

**\*TM 1-1270-476-T**

---

**TECHNICAL MANUAL**

**AVIATION UNIT TROUBLESHOOTING MANUAL  
FOR  
TARGET ACQUISITION DESIGNATION SIGHT  
(TADS) ASSEMBLY (NSN 1270-01-142-2855)  
AN/ASQ-170  
AH-64A ATTACK HELICOPTER**

\*This manual supersedes TM 1-1270-476-T, dated 31 July 1992, including all changes.

**DISTRIBUTION STATEMENT A:** Approved for public release; distribution is unlimited.

---

**HEADQUARTERS, DEPARTMENT OF THE ARMY  
30 AUGUST 2001**

TECHNICAL MANUAL

No. 1-1270-476-T

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, D.C., 30 AUGUST 2001

AVIATION UNIT TROUBLESHOOTING MANUAL  
FOR  
TARGET ACQUISITION DESIGNATION SIGHT  
(TADS) ASSEMBLY (NSN 1270-01-142-2855)  
AN/ASQ-170  
(AH-64A ATTACK HELICOPTER)

**REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS**

You can help improve this manual. If you find any errors or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms) or DA Form 2028-2 located in the back of this manual directly to: Commander, U.S. Army Aviation and Missile Command, ATTN: AMSAM-MMC-MA-NP, Redstone Arsenal, AL 35898-5000. A reply will be furnished to you. You may also send in your comments electronically to our e-mail address: [2028@redstone.army.mil](mailto:2028@redstone.army.mil) or FAX us at (256) 842-6546/DSN 788-6546. Instructions for sending an electronic 2028 may be found at the end of this TM immediately preceding the hard copy 2028.

\*This manual supersedes TM 1-1270-476-T, dated 31 July 1992, including all changes.  
Distribution Statement A: Approved for public release; distribution is unlimited.

		Page
	HOW TO USE THIS MANUAL.....	ii
CHAPTER 1.	INTRODUCTION .....	1-1
Section I.	General Information.....	1-2
II.	Troubleshooting Information .....	1-4
III.	Troubleshooting Methods .....	1-7
IV.	LRU Troubleshooting – Off the Helicopter .....	1-10
V.	Electrical Component Location and Configuration.....	1-10
CHAPTER 2.	THEORY OF OPERATION .....	2-1
Section I.	General Information.....	2-2
II.	Theory of Operation.....	2-14
CHAPTER 3.	TARGET ACQUISITION DESIGNATION SIGHT TROUBLESHOOTING PROCEDURES .....	3-1
CHAPTER 4.	ANTI-ICE TROUBLESHOOTING PROCEDURES .....	4-1
APPENDIX A.	REFERENCES.....	A-1
GLOSSARY	.....	Glossary-1
ALPHABETICAL INDEX	.....	Index-1

## HOW TO USE THIS MANUAL

If you cannot find the information you are looking for, you cannot properly do your job. Take a few minutes to look through this manual. You will find it easier to use once you have become familiar with it.

Each chapter and section is set up to lead you through it step by step. For example:

1. On the chapter page, you will see a listing of the sections in that chapter. Listed under the section titles is a listing of the tasks for that section. Find the task (by title) that you have been assigned. Now, look across from the task title and you will find the paragraph and page number for the task. Notice that the chapter number forms part of the page number.
  2. Now that you have located the page number, turn to that page and review the task requirements before starting the procedures.
  3. Did you notice that each task or job begins with an initial setup?
    - a. INITIAL SETUP lists the configuration, test equipment, tools and special tools, materials/parts, military occupational specialty (MOS), references, safety instructions, condition equipment should be in, and general instructions for you to complete the task. FOLLOWUP lists the procedures to be performed after you have completed the basic task.
    - b. Now, what exactly does INITIAL SETUP mean to you? The term "INITIAL SETUP" means, "DO THIS FIRST BEFORE STARTING THE TASK." Review one of the initial setup tables and become familiar with the requirements.
  4. An explanation of the initial setup headings is presented below.
    - a. Tools and Special Tools. Special tools needed to perform the task. Be sure to acquire all the tools before you start the task.
    - b. Materials/Parts. Materials and parts needed to perform the task. Materials can be found in Appendix C. Next to the name of the material listed in the initial setup you will find an item number. This number matches the item number in column (1) of Appendix C. Be sure to acquire all the materials and parts before you start the task.
    - c. Personnel Required. MOS required to do the task. This will also tell you the number of persons needed to perform the task.
  5. You can also use the table of contents on page i of this manual to locate page number for chapters, sections, and the appendixes.
  6. Let's see if you understand how to find a specific task. Suppose your supervisor wants you to replace the humidity indicator.
- Here's how you would find it:
- a. Obtain the correct TM for this task: TM 1-8145-476-23. Aviation Unit and Intermediate Maintenance Manual, Target Acquisition Designation Sight Assembly and Pilot Night Vision Sensor Assembly (TADS/PNVS) Shipping and Storage Containers is the correct manual. Look up this task.
  - b. Did you find the chapter title on the cover or did you use the table of contents? Remember replacement is an aviation intermediate maintenance task. So, if you located the Aviation Intermediate Maintenance Chapter, you are correct.

**HOW TO USE THIS MANUAL (cont)**

- c. Looking at the section titles listed in the maintenance chapter index, you should have located the page number for the maintenance procedures. Going to that page you found the section index and located the paragraph and page number of the replacement task.
7. Another approach would be to look in the alphabetical index in the rear of the manual. You would find the information listed in several places: "Humidity Indicator Replacement;" or "Replacement, Humidity Indicator."
8. Using effectivity codes:
- a. Effectivity codes designate differences between TADS components. These codes consist of letters that represent various TADS equipment configurations. They are used throughout this manual to aid the TADS troubleshooting effort. The codes are used to designate differences. When used within narrative text, effectivity codes appear within brackets.

Example: Narrative text **[AAA]**.

- b. When used inside interconnect diagrams, effectivity codes appear within triangular borders and are placed on the line which represents that particular configuration.

Example: Interconnect diagrams AAA

- c. This manual uses these effectivity codes.

<u>Effectivity Code</u>	<u>TADS Configuration</u>
<b>OIP</b>	Optical Improvement Program (OIP) LRUs installed.
<b>TAD</b>	Non-OIP LRUs installed.
<u>Effectivity Code</u>	<u>Helicopter Serial No.</u>
<b>AAG</b>	82-2355 thru 84-24289
<b>ABC</b>	84-24290 and SUBSEQUENT
<b>ABR</b>	82-23355 thru 84-24232
<b>ABS</b>	84-24233 and SUBSEQUENT

- d. Use the effectivity code to determine which procedure, or which path in an interconnect diagram or fault isolation procedure, to use.

**CHAPTER 1**  
**INTRODUCTION**

<u>Para Title</u>	<u>Para No.</u>
<b>Section I. GENERAL INFORMATION</b>	
Scope .....	1-1
Maintenance Forms, Records, and Reports .....	1-2
Destruction of Army Materiel to Prevent Enemy Use.....	1-3
Preparation for Storage and Shipment .....	1-4
Quality Assurance/Quality Control (QA/QC) .....	1-5
Deficiency Reporting .....	1-6
Corrosion Prevention and Control (CPC) .....	1-7
Warranty Information .....	1-8
<b>Section II. TROUBLESHOOTING INFORMATION</b>	
Manual Content and Organization .....	1-9
Electrical Data .....	1-10
Wiring Information .....	1-11
Wiring Checks .....	1-12
<b>Section III. TROUBLESHOOTING METHODS</b>	
Failure Symptoms and Troubleshooting .....	1-13
Fault Detection/Location System (FD/LS) Check.....	1-14
Maintenance Operational Check (MOC) .....	1-15
Fault Isolation Procedures (FIP) .....	1-16
Starting Troubleshooting .....	1-17
During Troubleshooting .....	1-18
Completing Troubleshooting .....	1-19
<b>Section IV. LRU TROUBLESHOOTING - OFF THE HELICOPTER</b>	
Troubleshooting Line Replaceable Units (LRUs) and Shop Replaceable Units (SRUs) Off the Helicopter.....	1-20
<b>Section V. ELECTRICAL COMPONENT LOCATION AND CONFIGURATION (ECLC) INDEX</b>	
Electrical Component Location and Configuration (ECLC) .....	1-21

## **Section I. GENERAL INFORMATION**

### **1-1. SCOPE**

This manual covers electrical component location and configuration (ECLC), theory of operation, power up, power-down, maintenance operational checks (MOC), wiring interconnects, and fault isolation procedures (FIP) for TADS system functions.

### **1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS**

Department of the Army forms and instructions for completing them are included in DA PAM 738-751, The Army Maintenance Management System-Aviation (TAMMS-A).

### **1-3. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE**

Destruction procedures are in TM 750-244-1-5.

### **1-4. PREPARATION FOR STORAGE OR SHIPMENT**

Refer to TM 1-1270-476-20 for procedures regarding storage and shipment of line replaceable units (LRUs) and electrostatic discharge sensitive (ESDS) devices.

### **1-5. QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)**

Quality assurance information is explained in FM 1-511.

## 1-6. DEFICIENCY REPORTING

If your equipment needs improvement, let us know. Send us a Quality Deficiency Report (QDR). You, the user, are the only one who can tell us what you don't like about your equipment. Let us know what you don't like about the design. Tell us why a procedure is hard to perform. Put it on Standard Form (SF) 368 (Quality Deficiency Report). Mail it to us at:

Commander  
U.S. Army Aviation and Missile Command  
ATTN: AMSAM-MMC-MA-NM  
Redstone Arsenal, AL 35898-5230

We'll send you a reply.

## 1-7. CORROSION PREVENTION AND CONTROL (CPC)

- a. Corrosion prevention and control (CPC) of Army material is a continuing concern. It is important that any corrosion problems with this item be reported so that the problem can be corrected and improvements can be made to prevent the problem in future items.
- b. While corrosion is typically associated with rusting of metals, it can also include deterioration of other materials such as rubber and plastic. Unusual cracking, softening, swelling, or breaking of these materials may be a corrosion problem.
- c. If a corrosion problem is identified, it can be reported using SF 368, Quality Deficiency Report. Use of the keywords such as "corrosion," "rust," "deterioration," or "cracking" will assure that the information is identified as a CPC problem. The form should be submitted to: Commander, U.S. Army Armament, Munitions and Chemical Command, ATTN: AMSAV-QF/Customer Feedback Center, Rock Island, IL 61299-6000.

## 1-8. WARRANTY INFORMATION

Refer to TM 1-1270-476-20.