TECHNICAL MANUAL

OPERATOR'S AND ORGANIZATIONAL MAINTENANCE MANUAL FOR

COMMUNICATIONS CENTRALS AN/ASC-15A(V) 1 (NSN 5895-01-040-9660) AND AN/ASC-15A(V)2 (NSN 5895-01-040-9661)

HEADQUARTERS, DEPARTMENT OF THE ARMY

30 SEPTEMBER 1982

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 DRY WOODEN POLE OR A DRY 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

WARNINGS

HIGH VOLTAGE is used in the operation of this equipment. DEATH ON CONTACT MAY RESULT IF PERSONNEL FAIL TO OBSERVE SAFETY PRECAUTIONS. All components in the system may have high voltage on exposed terminals. Before replacing equipment, set power switches to off and remove the power cable from the power source. Ground. high voltage points before touching them.

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.

FIRST AID PROCEDURES FOR ELECTRICAL SHOCK VICTIMS

Before touching a victim of electric shock, the circuit should be deenergized or the victim freed from the live conductor by using some suitable nonconductive object, such as rope, dry wooden stick, or insulated pole. Artificial resuscitation procedures appropriate to the victim's condition shall be started immediately.

a. If a person has stopped breathing, or his heart has stopped beating, emergency first aid procedures should be started at once. If a person is not breathing, do the following:

(1) *Place victim on his back.* Place on a firm surface such as the floor or ground, not on a bed or sofa.

(2) *Tilt head straight back.* Extend the neck up as far as possible. (This will automatically keep the tongue out of airway.)

(3) Open your mouth wide and place it tightly over _the victim's mouth. At the same time, pinch the victim's nostrils shut, or close the nostrils, with your cheek, or close the victim's mouth and place your mouth over his nose. For babies and small children, cover both the mouth and the nose of the victim with your mouth.

(4) *Blow* into the victim's mouth, or nose, with a smooth steady action until the victim's chest is seen to rise.

(5) *Remove mouth.* Allow the victim to exhale passively and watch the victim's chest fall.

(6) *Repeat.* This cycle should be continued at the rate of one breath each 5 seconds.

NOTE

If you are not getting air exchange, quickly recheck position of head and adequacy of seal around the mouth. If attempts to ventilate are still unsuccessful, sweep fingers through mouth and into throat to remove any foreign bodies. If the rescuer is unable to dislodge the foreign body turn the victim on his side and give several sharp blows between the should blades to jar it free. After four quick breaths, stop and determine if heart is beating by gently feeling the carotid pulse. If the heart is beating, return to the mouth-to-mouth resuscitation and continue until breathing starts or until a physician tells you to stop.

b. If the carotid pulse is absent or questionable, start artificial circulation by external cardiac compression.

(1) *Place the heel of one hand on the lower one half of the breastbone* and the other hand on top of the first.

(2) *Thrust downward* from your shoulders with enough force to depress the breastbone about 1 1/2 to 2 inches.

(3) *Relax* immediately after each downstroke to permit natural expansion of the chest.

(4) *Repeat* at the rate of about one per second. The compressions must be regular, smooth, and uninterrupted. If you are alone with the victim you must alternate mouth-to-mouth breathing with external cardiac compression at the ratio of about 2 to 15 (two breaths, then 15 heart compressions). If you have help, the ratio is five compressions to one inflation; therefore, after five heart compressions, CALL FOR HELP. Continue one or both of the above while the victim is being transported to the hospital, or until he revives, or until told to stop by a physician.

c. Once the victim is breathing again, watch carefully for signs of physical shock. Physical shock is a state of collapse or prostration that interferes with normal action of the nervous system; symptoms include weak pluse, chills, nausea, and a pale face. To treat shock:

(1) Have the patient lie down, with his head lower than his feet if possible.

(2) Loosen tight clothing.

(3) See that the patient has plenty of air.

(4) Wrap the patient in blankets or other coverings as soon as possible. Keep the patient as warm as is comfortable until help arrives.

TECHNICAL MANUAL ⎫
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HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *30 September 1982*

OPERATOR'S AND ORGANIZATIONAL

MAINTENANCE MANUAL

COMMUNICATIONS CENTRALS AN/ASC-15A(V)1

(NSN 5895-01-040-9660)

AND

AN/ASC-15A(V)2 (NSN 5895-01-040-9661)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in back of this manual direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: DRSEL ME-MP, Fort Monmouth, NJ 07703.
In either case, a reply will be furnished direct to you.

LIST OF ILLUSTRATIONS

LIST OF TABLES

CHAPTER 1
INTRODUCTION

Section I. GENERAL

1-1. Scope

a. This manual describes Communications Centrals AN/ASC-15A(V)1 and AN/ASC-15A(V)2 (fig. 1-1) and covers its installation, operation, and organizational maintenance. It includes operation under usual conditions, cleaning, inspection of equipment, and replacement of parts available to organizational maintenance personnel.

b. Throughout this manual, references are made to publications covering equipment installed in Communications Centrals AN/ASC-15A(V)1 and ANJASC-15A(V)2. Refer to the listing in appendix A for the publications covering the applicable equipment.

c. Equipment nomenclature followed by an asterisk (*) is used to indicate all models of an individual equipment covered in this manual. For example, Control, Intercommunication Set C-1611(*)/AIC represents Control, Intercom C-1611C/AIC, and C-1611D/AIC; and Communications Central AN/ASC-15A(V)(*) represents Communications Centrals AN/ASC-15A(V)1 and AN/ASC-15A(V)2. andAN/ASC-15A(V)2.

1-2. Consolidated Index of Army Publications and Blank Forms

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.

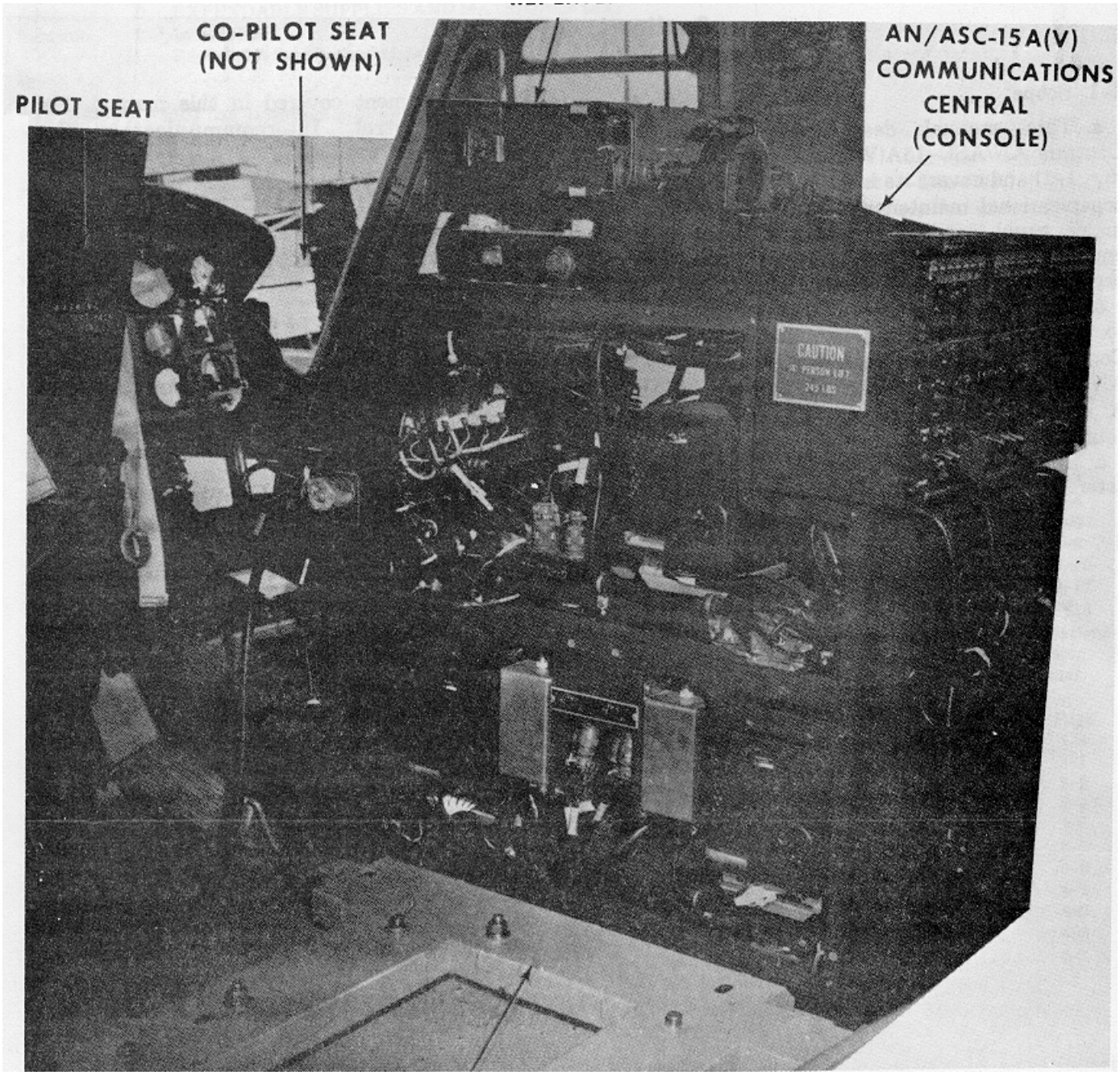

Figure 1-1. Communications Central AN/ASC-15A(V)(*), Modified and Installed in UH-1D/H Helicopter.

1-3. Maintenance Forms, Records, and Reports

a. Reports of Maintenance and Unsatisfactory Equipment. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System.

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.

1-4. Reporting Equipment Improvement

Recommendations (EIR) If your equipment needs improvement, let us know. Send us an EIR. You, the user, _are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Tell us why a procedure is hard to perform. 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.

1-5. Administrative Storage

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.

1-6. 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

1-7. Purpose and Use

a. Purpose .Communications Central AN/ASC-15A(V)(*) is used to provide tactical commanders with air-to-ground command and control communications in a battlefield environment. In addition, it will provide ground-air- ground automatic secure retransmission from an airborne platform.

b. Use.

(1) When installed in U-21 type aircraft, UH-1B, UH-1D or UH-1H helicopters, Communications Central AN/ASC-15A(V)(*),configured in the command post mode, can be used as a forward area airborne command and observation post. This mode provides six separate intercommunications stations. Three of the six stations have control of three separate very high frequency, frequency-modulated (VHF-FM) radio communications links, or two VHF-FM links, and one ultra high frequency, amplitude-modulated (UHF-AM) link. Each VHF-FM link consists of 920 different selectable channels in the frequency range of 30 MHz to 75.95 MHz. The VHF-AM link consists of 7000 different selectable channels in the frequency range of 225 MHz to 399.975 MHz. Intercommunication or link transmission and reception can be accomplished from all six stations, but frequency selection and encryption control can be accomplished from only three stations.

(2) The VHF-FM links have voice encryption capabilities if the TSEC/KY-28 security equipment is employed. The UHF-AM link cannot be voice encrypted.

(3) Communications Central AN/ASC-15A- (V)(*) converts from the airborne command post mode to the automatic retransmission mode by changing the appropriate cable connectors. Retransmission is accomplished by using the number 1 VHF-FM and number 2 VHF-FM radio sets. Airborne retransmission provides ground troops with a single secure or nonsecure communications channel to other troops or commanders. Airborne retransmission becomes necessary any time normal VHF communications are blocked or restricted. Some examples of restricted communications during tactical situations are given below:

(a) Forward area troops desiring to communicate with rear area headquarters and the distance involved is too great for a reliable channel.

(b) Troops in a mountainous terrain desiring to communicate with a station blocked by hills or mountains.

(c) Environmental conditions could cause

degraded communications by excessive bending of the transmitted wave due to abnormal atmospheric conditions. This condition usually applies to frequencies below 40 MHz. Also, excessive path attention may be experienced over a large body of water. In all cases, airborne retransmission may overcome the restriction.

1-8. Technical Characteristics

The technical characteristics of Communications Central AN/ASC-15A(V)(*) are listed below:

a. AN/ASC-15A(V)1, (V)2Dimensions.

Height: 34 1/2 inches, 87.6 cm
Depth: 31 1/2 inches, 80 cm
Width: 17 1/2 inches, 44.5 cm
Weight: 245 lb., 111 kg (Max; depending upon radio configuration)

b. Power requirements.

AN/ASC-15A(V)1: 600 watts (max)
AN/ARC-164 is installed, 500 watts (max)
AN/ASC-15A(V)2: with ARC-51BX 712 watts

c. FM Radio Facilities.

Radio Set AN/ARC-131	27.5 vdc
Input power	125 watts
Output power	1/2 watt (min), low power mode 10 watts (min), high power mode
Frequency	30 MHz to 75.95 MHz VHF-FM (plain or ciphered), 800 channels 50 KHz spacing.

d. AM Radio Facilities.

Radio Set AN/ARC-51BX:

Voltage required	27.5 vdc
Input power (approx)	350 watts
Output power	20 watts (min)
Frequency	225 MHz to 399.95 MHz, UHF-AM (plain test), 1750 channels, fixed guard channel, 100 KHz spacing.

Radio Set AN/ARC-164:

Voltage required	27.5 vdc
Input power (approx.) receive (approx.)	35 watts; transmit 110 watts
Frequency	225 MHz to 399.975 MHz, UHF-AM (plain text)

e. Intercommunications Facilities.

Control, Intercommunication Set C-1611D/AIC:

Voltage required	27.5 vdc
Input power	6 watts

Control Facilities (max):

Transmitters	4
Receivers	8

f. Cipher Facilities.

Control Indicator C-8157/ARC:
Modes of Operation Plain, cipher retransmission

Voltage required	28 vdc
Input power (approx)	14 watts

Computer, Voice Security TSEC/KY-28:

Voltage required	25 vdc ±4
Input power (approx)	31.5

(5 amperes for 15 milliseconds during zeroize operation)

1-9. Nomenclature and Common Names

A list of the nomenclatured items applicable to Communications Central AN/ASC-15(V)(*) is provided in table 1-1 below. The common name used throughout this manual is indicated after each item.

Table 1-1. Nomenclature and Common Names

Nomenclature	Common Name
Coupler, Antenna CU-942C/ARC-54 or CU-2206/ARC	FM coupler
Receiver-Transmitter, Radio RT-742/ARC-51BX	ARC-51BX
Control Radio Set C-6287/ARC-51BX	ARC-51BXcontrol head
Control Intercommunication Set C-1611(*)IAIC	ICS box
Control Indicator C-8157/ARC	KY-28 control head
Headset-Microphone H-157/AIC	Headset
Computer, Voice Security *TSEC/KY-28*	KY-28 crypto box
Receiver-Transmitter, Radio RT-1167/ARC-164	ARC-164
Receiver-Transmitter, Radio RT-823/ARC-131	FM radio
Control, Radio Set C-7088/ARC-13	FM control head
Communications Central AN/ASC-15A(V)*)	Console
Interphone junction	JB-1
Radio junction box assembly	JB-2
Radio frequency cable assembly	RF cable
Antenna AS-1703/AR	FM whip antenna
Antenna AT-450/ARC	UHF stub antenna
Regenerative-Repeater HYL-3/TSEC	HYL-3/TSEC
Mounting MT-3664/ARC-131	FM mount
Plug Connector U-94A/U	Headset plug-in
Mounting MT-2653/ARC	MT-2653/ARC

1-10. Description of Communications Central ANIASC-15A(VX*)

a. The console consists of console rack assembly Al, mounting bracket assembly A2, adjuster bracket assembly A3, mounting bracket assembly A4, interphone junction box assembly JB-1, radio junction box assembly JB-2, helicopter installation kit, and associated radio equipment, The components of the helicopter installation kit are listed below.

b. The helicopter installation kit (NSN 5895-00-139-4895) consists of the following:

(1) Floor adapter assembly.
(2) FM-1/FM-2 antenna assembly.
(3) FM-3 antenna assembly.
(4) UHF antenna assembly.
(5) Cable connector assemblies.

NOTE

Number designations -1, -2, and -3 correspond to the station locations. Thus, FM-1radioreferstothe RT-823/ARC-131 located in station 1, FM-2 antenna assembly refers to Antenna AS-1703/AR associated with the FM-2 radio, etc.

c. When the console is installed in an aircraft, the console rack assembly is mounted to the floor with adapters behind and between the pilot and copilot seat (fig. 1-1). The FM-1 and FM-2 antenna assemblies are mounted on each side of the aircraft (fig. 1-2 and 1-3). The FM-3 antenna assembly is mounted at the rear and under the aircraft (fig. 1-4).

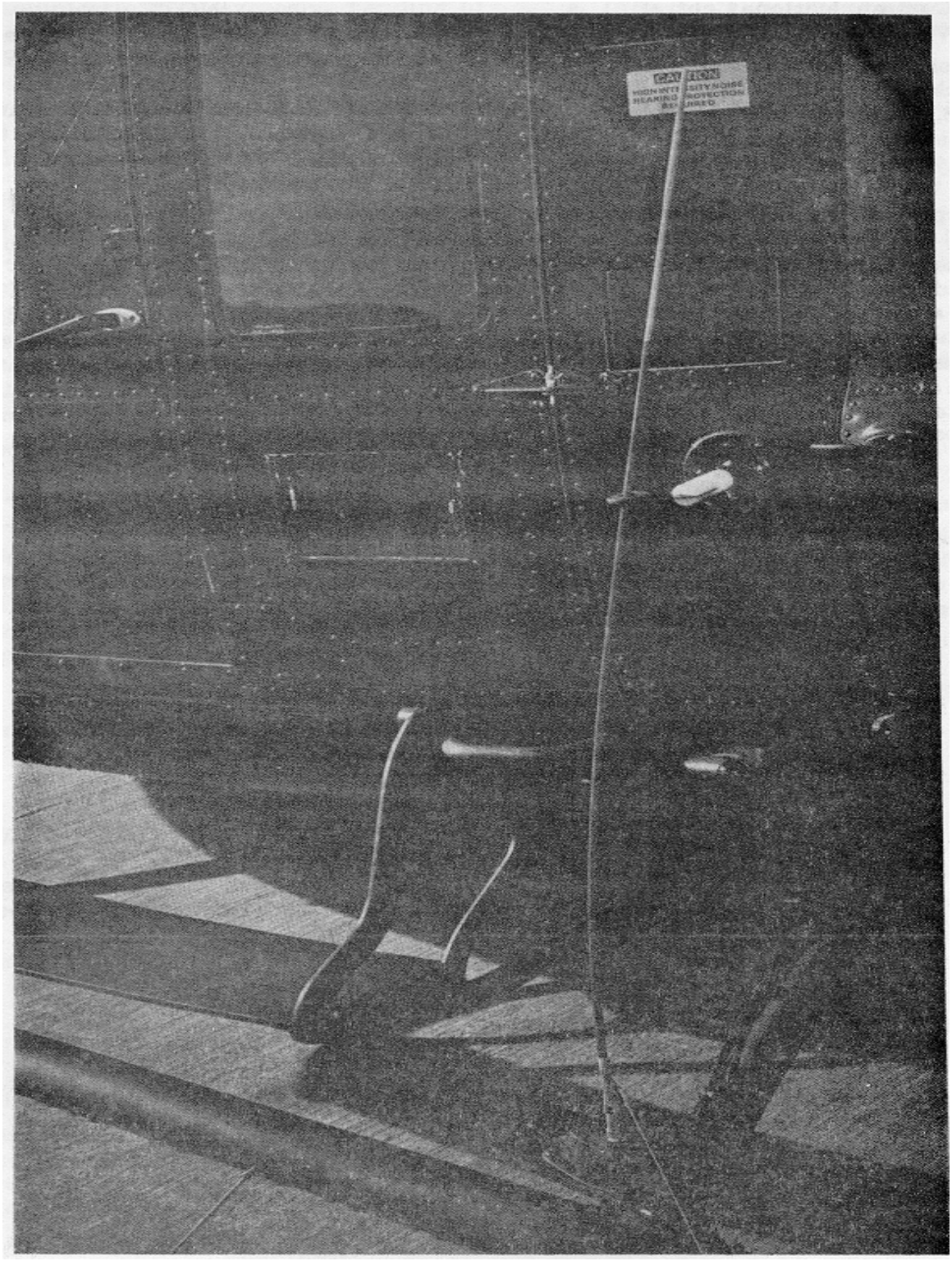

Figure 1-2. FM-1 Antenna Assembly.

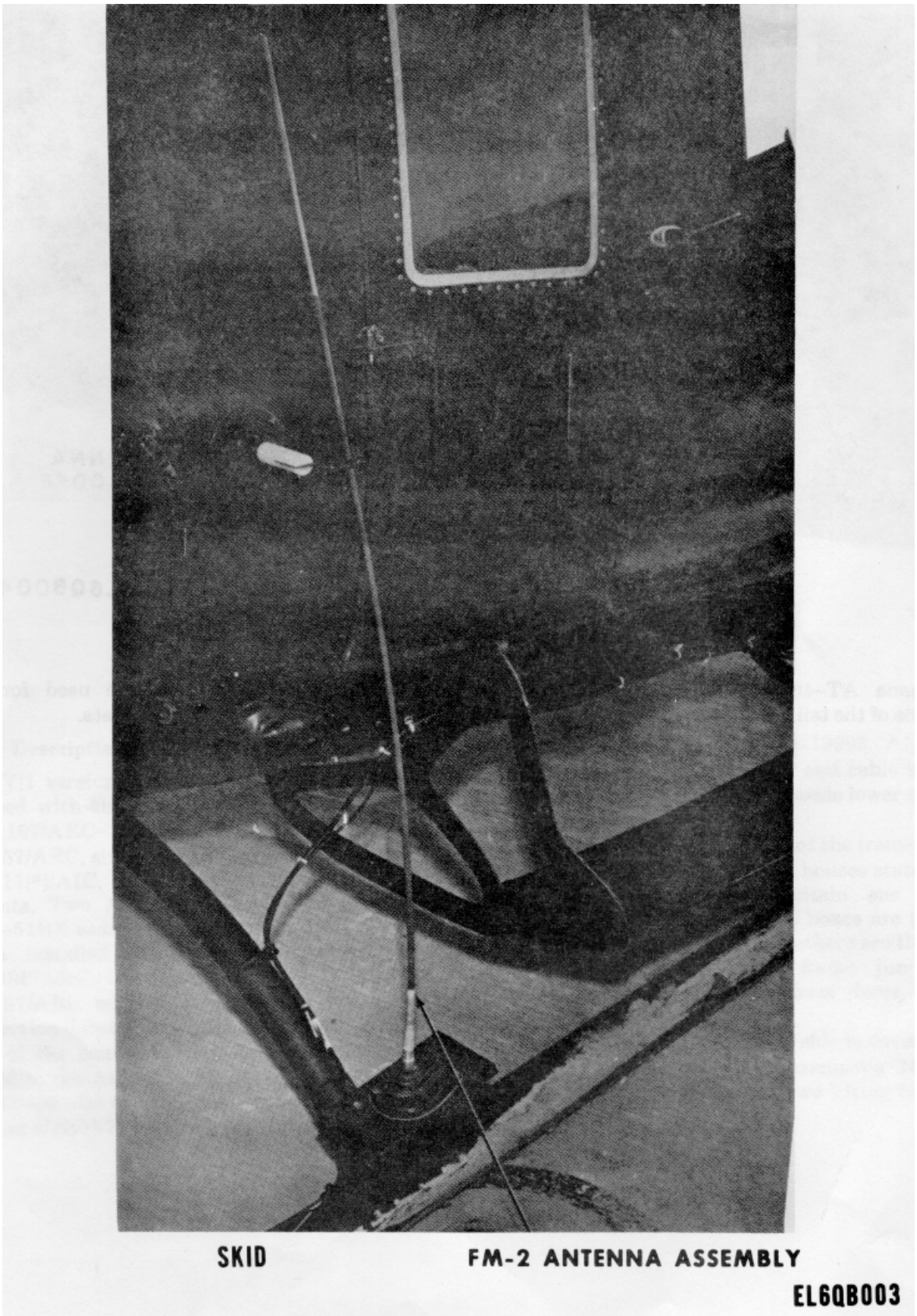

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Figure 1-3. FM-2 Antenna Assembly.

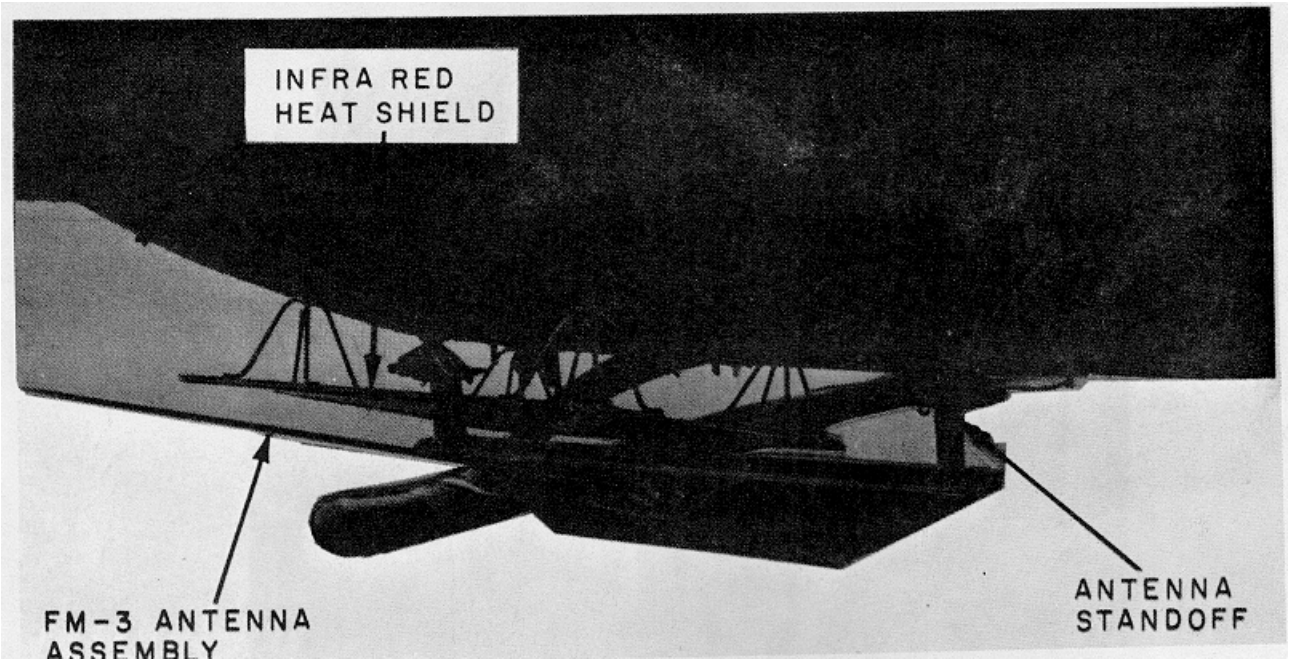

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Figure 1-4. FM-3 Antenna Assembly.

d. Antenna AT-450/ARC is installed on the bottom side of the tail boom assembly of the aircraft fig. 1-5). This UHF antenna is used for the ARC-164 or the ARC-51BX radio sets.

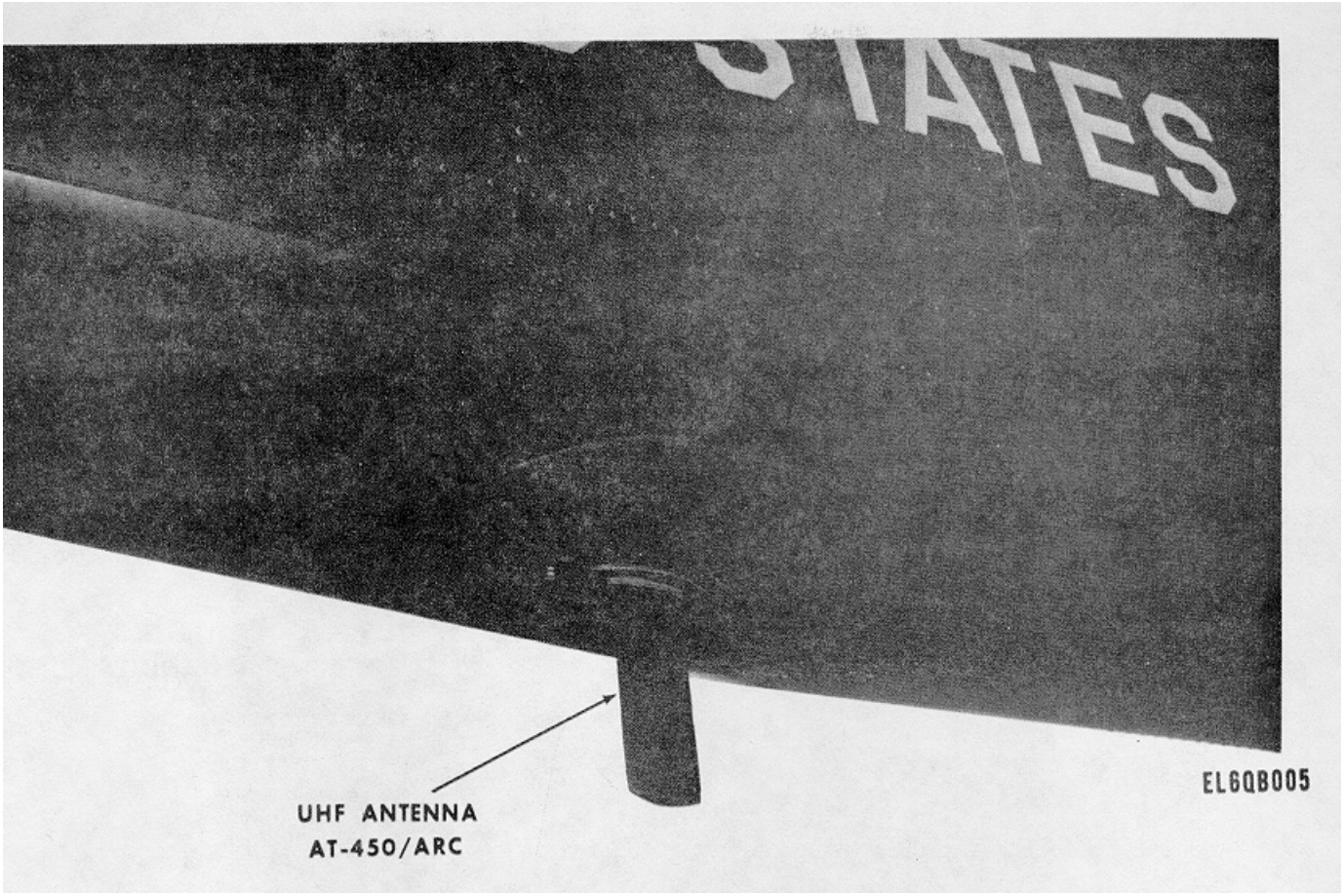

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Figure 1-5. Antenna AT-450/ARC Installation.

1-11. Description of Frame Assembly A1

The (V)1 version is a metal equipment rack that is shipped with three Radio Sets AN/ARC-131, one RT-1167/ARC-164, three Control Indicators C-8157/ARC, six Control, Intercommunication Sets C-1611(*)/AIC, and associated connection components. Two ARC-131's, one ARC-164 or one ARC-51BX radio set is shipped in the (V)2 version. It is installed at station 3 in place of the C-7088/ARC-131 control head and the C-8157/ARC control head. The ARC-164 cable connection (labeled P1 ARC-164, which is currently part of the console wiring harness) must be connected to the ARC-164 RT at receptacle J1. The rf cable must also be connected between the ARC-164 and the UHF/VHF antenna output. In addition, the connector labeled LBAD-D-19993 AN/ARC-51 must be removed from A3J1 and cable labeled P1 A3W3J1 connected to AJ31 inside lower equipment compartment at JB-2.

a. Front (fig. 1-6). The side of the frame assembly facing the front of the aircraft houses stations 5 and 6. These stations each contain one ICS box (C-1611/AIC). Below the ICS boxes are the circuit breakers. Below the circuit breakers are the antenna RF connectors U-94A/U. Radio junction box assembly JB-2 is at the lower front, behind a protective cover.

b. Left Side (fig. 1-6). This side is covered with a louvered panel. POWER IN connector J4 is at the center front of the side and two lifting handles are mounted on the panel.

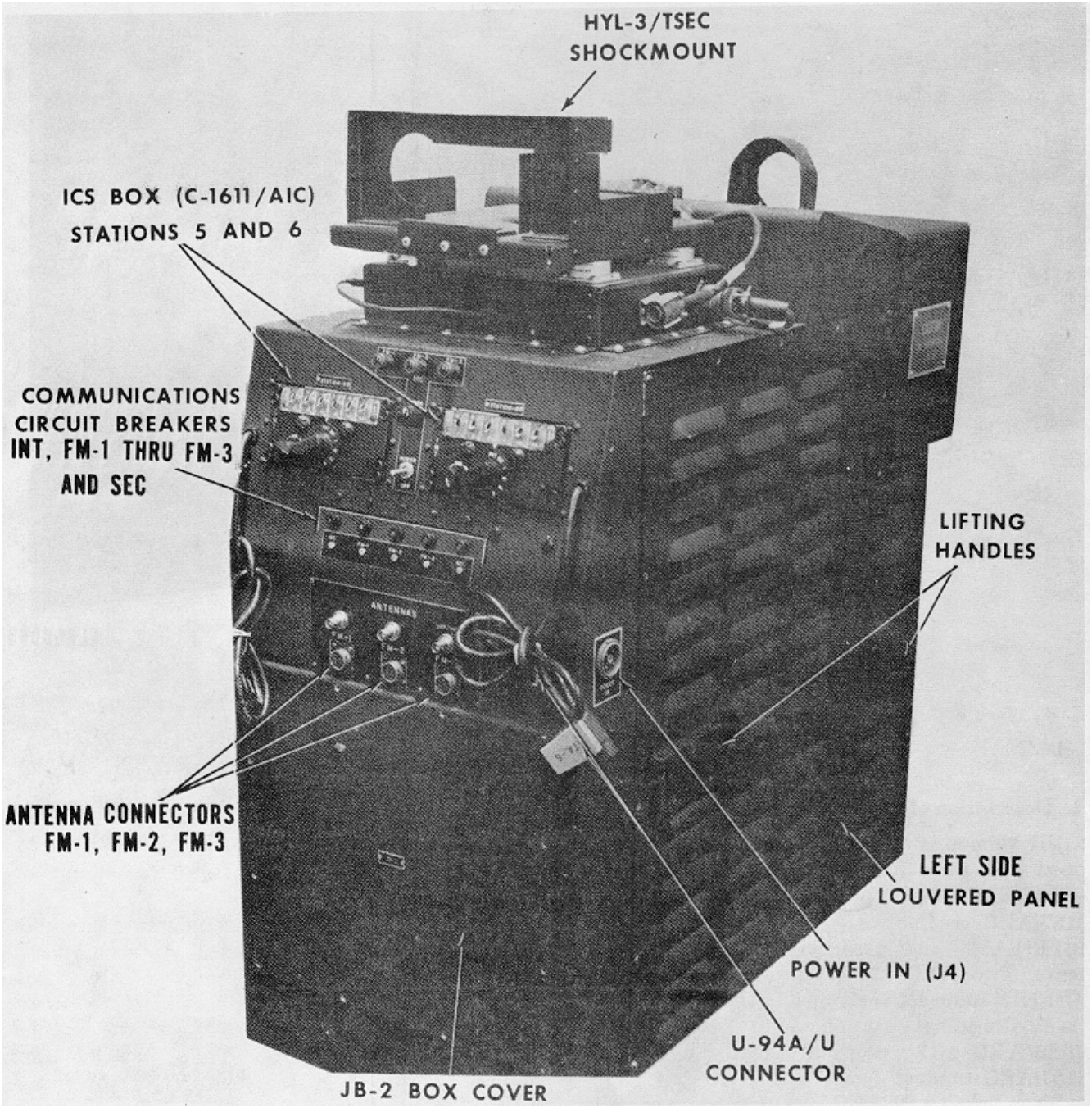

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Figure 1-6. Console, Front and Left Side View.

c. Rear View (fig. 1-7). This side of the frame assembly contains operator stations 1, 2 and 3; four connectors U-94/U for stations 1 through 4, and the interphone junction box assembly JB-1. Each station contains an ICS box, an ARC-131 control head, and a control head for the KY-28. As notes in paragraph 1-11, the ARC-164 radio set may be located in place of the station No. 3 C-7088/ARC-131 control head and the station 3 C-8157/ARC (KY-28) control head. The ARC-51BX control head may be installed in station 3 instead of the ARC-164 radio set. If the ARC-51BX is installed, the console is configured for the (V)2 version only.

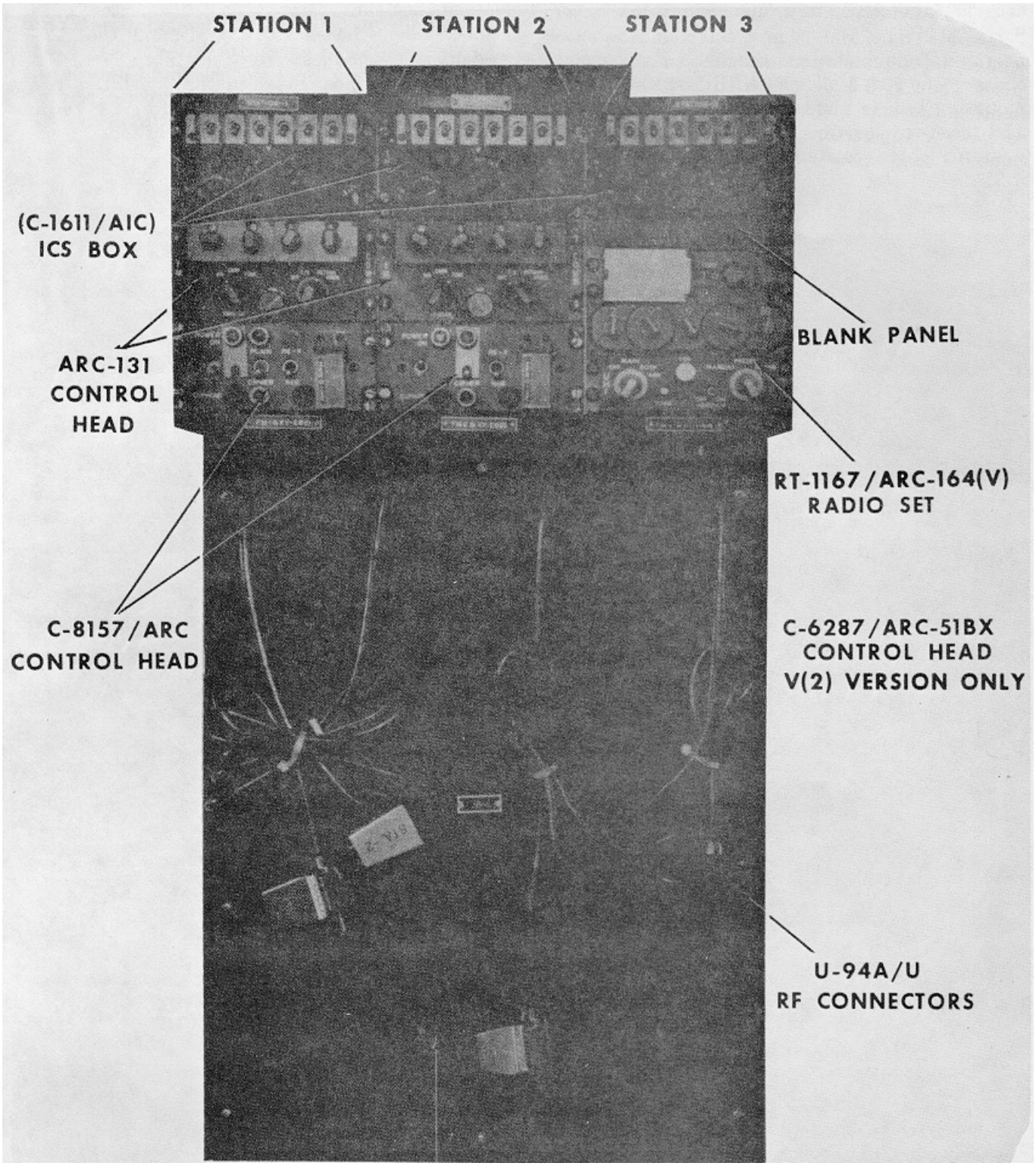

Figure 1-7. Console, Rear View.

d. Right Side (fig. 1-8). This side is open to allow access to equipment housed within the console. The console is divided into upper and lower compartments. The FM-3 line filter and a shock- mounted base plate are secured to the console chassis. The FM-3 MT-3664/ARC-131 and KY-28 mounting brackets are secured to the base plate. The lower compartment contains another shock- mounted base plate with Mount MT-3664/ ARC-131 at each end. The RT-825/ARC-131 is secured in these mounts. Two KY-28 adapter assemblies are located in the center of the shock-mount base. Mounted behind the KY-28 adapter assemblies are line filters for FM-1 and FM-3 radios. Between the line filters is the bypass adapter box with connectors for retransmission or command post mode operation.

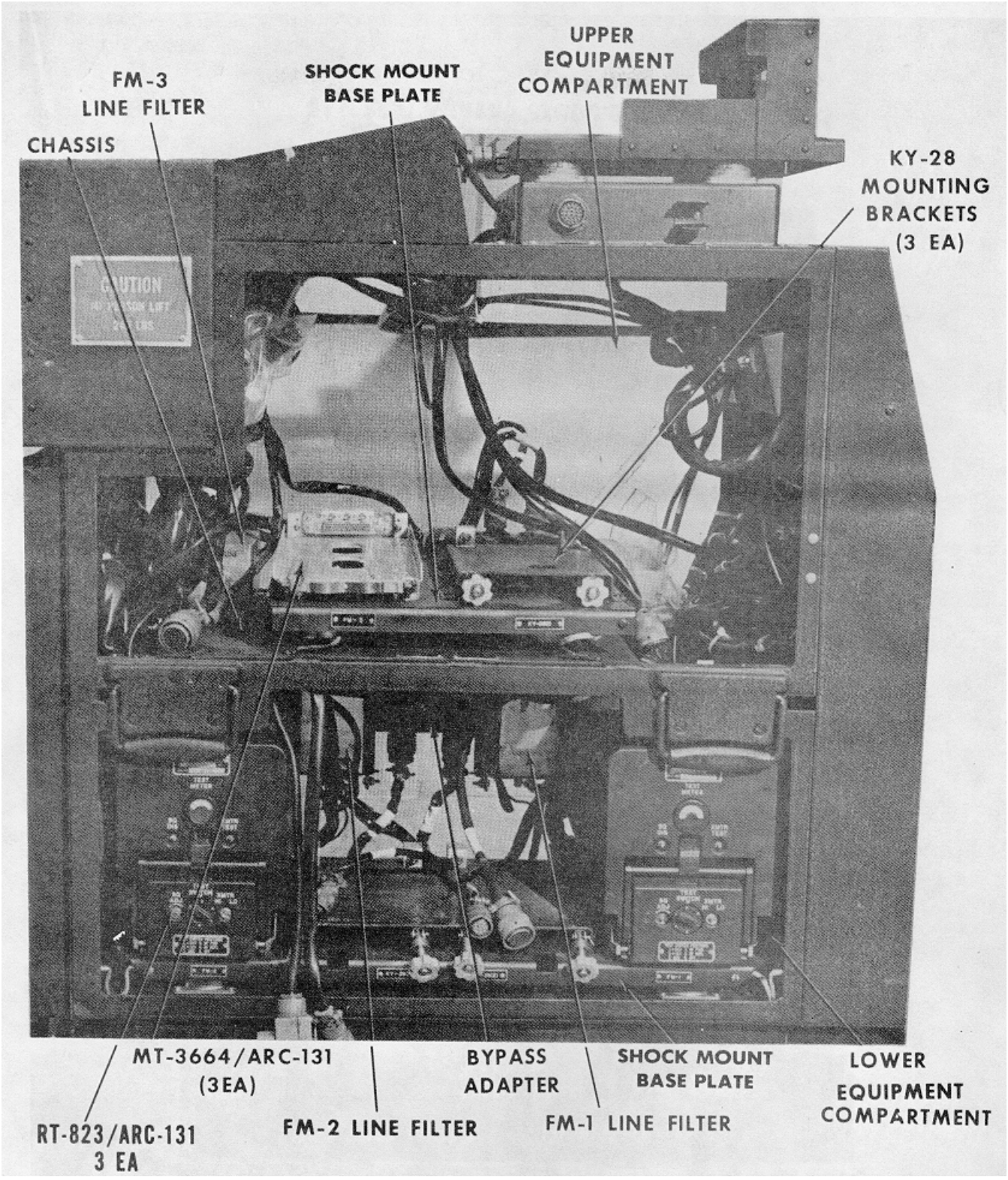

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Figure 1-8. Console, Right Side View.

e. Top (fig. 1-9). The top of the console con the shock mount for Regenerative-Rep HYL-3/TSEC with Power Adapter U-383/VR unlighted mechanical 8-day elapse time clock, and the station No. 4 ICS box.

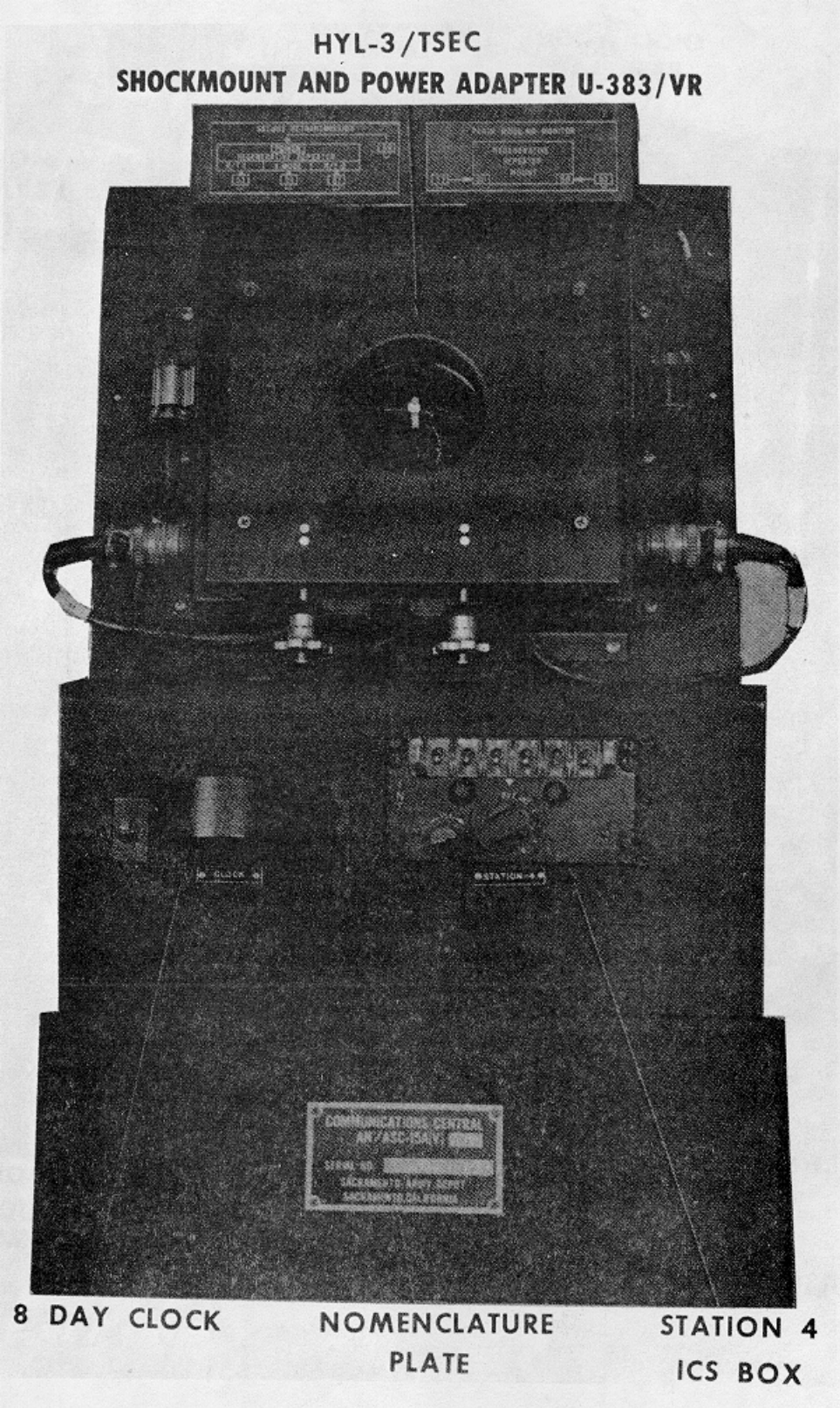

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Figure 1-9. Console, Top View.

CHAPTER 2
INSTALLATION

2-1. Preinstallation Check

a. Inspect the equipment for damage.

b. Check to see that the equipment is complete against the components of end item list (appx B). Report all discrepancies in accordance with TM 38-750. The equipment may be placed in service if a minor assembly or part that does not affect proper functioning is missing.

c. Check to see whether the equipment has been modified. Check whether all MWO's current at the time the equipment is placed in use have been applied. Current MWO's applicable to the equipment are listed in DA Pam 310-1. *d* Check the latest issue of DA Pam 310-1 and its latest changes to insure that the latest editions of all applicable maintenance literature are on hand.

2-2. Console Installation (fig. 2-1)

The console is installed in the UH-1D or UH-1H helicopter as described below. Use a lifting device or four technicians to lift and place the console on floor adapters.

a Place console over two floor adapters. Align lettered holes on console base with lettered holes in floor adapters.

b. Install and tighten three mounting bolts on each side of console base.

c. Connect power cable from aircraft cabling harness to the console receptacle labeled POWER- IN.

d. For AN/ASC-15(V)l, connect three labeled coaxial antennas and three antenna control cables from aircraft harness to corresponding connector labeled FM-1, FM-2 and FM-3 on front of console.

e. For the AN/ASC-15A(V)2, connect three labeled coaxial antenna cables and three antenna control cables from aircraft harness to corresponding connectors labeled FM-1, FM-2and UHF/HF connector on front of console.

f. Recheck power cable and antenna cables for security and tightness.

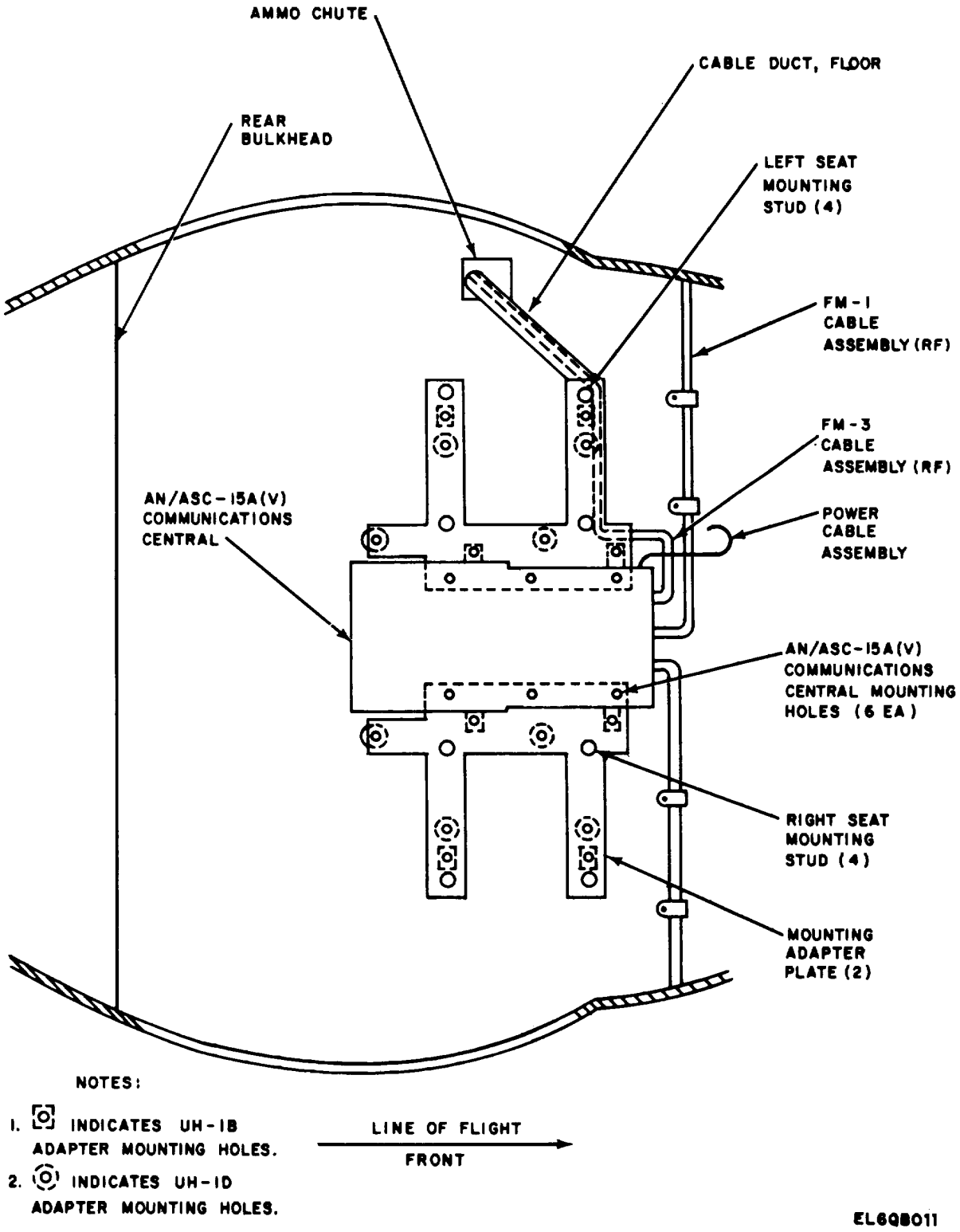

Figure 2-1. Console Installation 2-2

2-3. RT-1167/ARC-164 Radio Set and ARC-51BX Installation

To install the RT-1167/ARC-164, remove the C-8157/ARC control head located in station 3 and the station 3 C-7088/ARC-131 control head.

a. RT-1167/ARC-164 Installation

(1) Insert the ARC-164 into this vacant position.

(2) Connect cables marked ARC-164 P1 into J1 on the back of the RT-1167/ARC-164 and rf cable labeled P2 into J2 on the back of the ARC-164.

(3) Secure ARC-164 in console by tightening Dzus fasteners.

(4) Install blank panel as shown in figure 1-7.

(5) Disconnect existing cable P4 connector from A3W2P1 inside upper equipment compartment at rear of JB-2. Install cable connector labeled ARC-164 A3W2J1.

(6) Disconnect existing rf connector from UHFIVHF console antenna port on inside of con- sole.

(7) Install the rf cable labeled ARC-164 to UHF/VHF BNC connector inside console.

CAUTION

Never key the ARC-164 unless Antenna AT-450 or a suitable dummy load is connected. Damage to the ARC-164 will occur otherwise.

b. AN/ARC-51BX Installation. The ARC-51BX may not be installed by the operator. Installation of the ARC-51BX is a depot level modification to the console. Consoles with the ARC-51BX installed are designated the V(2) version.

2-4. Preliminary Test

Perform the preliminary test of the console upon completion of the installation. This test consists of preliminary starting procedures in paragraph 3-3, starting procedures in paragraph 3-5, the operating procedures in paragraph 3-7, and stopping procedures in paragraph 3-8. Refer to figure FO-1 for console vhf radio set frequencies which will interfere with one another under retransmission conditions only.

2-5. UH-1(*) Reinstallation

If it is necessary to remove the console from one UH-1(*) helicopter for installation in another UH-1(*) preference should be given to an aircraft which does not have the shoulder harness reel mounted on the floor. This will prevent unnecessary minor modification of the console mounting assembly.

f. Console Circuit Breaker (fig. 1-10. The console circuit breaker is mounted on the helicopter circuit breaker panel to protect the aircraft electrical system from overload

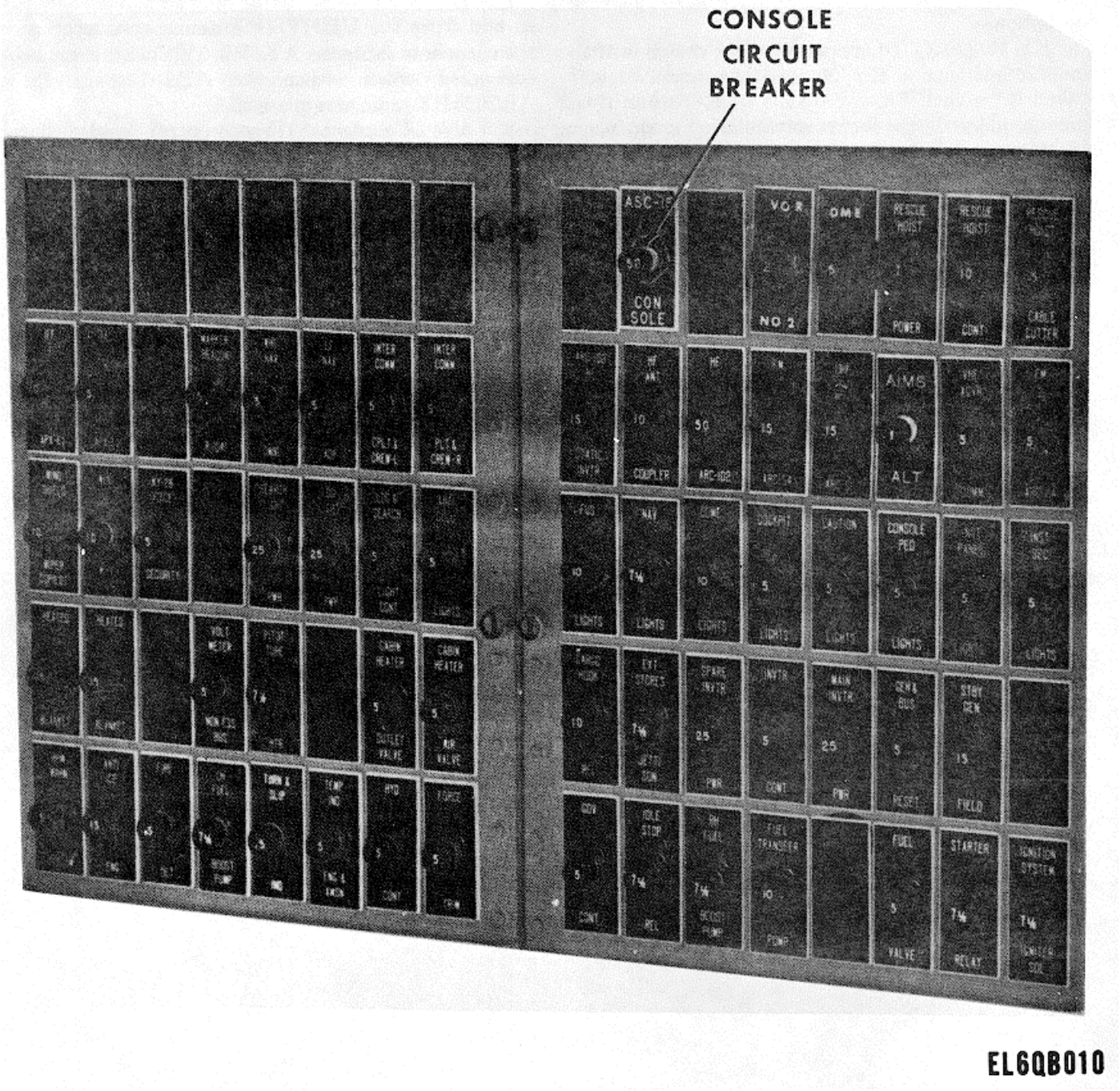

Figure 1-10. The console Circuit Breaker.

1-12 Description of Component Items

The items Supplied for use with the console are described below

a. Headset-microphone h-157/AIC. The ear phones of the headset-microphone have vinyl covers, padded cushions designed for both ears. The cushion are marked LERT and RIGHT on the outer surface. Microphone M-87/AIC has a polyethylene moisture barrier and black nylon guard which are mounted on a swivel so that the microphone may be placed directly in front of the lips. The headband has a protective vinyl cover.

b. Y Cable Assembly. The Y cable assembly contains two plugs and a jack. One plug is used to

connect the cable to a U-94A/U connector. The other plug is for connection to the aircraft communication system. The jack is for connection to the aircraft pilot or copilot/observer headset- microphone.

c. KY-28/TSEC. To operate the FM radios in the cipher mode, one KY-28 crypto box must be in- stalled for each FM radio that is to operate in the cipher mode. In the secure retransmission mode, one KY-28 must be installed in the number 1 location if the operator desires to monitor the secure retransmission message traffic. Otherwise, secure retransmission may take place without any KY-28. *C HYL-3/TSEC.* To regenerate secure retransmissions, one HYL-3/TSEC must be installed.

1-13. Description of Cable Assemblies (fig. 1-11)

a VHF-FM Radio Frequency Cable Assembly. (1) Three RG-58/U cables are provided to transfer rf energy to and from the FM-1, FM-2 and FM-3 antenna ports to the respective coaxial antenna ports on the front. Two of the cables are each 9 feet long. They connect FM-1 and FM-2 radios to their respective antenna couplers located on the forward portion of each helicopter skid. The third rf cable is 20 feet long and connects FM-3 radio to antenna coupler 3 located underneath the helicopter toward the rear. All cables use the BNC type of connector.

(2) UHF-AM rf cable assembly, is a single cable approximately 35 feet long transfers rf energy to and from the UHF/VHF antenna connector on the console to Antenna AT-450. This cable must be connected when either the ARC-164 or the my ARC-51BX radio sets are used.

b. Cable Couplers. Three control cables for couplers FM-1, FM-2 and FM-3 radios are provided. FM-1 and FM-2 control cables are each 9 feet long and FM-3 control cable is 20 feet long. Each cable is made up of nine-conductor CO-12LOF(12-22)0325 cable, terminated at the ends with type PT06A-12-1OS(SR), and PT06A1210P(SR) connectors. The FM-1 and FM-2 control cables are required if Antenna Coupler *CU-942B/ARC-54* is used. However, if Antenna Coupler *CU-2206/ARC* is used, the cables are not required. (Antenna coupler CU-2206/ARC may be substituted for *CU-942B/ARC-54* at anytime.)

c. Power Cable Assembly. The power cable assembly is 15 feet long. It is made up of 15 feet of two-conductor No. 2 AWG CO-212 cable terminated at one end with connector 164-201-1S(17). The other end has the rubber cover cut back and each conductor is terminated with lugs.

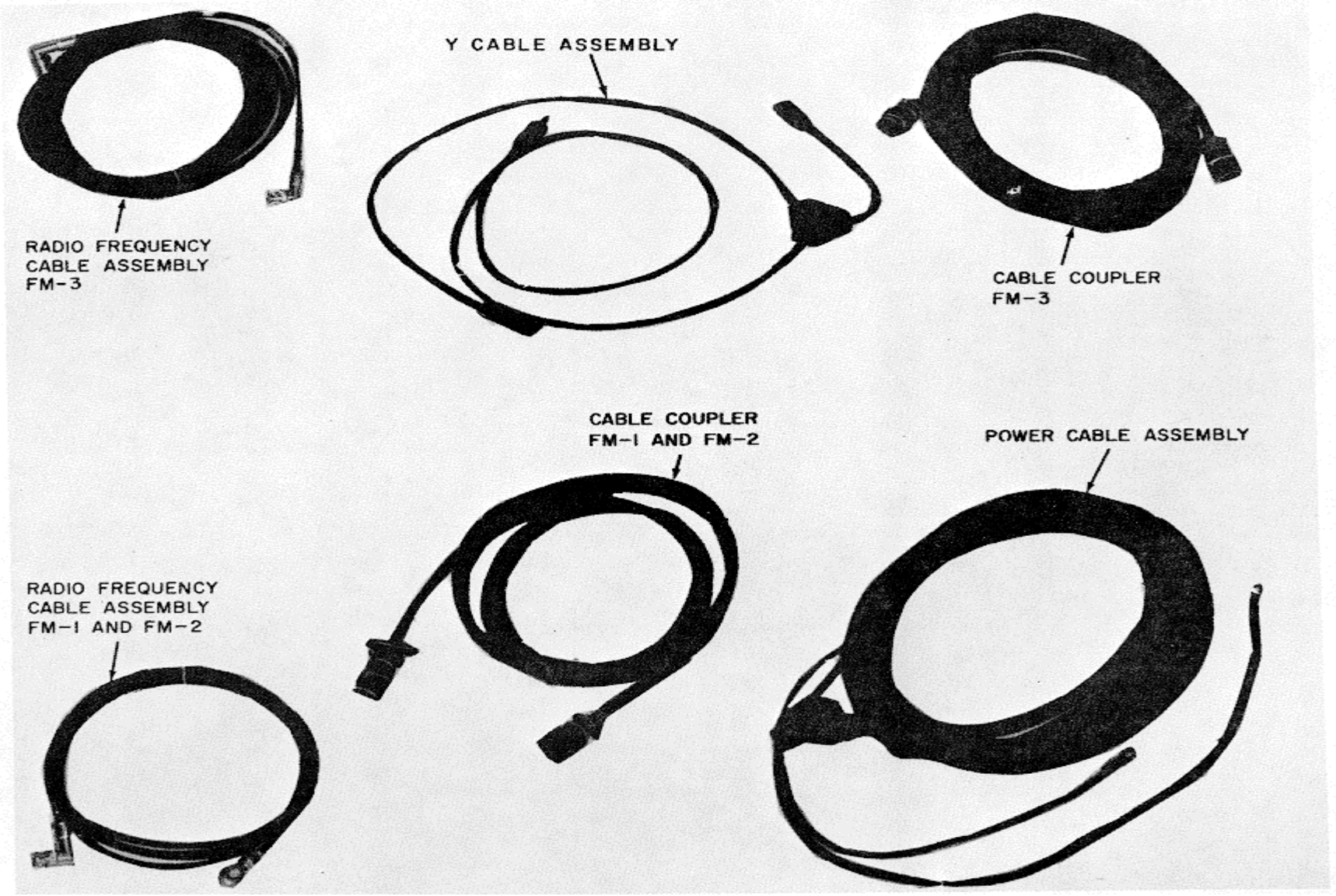

Figure 1-11. Cable Assemblies.

CHAPTER 3
OPERATION

Section I. OPERATING CONTROLS AND INDICATORS

3-1. General

Tables 3-1 through 3-7 describe the operator's controls and indicators of the components which make up the AN/ASC-15A(V)(*).Refer to the referenced figures for the location of the controls and indicators. Controls and indicators for HYL-3/TSEC and TSEC/KY-28 are covered in their respective manuals (appx A).

3-2. Damage from Improper Settings

There are no known control settings that can cause damage to the console or that are a hazard. Wrong settings, however, could result in improper communications which could seriously affect a tactical situation.

Table 3-1. Control Intercommunication Set C-1611(*)/AIC, Controls and Indicators (fig. 3-1).

Controls/indicators	Function
RECEIVERS 1, 2, 3 and 4 switches (two-position).	Connect (up position) or disconnect (down position) audio output of selected radio set to headset as follows: RECEIVERS switch — Radio set 1 ..... FM radio (FM-1) 2 ..... FM radio (FM-2) 3 ..... FM radio (FM-3) ((V) 1 only) 4 ..... UHF radio (ARC-164 or ARC- ..... 51BX)
RECEIVERS INT switch (two-position locking toggle).	Connects to intercom system headset.
RECEIVERS NAV switch (two-position locking toggle).	Not used.
VOL control.	Adjusts level of audio signal to headset from selected reader.
Transmit-interphone selector switch (six-position rotary switch).	Positions 1, 2, 3 and 4 select and connect respective FM-1, FM-2, FM-3 or UHF radio for two-way communications. PVT position connects intercom circuit for two-way voice communications between operators. The pilot, co-pilot, communications officer, or observer selects and connects an intercom (INT) circuit for two-way communications between the operators; pilot, co-pilot, communications officer or observer.

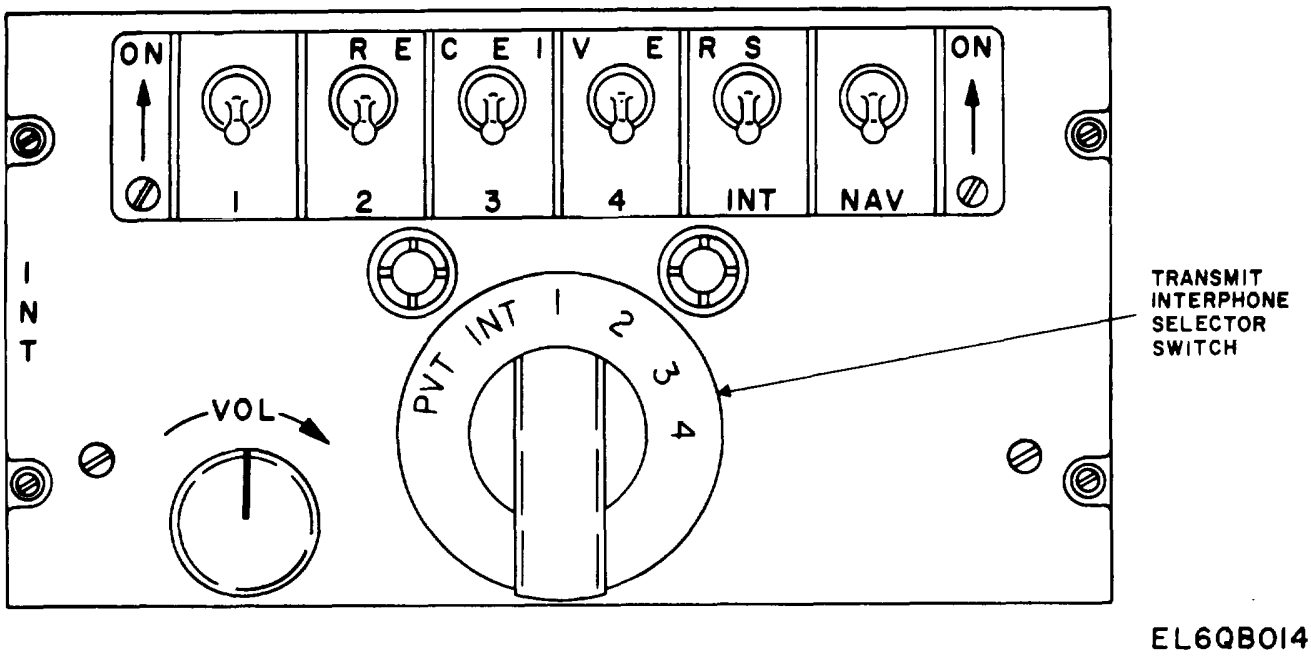

Figure 3-1. Control Intercommunication Set C-1611()/AIC.

Table 3-2. Control, Radio Set C-70881ARC-131, Controls and Indicators (fig. 3-2).

TM

Controls/indicators	Function
Mode control switch (four-position switch).	Applies power to respective FM radio and selects mode of operation. OFF ..... Turns off power to FM radio. T/R ..... Applies power to and places FM radio in normal communication mode (reception). (To transmit, associated U-94A/U headset push-to-talk switch must be pressed with proper ICS box position selected.) RETRAN ..... Applies power to and places FM radio in a two-way relay station mode, when properly configured. HOME. ..... Applies power to and places FM radio in a homing facility mode, when properly configured.
VOL control	Adjusts audio output level of the FM radio.
SQUELCH switch (three-position rotary switch).	Selects desired squelch mode as follows: DIS disable). Squelch circuits are disabled. CARR (carrier) Squelch circuits operate normally in presence of any carrier. TONE ..... Squelch opens (unsquelches) only on selected signals (signals containing a 150 Hz tone modulation).
Tens megahertz frequency selector.	Selects ten megahertz digit of operating frequency.
Units megahertz frequency selector.	Selects units megahertz digit of operating frequency.
Tenths megahertz frequency selector.	Selects tenths megahertz digit of operating frequency.
Hundredths megahertz frequency selector.	Selects hundredths megahertz digit of operating frequency.
Frequency indicators.	Displays operating frequency of FM radio in megahertz.

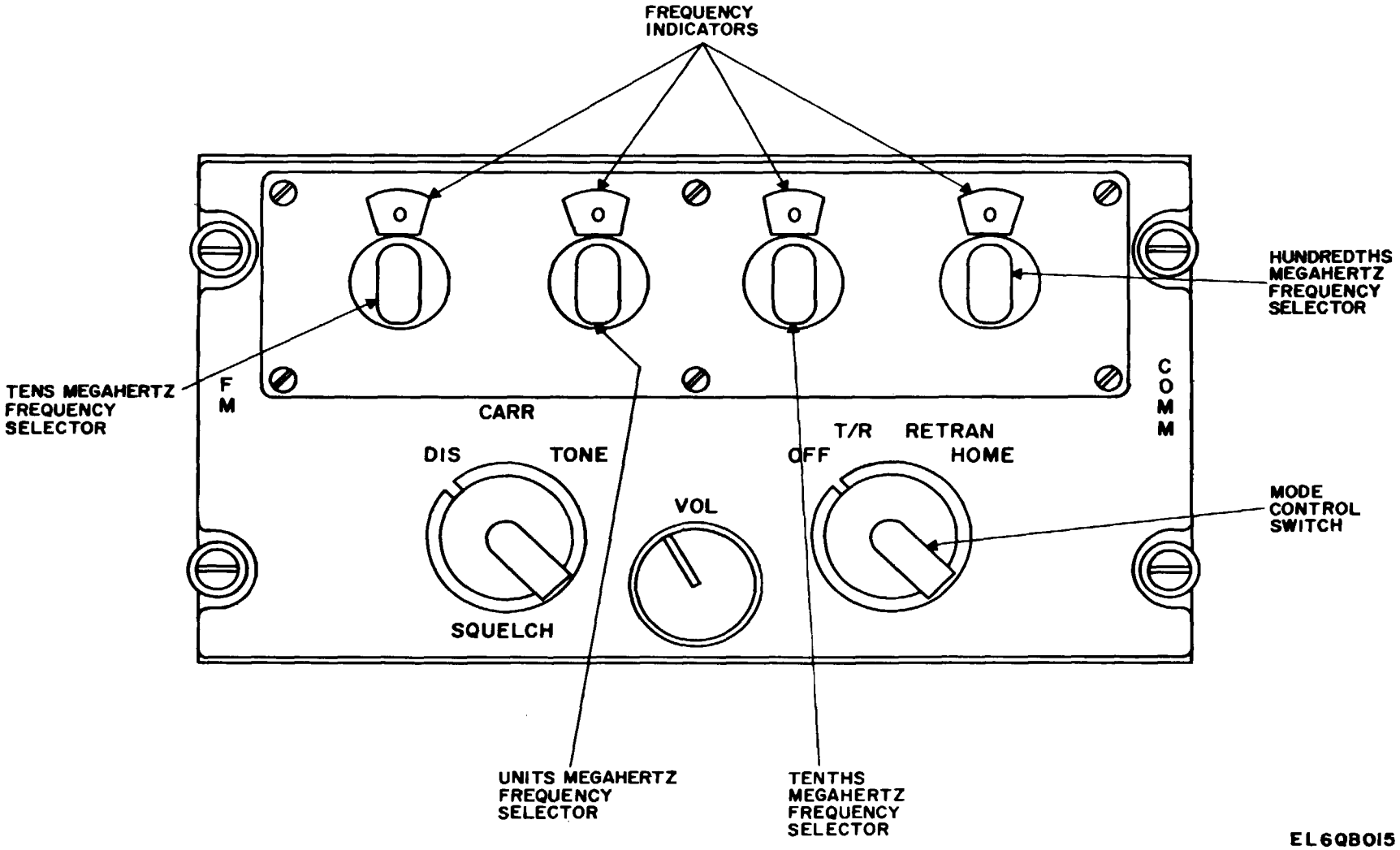

Figure 3-2. Control, Radio Set C-7088/ARC-131.

Table 3-3. Control Indicator C-8157/ARC, Controls and Indicators (fig. 3-3)

Controls/indicators	Function
POWER switch (two-position locking toggle).	Applies or removes power (28 vdc) to associated KY-28 cipher equipment.
POWER ON Indicator.	Lights when power is applied.
PLAIN/CIPHER switch.	Selects clear (PLAIN) or encrypted (CIPHER) mode of operation on associated FM radio.
PLAIN indicator.	Lights when FM radio is in clear (PLAIN} mode.
CIPHER indicator.	Lights when FM radio is in encrypted (CIPHER) mode. (CIPHER indicator will light with or without KY-28 installed).
ZEROIZE switch (two-position locking toggle switch under spring loaded cover).	Normally in off (down) position. Placed in on (up) position during emergency situations to neutralize and make inoperative the associated KY- 28 cipher equipment.
RE-X/REG switch (two-position locking toggle).	RE-X ..... Permits ciphered communication through a retransmission unit at a distant location. (Not used in normal console operations.) REG ..... Permits normal ciphered communication

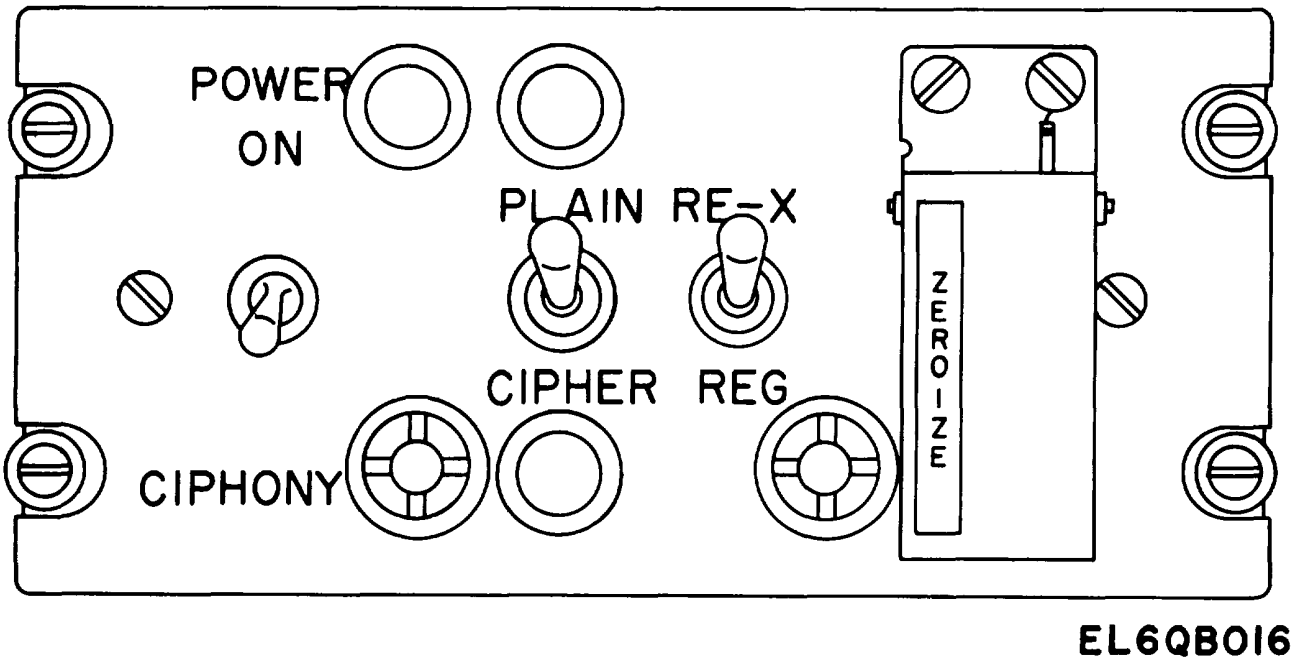

Figure 3-3. Control, Radio Set C-7088/ARC-131.

Table 3-4. Receiver-Transmitter, Radio RT-1167/ARC-164, Indicators and Connectors (fig. 3-4)

TM

Controls/indicators	Function
Hundredths frequency selector switch.	Selects 100's digit of frequency (either 2 or 3) in MHz.
Tens frequency selector switch.	Selects 10's digit of frequency (0 through 9) in MHz.
Units frequency selector switch.	Selects units digit of frequency (O through 9) in MHz.
Tenths frequency selector switch.	Selects tenths digit of frequency (O through 9) in MHz.
Hundredths and thousandths frequency selector switch.	Selects hundredths and thousandths digits of frequency (00, 25, 50, or 75) in MHz.
Present channel selector switch.	Selects one of 20 preset channels.
MANUAL-PRESET-GUARD.	Selects method of frequency selection: MANUAL-Any one of 7, 000 frequencies is manually selected using the five frequency selector switches. PRESET-Frequency is selected using the preset channel selector switch for selecting any one of 20 preset channels. GUARD-Main receiver and transmitter are automatically tuned to guard frequency and guard receiver is disabled.
SQUELCH switch.	Enables or disables squelch of main receiver.
VOL control.	Adjust audio level.
TONE switch.	Enables transmission of a 1020-Hz tone on selected frequency. (Tone-modulated signal may be used to check out radio set and isolate faulty microphone circuitry.)
Function selector switch.	Selects operating function: OFF--Removes power from radio set. MAIN-Enables main receiver and transmitter. BOTH-Enables main receiver, transmitter, and guard receiver. ADF-Enables ADF or homing system (if installed) and main receiver.
BW switch (NB-WB).	Selects wideband or narrow-band selectivity of main receiver.
SQ-MN control.	Adjust threshold level of squelch for main receiver.
SQ-GD control.	Adjusts threshold level of squelch for guard receiver.
PRESET switch.	Stores selected frequency in selected preset channel.
Fuse (F 1).	28 vdc input line (SA). (A spare fuse is stored in back of RT.)
Antenna connector (J2).	Connects radio set to suitable antenna.
Fuse (F2).	27 vdc output line (1A) (not used with RT-1167/ARC-164(V) configuration).
Electrical connector.	Connects radio set to existing control lines.
Auxiliary connector (J3).	Used for testing of radio set and dual control operation. (Requires additional equipment not supplied-not used in normal console operations.)

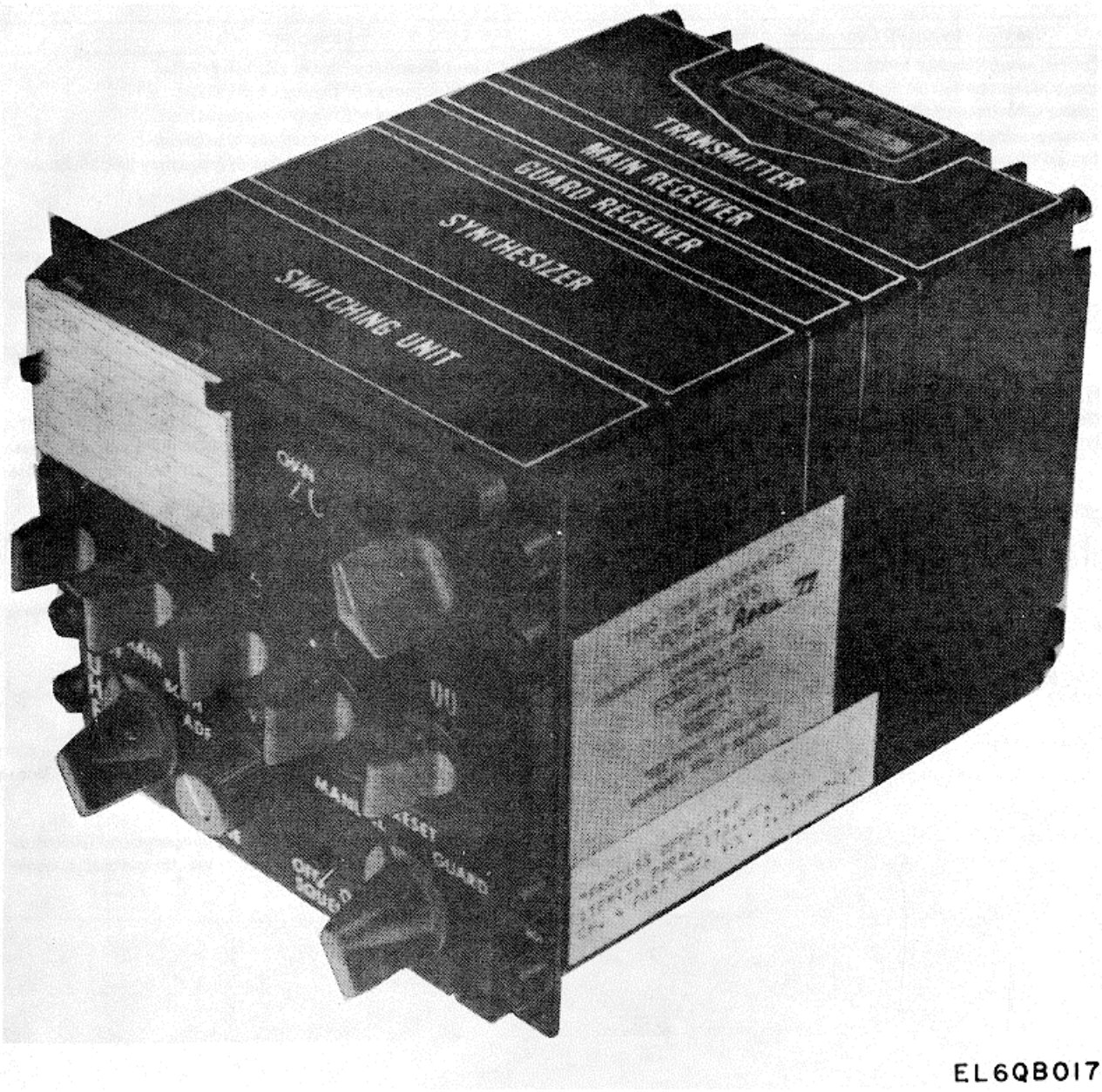

Figure 3-4. Receiver-Transmitter, Radio RT-1167/ARC-164.

Table 3-5. Control Radio Set C-6287/ARC-51BX, Controls and Indicators (fig. 3-5)

Controls/indicators	Function
Function select switch (four-position rotary switch).	Applies power to ARC-51BX radio and selects mode of operation: OFF..... Removes power from ARC-51BX radio. T/R ..... Enables transmission and reception; guard receiver is inoperative. T/R+G Permits transmission and reception; guard receiver is _operative. ADF..... Not used on console.
Mode selector switch.	PRSET CHAN..... Enables selection of preset channel using PRESET CHAN selector control. MAN..... Enables selection of normal T/R operating frequency. GD XMIT..... Enables selection of guard transmitter frequency.
10-megahertz control (18-position rotary switch).	Selects operating frequency in 10 MHz steps (first two numbers left to right on MC indicator).
1-megahertz control (10-position rotary switch).	Selects operating frequency in 1-MHz steps (third number on MC indicator).
O.1-megahertz control (10-position rotary switch).	Selects operating frequency in 0.1 MHz steps (fourth number on MC indicator).
MC indicator.	Indicates selected operating frequency in megahertz.
VOL control.	Adjusts audio output level.
SQ DISABLE switch.	OFF..... Squelches receiver output at preset threshold levels. ON ..... Removes squelch from receiver output.
PRESET CHAN selector control	Selects 1 of 20 preset operating channels.

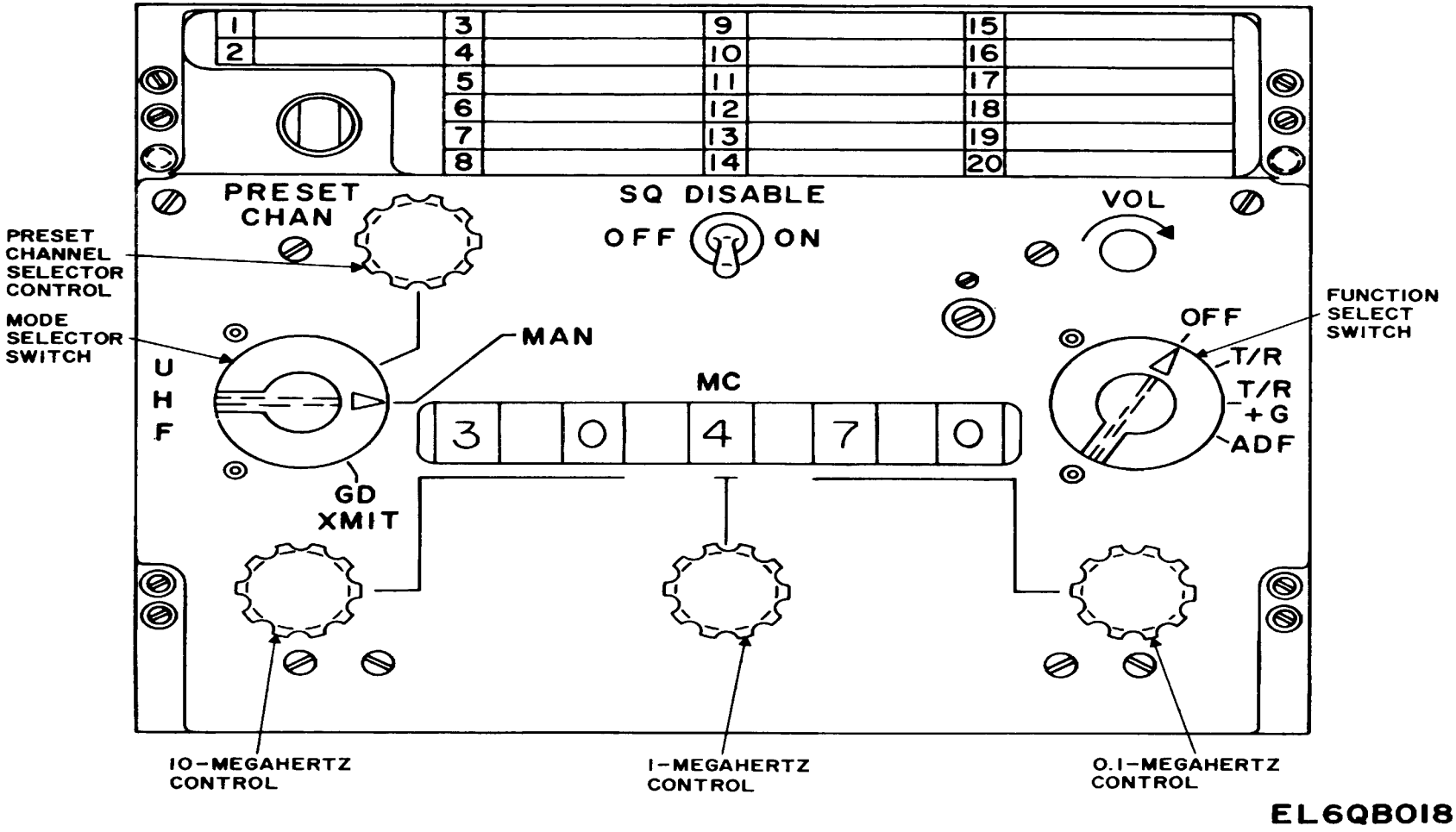

Figure 3-5. Control, Radio Set C-6287/ARC-51BX.

Table 3-6. Console Control Panel Controls, Indicators and Connectors (fig. 3-6)

Controls/indicators	Function
POWER IN connector.	Connection point for primary power from helicopter dc power supply.
POWER switch.	Applies or removes primary power throughout the console.
POWER indicator.	Lights when primary power is applied throughout console.
FM-1, FM-2 and FM-3 SEC. indicators.	Lights when associated FM radio is in ciphered mode of operation. Lights with or without KY-28 equipment installed.
INT. circuit breaker.	Single-ganged 5-ampere circuit breaker which provides control and overload protection for the console from the ICS boxes.
SEC. circuit breaker.	Single-ganged 10-ampere circuit breaker which provides control and overload protection for console from security equipment.
FM-1 circuit breaker.	Single-ganged 15-ampere circuit breaker which provides console with control and overload protection from FM-1 radio.
FM-2 circuit breaker.	Single-ganged 15-ampere circuit breaker which provides console with control and overload protection from FM-2 radio.
FM-3 circuit breaker.	Single-ganged 15-ampere circuit breaker which provides console with control and overload protection from FM-3 radio, or ARC-164 radio, or ARC-51BX radio, as configured.
ANTENNAS coaxial connectors.	Connection point for respective antenna cables: FM-1..... To copilot's side FM antenna. FM-2..... To pilot's side FM antenna. UHFIFM-3 ..... To center rear FM antenna or UHF antenna.
FM-I connector.	Connection point for antenna control cable to right-hand FM antenna.
FM-2 connector.	Connection point for antenna control cable to pilot's side FM antenna.
FM-3 connector.	Connection point for antenna control cable to center rear FM antenna.
Plug Connector U-94A/U (six, press-to-talk, cord switch mounted, headset-microphone jacks).	Connection point for headset-microphone. Press-to-talk enables operator to transmit on selected radio or intercom system.

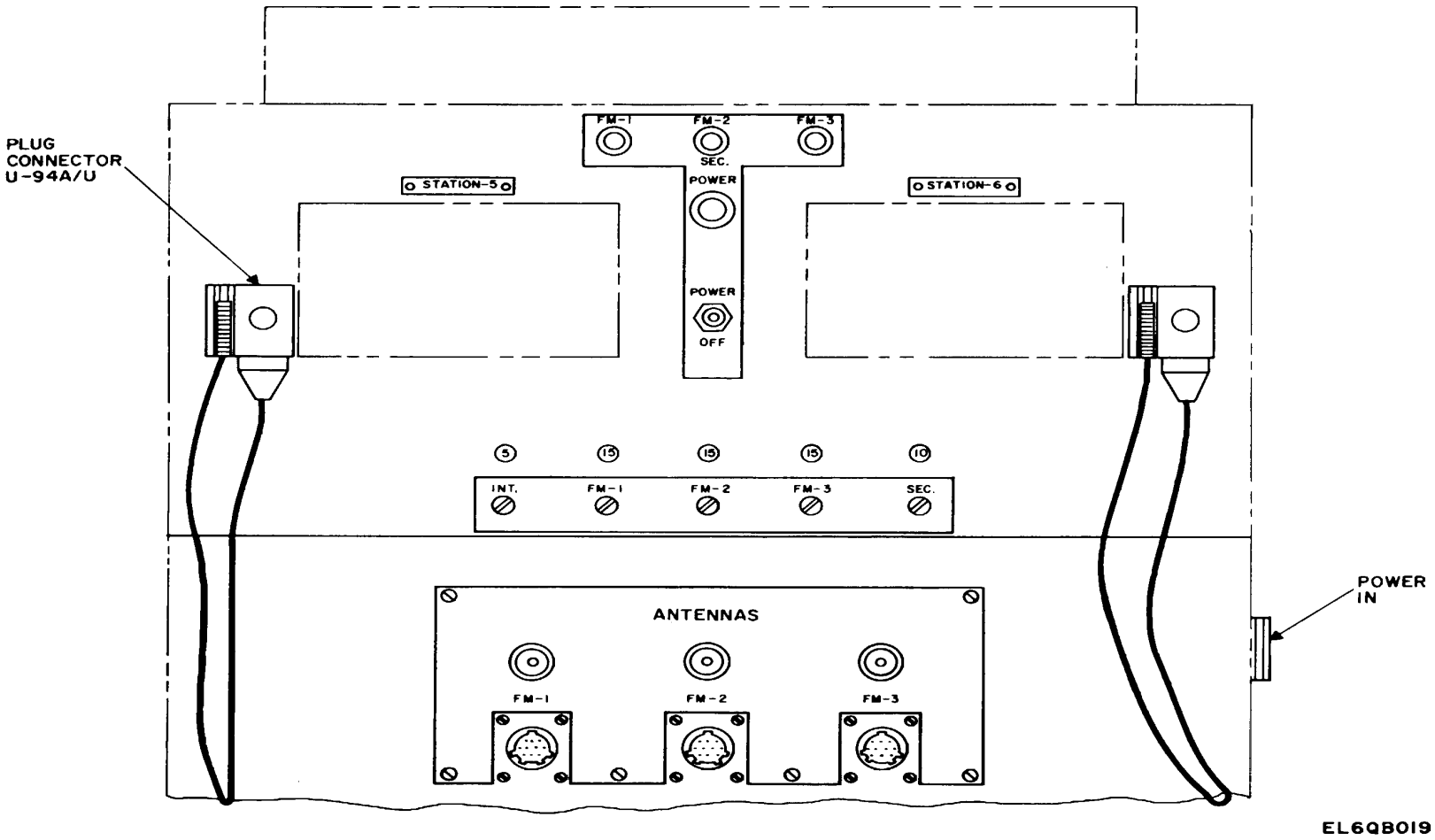

Figure 3-6. Console Front Panel.

Section II. COMMAND POST OPERATION

3-3. General

a. The AN/ASC-15A(V)1 includes controls for three operator positions controlling three ARC-131 radios (VHF-FM) or an ARC-164 in number 3 FM station. The ARC-131 radios can be encrypted with TSEC/KY-28's but not the ARC-164. The AN/ASC-15A(V)2 has two ARC-131 radios and two associated TSEC/KY-28's, the third station controls the ARC-51BX radio or the ARC-164 radio.

b. The console may be operated in four separate modes: receiver monitoring, two-way voice communications, intercommunication between operators, or secure/nonsecure automatic retransmission. Any of the three VHF-FM radios may be used to receive or transmit plain or ciphered communications. Refer to KAM-248A/TSEC manual listed in appendix A.

3-4. Preliminary Starting Procedure

Prior to energizing the console, the following controls should be set to the positions specified below to establish the system in a preoperational, shutdown condition. When performing the preliminary starting procedure, make sure the AN/ASC-15(A)V(*) CONSOLE circuit breaker is in the OFF (out) position.

Console Controls	POWER switch	OFF
(V)1 and (V)2	INT circuit breaker.....	out
FM-1 circuit breaker	.....	out
FM-2 circuit breaker	.....	out
FM-3 circuit breaker	.....	out
SEC circuit breaker	.....	out
ICS box-stations 1	RECEIVERS 1, 2, 3, 4	
and 2, (V)1 and	switches.....	off (down)
(V)2 versions	RECEIVE RS NAV switch	off (down)
RECEIVERS INT switch	.....	off (down)
VOL control	counter-clockwise	
	Transmit-interphone selector switch .....PVT	
FM control head-	Mode control switch	OFF
stations 1, 2	VOL control.....	counter
and 3		clockwise
	SQUELCH switch.....	DIS
	Frequency selector switches (4).....	optional
KY-28 control	POWER ON switch	OFF
head	PLAIN/CIPHER switch	PLAIN
	RE-X/REG switch.....	REG
	ZEROIZE switch.....	off (down)
KY-28 control	POWER ON switch	OFF
head stations	PLAIN-CIPHER.....	PLAIN
1, 2, and 3	RE-X/REG.....	REG
	ZEROIZE.....	off (down)
ARC-51BX control head-station 3-(V)2 only	Function select switch.....	OFF
	Preset channel selector	1
	SQ DISABLE switch.....	OFF
	Frequency selector switches.....	as desired
ARC-164 radio	Function switch	MAIN
	MANUAL-PRESENT-GUARD switch.....	
	MANUAL SQUELCH	ON
	SQ-MN.....	counterclockwise until noise is heard. Then turn control clockwise until receiver is quiet. Turn clockwise an additional 1/8 turn.
	Function switch	BOTH
	NOTE Main receiver SQUELCH must be in the ON position.	
ICS box-stations 4,	RECEIVERS switch (4).....	off (down)
5 and 6, (V)1 and	RECEIVERS NAV switch.....	off (down)
(V)2 versions	RECEIVERS INT switch	off (down)
	VOL control.....counter-clockwise	
	Transmit-interphone selector switch .....PVT	

3-5. Cable Connection for Command Post Operation (fig. 3-7 and 3-8)

a. Ensure cable connector No. 49 is connected to No. 50 (fig. 3-8).

b. Ensure plug P1 (35), plug P2 (35), plug P1 (36), and plug P2 (36) are connected to their respective KY-28's or to the bypass box (fig. 3-7).

c. Ensure cables for the HYL-3 regenerative-repeater are properly stowed.

d. If the RT-1167/ARC-164 is to be used, ensure that both ends of its cables are properly connected (para 1-12 and para 2-3a).

e. Secure retransmission system monitor KY-28 connector No. 56 on connector No. 52 and the HYL-3/TSEC No. 53 (RT-1) connector and No. 55 (RT-2) connector to the two bypass connectors No. 60. The X-mode connector No. 47 is held by the clamp directly below the bypass connectors, and power connector No. 59 is attached to the lower clamp. Remaining connectors are attached for normal command post operation (para 3-7). 3-6. Starting Procedure

The console controls shall be set according to preliminary starting procedure (para 3-4). Take note of the following to ensure proper operation of the

ARC-131 radio set in the retransmit mode. An installation including two ARC-131 radios is required for retransmit operation. The squelch controls (both control units) will be set to the desired squelch mode. Do not attempt retransmit operation with the squelch controls set to DIS. Both controls must be set to CARR or TONE. Adjust the frequency controls (both control units) for the desired operating frequencies. To operate satisfactorily, both ARC-131 radios must be tuned to frequencies at least 3 MHz apart. If however, the antennas are 5 feet apart, then the frequency separation must be 10 MHz. When antennas are spaced greater than 8 feet apart, the frequency spacing may be decreased. Either radio set can be used for normal push-to-talk operation by pressing the transmit button. Perform the following starting procedures for the console:

CAUTION

Before keying a radio, make sure appropriate rf cabling and antenna connections are made; otherwise, damage to the radio may occur.

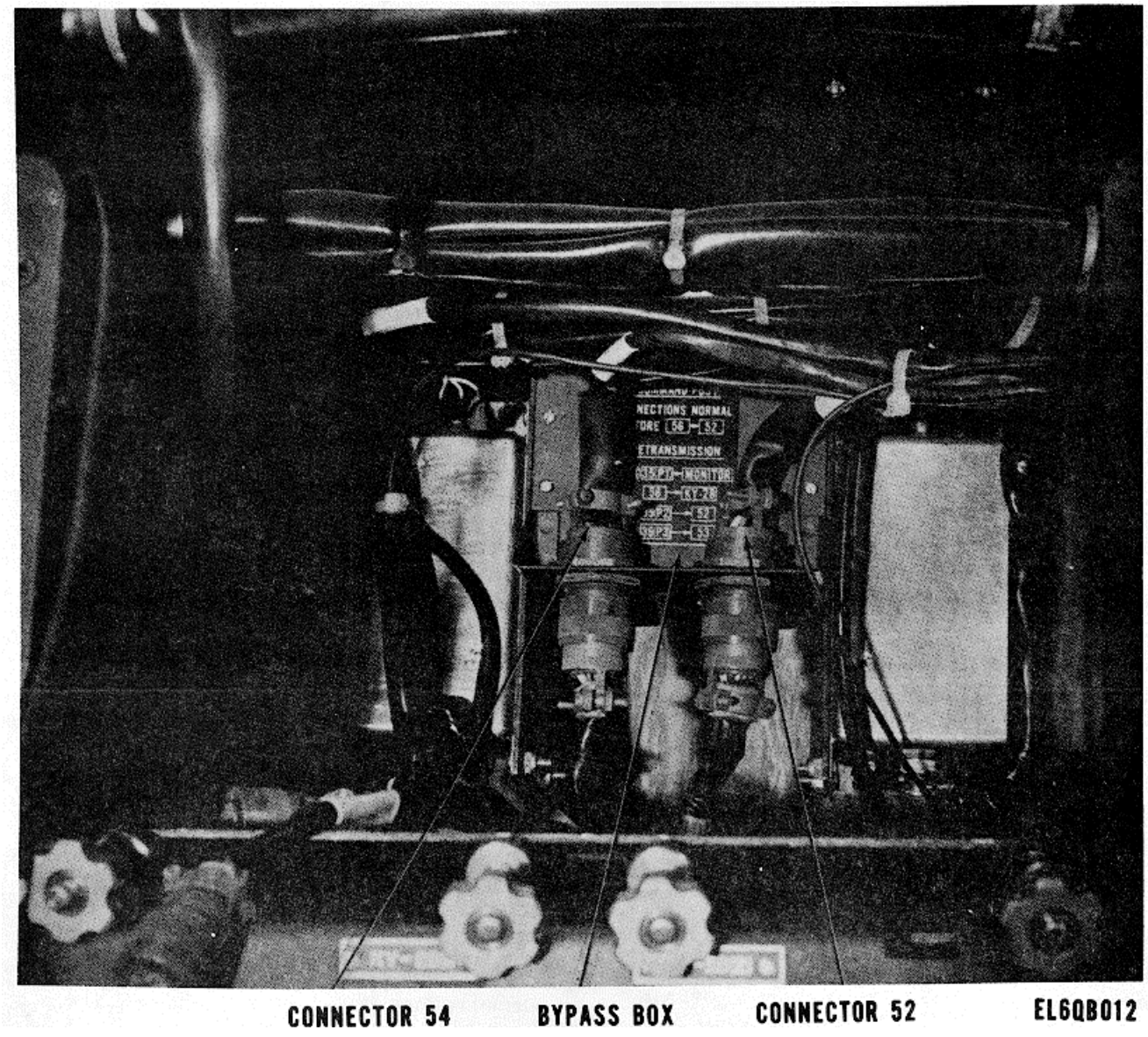

Figure 3-7. Bypass Box Cable Connection.

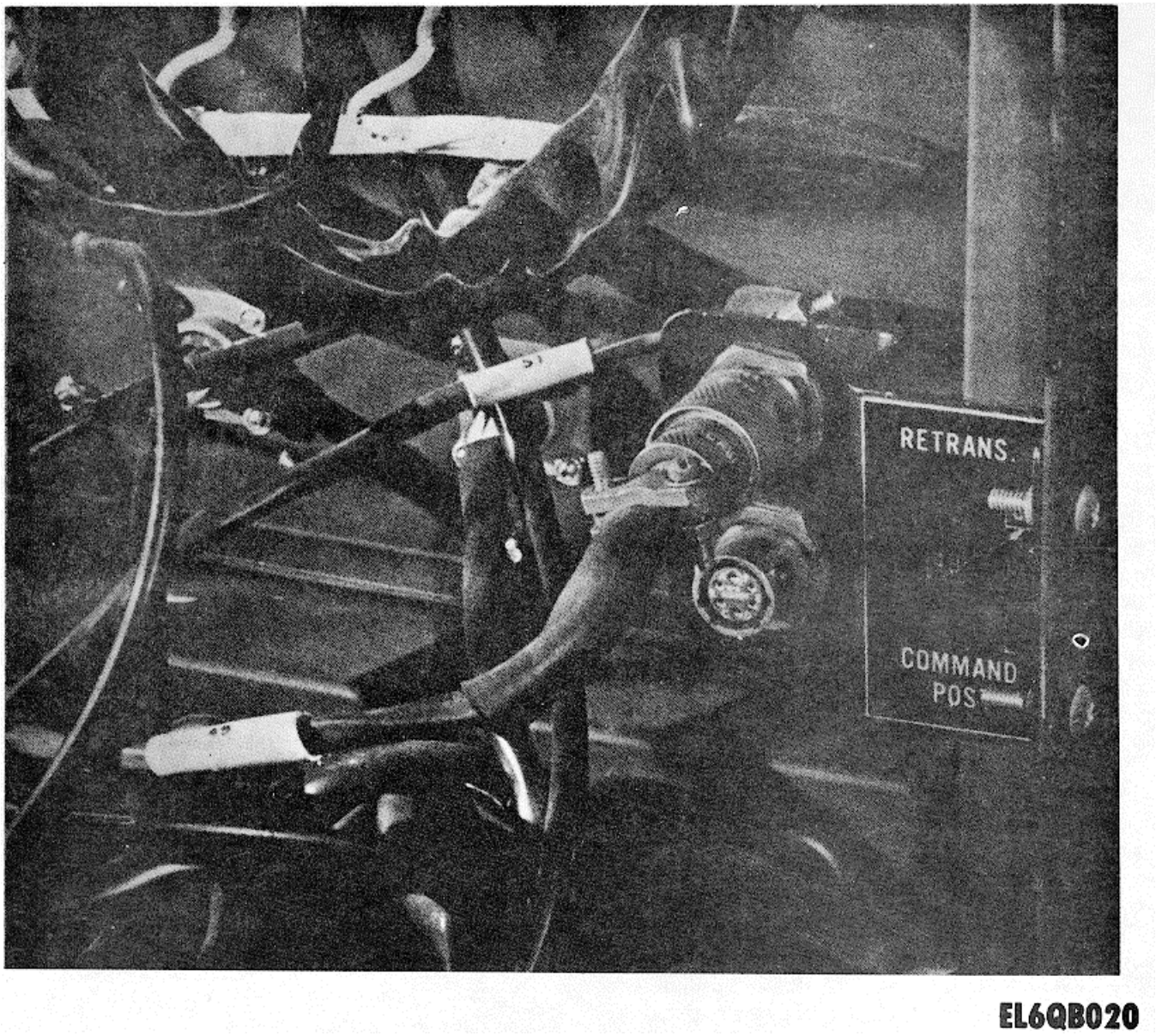

Figure 3-8. Retrans Bracket Cable Connections.

Step	Component	Control	Position	Indications
1	Console	POWER	(up)	POWER indicator on console lights.
		INT circuit breaker	in	
		FM-1 circuit breaker	in	
		FM-2 circuit breaker	in	
		FM-3 circuit breaker	in	
		SEC. circuit breaker	in	
2	(Two-way voice commumca-tions)			
	ICS box-stations 1, 2 and 3	Transmit-interphone selector	UP position as desired	
	FM control head-stations 1, 2 and 3	Mode	T/R	Channel changing tone should be tuning. When tone stops, radio set is heard in headset while radio is tuned.

Step	Component	Control	Position	Indications
	(Retransmit operation)			**CAUTION**
	FM control head station 1	Function selector	RETRAN as desired	Do not key radio while it is changing frequency.
3	Station 3 with ARC-164 radio	Function selector	BOTH	Press TONE switch and listen for 1020 Hz tone with ICS box RECEIVERS 4 switch ON.
		VOL	Clockwise (as desired)	
		SQUELCH	ON	
	ARC-51BX control head,	VOL	Clockwise (as desired)	
	(V2) version	DISABLE	OFF	
		Function selector	T/R	Panel indicator light illuminates
4	KY-28 control head	POWER	ON (up)	PQWER ON indicator on KY-28 control head lights.
5	Stations 4, 5 and 6		ICS boxes switches UP (as desired)	None
6	HYL-3/PTSEC			Refer to KAM-248A/TSEC for starting operating, and
	stopping			procedures.

3-7. Preoperation

Preoperation of the command console may be divided into the following phases: preparation for daily operation, verification that the starting procedure has been accomplished, and verification that the console operating accessories are properly connected. Normal operation includes these phases: nonsecure/secure radio operation, two channel intercommunication (with six stations), and automatic secure and nonsecure retransmission.

a. If the system is in operational status and the operator is merely assuming duties from another operator, omit *b* through *d* below. If the system is in a nonoperational status, perform *b* through *d* below.

b. Check that all cable connections are properly connected for the assigned mission.

c. Ensure that the clock has been wound and indicates the correct time, and that all radios and cryptogear, including the HYL-3, is installed.

d. Check that the starting procedure of paragraph 3-6 has been accomplished and that all radio channels are set at the frequency specified in the station frequency plan.

e. To establish communication on the nonsecure radios, proceed as detailed in paragraph 3-8b(1).

f. To use the intercommunication facilities, proceed as detailed in paragraph 3-8a

g. To establish communication on the secure radio, proceed as detailed in paragraph 3-8b(2).

h. To shut down the equipment, perform the stopping procedure in paragraph 3-9.

3-8. Operating Procedures

Operating procedures for command console AN/ASC-15A(V) vary according to the equipment configuration. The equipment is determined by the communication mission assigned. There are three basic missions (modes of operation) that the equipment can perform, these are: command post; retransmission of plain and secure voice com- munications; and retransmission of plain voice communications only (no monitoring).

WARNING

This console is not a secure means of communications unless all of its associated RT's are equipped with COMSEC security devices. When operating with less than a full complement of COMSEC equipment, do not transmit on a nonsecure RT while classified information is being discussed on any other channel of this console. This also includes the associated intercom system.

a. Intercom Operation (fig. 3-1). Two methods of intercom operation are available to the pilots and operators as follows:

(1) *Normal intercom (INT).*

(a) Set the applicable ICS box RECEIVERS INT switch to ON to receive intercommunications.

(b) Set the applicable ICS box transmit- interphone selector switch to INT to talk on the intercommunications circuit.

(c) To talk, press the press-to-talk switch on the associated U-94A/U and speak into the headset-microphone. Release the press-to-talk switch to listen.

(d) Adjust each applicable ICS box VOL control to attain a comfortable listening level.

(2) *Private (PVT) INT.* A circuit is provided to enable any two or more positions to talk privately without interruption.

(a) Set the applicable ICS box transmit-

interphone selector switch to PVT on the private intercom.

(b) Set the desired applicable ICS box RECEIVERS INT switch down to converse on the private intercom without listening to the normal intercom.

(c) Complete the procedures given in (1)(c) and (1)(d) above.

b. Command Post Radio Operation. The radios can be operated from any console position. Any FM radio can be operated in an unciphered or ciphered mode depending upon installed equipment.

CAUTION

PLAIN/CIPHER indicator lamps will light with or without cipher equipment installed. Check that TSEC equipment is installed and connected prior to cipher mode operation.

(1) *Plain mode operation (unciphered).*

(a) Set the PLAIN/CIPHER switch on the KY-28 control head to the PLAIN position. The PLAIN indicator lamp (red) should light.

(b) Set the applicable ICS box transmit- interphone selector switch that is associated with your headset as follows:

For UHF communications, set switch to 4.

For FM-1 radio communications, set switch to 1.

For FM-2 radio communications, set switch to 2.

For FM-3 radio communications, set switch to 3.

CAUTION

Ensure that antennas are connected before transmitting.

(c) Press the press-to-talk switch on the applicable U-94A/U and speak into the microphone to transmit. Release the switch to listen.

NOTE

Receipt of a ciphered message will be indicated by the presence of a short beep in the headset. If such a tone is heard, the cipher equipment must be adjusted for receipt of a ciphered message as in (2) below.

(2) *Cipher mode operation*

(a) Set the PLAIN/CIPHER switch on the KY-28 control head to the CIPHER position. The CIPHER indicator lamp (green) should light.

(b) For only the KY-28 control head and its associated cipher equipment, set the RE-XIREG switch to REG. A constant tone of 1, 200 Hz should be heard for approximately two seconds. After two

seconds, the tone should be interrupted at a 2.3 Hz rate.

(c) The cipher equipment is placed in a standby condition by pressing and immediately releasing the respective push-to-talk switch. The preamble tone should no longer be audible.

NOTE

Do not talk for approximately two seconds after pressing the U-94AIU press-to-talk switch. This permits the crypto equipment to reach full operation.

(d) To transmit, press the press-to-talk switch of the appropriate U-94A/U. In approximately one- half seconds, a beep will be heard. This indicates the receiving station is now capable of reception. Transmission can begin.

CAUTION

Only one ciphered message can be transmitted at a given time on a given frequency. Simultaneous transmission by two (or more) secured transmitters on the same frequency will result in the garbling of messages and possible loss of synchronization in the receivers. Always monitor the transmit frequency before transmitting to assure noninterference with another transmitter.

(e) When transmission is complete, release the press-to-talk switch. The cipher equipment is now returned to the standby condition.

(f) To receive, it is necessary for another station to send a transmission. Upon receipt of the signal, the cipher equipment will be automatically switched to the receive condition. At the same time a short beep will be heard in the headset. Reception will then be possible. Upon loss of the signal, the cipher equipment will be automatically returned to the standby condition.

3-9. Normal Stopping Procedures

The console may be disabled by setting the POWER circuit breaker to OFF. If this is done, the individual components must be set to their respective off positions before restarting. To perform the normal stopping procedure for the individual components, set the controls to the positions given in the chart below.

Component	*Control*	*Position*
Stations 1 through 6 ICS boxes	RECEIVERS 1, 2, 3, 4 switches	off (down)
	RECEIVERS INT switch	off (down)
	VOL control	full counter-clockwise

Component	*Control*	*Position*
FM control head-stations 1. 2, 3	Mode control switch	OFF
	VOL control.....	full counter clockwise
	SQUELCH switch	TONE
KY-28 control head-stations 1, 2 and 3	POWER switch	off (down)
	PLAINICIPHER switch.....	PLAIN
	RE-XREG switch	REG
	ZEROIZE switch	off (down)
ARC-51BX control head-station 3, (V2) version	POWER ON-OFF switch	OFF
	Function select switch	OFF
ARC- 164 radio Console controls	Function switch.....	OFF
	POWER switch.....	OFF

Section III. RETRANSMISSION OPERATION

3-10. General

a. When the HYL-3/TSEC is installed, the retransmission channel will retransmit either plain or secure voice signals automatically. For the console operator to monitor secure voice retransmissions, a TSEC/KY-28 must be installed in the console KY-28 number 1 mount.

b. The purpose of retransmission is to provide a means of VHF-FM communication between two ground stations that would otherwise not have a reliable link between them. Mountainous terrain, long distance, high building or dense forest may contribute to link unreliability. Retransmission may be used to increase link reliability. The console should be configured for its retransmission communication mode and the equipment fully checked for operation before beginning the mission. (See preliminary starting procedures.) In addition, coordination between other stations (terminal stations) should be accomplished. The coordination for retransmission involves the selection of operating frequencies to minimize interference and geographic areas to best serve ground stations. The operator may assist the ground stations in establishing the retransmission link once airborne. The operator should make contact with ground station 1 and ground station 2 and monitor the channel to ensure the two stations can communicate with each other. For instructions on selection of retransmission frequencies to minimize interference refer to paragraph 3-14(e).

c. For proper operation of the AN/ASC-15A(V)(*) retransmission channel, all squelch switches should be placed to TONE. To be compatible with this, terminal stations should have their squelch controls set as follows:

NOTE

Terminal stations using the TSEC/KY-8 and RT-524/VRC combination which used a single (not branched) radio-X-mode interconnecting cable (and not auxiliary audio amplifier), must switch between

OLD SQUELCH ON for ciphered communications and NEW SQUELCH ON for plain communications. All other terminal stations should use the tone squelch modes only (i.e., AN/PRC-77: FUNCTION switch to SQUELCH, AN/VRC-12 series: NEW SQUELCH ON: etc.) for both ciphered and plain communications.

3-11. Retransmission Preliminary Starting Procedures

a. Tone Squelch Modifications. Radio Set AN/ARC-131 received from the manufacturer may have the tone squelch disabled. To operate properly as part of the AN/ASC-15A(V)(*), the tone squelch must be enabled on each installed AN/ARC-131. Return the RT-823/ARC-131 and control head to general support maintenance to enable tone squelch, if necessary. The radio can be tested by communicating with an ANIVRC-12, RT-524, R-442 or RT-246 in the new squelch mode to determine if the tone squelch is functional; or communicate with another ARC-131, or aircraft with a KY-28 and ARC-131, set the squelch switch to the tone squelch position. Inspect the front panel of the C-7088/ARC-131 (FM control head) for a small black card which covers the word TONE on the 3rd position of the SQUELCH switch. If the word TONE is not covered by a card, proceed to step *b.*

b. Plain/Secure Radio Retransmission (fig. 3-7, 3-8 and 1-9). Ensure system connector No. 49 is connected to receptacle No. 51 of the retrans bracket assembly (fig. 3-8). Also, ensure KY-28 No. 1 (FM-1) connector 35 (P2) is connected to retransmission connector Not 52 (fig. 3-7). Likewise KY-28 No. 2 (FM-2) connector 36 (P2) is connected to retransmission connector No. 54 (No. 52 and No. 54 are attached to the new security bypass adapter box cover plate as shown in fig. 3-7). Retransmission monitor KY-28 connector No. 56 and KY-28 No. 1 (FM-1) connector 35 (P1) are to be connected to the

monitor KY-28 which is installed in the KY-28 No. 1 mount. The HYL-3/TSEC cables are attached as follows: No. 52 to RT/1, No. 55 to RT/2, and No. 57 to X-MODE connectors on the HYL-3; No. 59 to Power Adapter U-383/VR. These connections provide for monitoring on any C-1611D/AIC receiver position No. 1. Control Indicator C-8157(*)/ARC No. 1 powers and controls number 1 KY-28, which is used by the operator to monitor all secure retransmission traffic.

NOTE

When a monitor KY-28 is not available, attach connector No. 56 and No. 35 (P1) to the KY-28 No. 1 security bypass adapter box connectors. Plain text monitor and break-in only will be possible.

3-12. Retransmission Starting Procedures

a. Apply power to console. Make sure FM-1, FM-2, INT and SEC circuit breakers are pushed in (energized).

b. On the ICS box-1 set the VOL control to midposition and the transmit interphone selector switch to position 1.

c. On the HYL-3/TSEC, set the POWER switch to ON: VOLUME midposition, and FUNCTION switch to XMIT 2.

d. On FM control head station No. 1, set the SQUELCH switch to TONE; VOL control to midposition clockwise; MODE CONTROL switch to T/R; and the frequency selector to operating frequency of the channel at station 1 (either ground terminal station may be designated channel station number one).

e. On FM control head station No. 2 (center unit) set the FUNCTION switch to T/R, SQUELCH switch to TONE and the frequency selector to the operating frequency of channel station 2.

f. After the transceivers have *cycled to* the operating frequencies, set the FUNCTION switch on the HYL-3 to RETRANS.

g. Plug the H-157/U (headset) into the U-94A/U from the operator's C-1611(*)/AIC position one.

3-13. Retransmission Preoperation Procedures

NOTE

Monitor means for the operator at station 1 to listen to the message traffic that is being retransmitted between ground stations. If the link fades out, the operator shall assist the ground stations to reestablish the link. This is done by the operator transmitting through the HYL-3/TSEC or by using the FM-3 to

assist. It may be necessary for the pilot to relocate the helicopter to regain link transmission.

NOTE

Set XMTR HI-LO switch on both transceivers (RT-823/ARC-131) to LO whenever possible to limit range and the possibility of rf interference problems.

a. Place HYL-3/TSEC FUNCTION switch to XMIT 1; press the push-to-talk (ptt) switch on the U-94A/U and make contact with ground station 1; adjust the volume controls on the ICS box, the FM control head, and on the HYL-3/TSEC for normal listening level; have station 1 standby for initial contact with station 2.

b. Place HYL-3/TSEC FUNCTION switch to XMIT 2; press the ptt switch and make contact with station 2; have station 2 wait 5 seconds and then make a call to station 1; place HYL-3/TSEC FUNCTION switch to RETRANS.

c. Monitor transmissions between stations 1 and 2 to determine if communication is taking place.

NOTE

When operating with the HYL-3/TSEC, either plain or secure voice messages will be automatically retransmitted. No special adjustments are required for secure voice retransmission other than those made for plain voice above.

d. If secure voice operation is used, it is necessary for the AN/ASC-15(V)(*) operator to monitor secure voice retransmission or communicate with stations in the secure voice mode. A TSEC/KY-28 and a C-8157/ARC must be installed in the AN/ASC- 15A (V)(*) for secure voice operation.

CAUTION

When operating an AN/ASC-15A(V)(*) with TSEC/KY-28 installed, be careful not to accidentally actuate the ZEROIZE switch on the C-8157/ARC or open the access door on the TSEC/KY-28. To do so will prevent further secure voice operation.

3-14. Retransmission Operating Procedures

a. While listening in the headset on the No. 1 C-8157/ARC, place the PLAIN/CIPHER switch to CIPHER, the RE-X REG switch to REG, and the POWER switch to ON (or, if already ON, switch to off (down) and then back to ON). A constant tone of 1200 Hz should be heard for approximately two seconds. After two seconds, the tone should be interrupted at a 2.9 Hz rate.

NOTE

In the secure voice mode, volume for ciphered signals is controlled by the VOL control on the C-1611D/AIC while plain signals volume is controlled by both the C-1611D/AIC and the HYL-3/TSEC VOL controls.

b. Momentarily press the ptt switch on the U-94A/U. The interrupted tone should no longer be heard in the earphone and secure voice messages can now be heard on the monitored channel.

c. To transmit to either station in the secure voice mode, place the HYL-3/TSEC FUNCTION switch to XMIT 1 or XMIT 2 as desired; press the ptt switch, wait for the beep tone and then speak into the microphone.

NOTE

If at any time it is desired to operate in the plain voice mode with the TSEC/KY-28 installed, place the PLAIN-CIPHER switch on the C-8157/ARC to PLAIN. In the plain voice mode the beep tone is not heard in the earphone when the ptt switch is pressed.

d. The channel may be operated without an HYL-3/TSEC installed and retransmit plain voice signals only. The HYL-3/TSEC cables No. 53 (RT/1) and No. 55 (RT/2) are attached to the two bypass connectors No. 60. Since a monitor capability is not provided in this hookup, an FM-3 radio should be used for contact and one-terminal monitor on operator C-1611/AIC position 3.

e. Radio retransmission is an arrangement of two radios connected together to provide automatic retransmission of signals between two radios that are too far apart to communicate directly with each other. Frequencies selected for the receiver-transmitters at the retransmission site must be such that the transmitting power of one will not interfere with the signals being received on the frequency of the other receiver-transmitter. The frequencies selected should be considered as follows. (1) Fl and F2 must be separated by at least 10 MHz.

(2) Do not use frequencies which are separated by exactly 5.75 or 24.00 MHz,

(3) Do not use frequencies which are in the order of the second harmonic. For example, the frequency setting of 30.00, 32.65, and 35.00 will possibly interfere with a radio using 60.00, 65.30 and 70.00 MHz, respectively. Changing either the lower frequency or the higher frequency should eliminate the interference that may occur.

(4) Use the retransmission interference charts (fig. FO-1) as a guide in selecting frequencies that will not interfere with the radio that is continually in close proximity to the other. These charts are used to determine interfering frequencies that should not be selected for use by retransmission configuration ARC-131 radio sets. The black areas indicate mutually interfering frequencies. For example, there would be interference between 31.45 MHz and the following: 53.70 (±10 kHz), 54.45 MHz (±10 kHz), 55.45 MHz (±10 kHz), 57.30 (±10 kHz), 60.15 (±10 kHz), 61.55 MHz (± kHz), etc.

(5) Observe the recommended minimum frequency versus distance restrictions given below.

Minimum antenna distance separation
(whip antenna)

Minimum Frequency separation required	Between AN/ARC-i31	Between ANIARC-131 radios on LOW
10 MHz	56 feet	5 feet

(6) On the retransmission interference chart, transmitter frequencies are plotted in MHz along the bottom of the chart from left to right; receiver frequencies in MHz are plotted along the left-hand side of the chart from bottom to top. The heavy dark lines running through the chart are intersects of transmitter and receiver frequencies that are likely to interfere with each other. To use the chart, find the axis for all transmitter frequencies selected to use and go up to each receiver frequency in use; change any receiver frequencies that intersect at a darkened interference line. An example of using the chart is given below.

Example: Two ground stations desire to communicate with each other through retransmission station on 35.85 MHz (station 1) and 49.75 MHz (station 2). This will require that FM-1 and FM-2 transceivers in the AN/ASC-15A(V)1 and (2) be tuned to those frequencies. Since 10 MHz exists between frequencies it will only be necessary to check for interference on the retransmission interference chart figure.

(7) Transmitter frequency at 35.85 MHz will not interfere with a receiver at 49.75 MHz. However, as shown by the chart, a transmitter frequency at 49.75 MHz will interfere with a receiver at 35.85 MHz and therefore, the two retransmission frequencies are not acceptable.

f In the event of an emergency situation wherein the TSEC/KY-28 is likely to be captured by the enemy forces, set the ZEROIZE switch on the C-8157/ARC to up and open the access door on the TSEC/KY-28. Both of these actions will zeroize the TSEC/KY-28 and make further cipher communication impossible.

g. The console may be disabled by setting the Power OFF switch to OFF. Use this disabling procedure only as an emergency measure. Turn off the HYL-3 power switch and then follow the normal stopping procedures for the console in paragraph

CAUTION

When the aircraft is stored, or aircraft mission is completed, all COMSEC equipment shall be removed and secured for the next mission. Do not leave COMSEC equipment unsecured.

CHAPTER 4
OPERATOR/CREW MAINENANCE INSTRUCTIONS

4-1. General

To be sure the ANIASC-15A(V)(*) is always ready for operation, it must be inspected systematically so that defects may be discovered and corrected before they result in serious damage or failure. The necessary preventive maintenance checks and services to be performed are listed and described in tables 4-1 and 4-2. Table 4-1 covers the intermediate preventive maintenance checks. Table 4-2 covers the periodic maintenance check and services. The item numbers indicate the sequence of minimum inspection requirements. Defects discovered during operation of the unit will be noted for future correction, to be made as soon as operation has ceased. Stop operations immediately if a deficiency is noted during operation which would damage the equipment. Record all deficiencies together with the corrective action taken on DA Form 2407.

a. Systematic Care. The procedures given in tables 4-1, 4-2 and 4-3 cover systematic care essential to proper upkeep and operation of the AN/ASC-15A(V)(*).

b. Preventive Maintenance Checks and Services. The preventive maintenance checks and services tables outline functions to be performed at specific intervals. These checks and services are designed to maintain Army equipment in **a** combat-serviceable and mission ready condition. Routine checks and services are not included. Routine services such as cleaning, dusting, repairing cable insulation nicks and abrasions with electrical tape, and tightening loose nuts and bolts are to be performed when the need is obvious. If the equipment does not meet readiness/availability requirements, and the defect cannot be remedied by the operator/crew, higher level maintenance is required.

NOTE

Cover the console with drop cloth or plastic when not in use.

c. Tools, Test Equipment and Supplies Required Refer to appendix D for tool and test equipment requirements.

4-2. Intermediate Preventive Maintenance Checks and Services

Intermediate inspection provides verification of satisfactory operations at intervals of approximately 25 flying hours and will be performed concurrently with the intermediate inspection performed on the aircraft in which the equipment is installed. The maintenance interval must be adjusted to compensate for any unusual operating conditions. Intermediate maintenance must be performed on equipment maintained in a standby (ready for operation) condition concurrently with the intermediate inspection performed on the carrying aircraft that is in a standby condition. Equipment with a deficiency that cannot be remedied at the organizational level should be deadline in accordance with TM 38-750.

Table 4-1. Power-Off Inspection Procedure

Item No.	Item to be Inspected Procedure	Equipment Will Be Reported Not Ready (RED) If:
1	*Console chassis and hardware* Check concole chassis and hardward for blistered, pitted or flaking paint, bare spots, rust, corrosion, and general condition. Use touchup paint on bare spots and places where paint is blistered, pitted, or flaking.	Hardware is missing or damaged beyond use. Corrosion or rust interferes with console operation.
2	*FM Control* *a.* Clean the front panel. *b.* Verify that the four quick-release fasteners which secure the FM control to the console are secure. *c.* Verify that panel lampholders on the front panel are secure. *d.* Note that the frequency indicator window is secure and not damaged.	Routine services such as cleaning, dusting, tightening loose nuts, bolts, and fasteners are to be performed when the need is obvious.

Item No.	Item to be Inspected Procedure	Equipment Will Be Reported Not Ready (RED) If:
	e. Rotate the VOL control throughout its operating range: notice that it does not bind or rotate too freely. *f.* Check the front panel controls for obvious physical damage.	
3	*Intercommunication control* *a.* Clean the front panel. *b.* Verify that the quick-release fasteners which secure the intercommunication control to the console are secure. *c.* Check switches for proper mechanical action. Set each switch to each setting and check that action is positive without backlash or loosenss. Return all RECEIVERS switches to the OFF position after checking. *d.* Check whether knobs and levers are secure. *e.* Rotate VOL control throughout its entire range and check that action is smooth and knob is secure. *f:* Check that panel light housing is secure and in good condition.	Same as Item No. 2.
4	*KY-28control* *a.* Check that surfaces are clean, dry, and free of grease, dirt, and fungus. Clean as necessary. *b.* Check switches for proper mechanical action. Set each switch to each setting and check that action is positive without backlash or looseness. Return all switches to the OFF position. *c.* Tighten all loose bolts, nuts, screws, and clamps that secure the equipment. Replace missing hardware.	Same as Item No. 2.
5	*Antennas* Check antennas for secure mounting and secure connections.	Same as Item No. 2.
6	*Grounding system* Check that the negative ground terminal lug is securely tied to the rear wall of the battery compartment.	A condition is present which does not give the console a reliable, safe ground. The presence of grease or corrosion - creates a hazard to personnel or interrupts operations.
7	*Cables and connectors* Check interconnecting cabling for evidence of fraying or excessive strain. Check that all connectors are secure.	Cables are faulty, connectors loose, pins broken or loose. Cable jacket worn or cut through.

Table 4-2. Power-On Inspection Procedure

Item No.	Item to be Inspected Procedure	Equipment Will Be Reported Not Ready (RED) If:
1	*Starting Procedure* Perform the starting procedure, (para 3-3 and 3-4). Check for proper indications at each step.	If equipment is affected by a faulty circuit or fails to respond to controls.
2	*Operating Procedures* Perform the operating procedure, (para 3-5, 3-6, and 3-7). Check for normal operation at all operating positions and on all operational channels.	Same as Item No. 1
3	*Stopping Procedure* Performing stopping procedure (para 3-7)	

4-3. Periodic Preventive Maintenance Checks and Services

Perform the preventive maintenance procedure described in table 4-3 below, once each period interval, in addition to the intermediate preventive maintenance checks and services. To reduce out-service time, the periodic preventive maintenance should be performed every scheduled aircraft inspection. Perform all procedures in the sequence listed in table 4-3. Record all deficiencies in accordance with the requirements of TM 38-750. c

Table 4-3. Periodic Maintenance Checks and Services

Item No.	Item to be Inspected Procedure	Equipment Will Be Reported Not Ready (RED) If:
1	*Completeness*	
	Verify that console is complete.	Equipment is missing or not functional.
2	*Modification Work Orders*	
	Check that all URGENT MWO's have been applied to the equipment and that all NORMAL MWO's have been scheduled.	Current MWO's have not been applied.
3	*Publications*	
	Check that all pertinent publications are available. Technical manuals must be complete and in usable condition with all applicable changes posted.	Publications are missing, damaged, or not current.
4	*Control Units*	
	a. Remove the control units from the console and check for dirt and corrosion.	Routine services such as cleaning, dusting, tightening loose nuts, bolts and fasteners are to be performed when the need is obvious.
	b. Clean the control units.	
	c. Inspect the electrical connector on the rear of the control unit for signs of obvious physical damage.	Paragraph 5-6.
	d. Reinstall the control unit.	
5	*Radio Sets*	
	a. Remove the radio sets from the mounting and inspect for dirt and corrosion	Same as Item No. 4.
	b. Clean the radio sets.	
	c. Carefully inspect the electrical connector on the rear of the radio sets for signs of physical damage or evidence of improper mating.	
6	*Mounting*	
	a. While the radio sets are removed, check the mounting for dirt accumulation and corrosion.	Same as Item No. 4.
	b. Clean the mounting.	
	c. Carefully inspect the electrical connectors on the rear of the mounting for evidence of physical damage or improper mating.	
	d. Verify that all grounding straps are securely fastened to the frame of the console.	
	e. Verify that the resilient (shock) mounts operate smoothly.	
	f. Replace the radio sets in the mounting.	
7	*Console*	
	a. Perform the starting procedures.	If equipment is affected by a faulty circuit or fails
	b. Perform the operation procedures.	to respond to controls.
	c. Perform the stopping procedures.	None.

4-4. Visual Inspections of Communications Central AN/ASC-15A(V)(*) and 8-Day Clock

Minor defects and discrepancies which may develop into major troubles are usually detected beforehand when comprehensive visual inspections are con- ducted on a timely basis. Visual inspections can be successfully conducted during routine cleaning. Generally, items to look for during visual inspection include signs of deterioration, dirt, corrosion, and fungus; loose, damaged and missing items; and unusual noises and vibrations during operations. More specifically, some typical items to be checked by visual inspection include the following:

a. Damaged surfaces, and areas of chipped or peeling paint.

b. Loose, missing, or damaged mounting hardware, control knobs, switches, panel screws, phone jacks, fuse mountings, indicator lamps, chassis handles, and connectors.

c. Loose or binding hinges.

d Structural parts sprung or twisted out of shape, or otherwise damaged.

e. Broken, frayed, or cracked insulation on cables.

f. Unusual noises and vibrations in mechanical assemblies.

g. Correct fit and seating of equipment covers and weatherproof seals.

h. Defaced, missing, or obscured identification plates.

i. Overheated components, indicated by discoloration, blistering, bulging containers, leakage of insulating compounds, and accompanied by peculiar odors.

4-5. Cleaning

A mild soap or detergent and water may be used for most general cleaning. Use a dry, clean, lint-free cloth, or brush to remove dust or dirt. To remove ground-in dirt, grease or fungus, moisten (do not soak) the cloth with trichlorotrifluoroethane. After cleaning, wipe dry with a clean cloth.

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 oil, 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.

CHAPTER 5
ORGANIZATION

Section I. GERNERAL

5-1. Scope of Organizational Maintenance

The maintenance duties assigned to organizational personnel of AN/ASC-15A(V)(*) are listed below together with reference to paragraphs covering specific maintenance functions.

a. Touchup painting (para 5-3).
b. Troubleshooting chart (para 5-4).
c. Control, Intercommunication Set C-1611(*)/ AIC replacement (para 5-6).
d. Control Indicator C-8157/ARC replacement (para 5-7).
e. Control, Radio Set C-7088/ARC-131 replacement (para 5-8).
f. Receiver-Transmitter, Radio RT-823/ARC-131 replacement (para 5-9).
g. Cable assemblies replacement (para 5-10).
h. Indicator lamps replacement (para 5-11).
i. 8-day clock and clock bracket replacement (para 5-12).
j. Antenna AS-1703/AR elements replacement (para 5-13).
k. Computer, Voice Security TSEC/KY-28 replacement (para 5-14).
l. Control Indicator C-8157/ARC replacement (para 5-15).
m. Control, Radio Set C-6287/ARC-51BX replacement (para 5-16).
n. Receiver-Transmitter, Radio RT-742/ARC- 51BX replacement (para 5-17).
o. Receiver-Transmitter, Radio RT-1167/ARC- 164(V) replacement (para 5-18).

5-2. Tools, Test Equipment and Supplies Required

Refer to appendix D for tool and test equipment requirements.

5-3. Touchup Painting

Remove rust and corrosion from metal surfaces by lightly sanding with fine sandpaper. Brush two thin coats of the proper paint (SB 11-573) on bare metal to protect it from further corrosion. Refer to applicable cleaning and refinishing practices specified in TB 43-0118.

Section II. ORGANIZATIONAL TROUBLESHOOTING

5-4. Use of Troubleshooting Chart

Troubleshooting the console is based upon malfunctions noted during the operation of the equipment. When an abnormal condition or result is observed, refer to that symptom in - the troubleshooting chart. Perform the corrective measures indicated in the chart. If the corrective measures indicated do not result in correction of the trouble, higher level maintenance is required. Refer to the component technical manuals, listed in appendix A, for extensive troubleshooting procedures.

Table 5-1. Troubleshooting Chart

Item No	Malfunction	Probable Cause	Corrective Action
1	POWER indicator does not light with POWER switch set to on.	*a.* ASC-16AV)() console circuit breaker not activated.	*a.* Make sure the ASC-15A(V)(*) console circuit breaker is activated. Pushed in.
		b. Eye on indicator closed.	*b.* Turn outside ring on indicator counterclockwise.
		c. Power cabling connections.	*c.* Check connection of power cable at POWER IN connector and at aircraft cutout relay.
		d Defective POWER indicator lamp.	*d.* Replace indicator lamp (para 5-11).
		e. Defective power relay.	*e.* Remove power cable assembly. Check between pin c and *d* of POWER IN connector. A resistance of 71 ohms

Table 5-1. Troubleshooting Chart--Continued

Item No.	Malfunction	Probable Cause	Corrective Action
			should be obtained. If not, request higher level maintenance to replace power relay.
2	Panel lamps on associated ICS box do not light when INT circuit breaker is pushed in.	a Defective circuit breaker.	*a.* Check for 27.5 volts dc between JB-1, TB1-20, and ground. If voltage is not present, request higher level maintenance to replace the circuit breaker.
		b. Loose cable connection at rear of unit.	*b.* Check to insure cable connection is tight.
		c. Defective lamps.	*c.* Replace lamps (para 5-11).
		d. Defective ICS box.	*d.* Replace ICS box (para 5-6).
3	Panel lamps on FM control head do not light with associated FM circuit breaker pushed in and function switch on FM control head set to T/R.	*a.* Defective circuit breaker.	*a* Check for 27.5 volts dc between JB-2, TB8-2, and ground for FM-1, between JB-2, TB9-2 and ground for FM-2, and between JB-2, TB9-17 and ground for FM-3. If voltage is not present, request higher level maintenance to replace defective circuit breaker.
		b. Loose cable connection at rear of FM connection at rear of FM control head.	*b.* Check to insure cable connection is tight.
		c. Defective lamps.	*c.* Replace lamps (para 5-12).
		d. control head.	*d.* Replace FM control head (para 5-8).
4	POWER-ON indicator on KY-28 control does not light with is not SEC circuit breaker pushed in and POWER switch at KY-28 control set to ON	*a.* Defective circuit breaker.	*a.* Check for 27.5 volts dc between JB-2 TB9-18 and ground. If voltage present, request higher level maintenance to replace the circuit breaker.
		b. Loose cable connection at rear of KY-28 control head.	*b.* Check to insure cable connection is tight.
		c. Defective POWER-ON indicator lamp.	*c.* Replace indicator lamp (para 6-11).
		d. Defective KY-28 control head.	*d.* Replace KY-28 control head (para 5-15).
5	Power at FM-1, FM-2, or FM-3 control head not at associated FM radio.	*a.* Loose cable connection.	*a.* Check to insure cable connection is tight.
		b. Open line filter.	*b.* Check for 27.5 volts dc at output of associated line filter. If voltage is not present, request higher level maintenance to replace defective line filter.
		c. Defective FM radio.	*c.* Replace FM radio (para 5-9).
6	SEC indicator lamp does not light when associated cipher unit is turned on in cipher mode.	*a.* Eye on indicator closed.	*a* Turn outside ring on indicator.
		b. Defective SEC, FM-l, FM-20or FM-3 indicator lamp.	*b.* Replace defective lamp (para 5-11).
		c. Defective KY-28 control head.	*c.* Replace KY-28 control head (para 5-15).
7	Transmitter will not key from one operating station.	*a.* Defective switch on U-94A/U.	*a.* Request higher level maintenance to replace U-94AIU.
		b. Defective associated keying relay.	*b.* Remove power cable assembly and check between following terminals for a resistance of 615 ohms ±10%: JB-1, TB7-1, 4, 7, 10, 13 and 16 to JB-1, TB7-19. If a resistance of 615 ohms ± 10% is not obtained, request higher level maintenance to replace associated keying relay.
8	All or one radio set does not operate from one ICS box. Same radio set operates from other ICS boxes.	Loose or poor connection to ICS box.	Check connection to connector on rear of ICS box (para 5-6).
9	A radio set does not operate from any ICS box.	*a.* Defective radio set cabling connection.	*a.* Check all cable connections to radio set, cipher equipment, and antenna.
		b. Defective facility component.	*b.* Replace component one-by-one with known good component.

Table5-1. Troubleshooting Chart-Continued

Item No	Malfunction	Probable Cause	Corrective Action
10	Poor or no modulation of a radio transmitter from all operator stations.		Defective resistor in audio pad. Make following resistance measurements: R7, R1I and R31-must read 270 ohms ±10%: RS, R16, and R32-must read 100 ohms 10%. If above readings are not obtained, request higher level maintenance to replace defective resistor.
11	Poor or no modulation of a radio transmitter from only one operator station.		Defective resistor audio pad. Measure following resistors: R1 through R6, R9 through R14, and R25 through R30. A reading of 100 ohms ± 10% must be obtained. If reading above is not obtained, request higher level maintenance to replace defective resistor.
12	ANIARC-131 radio operates on some frequencies, but not on others.	*a.* FM control head defective. *b.* Receiver-transmitter defective.	*a.* Replace FM control head (para 5-8). *b.* Replace defective receiver-transmitter (para 5-9).
13	Reception and transmission weak.	*a.* Receiver-transmitter defective. *b.* Antenna or antenna rf interconnection. cabling defective.	*a.* Replace receiver-transmitter (para 5-9), . *b.* Request higher level maintenance check of antenna and associated rf cabling.

Section III. CORRECTIVE MAINTENANCE

5-5. General WARNING

Verify that all power is removed from a unit prior to removing or replacing parts.

a. When replacing parts, observe the following general precautions and techniques. Before a part is removed, note the cable connection to that part and identify each cable to be removed.

b. Where damaged or defective parts must be replaced, use only replacement parts known to be operable. The new part must be placed in the same mounting position as the one it replaces.

a. Removal

(1) Rotate the four Dzus fasteners one-quarter turn counterclockwise (eight Dzus fasteners on C-161 1D1A1C).

(2) Pull the ICS box from its mounting in the console as far as the cable permits.

(3) Rotate the two screw-type fasteners on the rear connector one-quarter turn counterclockwise.

(4) Disconnect the connector by pulling on it and rocking it gently.

b. Replacement.

(1) Connect the cable from the console to the connector on the rear of the ICS box.

(2) Rotate the two screw-type fasteners on the connector one-quarter turn clockwise.

(3) Reinstall the ICS box in its mounting in the console.

(4) Rotate the four Dzus fasteners one-quarter turn clockwise.

5-7. Removal and Replacement of Control Indicator C-8151ARC (KY-28 Control

a. Removal.

(1) Rotate the four Dzus fasteners one-quarter

(2) Pull the KY-28 control head from its mounting in the console as far as it will go.

(3) Remove the electrical harness from the connectors located on the KY-28 control head.

b. Replacement.

(1) Connect the electrical harness from the console to the connectors located on the rear of the KY-28 control head.

(2) Reinstall the KY-28 control head in its mounting in the console.

(3) Rotate the four Dzus fasteners one-quarter turn clockwise.

5-8. Removal and Replacement of Control, Radio Set C-7088/ARC-131 (FM Control Head)

a *Removal.*

(1) Rotate four Dzus fasteners one-quarter turn counterclockwise.

(2) Pull the FM control head out far enough to reach the electrical connector on the rear of the unit.

(3) Release the electrical connector (twistlock connector) from the FM control head.

b. Replacement.

(1) Plug the electrical connector into the rear of the FM control head and secure it.

(2) Reinstall the FM control head in its mounting in the console.

(3) Rotate the four Dzus fasteners one-quarter turn clockwise.

5-9. Removal and Replacement of Receiver-Transmitter, Radio RT-8231ARC-131 (FM Radio)

a. Removal

(1) Release the locking handle catch from its secured (down) position and pull the locking handle outward and downward.

(2) Pull out firmly on the locking handle to extract the FM radio from the mounting.

b. Replacement.

(1) Set the FM radio on the mounting and slide it back carefully; make sure the guide pins at the rear properly engage the guide pin receptacles.

(2) Lift the locking handle, press inward, and secure with the locking handle catch.

5-10. Removal and Replacement of Cable **Assemblies**

WARNING

Always disconnect primary power prior to removing any cable assembly. All major cable assemblies that require removal and replacement at organizational maintenance level use standard connecting devices. No special techniques or tools are required for removal and replacement of these cables.

5-11. Removal and Replacement of Indicator Lamps

a. *Removal*

(1) Remove the lens cover from the applicable indicator lamp assembly.

(2) Disengage lamp from the assembly.

b. Replacement.

(1) Insert a new lamp in the assembly.

(2) Reinstall the lens cover.

5-12. Removal and Replacement of 8-Day Clock and Clock Bracket

a. Removal.

(1) Loosen fasteners on each side of the clock bracket.

(2) Lift off the clock bracket.

(3) Remove the 8-day clock.

b. Replacement.

(1) Reinstall the 8-day clock.

(2) Reinstall the clock bracket.

(3) Secure the clock bracket in place with the fasteners located on each side. 5-13. Removal and Replacement of Antenna AS-1703/ARC (FM Whip Antenna) Elements Unscrew the antenna element from the coupler. Screw the replacement antenna element into the coupler. When replacing the FM-1 or FM-2 antenna element, make sure that the AS-1703/AR is inserted through the grommet on the standoff mounted on the side of the aircraft.

5-14. Removal and Replacement of Computer, Voice Security TSEC/KY-28 (KY-28 Crypto Box)

NOTE

TSEC/KY-28 may be installed for use with any one FM radio or all three FM radios.

a. Removal.

(1) Disconnect the cables from the KY-28 crypto box.

(2) Connect the cables to plugs P1 and P2 on the associated security bypass adapter.

(3) Loosen the screw type fasteners on the KY-28 crypto box mounting bracket or adapter bracket assembly and lift off the KY-28 crypto box.

b. Replacement.

(1) Secure the KY-28 crypto box on the associated receiver-transmitter mounting bracket assembly (FM-3) or adapter bracket assembly (FM-1 or FM-2).

(2) Remove the two cables from P1 and P2 on the associated security bypass adapter plate.

(3) Connect the cables removed in (2) above to the mating connectors on the KY-28 crypto box.

5-15. Removal and Replacement of Control Indicator C-8157/ARC (KY-28 Control Head)

a. Removal

(1) Disengage the six Dzus fasteners that hold the KY-28 control head in the console and pull gently.

(2) Rotate the electrical twist lock connectors counterclockwise from mating connector on rear of KY-28 control head.

(3) Remove KY-28 control head from console.

b. Replacement.

(1) Install KY-28 control head unit into con- sole.

(2) Connect electrical twist lock connectors clockwise with mating connector on rear of KY-28 control head.

(3) Secure KY-28 control head into console by tightening six Dzus fasteners.

5-16. Removal and Replacement of Control Radio Set C-6287/ARC-51BX (ARC-51BX Control Head)

a. Removal.

(1) Rotate the four (or eight, as applicable) Dzus fasteners one-quarter turn counterclockwise.

(2) Pull the ARC-51BX control head from its mounting in the console as far as it will go.

(3) Disconnect the control cable from the rear of the ARC-51BX control head.

b. Replacement.

(1) Connect the cable from the console to the connector on the rear of the ARC-51BX control head.

(2) Reinstall the ARC-51BX control head in its mounting in the console.

(3) Rotate the four (or eight, as applicable) Dzus fasteners one-quarter turn clockwise.

5-17. Removal and Replacement of Receiver-**Transmitter, Radio RT-742/ARC-51BX (ARC-51BX)**

a. Removal

(1) Disconnect the antenna and power control cables from the ARC-51BX.

(2) Cut and remove the safety wires from the wingnut fasteners on the ARC-51BX mounting with a pair of diagonal pliers. Loosen and swivel the two wingnut fasteners upward to disengage the latches on the ARC-51BX mounting.

(3) Grasp both handles on the dust cover of the ARC-51BX and slide the ARC-51BX off its mounting.

b. Replacement.

(1) Slide the ARC-51BX into its mounting.

(2) Swivel the wingnut fasteners downward to engage the latches on the ARC-51BX mounting. Tighten the wingnut fasteners and secure the safety wire between the mounting and each wingnut fastener.

(3) Connect the antenna and power control cables.

5-18. Removal and Replacement of Receiver-Transmitter, Radio RT-1167/ARC-164(Vl (ARC-164)

a. Removal.

(1) Be sure that power to the ARC-164 is OFF.

(2) Rotate the eight Dzus fasteners that hold the ARC-164 in the console 1/4 turn counterclockwise. Pull ARC-164 gently.

(3) Turn the electrical twistlock connector counterclockwise from the rear of the ARC-164.

(4) Remove the antenna connector from the rear of the ARC-164 (J2).

b. Replacement.

(1) Plug the antenna connector into the antenna receptacle and secure.

(2) Connect the electrical twistlock connector to electrical receptacle (J1) and secure by turning clockwise.

(3) Secure the ARC-164 to the console by rotating eight Dzus fasteners 1/4 turn clockwise.

APPENDIX A
REFERENCES

The following publications are applicable to the installation, operation, and maintenance of the AN/ASC- 15(V)(*).

DA Pam 310-1	Consolidated Index of Army Publications and Blank Forms.
SB 11-543	Safety and Breakaway Wire for Electronic Equipment Installed in Aircraft.
SB 11-573	Painting and Preservation of Supplies Available for Field Use for Electronics Command Equipment.
(C)TB 11-5810-244-14-2	General Maintenance Information for Communications Security Equipment TSEC/KY-28 (U).
TB 43-0118	Field Instructions for Painting and Preserving Electronics Command Equipment Including Camouflage Pattern Painting of Electrical Equipment Shelter.
TM 11-1520-210-20	Organizational Maintenance Manual: Electronic Equipment Configurations, Army Models UH-1D (NSN 1520-00-859-2670),UH-1H (NSN 1520-00-087-7637), and EH-1H (NSN 1520-00-368-8442) Helicopters.
TM 11-5820-518-20	Organizational Maintenance Manual: Radio Set AN/ARC-51X and AN/ARC-51BX.
TM 11-5820-670-12	Operator's and Organizational Maintenance Manual: Radio Set AN/ARC-131 (NSN 5821-00-937-4686).
TM 11-5821-311-12	Operator's and Organizational Maintenance Manual: Receiver-Transmitter, Radio RT-1167/ARC- 164(V) (NSN 5821-00-138-7990).
TM 11-5831-201-20	Organizational Maintenance Manual: Control, Intercommunication Set C-1611D/AIC and Discriminator, Discrete Signal MD-736/A.
TM 38-750	The Army Maintenance Management System (TAMMS).

APPENDIX B
COMPONENTS OF END ITEM LIST

Section I. INTRODUCTION

B-1. Scope

This appendix lists integral components of and basic issue items for the AN/ASC-15A(V)1 and AN/ASC-15A(V)2 to help you inventory items required for safe and efficient operation.

B-2. General

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

a. Section II. Integral Components of the End Item. These items, when assembled, comprise the AN/ASC-15A(V)1 and AN/ASC-15A(V)2 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.

B-3. Explanation of Columns

a. Illustration. This column is divided as follows:

(1) *Figure number.* Indicates the figure number of the illustration on which the item is shown.

(2) *Item number.* The number used to identify item called out in the illustration.

b. National Stock Number. Indicates the National stock number assigned to the item and which will be used for requisitioning.

c. Part Number. Indicates the primary number used by the manufacturer, which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items. Following the part number, the Federal Supply Code for Manufacturers (FSCM) is shown in parentheses.

d Description. Indicates the Federal item name and, if required, a minimum description to identify the item.

e. Location. The physical location of each item listed is given in this column. The lists are designed to inventory all items in one area of the major item before moving on to an adjacent area.

f Usable on Code. "USABLE ON" codes are included to help you identify which component items are used on the different models. Identification of the codes used in these lists are:

Code	*Used on*
EZ3	Communications Central AN/ASC-15A(V)1
EZ4	Communications Central AN/ASC-15A(V)2

g. Quantity Required (Qty Reqd). This column lists the quantity of each item required for a complete major item.

h. Quantity. This column is left blank for use during an inventory. Under the Rcvd column, list the quantity you actually receive on your major item. The Date columns are for your use when you inventory the major item at a later date; such as for shipment to another site.

SECTION II INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG.	(B) ITEM	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER (FSCM)	(4) LOCATION	(5) USUABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	DATE
1-1		5895-01-040-9660	COMMUNICATIONS CENTRAL AN/ASC-SA(V)1	ALL ITEMS ARE M"ITED	EZ3	1		
1-1		5895-O1-040-9661	COMMUNICATIONS CENTRAL AN/ASC-15A(V)2	IN THE ASC-15A(V)(*).				
1-9		6645-00-973-4050	CLOCK, EIGHT DAY		EZ3	2		
					EZ4	1		
1-7		5821-00-926-7230	CONTROL INDIUCATOR C-8157/ARC		EZ3	*3		
					EZ4	2		
		5821-00-980-5789	MOUNTINS MT-2653/ARC		EZ4	**1		
2-1		5895-00-139-4895	HELICOPTER IISTALUTIOI KIT		EZ3	1		
					EZ4	1		
		5965-00-755-4656	HEADSET-MICROPHONE H-157/AICE		Z3	4		
1-7		5831-00-267-9252	CONTROL, INTERCOMMUNICAITON C-1611(*)/AIC		EZ3	6		
					EZ4	6		
1-7		5821-00-082-3928	CONTROL, RADIO SET C-6287/ARC-51BX		EZU	**1		
			COMPUTER, VOICE SECURITY TSEC/KY-28		EZ3	6		
					EZ4	2		
1-8		5821-00-937-4688	MOUNTING MT-3664/ARC-131		E23	*3		
		5821-00-082-3926	RADIO SET AN/ARC-511X		EZ4	**1		
1-7		5821-W-937-4686	RECEIVER-TRANSMITTER, RADIO RT-1167/ARC-164		EZ3	**1		
					EZ4	**1		
1-7		5821-00-138-7990	RADIO SET, CONTROL C-7I08/ARC-131		EZ3	*3		
					EZ4	2		
1-8		5821-00-8S1-1096	RECEIVER TRIISMITTER RT-823/ARC-131		EZ3	*3		
					EZ4	2		
1-1		5810-00-877-8391	REEIIERATIVE-REPEATER HYL-3/TSEC		EZ3	1		
					EZ4	1		
1-9		6130-00-252-0004	POWER ADAPTER U-383/VR		EZ3	1		

*TWO, WHEN ARC-164 IS USED.
**0PTIONAL.

APPENDIX C
MAINTENANCE ALLOCATION

Section I. INTRODUCTION

C-1. General

This appendix provides a summary of the maintenance operations for AN/ASC-15A(V)1 and AN/ASC-15A (V) 2. 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 defined as follows:

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

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

c. Service. Operations required periodically to keep an item in proper operating condition, i.e., to clean (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 fixing 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.

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 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 of 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 "work time" figure in the appropriate subcolumn(s), the lowest level of maintenance authorized to perform the function listed in column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate "work time" 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 specifies 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 (Sect. 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 (Sect. 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 COMMUNICATIONS CENTRALS AN/ASC-15A(V)1 AND AN/ASC-15A(V)2

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY C	O	F	H	D	(5) TOOLS AND EQUIPMENT	(6) REMARKS
00	COMMUNICATIONS CENTRALS AN/ASC-15A	Inspect		0.2				1,.2	
	(V)1 SC-D-972560)	Test		0.5				1, 2	
	(V)1 SC-D-972723)	Test			0.5			1 thru 14	
		Service		0.2				1	
		Install		10.0				1	
		Repair		1.0				1, 2	A
		Repair			2.5			3 thru 14	
		Rebuild					24.0	3 thru 14	
01	BASE PLATE ASSEMBLY (LOWER)	Inspect		0.1				1, 2	
	(SC-D-972593)	Service		0.2				1	
		Repair		0.1				1, 2	B
		Repair			1.0			3	
0101	MOUNTING ASSEMBLY MT-3664/ARC-131	Inspect		0.1				1, 2	
	(SC-D-972592)	Replace		0.3				1	C
0102	MOUNTING PLATE ASSEMBLY (LOWER)	Inspect		0.1				1, 2	
	(SC-0-972596)	Replace		0.3				1	
		Repair			0.3			3	
02	BASE PLATE ASSEMBLY (UPPER)	Inspect		0.1				1, 2	
	SC-D -972582)	Service		0.2				1	
	(V1 ONLY)	Repair		0.1				1, 2	B
		Repair			1.0			3.4	
03	BOX ASSEMBLY (INTERPHONE JUNCTION)	Inspect		0.1				1.2	
	(SC-D-972610)	Service		0.2				1	
		Test		0.2				1, 2	
		Test			0.2			3, 4	
		Repair		0.2				1, 2	D
		Repair			0.4			3, 4	
04	CABLE ASSEMBLY RF	Test		0.1				1, 2	
	(ARC-164 COAX)	Test			0.1			3, 4	
	(SC-D972717)	Replace		0.2				1.2	
		Repair			0.5			3, 4	
05	CABLE ASSEMBLY (POWER AND CONTROL)	Test		0.2				1,.2	
	(SC-D-972706)	Test			0.3			3 thru 14	
		Replace			0.6			3.4	
		Repair			1.5			3 thru 14	
06	CABLE ASSEMBLY (JUNCTION BOX)	Test		0.2				1, 2	
	(SC-D-972707)	Test			0.3			3 thru 14	
		Replace		0.6				3, 4	
		Repair		0.2				1, 2	D
		Repair			0.5			3 thru 14	
07	CONTROL CABLE ASSEMBLY	Test		0.2				1, 2	
	(FM-1 AND FM-2 ARC-131 AND KY-28)	Test			0.3			3 thru 14	
	(SC-D-972708)	Replace			1.5			3	
		Repair			1.5			3 thru 14	
08	CONTROL CABLE ASSEMBLY	Test		0.2				1, 2	
	FM-3 AN/ARC-131 AND KY-2B)	Test			0.2			3 thru 14	
	(SC-D-972709)	Replace			0.5			3	
		Repair			1.0			3 thru 14	
09	SECURE RETRAN WIRE HARNESS ASSEMBLY	Test		0.2				1, 2	
	(SC-D-972711)	Test			0.2			3 thru 14	
		Replace			2.0			3.4	
		Repair			1.0			3 thru 14	
10	CABLE ASSEMBKY, CONTROL	Test		0.1				1.2	
	(SC-D-972713)	Test			0.2			3.4	
		Replace			0.5			3	
		Repair			1.0			3, 4	
11	CABLE ASSEMBLY (STATION 1 THRU 6)	Test		0.1				1.2	
	(SC-C-972801)	Test			0.1			3, 4	
		Replace			0.4			3, 4	
		Repair			0.2			3, 4	

SECTION II MAINTENANCE ALLOCATION CHART
FOR
COMMUNICATIONS CENTRALS AN/ASC-15A(V)1 AND AN/ASC-15A(V)2

(1)	(2)	(3)	(4)					(5)	(6)
GROUP NUMBER	COMPONENT ASSEMBLY	MAINTENANCE FUNCTION	MAINTENANCE CATEGORY C	O	F	H	D	TOOLS AND EQUIPMENT	REMARKS
12	CABLE HARNESS ASSEMBLY (STATION 1 THRU 6)	Test		0.2				1, 2	
	(SC-D-972700)	Test			0.2			3, 4	
	(SC-D-972705)	Replace			0.4			3	
		Repair			1.0			3 thru 14	
13	SECURITY DEVICE TSEC/KY-2B	Test			0.2			1 thru 14	
		Replace			0.2			1	E, N
14	CONNECTOR AND COVER ASSEMBLY KY-28	Inspect		0.1				1.2	
	(SC-D-972614)	Test		0.1				1, 2	
		Test			0.1			3, 4	
		Replace		0.3				1, 2	
		Repair			0.3			3, 4	
1401	BRACKET ASSEMBLY	Inspect			0.1			3	
	(SC-D-972615)	Repair			0.3			3	
1402	CABLE ASSEMBLY	Test			0.1			3, 4	
	(SC-C-972622)	Repair			0.3			3, 4	
15	CONTROL INDICATOR C-8157/ARC	Replace		0.1				1	F.N
16	CONTROL, INTERCOMMUNICATION SET C-1611( )/AIC	Replace		0.2				1	G
17	FRAME ASSEMBLY	Inspect		0.2				1	
	(V)1 (SC-DL-972561)	Inspect			0.2			3	
	(V)2 (SC-DL-972724)	Repair		0.2				1	B
		Repair			0.4			3	
18	AN/ASC-1SA(V)I AND (V)2	Inspect			0.3			3, 4	
	INSTALLATION KIT UH-ID/H	Test			0.2			3 thru 14	
	(DL-SC-B-972728)	Replace			0.3			3	
		Repair			0.5			3 thru 14	
1801	CABLE ASSEMBLY (COAX)	Test		0.1				1, 2	
	(SC-C-972787)	Test			0.1			3.4	
		Replace		0.1				1	
		Repair			0.2			3, 4	
1802	CABLE ASSEMBLY (COAX)	Test		0.1				1, 2	
	(SC-C-972788)	Test			0.1			3, 4	
		Replace		0.1		1			
		Repair			0.2			3, 4	
1803	CABLE ASSEMBLY (COAX)	Test		0.1				1, 2	
	(FM-1, SC-C-972784)	Test			0.1			3, 4	
	(FM-2, SC-C-972785)	Replace		0.1				1	
	(FM-3, SC-C-972786)	Repair			0.2			3, 4	
1804	CONTROL COUPLER CABLE	Test		0.1				1, 2	
	FM-I, SC-D-972789	Test			0.1			3, 4	
	FM-2, SC-C-972790	Replace			0.3			3	
	FM-3, SC-D-972791)	Repair			0.2			3, 4	
1805	POWER CABLE ASSEMBLY	Test		0.1				1, 2	
	(SC-D-972780)	Test			0.1			3, 4	
		Replace			0.3			3	
		Repair			0.5			3, 4	
1806	"Y" CABLE ASSEMBLY (CONSOLE TO UH-ID INTERCOM)	Test		0.1				1, 2	
	(SC-D-9727B2)	Test			0.1			3, 4	
		Replace		0.1				1	
		Repair			0.2			3, 4	
19	REPEATER MOUNT ASSEMBLY	Inspect		0.1				1	
	(SC-D-972653)	Inspect			0.1			1	
		Repair		0.2				1, 2	B
		Repair			0.3			3, 4	
20	RADIO SET AN/ARC-131	Test		0.2				1, 2	
	(FM-1, FM-2, FM-3)	Replace		0.2				1	C, N
21	RADIO RECEIVER TRANSMITTER RT-1167/ARC-164(V)	Test		0.2				1, 2	H, N
		Replace		0.1				1	

SECTION II MAINTENANCE ALLOCATION CHART
FOR
COMMUNICATIONS CENTRALS AN/ASC-15A(V)1 AND AN/ASC-15A(V)2

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY C	O	F	H	D	(5) TOOLS AND EQUIPMENT	(6) REMARKS
22	REPEATER SHOCK MOUNT ASSEMBLY	Inspect		0.1				1.2	
	(SC-D-972648)	Inspect			0.1			3.4	
		Repair		0.2				1, 2	I
		Repair			0.3			3, 4	
2201	CABLE ASSEMBLY (REPEATER SHOCK WJUNT)	Test		0.1				1, 2	
	(SC-C-972650)	Test			0.1			3.4	
		Replace			0.2			2	
		Repair			0.3			3, 4	
23	REGENERATIVE RECEIVER TSEC/HYL-3	Test			0.2				
		Replace			0.2			1	J
24	RADIO JUNCTION BOX ASSEMBLY	Test		0.2				1, 2	
	(SC-D-972549)	Test			0.2			3.4	
		Repair		0.2				1, 2	D
		Repair			0.2			3, 4	
2401	AUDIO PAD ASSEMBLY	Test		0.2				1, 2	
	(SC-C-972608)	Test			0.2			3, 4	
		Replace			0.4			3, 4	
		Repair			0.2			3 thr,14	
25	AN/ARC-51 COAX CABLE	Test		0.1				1, 2	
	(SC-C-972802)	Test			0.1			3, 4	
		Replace		0.1				1	
		Repair			0.2			3.4	
26	RADIO SET AN/ARC-SIBX	Test		0.2				1, 2	
	((V)2 ONLY)	Replace		0.5				1	K, L

SECTION III TOOL AND TEST EQUIPMENT REQUIREMENTS FOR COMMUNICATIONS CENTRALS AN/ASC-15SA(V)I AND AN/ASC-1SA(V)2

(1) TOOL OR TEST EQUIPMENT REF CODE	(2) MAINTENANCE LEVEL	(3) NOMENCLATURE	(4) NATIONAL/NATO STOCK NUMBER	(5) TOOL NUMBER
1	O, F	TOOL KIT, ELECTRONIC EQUIPMENT TK-1OS/G	5180-00-610-8177	
2	O, F	MULTIMETER AN/URM-105C	6625-00-999-6262	
3	F	TOOL KIT, ELECTRONIC EQUIPMENT TK-100/G	5180-00-605-0079	
4	F	MULTIMETER AN/USM-223	6625-00-999-7465	
5	F	GENERATOR, SIGNAL AN/URM-48 (SG-1144)	6625-01-075-5478	
6	F	GENERATOR, SIGNAL AN/URM-206 (SG-1145)	6625-01-077-8503	
7	F	ANALYZER, SPECTUM TS-723D/U	6625-00-668-9418	
8	F	TEST SET, RADIO FREOUENCY, POWER (WATTMETER) AN/URM-120	6625-00-813-8430	
9	F	METER, AUDIO LEVEL TS-585/U	6625-00-244-0501	
10	F	VOLTMETER, ELECTRONIC ME-3OA/U	6625-00-043-1670	
11	F	COUNTER, ELECTRONIC, DIGITAL AN/USM-459	6625-01-061-8928	
12	F	DUMMY LOAD, ELECTRICAL DA-75/U	6625-00-177-1639	
13	F	METER, MODULATION ME-57/U	6625-00-647-3737	
14	F	COUNTER, ELECTRONIC TD-1225A(V)I/U	6625-01-103-2956	

SECTION IV. REMARKS

REFERENCE CODE	REMARKS
A	REPAIR BY REPLACING LAMPS, FUSES, KNOBS, MAJOR ASSEMBLIES AND MAKING MINOR CABLE AND JUNCTION BOX REPAIRS.
B	REPAIR BY REPLACING MAJOR COMPONENTS.
C	SEE TM 11-5820-670 SERIES FOR REPAIR.
D	MINOR CABLE AND TERMINAL BOARD REPAIRS.
E	SEE TM 11-5810-244 SERIES FOR REPAIR.
F	SEE TM 11-5895-555 SERIES FOR REPAIR.
G	SEE TM 11-5831-201 SERIES FOR REPAIR.
H	SEE TM 11-5821-311 SERIES FOR REPAIR.
I	REPAIR BY REPLACING THROW-AWAY SHOCK MOUNT ISOLATORS.
J	SEE TM 11-5810-247 SERIES FOR REPAIR.
K	SEE TM 11-5820-518 SERIES FOR REPAIR.
L	UNDER A V1 CONFIGURATION THE AN/ARC-131 IN POSITION FM-3 IS REMOVED AND AN RT-1167/ARC-164(V) IS INSTALLED. UNDER A V2 CONFIGURATION THE FM-3 POSITION CAN CONTAIN EITHER THE AN/ARC-164 OR AN/ARC-51BX RADIO SET. THE OPTION OF THE AN/ARC-51BX REQUIRED THE REMOVAL OF NO. 3 SECURITY DEVICE TSEC/KY-28.

APPENDIX D
EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

D-1. Scope

This appendix lists expendable supplies and materials you will need to operate and maintain the AN/ASC-15A(V) 1 and AN/ASC-15A (V) 2. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

D-2. Explanation of Columns

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

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

C-Operator/Crew

O-Organizational Maintenance/Aviation Unit Maintenance

F-Direct Support Maintenance/Aviation Intermediate Maintenance

H-General 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 Federal Supply Code for Manufacturer (FSCM) in parentheses followed by a 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 alphabetical 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.

(Next printed page is D-3)

SECTION II. EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION PART NO. AND FSCM	(5) UNIT OF MEAS.
1	0	6850-00-105-3084	TRICHLOROTRIFLUOROETHANE	OZ
2	0	8020-00-257-0382	BRUSH, NIL-6-7241	EA
3	0		SANDPAPER, FINE, NO. 00	SH
4	0	8305-00-286-5461	CLOTH, LINE-FREE	YD

INDEX

INDEX-Continued

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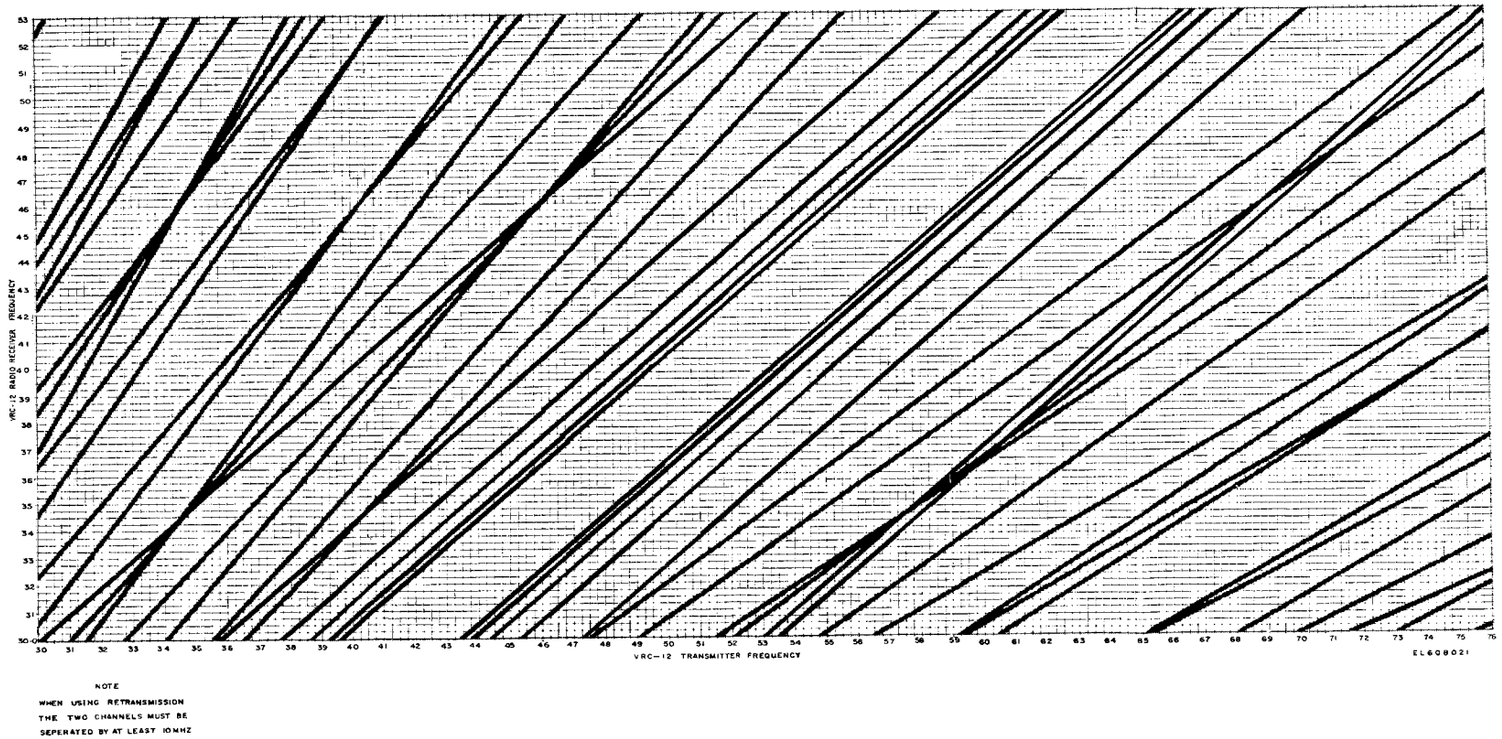
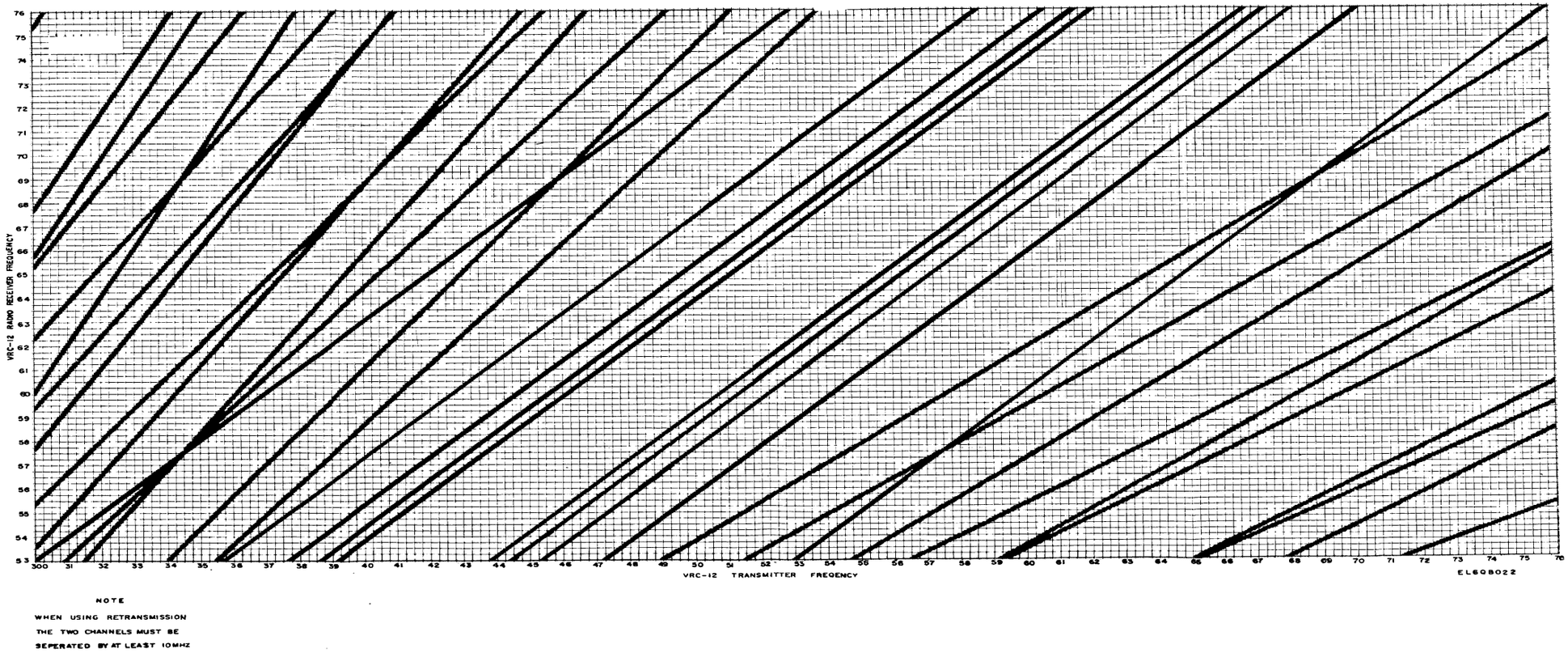


FO-1(1). Retransmission Interference Chart (Sheet 1 of 2).



FO-1(2). Retransmission Interference Chart (Sheet 2 of 2).

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