HEADQUARTERS
DEPARTMENTS OF THE ARMY
AND THE AIR FORCE

FIELD MANUAL 23-90
TECHNICAL ORDER 11W2-5-13-21

MORTARS

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*This publication supersedes FM 23-90/TO 11W2-5-13-21, 19 September 1990; and TC 23-18, 24 August 1967.

* PREFACE

This publication prescribes guidance for leaders and crewmen of mortar squads and platoons. It is concerned with the problems of mortar crew training. It presents practical solutions to assist in the timely delivery of accurate mortar fires but does not discuss all possible situations. Local requirements may dictate minor variations from the methods and techniques described herein. However, principles should not be violated by modification of techniques and methods.

The scope of this publication includes mortar crew training at squad and section levels. The 60-mm mortar, M224; 81-mm mortar, M29A1; 81-mm mortar, M252; 4.2-inch (107-mm) mortar, M30; and 120-mm mortar, M120, are discussed herein to include nomenclature, sighting, equipment, characteristics, capabilities, ammunition, and maintenance.

Note: For clarity and simplicity, the artwork in this manual shows soldiers in plain BDUs. Showing camouflage would obscure required artistic and technical details that the user of this manual needs to see.

This publication prescribes DA Form 5964-R and implements the following international agreements:

QSTAG 900 Characteristics of a Multirole Mortar Fuze (Edition One)

STANAG 2321 NATO Code of Colors for the Identification of Ammunition (Except Ammunition of a Caliber Below 22 millimeters)

The proponent of this manual is HQ TRADOC. Submit changes for improving this publication on DA Form 2028 (Recommended Changes to Publications and Blank Forms) by US Mail to Commandant, US Army Infantry School, ATTN: ATSH-INB-O, Fort Benning, GA 31905-5594 or by e-mail to lusanoh@benning.army.mil.

Unless otherwise stated, whenever the masculine gender is used, both men and women are included.

CHAPTER 1
INTRODUCTION

The mission of the mortar platoon is to provide close and immediate indirect fire support for the maneuver battalions and companies.

Section I. GENERAL DOCTRINE

Doctrine demands the timely and accurate delivery of indirect fire to meet the needs of supported units. All members of the indirect fire team must be trained to quickly execute an effective fire mission.

1-1. EFFECTIVE MORTAR FIRE

For mortar fire to be effective, it must be dense enough and must hit the target at the *right* time with the *right* projectile and fuze. Good observation is necessary for effective mortar fire. Limited observation results in a greater expenditure of ammunition and less effective fire. Some type of observation is desirable for every target to ensure that fire is placed on the target. Observation of close battle areas is usually visual. When targets are hidden by terrain features or when great distance or limited visibility is involved, observation can be by radar or sound. When observation is possible, corrections can be made to place mortar fire on the target by adjustment procedures; however, lack of observation must not preclude firing on targets that can be located by other means.

a. Mortar fire must be delivered by the most accurate means that time and the tactical situation permit. When possible, survey data are used to accurately locate the mortar position and target. Under some conditions, only a rapid estimate of the location of weapons and targets may be possible. To achieve the most effective massed fires, a survey using accurate maps should be made of each mortar position, registration points, and targets.

b. The immediate objective is to deliver a large volume of accurate and timely fire to inflict as many casualties as possible on the enemy. The number of casualties inflicted in a target area can usually be increased by surprise fire. If surprise massed fires cannot be achieved, the time required to bring effective fires on the target should be kept to a minimum. The greatest demoralizing effect on the enemy can be achieved by delivery of a maximum number of effective rounds from all the mortars in the shortest possible time.

c. Mortar units must be prepared to accomplish multiple fire missions. They can provide an immediate, heavy volume of accurate fire for sustained periods. Mortars are suppressive indirect fire (high-angle-of-fire) weapons. They can be employed to neutralize or destroy area or point targets, screen large areas with smoke, and to provide illumination or coordinated HE/illumination.

d. In the armor and mechanized infantry battalions, mortars are normally fired from mortar carriers; however, they maintain their capability to be ground-mounted. Firing from the carrier permits rapid displacement and quick reaction.

1-2. MORTAR POSITIONS

Mortars should be employed in defilade to protect them from enemy direct fire and observation, and to take the greatest advantage of their indirect fire role. Although the use of defilade precludes sighting the weapons directly at the target (direct lay), it is necessary for survivability. Because mortars are indirect fire weapons, special procedures ensure that the weapon and ammunition settings used will cause the projectile to burst on or above the target. A coordinated effort by the indirect fire team ensures the timely and accurate engagement of targets.

Section II. INDIRECT FIRE TEAM

Indirect fire procedure is a team effort (Figure 1-1). Since the mortar is normally fired from defilade (where the crew cannot see the target), the indirect fire team gathers and applies the required data. The team consists of an FO, an FDC, and the gun squad.

1-3. APPLICATIONS

To successfully accomplish missions from a defilade position, certain steps must be followed in applying essential information and engaging targets.

- Locate targets and mortar positions.
- Determine chart data (direction, range, and vertical interval from mortars to targets).
- Convert chart data to firing data.
- Apply firing data to the mortar and ammunition.

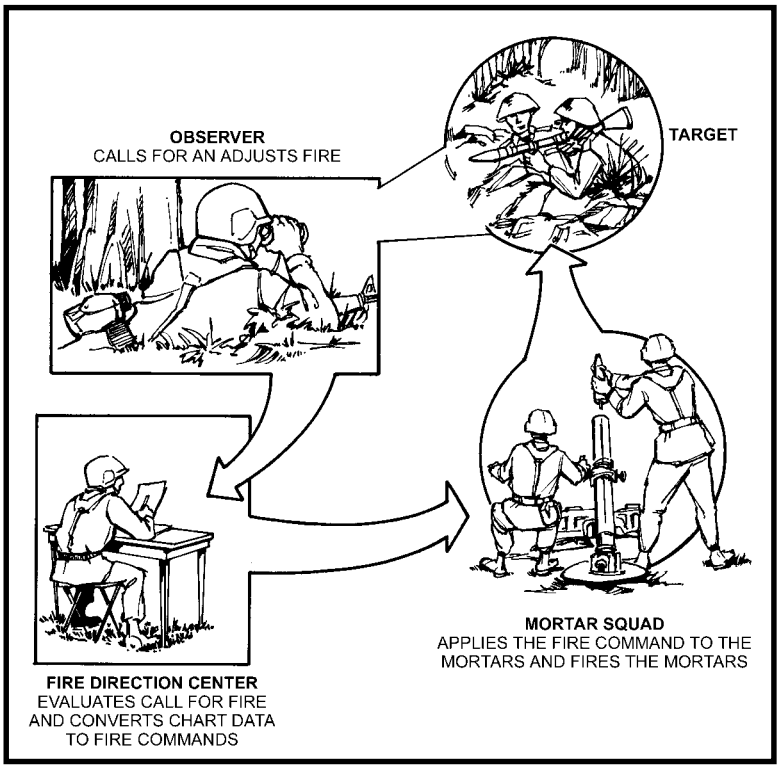

Figure 1-1. Indirect fire team.