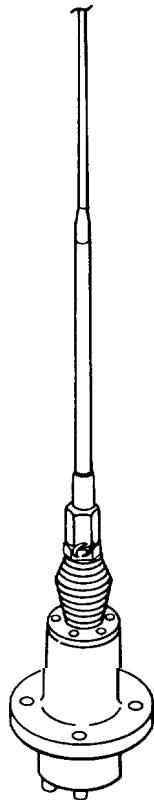


This copy is a reprint which includes current pages from Change 1.

TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE MANUAL



OPERATING
INSTRUCTIONS

PAGE 2-1

OPERATOR
P M C S

PAGE 2-1

OPERATOR
TROUBLESHOOTING

PAGE 3-1

ORGANIZATIONAL
P M C S

PAGE 4-1

ORGANIZATIONAL
TROUBLESHOOTING

PAGE 4-3

GENERAL SUPPORT
TROUBLESHOOTING

PAGE 6-1

ANTENNA AS-1729/VRC (NSN 5985-00-985-9024)

HEADQUARTERS, DEPARTMENT OF THE ARMY
23 JANUARY 1984



5

SAFETY STEPS TO FOLLOW IF SOMEONE IS THE VICTIM OF ELECTRICAL SHOCK

1

DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL

2

IF POSSIBLE, TURN OFF THE ELECTRICAL POWER

3

IF YOU CANNOT TURN OFF THE ELECTRICAL POWER, PULL, PUSH, OR LIFT THE PERSON TO SAFETY USING A WOODEN POLE OR A ROPE OR SOME OTHER INSULATING MATERIAL

4

SEND FOR HELP AS SOON AS POSSIBLE

5

AFTER THE INJURED PERSON IS FREE OF CONTACT WITH THE SOURCE OF ELECTRICAL SHOCK, MOVE THE PERSON A SHORT DISTANCE AWAY AND IMMEDIATELY START ARTIFICIAL RESUSCITATION

WARNING

Serious injury or even death could result if the following questions are not carefully considered when installing and using the Antenna AS-1729/VRC:

Are there any powerlines in the area of operation?

How high are these powerlines?

How tall are the poles or towers that support the powerlines?

WARNING

DO NOT STOP YOUR VEHICLE UNDER POWERLINES.

If possible, maintain mobile communications with your antenna tied down.

If you are not sure the AS-1729/VRC will clear a powerline, stop and carefully tie down the antenna or remove antenna sections to ensure safely driving under the powerline. When antenna is not being used and vehicle is in motion, keep tiedown in place.

Vehicles with AS-1729/VRC mounts more than 6 feet above ground can strike railroad crossing powerlines if the antenna comes loose from tiedown while vehicle is moving. A serious or fatal injury could result.

Antenna element will be placed under clip when antenna is mounted more than 6 feet off ground and vehicle will be passing under electric railway-power conductors or low powerlines. At all other times, element will be placed into clip.

WARNING

Make sure an antenna tip cap is securely taped on the end of any whip antenna having two or three antenna elements. The AS-1729/VRC should not be operated without an antenna tip cap.

WARNING

DO NOT touch any antenna while the transmitter is on. Dangerous rf voltages, up to 10,000 volts, may exist at AS-1729/VRC elements and connectors. Stay in or stay clear of vehicle when transmitting.

Keep arms, legs, and weapons inside vehicle while in motion. If the antenna accidentally touches a powerline and an arm, leg, or weapon touches the damp ground or foliage, a serious or fatal electrical shock could result.

WARNING

DO NOT try to erect any antenna during a storm. Severe electrical shock or death could result.

WARNING

Adequate ventilation should be provided while using TRICHLOROTRIFLUOROETHANE. Prolonged breathing of vapor should be avoided. The solvent should not be used near heat or open flame; the products of decomposition are toxic and irritating. Since TRICHLOROTRIFLUOROETHANE dissolves natural oils, prolonged contact with skin should be avoided. When necessary, use gloves which the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.

WARNING

Ground strap must be securely grounded to vehicle body. Failure to properly attach ground strap could result in injury to personnel.

WARNING

Do not stand closer than 20 inches (0.5 meters) to Antenna AS-1729/VRC when transmitting on receiver-transmitter. High levels of electromagnetic radiation exist in this area.

WARNING

Operator and maintenance personnel should be familiar with the requirements of TB SIG-291 before attempting installation or operation of the AS-1729/VRC elements and connectors. Failure to observe the requirements of TB SIG-291 could result in injury or death.

WARNING

Before painting equipment, personnel should be familiar with SB 11-573, Painting and Preservation of Supplies and TB 43-0118, Field Instructions for Painting and Camouflage. Failure to observe the requirements therein could result in injury or death.

Change

HEADQUARTERS
Department of the Army
Washington, DC, 1 October 1987

No. 1

Operator's, Organizational, and General
Support Maintenance Manual

Antenna AS-1729/VRC
(NSN 5985-00-985-9024)

This change updates maintenance instructions, as it deletes direct support requirements.

TM 11-5985-262-14, 23 January 1984, is changed as follows:

1. Title of manual is changed as shown above.

2. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a vertical bar on the illustration.

Remove pages	Insert pages
i and ii	i and ii
(iii blank)/1-0 through 1-2	(iii blank)/1-0 through 1-2
2-1 through 2-8	2-1 through 2-8
3-1 and 3-2	3-1 and 3-2
4-1 through 4-6	4-1 through 4-6.1/(4-6.2 blank)
4-11/(4-12 blank)	4-11 through 4-14
5-1 through 5-3/(5-4 blank)	None
6-1 and 6-2	6-1 and 6-2
6-5 and 6-6	6-5 and 6-6
6-9 through 6-12	6-9 through 6-12
A-1 and A-2	A-1 and A-2
B-3 through B-6	B-3 through B-6
C-1 through C-3/(C-4 blank)	C-1 through C-3/(C-4 blank)
D-1 and D-2	D-1 and D-2
E-1 and E-2	E-1 and E-2
Index 1 through Index 4	Index 1 through Index 4

3. File this change sheet in front of the publication for reference purposes.

Distribution authorized to the Department of Defense and DOD contractors only for official use or for administration or operational purposes. This determination was made on 23 June 1987. Other requests for this document will be referred to Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-ME-P, Fort Monmouth, NJ 07703-5000.

DESTRUCTION NOTICE-Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

By Order of the Secretary of the Army:

CARL E. VUONO
General, United States Army
Chief of Staff

Official:

R.L. DILWORTH
Brigadier General, United States Army
The Adjutant General

DISTRIBUTION :

To be distributed in accordance with DA Form 12-51 literature requirements for AS-1729/VRC.

Technical Manual
NO. 11-5985-262-14

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 23 January 1984

**Operator's, Organizational, and General
Support Maintenance Manual**

**ANTENNA AS-1729/VRC
(NSN 5985-00-985-9024)**

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 the back of this manual direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-ME-MP, Fort Monmouth, NJ 07703-5000. A reply will be sent direct to you.

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*This manual supersedes TM 11-5985-262-15, 3 March 1969, including all changes.

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HOW TO USE THIS MANUAL

This manual is designed to help you operate and maintain Antenna AS-1729/VRC. Maintenance of the AS-1729/VRC is limited to procedures that do not require it to operate as part of a specific communications system. The front cover boxed entries are provided as quick reference to important information. There is also an alphabetical index located in the final pages for use in finding more specific items of information.

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 listing sections that are included in that chapter. A more specific subject index is located at the beginning of each section to help you find the exact paragraph you're looking for.

Warning pages are located in the front of this manual. You should learn all warnings before operating or performing maintenance procedures on the equipment.

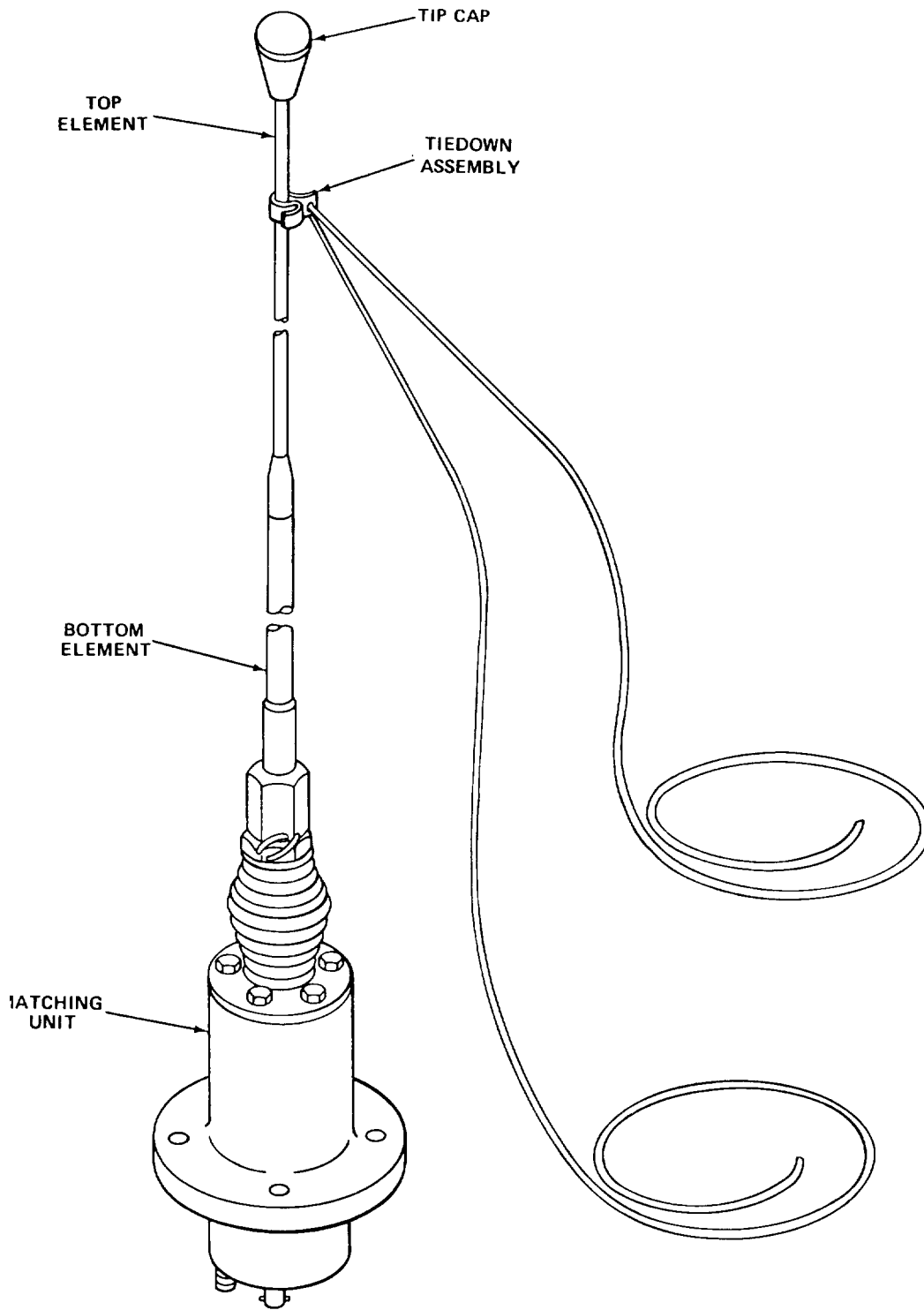
Read all preliminary material found at the beginning of each task. It contains important information and safety instructions necessary to complete procedures.

Instructions for using troubleshooting tables are located in paragraphs 3-1,4-5, and 6-1.

Instructions for performing PMCS are located in paragraphs 2-1 and 4-4.

The Maintenance Allocation Chart (MAC) is located in appendix B.

Measurements in this manual are given in both US standard and metric units. A US standard to metric conversion chart can be found in the back of this manual.



EL4TS002

ANTENNA AS-1729/VRC

CHAPTER 1

INTRODUCTION

Subject	Section	Page
General Information	I	1-1
Equipment Description	II	1-3
Technical Principles of Operation	III	1-5

Section I GENERAL INFORMATION

Subject	Para	Page
Scope	1-1	1-1
Consolidated Index of Army Publications and Blank Forms	1-2	1-1
Maintenance Forms, Records, and Report	1-3	1-1
Reporting Equipment improvement Recommendations (EIR)	1-4	1-2
Nomenclature Cross-Reference List	1-5	1-2
Destruction of Army Materiel to Prevent Enemy Use	1-6	1-2
Preparation for Storage or Shipment	1-7	1-2

1-1. SCOPE.

Type of Manual: Operator's, organizational, and general support maintenance manual.

Equipment Name and Model Number: Antenna AS-1729/VRC

Purpose of Equipment: The Antenna AS-1729/VRC is an omnidirectional, vertically-polarized whip antenna assembly that provides transmission and reception of VHF radio signals between 30 and 76 MHz.

1-2. 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.

1-3. MAINTENANCE FORMS, RECORDS, AND REPORTS.

REPORT 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.

REPORT OF PACKAGING AND HANDLING DEFICIENCIES

Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/NAVMATINST 4355.73B/AFR 400-54/MCO 4430.3H.

1-3. MAINTENANCE FORMS, RECORDS, AND REPORTS. (CONT)

DISCREPANCY IN SHIPMENT REPORT (DISREP) (SF 361)

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

1-4. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your Antenna AS-1729/VRC 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 the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-PA-MA-D, Fort Monmouth, New Jersey 07703-5000. We'll send you a reply.

1-5. NOMENCLATURE CROSS-REFERENCE LIST.

This list contains common names used in place of official nomenclature in this manual.

COMMON NAME	OFFICIAL NOMENCLATURE
AS-1729/VRC	Antenna AS-1729/VRC
bottom element	Antenna Element AS-1730/VRC
matching unit	Matching Unit Base, Antenna MX-6707/VRC
top element	Antenna Element AT-1095/VRC

1-6. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE.

Destruction of Army electronics materiel to prevent enemy use shall be in accordance with TM 750-244-2.

1-7. PREPARATION FOR STORAGE OR SHIPMENT.

Equipment shall be prepared for storage or shipment by performing preventive maintenance checks and services (PMCS) as prescribed in the PMCS charts included in this manual. These procedures should also be done when removing equipment from storage to ensure operational readiness.

Packing of equipment for storage or shipment will normally be performed at a packaging facility or by a packaging team. If emergency packaging must be done, see paragraph 6-10 of this manual.

Section II EQUIPMENT DESCRIPTION

Subject	Para	Page
Equipment Characteristics, Capabilities, and Features	1-8	1-3
Equipment Data	1-9	1-3
Location and Description of Major Components	1-10	1-4
Safety, Care, and Handling	1-11	1-4

1-8. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES.

The Antenna AS-1729/VRC has the following features:

- Mountable on vehicle or crew-served weapon.
- Provided with spring mount and base to prevent breaking.
- Provided with tip cap for protection of personnel.
- Includes tiedown kit to aid mobility.
- Omnidirectional and vertically polarized.

The AS-1729/VRC is installed in vehicles as part of Radio Sets AN/VRC-12 and AN/VRC-43 through AN/VRC49 (refer to TM 11-5820-401-10-1, TM 11-5820-401-10-2), and Radio Sets AN/VRC-53, AN/VRC-64, AN/GRC-125, and AN/GRC-160 (refer to TM 11-5820-498-12).

Installation is different from vehicle to vehicle. Refer to SB 11-131 for a list of vehicular radio sets, installation kits, and accessory kits, and the vehicles in which the radios and kits are authorized.

1-9. EQUIPMENT DATA.

GENERAL

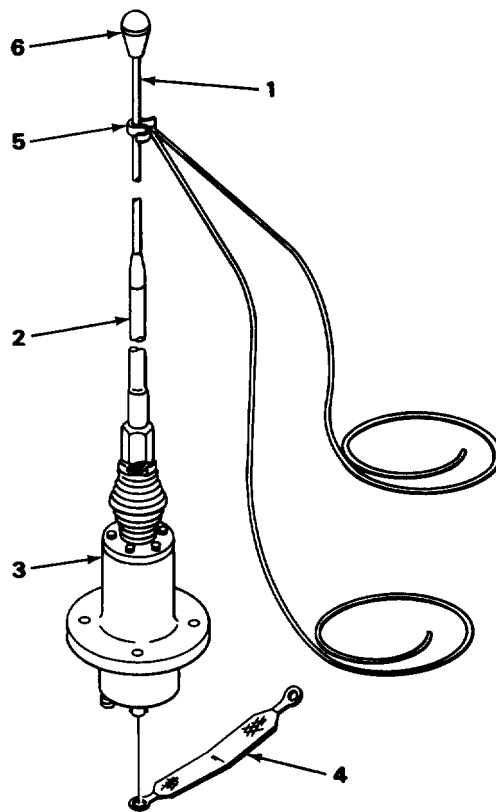
Antenna Type	Whip
Frequency Range	30 to 76 MHz
Power Handling Capability	70 watts, maximum
Input Impedance	50 ohms
Weight	10 lb (4.54 kg)

COMPONENT DIMENSIONS

Item	Width	Length	Weight
Matching Unit	5.5 in. (14 cm)	14.25 in. (.362 m)	6.5 lb (2948 g)
Top Element	1.5 in. (3.8 cm)	52.5 in. (1.38 m)	2.5 lb (1134 g)
Bottom Element	1.0 in. (2.5 cm)	64.0 in. (1.65 m)	1.0 lb (454 g)

Components of the AS-1729/VRC are listed in appendix C of this manual. **For a list of parts and installation hardware, refer to TM 11-5985-262-24P.**

1-10. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.



EL4TS003

- 1 TOP ELEMENT. Overlaps and is screwed into bottom element.
- 2 BOTTOM ELEMENT. Connects top element to antenna base.
- 3 MATCHING UNIT. Connects to radio transmitter (rt) and allows the antenna elements to bend without breaking.
- 4 GROUND STRAP. Grounds matching unit to vehicle.
- 5 TIEDOWN ASSEMBLY. Secures antenna while vehicle is in motion.
- 6 TIP CAP. Protects personnel from pointed tip of antenna.

1-11. SAFETY, CARE, AND HANDLING.

Be sure to obey all Warnings, Cautions, and Notes in this manual. Failure to follow directions could result in serious injury to personnel and/or damage to equipment.

Section III TECHNICAL PRINCIPLES OF OPERATION

Subject	Para	Page
General	1-12	1-5
Antenna	1-13	1-5
Impedance Matching	1-14	1-5
Switching	1-15	1-5

1-12. GENERAL.

Antenna AS-1729/VRC consists of a 10-foot, center-fed whip antenna and Matching Unit Base MX-6707/VRC. The MX-6707/VRC matches the impedance of the whip antenna to the 50 ohm transmitter output impedance and receiver input impedance over the entire frequency range of 30 - 76 MHz.

1-13. ANTENNA.

The whip antenna consists of a lower section (AS-1730/ARC) and an upper section (AT-1095/VRC). The antenna is fed at its midpoint through a coaxial transmission line in the lower 5-foot section. The transmission line consists of two parts. The upper part has an impedance of 125 ohms and the lower part has an impedance of 50 ohms. These two sections of the transmission line act as a transformer to provide a good standing wave ratio (swr) at the base of the whip antenna. The upper 5-foot section of the antenna is the radiating element and is an extension of the center conductor of the coaxial transmission line.

1-14. IMPEDANCE MATCHING.

The impedance of the AS-1729/VRC is matched to the receiver-transmitter by controlling the current distribution in the antenna at a particular frequency. (See foldout at rear of manual.) This is done by a selected network in the MX-6707/VRC consisting of a choke (L1) and a shunt reactance made up of a specific capacitor (C1 through C8) and a specific inductor (L2 through L10) for each frequency range of the 10 ranges from 30 to 76 MHz except where none is needed.

Radio frequency (rf) energy from the receiver-transmitter is applied directly through jack J1 to the whip antenna and across the selected reactance network.

1-15. SWITCHING.

The antenna can be tuned to the desired frequency range by manually operating switch S1 to connect the appropriate reactance network into the rf path.

When a compatible receiver-transmitter is connected through jack J2 of the MX-6707/VRC, the receiver-transmitter supplies control voltages (25 vdc) to the matching unit. This voltage is distributed by a cam-operated switch in the receiver-transmitter and is used to operate the matching unit switch S1 to automatically select the appropriate reactance network to match the operating frequency of the receiver-transmitter.

1-15. SWITCHING. (CONT)

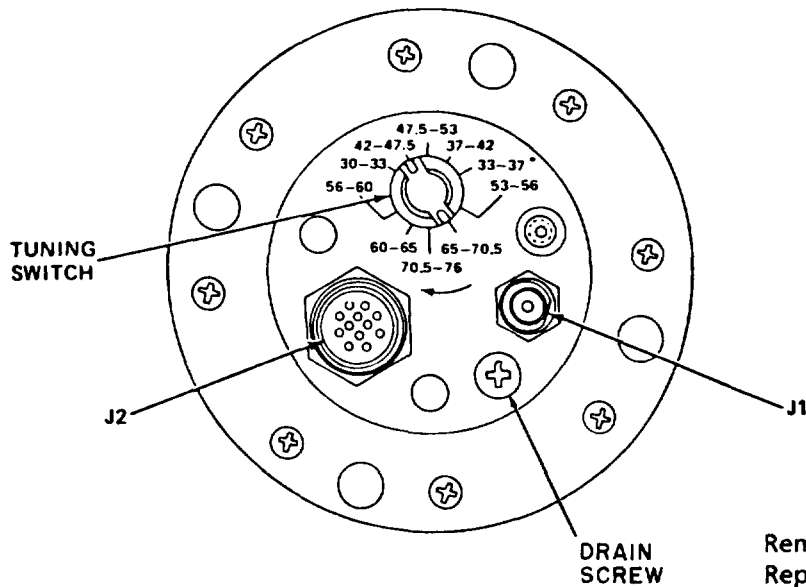
Depending on the position of the cam-operated switch in the receiver-transmitter, 25 vdc is fed through pin D, E, F, H, or J of jack J2 on MX-6707/VRC. Pin N of jack J2 is always supplied with 25 vdc when the equipment is operating. When the BAND switch on the receiver-transmitter is in position A, 25 vdc is applied through pin A of jack J2 to the coil of relay K1. The switching action of K1 increases the number of selectable reactance networks from 5 to 10 by completing the circuit through switch S1-B front (for band A) on S1-B rear (for band B). The control voltage is also fed to a rotary latching solenoid which is part of switch S1.

The rotary latching solenoid turns switch S1 in steps. At each step, the solenoid connects switches S1-C and S1-D to one of the shunt reactance networks (except where none is necessary) and opens switch S1-A. After each step, switch S1-A closes and, if 25 vdc is still available at switch S1-B front or rear, it will step again. During the last step (at the matching frequency) the control voltage is disconnected from the rotary latching solenoid and the stepping action stops. This action leaves the selected reactance network in parallel with the base of the whip antenna portion of the AS-1729/VRC.

CHAPTER 2 OPERATING INSTRUCTIONS

Subject	Section	Page
Description and Use of Operator's Controls and Indicators	I	2-1
Operator Preventive Maintenance Checks and Services (PMCS)	II	2-2
Operation Under Usual Conditions	III	2-3
Operation Under Unusual Conditions	IV	2-11

Section I DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS



FREQUENCY RANGES

30-33	53-56
33-37	56-60
37-42	60-65
42-47.5	65-70.5
47.5-53	70.5-76

EL4TS005

CAUTION

Remove drain screw. Drain excess moisture.
Replace drain screw.

The antenna matching unit contains circuits that will match the antenna to 10 frequency ranges. The tuning switch is used to manually select the circuit for the frequency range that includes the operating frequency of the radio. The switch is operated in a clockwise direction as indicated by the arrow. It operates automatically when the AS-1729/VRC is connected to a radio with automatic antenna matching capabilities. In automatic, the tuning switch knob indicates the frequency range to which the radio is tuned.

Jack J1 is used to connect the rf output of the associated radio to the whip antenna sections of the AS-1729/VRC.

Jack J2 is used to connect the automatic tuning facility of the associated radio to the tuning circuitry of the matching unit.

Section II OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Subject	Para	Page
General	2-1	2-2
Operator Preventive Maintenance Checks and Services (PMCS)		2-2

2-1. GENERAL.

To ensure operational readiness of the AS-1729/VRC, it must be inspected at definite intervals so that defects may be found and corrected before they result in serious damage or failure. The Preventive Maintenance Checks and Services (PMCS) which must be done are listed on page 2-2.

The Preventive Maintenance Checks and Services procedures are required to keep your equipment in good operating condition. They include (B) before operation and (A) after operation checks.

Perform both the before and after checks if you are the assigned operator and have not operated the equipment since the last check or if you are operating the equipment for the first time.

If the equipment fails to operate, see operator troubleshooting procedures in chapter 3, section II of this manual. Use DA Pam 738-750 as a guide for reporting problems and using forms.

Routine checks like equipment, inventory, cleaning components, checking for frayed and damaged cables, replacing items not in use, checking for loose hardware and safety wires, and corrosion on receptacles and connectors are not listed in the PMCS tables. You should do these things any time you see they need to be done as a matter of good preventive maintenance. If you find a routine check in the PMCS, it was listed because other operators reported problems with this item.

The ITEM NO. column in the PMCS table is to be used as a source number for the TM number column on DA Form 2404, Equipment Inspection and Maintenance Worksheet, for recording PMCS results.

The EQUIPMENT IS NOT READY/AVAILABLE IF: column tells you why your equipment cannot be used if the ITEM TO BE INSPECTED does not meet PROCEDURE needs.

NOTE

Keep in mind all warnings and cautions when doing PMCS or any routine checks.

OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES

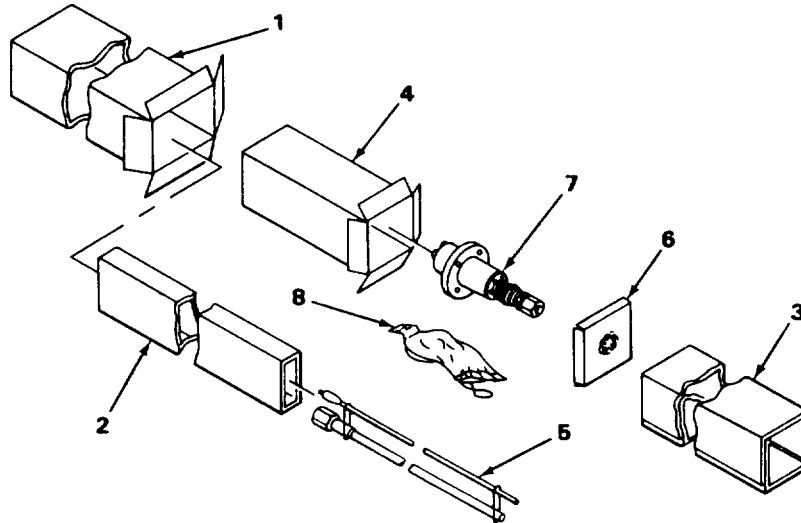
B-BEFORE A-AFTER

ITEM NO.	INTERVAL		ITEM TO BE INSPECTED PROCEDURE	EQUIPMENT IS NOT READY/AVAILABLE IF:
	B	A		
1	●	.	ANTENNA TIP CAP Check to see that tip cap is secured to tip of top element. If cap is not available, make a covering for tip of antenna using electrical or masking tape.	Antenna tip is not covered.
2	●	.	ANTENNA TIEDOWN The antenna should be pulled down to an angle that will not endanger personnel or interfere with power lines.	Antenna angle can cause injury to personnel or contact power lines.

Section III OPERATION UNDER USUAL CONDITIONS

Subject	Para	Page
Unpacking	2-2	2-3
Assembly and Installation Instruction	2-3	2-4
Initial Adjustment	2-4	2-9
Operating Procedure	2-5	2-10
Preparation for Movement	2-6	2-11

2-2. UNPACKING



EL4TS006

1. Open end of carton (1).
2. Remove box (2) containing antenna elements.
3. Remove packing material (3) from open end of carton (1).
4. Remove box (4) containing matching unit.
5. Remove antenna elements (5) from box (2).
6. Open box (4) containing matching unit.
7. Remove packing cardboard (6).
8. Pull out matching unit (7) and installation hardware bag (8).
9. Store all boxes and shipping materials for future use.

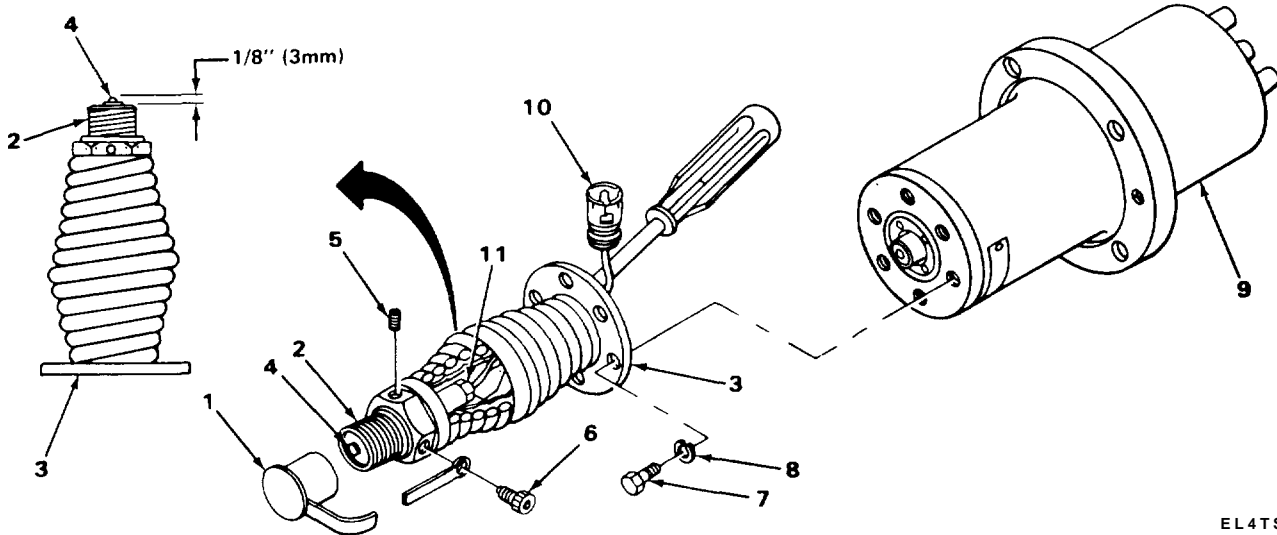
After the AS-1729/VRC is unpacked, the following checks should be made.

1. Inspect equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on SF 364 (Report of Discrepancy (ROD)).
2. Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions of SF 361 (Discrepancy in Shipment Report) as prescribed in AR 55-38.
3. Check that all applicable Modification Work Orders (MWOS) have been applied to the equipment. Current MWOS for the equipment will be listed in DA Pam 25-30.

2-3. ASSEMBLY AND INSTALLATION INSTRUCTIONS.

Antenna AS-1729/VRC can be mounted on various types of vehicles. Mounting instructions will be different for specific vehicles. Refer to SB 11-131 for a list of vehicular radio sets and authorized installations. All tools necessary for installation can be found in Tool Kit, Electronic Equipment TK-101/G.

ANTENNA TIP CONTACT



EL4TS013

1. Remove dust cover (1) from threaded portion (2) of spring mount (3).
2. Check that tip contact (4) sticks out above threaded portion (2) of spring mount (3).

NOTE

If tip contact sticks out above threaded portion of spring mount, go to installation of matching unit. If tip contact does not stick out above spring mount, do steps 3 through 9.

3. Using Allen wrench, loosen two setscrews (5) and capscrew (6).
4. Using 7/16-inch wrench, remove six bolts (7), lockwashers (8), and remove spring mount (3) from matching unit (9).

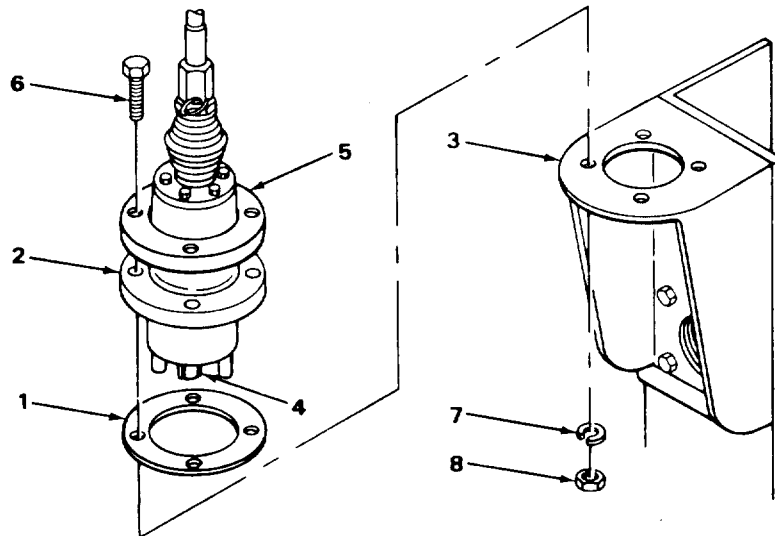
CAUTION

Be careful not to damage rf cable (10) with screwdriver. Hold rf cable (10) against inside surface of spring mount (3) before inserting screwdriver into spring mount (3).

5. Insert flat-tip screwdriver into spring mount (3) and pushup gently on the bottom of tip contact (11) until tip extends 1/8-inch above threaded portion (2) of spring mount (3).
6. Using Allen wrench, tighten setscrews (5) and setscrew (6).
7. Push rf cable (10) into spring mount (3).
8. Aline mounting holes on spring mount (3) and matching unit (9)
9. Using 7/16 -inch wrench, install six bolts (7) and lockwashers (8)

MATCHING UNIT

TOOLS: Tool Kit, Electronic Equipment TK-101/G



EL4TS007

NOTE

The gasket is included in hardware kit. Reinforcing cover may already be attached to matching unit.

1. Place gasket (1) around the matching unit (2).
2. Place matching unit (2) into mounting bracket (3) with tuning switch S1 (4) toward front of mounting bracket (3).
3. Place reinforcing cover (5) around matching unit (2) and aline mounting holes.

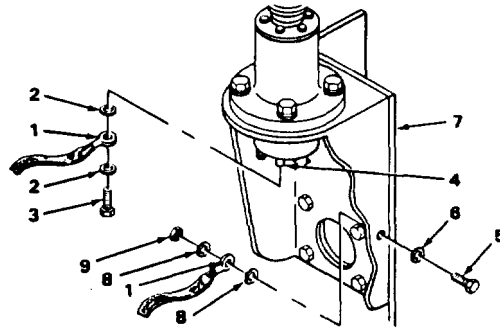
CAUTION

Overtightening can damage equipment.

4. Using torque wrench, install four bolts (6), split lockwashers (7), and hex nuts (8), and tighten to 100 in. lb.

2-3. ASSEMBLY AND INSTALLATION INSTRUCTIONS. (CONT)

GROUND STRAP



EL4TS008

WARNING

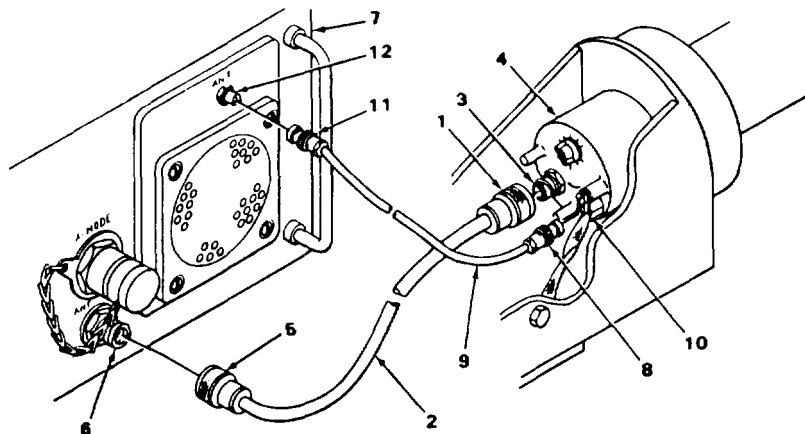
Ground strap must be securely grounded to vehicle body. Failure to properly install ground strap could result in injury to personnel.

NOTE

On those installations not having threaded male connectors for the bolts, it is recommended that a double star washer be used on the bolt holding the ground strap (only). This is to help insure metal to metal contact via the "stars". On those vehicles having threaded male connectors, it is recommended that two double star washers be used on the intervehicle ground connection, one on either side of the ground strap connector.

1. Position end of ground strap (1) with smaller hole between two star washers (2).
2. Install screw (3) through ground strap (1) and star washers (2) into threaded post (4).
3. Insert bolt (5) through star washer (6) and hole in mounting bracket (7).
4. Position ground strap (1), star washer (8), and nut (9) over bolt and tighten.

CABLES



EL4TS009

CAUTION

Before connecting cables to the matching unit, turn off radio-transmitter (rt). Failure to do so could cause damage to connector pins due to arcing.

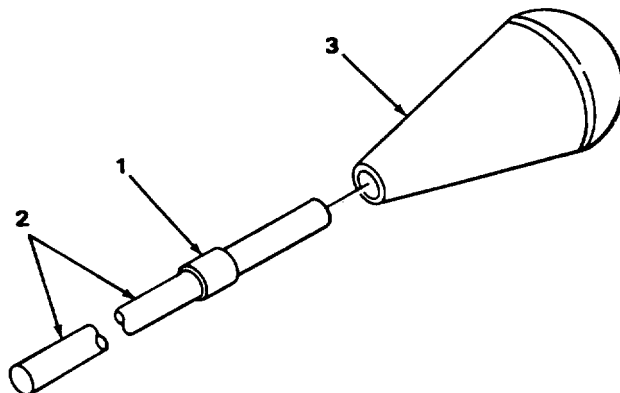
Always connect large cable, CX-4722/VRC, to matching unit connector J2 before connecting small rf cable, CG-1773/U Male pins of connector could be damaged if CG-1773/U is screwed onto J2.

2-3. ASSEMBLY AND INSTALLATION INSTRUCTIONS. (CONT)

1. Connect plug P2 (1) of Cable CX-4722/VRC(2) to jack J2 (3) of matching unit (4).
2. Connect plug P1 (5) to ANT CONT jack (6) of rt (7).
3. Connect plug P2 (8) of Cable CG-1773/U (9) to jack J1 (10) of matching unit (4).
4. Connect plug P1 (11) to ANT jack (12) of rt (7).

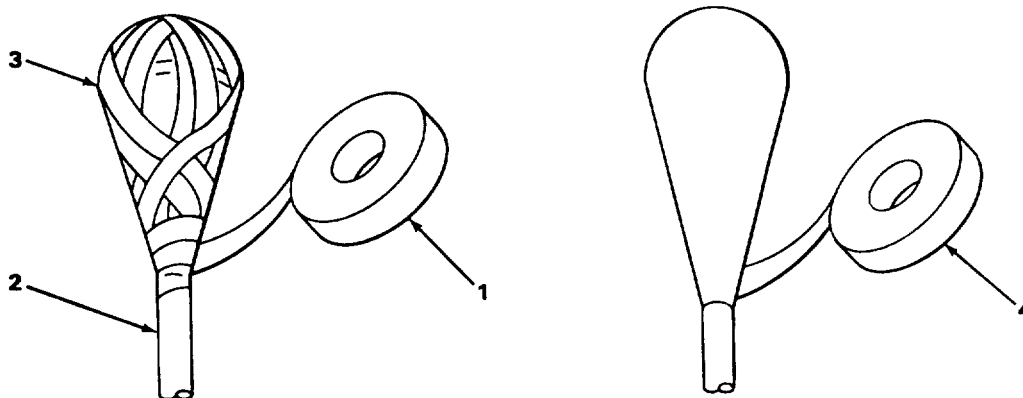
ANTENNA TIP CAP

MATERIALS/PARTS: Reinforced tape (item 7, appendix D)
 Electrical tape (item 4, appendix D)



EL4TS014

1. Using reinforced tape (1), wrap top element (2) about five times, approximately 2 inches from tip.
2. Place antenna tip cap (3) over tip of top element (2) and push down.



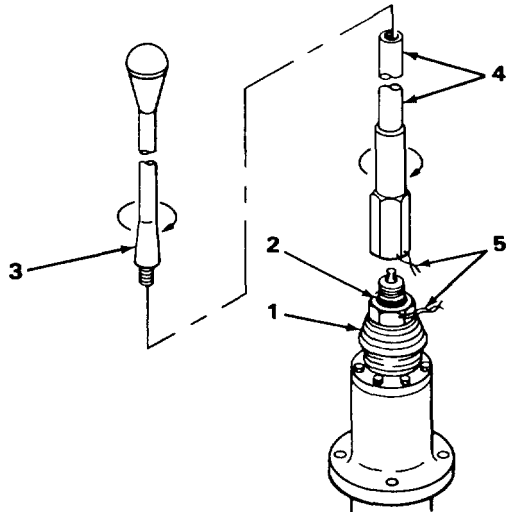
EL4TS012

3. Wrap reinforced tape (1) around base of tip cap (3) where it meets top element (2), then secure tip cap (3) to top element (2).
4. Using electrical tape (4), wrap tip cap (3) completely.

2-3. ASSEMBLY AND INSTALLATION INSTRUCTIONS. (CONT)

ANTENNA ELEMENTS

MATERIALS/PARTS: Silicone Compound MIL-S-8660 (item 2, appendix D)



EL4TS010

WARNING

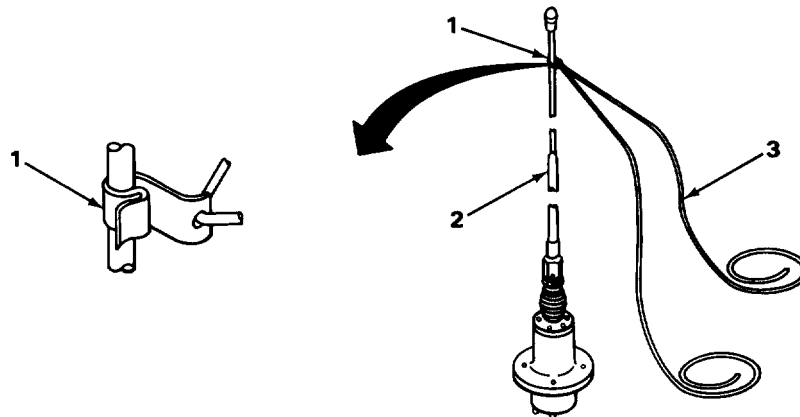
DO NOT try to erect any antenna during a storm. Severe electrical shock or death could result.

1. Apply silicone compound to threads of spring mount (1).
2. Push preformed packing (2) down around bottom of threads of spring mount (1).
3. Apply silicone compound to threads of top element (3).
4. Screw top element (3) into bottom element (4).
5. Screw bottom element (4) onto spring mount (1).

NOTE

The safety wire helps prevent bottom element from coming loose from spring section while vehicle is in motion. If bottom element will be frequently removed or if vehicle will not be on the road frequently, do not install safety wire. Keep it stored for future use.

6. Insert safety wire (5) through hole in bottom element (4).
7. Insert opposite end of safety wire (5) through hole in spring mount (1).
8. Using a double twist method, twist ends of safety wire (5) three to six times to form a pigtail.
9. Trim excess safety wire (5) and bend pigtail back against hexagonal portion of spring mount (1).

2-3. ASSEMBLY AND INSTALLATION INSTRUCTIONS. (CONT)**TIEDOWN ASSEMBLY**

EL4TS011

WARNING

DO NOT touch any antenna while the transmitter is on. Dangerous rf voltages, up to 10,000 volts, may exist at AS-1729/VRC elements and connectors. Stay in or stay clear of vehicle when transmitting.

If you are not sure the AS-1729/VRC will clear a powerline, stop and carefully tie down the antenna or remove antenna sections to ensure safely driving under the powerline. When antenna is not being used and vehicle is in motion, keep tiedown in place.

Vehicles with AS-1729/VRC mounts more than 6 feet above ground can strike railroad crossing powerlines if the antenna comes loose from the tiedown while vehicle is moving. A serious or fatal injury could result.

Antenna element will be placed under clip when antenna is mounted more than 6 feet off ground and vehicle will be passing under electric railway-power conductors or low powerlines. At all other times, element will be placed into clip.

1. Slide locking jaw of tiedown assembly (1) around middle of top element (2).
2. Pull tiedown assembly rope (3) so antenna is at a 30 to 45 degree angle to ground.
3. Tie both ends of tiedown assembly rope (3) to convenient place on vehicle.

NOTE

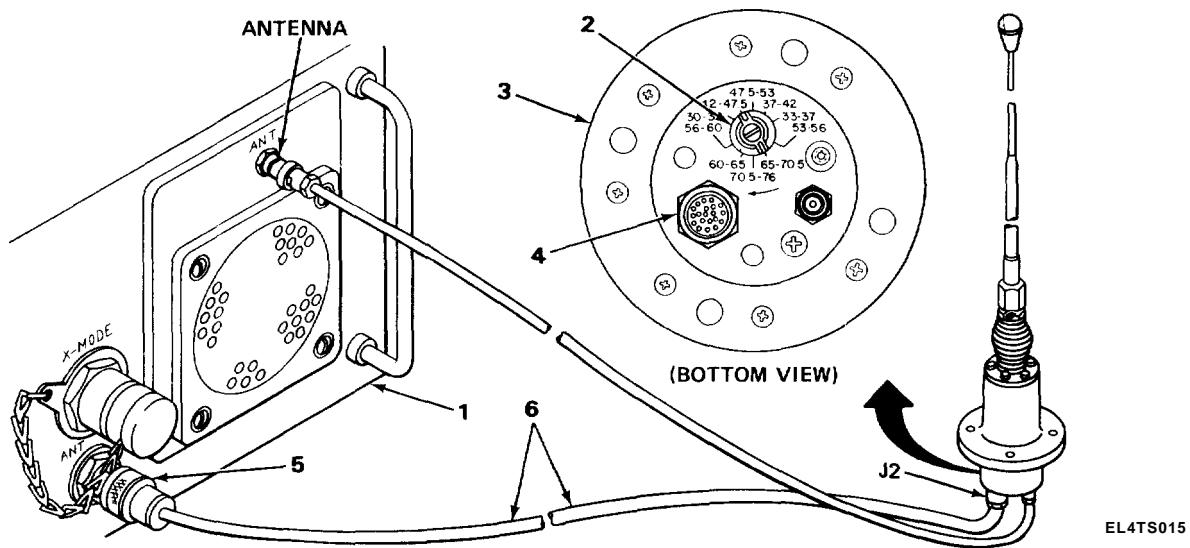
If possible, maintain mobile communications with antenna tied down.

If end of tiedown assembly rope unravels, cut raveled part and put end over a flame for a moment to seal threads. To finish procedure, tie a knot in end of tiedown assembly rope.

2-4. INITIAL ADJUSTMENT.

Before operating rt, make sure antenna elements are tightly screwed together. Check that bottom element is securely fastened to matching unit. If safety wire is required (see page 2-8), check to see that it is secure.

2-5. OPERATING PROCEDURE.



WARNING

DO NOT touch any antenna while the transmitter is on. Dangerous rf voltages, up to 10,000 volts, may exist at AS-1729/VRC elements and connectors. Stay in or stay clear of vehicle when transmitting.

Operator and maintenance personnel should be familiar with the requirements of TB SIG-291 before attempting installation or operation of the AS-1729/VRC elements and connectors. Failure to observe the requirements of TB SIG-291 could result in injury or death.

AUTOMATIC OPERATION

1. Tune rt (1) to desired frequency.
2. Check that tuning switch S1 (2) on matching unit (3) turns to desired frequency range.

NOTE

After switching rt to desired frequency, wait 10 seconds to allow matching unit (3) to switch to proper frequency range. If matching unit does not switch, check cable connections to J2 (4) and ANT CONT jack (5). If matching unit still fails to switch frequency ranges, operate AS-1729/VRC manually.

3. Transmit.

MANUAL OPERATION

1. Remove Control Cable CX-4722/VRC (6) from matching unit (3).
2. Tune rt (1) to desired frequency.
3. Turn tuning switch S1 (2) to proper frequency range.
4. Transmit.

2-6. PREPARATION FOR MOVEMENT.

When preparing for movement, be sure to follow procedures for installing tiedown assembly and safety wire (para 2-3). Both of these features should be used when vehicle is in motion.

Refer to warning pages in the beginning of this manual and become familiar with warnings before moving a vehicle with AS-1729/VRC installed.

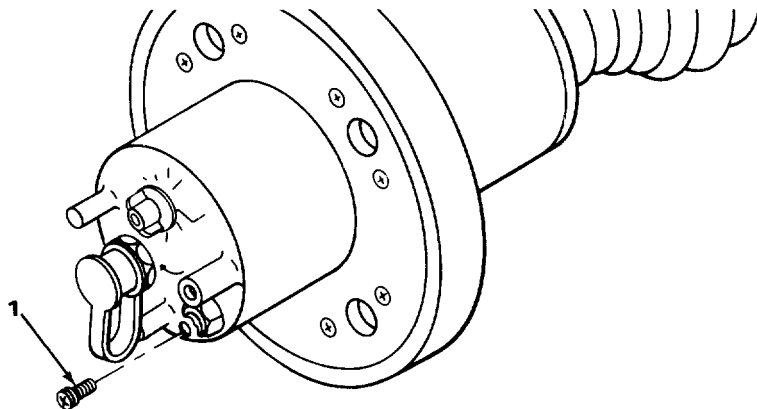
Section IV OPERATION UNDER UNUSUAL CONDITIONS

Subject	Para	Page
Operation in Extreme Cold	2-7	2-11
Fording	2-8	2-11
Emergency Procedure	2-9	2-11

2-7. OPERATION IN EXTREME COLD.

When operating the AS-1729/VRC in extremely cold weather, keep ice and snow from building upon whip section of antenna. Be sure to keep unused receptacles covered. If rf cable is not attached, cover jack J1 with electrical tape (item 5, appendix D). Do not bend whip section or cables as cracking or other forms of wear can result. Be careful when tying down or releasing antenna. Proceed slowly to prevent cracking.

2-8. FORDING.



EL4TS016

Before fording, check that seal screw (1) is tightly installed. After fording, remove seal screw (1) to release any water that might have entered the casing. Replace seal screw (1) after water has drained.

2-9. EMERGENCY PROCEDURE.

If there is a cutback in power to receiver-transmitter, operate antenna in manual mode after removing CX-4722/VRC from ANT CONT jack of rt and J2 jack of antenna (para 2-5).

NOTE

For antijamming procedures refer to TM 11-5820-401-10-1 or TM 11-5820-401-10-2.

CHAPTER 3

OPERATOR MAINTENANCE INSTRUCTIONS

Subject	Section	Page
Operator Troubleshooting Procedures	I	3-1
Operator Maintenance Procedures	II	3-2

Section I OPERATOR TROUBLESHOOTING PROCEDURES

Subject	Para	Page
General	3-1	3-1
Operator Troubleshooting		3-1

3-1. GENERAL.

The troubleshooting table lists problems you may find when operating the AS-1729/VRC.

The troubleshooting table does not list all of the problems which you may find. If your problem is not listed, or if the troubleshooting steps do not solve your problem, report your problem to a higher level of maintenance.

When working on any problem, be sure to report your work on the forms shown in DA Pam 738-750.

OPERATOR TROUBLESHOOTING

MALFUNCTION

TEST OR INSPECTION

CORRECTIVE ACTION

1. Matching unit does not switch frequency ranges in automatic mode.

Step 1. Check control cable connections.

Reconnect control cable.

Step 2. Check to see if connectors are dirty.

Clean with soft-bristle brush.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
-------------	--------------------	-------------------

2. No transmission or reception.

Step 1. Turn off rt and check antenna mast.

Tighten element.

Step 2. Check rf cable to see if it is attached correctly.

Reconnect cable.

Section II OPERATOR MAINTENANCE PROCEDURES

Subject	Para	Page
Cleaning	3-2	3-2
Tightening	3-3	3-2

3-2. CLEANING.

WARNING

Adequate ventilation should be provided while using TRICHLOROTRIFLUOROETHANE. Prolonged breathing of vapor should be avoided. The solvent should not be used near heat or open flame; the products of decomposition are toxic and irritating. Since TRICHLOROTRIFLUOROETHANE dissolves natural oils, prolonged contact with skin should be avoided. When necessary, use gloves which the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.

CAUTION

Plastic body of matching unit should be cleaned with water only. Do not use cleaning solvent, carbon tetrachloride, trichlorotrifluoroethane, penetrating oils, paint thinner, or detergent soap on plastic surfaces.

1. Turn rt off.
2. Remove dirt from surface with a clean cloth.
3. Using a rag dampened with trichlorotrifluoroethane, remove grease, fungus, and ground-in dirt from metal surfaces only.
4. Clean plastic surface of matching unit with water.

3-3. TIGHTENING.

1. Tighten all mounting hardware.
2. Check all cable connections.
3. Tighten retaining screw on tuning knob.

CHAPTER 4

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Subject	Section	Page
Repair Parts; Special Tools; Test, Measurement, and Diagnostic Equipment (TMDE); and Support Equipment	I	4-1
Organizational Preventive Maintenance Checks and Services (PMCS)	II	4-1
Organizational Troubleshooting Procedures	III	4-3
Organizational Maintenance Procedures	IV	4-4

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

Subject	Para	Page
Common Tools and Equipment	4-1	4-1
Special Tools, TMDE, and Support Equipment	4-2	4-1
Repair Parts	4-3	4-1

4-1. COMMON TOOLS AND EQUIPMENT.

A complete listing of common tools and equipment is given in the Maintenance Allocation Chart (MAC) in Appendix B at the back of this manual.

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

Refer to TM 11-5985-262-24P for special tools, TMDE, and support equipment.

4-3. REPAIR PARTS.

Repair parts for organizational maintenance of the AS-1729/VRC are listed and illustrated in the repair parts and special tools list in TM 11-5985-262-24P.

Section II ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Subject	Para	Page
General	4-4	4-1
Organizational Preventive Maintenance Checks and Services (PMCS)		4-2

4-4. GENERAL.

Organizational preventive maintenance procedures are designed to help maintain the AS-1729/VRC in serviceable condition. The PMCS procedures listed in this section are all checks to be done at quarterly intervals. The routine covering of unused receptacles, stowing unused equipment, and procedures such as equipment inventory, cleaning of components, checking for frayed cables and loose nuts, bolts, and screws as well as touchup painting are not listed in the PMCS table. These are things you should do any time you see they must be done. If you find a routine check in the PMCS, it was listed because other technicians reported problems with this item.

4-4. GENERAL. (CONT)

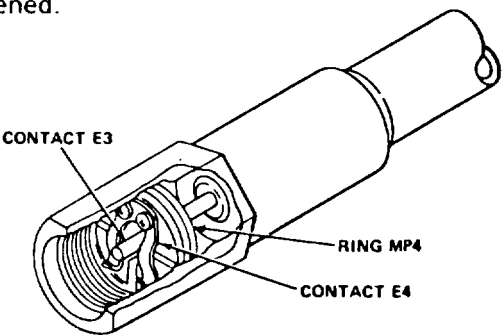
If the equipment fails to operate, refer to organizational troubleshooting steps in this manual. Use DA Pam 738-750 as a guide for reporting problems and using forms.

The ITEM NO. column in the PMCS table is to be used as a source of item numbers for the TM number column on DA Form 2404, Equipment Inspection and Maintenance Worksheet, for recording PMCS results. The organizational PMCS procedures listed are quarterly equipment checks.

NOTE

Keep in mind all warnings and cautions when doing PMCS or any routine checks.

ORGANIZATIONAL QUARTERLY PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

ITEM NO.	ITEM TO BE INSPECTED	PROCEDURES
1	Matching unit	Remove drain screw, drain moisture, and replace drain screw.
2	Ground Strap	Check for good ground connection (page 2-6).
3	Tuning Switch S1	<p>Check to see if matching unit tuning knob is loose, missing, or damaged. If so, tighten or replace knob (para 4-9).</p> <p>Change frequency setting of rt more than 5 MHz and listen to the relays of the matching unit operate. Check to see that matching unit tuning knob is pointing toward proper frequency range. If matching unit fails to tune to frequency setting of rt, refer to higher level of maintenance.</p>
4	Contact E3	<p>Contact E3 should be level with contact E4. Check E3 spring action by pushing down on the tip with a screwdriver. Using a load tightening tool (PNB-4030031), make sure that ring MP4 is fully tightened.</p> 
5	Top Element	Remove tip cap and check tip of top element for wear. If metal is showing, replace top element.

For more information regarding the Preventive Maintenance Checks and Services (PMCS) of the AS-1729/VRC refer to the AN/VRC-12 radio series organizational maintenance manuals.

Section III ORGANIZATIONAL TROUBLESHOOTING PROCEDURES

Subject	Para	Page
General	4-5	4-3
Organizational Troubleshooting		4-3

4-5. GENERAL.

The troubleshooting table lists malfunctions that may be found during PMCS or when the equipment is being operated.

The troubleshooting table does not list all of the problems which could occur. If your problem is not listed, or if the procedures given do not correct the problem, report it to a higher level of maintenance-

When working on any problem, be sure to report your work on the forms shown in DA Pam 738-750.

ORGANIZATIONAL TROUBLESHOOTING

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
-------------	--------------------	-------------------

1. Circuit breaker on rt trips on any frequency range.

Remove cables from matching unit. If circuit breaker stays on, matching unit is faulty.

Replace matching unit (para 4-8).

If circuit breaker still trips after matching unit has been replaced, rt is faulty

Refer to appropriate TM and troubleshoot rt.

2. Matching unit tunes to band A or B, but not both.

Change the frequency in 5 MHz steps At each change in frequency, the relay of the matching unit should be heard operating. If matching unit does not change frequencies, replace control Cable CX-4722/VRC with known good cable. If matching unit still does not operate, replace matching unit with known good unit and reconnect original CX-4722/VRC cable. If substitute matching unit operates, original matching unit is defective.

Replace matching unit (para 4-8).

MALFUNCTION
 TEST OR INSPECTION
 CORRECTIVE ACTION

If both original and substitute matching units fail to operate, rt is faulty.

Refer to appropriate TM and troubleshoot rt.

3. Tuning switch of matching unit does not stop turning.

Retune rt to different frequency. If problem still exists, matching unit is faulty.

Replace matching unit (para 4-8).

4. Low or no transmission power.

Test antenna for forward and reflected power (para 4-10). If the reflected power indication is low and forward power is below that required for the rt, refer to the appropriate TM and troubleshoot rt. If reflected power indication is excessively high, check to see that antenna elements are tightly screwed to ether. Using Multimeter AN/URM-105, check continuity of rf cable inside bottom element. If continuity cannot be established, bottom element is faulty.

Replace bottom element (para 4-7).

Check top element for cracks or other signs of wear that might decrease transmission power.

Replace top element if bad (para 4-7).

Section IV ORGANIZATIONAL MAINTENANCE PROCEDURES

Subject	Para	Page
General	4-6	4-5
Antenna Elements Replacement	4-7	4-5
Matching Unit Replacement	4-8	4-6
Tuning Knob Replacement	4-9	4-7
Testing Antenna	4-10	4-8
Touchup Painting	4-11	4-11
Contact E4 Replacement	4-12	4-12
Contact E3 Replacement	4-13	4-13
Spring MP5 Replacement	4-14	4-13

4-6. GENERAL.

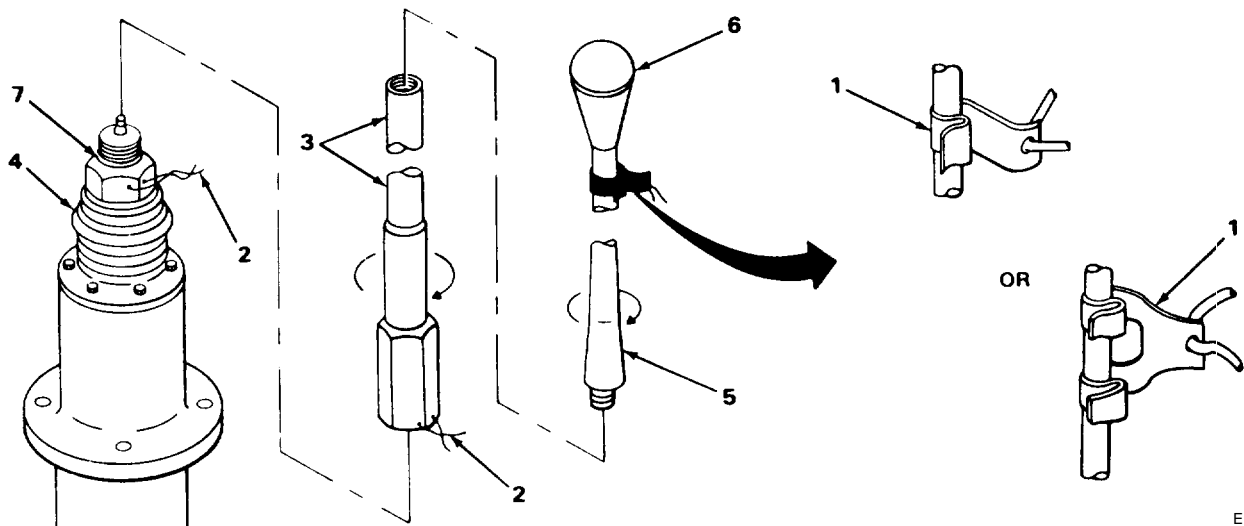
This section provides instructions for organizational maintenance of Antenna AS-1729/VRC. The following initial setup information applies to all procedures.

Resources required are not listed unless they apply only to the particular procedure. Tool Kit, Electronic Equipment TK-101/G is needed for all procedures. Tools will not be listed unless they are not contained in this kit. All tasks can be performed by one technician. The normal standard equipment condition is power off. Equipment condition will not be listed unless some other condition is required.

Replacement consists of REMOVAL of old equipment and INSTALLATION of new equipment.

4-7. ANTENNA ELEMENTS REPLACEMENT.

MATERIALS/PARTS: Silicone Compound MIL-S-8660 (item 2, appendix D)



REMOVAL

WARNING

DO NOT try to erect any antenna during a storm. Severe electrical shock or death could result.

1. Untie tiedown assembly (1).
2. Remove safety wire (2).
3. Unscrew bottom element (3) from spring mount (4).
4. Unscrew top element (5) from bottom element (3).
5. Remove tiedown assembly (1) and tip cap (6) from top element (5).

INSTALLATION

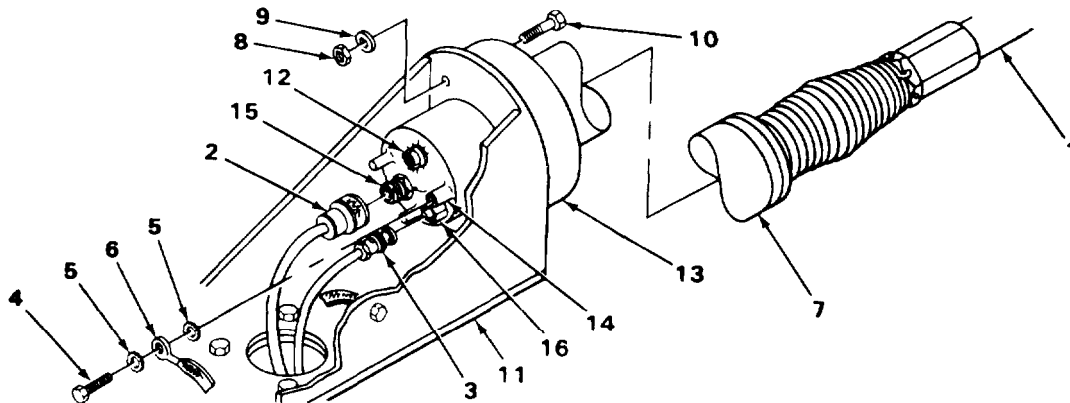
1. Place tip cap (6) on tip of top element (5),
2. Connect tiedown assembly (1) to middle of top element (5).
3. Apply silicone compound to threads of spring mount (4).
4. Push preformed packing (7) down around bottom of threads of spring mount (4).
5. Apply silicone compound to threads of top element (5).
6. Screw top element (5) into bottom element (3).
7. Screw bottom element (3) on to spring mount (4).

NOTE

The safety wire helps prevent bottom element from coming loose from spring section while vehicle is in motion. If bottom element will be frequently removed or if vehicle will not be on the road frequently, do not install safety wire. Keep it stored for future use.

8. Insert safety wire (2) through hole in bottom element (3).
9. Insert opposite end of safety wire (2) through hole in spring mount (4).
10. Using a double twist method, twist end of safety wire (2) three to six times to form a pigtail.
11. Trim excess safety wire (2) and bend pigtail back against hexagonal portion of spring mount (4).
12. Tie down antenna (para 2-3).

4-8. MATCHING UNIT REPLACEMENT.



EL4TS048

REMOVAL

1. Remove antenna elements (1) (para 4-7).
2. Remove Cable CX-4722/VRC (2) and Cable CG-1773/U (3).
3. Using flat-tip screwdriver, remove screw (4).
4. Remove two star washers (5) and ground strap (6) from matching unit (7).
5. Remove four hex nuts (8), lockwashers (9), and bolts (10).
6. Remove matching unit (7) from mounting bracket (11).

INSTALLATION

1. Place matching unit (7) into mounting bracket (11) with tuning switch S1 (12) toward front of mounting bracket (11).

NOTE

Reinforcing cover may already be attached to matching unit.

2. Place reinforcing cover (13) around matching unit (7) and align mounting holes.

CAUTION

Overtightening can damage element.

3. Using torque wrench, install four bolts (10), lockwashers (9), and hex nuts (8), and tighten to 100 in. lb.

WARNING

Ground strap must be securely grounded to vehicle body. Failure to properly install ground strap could result in injury to personnel.

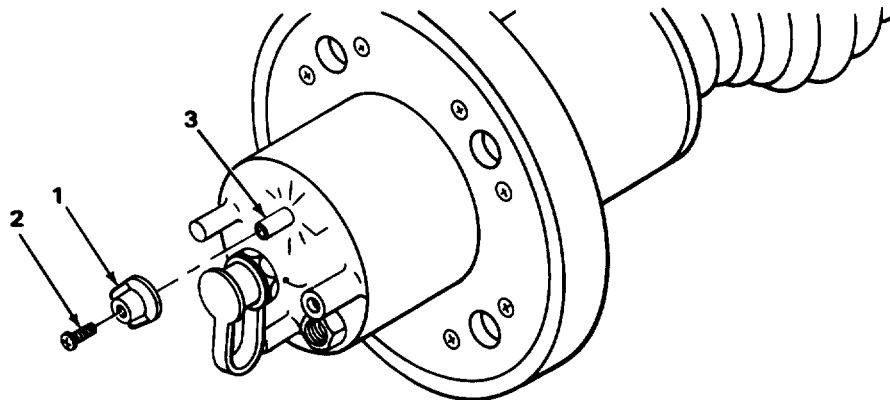
4. Install screw (4) through ground strap (6) and star washers (5) into threaded post (14).

4-8. MATCHING UNIT REPLACEMENT. (CONT)**CAUTION**

Before connecting cables to the matching unit, turn off radio-transmitter (rt). Failure to do so could cause damage to connector pins due to arcing.

Always connect large Cable CX-4722/VRC, to matching unit connector J2 before connecting small rf cable, CG-1773/U. Male pins of connector could be damaged if CG-1773/U is screwed on to J2.

5. Connect Cable CX-4722/VRC (2) to jack J2 (15) of matching unit (7).
6. Connect Cable CG-1773/U (3) to jack J1 (16) of matching unit (7).
7. Install antenna elements (para 4-7).

4-9. TUNING KNOB REPLACEMENT.

EL4TS020

REMOVAL

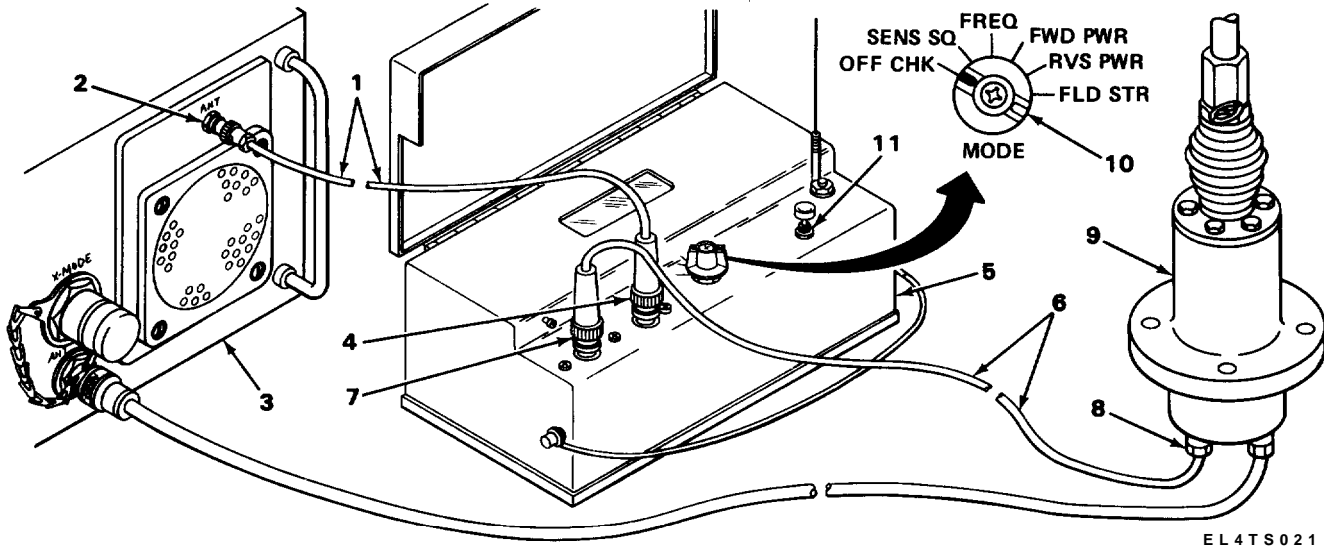
1. Set tuning knob (1) to the 47.5 - 53 MHz frequency range.
2. Using flat-tip screwdriver, remove screw (2).
3. Pull tuning knob (1) off gear shaft (3).

INSTALLATION

1. Place new knob on gear shaft (3) with white line pointing toward the 47.5 – 53 MHz frequency range.
2. Install screw (2).
3. Rotate clockwise to check movement.

4-10. TESTING ANTENNA.

TEST SETUP WITH AN/PRM-34



WARNING

DO NOT touch any antenna while the transmitter is on. Dangerous rf voltages, up to 10,000 volts, may exist at AS-1729/VRC elements and connectors. Stay in or stay clear of vehicle when transmitting. Do not key it when connecting or disconnecting AN/PRM-34.

1. Warm up rt for at least 5 minutes.
2. Connect cable CG-409G/U (1) to jack (2) of rt (3) and RADIO jack (4) of AN/PRM-34 (5).
3. Connect cable CG-1773/U (6) to ANT jack (7) of AN/PRM-34 (5) and jack J1 (8) of matching unit (9).
4. Tune rt (3) to 30 MHz and matching unit to the 30 – 33 MHz frequency range.
5. Turn selector switch (10) to FWD PWR.
6. Key mike of rt (3) and depress PUSH TO TEST button (11) and measure and record forward power.
7. Turn selector switch (10) to RVS PWR.
8. Key rt (3) and depress PUSH TO TEST button (11) and measure and record reverse power.
9. Repeat this procedure for all frequency ranges.

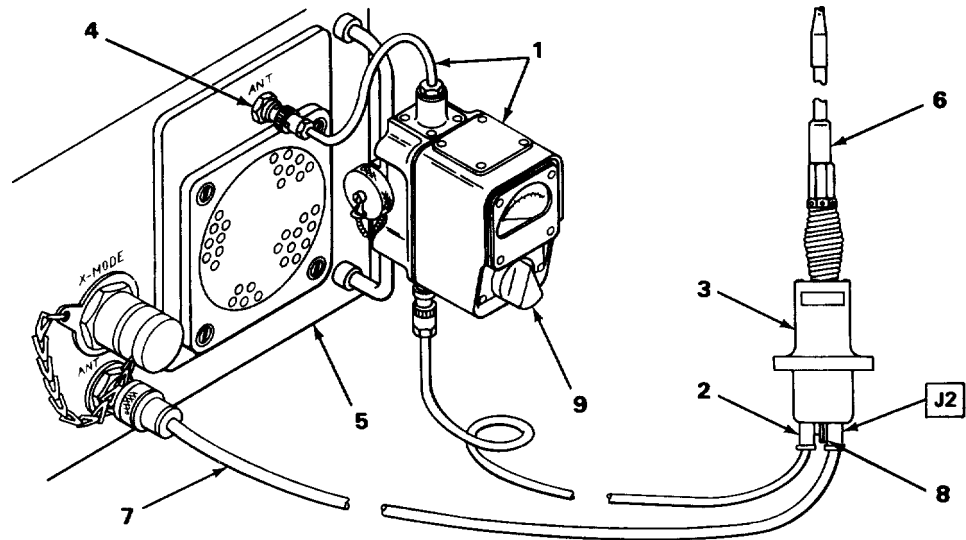
FREQUENCY RANGES (MHz)

30 - 33	53 - 56
33 - 37	56 - 60
37 - 42	60 - 65
42 - 47.5	65 - 70.5
47.5 - 53	70.5 - 76

10. Refer to power requirement chart (page 4-10) for corrective action.

4-10. TESTING ANTENNA. (CONT)

TEST SETUP WITH AN/URM-182



EL4TS039

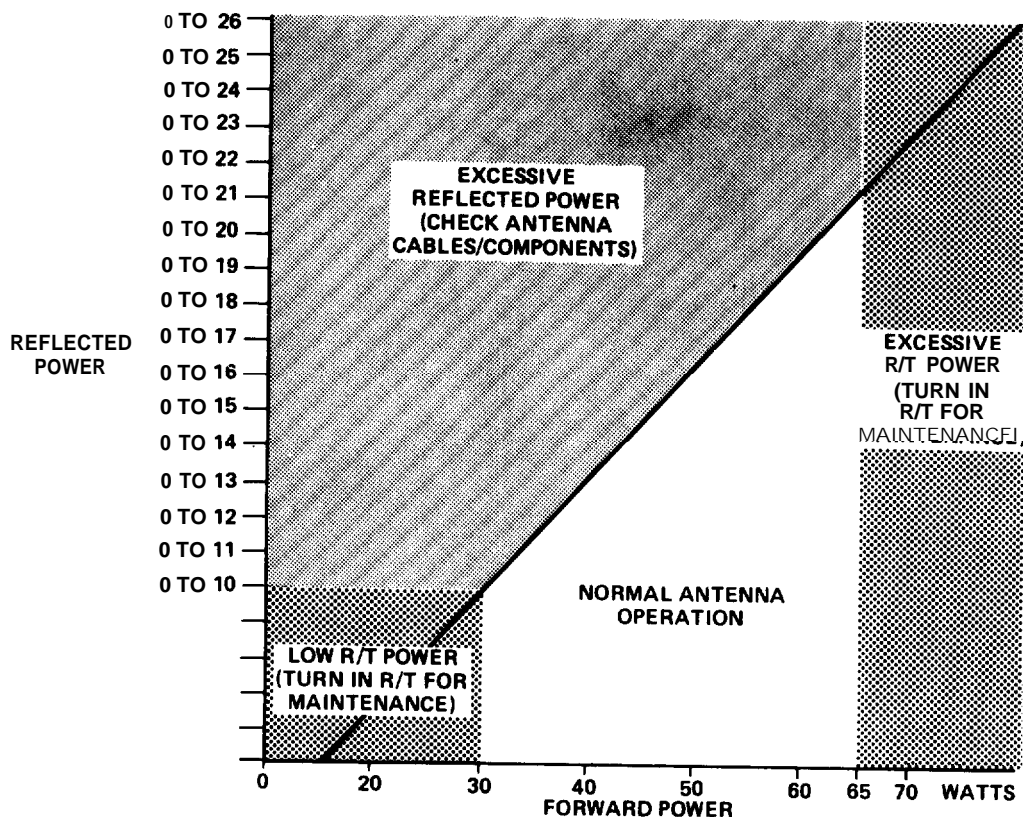
WARNING

DO NOT touch any antenna while the transmitter is on. Dangerous rf voltages, up to 10,000 volts, may exist at AS-1729/VRC elements and connectors. Stay in or stay clear of vehicle when transmitting.

1. Warm up rt for at least 5 minutes.
2. Connect AN/URM-182 (1) between jack J1 (2) of matching unit (3) and ANT jack (4) of rt (5).
3. If antenna(6) is tied down, untie it and move vehicle away from buildings.
4. If cable CX-4722/VRC (7) is not used, set tuning switch S1(8) and rt(5) to 30 MHz.
5. Measure forward power by keying rt(5) while meter selector switch (9) is on FWD PWR setting.
6. Record forward power measurements.
7. Measure maximum reflected power by setting selector switch (9) to RVS PWR.
8. Record reverse power measurements.
9. Repeat this procedure for all frequency ranges. (See page 4-8.)
10. Refer to power requirement chart (page 4-10) for corrective action.

4-10. TESTING ANTENNA (CONT)

POWER REQUIREMENTS



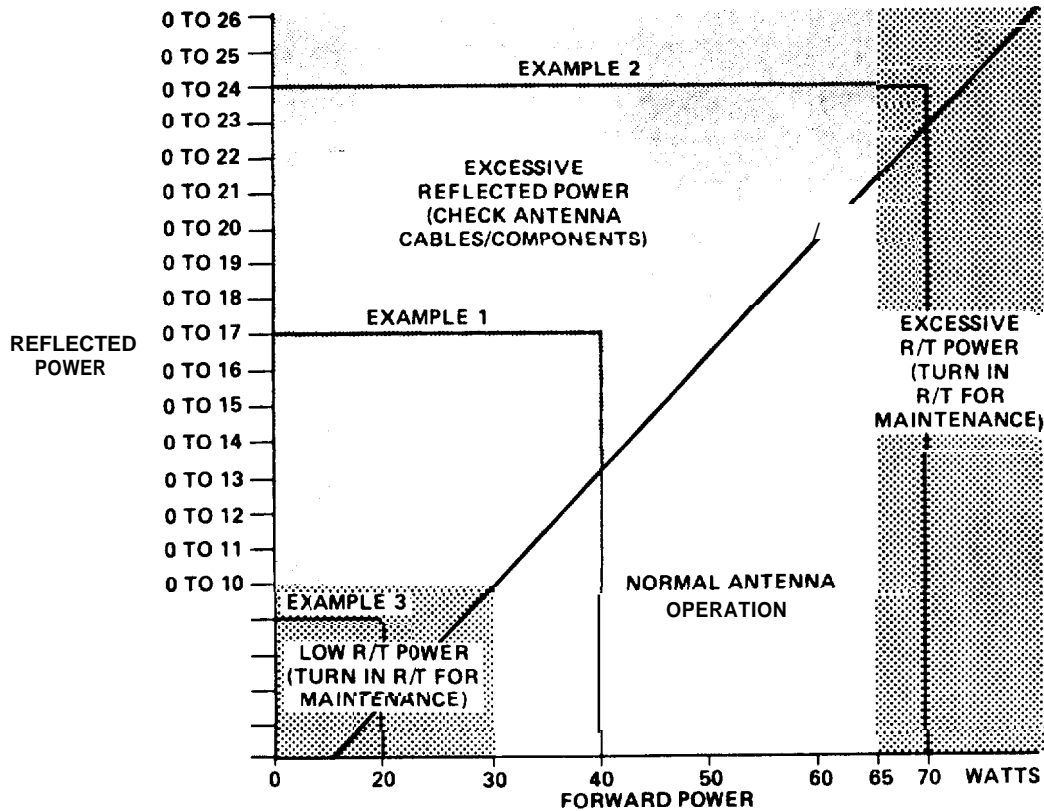
EL4TS040

To use the power requirement chart, first complete all steps in antenna testing procedures. Using the results obtained from forward power testing, find the corresponding value and draw a line going up the chart. Next, using the results obtained from reflected power testing, draw a line going across the chart. The shaded area in which the two lines cross indicates what type of problem, if any, may exist. See the following examples.

Examples:

1. If testing indicates 40 watts forward power and 0 - 17 watts reflected power, the problem would be excessive reflected power. Antenna cables and components should be checked.
2. If testing indicates 70 watts forward power and 0 - 24 watts reflected power, the problem would be excessive reflected power and excessive rt power. Antenna cables and components should be checked and rt should be turned in for maintenance.
3. If testing indicates 20 watts forward power and 0 - 9 watts reflected power, the problem would be low rt power. Rt should be turned in for maintenance.

4-10. TESTING ANTENNA. (CONT)



EL4TS041

4-11. TOUCHUP PAINTING.

WARNING

Before painting equipment, personnel should be familiar with SB 11-573, Painting and Preservation of Supplies, and TB 43-0118, Field Instructions for Painting and Preserving Communications-Electronics Equipment. Failure to observe the requirements therein could result in injury or death.

CAUTION

Do not paint any plastic portions of matching unit. If plastic is accidentally painted, do not try to remove paint as plastic can be damaged.

When finish on any metal part becomes scratched or chipped, lightly sand area with sandpaper (item 3, appendix D), and brush two thin coats of paint on bare area.

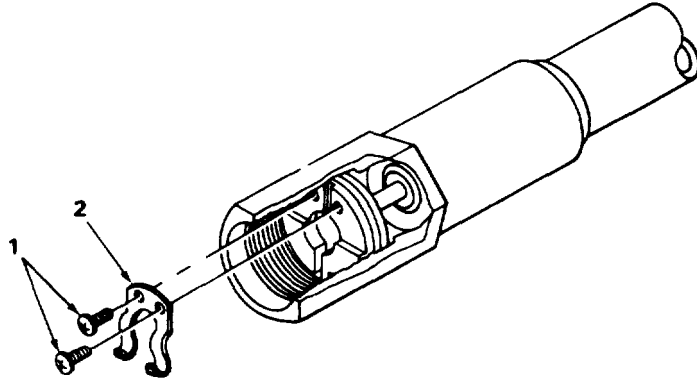
NOTE

If vehicle is to be painted, remove matching unit from mounting bracket.

4-12. CONTACT E4 REPLACEMENT.

TOOLS: Cross-tip screwdriver

MATERIALS/PARTS: Locking compound (item 6, appendix D)



EL4TS018

REMOVAL

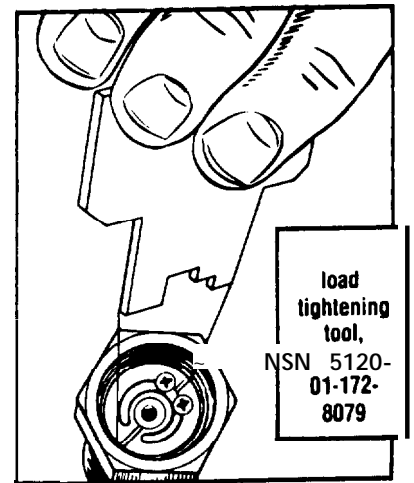
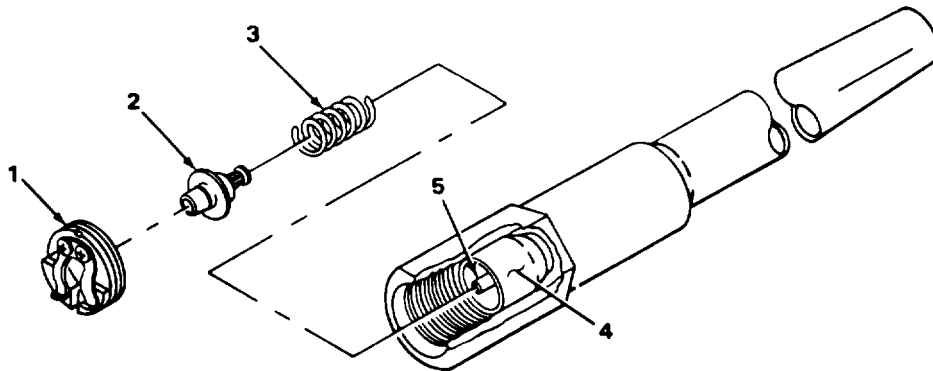
- 1 Using cross-tip screwdriver, remove two screws (1).
2. Remove contact E4 (2).

INSTALLATION

1. Place contact E4 (2) into mounting position.
2. Insert two screws (1) about halfway into screw holes.
3. Apply two drops of locking compound.
4. Using cross-tip screwdriver, tighten screws (1).

4-13. CONTACT E3 REPLACEMENT.

TOOLS: Needle-nose pliers
Load tightening tool (PNB-4030031)



EL4TS054

NOTE

The load tightening tool, which replaces spanner wrench, has a notch that indicates when the ring is properly tightened. It can also be used to remove the ring. The tool is stocked at organizational maintenance level.

REMOVAL

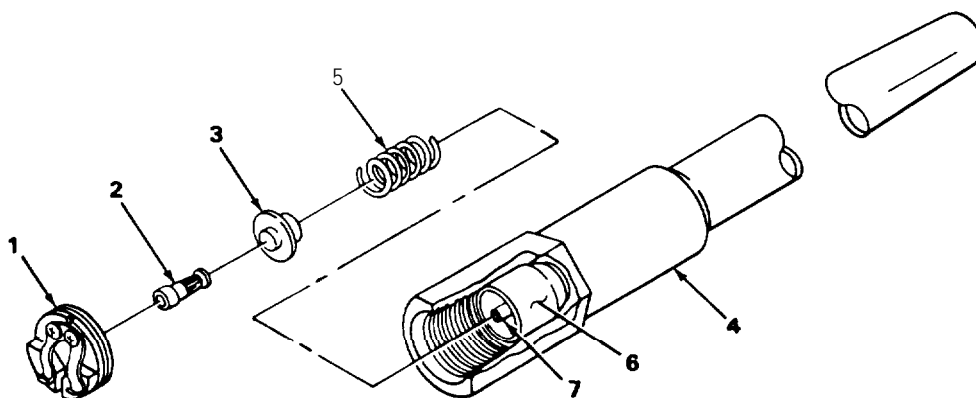
1. Using load tightening tool, remove ring MP4 (1).
2. Using needle-nose pliers, pull contact E3 (2) and insert MP3 (3) from bottom element (4).
3. Remove contact E3 (2) from insert MP3 (3).

INSTALLATION

1. Insert contact E3 (2) into insert MP3 (3).
2. Check to see that spring MP5 (5) is in spring holder MP2 (6) and that they are in place in bottom element (4).
3. Insert contact E3 (2) over center conductor (7).
4. Using load tightening tool, replace MP4 (1).

4-14. SPRING MP5 REPLACEMENT.

TOOLS: Load tightening tool



EL4TS050

■ 4-14. SPRING MP5 REPLACEMENT. (CONT)

REMOVAL

1. Using load tightening tool, remove ring MP4(1).
2. Remove contact E3 (2) (para 5-3).
3. Remove spring MP5 (3).

INSTALLATION

1. Check to see that spring holder MP2 (4) is in place in bottom element.
2. Place spring MP5 (3) over center conductor (5).
3. Insert contact E3(2) (para 5-3).
4. Using load tightening tool, replace ring MP4 (1).

All data on pages 5-1 through 5-3/(5-4 blank) including all figures are deleted

CHAPTER 5

DIRECT SUPPORT MAINTENANCE INSTRUCTIONS

Subject	Para	Page
General	5-1	5-1
Contact E4 Replacement	5-2	5-1
Contact E3 Replacement	5-3	5-2
Spring MP5 Replacement	5-4	5-2

5-1. GENERAL.

This chapter covers the replacement of components authorized at the direct support level of maintenance. The normal standard equipment condition to start a maintenance task is power off. All tasks at the direct support level can be done by one technician.

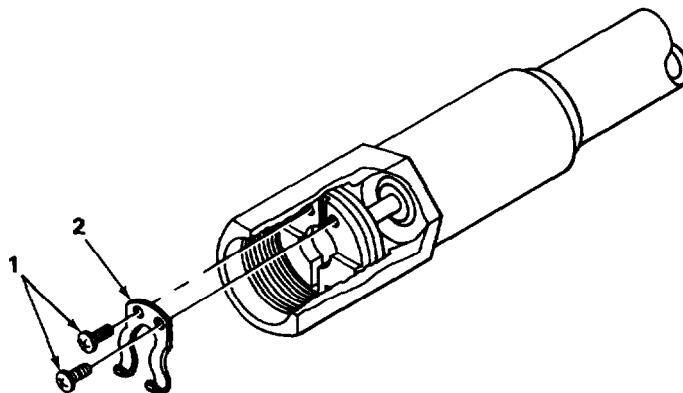
NOTE

For a list of tools and test equipment necessary for direct support maintenance, see appendix B.

5-2. CONTACT E4 REPLACEMENT.

TOOLS: Cross-tip screwdriver

MATERIALS/PARTS: Locking compound (item 7, appendix D)



EL4TS018

REMOVAL

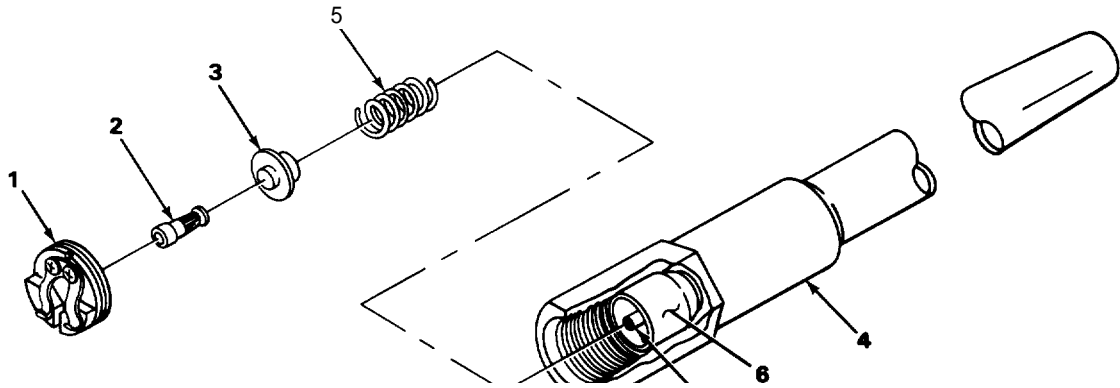
1. Using cross-tip screwdriver, remove two screws (1).
2. Remove contact E4 (2).

INSTALLATION

1. Place contact E4 (2) into mounting position.
2. Insert two screws (1) about halfway into screw holes.
3. Apply 2 drops of locking compound.
4. Using cross-tip screwdriver, tighten screws (1).

5-3. CONTACT E3 REPLACEMENT.

TOOLS: Needle-nose pliers
Spanner wrench



EL4TS054

REMOVAL

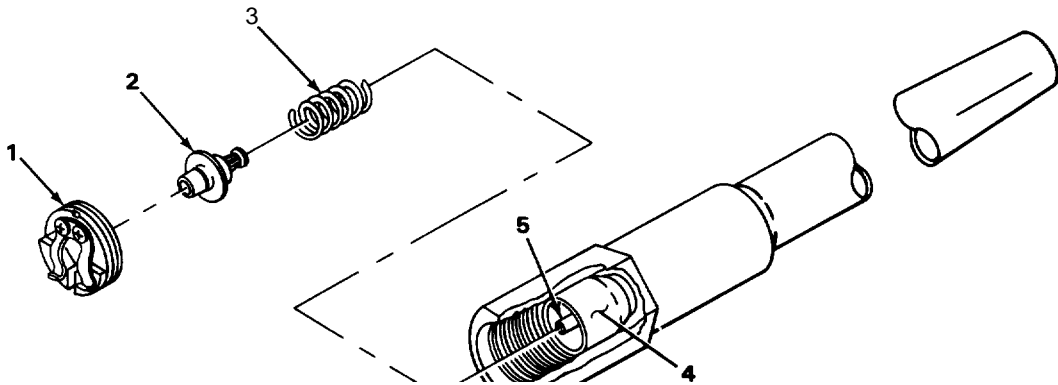
1. Using spanner wrench, remove ring MP4 (1).
2. Using needle-nose pliers, pull contact E3 (2) and insert MP3 (3) from bottom element (4),
3. Remove contact E3 (2) from insert MP3 (3).

INSTALLATION

1. Insert contact E3 (2) into insert MP3 (3).
2. Check to see that spring MP5 (5) is in spring holder MP2 (6) and that they are in place in bottom element (4).
3. Insert contact E3 (2) over center conductor (7).
4. Using spanner wrench, replace ring MP4 (1).

5-4. SPRING MP5 REPLACEMENT.

TOOLS: Spanner wrench



EL4TS050

5-4. SPRING MP5 REPLACEMENT.(CONT)

REMOVAL

- 1. Using spanner wrench, remove ring MP4 (1).**
- 2. Remove contact E3 (2) (para 5-3).**
- 3. Remove spring MP5 (3).**

INSTALLATION

- 1. Check to see that spring holder MP2 (4) is in place in bottom element.**
- 2. Place spring MP5 (3) over center conductor(5).**
- 3. insert contact E3 (2) (para 5-3).**
- 4. Using spanner wrench, replace ring MP4 (1).**

CHAPTER 6

GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

Subject	Section	Page
General Support Troubleshooting Procedures	I	6-1
General Support Maintenance Procedures	II	6-5

Section I GENERAL SUPPORT TROUBLESHOOTING PROCEDURES

Subject	Para	Page
General	6-1	6-1
General Support Troubleshooting		6-1

6-1. GENERAL.

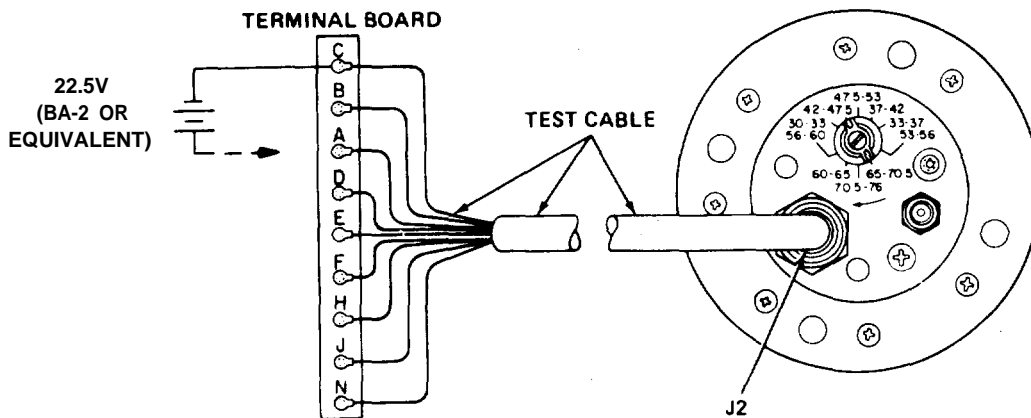
The troubleshooting table lists possible malfunctions that may have been found when doing organizational PMCS. The table does not list all problems that might exist. If your problem is not listed or if the steps given do not solve it, report the problem to a higher level of maintenance. When working on any problem, be sure to report your work on the forms shown in DA Pam 738-750.

GENERAL SUPPORT TROUBLESHOOTING

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
-------------	--------------------	-------------------

1. Matching unit does not switch frequencies in automatic mode.

- Step 1. Connect test cable (item 6, appendix B) to jack J2.
- Step 2. Connect -22.5 vdc to terminal C.



EL4TS022

GENERAL SUPPORT TROUBLESHOOTING (CONT)

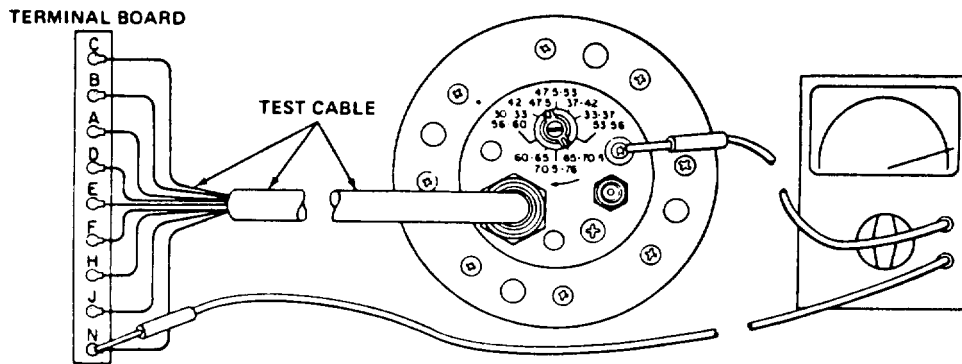
MALFUNCTION

TEST OR INSPECTION

CORRECTIVE ACTION

- Step 3. Set tuning switch S1 to 30-33 MHz frequency range,
- Step 4. Set multi meter to ohms X1 scale and zero meter.
- Step 5. Connect one test probe of multi meter to the matching unit chassis and the other probe to terminal N of the terminal board.
- Step 6. Multi meter should read 0 ohms to indicate continuity (in the operated position).

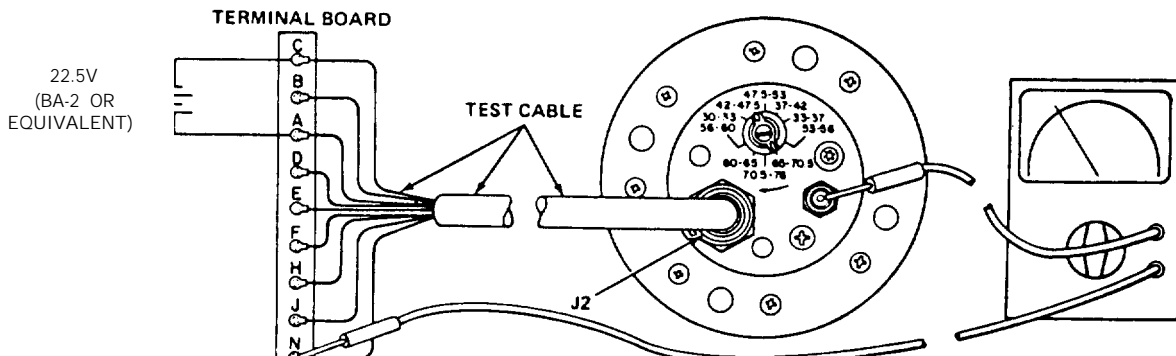
If there is no continuity, check connector J2 for damaged pins (para 6-4). If J2 is good, replace relay K1 (para 6-5).



EL4TS023

- Step 7. Apply 22 vdc to terminal A.
- Step 8. Connect multimeter as in step 5.
- Step 9. Multimeter should read infinity with relay in operated position

Relay K1 is defective if multimeter does not read infinity. Refer to depot maintenance.



EL4TS024

2. Matching unit does not turn to certain frequencies.

- Step 1. Do steps 1 and 2 of page 6-1.
- Step 2. Supply 22.5 vdc to terminal N.

GENERAL SUPPORT TROUBLESHOOTING (CONT)

MALFUNCTION

TEST OR INSPECTION

CORRECTIVE ACTION

- Step 3. Connect jumper lead from terminal N to terminal A to operate relay K1.
- Step 4. Connect a second jumper from terminal A to each terminal, one at a time, as shown in Band Segment A in table below.

If matching unit fails to change to one or more frequencies, refer unit to depot maintenance.

- Step 5. Remove jumper lead attached between terminal A and terminal N (relay inoperative).
- Step 6. Connect jumper lead from terminal N to each terminal, as shown in Band Segment B in table below.

If matching unit fails to change to one or more frequencies, refer unit to depot maintenance.

Band Segment A		Band Segment B	
Frequency Range MHz	Pin Combination	Frequency Range MHz	Pin Combination
30-33	A,D	53-56	D
33-37	A,E	56-60	E
37-42	A,F	60-65	F
42- 47.5	A,H	65- 70.5	H
47.5-53	A,J	70.5-76	J

3. Weak or no transmission or reception signal.

- Step 1. Remove six hex bolts, lockwashers, and spring section from matching unit.
- Step 2. Connect multimeter between the tip contact of the spring section and the center pin of the bottom contact.
- Step 3. Check for continuity.

If continuity is not obtained, refer unit to depot maintenance.
If continuity is obtained, continue with step 4.

- Step 4. Replace spring section, six hex bolts, and lockwashers.

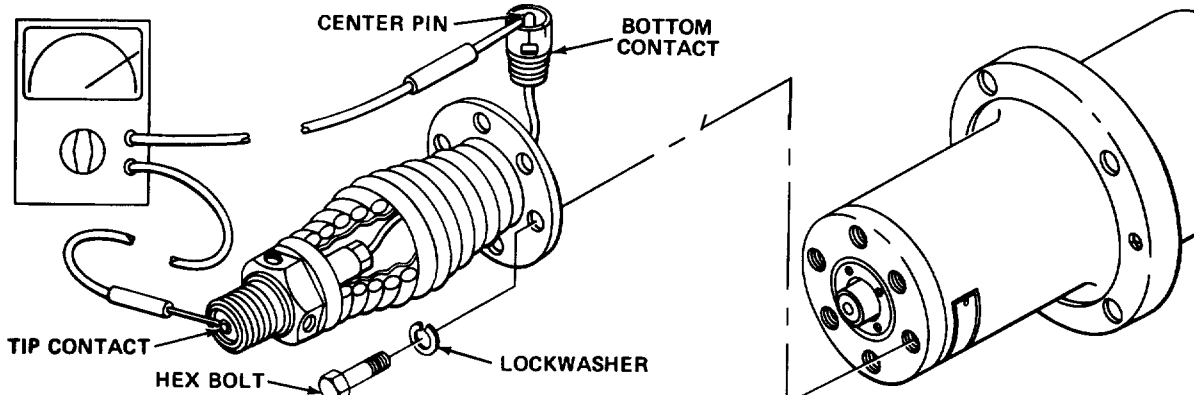
GENERAL SUPPORT TROUBLESHOOTING (CONT)

MALFUNCTION

TEST OR INSPECTION

CORRECTIVE ACTION

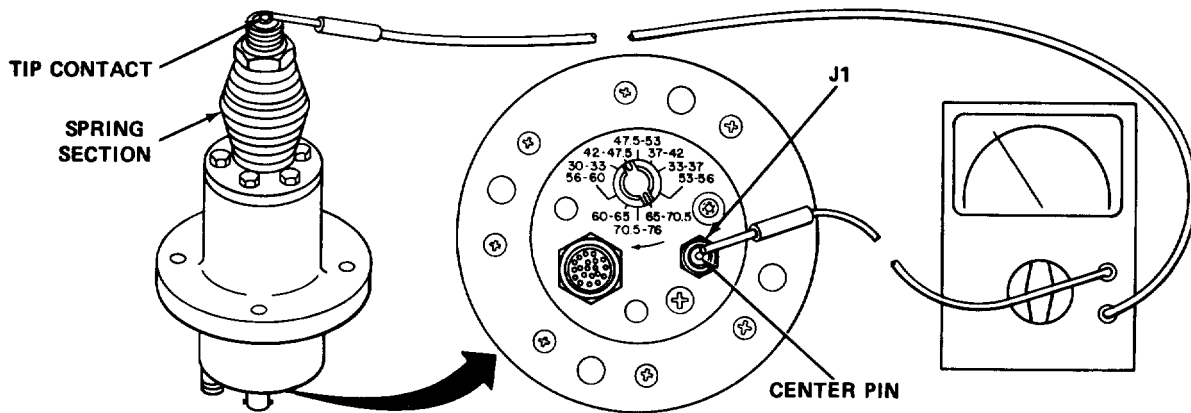
3. Weak or no transmission or reception signal. (Cent)



EL4TS042

Step 5. Connect multimeter between the tip contact and J1 center pin and check for continuity.

If continuity is not obtained, replace connector J1 (para 6-6).



EL4TS025

Section II GENERAL SUPPORT MAINTENANCE PROCEDURES

Subject	Para	Page
General	6-2	6-5
Matching Unit Case Replacement	6-3	6-6
Connector J2 Replacement	6-4	6-7
K1 Relay Replacement	6-5	6-8
Connector Replacement	6-6	6-9
Anticapillary Gasket Installation	6-7	6-10
Gasket AE3MP44MP53 Installation	6-8	6-10
Reinforcing Cover Installation	6-9	6-11
Packing for Storage or Shipment	6-10	6-12

6-2. GENERAL.

This section provides instructions for general support maintenance of the Antenna AS-1729/VRC.

The normal standard equipment condition to start a maintenance task is power off.

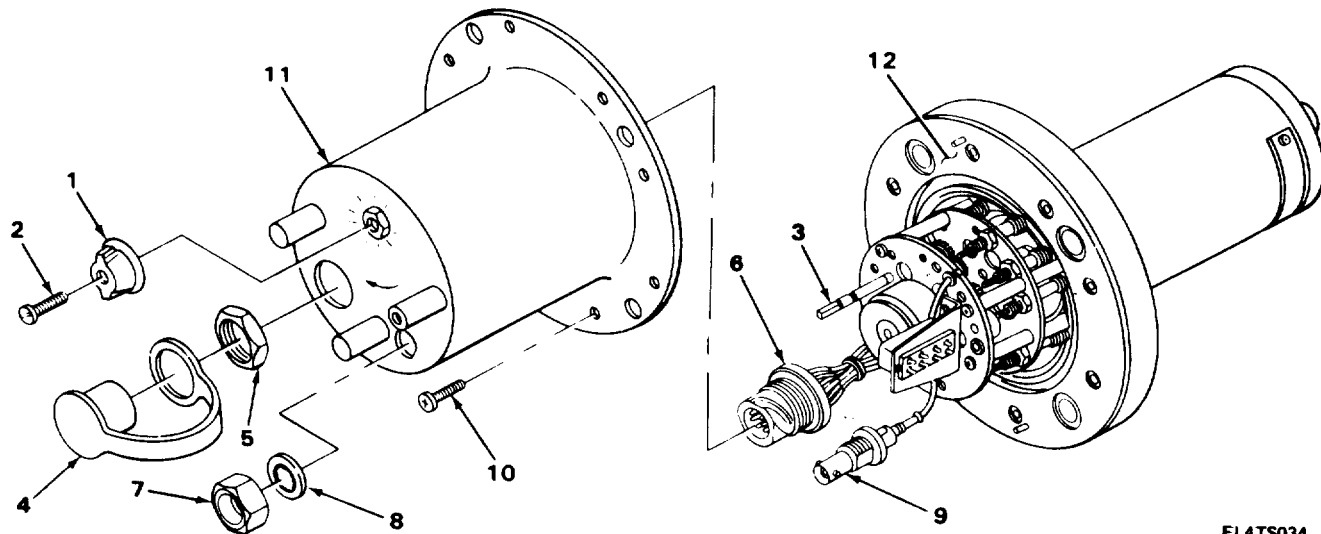
NOTE

For a list of tools and test equipment necessary for general support maintenance, see appendix B.

6-3. MATCHING UNIT CASE REPLACEMENT.

TOOLS: Tool Kit, Electronic Equipment TK-100/G
Torque screwdriver, 0-25 in. lb

MATERIALS/PARTS: Silicone Compound MIL-S-8660(item 2, appendix D)



EL4TS034

REMOVAL

1. Set knob (1) to 30-33 MHz frequency range.
2. Using flat-tip screwdriver, remove screw (2) and knob (1) from tuning switch shaft (3).
3. Remove dust cover (4).
4. Using wrench, remove mounting nut (5) from J2 (6).
5. Using wrench, remove protective nut (7) and lockwasher (8) from J1 (9).
6. Using cross-tip screwdriver, remove eight screws (10).
7. Remove matching unit case (11).

INSTALLATION

1. Apply silicone compound to both sides of anticapillary gasket (12) and put in place.
2. Put matching unit case (11) in place, aligning J1 (9), J2 (6), and tuning switch shaft (3) with their respective holes.

CAUTION

When tightening screws around the perimeter of the matching unit, finger tighten opposite screws to ensure even pressure distribution on gaskets. After all screws are finger tight, repeat tightening with torque screwdriver, again tightening opposite screws in sequence.

3. Using torque screwdriver, put eight screws (10) in place, tightening to 5 in. lb, and check tuning switch shaft (3) for binding.
4. Place knob (1) over tuning switch shaft (3) in the 30-33 MHz frequency range.
5. Install screw (2).

NOTE

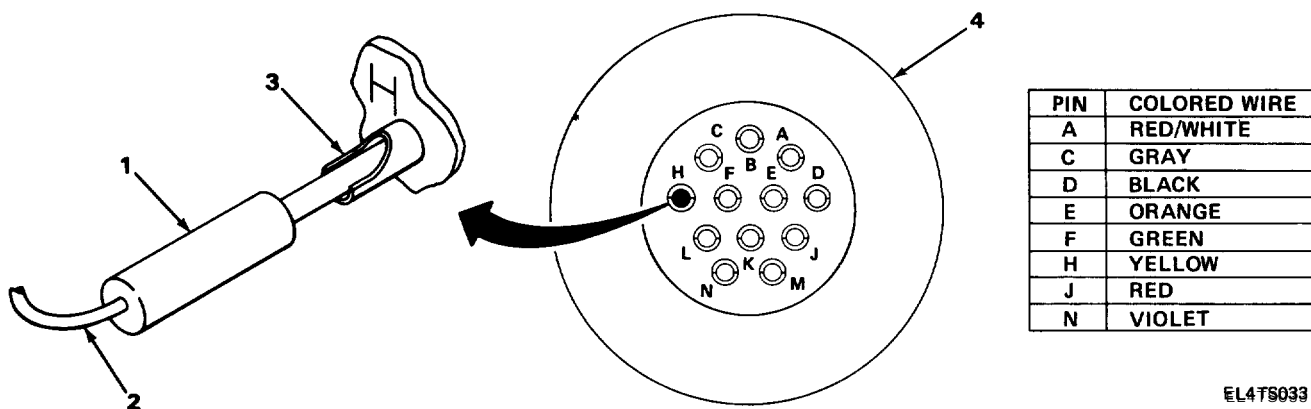
If tuning switch shaft (3) binds, loosen bushing nut (13) so that bushing is free to find a nonbinding position. Retighten bushing to a torque of 140-150 in. oz (8.75 to 9.35 in. lb).

6-3. MATCHING UNIT CASE REPLACEMENT. (CONT)

6. Using wrench, place lockwasher (8) and protective nut (7) over J1 (9) and tighten protective nut (7).
7. Using wrench, place mounting nut (5) over J2 (6) and tighten.
8. Place dust cover (4) over J2 (6).

6-4. CONNECTOR J2 REPLACEMENT.

TOOLS: Tool Kit, Electronic Equipment TK-100/G



REMOVAL

1. Remove matching unit case (para 6-3).

CAUTION

Before soldering or unsoldering, be familiar with TB SIG-222.

2. Slide spaghetti insulation (1) back over colored wires (2).
3. Unsolder colored wires (2) from connector pins (3).
4. Remove connector J2 (4).

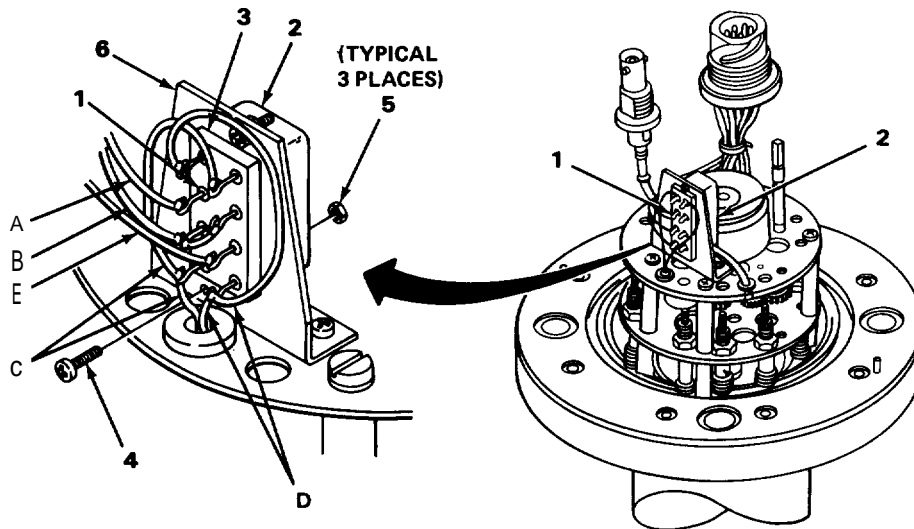
INSTALLATION

1. Match each colored wire (2) to appropriate pin (3).
2. Solder each colored wire (2) to its corresponding pin (3).
3. Slide spaghetti insulation (1) around pin (3).
4. Replace matching unit case (para 6-3).

6-5. K1 RELAY REPLACEMENT.

TOOLS: Tool Kit, Electronic Equipment TK-100/G

PRELIMINARY PROCEDURE: Remove matching unit case (para 6-3).



LETTER	WIRE COLOR
A	GRAY
B	VIOLET
C	BLUE
D	BROWN
E	RED/WHITE

EL4TS031

REMOVAL

1. Note the position of blue bead (1) of K1 relay (2).
2. Unsolder connections from terminals (3).
3. Using screwdriver and wrench, remove mounting screws (4) and nuts (5).
4. Remove K1 relay (2) from mounting bracket (6).

INSTALLATION

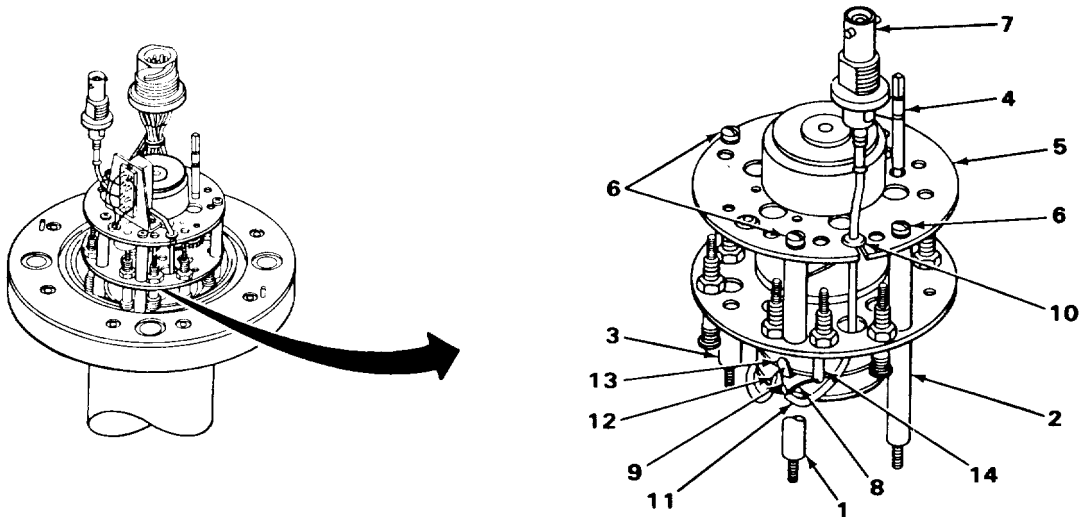
1. Place K1 relay (2) into mounting bracket (6) placing blue bead (1) in the same position in which it was removed.
2. Install mounting screws (4) and nuts (5) and tighten.
3. Solder wires to terminals (3). (See **wiring chart above.**)
4. Replace matching unit case (para 6-3).

6-6. CONNECTOR J1 REPLACEMENT.

TOOLS: Tool Kit, Electronic Equipment TK-100/G

MATERIALS/PARTS: Electrical tape (item 4, appendix D)

PRELIMINARY PROCEDURE: Remove matching unit case (para 6-3).



EL4TS028

REMOVAL

1. Wrap electrical tape around spacers MP64 (1), MP68 (2), and MP69 (3).
2. Using pencil, draw a line from tuning switch shaft (4) to mounting plate (5).

CAUTION

Do not turn tuning switch or motor relay. Equipment could be damaged.

3. Loosen four flat screws (6).
4. Remove spacer MP64 (1) closest to J1 connector (7) by removing flat screw (6) which goes through spacer MP64 (1).

CAUTION

Before soldering or unsoldering, be familiar with TB SIG-222.

5. Unsolder old connections from radio frequency (rf) shielding (8) and center conductor (9).
6. Remove defective J1 connector (7).
7. Remove grommet (10) from J1 connector (7).

INSTALLATION

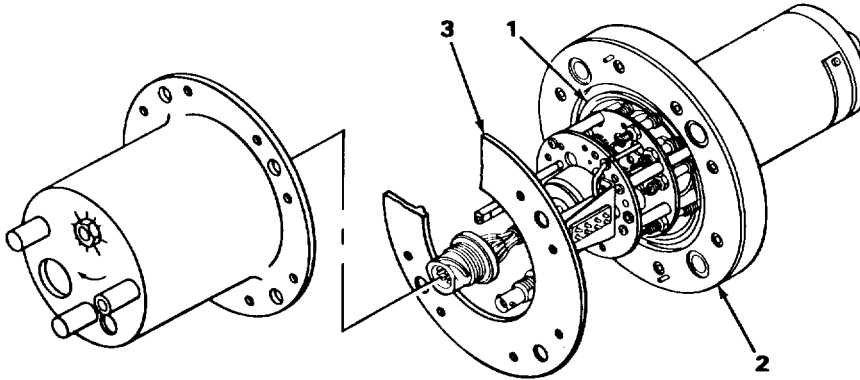
1. Using wire strippers, strip approximately 1/2 inch of outer casing (11).
2. Bend back rf shielding (8) and strip approximately 3/8 inch of outer casing (12).
3. Place grommet (10) around J1 connector (7) and insert end of J1 connector (7) through holes in mounting plate (5).
4. Solder rf shielding (8) to ground terminal (13).
5. Solder center conductor (9) to terminal (14).
6. Place grommet (10) into slot of mounting plate (5).

6-7. ANTICAPILLARY GASKET INSTALLATION.

TOOLS: Tool Kit, Electronic Equipment TK-100/G

MATERIALS/PARTS: Silicone Compound MIL-S-8660 (item 2, appendix D)

PRELIMINARY PROCEDURE: Remove matching unit case (para 6-3).



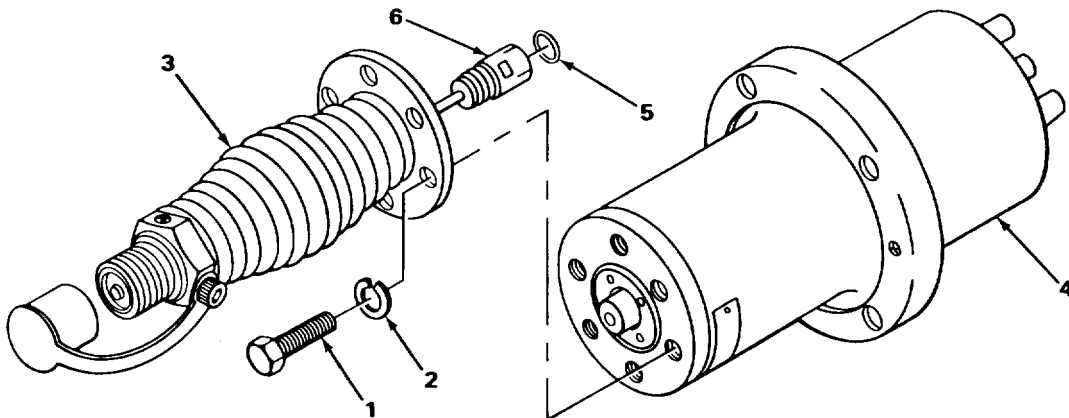
EL4TS046

1. Remove O-ring MP59 (1) from matching unit (2).
2. Apply a thin coat of silicone compound to both sides of anticapillary gasket (3),
3. Place anticapillary gasket (3) with raised edge toward matching unit (2).

6-8. GASKET AE3MP44MP53 INSTALLATION.

TOOLS: Tool Kit, Electronic Equipment TK-100/G

MATERIALS/PARTS: Silicone Compound MIL-S-8660 (item 2, appendix D)

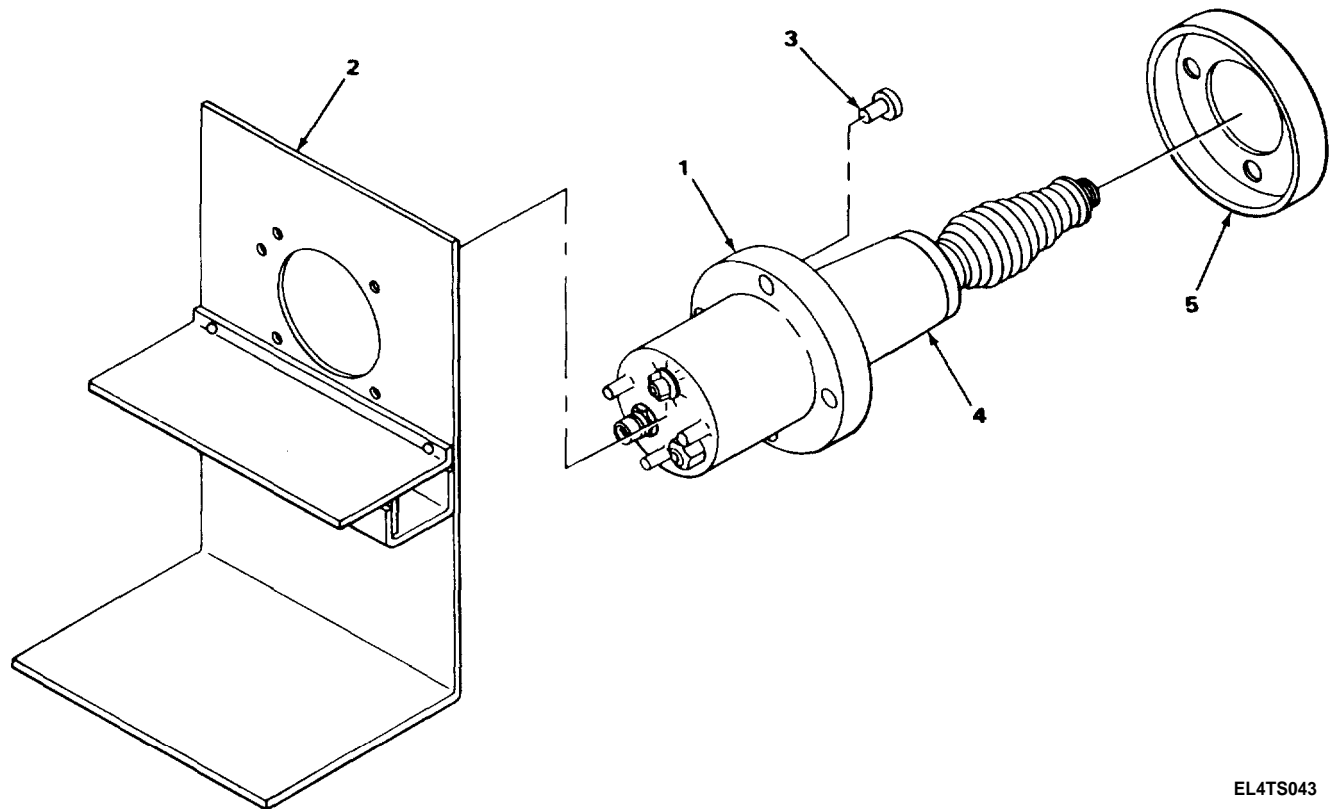


EL4TS051

1. Using 7/16-inch wrench, remove six screws (1) and lockwashers (2) from spring mount.
2. Remove spring mount (3) from matching unit (4).
3. Apply a coat of silicone compound to gasket (5).
4. Place gasket into bottom contact (6).
5. Place spring mount (3) onto matching unit (4).
6. Install six screws (1) and lockwashers (2) and tighten.

6-9. REINFORCING COVER INSTALLATION.

TOOLS: Tool Kit, Electronic Equipment Kit TK-100/G
Holding fixture (item 2, appendix E)

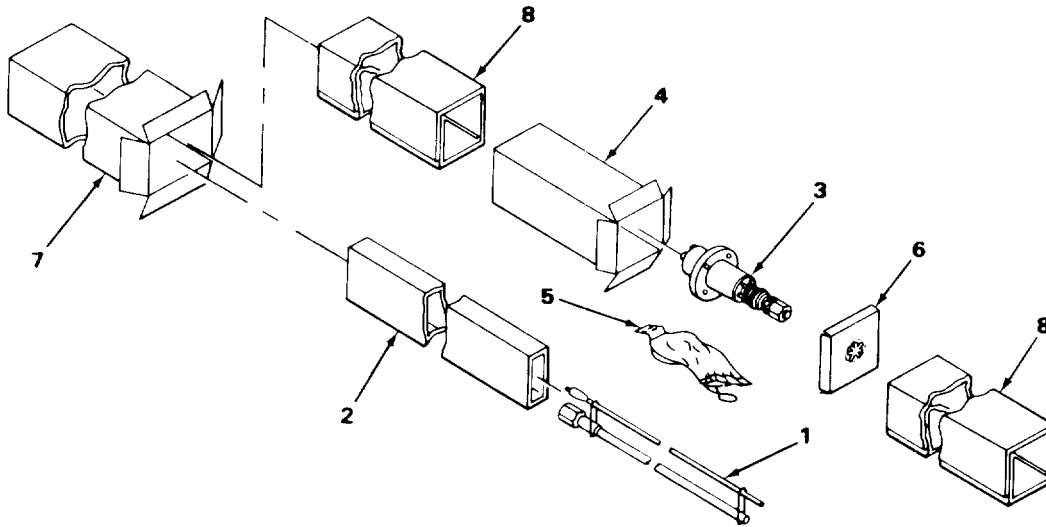


EL4TS043

1. Place matching unit (1) into holding fixture (2).
2. Using drift pin and mallet, drive out two exposed bushings (3) from mounting flange holes.
3. Rotate matching unit (1) to expose two remaining bushings.
4. Drive out two remaining bushings.
5. Reverse matching unit (1) in holding fixture (2).
6. Apply a small bead of silicone adhesive/sealant around interface joint (4) and allow 24-hours curing time in well ventilated area.
7. Place reinforcing cover (5) over matching unit (1) and temporarily secure it in place with safety wire.

6-10. PACKING FOR STORAGE OR SHIPMENT.

Before repacking Antenna AS-1729/VRC, the next scheduled PMCS should be performed, all known problems corrected, and all current Modification Work Orders applied.



EL4TS052

1. Place antenna elements (1) into antenna element box (2).
2. Place matching unit (3) into matching unit box (4).
3. Place hardware bag (5) with all hardware in matching unit box (4).
4. Place packing cardboard (6) into matching unit box (4) and close.
5. Place antenna element box (2) into carton (7).
6. Place first of two pieces of packing material (8) into carton (7) followed by matching unit box (4) and second piece of packing material (8) and close carton (7).

NOTE

Carton must be marked with nomenclature, model identification, and serial number of Antenna AS-1729/VRC.

7. Place box in secure storage area.

APPENDIX A REFERENCES

A-1. SCOPE.

This appendix lists technical publications referenced in this manual.

A-2. SUPPLY BULLETIN.

Vehicular Radio Sets and Authorized Installation SB 11-131

Painting and Preservation Supplies Available for
Field Use of Electronics Command Equipment SB 11-573

Field Instructions for Painting and Preserving
Communications-Electronics Equipment TB 43-0118

A-3. TECHNICAL BULLETIN.

Solder and Soldering TB SIG-222

Safety Measures to be Observed When Installing
and Using Whip Antennas, Field Type Masts,
Towers and Antennas and Metal Poles that are
Used with Communications, Radar, and Direction
Finder Equipment TB SIG-291

A-4. TECHNICAL MANUALS.

Operator's Manual: Radio Sets AN/VRC-12
(5820-00-223-7412), AN/VRC-43(5820-00-223-7415),
AN/VRC-44 (5820-00-223-7417),AN/VRC-45
(5820-00-223-7418),AN/VRC-46(5820-00-223-7433),
AN/VRC-47(5820-00-223-7434),AN/VRC-48
(5820-00-223-7435),AN/VRC-49(5820-00-223-7437)
(Used without an Intercom System) TM 11-5820-401-10-1

Operator's Manual: Radio Sets AN/VRC-12
(5820-00-223-7412), AN/VRC-43 (5820-00-223-7415),
AN/VRC-44 (5820-00-223-7417), AN/VRC-45
(5820-00-223-7418),AN/VRC-46(5820-00-223-7433),
AN/VRC-47 (5820-00-223-7434), AN/VRC-48
(5820-00-223-7435),AN/VRC-49(5820-00-223-7437)
(Used with an Intercom System) TM 11-5820-401-10-2

A-4. TECHNICAL MANUALS. (CONT)

Operator's and Organizational Maintenance Manual:

Radio Sets AN/VRC-53 (5820-00-223-7467), AN/VRC-64 (5820-00-223-7475), AN/GRC-125 (5820-00-223-741 1), and AN/GRC-160 (5820-00-223-7473), and Amplifier-Power Supply Groups OA-3633/GRC and OA-3633A/GRC (5820-00-973-3383) TM 11-5820-498-12

Organizational, Direct Support and General Support Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts and Special Tools) for Antenna AS-1729/VRC (5985-00-985-9024) TM 11-5985-262-24P

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

A-5. DA PAMPHLETS.

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

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

APPENDIX B

MAINTENANCE ALLOCATION CHART

Section I INTRODUCTION

B-1. GENERAL.

This appendix provides a summary of the maintenance operations for Antenna AS-1729/VRC. It authorizes categories of maintenance for specific maintenance functions on repairable items and components and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

B-2. MAINTENANCE FUNCTIONS.

Maintenance functions will be limited to and defined as follows:

- a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.
- b. Test. To verify serviceability and to detect incipient failure by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.
- c. Service. Operations required periodically to keep an item in proper operating condition, i.e., to clean (includes decontaminate, when required) to preserve, to drain, to paint, or to replenish fuel, lubricants, hydraulic fluids, or compressed air supplies.
- d. Aline. To adjust specified variable elements of an item to bring about optimum or desired performance.
- e. Install. The act of emplacing, seating, or fixing into position an item, part, module (component or assembly) in a manner to allow the proper functioning of the equipment or system.
- f. Replace. The act of substituting a serviceable like-type part, subassembly, or module (component or assembly) for an unserviceable counterpart.
- g. Repair. The application of maintenance services (inspect, test, service, adjust, aline, calibrate, replace) or other maintenance actions (welding, grinding, riveting, straightening, facing, remachining, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.
- h. Overhaul. That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards in appropriate technical publications (i.e., DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like-new condition.

B-3. COLUMN ENTRIES.

- a. Column 1, Group Number. Column 1 lists functional group numbers, the purpose of which is to identify components, assemblies, subassemblies, and modules with the next higher assembly.

B-3. COLUMN ENTRIES. (CONT)

b. Column 2, Component/Assembly. Column 2 contains the names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. Column 3, Maintenance Function. Column 3 lists the functions to be performed on the item listed in column 2. When items are listed without maintenance functions, it is solely for the purpose of having the group numbers in the MAC and RPSTL coincide.

d. Column 4, Maintenance Category. Column 4 specifies, by the listing of a "work time" figure in the appropriate subcolumn(s), the lowest level of maintenance authorized to perform the function listed in column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function varies at different maintenance categories, appropriate "work time" figures will be shown for each category. The "work time" figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, troubleshooting time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. Subcolumns of column 4 are as follows:

- C – Operator/Crew
- O – Organizational
- F – Direct Support
- H – General Support
- D – Depot

e. Column 5, Tools and Equipment. Column 5 specifies, by code, those common tool sets (not individual tools) and special tools, TM DE, and support equipment required to perform the designated function.

f. Column 6, Remarks. Column 6 contains an alphabetic code which leads to the remark in section IV, Remarks, which is pertinent to the item opposite the particular code.

B.4. TOOL AND TEST EQUIPMENT REQUIREMENTS (SECTION III).

a. Tool or Test Equipment Reference Code. The numbers in this column coincide with the numbers used in the tools and equipment column of the MAC. The numbers indicate the applicable tool or test equipment for the maintenance functions.

b. Maintenance Category. The codes in this column indicate the maintenance category allocated the tool or test equipment.

c. Nomenclature. This column lists the noun name and nomenclature of the tools and test equipment required to perform the maintenance functions.

d. National/NATO Stock Number. This column lists the National/NATO stock number of the specific tool or test equipment.

e. Tool Number. This column lists the manufacturer's part number of the tool followed by the Federal Supply Code for manufacturers (5-digit) in parentheses.

B-5. REMARKS (SECTION IV).

a. **Reference Code.** This code refers to the appropriate item in section II, column 6.

b. **Remarks.** This column provides the required explanatory information necessary to clarify items appearing in section II.

**SECTION II MAINTENANCE ALLOCATION CHART
FOR
ANTENNA AS-1729/VRC**

(1) GROUP NUMBER	(2) COMPONENT	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT.	(6) REMARKS
			C	O	F	H	D		
00	ANTENNA AS-1729/VRC	Inspect	0.2						A
		Service	0.1						B
		Test		0.2				1,2	C
		Install		0.2				1,2,3	
		Replace		0.2				1,2,3	
		Repair		0.2				1,2,3	D
01	MATCHING UNIT BASE ANTENNA MX-6707/VRC	Repair				0.8	4,5,6		
		Inspect		0.2					
		Service		0.1				3	B
		Test		0.2					
02	ANTENNA ELEMENT AS- 1730/VRC (Bottom Element)	Replace		0.2					
		Repair		0.2		0.8	4,5,6	E	
		Inspect	0.1						
		Replace		0.1			3		
		Repair		0.3			3		

SECTION III TOOL AND TEST EQUIPMENT REQUIREMENTS

TOOLS OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	O	MULTIMETER AN/URM-105 TEST SET,	6625-00-581-2036	
2	O	RF POWER AN/URM-182 OR TEST SET AN/PRM-34	6625-00-148-9371 6625-01-094-5646	
3	O	TOOL KIT, ELECTRONIC EQUIPMENT TK-101/G	5180-00-064-5178	
4	H	TOOL KIT, ELECTRONIC EQUIPMENT TK-100/G	5180-00-605-0079	
5	H	TORQUE SCREWDRIVER 0-25 IN. LB		
6	H	TEST CABLE (TO BE FABRICATED, SEE APPENDIX E)		

SECTION IV REMARKS

REFERENCE CODE	REMARKS
A	Antenna tip cap is secured, antenna is properly tied down when vehicle is in motion, split or shortened antenna elements, cable connector pins are not bent or missing, ground strap is securely connected, MX-6707/VRC contact on spring section sticks out and secure, O-ring is in place, safety wire is connected between spring section and AS-1730/VRC (lower element), reinforcing cover in place and securely bolted tuning mechanism will automatically change with radio, MX-6707/VRC upper contact is protected when elements removed.
B	Lubrication of antenna element threads, drain water trapped inside MX-6707/VRC.
C	Operational checks.
D	By replacement of matching unit, antenna elements, knobs, dust cap, and reinforcing cover.
E	By replacement of selected piece parts.

APPENDIX C
COMPONENTS OF END ITEM

Section I INTRODUCTION

C-1. GENERAL.

This listing is for informational purposes only, and is not authorization to requisition replacements. These items are part of the end item, but are removed and separately packaged for transportation or shipment. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Illustrations are furnished to assist you in identifying the items.

C-2. EXPLANATION OF COLUMNS.

The following provides an explanation of columns found in the tabular listings:

a. Column (1), Illustration Number (Illus No.). This column indicates the number of the illustration in which the item is shown.

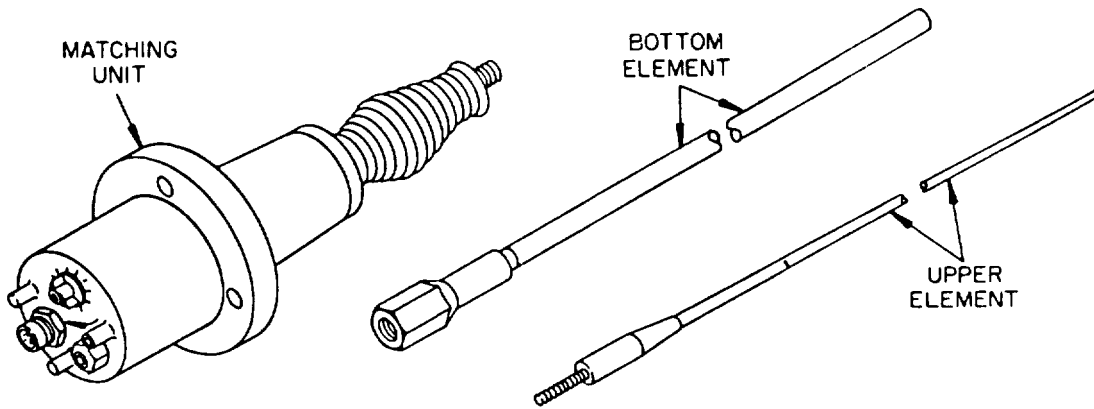
b. Column (2), National Stock Number. Indicates the national stock number assigned to the issue. The national stock numbers in section III will be used for requisitioning basic issue items.

c. Column (3), Description. Indicates the national item name and, if required, a minimum description to identify and locate the item. The last line for each item indicates the FSCM (in parentheses) followed by the part number.

d. Column (4), Unit of Measure (U/M). Indicates the measure used in performing the actual operational/maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in., pr).

e. Column (5), Quantity Required (Qty Req'd). Indicates the quantity of the item authorized to be used with/on the equipment.

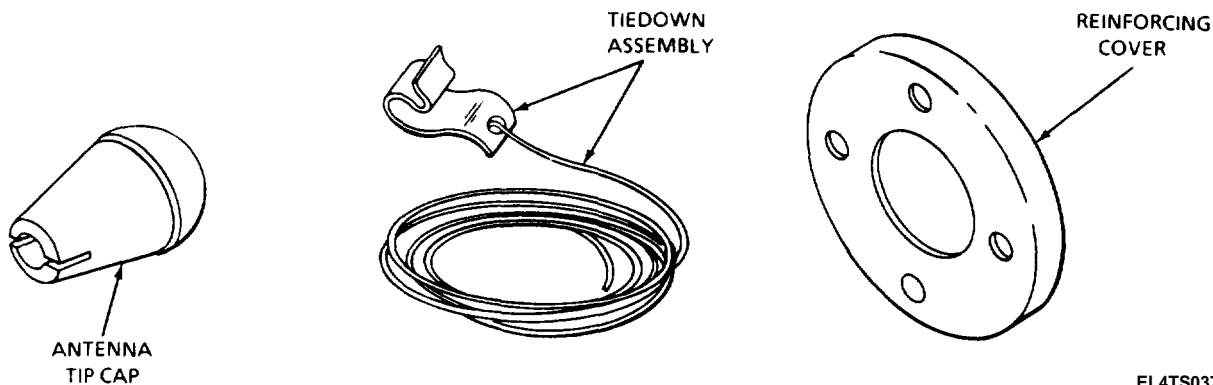
Section II COMPONENTS OF END ITEM



EL4TS036

(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION (FSCM)	(4) U/M	(5) QTY REQ'D
	5985-00-985-9024	ANTENNA AS-1729/VRC INCLUDES:	ea	1
	5820-00-856-2728	ANTENNA ELEMENT AT-1095/VRC SM-D-406 (80063) (UPPER ELEMENT)	ea	1
	5985-00-985-9022	ANTENNA ELEMENT AS-1730/VRC SM-C-542002 (80063) (BOTTOM ELEMENT)	ea	1
	5820-00-906-1115	MATCHING UNIT-BASE MX-6707/VRC SC DL-542020 (80058)	ea	1

COMPONENTS OF END ITEM (CONT)



(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION (FSCM)	(4) U/M.	(5) QTY REQ'D
	5820-00-437-2353	ANTENNA TIP ASSEMBLY SC-C-446180 (80063)	ea	1
	5820-00-908-6416	ANTENNA TIEDOWN KIT SC-C-208747 (80063)	ea	1
	5985-01-012-5425	REINFORCING COVER SC-C-877429	ea	1

APPENDIX D

EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I INTRODUCTION

D-1. SCOPE.

This appendix lists expendable supplies and materials you will need to operate and maintain Antenna AS-1729/VRC. These items are authorized to you by CTA 50-970. Expendable items (except medical, class V, repair parts, and heraldic items).

D-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 (e.g., use cleaning compound, item 1, appendix D).

b. **Column (2), Level.** This column identifies the lowest level of maintenance that requires the listed item.

- C - Operator/Crew
- O - Organizational
- F - Direct Support
- H - General Support

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, if applicable.

e. **Column (5), Unit of Measurement (U/M).** Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character abbreviation (e.g., 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 SUPPLIES AND MATERIALS LIST (CONT)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION (FSCM)	(5) U/M
1	C	6850-00-105-3084	TRICHLOROTRIFLUOROETHANE OT620 (81348)	oz
2	O	6850-00-880-7616	SILICONE COMPOUND MIL-S-8660 (81349)	oz
3	O	5350-00-235-0134	PAPER, ABRASIVE, FLINT P-P-105 (81349)	sh
4	O	5970-00-816-6056	TAPE, ELECTRICAL INSULATING; LOW TEMPERATURE P295 (99742)	yd
5	H	8040-00-843-0802	ADHESIVE/SEALANT, SILICONE (81349)	oz
6	O	8030-00-823-7917	LOCKING COMPOUND (81349)	oz
7	O	8315-00-290-8396	REINFORCED TAPE (81349)	yd

APPENDIX E

ILLUSTRATED LIST OF MANUFACTURED ITEMS

Section I INTRODUCTION

E-1. SCOPE.

This appendix includes complete instructions for making items authorized to be manufactured at general support maintenance.

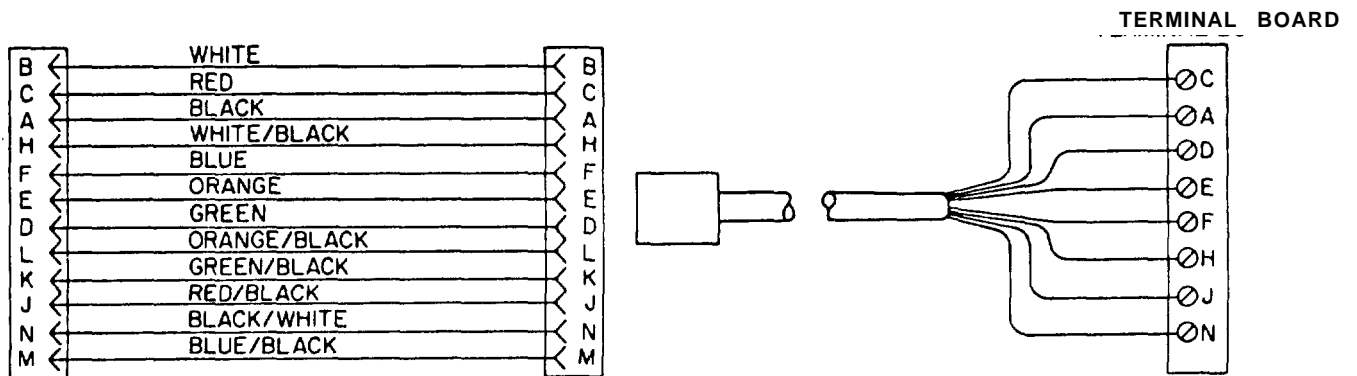
E-2. GENERAL.

A part number index in alphanumeric order is provided for cross-referencing the part number of the item to be manufactured to the figure which covers fabrication criteria.

All bulk materials needed for manufacture of an item are listed by part number or specification number in a tabular list on the illustration.

E-3. PART NUMBER INDEX

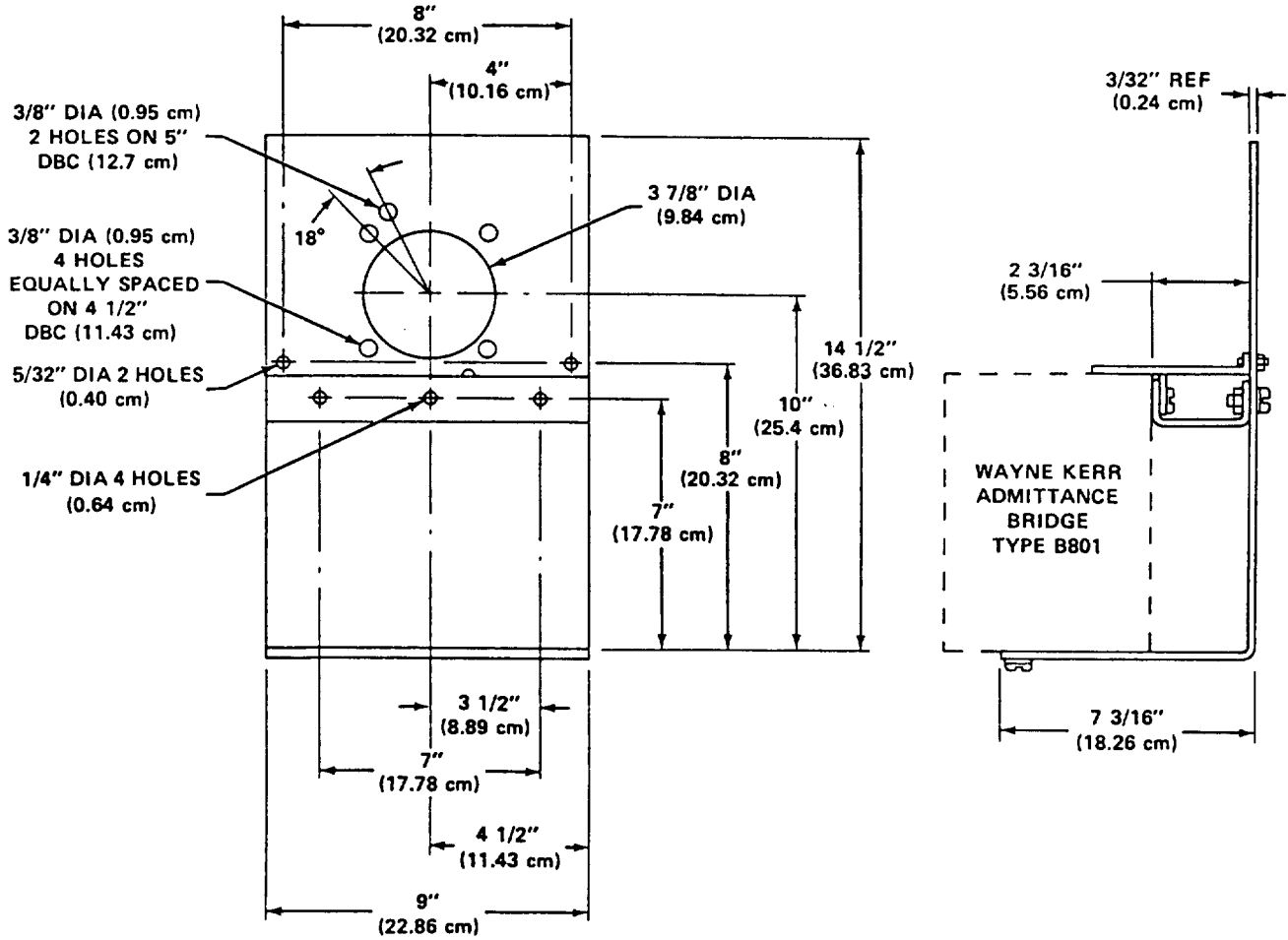
(1) PART NO.	(2) DESCRIPTION	(3) QTY RQR'D	(4) ILLUS NO.	(5) ITEM NO.
CX-4722/VRC or CX-4722A/VRC	Cable Assembly 2 Ft Terminal Board	1 1	1 1	
SM-B-542023-1	Bracket-3/32 Thick Brass	1	2	1
SM-B-542023-2	Support-3/32 Thick Brass	1	2	2
SM-B-542023-3	Ground Strap	1	2	3
SM-B-542023-4	Terminal No. 4 Ring	2	2	4
SM-B-542023-5	Screw 4-40 NC-2A x 5/16 Lg	2	2	5
SM-B-542023-6	Screw 10-32 NF-2A x 1/2 Lg	3	2	6
SM-B-542023-7	Nut 4-40 NC-2B	2	2	7
SM-B-542023-8	Nut 10-32 NF-2B	3	2	8
SM-B-542023-9	Washer No. 4 Lock	2	2	9
SM-B-542023-10	Washer No. 10 Lock	3	2	10



EL4TS038

E-3. PART NUMBER INDEX. (CONT)

1. Cut off male end of Cable CX-4722/VRC.
2. Identify wires and connect terminal lugs. (See chart on page E-1 for wire colors.)
3. Attach terminal lugs to terminal board and label each wire.



EL4TS045

FABRICATION OF HOLDING FIXTURE

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PUBLICATION DATE

23 Jan 74

PUBLICATION TITLE

Radar Set AN/PRC-76

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PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO
2-25	2-28		
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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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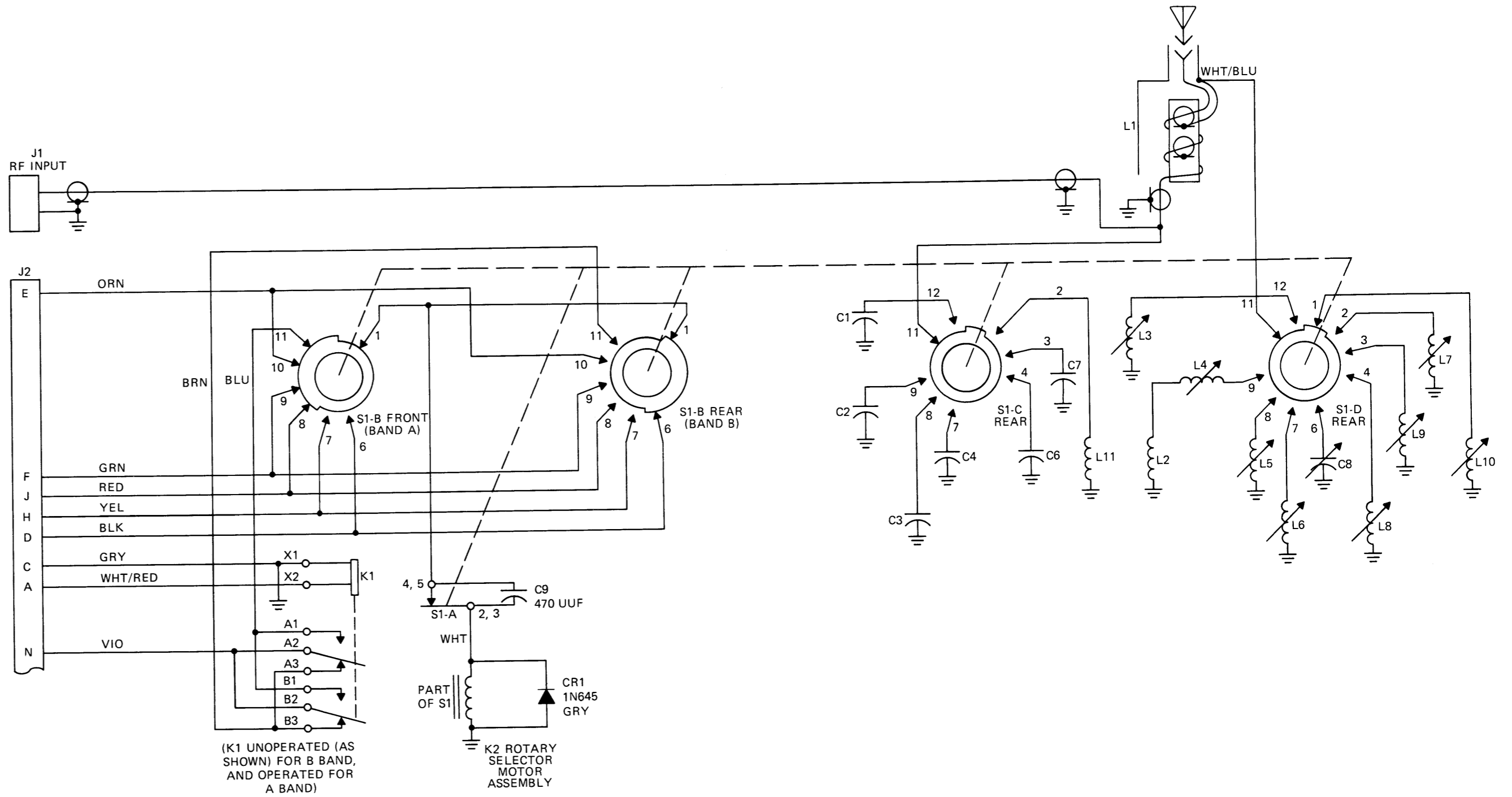
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- NOTES:
1. SWITCH WAFERS VIEWED FROM MOTOR END.
 2. ALL VOLTAGES DC.
 3. C9 PROVIDED IN MX-6707/VRC PROCURED UNDER CONTRACT DAAB07-75-C-0138 AND SUCCEEDING CONTRACTS.

Figure FO-1. Schematic (MX-6707/VRC).