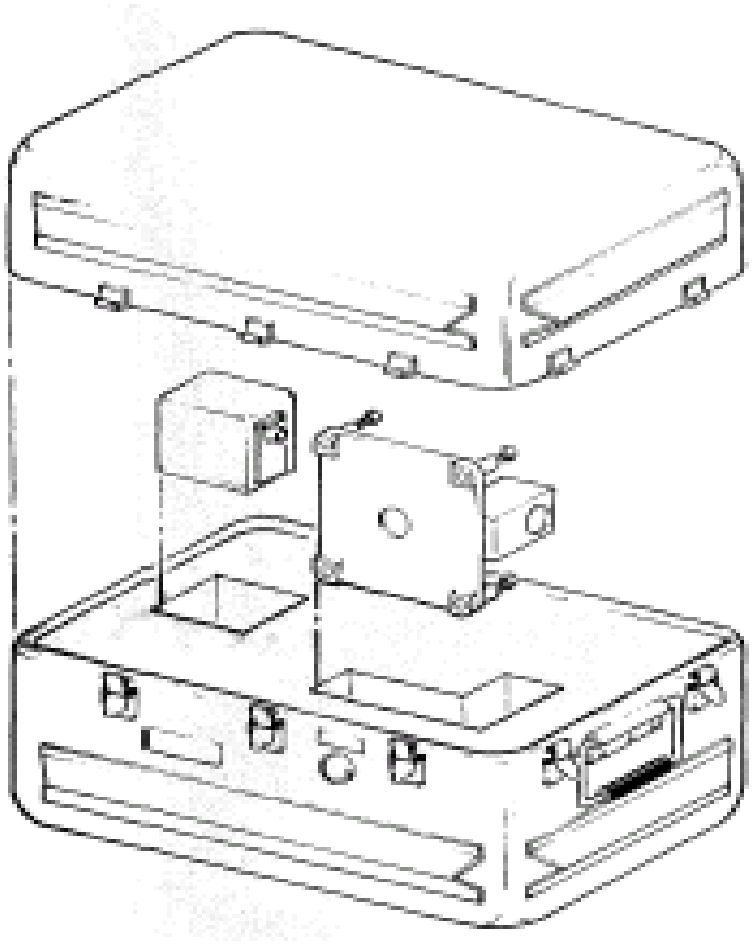
TM 11-6625-2685-23

ORGANIZATIONAL AND DIRECT SUPPORT
MAINTENANCE MANUAL



AIRBORNE LASER TRACKER ALIGNMENT SET AN/AAM-56 (NSN 5860-01-070-3843)

HEADQUARTERS, DEPARTMENT OF THE ARMY

4 JUNE 1984

WARNING

The light source simulating reflected laser energy is an infrared emitting diode with a diffuse beam invisible to the naked eye. Personnel should not directly view the lens assembly. Otherwise, damage to eyes could result.

WARNING

- **If the battery is subjected to a high current drain that discharges the battery to 4.5 volts, it may explode and injury to personnel could result.**
- **Installing the battery backwards could cause a high current drain that would discharge the battery to the danger level of 4.5 volts, and injury to personnel could result.**

WARNING

Battery BA-1100 used in this equipment contains mercury and may explode If overheated. DO NOT short circuit, dispose of in fire or try to recharge. DO NOT use batteries containing bulges.

WARNING

Isopropyl Alcohol is flammable in varying degrees. Use in well ventilated area, away from sparks or open flame to prevent injury to personnel.

Refer to FM 21-11 for First Aid.

Technical Manual

No. 11-6625-2685-23

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 4 June 1984

ORGANIZATIONAL AND DIRECT SUPPORT MAINTENANCE AIRBORNE LASER TRACKER ALIGNMENT SET AN/AAM-56 (NSN 5860-01-070-3843)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

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

LIST OF ILLUSTRATIONS

LIST OF TABLES

CHAPTER 1

INTRODUCTION

Section 1. GENERAL INFORMATION

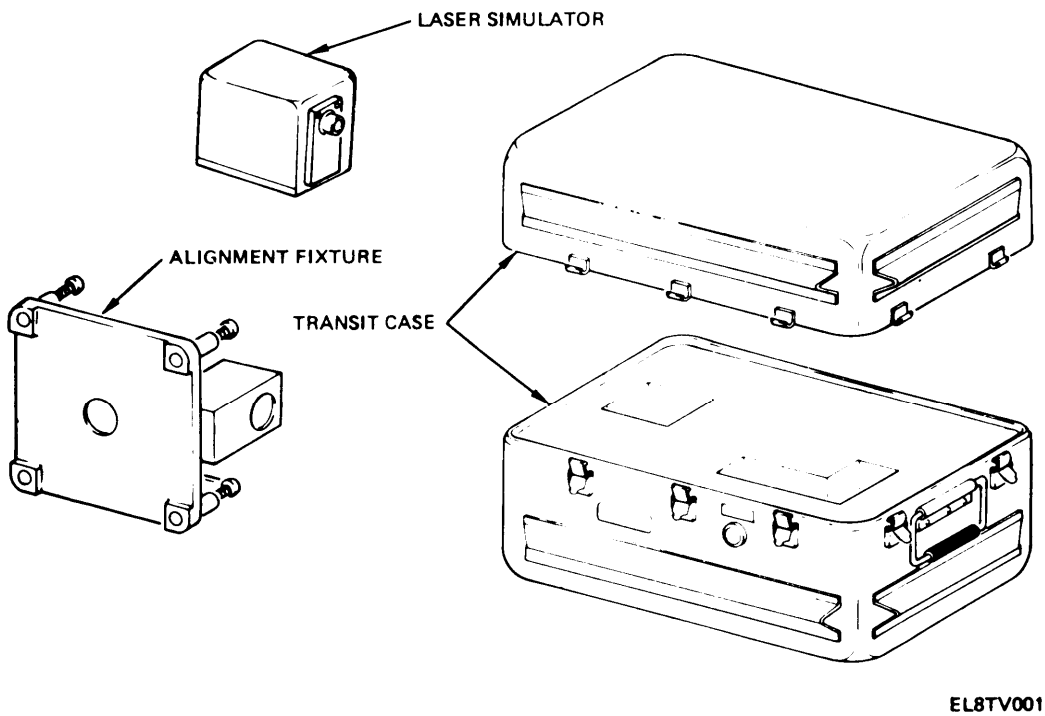


Figure 1-1. Airborne Laser Tracker Alignment Set, AN/AAM-56.

1-1. Scope

a. The purpose of this manual is to tell you how to maintain the Airborne Laser Tracker Alignment Set (ALT), AN/AAM-56.

b. The Alignment Set (fig. 1-1) is used to ensure that the ALT tracks with the Telescopic Unit (TSU).

1-2. Maintenance Forms, Records, and Reports

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.

1-3. Reporting Equipment Improvement Recommendations (EIR)

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

1-4. Nomenclature Cross-Reference

Official and common nomenclature is listed in table 1-1.

Table 1-1. Nomenclature Cross-Reference

Official Nomenclature	Common Name
Alignment Set, Airborne Laser Tracker AN/AAM-56	Alignment Set
Alignment Fixture, Receiver Tracker Mount MX-9624/AAM-56	Alignment Fixture
Simulator, Laser SM-706/AAM-56	Laser Simulator
Case, Alignment Set CY-7477/AAM-56	Transit Case
Airborne Laser Tracker AN/AAS-32	Airborne Laser Tracker (ALT)

Section II. EQUIPMENT DESCRIPTION AND DATA

1-5. Equipment Characteristics, Features, and Capabilities

a. The characteristics and features of the alignment set are as follows:

(1) The alignment set is portable.

(2) Calibration is not required.

(3) Does not require an external power source.

b. The laser simulator, part of the alignment set, is used to ensure that the ALT will track with the TSU.

1-6. Location and Description of Alignment Set Components (fig. 1-2)

The components of the alignment set are as follows:

a. Transit Case (1)	**Provides protection and storage for laser simulator and alignment fixture.**
b. Alignment Fixture (3)	**Attaches to the receiver mounts (2).**
c. Captive Screws (4)	**Attaches the alignment fixture to the receiver mount.**
d. Laser Simulator (5)	**A battery-powered light-emitting device. It produces a pulsed light beam to simulate reflected laser energy for the alignment of the ALT.**

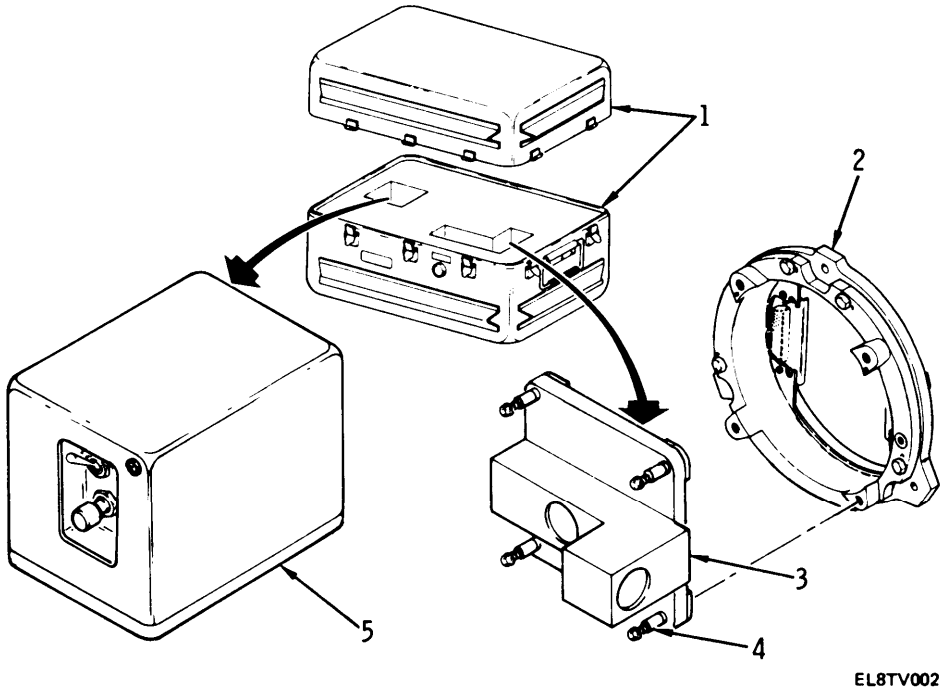


Figure 1-2. Alignment Set Components.

1-7. Equipment Data

WEIGHTS

Laser Simulator	2.5 pounds
Alignment Fixture	6.5 pounds
Case	23.0 pounds

DIMENSIONS — CASE

Length	22.07 Inches
Width	15.26 inches
Height	12.25 Inches

DIMENSIONS — LASER SIMULATION

Length	6.47 inches
Width	4.00 inches
Height	4.83 inches

DIMENSIONS — ALIGNMENT FIXTURE

Length	4.27 inches
Width	7.78 inches
Height	7.25 inches

POWER REQUIREMENTS

Battery	6.5 vdc

ENVIRONMENTAL OPERATING RANGES

Temperature	-18° to + 55°C
Humidity	98% maximum
Altitude	10,000 ft. maximum

CHAPTER 2

ORGANIZATIONAL MAINTENANCE

Section 1. REPAIR PARTS, SPECIAL TOOLS, TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

2-1. Common Tools and Equipment

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

2-2. Special Tools, TMDE, and Support Equipment

Refer to the Maintenance Allocation Chart (MAC), Appendix B, for special tools or equipment that are required for organizational and direct support maintenance.

2-3. Repair Parts

Repair parts are listed and illustrated in the repair parts and special tools list (RPSTL) TM 11-6625-2685-23P.

Section II. SERVICE UPON RECEIPT

2-4. Unpacking

a. Press the automatic valve core located on the side of the transit case.

b. Unhook latches securing lid and lift lid up.

c. Remove the laser simulator and alignment fixture.

2-5. Checking Unpacked Equipment

a. Inspect the equipment for damage. If the equipment has been damaged, report the damage on SF 364, Report of Discrepancy (ROD).

b. Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions in DA Pam 738-750. The equipment should be placed in service even though a minor assembly or part that does not affect proper functioning is missing.

c. Check the equipment for modifications. Equipment which has been modified will have the MWO number on the front panel near the nameplate.

d. Ensure that all currently applicable MWO's have been applied. (Current MWO's applicable to the equipment are listed in DA Pam 31 0-1.)

CAUTION

If equipment is not to be used within a thirty (30) day interval, remove battery to prevent corrosion to equipment.

e. Install battery according to paragraph 3-7.

Section III. Preventive MAINTENANCE CHECKS AND SERVICES (PMCS)

2-6. General

To be sure that the alignment set is ready to operate, you must perform preventive maintenance checks and services (PMCS).

a. Before you operate. Always keep in mind the CAUTIONS and WARNINGS. Perform your before (B) PMCS.

b. After you operate. Be sure to perform your after (A) PMCS.

c. If your equipment fails to operate. Refer to higher category maintenance.

If anything Iooks wrong when doing your PMCS and you can't correct it yourself, write it on your DA Form 2404, equipment inspection and maintenance worksheet.

Table 2-1. Preventive Maintenance Checks and Services (PMCS)

B-Before Operation D-During Operation A—After Operation W—Weekly M-Monthly

ITEM NO.	INTERVAL B	ITEM TO BE INSPECTED	PROCEDURE	Equipment is NOT Ready/Available if:
1	X	Controls and Indicators	Place power switch to HI or LO position. BATTERY TEST indicator should light when pressed. Place power switch to OFF position.	BATTERY TEST indicator does not light.
2	X	Lens	Check for broken lens.	Lens is broken.
3	X	Mounting Surfaces	Check alignment fixture and laser simulator mounting surfaces for damage.	Mounting surfaces have damage that could cause misalignment.
4	X	Captive screws	Check alignment fixture captive screws	One or more screws are missing or damaged.

SECTION IV. ORGANIZATIONAL TROUBLESHOOTING PROCEDURE

2-7. Alignment Set Troubleshooting Procedure

Organizational Maintenance troubleshooting is limited to replacing the transit case and the laser simulator indicator lamp and battery. Table 2-2 lists the malfunctions and corrective action procedures.

Table 2-2. Alignment Set Troubleshooting Procedure

Malfunction	Corrective Action
The laser simulator BATTERY TEST indicator does not light when pressed.	Ensure MODE switch is in HI or LO position.
	Replace battery (para 3-7).
	Replace BATTERY TEST lamp (para 3-8).
The laser simulator lens is dirty.	Clean the lens (para 3-10).
The laser simulator lens is damaged.	Notify higher category maintenance.
The alignment fixture has missing or damage captive screws.	Replace the screw assemblies (para 3-18).
The transit case is damaged so that it will not provide protection.	Replace transit case.

CHAPTER 3
DIRECT SUPPORT MAINTENANCE

Section 1. REPAIR PARTS, SPECIAL TOOLS; TEST MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE) AND SUPPORT EQUIPMENT

3-1. Common Tools and Equipment

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

3-2. Special Tools, TMDE, and Support Equipment

Refer to the Organizational and Direct Support Maintenance Repair Parts and Special Tools List (RPSTL), TM 11-6625-2685-23P. Also refer to the Maintenance Allocation Chart (MAC) in Appendix B.

3-3. Repair Parts

Repair parts are listed and illustrated in the repair parts and special tools list. TM 11-6625-2685-23P covers organizational and direct support maintenance for this equipment.

Section II. SERVICE UPON RECEIPT

3-4. Packing/Unpacking

The ALT alignment set does not require any special packing or unpacking procedures.

3-5. Checking Unpacked Equipment

a. Inspect the equipment for damage which occured during shipment. If the equipment has been damaged, report the damage on SF 364, Report of Discrepancy (ROD).

b. Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions in DA Pam 738-750. The equipment should be placed in service even though a minor assembly or part that does not affect proper functioning is missing.

c. Check the equipment for modification. Equipment which has been modified will have an MWO number on the front panel, near the nameplate.

d. Check to see whether all current MWO's have been applied. (Current MWO's applicable to equipment are listed in DA Pam 310-1 as applicable.)

Section III. TROUBLESHOOTING PROCEDURE

3-6. Alignment Set Troubleshooting

Troubleshooting of the alignment set consists of fault isolation of the laser simulator. Perform troubleshooting of the alignment set as indicated in table 3-1, fault symptoms.

Table 3-1. Laser Simulator Fault Symptom Chart

Fault Symptom	Corrective Action
BATTERY TEST does not light when indicator is pressed.	**a. Ensure dimmer is open (CCW).** **b. Perform steps 1 through 4 of table 3-2.**
ALT will not lock onto the simulated laser beam.	**a. Inspect the laser simulator lens. If dirty, clean according to paragraph 3-10. If damaged notify higher category maintenance.** **b. Perform table 3-2.**
Laser simulator works only in HI or LO mode but not in both modes.	**Perform steps 1 and 10 through 13 of table 3-2.**

Table 3-2. Laser Simulator Troubleshooting

STEP PROCEDURE NORMAL INDICATION ABNORMAL INDICATION CORRECTIVE ACTION
WARNING The light source simulating reflected laser energy is an infrared emitting diode with a diffuse beam invisible to the naked eye. Personnel should not directly view the lens assembly. Otherwise, damage to eyes could result.
CAUTION • Do not touch the lens with bare fingers. Skin oils will damage the optical surface. • Do not touch the light-emitting-diode (LED). Dirt or fingerprints will change the output characteristics.
NOTE • The BATTERY TEST switch has a mechanical dimmer. Ensure dimmer remains open (lens CCW). • Conserve energy. Place MODE switch to OFF when not taking measurements.
1 Remove the cover from laser simulator (para 3-11).
2 Place MODE switch to HI.

Table 3-2. Laser Simulator Troubleshooting - Continued

STEP PROCEDURE NORMAL INDICATION ABNORMAL INDICATION CORRECTIVE ACTION
3 Connect voltmeter to E3 (-) and E4 (+) on circuit card (FO-1). 5.0 vdc minimum. Less than 5.0 vdc, but not 0. Replace battery (para 3-7). 0 volt with good battery. a. Check continuity of wires and S1 (FO-2) b. Repair wires as required. c. Replace MODE switch, if S1 is defective (para 3-13).
4 Press BATTERY TEST indicator. Lamp lights. Lamp does not light or is dim. a. Ensure dimmer is open (lens CCW). b. Replace lamp (para 3-8). c. Check continuity between battery and DS1 through S1. d. Repair wires if required. e. Replace BATTERY TEST indicator (para 3-14).
5 Connect voltmeter to E3 (+) and E6 (-) on circuit card. 0.0 vdc ± 0.2 vdc. More than 0.2 vdc. Replace circuit card (para 3-9).

Table 3-2. Laser Simulator Troubleshooting - Continued

STEP PROCEDURE NORMAL INDICATION ABNORMAL INDICATION CORRECTIVE ACTION
6 Press switch (LED test) on top edge of circuit card (FO-1) while observing voltmeter. -0.5 to -1.0 vdc. Less than -0.5 vdc. Replace circuit card (para 3-9). More negative than 1.0 vdc (if LED is open, E6 should be -30 to -50 vdc). a. Check continuity between E5, E6 and LED (CR6) (FO-2). b. Repair wires as required. c. If LED (CR6) is open, notify higher category maintenance. **WARNING** The light source simulating reflected laser energy is an infrared emitting diode with a diffuse beam invisible to the naked eye. Personnel should not directly view the lens assembly. Otherwise, damage to eyes could result.
7 Use a metascope to observe the simulated laser beam output from lens while pressing LED TEST switch. Light beam output. No light beam output. Notify higher category maintenance.

Table 3-2. Laser Simulator Troubleshooting - Continued

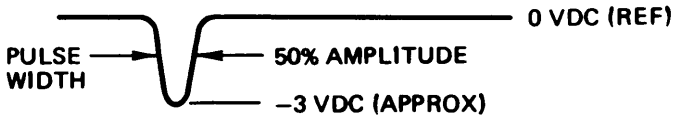
STEP PROCEDURE NORMAL INDICATION ABNORMAL INDICATION CORRECTIVE ACTION
8 Connect oscilloscope vertical input to circuit card E3 (-) and E5 (+) using x 10 probe. NOTE Use a hood on the scope. The pulse will appear very dim because of the slow repetition rate.
9 Set oscilloscope controls to measure the following pulse width at 50% amplitude level. (Vertical input 0.1 volt cm, horizontal 0.1 µsec cm.)      EL8TV003 Pulse width is 0.025 to 0.125 µsec. Pulse width is high or low. Replace circuit card (para 3-9).
10 Connect counter E3 (common) and E5 (signal) to circuit card using a shielded lead.
11 Set up counter to measure the (approximately 50.1 msec) period T1.

Table 3-2. Laser Simulator Troubleshooting - Continued

STEP PROCEDURE NORMAL INDICATION ABNORMAL INDICATION CORRECTIVE ACTION
12 Measure T1 on counter. T1 is 50.099 to 50.103 msec. T1 its approximately 100.0 msec. a. Ensure MODE switch is in HI position. b. Check for O volt on El (should be grounded through S1). c. Check voltage on E2 (should be 5.0 vdc minimum). d. If wiring between S1 and E1 and E2 is correct, replace circuit card (para 3-9).
13 Place MODE switch to LO. Measure T1 on counter. T1 is 99.999 to 100.030 msec. T1 is approximately 50 msec. a. Check for zero volts on El (should be chassis ground through S1). b. Check voltage on E2 (should be 2.5 vdc minimum). c. If wiring between S1 and E1 and E2 is OK, replace circuit card (para 3-9).
14 Place MODE switch to OFF.

Section IV. Maintenance Procedures

CAUTION

Do not disturb LED and Mounting Assembly. The LED is precision aligned and must not be disturbed.

3-7. Replacing Battery (fig. 3-1)

- If the battery is subjected to a high current drain that discharges the battery to 4.5 volts, it may explode and injury to personnel could result. Extreme care should be taken when removing battery.
- Installing the battery backwards could cause a high current drain that would discharge the battery to" the danger level of 4.5 volts, and injury to personnel could result.

a. Check battery voltage steps 1 thru 3 of table 3-2.

b. Ensure MODE switch is in OFF position.

c. Remove battery cap (1) by unscrewing counterclockwise (CCW).

d. Remove battery (2) from holder (3).

e. Inspect O-ring (4) for damage and battery holder for corrosion.

NOTE

Turn in expended battery for mercury reclamation (SB 11-30).

f. Install good battery with plus (+) end into holder and minus (-) end in cap.

g. Install cap.

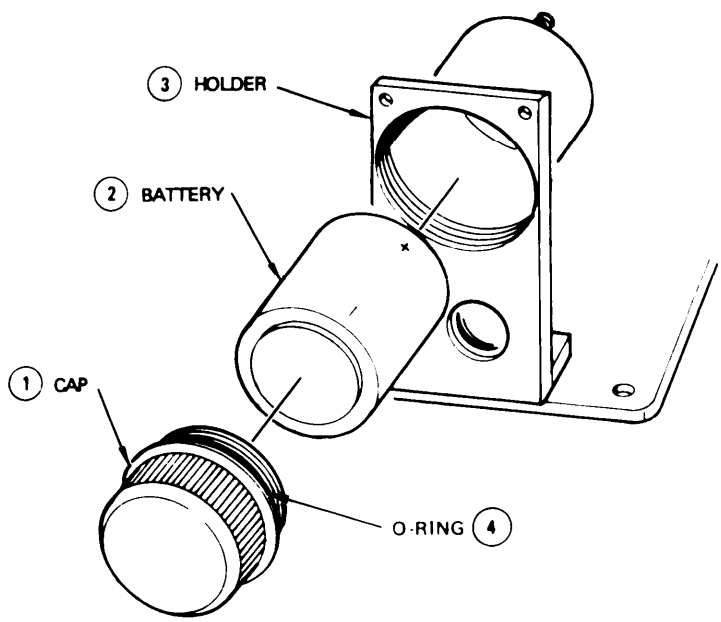


Figure 3-1. Laser Simulator Battery.

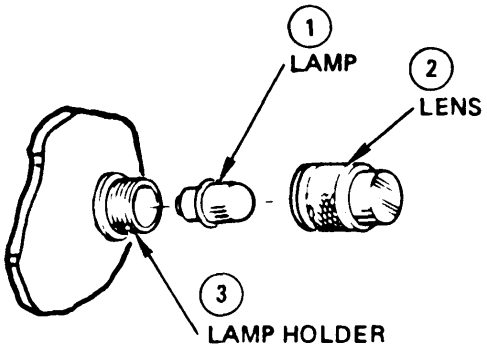
3-8. Replacing Battery Test Lamp (fig. 3-2)

a. Unscrew and remove lens (2) from lampholder (3) by turning CCW.

b. Remove lamp (1) from lens (2) and install new lamp.

c. Replace lens and turn fully clockwise (CW).

d. Check battery test lamp step 4 of table 3-2.



EL8TVO05

Figure 3-2. Battery Test Lamp.

3-9. Replacing Circuit Card (fig. 3-3)

a. Ensure MODE switch is OFF.

b. Remove cover (para 3-11).

c. Remove battery (para 3-7).

d. Unsolder wires from E1 through E6 and label for identification.

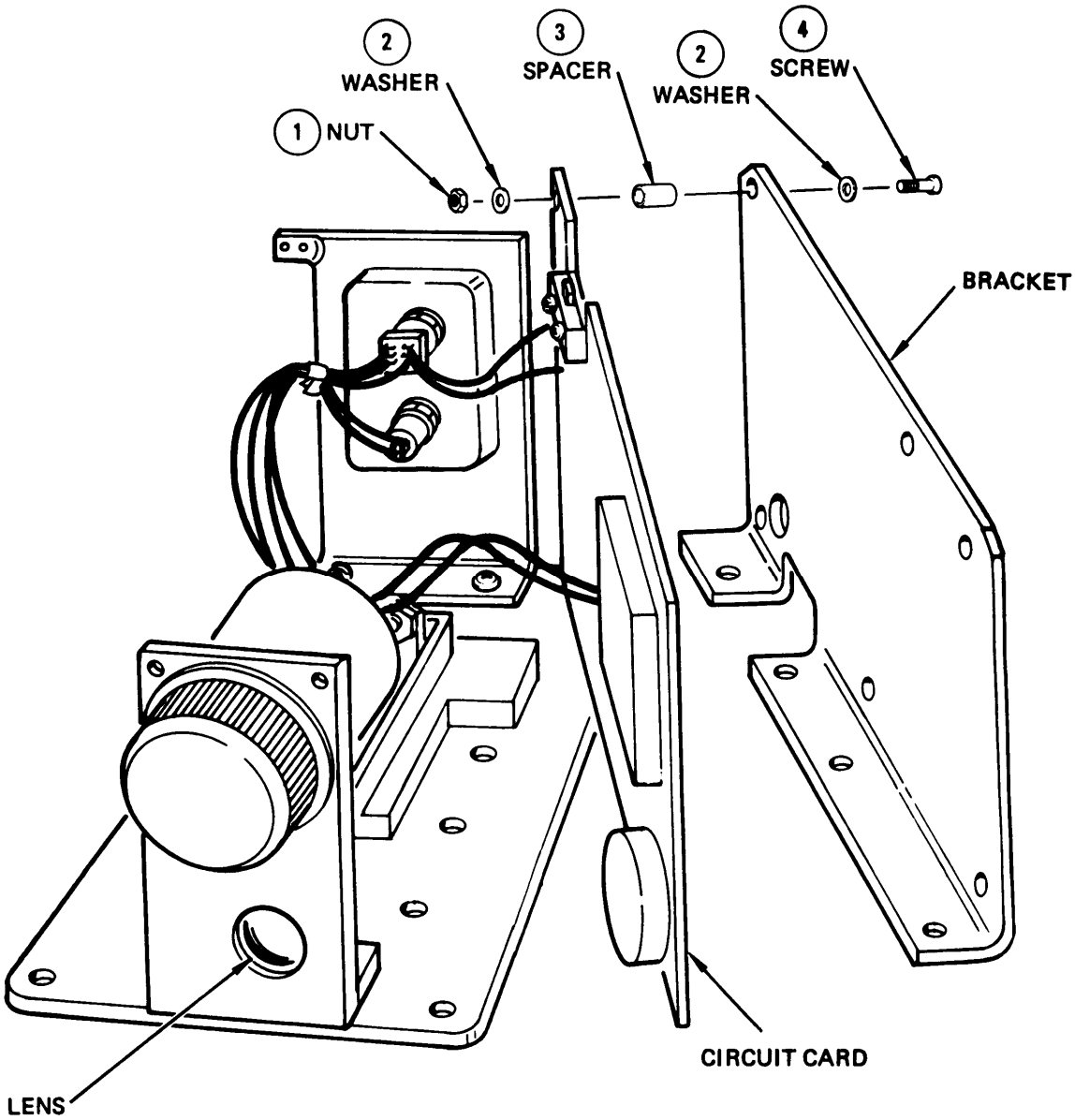
e. Remove circuit card from bracket by removing screws (4), nuts (1), washers (2), and spacers (3) (typical six places).

f. Connect and solder wires to E1 through E6 as labeled.

g. Install new circuit card on bracket with screws (4), washers (2), spacers (3), and nuts (1) (typical six places).

h. Install battery (para 3-7).

i. Perform procedures in table 3-2.



EL8TV006

Figure 3-3. Circuit Card.

3-10. Cleaning Laser Simulator Lens

WARNING

Isopropyl alcohol is flammable in varying degrees. Use in well ventilated area, away from sparks or open flame to prevent injury to personnel.

CAUTION

Do not touch lens with bare fingers. Skin oils will damage optical surface.

Clean lens with a cotton swab moistened with isopropyl alcohol.

3-11. Removing Laser Simulator Cover Assembly (fig. 3-4)

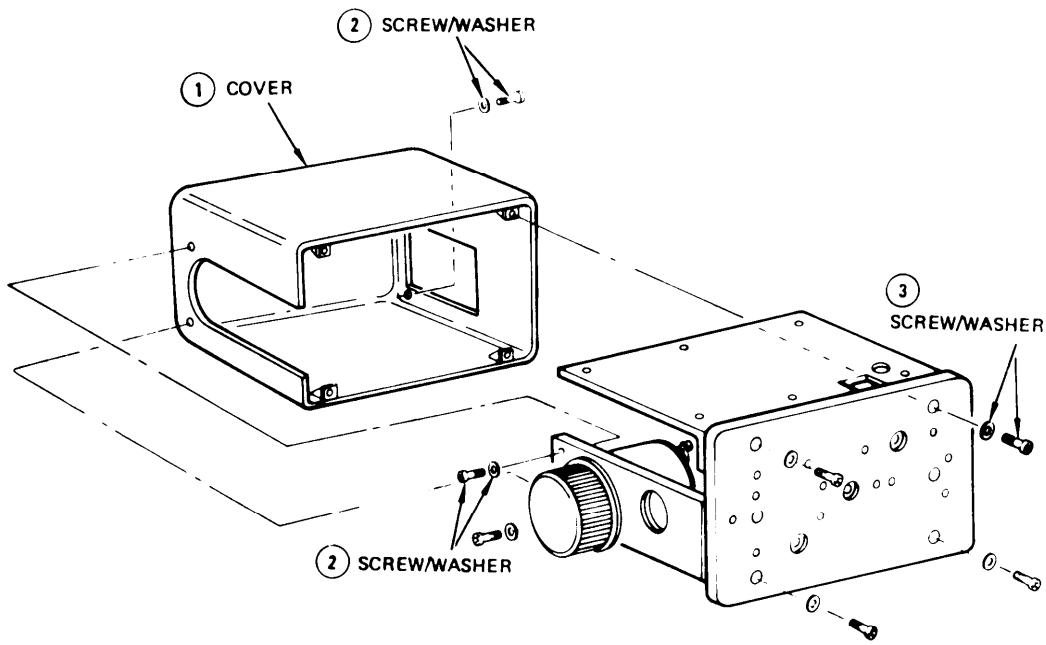
a. Remove screws and washers (2, 3).

b. Carefully remove cover assembly (1).

3-12. Installing Laser Simulator Cover (fig. 3-4)

a. Carefully place cover (1) in position.

b. Install the screws and washers (2).



EL8TV007

Figure 3-4. Laser Simulator Cover Assembly.

3-13. Replacing Laser Simulator Mode Switch (S1) (fig. 3-5)

a. Ensure mode switch (1) is OFF,

b. Remove cover (para 3-11).

CAUTION

DO NOT DISTURB LED and Mounting Assembly (7). The LED is precision aligned and must not be disturbed.

c. Remove battery (para 3-7).

d. Unsolder wires from switch (6) and label for identification.

e. Remove nut (2) and switch (6).

f. Install new switch (6) with nut (3) and keyed washers (4 and 5) and secure with nut (2).

g. Connect and solder wires to switch as labeled.

h. Install cover (para 3-12).

i. Ensure mode switch is OFF.

j. Install battery (para 3-7).

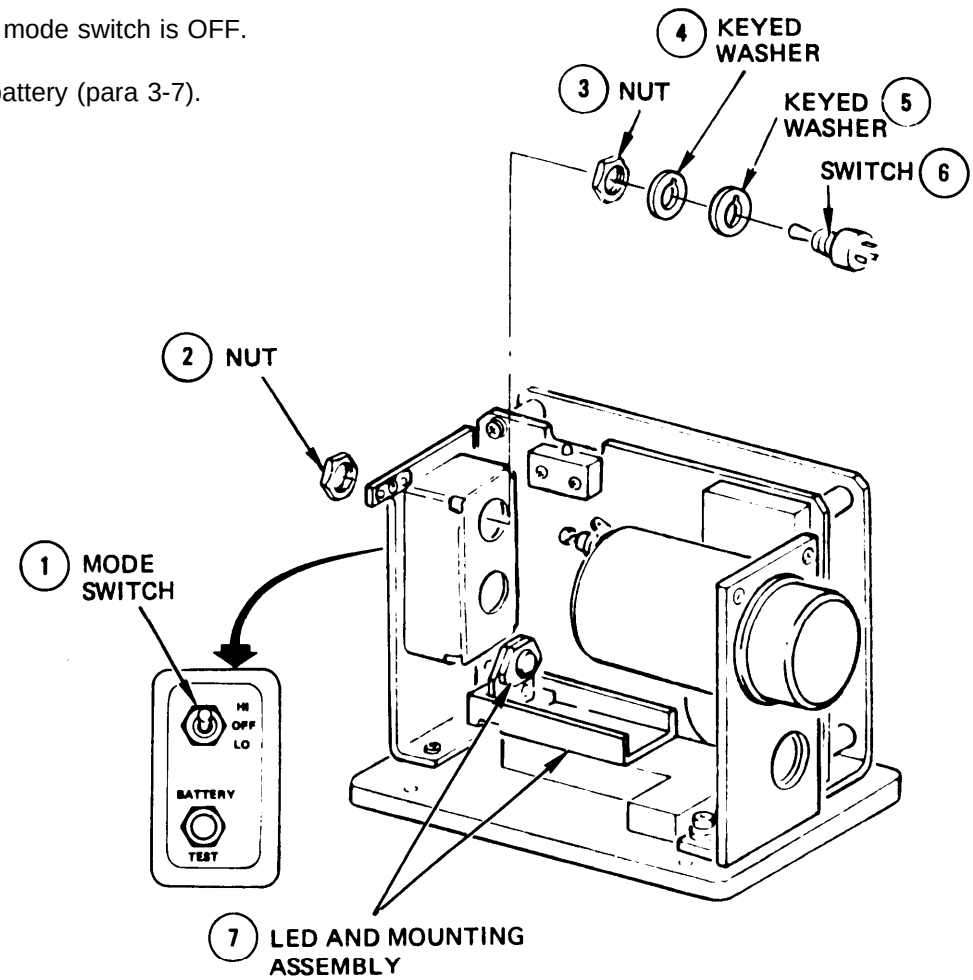


Figure 3-5. Laser Simulator Mode Switch.

3-14. Replacing Laser Simulator Battery Test Indicator (fig. 3-6)

a. Ensure mode switch is OFF (fig. 3-5).

b. Remove cover (para 3-11).

c. Remove battery (para 3-7).

d. Unsolder wires from indicator (1) and label for identification.

e. Remove nut (3) washer (2) and indicator (1).

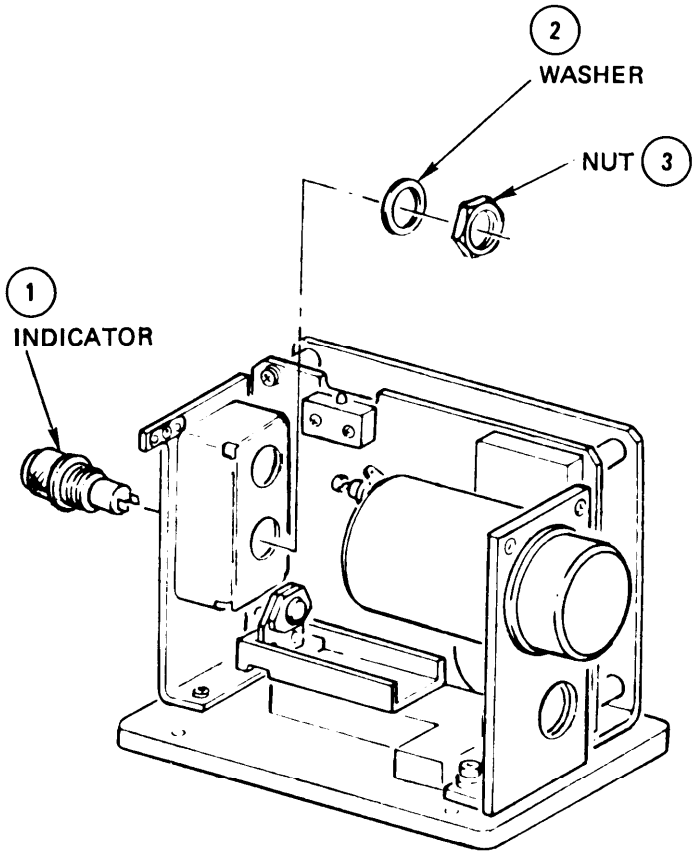
f. Install new indicator (1), washer (2), and secure with nut (3).

g. Connect and solder wires to indicator as labeled.

h. Install cover (para 3-12).

i. Ensure mode switch is OFF.

j. Install battery (para 3-7).



EL8TV009

Figure 3-6. Laser Simulator Battery Test Indicator.

3-15. Replacing Laser Simulator Battery Holder Terminal Assembly (fig. 3-7)

a. Remove cover (para 3-11).

b. Remove battery (para 3-7).

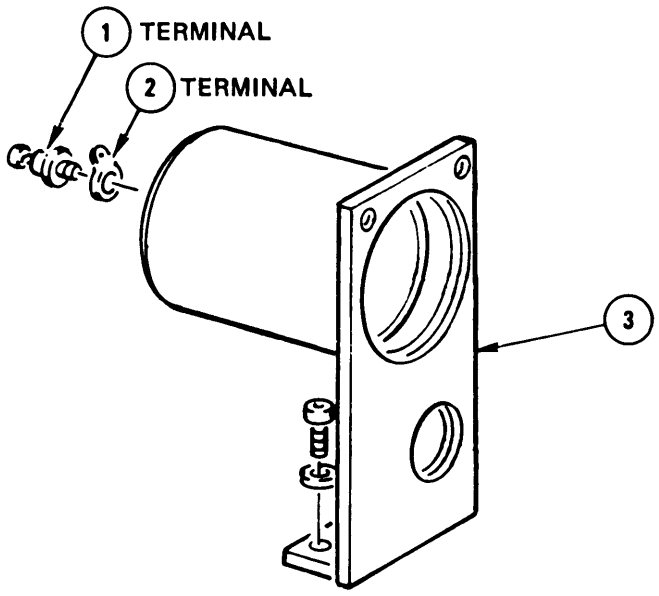
c. Unsolder wires from terminal (1) and label for identification.

d. Unscrew CCW and remove terminal assembly (1) from battery holder (3).

e. Install new terminal assembly (1) through terminal (2) and screw CW into battery holder.

f. Connect and solder wires to terminal (1).

g. Install cover (para 3-12).



EL8TV010

Figure 3-7. Laser Simulator Battery Terminal Assembly.

3-16. Replacing Laser Simulator Battery Cap, Spring, and O-Ring (fig. 3-8)

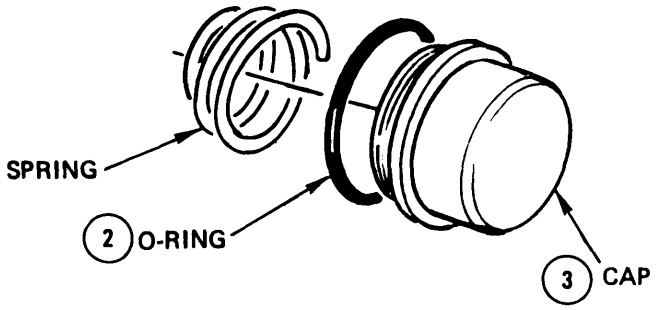
a. Ensure mode switch is OFF (fig. 3-5).

b. Remove battery cap (3) by unscrewing CCW.

c. Replace O-Ring (2) if required.

d. Replace spring (1) if required.

e. Install cap.



EL8TV011

Figure 3-8. Lacer Simulator Battery Cap.

3-17. Replacing Laser Simulator Battery Contact Assembly (fig. 3-9)

a. Remove cover (para 3-11).

b. Remove battery (para 3-7).

c. Unsolder contact wire from terminal (1),

d. Remove terminal contact assembly (2, 3) by pushing into battery holder (4).

e. Solder wire to contact (3).

f. Install new contact assembly (2, 3).

g. Connect and solder contact wire to terminal (1).

h. Install cover (para 3-12).

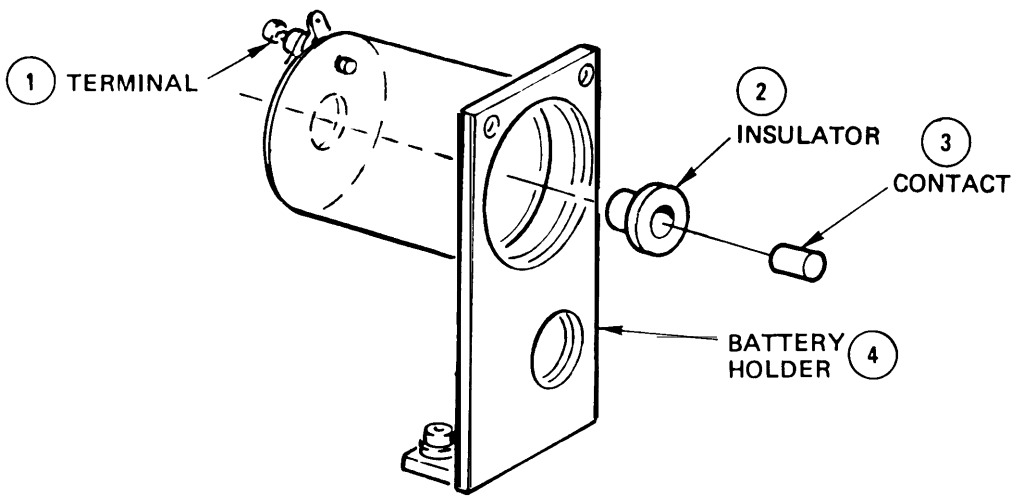


Figure 3-9. Laser Simulator Battery Contact Assembly.

3-18. Replacing Alignment Fixture Captive Screw Assemblies (fig. 3-10)

a. Remove the slot head retainer nut (2) with a wide blade screwdriver.

b. Replace screw assembly (1).

c. Install retainer nut.

d. Tighten retainer nut with wide blade screwdriver.

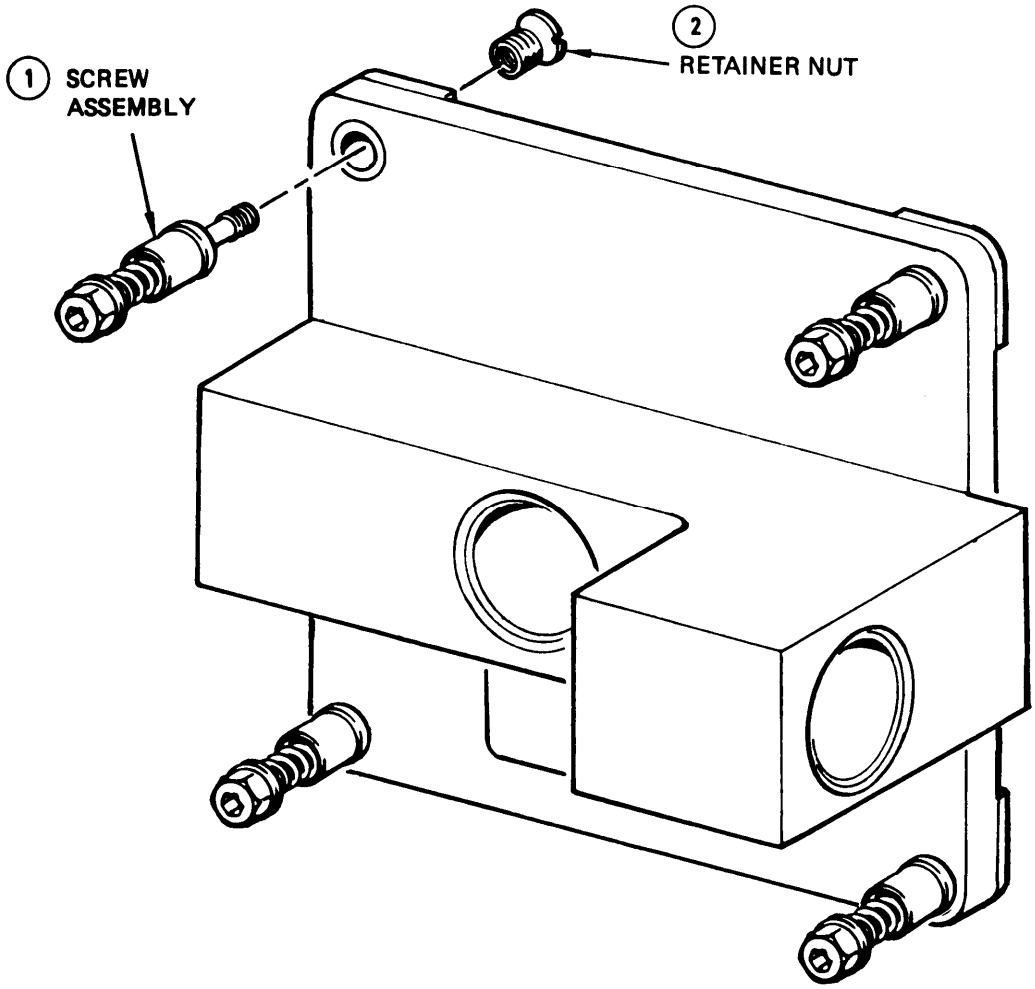


Figure 3-10. Alignment Fixture.

APPENDIX A

REFERENCES

A-1. PUBLICATION INDEXES

Consult index for latest changes and revisions to the forms, records, and publications listed in this appendix.

Consolidated lndex of Army Publications and Blank Forms . . . . . DA Pam 310-1
The Army Maintenance Management System (TAMMS) . . . . . DA Pam 735-750

A-2. FORMS AND RECORDS

Recommended Changes to Publications ..... DA Form 2028
Report of Discrepancy (ROD) ..... SF 364
Quality Deficiency Report ..... SF 368

A-3. GENERAL PUBLICATIONS

Painting and Preservation Supplies
Available for Field Use for Electronics
Command Equipment ..... SB 11-573

Federal Supply Codes for Manufacturers ..... SB 708-42

Field Instructions for Painting
and Preserving Electronics Command
Equipment Including Camouflage
Pattern Painting of Electrical Equipment Shelters ..... TB 43-0118

Painting Instructions for Field Use ..... TM 9-213

Organizational and Direct Support
Maintenance Repair Parts and Special
Tools List Airborne Laser Tracker
Alignment Set, AN/AAM-56 (5860-01-070-3843) ..... TM 11-6625-2685-23P

Depot Maintenance Work Requirements
Manual ..... DMWR 11-6625-2685

Organizational and Direct Support Maintenance
Manual ..... TM 11-6625-2685-23

Administrative Storage of Equipment ..... TM 740-90-1

FSC Class 6135; Dry Battery Management Data ..... SB 11-30

Destruction of Army Electronics Materiel
to Prevent Enemy Use ..... TN 750-244-2

APPENDIX B

MAINTENANCE ALLOCATION CHART

SECTION 1. INTRODUCTION

B-1. GENERAL

This appendix provides a summary of the maintenance operations for Airborne Laser Tracker AN/AAM-56. 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 FUNCTIONS

Maintenance functions will be limited to and defined as follows:

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

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

c. Service. Operations required periodically to keep an item in proper operating condition, i.e., to clean (decontaminate), to preserve, to drain, to paint, or to replenish fuel, lubricants, hydraulic fluids, or compressed air supplies.

d. Adjust. To maintain, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to the specified parameters.

e. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test measuring and diagnostic equipments used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. Install. The act of emplacing, seating, or fixing into position an item, part, module (component or assembly) in a manner to allow the proper functioning of the equipment or system.

h. Replace. The act of substituting a serviceable like type part, subassembly, or module (component or assembly) for an unserviceable counterpart.

i. Repair. The application of maintenance services (inspect, test, service, adjust, align, calibrate, replace) or other maintenance actions (welding, grinding, riveting, straightening, facing, remachining, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

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

j. Overhaul. That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards (i.e., DMWR) in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul 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 equipments/components.

B-3. EXPLANATION OF COLUMNS, Section II

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 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 “work time” figure in the appropriate subcolumn(s), the lowest level of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate “work time” figures will be shown for each category. The number of task-hours specified by the “work time” figure represents the average time required to restore an item (assembly, subassembly, component, module, end item or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, troubleshooting time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. Subcolumns of column 4 are as follows:

C Operator/Crew

O Organizational (AVUM)

F Direct Support (AVIM)

H General Support

D Depot

e. Column 5, Tools and Equipment. Column 5 specifies by code, those common tool sets (not individual tools) and special tools, test, and support equipment required to perform the designated function.

f. Column 6, Remarks. Column 6 contains an alphabetic code which leads to the remark in Section IV, Remarks, which is pertinent to the item opposite the particular code.

B-4. TOOL AND TEST EQUIPMENT REQUIREMENTS, Section Ill

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.

B-5. REMARKS, Section IV

a. Reference Code. This code refers to the appropriate item in Section II, Column 6.

b. Remarks. This column provides the required explanatory information necessary to clarify items appearing in Section Il.

SECTION II. MAINTENANCE ALLOCATION CHART
FOR
ALIGNMENT SET, AIRBORNE LASER TRACKER AN/AAM-56

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT.	(6) REMARKS
			c	o	F	H	D		
00	Alignment Set, Airborne Laser Tracker AN/AAM-56	Inspect		0.3					
		Repair		0.3					F
01	Alignment Fixture, Receiver Tracker Mount MX-9624/AAM-56	Repair		0.3				1	D
02	Simulator Laser SM706/AAM-56	Repair		0.4				1	B
		Repair			3.0			2,3,4 5,6	c
		Repair					5.0	2,7	
0201	Wiring Board Assy., Laser Simulator	Replace			0.5			2	
		Repair					3.0	2,9	
03	Case, Alignment Set CY-7477/AAM-56	Replace		0.2					
		Repair					1.0	2	E
04	Battery BA-110 O/U	inspect		0.1					
		Test		0.1				8	A
		Replace		0.1				1	

SECTION III. TOOLS AND TEST EQUIPMENT REQUIREMENTS FOR ALIGNMENT SET, AIRBORNE LASER TRACKER AN/AAM-56

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	0	Tool Kit, Electronic Equipment TK-100/G or equivalent	5180-00-605-0079	
2	F, D	Tool Kit, Electronic Equipment TK-105/G or equivalent	5180-00-610-8177	
3	F, D	Oscilloscope AN/USM-281C	6625-00-106-9622	
4	F, D	Digital Counter AN/USM-459	6625-01-133-6160	
5	F, D	Multimeter ME-26B/U	6625-00-646-9409	
6	F, D	Metascope AN/PAS-6	5855-00-790-6197	
7	D	Laser Simulator Test Station (TP107)		13052-707
8	0	Multimeter AN/URM-105C	6625-00-999-6282	
9	D	CCA Test Position (TP117)		13192-707

SECTION IV. REMARKS

REFERENCE CODE	REMARKS
A	Shown for information only. The battery is to be disposed of in accordance with SB 11-30.
B	Replace lamps.
C	Repair by replacement of circuit card assembly.
D	Repair by replacement of captive hardware.
E	Repair by R/R foam, pressure relief valve, latches or handles.
F	Repair by replacement of major components.

APPENDIX C

EXPENDABLE SUPPLIES AND MATERIALS LIST (ESML)

SECTION I. INTRODUCTION

C-1. SCOPE

This appendix lists expendable supplies and materials needed to operate and maintain the Alignment Set. These items are authorized by CTA 50-970, Expendable Items (except Medical, Class V, Repair Parts, and Heraldic Items).

C-2. EXPLANATION OF COLUMNS

a. Column 1- Item number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use applicator, item 1, Appendix B").

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

C Operator/Crew

O Organizational Maintenance

F Direct Support Maintenance

H General Support Maintenance

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

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

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

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
1	0	6135-00-926-0827	Battery - BA-1100/U	ea
2	F	TT-I-735 (Federal Specification)	Isopropyl Alcohol	AR
3	F	6515-00-303-8250	Disposable Applicator	AR

GLOSSARY

ABBREVIATIONS

AC	Alternating Current
ALT	Airborne Laser Tracker
BITE	Built-In Test Equipment
COMD	Command
COMP	Compensation
CORR	Correlate
DC	Direct Current
DIV	Division
DVM	Digital Volt Meter
EIR	Equipment Improvement Recommendations
ELEC	Electronics Assembly
ELEV	Elevation
EXT	External
EU	Electronics Unit
FO	Clock Signal from Decoder Circuit Card
FT	Clock Signal from BITE Circuit Card
Gyro	Gyroscope
HI	High
HUD	Heads Up Display
LED	Light-Emitting Diode
LO	Low
MLO	Master Lock Out
MTOE	Modified Table of Organization and Equipment
MWO	Modification Work Order
PMCS	Preventive Maintenance Checks and Services
PRF	Pulse-Repetition Frequency
QDRT	Quadrant
RCVR	Receiver
RU	Receiver Unit
Scope	Oscilloscope
TAMMS	The Army Maintenance Management System
TFT	Track Test Terminate
TMDE	Test Measurement and Diagnostic Equipment
TSU	Telescopic Sight Unit
Vac	Voltage Alternating Current
Vdc	Voltage Direct Current
az	Azimuth
el	Elevation
kHz	Kilo-Hertz
mVdc	Milli-Voitage Direct Current
nsec	Nano-seconds
psi	Per Square Inch
Σ_{AT}	Sum After Threshold

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

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Stateside Army Depot
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Stateside, N.J. 07703

DATE SENT
10 July 1975

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

BE EXACT PIN-POINT WHERE IT IS

PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO	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° IFF antenna lag rather than 1°. REASON: Experience has shown that with only a 1° lag, the antenna servo system is too sensitive to wind gusting in excess of 25 knots, and has a tendency to rapidly accelerate and decelerate as it hunts, causing strain to the drive train. Hunting is minimized by adjusting the lag to 2° without degradation of operation.
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

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I. M. DeSpiritof

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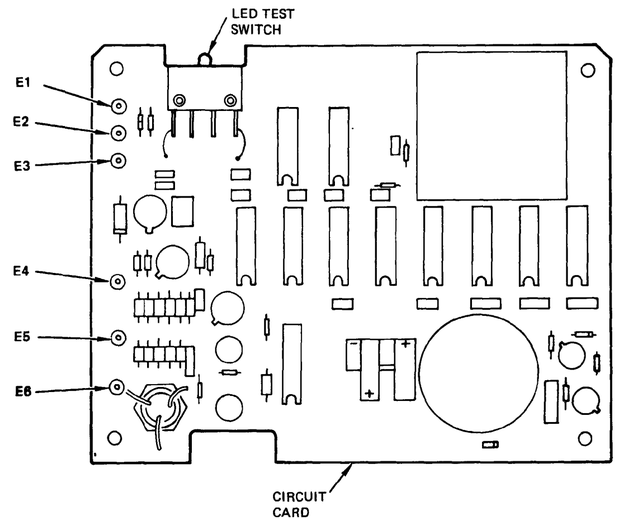
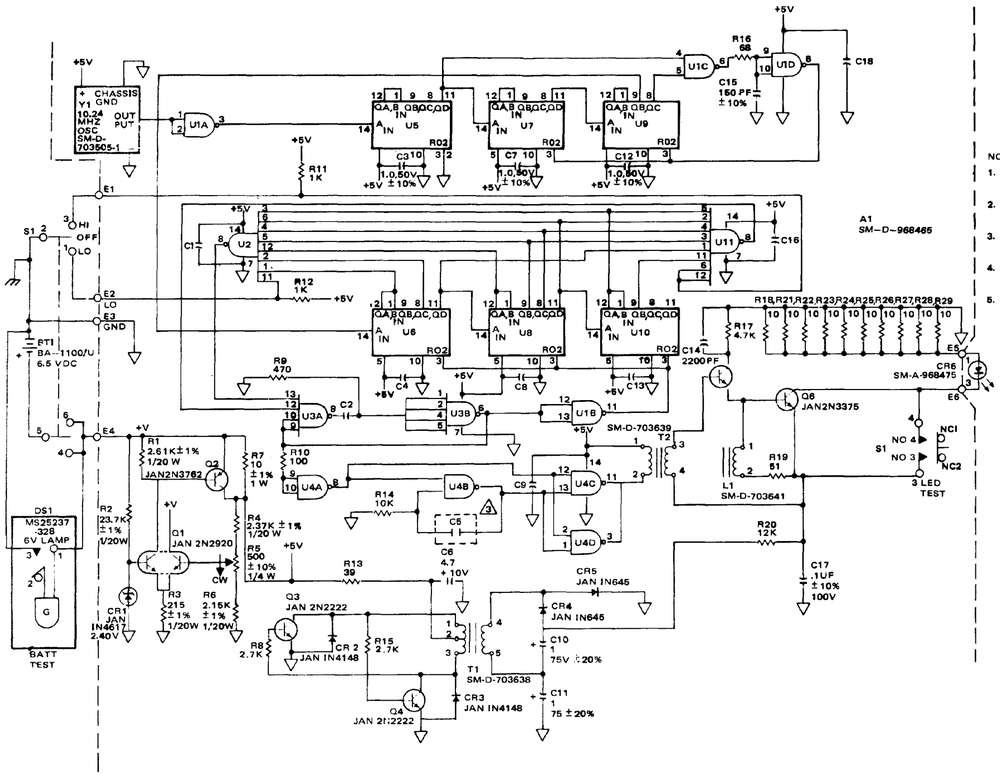


EL8TV014

FO-1. Test Point and Test Switch Locator.



NOTE: UNLESS OTHERWISE SPECIFIED

1. ALL RESISTORS VALUES ARE IN OHMS, ±5% AND RATED AT 1/8 WATT.
2. ALL CAPACITOR VALUES ARE .01μF ±20% AND ARE RATED AT 100 WATTS.
3. 0.5 PF CAPACITOR (C5) IS INCORPORATED IN BOARD LAYOUT BY CIRCUIT ETCHING.
4. REF. DESIGNATIONS ARE ABBREVIATED. PREFIX WITH SUBASSEMBLY DESIGNATIONS.
5. U1 AND U4 ARE M38510/00104B 8 (5400)
   U2 AND U11 ARE M38510/00101BCB (5430)
   U3 IS M38510/00102BCB (5420)
   U5,U6,U7,U8,U9, AND U10 ARE M38510/01302BCB (5493)

EL8TV015

FO-2. Laser Simulator Schematic.