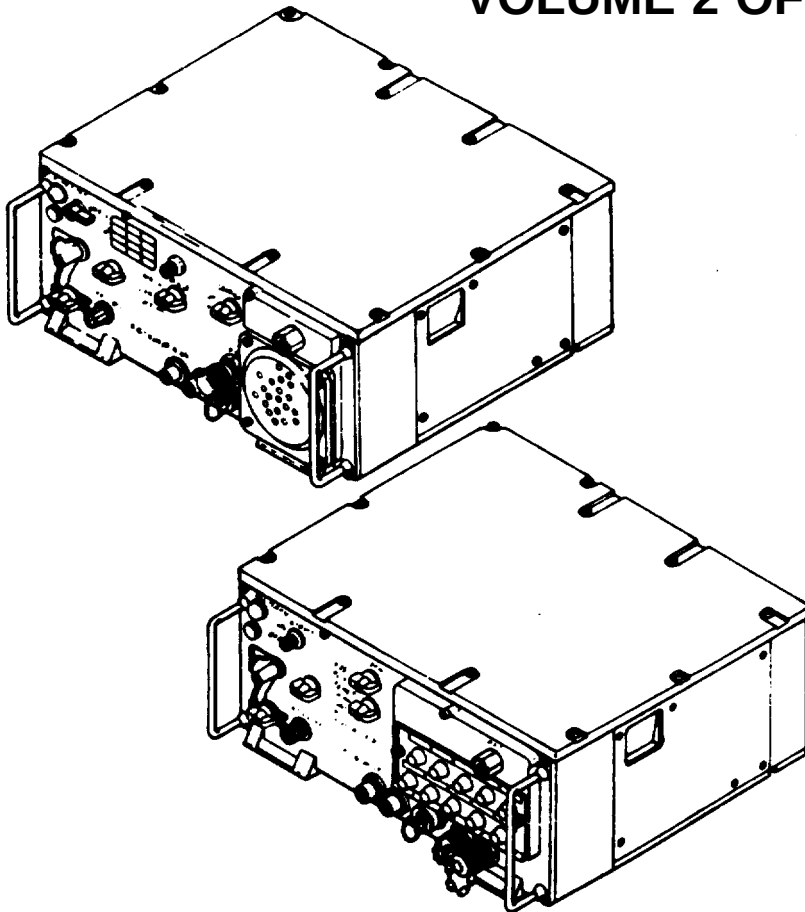


ARMY TM 11-5820-401-34-2-2 NAVY NAVELEX 0967-LP-432-3030

TECHNICAL MANUAL

DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL VOLUME 2 OF 2



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RADIO SETS

AN/VRC-12 (NSN 5820-00-223-7412), AN/VRC-43
(NSN 5820-00-223-7415), AN/VRC-44 (NSN 5820-00-223-7417,
AN/VRC-45 (NSN 5820-00-223-7418), AN/VRC-48
(NSN 5820-00-223-7433), AN/VRC-47 (NSN 5820-00-223-7434),
AN/VRC-48 (NSN 5820-00-223-7435), AND AN/VRC-49
(NSN 5820-00-223-7437)

RECEIVER-TRANSMITTERS

RADIO RT-246/VRC AND RT-246A/VRC
(NSN 5820-00-892-0623)

AND

RT-542/VRC AND RT-524A/VRC (NSN 5820-00-892-0622)

DEPARTMENT OF THE ARMY AND NAVY

16 APRIL 1984

Technical Manual
No. 11-5820-401-34-2-2
NAVELEX 0967-LP-432-3030

DEPARTMENTS OF THE ARMY
AND THE NAVY
Washington, DC, 16 April 1984

**Direct Support and General Support
Maintenance Manual**

**RADIO SETS: AN/VRC-12 (NSN 5820-00-223-7412), AN/VRC-43
(NSN 5820-00-223-7415), AN/VRC-44 (NSN 5820-00-223-7417), AN/VRC-45
(NSN 5820-00-223-7418), AN/VRC-46 (NSN 5820-00-223-7433), AN/VRC-47
(NSN 5820-00-223-7424), AN/VRC-48 (NSN 5820-00-223-7435),
AND AN/VRC-49 (NSN 5820-00-223-7437)**

**RECEIVER-TRANSMITTERS, RADIO
RT-246/VRC (NSN 5820-00-892-0623) AND RT-246A/VRC (NSN 5820-01-140-9071)
AND
RT-524/VRC AND RT-524A/VRC (NSN 5820-00-892-0622)**

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 2023-2 located in back of this manual direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-ME-MP, Fort Monmouth, New Jersey 07703-5007. For Navy, mail comments to the Commander, Space and Naval Warfare Systems Command, ATTN: SPAWAR 8122, Washington, DC 20363-5100. In either case a reply will be furnished direct to you.

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*This manual, together with, TM 11-5820-401-34-2-1/NAVELEX 0967-LP-432-3030, 16 April 1984 and TM 11-5820-401-34-3/NAVELEX 096-LP-432-3030, 16 April 1984 supersedes TB 11-5820-401-34-1/EE150-JA-MMI-DID/E154RT246, 23 February 1984 and TM 11-5820-401-34-2/NAVELEX 0967-LP-432-3030, 9 April 1976.

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HOW TO USE THIS MANUAL

This manual is designed to help you maintain receiver-transmitters used in the AN/VRC-12 series radio sets.

The table of contents on the front cover is provided for quick reference to important information. There is also an alphabetical index to help locate specific information.

Measurements in this manual are given in both US standard and metric units.

Read all preliminary information found at the beginning of each procedure. It contains important directions which must be followed to perform the task correctly.

Warning pages are located in the front of this manual. You should learn the warnings before doing maintenance on the equipment.

Paragraphs in this manual are numbered by chapter and order of appearance within a chapter. A subject index appears at the beginning of each chapter, breaking the chapter into sections. A more specific subject index is located at the beginning of each section to help you find the exact paragraph you are looking for.

There are three chapters covering direct support performance tests, troubleshooting, and alinement procedures. Each chapter shows how to perform these tasks using a different set of test equipment; that is:

1. Chapter 3 contains performance and troubleshooting procedures, using Maintenance Kit MK-1978/VRC and discrete test equipment (TMDE).
2. Chapter 4 contains performance and troubleshooting procedures, using Test Set AN/GRM-114A.
3. Chapter 5 contains performance and troubleshooting procedures, using Test Cable No. 1 and discrete test equipment (TMDE).

The procedures you follow will depend upon the test equipment at your disposal.

For repair parts and tools required for direct support and general support maintenance, refer to TM 11-5820-401-34P-2-1 (RT-246(*)/VRC) and TM 11-5820-401-34P-2-2 (RT-524(*)/VRC).

CHAPTER 4

DIRECT SUPPORT PERFORMANCE AND TROUBLESHOOTING PROCEDURES USING TEST SET AN/GRM-114A

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OVERVIEW

This chapter contains performance tests, troubleshooting, and alinement procedures at the direct support level using Test Set AN/GRM-114A.

The performance tests are diagnostic in purpose. They should be used to verify that an RT is operating properly or to point out the existence of faults.

If failure to meet a performance test standard confirms that a fault is present in the unit under test, the test procedure will refer you to a specific chart in the troubleshooting section. The troubleshooting charts are designed to isolate the faults noted in the performance tests. They will guide you to the source of defects and/or misalinements.

Once it has identified the source of a fault, a troubleshooting chart will refer you to the appropriate repair/replacement instructions or alinement procedures. Because each stage of the RT's receiver or transmitter sections depends upon its other stages for overall operating efficiency, the replacement, repair, or realinement of even one component could alter the RT's signals enough to create the need for other realinements. Therefore, after making any alterations in the RT, do all the performance tests, even those you have done already.

Section I PERFORMANCE TESTS

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4-1. GENERAL.

This section contains performance test procedures for use with Test Set AN/GRM-114A. They will enable you to determine whether or not an RT is operating acceptably. Each test procedure checks specific functions of the receiver or transmitter sections to help you find and isolate faults.

Each test is complete and maybe performed individually. Therefore, you may choose an appropriate test to verify gross equipment failure or performance degradation of specific stages. However, this maintenance approach is not recommended, it is best to perform all the tests in sequence. This systematic maintenance approach will ensure that all faults are found and corrected.

Faults in the RT are evidenced by failure of the unit to meet the performance standards found within the test procedures in **bold type**. When an RT fails to meet a performance standard, discontinue the test and turn to the troubleshooting chart referred to in the procedure.

4-1.1. +25 VOLT DC COMMON OUTPUT.

PURPOSE: This test checks the RT's +25 Vdc output used to power the Vinson Systems

EQUIPMENT	CONTROL OR SWITCH	POSITION/SETTING
MK-1978/VRC	POWER AUX POWER KEY ALL OTHER SWITCHES	ON OFF RCVE DOWN
RT	LIGHT BAND MC TUNE KC POWER	ON A 30.00 LOW
MM-100E	30V	+DC

1. Connect MM-100E attenuated Probe A to MK-1978/VRC Pin C Jack (below Aux Power Switch). Connect Probe B to ground.

STANDARD. MM-100E should indicate 22-30V. If voltage is lower or higher than 22-30V check power supply.

2. If MM-100E indicates 0V see Troubleshooting Chart (paragraph 4-23).

492. VOLUME CONTROL TEST.

PURPOSE. This test checks the VOLUME control of the RT for proper operation. When a 1-kHz tone is injected into the RT ANTENNA port, the speaker should output a clear tone with no scratchy sound or sudden drop in volume. The absence of a tone means that the signal is not passing completely through the RT circuitry and could even indicate total equipment failure; therefore, perform this test before the others in this section.

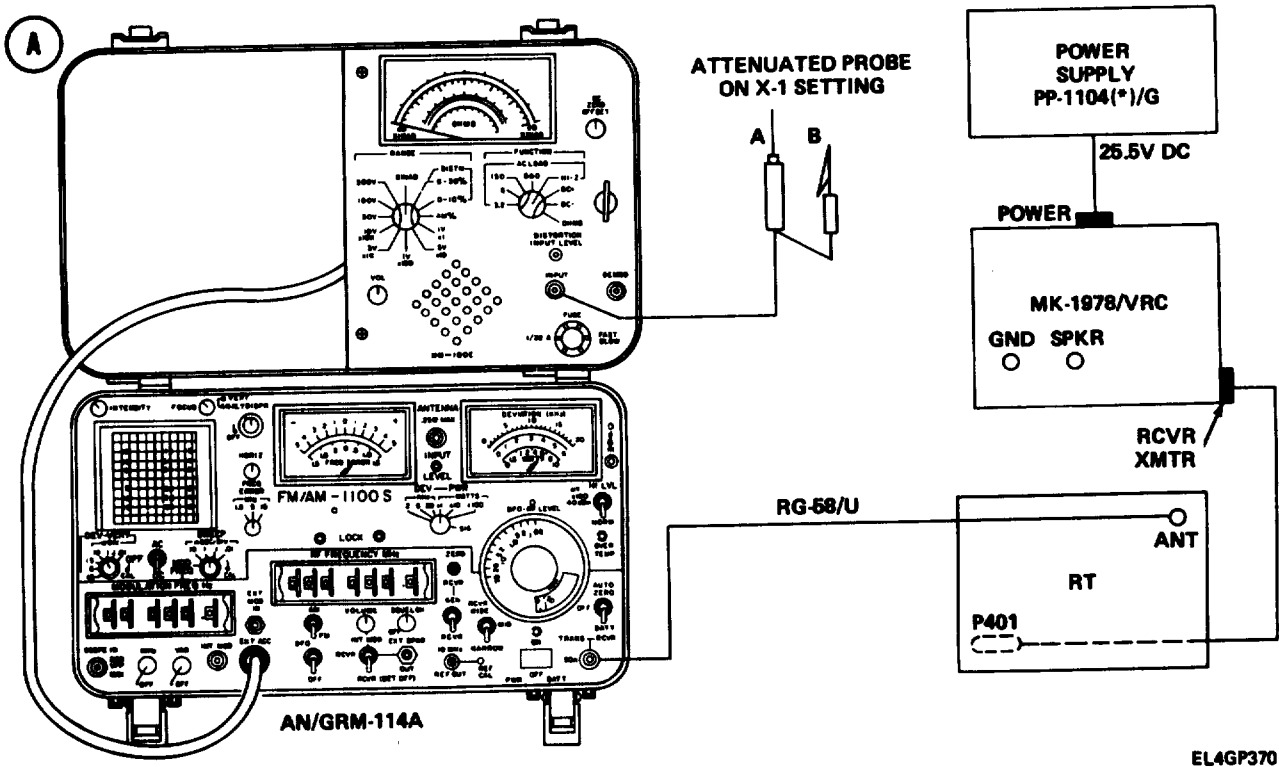
4-2 VOLUME CONTROL TEST. (CONT)

TEST EQUIPMENT AND MATERIALS

Power Supply PP-1104(*)/G
Maintenance Kit MK-1978/VRC

Test Set AN/GRM-114A
Rf Cable RG-58/U

TEST SETUP. Connect equipment as shown in test setup diagram (A) .



INITIAL EQUIPMENT CONTROL SETTINGS. Set equipment controls as indicated in the following table.

CONTROL AND SWITCH SETTINGS

EQUIPMENT	CONTROL OR SWITCH	POSITION/SETTING
MK-1978/VRC	POWER AUDIO KEY X-MODE (RT) AUX RCVR SQUELCH	ON MUTED RCVE NORMAL NORMAL ON