TM 11-6625-1702-12

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR AND ORGANIZATIONAL MAINTENANCE MANUAL

TEST SET, ANTENNA AN/ARM-115

(NSN 6625-00-935-4293)

This copy is a reprint which includes current pages from Changes **1** through **3.**

HEADQARTERS, DEPARTMENT OF THE ARMY

MARCH 1968

CHANGE
No. 3

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., *19 September 1977*

Operator's and Organizational Maintenance Manual
TEST SET, ANTENNA AN/ARM-115 (NSN 6625-00-9354293)

Current as of 24 May 1977

TM 11-6625-1702-12, 5 March 1968, is changed as follows:

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CHANGE
No. 1

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Operator and Organizational Maintenance Manual
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TEST SET, ANTENNA AN/ARM-115

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TECHNICAL MANUAL

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HEADQUARTERS
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WASHINGTON, D. C., *5 March 1968*

OPERATOR AND ORGANIZATIONAL MAINTENANCE MANUAL

TEST SET, ANTENNA AN/ARM-115
(NSN 6625-00-935-4293)

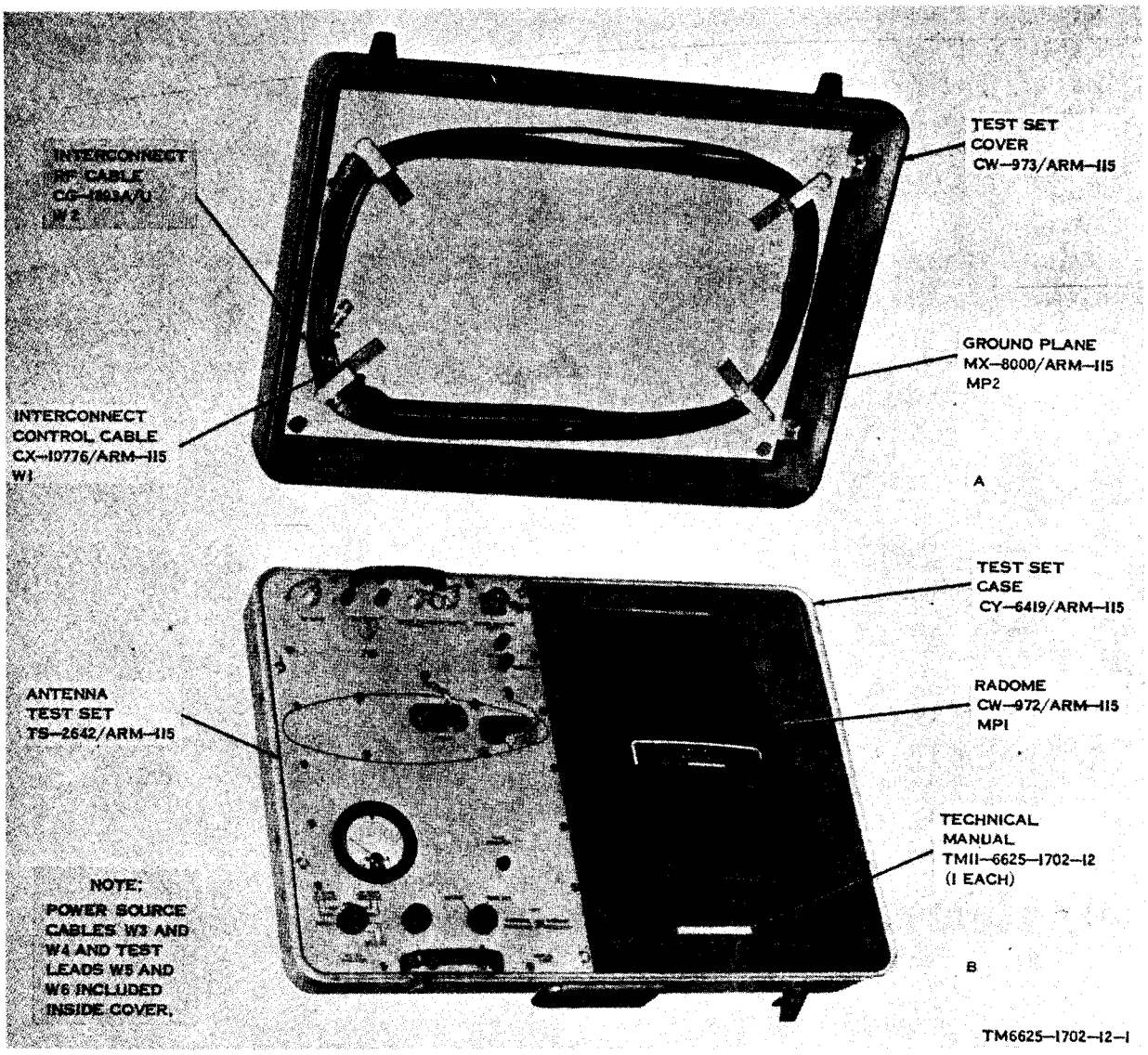

Figure 1-1. Test Set, Antenna AN/ARM-115.

CHAPTER 1
INTRODUCTION

1-1. Scope

This manual describes Test Set, Antenna AN/ ARM- 115 (fig. 1-1) and provides instructions for installation, operation, and operator and organizational maintenance. It includes instructions for operation, cleaning and inspection of the equipment, and replacement of parts available to the operator and organizational technician.

1-2. Indexes of Publications

a. DA Pam 310-4. Refer to the latest issue of DA Pam 310-4 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

b. DA Pam 310-7. Refer to DA Pam 310-7 to determine whether there are modification work orders (MWO's) pertaining to the equipment.

1-3. Forms and Records

a. Reports of Maintenance and Unsatisfactory Equipment. Maintenance forms, records, and reports which are to be used by maintenance personnel at all maintenance levels are listed in and prescribed by TM 38-750.

b. Report of Packaging and Handling Deficiencies. Fill out and forward DD Form 6 (Packaging Improvement Report) as prescribed in AR 700-58/NAVSUPINST 4030.29/AFR 71-13/MCO P4030.29A, and DSAR 4145.8.

c. 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 4610.33A/ AFR 75-18/MCO P4610.19B and DSAR 4500.15.

1-3.1 Reporting of Errors

Report of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications and Blank Forms) and forwarded direct to Commander, US Army Electronics Command, ATTN: DRSEL-MA-Q Fort Monmouth, NJ 07703.

1-3.2. Reporting Equipment Improvement Recommendations (EIR)

EIR's will be prepared using DA Form 2407, Maintenance Request. Instructions for repairing EIR's are provided in TM 38-750, The Army Maintenance Management System. EIR's should be mailed direct to Commander, US Army Electronics Command, ATTN: DRSEL-MA-Q, Fort Monmouth, NJ 07703. A reply will be furnished direct to you.

1-3.3. Administrative Storage

Administrative storage of equipment issued to and used by Army activities shall be in accordance with TM 740-90-1.

1-3.4. Destruction of Army Electronics Materiel

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

Section II. DESCRIPTION AND DATA

1-4. Purpose and Use

a. Purpose. Test Set, Antenna AN/ARM-115 (fig. 1-1) is a portable test set used in conjunction with the equipment listed in paragraph 1-9 to test, troubleshoot, and align the 437S- l/lA very - high - frequency - modulated (VHF/FM) Blade Antenna (437S-1/lA antenna) (fig. 1-2). The AN/ARM-115 contains circuits and controls necessary to operate the unit under test and also provides a ground plane and a test radome (part of the AN/ARM-115 for operational tests.) Results of tests can be read on the microammeter on the AN/ARM-115 control panel.

b. Use. Test Set, Antenna AN/ARM-115 is used by the technician to perform bench troubleshooting of the 437S-l/lA vhf/fm blade antenna.

1-5. Technical Characteristics

Environmental specifications:
  Ambient temperature
    range:

Operating . . . .-18 to + 52° C (0 to + 25° F).
Nonoperating. . . . . -62° to + 71° C (-80° to + 160° F).

Altitude:
Operating . . . . 0 to l0,000 feet.

Nonoperating . . . .0 to 50,000 feet.

Ambient humidity 0 to 95% relative humidity.

Electrical characteristics
Input power requirements
Dc power source . . . . .27.5 vdc ± 2 2A (minimum).
Rf power source . . . ..5 to 36 watts into a 50-ohm load, capable of being tuned from 30 MHz to 76 MHz.
Frequency range . . ..30 MHz to76 MHz.

Weight . . . .41 lb (maximum).

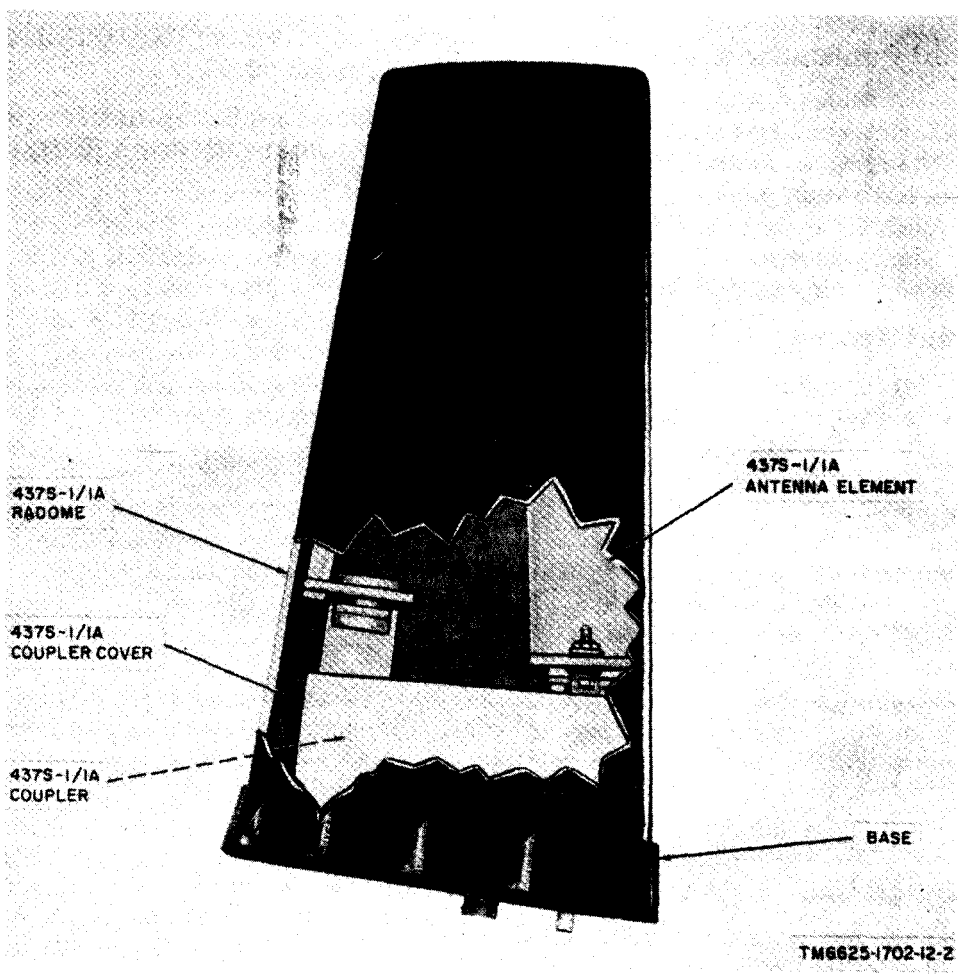

Figure 1-2. 437S-1/1A vhf fm blade antenna.

1-6. Item Comprising an Operable Equipment

NSN	QTY	Nomenclature, part No., and mfr. code	Weight	Dimensions (in.) Depth	Width	Height	Fig. No.
		NOTE The part number is followed by the applicable 5-digit Federal supply code for manufacturers (FSCM) identified in SB 708-42 and used to identify manufacturer, distributor, or Government agency, etc.					
6625-00-935-4293		Test Set, Antenna AN/ARM-115; 80058 Consisting of:	41	18½	25½	7⅛	1-1
6625-00-878-4582	1	Plane Assembly Ground MX-8000/ ARM 115: 80058	12:8	44	24	6	1-1
6625-00-782-2678	1	Power/Control Cable Interconnect CX-10776/ARM-115: 80058 (25'0" lg.).	1.25	...	...	...	1-1
6625-00-782-0823	1	Power Source Cable (Red): 785-4933-001: 13499	.75	...	...	...	1-1
6625-00-782-0824	1	Power Source Cable (Black): 785-4933-002: 13499	.75			.	1-1
6625-00-935-4903	1	Radome CW-927/ARM-115: 80058	3	12½	4⁹/₃₂	16	1-1
5995-00-935-2671	1	RF Code Interconnect CG-1893 A/U: 80058 (25'0" lg.).	1	...			1-1
6625-00-782-0385	1	Test Lead (Red): 785-4935-001; 13499	.50			...	1-1
6625-00-782-0822	1	Test Lead (Black): 785-4935-002; 13499	.50	...			1-1

1-7. Common Names

Nomenclature	*Common name*
Test Set, Antenna AN/ARM-115	Antenna Test Set
Test Set, Antenna TS-2642/ARM-115	Test set
Case, Test Set CY-6419/ARM-115	Test set case
Cover, Test Set CW-973/ARM-115	Test set cover
Ground Plane MX-8000/ARM-115	Ground plane
Radome CW-972/ARM-115	Test radome
Cable Assembly, Interconnect Control CS-10776/ARM-115	Cable W1
Cable Assembly, Interconnect RF CG-1893A/U	Cable W2
Power source cable (red)	Cable W3
Power source cable (black)	Cable W4
Test lead (red)	Cable W5
Test lead (black)	Cable W6

1-8. Description of Test Set, Antenna AN/ARM-115

Test Set, Antenna AN/ARM-115 (fig. 1-1) is portable and can be used wherever 27.5 volts direct-current (dc) is available. It is designed for use on a workbench and can be easily transported in its carrying case for use in the field.

A handle for carrying the AN/ARM-115 is provided on the carrying case. The portion of the AN/ARM-115 extending behind the control panel is protected by a dust cover in addition to the carrying case. The AN/ARM-115 contains a 0- to 500-millivolt (mv) power supply, one metering circuit, one tuning indication circuit, and switching and control circuits required to test and align the 437S-l/lA antenna. All electrical connections to the unit under test, to associated test equipment, and to the power source are made through plugs and jacks on the control panel. The control panel also contains three switches, one control, one microammeter, and one indicator lamp.

1-9. Description of Test Set, Antenna TS-2642/ARM-115

Test Set, Antenna TS-2642/ARM-115 (fig. 1-1) contains controls, indicators, and connectors that are used in performing operational checks of the 437S-1/lA antenna. All these items are on the test set front panel. The test set is usually removed from the test set case for normal operation.

1-10. Description of Minor Assemblies

The minor assemblies of Test Set, Antenna AN/ARM-115 are included in figure 1-1. Special

features of some of the minor assemblies are listed below.

a. Case, Test Set CY-6419/ARM-l15 is of fiberglas construction, has a handle for ease in carrying and, along with the test set cover, contains all the components of the AN/ARM-115.

b. Cover, Test Set CW-973/ARM-115 is of fiberglas construction and, in conjunction with the test set case, provides housing for all the components of the AN/ARM-115.

c. Cable Assembly, Interconnect Control CX-10776/ARM-115 is fitted with connectors CPN 3716241000 and CPN 3716411000, one at each end, and connects from the AN/ARM- 115 control panel to the unit under test. If provides for control of the unit under test when the unit is tested on the ground plane. It is also used in making a check of the AN/ARM-115.

d. Cable Assembly, Interconnect RF CG-1893A/U is fitted with one connector CPN 3579292000 on each end and connects from the AN/ARM-115 control panel to the unit under test. It provides for radio frequency (rf) power to the unit under test when the unit is tested on the ground plane. It is also used in making a check of the AN/ARM-115.

e. Two power source cables (one red and one black) are provided to connect the 28-volt power supply to the 28V INPUT jacks on the AN/ARM-115 control panel.

f. Two test leads (one red and one black) are provided to connect the MV OUTPUT jacks on the AN/ARM-115 control panel to the 437S-1/lA coupler or to the test coupler.

g. Radome CS-972/ARM-115 is a combination antenna/radome assembly which consists of a folded monopole antenna (fig. 1-2) and a fiberglas blade-type radome (fig. 1-1). The test radome is filled with foam rubber to add to its strength, and its leading edge is protected from abrasion and wear by an erosion boot which is a silicone-rubber cover (fig. 1-2). This radome is identical with the 437S-l/lA radome (antenna radome) except that the base of the CW-972/ARM-115 radome has one access hole on each of the two sides; the 437S-1/lA radome does not.

h. Ground Plane MX-8000/ARM-115 provides a standard ground when the test requires call for a ground to be used. It provides an installation for the 437S-1/1A antenna, or 437S-1/a coupler with test radome, which simulates actual radiating conditions while the testing is being performed.

1-11. Additional Equipment Required

The following eqipment is not supplied as part of Test Set, Antenna AN/ARM- 115 but is required for use with it.

a. Power Supply. 28-volt power supply with an output current rating of 0 to 3 amperes is required for power to the test set.

b. Test Coupler. This is a 437S-l/1A coupler which is known to be operating properly. It is required to provide a motor pulsing signal for a tune indicator check and to aid in other checks of the AN/ARM-115.

c. Oscilloscope. An oscilloscope (Oscilloscope AN/USM-140 or equivalent) is required to observe waveforms at various points on the 437S-l/lA antenna and test coupler during testing.

d. Vhf/Fro Radio Set. A vhf/fro radio set (Radio Set AN/ARC-131), or equivalent) is required to generate an rf signal of approximately 10 watts at frequencies between 30 megahertz (MHz) and 76 MHz.

e. Multimeter. A multimeter (Multimeter ME-26D/U, or equivalent) is required to make voltage and resistance measurements on the unit under test.

f. Cable Assembly. A cable assembly (Cable Assembly, Radio Frequency CG-3375/U, NSN 6625-00-935-0332) is required to connect the vhf/fro radio set to the RF INPUT jack on the TS-2642/ARM-115 control panel.

CHAPTER 2

INSTALLATION

2-1. Unpacking

a. Packaging Data. When packed for shipment, the units of Test Set, Antenna AN/ARM-115 within the carrying case are placed in one water-resistant, corrugated, double-wall fiberboard box, with eight polystyrene corner blocks, one block at each of the box inside corners. The box is sealed with pressure-sensitive tape. A bag containing four units of desiccant is packed in the carrying case. A typical shipping box and its contents are shown in figure 2-1. The outside dimensions are 30 by 30 by 13 inches, the volume is 5.4 cubic feet, and the weight is 54 pounds.

b. Removing Contents.

(1) Remove pressure-sensitive tape which seals box.

(2) Fold open box covers.

(3) Remove four polystyrene corner blocks.

(4) Remove the AN/ARM-115.

(5) Remove test set cover from test set case and remove desiccant.

2-2. Checking Unpacked Equipment

a. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on DD Form 6 (para 1-3).

b. See that the equipment is complete as listed on the packing slip. If a packing slip is not available, check the equipment against the items in paragraph 1-6. Report all discrepancies in accordance with TM 38-750. Shortage of a minor assembly or part that does not affect proper functioning of the equipment should not prevent use of the equipment.

c. If the equipment has been used or reconditioned, see whether it has been changed by a modification work order (MWO). If the equipment has been modified, the MWO number will appear on the front panel near the nomenclature plate. Check to see whether the modified equipments are covered in the manual.

Note. Current MWO's applicable to the equipment are listed in DA Pam 310-7.

2-3. Tools and Test Equipment Required for Installation

No special tools or test equipment is required for installation of Test Set, Antenna AN/ARM-115.

2-4. Installation of Equipment

Test Set, Antenna AN/ARM-115 is designed for bench use in a repair-shop environment and is supplied mounted in a carrying case (fig. 1-1). It is not designed for installation in an equipment rack assembly or for use at the aircraft. The TS-2642/ARM-l15 is normally removed from the test set case for conservation of bench workspace and has handles for ease of removal; however, it can also be operated while in the test set case. If the test set is to be used without the test set case, the carrying case should be stored nearby for future use. The AN/ARM-115 should be installed in an rf-free environment. Figures 2-2 and 2-3 show the installed AN/ARM-l15. In most testing situations, use of the radome and ground plane is not required. The antenna coupler is normally removed from the 437S-1/lA antenna and tested separately on the test set control panel. However, when the radome and ground plane are used in operational tests, the radome will have inserted into its base the coupler from the 437S-1/lA antenna under test. The radome is then mounted on the ground plane.

a. After the AN/ARM-115 has been positioned, remove the test set cover from the test set case.

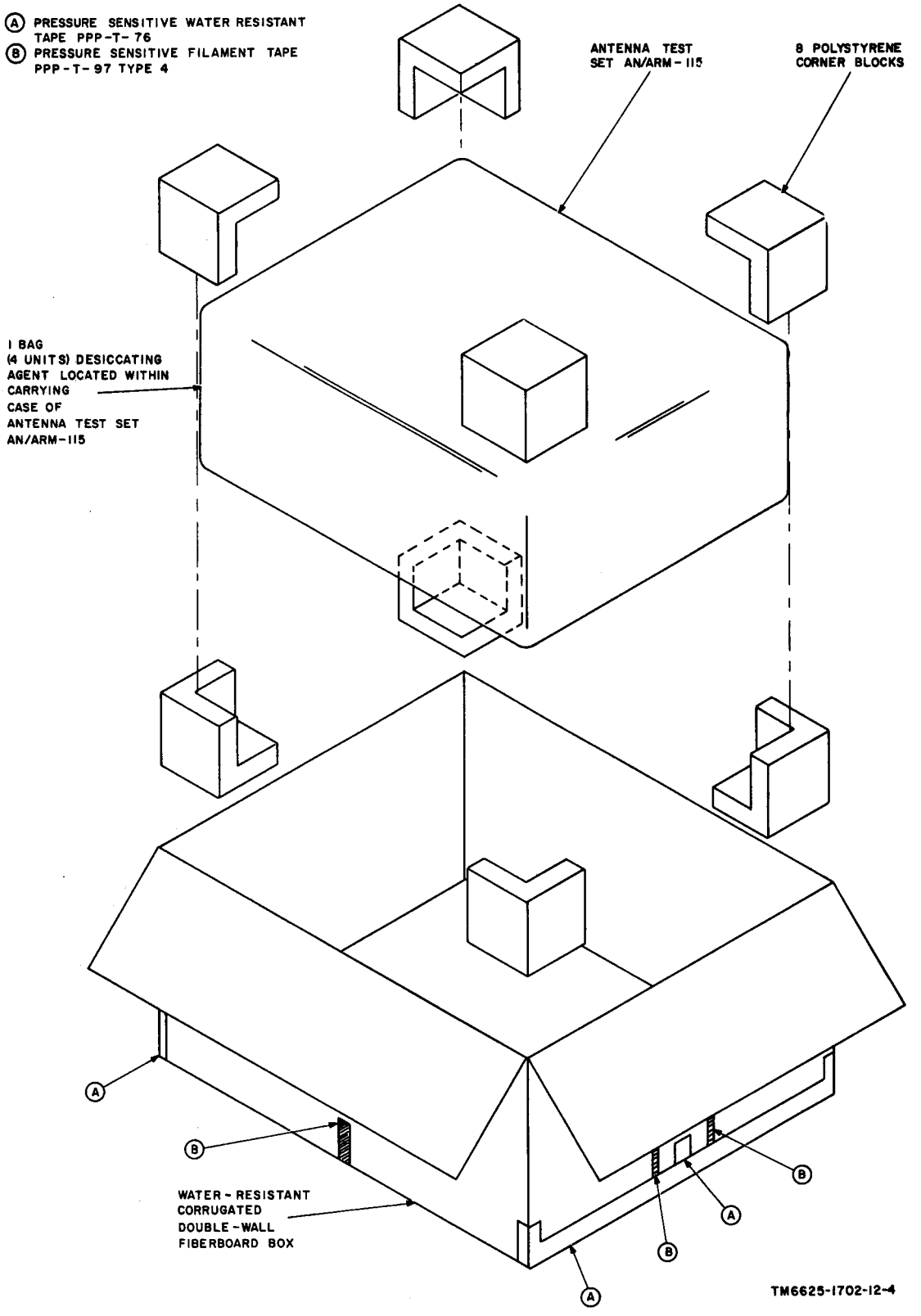

Figure 2-1. Packaging of Test Set, Antenna AN/ARM-115.

b. Loosen the four fasteners that hold the control panel, lift the test set from the test set case, and place it into position. (If desired, the test set may be operated without removal from the test set case.)

c. Remove the cables stored on the ground plane, loosen the four fasteners holding the ground plane, remove it from the test set cover, unfold its sides and legs, and place it upright in a desirable position in relation to the control panel.

d. When the radome is to be used, unfasten the straps that hold it, remove it from the test set case, insert into its base the antenna coupler, insert the radome into the ground plane, using the opening provided for it, and secure the radome in place by clamping its base with the fasteners provided on the ground plane. (The protective cover on the antenna coupler may be removed if desired for maximum access to the antenna coupler components by removing the screws which hold it.)

2-5. Seating of Fuses

Test Set, Antenna AN/ARM-115 contains one 2-ampere fuse which is installed before the AN/ARM-115 is shipped. See that this fuse is installed in the 2 AMP fuseholder (fig. 2-3).

Caution: **Use only fuses of the correct value when replacing a fuse. Overusing can result in damage to the equipment.**

2-6. Connections

When the antenna coupler is mounted on the ground plane, it is connected to the control panel by means of W1 and W2, When the antenna coupler is mounted on the control panel, it is direct-connected to the control panel POWER and RF plugs without using cables W1 and W2. In this latter situation, a millivolt output cable (test lead) connection is required from FL1 and FL5 of the coupler to the control panel MV OUTPUT jacks (fig. 2-3). In both testing situations, the control panel must be connected to the vhf/fm radio set, the power supply, and the oscilloscope. Two power source cables are used to connect the power supply to the control panel 28V INPUT jacks. The oscilloscope is provided with a connecting cable. The CG-3375/U is required to connect the rf output of the vhf/fro radio set to the RF INPUT on the test set control panel. The chart below lists the cables and shows nomenclatures, length, and points of origin and destination.

Cable	Required No.	Length (ft)	Connects From	Connects To
Cable Assembly, Interconnect Control CX-10776/ARM-115.	1	25	POWER CONTROL OUTPUT jack on test set control panel.	Connector J2 on coupler.
Cable Assembly, Interconnect RF CG-1893A/U.	1	25	RF OUTPUT jack on test set control panel.	Connector J1 on coupler.
Coupler[a]		Cable not required.	POWER jack on test set control panel.	Connector J2 on coupler.
Coupler[a]		Cable not required.	RF jack on test set control panel.	Connector J1 on coupler.
Power cource cable	1 (red) 1 (black)	25 25	28V INPUT jacks on test set control panel.	Output terminals of 28-volt power supply.
Millivolt output test leads	1 (red) 1 (black)	2 (approx)	MV OUTPUT jacks on test set control panel.	Terminals FL1 and FL5 on coupler.
Cable Assembly, Radiofrequency CG-3375/U.	1	2	Output terminal of vhf/fm radio set.	RF INPUT jack on test set control panel.
Cable supplied with AN/USM-140.	1	3	Oscilloscope terminal	MOTOR PULSING SIGNAL jack on test set control panel.

[a] Mounted directly to control panel.

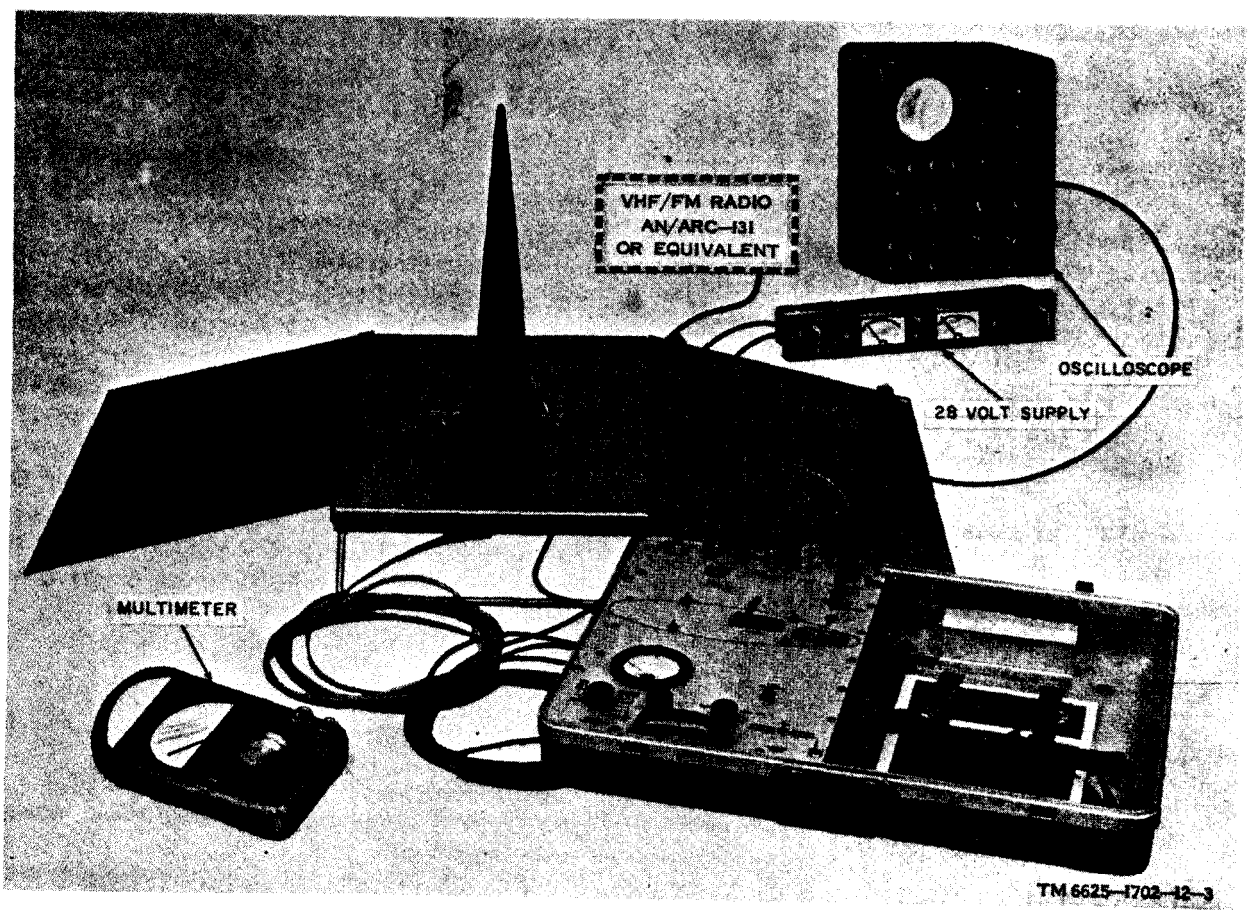

Figure 2-2. Test Set, Antenna AN/ARM-115 with test equipment connected, using ground plane.

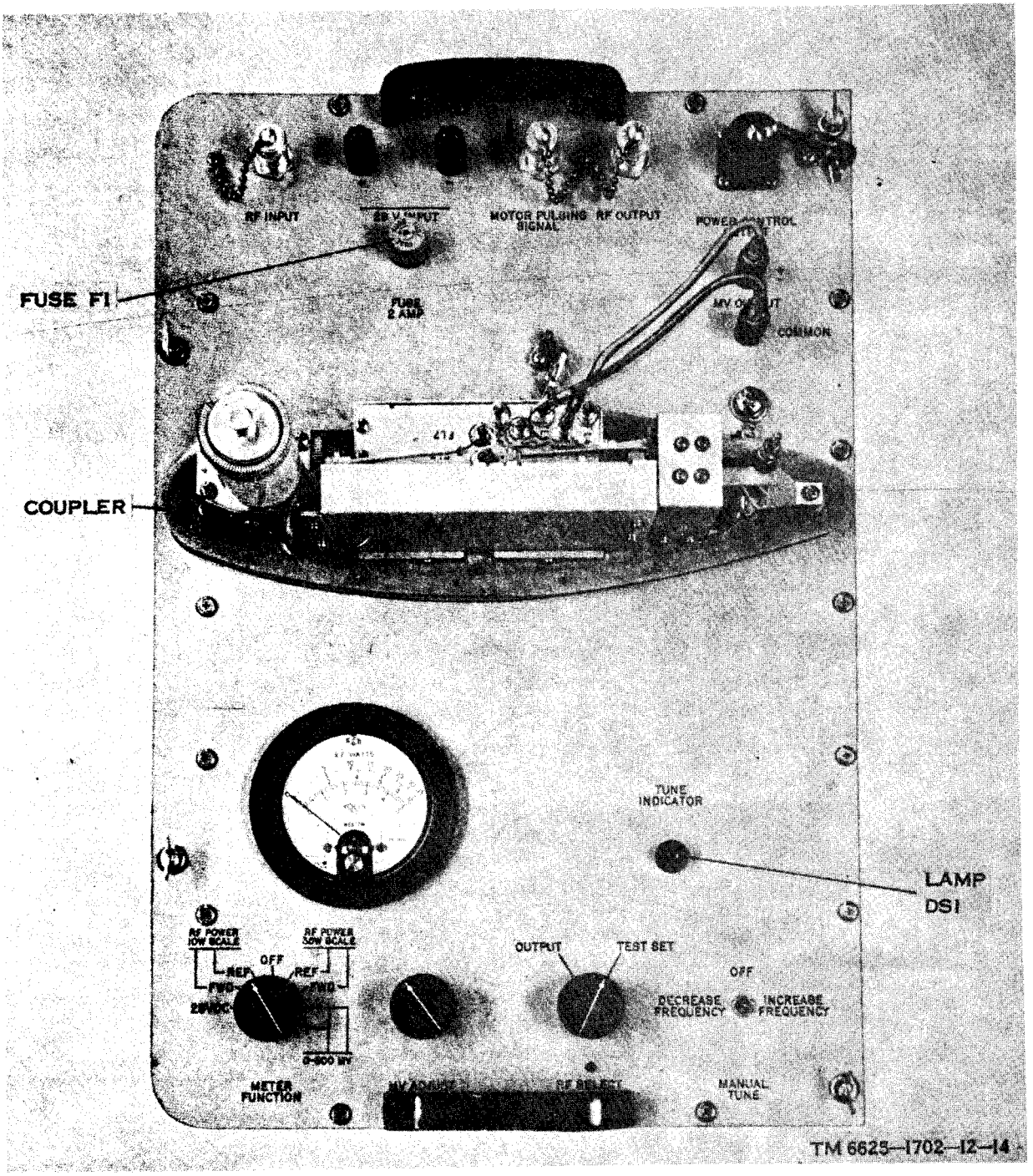

Figure 2-3. Test Set, Antenna TS-2642 ARM-11, with coupler mounted.

CHAPTER 3

OPERATING INSTRUCTIONS

3-1. Controls, Indicators, and Connectors

The chart below lists and indicates the functions of the controls, indicators, and connectors on the AN/ARM-115 (fig. 3-1).

Control, indicator, or connector	*Function*
MV OUTPUT (±) jack	Provides a plus or minus 0- to 500-mv output for testing the unit under test.
MV OUTPUT (COMMON) jack	Provides a dc common for the 0- to 500-mv output.
Coupler mount	Provides a mount for the unit under test. Mount consists of four mounting studs fastened to the control panel and a mounting guide line etched into the control panel.
POWER	Provides a power connection for the unit under test.
RF	Provides an rf connection for the unit under test.
POWER CONTROL OUTPUT	Provides connections for control of the unit under test when the unit is tested on the ground plane (interconnected to unit under test, using W1).
RF OUTPUT	Provides connections for rf power to the unit under test when the unit is tested on the ground plane (interconnected to unit under test, using W2).
MOTOR PULSING SIGNAL	Provides connections for monitoring the external tune indications on the oscilloscope.
RF INPUT	Provides connections for rf power source used to test the unit under test.
28V INPUT (+) red	Provides connections to external 28-volt power source.
28V INPUT (–) black	Provides connection to external 28-volt power source common.
FUSE 2 AMP	Provides protection for the 28-volt power source.
Microammeter	Provides the results of tests to the unit under test.
TUNE INDICATOR	Provides an indication when the unit under test is tuning.
MV ADJUST control	Used to accurately adjust the 0- to 500-mv source.
RF SELECT switch	Used to couple the rf power to the control panel RF plug or the RF OUTPUT jack.
MANUAL TUNE switch	Used to manually control the direction of tuning the antenna servomotor. This toggle switch has a center OFF position.
METER FUNCTION (8-position rotary) switch.	Used to select the different test voltages and to measure standing wave ratio of 437S-l/lA antenna.
Switch position	*Action*
28 V D C	Provides for measurement of 28-volt source.
FWD (RF POWER 10W SCALE)	Provides for forward power measurement of up to a 10-watt rf power source.
REF (RF POWER 10W SCALE)	Provides for reflected power measurement of up to a 10-watt rf power source.
OFF	Turns metering circuit off.
REF (RF POWER 35W SCALE)	Provides for reflected power measurement of up to a 35-watt rf power source.
FWD (RF POWER 35W SCALE)	Provides for forward power measurement of up to a 35-watt rf power source.
0-500 MV (+)	Provides for selection and measurement of positive 0- to 500-millivolt power source.
0-500 MV (–)	Provides for selection and measurement of negative 0- to 500-millivolt power source.

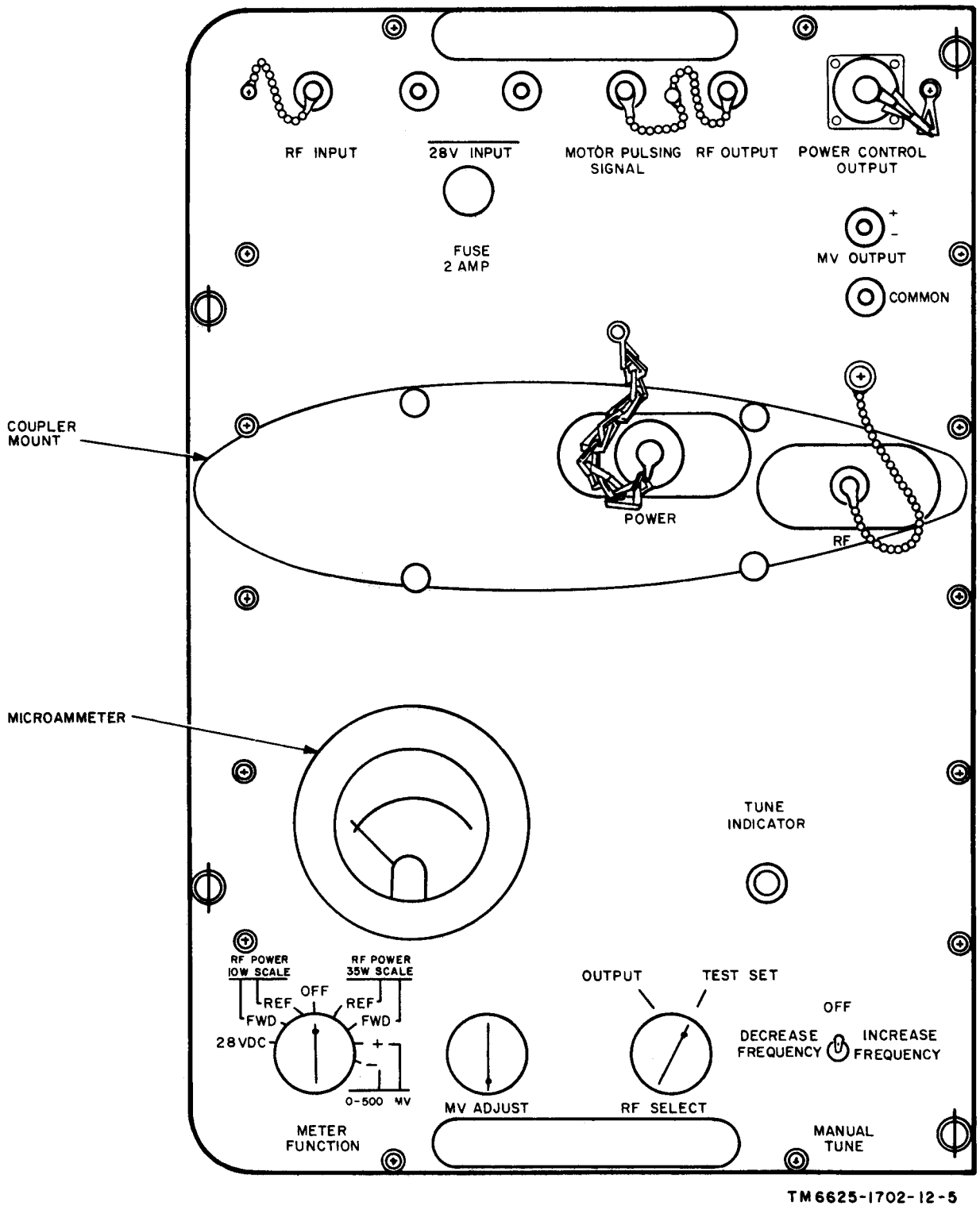

Figure 3–1. Test Set, Antenna AN/ARM–115 controls, indicators, and connectors.

3-2. Starting Procedures

a. Control Settings.. Set the control panel controls (fig. 3-1) as follows:

Control or switch	Position: With ground plane	Position: Without ground plane
METER FUNCTION switch.	OFF	OFF
MV ADJUST control	Any	Any
RF SELECT switch	OUTPUT TEST SET	
MANUAL TUNE switch	OFF	OFF

b. Starting. Test Set, Antenna AN/ARM-115 requires only one control adjustment to start the equipment. This adjustment is required only in those instances when the antenna coupler is mounted on the control panel and not when the ground plane is used. It consists of adjusting the MV OUTPUT control to 100 mv, and making connections to the equipment to be operated. These connections depend upon whether or not the ground plane is to be used. Outlined below are the connections required for the operational configurations with the ground plane and without the ground plane. These configurations are illustrated in figures 2-2, 2-3, and 3-2.

(1) *Without ground plane* (detail A, fig. 3-2) .

(a) Remove the test set cover from the AN/ARM-115, if applicable.

(b) Connect the oscilloscope to the MOTOR PULSING SIGNAL jack on the TS-2642/ARM-l15 control panel.

(c) Connect the 28-volt power source cable assembly from the 28V INPUT jacks on the test set control panel to the 28-volt dc power supply.

(d) Connect the vhf/fm radio set to the RF INPUT jack on the test set control panel.

(e) Mount the antenna coupler to the coupler mount on the test set control panel, connecting J2 of the antenna coupler to the POWER jack, and J1 to the RF jack (fig. 2-3).

(f) Connect the millivolt output test leads from the MV OUTPUT jacks on the test set control panel to FL1 and FL5 of the antenna coupler (fig. 2–3).

(g) Set METER FUNCTION switch to +0-500MV.

(h) Turn the MV ADJUST control until a reading of 100 mv is obtained.

(2) *With ground plane* (detail B, fig. 3-2 and fig. 2-2).

(a) Remove the test set cover from the AN/ARM-115, if applicable.

(b) Connect the oscilloscope to the MOTOR PULSING SIGNAL jack on the test set control panel.

(c) Connect the 28-volt power source cable assembly from the 28V INPUT jacks on the test set control panel to the 28-volt dc power supply.

(d) Connect the vhf/fm radio set to the RF INPUT jack on the test set control panel.

(e) Remove the ground plane from the test set cover as outlined in paragraph 2-4d and place it into position.

(f) Mount the 437S-1/lA antenna to the ground plane as outlined in paragraph 2-4d.

(g) Connect W1 from the POWER CONTROL OUTPUT jack on the test set control panel to J2 of the antenna coupler.

(h) Connect W2 from the RF OUTPUT jack on the test set control panel to J1 of the antenna coupler.

3–3. Operating Procedures

Start the equipment as instructed in paragraph 3-2 and perform bench testing of the 437S-lA vhf/fm blade antenna as indicated below. Figures 3-3 through 3-9 show the various test points used in performing the operational tests.

a. 437S-1/1A Vhf/Fm Blade Antenna Tests. The tests that can be performed on the 437S-1/1A antenna are presented in the chart in paragraph 3-4. The various configurations in which the 437S-1/lA antenna can be tested are listed below:

(1) Test Set, Antenna TS-2642/ARM-115 with antenna coupler but without ground plane, test radome, or antenna radome.

(2) Test Set, Antenna TS-2642/ARM-115 with 437S-1/lA antenna and ground plane.

(3) Test Set, Antenna TS-2642/ARM-115 with antenna coupler, test radome, and ground plane.

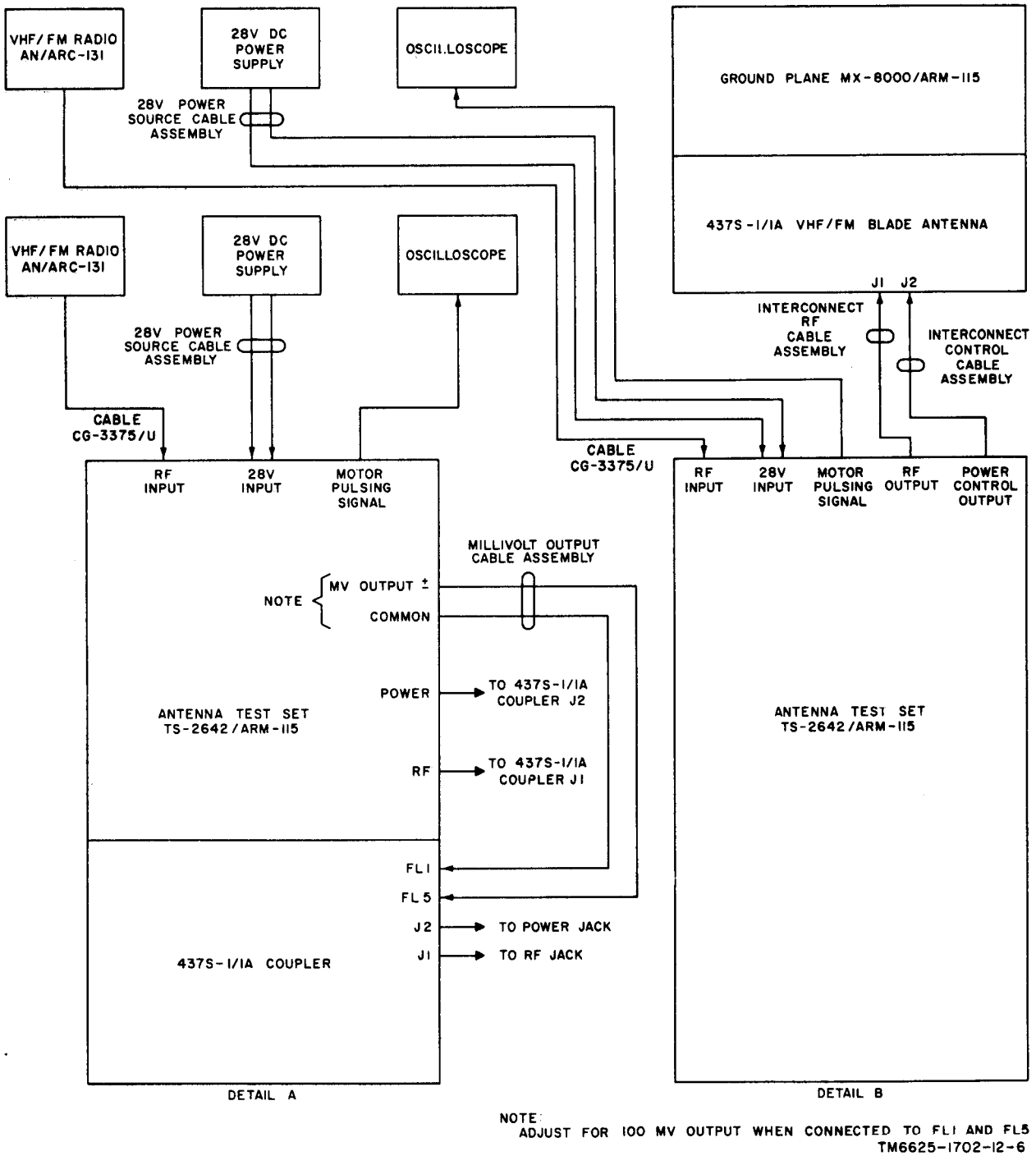

Figure 3-2. Test Set, Antenna AN/ARM-115 and test equipment in typical operational configurations, block diagram.

b. Explanation of Chart Headings.

(1) *Step*. Several subtests may be performed within each major test; the *Step column* indicates the number of the particular test being performed. Each numbered step is a complete test in itself and may be performed independently.

(2) *Test name.* The *Test name* column indicates the name of the circuit of signal function that is being tested.

(3) *Instructions.* The *Instructions* column gives the step-by-step procedure for performing the tests. The steps must be performed in numerical order. All switches, connectors, controls and meters referred to in this column are on the TS-2642/ARM-l15 unless otherwise indicated.

(4) *Test results.* The *Test results* column indicates the required measured output and describes any noticeable changes that should occur.

(5) *Probable cause of abnormal results.* The *Probable cause of abnormal results* column lists the most probable cause of an abnormal result, listed in the order of likelihood. The probable cause is determined assuming that each previous test step was satisfactorily completed.

c. Arrangement of Tests. All major tests but one are divided into subtests. The major tests are arranged so that any particular major test may be performed without performing the major tests preceding it. However, the tests are presented so that if the test steps are performed in numerical order, the knowledge that preceding tests have been satisfactorily completed is an aid in determining the probable cause of an abnormal test result. The performance or nonperformance of subtests depends upon whether or not previous subtests have produced normal or abnormal results.

d. Trouble Isolation. If the test results given in the charts are not obtained, troubleshooting of the unit under test is required. For corrective measures pertaining to the AN/ARM-115, refer to the troubleshooting procedures in paragraph 4-14.

3-4. Operational Tests of 437S-1/1A Vhf/Fm Blade Antenna

Refer to paragraph 3-3 for explanation of chart headings. Upon completion of test, perform the stopping procedure (para 3-5).

Step	Test name	Instructions	Test results	Probable cause of abnormal results
1	Functional test	(1) Environmental conditions: The test area must be free of externally generated rf fields (no nearby antennas or transmitting sources). Tests must be conducted in an essentially free-space environment for the space above the ground plane (preferably outdoors, away from or above metal structures, or in a very large room with no nearby metallic obstructions).		
		(2) Connect the antenna coupler and set control panel controls as per paragraph 3–2, without ground plane.		
		(3) Apply 27.5-volts dc	The antenna coupler should remain inactive.	Short in manual override logic circuits.
		(4) Set the MANUAL TUNE switch to DECREASE FREQUENCY and then to INCREASE FREQUENCY.	The antenna coupler should tune each time the ground is alternated.	Defect in antenna coupler. Proceed to step 2.
2	Vswr test	(1) Secure the 437S–1/1A antenna in the center of the ground plane and connect the equipment as per paragraph 3–2, with ground plane.		
		(2) Apply 27.5 volts dc to the control panel.		
		(3) Apply rf power to the control panel; use frequency of 30 MHz.		
		(4) Set the METER FUNCTION switch to FWD (RF POWER 10W SCALE).		
		(5) Measure forward power.		
		(6) Set the METER FUNCTION switch to REF (RF POWER 10W SCALE).		
		(7) Measure reflected power.		
		(8) Divide reflected power by forward power and record as percent; use following formula:	Not more than 25% of forward power should be reflected by the 437S–1/1A antenna.	Defect in antenna coupler or 437S–1/1A antenna. Proceed to step 3.

		$\frac{\text{Reflected power}}{\text{Forward power}} \times 100$ = Percent of forward power reflected by the 437S-1/1A antenna		
		(9) Repeat (3) through (8) above at each frequency listed below: 35 MHz 55 MHz 40 MHz 60 MHz 45 MHz 65 MHz 50 MHz 70 MHz 75.95 MHz		
3	Antenna coupler test	(1) Environmental conditions: The test area must be free of externally generated rf fields. Tests are conducted at normal room ambient temperature, humidity and atmospheric pressure.		
		(2) Remove the antenna coupler from the 437S-1/1A antenna as described in paragraph 4-16*e*.		
		(3) Connect the antenna coupler and set control panel controls as per paragraph 3-2, without ground plane.		
		(4) Remove servoamplifier circuit board A1 cover on the antenna coupler as described in paragraph 4-16*f*.		
		(5) With the antenna coupler disconnected from rf power and +27.5 volts dc, manually cycle vacuum variable capacitor C1 on antenna coupler from one limit to the other.	Vacuum variable capacitor C1 on the antenna coupler should not drag or have any tight spots over its entire range of movement. (The capacitor has a vacuum and will pull in.)	Defective gear, bearing, capacitor C1, or servomotor. If results are normal, proceed to step 4. *Note. Vacuum variable capacitor C1* on the antenna coupler should travel its full range before tripping limit switches S1 and S2 on the antenna coupler. If the capacitor does not travel its full range before tripping the switches, adjust switches as described in paragraph 4-16*g*.
4	Manual cycle and run signal test.	(1) Connect the antenna coupler and set control panel controls as per paragraph 3-2. Without ground plane.		

Step	Test name	Instructions	Test results	Probable cause of abnormal results
		(2) Apply 27.5 volts dc to the antenna coupler and ground to pin A1–10 of servoamplifier circuit board A1.	Capacitor actuator arm should move inward when pin A1–10 is grounded.	
		(3) Observe waveform at J2–K on the antenna coupler.	Waveform should be approximately the same as that shown in V, figure 5–1. T2 in V, figure 5–1 should be 20 ms ±10.	Defective servoamplifier, pulsing circuits, or manual override logic circuits. Proceed to step 5. If results are normal, proceed to step 5.
		(4) Remove ground from pin A1–10 and ground pin A1–12 of servoamplifier circuit board A1.	The capacitor actuator arm should move outward when pin A1–12 is grounded. One complete cycle should be observed.	If waveform is normal, defective sequencing circuits, servo control circuits, or servomotor. Proceed to step 5. If results are normal, proceed to step 5.
		(5) Observe waveform at J2–K on the antenna coupler.	The waveform should be approximately the same as that shown in W, figure 5–1. T_2 in W, figure 5–1 should be 20 ms ±10.	Same as (3) above.
		(6) Remove ground from pin A1–12.		
5	Voltage output from phase discriminator.	(1) Connect the antenna coupler and set control panel controls as per paragraph 3–2, without ground plane.		
		(2) Apply 27.5 volts dc.		
		(3) Apply 1- to 10-watt rf power to the antenna coupler at 30–MHz. Note and record the value of rf power in watts on the test set meter.		
		(4) Measure the dc voltage between FL1 and FL5 of the antenna coupler using Multimeter ME–26B/U.	For rf power input of 1-watt, FL1 should be .3 to .8 volt positive with respect to FL5 at each frequency. For 5-watt rf input, FL1 should be .5 to 1.5 volts positive and, for 10-watt rf input, FL1 should be .7 to 2.1 volts positive with respect to FL5 at each frequency. Minimum voltages should be read between FL1 and FL5 as indicated below:	Defective phase discriminator A2. Check A2CR1, A2CR2, and associated components. If results normal, proceed to step 6.

			RF input / *Minimum voltage* 10-watts / .65 volts 12-watts / .70 volts 14-watts / .77 volts 16-watts / .85 volts 18-watts / .92 volts 20-watts / 1.00 volts	
		(5) Repeat (3) and (4) above; use frequencies of 50 MHz and 76 MHz.	Same as (4) above.	
6	Servo loop functional test.	(1) Connect the antenna coupler and set control panel controls as per paragraph 3–2, without ground plane.		
		(2) Apply 27.5 volts dc.		
		(3) Apply approximately 5- to 10-watt rf power to the antenna coupler at 30 MHz.	The unit should time continually, positioning variable capacitor C1 from maximum to minimum.	If results are normal, but results of step 4 above were abnormal, defective manual override logic circuits. Proceed to step 18.
		(4) Observe waveform at J2–K on the antenna coupler.	The waveform should be approximately the same as that shown in X, figure 5–1.	If results are abnormal, but results of step 4 above were normal, check FL1, FL5, and A1R9. If results are abnormal and results of step 4 above were abnormal, defective servoamplifier, pulsing circuits, sequencing circuits, servo control circuits, or servomotor (refer to step 4). Proceed to step 7. If results are normal, proceed to step 7.
		(5) Repeat (3) and (4) above at frequencies of 50 and 76 MHz.		
7	Fine tune mode test	*Note.* The 100-mv source must be isolated from ground. (1) Connect the antenna coupler and set control panel controls as per paragraph 3–2, without ground plane. (2) Set METER FUNCTION switch to +0–500 MV. (3) Apply 27.5 volts dc to the antenna coupler and 100 mv between FL1 and FL5 of the antenna coupler, with the positive side connected to FL1.		

Step	Test name	Instructions	Test results	Probable cause of abnormal results
		Note. Do not apply rf power to the antenna coupler.		
		(4) Observe waveform at FL6 of the antenna coupler.	The waveform should be approximately the same as that shown in U, figure 5–1.	If results are abnormal, and results of steps 4 and 6 above were abnormal, defective servoamplifier or pulsing circuits. Proceed to step 11. If results are abnormal and results of steps 4 and 6 were normal, check A1CR28, A1Q20, A1CR27, FL6, L1, L2, and FL2. If results are normal and results of steps 4 and 6 were abnormal, check A1R25, A1Q19, A1R40, A1L1, and A1C9. If results are normal, proceed to step 8.
8	Servo gain test _____	*Note.* The 100-mv source must be isolated from ground.		
		(1) Connect the antenna coupler, and set control panel controls as per paragraph 3–2, without ground plane.		
		(2) Set METER FUNCTION switch to +0–500 MV.		
		(3) Apply 27.5 volts dc to the control panel and 100 mv between FL1 and FL5 of the antenna coupler, with the positive side connected to FL1.		
		Note. Do not apply rf power to the antenna coupler.		
		(4) Observe the waveform at J2–K of the antenna coupler.	The waveform should be approximately that shown in Y, figure 5–1. T_2 should be 10 ms ±30 percent.	If one polarity is normal and the other polarity is not, check circuits associated with abnormal polarity. If neither polarity is normal, check A1AR1 and pulsing circuit. If results are normal, proceed to step 9.
		(5) Set METER FUNCTION switch to −0–500 MV.		
		(6) Observe the waveform at J2–K ___	The waveform should be approximately that shown in Z, figure 5–1. T_2 should be 10 ms ±30 percent.	Same as (4) above.

9	Rf-on test	(1) Connect the antenna coupler and set control panel controls as per paragraph 3–2, without ground plane.		
		(2) Apply 27.5 volts dc. *Note.* Do not apply rf power.		
		(3) Set METER FUNCTION switch to +0–500 MV.		
		(4) Connect positive 100-mv source between FL1 and FL5 of the antenna coupler, with the positive side to FL1.		
		(5) Ground FL4 of the antenna coupler.		
		(6) Observe for cycling	Unit should cycle normally	If unit did not cycle previously when rf power was applied, check A2CR3, A2C4, and A2R4. Proceed to step 10.
10	Homing circuit check	(1) Perform 9(1) through (6)	Unit should cycle normally.	
		(2) Manually trip S2 on the antenna coupler.	Vacuum capacitor C1 should run out.	If capacitor C1 is not completely run out, check S2, A1A5C, A1A5D, A1Q17, A1CR16, A1CR17, A1CR18, A1A6, and associated components. If capacitor is completely run out, proceed to (3) below.
		(3) Manually trip S1 on the antenna coupler.	Vacuum capacitor should run in	If capacitor was completely run out in (2) above, check to see that the capacitor returns to the completely run-out position. *Note.* If switches S1 and S2 operate the antenna coupler properly, adjust the switches (para 4–16*g*). If capacitor is completely run in, check the adjustment of S2. If capacitor is not completely run in, check S1, A1A5C, A1A5D, A1Q17, A1CR16, A1CR17, A1CR18, A1A6, and associated components. Proceed to step 11.
11	+28-volt supply check	(1) Connect antenna coupler and set control panel controls as per paragraph 3–2, without ground plane.		
		(2) Apply +28 volts dc.		

Step	Test name	Instructions	Test results	Probable cause of abnormal results
		(3) Measure +28 volts dc at pin A1-2 of servoamplifier circuit board A1.	+28 volts dc should be obtained	If +28 volts dc is obtained, proceed to step 12. If reading is low, external supply. Internal short, check A1C10 and other components associated with +28-volt dc supply. If reading is high, external supply.
12	+6.2-volt supply check.	(1) Connect antenna coupler and set control panel controls as per paragraph 3-2, without ground plane. (2) Apply +28 volts dc. (3) Measure +6.2 volts dc at pin A1-5 of servoamplifier circuit board A1.	+6.2 volts dc should be obtained	If +6.2 volts dc is obtained, proceed to step 13. If reading is low, internal short, check A1CR22, A1C8, A1C3, A1AR1, or 13.7-volt dc supply. A1CR21 or A1R33 open. If reading is high, A1CR22 open.
13	+13.7-volt supply check.	(1) Connect the antenna coupler and set control panel controls as per paragraph 3-2, without ground plane. (2) Apply +28 volts dc. (3) Measure +13.7 volts dc at A1AR1-10.	+13.7 volts dc should be obtained	If +13.7 volts dc is obtained, proceed to step 14. If reading is low, internal short, check A1CR21, A1AR1, and other components associated with 13.7-volt dc supply. If reading is high, A1CR21 or A1CR22 open.
14	+5.1-volt supply check.	(1) Connect the antenna coupler and set control panel controls as per paragraph 3-2, without ground plane. (2) Apply +28 volts dc. (3) Measure +5.1 volts dc at pin A1-8 of servoamplifier circuit board A1.	+5.1 volts dc should be obtained	If +5.1 volts dc is obtained, proceed to step 15. If reading is low, internal short, check A1CR1, flat packs A1A1 through A1A6, and other components associated with +5.1-volt dc supply. A1R1 open. If reading is high, A1CR1 open.

15	Pulsing circuit check	(1) Connect the antenna coupler and set control panel controls as per paragraph 3–2, without ground plane. (2) Apply +28 volts dc. *Note.* Do not apply rf power. (3) Set METER FUNCTION switch to +0–500 MV. (4) Connect 100-mv source between FL1 and FL5 on the antenna coupler, with positive to FL1. (5) Manually trip S1 of the antenna coupler.		
		(6) Observe waveform at A1AR1–9	Sawtooth waveform as shown in A, figure 5–1 should be obtained.	If the antenna coupler does not run, proceed to step 16. If antenna coupler runs and waveform at A1AR1–9 is not correct, check A1C9, A1L1, and A1Q19. If a steady dc voltage between +3.9 and +8.2 volts is obtained, proceed to (10), (11), and (12) below. If a steady dc voltage above +8.2 volts is obtained, proceed to (13) and (14) below. If a steady dc voltage below +3.9 volts is obtained, proceed to (15) and (16) below.
		(7) Set METER FUNCTION switch to −0–500 MV.		
		(8) Observe waveform at A1AR1–9	Sawtooth waveform as shown in B, figure 5–1 should be obtained.	Same as (6) above.
		(9) If waveform is correct in (8) above, proceed to step 16. *Note.* Steps (10) through (24) below are to be performed *only* as indicated in the *Probable cause of abnormal results* column.		
		(10) Perform (1) through (8) above, observing at A1AR1–9 a steady dc voltage between +3.9 and +8.2 volts.		
		(11) Check voltage at A1Q18 gate	If reading of +6.2 volts dc is obtained, proceed to (12) below.	Reading of +28 volts dc indicates A1Q18 or A1AR1 bad, A1C4 shorted. Reading of +0 volt dc indicates A1R1 or A1CR12 open, A1R2 shorted.

Step	Test name	Instructions	Test results	Probable cause of abnormal results
		(12) Check voltage at A1Q8 collector	High voltage at A1Q8 collector (more than 3.0 volts dc) and low voltage at A1Q8 collector (less than 0.3 volt dc).	High voltage indicates A1Q8 bad, A1C1 or A1C2 shorted. Low voltage indicates A1Q10 bad.
		(13) Perform (1) through (8) above, observing at A1AR1-9 a steady dc voltage above +8.2 volts.		
		(14) Measure voltage at A1Q14 collector	Low voltage (less than 0.3 volt dc) should be obtained on A1Q14 collector.	If low voltage, proceed to (17) and (18) below. If high voltage, check A1Q14, A1CR9, A1R12, and A1R15.
		(15) Perform (1) through (8) above, observing at A1AR1-9 a steady dc voltage below +3.9 volts.		
		(16) Measure voltage at A1Q12 collector	Low voltage (less than 0.3 volt dc) should be observed on A1Q12 collector.	If low voltage, proceed to (17) and (18) below. If high voltage, check A1Q12, A1R19, A1Q11, A1CR10, A1R13, and A1R16.
		(17) Perform (1) through (8) above, observing low voltage on the A1Q14 collector or A1Q12 collector.		
		(18) Measure voltage on A1A4C-14	High voltage (more than 3.0 volts dc) should be observed on A1A4C-14.	If high voltage, proceed to (19) and (20) below. If low voltage, check A1A4C and voltages to A1A4C.
		(19) Perform (1) through (8) above, observing high voltage on A1A4C-14.		
		(20) Measure voltage on A1A3D-14	Low voltage (less than 0.3 volt dc) should be observed on A1A3D-14.	If low voltage, proceed to (21) and (22) below. If high voltage, check A1A3D and voltages to A1A3D.
		(21) Perform (1) through (8) above, observing low voltage on A1A3D-14.		
		(22) Measure voltage on A1Q7 collector	High voltage (more than 10.0 volts dc) should be observed on A1Q7 collector.	If high voltage, proceed to (23) and (24) below. If low voltage, check A1CR8, A1Q7, and A1R8.
		(23) Perform (1) through (8) above, observing high voltage on A1Q7 collector.		
		(24) Observe waveform on A1Q8 collector.	Waveforms as shown in K and L, figure 5-1 should be obtained.	If waveform is not correct, check components, associated with A1Q8 and A1Q9.

16	**Sequencing circuit checks (rf power not applied).**	**(1) Connect the antenna coupler and set control panel controls as per paragraph 3–2, without ground plane.** **(2) Apply 27.5 volts dc.** *Note.* **Do not apply rf power.** **(3) Disconnect 100-mv source from between FL1 and FL5 of the antenna coupler by removing millivolt test leads.**		
		(4) Check voltage on A1Q13 collector.	Low voltage (less than 0.3 volt dc) should be observed on A1Q13 collector.	If high voltage, check A1R20, A1R21, A1CR13, and A1Q13.
		(5) Perform (1) through (4) above, observing low voltage on A1Q13 collector.		
		(6) Check voltage on A1A4A–5 and A1A4B–9.	High voltage (more than 3.0 volts dc) should be observed on A1A4A–5 and A1A4B–9.	If low voltage on A1A4A–5, check A1A4A. If low voltage on A1A4B–9, check A1A4B.
		(7) Perform (1) through (4) above, observing high voltage on A1A4A–5 and A1A4B–9.		
		(8) Check voltage on A1A5A–3 and A1A5B–7.	Low voltage (less than 0.3 volt dc) should be observed on A1A5A–3 and A1A5B–7.	If high voltage on A1A5A–3, check A1A5A. If high voltage on A1A5B–7, check A1A5B.
		(9) Perform (1) through (4) above, observing low voltage on A1A5A–3 and A1A5B–7.		
		(10) Check voltage on A1A3A–3, A1A3B–7, and A1A3C–11.	Low voltage (less than 0.3 volt dc) on any one output, and high voltage (more than 3.0 volts dc) on the other two outputs should be observed on A1A3A–3, A1A3B–7, and A1A3C–11.	If low voltage on more than one output, check inputs to A1A3A, A1A3B, and A1A3C. If only one gate has two high-voltage inputs (more than 3.0 volts dc), replace A1A3. If more than one gate has two high-voltage inputs (more than 3.0 volts dc), replace A1A1 and A1A2.
		(11) Perform (1) through (4) above, observing one low-voltage output on A1A3A–3, A1A3B–7, or A1A3C–11.		
		(12) Check voltage on pins A1–13, A1–14, and A1–15 of servoamplifier circuit board A1.	Low voltage (less than 1.0 volt dc) on one output, and high voltage (more than 27.0 volts dc) on the other two outputs	If low-voltage output is in the same circuit as the low-voltage output from A1A3A, A1A3B, and A1A3C, the unit is working

Step	Test name	Instructions	Test results	Probable cause of abnormal results
			of pins A1–13, A1–14, and A1–15 of servoamplifier circuit board A1.	properly for this one condition. To check the other two operating conditions, proceed to (13) through (17) below. If low-voltage output circuit does not correspond to the low-voltage output from A1A3A, A1A3B, and A1A3C, check the components in the circuit related to the low-voltage output from A1A3A, A1A3B, and A1A3C.
		(13) Perform (1) through (4) above, observing one low-voltage ouput on A1A3A–3, A1A3B–7, or A1A3C–11.		
		(14) Ground one input on the gate with the low voltage.	Output should change to high-voltage output (more than 3.0 volts dc).	Check A1A3A, A1A3B, or A1A3C (the one being checked) if output does not go high.
		(15) If the output goes high, check the related output at pin A1–13, A1–14, or A1–15.	Output should change to high-voltage output (more than 27.0 volts dc).	Check circuits related to A1A3A, A1A3B, or A1A3C (the one being checked) if output voltage does not go high.
		(16) With one input on gate in (13) above grounded, ground the output on one of the remaining two gates. Check the related output on pin A1–13, A1–14, or A1–15 on servoamplifier circuit board A1.	Output should change to low-voltage output (less than 1.0 volt dc).	Check circuits related to A1A3A, A1A3B, or A1A3C (the one being checked) if output voltage does not go low.
		(17) Remove ground applied to gate output in (16) above. Repeat step (16) above for remaining gate.	Output should change to low-voltage output (less than 1.0 volt dc).	Check circuits related to A1A3A, A1A3B, or A1A3C (the one being checked) if output voltage does not go low. Upon satisfactory completion of (13) through (16) above, proceed to step 17.
17	Sequencing circuit checks (rf power applied).	(1) Connect the antenna coupler and set control panel controls as per paragraph 3–2, without ground plane.		
		(2) Apply 27.5 volts dc.		
		(3) Apply approximately 10 watts of rf power to the antenna coupler		

(if not available, apply 1 to 5 watts of power).		
(4) Check voltage on A1Q13 connector.	High voltage (more than 3.0 volts dc) should be observed on A1Q13 collector.	If low voltage, check A1R20, A1R21, and A1Q13.
(5) Perform (1) through (4) above, observing high voltage on A1Q13 collector.		
(6) Check voltage on A1A4A–5	Low voltage (less than 0.3 volt dc) should be observed on A1A4A–5.	If high voltage, check inputs A1A4A–1, A1A4A–2, A1A4A–3. If all high, check A1A4. *Note.* Voltage should be low only during period in which A1A4A–1 is high and A1A4B–8 is low.
(7) Check voltage on A1A4B–9	High voltage (more than 3.0 volts dc) should be observed on A1A4B–9.	If low voltage, check inputs A1A4B–6, A1A4B–7, A1A4B–8. If any are low, check A1A4. *Note.* Voltage should be high only during preiod in which A1A4B–8 is low.
(8) Perform (1) through (4) above, observing low voltage on A1A4A–5 and high voltage on A1A4B–9.		
(9) Check voltage on A1A5A–3	High voltage (more than 3.0 volts dc) should be observed on A1A5A–3.	If low voltage, check A1A5.
(10) Check voltage on A1A5B–7	Low voltage (less than 0.3 volt dc) should be observed on A1A5B–7.	If low voltage, check A1A5.
(11) Perform (1) through (4) above, observing high voltage on A1A5A–3 and low voltage on A1A5B–7.		
(12) Using oscilloscope, observe waveforms on A1A3A–3, A1A3B–7, and A1A3C–11. *Note.* Use output at A1A3A–3 to sync oscilloscope.	Waveforms as shown in Q, figure 5–1 should be obtained.	If any waveforms missing, check A1A3. If waveforms are not properly sequenced, check A1A1 and A1A2.
(13) Trip limit switch S2 of the antenna coupler.		
(14) Observe waveforms on A1A3A–3, A1A3B–7, and A1A3C–11.	Waveforms as shown in R, figure 5–1 should be observed.	If waveforms are not properly sequenced, check A1A1 and A1A2.
(15) Perform (1) through (4) above, observing correct waveforms observed in (11) through (14) above.		
(16) Trip limit switch S1 of the antenna coupler.		

Step	Test name	Instructions	Test results	Probable cause of abnormal results
		(17) Using oscilloscope, observe waveforms on pins A1–13, A1–14, and A1–15 of servoamplifier circuit board A1. *Note.* Use output at pin A1–15 to sync oscilloscope.	Waveforms as shown in S, figure 5–1 should be observed.	If waveforms are not normal, check A1Q1, A1Q2, A1Q3, A1Q4, A1Q5, A1Q6, and associated circuits. If no output waveforms, check A1CR1.
		(18) Trip limit switch S2 of the antenna coupler.		
		(19) Observe waveforms on pins A1–13, A1–14, and A1–15.	Waveforms as shown in T, figure 5–1 should be observed.	If waveforms are not normal, check A1Q1, A1Q2, A1Q3, A1Q4, A1Q5, A1Q6, and associated circuits.
18	Manual override circuit check.	(1) Connect the coupler and set control panel controls as per paragraph 3–2, without ground plane.		
		(2) Apply 27.5 volts dc. *Note.* Do not apply rf power.		
		(3) Measure voltage on A1A6B–7	Low voltage (less than 0.3 volt dc) should be observed on A1A6B–7.	If high voltage, check A1A6.
		(4) Measure voltage on A1A6C–11	Low voltage (less than 0.3 volt dc) should be observed on A1A6C–11.	If high voltage, check A1A6.
		(5) Measure voltage on A1Q16 collector	Low voltage (less than 0.3 volt dc) should be observed on A1Q16 collector.	If high voltage, check A1Q16 and A1R31.
		(6) Perform steps (1) through (5) above, observing normal outputs from A1A6B–7, A1A6C–11 and A1Q16 collector.		
		(7) Measure voltage on A1A6A–3	High voltage (more than 3.0 volts dc) should be observed on A1A6A–3.	If high voltage, check A1A6 and A1CR18.
		(8) Measure voltage on A1Q15 collector	High voltage (more than 9.0 volts dc) should be observed on A1Q15.	If low voltage, check A1Q15 and A1R27.
		(9) Perform steps (1) through (5) above.		
		(10) Ground pin A1–10 of servoamplifier circuit board A1.		
		(11) Measure voltage on A1A6B–7	High voltage (more than 3.0 volts dc) should be observed on A1A6B–7.	If low voltage, check A1A6.
		(12) Measure voltage on A1Q16 collector	High voltage (more than 9.0 volts	If low voltage, check A1Q16 and

	dc) should be observed on A1Q16 collector.	A1R28.
(13) Remove ground from pin A1–10 of servoamplifier circuit board A1 (10) above.		
(14) Perform (1) through (5) above. Ground pin A1–12.		
(15) Measure voltage on A1A6B–7 ____	High voltage (more than 3.0 volts dc) should be observed on A1A6B–7.	If low voltage, check A1CR26 and A1A6.
(16) Measure voltage on A1A6C–11 ___	High voltage (more than 3.0 volts dc) should be observed on A1A6C–11.	If low voltage, check A1A6.
(17) Remove ground from pin A1–12 of servoamplifier circuit board A1 which was made in (13) above.		
(18) Perform (1) through (5) above. Ground pin A1–10.		
(19) Measure voltage on A1A6A–3 ____	Low voltage (less than 0.3 volt dc) should be observed on A1A6A–3.	If high voltage, check A1A6.
(20) Remove ground from pin A1–10 of servoamplifier circuit board A1 which was made in (17) above.		
(21) Perform (1) through (5) above. Ground pin A1–12.		
(22) Measure voltage on A1Q15 collector.	Low voltage (less than 0.3 volt dc) should be observed on A1Q15 collector.	If low voltage, homing logic is operating properly. If high voltage, check A1R30 and A1Q15.

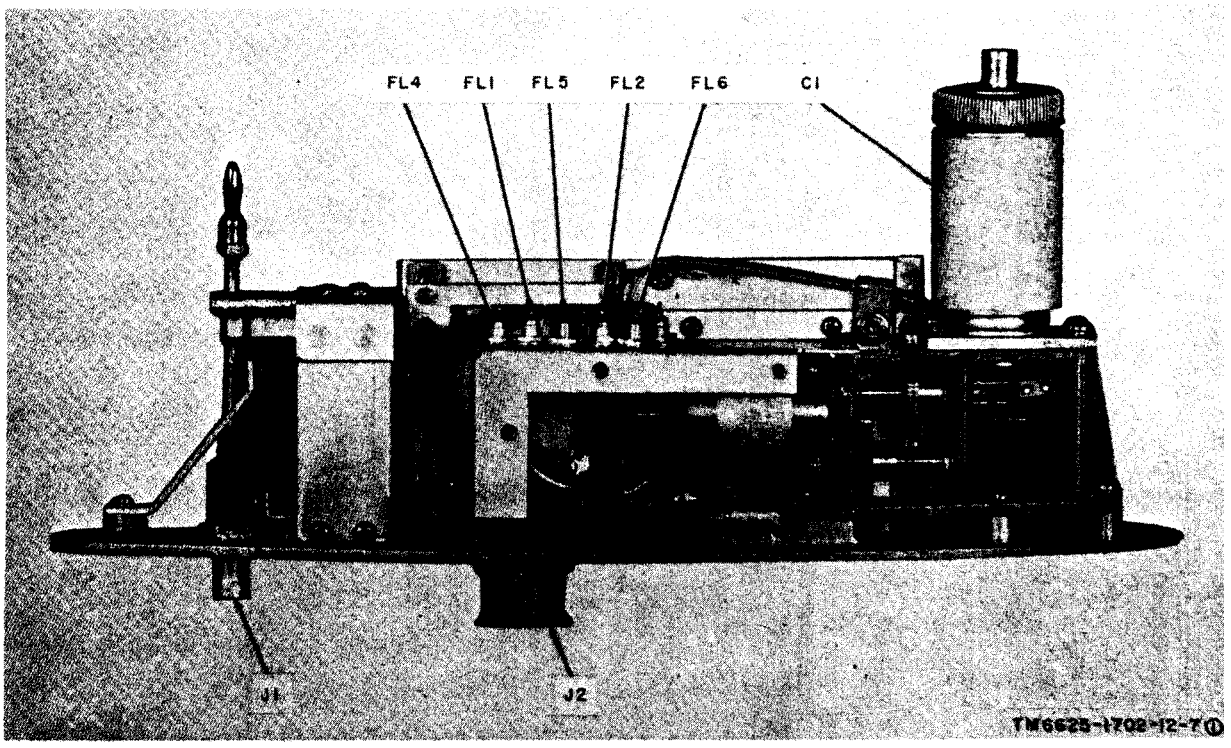

Figure 3-3①. 437S-1/1A coupler assembly test points (part 1 of 2)

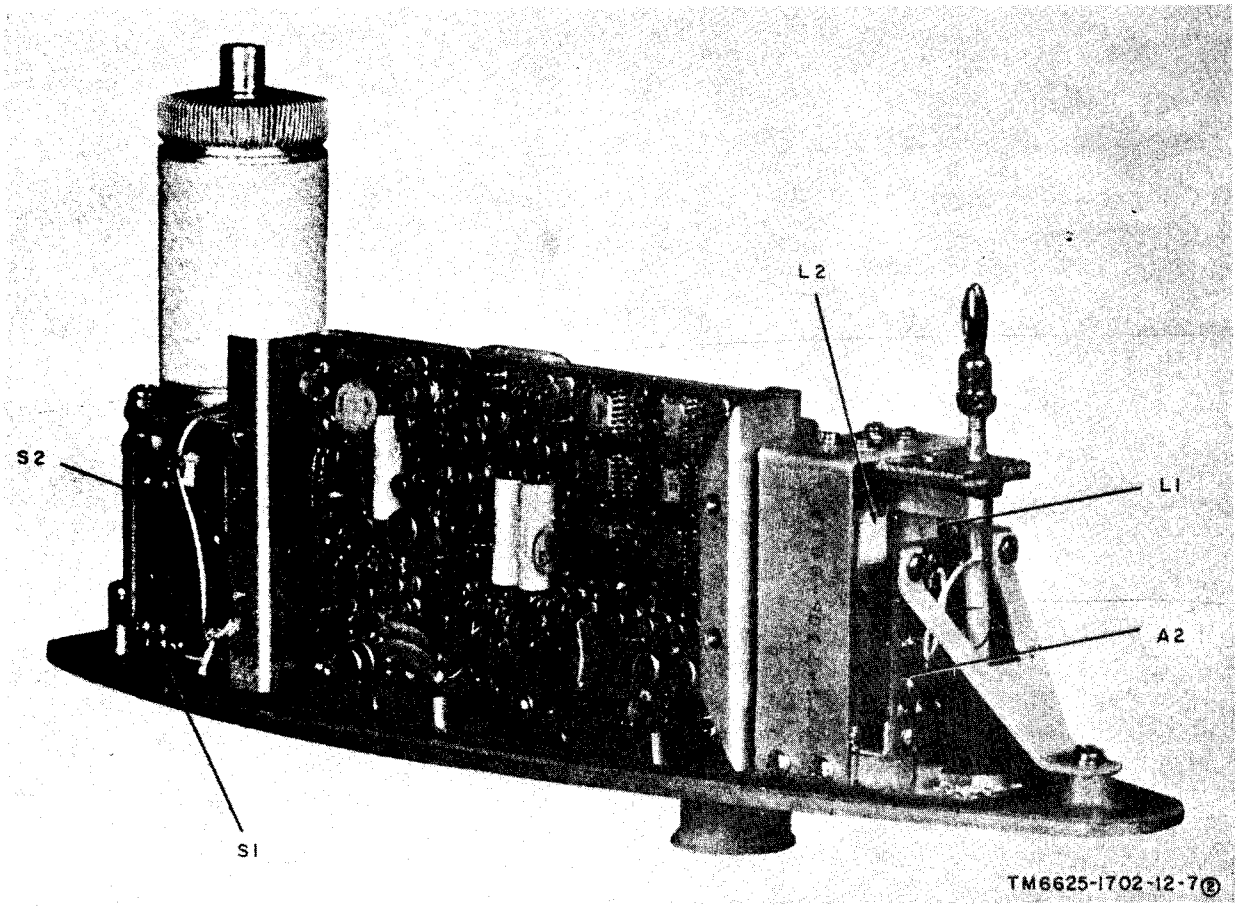

Figure 3-3②. 437S-1/1A coupler assembly test points (part 2 of 2).

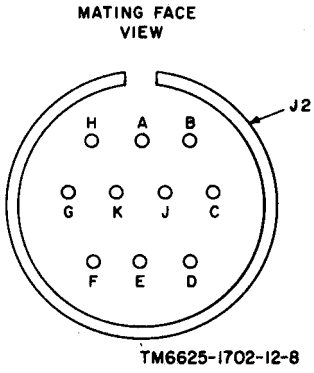

Figure 3–4. 437S–1/1A coupler connector J2 test points.

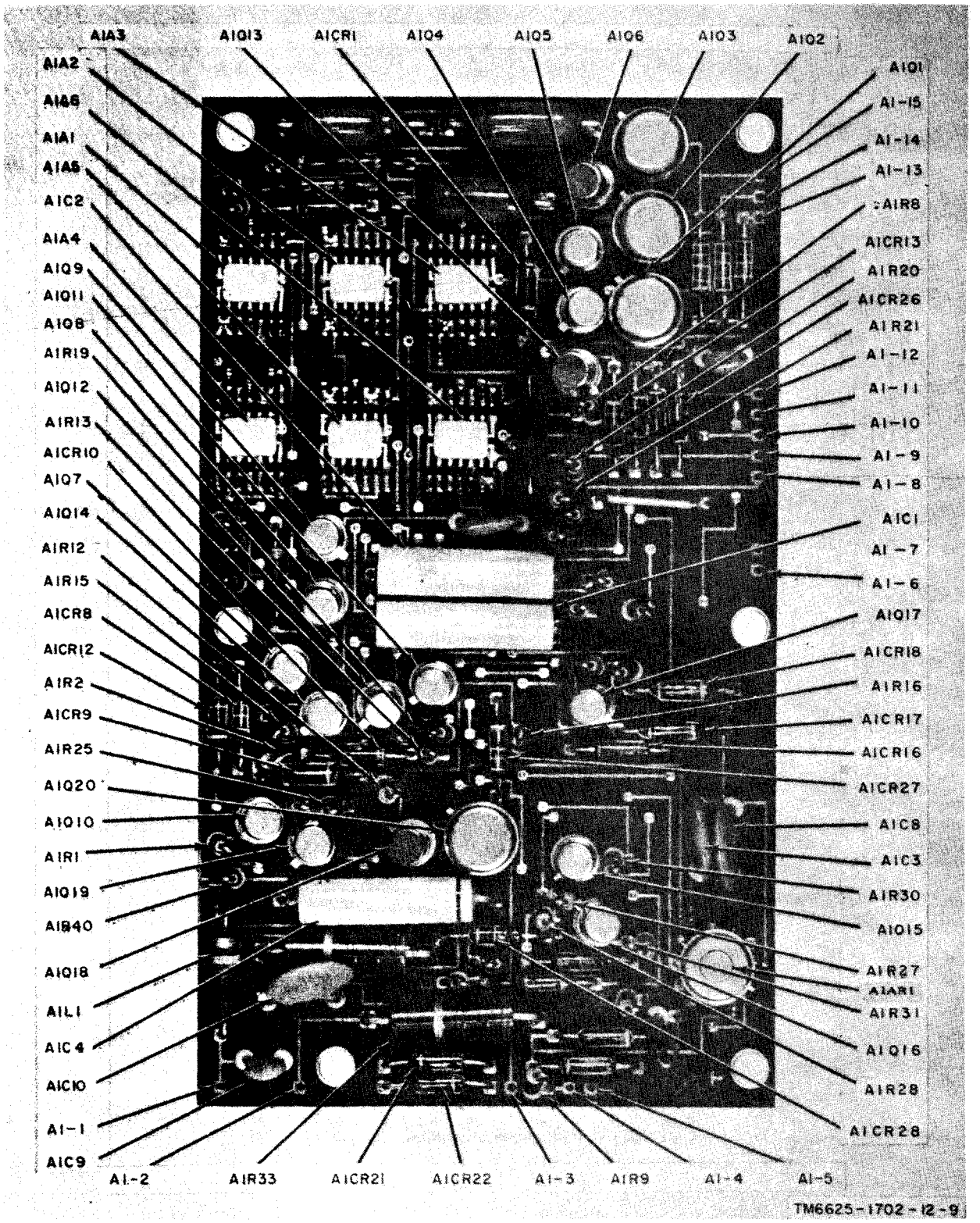

Figure 3–5. Servoamplifier circuit board A1 test points.

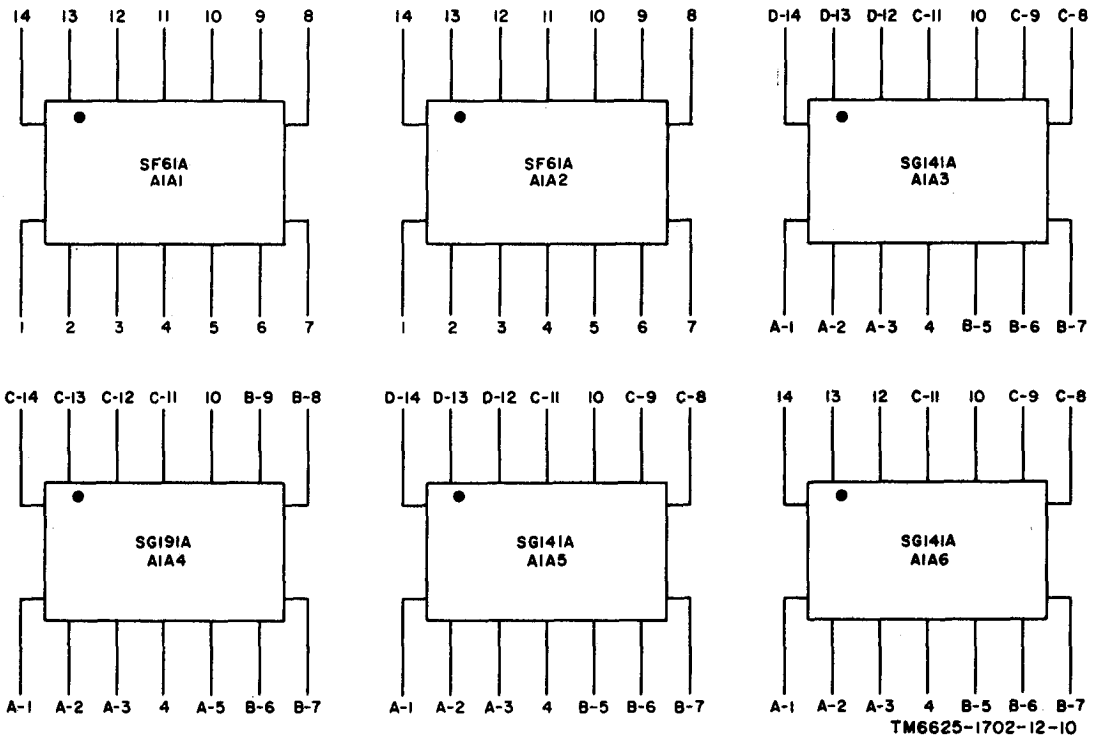

Figure 3–6. A1A1 through A1A6 flat pack test points.

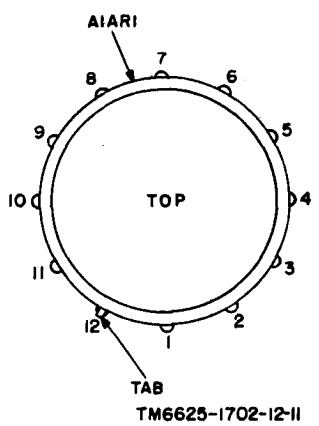

Figure 3–7. Operational amplifier A1AR1 test points.

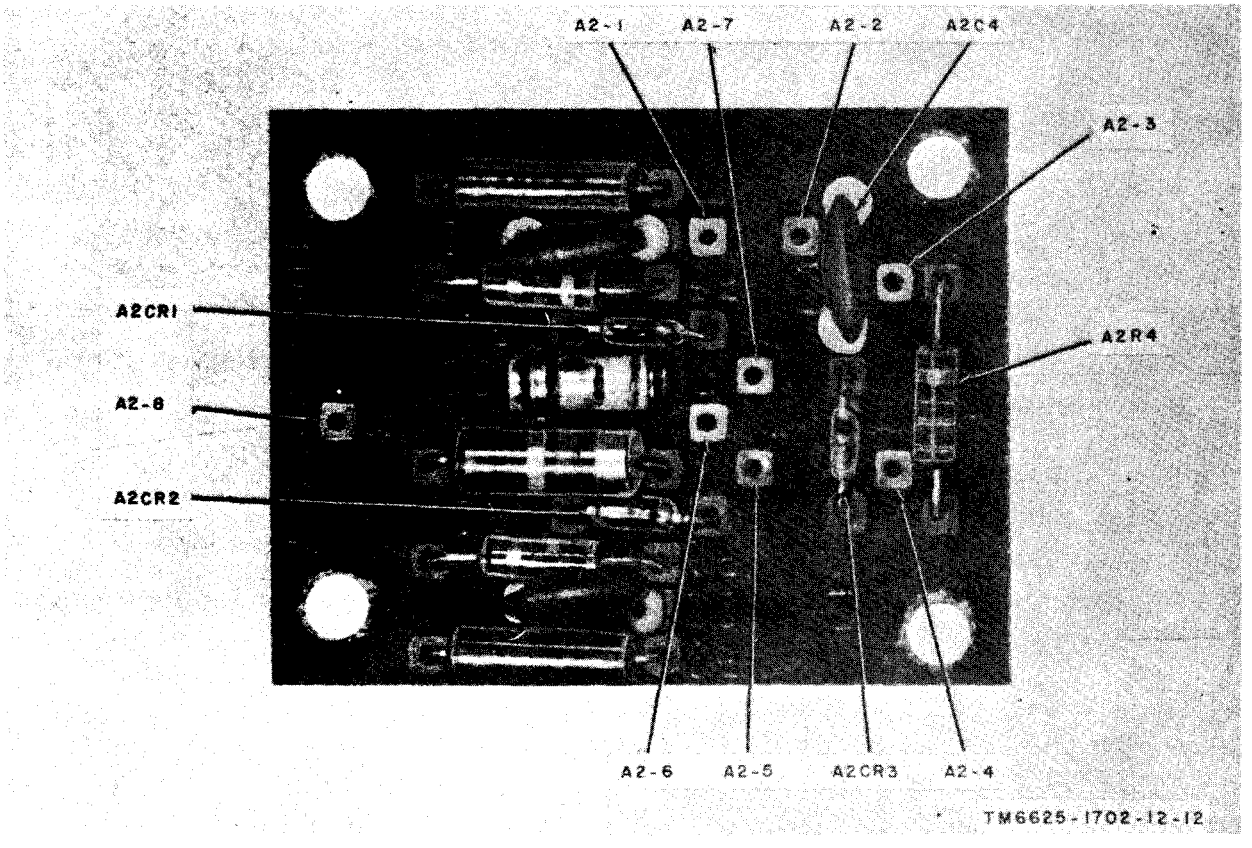

Figure 3–8. Discriminator phase detector A2 test points.

3-5. Stopping Procedure

a. Set the METER FUNCTION switch to OFF.

b. Set the MANUAL TUNE switch to OFF.

c. Remove the unit under test.

d. Disconnect and remove all cables.

CHAPTER 4

MAINTENANCE

Note. The operator will perform operator and organizational maintenance.

4-1. Scope of Maintenance

The maintenance duties assigned to the operator of this equipment are listed below together with a reference to the paragraphs covering the specific maintenance functions. The tools and materials required are listed in paragraph 4-2.

a. Daily preventive maintenance checks and services (para 4-4).

b. Monthly preventive maintenance checks and services (para 4-6).

c. Quarterly preventive maintenance checks and services (para 4-9).

d. Cleaning (para 4-11).

e. Visual inspection (para 4-8).

f. Touchup painting instructions (para 4-12).

g. General troubleshooting procedures (para 4-14) .

h. Repairs and adjustments (para 4-16).

(1) Replacement of indicator lamps (para 4-16a).

(2) Replacement of knobs (para 4-16b).

(3) Replacement of fuses (para 4-16c).

(4) Adjustment of microammeter (para 4-16d) .

(5) Coupler removal (para 4-16e).

(6) Servoamplifier circuit board A1 cover removal (on coupler) (para 4-16f).

(7) Limit switch adjustment (on coupler) (para 4-16g).

4-2. Tools, Materials and Test Equipment

a. Tool Kit, Electronic Equipment TK-101/G (or equivalent).

b. Fine sandpaper, #000.

c. Clean, dry, lint-free cloth.

d. Soft-bristle brush.

e. Cleaning compound (NSN 8010-00-817-1213).

f. Oscilloscope AN/USM-281A (or equivalent).

g. Multimeter ME-26D/U.

4-3. Preventive Maintenance

Preventive maintenance is the systematic care, servicing, and inspection of equipment to prevent the occurrence of trouble, to reduce downtime, and to assure that the equipment is serviceable.

a. Systematic Care. The procedures given in paragraphs 4-4 through 4-13 cover routine systematic care and cleaning essential to proper upkeep and operation of the equipment.

b. Preventive Maintenance Checks and Services. The preventive maintenance checks and services charts (para 4-5, 4-7, and 4-10) outline functions to be performed at specific intervals. These checks and services are to maintain Army electronic equipment in a combat serviceable condition; that is, in good general (physical) condition and in good operating condition. To assist operators in maintaining combat serviceability, the charts indicate what to check, how to check, and the normal conditions; the *References* column lists the illustrations, paragraphs, or manuals that contain detailed repair or replacement procedures. If the defect cannot be remedied by performing the corrective action indicated; higher category maintenance or repair is required. Records and reports of these checks and services must be made in accordance with the requirements set forth in TM 38-750.

4-4. Daily Preventive Maintenance Checks and Services

Perform the maintenance functions indicated

in the daily preventive maintenance checks and services chart (para 4-5) daily or under the special conditions listed below.

a. When the equipment is initially received.

b. When the equipment has been returned to service after higher category maintenance.

c. At least once each week if the equipment is maintained in a standby condition.

4-5. Daily Preventive Maintenance Checks and Services Chart

Sequence No.	Item to be inspected	Procedure	References
1	Exterior surface	Clean the equipment (fig. 1-1) exterior surfaces and meter class. **If meter glass is broken, refer to higher echelon for repair.**	Para 4-11.
2	Switches, controls, knobs, indicators and connectors.	Check switches, controls, knobs, indicators, and connectors for loose or insecure fastenings; tighten if required. Replace cracked or broken knobs and indicator lens.	Para 4-16,
3	Power, rf, and control cables	Check the cables for cuts, kinks, and frayed insulation. Repair or replace as necessary. (If cables cannot be repaired with the tools and supplies available, refer to higher category maintenance.)	None.
4	Operation	During operation (para 3-3 and 3-4), be alert for any evidence of unusual performance or faulty operation. If the equipment fails to operate properly, perform the visual inspection.	Para 4-3.

4-6. Monthly Preventive Maintenance Checks-and Services

a. Perform the maintenance functions indicated in the monthly preventive maintenance checks and services chart once each month in addition to those given in the daily preventive maintenance checks and services chart (para 4-5). A monthly interval is defined as approximately 30 calendar days of 8-hour-per-day operation. Adjustment of the maintenance interval must be made to compensate for any unusual operating conditions. Equipment used less than 8 hours per day or maintained in a standby (ready for immediate operation) condition must have monthly preventive maintenance checks. Equipment in limited storage (requires service before operation) does not require monthly preventive maintenance.

b. The monthly preventive

check procedures for the AN/ARM-115. These procedures, in addition to the requirements in a above, should be performed when the equipment is initially received and at any time that trouble is suspected. The tests involve checking of the internal power supply for the correct voltage, checking the internal meter for proper operation, checking the tune indicator for proper operation, checking for proper operation of the unit under test while mounted on the control panel and while connected by cables to the control panel. If trouble is encountered in performing these checks, visually inspect the equipment (para 4-8). If trouble still exists, refer to the procedure in the troubleshooting chart that corresponds to the test in which the trouble occurred.

4-7. Monthly Preventive Maintenance Checks and Services Chart

sequence No.	Item to be inspected	Procedure	References
1	Preliminary test setup ----------	*a*. Make sure the test area is free of externally generated rf fields (no nearby antennas or transmitting sources).	*a*. None.
		b. Connect the oscilloscope to a 115/230-volt ±10%, 50-60 Hz, 535-watt, single-phase source. Connect the vhf/fro radio set to a 115-volt ±1O%, 50-400 Hz, single-phase source. Connect the remaining applicable test equipment to a 115/230-volt ±10%, 48-63 Hz, 160-watt, single-phase source.	*b*. None.
		c. Set control panel controls for use without ground plane.	*c*. Para *3-2a*.
		d. Connect the AN/ARM-115 to the 27.5-volt dc source ±2, to the oscilloscope and to the vhf/fro radio set without ground plane.	*d*. Para *3-2b* (l).
		e. Apply power to test equipment and observe warmup times.	*e*. None.
2	Dc meter scale test - - - - - - - *a*. Apply	27.5-volt dc power.	*a*. None.
		b. Set METER FUNCTION switch to 28 VDC.	*b*. None.
		c. Record microammeter reading in volts dc. An indication of 26.2 to 28.9 volts dc should be registered.	*c*. Para 4-15, item No. 2.
3	Millivolt source test ----------	*a*. Mount the test coupler to the coupler mount (fig. 2-3) on the test set control panel, connecting J2 of the test coupler to the POWER jack, and J1 of the test coupler to the RF jack.	*a*. None.
		b. Apply 27.5 volts dc.	*b*. None.
		c. Set METER FUNCTION switch to +0-500 MV.	*c*. None.
		d. Adjust MV ADJUST control for 250 mv. A reading of 250 mv should be found at the microammeter.	*d*. Para 4-15, item No. 3.
		e. Connect the millivolt test leads from the MV OUTPUT jacks on the test set control panel to FL1 and FL5 of the test coupler.	*e*. None.
		f. Observe the multimeter reading at FL1 and FL5 (FL1 positive). An indication of 238 to 262 mv should be registered at FL1 and FL5.	*f*. None.
		g. Set METER FUNCTION switch to –O-500 MV.	*g*. None.
		h. Repeat *f* above with FL1 negative	*h*. None.
4	Tune indicator function test . . .	*a*. With the test coupler connected to the test set control panel without ground plane, apply 27.5 volts dc to the control panel.	*a*. Para *3-2b* (l).
		b. Ground FL4 on the test coupler . -.	*b*. None.
		c. Rotate MV ADJUST control fully counter-clockwise.	*c*. None.
		d. Momentarily depress limit switch S1 on test coupler and monitor MOTOR PULSING SIGNAL output with the oscilloscope.	*d*. None.

Sequence No.	Item to be inspected	Procedure	References
		e. Increase the repetition rate by turning the MV ADJUST control clockwise until the TUNE INDICATOR is at full brilliance.	*c.* None.
		f. Check the test coupler repetition period on oscilloscope. An indication of 10 to 20 ms should be registered.	*f.* None.
5	Functional test of test coupler mounted on test set control panel.	*a.* With the test coupler connected to the test set, without ground plane, apply 27.5 volts dc to the test set.	*a.* Para 3-2b (l).
		b. Apply rf power to the test set----------	*b.* None.
		c. Check for proper cyclic action of the test coupler. The TUNE INDICATOR should be illuminated.	*c.* None.
		d. When the test coupler has been cycled to minimum capacity and is moving toward maximum capacity, remove rf power. The TUNE INDICATOR should extinguish and the test coupler should stop.	d. None.
6	Functional test of test coupler using AN/ARM-115 test cables.	a. Disconnect the test coupler from the test set.	*a.* None.
		b. Connect the interconnect rf cable assembly from the RF OUTPUT jack on the control panel to J1 of the test coupler.	*b.* None.
		c. Connect the interconnect control cable assembly from the control panel POWER CONTROL OUTPUT jack to J2 of the test coupler.	c. None.
		d. Apply 27.5 volts dc to the control panel ___	*d.* None.
		c. Apply rf power to the control panel. TUNE INDICATOR should be illuminated.	*e.* Para 4-15, item No. 6.
		f. When test coupler has been cycled to minimum capacity and is moving toward maximum capacity, remove rf power. TUNE INDICATOR should extinguish and test coupler should stop.	*f.* Para 4-15, item No. 6.
7	Antenna element test	*a.* Disconnect the test coupler from the antenna test set.	*a.* None,
		b. Insert the test coupler into the radome _ _ _	*b.* None.
		c. Mount the test coupler and radome on the ground plane (para 2-4).	*c.* None.
		d. Make connections to the test coupler with ground plane.	*d.* Para 3-2b (2).
		e. Set control panel controls with ground plane.	*e.* Para 3-2.
		f. Apply rf power to control panel. Set MANUAL TUNE switch to DECREASE FREGUENCY. Test coupler should not operate if it is the 437S-1 type. Test coupler should operate if it is the 437S-lA type.	*f.* Para 4-15, item No. 7.
		g. Set MANUAL TUNE switch to INCREASE FREQUENCY. Test coupler should not operate if it is the 437S-1 type. Test coupler should operate if it is the 437S-lA type.	*g.* Para 4-15, item No. 7.

4-8. Visual Inspection

a. When the equipment fails to perform properly,. turn off the power and check all the items listed below. Do not check any item with power on.

(1) See that the switches have been set properly as specified in the operating procedures.

(2) See that the external test equipment (if specified) is connected and adjusted proper] y.

(3) See that the unit under test and all cables are plugged securely into their respective connectors.

(4) Check for burned-out indicator lamps and fuses. Replace burned-out indicator lamps or fuses (para 4-16).

b. If the procedures in a above do not locate the trouble, perform the applicable procedures given in the troubleshooting chart (para 4-15).

4-9. Quarterly Preventive Maintenance Checks and Services

Perform the maintenance functions indicated in the quarterly preventive maintenance checks and services chart (para 4-10) once each quarterly interval in addition to those given in the daily and monthly preventive maintenance checks and services chart (paras 4-5 and 4-7), A quarterly interval is defined as approximately 90 calendar days of 8-hour-per-day operation. All deficiencies or shortcomings will be recorded, and those not corrected during the maintenance service and inspection will be immediately reported to higher category maintenance by the use of forms and procedures specified in TM38-750. Equipment with a deficiency that cannot be corrected at the organizational category should be deadlined in accordance with TM38-750.

4-10. Quarterly Preventive Maintenance Checks and Services Chart

Seqence No.	Item to he inspected	Procedure	Refer.ncm
1	Metal surfaces - - - - - - - - - -	Check all exposed metal surfaces for rust and corrosion. Remove rust and corrosion and repaint bare spots.	Para 4-12.
2	Fuses and lamps --- - - - - - - - -	Inspect seating of fuses and lamps. Do not remove, rock, or twist these items to inspect them. Use only direct pressure to insure that the item is fully seated.	None.
3	Publications _.. _ .- -. -- ._	See that all publications pertinent to this equipment are on hand, complete, usable, and current. See that all applicable changes are on hand.	DA Pam 310-4.
4	Modification work orders _	See that all URGENT MWO's have been applied and that all NORMAL MWO's have been scheduled.	DA Pam 310-7 and TM 38-750.
5	Completeness - - - - - - - - - - - - - - -	See that the equipment is complete	Appx 8 and para 1-6.

4-11. Cleaning

Inspect the exterior of the equipment. The exterior surfaces should be free of dirt, grease, and fungus.

a. Remove dust and loose dirt with a clean, soft cloth.

Warning: **Cleaning compound is flammable and its fumes are toxic. Provide adequate ventilation and do not use near flame.**

b. Remove grease, fungus, and ground-in dirt from the carrying case; use a soft cloth dampened (not wet) with cleaning compound.

c. Remove dust or dirt from plugs and connectors with a brush.

Caution: **Do not press on the meter face (glass) when cleaning; the meter may become damaged.**

d. Clean the control panel meter and control

knobs; use a soft, clean cloth. If dirt is difficult to remove, dampen the cloth with water; use mild soap if necessary.

e. Remove rust or corrosion with a light grade sandpaper and repaint the exposed metal surface (para 4-12).

4-12. Touchup Painting Instructions

Remove rust and corrosion from metal surfaces by lightly sanding them with fine sandpaper. Brush two thin coats of paint on the bare metal to protect it from further corrosion. Refer to applicable cleaning and refinishing practices specified in TB SIG 364.

4-13. Lubrication

Antenna Test Set AN/ARM-115 requires no lubrication,

Caution: **Lubrication may be harmful to the equipment since the equipment is designed to operate in a lubricant-free environment.**

4-14. General Troubleshooting Information

Troubleshooting procedures for the equipment are based upon the operational checks in the monthly preventive maintenance checks and services chart. To troubleshoot the equipment, perform all functions starting with sequence No. 1 in the monthly preventive maintenance checks and services chart (para 4-7) and proceed through the sequences until an abnormal condition or result is observed. When an abnormal condition or result is observed, refer to the applicable reference in the troubleshooting chart (para 4-15). Perform the checks and corrective actions indicated in the troubleshooting chart. If the corrective measures indicated do not correct the trouble, higher category maintenance is required. Paragraph 4-16 contains information that is supplementary to the troubleshooting chart and is too lengthy or complex to be included in the chart. When a trouble symptom indicates the use of an additional procedure, a reference made to this paragraph appears in the *Checks and corrective measures* column of the troubleshooting chart.

4-15. Troubleshooting Chart

Item	Trouble symptom	Probable trouble	Checks and corrective measures
1	Not applicable - - - - - - - - - - - - - -		
2	*a.* Meter reading high - - - - - - -	(1) Defective 28V INPUT load resistor.	Higher category of maintenance is required.
		(2) Defective microammeter	Higher category of maintenance is required.
	b. Meter reading low	(1) Defective 28V INPUT load resistor.	Higher category of maintenance is required.
		(2) Defective capacitor --	Higher category of maintenance is required.
		(3) Defective microammeter . .	Higher category of maintenance is required.
		(4) Defective METER FUNCTION switch.	Higher category of maintenance is required.
		(5) Short in 28V INPUT associated circuits.	Higher category of maintenance is required.
	c. Meter reading zero.	(1) Defective fuse	(1) Replace the 27.5±2 vdc, 2A fuse on the control panel (para 4-16).
		(2) Defective 28V INPUT load resistor.	(2) Higher category of maintenance is required.
		(3) Defective microammeter	(3) Higher category of maintenance is required.
		(4) Defective METER FUNCTION switch.	(4) Higher category of maintenance is required.
		(5) +28-volt dc line open	(5) Higher category of maintenance is required.

Item	Trouble symptom	Probable trouble	Checks and corrective measures
3 *a.*	Voltage at MV OUTPUT terminals very unstable and sensitive.	(1) Defective voltage regulator . .	(1) Higher category of maintenance is required.
b.	Output voltage zero - - - - - -	(1) Load resistor, voltage divider defective or voltage regulator shorted.	(1) Higher category of maintenance is required.
c.	Output voltage okay but microammeter reads high.	(1) Capacitor or microammeter defective.	(1) Higher category of maintenance is required.
d.	Output voltage okay but microammeter reads low.	(1) Defective microammeter - -	(1) Higher category of maintenance is required.
4 *a.*	TUNE INDICATOR fails to light.	(1) Defective TUNE INDICATOR .	(1) Replace the TUNE INDICATOR on the control panel (para 4-16).
		(2) Defective transistor or resistor _	(2) Higher category of maintenance is required.
b.	TUNE INDICATOR does not extinguish when test coupler is connected and MV ADJUST control is fully counterclockwise.	(1) Defective diode, transistor, resistor, or capacitor.	(1) Higher category of maintenance is required.
c.	TUNE INDICATOR does not reach full brilliance.	(1) Defective diode, capacitor, or transistor.	(1) Higher category of maintenance is required.
d.	Repetition period too long (greater than 20 ms) when TUNE INDICATOR reaches full brilliance.	(1) Defective transistor -.- . .	(1) Higher category of maintenance is required.
5 *a.*	Test coupler does not cycle.	(1) Defective power sensor, RF SELECT switch, or associated connectors or wiring.	(1) Higher category of maintenance is required.
b.	TUNE INDICATOR does not extinguish and test coupler does not stop tuning when rf is removed.	(1) Defective test coupler or wiring.	(1) Higher category of maintenance is required.
6 *a.*	Test coupler does not cycle.	(1) Defective RF SELECT switch or associated connectors or wiring.	(1) Higher category of maintenance is required.
b.	TUNE INDICATOR does not extinguish and test coupler does not stop tuning when rf is removed.	(1) Defective wiring - - - - - - - - - - - - - - - - - -	(1) Higher category of maintenance is required.
7 *a.*	437S-1 type test coupler operates.	Defective test coupler - - - - - - - - - - - - - - - - -	Higher category of maintenance is required.
b.	437S-1A type test coupler does not operate.	Defective test coupler - - - - - - - -	Higher category of maintenance is required.

4-16. Repairs and Adjustments
(figs. 1-1 and 3-3)

a. Replacement of Indicator Lamps.

(1) Rotate the indicator jewel counterclockwise and remove it from the indicator light assembly.

(2) Pull out the defective lamp from the indicator jewel.

(3) Replace the defective lamp with a new one of identical rating by pressing it into the indicator jewel.

(4) Replace the indicator jewel and rotate it clockwise.

b. Replacement of Knobs,

(1) Set the control switch to its extreme counterclockwise position or to a known reference.

(2) Loosen the two setscrews on the defective knob and remove the knob from the shaft.

(3) Replace the new knob on the shaft and align the pointer to the correct position.

(4) Tighten the two setscrews on the new knob.

c. Replacement of Fuses.

(1) Press in on the fuseholder cap and rotate it counterclockwise to unlock it.

(2) Pull the fuseholder cap and fuse out of the fuseholder.

(3) Remove the defective fuse from the fuseholder cap.

(4) Replace the defective fuse with a new one with the same rating.

(5) Insert the fuse and fuseholder cap in the fuseholder. Push in on the fuseholder cap and rotate it clockwise to lock it.

d. Adjustment of Microammeter.

(1) Remove all power from Test Set, Antenna AN/ARM-115 or set the METER FUNCTION switch to OFF.

(2) Mechanically align the needle indication at zero by turning the adjustment screw on the microammeter face either clockwise or counterclockwise.

e. Coupler Removal.

(1) Remove 14 screws that secure antenna coupler to antenna radome.

(2) Slide antenna coupler from antenna radome.

(3) Remove rubber gasket from antenna coupler flange.

(4) Remove spring from top of vacuum variable capacitor.

f. Servoamplifier Circuit Board Al Cover Removal (on Coupler).

(1) Remove six screws and lockwashers that secure servoamplifier circuit board Al cover.

Note. The two screws that pass through the casting are slightly longer.

(2) Remove cover by sliding it up.

g. Limit Switch Adjustment (on Coupler),

(1) Adjustment of limit switch S1 is made by adjusting the arm of the switch. If S1 is switched before the limit is reached or not at all, bend the actuator arm of the switch very slightly so that the switching takes place at the limit, not before or after the limit is reached.

(2) Adjustment of limit switch S2 is made by adjusting the position of the switch. If S2 is switched before the limit is reached or not at all, loosen the two screws securing the switch and slide the switch up or down until the switching takes place at the limit, not before or after the limit is reached. Tighten the screws and recheck limit switch.

CHAPTER 5

SHIPMENT AND LIMITED STORAGE

5-1. Disassembly of Equipment

Prepare the equipment for shipment and storage as follows:

a. Disconnect all the test equipment, the unit under test, and all the cables from the TS-2642/ARM-l15.

b. Place the cables in the cover, and the radome in the test set case.

c. Set the TS-2642/ARM-l15 METER FUNCTION switch to OFF. In the OFF position, the switch shorts the meter movement which provides damping and prevents possible damage from physical shock. Set the MANUAL TUNE switch to OFF.

d. If the TS-2642/ARM-l15 is not within the test set case, install the TS-2642/ARM-l15 in the test set case and tighten the fasteners.

e. Replace and fasten the test set cover.

5-2. Repackaging for Shipment or limited Storage

The exact procedure for repackaging depends upon the material available and the conditions under which the equipment is to be stored or shipped. Adapt the procedures outlined below whenever circumstances permit. The information concerning the original packaging (para 2-1) will also be helpful.

a. Material Requirements. The following materials are required for packaging the equipment as shown in figure 2-1. For stock numbers of materials, refer to SB 38-100.

Material	Qty	Dimensions (in.)		
		Length	Width	Height
Polystyrene corner blocks (bearing surf ace).	8	5 3	5 3	5 3
Water-resistant, corrugated, double-wall, fiberboard box	1	22½	29½	11½
Pressure-sensitive filament tape PPP-T-97 type 4.	1	168	1	
Pressure-sensitive, water-resistant tape PPP-T-76.	1	216	3	
Desiccant (1 bag)	4 units			

Nets. The dimensions shown for the box are inside dimensions.

b. Packaging. Package the antenna test set as outlined below.

(1) Place four units of desiccant in carrying case.

(2) Place one polystyrene corner block in each of the four bottom corners of the fiberboard box.

(3) Place the AN/ARM-115 in the fiberboard box; position it on the four corner blocks.

(4) Place one polystyrene corner block in each of the four upper corners of the fiberboard box.

(5) Secure the fiberboard box with pressure-sensitive tape as shown in figure 2-1.

APPENDIX A
REFERENCES

Following is a list of publications available to the organizational technician of this equipment.

DA Pam, 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8, and 9), Supply Bulletins, and Lubrication Orders.
DA Pam 310-7	U.S. Army Equipment Index of Modification Work Orders.
SB 38-100	Preservation, Packaging, and Packing Materials, Supplies, and Equipment Used by the Army.
TB 43-0118	Field Instructions for Painting and Preserving Electronics Command Equipment.
TM 11-6625-200-15	Operators, Organizational Maintenance Manual: Multimeters ME-26A/U, ME-26B/U, ME-26C/U, and ME-26D/J.
TM 11-6625-446-15	Operator, Organizational, Field and Depot Maintenance Manual: Wattmeter AN/URM-120.
TM 11-6625-535-15	Organizational, DS, GS, and Depot Maintenance Manual: Oscilloscope AN/USM-140A.
TM 38-750	The Army Maintenance Management System **(TAMMS)**
TM 740-90-1	Administrative Storage of Equipment
TM 750-2442	Procedures for Destruction of Electronics Materiel to Prevent Enemy Use (Electronics Command)

APPENDIX C
MAINTENANCE ALLOCATION

Section I. INTRODUCTION

C-1. General

This appendix provides a summary of the maintenance operations for AN/ARM- 115. 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.

C-2. Maintenance Function

Maintenance functions will be limited to and defied as follows:

a. Inspect. To determine the serviceability y 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 (decontaminate), to preserve, to drain, to paint, or to replenish fuel, lubricants, hydraulic fluids, or compressed air supplies.

d. Adjust. To maintain, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to the specified parameters.

e. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test measuring and diagnostic equipments used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. Install. The act of emplacing, seating, or fining into position an item, part, module (component or assembly) in a manner to allow the proper functioning of the equipment or system.

h. Replace. The act of substituting a serviceable like type part, subassembly, or module (component or assembly) for an unserviceable counterpart.

i. Repair. The application of maintenance services (inspect, test, service, adjust, align, 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. This function does not include the trial and error replacement of running spare type items such as fuses, lamps, or electron tubes.

j. Overhaul. That maintenance effort (service/ action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards (i.e., DMWR) in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours, miles, etc) considered in classifying Army equipments/components.

C-3. Column Entries

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

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

c. Column 3, *Maintenance Functions.* 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 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 "worktime" 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 vary at different maintenance categories, appropriate "worktime" figures will be shown for each category. The number of task-hours specified by 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 specified by code, those common tool sets (not individual tools) and special tools, test, 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.

C-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.

C-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

TEST SET, ANTENNA AN/ARM-115

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY C	O	F	H	D	(5) TOOLS AND EQPT	(6) REMARKS
00	TEST SET, ANTENNA AN/ARM-115	Inspect		0.1					A
		Repair		0.1				7	B
		Test			0.5			1-6	
		Repair			2.0			1-6	
01	Case, Test Set CY-6149/ARM-115	Inspect		0.1					
		Replace				0.5		5,6	
02	Test Set, Antenna TS-2642/ARM-115	Test		0.5				1,2,7	
		Repair		0.1				7	B
		Repair			2.0			1-6	C
0201	Circuit Card Assembly	Test			0.5			1,2,5,	
		Repair			1.5			1,2,5,	
03	Radome CW-927/ARM-115	Inspect		0.1					
		Replace		0.1				7	
04	Ground Plane Assembly MX-8000/ARM-115	Inspect		0.1					
		Replace		0.1				7	
05	Cable, Power, Red 785-4933-001	Inspect		0.1					
		Test		0.3				2	
		Repair		0.5				2,7	
06	Cable, Power, Black 785-4933-002	Inspect		0.1					
		Test		0.3				2	
		Repair		0.5				2,7	
07	Test Lead, Red 785-4935-001	Inspect		0.1					
		Test		0.3				2	
		Repair		0.5				2,7	
08	Test Lead, Black 785-4935-002	Inspect		0.1					
		Test		0.3				2	
		Repair		0.5				2,7	
09	Cable CX-10776/ARM-115	Inspect		0.1					
		Test		0.3				2	
		Repair		0.5				2,7	
10	Cable CG-1893A/U	Inspect		0.1					
		Test		0.3				2	
		Repair		0.5				2,7	

SECTION III. **TOOL AND TEST EQUI PMENT REQUIREMENTS FOR**

TEST SET, ANTENNA AN/ARM-115

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	O,F,H	OSCILLOSCOPE AN/USM-281A*	6625-00-228-2201	
2	O,F,H	MULTIMETER ME-26D/U	6625-00-913-9781	
3	F,H	WATTMETER AN/URM-120	6625 -00-813-8430	
4	F,H	DUMMY LOAD DA-75/U	6625-00-177-1639	
5	F,H	TOOL KIT, ELECTRONIC EQUIPMENT TK-105/G	5180-00-610-8177	
6	F,H	TOOL KIT , ELECTRONIC EQUIPMENT TK-100/G	5180 -00-605-0079	
7	O	TOOL KIT , ELECTRONIC EQUIPMENT TK-101/G	5180 -00-064-5178	
		* or equivalent		

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SECTION IV. REMARKS

TEST SET, ANTENNA AN/ARM-115

REFERENCE CODE	REMARKS
A	Inspection is visual or as indicated in technical manual.
B	Replace knobs, lamps, and fuses.
C	Meter is not repaired except to replace glass. Throw-away.

APPENDIX D
ORGANIZATIONAL MAINTENANCE REPAIR PARTS

Section I. INTRODUCTION

D-1. Scope

This appendix contains a list of repair parts and special tools required for the performance of orgazational maintenance for Test Set, Antenna, AN/ARM-115.

D-2. General

This repair parts and special tools list is divided into six sections.

a. Prescribed Load Allowance List (PLA) Section II. The PLA is a consolidated listing of repair parts allocated for initial stockage at organizational maintenance level. This is a mandatory minimum stockage allowance.

b. Special Tools, Test, and Support Equipment for Organizational Maintenance, Section III. Not applicable.

c. Repair Parts for Organizational Maintenance, Section IV. Repair parts authorized for organizational maintenance are included in this section.

Note

All indexes noted below are cross referenced to index numbers. The index numbers appear in ascending sequence in column 1 of the repair parts list (para D-3a). The index number for the particular item will be the same for the item in all sections of this appendix.

d. Index Figure and Item Number Cross Reference to Index Number, Section V. This is a cross reference of figure and item numbers to index numbers.

e. Index Reference Designation Cross Reference to Index Number, Section VI. This is a cross reference of reference designations to index numbers.

j. Index Federal Stock Number Cross Reference to Index Number, Section VII. This is a cross reference of Federal stock numbers to index numbers.

D-3. Explanation of Columns

An explanation of the columns is given below.

a. Source, Maintenance, and Recoverability Codes (SMR) and Index Numbers Column. The first line in this column lists the applicable SMR codes for the part. Listed in ascending order directly below the SMR codes is the index number assigned to the repair part.

(1) Source code. The selection status and source for the listed item is noted here. Source codes and their explanations are as follow-s:

code	*Explanation*
P	— Applies to repair parts that are stocked in or supplied from the GSA / DSA or Army supply system and authorized for use at indicated maintenance categories.
Xl	— Applies to repair parts that are not procured or stocked, the requirements for which will be supplied by the use of next higher assembly or component.

(2) Maintenance code. The lowest category of maintenance authorized to install the listed item is noted here.

Code	*Explanation*
O	– Organizational Maintenance

(3) Recoverability code. The information in this column indicates whether unserviceable items should be returned for recovery of salvage. Recoverability codes and their explanations are as follows :

Note

When no code is indicated in the recoverability column, the part is considered expendable.

Code	Explanation
R	— Applies to repair parts and assemblies that are economically repairable at DSU and GSU activities and normally are furnished by supply on an exchange basis.

b. Federal Stock Number, Column 1, Section II, Column 2, Sections III and IV. The Federal stock number for the item is indicated in this column.

c. Description, Column 2, Section II, Column 3, Sections III and IV. The Federal item name, a 5-digit manufacturers code, and a part number are included in this column. For subsequent appearances of the same item the manufacturers code and part number are omitted. The words SAME AS, followed by the sequence number as it first appeared in the list, follow the item name.

d. Unit of Issue Column. The unit used as a basis of issue; that is, ea, pr, ft, yd, etc., is indicated in this column.

e. Quantity Incorporated in Unit Column. The quantity of repair parts in an assembly is given in this column. Subsequent appearances of the same item in the same assembly are indicated by the letters REF.

f. Maintenance Allowance Column.

(1) The allowance column is divided into subcolumns. Indicated in each subcolumn, opposite the first appearance of each item, is the total quantity of items authorized for the number of equipments supported. Subsequent appearances of the same item have no entry in the allowance columns, but have a reference in the description column to the first appearance of the item. Items authorized for use as required, but not for initial stockage, are identified with an asterisk (*) in the allowance column.

(2) The quantitative allowances for organizational category of maintenance represents one initial prescribed load for a 15-day period for the number of equipments supported. Units and organizations authorized additional prescribed loads will multiply the number of prescribed loads authorized by the quantity of repair parts reflected in the appropriate density column to obtain the total quantity of repair parts authorized.

(3) Subsequent changes to organizational allowances will be limited as follows: No change in the range of items is authorized. If additional items are considered necessary, recommendations should be forwarded to Commanding General, U. S. Army Electronics Command, ATTN: AMSEL-ME-NMP-AC, Fort Monmouth, N.J. 07703, for exception or revision to the allowance list. Revisions to the range of items authorized will be made by the USA ECOM National Maintenance Point based upon engineering experience, demand data, or TAERS information.

g. Illustrations Column.

(1) Figure number column (a) The number of the illustration in which the item is shown appears in this column.

(2) Item or reference designation column (b). The callout number or reference designation used to reference the item in the illustration appears in this column.

D-4. Location of Repair Parts

a. This appendix contains three cross-reference indexes (sees V, VI, and VII) to be used to locate a repair part when either the Federal stock number, reference number (manufacturer's part number), figure number, or reference designation is known. The first column in each cross-reference index is prepared, as applicable, in numerical or alphanumerical sequence. The last column of each cross-reference index lists the index number assigned to the part.

b. Refer to the appropriate cross-reference index (para D-2d, *e, f,*) and note the index number in the last column; then refer to the repair parts list to locate the index number which is listed in ascending order in column 1 of the repair parts list.

D-5. Federal Supply Codes

This paragraph lists the Federal supply code and the associated manufacturers name.

Code	*Manfacturer*
13499	Collins Radio Co.
70903	Belden Mfg. Co.
71744	Chicago Miniature Lamp Works.
76545	Mueller Electric Co.
77820	Bendix Corp. The Electrical Components Division.
80058	Joint Electronic Type Designation System.
80063	Army Electronics Command.
81349	Military Specification.
83330	Herman H. Smith, Inc.
96906	Military Standards.

Section II. PRESCRIBED LOAD ALLOWANCE

(1)	(2)	(3) 15-day org maint. alw			
Federal stock no.	Description useable on code	(A) 1-5	(B) 6-20	(c) 21-50	(D) 51-100
5920-855-4260	FUSE, CARTRIDGE: 81349, FO28125V2AS			2	2
6240-080-2012	LAMP, INCANDESCENT: 71744, 327AS15			2	2

(1) SMR CODE INDEX NO.	(2) FEDERAL STOCK NUMBER	DESCRIPTION Reference Number & Mfr Code / USABLE ON CODE	(4) UNIT OF ISSUE	(5) QTY INC IN UNIT	(6) 5-DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 5-2	(c) 21-	(d) 1-1	(7) ILLUSTRATIONS (a) FIG. NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
A001		TEST SET, ANTENNA, AN /ARM-115: 80058 (THIS ITEM IS NONEXPENDABLE)	EA	1					2-2	
PO A002	5995-935-2671	CABLE ASSEMBLY, SPECIAL PURPOSES: 80058; CG1893AU25FT	EA	1	*	*	*	*	-12 1-1	W1
X10 A003		CABLE, RADIO FREQUENCY: 80058; RG223U	FT	1						
X 10 A004		CONNECTOR, PLUG, ELECTRICAL: 96906; MS35168-88E	EA	2						
X10 A005		BODY: 80063; SCC72236	EA	1						
X10 A006		BUSHING: 80063; SCB76176	EA	1						
X10 A007		CLAMP, BRASS COMPOSITION: 80063; SCB72241	EA	1						
X10 A008		CONTACT, ELECTRICAL, CONNECTOR PIN: 80063; SCB72237	EA	1						
X10 A009		CONTACT, ELECTRICAL: 80063; SCB72153	EA	1						
X10 A010		GASKET: 80063; SCB72246	EA	1						
X10 A011		GASKET, V-GROOVE: 96906; MS90133-2	EA	1						
X10 A012		INSULATOR: 80063; SCB72239	EA	1						
X10 A013		NUT, BRASS COMPOSITION: 80063; SCB72242	EA	1						
X10 A014		RETAINER: 80063; SCB72245	EA	2						
X 10 A015		RETAINER: SAME AS A014	EA	EF						
X10 A016		SLEEVE: 80063; SCC72240	EA	1						
X10 A017		SPRING: 80063; SCB72244	EA	3						
X 10 A018		SPRING: SAME AS A017	EA	EF						

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / Reference Number & Mfr Code / USABLE ON CODE	(4) UNIT OF ISSUE	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW. (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATIONS (a) FIG. NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
X10 A019		SPRING: SAME AS A017	EA	REF						
X10 A020		WASHER, FLAT: 96906; MS91124-4	EA	1						
X 10 A021		CONNECTOR, PLUG, ELECTRICAL: SAME AS A004	EA	REF						
X10 A022		BODY: SAME AS A005	EA	1						
X10 A023		BUSHING: SAME AS A006	EA	1						
X10 A024		CLAMP , BRASS COMPOSITION: SAME AS A007	EA	1						
X10 A025		CONTACT, ELECTRIC, CONNECTOR PIN: SAME AS A008	EA	1						
X10 A026		CONTACT, ELECTRICAL: SAME AS A009	EA	1						
X10 A027		GASKET: SAME AS A010	EA	1						
X10 A028		GASKET, V-GROOVE: SAME AS A011	EA	1						
X10 A029		INSULATOR: SAME AS A012	EA	1						
X 10 A030		NUT, BRASS COMPOSITION: SAME AS A013	EA	1						
X10 A031		RETAINER: SAME AS A014	EA	2						
X10 A032		RETAINER: SAME AS A014	EA	REF						
X10 A033		SLEEVE: SAME AS A016	EA	1						
X10 A034		SPRING: SAME AS A017	EA	3						
X10 A035		SPRING: SAME AS A017	EA	REF						
X10 A036		SPRING: SAME AS A017	EA	REF						
X10 A037		WASHER, FLAT: SAME AS A020	EA	1						
PO A038	6625-935-2678	CABLE ASSEMBLY, SPECIAL PURPOSE: 80058; CX10776ARM115	EA	1	*	*	*	*	1-1	W2
X10 A039		CABLE, ELECTRICAL: 70903; 8448	FT	1						
X10 A040		CONNECTOR, PLUG, ELECTRICAL: 77820; PT06A12-10PSR	EA	1						
X10 A041		CONNECTOR, PLUG, ELECTRICAL: 77820; PT06A12-10SSR	EA	1						
PO A042	6625-782-0823	CABLE, POWER SOURCE: 13499; 785-4933-001	EA	1	*	*	*	*	1-1	

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / Reference Number & Mfr Code / USABLE ON CODE	(4) UNIT OF ISSUE	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW. (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATIONS (a) FIG. NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
X10 A043		CLIP, ELECTRICAL: 76545; 25C	EA	1						
X10 A044		INSULATOR, ELECTRICAL CLIP: 76545; 26 RED	EA	1						
X10 A045		PLUG, TIP: 83330; 262 RED	EA	1						
X10 A046		WIRE, ELECTRICAL, AWG-18 , RED STRD: 81349; MIL-W1369TYPE-TL-G	FT	2						
PO A047	6625-782-0824	CABLE, POWER SOURCE: 13499; 785-4933-002	EA	1	*	*	*	*	1-1	
X10 A048		CLIP, ELECTRICAL: SAME AS A043	EA	1						
X10 A049		INSULATOR, ELECTRICAL CLIP: 76545; 26 BLACK	EA	1						
X10 A050		PLUG, TIP: 83330; 262 BLACK	EA	1						
X10 A051		WIRE, AWG-18-BLK, STRD: 81349; MIL-W13169TYPE-TL-G	FT	2						
PO A052	6625-782-0822	CABLE, TEST, NEGATIVE: 13499; 785-4935-002	EA	1	*	*	*	*	1-1	
X10 A053		CLIP, ELECTRICAL: 76545; 30	EA	1						
X10 A054		INSULATOR, ELECTRICAL CLIP: 76545; 32 BLACK	EA	1						
X10 A055		PLUG, TIP: SAME AS A050	EA	1						
X10 A056		WIRE, AWG-18-BLK, STRD: SAME AS A051	FT	1						
PO A057	6625-782-0835	CABLE, TEST, NEGATIVE: 13499; 785-4935-001	EA	1	*	*	*	*	1-1	
X10 A058		CLIP, ELECTRICAL: SAME AS A053	EA	1						
X10 A059		INSULATOR, ELECTRICAL CLIP: 76545; 32 RED	EA	1						
X10 A060		PLUG, TIP: SAME AS A045	EA	1						
X10 A061		WIRE, ELECTRICAL, AWG-18, RED STRD: SAME AS A046	FT	1						
POR A183	6625-878-4582	GROUND PLANE ASSEMBLY: 80058; MX8000ARM115	EA	1	*	*	*	*	1-1	MP2
POR A232		PLANE, GROUND, CENTER: 13499; 766-7629-001	EA	1	*	*	*	*	2-2	
PO A276	6625-935-4903	RADOME: 80058; CW972ARM115	EA	1	*	*	*	*	1-1	MP1
X10 A277		RADOME, UNPAINTED: 13499; 771-7291-001	EA	1						
PO A564	5920-855-4260	FUSE, CARTRIDGE: 81349; FO28125V2AS	EA		*	*	2	2	2-3	F1
PO A585	6240-080-2012	LAMP, INCANDESCENT : 71744; 327AS15	EA		*	*	2	2	2-3	DS1

Section V. INDEX FIGURE AND ITEM NUMBER CROSS REFERENCE TO INDEX NUMBER

Fig No.	*Item or reference designation*	*Index No.*
1–1	MP1	A276
	M	A183
	W1	A002
	W2	A038
2–3	DS1	A585
	F1	A564

Section VI. INDEX REFERENCE DESIGNATION CROSS REFERENCE TO INDEX NUMBER

Reference designation
DS1
F1
MP1
M
W1
W2

FEDERAL STOCK NUMBER	INDEX NO.	FEDERAL STOCK NUMBER	INDEX NO.	FEDERAL STOCK NUMBER	INDEX NO.	FEDERAL STOCK NUMBER	INDEX NO.
5920-855-4260	A564						
5995-935-2671	A002						
6240-080-2012	A585						
6625-782-0822	A052						
6625-782-0823	A042						
6625-782-0824	A047						
6625-782-0835	A057						
6625-878-4582	A183						
6625-935-2678	A038						
6625-935-4293	A001						
6625-935-4903	A276						
REF. NO.	INDEX NO.						
SCB 72153	A009						
SCB 72237	A008						
SCB 72239	A012						
SCB 72241	A007						
SCB 72242	A013						
SCB 72244	A017						
SCB 72245	A014						
SCB 72246	A010						
SCB 76176	A006						
SCC 72236	A005						
SCC 72240	A016						
26 BLACK	A049						
26 RED	A044						
766-7629-001	A232						
771-7291-001	A277						

By Order of the Secretary of the Army:

HAROLD K. JOHNSON,
General, United States Army,
Chief of Staff

Official:

KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

Distribution:

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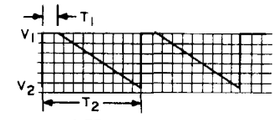
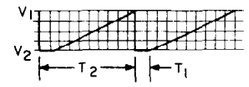
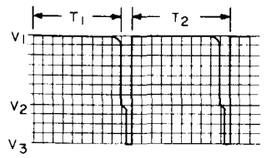


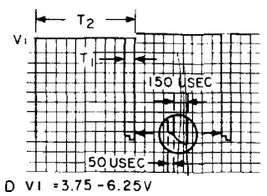
A VI =4.75-6.5V
V_2=2.5-4.0V
T, =1.0-1.5MS
T_2=6.5-13MS
AI AR 1-9+100MV INPUT



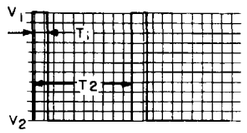
B VI =7.5-9.5V
V_2=5.5-7.75V
T, =1.0-1.5MS
T_2=6.5-13MS
AI AR1-9 -100MV INPUT



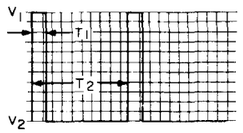
C VI =3.75-6.25V
V_2=0.75-2.5V
V_3=0.05-0.5V
T_1=6-1.5MS
T_2=6.5-13MS
AIQ14-C -100MV INPUT



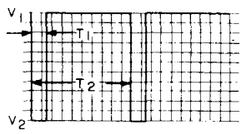
D VI =3.75-6.25V
V*. 0.05-0.3V
T_1=0.1-0.3MS
T_2=6.5-13MS
AIQ12-C+100MV INPUT



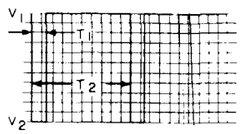
E V_1=3.75-6.25V
V_2=0.05-0.3V
T_1=1.2-1.8MS
T_2=6.5-13MS
AI A4-14+100MV INPUT



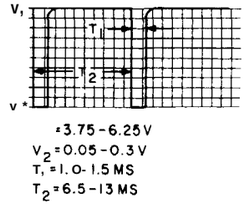
F V_1=3.75-6.25V
V_2=0.05-0.3V
T_1=12-1.8MS
T_2=6.5-13MS
AIA4-14 -100MV INPUT



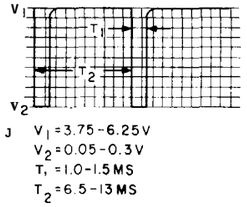
G V_1=3.5-6V
V_2=0.05-0.3V
T_1=1.2-1.8MS
T_2=6.5-13MS
AIA3-14 -100MV INPUT



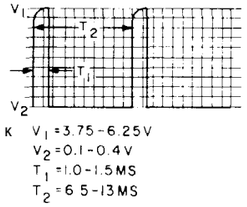
H V_1=3.5-6V
V_2=0.05-0.3V
T_1=1.2-1.8MS
T_2=6.5-13MS
A I A3-14+100MV INPUT



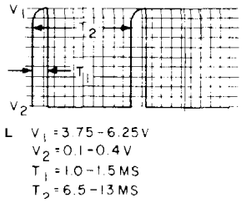
v *
=3.75-6.25V
V_2=0.05-0.3V
T, =1.0-1.5MS
T_2=6.5-13MS
AIQ9-C+100MV INPUT



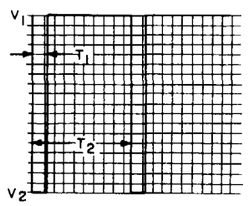
J V_1=3.75-6.25V
V_2=0.05-0.3V
T, =1.0-1.5MS
T_2=6.5-13MS
AIQ9-C -100MV INPUT



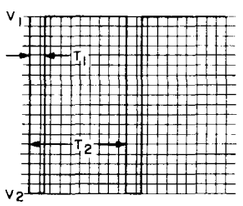
K V_1=3.75-6.25V
V_2=0.1-0.4V
T_1=1.0-1.5MS
T_2=6.5-13MS
AIQ8-C -100MV INPUT



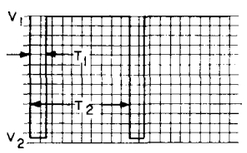
L V_1=3.75-6.25V
V_2=0.1-0.4V
T_1=1.0-1.5MS
T_2=6.5-13MS
A I Q8-C+100MV INPUT



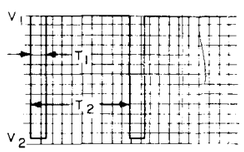
M V_1=14-21V
V_2=0.05-0.3V
T, =1.0-1.5MS
T_2=6.5-13MS
AIQ10-C+100MV INPUT



N V_1=14-21V
V_2=0.05-0.3V
T, =1.0-1.5MS
T_2=6.5-13MS
AIQ10-C-100MV INPUT

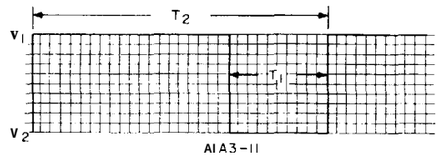


0 V_1=14-21V
V_2=5.0-6.5V
T_1=1.0-1.5MS
T_2=6.5-13MS
AIQ18-G -100MV INPUT

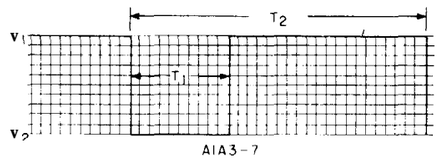


P V_1=14-21V
V_2=3.75-5.25V
T_1=1.0-1.5MS
T_2=6.5-13MS
AI Q18-G+100MS INPUT

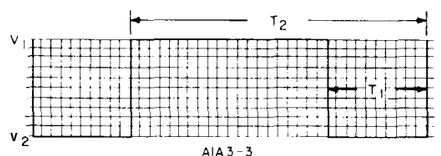
NOTE:
100- MILLIVOLT INPUT APPLIED BETWEEN FL I ANDFL5
POLARITY GIVEN FOR FL I WITH RESPECT TO FL5



AIA3-11

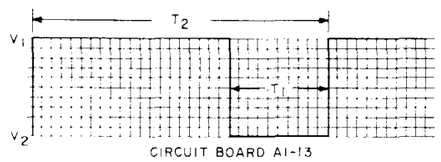


AIA3-7

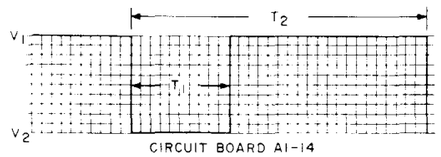


AIA3-3

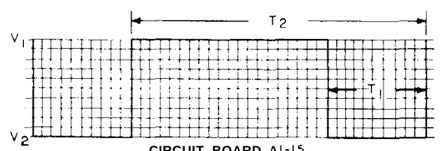
Q V_1=3-5V
V_2=0.05-0.3V
T_1=13-26MS
T_2=39-78MS(3 X T_1)
AI A3-3+100MV INPUT SYNC OSCP FROM AI A3-3
SEQUENCE OF T, AT AI A3-7, AI A3-11 AND
AI A3-3 MusT BE AS SHOWN WITH +100MV INPUT



CIRCUIT BOARD AI-13

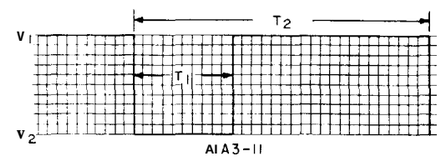


CIRCUIT BOARD AI-14

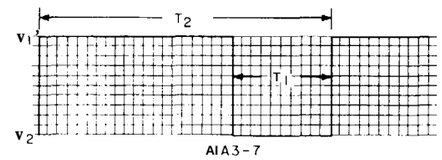


CIRCUIT BOARD AI-15

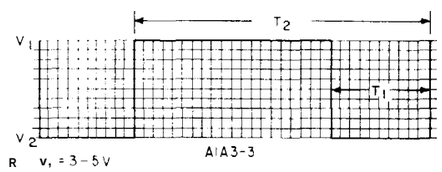
S V_1=27-30V
V_2=0.3-1.0V
T_1=13-26MS
T_2=39-78MS(3 X T_1)
CIRCUIT BOARD AI-15+100MV INPUT SYNC OSCP FROM CIRCUIT BOARDAI-15
SEQUENCE OF T_1 AT PINS AI-13,AI-14 AND AI-15 MUST BE
As SHOWN WITH +100MV INPUT



AIA3-11

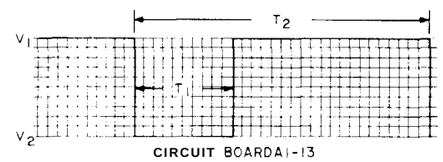


AIA3-7

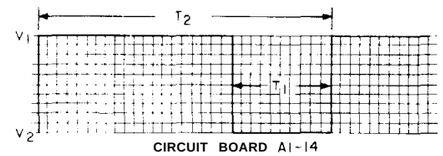


AIA3-3

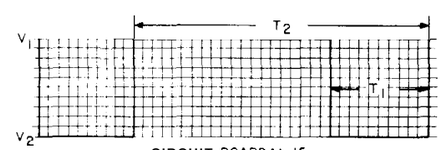
R v, =3-5V
V_2=0.05-0.3V
T, =13-26MS
T_2=39-78MS(3 x T_1)
AIA3-3 -100MV INPUT SYNC OSCP FROM AI A3-3
SE QUENCE OF T_1 AT AI A3-11, AIA3-f AND
AI A3-3 MUST BE AS SHOWN WITH -100MV INPUT



CIRCUIT BOARDAI-13

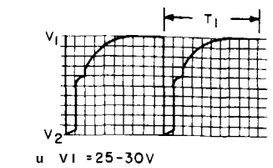


CIRCUIT BOARD AI-14

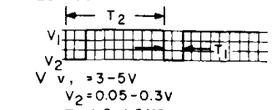


CIRCUIT BOARDAI-15

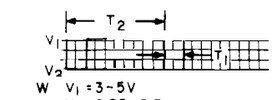
T V,, =27-30V
V_2=0.3-1.0V
T_1=13-26MS
T_2=39-78MS(3 XT,)
CIRCUIT BOARD AI-15-100MV INPUT SYNC OSCP FROM CIR CUIT BOARDAI-15
SEQUENCE OF T_1 AT PINS AI-13,AI-14ANDAI-15 MUST BE
As SHOWN WITH -100MV INPUT



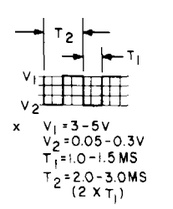
u VI =25-30V
V_2=5-6V
', =6.5-13MS
FL6+100MV INPUT



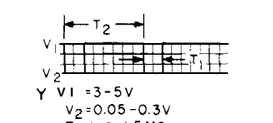
V v, =3-5V
V_2=0.05-0.3V
T, =1.0-1.5MS
T_2=13-26MS
J2-K CIRCUIT BOARD AI-10
GROUNDED



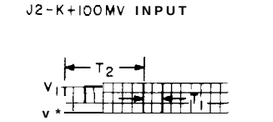
W V_1=3-5V
V_2=0.05-0.3V
T, =1.0-1.5MS
T_2=13-26MS
J2-K CIRCUIT BOARD AI-12
GROUNDED



x V_1=3-5V
V_2=0.05-0.3V
T_1=1.0-1.5MS
T_2=2.0-3.0MS
(2 X T_1)
J2-K 5 WATTS RF APPLIED



Y VI =3-5V
V_2=0.05-0.3V
T_1=1. O-1.5MS
T_2=6.5-13MS
J2-K+100MV INPUT



Z v, =3-5V
V_2=0.05-0.3V
T_1=1.0-1.5MS
T_2=6.5-13MS
J2-K -100MV INPUT

TM6625-1702-12-13

Figure 5-1. *437S-1/1A vhf/fm blade antennawaveforms.*