

**TECHNICAL MANUAL
AVIATION UNIT AND INTERMEDIATE
TROUBLESHOOTING MANUAL
FOR
ARMY MODEL
AH-64A HELICOPTER
(NSN 1520-01-106-9519) (EIC: RHA)
MASTER FAILURE SYMPTOM INDEX**

SUPERSEDURE NOTICE: This manual supersedes TM 1-1520-238-T-2, dated 05 SEPTEMBER 1990, including all changes.

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**HEADQUARTERS, DEPARTMENT OF THE ARMY
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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) direct to: Commander, U.S. Army Aviation and Missile Command, ATTN: AMSAM-MMC-MA-NP, Redstone Arsenal, AL 35898-5230. A reply will be furnished directly to you.

You may also submit your recommended changes by E-mail directly to 2028@redstone.army.mil or by fax 205-842-6546/DSN 788-6546. Instructions for sending an electronic 2028 may be found at the end of this manual immediately preceding the hard copy 2028.

OZONE DEPLETING CHEMICAL INFORMATION:

This document has been reviewed for the presence of Class I Ozone depleting chemicals. As of Change 7 dated 27 February 1998, all references to Class I Ozone depleting chemicals have been removed from this document by substitution with chemicals that do not cause atmospheric Ozone depletion.

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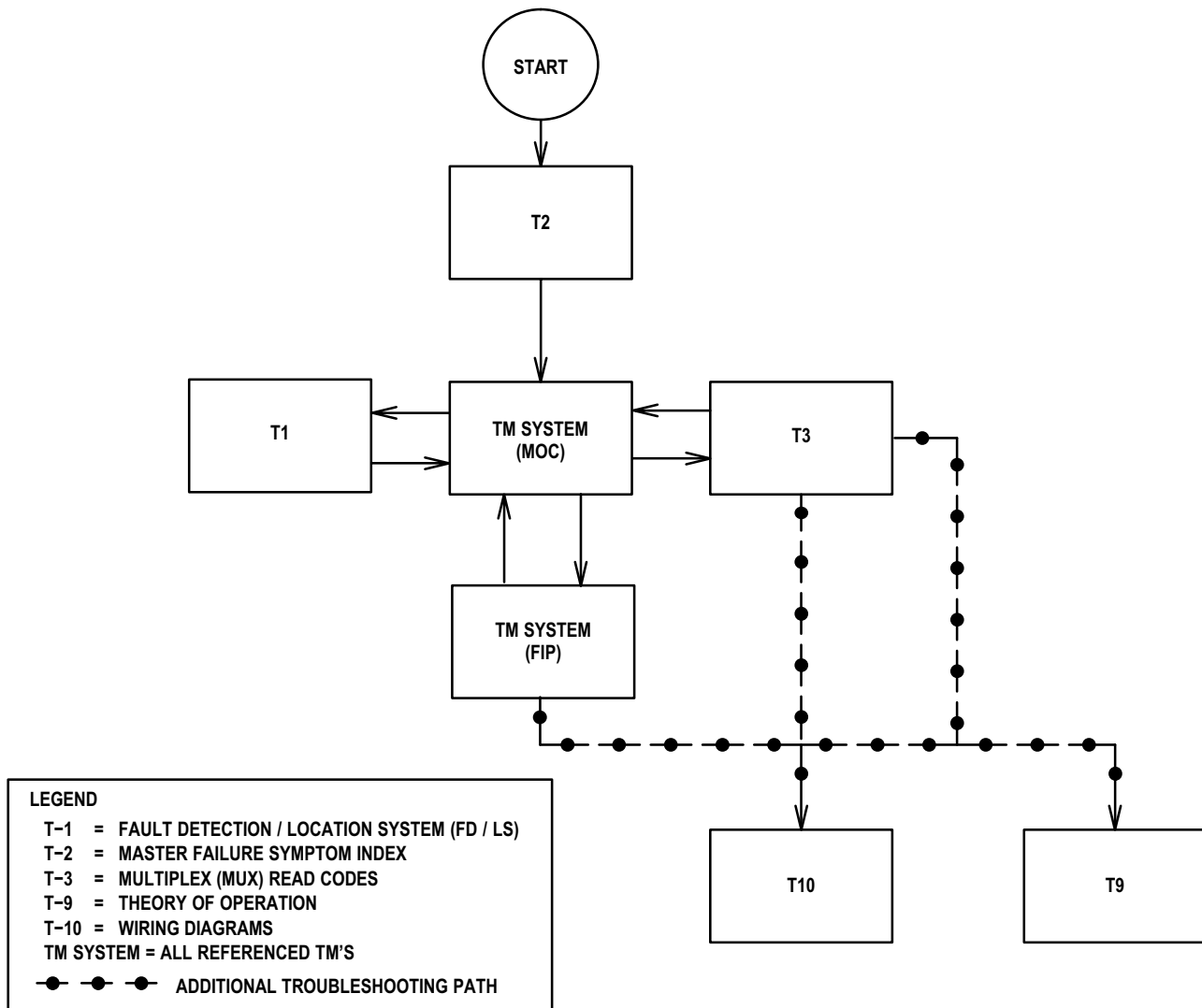
HOW TO USE THIS VOLUME

OVERVIEW

Use this volume, TM 1-1520-238-T-2, to determine which volume or manual to use to isolate a fault when you know the failure symptom. This volume includes an alphabetical master failure symptom index in Table 2-1. Find the fault in the index Table 2-1. and go to the volume or manual listed the the reference column.

The reference column directs you to the maintenance operational check (MOC). Additional wiring information is located in TM 1-1520-238-T-10. The theory of operation volume, TM 1-1520-238-T-9, provides a basic description of how the helicopter systems work by function. Both TM 1-1520-238-T-9 and TM 1-1520-238-T-10 are used to provide additional troubleshooting information for unanticipated faults when symptoms or related data do not exist.

An overview of the troubleshooting procedure is provided in the following functional block diagram:



INTEGRATED TROUBLESHOOTING FUNCTIONAL BLOCK DIAGRAM

M51-070A

HOW TO USE THIS VOLUME (cont)

GENERAL

If you can't find information, you cannot do the job. Learn how to use this volume. Check how the volume is put together. Look at the following examples and make sure you understand them before you go to the chapters of the volume.

MASTER FAILURE SYMPTOM INDEX

The master failure symptoms listed in this volume are in alphanumeric sequence. Each entry in the master failure system index Table 2-1. contains a failure symptom, a technical manual (TM) reference, and the MOC to isolate the fault. An example follows.

Table 2-1. Master Failure Symptom Index

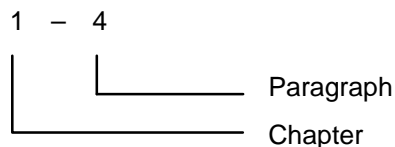
Failure Symptom	Reference	MOC
STAB AUTO DC CIRCUIT BREAKER DOES NOT STAY CLOSED	TM 1-1520-238-T-7	STABILATOR

CHAPTERS AND SECTIONS

This volume is made up of chapters and sections. The chapters are made up of numbered paragraphs and tables. Chapter 1 contains general information, how to use this manual, and display symbology. Chapter 2 contains failure symptom information.

PARAGRAPHS

Paragraph numbers are in two parts. The first is the chapter number. The second is the paragraph number. Each number is separated by a dash as shown in the example:

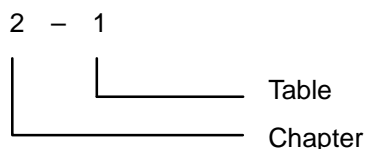


TABLES

Chapter 2 contains Table 2-1. This table refers you to the appropriate TM reference and system MOC you should use to isolate a fault.

TABLE NUMBERING

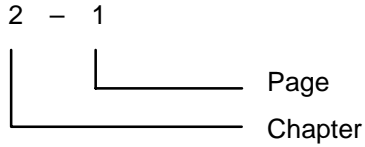
Table numbers have two parts. The first is the chapter number. The second is the table number. Each number is separated by a dash as shown in the example:



HOW TO USE THIS VOLUME (cont)

PAGE NUMBERING

All page numbering is by chapters. The first number represents the chapter and the second number represents the page in that chapter. The numbers are separated by a dash as shown in the example:



USING AH-64A HELICOPTER EFFECTIVITY CODES

Helicopter effectivity codes designate differences between helicopters by helicopter serial numbers. These codes consist of three letters representing various helicopter serial number blocks. They are used throughout this volume as necessary to aid in the helicopter troubleshooting effort.

The codes are used to designate serial number block differences for applicable failure symptoms. When used within the failure symptoms the effectivity codes appear within parenthesis.

For Example: For example: Failure Symptom (AAA).

This volume uses these effectivity codes and corresponding helicopter serial numbers for reference.

To use the helicopter effectivity codes, note the helicopter serial number on the left side of the fuselage directly below the CPG window. Use this serial number to determine which procedure or path in a wiring interconnect diagram or FIP to use.

The effectivity codes and helicopter serial number blocks applicable to this volume are as follows:

<u>Effectivity Code</u>	<u>Helicopter Serial No.</u>
AAA	82-23355 thru 82-23365
AAB	82-23355 thru 83-23798
AAC	82-23355 thru 83-23814
AAD	85-25424 and subsequent
AAE	82-23355 thru 84-24231
AAF	84-24216 and subsequent
AAG	82-23355 thru 84-24289
AAH	82-23355 thru 85-25398
AAJ	85-25351 and subsequent
AAK	82-23355 thru 85-25488
AAL	88-0215 and subsequent
AAM	85-25465 and subsequent

HOW TO USE THIS VOLUME (cont)

<u>Effectivity Code</u>	<u>Helicopter Serial No.</u>
AAN	83-23787 thru 85-25415
AAP	82-23355 thru 88-0214
AAQ	82-23355 thru 84-24311
AAR	82-23355 thru 84-24239
AAS	84-24240 and subsequent
AAT	82-23355 thru 83-23804
AAU	83-23787 and subsequent
AAV	83-23805 and subsequent
AAW	83-23799 and subsequent
AAX	83-23799 thru 84-24245
AAZ	83-23799 thru 85-25470 (Before MWO 1-1520-238-50-37)
AAZ	83-23815 and subsequent
ABA	84-24200 and subsequent
ABB	84-24246 and subsequent
ABC	84-24290 and subsequent
ABD	82-23355 thru 85-25415
ABE	82-23355 thru 84-24295
ABF	84-24296 and subsequent
ABG	85-25399 and subsequent
ABH	82-23355 thru 84-24245
ABJ	85-25447 and subsequent
ABK	82-23355 thru 85-24446
ABL	82-23355 thru 89-0215
ABM	84-24290 thru 88-0199
ABN	89-0192 and subsequent
ABP	85-25471 and subsequent
ABQ	86-8940 and subsequent
ABR	82-23355 thru 84-24232
ABS	84-24233 and subsequent
ABT	82-23355 thru 83-23816
ABU	83-23817 thru 85-25415
ABV	84-24246 thru 85-25398
ABW	82-23355 thru 83-23795
ABX	83-23796 and subsequent

HOW TO USE THIS VOLUME (cont)

<u>Effectivity Code</u>	<u>Helicopter Serial No.</u>
ABY	With T700-GE 701 engines
ABZ	With T700-GE 701C engines
ACA	82-23355 thru 88-0199
ACB	88-0200 and subsequent
ACC	82-23355 thru 83-23834
ACD	85-25416 and subsequent
ACE	82-23355 thru 86-9011
ACF	82-23355 thru 88-0284
ACG	89-0192 and subsequent
ACH	82-23355 thru 85-25423
ACJ	82-23355 thru 90-0290, 90-0292 thru 90-0301 (Before MWO 1-1520-238-50-07)
ACK	82-23355 thru 90-0290, 90-0292 thru 90-0301 (After MWO 1-1520-238-50-07) 90-0291, 90-0302 and subsequent
ACL	82-23355 thru 83-23814
ACM	83-23815 and subsequent
ACN	85-25471 thru 90-0448 (Before MWO 1-1520-238-50-37)
ACP	85-25471 thru 90-0448 (After MWO 1-1520-238-50-37) 90-0449 and subsequent
ACQ	82-23355 thru 90-0448 (Before MWO 1-1520-238-50-36)
ACR	82-23355 thru 90-0448 (After MWO 1-1520-238-50-36) 90-0449 and subsequent
ACS	82-23355 thru 90-0437
ACT	90-0438 and subsequent
ACU	82-23355 thru 90-0436
ACV	89-0192 thru 90-0434 with T700-GE-701C engines (Before MWO 1-1520-238-50-38)
ACW	89-0192 thru 90-0434 with T700-GE-701C engines (After MWO 1-1520-238-50-38) 90-0435 and subsequent with T700-GE-701C engines
ACY	82-23355 thru 92-0485 (Before MWO 9-1230-476-50-01)
ACZ	82-23355 thru 92-0485 (After MWO 9-1230-476-50-01) 94-0328 and subsequent

HOW TO USE THIS VOLUME (cont)

<u>Effectivity Code</u>	<u>Helicopter Serial No.</u>
ADA	Before MWO 1-1520-238-50-40
ADB	After MWO 1-1520-238-50-40
ADC	Before MWO 1-1520-238-50-49
ADD	After MWO 1-1520-238-50-49
ADH	Before MWO 1-1520-238-50-15
ADI	After MWO 1-1520-238-50-15
ADN	AN/APR-39(V)1 installed
ADO	AN/APR-39A(V)1 installed
ADP	After MWO 1-1520-238-50-50

APPENDIX

Appendix A contains a list of other manuals you might need to do your job.

GLOSSARY

The glossary contains a list of abbreviations and acronyms. An abbreviation is a shortened form of a word, expression or phrase used to conserve space and time. Acronyms are shortened terms for several words and usually use only the first letter of each word. Abbreviations and acronyms are defined the first time they are used within the text of each chapter. The glossary is the place to check if there is any doubt. The glossary also contains definitions of unusual terms that appear in this volume. Check the list of definitions if you see a word that you're not sure of.

CHAPTER 1 INTRODUCTION

CHAPTER INDEX

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Section I. GENERAL INFORMATION

1-1.	SCOPE	1-1
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This volume provides an alphabetical master failure symptom index to aid in isolating and locating AVUM and/or AVIM maintenance procedures to be used on the helicopter.

1-2.	MAINTENANCE FORMS, RECORDS, AND REPORTS	1-2
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Equipment maintenance forms for the Department of the Army will be those prescribed by DA PAM 738-751, Functional Users Manual for the Army Maintenance Management System-Aircraft (TAMMS-A).

1-3.	DESTRUCTION OF ARMY MATERIAL TO PREVENT ENEMY USE	1-3
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Required destruction procedures are in TM 750-244-1-5.

1-4.	QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)	1-4
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Required quality assurance information is explained in FM 55-411.

1-5.	DEFICIENCY REPORTING	1-5
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If your helicopter needs correction or improvement, let us know. Send us a Deficiency Report. 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. Put it on a SF 368 (Deficiency Report). Mail it to us at: Commander, U.S. Army Aviation and Missile Command, Attn: AMSAM-MMC-RE-FD, Redstone Arsenal, AL 35898-5230. A reply will be furnished to you.

Section II. HOW TO USE THIS MANUAL

1-6.	FUNCTION OF EACH VOLUME OF THE MANUAL	1-6
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There are ten volumes in this manual, TM 1-1520-238-T-1 through TM 1-1520-238-T-10.

NOTE

Use volume TM 1-1520-238-T-2 first when troubleshooting.

a. **TM 1-1520-238-T-1, Fault Detection/Location System (FD/LS).** TM 1-1520-238-T-1 is a kneepad-sized volume which integrates all FD/LS checks, power up and power down procedures, auxiliary power unit (APU) operating and emergency procedures, and references to the appropriate volume(s) to aid in fault isolation.