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DEPARTMENT OF THE ARMY TECHNICAL MANUAL

TM 11-6940-200-20

DEPARTMENT OF THE AIR FORCE TECHNICAL ORDER

TO 43E7-5-5-52

ORGANIZATIONAL MAINTENANCE  
KEYERS TG-34-A  
TG-34-B, AND KY-127/GG

US Army Signal School Library  
Fort Monmouth, N. J.



DEPARTMENTS OF THE ARMY AND THE AIR FORCE  
JANUARY 1959

**WARNING**

**DANGEROUS VOLTAGES EXIST IN THIS EQUIPMENT**

Be careful when working on the  
115-volt ac line connections.  
Serious injury or death may  
result from contact with  
these terminals.

**DON'T TAKE CHANCES!**

TECHNICAL MANUAL }  
 No. 11-6940-200-20 }  
 TECHNICAL ORDER }  
 No. 43E7-5-5-52 }

DEPARTMENTS OF THE ARMY  
 AND THE AIR FORCE

WASHINGTON 25, D. C., 9 January 1959

**KEYERS TG-34-A, TG-34-B, AND KY-127/GG**

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\*This manual supersedes so much of TM 11-443, 25 October 1943, as is applicable to organizational maintenance.

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# CHAPTER 1

## MAINTENANCE INSTRUCTIONS

### Section I. GENERAL

#### 1. Scope

a. This manual covers second echelon maintenance of Keyers TG-34-A, TG-34-B, and KY-127/GG. The operating instructions for this equipment are contained in TM 11-6940-200-10, Keyers TG-34-A, TG-34-B, and KY-127/GG, Operator's Manual.

b. Second echelon maintenance of Keyers TG-34-A, TG-34-B, and KY-127/GG consists of the following:

- (1) Replacement of defective fuses (TM 11-6940-200-10).
- (2) Preventive maintenance (par. 4).
- (3) Lubrication (par. 5).
- (4) Visual inspection (par. 6).
- (5) Equipment performance check (par. 7).
- (6) Replacement of defective tubes (par. 8).
- (7) Replacement of belt (par. 9).
- (8) Replacement of tape drive roll (par. 10).
- (9) Alinement of exciter lamp (par. 11).
- (10) Adjustment of auxiliary cell control (par. 12).

c. For maintenance parts information, see SIG 7 & 8 KY-127/GG, KY-127/GG Keyer (includes Keyer TG-34-A, -B).

d. Forward comments concerning this manual to the Commanding Officer, United States Army Signal Publications Agency, Fort Monmouth, N. J.

*Note.* For applicable forms and records, see paragraph 2, TM 11-6940-200-10.

#### 2. Internal Differences in Models

Keyer TG-34-A is similar to Keyers TG-34-B and KY-127/GG except that Keyer TG-34-A has an auxiliary cell control and provisions for adjusting the exciter lamp.

#### 3. Tools, Materials, and Test Equipment Required

The following chart lists the tools, materials, and test equipment required for unit repairman's maintenance. The chart also lists the associated technical manuals and the assigned common names.

Item	Technical manual	Common name
Multimeter TS-297/U-----	TM 11-5500	Multimeter.
Electron Tube Test Sets TV-7/U, TV-7A/U, and TV-7B/U.	TM 11-5083	Tube tester.
Tool Equipment TE-41.		
Lubricating oil, general purpose, preservative (PL special).		
Grease, aircraft and instrument (GL).		
Grease, graphite (GG).		
Cleaning Compound.		
Lint-free cloth.		

#### 4. Preventive Maintenance

a. *DA Form 11-238.* DA Form 11-238 (figs. 1 and 2) is a preventive maintenance checklist to be used by the unit repairman. Items not applicable to the equipment are lined out in the figures. References in the ITEM block in figure 2 are to paragraphs that contain additional maintenance information pertinent to the particular item. Additional preventive maintenance information concerning items 2, 3, 6, and 7 on DA Form 11-238 will be found in the preventive maintenance portion of TM 11-6940-200-10. Instructions for the use of the form appear on the form.

b. *Items.* The information in this paragraph is supplementary to DA Form 11-238. The item numbers correspond to the ITEM numbers on the form.

**Warning:** Obtain permission to disconnect all power before performing the operations below. When power to the equipment is disconnected, some capacitors still may retain voltage of dangerous potential. Before touching exposed electrical parts, short-circuit the part to ground. When maintenance is completed, replace the equipment in its case, reconnect the power, and check for satisfactory operation.

ADDITIONAL ITEMS FOR 2D AND 3D ECHELON INSPECTIONS		CONDITION	
26. <del>INSPECT ANTENNA FOR ECCENTRICITIES, CORROSION, LOOSE FIT, DAMAGED INSULATORS AND REFLECTORS.</del>			
27. CHECK FOR NORMAL OPERATION.			
28. <del>BEFORE SHIPPING OR STORING, REMOVE BATTERIES.</del>			
IF DEFICIENCIES NOTED ARE NOT CORRECTED DURING THE INSPECTION, INDICATE ACTION TAKEN FOR CORRECTION.			

**MAINTENANCE CHECK LIST FOR SIGNAL EQUIPMENT**  
**SOUND EQUIPMENT, RADIO, DIRECTION FINDING**  
**RADAR, CARRIER, RADIOSONDE AND TELEVISION**  
(AR 750-625)

EQUIPMENT NOMENCLATURE  
**MEYER-T6-34-A**

EQUIPMENT SERIAL NUMBER

**INSTRUCTIONS**

This form may be used for a period of one month by using the correct dates and weeks of the month. It is to be used as a Preventive Maintenance check list for Signal equipment in actual use, or for a check on equipment prior to issue.

- For detailed Preventive Maintenance instructions see:
  - The Technical Manual (in TM 11 series) for the equipment. (See DA Pamphlet Number 310-4)
  - The Supply Bulletin (SB 11-100 series) for the equipment. (See DA Pamphlet Number 310-4)
  - The Department of the Army Lubrication Order. (See DA Pamphlet Number 310-4)
- The following action will be taken by either the Communications Officer/Chief for 1st echelon, or the Inspector for higher echelon:
  - Enter Equipment Nomenclature and Serial Number.
  - Strike out items that do not apply to the equipment.
- Operator/Inspector will enter in the columns entitled CONDITION, on the proper line, a notation regarding the condition, using symbols specified under LEGEND.
- After operator completes each daily inspection he will initial over the appropriate dates under "Daily Condition for Month", then return form to his supervisor.

TYPE OF INSPECTION

OPERATOR	2/3 ECHELON	DATE	SIGNATURE
1	/	7 Nov 1958	<i>Paul Foran</i>

FOLD

3

4

**DA FORM 11-238**  
MAY 57

REPLACES DA FORMS 11-238, 1 NOV 55; 11-239, 11-244, 11-245, 11-246, 11-249, 11-250, AND 11-251; WHICH ARE OBSOLETE.

Figure 1. DA Form 11-238, pages 1 and 4.

LEGEND for marking conditions: Satisfactory, Y. Adjustment, Repair or Replacement required, X. Defect corrected, (X).						DAILY CONDITION FOR MONTH OF <b>NOVEMBER 1958</b>																		
DAILY						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	20	30	ECH- ELON
NO. ITEM						17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
1. COMPLETENESS AND GENERAL CONDITION OF EQUIPMENT. (Transmitter, receiver, carrying cases, wire, cables, microphones, tubes, spare parts, technical manuals).						/																		✓
2. CLEAN DIRT AND MOISTURE FROM ANTENNA, MICRO- <del>PHONES, HEADSETS, KEYS</del> , JACKS, PLUGS, COMPONENT PANELS.						/																		✓
3. INSPECT CONTROLS FOR NORMAL OPERATION. TAP CONTROLS LIGHTLY FOR EVIDENCE OF CUT-OUT FROM LOOSE CONTACTS.						/																		✓
4. CHECK FOR NORMAL OPERATION OF EQUIPMENT. BE ALERT FOR UNUSUAL OPERATION OR CONDITION.						/																		✓
WEEKLY			CONDITION EACH WEEK					2D 3D ECH		ADDITIONAL ITEMS FOR 2D AND 3D ECHELON INSPECTIONS												CONDITION		
			1ST	2D	3D	4TH	5TH																	
5. CLEAN AND TIGHTEN EXTERIORS OF CASES, RACKS, MOUNTS, TRANSMISSION LINES.								✓		15. INSPECT SEATING OF READILY ACCESSIBLE PLUCK-OUT ITEMS: TUBES, LAMPS, FUSES, CRYSTALS, CONNECTORS, VIBRATORS, PLUG-IN COILS. PAR. 4												✓		
6. INSPECT CASES, MOUNTS, ANTENNA TOWERS AND EXPOSED METAL SURFACES FOR RUST, CORROSION.								✓		16. <del>INSPECT RELAYS AND CIRCUIT BREAKERS FOR LOOSE MOUNTINGS, BAD CONTACTS, MISALIGNMENT OF CONTACTS AND SPRINGS, PROPER SPRING TENSION.</del>														
7. INSPECT COROS, CABLE, WIRE, SHOCK MOUNTS FOR CUTS, KINKS, BREAKS, FRAYING, UNDU E STRAIN. PAR. 4								✓		17. <del>INSPECT VARIABLE CAPACITORS FOR DIRT, MISALIGNMENT OF PLATES, LOOSE MOUNTINGS, MOISTURE.</del>														
8. <del>CHECK ANTENNA GUY WIRES FOR PROPER TENSION OR DAMAGE.</del>										18. INSPECT RESISTORS, BUSHINGS AND INSULATORS FOR CRACKS, CHIPPING, BLISTERING, MOISTURE, DISCOLORATION.												✓		
9. <del>INSPECT CANNAS AND LEATHER ITEMS FOR MILDEW, TEARS, FRAYING.</del>										19. CLEAN AND TIGHTEN SWITCHES, TERMINAL BLOCKS, BLOWERS, RELAY CASES AND INTERIORS OF CHASSIS AND CABINETS NOT READILY ACCESSIBLE. PAR. 4												(X)		
10. INSPECT ACCESSIBLE ITEMS FOR LOOSENESS: SWITCHES, KNOBS, JACKS, CONNECTORS, RELAYS, TRANSFORMERS, MOTORS, PILOT LIGHTS, BLOWERS, ETC. PAR. 4								X		20. INSPECT TERMINAL BLOCKS FOR LOOSE CONNECTIONS, CRACKS AND BREAKS.												✓		
11. CLEAN AND/OR INSPECT AIR FILTERS, BRASS NAME PLATES, DIAL AND METER WINDOWS.								✓		21. <del>INSPECT TERMINALS OF LARGE FIXED CAPACITORS AND RESISTORS FOR DIRT, CORROSION, LOOSE CONTACTS.</del>														
12. <del>INSPECT STORAGE BATTERIES FOR DIRT, LOOSE TERMINALS, SPECIFIC GRAVITY, DAMAGED CASES, INSPECT DRY BATTERIES FOR LEAKAGE.</del>										22. INSPECT TRANSFORMERS, CHOKES, POTENTIOMETERS AND RHEOSTATS FOR OVERHEATING AND OIL LEAKAGE. PAR. 4												✓		
ADDITIONAL ITEMS FOR 2D AND 3D ECHELON INSPECTIONS												CONDITION												
13. <del>INSPECT SHELTERS AND COVERS FOR ADEQUACY OF WEATHER PROOFING, TEARS, FRAYING.</del>																								
14. <del>CHECK TERMINAL BOX COVERS FOR CRACKS, DIRT, LEAKS, DAMAGED CASES, CREASE.</del>																								
												24. <del>INSPECT CATHODE RAY TUBES FOR BURNT SCREEN SPOTS.</del>												
												25. <del>INSPECT WATERPROOF BASKETS FOR LEAKS, WORN OR LOOSE PARTS.</del>												

4

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3

GPO 1957 O 4-7114

TM6940-200-20-3

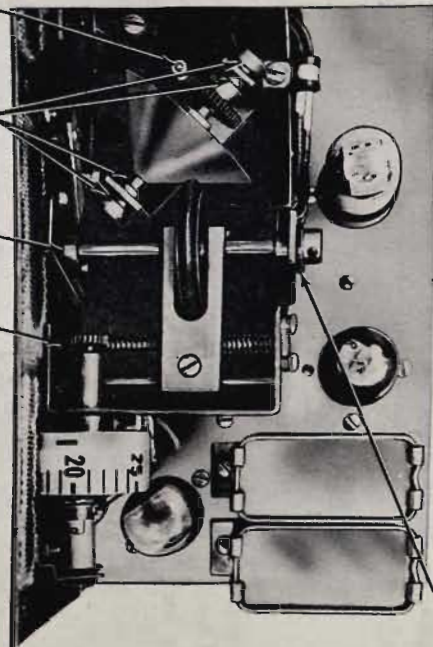
Figure 2. DA Form 11-238, pages 2 and 3.

MOTOR DRIVE PINION  
AND MESHING CONE GEAR  
GG S

CONE BEARINGS PL M

DISK SHAFT BEARING PL M

SPEED INDICATOR  
GEAR AND PINION GL A



TAPE REWIND CRANK PL W

TAPE TAKE-OFF SPINPLE PL W

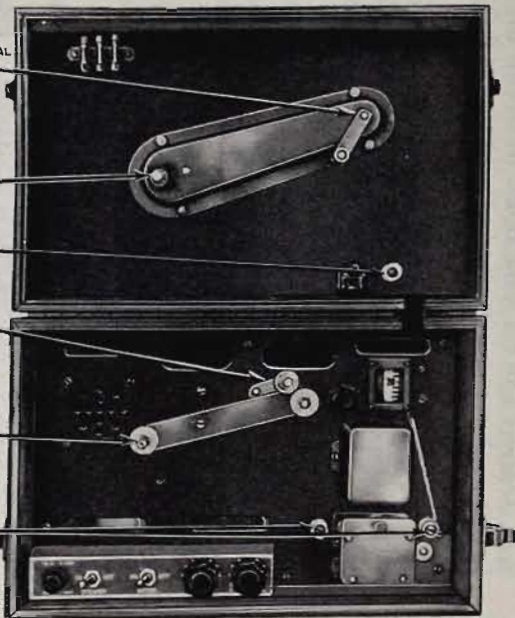
TAPE IDLER ROLLER PL W

TAPE PRESSURE ROLLER  
SHAFT AND BEARINGS PL M

TAPE TAKE-UP SPINDLE PL W

TAPE IDLER ROLLERS PL W

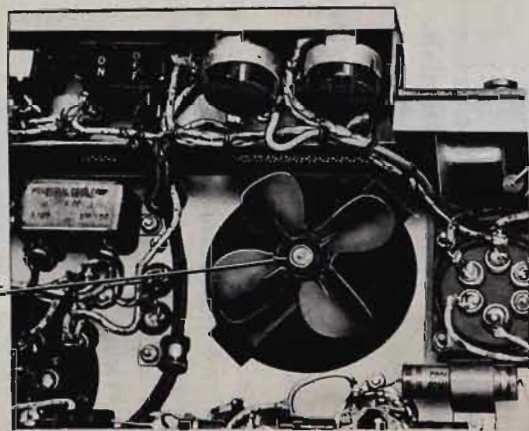
INTERVAL-LUBRICANT  
PL M DISK SHAFT BEARING



5

CAUTION: DO NOT OVER LUBRICATE, APPLY 1 OR 2 DROPS  
TO ALL POINTS EXCEPT WHERE OTHERWISE NOTED.

MOTOR BEARINGS PL W



— KEY —

LUBRICANTS—ALL TEMPERATURES	INTERVALS
PL—OIL, LUBRICATING, PRESERVATIVE, SPECIAL	W—WEEKLY
GG—GREASE, GRAPHITE, SOFT	M—MONTHLY
GL—GREASE, INSTRUMENT	S—SEMI-ANNUALLY
	A—ANNUALLY

TM6940-200-20-2

Figure 3. Lubrication of keyer.

Item	Maintenance procedures
7	Examine the power cord to be sure that it is in good condition. Replace the cord if the outer insulation is broken or cracked. If the electrical connectors are damaged or broken, replace them.
10	All controls should work smoothly, be tight on the shaft, and should not bind. Tighten all loose control knobs and be sure that the knobs do not rub against the panel. Check the transformers and motor; make sure they are tight.
15	Press all tubes, lamps, and fuses into their sockets and wipe the tubes and chassis surface with a dry cloth.
19	Inspect fan blades on the motor shaft end; if grease or dust has accumulated, clean with a lint-free cloth moistened with Cleaning Compound (Fed stock No. 7930-395-9542) to remove all oil and grease from the cone and belt.
22	Check the transformer for overheating soon after shutting down the equipment.

**Warning:** Cleaning Compound is flammable and its fumes are toxic. Do not use near a flame; provide adequate ventilation.

#### 5. Lubrication (fig. 3)

**Caution:** Be sure no oil or grease collects on the drive cone and drive disk. Grease

and oil on the drive cone and drive disk will destroy the friction bond between these members and the keyer will cease to function.

a. The symbol W stands for a period of 1 week. The symbol M means every month. The symbol S means every 6 months. The symbol A means once a year. A month interval consists of 30 days of normal 8-hour operation. If the equipment is operated more than 8 hours a day, the lubrication intervals will have to be adjusted to prevent excessive wear. For example, if the equipment is operated 16 hours a day instead of 8, the motor drive pinion and meshing cone gear will have to be lubricated every 3 months instead of every 6 months (fig. 3).

b. Loosen the holding screws located on the upper corners of the front panel and at the sides of the rear cover; remove the chassis from the case. Clean the areas to be lubricated with a brush dipped in Cleaning Compound. Remove excess cleaner from the brush to prevent the Cleaning Compound from dripping into the equipment.

c. To apply grease to the gears and pinions, use a thin long-handled brush. Rotate the speed indicator gear and meshing cone gear as necessary to expose all gear teeth for lubrication. To apply oil, dip a piece of wire into the oil to collect a small drop at the end. Transfer the oil to the bearings by touching the wire to the bearings.

## Section II. TROUBLESHOOTING

### 6. Visual Inspection

a. Before operating the equipment, inspect it. This will save repair time and may also avoid further damage to the keyer. Inspect the following for obvious defects.

- (1) Wiring.
- (2) Tape-transport mechanism.
- (3) Motor.
- (4) Tubes.
- (5) Fuses (usually indicates some other fault).

b. If the above checks do not locate the trouble, see the equipment performance checklist (par. 7).

### 7. Equipment Performance Checklist

a. *General.* The equipment performance checklist is a list of procedures used to check systematically equipment performance. Corrective measures which the unit repairman can perform are given in the *Corrective measures* column. When using the check-

list, start at the beginning and follow each step in order. If the corrective measures indicated do not fix the equipment, troubleshooting is required by higher echelon. Note on the repair tag how the equipment performed and what corrective measures were taken.

### 8. Tube Testing and Replacement

*Note.* The tube location diagrams are in TM 11-6940-200-10.

When trouble occurs, check all wiring, connections, and controls before removing any tubes. Try to isolate the trouble to a component or stage. If tube failure is suspected, use the procedures in *a* and *b* below to check the tubes.

a. *Use of Tube Tester.* Remove and test one tube at a time. Discard a tube only if its defect is obvious or if the tube tester shows it to be defective. Do not discard a tube that tests at or near its minimum test limit on the tube tester. Put back the



b. Checklist.

	Step	Action	Normal indication	Corrective measures
PREPARATORY	1	Check position of change-over switch to be sure that it is set for proper voltage.		
	2	Connect power cord to power source.		
	3	Thread code practice tape through scanning mechanism (TM 11-6940-200-10).		
START	4	Turn AC-OFF-VOLUME control clockwise; a click indicates that power is applied. Set control to its midposition.	Indicator dial lamp lights.	Check power cable connections. Replace fuse. Replace dial lamp (TM 11-6940-200-10).
	5	Turn PE CELL control clockwise; a click indicates that power is applied. Set control to its midposition.	Exciter lamp lights.	Replace lamp (TM 11-6940-200-10).
	6	Set SPEAKER switch to ON.	Steady tone from speaker is heard when tubes are heated (when uninked portion covers aperture).	Clean aperture in scanning mechanism. Adjust AC-OFF-VOLUME control. Adjust PE CELL control. Check tubes (par. 8). Adjust and refocus exciter lamp (par. 11).
EQUIPMENT PERFORMANCE	7	Turn MOTOR switch to ON. Move pressure roller downward until it contacts tape on tape drive roll.	Tape will move over anvil (keyed signal will be heard).	Replace tape drive roll (par. 10). Adjust thumbscrew on front of scanning mechanism faceplate until mark portions of ink signal line uncover scanning aperture. If signals sound blurred, adjust PE CELL control. Replace belt (par. 9). Adjust auxiliary cell control (par. 12). Higher echelon repair required.
STOP	8	Turn MOTOR switch to OFF position.	Motor ceases to operate.	
	9	Set SPEAKER switch to OFF position.	Tone from speaker ceases.	
	10	Turn PE CELL counterclockwise.	Exciter lamp goes off.	
	11	Turn AC-OFF-VOLUME control counterclockwise.	Indicator dial lamp goes off.	

L

original tube, or insert a new one if required, before testing the next one.

**Caution:** Do not rock or rotate a tube when removing it from a socket; pull it straight out.

*b. Preferred-Type Tube.* A preferred-type electron tube, type 5Y3WGTA, has been developed as a direct replacement for nonpreferred-type 5Y3GT. This tube is used in the rectifier stage. When replacement of a 5Y3GT-type is necessary, replace it with a 5Y3WGTA. Do not substitute a 5Y3GT for a 5Y3WGTA.

## 9. Replacement of Belt

(fig. 4)

*a.* Loosen the holding screws located on the upper corner of the front panel and at the sides of the rear cover; remove the keyer chassis from the case.

*b.* Remove the weldless chain.

*c.* Loosen the set screws that hold the disk shaft bearing on the rear of the disk shaft; remove the bearing.

*d.* Hold the drive disk and remove the disk shaft.

*e.* Raise the yoke until it stops and remove the drive disk.

*f.* Roll off the old belt from the drive disk; roll a new belt into place and be careful not to twist it.

*g.* Place the drive disk in the slot of the yoke and press the yoke down.

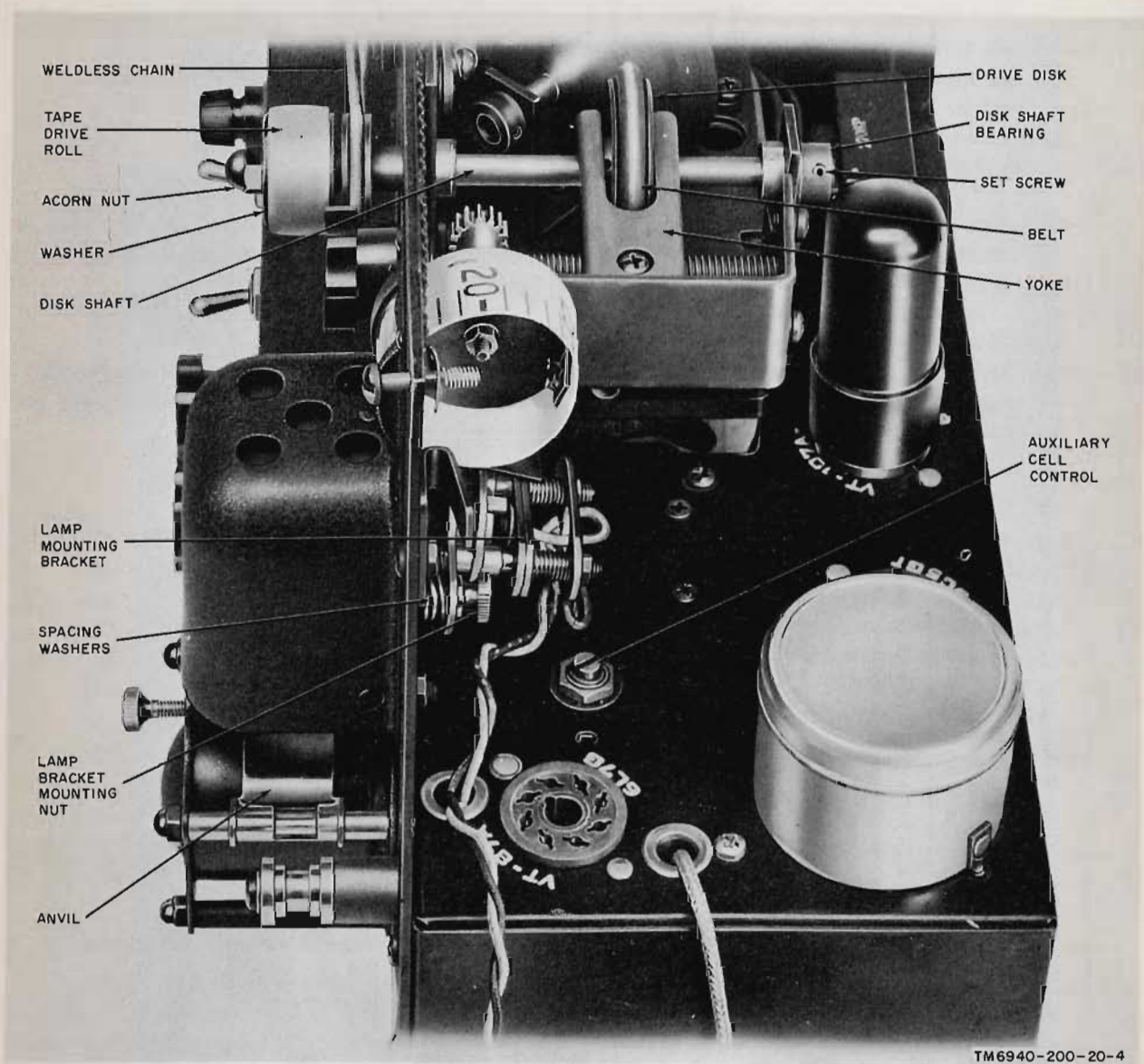


Figure 4. Keyer TG-34-A, showing tape drive roll assembly, auxiliary cell control, and lamp mounting bracket.

- h. Insert the disk shaft and align the keyway on the disk shaft and the key on the drive disk.
- i. Replace the disk shaft bearing on the disk shaft; tighten the set screws.
- j. Replace the weldless chain and be sure it is twisted  $\frac{1}{2}$  turn.
- k. Replace the chassis in the cabinet; tighten the holding screws.

#### 10. Replacement of Tape Drive Roll

(fig. 4)

- a. Remove the acorn nut from the disk shaft.
- b. Remove the washer and the tape drive roll.
- c. Replace the defective tape drive roll with a new one; replace the washer.
- d. Replace and tighten the acorn nut on the disk shaft.

#### 11. Alinement of Exciter Lamp (TG-34-A Only)

(fig. 4)

When the keyer output is below normal and the tubes and exciter lamp are good, the trouble may be that not enough light is reaching the photoelectric cell. Center the spot over the aperture by adjusting the exciter lamp as follows:

- a. Remove the chassis from the case (par. 9a).
- b. Remove tubes 102 and 101 from their sockets.
- c. Loosen the lamp bracket-mounting nuts.
- d. To move the light spot forward on the anvil, shift the spacing washers to move the lamp bracket farther back from the panel.

- e. To move the light spot farther back on the anvil, shift the washers to move the lamp mounting bracket closer to the panel.

- f. Re-mount lamp mounting bracket and partially tighten the lamp bracket-mounting nuts.

- g. Move the lamp mounting bracket slightly up or down to obtain the sharpest possible focus on the tape anvil; tighten the lamp bracket-mounting nuts.

- h. Replace tubes 101 and 102 in their respective sockets.

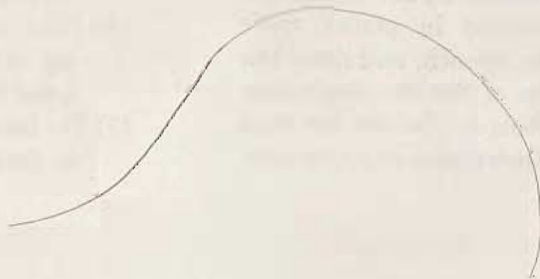
- i. Replace the keyer chassis in its case; tighten the holding screws.

#### 12. Adjustment of Auxiliary Cell Control (TG-34-A Only)

If no signal is heard or if a steady signal is heard, the PE CELL control must be adjusted for a keyed output. If adjustment of the PE CELL control has no effect on the keyed output, adjust the auxiliary cell control.

*Note.* Adjustment of the auxiliary cell control should be necessary only in cases where the photoelectric cell and the tubes test near their minimum test limits on the tube tester.

- a. Remove the chassis from the case (par. 9a).
- b. Set the PE CELL control to its midposition.
- c. Adjust the auxiliary cell control until the signal cuts off when the aperture is covered.
- d. Readjust the PE CELL control for a fine adjustment of the signal.
- e. Replace the chassis in the cabinet; tighten the holding screws.



## CHAPTER 2

### SHIPMENT AND LIMITED STORAGE

#### 13. Materials Required for Repackaging

The following materials are required for packaging Keyers TG-34-A, TG-34-B, or KY-127/GG. For stock numbers of materials, consult SB 38-100, Preservation, Packaging and Packing Materials, Supplies, and Equipment Used in the Army.

Material	Quantity
Corrugated fiberboard.....	12 sq. ft.
Waterproof wrapping paper.....	14 sq. ft.
Gummed paper tape.....	15 ft.
Waterproof, pressure-sensitive adhesive tape.	10 ft.
Wooden packing case (21 by 11 by 11 inches).	1 ea.
Steel strapping.....	10 ft.

#### 14. Repackaging for Shipment or Limited Storage

*Note.* Disassembly procedures for the keyer are in TM 11-6940-200-10.

*a. Packaging.* Package the keyer as outlined below.

- (1) *Technical manual.* Package each technical manual within a close-fitting bag fabricated of waterproof wrapping paper. Seal the bag with waterproof, pressure-sensitive adhesive tape.
- (2) *Miscellaneous components.* Package each spare tube (including tubes and photoelectric cell not securely clamped in place), spare lamps, spare fuses, wrench, and spare belt in a double wrap of flexible, single-face, corrugated fiberboard. Secure the ends of the packages with gummed paper tape.

Consolidate the miscellaneous components packaged as specified by wrapping together in flexible, single-face, corrugated fiberboard to form a flat, compact package of size to fit into the end of the keyer carrying case. Secure the wrapping with gummed paper tape.

- (3) *Keyer.* Place the reel and power cable in the upper part of the keyer case in the space provided. Close the cover and secure the spring catches. Package the keyer in a double wrap of corrugated fiberboard; secure the ends of the package with gummed paper tape.

*b. Packing.*

- (1) Place the keyer at one end of the wooden packing case. Fill all voids with pads made from waterproofed wrapping paper. Within the balance of the wooden box, form a liner made from waterproofed wrapping paper.
- (2) Place the consolidated packaged spares (a(2) above) within the waterproof liner and fill all voids with flexible, single-face, corrugated fiberboard. Make certain the contents fit snugly and cannot move within the wooden box.
- (3) Seal the liner securely with waterproof pressure-sensitive adhesive tape.
- (4) Place the packaged technical manual on top of the keyer case and nail the wooden cover in place.
- (5) For intertheater shipment, secure the wooden packing case with metal strapping.

## APPENDIX I

### REFERENCES

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The following is a list of applicable references for the unit repairman of Keyers TG-34-A, TG-34-B, and KY-127/GG.

- |                   |  |
|-------------------|--|
| TM 11-6940-200-10 | Keyers TG-34-A, TG-34-B, and KY-127/GG, Operator's Manual. |
| TM 11-5083        | Electron Tube Test Sets TV-7/U, TV-7A/U, and TV-7B/U.      |
| TM 11-5500        | Multimeter TS-297/U.                                       |

**APPENDIX II**  
**MAINTENANCE ALLOCATION CHART**  
**FOR**  
**KEYERS TG-34-A, TG-34-B, AND KY-127/GG**

---

**Section I. INTRODUCTION**

**1. General**

The maintenance allocation portion of this manual assigns maintenance functions and repair operations to be performed by the lowest appropriate maintenance echelon. It also specifies the tools and other equipment authorized at each echelon to perform the assigned maintenance functions.

**2. Allocation of Maintenance Functions (Section II)**

The column headings of section II are defined as follows:

*a. Part or Component.* Column 1 shows only the nomenclature or standard item name. Additional descriptive data are included only where clarification is necessary to identify the part.

*b. Related Operation.* Column 2 indicates the various maintenance functions allocated to the echelon capable of performing the operation. These are defined as follows:

- (1) *Service.* To clean, to preserve, and to replenish fuel and lubricants.
- (2) *Adjust.* To regulate periodically to prevent malfunction.
- (3) *Inspect.* To verify serviceability and to detect incipient electrical or mechanical failure by scrutiny.
- (4) *Test.* To verify serviceability and to detect incipient electrical or mechanical failure by use of special equipment, such as gages, meters, etc.
- (5) *Replace.* To substitute serviceable assemblies, subassemblies, and parts for unserviceable components.
- (6) *Repair.* To restore to a serviceable condition by replacing unserviceable parts or by any other action required utilizing tools, equipment, and skills available, to include welding, grinding, riveting, straightening, adjusting, etc.

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

*c. 1st, 2d, 3d, 4th, 5th Echelon.* The symbol X in column 3, 4, 5, 6, or 7 indicates that that echelon and higher echelons are responsible for the maintenance function indicated. Repair parts may not, necessarily, be stocked at the echelon indicated; see the applicable Repair Parts and Special Tools List.

*d. Repair Facilities Code.* The numbers in column 8 indicate tool, test, and maintenance equipments required to perform the related maintenance function. These numbers are identified in Section III, Allocation of Tools for Maintenance Functions.

*e. Remarks.* Column 9 contains any notations necessary to clarify the data cited in the preceding columns.

**3. Allocation of Tools for Maintenance Functions (Section III)**

The column headings of section III are defined as follows:

*a. Facilities Required for Maintenance Operations.* Column 1 lists the tools, test, and other maintenance equipment required to perform the maintenance functions.

*b. 1st, 2d, 3d, 4th, 5th Echelon.* The symbol † in column 3, 4, 5, or 6 indicates that the tool or test equipment is allocated to that echelon (column 2 is not used).

*c. Repair Facilities Code.* The numbers in column 7 are code numbers that stand for the associated maintenance equipment and are used in section II, Allocation of Maintenance Functions, to refer to the indicated item.

*d. Remarks.* (Not used.)

## Section II. ALLOCATION OF MAINTENANCE FUNCTIONS

(1) PART OR COMPONENT	(2) RELATED OPERATION	(3) 1st ECH	(4) 2nd ECH	(5) 3rd ECH	(6) 4th ECH	(7) 5th ECH	(8) REPAIR FACILITIES CODE	(9) REMARKS
KEYER KY-127/GG, KEYER TG-34-A, B	service	X						External Parts. Interior Parts. External Parts. Interior Parts. Performs initial adjustments and adjustments necessary to correct minor malfunctioning of equipment.  All adjustments. Performs resistance, voltage and current measurement to determine condition of circuits. Oscillator, Frequency, Power Output, Tape Speed, Signal Requirements.
	service		X					
	inspect	X						
	inspect		X					
	adjust		X				2, 8	
adjust				X			3, 5, 9	
test			X				2, 5, 8	
test					X		1, 3, 4, 6, 7, 9	
BELT	replace		X					
CABLE, POWER ELECTRICAL	replace		X					
CAPACITOR	replace			X				
CHAIN, WELDLESS	replace		X					
CONNECTOR, PLUG, ELECTRICAL	replace		X					
CONNECTOR, RECEPTACLE ELECTRICAL	replace			X				
CRANK	replace			X				
CRYSTAL, UNIT RECTIFYING	replace			X				
DIAL	replace			X				
ELECTRON TUBE	replace	X						

Section II. ALLOCATION OF MAINTENANCE FUNCTIONS—Continued

(1) PART OR COMPONENT	(2) RELATED OPERATION	(3) 1st ECH	(4) 2nd ECH	(5) 3rd ECH	(6) 4th ECH	(7) 5th ECH	(8) REPAIR FACILITIES CODE	(9) REMARKS
KY-127/GG (Incl TG-34-A, B) (continued)								
FUSE, CARTRIDGE	replace	X						
FUSE, POST FU-39	replace			X				
GEAR	replace			X				
JACK, TELEPHONE	replace			X				
KNOB	replace		X					
LAMP, INCANDESCENT	replace	X						
LAMPHOLDER	replace			X				
LOUDSPEAKER	replace			X				
MOTOR	replace			X				
	repair				X			
	rebuild					X		
PHOTO ELECTRIC CELL	replace	X						
REACTOR	replace			X				
REEL PH-310	replace		X					
RESISTOR	replace			X				
ROLL, TAPE DRIVE	replace		X					
SCREW	replace		X					
SOCKET	replace			X				
SPROCKET WHEEL AND GEAR ASSEMBLY	replace			X				
SWITCH	replace			X				
TRANSFORMER	replace			X				
WASHER	replace		X					

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### Section III. ALLOCATION OF TOOLS FOR MAINTENANCE FUNCTIONS

		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FACILITIES REQUIRED FOR MAINTENANCE OPERATIONS	1st	2nd	3rd	4th	5th	REPAIR FACILITIES CODE	REMARKS	
	EOH	EOH	EOH	EOH	EOH			
KY-127/GG (Incl TG-34-A, B) (continued)								
FREQUENCY METER FR-67/U				+	+	1		
MULTIMETER TS-297/U		+				2		
MULTIMETER TS-352/U			+	+	+	3		
OSCILLOSCOPE OS-8A/U				+	+	4		
TEST SET ELECTRON TUBE TV-7/U		+	+			5		
TEST SET ELECTRON TUBE TV-2/U				+	+	6		
TEST SET TS-140/PCM				+	+	7		
TOOL EQUIPMENT TE-41		+				8		
TOOL EQUIPMENT TE-113			+	+	+	9		
<div style="transform: rotate(-45deg); font-size: 2em; font-weight: bold;">                     US Army Signal School Library                      Fort Monmouth, N. J.                 </div>								

15

BY ORDER OF THE SECRETARIES OF THE ARMY AND THE AIR FORCE:

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Fld Comd, AFSWP (5)  
Mil Dist (1)  
Sector Comd, USA Corps (Res) (1)  
USA Corps (Res) (1)  
JBUSMC (2)  
Mil Mis (2)  
Units organized under following TOE's:  
11-7 (2)  
11-15 (2)  
11-16 (2)  
11-17 (2)  
11-57 (2)  
11-500(AA-AE) (2)  
11-537 (2)  
11-557 (2)  
11-587 (2)  
11-592 (2)  
11-597 (2)  
20-300 (2)  
32-51 (2)  
32-55 (2)  
32-56 (2)  
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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.

TECHNICAL MANUAL

Organizational Maintenance

KEYERS TG-34-A, TG-34-B, AND KY-127/GG

TM 11-6940-200-20 }  
CHANGES No. 1 }

HEADQUARTERS,  
DEPARTMENT OF THE ARMY  
WASHINGTON, D.C., 18 August 1968

TM 11-6940-200-20, 9 January 1959, is changed as follows:

Page 2. Paragraph 1. Subparagraph *b*(2).  
Delete subparagraph (2) and substitute:

(2) Quarterly preventive maintenance checks and services (par. 4.2).

Subparagraph *c*. Delete "SIG 7 & 8 KY-127/GG, KY-127/GG Keyer (includes Keyer TG-34-A, -B)" and substitute: TM 11-6940-200-20P, Organizational Maintenance Repair Parts and Special Tools List for Keyers TG-34-A, TG-34-B, and KY-127/GG.

Subparagraph *d*. Delete subparagraph *d* and substitute:

*d*. Forward all comments on this publication direct to: Commanding Officer, U.S. Army Electronics Materiel Support Agency, ATTN: SELMS-MP, Fort Monmouth, N.J., DA Form 1598 (Record of Comments on Publications), DA Form 2496 (Disposition Form), or letter may be used.

Note. For applicable forms and records, refer to paragraph 2, TM 11-6940-200-10.

Add paragraph 1.1 after paragraph 1:

### 1.1. Index of Publications

Refer to the latest issue of DA Pam 310-4 to determine whether there are new editions, changes, or additional publications pertaining to the keyer set. DA Pam 310-4 is an index of current technical manuals, technical bulletins, supply bulletins, lubrication orders, and modification work orders that are available through publications supply channels. The index lists the individual parts (-10, -20, -35P, etc.) and the latest changes and revisions of each equipment publication.

Paragraph 3, chart. Item column, line 3. After "TV-7B/U," add TV-7C/U and TV-7D/U. Technical manual column, line 2. Delete "TM 11-5083" and substitute TM 11-6625-274-12.

Delete paragraph 4 and substitute:

### 4. Preventive Maintenance

*a*. Preventive maintenance is the systematic care, inspection, and servicing of equipment to maintain it in serviceable condition, prevent breakdowns, and assure maximum operational capability. Preventive maintenance is the responsibility of all echelons 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 for the keyer set at the second echelon level are made at quarterly intervals unless otherwise directed by the commanding officer. The preventive maintenance checks and services should be scheduled concurrently with the periodic service schedule of the other equipment when the keyer set is used as part of a system.

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

Add paragraphs 4.1 and 4.2 after paragraph 4.

#### 4.1. Quarterly Maintenance

Perform all the checks and services listed in the quarterly preventive maintenance checks and services chart (par. 4.2) in the sequence listed. Record all deficiencies or shortcomings in accordance with the requirements of TM 38-750.

## 4.2. Quarterly Preventive Maintenance Checks and Services Chart

Sequence No.	Item	Procedure	References
1	Interior of case and chassis-----	<b>Warning:</b> Cleaning compound is flammable and its fumes are toxic. Do not use near flame and provide adequate ventilation. Use a cloth moistened with cleaning compound to remove dust, dirt, moisture, and grease from fan blades on motor shaft, cone, belt, and all accessible areas.	Figs. 3 and 4.
2	Motor and internal parts-----	a. Check motor for overheating and sideplay----- b. Inspect internal wiring for cuts, cracked or gouged jackets, fraying, and bruises, and kinks. c. Inspect parts for cracks, chipping, blistering, moisture, and discoloration.	a. Fig. 3. b. None. c. None.
3	Switches and terminal blocks-----	Clean and tighten loose switches and terminal blocks and inspect for moisture accumulation.	None.
4	Lubrication-----	Lubricate equipment-----	Par. 5.
5	Parts-----	Inspect and replace any part, authorized in maintenance allocation chart, that has reached a condition where further adjustment would result in marginal reliability.	App. II.
6	Controls and switches-----	While checking for normal operation (item 7), observe that mechanical action of each control and switch is smooth and free of external and internal binding.	None.
7	Operation-----	Check for normal operation-----	Par. 7b.

Page 11. Delete appendix I and substitute:

### APPENDIX I REFERENCES

The following is a list of applicable references for the organizational repairman of Keyers TG-34-A, TG-34-B, and KY-127/GG:

- AR 320-5 Dictionary of United States Army Terms.
- AR 320-50 Authorized Abbreviations and Brevity Codes.
- AR 700-58 Report of Damaged or Improper Shipment.
- AR 750-1 Organization, Policies, and Responsibilities for Maintenance Operations.
- DA Pam 108-1 Index of Army Motion Pictures, Film Strips, Slides, and Phono-Recordings.
- DA Pam 310-4 Index of Technical Manuals, Technical Bulletins, Supply Bulletins, Lubrication Orders, and Modification Work Orders.
- FM 21-5 Military Training.
- FM 21-6 Techniques of Military Instruction.
- FM 21-30 Military Symbols.

- TM 11-5500 Multimeter TS-297/U.
- TM 11-2093-10 Operator's Manual, Code Practice Equipments EE-94-F, EE-95-F, EE-96-D, EE-96-E, and EE-96-F, and Telegraphic Code Trainers AN/FGC-T1, AN/FGC-T2, AN/FGC-T3, and AN/FGC-T4.
- TM 11-6625-274-12 Operator's and Organizational Maintenance Manual: Test Sets, Electron Tube TV-7/U, TV-7A/U, TV-7B/U, TV-7C/U, and TV-7D/U.
- TM 11-6940-200-10 Operator's Manual: Keyers TG-34-A, TG-34-B, and KY-127/GG.
- TM 11-6940-200-20P Organizational Maintenance Repair Parts and Special Tools List for Keyers TG-34-A, TG-34-B, and KY-127/GG.
- TM 38-750 The Army Equipment Records System and Procedures.

By Order of the Secretary of the Army:

**EARLE G. WHEELER,**  
*General, United States Army,*  
*Chief of Staff.*

Official:

**J. C. LAMBERT,**  
*Major General, United States Army,*  
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Br Svc Sch (2) except GENDEP  
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Sig Dep (OS) (12)  
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Army Dep (2) except  
Ft Worth (8)  
Lexington (12)  
Sacramento (28)  
Tobyhanna (12)  
USA Elet RD Actv, White Sands  
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Army Tml (1)  
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AMS (1)  
WRAMC (1)

AFIP (1)  
Army Pic Cen (2)  
USA Mbl Spt Cen (1)  
USA Elet Mat Agcy (12)  
Chicago Proc Dist (1)  
USARCARIB Sig Agcy (1)  
Sig Fld Maint Shop (3)  
Units organized under following  
TOE's (Two copies each unit  
unless otherwise indicated):  
11-7  
11-16  
11-57  
11-97  
11-98  
11-117  
11-155  
11-157  
11-500 (AA-AC) (4)  
11-557  
11-587  
11-592  
11-597

NG: State AG (3); units—same as Active Army except allowance is one copy each unit.

USAR: None.

For explanation of abbreviations used see AR 320-50.