FM 3-90.12/MCWP 3-17.1 (FM 90-13)

COMBINED ARMS GAP-CROSSING OPERATIONS

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COMBINED ARMS GAP-CROSSING OPERATIONS

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Preface

This publication applies to the Active Army, the Army National Guard (ARNG)/Army National Guard of the United States (ARNGUS), and the United States Army Reserve (USAR) unless otherwise stated.

The doctrine of gap-crossing operations focuses on the support provided by engineer and other capabilities to the combined arms team that enhances mobility of the force by projecting elements across an obstacle, wet or dry, in support of assured mobility. It is also applicable to joint, interagency, or multinational forces and is specifically written as a dual manual between the United States (U.S.) Army and the U.S. Marine Corps (USMC). Although other branches contribute to gap-crossing operations and are included in the discussions, this manual focuses on the engineer contribution to gap-crossing operations, while acknowledging the significant role of other branches and capabilities. This manual follows the principles and tenets found in Field Manual (FM) 3-90, FM 3-34, and FM 3-34.2 that continues the discussion of mobility and gap-crossing operations. It recognizes the contribution of the entire combined arms team to gap-crossing operations and the multi-Service capabilities that exist to support gap-crossing operations at both the tactical and operational levels. Finally, it addresses the specifics associated with gap crossing in support of combat maneuver and line of communications (LOC) gap crossing, integrating the considerations created by the significant changes to doctrine and force structure that have occurred since FM 90-13 was published in 1998.

This FM is the tactical commander's and engineer staff planner's manual and primary resource for understanding gap-crossing operations. This manual follows the mobility concepts and fundamentals outlined in FM 3-34.2 and is intended for use by commanders and their staff at both the operational and tactical levels. It relates the engineer-focused aspects of gap crossing to the functional area of combined arms mobility operations, incorporating new concepts associated with the expansion of the existing Army task (ART) Conduct Gap-Crossing Operations and the advent of the modular force structure.

FM 3-90.12 provides detailed guidance on integrating gap crossing into mobility operations. As a functional area of mobility operations, it describes the fundamentals and considerations necessary for the proper planning and execution of the two major types of gap-crossing support (combat maneuver and LOCs). This manual discusses the following:

- Chapter 1 defines gap crossing and how it supports mobility operations within the framework of assured mobility.
- Chapter 2 provides an overview of gap-crossing operations by providing the definitions, fundamentals, and considerations necessary to understand the concept of gap crossing.
- Chapter 3 focuses on planning considerations that should be considered during tactical and operational level planning.
- Chapter 4 goes into depth on how gap crossing supports combat maneuver at the division, brigade combat team (BCT), and lower levels.
- Chapter 5 provides an insight on how gap crossing supports the establishment or maintenance of LOCs.
- Chapter 6 provides selected special planning and when conducting gap-crossing operations in special environments and situations.

- Appendix A describes crossing means that are most commonly used by Army and Marine forces.
- Appendix B provides the planner with some considerations to assist in evaluating potential crossing sites for gap-crossing operations.
- Appendix C provides information about specific procedures, conditions, and factors that can impact a gap-crossing operation.
- Appendix D addresses detailed engineer planning necessary for a wet-gap-crossing operation.
- Appendix E discusses the specialized tasks that divers perform in support of wet-gap crossing.
- Appendix F describes the tactics and techniques used by a division or BCT in a retrograde gap-crossing operation that differ from those used in an offensive crossing.
- Appendix G discusses gap-crossing security considerations.
- Appendix H provides descriptions of some common foreign bridging resources.

The primary audience for FM 3-90.12 is the task force (TF) and above maneuver commander and supporting staff. This also includes nonorganic unit commanders and staffs that will support brigade and above maneuver organizations. This doctrine will assist Army branch schools in teaching the integration of engineer capabilities into Army operations as well as the combined arms roles and responsibilities in regards to gap-crossing operations.

Engineer involvement is critical to most gap-crossing operations. The degree of involvement will include all of the essential tasks for mobility, countermobility, and survivability (M/CM/S) performed by engineers and others with focus on mobility operations. FM 3-90.12 is intended to inform all Service components of the types and complexity of gap-crossing operations and the capabilities of Army and Marine engineers to do them. This doctrine applies to all Army, USMC, Navy, and Air Force commanders and staffs (and other Department of Defense [DOD] units and/or staffs and other elements operating under their command authority) responsible for gap-crossing operations in support of combat operations at the tactical and selected operational levels.

FM 3-90.12 is linked to the doctrine articulated in FM 3-0, FM 5-0, FM Interim (FMI) 5-0.1, FM 3-90.6, FM 3-90.2, FM 3-34, and FM 3-34.2. Given the magnitude of recent doctrinal changes and the fact that river crossing operations are now a subordinate operation within gap-crossing operations, it is important to understand the changes occurring in Army doctrine and organization to effectively use FM 3-90.12. The doctrine in FM 3-90.12 applies to all types of operations (offense, defense, stability, and civil support) and is focused at the tactical level of war in support of the tactical commander's mobility needs.

Terms that have joint or Army definitions are identified in both the glossary and the text. Glossary references: The glossary lists most terms used in FM 3-90.12 that have joint or Army definitions. Terms for which FM 3-90.12 is the proponent FM (the authority) are indicated with an asterisk in the glossary. Text references: Definitions for which FM 3-90.12 is the proponent FM are printed in boldface in the text. These terms and their definitions will be incorporated into the next revision of FM 1-02/Marine Corps reference publication (MCRP) 5-12A. For other definitions in the text, the term is italicized, and the number of the proponent FM follows the definition.

The proponent for this publication is the United States Army Training and Doctrine Command (TRADOC). Send comments and recommendations on Department of the Army (DA) Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Commandant, United States Army Engineer School, ATTN: ATZT-TDD-E, 320 MANSCEN Loop, Suite 220, Fort Leonard Wood, Missouri 65473-8929. Submit an electronic DA Form 2028 or comments and recommendations in the DA Form 2028 format by e-mail to <leon.mdottddengdoc@conus.army.mil>.

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

Some common abbreviations and acronyms—for example, the abbreviations for military ranks—are not spelled out; refer to the glossary. As a dual service manual, references made to the U.S. Army, Soldiers, division, and BCT are interchangeable with and/or include the USMC, Marines, and regimental combat team (RCT) unless stated otherwise in the text. References made to mission, enemy, terrain and weather, troops and support available, time available, and civil considerations (METT-TC) is the way the Army uses this acronym by adding "civil considerations." The Marine Corps and joint doctrine use it without "civil considerations."

ACKNOWLEDGMENT

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Introduction

MOBILITY DOCTRINE

Gap-crossing operations are functional areas of combined arms mobility operations and are applied across the spectrum of conflict. Each of the warfighting functions have the potential to contribute to a gap crossing. This manual focuses on the engineer roles and responsibilities for gap-crossing support to tactical commanders at the BCT level and above. It also discusses the general engineering aspects related to the establishment and maintenance of LOCs and other crossing operations. Finally, geospatial engineering is used to enable gap-crossing operations and the other functional areas of mobility. It is an important contributor to the planning process.

FM 3-90.12 also discusses how commanders can best plan and execute gap crossing as a part of all operations with the support of their engineer and other key staff members. The planning of gap crossings is linked to the fundamentals of operations and planning contained in FM 3-0 and FM 5-0. Because gap-crossing operations are focused on support of maneuver forces at the BCT level, the primary combined arms manual for this manual is FM 3-90.6. For the same reason, this manual complements FM 3-34 and FM 3-34.2. Additionally, since many gap crossings involve or require a subsequent general engineering effort, FM 5-104 has applicability.

The degree of a land component force's success can depend on their ability to move freely and quickly across terrain to achieve critical tactical and operational aims. As such, it is imperative that effective and efficient crossing means are available throughout the area of operations (AO). Additionally, in today's operational environment (OE), land forces must coordinate and synchronize their efforts so that they are able to fully support joint, interagency, and multinational forces that may require movement throughout the AO. As dominant land forces, it is incumbent on the Army and Marine Corps to support these diverse forces and agencies with gap-crossing solutions to facilitate the successful conduct of all types of military operations. In the past, various gap-crossing operations were identified in FM 90-13. River crossing is defined as a combined arms operation to project combat power across a terrain feature, wet or dry, that is too wide to overcome by self-bridging. Therefore, by definition it is a type of gap crossing. With transformation and today's OE, the focus of gap crossing is normal maneuver, thus obstacles as significant as river crossings are but one type of gap that must be fully considered. As such, it has become necessary to expand the concepts associated with gap crossing with the emphasis on combined arms maneuver and force movement within the AO.

EMERGING DOCTRINAL REQUIREMENTS

FM 3-90.12 is a significant revision of FM 90-13. While the principles of river crossing have not changed, it is but one of the gap crossings that must be considered to facilitate the movement and maneuver of the force within the AO. Another fundamental change to this manual is the adjustment to current doctrine and the alignment and titling of the ART Conduct Gap-Crossing Operations. This ART has two subordinate ARTs: Conduct Gap Crossing in Support of Combat Maneuver and Conduct Line of Communications Gap-Crossing Support. These tasks essentially divide gap crossings into those that have a tactical focus and directly impact normal combat maneuver, and those that facilitate movement as part of force sustainment or have unique or special considerations in their application. Finally, the Army's reorganization and restructuring to a modular force has impacted both the doctrinal and operational approach to gap-crossing operations.

Changes that directly affect this manual include the following:

- The expansion of the ART of river crossing to include all gap-crossing operations. With that, the addition of the two subordinate ARTs.
- The advent of the construct and term of assured mobility and its relationship to other doctrine (see FM 3-34).
- An acknowledgement of the importance of joint interdependence among the Services.
- The formalization of a planning tool that supports the engineer staff running estimate known as essential tasks for M/CM/S (see FM 3-34).
- The OE and specifically how the contemporary operational environment (COE) can be expected to challenge maneuver (see FM 1 and FM 3-0).
- The likelihood that operations will be conducted in a joint, interagency, and multinational environment with a reliance on joint interdependence (see FM 1 and FM 3-07) to maximize their total complementary and reinforcing effects while minimizing vulnerabilities.
- The frequency of contractors on the battlefield and their support for selected LOC bridging and similar tasks associated with general engineering missions. (See Army Regulation (AR) 715-9, FM 100-10-2 and FM 3-100.21).
- Changes in the design and organizational structures and equipment of engineer organizations to support the Army's ongoing transformation.
- The deletion of the term shallow fording. This term is no longer necessary.

The engineer role in combined arms gap-crossing operations is to facilitate mobility by providing the expertise, equipment, and/or materials necessary to move units across a terrain feature or linear obstacle, wet or dry, in a manner which is unimpeded by the obstacle. The resources that support this task are limited and normally require a significant effort to be effective. Due to the lack of organic gap-crossing equipment in the heavy brigade combat team (HBCT) and the infantry brigade combat team (IBCT) and limited assets in the Stryker brigade combat team (SBCT), the task organization of nonorganic gap-crossing assets is one that requires careful planning and consideration by operational staffs and commanders. Tactical gap-crossing capability should always augment BCTs whenever they are engaged in offensive or defensive operations.

SUMMARY OF CHANGES OR EVOLVING ISSUES

The following material highlights some of the changes or evolving issues that are present in this manual. This manual has attempted to capture the most critical changes highlighted within FMI 5-0.1, FM 3-0 Content Summary, and other ongoing and evolving issues and doctrinal guidance.

NEW TERMS AND CONCEPTS

This manual has captured or attempted to highlight and integrate many of the following terms or concepts that have been (or are being) discussed for addition to Army doctrine:

- Warfighting function.
- Assured mobility.
- Engineer reconnaissance team (ERT).
- Deputy commanding general (DCG) as a replacement for the assistant division commander (ADC).
- Essential tasks for M/CM/S.
- Gap crossing and gap-crossing operations.
- Gap-crossing considerations in special environments or circumstances (such as overbridging).
- Revision of bridging terms and definitions.
- Tactical bridging and support bridging (to include line of communication bridges).
- Standard and nonstandard bridging.
- Spectrum of conflict.

- Stability operations.
- Infrastructure reconnaissance.
- Covert gap crossing (the third type of gap crossing).
- The highlighting of the supporting roles of geospatial engineering.
- New division structure and two tactical command posts (TAC CPs).
- The changing BCT structures.
- The realities of modularity.

Chapter 1
Operations in Support of Gap Crossing

"Throughout history, wars had been lost by not crossing rivers."

General George S. Patton

Freedom of movement and maneuver within the AO is critical to achieve decisive results across the full spectrum of conflict. Mobility operations are designed to facilitate moving forces to achieve a position of advantage in relation to the enemy. One of the major challenges to movement and maneuver are linear obstacles or gaps. These obstacles are natural and man-made, wet or dry, and vary in size. From simply fording a shallow creek to continuing movement, to synchronizing assets and activities at multiple crossing sites across a major water obstacle in an opposed crossing operation, gap-crossing operations can range in complexity from very simple to extremely difficult. The simplest operation may be done by using organic assets, while the most difficult will require extensive augmentation and support from higher-level headquarters (HQ) to resource and for C2 of the operation.

Gap crossings and gap-crossing operations are essential to enable combat and supporting forces to do their mission. They will occur in support of decisive and shaping operations. Because of the importance of these operations, as well as the amount of resources that may have to be committed, gap crossings are often controlled by division/Marine expeditionary force (MEF) or BCT/RCT HQ. Future operations will be characterized by a high degree of mobility, firepower, and situational understanding (SU) resulting in an increase of the operating tempo and the synchronization of battlefield effects. Engineers (and others) must understand the gap-crossing fundamentals of surprise, extensive preparation, flexible plan, traffic control, organization, and speed to properly plan, resource, and facilitate the execution of a successful gap crossing. Simultaneously, they must be able to plan longer term gap-crossing operations and upgrade bridging over gaps through support and LOC bridging to ensure freedom of movement for the supported force. Tactical bridging should primarily serve in close support of combat maneuver forces. It is replaced by support bridging, when necessary, to allow continued support of combat maneuver. Support bridging should be replaced by LOC bridging when that is the proper solution for long-term, gap-crossing support.

CHALLENGE TO MANEUVER

1-1. Maneuver warfare depends on freedom of movement and seeks to capitalize on enemy weaknesses whenever possible. The enemy will use firepower, terrain, and natural and man-made obstacles to deny freedom of maneuver. Friendly forces will first attempt to bypass such obstacles; however, this may not always be an option. Challenges which limit maneuver must be overcome. ***Gap crossing*** **is defined as projecting combat power across a linear obstacle (wet or dry gap).** Combined arms ***gap-crossing operations*** **[is] defined as a mobility operation consisting of river crossing, brigade-level crossing, and special gap-crossing operations conducted to project combat power across a linear obstacle (wet or dry gap)**. These are employed to restore the ability to wage maneuver warfare in spite of the reality of natural and man-made obstacles. Gap crossing, which involves projecting combat power across a linear