

DPARTMENT OF THE ARMY TECHNICAL MANUAL

ORGANIZATIONAL MAINTENANCE MANUAL

PROJECTOR SET AN/PFP-1

Headquarters, Department of the Army, Washington 25, D. C.
9 August 1961

WARNING
HIGH VOLTAGE
is used in this equipment.

DEATH ON CONTACT

may result if
safety precautions
are not observed.

Be careful not to come in contact with any power
connections when testing or repairing this equipment.

DON'T TAKE CHANCES!

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*This manual supersedes the maintenance allocation portion of TM 11--6730-208-20P and so much of TM-2331A, 29 December 1954, including C1, 13 July 1956; C2, 19 June 1957; C3, 1 August 1957; C4, 14 October 1958; and C5, 9 April 1959, as is applicable to organizational maintenance of Projector Set AN/PFP-1.

This copy is a reprint which includes current pages from
Change 2.

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Changes in force: C 2

CHANGE

No. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 25 April 1966

Organizational Maintenance Manual

PROJECTOR SET AN/PFP-1 APPENDIX II MAINTENANCE ALLOCATION CHART

TM 11-6730-208-20, 9 August 1961, is changed as follows:

Page 3. -Make the following changes:

Paragraph 1. (As changed by C 1, 3 Jul 1963)
Subparagraph b(1).

Change "(para 3)" to: (paras 3, 3.1, and 3.2).

Delete subparagraph c changed by C 1, 3 July 1963 and substitute:

c. The direct reporting by the individual user of errors, omissions, and recommendations for improving this manual is authorized and encouraged. DA Form 2028 (Recommended changes to DA Publications) will be used for reporting these improvements. This form will be completed using pencil, pen, or typewriter and forwarded direct to Commanding General, U. S. Army Electronics Command, ATTN: AMSEL-MR- (NMP)-MA, Fort Monmouth, N. J. 07703.

Add paragraph 1.1 added by C 1, 3 July 1963 after paragh 1.

1.1 Index of Publications

Refer to the latest issue of DA Pam 3104 to determine whether there are new editions, changes, or additional publications pertaining to the equipment. DA

Pam 3104 is a current index of technical manuals, technical bulletins, supply manuals (types 7, 8, and 9), supply bulletins, lubrication orders, and modification work orders available through publications supply channels. The index lists the individual parts (-10, -20, -35P, etc.) and the latest changes to and revisions of each equipment publication.

Paragraph 3. (As changed by C 1, 3 Jul 1963)
Delete paragraph 3 and substitute:

3. Organizational Preventive Maintenance

a. Organizational preventive maintenance is the systematic care, inspection, and servicing of the projector set to maintain it in serviceable condition, prevent breakdowns, and assure maximum operational capability. Preventive maintenance is the responsibility of all levels concerned with the equipment and includes the inspection, testing, and repair or replacement of parts, subassemblies, or units that inspection and tests indicate would probably fail before the next scheduled periodic service. Preventive maintenance checks and services of the projector set at the organizational level are made at monthly intervals, unless otherwise directed by the commanding officer.

*This supersedes C 1, 3 July 1963.

b. Maintenance forms and records to be used and maintained on this equipment are specified in TM 38-750.

3.1 Monthly Maintenance

Perform the maintenance functions indicated in the monthly maintenance checks and services chart (para 3.2) once each month at the same time the daily and weekly procedures (TM 11-6730-208-10) are performed. A month is defined as approximately 30 calendar days of 8-hour-per-day operation. If the equipment is operated 16 hours a day, the monthly maintenance should be performed at 15-day intervals. Adjustment of the maintenance interval must be made to compensate for any unusual operating conditions. Equipment maintained in a standby (ready for immediate operation,

condition must have monthly maintenance performed on it. Equipment in limited storage (requires service before operation) does not require monthly maintenance. All deficiencies or shortcomings will be recorded, and those not corrected during the inspection and service will be immediately reported to higher level, using forms and procedures specified by TM 38-750. Equipment that has a deficiency that cannot be corrected by organizational personnel should be deadlined in accordance with TM 38-750. Perform all the services listed in the monthly maintenance checks and services chart (para' 3.2) in the sequence listed. Whenever a normal condition or result is not observed, take corrective action in accordance with the listed *References*.

3.2 Monthly Maintenance Checks and Services

Seq No.	Item	Procedure	Reference
1	Publications	<ul style="list-style-type: none"> a. Check to see that pertinent publications are complete and usable without missing pages. b. Changes pertinent to the equipment are on hand. 	<ul style="list-style-type: none"> a. TM 11-4M7-208-10. b. DA Pam 310-4.
2	MWO's	Check DA Pam 310-4 to see If new applicable MWO's have been published. If any new ones have been published, check to be sure that all URGENT MWO's have been applied and that all ROUTINE MWO's have been scheduled.	
3	Preservation	<ul style="list-style-type: none"> a. Check all painted surfaces to be sure that they are free of bare spots, rust, and corrosion. b. Remove rust and corrosion by lightly sanding them with fine sandpaper. Brush two thin coats of paint on bare metal to protect it from further corrosion. 	<ul style="list-style-type: none"> a. None. b. TM 9-213.
4	Covers and latches	Check all doors, case covers, and latches (fig. 1, TM11-6730-208-10) to be sure that they close securely.	
5	Film path	<ul style="list-style-type: none"> a. Remove dirt and dust from parts in film patch (fig. 18, TM 11-6730-208-10). b. Inspect sprockets for worn teeth; if sprocket teeth are worn, refer to higher maintenance level. 	<ul style="list-style-type: none"> a. None. b. TM 3-750.
6	Scanner lens	Caution: Do not remove or shift position of scanner lens. A change in position will require sound focusing adjustment by higher level. Remove exciter lamp cover; carefully clean both ends of scanner lens with lens tissue wrapped around the end of a toothpick.	

Seq No.	Item	Procedure	Reference
7	Lubrication	Lubricate equipment in accordance with instructions (para 4 and fig. 2).	
8	Cables	Check all connectors to be sure that they are clean, have no bent pins, and mate securely. Check cables for frayed insulation and continuity.	Para 7 and 8.
9	Knobs	Check all knobs to be sure that they are secure and that they operate with positive action.	Para 9 and 10.
10	Mounting	Check to see that projector stand feet shows no sign of weakness or deformity and that projector remains stable when placed in an operating position.	Para 11.
11	Pluckout Items	Check seating of electron tubes and fuses to be sure that they are secure.	Para 12

Page 4, figure 1. (As deleted by-C 1; 3 Jul 1963) Delete figure 1.

TB SIG 364

Field Instructions for Painting and Preserving Electronics Command Equipment.

Page 15, appendix I. (As changed by C 1, 3 Jul 1963) Add the following to the list of references:

TM 9-213

Painting Instructions for Field Use.

DA Pam 3104

Index of Technical Manuals, Technical Bulletins, Supply Manuals (Type 7, 8, and 9), Supply Bulletins, Lubrication Orders, and Modification Work Orders.

TM 11-5965-299-12P

Operator's and Organizational Maintenance Repair Parts and Special Tool Lists and Maintenance Allocation Chart: Loudspeaker, Permanent Magnet LS170/PFP-1, LS-170A/PFP-1.

SB 11-573

Painting and Preservation Supplies Available for Field Use for Electronics Command Equipment.

TM 38-750

Army Equipment Record Procedures.

Page 16, appendix II. Delete and substitute:

**APPENDIX II
MAINTENANCE ALLOCATION CHART**

Section I. INTRODUCTION

1. General

This appendix provides a summary of the maintenance operations covered in the equipment literature for Projector Set, Motion Picture, Sound AN/PFP-1. It authorizes levels 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

Number

1
2
3
4
5

Maintenance Category
(or level)

Operator's
Organizational
Direct support
General support
Depot

2. Explanation of Format for Maintenance Allocation Chart

a. Group Number. Group numbers correspond to the reference designation prefix assigned in accordance with ASA Y32.16, Electrical and Electronics Reference Designation. They indicate the relation of listed items to the next higher assembly.

b. Component Assembly Nomenclature. This column lists the item names of component units, assemblies, subassemblies, and modules on which maintenance is authorized.

c. Maintenance Function. This column indicates the maintenance level at which performance of the specific maintenance function is authorized. Authorization to perform a function at any level also includes authorization to perform that function at higher levels. The numbers used represent the various maintenance levels as follows:

d. Tools and Equipment. The numbers appearing in this column refer to specific tools and equipment which are identified by these numbers in section III.

e. Remarks. Self explanatory.

3. Explanation of Format for Tool and Test Equipment Requirement

The columns in the tool and test equipment requirements chart are as follows:

a. Tools and Equipment. 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 for the maintenance function.

b. Maintenance Category. The numbers in this column indicate the maintenance category normally allocated the facility.

c. Nomenclature. This column lists tools, test, and maintenance equipment required to perform the maintenance functions.

d. Federal Stock Number. This column lists the Federal stock number.

e. Tool Number. Not used.

SECTION II. MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) FUNCTIONAL GROUP COMPONENT ASSEMBLY	(3) MAINTENANCE FUNCTIONS											(4) TOLS AND EQUIPMENT	(5) REMARKS		
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD				
	PROJECTOR SET, MOTION PICTURE SOUND, AN/PFP-1		1 2 4												12 10, 12 6, 8, 12 1, 2, 3, 5, 7, 9, 10, 11, 12, 13, 14,15	Visual Operational Optical mechanical audio Operational, continuity, tubes Optical, mechanical, audio
	AMPLIFIER AM-424/PFP-1; AM-424A/PFP-1		1 2 4	2 4	1 2	1 2 4							5	12 1, 9, 10, 11, 12, 13, 14, 15 4, 10, 11, 12	Clean, lubricate Lubricate, preventive maint. Operational Operational Optical, mechanical, audio	
	PROJECTOR PH-652/PFP-1; PH-652A/PFP-1		1 2 4	2 4	1								5	1, 2, 7, 8, 9, 10	Plus shop support Visual Operational Operational Operational, continuity, tubes Continuity, audio output, power Clean	
			1 2 4	2 4	1 2	1 2 4							5	12 10, 12 6, 8, 12 1, 2, 3, 5, 7, 9, 10, 11, 12, 13 14, 15	Clean, lubricate Lubricate, preventive, maintenance Operational Operational Optical, mechanical, audio	

SECTION II. MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) FUNCTIONAL GROUP COMPONENT ASSEMBLY	(3) MAINTENANCE FUNCTIONS											(4) TOLS AND EQUIPMENT	(5) REMARKS	
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD			
	AN/PFP-1 (continued) LOUDSPEAKER LS-170/PFP-1			#											See TM 11-5965-229-12P # Indicates that maintenance guidance will be found in the document referred in the Remarks column.

TOOLS AND TEST EQUIPMENT REQUIREMENTS

TOOLS AND EQUIPMENT	MAINTENANCE CATEGORY	NOMENCLATURE	FEDERAL STOCK NUMBER	TOOL NUMBER
		AN/PFP-1 (continued)		
		PROJECTOR SET, MOTION PICTURE SOUND, AN/PFP-1		
1	4,5	AUDIO OSCILLATOR TS-382/C	6625-192-5094	
2	4, 5	ELECTRONIC MULTIMETER ME-30A/U	6625-669-0742	
3	4, 5	ELECTRONIC MULTIMETER TS-26	6625-244-0502	
4	5	ELECTRONIC MULTIMETER TS-806/U	6680-551-0710	
5	4, 5	ELECTRONIC TUNE TESTER TV-2/U	6625-669-0263	
6	2, 3	ELECTRONIC TUNE TESTER TV-7/U	6625-376-4939	
7	4, 5	FREQUENCY METER AN/TSN-16	6625-542-1666	
8	2, 3, 4, 5	MULTIMETER AN/URM-105	6625-581-2036	
9	4, 5	SPECTRUM ANALYZER TS-723/U	6625-668-9418	
10	4, 5	TOOL EQUIPMENT TK-109/GF	5180-856-9653	
11	3, 4, 5	TOOL EQUIPMENT TK-116/GF	5180-064-5986	
12	2, 3, 4, 5	TOOL EQUIPMENT TK-77/GF	5180-752-9068	
13	4, 5	VARIABLE POWER TRANSFORMER CN-16 ()/U	5950-235-2068	
14	4, 5	PHOTOELECTRIC FOOT CANDLE METER ME-86/U	6695-641-5083	
15	4, 5	LIGHT ASSEMBLY ELECTRICAL MX-1292/PAQ	6695-537-4470	

By Order of the Secretary of the Army:

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

Official:

J. C. LAMBERT,
Major General, United States Army,
The Adjutant General

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USBAA (2)
CNOB (1)
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Dir of Trans (1)
CofEngrs (1)
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USACDCEA (1)
USACDCCBRA (1)
USACDCCEA (1)
USACDCOA (1)
USACDCQMA (1)
USACDCTA (1)
USACDCADA (1)
USACDCARMA (1)
USACDCAVNA (1)
UACDC(ARTYA) (1)
USACDCSWA (1)
USACDCCEA, Ft Huachuca (1)
USACDCEC (10)
USAMC (5)
USCONARC (5)
ARADCOM (5)
ARADCOM Rgn (2)
OS Maj Comd (4)
LOGCOMD (2)
USAECOM (30)
USAMICOM (4)
USASMC (2)
USACC (4)
USASCC (4)
USASCCME (5)
MDW (1)
Armies (2)
Corps (2)
USAC (3)
11th Air Aslt Div (3)
USMA (2)
Svc Colleges (2)
Br Svc Sch (2) except
 USASCS (30)
 USAQMS (5)
USASPTCP (11)
USAPA (5)
USATC (2)
WRAMC (1)

Army Plc Cen (2)
USAINTC (5)
Instl (2) except
 Ft Monmouth (70)
 Ft Hancock (4)
 Ft Oordon (10)
 Ft Huchuca (10)
 Ft Carson (23)
 Ft Knox (12)
AMS (1)
WSMR (5)
Gen Dep (2)
Sig Sec, Gen Dep (5)
Sig Dep (12)
Army Dep (2) except
 LBAD (14)
 SAAD (30)
 TOAD (14)
 FTWOAD (10)
 LEAD (7)
 SHAD (3)
 NAAD (5)
 SVAD (5)
 CHAD (3)
 ATAD (10)
USACRREL (2)
USAERDAA (2)
USAERDAW (13)
Sig Fid Maint Shops (2)
MAAG, Cambodia (5)
MAAG, Iran (5)
MAAG, Belgium-Luxembourg (5)
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NG: State AG (3); units--same as Active Army except allowance is one copy to each unit.

USAR: None.

For explanation of abbreviations used, see AR 320-50.

**CHAPTER 1
MAINTENANCE INSTRUCTIONS**

1. Scope

a. This manual covers second echelon maintenance of Projector Set AN/PFP-1. The operating instructions for this equipment are contained in TM 11-6730-208-10.

b. Second echelon maintenance for Projector Set AN/PFP-1 Consists of the following:

- (1) Preventive maintenance (para 3).
- (2) Lubrication (para 4).
- (3) Visual inspection (para 5).
- (4) Troubleshooting (para 6).
- (5) Repair of power cables (para 7).
- (6) Repair of amplifier input cable (para 8).
- (7) Replacement of amplifier knobs (para 9).
- (8) Replacement of projector knobs (para 10).
- (9) R e p l a c e m e n t of projector feet (para 11).
- (10) Tube testing and replacement (para 12).

c. Forward comments concerning this manual to the Commanding Officer, U. S. Army Signal Materiel Support Agency, ATTN: SIGMS-PA2d, Fort Monmouth, N. J.

Note. For applicable forms and records, see paragraph 2. TM 11-4730-208-10.

2. Tools, Test Equipment, and materials

Parts normally stocked for organizational maintenance are listed in the appendix. The tools, test equipment, and materials required are as follows:

- a. Tools and Test Equipment.
 - (1) Tool Equipment TK-77/GF.
 - (2) Electron Tube Test Set TV-7/U.
 - (3) Multimeter AN/URM-105.
- b. Materials.
 - (1) Wiping cloth, FSN 8305-170-5063.
 - (2) Lens tissue, FSN 6640-393-2090.

3. Preventive Maintenance

a. Use of DA Form 11-256. DA Form 11-256 (fig. 1) is a preventive maintenance checklist to be used by organizational maintenance personnel. References in the ITEM block in the figure are to paragraphs that contain additional maintenance information pertinent to the particular item. Instructions for use of the form appear on the form. Additional preventive maintenance information concerning items 1, 3, 4, 8, and 9 on DA Form 11-256 will be found in the preventive maintenance portion of TM 11-6730-208-10.

b. Items. The information in this subparagraph is supplementary to DA Form 11-256. The item numbers correspond to the ITEM numbers on the form.

Item	Maintenance procedure
1	Remove the exciter lamp cover (TM 11-6730-208-10). Carefully clean both ends of scanner lens (fig. 7) with lens tissue wrapped around the end of a toothpick. <i>Note. Do not remove or shift position of scanner lens, or higher echelon sound focusing procedure will be required.</i>
4	Loosen thumbscrew and remove exciter lamp cover. Inspect exciter lamp for blackened envelope and distorted or sagging filament.
14	If equipment in excessively noisy or if a loud clicking noise is heard, shut down the equipment. Turn the THREADING KNOB (fig. 2) by hand and observe whether the shuttle is hitting the aperture plate or the pressure plate. Check seating of the aperture and the pressure plate.

4. Lubrication

(fig. 2)

a. General. Procedures for first echelon lubrication

of Projector Set AN/PFP-1 are given in TM 11-6730210-10. Procedures for second echelon lubrication are given in *b* below.

LEGEND for marking conditions:
 Satisfactory, ✓
 Adjustment, Repair or Replacement required, X
 Defect corrected, (X)

DAILY CONDITION FOR MONTH OF

JULY 1961

NO.	DAILY ITEM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	3D 3D ECH- ELON
		/																															
1.	CLEAN EXTERNAL SURFACES OF OPTICAL COMPONENTS OF DUST, DIRT, HAZE FINGER MARKS AND MOISTURE (CAUTION: Use only approved cleaning methods as outlined in pertinent technical manuals). PARA 3b	/																														✓	
2.	CLEAN DIRT AND MOISTURE FROM EXPOSED SURFACES OF COMPONENTS.	/																														✓	
3.	INSPECT SWITCHES AND CONTROLS FOR BINDING, SCRAPING, EXCESSIVE LOOSENESS AND POSITIVE ACTION.	/																														✓	
4.	INSPECT FOR BURNED OUT OR SLACKENED PROJECTION LAMPS AND SLACKENED OR CRACKED REFLECTORS. PARA 3b	/																														✓	
5.	DURING OPERATION BE ALERT FOR ANY UNUSUAL PERFORMANCE OR CONDITION.	/																														✓	

WEEKLY	CONDITION EACH WEEK					3D 3D ECH- ELON	ADDITIONAL ITEMS FOR 2D AND 3D ECHELON INSPECTIONS	CONDITION		
	1ST	2D	3D	4TH	5TH					
6. INSPECT BELTS AND/OR DRIVE CHAINS FOR PROPER JOINING, STRETCHED CONDITION, WEAR, AND/OR FRAYING.						✓	16. INSPECT CORDS, CABLE, WIRE, SHOCKMOUNTS FOR CUTS, KINKS, BREAKS, FRAYING, UNDUE STRAIN.	✓		
7. INSPECT EXPOSED METAL SURFACES FOR RUST, CORROSION AND CHIPPED PAINT.						✓	17. ENTER READINGS OF ELAPSED TIME METER OVER MONTH COVERED BY THIS REPORT.	START 1200 END 1310 ✓		
8. CLEAN CONDENSING LENSES AND REFLECTORS OF DIRT, DUST, OILY FILM.						✓	18. INSPECT SEATING OF READILY ACCESSIBLE PLUG-OUT ITEMS: TUBES, LAMPS, FUSES, CONNECTORS.	✓		
9. INSPECT APERTURE PLATE AND PRESSURE SHOES FOR BURRS.						✓	19. INSPECT TRANSFORMERS, CHORE, POTENTIOMETERS AND RHEOSTATS FOR OVERHEATING AND OIL LEAKAGE.	✓		
10. INSPECT REELS AND SPINDLES FOR DIRT, DUST AND LINT. CLEAN AS NECESSARY.						⊗	IF DEFICIENCIES NOTED ARE NOT CORRECTED DURING THE INSPECTION, INDICATE ACTION TAKEN FOR CORRECTION. (Continue on page 2, if more space is needed)			
11. LUBRICATE IN ACCORDANCE WITH PERTINENT DA LUBRICATION ORDERS. PARA 4						✓	<p>ITEM 10. DAMAGED TAKEUP REEL REPLACED</p>			
ADDITIONAL ITEMS FOR 2D AND 3D ECHELON INSPECTIONS						CONDITION				
12. INSPECT DRIVE CLUTCHES AND PULLEYS FOR SLIPPAGE.						✓				
13. TIGHTEN ALL LOOSE MOUNTING SCREWS AND FASTENERS.						✓				
14. OPERATE THE EQUIPMENT AND CHECK FOR OVERHEATING, SMOOTHNESS OF OPERATION AND UNUSUAL NOISE OR VIBRATION. PARA 3b						✓				
15. CLEAN APERTURE PLATE ASSEMBLY, FILM PRESSURE SHOE ASSEMBLY, SPROCKET SHOE ASSEMBLY, GUIDEWAYS, SOUND DRUM, OF DIRT, OIL, DUST, CARBON EMULSION.						✓				

Figure 1. DA Form 11-256, pages 2 and 3.

b. *Second Echelon Lubrication.* Perform the following procedures after each 30 days of normal 8-hour operation or after long periods of storage.

- (1) Remove the upper screws and the lower screws that secure the shuttle and douser cover to the projector.

Note. Do not remove any additional screws.

- (2) Carefully pull the shuttle and douser cover from the projector to provide access to the oil reservoir.

If necessary, loosen the setscrews and remove the FRAMER knob.

- (3) Use a screwdriver to unscrew and remove the oil reservoir with the shuttle lubricating wick.
- (4) Remove any old oil and sediment from the oil reservoir
- (5) Place 1/2 cubic centimeter of Oil, Hydraulic Lubricating (2135-H) in the oil reservoir.
- (6) Reverse the procedures outlined in (1) through (3) above to replace and secure the oil reservoir.

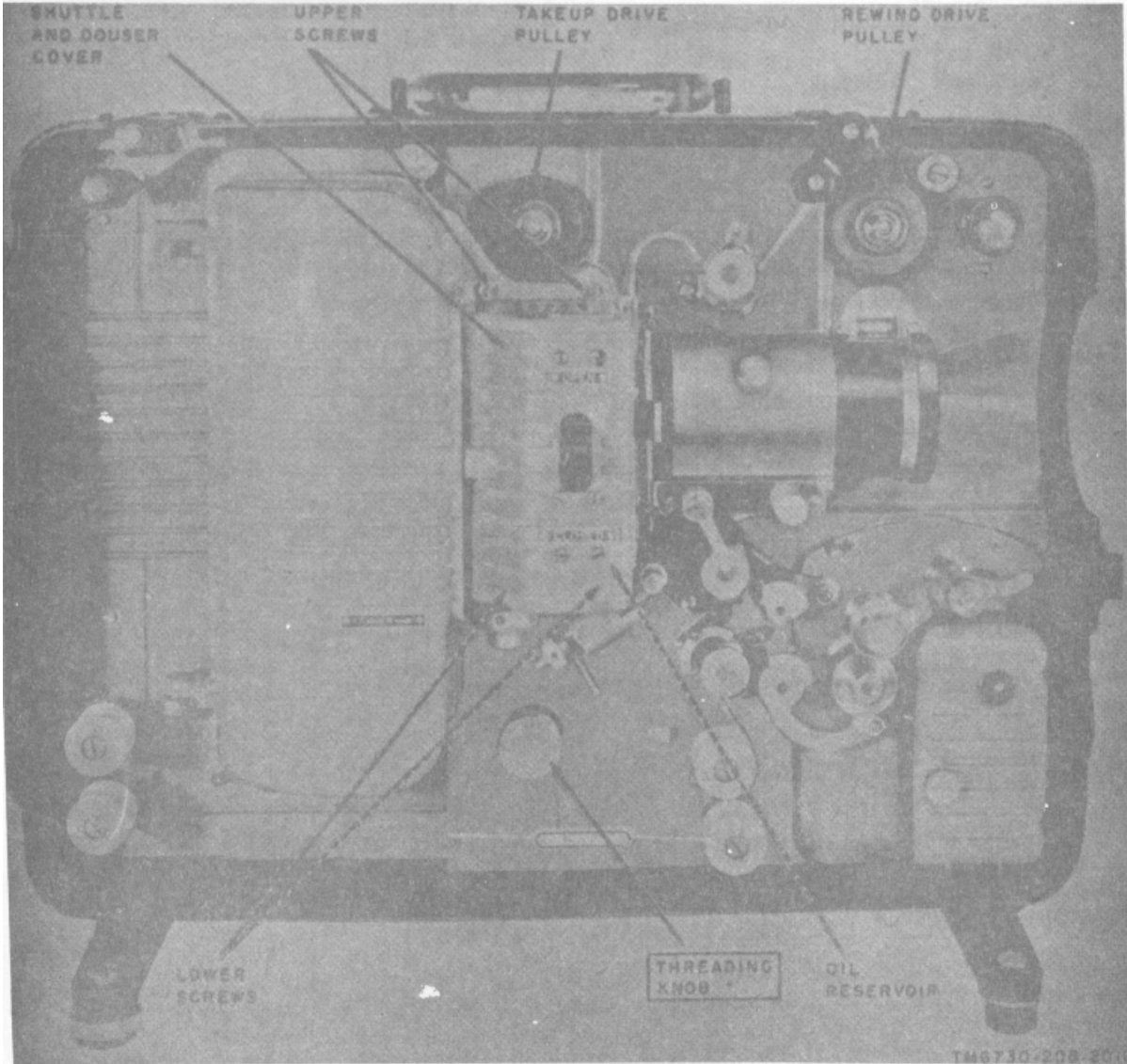


Figure 2. Projector, side view.

**CHAPTER 2
TROUBLESHOOTING AND REPAIR**

Note. Replacement procedures for Items which are removed and replaced during operation or operator's maintenance but which are designated as second echelon maintenance items are included in TM 11-6730-10.

5. Visual Inspection

a. General. Before operating the equipment, inspect it. Inspection may save repair time and may avoid damage to the equipment. Inspect the equipment for the following:

- (1) Damaged lens surfaces.
- (2) Improper action of operating controls.
- (3) Defective cables.
- (4) Loose or missing screws.
- (5) Missing or broken parts.

b. THREADING KNOB. Turn the THREADING KNOB (fig. 2) by hand and note the action of the shuttle. Note any unusual noises of the mechanism or binding of the THREADING KNOB.

trouble in the projection set. Only those corrective measures which the organizational maintenance man can apply are given. If the measure, suggested does not restore normal equipment performance, troubleshooting is required by a photographic equipment maintenance man at a field maintenance level. Note on the repair tag what corrective measures were taken.

a. General. Before using the troubleshooting chart, examine the repair tag to see whether the trouble has been sectionalized. If there has been no sectionalization, perform the procedures outlined in the equipment performance checklist (TM 11-6730-208-10).

b. Chart. In performing the checks outlined below, refer to figures in TM 11-6730-208-10.

6. Troubleshooting Chart

The chart below is furnished as an aid in localizing

Symptom	Probable cause	Corrective measure
A light pressure causes takeup drive pulley (fig. 2) to turn to the left.	Defective takeup drive pulley clutch.	Higher echelon repair required.
Takeup drive pulley does not turn freely to the right.	Defective takeup drive pulley clutch.	Higher echelon repair required.
A light pressure causes rewind drive pulley (fig. 2) to turn to the right.	Defective rewind drive pulley clutch.	Higher echelon repair required.
Rewind drive pulley does not turn freely to the left.	Defective rewind drive pulley clutch.	Higher echelon repair required.
Threading lamps do not light when THREADING LAMP switch is operated to ON. Lamps are not defective.	Defective power cable - Defective THREADING LAMP switch.	Repair defective power cable (pars 7). Higher echelon repair required.
One threading lamp does not light when THREADING LAMP switch is operated to ON. Lamp is not defective.	Defective socket or wiring.	Higher echelon repair required.
THREADING KNOB binds - - - - -	Projector mechanism binding.	Higher echelon repair required.
Projector mechanism and blower fan do not operate when OFF-MOTOR-LAMP switch is operated to MOTOR. Fuse is not defective.	Defective OFF-MOTOR-LAMP switch.	Higher echelon repair required.
Projector mechanism, blower fan, and projection lamp do not operate when OFF-MOTOR-LAMP switch is operated to LAMP	Defective OFF-MOTOR-LAMP switch.	Higher echelon repair required.

Symptom	Probable cause	Corrective measure
Turning leveling screw does not level projected image.	Defective leveling screw.	Replace defective leveling screw or projector foot (para 11).
Turning elevation knob does not raise or lower projected image.	Defective elevation knob or pin. Defective elevation mechanism.	Replace elevation knob or pin (Par 10). Higher echelon repair required.
Illumination of projected image is uneven. Movement of lamp adjustment levers does not help.	Defective condenser lens assembly.	Replace condenser lens assembly (TM 11-6a30-208-10).
Lens does not slide back and forth freely for focusing when lens locking screw is loosened.	Defective lens bly.	Higher echelon repair required.
Impossible to focus all four edges of projected frame simultaneously. Lens axis is perpendicular to screen.	Defective aperture plate.	Higher echelon repair required.
Projection lamp, blower fan, or projector mechanism continues to operate after OFF-MOTOR-LAMP switch is operated to OFF.	Defective OFF-MOTOR-LAMP switch.	Higher echelon repair required.
Automatic loopsetter does not automatically restore picture clarity. Adjustment of automatic loopsetter does not help.	Defective automatic loopsetter.	Higher echelon repair required.
Amplifier indicator does not glow when amplifier switch is operated to ON. Indicator lamp and fuse are not defective. switch.	Defective power cable- (para 7). Defective amplifier	Repair defective power cable Higher echelon repair required.
Exciter lamp indicator does not glow after amplifier is warmed up. Exciter lamp is not defective. Amplifier tube 6AQ5 is not defective.	Defective amplifier Input cable. Defective amplifier circuitry	Repair defective amplifier Input cable (para 8). Higher echelon repair required.
FRAMER knob will not frame projected image.	FRAMER knob loose or defective. Framing mechanism defective.	Tighten or replace loose or defective FRAMER knob (para 10) Higher echelon repair required.
Focusing knob will not focus projected image.	Focusing knob loose or defective.	Tighten or replace loose or defective focusing knob (para 10)
GAIN control knob will not adjust volume-	GAIN control knob loose or defective.	Tighten or replace loose or defective GAIN control knob (par 9).
TREBLE control knob will not adjust higher frequency tones.	Defective GAIN control TREBLE control knob loose or defective.	Higher echelon repair required. Tighten or replace loose or defective TREBLE control knob (par 9).
BASS control knob will not adjust lower frequency tones.	Defective TREBLE control BASS control knob loose or defective.	Higher echelon repair required. Tighten or replace loose or defective BASS control knob (para 9).
Rewind action does not begin when REWIND switch is operated to ON position.	Defective BASS control- Defective REWIND switch	Higher echelon repair required. Higher echelon repair required.
HOURS counter does not correctly indicate projector operating time.	Defective HOURS counter or linkage.	Higher echelon repair required.

7. Repair of Power Cables

(fig. 3)

The amplifier power cable or the projector power cable may be repaired by replacing the male and female plugs (a and b below) and by checking the power cable for continuity (c below).

a. Replacing Male Plug. Replace the power cable male plug as follows:

- (1) Remove the strain relief screws.
- (2) Remove the insulator.
- (3) Mark and disconnect the leads and remove the male plug.
- (4) Install the replacement male plug by reversing the procedures outlined in (1) through (3) above.

b. Replacing Female Plug. Replace the power cable female plug as follows:

- (1) Remove the screws and the strain relief clamp.
- (2) Remove the screws and the rear cover.
- (3) Remove the barrel screws and pull the barrel out from the female plug.
- (4) Remove the latch and the spring.
- (5) Mark and unsolder the leads, and remove the female plug.
- (6) Thread the cable through the replacement plug and solder the leads.
- (7) Insert the spring in the barrel with the short side up and the open end of the spring toward the receptacle side.
- (8) Place the latch with the recess over the closed end of the spring.
- (9) Press the end of the latch down and push its end under the barrel housing.
- (10) Place the barrel into the female plug and align the screw holes.
- (11) Replace and tighten the barrel screws.
- (12) Replace the rear cover and secure it with the screws.
- (13) Replace the strain relief clamp and secure it with the screws.

c. Checking Power Cable. Use Multimeter AN/URM-105 to check the power cable for continuity. The correct readings between points on the male plug and the female plug are as follows:

From	To	Resistance (class)
Male plug:	Female plug:	
One prong	Pin 1.....	Less than 1
	Pin 2.....	Infinite
	Pin 8.....	Infinite
Opposite prong	Pin 1.....	Infinite
	Pin 2.....	Infinite
	Pin 3.....	Less than 1
Ground lug	Pin 1.....	Infinite
	Pin 2.....	Less than 1
	Pin 3.....	Infinite

8. Repair of Amplifier Input Cable

(fig. 4)

The amplifier input cable may be repaired by replacing the male and female plugs (a and b below) and by checking the cable for continuity (c below).

a. Male Plug. Replace the male plug as follows:

- (1) Remove the screws and the strain relief clamp.
- (2) Remove the screws and the rear cover.
- (3) Remove the long screws and short screws, and pull the barrel from the male plug.
- (4) Mark and solder the leads and remove the male plug.
- (5) Thread the cable through the replacement plug and solder the leads.
- (6) Place the barrel into the male plug and align the screw holes.
- (7) Replace and tighten the long screws and the short screws.
- (8) Replace the rear cover and secure it with the screws.
- (9) Replace the strain relief clamp and secure it with the screws.

b. Female Plug. Replace the female plug as follows:

- (1) Remove the screws and the strain relief clamp.
- (2) Remove the screws and the rear cover.
- (3) Remove the screws and pull the barrel out from the female plug.
- (4) Remove the latch and the spring.
- (5) Mark and unsolder the leads and remove the female plug.

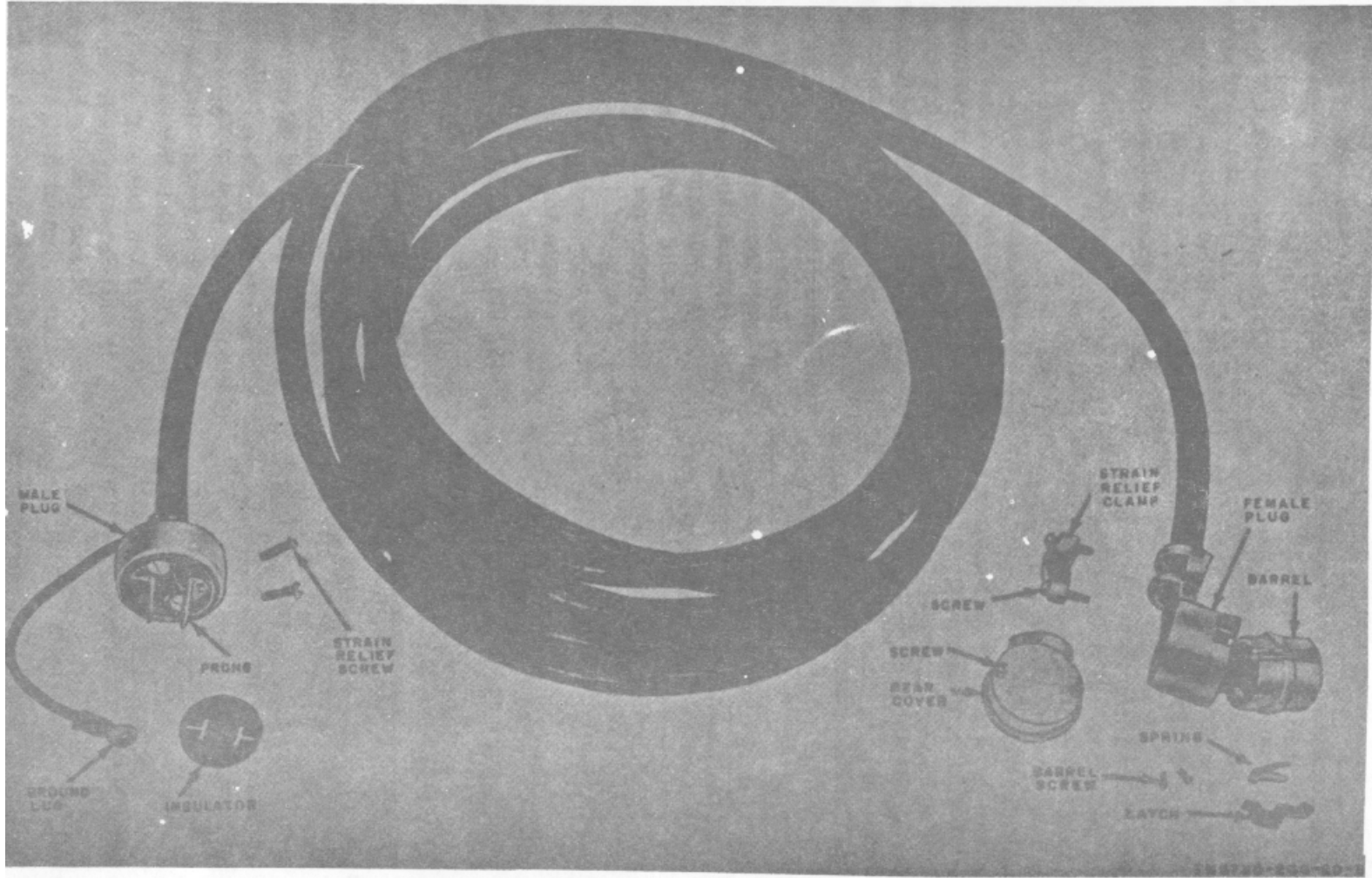


Figure 3. Power cable, plugs exploded.

(6) Thread the cable through the replacement plug and solder the leads.

(7) Insert the spring in the barrel with the short side up and the open end toward the receptacle side.

(8) Place the latch with the recess over the closed end of the spring.

(9) Press the end of the latch down and push its end under the barrel housing.

(10) Place the barrel into the female plug and secure it with the barrel screws.

(11) Replace the rear cover and secure it with the screws.

(12) Replace the strain relief clamp and secure it with the screws.

c. Check Amplifier Input Cable. Use Multimeter AN/URM-105 to check the amplifier input cable for continuity. The correct readings between points on the male plug and the female plug are as follows:

From	To	Resistance
Male plug:	Female plug:	
Pin 1	Pin 1	Less than 1
	All other pins.....	Infinite
Pin 2	Pin 2	Less than 1
	All other pins.....	Infinite
Pin 3	Pin 3	Less than 1
	All other pins.....	Infinite
Pin 4	Pin 5	Less than 1
	All other pins.....	Infinite
Pin 5	Pin 4	Less than 1
	All other pins.....	Infinite
Pin 6	Pin 6	Less than 1
	All other pins.....	Infinite

9. Replacement of Amplifier Knobs

(fig. 5)

a. GAIN, TREBLE, or BASS Control Knob. Replace the GAIN, TREBLE, or BASS control knob as follows:

(1) Use an Allen wrench to loosen the setscrew.

(2) Remove the knob from the shaft.

(3) Turn the shaft all the way to the left.

(4) Install the replacement knob on the shaft with the reference mark at the lowest setting.

(5) Tighten the setscrew.

b. Selector Switch Knob. Replace the selector switch knob as follows:

(1) Use a small screwdriver to loosen the setscrew.

(2) Remove the knob from the shaft.

(3) Position the replacement knob on the shaft so that the setscrew is over the flat part of the shaft.

(4) Tighten the setscrew.

10. Replacement of Projector Knobs

a. OFF-MOTOR-LAMP Switch Knob (fig. 6). Replace the OFF-MOTOR-LAMP switch knob as follows:

(1) Loosen setscrew.

(2) Remove the knob from the shaft.

(3) Position the replacement knob on the shaft so that the setscrew is over the flat part of the shaft.

(4) Tighten the setscrew.

b. THREADING KNOB (fig. 7). Replace the THREADING KNOB as follows:

(1) Loosen the setscrew and remove the knob from the shaft.

(2) Position the replacement knob on the shaft with the setscrew over the flat part of the shaft.

(3) Tighten the setscrew to secure the knob.

c. Focusing Knob.

(1) Loosen the two setscrews and remove the knob from the shaft.

(2) Install the replacement knob on the shaft and tighten the setscrew.

d. FRAMER Knob (fig. 7). Replace the FRAMER knob as follows:

(1) Loosen the two setscrews and remove the knob from the shaft.

(2) Install the replacement knob on the shaft and tighten the setscrews.

e. Elevation Knob (fig. 7). Replace the elevation knob as follows:

(1) Drive out the pin that secures the knob to the shaft.

(2) Remove the knob from the shaft.

(3) Install the replacement knob on the shaft so that the holes in the knob are aligned with the holes in the shaft.

(4) Insert the pin in the knob and shaft hole and tap it into place.

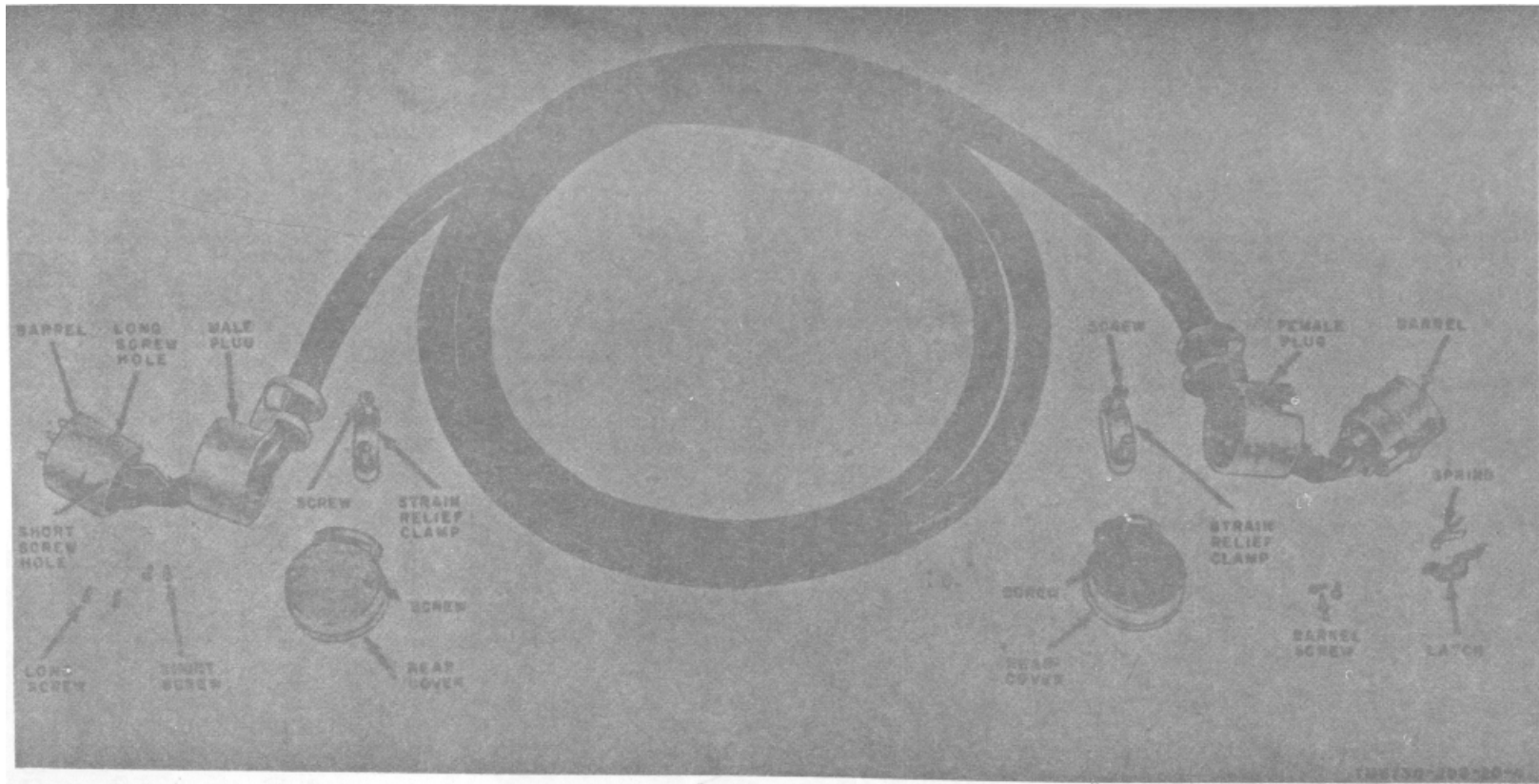


Figure 4. Amplifier input cable, plugs exploded.

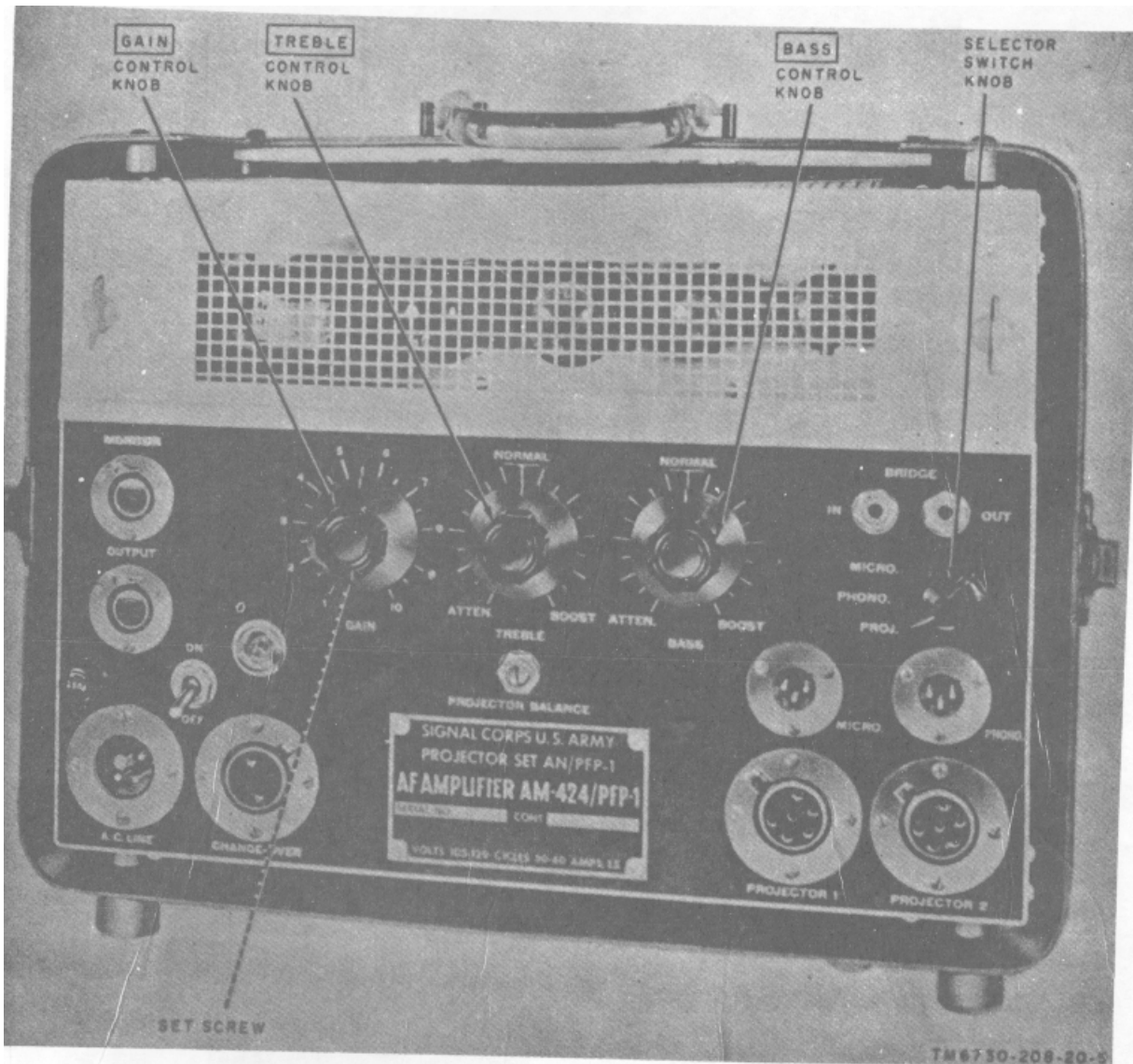


Figure 5. Amplifier, front cover removed.

11. Replacement of Projector Feet

(fig. 6)

The projector is equipped with three fixed feet (*a* below) and one adjustable foot (*b* below).

a. Fixed Feet. Replace one of the projector fixed feet as follows:

- (1) Use the adjustable wrench on the hexagonal portion to unscrew the foot and the lockwasher from the projector.
- (2) Place the lockwasher on the replacement foot.
- (3) Screw the replacement foot into the projector

and tighten with the adjustable wrench.

b. Adjustable Foot. Replace the adjustable foot as follows:

- (1) Turn the leveling screw all the way to the right to expose the upper screw.
- (2) Hold the upper screw with pliers; use a screwdriver in the slotted portion to unscrew the foot.
- (3) Remove the foot from the leveling screw.

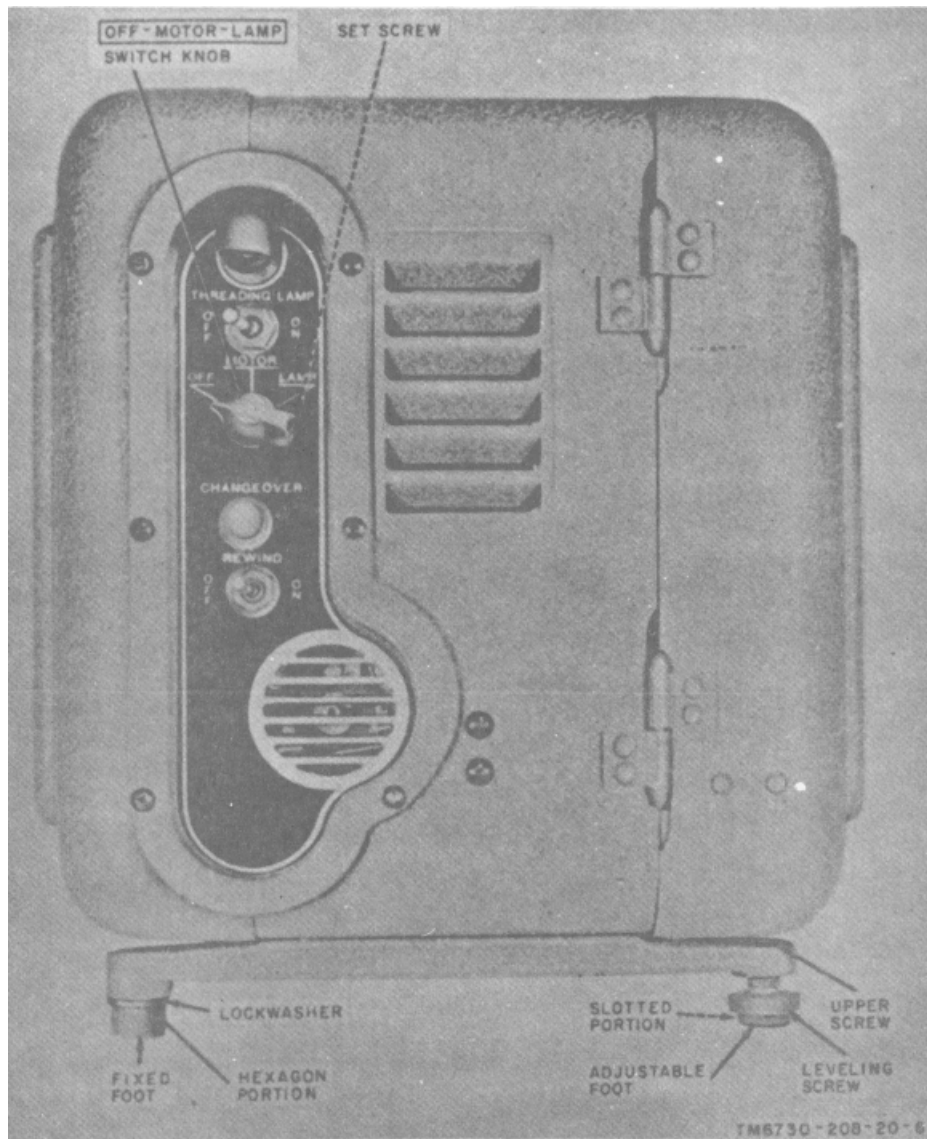


Figure 6. Projector, rear view.

- (4) If replacement of the leveling screw is required, remove the screw and insert a replacement leveling screw.
- (5) Install the replacement foot in the leveling screw by reversing the procedures outlined in (1) and (3) above.

12. Tube Testing and Replacement

When trouble occurs, check all cabling and connections before removing any tubes. Try to isolate the trouble to

a component or stage. If tube failure is suspected, refer to TM 11-6730-208-10 for tube locations, and test the tubes as follows:

Caution: Never rock or rotate a tube when pulling it from a socket; pull it straight out with a tube puller.

- a. Remove and test one tube at a time.
- b. Discard a tube only if its defect is obvious or if the tube tester shows it to be defective.

c. Do not discard a tube that tests at or slightly below its minimum test limit on the tube tester.

d. Replace the original tube, or install a new one if required, before testing the next tube.

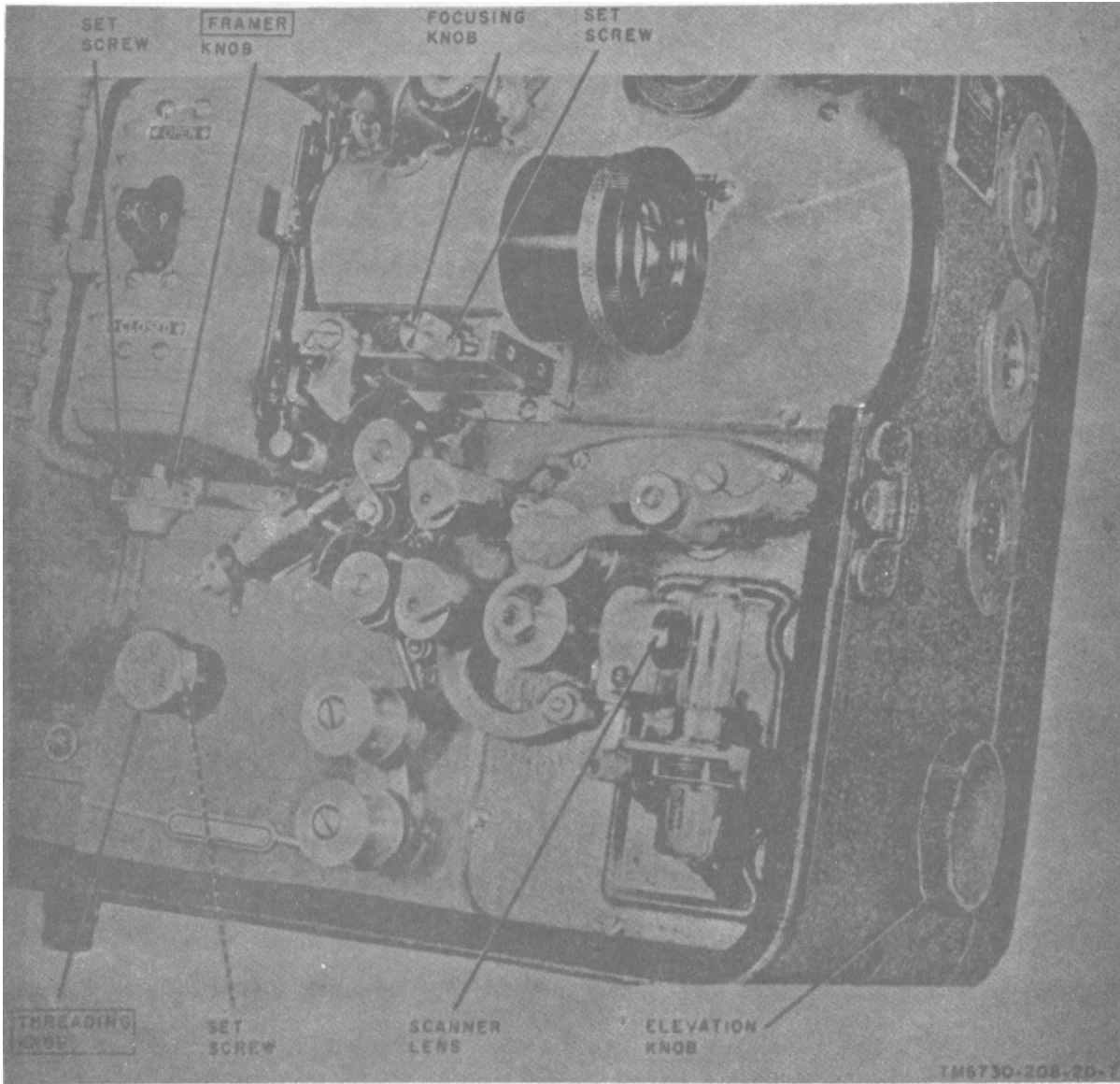


Figure 7. Right-hand side of projector, exciter lamp cover removed.

APPENDIX I REFERENCES

Following is a list of references applicable and available to the organizational maintenance man of Projector Set AN/PFP-1.

- | | |
|-------------------|--|
| TB 11-5085-1 | Test Data for Electron Tube Test Sets TV-7/U, TV-7A/U, TV-7B/U, and TV-7D/U. |
| TM 11-6625-203-12 | Operation and Organizational Maintenance: Multimeter AN/URM-105, including Multimeter ME-77/U. |
| TM 11-6730-201-10 | Operator's Manual: Projector Set AN/PFP-1. |

**APPENDIX II
MAINTENANCE ALLOCATION**

Section I. INTRODUCTION

1. General

a. This appendix assigns maintenance functions and repair operations to be performed by the lowest appropriate maintenance echelon.

b. Columns in the maintenance allocation chart are as follows:

(1) *Part or component.* This column shows only the nomenclature or standard item name. Additional descriptive data are included only where clarification is necessary to identify the part. Components and parts comprising a major end item are listed alphabetically. Assemblies and subassemblies are in alphabetical sequence with their components listed alphabetically immediately below the assembly listing.

(2) *Maintenance function.* This column indicates the various maintenance functions allocated to the echelon capable of performing the operations. These are defined as follows:

(a) *Service.* To clean, to preserve, and to replenish fuel and lubricants.

(b) *Adjust.* To regulate periodically to prevent malfunction.

(c) *Inspect.* To verify serviceability and to detect incipient electrical or mechanical failure by scrutiny.

(d) *Test.* To verify serviceability and to detect incipient electrical or mechanical failure by use of special equipment such as gages and meters.

(e) *Replace.* To substitute serviceable assemblies, subassemblies, and parts for unserviceable components.

(f) *Repair.* To restore an item to serviceable condition through correction of a specific failure or unserviceable condition. This function includes but is not limited to

inspecting, cleaning, preserving, adjusting, replacing, welding, riveting, and straightening.

(g) *Rebuild.* To restore to a condition comparable to new by disassembling the item to determine the condition of its component parts and reassembling it, using serviceable, rebuilt, or new assemblies, subassemblies, and parts.

(3) *1st, 2d 3d. 4th, 5th echelon.* The symbol X indicates the echelon responsible for performing that particular maintenance operation, but does not necessarily indicate that repair parts will be stocked at that level. Echelons higher than the echelon marked by X are authorized to perform the indicated operation.

(4) *Tools required.* This column indicates codes assigned to each individual tool equipment, test equipment, and maintenance equipment referenced. The grouping of codes in this column of the maintenance allocation chart indicates the tool, test, and maintenance equipment required to perform the maintenance function.

(5) *Remarks.* Entries in this column will be utilized when necessary to clarify any of the data cited in the preceding columns.

c. Columns in the allocation of tools for maintenance functions are as follows:

(1) *Tools required for maintenance functions.* This column lists tools, test, and maintenance equipment required to perform the maintenance functions

(2) *2d 3d, 4th, 5th echelon.* A dagger (†) symbol indicates the echelons allocated the facility.

(3) *Tool code.* This column lists the tool code assigned.

(4) *Remarks.* Entries in this column are used to clarify data in the other columns.

2. Maintenance by Using Organizations

When this equipment is used by signal service organizations organic to theater headquarters or comm-

unication zones to provide theater communications, those maintenance functions allocated up to and including fourth echelon are authorized to the organization operating this equipment.

3. Mounting by Using Hardware

The basic entries of the maintenance allocation chart do not include mounting hardware such as screws, nuts, bolts, washers, brackets, and clamps, etc.

Section II. MAINTENANCE ALLOCATION CHART

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
PART OR COMPONENT	MAINTENANCE FUNCTION	1ST ECH	2ND ECH	3RD ECH	4TH ECH	5TH ECH	TOOLS REQUIRED	REMARKS
PROJECTOR SET, MOTION PICTURE SOUND AN/PFP-1	service	X						Clean and lubricate, hand tighten Lubricate and preventive maint Operational Operational Optical mechanical and audio Visual Operational continuity Optical, mechanical, and audio Operational continuity tubes Optical, mechanical and audio Plus shop support
	adjust	X	X				12	
	inspect	X			X		1, 4, 7, 9, 11	
	test		X		X		4, 19	
	test rebuild				X	X	1, 4, 7, 9, 10, 11, 12 6 1, 2, 3, 4, 5, 7, 8, 9 10,12	
Amplifier AM-442/PFP-1; AM-424/PFP-1	replace		X				12	See MAC for LS-170/PFP-1
CABE ASSEMBLY, POWER ELECTRICAL	replace		X				12	
CAP, ELECTRICAL	replace			X			11	
CAPACITORS	replace		X				12	
CONNECTORS	replace			X			12	
CONNECTOR, PLUG, ELECTRICAL	replace			X			12	
CONNECTOR, RECEPTACLE, ELECTRICAL	replace	X					12	
ELECTRON TUBE	replace	X					12	
FUSE, CARTRIDGE	replace			X			12	
FUSEHOLDER	replace						12	
JACK	replace				X		12	
KNOB	replace		X				12	
LAMP, INCANDESCENT	replace	X					12	
REACTOR	replace			X			12	
RESISTORS	replace			X			12	
RETAINER, ELECTRON TUBE	replace			X			12	
SOCKET, ELECTRON TUBE	replace			X			12	
SWITCH, ROTARY	replace			X			12	
SWITCH, TOGGLE	replace			X			12	
TRANSFORMER	replace			X			10,12	
LOUDSPEAKER LS-170/PFP-1; LS-170A/PFP-1; LOUDSPEAKER PERMANENT MAGNET LS-170B/PFP-1					X			
PROJECTOR PH-652/PFP-1; PH-652/PFP-1	replace			X			12	
APERTURE PLATE KIT	replace		X				12	
ARM: (ACTUAES FILM GATE)	replace			X			12	
ARM, (TAKE-UP DRIVE CHAIN IDLER)	replace			X			12	

Section II. MAINTENANCE ALLOCATION CHART

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
PART OR COMPONENT	MAINTENANCE FUNCTION	1ST ECH	2ND ECH	3RD ECH	4TH ECH	5TH ECH	TOOLS REQUIRED	REMARKS
AM/PFP-1 (CONTINUED)								
ARMATURE, MOTOR	replace				X		10, 11, 12	
BEARING BALL ANNULAR	replace				X		10, 11, 12	
BEARING, BALL, ANNULAR	replace			X			10, 12	
BEARING, ROLLER, NEEDLE	replace				X		12	
BEARING, ROLLER, NEEDLE	replace			X			12	
BEARING SLEEVE	replace				X		10, 12	
BELT, SPRING	replace	X					12	
BLOCK PIVOT	replace				X		12	
BRUSH, ELECTRICAL CONTACT	replace			X			12	
BUMPER	replace		X				12	
BUTTON GRIP	replace			X			12	
CABLE POWER, ELECTRICAL	replace		X				12	
CAP, ELECTRICAL	replace			X			12	
CAPACITOR	replace			X			12	
CHAIN	replace				X		12	
CLUTCH, FRICTION: 0137	replace				X		12	
COIL, SOLENOID	replace				X		12	
COLLAR, SPACING	replace				X		12	
CONNECTOR, PLUG, ELECTRICAL	replace			X			12	
CONNECTOR, RECEPTICLA, ELECTRICAL	replace				X		12	
COUNTERWEIGHT	replace				X		12	
COUNTER RECIPROCATING, FIXED	replace					X	12	
COUPLING, FLEXIBLE	replace				X		12	
DRUM SOUND HEAD	replace					X	10, 11, 12	
FILTERS, RADIO INTERFERENCE	replace				X		10, 12	
FOOT MOUNTING	replace			X			12	
FUSE	replace		X					
FUSEHOLDER	replace				X		12	
GASKET	replace					X	12	
GEAR, HELICAL	replace					X	10, 12	
GEAR, RACK	replace				X		12	
GEAR, SHAFT	replace					X	11, 12	
GEAR, SPUR	replace				X		10, 12	
GEAR, WORM	replace					X	11, 12	
GOVERNOR, MOTOR	replace				X		12	
HOLDER, ELECTRICAL CONTACT BRUSH	replace					X	10, 12	
HOLDER, ELECTRICAL CONTACT BRUSH	replace					X	12	

Section II. MAINTENANCE ALLOCATION CHART

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
PART OR COMPONENT	MAINTENANCE FUNCTION	1ST ECH	2ND ECH	3RD ECH	4TH ECH	5TH ECH	TOOLS REQUIRED	REMARKS
AN/PF-1 (continued)								
HOUSING	replace			X			12	
IMPELLER, BLOWER CENTRIFUGAL	replace				X		12	
KIT, FRONT CAM GEAR	replace				X		12	
KIT FRONT CAM SHAFT	replace				X		12	
KNOB	replace		X				12	
LAMPS, INCANDESCENT	replace	X					12	
LAMPHOLDER: J107, J108	replace			X			12	
LEG, PROJECTOR	replace		X				12	
LENS, CONDENSING	replace		X				12	
LENS, INDICATOR LIGHT	replace		X				12	
LENS, PROJECTION, VIEWING	replace		X				12	
LEVER	replace			X			12	
LINK, LEVER	replace			X			12	
MOTOR UNIVERSAL	replace			X			12	
	replace			X			12	
MOUNT, VIBRATION	replace				X		12	
MOUNTING ASSEMBLING	replace				X		12	
NUT, CAP	replace			X			12	
NUT PLAIN HEXAGON	replace				X		12	
NUT SELF-LOCKING HEXAGON	replace			X			12	
OPTICAL SYSTEM (SOUND)	replace				X		12	
PHOTO ELECTRIC CELL	replace			X			12	
PIN, DOWEL	replace			X			10, 12	
PIN GROOVED HEADLESS	replace				X		12	
PIN ROLLER	replace			X			12	
PLATE CLUTCH	replace				X		12	
PLATE PRESSURE	replace		X				12	
PLATE THRUST	replace			X			12	
PRISM, KIT	replace				X		12	
PULLEYS	replace			X			12	
REFLECTOR ASSEMBLY, LIGHT	replace			X			12	
RESISTOR	replace			X			12	
RING, RETAINING	replace			X			12	
RING RETAINING	replace				X		12	
ROD, LOCKING	replace			X			12	
ROLLERS	replace			X			12	
ROLLER ASSEMBLY	replace				X		12	

Section II. MAINTENANCE ALLOCATION CHART

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
PART OR COMPONENT	MAINTENANCE FUNCTION	1ST ECH	2ND ECH	3RD ECH	4TH ECH	5TH ECH	TOOLS REQUIRED	REMARKS
AN/PF-1 (continued)								
SCREW, MACHINE	replace		X				12	
SCREW MACHINE	replace			X			12	
SCREW MACHINE	replace				X		12	
SCREW SET	replace			X			12	
SCREW SHOULDER	replace			X			12	
SHAFT	replace				X		12	
SHAFT	replace			X			12	
SHOE FILM	replace			X			12	
SHUTTER, PROJECTION	replace				X		12	
SHUTTLE	replace			X			10, 12	
SOCKET, ELECTRON TUBE	replace			X			10, 12	
SPINDLE ASSEMBLY, REEL	replace			X			12	
SPRING, FLAT	replace			X			12	
SPRING, HELICAL EXTENSION	replace				X		12	
SPRING, HELICAL COMPRESSION	replace			X			12	
SPRING, HELICAL COMPRESSION	replace			X			12	
SPROCKET, CHAIN	replace				X		12	
SPROCKET, CHAIN	replace			X			12	
SPROCKET FILM	replace			X			12	
SPROCKETS, WHEEL	replace				X		10, 12	
SWITCH PUSH	replace			X			10, 12	
SWITCH, ROTARY	replace			X			10, 12	
SWITCH, SENSITIVE	replace			X			12	
SWITCHES, TOGGLE	replace			X			10, 12	
TERMINAL LUG	replace			X			12	
THUMBSCREW	replace			X			12	
TRANSFORMER	replace				X		12	
WASHER, FLAT	replace			X			12	
WASHER SPRING TENSION	replace				X		12	

ALLOCATION OF TOOLS FOR MAINTENANCE FUNCTIONS

(1) TOOLS REQUIRED FOR MAINTENANCE FUNCTIONS	(2) 1 ST ECH	(3) 2 ND ECH	(4) 3 RD ECH	(5) 4 TH ECH	(6) 5 TH ECH	(7) TOOL CODE	(8) REMARKS
AN/PFP-1 (continued)							
AUDIO OSCILLATOR TS-382A/U				◆	◆	1	
ELECTRONIC MULTIMETER ME-30A/U				◆	◆	2	
ELECTRONIC MULTIMETER TS-505A/U				◆	◆	3	
ELECTRONIC TACHOMETER TS-806/U W/FREQUENCY METER FR-67/U				◆	◆	4	
ELECTRONIC TUBE TESTER TV-2/U				◆	◆	5	
ELECTRONIC TUBE TESTER: TV-7/U		◆	◆			6	
FLUTTER INDICATOR ID-851/U				◆	◆	7	
MULTIMETER AN/URM-105		◆	◆	◆	◆	8	Multimeter TS-297/U and TS-352/U will be replaced by Multimeter AN/UMI-105 when available.
SPECTRUM ANALYZER TS-723/U			◆	◆	◆	9	
TOOL EQUIPMENT 24/GF				◆	◆	10	
TOOL EQUIPMENT 27/GF			◆	◆	◆	11	
TOOL EQUIPMENT TK-77/GF		◆	◆	◆	◆	12	

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USATC AD (2)
USATC Armor (2)
USATC Engr (2)
USATC FA (2)
USATC Inf (2)
Svo Colleague (2)
Br Svo Sch (2)
GENDEP (2) except
 Atlanta GENDEP (None)
Sig Sec, GENDEP (5)
Sig Dep (12)
Ft Monmouth (71)

AFIP (1)
WRAMC (1)
AFSSC (1)
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POE (1)
OSA (1)
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Sig Fld Maint Shops (2)
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Units org under fol TOE:
 7 (2) 17 (2)
 11-7 (2) 80-18 (2)
 11-15 (2) 44-16 (2)
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 11-96 (2)
 11-117 (2)
 11-155 (2)
 11-500 AA-AE (4)
 11-557 (2)
 11-587 (2)
 11-592 (2)
 11-597 (2)

NG: State AG (3); Units—Sam as Active Army except allowance is one copy to each unit

USAR: None.

For explanation of abbreviations used see AR 320-50.

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



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PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.
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