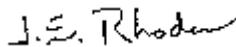


**Department of the Navy**  
**HEADQUARTERS U. S. MARINE CORPS**  
**Washington, DC**

19 Mar 1998

## **A Concept for Antiarmor Operations**

Marines must be capable of operating effectively in any environment, against a wide range of potential adversaries. Traditionally, massed combined arms forces have presented the greatest challenge to the landing force and while the demise of tanks is frequently proclaimed, armored vehicles will remain a credible threat in the future, whether in the hands of conventionally organized military forces or local insurgents who have stolen them from government armories. Marines can expect to encounter hostile armor during the course of future expeditionary operations and must be confident they can defeat it. *A Concept for Antiarmor Operations* serves as the first step in the process of proposal, debate, and experimentation through which the Marine Corps will address future systems that will meet and defeat armored forces in all operational environments. It is intended to promote discussion and to encourage exchange of opinions for the establishment of required operational capabilities. These future developments in antiarmor capabilities, together with improvements in other areas will enable the decisive actions envisioned by *Operational Maneuver from the Sea*.



J.E. RHODES

Lieutenant General, U.S. Marine Corps  
Commanding General

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# **A CONCEPT FOR ANTIARMOR OPERATIONS**

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*Armored Forces in Future Expeditionary Operations*

## **INTRODUCTION**

Given the proliferation of modern weapons systems and their export throughout the world, naval expeditionary forces can expect to confront adversaries equipped with armored vehicles, whether main battle tanks, infantry fighting vehicles, or armored personnel carriers. This concept describes how the Marine air-ground task force (MAGTF) will counter hostile armored forces. It identifies the relevant operational capabilities required by a seabased amphibious force and constitutes the first step in the combat development process that will provide the doctrine, organization, training and education, equipment, and support structure necessary to conduct effective operations in the presence of an armored threat. This antiarmor concept applies to the full range of MAGTF operations envisioned in the Marine Corps capstone warfighting concept *Operational Maneuver from the Sea*.

## **THE BATTLEFIELD**

The end of armor as a dominant force on the battlefield has been proclaimed many times, yet armored vehicles continue to play a major role in traditional armed conflict. For the foreseeable future, adversaries will have access to a wide variety of tanks and armored vehicles. By the year 2015, a number of countries will have armor of a quality roughly equal to today's state-of-the-art equipment. Second tier countries will possess less-capable vehicles that will still serve to intimidate their neighbors and provide local superiority. Overall, more than 100,000 main battle tanks and 200,000 other armored fighting vehicles (AFVs) are expected to be in service worldwide. Some of these may prove exceedingly difficult to destroy. Modern design trends for tanks and AFVs emphasize stealth, jammers, self-screening obscurants, and improved self protection, to include reactive armor and munition countermeasures that defeat

explosive antiarmor systems. Armored vehicle designers are also seeking greater mobility and weapon accuracy, combined with improved “shoot-on-the-move” capabilities.

Hostile armor may appear in any type of conflict. While Marines must be prepared to deal with enemies who possess large inventories of advanced weapons, it is just as likely they will encounter armored systems in the hands of local insurgents or urban rioters during other expeditionary operations in which local government has broken down and lost control of military equipment.

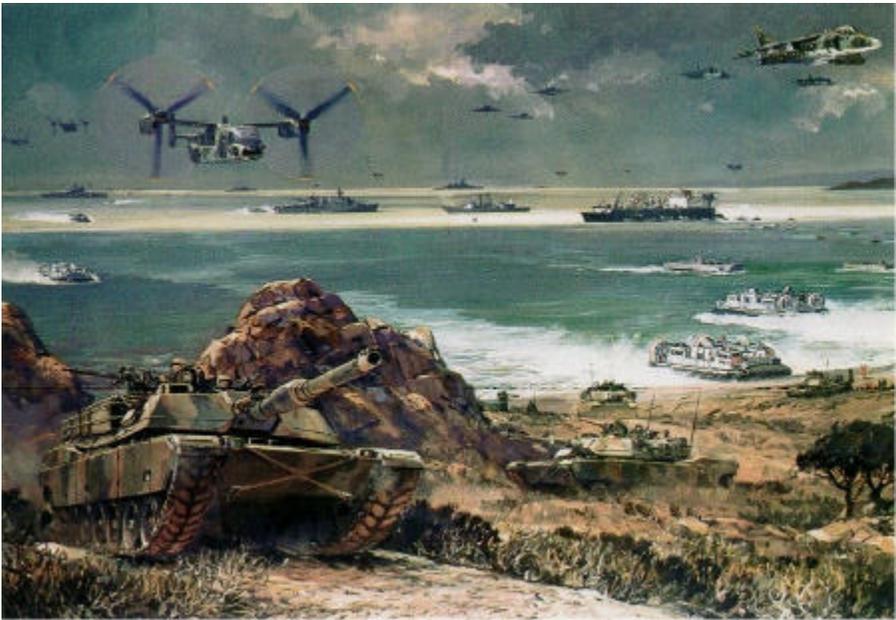


As the world’s population continues to shift to the littorals, more and more conflict will inevitably occur there. Antiarmor operations conducted by the MAGTF will be strongly affected by the peculiarities of terrain in littoral regions, which tends to be broken by natural features such as rivers and river deltas, but even more so by ever-increasing urbanization. Broken terrain minimizes the value of large armored maneuver elements, but does not eliminate armored vehicles as a potential threat. Marines at the squad level are likely to encounter enemy armor in the course of conducting operations in urbanized terrain. Further, the presence of large numbers of noncombatants and many sources of non-military signatures in this environment complicate the antiarmor targeting problem.

## **THE CONCEPT**

The concept for *Ship to Objective Maneuver* describes seamless attacks from the sea directly at assigned objectives ashore. The thrust of this antiarmor concept is a description of how Marines will make enemy ar-

mored forces irrelevant to the execution of these seabased operations. The effort begins at the joint and naval expeditionary force levels with battlespace shaping. Armored forces depend upon rapid movement, surprise, and shock action to achieve success. By employing deception, then attacking the enemy's command and control, logistics, and transportation infrastructure conventionally and through information operations (IO), the MAGTF seeks to make it impossible for him to effectively coordinate the movement of his armored forces or to support such movements logistically. Should the enemy manage to assemble an armored force, the MAGTF will identify it and either destroy it with massed, long-range, surprise fires, "tag" it for later engagement, or immobilize it through use of remotely delivered minefields and/or countermateriel non-lethal weapons.



Although the MAGTF is a combined arms force that includes organic armor, its armored elements will not be the MAGTF's specialized force for antiarmor operations. Marine armor is not a shield against enemy tanks. It is part of the MAGTF combined arms team which focuses on enemy critical vulnerabilities while hostile armored attacks are repulsed or fixed by massed, surprise fires from organic direct and indirect systems supported by the full range of joint, naval surface and aviation fires.

These fires are employed to disrupt and demoralize the enemy, forcing him to displace and making him even more vulnerable to detection and the effects of fires. While we expect to be effective in destroying his personnel and equipment, these attacks are not simply an attempt to eliminate as many vehicles as possible, or wear him down through repeated indirect fire engagements and direct fire duels. Our intent is to selectively target his units, render them combat ineffective and therefore unable to interfere with landing force maneuver. MAGTF combined arms teams will exploit these fires to strike from unexpected quarters at unexpected times, exacerbating the downward spiral in which the enemy commander finds himself.

Despite these efforts, however, some cohesive enemy armor units may either reach the objective area or be in place when the landing force arrives. The appearance of enemy armor, whether by surprise or otherwise, will be handled “in stride” without employing specialized counter-mechanized attack plans. No specialized antiarmor organization will be created. All MAGTF ground elements will carry numerous organic multipurpose weapons capable of destroying or incapacitating the most advanced-technology enemy armored vehicles.



This is particularly important to dismounted elements of the landing force which may be acting as part of a coordinated attack or simply unable to outmaneuver approaching armor. Their success will depend on intelligent use of the terrain and employment of effective organic weapons. Long range direct fire engagements are not necessarily the best, as they reveal friendly positions and draw indirect and direct fires. The enemy may also move in short dashes, presenting narrow engagement windows that require that his armor be allowed to move closer to ensure a hit. As was stressed by participants in the great armor battles of World War II, “the best field of fire is not the longest, but the most cunning.” Moreover, the element of surprise is still an advantage to be sought. In other words, a battle in depth on ground favorable to the landing force may be more effective than a long range, direct fire duel that strives to wear down the oncoming enemy in a succession of attacks.

Marines are most likely to encounter enemy armor in close, broken, or urbanized terrain. The landing force might seek complex terrain because of the advantages it provides to dismounted infantry. Similarly, the enemy will use it to complicate the joint force’s targeting efforts and to seek protection from our fires through proximity to noncombatants. While presenting only short range engagement opportunities, close terrain also detracts from armor’s ability to maneuver and exploit its stand-off, direct fire capability. Although these shorter engagement ranges will generally be to the advantage of dismounted forces, they demand that organic antiarmor weapons be widely distributed among the force -- to both combat and combat service support personnel -- so as to be available at any threatened point.

Complex terrain presents unique challenges and opportunities. Armor will be much more difficult to locate. Man-made structures provide concealment from human observation and reduce signatures visible to other sensors. Moreover, the urban environment is particularly “dirty,” with fires from broken gas mains or downed electric power lines, reflectors such as glass



and metal, and numerous non-military devices which produce thermal, magnetic, and electromagnetic signatures. Marines at the small unit level will benefit from very small sensors that can be maneuvered down streets to look around corners and into buildings to provide real time information to the tactical commander. Hostile armored vehicles will be sought out so that they can be isolated and fixed in place. The maneuver force may then either reduce or bypass them. An immobilized armored vehicle presents little threat, except to its own crew.



While prepared for conventional warfare, other expeditionary operations in the developing world will be a common mission for future MAGTFs. In these operations, Marines must expect hostile action by some segments of the local society who have gained access to armored vehicles. In such instances, organ-

ized armor units are not likely to be the threat. There will be relatively few armored vehicles involved, and the quality of equipment and training will likely be inferior to ours. To minimize possible escalation of violence and counterproductive injuries to noncombatants, non-lethal weapons may be the best counter to hostile armored vehicles. Weapons that have the capability to inhibit engine combustion, cause metal failure, electronic malfunction, crew incapacitation, or degrade trafficability will serve to render armor ineffective without employing explosive or kinetic energy munitions. When circumstances limit indirect fire and the employment of non-lethals, antiarmor operations will default to the individual Marine, who must possess an accurate, lethal, easy to carry, simple to operate, antiarmor weapon. These weapons must be readily available in all units and at all times.

Under some circumstances, the landing force's own armor may be the best counter to hostile armored vehicles. The destructive power and state-of-the-art survivability of future expeditionary armored vehicles will make them an intimidating presence that may defuse a situation

without violence. Very sensitive target acquisition devices combined with highly accurate, scaleable weapons and fire control systems will provide the MAGTF commander a very discrete targeting capability that will defeat armored vehicles with minimal collateral damage. Over-watching infantrymen as they patrol, serving as visible back-up during confrontations or negotiations, or as a protected direct fire platform, such vehicles will directly support dismounted Marines and have a significant impact on the conduct of antiarmor operations in support of other expeditionary operations.

## **REQUIRED CAPABILITIES**

**Command and Control.** Armored forces exploit rapid movement, surprise, and mass to achieve success. The MAGTF's command and control system will exploit access to sophisticated reconnaissance, surveillance, and target acquisition capabilities able to find armored formations, detect their activities, and track their movements. This tiered layer of space, airborne, and ground based sensors will possess all-weather, multispectral capabilities that are linked through robust communications networks to all elements of the joint force. Provided near real-time situational awareness across the width and depth of the battlespace, the MAGTF commander will assess the armor threat to accomplishment of his mission and act accordingly.

Even at the small unit level, leaders will have organic reconnaissance capabilities, such as those provided by locally controlled unmanned aerial and ground vehicles. The command and control system will also embed decision aids that provide realistic engagement options which take into account the commander's intent, friendly dispositions, and logistical factors. To maintain tempo and avoid wasting munitions, the system must be capable of detecting electronic or mechanical decoys and of making timely and accurate battle damage assessments.

**Fires.** Naval expeditionary forces will require a variety of multipurpose weapons systems. Seabased weapons, operating from over the horizon or inshore as the situation permits, will shape the battlefield and provide protection to the landing force during ship to objective maneuver. Naval surface and aviation elements will also assist in the close battle with pre-

cision munitions that are capable of destroying or incapacitating armored targets while minimizing collateral damage and threats to friendly forces.

Precision munitions optimized for antiarmor engagements will employ self-contained seekers capable of identifying armored targets and will deploy multiple submunitions. Each submunition will function as an independently targeted antiarmor attack system, providing a capability for multiple engagements from a single ordnance delivery. Cost-effectiveness is a critical consideration in the design of precision antiarmor munitions. These systems must possess the technological sophistication to successfully engage enemy armor at a cost which does not reduce their availability.

When friendly ground forces encounter organized combined arms forces in open terrain, enemy armored systems must be separated from their supporting infantry. Thus, the requirement exists for not only precision, lethal and non-lethal antiarmor fires, but also for accurate, high-volume suppressive fires.

Ground-based indirect-fire systems must possess sufficient responsiveness, mobility, accuracy, sustainability and lethality against armored targets to provide an all-weather, long-range capability during periods when naval surface and aviation fires are unavailable.

A family of organic direct fire weapons will provide accurate, lethal antiarmor fires while being effective against other targets -- perhaps through selectable or scaleable warheads. Individual weapons will be easily handled by a single Marine, simple to operate, soft launch capable, and available throughout the force in large numbers. These weapons should be able to either defeat frontal armor or reliably achieve firepower or mobility kills.

The same basic munitions will be used by both ground and aviation antiarmor systems. Fuzing options will be available for the attack of field and urban fortifications, rotary wing aircraft, UAVs, and area/soft targets. The dismounted launcher will enable Marines to "fire and forget" from defilade positions. Ideally, ground units will deploy with weapons that are capable of target engagement beyond line of sight and that pos-

sess a limited overhead loiter capability. Equipping the MAGTF with a variety of weapons and technologies will provide flexibility and limit its vulnerability to countermeasures.

**Barrier Systems.** All landing force elements will possess or otherwise have access to the capability to create effective antiarmor obstacles, including remotely deliverable minefields and non-lethal countermateriel weapons. Remotely delivered antitank minefields should be employable by airborne, sea-, and ground-based fire support systems. Such minefields should be temporary, recoverable or self-destructing either on schedule or by signal when no longer needed.

Because maneuver forces have limited carrying capacity, recoverable antitank mine dispensing systems should be developed for them, as well. Deployed in easily transportable containers, such a system could be remotely activated to dispense mines in the event that an armored threat appears, then be rendered safe and recovered for reuse as the situation requires.

**Training and Education.** Every Marine will be trained to identify and defeat enemy armored vehicles. This training must go beyond classroom and technical instruction. Because much of the danger posed by armor is psychological, Marines must receive realistic field training that familiarizes them with antiarmor combat and gives them confidence in their ability to defeat enemy armor by both lethal and non-lethal means.



## SUMMARY

The concept for *Antiarmor Operations* recognizes that future adversaries will maintain armored vehicles for use against their neighbors and, possibly, U. S. military forces. In some cases, these systems will have fallen into the hands of rogue organizations before Marines arrive on scene. Regardless of who is employing them against us, the purpose of this paper is to describe how Marines will render armored vehicles irrelevant to their seabased operations.

The MAGTF will seldom operate alone and always seek to exploit the capabilities inherent in joint and naval forces, be they seabased or space based. In some instances, however, the needs of a large joint campaign, requirement to conduct an independent operation, or chaotic nature of the battlefield Marines find themselves on will marginalize employment of those assets found outside the naval expeditionary force. Those Marines will need tools ranging from information warfare to effective weapons at the small unit level to defeat any existant armor threat and accomplish the mission.

It starts with the MAGTF commander, who will use enhanced situational awareness and information operations to deceive, confuse, and immobi-

lize enemy defenders. He will exploit a command and control system that provides an accurate and current tactical picture which, when integrated with the full range of seabased fires, renders enemy armored forces unable to move, sustain themselves, or effectively threaten friendly maneuver. Focusing on operational objectives, landing force maneuver elements will exploit this capability to avoid direct confrontation, bypass enemy “surfaces” and attack his “gaps” to eliminate his combat effectiveness. When maneuver elements *do* engage in close combat with opposing armored systems, they will maximize the use of terrain to repulse the enemy or fix him in place for coordinated attack by other elements of the landing force. Individual Marines will participate in this coordinated effort with organic direct fire weapons that are accurate, lethal, easily handled and available in large numbers across the MAGTF.

Traditionally, massed combined arms forces in relatively open terrain have presented a significant challenge to the landing force. However, in the future, Marines will frequently conduct expeditionary operations in the complex terrain which characterizes the urban littoral. In this “three-block war” which sees Marines simultaneously involved in humanitarian assistance, peacekeeping, and close combat, engagement ranges will be short. This environment will present unique challenges in locating, identifying, and engaging armored vehicles. The presence of noncombatants will require alternative approaches, such as increased reliance on non-lethal weapons. Armored vehicles remain a credible threat which Marines must expect to encounter during the course of future expeditionary operations. Possessing the capabilities described herein, they will meet and defeat these forces in “ev’ry clime and place.”