

CHANGE }  
No. 2 }

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, D.C. 19 September 1968

## 90MM RECOILLESS RIFLE, M67

FM 23-11, 6 July 1965, is changed as follows:

*Page 4.* paragraph 3 a (6). "Maximum effective range—450 meters." is changed to read "Maximum effective range—400 meters."

*Page 5.* Paragraph 5 b is superseded as follows:

b. The reticle is an optical glass disc with an 0.749-inch aperture etched with a metric scale. It is graduated at 50-meter intervals at ranges up to 400 meters, and numbered every 100 meters up to 800 meters. Speed-lead indicator lines are provided at 50-meter intervals up to 400 meters and at 100-meter intervals from 400 to 800 meters. The vertical range line is extended through the 0 line

to form a boresight cross. The broken horizontal lines are speed-lead indicators. Each line or space represents 2.5 mph of apparent speed. The curved lines are stadia lines, and are used to estimate ranges to targets of known dimensions. The average tank is 20-feet long and 10-feet wide; therefore, the stadia lines have been calibrated to coincide with these dimensions from 100 to 600 meters of range. A level vial at the bottom of the reticle provides a zero cant reference for the telescope so that it may be kept level when boresighting and firing the weapon (fig. 3).

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\*This change supersedes C1, 5 April 1967.

Page 5. Figure 3 is superseded as follows:

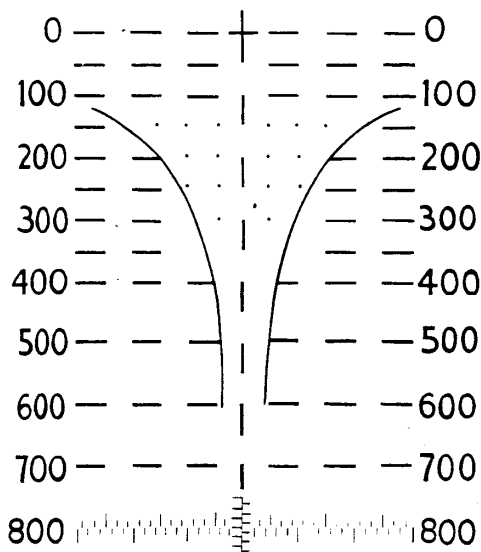


Figure 3. Sight reticle, M103 sight.

Page 5. Figure 3.1 is added as follows:

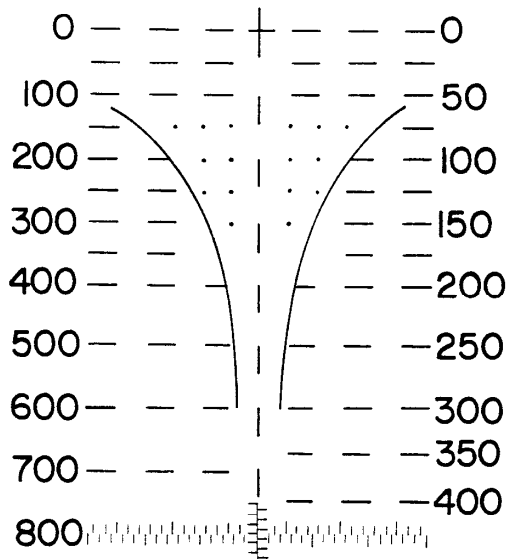


Figure 3.1 Sight reticle, M103A1 sight.

Page 6. Paragraph 5.1 is added after paragraph 5.

### 5.1 Direct Fire Sight—Telescope, M103A1

a. The M103A1 sight (fig. 3.1) is a modified version of the standard M103 sight. The modification has been made to the right side of the sight reticle and is to be referred to only when firing the XM591 round. The value difference of

the range line has been made so that it matches the trajectory of the XM591 round.

b. On the modified sight, the range line on the right side of the sight reticle is graduated in 25-meter intervals from 0 to 200 meters and every 50 meters from 200 to 400 meters. The value of the lead lines remains unchanged.

*Note.* The XM591 round was an experimental type ammunition and is no longer issued. However, the M103A1 sight will be found on some 90mm recoilless rifles.

Page 6, paragraph 7. Title "Instrument Light, T25" is changed to read "Instrument Light, M54"

Page 17, paragraph 22. Title. "Fuze, PIBD, M530" is changed to read "Fuzes, PIBD, M530 and M530A1"

Page 17. Paragraph 22 c is added is follows:

c. The M530A1 fuze is a modification of the M530 fuze. The M530A1 fuze has a mechanism which gives it a greater arming delay time.

Page 17. Paragraph 23 is superseded as follows:

### 23. Subcaliber Device

a. The subcaliber device (fig. 16) for the 90mm recoilless rifle permits realistic gunner and loader training and eliminates the use of expensive service ammunition. Because targets are not destroyed as they would be if service ammunition were used, range maintenance is reduced.

b. The M49A1 subcaliber device (fig. 16.1) consists of a long, cylindrical sleeve, a barrel, a bushing with an integral hinge, a locknut housing, a firing pin and attaching hardware. The device utilizes a case blow-out principle through six equally spaced holes in the chamber shoulder section of the barrel. These holes permit the cartridge case to be blown out, and limit the pressure which in turn lowers the velocity to match ballistically the major caliber round.

c. The trajectory of the 7.62mm subcaliber cartridge is about the same as the major caliber cartridge; however, there is a telescopic reticle mismatch. When firing tables III and IV to zero the M49A1 subcaliber device, the system should be zeroed at approximately 80 percent of the maximum range of the targets to be engaged in order to minimize absolute mismatch at any point in the trajectory.

Page 18. Figure 16 is superseded as follows:



Figure 16. 7.62mm subcaliber gun, M49A1.

Page 18. Figure 16.1 is added as follows:

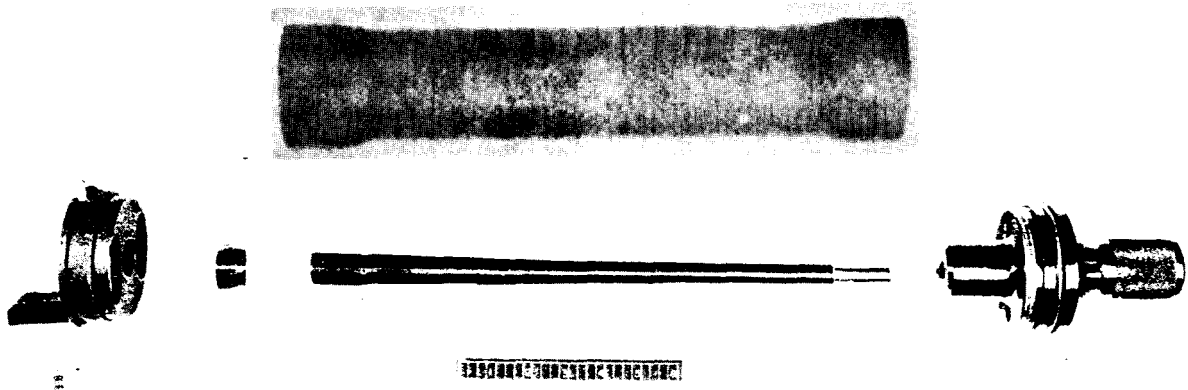


Figure 16.1. Major components of the 7.62mm subcaliber gun, M49A1.

Page 21. Paragraph 30 c (2) (b) is rescinded.

Page 25, paragraph 44 a. In line 4, "breechblock" is changed to read "lockring."

Page 40, paragraph 62 b. In lines 2, 3, and 4, "It extends 140 feet to the rear and has a 180-foot base, 90 feet on either side of the bore axis extended." is changed to read: "It extends 43 meters to the rear and has a 55-meter base, 27.5 meters on either side of the bore axis extended"; in lines 6 and 7, "90 feet" is changed to read "27.5

meters"; in line 11, "50 feet" is changed to read "15 meters."

Page 43. Paragraph 68 b. 1 is added as follows:

**b. Additional Ammunition Requirement.** Prior to firing the qualification tables, the subcaliber device will be zeroed using nine rounds, firing three-round shot groups when firing tables I and II. Firing tables II and IV, the subcaliber device will be zeroed using six rounds. Only the initial firing order will zero the device. All succeeding orders will fire two confirming zero rounds.

Page 41. Figure 32 is superseded as follows:

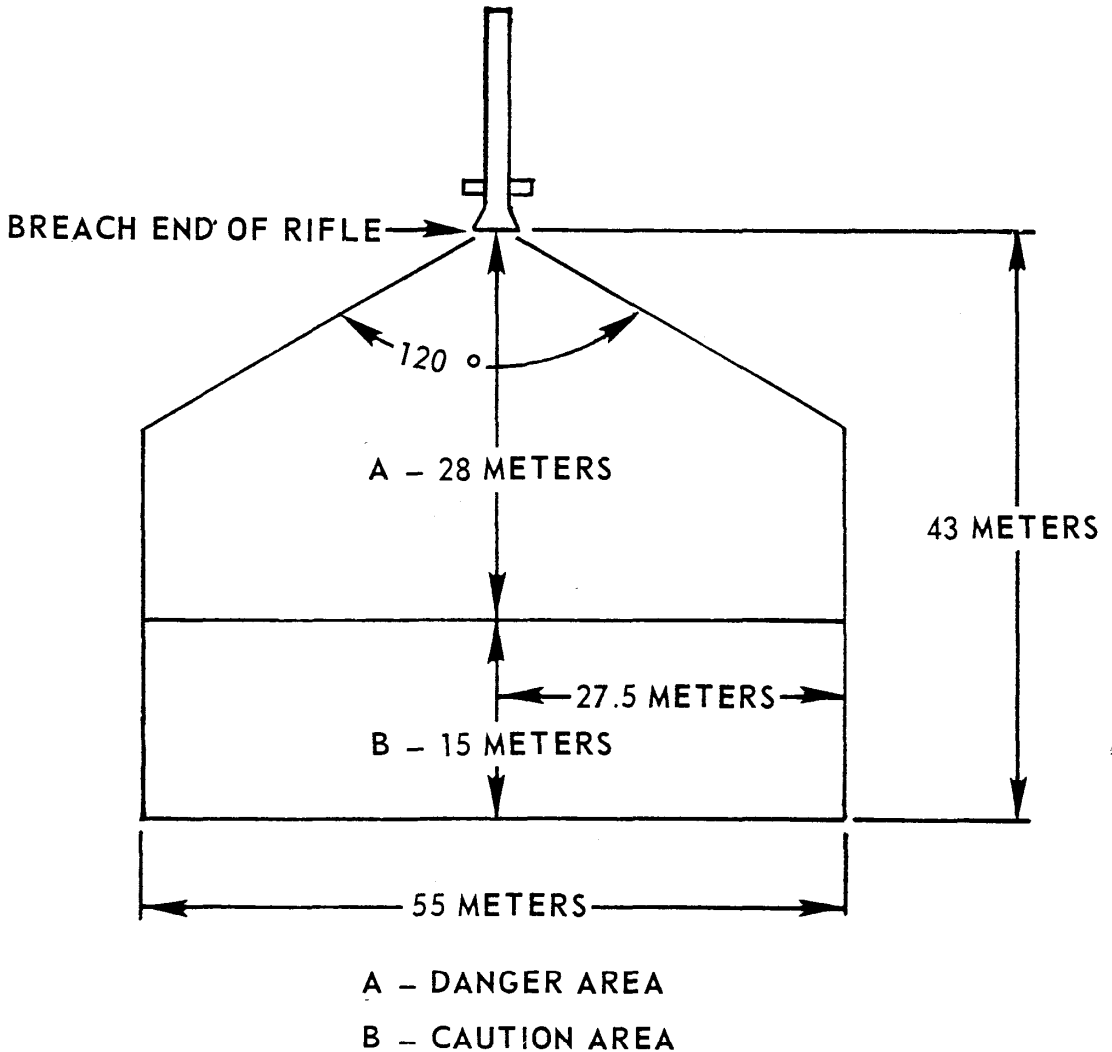


Figure 32. Backblast area.

Page 46, paragraph 69c (1) (a). In line 4, "200 to 450 meters" is changed to read: "150 to 350 meters."

Page 46, table III. In the Range (metric) column, "200-450" is changed to read "150-350" (for each trial 1-10).

Page 46. Paragraph 69 c (1) (c) is superseded as follows:

(c) Zero the rifle at a known range between 250 and 300 meters, or use a distance which is 80 percent of the most distant target.

Page 47, table V. In the Range column "250-400" is changed to read "200-350 (trial 2); "350-450" is changed to read "300-400" (trial 3).

Page 50. Figure 38 is superseded as follows:

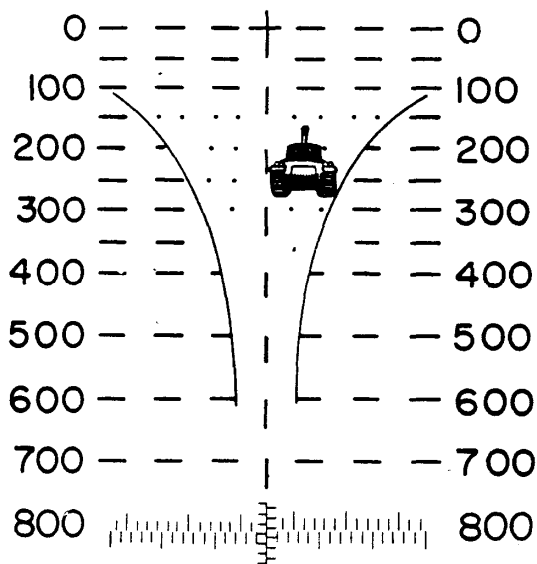


Figure 38. Half stadia picture.

Page 57. Paragraph 93 b is superseded as follows:

b. When firing tables III and IV, it is recommended that the subcaliber device be zeroed at a

By Order of the Secretary of the Army:

Official:

KENNETH G. WICKHAM,  
Major General, United States Army,  
The Adjutant General.

Distribution:

To be distributed in accordance with DA Form 12-11 requirements for 90-MM Recoilless Rifles, M67.

Page 50. Figure 39 is superseded as follows:

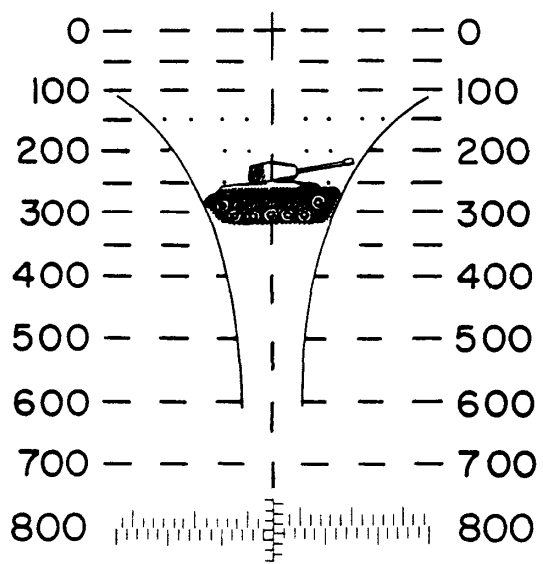


Figure 39. Full stadia picture.

range of 80 percent of the most distant target in order to eliminate the requirement for zeroing at each specific range, and to reduce the mismatch between the trajectory and the sight reticle.

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Chief of Staff.