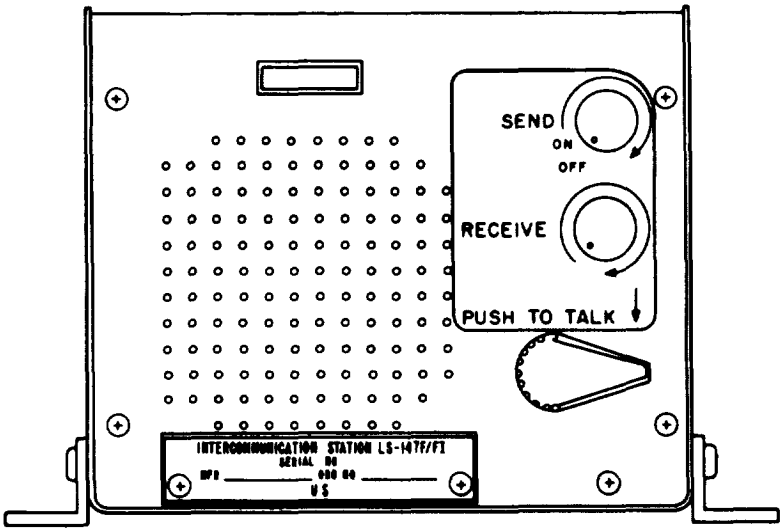
This copy is a reprint which includes current pages from Change 1.

TM 11-5830-256-13

OPERATOR'S, UNIT, AND INTERMEDIATE DIRECT SUPPORT MAINTENANCE MANUAL



INTERCOMMUNICATION STATION LS-147F/FI (NSN 5830-01-008-3126)

HEADQUARTERS, DEPARTMENT OF THE ARMY

1 NOVEMBER 1986

Change No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *1 January 1988*

Operator's Unit, and Intermediate Direct Support Maintenance Manual Intercommunication Station LS-147F/F1 (NSN 5830-01-008-3126)

TM 11-5830-256-13, 1 November 1986, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a vertical bar adjacent to the identification number.

Remove pages	*Insert pages*
i and ii	i and ii
1-1 and 1-2	1-1 and 1-2
A-1/(A-2 blank)	A-1/(A-2 blank)
B-3 and B-4	B-3 through B-5/(B-6 blank)

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

By Order of the Secretary of the Army:

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

Official:

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

DISTRIBUTION:
To be distributed in accordance with DA Form 12-51 literature requirements for LS-147F/FI

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

1. DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL
2. IF POSSIBLE , TURN OFF THE ELECTRICAL POWER
3. IF YOU CANNOT TURN OFF THE ELECTRICAL POWER, PULL, PUSH, OR LIFT THE PERSON TO SAFETY USING A WOODEN POLE OR A ROPE OR SOME OTHER INSULATING MATERIAL
4. SEND FOR HELP AS SOON AS POSSIBLE
5. AFTER THE INJURED PERSON IS FREE OF CONTACT WITH THE SOURCE OF ELECTRICAL SHOCK, MOVE THE PERSON A SHORT DISTANCE AWAY AND IMMEDIATELY START ARTIFICIAL RESUSCITATION

WARNING

High voltage is used in the operation of this equipment. Death on contact may result if the operator fails to observe safety precautions.

WARNING

Be careful when working on the 115 volt ac line connections. Turn off the power and disconnect the line-cord plug from the ac source before making any test connections or working inside the chassis.

WARNING

Before connecting the LS-147F/FI to a 115 volt ac source, be sure that the chassis is properly grounded.

WARNING

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

WARNING

Compressed air shall not be used for cleaning purposes except where reduced to less than 29 pounds per square inch (psi) and then only with effective chip guarding and personnel protective equipment. Do not use compressed air to dry parts when TRICHLOROTRIFLUOROETHANE has been used. Compressed air is dangerous and can cause serious bodily harm if protective means or methods are not observed to prevent chip or particle (of whatever size) from being blown into the eyes or unbroken skin of the operator or other personnel.

Technical Manual
No. 11-5830-256-13

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 1 November 1986

OPERATOR'S, UNIT, AND INTERMEDIATE DIRECT SUPPORT MAINTENANCE MANUAL INTERCOMMUNICATION STATION LS-147F/F1 (NSN 5830-01-008-3126)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes, or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual directly to: Commander, (US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-ME-MP, Fort Monmouth, New Jersey 07703-5000. A reply will be furnished directly to you.

TABLE OF CONTENTS

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CHAPTER 1
INTRODUCTION

SectionI. GENERAL INFORMATION

1-1. SCOPE

This manual describes Intercommunication Station LS-147F/FI. The manual covers installation, operation, and maintenance instructions for the LS-147F/FI. Operating instructions include procedures for operation under usual and unusual conditions. Maintenance instructions include cleaning, inspection, and replacement of chassis-mounted components and printed circuit boards (PCB'S).

1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS

- CONSOLIDATED INDEX OF ARMY PUBLICATIONS AND BLANK FORMS

  Refer to the latest issue of DA Pam25-30to determine whether there are new editions, changes or additional publications pertaining to the equipment.

- **REPORTS OF MAINTENANCE AND EQUIPMENT STATUS**

  Reports of Maintenance and Unsatisfactory Equipment. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738-750 as contained in Maintenance Management Update.

  Report of Packaging and Handling Deficiencies. Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-1l-2/DLAR 4140.55/NAVMATINST 4355.73B/AFR 400-54/MCO 4430.3H.

  Discrepancy in Shipment Report (DISREP) (SF 361). Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR55-38/NAVSUPINST 4610.33C/AFR 75-18/MCO P4610.19D/DLAR 4500.15.

1-3. 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 the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-PA-MA-D, Fort Monmouth, New Jersey 07703 -5000. We'll send you a reply.

1-4. DESTRUCTION OF ARMY ELECTRONICS MATERIEL TO PREVENT ENEMY USE

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

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. Disassembly and repacking of equipment for shipment or limited storage are covered in TM 740-90-1.

Section II. DESCRIPTION AND DATA

1-6. PURPOSE AND USE

The LS-147F/FI provides two-way audio communications between two or more points. If may be used in offices or in shelter assemblages, such as Technical Control Center AN/TSQ-84. The LS-147F/FI may be used in an intercommunication system for a maximum of seven shelters or offices.

1-7. TABULATED DATA

Power output	4 watts
Input and output resistances	45 ohms (max)
•Voltage requirements	114 volts ac, 60-Hz

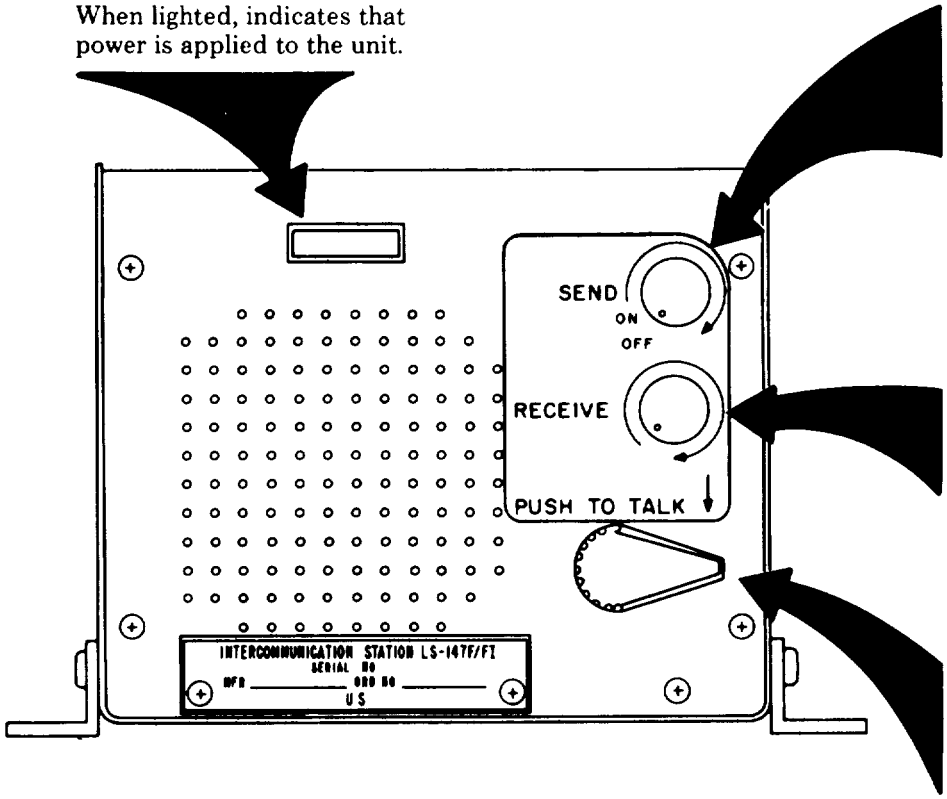
CHAPTER 2
OPERATING INSTRUCTIONS

Section 1. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

2-1. GENERAL

The LS-147F/FI is a solid-state, self-contained unit. All operating controls areon the front panel assembly. Signal and power connections are on the back panel assembly.

2-2. OPERATOR'S CONTROLS AND INDICATORS



Section II. OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

2-3. GENERAL

NOTE

Refer to TM 750-244-2 for proper procedures for destruction of this equipment to prevent enemy use.

a. Operator/crew preventive maintenance is the systematic care, servicing and inspection of equipment to prevent the occurrence of trouble, to reduce downtime, and to maintain equipment in serviceable condition. To be sure that your intercommunication station is always ready for your mission, you must do scheduled preventive maintenance checks and services (PMCS).

(1) BEFORE OPERATION, perform your B PMCS to be sure that your equipment is ready to go.

(2) DURING OPERATION, perform your D PMCS. This should help you to spot small troubles before they become big problems.

(3) When an item of equipment is reinstalled after removal, for any reason, perform the necessary B PMCS to be sure the item meets the readiness reporting criteria.

(4) Use the ITEM NO. column in the PMCS table to get the number to be used in the TM ITEM NO. column on DA Form 2404 (Equipment Inspection and Maintenance Worksheet) when you fill out the form.

b. Organizational preventive maintenance checks and services are not required on this equipment as indicated in chapter 4.

c. Routine checks like cleaning, preservation, dusting, washing, checking for frayed cables, stowing items not in use, covering unused receptacles, checking for loose nuts and bolts and completeness are not listed as PMCS checks. They are things that you should do any time you see they must be done. If you find a routine check like one of those listed in your PMCS, it is because other operators reported problems with this item.

NOTE

When you are doing any PMCS or routine checks, keep in mind the warnings and cautions,

WARNING

- Adequate ventilation should be provided while using TRICHLOROTRIFLUOROETHANE. Prolonged breathing of vapor should be avoided. The solvent should not be used near heat or open flame; the products of decomposition are toxic and irritating. Since TRICHLOROTRIFLUOROETHANE dissolves natural oils, prolonged contact with skin should be avoided. When necessary, use gloves which the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.
- Compressed air shall not be used for cleaning purposes except where reduced to less than 29 pounds per square inch (psi) and then only with effective chip guarding and personnel protective equipment. Do not use compressed air to dry parts when TRICHLOROTRIFLUOROETHANE has been used. Compressed air is dangerous and can cause serious bodily harm if protective means or methods are not observed to prevent chip or particle (of whatever size) from being blown into the eyes or unbroken skin of the operator or other personnel.

NOTE

- The PROCEDURE S column in your PMCS charts instruct how to perform the required checks and services. Carefully follow these instructions to do the necessary work.
- If your equipment must be in operation all the time, check those items that can be checked and serviced without disturbing operation. Make the complete checks and services when the equipment can be shut down.

2-3. GENERAL – Continued

d. Deficiencies that cannot be corrected must be reported to higher category maintenance personnel. Records and reports of preventive maintenance must be made in accordance with procedures given in DA Pam 738-750.

Table 2-1. OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES CHART

B - Before D – During

Item No.	Interval B	Interval D	Item to be Inspected	Procedures – Check for and have repaired or adjusted as necessary	Equipment is Not Ready/ Available If:
1	*		Signal line	Check security of signal line attachment to binding post	Signal line is not attached to binding post.
2	●		Ground line	Check ground line for security of installation	Ground line is bad.
3	*		Operational Check	Perform operational checks as described in paragraph 2-4	Equipment is not operational.
4		●	Controls	Check controls for smooth operation	Controls stick or bind.

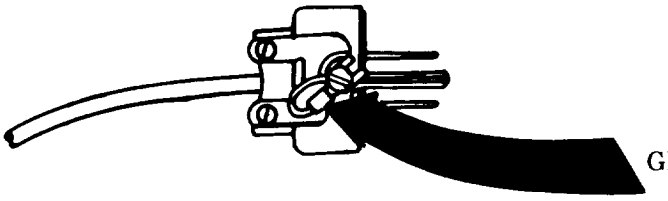
*Do this check before each deployment to a mission location. This will permit any existing problems to be corrected before the mission starts. The check does not need to be done again until redeployment.

Section III. OPERATION UNDER USUAL CONDITIONS

2-4. OPERATING PROCEDURES

WARNING

Before performing operating procedures, ensure that the LS-147F/FI is grounded properly through the equipment ground (green) wire.



● Calling Distant Station

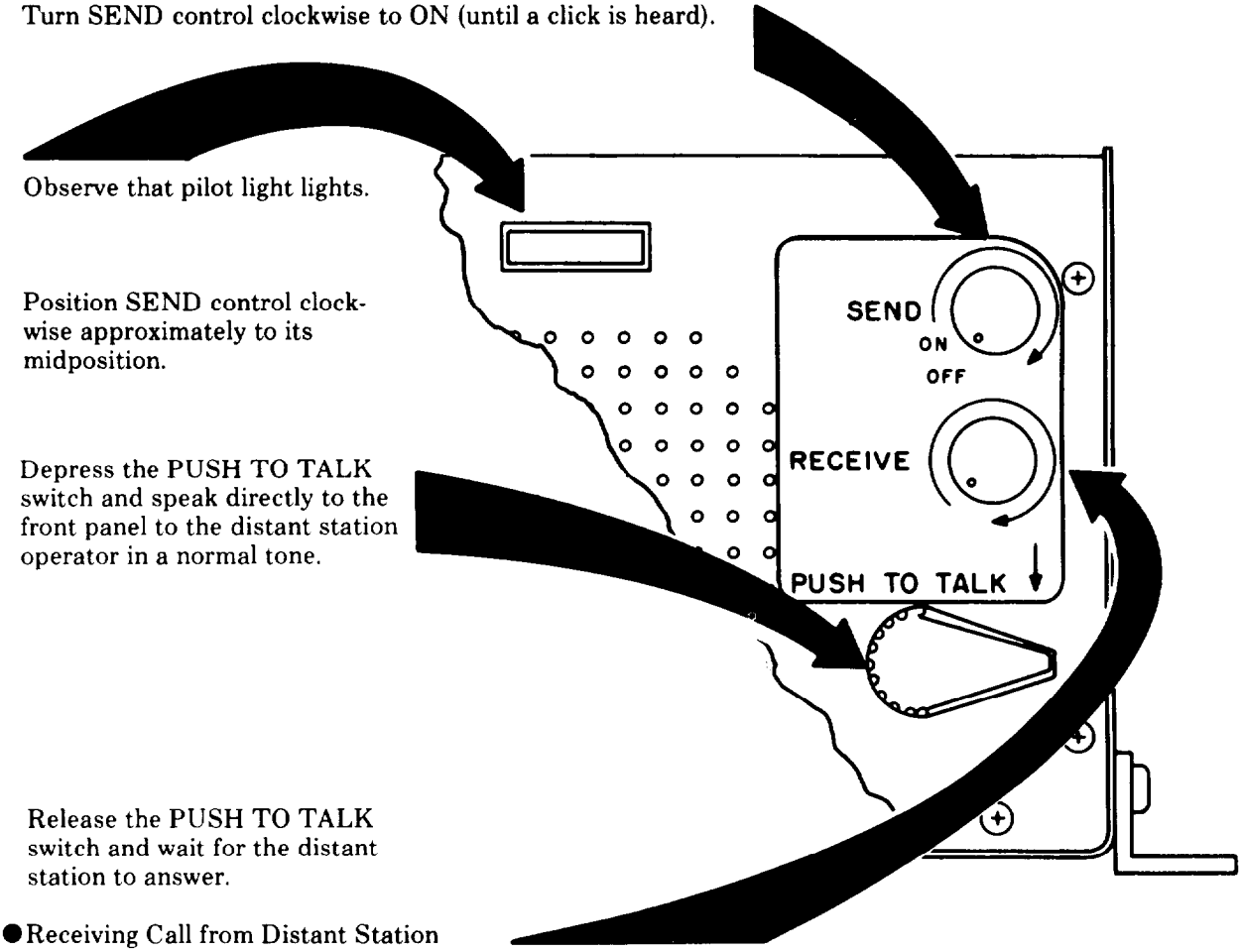
Turn SEND control clockwise to ON (until a click is heard).

Observe that pilot light lights.

Position SEND control clockwise approximately to its midposition.

Depress the PUSH TO TALK switch and speak directly to the front panel to the distant station operator in a normal tone.

Release the PUSH TO TALK switch and wait for the distant station to answer.



● Receiving Call from Distant Station

Adjust the RECEIVE control to obtain desired volume level.

2-4. OPERATING PROCEDURES – Continued

NOTE

The SEND control need not be in the ON position to receive a call.

- Stopping

  To remove power from the LS-147F/FI, turn SEND control counterclockwise to OFF (until a click is heard).

Section IV. OPERATION UNDER UNUSUAL CONDITIONS

2-5. GENERAL

Operation of the LS-147F/FI may be difficult in regions where extreme cold, heat, humidity, or sand conditions prevail. Unless precautions are taken, adverse conditions may cause poor operation. The procedures in the following will minimize the effects of these unusual climatic conditions.

2-6. OPERATION IN ARCTIC CLIMATES

Subzero temperatures and climatic conditions associated with cold weather affect the efficient operation of the LS-147F/FI. Follow the instructions and precautions below for operation under such adverse conditions:

- Keep the LS-147F/FI warm and dry.
- After the LS-147F/FI has been exposed to the cold and is brought into a warm room or shelter, moisture will collect on the unit. This may cause a change in operating characteristics. When the unit reaches room temperature, dry it thoroughly.

2-7. OPERATION IN TROPICAL CLIMATES

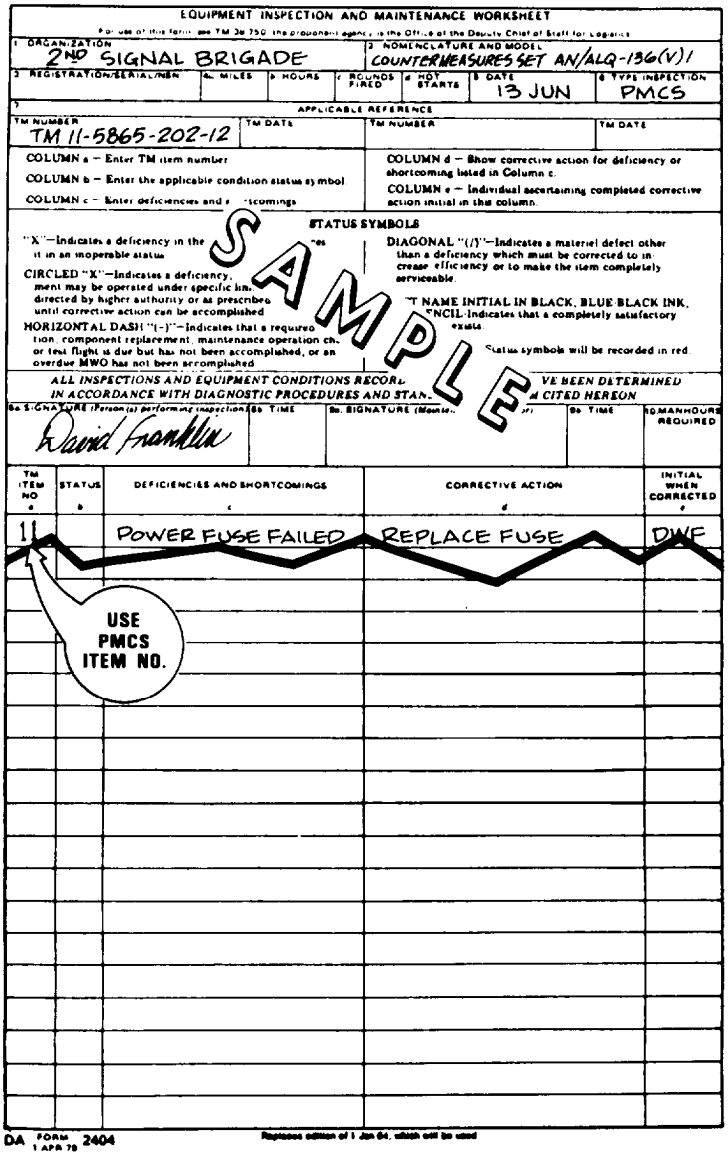
High relative humidity causes condensation to form on the LS-147F/FI when the temperature of the unit is lower than that of the surrounding air. To minimize this condition, provide as much ventilation as possible. Dry the unit thoroughly before operating it.

2-8. OPERATION IN DESERT CLIMATES

- The main problem that arises with equipment operation in desert areas is the large amount of sand, dust or dirt that enters the LS-147F/FI chassis.
- Be careful to keep the unit as free from sand, dust, and dirt and possible. Make frequent preventive maintenance checks. The LS-147F/FI does not require lubrication and should be kept free from oil and grease. Dust, sand, and dirt that come in contact with oil or grease result in grit that would damage the unit.

CHAPTER 3
OPERATOR'S MAINTENANCE INSTRUCTIONS

- Routine Maintenance. Routine maintenance tasks such as cleaning, dusting, checking for frayed or loose cables, covering unused receptacles, storing items not in use, checking for loose nuts and bolts, etc., are not scheduled on a periodic basis and should be accomplished anytime the technician sees that they must be done.
- No troubleshooting is required to be done by the operator.
- Failure Report. Record the failure and corrective action on DA Form 2404. If failure persists, refer to higher level of maintenance.



EQUIPMENT INSPECTION AND MAINTENANCE WORKSHEET

1 ORGANIZATION: 2ND SIGNAL BRIGADE
2 NOMENCLATURE AND MODEL: COUNTERMEASURES SET AN/ALQ-136(V)1
3 REGISTRATION/SERIAL/NBN | 4a MILES | b HOURS | c ROUNDS FIRED | d HOT STARTS | 5 DATE: 13 JUN | 6 TYPE INSPECTION: PMCS
7 APPLICABLE REFERENCE
TM NUMBER: TM 11-5865-202-12 | TM DATE | TM NUMBER | TM DATE

COLUMN a – Enter TM item number.
COLUMN b – Enter the applicable condition status symbol.
COLUMN c – Enter deficiencies and shortcomings.
COLUMN d – Show corrective action for deficiency or shortcoming listed in Column c.
COLUMN e – Individual ascertaining completed corrective action initial in this column.

STATUS SYMBOLS

"X"—Indicates a deficiency in the ... it in an inoperable status.
CIRCLED "X"—Indicates a deficiency, ... ment may be operated under specific lim... directed by higher authority or as prescribed until corrective action can be accomplished.
HORIZONTAL DASH "(-)"—Indicates that a required ... tion, component replacement, maintenance operation ch... or test flight is due but has not been accomplished, or an overdue MWO has not been accomplished.
DIAGONAL "(/)"—Indicates a materiel defect other than a deficiency which must be corrected to increase efficiency or to make the item completely serviceable.
... NAME INITIAL IN BLACK, BLUE BLACK INK, ... PENCIL. Indicates that a completely satisfactory exists.
Status symbols will be recorded in red.

SAMPLE

ALL INSPECTIONS AND EQUIPMENT CONDITIONS RECORD... VE BEEN DETERMINED IN ACCORDANCE WITH DIAGNOSTIC PROCEDURES AND STAN... M CITED HEREON

8a SIGNATURE (Person(s) performing inspection) | 8b TIME | 8a SIGNATURE (Mainte... ...er) | 9b TIME | 10 MANHOURS REQUIRED
David Franklin

TM ITEM NO a	STATUS b	DEFICIENCIES AND SHORTCOMINGS c	CORRECTIVE ACTION d	INITIAL WHEN CORRECTED e
11		POWER FUSE FAILED	REPLACE FUSE	DWF

USE PMCS ITEM NO.

DA FORM 1 APR 79 2404 — Replaces edition of 1 Jan 64, which will be used

CHAPTER 4
ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. TOOLS AND EQUIPMENT

4-1. TOOLS AND TEST EQUIPMENT

Tools and test equipment authorized for testing and repairing the LS-147F/FI are listed in appendix B.

4-2. REPAIR PARTS

Repair parts authorized for maintenance of the LS-147F/FI are listed in TM II-5830-256-23P.

Section II. SERVICE UPON RECEIPT OF EQUIPMENT

4-3. UNPACKING

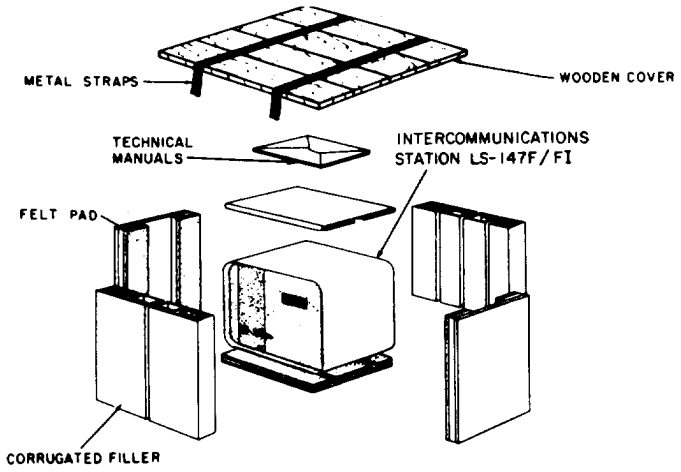
● Packaging Data

The wooden packing case is approximately 9 inches deep, 9 inches high, and 13 inches long. The volume of the packaged unit is approximately 0.61 cubic feet. The weight is approximately 15 pounds.

4-3. UNPACKING–Continued

● Removing Contents

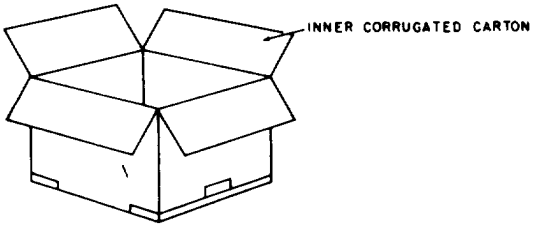
Cut the metal straps just below the wooden cover.



CAUTION

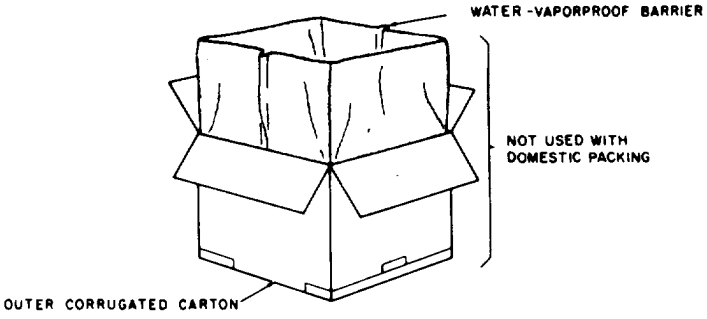
Do not attempt to pry off the wooden cover. Tools used for prying will damage the equipment.

Using a nailpuller, remove the nails from the wooden cover.



For overseas shipment:

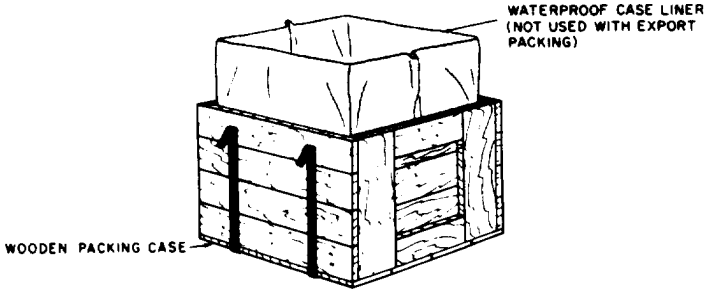
Remove the wooden cover, open the outer corrugated carton and slit the water-vaporproof barrier.



For CONUS shipment:

Remove the wooden cover, slit the waterproof case liner.

Open the inner corrugated carton and remove the contents.



4-4. CHECKING

● Inspect the LS-147F/FI for any loss or damage that may have occurred during shipment. If the LS-147F/FI has been damaged or is incomplete, refer to paragraph 1-2.

.Check the LS-147F/FI against the packing list. If no packing list accompanies the LS-147F/F1, refer to TM 11-5830-256-23P.

● Check front panel controls to ensure that they operate without binding.

● Check power cord for cuts, breaks, or other damage.

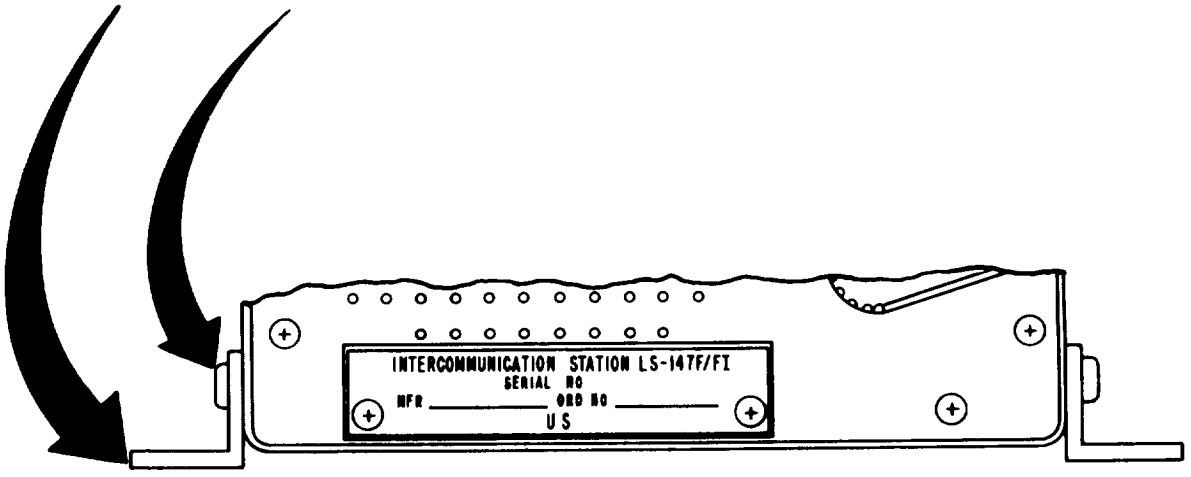
● Ensure that the proper size (0.75 ampere) fuse has been installed.

● If the LS-147F/FI has been used or reconditioned, check to see whether it has been changed by a modification work order (MWO). If modified, the MWO number will appear on the front panel, near the nomenclature plate. Using this number and referring to paragraph 1-2, obtain a copy of the published MWO to determine what the modification consisted of.

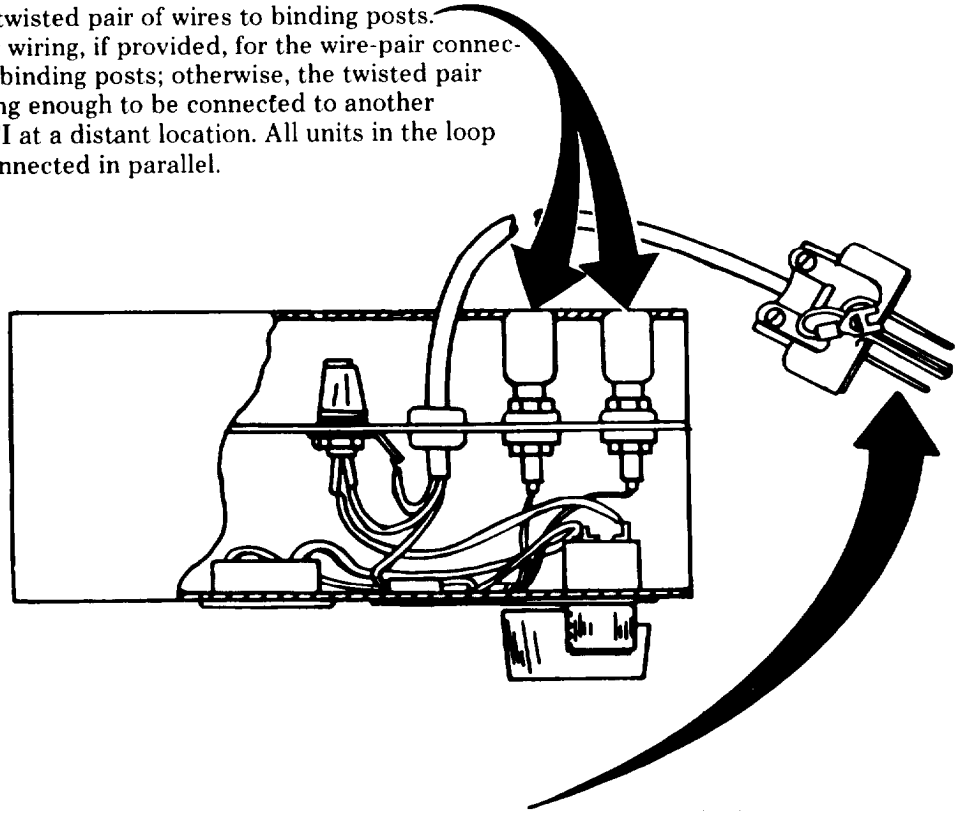
4-5. INSTALLATION

● To Install the LS-147F/FI in a Shelter

Install the LS-147F/FI at the location where it is to be operated. The unit may be wall- or shelf-mounted, or one end may be mounted on a wall and the other end on a shelf. Using two universal mounting brackets. and four each screws and nuts, secure the unit in position.



Connect a twisted pair of wires to binding posts. Use shelter wiring, if provided, for the wire-pair connection at the binding posts; otherwise, the twisted pair must be long enough to be connected to another LS-147F/FI at a distant location. All units in the loop must be connected in parallel.



Connect the plug of the power cable assembly to a 115-volt, 60-Hertz (Hz) power source.

● Office Installation

CAUTION

Position the unit so that it cannot be accidentally knocked off its location.

Position the unit on a desk, table, or other flat surface where it is to be operated.

Connect a twisted pair of wires to the binding posts. The twisted pair must be long enough to be connected to another LS-147F/FI at a distant location.

Connect the plug of power cable assembly to a 115-volt, 60-Hz power source.

Section III. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

There are no scheduled organizational preventive maintenance checks and services on this equipment.

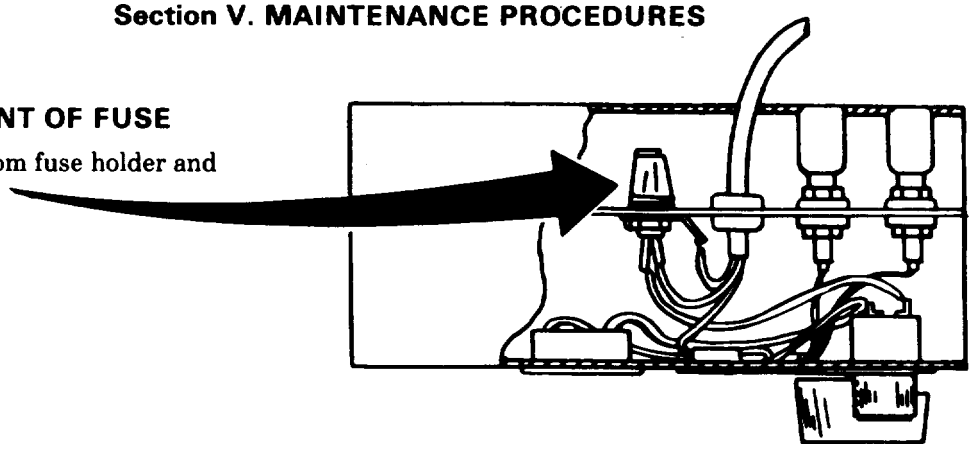
Section IV. TROUBLESHOOTING

Troubleshooting of the LS-147F/FI is authorized to be performed at direct support maintenance only.

Section V. MAINTENANCE PROCEDURES

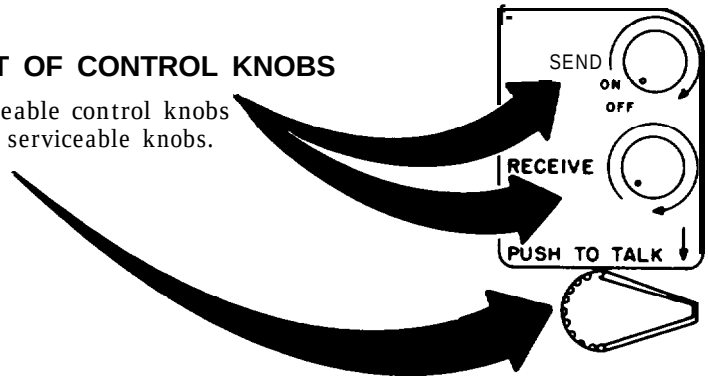
4-6. REPLACEMENT OF FUSE

Remove fuse from fuse holder and replace fuse.



4-7. REPLACEMENT OF CONTROL KNOBS

Remove unserviceable control knobs and replace with serviceable knobs.



CHAPTER 5
DIRECT SUPPORT MAINTENANCE INSTRUCTIONS

Section I, REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

5-1. GENERAL

a. Repair parts are listed and illustrated in TM11-5830-256-23P. No special tools are required for maintenance of the equipment. Test, maintenance and diagnostic equipment (TMDE), and support equipment include standard electrical test equipment found in any maintenance electric shop.

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

Section II. TROUBLESHOOTING

5-2. USE OF TROUBLESHOOTING TABLE

Table 5-1 contains troubleshooting information useful to maintenance technicians in diagnosing and correcting malfunctions or unsatisfactory operation of the LS-147F/FI.

a. The troubleshooting table lists the common malfunction symptoms and unsatisfactory performance characteristics technicians are most likely to encounter test and inspection steps to be followed to determine the cause, and the corrective action(s) that should be performed for each possible cause listed.

b. The technician should first find the malfunction, symptom or unsatisfactory performance characteristic in the table which most closely describes the immediate situation; then perform the test and inspections, and corrective action steps in the order in which they are listed.

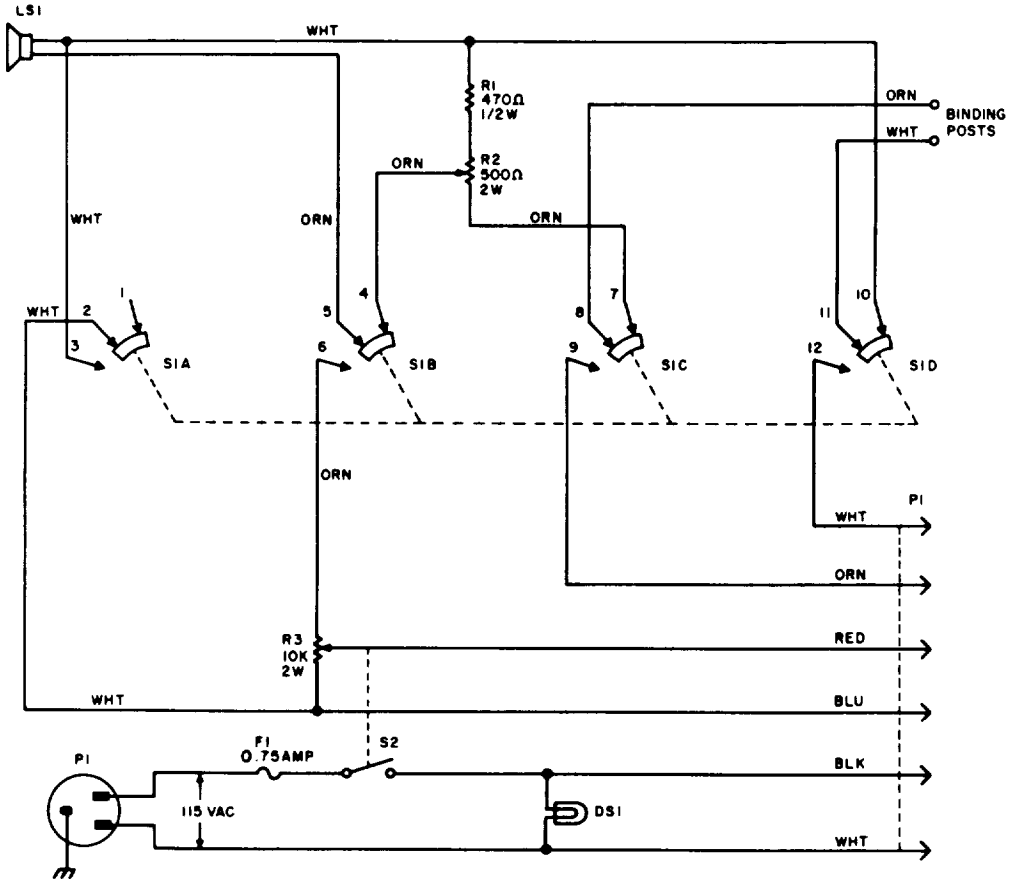
c. This manual cannot list all possible situations which may be encountered, nor can it list all test and inspection, and corrective action steps which may be taken.

Table 5-1. TROUBLESHOOTING

Malfunction	Probable cause	Corrective action
1. Pilot light does not light when SEND control is turned ON.	a. Defective light	a. Check continuity (para 5-3) and replace if defective (para 5-10).
	b. Defective power cord or plug	b. Check continuity (para 5-3). Replace or repair as required (para 5-9).
	c. Defective fuseholder	c. Replace if defective (para 5-10).
	d. Defective SEND control	d. Check variable resistor R2 (para 5-3). Replace if defective (para 5-10).
	e. Defective power supply circuit board assembly.	e. Check output voltages (para 5-4) and replace if defective (para 5-7).
	f. Defective wiring harness	f. Check continuity (para 5-3). Replace or repair as required (para 5-9).
	g. Defective fuse	g. Replace fuse.
2. Incoming signal cannot be received.	a. Defective PUSH TO TALK switch	a. Check continuity between speaker and binding posts (para 5-3). Replace switch if defective (para 5-10).
	b. Defective speaker	b. Check continuity of speaker (para 5-3) and replace if defective (para 5-6).
	c. Binding post connections.	c. Check for cleanliness.
3. No transmission to distant end.	a. Defective SEND control	a. Check variable resistor R2 (para 5-3) and replace if defective (para 5-10).
	b. Defective speaker	b. Check continuity of speaker (para 5-3) and replace if defective (para 5-6).
	c. Defective amplifier circuit board assembly.	c. Check output voltage (para 5-4) and replace if defective (para 5-8).
4. Excessive hum in transmission to distant station.	Defective amplifier circuit board assembly.	Same as 3C above.
5. Low signal transmission level.	Defective amplifier circuit board assembly.	Same as 3C above.
6. Desired volume of incoming signal cannot be obtained.	Defective RECEIVE control	Check variable resistor R2 (para 5-3) and replace if defective (para 5-10).

5-3. CONTINUITY AND RESISTANCE TESTS

Using Multimeter AN/PSM-45, or equivalent, perform a complete continuity test of the LS-147F/FI. Replace defective components following instructions in section 111.



5-4. FUNCTIONAL TESTS

WARNING

Before performing functional tests, be sure that the LS-147F/FI is grounded through the equipment ground (green) wire and the grounding lug of the power cable assembly.

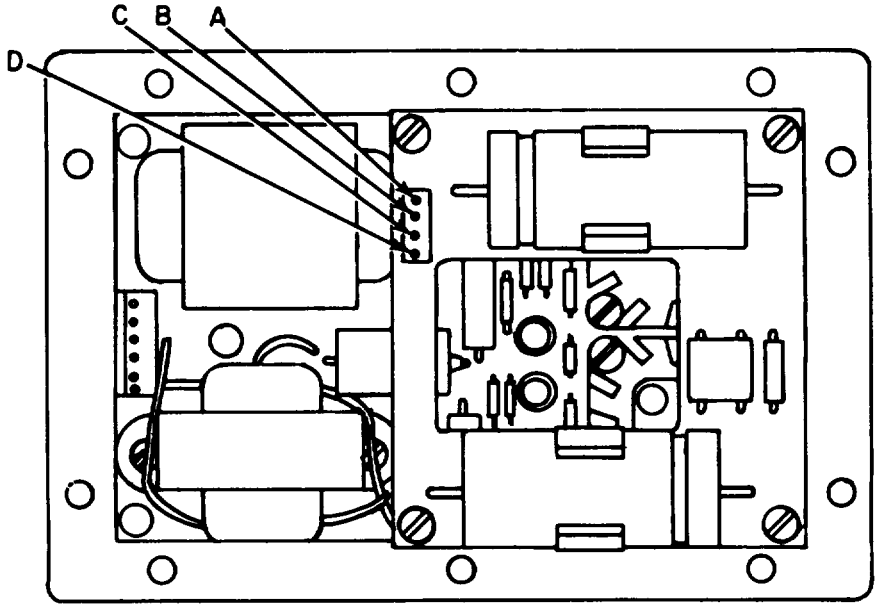
5-4. FUNCTIONAL TESTS – Continued

● Power Supply Circuit Board Assembly

Turn SEND control ON and observe that pilot light lights.

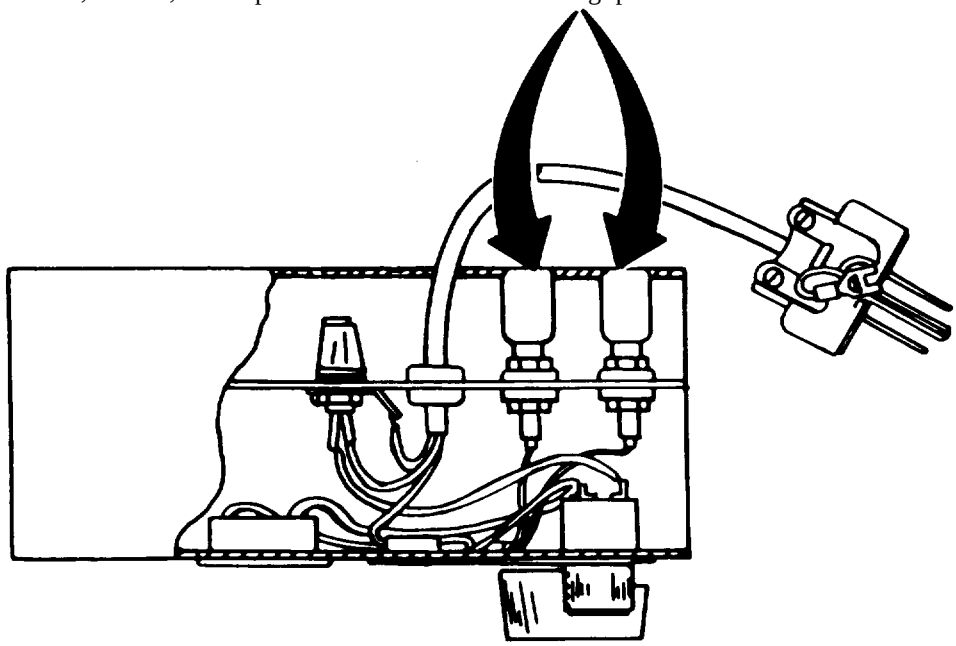
With the PUSH TO TALK control in the nondepressed (up) position, obtain the following readings:

Using Multimeter AN/PSM-45, or equivalent, measure 60+6 volts dc across pins A and D. Across pins B and C, measure 45 ±4 volts ac



● Amplifier Circuit Board Assembly

Install a 10-ohm, 5-watt, ± 10-percent resistor across binding post.

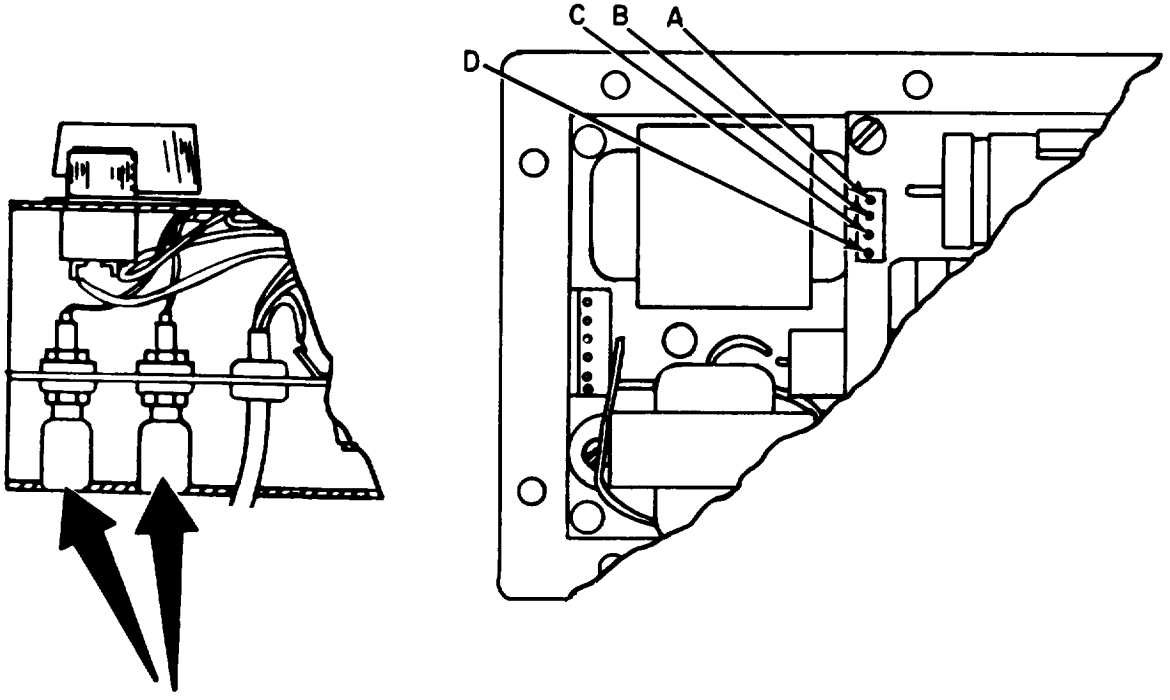


5-4. FUNCTIONAL TESTS – Continued

Turn SEND control ON and in the maximum clockwise position and observe that the pilot light lights.

Using Signal Generator TS-42lC/U, apply 6 millivolts (0.006 volt) at 1 kHz across the speaker terminal (B and C).

Depress the PUSH TO TALK switch:



Using Multimeter ME-30, measure 6 ±0.5 volts across the binding posts.

Section III. REPLACEMENT OF COMPONENT PARTS

5-5. ASSISTANCE TO ORGANIZATIONAL MAINTENANCE

a. Maintenance. Direct support maintenance personnel may be requested to assist organizational maintenance personnel in the performance of any of the organizational maintenance procedures covered in chapter 4.

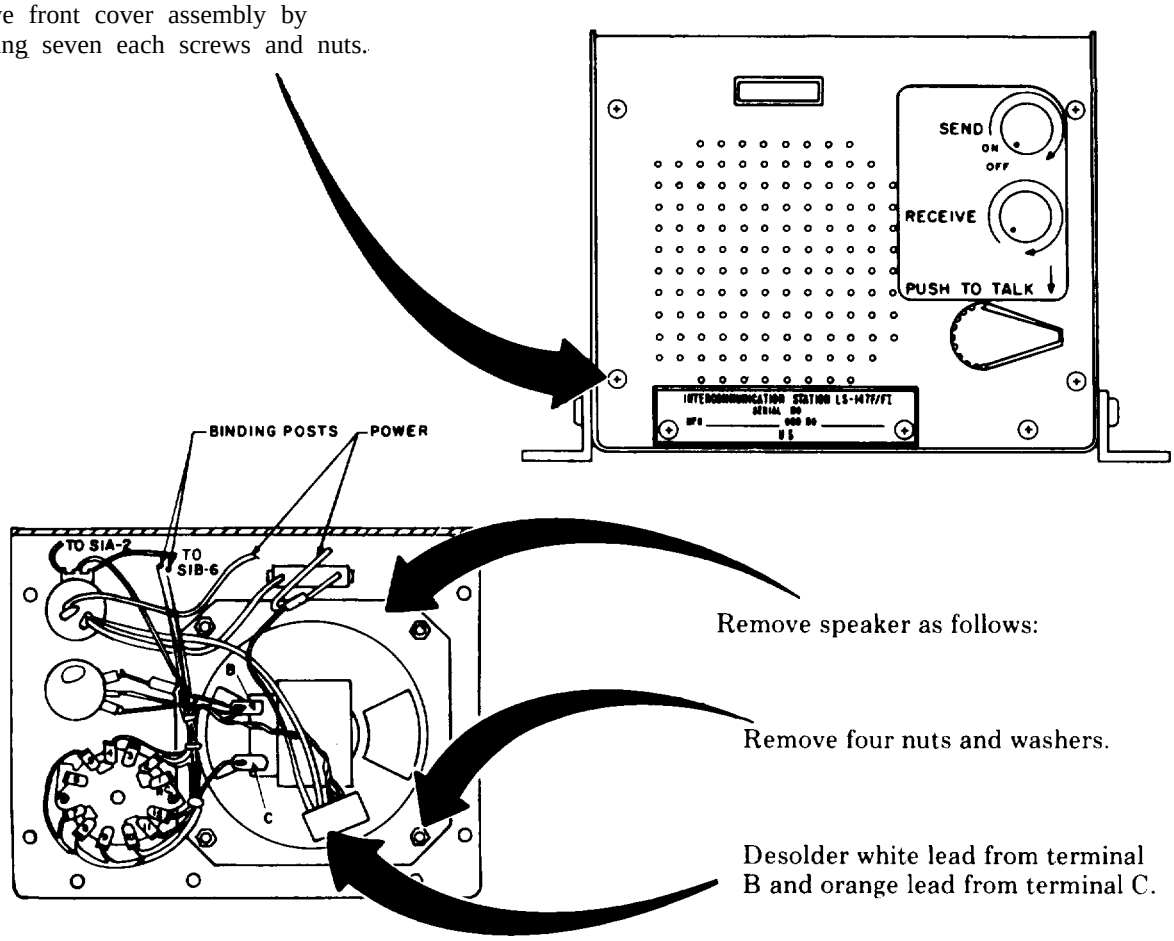
h. Troubleshooting. Direct support maintenance personnel may be requested to assist organizational maintenance personnel in troubleshooting to determine the cause of a malfunction or unsatisfactory performance of the LS-147F/FI.

c. Repair. Direct support maintenance personnel may be requested to assist organizational maintenance in the performance of repair functions normally performed by organizational maintenance personnel. The specific repair functions authorized for performance by direct support maintenance on the Maintenance Allocation Chart (MAC) contained in appendix B are covered in detail in this chapter in the order in which they appear on the MAC.

d. Replacement, Direct support maintenance will condemn items that are beyond authorized repair and will provide appropriate replacement parts or components.

5-6. REPLACEMENT OF SPEAKER

Remove front cover assembly by removing seven each screws and nuts.



Replace defective speaker with one that is serviceable as follows:

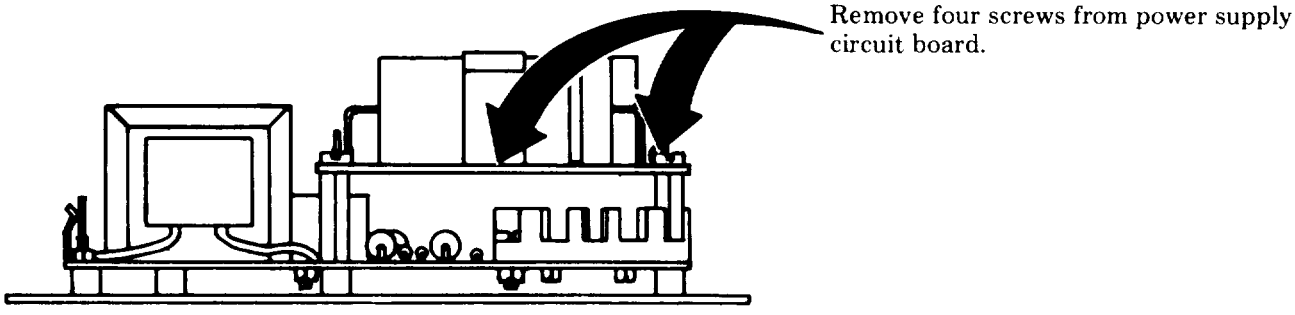
Solder white lead to terminal B and orange lead to terminal C.

Replace four nuts and washers.

Replace front cover assembly by replacing seven screws and nuts.

5-7. REPLACEMENT OF POWER SUPPLY CIRCUIT BOARD ASSEMBLY

Remove front cover assembly by removing seven screws and nuts.



Disconnect pins A through D of power supply board from nylon connector of amplifier circuit board assembly.

5-7. REPLACEMENT OF POWER SUPPLY CIRCUIT BOARD ASSEMBLY – Continued

Replace power supply circuit board as follows:

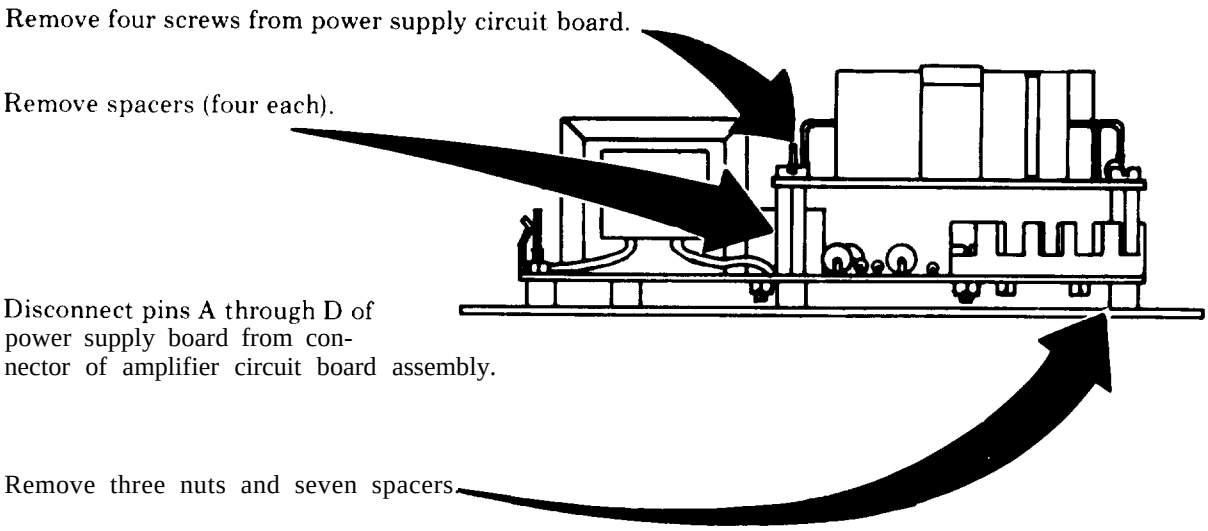
Connect pins A through D of power supply board of nylon connector to amplifier circuit board assembly.

Replace four screws on power supply circuit board.

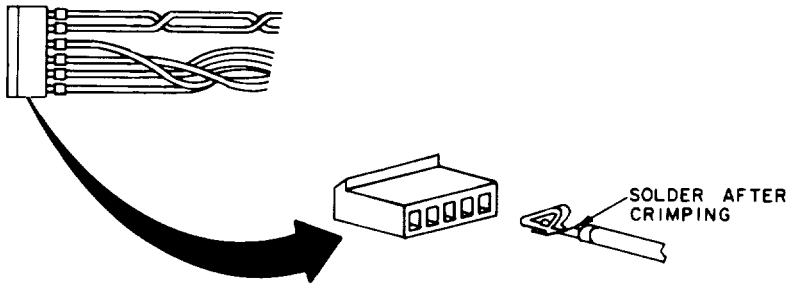
Replace front cover assembly by replacing seven screws and nuts.

5-8. REPLACEMENT OF AMPLIFIER CIRCUIT BOARD ASSEMBLY

Remove front cover assembly by removing seven screws and nuts.



Disconnect pins of amplifier circuit board from wiring harness connector.



Replace the amplifier circuit board as follows:

Connect pins from wiring harness connector to amplifier circuit board.

Replace three nuts and seven spacers.

Connect pins A through D of power supply board to nylon connector of amplifier circuit board assembly,

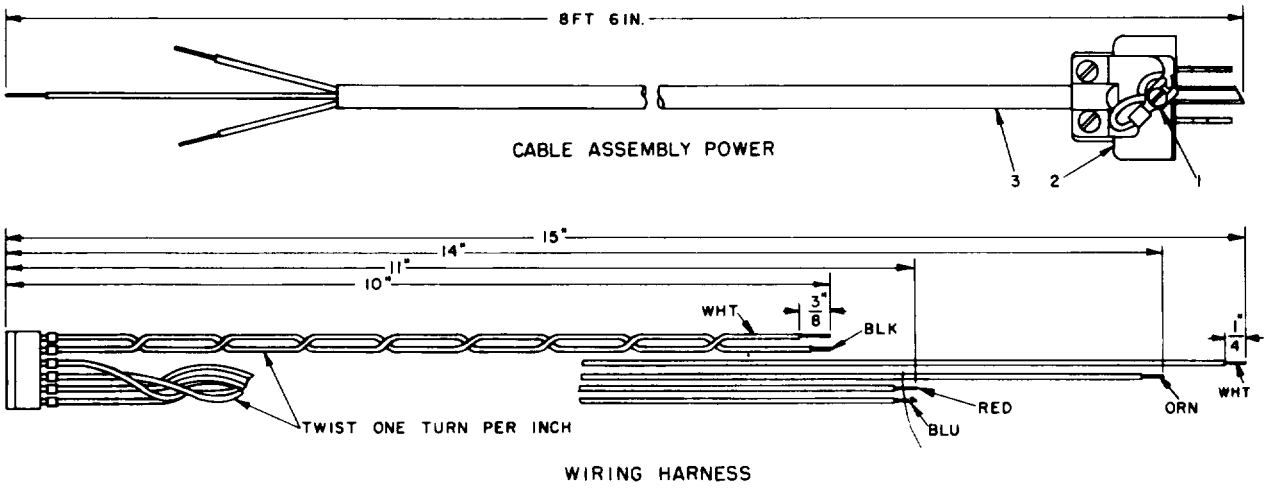
Replace four spacers.

Replace four screws on power supply circuit board.

Replace front cover assembly with seven screws and nuts.

5-9. REPAIR OR REPLACEMENT OF POWER CABLE ASSEMBLY AND WIRING HARNESS

If practicable, repair power cable assembly and the wiring harness.



If repair is not practicable, replace power cable assembly and wiring harness.

5-10. REPLACEMENT OF OTHER CHASSIS-MOUNTED COMPONENTS

For replacement of other components, refer to table 5-1.

5-11. REPLACEMENT OF IDENTIFICATION PLATES

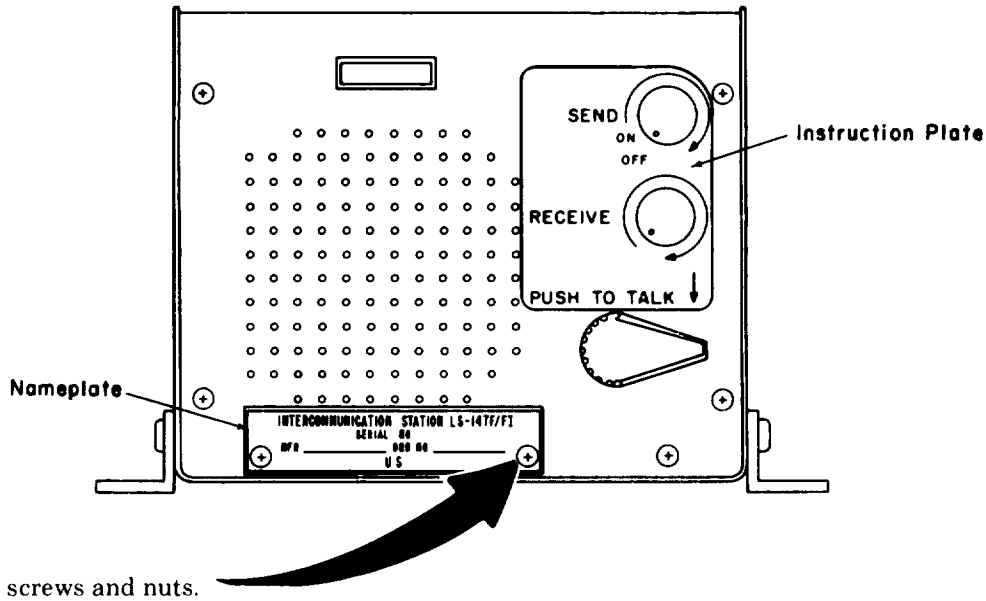
If lettering on instruction plate and nameplate become obliterated and impossible to read, replace plates as follows:

WARNING

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

5-11. REPLACEMENT OF IDENTIFICATION PLATES – Continued

•Nameplate

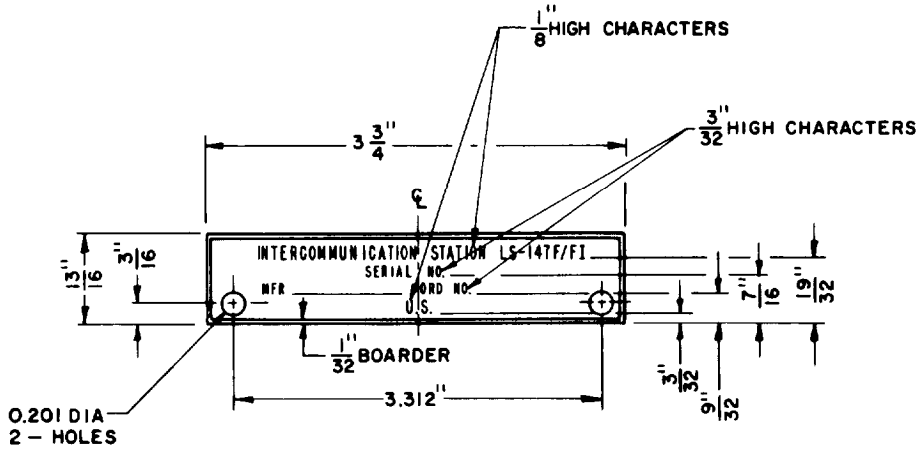


two screws and nuts.

Carefully scrape nameplate from front cover.

Thoroughly clean area of removal with trichlorotrifluoroethane.

Nameplate Fabrication and Installation Instructions



.Material: Plate 0.020 thick, Type III, Comp C {Type 1, Grade A, Class I, per spec GG-P-455} and markings shall be white with black backgound per spec MIL-P-514.

.Adhesive backing dry removal transfer tape, Catalog No. 465, as supplied by Minnesota Mining Co.. St. Paul, Minn. or equal.

- Do not remove backing paper until plate is to be installed.
- Characters shall be condensed gothic and centrally located.

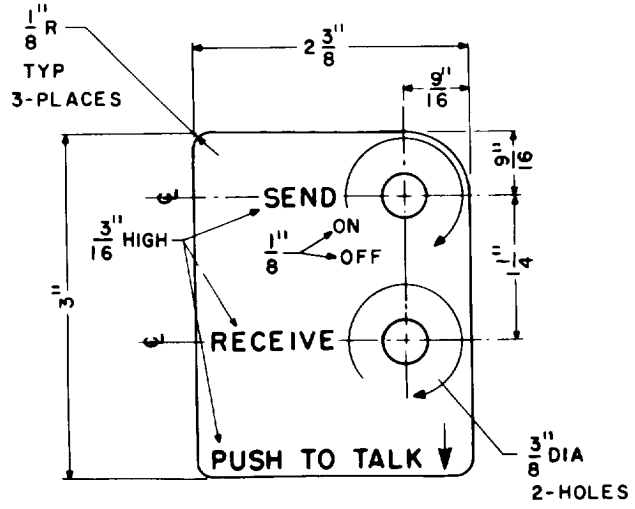
5-11. REPLACEMENT OF IDENTIFICATION PLATES – Continued

● Instruction Plate

Carefully scrape instruction plate from front cover assembly.

Thoroughly clean area of removal with trichlorotrifluoroethane.

Instruction Plate Fabrication and Installation Instructions



- **Material: Plate 0,003 thick, Type III, Comp C (Type 1. Grade A, Class I, per spec GG-P-455) and markings shall be white with black background per spec MIL- P-514.**
- **Adheaive backing dry removal transfer tape, Catalog No. 465, as supplied by Minnesota Mining and Mfg. Co., St Paul, Minn. or equal,**
- **Do not remove backing paper until plate is to be installed.**
- **Characters shall be centrally located.**

APPENDIX A
REFERENCES

The following publications contain information applicable to the operation and maintenance of the LS-147F/FI.

DA Pam 25-30	**Consolidated Index of Army Publications and Blank Forms.**
DA Pam 738-750	**The Army Maintenance Management System (TAMMS).**
TM 11-5830-256-23P	**Organizational, Direct Support and General Support Repair Parts and Special Tools List for Interconnection Station LS-147F/FI.**
TM 740-90-1	**Administrative Storage of Equipment.**
TM 750-244-2	**Procedures for Destruction of Electronics Materiel to Prevent Enemy Use (Electronics Command).**

APPENDIX B
MAINTENANCE ALLOCATION

Section 1. INTRODUCTION

B-1. GENERAL

This appendix provides a summary of the maintenance operations for the LS-147F/FI. It authorizes categories of maintenance for specific maintenance functions on repairable items and components and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

B-2. MAINTENANCE 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, preserve, drain, paint, or to replenish fuel/lubricants/hydraulic fluids or compressed air supplies.

d. Adjust. 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 about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test measuring and diagnostic equipment used in precision measurement. Consists of the comparison 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/system.

h. Replace. The act of substituting a serviceable like-type part, subassembly, model (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/assembly, end item or system. This function does not include the trial and error replacement of running spare type items such as fuses, lamps, or electron tubes.

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

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

B-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 the purpose of having the group numbers in the MAC and RPSTL coincide.

d. Column 4, Maintenance Category. Column 4 specifies, by the listing of a "worktime" figure in the appropriate subcolumn(s), the lowest level of maintenance authorized to perform the function listed in column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number of complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate "worktime" figures will be shown for each category. The number of task-hours specified by the "worktime" 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.

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

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

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

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

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

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

SECTION II. MAINTENANCE ALLOCATION CHART

INTERCOMMUNICATION STATION LS-147F/FI

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP	(6) REMARKS
			UNIT		INTERMEDIATE		DEPOT		
			C	O	F	H	D		
00	Intercommunication Station LS-147F/FI	Inspect	0.1						
		Test			0.5			1,2,3,4	
		Service	0.1						
		Install		0.1				4	
		Repair[1]		0.1				4	
		Repair[2]			1.0			1,2,3,4	A

1/ By replacement of fuse, lamp, or knobs.
2 Be replacement of chassis mounted components or printed circuit assembly. Printed circuit assemblies are not reparable.

SECTION III. TOOL AND TEST EQUIPMENT REQUIREMENTS
FOR
INTERCOMMUNICATION STATION LS-147F/FI

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	F	Multimeter, Digital AN/PSM-45	6625-01-139-2512	
2	F	Multimeter ME-30	6625-00-643-1670	
3	F	Generator, Signal TS-421C/U	6625-00-435-2588	
4	O,F	Tool Kit, Electronic Equipment TK-105/G	5180-00-610-8177	

SECTION IV REMARKS

REFERENCE CODE	REMARKS
A	When supply of circuit board assemblies is exhausted, repair the intercom by replacement of LS-147.

INDEX

INDEX – Continued

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

Official:

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

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Stateside Army Depot
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Stateside, N.J. 07703-5007

DATE SENT
10 July 1975

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

BE EXACT PIN-POINT WHERE IT IS

PAGE NO	PARAGRAPH	FIGURE NO	TABLE NO	IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
2-25	2-28			Recommend that the installation antenna alignment procedure be changed throughout to specify a 2^{o} IFF antenna lag rather than 1^{o}. REASON: Experience has shown that with only a 1^{o} lag, the antenna servo system is too sensitive to wind gusting in excess of 25 knots, and has a tendency to rapidly accelerate and decelerate as it hunts, causing strain to the drive train. Hunting is minimized by adjusting the lag to 2^{o} without degradation of operation.
3-10	3-3		3-1	Item 5, Function column. Change "2 db" to "3db." REASON: The adjustment procedure for the TRANS POWER FAULT indicator calls for a 3 db (500 watts) adjustment to light the TRANS POWER FAULT indicator.
5-6	5-8			Add new step f.1 to read, "Replace cover plate removed in step e.1, above." REASON: To replace the cover plate.
		F03		Zone C 3. On J1-2, change "+24 VDC to "+5 VDC." REASON: This is the output line of the 5 VDC power supply. +24 VDC is the input voltage.

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

SIGN HERE
SSG I. M. DeSpiritof

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DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 11-5830-256-13	1 Nov 1986	Intercommunication Station LS-147F/FI

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PAGE NO.	PARAGRAPH	FIGURE NO.	TABLE NO.

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THE METRIC SYSTEM AND EQUIVALENTS

'NEAR MEASURE

. Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

'VEIGHTS

Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 lb.
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

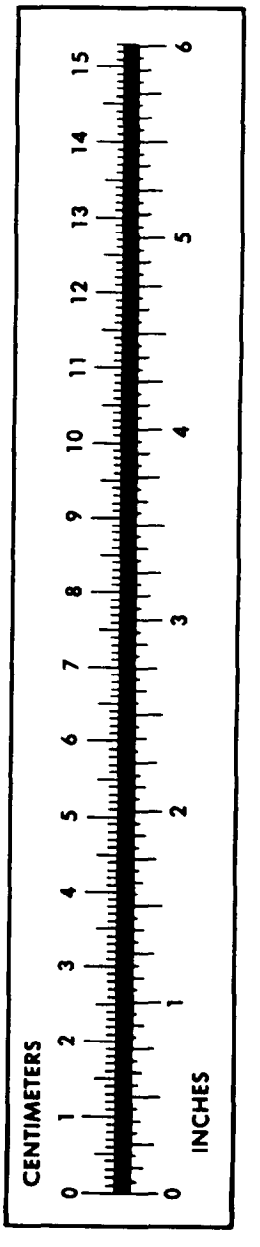
TEMPERATURE

5/9(°F - 32) = °C
212° Fahrenheit is evuivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5C° + 32 =°F

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
ıts	Liters	0.473
arts	Liters	0.946
allons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
ers	Gallons	0.264
ms	Ounces	0.035
ograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pounds-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
lometers per Liter	Miles per Gallon	2.354
meters per Hour	Miles per Hour	0.621



PIN: 037497-000