

**TECHNICAL MANUAL**

**UNIT MAINTENANCE MANUAL**

**FOR**

**2.75-INCH LOW SPIN, FOLDING FIN AIRCRAFT ROCKETS;  
2.75-INCH SPIN STABILIZED,  
WRAP AROUND FIN AIRCRAFT ROCKETS;  
66MM LIGHT ANTITANK WEAPON SYSTEMS;  
3.5-INCH ROCKETS;  
AND  
M3A2E1 ROCKET MOTOR (JATO)**

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HEADQUARTERS  
DEPARTMENT OF THE ARMY  
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3.5-INCH ROCKETS AND M3A2E1 ROCKET MOTOR (JATO)**

**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. You may mail, e-mail, or FAX your response. 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 direct to: Commander, U.S. Army TACOM, Armament Research, Development and Engineering Center, ATTN: AMSTA-AR-WEL-S, Picatinny Arsenal, NJ 07806-5000. E-mail address is LSB@PICA.ARMY.MIL. FAX number is Commercial (973) 724-4633, DSN 880-4633. A reply will be furnished to you.

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\*This manual supersedes TM 9-1340-222-20 dated 13 June 1973, including all changes.

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**CHAPTER 1  
INTRODUCTION  
SECTION I. GENERAL**

**1-1. SCOPE**

a. This is one of a series of technical manuals on servicing and maintenance of rockets, rocket motors ( JATOs), and rocket weapon systems. The information in this manual is limited to that required by unit maintenance personnel.

b. The following maintenance manuals are listed:

(1) TM 9-1090-202-12, Aviation Unit Maintenance Manual: Armament Subsystem, Helicopter, 7.62 Millimeter Machine - Gun - 2.75- Inch Rocket Launcher: M21 (Used on UH-1B and UH-1C Helicopters).

(2) TM 9-1090-207-13&P, Operator's, Aviation Unit and Intermediate Maintenance Manual With Repair Parts and Special Tools List Including Depot Maintenance Repair Parts and Special Tools for Rocket Management Subsystem, Inventory - Deployment, XM138.

(3) TM 9-1055-460-13&P, Operator's, Aviation Unit and Intermediate Maintenance Manual (Including Repair Parts and Special Tools List) for HYDRA 70 Rocket Launchers (Formerly 2.75-Inch Rocket Launchers).

c. Destruction procedures are contained in TM 43-0002-33, Destruction of Conventional Ammunition and Improved Conventional Munitions (ICM) to Prevent Enemy Use.

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

a. Authorized Forms. Forms required by unit maintenance personnel are listed in appendix A and in DA Pam 25-30.

b. Report of Accidents. Accidents involving injury to personnel or damage to materiel will be reported on DA Form 285 in accordance with AR 385-40.

c. Report of Damaged or Improper Report of Damaged or Improper Shipment. Materiel received in damaged or otherwise unsatisfactory condition because of deficiencies in preservation, packaging, marking, loading, storage, or handling will be reported on SF 364 in accordance with AR 55-38. Reports of improper shipment or damage caused by transportation discrepancies will be reported on SF 361 in accordance with AR 55-38.

**SECTION II. SAFETY, CARE, AND HANDLING**

**1-3. SAFETY**

Precautions generally applicable to ammunition must be observed and all regulations and local standing operating procedures must be followed. Safety rules peculiar to rockets, rocket motors, and rocket weapon systems are discussed below.

a. Rockets which are delivered to the firing line are pointed in the direction that would cause the least damage in case of accidental ignition. Rockets should be stored with warhead pointed nose down, if practical.

b. Some Light Antitank Weapon Systems contain a small amount of radioactive material in the front sight. These systems are identified by the words LIMITED LIGHT SIGHT printed on the launcher and packing containers. No additional storage problems are created by this small amount of radioactive material. When disposing of expended launchers in nontactical situations, however, the front sight should be removed by unscrewing the two screws which secure the sight to the launcher, and the sight assembly must be controlled and disposed of in accordance with AR 385-11.

c. Rocket motors and warheads may include electrical circuits which are susceptible to radio frequency energies and static electricity. Rockets in electrically operated launchers may be susceptible to initiation by electromagnetic radiation.

d. Disassembly of explosive components without specific authorization is strictly prohibited.

#### 1-4. CARE AND HANDLING

##### a. General.

(1) Explosive materials must be handled with appropriate care at all times.

(2) Boxes containing explosive components must not be dropped, dragged, thrown, tumbled, or otherwise struck. Explosive elements in primers and fuzes are particularly sensitive to heat and shock.

(3) Rockets must not be subject to excessive moisture or prolonged exposure to direct rays of the sun.

(4) Components must be kept in original packing until immediately prior to assembly or preparation for use.

(5) Empty storage containers must be kept from becoming broken or damaged.

(6) Storage procedures outlined in paragraphs 4-3 through 4-5 must be observed.

##### b. 2.75-Inch Rockets Only.

(1) Crated rockets or rocket motors must be rejected if dropped 5 feet or more on hard surface.

(2) Uncrated rockets or rocket motors must be rejected if dropped from any height.

(3) Fuze-warhead combinations, crated and uncrated, must be rejected if dropped 5 feet or more on hard surface.

(4) Ammunition supply personnel must be contacted for disposition of rejected rockets.

(5) The MK66 rocket motor will not be continuously stored above 140°F for more than 24 hours.

(6) Electrical tests shall not be performed with rockets in launcher. (This will prevent inadvertent rocket firing). The contact arm of the launcher may provide direct electrical path to motor ignition circuit if power source is accidentally applied to contact arm when the launcher is loaded/unloaded. All other possible sources of inadvertent electrical power shall be kept away from the launcher. Ensure electrical equipment, even if turned off and unplugged, is not in the vicinity of a loaded launcher.

(7) For Mod 1 and Mod 3 motors: Avoid contact of any kind, especially metal objects with the contact band of MK 66 rocket motors when loading rockets into launchers on aircraft in a HERO environment. This, along with established procedures and restrictions on the use of the Mod 1 motor, must be followed to minimize exposure to potential HERO environment.

CHAPTER 2  
DESCRIPTION AND DATA

SECTION I. 2.75-INCH LOW SPIN, FOLDING FIN AIRCRAFT ROCKETS (LSFFAR)  
AND SPIN STABILIZED, WRAP AROUND FIN AIRCRAFT ROCKETS (SSWAFAR)

2-1. DESCRIPTION

The 2.75-inch LSFFARs are air-to-ground rockets (fig. 2-3) designed for deployment from rotary-wing and other low-speed aircraft. Provided with a variety of warheads, 2.75-inch rockets have a wide tactical application with high point-target effectiveness. In addition, the multipurpose submunition (MPSM) warheads are capable of saturating a target area, thus increasing hit probability against discrete target elements. Except for the practice warhead WTU-1/B, which is unfuzed, a complete round 2.75-inch rocket consists of a fuze, a warhead, and a fin-stabilizer rocket motor. The type of warhead with which a round is assembled determines the classification of the complete round (as antipersonnel, high explosive (HE), high explosive antitank (HEAT), MPSM, smoke, flare, or practice). See figures 2-1 through 2-5. The warheads using the MK66 rocket motor are spin stabilized, wrap around fin aircraft rockets.

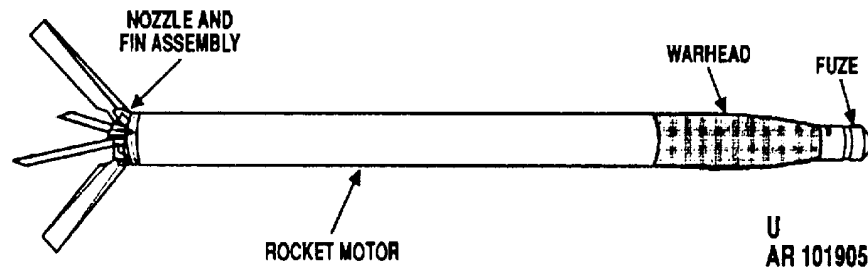


Figure 2-1. Typical Complete Round LSFFAR

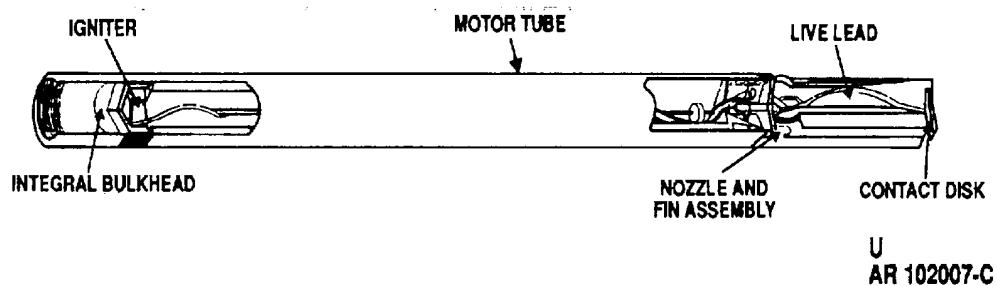


Figure 2-2. 2.75-Inch Rocket Motor MK40 Mod 3 and Mod 4.