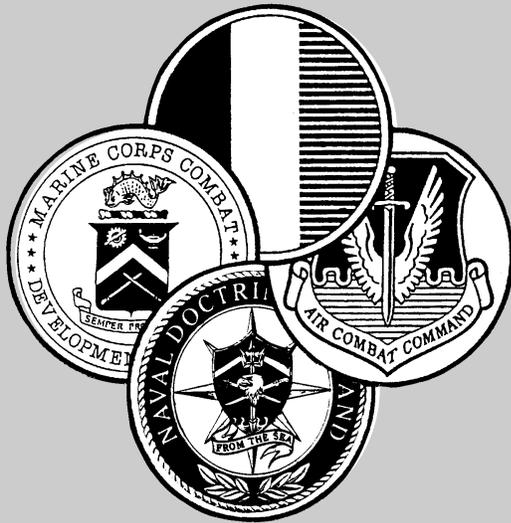


**ARMY, MARINE CORPS, NAVY, COMBAT AIR FORCES**



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# **UXO**

## **MULTISERVICE PROCEDURES FOR OPERATIONS IN AN UNEXPLODED ORDNANCE ENVIRONMENT**

**FM 100-38  
MCRP 3-17.2B  
NWP TP 3-02.4.1  
ACCPAM 10-752  
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USAFEPAM 10-752**

**JULY 1996**

**DISTRIBUTION RESTRICTION:** Approved for public release; distribution unlimited.

**MULTISERVICE TACTICS, TECHNIQUES, AND PROCEDURES**



## FOREWORD

This publication has been prepared under our direction for use by our respective commands and other commands as appropriate.

*William W. Hartzog*  
**WILLIAM W. HARTZOG**  
General, USA  
Commander  
Training and Doctrine Command  
1 March 1996

*Paul K. Van Riper*  
**PAUL K. VAN RIPER**  
Lieutenant General, USMC  
Commanding General  
Marine Corps Combat  
Development Command  
8 February 1996

*Michael L. Bowman*  
**MICHAEL L. BOWMAN**  
Rear Admiral, USN  
Commander  
Naval Doctrine Command  
28 December 1995

*Joseph W. Ralston*  
**JOSEPH W. RALSTON**  
General, USAF  
Commander  
Air Combat Command  
7 February 1996

## COMBAT AIR FORCES AUTHORIZATION

The procedures in this publication are authorized for use throughout the Combat Air Forces as indicated below.

### Pacific Air Forces



**JOHN G. LORBER**  
General, USAF  
Commander

### BRIAN D. MILLER

Colonel, USAF  
Director of Information Management

### US Air Forces Europe



**RICHARD E. HAWLEY**  
General, USAF  
Commander

### MICHAEL L. JONES

Colonel, USAF  
Director of Information Management

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Marine Corps: PCN 1440000500

# PREFACE

## 1. Scope

This unclassified publication is for warfighting personnel at the operational and tactical levels for use during wartime operations. It describes the unexploded submunition hazards to land operations, addresses unexploded ordnance (UXO) planning considerations, and describes the architecture for the reporting and tracking of UXO hazard areas.

## 2. Purpose

The purpose of this publication is to assist commanders operating in UXO rich environments to achieve an optimum balance between force protection and operational efficiency. The staff functions and responsibilities for planning, tracking, reporting, and clearing UXO are identified to assist commanders and units in achieving missions with minimal disturbance and casualties.

## 3. Application

The tactics, techniques, and procedures (TTP) described in this publication apply to all elements of a joint force, from individual service and component through the joint force level. This publication uses approved and emerging joint doctrine and terminology as its foundation. The publication identifies methodologies to use existing service command and control systems to report and track unexploded hazards in joint operations areas (JOAs) from service and joint perspectives.

## 4. Implementation Plan

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## **Army**

**Commander  
US Army Training and Doctrine Command  
ATTN: ATDO-J  
Fort Monroe VA 23651-5000  
DSN 680-3153 COMM (804) 727-3153**

## **Marine Corps**

**Commanding General  
US Marine Corps Combat Development Command  
ATTN: C42  
3300 Russell Road  
Quantico VA 22134-5021  
DSN 278-6234 COMM (703) 784-6234**

## **Navy**

**Naval Doctrine Command  
Code N3  
1540 Gilbert St  
Norfolk VA 23511-2785  
DSN 565-0565 COMM (804) 445-0565  
E-mail Address: [ndcjoint@nctamslant.navy.mil](mailto:ndcjoint@nctamslant.navy.mil)**

## **Air Force**

**HQ Air Combat Command  
ATTN: XPJ  
204 Dodd Boulevard Suite 202  
Langley AFB VA 23665-2778  
DSN 574-2985 COMM (804) 764-2985  
E-mail Address: [accxpj@hqaccxp.langley.af.mil](mailto:accxpj@hqaccxp.langley.af.mil)**

## **ALSA**

**ALSA Center  
ATTN: Director  
114 Andrews Street  
Langley Air Force Base, VA 23665-2785  
DSN 574-5934 COMM (804) 764-5934  
E-mail Address: [alsadirect@alsa.langley.af.mil](mailto:alsadirect@alsa.langley.af.mil)**

c. This publication reflects current joint and service doctrine, command and control organizations, facilities, personnel, responsibilities, and procedures. Changes in service

protocol, appropriately reflected in joint and service publications, will likewise be incorporated in revisions to this document.

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<b>ACCPAM 10-752</b>	Air Combat Command Langley Air Force Base, Virginia
<b>PACAF PAM 10-752</b>	Pacific Air Forces Hickam Air Force Base, Hawaii
<b>USAFEPAM 10-752</b>	US Air Forces in Europe Ramstein Air Base, Germany

**10 July 1996**

**UXO**  
**Multiservice Procedures**  
**for**  
**Operations in an Unexploded Ordnance Environment**

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# **EXECUTIVE SUMMARY**

## **UXO Multiservice Procedures for Operations in an Unexploded Ordnance Environment**

Experience from Operation Desert Storm revealed that a battlefield strewn with unexploded ordnance (UXO) poses a twofold challenge for commanders at all levels: one, to reduce the potential for fratricide from UXO hazards and two, to minimize the impact that UXO may have on the conduct of combat operations. Commanders must consider risks to joint force personnel from all sources of UXO and integrate UXO into operational planning and execution. This tactics, techniques, and procedures (TTP) publication provides methodologies for planning, implementing, and executing procedures to protect forces from unexploded submunitions.

### **Submunition UXO Hazards**

Chapter I defines the hazards and impacts on operations from air and surface delivered submunition ordnance. While the risk appears low to armored and mechanized forces, their personnel in dismounted operations and support elements face a much greater risk when exposed to UXO. Commanders must be aware of the hazards and make an assessment of the risk to their operations if transiting UXO hazard areas.

### **Joint Force Operations**

Chapter II discusses the joint force procedures for reducing UXO casualties and fratricide potential. Staff responsibilities and procedures for joint force planning, reporting, tracking, and disseminating UXO hazard area information are identified. This chapter also includes recommended TTP for units transiting or operating within an UXO hazard area. Properly integrated, these procedures will save lives and reduce the impact of UXO on operations.

### **Service Operations and Procedures**

Chapter III explains the individual service methodologies for planning, reporting, and tracking submunition ordnance. These methodologies include submunition ordnance employment and UXO found on the battlefield. Each of the service systems is discussed and procedures are established to integrate UXO tracking and reporting into planning and operations.

## **PROGRAM PARTICIPANTS**

The following commands and agencies participated in the development of this publication:

### **Joint**

US Atlantic Command, J723, Norfolk Naval Base, VA 23551-2448

Joint Warfighting Center, Fort Monroe, VA 23651-5000

### **Army**

US Army Training and Doctrine Command, ATDO-J, Fort Monroe, VA 23651-5000

US Army Training and Doctrine Command, ATCD-SB, Fort Monroe, VA 23651-5000

US Army Infantry School, ATSH-ATD, Fort Benning, GA 31905-5007

US Army Field Artillery School, ATSF-TW, Fort Sill, OK 73503-5000

US Army Engineer School, ATSE-TD-D, Fort Leonard Wood, MO 65473-5221

US Army Ordnance Center and School, ATSL-CD-CS, Aberdeen Proving Ground, MD 21005-5201

US Army Transportation School, ATSP-TDJ, Fort Eustis, VA 23511-3790

US Army Combined Arms Command and Fort Leavenworth, ATZL-SWW, Fort Leavenworth, KS  
66027-5000

XVIII Abn Corps, AFZA-GT-B, Fort Bragg, NC 28307-5000

4th Squadron, 16th Cavalry Regiment, US Army Armor School, ATSB-SBD-D, Fort Knox, KY  
40121-5211

552 Ordnance Group (EOD), Fort Gilliam, GA 30049-5000

US Army Night Vision and Electronic Sensors Directorate, AMSEL-RD-NV-MN, Fort Belvoir, VA  
22060

US Army Materiel Command, AMCAM-PP, AMSAA, Alexandria, VA 22333-0001

### **Marine Corps**

Marine Corps Combat Development Command, Joint Doctrine Branch (C427), Quantico, VA 22134

### **Navy**

Naval Doctrine Command, N3, Norfolk Naval Base, VA 23511-2785

### **Air Force**

Air Force Doctrine Center, Langley Air Force Base, VA 23665-2792

Headquarters ACC/CEX, Langley Air Force Base, VA 23665-2792

Headquarters ACC/XPJ, Langley Air Force Base, VA 23665-2792

612 CPS/DOXP, Davis Monthan Air Force Base, AZ 85707-4922

USAF-Air Ground Operations School, Hurlburt Field, FL 32544-5000

## Chapter I

# SUBMUNITION UNEXPLODED ORDNANCE (UXO) HAZARDS

### 1. Background

a. Saturation of unexploded submunitions has become a characteristic of the modern battlefield. The potential for fratricide from UXO is increasing. It applies throughout the battlefield (e.g., special operations forces [SOF]) in deep operations, maneuver forces in close operations, and the movement of forces and support operations within the rear area). Commanders must consider risks to soldiers, sailors, airmen, and marines from UXO and integrate UXO into their antifratricide planning. This tactics, techniques, and procedures (TTP) publication provides the methodologies for planning, implementing, and executing procedures to protect forces from unexploded submunitions.

b. United States (US) or allied casualties produced by friendly unexploded submunitions may be classified as fratricide. Locations where unexploded submunitions have been or may be encountered require accurate tracking to assist commanders in reducing the potential for fratricide. Currently no system exists to accurately track unexploded submunitions to facilitate surface movement and maneuver. This publication addresses the impact of UXO on operations at the operational level and below and describes TTP to assist leaders at all levels in reducing the hazards of UXO. This chapter establishes the scope of the UXO problem and focuses on the potential effects of UXO on all surface forces throughout the battlefield (including SOF).

c. Joint Publication 1-02 defines unexploded explosive ordnance as *“explosive ordnance which has been primed, fused, or otherwise prepared for action, and which has been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel*

*or material and remains unexploded either by malfunction or design or for any other cause.”* Although ground forces are concerned with all unexploded ordnance, the greatest potential for fratricide comes from unexploded submunitions. For this reason, the scope of this publication focuses on unexploded submunition hazards. However, if the situation warrants, the tracking process described in later chapters can be used to track all potential UXO hazards. While US weapon system examples are used in this publication, most foreign militaries possess similar systems. Appendices D-E list types and quantities of US and foreign submunitions ordnance. Family of scatterable mines (FASCAM) operations are beyond the scope of this publication.

### 2. Hazards

Both surface and air-delivered ordnance produce unexploded submunitions. Several factors, such as the delivery technique, age of submunition, ambient air temperature, and type of impact medium, influence the reliability of submunitions. The actual hazard area produced depends on the type of ordnance and the density of the UXO.

a. Surface Delivery Systems. The Army and Marine Corps employ a variety of rockets, missiles, and cannon artillery. Each system is capable of delivering improved conventional munitions (ICMs) that contain submunitions. A typical Army heavy division is equipped with 9 Multiple Launched Rocket Systems (MLRSs) and 72 tubes of cannon artillery. Cannon artillery basic load is generally 60-70 percent dual-purpose, improved conventional munition (DPICM), while 100 percent of the MLRS and Army Tactical Missile System (ATACMS) basic loads are submunitions. Thus every MLRS and ATACMS fire mission and over half of the fire missions executed by cannon artillery