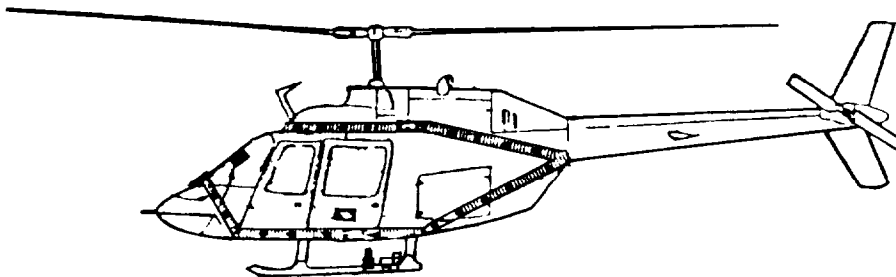


TECHNICAL MANUAL
OPERATOR'S MANUAL
FOR
MULTIPLE INTEGRATED LASER
ENGAGEMENT SYSTEM
(MILES)
SIMULATOR SYSTEM, FIRING, LASER: M78
NSN 1270-01-159-0482
FOR
OH-58 OBSERVATION HELICOPTER



HEADQUARTERS, DEPARTMENT OF THE ARMY
OCTOBER 1984

TECHNICAL MANUAL
No. 9-1270-222-10

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C.,

22 October 1984

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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), or DA Form 2028-2 located in back of this manual direct to: Commander, US Army Armament, Munitions and Chemical Command, ATTN: DRSMC-MAS(R), Rock Island, IL 61299. A reply will be furnished to you.

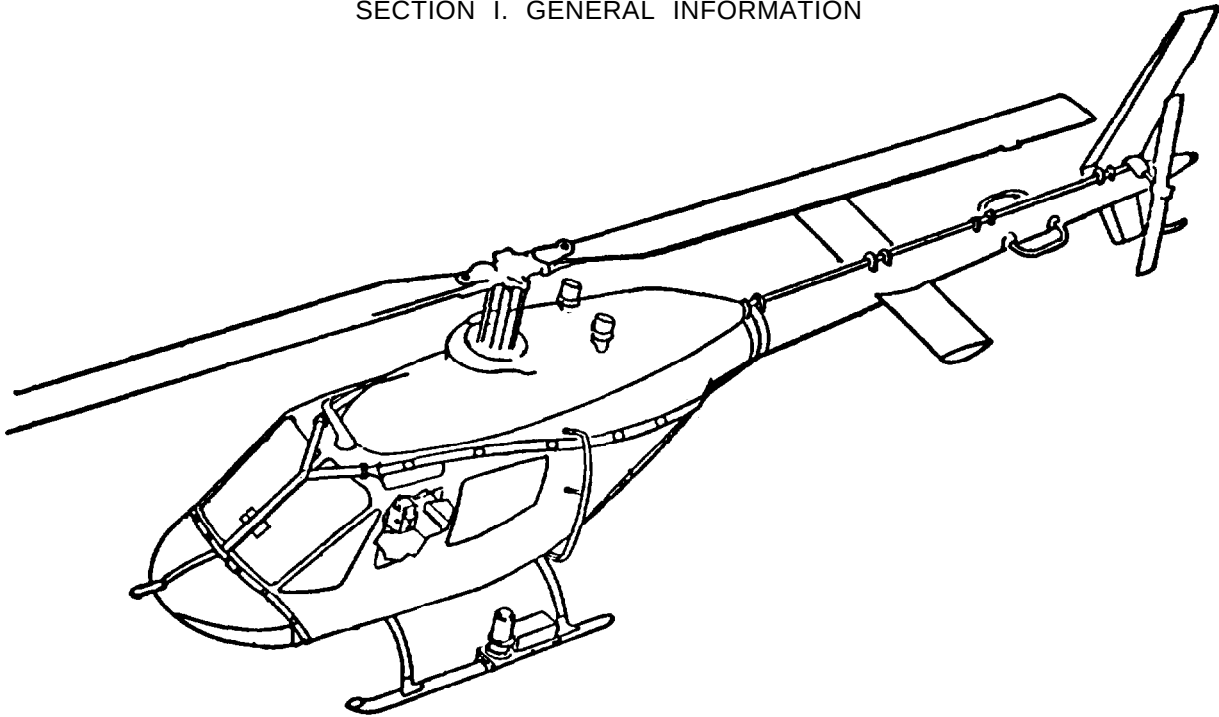
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CHAPTER 1

INTRODUCTION

SECTION I. GENERAL INFORMATION



SCOPE

TYPE OF MANUAL. This manual shows you how to install, checkout, operate, and maintain the Multiple Integrated Laser Engagement System (MILES) Air-to-Ground Engagement System/Air Defense (AGES/AD) for the OH-58 Observation Helicopter System.

This manual covers only authorized Operator Maintenance. Any maintenance problems not covered should be referred to Organizational Maintenance personnel.

NOTE

To use this manual you should be able to:

Energize and Maintain the OH-58A and/or OH-58C Observation Helicopter (see TM 55-1520-228-10 and/or TM 55-1520-235-10).

Complete DA Forms 2402 and 2404.

If you cannot do these tasks, ask your NCOIC or Instructor to show you how. When you can do all these tasks go on with this manual.

PURPOSE OF EQUIPMENT. MILES AGES/AD equipment for the OH-58 Observation Helicopter consists of a Laser Detection and Warning System. It permits realistic combat training without the hazards of using live ammunition.

LIMITATION ON EQUIPMENT. MILES-equipped weapons have the same range and operational capabilities as the normal weapons but a dirty laser transmitter lens may reduce the effective range of the transmitters.

NOTE

Installation of the MILES AGES/AD Equipment for the OH-58 will affect the Pitot Static System. Error speeds will indicate approximately 5 knots higher than actual, during level flight above 70 knots. The altimeter will indicate approximately 25 feet higher than actual, at airspeeds from 70-100 knots and approximately 60 feet higher than actual, at airspeeds above 100 knots.

More details is presented in the Aircraft Operators Manual.
(See TM55-1520-228-10 and/or TM55-1520-235-10)

MAINTENANCE FORMS AND RECORDS. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750. The Army Maintenance Management System (TAMMS).

HAND RECEIPT MANUAL. This manual has a companion document with a TM number followed by "-HR" (which stands for Hand Receipt). The TM 9-1270-222-10-HR consists of preprinted hand receipts (DA Form 2062) that list end item related equipment (i.e., COEI, BII, and AAL) you must account for. As an aid to property accountability, additional -HR manuals may be requisitioned from the following source in accordance with procedures in Chapter 3, AR 310-2.

Commander

The U.S. Army Adjutant General Publications Center

2800 Eastern Boulevard

Baltimore MD 21220

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIRs). If your MILES equipment for the OH-58 Observation Helicopter 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 or performance. Put it on an SF 368 (Quality Deficiency Report). Mail the Quality Deficiency Report to us at Commander, US. Army Armament. Munitions and Chemical Command. ATTN: DRSMC-MAO(R), Rock Island. IL 61299. We'll send you a reply.

REFERENCE INFORMATION

NOMENCLATURE CROSS REFERENCE LIST

<u>Common Name</u>	<u>Official Nomenclature</u>
Aircraft Control Indicator (ACIA)	Adapter Assembly, Simulator System, Laser: Console
Aircraft Kill Indicator (AKI)	Indicator, Simulator System, Laser: Aircraft Kill
Adapter Set	Adapter Set, Simulator System, Laser: OH-58 Helicopter
Battery Box	Battery Box Assembly
Cockpit Kill Indicator (CKI)	Adapter Assembly, Cockpit Kill Indicator
Detector Belt	Detector Belt Assembly. Aircraft Segments No. 5, 6, and 7
OH-58 Simulator	Simulator System, Firing Laser: M78 for OH-58 Helicopter
Smoke Indicator	Indicator, Simulator System, Laser: Smoke

LIST OF ABBREVIATIONS

AGES/AD	Air-to-Ground Engagement System/Air Defense
ACIA	Aircraft Control Indicator Assembly
AKI	Aircraft Kill Indicator
CKI	Cockpit Kill Indicator
IR	Infrared
MILES	Multiple Integrated Laser Engagement System
PMCS	Preventive Maintenance Checks and Services

GLOSSARY

Aircraft Control Indicator Assembly	Receives detected laser pulse signals from externally mounted detector belts. Decodes these signals and activates appropriate audio and visual alarms associated with the AKI/Smoke Assembly and intercom. Displays information on attacking weaponry.
Aircraft Kill Indicator (AKI)	Provides external flashing signal light which indicates that helicopter is under opposing fire ("NEAR MISS"), has been "HIT" or "KILLED." Attaches to left skid.

GLOSSARY (Continued)

Cockpit Kill Indicator (CKI)	Contains electronic circuitry that actuates AKI and intercom warning signals. Also contains key receptacle for testing and actuating system and an emergency system OFF switch. Located in cockpit.
Controller	Umpire or referee in a MILES training exercise.
Controller Gun	Device used to test MILES detector systems. Also used to disqualify soldiers or vehicles from an exercise.
Controller Key	Green key used by Controller to reset MILES transmitters and control consoles.
Detector Belt	Device that senses laser beams directed at it.
Fastener Tape	Hook and pile tape. Used to hold vehicle detector belts and other MILES equipment in place.
Hit	Simulated contact with opposing fire insufficient to disable vehicle or cause a fatality.
Kill	Simulated contact with opposing fire sufficient to disable vehicle or cause a fatality.
Laser	Light Amplification by Stimulated Emission of Radiation.
Laser Beam	Invisible beam of light which simulates weapon fire.
Laser Detector Assembly	Device that senses laser beams directed at it
Laser Transmitter	Device that sends a laser beam
Near Miss	Simulated closeness to contact with opposing fire.
Simulator	Training device which takes the place of real equipment and which has many of its characteristics.
Smoke Indicator	Contains a smoke grenade that is ignited when the OH-58 has been "KILLED." Attaches to left skid adjacent to the AKI.

SECTION II. EQUIPMENT DESCRIPTION

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

PURPOSE OF MILES SIMULATOR SYSTEM, LASER: OH-58 OBSERVATION HELICOPTER

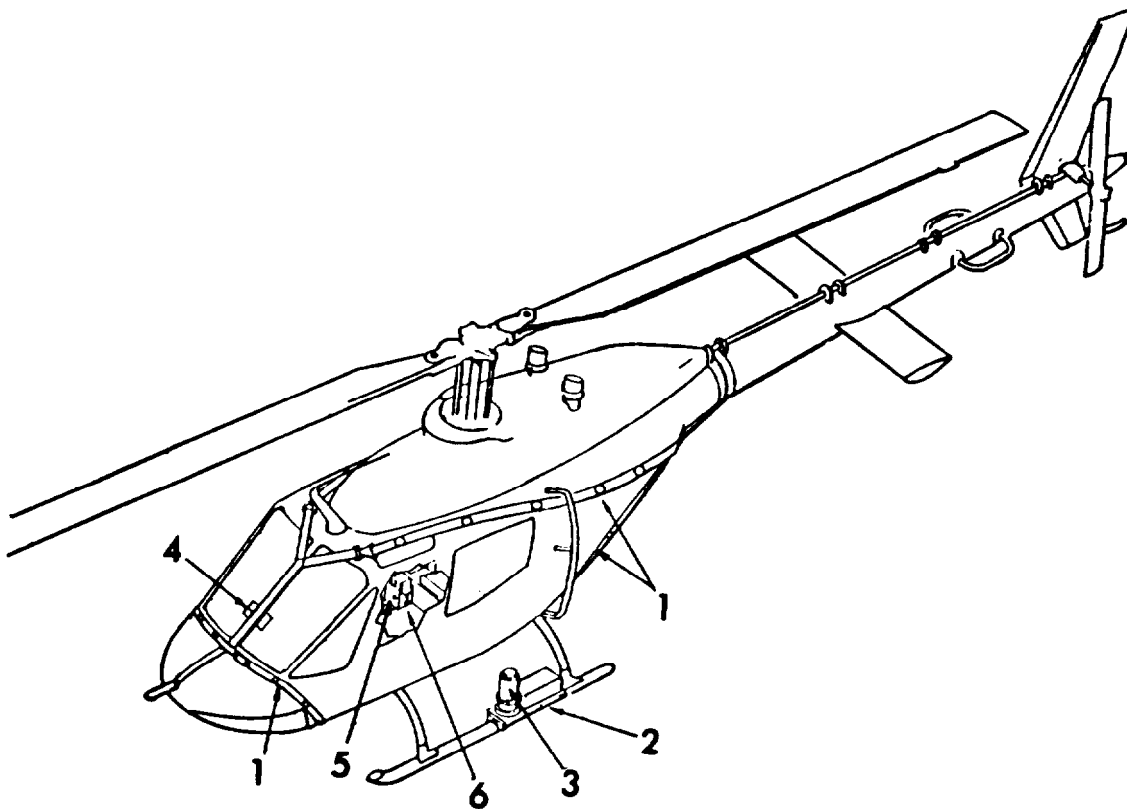
The MILES Simulator System, Laser: OH-58 Observation Helicopter permits the helicopter and Aircrew to take part in realistic combat training exercises.

Laser detectors mounted on the helicopter exterior sense enemy fire. MILES system electronics determine the accuracy and simulated damage of enemy fire. The system also detects the type of weapon directing enemy fire against the OH-58. A Smoke Indicator Device adds to the system's realism.

FEATURES AND CAPABILITIES

- Easily installed and removed.
- Adapters for OH-58A and 58C Aircraft models.
- Smoke Indicator Device adds realism.
- Detects all opposing fire.
 1. Attacking weapon accuracy
 - a. "NEAR MISS"
 - b. "HIT"
 - c. "KILL"
 2. Attacking weapon identification.
- Uses eye safe battery-powered laser transmitters.
- Operates in temperatures from 35°C (-31°F) to 62°C (144°F).
- Compatible with all other MILES training devices.
- High visibility CVKI stobe light signals vehicle "NEAR MISS" "HIT" or "KILL."

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.



Detection Belt System (1). Receives laser pulses from AGES/AD and MILES-equipped opposing weapons. Generates, amplifies and routes electrical signals to Aircraft Control Indicator Assembly (ACIA) for determining whether signal was a "NEAR MISS", "HIT" or "KILL." Mounts on nose, top, sides and bottom of helicopter fuselage.

Smoke Indicator (2). Contains smoke grenade that is ignited when the OH-58 has been "KILLED." Mounts on left skid adjacent to Aircraft Kill Indicator (AKI). Operates on 24 V dc aircraft power.

Aircraft Kill Indicator (AKI) (3). Provides a flashing light to indicate to other Aircraft Vehicles, and Ground Troops that the OH-58 has received a "NEAR MISS", "HIT", or "KILL." The AKI bolts to the left skid. and operates on 24 V dc Aircraft Power.