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Tactics, Techniques, and Procedures for

FIELD ARTILLERY MANUAL CANNON GUNNERY

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FOREWARD

This publication may be used by the US Army and US Marine Corps forces during training, exercises, and contingency operations.

General, USA
Commanding
Training and Doctrine Command

Lieutenant General, USMC
Commanding General
Marine Corps Combat Development Command

PREFACE

This field manual (FM) explains all aspects of the cannon gunnery problem and presents a practical application of the science of ballistics. It includes step-by-step instructions for manually solving the gunnery problem and applies to units organized under tables of organization and equipment (TOE) of the L series. The material concerns nonnuclear solutions to the gunnery problem. Automated procedures are covered in ST 6-40-2, ST 6-40-31, and ST 6-50-60.

This publication is a guide for field artillery (FA) officers (commanders and fire direction officers [FDOs]), FA noncommissioned officers (NCOs), and enlisted personnel in the military occupational specialty (MOS) of cannon gunnery (MOS 13E; United States Marine Corps [USMC] MOS 0844/48).

This publication implements the following North Atlantic Treaty Organization (NATO) Standardization Agreements (STANAGs)/Quadripartite Standardization Agreements (QSTAGs):

STANAG	QSTAG	TITE
2934 (Chap 10) (Ed 1)	182 (Ed 2)	Artillery Procedures, Battlefield Illumination
2934 (Chap 6) (Ed 1)	255 (Ed 3)	Artillery Procedures, Call for Fire Procedures
2934 (Chap 7) (Ed 1)	221 (Ed 2)	Artillery Procedures, Target Numbering System (Nonnuclear)
2934 (Chap 5) (Ed 1)	246 (Ed 3)	Artillery Procedures, Radio Telephone Procedures for the Conduct of Artillery Fire
2934 (Chap 3) (Ed 1)	217 (Ed 2)	Artillery Procedures, Tactical Tasks and Responsibilities for Control of Artillery
2963 (Ed 1)	802 (Ed 1)	Coordination of Field Artillery Delivered Scatterable Mines
4119 (Ed 1)	220 (Ed 2)	Adoption of a Standard (Cannon) Artillery Firing Table Format
none	224 (Ed 2)	Manual Fire Direction Equipment, Target Classification, and Methods of Engagement for Post-1970
4425 (Ed 1)	none	Procedure to Determine the Degree of Interchangeability of NATO Indirect Fire Ammunition-APO-29

The proponent of this publication is Headquarters (I-IQ), US Army Training and Doctrine Command (TRADOC). Send comments and recommendations on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Commandant, US Army Field Artillery School (USAFAS), ATTN: ATSF-GD, Fort Sill, OK 73503-5600.

Unless this publication states otherwise, masculine nouns and pronouns do not refer exclusively to men.

Chapter 1

THE GUNNERY PROBLEM AND THE GUNNERY TEAM

The mission of the Field Artillery is to destroy, neutralize, or suppress the enemy by cannon, rocket, and missile fires and to help integrate all fire support assets into combined arms operations. Field artillery weapons are normally employed in masked or defilade positions to conceal them from the enemy. Placing the firing platoon in defilade precludes direct fire on most targets. Consequently, indirect fire must be used when FA weapons fire on targets that are not visible from the weapons. The gunnery problem is an indirect fire problem. Solving the problem requires weapon and ammunition settings that, when applied to the weapon and ammunition, will cause the projectile to achieve the desired effects on the target.

1-1. Gunnery Problem Solution

a. The steps in solving the gunnery problem areas follows:

(1) Know the location of the firing unit, and determine the location of the target.

(2) Determine chart (map) data (deflection, range from the weapons to the target, and altitude of the target).

(3) Determine vertical interval (VI) and site (si).

(4) Compensate for nonstandard conditions that would affect firing data (meteorological [met] procedures).

(5) Convert chart data to firing data (shell, charge, fuze, fuze setting, deflection, and quadrant elevation).

(6) Apply the firing data to the weapon and ammunition.

b. The solution to the problem provides weapon and ammunition settings that will cause the projectile to function on or at a predetermined height above the target. This is necessary so the desired effects will be achieved.

1-2. Field Artillery Gunnery Team

The coordinated efforts of the field artillery gunnery team are required to accomplish the solution of the gunnery problem outlined in paragraph 1-2. The elements of the team must be linked by an adequate communications system.

NOTE: The terms *battery* and *platoon* used throughout this manual are synonymous, unless otherwise stated.