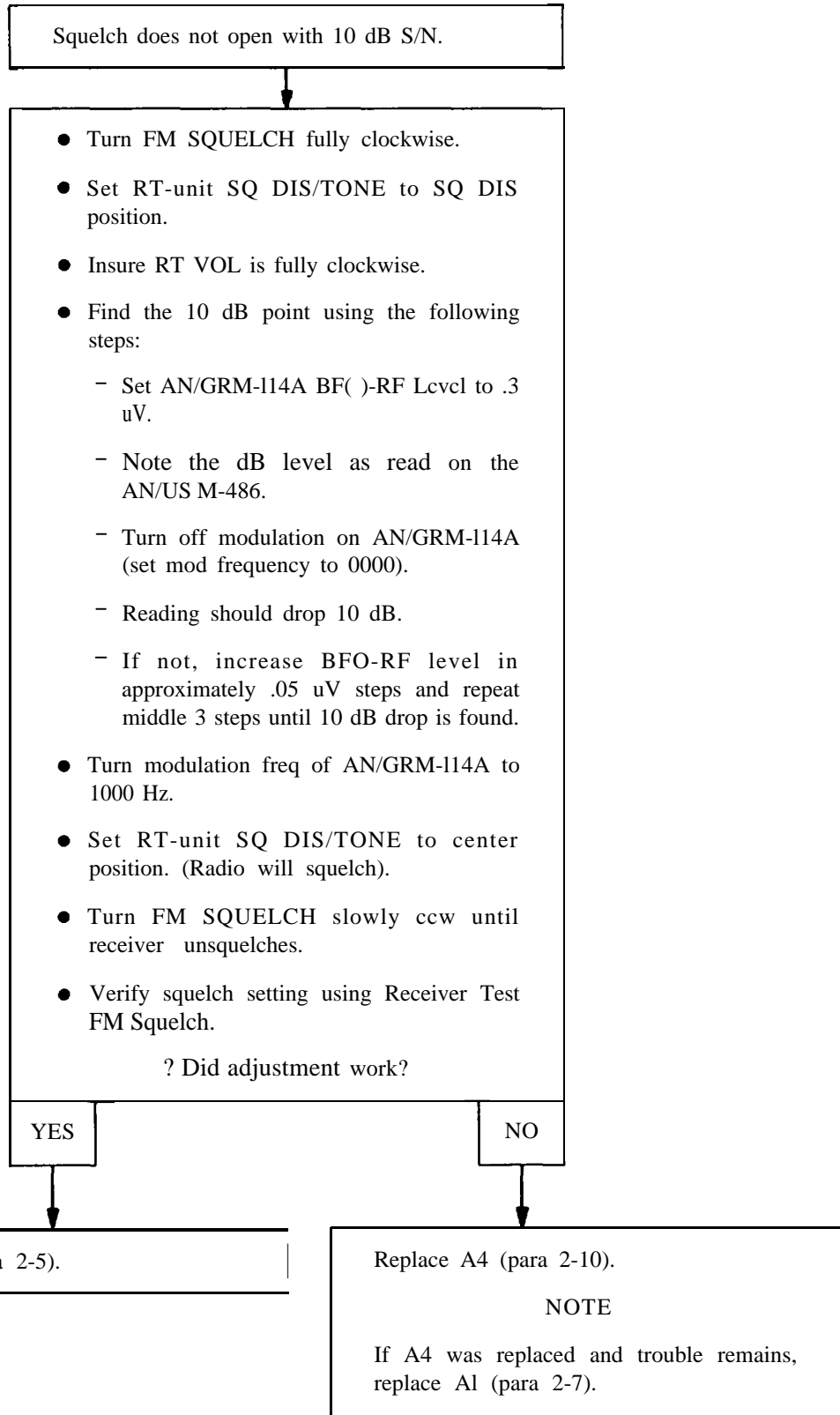
NO

Complete testing (para 2-5).

Replace A4 (para 2-10).
 N O T E
 If 4A was replaced and trouble remains, replace A1 (para 2-7).

2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-29.1



2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-29.2

Receiver does not unscquelch with
SINAD indication of 12dB+/-0.5 dB.

- Set AN/GRIM-114 BFO-RF LEVEL control to .05.
- On the receiver set (RT-1354) remove lower right front cover and turn FM SQUELCH control, A1A2R1, fully clockwise.
- Set WB/NB/MEM LOAD switch to WB (wideband).
- Set the RT SQ DIS/TONE switch to SQ DIS position.
- Adjust AN/GRM-114 BFO-RF LEVEL control for an indication of 12 dB on the MM-100E SINAD scale.
- Set the receiver RT SQ DIS/TONE switch to center position. Receiver should squelch.
- On the receiver, slowly turn A1A2R1 FM SQUELCH control counterclockwise until the receiver unscquelches.
- The MM-100E SINAD indication should be 12 dB +/- 0.5 dB. (1 KHz tone heard.)
- If not, repeat adjustment procedure starting with fourth step above.

? Did adjustment work?

YES

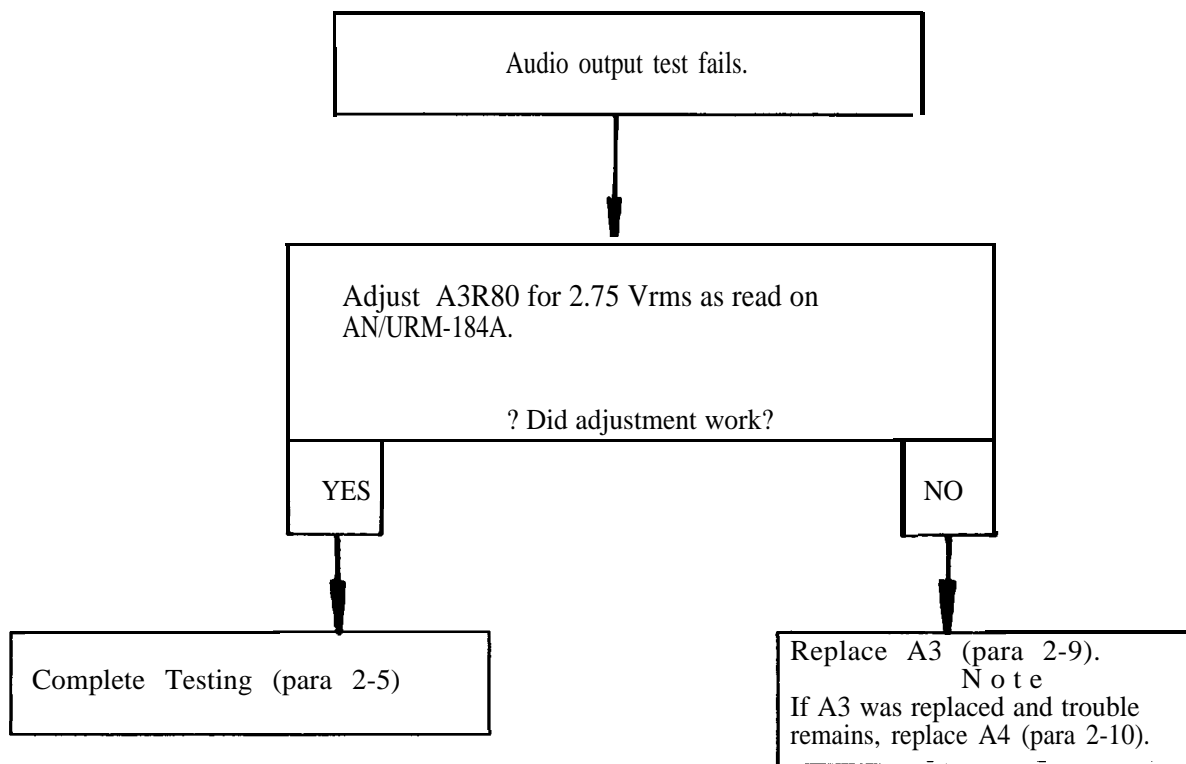
Complete Testing (para 2-5)

NO

Replace A4 (para 2-10).
N o t e
If it was replaced and trouble
remains, replace A1 (para 2-7).

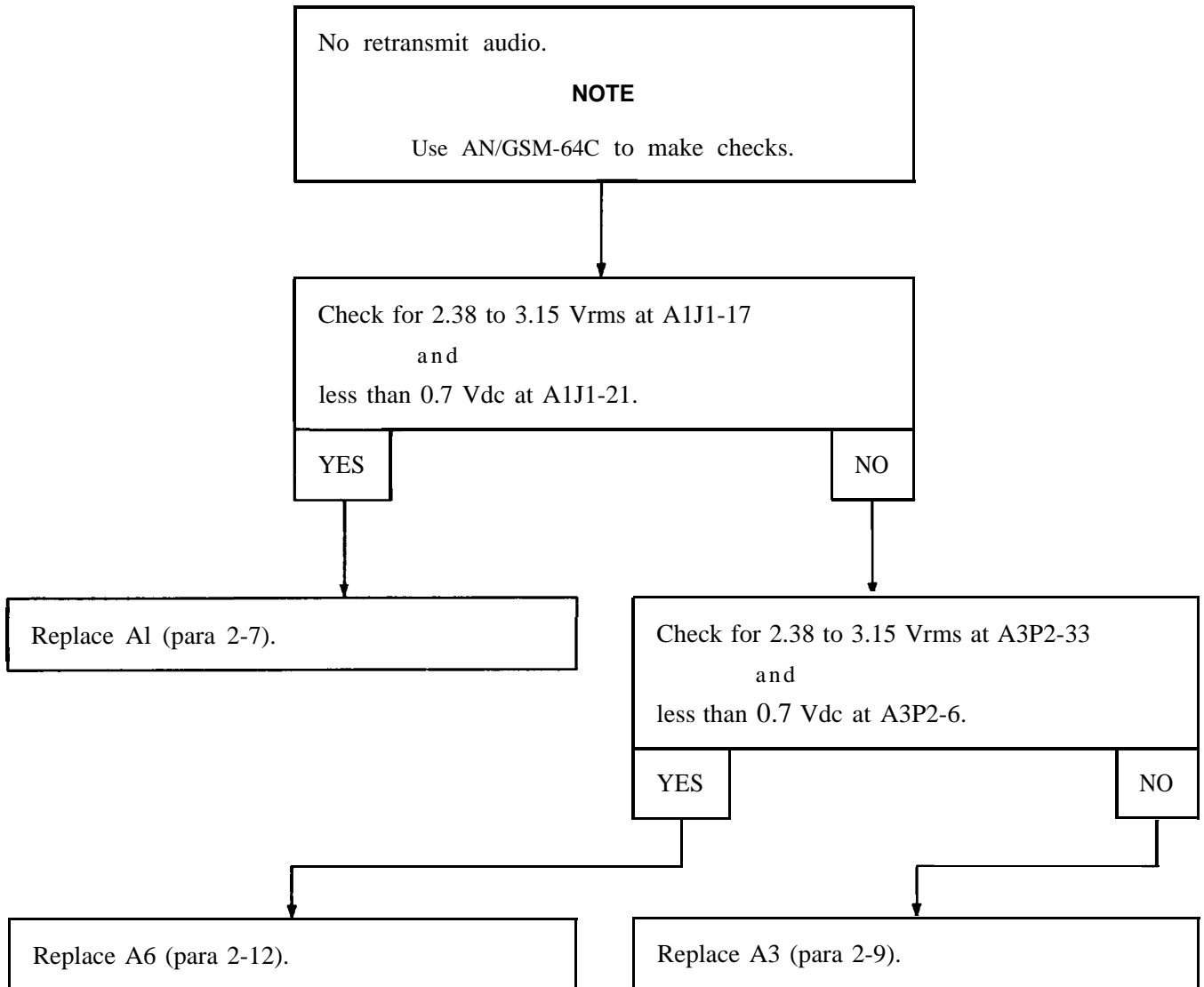
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE-30



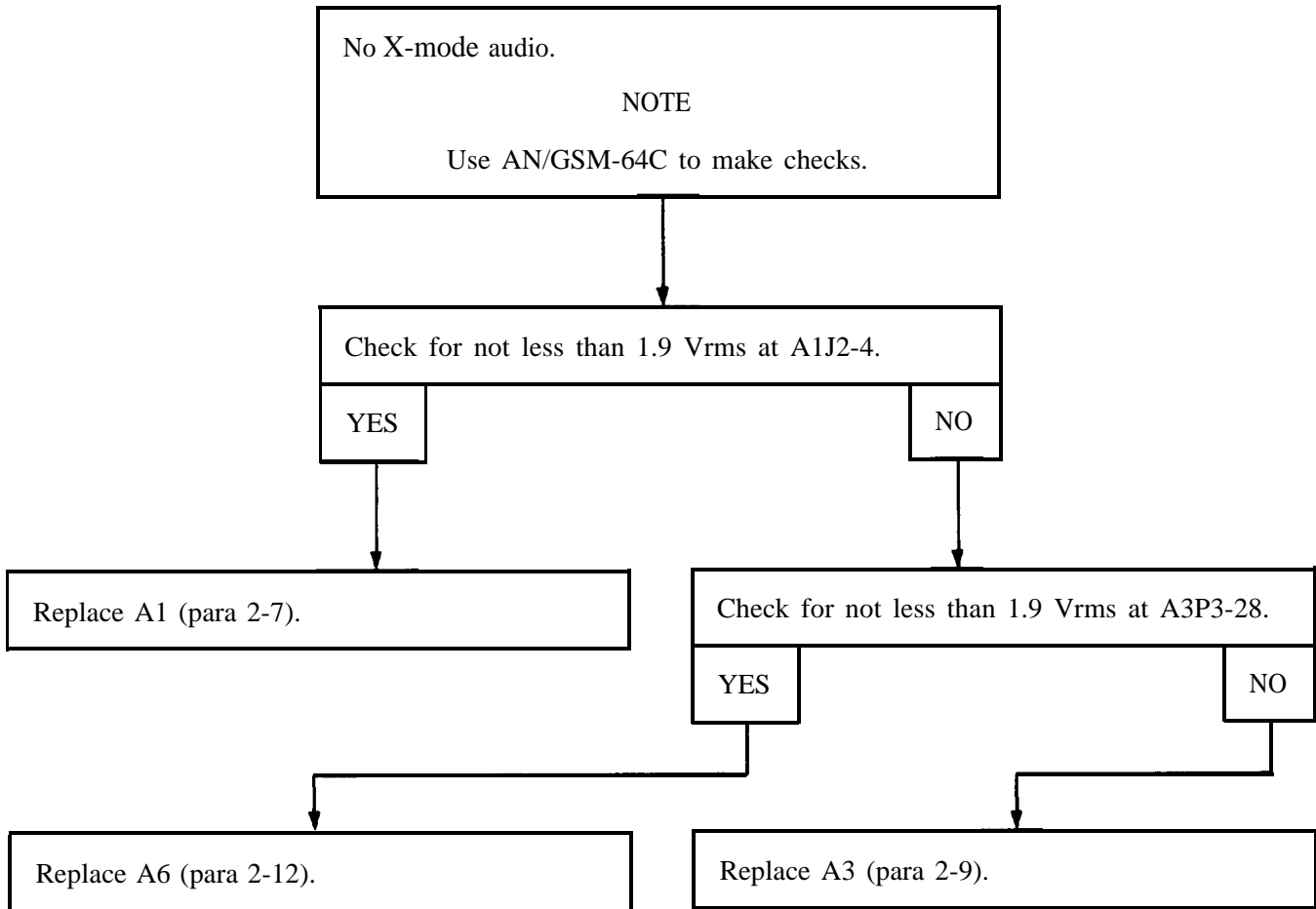
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-31



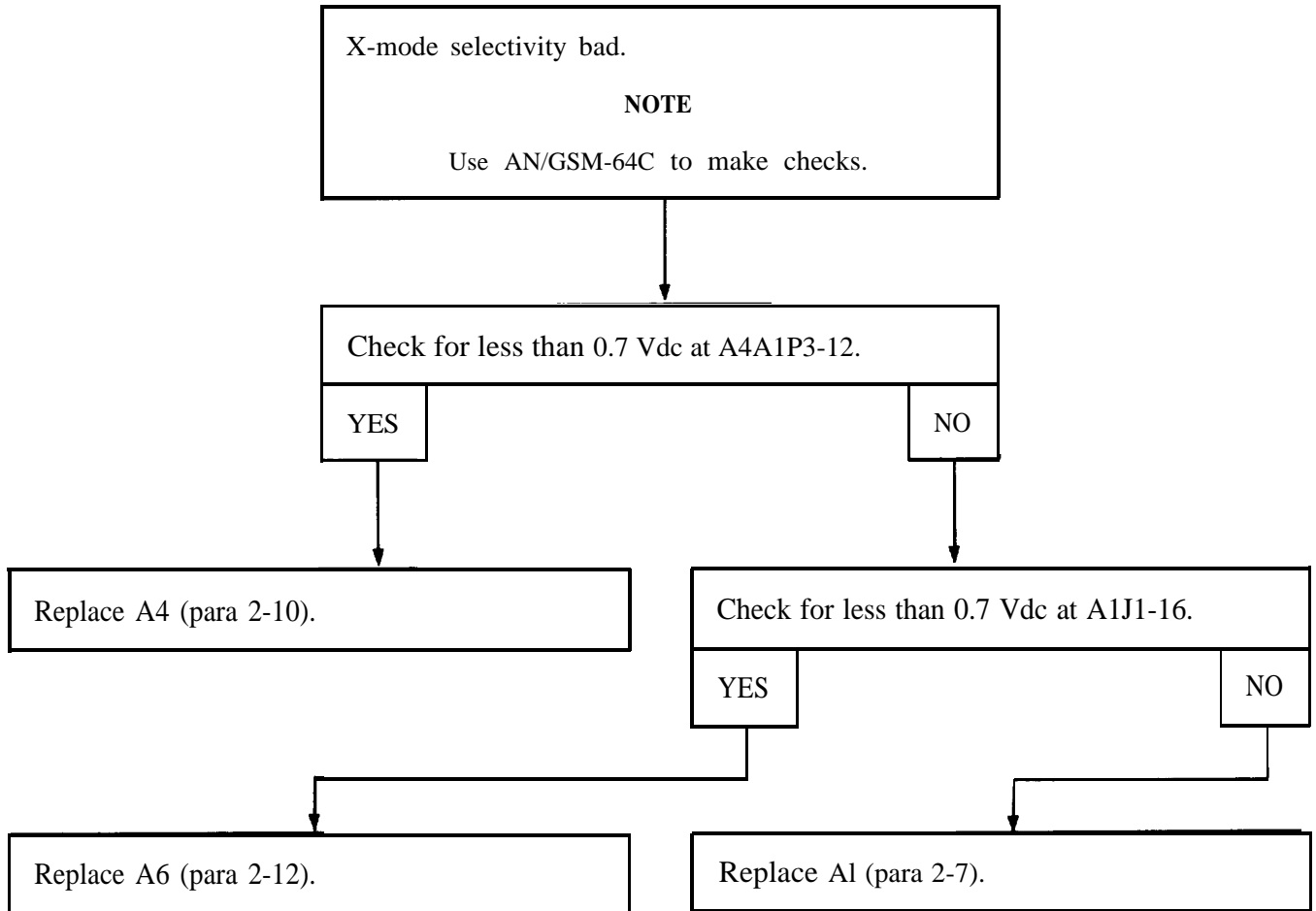
2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-32



2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-33



2-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 2-34

No 400 to 600 ohms at J-4247/AR ADF/HOM ENBL.

NOTE

Use AN/GSM-64C to make checks.

Check for 400 to 600 ohms at A1J2-8.

YES NO

Replace A1 (para 2-7).

Check for 400 to 600 ohms at A8J7-38.

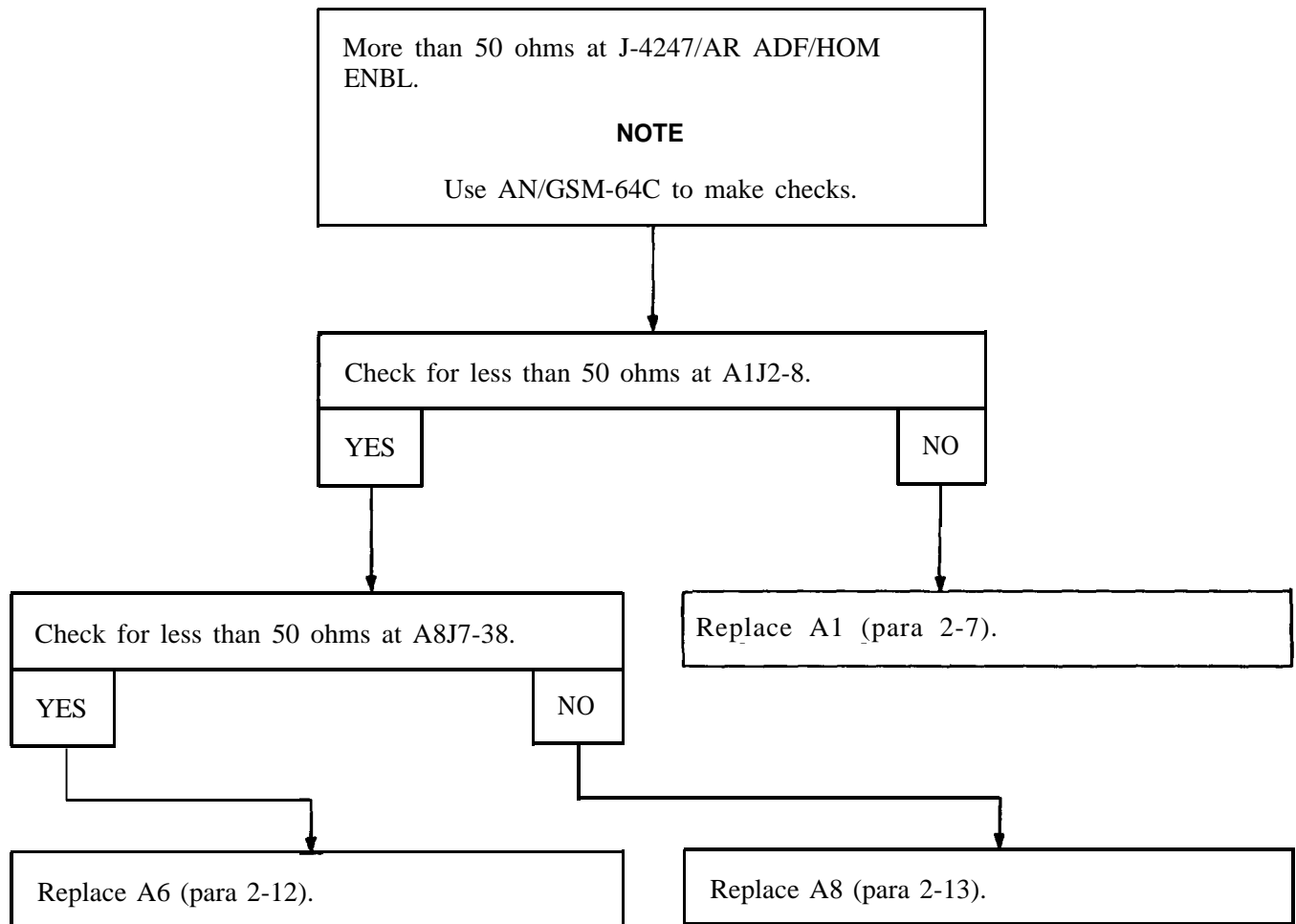
YES NO

Replace A6 (para 2-12).

Replace A8 (para 2-13).

2-6. RADIO SET TROUBLESHOOTING (Continued)

TRUBLE 2-35



Section VI. MAINTENANCE PROCEDURES

2-7. REPLACE A1

THIS TASK COVERS REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

Tools and Support Equipment

Tool Kit TK-105/G
No. 1 Phillips screwdriver

Materials/Parts

Transmitter Assembly A1
Antistatic bag
Item 1, Appendix B

Personnel Required

Avionic Communications Equipment Repairer MOS
35L

References

Safety, Care, and Handling paragraph 1-8.

Troubleshooting References

Paragraph 2-6

Equipment Condition

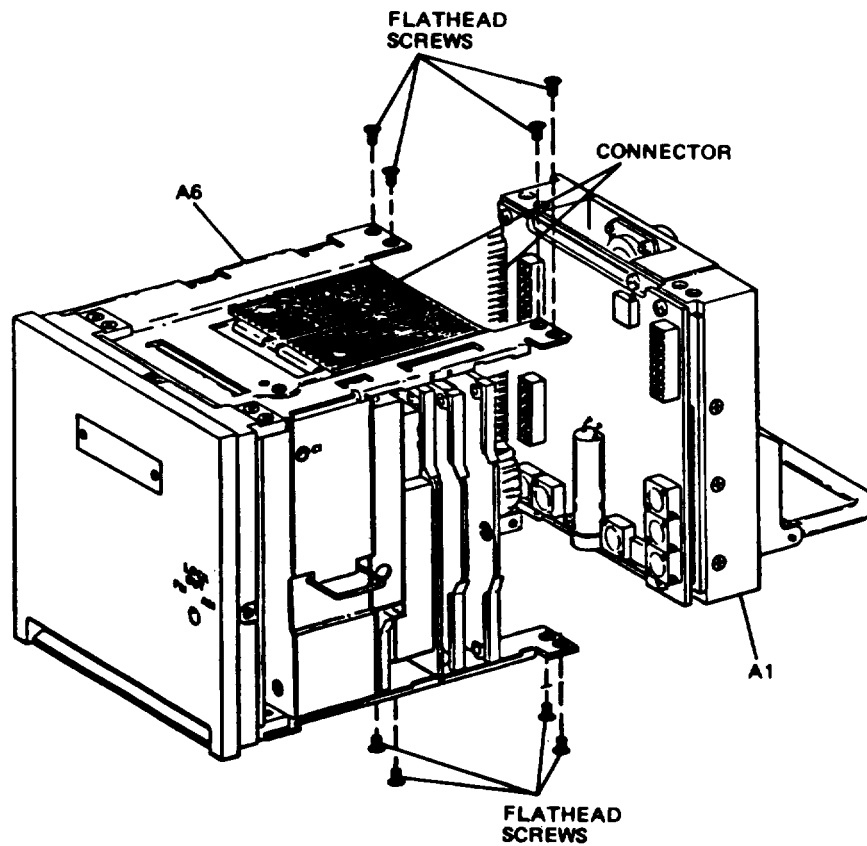
MK-994A/AR DC POWER ON/OFF set to OFF.
RT-1300A disconnected from test equipment.

Special Environmental Conditions

CAUTION



Static work station connected before procedure is started.

2-7. REPLACE A1 (Continued)**REMOVAL**

1. Remove eight flathead screws.

CAUTION

A1 is connected to A6 by a connector. Be careful not to break the connector while removing and installing A1.

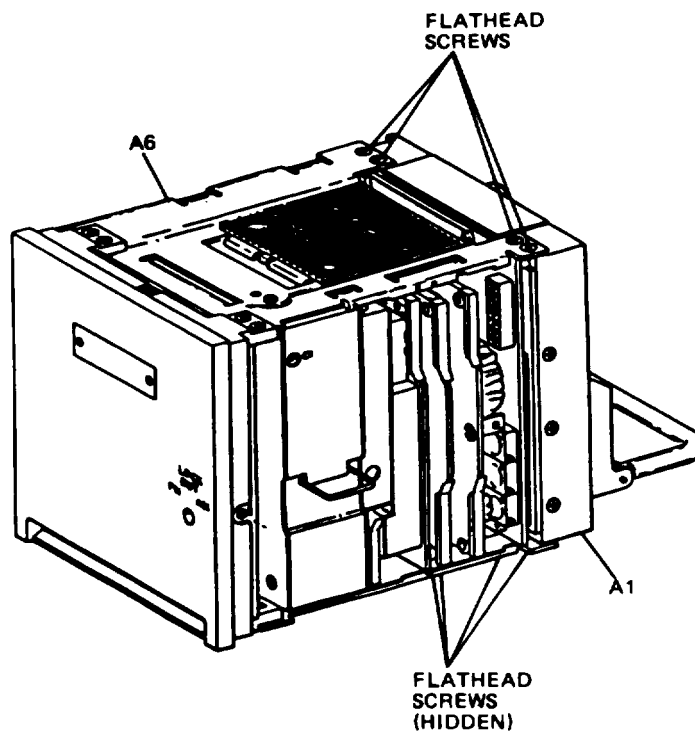
2. Slide A1 from A6.



3. Pack A1 in antistatic bag.



2-7. REPLACE A1 (Continued)

INSTALLATION



4. Remove A1 from antistatic bag.  Save antistatic bag to be used again.
5. Aline A1 with A6; be sure A1/A6 connector is alined. 
6. Carefully slide A1 into A6 until mated. 
7. Install eight flathead screws.

FOLLOWUP

8. Complete paragraph 2-5 to be sure RT-1300A works okay.

2-8. REPLACE A2

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

Tools and Support Equipment

Tool Kit, TK-105/G
No.1 Phillips screwdriver.

Materials/Parts

Power Supply Assembly A2
Antistatic bag
Item 1, Appendix B

Personnel Required

Avionic Communications Equipment Repairer MOS
35L

References

Safety, Care, and Handling paragraph 1-8.

Troubleshooting References

Paragraph 2-6

Equipment Condition

MK-994A/AR DC POWER ON/OFF set to OFF.

RT-1300A disconnected from test equipment.

Special Environmental Conditions

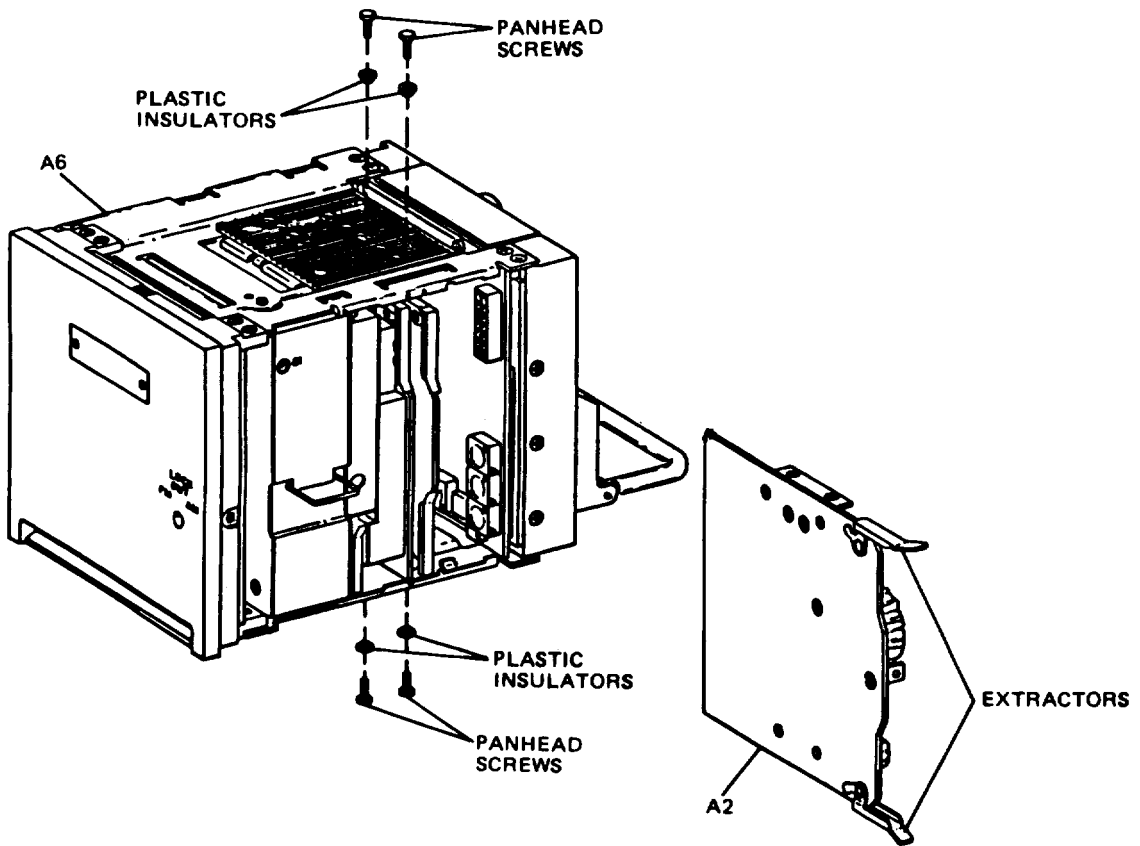
CAUTION



Static work station connected before procedure is started.

2-8. REPLACE A2 (Continued)

REMOVAL

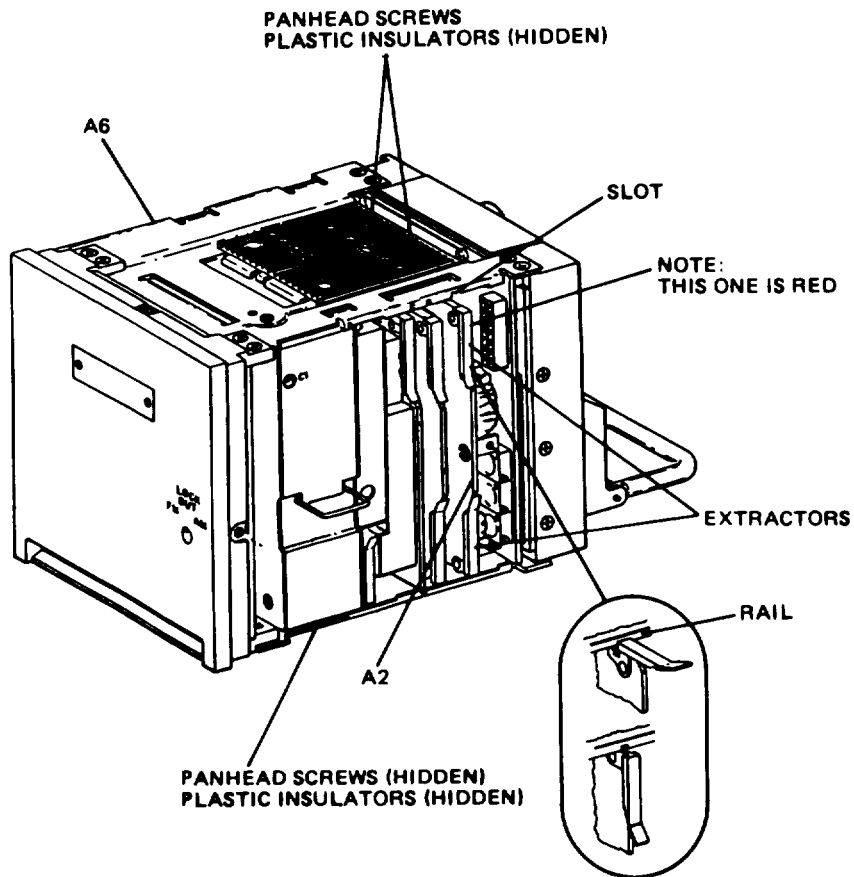





1. Remove four panhead screws and plastic insulators.
2. Unlock two extractors.
3. Slide A2 from A6.
4. Pack A2 in antistatic bag.



2-8. REPLACE A2 (Continued)

INSTALLATION



5. Remove A2 from antistatic bag.  Save antistatic bag to be used again.
6. Unlock two extractors. 
7. Turn A2 until red extractor points up. 

2-8. REPLACE A2 (Continued)**CAUTION**

A2 is connected to A6 by a connector. Be careful not to break the connector while doing steps 8, 9.

8. Slide A2 into slot marked A2 until extractors touch rail.



9. Lock two extractors. Extractors will mate A2/A6 connector when locked.

CAUTION

The A2 must be insulated from A6. Be sure plastic insulators are installed on panhead screws.

10. Install four plastic insulators and panhead screws.

FOLLOWUP

11. Complete paragraph 2-5 to be sure RT-1300A works okay.

2-9. REPLACE A3

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

Tools and Support Equipment

Tool Kit, TK-105/G
No. 1 Phillips screwdriver.

Materials/Parts

Audio Circuit Card A3
Antistatic bag
Item 1, Appendix B

Personnel Required

Avionic Communications Equipment Repairer
MOS 35L

References

Safety, Care, and Handling paragraph 1-8.

Troubleshooting References

Paragraph 2-6

Equipment Condition

MK-994A/AR DC POWER ON/OFF set to OFF.

RT-1300A disconnected from test equipment.

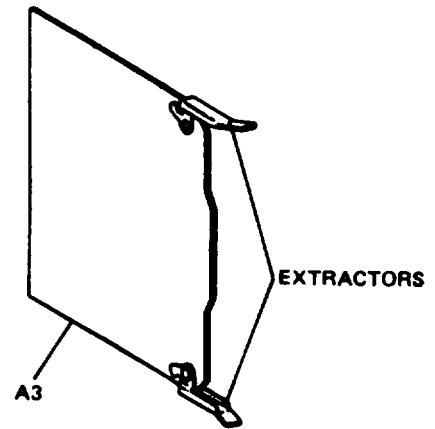
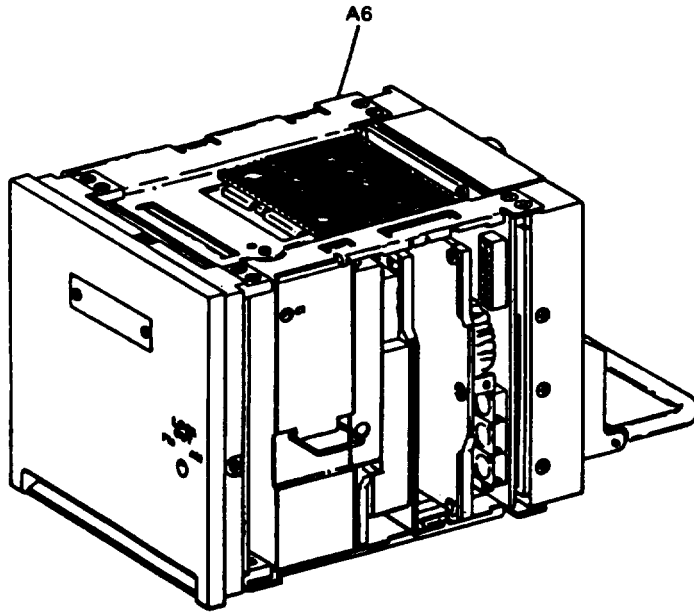
Special Environmental Conditions

CAUTION



Static work station connected before procedure is started.

2-9. REPLACE A3(Continued)



1. Unlock two extractors.

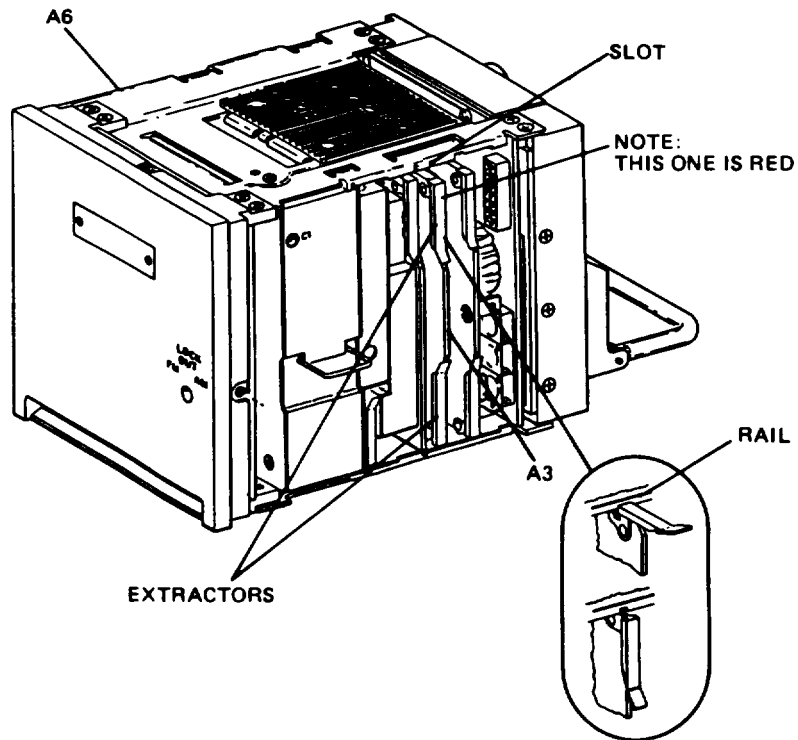
2. Slide A3 from A6.




3. Pack A3 in antistatic bag.



2-9. REPLACE A3 (Continued)

INSTALLATION



4. Remove A3 from antistatic bag.  Save antistatic bag to be used again.
5. Unlock two extractors. 
6. Turn A3 until red extractor points up. 

2-9. REPLACE A3 (Continued)**CAUTION**

A3 is connected to A6 by a connector. Be careful not to break the connector while doing steps 7, 8.

7. Slide A3 into slot marked A3 until extractors touch rail.



8. Lock two extractors. Extractors will mate A3/A6 connector when locked.

FOLLOWUP

9. Complete paragraph 2-5 to be sure RT-1300A works okay.

2-10. REPLACE A4

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

References

Safety, Care, and Handling paragraph 1-8.

Tools and Support Equipment

Tool Kit, TK-105/G
No. 1 Phillips screwdriver

Troubleshooting References

Paragraph 2-6

Materials/Parts

Receiver Assembly A4
Antistatic bag
Item 1, Appendix B

Equipment Condition

MK-994A/AR DC POWER ON/OFF set to OFF.
RT-1300A disconnected from test equipment.

Personnel Required

Avionic Communications Equipment Repairer
MOS 35L

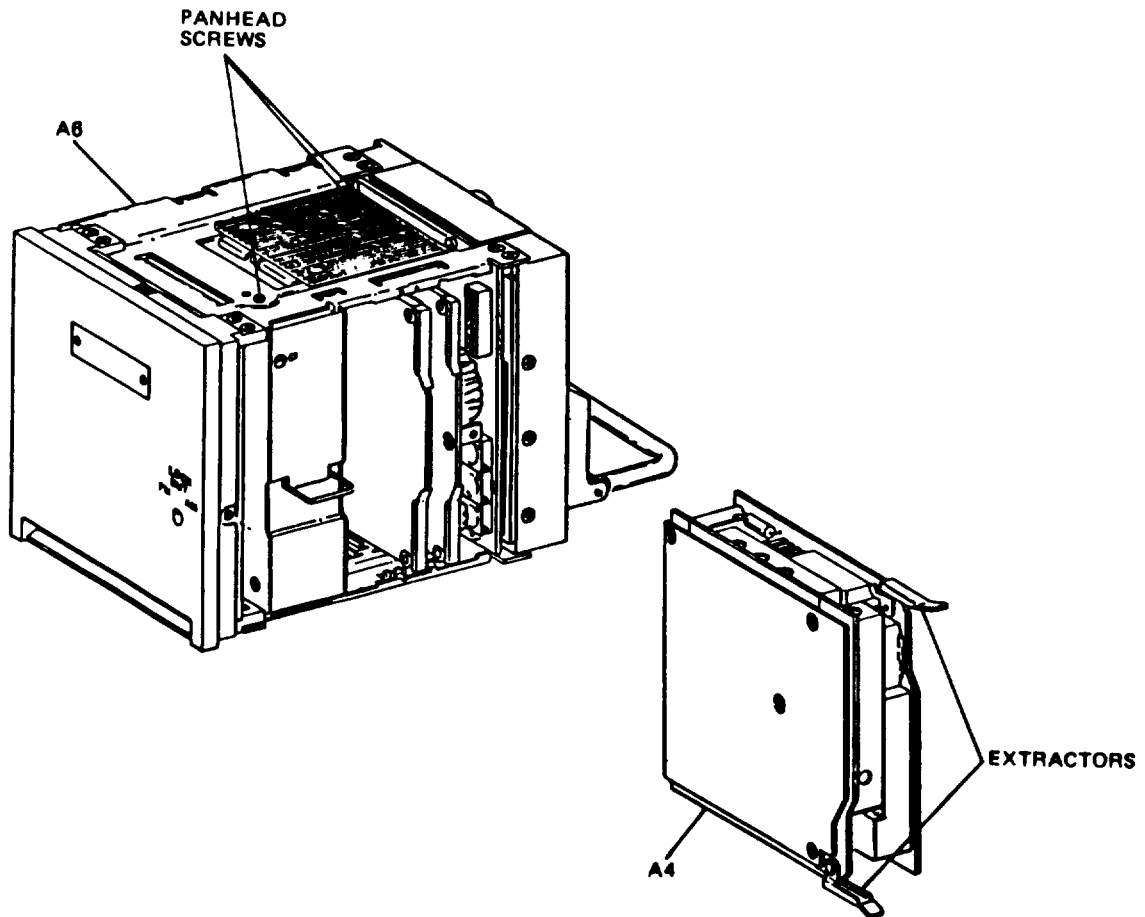
Special Environmental Conditions

CAUTION



Static work station connected before procedure is started.

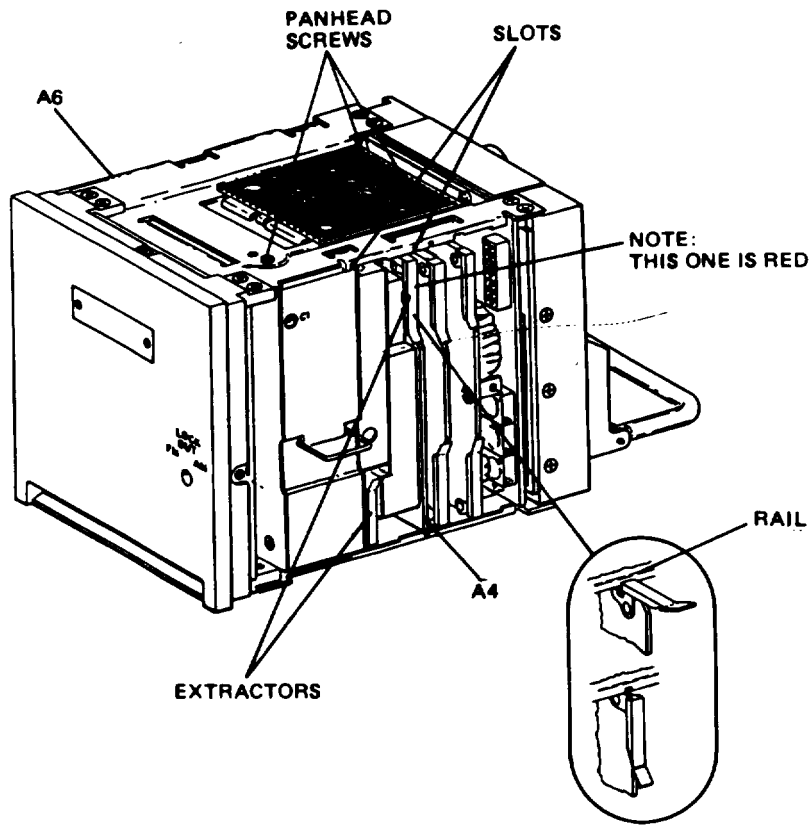
2-10. REPLACE A4 (Continued)




1. Loosen three panhead screws. You don't need to take them out.
2. Unlock two extractors.
3. Slide A4 from A6.
4. Pack A4 in antistatic bag.




2-10. REPLACE A4 (Continued)




5. Remove A4 from antistatic bag.  Save antistatic bag to be used again.

6. Unlock two extractors. 

7. Turn A4 until red extractor points up. 

2-10. REPLACE A4 (Continued)**CAUTION**

A4 is connected to A6 by a connector. Be careful not to break the connector while doing steps 8, 9.

8. Slide A4 into slots A4AI, A4A2 until extractors touch rail. 
9. Lock two extractors. Extractors will mate A4/A6 connector when locked.
10. Tighten three panhead screws.

FOLLOWUP

11. Complete paragraph 2-5 to be sure RT-1300A works okay.

2-11. REPLACE A5

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

References

Safety, Care, and Handling paragraph 1-8.

Tools and Support Equipment

Tool Kit TK-105/G
No. 1 Phillips screwdriver

Troubleshooting References

Paragraph 2-6

Materials/Parts

Synthesizer Assembly A5
Antistatic bag
Item 1, Appendix B

Equipment Condition

MK-994A/AR DC POWER ON/OFF set to OFF.
RT-1300A disconnected from test equipment,

Personnel Required

Avionic Communications Equipment Repairer
MOS 35L

Special Environmental Conditions

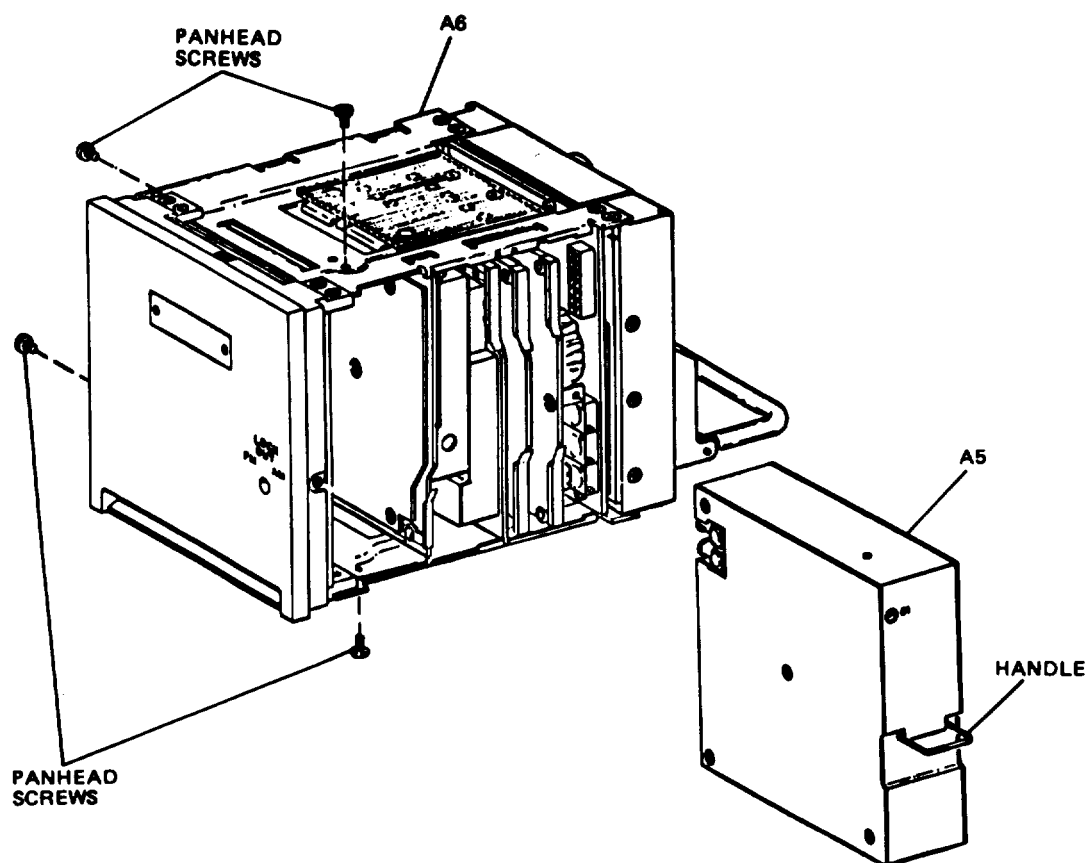
CAUTION



Static work station connected before procedure is started.

2-11. REPLACE A5 (Continued)

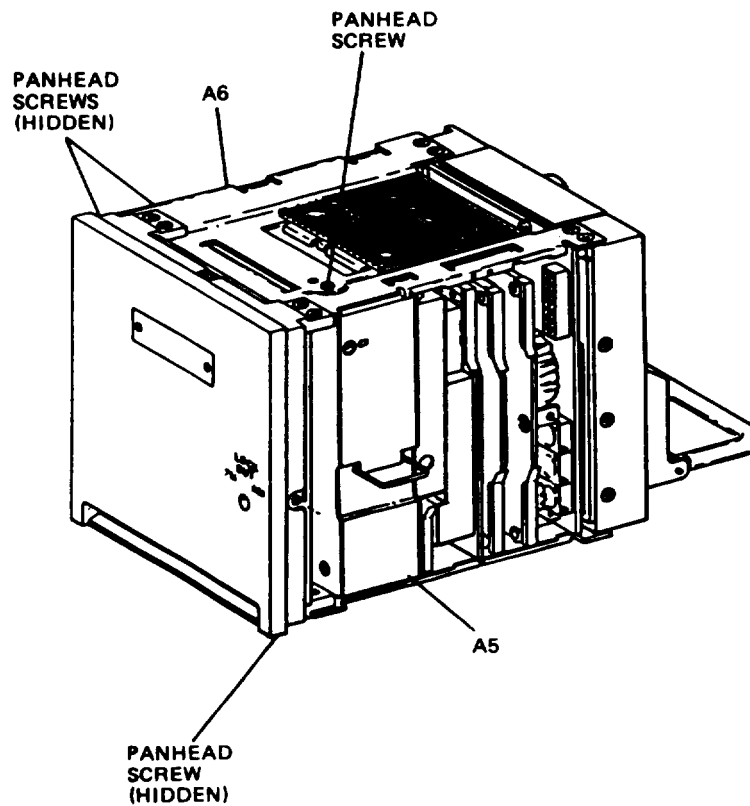
REMOVAL



1. Remove four panhead screws.
2. Use handle to slide A5 from A6.
3. Pack A5 in antistatic bag.




2-11. REPLACE A5 (Continued)



4. Unpack A5 from antistatic bag.  Save antistatic bag to be used again.

CAUTION

A5 is connected to A6 by a connector. Be careful not to break the connector while doing step 5.

5. Slide A5 into A6 until mated. 

6. Install four panhead screws.

FOLLOWUP

7. Complete paragraph 2-5 to be sure RT-1300A works okay.

2-12. REPLACE A6

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP

INITIAL SETUP

Applicable Configurations

All

Tools and Support Equipment

Tool Kit TK-105/G
No. 1 Phillips screwdriver

Materials/Parts

Chassis Assembly A6

Personnel Required

Avionic Communications Equipment Repairer
MOS 35L

References

Safety, Care, and Handling paragraph 1-8.

Troubleshooting References

Paragraph 2-6

Equipment Condition

MK-994A/AR DC POWER ON/OFF set to OFF.

RT-1300A disconnected from test equipment.

Special Environmental Conditions

CAUTION



Static work station connected before procedure is started.

2-12. REPLACE A6 (Continued)

REMOVAL

1. Complete the initial setup and removal steps of these paragraphs:

2-7
2-8
2-9
2-10
2-11
2-13

INSTALLATION

2. Complete the installation steps of these paragraphs:

2-7
2-8
2-9
2-10
2-11
2-13

FOLLOWUP

3. Complete paragraph 2-5 to be sure RT-1300A works okay.

2-13. REPLACE A8

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

Tools and Support Equipment

Tool Kit TK-105/G
No. 1 Phillips screwdriver

Materials/Parts

Blank Panel Assembly A8
Antistatic bag
Item 1, Appendix B

Personnel Required

Avionic Communications Equipment Repairer
MOS 35L

References

Safety, Care, and Handling paragraph 1-8.

Troubleshooting References

Paragraph 2-6

Equipment Condition

MK-994A/AR DC POWER ON/OFF set to OFF.

RT-1300A disconnected from test equipment.

Special Environmental Conditions

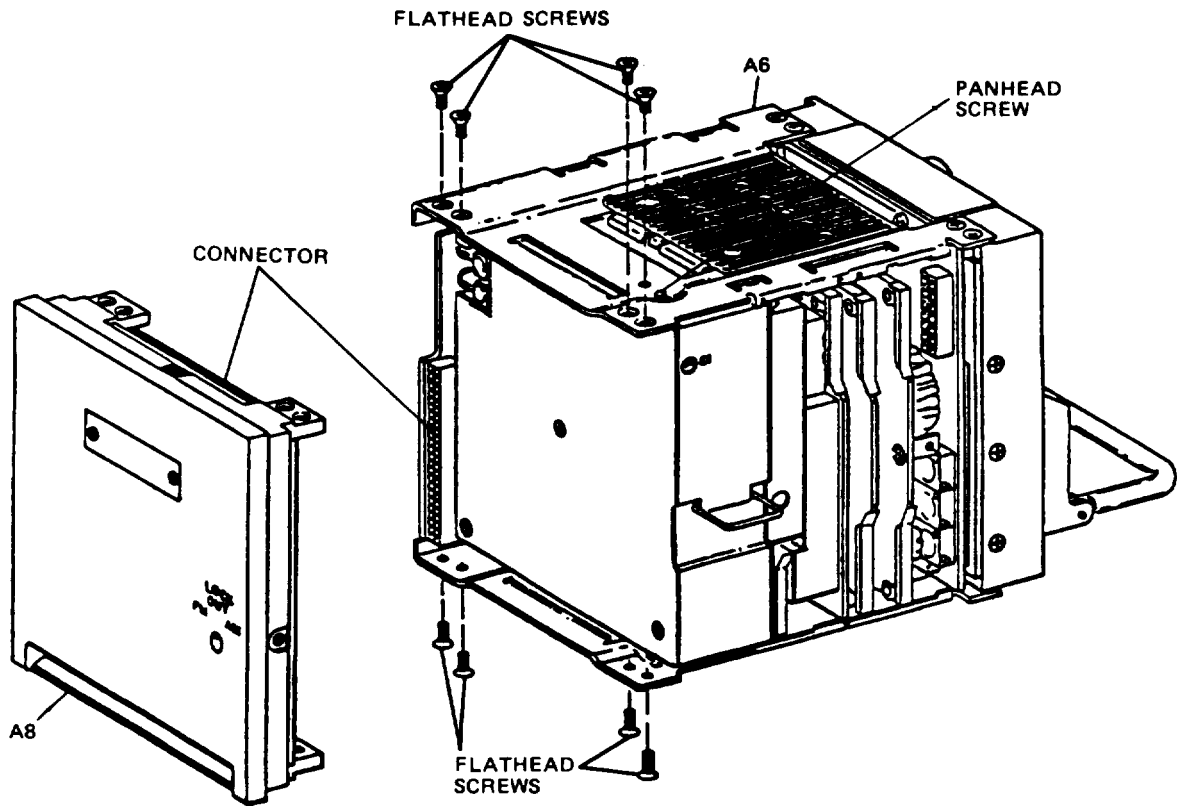
CAUTION



Static work station connected before procedure is started.

2-13. REPLACE A8 (Continued)

REMOVAL

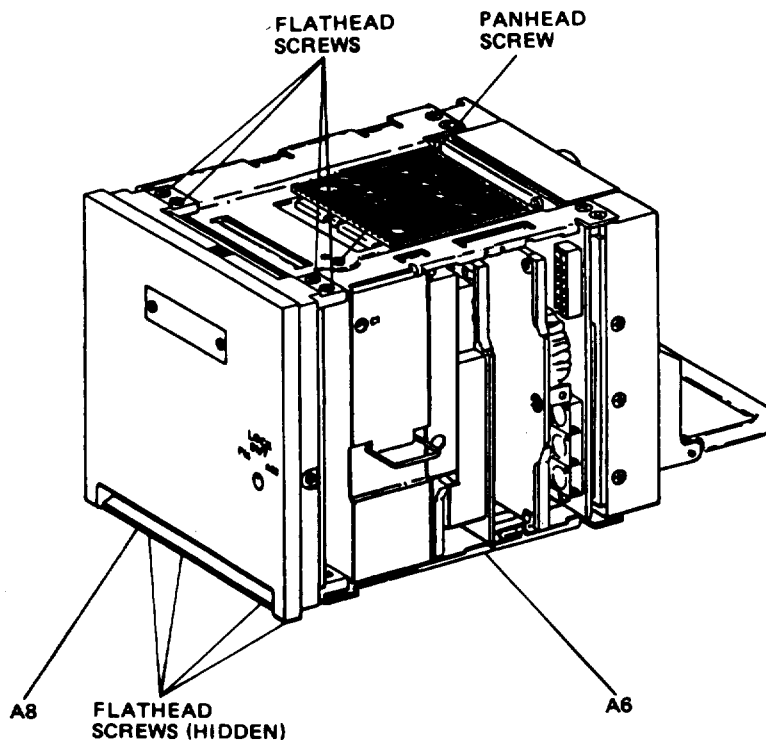


1. Loosen panhead screw. You don't need to take it out.
2. Remove eight flathead screws.
3. Slide A8 from A6.
4. Pack A8 in antistatic bag.



2-13. REPLACE A8 (Continued)

INSTALLATION




5. Unpack A8 from antistatic bag.  Save antistatic bag to be used again.

CAUTION

A8 is connected to A6 by a connector. Be careful not to break the connector when removing and installing A8.

6. Aline A8 with A6. Be sure A8/A6 connector is alined. 

7. Carefully slide A8 into A6 until mated. 

8. Install eight flathead screws.

9. Tighten panhead screw.

FOLLOWUP

10. Complete paragraph 2-5 to be sure RT-1300A works okay.

CHAPTER 3

RT-1354 MAINTENANCE INSTRUCTIONS

OVERVIEW

Chapter 3 is divided into six sections.

- a. Section I. Repair Parts; Special Tools; Test, Measurement, and Diagnostic Equipment (TMDE); and Support Equipment.

Tells you:

- What tools and TMDE you need.
- Where to find repair parts.

- b. Section II. Service Upon Receipt.

Tells you what do to when an RT-1354 is received from supply.

- c. Section III. How the RT-1354 Works.

- d. Section IV. Testing.

Tells you how to test the RT-1354.

Shows you how to set up equipment for testing.

- e. Section V. Troubleshooting.

Tells you how to find troubles in the RT-1354.

- f. Section VI. Maintenance Procedures.

Tells you how to replace assemblies.

Section 1. REPAIR PARTS; SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

3-1. COMMON TOOLS AND EQUIPMENT

The common tools you need are contained in Tool Kit, Electronic Equipment, TK-105/G.

3-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

The maintenance allocation chart in TM 11-5821-318-12 (Appendix B) lists the TMDE and support equipment needed for aviation intermediate maintenance.

No special tools are needed.

Static work station NSN 4940-01-087-3458 is needed to repair the RT-1354.

3-3. REPAIR PARTS

Repair parts are listed and illustrated in TM 11-5821-318-30P.

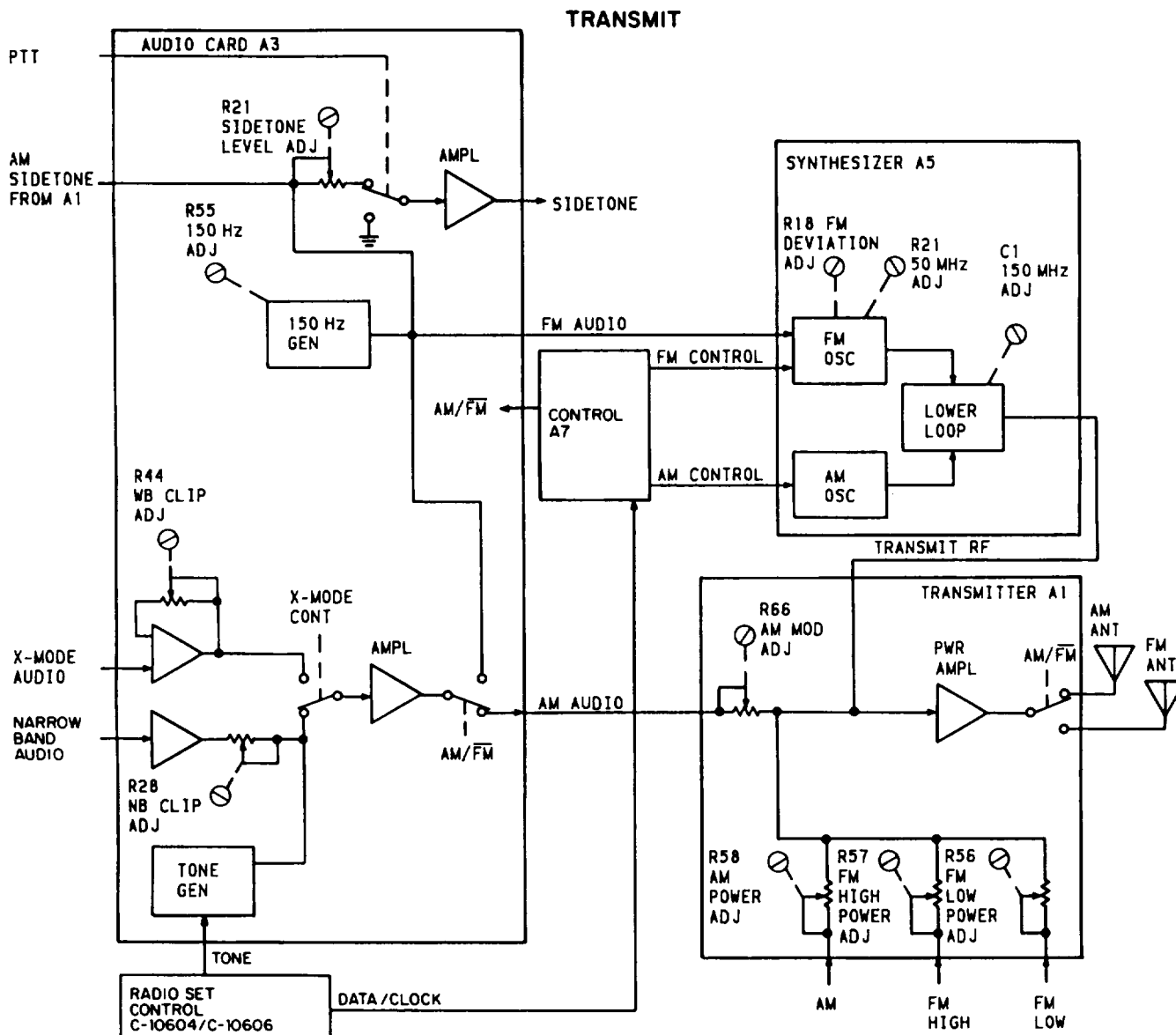
Section II. SERVICE UPON RECEIPT

3-4. SERVICE UPON RECEIPT

Test the RT-1354 before it is issued; paragraph 3-5 tells you how.

RT-1354's received from depot may require adjustment to meet the specifications listed in TM 11-5821-318-12, paragraph 1-10. The testing and troubleshooting procedures in paragraph 3-5 will tell you when and how to do the adjustments.

Section III. HOW THE RT-1354 WORKS



Control A7 provides clock and data to operate the RT-1354. The data input is a digital data word that contains frequency and switch positions.

When frequencies below 100 MHz are selected, the radio set is in FM mode. When frequencies above 100 MHz are selected, the radio set is in AM mode.

Transmitter A1 provides sidetone input to audio card A3 in AM mode. Audio card A3 provides sidetone in FM mode.

Voice audio is applied to audio card A3. The audio input level is set by narrow band (NB) clip adjustment R28. R28 can be adjusted for audio inputs between 0.25 and 1.4 Vrms.

In AM mode, the voice audio is routed to transmitter A1. The voice audio modulates the transmit RF from synthesizer A5. R58 sets the AM output power level. R66 sets the modulation level.

In FM mode, voice audio and 150 Hz are routed to synthesizer A5. The sum of the voice audio frequency and 150 Hz deviates the FM oscillator. The deviated FM oscillator output is provided to transmitter A1. Since no AM voice audio is present at transmitter A1, the FM oscillator output is amplified and transmitted. R56 and R57 set the output power level for FM mode depending upon frequency selection.

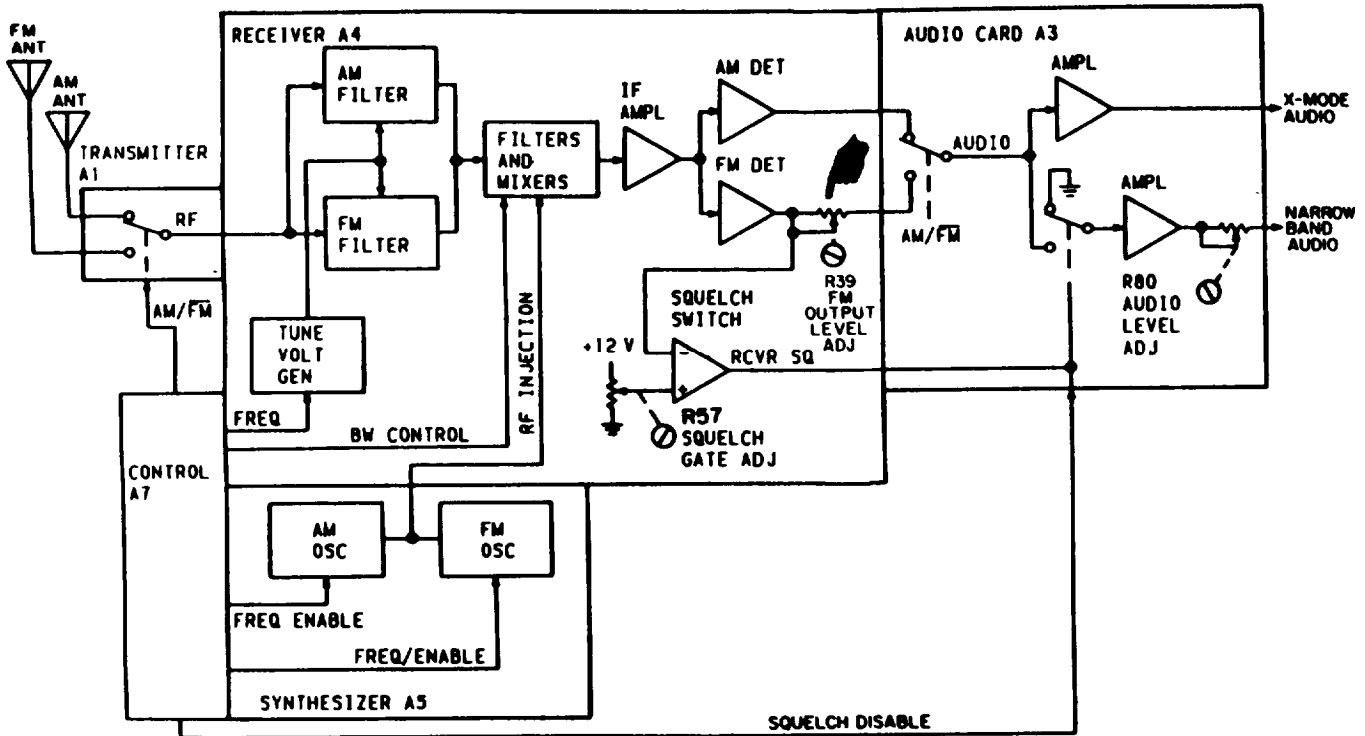
The TONE switch on control A7 turns on the 1000-HZ tone generator. The tone generator output is transmitted as normal voice audio. Frequency selection determines AM/FM mode.

X-mode audio is transmitted in either AM or FM mode. Wide-band (WB) clip adjust R44 is adjusted to the required X-mode audio input level.

Antenna switching takes place in transmitter A1. In the AM mode, the AM antenna is coupled to the power amplifier. In the FM mode, the FM antenna is coupled to the power amplifier.

Power supply A2 supplies all RT-1354 operating voltages.

RECEIVE



Transmitter A1 routes the received AM or FM RF to receiver A4. Antenna selection is determined by AM/FM frequency selection.

Receiver A4 filters are tuned to the selected frequency and pass the selected RF to the mixers. The mixers produce IF frequencies by mixing RF from A1 with RF injection from A5. The mixer filters pass the difference IF frequency to the IF amplifiers. The AM/FM detectors pass the audio frequencies to audio card A3. The squelch switch detects a preset signal level. When the input signal hits the preset level, the squelch switch produces the receiver squelch output to audio card A3. This allows AM or FM audio to be applied to the amplifier. R57 sets the level at which the squelch switch turns on. Wide-band (X-mode) audio is sent to the KY-28 or KY-58 during X-mode operation.

Audio card A3 amplifies the audio. The audio output is sent to the aircraft intercommunication system (ICS). R80 sets the audio output level.

SECTION IV. TESTING

NOTE

Be sure you read the test a few times so you understand what you have to do.

3-5. TESTING

THIS TASK COVERS: POWER SUPPLY TESTS, TRANSMITTER TESTS, RECEIVER TESTS, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

Personnel Required

Avionic Communications Equipment
Repairer MOS 68L

Test Equipment

AN/URM-120
ME-525
AN/GSM-64C
SG-1112(V)1
PP-1104
MK-994A/AR
AN/URM-127
6-dB Attenuator
AN/URM-184A
AN/USM-281C
30-dB Attenuator
MX-1730
AN/GRM-114A
AN/USM-486

References

Safety, Care, and Handling
paragraph 1-8.

Equipment Condition

PP-1104 adjusted for 28.0 volts.
RT-1354 OFF/TR/DF set to OFF.
MK-994A/AR DC POWER ON/OFF set
to OFF.

Tools and Support Equipment

Tool Kit TK-105/G
No. 1 Phillips screwdriver
Static work station NSN 4940-01-087-3458

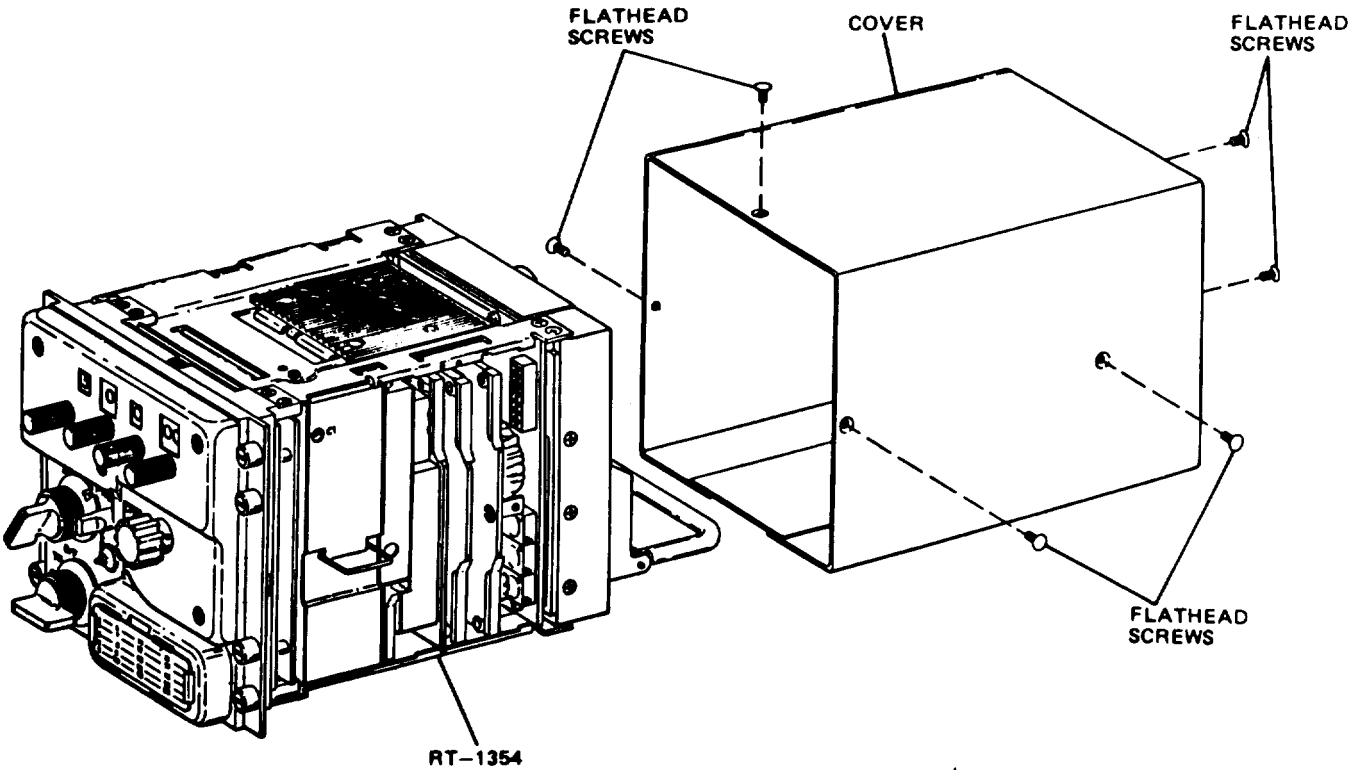
Special Environmental Condition

CAUTION

Static work station
connected before procedure
is started.

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
-----------	-------------------	---------



1. Remove six flathead screws.
2. Remove cover from RT-1354.
3. Remove cover from faceplate.

POWER SUPPLY TEST

WARNING

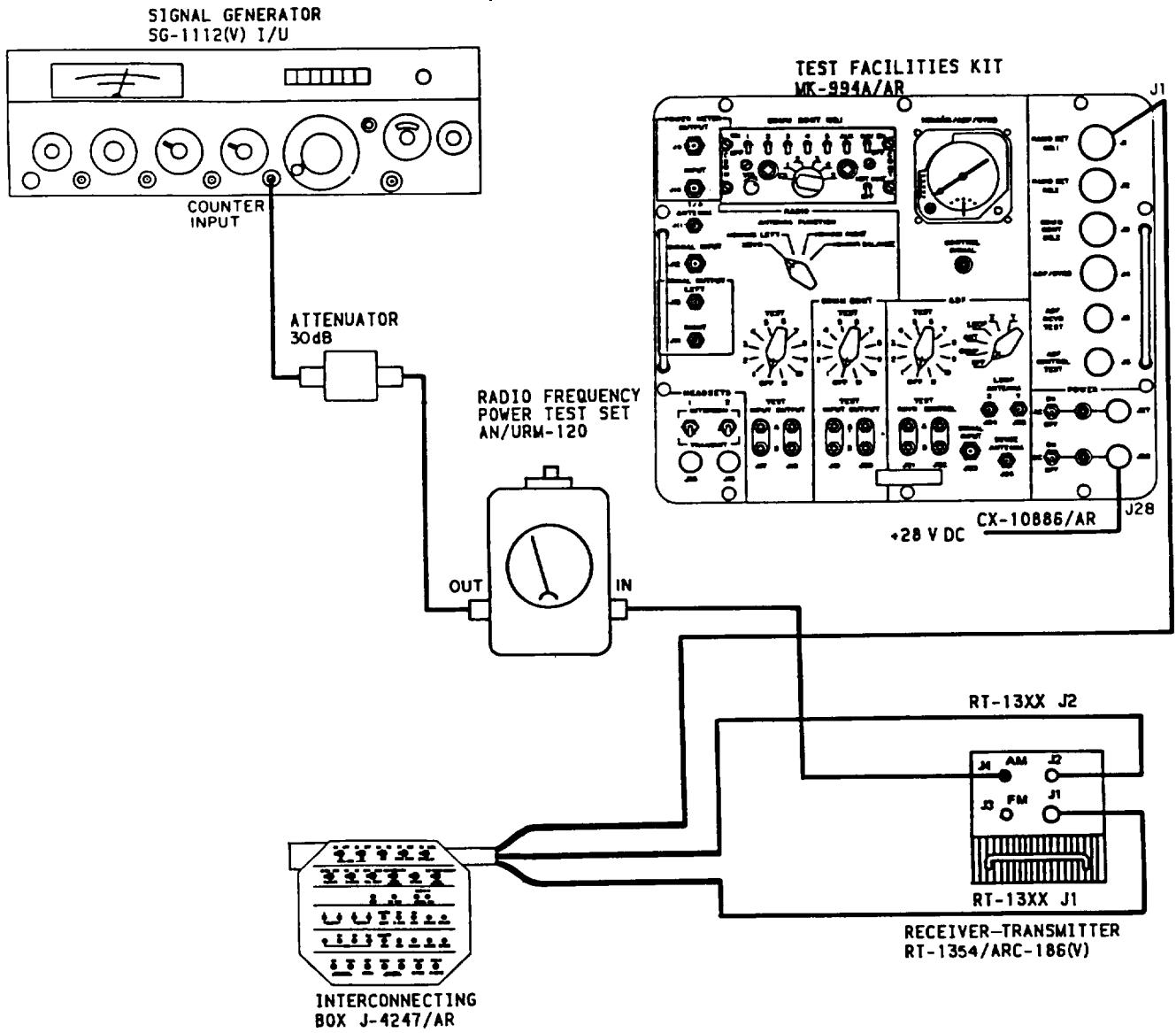
The power supply test procedures require taking measurements on the radio with power applied. Exercise all safety precautions to prevent personal injury or damage to the RT-1354.

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
-----------	-------------------	---------

POWER SUPPLY TEST (Continued)

Connect RT-1354 to test equipment as shown below:



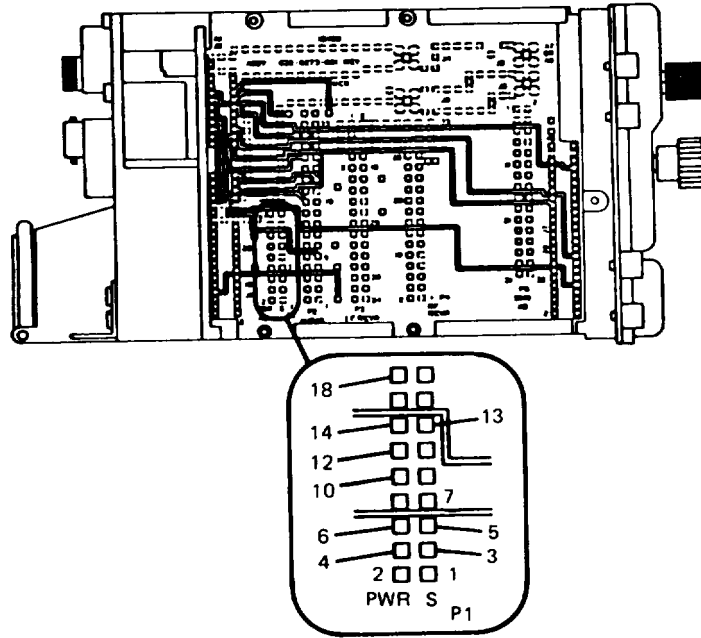
3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS																										
<u>POWER SUPPLY TEST (Continued)</u>																												
<p>5. Set controls as follows:</p> <table> <tr> <td><u>Control</u></td> <td><u>Setting</u></td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>MK-994A/AR</u></td> </tr> <tr> <td>DC POWER ON/OFF</td> <td>ON</td> </tr> <tr> <td>RADIO TEST</td> <td>OFF</td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>RT-1354</u></td> </tr> <tr> <td>OFF/TR/DF</td> <td>TR</td> </tr> <tr> <td>WB/NB/MEM LOAD</td> <td>NB</td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>J-4247/AR</u></td> </tr> <tr> <td>PWR</td> <td></td> </tr> <tr> <td>DC/OFF/AC</td> <td>OFF</td> </tr> <tr> <td>RT ON/OFF</td> <td>ON</td> </tr> <tr> <td>TAKE CONT</td> <td></td> </tr> <tr> <td>RT/RMT</td> <td>RT</td> </tr> </table> <p>Connect AN/GSM-64C negative lead to chassis ground.</p>	<u>Control</u>	<u>Setting</u>	<u>MK-994A/AR</u>		DC POWER ON/OFF	ON	RADIO TEST	OFF	<u>RT-1354</u>		OFF/TR/DF	TR	WB/NB/MEM LOAD	NB	<u>J-4247/AR</u>		PWR		DC/OFF/AC	OFF	RT ON/OFF	ON	TAKE CONT		RT/RMT	RT		
<u>Control</u>	<u>Setting</u>																											
<u>MK-994A/AR</u>																												
DC POWER ON/OFF	ON																											
RADIO TEST	OFF																											
<u>RT-1354</u>																												
OFF/TR/DF	TR																											
WB/NB/MEM LOAD	NB																											
<u>J-4247/AR</u>																												
PWR																												
DC/OFF/AC	OFF																											
RT ON/OFF	ON																											
TAKE CONT																												
RT/RMT	RT																											

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
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POWER SUPPLY TEST (Continued)



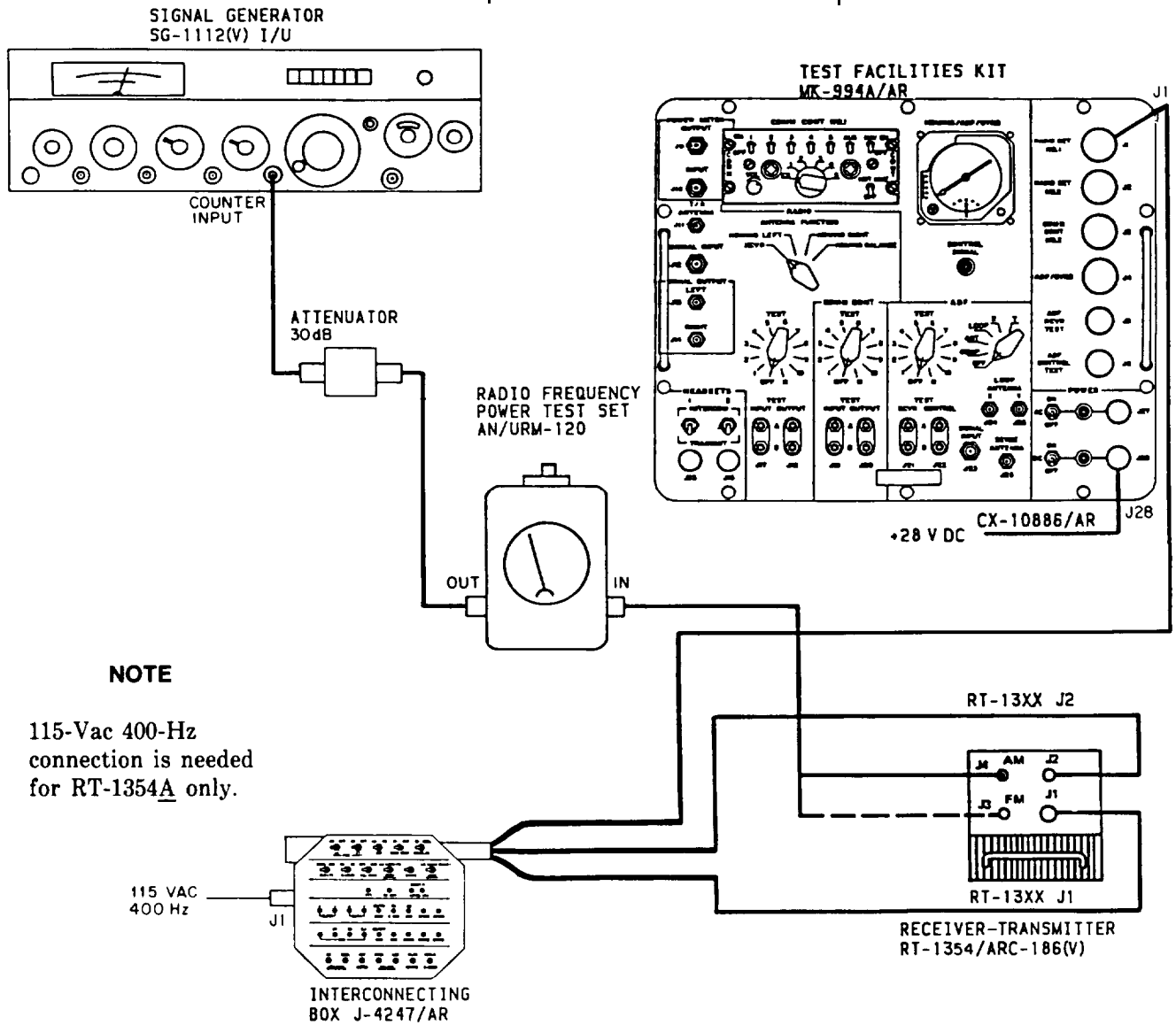
6. Measure dc volts at A2P1, pin 10 and pin 12.	23.5 to 24.5 Vdc	Go to TROUBLE 3-1.
7. Measure dc volts at A2P1, pin 2 and pin 6.	5.0 to 5.2 Vdc	Go to TROUBLE 3-2.
8. Measure dc volts at A2P1, pin 4.	11.6 to 12.4 Vdc	Go to TROUBLE 3-3.
9. Measure dc volts at A2P1, pin 3.	-11.6 to -12.4 Vdc	Go to TROUBLE 3-4.
10. Measure dc volts at A2P1, pin 5 and pin 7.	23.4 to 28.8 Vdc	Go to TROUBLE 3-5.
11. Measure dc volts at A2P1, pin 14.	72 to 88 Vdc	Go to TROUBLE 3-6.
12. Measure dc volts at A2P1, pin 18.	5.7 to 6.5 Vdc	Go to TROUBLE 3-7.
13. Measure dc volts at A2P1, pin 13.	-34.75 to -36.75 Vdc	Go to TROUBLE 3-8.

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
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TRANSMITTER TESTS

1. Connect RT-1354 to test equipment as shown below:



3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>TRANSMITTER TESTS (Continued)</u>		
2. Set controls as follows:		
<u>Control</u>	<u>Setting</u>	
<u>MK-994A/AR</u>		
DC POWER ON/OFF	ON	
RADIO		
ANTENNA FUNCTION	XCVR	
TEST	6	
<u>J-4247/AR</u>		
PWR RT ON/OFF	ON	
ANT AM/FM	AM	
SQUELCH TN/DSBL	DSBL	
X-MODE WB/NB	NB	
VOL CONT OPR/GND	OPR	
<u>RT-1354</u>		
OFF/TR/DF	TR	
VOL	Fully clockwise	
EMER AM/FM/		
MAN/PRE	MAN	
SQ DIS/TONE	Centered	
Frequency selectors	151.975	
LOCKOUT AM/FM	Dot centered under LOCKOUT	
<u>SG-1112(V)1</u>		
COUNTER MODE		
INT/EXT	EXT (out)	
EXT	10-550 (out:	
EXPAND	X10 (in)	
LOCK	OFF (out)	
<u>AN/URM-120</u>		
50 watts, 25-230 MHz insert. Arrow pointing to 30-dB attenuator.		

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>TRANSMITTER TESTS (Continued)</u>		
<p style="text-align: center;"><u>CAUTION</u></p> <p>Long transmit periods will overheat transmitter. Key transmitter only long enough to get a reading. Transmitter cycle is 1 minute transmit, then 5 minutes receive.</p> <p>3. RF power output test.</p> <p>a. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.</p> <p>b. Release MK-994A/AR MICROPHONE 1.</p> <p>c. Disconnect cable from RT-1354 J4, then connect cable to J3.</p> <p>d. Set J-4247/AR ANT AM/FM to FM.</p> <p>e. Repeat steps a, b.</p> <p>f. Repeat steps a, b with RT-1354 frequency selectors set to 134.000, 116.000.</p> <p>g. Repeat steps a, b with RT-1354 frequency selectors set to 87.975, 59.000.</p> <p>h. Repeat steps a, b with C-10604/10606 frequency selectors set to 30.500.</p> <p>4. Frequency accuracy test.</p> <p>a. Set RT-1354 frequency selectors to 150.000.</p> <p>b. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.</p> <p>c. Release MK-994A/AR MICROPHONE 1.</p>	<p>AN/URM-120 reads 10 watts or more.</p> <p>AN/URM-120 reads 10 watts or more.</p> <p>AN/URM-120 reads 10 watts or more.</p> <p>AN/URM-120 reads 10 watts or more.</p> <p>AN/URM-120 reads 10 watts or more.</p> <p>AN/URM-120 reads 10 watts or more.</p> <p>SG-1112(V)1 reads between 149.998 to 150.002.</p>	<p>Go to TROUBLE 3-9.</p> <p>Replace A1 (para 3-7).</p> <p>Go to TROUBLE 3-10.</p> <p>Go to TROUBLE 3-11.</p> <p>Go to TROUBLE 3-12.</p> <p>Go to TROUBLE 3-13.</p>

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS																						
<u>TRANSMITTER TESTS (Continued)</u>																								
<p>d. Repeat steps b, c with RT-1354 frequency selectors set to 50.000.</p> <p>e. Repeat steps b, c with RT-1354 frequency selectors set to:</p> <p style="padding-left: 40px;">59.000 87.975 116.000 134.000 151.975</p>	<p>SG-1112(V)1 reads between 49.998 to 50.002.</p> <p>SG-1112(V)1 reads between:</p> <p style="padding-left: 40px;">58.998 to 59.002 87.973 to 87.977 115.998 to 116.002 133.998 to 134.002 151.973 to 151.977</p>	<p>Go to TROUBLE 3-14.</p> <p>Replace A5 (para 3-11).</p> <p style="text-align: center;">NOTE</p> <p>If A5 was replaced and trouble remains, replace A7 (para 3-13).</p>																						
<p>5. Faceplate lighting test.</p> <p>a. Set J-4247/AR PWR DC/OFF/AC to DC for RT-1354 and RT-1354B only or AC for RT-1354A only.</p> <p>b. Check faceplate lighting. You may need to cover faceplate to see lighting.</p> <p>c. Set PWR DC/OFF/AC to OFF.</p>	<p>RT-1354 faceplate lights up red.</p> <p>RT-1354A faceplate lights up green.</p> <p>RT-1354B faceplate lights up ANVIS green.</p>	<p>Go to TROUBLE 3-15.</p>																						
<p>6. preset channel test.</p> <p>a. Set RT-1354:</p> <p style="padding-left: 40px;">CHAN to 1</p> <p style="padding-left: 40px;">Frequency selectors to 30.000 MHz.</p> <p>b. Set RT-1354 WB/NB/MEM LOAD to MEM LOAD.</p> <p>c. Repeat steps a, b for for these channels:</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Channel</u></th> <th style="text-align: left;"><u>Frequency</u></th> </tr> </thead> <tbody> <tr><td>2</td><td>41.125</td></tr> <tr><td>3</td><td>52.250</td></tr> <tr><td>4</td><td>63.375</td></tr> <tr><td>5</td><td>74.400</td></tr> <tr><td>6</td><td>85.600</td></tr> <tr><td>7</td><td>87.800</td></tr> <tr><td>8</td><td>59.000</td></tr> <tr><td>9</td><td>78.000</td></tr> <tr><td>10</td><td>123.200</td></tr> <tr><td>11</td><td>134.000</td></tr> </tbody> </table>	<u>Channel</u>	<u>Frequency</u>	2	41.125	3	52.250	4	63.375	5	74.400	6	85.600	7	87.800	8	59.000	9	78.000	10	123.200	11	134.000	
<u>Channel</u>	<u>Frequency</u>																							
2	41.125																							
3	52.250																							
4	63.375																							
5	74.400																							
6	85.600																							
7	87.800																							
8	59.000																							
9	78.000																							
10	123.200																							
11	134.000																							

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>TRANSMITTER TESTS (Continued)</u>		
<p><u>Channel</u> <u>Frequency</u></p> <p>12 151.900</p> <p>13 116.000</p> <p>14 118.100</p> <p>15 120.200</p> <p>16 131.300</p> <p>17 132.400</p> <p>18 134.600</p> <p>19 146.800</p> <p>20 148.500</p>		
<p>d. Set RT-1354 OFF/TR/DF to OFF.</p> <p>e. Wait 1 minute.</p> <p>f. Set RT-1354:</p> <p style="padding-left: 20px;">OFF/TR/DF to TR</p> <p style="padding-left: 20px;">EMER AM/FM/MAN/PRE to PRE</p>		
<p style="text-align: center;"><u>CAUTION</u></p> <p>The RT-1354 will overheat if the MK-994A/AR RADIO TEST switch is in position 4 for more than 1 minute. If steps g thru i require more than 1 minute, set RADIO TEST to OFF. Wait 5 minutes for RT-1354 to cool.</p>		
<p>g. Set MK-994A/AR RADIO TEST to 4.</p> <p>h. Set PRESET to each channel listed below. Stop at each preset long enough for SG-1112(V)1 to display that preset frequency.</p>		
<p><u>PRESET</u></p> <p>20</p> <p>19</p> <p>18</p> <p>17</p> <p>16</p> <p>15</p> <p>14</p> <p>13</p> <p>12</p>	<p><u>SG-1112(V)1 reads between:</u></p> <p>148.498 to 148.502</p> <p>146.798 to 146.802</p> <p>134.598 to 134.602</p> <p>132.398 to 132.402</p> <p>131.298 to 131.302</p> <p>120.198 to 120.202</p> <p>118.098 to 118.102</p> <p>115.998 to 116.002</p> <p>151.898 to 151.902</p>	<p>Replace A7 (para 3-13).</p> <p style="text-align: center;">NOTE</p> <p>If A7 was replaced and trouble remains, replace A5 (para 3-11).</p>

3-5. TESTING (Continued)

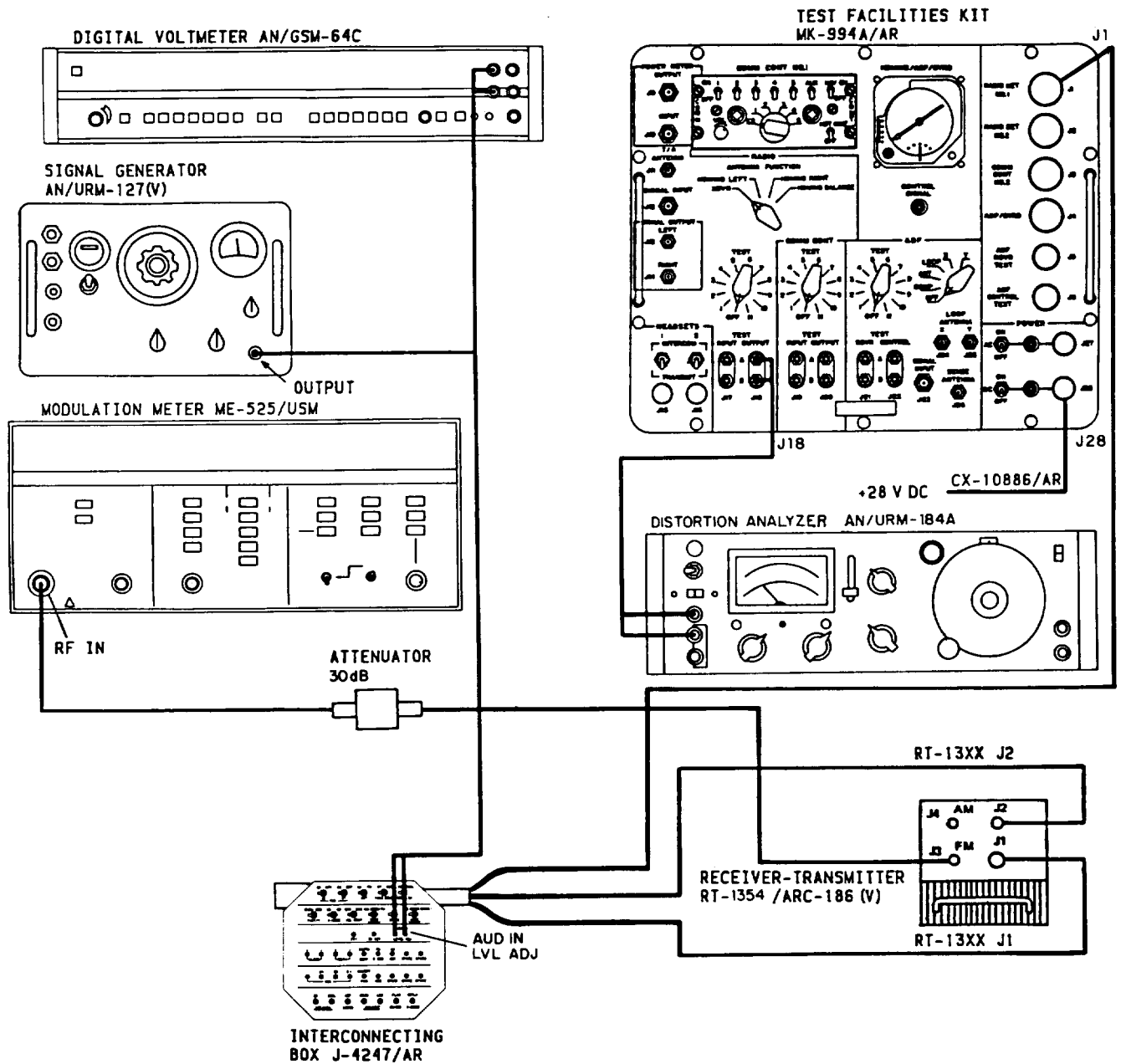
PROCEDURE	NORMAL INDICATION	REMARKS
<u>TRANSMITTER TESTS (Continued)</u>		
<u>PRESET</u>	<u>SG-1112(V)1 reads between:</u>	
11	133.998 to 134.002	
10	123.198 to 123.202	
9	77.998 to 78.002	
8	58.998 to 59.002	
7	87.898 to 87.902	
6	85.598 to 85.602	
5	74.398 to 74.402	
4	63.373 to 63.377	
3	52.248 to 52.252	
2	41.123 to 41.127	
1	29.998 to 30.002	
i. Set MK-994A/AR RADIO TEST to 6.		
7. Emergency frequency test.		
a. Set RT-1354 EMER AM/FM/MAN/PRE to EMER AM.		
b. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.	SG-1112(V)1 reads between 121.498 to 121.502 MHz.	Replace A7 (para 3-13).
		NOTE
		If A7 was replaced and trouble remains, replace A5 (para 3-11).
c. Set RT-1354 EMER AM/FM/MAN/PRE to EMER FM.	SG-1112(V)1 reads between 40.498 to 40.502 MHz.	Replace A7 (para 3-13).
		NOTE
		If A7 was replaced and trouble remains, replace A5 (para 3-11).
d. Release MK-994A/AR MICROPHONE 1.		
e. Set RT-1354 EMER AM/FM/MAN/PRE to MAN.		

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
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TRANSMITTER TESTS (Continued)

8. Connect RT-1354 to test equipment as shown below:



3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS																		
<u>TRANSMITTER TESTS (Continued)</u>																				
9. Set controls as follows:																				
<table border="0"> <tr> <td style="text-align: right;"><u>Control</u></td> <td style="text-align: left;"><u>Setting</u></td> </tr> <tr> <td></td> <td style="text-align: center;"><u>AN/URM-127</u></td> </tr> <tr> <td>Frequency</td> <td>1000 Hz</td> </tr> <tr> <td>Amplitude</td> <td>0.39 Vrms as measured on AN/GSM-64C</td> </tr> </table>	<u>Control</u>	<u>Setting</u>		<u>AN/URM-127</u>	Frequency	1000 Hz	Amplitude	0.39 Vrms as measured on AN/GSM-64C												
<u>Control</u>	<u>Setting</u>																			
	<u>AN/URM-127</u>																			
Frequency	1000 Hz																			
Amplitude	0.39 Vrms as measured on AN/GSM-64C																			
<table border="0"> <tr> <td></td> <td style="text-align: center;"><u>ME-525</u></td> </tr> <tr> <td>TUNING</td> <td>AUTO (in)</td> </tr> <tr> <td>HIGH-PASS</td> <td>30</td> </tr> <tr> <td>LOW-PASS/DE-EMPHASIS IN/OUT</td> <td>OUT (out)</td> </tr> <tr> <td>LOW-PASS</td> <td>15</td> </tr> <tr> <td>PEAK</td> <td><u>PK-PK</u></td> </tr> <tr> <td>RANGE</td> <td>100</td> </tr> <tr> <td>FUNCTION</td> <td>AM</td> </tr> <tr> <td>AUTO SET TO 10.00</td> <td>AUTO</td> </tr> </table>		<u>ME-525</u>	TUNING	AUTO (in)	HIGH-PASS	30	LOW-PASS/DE-EMPHASIS IN/OUT	OUT (out)	LOW-PASS	15	PEAK	<u>PK-PK</u>	RANGE	100	FUNCTION	AM	AUTO SET TO 10.00	AUTO		
	<u>ME-525</u>																			
TUNING	AUTO (in)																			
HIGH-PASS	30																			
LOW-PASS/DE-EMPHASIS IN/OUT	OUT (out)																			
LOW-PASS	15																			
PEAK	<u>PK-PK</u>																			
RANGE	100																			
FUNCTION	AM																			
AUTO SET TO 10.00	AUTO																			
<table border="0"> <tr> <td></td> <td style="text-align: center;"><u>AN/URM-184A</u></td> </tr> <tr> <td>LINE</td> <td>ON</td> </tr> <tr> <td>FUNCTION</td> <td>VOLT-METER</td> </tr> <tr> <td>METER RANGE</td> <td>3 VOLTS</td> </tr> <tr> <td>NORM/RF. DET</td> <td>NORM</td> </tr> </table>		<u>AN/URM-184A</u>	LINE	ON	FUNCTION	VOLT-METER	METER RANGE	3 VOLTS	NORM/RF. DET	NORM										
	<u>AN/URM-184A</u>																			
LINE	ON																			
FUNCTION	VOLT-METER																			
METER RANGE	3 VOLTS																			
NORM/RF. DET	NORM																			
10. Narrow-band AM modulation and sidetone test.																				
a. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.																				
b. Measure percent modulation and sidetone level, then release MK-994A/AR MICROPHONE 1.	ME-525 reads 80 to 99% AM. AN/URM-184A reads 0.93 to 1.57 Vrms.	Go to TROUBLE 3-16. Go to TROUBLE 3-17.																		
c. Repeat steps a, b with RT-1354 frequency selectors set to 134.000, 116.000.	ME-525 reads 80 to 99% AM. AN/URM-184A reads 0.93 to 1.57 Vrms.	Go to TROUBLE 3-16. Go to TROUBLE 3-17.																		

3-5. TESTING (Continued)

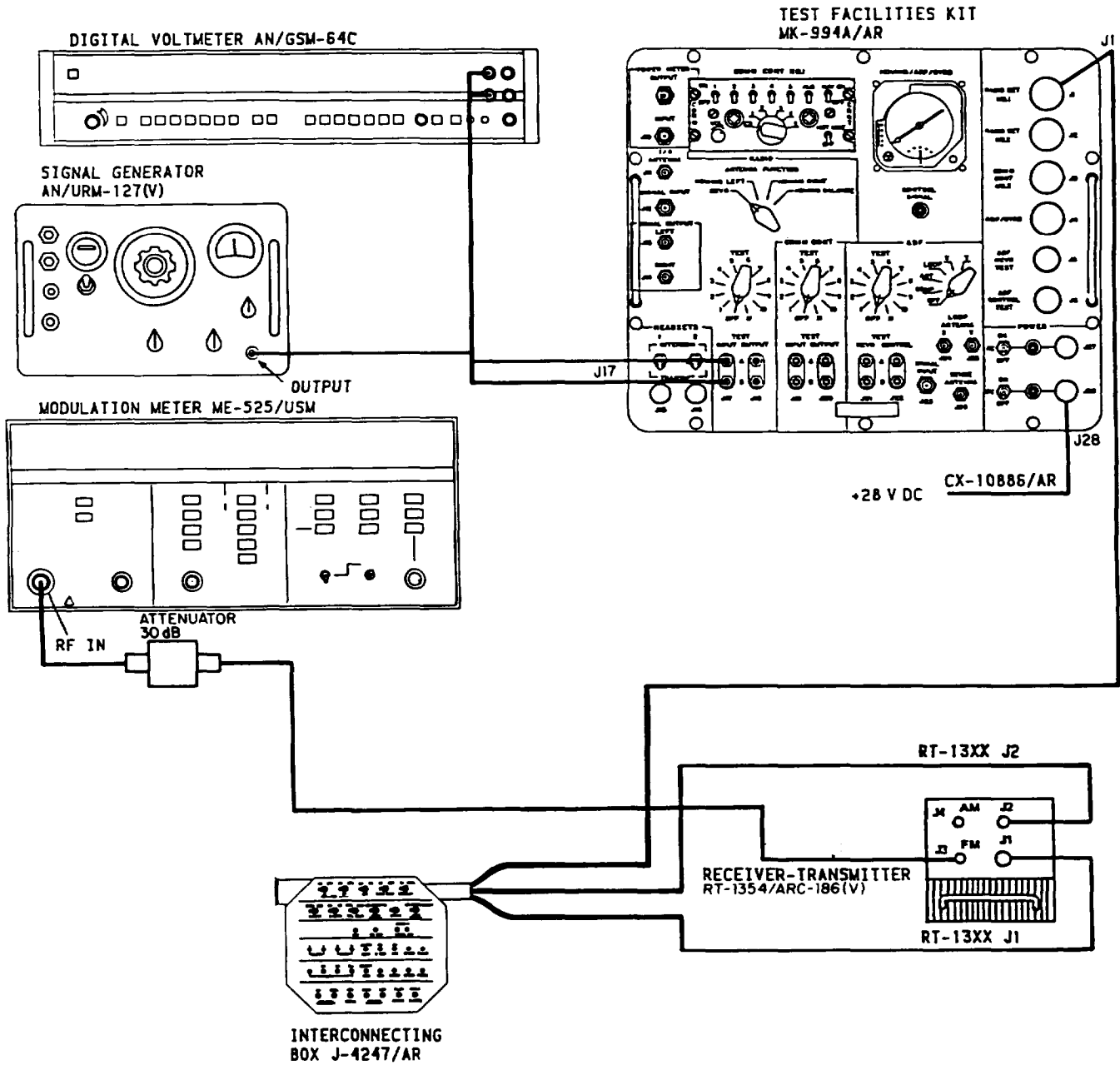
PROCEDURE	NORMAL INDICATION	REMARKS						
<u>TRANSMITTER TESTS (Continued)</u>								
<p>11. Narrow-band FM deviation and sidetone test.</p> <p>a. Set RT-1354 frequency selectors to 87.975.</p> <p>b. Set ME-525:</p> <table border="0"> <tr> <td>FUNCTION</td> <td>kHz</td> </tr> <tr> <td></td> <td>DEV</td> </tr> <tr> <td>RANGE</td> <td>10</td> </tr> </table> <p>c. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.</p> <p>d. Measure FM deviation and sidetone level, then release MK-994A/AR MICROPHONE 1.</p> <p>e. Repeat steps c, d with RT-1354 frequency selectors set to 59.000, 30.500.</p>	FUNCTION	kHz		DEV	RANGE	10	<p>ME-525 reads 3.5 to 6.5 kHz DEV.</p> <p>AN/URM-184A reads 0.93 to 1.57 Vrms.</p> <p>ME-525 reads 3.5 to 6.5 kHz DEV.</p> <p>AN/URM-184A reads 0.93 to 1.57 Vrms.</p>	<p>Go to TROUBLE 3-18.</p> <p>Go to TROUBLE 3-19.</p> <p>Go to TROUBLE 3-18.</p> <p>Go to TROUBLE 3-19.</p>
FUNCTION	kHz							
	DEV							
RANGE	10							

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
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TRANSMITTER TESTS (Continued)

12. Connect RT-1354 to test equipment as shown below



3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>TRANSMITTER TESTS (Continued)</u>		
<p>13. FM retransmission test.</p> <p>a. Set AN/URM-127 AMPLITUDE to 2.75 Vrms as measured on AN/GSM-64C.</p> <p>b. Check J-4247/AR SQUELCH TONE DSBL set to DSBL.</p> <p>c. Set MK-994A/AR RADIO TEST to 4.</p> <p>d. Set MK-994A/AR RADIO TEST to 5.</p>	<p>ME-525 reads 4 to 6 kHz DEV.</p>	<p>Go to TROUBLE 3-20.</p>
<p>14. AM retransmission test.</p> <p>a. Set RT-1354 frequency selectors to 151.975.</p> <p>b. Set ME-525:</p> <p style="margin-left: 40px;">RANGE 100</p> <p style="margin-left: 40px;">FUNCTION % AM</p> <p>c. Set MK-994A/AR RADIO TEST to 4.</p> <p>d. Set MK-994A/AR RADIO TEST to 3.</p>	<p>ME-525 reads 70 to 99% AM.</p>	<p>Go to TROUBLE 3-20.</p>
<p>15. AM X-mode modulation test.</p> <p>a. Adjust AN/URM-127 for 3.54 Vrms as measured on AN/GSM-64C.</p> <p>b. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.</p> <p>c. Release MK-994A/AR MICROPHONE 1.</p> <p>d. Repeat steps b, c with RT-1354 frequency selectors set to 134.000, 116.000.</p>	<p>ME-525 reads 70 to 99% AM.</p>	<p>Go to TROUBLE 3-21.</p>
	<p>ME-525 reads 70 to 99% AM.</p>	<p>Go to TROUBLE 3-21.</p>

3-5. TESTING (Continued)

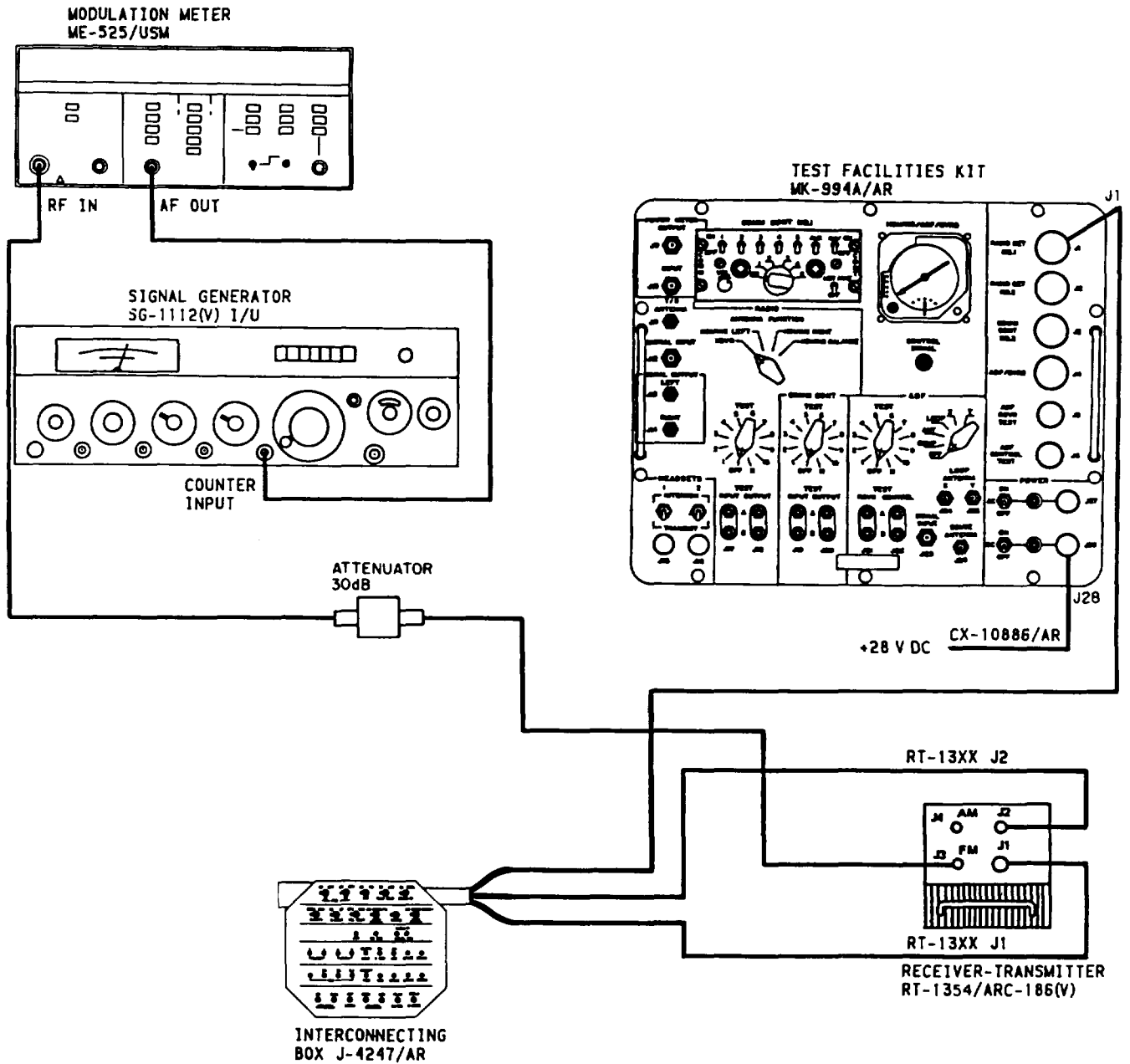
PROCEDURE	NORMAL INDICATION	REMARKS						
<u>TRANSMITTER TESTS (Continued)</u>								
16. FM X-mode modulation test.								
a. Set ME-525:								
<table style="width: 100%; border: none;"> <tr> <td style="width: 70%;">FUNCTION</td> <td style="text-align: center;">kHz</td> </tr> <tr> <td></td> <td style="text-align: center;">DEV</td> </tr> <tr> <td>RANGE</td> <td style="text-align: center;">10</td> </tr> </table>	FUNCTION	kHz		DEV	RANGE	10		
FUNCTION	kHz							
	DEV							
RANGE	10							
b. Set RT-1354 frequency selectors to 87.975.								
c. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.	ME-525 reads 3.5 to 6.5 kHz DEV.	Go to TROUBLE 3-21.						
d. Release MK-994A/AR MICROPHONE 1.								
e. Repeat steps c, d with C-10604/10606 frequency selectors set to 59.000, 30.500.	ME-525 reads 3.5 to 6.5 kHz DEV.	Go to TROUBLE 3-21.						

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
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TRANSMITTER TESTS (Continued)

17. Connect RT-1354 to test equipment as shown below



3-5. TESTING (Continued)

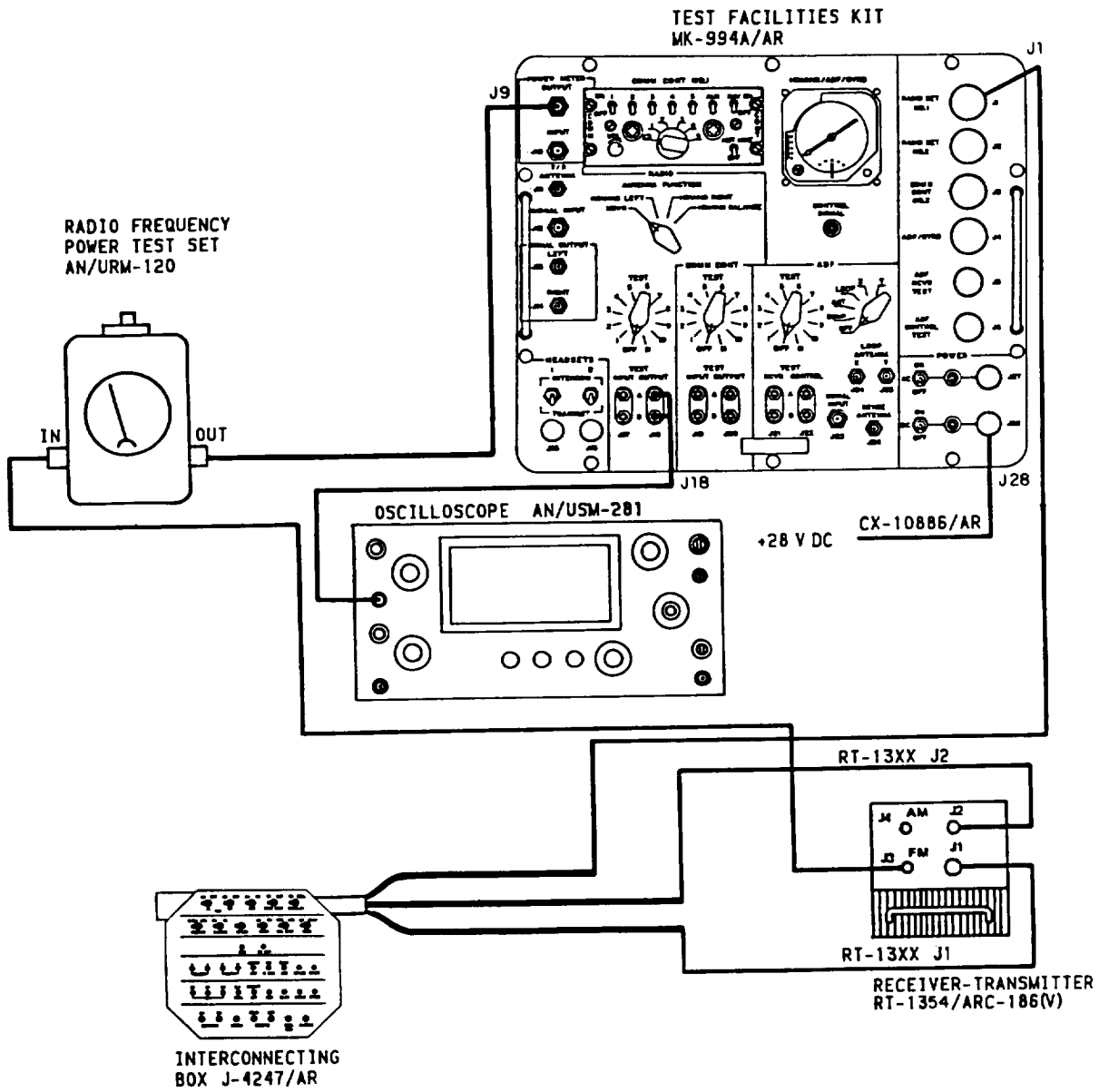
PROCEDURE	NORMAL INDICATION	REMARKS																				
<u>TRANSMITTER TESTS (Continued)</u>																						
18. Set controls as follows:																						
<table style="width: 100%; border: none;"> <tr> <td style="text-align: left;"><u>Control</u></td> <td style="text-align: right;"><u>Setting</u></td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>MK-994A/AR</u></td> </tr> <tr> <td>RADIO TEST</td> <td style="text-align: right;">6</td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>J-4247/AR</u></td> </tr> <tr> <td>SQUELCH</td> <td style="text-align: right;">TN</td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>SG-1112(V)1</u></td> </tr> <tr> <td colspan="2">COUNTER MODE</td> </tr> <tr> <td>INT/EXT</td> <td style="text-align: right;">EXT (out)</td> </tr> <tr> <td>EXT</td> <td style="text-align: right;">0-10 (in)</td> </tr> <tr> <td>EXPAND</td> <td style="text-align: right;">X100 (in)</td> </tr> </table>	<u>Control</u>	<u>Setting</u>	<u>MK-994A/AR</u>		RADIO TEST	6	<u>J-4247/AR</u>		SQUELCH	TN	<u>SG-1112(V)1</u>		COUNTER MODE		INT/EXT	EXT (out)	EXT	0-10 (in)	EXPAND	X100 (in)		
<u>Control</u>	<u>Setting</u>																					
<u>MK-994A/AR</u>																						
RADIO TEST	6																					
<u>J-4247/AR</u>																						
SQUELCH	TN																					
<u>SG-1112(V)1</u>																						
COUNTER MODE																						
INT/EXT	EXT (out)																					
EXT	0-10 (in)																					
EXPAND	X100 (in)																					
19. FM squelch tone deviation and frequency test.																						
a. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.																						
b. Measure FM deviation and frequency, then release MK-994A/AR MICROPHONE 1.	ME-525 reads 2.35 to 3.65 kHz DEV.	Go to TROUBLE 3-22.																				
	SG-1112(V)1 reads 0.000147 to 0.000153 MHz.	Go to TROUBLE 3-23.																				
20. FM TONE deviation and frequency test.																						
a. J-4247/AR SQUELCH TN DSBL to DSBL.																						
b. Set RT-1354 SQ DIS/TONE to TONE.																						
c. Measure FM deviation and frequency, then release SQ DIS/TONE.	ME-525 reads 3.5 to 6.5 kHz DEV.	Go to TROUBLE 3-24.																				
	SG-1112(V)1 reads 0.000760 to 0.001280 MHz.																					

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
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TRANSMITTER TESTS (Continued)

21. Connect RT-1354 to test equipment as shown below:



3-5. TESTING (Continued)

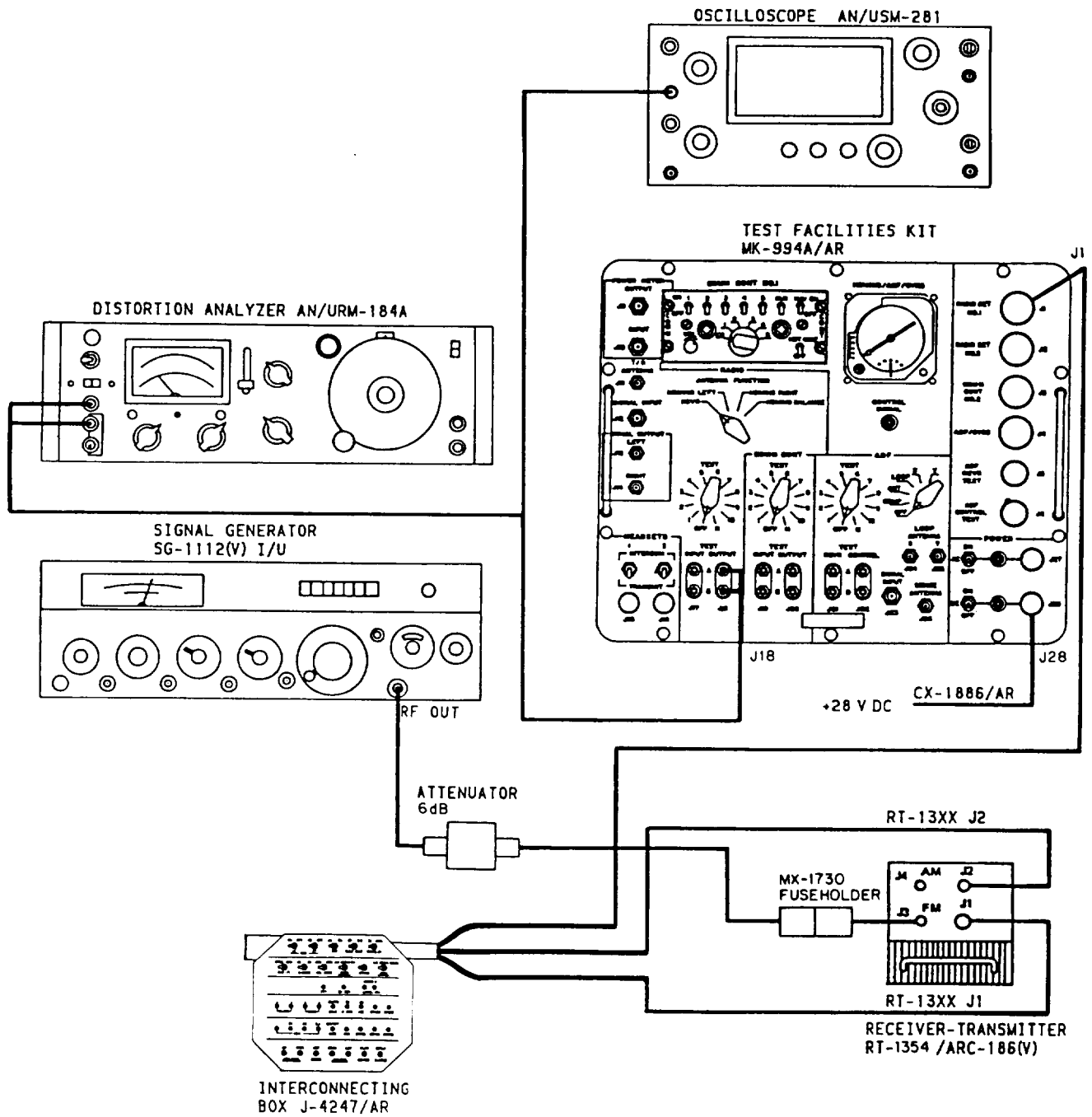
PROCEDURE	NORMAL INDICATION	REMARKS
<u>TRANSMITTER TESTS (Continued)</u>		
22. AM/FM LOCKOUT test.		
a. Set RT-1354 LOCKOUT AM/FM to FM.	Distorted audio signal on AN/USM-281C.	Go to TROUBLE 3-25.
b. Set MK-994A/AR RADIO MICROPHONE 1 to TRANSMIT.	AN/URM-120 reads 0.	Replace A3 (para 3-9).
c. Set RT-1354 LOCKOUT AM/FM to AM.	No signal on AN/USM-281C. AN/URM-120 reads more than 10 watts.	Go to TROUBLE 3-26.
d. Release MK-994A/AR HEADSET 1.		
e. Set RT-1354 frequency selectors to 151.975 MHz.	Distorted audio signal on AN/USM-281C.	Go to TROUBLE 3-25.
f. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.	AN/URM-120 reads 0.	Replace A3 (para 3-9).
g. Set RT-1354 LOCKOUT AM/FM to center position.	No signal on AN/USM-281C. AN/URM-120 reads more than 10 watts.	Replace A7 (para 3-13).
h. Release MK-994A/AR MICROPHONE 1.		

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
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RECEIVER TESTS

1. Connect RT-1354 to test equipment as shown below:



3-5 TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS																		
<p style="text-align: center;"><u>CAUTION</u></p> <p>These are receiver tests.</p> <p>Do not transmit.</p> <p><u>DO NOT</u> set MK-994A/AR RADIO TEST to position 4.</p> <p>This causes the RT-1354 to transmit.</p> <p>The RT-1354 could cause damage to test equipment while transmitting.</p> <p style="text-align: center;">NOTES:</p> <ul style="list-style-type: none"> • Be sure you set the SC-1112(V)1 to the correct frequency. If you are as much as 100 Hz off, your testing may not be accurate. • When using the AN/GRM-114A for testing, refer to the receiver testing portion of paragraph 2-5. Substitute RT-1354 where RT-1300A and C-10604/10606 are used. <p>2. Set controls as follows:</p> <table style="margin-left: 40px;"> <thead> <tr> <th style="text-align: left;"><u>Control</u></th> <th style="text-align: left;"><u>Setting</u></th> </tr> </thead> <tbody> <tr> <td colspan="2" style="text-align: center;"><u>J-4247/AR</u></td> </tr> <tr> <td>SQUELCH TN/DSBL</td> <td>TN</td> </tr> <tr> <td>X-MODE WB/NB</td> <td>NB</td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>SG-1112(V)1</u></td> </tr> <tr> <td>RF ON/OFF</td> <td>ON</td> </tr> <tr> <td>COUNTER MODE</td> <td></td> </tr> <tr> <td>INT/EXT</td> <td>INT (in)</td> </tr> <tr> <td>EXPAND</td> <td>X10 (in)</td> </tr> </tbody> </table>	<u>Control</u>	<u>Setting</u>	<u>J-4247/AR</u>		SQUELCH TN/DSBL	TN	X-MODE WB/NB	NB	<u>SG-1112(V)1</u>		RF ON/OFF	ON	COUNTER MODE		INT/EXT	INT (in)	EXPAND	X10 (in)	<p><u>RECEIVER TESTS (Continued)</u></p>	
<u>Control</u>	<u>Setting</u>																			
<u>J-4247/AR</u>																				
SQUELCH TN/DSBL	TN																			
X-MODE WB/NB	NB																			
<u>SG-1112(V)1</u>																				
RF ON/OFF	ON																			
COUNTER MODE																				
INT/EXT	INT (in)																			
EXPAND	X10 (in)																			

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
RECEIVER TESTS (Continued)		
<p>OUTPUT LEVEL 1 m VOLTS RANGE 256-128 FREQUENCY MHz 151.975 LOCK ON (in) AM INT MODULATION 1 kHz FREQUENCY FIXED FREQ AM X10% In PEAK DEVIATION 5 kHz MODULATION 0-100% 30%</p>		

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<u>AN/URM-184A</u>		
LINE	ON	
FUNCTION	VOLT-METER	
METER RANGE	10 VOLT	
NORM/RF. DET.	NORM	
3. Check AN/USM-281C.	AN/USM-281C shows 1000-Hz sine wave.	Go to TROUBLE 3-27,
4. Set RT-1354 VOL fully counterclockwise. AN/URM-184A METER RANGE to 1 VOLT.		
5. Internal noise test.		
a. Adjust RT-1354 VOL for +10 dB as read on AN/URM-184A.	Adjusts to +10 dB.	Go to TROUBLE 3-28.
b. Set SG-1112(V)1 AM to OFF.	AN/URM-184A reading drops more than 30 dB.	Replace A4 (para 3-10).
c. Repeat steps a, b with RT-1354 frequency selectors and SG-1112(V)1 set to 134.000, 116.000, and 108.000.	AN/URM-184A reading drops more than 30 dB.	Replace A4 (para 3-10).
d. Set RT-1354 frequency selectors to 87.975.		
e. Adjust SG-1112(V)1 for 87.975, 1000 Hz, 5-kHz deviation at 1 mV.		
f. Adjust RT-1354 VOL for +10 dB as read on AN/URM-184A.		
		NOTE If A4 was replaced and trouble remains, replace A6 (para 3-12).

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
g. Set SG-1112(V)1 FM to OFF.	AN/URM-184A reading drops more than 30 dB.	Replace A4 (para 3-10).
NOTE		
If A4 was replaced and trouble remains, replace A6 (para 3-12).		
h. Repeat steps e, f with RT-1354 frequency selectors and SG-1112(V)1 set to 59.000, 30.500.		
6. FM sensitivity test.		
a. Set RT-1354 SQ DIS/TONE to SQ DIS.		
b. Set SG-1112(V)1 OUTPUT to 1.5 μV , FM set to INT.		
c. Adjust RT-1354 VOL for 10 dB as read on AN/URM-184A.		
d. Set SG-1112(V)1 FM to OFF.	AN/URM-184A reading drops more than 10 dB.	Replace A4 (para 3-10).
e. Repeat steps b thru d with RT-1354 frequency selectors and SG-1112(V)1 set to 59.000, 87.975.	AN/URM-184A reading drops more than 10 dB.	Replace A4 (para 3-10).
7. AM sensitivity test.		
a. Adjust SG-1112(V)1 for 108.000, 1000 Hz, 80% modulation at 6 μV .		
b. Set RT-1354 frequency selectors to 108.000.		
c. Adjust RT-1354 VOL for +10 dB as read on AN/URM-184A.		
d. Set SG-1112(V)1 AM to OFF.	AN/URM-184A reading drops more than 10 dB.	Replace A4 (para 3-10).
e. Repeat steps a thru d with RT-1354 frequency selectors and SG-1112(V)1 set to 116.000, 134.000, 151.975.	AN/URM-184A reading drops more than 10 dB.	Replace A4 (para 3-10).

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<p>8. AM squelch test.</p> <p>a. Set RT-1354 SQ DIS/TONE to center position.</p> <p>b. Set SG-1112(V)1: OUTPUT LEVEL to .1 μ VOLTS. MODULATION 0-100% to 30%.</p> <p>c. Slowly increase SG-1112(V)1 OUTPUT LEVEL until AN/URM-184A reading increases (receiver unquelsches).</p> <p>d. Set SG-1112(V)1 OUTPUT LEVEL to .1 μ VOLTS.</p>	<p>AN/URM-184A reading drops more than 30 dB.</p> <p>No more than 6 μV.</p>	<p>Go to TROUBLE 3-29.</p> <p>Go to TROUBLE 3-30.</p>
<p>9. FM squelch test.</p> <p>a. Adjust SG-1112(V)1 for 30.500 MHz, 1000-HZ modulation, 5-kHz deviation at 0.1 μV.</p> <p>b. Set RT-1354 frequency selectors to 30.500.</p> <p>c. Slowly increase SG-1112(V)1 OUTPUT LEVEL until AN/URM-184A reading increases (receiver unquelsches).</p> <p>d. Set SG-1112(V)1 OUTPUT LEVEL to .1 μ VOLTS.</p>	<p>No more than 1.5 μV.</p>	<p>Go to TROUBLE 3-31.</p>
<u>CAUTION</u>		
<p><u>Do not</u> turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.</p>		
<p>10. AM narrow-band audio output test.</p> <p>a. Set MK-994A/AR RADIO SET to 6.</p>		

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<p>b. Set RT-1354 frequency selectors to 151.975.</p> <p>c. Adjust SG-1112(V)1 for 151.975 MHz, 1000 Hz, 80% modulation at 1 mV.</p> <p>d. Check AN/URM-184A reading.</p> <p style="text-align: center;"><u>CAUTION</u></p> <p><u>Do not</u> turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.</p>	<p>AN/URM-184A reads 2.5 to 3.0 Vrms.</p>	<p>Go to TROUBLE 3-32.</p>
<p>11. AM retransmission audio output test.</p> <p>Set MK-994A/AR RADIO TEST to 2.</p>	<p>AN/URM-184A reads 2.38 to 3.15 Vrms MK-994A/AR CONTROL SIGNAL lamp lights.</p>	<p>Go to TROUBLE 3-33.</p>
<p>12. AM X-mode audio output test.</p> <p>Set MK-994A/AR RADIO TEST to 8.</p>	<p>AN/URM-184A reads not less than 1.9 Vrms.</p>	<p>Go to TROUBLE 3-34.</p>
<p>13. FM narrow-band audio output test.</p> <p>a. Set:</p> <p>AN/URM-184A METER RANGE to 10 VOLTS.</p> <p>SG-1112(V)1 OUTPUT LEVEL to 1 m VOLTS.</p> <p>RT-1354 VOL fully clockwise.</p> <p>b. Check AN/URM-184A reading.</p>	<p>ANAJRM-184A reads 2.5 to 3.0 Vrms.</p>	<p>Go to TROUBLE 3-36.</p>

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<u>CAUTION</u>		
<p><u>Do not</u> turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.</p>		
<p>14. FM retransmission audio output test. Set MK-994A/AR RADIO TEST to 2.</p>	<p>AN/URM-184A reads 2.38 to 3.15 Vrms. MK-994A/AR CONTROL SIGNAL lamp lights.</p>	<p>Go to TROUBLE 3-33.</p>
<p>15. FM X-mode audio output test. Set MK-994A/AR RADIO TEST to 3.</p>	<p>AN/URM-184A reads not less than 1.9 Vrms.</p>	<p>Go to TROUBLE 3-34.</p>
<p>16. FM narrow-band audio frequency response test.</p> <p>a. Set MK-994A/AR RADIO TEST to 6.</p> <p>b. Adjust SG-1112(V)1 for 58.500 MHz, 1000-HZ modulation, 5-kHz deviation at 1 mV.</p> <p>c. Set: RT-1354 frequency selectors to 58-500. VOL fully counterclockwise. AN/URM-184A METER RANGE to 1 VOLTS.</p> <p>d. Adjust RT-1354 VOL for +10 dB as shown on AN/URM-184A.</p> <p>e. Set SG-1112(V)1 to 300-Hz modulation, 5-kHz deviation.</p>	<p>AN/URM-184A does not rise more than 1 dB or fall more than 3 dB.</p>	<p>Replace A3 (para 3-9).</p> <p style="text-align: center;">NOTE</p> <p>If A3 was replaced and trouble remains, replace A4 (para 3-10).</p>

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<p>f. Set SG-1112(V)1 to 3200-Hz modulation, 5-kHz deviation.</p>	<p>AN/URM-184A does not rise more than 1 dB or fall more than 3 dB.</p>	<p>Replace A3 (para 3-9).</p> <p style="text-align: center;">NOTE</p> <p>If A3 was replaced and trouble remains, replace A4 (para 3-10).</p>
<u>CAUTION</u>		
<p><u>Do not</u> turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.</p>		
<p>17. FM X-mode audio frequency response test.</p>		
<p>a. Set</p>		
<p>AN/URM-184A METER RANGE to 10 VOLTS.</p>		
<p>MK-994A/AR RADIO SET to 3.</p>		
<p>J-4247/AR X-MODE WB/NB to WB.</p>		
<p>SG-1112(V)1 to 1000-HZ modulation, 5-kHz deviation.</p>		
<p>b. Remember AN/URM-184A reading for steps c, d.</p>		
<p>c. Set SG-1112(V)1 to 20-Hz modulation, 5-kHz deviation.</p>	<p>AN/URM-184A reading does not rise more than 1 dB or fall more than 3 dB.</p>	<p>Replace A3 (para 3-9).</p> <p style="text-align: center;">NOTE</p> <p>If A3 was replaced and trouble remains, replace A4 (para 3-10).</p>

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<p>d. Set SG-1112(V)1 to 14-kHz modulation, 5-kHz deviation.</p> <p style="text-align: center;"><u>CAUTION</u></p> <p><u>Do not</u> turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.</p> <p>18. FM narrow-band selectivity test.</p> <p>a. Set</p> <p style="padding-left: 20px;">J-4247/AR X-MODE WB/NB to NB.</p> <p style="padding-left: 20px;">MK-994A/AR RADIO TEST to 6.</p> <p style="padding-left: 20px;">AN/URM-184A METER RANGE to 1 VOLTS.</p> <p style="padding-left: 20px;">SG-1112(V)1 to 1000-HZ modulation, 5-kHz deviation.</p> <p>b. Set RT-1354 VOL for +10 dB as read on AN/URM-184A.</p>	<p>AN/URM-184A reading does not rise more than 1 dB or fall more than 3 dB.</p>	<p>Replace A3 (para 3-9).</p> <p style="text-align: center;">NOTE</p> <p>If A3 was replaced and trouble remains, replace A4 (para 3-10).</p>
<p>c. Set SG-1112(V)1 to 58.5085.</p> <p style="text-align: center;"><u>CAUTION</u></p> <p><u>Do not</u> turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.</p>	<p>AN/URM-184A reading does not rise or fall more than 6 dB.</p>	<p>Replace A4 (para 3-10).</p>

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<p>19. FM X-mode selectivity test.</p> <p>a. Set</p> <p> AN/URM-184A METER RANGE to 10 VOLTS.</p> <p> J-4247/AR X-MODE WB/NB to WB.</p> <p> MK-994A/AR RADIO TEST to 3.</p> <p>b. Set SG-1112(V)1 to 58.516 MHz.</p>	<p>AN/URM-184A reading does not rise or fall more than 6 dB.</p>	<p>Go to TROUBLE 3-35.</p>
<u>CAUTION</u>		
<p><u>Do not</u> turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.</p>		
<p>20. FM audio distortion test.</p> <p>a. Set</p> <p> MK-994A/AR RADIO SET to 6.</p> <p> J-4247/AR X-MODE WB/NB to NB.</p> <p>b. Adjust SG-1112(V)1 for 58.500 MHz, 1000-HZ modulation, 5-kHz deviation at 1 mV.</p> <p>c. Adjust AN/URM-184A to read distortion.</p>	<p>AN/URM-184A reads no more than 12.5%.</p>	<p>Replace A3 (para 3-9).</p> <p style="text-align: center;">NOTE</p> <p>If A3 was replaced and trouble remains, replace A4 (para 3-10).</p>

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<p>d. Repeat steps b, c for modulation frequencies of 300 Hz, 3200 Hz.</p> <p style="text-align: center;"><u>CAUTION</u></p> <p><u>Do not</u> turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.</p> <p>21. AM narrow-band audio frequency response test.</p> <p>a. Set</p> <p style="padding-left: 20px;">MK-994A/AR RADIO TEST to 6.</p> <p style="padding-left: 20px;">RT-1354 frequency selectors to 133.500.</p> <p style="padding-left: 20px;">VOL fully counterclockwise.</p> <p style="padding-left: 20px;">J-4247/AR X-MODE WB/NB to NB.</p> <p style="padding-left: 20px;">AN/URM-184A FUNCTION to VOLTMETER.</p> <p style="padding-left: 20px;">METER RANGE to 1 VOLTS.</p> <p>b. Adjust SG-1112(V)1 for 133.500, 1000 Hz, 30% modulation at 1 mV.</p> <p>c. Adjust RT-1354 VOL for +10 dB as read on AN/URM-184A.</p>	<p>AN/URM-184A reads no more than 12.5%.</p>	<p>Replace A3 (para 3-9).</p> <p style="text-align: center;">NOTE</p> <p>If A3 was replaced and trouble remains, replace A4 (para 3-10).</p>

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
d. Set SG-1112(V)1 to 300 Hz, 30% modulation.	AN/URM-184A reading does not rise more than 1 dB or fall more than 3 dB.	Replace A3 (para 3-9). NOTE If A3 was replaced and trouble remains, replace A4 (para 3-10).
e. Set SG-1112(V)1 to 3200 Hz, 30% modulation.	AN/URM-184A reading does not rise more than 1 dB or fall more than 3 dB.	Replace A3 (para 3-9). NOTE If A3 was replaced and trouble remains, replace A4 (para 3-10).
<u>CAUTION</u>		
Do not turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.		
22. AM X-mode audio frequency test.		
a. Set:		
AN/URM-184A METER RANGE to 3 VOLTS.		
MK-994A/AR RADIO TEST to 3.		
J-4247/AR X-MODE WB/NB to WB.		
SG-1112(V)1 to 1000 Hz, 30% modulation.		
b. Remember AN/URM-184A reading for steps c, d.		

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<p>c. Set SG-1112(V)1 to 20 Hz, 30% modulation.</p>	<p>AN/URM-184A reading does not rise more than 1 dB or fall more than 3 dB.</p>	<p>Replace A3 (para 3-9).</p> <p style="text-align: center;">NOTE</p> <p>If A3 was replaced and trouble remains, replace A4 (para 3-10).</p>
<p>d. Set SG-1112(V)1 to 14 kHz, 30% modulation.</p>	<p>AN/URM-184A reading does not rise more than 1 dB or fall more than 3 dB.</p>	<p>Replace A3 (para 3-9).</p> <p style="text-align: center;">NOTE</p> <p>If A3 was replaced and trouble remains, replace A4 (para 3-10).</p>
<u>CAUTION</u>		
<p><u>Do not</u> turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.</p>		
<p>23. AM audio distortion test.</p> <p>a. Set MK-994A/AR RADIO TEST to 6.</p> <p>J-4247/AR X-MODE WB/NB to NB.</p> <p>b. Set SG-1112(V)1 to 300 Hz, 50% modulation.</p>		
<p>c. Set AN/URM-184A to measure distortion.</p>	<p>Not more than 12.5%.</p>	<p>Replace A3 (para 3-9).</p> <p style="text-align: center;">NOTE</p> <p>If A3 was replaced and trouble remains, replace A4 (para 3-10).</p>

3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<p>d. Repeat steps b, c for modulation frequencies of 1000 Hz, 3000 Hz.</p> <p>24. Set</p> <p style="padding-left: 20px;">MK-994A/AR DC POWER ON/OFF to OFF.</p> <p style="padding-left: 20px;">J-4247/AR PWR RT ON/OFF to OFF.</p> <p style="padding-left: 20px;">RT-1354 OFF/TR/DF to OFF.</p> <p>25. Disconnect RT-1354 from J-4247/AR.</p>	<p>Not more than 12.5%.</p>	<p>Replace A3 (para 3-9).</p> <p style="text-align: center;">NOTE</p> <p>If A3 was replaced and trouble remains, replace A4 (para 3-10).</p>

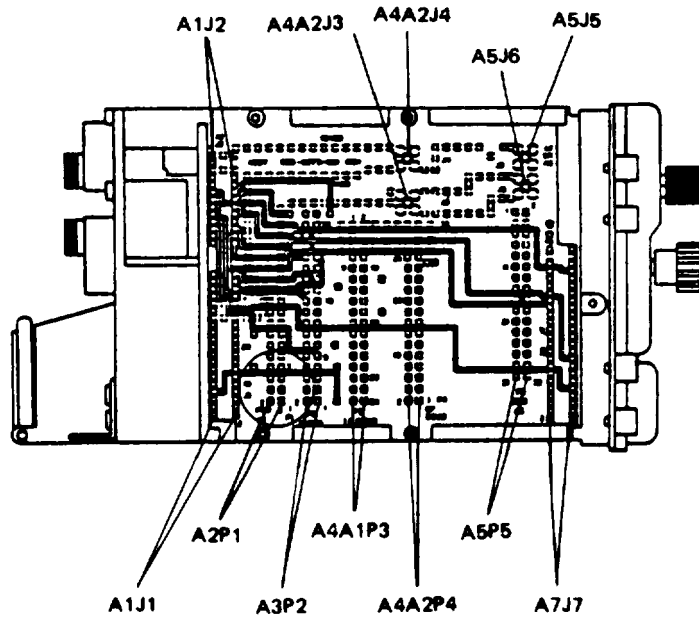
3-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<p>The diagram shows a perspective view of a rectangular receiver unit. On the left side, there is a control panel with several knobs and switches. A label 'RT-1354' points to this panel. A 'FACEPLATE' is shown being attached to the front of the unit. A 'COVER' is shown being slid onto the top of the unit. Two 'FLATHEAD SCREW (HIDDEN)' labels point to screws on the top and side of the unit. A 'FLATHEAD SCREWS' label points to six screws along the bottom edge of the front faceplate. A carrying handle is visible on the right side of the unit.</p>		
<p>26. Slide cover on RT-1354.</p> <p>27. Install six flathead screws.</p> <p>28. Install cover on faceplate.</p>		
<u>FOLLOWUP</u>		
<p>29. Complete maintenance forms.</p>		

Section V. TROUBLESHOOTING

3-6. RADIO SET TROUBLESHOOTING

A6 CONNECTOR LAYOUT



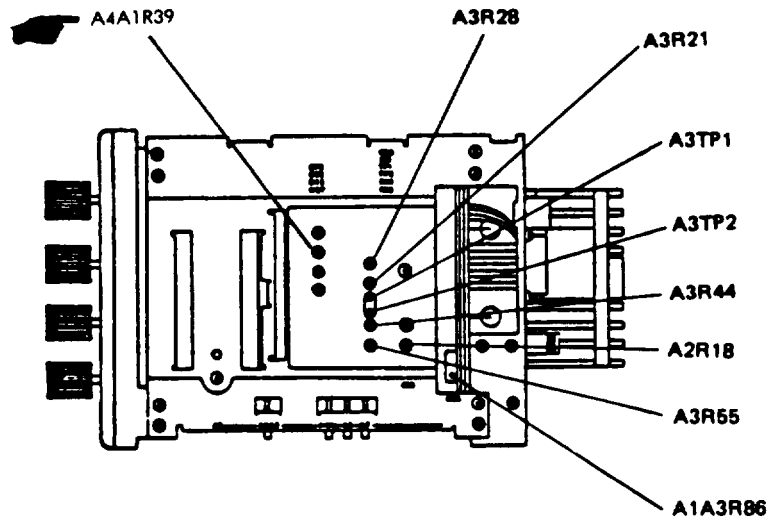
A1J1, A1J2 are numbered bottom-to-top and left-to-right.

A4A1P3, A5P5 are numbered top-to-bottom and left-to-right.

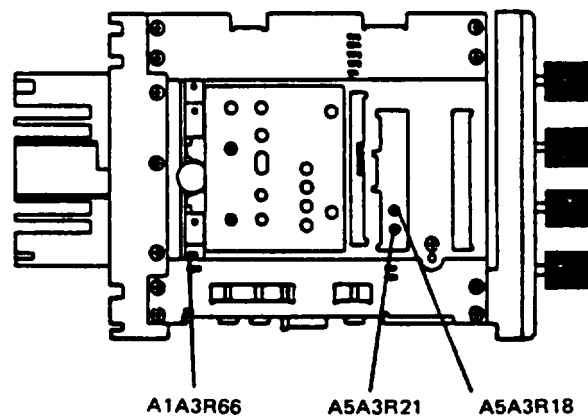
A2P1, A3P2, A4A2P4, A7J7 are numbered bottom-to-top and right-to-left.

3-6. RADIO SET TROUBLESHOOTING (Continued)

TOP ADJUSTMENT LOCATIONS

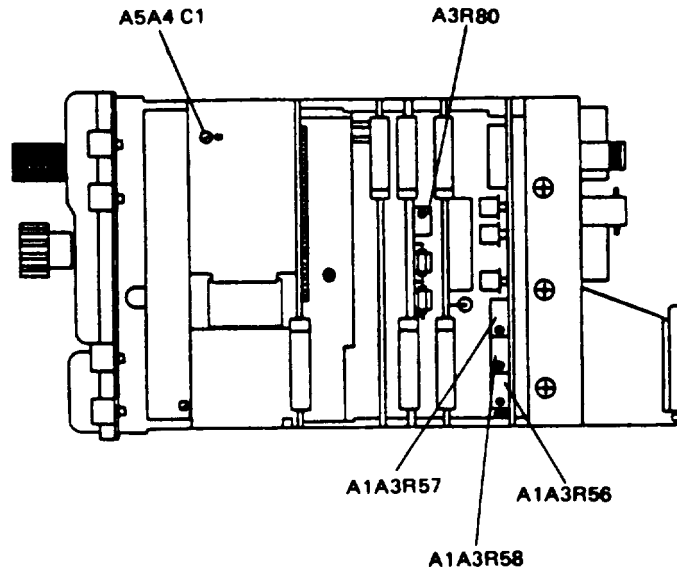


BOTTOM ADJUSTMENT LOCATIONS

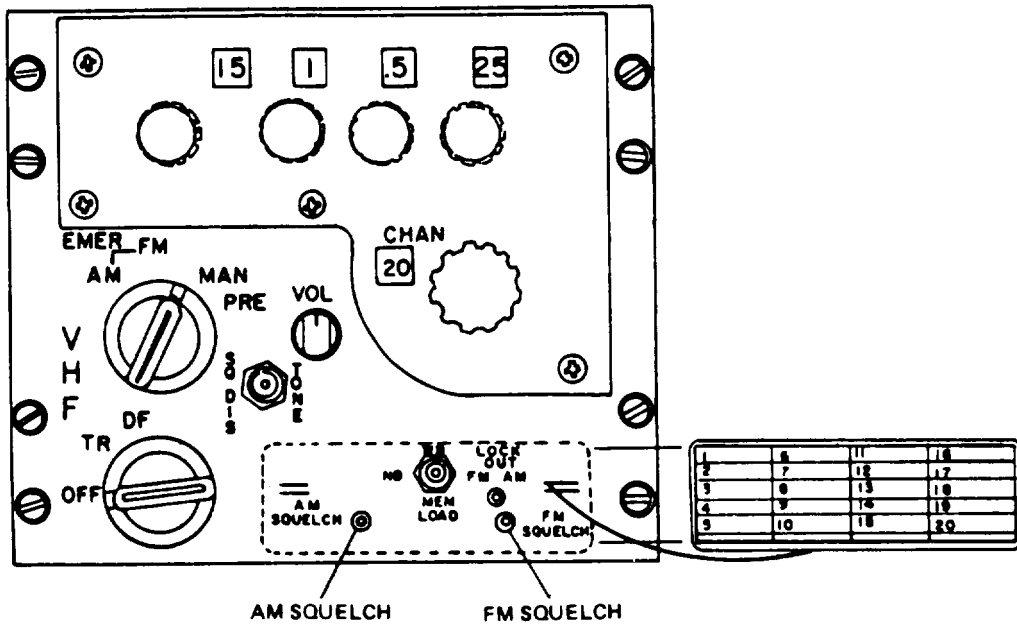


3-6. RADIO SET TROUBLESHOOTING (Continued)

RIGHT SIDE ADJUSTMENT LOCATIONS

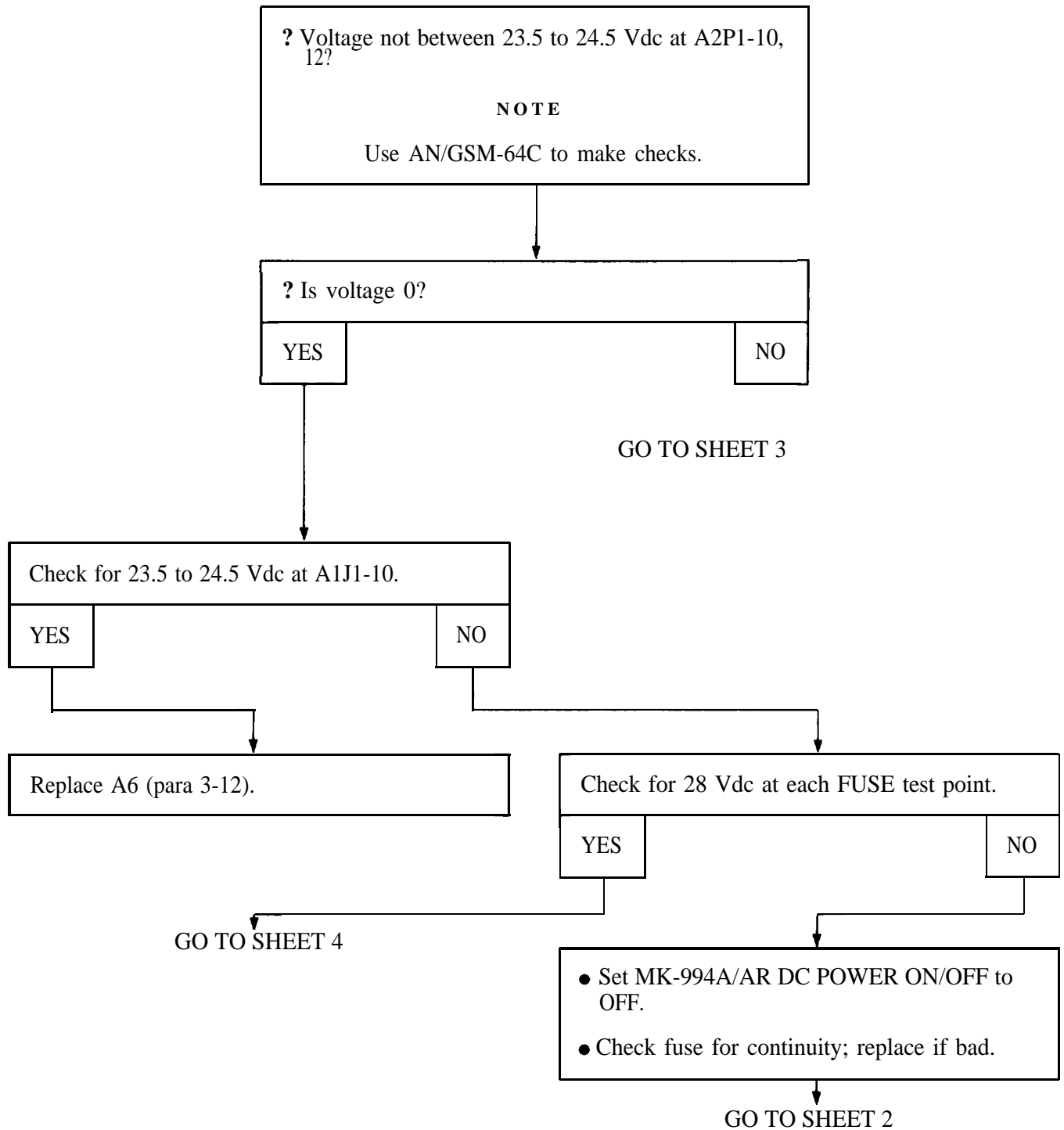


FRONT ADJUSTMENT LOCATIONS



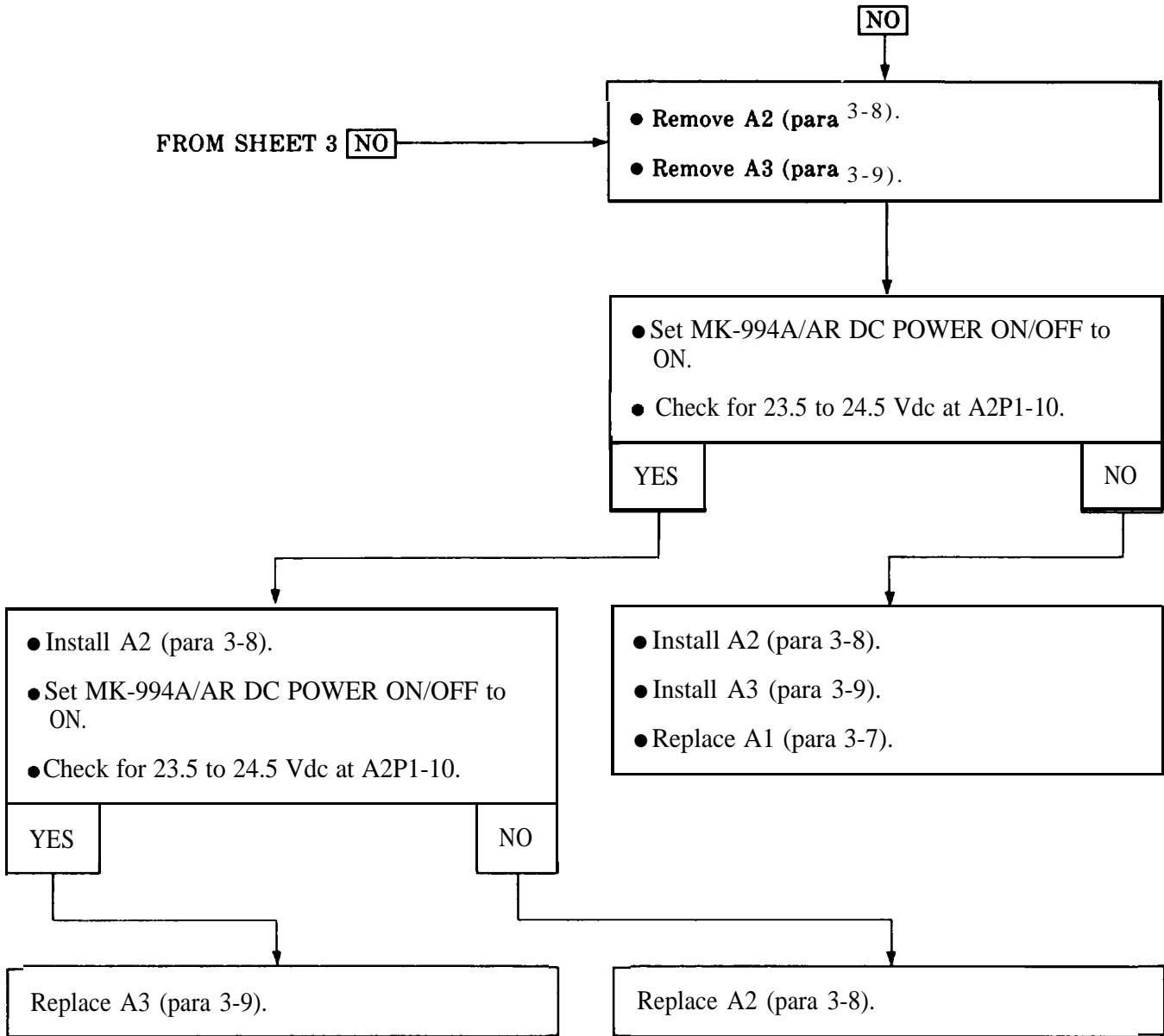
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-1 (SHEET 1)



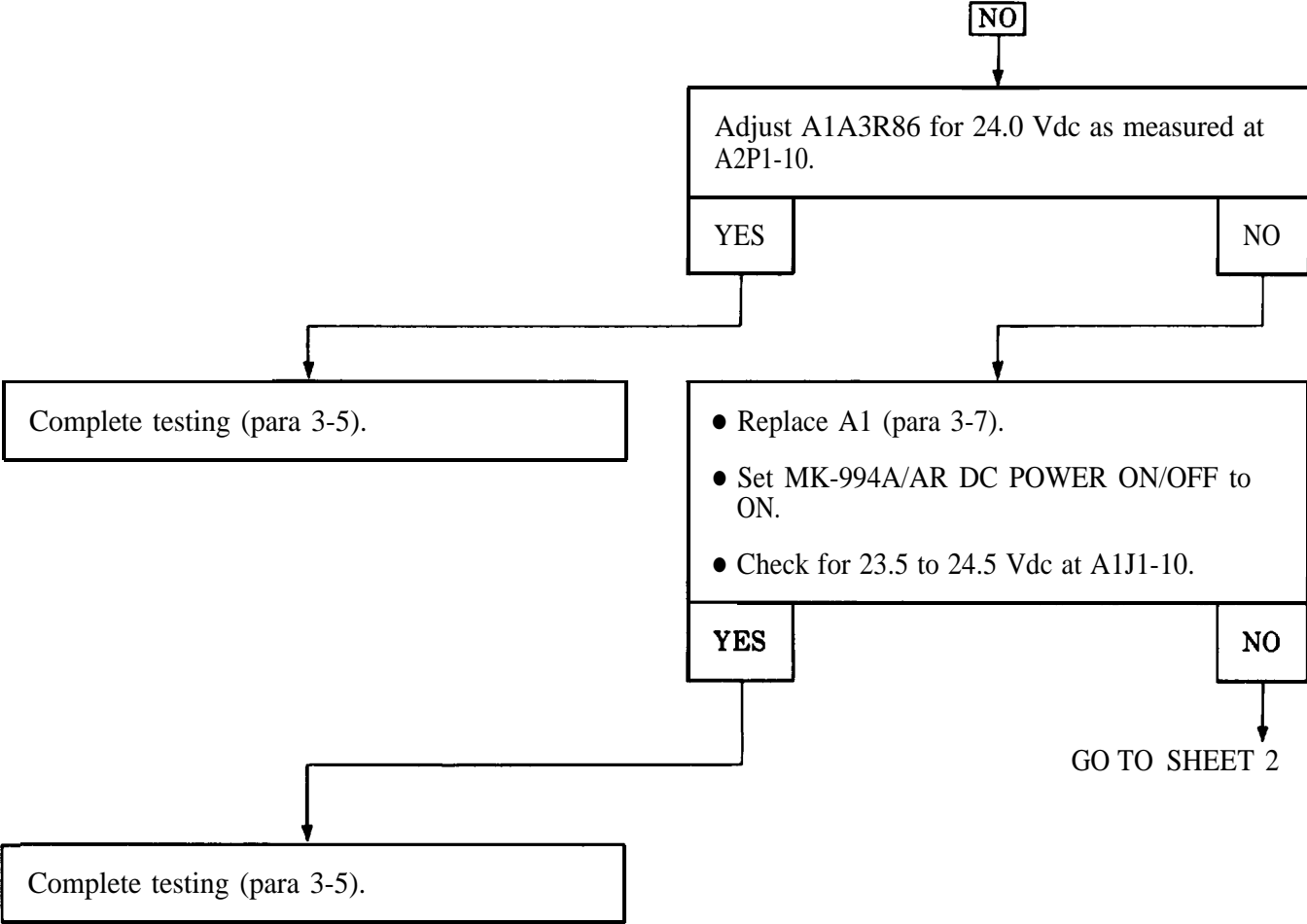
3-6. RADIO SET TROUBLESHOOTING (Continued)

TRUBLE 3-1 (SHEET 2)



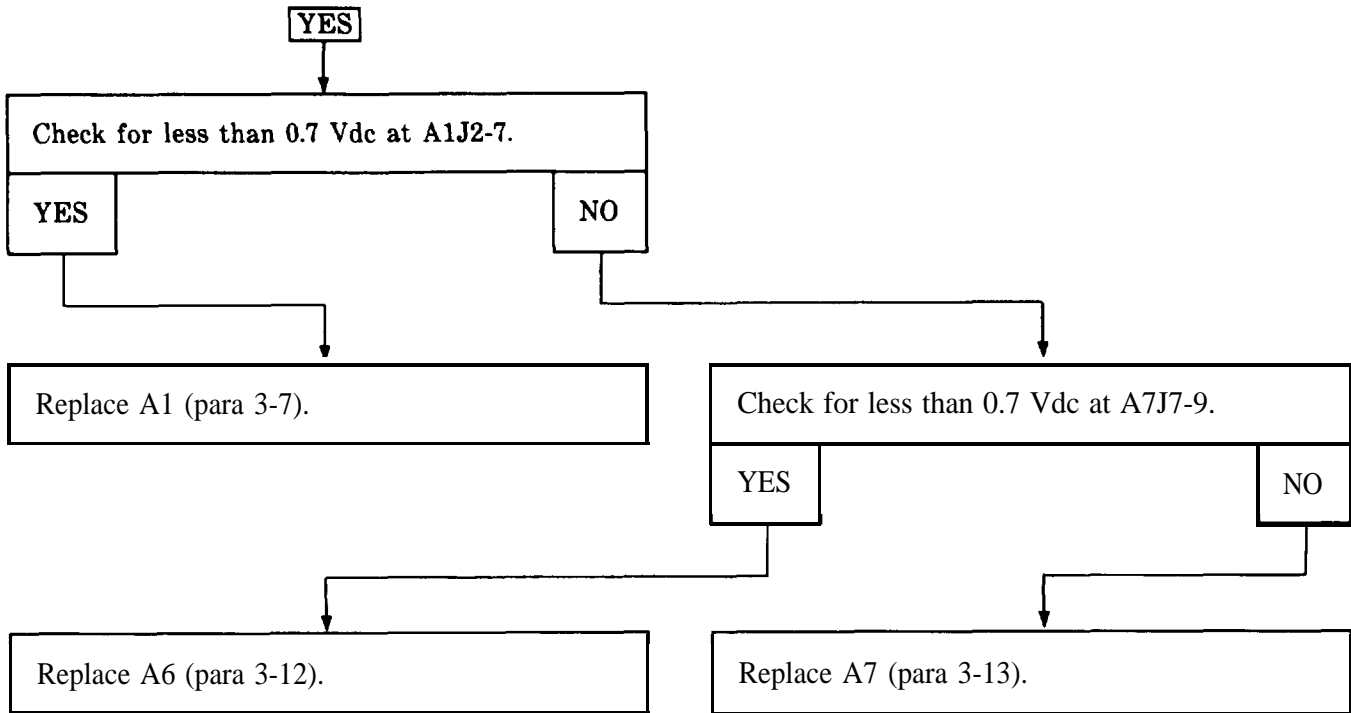
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-1 (SHEET 3)

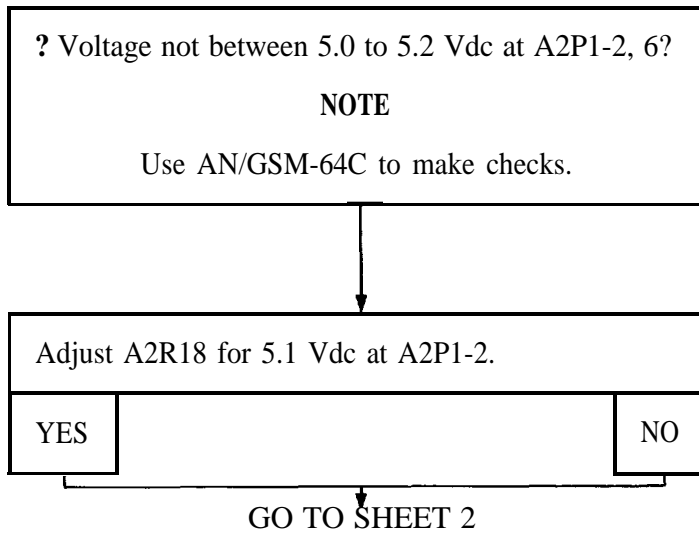


3-6, RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-1 (SHEET 4)

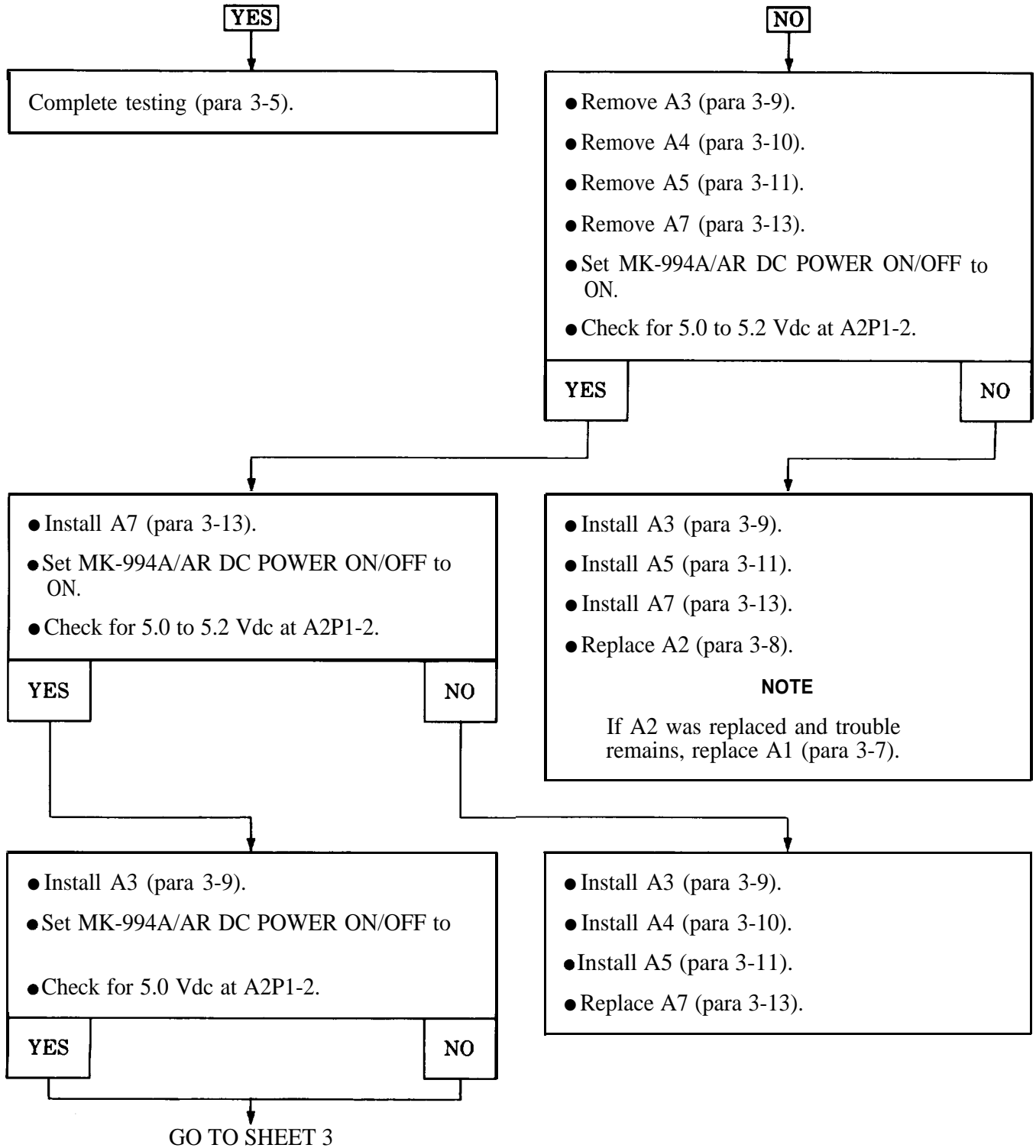


TROUBLE 3-2 (SHEET 1)



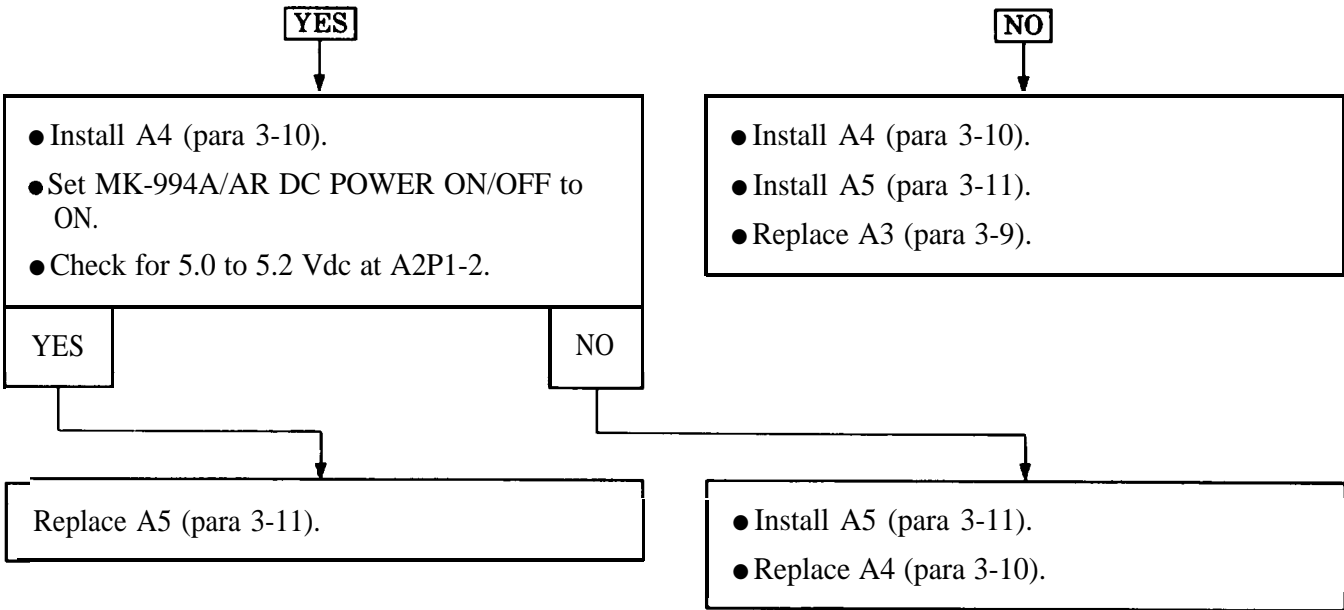
3-6. RADIO SET TROUBLESHOOTING (Continued)

TRUBLE 3-2 (SHEET 2)

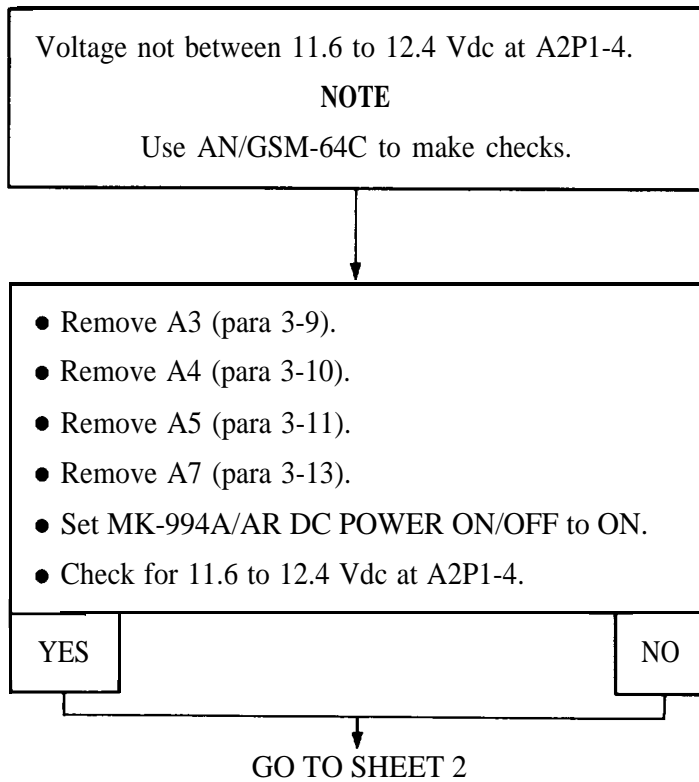


3-6. RADIO SET TROUBLESHOOTING (Continued)

TRUBLE 3-2 (SHEET 3)

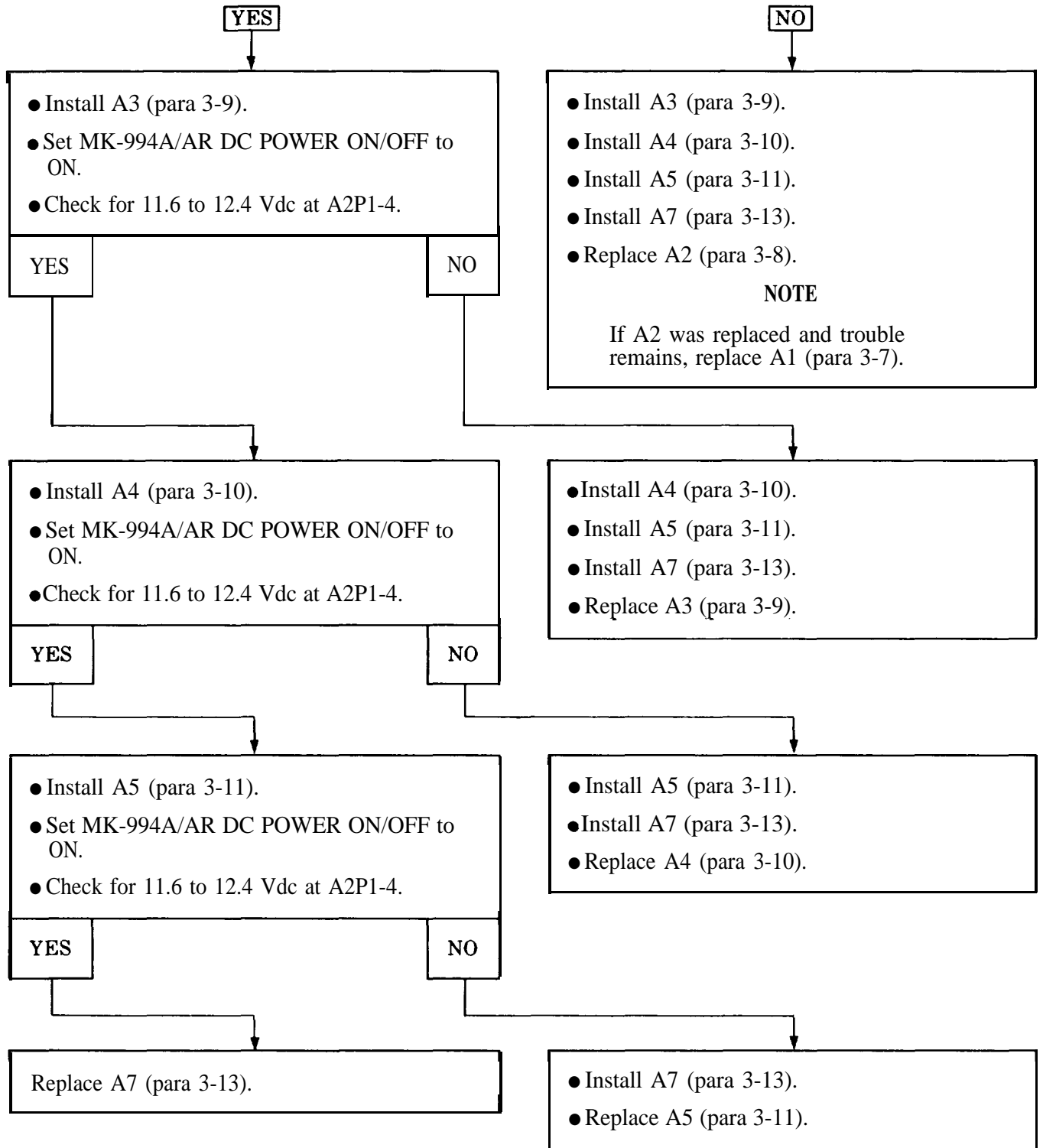


TRUBLE 3-3 (SHEET 1)



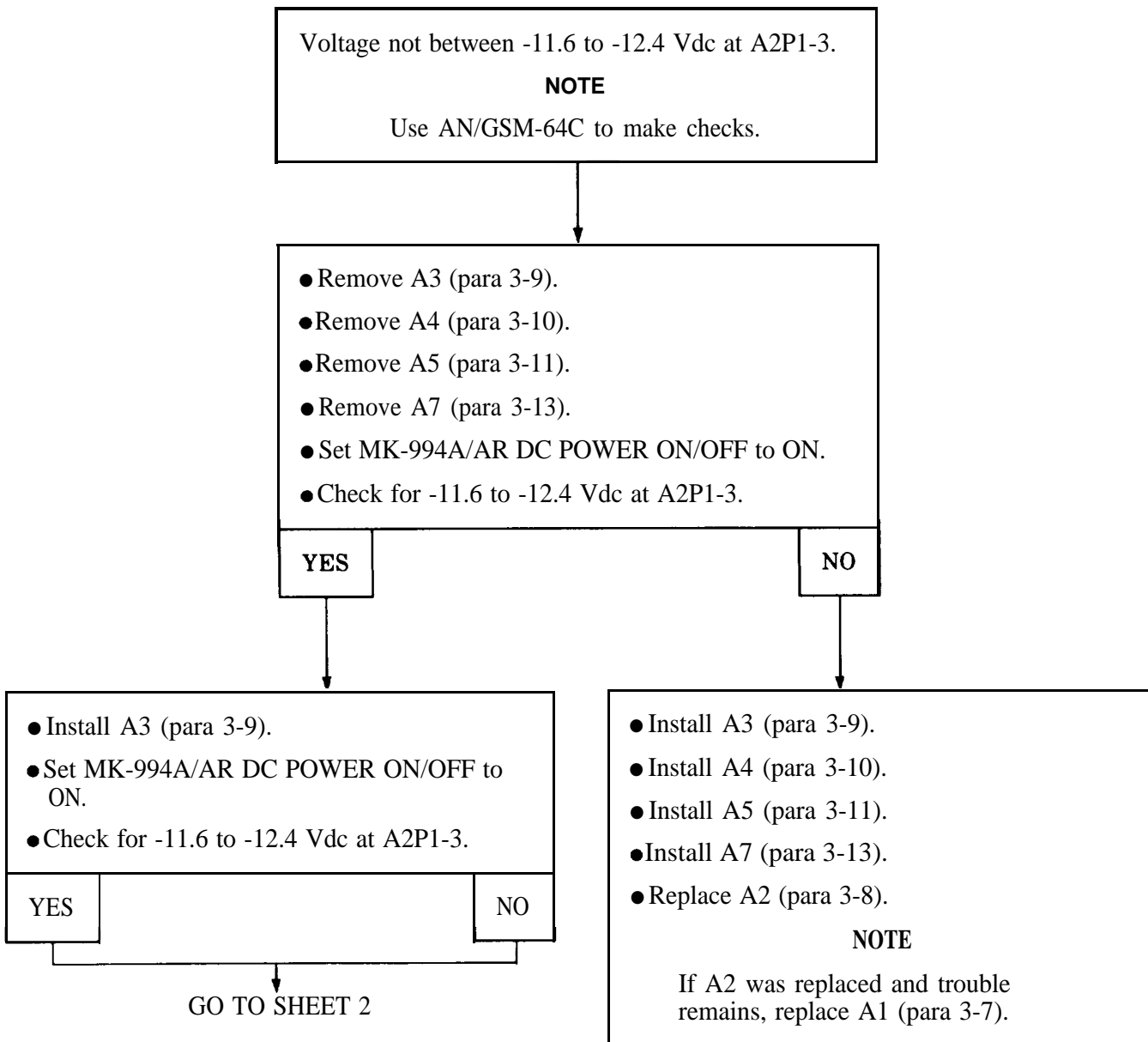
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-3 (SHEET 2)



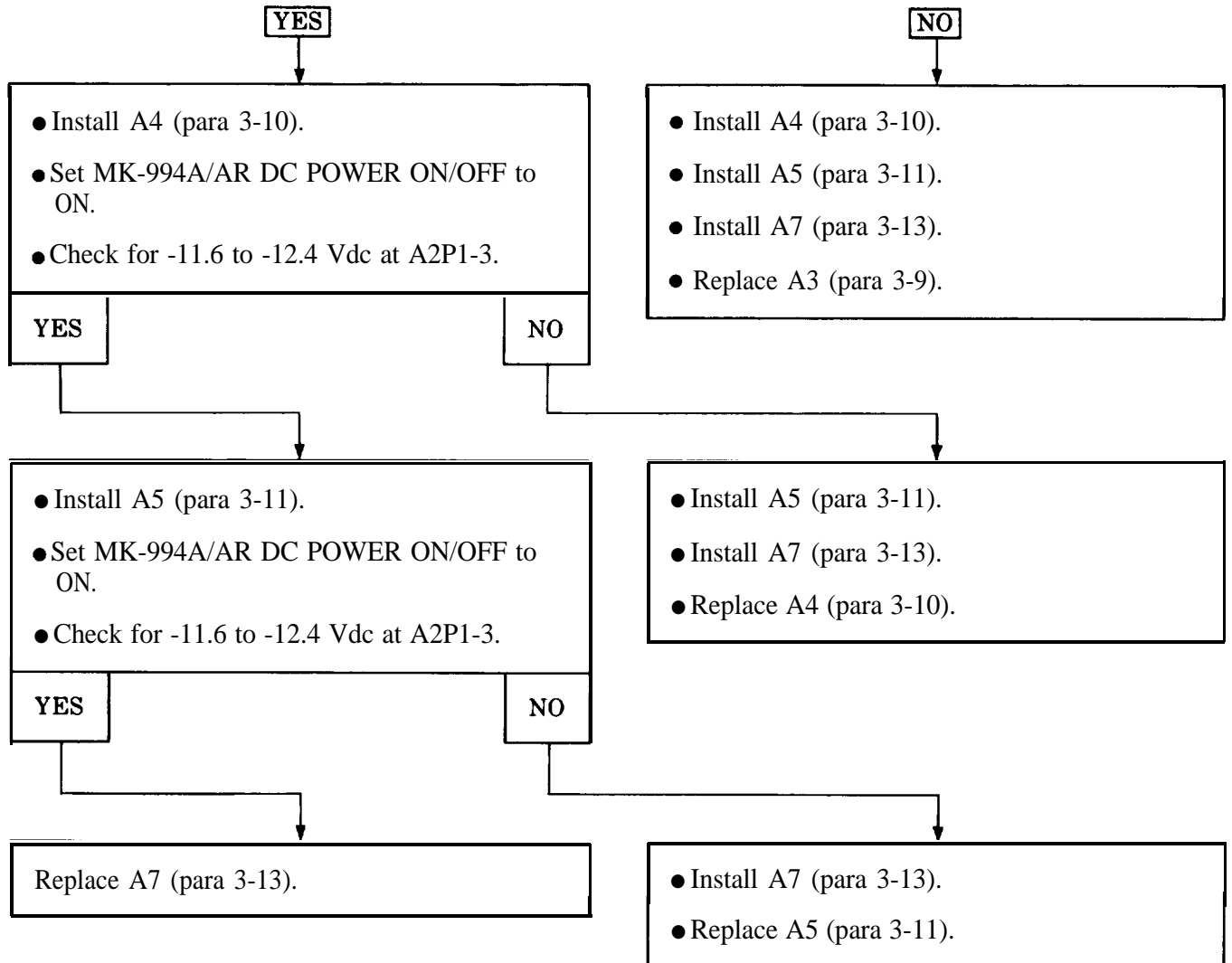
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-4 (SHEET 1)



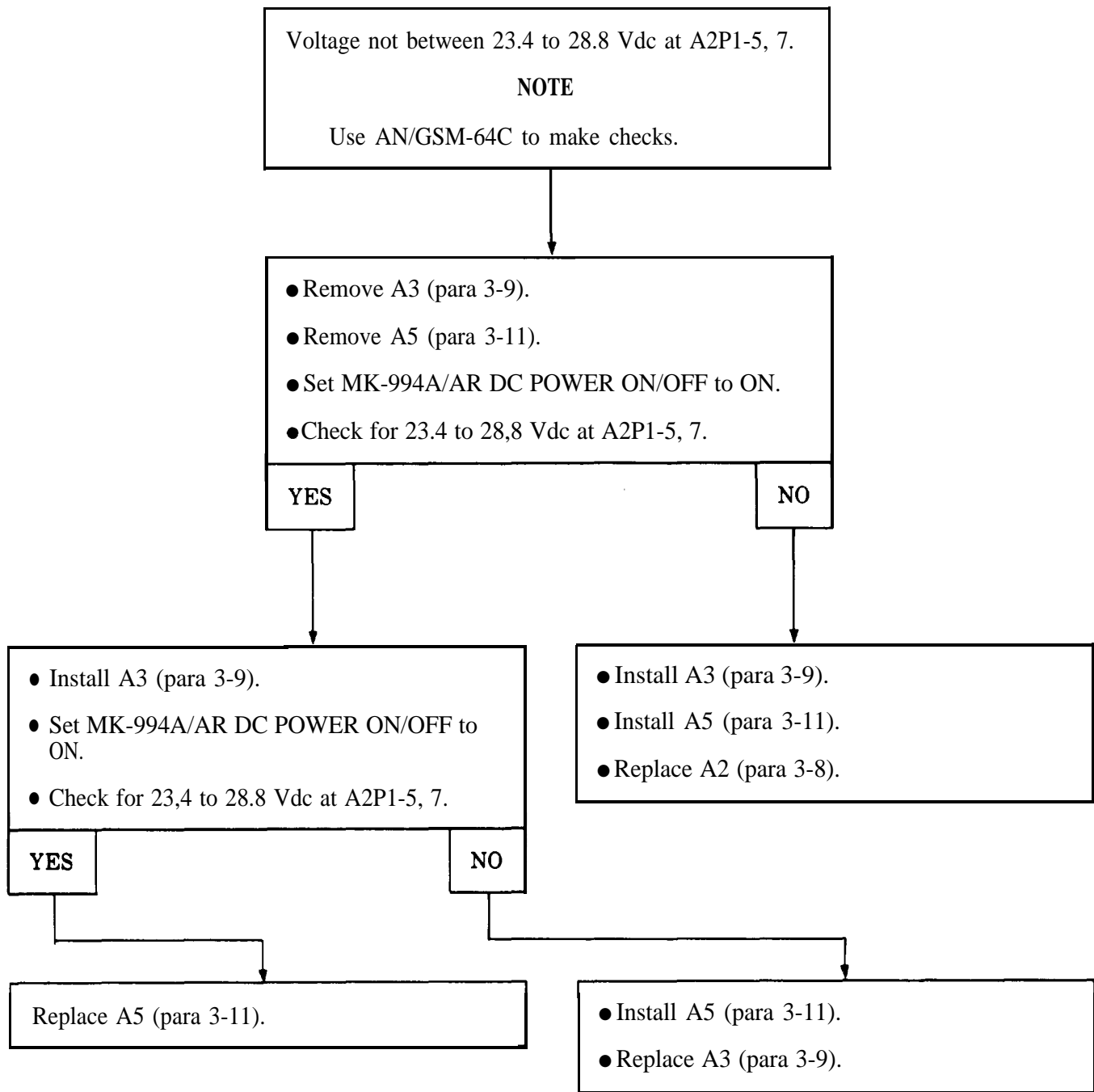
3-6. RADIO SET TROUBLESHOOTING (Continued)

TRUBLE 3-4 (SHEET 2)



3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-5



3-6. RADIO SET TROUBLESHOOTING (Continued)**TROUBLE 3-6**

Voltage not between 72 to 88 Vdc at A2P1-14.

Replace A2 (para 3-8).

NOTE

If A2 was replaced and trouble remains,
replace A1 (para 3-7).

TROUBLE 3-7

Voltage not between 5.7 to 6.5 Vdc at A2P1-18.

Replace A2 (para 3-8).

NOTE

If A2 was replaced and trouble remains,
replace A1 (para 3-7).

TROUBLE 3-8

Voltage not between 34.75 to -36.75 Vdc at
A2P1-13.

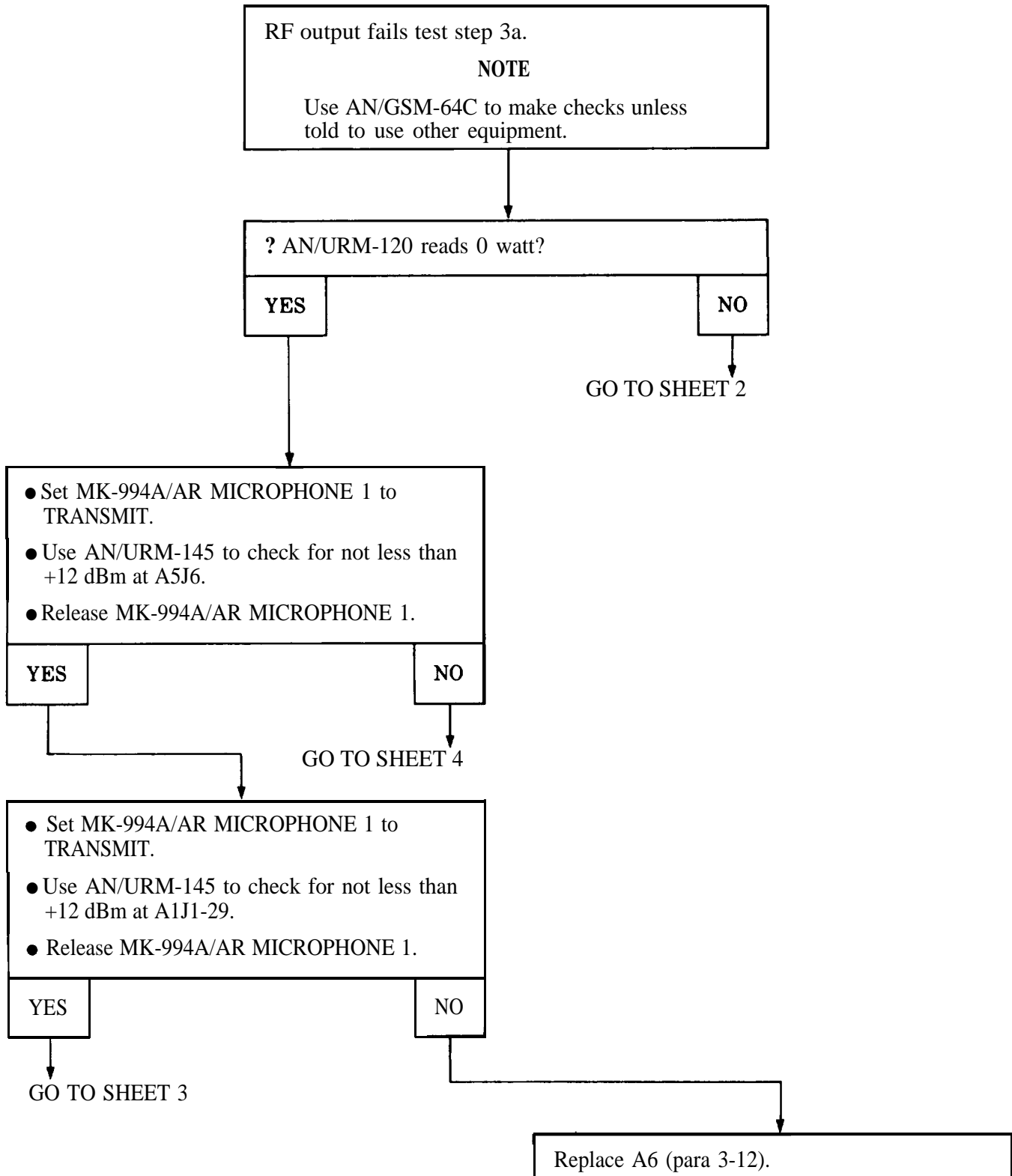
Replace A2 (para 3-8).

NOTE

If A2 was replaced and trouble remains,
replace A7 (para 3-13).

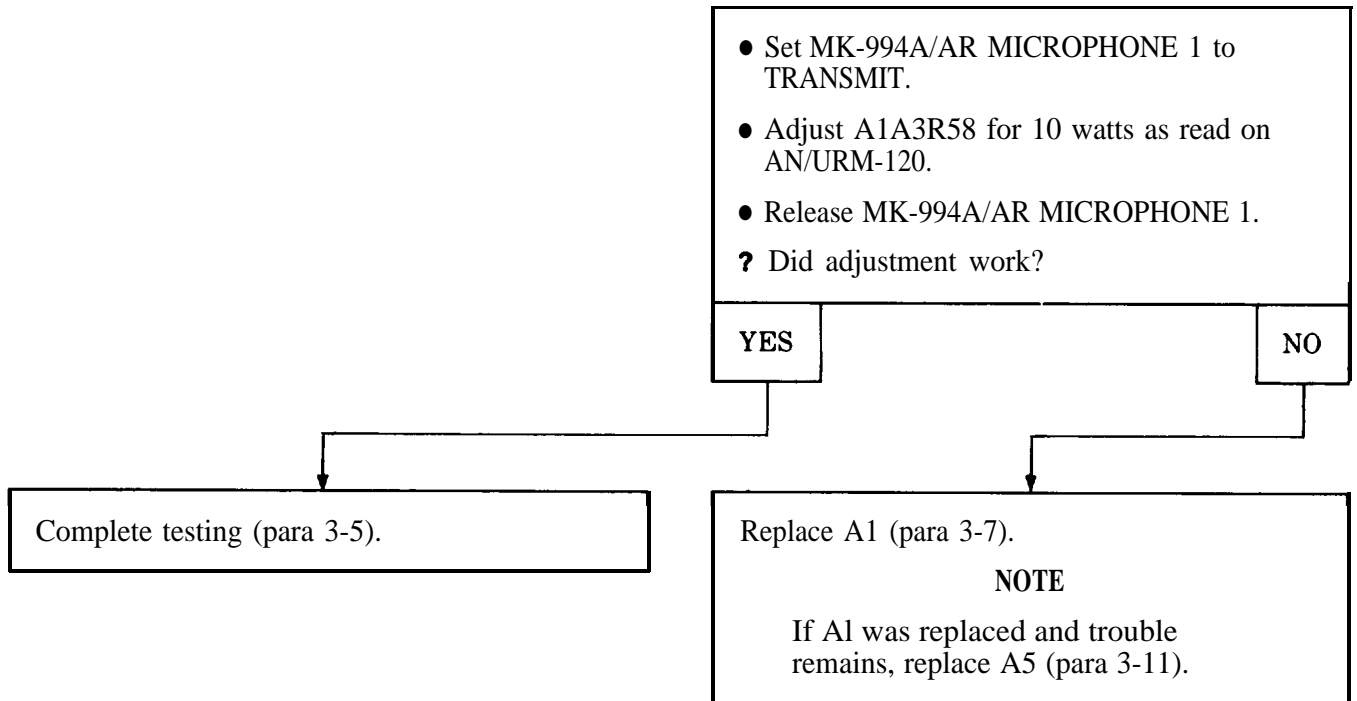
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-9 (SHEET 1)



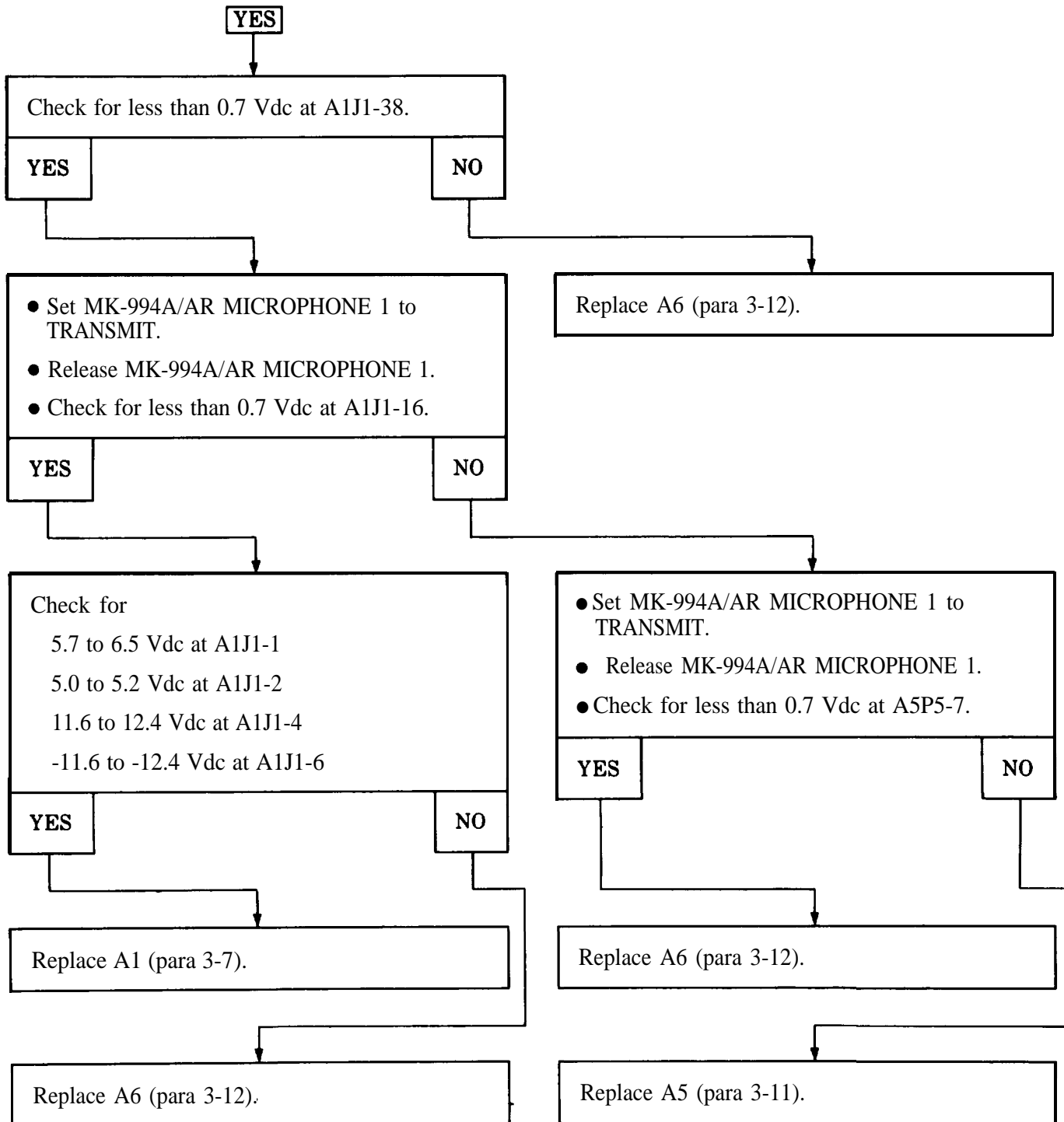
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-9 (SHEET 2)



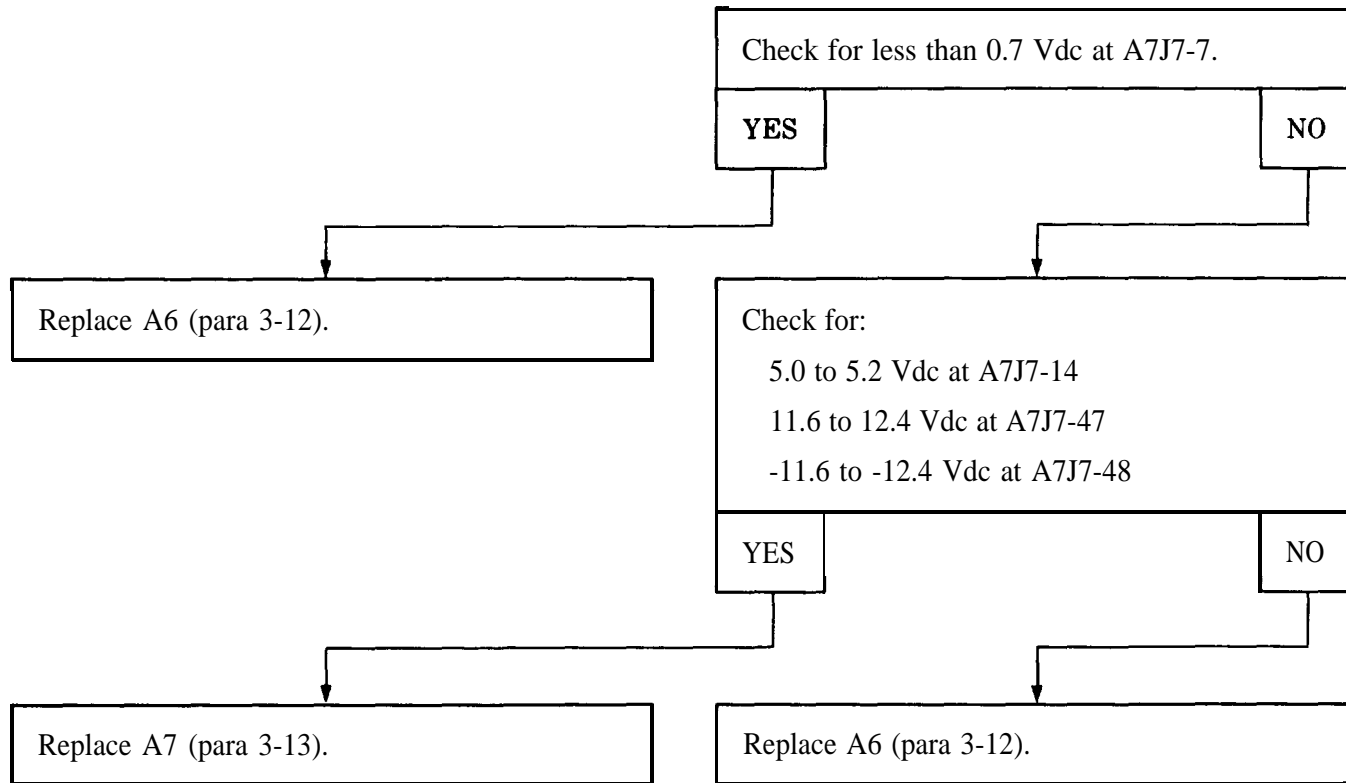
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-9 (SHEET 3)



3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-9 (SHEET 4)



3-6. RADIO SET TROUBLESHOOTING (Continued)

TRUBLE 3-10 (SHEET 1)

RF output fails test step 3f.
NOTE
Use AN/GSM-64C to make checks unless told to use other equipment.

? AN/URM-120 reads 0 watt?
YES NO

GO TO SHEET 2

● Set MK-994A/AR MICROPHONE 1 to TRANSMIT.
● Use AN/URM-145 to check for not less than +12 dBm at A1J1-29.
● Release MK-994A/AR MICROPHONE 1.
YES NO

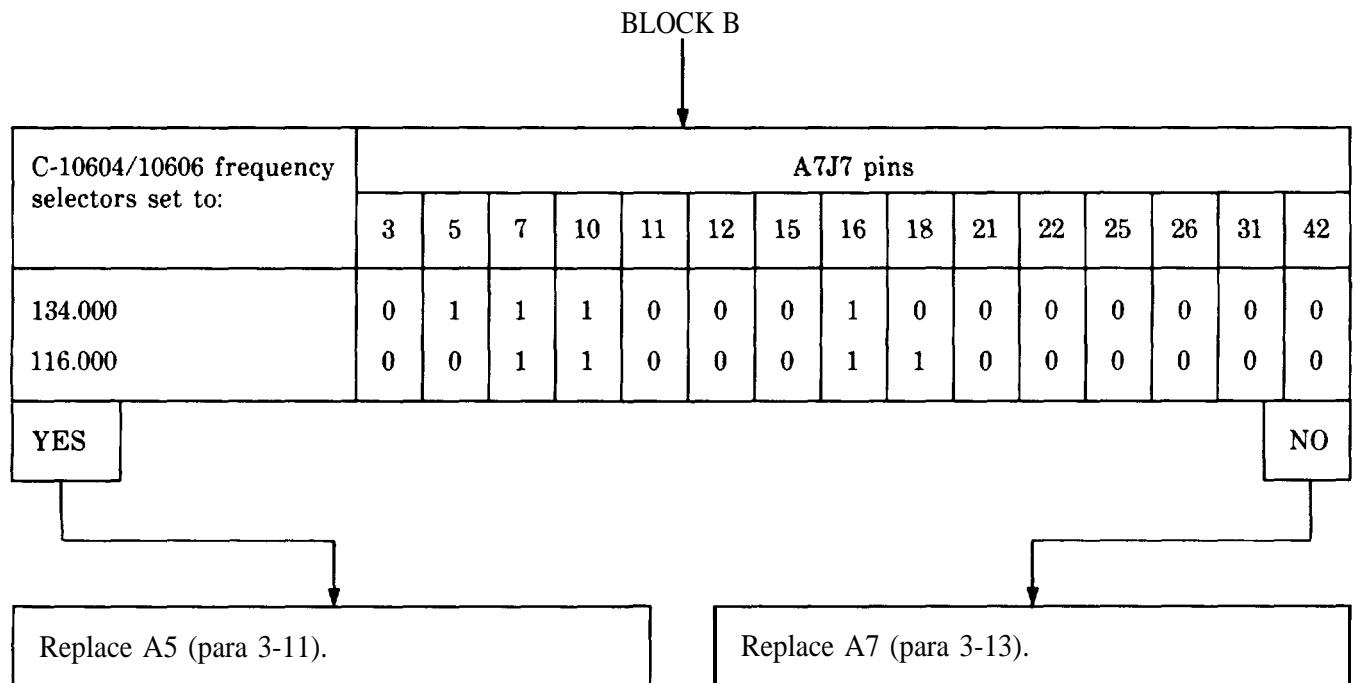
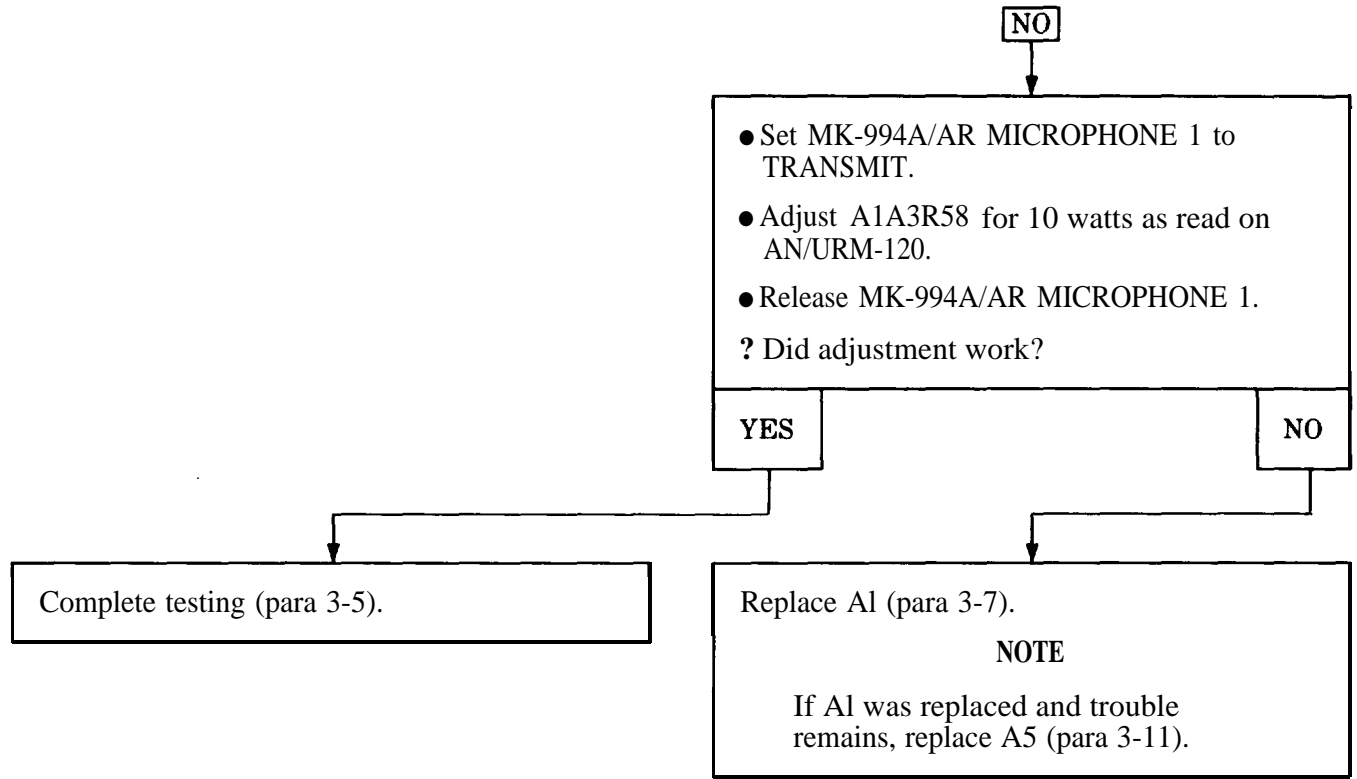
Replace A1 (para 3-7).

Check for more than 3.5 Vdc where a "1" is listed and less than 0.7 Vdc where a "0" is listed in this chart.

GO TO SHEET 2, BLOCK B

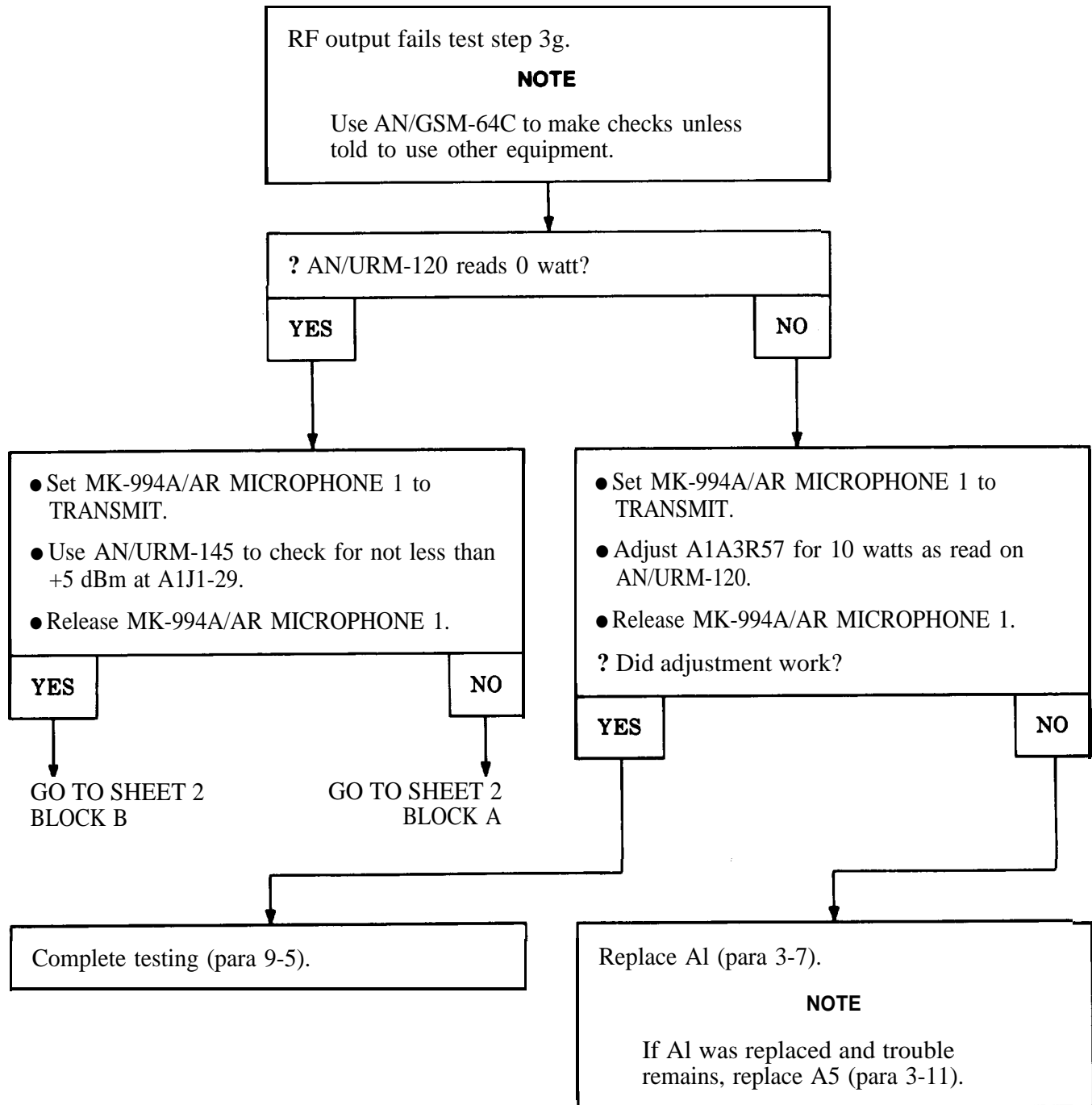
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-10 (SHEET 2)



3-6. RADIO SET TROUBLESHOOTING {Continued}

TROUBLE 3-11 (SHEET 1)

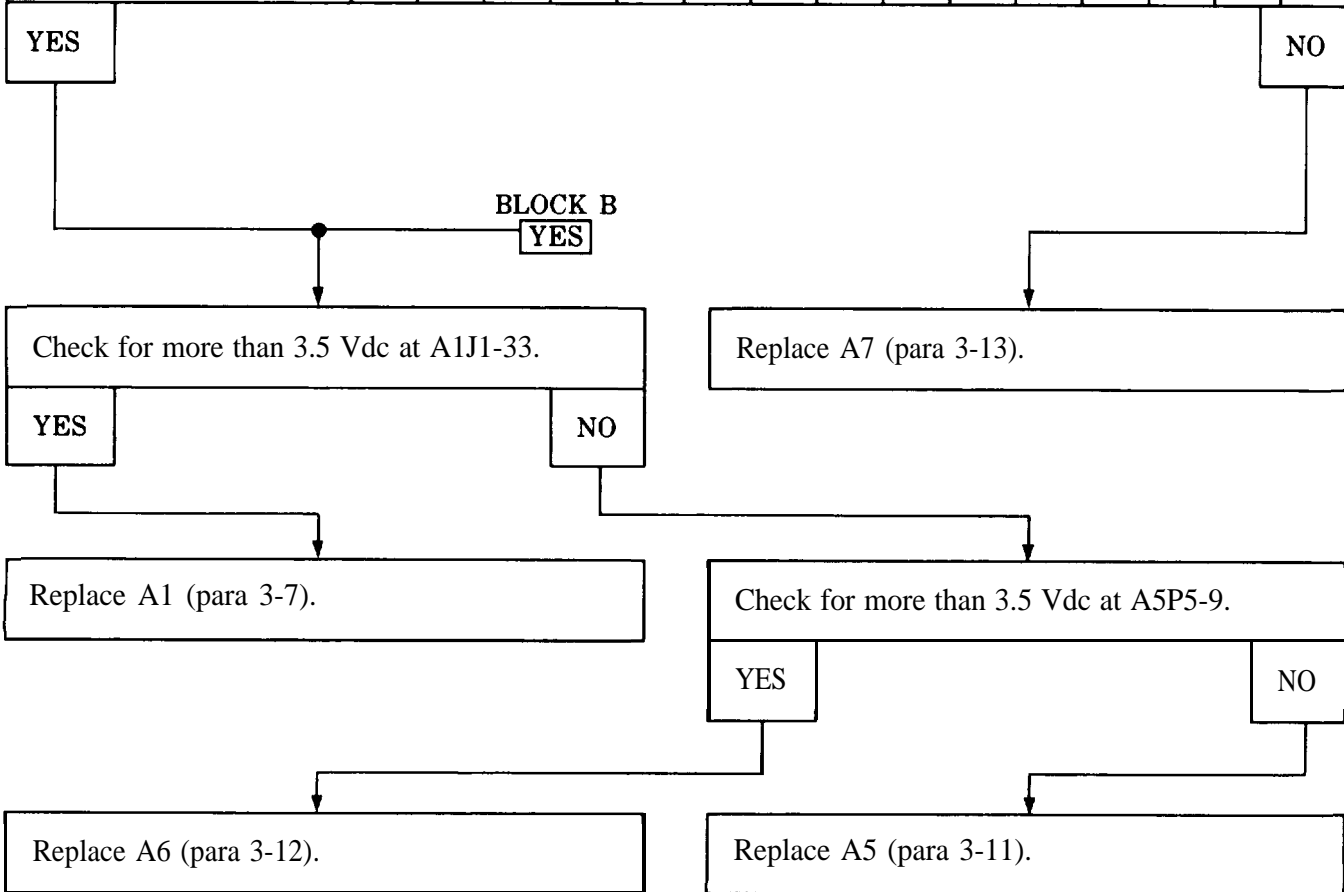


3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-11 (SHEET 2)

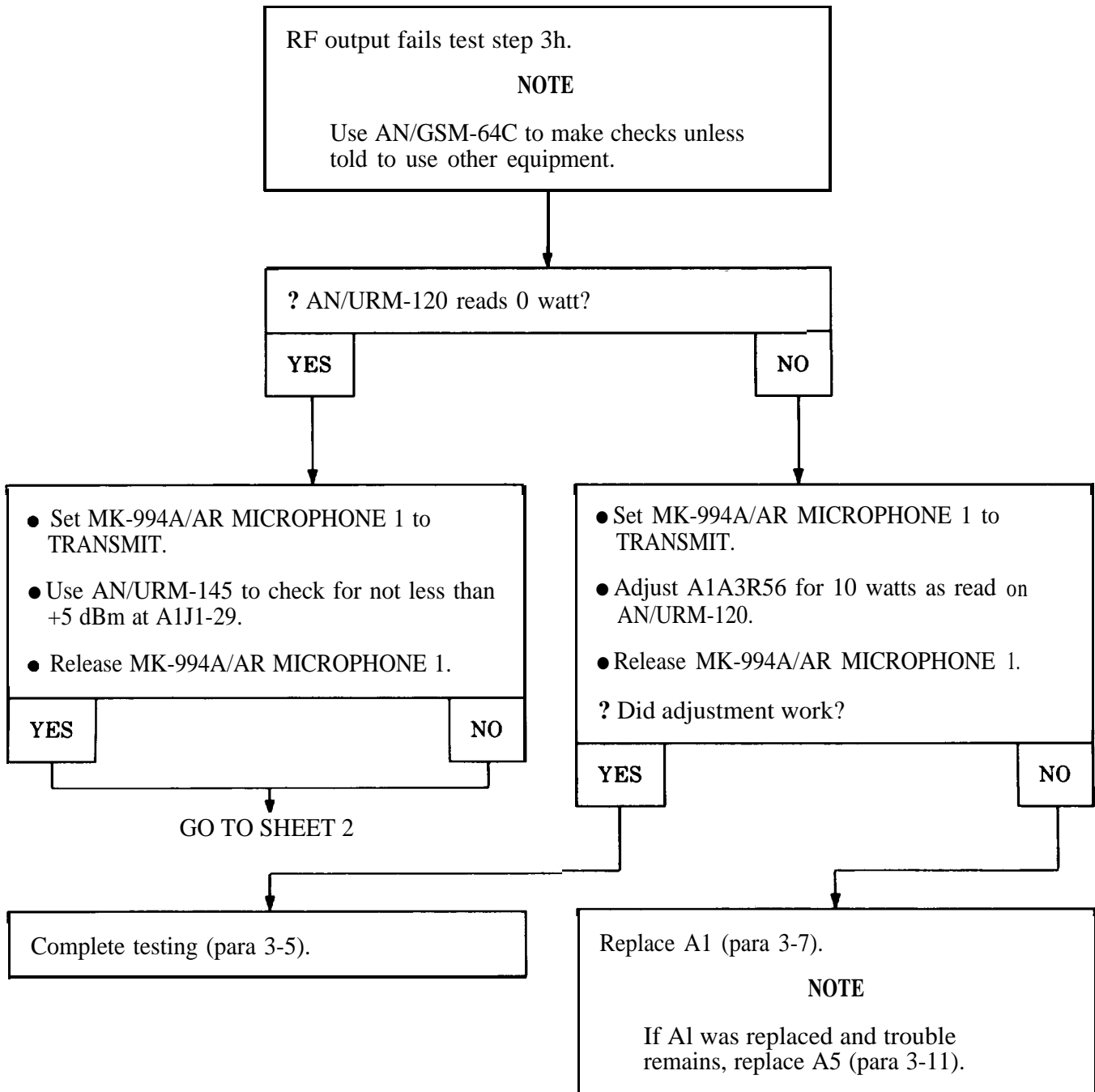
Check for more than 3.5 Vdc where a "1" is listed and less than 0.7 Vdc where a "0" is listed in this chart.

C-10604/10606 frequency selectors set to:	A7J7 pins															
	3	5	7	10	11	12	15	16	18	21	22	25	26	31	42	
87.975	1	0	0	0	0	1	0	1	1	0	0	1	1	1	1	
59.000	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	



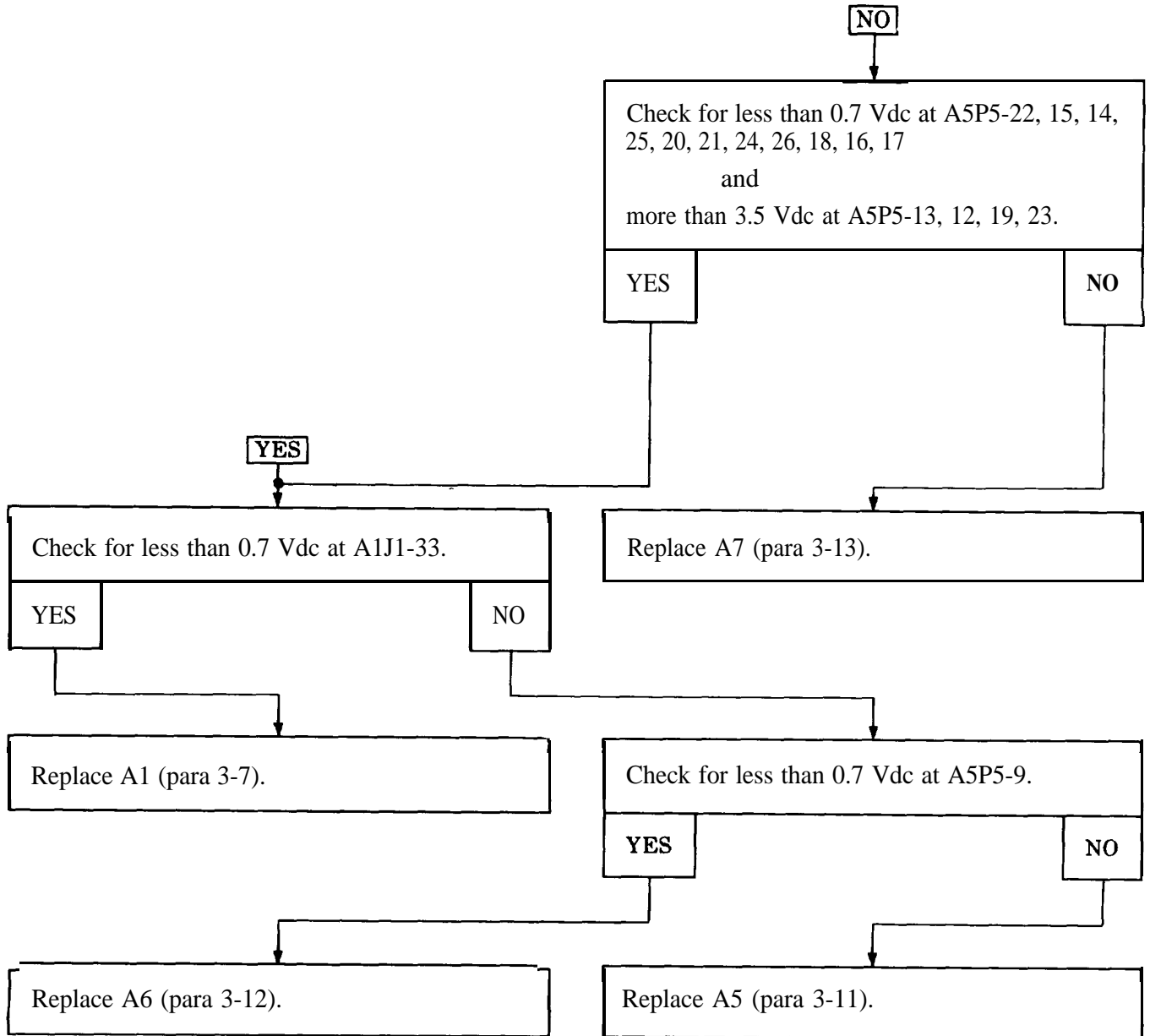
3-6. RADIO SET TROUBLESHOOTING (Continued)

TRouble 3-12 (SHEET 1)



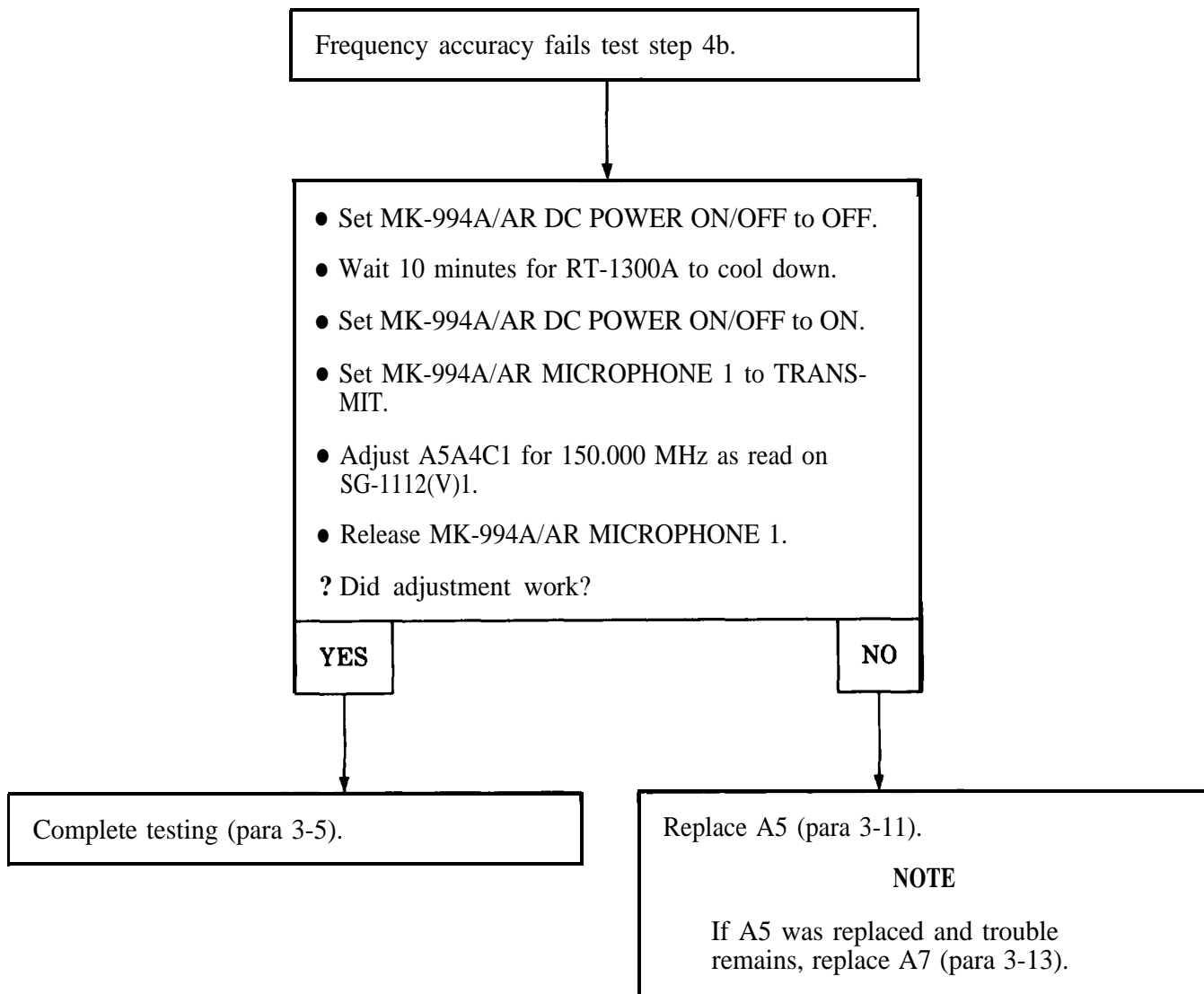
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-12 (SHEET 2)



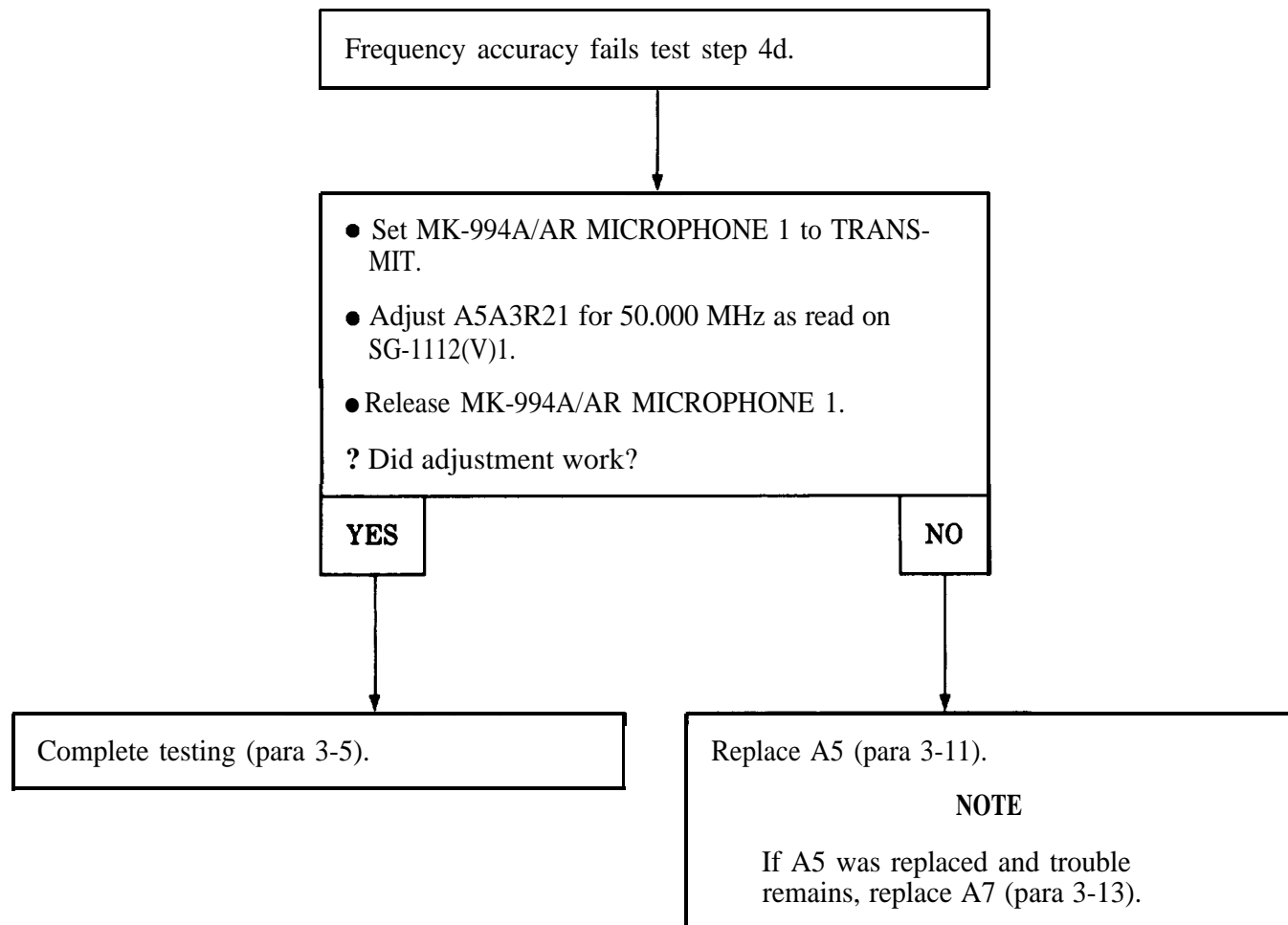
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-13



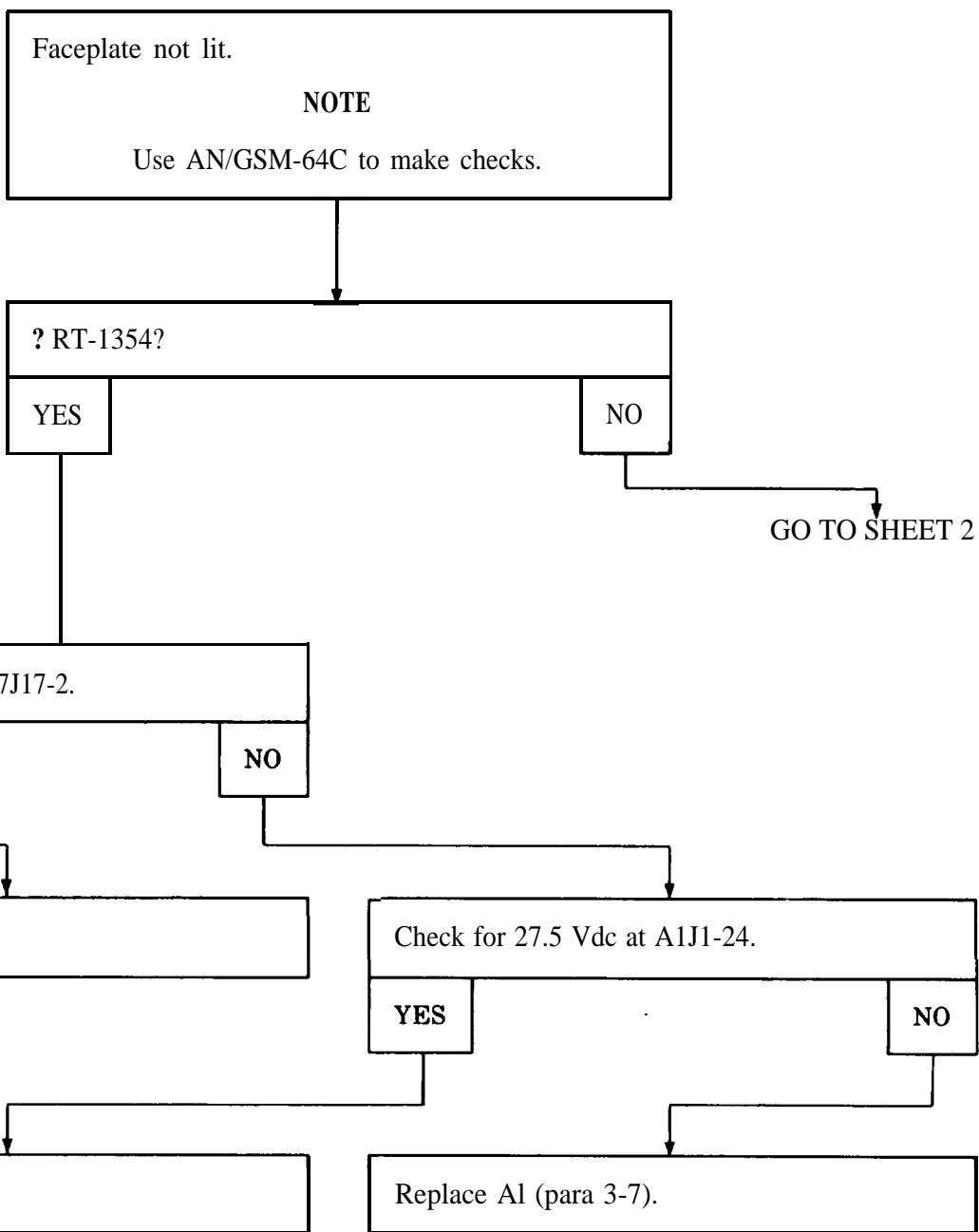
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-14



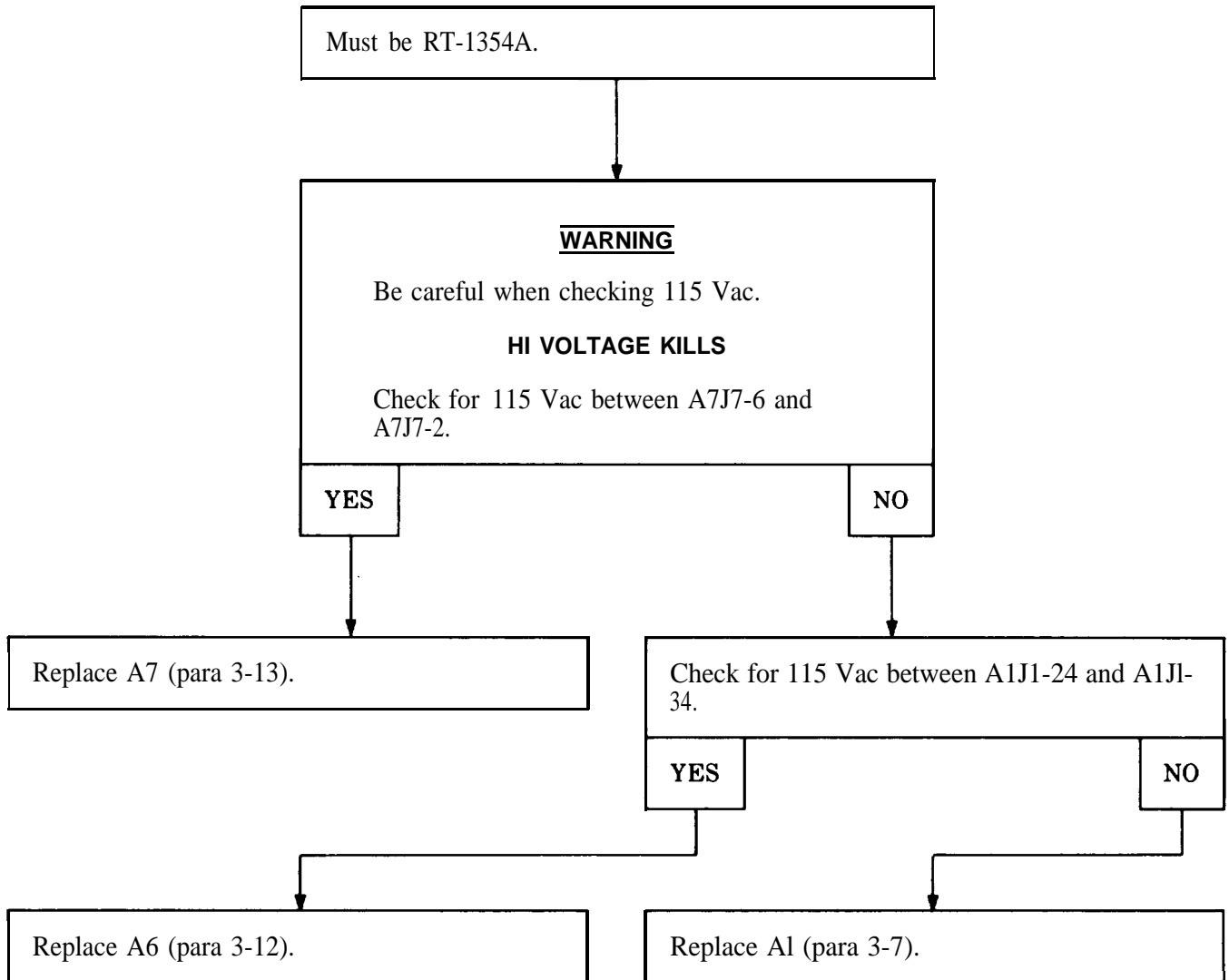
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-15 (SHEET 1)



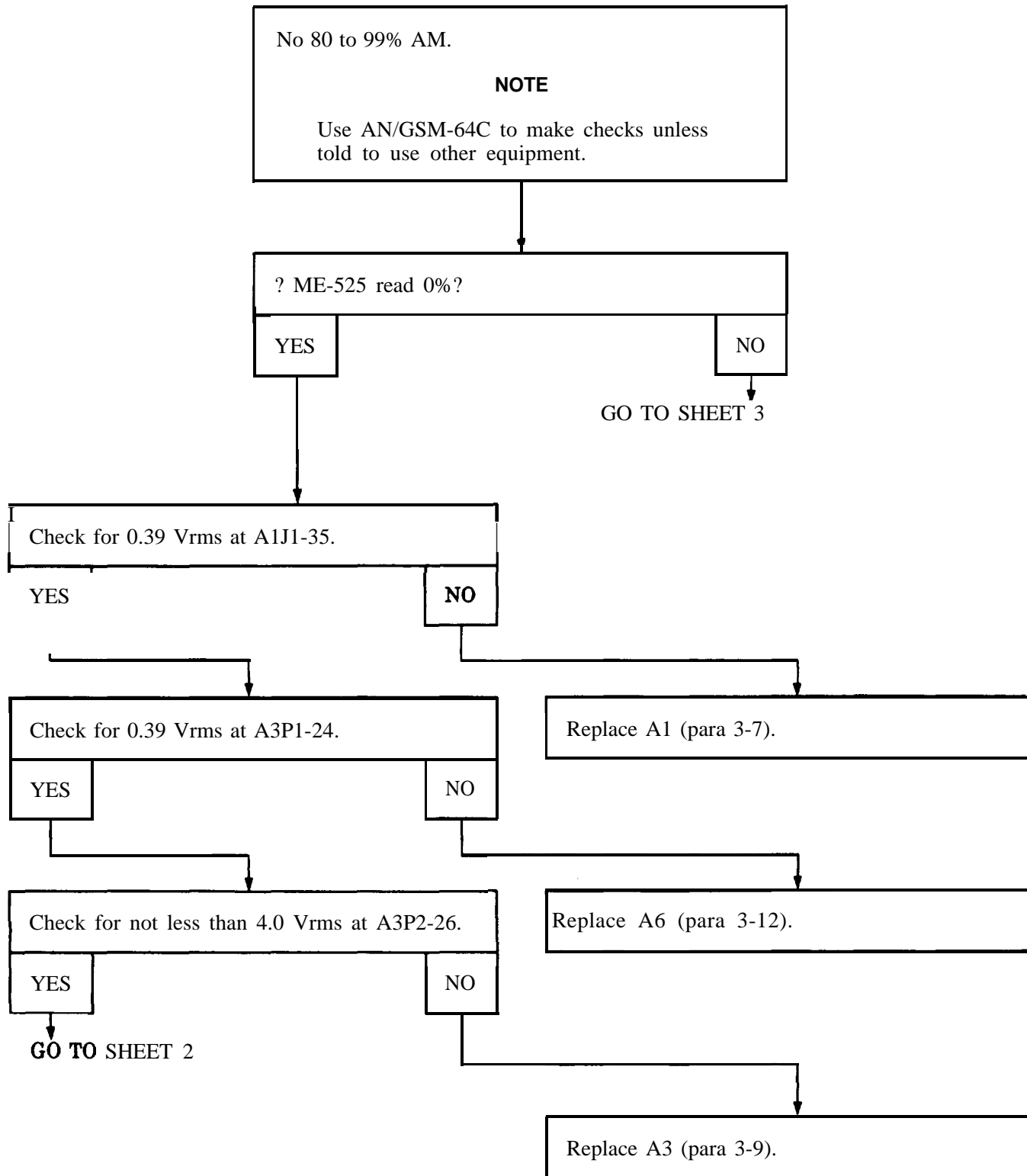
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-15 (SHEET 2)



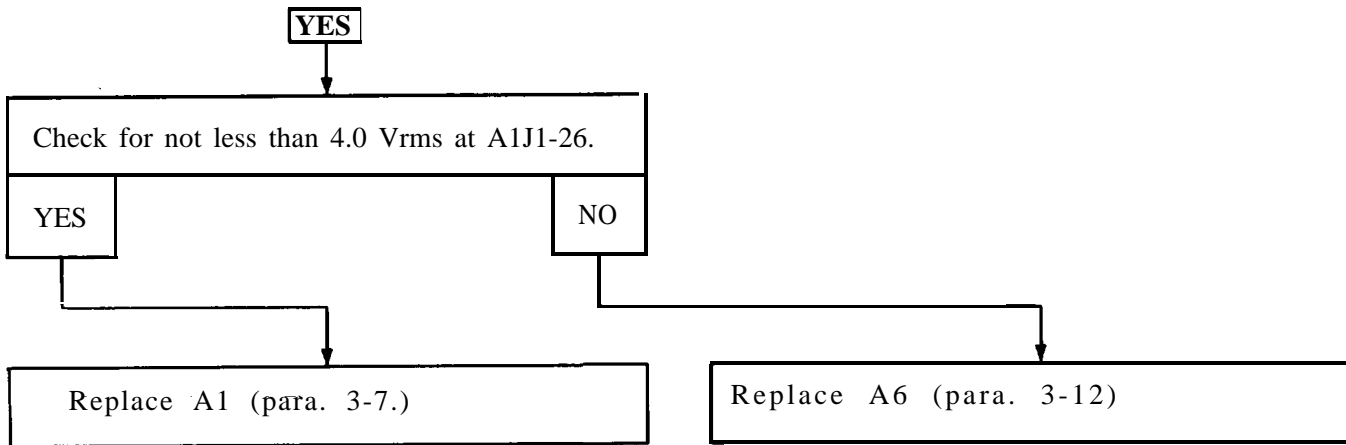
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-16 (SHEET 1)



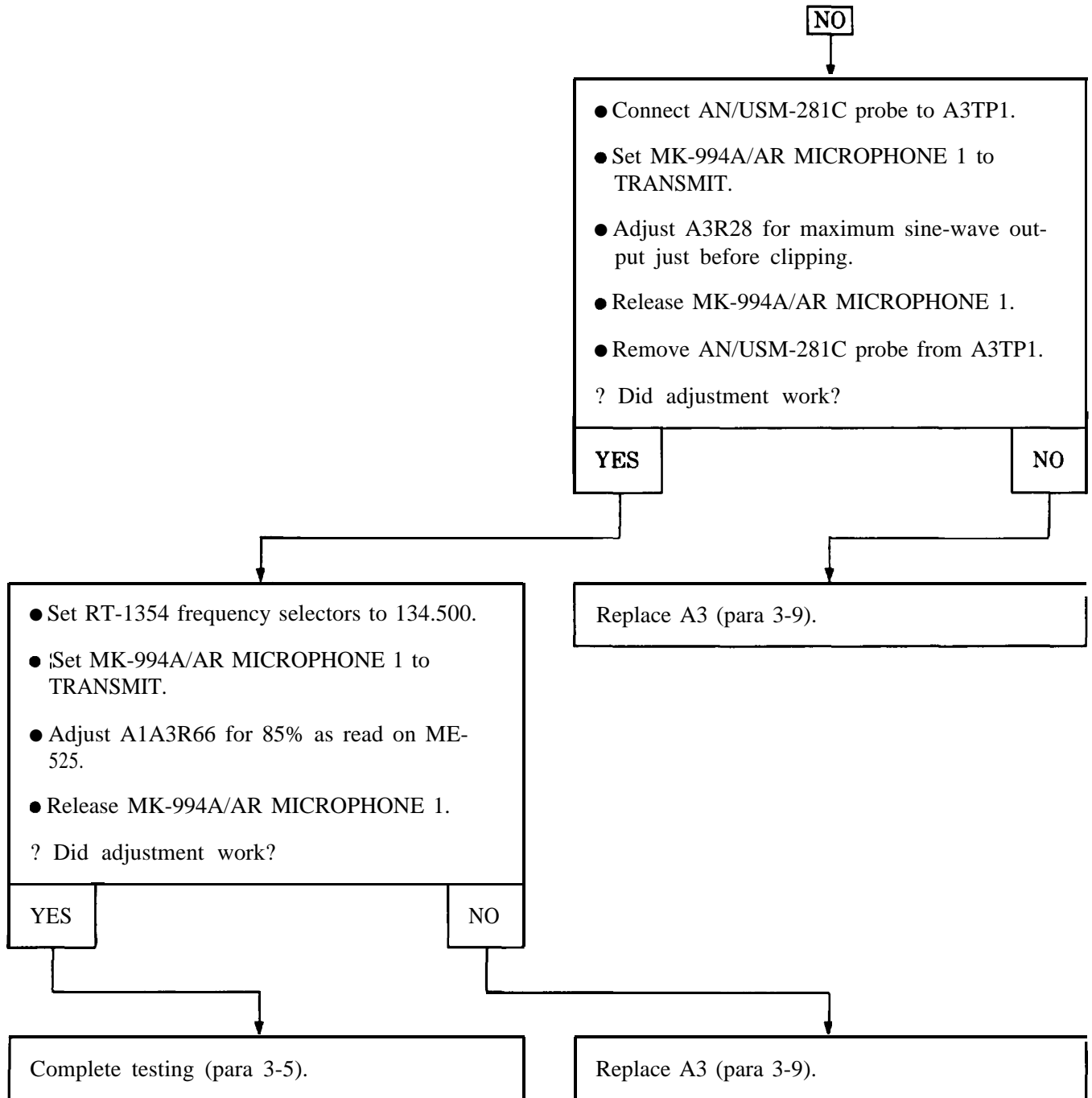
3-6. RADIO SET TROUBLESHOOTING (Continued)

TRouble 3-16 (SHEET 2)



3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-16 (SHEET 3)



3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-17 (SHEET 1)

Sidetone failed test.
NOTE
Use AN/GSM-64C to make checks.

? AN/URM-184A reads 0 Vrms?
YES NO

GO TO SHEET 2

Check for more than 3.5 Vdc at A3P2-19.
YES NO

GO TO SHEET 2

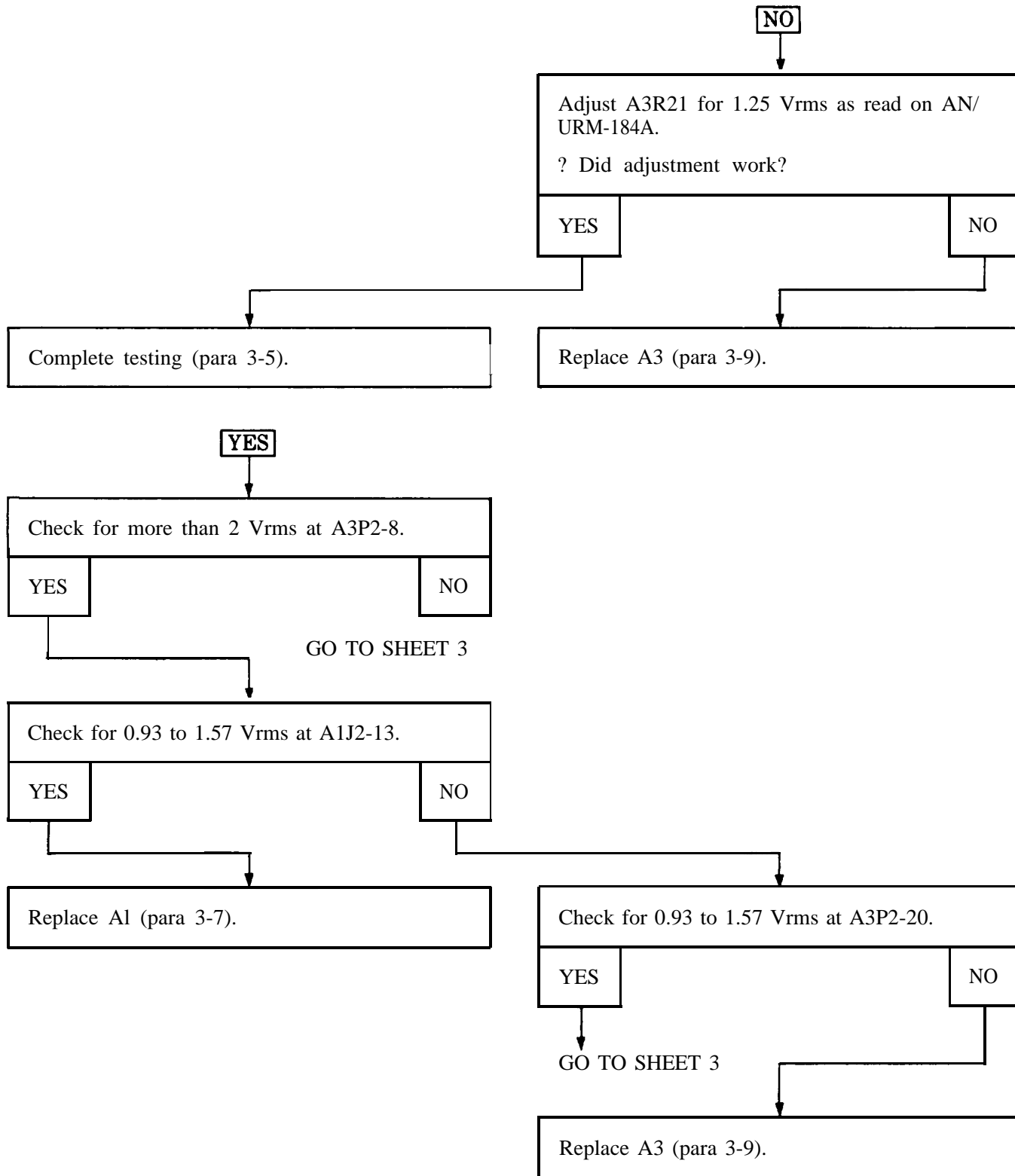
Check for more than 3.5 Vdc at AIJ1-14.
YES NO

Replace A6 (para 3-12).

Replace A1 (para 3-7).

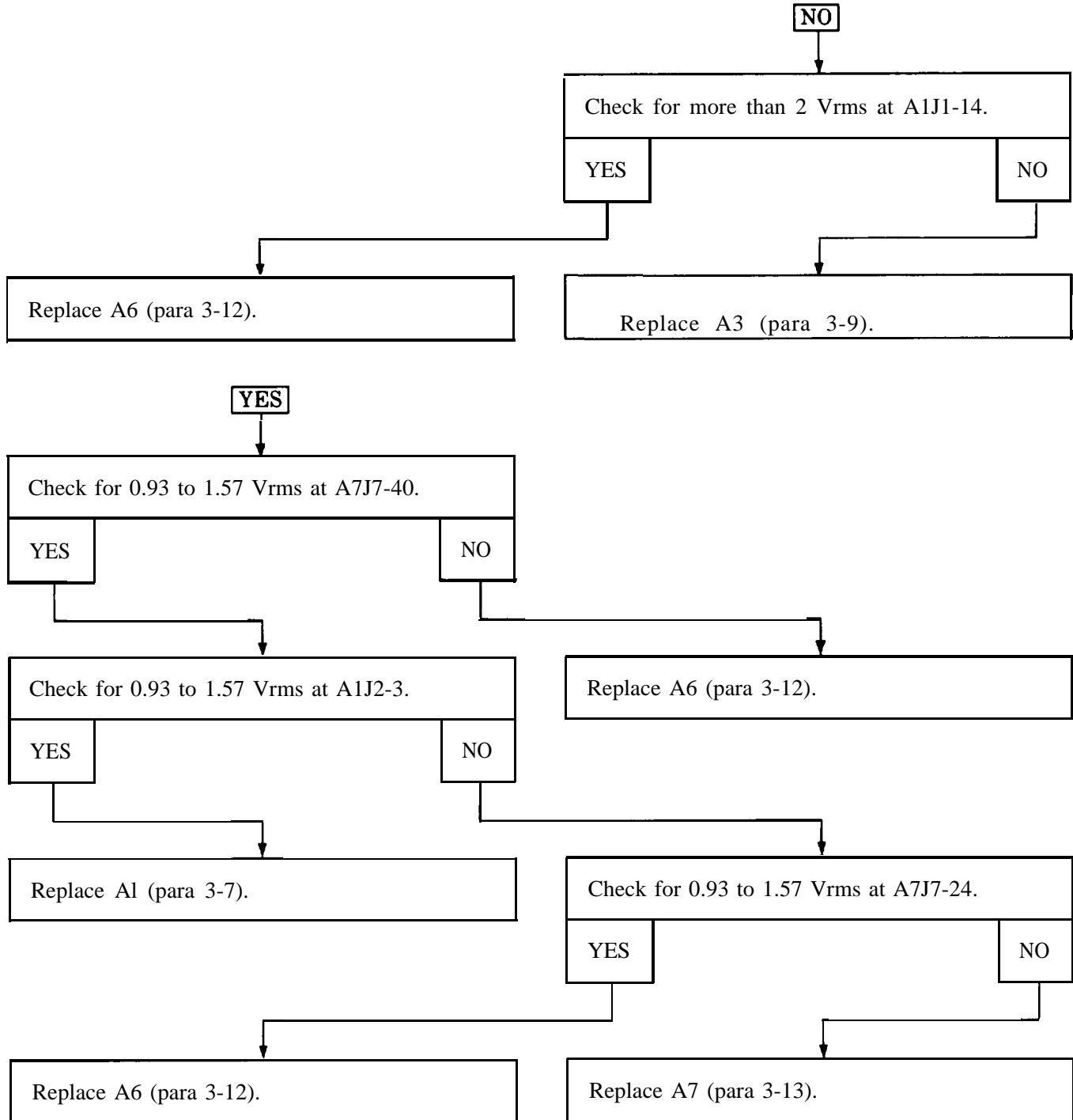
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-17 (SHEET 2)



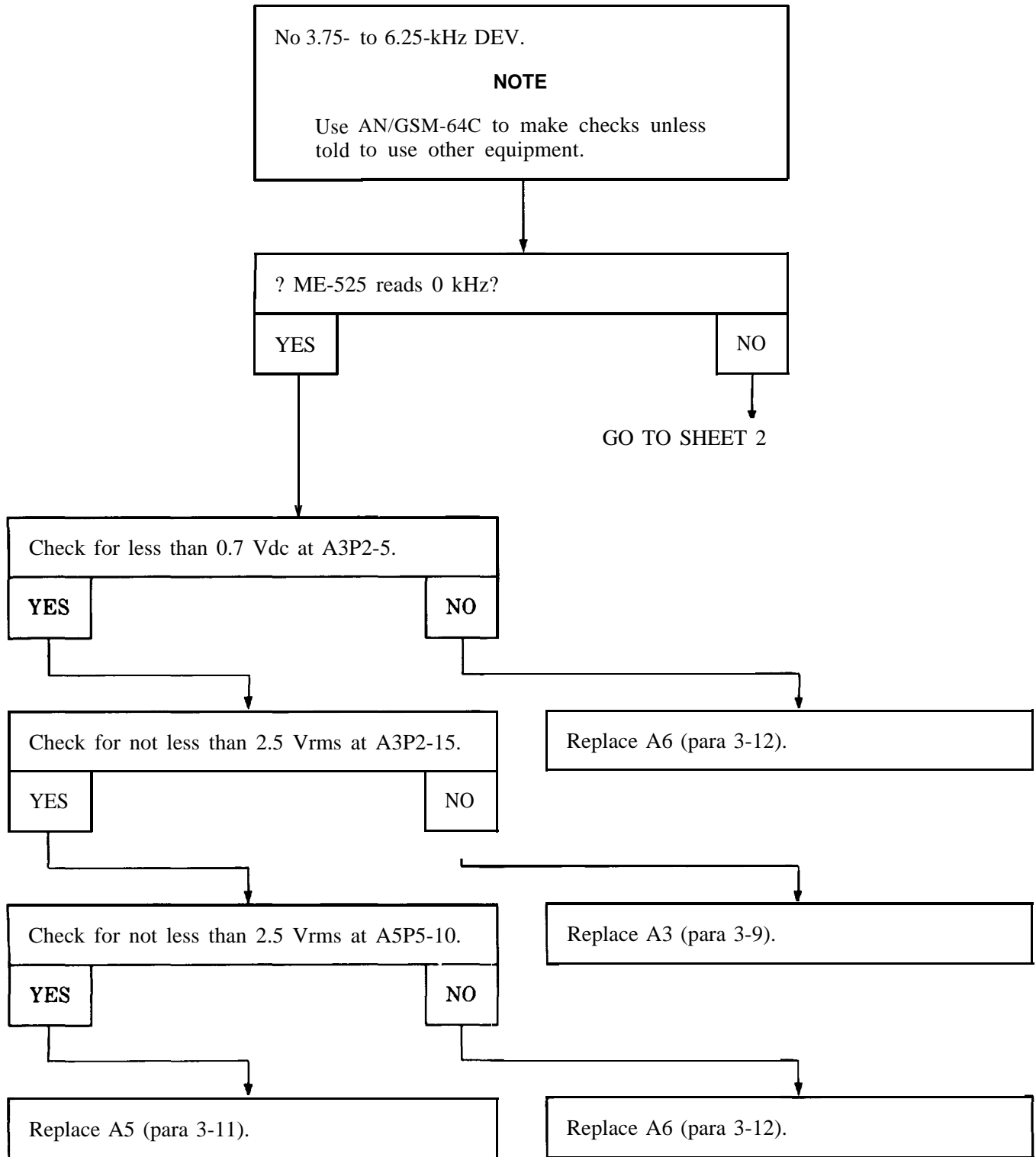
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-17 (SHEET 3)



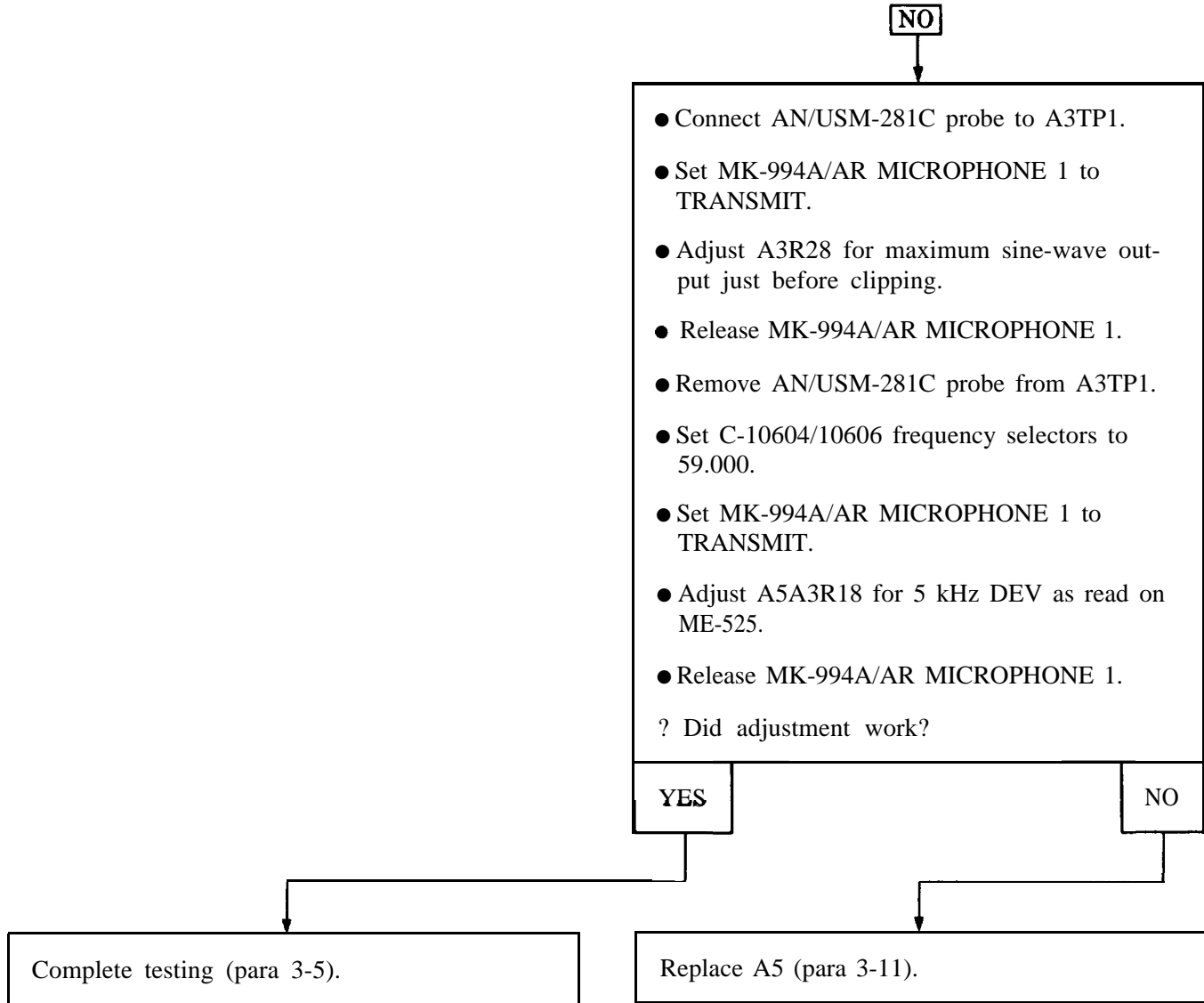
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-18 (SHEET 1)



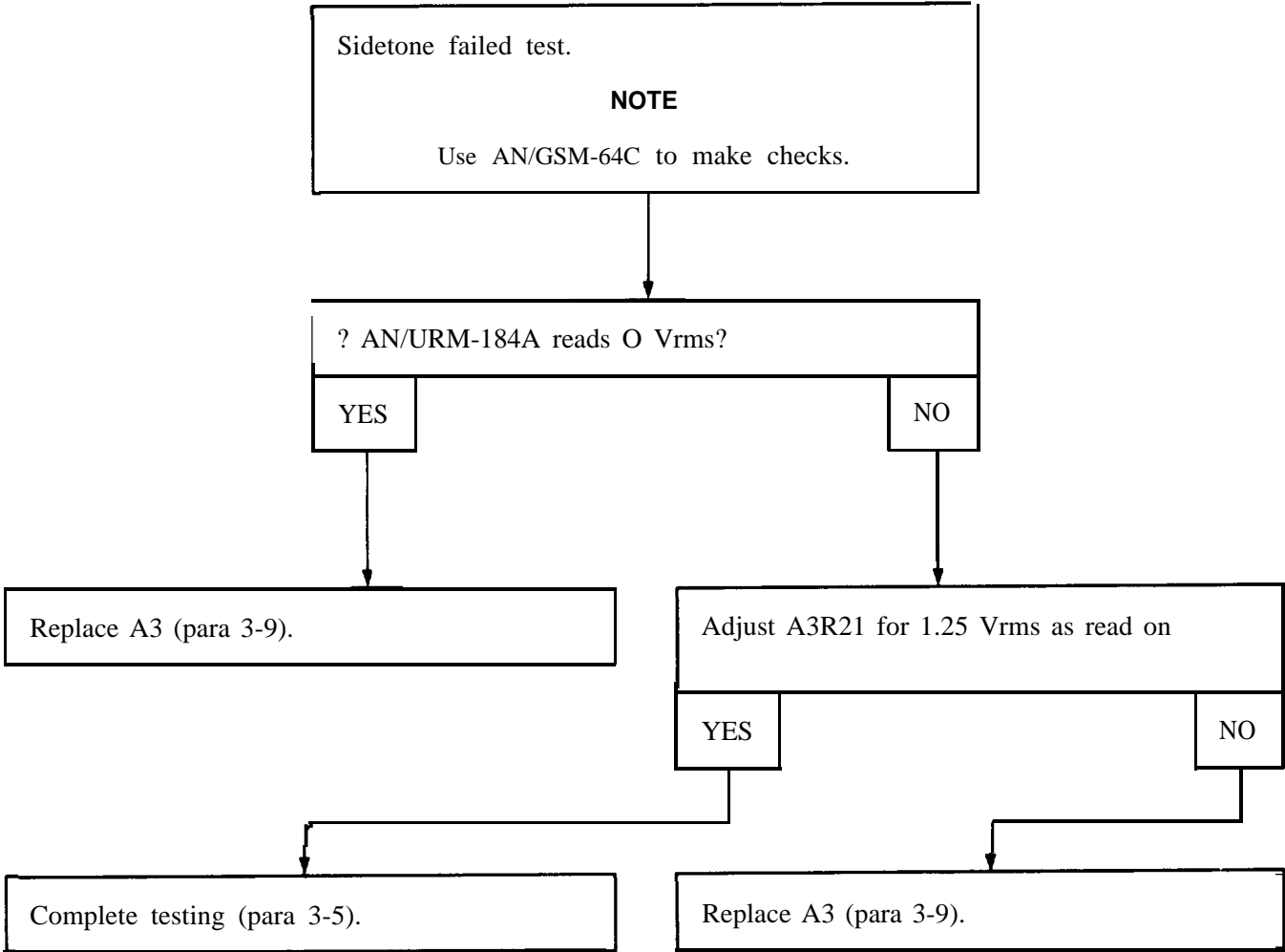
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-18 (SHEET 2)



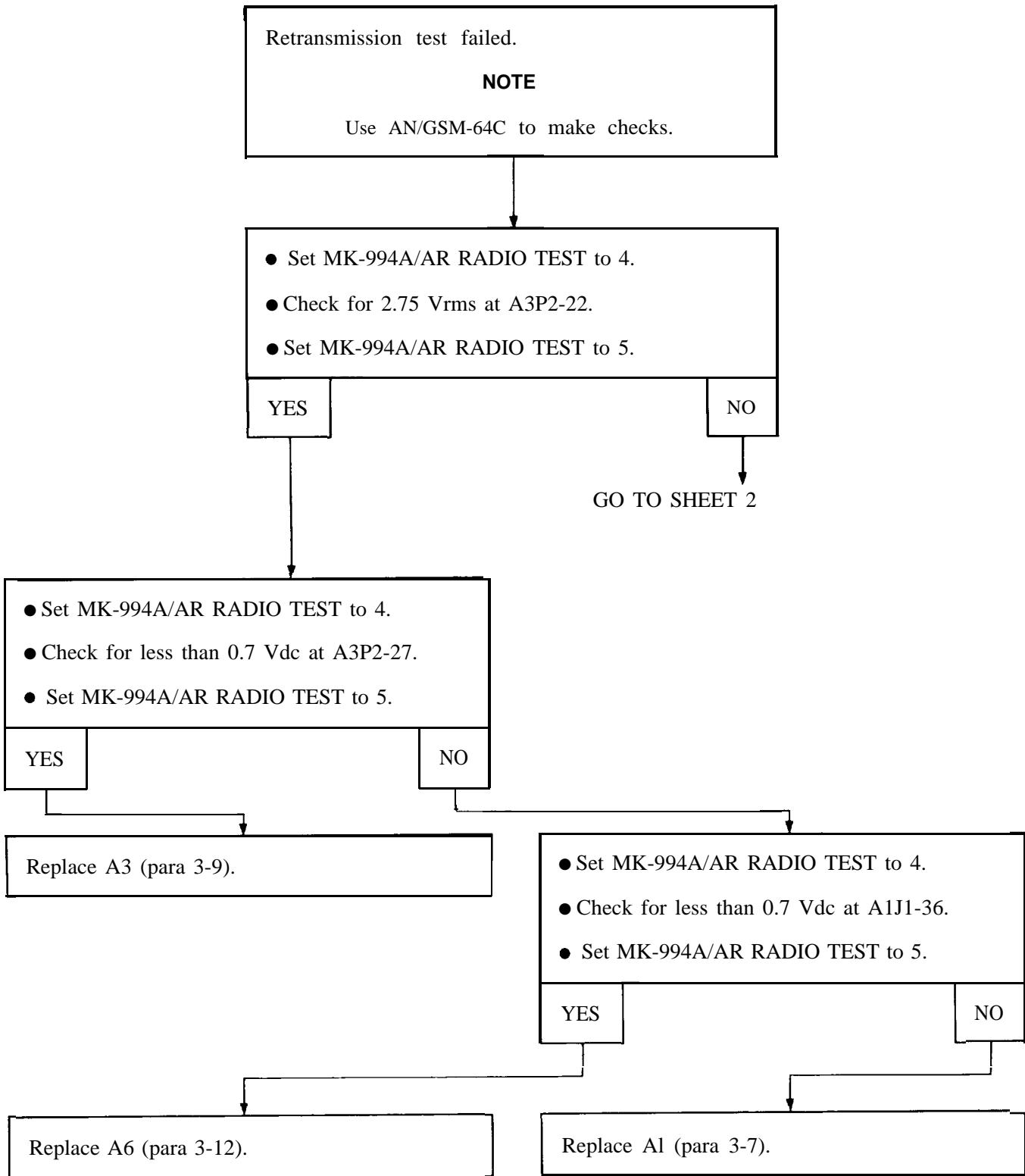
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-19



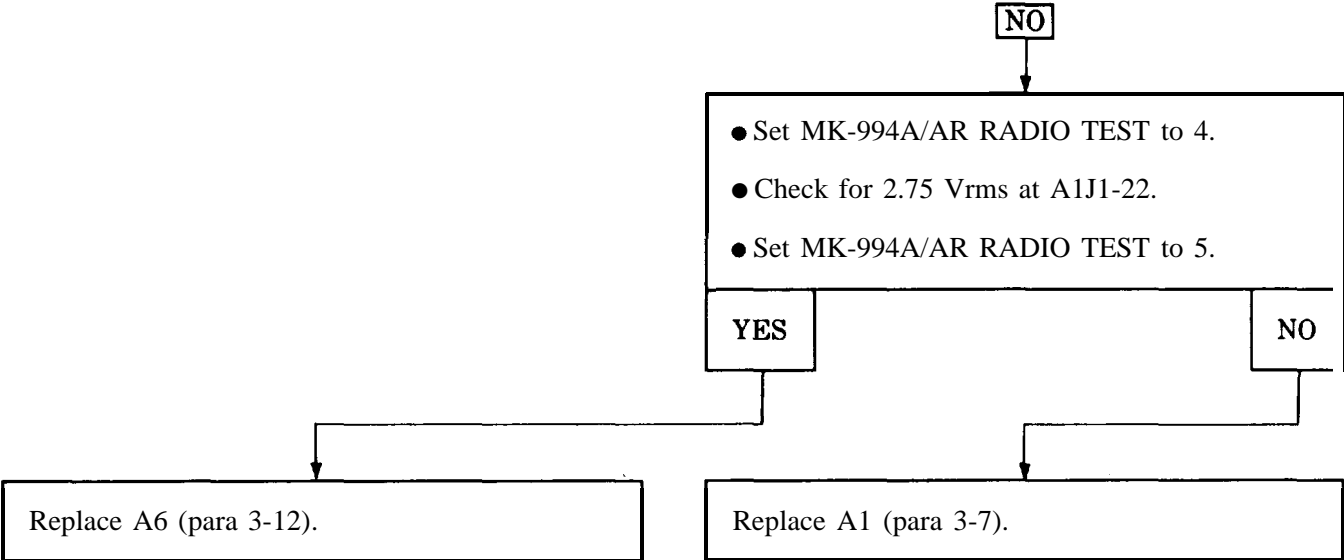
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-20 (SHEET 1)

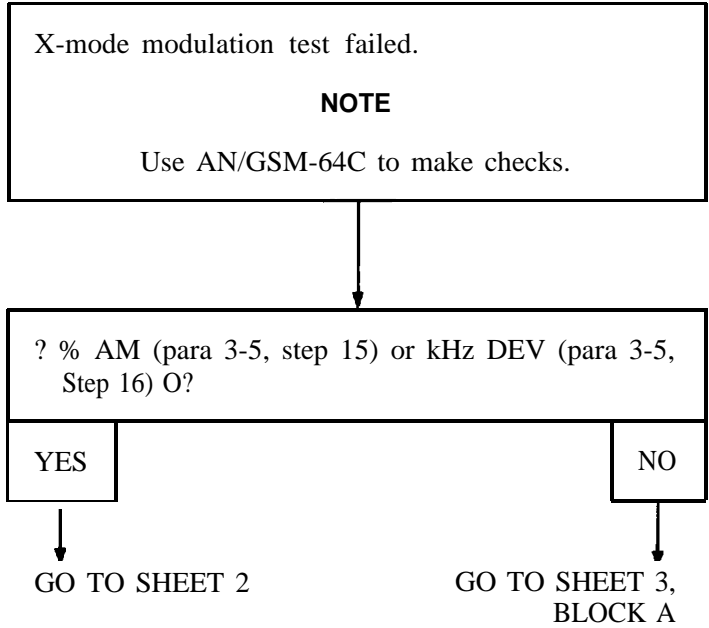


3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-20 (SHEET 2)

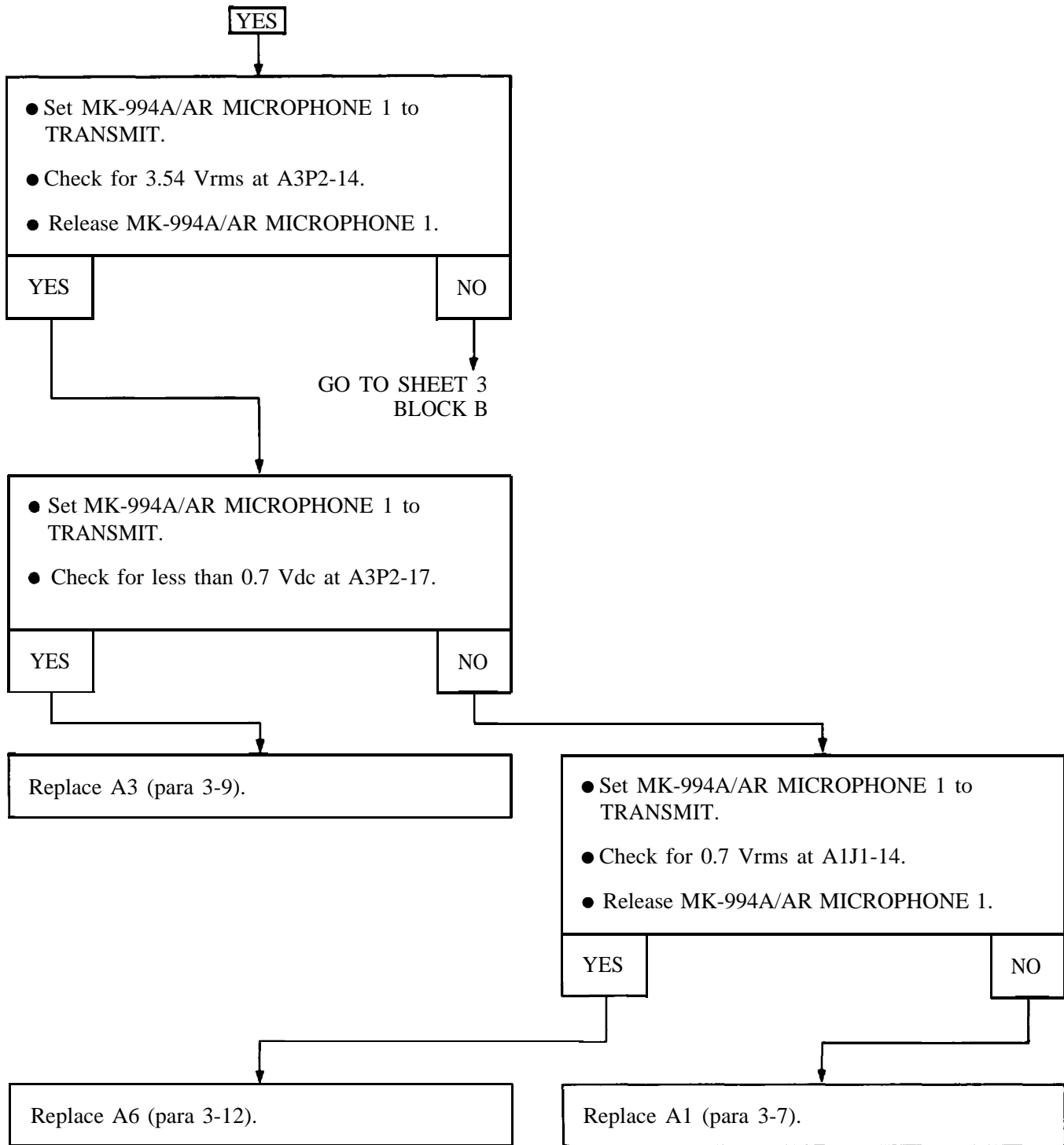


TROUBLE 3-21 (SHEET 1)



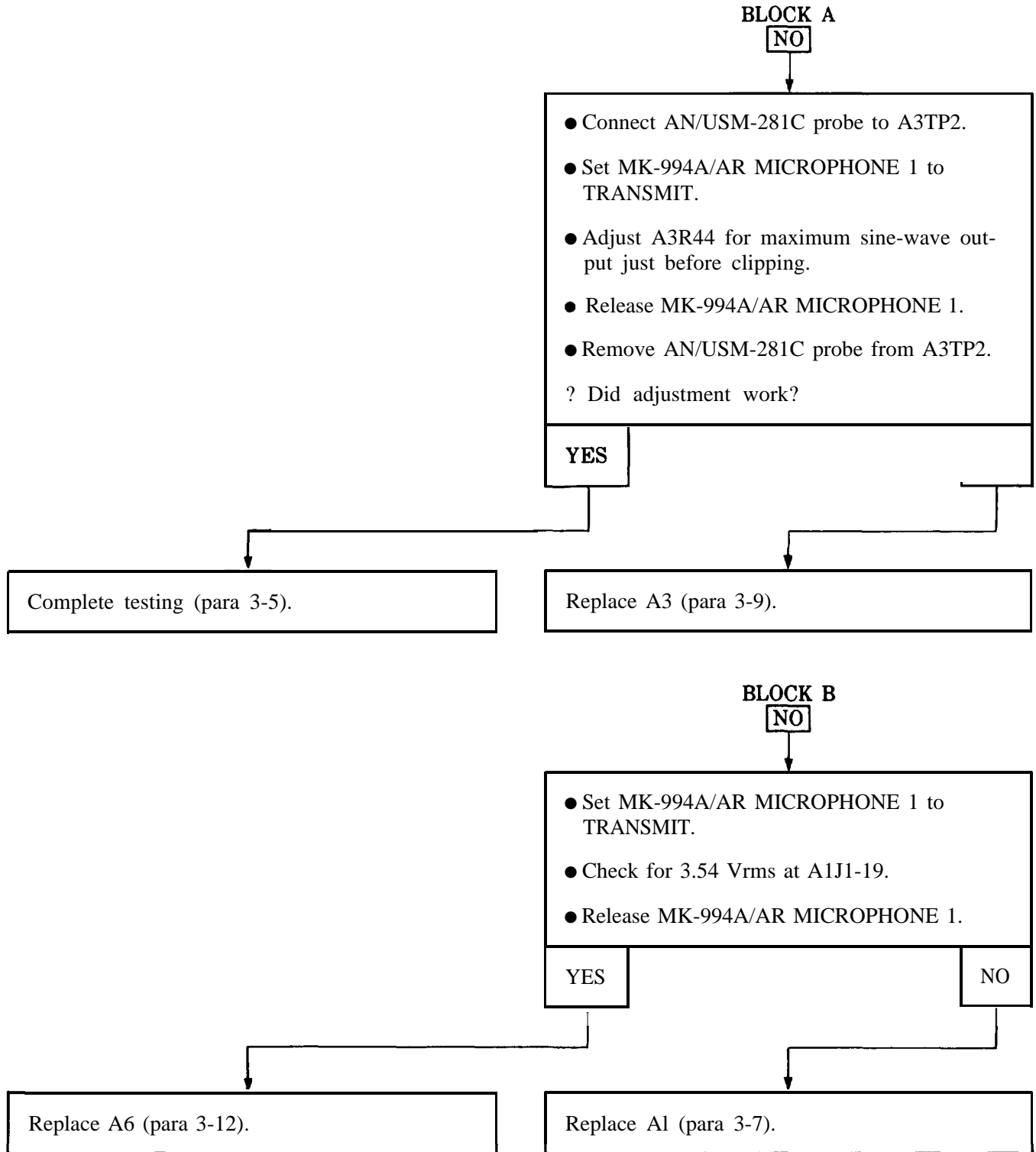
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-21 (SHEET 2)



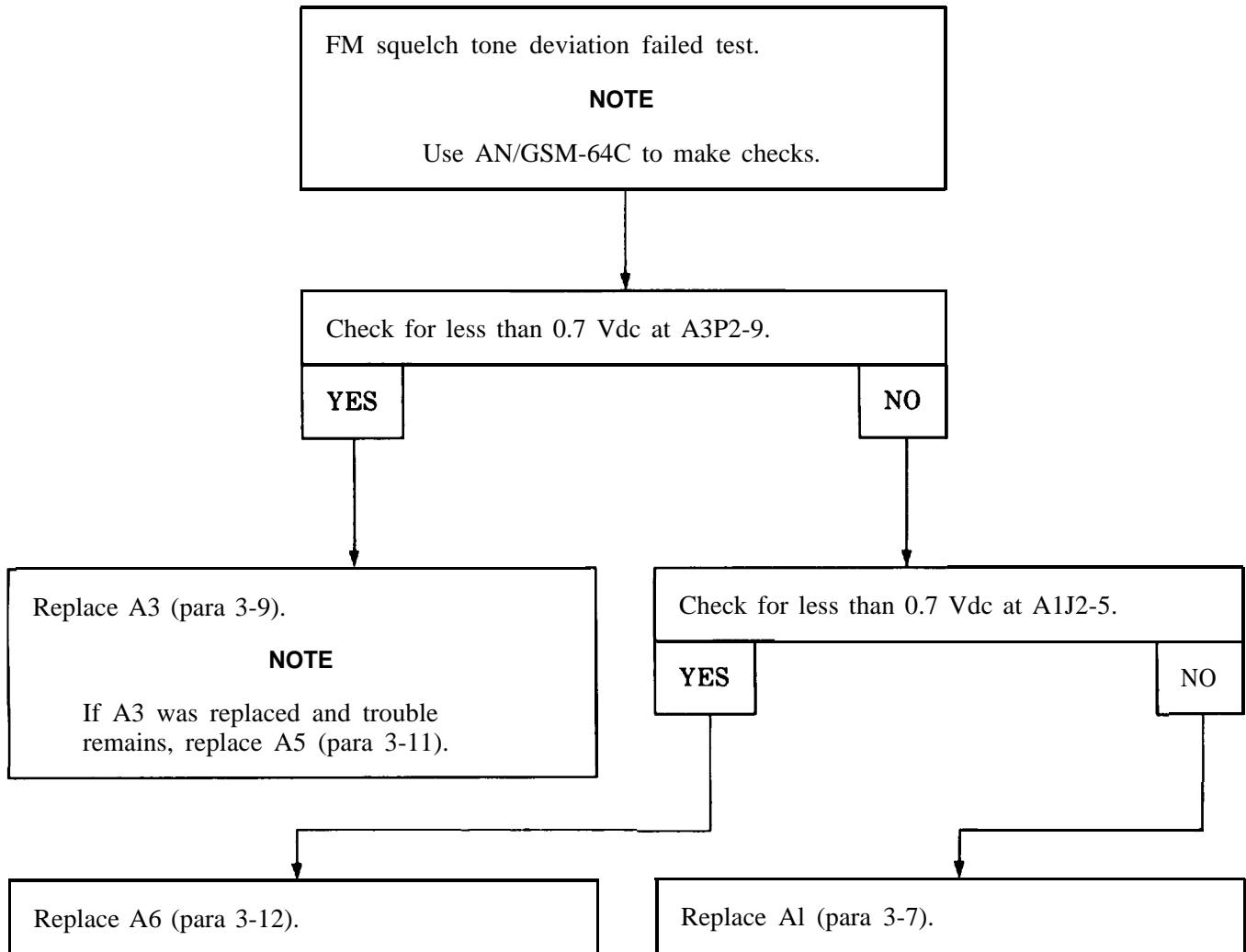
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-21 (SHEET 3)



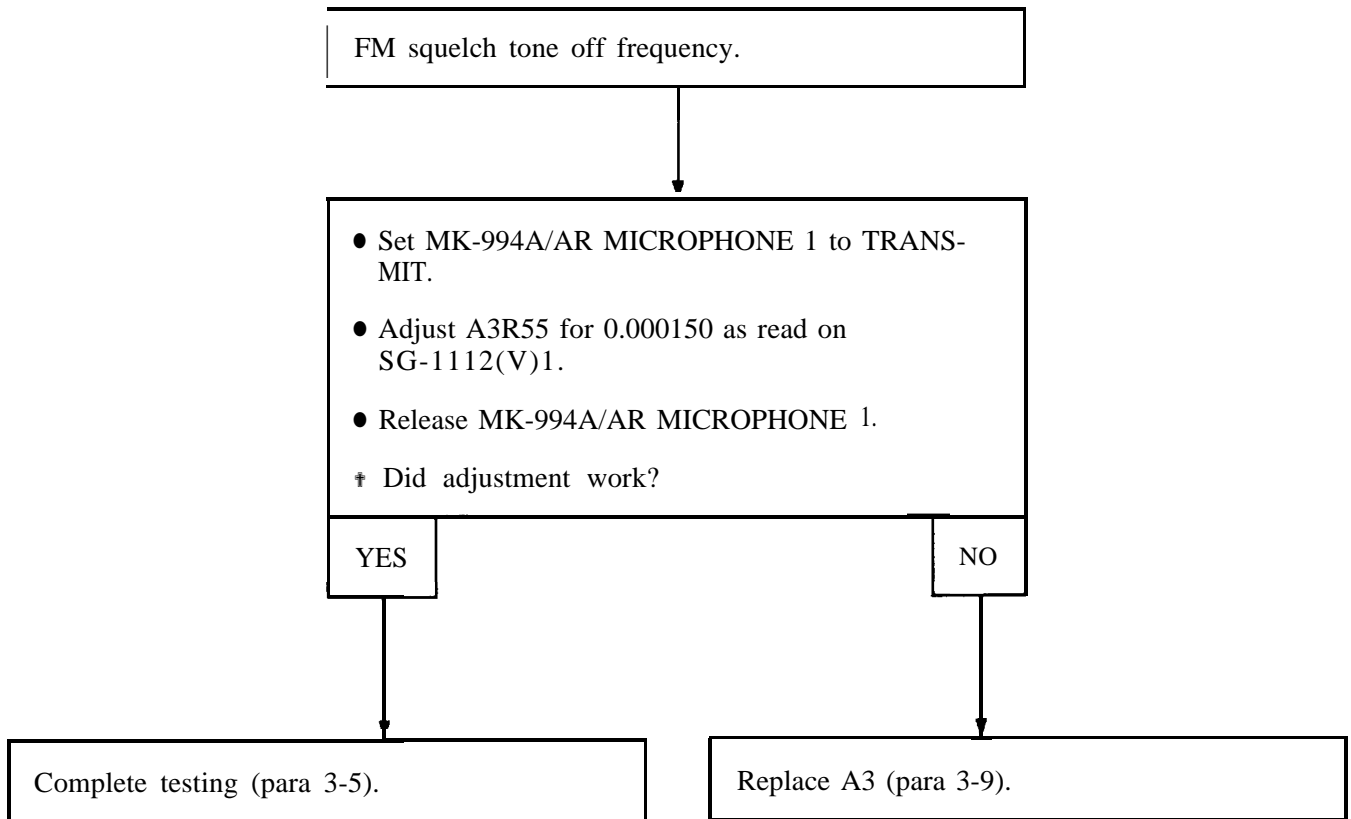
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-22

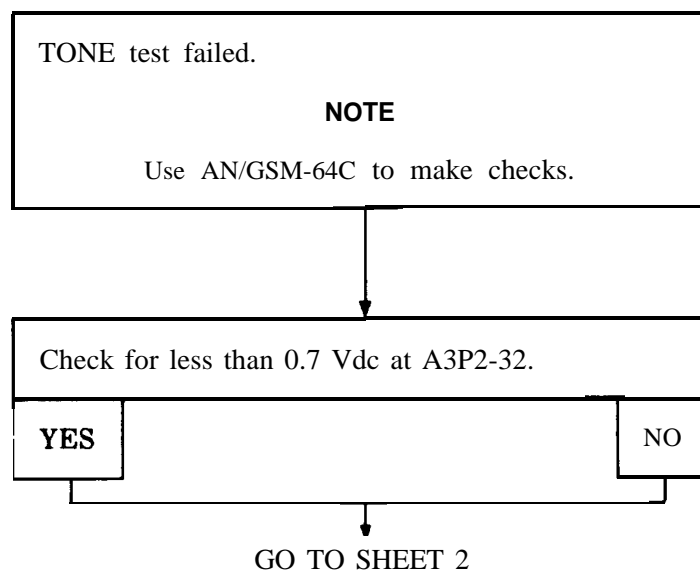


3-6. RADIO SET TROUBLESHOOTING (Continued)

TRouble 3-23

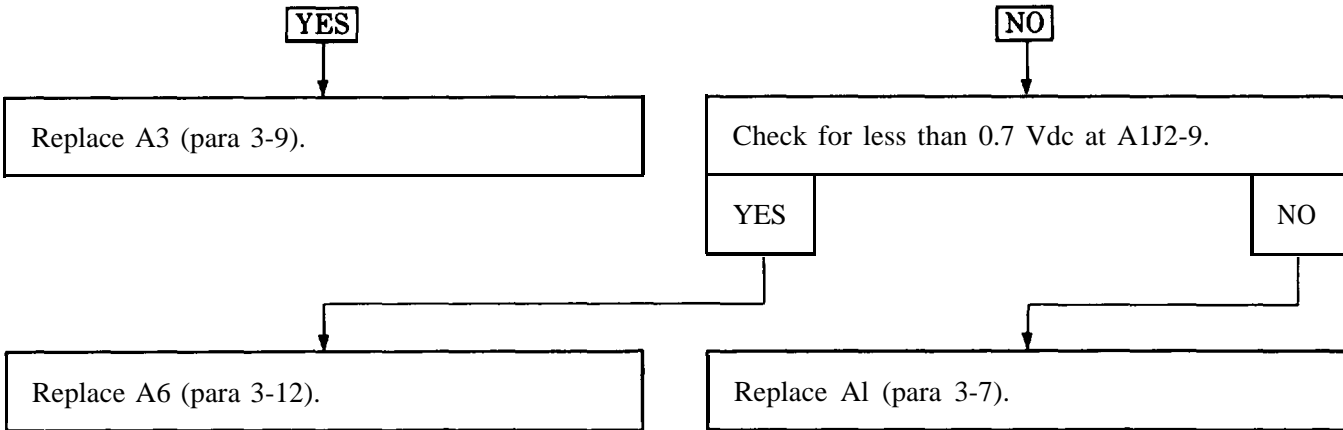


TRouble 3-24 (SHEET 1)

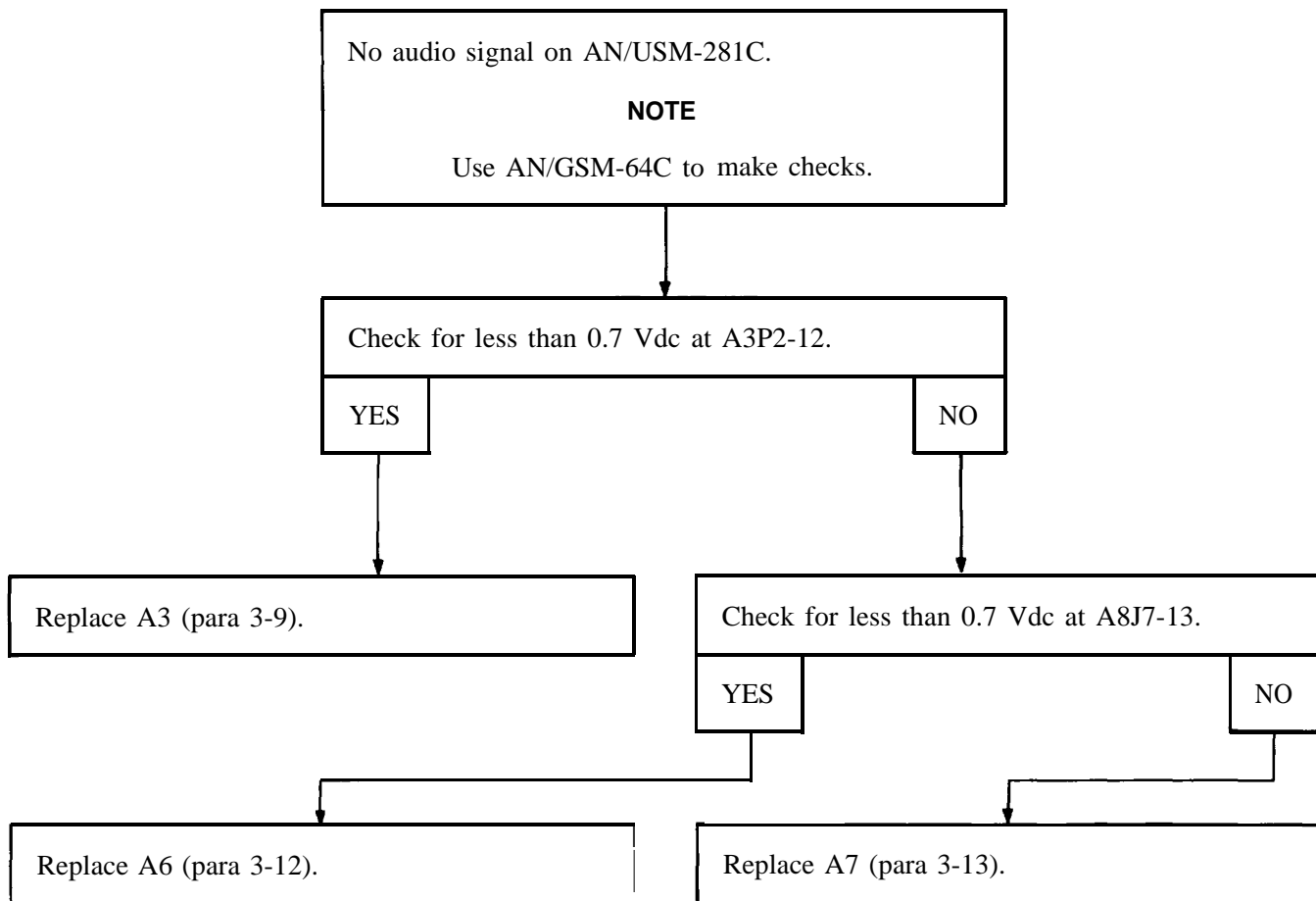


3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-24 (SHEET 2)

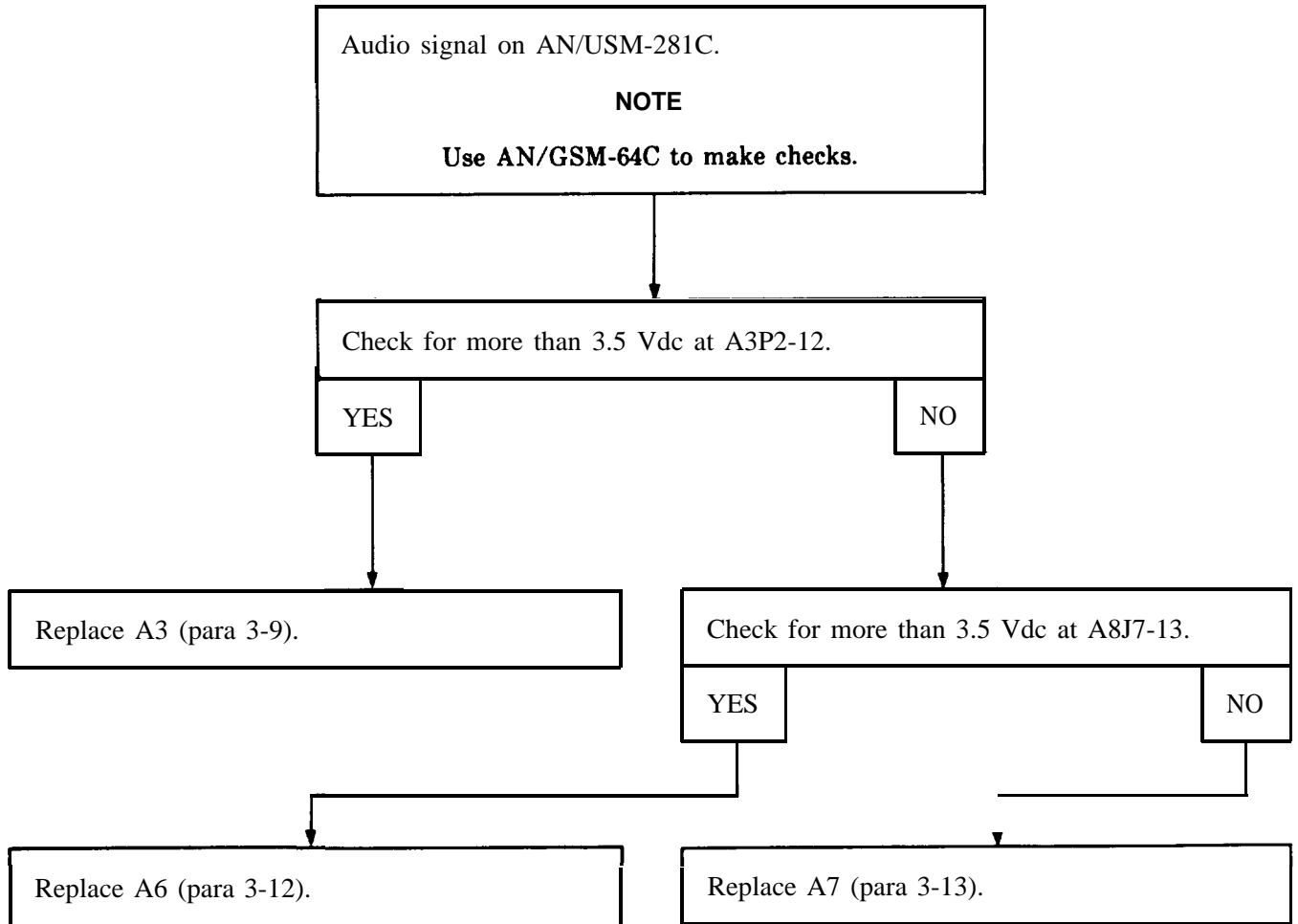


TROUBLE 3-25



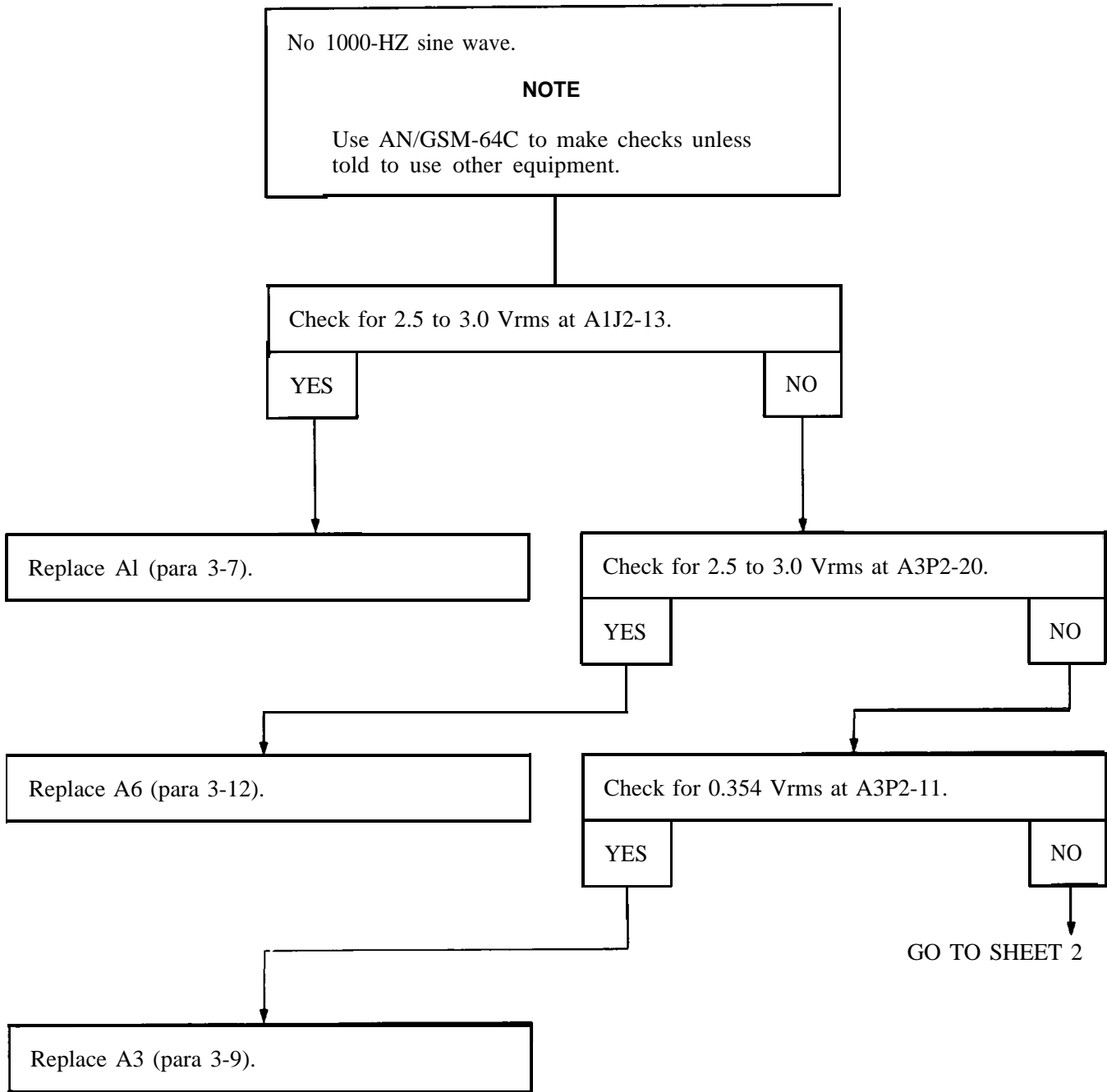
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-26



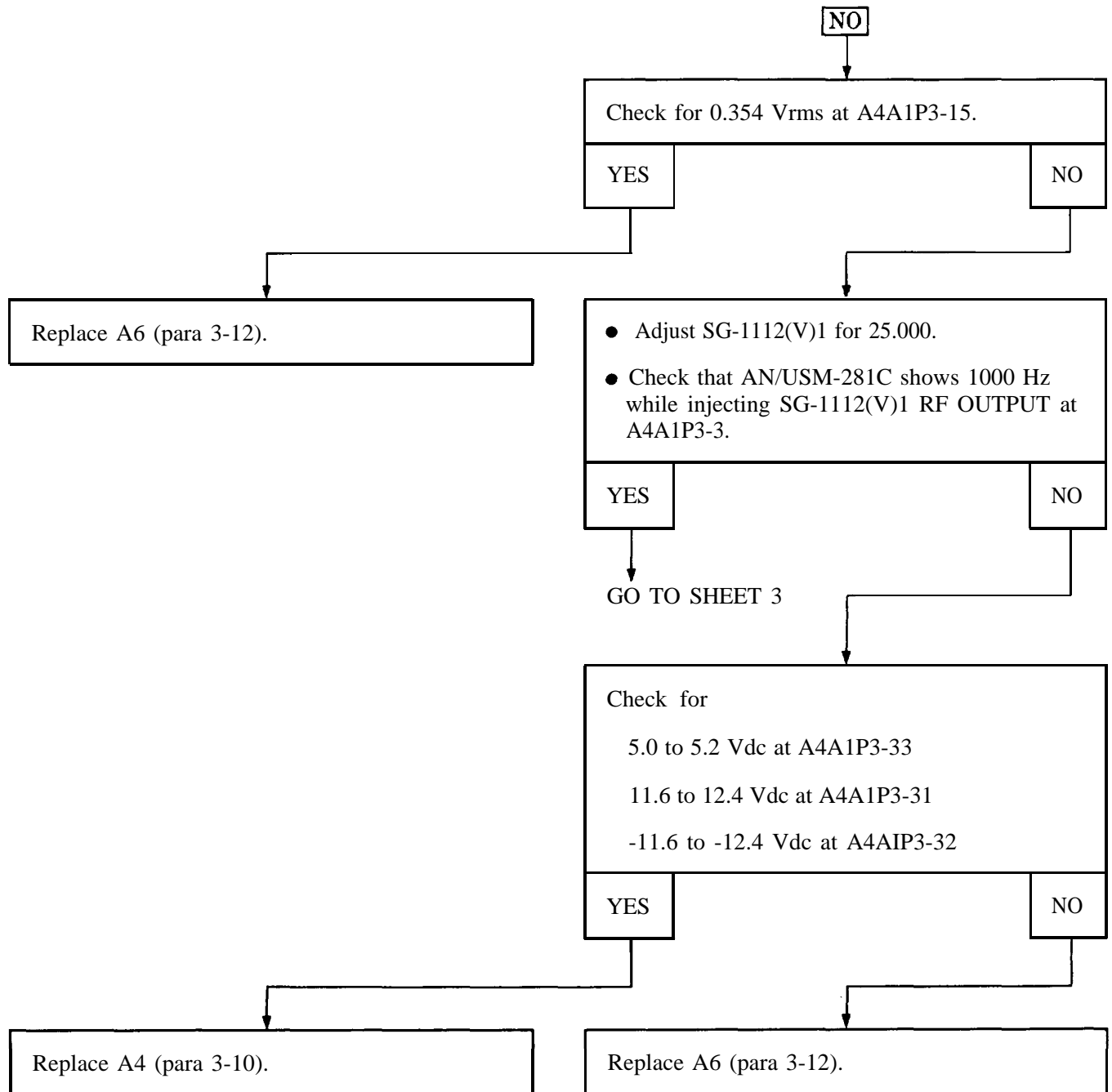
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-27 (SHEET 1)



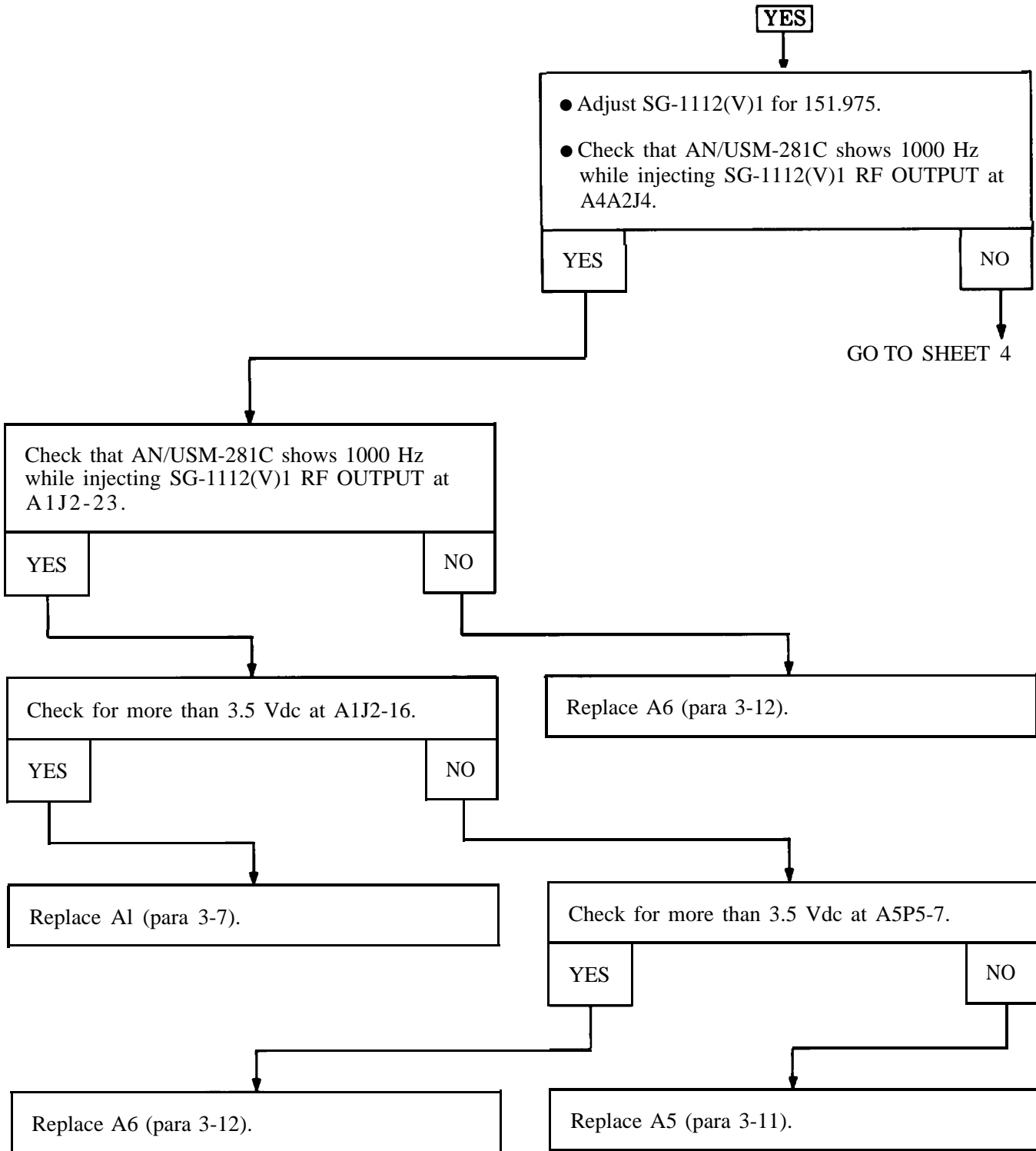
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-27 (SHEET 2)



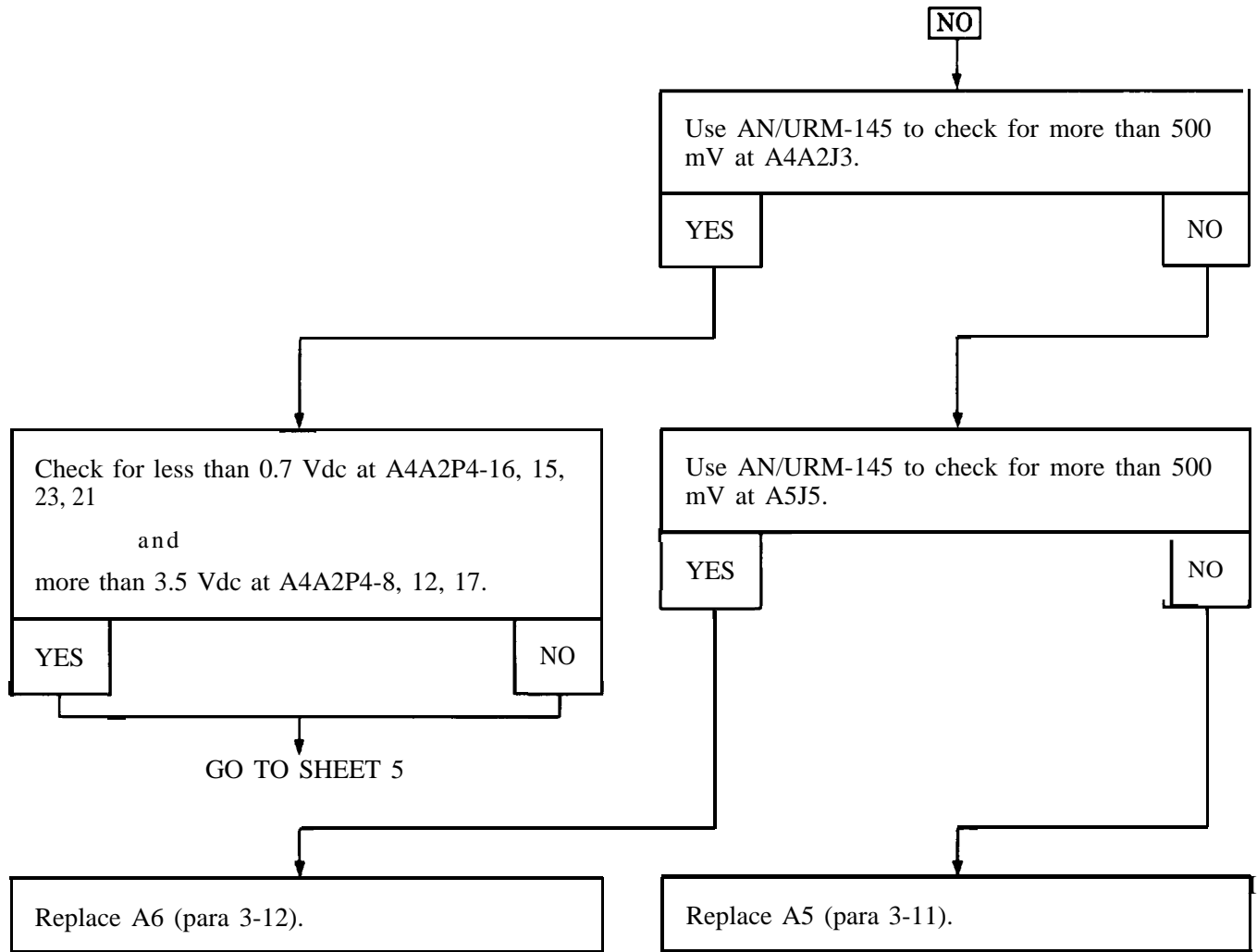
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-27 (SHEET 3)



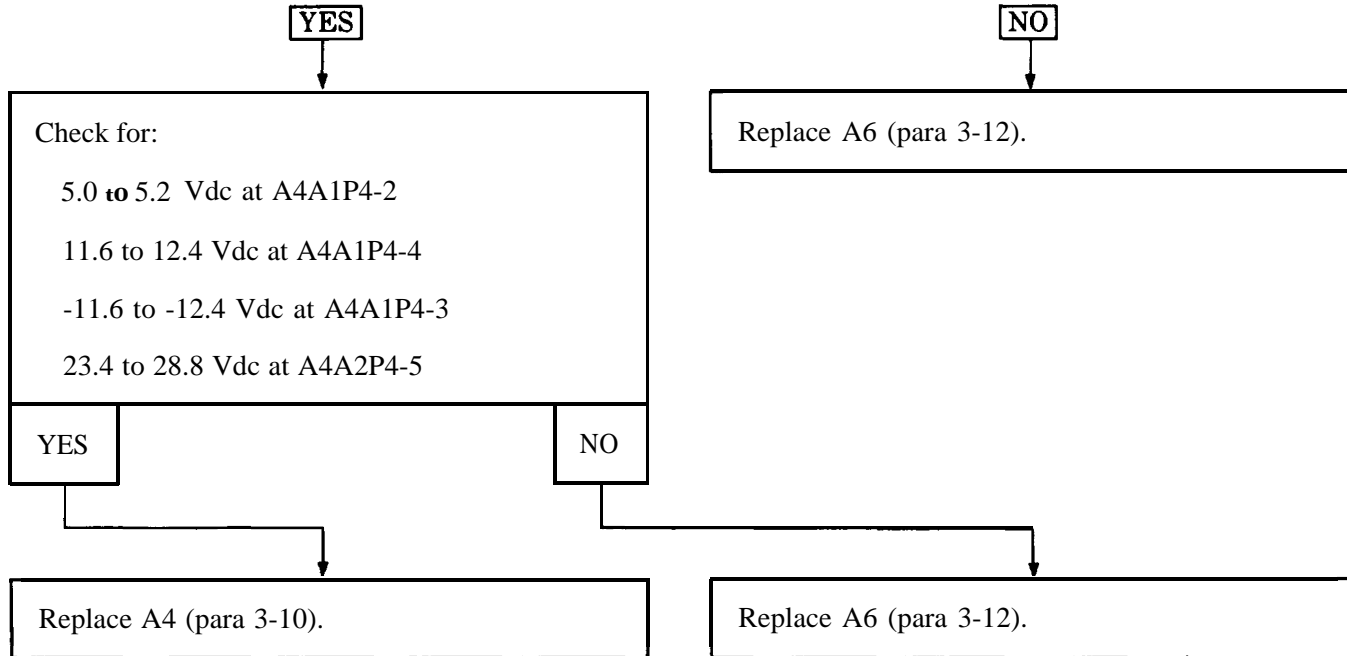
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-27 (SHEET 4)

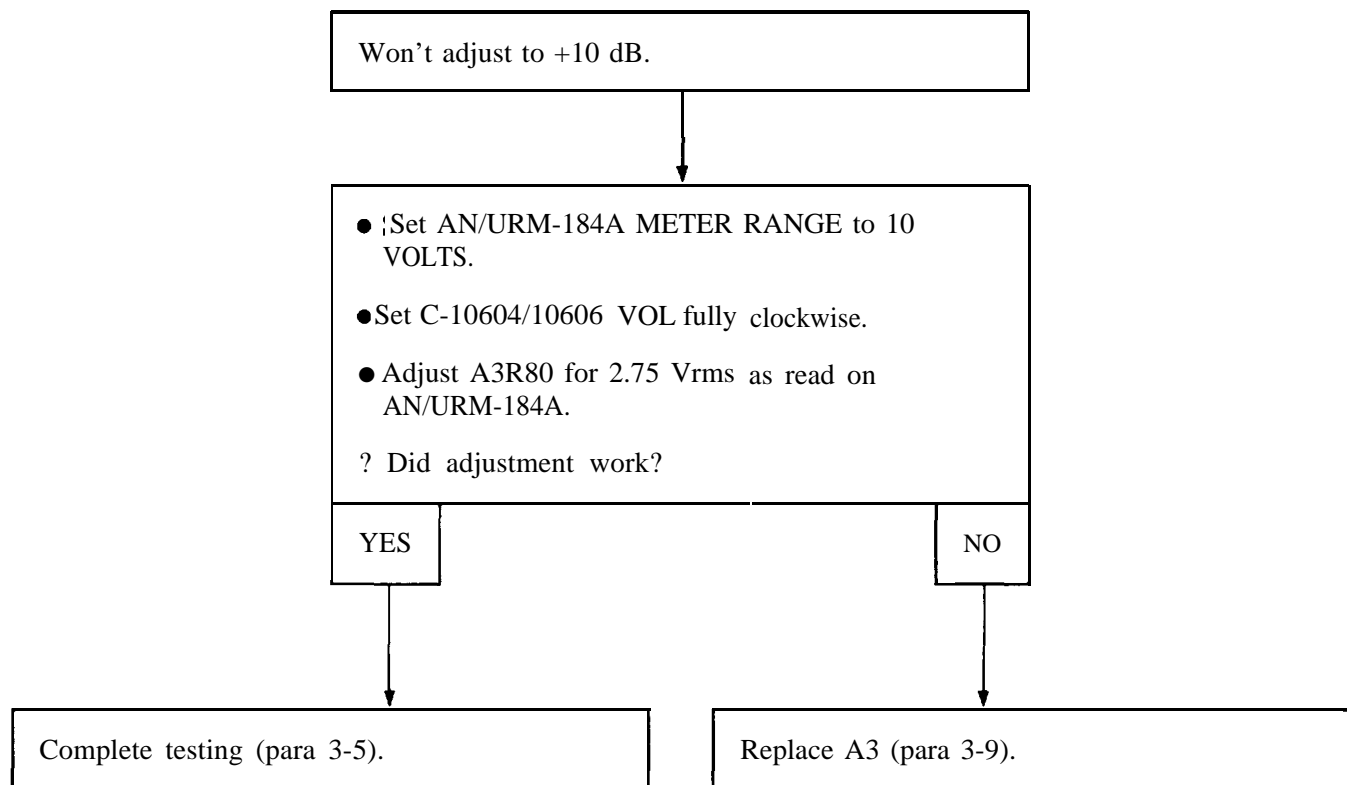


3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-27 (SHEET 5)

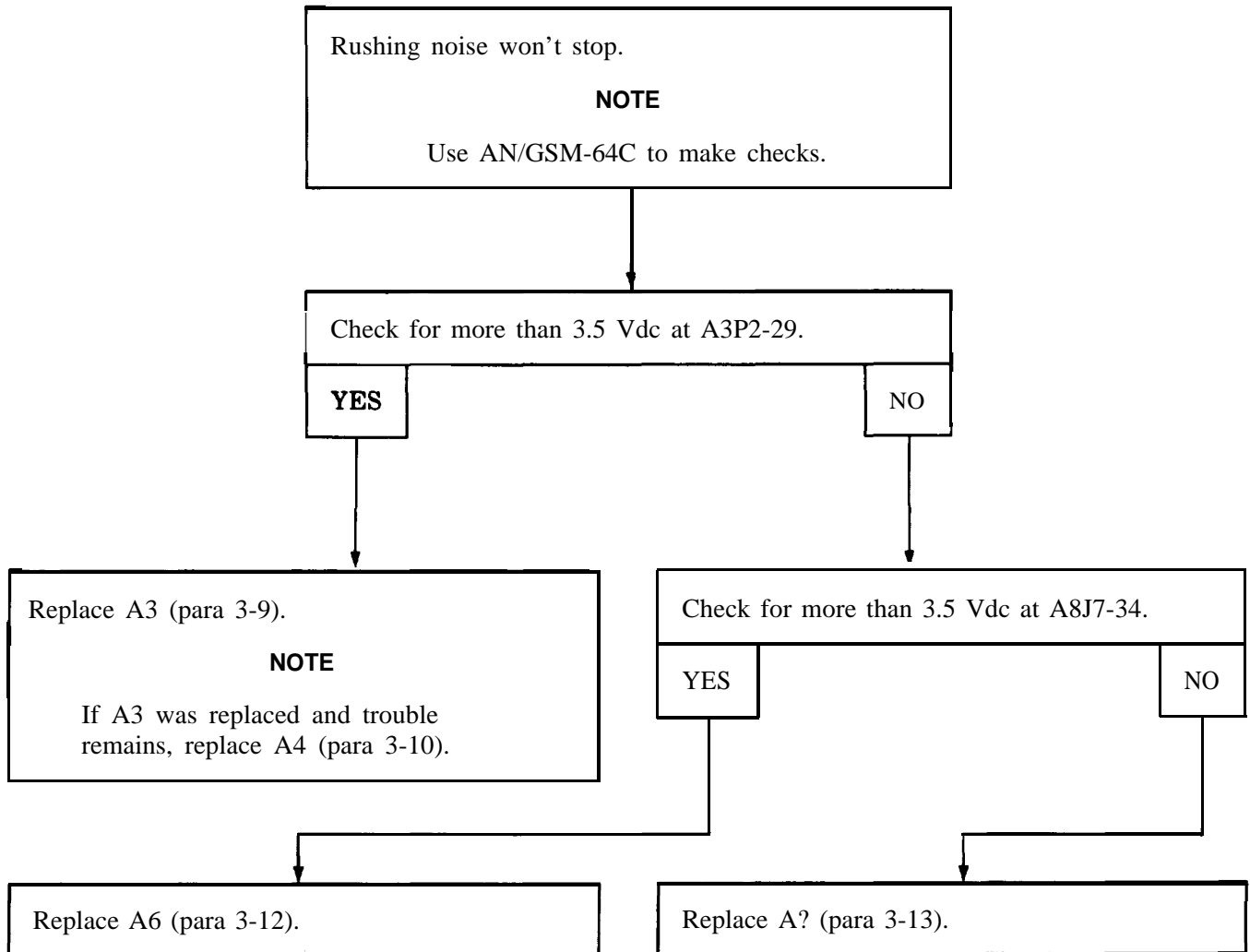


TROUBLE 3-28



3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-29



3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-30 (SHEET 1)

Takes more than 6 μV to unsquelch receiver.

NOTE

Use AN/GSM-64C to make checks.

- Set RT-1354 frequency selectors to 134.000.
- Set SG-1112(V)1 to 134.000, 1000 Hz, 30% modulation, at 6.0 μV .
- Slowly adjust AM SQUELCH fully counterclockwise until AN/URM-184A reading increases.
- Set SG-1112(V)1 OUTPUT LEVEL to 0,1 μV (AN/URM-184A reading decreases).
- Slowly increase SG-1112(V)1 OUTPUT LEVEL until AN/URM-184A reading increases. SG-1112(V)1 OUTPUT LEVEL should be 6.0 μV . If not, try the adjustment again a couple of times.

? Did adjustment work?

YES

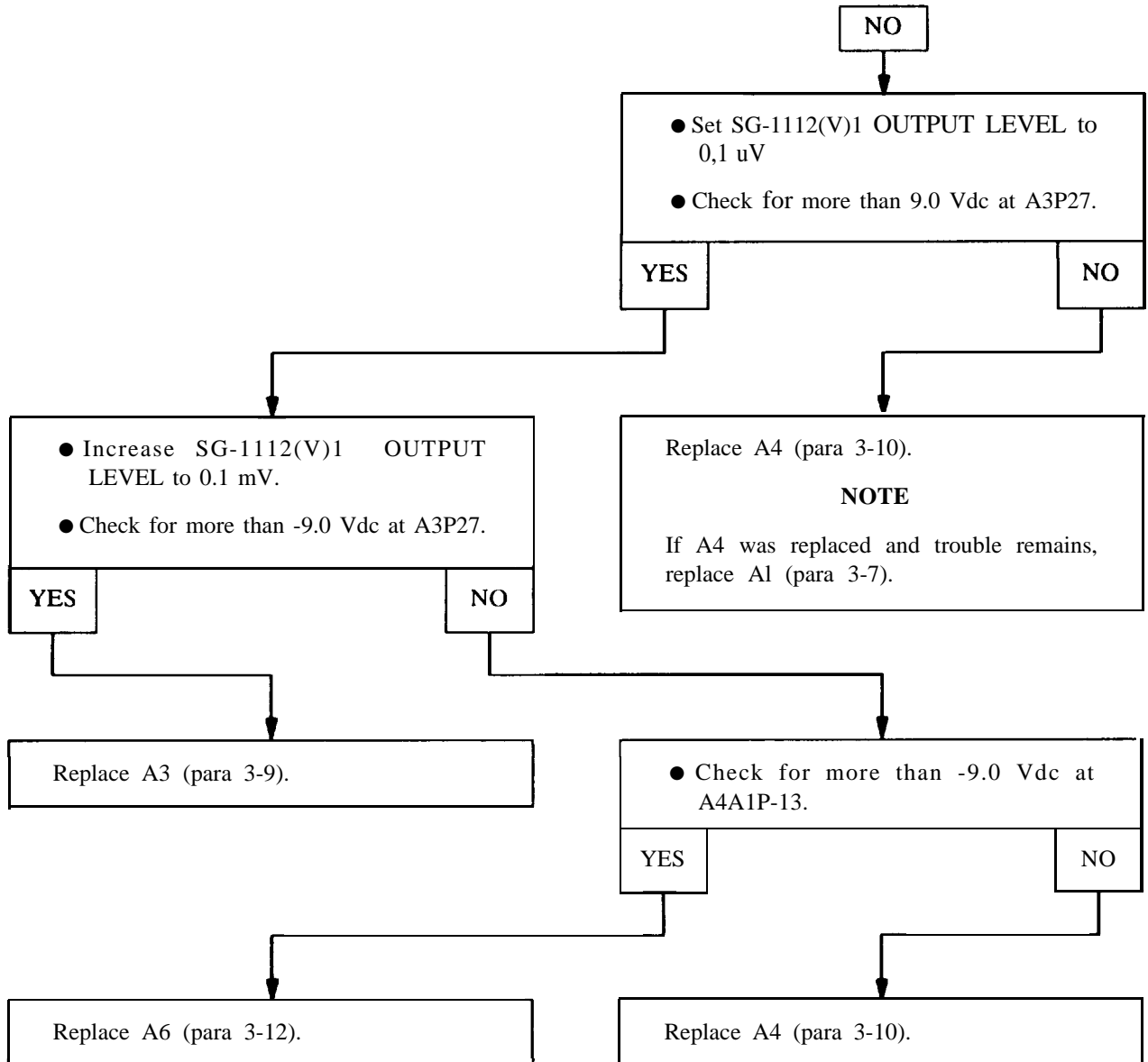
NO

Complete testing (para 3-5).

GO TO SHEET 2

3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-30 (SHEET 2)



3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-31 (SHEET 1)

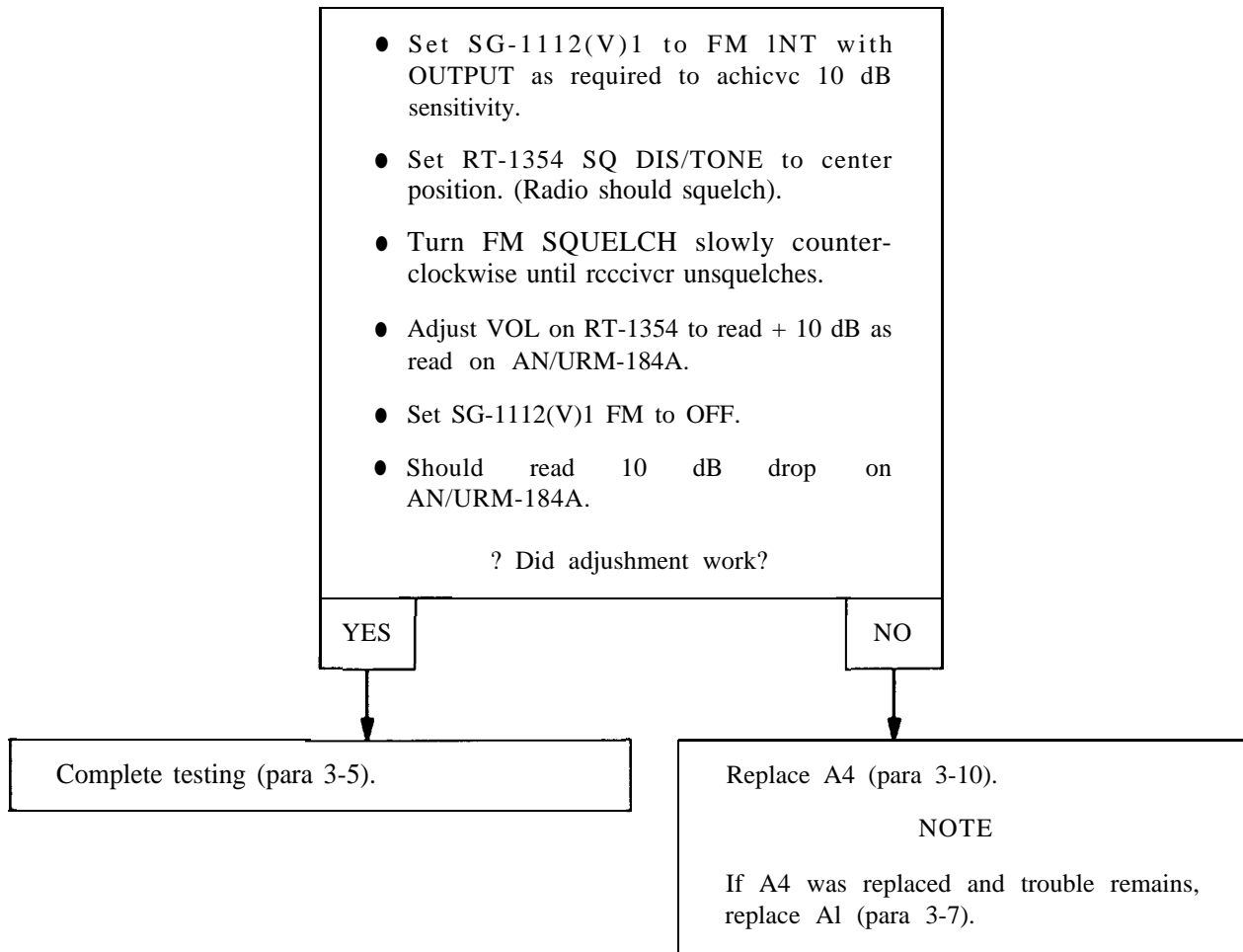
Squelch does not open with 10 dB S/N.

- Squelch does not open with 10 dB S/N.
- Turn FM SQUELCH fully clockwise.
- Set RT-1354 SQ DIS/TONE to SQ DIS position.
- Find the 10 dB point using the following steps:
 - Set SG-1112(V)1 OUTPUT to .4 uV, FM set to INT.Adjust RT-1354 VOL for +10 dB as read on AN/URM-184A.
 - Set SG-1112(V)1 FM to OFF.
 - Reading should drop 10 dB.If not increase OUTPUT in .1 uV increments until finding 10 dB drop.

Go to Sheet 2

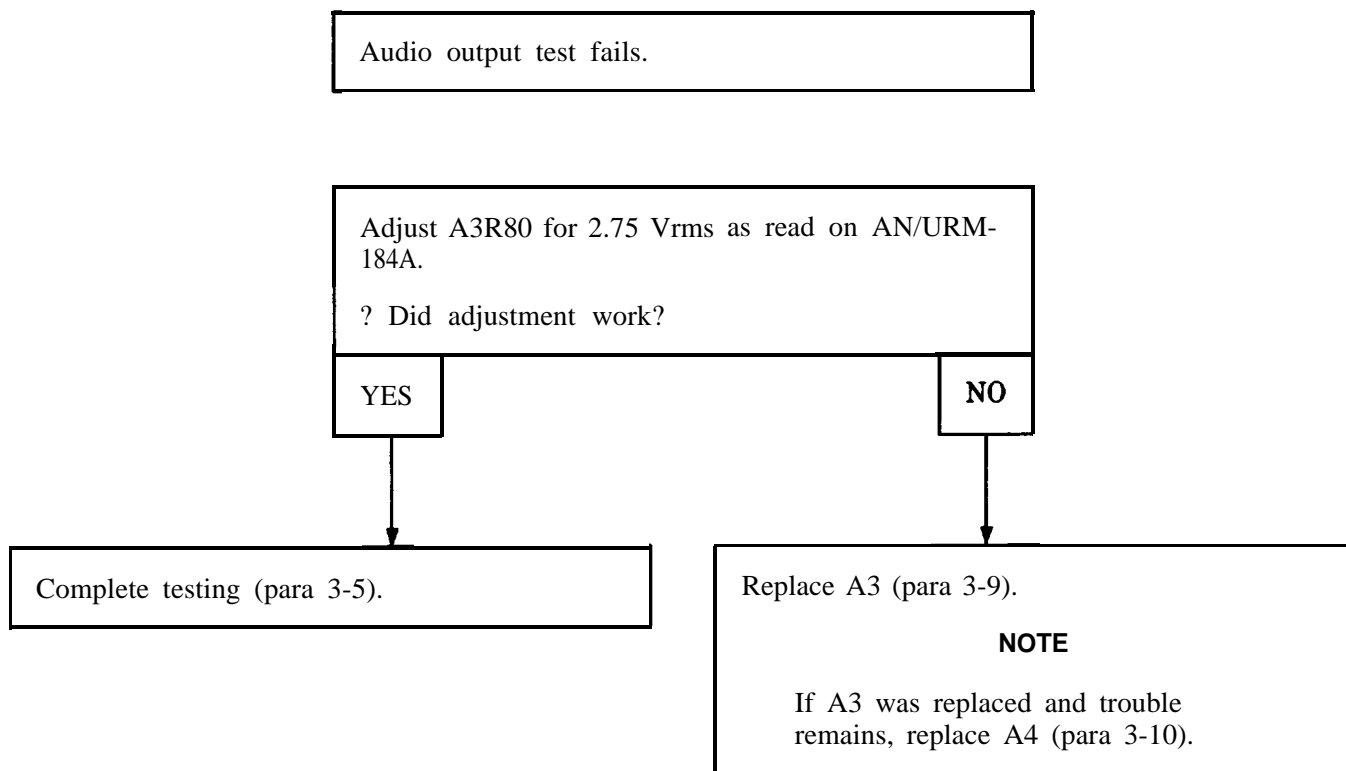
3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-31 (SHEET 2)

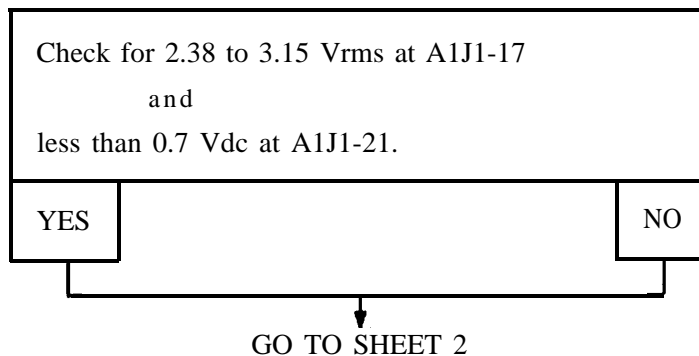
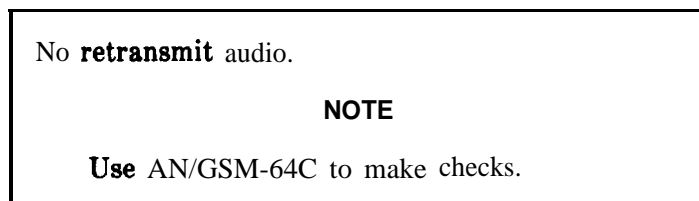


3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-32

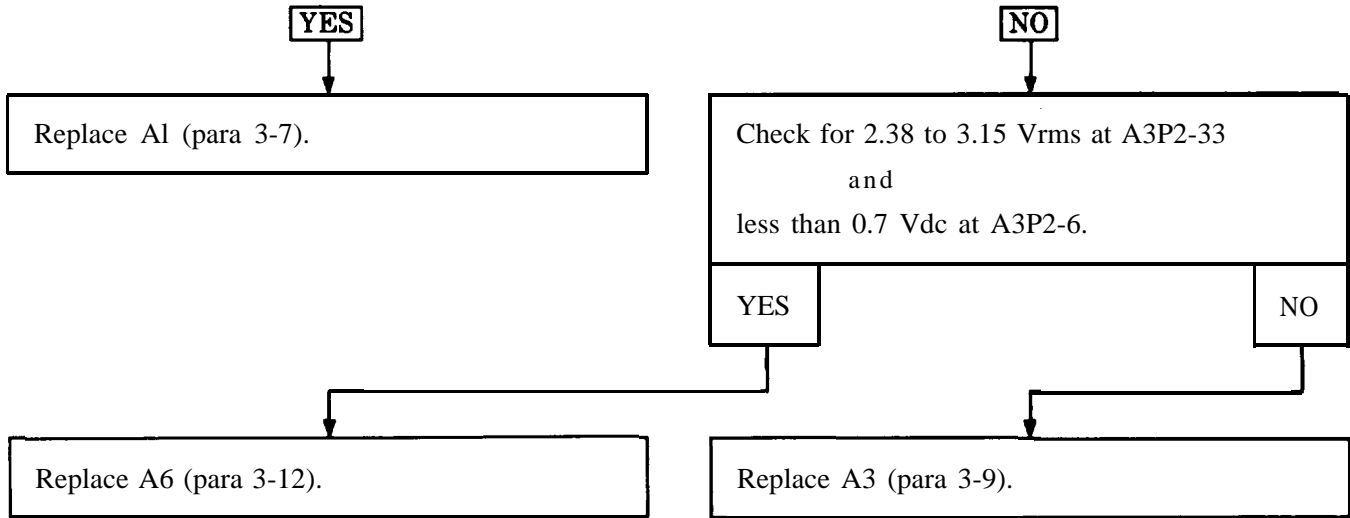


TROUBLE 3-33 (SHEET 1)

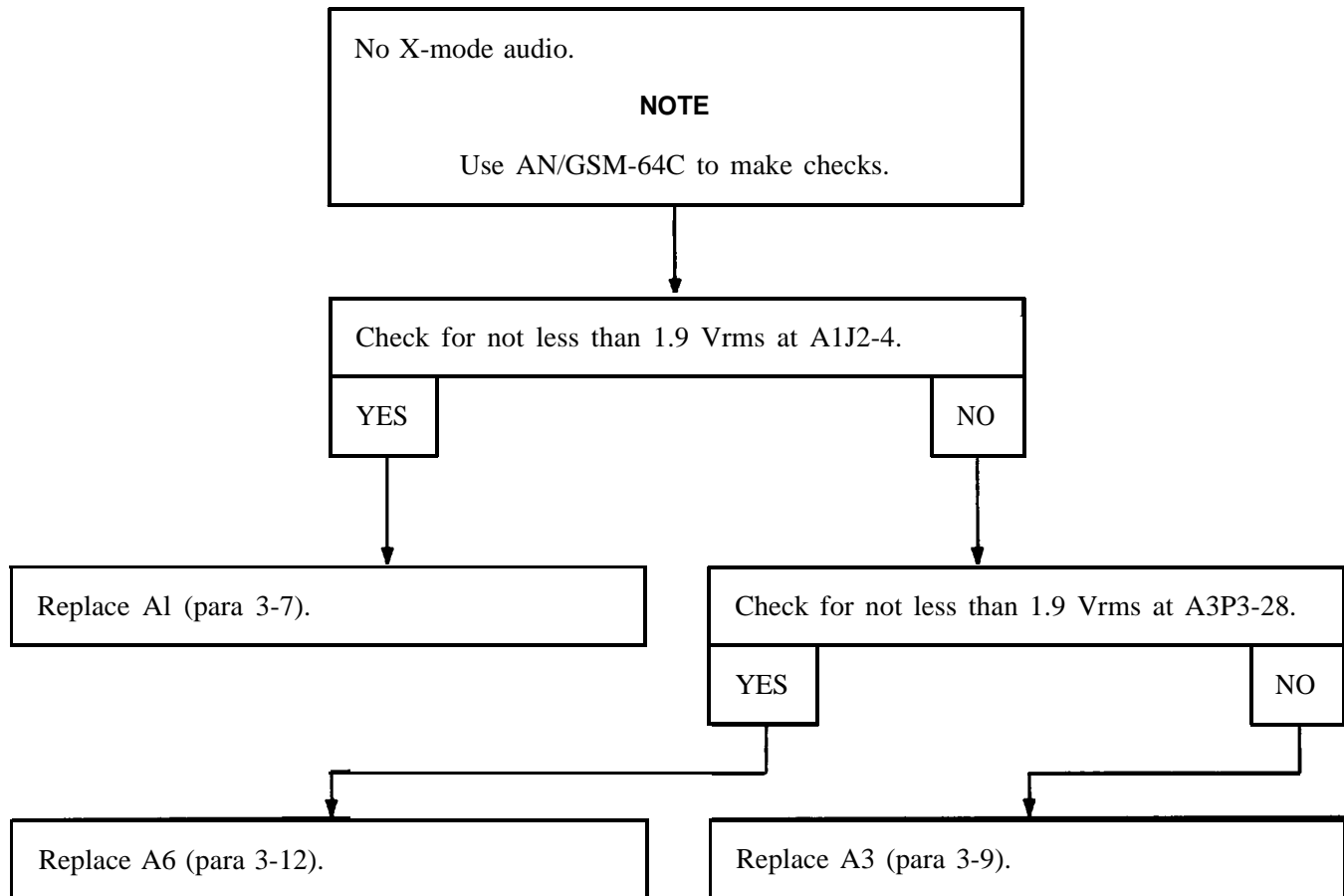


3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-33 (SHEET 2)

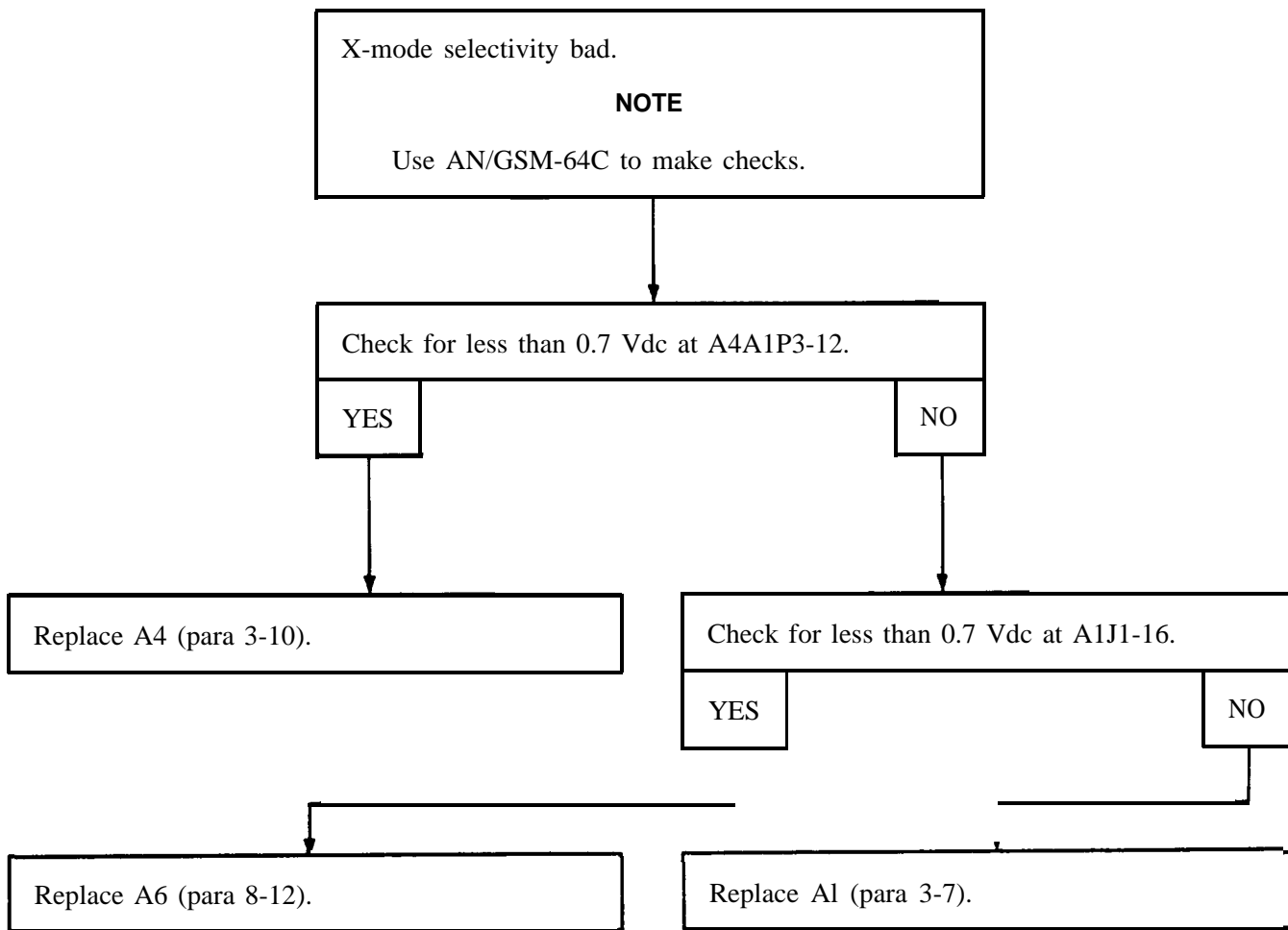


TROUBLE 3-34

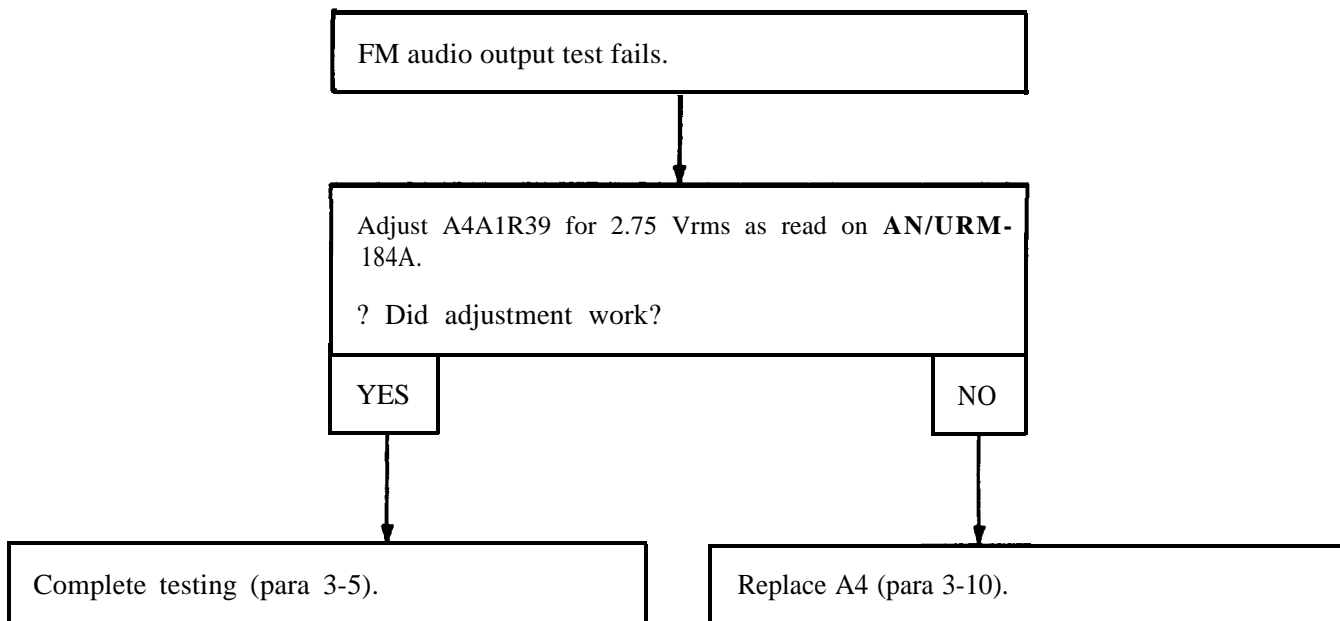


3-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 3-35



TROUBLE 3-36



Section V1. MAINTENANCE **PROCEDURES**

SECTION OVERVIEW

Maintenance consists of replacing assemblies and knobs.

Use the procedures in Section IV, Troubleshooting, to determine which assembly to replace.

3-7. REPLACE A1

THIS TASK COVERS REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

Tools and Support Equipment

Tool Kit TK-105/G
No. 1 Phillips screwdriver

Materials/Parts

Transmitter Assembly A1
Antistatic bag
Item 1, Appendix B

Personnel Required

Avionic Communications Equipment Repairer
MOS 35L

References

Safety, Care, and Handling paragraph 1-8.

Troubleshooting References

Paragraph 3-6

Equipment Condition

MK-994A/AR DC POWER ON/OFF set to OFF.

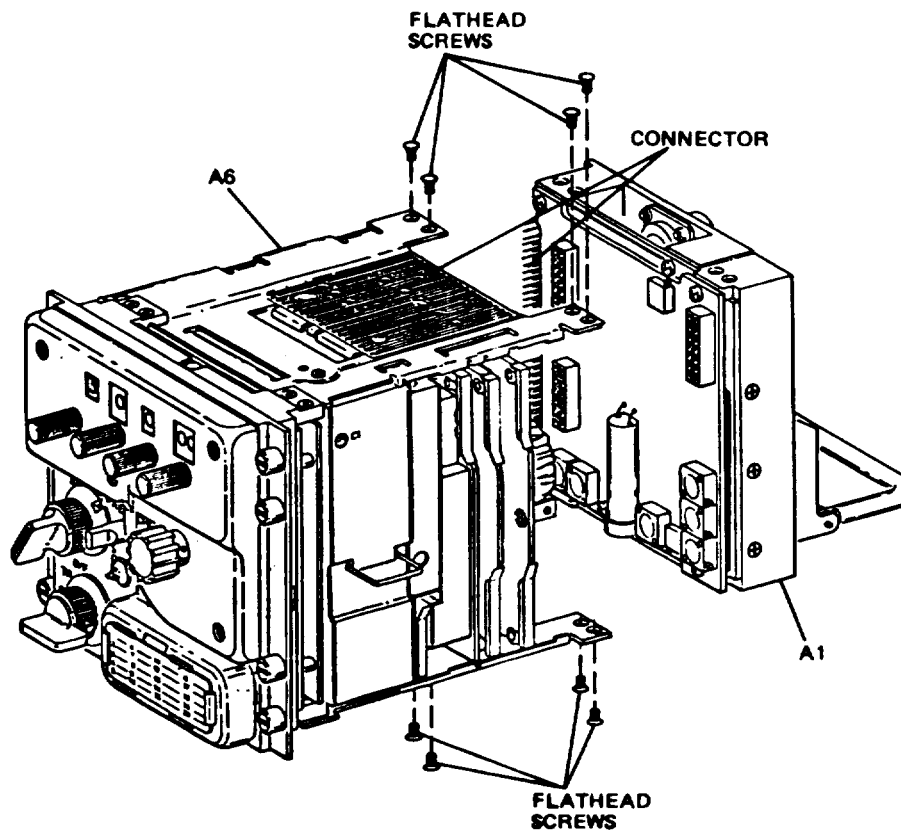
RT-1354 disconnected from test equipment.

Special Environmental Conditions

CAUTION



Static work station connected before procedure is started.

3-7. REPLACE A1 (Continued)**REMOVAL**

1. Remove eight flathead screws.

CAUTION

A1 is connected to A6 by a connector. Be careful not to break the connector while removing and installing A1.

2. Slide A1 from A6.

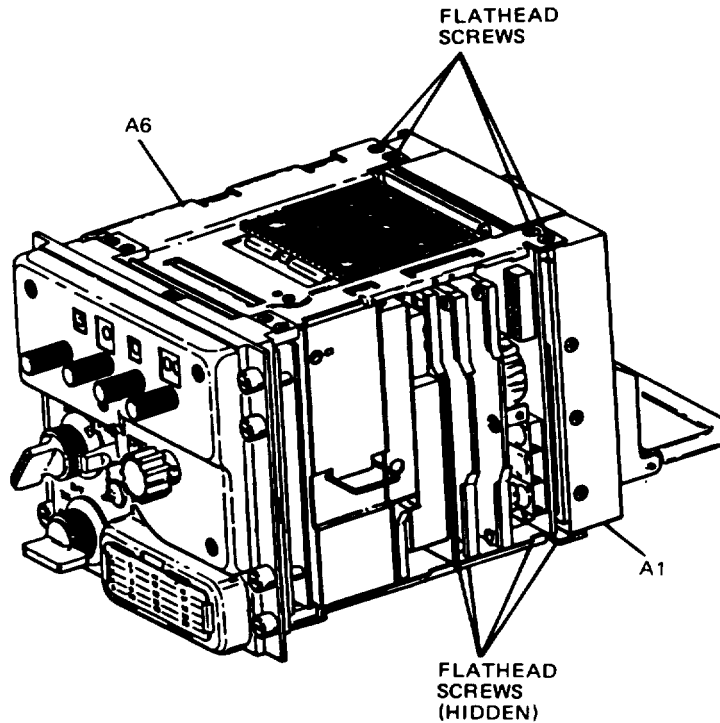





3. Pack A1 in antistatic bag.



3-7. REPLACE A1 (Continued)

INSTALLATION



4. Remove A1 from antistatic bag.  Save antistatic bag to be used again.
5. Aline A1 with A6; be sure A1/A6 connector is alined. 
6. Carefully slide A1 into A6 until mated. 
7. Install eight flathead screws.

FOLLOWUP

8. Complete paragraph 3-5 to be sure RT-1354 works okay.

3-8. REPLACE A2

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

Tools and Support Equipment

Tool Kit, TK-105/G
No. 1 Phillips screwdriver

Materials/Parts

Power Supply Assembly A2
Antistatic bag
Item 1, Appendix B

Personnel Required

Avionic Communications Equipment Repairer
MOS 35L

References

Safety, Care, and Handling paragraph 1-8.

Troubleshooting References

Paragraph 3-6

Equipment Condition

MK-994A/AR DC POWER ON/OFF set to OFF.

RT-1354 disconnected from test equipment.

Special Environmental Conditions

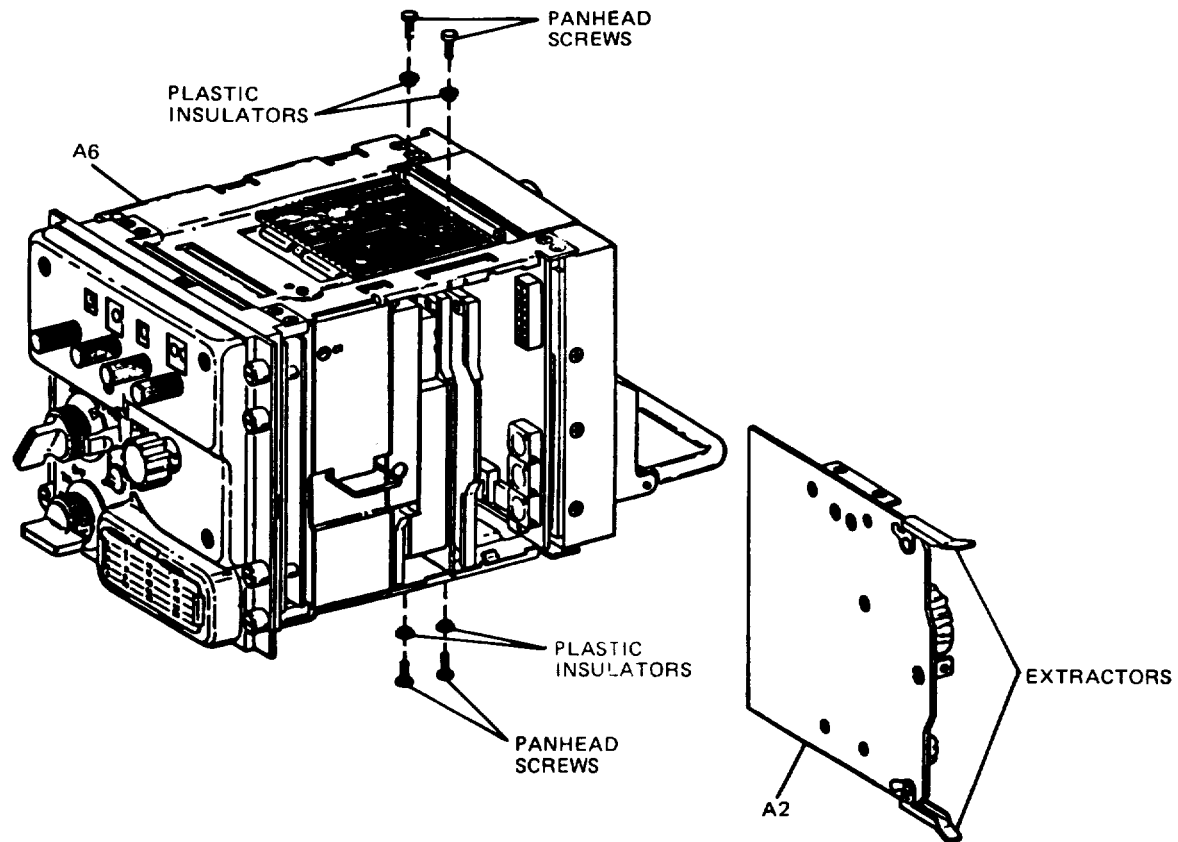
CAUTION




Static work station connected before procedure is started.

3-8. REPLACE A2 (Continued)

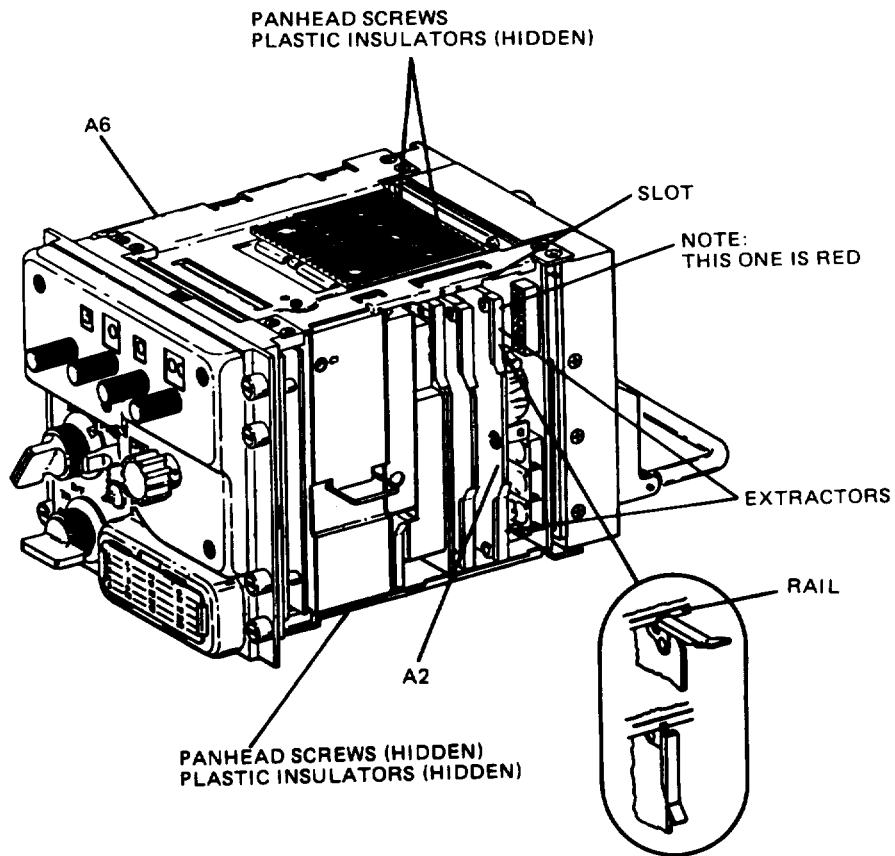
REMOVAL






1. Remove four panhead screws and plastic insulators.
2. Unlock two extractors.
3. Slide A2 from A6. 
4. Pack A2 in antistatic bag.

3-8. REPLACE A2 (Continued)

INSTALLATION



5. Remove A2 from antistatic bag.  Save antistatic bag to be used again.
6. Unlock two extractors. 
7. Turn A2 until red extractor points up. 

3-8. REPLACE A2 (Continued)**CAUTION**

A2 is connected to A6 by a connector. Be careful not to break the connector while doing steps 8, 9.

8. Slide A2 into slot marked A2 until extractors touch rail.



9. Lock two extractors. Extractors will mate A2/A6 connector when locked.

10. Install four plastic insulators and panhead screws.

CAUTION

The A2 has to be insulated from A6. Be sure plastic insulators are installed on panhead screws.

11. Complete paragraph 3-5 to be sure RT-1354 works okay.

3-9. REPLACE A3

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

Tools and Support Equipment

Tool Kit, TK-105/G
No. 1 Phillips screwdriver

Materials/Parts

Audio Circuit Card A3
Antistatic bag
Item 1, Appendix B

Personnel Required

Avionic Communications Equipment Repairer
MOS 35L

References

Safety, Care, and Handling paragraph 1-8.

Troubleshooting References

Paragraph 3-6

Equipment Condition

MK-994A/AR DC POWER ON/OFF set to OFF.
RT-1354 disconnected from test equipment.

Special Environmental Conditions

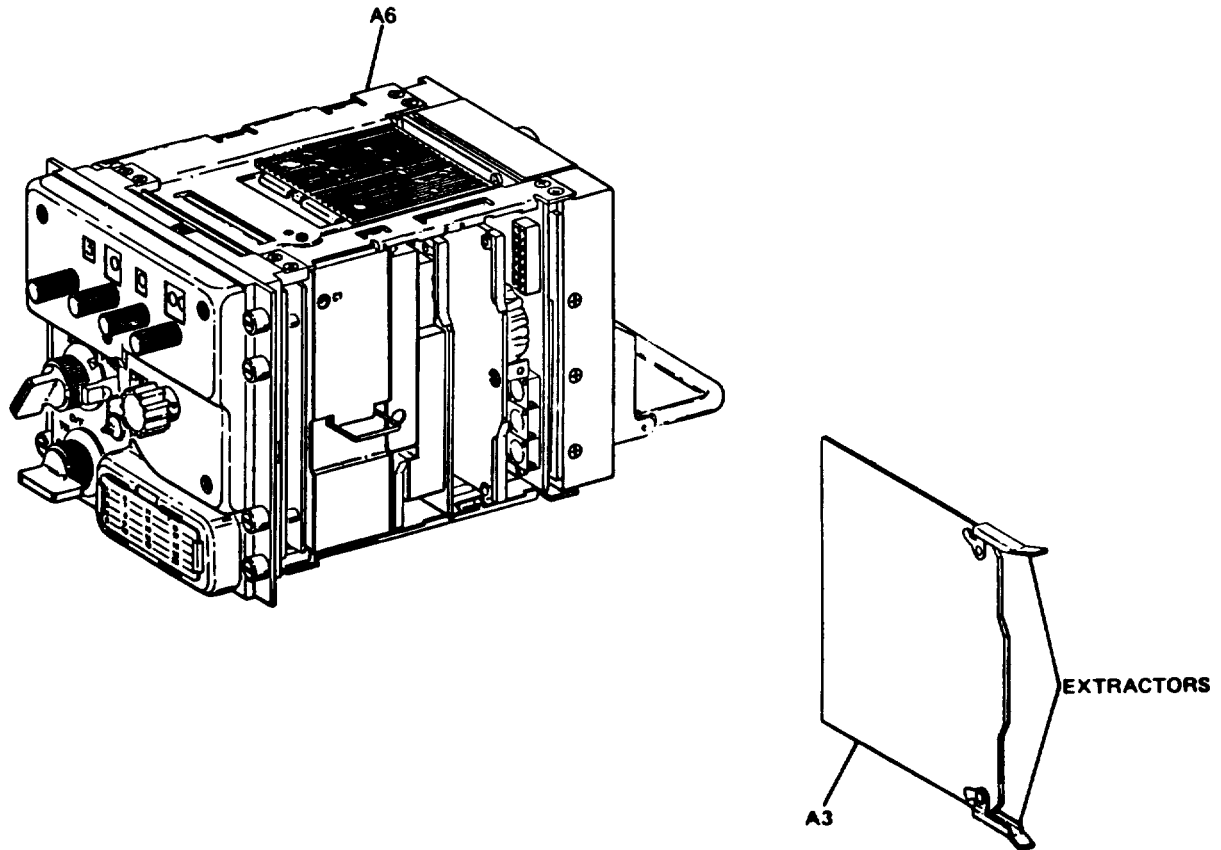
CAUTION



Static work station connected before procedure is started.

3-9. REPLACE A3 (Continued)

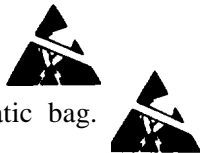
REMOVAL



1. Unlock two extractors.

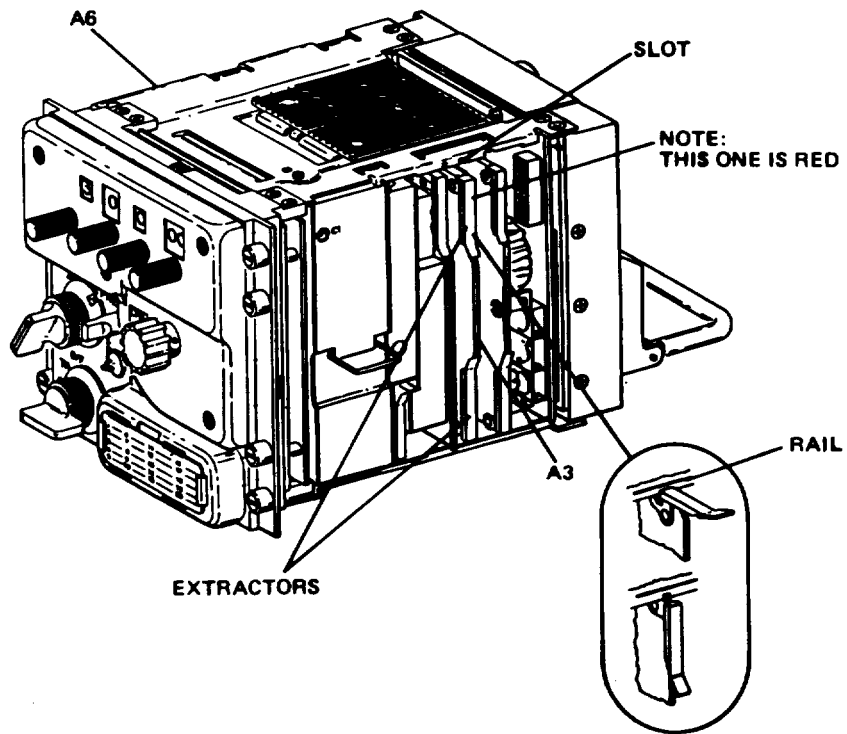
2. Slide A3 from A6.

3. Pack A3 in antistatic bag.



3-9. REPLACE A3 (Continued)

INSTALLATION



4. Remove A3 from antistatic bag.



Save antistatic bag to be used again.

5. Unlock two extractors.



6. Turn A3 until red extractor points up.



3-9. REPLACE A3 (Continued)**CAUTION**

A3 is connected to A6 by a connector. Be careful not to break the connector while doing steps 7, 8.

7. Slide A3 into slot marked A3 until extractors touch rail.



8. Lock two extractors. Extractors will mate A3/A6 connector when locked.

FOLLOWUP

9. Complete paragraph 3-5 to be sure RT-1354 works okay.

3-10. REPLACE A4

THIS TASK COVERS REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

References

Safety, Care, and Handling paragraph 1-8.

Tools and Support Equipment

Tool Kit, TK-105/G
No. 1 Phillips screwdriver

Troubleshooting References

Paragraph 3-6

Materials/Parts

Receiver Assembly A4
Antistatic bag
Item 1, Appendix B

Equipment Condition

MK-994A/AR DC POWER ON/OFF set to OFF.

RT-1354 disconnected from test equipment.

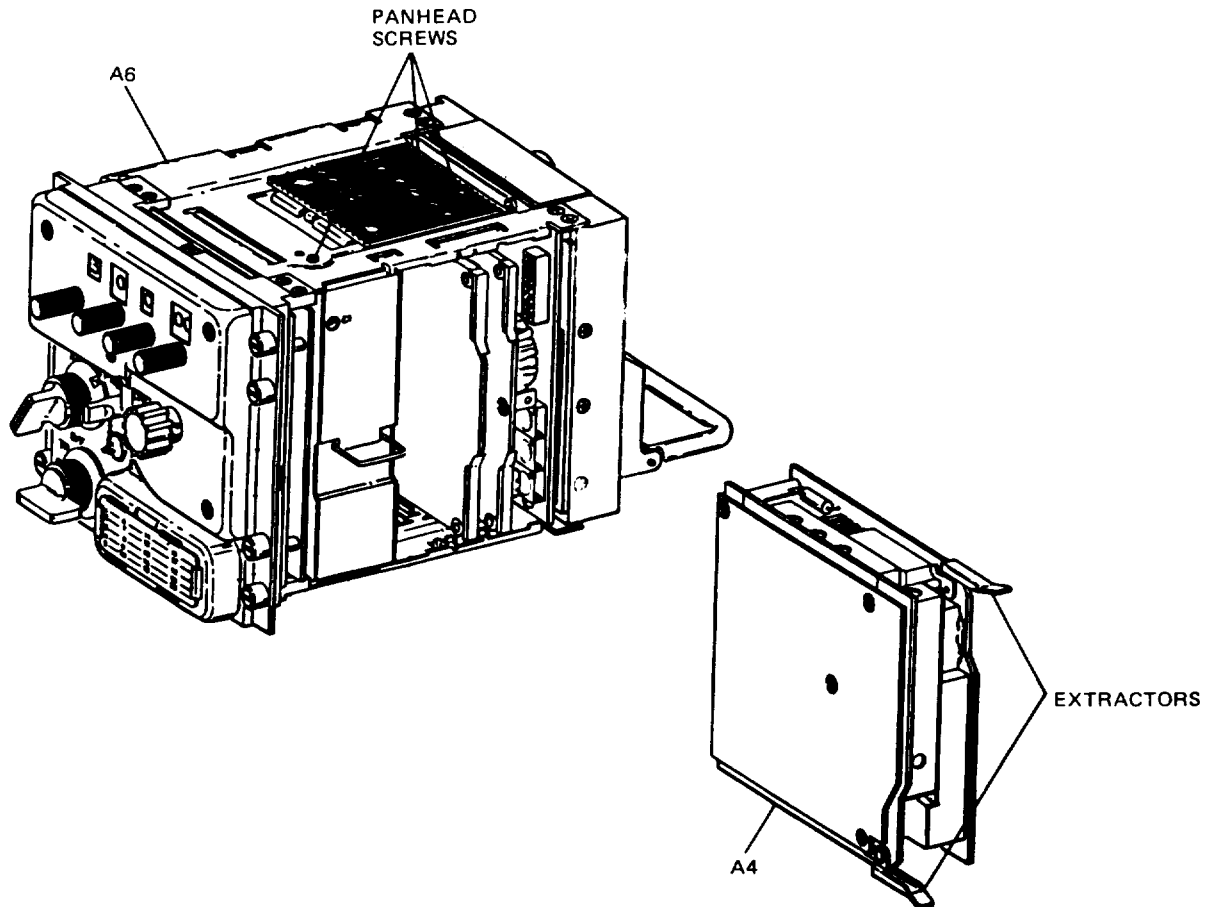
Special Environmental Conditions



Personnel Required

Avionic Communications Equipment Repairer
MOS 35L

CAUTION

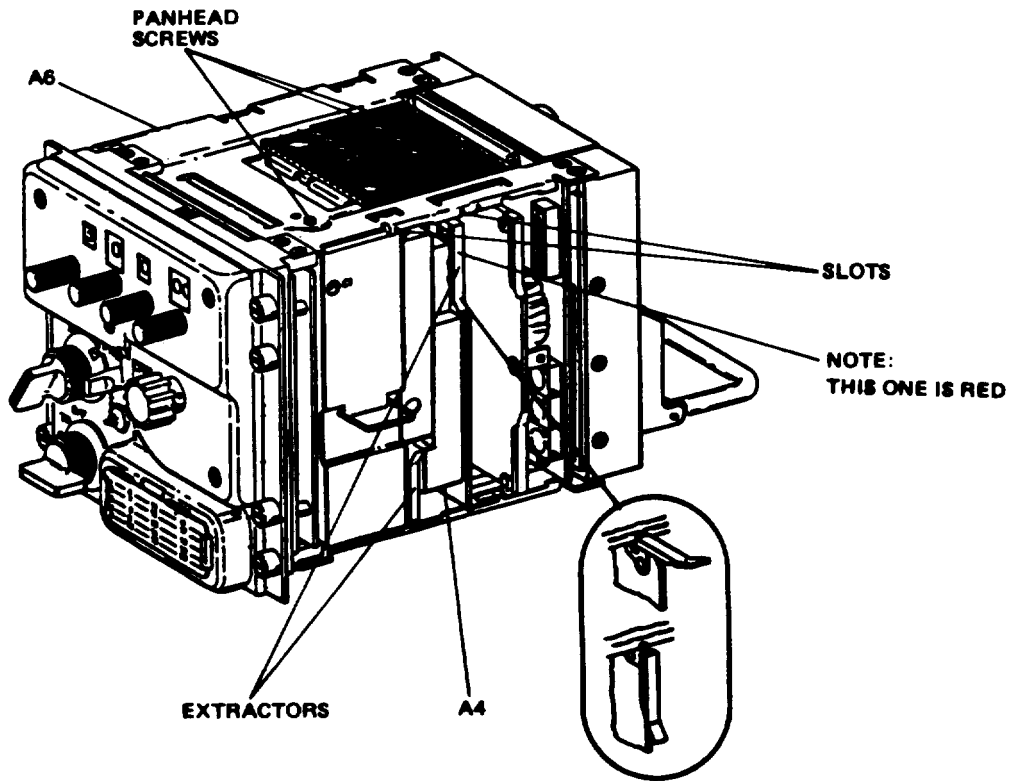
Static work station connected before procedure is started.

3-10. REPLACE A4 (Continued)**REMOVAL**


1. Loosen three panhead screws. You don't need to take them out.
2. Unlock two extractors.
3. Slide A4 from A6. 
4. Pack A4 in antistatic bag. 


3-10. REPLACE A4 (Continued)

INSTALLATION




5. Remove A4 from antistatic bag.  Save antistatic bag to be used again.

6. Unlock two extractors. 

7. Turn A4 until red extractor points up. 

3-10. REPLACE A4 (Continued)**CAUTION**

A4 is connected to A6 by a connector. Be careful not to break the connector while doing steps 8, 9.

8. Slide A4 into slots A4A1, A4A2 until extractors touch rail. 
9. Lock two extractors. Extractors will mate A4/A6 connector when locked.
10. Tighten three panhead screws.

FOLLOWUP

11. Complete paragraph 3-5 to be sure RT-1354 works okay.

3-11. REPLACE A5

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

References

Safety, Care, and Handling paragraph 1-8.

Tools and Support Equipment

Tool Kit TK-105/G
No. 1 Phillips screwdriver

Troubleshooting References

Paragraph 3-6

Materials/Parts

Synthesizer Assembly A5
Antistatic bag
Item 1, Appendix B

Equipment Condition

MK-994A/AR DC POWER ON/OFF set to OFF.
RT-1354 disconnected from test equipment.

Personnel Required

Avionic Communications Equipment Repairer
MOS 35L

Special Environmental Conditions

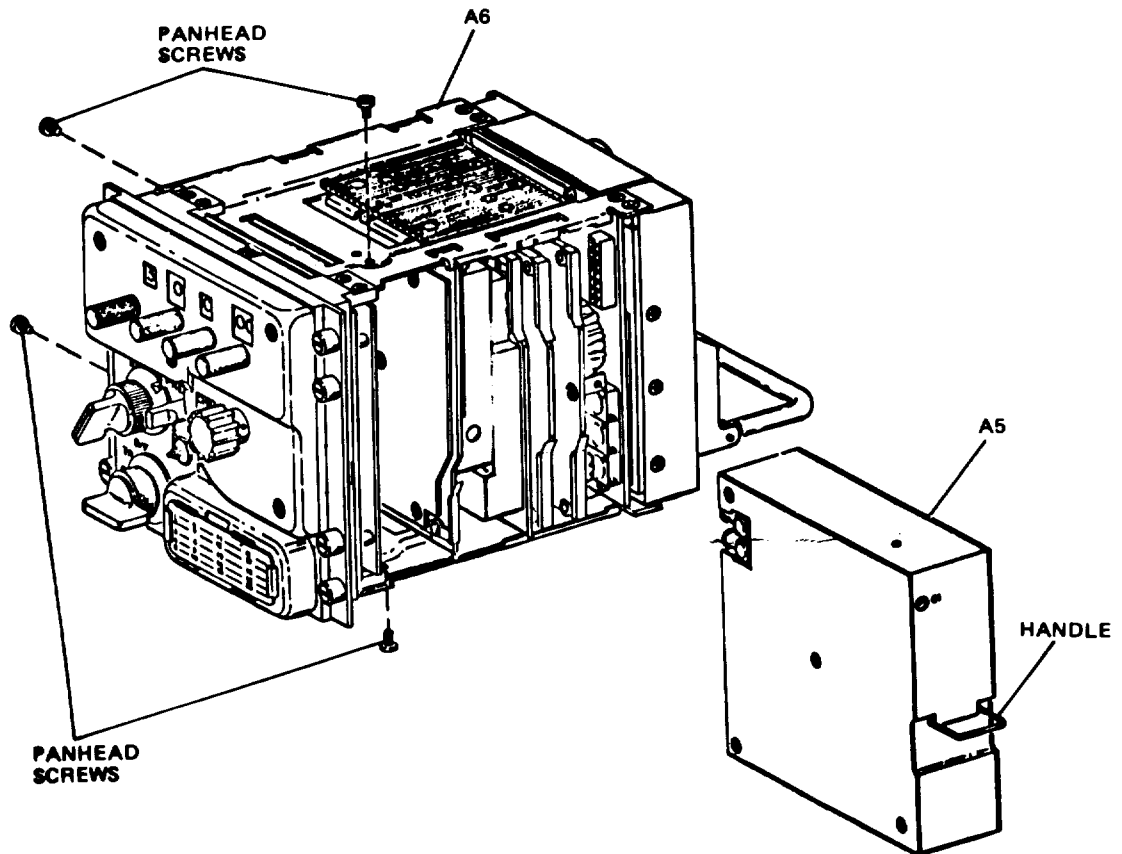
CAUTION



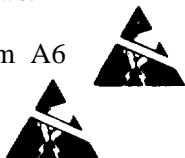
Static work station connected before procedure is started.

3-11. REPLACE A5 (Continued)

REMOVAL

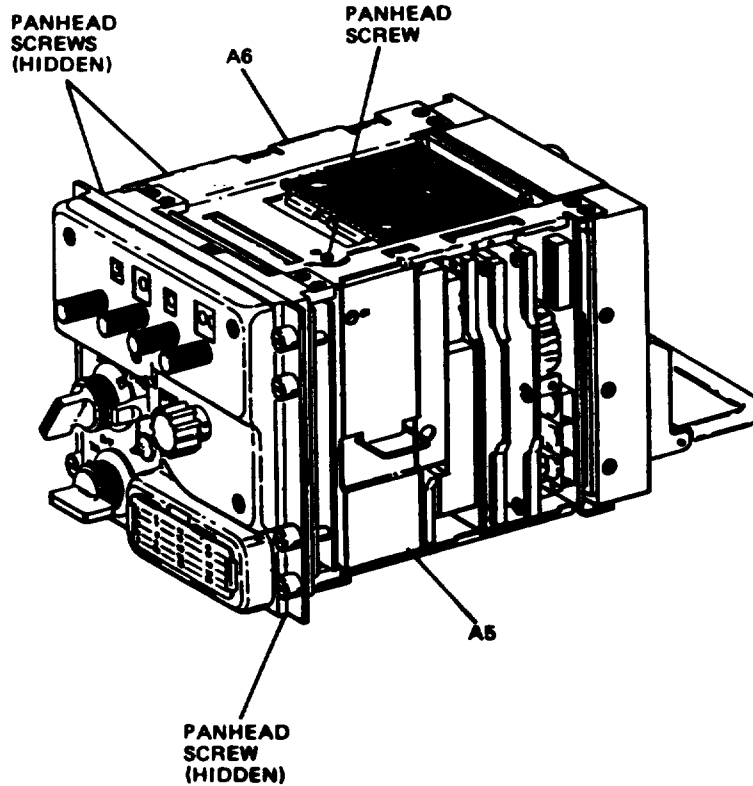


1. Remove four panhead screws.
2. Use handle to slide A5 from A6
3. Pack A5 in antistatic bag.



3-11. REPLACE A5 (Continued)

INSTALLATION



4. Unpack A5 from antistatic bag.



Save antistatic bag to be used again.

CAUTION

A5 is connected to A6 by a connector. Be careful not to break the connector while doing step 5.

5. Slide A5 into A6 until mated.



6. Install four panhead screws.

FOLLOWUP

7. Complete paragraph 3-5 to be sure RT-1354 works okay.

3-12. REPLACE A6

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

Tools and Support Equipment

Tool Kit TK-105/G
No. 1 Phillips screwdriver

Materials/Parts

Chassis Assembly A6

Personnel Required

Avionic Communications Equipment Repairer
MOS 35L

References

Safety, Care, and Handling paragraph 1-8.

Troubleshooting References

Paragraph 3-6

Equipment Condition

MK-994A/AR DC POWER ON/OFF set to OFF.
RT-1354 disconnected from test equipment.

Special Environmental Conditions

CAUTION



Static work station connected before procedure is started.

3-12. REPLACE A6 (Continued)

REMOVAL

1. Complete the initial setup and removal steps of these paragraphs:

3-7
3-8
3-9
3-10
3-11
3-13

INSTALLATION

2. Complete the installation steps of these paragraphs

3-7
3-8
3-9
3-10
3-11
3-13

FOLLOWUP

3. Complete paragraph 3-5 to be sure RT-1354 works okay.

3-13. REPLACE A7

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

Tools and Support Equipment

Tool Kit TK-105/G
No. 1 Phillips screwdriver

Materials/Parts

Control Assembly A7
Antistatic bag
Item 1, Appendix B

Personnel Required

Avionic Communications Equipment Repairer
MOS 35L

References

Safety, Care, and Handling paragraph 1-8.

Troubleshooting References

Paragraph 3-6

Equipment Condition

MK-994A/AR DC POWER ON/OFF set to OFF.

RT-1354 disconnected from test equipment.

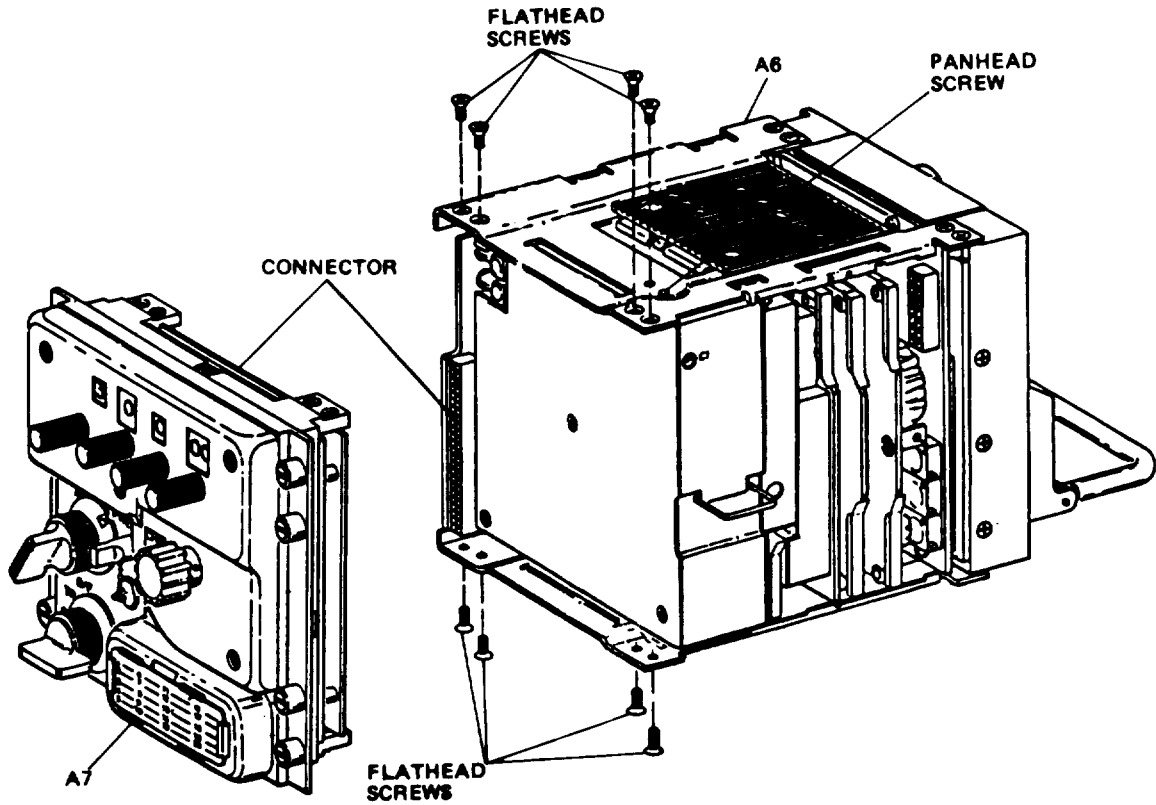
Special Environmental Conditions

CAUTION



Static work station connected before procedure is started.

3-13. REPLACE A7 (Continued)

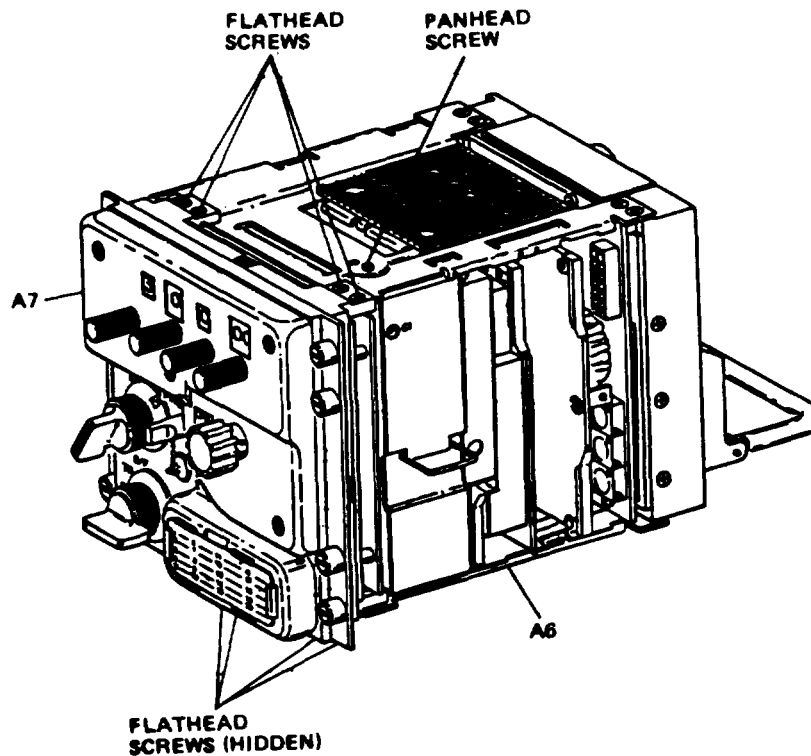


1. Loosen panhead screw. You don't need to take it out.
2. Remove eight flathead screws.
3. Slide A7 from A6.
4. Pack A7 in antistatic bag.



3-13. REPLACE A7 (Continued)


INSTALLATION




5. Unpack A7 from antistatic bag.  Save antistatic bag to be used again.

CAUTION

A7 is connected to A6 by a connector. Be careful not to break the connector when removing and installing A7.

6. Aline A7 with A6. Be sure A1/A6 connector is alined. 

7. Carefully slide A7 into A6 until mated. 

8. Install eight flathead screws.

9. Tighten panhead screws.

FOLLOWUP

10. Complete paragraph 3-5 to be sure RT-1354 works okay.

13-14. REPLACE EMER AM/FM/MAN/PRE KNOB, OFF/TR/DF KNOB, OR VOL KNOB]

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

Personnel Required

Avionic Communications Equipment Repairer
MOS 35L

Tools and Support Equipment

Tool Kit TK-105/G
0.050-in. hexwrench

Materials/Parts

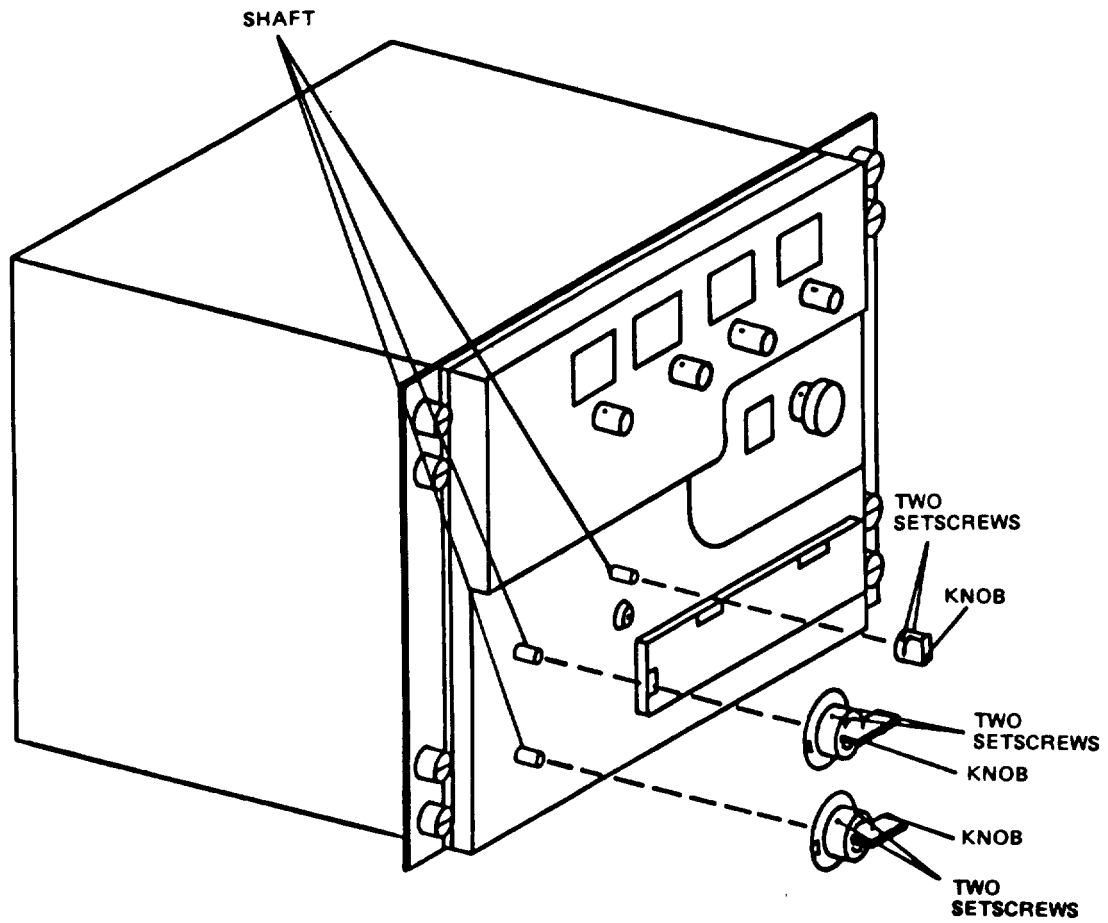
NOTE

This paragraph tells you how to replace three knobs. But, replace only knobs that need replacing.

EMER AM/FM/MAN/PRE knob
OFF/TR/DF knob
VOL knob

13-14. REPLACE EMER AM/FM/MAN/PRE KNOB, OFF/TR/DF KNOB, OR VOL KNOB (Continued)

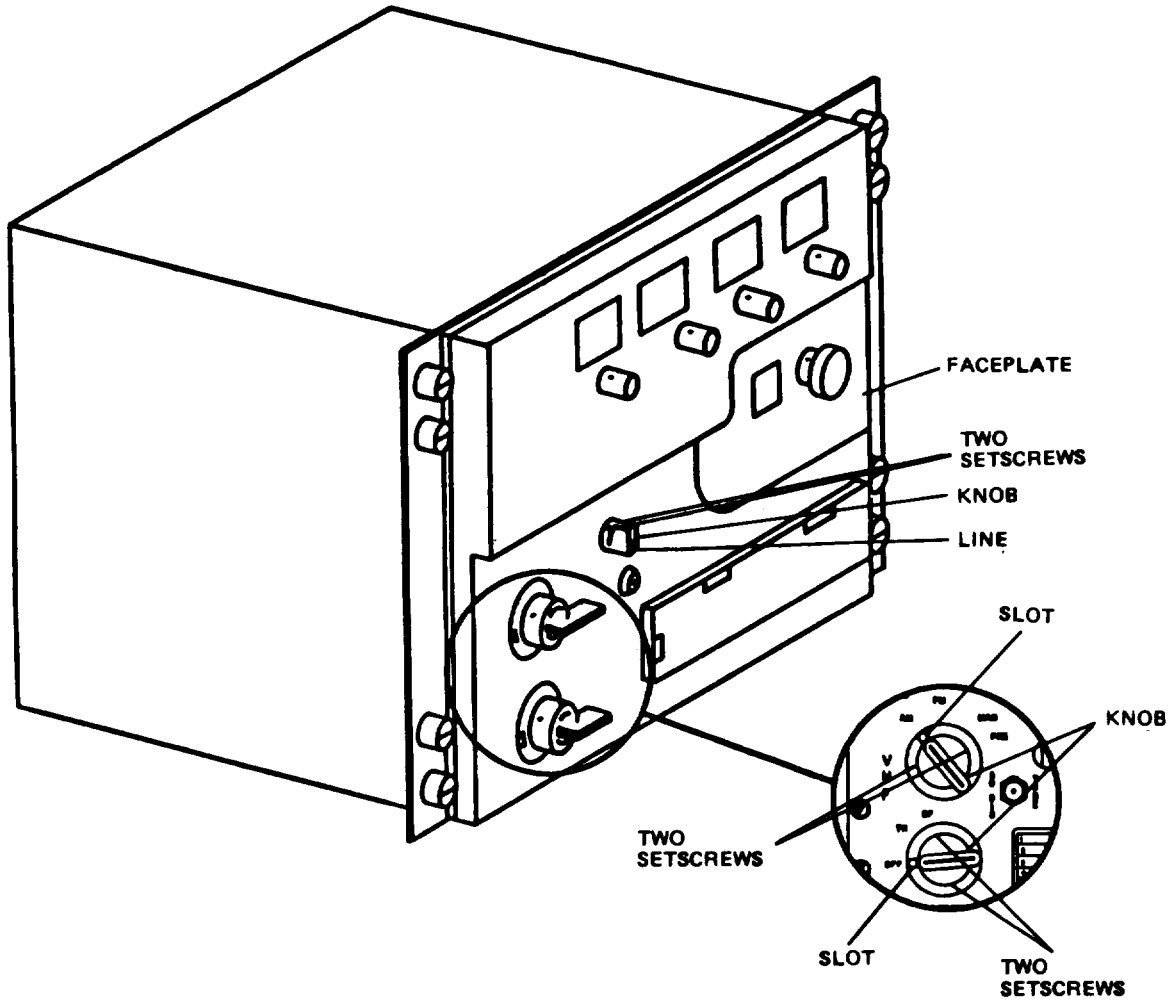
REMOVAL



1. Loosen two setscrews.
2. Slide knob off shaft.

13-14. REPLACE EMER AM/FM/MAN/PRE KNOB, OFF/TR/DF KNOB, OR VOL KNOB (Continued)

INSTALLATION



3. Slide knob on shaft.
4. Tighten one setscrew.

13-14. REPLACE EMER AM/FM/MAN/PRE KNOB, OFF/TR/DF KNOB, OR VOL KNOB (Continued)

5. Turn EMER AM/FM/MAN/PRE knob or OFF/TR/DF knob fully clockwise. Turn VOL knob fully counterclockwise.
6. Loosen setscrew.
7. Turn knob to align:

Slot on EMER AM/FM/MAN/PRE knob to EMER FM.

or

Slot on OFF/TR/DF knob to OFF.

or

Line on VOL knob with SQ DIS/TONE switch.
8. Hold knob in place while tightening two setscrews.
9. Turn EMER AM/FM/MAN/PRE or OFF/TR/DF knob clockwise, checking that slot lines up with faceplate markings.

NOTE

If slot doesn't line up with faceplate markings, repeat steps 3 thru 7.

FOLLOWUP

10. Complete paragraph 3-5 to be sure the RT-1354 works okay.

3-15. REPLACE FREQUENCY SELECTOR KNOBS OR CHAN KNOB

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

Personnel Required

Avionic Communications Equipment Repairer
MOS 35L

Test Equipment

MK-994A/AR
SG-1112(V)1
PP-1104
30-dB attenuator
J-4247/AR

Equipment Condition

PP-1104 adjusted for 28.0 volts

Tools and Support Equipment

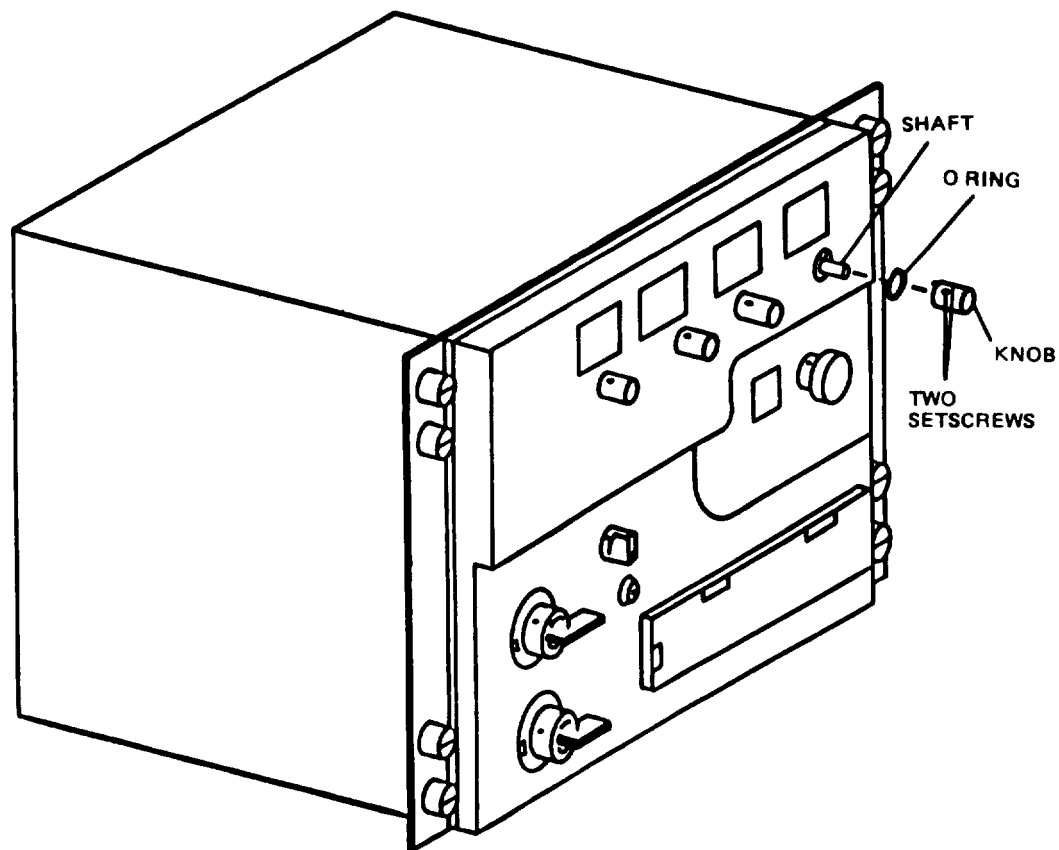
Tool Kit TK-105/G
0.050-in. hex wrench

Materials/Parts

NOTE

This paragraph tells you how to replace two types of knobs and O-rings. But, replace only knobs and O-rings that need replacing.

Frequency selector knob
CHAN knob
Big O-ring
Small O-ring

3-15. REPLACE FREQUENCY SELECTOR KNOBS OR CHAN KNOB (Continued)**REMOVAL**

1. Loosen two setscrews.
2. Slide knob off shaft.
3. Inspect O-rings for breaks, cuts, stretching, or other defects. Replace if needed.

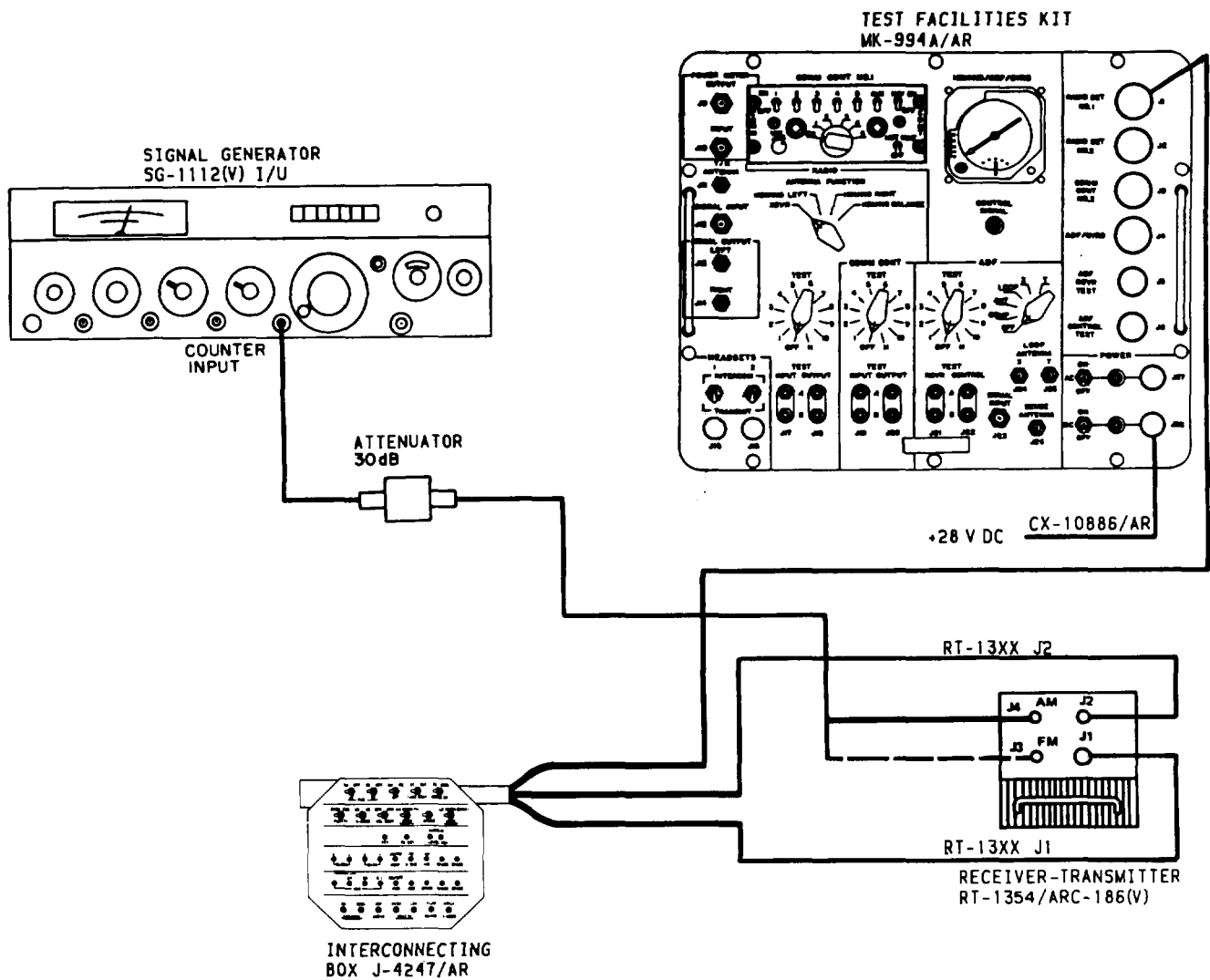
3-15. REPLACE FREQUENCY SELECTOR KNOBS OR CHAN KNOB (Continued)

INSTALLATION

NOTE

If you are replacing the CHAN knob, you need to do only steps 9, 10, 11, 13, and 14.

4. Connect RT-1354 to test equipment as shown below.



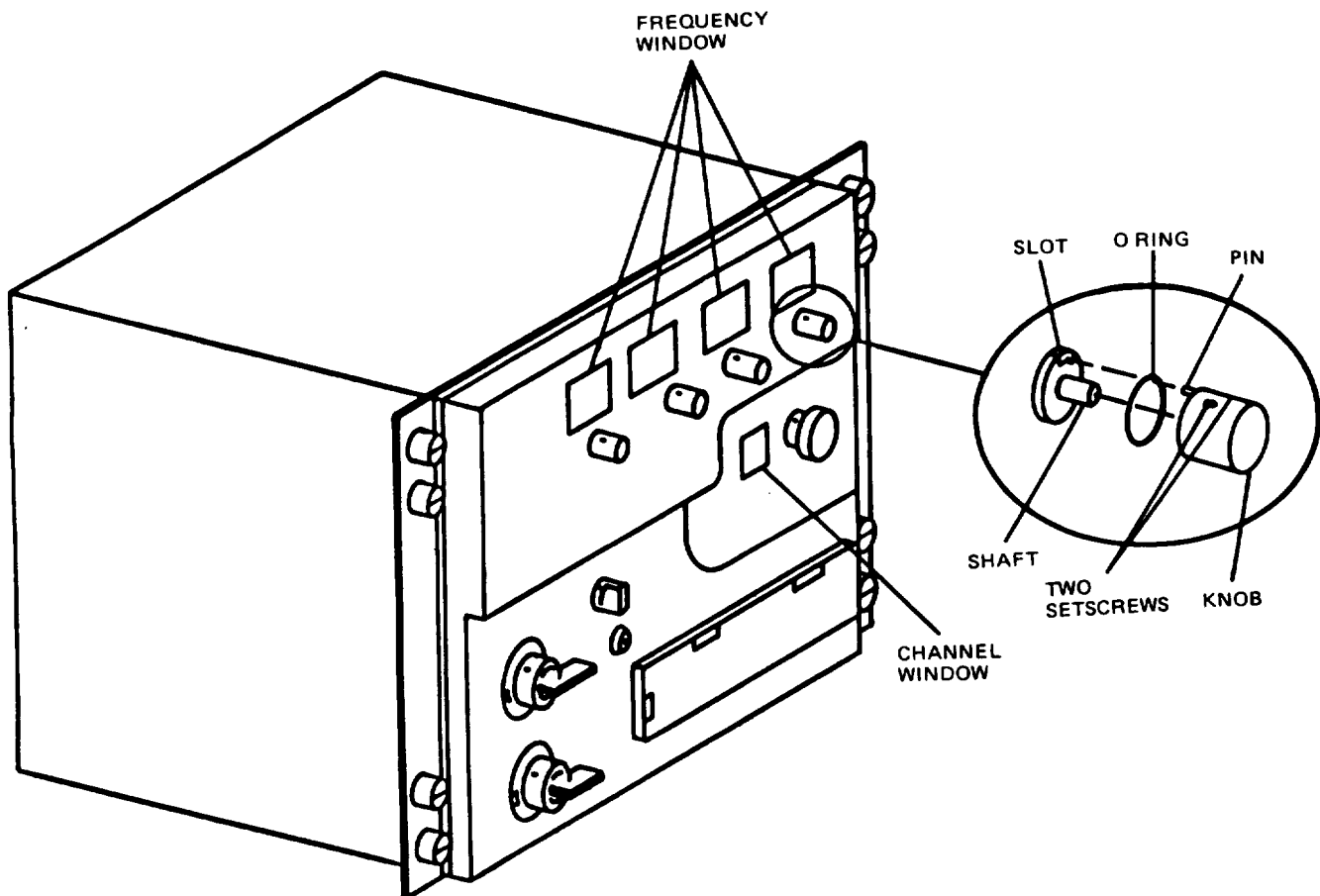
3-15. REPLACE FREQUENCY SELECTOR KNOBS OR CHAN KNOB (Continued)

5. Set controls as follows:

<u>Control</u>	<u>Setting</u>
<u>MK-994A/AR</u>	
RADIO	
ANTENNA FUNCTION	XCVR
POWER	
AC ON/OFF	OFF
DC ON/OFF	ON
<u>RT-1354</u>	
OFF/TR/DF	TR
EMER AM/FM/MAN/ PRE	MAN
LOCKOUT AM/FM	LOCKOUT
<u>SG-1112(V)1</u>	
COUNTER MODE	
EXPAND	X10
LOCK	OFF (Out)
INT/EXT	EXT (Out)
<u>J-4247/AR</u>	
PWR RT ON/OFF	ON
ANT AM/FM	FM
TAKE CONT RT/RMT	RT

6. Set MK-994A/AR RADIO TEST to 4.
7. Write down frequency shown on SG-1112(V)1 for use in step 12.
8. Set MK-994A/AR RADIO TEST to OFF.

3-15. REPLACE FREQUENCY SELECTOR KNOBS OR CHAN KNOB (Continued)



9. Slide O-ring on shaft.
10. Slide knob on shaft.
11. Aline pin on knob with slot on shaft.
12. Rotate knob until frequency you wrote down in step 7 is centered in frequency window.
13. Tighten two setscrews.
14. Rotate knob and check that numbers in frequency window are centered each time switch clicks.

FOLLOWUP

15. Complete paragraph 3-5 to be sure RT-1354 works okay.

CHAPTER 4

RT-1300B MAINTENANCE INSTRUCTIONS

OVERVIEW

Chapter 4 is divided into six sections.

a. Section I. Repair Parts; Special Tools; Test, Measurement, and Diagnostic Equipment (TMDE); and Support Equipment.

Tells you:

- What tools and TMDE you need.
- Where to find repair parts.

b. Section II. Service Upon Receipt.

Tells you what do to when an RT-1300B is received from supply.

c. Section III. How the RT-1300B Works.

d. Section IV. Testing.

Tells you how to test the RT-1300B.

Shows you how to set up equipment for testing.

e. Section V. Troubleshooting.

Tells you how to find troubles in the RT-1300B.

f. Section VI. Maintenance Procedures.

Tells you how to replace assemblies.

Section I. REPAIR PARTS; SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

4-1. COMMON TOOLS AND EQUIPMENT

The common tools you need are contained in Tool Kit, Electronic Equipment, TK-105/G.

4-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

The maintenance allocation chart in TM 11-5821-318-12 (Appendix B) lists the TMDE and support equipment needed for aviation intermediate maintenance.

No special tools are needed.

Static work station NSN 4940-01-087-3458 is needed to repair the RT-1300B.

4-3. REPAIR PARTS

Repair parts are listed and illustrated in TM 11-5821-318-30P.

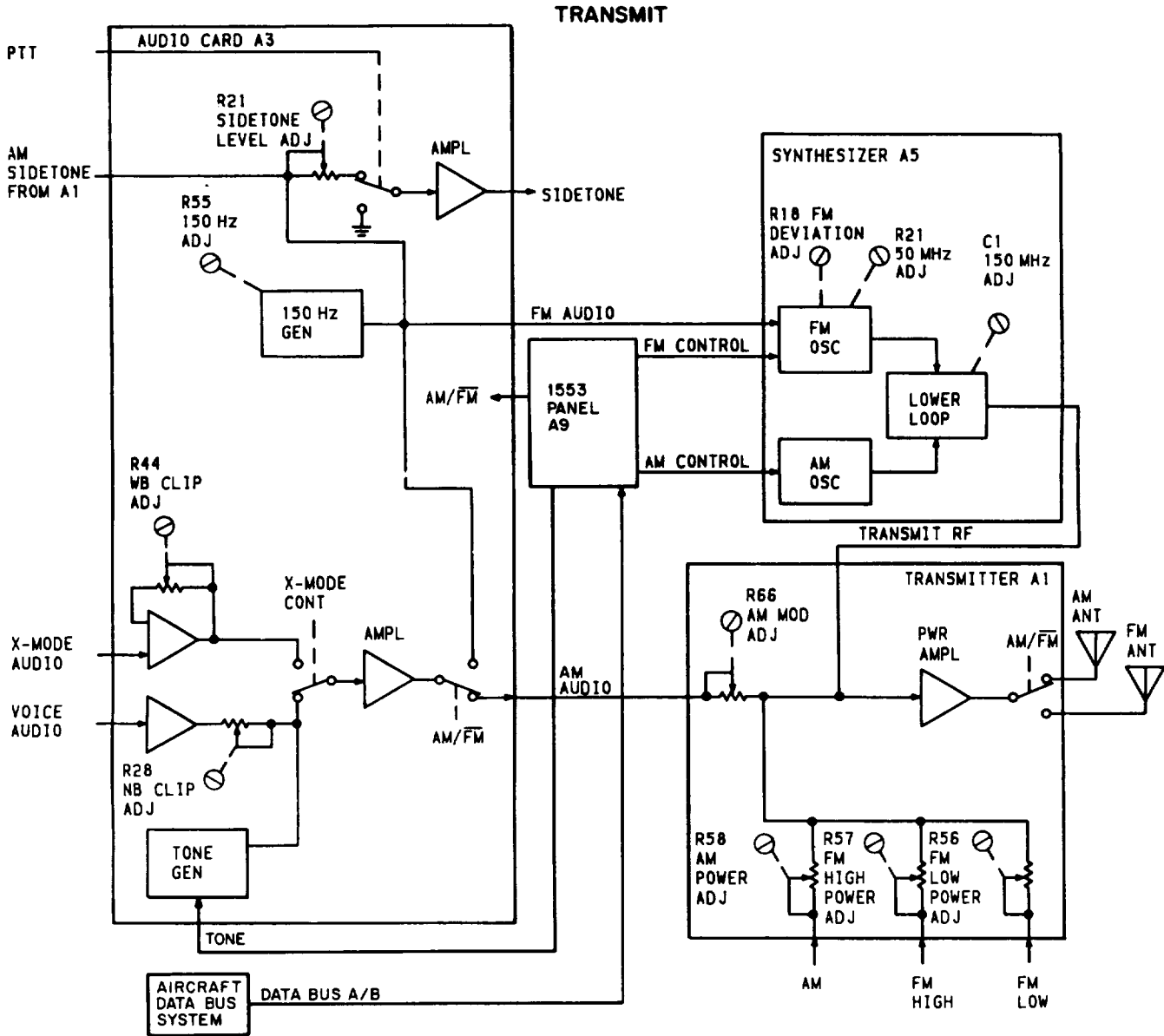
Section II. SERVICE UPON RECEIPT

4-4. SERVICE UPON RECEIPT

Test the receiver-transmitter before it is issued; paragraph 4-5 tells you how.

RT-1300B's received from depot may require adjustment to meet the specifications listed in TM 11-5821-318-12, paragraph 1-10. The testing and troubleshooting procedures in paragraph 4-5 will tell you when and how to do the adjustments.

Section III. HOW THE RT-1300B WORKS



The aircraft data bus system supplies a data stream to the RT-1300B 1553 panel A9. This data stream consists of digital data words that contain frequency, mode, and function commands.

The 1553 panel A9 changes the data input from serial to parallel data. This parallel data controls radio set operation. When frequencies below 100 MHz are selected, the radio set is in FM mode. When frequencies above 100 MHz are selected, the radio set is in AM mode.

Transmitter A1 provides sidetone input to audio card A3 in AM mode. Audio card A3 provides sidetone in FM mode.

Voice audio is applied to audio card A3. The audio input level is set by narrow-band (NB) clip adjustment R28. R28 can be adjusted for audio inputs between 0.25 and 1.4 Vrms.

In AM mode, the voice audio is routed to transmitter A1. The voice audio modulates the transmit RF from synthesizer A5. R58 sets the AM output power level. R66 sets the modulation level.

In FM mode, voice audio and 150 Hz is routed to synthesizer A5. The sum of the voice audio frequency and 150 Hz deviates the FM oscillator. The deviated FM oscillator output is provided to transmitter A1. Since no AM voice audio is present at transmitter A1, the FM oscillator output is amplified and transmitted. R56 and R57 set the output power level for FM mode depending upon frequency selection.

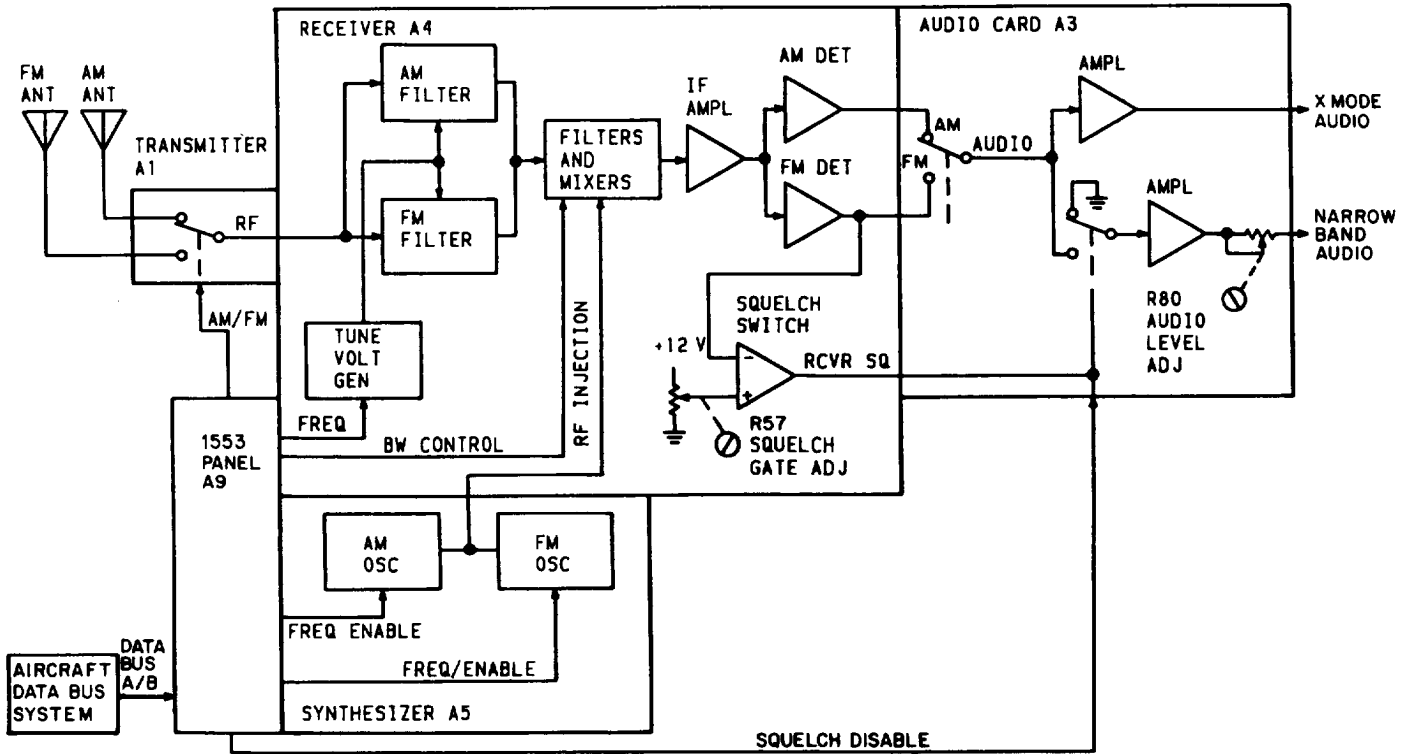
The 1000-HZ TONE generator is turned on by a TONE command supplied by the aircraft data bus system. The tone generator output is transmitted as normal voice audio. Frequency selection determines AM/FM mode.

X-mode audio is transmitted in either AM or FM mode. Wide-band (WB) clip adjustment R44 is adjusted to the required X-mode audio input level.

Antenna switching takes place in transmitter A1. In the AM mode, the AM antenna is coupled to the power amplifier. In the FM mode, the FM antenna is coupled to the power amplifier.

Power supply A2 supplies all RT-1300B operating voltages.

RECEIVE



Transmitter A1 routes the received AM or FM RF to receiver A4. Antenna selection is determined by AM/FM frequency selection.

Receiver A4 filters are tuned to the selected frequency and pass the selected RF to the mixers. The mixers produce IF. frequencies by mixing RF from A1 with RF injection from A5. The mixer filters pass the difference IF. frequency to the IF. amplifiers. The AM/FM detectors pass the audio frequencies to audio card A3. The squelch switch detects a preset signal level. When the input signal hits the preset level, the squelch switch produces the receiver squelch output to audio card A3. This allows AM or FM audio to be applied to the amplifier. R57 sets the level at which the squelch switch turns on. Wide-band (X-mode) audio is sent to the KY-28 or KY-58 during X-mode operation.

Audio card A3 amplifies the audio. The audio output is sent to the aircraft intercommunications system (ICS). R80 sets the audio output level.

SECTION IV. TESTING

NOTE

Be sure you read the test a few times so you understand what you have to do.

4-5. TESTING

THIS TASK COVERS: POWER SUPPLY TESTS, TRANSMITTER TESTS, RECEIVER TESTS, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

Test Equipment

AN/URM-120
ME-525
AN/GSM-64C
SG-1112(V)1
PP-1104
MK-994A/AR
AN/URM-127
6-dB Attenuator
AN/URM-184A
AN/USM-281C
30-dB Attenuator
MX-1730
AN/GRM-114A
AN/USM-486

Tools and Support Equipment

Tool Kit TK-105/G
No. 1 Phillips screwdriver
Static work station NSN 4940-01-087-3458
Radio Set Control C-10604(V)/ARC-186(V)
or
Radio Set Control C-10606(V)/ARC-186(V)

Personnel Required

Avionic Communications Equipment
Repairer MOS 68L

References

Safety, Care, and Handling
paragraph 1-8.

Equipment Condition

PP-1104 adjusted for 28.0 volts.
C-10604/10606 OFF/TR/DF set to OFF.
MK-994A/AR DC POWER ON/OFF set
to OFF.

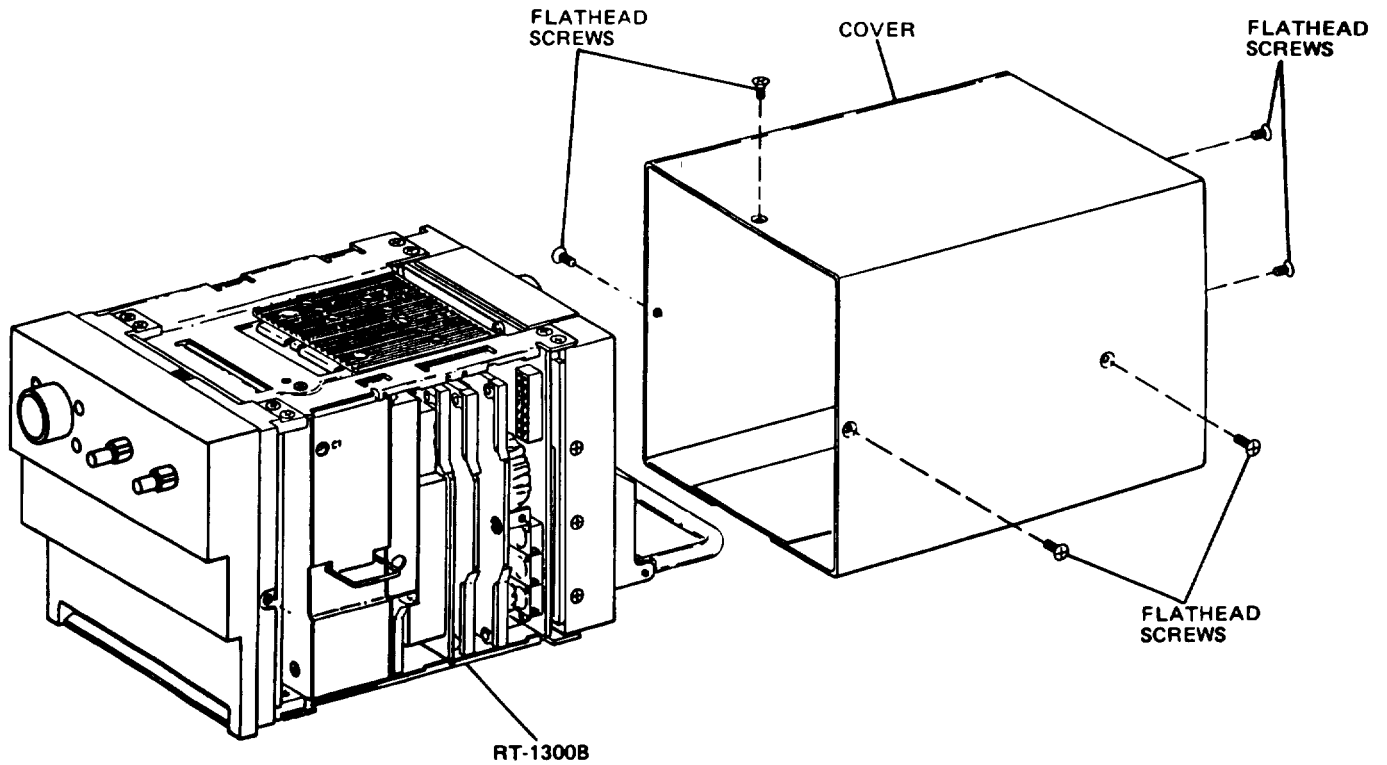
Special Environmental Condition

CAUTION

Static work station
connected before procedure
is started.

4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
-----------	-------------------	---------



1. Remove six flathead screws.
2. Remove cover from RT-1300B.

POWER SUPPLY TEST

WARNING

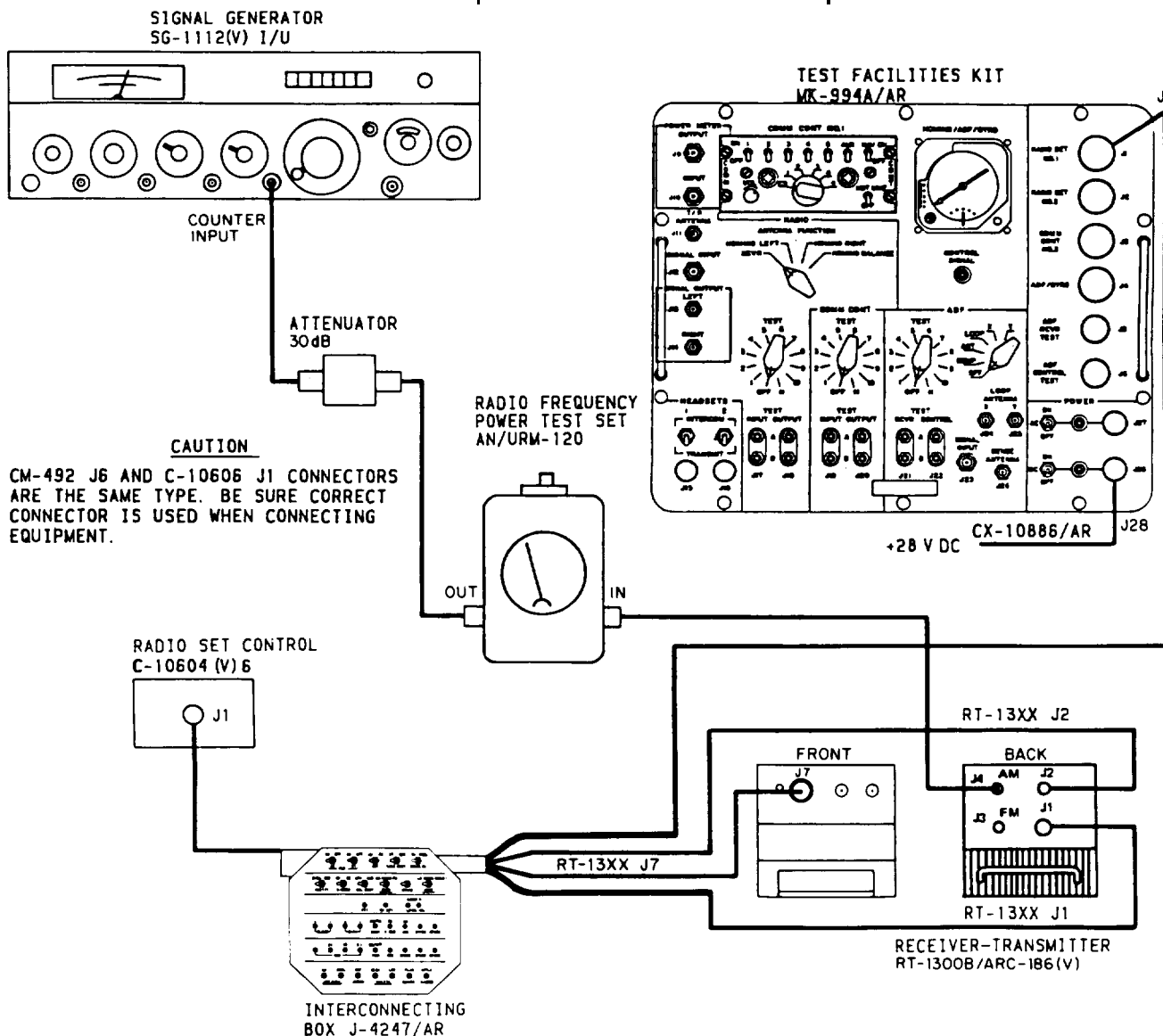
The power supply test procedures require taking measurements on the radio with power applied. Exercise all safety precautions to prevent personal injury or damage to the RT-1300B.

4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
-----------	-------------------	---------

POWER SUPPLY TEST (Continued)

3. Connect RT-1300B to test equipment as shown below:



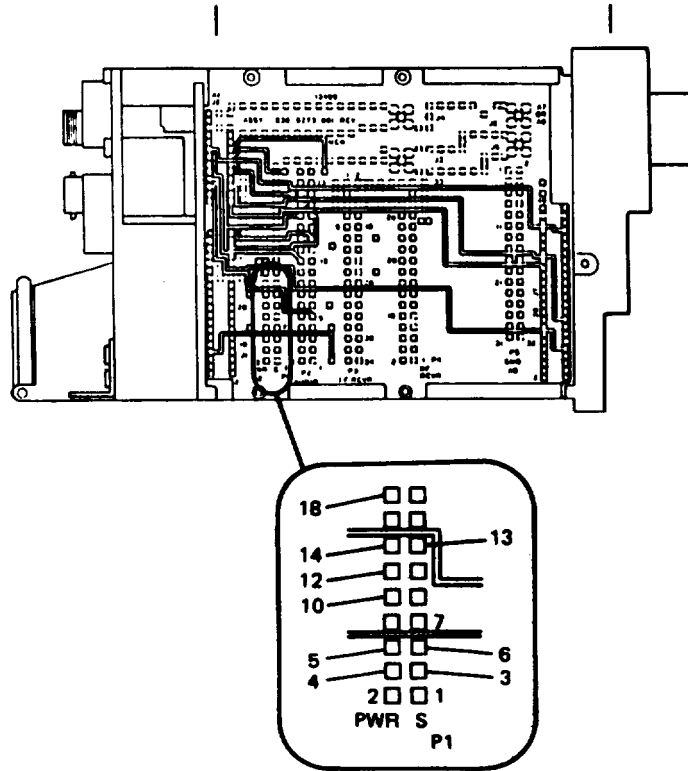
4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS																						
<u>POWER SUPPLY TEST (Continued)</u>																								
<p>4. Set controls as follows:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: left;"><u>Control</u></td> <td style="text-align: right;"><u>Setting</u></td> </tr> <tr> <td colspan="2" style="text-align: center;">MK-994A/AR</td> </tr> <tr> <td>DC POWER ON/OFF</td> <td style="text-align: right;">ON</td> </tr> <tr> <td>RADIO TEST</td> <td style="text-align: right;">OFF</td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>C-10604/10606</u></td> </tr> <tr> <td>OFF/TR/DF</td> <td style="text-align: right;">TR</td> </tr> <tr> <td>BANDWIDTH WIDE/ NARROW</td> <td style="text-align: right;">NARROW</td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>J-4247/AR</u></td> </tr> <tr> <td>EMER AM/NORM/FM</td> <td style="text-align: right;">NORM</td> </tr> <tr> <td>PWR RT ON/OFF</td> <td style="text-align: right;">ON</td> </tr> <tr> <td>TAKE CONT RT/RMT</td> <td style="text-align: right;">RMT</td> </tr> </table> <p>Connect voltmeter AN/GSM-64C negative lead to chassis ground.</p>	<u>Control</u>	<u>Setting</u>	MK-994A/AR		DC POWER ON/OFF	ON	RADIO TEST	OFF	<u>C-10604/10606</u>		OFF/TR/DF	TR	BANDWIDTH WIDE/ NARROW	NARROW	<u>J-4247/AR</u>		EMER AM/NORM/FM	NORM	PWR RT ON/OFF	ON	TAKE CONT RT/RMT	RMT		
<u>Control</u>	<u>Setting</u>																							
MK-994A/AR																								
DC POWER ON/OFF	ON																							
RADIO TEST	OFF																							
<u>C-10604/10606</u>																								
OFF/TR/DF	TR																							
BANDWIDTH WIDE/ NARROW	NARROW																							
<u>J-4247/AR</u>																								
EMER AM/NORM/FM	NORM																							
PWR RT ON/OFF	ON																							
TAKE CONT RT/RMT	RMT																							

4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
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POWER SUPPLY TEST (Continued)



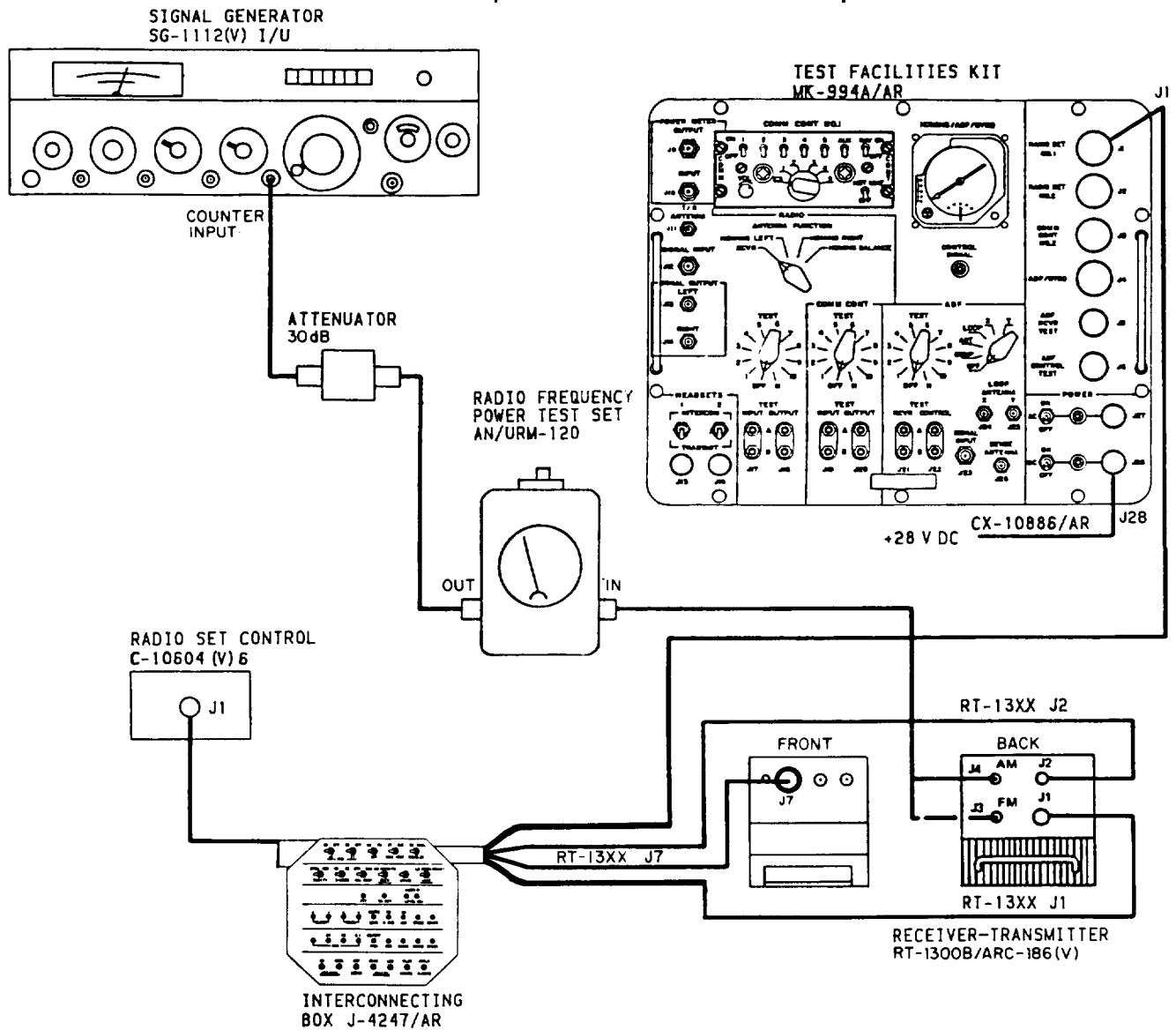
5. Measure dc volts at A2P1, pin 10 and pin 12.	23.5 to 24.5 Vdc	Go to TROUBLE 4-1.
6. Measure dc volts at A2P1, pin 2 and pin 6.	5.0 to 5.2 Vdc	Go to TROUBLE 4-2.
7. Measure dc volts at A2P1, pin 4.	11.6 to 12.4 Vdc	Go to TROUBLE 4-3.
8. Measure dc volts at A2P1, pin 3.	-11.6 to -12.4 Vdc	Go to TROUBLE 4-4.
9. Measure dc volts at A2P1, pin 5 and pin 7.	23.4 to 28.8 Vdc	Go to TROUBLE 4-5.
10. Measure dc volts at A2P1, pin 14.	72 to 88 Vdc	Go to TROUBLE 4-6.
11. Measure. dc volts at A2P1, pin 18.	5.7 to 6.5 Vdc	Go to TROUBLE 4-7.
12. Measure dc volts at A2P1, pin 13.	-34.75 to -36.75 Vdc	Go to TROUBLE 4-8.

4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
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TRANSMITTER TESTS

1. Connect RT-1300B to test equipment as shown below



4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS		
<u>TRANSMITTER TESTS (Continued)</u>				
2. Set controls as follows				
<table style="width: 100%; border: none;"> <tr> <td style="text-align: left;"><u>Control</u></td> <td style="text-align: right;"><u>Setting</u></td> </tr> </table>	<u>Control</u>	<u>Setting</u>		
<u>Control</u>	<u>Setting</u>			
<u>MK-994A/AR</u>				
DC POWER ON/OFF ON RADIO				
ANTENNA FUNCTION XCVR TEST 6				
<u>J-4247/AR</u>				
PWR				
DC/OFF/AC OFF				
RT ON/OFF ON				
ANT AM/FM AM				
TAKE CONT RT/RMT RMT				
SQUELCH TN/DSBL DSBL				
X-MODE WB/NB NB				
VOL CONT OPR/GND OPR				
<u>C-10604/10606</u>				
OFF/TR/DF TR				
VOL Fully clock- wise				
EMER AM/FM/MAN/ PRE MAN				
SQ DIS/TONE Centered				
Frequency selectors 151.975				
<u>RT-1300B</u>				
LOCKOUT AM/FM Dot centered under LOCKOUT				
<u>SG-1112(V)1</u>				
COUNTER MODE				
INT/EXT EXT (out)				
EXT 10-550 (out)				
EXPAND X10 (in)				
LOCK OFF (out)				

4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>TRANSMITTER TESTS (Continued)</u>		
<p style="text-align: center;"><u>AN/URM-120</u></p> <p>50 watts, 25-230 MHz insert. Arrow pointing to 30-dB attenuator.</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>Long transmit periods will overheat transmitter. Key transmitter only long enough to get a reading. Transmitter cycle is 1 minute transmit, then 5 minutes receive.</p> <p>3. RF power output test.</p> <p>a. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.</p> <p>b. Release MK-994A/AR MICROPHONE 1.</p> <p>c. Disconnect cable from RT-1300B J4, then connect cable to J3.</p> <p>d. Set J-4247/AR ANT AM/FM to FM.</p> <p>e. Repeat steps a, b.</p> <p>f. Repeat steps a, b with C-10604/10606 frequency selectors set to 134.000, 116.000.</p> <p>g. Repeat steps a, b with C-10604/10606 frequency selectors set to 87.975, 59.000.</p> <p>h. Repeat steps a, b with C-10604/10606 frequency selectors set to 30.500.</p> <p>4. Frequency accuracy test</p> <p>a. Set C-10604/10606 frequency selectors to 150.000.</p>	<p>AN/URM-120 reads 10 watts or more.</p> <p>AN/URM-120 reads 10 watts or more.</p> <p>AN/URM-120 reads 10 watts or more.</p> <p>AN/URM-120 reads 10 watts or more.</p> <p>AN/URM-120 reads 10 watts or more.</p>	<p>Go to TROUBLE 4-9.</p> <p>Replace A1 (para 4-7).</p> <p>Go to TROUBLE 4-10.</p> <p>Go to TROUBLE 4-11.</p> <p>Go to TROUBLE 4-12.</p>

4-5. TESTING (Continued)

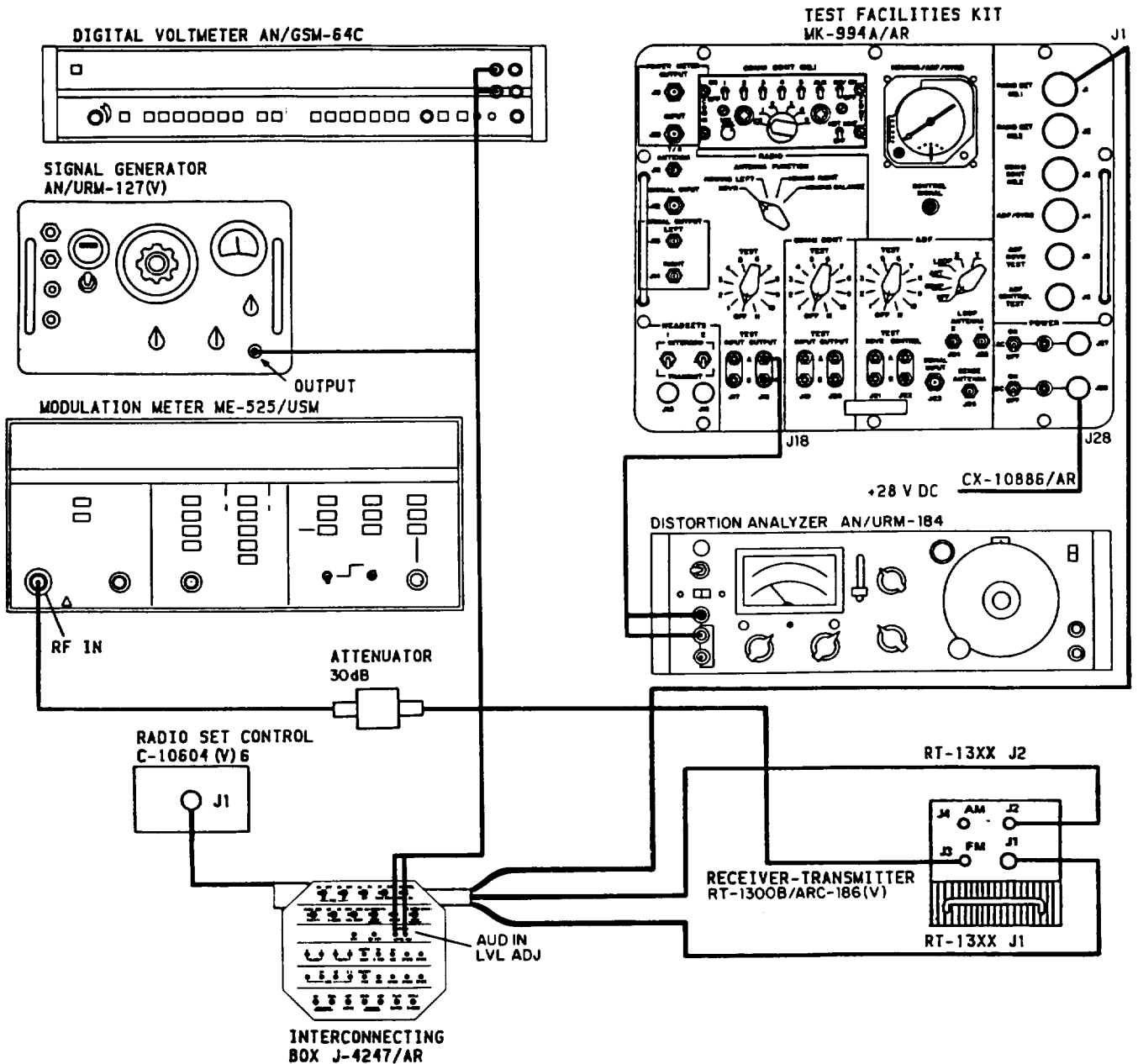
PROCEDURE	NORMAL INDICATION	REMARKS
<u>TRANSMITTER TESTS (Continued)</u>		
b. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.	SG-1112(V)1 reads between 149.998 to 150.002.	Go to TROUBLE 4-13.
c. Release MK-994A/AR MICROPHONE 1.		
d. Repeat steps b, c with C-10604/10606 frequency selectors set to 50.000.	SG-1112(V)1 reads between 49.998 to 50.002.	Go to TROUBLE 4-14.
e. Repeat steps b, c with C-10604/10606 frequency selectors set to 59.000 87.975 116.000 134.000 151.975	SG-1112(V)1 reads between: 58.998 to 59.002 87.973 to 87.977 115.998 to 116.002 133.998 to 134.002 151.973 to 151.977	Replace A5 (para 4-11). NOTE If A5 was replaced and trouble remains, replace A9 (para 4-13).
5. Emergency frequency test.		
a. Set J-4247/AR: TAKE CONT RT/RMT to RT EMER AM/NORM/FM to AM		
b. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.	SG-1112(V)1 reads between 121.498 to 121.502 MHz.	Replace A9 (para 4-13). NOTE If A9 was replaced and trouble remains, replace A5 (para 4-11).
c. Set J-4247/AR EMER AM/NORM/FM to FM.	SG-1112(V)1 reads between 40.498 to 40.502 MHz.	Replace A9 (para 4-13). NOTE If A9 was replaced and trouble remains, replace A5 (para 4-11).
d. Release MK-994A/AR MICROPHONE 1.		
e. Set J-4247/AR: EMER AM/NORM/FM to NORM TAKE CONT RT/RMT to RMT		

4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
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TRANSMITTER TESTS (Continued)

6. Connect RT-1300B to test equipment as shown below



4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS																		
<u>TRANSMITTER TESTS (Continued)</u>																				
7. Set controls as follows:																				
<table border="0"> <tr> <td style="text-align: center;"><u>Control</u></td> <td style="text-align: center;"><u>Setting</u></td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>AN/URM-127</u></td> </tr> <tr> <td>Frequency</td> <td>1000 Hz</td> </tr> <tr> <td>Amplitude</td> <td>0.39 Vrms as measured on AN/GSM-64C</td> </tr> </table>	<u>Control</u>	<u>Setting</u>	<u>AN/URM-127</u>		Frequency	1000 Hz	Amplitude	0.39 Vrms as measured on AN/GSM-64C												
<u>Control</u>	<u>Setting</u>																			
<u>AN/URM-127</u>																				
Frequency	1000 Hz																			
Amplitude	0.39 Vrms as measured on AN/GSM-64C																			
<table border="0"> <tr> <td colspan="2" style="text-align: center;"><u>ME-525</u></td> </tr> <tr> <td>TUNING</td> <td>AUTO (in)</td> </tr> <tr> <td>HIGH-PASS</td> <td>30</td> </tr> <tr> <td>LOW-PASS/DEEM-PHASE IN/OUT</td> <td>OUT (out)</td> </tr> <tr> <td>LOW-PASS</td> <td>15</td> </tr> <tr> <td>PEAK</td> <td><u>PK-PK</u> 2</td> </tr> <tr> <td>RANGE</td> <td>100</td> </tr> <tr> <td>FUNCTION</td> <td>AM</td> </tr> <tr> <td>AUTO/SET TO 10.00</td> <td>AUTO</td> </tr> </table>	<u>ME-525</u>		TUNING	AUTO (in)	HIGH-PASS	30	LOW-PASS/DEEM-PHASE IN/OUT	OUT (out)	LOW-PASS	15	PEAK	<u>PK-PK</u> 2	RANGE	100	FUNCTION	AM	AUTO/SET TO 10.00	AUTO		
<u>ME-525</u>																				
TUNING	AUTO (in)																			
HIGH-PASS	30																			
LOW-PASS/DEEM-PHASE IN/OUT	OUT (out)																			
LOW-PASS	15																			
PEAK	<u>PK-PK</u> 2																			
RANGE	100																			
FUNCTION	AM																			
AUTO/SET TO 10.00	AUTO																			
<table border="0"> <tr> <td colspan="2" style="text-align: center;"><u>AN/URM-184A</u></td> </tr> <tr> <td>LINE</td> <td>ON</td> </tr> <tr> <td>FUNCTION</td> <td>VOLT-METER</td> </tr> <tr> <td>METER RANGE</td> <td>3 VOLTS</td> </tr> <tr> <td>NORM/RF. DET</td> <td>NORM</td> </tr> </table>	<u>AN/URM-184A</u>		LINE	ON	FUNCTION	VOLT-METER	METER RANGE	3 VOLTS	NORM/RF. DET	NORM										
<u>AN/URM-184A</u>																				
LINE	ON																			
FUNCTION	VOLT-METER																			
METER RANGE	3 VOLTS																			
NORM/RF. DET	NORM																			
<p>8. Narrow-band AM modulation and sidetone test.</p> <p>a. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.</p> <p>b. Measure percent modulation and sidetone level, then release MK-994A/AR MICROPHONE 1.</p>	<p>ME-525 reads 80 to 99% AM.</p> <p>AN/URM-184A reads 0.93 to 1.57 Vrms.</p>	<p>Go to TROUBLE 4-15.</p> <p>Go to TROUBLE 4-16.</p>																		

4-5. TESTING (Continued)

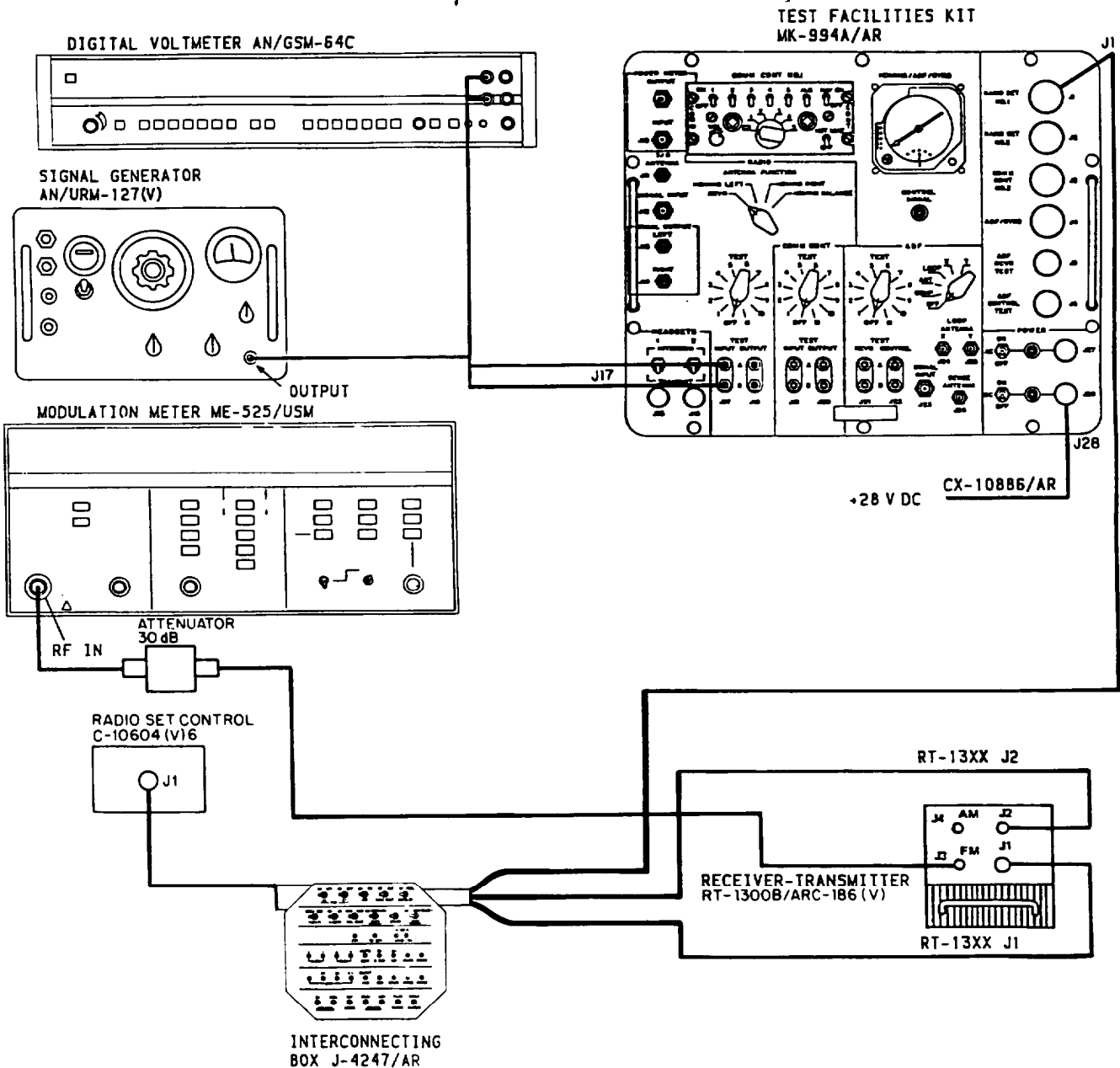
PROCEDURE	NORMAL INDICATION	REMARKS				
<u>TRANSMITTER TESTS (Continued)</u>						
c. Repeat steps a, b with C-10604/10606 frequency selectors set to 134.000, 116.000.	ME-525 reads 80 to 99% AM. AN/URM-184A reads 0.93 to 1.57 Vrms.	Go to TROUBLE 4-15. Go to TROUBLE 4-16.				
9. Narrow-band FM deviation and sidetone test.						
a. Set C-10604/10606 frequency selectors to 87.975.						
b. Set ME-525						
<table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">FUNCTION</td> <td style="text-align: right;">kHz DEV</td> </tr> <tr> <td>RANGE</td> <td style="text-align: right;">10</td> </tr> </table>	FUNCTION	kHz DEV	RANGE	10		
FUNCTION	kHz DEV					
RANGE	10					
c. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.						
d. Measure FM deviation and sidetone level, then release MK-994A/AR MICROPHONE 1.	ME-525 reads 3.5 to 6.5 kHz DEV. A N/URM-184A reads 0.93 to 1.57 Vrms.	Go to TROUBLE 4-17. Go to TROUBLE 4-18.				
e. Repeat steps c, d with C-10604/10606 frequency selectors set to 59.000, 30.500.	ME-525 reads 3.5 to 6.5 kHz DEV. AN/URM-184A reads 0.93 to 1.57 Vrms.	Go to TROUBLE 4-17. Go to TROUBLE 4-18.				

4.5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
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TRANSMITTER TESTS (Continued)

10. Connect RT-1300B to test equipment as shown below



4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>TRANSMITTER TESTS (Continued)</u>		
<p>11. FM retransmission test.</p> <p>a. Set AN/URM-127 AMPLITUDE to 2.75 Vrms as measured on AN/GSM-64C.</p> <p>b. Check J-4247/AR SQUELCH TN/DSBL set to DSBL.</p> <p>c. Set MK-994A/AR RADIO TEST to 4.</p> <p>d. Set MK-994A/AR RADIO TEST to 5.</p>	<p>ME-525 reads 4 to 6 kHz DEV.</p>	<p>Go to TROUBLE 4-19.</p>
<p>12. AM retransmission test.</p> <p>a. Set C-10604/10606 frequency selectors to 151.975.</p> <p>b. Set ME-525</p> <p style="margin-left: 40px;">RANGE 100</p> <p style="margin-left: 40px;">FUNCTION % AM</p> <p>c. Set MK-994A/AR RADIO TEST to 4.</p> <p>d. Set MK-994A/AR RADIO TEST to 3.</p>	<p>ME-525 reads 70 to 99% AM.</p>	<p>Go to TROUBLE 4-19.</p>
<p>13. AM X-mode modulation test.</p> <p>a. Adjust AN/URM-127 for 3.54 Vrms as measured on AN/GSM-64C.</p> <p>b. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.</p> <p>c. Release MK-994A/AR MICROPHONE 1.</p>	<p>ME-525 reads 70 to 99% AM.</p>	<p>Go to TROUBLE 4-20.</p>

4-5. TESTING (Continued)

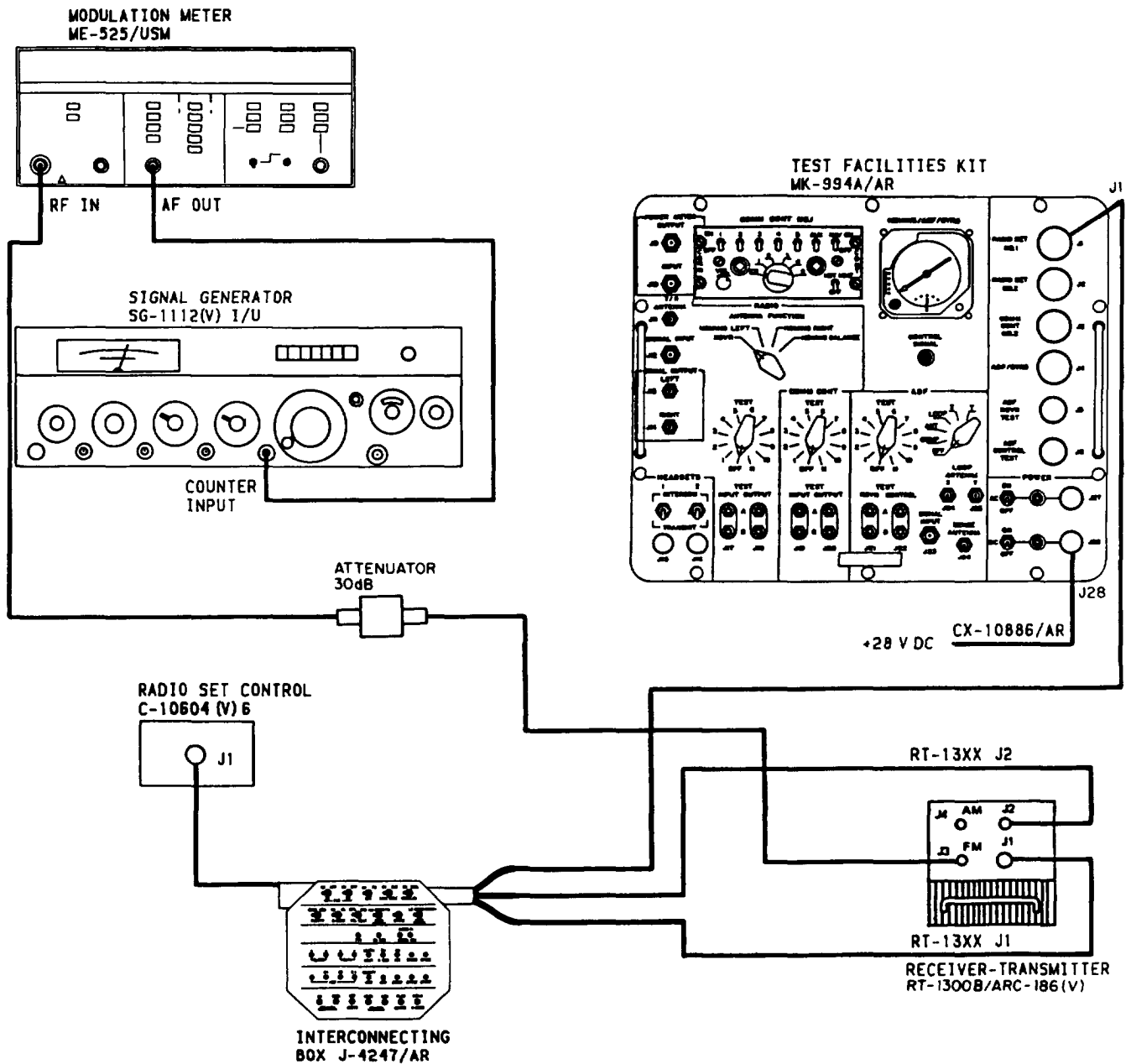
PROCEDURE	NORMAL INDICATION	REMARKS				
<u>TRANSMITTER TESTS (Continued)</u>						
d. Repeat steps b, c with C-10604/10606 frequency selectors set to 134.000, 116.000.	ME-525 reads 70 to 99% AM.	Go to TROUBLE 4-20.				
14. FM X-mode modulation test.						
a. Set ME-525 <table style="margin-left: 40px;"> <tr> <td style="padding-right: 20px;">FUNCTION</td> <td>kHz DEV</td> </tr> <tr> <td>RANGE</td> <td>10</td> </tr> </table>	FUNCTION	kHz DEV	RANGE	10		
FUNCTION	kHz DEV					
RANGE	10					
b. Set C-10604/10606 frequency selectors to 87.975.						
c. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.	ME-525 reads 3.5 to 6.5 kHz DEV.	Go to TROUBLE 4-20.				
d. Release MK-994A/AR MICROPHONE 1.						
e. Repeat steps c, d with C-10604/10606 frequency selectors set to 59.000, 30.500.	ME-525 reads 3.5 to 6.5 kHz DEV.	Go to TROUBLE 4-20.				

4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
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TRANSMITTER TESTS (Continued)

15. Connect RT-1300B to test equipment as shown below



4-5. TESTING (Continued)

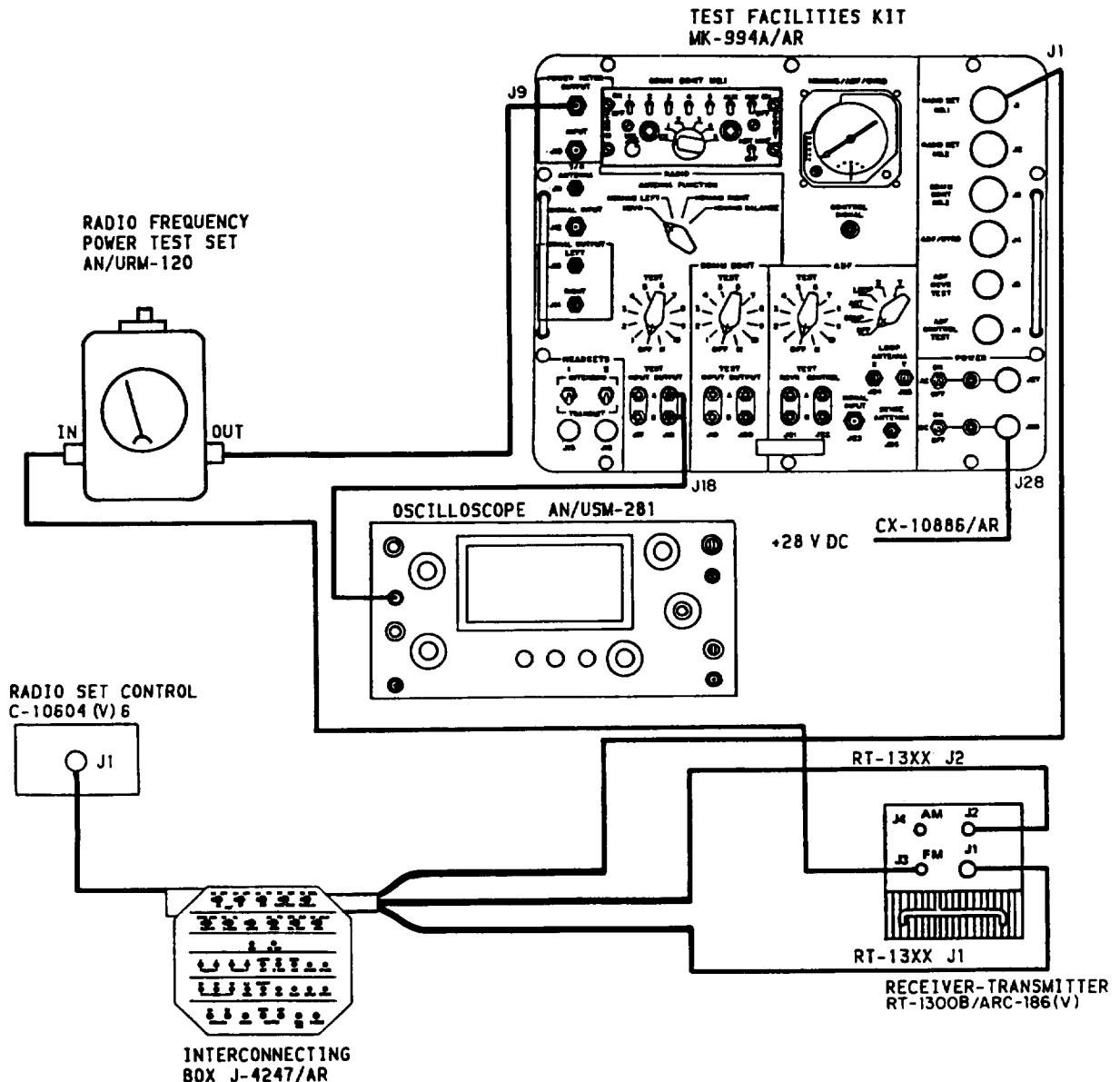
PROCEDURE	NORMAL INDICATION	REMARKS		
<u>TRANSMITTER TESTS (Continued)</u>				
16. Set controls as follows:				
<table style="width: 100%; border: none;"> <tr> <td style="text-align: left;"><u>Control</u></td> <td style="text-align: right;"><u>Setting</u></td> </tr> </table>	<u>Control</u>	<u>Setting</u>		
<u>Control</u>	<u>Setting</u>			
<u>MK-994A/AR</u>				
RADIO TEST	6			
<u>J-4247/AR</u>				
SQUELCH	TN			
<u>SG-1112(V)1</u>				
COUNTER MODE				
INT/EXT	EXT (out)			
EXT	0-10 (in)			
EXPAND	X100 (in)			
<u>ME-525</u>				
FUNCTION	kHz DEV			
RANGE	10			
17. FM squelch tone deviation and frequency test.				
a. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.				
b. Measure FM deviation and frequency, then release MK-994A/AR MICROPHONE L	<p>ME-525 reads 2.35 to 3.65 kHz DEV.</p> <p>3G-1112(V)1 reads .000147 to .000153 MHz.</p>	<p>Go to TROUBLE 4-21.</p> <p>Go to TROUBLE 4-22.</p>		
18. FM TONE deviation and frequency test.				
a. J-4247AR SQUELCH TN/DSBL to DSBL.				
b. Set C-10604/10606 SQ DIS/TONE to TONE.				
c. Measure FM deviation and frequency, then release SQ DIS/TONE.	<p>ME-525 reads 3.5 to 6.5 kHz DEV.</p> <p>SG-1112(V)1 reads .000760 to .001280 MHz.</p>	<p>Go to TROUBLE 4-23.</p>		

4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
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TRANSMITTER TESTS (Continued)

19. Connect RT-1300B to test equipment as shown below:

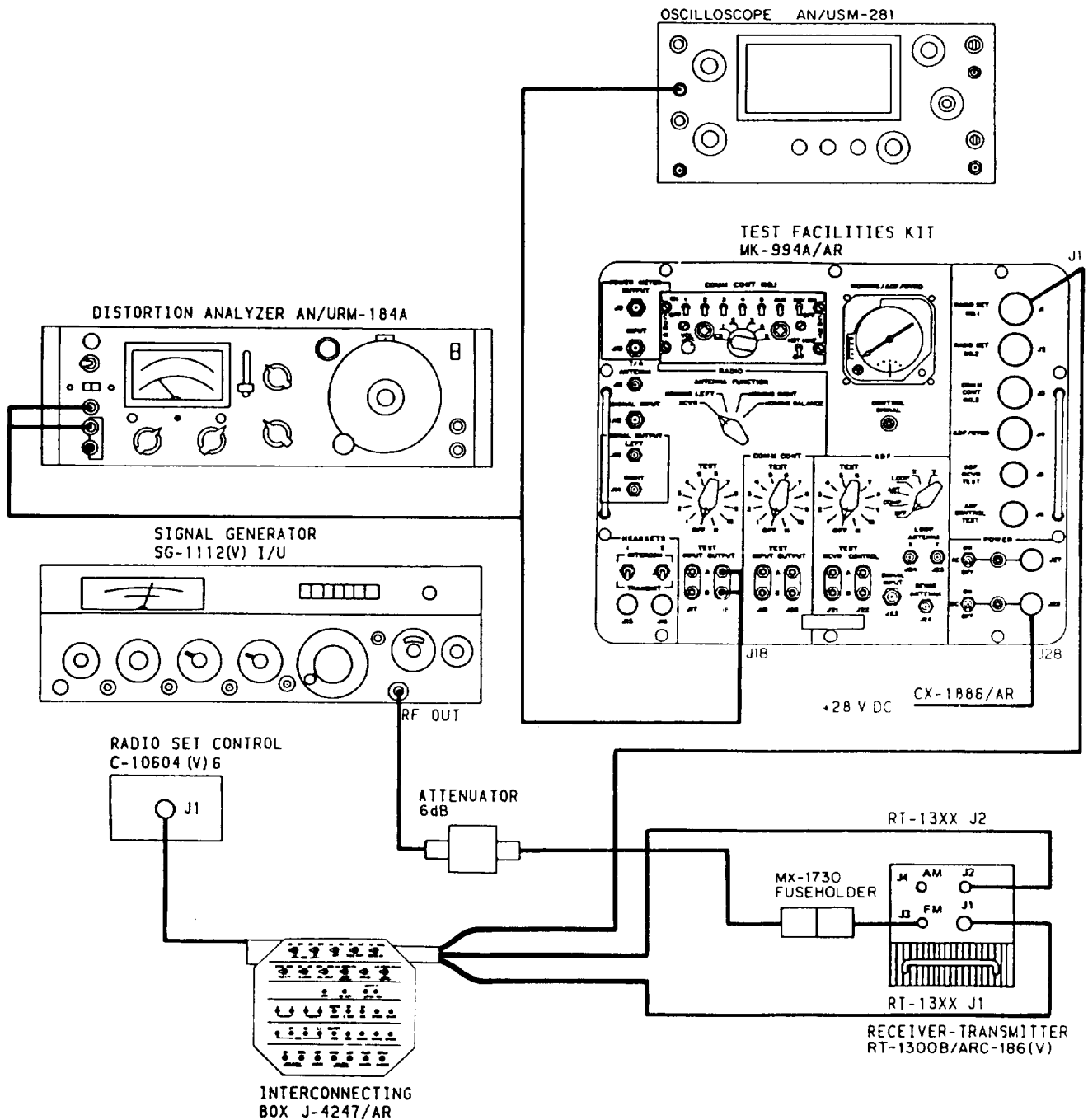


4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>TRANSMITTER TESTS (Continued)</u>		
20. AM/FM LOCKOUT test.		
a. Set RT-1300B LOCKOUT AM/FM to FM.	Distorted audio signal on AN/USM-281C.	Go to TROUBLE 4-24.
b. Set MK-994A/AR RADIO MICROPHONE 1 to TRANSMIT.	AN/URM-120 reads 0.	Replace A3 (para 4-9).
c. Set RT-1300B LOCKOUT AM/FM to AM.	No signal on AN/USM-281C. AN/URM-120 reads more than 10 watts.	Go to TROUBLE 4-25.
d. Release MK-994A/AR HEADSET 1.		
e. Set C-10604/10606 frequency selectors to 151.975.	Distorted audio signal on AN/USM-281C.	Go to TROUBLE 4-24.
f. Set MK-994A/AR MICROPHONE 1 to TRANSMIT.	AN/URM-120 reads 0.	Replace A3 (para 4-9).
g. Set RT-1300B LOCKOUT AM/FM to center position.	No signal on AN/USM-281C. AN/URM-120 reads more than 10 watts.	Replace A9 (para 4-13).
h. Release MK-994A/AR MICROPHONE 1.		

4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<p>1. Connect RT-1300B to test equipment as shown below.</p>	<p><u>RECEIVER TESTS</u></p>	



4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS																		
<p style="text-align: center;"><u>CAUTION</u></p> <p>These are receiver tests.</p> <p>Do not transmit.</p> <p><u>DO NOT</u> set MK-994A/AR RADIO TEST to position 4.</p> <p>This causes the RT-1300B to transmit.</p> <p>The RT-1300B could cause damage to test equipment while transmitting.</p> <p style="text-align: center;">NOTES:</p> <ul style="list-style-type: none"> ● Be sure you set the SG-1112(V)1 to the correct frequency. If you are as much as 100 Hz off, your testing may not be accurate. ● When using the AN/GRM-114A for testing, refer to the receiver testing portion of paragraph 2-5. Substitute RT-1300B where RT-1300A is used. <p>2. Set controls as follows:</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Control</u></td> <td style="text-align: center;"><u>Setting</u></td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>J-4247/AR</u></td> </tr> <tr> <td>SQUELCH TN/DSBL</td> <td>TN</td> </tr> <tr> <td>X-MODE WB/NB</td> <td>NB</td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>SG-1112(V)1</u></td> </tr> <tr> <td>RF ON/OFF</td> <td>ON</td> </tr> <tr> <td>COUNTER MODE</td> <td></td> </tr> <tr> <td>INT/EXT</td> <td>INT (in)</td> </tr> <tr> <td>EXPAND</td> <td>X10 (in)</td> </tr> </table>	<u>Control</u>	<u>Setting</u>	<u>J-4247/AR</u>		SQUELCH TN/DSBL	TN	X-MODE WB/NB	NB	<u>SG-1112(V)1</u>		RF ON/OFF	ON	COUNTER MODE		INT/EXT	INT (in)	EXPAND	X10 (in)	<p><u>RECEIVER TESTS (Continued)</u></p>	
<u>Control</u>	<u>Setting</u>																			
<u>J-4247/AR</u>																				
SQUELCH TN/DSBL	TN																			
X-MODE WB/NB	NB																			
<u>SG-1112(V)1</u>																				
RF ON/OFF	ON																			
COUNTER MODE																				
INT/EXT	INT (in)																			
EXPAND	X10 (in)																			

4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<p> OUTPUT LEVEL 1 m VOLT RANGE 256-128 FREQUENCY MHz 151.975 LOCK ON (in) AM INT MODULATION 1 kHz FREQUENCY FIXED FREQ </p>	<p><u>RECEIVER TESTS (Continued)</u></p>	

4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
f. Adjust C-10604/10606 VOL for +10 dB as read on AN/URM-184A.	Adjusts to +10 dB.	Replace A4 (para 4-10). NOTE If A4 was replaced and trouble remains, replace A6 (para 4-12).
g. Set SG-1112(V)1 FM to OFF.	AN/URM-184A reading drops more than 30 dB.	Replace A4 (para 4-10). NOTE If A4 was replaced and trouble remains, replace A6 (para 4-12).
h. Repeat steps f, g with C-10604/10606 frequency selectors and SG-1112(V)1 set to 59.000 and 30.500.		
6. FM sensitivity test.		
a. Set C-10604/10606 SQ DIS/TONE to SQ DIS.		
b. Set SG-1112(V)1 OUTPUT to 1.5 μ V, FM set to INT.		
c. Adjust C-10604/10606 VOL for +10 dB as read on AN/URM-184A.		
d. Set SG-1112(V)1 FM to OFF.	AN/URM-184A reading drops more than 10 dB.	Replace A4 (para 4-10).
e. Repeat steps b thru d with C-10604/10606 frequency selectors and SG-1112(V)1 set to 59.000, 87.975.	AN/URM-184A reading drops more than 10 dB.	Replace A4 (para 4-10).
7. AM sensitivity test.		
a. Adjust SG-1112(V)1 for 108.000, 1000 Hz, 80% modulation at 6 μ V.		

4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
b. Set C-10604/10606 frequency selectors to 108.000.		
c. Adjust C-10604/10606 VOL for +10 dB as read on AN/URM-184A.		
d. Set SG-1112(V)1 AM to OFF.	AN/URM-184A reading drops more than 10 dB.	Replace A4 (para 4-10).
e. Repeat steps b thru d with C-10604/10606 frequency selectors and SG-1112(V)1 set to 116.000, 134.000, and 151.975.	AN/URM-184A reading drops more than 10 dB.	Replace A4 (para 4-10).
8. AM squelch test.		
a. Set C-10604/10606 SQ DIS/TONE to center position.		
b. Set SG-1112(V)1: OUTPUT LEVEL to .1 μ VOLTS MODULATION 0-100% to 30%.	AN/URM-184A reading drops more than 30 dB.	Go to TROUBLE 4-28.
c. Slowly increase SG-1112(V)1 OUTPUT LEVEL until AN/URM-184A reading increases (receiver unquelsches).	No more than 6 μ V.	Go to TROUBLE 4-29.
d. Set SG-1112(V)1 OUTPUT LEVEL to .1 μ VOLTS.		
9. FM squelch test.		
a. Adjust SG-1112(V)1 for 30.500, 1000-HZ modulation, 5-kHz deviation at 0.1 μ V.		
b. Set C-10604/10606 frequency selectors to 30.500.		
c. Slowly increase SG-1112(V)1 OUTPUT LEVEL until AN/URM-184A reading increases (receiver unquelsches).	No more than 1.5 μ V.	Go to TROUBLE 4-30.

4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<p>d. Set SG-1112(V)1 OUTPUT LEVEL to .1 μ VOLTS.</p> <p>10. FM narrow-band audio output test.</p> <p>a. Set:</p> <p>AN/URM-184A METER RANGE to 10 VOLTS.</p> <p>SG-1112(V)1 OUTPUT LEVEL to 1 m VOLTS.</p> <p>b. Set C-10604/10606 VOL fully clockwise.</p> <p>c. Check AN/URM-184A reading.</p>	<p>AN/URM-184A reads 25 to 3.0 Vrms.</p>	<p>Go to TROUBLE 4-31.</p>
<u>CAUTION</u>		
<p><u>Do not</u> turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.</p>		
<p>11. FM retransmission audio output test.</p> <p>Set MK-994A/AR RADIO TEST to 2.</p>	<p>AN/URM-184A reads 2.38 to 3.15 Vrms. MK-994A/AR CONTROL SIGNAL lamp lights.</p>	<p>Go to TROUBLE 4-32.</p>
<p>12. FM X-mode audio output test.</p> <p>Set MK-994A/AR RADIO TEST to 3.</p>	<p>AN/URM-184A reads not less than 1.9 Vrms.</p>	<p>Go to TROUBLE 4-33.</p>
<u>CAUTION</u>		
<p><u>Do not</u> turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.</p>		
<p>13. AM narrow-band audio output test.</p> <p>a. Set MK-994A/AR RADIO TEST to 6.</p>		

4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<p>b. Set C-10604/10606 frequency selectors to 151.975.</p> <p>c. Adjust SG-1112(V)1 for 151.975 MHz, 1000 Hz, 80% modulation at 1 mV.</p> <p>d. Check AN/URM-184A reading.</p>	<p>AN/URM-184A reads 2.5 to 3.0 Vrms.</p>	<p>Go to TROUBLE 4-31.</p>
<u>CAUTION</u>		
<p><u>Do not</u> turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.</p>		
<p>14. AM retransmission audio output test.</p> <p>Set MK-094A/AR RADIO TEST to 2.</p>	<p>AN/URM-184A reads 2.38 to 3.15 Vrms. MK-994A/AR CONTROL SIGNAL lamp lights.</p>	<p>Go to TROUBLE 4-32.</p>
<p>15. AM X-mode audio output test.</p> <p>Set MK-994A/AR RADIO TEST to 3.</p>	<p>AN/URM-184A reads not less than 1.9 Vrms.</p>	<p>Go to TROUBLE 4-33.</p>
<p>16. FM narrow-band audio frequency response test.</p> <p>a. Set MK-994A/AR RADIO TEST to 6.</p> <p>b. Adjust SG-1112(V)1 for 58.500, 1000-HZ modulation, 5-kHz deviation at 1 mV.</p> <p>c. Set:</p> <p>C-10604/10606 frequency selectors to 58.500.</p> <p>VOL fully counterclockwise.</p> <p>AN/URM-184A METER RANGE to 1 VOLTS.</p>		

4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
d. Adjust C-10604/10606 VOL for +10 dB as shown on AN/URM-184A.	AN/URM-184A does not rise more than 1 dB or fall more than 3 dB.	Replace A3 (para 4-9).
e. Set SG-1112(V)1 to 300-Hz modulation, 5-kHz deviation.		<p style="text-align: center;">NOTE</p> <p>If A3 was replaced and trouble remains, replace A4 (para 4-10).</p>
f. Set SG-1112(V)1 to 3200-Hz modulation, 5-kHz deviation.	AN/URM-184A does not rise more than 1 dB or fall more than 3 dB.	Replace A3 (para 4-9).
<p style="text-align: center;">NOTE</p> <p>If A3 was replaced and trouble remains, replace A4 (para 4-10).</p>		
<u>CAUTION</u>		
Do not turn MK-994A/AR RADIO TEST selector across position 4 while changing selector settings in the following steps.		
17. FM X-mode audio frequency response test.		
a. Set		
AN/URM-184A METER RANGE to 10 VOLTS.		
MK-994A/AR RADIO TEST to 3.		
J-4247/AR X-MODE WB/NB to WB.		
SG-1112(V)1 to 1000-HZ modulation, 5-kHz deviation.		
b. Remember AN/URM-184A reading for steps c, d.		

4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
c. Set SG-1112(V)1 to 20-Hz modulation, 5-kHz deviation.	AN/URM-184A reading does not rise more than 1 dB or fall more than 3 dB.	Replace A3 (para 4-9). <p style="text-align: center;">NOTE</p> If A3 was replaced and trouble remains, replace A4 (para 4-10).
d. Set SG-1112(V)1 to 14-kHz modulation, 5-kHz deviation.	AN/URM-184A reading does not rise more than 1 dB or fall more than 3 dB.	Replace A3 (para 4-9). <p style="text-align: center;">NOTE</p> If A3 was replaced and trouble remains, replace A4 (para 4-10).
<u>CAUTION</u>		
Do not turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.		
18. FM narrow-band selectivity test.		
a. Set: J-4247/AR X-MODE WB/NB to NB. MK-994A/AR RADIO TEST to 6. AN/URM-164A METER RANGE to 1 VOLTS. SG-1112(V)1 to 1000-HZ modulation, 5-kHz deviation.		
b. Set C-10604/10606 VOL for +10 dB as read on AN/URM-184A.		

4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<p>c. Set SG-1112(V)1 to 58.5085.</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>Do not turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.</p> <p>19. FM X-mode selectivity test.</p> <p>a. Set:</p> <p style="padding-left: 20px;">AN/URM-184A METER RANGE to 10 VOLTS.</p> <p style="padding-left: 20px;">J-4247/AR X-MODE WB/NB to WB.</p> <p style="padding-left: 20px;">MK-994A/AR RADIO TEST to 3.</p>	<p>AN/URM-184A reading does not rise or fall more than 6 dB.</p>	<p>Replace A4 (para 4-10).</p>
<p>b. Set SG-1112(V)1 to 50.516.</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>Do not turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.</p> <p>20. FM audio distortion test.</p> <p>a. Set:</p> <p style="padding-left: 20px;">MK-994A/AR RADIO TEST to 6.</p> <p style="padding-left: 20px;">J-4247/AR X-MODE WB/NB to NB.</p> <p>b. Adjust SG-1112(V)1 for 58.500, 1000-HZ modulation, 5-kHz deviation at 1 mV.</p>	<p>AN/URM-184A reading does not rise or fall more than 6 dB.</p>	<p>Go to TROUBLE 4-34.</p>

4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<p>c. Adjust AN/URM-184A to read distortion.</p>	<p>AN/URM-184A reads no more than 12.5%.</p>	<p>Replace A3 (para 4-9).</p> <p style="text-align: center;">NOTE</p> <p>If A3 was replaced and trouble remains, replace A4 (para 4-10).</p>
<p>d. Repeat steps b, c for modulation frequencies of 300 Hz, 3200 Hz.</p>	<p>AN/URM-184A reads no more than 12.5%.</p>	<p>Replace A3 (para 4-9).</p> <p style="text-align: center;">NOTE</p> <p>If A3 was replaced and trouble remains, replace A4 (para 4-10).</p>
<p>CAUTION</p> <p>Do not turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.</p>		
<p>21. AM narrow-band audio frequency response test.</p> <p>a. Set:</p> <p style="padding-left: 40px;">MK-994A/AR RADIO TEST to 6.</p> <p style="padding-left: 40px;">010604/10606 frequency selectors to 133.500.</p> <p style="padding-left: 40px;">VOL fully counterclockwise.</p> <p style="padding-left: 40px;">J-4247/AR X-MODE WB/NB to NB.</p> <p style="padding-left: 40px;">AN/URM-184A FUNCTION to VOLTMETER.</p> <p style="padding-left: 40px;">METER RANGE to 1 VOLTS.</p>		

4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<p>b. Adjust SG-1112(V)1 for 133.500, 1000 Hz, 30% modulation at 1 mV.</p> <p>c. Adjust C-10604/10606 VOL for +10 dB as read on AN/URM-184A.</p> <p>d. Set SG-1112(V)1 to 300 Hz, 30% modulation.</p>	<p>AN/URM-184A reading does not rise more than 1 dB or fall more than 3 dB.</p>	<p>Replace A3 (para 4-9).</p> <p style="text-align: center;">NOTE</p> <p>If A3 was replaced and trouble remains, replace A4 (para 4-10).</p>
<p>e. Set SG-1112(V)1 to 3200 Hz, 30% modulation.</p>	<p>AN/URM-184A reading does not rise more than 1 dB or fall more than 3 dB.</p>	<p>Replace A3 (para 4-9).</p> <p style="text-align: center;">NOTE</p> <p>If A3 was replaced and trouble remains, replace A4 (para 4-10).</p>
<p style="text-align: center;"><u>CAUTION</u></p>		
<p><u>Do not</u> turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.</p> <p>22. AM X-mode audio frequency test.</p> <p>a. Set:</p> <p style="padding-left: 40px;">AN/URM-184A METER RANGE to 3 VOLTS.</p> <p style="padding-left: 40px;">MK-994A/AR RADIO TEST to 3.</p> <p style="padding-left: 40px;">J-4247/AR X-MODE WB/NB to WB.</p> <p>b. Set SG-1112(V)1 to 1000 Hz, 30% modulation.</p>		

4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<p>c. Remember AN/URM-184A reading for steps d, e.</p> <p>d. Set SG-1112(V)1 to 20 Hz, 30% modulation.</p> <p>e. Set SG-1112(V)1 to 14 kHz, 30% modulation.</p> <p style="text-align: center;"><u>CAUTION</u></p> <p style="text-align: center;"><u>Do not</u> turn MK-994A/AR RADIO TEST switch across position 4 while changing settings in the following steps.</p>	<p>AN/URM-184A reading does not rise more than 1 dB or fall more than 3 dB.</p> <p>AN/URM-184A reading does not rise more than 1 dB or fall more than 3 dB.</p>	<p>Replace A3 (para 4-9).</p> <p>Replace A3 (para 4-9).</p> <p style="text-align: center;">NOTE</p> <p>If A3 was replaced and trouble remains, replace A4 (para 4-10).</p>
<p>23. AM audio distortion test.</p> <p>a . Set:</p> <p style="padding-left: 40px;">MK-994A/AR RADIO TEST to 6.</p> <p style="padding-left: 40px;">J-4247/AR X-MODE WB/NB to NB.</p> <p>b. Set SG-1112(V)1 to 300 Hz, 50% modulation.</p> <p>c. Set AN/URM-184A to measure distortion.</p>	<p>Not more than 12.5%.</p>	<p>Replace A3 (para 4-9).</p> <p style="text-align: center;">NOTE</p> <p>If A3 was replaced and trouble remains, replace A4 (para 4-10).</p>

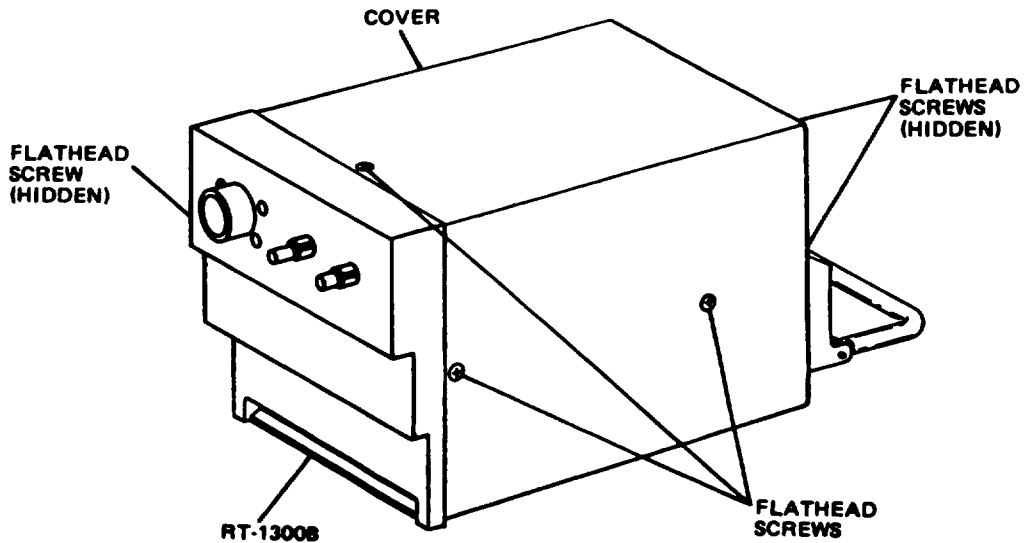
4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
d. Repeat steps 142, 143 for modulation frequencies of 1000 Hz, 3000 Hz.	Not more than 12.5%.	Replace A3 (para 4-9). NOTE If A3 was replaced and trouble remains, replace A4 (para 4-10).
24. DF (homing) enable test.		
a. Adjust AN/GSM-64C to read ohms.		
b. Connect AN/GSM-64C Negative probe to J-4247/AR GND. Positive probe to J-4247/AR ADF/HOM ENBL.	AN/GSM-64C reads between 400 to 600 ohms.	Go to TROUBLE 4-35.
c. Set C-10604/10606 OFF/TR/DF switch to DF.	AN/GSM-64C reads about 50 ohms.	Go to TROUBLE 4-36.
25. Set: MK-994A/AR DC POWER ON/OFF to OFF. J-4247/AR PWR RT ON/OFF to OFF. C-10604/10606 OFF/TR/DF to OFF.		
26. Disconnect RT-1300B from J-4247/AR.		

4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
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RECEIVER TESTS (Continued)



27. Slide cover on RT-1300B.
28. Install six flathead screws.
29. Install RT-1300B in a known good aircraft. See TM 11-5821-318-12, paragraph 8-9.

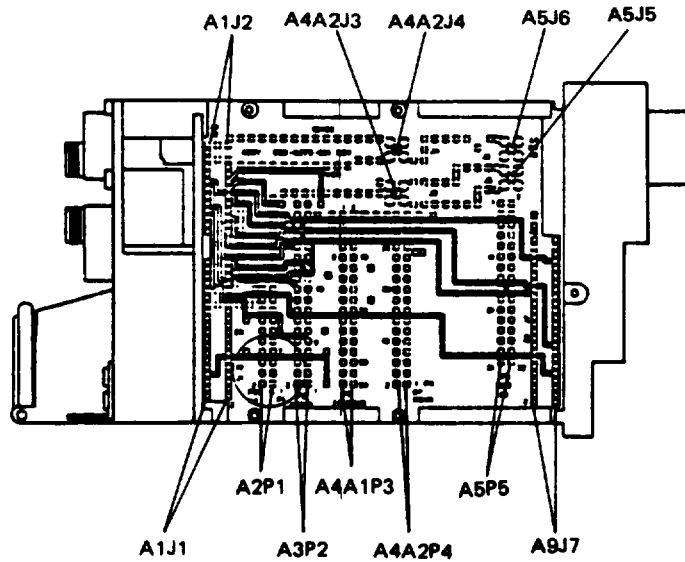
4-5. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<u>RECEIVER TESTS (Continued)</u>		
<p style="text-align: center;">NOTE</p> <p>Sometimes the RT-1300B will continue to transmit a tone after the SQ DIS/TONE switch is released.</p> <p>This will happen when:</p> <p>The remote control is used</p> <p style="text-align: center;">and</p> <p>the RT-1300B is being keyed by the SQ DIS/TONE switch</p> <p style="text-align: center;">while</p> <p>changing frequencies.</p> <p>To stop the tone transmission – select another frequency.</p> <p>30. Complete radio set troubleshooting test. See TM 11-5821-318-12, paragraph 3-4 and aircraft operating manual.</p> <p>31. Complete maintenance forms.</p>	<p>RT-1300B tests okay.</p>	<p>Replace A9 (para 4-13).</p>

Section V. TROUBLESHOOTING

4-6. RADIO SET TROUBLESHOOTING

A6 CONNECTOR LAYOUT



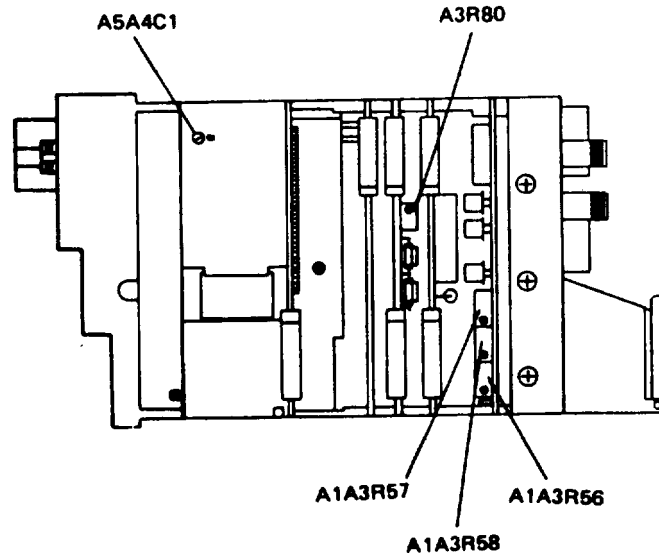
A1J1, A1J2 are numbered bottom-to-top and left-to-right.

A4A1P3, A5P5 are numbered top-to-bottom and left-to-right.

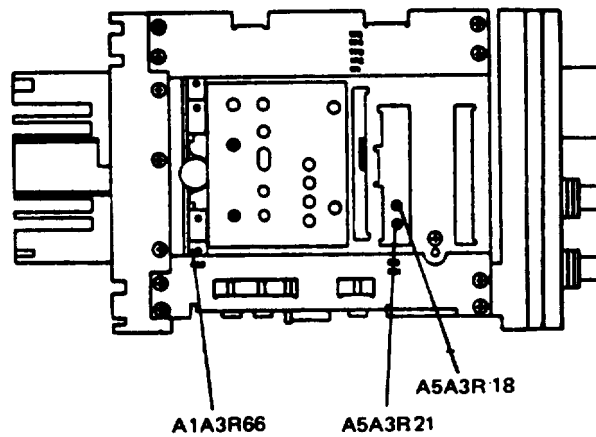
A2P1, A3P2, A4A2P4, A9J7 are numbered bottom-to-top and right-to-left.

4-6. RADIO SET TROUBLESHOOTING (Continued)

RIGHT SIDE ADJUSTMENT LOCATIONS

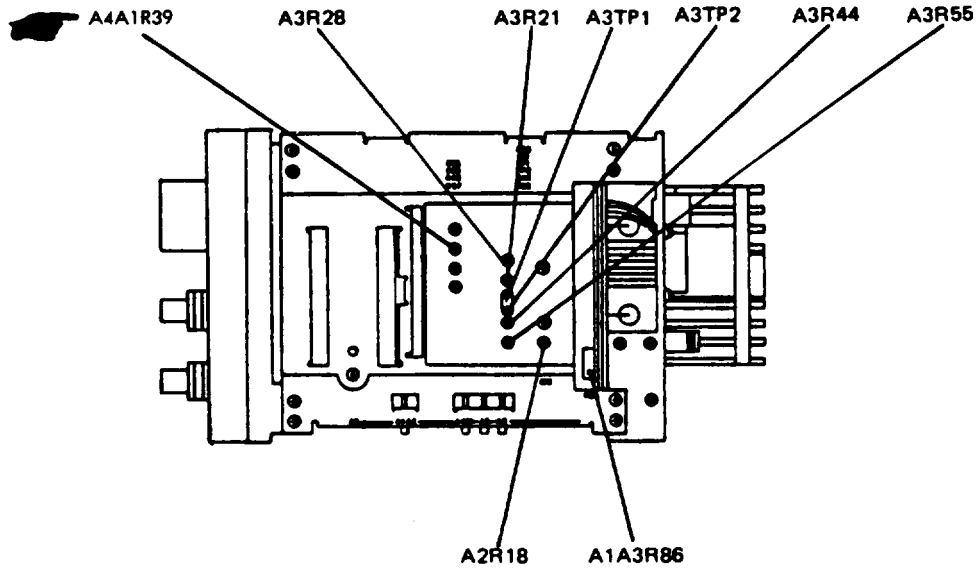


BOTTOM ADJUSTMENT LOCATIONS

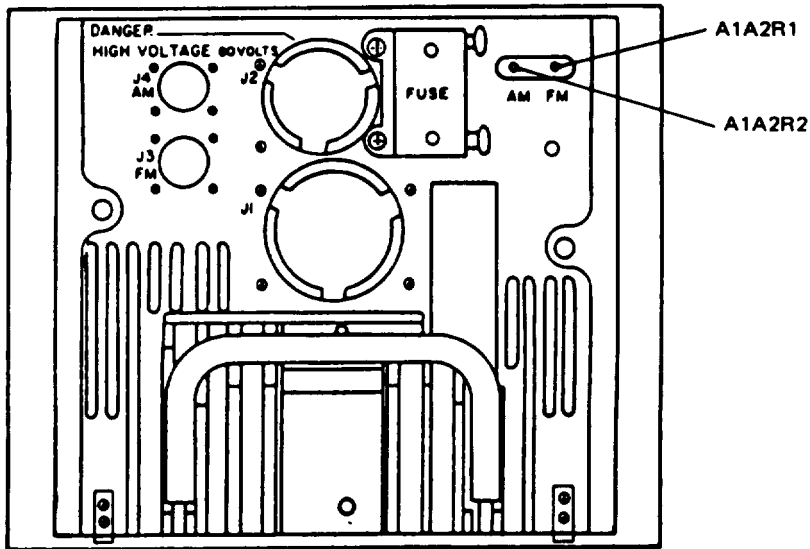


4-6. RADIO SET TROUBLESHOOTING (Continued)

TOP ADJUSTMENT LOCATIONS

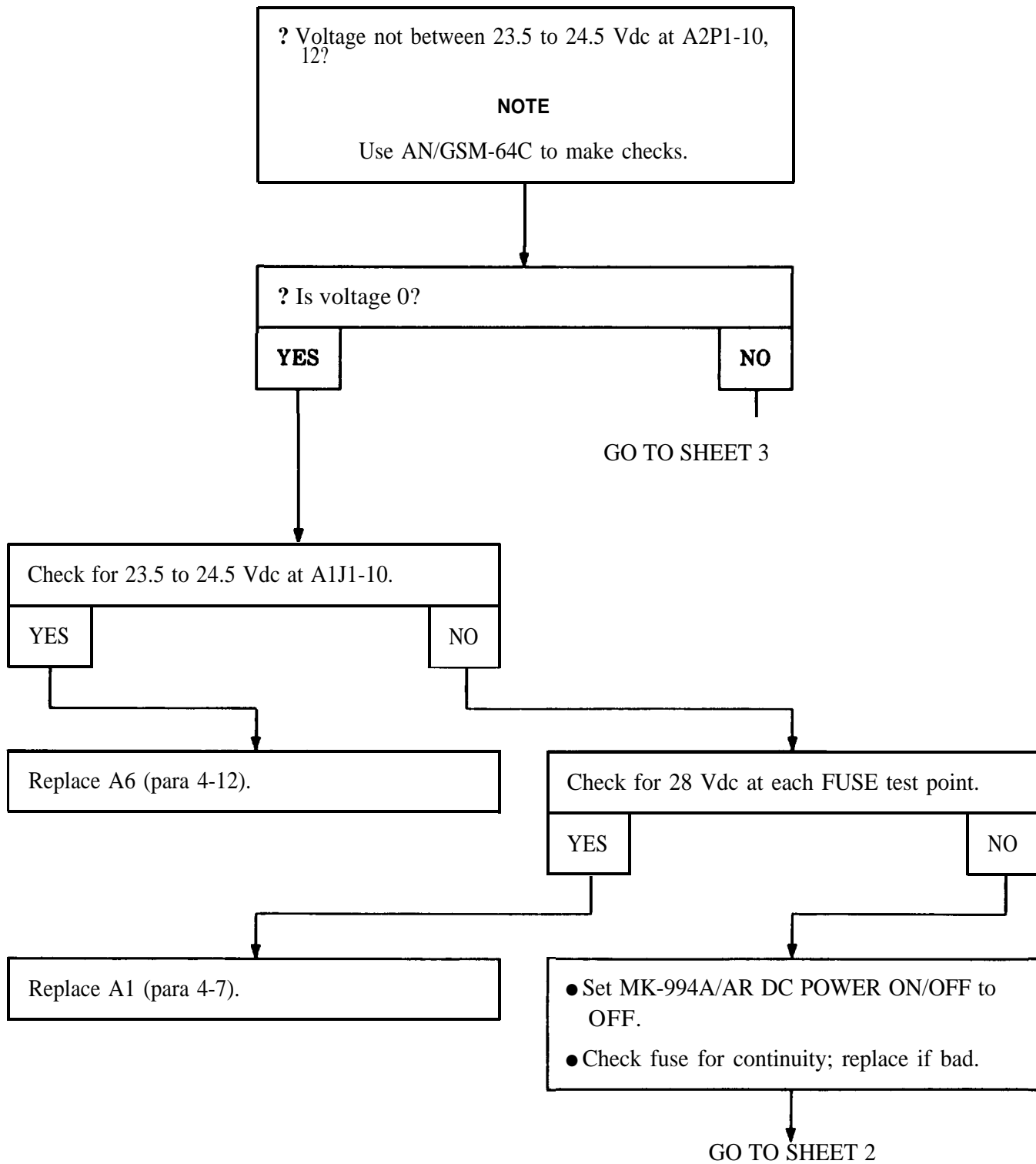


REAR ADJUSTMENT LOCATIONS



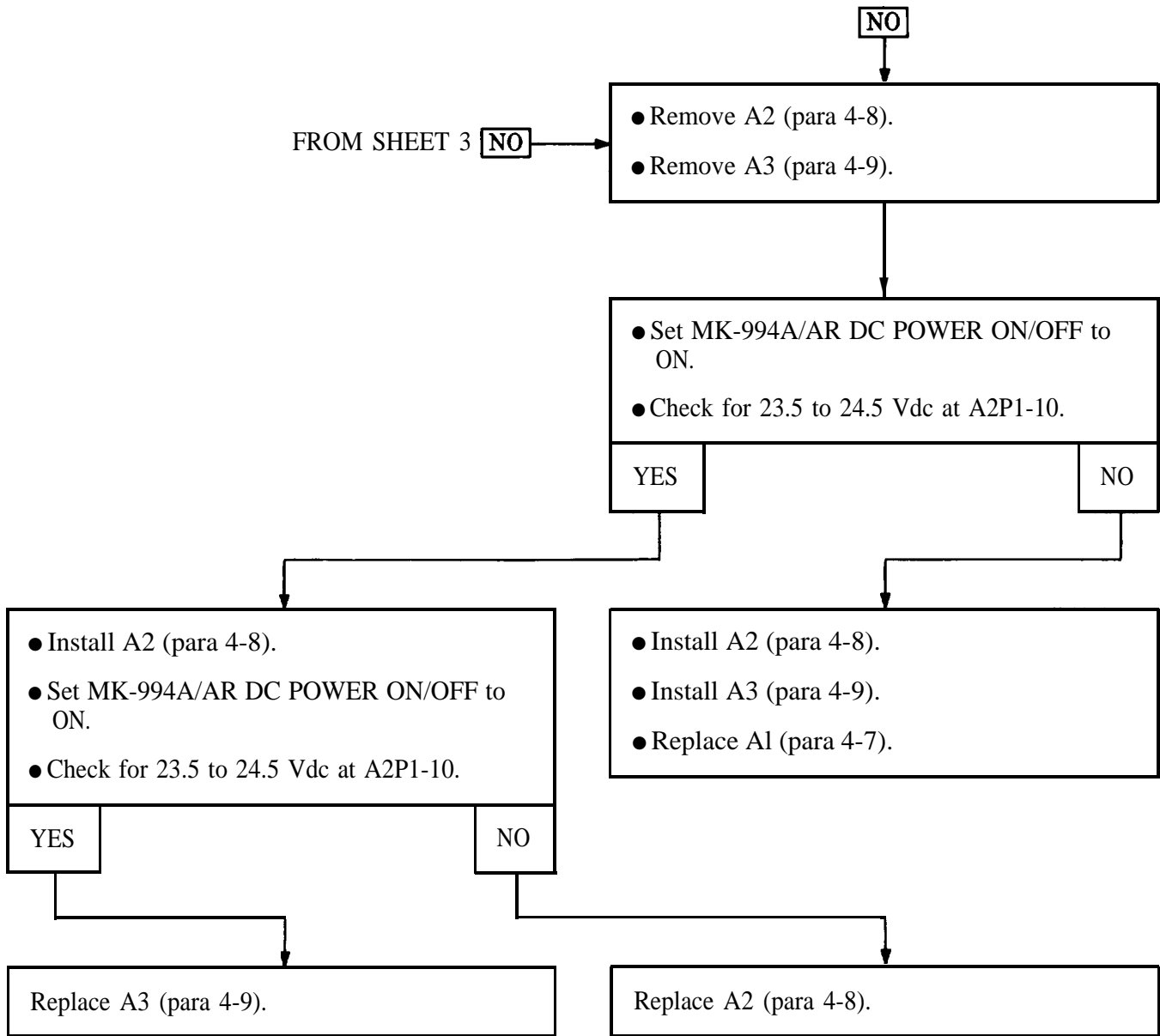
4-6. RADIO SET TROUBLESHOOTING (Continued)

TRUBLE 4-1 (SHEET 1)



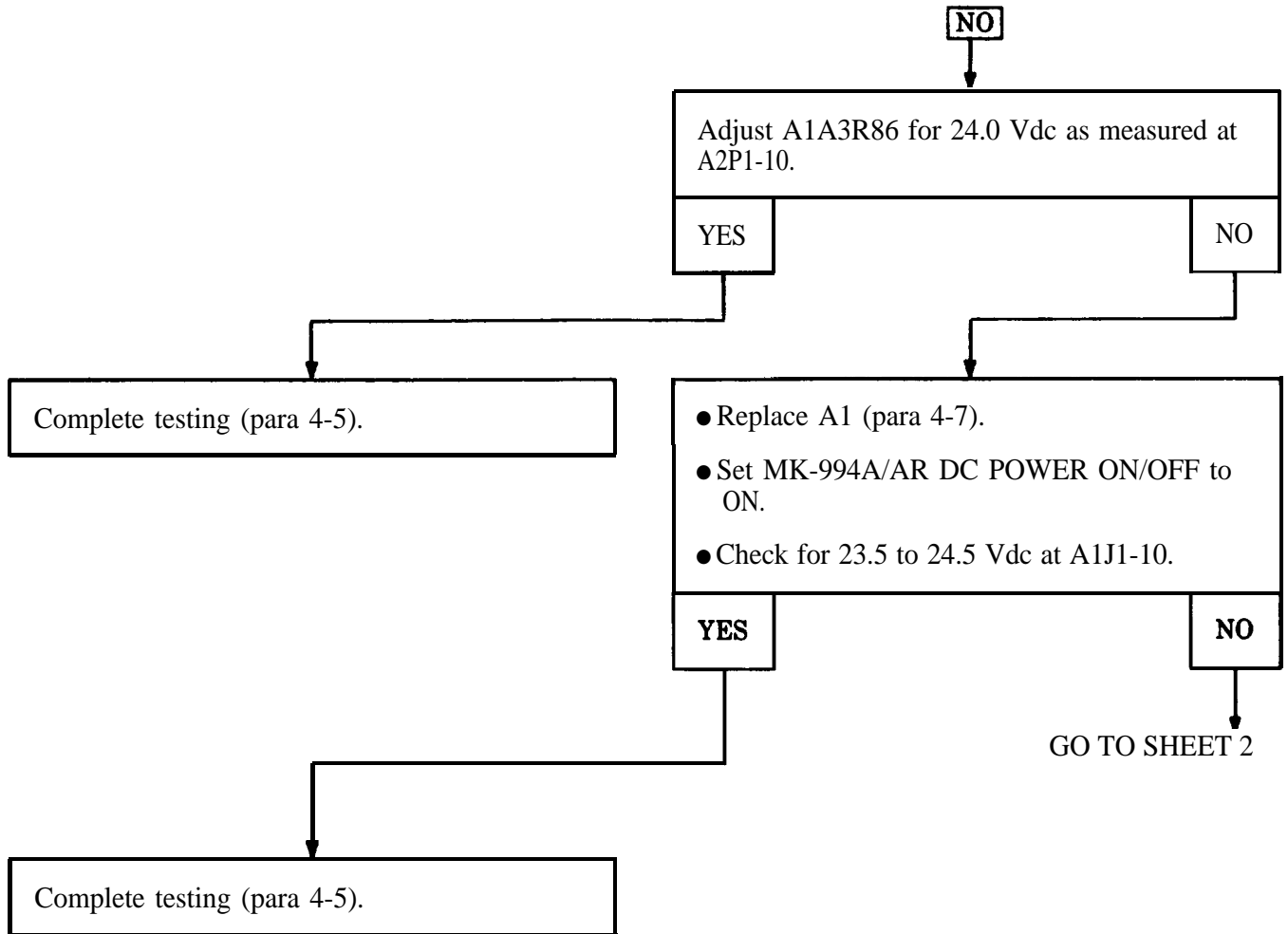
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-1 (SHEET 2)



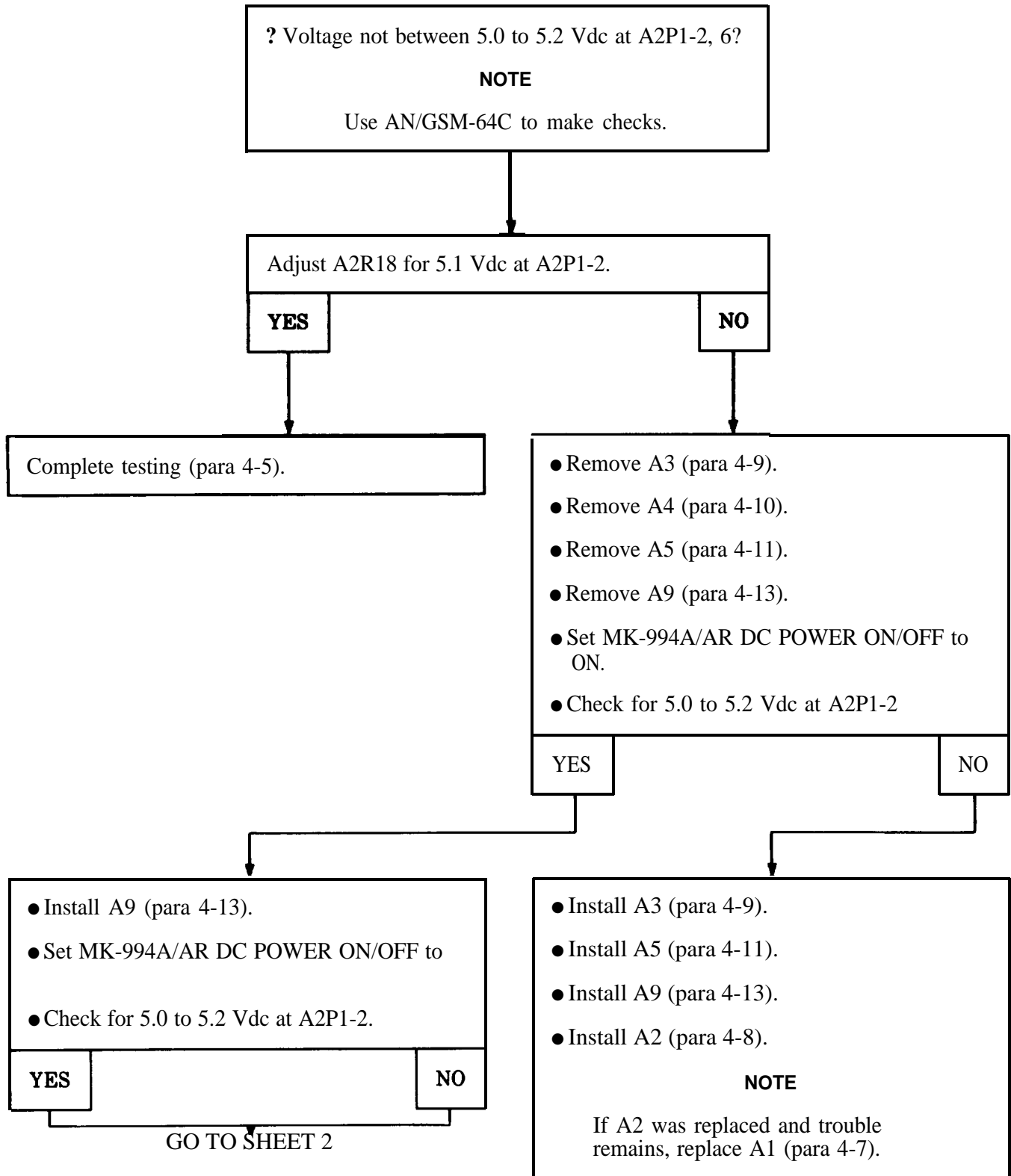
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-1 (SHEET 3)



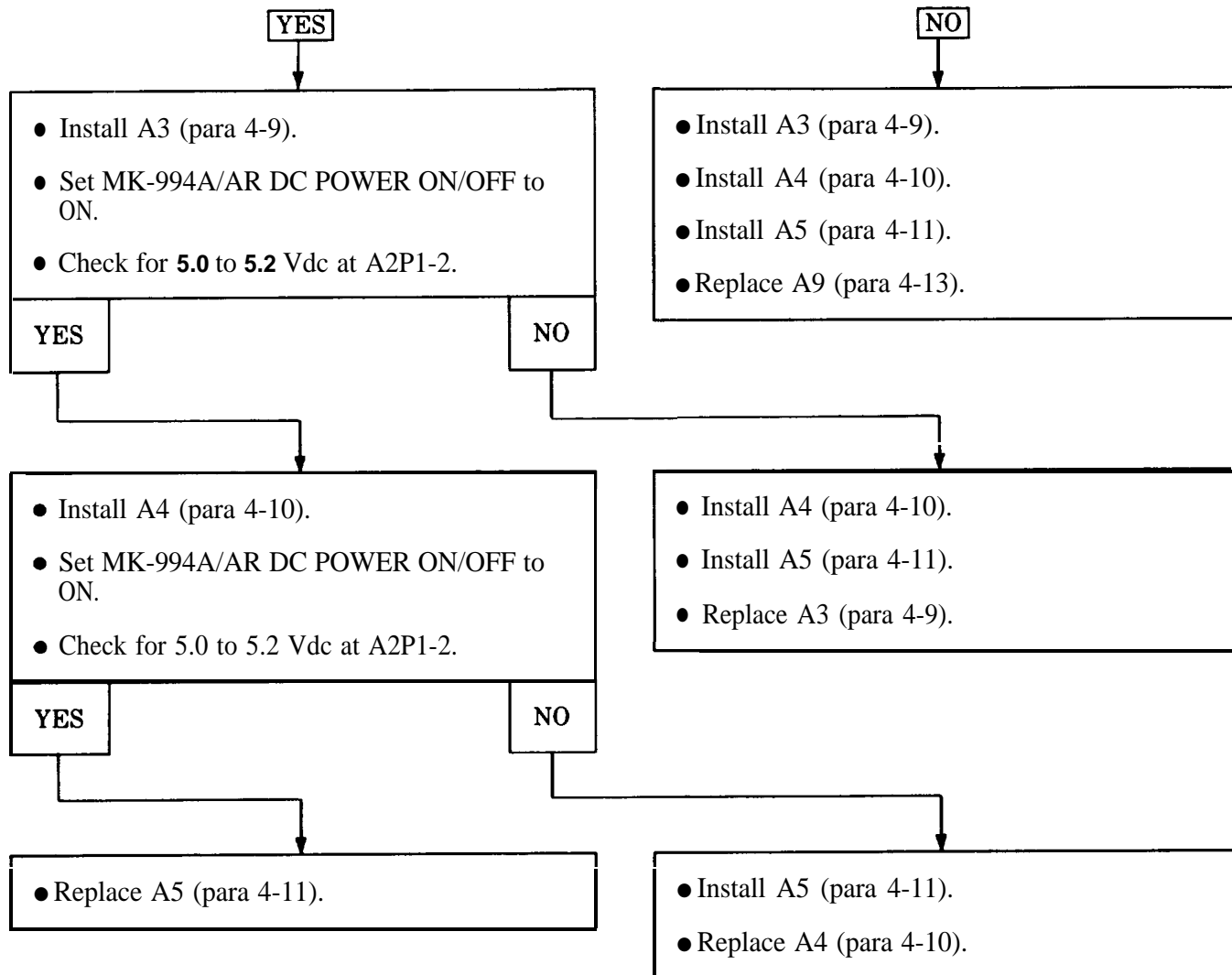
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-2 (SHEET 1)



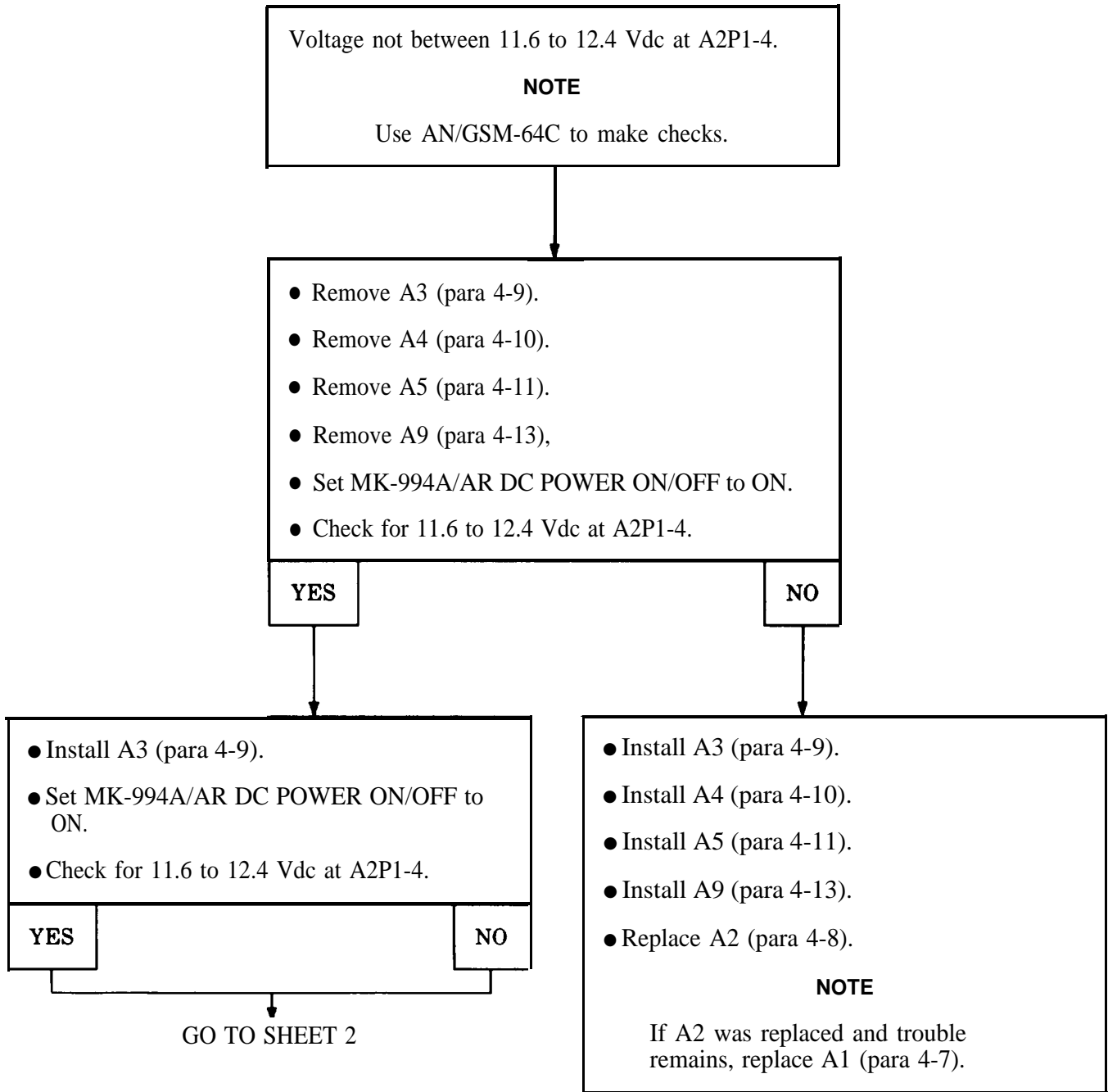
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-2 (SHEET 2)



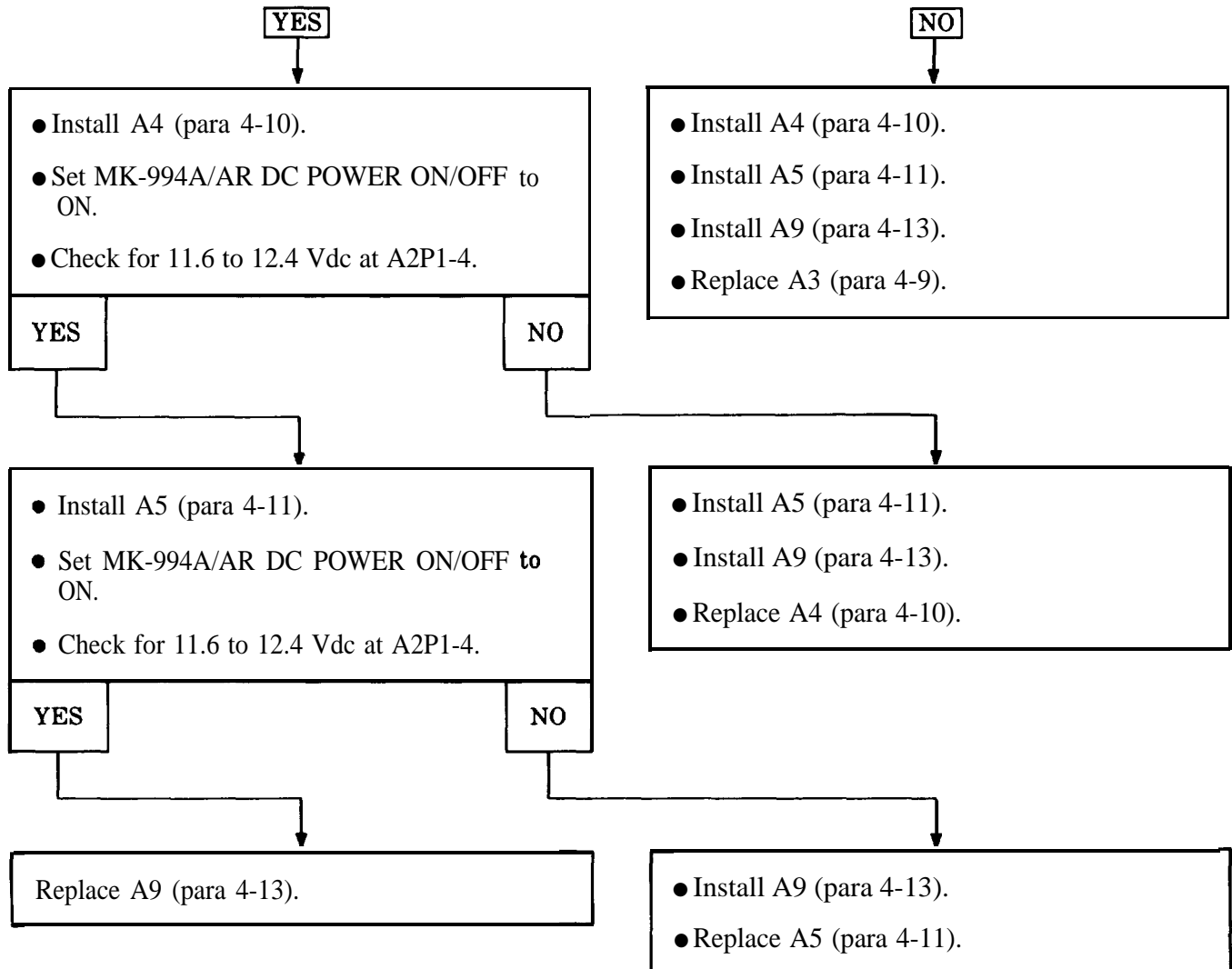
4-6. RADIO SET TROUBLESHOOTING (Continued)

TRouble 4-3 (SHEET 1)



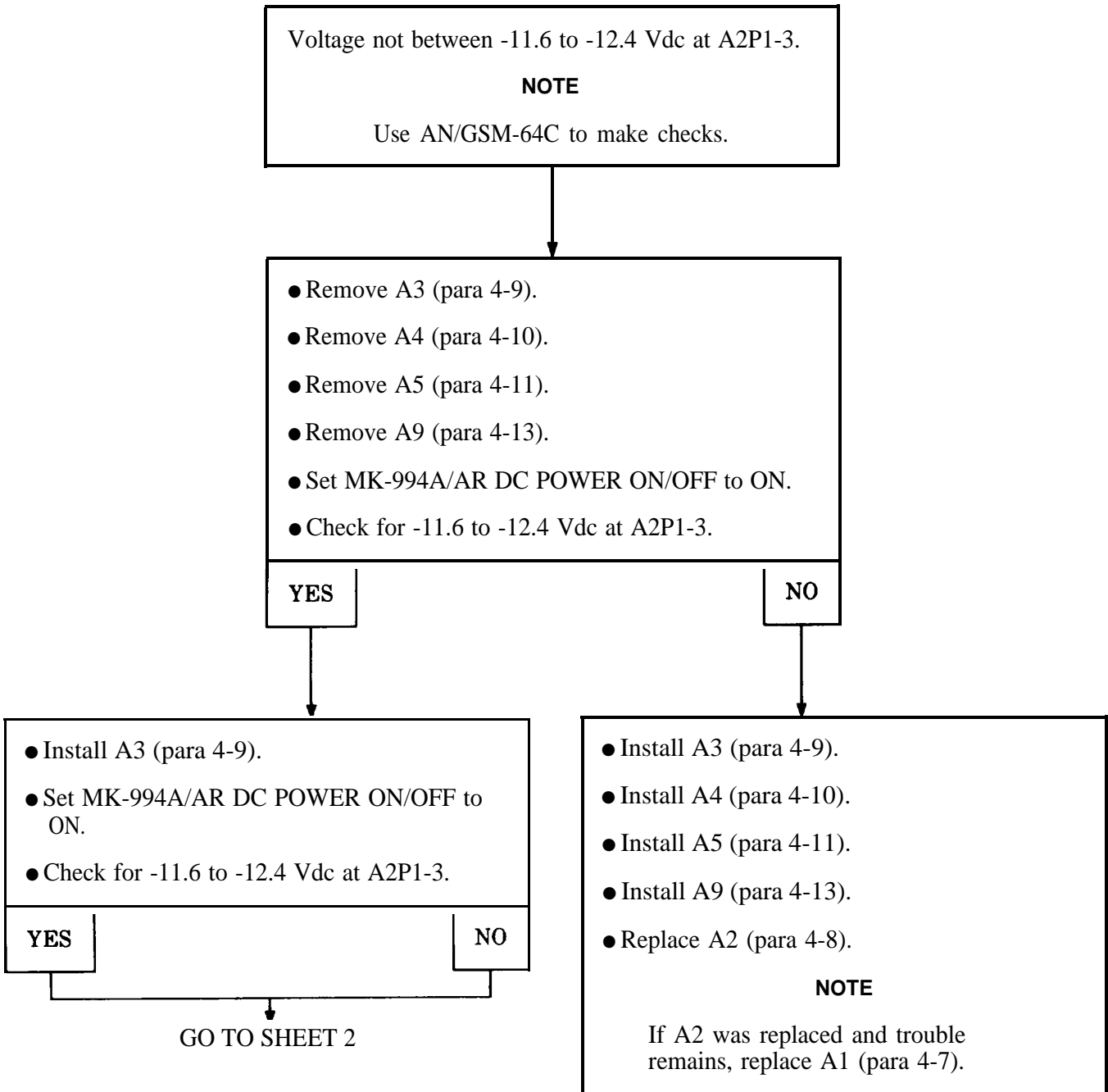
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-3 (SHEET 2)



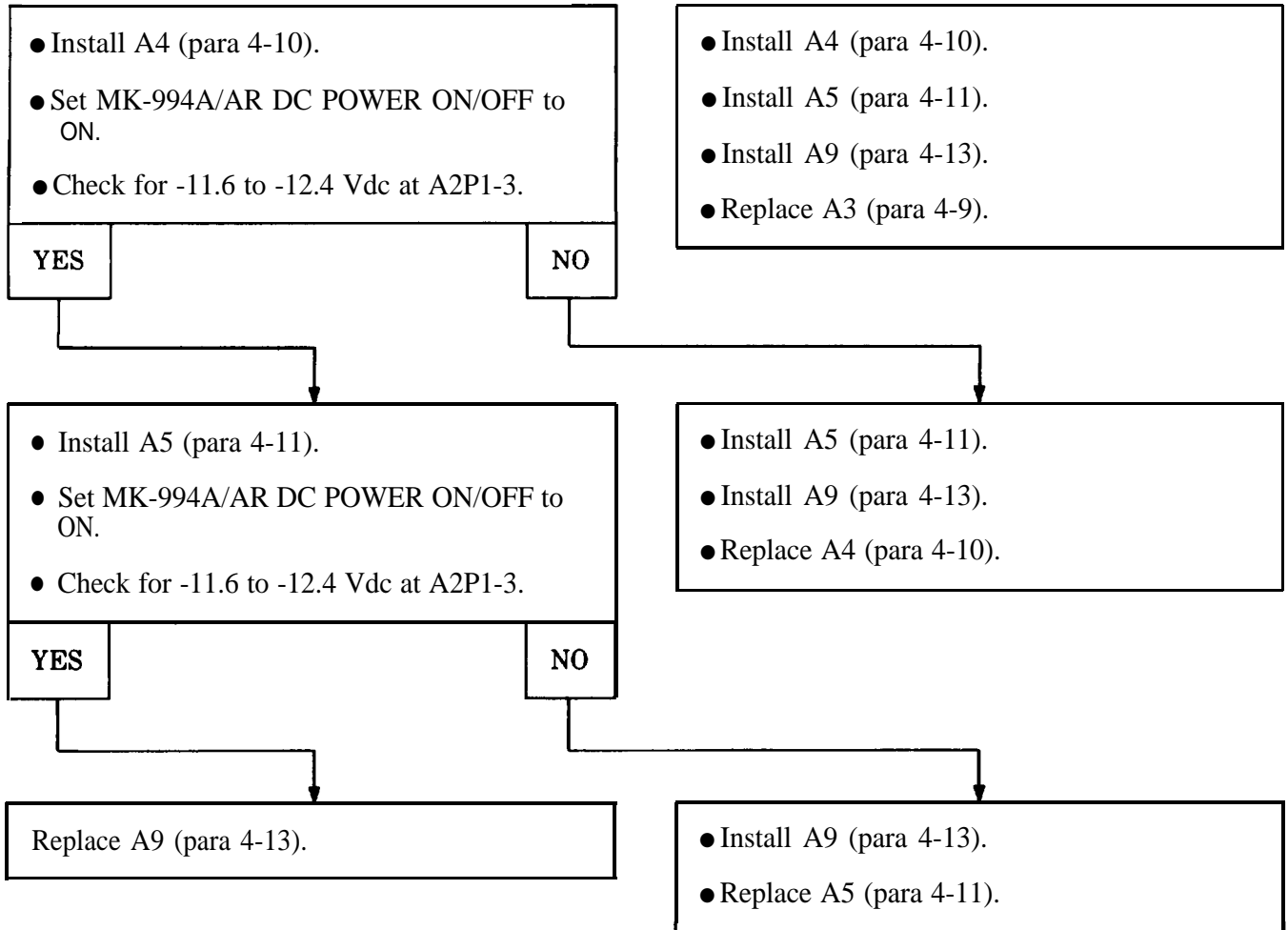
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-4 (SHEET 1)



4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-4 (SHEET 2)



4-6. RADIO SET TROUBLESHOOTING (Continued)

TRouble 4-5

Voltage not between 23.4 to 28.8 Vdc at A2P1-5, 7.

NOTE
Use AN/GSM-64C to make checks.

● Remove A3 (para 4-9).
● Remove A5 (para 4-11).
● Set MK-994A/AR DC POWER ON/OFF to ON.
● Check for 23.4 to 28.8 Vdc at A2P1-5.

YES NO

● Install A3 (para 4-9).
● Set MK-994A/AR DC POWER ON/OFF to ON.
● Check for 23.4 to 28.8 Vdc at A2P1-5.

YES NO

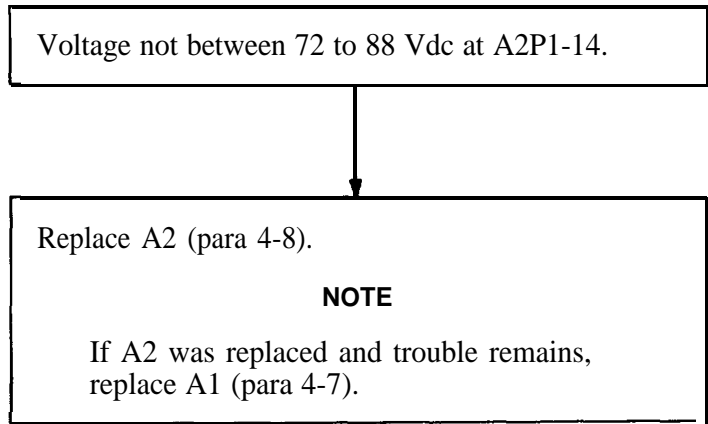
● Install A3 (para 4-9).
● Install A5 (para 4-11).
● Replace A2 (para 4-8).

Replace A5 (para 4-11).

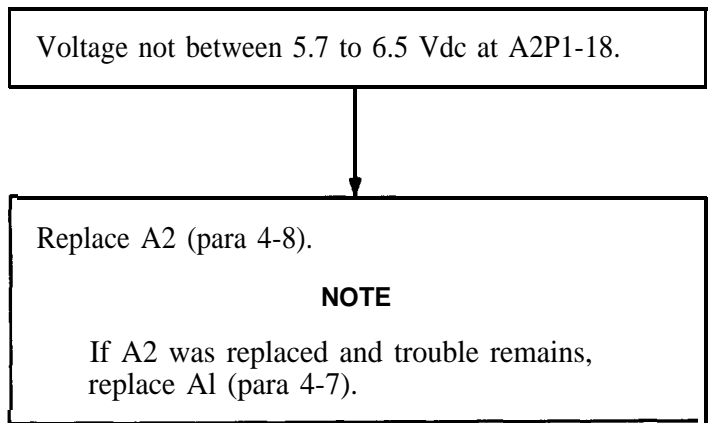
Install A5 (para 4-11).
Replace A3 (para 4-9).

4-6. RADIO SET TROUBLESHOOTING (Continued)

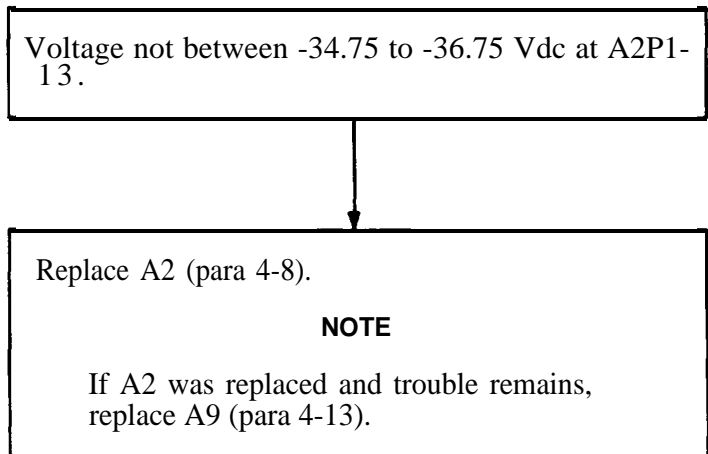
TROUBLE 4-6



TROUBLE 4-7

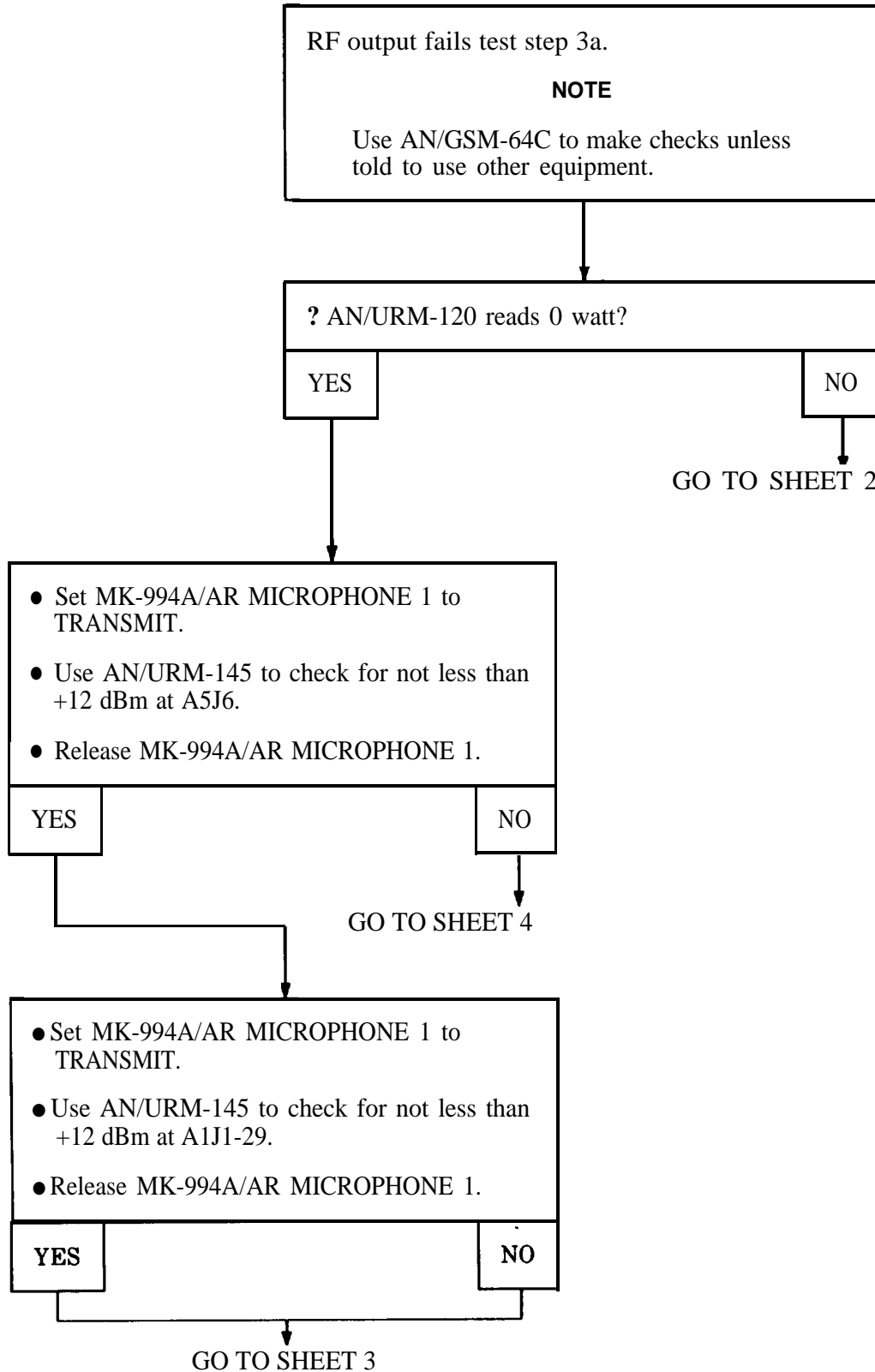


TROUBLE 4-8



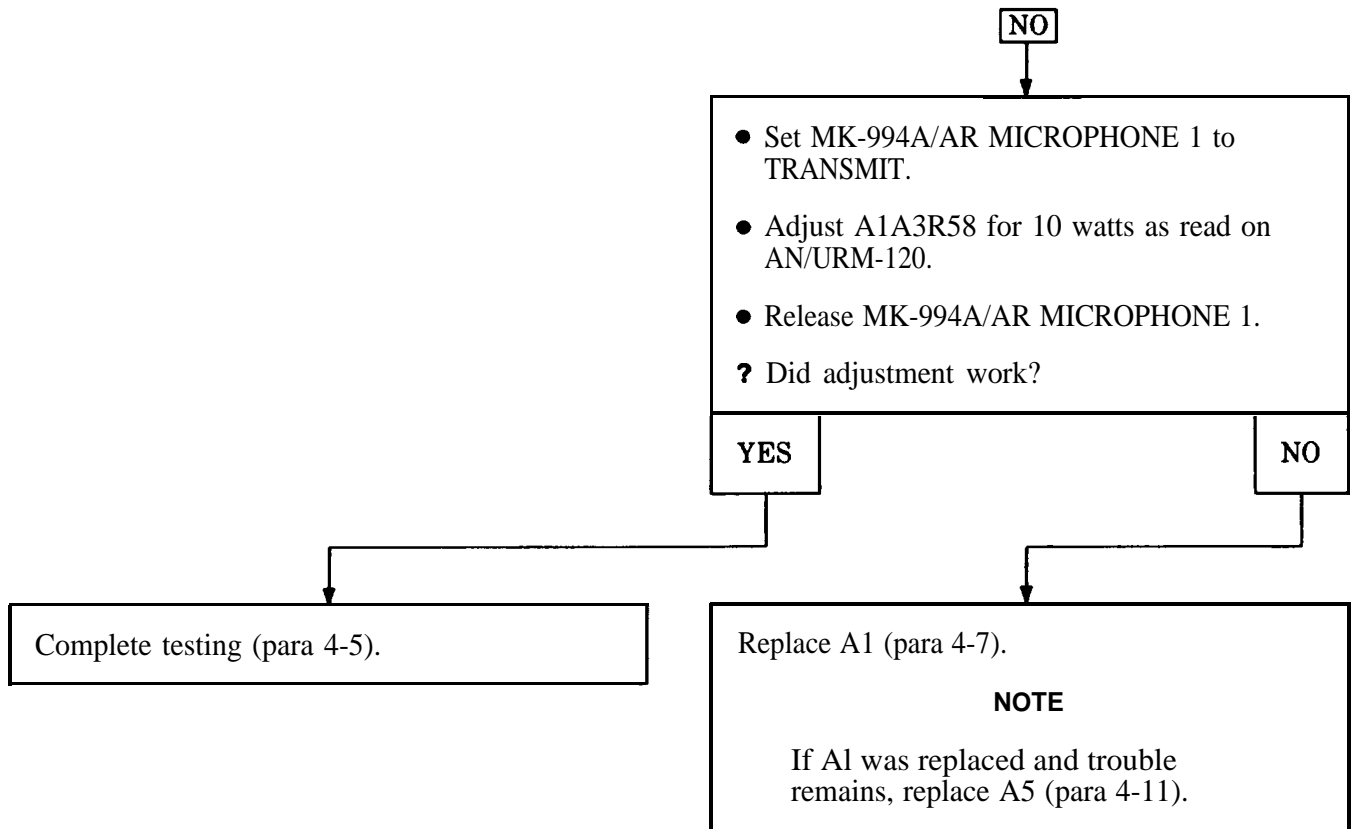
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-9 (SHEET 1)



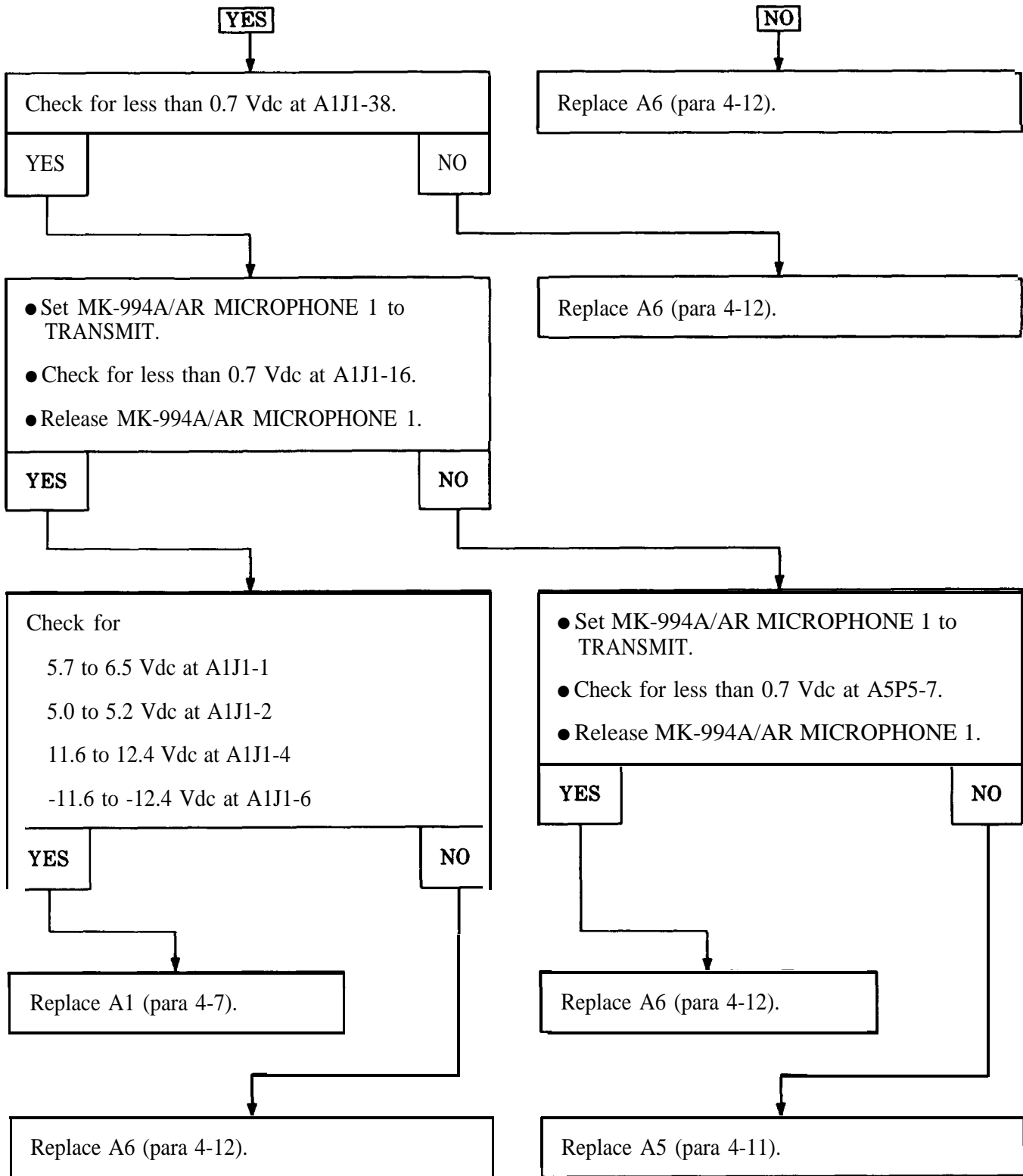
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-9 (SHEET 2)



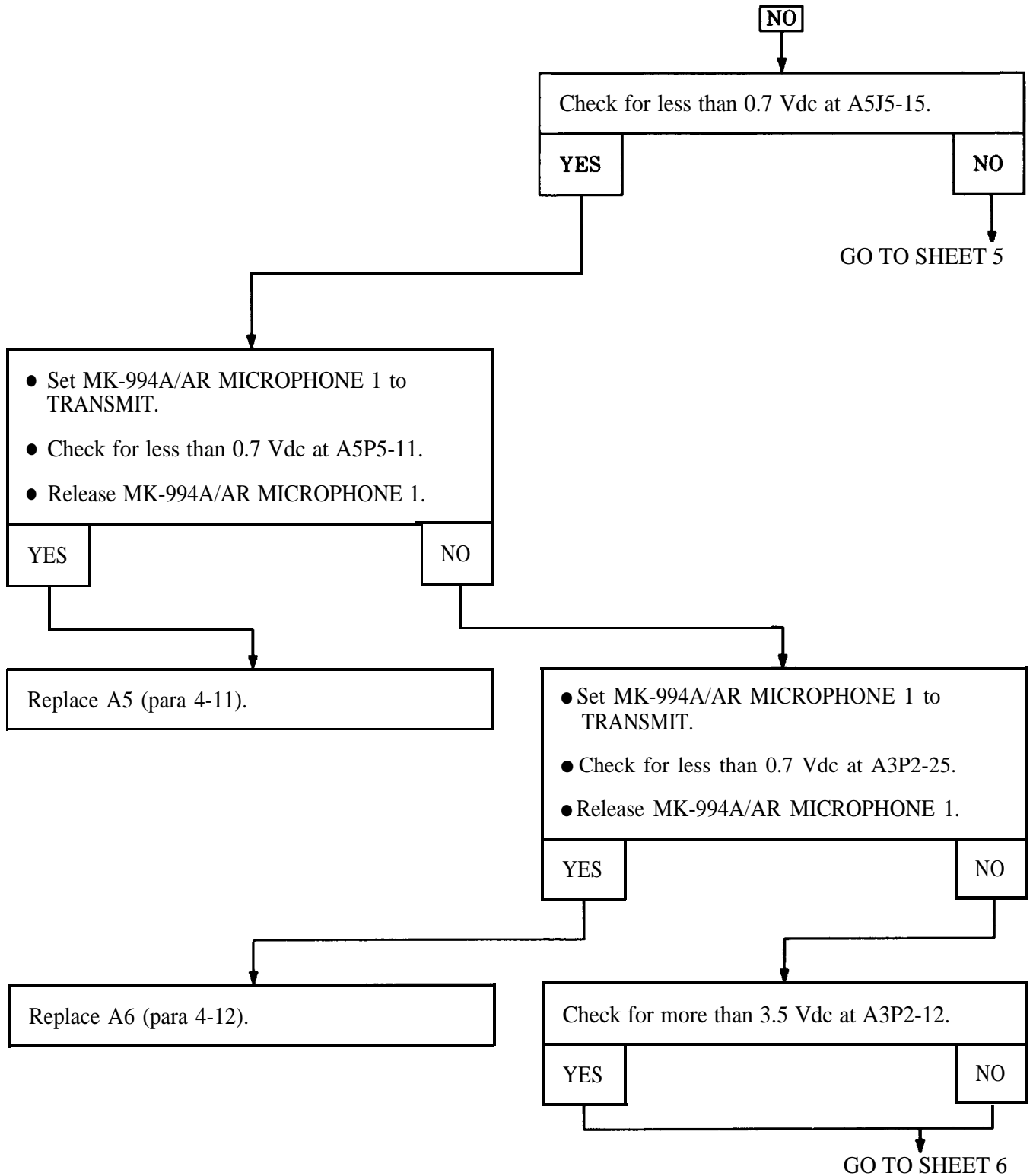
4-6. RADIO SET TROUBLESHOOTING (Continued)

TRUBLE 4-9 (SHEET 3)



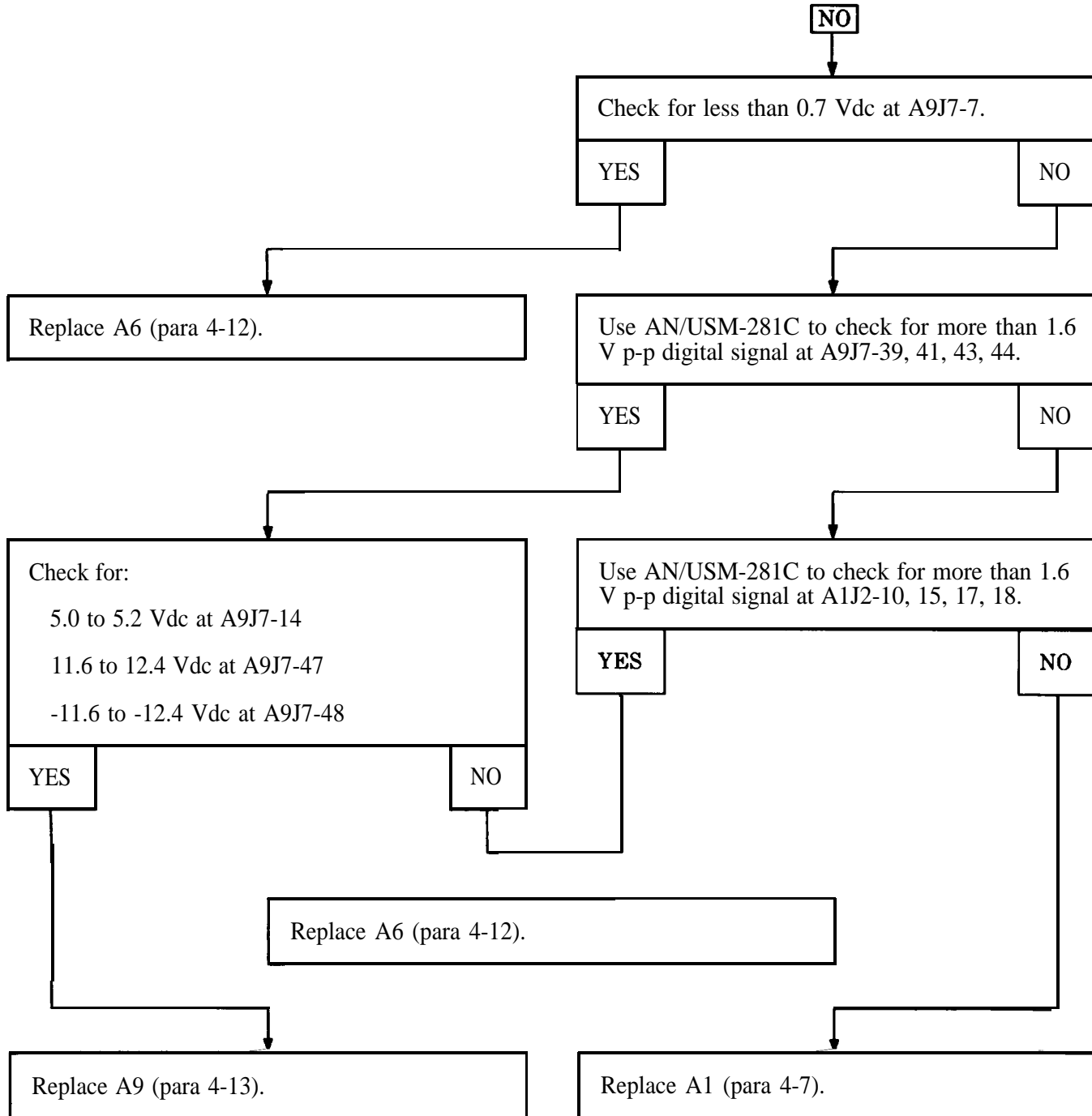
RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-9 (SHEET 4)



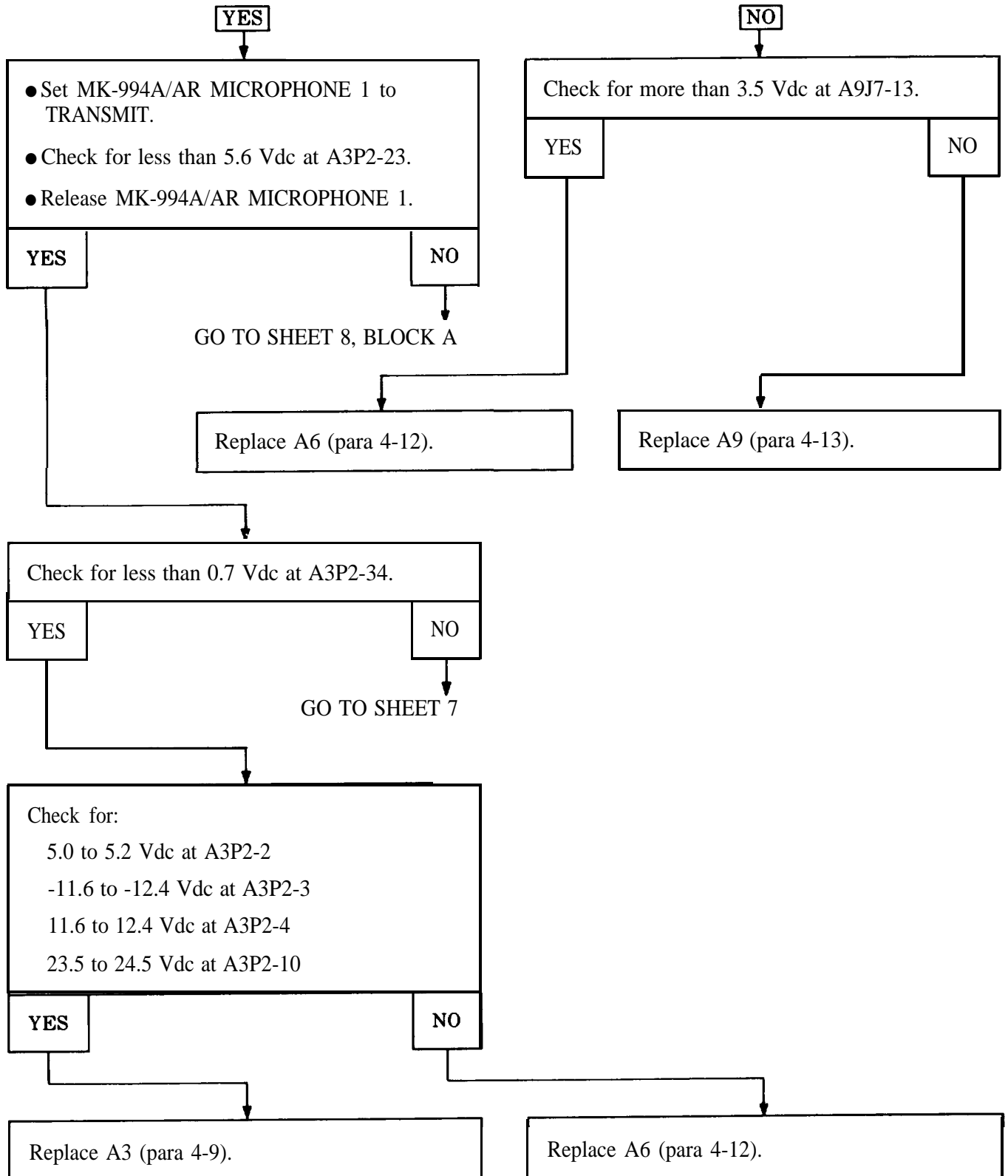
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-9 (SHEET 5)



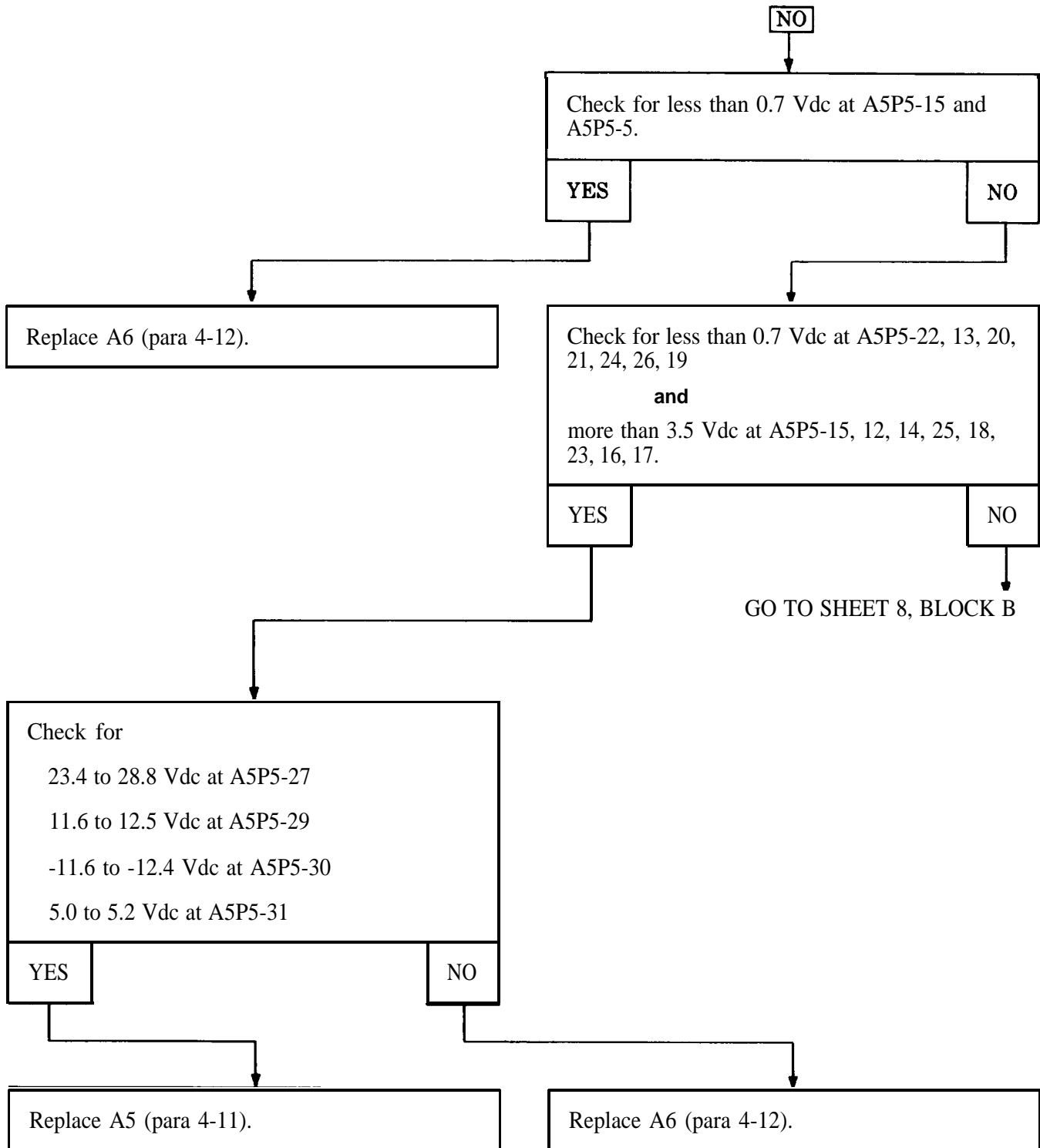
4-6. RADIO SET TROUBLESHOOTING (Continued)

TRUBLE 4-9 (SHEET 6)



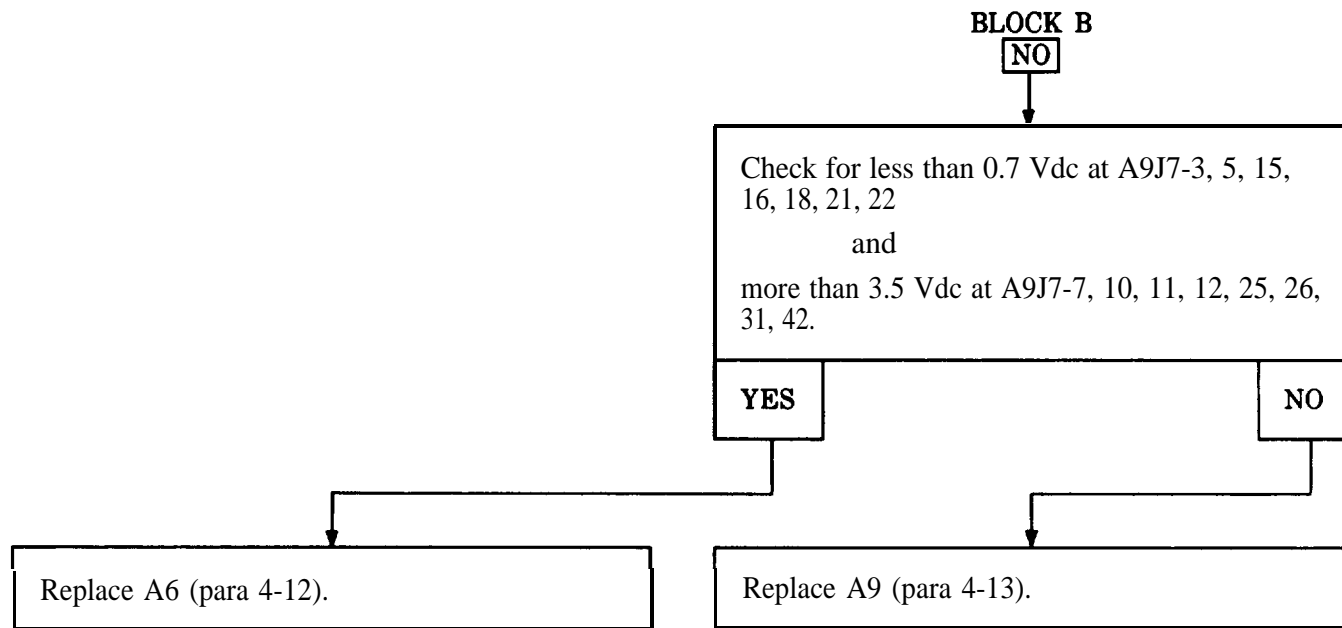
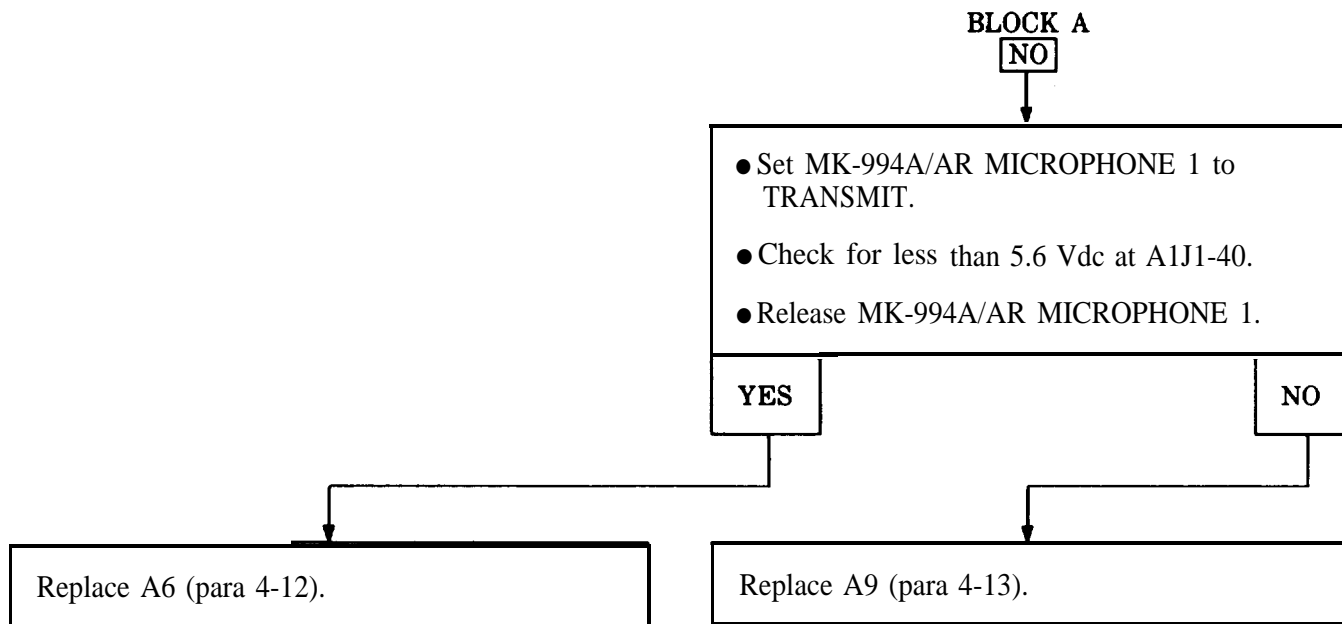
4-6. RADIO SET TROUBLESHOOTING (Continued)

TRUBLE 4-9 (SHEET 7)



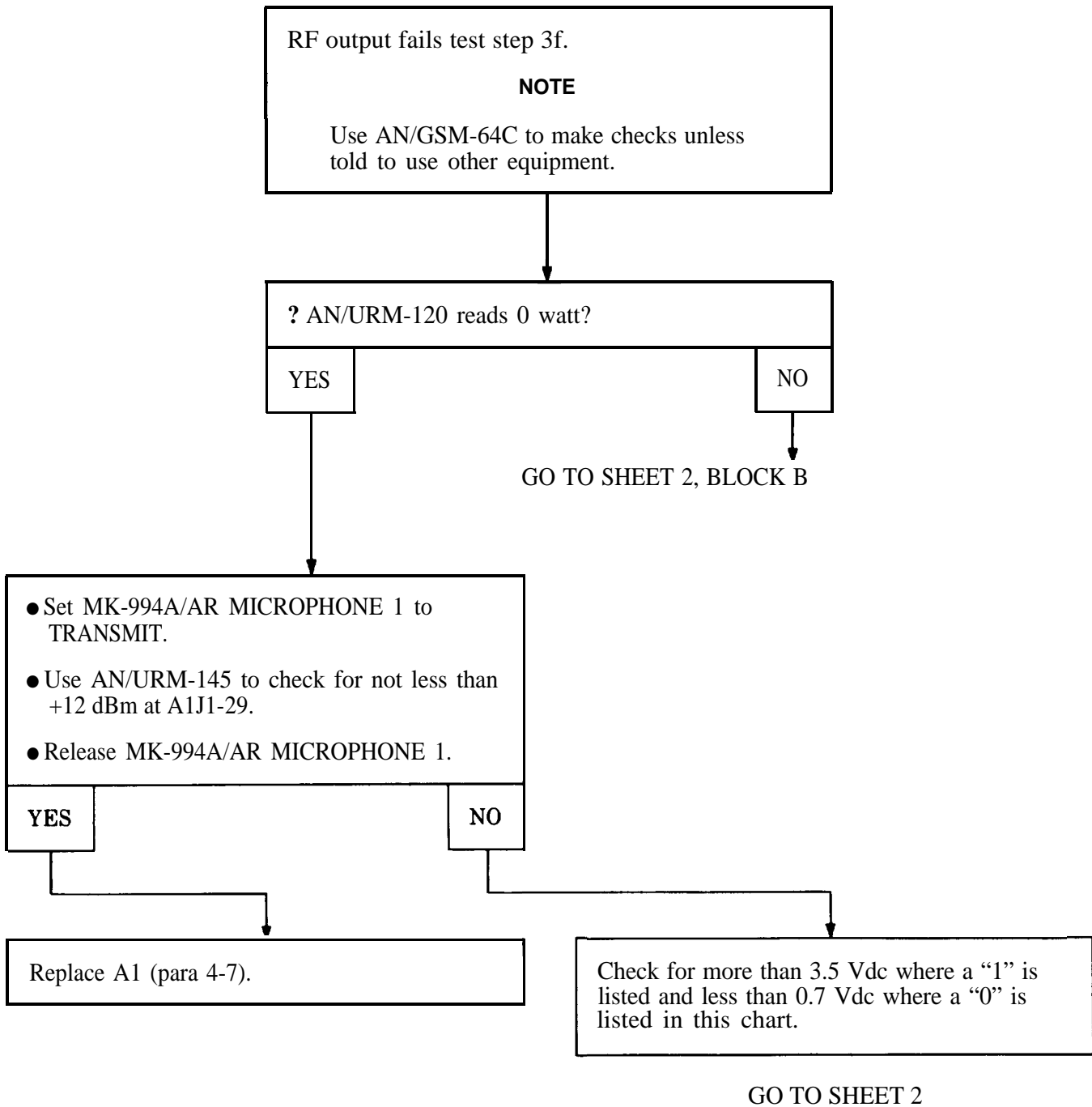
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-9 (SHEET 8)



4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-10 (SHEET 1)



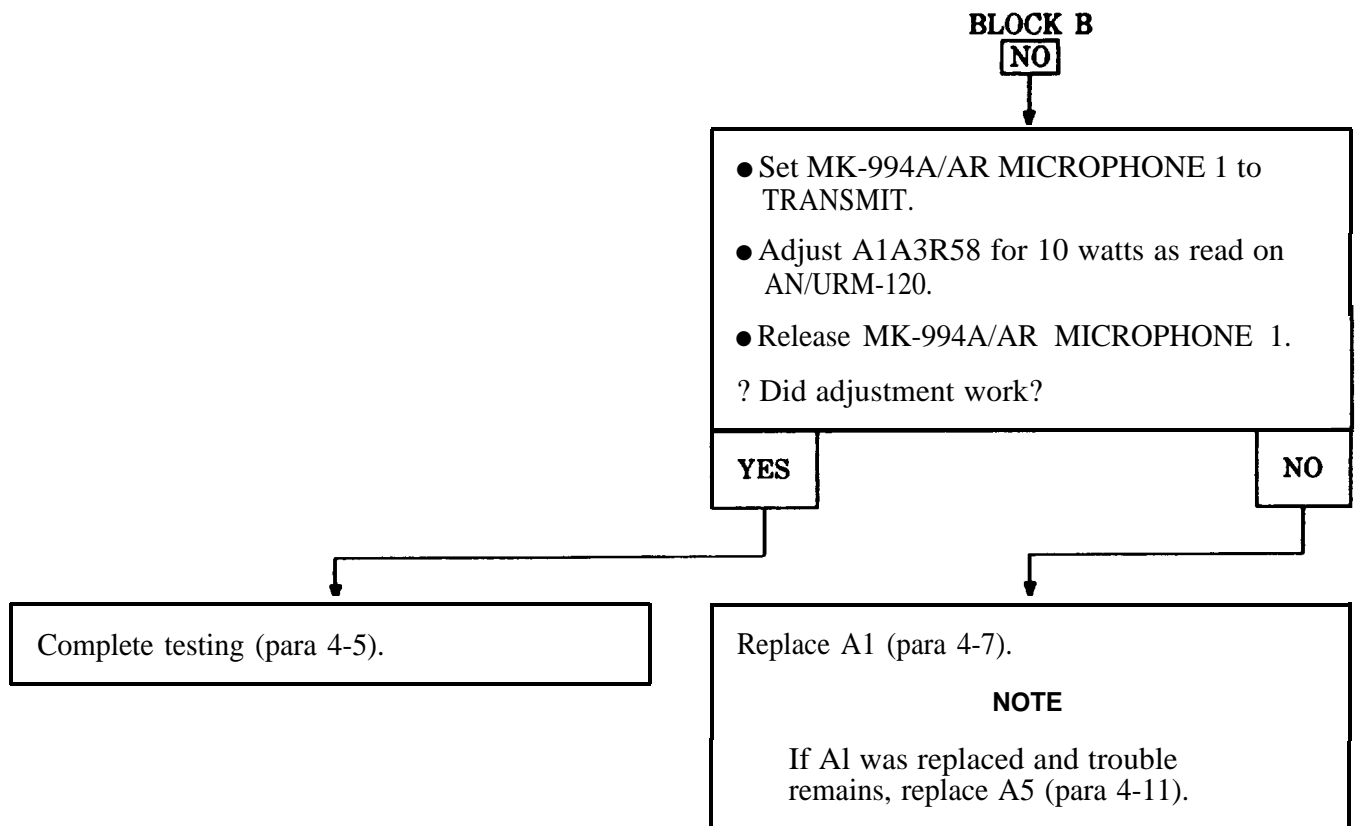
4-6. RADIO SET TROUBLESHOOTING (Continued)

TRouble 4-10 (SHEET 2)

C-10604/10606 frequency selectors set to:	A9J7 pins															
	3	5	7	10	11	12	15	16	18	21	22	25	26	31	42	
134.000	0	1	1	1	0	0	0	1	0	0	0	0	0	0	0	
116.000	0	0	1	1	0	0	0	1	1	0	0	0	0	0	0	

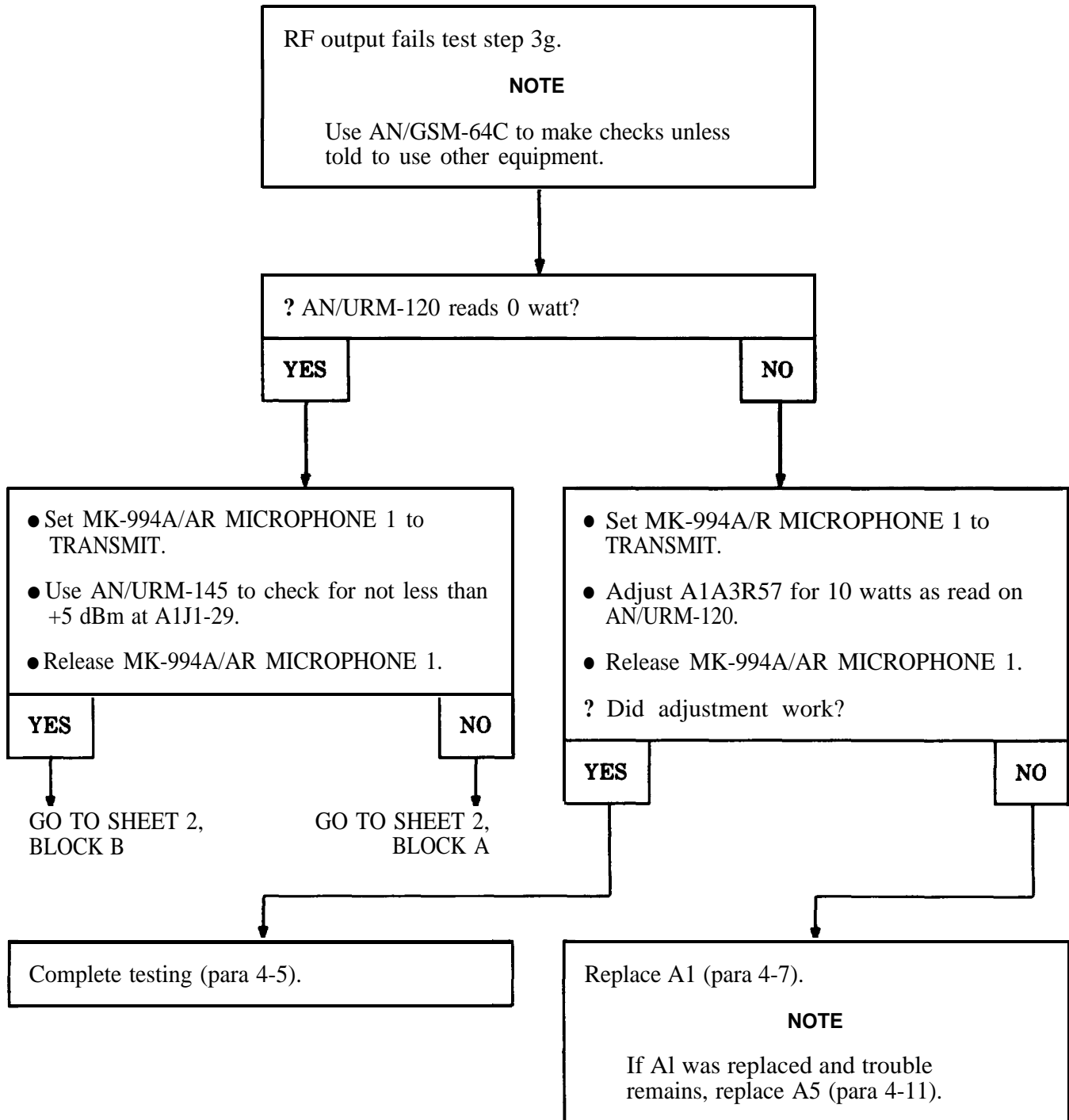
YES	NO
------------	-----------

Replace A5 (para 4-11).	Replace A9 (para 4-13).
-------------------------	-------------------------



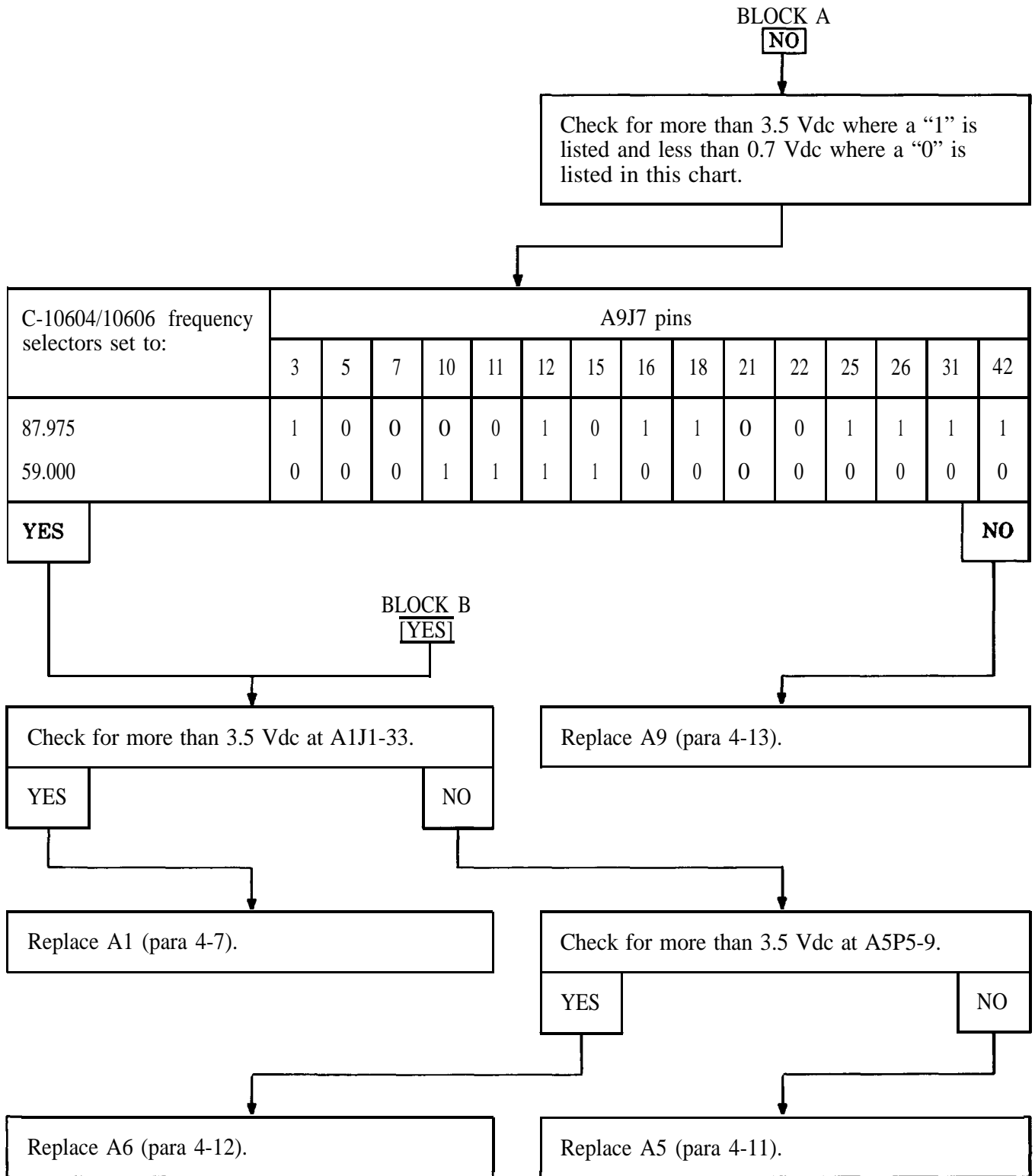
4-6. RADIO SET TROUBLESHOOTING (Continued)

TRouble 4-11 (SHEET 1)



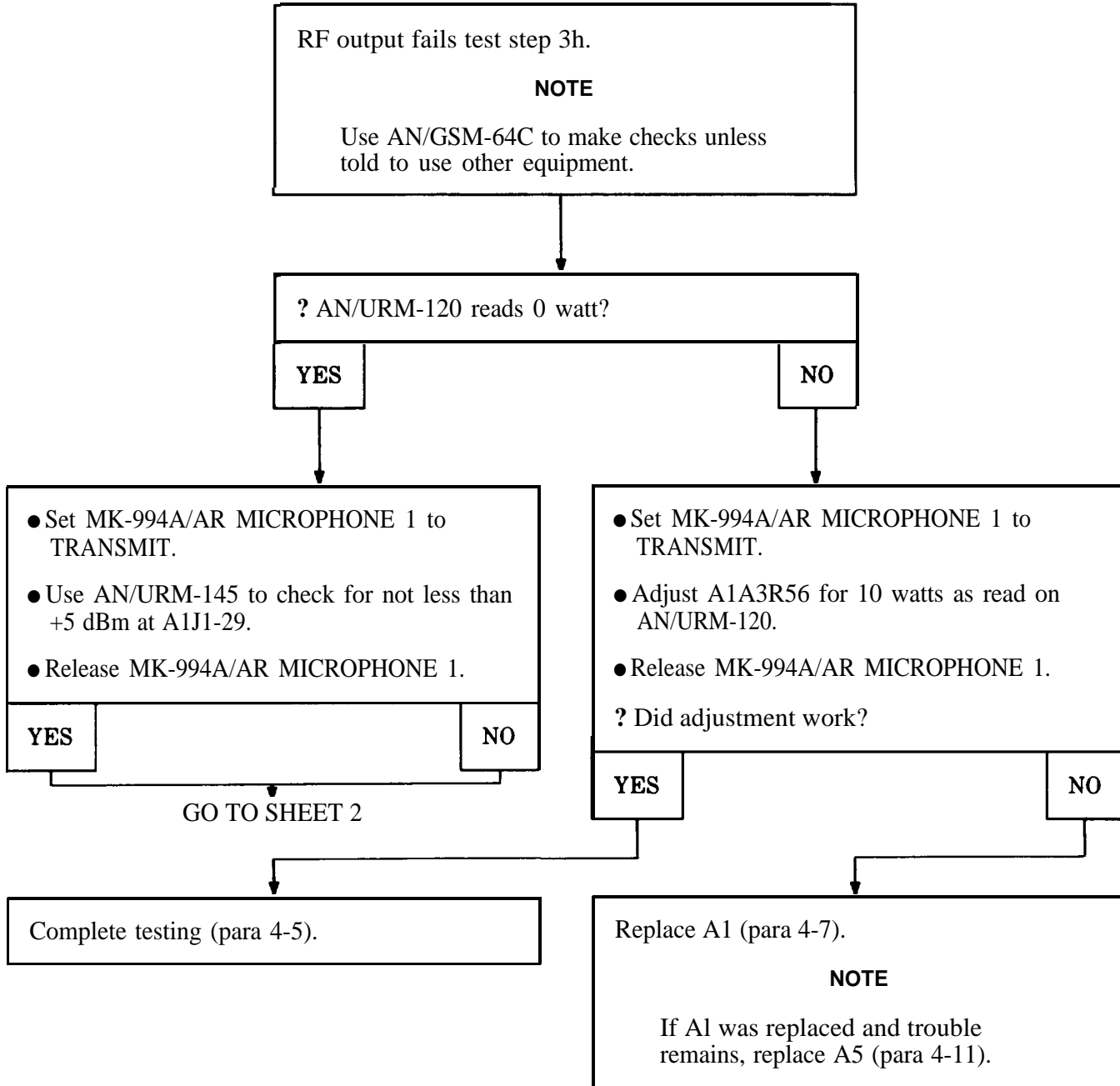
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-11 (SHEET 2)



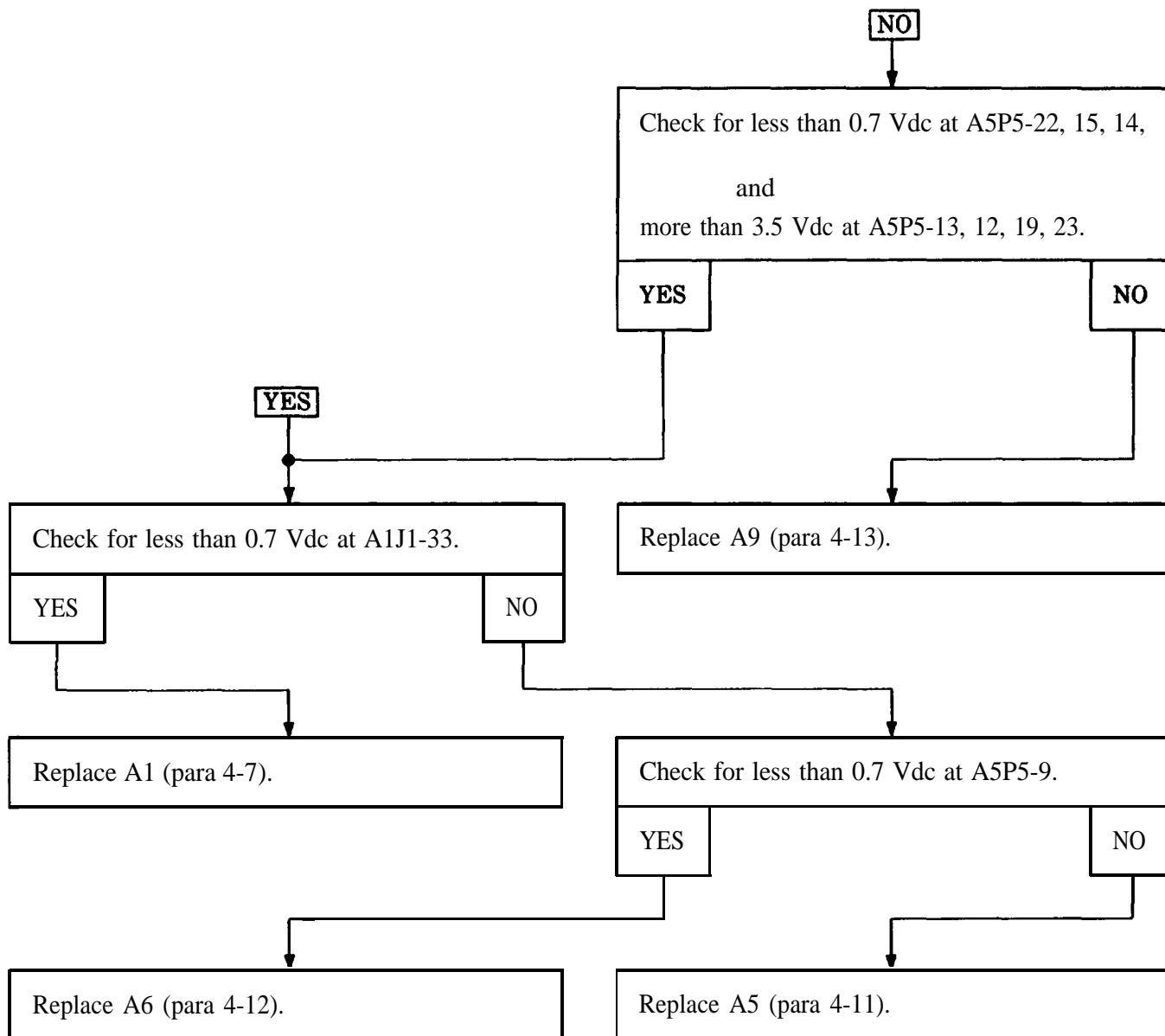
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-12 (SHEET 1)



4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-12 (SHEET 2)



4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-13

Frequency accuracy fails test step 4b.

- Set MK-994A/AR DC POWER ON/OFF to OFF.
 - Wait 10 minutes for RT-1300B to cool down.
 - Set MK-994A/AR DC POWER ON/OFF to ON.
 - Set MK-994A/AR MICROPHONE 1 to TRANSMIT.
 - Adjust A5A4C1 for 150.000 MHz as read on SG-1112(V)1.
 - Release MK-994A/AR MICROPHONE 1.
- ? Did adjustment work?

YES

NO

Complete testing (para 4-5).

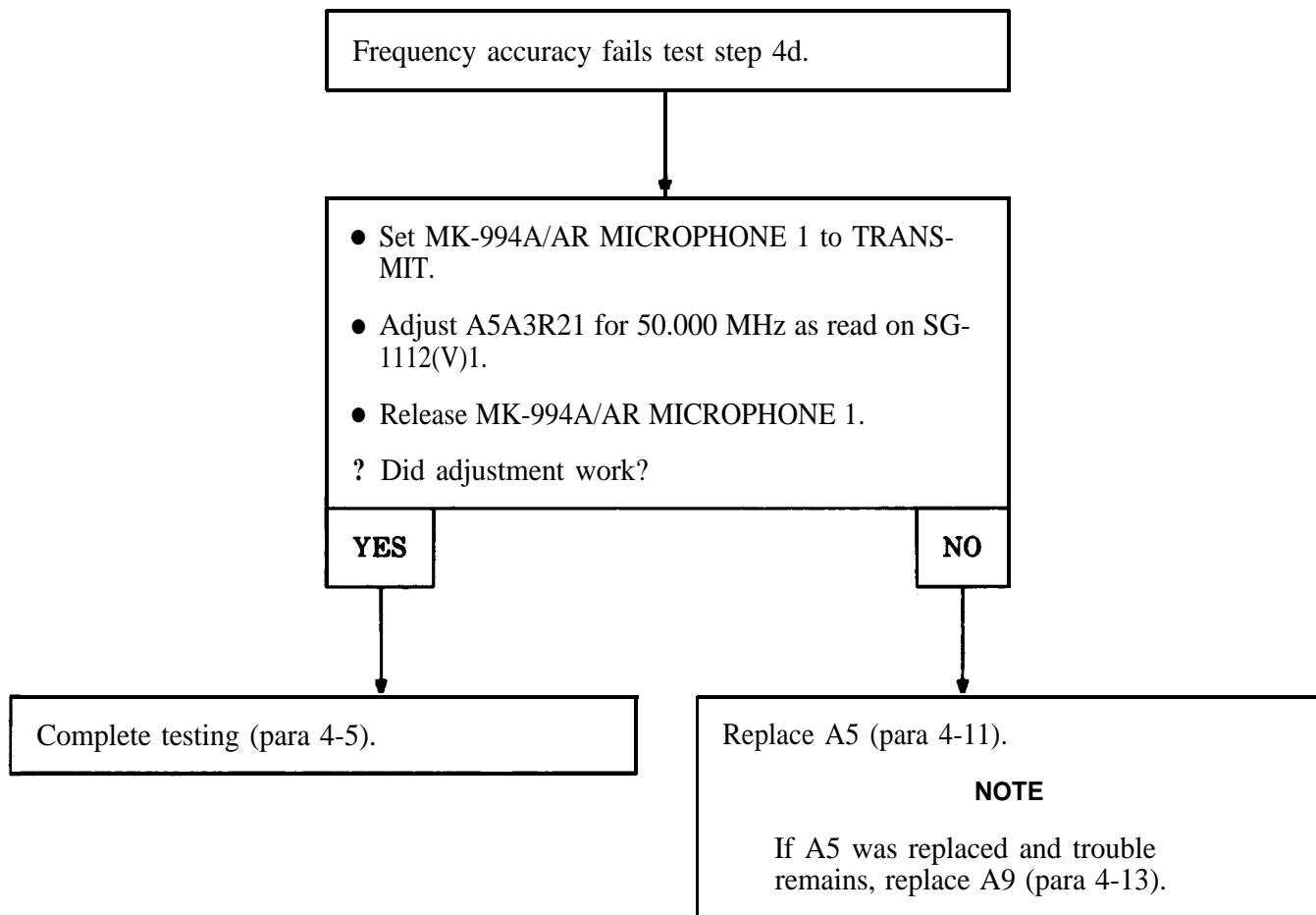
Replace A5 (para 4-11).

NOTE

If A5 was replaced and trouble remains, replace A9 (para 4-13).

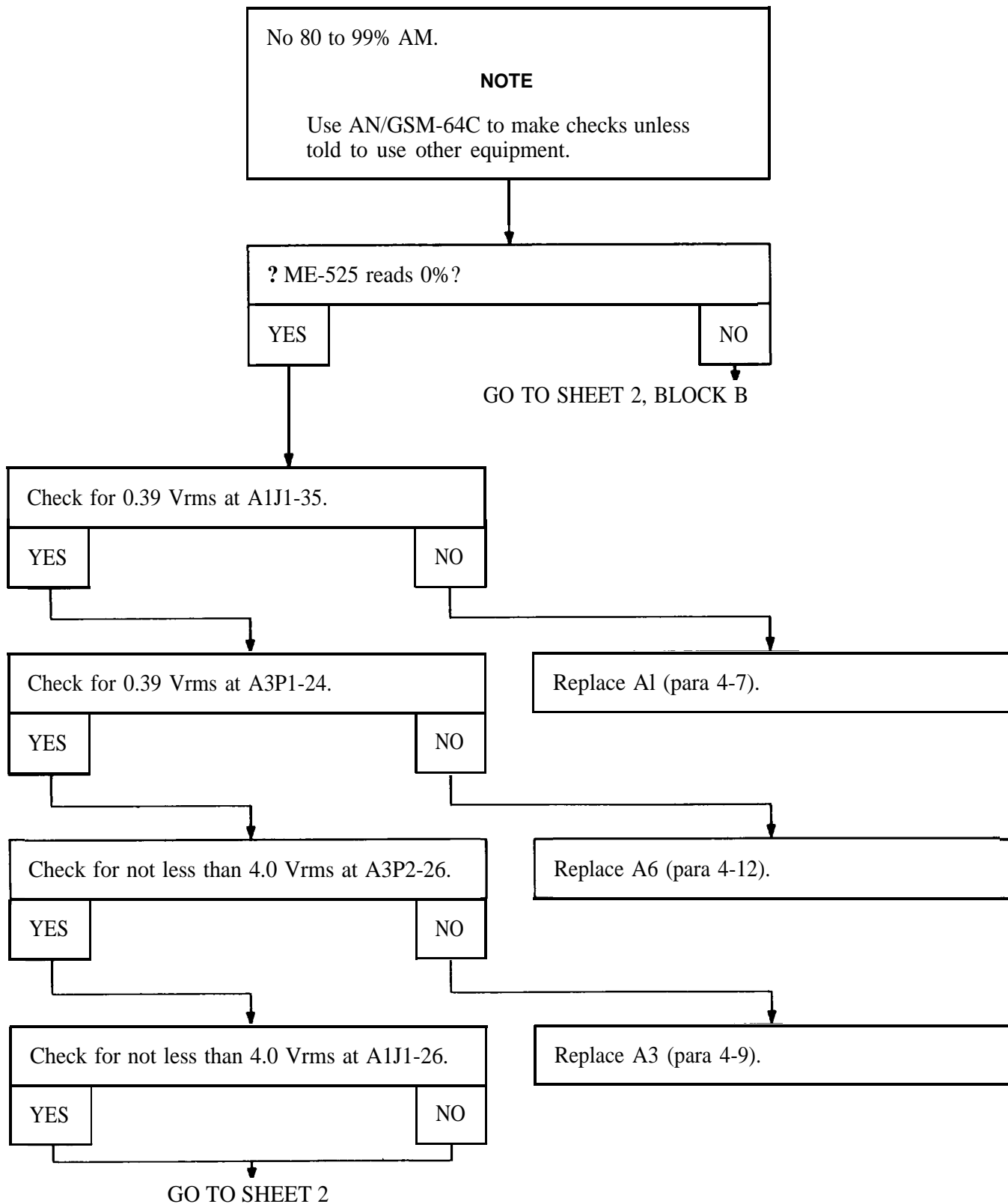
4-6. RADIO SET TROUBLESHOOTING (Continued)

TRouble 4-14



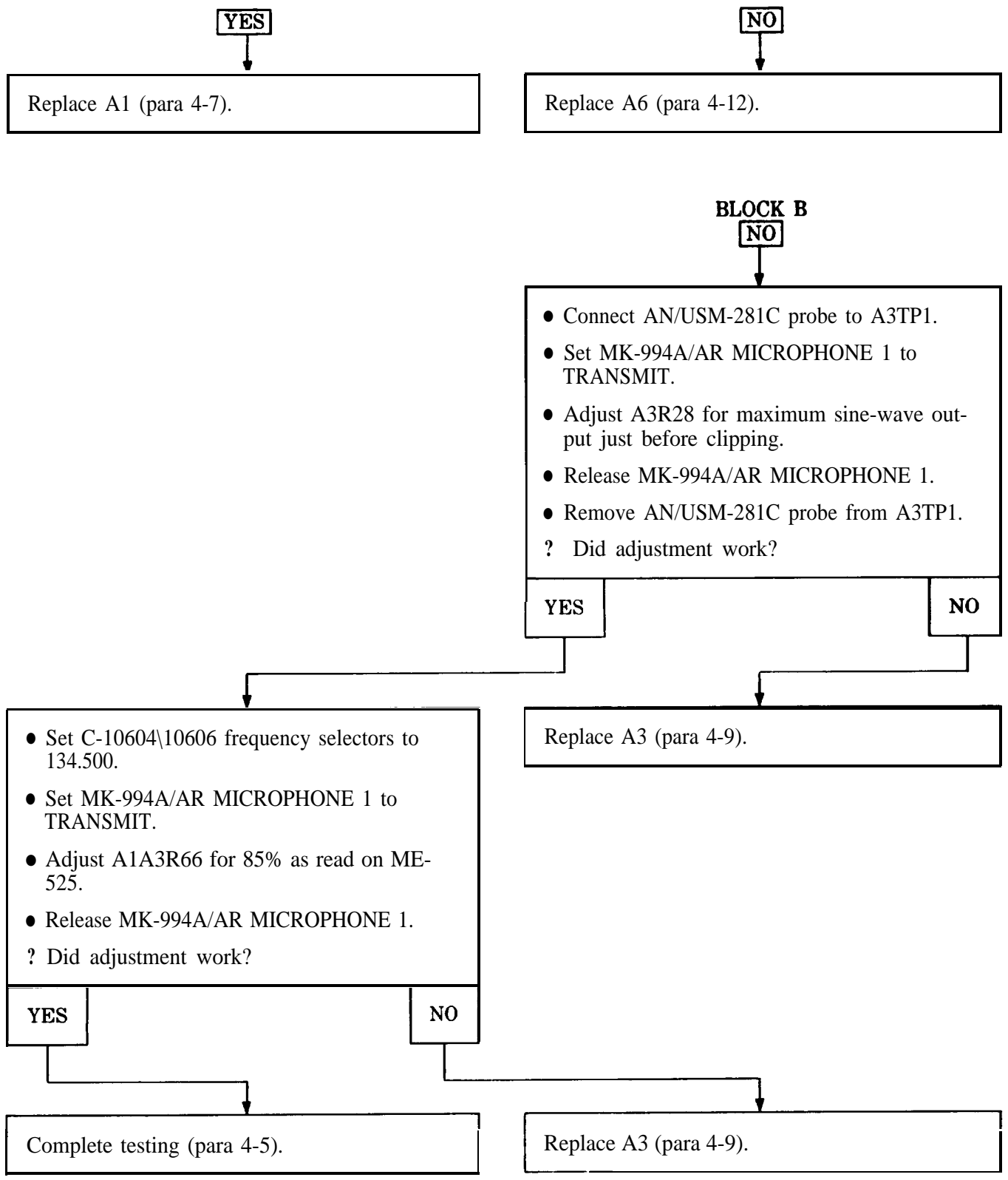
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-15 (SHEET 1)



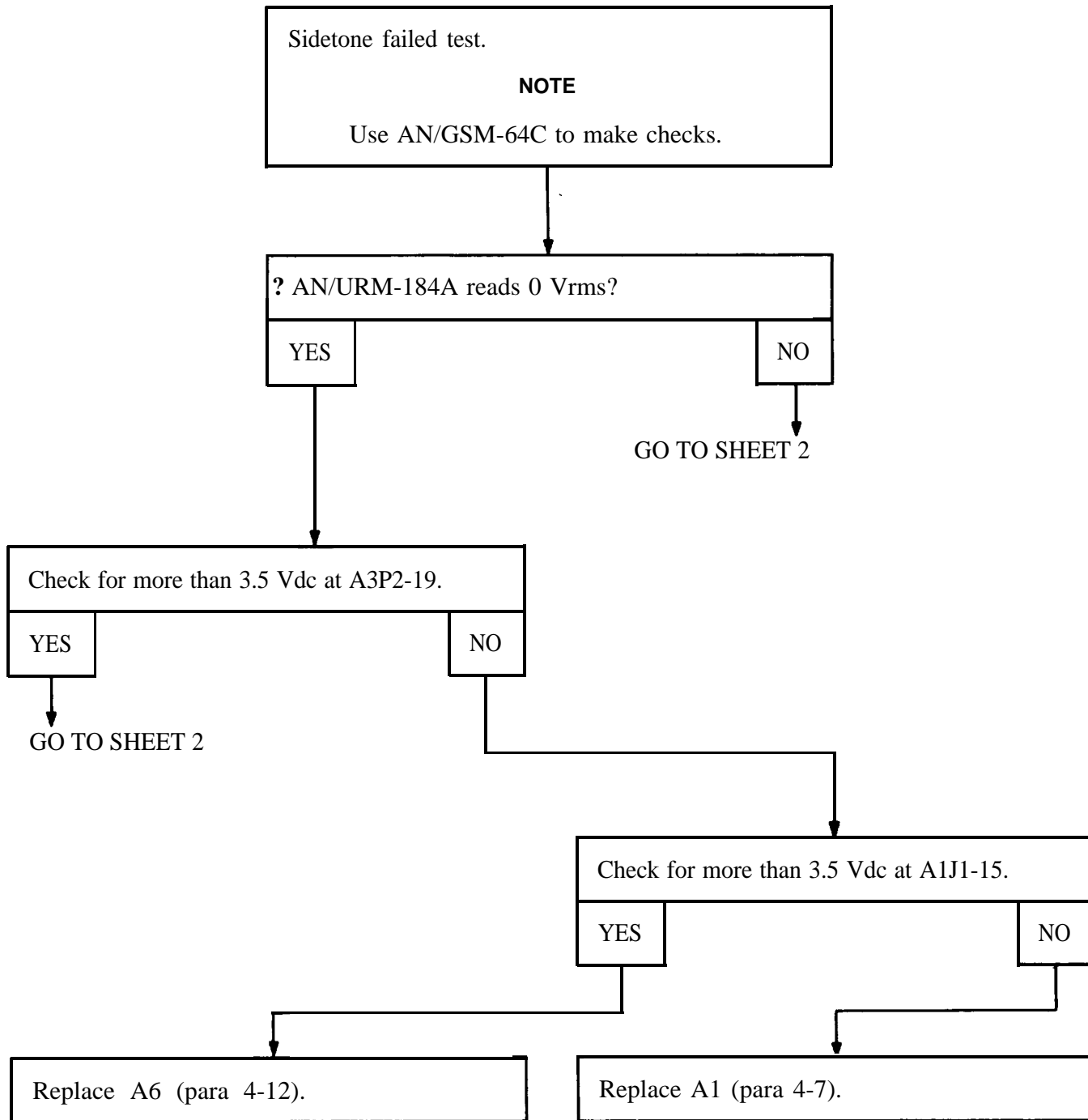
4-6. RADIO SET TROUBLESHOOTING (Continued)

TRUBLE 4-15 (SHEET 2)



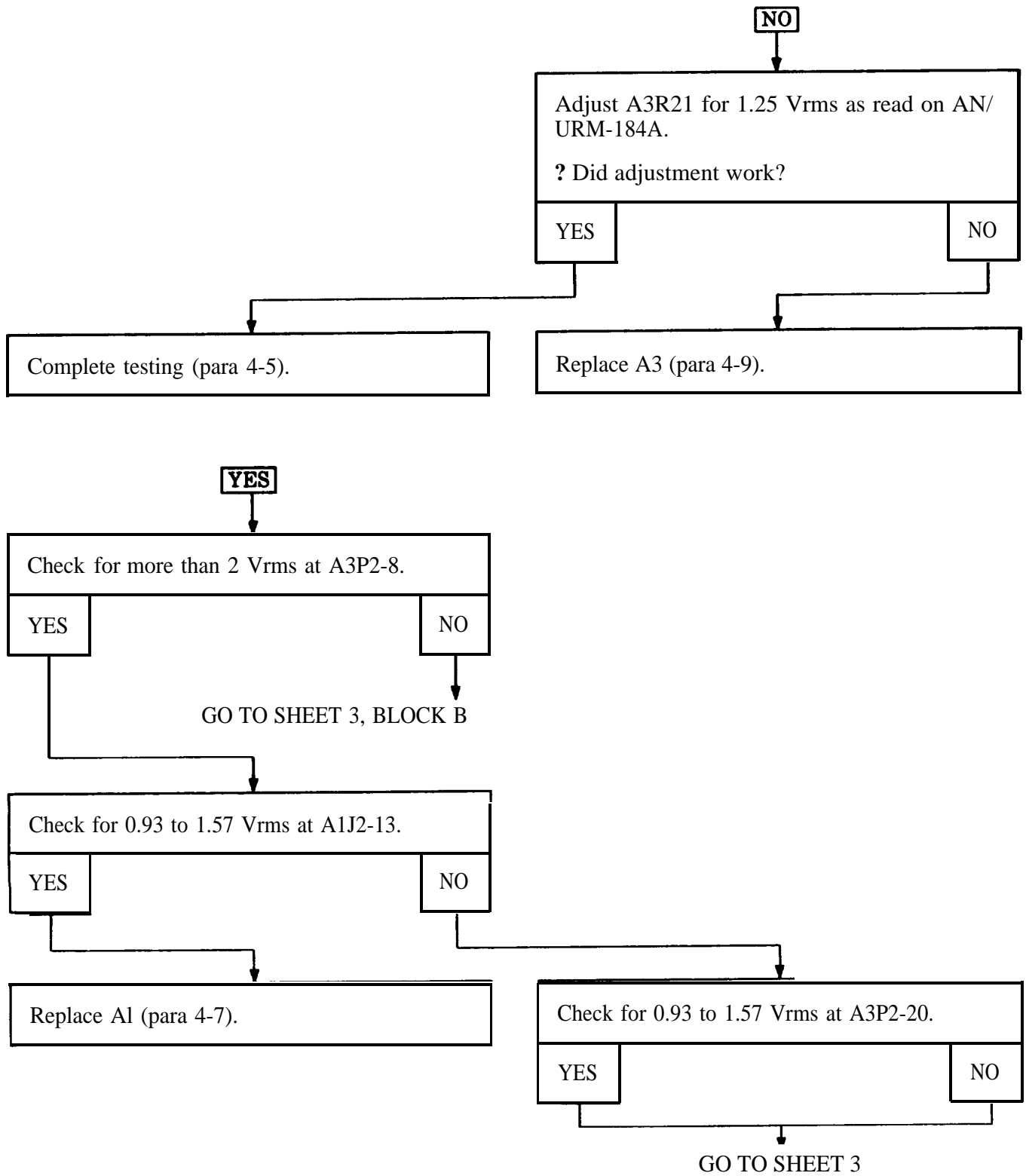
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-16 (SHEET 1)



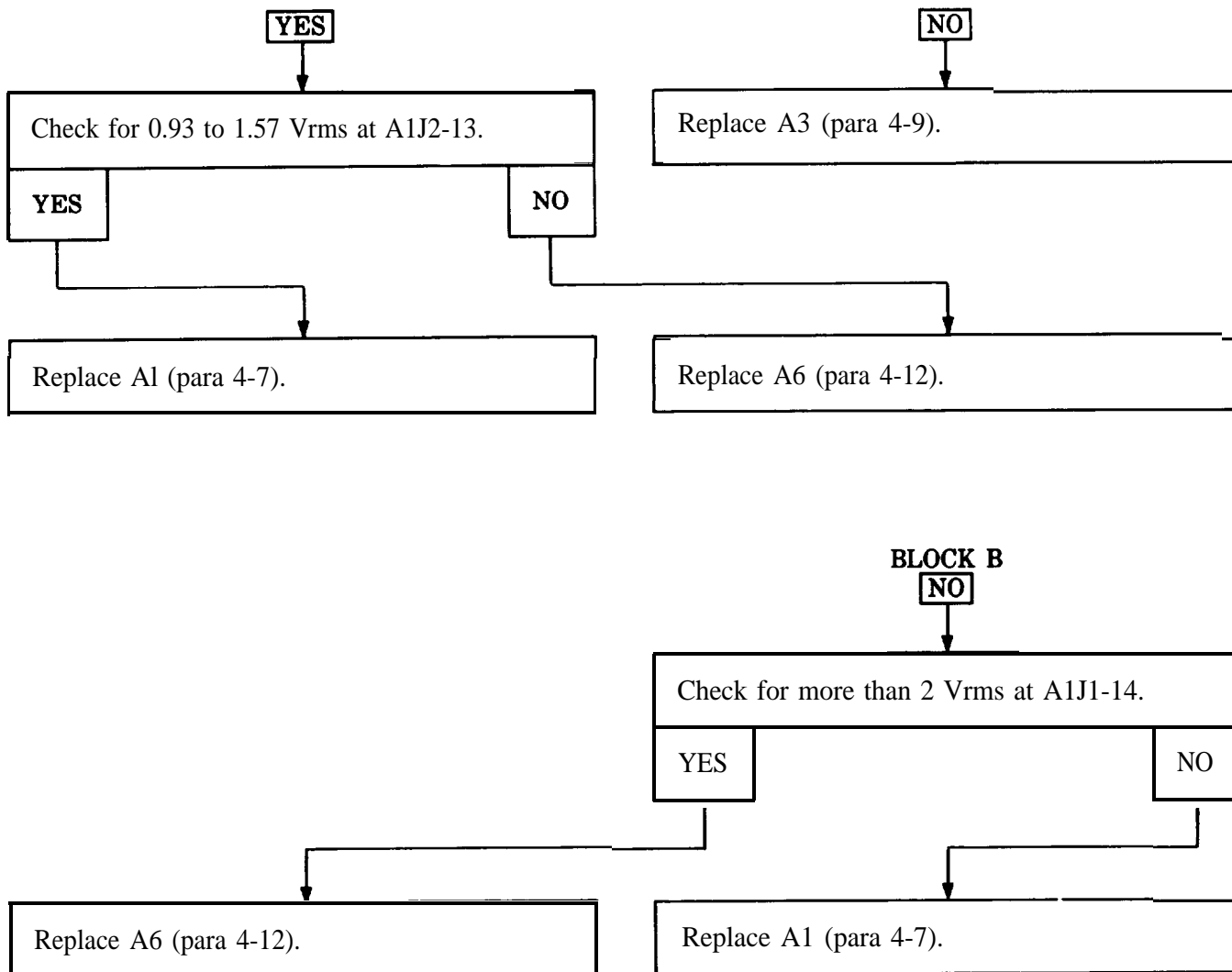
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-16 (SHEET 2)



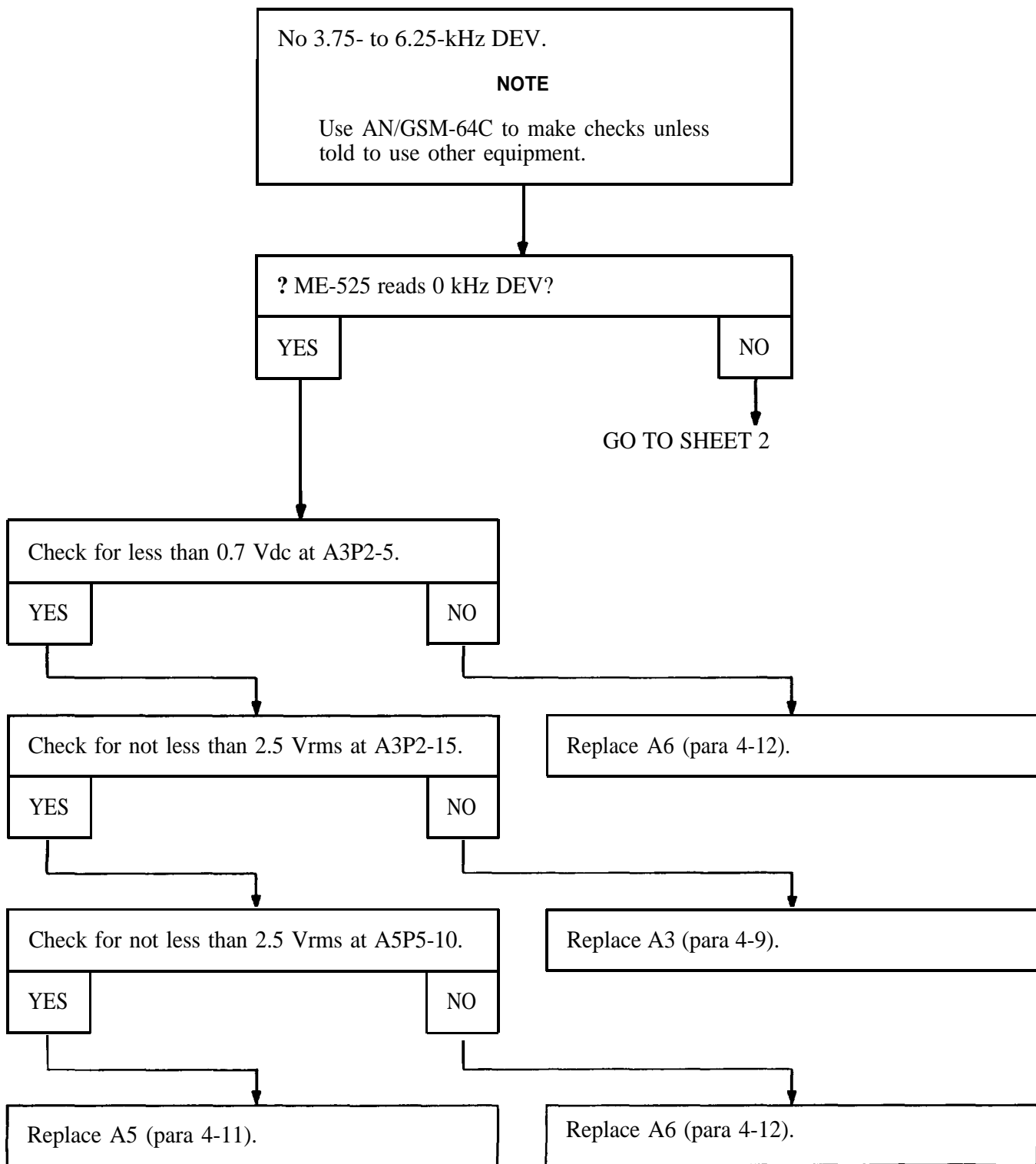
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-16 (SHEET 3)



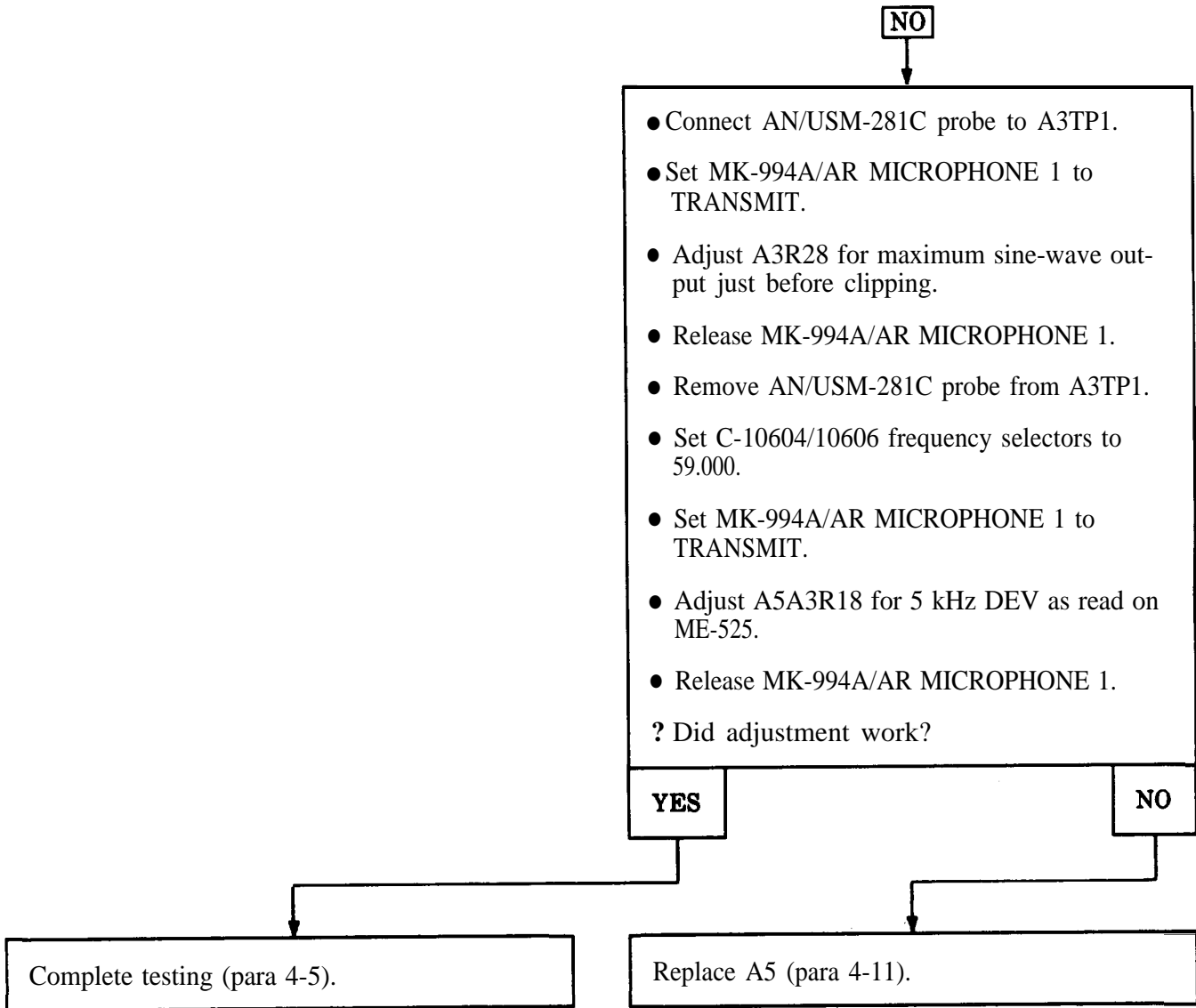
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-17 (SHEET 1)



4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-17 (SHEET 2)



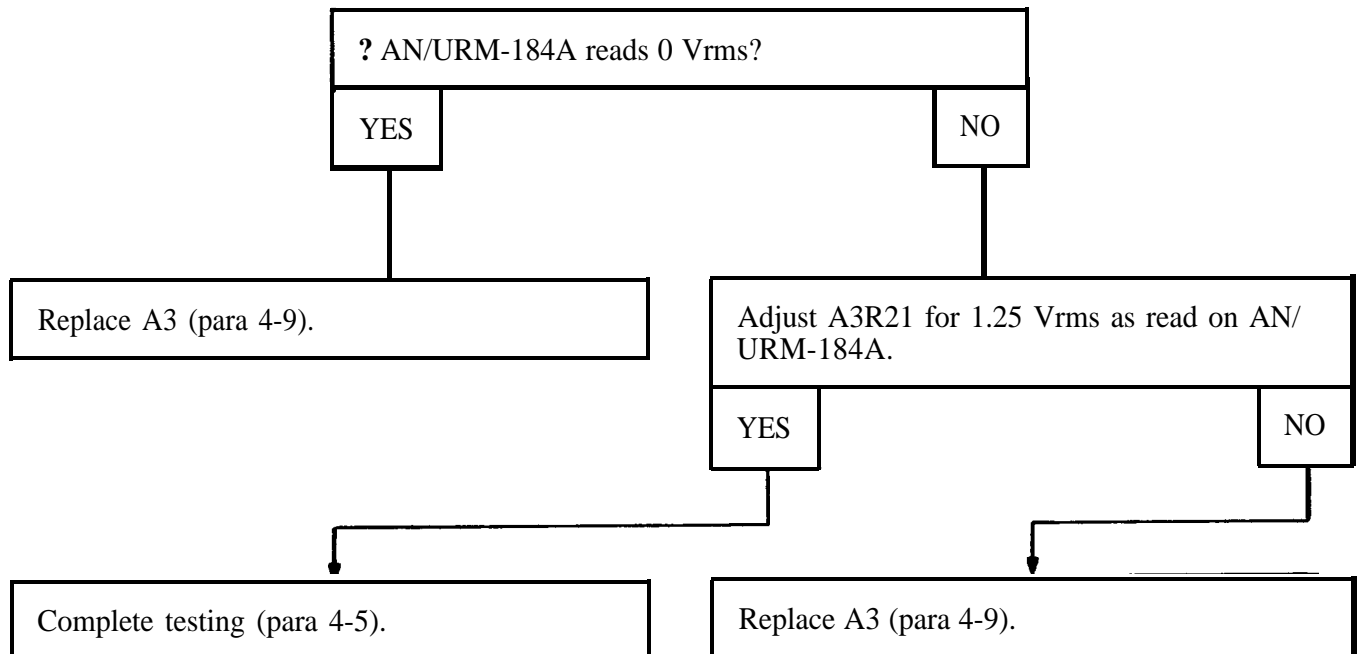
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-18

Sidetone failed test.

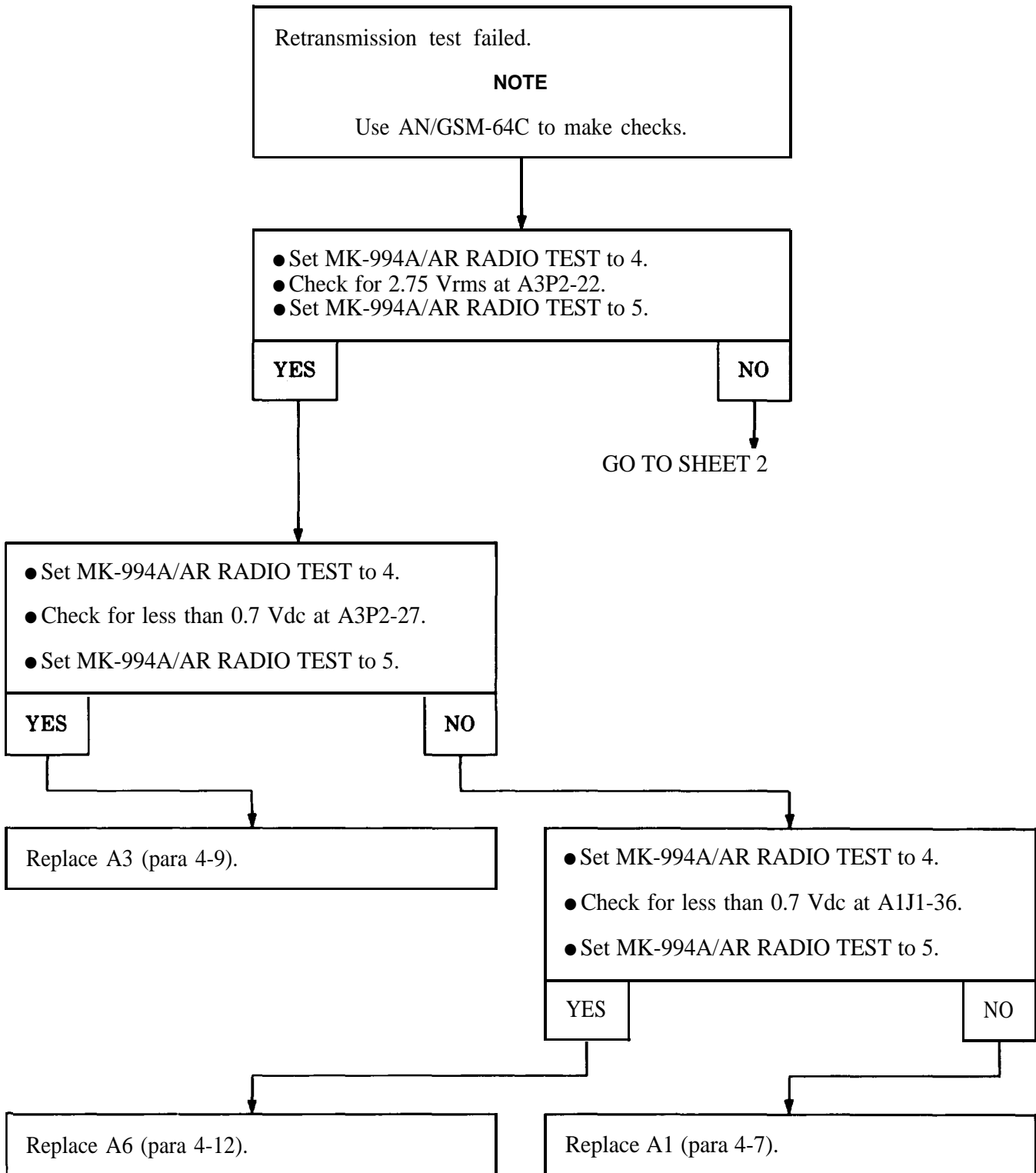
NOTE

Use AN/GSM-64C to make checks.



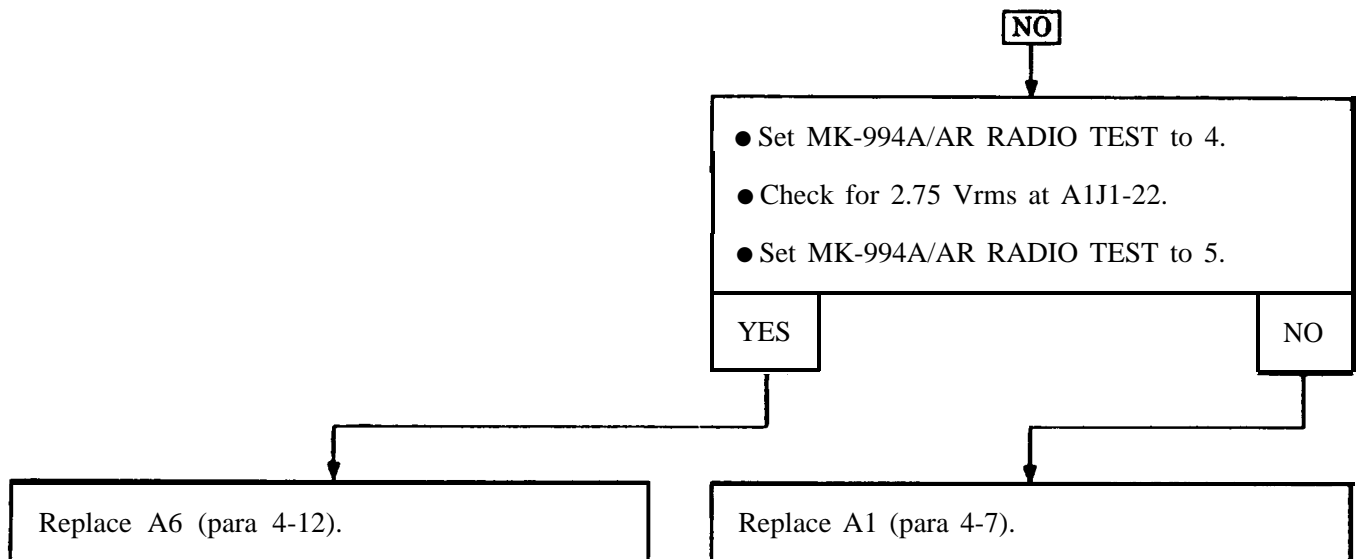
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-19 (SHEET 1)

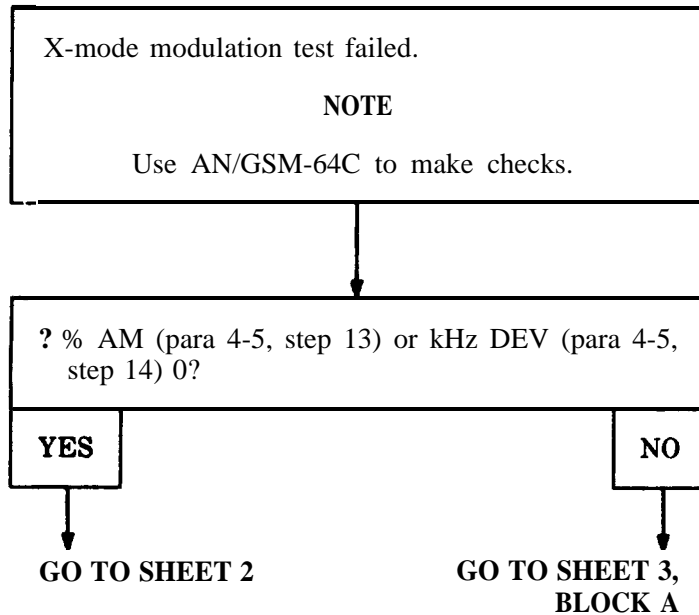


4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-19 (SHEET 2)

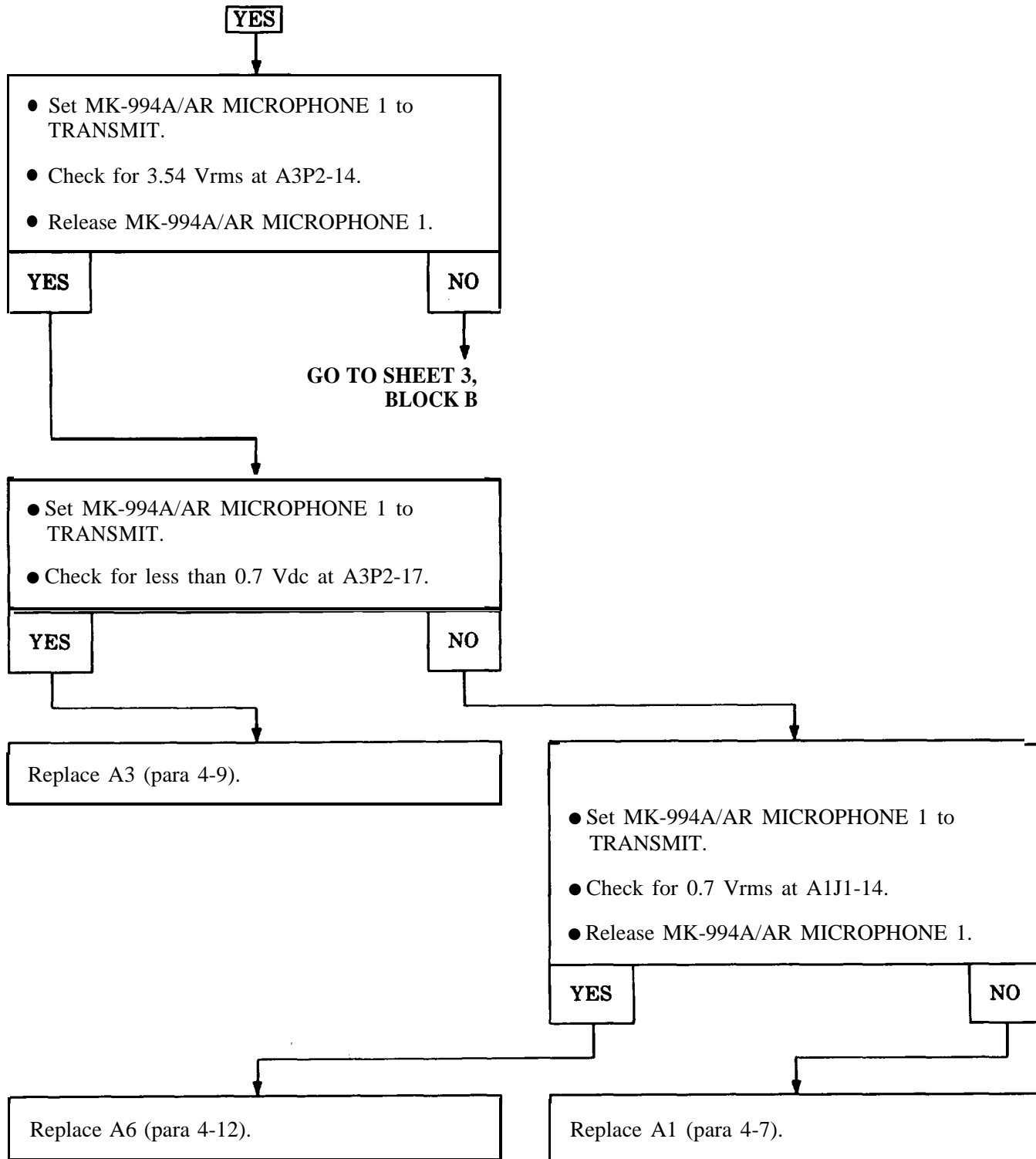


TROUBLE 4-20 (SHEET 1)



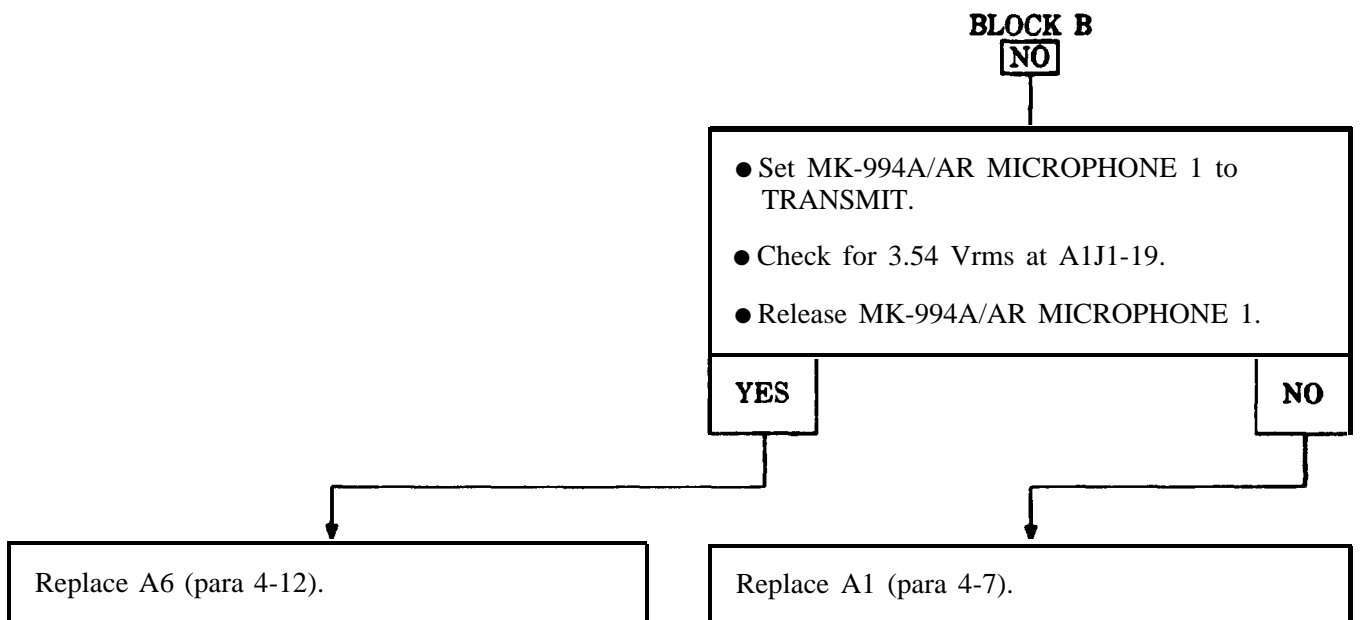
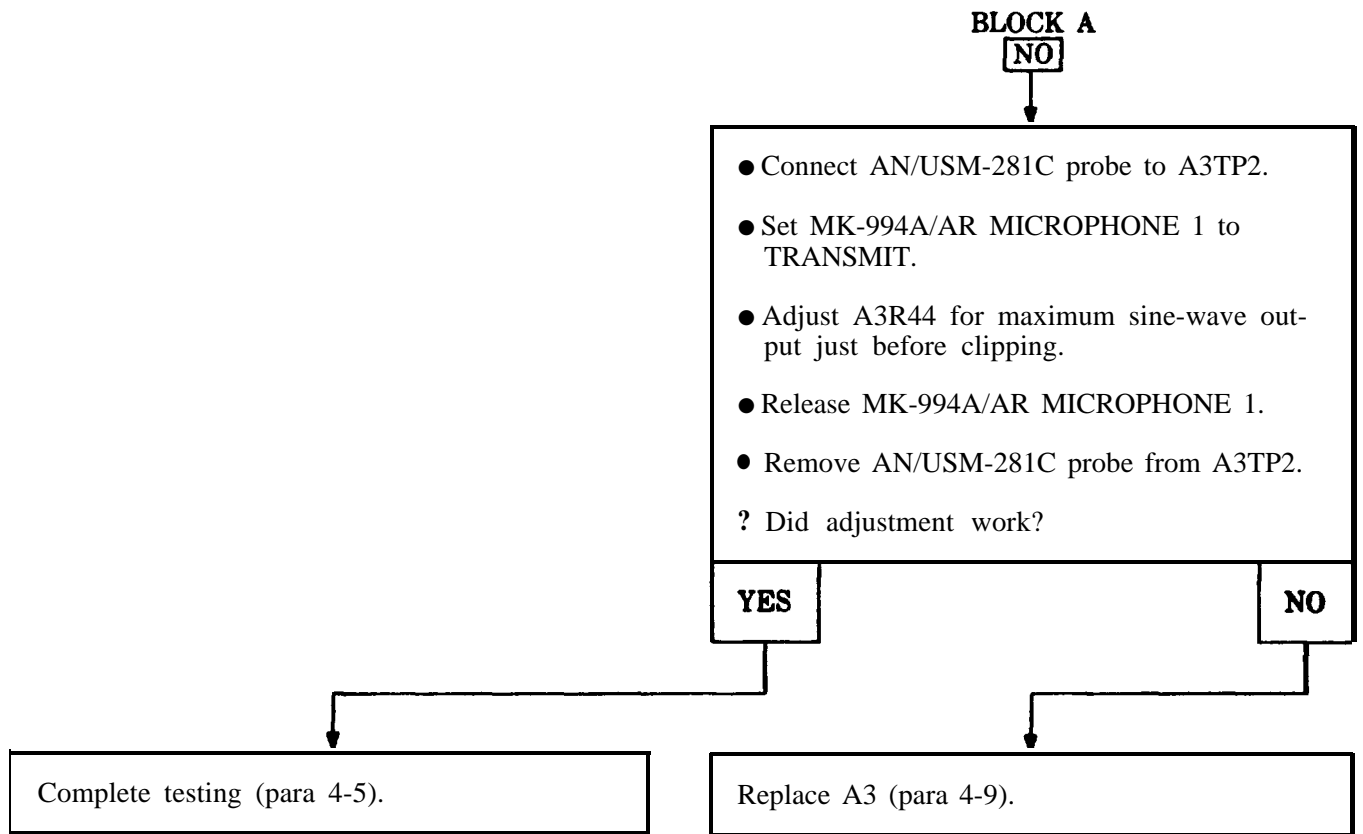
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-20 (SHEET 2)



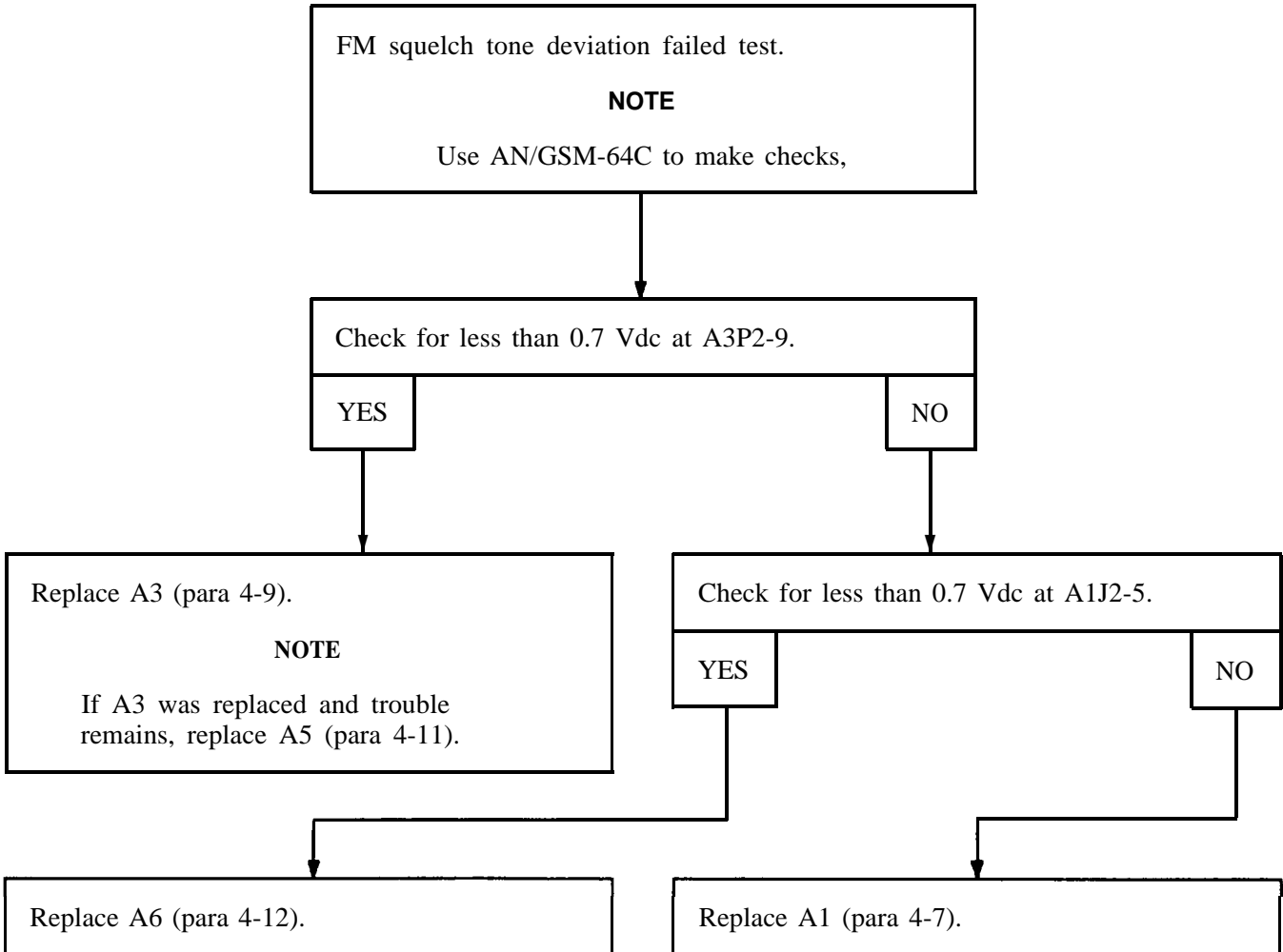
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-20 (SHEET 3)



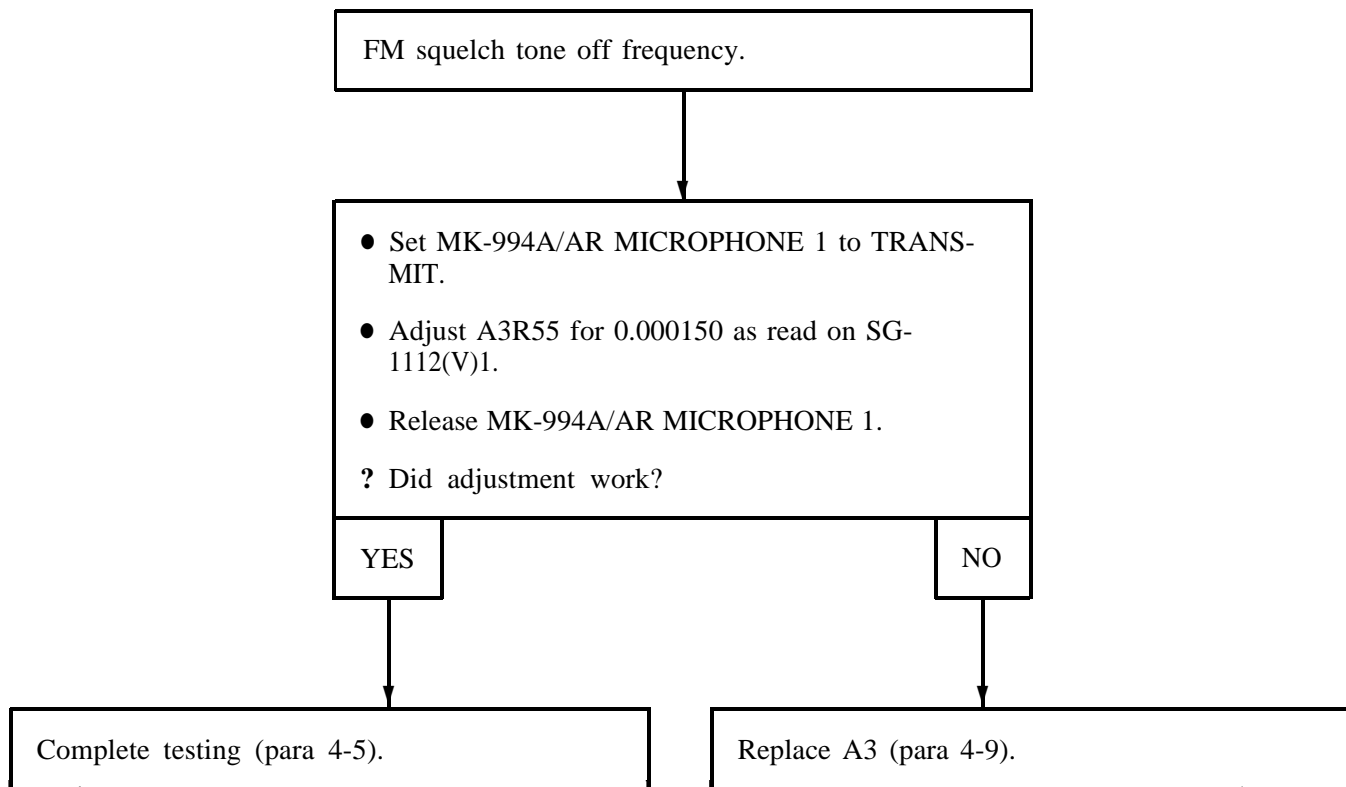
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-21



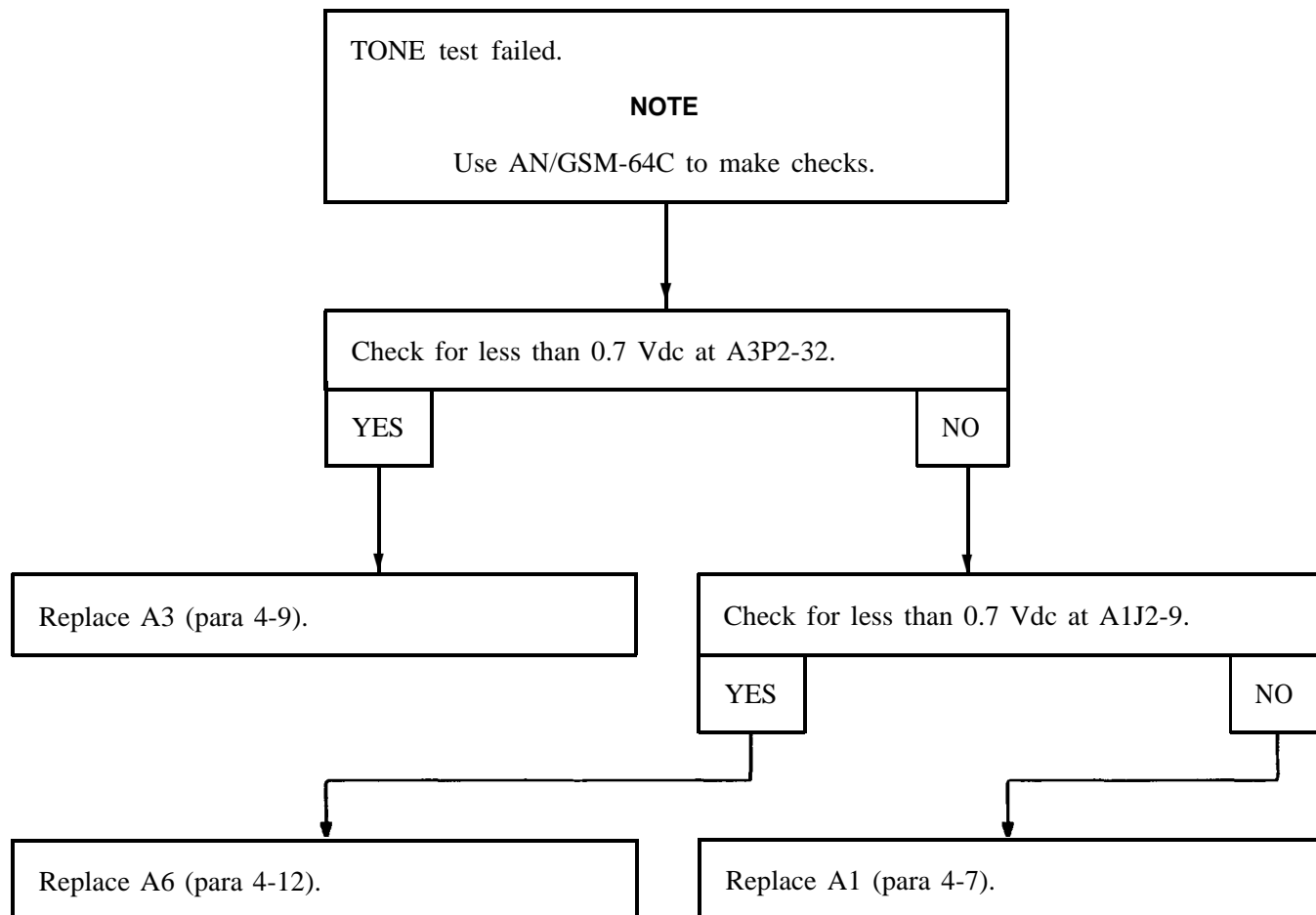
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-22



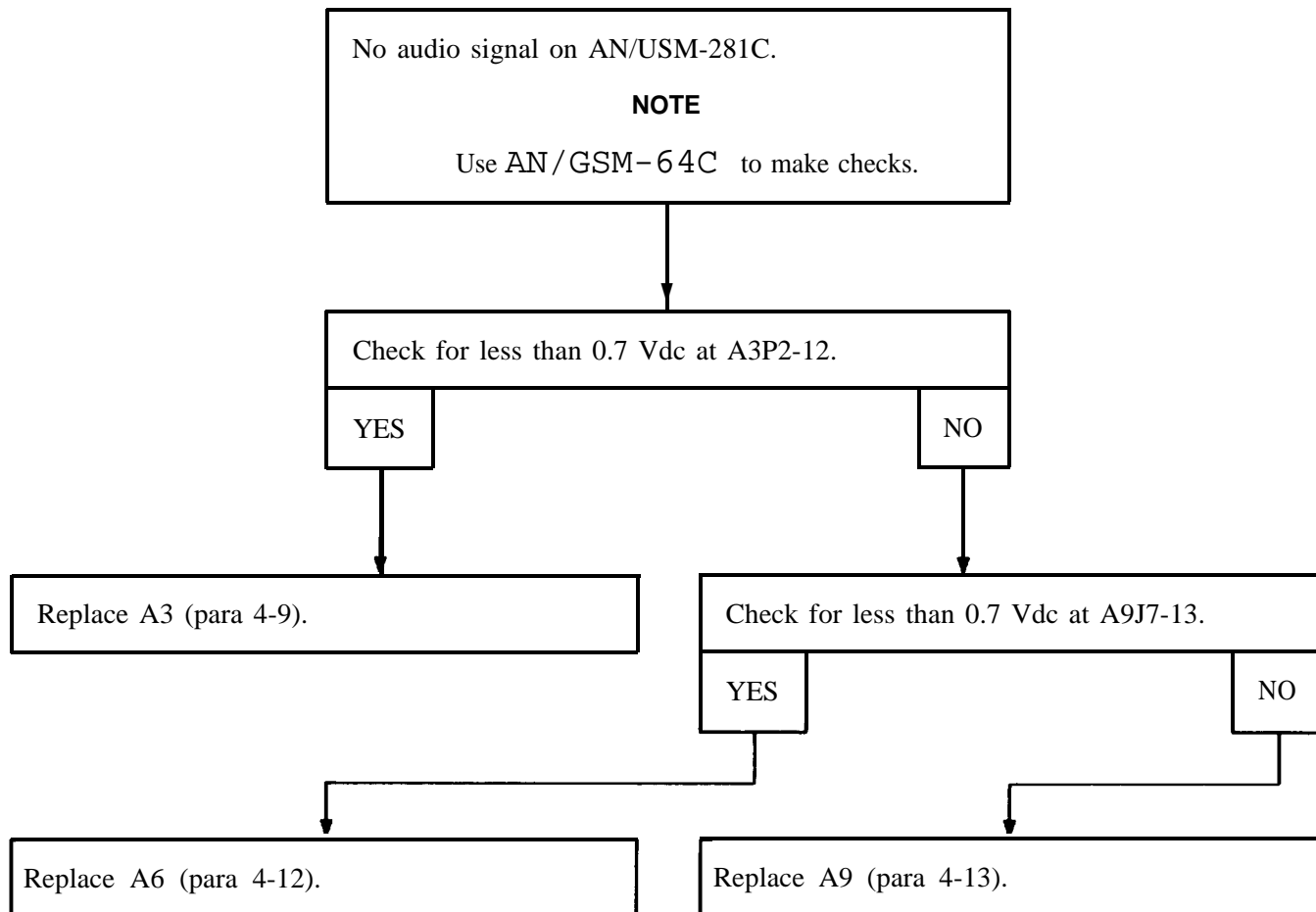
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-23



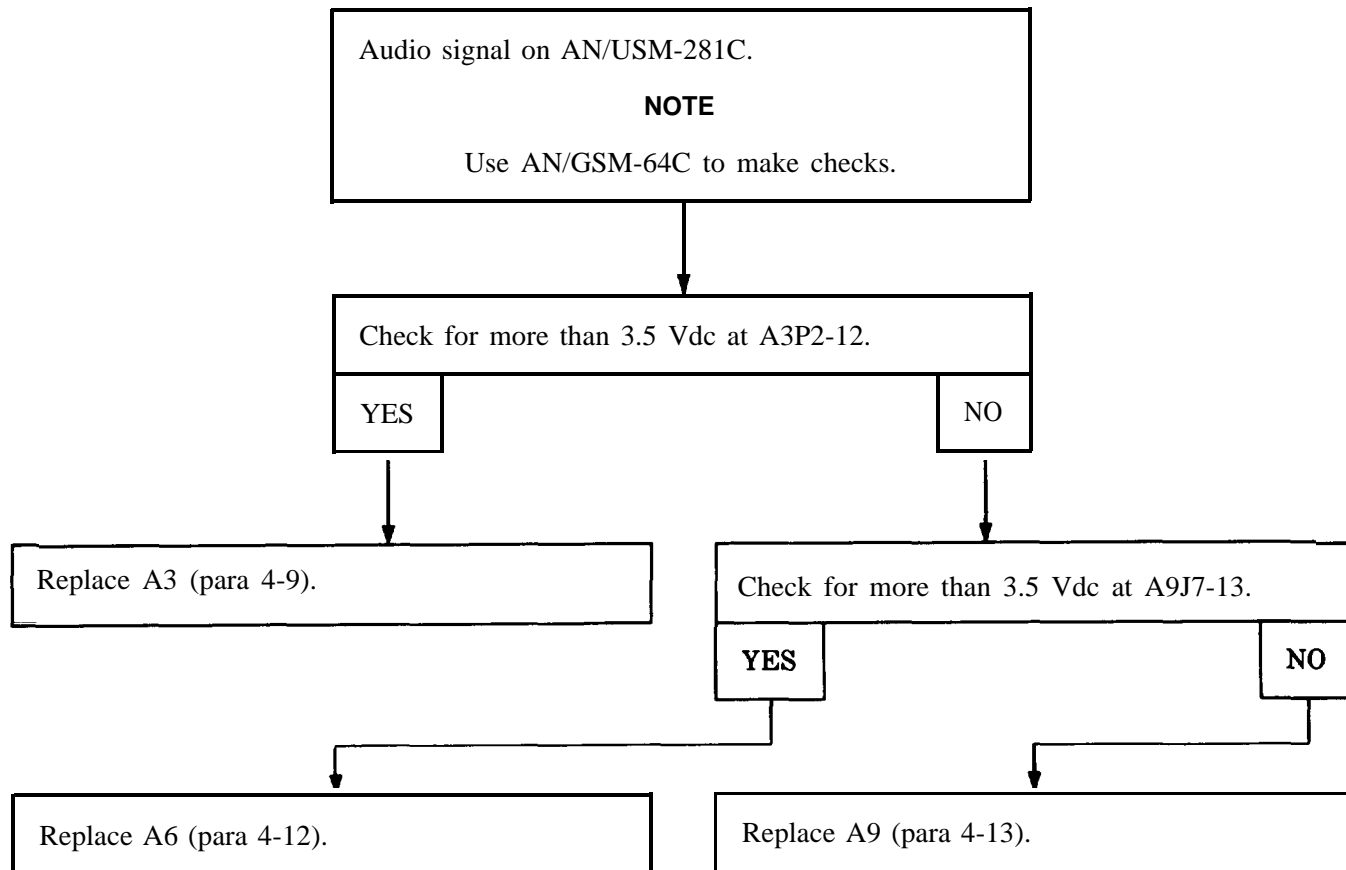
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-24

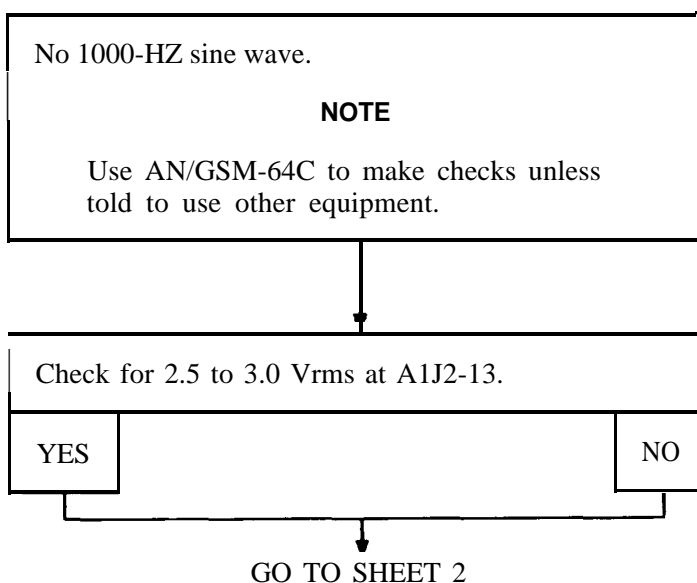


4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-25

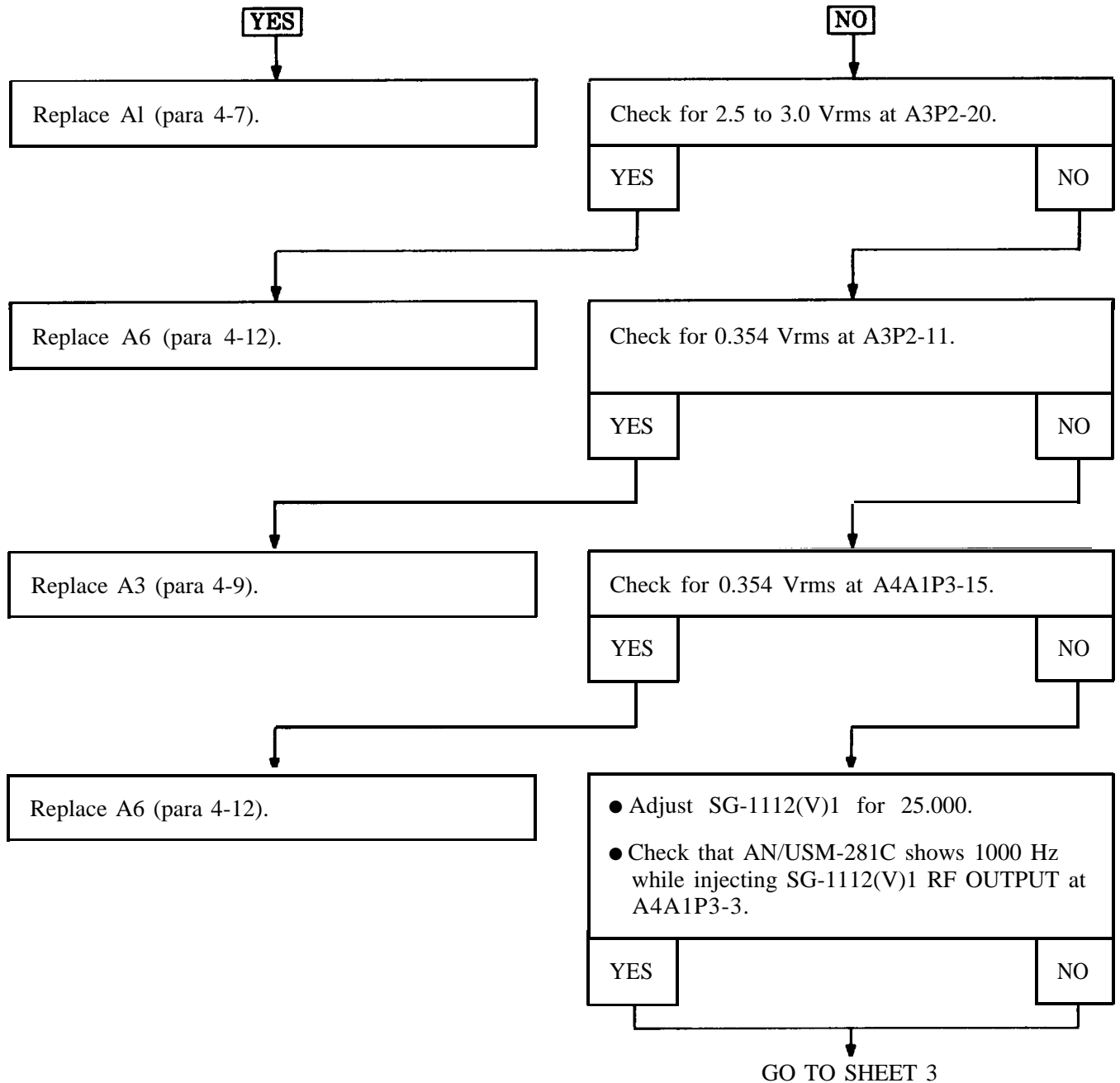


TROUBLE 4-26 (SHEET 1)



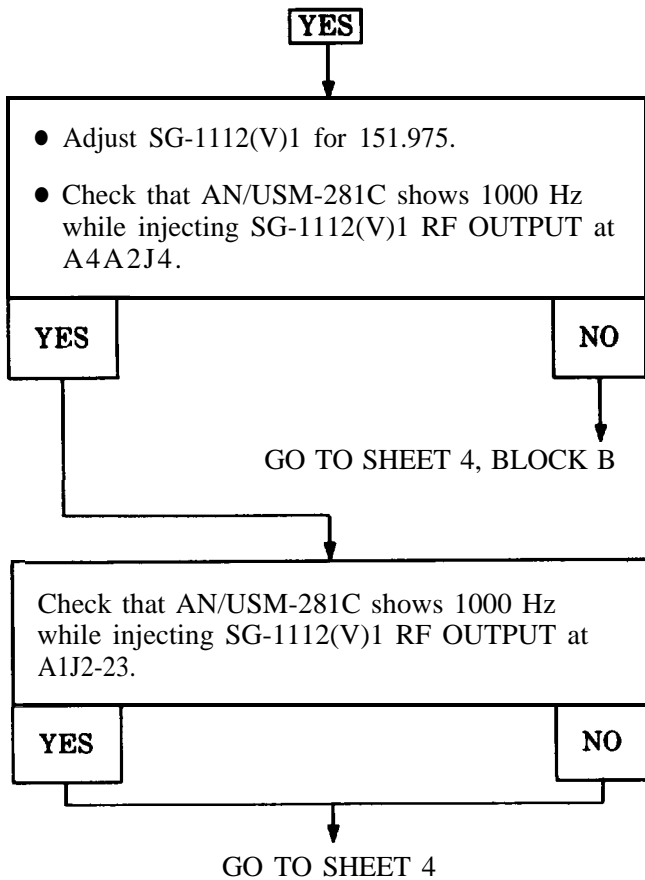
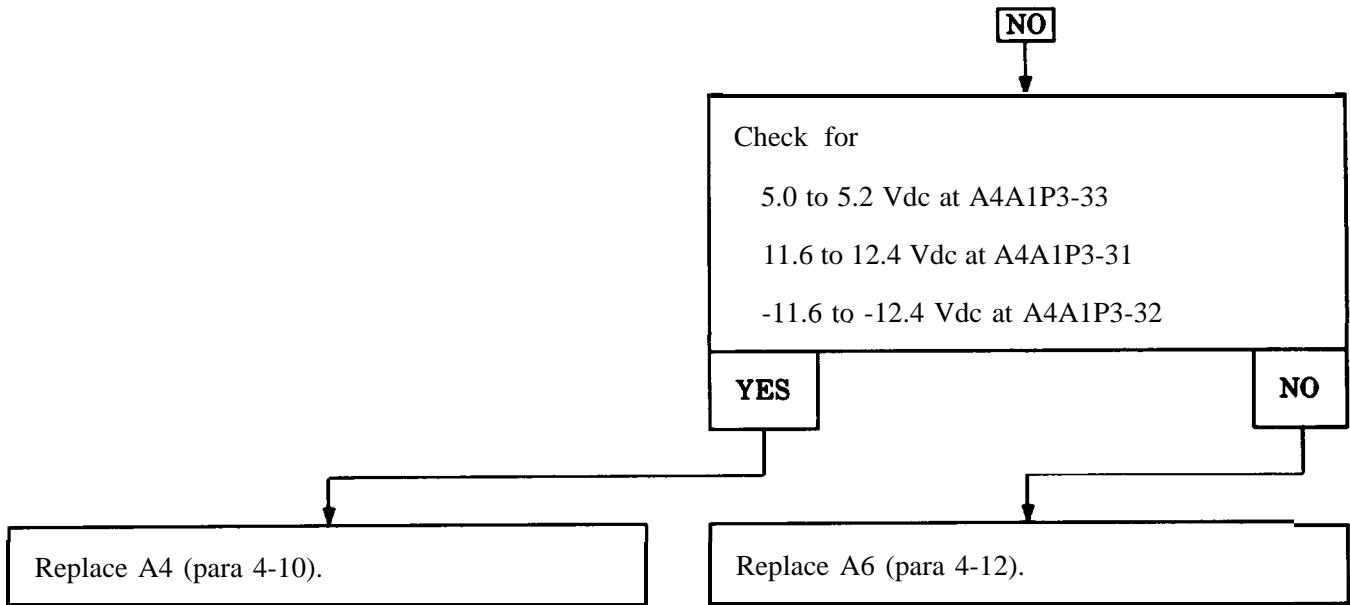
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-26 (SHEET 2)



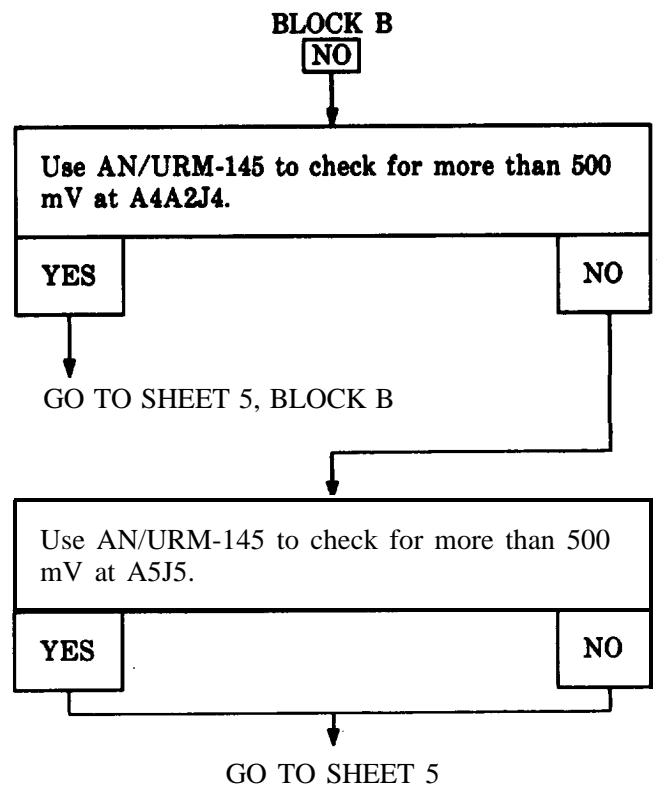
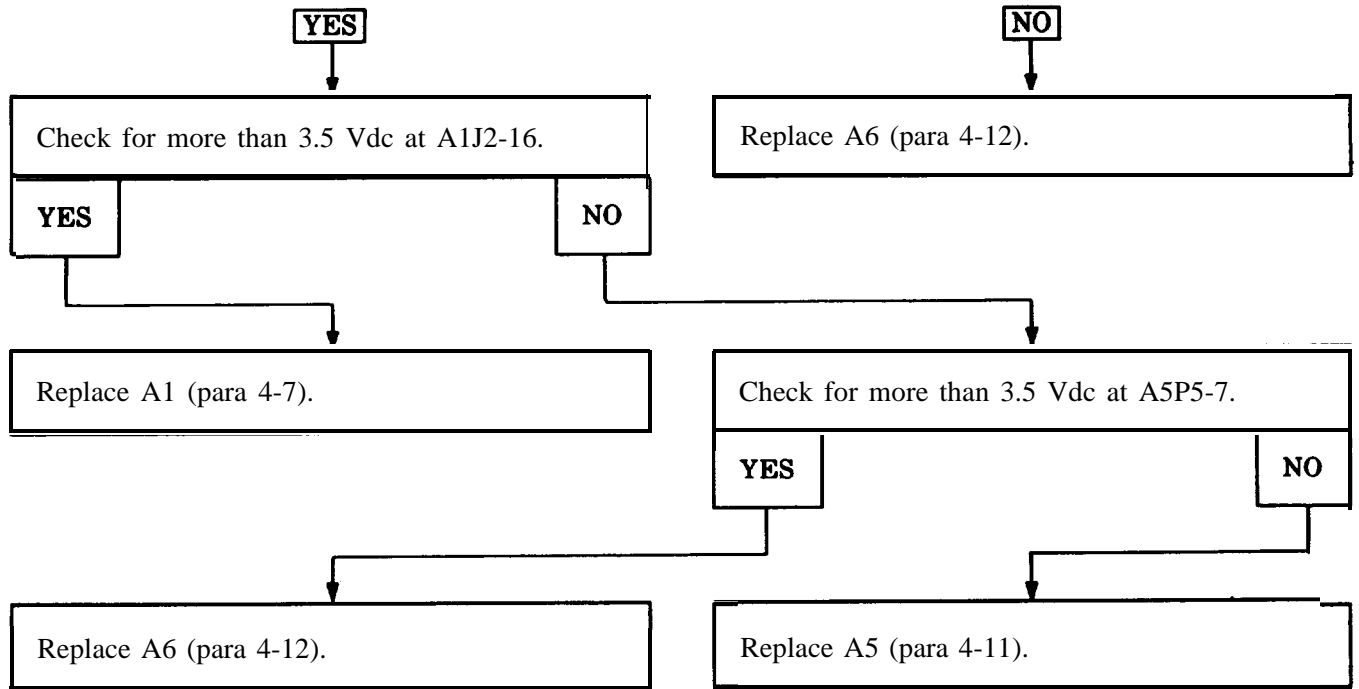
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-26 (SHEET 3)



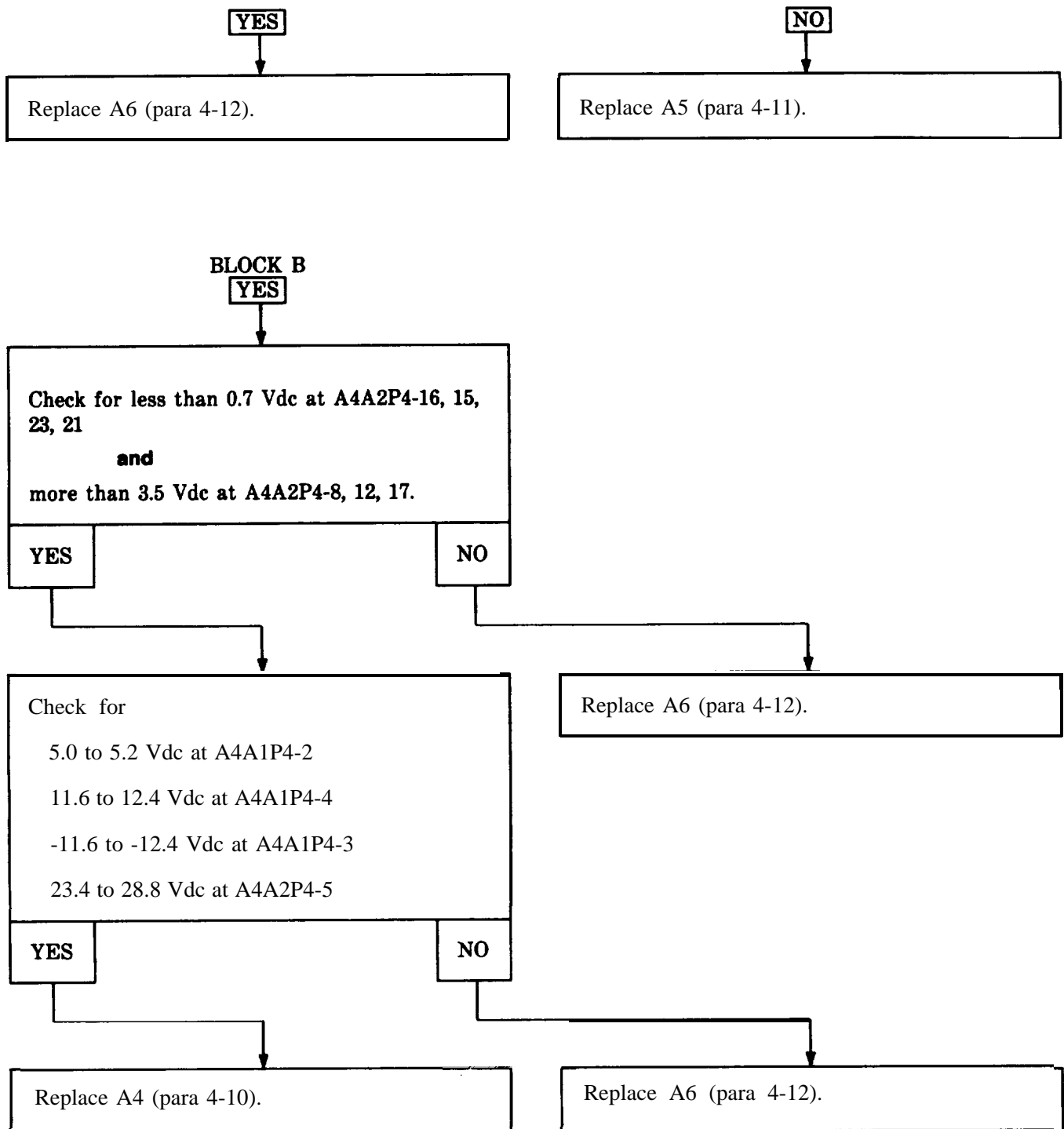
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-26 (SHEET 4)



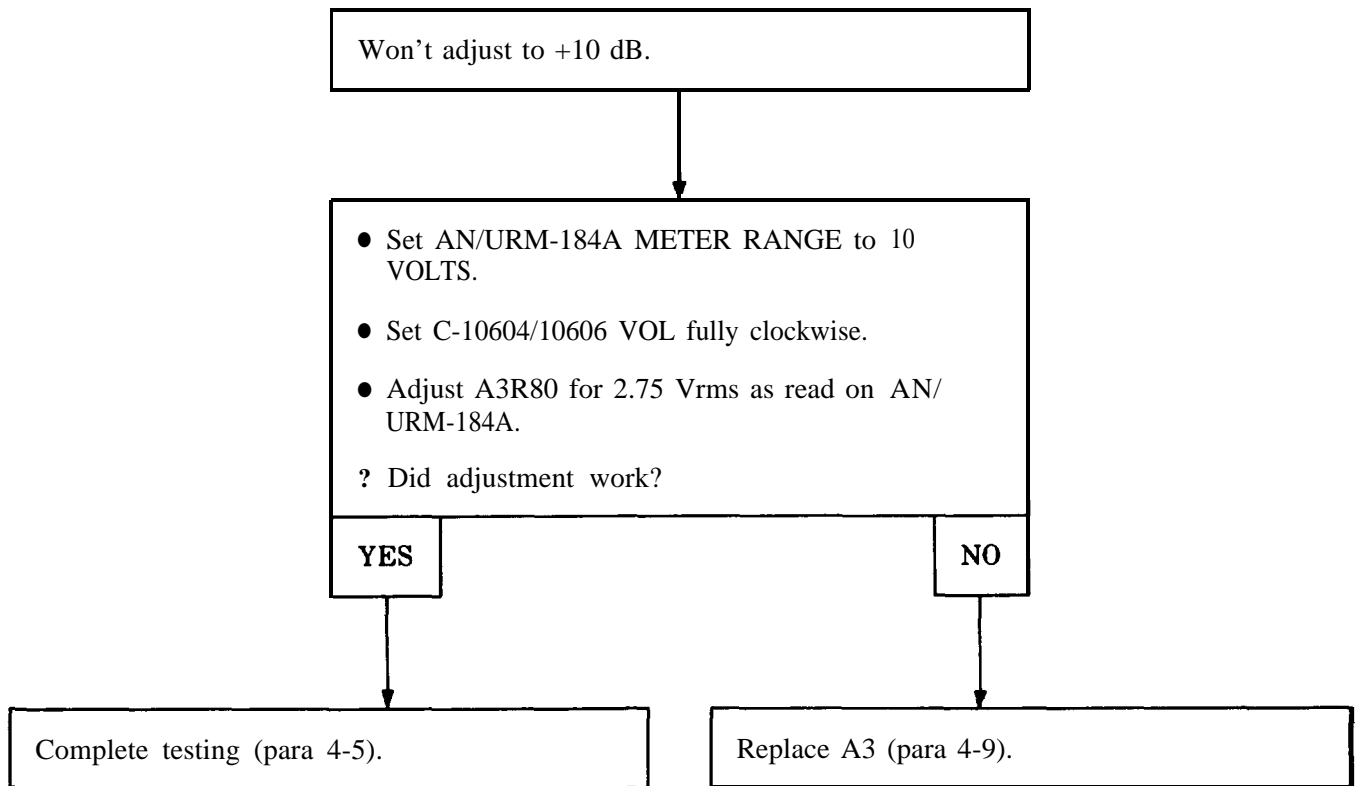
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-26 (SHEET 5)



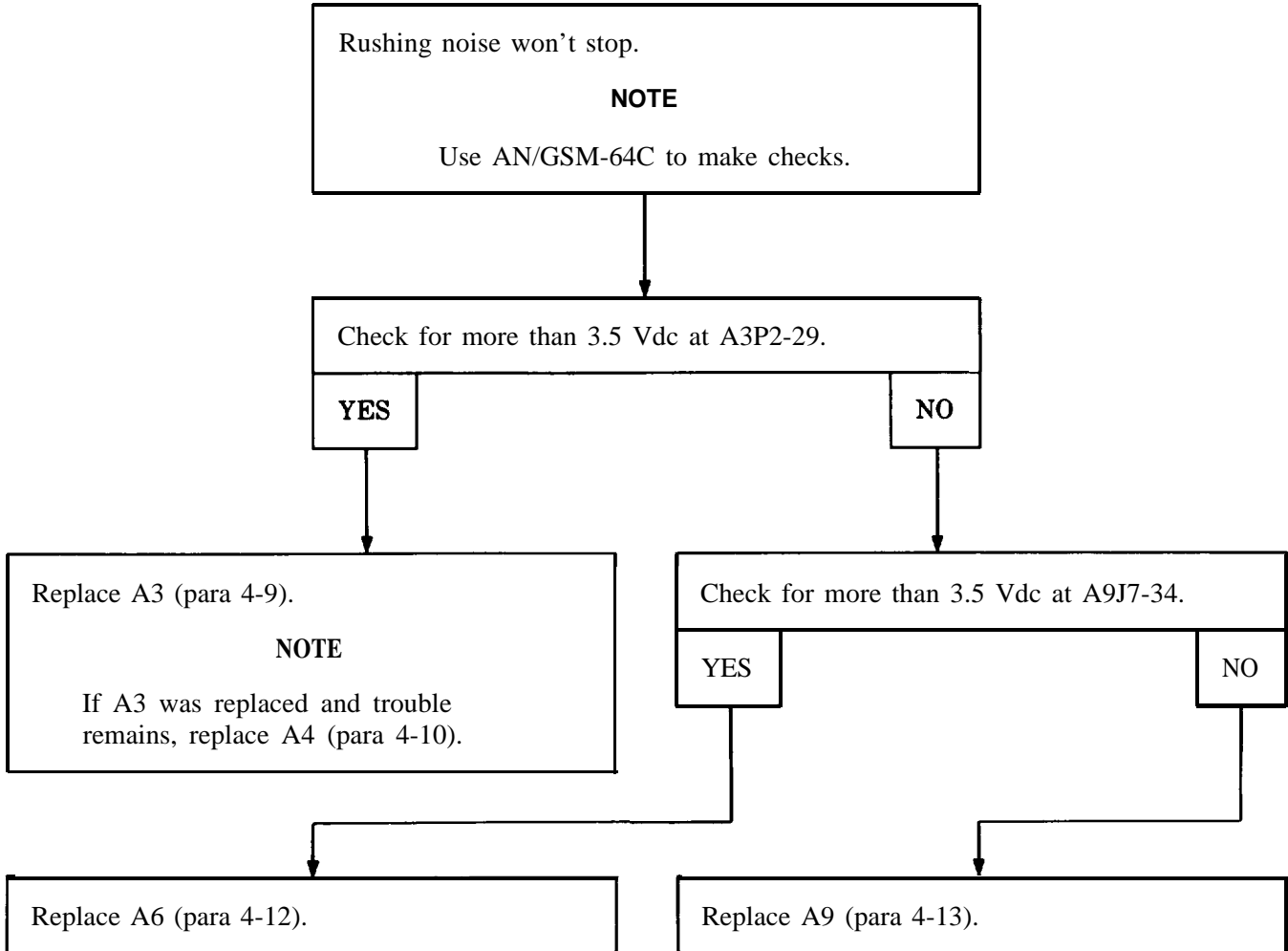
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-27



4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-28



4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-29 (SHEET 1)

Takes more than 6 μV to unsquelch receiver.

NOTE

Use AN/GSM-64C to make checks.

- Set C-10604/10606 frequency selectors to 134.000.
 - Set SG-1112(V)1 to 134.000, 1000 Hz, 30% modulation, at 6.0 μV .
 - Slowly adjust A1AR2 fully counterclockwise until AN/URM-184A reading increases.
 - Set SG-1112(V)1 OUTPUT LEVEL to 0.1 μV (AN/URM-184A reading decreases).
 - Slowly increase SG-1112(V)1 OUTPUT LEVEL until AN/URM-184A reading increases. SG-1112(V)1 OUTPUT LEVEL should be 6.0 μV . If not, try the adjustment again a couple of times.
- ? Did adjustment work?

YES

NO

Complete testing (para 4-5).

- Set SG-1112(V)1 OUTPUT LEVEL to 0.1 μV .
- Check for more than 9.0 Vdc at A3P2-7.

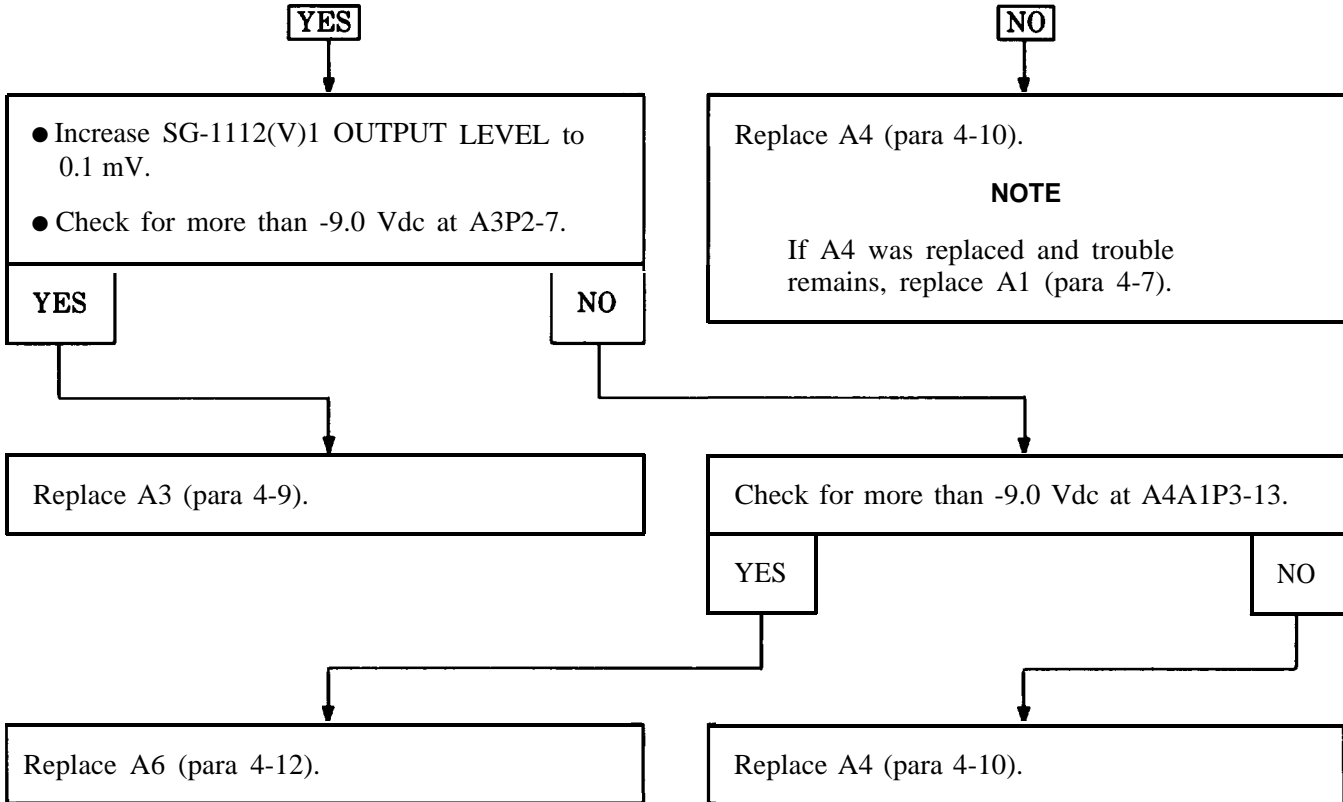
YES

NO

GO TO SHEET 2

4-6. RADIO SET TROUBLESHOOTING (Continued)

TRUBLE 4-29 (SHEET 2)



4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-30

Squelch does not open with 10 dB S/N.

- Turn A1A2R1 fully clockwise.
- Set C-10604/10606 SQ DIS/TONE to SQ DIS position.
- Find the 10 dB point using the following steps:
 - Set SC-1112(V)1 OUTPUT to .4 uV, FM set to INT.
 - Adjust C-10604/10606 VOL for +10 dB as read on AN/URM-184A.
 - Set SC-1112(V)1 FM to OFF.
 - Reading should drop 10 dB.
 - If not increase OUTPUT in .1 uV increments until finding 10 dB drop.
- Set SG-1112(V)1 to FM INT with OUTPUT as required to achieve 10 dB sensitivity.
- Set C-10604/10606 SQ DIS/TONE to center position (radio should squelch).
- Turn A1A2R1 slowly counterclockwise until receiver unsquelches.
- Adjust VOL on C-10604/10606 to read +10 dB as read on AN/URM-184A.
- Set SG-1112(V)1 FM to OFF.
- Should read 10 dB drop on AN/URM-184A.

? Did adjustment work?

YES

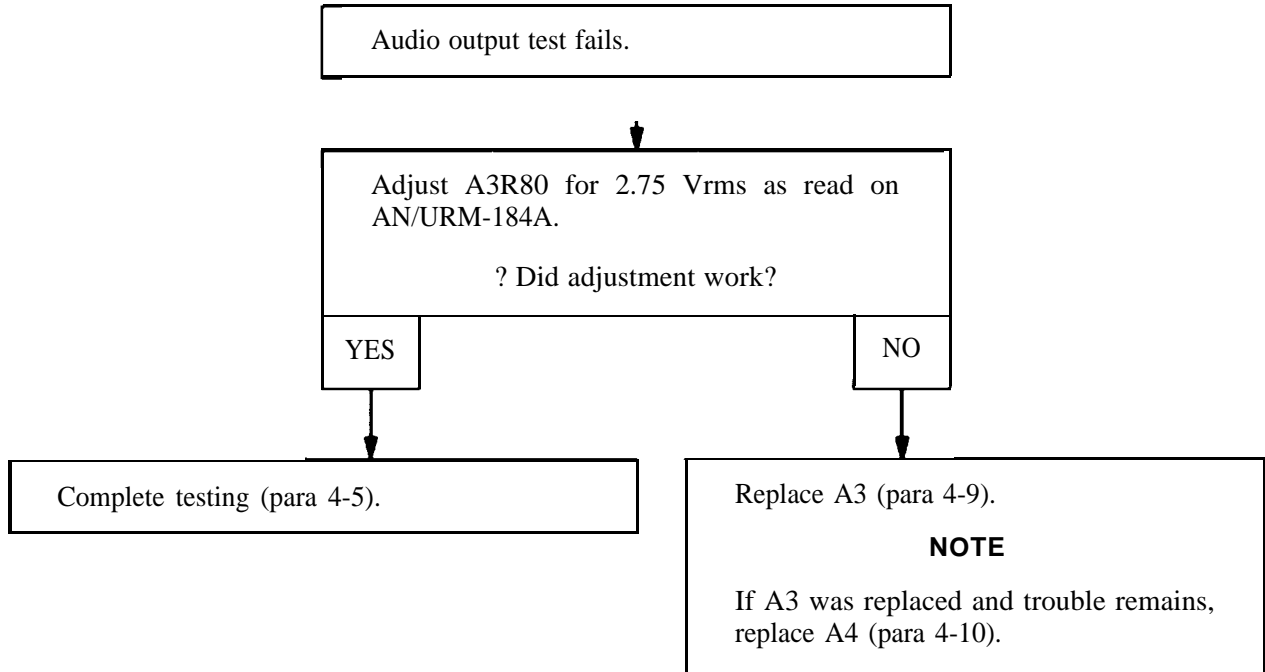
NO

Complete testing (para 4-5).

Replace A4 (para 4-10).
 NOTE
 If A4 was replaced and trouble remains, replace A1 (para 4-7).

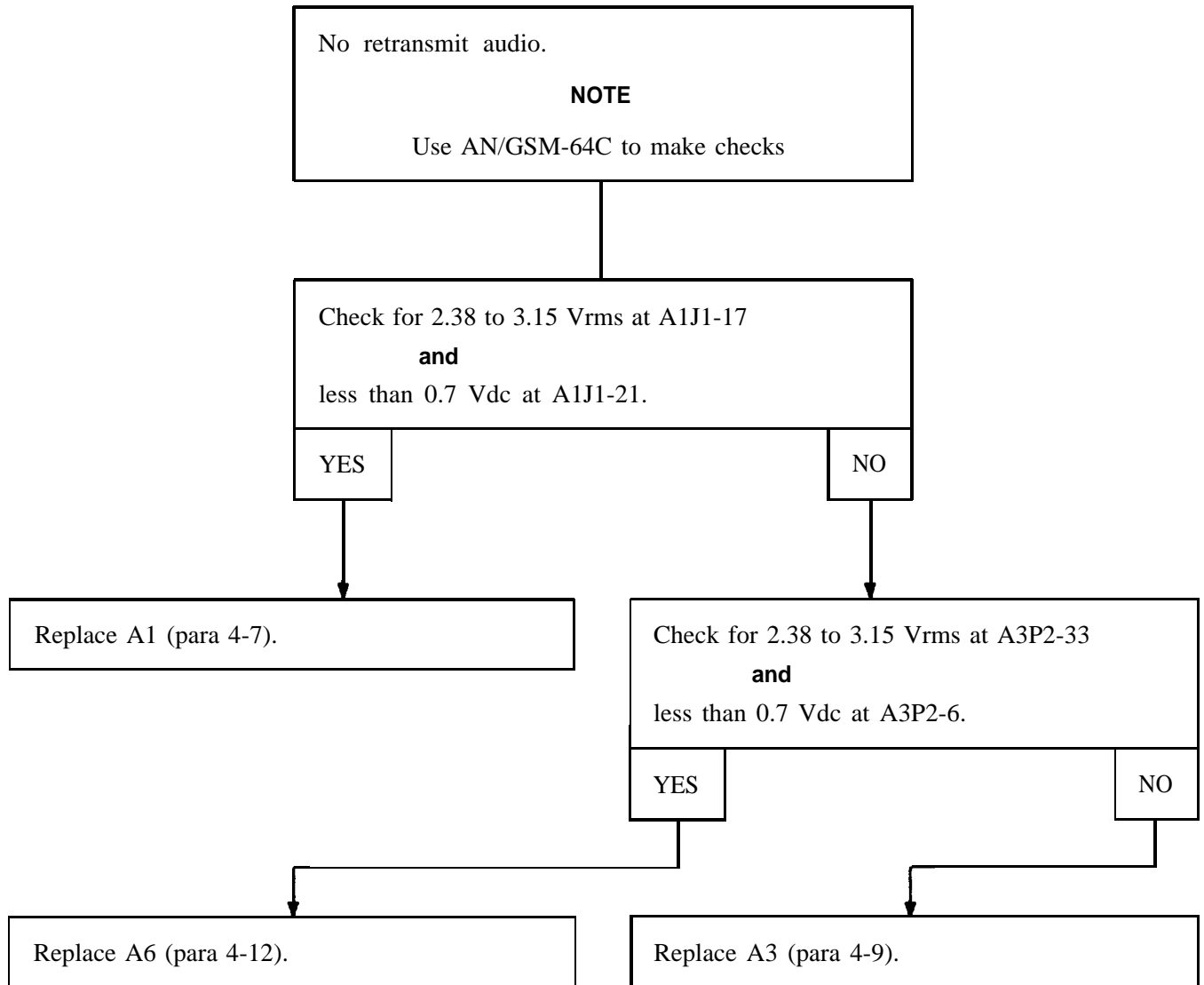
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-31



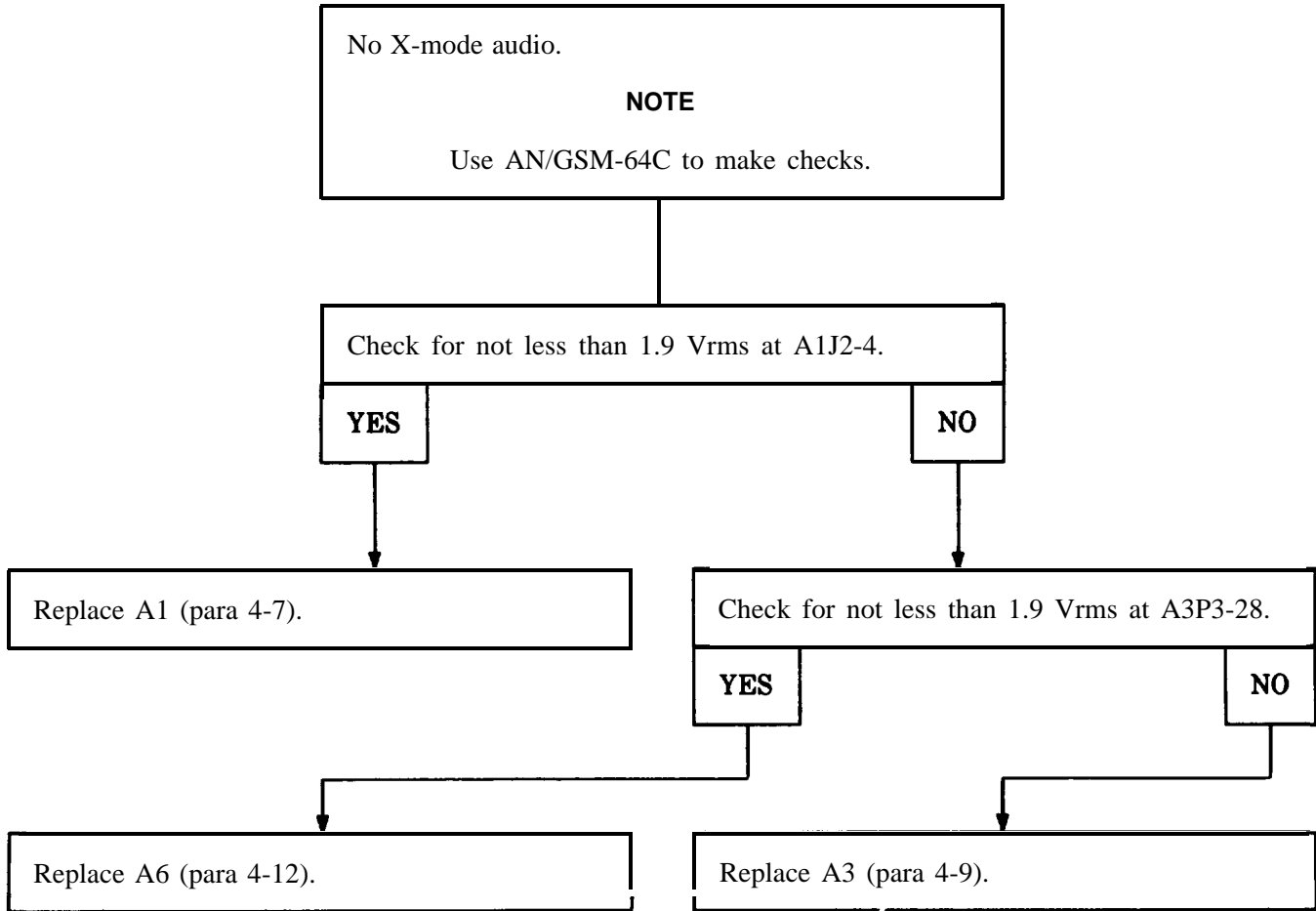
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-32



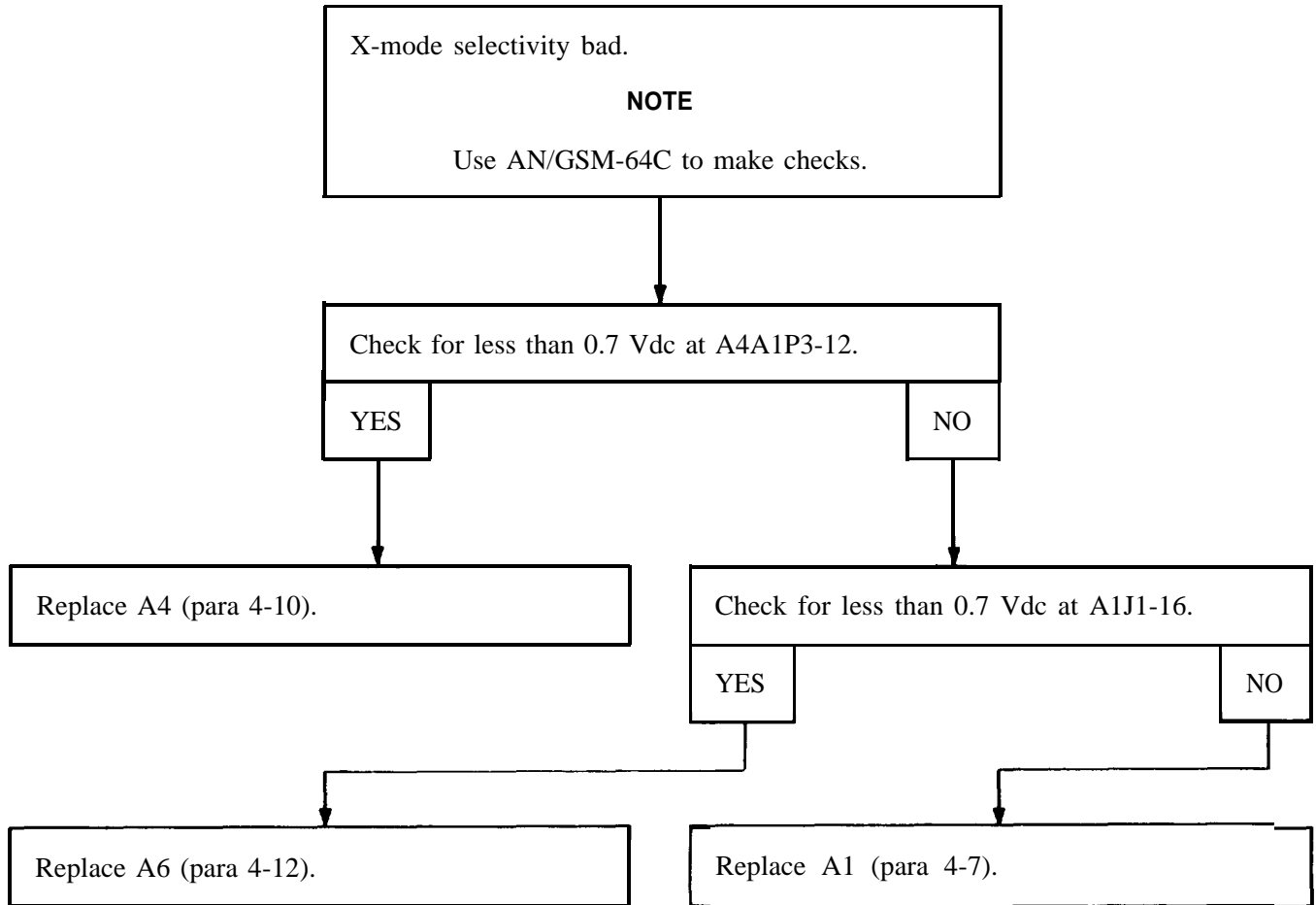
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-33



4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-34



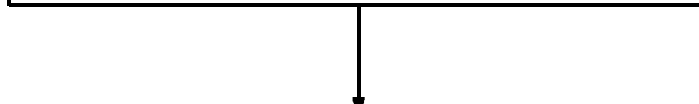
4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-35

No 400 to 600 ohms at J-4247/AR ADF/HOM ENBL.

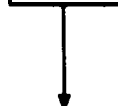
NOTE

Use AN/GSM-64C to make checks.



Check for 400 to 600 ohms at A1J2-8.

YES NO



Check for 400 to 600 ohms at A9J7-38.

YES NO



Replace A6 (para 4-12).

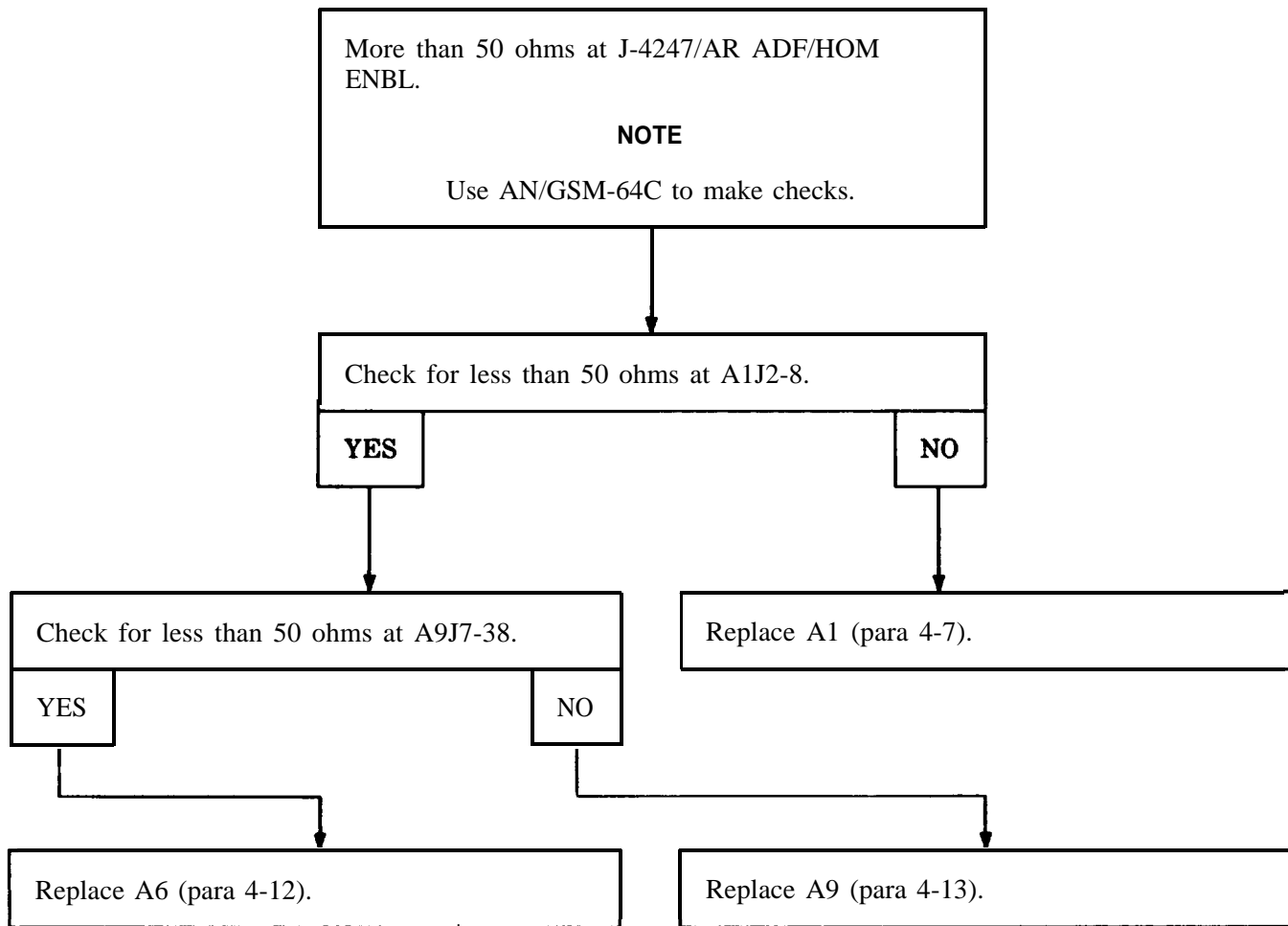
Replace A1 (para 4-7).



Replace A9 (para 4-13).

4-6. RADIO SET TROUBLESHOOTING (Continued)

TROUBLE 4-36



Section VI. MAINTENANCE PROCEDURES

SECTION OVERVIEW

Maintenance consists of replacing assemblies.

Use the procedures in Section IV, Troubleshooting, to determine which assembly to replace.

4-7. REPLACE A1

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

Tools and Support Equipment

Tool Kit, Electronic Equipment TK-105/G
No. 1 Phillips screwdriver

Materials/Parts

Transmitter Assembly A1
Antistatic bag
Item 1, Appendix B

Personnel Required

Avionic Communications Equipment Repairer MOS
35L

References

Safety, Care, and Handling paragraph 1-8.

Troubleshooting References

Paragraph 4-6

Equipment Condition

MK-994A/AR DC POWER ON/OFF set to OFF.

RT-1300B disconnected from test equipment.

Special Environmental Conditions

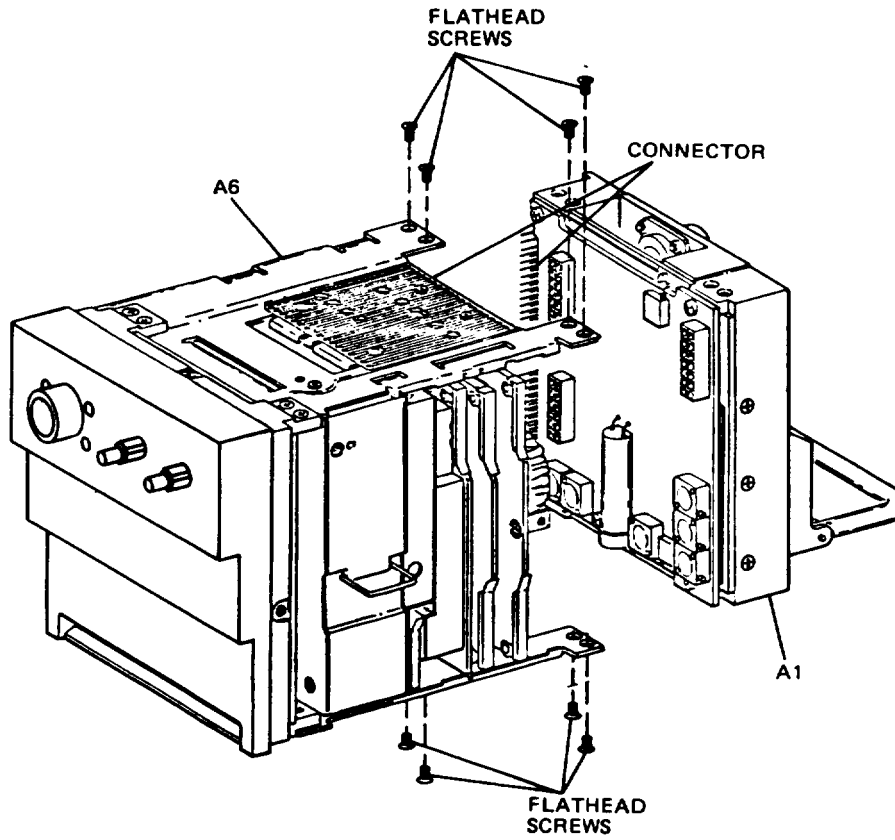
CAUTION



Static work station connected before procedure is started.

4-7. REPLACE A1 (Continued)

REMOVAL



1. Remove eight flathead screws.

CAUTION

A1 is connected to A6 by a connector. Be careful not to break the connector while removing and installing A1.

2. Slide A1 from A6.

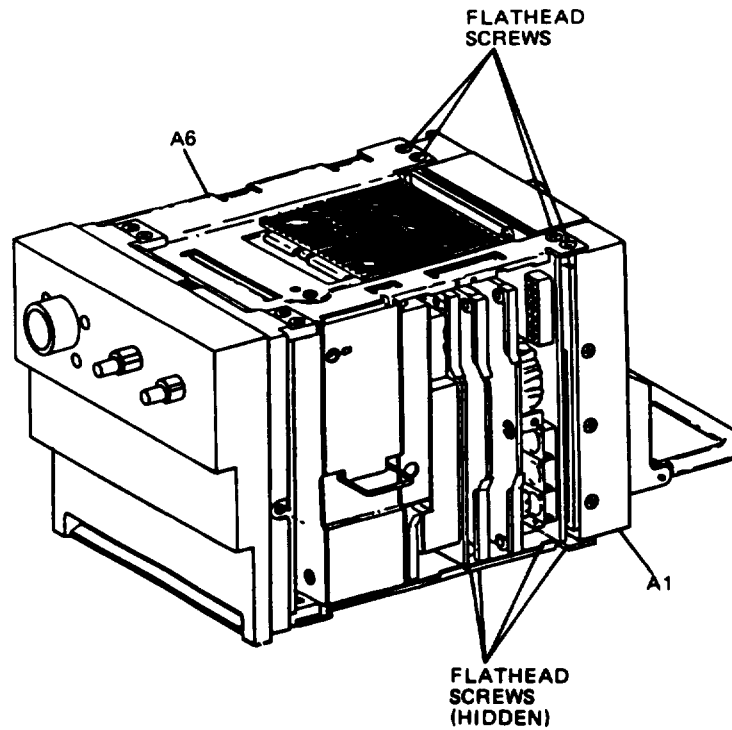





3. Pack A1 in antistatic bag.



4-7. REPLACE A1 (Continued)

INSTALLATION



4. Remove A1 from antistatic bag.  Save antistatic bag to be used again.
5. Aline A1 with A6; be sure A1/A6 connector is alined. 
6. Carefully slide A1 into A6 until mated. 
7. Install eight flathead screws.

FOLLOWUP

8. Complete paragraph 4-5 to be sure RT-1300B works okay.

4-8. REPLACE A2

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

Tools and Support Equipment

Tool Kit, Electronic Equipment TK-105/G
No.1 Phillips screwdriver.

Materials/Parts

Power Supply Assembly A2
Antistatic bag
Item 1, Appendix B

Personnel Required

Avionic Communications Equipment Repairer MOS
35L

References

Safety, Care, and Handling paragraph 1-8.

Troubleshooting References

Paragraph 4-6

Equipment Condition

MK-994A/AR DC POWER ON/OFF set to OFF.

RT-1300B disconnected from test equipment.

Special Environmental Conditions

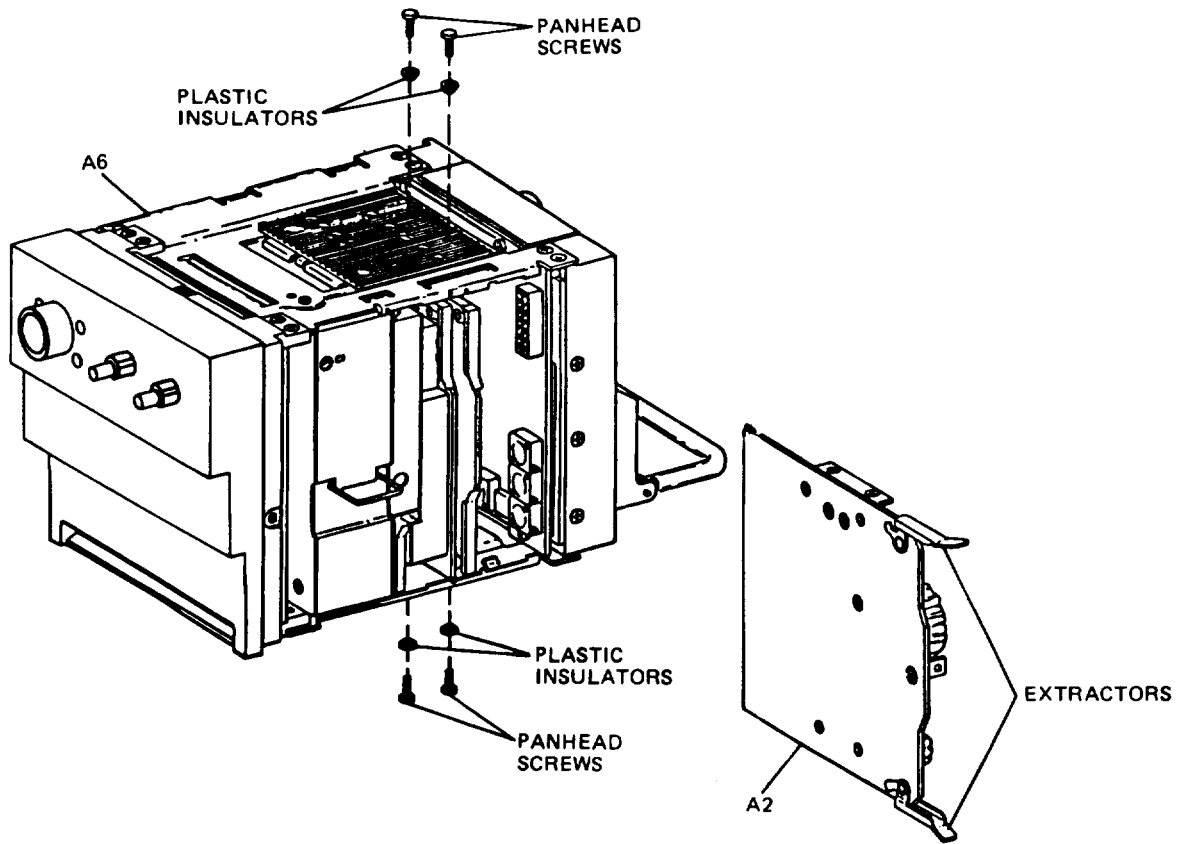
CAUTION



Static work station connected before procedure is started.

4-8. REPLACE A2 (Continued)

REMOVAL

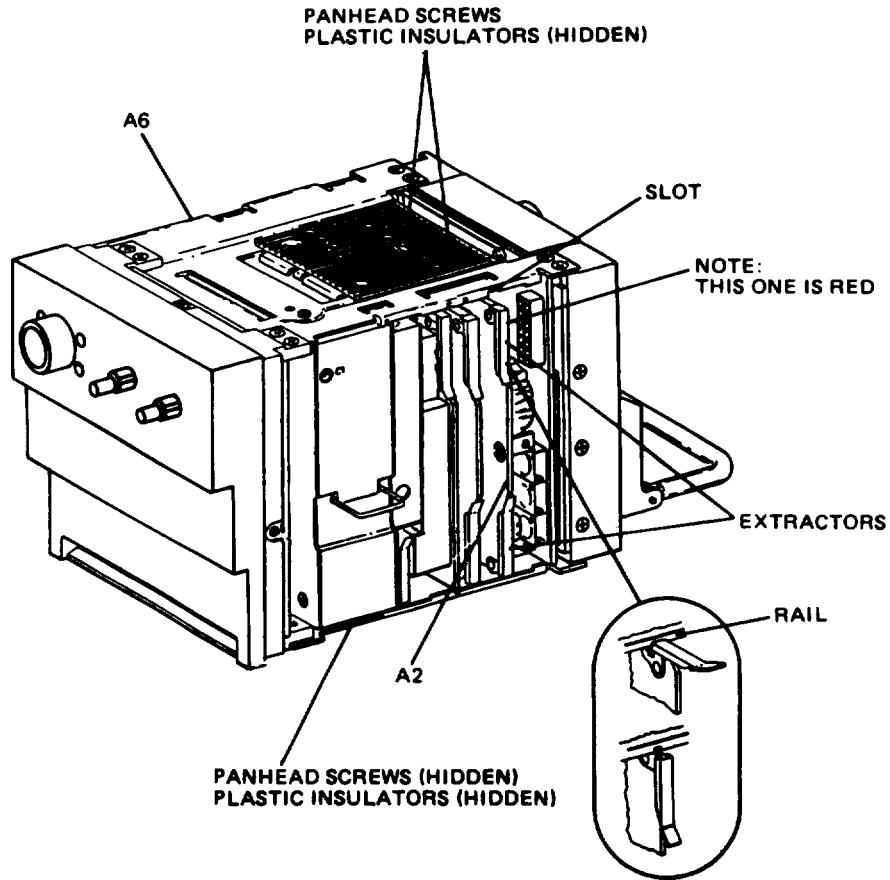





1. Remove four panhead screws and plastic insulators.
2. Unlock two extractors.
3. Slide A2 from A6.
4. Pack A2 in antistatic bag.



4-8. REPLACE A2 (Continued)

INSTALLATION



5. Remove A2 from antistatic bag.  Save antistatic bag to be used again.
6. Unlock two extractors. 
7. Turn A2 until red extractor points up. 

4-8. REPLACE A2 (Continued)**CAUTION**

A2 is connected to A6 by a connector. Be careful not to break the connector while doing steps 8, 9.

8. Slide A2 into slot marked A2 until extractors touch rail.



9. Lock two extractors. Extractors will mate A2/A6 connector when locked.

CAUTION

The A2 must be insulated from A6. Be sure plastic insulators are installed on panhead screws.

10. Install four plastic insulators and panhead screws.

FOLLOWUP

11. Complete paragraph 4-5 to be sure RT-1300B works okay.

4-9. REPLACE A3

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

Tools and Support Equipment

Tool Kit, Electronic Equipment TK-105/G
No. 1 Phillips screwdriver.

Materials/PARTS

Audio Circuit Card A3
Antistatic bag
Item 1, Appendix B

Personnel Required

Avionic Communications Equipment Repairer
MOS 35L

References

Safety, Care, and Handling paragraph 1-8.

Troubleshooting References

Paragraph 4-6

Equipment Condition

MK-994A/AR DC POWER ON/OFF set to OFF.
RT-1300B disconnected from test equipment.

Special Environmental Conditions

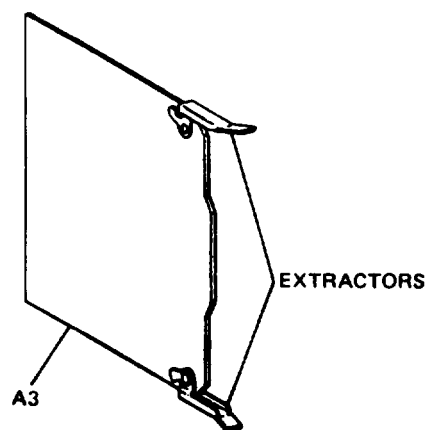
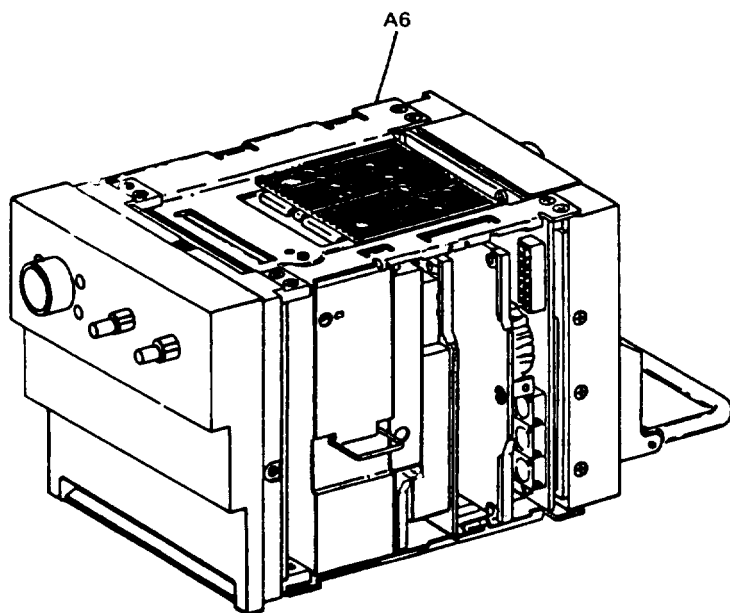
CAUTION



Static work station connected before procedure is started.

4-9. REPLACE A3 (Continued)

REMOVAL



1. Unlock two extractors.

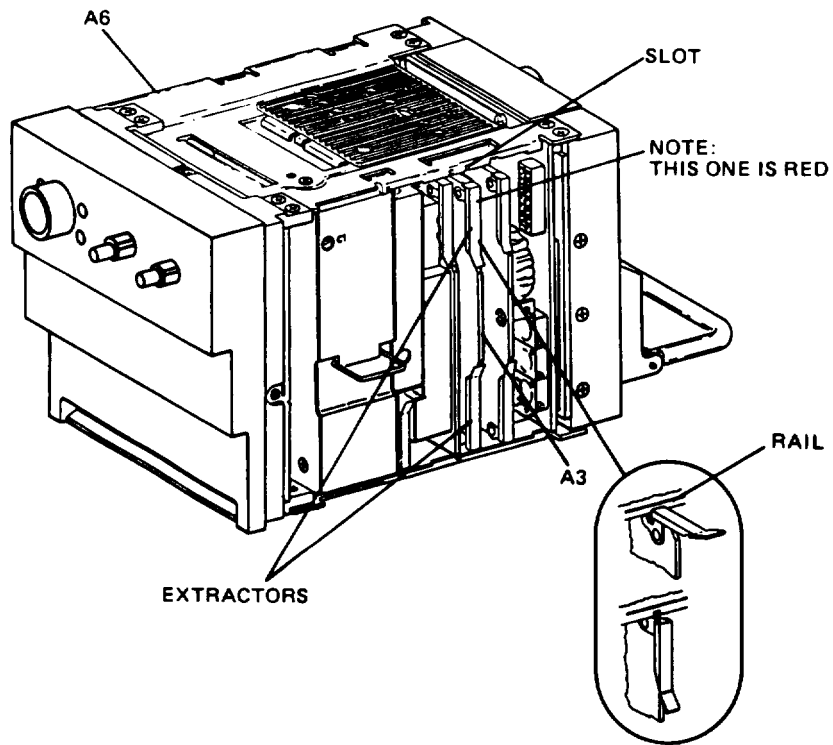
2. Slide A3 from A6.




3. Pack A3 in antistatic bag.



4-9. REPLACE A3 (Continued)

INSTALLATION



4. Remove A3 from antistatic bag.  Save antistatic bag to be used again.
5. Unlock two extractors. 
6. Turn A3 until red extractor points up. 

4-9. REPLACE A3 (Continued)**CAUTION**

A3 is connected to A6 by a connector. Be careful not to break the connector while doing steps 7, 8.

7. Slide A3 into slot marked A3 until extractors touch rail.



8. Lock two extractors. Extractors will mate A3/A6 connector when locked.

FOLLOWUP

9. Complete paragraph 4-5 to be sure RT-1300B works okay.

4-10. REPLACE A4

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

References

Safety, Care, and Handling paragraph 1-8.

Tools and Support Equipment

Tool Kit, Electronic Equipment TK-105/G
No. 1 Phillips screwdriver

Troubleshooting References

Paragraph 4-6

Materials/Parts

Receiver Assembly A4
Antistatic bag
Item 1, Appendix B

Equipment Condition

MK-994A/AR DC POWER ON/OFF set to OFF.
RT-1300B disconnected from test equipment.

Personnel Required

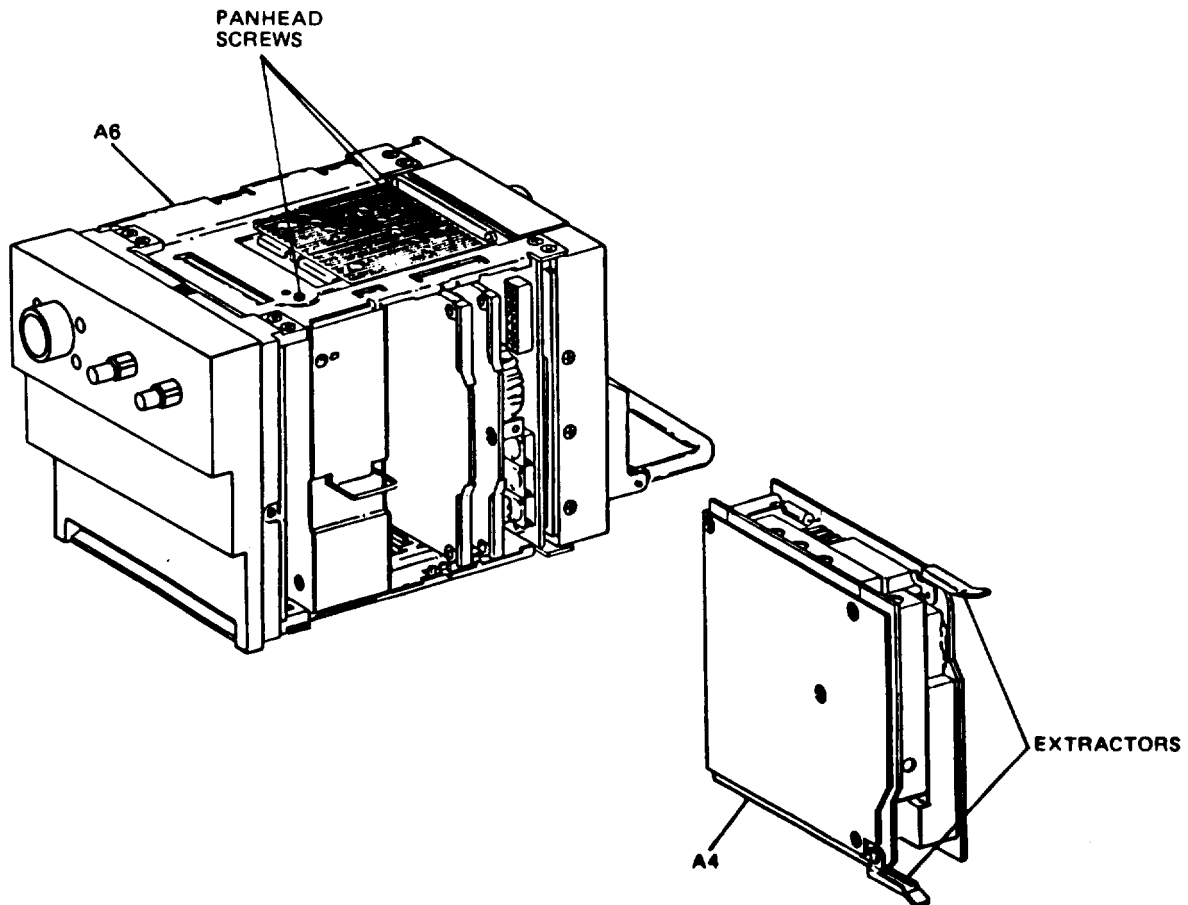
Avionic Communications Equipment Repairer
MOS 35L

Special Environmental Conditions

CAUTION



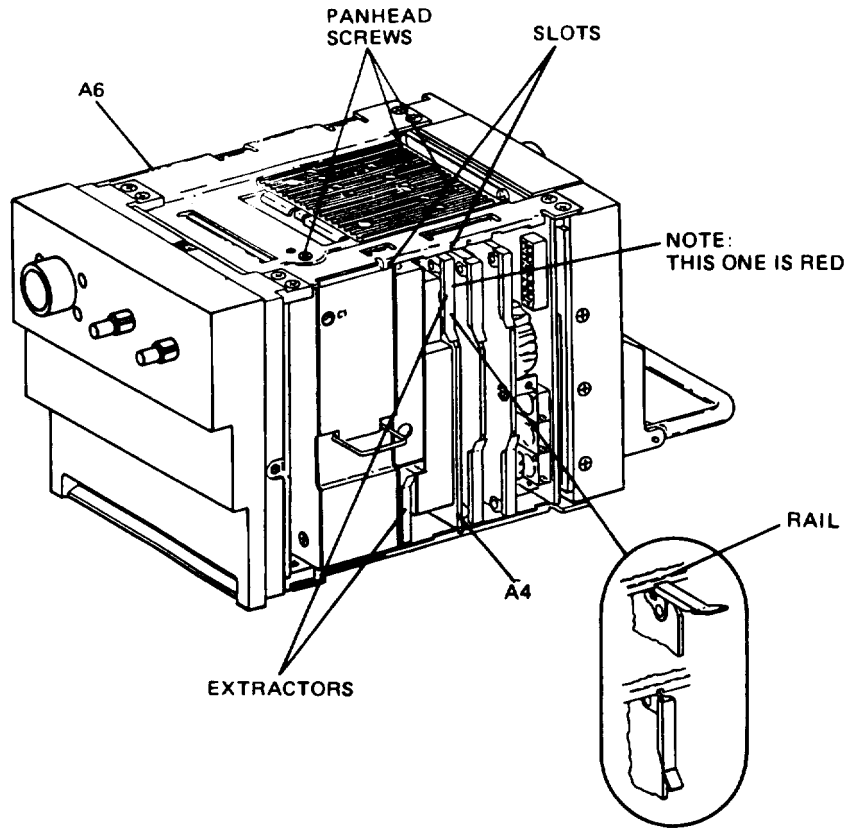
Static work station connected before procedure is started.




4-10. REPLACE A4 (Continued)**REMOVAL**

1. Loosen three panhead screws. You don't need to take them out.
2. Unlock two extractors.
3. Slide A4 from A6.
4. Pack A4 in antistatic bag.

4-10. REPLACE A4 (Continued)

INSTALLATION



5. Remove A4 from antistatic bag.  Save antistatic bag to be used again.
6. Unlock two extractors. 
7. Turn A4 until red extractor points up. 

4-10. REPLACE A4 (Continued)**CAUTION**

A4 is connected to A6 by a connector. Be careful not to break the connector while doing steps 8, 9.

8. Slide A4 into slots A4A1, A4A2 until extractors touch rail.



9. Lock two extractors. Extractors will mate A4/A6 connectors when locked.

10. Tighten three panhead screws.

FOLLOWUP

11. Complete paragraph 4-5 to be sure RT-1300B works okay.

4-11. REPLACE A5

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

References

Safety, Care, and Handling paragraph 1-8.

Tools and Support Equipment

Tool Kit, Electronic Equipment TK-105/G
No. 1 Phillips screwdriver

Troubleshooting References

Paragraph 4-6

Materials/Parts

Synthesizer Assembly A5
Antistatic bag
Item 1, Appendix B

Equipment Condition

MK-994A/AR DC POWER ON/OFF set to OFF.
RT-1300B disconnected from test equipment.

Personnel Required

Avionic Communications Equipment Repairer
MOS 35L

Special Environmental Conditions

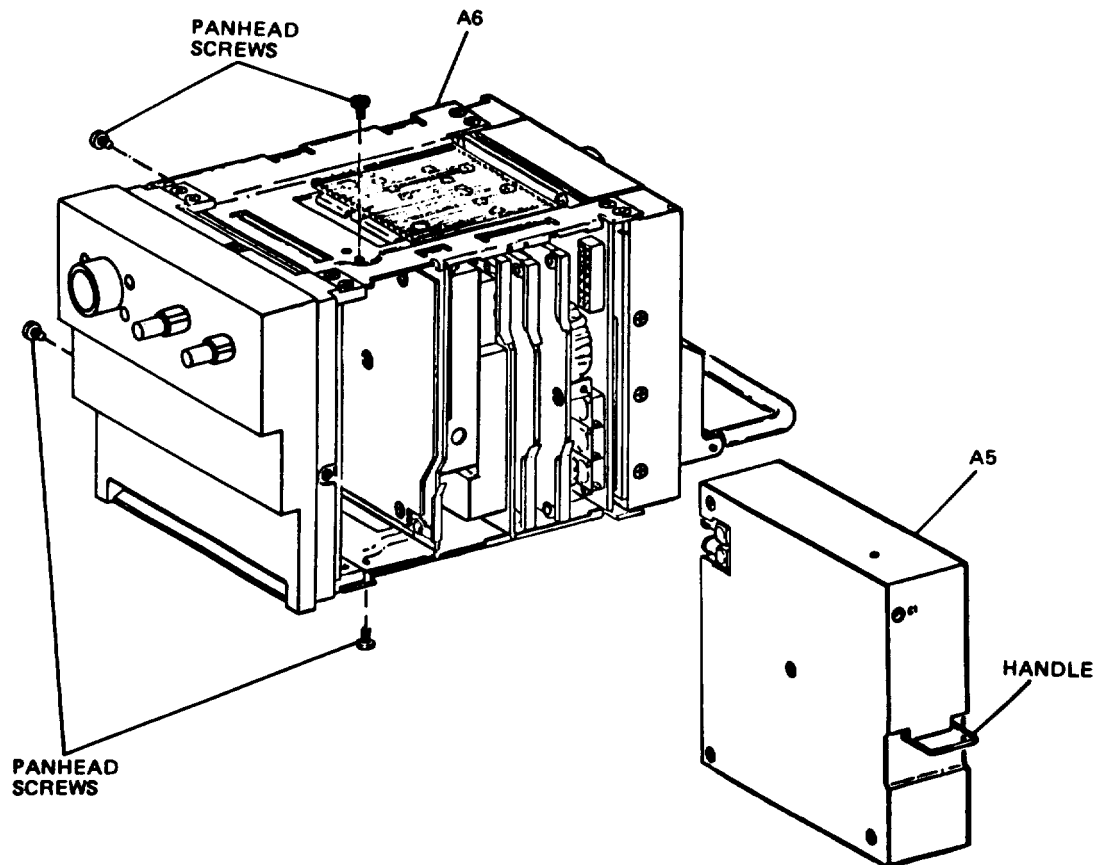
CAUTION



Static work station connected before procedure is started.

4-11. REPLACE A5 (Continued)

REMOVAL

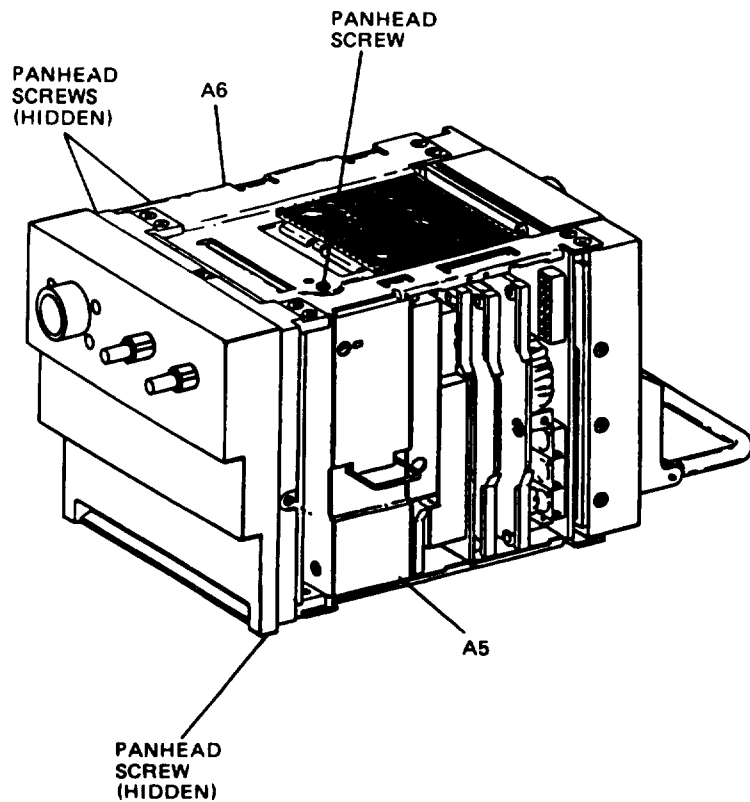


1. Remove four panhead screws.
2. Use handle to slide A5 from A6.
3. Pack A5 in antistatic bag.



4-11. REPLACE A5 (Continued)


INSTALLATION



4. Unpack A5 from antistatic bag.  Save antistatic bag to be used again.

CAUTION

A5 is connected to A6 by a connector. Be careful not to break the connector while doing step 5.

5. Slide A5 into A6 until mated. 

6. Install four panhead screws.

FOLLOWUP

7. Complete paragraph 4-5 to be sure RT-1300B works okay.

4-12. REPLACE A6

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP

INITIAL SETUP

Applicable Configurations

All

Tools and Support Equipment

Tool Kit, Electronic Equipment TK-105/G
No. 1 Phillips screwdriver

Materials/Parts

Chassis Assembly A6

Personnel Required

Avionic Communications Equipment Repairer
MOS 35L

References

Safety, Care, and Handling paragraph 1-8.

Troubleshooting References

Paragraph 4-6

Equipment Condition

MK-994A/AR DC POWER ON/OFF set to OFF.

RT-1300B disconnected from test equipment.

Special Environmental Conditions

CAUTION



Static work station connected before procedure is started.

4-12. REPLACE A6 (Continued)

REMOVAL

1. Complete the initial setup and removal steps of these paragraphs:

- 4-7
- 4-8
- 4-9
- 4-10
- 4-11
- 4-13

INSTALLATION

2. Complete the installation steps of these paragraphs

- 4-7
- 4-8
- 4-9
- 4-10
- 4-11
- 4-13

FOLLOWUP

3. Complete paragraph 4-5 to be sure RT-1300B works okay.

4-13. REPLACE A9

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

Tools and Support Equipment

Tool Kit, Electronic Equipment TK-105/G
No. 1 Phillips screwdriver

Materials/Parts

1553 Panel Assembly A9
Antistatic bag
Item 1, Appendix B

Personnel Required

Avionic Communications Equipment Repairer
MOS 35L

References

Safety, Care, and Handling paragraph 1-8.

Troubleshooting References

Paragraph 4-6

Equipment Condition

MK-994A/AR DC POWER ON/OFF set to OFF.
RT-1300B disconnected from test equipment.

Special Environmental Conditions

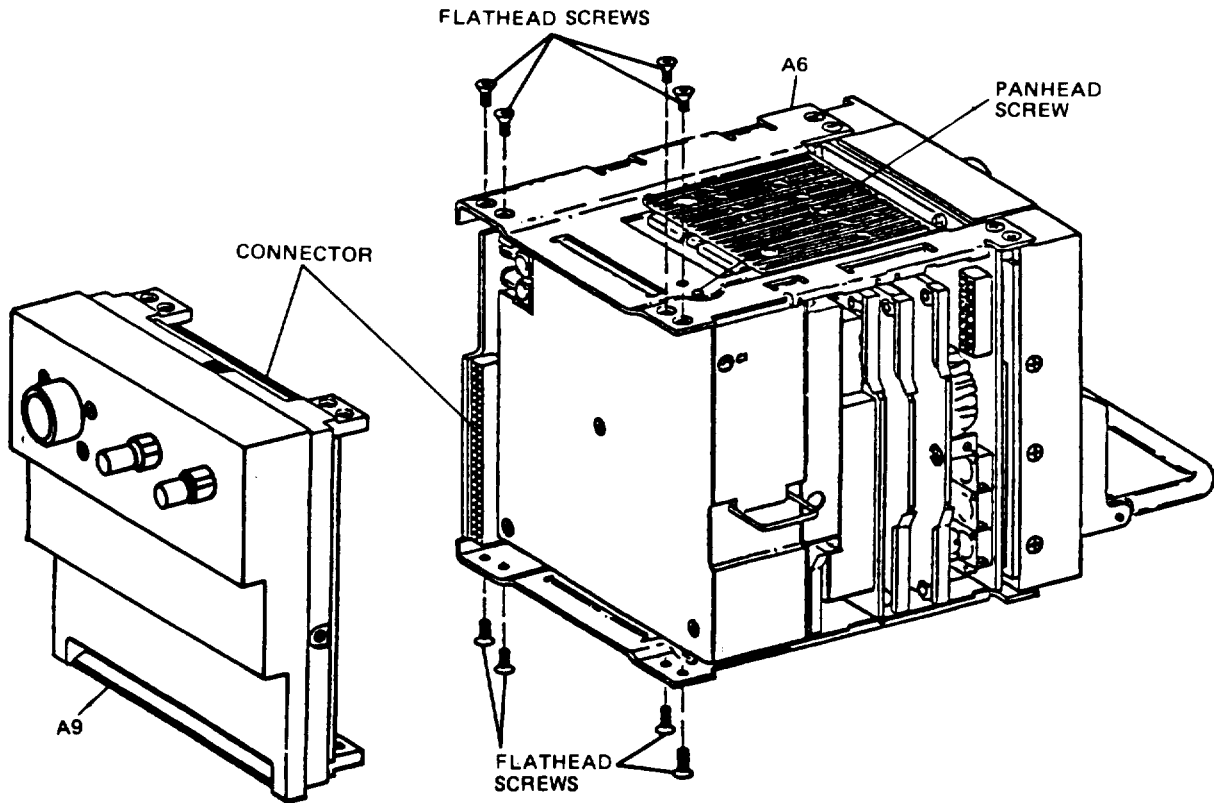
CAUTION





Static work station connected before procedure is started.

4-13. - REPLACE A9 (Continued)

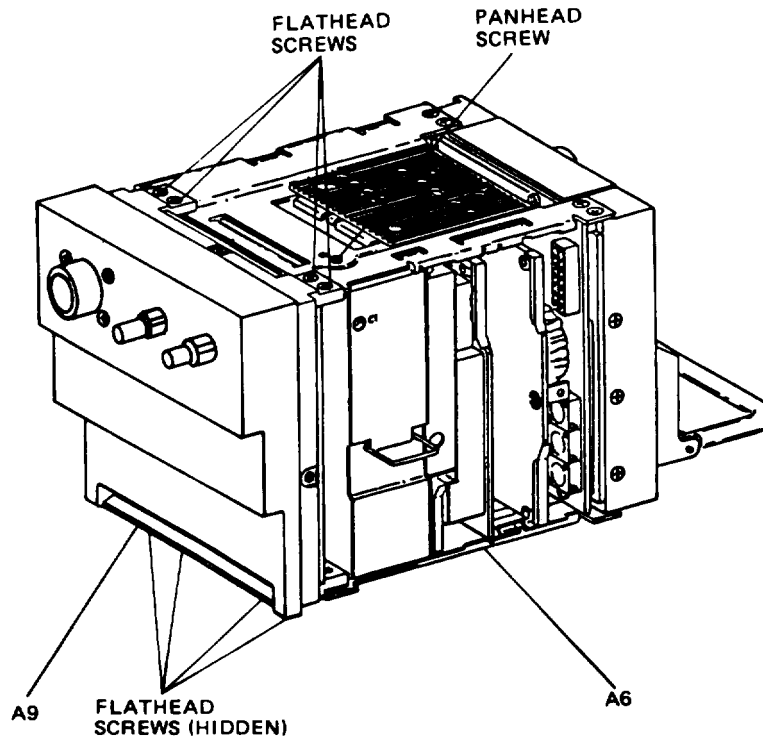
REMOVAL



1. Loosen panhead screw. You don't need to take it out.
2. Remove eight flathead screws.
3. Slide A9 from A6. 
4. Pack A9 in antistatic bag. 

4-13. REPLACE A9 (Continued)



INSTALLATION



5. Unpack A9 from antistatic bag.  Save antistatic bag to be used again.

CAUTION

A9 is connected to A6 by a connector. Be careful not to break the connector when removing and installing A9.

6. Aline A9 with A6. Be sure A9/A6 connector is alined. 
7. Carefully slide A9 into A6 until mated. 
8. Install eight flathead screws.
9. Tighten panhead screw.

FOLLOWUP

10. Complete paragraph 4-5 to be sure RT-1300B works okay.

CHAPTER 5

C-10604 AND C-10606 MAINTENANCE INSTRUCTIONS

OVERVIEW

Chapter 5 is divided into three sections.

- a. Section I. Repair Parts; Special Tools; Test, Measurement, and Diagnostic Equipment (TMDE); and Support Equipment.

Tells you:

- What tools and TMDE you need.
- Where to find repair parts.

- b. Section II. Testing.

Tells you how to test the C-10604 and C-10606.

- c. Section III. Maintenance Procedures.

Tells you how to replace knobs.

Section I. REPAIR PARTS; SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

5-1. COMMON TOOLS AND EQUIPMENT

The tools you need are in Electronic Equipment Tool Kit TK-105/G.

5-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

The maintenance allocation chart in TM 11-5821-318-12 (Appendix B) lists the TMDE needed for aviation intermediate maintenance.

No special tools are needed.

5-3. REPAIR PARTS

Repair parts are listed and illustrated in TM 11-5821-318-30P.

Section II. TESTING

NOTE

Before you start, read the whole test a few times so you understand what you have to do.

5-4. TESTING

THIS TASK COVERS: TESTING.

INITIAL SETUP

Applicable Configurations

All

Test Equipment

AN/GSM-64C
PP-1104
MK-994A/AR
RT-1300A
SG-1112(V)1
H-158
30-dB Attenuator
6-dB Attenuator
MX-1730

Personnel Required

Avionic Communications Equipment
Repairer MOS 35L

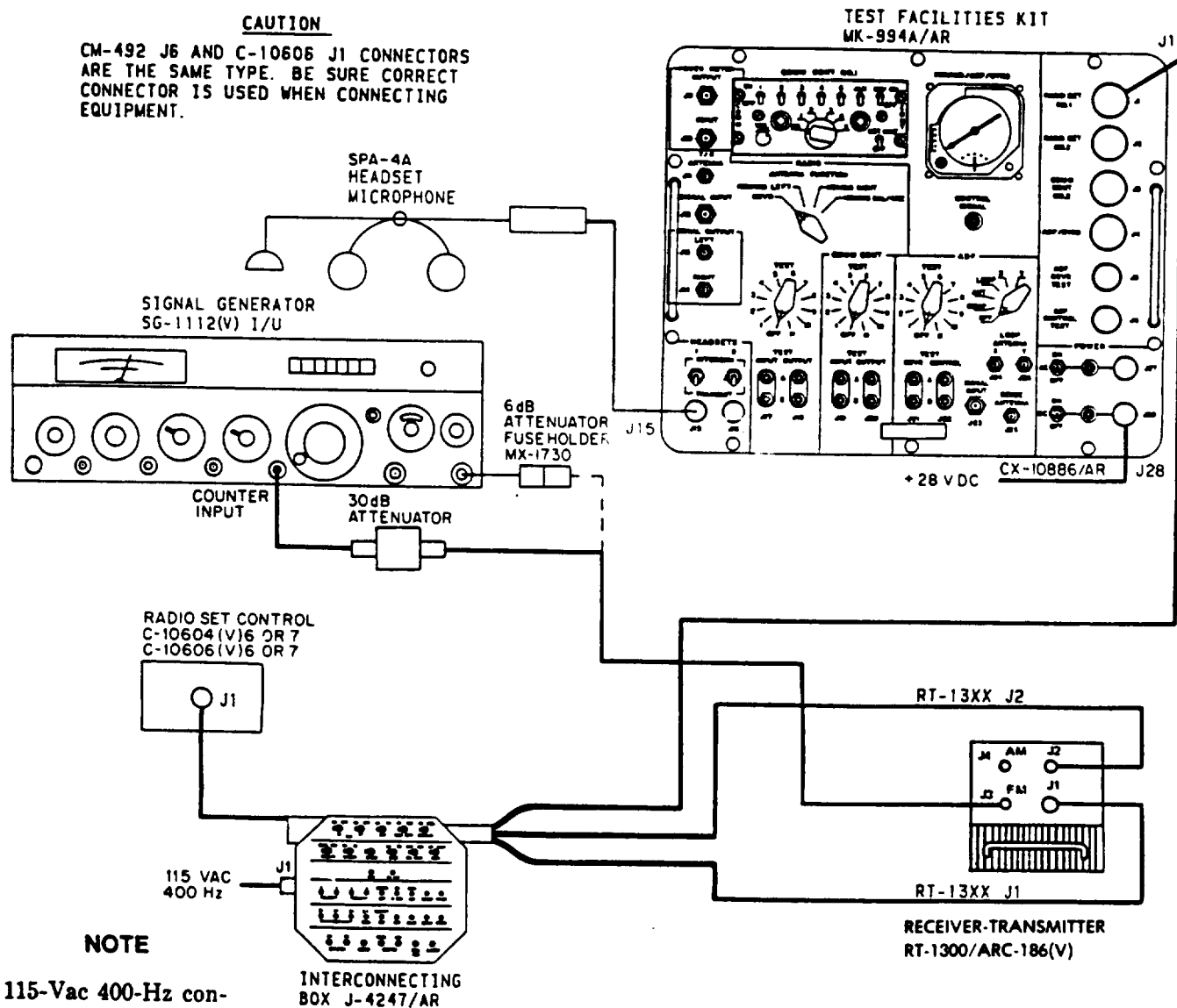
Equipment Condition

MK-994A/AR DC POWER ON/OFF set to OFF.
PP-1104 set to 28.0 volts.
RT-1300A checked by completing paragraph 2-5.

5-4. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<p>1. Connect C-10604/10606 to test equipment as shown below:</p>		

CAUTION
 CM-492 J6 AND C-10606 J1 CONNECTORS ARE THE SAME TYPE. BE SURE CORRECT CONNECTOR IS USED WHEN CONNECTING EQUIPMENT.



NOTE
 115-Vac 400-Hz connection needed for C-10604(V)7 or C-10606(V)7 only.

5-4. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS																																																										
<p>2. Set controls as follows:</p> <table border="0"> <tr> <td><u>Control</u></td> <td><u>Setting</u></td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>C-10604/10606</u></td> </tr> <tr> <td>OFF/TR/DF</td> <td>TR</td> </tr> <tr> <td>EMER AM/FM/ MAN/PRE</td> <td>MAN</td> </tr> <tr> <td>SQ DIS/TONE</td> <td>Centered</td> </tr> <tr> <td>Frequency selectors</td> <td>30.500</td> </tr> <tr> <td>VOL</td> <td>Centered</td> </tr> <tr> <td>WB/NB</td> <td>NB</td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>SG-1112(V)1</u></td> </tr> <tr> <td colspan="2">COUNTER MODE</td> </tr> <tr> <td>EXPAND</td> <td>X10</td> </tr> <tr> <td>LOCK</td> <td>OFF (Out)</td> </tr> <tr> <td>INT/EXT</td> <td>EXT (Out)</td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>J-4247/AR</u></td> </tr> <tr> <td>PWR OFF AC/DC</td> <td>OFF</td> </tr> <tr> <td>PWR RT ON/OFF</td> <td>ON</td> </tr> <tr> <td>ANT AM/FM</td> <td>FM</td> </tr> <tr> <td>TAKE CONT RT/RMT</td> <td>RMT</td> </tr> <tr> <td>SQUELCH TN/DSBL</td> <td>DSBL</td> </tr> <tr> <td>VOL CONT OPR/GND</td> <td>OPR</td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>RT-1300A</u></td> </tr> <tr> <td>LOCKOUT AM/FM</td> <td>LOCKOUT</td> </tr> <tr> <td colspan="2" style="text-align: center;"><u>MK-994A/AR</u></td> </tr> <tr> <td colspan="2">RADIO</td> </tr> <tr> <td>ANTENNA FUNCTION</td> <td>XCVR</td> </tr> <tr> <td>TEST</td> <td>5</td> </tr> <tr> <td colspan="2">POWER</td> </tr> <tr> <td>AC ON/OFF</td> <td>OFF</td> </tr> <tr> <td>DC ON/OFF</td> <td>ON</td> </tr> </table>	<u>Control</u>	<u>Setting</u>	<u>C-10604/10606</u>		OFF/TR/DF	TR	EMER AM/FM/ MAN/PRE	MAN	SQ DIS/TONE	Centered	Frequency selectors	30.500	VOL	Centered	WB/NB	NB	<u>SG-1112(V)1</u>		COUNTER MODE		EXPAND	X10	LOCK	OFF (Out)	INT/EXT	EXT (Out)	<u>J-4247/AR</u>		PWR OFF AC/DC	OFF	PWR RT ON/OFF	ON	ANT AM/FM	FM	TAKE CONT RT/RMT	RMT	SQUELCH TN/DSBL	DSBL	VOL CONT OPR/GND	OPR	<u>RT-1300A</u>		LOCKOUT AM/FM	LOCKOUT	<u>MK-994A/AR</u>		RADIO		ANTENNA FUNCTION	XCVR	TEST	5	POWER		AC ON/OFF	OFF	DC ON/OFF	ON		
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TEST	5																																																											
POWER																																																												
AC ON/OFF	OFF																																																											
DC ON/OFF	ON																																																											
<p>3. Set PWR DC/OFF/AC to DC for C-10604(V)6, C-10604A(V)6, or C-10606(V)6 or to AC for C-10604(V)7 or C-10606(V)7.</p>																																																												

5-4. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS																																										
<p>3.1 Check faceplate lighting. You may need to cover faceplate to see lighting.</p>	<p>C-10604(V)6 or C-10606(V)6 faceplate lights up red. C-10604(V)7 or C-10606(V)7 faceplate lights up green. C-10604A(V)6 faceplate lights up ANVIS green.</p>																																											
<p>3.2 Set PWR DC/OFF/AC to OFF.</p>																																												
<p>4. Set MK-994A/AR RADIO TEST to 4.</p>	<p>SG-1112(V)1 reads between 30.498 to 30.502.</p>																																											
<p>5. Set MK-994A/AR RADIO TEST switch to 5.</p>																																												
<p>6. Repeat steps 4, 5 for these C-10604/10606 settings:</p>		<p style="text-align: center;">NOTE</p> <p>The frequency indicators are connected to the knobs, not the shafts.</p>																																										
<table border="0"> <tr> <td style="text-align: right;"><u>Setting</u></td> <td></td> </tr> <tr> <td style="text-align: right;">41.125</td> <td></td> </tr> <tr> <td style="text-align: right;">52.250</td> <td></td> </tr> <tr> <td style="text-align: right;">63.375</td> <td></td> </tr> <tr> <td style="text-align: right;">74.400</td> <td></td> </tr> <tr> <td style="text-align: right;">85.500</td> <td></td> </tr> <tr> <td style="text-align: right;">116.600</td> <td></td> </tr> <tr> <td style="text-align: right;">127.700</td> <td></td> </tr> <tr> <td style="text-align: right;">138.800</td> <td></td> </tr> <tr> <td style="text-align: right;">149.900</td> <td></td> </tr> <tr> <td style="text-align: right;">151.975</td> <td></td> </tr> </table>	<u>Setting</u>		41.125		52.250		63.375		74.400		85.500		116.600		127.700		138.800		149.900		151.975		<p><u>SG-1112(V)1 reads between:</u></p> <table border="0"> <tr> <td style="text-align: right;">41.123 to</td> <td style="text-align: left;">41.127</td> </tr> <tr> <td style="text-align: right;">52.248 to</td> <td style="text-align: left;">52.252</td> </tr> <tr> <td style="text-align: right;">63.373 to</td> <td style="text-align: left;">63.377</td> </tr> <tr> <td style="text-align: right;">74.398 to</td> <td style="text-align: left;">74.402</td> </tr> <tr> <td style="text-align: right;">85.498 to</td> <td style="text-align: left;">85.502</td> </tr> <tr> <td style="text-align: right;">116.598 to</td> <td style="text-align: left;">116.602</td> </tr> <tr> <td style="text-align: right;">127.698 to</td> <td style="text-align: left;">127.702</td> </tr> <tr> <td style="text-align: right;">138.798 to</td> <td style="text-align: left;">138.802</td> </tr> <tr> <td style="text-align: right;">149.898 to</td> <td style="text-align: left;">149.902</td> </tr> <tr> <td style="text-align: right;">151.973 to</td> <td style="text-align: left;">151.977</td> </tr> </table>	41.123 to	41.127	52.248 to	52.252	63.373 to	63.377	74.398 to	74.402	85.498 to	85.502	116.598 to	116.602	127.698 to	127.702	138.798 to	138.802	149.898 to	149.902	151.973 to	151.977	<p>If the frequency shown in the frequency windows doesn't agree with the frequency shown on SG-1112(V)1, the knobs could be loose.</p> <p>If the knobs seem to be loose, complete paragraph 5-6 — then try to do the test again.</p>
<u>Setting</u>																																												
41.125																																												
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<p>7. Set C-10604/10606: PRESET to 1 Frequency selectors to 30.500.</p>																																												
<p>8. Press C-10604/10606 LOAD.</p>		<p>If you're sure the knobs are tight, and the frequencies don't agree, the C-10604/10606 is bad.</p>																																										

5-4. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS																																								
<p>9. Repeat steps 7, 8 for the following presets:</p> <table border="0"> <thead> <tr> <th><u>Channel</u></th> <th><u>Frequency</u></th> </tr> </thead> <tbody> <tr><td>2</td><td>41.125</td></tr> <tr><td>3</td><td>52.250</td></tr> <tr><td>4</td><td>63.375</td></tr> <tr><td>5</td><td>74.400</td></tr> <tr><td>6</td><td>85.600</td></tr> <tr><td>7</td><td>87.900</td></tr> <tr><td>8</td><td>59.000</td></tr> <tr><td>9</td><td>78.000</td></tr> <tr><td>10</td><td>123.200</td></tr> <tr><td>11</td><td>134.000</td></tr> <tr><td>12</td><td>151.900</td></tr> <tr><td>13</td><td>116.000</td></tr> <tr><td>14</td><td>118.100</td></tr> <tr><td>15</td><td>120.200</td></tr> <tr><td>16</td><td>131.300</td></tr> <tr><td>17</td><td>132.400</td></tr> <tr><td>18</td><td>134.600</td></tr> <tr><td>19</td><td>146.800</td></tr> <tr><td>20</td><td>148.500</td></tr> </tbody> </table> <p>10. Set C-10604/10606 OFF/ TR/DF to OFF.</p> <p>11. Wait 1 minute.</p> <p>12. Set C-10604/10606: OFF/TR/DF to TR. EMER AM/FM/MAN/PRE to PRE.</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>The receiver-transmitter will overheat if the MK-994A/AR RADIO TEST switch is in position 4 for more than 1 minute. If steps 13 thru 15 require more than 1 minute, set RADIO TEST to OFF. Wait 5 minutes for receiver-transmitter to cool.</p> <p>13. Set MK-994A/AR RADIO TEST to 4.</p>	<u>Channel</u>	<u>Frequency</u>	2	41.125	3	52.250	4	63.375	5	74.400	6	85.600	7	87.900	8	59.000	9	78.000	10	123.200	11	134.000	12	151.900	13	116.000	14	118.100	15	120.200	16	131.300	17	132.400	18	134.600	19	146.800	20	148.500		
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19	146.800																																									
20	148.500																																									

5-4. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<p>14. Set PRESET to each channel listed below. Stop at each preset long enough for SG-1112(V)1 to display that preset frequency.</p> <p><u>PRESET</u></p> <p>19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1</p>	<p><u>SG-1112(V)1 reads between:</u></p> <p>146.898 to 149.802 134.598 to 134.602 132.398 to 132.402 131.298 to 120.302 120.198 to 120.202 118.098 to 118.102 115.998 to 116.002 151.898 to 151.902 133.998 to 134.002 123.198 to 123.202 77.998 to 78.002 58.998 to 59.002 87.898 to 87.902 85.598 to 85.602 74.398 to 74.402 63.373 to 63.377 52.248 to 52.252 41.123 to 41.127 30.498 to 30.502</p>	
<p>15. Set MK-994A/AR RADIO TEST switch to OFF.</p>		
<p>16. Set C-10604/10606 EMER AM/FM/MAN/PRE to EMER AM.</p>		
<p>17. Set MK-994A/AR RADIO TEST switch to 4.</p>	<p>SG-1112(V)1 reads between 121.498 to 121.502.</p>	
<p>18. Set C-10604/10606 EMER AM/FM/MAN/PRE to EMER FM.</p>	<p>SG-1112(V)1 reads between 40.498 to 40.502.</p>	
<p>19. Set MK-994A/AR RADIO TEST switch to 5.</p>		
<p>20. Set C-10604/10606 EMER AM/FM/MAN/PRE to MAN.</p>		
<p>21. Hold C-10604/10606 SQ DIS/TONE in TONE.</p>	<p>Tone in H-158.</p>	

5-4. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS																												
22. Set C-10604/10606 SQ DIS/TONE to SQ DIS.	Rushing noise in H-158.																													
23. Set C-10604/10606 SQ DIS/TONE to center position.	No noise in H-158.																													
24. Set J-4247/AR TAKE CONT RT/RMT to RT.																														
25. Set C-10604/10606 SQ DIS/TONE to TONE.	No tone in H-158.																													
26. Release SQ DIS/TONE.	SQ DIS/TONE returns to center position.																													
27. Set J-4247/AR TAKE CONT RT/RMT to RMT.																														
28. Hold C-10604/10606 SQ DIS/TONE to TONE.	Tone in H-158.																													
29. Release SQ DIS/TONE.																														
30. Disconnect coaxial cable from SG-1112(V)1 COUNTER INPUT.																														
31. Connect coaxial cable to MX-1730.																														
32. Set SG-1112(V)1 as follows: <table style="margin-left: 20px;"> <thead> <tr> <th><u>Control</u></th> <th><u>Setting</u></th> </tr> </thead> <tbody> <tr><td>RF OFF/ON</td><td>ON</td></tr> <tr><td>RANGE</td><td>16-32</td></tr> <tr><td>COUNTER MODE</td><td></td></tr> <tr><td> EXPAND</td><td>X10 (in)</td></tr> <tr><td> INT/EXT</td><td>INT (in)</td></tr> <tr><td>FREQUENCY MHz</td><td>30.500</td></tr> <tr><td>LOCK</td><td>ON (in)</td></tr> <tr><td>FM</td><td>INT</td></tr> <tr><td>PEAK DEVIATION</td><td>10 kHz</td></tr> <tr><td>MODULATION</td><td></td></tr> <tr><td> FREQUENCY</td><td>1 kHz FREQ</td></tr> <tr><td>OUTPUT LEVEL</td><td>1 mV</td></tr> <tr><td>FM DEVIATION</td><td>5 kHz</td></tr> </tbody> </table>	<u>Control</u>	<u>Setting</u>	RF OFF/ON	ON	RANGE	16-32	COUNTER MODE		EXPAND	X10 (in)	INT/EXT	INT (in)	FREQUENCY MHz	30.500	LOCK	ON (in)	FM	INT	PEAK DEVIATION	10 kHz	MODULATION		FREQUENCY	1 kHz FREQ	OUTPUT LEVEL	1 mV	FM DEVIATION	5 kHz		
<u>Control</u>	<u>Setting</u>																													
RF OFF/ON	ON																													
RANGE	16-32																													
COUNTER MODE																														
EXPAND	X10 (in)																													
INT/EXT	INT (in)																													
FREQUENCY MHz	30.500																													
LOCK	ON (in)																													
FM	INT																													
PEAK DEVIATION	10 kHz																													
MODULATION																														
FREQUENCY	1 kHz FREQ																													
OUTPUT LEVEL	1 mV																													
FM DEVIATION	5 kHz																													
33. Set C-10604/10606 frequency selectors to 30.500.																														

5-4. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<p>34. Turn C-10604/10606 VOL fully clockwise.</p> <p>35. Turn C-10604/10606 VOL fully counterclockwise.</p> <p>36. Set:</p> <p style="padding-left: 20px;">C-10604/10606 OFF/TR/DF to OFF.</p> <p style="padding-left: 20px;">MK-944A/AR DC POWER ON/OFF to OFF.</p> <p style="padding-left: 20px;">J-4247/AR PWR OFF AC/DC to OFF, PWR RT ON/OFF to OFF.</p> <p>37. Complete maintenance forms.</p>	<p>Tone volume increases in H-158.</p> <p>Tone volume decreases.</p>	

Section III. MAINTENANCE PROCEDURES

NOTE

Before you start, read the whole test a few times so you understand what you have to do.

5-5. REPLACE EMER AM/FM/MAN/PRE KNOB, OFF/TR/DF KNOB, OR VOL KNOB

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

Personnel Required

Avionic Communications Equipment Repairer MOS
35L

Tools and Support Equipment

0.050-in. hexwrench

Troubleshooting References

Materials/Parts

Paragraph 5-4.

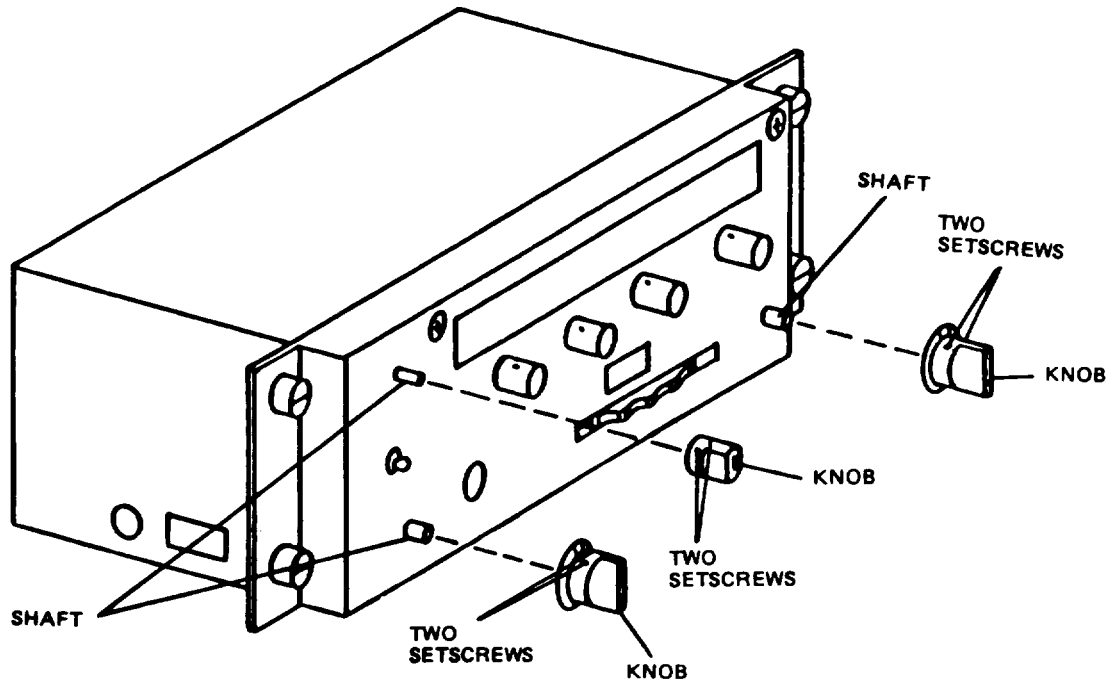
NOTE

This paragraph tells you how to replace three knobs. But, replace only knobs that need replacing.

EMER AM/FM/MAN/PRE knob
OFF/TR/DR knob
VOL knob

5-5. REPLACE EMER AM/FM/MAN/PRE KNOB, OFF/TR/DF KNOB, OR VOL KNOB (Continued)

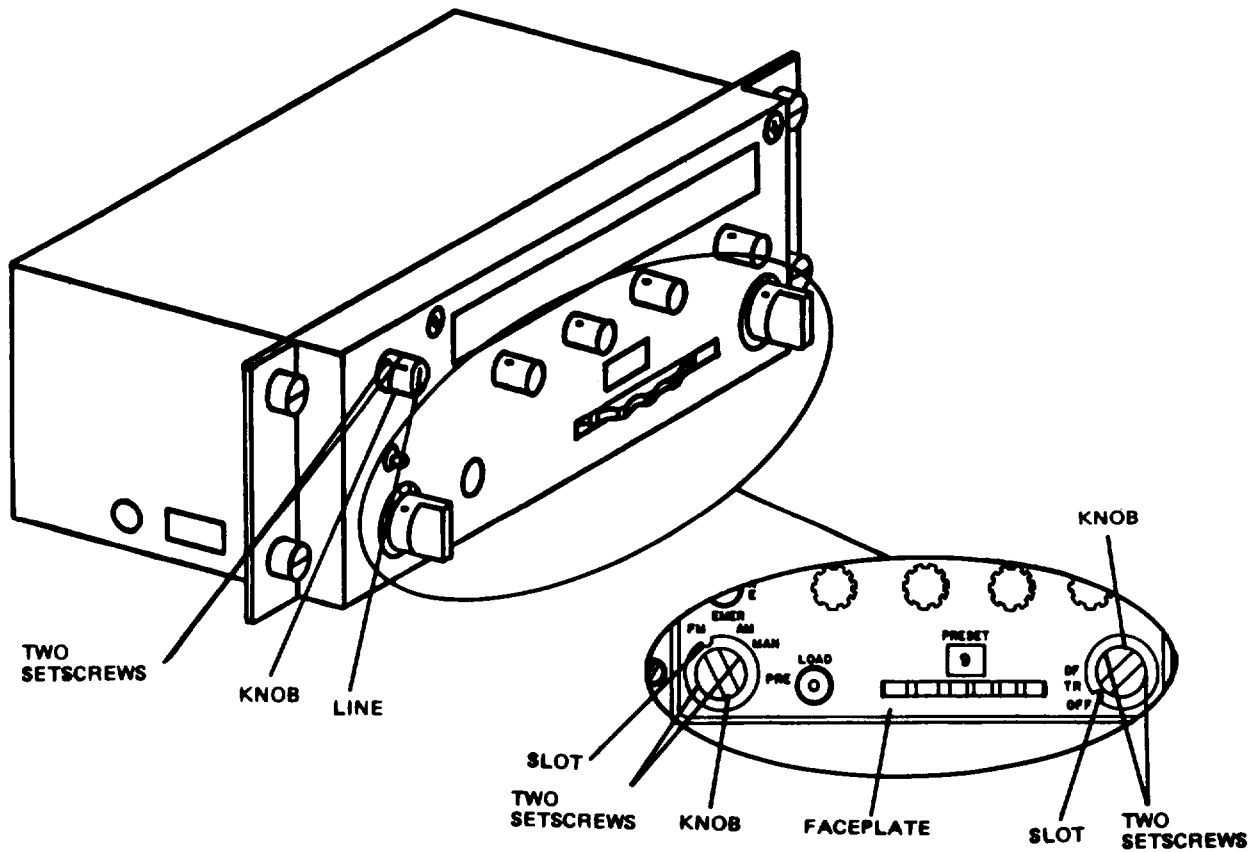
REMOVAL



1. Loosen two setscrews.
2. Slide knob off shaft.

5-5. REPLACE EMER AM/FM/MAN/PRE KNOB, OFF/TR/DF KNOB, OR VOL KNOB (Continued)

INSTALLATION



3. Slide knob on shaft.
4. Tighten one setscrew.
5. Turn EMER AM/FM/MAN/PRE knob or OFF/TR/DF knob fully counterclockwise. Turn VOL knob fully counterclockwise.

5-5. REPLACE EMER AM/FM/MAN/PRE KNOB, OFF/TR/DF KNOB, OR VOL KNOB (Continued)

6. Loosen setscrew.
7. Turn knob to align:
 - Slot on EMER AM/FM/MAN/PRE knob to EMER FM.
 - or
 - Slot on OFF/TR/DF knob to OFF.
 - or
 - Line on VOL knob with SQ DIS/TONE switch.
8. Hold knob in place while tightening two setscrews.
9. Turn EMER AM/FM/MAN/PRE or OFF/TR/DF knob fully clockwise, checking that slot lines up with faceplate markings.

NOTE

If slot doesn't line up with faceplate markings, repeat steps 3 thru 7.

FOLLOWUP

10. Complete paragraph 5-4 to be sure the C-10604/10606 works okay.

5-6. REPLACE FREQUENCY SELECTOR KNOBS

THIS TASK COVERS: REMOVAL AND INSTALLATION.

INITIAL SETUP

Applicable Configurations

All

Materials/Parts

Frequency selector knob

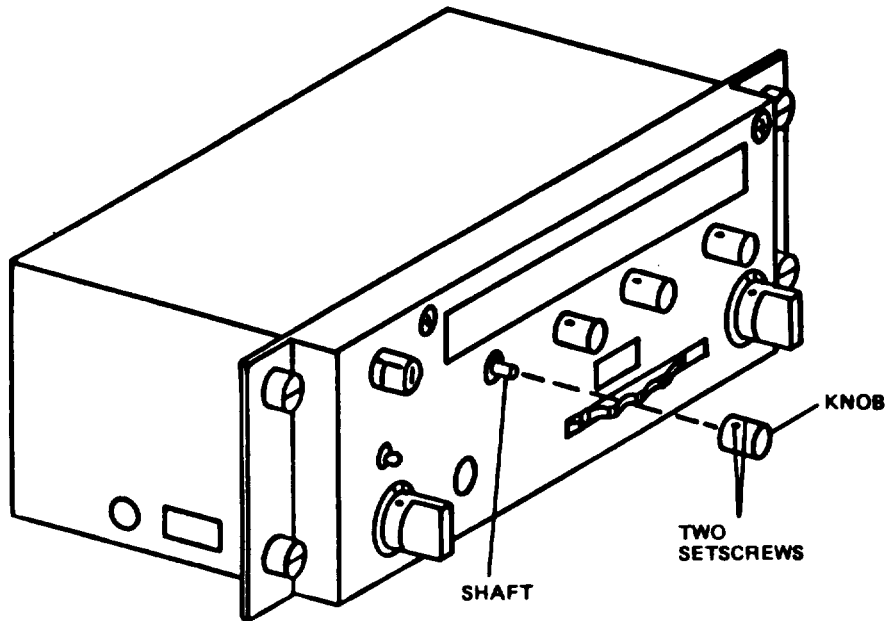
Tools and Support Equipment

0.050-in. hexwrench

Personnel Required

Avionic Communications Equipment Repairer MOS
35L

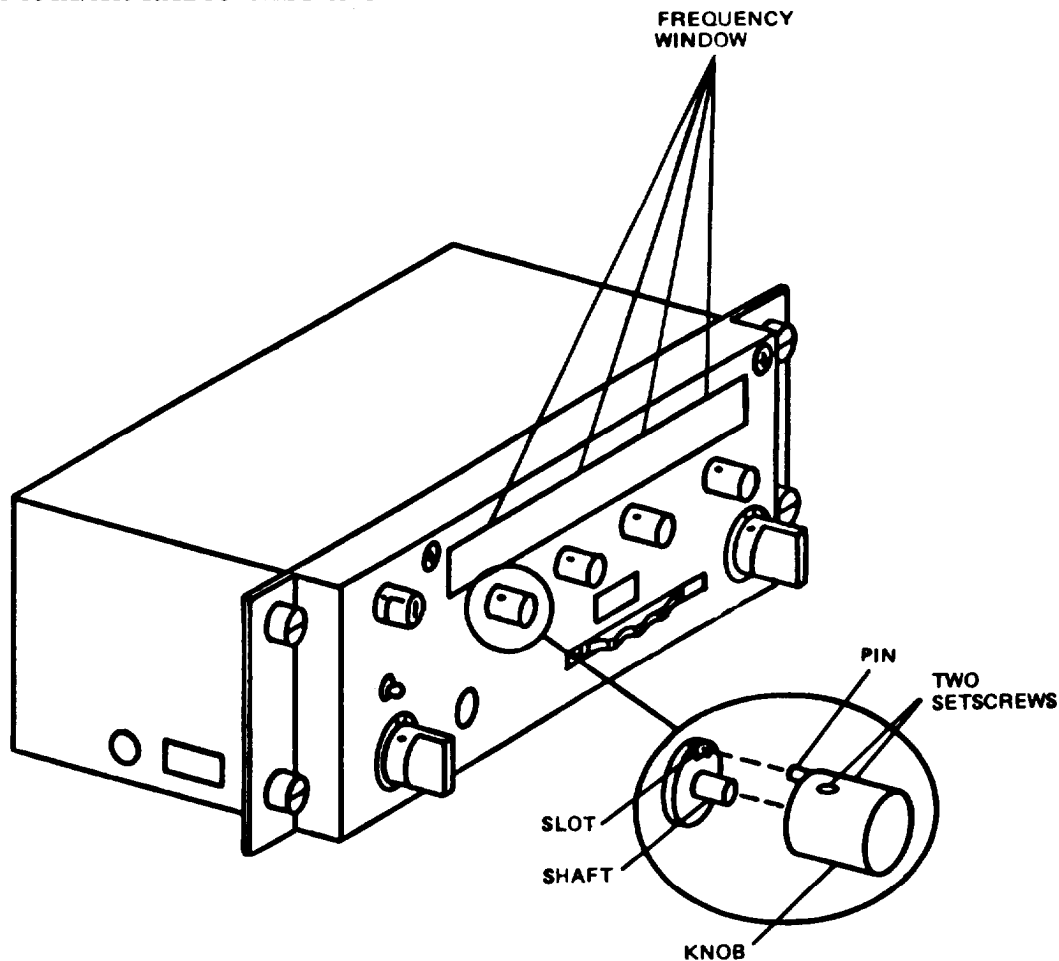
REMOVAL



1. Loosen two setscrews.
2. Slide knob off shaft.

5-6. REPLACE FREQUENCY SELECTOR KNOBS (Continued)

3. Complete paragraph 5-4 steps 1, 2, and 4.
4. Write down frequency shown on SG-1112(V)1 for use in step 8.
5. Set MK-994A/AR RADIO TEST to OFF.



6. Slide knob on shaft.
7. Aline pin on knob with slot on shaft.
8. Rotate knob until frequency you wrote down in step 4 is centered in frequency window.
9. Tighten two setscrews.

Rotate knob and check that numbers in frequency window are centered each time switch clicks.

FOLLOWUP

10. Complete paragraph 5-4 to be sure C-10604/10606 works okay.

CHAPTER 6

CM-482 MAINTENANCE INSTRUCTIONS

OVERVIEW

Chapter 6 is divided into two sections.

- a. Section I. Repair Parts; Special Tools; Test, Measurement, and Diagnostic Equipment (TMDE) and Support Equipment.

Tells you what tools and TMDE you need.

- b. Section II. Testing.

Tells you how to test the CM-482.

Section I. REPAIR PARTS; SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

6-1. COMMON TOOLS AND EQUIPMENT

The tools you need are in Tool Kit, Electronic Equipment, TK-105/G.

6-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

The maintenance allocation chart in TM 11-5821-318-12 (Appendix B) lists the TMDE needed for aviation intermediate maintenance.

No special tools are needed.

6-3. REPAIR PARTS

Repair is not authorized at aviation intermediate maintenance.

Section II. TESTING

NOTE

Before you start, read the whole test a few times so you understand what you have to do.

6-4. TESTING

THIS TASK COVERS TESTING.

INITIAL SETUP

Applicable Configurations

All

Test Equipment

MK-994A/AR
SG-1112(V)1
6-dB Attenuator
PP-1104
AN/URM-145
RT-1300A
C-10604/10606

Equipment Condition

MK-994A/AR DC POWER ON/OFF set to OFF.

PP-1104 set to 28.0 volts.

RT-1300A checked by completing paragraph 2-5.

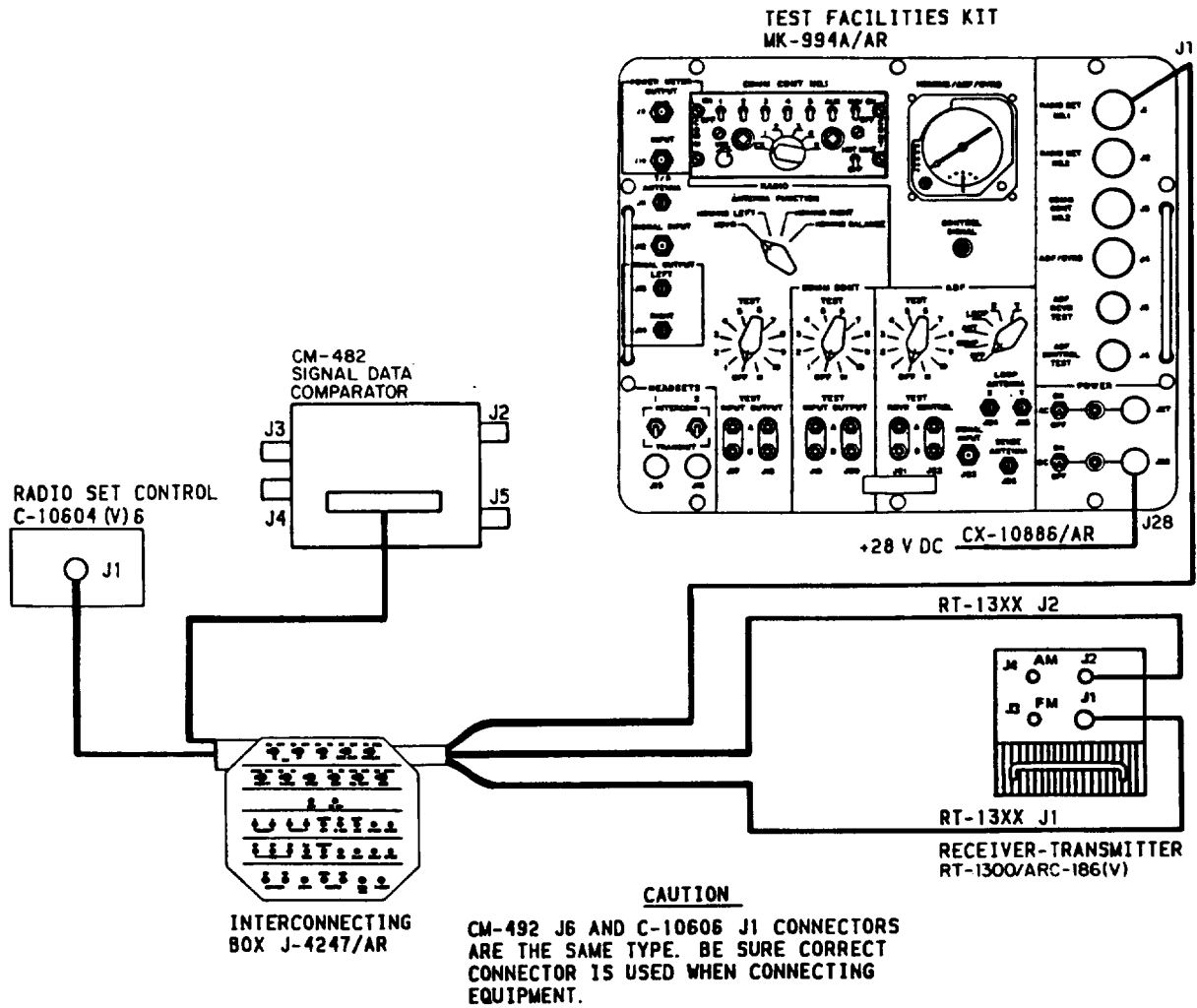
C-10406/10606 checked by completing paragraph 5-4.

Personnel Required

Avionic Communications Equipment
Repairer MOS 35L

6-4. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
1. Connect CM-482 to test equipment as shown below:		

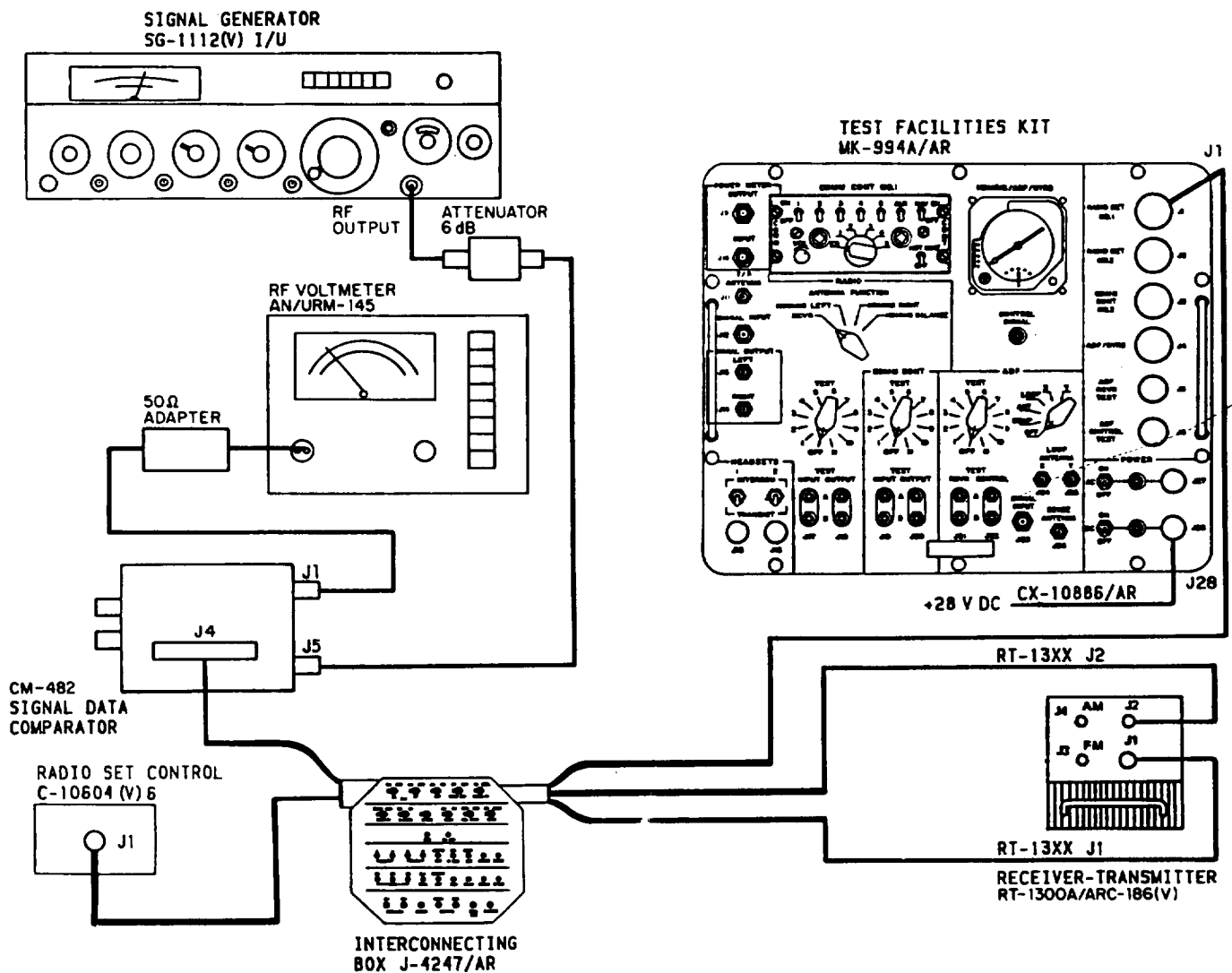


6-4. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
2. Set controls as follows:		
<u>Control</u> <u>Setting</u> <u>MK-994A/AR</u>		
RADIO ANTENNA FUNCTION HOMING BALANCE TEST OFF POWER AC ON/OFF OFF DC ON/OFF ON		
<u>J-4247/AR</u> PWR OFF/AC/DC OFF PWR RT ON/OFF ON ANT AM/FM FM TAKE CONT RTM SQUELCH TN/DSBL TN VOL CONT OPR/GND OPR		
<u>C-10604/10606</u> OFF/TR/DF TR EMER AM/FM/ MAN/PRE MAN SQ DIS/TONE Centered Frequency selectors 151.975 MHZ		
<u>RT-1300A</u> LOCKOUTAM/FM LOCKOUT		
<u>SG-1112(V)1</u> RF ON/OFF ON RANGE 64-128 COUNTER MODE EXPAND X10 (in) INT/EXT INT (in) FREQUENCY 151.975 LOCK ON FM OFF AM OFF OUTPUT LEVEL .1 μ VOLTS		
<u>AN/URM-145</u> PWR ON (in) Voltage range 300 mV		

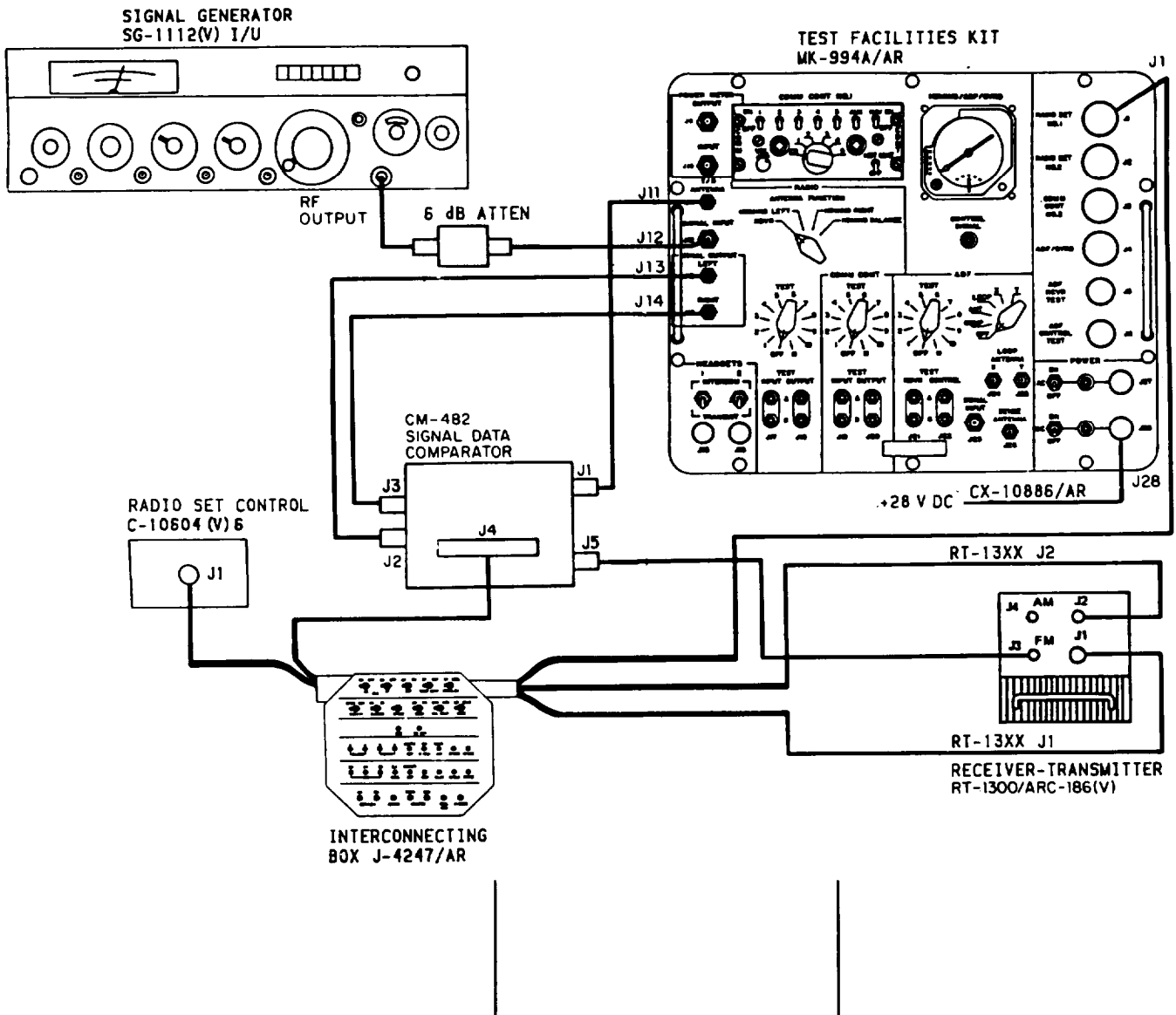
6-4. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<p>3. Connect SG-1112(V)1 RF OUTPUT to AN/URM-145 through 50-ohm adapter and 6-dB attenuator.</p> <p>4. Adjust SG-1112(V)1 OUTPUT LEVEL until AN/URM-145 reads 0 dBm.</p> <p>5. Disconnect SG-1112(V)1 from AN/URM-145.</p> <p>6. Connect CM-482 to test equipment as shown below.</p>		



6-4. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
7. Check reading on AN/URM-145.	Goes down less than 0.5 dBm.	
8. Repeat steps 3 thru 7 with SG-1112(V)1 set to 116.000, 88.000, 66.500.	Goes down less than 0.5 dBm.	
9. Connect CM-482 to test equipment as shown below:		
10. Set C-10604/10606 OFF/TR/DF to DF.		



6-4. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<p>11. Set SG-1112(V)1 OUTPUT LEVEL to 0.1 μV.</p> <p>12. Check MK-994A/AR HOMING/ADF/ GYRO indicator flag.</p> <p>13. Increase SG-1112(V)1 OUTPUT LEVEL until flag shows black.</p> <p>14. Check SG-1112(V)1 OUTPUT LEVEL position.</p> <p>15. Check MK-994A/AR HOMING/ADF/ GYRO signal strength pointer.</p> <p>16. Set SG-1112(V)1 OUTPUT LEVEL for 70 mV.</p> <p>17. Check MK-994A/AR HOMING/ADF/ GYRO signal strength pointer.</p> <p>18. Set SG-1112(V)1 OUTPUT LEVEL for 250 μV.</p> <p>19. Check MK-994A/AR HOMING/ADF/ GYRO indicator.</p> <p>20. Set MK-994A/AR ANTENNA FUNCTION to HOMING LEFT.</p> <p>21. Check MK-994A/AR HOMING/ADF/ GYRO indicator.</p> <p>22. Set MK-994A/AR ANTENNA FUNCTION to HOMING RIGHT.</p> <p>23. Check MK-994A/AR HOMING/ADF/ GYRO indicator.</p> <p>24. Set: C-10604/10606 OFF/TR/DF to OFF. MK-994A/AR DC POWER OFF/ON to OFF. J-4247/AR PWR RT ON/OFF to OFF.</p> <p>25. Complete maintenance forms.</p>	<p>Flag shows red triangles.</p> <p>Less than 35 μV.</p> <p>Pointer lined up with top dot.</p> <p>Pointer lined up with bottom dot.</p> <p>Steering pointer points to center dot.</p> <p>Steering pointer swings full left.</p> <p>Steering pointer swings full right.</p>	

CHAPTER 7

CM-492 MAINTENANCE INSTRUCTIONS

OVERVIEW

Chapter 7 is divided into two sections.

- a. Section I. Repair Parts; Special Tools; Test, Measurement, and Diagnostic Equipment (TMDE); and Support Equipment.

Tells you what tools and TMDE you need.

- b. Section II. Testing.

Tells you how to test the CM-492.

Section I. REPAIR PARTS; SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

7-1. COMMON TOOLS AND EQUIPMENT

The tools you need are in Tool Kit, Electronic Equipment, TK-105/G.

7-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

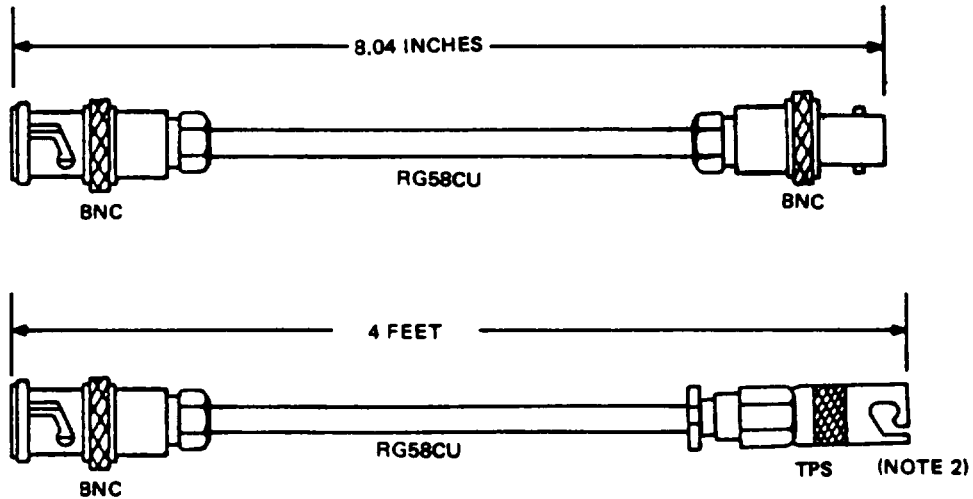
The maintenance allocation chart in TM 11-5821-318-12 (Appendix B) lists the TMDE needed for aviation intermediate maintenance.

No special tools are needed.

You will need special cables to test the CM-492. The picture below shows you how to build them.

Appendix B tells you what parts to requisition.

7-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT (Continued)



NOTE:

1. ALL RG58CU CABLE MUST BE CUT FROM THE SAME CABLE.
2. TWO CABLES ARE REQUIRED. BOTH MUST BE EXACTLY THE SAME LENGTH. THE LENGTH OF 4 FEET IS IDEAL FOR TEST SETUP.
3. THE 8.04 IN. CABLE IS 25 DEGREES PHASE SHIFT AT 66.500 MHz. THE LENGTH OF THIS CABLE MUST BE EXACT.

7-3. REPAIR PARTS

Repair is not authorized at aviation intermediate maintenance.

Section II. TESTING

NOTE

Before you start, read the whole test a few times so you understand what you have to do.

7-4. TESTING

This task covers: TESTING.

INITIAL SETUP

<u>Applicable Configurations</u>	<u>Equipment Condition</u>
All	MK-994A/AR DC POWER ON/OFF set to OFF.
<u>Test Equipment</u>	PP-1104 set to 28.0 volts.
PP-1104	RT-1300A checked by completing paragraph 2-5.
6-dB Attenuator	C-10406/10606 checked by completing paragraph 5-4.
MK-994A/AR	
SG-1112(V)1	
AN/URM-145	
RT-1300A	
C-10604/10606	

Tools and Support Equipment

NOTE

See paragraph 7-2.

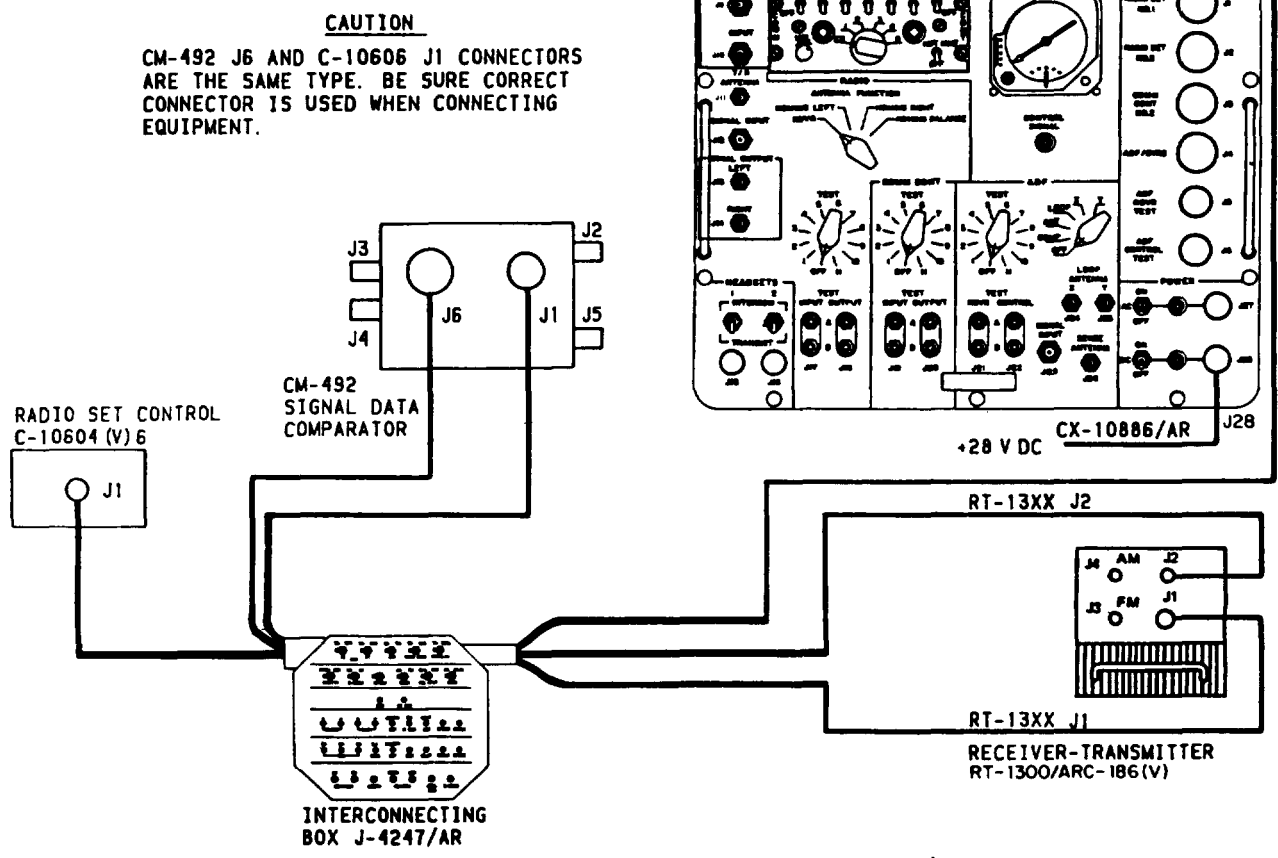
4-ft coaxial cables (2 each)
 8-in. coaxial cable
 "T" Connector UG-274/U

Personnel Required

Avionic Communications Equipment
 Repairer MOS 35L

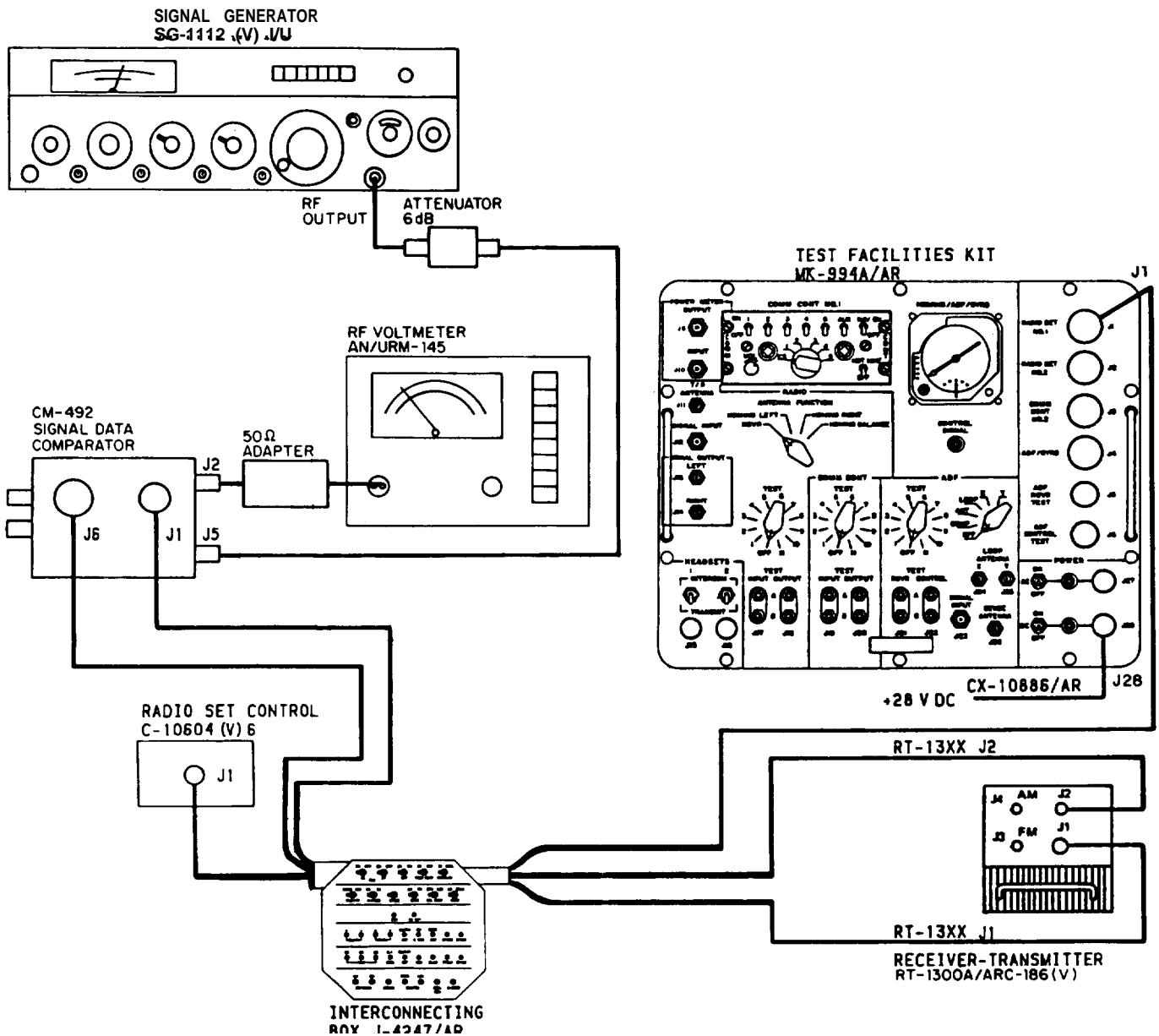
7-4. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<p>1. Connect test equipment and CM-492 as shown below:</p>		



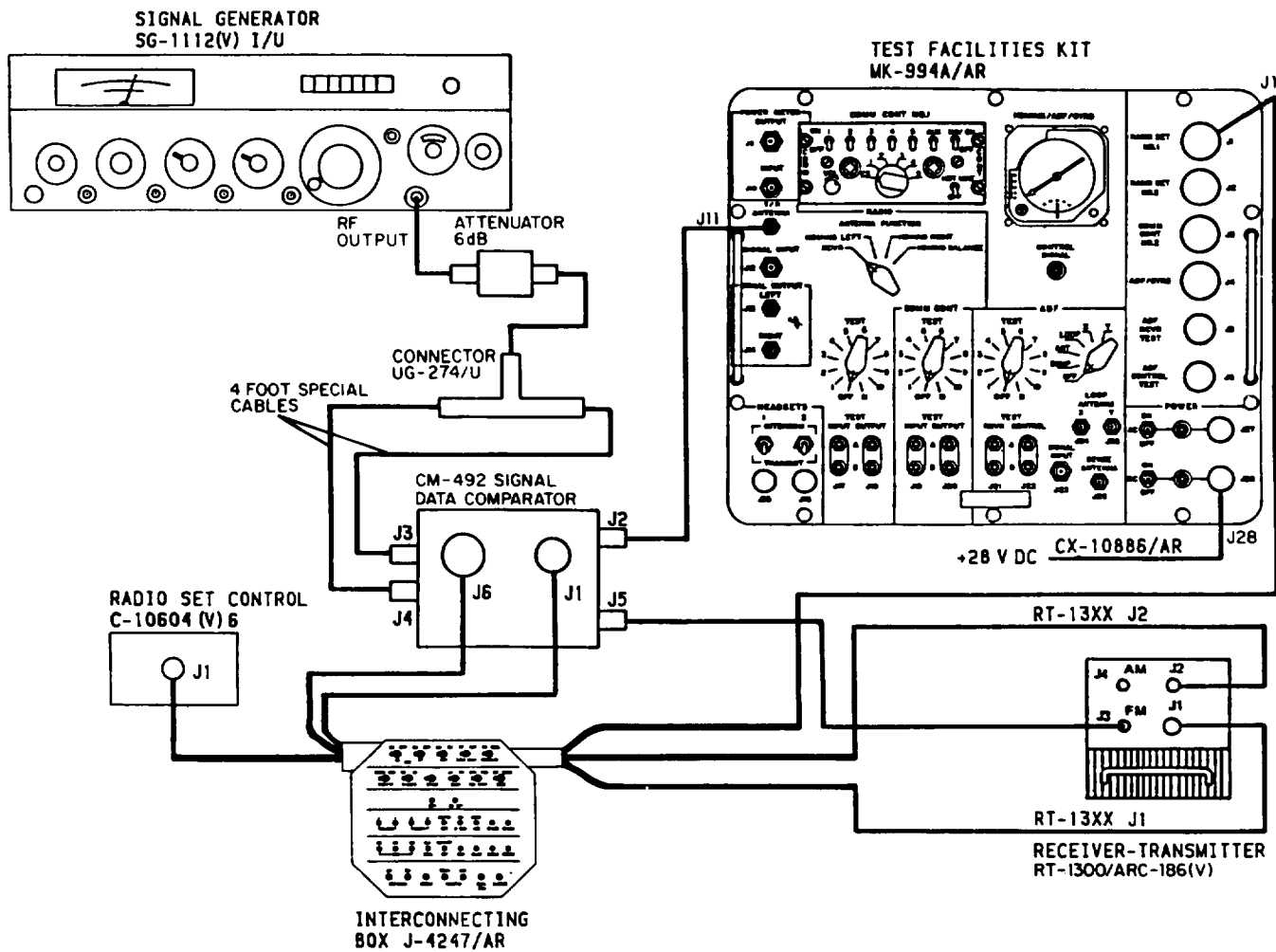
7-4. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<p>3. Connect SG-1112(V)1 RF OUTPUT to AN/URM-145 through 50-ohm adapter and 6-dB attenuator.</p> <p>4. Adjust SG-1112(V)1 OUTPUT LEVEL until AN/URM-145 reads 0 dBm.</p> <p>5. Disconnect SG-1112(V)1 from AN/URM-145.</p> <p>6. Connect CM-492 to test equipment as shown below</p>		



7-4. TESTING (Continued),

PROCEDURE	NORMAL INDICATION	REMARKS
7. Check reading on AN/URM-145. 8. Repeat steps 3 thru 7 with SG-1112(V)1 set to 116.000, 88.000, 66.500. 9. Set C-10604/10606 OFF/TR/DF to DF. 10. Connect equipment as shown below:	Goes down less than 0.5 dBm. Goes down less than 0.5 dBm.	



11. Set SG-1112(V)1 OUTPUT LEVEL to 0.1 μ V.
12. Check MK-994A/AR HOMING/ADF/GYRO indicator flag.

Flag shows red triangles.

7-4. TESTING (Continued)

PROCEDURE	NORMAL INDICATION	REMARKS
<p>13. Increase SG-1112(V)1 OUTPUT LEVEL until flag shows black.</p> <p>14. Check SG-1112(V)1 OUTPUT LEVEL position.</p> <p>15. Check HOMING/ADF/GYRO indicator signal strength pointer.</p> <p>16. Increase SG-1112(V)1 OUTPUT LEVEL to 70 mV.</p> <p>17. Check HOMING/ADF/GYRO indicator signal strength pointer.</p> <p>18. Set SG-1112(V)1 OUTPUT LEVEL to 4.5 μV</p> <p>19. Check HOMING/ADF/GYRO indicator steering pointer.</p> <p>20. Connect 8.04-in. cable to 4-ft special cable between UG-274B/U and CM-492 J3.</p> <p>21. Check HOMING/ADF/GYRO indicator steering pointer.</p> <p>22. Reconnect to CM-492 J3.</p> <p>23. Connect 8.04-in. cable to 4-ft special cable between UG-274B/U and CM-492 J4.</p> <p>24. Check HOMING/ADF/GYRO indicator steering pointer.</p> <p>25. set C-10604/10606 OFF/TR/DF to OFF. MK-994A/AR DC POWER OFF/ON to OFF. J-4247/AR PWR RT ON/OFF to OFF.</p> <p>26. Complete maintenance forms.</p>	<p>Less than 4.5 μV.</p> <p>Pointer lined up with top dot.</p> <p>Pointer lined up with bottom dot.</p> <p>Steering pointer on center dot.</p> <p>Steering pointer swings full left.</p> <p>Remove 8.04-in. cable and reconnect as in step 10.</p> <p>Steering pointer swings full right.</p>	

CHAPTER 8

MT-6048A MAINTENANCE INSTRUCTIONS

OVERVIEW

Chapter 8 is divided into three sections.

a. Section I. Repair Parts; Special Tools; Test, Measurement, and Diagnostic Equipment (TMDE); and Support Equipment.

Tells you what tools and TMDE you need.

– Where to find repair parts.

b. Section II. Troubleshooting.

Shows you a schematic of the MT-6048A.

Tells you how to locate troubles.

c. Section III. Maintenance Procedures

Tells you how to replace the wiring harness.

Section I. REPAIR PARTS; SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

8-1. COMMON TOOLS AND EQUIPMENT

The tools you need are in Tool Kit, Electronic Equipment TK-105/G.

8-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

The maintenance allocation chart in TM 11-5821-318-12 (Appendix B) lists the TMDE needed for aviation intermediate maintenance.

No special tools are needed.

8-3. REPAIR PARTS

Repair parts are listed and illustrated in TM 11-5821-318-30P.

Section II. TROUBLESHOOTING

8-4. TROUBLESHOOTING

THIS TASK COVERS: TROUBLESHOOTING.

INITIAL SETUP

<u>Applicable Configurations</u>	<u>Personnel Required</u>
All	Avionic Communications Equipment Repairer MOS 35L
<u>Test Equipment</u>	
AN/GSM-64C PP-1104	

Troubleshooting consists of making point-to-point continuity checks of the wiring harness.

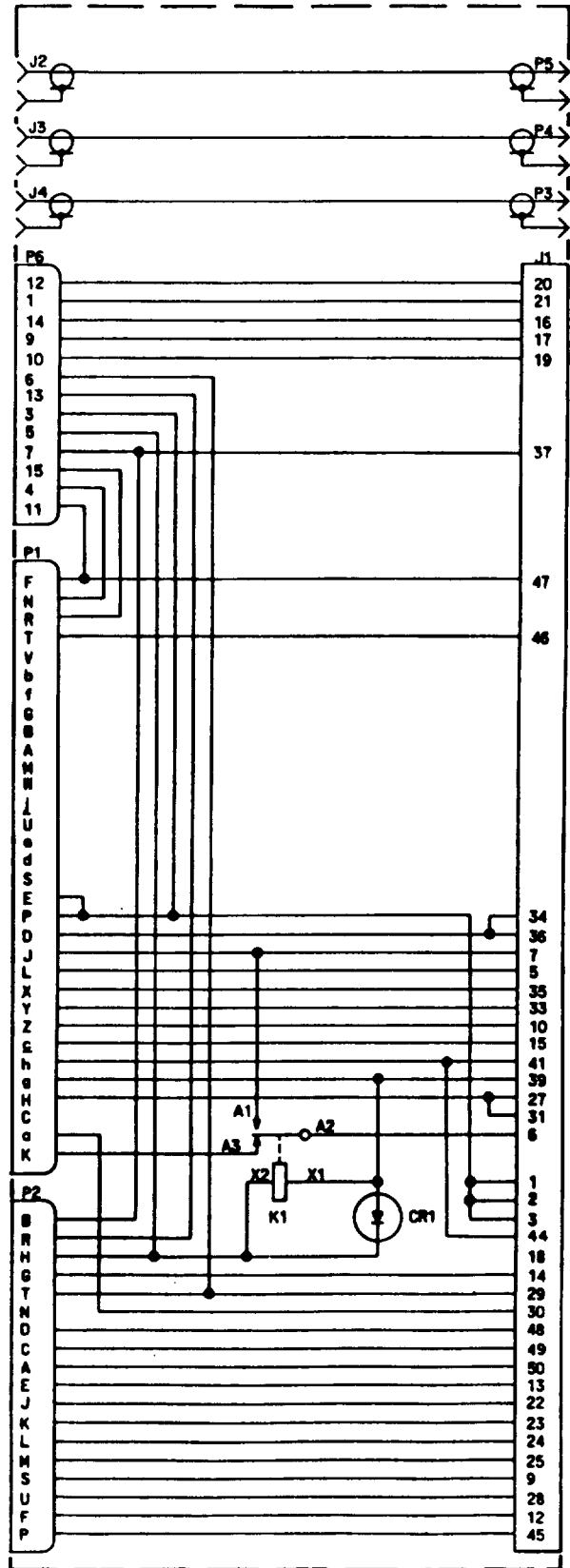
Ground plug Pi-g and apply +24 Vdc to plug P2-H to energize K1 when needed.

Replace wiring harness (para 8-5) if continuity checks fail.

Center conductor to shield should be open on J2, J3, and J4.

8-4. TROUBLESHOOTING (Continued)

TROUBLESHOOTING DIAGRAM



Section III. MAINTENANCE PROCEDURES

8-5. REPLACE WIRING HARNESS

THIS TASK COVERS: REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

Personnel Required

Avionic Communications Equipment
Repairer MOS 35L

Tools and Support Equipment

Tool Kit TK-105/G
No. 1 Phillips screwdriver
1/4-in. socket wrench

Troubleshooting References

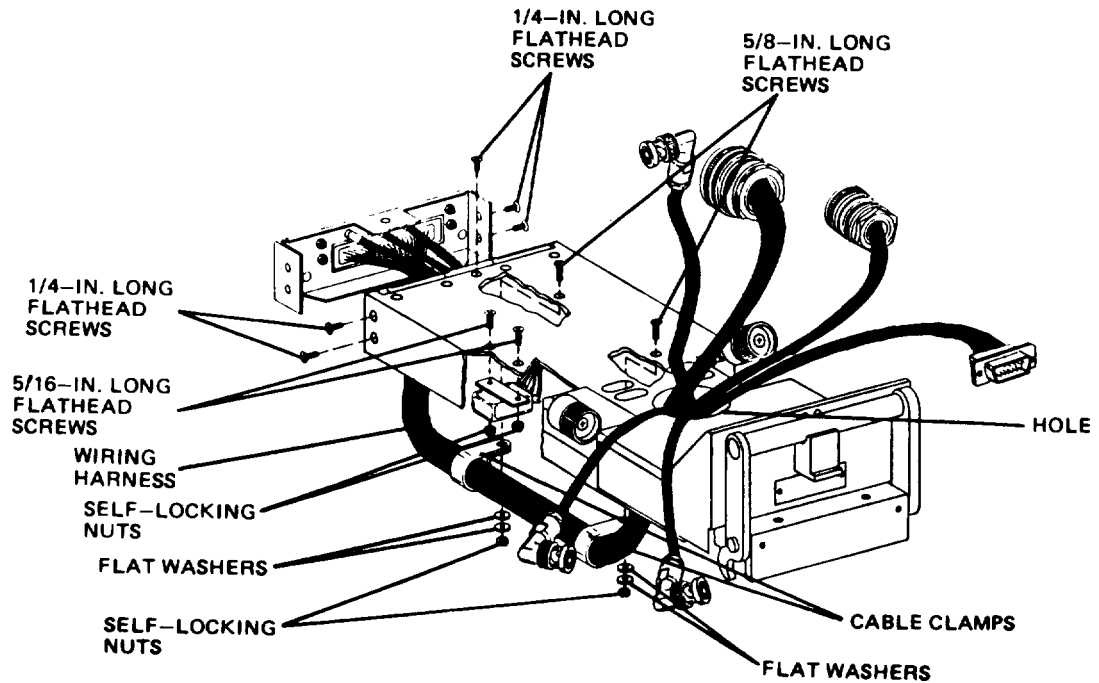
Paragraph 8-4

Materials/Parts

Wiring harness (PN 638-9367-001)

8-5. REPLACE WIRING HARNESS (Continued)

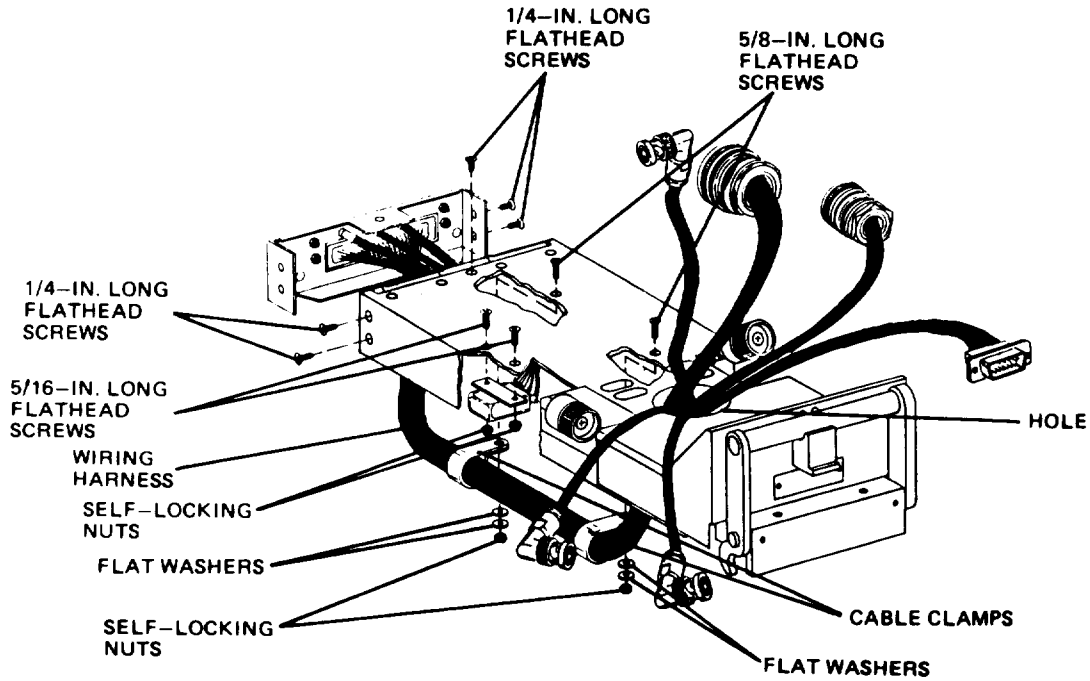
REMOVAL



1. Remove five 1/4-in. long flathead screws.
2. Remove two 5/8-in. long flathead screws, four flat washers, two self-locking nuts, and two cable Clamps.
3. Remove two 5/16-in. long flathead screws and two self-locking nuts.
4. Slide wiring harness through hole.
5. Remove cable clamps from wiring harness.

8-5. REPLACE WIRING HARNESS (Continued)

INSTALLATION



6. Slide wiring harness through hole.
7. Install cable clamps on wiring harness.
8. Install two 5/8-in. long flathead screws, four flat washers, and two self-locking nuts.
9. Install two 5/16-in. long flathead screws and two self-locking nuts.
10. Install five 1/4-in. long flathead screws.

FOLLOWUP

11. Complete maintenance forms.

CHAPTER 9

MT-6050 MAINTENANCE INSTRUCTIONS

OVERVIEW

Chapter 9 is divided into three sections.

a. Section I. Repair Parts; Special Tools; Test, Measurement, and Diagnostic Equipment (TMDE); and Support Equipment.

Tells you what tools and TMDE you need.

– Where to find repair parts.

b. Section II. Troubleshooting.

Shows you a schematic of the MT-6050.

Tells you how to locate troubles.

c. Section III. Maintenance Procedures.

Tells you how to replace the wiring harness.

Section I. REPAIR PARTS; SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

9-1. COMMON TOOLS AND EQUIPMENT

The tools you need are in Tool Kit, Electronic Equipment, TK-105/G.

9-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

The maintenance allocation chart in TM 11-5821-318-12 (Appendix B) lists the TMDE needed for aviation intermediate maintenance.

No special tools are required.

9-3. REPAIR PARTS

Repair parts are listed and illustrated in TM 11-5821-318-30P.

Section II. TROUBLESHOOTING

9-4. TROUBLESHOOTING

THIS TASK COVERS: TROUBLESHOOTING.

INITIAL SETUP

<u>Applicable Configurations</u>	<u>Personnel Required</u>
All	Avionic Communications Equipment Repairer MOS 35L
<u>Test Equipment</u>	
AN/GSM-64C	

Troubleshooting consists of making point-to-point continuity checks of the wiring harness.

The schematic shows how the wiring is connected in the wiring harness.

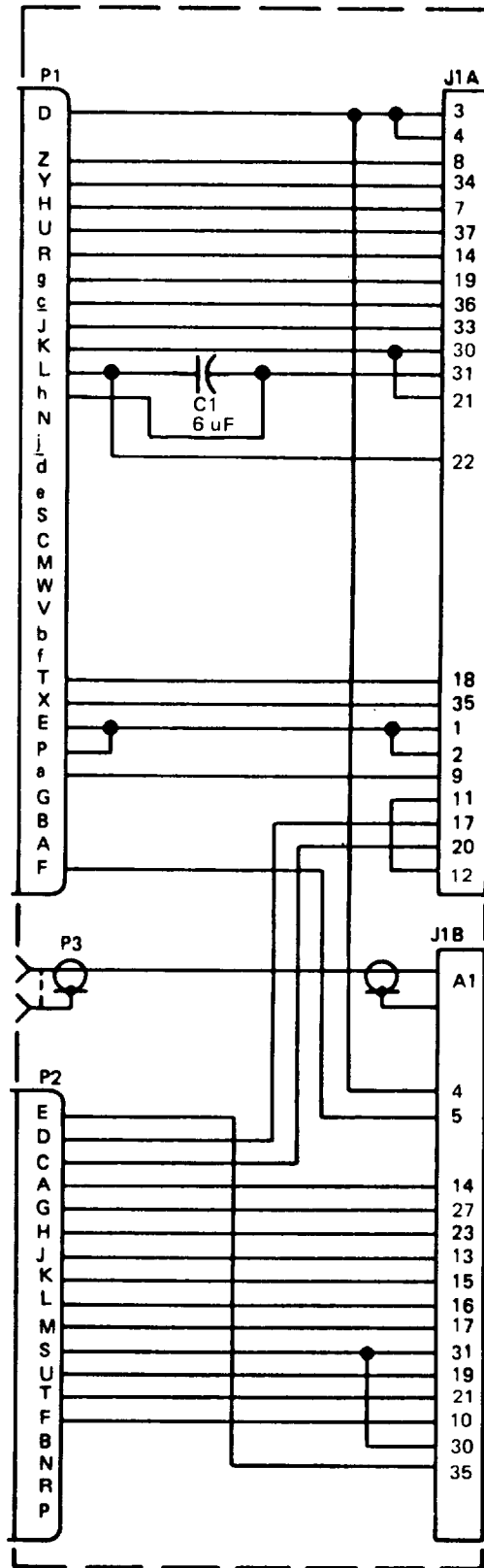
Shield to center conductor should be open on P3.

Replace wiring harness if continuity checks fail.

Check capacitor for short and leakage. Replace if bad.

9-4. TROUBLESHOOTING (Continued)

TROUBLESHOOTING DIAGRAM



Section III. MAINTENANCE PROCEDURES

9-5. REPLACE WIRING HARNESS

THIS TASK COVERS REMOVAL, INSTALLATION, AND FOLLOWUP.

INITIAL SETUP

Applicable Configurations

All

Materials/Parts

Wiring harness

Tools and Support Equipment

Tool Kit TK-105/G
No. 1 Phillips screwdriver
1/4-in. socket wrench
Soldering and resoldering set
Short round-nose pliers
4-in. diagonal cutting pliers
Pocket knife
Soldering aid
1/32-in. solder

Personnel Required

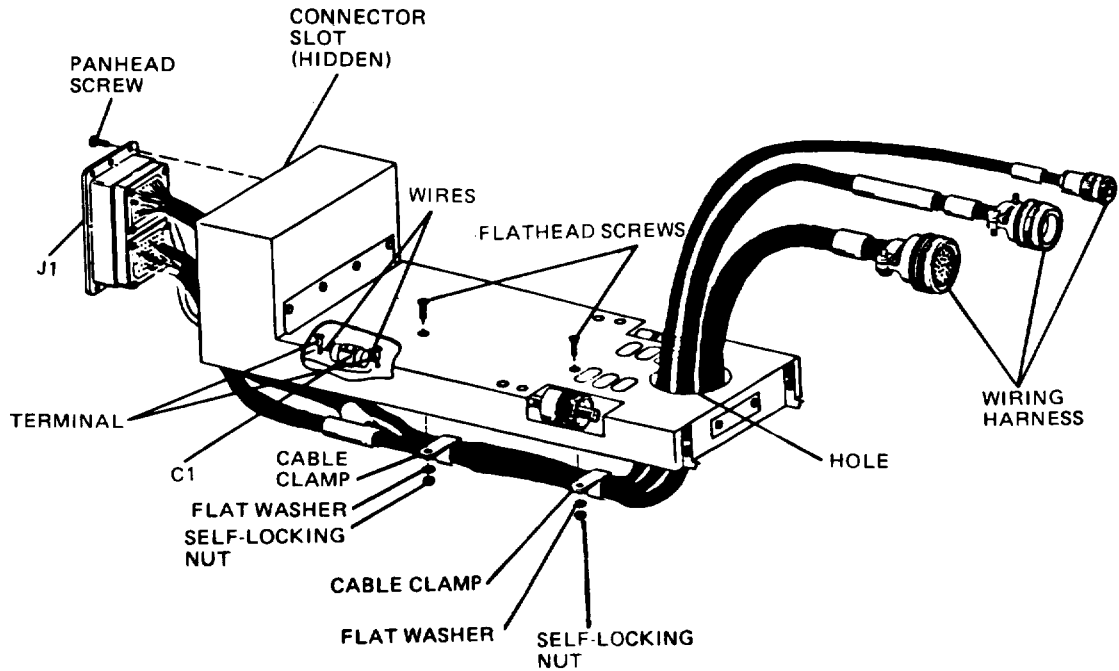
Avionic Communications Equipment
Repairer MOS 35L

Troubleshooting References

Paragraph 9-4

9-5. REPLACE WIRING HARNESS (Continued)

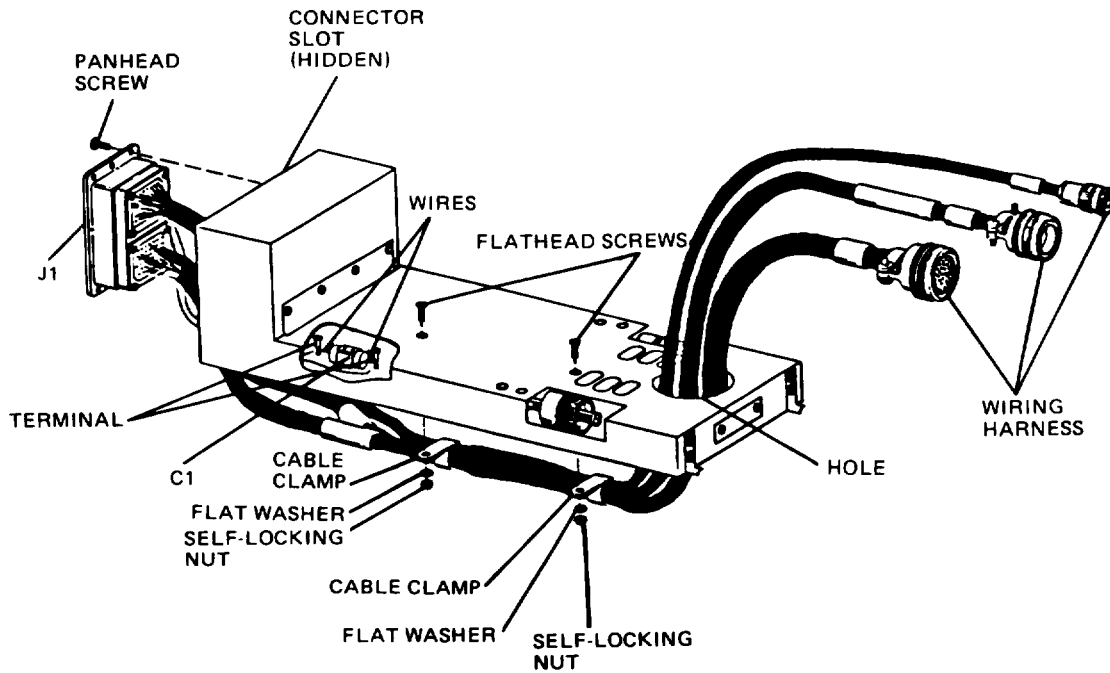
REMOVAL



- 1. Remove six panhead screws from J1
- 3. Desolder two wires from terminal.
- 3. Remove two flathead screws, flat washers, and self-locking nuts.
- 4. Remove two cable clamps.
- 5. Slide wiring harness through hole.
- 6. Slide wiring harness through connector slot.

9-5. REPLACE WIRING HARNESS (Continued)

INSTALLATION



7. Slide wiring harness through connector slot.
8. Install six panhead screws.
9. Slide wiring harness through hole.
10. Install two cable clamps, flathead screws, flat washers, and self-locking nuts.
11. Solder two wires to terminals. Wires can be connected to either terminal.

FOLLOWUP

12. Complete maintenance forms.

APPENDIX A REFERENCES

A-1. DEPARTMENT OF THE ARMY PAMPHLETS

DA PAM 25-30 Consolidated Index of Army Publications and Blank Forms

DA PAM 738-750 The Army Maintenance Management System (TAMMS)

A-2. SUPPLY CATALOGS

SC 5180-91-CL-R07 **Tool Kit, Electronic Equipment TK-105/G (NSN 5180-00-610-8177)
(LIN W37388)**

A-3. TECHNICAL MANUALS

TM 740-90-1 Administrative Storage of Equipment

TM 746-10 Marking, Packaging and Shipment of Supplies and Equipment General Packaging Instructions for Field Units

TM 750-244-2 Procedures for Destruction of Electronics Materiel to Prevent Enemy Use (Electronics Command)

TM 55-1500-323-24 Installation Practices for Aircraft Electric and Electronic Wiring (TO 1-1A-14; NAVAIR 01-1A-505)

TM 11-5821-318-12 Operator's and Aviation Unit Maintenance Manual VHF AM/FM Radio Set AN/ARC-186(V)

TM 11-5821-318-20P Aviation Unit Maintenance Repair Parts and Special Tools List VHF AM/FM Radio Set AN/ARC-186(V)

TM 11-5821-318-30P Aviation Intermediate Maintenance Repair Parts and Special Tools List VHF AM/FM Radio Set AN/ARC-186(V)

TM 11-6625-524-14-4 Operator's, Organizational, Direct Support and General Support Maintenance Manual for Voltmeter, Electronic, AN/URM-145D (Millivac Instruments Model MV-828A) (NSN 6625-01-119-7271)

TM 11-6625-2658-14 Operator's, Organizational, Direct Support and General Support Maintenance Manual for Oscilloscope, AN/USM-281C (NSN 6625-00-106-9622)

TM 11-6625-928-12 Operator and Organizational Maintenance Manual: Test Facilities Kit MK-994A/AR (NSN 6625-00-802-7191)

TM 11-6130-246-12 Operator's and Organizational Maintenance Manual Power Supply PP-1104C/G (NSN 6130-00-542-6385) (W/Instructions for use as Battery Charger)

A-3. TECHNICAL MANUALS (Continued)

- TM 11-6625-446-15 Operator's, Organizational, Direct Support, General Support and Depot Maintenance Manual for Wattmeter, AN/URM-120 (NSN 6625-00-813-8430)
- TM 11-6625-2780-14 & P Operator's, Organizational, Direct Support and General **Support Maintenance** Manual Including Repair Parts and Special Tools List for Signal Generators, **SG-1112(V)1/U** (6625-00-566-3067) and **SG-1112(V)2/U** (NSN 6625-00-500-6525) (Hewlett-Packard Model 8640B)
- TM 11-6625-444-14-2 Maintenance Manual for Voltmeter, Digital, AN/GSM-64C (NSN 6625-01-124-0834)
- TM 11-6625-2725-14 & P Operator's, Organizational, Direct Support, and General Support Maintenance Manual Including Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools) for Generator, Signal AN/URM-127A (NSN 6625-00-783-5965)
- TM 11-6625-1576-15 Organizational, Direct Support, General Support and Depot Maintenance Manual for Distortion Analyzer, Hewlett-Packard Models 333A and 334A
- TM 43-0139 Painting Instructions for Field Use

A-4. FIELD MANUALS

- FM 21-11 First Aid for Soldiers

A-5. SUPPLY BULLETINS

- SB 11-505 **Signal Items Authorized for Stockage in Self-Service Supply Centers**
- SB 11-631 **Identification Plates and Name Plates for Communication Equipment**
- SB 11-573 **Painting and Preservation Supplies Available for Field Use for Electronics Command Equipment**
- SB 11-625 **Use of Cushioned Shipping Sacks (Jiffy Bags) for Electronic Materiel**
-
- SB 11-617 **Direct Exchange Wholesale (DXW) Program to CONUS Depot Level of Electronic Equipment in the Army Supply and Maintenance System**

A-6. TECHNICAL BULLETINS

- TB SIG 222 **Solder and Soldering**
- TB 385-4 **Safety Precautions for Maintenance of Electrical/Electronic Equipment**

A-5. SUPPLY BULLETINS (Continued)

- | | |
|-----------|--|
| SB 11-625 | Use of Cushioned Shipping Sacks (Jiffy Bags) for Electronic Material |
| SB 11-631 | Identification Plates and Name Plates for Communications Equipment |

A-6. TECHNICAL BULLETINS

- | | |
|------------|---|
| TB SIG 222 | Solder and Soldering |
| TB 385-4 | Safety Precautions for Maintenance of Electrical/Electronic Equipment |

APPENDIX B

EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

B-1 SCOPE

This appendix lists expendable/durable supplies and materials you will need to operate and maintain your radio set. This listing is for informational purposes only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items) or CTA 8-100, Army Medical Department Expendable/Durable Items.

B-2. EXPLANATION OF COLUMNS

a. Column (1) – Item Number.

This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (eg, “Use cleaning compound, item 5, App. B”).

b. Column (2) – Level.

This column identifies the lowest level of maintenance that requires the listed item.

F - Aviation Intermediate Maintenance

c. Column (3) – National Stock Number.

This is the National stock number assigned to the item; use it to request or requisition the item.

d. Column (4) – Description.

Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parentheses, followed by the part number.

e. Column (5) – Unit of Measure (U/M).

Indicates the measure used in performing the actual maintenance function. This measure is expressed by a 2-character alphabetical abbreviation (eg: ea, in., pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
1	F	8105-01-120-3376	Plastic bag	Ea
2	F	3439-00-555-4629	Tin alloy solder 0.032 in.	Rl
3	F	6850-00-105-3084	Freon TF cleaning compound	Cn
4	F	8305-00-222-2423	Cheesecloth cloth	Yd
5	F	6145-00-542-6092	Radio Frequency Cable RG-58C/U	Ft
6	F	5935-00-577-2881	Plug Connector UG-89C/U	Ea
7	F	5935-60-823-0487	Plug Connector UG-88E/U	Ea
8	F	5935-00-812-8779	Plug Connector UG-1366/U	Ea

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By Order of the Secretary of the Army:

JOHN A. WICKHAM JR.
General, United States Army .
Chief of Staff

Official:

MILDRED E. HEDBERG
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10 July 1975

PUBLICATION NUMBER

TM 11-5840-340-12

PUBLICATION DATE

23 Jan 74

PUBLICATION TITLE

Radar Set AN/PRC-76

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PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO
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		F03	

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

Recommend that the installation antenna alignment procedure be changed throughout to specify a 2° IFF antenna lag rather than 1°.

REASON: Experience has shown that with only a 1° lag, the antenna servo system is too sensitive to wind gusting in excess of 25 knots, and has a tendency to rapidly accelerate and decelerate as it hunts, causing strain to the drive train. Hunting is minimized by adjusting the lag to 2° without degradation of operation.

Item 5, Function column. Change "2 db" to "3db."

REASON: The adjustment procedure for the TRANS POWER FAULT indicator calls for a 3 db (500 watts) adjustment to light the TRANS POWER FAULT indicator.

Add new step f.1 to read, "Replace cover plate removed in step e.1, above."

REASON: To replace the cover plate.

Zone C 3. On J1-2, change "+24 VDC to "+5 VDC."

REASON: This is the output line of the 5 VDC power supply. +24 VDC is the input voltage.

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