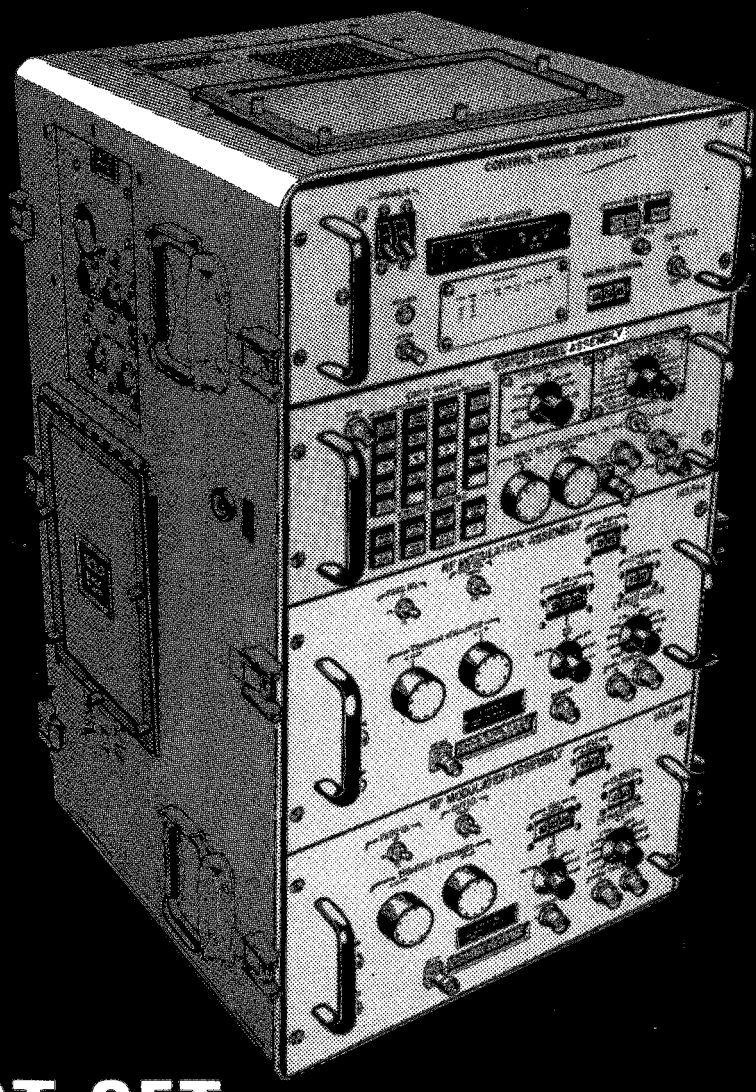
ARMY TM 11-6625-2884-12
NAVY NAVAIR 16-35TS3615-1

OPERATOR'S AND AVIATION UNIT MAINTENANCE MANUAL



EQUIPMENT DESCRIPTION

OPERATING INSTRUCTIONS

MAINTENANCE INSTRUCTIONS

PREVENTIVE MAINTENANCE CHECKS AND SERVICES

TROUBLESHOOTING PROCEDURES

MAINTENANCE PROCEDURES

APPENDIX

TEST SET, COUNTERMEASURES SET TS-3615/ALQ-136(V)

(NSN 6625-01-121-8984)

DEPARTMENTS OF THE ARMY AND THE NAVY

23 FEBRUARY 1984

WARNING

High voltage is used in the operation of this equipment. Avoid contacting high-voltage connections when installing or operating this equipment. Injury or death may result if personnel fail to observe safety precautions.

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

WARNING

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

WARNING

A minimum of four persons must be used in handling or lifting the Test Set, Countermeasures Set TS-3615/ALQ-136(v). Extreme care must be used in handling, to prevent injury to persons or damage to equipment.

WARNING

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

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

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

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

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

For Artificial Respiration, refer to FM 21-11.

FIRST AID

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

1 DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL

2 IF POSSIBLE, TURN OFF THE ELECTRICAL POWER

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

4 SEND FOR HELP AS SOON AS POSSIBLE

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

TECHNICAL MANUAL
No. 11-6625-2884-12
TECHNICAL MANUAL
NAVAIR 16-35TS3615-1

TM 11-6625-2884-12
NAVAIR 16-35TS3615-1
DEPARTMENTS OF THE ARMY AND THE NAVY
Washington, DC, 23 February 1984

OPERATOR'S AND AVIATION UNIT MAINTENANCE MANUAL

TEST SET, COUNTERMEASURES SET TS-36151/ALQ-136(V) (NSN 6625-01-121-8984)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and B1ank Forms), or DA Form 2028-2 1ocated in the back of this manual direct to: Commander, US Army Communica-tions-Electronics command and Fort Monmouth, ATTN: DRSEL-ME-MP Fort Monmouth, NJ 07703.

For Navy. mail comments or OP NAV 4790/66 (TECHNICAL PUBLICATIONS DEFICIENCY REPORT) to NAVAL TECHNICAL SERVICES FACILITY, 700 Robbins Avenue, ATTN CODE 04, Philadelphia, PA 19111.

In either case a reply will be furnished.

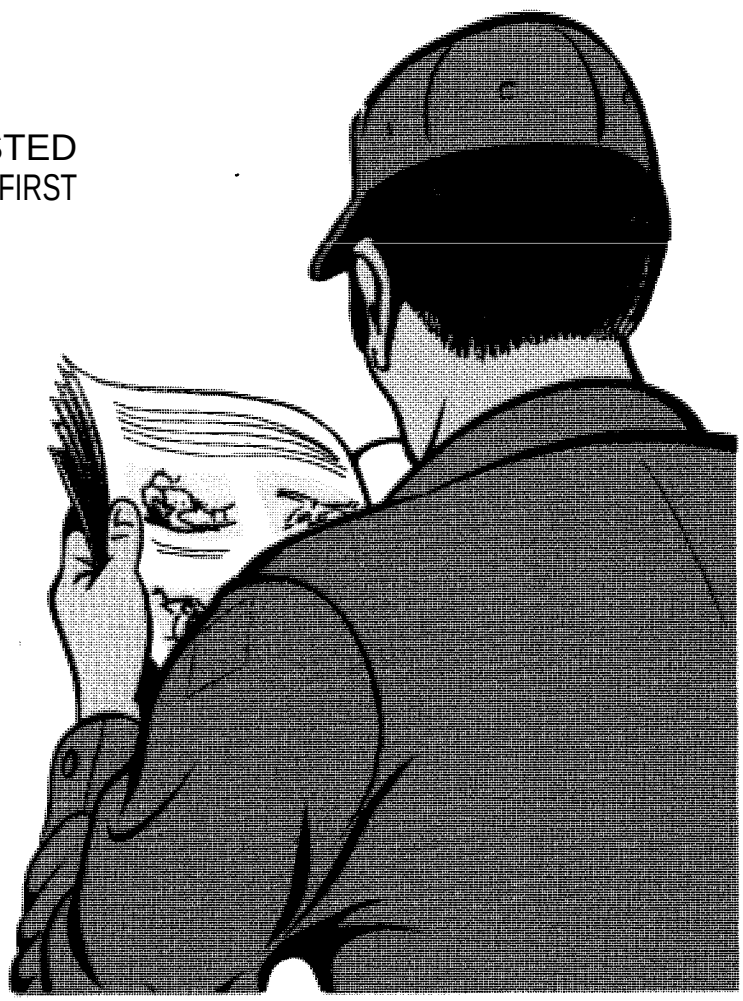
HOW TO USE THIS MANUAL

This manual tells you about operating, and maintaining the Test Set, Counter-measures Set TS-3615/ALQ-136(V) at the Aviation Unit Maintenance (AVUM) level. You'll find descriptions as well as operational level maintenance instructions for the Test Set.

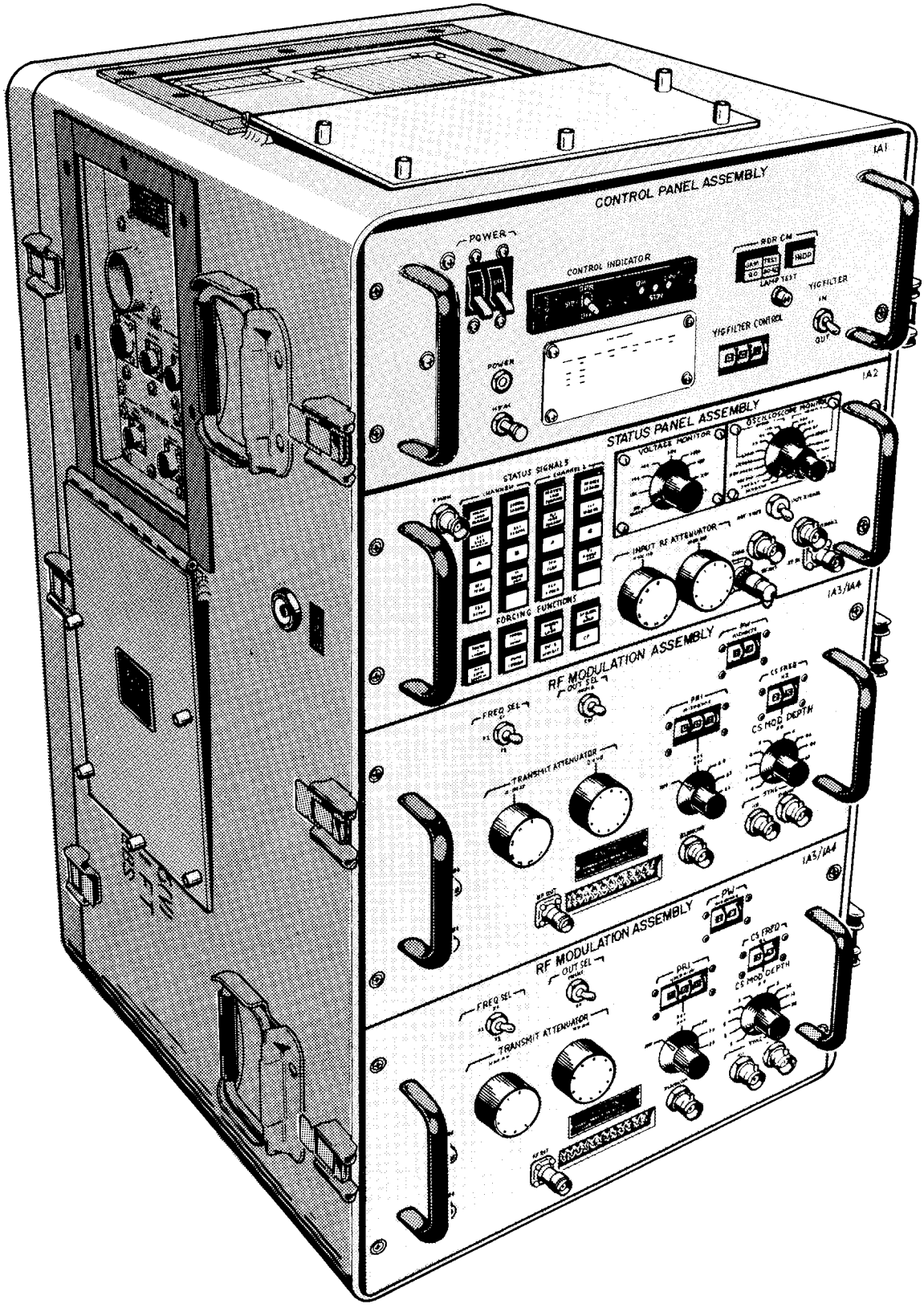
Operators should also consult TM 11-5865-202-12 for instructions concerning operation of this equipment.

For your convenience, this manual has been divided into chapters, sections, and paragraphs which are numbered sequentially. In addition to this numbering system, a system of captions appears in BROWN print to help quickly find the information you need. These captions name the pieces of equipment and/or maintenance procedures that you will be doing. Some of the procedures may consist of several smaller procedures. The captions for these smaller procedures appear under the larger ones; both appear on each page as they are continued. Each large section begins with a "Section Contents" which lists the procedures by title and page number. Tables are numbered sequentially by chapter; illustrations are integrated into the text to which they apply.

NO ONE EVER REPAIRED OR TESTED ELECTRONIC EQUIPMENT WITHOUT FIRST READING THE OPERATION AND MAINTENANCE MANUAL.



IT IS THE MOST IMPORTANT TOOL YOU HAVE ! ! !



TEST SET, COUNTERMEASURES SET
TS-3615/ALQ-136(V) (BENCH TEST SET)

CHAPTER 1
INTRODUCTION

SECTION I
GENERAL INFORMATION

SECTION CONTENTS

SCOPE

1-1. This is one of a series of technical manuals covering the operation and maintenance of the AN/ALQ-136(V)1. It is used by Aviation Intermediate Maintenance (AVIM) personnel responsible for maintaining the AN/ALQ-136(V)1.

This manual contains physical and functional descriptions, maintenance procedures, and instructions for inspection and servicing.

Model Number and Equipment Name:	Test Set, Countermeasures Set, TS-3615/ALQ-136(V).
Purpose of Equipment:	Test Countermeasures Set AN/ALQ-136(V)1 and Test Set, Countermeasures Set TS-3614/ALQ-136(V) at AVIM level .

CONSOLIDATED INDEX OF ARMY PUBLICATIONS AND BLANK FORMS

1-2. Refer to the latest issue of DA Pam 310-1 to determine whether there are new editions, changes or additional publications pertaining to the equipment.

MAINTENANCE FORMS, RECORDS, AND REPORTS

1-3.

a. Reports of Maintenance and Unsatisfactory Equipment. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750 as contained in Maintenance Management Update. Navy personnel will report maintenance performed utilizing the Maintenance Data Collection Subsystem (MDCS) IAW OPNAVINST 4790.2, Vol 3 and unsatisfactory material/conditions (UR submissions) IAW OPNAVINST 4790.2, Vol 2, chapter 17.

b. Report of Packaging and Handling Deficiencies. Fill out and forward SF 364 (Report of Discrepancy [ROD]) as prescribed in AR 735-11-2/DLAR 4140.55/ NAVMATINST 4355.73/AFR 400-54/MCO 4430.3E.

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 4610.33B/AFR 75-18/MCO P4610.19C/DLAR 4500.15.

HAND RECEIPT (-HR) MANUAL

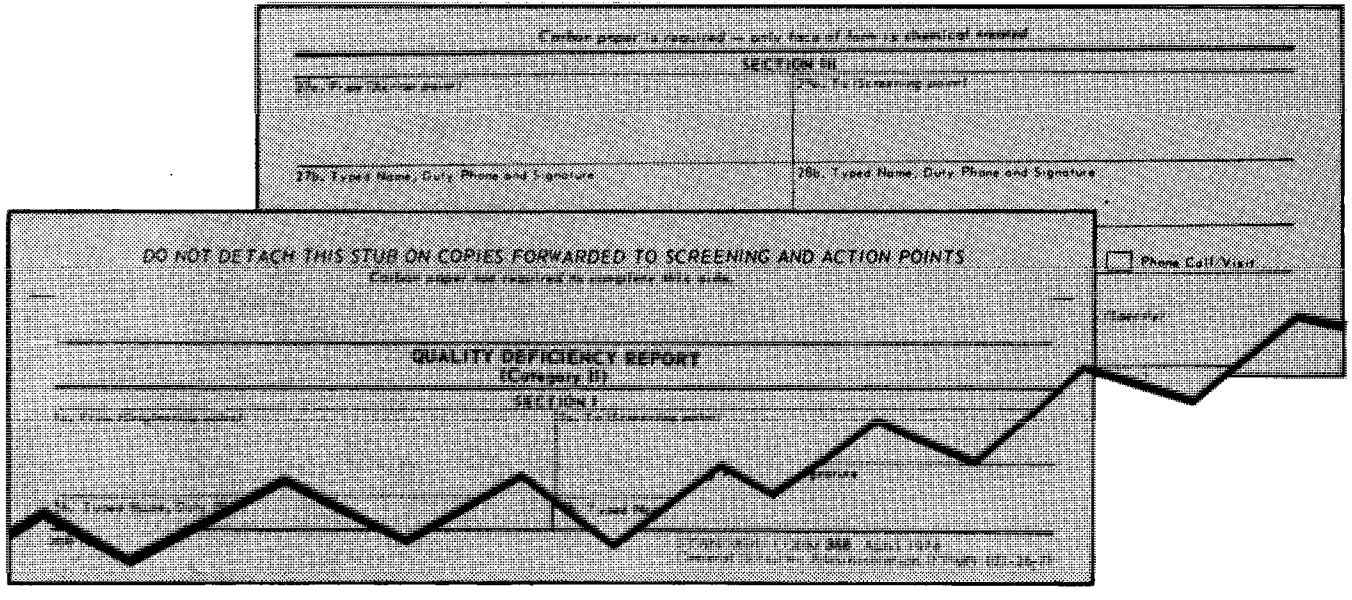
1-4. This manual has a companion document with a TM number followed by "-HR" (which stands for Hand Receipt). TM 11-6625-2884-12-HR consists of preprinted hand receipts (DA Form 2062) that list end item related equipment (i.e., COEI, BII and AAL) you must account for. As an aid to property accountability, additional -HR manuals may be requisitioned from the U.S. Army Adjutant General Publications Center, Baltimore, MD 21220 in accordance with procedures in Chapter 3, AR 310-2 and DA Pam 310-10-2.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

1-5.

a. Army. If your Test Set, Countermeasures Set TS-3615/ALQ-136(V) needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth, New Jersey 07703. We'll send you a reply.

b. Navy. Navy personnel are encouraged to submit EIR's through their local Beneficial Suggestion Program.



DESTRUCTION OF ARMY ELECTRONICS MATERIEL TO PREVENT ENEMY USE

1-6. Destruction of Army electronics materiel to prevent enemy use shall be in accordance with TM 750-244-2.

PREPARATION FOR STORAGE OR SHIPMENT

1-7.

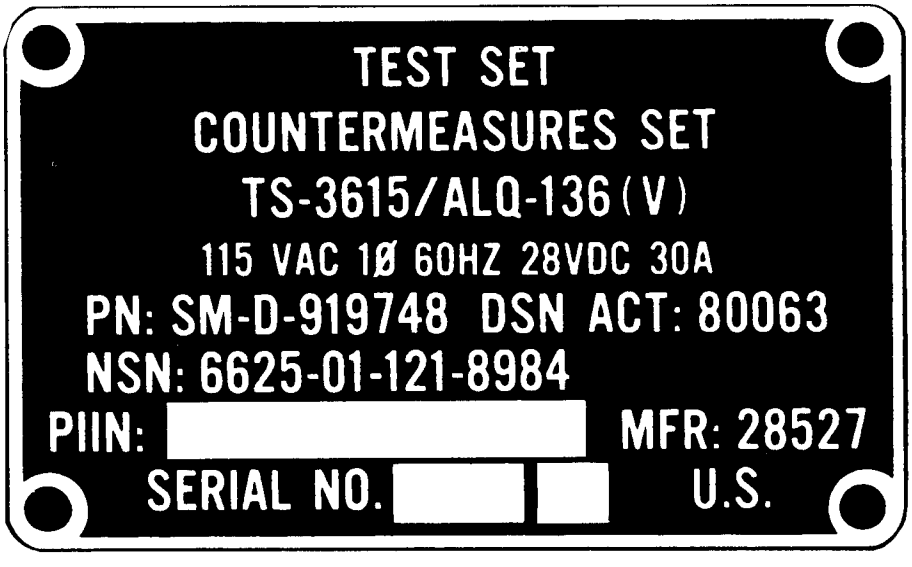
a. Refer to Chapter 3. Section VI of this manual for instruction for preparing the Test Set, Countermeasures Set TS-3615/ALQ-136(V) for storage or shipment.

b. Administrative Storage of equipment issued to and used by Army activities will have preventive maintenance performed in accordance with the PMCS charts before storing. When removing the equipment from administrative storage the PMCS should be performed to assure operational readiness. Disassembly and repacking of equipment for shipment or limited storage are covered in paragraph 3-13.

NOMENCLATURE CROSS-REFERENCE LIST

1-8.

OFFICIAL NAME	COMMON NAME	COMMON ABBREVIATION
Countermeasures Set AN/ALQ-136(V)1	Countermeasures set	CM set
Receiver-Transmitter, Countermeasures Set RT-1149(V)1/ALO-136(V)	Receiver-transmitter	LRU-1
Antenna AS-3007/ALQ-136(V)	Receive antenna	LRU-2A
Antenna AS-3007/ALQ-.l36(V)	Transmit antenna	LRU-2B
Control, Countermeasures Set C-9576/ALQ	Operator's control unit (RDR CM part of OCU)	OCU or LRU-3 (OCU-R)
Test Set, Countermeasures Set TS-3614/ALQ-136(V)	Flight line test set	FLTS
Test Set, Countermeasures Set TS-3615/ALQ-136(V)	Bench test set	BTS



1-9.

LIST OF ABBREVIATIONS

ABBREVIATION	DESCRIPTION
ac	alternating current
°C	degrees Celsius
ccw	counterclockwise
cm	centimeter
CM set	countermeasures set
cw	clockwise
dc	direct current
DS	direct support
°F	degrees Fahrenheit
GS	general support
Hz	Hertz
IR	infrared
IRCM	infrared countermeasures
INOP	inoperative
LRU	line replaceable unit
MAC	maintenance allocation chart
MM	multimeter
OCU	operator’s control unit
OCU-R	radar section of OCU
OPR	operate
PMCS	preventive maintenance checks and services
STBY	standby
TM	technical manual
UUT	unit under test
V	Volts
YIG filter	Yttrium Iron Garnet filter

SECTION II
EQUIPMENT DESCRIPTION

SECTION CONTENTS

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

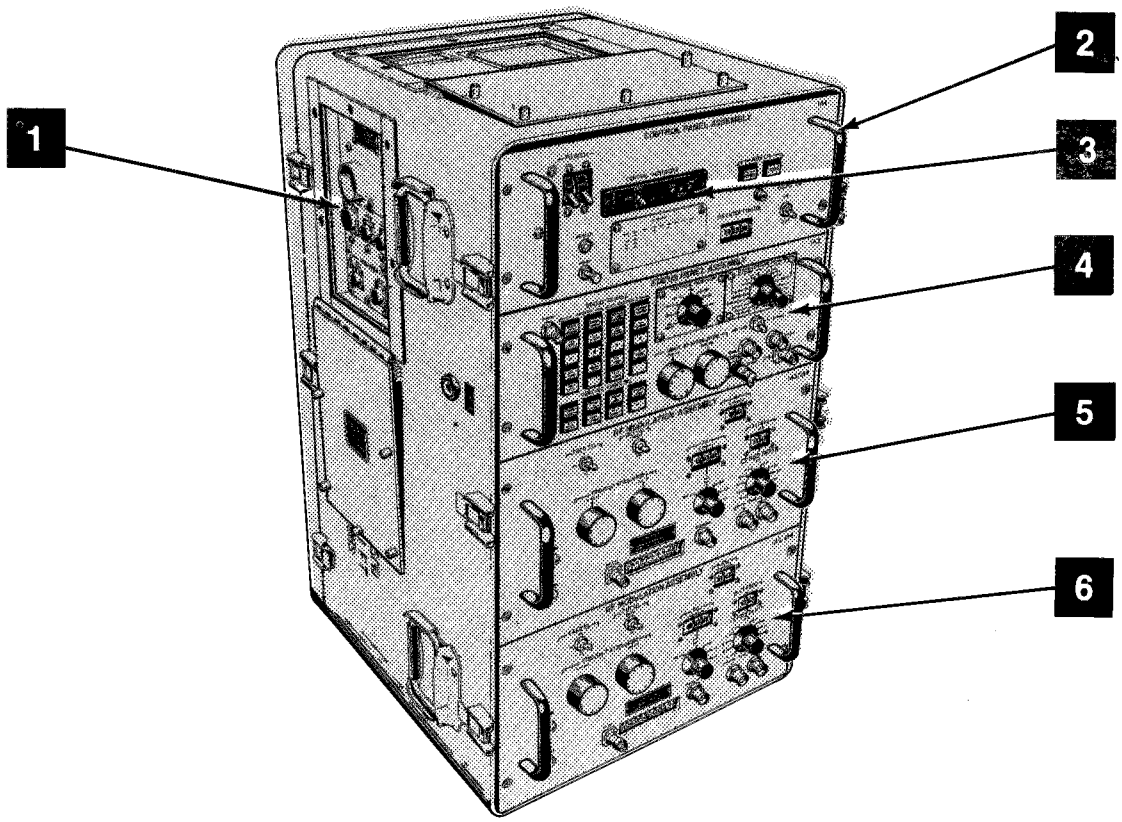
1-10. The BTS provides stimulus (simulated radar threat signals) required for control and activation of the CM set or the FLTS. Response monitoring of the unit under test (UUT) aids in maintenance, and failure diagnosis to each replaceable unit.

- Controls and distributes primary power to itself and to UUT.
- Controls UUT functions.
- Generates (and transmits to UUT) simulated radar threat signals.
- Provides facility for manually forcing various UUT functions.
- Monitors all UUT responses to simulated radar threat signals and forced functions.
- Modular design allows easy access to equipment for easy maintenance.
- Each component can be repaired/replaced independently.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

1-11.

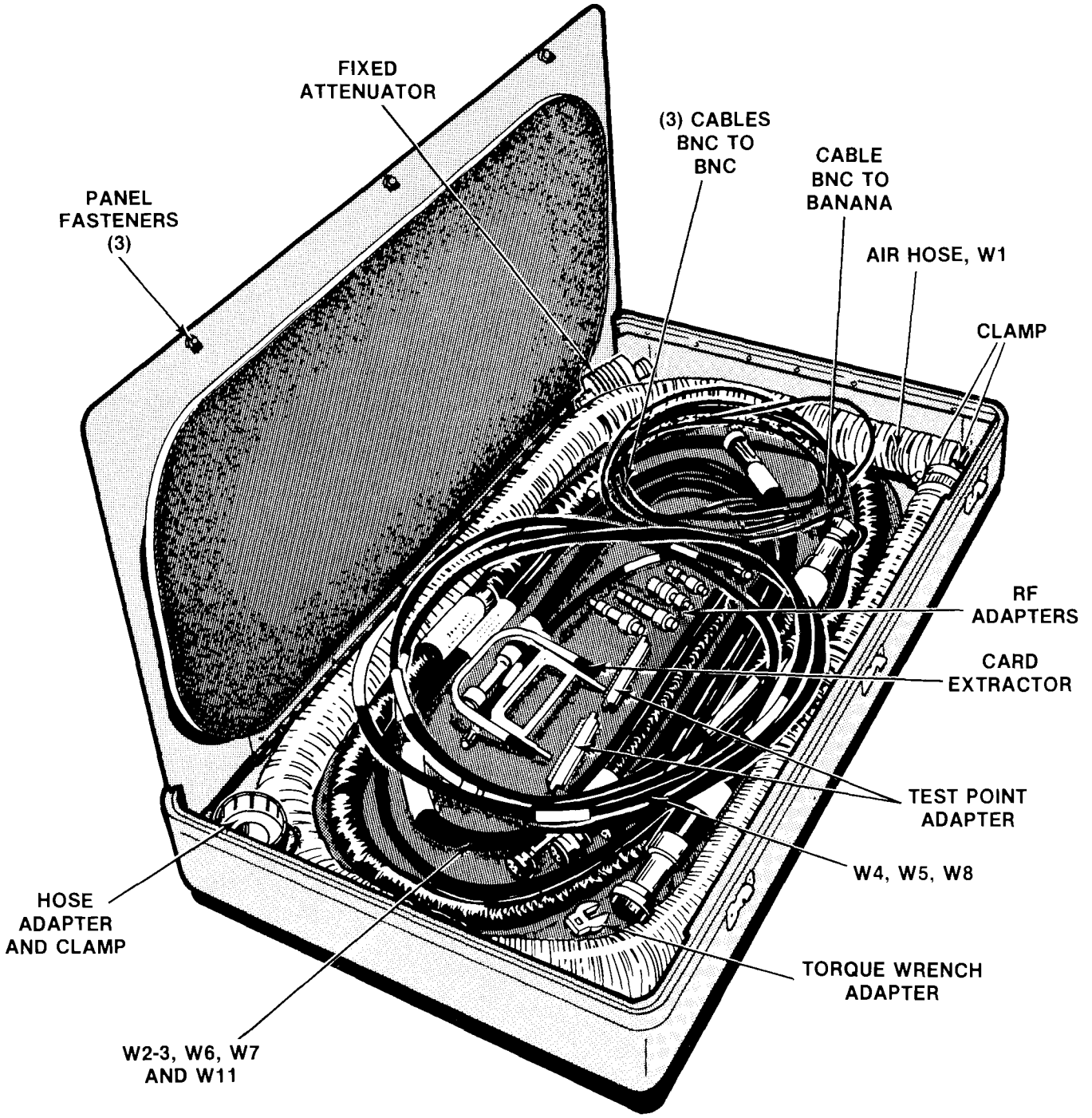
1. Connector Panel - Receives power from external sources and distributes power, signals and cooling air to UUT.
2. CONTROL PANEL ASSEMBLY, 1A1 - Controls power and signals to UUT.
3. CONTROL INDICATOR, 1A1A1 - Controls and indicates operational mode of UUT.
4. STATUS PANEL ASSEMBLY, 1A2 - Controls and indicates status of UUT circuits.
5. RF MODULATION ASSEMBLY, 1A3 - Develops modulated RF signal for use in UUT.
6. RF MODUATION ASSEMBLY, 1A4 - Develops a second RF signal (unit is identical to 5).



NOTE: See next page for BTS cover and components.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (Continued)

Front Cover. The front cover is removed by opening three latches on each side. When the cover is placed in the prone position, a hinged panel inside the cover can be opened by pushing each of three panel fasteners, located opposite the hinged side.



The front cover perfoms two functions: It protects the front of the BTS while the unit is in transit. The front cover also has an area for storing cables and other accessories, which are listed on a plate mounted on the inside of the cover, as shown below.

LIST OF CONTENTS
TS-3615/ALQ-136(V)

1 CABLE ASSEMBLY W1	SM-C-919975
1 CABLE ASSEMBLY W2	SM-C-919976
1 CABLE ASSEMBLY W3	SM-C-919977
1 CABLE ASSEMBLY W4	SM-C-919978
1 CABLE ASSEMBLY W5	SM-C-919979
1 CABLE ASSEMBLY W6	SM-C-919980
1 CABLE ASSEMBLY W7	SM-C-919981
1 CABLE ASSEMBLY W8	SM-C-919982
1 CABLE ASSEMBLY (BNC/BANANA)	SM-B-920618-1
3 CABLE ASSEMBLY (BNC/BNC)	SM-B-920616-2
1 CABLE ASSEMBLY W11	SM-C-919983
1 ATTENUATOR, FIXED	SM-C-920634
1 ADAPTER, RF	SM-C-920525
2 ADAPTER, TEST POINT	M21097/21-163
1 EXTRACTOR, CARD	SM-C-920554
1 AIR HOSE	SM-B-920516
2 CLAMP, AIR HOSE	MS35842-13
1 CLAMP, AIR HOSE	MS35842-14
1 ADAPTER, HOSE	SM-B-920145
1 ADAPTER, TORQUE WRENCH	SM-B-920451
1 ADAPTER, RF	SM-C-920479
1 ADAPTER, RF	SM-C-920480
1 ADAPTER, RF	M55339/51-00001

EQUIPMENT DATA

1-12. A list of equipment parts of the BTS is provided in Table 1-1. A list of test equipment to test LRU-1 or FLTS, using the BTS, is given in their respective manuals (also in Appendix B, Section III of this manual). A source of 115 V ac 60 Hz power is necessary to operate the BTS. A source of +28 V is required to operate the UUT.

NOTE

Higher level maintenance manuals describe the use of BTS equipment to test CM set AN/ALQ-136(V)1 and Flight Line Test Set TS-3614/ALQ-136(V).

TABLE 1-1. BTS EQUIPMENT COMPONENTS

QTY.	NOMENCLATURE ITEM NAME	REFERENCE DESIGNATION	DIMENSIONS-INCHES (METRIC-CM)			WEIGHT: POUNDS (METRIC-KG)
			W	D	H	
1	Combination Case	-	20 (51)	26 (63)	35 (90)	80 (36.3)
1	CONTROL PANEL ASSEMBLY	1A1	19 (49)	12 (30)	7 (18)	29 (13.2)
1	CONTROL INDICATOR	1A1A1	5 (12.8)	5.75 (15)	1.12 (2.9)	1 (0.46)
1	STATUS PANEL ASSEMBLY	1A2	19 (49)	4 (10)	7 (18)	18 (8.2)
2	RF MODULATION ASSEMBLY	1A3, 1A4	19 (49)	17 (43)	10 (25.4)	44 (20)
-	Contents of Front Cover (see para 1-11)					33 (15)

Power Requirements: 105 - 125 V ac, 3 A, 50 - 420 Hz
+28 V, 30 A

BTS Temperatures:	°F	°C
Operating	+32 to +131	(0 to +55)
Storage	-70 to +160	(-57 to +71)

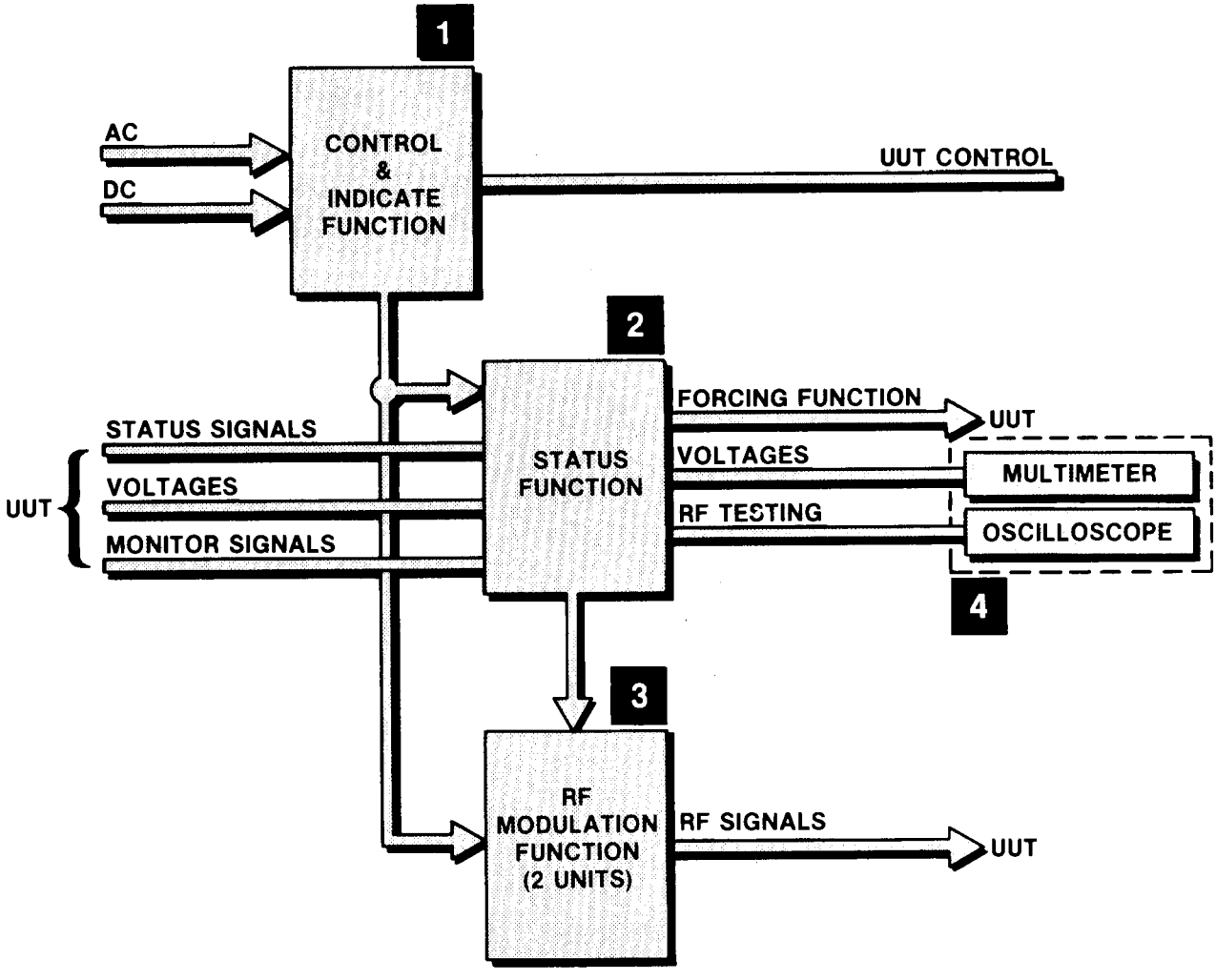
SAFETY, CARE, AND HANDLING

1-13. Observe all WARNINGS given in this manual. They are listed on the inside front cover and again before every operation which may be dangerous to personnel. The CM set is a highly accurate system designed to save the lives of the users and must be kept in a state of high operating efficiency. The CM set, and its associated test equipment - the FLTS and the BTS - are delicate pieces of electronic equipment. Though constructed ruggedly to withstand shock of normal operation, they must be handled with appropriate care.

SECTION III
TECHNICAL PRINCIPLES OF OPERATION

BLOCK DIAGRAM DESCRIPTION

1-14. This section gives you a block diagram keyed to a functional description of the BTS.

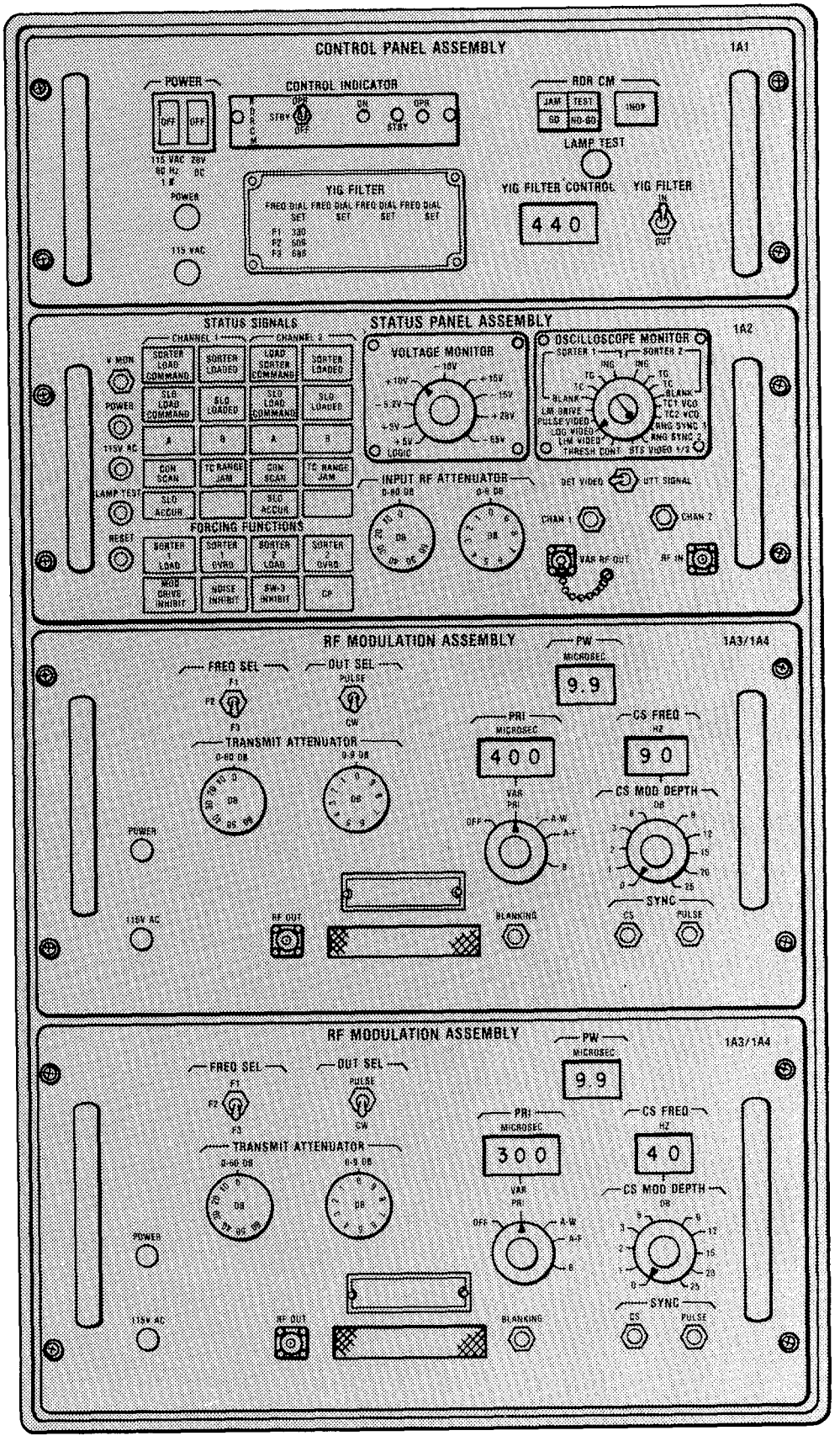


1 Control and Indicate function is used to select power ON/OFF condition and operating mode of the BTS. Indicators light to indicate the foregoing conditions and the operational condition of the UUT.

2 Pushbuttons provide selection of signals (forcing functions) to stimulate UUT circuits, and indicators monitor the UUT responses. Outputs are available for measuring voltages and RF signals.

3 A variety of simulated threat (modulated RF) signals may be selected for stimulation of the UUT.

4 Multimeter and oscilloscope shown are auxiliary test equi pment external to the BTS.



CHAPTER 2
OPERATING INSTRUCTIONS

SECTION I
DESCRIPTION AND USE OF OPERATING CONTROLS, INDICATORS, AND CONNECTORS

SECTION CONTENTS

GENERAL

2-1. This section provides a tabular listing, with brief functional description, of all controls, indicators, and connectors located on the front panels of the four assmblies and side panel connectors associated with the bench test set.

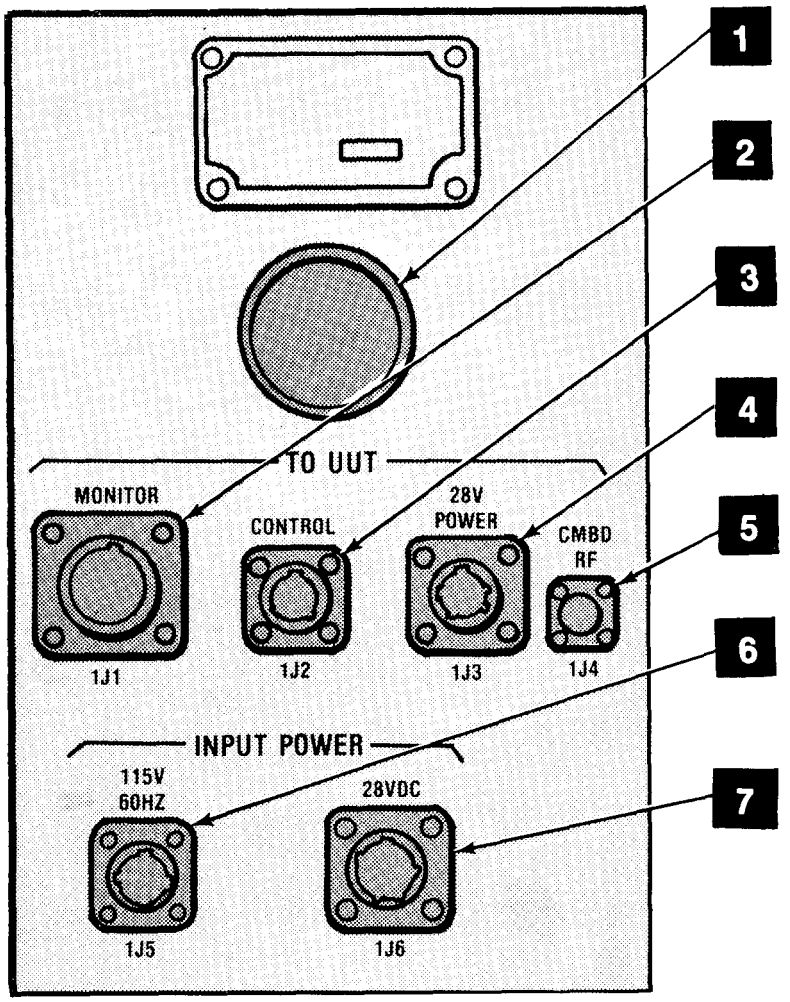
WARNING

High voltage is used in the operation of this equipment. Avoid contacting high-voltage connections when installing or operating this equipment. Injury or death may result if personnel fail to observe safety precautions.

BTS CABINET AND CONTROL PANEL ASSEMBLY 1A1

2-2. BTS cabinet connectors for input power and unit under test (UUT) are located on the side of the BTS cabinet. Controls and indicators are located on Control Panel Assembly 1A1.

a. BTS Cabinet Connectors. Open the hinged cover on the side of the BTS cabinet for access to UUT and input power connectors. These are listed and described in table 2-1, and shown below.



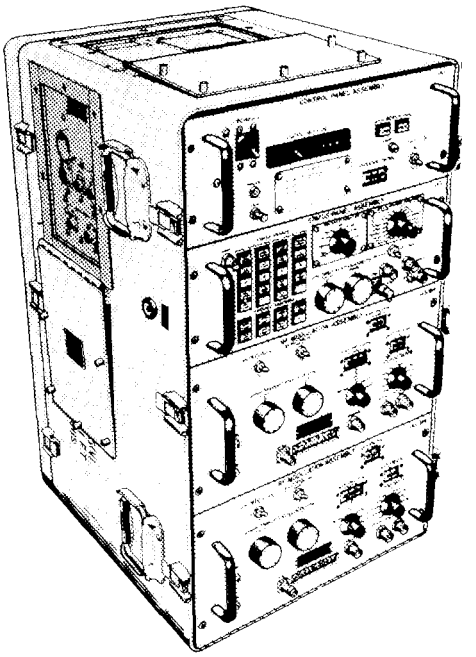
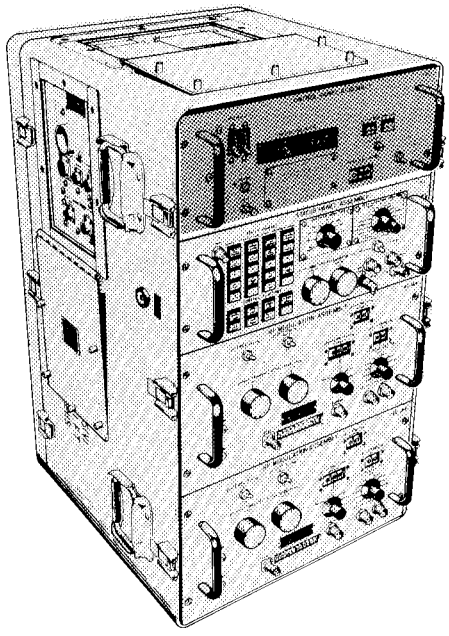


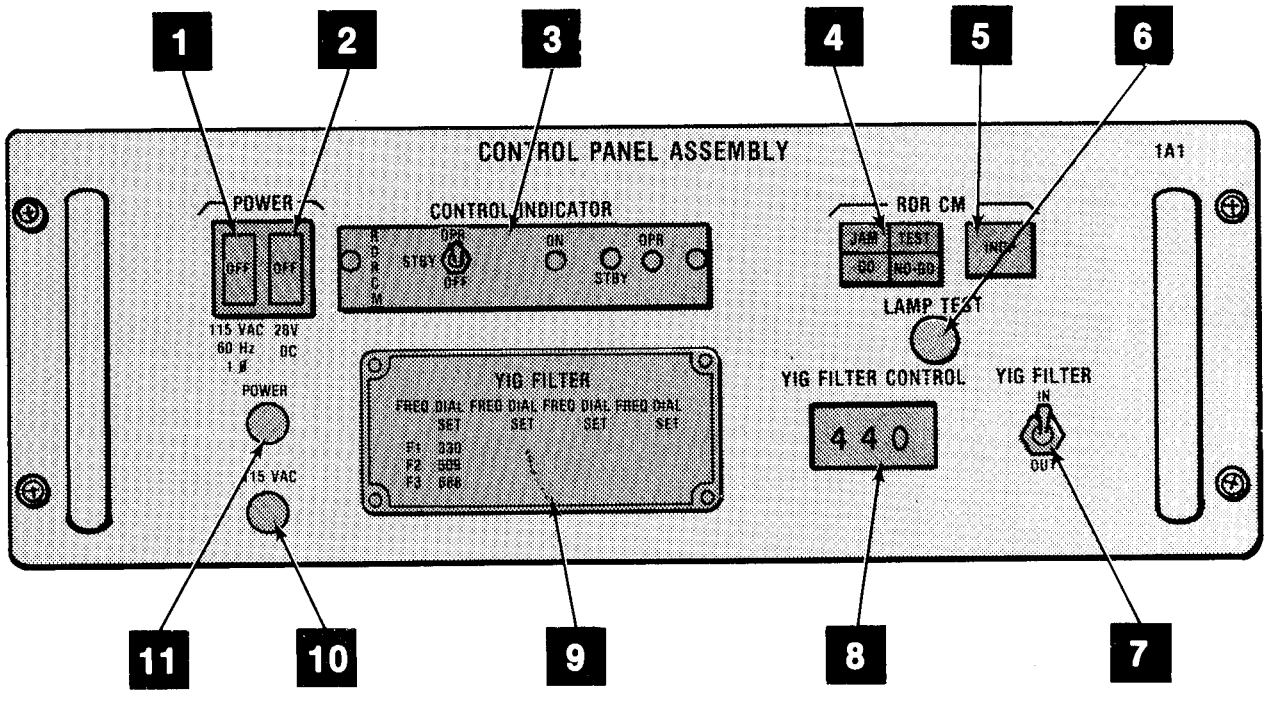
TABLE 2-1. CONNECTOR PANEL

REFERENCE	DEVICE	FUNCTION
1	Air duct port	Draws cooling air through LRU-1.
2	MONITOR 1J1 connector	Connects test command and status signals between BTS and UUT.
3	CONTROL 1J2	Connects BTS Control Indicator 1A1A1 to LRU-1.
4	28V POWER 1J3	Connects 28 V power to UUT.
5	CMBD RF 1J4	Connects BTS RF test signals to UUT.
6	115V 60HZ 1J5	Connects ac power to BTS.
7	28VDC 1J6	Connects dc power to BTS.

BTS CABINET AND CONTROL PANEL ASSEMBLY 1A1 (Continued)

b. Control Panel Assembly 1A1. The controls and indicators of the CONTROL PANEL ASSEMBLY, and their respective functions, are listed and described in table 2-2 and shown below.





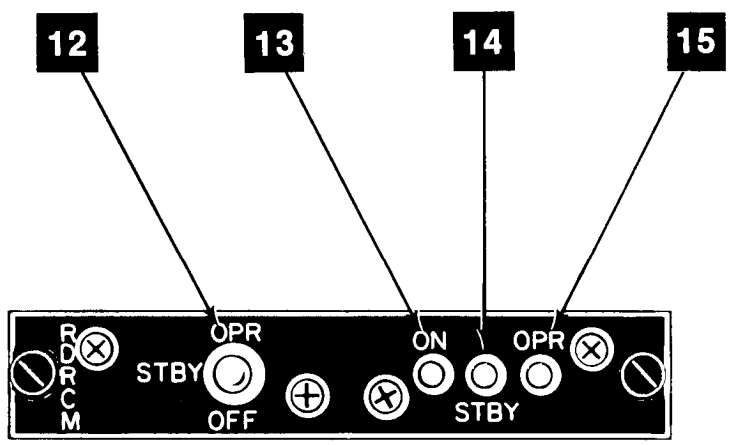
CONTROL PANEL ASSEMBLY, CONTROLS AND INDICATORS

TABLE 2-2. CONTROL PANEL ASSEMBLY CONTROLS, INDICATORS, AND CONNECTORS

REFERENCE	DEVICE	FUNCTION
	Controls	
1	POWER 115 VAC 60Hz 1Ø circuit breaker	Controls application of ac power to BTS. Provides overcurrent protection to BTS.
2	POWER 28V DC circuit breaker	Controls application of dc power and over-current protection to unit under test (UUT).
3	CONTROL INDICATOR	See reference items 12 thru 15.
4	JAM/TEST/GO/NO GO -	When Function Column pressed initi ates built-in-test equipment (BITE) in LRU-1 under test.
	JAM -	Lights when LRU-1 under test has acquired a simulated threat and has activated ECM.
	TEST -	Lights when BITE in LRU-1 under test has been initiated.
	Go -	Lights when LRU-1 under test is operating correctly.
	NO Go -	Lights when a fault is detected in LRU-1 under test.
5	RDR CM INOP indicator	When lit, indicates CM set transmitter faults.
6	LAMP TEST pushbutton	When pressed, causes reference items 4 and 5 to light, testing their operation.
7	YIG FILTER switch	Controls switching the YIG Filter in and out of circuit.
8	YIG FILTER CONTROL thumbwheel switch	Controls frequency setting of YIG filtering.
9	YIG FILTER, calibra-tion chart	Shows switch setting for classified frequencies.
10	115 VAC, 1/2 amp circuit breaker	Provides overcurrent protection to panel.
11	POWER indicator	When lit, indicates power has been applied to control panel .

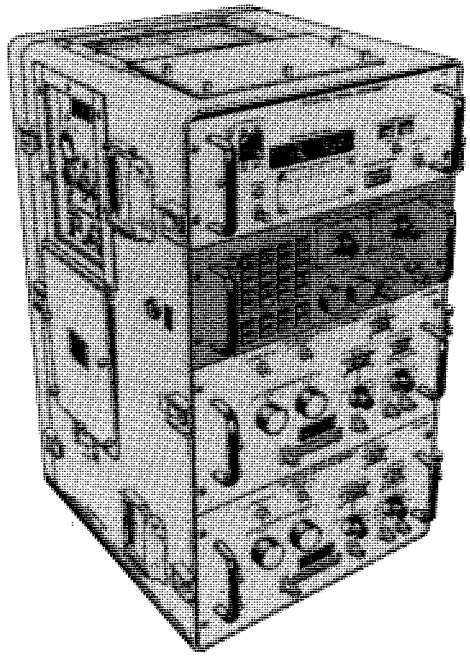
TABLE 2-2. CONTROL PANEL ASSEMBLY CONTROLS, INDICATORS, AND CONNECTORS (Continued)

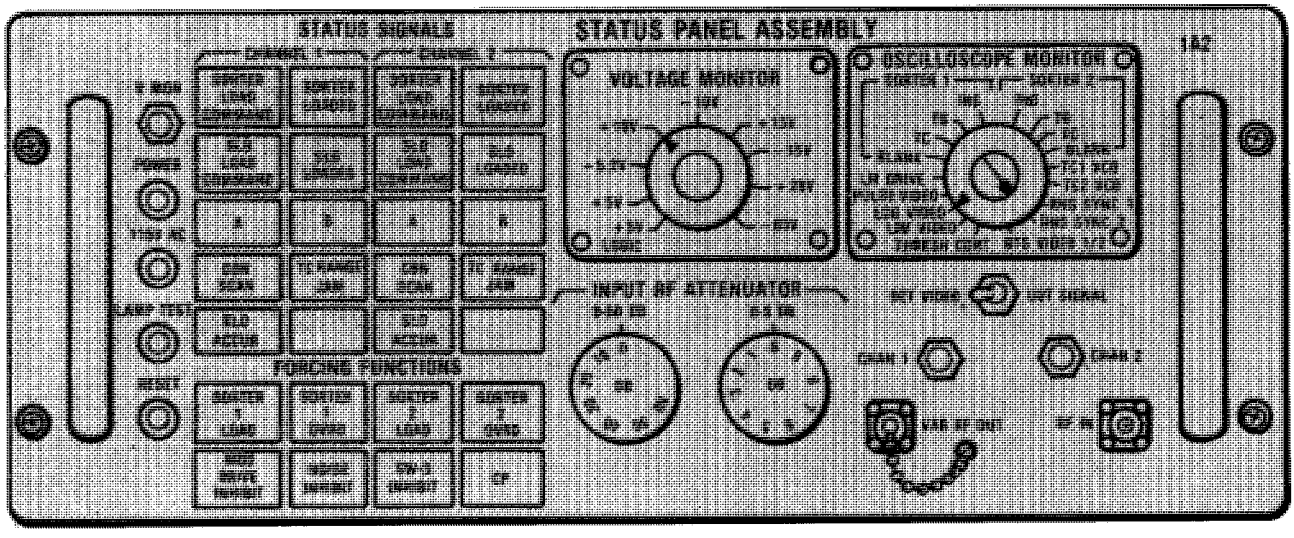
REFERENCE	DEVICE	FUNCTION
	CONTROL INDICATOR	
12	OPR/STBY/OFF pull-to-set switch	Controls status of LRU-1.
	OPR position	Enables turn.on of LRU-1 high voltage power supply after 3-minute warm-up delay.
	STBY position	Applies dc power to LRU-1, but inhibits turn-on of high voltage power supply.
	OFF position	Removes all dc power from LRU-1
13	ON indicator	When lit (green), indicates LRU-1 is in STBY or OPR mode.
14	STBY indicator	When lit (amber), indicates LRU-1 is in standby mode.
15	OPR indicator	When lit (green), indicates LRU-1 is in operate mode.



STATUS PANEL ASSEMBLY 1A2

2-3. The controls, indicators, and connectors of the STATUS PANEL ASSEMBLY are listed and described in table 2-3. They are shown on the following illustration and keyed to the table reference numbers.



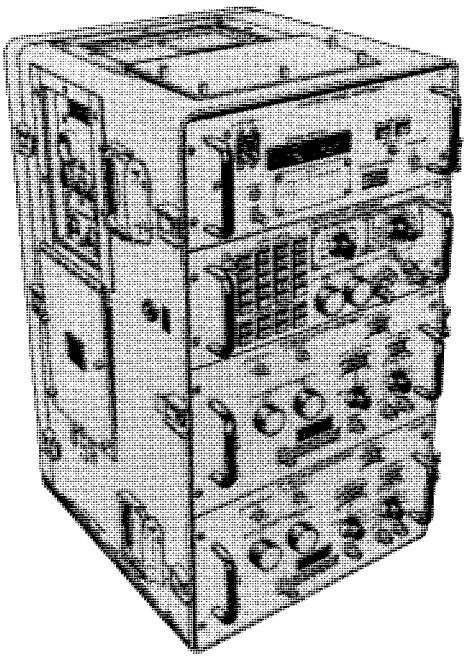


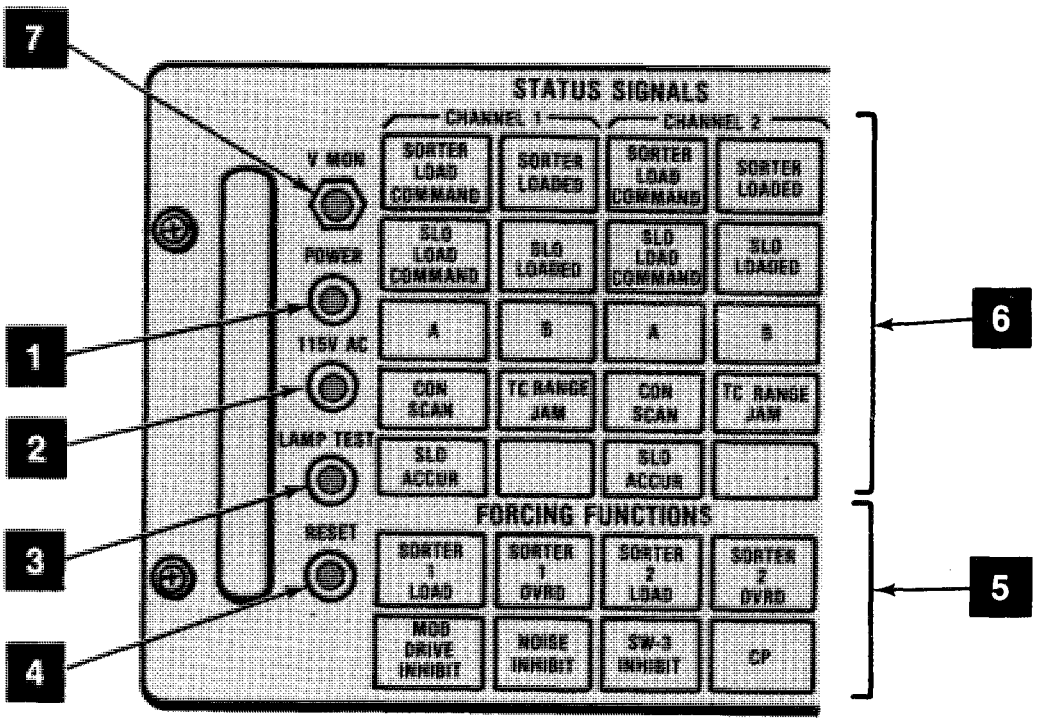
STATUS PANEL ASSEMBLY, CONTROLS AND INDICATORS

STATUS PANEL ASSEMBLY 1A2 (Continued)

TABLE 2-3. STATUS PANEL ASSEMBLY CONTROLS, INDICATORS AND CONNECTORS

REFERENCE	DEVICE	FUNCTION
1	POWER	When lit (green), indicates presence of 12 V dc power in status panel assembly, confirming presence of 115 V ac power.
2	115V AC 1-1/2 amp circuit breaker (push to reset)	Provides overcurrent protection to the status panel assembly.
3	LAMP TEST pushbutton (momentary)	Lights all STATUS SIGNAL indicators and FORCING FUNCTION indicators to test their lamps.
4	RESET pushbutton (momentary)	Closes a contact to ground to reset UUT.
5	FORCING FUNCTIONS alternate action pushbutton indicators	Each pushbutton controls closure of a separate contact to ground to control UUT. Indicator lights when contact is closed.
6	STATUS SIGNALS indicators	Each indicator, when lit, shows continuity to ground at a separate point to be monitored in the UUT, thereby indicating the status of the selected circuit in the UUT.
7	V MON	Connects to voltage point in UUT selected by VOLTAGE MONITOR control.



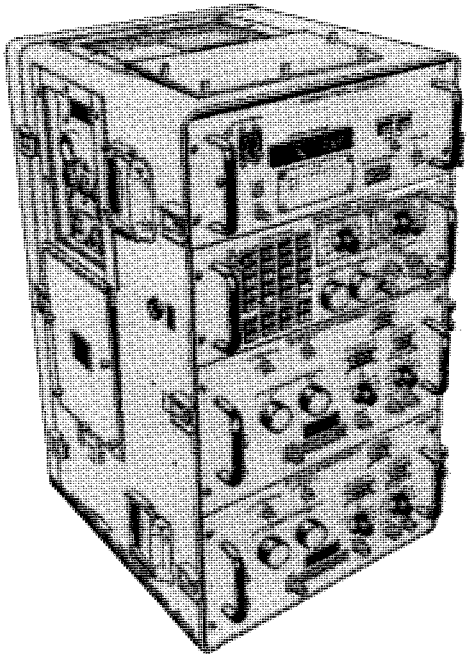


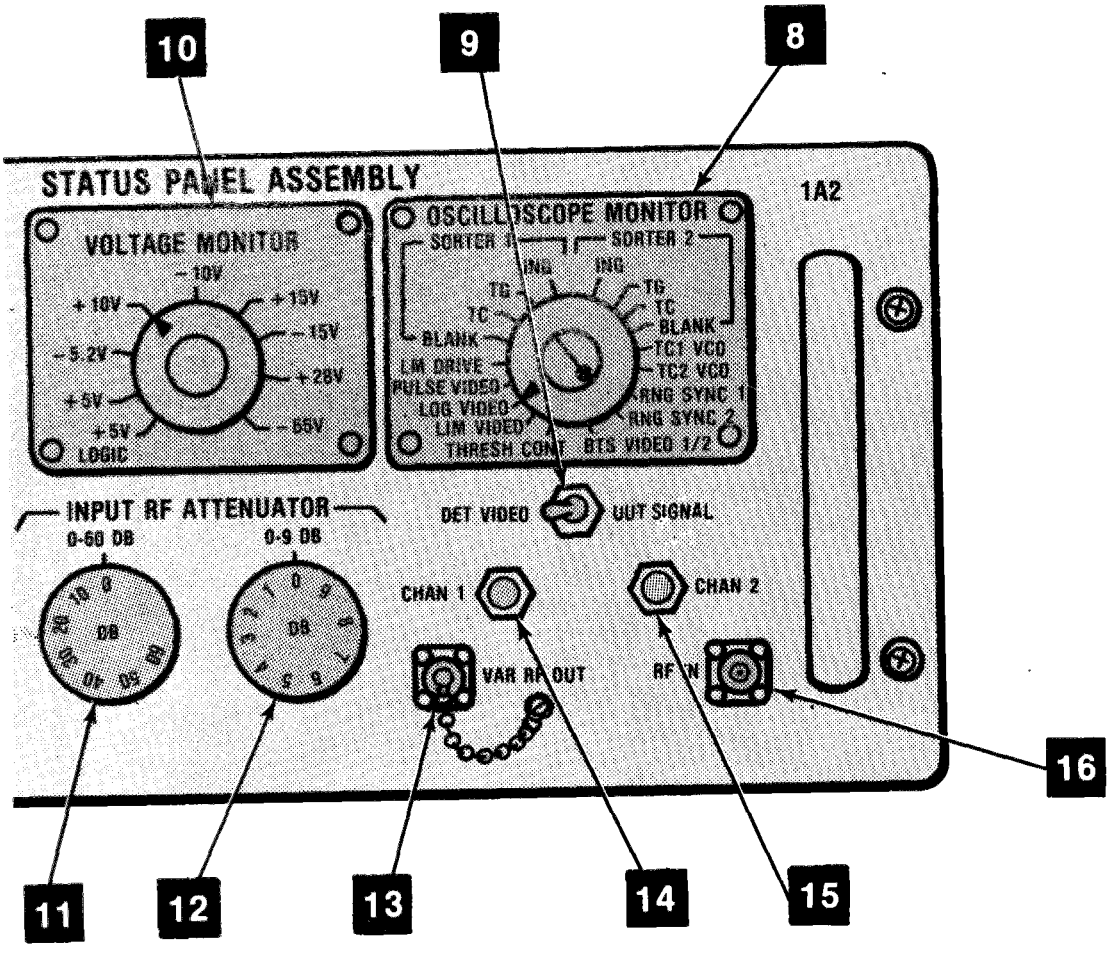
LEFT HALF OF STATUS PANEL ASSEMBLY, CONTROLS AND INDICATORS

STATUS PANEL ASSEMBLY 1A2 (Continued)

TABLE 2-3. STATUS PANEL ASSEMBLY CONTROLS, INDICATORS, AND CONNECTORS (Continued)

REFERENCE	DEVICE	FUNCTION
8	OSCILLOSCOPE MONITOR dual concentric rotary control	Black knob switches CHAN 1 connector to one of 17 points in the UUT or to BTS VIDEO. Red knob switches CHAN 2 connector to one of 17 points in the UUT or to BTS VIDEO.
9	DET VIDEO/UUT SIGNAL	Switches CHAN 1 connector to BTS detected video to monitor signal from RF IN connector, or switches to UUT SIGNAL selected by black knob of OSCILLOSCOPE MONITOR.
10	VOLTAGE MONITOR rotary control	Switches V MON connector to one of nine voltage points in UUT. This control also has an unmarked off position (full CW).
11	INPUT RF ATTENUATOR 0-60 DB rotary control	Controls attenuation between RF IN connector and VAR RF OUT connector in 10 dB steps.
12	INPUT RF ATTENUATOR O-9 DB rotary control	Controls attenuation between RF IN connector and VAR RF OUT connector in 1 dB steps.
13	VAR RF OUT (Termination connected)	Undetected RF output controlled by INPUT RF ATTENUATOR. RF Termination is used when VAR RF OUT not in use.
14	CHAN 1	Connects to point selected by black knob of OSCILLOSCOPE MONITOR control, or DET VIDEO.
15	CHAN 2	Connects to point selected by red knob of OSCILLOSCOPE MONITOR control.
16	RF IN	Connects to input of INPUT RF ATTENUATOR.

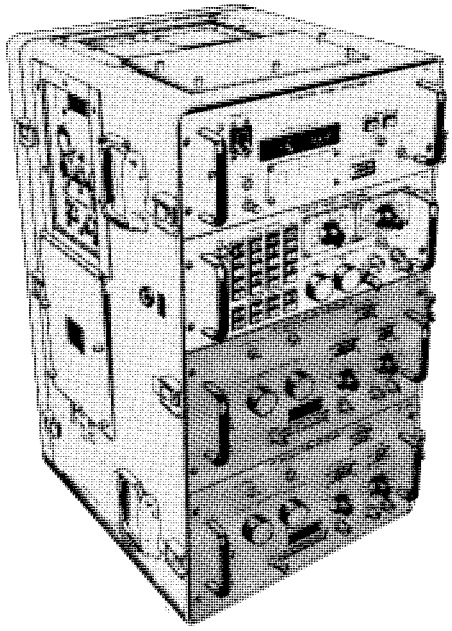




RIGHT HALF OF STATUS PANEL ASSEMBLY, CONTROLS AND INDICATORS

RF MODULATION ASSEMBLY 1A3/1A4

2-4. The controls, indicators, and connectors of the RF MODULATION ASSEMBLY are listed and described in table 2-4. They are shown on the illustration. Inasmuch as two RF modulation assemblies are used in the bench test set and both are identical, the information contained in table 2-4 applies to both.



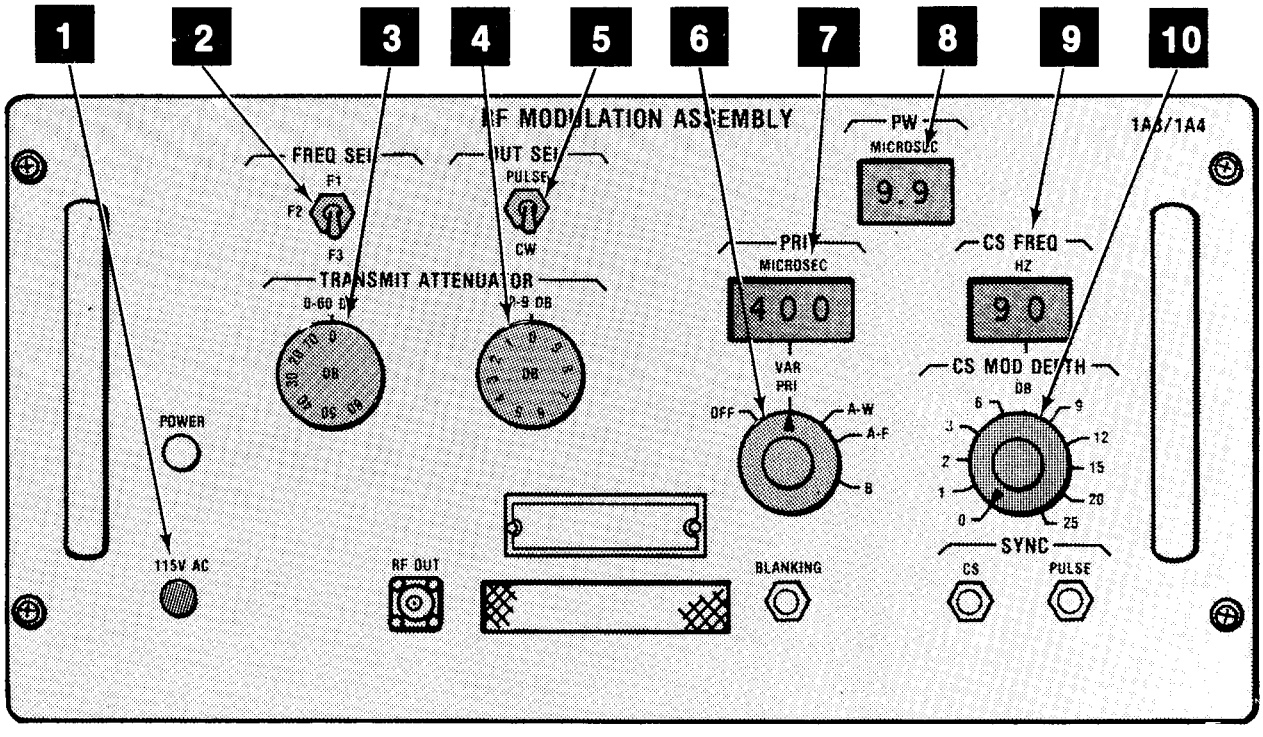


TABLE 2-4. RF MODULATION ASSEMBLY CONTROLS, INDICATORS AND CONNECTORS

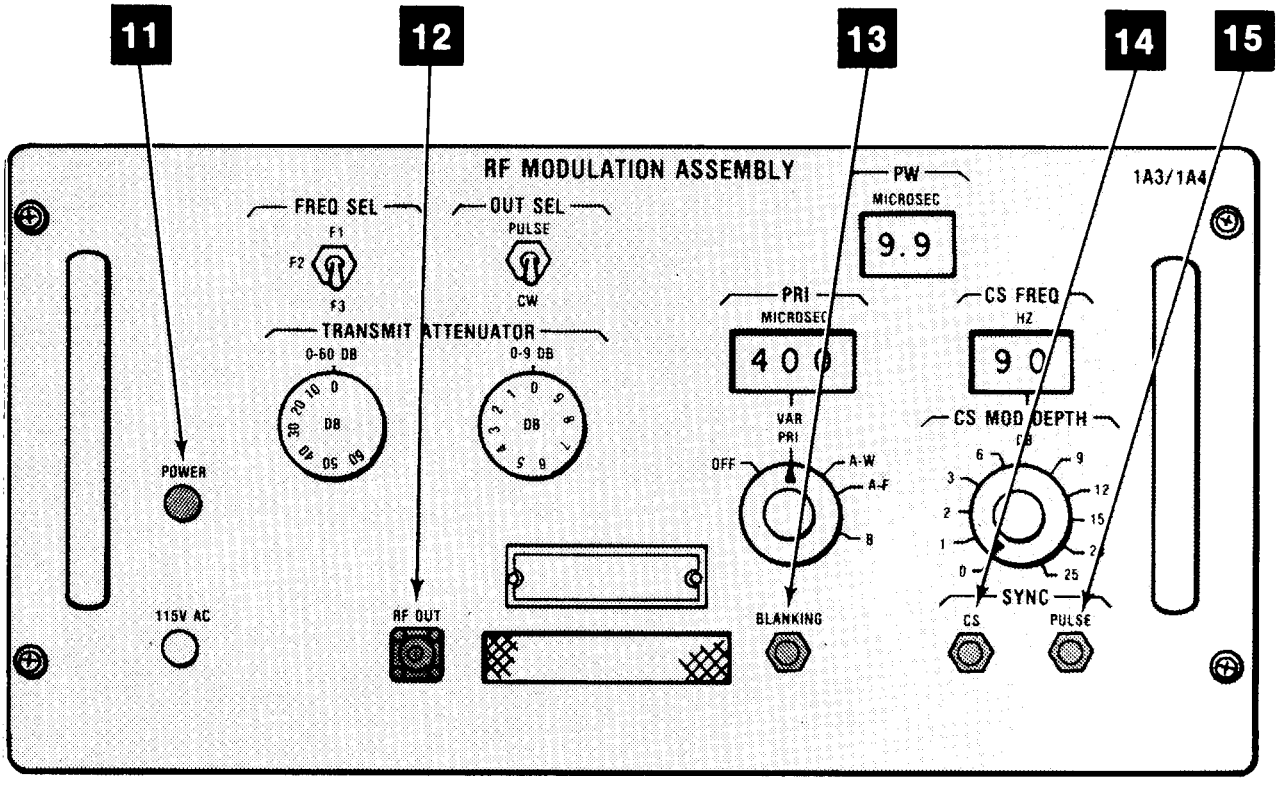
REFERENCE	DEVICE	FUNCTION
1	115V AC 1-1/2 amp circuit breaker	Provides overcurrent protection to the RF MODULATION ASSEMBLY.
2	FREQ SEL F1/F2/F3 three position toggle switch	Selects one of three preset RF frequencies.
3	TRANSMIT ATTENUATOR 0-60 DB rotary control	Controls level at RF OUT connector in 10 dB steps.
4	TRANSMIT ATTENUATOR 0-9 DB rotary control	Controls level at RF OUT connector in 1 dB steps.
5	OUT SEL PULSE/CW toggle switch	Permits selection of either PULSE or CW RF output.
6	PRI OFF/VAR PRI/A-W/ A-F/B rotary control	Permits selection of one of three preset PRI's, or variable PRI under control of PRI MICROSEC switches.
7	PRI MICROSEC three section thumbwheel control	Sets PRI when switch is in VAR PRI position. PRI range is 300 to 999 us in steps of 1 us.
8	PW MICROSEC two section thumbwheel control	Sets Pulse width in steps from O.lus to 9.9 us.
9	CS FREQ HZ two section thumbwheel control	Sets CS frequency in 1 Hz steps from 1 Hz to 99 Hz.
10	CS MOD DEPTH DB rotary control	Permits selection of one of ten preset CS modulation depths in discrete steps from O to 25 dB.

11 through 15 continued on next page.

RF MODULATION ASSEMBLY 1A3/1A4 (Continued)

TABLE 2-4. RF MODULATION ASSEMBLY CONTROLS, INDICATORS, AND CONNECTORS (Continued)

REFERENCE	DEVICE	FUNCTION
11	POWER indicator	When lit (green), shows the presence of -15 V dc, confirming application of 115 V ac power to RF MODULATION ASSEMBLY.
12	RF OUT	Supplies high level modulated RF output, controlled by transmit attenuators.
13	BLANKING	Supplies negative going blanking pulses.
14	SYNC CS	Supplies CS modulation sync.
15	SYNC PULSE	Supplies pulse sync.



SECTION II
OPERATION UNDER USUAL CONDITIONS

SECTION CONTENTS

GENERAL

2-5. The BTS is used for two separate types of operation:

a. Test Countermeasures Set AN/ALQ-136(V)1.

b. Test Flight Line Test Set (FLTS) TS-3614/ALQ-136(V).

Refer to pages 3-2 and 3-7 of the AVIM manual for setup and test procedures.

TESTING CM SET

2-6. Refer to the aviation intermediate maintenance manual for Countermeasures Set AN/ALQ-136(V)1 for BTS operating instructions while testing the CM set.

TESTING FLTS

2-7. Refer to the aviation intermediate maintenance manual for Test Set, Countermeasures Set TS-3614/ALQ-136(V) for BTS operating instructions while testing the FLTS.

TESTING BTS

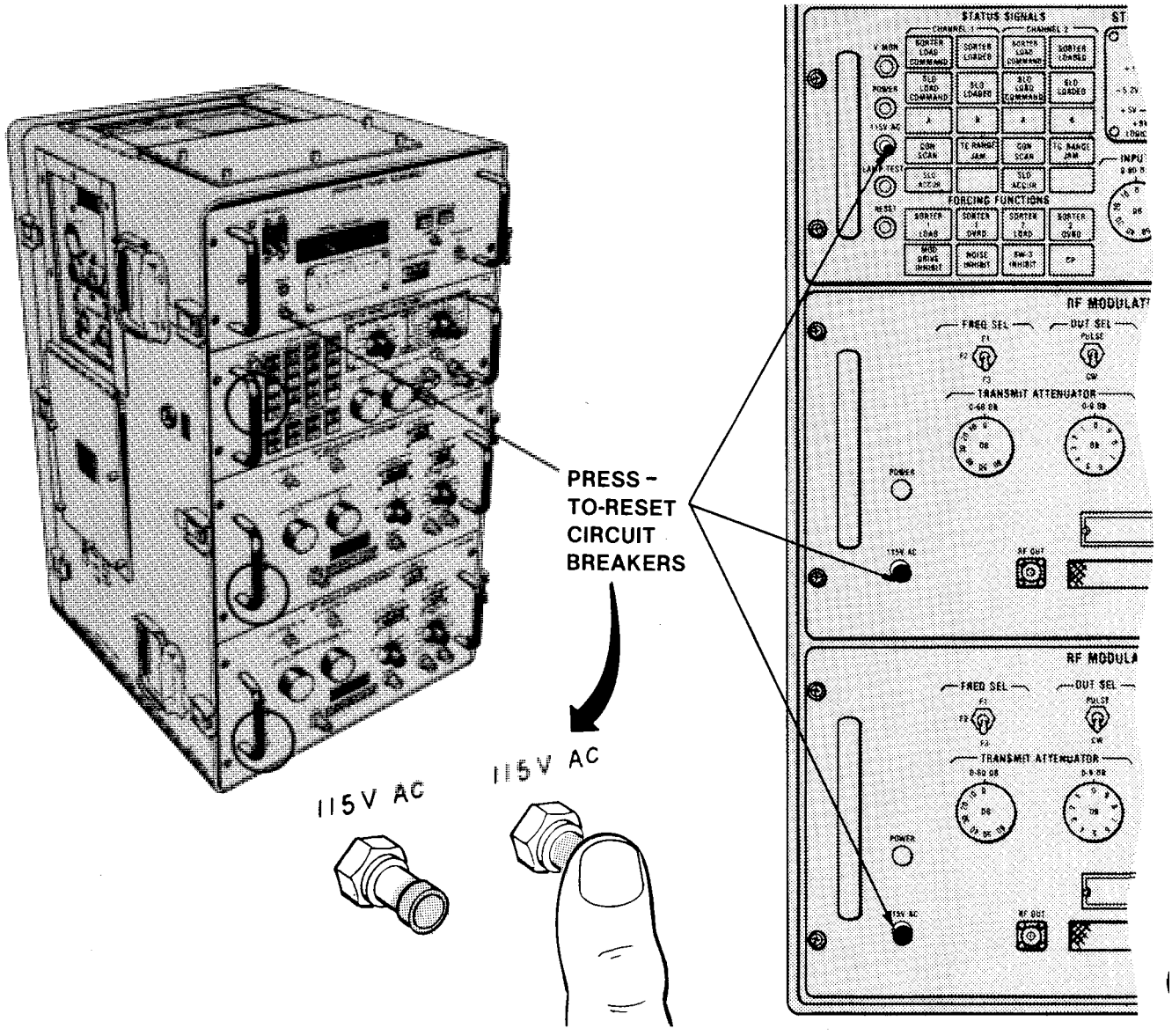
2-8. The BTS is used as AVIM test equipment. For test procedures, refer to higher level maintenance.

PRELIMINARY BTS STARTING PROCEDURE

2-9. Energize/deenergize the bench test set ac power only by the 115 VAC 60 Hz, 1Ø POWER circuit breaker, on the front of CONTROL PANEL ASSEMBLY 1A1.

NOTE

Circuit breakers, designated 115V AC, on the front of the CONTROL PANEL ASSEMBLY, STATUS PANEL ASSEMBLY, and on each RF MODULATION ASSEMBLY, are pushbuttons (push to reset on). When the breaker is off, a button protrudes from its housing displaying a white side surface. When the circuit breaker is in an energized position, the button remains depressed in its housing, concealing the side surface. Thus, a visible white side surface on the button shows the breaker is off. These circuit breakers are not to be used as on/off switches.



CAUTION

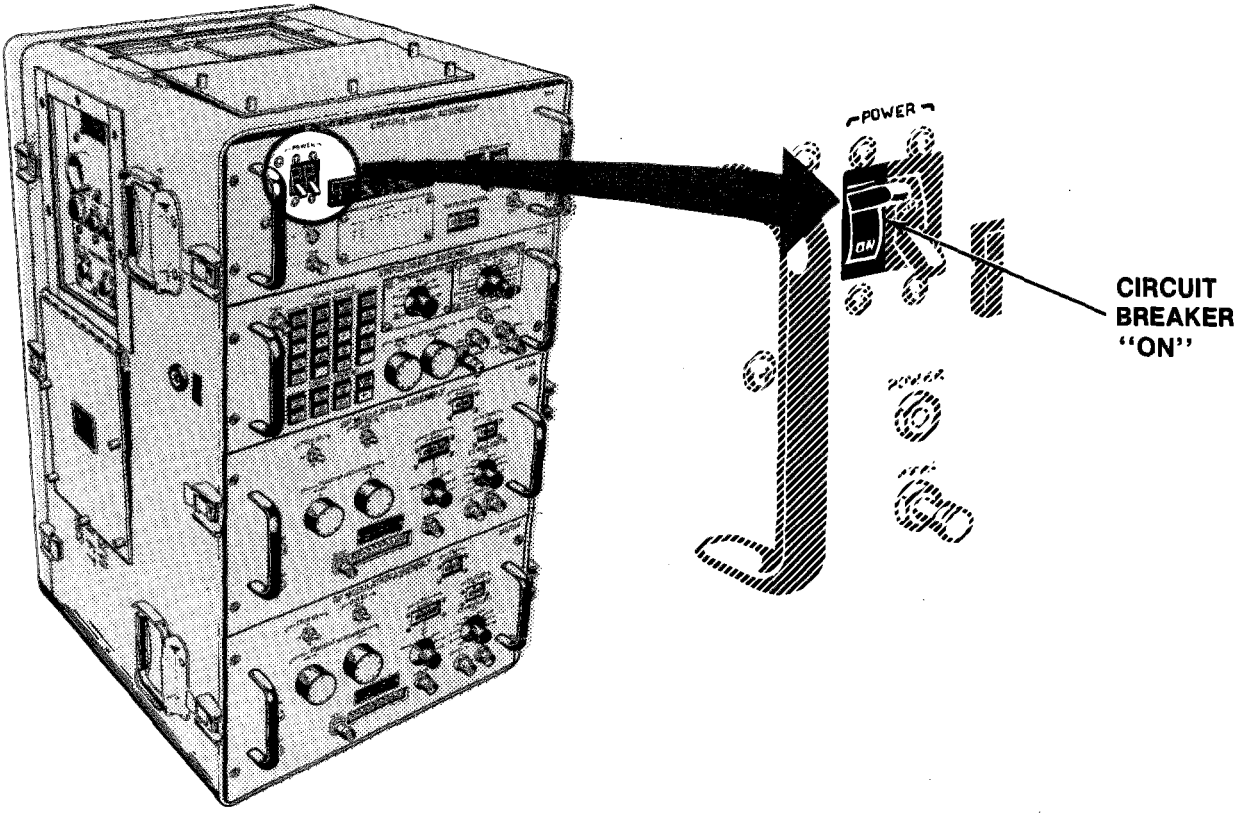
The following paragraphs assume that the BTS is instal1ed per appropriate instructions, paragraph 3-6 through paragraph 3-8, of this manual . Note particularly the caution in paragraph 3-6 and instructions of paragraph 3-7 relating to top cover.

a. Press any of the circuit breakers discussed in the preceding note if a white side surface is showing.

CAUTION

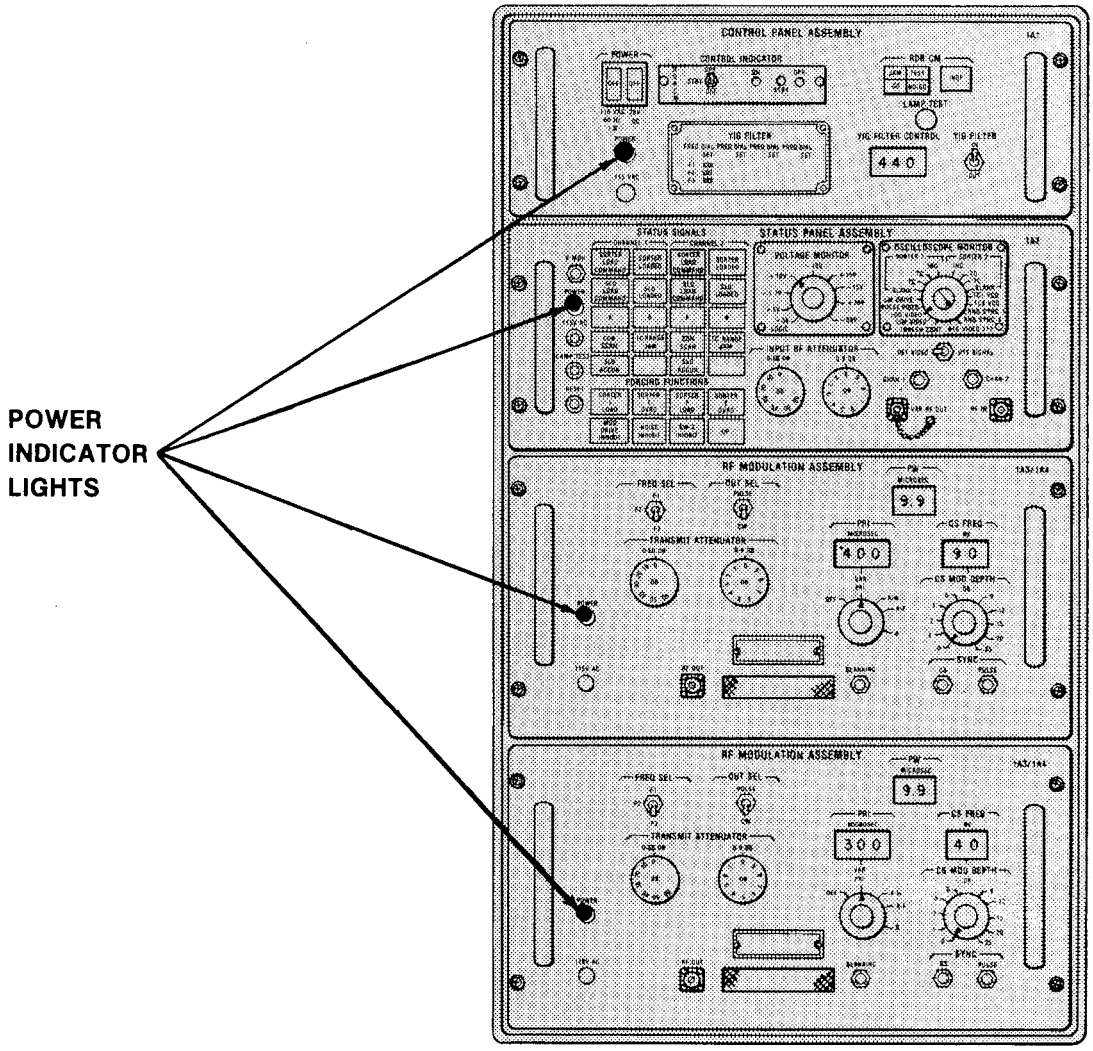
A visible white side surface on a circuit breaker may indicate a fault in the panel assembly. If the circuit breaker does not hold, refer to higher level of maintenance.

b. Energize the BTS ac power by setting POWER 115 VAC 60 Hz 1Ø circuit breaker on the CONTROL PANEL ASSEMBLY 1A1 to ON.



PRELIMINARY BTS STARTING PROCEDURE (Continued)

c. Check that the POWER indicator on the CONTROL PANEL ASSEMBLY, STATUS PANEL ASSEMBLY, and on each (1A3/1A4) RF MODULATION ASSEMBLY lights. If the POWER indicator lights for each of the four assemblies, the required 115 V power is present. If any of the four assembly indicators do not light, check that the respective 115 VAC circuit breaker is energized.



INITIAL ADJUSTMENT

2-10. Refer to the appropriate UUT test procedures for initial settings of the BTS. Normally, no adjustment is required prior to operation.

OPERATING PROCEDURE

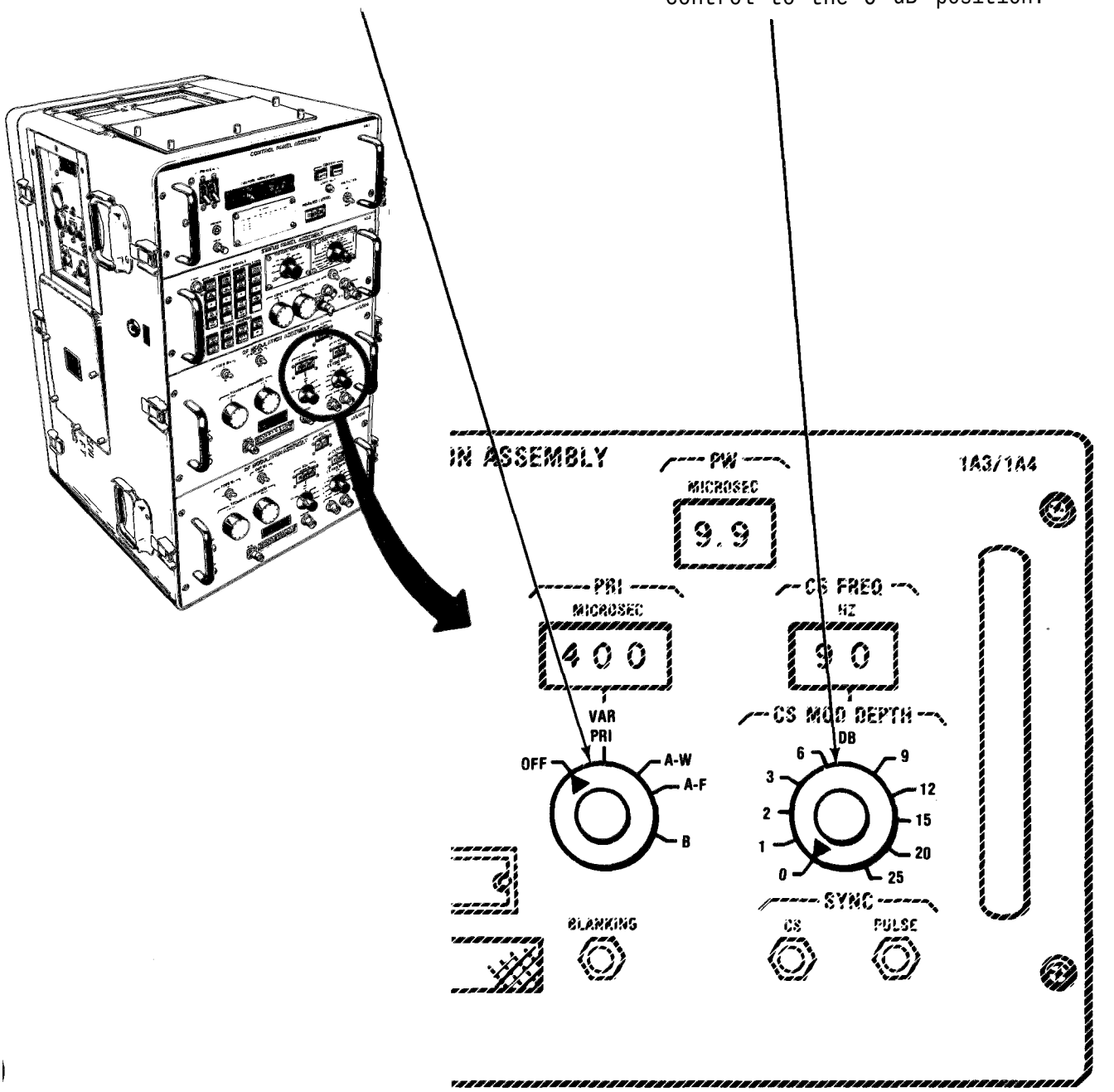
2-11. Refer to the UUT test procedures in the respective AVIM manual for operating instructions.

BTS IN STANDBY CONDITION

2-12. To maintain the BTS in a standby condition, (warmed up, ready for use) with no RF output, on each RF MODULATION ASSEMBLY:

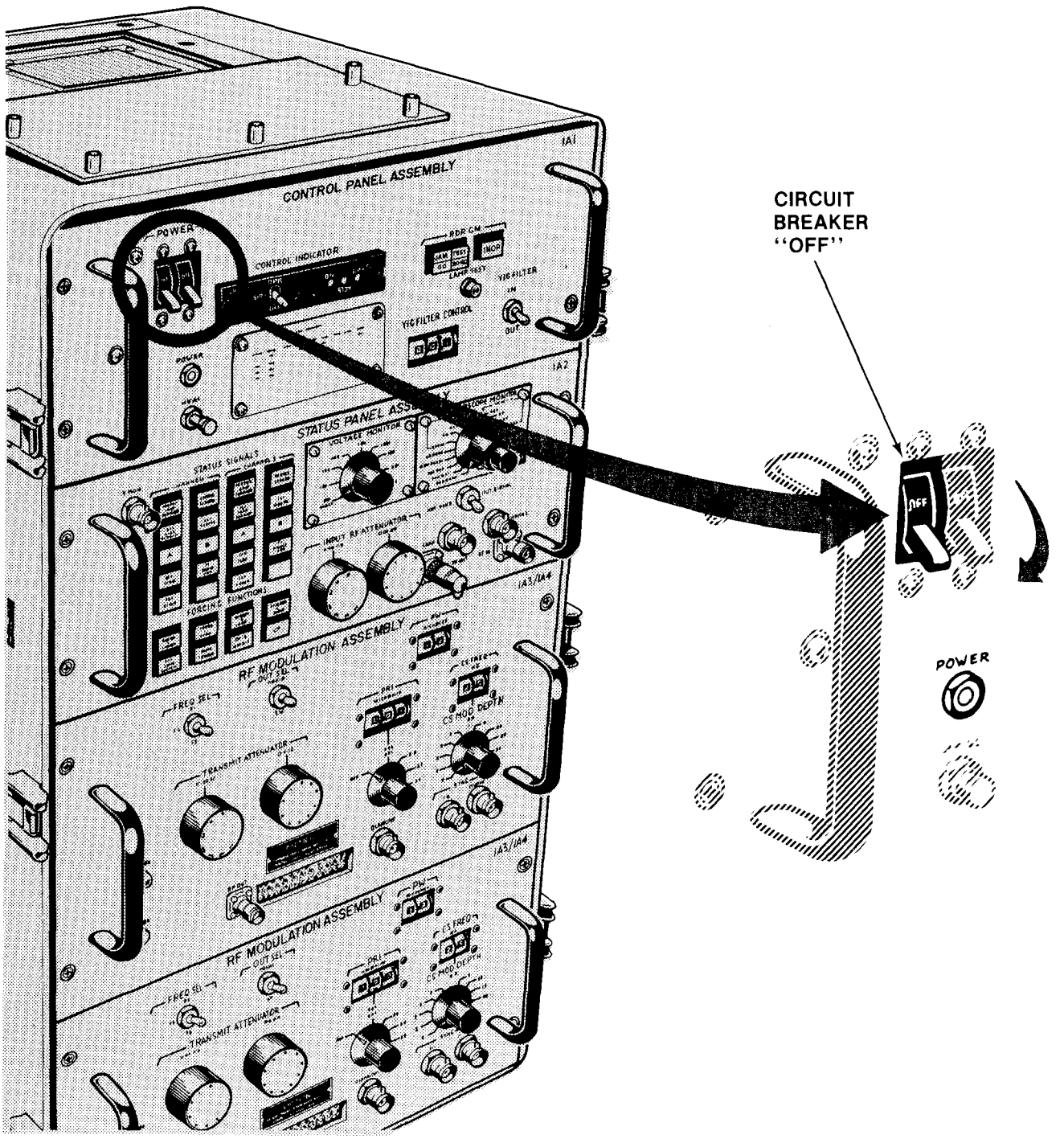
a. Place the PRI control to OFF.

b. Place the CS MOD DEPTH control to the 0 dB position.



BTS SHUT-DOWN

2-13. To shut-down the BTS, on CONTROL PANEL ASSEMBLY 1A1, set 115 VAC, 60 Hz, 1Ø circuit breaker to OFF, (POWER indicator goes out) indicating power shut-off.



SECTION III
OPERATION UNDER UNUSUAL CONDITIONS

SECTION CONTENTS — PAGE

RF MODULATION ASSEMBLY FAILURE

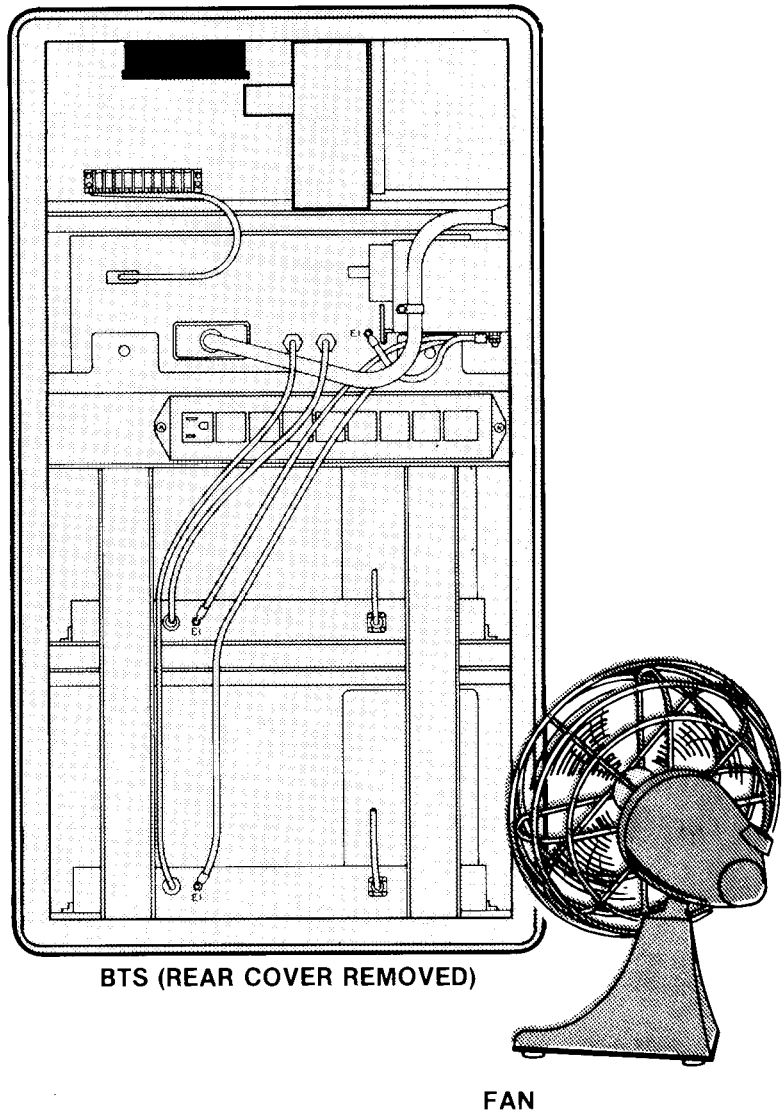
2-14. The two RF Modulation Assemblies 1A3 and 1A4 are interchangeable. When one has failed, use the other for any tests which require only one RF modulation assembly.

CAUTION

Report a defective BTS tubeaxial fan to higher level maintenance immediately. Prolonged operation without its use will damage the BTS.

TUBEAXIAL FAN FAILURE

2-15. In the event of a failure of the BTS tubeaxial fan, remove the rear cover from the BTS to promote air circulation. Use an external fan to direct air from the rear toward the two RF modulation assemblies to cool them.



CHAPTER 3
MAINTENANCE INSTRUCTIONS

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

SECTION CONTENTS

COMMON TOOLS AND EQUIPMENT

3-1. For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

3-2. There are no tools or support equipment required at the AVUM level, other than those listed in the MAC.

REPAIR PARTS

3-3. Repair parts are listed and illustrated in the Organizational Maintenance Repair Parts and Special Tools List for Test Set, Countermeasures Set TS-3615/ ALQ-136(V) (NSN 6625-01-121-8984), TM 11-6625-2884-20P.

SECTION II
SERVICE UPON RECEIPT

SECTION CONTENTS — PAGE

UNPACKING

3-4. The BTS is normally shipped in its own combination case. Cables and accessories are stored inside the front cover. Keep them there when they are not in use.

To unpack BTS:

1. **PRESS PRESSURE RELEASE BUTTON**
2. **OPEN FRONT COVER LATCHES**
3. **REMOVE FRONT COVER AND PLACE IT HORIZONTAL**
4. **OPEN FRONT COVER STORAGE LID**
5. **OPEN TOP COVER FRONTWARD**
6. **OPEN SIDE COVER DOWNWARD**

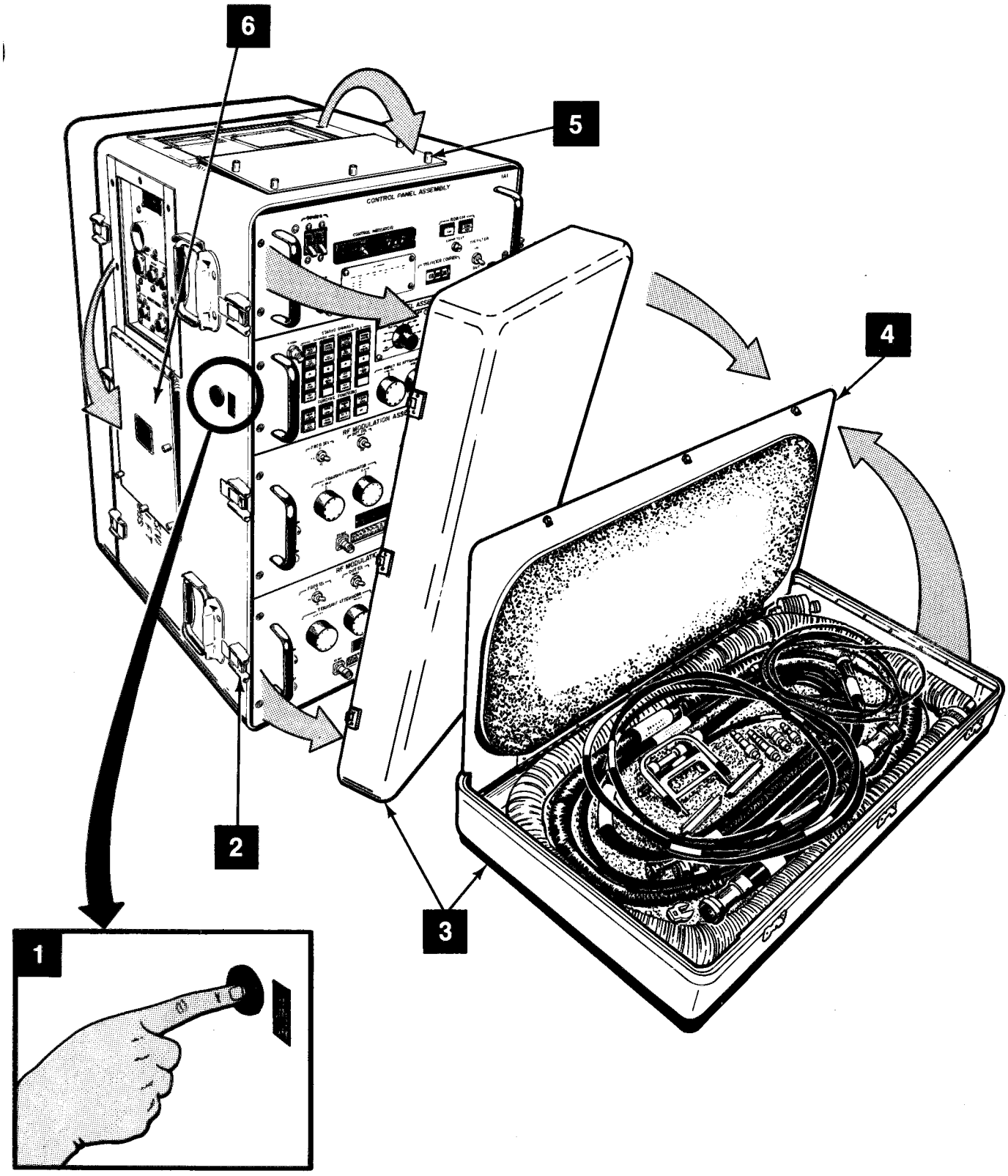
CHECKING UNPACKED EQUIPMENT

3-5. Check unpacked equipment as follows:

a. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage as described in chapter 1.

b. Check that the equipment is complete as listed on the packing slip. Report all discrepancies as described in Chapter 1.

c. Check whether the equipment has been modified. Equipment which has been modified will have the MWO number on the side panel, near the nomenclature plate. Also check whether all currently applicable MWO'S have been applied. (Current MWO's applicable to the equipment are listed in DA Pam 310-1.)



UNPACKING THE BTS

INSTALLATION INSTRUCTIONS

3-6. The following paragraphs describe bench requirements, cable, air duct connections, and ac power requirements of the BTS. Use a bench at least 30 x 72 inches, capable of supporting weight of 500 pounds.

WARNING

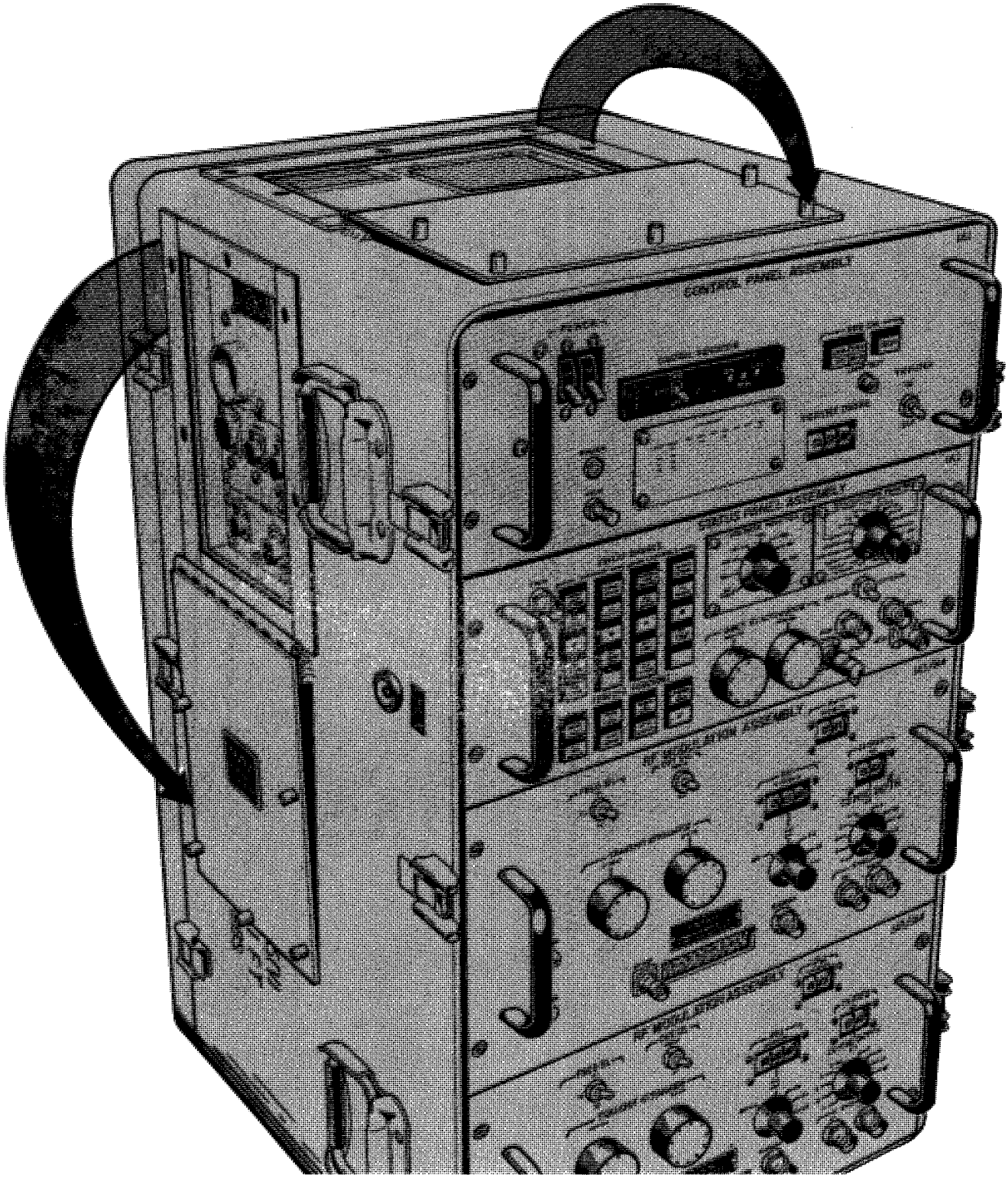
Hiqh voltaqe is used in the operation of this equipment. Avoid contacting high-voltage connections when installing or operating this equipment. Injury or death may result if personnel fail to observe safety precautions.

CAUTION

Top cover must be open to exhaust cooling air whenever BTS is in operation. Blower hose must be securely connected from CM set to BTS whenever CM set is tested.

CONNECTIONS

3-7. On top of BTS, using flat blade screwdriver loosen five captive screws and open hinged cover to front of set; on upper left side of BTS loosen five captive screws and open cover downward, exposing air hose plenum and cable connections.



CONNECTIONS (Continued)

Remove air hose from BTS front cover and, with one of two hose cl amps provided, attach to the air plenum on upper left side of BTS. Using table 3-1 as a guide, connect test cables for whatever unit is to be tested. If the CM set is to be tested, fasten the other end of the air hose to the receiver-transmitter (LRU-1) air plenum, using the hose adapter and other hose clamps supplied. Also connect 30 dB attenuator to RF output of LRU-1.

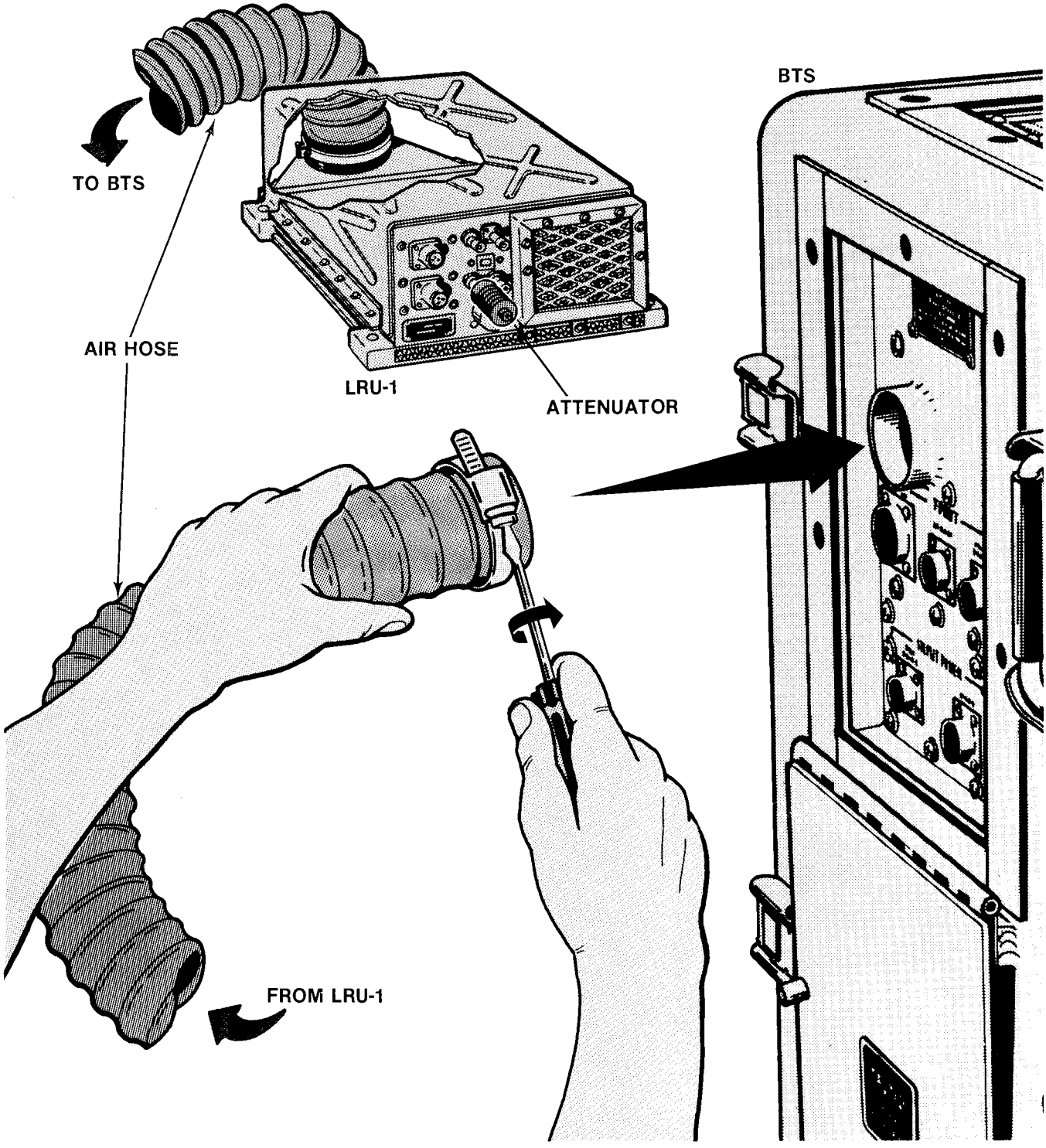


TABLE 3-1. CABLING/HOSE ATTACHMENT TO BTS CONNECTOR PANEL

CABLE DESIG.	BTS CONNECTION NAME/DESIG.	USED WITH	UUT TO/FROM
W1	MONITOR lJ1	LRU-1	1J7
W2	CONTROL 1J2	LRU-1	1J2
W3	28 V POWER 1J3	LRU-1	lJ1
W4	RF IN 1A2	LRU-1	1J4
W5	CMBD RF 1J4	LRU-1	1J3
W6	115V 60 Hz 1J5	LRU-1/FLTS	115V 60 Hz source
W7	28 V dC 1J6	LRU-1/FLTS	+28V source
W11	FLTS Monitor and Power 1J1, 1J3	FLTS	1J1
Air Hose intake end)	No desig. (located near top of panel)	LRU-1	Air plenum/adapter

POWER REQUIREMENTS

3-8. Connect the BTS to 115 Vac 60 Hz single phase power (cable W6), to operate the BTS. Connect the BTS to +28 V supply (cable W7), to operate the UUT.

CHECKOUT

3-9. After installation, repair or replacement of a BTS component, the BTS must be checked out.

SECTION III
PREVENTIVE MAINTENANCE CHECKS AND SERVICES

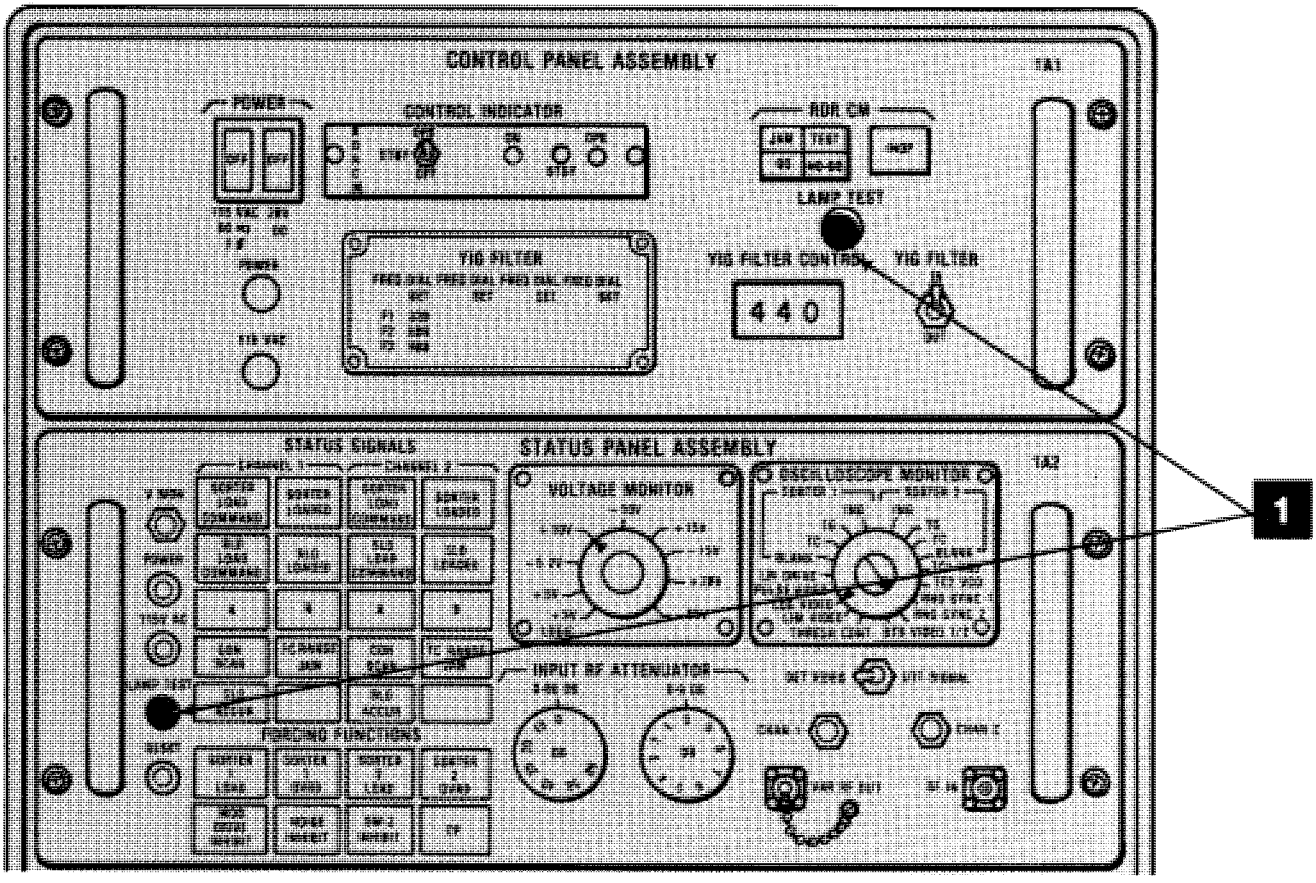
GENERAL

3-10. Routine maintenance tasks, such as cleaning, dusting, checking for frayed or loose cables, covering unused receptacles, storing items not in use, checking for loose nuts and bolts, etc. are not scheduled on a periodic basis and should be accomplished anytime the operator or technician sees they must be done.

SECTION IV
TROUBLESHOOTING PROCEDURES

LAMP TEST

3-11. (See para 3-8). The only troubleshooting procedures required at the AVUM level, are testing lamps by pressing LAMP TEST pushbuttons (1) on control panel and status panel assemblies.



SECTION V
MAINTENANCE PROCEDURES

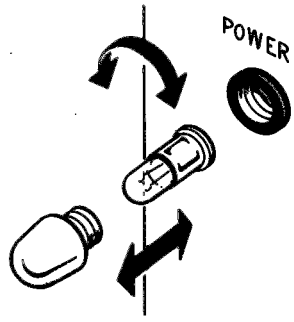
LAMP REPLACEMENT

3-12. (See para 3-10). The only maintenance procedure at the AVUM level is bulb replacement. No tools are required. If lamp replacement does not correct trouble, refer problem to higher maintenance.

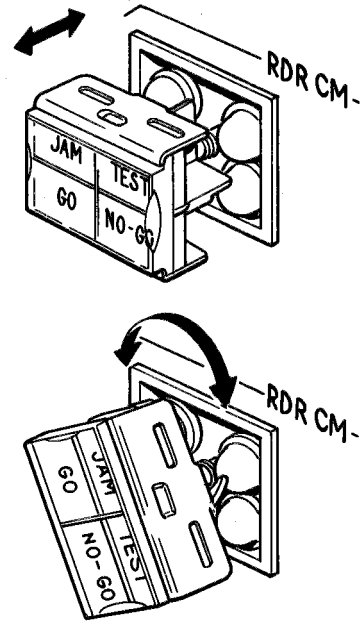
CAUTION

In lamp assemblies with dual sockets, install only a single lamp. Sockets are wired in parallel and a second lamp would overload the lamp power supply.

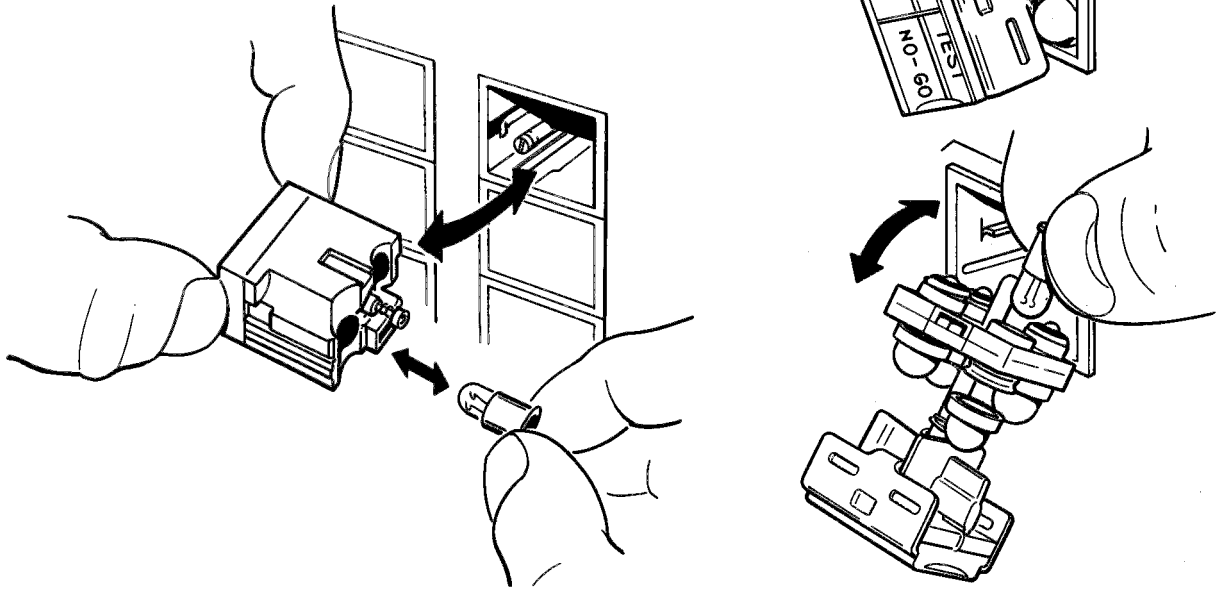
SINGLE LAMP ASSEMBLY



CM SET BIT LAMP ASSEMBLY



DUAL LAMP ASSEMBLY



SECTION VI
PREPARATION FOR STORAGE OR SHIPMENT

PACKING BTS

3-13. The BTS is normally shipped in its own combination case.

WARNING

A minimum of four persons must be used in handling or lifting the Test Set, Countermeasures Set TS-3615/ALQ-136(V). Extreme care must be used in handling, to prevent injury to persons or damage to equipment.

To prepare the BTS for storage or movement:

a. Shut it down in accordance with paragraph 2-13.

b. Disconnect cables and air hose from the side connector panel (para 3-7).

c. Secure cover plates on side connector and top blower panels.

d. Pack all associated manuals, cables, and accessories in the BTS front cover (page 1-8).

e. Close and fasten front and rear covers; the BTS is now ready for movement.

PLACING BTS BACK IN SERVICE

3-14. To place the BTS back in service after storage or movement:

WARNING

A minimum of four persons must be used in handling or lifting the BTS. Extreme care must be used to prevent injury to persons or damage to equipment.

a. Press the air relief valve on the side of the case and remove front cover.

b. Remove cables, accessories, and technical manuals from the cover.

c. Loosen fasteners and open cover plates from side connector panel and top blower panel (see para 3-7).

d. Connect test cables and air duct to the side connector panel in accordance with paragraph 3-7; the BTS is now ready for use.

APPENDIX A
REFERENCES

A-1. PUBLICATIONS INDEXES

The following indexes should be consul ted frequently for latest changes or revisions of references given in this appendix and for new publications relating to material covered in this manual.

Consolidated Index of Army Publications and Blank Forms. . . . . ..DA Pam 31O-1

A-2. FORMS AND RECORDS

The following forms and records pertain to this material.

Recommended Changes to Equipment Technical Publications . . . .DA Form 2028

Discrepancy in Shipment Report (DISREP) . . . . . SF 361

Report of Damaged or Improper Shipment (ROD) . . . . . SF 364

Quality Deficiency Report . . . . . SF 368

A-3. OTHER PUBLICATIONS

The following publications contain information pertinent to this material and associated equipment.

a. General.

The Army Maintenance Management System (TAMMS) . . . . . .TM 38-750

b. Maintenance.

Administrative Storage Requirements . . . . . TM 740-90-1

c. Related Publications.

Materials, Supplies, and Equipment Used by the Army . . . .SB 38-100

Operator's and Aviation Unit Maintenance Manual Counter-measures Set AN/ALQ-136(V)1 (NSN 5865-01-127-6880) . . . . . TM 11-5865-202-12

REFERENCES (Continued)

Aviation Unit Maintenance Repair Parts and Special Tools List for Test Set, Countermeasures Set TS-3615/ALQ-136(V) (NSN 6625-01-121-8984) . . . . . TM 11-6625-2884-20P

Operator's and Aviation Unit Maintenance Manual Test Set, Countermeasures Set TS-3614/ALQ-136(V) (NSN 6625-01-121-8983) . . . . . TM 11-6625-2885-12

Organizational, Direct Support, and Depot Maintenance Manual, Installation Practices for Aircraft Electric Wiring. . .TM 55-1500-323-25

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

APPENDIX B
MAINTENANCE ALLOCATION

SECTION I
INTRODUCTION

B-1 . MAINTENANCE ALLOCATION CHART

a. This Maintenance Allocation Chart (MAC) assigns maintenance functions in accordance with the Three Levels of Maintenance concept for Army Aviation. These maintenance levels (categories) -- Aviation Unit Maintenance (AVUM), Aviation Intermediate Maintenance (AVIM), and Depot Maintenance -- are depicted on the MAC as:

AVUM, which corresponds to an O Code in the Repair Parts and Special Tools List (RPSTL)
AVIM, which corresponds to an F Code in the Repair Parts and Special Tools List (RPSTL)
DEPOT, which corresponds to a D Code in the Repair Parts and Special Tools List (RPSTL).

b. The maintenance to be performed below depot and in the field is described as follows:

(1) Aviation Unit Maintenance (AVUM) activities will be staffed and equipped to perfom high frequency “On-Aircraft” maintenance tasks required to retain or return aircraft systems to a serviceable condition. The maintenance capability of the AVUM will be governed by the Maintenance Allocation Chart (MAC) and limited by the amount and complexity of ground support equipment (GSE), facilities required, authorized manning strength, and critical skil1s available. The range and quantity of authorized spare modules/components will be consistent with the mobility requirements dictated by the air mobility concept. (Assignments of maintenance tasks to divisional company size aviation units will consider the overall maintenance capability of the division, the requirement to conserve personnel and equipment resources, and air mobility requirements.)

(a) Company Size Aviation Units: Perform those tasks which consist primarily of preventive maintenance and maintenance repair and replacement functions associated with sustaining a high level of aircraft operational readiness. Perfom maintenance inspections and servicing to include preflight, daily, intermediate, periodic (or phased), and special inspections as authorized by the MAC or higher headquarters. Identify the cause of equipment/system malfunctions using applicable technical manual troubleshooting instructions, built-in-test equipment (BITE), installed aircraft instruments, or test, measurement, and diagnostic equipment (TMDE). Replace worn or damaged modules/components that do not require complex adjustments or system alignment and which can be removed/installed with available skills, tools, and ground support equipment. Perform operational and continuity checks and make minor repairs

MAINTENANCE ALLOCATION CHART (Continued)

to the electrical system. Inspect, service and make operational, capacity, and pressure checks to hydraulic systems. Perform servicing, functional adjust. ments, and minor repair/replacement to the flight control, propulsion, power train, and fuel systems. Accomplish air frame repair that does not require extensive disassembly, jigging, or alignment. The manufacture of air frame parts will be limited to those items which can be fabricated with tools and equipment found in current air mobile tool and shop sets. Evacuate unserviceable modules/components and end items beyond the repair capability of AVUM to the supporting AVIM.

(b) Less than Company Size Aviation Units: Aviation Elements organic to brigade, group, battalion headquarters, and detachment size units are normally small and have less than ten aircraft assigned. Maintenance tasks performed by these units will be those which can be accomplished by the aircraft crew chief or assigned aircraft repair person and will normally be limited to preventive maintenance, inspections, servicing, spot painting, stop drilling, application of nonstress patches, minor adjustments, module/component fault diagnosis, and replacement of selected modules/components. Repair functions will normally be accomplished by the supporting AVIM unit.

(2) Aviation Intermediate Maintenance (AVIM) provides mobile, responsive "One-Stop" maintenance support. (Maintenance functions which are not conducive to sustaining air mobility will be assigned to depot maintenance.) AVIM may perform all maintenance functions authorized to be done at AVUM. Repair of equipment for return to user will emphasize support or operational readiness requirements. Authorized maintenance includes replacement and repair of modules/components and end items which can be accomplished efficiently with available skills, tools, and equipment. AVIM establishes the Direct Exchange (DX) program for AVUM units by repairing selected items for return to stock when such repairs cannot be accomplished at the AVUM level. The AVIM level inspects, troubleshoots, performs diagnostic tests, repairs, adjusts, calibrates, and aligns aircraft system modules/components. AVIM units will have capability to determine the serviceability of specified modules/components removed prior to the expiration of the Time Between Overhaul (TBO) or finite life. Module/component disassembly and repair will support the DX program and will normally be limited to tasks requiring cleaning and the replacement of seals, fittings, and items of common hardware. Air frame repair and fabrication of parts will be limited to those maintenance tasks which can be performed with available tools and test equipment. Unserviceable reparable modules/components and end items which are beyond the capability of AVIM to repair will be evacuated to Depot Maintenance. AVIM will perform aircraft weight and balance inspections and other special inspections which exceed AVUM capability. Provides quick response maintenance support, including aircraft recovery and air evacuation, on-the-job training, and technical assistance through the use of mobile maintenance contact teams. Maintains authorized operational readiness float aircraft. Provides collection and classification services for serviceable/unserviceable material. Operates a cannibalization activity in accordance with AR 750-2. (The aircraft maintenance company within the maintenance battalion of a division will perform AVIM functions consistent with air mobility requirements and conservation of personnel and equipment resources. Additonal intermediate maintenance support will be provided by the supporting nondivisional AVIM unit.)

B-2 USE OF THE MAINTENANCE ALLOCATION CHART (SECTION II)

a. The Maintenance Allocati on Chart assigns maintenance functions to the lowest category of maintenance based on past experience and the following considerations:

(1) Skills available.

(2) Work time required.

(3) Tools and test equipment required and/or available.

b. Only the lowest category of maintenance authorized to perform a maintenance function is indicated. If the lowest maintenance category cannot perform all tasks of any single maintenance function (e.g., test, repair), then the higher maintenance level(s) that can accomplish additional tasks will also be indicated.

c. A maintenance function assigned to a maintenance category will automatically be authorized to be performed at any higher maintenance category.

d. A maintenance function that cannot be performed at the assigned category of maintenance for any reason may be evacuated to the next higher maintenance category. Higher maintenance categories will perform the maintenance functions of lower maintenance categories when required or directed by the commander that has the authority to direct such tasking.

e. The assignment of a maintenance function will not be construed as authorization to carry the related repair parts or spares in stock. Information to requisition or otherwise secure the necessary repair parts will be as specified in the associated Repair Parts and Special Tools List (RPSTL).

f. Nomally there will be no deviation from the assigned level of maintenance. In cases of operational necessity, maintenance functions assigned to a maintenance level may, on a one-time basis and at the request of the lower maintenance level, be specifically authorized by the maintenance officer of the level of maintenance to which the function is assigned. The special tools, equipment, etc. required by the lower level of maintenance to perform this function will be furnished by the maintenance level to which the function is assigned. This transfer of a maintenance function to a lower maintenance level does not relieve the higher maintenance level of the responsibility for the function. The higher level of maintenance will provide technical supervision and inspection of the function being performed at the lower level.

g. Changes to the Maintenance Allocation Chart will be based on continuing evaluation and analysis by responsible technical personnel and on reports received from field activities.

B-3. MAINTENANCE FUNCTIONS

Maintenance functions will be limited to and defined as follows:

a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.

b. Test. To verify serviceability by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. Service. Operations required periodically to keep an item in proper operating condition. i.e.. to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases.

d. Adjust. To maintain, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to 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 equipment 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 fixing into position an item, part, or module (component or assembly) in a manner to allow the proper functioning of an 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[1] or other maintenance actions [2] 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.

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

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[1] Services -- inspect, test, service, adjust, align, calibrate, or replace.

[2] Actions -- welding, grinding, riveting, straightening, facing, remachining, or resurfacing.

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.

B-4. GROUP NUMBER AND COMPONENT/ASSEMBLY (COLUMNS 1 AND 2, RESPECTIVELY)

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

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

B-5. MAINTENANCE FUNCTION (COLUMN 3)

Column 3 lists the functions to be performed on the items listed in column 2.

B-6. MAINTENANCE CATEGORIES AND WORK TIMES (COLUMN 4)

The maintenance categories (levels) AVUW, AVIM, and DEPOT are listed on the Maintenance Allocation Chart with individual columns that include the work times for maintenance functions at each maintenance level. Work time presentations such as "0.1" indicate the average time it requires a maintenance level to perform a specified maintenance function. If a work time has not been established, the columnar presentation shall indicate " -- -- ". Maintenance levels higher than the level of maintenance indicated are authorized to perform the indicated function.

B-7. TOOLS AND TEST EQUIPMENT (COLUMN 5 AND SECTION III)

Common tool sets (not individual tools), special tools, test, and support equipment required to perform maintenance functions are listed alphabetically in Section III with a reference number to permit cross-referencing to column 5 in the MAC. In addition, the maintenance category authorized to use the device is listed along with the item National Stock Number (NSN) and, if applicable, the tool number to aid in identifying the tool/device.

B-8. REMARKS (COLUMN 6 AND SECTION IV)

Remarks (identified by an alphabetic code in column 6) and other notes (identified by a numer in parentheses in the applicable column) are listed in Section IV to provide a ready reference to the definition of the remark/note.

Section II.
MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINT CATEGORY			(5) TOOLS AND EQPT.	(6) REMARKS
			AVUM	AVIM	DEPOT		
00	TEST SET, COUNTERMEASURES SET, TS-3615/ALQ-136(V)	Inspect	0.1				
		Test	0.1			1	A
		Test		0.2		1 thru 9	
		Test			1.0	1 thru 13	
		Replace	0.1				
		Adjust		0.3		1 thru 9	
		Repair	0.2			10,11	B
		Repair		0.7		1 thru 9	C
		Repair			6.0	1 thru 13	
01	STATUS PANEL ASSY	Inspect		0.1			
		Test	0.1				A
		Test		0.1		1 thru 9	
		Test			0.5	3 thru 9, 12,13	D
		Replace		0.1		1	
		Adjust		0.2		1,2,3	E
		Repair	0.1			10,11	F
		Repair		0.3		1 thru 9	G
		Repair			4.0	3 thru 9, 12,13	D
02	RF MODULATION ASSY	Inspect		0.1			
		Test	0.1				A
		Test		0.5		2 thru 9	
		Test			0.5	3 thru 9, 12,13	D
		Replace		0.15		2	
		Adjust		0.3		2 thru 9	H
		Repair	0.1			10,11	F
		Repair		0.7		1 thru 9	I
		Repair			4.0	3 thru 9, 12,13	D

Section II.

MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY			(5) TOOLS AND EQPT.	(6) REMARKS
			AVUM	AVIM	DEPOT		
0201	CCA, PULSE CONTROL	Replace		0.1		2	
		Test			1.0	12,13	D
		Repair			4.0	12,13	D
0202	CCA, PULSE GENERATOR	Replace		0.1		2	
		Test			1.0	12,13	D
		Repair			4.0	12,13	D
0203	MODULATION DEPTH CONTROL ASSY	Inspect			0.1		
		Test			0.2	2,3	
		Repair			0.5	2,3	
		Replace			0.5		
03	RF MODULATON ASSY (SAME AS 02 ABOVE)						
0301	CCA, PULSE CONTROL (SAME AS 0201 ABOVE)						
0302	CCA, PULSE GENERATOR (SAME AS 0202 ABOVE)						
0303	MODULATION DEPTH CONTROL ASSY (SAME AS 0203 ABOVE)						
04	CONTROL PANEL ASSY	Inspect		0.1			
		Test	0.1			1	A
		Test		0.2		2,3,4	
		Test			0.3	1,3,12, 13	D
		Replace		0.2		2	
		Repair	0.1			10,11	F
		Repair		0.5		2,3,4	G
		Repair			2.0	1,3, 12,13	D
0401	CONTROL INDICATOR	Replace		0.1		2	
		Test			0.3	3,12,13	D
		Repair			2.0	3,12,13	D
05	WIRING HARNESS	Inspect		0.1			
		Replace		0.5		2,3	
		Repair		0.5		2,3	J

Section III.
TOOL AND TEST EQUIPMENT REQUIREMENTS

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	AVUM,AVIM,DEPOT	POWER SUPPLY, PP-1104C/G	6130-00-635-4900	
2	AVIM	TOOL KIT ELECTRONIC EQUIPMENT TK-I05/G	5180-00-060-8177	
3	AVIM, DEPOT	MULTIMETER, DIGITAL, AN/PSM-45	6625-01-139-2512	
4	AVIM, DEPOT	OSCILLOSCOPE, AN/USM-281C	6625-00-542-6385	
5	AVIM, DEPOT	TEST SET, RADIO FREQUENCY TS-3793/U **NOTE** HP MODEL 435A (NSN 6625-00-449-9167) or 4359 (NSN 6625-01-114-0085) MAY BE USED UNTIL THE TS-3793/U BECOMES AVAILABLE	6625-01-075-0261	
6	AVIM, DEPOT	POWER SENSOR, HEWLETT-PACKARD MODEL 8481A	6625-00-354-9762	
7	AVIM, DEPOT	COUNTER, MICROWAVE FREQUENCY TD-1225A(V)2/U	6625-01-121-6934	
8	AVIM, DEPOT	RF ADAPTOR, HEWLETT-PACKARD MODEL P2818, OPT 013 (2 REQUIRED)	5985-00-004-0105	
9	AVIM, DEPOT	WRENCH, TORQUE T8438	5120-00-169-5776	
10	AVUM	TOOL KIT ELECTRONIC EQUIPMENT, TK-101/G	5190-00-064-5178	
11	AVUM	MULTIMETER, AN/USM-223	6625-00-999-7465	
12	DEPOT	TOOL KIT ELECTRONIC EQUIPMENT, TK-100/G	5180-00-605-0079	
13	DEPOT	DEPOT TEST FIXTURES		

SECTION IV
REMARKS

REFERENCE CODE	REMARKS
A	Lamp Test.
B	Repair limited to replacement of knobs, dummy load, ancillary equipment and front panel replaceable lamps and lenses which are throwaway items.
C	Repair includes replacement of fan, blower, air filter, dummy load, hybrid combiner and line filters which are throwaway items. Cables may be repaired or replaced.
D	Depot test fixtures, skill and facilities required.
E	Adjusment of power supplies.
F	Repair limited to replacement of knobs and front panel replaceable lamp and lens which are throwaway items.
G	Repair includes replacement of power supplies, circuit breaker, switches, and connectors which are throwaway items.
H	Adjustment of power supplies and RF power.
I	Repair includes replacement of power supplies, overvoltage protector, switches, circuit breaker, and connectors which are throwaway items.
J	Repair includes replacement of connectors which are throwaway items.

APPENDIX C
COMPONENTS OF END ITEM LIST

SECTION 1
INTRODUCTION

C-1. SCOPE

This appendix lists integral components of and basic issue items for the TS-3615/ALQ-136(V) to help you inventory items required for safe and efficient operation.

C-2. GENERAL

This Components of End Item List is divided into the following sections:

a. Section II. Components of the End Item. These items, when assembled, constitute the TS-3615/ALQ-136(V) and must accompany it whenever it is transferred or turned in. The illustrations will help you identify these items.

b. Section III. Basic Issue Items. Not applicable.

C-3. EXPLANATION OF COLUMNS

a. Column (1) - Illustration. Indicates the item number used to identify item called out in the illustration.

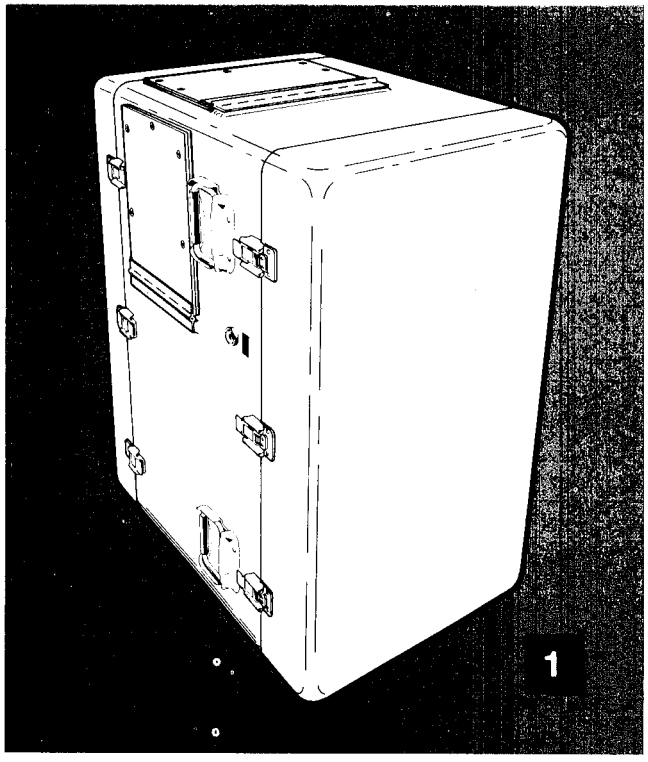
b. Column (2) - National Stock Number. Indicates the National stock number assigned to the item and will be used for requisitioning purposes.

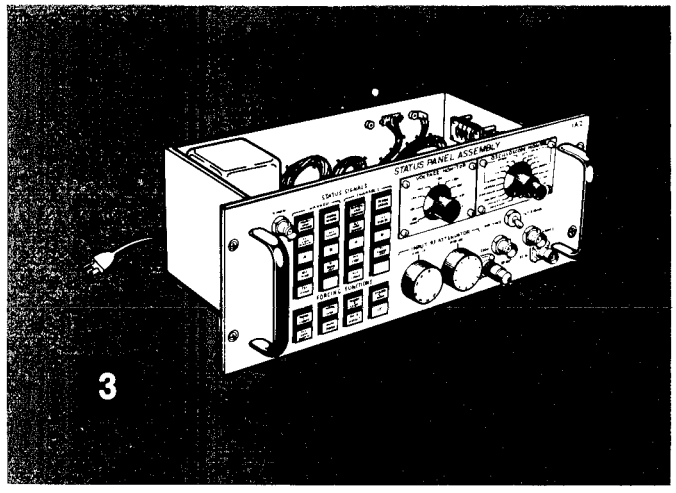
c. Column (3) - Description. Indicates the Federal item name and, if required, a minimum description to identify and locate the item. The last line for each item indicates the FSCM (in parentheses) followed by the part number.

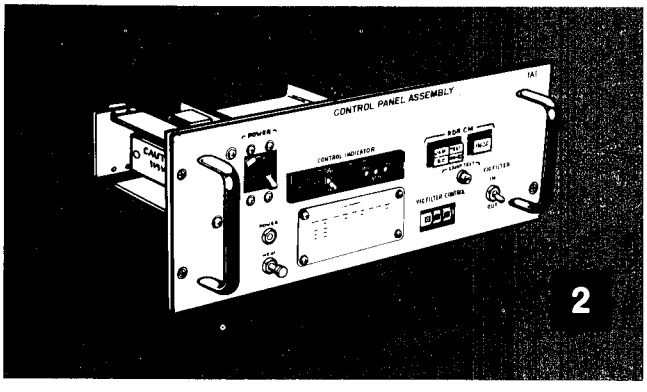
d. Column (4) - Unit of Measure (U/M). Indicates the measure used in perfoming the actual operational/maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in pr).

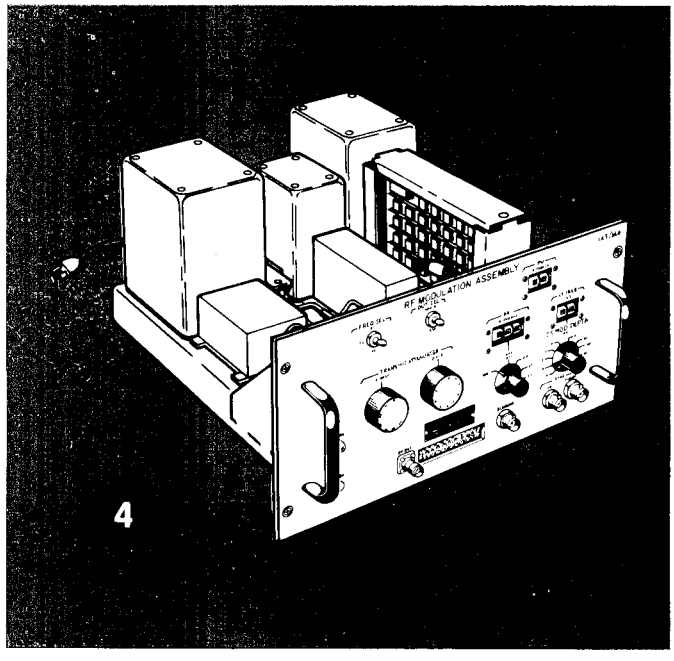
e. Column (5) - Ouantity required (Qty rqd) . Indicates the quantity of the item authorized to be used with/on the equipment.

SECTION II COMPONENTS OF END ITEM



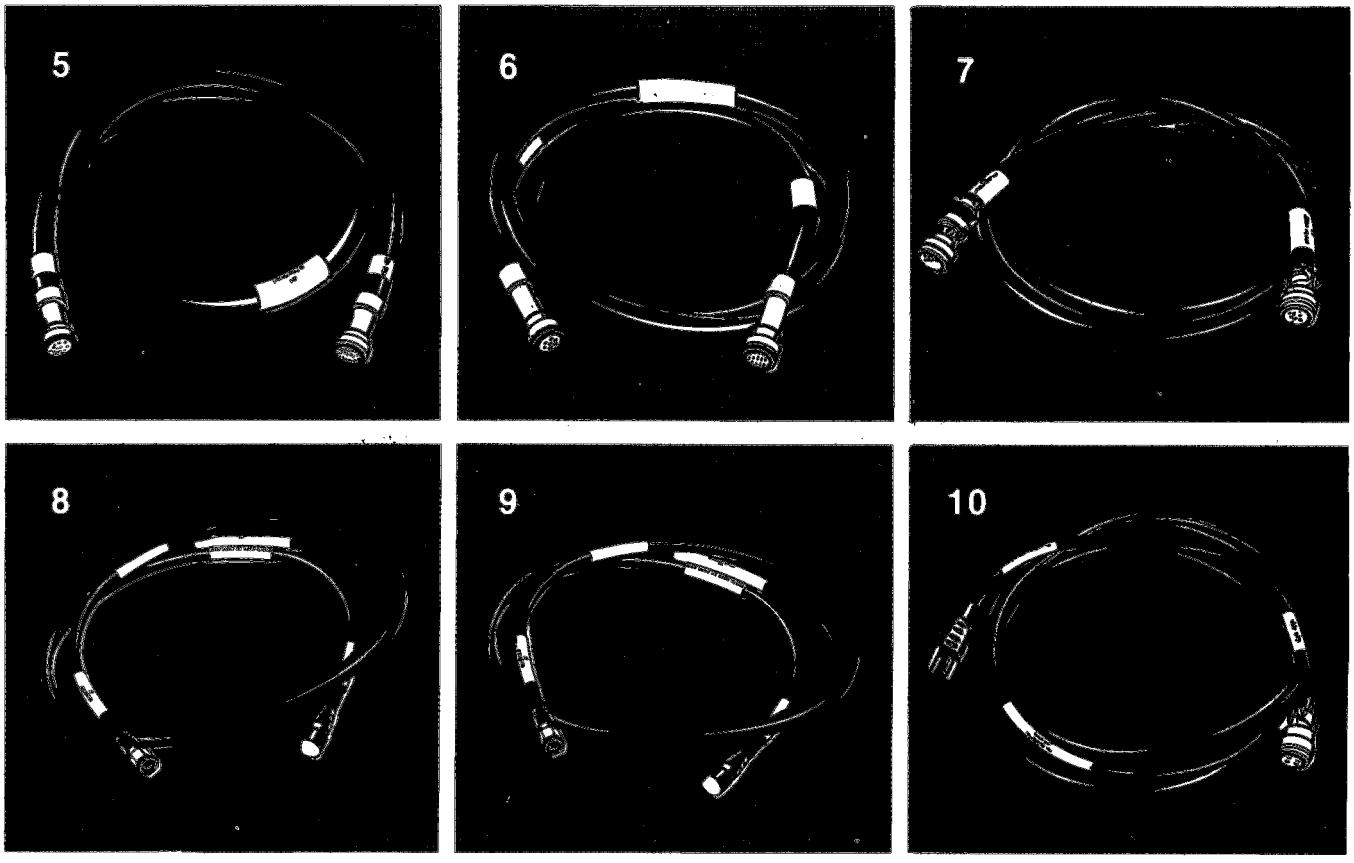






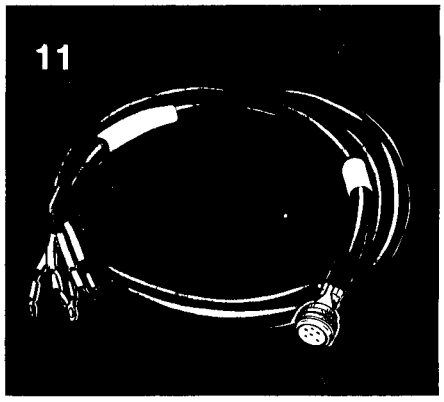
(1) ILLUS. NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY. RQD.
1		Case, Combination (80063) SM-D-919752		EA	1
2	5865-01-119-9267	Assembly, Control Panel (80063) SM-D-920275 (P/O Case, Combination)		EA	1
3	6625-01-123-2652	Assembly, Status Panel (80063) SM-D-920282		EA	1
4	5865-01-119-9266	Assembly, RF Modulation (80063) SM-D-919751		EA	2

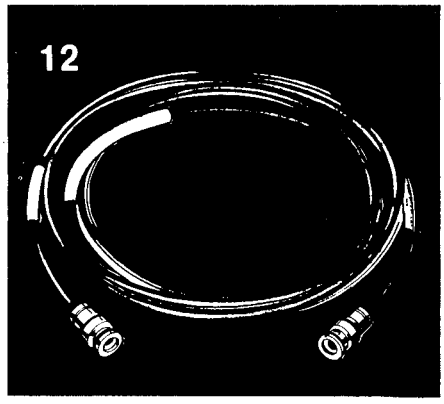
SECTION II COMPONENTS OF END ITEM (Continued)

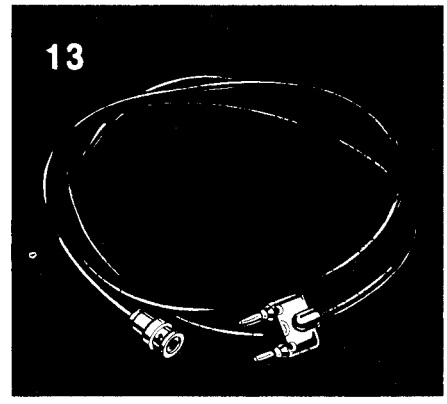


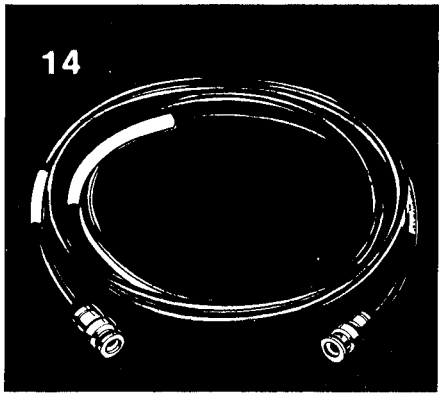
(1) ILLUS. NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY. RQD.
5	5995-01-140-2812	Assembly, Cable Wl (80063) SM-C-919975		EA	1
6	5995-01-140-2813	Assembly, Cable W2 (80063) SM-C-919976		EA	1
7	5995-01-140-2784	Assembly, Cable W3 (80063) SM-C-919977		EA	1
8	5995-01-140-2810	Assembly, Cable W4 (80063) SM-C-919978		EA	1
9	5995-01-140-2811	Assembly, Cable W5 (80063) SM-C-919979		EA	1
10	5995-01-140-9301	Assembly, Cable W6 (80063) SM-C-919980		EA	1

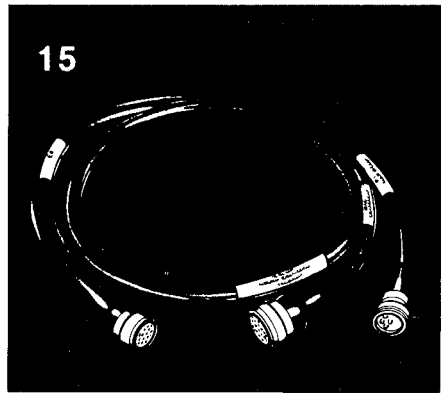
SECTION II COMPONENTS OF END ITEM (Continued)

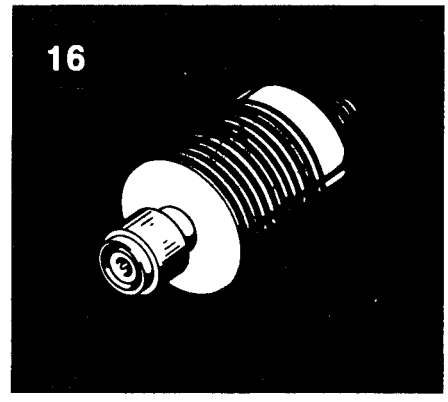






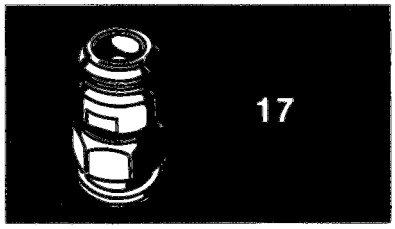


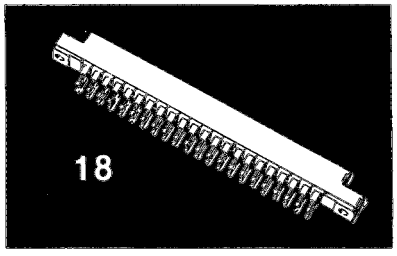


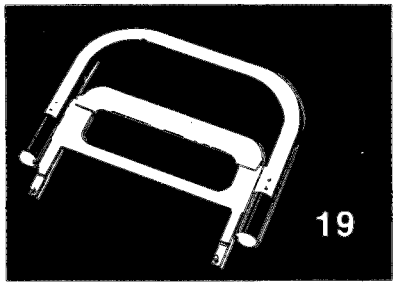


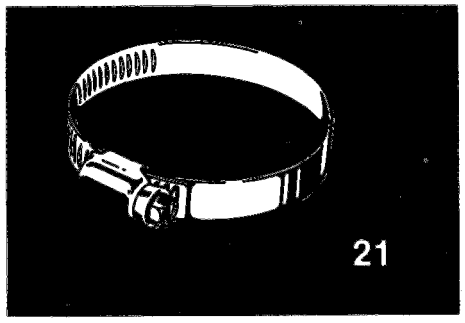
(1) ILLUS. NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY. RQD.
11	5995-01-140-9302	Assembly, Cable W7 (80063) SM-C-919981		EA	1
12	5995-01-140-9304	Assembly, Cable W8 (80063) SM-C-919982		EA	1
13	4935-00-803-2881	Assembly, Cable (BNC/ BANANA) (80063) SM-C-920618-1		EA	1
14		Assembly, Cable (BNC/ BNC) (80063) SM-B-920616-2		EA	3
15	5995-01-140-9305	Assembly, Cable W11 (80063) SM-C-919983		EA	1
16		Attenuator, Fixed (80063) SM-A-920634		EA	1

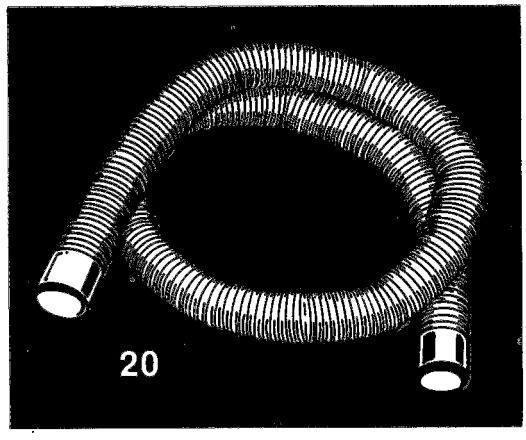
SECTION II COMPONENTS OF END ITEM (Continued)

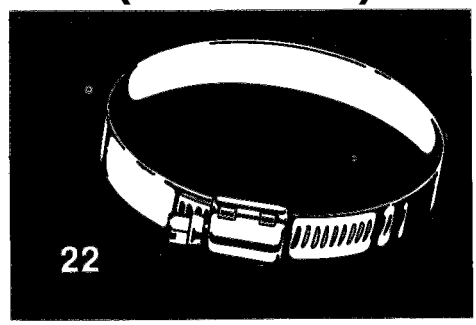


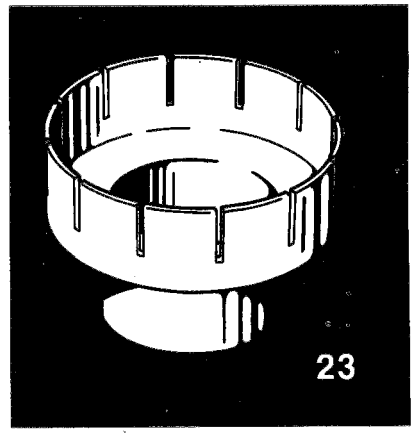






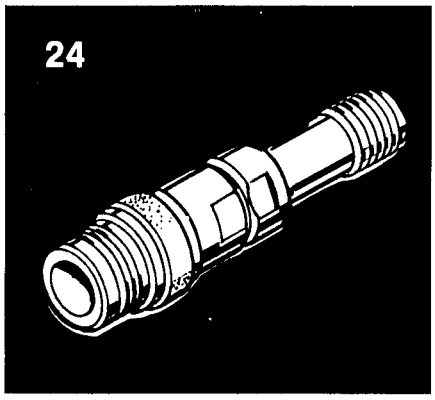


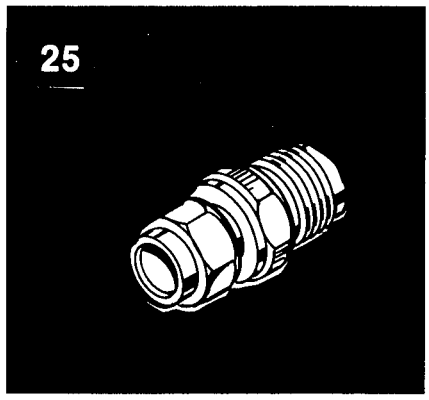


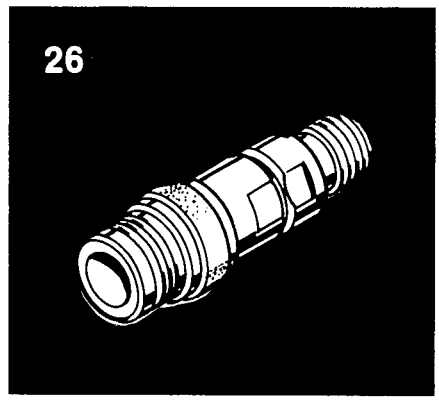


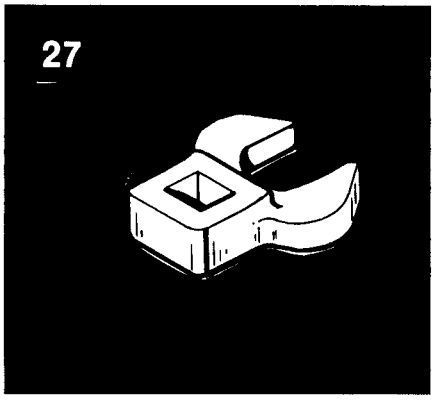
(1) ILLUS. NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY. RQD.
17	5935-01-118-9166	Adapter, RF (80063) SM-C-920525		EA	1
18	5935-00-355-4919	Adapter, Test Point (80063) M21097/1-163		EA	2
19	5999-01-148-3173	Card, Extractor (80063) SM-C-920554		EA	1
20		Hose, Air (80063) SM-B-920516		EA	1
21	4730-00-909-8627	Clamp, Air Hose (96906) MS35842-13		EA	2
22	4730-00-908-6292	Clamp, Air Hose (96906) MS35842-14		EA	1
23	5865-01-140-2720	Adapter, Hose (80063) SM-B-920145		EA	1

SECTION II. COMPONENTS OF END ITEM (Continued)









(1) ILLUS. NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY. RQD.
24		Adapter, RF (81349) M55339/51-00001		EA	1
25		Adapter, RF (80063) SM-C-920480		EA	1
26		Adapter, RF (80063) SM-C-920479		EA	1
27		Adapter, Torque Wrench (80063) SM-B-920451		EA	1

APPENDIX E
EXPENDABLE SUPPLIES AND MATERIALS LIST

SECTION I
INTRODUCTION

E-1 . SCOPE

This appendix lists expendable supplies and materials you will need to operate and maintain the Ins. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical , Class V, Repair Parts, and Heraldic Items).

E-2. EXPLANATION OF COLUMNS

The columns in this list are explained below.

a. Column (1) - Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e. g., "Use cleaning compound, item 5, App. D").

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

(enter as applicable)

O - Aviation Unit Maintenance
F - Direct Support Maintenance

c. Column (3) - National Stock Number. This is the National Stock number assigned to the item; use it to request or requisition the item.

d. Column (4) - Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the part number followed by the Federal Supply Code for Manufacturer (FSCM) in parenthesis followed by the part number.

e. Column (5) - Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetic abbreviation (e.g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

SECTION II
EXPENDABLE SUPPLIES AND MATERIALS

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
1	O,F		Cloths, lint-free cleaning	A/R
2	O,F		Trichlorotrifluoroethane	A/R
3	F		Paint, light gray, FED-STD-595 color no. 26307	QT
4	F		Sandpaper	A/R
5	F		Brush, wire	EA
6	F		Brush, paint	EA

INDEX

INDEX (Continued)

INDEX (Continued)

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

SOMETHING WRONG WITH THIS PUBLICATION?

FROM (PRINT YOUR UNIT'S COMPLETE ADDRESS)
Commander
Stateside Army Depot
ATTN: AMSTA-US
Stateside, N.J. 07703

DATE SENT
10 July 1975

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 11-5840-340-12	23 Jan 74	Radar Set AN/PRC-76

BE EXACT PIN-POINT WHERE IT IS

PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO
2-25	2-28		
3-10	3-3		3-1
5-6	5-8		
		F03	

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

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

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

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

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

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

REASON: To replace the cover plate.

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

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

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER
SSG I. M. DeSpiritof 999-1776

SIGN HERE
I. M. DeSpiritof

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PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 11-6625-2884-12	23 Feb '84	Test Set, Countermeasures Set TS-3615/ALQ-136(V)

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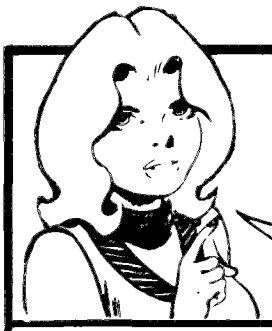

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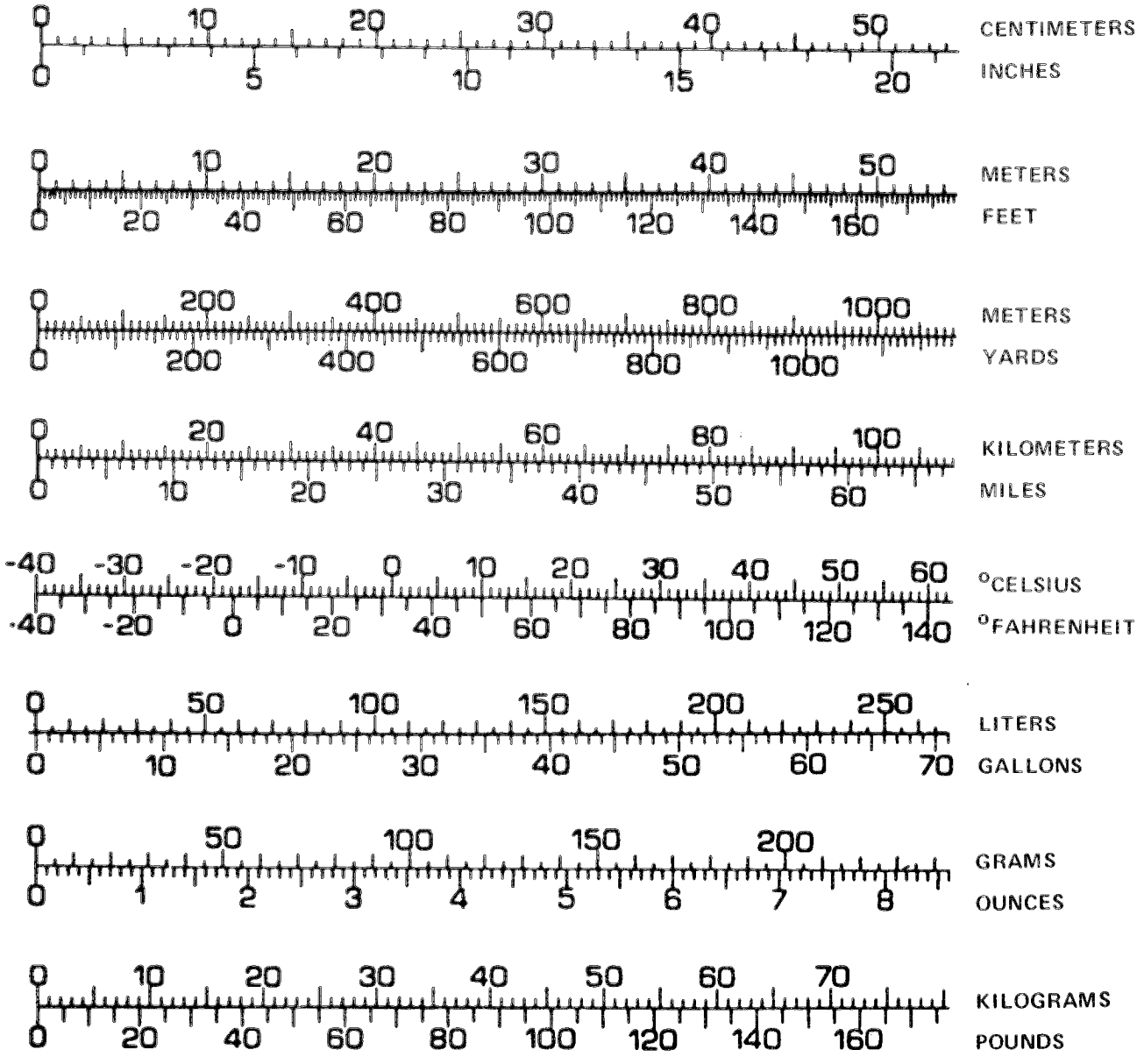
USE OF METRIC MEASURING SYSTEM

In this manual, you'll find weights and measurements given in American Standard units with the same measurement in Metric units shown in parentheses.

Tools, or nuts and bolts that have been manufactured in American Standard units are described in those units. For example: 1/2 inch hex nut, 3/4 inch bolt, 1/2 inch wrench.

Use the following Metric/American Standard table as a measurement guide for any conversions you have to make.



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